AIRPLANE MAINTENANCE MANUAL DA 50 C

DA 50 C AMM

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List of Incorporated AMM Changes - Change record	DA50-A-00-40-01-01A-00TA-D	29-08-2025
Airplane Maintenance Manual - Description	DA50-A-00-40-02-00A-040A-D	18-02-2022
Manual Configuration - Description	DA50-A-00-40-02-02A-040A-D	27-06-2024
Warnings, Cautions and Notes - Description	DA50-A-00-40-02-01A-040A-D	18-02-2022
Organization and Handling of the Manual - Description	DA50-A-00-40-02-03A-040A-D	27-06-2024
Abbreviations - Description	DA50-A-00-40-02-04A-040A-D	14-11-2022
Conversion Factors - Description	DA50-A-06-00-01-00A-040A-D	26-08-2020
Torque Conversion Factors - Description	DA50-A-06-00-01-02A-040A-D	18-02-2022
General Description of the Airplane - Description	DA50-A-03-00-00-00A-040A-D	30-09-2024
Equipment Data - Description	DA50-A-03-00-01-00A-040A-D	29-08-2025
Handling of Identification Data - Description	DA50-A-03-00-03-00A-040A-D	18-02-2022
Approval - Description	DA50-A-04-00-00-01A-040A-D	21-11-2022
Airworthiness Limitations - Description	DA50-A-04-00-00-00A-040A-D	06-05-2021
Certification Maintenance Requirements - Description	DA50-A-04-00-00-02A-040A-D	06-05-2021
Replacement Requirements - Description	DA50-A-04-00-00-03A-040A-D	06-05-2021
Time Limits and Maintenance Checks - Description	DA50-A-05-00-00-00A-040A-D	18-11-2021
Referenced Maintenance Data - Description	DA50-A-05-00-00-01A-040A-D	29-08-2025
Time limit - general information - Description	DA50-A-05-10-00-00A-040A-D	06-05-2021
Scheduled Maintenance Time Limits - Description	DA50-A-05-10-00-01A-040A-D	30-06-2022
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Scheduled maintenance checks - Description	DA50-A-05-20-00-00A-040A-D	18-05-2022
Flight Line Checks - Description	DA50-A-05-20-01-00A-040A-D	06-05-2021
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Drain Holes Inspection - Description	DA50-A-05-20-02-00A-040A-D	27-06-2024
Maintenance Report - Description	DA50-A-05-40-01-00A-040A-D	18-11-2021
Engine Ground Test Record - Description	DA50-A-05-40-02-00A-040A-D	06-05-2021
Check Flight Report - Description	DA50-A-05-40-03-00A-040A-D	18-11-2021
Major Structural Inspection Check Finding Report - Description	DA50-A-05-40-04-00A-040A-D	30-09-2024
DA 50 Engine Scheduled Maintenance Checklists - Description	DA50-A-05-41-00-00A-040A-D	26-08-2020
Scheduled Maintenance Checklist Preparation - Description	DA50-A-05-41-00-01A-040A-D	06-05-2021
Engine Ground Test - Description	DA50-A-05-41-01-00A-040A-D	18-05-2022
Maintenance Checklist Engine - Description	DA50-A-05-41-02-00A-040A-D	29-08-2025
Propellers - Description	DA50-A-05-41-03-00A-040A-D	29-08-2025

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Airframe Scheduled Maintenance Checklists - Description	DA50-A-05-42-00-00A-040A-D	06-05-2021
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Nose Landing Gear - Description	DA50-A-05-42-01-01A-040A-D	30-09-2024
Main Landing Gear - Description	DA50-A-05-42-01-02A-040A-D	30-06-2022
Wheels - Description	DA50-A-05-42-01-03A-040A-D	29-08-2025
Cabin General - Description	DA50-A-05-42-02-00A-040A-D	14-07-2023
Windscreen, Doors and Windows - Description	DA50-A-05-42-02-01A-040A-D	30-06-2022
Cabin Structure - Description	DA50-A-05-42-02-02A-040A-D	26-08-2020
Instrument Panel and Electrical System in Cabin - Description	DA50-A-05-42-02-03A-040A-D	30-06-2022
Flight Control System in Cabin - Description	DA50-A-05-42-02-04A-040A-D	12-02-2025
Other Cockpit Controls - Description	DA50-A-05-42-02-05A-040A-D	29-08-2025
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Gear Up Landing Check - Unscheduled inspection	DA50-A-05-50-00-02A-282A-D	06-05-2021

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High Oil Consumption - Unscheduled inspection	DA50-A-05-50-00-07A-282A-D	26-08-2020
Oil Pressure Loss - Unscheduled inspection	DA50-A-05-50-00-08A-282A-D	26-08-2020
Failed Start - Unscheduled inspection	DA50-A-05-50-00-09A-282A-D	26-08-2020
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Fuel - Contamination analysis	DA50-A-12-10-00-01A-377A-D	18-02-2022
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Gearbox Oil - Fill with oil	DA50-A-12-10-00-03A-212A-D	06-05-2021
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Brake System - Fill	DA50-A-12-10-00-05A-210A-D	29-08-2025
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Shut-Off Control Cable - Install procedure	DA50-A-21-20-04-01A-720A-D	18-02-2022
Air Distributor Valve - Remove procedure	DA50-A-21-20-05-00A-520A-D	14-06-2022
Air Distributor Valve - Install procedure	DA50-A-21-20-05-00A-720A-D	19-12-2023
Distributor Inner Control Cable - Remove procedure	DA50-A-21-20-05-01A-520A-D	14-06-2022
Distributor Inner Control Cable - Install procedure	DA50-A-21-20-05-01A-720A-D	06-05-2021
Air Recirculation Valve - Operation Test	DA50-A-21-20-02-00A-320A-D	19-12-2023
Fan - Operation Test	DA50-A-21-20-03-00A-320A-D	14-06-2022
Shut-Off Valve - Operation Test	DA50-A-21-20-04-00A-320A-D	14-06-2022
Air Distributor Valve - Operation Test	DA50-A-21-20-05-00A-320A-D	14-06-2022
Heating - Description	DA50-A-21-40-01-00A-040A-D	06-05-2021
Heating - General fault isolation procedure	DA50-A-21-40-01-00A-420A-D	06-05-2021
Heat Exchanger Assembly - Remove procedure	DA50-A-21-40-02-00A-520A-D	29-08-2025
Heat Exchanger Assembly - Install procedure	DA50-A-21-40-02-00A-720A-D	19-12-2023
Airconditioning System (RACC System) - Description	DA50-A-21-50-00-00A-040A-D	18-05-2022
Airconditioning System (RACC System) - General fault isolation procedure	DA50-A-21-50-00-00A-420A-D	27-06-2024
Airconditioning System (RACC System) - System Test	DA50-A-21-50-00-00A-345A-D	18-05-2022
RACC Central Unit - Remove procedure	DA50-A-21-50-00-01A-520A-D	18-05-2022
RACC Central Unit - Install procedure	DA50-A-21-50-00-01A-720A-D	18-05-2022
RACC Control Panel - Remove procedure	DA50-A-21-50-00-02A-520A-D	18-05-2022
RACC Control Panel - Install procedure	DA50-A-21-50-00-02A-720A-D	18-05-2022
Refrigerant Circuit - Description	DA50-A-21-50-01-00A-040A-D	18-05-2022
Refrigerant Circuit - Drain other liquid	DA50-A-21-50-01-00A-228A-D	18-05-2022
Refrigerant Circuit - Fill	DA50-A-21-50-01-00A-210A-D	12-02-2025
Refrigerant Circuit - Leak check	DA50-A-21-50-01-00A-364A-D	18-05-2022
Compressor - Remove procedure	DA50-A-21-50-01-01A-520A-D	18-05-2022
Compressor - Install procedure	DA50-A-21-50-01-01A-720A-D	18-05-2022
Receiver/Dryer Assembly - Remove procedure	DA50-A-21-50-01-02A-520A-D	18-05-2022
Receiver/Dryer Assembly - Install procedure	DA50-A-21-50-01-02A-720A-D	18-05-2022
Air Filters - Remove procedure	DA50-A-21-50-00-03A-520A-D	18-05-2022
Air Filters - Install procedure	DA50-A-21-50-00-03A-720A-D	18-05-2022
Temperature control - Description	DA50-A-21-60-00-00A-040A-D	06-05-2021
Temperature control - General fault isolation procedure	DA50-A-21-60-00-00A-420A-D	06-05-2021
Temperature Mixing Valve - Remove procedure	DA50-A-21-60-01-00A-520A-D	19-12-2023

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Temperature Mixing Valve - Install procedure	DA50-A-21-60-01-00A-720A-D	06-05-2021
Temperature Mixing Inner Control Cable - Remove procedure	DA50-A-21-60-01-01A-520A-D	14-06-2022
Temperature Mixing Inner Control Cable - Install procedure	DA50-A-21-60-01-01A-720A-D	18-02-2022
Temperature Mixing Valve - Operation Test	DA50-A-21-60-01-00A-320A-D	14-06-2022
Auto flight - Description	DA50-A-22-00-00-00A-040A-D	06-05-2021
Autopilot - Description	DA50-A-22-10-00-00A-040A-D	18-02-2022
Autopilot - Test and inspection	DA50-A-22-10-00-00A-322A-D	06-05-2021
Autopilot - Design data/tolerances check	DA50-A-22-10-00-00A-360A-D	18-02-2022
Autopilot - Adjust, align and calibrate	DA50-A-22-10-00-00A-270A-D	18-02-2022
Autopilot - System Test	DA50-A-22-10-00-00A-345A-D	19-12-2023
Roll Servo - Remove procedure	DA50-A-22-10-00-01A-520A-D	18-02-2022
Roll Servo - Install procedure	DA50-A-22-10-00-01A-720A-D	18-02-2022
Roll Servo Clutch - Remove procedure	DA50-A-22-10-00-02A-520A-D	18-02-2022
Roll Servo Clutch - Install procedure	DA50-A-22-10-00-02A-720A-D	18-02-2022
Pitch Servo - Remove procedure	DA50-A-22-10-00-03A-520A-D	18-02-2022
Pitch Servo - Install procedure	DA50-A-22-10-00-03A-720A-D	18-02-2022
Pitch Servo Clutch - Remove procedure	DA50-A-22-10-00-04A-520A-D	18-02-2022
Pitch Servo Clutch - Install procedure	DA50-A-22-10-00-04A-720A-D	19-12-2023
Pitch Trim Servo - Remove procedure	DA50-A-22-10-00-05A-520A-D	18-02-2022
Pitch Trim Servo - Install procedure	DA50-A-22-10-00-05A-720A-D	18-02-2022
Pitch Trim Servo Clutch - Remove procedure	DA50-A-22-10-00-06A-520A-D	18-02-2022
Pitch Trim Servo Clutch - Install procedure	DA50-A-22-10-00-06A-720A-D	18-02-2022
Yaw Servo - Remove procedure	DA50-A-22-10-00-07A-520A-D	09-09-2021
Yaw Servo - Install procedure	DA50-A-22-10-00-07A-720A-D	18-02-2022
Yaw Servo Clutch - Remove procedure	DA50-A-22-10-00-08A-520A-D	18-02-2022
Yaw Servo Clutch - Install procedure	DA50-A-22-10-00-08A-720A-D	09-09-2021
Communications - Description	DA50-A-23-00-00-00A-040A-D	06-05-2021
Speech communication - Description	DA50-A-23-10-00-00A-040A-D	18-02-2022
Speech communication - General fault isolation procedure	DA50-A-23-10-00-00A-420A-D	06-05-2021
COM VHF Antenna - Remove procedure	DA50-A-23-10-00-01A-520A-D	18-02-2022
COM VHF Antenna - Install procedure	DA50-A-23-10-00-01A-720A-D	18-02-2022
PTT Switch - Remove procedure	DA50-A-23-10-00-02A-520A-D	06-05-2021
PTT Switch - Install procedure	DA50-A-23-10-00-02A-720A-D	06-05-2021
Satellite Transceiver System - Description	DA50-A-23-15-00-00A-040A-D	18-02-2022
Satellite Transceiver System - General fault isolation procedure	DA50-A-23-15-00-00A-420A-D	06-05-2021
Satellite Transceiver System - Operation Test	DA50-A-23-15-00-00A-320A-D	06-05-2021

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GSR56 Satellite Transceiver - Remove procedure	DA50-A-23-15-00-01A-520A-D	18-02-2022
GSR56 Satellite Transceiver - Install procedure	DA50-A-23-15-00-01A-720A-D	06-05-2021
Iridium Antenna - Remove procedure	DA50-A-23-15-00-02A-520A-D	18-02-2022
Iridium Antenna - Install procedure	DA50-A-23-15-00-02A-720A-D	18-02-2022
GDL 69A Datalink System - Description	DA50-A-23-15-01-00A-040A-D	19-12-2023
GDL 69A Datalink Receiver - Remove procedure	DA50-A-23-15-01-01A-520A-D	19-12-2023
GDL 69A Datalink Receiver - Install procedure	DA50-A-23-15-01-01A-720A-D	19-12-2023
Audio Integration - Description	DA50-A-23-50-00-00A-040A-D	06-05-2021
Audio Integration - General fault isolation procedure	DA50-A-23-50-00-00A-420A-D	06-05-2021
GMA 1360 Audio Control Panel - Remove procedure	DA50-A-23-50-00-01A-520A-D	06-05-2021
GMA 1360 Audio Control Panel - Install procedure	DA50-A-23-50-00-01A-720A-D	18-02-2022
Static Discharge - Description	DA50-A-23-60-00-00A-040A-D	06-05-2021
Static Discharge Wick - Remove procedure	DA50-A-23-60-00-01A-520A-D	18-02-2022
Static Discharge Wick - Install procedure	DA50-A-23-60-00-01A-720A-D	18-02-2022
Electrical System - Description	DA50-A-24-00-00-00A-040A-D	18-05-2022
Electrical System Description and Operation - Description	DA50-A-24-00-00-01A-040A-D	18-02-2022
Power Supply Control - Description	DA50-A-24-00-00-02A-040A-D	18-02-2022
DC Generation - Description	DA50-A-24-30-00-00A-040A-D	18-02-2022
DC Generation - General fault isolation procedure	DA50-A-24-30-00-00A-420A-D	06-05-2021
Relay in Relay Box - Remove procedure	DA50-A-24-30-00-01A-520A-D	18-02-2022
Relay in Relay Box - Install procedure	DA50-A-24-30-00-01A-720A-D	18-02-2022
Excitation Batteries - Remove procedure	DA50-A-24-30-00-02A-520A-D	18-02-2022
Excitation Batteries - Install procedure	DA50-A-24-30-00-02A-720A-D	27-06-2024
Battery Systems - Description	DA50-A-24-31-00-00A-040A-D	18-02-2022
Battery Systems - General fault isolation procedure	DA50-A-24-31-00-00A-420A-D	06-05-2021
Main Battery - Remove procedure	DA50-A-24-31-00-01A-520A-D	18-02-2022
Main Battery - Install procedure	DA50-A-24-31-00-01A-720A-D	18-02-2022
Main Battery - Disconnect procedure	DA50-A-24-31-00-01A-510A-D	18-02-2022
Main Battery - Connect procedure	DA50-A-24-31-00-01A-730A-D	18-02-2022
Battery Relay - Remove procedure	DA50-A-24-31-00-02A-520A-D	06-05-2021
Battery Relay - Install procedure	DA50-A-24-31-00-02A-720A-D	06-05-2021
Starter Relay - Operation Test	DA50-A-24-31-00-03A-320A-D	18-02-2022
External Power - Description	DA50-A-24-40-00-00A-040A-D	18-02-2022
External Power - General fault isolation procedure	DA50-A-24-40-00-00A-420A-D	06-05-2021
External Power Relay - Remove procedure	DA50-A-24-40-00-01A-520A-D	06-05-2021
External Power Relay - Install procedure	DA50-A-24-40-00-01A-720A-D	06-05-2021
DC Electrical Load Distribution - Description	DA50-A-24-60-00-00A-040A-D	19-12-2023

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DC Electrical Load Distribution - General fault isolation procedure	DA50-A-24-60-00-00A-420A-D	06-05-2021
Avionics Master Relay - Remove procedure	DA50-A-24-60-00-01A-520A-D	18-02-2022
Avionics Master Relay - Install procedure	DA50-A-24-60-00-01A-720A-D	18-02-2022
Circuit Breaker - Remove procedure	DA50-A-24-60-00-02A-520A-D	18-02-2022
Circuit Breaker - Install procedure	DA50-A-24-60-00-02A-720A-D	18-02-2022
Clip Secured Instrument Panel Switch - Remove procedure	DA50-A-24-60-00-03A-520A-D	18-02-2022
Clip Secured Instrument Panel Switch - Install procedure	DA50-A-24-60-00-03A-720A-D	18-02-2022
Nut Secured Instrument Panel Switch - Remove procedure	DA50-A-24-60-00-04A-520A-D	06-05-2021
Nut Secured Instrument Panel Switch - Install procedure	DA50-A-24-60-00-04A-720A-D	18-02-2022
Equipment/furnishings - Description	DA50-A-25-00-00-00A-040A-D	18-05-2022
Flight compartment - Description	DA50-A-25-10-00-00A-040A-D	14-07-2023
Pilots Seat - Description	DA50-A-25-10-00-02A-040A-D	18-02-2022
Passenger Seat - Description	DA50-A-25-10-00-03A-040A-D	14-07-2023
Pilots Seat - Remove procedure	DA50-A-25-10-00-02A-520A-D	18-02-2022
Pilots Seat - Install procedure	DA50-A-25-10-00-02A-720A-D	12-02-2025
Adjustable Backrest Mechanism Assembly - Operation Test	DA50-A-25-10-00-08A-320A-D	18-02-2022
Adjustable Backrest Mechanism Assembly - Visual examination	DA50-A-25-10-00-08A-310A-D	18-02-2022
Adjustable Backrest Assembly - Remove procedure	DA50-A-25-10-00-09A-520A-D	18-02-2022
Adjustable Backrest Mechanism Assembly - Disassemble procedure	DA50-A-25-10-00-08A-530A-D	18-02-2022
Adjustable Backrest Mechanism Assembly - Assemble procedure	DA50-A-25-10-00-08A-710A-D	18-02-2022
Adjustable Backrest Assembly - Install procedure	DA50-A-25-10-00-09A-720A-D	06-05-2021
Pilots Seat Access Panel - Remove procedure	DA50-A-25-10-00-07A-520A-D	06-05-2021
Pilots Seat Access Panel - Install procedure	DA50-A-25-10-00-07A-720A-D	06-05-2021
Passenger Seat - Remove procedure	DA50-A-25-10-00-03A-520A-D	06-05-2021
Passenger Seat - Install procedure	DA50-A-25-10-00-03A-720A-D	12-02-2025
Safety Harness - Remove procedure	DA50-A-25-10-00-04A-520A-D	06-05-2021
Safety Harness - Install procedure	DA50-A-25-10-00-04A-720A-D	12-02-2025
Instrument Panel Cover - Remove procedure	DA50-A-25-10-00-05A-520A-D	06-05-2021
Instrument Panel Cover - Install procedure	DA50-A-25-10-00-05A-720A-D	06-05-2021
Center Armrest - Remove procedure	DA50-A-25-10-00-06A-520A-D	06-05-2021
Center Armrest - Install procedure	DA50-A-25-10-00-06A-720A-D	06-05-2021
Flight compartment - Clean and apply surface protection	DA50-A-25-10-00-00A-250A-D	06-05-2021
Baggage Compartment - Description	DA50-A-25-50-00-00A-040A-D	18-05-2022

Document title	Data Module Code	Issue date
Baggage Compartment - Remove procedure	DA50-A-25-50-00-00A-520A-D	06-05-2021
Baggage Compartment - Install procedure	DA50-A-25-50-00-00A-720A-D	06-05-2021
Emergency Equipment - Description	DA50-A-25-60-00-00A-040A-D	18-02-2022
Emergency Location Transmitter - Description	DA50-A-25-60-01-00A-040A-D	18-05-2022
Emergency Location Transmitter - General fault isolation procedure	DA50-A-25-60-01-00A-420A-D	06-05-2021
Kannad AF Integra ELT - Remove procedure	DA50-A-25-60-01-01A-520A-D	06-05-2021
Kannad AF Integra ELT - Install procedure	DA50-A-25-60-01-01A-720A-D	18-02-2022
ELT Remote Control Panel/Indicator RCPI - Remove procedure	DA50-A-25-60-01-02A-520A-D	18-05-2022
ELT Remote Control Panel/Indicator RCPI - Install procedure	DA50-A-25-60-01-02A-720A-D	06-05-2021
Kannad AF Integra ELT - Operation Test	DA50-A-25-60-01-01A-320A-D	18-02-2022
Fire protection - Description	DA50-A-26-00-00-00A-040A-D	14-07-2023
Fire Extinguisher - Description	DA50-A-26-20-00-00A-040A-D	14-07-2023
Fire Extinguisher Amerex 337TS - Change = Remove and install	DA50-A-26-20-00-01A-920A-D	14-07-2023
Flight Controls - Description	DA50-A-27-00-00-00A-040A-D	18-05-2022
Push-Rod - Adjust, align and calibrate	DA50-A-27-00-00-01A-270A-D	12-02-2025
Levers - Remove procedure	DA50-A-27-00-00-02A-520A-D	06-05-2021
Levers - Install procedure	DA50-A-27-00-00-02A-720A-D	12-02-2025
Hinge - Design data/tolerances check	DA50-A-27-00-00-03A-360A-D	06-05-2021
RH Control Stick - Description	DA50-A-27-00-00-04A-040A-D	18-02-2022
Aileron Control System - Description	DA50-A-27-10-00-00A-040A-D	18-02-2022
Aileron Control System - Description of function	DA50-A-27-10-00-00A-042A-D	06-05-2021
Aileron Control System - General fault isolation procedure	DA50-A-27-10-00-00A-420A-D	06-05-2021
Aileron Control System - Design data/tolerances check	DA50-A-27-10-00-00A-360A-D	18-02-2022
Aileron Control System - Adjust, align and calibrate	DA50-A-27-10-00-00A-270A-D	27-06-2024
Rudder Control System - Description	DA50-A-27-20-00-00A-040A-D	19-12-2023
Rudder Control System - Description of function	DA50-A-27-20-00-00A-042A-D	06-05-2021
Rudder Control System - General fault isolation procedure	DA50-A-27-20-00-00A-420A-D	06-05-2021
Rudder Control Cables (Front) - Remove procedure	DA50-A-27-20-00-01A-520A-D	19-12-2023
Rudder Control Cables (Front) - Install procedure	DA50-A-27-20-00-01A-720A-D	12-02-2025
Rudder Control System - Design data/tolerances check	DA50-A-27-20-00-00A-360A-D	06-05-2021
Rudder Control System - Adjust, align and calibrate	DA50-A-27-20-00-00A-270A-D	06-05-2021
Rudder Trim-Tab Control System - Description	DA50-A-27-20-01-00A-040A-D	06-05-2021
Rudder Trim-Tab Control System - Description of function	DA50-A-27-20-01-00A-042A-D	18-02-2022
Rudder Trim-Tab Control System - General fault isolation procedure	DA50-A-27-20-01-00A-420A-D	06-05-2021

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Elevator Control System - Description	DA50-A-27-30-00-00A-040A-D	18-02-2022
Elevator Control System - General fault isolation procedure	DA50-A-27-30-00-00A-420A-D	06-05-2021
Elevator Control System - Design data/tolerances check	DA50-A-27-30-00-00A-360A-D	18-02-2022
Elevator Control System - Adjust, align and calibrate	DA50-A-27-30-00-00A-270A-D	18-02-2022
Elevator Trim - Mechanical - Description	DA50-A-27-30-01-00A-040A-D	24-08-2022
Elevator Trim - Mechanical - General fault isolation procedure	DA50-A-27-30-01-00A-420A-D	27-06-2024
Elevator Trim - Mechanical - Remove procedure	DA50-A-27-30-01-00A-520A-D	24-08-2022
Elevator Trim - Mechanical - Install procedure	DA50-A-27-30-01-00A-720A-D	12-02-2025
Elevator Trim - Mechanical - Design data/tolerances check	DA50-A-27-30-01-00A-360A-D	18-02-2022
Elevator Trim - Mechanical - Adjust, align and calibrate	DA50-A-27-30-01-00A-270A-D	12-02-2025
Elevator Trim - Mechanical - Change = Remove and install	DA50-A-27-30-01-00A-920A-D	24-08-2022
Elevator Trim - Electrical - Description	DA50-A-27-30-02-00A-040A-D	18-02-2022
Stall Warning System - Description	DA50-A-27-30-03-00A-040A-D	14-07-2023
Stall Warning System - General fault isolation procedure	DA50-A-27-30-03-00A-420A-D	06-05-2021
Lift Transducer - Remove procedure	DA50-A-27-30-03-01A-520A-D	06-05-2021
Lift Transducer - Install procedure	DA50-A-27-30-03-01A-720A-D	14-07-2023
Lift Transducer - Test and inspection	DA50-A-27-30-03-01A-322A-D	18-02-2022
Stall Warning Horn - Remove procedure	DA50-A-27-30-03-02A-520A-D	18-02-2022
Stall Warning Horn - Install procedure	DA50-A-27-30-03-02A-720A-D	06-05-2021
Stall Warning Computer - Remove procedure	DA50-A-27-30-03-03A-520A-D	14-07-2023
Stall Warning Computer - Install procedure	DA50-A-27-30-03-03A-720A-D	14-07-2023
Stall Warning Computer - Test and inspection	DA50-A-27-30-03-03A-322A-D	14-07-2023
Stall Warning System - Function Test	DA50-A-27-30-03-00A-340A-D	18-02-2022
Flap Control System - Description	DA50-A-27-50-00-00A-040A-D	18-02-2022
Flap Control System - Description of function	DA50-A-27-50-00-00A-042A-D	18-02-2022
Flap Control System - General fault isolation procedure	DA50-A-27-50-00-00A-420A-D	06-05-2021
Flap Actuator - Remove procedure	DA50-A-27-50-00-01A-520A-D	18-02-2022
Flap Actuator - Install procedure	DA50-A-27-50-00-01A-720A-D	12-02-2025
Flap Control System - Design data/tolerances check	DA50-A-27-50-00-00A-360A-D	11-08-2022
Fuel System - Description	DA50-A-28-00-00-00A-040A-D	18-05-2022
Fuel System - Description of function	DA50-A-28-00-00-00A-042A-D	06-05-2021
Storage - Description	DA50-A-28-10-00-00A-040A-D	18-02-2022
Storage - General fault isolation procedure	DA50-A-28-10-00-00A-420A-D	06-05-2021
Fuel Tank Assembly - Remove procedure	DA50-A-28-10-01-00A-520A-D	06-05-2021
Fuel Tank Assembly - Disassemble procedure	DA50-A-28-10-01-00A-530A-D	18-02-2022
Fuel Tank Assembly - Test and inspection	DA50-A-28-10-01-00A-322A-D	06-05-2021
Fuel Tank Assembly - Assemble procedure	DA50-A-28-10-01-00A-710A-D	12-02-2025

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Fuel Tank Assembly - Install procedure	DA50-A-28-10-01-00A-720A-D	12-02-2025
Distribution - Description	DA50-A-28-20-00-00A-040A-D	06-05-2021
Distribution - Description of function	DA50-A-28-20-00-00A-042A-D	06-05-2021
Distribution - General fault isolation procedure	DA50-A-28-20-00-00A-420A-D	06-05-2021
Fuel Valve and Gascolator - Remove procedure	DA50-A-28-20-01-00A-520A-D	18-02-2022
Fuel Valve and Gascolator - Install procedure	DA50-A-28-20-01-00A-720A-D	18-02-2022
Fuel Valve - Test and inspection	DA50-A-28-20-01-01A-322A-D	18-02-2022
Gascolator Filter - Remove procedure	DA50-A-28-20-01-03A-520A-D	14-07-2023
Gascolator Filter - Install procedure	DA50-A-28-20-01-03A-720A-D	12-02-2025
Fuel Filter Body - Remove procedure	DA50-A-28-20-02-00A-520A-D	29-08-2025
Fuel Filter Body - Install procedure	DA50-A-28-20-02-00A-720A-D	06-05-2021
Electrically Driven Fuel Pumps - Remove procedure	DA50-A-28-20-03-01A-520A-D	18-02-2022
Electrically Driven Fuel Pumps - Install procedure	DA50-A-28-20-03-01A-720A-D	18-02-2022
Fuel Transfer Pump Assembly - Remove procedure	DA50-A-28-20-03-02A-520A-D	29-08-2025
Fuel Transfer Pump Assembly - Disassemble procedure	DA50-A-28-20-03-02A-530A-D	06-05-2021
Fuel Transfer Pump Assembly - Assemble procedure	DA50-A-28-20-03-02A-710A-D	06-05-2021
Fuel Transfer Pump Assembly - Install procedure	DA50-A-28-20-03-02A-720A-D	29-08-2025
Fuel Transfer Pump Filter - Remove procedure	DA50-A-28-20-03-03A-520A-D	29-08-2025
Fuel Transfer Pump Filter - Install procedure	DA50-A-28-20-03-03A-720A-D	29-08-2025
Fuel Transfer Pump Filter - Other procedure to clean	DA50-A-28-20-03-03A-258A-D	29-08-2025
Fuel Cooler - Remove procedure	DA50-A-28-20-04-00A-520A-D	06-05-2021
Fuel Cooler - Install procedure	DA50-A-28-20-04-00A-720A-D	12-02-2025
Check Valve - Test and inspection	DA50-A-28-20-04-01A-322A-D	06-05-2021
Indicating - Description	DA50-A-28-40-00-00A-040A-D	06-05-2021
Indicating - Description of function	DA50-A-28-40-00-00A-042A-D	06-05-2021
Fuel Quantity Probe - Remove procedure	DA50-A-28-40-00-01A-520A-D	06-05-2021
Fuel Quantity Probe - Install procedure	DA50-A-28-40-00-01A-720A-D	06-05-2021
Low Level Fuel Sensor - Remove procedure	DA50-A-28-40-00-02A-520A-D	06-05-2021
Low Level Fuel Sensor - Install procedure	DA50-A-28-40-00-02A-720A-D	18-02-2022
High Level Fuel Sensor - Remove procedure	DA50-A-28-40-00-03A-520A-D	06-05-2021
High Level Fuel Sensor - Install procedure	DA50-A-28-40-00-03A-720A-D	06-05-2021
Hydraulic System - Description	DA50-A-29-00-00-00A-040A-D	12-02-2025
Hydraulic System - Fill	DA50-A-29-00-00-00A-210A-D	29-08-2025
Hydraulic System - Drain other liquid	DA50-A-29-00-00-00A-228A-D	18-02-2022
Hydraulic System - Bleed	DA50-A-29-00-00-00A-231A-D	06-05-2021
Hydraulic System - Check filling quantity	DA50-A-29-00-00-00A-289A-D	29-08-2025
Hydraulic System - Change of hydraulic fluid	DA50-A-29-00-00-00A-291A-D	18-02-2022

Document title	Data Module Code	Issue date
Hydraulic System - Depressurize hydraulics	DA50-A-29-00-00-00A-562A-D	12-02-2025
Hydraulic Relay - Remove procedure	DA50-A-29-10-01-00A-520A-D	06-05-2021
Hydraulic Relay - Install procedure	DA50-A-29-10-01-00A-720A-D	06-05-2021
Hydraulic Reservoir - Remove procedure	DA50-A-29-10-02-00A-520A-D	06-05-2021
Hydraulic Reservoir - Install procedure	DA50-A-29-10-02-00A-720A-D	06-05-2021
Hydraulic Pump - Remove procedure	DA50-A-29-10-03-00A-520A-D	06-05-2021
Hydraulic Pump - Install procedure	DA50-A-29-10-03-00A-720A-D	06-05-2021
Hydraulic Control Block - Remove procedure	DA50-A-29-10-04-00A-520A-D	12-02-2025
Hydraulic Control Block - Disassemble procedure	DA50-A-29-10-04-00A-530A-D	06-05-2021
Hydraulic Control Block - Assemble procedure	DA50-A-29-10-04-00A-710A-D	12-02-2025
Hydraulic Control Block - Install procedure	DA50-A-29-10-04-00A-720A-D	18-02-2022
Hydraulic Accumulator - Fill with nitrogen	DA50-A-29-10-05-00A-214A-D	12-02-2025
Hydraulic Accumulator - Bleed	DA50-A-29-10-05-00A-231A-D	12-02-2025
Hydraulic Accumulator - Pressure check	DA50-A-29-10-05-00A-362A-D	29-08-2025
Hydraulic Accumulator - Remove procedure	DA50-A-29-10-05-00A-520A-D	06-05-2021
Hydraulic Accumulator - Install procedure	DA50-A-29-10-05-00A-720A-D	12-02-2025
Dump Valve - Change = Remove and install	DA50-A-29-10-06-00A-920A-D	12-02-2025
Pressure Relief Valve - Change = Remove and install	DA50-A-29-10-06-01A-920A-D	12-02-2025
Solenoid Valve - Change = Remove and install	DA50-A-29-10-06-02A-920A-D	12-02-2025
Accumulator Charging Valve - Change = Remove and install	DA50-A-29-10-06-03A-920A-D	12-02-2025
Flow Regulation Valve - Change = Remove and install	DA50-A-29-10-06-04A-920A-D	12-02-2025
Hydraulic Reservoir Filter - Other procedure to clean	DA50-A-29-10-07-00A-258A-D	18-02-2022
High Pressure Filter - Remove procedure	DA50-A-29-10-07-01A-520A-D	18-02-2022
High Pressure Filter - Install procedure	DA50-A-29-10-07-01A-720A-D	18-02-2022
Hydraulic Supply and Control Assembly - Remove procedure	DA50-A-29-10-08-00A-520A-D	06-05-2021
Hydraulic Supply and Control Assembly - Install procedure	DA50-A-29-10-08-00A-720A-D	06-05-2021
Normal Operation Test - Operation Test	DA50-A-29-11-00-01A-320A-D	29-08-2025
Emergency Operation Function Test - Operation Test	DA50-A-29-11-00-02A-320A-D	14-07-2023
Leak Tightness Test - Leak check	DA50-A-29-11-00-03A-364A-D	18-02-2022
External Leakage - Leak check	DA50-A-29-11-00-04A-364A-D	18-02-2022
Pump Pressure Switch and Pressure Limitations Valve - Operation Test	DA50-A-29-11-00-05A-320A-D	12-02-2025
Ice Protection System - Description	DA50-A-30-00-00-00A-040A-D	03-06-2022
Airframe and Windshield Ice Protection System - Description	DA50-A-30-00-01-00A-040A-D	03-06-2022
Airframe and Windshield Ice Protection System - Description of function	DA50-A-30-00-01-00A-042A-D	03-06-2022

Document title	Data Module Code	Issue date
Ice Protection Porous Panel - Description	DA50-A-30-00-01-07A-040A-D	03-06-2022
Propeller Ice Protection System - Description	DA50-A-30-00-02-00A-040A-D	03-06-2022
Propeller Ice Protection System - Description of function	DA50-A-30-00-02-00A-042A-D	03-06-2022
Airframe and Windshield Ice Protection System - General fault isolation procedure	DA50-A-30-00-01-00A-420A-D	03-06-2022
Propeller Ice Protection System - General fault isolation procedure	DA50-A-30-00-02-00A-420A-D	29-08-2025
Airframe and Windshield Ice Protection System - Operation Test	DA50-A-30-00-01-00A-320A-D	03-06-2022
Ice Protection Fluid Tank - Remove procedure	DA50-A-30-00-01-01A-520A-D	03-06-2022
Ice Protection Fluid Tank - Install procedure	DA50-A-30-00-01-01A-720A-D	03-06-2022
Ice Protection Fluid Inlet Strainer - Remove procedure	DA50-A-30-00-01-02A-520A-D	03-06-2022
Ice Protection Fluid Inlet Strainer - Install procedure	DA50-A-30-00-01-02A-720A-D	03-06-2022
Ice Protection Metering Pump - Remove procedure	DA50-A-30-00-01-03A-520A-D	03-06-2022
Ice Protection Metering Pump - Install procedure	DA50-A-30-00-01-03A-720A-D	03-06-2022
High Pressure Switch - Change = Remove and install a new item	DA50-A-30-00-01-04A-921A-D	03-06-2022
Windshield Pump - Change = Remove and install a new item	DA50-A-30-00-01-09A-921A-D	03-06-2022
Solenoid Valve - Change = Remove and install a new item	DA50-A-30-00-01-10A-921A-D	03-06-2022
Ice Protection Fluid Filter - Change = Remove and install a new item	DA50-A-30-00-01-05A-921A-D	03-06-2022
Airframe and Windshield Ice Protection System - Bleed	DA50-A-30-00-01-00A-231A-D	03-06-2022
Airframe and Windshield Ice Protection System - Purge	DA50-A-30-00-01-00A-255A-D	03-06-2022
Proportioning Unit of the Wing Ice Protection System - Remove procedure	DA50-A-30-00-01-06A-520A-D	03-06-2022
Proportioning Unit of the Wing Ice Protection System - Install procedure	DA50-A-30-00-01-06A-720A-D	03-06-2022
Ice Protection Porous Panel - Change = Remove and install a new item	DA50-A-30-00-01-07A-921A-D	03-06-2022
Ice Protection Fluid Nylon Tubing - Change = Remove and install a new item	DA50-A-30-00-01-12A-921A-D	03-06-2022
Ice Protection Control Box - Change = Remove and install a new item	DA50-A-30-00-01-11A-921A-D	03-06-2022
Low Pressure Switch of Vertical Tail Panel - Remove procedure	DA50-A-30-00-01-14A-520A-D	03-06-2022
Low Pressure Switch of Vertical Tail Panel - Install procedure	DA50-A-30-00-01-14A-720A-D	03-06-2022
Low Pressure Switch of Horizontal Tail Panel - Remove procedure	DA50-A-30-00-01-13A-520A-D	03-06-2022
Low Pressure Switch of Horizontal Tail Panel - Install procedure	DA50-A-30-00-01-13A-720A-D	03-06-2022

Document title	Data Module Code	Issue date
Low Pressure Switch of RH Center Wing Panel - Remove procedure	DA50-A-30-00-01-15A-520A-D	03-06-2022
Low Pressure Switch of RH Center Wing Panel - Install procedure	DA50-A-30-00-01-15A-720A-D	03-06-2022
Low Pressure Switch - Function Test	DA50-A-30-00-01-08A-340A-D	03-06-2022
High Pressure Switch - Function Test	DA50-A-30-00-01-04A-340A-D	03-06-2022
Indicating/Recording Systems - Description	DA50-A-31-00-00-00A-040A-D	14-06-2022
Instrument and Control Panels - Description	DA50-A-31-10-00-00A-040A-D	14-11-2022
Engine Control Assembly - Remove procedure	DA50-A-31-10-00-01A-520A-D	18-02-2022
Engine Control Assembly - Install procedure	DA50-A-31-10-00-01A-720A-D	18-02-2022
Central computers - Description	DA50-A-31-40-00-00A-040A-D	16-05-2022
Maintenance Info - Description	DA50-A-31-40-00-01A-040A-D	18-02-2022
GDU 105X Display - Remove procedure	DA50-A-31-40-00-02A-520A-D	06-05-2021
GDU 105X Display - Install procedure	DA50-A-31-40-00-02A-720A-D	06-05-2021
GIA 64W Integrated Avionics Unit (IAU) - Remove procedure	DA50-A-31-40-00-03A-520A-D	06-05-2021
GIA 64W Integrated Avionics Unit (IAU) - Install procedure	DA50-A-31-40-00-03A-720A-D	06-05-2021
GTX 3X5R Transponder - Remove procedure	DA50-A-31-40-00-04A-520A-D	18-02-2022
GTX 3X5R Transponder - Install procedure	DA50-A-31-40-00-04A-720A-D	06-05-2021
GRS 79 Attitude, Heading and Reference Unit (AHRS) - Remove procedure	DA50-A-31-40-00-05A-520A-D	06-05-2021
GRS 79 Attitude, Heading and Reference Unit (AHRS) - Install procedure	DA50-A-31-40-00-05A-720A-D	06-05-2021
GDC 72 Air Data Computer - Remove procedure	DA50-A-31-40-00-06A-520A-D	06-05-2021
GDC 72 Air Data Computer - Install procedure	DA50-A-31-40-00-06A-720A-D	06-05-2021
GEA71B Processor - Remove procedure	DA50-A-31-40-00-07A-520A-D	06-05-2021
GEA71B Processor - Install procedure	DA50-A-31-40-00-07A-720A-D	06-05-2021
GMU 44/B Magnetometer - Remove procedure	DA50-A-31-40-00-08A-520A-D	16-05-2022
GMU 44/B Magnetometer - Install procedure	DA50-A-31-40-00-08A-720A-D	16-05-2022
GMU 44/B Magnetometer - Calibrate	DA50-A-31-40-00-08A-273A-D	16-05-2022
GCU 476 Control Unit - Remove procedure	DA50-A-31-40-00-09A-520A-D	19-12-2023
GCU 476 Control Unit - Install procedure	DA50-A-31-40-00-09A-720A-D	14-11-2022
Landing gear - Description	DA50-A-32-00-00-00A-040A-D	30-09-2024
Main Landing Gear - Description	DA50-A-32-10-00-00A-040A-D	06-05-2021
Main Landing Gear - General fault isolation procedure	DA50-A-32-10-00-00A-420A-D	06-05-2021
Main Landing Gear - Test and inspection	DA50-A-32-10-00-00A-322A-D	29-08-2025
Main Landing Gear - Adjust, align and calibrate	DA50-A-32-10-00-00A-270A-D	18-02-2022
Door - Remove procedure	DA50-A-32-10-10-00A-520A-D	06-05-2021
Door - Install procedure	DA50-A-32-10-10-00A-720A-D	06-05-2021

Document title	Data Module Code	Issue date
Door - Other check	DA50-A-32-10-10-00A-369A-D	29-08-2025
Leg - Remove procedure	DA50-A-32-10-20-00A-520A-D	18-02-2022
Leg - Disassemble procedure	DA50-A-32-10-20-00A-530A-D	06-05-2021
Leg - Assemble procedure	DA50-A-32-10-20-00A-710A-D	29-08-2025
Leg - Install procedure	DA50-A-32-10-20-00A-720A-D	06-05-2021
Damper - Remove procedure	DA50-A-32-10-30-00A-520A-D	18-02-2022
Damper - Install procedure	DA50-A-32-10-30-00A-720A-D	12-02-2025
Damper - Fill	DA50-A-32-10-30-00A-210A-D	18-02-2022
Damper - Change of liquid/gas	DA50-A-32-10-30-00A-290A-D	06-05-2021
Damper - Dimensions check	DA50-A-32-10-30-00A-361A-D	06-05-2021
Actuator - Remove procedure	DA50-A-32-10-40-00A-520A-D	18-02-2022
Actuator - Install procedure	DA50-A-32-10-40-00A-720A-D	06-05-2021
Folding Stay Bracket - Remove procedure	DA50-A-32-10-40-01A-520A-D	06-05-2021
Folding Stay Bracket - Install procedure	DA50-A-32-10-40-01A-720A-D	06-05-2021
Nose Landing Gear - Description	DA50-A-32-20-00-00A-040A-D	30-09-2024
Nose Landing Gear - General fault isolation procedure	DA50-A-32-20-00-00A-420A-D	18-05-2022
Nose Landing Gear - Remove procedure	DA50-A-32-20-00-00A-520A-D	18-02-2022
Nose Landing Gear - Install procedure	DA50-A-32-20-00-00A-720A-D	12-02-2025
Door - Remove procedure	DA50-A-32-20-10-00A-520A-D	06-05-2021
Door - Install procedure	DA50-A-32-20-10-00A-720A-D	14-07-2023
Door - Other check	DA50-A-32-20-10-00A-369A-D	29-08-2025
Leg - Remove procedure	DA50-A-32-20-20-00A-520A-D	30-09-2024
Leg - Install procedure	DA50-A-32-20-20-00A-720A-D	30-09-2024
Damper - Remove procedure	DA50-A-32-20-30-00A-520A-D	30-09-2024
Damper - Install procedure	DA50-A-32-20-30-00A-720A-D	06-05-2021
Damper - Fill	DA50-A-32-20-30-00A-210A-D	18-02-2022
Damper - Dimensions check	DA50-A-32-20-30-00A-361A-D	06-05-2021
Actuator - Remove procedure	DA50-A-32-20-40-00A-520A-D	18-02-2022
Actuator - Install procedure	DA50-A-32-20-40-00A-720A-D	29-08-2025
Extension and retraction - Description	DA50-A-32-30-00-00A-040A-D	27-01-2022
Extension and retraction - General fault isolation procedure	DA50-A-32-30-00-00A-420A-D	06-05-2021
Normal Operation - Test and inspection	DA50-A-32-30-00-10A-322A-D	27-01-2022
Emergency Operation - Test and inspection	DA50-A-32-30-00-20A-322A-D	27-01-2022
Wheels and brakes - Description	DA50-A-32-40-00-00A-040A-D	29-08-2025
Brake System - Description	DA50-A-32-40-30-00A-040A-D	15-07-2021
Wheels and brakes - General fault isolation procedure	DA50-A-32-40-00-00A-420A-D	29-08-2025
Main Wheels - Remove procedure	DA50-A-32-40-10-00A-520A-D	29-08-2025

Document title	Data Module Code	Issue date
Main Wheels - Disassemble procedure	DA50-A-32-40-10-00A-530A-D	18-05-2022
Main Wheels - Assemble procedure	DA50-A-32-40-10-00A-710A-D	06-05-2021
Main Wheels - Install procedure	DA50-A-32-40-10-00A-720A-D	29-08-2025
Nose Wheel - Remove procedure	DA50-A-32-40-20-00A-520A-D	29-08-2025
Nose Wheel - Disassemble procedure	DA50-A-32-40-20-00A-530A-D	06-05-2021
Nose Wheel - Assemble procedure	DA50-A-32-40-20-00A-710A-D	06-05-2021
Nose Wheel - Install procedure	DA50-A-32-40-20-00A-720A-D	29-08-2025
Brake System - Bleed	DA50-A-32-40-30-00A-231A-D	06-05-2021
Brake Master Cylinder - Remove procedure	DA50-A-32-40-30-10A-520A-D	18-02-2022
Brake Master Cylinder - Install procedure	DA50-A-32-40-30-10A-720A-D	06-05-2021
Parking Brake Valve - Remove procedure	DA50-A-32-40-30-20A-520A-D	06-05-2021
Parking Brake Valve - Install procedure	DA50-A-32-40-30-20A-720A-D	06-05-2021
Brake Caliper - Remove procedure	DA50-A-32-40-30-30A-520A-D	29-08-2025
Brake Caliper - Install procedure	DA50-A-32-40-30-30A-720A-D	06-05-2021
Brake Friction Linings - Remove procedure	DA50-A-32-40-30-40A-520A-D	29-08-2025
Brake Friction Linings - Install procedure	DA50-A-32-40-30-40A-720A-D	06-05-2021
Position and warning - Description	DA50-A-32-60-00-00A-040A-D	18-02-2022
Position and warning - General fault isolation procedure	DA50-A-32-60-00-00A-420A-D	06-05-2021
Position and warning - Test and inspection	DA50-A-32-60-00-00A-322A-D	27-01-2022
Lights - Description	DA50-A-33-00-00-00A-040A-D	27-06-2024
Flight compartment - Description	DA50-A-33-10-00-00A-040A-D	19-12-2023
Flight compartment - General fault isolation procedure	DA50-A-33-10-00-00A-420A-D	14-11-2022
Map / Reading Light Assembly - Remove procedure	DA50-A-33-10-01-00A-520A-D	06-05-2021
Map / Reading Light Assembly - Install procedure	DA50-A-33-10-01-00A-720A-D	06-05-2021
Dimmer Switch - Remove procedure	DA50-A-33-10-02-00A-520A-D	06-05-2021
Dimmer Switch - Install procedure	DA50-A-33-10-02-00A-720A-D	06-05-2021
Flood Light Strip - Change = Remove and install	DA50-A-33-10-04-00A-920A-D	06-05-2021
Solid State Inverter - Remove procedure	DA50-A-33-10-03-00A-520A-D	06-05-2021
Solid State Inverter - Install procedure	DA50-A-33-10-03-00A-720A-D	06-05-2021
External Lighting System - Description	DA50-A-33-40-00-00A-040A-D	27-06-2024
External Lighting System - General fault isolation procedure	DA50-A-33-40-00-00A-420A-D	27-06-2024
Taxi Light - Remove procedure	DA50-A-33-40-01-00A-520A-D	18-02-2022
Taxi Light - Install procedure	DA50-A-33-40-01-00A-720A-D	06-05-2021
Landing Light - Remove procedure	DA50-A-33-40-02-00A-520A-D	06-05-2021
Landing Light - Install procedure	DA50-A-33-40-02-00A-720A-D	18-02-2022
Wing Tip Light Unit - Remove procedure	DA50-A-33-40-03-00A-520A-D	06-05-2021
Wing Tip Light Unit - Install procedure	DA50-A-33-40-03-00A-720A-D	06-05-2021

Document title	Data Module Code	Issue date
HID Ballast - Remove procedure	DA50-A-33-40-04-00A-520A-D	27-06-2024
HID Ballast - Install procedure	DA50-A-33-40-04-00A-720A-D	27-06-2024
Navigation - Description	DA50-A-34-00-00-00A-040A-D	27-06-2024
Flight environment data - Description	DA50-A-34-10-00-00A-040A-D	16-08-2022
Flight environment data - General fault isolation procedure	DA50-A-34-10-00-00A-420A-D	06-05-2021
Pitot Probe - Remove procedure	DA50-A-34-10-01-01A-520A-D	16-08-2022
Pitot Probe - Install procedure	DA50-A-34-10-01-01A-720A-D	16-08-2022
Outside Air Temperature (OAT) Probe - Remove procedure	DA50-A-34-10-02-00A-520A-D	18-02-2022
Outside Air Temperature (OAT) Probe - Install procedure	DA50-A-34-10-02-00A-720A-D	06-05-2021
Pitot-Static System - Test and inspection	DA50-A-34-10-01-00A-322A-D	16-08-2022
Pitot-Static System - Other procedure to clean	DA50-A-34-10-01-00A-258A-D	16-08-2022
Attitude and direction - Description	DA50-A-34-20-00-00A-040A-D	18-02-2022
Attitude and direction - General fault isolation procedure	DA50-A-34-20-00-00A-420A-D	06-05-2021
Standby Attitude Module - Remove procedure	DA50-A-34-20-00-01A-520A-D	06-05-2021
Standby Attitude Module - Install procedure	DA50-A-34-20-00-01A-720A-D	06-05-2021
Magnetic Compass - Remove procedure	DA50-A-34-20-00-02A-520A-D	06-05-2021
Magnetic Compass - Install procedure	DA50-A-34-20-00-02A-720A-D	06-05-2021
Magnetic Compass - Test and inspection	DA50-A-34-20-00-02A-322A-D	18-02-2022
Landing and taxiing aids - Description	DA50-A-34-30-00-00A-040A-D	18-02-2022
Stormscope System - Description	DA50-A-34-40-01-00A-040A-D	18-02-2022
Stormscope Processor - Remove procedure	DA50-A-34-40-01-01A-520A-D	06-05-2021
Stormscope Processor - Install procedure	DA50-A-34-40-01-01A-720A-D	06-05-2021
Stormscope Antenna - Remove procedure	DA50-A-34-40-01-02A-520A-D	06-05-2021
Stormscope Antenna - Install procedure	DA50-A-34-40-01-02A-720A-D	06-05-2021
Stormscope System - Test and inspection	DA50-A-34-40-01-00A-322A-D	06-05-2021
Traffic Advisory System (TAS) - Description	DA50-A-34-40-02-00A-040A-D	27-06-2024
Traffic Advisory System (TAS) - General fault isolation procedure	DA50-A-34-40-02-00A-420A-D	27-06-2024
TAS Processor - Remove procedure	DA50-A-34-40-02-01A-520A-D	27-06-2024
TAS Processor - Install procedure	DA50-A-34-40-02-01A-720A-D	27-06-2024
Transponder Coupler - Remove procedure	DA50-A-34-40-02-02A-520A-D	27-06-2024
Transponder Coupler - Install procedure	DA50-A-34-40-02-02A-720A-D	27-06-2024
TAS Antenna - Remove procedure	DA50-A-34-40-02-03A-520A-D	06-05-2021
TAS Antenna - Install procedure	DA50-A-34-40-02-03A-720A-D	27-06-2024
Dependent position determining - Description	DA50-A-34-50-00-00A-040A-D	18-02-2022
ADF System - Description	DA50-A-34-50-02-00A-040A-D	18-11-2021

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Dependent position determining - General fault isolation procedure	DA50-A-34-50-00-00A-420A-D	09-09-2021
Transponder or DME Antenna - Change = Remove and install a new item	DA50-A-34-50-00-01A-921A-D	06-05-2021
GPS Antenna - Change = Remove and install a new item	DA50-A-34-50-00-02A-921A-D	12-02-2025
Marker Antenna - Change = Remove and install a new item	DA50-A-34-50-00-03A-921A-D	18-02-2022
VOR/LOC/GS Antenna - Change = Remove and install a new item	DA50-A-34-50-00-04A-921A-D	19-12-2023
Transponder (XPDR) - Description	DA50-A-34-50-01-00A-040A-D	18-02-2022
ADF Receiver / RMI Converter - Remove procedure	DA50-A-34-50-02-01A-520A-D	18-11-2021
ADF Receiver / RMI Converter - Install procedure	DA50-A-34-50-02-01A-720A-D	09-09-2021
ADF Antenna - Remove procedure	DA50-A-34-50-02-02A-520A-D	18-11-2021
ADF Antenna - Install procedure	DA50-A-34-50-02-02A-720A-D	09-09-2021
ADF System - System Test	DA50-A-34-50-02-00A-345A-D	18-02-2022
ADF System - Adjust, align and calibrate	DA50-A-34-50-02-00A-270A-D	19-12-2023
Oxygen - Description	DA50-A-35-00-00-00A-040A-D	19-12-2023
Oxygen - Description of function	DA50-A-35-00-00-00A-042A-D	18-02-2022
Oxygen - General fault isolation procedure	DA50-A-35-00-00-00A-420A-D	11-10-2021
Oxygen - Test and inspection	DA50-A-35-00-00-00A-322A-D	11-10-2021
Oxygen - Release oxygen pressure	DA50-A-35-00-00-00A-223A-D	11-10-2021
Pressure Transducer - Remove procedure	DA50-A-35-00-01-00A-520A-D	11-10-2021
Pressure Transducer - Install procedure	DA50-A-35-00-01-00A-720A-D	11-10-2021
Oxygen Cylinder - Remove procedure	DA50-A-35-00-02-00A-520A-D	11-10-2021
Oxygen Cylinder - Install procedure	DA50-A-35-00-02-00A-720A-D	12-02-2025
Oxygen Regulator - Remove procedure	DA50-A-35-00-03-00A-520A-D	11-10-2021
Oxygen Regulator - Install procedure	DA50-A-35-00-03-00A-720A-D	11-10-2021
Filling Block - Remove procedure	DA50-A-35-00-04-00A-520A-D	11-10-2021
Filling Block - Install procedure	DA50-A-35-00-04-00A-720A-D	18-02-2022
Swagelok Tube Fitting - Change = Disconnect and connect an item	DA50-A-35-00-06-00A-923A-D	11-10-2021
Outlet Manifold - Remove procedure	DA50-A-35-00-05-00A-520A-D	18-02-2022
Outlet Manifold - Install procedure	DA50-A-35-00-05-00A-720A-D	11-10-2021
Airplane Structure - Description	DA50-A-51-00-00-01A-040A-D	18-02-2022
Investigation - Description	DA50-A-51-10-00-00A-040A-D	06-05-2021
Damage Classification - Description	DA50-A-51-10-00-01A-040A-D	18-02-2022
Types of Damage - Description	DA50-A-51-10-00-02A-040A-D	06-05-2021
Inspection Techniques - Description	DA50-A-51-10-00-03A-040A-D	18-02-2022
Repair Processes - Description	DA50-A-51-20-00-00A-040A-D	18-02-2022

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Resin - Description	DA50-A-51-20-01-00A-040A-D	29-08-2025
Glass and Carbon Cloth - Description	DA50-A-51-20-01-01A-040A-D	06-05-2021
Core Material - Description	DA50-A-51-20-01-02A-040A-D	06-05-2021
Laminating - Repair procedure	DA50-A-51-20-01-03A-685A-D	18-02-2022
Bonding Paste (Thickened Resin) - Description	DA50-A-51-20-01-04A-040A-D	18-02-2022
Curing - Repair procedure	DA50-A-51-20-01-05A-685A-D	29-08-2025
Exterior Paint Finish - Repair procedure	DA50-A-51-20-01-06A-685A-D	27-06-2024
Repairs - Repair procedure	DA50-A-51-20-01-07A-685A-D	18-02-2022
Approved Materials - Description	DA50-A-51-30-00-00A-040A-D	29-08-2025
Fasteners - Description	DA50-A-51-40-00-00A-040A-D	06-05-2021
Fasteners - Change = Remove and install a new item	DA50-A-51-40-00-00A-921A-D	18-02-2022
Control Surface Balancing - Description	DA50-A-51-60-00-00A-040A-D	18-05-2022
Rudder Static Balance - Description	DA50-A-51-60-00-01A-040A-D	18-02-2022
Rudder Trim Tab Static Balance - Description	DA50-A-51-60-00-02A-040A-D	18-02-2022
Elevator Static Balance - Description	DA50-A-51-60-00-03A-040A-D	18-02-2022
Elevator Trim Tab Static Balance - Description	DA50-A-51-60-00-04A-040A-D	18-02-2022
Aileron Static Balance - Description	DA50-A-51-60-00-05A-040A-D	18-02-2022
Wing Outer Flap Static Balance - Description	DA50-A-51-60-00-06A-040A-D	18-02-2022
Wing Inner Flap Static Balance - Description	DA50-A-51-60-00-07A-040A-D	06-05-2021
Lightning Protection - Description	DA50-A-51-80-00-00A-040A-D	18-02-2022
Lightning Protection - Bonding Check	DA50-A-51-80-00-00A-378A-D	18-02-2022
Doors - Description	DA50-A-52-00-00-00A-040A-D	06-05-2021
Doors - General fault isolation procedure	DA50-A-52-00-00-00A-420A-D	06-05-2021
LH/RH Pilot Door - Description	DA50-A-52-10-00-01A-040A-D	06-05-2021
Passenger Door - Description	DA50-A-52-10-00-02A-040A-D	06-05-2021
LH/RH Pilot Door - Remove procedure	DA50-A-52-10-00-01A-520A-D	18-02-2022
LH/RH Pilot Door - Install procedure	DA50-A-52-10-00-01A-720A-D	18-02-2022
Passenger Door - Remove procedure	DA50-A-52-10-00-02A-520A-D	06-05-2021
Passenger Door - Install procedure	DA50-A-52-10-00-02A-720A-D	06-05-2021
LH/RH Pilot Door and Passenger Door - Test and inspection	DA50-A-52-10-00-00A-322A-D	18-02-2022
Emergency exit - Description of function	DA50-A-52-20-00-00A-042A-D	06-05-2021
Emergency exit - Operation Test	DA50-A-52-20-00-00A-320A-D	06-05-2021
Emergency exit - Install procedure	DA50-A-52-20-00-00A-720A-D	18-02-2022
Access Panels - Description	DA50-A-52-40-00-00A-040A-D	14-07-2023
Fuselage - Description	DA50-A-53-00-00-00A-040A-D	18-02-2022
Fuselage structure - Description	DA50-A-53-10-00-00A-040A-D	18-05-2022
Trim Weight in Tail - Description	DA50-A-53-10-00-10A-040A-D	29-08-2025

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Fuselage structure - General maintenance procedure	DA50-A-53-10-00-00A-913A-D	06-05-2021
Trim Weight in Tail - Remove procedure	DA50-A-53-10-00-10A-520A-D	29-08-2025
Trim Weight in Tail - Install procedure	DA50-A-53-10-00-10A-720A-D	29-08-2025
Stabilizers - Description	DA50-A-55-00-00-00A-040A-D	18-02-2022
Horizontal stabilizer - Description	DA50-A-55-10-00-00A-040A-D	18-02-2022
Horizontal stabilizer - Remove procedure	DA50-A-55-10-00-00A-520A-D	18-02-2022
Horizontal stabilizer - Install procedure	DA50-A-55-10-00-00A-720A-D	12-02-2025
Elevator - Description	DA50-A-55-20-00-00A-040A-D	18-02-2022
Elevator Trim Tab - Description	DA50-A-55-20-10-00A-040A-D	18-02-2022
Elevator - Remove procedure	DA50-A-55-20-00-00A-520A-D	06-05-2021
Elevator - Install procedure	DA50-A-55-20-00-00A-720A-D	12-02-2025
Elevator Trim Tab - Remove procedure	DA50-A-55-20-10-00A-520A-D	18-02-2022
Elevator Trim Tab - Install procedure	DA50-A-55-20-10-00A-720A-D	18-02-2022
Lower Fin - Description	DA50-A-55-30-00-00A-040A-D	06-05-2021
Rudder - Description	DA50-A-55-40-00-00A-040A-D	18-02-2022
Rudder Trim Tab - Description	DA50-A-55-40-10-00A-040A-D	18-02-2022
Rudder - Remove procedure	DA50-A-55-40-00-00A-520A-D	18-05-2022
Rudder - Install procedure	DA50-A-55-40-00-00A-720A-D	12-02-2025
Rudder Trim Tab - Remove procedure	DA50-A-55-40-10-00A-520A-D	06-05-2021
Rudder Trim Tab - Install procedure	DA50-A-55-40-10-00A-720A-D	06-05-2021
Flight Compartment Windows - Description	DA50-A-56-10-00-00A-040A-D	18-02-2022
Emergency Exit Window - Description	DA50-A-56-10-00-01A-040A-D	06-05-2021
Flight Compartment Windows - Repairs and locally make procedures and data	DA50-A-56-10-00-00A-600A-D	18-02-2022
Flight Compartment Windows - Change = Remove and install a new item	DA50-A-56-10-00-00A-921A-D	18-02-2022
Emergency Exit Window - Change = Remove and install a new item	DA50-A-56-10-00-01A-921A-D	18-02-2022
Wings - Description	DA50-A-57-00-00-00A-040A-D	18-02-2022
Wing structure - Description	DA50-A-57-10-00-00A-040A-D	06-05-2021
Wing structure - Remove procedure	DA50-A-57-10-00-00A-520A-D	18-02-2022
Wing structure - Preparation before installation	DA50-A-57-10-00-00A-723A-D	18-02-2022
Wing structure - Install procedure	DA50-A-57-10-00-00A-720A-D	12-02-2025
A and B Bolts - Remove procedure	DA50-A-57-10-00-01A-520A-D	18-02-2022
A and B Bolts - Visual examination	DA50-A-57-10-00-01A-310A-D	06-05-2021
A and B Bolts - Install procedure	DA50-A-57-10-00-01A-720A-D	12-02-2025
Control System Hinge Bracket On Wing - Remove procedure	DA50-A-57-10-00-02A-520A-D	18-02-2022

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Control System Hinge Bracket On Wing - Install procedure	DA50-A-57-10-00-02A-720A-D	12-02-2025
Flaps - Description	DA50-A-57-50-00-00A-040A-D	06-05-2021
Outer Flap - Description	DA50-A-57-50-00-01A-040A-D	18-02-2022
Inner Flap - Description	DA50-A-57-50-00-02A-040A-D	18-02-2022
Outer Flap - Remove procedure	DA50-A-57-50-00-01A-520A-D	18-02-2022
Outer Flap - Install procedure	DA50-A-57-50-00-01A-720A-D	18-02-2022
Inner Flap - Remove procedure	DA50-A-57-50-00-02A-520A-D	14-11-2022
Inner Flap - Install procedure	DA50-A-57-50-00-02A-720A-D	06-05-2021
Ailerons - Description	DA50-A-57-60-00-00A-040A-D	18-02-2022
Ailerons - Remove procedure	DA50-A-57-60-00-00A-520A-D	06-05-2021
Ailerons - Install procedure	DA50-A-57-60-00-00A-720A-D	06-05-2021
Propellers/propulsors - Description	DA50-A-61-00-00-00A-040A-D	18-05-2022
Propeller assembly - Description	DA50-A-61-10-00-00A-040A-D	18-02-2022
Propeller assembly - Description of function	DA50-A-61-10-00-00A-042A-D	14-07-2023
Propeller assembly - General fault isolation procedure	DA50-A-61-10-00-00A-420A-D	06-05-2021
Propeller assembly - Remove procedure	DA50-A-61-10-00-00A-520A-D	27-06-2024
Propeller assembly - Install procedure	DA50-A-61-10-00-00A-720A-D	12-02-2025
Propeller assembly - Test and inspection	DA50-A-61-10-00-00A-322A-D	27-06-2024
Propeller Control - Description	DA50-A-61-20-00-00A-040A-D	18-05-2022
Power Plant - Description	DA50-A-71-00-00-00A-040A-D	18-05-2022
Power Plant - General fault isolation procedure	DA50-A-71-00-00-00A-420A-D	06-05-2021
Engine - Remove procedure	DA50-A-71-00-00-01A-520A-D	27-06-2024
Engine - Install procedure	DA50-A-71-00-00-01A-720A-D	12-02-2025
Engine - Operation Test	DA50-A-71-00-00-01A-320A-D	18-05-2022
Cowlings - Description	DA50-A-71-10-00-00A-040A-D	06-05-2021
Cowlings - General fault isolation procedure	DA50-A-71-10-00-00A-420A-D	06-05-2021
Mid Cowling - Remove procedure	DA50-A-71-10-00-01A-520A-D	14-11-2022
Left and Right Cowling - Remove procedure	DA50-A-71-10-00-02A-520A-D	14-11-2022
Left and Right Cowling - Install procedure	DA50-A-71-10-00-02A-720A-D	06-05-2021
Mid Cowling - Install procedure	DA50-A-71-10-00-01A-720A-D	06-05-2021
Cowlings - Clean and apply surface protection	DA50-A-71-10-00-00A-250A-D	06-05-2021
Cowlings - Paint and apply marking	DA50-A-71-10-00-00A-257A-D	06-05-2021
Engine Mount - Description	DA50-A-71-20-00-00A-040A-D	06-05-2021
Engine Mount - General fault isolation procedure	DA50-A-71-20-00-00A-420A-D	06-05-2021
Engine Mount - Remove procedure	DA50-A-71-20-00-00A-520A-D	18-05-2022
Engine Mount - Install procedure	DA50-A-71-20-00-00A-720A-D	12-02-2025
Trim Weight on Front Bulkhead - Description	DA50-A-71-20-00-10A-040A-D	29-08-2025

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Trim Weight on Front Bulkhead - Remove procedure	DA50-A-71-20-00-10A-520A-D	29-08-2025
Trim Weight on Front Bulkhead - Install procedure	DA50-A-71-20-00-10A-720A-D	29-08-2025
Electrical harness - Description	DA50-A-71-50-00-00A-040A-D	06-05-2021
Air intakes - Description	DA50-A-71-60-00-00A-040A-D	19-12-2023
Air intakes - General fault isolation procedure	DA50-A-71-60-00-00A-420A-D	06-05-2021
Air Filter - Remove procedure	DA50-A-71-60-00-01A-520A-D	27-06-2024
Air Filter - Install procedure	DA50-A-71-60-00-01A-720A-D	27-06-2024
Alternate Air Valve - Remove procedure	DA50-A-71-60-00-02A-520A-D	27-06-2024
Alternate Air Valve - Install procedure	DA50-A-71-60-00-02A-720A-D	27-06-2024
Alternate Air Control Inner Cable - Remove procedure	DA50-A-71-60-00-03A-520A-D	27-06-2024
Alternate Air Control Inner Cable - Install procedure	DA50-A-71-60-00-03A-720A-D	27-06-2024
Alternate Air Control Inner Cable - Adjust, align and calibrate	DA50-A-71-60-00-03A-270A-D	27-06-2024
Alternate Air Control Left/Right Cable - Remove procedure	DA50-A-71-60-00-04A-520A-D	27-06-2024
Alternate Air Control Left/Right Cable - Install procedure	DA50-A-71-60-00-04A-720A-D	27-06-2024
Cowl Flap - Description	DA50-A-71-60-01-00A-040A-D	14-07-2023
Cowl Flap - General fault isolation procedure	DA50-A-71-60-01-00A-420A-D	14-07-2023
Cowl Flap - Remove procedure	DA50-A-71-60-01-00A-520A-D	14-07-2023
Cowl Flap - Install procedure	DA50-A-71-60-01-00A-720A-D	14-07-2023
Linear Actuator - Remove procedure	DA50-A-71-60-01-01A-520A-D	14-07-2023
Linear Actuator - Install procedure	DA50-A-71-60-01-01A-720A-D	14-07-2023
Mechanical Control System - Remove procedure	DA50-A-71-60-01-02A-520A-D	14-07-2023
Mechanical Control System - Install procedure	DA50-A-71-60-01-02A-720A-D	14-07-2023
Limit Switches - Adjust, align and calibrate	DA50-A-71-60-01-03A-270A-D	14-07-2023
Push-Rod - Adjust, align and calibrate	DA50-A-71-60-01-04A-270A-D	14-07-2023
Cowl Flap - Function Test	DA50-A-71-60-01-00A-340A-D	14-07-2023
Engine drains - Description	DA50-A-71-70-00-00A-040A-D	06-05-2021
Oil Separator Breather Hose - Remove procedure	DA50-A-71-70-00-01A-520A-D	27-06-2024
Oil Separator Breather Hose - Install procedure	DA50-A-71-70-00-01A-720A-D	27-06-2024
Engine - Description	DA50-A-72-00-00-00A-040A-D	18-05-2022
Engine - General fault isolation procedure	DA50-A-72-00-00-00A-420A-D	18-02-2022
Engine - Change of oil	DA50-A-72-00-00-00A-292A-D	27-06-2024
Gearbox - Change of oil	DA50-A-72-00-00-01A-292A-D	27-06-2024
Engine fuel and control - Description	DA50-A-73-00-00-00A-040A-D	18-02-2022
Engine fuel and control - General fault isolation procedure	DA50-A-73-00-00-00A-420A-D	06-05-2021
Cooling System - Description	DA50-A-75-20-00-00A-040A-D	18-02-2022
Cooling System - General fault isolation procedure	DA50-A-75-20-00-00A-420A-D	06-05-2021
Cooling System - Drain liquid and release pressure	DA50-A-75-20-00-00A-220A-D	27-06-2024

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Cooling System - Bleed	DA50-A-75-20-00-00A-231A-D	12-02-2025
Cooling System - Test and inspection	DA50-A-75-20-00-00A-322A-D	27-06-2024
Coolant Expansion Tank - Remove procedure	DA50-A-75-20-00-01A-520A-D	27-06-2024
Coolant Expansion Tank - Install procedure	DA50-A-75-20-00-01A-720A-D	27-06-2024
Pressure Relief Valve - Remove procedure	DA50-A-75-20-00-02A-520A-D	14-06-2022
Pressure Relief Valve - Install procedure	DA50-A-75-20-00-02A-720A-D	12-02-2025
Pressure Relief Valve - Test and inspection	DA50-A-75-20-00-02A-322A-D	27-06-2024
Coolant Radiator - Remove procedure	DA50-A-75-20-00-04A-520A-D	27-06-2024
Coolant Radiator - Install procedure	DA50-A-75-20-00-04A-720A-D	18-11-2021
Coolant Level Sensor - Change = Remove and install	DA50-A-75-20-00-03A-920A-D	12-02-2025
Silicate Pouch - Change = Remove and install	DA50-A-75-20-00-05A-920A-D	27-06-2024
Engine controls - Description	DA50-A-76-00-00-00A-040A-D	27-01-2022
Engine controls - General fault isolation procedure	DA50-A-76-00-00-00A-420A-D	06-05-2021
Power Lever Hall Angle Sensor - Remove procedure	DA50-A-76-00-00-01A-520A-D	14-06-2022
Power Lever Hall Angle Sensor - Install procedure	DA50-A-76-00-00-01A-720A-D	06-05-2021
Engine Control Unit (FADEC) - Remove procedure	DA50-A-76-00-00-02A-520A-D	14-06-2022
Engine Control Unit (FADEC) - Install procedure	DA50-A-76-00-00-02A-720A-D	14-06-2022
Engine Control System Electrical Harness - Remove procedure	DA50-A-76-00-00-03A-520A-D	14-06-2022
Engine Control System Electrical Harness - Install procedure	DA50-A-76-00-00-03A-720A-D	18-05-2022
Engine Indicating - Description	DA50-A-77-00-00-00A-040A-D	19-12-2023
Engine Indicating - General fault isolation procedure	DA50-A-77-00-00-00A-420A-D	06-05-2021
Sensor - Change = Remove and install	DA50-A-77-00-00-01A-920A-D	27-06-2024
Exhaust - Description	DA50-A-78-00-00-00A-040A-D	19-12-2023
Exhaust - General fault isolation procedure	DA50-A-78-00-00-00A-420A-D	06-05-2021
Exhaust - Remove procedure	DA50-A-78-00-00-00A-520A-D	19-12-2023
Exhaust - Install procedure	DA50-A-78-00-00-00A-720A-D	12-02-2025
Oil Cooling - Description	DA50-A-79-00-00-00A-040A-D	18-02-2022
Oil Cooling - General fault isolation procedure	DA50-A-79-00-00-00A-420A-D	18-05-2022
Starting - Description	DA50-A-80-00-00-00A-040A-D	14-11-2022
Starting - General fault isolation procedure	DA50-A-80-00-00-00A-420A-D	18-02-2022
Engine Master Switch - Remove procedure	DA50-A-80-00-00-01A-520A-D	27-06-2024
Engine Master Switch - Install procedure	DA50-A-80-00-00-01A-720A-D	27-06-2024
Engine Start Push Button - Remove procedure	DA50-A-80-00-00-02A-520A-D	27-06-2024
Engine Start Push Button - Install procedure	DA50-A-80-00-00-02A-720A-D	27-06-2024
Engine Start Relay - Remove procedure	DA50-A-80-00-00-03A-520A-D	06-05-2021
Engine Start Relay - Install procedure	DA50-A-80-00-00-03A-720A-D	06-05-2021

Document title	Data Module Code	Issue date
Glow Fuse - Change = Remove and install	DA50-A-80-00-00-04A-920A-D	27-06-2024
Turbo Charger - Description	DA50-A-81-20-00-00A-040A-D	19-12-2023
Turbo Charger - General fault isolation procedure	DA50-A-81-20-00-00A-420A-D	06-05-2021
Engine Intercooler - Repair procedure	DA50-A-81-20-00-01A-685A-D	27-06-2024
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00-00
GENERAL

00-00-01 List of Incorporated AMM Changes

Change record

1. List of Incorporated AMM Changes

A. Issue 1

Basic Manual

B. Issue 2

Following changes are incorporated in Issue 2

Change	Title
MÄM	
50-033	Stall Warning Improvement
50-061	9.02.01-E AMM Revision 1
50-072	Emergency Exit at PAX
OÄM	
50-014	Sun Visor
50-018	Installation of Armrest with Integrated Key-Pad
50-035	Removable RH Control Stick

Table 1 - Issue 2 Changes

The technical content of Issue 2 has been approved under the authority of the DOA ref. EASA.21J.052.

C. Issue 3

Following changes are incorporated in Issue 3

Change	Title
MÄM	
50-090	Alternators Cooling Improvement
50-119	AMM Doc. No. 9.02.01 Issue 3
OÄM	
50-001	Oxygen System
50-003	ADF Installation

Table 2 - Issue 3 Changes

The technical content of Issue 3 has been approved under the authority of the DOA ref. EASA.21J.052.

D. Issue 4

Following changes are incorporated in Issue 4

Change	Title
MÄM	
50-097	Exhaust System Modification
50-133	Trim Mass in Ventral Fin
50-171	AMM Doc. No. 9.02.01 Issue 4
50-175	Power Lever Marking Harmonization
50-177	Sealing of NLG Bulkhead Feed Through
OÄM	

Table 3 - Issue 4 Changes

The technical content of Issue 4 has been approved under the authority of the DOA ref. EASA.21J.052.

E. Issue 5

Following changes are incorporated in Issue 5

Change	Title
MÄM	
50-140	Garmin GMU 44B
50-210	Hardened Intercooler
50-224	AMM Doc. No. 9.02.01 Issue 5
OÄM	
50-002	RACC III Installation

Table 4 - Issue 5 Changes

The technical content of Issue 5 has been approved under the authority of the DOA ref. EASA.21J.052.

F. Issue 6

Following changes are incorporated in Issue 6

Change	Title
MÄM	
50-239	AMM Doc. No. 9.02.01 Issue 6
OÄM	
50-011	Ice Protection System for flights into known icing

Table 5 - Issue 6 Changes

The technical content of Issue 6 has been approved under the authority of the DOA ref. EASA.21J.052.

G. Issue 7

Following changes are incorporated in Issue 7

Change	Title
MÄM	
50-184	Improvement of Electrical System and Excitation
50-218	AMM - Doc. No. 9.02.01 Chapter 05 - FAA 100 hrs Inspection Interval
50-220	Exhaust Attachment to Wire Rope Isolator
50-232	PST300-AR-2 Pitot Static Probe
50-235	Trim Bevel Wheel Installation
50-247	AMM Doc. No. 9.02.01 Issue 7
50-255	Flap Control Adjustment Description
50-270	Consolidation of Limitation Placard
OÄM	

Table 6 - Issue 7 Changes

The technical content of Issue 7 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 14-Nov-2022

H. Issue 8

Following changes are incorporated in Issue 8

Change	Title
MÄM	
50-246	AMM -Doc. No. 9.02.01 - FAA Approval
50-294	AMM Doc. No. 9.02.01 Issue 8
OÄM	

Table 7 - Issue 8 Changes

The technical content of Issue 8 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 21-Nov-2022

I. Issue 9

Following changes are incorporated in Issue 9

Change	Title
MÄM	
50-291	DA 50 AMM Correction Air Intakes
50-299	AMM Goodrich Manual References
50-300	AMM Doc. No. 9.02.01 Issue 9
OÄM	
50-002/g	RACC III Installation

Table 8 - Issue 9 Changes

The technical content of Issue 9 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 15-Dec-2022

J. Issue 10

Following changes are incorporated in Issue 10

Change	Title
MÄM	
50-127	Weighing Report - New Leveling Tool
50-256	AMM - Servicing Information and Special Torques
50-260	AMM - Corrosion Examination of Control Rods
50-267	AMM - Correction of Gascolator Filter Removal/Installation Procedure
50-274	AMM - Access Panels
50-281	AMM - Corrections Stall Warning System
50-285	Headset Hanger
50-292	Landing Gear System Check
50-295	Engine Mapping V28D112DA50
50-296/a	Track and Camber Report MLG
50-309	AMM Cowl Flap
50-311	AMM Doc. No. 9.02.01 Issue 10
50-312	AMM Alternator Excitation Batteries Time Limit
50-321	Exhaust Upper End Stop
50-323	AMM - NLG Damper Strut Lubrication
50-326	New Fire Extinguisher
50-352	AMM CS - Propeller De-Icing System Maintenance Checklist

Table 9 - Issue 10 Changes

Change	Title
50-353	AMM CS - CD-300 5 Hour Inspection
OÄM	
50-047	Business Seating Pax Row 1

Table 9 - Issue 10 Changes

The technical content of Issue 10 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 14-07-2023

K. Issue 11

Following changes are incorporated in Issue 11

Change	Title
MÄM	
50-110	Turbo Charger Interface Change
50-255/a	AMM - Flap Control Adjustment Description
50-356/d	Rudder Control Cable Protection Sleeve
50-382	Adjustable Exhaust Mounting Bracket
50-387	AMM CS - Alignment with IPC No.1
50-388	AMM CS - Correction of ADF System Adjustment Procedure
50-392	Correction Drain Holes Center Wing
50-398	AMM CS - Removal of Exhaust
50-399	AMM CS - Correction of Compartment Lights
50-401	AMM Doc. No. 9.02.01 Issue 11
50-403	Weighing Report with Leveling Tool III
50-410	AMM CS - Consolidation of Exhaust System Data Modules
50-419	AMM CS Lubrication of NLG
OÄM	
50-027/b	GDL 69A

Table 10 - Issue 11 Changes

The technical content of Issue 11 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 19-12-2023

L. Issue 12

Following changes are incorporated in Issue 12

Change	Title
MÄM	
50-336	Outer Wing TE & Double Slotted Flap II
50-412	AMM CS - Engine RemoveInstall Procedure
50-426	AMM CS - Special Torque HS
50-427	AMM Doc. No. 9.02.01 Issue 12
50-430	AMM CS - Intercooler Fins Repair Procedure
50-437	AMM-CS Alignment with IPC No. 2
50-443	Coolant System Torques
50-446	AMM-CS Alignment with IPC No. 3
50-449	AMM-CS Location of Glow Fuses
50-451	AMM-CS Incorporation of Color Codes
50-455	Additional Exterior Color
OÄM	
50-050	Garmin GTS800 Traffic Advisory System

Table 11 - Issue 12 Changes

The technical content of Issue 12 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 27-06-2024

M. Issue 13

Following changes are incorporated in Issue 13

Change	Title
MÄM	
50-429	NLG with Decreased Mechanical Trail and Enlarged NLG Doors
50-471	AMM Doc. No. 9.02.01 Issue 13
50-475	AMM-CS Rudder Trim Tab Control System
50-481	CS Landing Gear Wheel Base
OÄM	

Table 12 - Issue 13 Changes

The technical content of Issue 13 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 30-09-2024

N. Issue 14

Following changes are incorporated in Issue 14

Change	Title
MÄM	
50-445	Implementation of Drawing Correction – 02/2024
50-466	Control System Sealing Foams
50-478	AMM-CS Air Condition Coolant Additive
50-486	Drawing Recording - Preventive Coating
50-491	Trim Wheel Assy Rubber Washer Thickness Reduction
50-492	Blocking Diodes for Flaps Indication
50-493	AMM-CS Special Torque and Standard Torque Values
50-495	AMM - Doc. No. 9.02.01 Issue 14
50-496	AMM-CS Elevator Trim Maintenance Procedure Update
OÄM	
50-011/t	Ice protection system (TKS)

Table 13 - Issue 14 Changes

The technical content of Issue 14 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 12-02-2025

O. Issue 15

Following changes are incorporated in Issue 15

Change	Title
MÄM	
50-269	Alternative Repair of RIM935 Composite Structures
50-510	Landing Gear Control Drawings
50-521	AMM-CS Fuel Transfer Pump Filter Procedures
50-522	AMM - Doc. No. 9.02.01 Issue 15
OÄM	
50-005	Beringer MLG Wheels and Brakes
50-011/v	Ice protection system (TKS)
50-011/w	Ice protection system (TKS)
50-065	Balance Mass on NLG Bulkhead
50-066	Beringer Tyre Pressure and Temperature Monitoring System

Table 14 - Issue 15 Changes

The technical content of Issue 15 has been approved under the authority of the DOA ref. EASA.21J.052.

Issue date: 29-08-2025

01-00
INTRODUCTION

01-00-01 Airplane Maintenance Manual

Description

1. Introduction

This Airplane Maintenance Manual contains the data necessary to do the maintenance of the DA 50 C airplane. It contains a full description of the systems, trouble shooting procedures, component removal and installation procedures and maintenance instructions. It does not contain maintenance data for components removed from the airplane (Maintenance Shop data).

The Airplane Maintenance Manual contains the wiring diagrams for the electrical system.

Use the DA 50 C Airplane Flight Manual, latest issue with the Airplane Maintenance Manual and the related Service Bulletins. Additional maintenance data is referenced in Chapter 05-00.

2. Revision Service (Issues)

The manufacturer provides a revision service for the Airplane Maintenance Manual. This revision service is done via issues. The issue shows design changes to the airplane or changes in procedures. Each data module of the manual shows the number and the date of issue.

3. Page Numbering System

This manual uses the ATA iSpec2200 page block-numbering system. The page number is at the bottom of the page at the outer edge. It is adjacent to the chapter/section number.

4. Figures

Figures are given numbers in sequence. The first figure in a chapter or section is Figure 1.

5. List of Incorporated AMM Changes

The Airplane Maintenance Manual has a List of Incorporated AMM Changes. Use the List of Incorporated AMM Changes to show, when changes were included in the Airplane Maintenance Manual.

6. List of Effective Data Modules

This Airplane Maintenance Manual has a List of Effective Data Modules. The List of Effective Data Modules shows you the title, the data module code and the issue date of each data module contained in the Airplane Maintenance Manual.

01-00-02 Manual Configuration

Description

1. Manual Configuration

This manual is written using the specification of the Air Transport Association of America Specification iSpec2200. Each system is given a chapter number from the ATA iSpec2200. Where applicable, a chapter contains sections for each sub-system.

The specification ASD Simplified Technical English, ASD-STE100 has been used to write this Airplane Maintenance Manual. This is a mandatory requirement of the ATA iSpec2200.

There are only 3 sources of words available to use in Simplified Technical English.

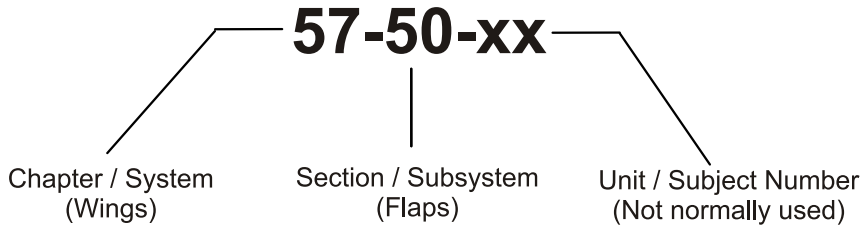
- Approved words from the ASD-STE100. These words have defined meanings and selected parts of speech.
- Technical names as defined in the ASD-STE100. Used only as adjectives or nouns.
- Manufacturing processes as defined in the ASD-STE100. Always used as verbs.

This manual does not use the ATA iSpec2200 Airplane Maintenance Task Oriented Support System (ATMOSS) or the ATA iSpec2200 Production Management Data Base (PMDB).

The manual is written in a S1000D based software. Therefor information codes are used in accordance with S1000D to designate each data module.

A. The ATA iSpec2200 Numbering System

The ATA iSpec2200 numbering system uses 3 pairs of numbers, for example:



The first pair of numbers shows the system. System 57 is the wings. Chapter 57 contains the data for the wings.

The second pair of numbers shows the sub-system. Sub-system 50 is the Trailing Edge Flap. Chapter 57, Section 50 contains the data for the trailing edge flaps installation.

The third pair of numbers shows a unit. A unit could be the flap itself. Only complex systems use unit numbers.

For simple systems, the main chapter has all of the data and there are no section/sub-system break-downs.

B. Groups of Chapters

The chapters are put together in these groups:

Group A - Introduction: Chapters 01-02

Group B - Airplane General: Chapters 03-12

Group C - Airframe Systems: Chapters 20-35

Group D - Structure: Chapters 51-57

Group E - Propeller: Chapter 61

Group F - Engine: Chapters 71-81

The main contents of each group of chapters is given below:

(1) Group A - Introduction

Chapter 01 tells you about the Airplane Maintenance Manual, and Chapter 2 tells you how to use the Airplane Maintenance Manual.

(2) Group B - Airplane General

Chapter 03 gives you a general description of the airplane and its systems.

Chapter 04 gives you data about the Airworthiness Limitations and certification of the airplane.

Chapter 05 contains the Scheduled Maintenance Checklist. Some tasks require a maintenance procedure. The scheduled maintenance checklist identifies the Section in the manual that gives the maintenance procedure for the task. It also tells you where to find general information.

Chapters 06 to 10 tell you about the dimensions of the airplane and general procedures such as towing, parking and weighing.

Chapter 11 tells you about the placards and markings which are important for the safe operation of the airplane.

Chapter 12 contains servicing tasks such as refueling and lubrication. It also contains data about cleaning the airplane.

(3) Group C - Airframe Systems

Chapter 20 contains the standard practices for airframe maintenance.

Chapters 21 to 35 tell you about the airframe systems. They include the avionics systems (such as communications (Chapter 23)) and the mechanical systems (such as flight controls (Chapter 27)).

Chapter 31 shows the location of the instruments. The chapter which is applicable to the system gives the details. For example, Chapter 27 gives the details for the flap position indicator.

(4) Group D - Structure

Chapter 51 contains data about the design of the airframe. It also gives instructions for assessing damage to the airframe and how to do minor repairs.

Chapters 52 to 57 tell you about each part of the structure.

(5) Group E - Propeller

Chapter 61 contains the maintenance procedures for the propeller. Refer to the propeller manufacturer's manual for other data.

(6) Group F - Engine

This group of chapters describes the engine and its systems. It contains the maintenance procedures for maintenance of the engine on the airplane. Refer to the engine manufacturer's manual for other data.

C. Chapter Configuration

The first page of each chapter shows the number of the chapter and the title. Where applicable, each chapter and section contains the topics that follow:

- Description and Operation.
- Trouble-Shooting.
- Maintenance Practices. Where applicable the maintenance practices give data on these procedures:
  - Servicing.
  - Removal and Installation.
  - Adjustment/Tests.
  - Checking/Testing.
  - Cleaning/Painting.
  - Repairs.

01-00-03 Warnings, Cautions and Notes

Description

1. Warning, Cautions and Notes

WARNING

A WARNING TELLS THE PERSON DOING THE MAINTENANCE THAT INJURY OR DEATH IS POSSIBLE IF THEY DO NOT STRICTLY FOLLOW THE INSTRUCTIONS.

CAUTION

A CAUTION TELLS THE PERSON DOING THE MAINTENANCE THAT DAMAGE TO EQUIPMENT IS POSSIBLE IF THEY DO NOT FOLLOW THE INSTRUCTIONS.

NOTE

A Note tells the person doing the maintenance how to make the task easier.

Obey all the usual safety precautions and maintenance instructions when doing maintenance.

This Airplane Maintenance Manual also contains warnings, cautions and notes before applicable instructions.

02-00
ORGANIZATION AND HANDLING OF THE MANUAL

02-00-01 Organization and Handling of the Manual

Description

1. Organization and Handling of the Manual

A. General

For data about a system, look in the Table of Content.

B. Applicability

Data applicable to a series of airplane is marked with an applicability note. For example:

Valid for S/N 50.C.A.A.001 thru 50.C.A.A.999.

This shows that you can use this data for airplane with serial numbers 50.C.A.A.001 thru 50.C.A.A. 999 inclusive.

C. Issues

The manufacturer makes changes to the Airplane Maintenance Manual to show design changes, maintenance procedure changes or other changes. Changes are published as a new issue of the AMM.

A manual issue contains these items:

- The changed data modules.
- The reason for the issue.
- List of incorporated changes.
- Instructions for putting the revision into the Airplane Maintenance Manual.
- A new List of Effective Data Modules (LOEDM).

A vertical bar in the left margin of the page shows the changes.

D. Service Bulletins and Service Instructions

Service Bulletins (SB) describe modifications, that are available for in-service airplanes.

Service Instructions give the operator technical instruction about the product which are not included in the standard documentation. This could be for example recommendations for maintenance or information about SBs of other manufacturers (Continental Aerospace, mt-Propeller etc.).

Refer to Service Information No. SI 50-001 for details on the organization of Service Bulletins and Service Instructions.

E. Service Information

A Service Information tells the operator about permitted installations or provided information to installed or additional equipment. It also gives the applicable technical data.

Service Information give the operator technical instruction about the product which are not included in the standard documentation. This could be for example recommendations for maintenance or information about SBs of other manufacturers (Continental Aerospace, mt-Propeller etc.).

Refer to Service Information No. SI 50-001 for details on the organization of Service Bulletins and Service Informations.

F. Concession-Reports

Concession-Reports are tools to approve and document deviations from the standard manufacturing processes during construction and assembly of an individual airplane (for example, handling of a mis-drilled hole in the fuselage). In case the operator or the maintenance organization needs to be informed as a consequence of the deviations for that particular airplane (for example, the use of a special sparepart is necessary or a different limit in a control surface balancing report applies), these Concession-Reports are contained in the airplane log. Before you do maintenance, check the airplane log for such Concession-Reports.

G. Document Notifications

New manual issues, Service Bulletins and Service Information are announced via e-mail notification service. These new documents are available for download on the Internet web site of Diamond Aircraft: www.diamondaircraft.com.

02-00-02 Abbreviations

Description

1. Abbreviations

Where possible, the abbreviations used correspond with the related regulations.

ACL	Anti-Collision Light (Strobe Lights)
ADF	Automatic Direction Finder
AFM	Airplane Flight Manual
ALT	Altitude
ASI	Airspeed Indicator
CCW	Counter-Clockwise
CFRP	Carbon Fiber Reinforced Plastic
CW	Clockwise
CWS	Control Wheel Steering
DME	Distance Measuring Equipment
DOHC	Double Overhead Camshaft
ECS	Environmental Control System
ECU	Engine Control Unit
ELT	Emergency Locator Transmitter
FADEC	Full Authority Digital Engine Control
FD	Flight Director
FI	Flight Idle
FIKI	Flight Into Known Icing
FLC	Flight Level Change
FOD	Foreign Object Debris
FRP	Fiber Reinforced Plastic
FWD	Forward
GA	Go Around
GFRP	Glass Fiber Reinforced Plastic
GI	Ground Idle
GPS	Global Positioning System
G/S	Glide Slope
HPS	High Pressure Switch
HT	Horizontal Tail
IAU	Integrated Avionics Unit
ICS	Integrated Cockpit System

IFR	Instrument Flight Rules
ILS	Instrument Landing System
I-Panel	Instrument-Panel
HDG	Heading
HSI	Horizontal Situation Indicator
LH	Left Hand
LOC	Localizer
LOEDM	List of Effective Data Modules
LPS	Low Pressure Switch
MAC	Mean Aerodynamic Chord
MÄM	Mandatory Design Change Advisory
MFD	Multi Function Display
MKR	Marker
MLG	Main Landing Gear
MSI	Major Structural Inspection
NAV	Navigation
N/A	Not Available
NLG	Nose Landing Gear
OÄM	Optional Design Change Advisory
OAT	Outside Air Temperature
PFD	Primary Flight Display
PTT	Push To Talk
RACC	Recirculating Air Cabin Cooling
RCPI	Remote Control Panel Indicator
RH	Right Hand
RWD	Rearward
SAM	Standby Attitude Module
SB	Service Bulletin
SI	Service Instruction
S/N	Serial Number
TAS	True Air Speed
TBO	Time Between Overhaul
TKS system	Tecalemit- Kilfrost-Sheepbridge Stokes system
TSMOH	Time Since Major Overhaul
TTSN	Total Time Since New
TTSO	Total Time Since Overhaul
UHF	Ultra High Frequency
VFR	Visual Flight Rules

VHF	Very High Frequency
VOR	VHF Omni-Directional Ranging
VS	Vertical Speed
VSI	Vertical Speed Indicator
VT	Vertical Tail
YD	Yaw Damper

02-00-03 Conversion Factors

Description

1. Conversion Factors

Dimension	SI-Units	US-Units	Conversion
Length	[mm] millimeters [m] meters [km] kilometers	[in] inches [ft] feet [NM] nautical miles	[mm] / 25.4 = [in] [m] / 0.3048 = [ft] [km] / 1.852 = [NM]
Volume	[l] liters [ml] milliliter	[US gal] US gallons [qts] US quarts [oz] ounce	[l] / 3.7854 = [US gal] [l] / 0.9464 = [qts] [ml] x 0.033814 = [oz]
Speed	[km/h] kilometers per hour [m/s] meters per second	[kts] knots [mph] miles per hour [fpm] feet per minute	[km/h] / 1.852 = [kts] [km/h] / 1.609 = [mph] [m/s] x 196.85 = [fpm] [fpm] / 196.85 = [m/s]
Speed of rotation	[RPM] revolutions per minute		-
Mass	[kg] kilograms	[lb] pounds	[kg] x 2.2046 = [lb]
Force, weight	[N] newtons	lbf] pounds force	[N] x 0.2248 = [lbf]
Pressure	[hPa] hectopascals [mbar] millibars [bar] bars	[inHg] inches of mercury [psi] pounds per square inch	[hPa] = [mbar] [hPa] / 33.86 = [inHg] [bar] x 14.504 = [psi]
Temperature	[°C] degrees Celsius	[°F] degrees Fahrenheit	[°C]x1.8 + 32 = [°F] ([°F] - 32)/1.8 = [°C]
Intensity of electric current	[A] ampères		-
Electric charge (battery capacity)	[Ah] ampère-hours		-
Electric potential	[V] volts		-
Time	[sec] seconds		-

Table 1 - Conversion Factors

Liters	US Gallons		US Gallons	Liters
5	1.3		1	3.8
10	2.6		2	7.6
15	4.0		4	15.1
20	5.3		6	22.7
25	6.6		8	30.3
30	7.9		10	37.9
35	9.2		12	45.4
40	10.6		14	53.0
45	11.9		16	60.6
50	13.2		18	68.1
60	15.9		20	75.7
70	18.5		22	83.3
80	21.1		24	90.9
90	23.8		26	98.4
100	26.4		28	106.0
110	29.1		30	113.6
120	31.7		32	121.1
130	34.3		34	128.7
140	37.0		36	136.3
150	39.6		38	143.8
160	42.3		40	151.4
170	44.9		45	170.3
180	47.6		50	189.3

Table 2 - Conversion Chart Liters / US Gallons

02-00-04 Torque Conversion Factors

Description

1. Torque Conversion Factor

Use Figure 1 for conversion of torque values Nm - lbf.ft.

Find the Nm value on the horizontal axis. Move vertically to the solid black diagonal line. Then move horizontally to the vertical axis. Read the value in lbf.ft.

Example: To convert 24 Nm to lbf.ft., find 24 Nm on the horizontal axis (see the dashed line). Follow the dashed line vertically to the solid black diagonal line. Then follow the dashed line horizontally to the vertical axis. Read the value of 17.7 lbf.ft.

Use Figure 2 for conversion of Nm - lbf.in.

Find the Nm value on the horizontal axis. Move vertically to the solid black diagonal line. Then move horizontally to the vertical axis. Read the value in lbf.in.

Example: To convert 4.4 Nm to lbf.in., find 4.4 Nm on the horizontal axis (see the dashed line). Follow the dashed line vertically to the solid black diagonal line. Then follow the dashed line horizontally to the vertical axis. Read the value of 39 lbf.in.

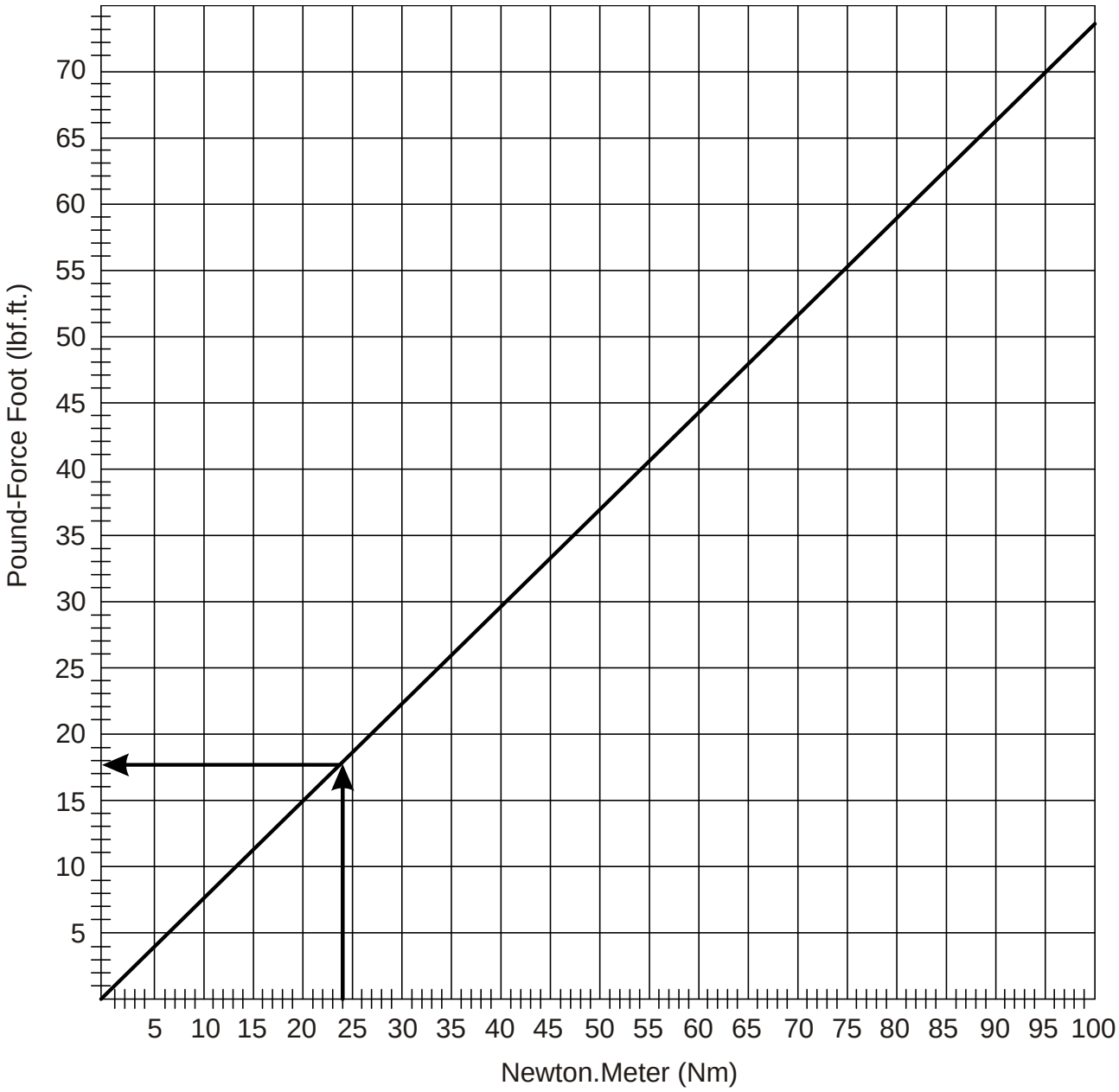


Figure 1 - Nm - lbf.ft.

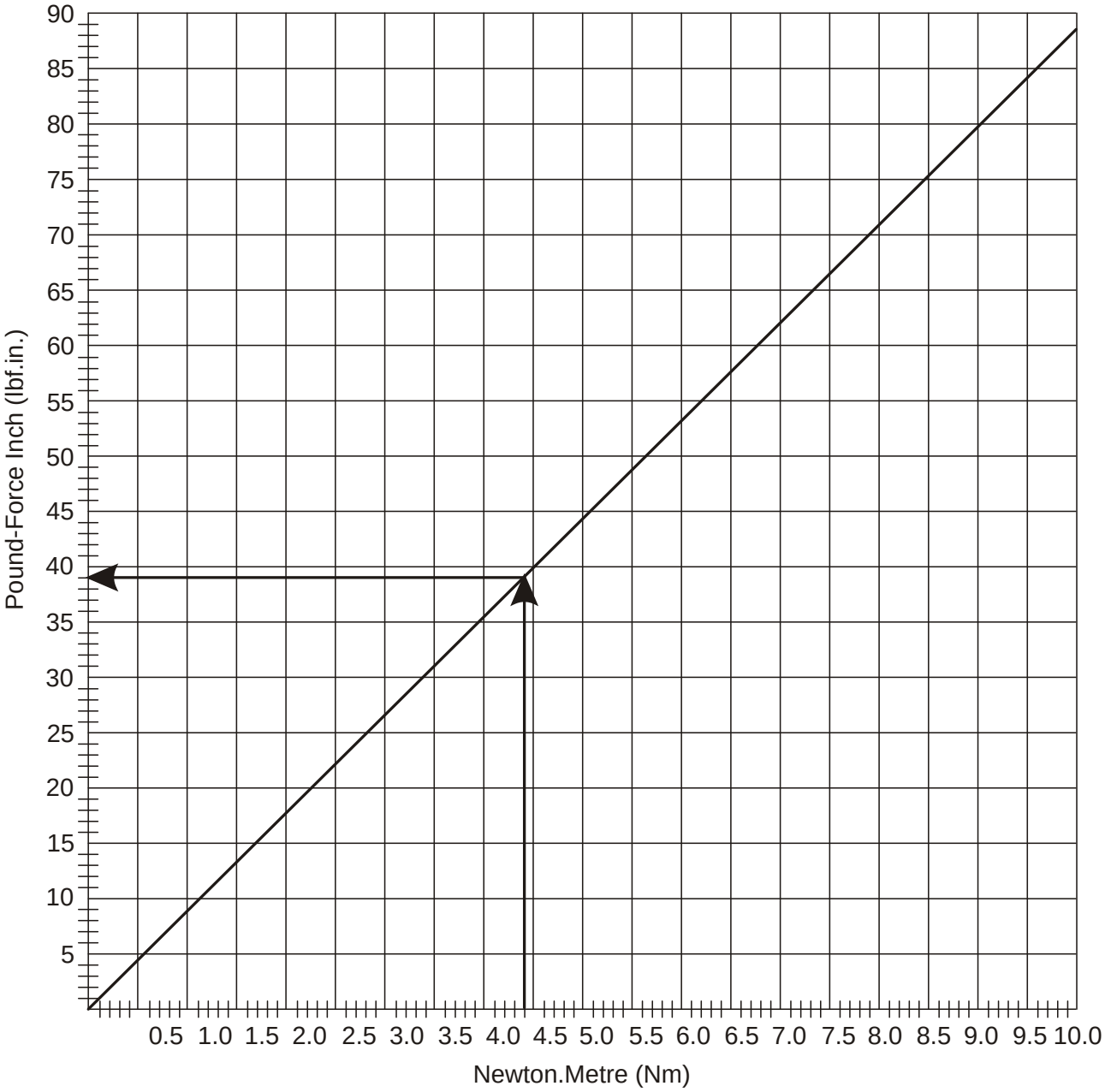


Figure 2 - Nm - lbf.in.

03-00
GENERAL DESCRIPTION OF THE AIRPLANE

03-00-01 General Description of the Airplane

Description

1. Description

The DA 50 C is a single-engine, five seat, low-wing monoplane. It has a cantilever wing and a 'T' tail. The airplane structure is fiber-reinforced plastic composite. This gives a very strong but light structure.

The semi-monocoque fuselage is a carbon-fiber reinforced-plastic (CFRP) shell with glass-fiber reinforced-plastic (GFRP) bulkheads and stiffeners. The fuselage is constructed in 2 halves that are bonded together after installation of the fuselage bulkheads and frames. Carbon fiber is used in many areas to give increased strength and rigidity. A roll-over protection bar forms part of the construction of the cockpit area. The vertical stabilizer is integral with the fuselage shells.

A wing center section is attached to the bottom of the fuselage center section. The wing stubs have the attachment points for the outer wings. Two main spars ('spar bridges') transfer the loads from the wings to the fuselage. Four main bolts and 2 auxiliary bolts attach the wing spar stubs to the wing center section. The center section has the main landing gear bays and landing gear leg attachments.

The cantilever outer wing is a semi-monocoque structure. Each wing has two I-shaped spars with webs made from GFRP/rigid foam sandwich and caps made from carbon-fiber reinforced plastic (CFRP) tapes. Each wing has top and bottom shells made of carbon fiber reinforced plastic-sandwich construction which are bond to the spars. Carbon fiber reinforced plastic ribs and webs bond to the spars and shells to complete the structure. Electrically operated flaps and mechanical ailerons are attached to the trailing edge of the wings.

The horizontal stabilizer is a semi-monocoque structure. It has top and bottom shells made of GFRP and CFRP with two main spars. The shells are bonded to the spars and ribs. The trailing edge has a conventional elevator with both mechanical and electrical trim systems.

A two-part acrylic lacquer finish protects the outside skin of the airplane from ultraviolet rays and humidity and a p-static laquer protects against p-static influence.

The tricycle landing gear is fully retractable and hydraulically operated. The main landing gear legs are attached to mounting points in the wing center-section. The main landing gear retracts into integral compartments in the wing center section. Landing gear doors seal the landing gear bays when the gear is retracted. The nose landing gear is attached to the engine mount. The nose landing gear is able to caster through an angular range of ±42°. The pilot uses the rudder control pedals and brakes to steer the aircraft. The nose landing gear bay is a seperate compartment below the engine and doors seal the bay when the gear is retracted.

The DA 50 C has three doors designed as gull wing doors in order to provide convenient access for crew and passengers. The doors are operated with door handles. To ensure that the doors are locked properly each door is locked via two bolts engaging bushings in the door frame. The opening of the doors is supported by gas springs pushing on the door hinges. The RH window in the passenger row is an emergency exit.

The flight control system uses conventional ailerons, elevator and rudder. The DA 50 C has 2 control sticks (1 removable on the RH side, if OÄM 50-035 is carried out) and 2 rudder pedal assemblies to operate the primary flight controls. Push-pull rods operate the ailerons and the elevator. Cables operate the rudder. An electric motor operates the flaps via push-pull rods. The elevator has both an electric and a manual trim system. A handwheel and Bowden cable operate the elevator trim mechanically. The rudder trim is electrically operated. An electric motor operates a Bowden cable that is actuating the rudder trim tab.

The DA 50 C is powered by a Continental Centurion 3.0 (CD-300) liquid-cooled, V6-cylinder-four-stroke compression ignition engine. The direct injection engine operates based on the common-rail technique

and is turbocharged. The propeller is activated by an integrated gearbox with an integral torsional vibration damper. All engine components are controlled by a FADEC system.

The airplane has an aluminum fuel tank in each wing. Each tank consists of three fuel chambers. The fuel tanks are inboard between the spars. The tank assemblies have fuel fillers at or near the outboard end. Flexible hoses connect the tanks to a fuel selector and shut-off valve under the cockpit floor. An electrically driven pump supplies fuel to the high pressure pump of the engine. The tanks have fuel quantity probes which operate the cockpit indicating systems.

The airplane has three sources of electrical power. A 24 V battery supplies electrical power when the engine is not running. Engine generators provide electrical power when the engine is running. Switches and circuit breakers control all electrical devices. A push button controls the engine starting system.

The DA 50 C has a full range of flight instruments contained in an integrated cockpit system (ICS). The ICS has 2 display screens. Both of them are able to show all the airplane flight instrumentation data, navigation data, engine data and other airplane system data. The ICS also displays all the airplane warnings, cautions and alerts. The ICS can also be configured to show ground and flight check lists.

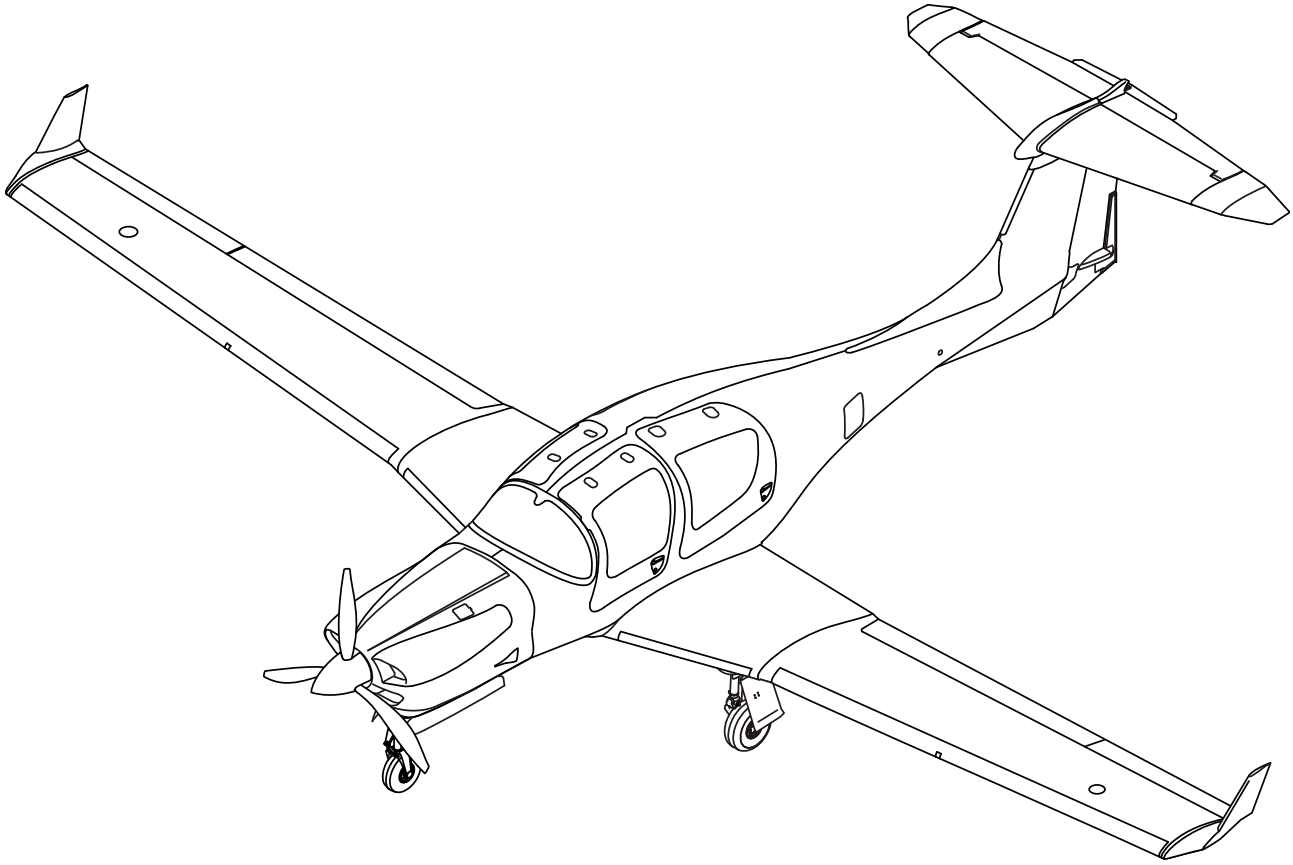


Figure 1 - DA 50 C Airplane

03-00-02 Equipment Data

Description

1. Equipment Data

NOTE

Equipment which is certified for use in the DA 50 C is listed in Section 6 of the Airplane Flight Manual. Such equipment may be installed in accordance with the Airplane Maintenance Manual.

”Additional Equipment”. The installation of Additional Equipment is a modification which must be handled in accordance with national regulations or a Service Bulletin.

ATA Chapter	Equipment/System	Manufacturer/Address	Direct Shipping Approved
12	Anti-Corrosion Cleaning Agent: Ardrox AV 980 Anti-Corrosion Coating: Ardrox AV 30	Chemetall GmbH Trakehnerstrasse 3 D-60487 Frankfurt a. M. GERMANY Tel: +49 69 7165-0 Fax: +49 69 7165-3018 Website: www.chemetall.com	yes
	Anti-Corrosion Cleaning Agent: Diestone DLS Anti-Corrosion Coating: Socopac 65 H	Socomor Zl du Prat - RP 3707 F-56037 Vannes Cedex FRANCE Tel: +33 2 97 43 76 90 Fax: +33 2 97 43 76 86 Website: www.socomor.com	yes
22,23,31,34	Integrated Cockpit System, Autopilot System:	Garmin International, Inc. 1200 East 151st Street Olathe, Kansas 66062 USA Tel: (913) 397-8200 Fax: (913) 397-8282 Website: www.garmin.com	yes

Table 1 - Equipment Data

ATA Chapter	Equipment/System	Manufacturer/Address	Direct Shipping Approved
	Cooling Fans for Integrated Cockpit System:	SANDIA aerospace 3700 Osuna Road NE, Suite 711 Albuquerque, NM 87109 USA Tel: (505) 341-2930 Fax: (505) 341-2927 Website: www.sandiaaerospace.com	yes
24	Battery:	Concorde Battery Corp. 2009 San Bernardino Road West Covina, CA 91790 USA Tel: (626) 813-1234 Website: www.concordebattery.com	yes
25	Emergency Locator Transmitter (ELT):	McMurdo / Kannad Z.I. des 5 Chemins BP 23 F-56520 Guidel FRANCE Tel: +33(0)297 02 4949 Fax: +33(0)297 65 0020 Website: www.mcmurdogroup.com	yes
25	Safety Belts:	Schroth Safety Products GmbH P.O. Box 24 40 D-59714 Arnsberg GERMANY Tel: +49-2932-9742 Website: www.schroth.com	yes
26	Fire Extinguisher:	Amerex Corporation P.O. Box 81 Trussville, Alabama USA Phone: (205) 655 32 17 Website: www.amerex-fire.com	yes

Table 1 - Equipment Data

ATA Chapter	Equipment/System	Manufacturer/Address	Direct Shipping Approved
31	Standby Attitude Module:	Mid-Continent Instrument and Avionics 9400 E. 34th Street North, Wichita, Kansas 67226 USA Tel: (316) 630-0101 Fax: (316) 630-0723 Website: www.mcico.com	yes
32	Main Wheels and Brakes:	Parker Hannifin Corporation Aircraft Wheel and Brake Division 1160 Center Road Avon, Cleveland, Ohio 44011 USA Tel: (440) 937 6211 Fax: (440) 937 6416 Website: www.parker.com	yes
	Main Wheels, Nose Wheel and Brakes: (if OÄM 50-005 is installed)	Beringer Aero 30 Rue Pierre-Georges Latécoère 05130 Tallard France +33 492201619 Website: www.beringer-aero.com	yes
33	Position / Anti-Collision Lights:	Whelen Aerospace Technologies 51 Winthrop Road Chester, CT 06412 USA Tel: (860) 526-9504 Fax: (860) 526-2009 Website: www.flyWAT.com	yes

Table 1 - Equipment Data

ATA Chapter	Equipment/System	Manufacturer/Address	Direct Shipping Approved
33	Landing and Taxi Lights:	XeVision 4245 Airport Rd. Ogden, UT 84405 USA Tel: (801) 622-7000 Fax: (801) 622-7277 Website: www.xevision.com	yes
34	Pitot-Static Probe:	Aerosonic 1212 North Hercules Avenue Clearwater, Florida 33765 USA Tel: (727) 461-3000 Website: www.aerosonic.com	no
NOTE The propeller must have the pitch settings specified in Chapter 61 of this manual.			
61	Propeller:	mt-Propeller Airport Straubing Wallmühle D-94348 Atting GERMANY Tel: +49-9429-9409-0 E-mail: sales@mt-propeller.com Website: www.mt-propeller.de	yes
72	Engine:	Continental Aerospace Technologies GmbH Platanenstraße 14 D - 09356 St. Egidien GERMANY Tel. +49 37204 696-0 Fax +49 37204 696-1910 E-mail: support@continentaldiesel.de Website: www.continentaldiesel.de	yes

Table 1 - Equipment Data

03-00-03 Handling of Identification Data

Description

1. Handling of Identification Data

No person shall remove, change, or place identification information on any airplane, engine, propeller, propeller blade, or propeller hub, without the approval of the competent national Airworthiness Authority.

If a deviation from the procedure above is necessary, any person performing maintenance work may in consultation with the competent national Airworthiness Authority:

- Remove, change, or place the identification plate on any airplane, engine, propeller, propeller blade, or propeller hub.
- Remove an identification plate, when necessary during maintenance operations.
- No person shall install an identification plate, removed in accordance with the procedures above, on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

04-00
AIRWORTHINESS LIMITATIONS

04-00-01 Approval

Description

1. THIS AIRWORTHINESS LIMITATIONS SECTION IS APPROVED BY EUROPEAN UNION AVIATION SAFETY AGENCY (EASA) IN ACCORDANCE WITH THE APPLICABLE CERTIFICATION PROCEDURES AND THE TYPE CERTIFICATION BASIS. IT SPECIFIES THE AIRWORTHINESS LIMITATIONS REQUIRED BY CS-23. CHANGES TO THE AIRWORTHINESS LIMITATION SECTION MUST BE APPROVED.

   THIS AIRPLANE MAINTENANCE MANUAL CHAPTER 04 (AIRWORTHINESS LIMITATIONS) IS APPROVED WITH EASA TC EASA.A.639.

2. THE AIRWORTHINESS LIMITATIONS SECTION IS FAA APPROVED AND SPECIFIES MAINTENANCE REQUIRED UNDER §§43.16 AND 91.403 OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS UNLESS AN ALTERNATIVE PROGRAM HAS BEEN FAA APPROVED.

   SERVICE BULLETINS OR OTHER DOCUMENTS REVISING THIS SECTION WHICH CONTAIN A STATEMENT THAT THE DOCUMENT IS EUROPEAN UNION AVIATION SAFETY AGENCY (EASA) APPROVED ARE CONSIDERED FAA APPROVED.

04-00-02 Airworthiness Limitations

Description

1. Airworthiness Limitations

This Chapter is approved and shows the mandatory limitations which were established as a result of the certification process.

The time limits given in Chapter 04 must be applied to ensure Continued Airworthiness of the DA 50 C.

NOTE

Regular inspections of the airplane including replacement and overhaul of certain components are required to ensure Continued Airworthiness of the DA 50 C.

For possible airworthiness limitations of engine, propeller, components and vendor equipment refer to the applicable Maintenance Data as listed in 05-00 Referenced Maintenance Data - Description.

A. Certification Maintenance Requirements

see 04-00 Certification Maintenance Requirements - Description

B. Replacement Requirements

see 04-00 Replacement Requirements - Description

C. Paint

It is mandatory to paint the DA 50 C in accordance with the color paint scheme provided in 51-20 Exterior Paint Finish - Repair procedure.

Before painting the DA 50 C in a different shade than defined in 51-20 Exterior Paint Finish - Repair procedure of this Manual, the manufacturer must be contacted.

D. Repairs

Repairs, which are not described in 51-00 Airplane Structure - Description of this manual may only be carried out in accordance with a repair scheme which must be approved in accordance with the procedures established by the competent certifying authority.

04-00-03 Certification Maintenance Requirements

Description

1. Certification Maintenance Requirements

A. Component and System Checks

The component and system checks under this Paragraph are also included in 05-10 Component Time Limits - Description.

The following table lists airplane components and systems which require monitoring through scheduled maintenance.

Where an interval is given in both flight time and calendar years, the limit which is reached first must be applied.

ATA Ch.	Component	Maintenance Requirement	Interval	
			hrs.	yrs.
51	Bonding system and static discharging system.	Resistance measurements (refer to 51-80 Lightning Protection - Description).	1000 ± 50	4 yrs. ± 60 days

Table 1 - Component and System Checks

B. Life Time Limit / Structure Checks

There is no structural life limit.

NOTE

The DA 50 C has been designed and tested under a 'damage tolerant structure' philosophy. Therefore the structural inspections given in Chapter 05 cover all required structure checks.

04-00-04 Replacement Requirements

Description

1. Replacement Requirements

The following table lists life limited airplane components which must be replaced at a specific time.

Where an interval is given in both flight time and calendar years, the limit which is reached first must be applied.

NOTE

The replacement requirements under this Paragraph are also included in 05-10 Component Time Limits - Description.

ATA Ch.	Component	Replacement Time	
		hrs.	yrs.

Table 1 - Replacement Requirements

05-00
TIME LIMITS AND MAINTENANCE CHECKS

05-00-01 Time Limits and Maintenance Checks

Description

1. General Information

This Chapter will help you to do the maintenance of the DA 50 C correctly. Refer to 04-00 Airworthiness Limitations - Description and 05-00 Time Limits and Maintenance Checks - Description to help you when you do maintenance and inspections.

The times given in this Chapter are times recommended by the airplane manufacturer. Do the scheduled maintenance at the given times, because they are the minimum required to keep the airplane in a good technical condition.

These checks do not override the requirements of the Airworthiness Authority of the country, where the airplane is registered. You must make sure that all Airworthiness Directives, Service Bulletins and any other requirements of the Airworthiness Authority of the country, where the airplane is registered, are completed as required.

The airplane manufacturer can change the time between checks. If this happens, the airplane manufacturer will publish the change as a revision to the Airplane Maintenance Manual.

Time limits and maintenance checks were established for operation in a moderate climate and on paved runways. For operation under rough conditions (extreme temperatures, saline air, wind-borne sand, operation on grass runways, etc.) it may be necessary to make changes to the maintenance requirements given in this Chapter. You can decrease the time between scheduled maintenance checks if the airplane's operation makes it necessary. You must not extend the time between scheduled maintenance checks without the approval of the Airworthiness Authority of the country, where the airplane is registered.

2. Chapter Configuration

A. Section 05-10

Time limit - general information - Description contains the recommended time limits for maintenance checks. It also contains the recommended time between overhaul for components. Use the data in Section 05-10 to find when to do the maintenance.

B. Section 05-20

(1) Section 05-20-00

Scheduled maintenance checks - Description contains information about the maintenance checklist organization.

(2) Section 05-20-01

Flight Line Checks - Description contains information about the Flight Line Checks.

(3) Section 05-20-02

Drain Holes Inspection - Description contains information about the Drain Holes.

C. Section 05-40

Section 05-40 contains the DA 50 C reports.

(1) Section 05-40-01

DA 50 C Maintenance Report. Refer to Maintenance Report - Description.

(2) Section 05-40-02

DA 50 C Engine Ground Test Record. Refer to Engine Ground Test Record - Description.

(3) Section 05-40-03

DA 50 C Check Flight Report. Refer to Check Flight Report - Description.

(4) Section 05-40-04

Major Structural Inspection (MSI) Check Findings Report. Refer to Major Structural Inspection Check Finding Report - Description.

D. Section 05-41

DA 50 C Maintenance Checklist for the engine: Maintenance checks schedule for 100, 200, 1000, and 2000 hour checks on the engine and propeller. Refer to DA 50 Engine Scheduled Maintenance Checklists - Description.

E. Section 05-42

DA 50 C Maintenance Checklist for the airframe: Maintenance checks schedule for 100, 200, 1000, and 2000 hour checks on the airframe. Refer to Airframe Scheduled Maintenance Checklists - Description.

F. Section 05-50

Section 05-50 contains the unscheduled Maintenance checks. Do these checks after hard landings, propeller damage, engine fire and lightning strike.

3. Definitions

In this Airplane Maintenance Manual, the following words have special meanings:

Adjust. To put into a specified position or condition. For example, adjust the clearance to 1 mm.

Check. A technical name for a group of maintenance tasks. For example, the 100 hour check.

Examine. To look carefully at an item. It includes steps such as these:

- Make sure that the item:
  - Is complete.
  - Is correctly attached.
  - Has no loose parts.
  - Shows no signs of leaks.
  - Is not cracked or damaged.
  - Is not worn.
- Make sure that:
  - The surface protection is not damaged.
  - All locking devices are installed correctly.
- Make sure that items such as pipes and cables:
  - Look serviceable.
  - Do not rub against other items.
- For log books and other technical records:
  - To find outstanding faults.
  - To make sure they are up-to-date and correctly maintained.

Inspection. The procedure which compares an object with its standard or specification.

Measure. To find out the dimensions, capacity or quantity of something.

Monitor. To look at something over a period of time. For example, monitor the engine speed indicator.

Record. (1) Technical name for something that shows what was done. For example, write the result of the test in the engine record.
(2) The act of making a record. For example, record the result of the test in the Airplane Maintenance Log.

Replace. To remove an item and install a serviceable item in the same location.

Set. To put equipment into a given adjustment, condition or mode. For example, set the altimeter scale to 1013 mbar (= 1013 hPa).

Task. An assigned work or a procedure. For example, each step of the task has an identification letter.

Test. That which you do when you operate or examine an item to make sure that it agrees with the applicable specifications. For example, disconnect the systems which are not necessary for the test. Or do an engine test.

05-00-02 Referenced Maintenance Data

Description

1. Referenced Maintenance Data

Use latest revision of referenced maintenance data.

Supplier	Document Name	Document No.
Aerosonic	Component Maintenance Manual for the PST300-AR-2-() Pitot Static Probe	PST300-AR-2-CMM
Aerox	Component Maintenance Manual with Illustrated Parts List, Part No. 4110-1133 Series	35-00-25
Amerex Corp.	Owners Service Manual, Installation, Operating & Servicing Instructions	05602
Beringer Aero	Maintenance Guide	SM-00
Beringer Aero	Brake Servicing Manual	SM-01
Beringer Aero	Wheel Servicing Manual	SM-02
Beringer Aero	Master-Cylinders Servicing Manual	SM-03
Beringer Aero	SensAIR Servicing Manual	SM-08
Cleveland/Parker	Cleveland/Parker Maintenance Manual	AWBCMM0001
Cleveland/Parker	Cleveland/Parker Product Catalog	AWBPC0001
Cleveland/Parker	Cleveland/Parker Technician's Service Guide	AWBTSG0001
Concorde	RG® Series Main Aircraft Batteries Component Maintenance Manual	5-0171
Continental Aerospace Technologies	Operation & Maintenance Manual CD-300	OM-06-01
Continental Aerospace Technologies	Repair Manual CD-300	RM-06-01
Garmin	Garmin G1000 NXi System Maintenance Manual	190-02631-00
Goodrich	Component Maintenance Manual Brush Assemblies	ATA 30-60-01
Goodrich	Installation and Maintenance Manual for Prop De-Icing Systems	ATA 30-60-02
Goodyear	Aircraft Tire Care & Maintenance	700-862-931-538
Kannad Integra	Installation Manual for the AF ELT	DOC09081F
Mid Continent	Installation Manual and Operating Instructions Model MD 302 Series SAM	9017782
mt-Propeller	mt-Propeller Composite Blade Overhaul Manual	E-1290, ATA 61-12-90
mt-Propeller	mt-Propeller Operation and Installation Manual	E-124, ATA 61-01-24

Table 1 - Referenced Maintenance Data

Supplier	Document Name	Document No.
mt-Propeller	mt-Propeller Operation and Installation Manual, Electric De-Ice Controller	E-3760, ATA 61-07-60

Table 1 - Referenced Maintenance Data

05-10
TIME LIMITS

05-10-01 Time limit - general information

Description

1. General Information

All scheduled maintenance checks have time limits. You must do the scheduled maintenance within the time limits.

The flight time recorded in the airplane log book is the time that is relevant for the time limits.

Some components installed in the airplane have a fixed time between overhaul (TBO). Refer to 05-10 Component Time Limits - Description.

2. Regulatory Authorities

The recommended time limits given in this Chapter were created to meet the requirements of the certification process.

NOTE

National Regulatory Authorities can have different requirements. You must make sure that you meet the requirements of the Regulatory Authority of the country where the airplane is registered.

3. Component Time Tracking

To make sure that component overhaul/replacement is done at the correct time you must record the data that follows in the Airplane Maintenance Log for each component requiring overhaul/replacement:

- Serial Number.
- Flight hours and date at installation.
- Flight hours and date at removal.

05-10-02 Scheduled Maintenance Time Limits

Description

1. Scheduled Maintenance Time Limits

The following recommended hourly and calendar time limits apply to the scheduled maintenance checks necessary to maintain the airplane in a good technical condition. Do the scheduled maintenance at the intervals and within the tolerances shown below.

A. Recurring Maintenance Inspections

NOTE

Where an interval is given in both flight hours and calendar years, the limit which is reached first must be applied. The next interval starts with the Flying Hours and Calendar Time of the latest performed Scheduled Maintenance Check.

NOTE

National requirements may require different maintenance schedules. For example, on airplanes registered in the USA a 100 hour inspection must be carried out annually.

Scheduled Maintenance Check	Interval	
	Flight Hours	Calendar Time
100 Hour Check.	100 ± 10	
200 Hour Check.	200 ± 10	12 months ± 30 days
1000 Hour Check.	1000 ± 50	
2000 Hour Check.	2000 ± 50	12 years ± 90 days
First Major Structural Inspection (MSI).	6000 ± 50	12 years ± 6 months
Subsequent Major Structural Inspections.	4000 ± 50	12 years ± 6 months

Table 1 - Scheduled Maintenance Checks

The intervals between the inspections must be adhered to within the tolerances shown. These tolerances must not be added up. For example: if the 100 hour inspection was done at 110 hours, the next inspection must be done at 200 ±10 hours, not 210 ±10 hours.

If an inspection is carried out earlier than specified/foreseen by the specified tolerance, all subsequent inspection intervals are counted from that inspection. For example: If the 100 hour inspection was done at 83 hours, the next inspection must be done at 183 ±10 hours.

Some inspection items must be done at other intervals than the standard intervals listed in the table above. In these cases, the maintenance interval (for example, 800 hrs.) is shown as a number in the maintenance checklists.

B. Complete Aircraft Inspection

The Complete Aircraft Inspection consists of a 200 Hour Check.

C. Scope of Maintenance Inspections

Do the items marked X in the Maintenance Checklist.

For maintenance of airplanes registered in the USA, do the items marked with X and the items marked with X* in the Maintenance Checklist.

For maintenance of airplanes in other countries, do only the items marked with X in the Maintenance Checklist.

05-10-03 Component Time Limits

Description

1. Component Time Limits

NOTE

Those component time limits which are Airworthiness Limitations are also listed in Chapter 04.

A. Maintenance Requirements

The following table lists airplane components and systems which require overhaul or specific checks.

Where an interval is given in both flight time and calendar time, the limit which is reached first must be applied.

For possible maintenance requirements of engine, propeller, components and vendor equipment refer to the applicable Maintenance Data as listed in 05-00 Referenced Maintenance Data - Description.

ATA Ch.	Component	Maintenance Requirement	Interval	
			hrs.	calendar time
NOTE The mechanical check of the autopilot system is mandatory.				
22	Autopilot.	Mechanical check. (Refer to 22-10 Autopilot - Test and inspection).	-	1 yr ± 30 days
22	Autopilot.	Clutch torque check.	-	5 yrs ± 60 days
24	Main battery Concorde.	Capacity test. Refer to Concorde RG® Series Main Aircraft Batteries Component Maintenance Manual, latest revision.	1000 ± 100	1 yr ± 30 days
26	Fire extinguisher Amerex A620T.	Overhaul per Owners Service Manual.	-	6 yrs ± 60 days
26	Fire extinguisher Amerex A620T.	Hydrostatic Test per Owners Service Manual.	-	12 yrs ± 90 days
27	Short pushrods connected to the aileron.	Boroscopic examination for corrosion of the inner pushrod surface.	-	5 yrs ± 60 days
27	Short pushrods connected to the flap.	Boroscopic examination for corrosion of the inner pushrod surface.	-	5 yrs ± 60 days
29	Hydraulic reservoir air filter.	Check.	1000 ± 50	-

Table 1 - Maintenance Requirements

ATA Ch.	Component	Maintenance Requirement	Interval	
			hrs.	calendar time
30	De-icing fluid strainer (if OÄM 50-011 is installed).	Clean.	1000 ± 50	5 yr ± 60 days
30	Low pressure switch - function check. (if OÄM 50-011 is installed).	Check (Refer to 30-00 Low Pressure Switch - Function Test).	-	2 yrs ± 30 days
30	High pressure switch - function check. (if OÄM 50-011 is installed).	Check (Refer to 30-00 High Pressure Switch - Function Test).	2000 ± 50	2 yrs ± 30 days
34	Pitot-static system.	Leakage test (refer to 34-10 Pitot-Static System - Test and inspection).	1000 ± 50	2 yrs ± 30 days
34	Airspeed indicators (G1000 NXi and backup).	Ensure correct indication.	-	4 yrs ± 60 days
			-	2 yrs ± 30 days*
34	Vertical speed indicator.	Ensure correct indication.	-	4 yrs ± 60 days
			-	2 yrs ± 30 days*
* Only required for airplanes for which 14 CFR § 91.411 and 14 CFR § 91.411 Part 43 Appendix E are applicable.				
34	Altimeters (G1000 NXi and backup).	Ensure correct indication.	-	2 yrs ± 30 days
34	Magnetic compass.	Compensate.	-	1 yr ± 30 days
34	Transponder (G1000 NXi).	System check (refer to G1000 NXi System Maintenance Manual 190-02631-00, latest revision).	1000 ± 50	2 yrs ± 30 days
35	Oxygen regulator valve (if OÄM 50-001 is installed).	Overhaul.	-	5 yr ± 60 days
35	Oxygen masks (if OÄM 50-001 is installed).	Overhaul.	-	3 yr ± 30 days
35	Oxygen cylinder (if OÄM 50-001 is installed).	Hydro test per DOT.	-	5 yr ± 60 days
35	Oxygen outlets (if OÄM 50-001 is installed).	Overhaul.	-	5 yr ± 60 days

Table 1 - Maintenance Requirements

ATA Ch.	Component	Maintenance Requirement	Interval	
			hrs.	calendar time
35	Filler block assembly (if OÄM 50-001 is installed).	Overhaul.	-	5 yr ± 60 days
35	Oxygen tubes, high pressure discharge line and indicator (if OÄM 50-001 is installed).	Check for improper fixture, chafing.	1000 ± 50	5 yr ± 60 days
35	Oxygen system (if OÄM 50-001 is installed).	Leak test.	1000 ± 50,	5 yr ± 60 days
51	Bonding system and static discharging system.	Resistance measurements (refer to 51-80 Lightning Protection - Description).	1000 ± 50	4 yrs ± 60 days

Table 1 - Maintenance Requirements

B. Airplane Life-Limited Components

The following table lists life limited airplane components which must be replaced at a specific time.

Where an interval is given in both flight time and calendar time, the limit which is reached first must be applied.

For possible life-limits of engine, propeller, components and vendor equipment refer to the applicable Maintenance data as listed in 05-00 Referenced Maintenance Data - Description.

ATA Ch.	Component	Replacement Time	
		hrs.	calendar time
24	Alternator excitation batteries (2x Alt. 1, 2x Alt. 2).	-	2 yrs ± 30 days
25	Safety harnesses, front and rear.	-	12 yrs ± 90 days
25	First aid kit. Replace aseptic items.	Upon reaching the date marked on the kit.	
26	Fire extinguisher Amerex 337TS.	12 years after production date as shown on the label of the fire extinguisher.	
28	Electrical fuel pumps (2 pcs.).	1000 ± 50, or after a failure of one fuel pump	10 yrs ± 90 days
28	Electrical fuel transfer pump.	2000 ± 50, or after failure	10 yrs ± 90 days
28	Fuel tank vent hoses.	-	8 yrs ± 60 days
28	Fuel hoses interconnecting the individual fuel tank chambers, and fuel hoses connecting fuel tank chambers to filler assemblies.	-	8 yrs ± 60 days
28	Fuel filter cartridge.	100 ± 10	1 yr ± 30 days

Table 2 - Airplane Life-Limited Components

ATA Ch.	Component	Replacement Time	
		hrs.	calendar time
28	Check valves of the electrical fuel pumps (total 2 pcs.).	Co-incident with engine TBO.	-
30	TKS fluid filter cartridge in rear fuselage. (if OÄM 50-011 is installed).	2000 ± 50	12 yrs ± 90 days
32	Brake fluid, per MIL-PRF-87257.	-	3 yrs ± 60 days
32	Hydraulic fluid in landing gear damper.	-	2 yrs ± 30 days
32	Hydraulic fluid in hydraulic system.	-	2 yrs ± 30 days
35	Oxygen cylinder (if OÄM 50-001 is installed).	-	15 yrs ± 90 days
35	Oxygen cannulas (if OÄM 50-001 is installed).	200 of cumulative use.	-
71	Air filter.	200 ± 10	-
75	Coolant cooler and intercooler shock mounts.	Co-incident with engine TBO.	-
75	Coolant silicate pouch.	Co-incident with engine TBO.	6 yrs ± 60 days
75	Coolant hoses.	-	8 yrs ± 60 days
81	All charge air hoses from turbo charger to engine air intake manifold.	Co-incident with engine TBO.	-

Table 2 - Airplane Life-Limited Components

05-20
SCHEDULED MAINTENANCE CHECKS

05-20-01 Scheduled maintenance checks

Description

1. Maintenance Checklist Organization

Do the scheduled maintenance checks in this Section at the intervals (flight hours and calendar time) stated in 05-10 Scheduled Maintenance Time Limits - Description.

Do the scheduled maintenance checks with reference to the DA 50 C Engine Scheduled Maintenance Checklist (05-41 DA 50 Engine Scheduled Maintenance Checklists - Description) and the Airframe Scheduled Maintenance Checklist (05-42 Airframe Scheduled Maintenance Checklists - Description). Before starting a check, complete the requirements of 05-41 Scheduled Maintenance Checklist Preparation - Description. Do all the applicable tasks on the checklist.

NOTE

Only persons or maintenance organizations authorized by national Regulatory Authorities of the country where the airplane is registered may do these checks. The inspection level for each item is a general visual inspection unless differently specified.

NOTE

Only Continental Aerospace authorized maintenance organizations may carry out maintenance and inspection work on the Continental Aerospace engine. Any engine malfunction must be reported to Continental Aerospace.

NOTE

For maintenance of airplanes do the items marked X in the Maintenance Checklist.

NOTE

The interval columns "100", "200", "1000", and "2000" are used for maintenance items which must be done at intervals of 100, 200, 1000, or 2000 flight hours.

NOTE

The interval column "time" is used for

(a) Maintenance items which must be done at certain calendar time intervals. These items are marked with the explicit time interval.

(b) Maintenance items which must be done during a Major Structural Inspection (MSI). These items are marked with the term "MSI".

NOTE

Some inspection items must be done at other intervals than the standard intervals (100, 200, 1000, or 2000 hrs.). In these cases, the maintenance interval is shown in the column for the next shorter interval instead of an X. For example, an item which must be done every 800 hours is identified by the words "800 hrs." in the 200 hrs. column.

NOTE

Where an interval is given in both flight time and calendar years, the limit which is reached first must be applied.

All of the applicable items must be signed by authorized maintenance personnel. Record the completion of the check in the airplane log book. Complete a copy of the Maintenance Report (refer to 05-40 Maintenance Report - Description).

The Maintenance Checklist is divided into the following Sections:

A. Engine Compartment

Refer to 05-41 DA 50 Engine Scheduled Maintenance Checklists - Description.

All items forward of the firewall. It includes the cowlings and the propeller.

B. Airframe

Refer to 05-42 Airframe Scheduled Maintenance Checklists - Description.

(1) Exterior of the Fuselage

All items on the outside of the fuselage from the nose to the leading edge of the vertical tail. It includes the nose landing gear, the main landing gear and the hydraulic system in the front fuselage.

(2) Cabin

All items inside the fuselage shell from the aft face of the instrument panel frame to the forward face of the baggage compartment frame. It also includes the internal parts of the flight control system, the internal parts of the brake system, and the pilot doors (LH and RH) and passenger door.

(3) Interior of the Rear Fuselage

All items inside the fuselage shell from the aft face of the baggage compartment frame to the vertical tail. It includes the control systems.

(4) Center Wing

All items between the LH and RH wing root.

(5) Tail

All items aft of the leading edge of the vertical tail. It includes the vertical stabilizer and the horizontal stabilizer.

(6) Wings

All items on the left and right wings. It includes the ailerons, flaps, Pitot-static probe, and fuel tanks.

(7) General

Those items which include more than one zone at the same time. It includes items such as control checks which need one person in the cockpit and another person at the control surface.

2. Major Structural Inspection

The Major Structural Inspection (MSI) is an important part of the infinite lifetime concept of the DA 50 C. It is required to prove the structural integrity of the airframe. It must be carried out at the intervals shown in 05-10 Scheduled Maintenance Time Limits - Description.

Since the MSI is intended to coincide with a 2000 hour inspection, the inspection items are included in the maintenance checklist, and are identified by the term “MSI” in the ‘time’ column.

Refer to 05-40 Major Structural Inspection Check Finding Report - Description.

05-20-02 Flight Line Checks

Description

1. Flight-Line Checks

WARNING

DO ALL THE STEPS OF THE PRE-FLIGHT CHECK CAREFULLY. ACCIDENTS CAN OCCUR IF THE PRE-FLIGHT CHECK IS NOT DONE CORRECTLY.

The Pre-Flight Check must be done before the first flight of the day. It shows the pilot the general condition of the airplane and the engine. It is important for flight safety. Look in the airplane log-book for problems before doing the pre-flight check.

The schedule for the pilot's pre-flight check is furnished in the Airplane Flight Manual for the DA 50 C.

2. Post-Flight Check

Do the post-flight check after the last flight of the day. The post-flight check includes all the steps of the pre-flight check.

You must also:

- Refuel the airplane (Refer to 12-10 Fuel - Refuel).
- Record in the log book each problem found in flight and during the post-flight check.
- Park the airplane (Refer to 10-00 Parking, mooring, storing and return to service - Description and 10-10 Parking - Handling).
- If necessary, moor the airplane (Refer to 10-20 Mooring - Handling).

05-20-03 3 to 6 Hour Engine Check

Description

1. General

The 3 to 6 hour engine check must only be done on the CD-300 engine since new.

Do all the tasks on the checklist. All items must be signed by Continental Aerospace authorized maintenance personnel (refer to Note in Section 05-20 Scheduled maintenance checks - Description). Record the completion of the 3 to 6 hour engine check in the engine log book and in the airplane log book.

This check must only be done on new CD-300 engines after 3 to 6 hour of operation.

Enter the applicable data in the blocks below:

Registration :	Date :
Airplane S/N :	Airplane Operating Hours :
Engine S/N :	Engine Operating Hours :

2. Checklist for the 3 to 6 Hour Engine Check

Do the inspection items given in the following table.

	Inspection Items	Engine Operation Time	Initials
1.	Do an engine maintenance. Refer to the Operation & Maintenance Manual CD-300 OM-06-01, latest revision.	3 to 6 h	

05-20-04 Drain Holes Inspection

Description

1. Drain Holes Inspection Checklist and Report

Do a check of the drain holes. The drain holes must not be blocked by dirt or other residues. Make sure to remove all foreign objects and clean the drain holes to their full diameter. Otherwise the drain capacity may not be sufficient under certain conditions like heavy rain etc.

All drain holes (except in wing spar 7.12) should be drilled with a diameter of 5 mm (+2 mm/-0 mm) or 0.2 in (+0.08 in/-0.00 in). The holes should be circular, deburred, not frayed and cleaned.

At drain holes marked with an asterisk (*) the adhesive bonding is recessed.

Refer to the corresponding indication on the figures to identify the locations of the drain holes listed below.

2. Drain Holes Inspection Checklist

Ref.	Drain Hole Location	Hours	Initials
1.02	Lower shell under the center console (front).	100	
1.03	Lower shell under the center console (rear).	100	
1.04	Lower fuselage shell, aft of baggage frame FWD base.	100	
1.05	On lowest point of the fin.	100	
1.09	On lowest point of control bulkhead.	100	
1.11	On lowest point of the forward torsion cell of center wing (LH and RH).	100	
1.12	On lowest point of the section between spars of center wing outboard of landing gear, right behind forward spar (LH and RH).	100	
1.13	Lower center wing shell, next to forward seat crash element.	100	
1.14	Lower center wing shell, in front of front box - spar (LH and RH).	100	
1.15	Lower center wing shell, in front of front box - spar center (LH and RH).	100	
1.16	Lower center wing shell, aft of the front box - spar five holes in line.	100	
1.17	Lower center wing shell, in front of rear box - spar three holes.	100	
1.18	Rear torional cell, next to the inboard inspection opening (LH and RH).	100	
1.19	Lower center wing shell aft rear spar center position.	100	
1.20	Lower center wing shell, fuselage rib reinforcement section LH and RH and one in center position.	100	
1.21	Center wing flap bellcrank rib next to the rearward spar (LH and RH).*	200	
1.23	Center wing (LH) inner flap pushrod support rib, next to the rear spar.*	200	

Table 1 - Fuselage and Center Wing

Ref.	Drain Hole Location	Hours	Initials
1.24	Lower center wing shell aft of rear spar at fuselage connections (LH and RH).	100	
1.25	Lower center wing shell rear bonding flange between root rib and fuselage (LH and RH).	100	
1.26	Fuselage, through the forward baggage frame base.	200	
1.27	Behind rear spar, center section, center wing lower skin (2x).	100	
1.28	Fuselage, through lower end of ring frame 1.	200	
1.29	Fuselage, through lower end of ring frame 2.	200	
1.30	Fuselage, through lower end of ring frame 3.	200	
1.31	Forward of front vertical tail spar, in rib of vertical tail.	200	
1.32	Lower fuselage shell, in front of vertical stabilizer rear web, right behind the forward vertical tail web.	200	
1.33	In rib of vertical stabilizer, in front of vertical stabilizer rear web.	200	
1.34	Top of vertical stabilizer rear web.	100	
1.35	Fuselage lower skin, hydraulic compartment drain.	100	
1.36	Fuselage through rearward bagagge frame.	200	
1.37	Lower center wing shell rear bonding flange next to the fuselage and one in the middle.	100	
1.39	Center wing, lowest point at the fuel compartment.	100	
1.40	Center wing, outboard rearward flange of the main landing gear compartment (LH and RH).	100	
1.41	Center wing, inboard rearward flange at the main landing gear compartment (LH and RH).	100	
1.42	Main landing gear compartment, in the front of rear spar next to main landing gear rib (LH and RH).	100	
1.43	Main landing gear compartment flange, in the front of rear spar, next to drag brace rib (LH and RH).	100	

Table 1 - Fuselage and Center Wing

Ref.	Drain Hole Location	Hours	Initials
3.01	LH and RH rib, in front of the front spar, above the lower shell.	200	
3.02	LH and RH rib, aft of the front spar, above the lower shell.	200	
3.03	LH and RH rib, in front of the rear spar, above the lower shell.	200	
3.04	Elevator end rib, next to the rear spar, next to lower shell (LH and RH).	200	
3.05	Mid LH and RH rib, side of the front spar, above the lower shell.	2000	
3.06	Mid LH and RH rib, behind the rear spar, above the lower shell.	2000	

Table 2 - Horizontal Stabilizer

Ref.	Drain Hole Location	Hours	Initials
3.07	On the lowest point of the horizontal stabilizer tips (LH and RH).	100	

Table 2 - Horizontal Stabilizer

Ref.	Drain Hole Location	Hours	Initials
4.01	Lower shell, leading edge section (LH and RH).	100	
4.02	Lower shell, in front of trailing edge (LH and RH).	100	

Table 3 - Elevator

Ref.	Drain Hole Location	Hours	Initials
5.01	Lower shell, leading edge section (LH and RH).	100	
5.02	Lower shell, in front of trailing edge bonding (LH and RH).	100	

Table 4 - Elevator Trim Tab

Ref.	Drain Hole Location	Hours	Initials
6.01	Lower edge of the rudder shell.	100	
6.02	Lower edge of the rudder trim tab shell.	100	

Table 5 - Rudder and Rudder Trim Tab

Ref.	Drain Hole Location	Hours	Initials
7.01	In outer flap inboard rib, next to the spar and lower shell and in outer wing end rib at aileron balance cut out.	200	
7.02	In outer flap outboard rib, next to the spar and lower shell.	200	
7.03	In aileron rib next to rear spar and lower shell (LH and RH wing).*	200	
7.05	In rear root rib next to rear spar and lower shell (LH and RH wing).*	200	
7.06	First fuel tank rib, next to front and rear spar bonding and lower shell (LH and RH wing).*	200	
7.07	Second fuel tank rib, next to front and rear spar and lower shell (LH and RH wing).*	200	
7.08	Third fuel tank rib, next to front and rear spar and lower shell (LH and RH wing).*	200	
7.09	Fourth fuel tank rib, next to front and rear spar and lower shell (LH and RH wing).*	200	
7.10	Fifth fuel tank rib, bonding at lower shell (LH and RH wing).	200	
7.11	In front root rib, next to front spar and lower shell (LH and RH wing).	2000	

Table 6 - Outer Wings

Ref.	Drain Hole Location	Hours	Initials
7.12	Vent hole on face side of wing spar (LH and RH). Drain hole diameter has to be 4 mm (0.16 in).	2000	

Table 6 - Outer Wings

Ref.	Drain Hole Location	Hours	Initials
6.10**, 6.11**	Vane, most inboard attachment. 2 drain holes next to this attachment.	100	
6.12**	Outboard of second vane attachment.	100	
6.13**	Outboard of third vane attachment.	100	
6.14**	Outboard of fourth vane attachment.	100	
6.15**	Outboard of fifth vane attachment.	100	
6.16**	Outboard of sixth vane attachment.	100	
8.01	Root rib, next to trailing edge bonding (LH and RH).	100	
8.02	Inner hinge rib, outboard, next to trailing edge bonding (LH and RH).	100	
8.03	Outboard hing rib, outboard, at the leading edge (LH and RH).	100	
8.04	Lower shell in the front of the root rib.	100	
8.05	Inner flap root rib, leading edge section.	100	
8.06	Inner flap root rib, trailing edge section.	100	
** If MÄM 50-336 is NOT installed			

Table 7 - Flaps

Ref.	Drain Hole Location	Hours	Initials
9.01	Inner root rib, next to the trailing edge bonding (LH and RH).	100	
9.02	Lower shell, aft of mass balance weight (LH and RH).	100	
9.03	Lower shell, in front of mass balance hinge line (LH and RH).	100	
9.04	Outer root rib, at the leading edge (LH and RH).	100	

Table 8 - Ailerons

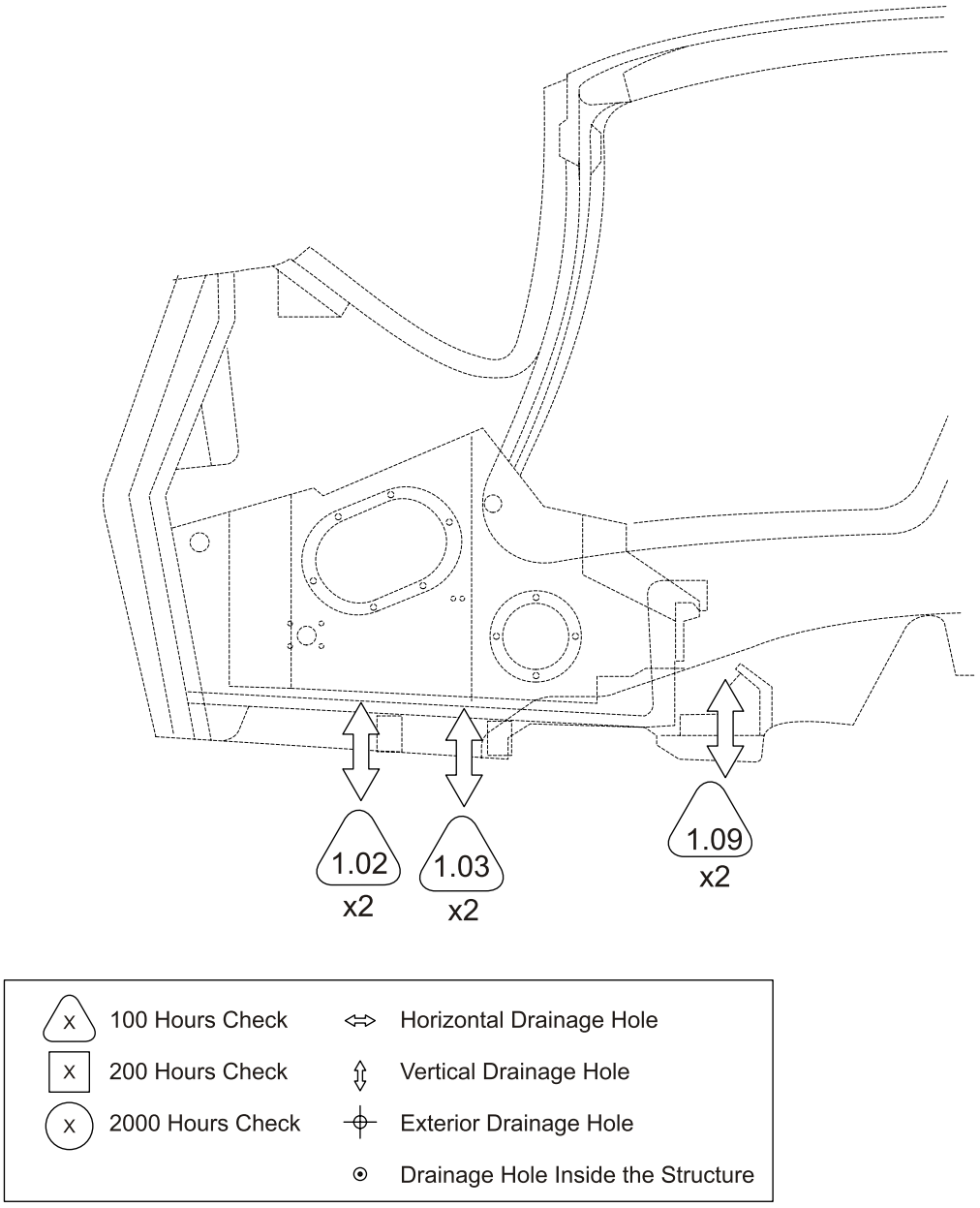


Figure 1 - Drain Holes - Fuselage (Part 1)

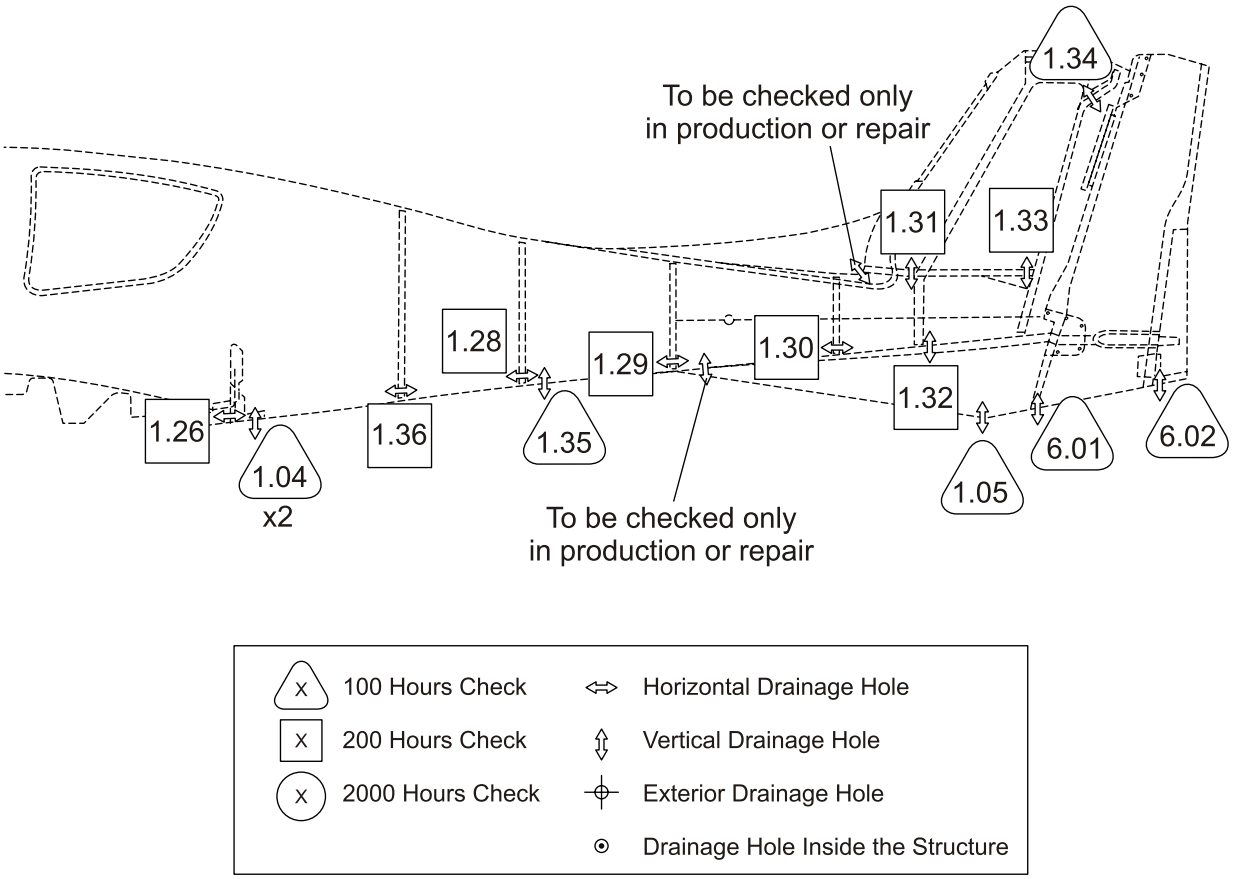


Figure 2 - Drain Holes - Fuselage (Part 2)

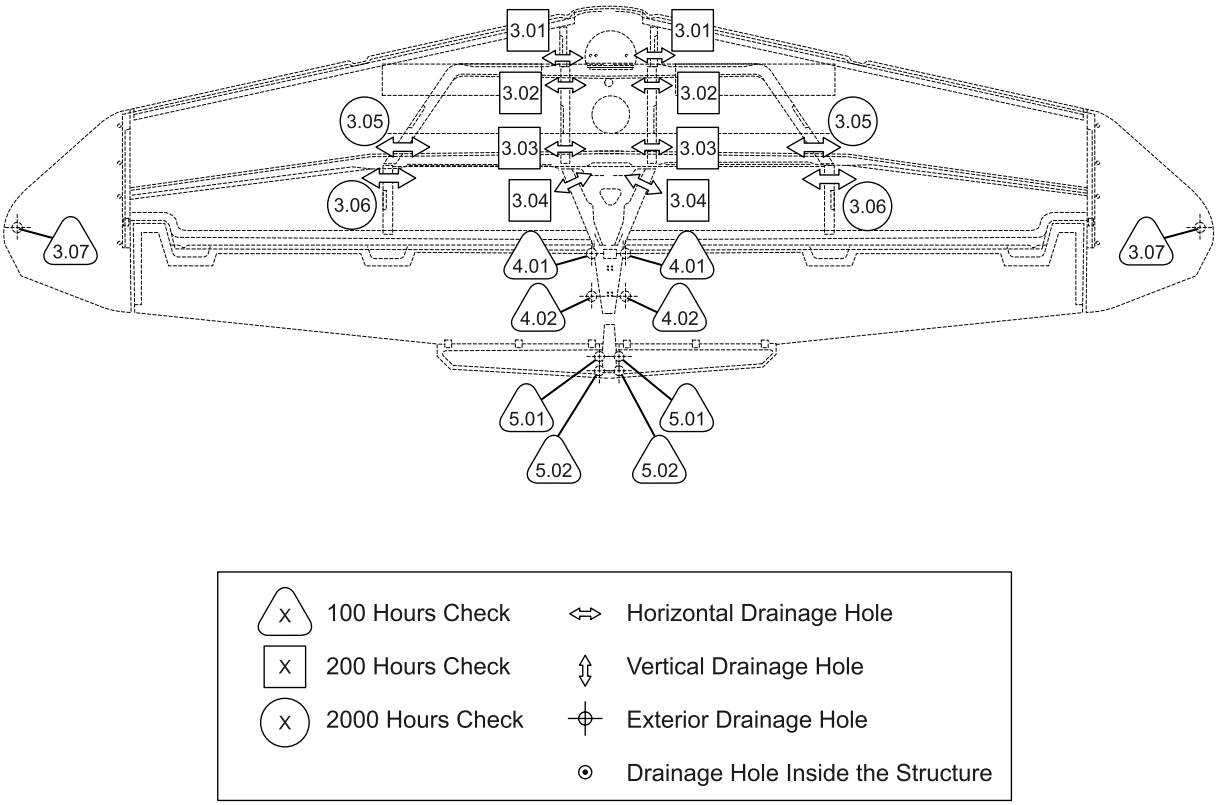


Figure 3 - Drain Holes - Horizontal Stabilizer, Elevator and Elevator Trim Tab

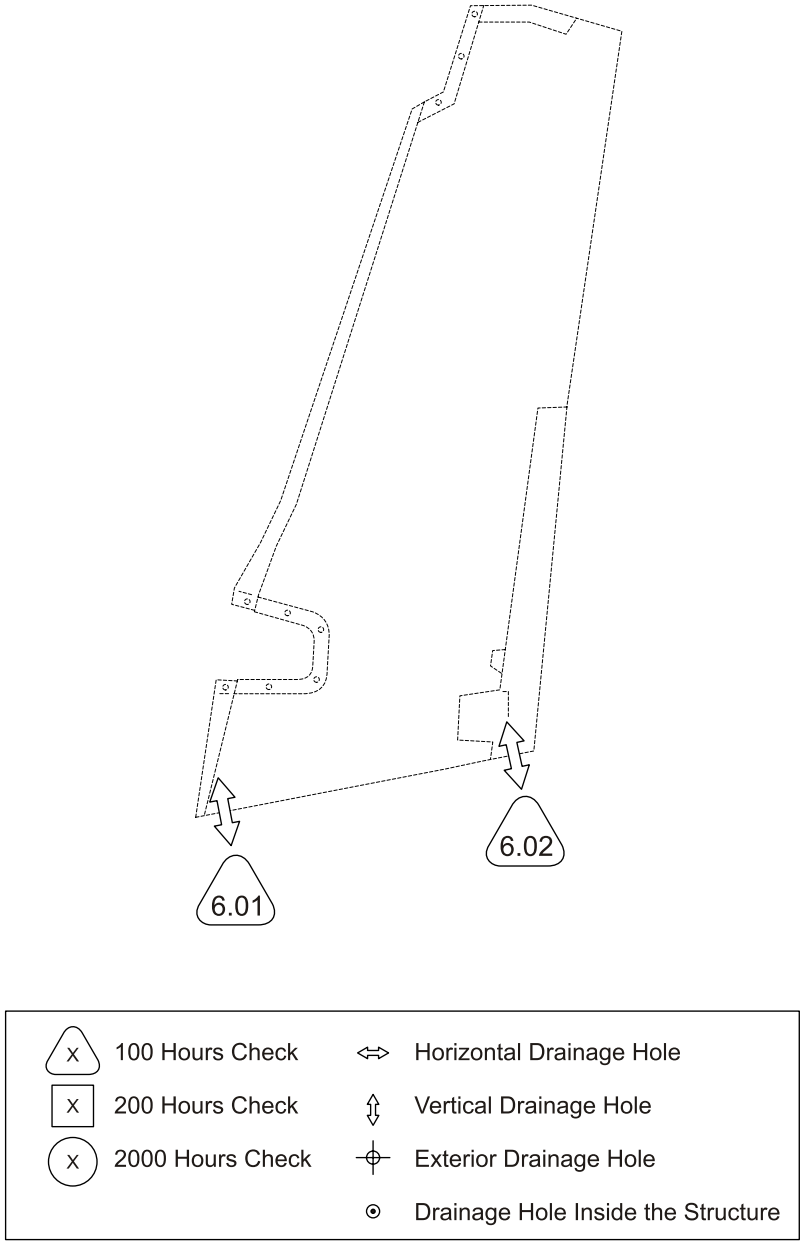


Figure 4 - Drain Holes - Rudder

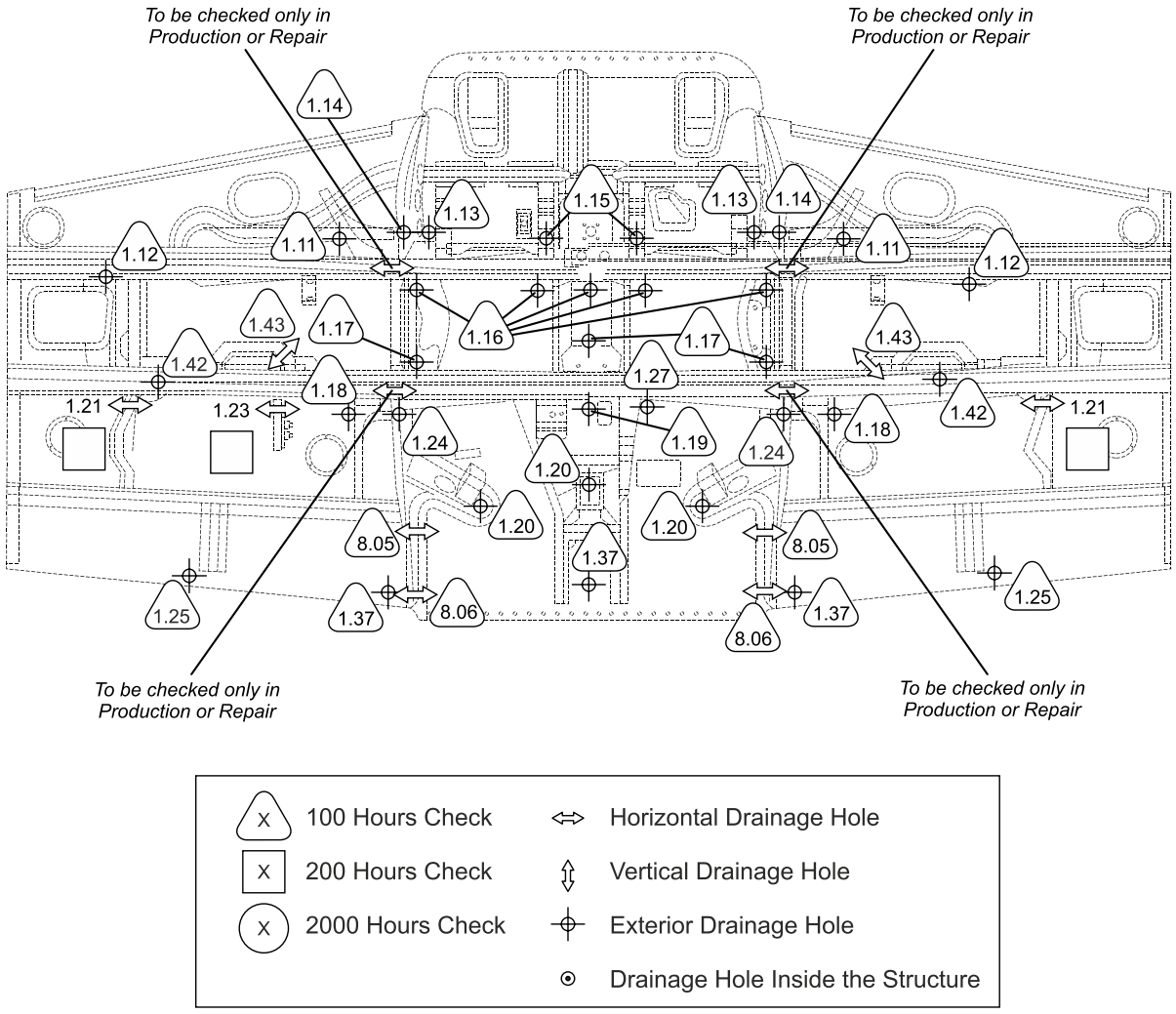


Figure 5 - Drain Holes - Center Wing (Part 1)

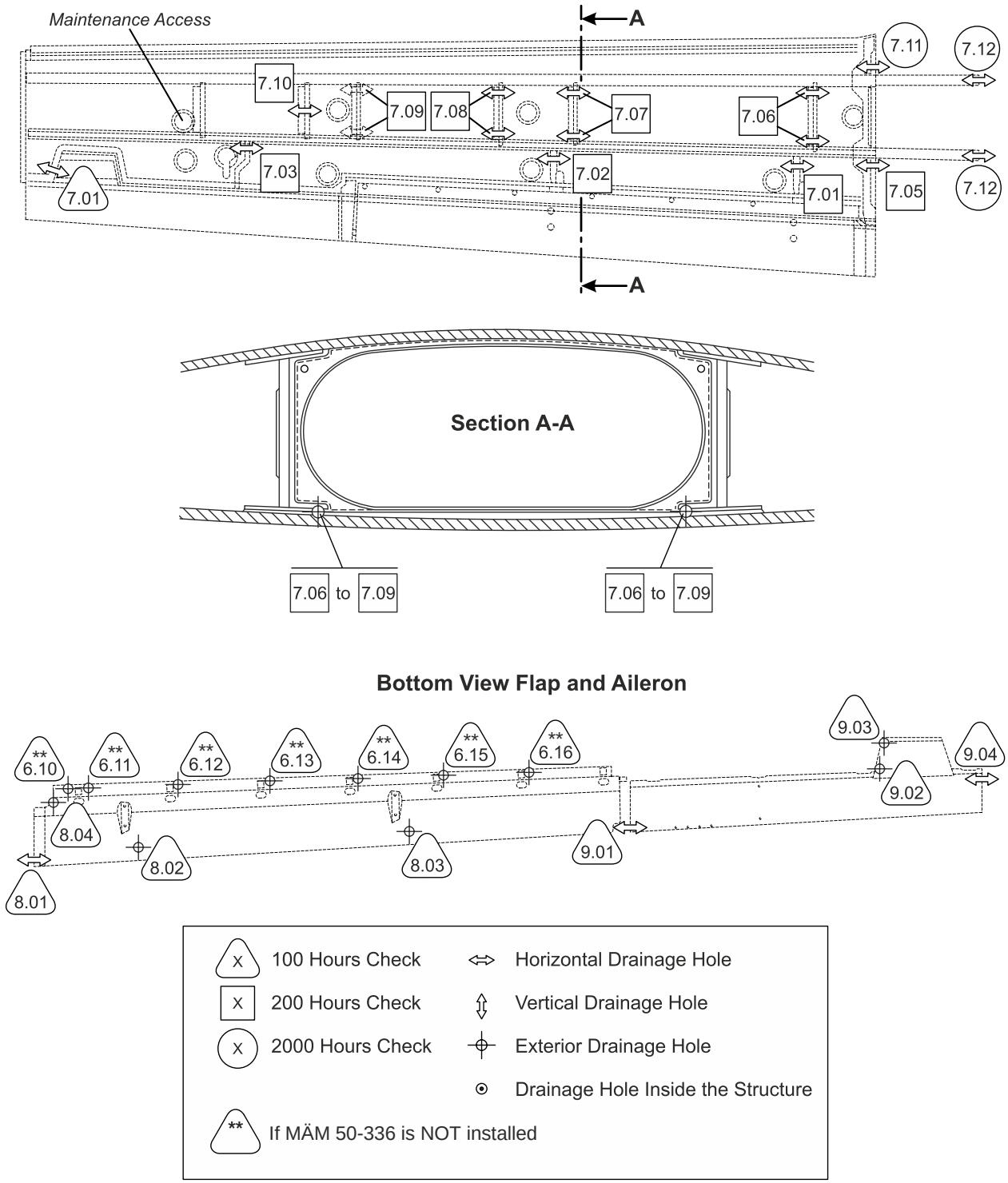
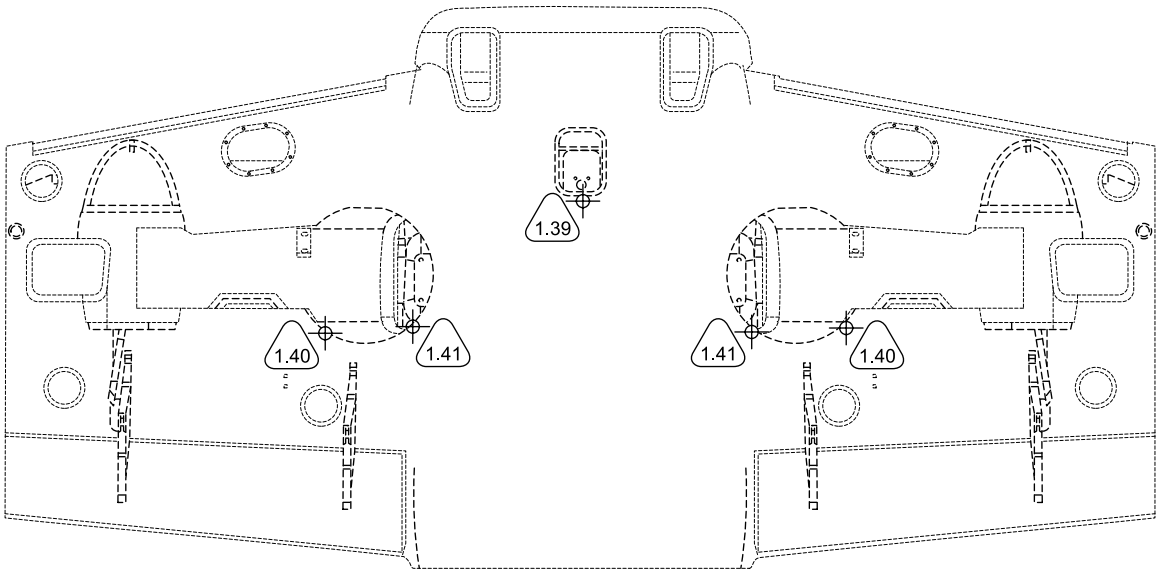


Figure 6 - Drain Holes - Center Wing (Part 2)



X	100 Hours Check	⇔	Horizontal Drainage Hole
X	200 Hours Check	⇕	Vertical Drainage Hole
X	2000 Hours Check	⊕	Exterior Drainage Hole
		⊙	Drainage Hole Inside the Structure

Figure 7 - Drain Holes - Wings, Flaps and Ailerons

05-40
SCHEDULED MAINTENANCE CHECKLISTS

05-40-01 Maintenance Report

Description

1. Maintenance Report

DA 50 C	
Airplane Serial Number:	Registration Number:
Check: _____ (100 hr, 200 hr, 1000 hr, 2000 hr, Annual)	
REMARKS:	
The airplane is airworthy with respect to its maintenance condition.	
Place	Date / Authorized

Table 1 - Maintenance Report

05-40-02 Engine Ground Test Record

Description

1. Engine Ground Test Record

WARNING

DO NOT STAND WITHIN THE DANGER AREA OF THE PROPELLER. THE PROPELLER CAN CAUSE DEATH OR INJURY TO PERSONS.

WARNING

YOU MUST MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU TURN THE PROPELLER. MAKE SURE THAT:

- THE ELECT. MASTER SWITCH IS SET TO "OFF".

- THE ENGINE MASTER SWITCH IS SET TO "OFF".

- THE POWER LEVER IS SET TO "IDLE".

WARNING

DO NOT GET OIL ON YOU. OIL CAN CAUSE SKIN DISEASE.

WARNING

DO NOT GET FUEL ON YOU. FUEL CAN CAUSE SKIN DISEASE. DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

WHEN YOU COMPLETE AN INSPECTION, MAKE SURE THAT YOU REMOVE ALL LOOSE ITEMS/TOOLS FROM THAT AREA. LOOSE ITEMS/TOOLS CAN PREVENT FULL MOVEMENT OF THE AIRPLANE CONTROLS. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

CAUTION

YOU MUST ATTACH BLANKS/CAPS TO HOLES/PIPES WHEN YOU REMOVE COMPONENTS. IF YOU DO NOT DO THIS, UNWANTED DEBRIS CAN ENTER THE HOLES/PIPES. THIS CAN CAUSE BLOCKAGE TO THE AIRPLANE SYSTEMS.

Do the engine test in accordance with Section 71-00 and record results and comments.

05-40-03 Check Flight Report

Description

1. Maintenance Check Flight Report

NOTE

The maintenance check flight must be done in accordance with the applicable national regulations.

MAINTENANCE CHECK FLIGHT DA 50 C (See Maintenance Checklist for Applicability)		
Registration:	Pilot:	Airdrome:
Date:	Take-Off:	Landing:

Functional Check, Flight behaviour	Findings		
	N/A	NO	YES
ON GROUND, ENGINE OFF			
Pre-flight inspection in accordance with AFM.			
Pilot doors (LH and RH): locking mechanism, key lock, general condition / optics, open door warning.			
Passenger door: mechanism, key lock, open door warning.			
Seat belts: function, locking device, general condition.			
Front seats: fixed, general condition.			
Rear seats: general condition.			
Baggage compartment: general condition.			
First aid kit.			
Flight controls: safety lacquer, centering spring aileron, elevator spring.			
Trims: correct deflection and indication.			
AFM: on board.			
Power lever, friction control.			
Instrument lighting and flood light.			
Map / reading lights.			
G1000 NXi manual dim.			
Ventilation: function of fan, nozzles.			
Oxygen system (if installed)			

Table 1 - Check Flight Report

Functional Check, Flight behaviour	Findings		
	N/A	NO	YES
ON GROUND, ENGINE ON			
Engine start in accordance with AFM.			
Starting behavior.			
Warning / caution / advisory alerts.			
Engine parameters (indications): engine oil pressure / temperature.			
Load / RPM (indications).			
Fuel quantity / temperature / fuel flow.			
Battery voltage / ammeters.			
Alternators.			
Altimeters (G1000 NXi and backup).			
Airspeed indicators (G1000 NXi and backup).			
Vertical speed indicator.			
Compass (G1000 NXi: slaved directional gyro; magnetic compass).			
Turn indicator.			
Attitude, bank (G1000 NXi and backup).			
OAT (outside air temperature).			
G1000 NXi emergency backup (red button).			
Flaps: full travel / intermediate position.			
Gear: visual and aural (test button).			
Emergency fuel supply.			
Electrical trim.			
Autopilot (disconnect).			
Audio panel / intercom.			
COM 1 / COM 2.			
ELT.			
Moving map: satellite status, GPS position, terrain information.			
Cowl flap: closed and open position.			
TAXIING (in accordance with AFM)			
Compass (G1000 NXi and magnetic compass).			
Turn indicator.			

Table 1 - Check Flight Report

Functional Check, Flight behaviour	Findings		
	N/A	NO	YES
Attitude, bank.			
Brakes, pilot and co-pilot side.			
Taxiing behavior.			
BEFORE TAKE-OFF CHECK (in accordance with AFM)			
FADEC test: normal behavior and warning sequence.			
FADEC FORCE B test.			
Available power check.			
Idle RPM.			
TAKE-OFF (in accordance with AFM)			
CLIMB (in accordance with AFM)			
Trim (pitch, direction).			
CRUISE (in accordance with AFM)			
Control behavior.			
Trim (pitch, direction).			
Engine parameters (indications): oil pressure / temperature, gearbox oil temperature, coolant temperature.			
Load / RPM (indications).			
Fuel quantity / temperature / fuel flow.			
Airspeed indicator (G1000 NXi and backup).			
Altimeter (G1000 NXi and backup).			
Alternate static valve.			
Vertical speed indicator.			
Compass (G1000 NXi: slaved directional gyro; magnetic compass).			
Turn indicator.			
Attitude, bank (G1000 NXi and backup).			
Emergency gear test.			

Table 1 - Check Flight Report

Functional Check, Flight behaviour	Findings		
	N/A	NO	YES
Stall warning test.			
Flight behavior at low airspeeds (according to AFM).			
Flight behavior at high airspeeds (according to AFM).			
Alternate air test.			
OAT (outside air temperature) / TAS / ground speed.			
NAV 1 / 2, DME, ILS (LOC, GS, MKR) (if required).			
ADF (if required).			
Transponder.			
Moving map / GPS position.			
Autopilot: - Wings level mode. - HDG mode. - FD (flight director). - YD (yaw damper). - GA (go around mode). - NAV mode (if required) (on VLOC and GPS). - ALT / VS preselect and hold. - FLC mode. - CWS (control wheel steering) button. - Disconnect (red button). - Level mode (blue button)			
Cabin ventilation (defrost, nozzles, fan, recirculation mode).			
Cabin heating.			
Cabin leaks / sounds.			
DESCENT AND LANDING (in accordance with AFM)			
Function of flaps.			
Landing behavior.			
Braking action.			

Table 1 - Check Flight Report

Functional Check, Flight behaviour	Findings		
	N/A	NO	YES
AFTER LANDING CHECK AND SHUT-DOWN (in accordance with AFM)			
ELT.			
Engine shut-down behavior.			
Engine starting behavior, warm.			
OUTSIDE INSPECTION			
Damage.			
Engine oil / fuel leaks / coolant leaks / hydraulic leaks.			
Findings			
Signature Pilot:			

Table 1 - Check Flight Report

05-40-04 Major Structural Inspection Check Finding Report

Description

1. Major Structural Inspection Check Findings Report

Complete the Structural Findings Report after each Major Structural Inspection (MSI). Record the following:

- Structural defects found during the MSI.
- All structural defects that were detected and repaired since new or since the last MSI.

STRUCTURAL FINDINGS REPORT DA 50 AT MAJOR STRUCTURAL INSPECTION (MSI)			
Registration :		Date :	
Airplane S/N :		Airplane Operating Hours :	
		AMM Rev. used for check :	
Maintenance Organization :		Signature :	
No.	**Structural Defect/Finding**	**Repair Method, Remarks**	**at TSN**

Table 1 - STRUCTURAL FINDINGS REPORT DA 50 C AT MAJOR STRUCTURAL INSPECTION (MSI)

STRUCTURAL FINDINGS REPORT DA 50 AT MAJOR STRUCTURAL INSPECTION (MSI)			
All defects have been repaired. The airplane is airworthy with respect to its maintenance condition. Place: _____ Date: _____ Authorized: _____			

Table 1 - STRUCTURAL FINDINGS REPORT DA 50 C AT MAJOR STRUCTURAL INSPECTION (MSI)

05-41
DA 50 ENGINE SCHEDULES MAINTENANCE CHECKLISTS

05-41-01 DA 50 Engine Scheduled Maintenance Checklists

Description

1. Engine Maintenance Data Block

Enter the applicable data in the blocks below:

Registration :	
Date :	
Airplane S/N :	
Airplane Operating Hours :	
Engine S/N :	
Engine hours, TTSN :	
Propeller S/N :	
Propeller hours, TTSN :	
Inspection : (100, 200, 1000, 2000 hr, Annual Insp.)	

Table 1 - Maintenance Data Block

05-41-02 Scheduled Maintenance Checklist Preparation

Description

1. Preparation

Do the following items before you start the applicable check:

		Interval					
	Inspection Items	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Before you do the inspection: - Read the applicable Airworthiness Directives. - Read the applicable Service Bulletins.	X	X	X	X		
2.	Examine the Log Books. Look specially for: - Life limited parts. - Reported problems.	X	X	X	X		
3.	Clean the airplane fully. (Refer to 12-30 Cleaning - Clean and apply surface protection.)	X	X	X	X		

Table 1 - Preparation

05-41-03 Engine Ground Test

Description

1. Engine Ground Test

Do an engine ground test as follows (complete a copy of the Engine Ground Test Record as part of the engine ground test. (Refer to 05-40 Engine Ground Test Record - Description):

		Interval					
	Inspection Items, Engine Ground Test	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
WARNING **DO NOT LET PERSONS GO INTO THE DANGER AREA OF THE PROPELLER. PROPELLERS CAN CAUSE INJURY OR DEATH.** **WARNING** **SET THE PARKING BRAKE TO ON. IF YOU DO NOT DO THIS, THE AIRPLANE CAN MOVE. THIS CAN CAUSE INJURY OR DEATH.**							
1.	Set the parking brake to ON.	X	X	X	X		
2.	Put the chocks against the airplane main wheels.	X	X	X	X		
3.	Do an engine ground run. (Refer to 71-00 Engine - Operation Test and Continental Operation & Maintenance Manual, latest revision (05-00 Referenced Maintenance Data - Description).	X	X	X	X		
4.	Check engine instruments.	X	X	X	X		
5.	Shut engine down.	X	X	X	X		
6.	Examine the engine for oil/fuel/coolant leaks.	X	X	X	X		

Table 1 - Engine Ground Test

05-41-04 Maintenance Checklist Engine

Description

1. Engine Checklist

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Engine Checklist	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
	WARNING **MAKE SURE THE EXHAUST SYSTEM IS COOL BEFORE YOU DO MAINTENANCE ON THE ENGINE. THE EXHAUST SYSTEM CAN BE HOT. THIS CAN CAUSE INJURY TO PERSONS.** **WARNING** **DO NOT GET OIL ON YOU. OIL CAN CAUSE SKIN DISEASE.** **WARNING** **DO NOT GET FUEL ON YOU. FUEL CAN CAUSE SKIN DISEASE. DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.**						
1.	Remove the mid, left and right cowlings. (Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure). Examine the cowlings. Make sure that the fasteners are serviceable. Look for cracks and areas that have got too hot. Check rubber seals.	X	X	X	X		
2.	Clean the engine and engine compartment. Refer to 12-30 Cleaning - Clean and apply surface protection and the Engine Maintenance Manual, latest revision.	X	X	X	X		
3.	Do engine maintenance in accordance with Engine Maintenance Manual, latest revision.	X	X	X	X		
4.	Cut open the used oil filter: - Look for contamination and metal abrasion. - If the filter contains particles of metal, refer to the engine manufacturer.	X	X	X	X	1 yr. ± 30 days	
5.	Verify proper mixture ratio of the coolant. Refer to the Engine Maintenance Manual, latest revision.	X*	X	X	X		
6.	Exchange fuel filter cartridge.	X	X	X	X		
7.	Open and clean gascolator.	X	X	X	X		
8.	Examine and clean fuel transfer pump filter.		X	X	X		

Table 1 - Engine Checklist

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Engine Checklist	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
9.	Examine the LH/RH exhaust incl. muffler. Look specially for cracks and heat damage or incorrect attachment.	X	X	X	X		
10.	Examine the cable ties and all electrical connectors in the engine area: - Look specially for rub marks and damage. - Pull lightly to make sure they are not loose.	X	X	X	X		
11.	Examine the bonding cables and their connectors in the engine area: - Look specially for rub marks and damage. - Pull lightly to make sure they are not loose.	X	X	X	X		
12.	Examine the oil breather line: - Look specially for chafing marks and hose damage. - Check for blockage and kinks.	X	X	X	X		
13.	Examine the ECS fan: - Look specially for damages of the fan wheel. - Check for correct operation.	X	X	X	X		
14.	Examine the ECS system: - Examine NACA inlet for blockage. - Examine hoses for damage and chafings. - Check correct movement of shut-off, mixing and recirculation valve. - Make sure all components are correctly attached.	X	X	X	X		

Table 1 - Engine Checklist

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Engine Checklist	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
15.	Examine the LH/RH air intake and turbo charging system. Look specially at these items: - Air filter. - Hose from air filter to turbo charger. - Turbo charger. On the pressure side of the turbo charger: - Hoses and hose clamps from turbo charger to intercooler. - Hoses and hose clamps from intercooler to intake manifold. - Aluminum pipes. - Look specially for signs of damage. - Make sure the air hoses and ducts are correctly attached and that the torque seal on the hose clamps is intact. - Intercooler. Do NOT re-tighten the worm drive clamps once they have been installed unless they are loose. Re-tightening of worm drive clamps will lead to damage of silicone hoses and possible loss of engine power. Inspect the V-clamp on the pressure side of the turbo charger: - Inspect for positive clearance between the flanges of the turbo charger/aluminum charged air tube and the base of the V-clamp on the complete circumference. If there is NO positive clearance: Replace the V-clamp. - Inspect for signs of cracks in the edges of the ends of the V-bands of the V-clamp with flashlight and mirror.	X	X	X	X		
16.	Examine cooling system for leaks. Look specially at these items: - Hoses and hose clamps (torque seal on hose clamps is intact). - Aluminum pipes.	X	X	X	X		
17.	Examine the coolant radiators: - Look specially for leakage, damage, and insecure attachment. - Make sure the cooling fins are not blocked.	X	X	X	X		

Table 1 - Engine Checklist

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Engine Checklist	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
18.	Examine the coolant tank: - Look specially for leakage and damage. - Check the attachment for cracks.	X	X	X	X		
19.	Do a coolant tank pressure relief valve test. Refer to 75-20 Pressure Relief Valve - Test and inspection.	X	X	X	X		
20.	Examine the alternate air valve assembly: - Check correct movement when the alternate air lever in the cockpit is operated. - Examine the FOD screen for contamination. Refer to 71-60 Air intakes - Description.	X	X	X	X		

21.	Examine the engine mount. Look specially for:
	- Cracks or corrosion. No cracks or corrosion allowed.
	- Damaged surface protection. Repair damaged surface protection.
	- Mounting bolts (engine mount bolts and shock mount bolts):
	  - Incorrect attachment.
	  - Damage. No damage allowed.
	  - Incorrect torque value. (Refer to 20-10 Special Torque Values - Description.
	  - Loose or missing lock devices.
	- Damaged shock mounts. Replace damaged shock mounts.
		X	X	X	X		

22.	Examine attachment of firewall to engine mount. Re-torque if required.	(X)			X		
23.	Examine the trim weights on the front bulkhead (if OÄM 50-065 is installed): - Remove the trim weights from the front bulkhead. - Examine the trim weights and mounting bolts and bushings for cracks, deformation and loose bonding. - Examine the front bulkhead at and near the mounting bushings for cracks and other damages. - Install the trim weights to the front bulkhead.			X	X		

Table 1 - Engine Checklist

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Engine Checklist	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
24.	Examine the trim weights on the front bulkhead for tight fit (if OÄM 50-065 is installed).	X	X	X	X		
25.	Do an engine ground test run. After the engine test run, read the FADEC data out and send them via email. Refer to Engine Maintenance Manual, latest revision.	X	X	X	X		

Table 1 - Engine Checklist

05-41-05 Propellers

Description

1. Propeller

WARNING

DO NOT LET PERSONS GO INTO THE DANGER AREA OF THE PROPELLER. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

YOU MUST MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU TURN THE PROPELLER.

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Propeller	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the propeller. Refer to the mt-Propeller Operation and Installation Manual, latest revision.	X*	X	X	X		
2.	Examine the propeller de-icing system (if OÄM 50-011 is installed). Refer to the mt-Propeller Operation and Installation Manual, latest revision.	X	X	X	X		

Table 1 - Propeller

05-42
AIRFRAME MAINTENANCE CHECKLISTS

05-42-01 Airframe Scheduled Maintenance Checklists

Description

1. Airframe Scheduled Maintenance Checklist Organization

The Airframe Scheduled Checklist consits of the following parts:

Title	Reference - Section 05-42:
Exterior of the Fuselage	
Exterior, General	General - Description
Nose Landing Gear	Nose Landing Gear - Description
Main Landing Gear	Main Landing Gear - Description
Wheels	Wheels - Description
Cabin	
Cabin, General	Cabin General - Description
Windscreen, Doors and Windows	Windscreen, Doors and Windows - Description
Cabin Structure	Cabin Structure - Description
Instrument Panel and Electrical System in Cabin	Instrument Panel and Electrical System in Cabin - Description
Flight Control System in Cabin	Flight Control System in Cabin - Description
Other Cockpit Controls	Other Cockpit Controls - Description
Miscellaneous Items in Cabin	Miscellaneous Items in Cabin - Description
Interior of the Rear Fuselage	
Interior Structure of the Rear Fuselage	Interior Structure of the Rear Fuselage - Description
Control System in the Rear Fuselage	Control System in the Rear Fuselage - Description
Miscellaneous Items in the Rear Fuselage	Miscellaneous Items in the Rear Fuselage - Description
Center Wing	
Center Wing, Exterior	Center Wing, Exterior - Description
Center Wing, Interior	Center Wing, Interior - Description
Inner Flaps	Inner Flaps - Description
Miscellaneous Items in Center Wing	Miscellaneous Items in Center Wing - Description
Tail	
Tail, General	Tail, General - Description
Structure of the Vertical Tail	Structure of the Vertical Tail - Description
Structure of the Horizontal Tail	Structure of the Horizontal Stabilizer - Description

Table 1 - Airframe Scheduled Checklist

Title	Reference - Section 05-42:
Rudder	Rudder - Description
Rudder Hinges and Control System in Vertical Tail	Rudder Hinges and Control System in Vertical Tail - Description
Elevator and Elevator Hinges	Elevator and Elevator Hinges - Description
Elevator Control System in Tail	Elevator Control System in Tail - Description
Miscellaneous Items in Tail	Miscellaneous Items in Tail - Description
Wings	
Wings, General	Wings, General - Description
Wings, Structure	Wings, Structure - Description
Ailerons and Outer Flaps	Ailerons and Outer Flaps - Description
Fuel Tanks	Fuel Tanks - Description
Wings, Miscellaneous	Wings, Miscellaneous - Description
General	
General	General - Description

Table 1 - Airframe Scheduled Checklist

05-42-02 General

Description

1. General Fuselage

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, General Fuselage	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the complete surface of the fuselage. Look specially for damage (dents, cracks, holes and delamination). Examine the surface protection system.	X*	X	X	X		
3.	Do a coin-tap test for delamination of the entire fuselage shell from the nose to the vertical tail. Refer to 51-10 Investigation - Description.					MSI	
4.	Do a coin-tap test for defects in the entire fuselage tube bonding (top and bottom). Refer to 51-10 Investigation - Description.					MSI	
5.	Examine all antennas. Look specially for damage, incorrect attachment, and cracks in the fuselage skin.	X	X	X	X		
6.	Examine the exterior placards. Make sure that: - They are not damaged. - None are missing. Refer to 11-20 Exterior placards and markings - Description.	X*	X	X	X		
7.	Lift the airplane on jacks. Refer to 07-10 Jacking - Jacking.	X*	X	X	X		

Table 1 - General Fuselage

05-42-03 Nose Landing Gear

Description

1. Nose Landing Gear

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Nose Landing Gear	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine engine mount structure to which the nose landing gear assembly is attached. Look specially for cracks in welding seams.	X	X	X	X		
2.	Examine the drag brace assembly. Look specially for: - Damage and corrosion. - Damaged surface protection. - Damaged looking hook springs. - Incorrect attachment and loose or missing lock devices.	X	X	X	X		
3.	Examine the nose landing gear emergency extension spring assembly. Look specially for: - Damage and corrosion. - Incorrect attachment and loose or missing lock devices.	X	X	X	X		
4.	Lubricate the flange of upper bearing of the nose landing gear damper strut (if MÄM 50-429 is NOT installed).		X	X	X	2 yrs.	
5.	Do a check of the break away torque of the damper assembly: - De-activate the lower centering unit. - Lift the nose landing gear off the ground. - Make sure the force at the torque links does not exceed 33 N (7.42 lbf.). The lever arm to the rotation axis is 105 mm (4.13 in). - Re-activate the lower centering unit.		X	X	X		
6.	Examine the nose wheel centering devices. Look specially for damage, excessive wear, and looseness.	X	X	X	X		
7.	Examine the nose landing gear actuator. Look specially for leakage. (Refer to 32-20 Nose Landing Gear - Description).	X	X	X	X		

Table 1 - Nose Landing Gear

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Nose Landing Gear	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
8.	Examine the damper and the hydraulics. Look specially for leakage. (Refer to 32-20 Nose Landing Gear - Description).	X	X	X	X		
9.	Examine the nose landing gear doors: - Check for damage to the doors. - Check for cracked hinges. - Examine the door operating rods and actuation mechanism.	X	X	X	X		
10.	Examine the interior of the nose landing gear leg: - Disassemble the nose landing gear leg. (Refer to 32-20 Damper - Remove procedure). - Disassemble the damper assembly. (Refer to 32-20 Damper - Remove procedure). - Clean all parts. - Examine all parts. Look specially for deformation, cracks, wear and damaged surface protection. - Reassemble the nose landing gear leg. (Refer to 32-20 Damper - Install procedure).				X		
11.	Check nose landing gear extension spring force and pretension.				X		
12.	Examine the nose landing gear assembly for damage. Look specially for cracks, deformation, wear, corrosion and damaged surface protection. (Refer to 32-20 Nose Landing Gear - Description).	X	X	X	X		
13.	Ensure correct gas pressure in the damper (8 bar / 116 PSI with the wheel off the ground). (Refer to 32-20 Damper - Dimensions check).	X*	X	X	X		
14.	Apply oil to the actuator bearing. (Refer to 12-20 Lubrication - Lubrication).	X	X	X	X		
15.	Examine the up-lock and the down-lock micro-switches. (Refer to Section 32-20).	X	X	X	X		

Table 1 - Nose Landing Gear

05-42-04 Main Landing Gear

Description

1. Main Landing Gear

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Main Landing Gear	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the composite structure to which the main landing gear assembly is attached. Look specially for cracks, delamination and disbonding of adjacent bonding areas.	X	X	X	X		
2.	Examine the bearings for the main landing gear assemblies in the center wing. Look specially for play.	X	X	X	X		
3.	Examine the landing gear legs and trailing arms. Look specially for cracks, deformation, corrosion, and damaged surface protection.	X	X	X	X		
4.	Examine the hydraulic lines of the brake system for damage, leakage, and loose or defective connectors.	X	X	X	X		
5.	Examine the main landing gear actuators and hydraulics. Look specially for leakage. (Refer to 32-10 Main Landing Gear - Test and inspection).	X	X	X	X		
6.	Examine the damper. Look specially for leakage.	X	X	X	X		
7.	Examine the main landing gear doors: - Check for damage to the doors. - Check for cracked hinges. - Examine the door operating rods.	X	X	X	X		
8.	Remove the dampers and trailing arms from the legs. (Refer to 32-10 Damper - Remove procedure).				X		
9.	Examine these bearings: - Plain bearings in the trailing arm. - Upper and lower bearings for the dampers.				X		
10.	Examine the bolt, bush and sleeve that attach the trailing arm to the leg. Look specially for deformation, cracks and wear.				X		

Table 1 - Main Landing Gear

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Main Landing Gear	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
11.	Examine the interior of the dampers: - Disassemble the dampers. - Clean all parts. - Examine all parts. Look specially for deformation and cracks. - Reassemble the dampers.				X		
12.	Reinstall the dampers and trailing arms to the legs. (Refer to 32-10 Damper - Install procedure).				X		
13.	Ensure correct gas pressure in the dampers (20 bar / 290 PSI with the wheel off the ground). (Refer to 32-10 Damper - Dimensions check).	X*	X	X	X		
14.	Apply oil to the actuator bearing. (Refer to 12-20 Lubrication - Lubrication).	X	X	X	X		
15.	Examine the up-lock and the down-lock micro switches. (Refer to Chapter 32).	X	X	X	X		

16.	Examine the Weight-on-Wheels switches.
	- Look specially for:
	  - Damage. No damage allowed.
	  - Incorrect attachment.
	- Verify proper operation.
		X	X	X	X		

Table 1 - Main Landing Gear

05-42-05 Wheels

Description

1. Wheels

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Wheels	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the tires (Refer to Goodyear Tire Care and Maintenance Manual): - Look for cuts and wear. - Check slip marks (if OÄM 50-005 is not installed). - Ensure correct inflation pressure (Nose wheel: 6.1 bar / 88 PSI; Main wheels: 3.8 bar / 55 PSI).	X	X	X	X		
2.	Examine the main wheel brakes: - Check brake linings for excessive wear. - Check brake disks for cracks, distortion and excessive wear. - Check brake cylinders for leaks. Refer to 05-00 Referenced Maintenance Data - Description Table 1.	X	X	X	X		
3.	Remove all 3 wheels.	X*	X	X	X		
4.	Examine the wheel axles. Look specially for cracks and corrosion. Refer to 05-00 Referenced Maintenance Data - Description Table 1.	X*	X	X	X		
5.	Examine the wheel bearings. Look specially for play, corrosion and irregular running. Refer to 05-00 Referenced Maintenance Data - Description Table 1.	X*	X	X	X		
6.	Clean and lubricate all bearings at the wheels. (Refer to 12-20 Lubrication - Lubrication, only if OÄM 50-005 is not installed).	X*	X	X	X		
7.	Examine the rims of all 3 wheels. Look specially for cracks. Refer to 05-00 Referenced Maintenance Data - Description Table 1.	X	X	X	X		

Table 1 - Wheels

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Wheels	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
8.	If OÄM 50-066 is installed: - Check SensAir at each tyre charge for wear and damage. - Swap sensor in case of battery failure. Refer to 05-00 Referenced Maintenance Data - Description Table 1.					on condition	
9.	Install all 3 wheels. Refer to 05-00 Referenced Maintenance Data - Description Table 1.	X*	X	X	X		
10.	Do a test for wheel track and camber. (Refer to 32-10 Main Landing Gear - Test and inspection.			X	X		

Table 1 - Wheels

05-42-06 Cabin General

Description

1. Cabin, General

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Cabin, General	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Remove the inspection hole covers. Remove front and rear seat shells. Refer to 25-10 Pilots Seat - Remove procedure and 25-10 Passenger Seat - Remove procedure.	X*	X	X	X		
	CAUTION DO NOT PRESS THE RELEASE BUTTON OF THE ADJUSTABLE BACKREST OF THE FRONT SEATS UNINTENTIONALLY. THE SPRING LOADED BACKREST MAY SNAP FORWARD AND CAN CAUSE INJURY.						
2.	Examine the front seats with adjustable backrest: - Do a test of the backrest adjustment mechanism on both front seats. Refer to 25-10 Adjustable Backrest Mechanism Assembly - Operation Test. - Do a test of the lumbar support mechanism on both front seats. Refer to 25-10 Pilots Seat - Description.	X*	X	X	X		
3.	Examine the egress hammer installation: - Check attachments for looseness. - Check release mechanism for interference or improper function.	X*	X	X	X		
4.	If the sun visors (OÄM 50-014) are installed: - Check for obvious damage. - Check hook-and-loop-fasteners for lack of retention force.	X*	X	X	X		
5.	Examine the headset hanger placards (if MÄM 50-285 is installed). Make sure that: - They are not damaged. - None are missing. Refer to 11-30 Interior placards and markings - Description Figure 2 and 25-10 Flight compartment - Description.	X*	X	X	X		

Table 1 - Cabin, General

05-42-07 Windscreen, Doors and Windows

Description

1. Windscreen, Doors and Windows

100 hr items marked * apply to US reg. airplanes only		Interval					
	Windscreen, Doors and Windows	**100**	**200**	**1000**	**2000**	**Time**	**Initials**

1.	Examine the windscreen and the doors:
	- Make sure the door lock mechanisms operate correctly. (Refer to 52-10 LH/RH Pilot Door and Passenger Door - Test and inspection).
	- Examine the acrylic glass windows for damage. Look specially for cracks.
	- Inspect the acrylic glass windows for crazing and scratches. No crazing and scratches are acceptable which affect sight of the pilots.
	- Visually inspect the bolts that attach the front windshield frame to the fuselage structure. Look especially for:
	  - Damage or loseness.
	  - Cracks of the frame around the holes.
	- Examine the emergency windows for damage.
		X*	X	X	X		

2.	Examine all bondings: - Examine the bonding between the front windshield and the windscreen frame. (Refer to 56-10 Flight Compartment Windows - Description). - Examine the bonding between the passenger door window and the door frame. (Refer to 56-10 Flight Compartment Windows - Description). - Examine the bonding between the passenger windows and the frames. (Refer to 56-10 Flight Compartment Windows - Description).	X*	X	X	X		
3.	Examine the bonding between the front windshield and the fuselage structure (where possible).				X		
4.	Do a function test of each door unlocked warning light system. (Refer to 52-10 LH/RH Pilot Door - Description).	X	X	X	X		

Table 1 - Windscreen, Doors and Windows

100 hr items marked * apply to US reg. airplanes only		Interval					
	Windscreen, Doors and Windows	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
5.	Examine the passenger door: - Make sure the door lock mechanism and the safety hook mechanism operate correctly. (Refer to 52-10 LH/RH Pilot Door and Passenger Door - Test and inspection). - Examine the acrylic glass window for damage. Look specially for cracks.	X*	X	X	X		
6.	Examine the safety hook mechanism. (Refer to 52-10 Passenger Door - Description).	X	X	X	X		
7.	Examine the passenger window: - Examine the acrylic glass windows for damage. Look specially for cracks.	X*	X	X	X		
8.	Perform a function test of the emergency exit window.	X*	X	X	X		

Table 1 - Windscreen, Doors and Windows

05-42-08 Cabin Structure

Description

1. Cabin Structure

		Interval					
	Inspection Items, Cabin Structure	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Visually inspect the inner skin of the front fuselage. Use mirror and flashlight where necessary. Check for damage, cracks, delamination and disbonding from the sandwich foam.					MSI	
2.	Check front and rear main spars for damage, cracks, delamination and disbonding from the center wing skin.		X	X			
3.	Visually inspect the interior structure of the front fuselage (from instrument panel frame to baggage compartment rear wall). Use mirror and flashlight where necessary. Check for damage, cracks, delamination and disbonding from the fuselage skin or center wing skin. Inspect the following components: - Front main spar. - Rear main spar. - Floor element. - Control bulkhead.				X		
4.	Visually inspect the interior structure of the front fuselage. Use mirror and flashlight where necessary. Check for damage, cracks, delamination and disbonding from the fuselage skin or center wing skin. Inspect the following components: - Roll bar. - Front and rear seat crash elements. - Front windshield center pillar. - Front bulkhead, especially engine mount attachments.			X	X		

Table 1 - Cabin Structure

		Interval					
	Inspection Items, Cabin Structure	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
5.	Visually inspect the bolts that attach the center wing to the fuselage. Look specially for: - Damage or looseness. - Cracks in the fuselage structure around the holes for the bolts.			X	X		

Table 1 - Cabin Structure

05-42-09 Instrument Panel and Electrical System in Cabin

Description

1. Instrument Panel and Electrical System in Cabin

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Instrument Panel and Electrical System in Cabin	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the Pitot-static system water traps (below the pilot's seat).	X*	X	X	X		
2.	Examine all cable ties and electrical connectors in the cabin. Pull lightly to make sure they are not loose.		X	X	X		
3.	Examine the instrument panel. Make sure that: - The wiring is correctly attached. - The instruments are correctly attached. - The hoses are correctly attached. - The circuit breakers are correctly attached. - The cooling fans are operative and correctly attached. - The Pitot static lines are not sharply bent or chafed.	X*	X	X	X		
4.	Examine the attachments of the instrument panel. Make sure that: - The rubber damper elements are not damaged or porous. - The rubber damper elements are firmly attached to the instrument panel and airframe (6 elements in the center, 1 element on each side).	X*	X	X	X		
5.	Examine the instrument panel for cracks.			X	X		
6.	Examine the backup instruments. Make sure that: - The markings are correct. - The function is correct. - Connector / fittings are correctly attached. - The instrument lights operate correctly (on the instrument panel cover), if applicable.	X*	X	X	X		

Table 1 - Instrument Panel and Electrical System in Cabin

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Instrument Panel and Electrical System in Cabin	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
7.	Examine the alternate static valve. Make sure that: - The valve is correctly attached. - The valve is not blocked. - The hoses are correctly attached.	X*	X	X	X		
8.	Examine the compass. Make sure that: - The compass is correctly attached. - The fluid level is correct.		X	X	X		

Table 1 - Instrument Panel and Electrical System in Cabin

05-42-10 Flight Control System in Cabin

Description

1. Flight Control System in Cabin

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Flight Control System in Cabin	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the control sticks. Make sure that the control stick attachments are not loose and do not catch.	X*	X	X	X		
2.	Examine the control stick stops.	X*	X	X	X		
3.	Examine the aileron and elevator control system. Look specially for: - Incorrect attachment. - Loose or missing lock devices. - Corrosion and damaged surface protection. (Refer to 27-10 Aileron Control System - Description and 27-30 Elevator Control System - Description).	X*	X	X	X		
4.	Examine the spring system in aileron and elevator control system. Look specially for: - Incorrect attachment. - Loose or missing lock devices. - Broken springs. - Pretension length of elevator springs when elevator in neutral position: 181 mm (eye to eye) .	X*	X	X	X		
5.	Examine the rudder pedals. Look specially for: - Incorrect attachment and function. - Corrosion and damaged surface protection. - Damaged adjustment mechanism. - Improper function of adjustment mechanism. (Refer to 27-20 Rudder Control System - Description).	X*	X	X	X		
6.	Examine the rudder pedals S-tube. Look specially for: - Wear on cable inlets and outlets. - Wear in inner radius of tube (no deformation visible or tactile). (Refer to 27-20 Rudder Control System - Description).	X*	X	X	X		

Table 1 - Flight Control System in Cabin

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Flight Control System in Cabin	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
7.	Examine the rudder cables and pulleys. Look specially for: - Incorrect attachment and function. (Refer to 27-20 Rudder Control System - Description). - Defective cable eyes. - Defective plastic sleeves. - Corrosion. - Rub marks. - Defective safety plates. - Worn out pulleys. - Broken strands.		X	X	X		
8.	Examine the elevator trim control in the center console. Make sure that: - There is full and free movement. - There is no unusual play.	X*	X	X	X		
9.	Examine the flap control mechanism on the rear main spar. Look specially for: - Damage and corrosion. - Damaged surface protection. - Incorrect attachment and loose or missing lock devices. - Cracks in bond between rear main spar and bellcrank attachment bracket.	X*	X	X	X		
10.	Perform a flap actuator test. Look specially for: - Proper function of the switches. - Clearance to rods.	X*	X	X	X		
11.	Examine the aileron control system on the rear main spar. Look specially for: - Damage and corrosion. - Damaged surface protection. - Incorrect attachment and loose or missing lock devices. - Cracks in bond between rear main spar and bellcrank attachment bracket.	X*	X	X	X		

Table 1 - Flight Control System in Cabin

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Flight Control System in Cabin	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
12.	If MÄM 50-466 is installed: Examine the sealing foams where control rods of flap and aileron system enter the center wing. Look specially for: - Foams not holding tightly on bonding surface. - Removed sliding tape at face to control rods. - Clearance of flap and aileron rods to foam while operation of control systems.	X*	X	X	X		
13.	Check the following components of the autopilot system for wear and/or corrosion: - Servos. - Servo mounts. - Bridle cable assemblies.	X	X	X	X		
14.	If OÄM 50-035 is installed: - Make sure that the connection of the removable control stick has no play and wear. - Make sure that the safety pin snaps on the rim of the sleeve nut.	X	X	X	X		

Table 1 - Flight Control System in Cabin

05-42-11 Other Cockpit Controls

Description

1. Other Cockpit Controls

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Other Cockpit Controls	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the brake hoses and components. Look specially for leakage.	X*	X	X	X		
2.	Examine the brake fluid reservoirs on the co-pilot's side. Make sure the fluid level is correct: - The fluid level must be 12 mm to 25 mm (1/2 in to 1 in) below the top face of the reservoir filler hole. - If OÄM 50-005 is installed: - The fluid level must be about 5 to 10 mm (0.1 to 0.4 in) below the top.	X*	X	X	X		
3.	Examine the power lever: - Check for damage. - Verify full travel (GI to MAX). - Check rudder trim switches for damage. Refer to the Continental Operation & Maintenance Manual, latest revision.		X	X	X		
4.	Examine the fuel selector valve controls (FUEL CONTROL): - Check lever for damage. - Check safety guard for the OFF position for damage. - Move the control through their operating range. Check for restricted movement, interference, and unusual play.	X*	X	X	X		
5.	Examine the PARKING BRAKE lever in the center console: - Check for damage. - Move the lever through its operating range. Check for restricted movement, interference, unusual play, and locking function.	X*	X	X	X		

Table 1 - Other Cockpit Controls

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Other Cockpit Controls	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
6.	Examine the ALTERNATE AIR lever: - Check for damage. - Move the lever through its operating range. Check for restricted movement, interference, unusual play, and locking function.	X*	X	X	X		
7.	Examine the environmental levers (direction, temperature, circulating air): - Check for damage. - Move the levers through their operating range. Check for restricted movement, interference, unusual play, and incorrect bounce.	X*	X	X	X		
8.	Examine the control cables in the center console: - Examine visually the cables in the center console. Look specially for wear and kinks in the cables and for foreign objects.	X*	X	X	X		

Table 1 - Other Cockpit Controls

05-42-12 Miscellaneous Items in Cabin

Description

1. Miscellaneous Items in Cabin

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Miscellaneous Items in Cabin	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the interior placards. Make sure that: - They are not damaged. - None are missing. (Refer to 11-30 Interior placards and markings - Description).	X*	X	X	X		

2.	Examine the fire extinguisher:
	- Make sure that the fire extinguisher will release from the fire extinguisher mount.
	- Look for physical damage, corrosion, leakage or clogged nozzle.
	- Examine the fire extinguisher label for damage.
	- Make sure that the tamper seal is not broken.
	- Make sure that the container of the fire extinguisher is full:
	  - Use the pressure gauge to examine the pressure. The pressure must be in the green arc.
	  - If the fire extinguisher Amerex 337TS (MÄM 50-326) is installed:
	Examine the weight of the fire extinguisher. Refer to the maintenance description on the fire extinguisher label.
	Refer to 26-00 Fire protection - Description.
		X*	X	X	X		

3.	If the oxygen system is installed (OÄM 50-001): - Visually inspect each oxygen outlet port. Check for dust, damage and corrosion.		X	X	X		
4.	If the oxygen system is installed (OÄM 50-001): - Compare the oxygen pressure gauge indication on G1000 NXi MFD. Compare the indicated pressure with the pressure gauge of the filling unit, accessible via hatch on the RH fuselage shell.		X	X	X		

Table 1 - Miscellaneous Items in Cabin

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Miscellaneous Items in Cabin	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
5.	If the oxygen system is installed (OÄM 50-001): - Check the oxygen push-pull knob Bowden-cable assembly. Check for interference and corrosion and free movement. Check proper installation of Bowden cable at activation lever.		X	X	X		
CAUTION OIL, GREASE OR OTHER LUBRICATIONS IN CONTACT WITH OXYGEN CREATE A SERIOUS HAZARD. SUCH CONTACT MUST BE AVOIDED WHEN HANDLING WITH ANY PART OF THE OXYGEN SYSTEM.							
6.	If the oxygen system is installed (OÄM 50-001): - Do a functional check of the oxygen system.		X	X	X		

Table 1 - Miscellaneous Items in Cabin

05-42-13 Interior Structure of the Rear Fuselage

Description

1. Interior Structure of the Rear Fuselage

		Interval					
	Inspection Items, Interior Structure of the Rear Fuselage	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Visually inspect the inner skin of the rear fuselage with mirror and flashlight. Check for damage, dents, cracks, delamination and disbonding from the sandwich foam.				X		
2.	Visually inspect the interior structure of the rear fuselage through all access holes with mirror and flashlight. Check for damage, cracks, delamination and disbonding from the fuselage skin.				X		
3.	Examine the RACC air inlets and outlets (if OÄM 50-002 is installed): - Condenser air inlet and outlet on the bottom. - Check the RACC condenser inlet filter on the bottom of the fuselage and evaporator inlet filter on baggage rear cover for contamination. - Check evaporator drains for blockage.		X	X	X		
4.	Examine the RACC central unit (if OÄM 50-002 is installed): - Insecure attachment of hoses, shrouds and cables. - Leakage of hoses. - Cleaness of drain tubes and loose connections.		X	X	X		
5.	Examine the RACC central unit (if OÄM 50-002 is installed): - Defective bonding of the RACC pedestal. - Incorrect attachment of the base plate. - Lack of mechanical stability of the base plate. - Insecure attachment of RACC components to the base plate.		X	X	X		
6.	Visually inspect the condenser and evaporator fan wheels for damages/deterioration.		X	X	X		

Table 1 - Interior Structure of the Rear Fuselage

		Interval					
	Inspection Items, Interior Structure of the Rear Fuselage	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
7.	Perform a leakage test (Refer to 21-50 Refrigerant Circuit - Leak check) and a RACC system test (Refer to 21-50 Airconditioning System (RACC System) - System Test).					1 yr.	

Table 1 - Interior Structure of the Rear Fuselage

05-42-14 Control System in the Rear Fuselage

Description

1. Control System in the Rear Fuselage

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Control System in the Rear Fuselage	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the push rod guides for the elevator push-rod. Look specially for: - Incorrect attachment. - Interference.	X*	X	X	X		
2.	Examine the elevator push-rod levers (2 pcs). Look specially for: - Incorrect attachment. - Interference.	X*	X	X	X		
3.	Examine the elevator push-rod. Look specially for corrosion and damaged surface protection.	X*	X	X	X		
4.	Examine the rudder-control cables and turnbuckles. Look specially for: - Corrosion and wear. - Incorrect lock devices.	X*	X	X	X		
5.	Examine the rudder trim tab system: - Control cable (Bowden). - Electric actuator. Look specially for: - Corrosion and wear. - Broken micro-switches (electric actuator assembly). - Bowden cable attachment. - Electric actuator attachment.	X*	X	X	X		
6.	Perform electric trim tab test. Look specially for: - Proper function of micro-switches.	X*	X	X	X		
7.	Do a cable tension test of the rearward rudder control cables at the baggage frame. (Refer to 27-20 Rudder Control System - Adjust, align and calibrate).	X*	X	X	X		

Table 1 - Control System in the Rear Fuselage

05-42-15 Hydraulic System in the Rear Fuselage

Description

1. Hydraulic System in the Rear Fuselage

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Hydraulic System in the Rear Fuselage	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Check hydraulic module plattform for improper or insecure attachment.		X	X	X		
2.	Check hydraulic components for damage and leakage.	X*	X	X	X		
3.	Ensure correct level of hydraulic fluid.	X*	X	X	X		
4.	Check condition of reservoir filter and overboard drain/ventilation.			X	X		
5.	Check accumulator for inner leakage and pre fill pressure (Refer to 29-11 Leak Tightness Test - Leak check).	X*	X	X	X		

Table 1 - Hydraulic System in the Rear Fuselage

05-42-16 Miscellaneous Items in the Rear Fuselage

Description

1. Miscellaneous Items in the Rear Fuselage

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Miscellaneous Items in the Rear Fuselage	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Do an inspection of the ELT system. (Refer to 25-60 Emergency Location Transmitter - Description).	X*	X	X	X	1 yr.	
2.	Examine the Garmin GSR 79 AHRS behind the baggage compartment rear wall. Look specially for: - Insecure cable connections. - Insecure attachment.	X*	X	X	X		
3.	Examine the electric rudder trim assembly. Look specially for: - Insecure Bowden cable connections. - Insecure attachment of actuator and its mounting bracket. - Broken switches.	X*	X	X	X		
4.	Perform electric rudder trim test. Look specially for: - Proper function of switches.	X*	X	X	X		
5.	Remove the trim weight container (only if trim weight is installed).	X*	X	X	X		
6.	Remove the steel plates from the trim weight container for improved visibility of the structure.			X	X		
7.	Examine the trim weight container (only if trim weight is installed): - Check for delamination, cracks and any other damage.	X*	X	X	X		
8.	Check the two trim weight mounting bolts for deformation and cracks.			X	X		
9.	Install the steel plates to the trim weight container.			X	X		
10.	Trim weight bonding system: - Perform resistance measurements of the trim weight bonding system (Refer to 51-80 Lightning Protection - Bonding Check).			X	X		
11.	Install the trim weight container.	X*	X	X	X		

Table 1 - Miscellaneous Items in the Rear Fuselage

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Miscellaneous Items in the Rear Fuselage	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
12.	Examine the avionics box structure. Look specially for: - Damage, dents, cracks. - Delamination and disbonding of the composite attachments.	X*	X	X	X		
13.	If the oxygen system is installed (OÄM 50-001): - Visually inspect the ventilation of the oxygen compartment. - Especially check cleanliness of the ventilation cap installed on the RH side of the tail fin.	X*	X	X	X		
14.	If the oxygen system is installed (OÄM 50-001): - Visually check the rear fuselage for residues of oil, TKS fluid and grease. Clean up if necessary.	X*	X	X	X		
15.	If the oxygen system is installed (OÄM 50-001): - Open the oxygen compartment and check for contamination with oil, dust. Clean up if necessary.	X*	X	X	X		
16.	If the oxygen system is installed (OÄM 50-001): - Visually inspect the cylinder regulator valve installed on the oxygen cylinder. Check for damage, dust and corrosion.	X*	X	X	X		

Table 1 - Miscellaneous Items in the Rear Fuselage

05-42-17 Center Wing, Exterior

Description

1. Center Wing, Exterior

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Center Wing, Exterior	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Remove all access panels in the center wing.	X*	X	X	X		
2.	Examine the complete surface of the center fuselage and center wing. Look specially for damage (dents, cracks, holes and delamination). Examine the surface protection system.	X*	X	X	X		
3.	Do a coin-tap test for delamination of the entire center wing top and bottom shells. (Refer to 51-10 Investigation - Description).					MSI	
4.	Visually inspect the wing main bolts. Look specially for play between the bolts and the bushes.	X*	X	X	X		
5.	De-fuel the airplane. (Refer to 12-10 Fuel - Defuel and drain fuel).			X	X		
6.	Do a function test of the fuel low-level switch: - Set the ELECT. MASTER switch to ON. - The FUEL LOW caution messages must appear on the G1000 NXi PFD. - Set the ELECT. MASTER switch to OFF.			X	X		
7.	Remove the outer wings from the center wing. (Refer to 57-10 Wing structure - Remove procedure): - Examine the main bolts. Look specially for deformation, cracks, scratches, and corrosion. - Examine the main bolt bushes in the center wing spars. Look specially for deformation, cracks, and scratches and looseness. - Grease the main bolts. - Examine the A-bolts. Look specially for deformation, cracks, scratches, and corrosion. - Grease the A-bolts. - Examine the B-bolts. Look specially for deformation, cracks, scratches, and corrosion. - Grease the B-bolts. (Refer to 12-20 Lubrication - Lubrication).				X		

Table 1 - Center Wing, Exterior

05-42-18 Center Wing, Interior

Description

1. Center Wing, Interior

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Center Wing, Interior	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Visually inspect the inner skin of the center wing through all access holes with mirror and flashlight. Check for damage, cracks, delamination and dis-bonding from the sandwich foam.					MSI	
2.	Visually inspect the interior structure of the center wing through all access holes with mirror and flash-light. Check for damage, cracks, delamination and disbonding from the wing skin. Inspect the following components: - Front spar, inner and outer surfaces, specially in the area of the bushes for the main bolts. - Rear spar, inner and outer surfaces, specially in the area of the bushes for the main bolts. - Ribs in center wing nose. - Root ribs (LH and RH; middle and rear). - Attachment ribs to fuselage (LH and RH; front, middle and rear). - Landing gear ribs (LH and RH, including rear support rib in main landing gear bubble). - Rib for landing gear lock struts (LH and RH). - Rib for wing flap bellcrank (LH and RH). - Rib connecting rear spar to trailing edge spar (LH; outboard of rib for flap bellcrank). - Guiding rib for flap push-rod (LH; inboard of rib for flap bellcrank). - Support rib outboard of rear attachment rib (LH, RH) - Trailing edge spar (LH, RH).				X		
3.	Examine the outer surfaces of the front and rear main spars, specially in the area of the bushes for the main bolts.	X*	X	X			
4.	Examine the cable ties and electrical connectors. Look specially for rub marks. Pull lightly to make sure they are not loose.	X*	X	X	X		

Table 1 - Center Wing, Interior

05-42-19 Inner Flaps

Description

1. Inner Flaps

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Inner Flaps	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the inner flaps. Look specially for damage (dents, cracks, holes and delamination). Examine the surface protection system.	X*	X	X	X		
2.	Examine the inner flap hinges. Look specially for too much play. (Refer to 27-50 Flap Control System - Description.) Play allowed: - Radial: No perceptible play.	X*	X	X	X		
3.	Examine the inner flap control system. Look specially for incorrect attachment and loose or missing lock devices. (Refer to 27-50 Flap Control System - Description).	X*	X	X	X		
4.	Examine the inner flap push-rods: - Remove the inner flap push-rods from the center wing. - Check for corrosion and damaged surface protection. - Look specially for rub marks. - Install the inner flap push-rods. (Refer to 27-50 Flap Control System - Description).				X		

Table 1 - Inner Flaps

05-42-20 Miscellaneous Items in Center Wing

Description

1. Miscellaneous Items in Center Wing

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Miscellaneous Items in Center Wing	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine all fuel system components: - Look specially for signs of leakage and damage, chafings or material deterioration. - Make sure they are correctly attached.	X*	X	X	X		
2.	If MÄM 50-466 is installed: Examine the sealing foams at control system guidance rib. Access at most inboard inspection cover. Look specially for: - Foams not holding tightly on bonding surface. - Removed sliding tape at face to control rods. - Clearance of flap and aileron rods to foam while operation of control systems.	X*	X	X	X		

Table 1 - Miscellaneous Items in Center Wing

05-42-21 Tail, General

Description

1. Tail, General

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Tail, General	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Remove the fairing for the horizontal stabilizer. (Refer to 55-10 Horizontal stabilizer - Remove procedure).	X*	X	X	X		
2.	Check rudder hinges for excessive play.	X*	X	X	X		
3.	Remove the rudder. (Refer to 55-40 Rudder - Remove procedure).	X*	X	X	X		
4.	Remove the elevator push-rod II. (Refer to 27-30 Elevator Control System - Description).				X		
5.	Remove the horizontal stabilizer. (Refer to 55-10 Horizontal stabilizer - Remove procedure).					MSI	

Table 1 - Tail, General

05-42-22 Structure of the Vertical Tail

Description

1. Structure of the Vertical Tail

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Structure of the Vertical Tail	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the complete surface of the vertical stabilizer. Look specially for damage (dents, cracks, holes and delamination). Examine the surface protection system.	X*	X	X	X		
2.	Examine the vertical fin (lower strake) on the bottom side of the fuselage tube. Look specially for: - Damage to the bottom of the fin. - Cracks at the junction to the fuselage.	X*	X	X	X		
3.	Examine the dorsal fin (upper strake) on the upper side of the fuselage tube. Look specially for: - Cracks at the junction to the fuselage.			X			
4.	Visually inspect the inner skin of the vertical stabilizer through all access holes with mirror and flashlight. Check for damage, cracks and delamination.					MSI	
5.	Visually inspect the interior structure of the vertical stabilizer through all access holes with mirror and flashlight. Check for damage, cracks, delamination and disbonding from the vertical tail skin. Inspect the following components: - Front web. - Rear web. - Lower rib (front and rear). - Rib for upper hinge.				X		

Table 1 - Structure of the Vertical Tail

05-42-23 Structure of the Horizontal Stabilizer

Description

1. Structure of the Horizontal Stabilizer

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Structure of the Horizontal Stabilizer	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the complete surface of the horizontal stabilizer. Look specially for damage (dents, cracks, holes and delamination). Examine the surface protection system.	X*	X	X	X		
2.	Do a coin-tap test for delamination of the entire top and bottom shell of the horizontal stabilizer. (Refer to 51-10 Investigation - Description).					MSI	
3.	Examine the mounting brackets for the horizontal stabilizer. Look specially for cracks, deformation, and corrosion. Check the attachment bolts for corrosion. (Refer to 55-10 Horizontal stabilizer - Description).	X*	X	X	X		
4.	Examine the horizontal stabilizer tips. Look specially for cracks, dents, and loose or missing attachment screws. Examine the surface protection system.	X*	X	X	X		
5.	Remove the tips from the horizontal stabilizer. (Refer to 55-10 Horizontal stabilizer - Description).				X		
6.	Visually inspect the inner skin of the horizontal stabilizer through all access holes with mirror and flashlight. Look specially for damage, cracks and delamination.					MSI	
7.	Visually inspect the interior structure of the horizontal stabilizer through all access holes with mirror and flashlight. Look specially for damage, cracks, delamination and disbonding from the horizontal tail skin. Inspect the following components: - Front spar. - Rear spar. - Trailing edge web. - Longitudinal ribs (LH and RH; front, middle, rear). - VT attachment box.	X*	X	X	X		
8.	Install the tips to the horizontal stabilizer. (Refer to 55-10 Horizontal stabilizer - Description).				X		

Table 1 - Structure of the Horizontal Stabilizer

05-42-24 Rudder

Description

1. Rudder

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Rudder	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the rudder skin. Look specially for: - Dents, cracks, holes, dis-bonding, and delamination. - Cracks and deformation on the bottom edge. - Damage to the surface protection system.	X*	X	X	X		
2.	Examine the upper hinge bracket on the rudder. Look specially for: - Cracks and deformation. - Insecure attachment. - Loose or missing lock devices. - Defective surface protection.	X*	X	X	X		
3.	Examine the rudder trim tab. Look specially for: - Damage to the tab structure. - Damage to the surface protection system. - Incorrect attachment to the rudder. - Cracks in hinges. - Wear or excessive play of hinges. - Poor condition of the hinge wire. - Loose or missing lock devices.	X*	X	X	X		

Table 1 - Rudder

05-42-25 Rudder Hinges and Control System in Vertical Tail

Description

1. Rudder Hinges and Control System in Vertical Tail

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Rudder Hinges and Control System in Vertical Tail	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the rudder control cables. Look specially for: - Broken strands. - Defective or worn-out cable eyes. - Corrosion. - Poor general condition.	X*	X	X	X		
2.	Examine the lower rudder hinge and actuating mechanism. Look specially for: - Interference. - Cracks and deformation. - Insecure attachment. - Defective or worn stops. - Loose or missing lock devices. - Defective surface protection.	X*	X	X	X		
3.	Check the rudder top hinge for corrosion, insecure mounting and poor general condition.	X*	X	X	X		
4.	Examine the rudder trim mechanism. Look specially for: - Deformation. - Incorrect attachment. - Loose or missing lock devices. - Wear. - Corrosion.	X*	X	X	X		

Table 1 - Rudder Hinges and Control System in Vertical Tail

05-42-26 Elevator and Elevator Hinges

Description

1. Elevator and Elevator Hinges

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Elevator and Elevator Hinges	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the elevator skin. Look specially for: - Dents, cracks, holes, dis-bonding and delamination. - Damage to the surface protection system.	X*	X	X	X		
2.	Examine the fitting bushes for corrosion and looseness.				X		
3.	Check elevator horn for damage, deformation and cracks.	X*	X	X	X		
4.	Check elevator balancing masses for insecure attachment.	X*	X	X	X		

5.	Examine the elevator hinges. Look specially for:
	- Damage, cracks and corrosion.
	- Loose or missing lock devices.
	- Excessive play. Play allowed:
	  - Axial ± 1.00 mm (± 0.04 in).
	  - Radial ± 0.25 mm (± 0.01 in).
		X*	X	X	X		

6.	Examine the elevator trim tab. Look specially for: - Damage to the tab structure. - Damage to the surface protection elevator. - Incorrect attachment to the elevator. - Cracks in hinges. - Wear or excessive play of hinges. - Poor condition of the hinge wire. - Loose or missing lock devices.	X*	X	X	X		

Table 1 - Elevator and Elevator Hinges

05-42-27 Elevator Control System in Tail

Description

1. Elevator Control System in Tail

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Elevator Control System in Tail	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the elevator push-rods: - Check for damage, deformation, cracks and corrosion. - Check for rub marks and defective powder coating. - Check rod end bearings for looseness and damage. - Check for insecure connection to the bellcrank or elevator horn. - Check for loose or missing lock devices.	X*	X	X	X		
2.	Examine the elevator push-rod which was removed from the rear fuselage. Look specially for rub marks. (Refer to 27-30 Elevator Control System - Description).				X		
3.	Examine the elevator bellcrank in the vertical tail: - Check for damage, deformation, corrosion and cracks. - Check for insecure mounting. - Check for loose or missing lock devices.	X*	X	X	X		
4.	Examine the elevator trim mechanism. Look specially for: - Excessive play or sluggishness. - Incorrect attachment. - Loose or missing lock devices. - Wear. - Contamination of sliding surfaces with dirt.	X*	X	X	X		
5.	Disassamble elevator trim mechanism. - Clean. - Check parts for wear. Reassemble elevator trim mechanism.				X		

Table 1 - Elevator Control System in Tail

05-42-28 Miscellaneous Items in Tail

Description

1. Miscellaneous Items in Tail

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Miscellaneous Items in Tail	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Install the horizontal stabilizer. (Refer to 55-10 Horizontal stabilizer - Install procedure).						
2.	Torque all 16 attachment bolts of the horizontal stabilizer: - At the first 100 hrs. check.	(X)			X		
3.	Install the elevator push-rod which goes through the rear fuselage. (Refer to 27-30 Elevator Control System - Description).				X		
4.	Install the rudder. Lubricate the rudder hinge bushes. (Refer to 55-40 Rudder - Description).	X*	X	X	X		
5.	Install the fairing for the horizontal stabilizer. (Refer to 55-10 Horizontal stabilizer - Install procedure).	X*	X	X	X		

Table 1 - Miscellaneous Items in Tail

05-42-29 Wings, General

Description

1. Wings, General

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Wings, General	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Remove the winglets. (Refer to 57-10 Wing structure - Description).				X		
2.	Remove the fuel tanks from the wings. (Refer to 28-10 Fuel Tank Assembly - Remove procedure): - Remove the main fuel tanks from the wings.				X		
3.	Remove the flap and aileron bell-crank access panels in the wing. (Refer to 52-40 Access Panels - Description).	X*	X	X	X		
4.	Examine the lens of the position and anti-collision lights for excessive scratching, discoloration and cracking. Replace if necessary.	X	X	X	X		

Table 1 - Wings, General

05-42-30 Wings, Structure

Description

1. Wings, Structure

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Wings, Structure	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the complete surface of the wings. Look specially for damage (dents, cracks, holes and de-lamination). Examine the surface protection system.	X*	X	X	X		
2.	Examine the winglets. Look specially for cracks, dents, and loose or missing attachment screws. Examine Pitot extension and its attachment on LH winglet. Examine the surface protection system.	X*	X	X	X		
3.	Do a coin-tap test for delamination of the entire top and bottom wing shell. (Refer to 51-10 Investigation - Description).					MSI	
4.	Visually inspect the inner skin of the LH and RH wing through all access holes with mirror and flashlight or endoscope. Check for damage, cracks, delamination and disbonding from the sandwich foam.					MSI	
5.	Examine the wing spar stubs (inboard of the root rib). Look specially for damage, cracks, delamination and disbonding.				X		
6.	Examine the main bolt bushes in the wing spar stubs. Look specially for damage, deformation, cracks, scratches and looseness.				X		

Table 1 - Wings, Structure

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Wings, Structure	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
7.	Visually inspect the interior structure of the LH and RH wing through all access holes with mirror and flashlight or endoscope. Check for damage, cracks, delamination and disbonding from the wing skin. Inspect the following components: - Front spar. - Rear spar. - Trailing edge web. - Root rib (front, middle and rear). - End rib (on outboard edge). - 6 fuel tank attachment ribs. - Rib supporting aileron bellcrank. - 2 Ribs supporting flap bellcranks.				X		

Table 1 - Wings, Structure

05-42-31 Ailerons and Outer Flaps

Description

1. Ailerons and Outer Flaps

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Ailerons and Outer Flaps	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the ailerons. Look specially for damage (dents, cracks, holes and delamination). Examine the surface protection system.	X*	X	X	X		
2.	Examine the outer flaps. Look specially for damage (dents, cracks, holes and delamination). Examine the front part of the outer flap (vane) for correct attachment to the main part and and check the flap surface for proper clearance with wing shell. Examine the surface protection system.	X*	X	X	X		
3.	Examine the aileron mass balance. Look specially for cracks.	X*	X	X	X		

4.	Examine the aileron hinges and horn. Look specially for:
	- Damage, cracks and corrosion.
	- Loose or missing lock devices.
	- Excessive play.
	- Play allowed:
	  - Axial ± 1.00 mm (± 0.04 in).
	  - Radial ± 0.25 mm (± 0.01 in).
		X*	X	X	X		

5.	Examine the aileron roller cages. Look specially for: - Damage, cracks and corrosion. - Loose rollers. - Excessive play. - Play allowed: max. 0.5 mm.	X*	X	X	X		

Table 1 - Ailerons and Outer Flaps

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Ailerons and Outer Flaps	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**

6.	Examine the outer flap hinges and outer flap track. Look specially for:
	- Damage, cracks and corrosion.
	- Loose or missing lock devices.
	- Excessive play.
	- Play allowed:
	  - Radial: No perceptible play.
	  - Radial play in flap track ± 1 mm.
		X*	X	X	X		

7.	Examine the aileron and flap control system. Look specially for incorrect attachment and loose or missing lock devices. (Refer to 27-10 Aileron Control System - Description and 27-50 Flap Control System - Description).	X*	X	X	X		
8.	Examine the aileron push-rods: - Remove the aileron push-rods from the wings. - Check for corrosion and damaged surface protection. - Look specially for rub marks. - Install the aileron push-rods. (Refer to 27-10 Aileron Control System - Description).				X		
9.	Examine the outer flap push-rods: - Remove the outer flap push-rods from the wings. - Check for corrosion and damaged surface protection. - Look specially for rub marks. - Install the outer flap push-rods. Refer to 27-50 Flap Control System - Description).				X		

Table 1 - Ailerons and Outer Flaps

05-42-32 Fuel Tanks

Description

1. Fuel Tanks

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Fuel Tanks	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Visually check fuel tank electrical bonding system through access panels for improper connections and damaged strips.	X*	X	X	X		
	WARNING **DO NOT GET FUEL ON YOU. FUEL CAN CAUSE SKIN DISEASE. DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.**						
2.	Examine the fuel tank outlets: - Clean the finger filters. - Look for foreign matter. - Look for defective lock wire.				X		
3.	Remove the access covers.		X	X	X		
4.	Check condition of tank interconnecting hoses.		X	X	X		
5.	Check for leaks.	X	X	X	X		
6.	Collect a drain sample: - If sample is contaminated flush tank with removed drain valve.	X	X	X	X		
7.	Flush the tank: - Remove the drain valve. - Flush the fuel tank. - Check for debris and foreign objects. - Install the drain valve.			X	X		
8.	Install the access covers.		X	X	X		
9.	Examine the fuel tank vents for blockage. - Open fuel filler cap and carefully blow through the vent all lines from outside into the tank with compressed air.	X	X	X	X		

Table 1 - Fuel Tanks

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Fuel Tanks	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
10.	Examine the main fuel tanks: - Look specially for corrosion, leaks and other damage. - Look for foreign objects in the tank. - Look for material deterioration, chafings or damage of the flexible fuel hoses connecting the fuel tank chambers. (Refer to 28-10 Fuel Tank Assembly - Test and inspection).				X		

Table 1 - Fuel Tanks

05-42-33 Wings, Miscellaneous

Description

1. Wings, Miscellaneous

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, Wings, Miscellaneous	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
1.	Examine the Pitot-static probe. Look specially for: - Incorrect attachment. - Damage. - Foreign objects. (Refer to Aerosonic CMM (if MÄM 50-232 is installed)).	X	X	X	X		
2.	Install the fuel tanks to the wings. (Refer to 28-10 Fuel Tank Assembly - Install procedure): - Install the main fuel tanks into the wings.				X		
3.	Install the wings. (Refer to 57-10 Wing structure - Install procedure).				X		
4.	Install the winglets. (Refer to 57-00 Wings - Description).				X		
5.	Examine the lift transducer in the LH wing. Do a function test of the stall warning system.	X*	X	X	X		
6.	Examine the placards on the wings. Make sure that: - They are not damaged. - None are missing. (Refer to 11-20 Exterior placards and markings - Description).	X*	X	X	X		

Table 1 - Wings, Miscellaneous

05-42-34 General

Description

1. General

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, General	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
1.	Examine the Pitot-static system. - Clean the Pitot-static system. (Refer to 34-10 Pitot-Static System - Other procedure to clean).			X	X		
2.	If necessary, inspect optional equipment. Refer to: - Chapter 6 of the Airplane Flight Manual (Equipment List). - Chapter 9 of the Airplane Flight Manual (Supplements). - Chapter 05-00 of the Airplane Maintenance Manual (05-00 Referenced Maintenance Data - Description).	X	X	X	X		
3.	Lubricate the airplane. (Refer to 12-20 Lubrication - Lubrication).	X	X	X	X		
4.	Measure the play in the aileron and elevator controls with the control surfaces locked. (Refer to 27-10 Aileron Control System - Description and 27-30 Elevator Control System - Description). Look specially for too much play. Do the test at the top of the control stick. - Maximum play allowed ± 2.5 mm (± 0.1 in). (Refer to 27-10 Aileron Control System - Design data/tolerances check).	X*	X	X	X		
5.	Check flight controls and engine controls for improper operation and installation.	X*	X	X	X		
6.	Do a function test of the aileron control system. (Refer to 27-10 Aileron Control System - Design data/tolerances check).	X*	X	X	X		
7.	Do a function test of the rudder control system. (Refer to 27-20 Rudder Control System - Design data/tolerances check).	X*	X	X	X		
8.	Do a function test of the elevator control system. (Refer to 27-30 Elevator Control System - Design data/tolerances check).	X*	X	X	X		

Table 1 - General

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, General	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
9.	Do a function test of the rudder trim system. Look specially for incorrect operation and indication.	X*	X	X	X		
10.	Do a function test of the elevator trim system. Look specially for incorrect operation and indication. (Refer to 27-30 Elevator Trim - Mechanical - Design data/ tolerances check).	X*	X	X	X		
11.	Do a function test of the flap system. (Refer to 27-50 Flap Control System - Design data/tolerances check). Look specially at the pre-load. With the flaps set to UP: - Correct pre-load 3 - 10 daN (6.7 - 22.5 lbf).	X*	X	X	X		
12.	Do a function test of the landing gear system. (Refer to 32-30 Normal Operation - Test and inspection). - Verify proper operation of the pressure accumulator (the hydraulic pump must stop operating after the pressure has built up). - Verify proper retraction and extension. - Verify correct landing gear indication. - Do a test of the landing gear warning with the flaps in LDG position, the power lever above 25 %. - Do a test of the landing gear warning with the flaps in UP position, power lever below 25 %. - Do a test of the emergency extension. (Refer to 32-30 Emergency Operation - Test and inspection).	X*	X	X	X		
13.	Do a test of the nose wheel centering device: - Move the nose wheel to the left and right. - Verify the nose wheel returns to the neutral position.	X*	X	X	X		
14.	Examine the anti-corrosion coating of exterior parts. (Refer to 12-30 Conservation of Exterior Parts - Clean and apply surface protection). Replace coating on condition.		X	X	X		
15.	Lower the airplane off jacks. (Refer to 07-10 Jacking - Jacking).	X*	X	X	X		
16.	Do an operational test of the external lights.	X*	X	X	X		
17.	Do an operational test of the Pitot heat.	X*	X	X	X		

Table 1 - General

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, General	**100**	**200**	**1000**	**2000**	**Time**	**Initials**
18.	Examine the airplane. Look specially for foreign objects, for example loose items and tools. Install these items, if previously removed: - All access panels. (Refer to 52-40 Access Panels - Description). - The instrument panel cover (refer to 25-10 Instrument Panel Cover - Install procedure). - The seat shells. (Refer to 25-10 Pilots Seat - Install procedure and 25-10 Passenger Seat - Install procedure). - The control-stick boots. - The engine cowlings. (Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure).	X	X	X	X		
	WARNING **DO NOT LET PERSONS INTO THE DANGER AREA OF THE PROPELLER. PROPELLERS CAN CAUSE INJURY OR DEATH.** **WARNING** **SET THE PARKING BRAKE TO ON. IF YOU DO NOT DO THIS THE AIRPLANE CAN MOVE. THIS CAN CAUSE INJURY OR DEATH.**						
19.	Put chocks against the main airplane wheels.	X	X	X	X		
20.	Do the post maintenance engine test: - For the engine run procedures refer to the Airplane Flight Manual. - Record the data. (Refer to 05-40 Engine Ground Test Record - Description).	X	X	X	X		
21.	Examine the engine for leakage.	X	X	X	X		
22.	Make sure the engine oil filter is tight. (Refer to 79-00 Oil Cooling - Description).	X	X	X	X		
23.	Do a maintenance check flight. Put the engine ground test and the maintenance check flight reports in the Airplane Maintenance Log.	X*	X	X	X		
24.	Complete the Maintenance Report and put it in the Airplane Maintenance Log.	X	X	X	X		
	NOTE The manufacturer will use the completed Structural Findings Report for the continuous improvement of the Major Structural Inspection (MSI).						

Table 1 - General

100 hr items marked * apply to US reg. airplanes only		Interval					
	Inspection Items, General	**100**	**200**	**1000**	**2000**	**Time**	**Ini-tials**
25.	Complete the Structural Findings Report. Put one copy in the Airplane Maintenance Log. Send another copy to the manufacturer, i.e., Diamond Aircraft Industries GmbH Office of Airworthiness Nikolaus August Otto-Str. 5 2700 Wiener Neustadt Austria by mail, fax (+43-2622-26780) or e-mail (airworthi-ness-austria@diamondaircraft.com).					MSI	

Table 1 - General

05-50
UNSCHEDULES MAINTENANCE CHECKS

05-50-01 Hard Landing Check

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Hard Landing Check

(1) Remove main landing gear access panel on the bubble.

(2) Examine the landing gear fittings. Look specially for cracks.

Use a mirror and a flashlight.

(3) Examine the engine mount and center wing structure where the landing gear attaches. Look specially for:

- Disbonds.
- Delamination of the CFRP structure.
- Damage to the mounting brackets.
- Cracks in engine mount welding seams or deformation of engine mount structure.

Refer to 32-10 Main Landing Gear - Description.

(4) Examine the landing gear struts. Look specially for:

- Bending.
- Cracks.

Refer to 32-10 Main Landing Gear - Description.

(5) Do a test of wheel track and camber.

Refer to 32-10 Main Landing Gear - Test and inspection.

(6) Examine the tires. Look specially for cuts in the side walls.

Refer to 32-40 Wheels and brakes - Description.

(7) Examine the brake discs. Look specially for damage. Turn the wheel and make sure the disc is not bent.

(8) Examine the wheels. Look specially for cracks or distortion of the rims. Look specially for play and irregular running of the wheel bearings.

(9) Remove the load from the nose-gear and examine it. Look specially for more than the usual play.

CAUTION

IF YOU THINK THE AIRPLANE HAS DAMAGE TO AN AREA THAT TRANSMITS A LOAD, YOU MUST ASK THE AIRPLANE MANUFACTURER FOR ADVICE.

(10) Examine the control surfaces. Look specially for:

- Correct attachment of the hinges.
- Correct attachment of the mass balance to the structure.

(11) Examine the leading edge of the wing for damage.

(12) Examine the area of the spar attachments to the wing shells. Look specially for cracks.

(13) Examine the leading edge of the horizontal and vertical stabilizers for damage.

(14) Examine the engine mount points on the front bulkhead.

(15) Examine the propeller. Look specially to see if the propeller has touched the ground.

CAUTION

DO NOT LOOSEN THE LEVER FOR THE ADJUSTABLE BACKREST OF THE FRONT SEATS UNINTENTIONALLY. THE SPRING LOADED BACKREST MAY SNAP FORWARD AND CAN CAUSE INJURY.

(16) Do a test of the backrest adjustment mechanism on both front seats. (Refer to 25-10 Adjustable Backrest Mechanism Assembly - Operation Test).

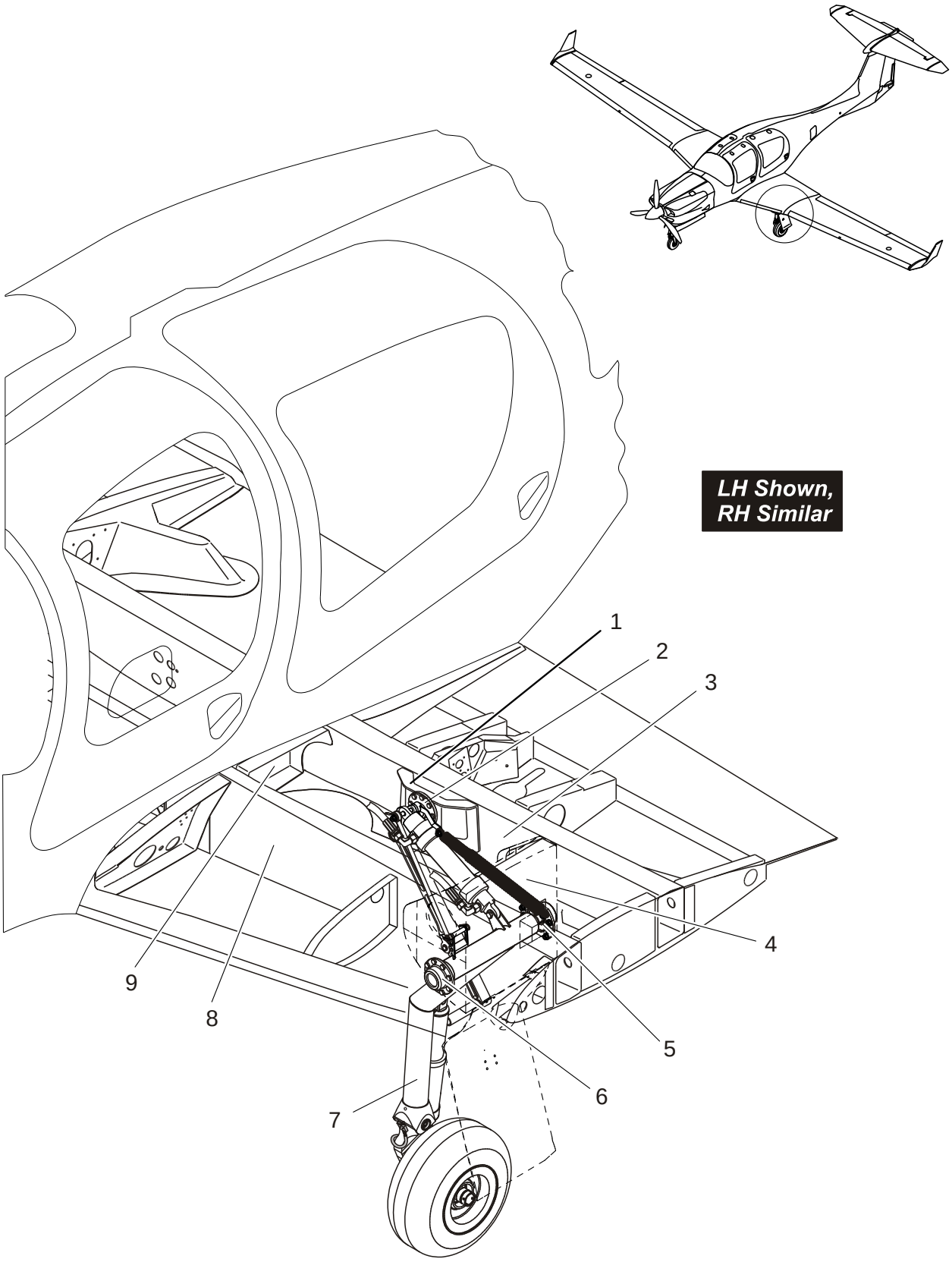
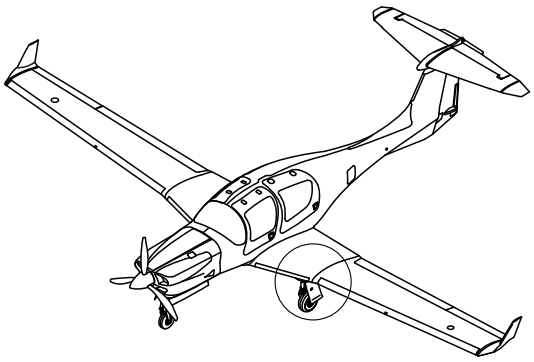


Figure 1 - Hard Landing Check Areas - Main Landing Gear

Legend

[1, Fig.1] Folding Stay Rib
[2, Fig.1] Folding Stay Pivot Plate
[3, Fig.1] Rear Main Bulkhead
[4, Fig.1] Main Landing Gear Rib
[5, Fig.1] Rear Mounting
[6, Fig.1] Front Mounting
[7, Fig.1] Main Landing Gear Leg
[8, Fig.1] Front Main Bulkhead
[9, Fig.1] Middle Closing Rib



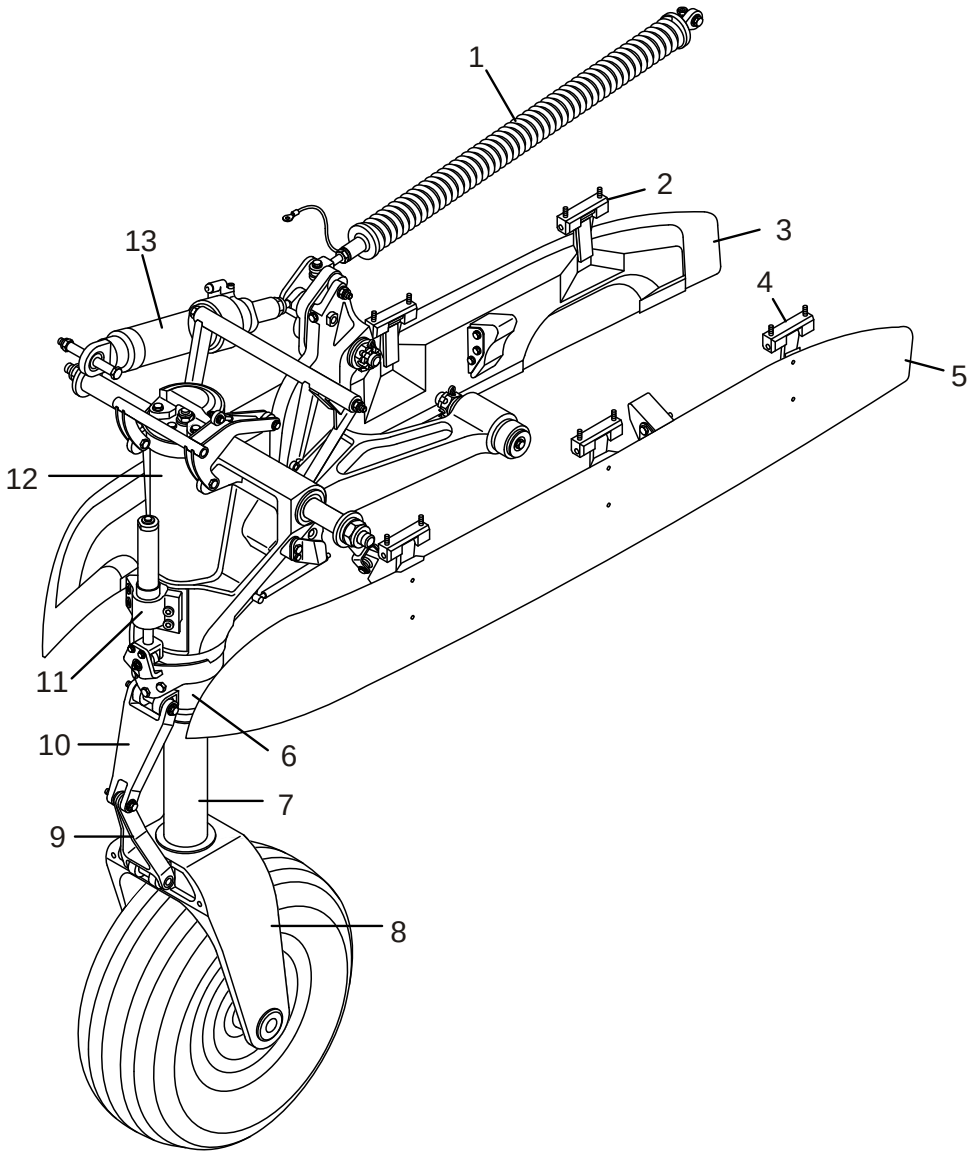


Figure 2 - Hard Landing Check Areas - Nose Landing Gear

Legend

[1, Fig.2]	Compression Spring
[2, Fig.2]	Hinge
[3, Fig.2]	Right Door
[4, Fig.2]	Hinge
[5, Fig.2]	Left Door
[6, Fig.2]	Collar Bushing
[7, Fig.2]	Damper Sliding Tube
[8, Fig.2]	Nose Wheel Fork
[9, Fig.2]	Torque Link, Lower
[10, Fig.2]	Torque Link, Upper
[11, Fig.2]	Centering Unit
[12, Fig.2]	Nose Gear Leg
[13, Fig.2]	Hydraulic Actuator

05-50-02 Gear Up Landing Check

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Gear Up Landing Check

(1) Perform a hard landing check.

Refer to 05-50 Hard Landing Check - Unscheduled inspection.

(2) Examine the fuselage to center wing attachment screw joint on lower surface.

(3) Examine the foot step attachment structure inboard and outboard.

(4) Examine the fuselage bonded joints (Refer to 51-80 Lightning Protection - Description):

- Between LH and RH fuselage shell for cracks.
- Between fuselage tube shell and ventral fin.
- On leading edge of the ventral fin.
- Between vertical stabilizer front and rear web and fuselage shell.

In case of doubt do a coin tap test.

(5) Examine the antennas for damage.

(6) Examine the nose landing gear doors for damages.

(7) Examine the nose landing gear for damages.

(8) Examine the engine mount for damages.

(9) Examine the engine cowlings and cowling attachment surface for cracks.

(10) Examine the center wing for damages.

05-50-03 Propeller Strike

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Propeller Strike

A propeller strike can be a moving propeller (engine running) which has hit a solid object. Or it can be a moving object that hits a propeller that is not moving.

(1) Propeller Strike with the Engine Running

If the propeller has hit a solid object while the engine was running:

(a) Remove the propeller.

Refer to 61-10 Propeller assembly - Remove procedure.

(b) Proceed according to Continental Aerospace Technologies Maintenance Manual.

(c) Examine the engine mount.

Refer to 71-20 Engine Mount - Description.

(d) Examine the propeller.

Refer to the Propeller Owner's Manual.

(2) Propeller Hit by a Moving Object

If a propeller which is not moving is hit by a moving object:

(a) Do an inspection of the propeller. If the propeller must be removed to do a repair other than minor dressing of the blades, you must do the inspection procedure specified for a moving propeller strike.

Refer to the Propeller Owner's Manual.

(b) Examine the airplane for damage.

05-50-04 Engine Fire

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

BEFORE YOU DO WORK ON THE AIRPLANE MAKE SURE THE FIRE HAS BEEN EXTINGUISHED. LET THE ENGINE COOL AND DISCONNECT THE BATTERY.

WARNING

FIRE CAN SERIOUSLY WEAKEN CFRP. IF YOU FIND ANY DAMAGE TO CFRP, DO NOT OPERATE THE AIRPLANE. ASK THE MANUFACTURER FOR ADVICE.

3. Main Procedure

A. Engine Fire

(1) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(2) Disconnect the airplane batteries (main battery and excitation batteries).

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Examine the engine cowlings. Look specially for signs of fire damage.

(4) Examine the electrical cables. Look specially for signs of fire damage.

Replace damaged cables.

(5) Examine the fuel lines. Look specially for signs of fire damage to the fire-protection sleeves.

Replace damaged fuel lines.

(6) Examine the engine oil lines. Look specially for signs of fire damage to the fire-protection sleeves.

Replace damaged oil lines.

(7) Examine the engine. Look specially for:

- Damage to the engine air filter.
- Damage to gaskets and seals.
- Damage to the engine shock mounts.
- Damage to the engine mount.
- Damage to pipes/hoses.

Make a record of the damage you find and ask the engine manufacturer for advice before you repair or operate the engine.

(8) Examine the fuselage front bulkhead. Look specially for:

- Disbonding of the firewall skin from the front bulkhead in the lower section (nose landing gear bay).
- Look for signs of fire wall damage of the composite structure, especially at engine mount attachments.

If you find any damage, ask the airplane manufacturer for advice.

(9) Examine the firewall (incl. nose landing gear bay). Look specially for:

- Firewall structure bends after subjected at high temperatures.
- Increased gaps between firewall plates in areas of connection.

Replace damaged firewall metal plates.

WARNING

DO NOT GET FIRE EXTINGUISHER PARTICLES ON YOU. THE CHEMICALS USED TO EXTINGUISH A FIRE CAN BE CAUSTIC/POISONOUS. WHEN YOU CLEAN THE ENGINE REFER TO THE FIRE EXTINGUISHER MANUFACTURER'S SAFETY INSTRUCTIONS. USE SAFETY MASKS AND GLOVES AS RECOMMENDED.

(10) Clean the engine. Make sure you clean all the fire extinguisher particles from the engine.

Refer to the manufacturer of the fire extinguisher.

(11) Connect the airplane batteries (main battery and excitation batteries).

Refer to 24-31 Main Battery - Connect procedure.

(12) Trouble-shoot the engine. Find the cause of the engine fire. Repair the defect if possible.

Ask the engine manufacturer for advice before you repair or operate the engine.

(13) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(14) Do an engine test.

Refer to the Continental Operation & Maintenance Manual, latest revision.

05-50-05 Lightning Strike

Description

1. Lightning Strike

A lightning strike usually enters the airplane at one point and leaves the airplane at another point. These points are called "attachment points". You usually find these points at the extremities of the airplane. You will often find the most damage to the airplane occurs at the attachment points. There can be more than two attachment points.

When a lightning strike is reported you must do the inspection procedure at 05-50 Lightning Strike - Unscheduled inspection before the next flight.

A. Group 1 Damage

Group 1 damage is the direct damage caused by the lightning strike. To find this damage you must carefully examine all the external surface of the airplane. Look specially for burn marks, holes, discoloration or other physical damage. If you find this damage you must remove panels or equipment to look for damage on the inside of the airplane. Look specially around the area of the external damage.

You must also examine the airplane lightning protection system. Look specially for signs of heat damage or distortion to the conduction tubes and bonding strips. Also look for heat damage in the structures around the conduction tubes and bonding strips. Refer to 51-80 Lightning Protection - Bonding Check for data about the lightning protection system.

B. Group 2 Damage

Group 2 damage is the indirect damage caused by the lightning strike. It is mostly caused by the electromagnetic fields associated with lightning strikes. The electromagnetic fields can induce temporary voltages into the wiring system. These temporary voltages can cause damage to the electrical and electronic components of the airplane. Refer to the Wiring Diagrams for data about the electrical wiring.

NOTE

If you find any lightning damage you must make a record of the damage and ask Diamond Aircraft for advice before you repair or operate the airplane.

05-50-06 Lightning Strike

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Bonding tester	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. (1) Examine the surface of the complete fuselage assembly. Look specially in these areas:

- Propeller and spinner.
- Exhaust pipes.
- Engine breather.
- Door handles.
- Antennas.
- Static discharge wicks.
- Vertical fin tip.
- Rudder.
- Lower fin.

If you find any damage you must examine the airplane internally, specially in the area of the external damage. Make a record of the damage you find and ask Diamond Aircraft for advice before you repair or operate the airplane.

If you find any sign of a lightning strike on the propeller, spinner, exhaust pipe or engine breather remove the engine from the airplane and send it back to Continental Aerospace Technologies. Refer to 71-00 Engine - Remove procedure for engine removal.

(2) Examine the surface of the left wing for lightning damage. Look specially in these areas:

- Pitot-static probe.
- Stall warning switch.
- Static dischargers.
- Winglet.
- Wing tip light assembly.
- Wing trailing edge.
- Aileron trailing edge.
- Flap trailing edge.
- Aileron horn.
- Flap.

If you find any damage you must examine the airplane internally, specially in the area of the external damage. Make a record of the damage you find and ask Diamond Aircraft for advice before you repair or operate the airplane.

(3) Examine the surface of the right wing for lightning damage. Look specially in these areas:

- Static dischargers.
- Winglet.
- Wing tip light assembly.
- Wing trailing edge.
- Aileron trailing edge.
- Flap trailing edge.
- Aileron horn.
- Flap.

If you find any damage you must examine the airplane internally, specially in the area of the external damage. Make a record of the damage you find and ask Diamond Aircraft for advice before you repair or operate the airplane.

(4) Examine the surface of the horizontal stabilizer for lightning damage. Look specially in these areas:

- Horizontal stabilizer tip.
- Static dischargers.
- Trailing edge.
- Elevator trailing edge.
- Trim tab.

If you find any damage you must examine the airplane internally, specially in the area of the external damage. Make a record of the damage you find and ask Diamond Aircraft for advice before you repair or operate the airplane.

(5) Examine the main landing gear. Look specially in these areas:

- Main gear leg attachment points.

Refer to 32-10 Main Landing Gear - Description.

(6) Examine the nose landing gear. Look specially in these areas:

- Nose gear leg attachment points.

Refer to 32-20 Nose Landing Gear - Description.

(7) Operate the flight controls through their complete range of movement. Look specially for:

- Stiff or unusual feel during movement.
- Restriction of movement.
- Noisy operation.

Refer to 27-00 Flight Controls - Description.

(8) Examine the metal conduction tubes and bonding strips in the fuselage and in the wings. Look specially for:

- Heat damage or discoloration.
- Fusion of bonding joints.
- Burn or scorch marks to the structure around the conduction tubes.
  Refer to 51-80 Lightning Protection - Description.

Make a record of any damage you find and ask Diamond Aircraft for advice before you repair or operate the airplane.

Use the bonding tester when you are not able to see the whole length of a tube or bonding strip.

Follow the instructions of the tester manufacturer. The resistance must be in accordance with 51-80 Lightning Protection - Description.

(9) Do a test of these lighting systems:

- External lights (Refer to 33-40 External Lighting System - Description):
  - Position lights.
  - Strobe lights.
  - Landing light.
  - Taxi light.
- Internal lights (Refer to 33-10 Flight compartment - Description):
  - Instrument panel lights.
  - Instrument flood lights.
  - Map reading lights.

(10) Do a test of the Pitot heat system.

Refer to 34-10 Pitot-Static System - Test and inspection.

(11) Do a test of all functions on the G1000 NXi system.

(12) Operate the engine power lever through its range of movement. Look specially for (Refer to 76-00 Engine controls - Description):

- Stiff or unusual feel during movement.
- Restriction of movement.
- Noisy operation.

(13) Do a visual check of engine bondings and wirings.

(14) Operate the cockpit environmental controls through their range of movement and make operational check of fan. Look specially for (Refer to Section 21-40):

- Stiff or unusual feel during movement.
- Restriction of movement.
- Noisy operation.

(15) Operate the parking brake control through its range of movement. Look specially for (Refer to 32-40 Wheels and brakes - Description):

- Stiff or unusual feel during movement.
- Restriction of movement.
- Noisy operation.

(16) Do an engine run-up. Look specially for abnormal operation of the following systems (Refer to 71-00 Engine - Operation Test):

- Engine indicating systems.
  Refer to 31-00 Indicating/Recording Systems - Description.
- DC generation.
  Refer to 24-30 DC Generation - Description.

(17) Do an ECU test.

Refer to 76-00 Engine controls - Description.

(18) Do an FADEC switch test.

Refer to 76-00 Engine controls - Description.

(19) Visually check engine-sensors, -harness and -systems for damages caused by indirect effects of lightning.

Ask the engine manufacturer for advice.

(20) Do a compass check swing.

05-50-07 Over Temperature

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Over Temperature

(1) Check the fluid level and leakage.

(2) Check data and oil sample and send it to Continental Aerospace Technologies.

05-50-08 High Oil Consumption

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. High Oil Consumption

(1) Check engine for oil leakage.

(2) Refer to engine maintenance manual.

05-50-09 Oil Pressure Loss

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Oil Pressure Loss

(1) Check the oil quantity.

(2) Check the indication.

(3) Check the wiring.

(4) Check if negative g-load flights have been conducted. (Visual inspection of the breather outlet for oil contamination).

05-50-10 Failed Start

Unscheduled inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Failed Start

(1) Check voltage.

(2) Check battery condition.

(3) Read out data and send to Continental Aerospace Technologies.

06-00
DIMENSIONS AND AREAS

06-00-01 Dimensions and areas

Description

1. Dimensions

The DA 50 C uses the System Internationale (SI) for dimensions and areas. Imperial dimensions are also given in brackets. For example: Wing span 13.41 m (44 ft).

DA 50 C Dimensions	
Overall Dimensions	
Wing span	13.41 m (44 ft)
Length	9.239 m (30.31 ft)
Height	2.953 m (9.69 ft)
Wing	
Airfoil	Wortmann FX 63-137/20-W4
Area	16.43 m² (176.85 ft²)
Dihedral	5.5°
Aspect ratio	11.0
Leading edge sweep back	1°
MAC	1.274 m (4.18 ft)
Geometrical twist	-2.2°
Flaps	
Span	2 x 4.210 m (13.81 ft)
Area	2 x 1.385 m² (14.91 ft²)
Aileron	
Span	2 x 1.669 m (5.48 ft)
Area	2 x 0.325 m² (3.50 ft²)
Horizontal Stabilizer	
Span	4.130 m (13.55 ft)
Area (incl. elevator, tips and trim tab)	3.14 m² (33.80 ft²)
HT tips area	0.129 m² (1.389 ft²)
Aspect ratio	5.433
Leading edge sweep back	12.4°
Airfoil	FX 71-L-150/30
Elevator	
Span	2.95 m (9.68 ft)

Table 1 - DA 50 C Dimensions

DA 50 C Dimensions	
Area	0.84 m² (9.04 ft²)
Elevator Trim Tab	
Span	1.140 m (3.74 ft)
Area	0.099 m² (1.07 ft²)
Vertical Stabilzer	
Span	1.719 m (5.64 ft)
Area	2.435 m² (26.21 ft²)
Leading edge sweep back	34°
Airfoil	FX 71-L-150/30
Rudder	
Span	1.677 m (5.50 ft)
Area (incl. rudder trim tab)	0.748 m² (8.05 ft²)
Rudder Trim Tab	
Span	0.717 m (2.35 ft)
Area (incl. rudder trim tab)	0.049 m² (0.53 ft²)
Landing Gear	
Wheel track	2.87 m (9.41 ft)
Wheel base (unloaded)	2.77 m (9.08 ft)
Wheel base (unloaded) if MÄM 50-429 is installed	2.80 m (9.19 ft)
Main Wheel	
Tire	6.00-6, for details refer to 32-40 Wheels and brakes - Description
Tire inflation pressure (unloaded)	3.8 bar (55 psi)
Damper gas pressure (unloaded)	20 bar (290 psi)
Nose Wheel	
Tire	5.00-5, for details refer to 32-40 Wheels and brakes - Description
Tire inflation pressure (unloaded)	6.1 bar (88.5 psi)
Damper gas pressure (unloaded)	8 bar (116 psi)

Table 1 - DA 50 C Dimensions

06-00-02 Three-View Drawing

Description

1. Three-View Drawing

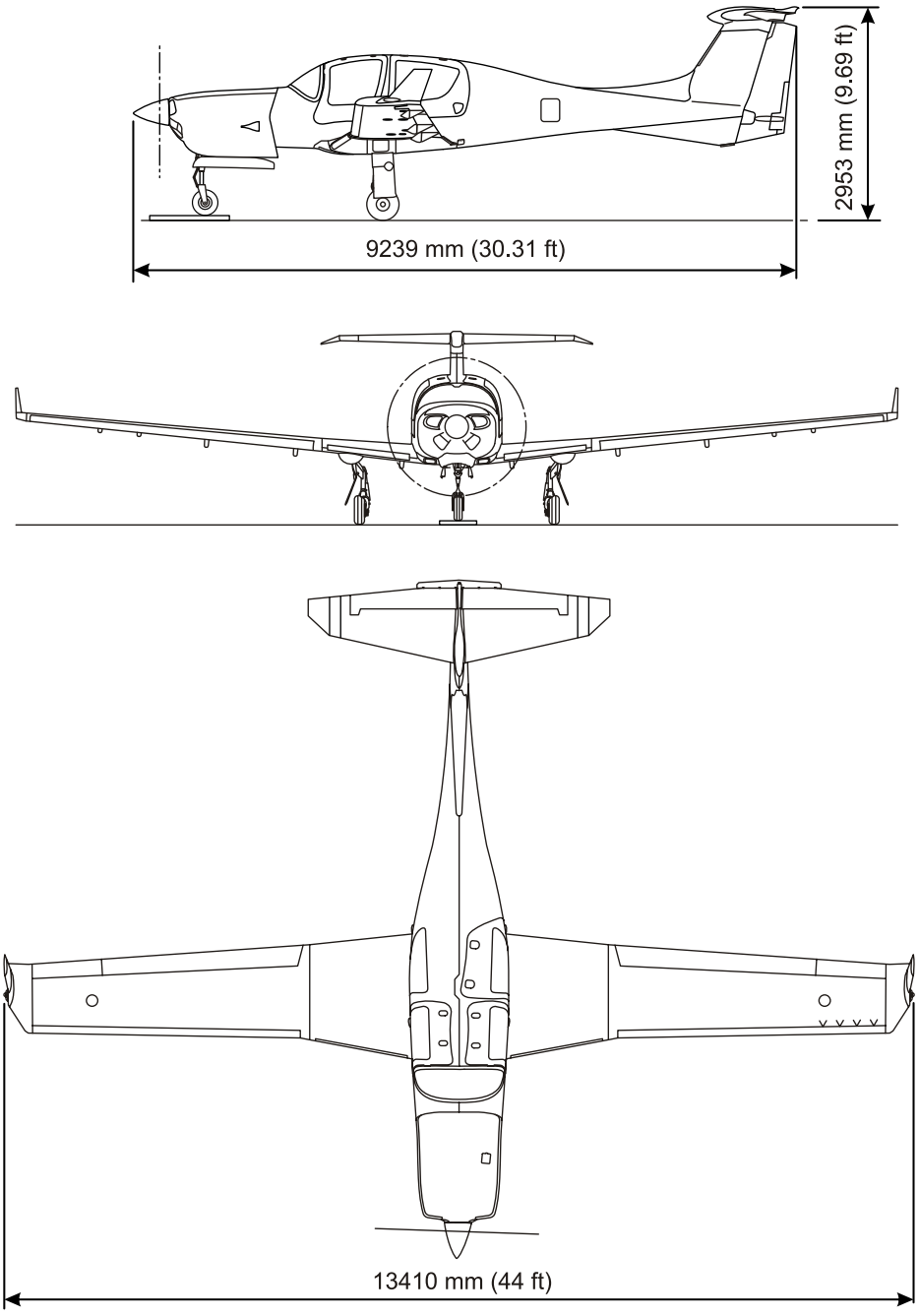


Figure 1 - Three-View Drawing

06-00-03 Adjustment Reports

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Adjustment Reports

The measurements of the DA 50 C are recorded on an Adjustment Report and the Main Landing Gear Toe-In and Camber Report at the factory when the airplane is built.

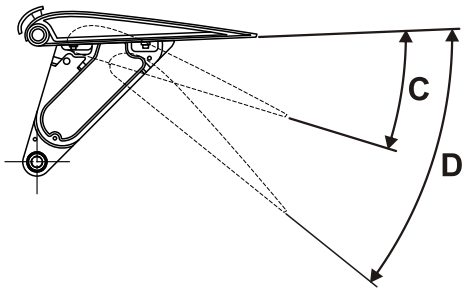
Refer to Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, Figure 7, Figure 8, Figure 9.

These reports become part of the airplane records.

When you measure the dimensions, use the Adjustment Report as reference to show any deviations.

	Flaps						Ailerons					
	Cruise		Take-Off		Landing		Up		Neutral		Down	
	left	right	left	right	left	right	left	right	left	right	left	right
Angle Limits [°]	0 ±1		20 ±1 (see C)		38 ±1 (see D)		25 ±2 (see G)		0 ±1		15 +2/-0 (see H)	
Angle Actual [°]												
	Split - Flap											
Initial Load Limit [kp]	3-10											
Initial Load Actual [kp]												

* difference LH/RH < 1°
** difference LH/RH < 2°



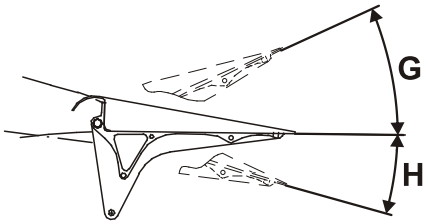
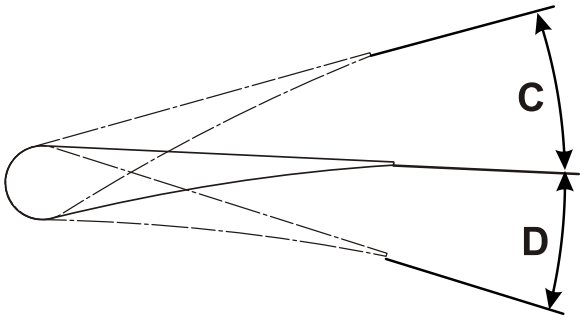
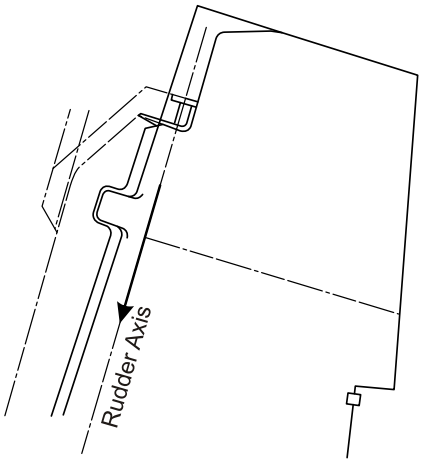


Figure 2 - Control Surface Adjustment Report - Flaps and Ailerons

	Elevator		Rudder	
	up	down	left	right
Angle Limits [°]	18.5 ±0.5 (see C)	15 ±1 (see D)	20 ±1 (see G)	25 ±1 (see H)
Angle Actual [°]				





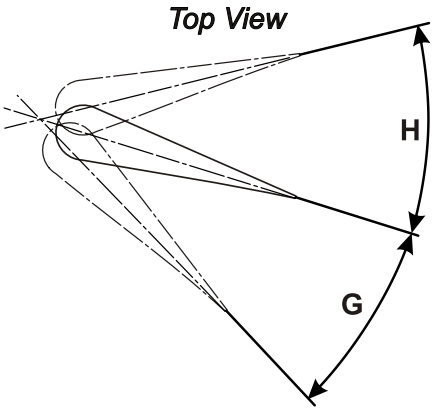


Figure 3 - Control Surfaces Adjustment Report - Elevator and Rudder

	Elevator Trim								
	Elevator 10° Up			Elevator Neutral			Elevator 10° Down		
	nose down	neutral	nose up	nose down	neutral	nose up	nose down	neutral	nose up
Angle Limits [°]	-35 ±5	-14 ±3	+17 ±5	-25 ±5	-11 ±3	+28 ±5	-17 ±6	+3 ±3	+45 ±4
Angle Actual [°]									

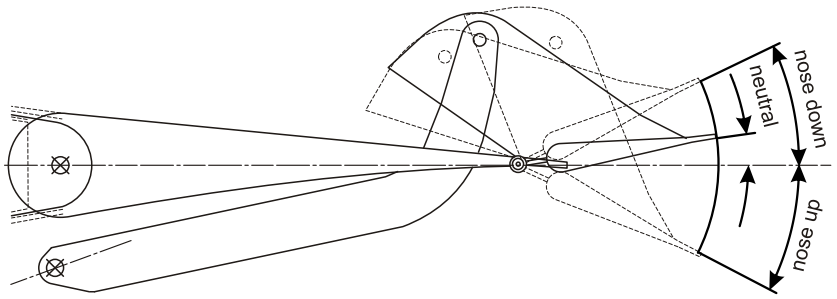


Figure 4 - Control Surfaces Adjustment Report - Elevator Trim

	Rudder Trim								
	Rudder 20° LH			Rudder Neutral			Rudder 20° RH		
	Trim RH	Trim Neutral	Trim LH	Trim RH	Trim Neutral	Trim LH	Trim RH	Trim Neutral	Trim LH
Angle Limits [°]	+42 ±2	+8 ±2	-3 ±2	+35 ±2	+0 ±2	-13 ±2	+25 ±2	-7 ±2	-20 ±2
Angle Actual [°]									

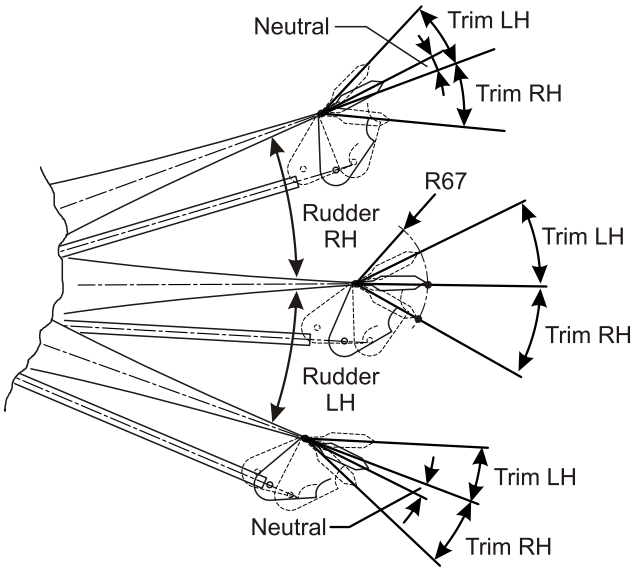


Figure 5 - Control Surfaces Adjustment Report - Rudder Trim

Defuel the airplane to unusable fuel level and level the airplane (refer to Chapter 08-20) prior to performing measurement.

	Horizontal Stabilizer	
	Angle of Incidence #1 Use Template D67-5520-00-00_PL and Protractor / Digital Level. Read values from inboard.	Symmetry #2 Use Template D67-5510-00-00_PL and Protractor / Digital Level to Symmetry
Required angle [°]	*-2° ± 0.3°*	*0° ± 1°*
Actual angle [°]		

	Wing							
	Sweep #3		Dihedral #4		Angle of Incidence #5 Use Template D60-5753-00-00_PL and Protractor / Digital Level		Diagonal measurement #6	
	left	*right*	*left*	*right*	*left*	*right*	*left*	*right*
Required movement [mm]	*(98 ± 15)*							
Actual movement [mm]								
Required angle [°]			*4.5° ± 0.3°*		*1.6° ± 0.4°*			
Actual angle [°]								
Deviation-Max					*0.50°*		*50 [mm]*	
Deviation-actual								

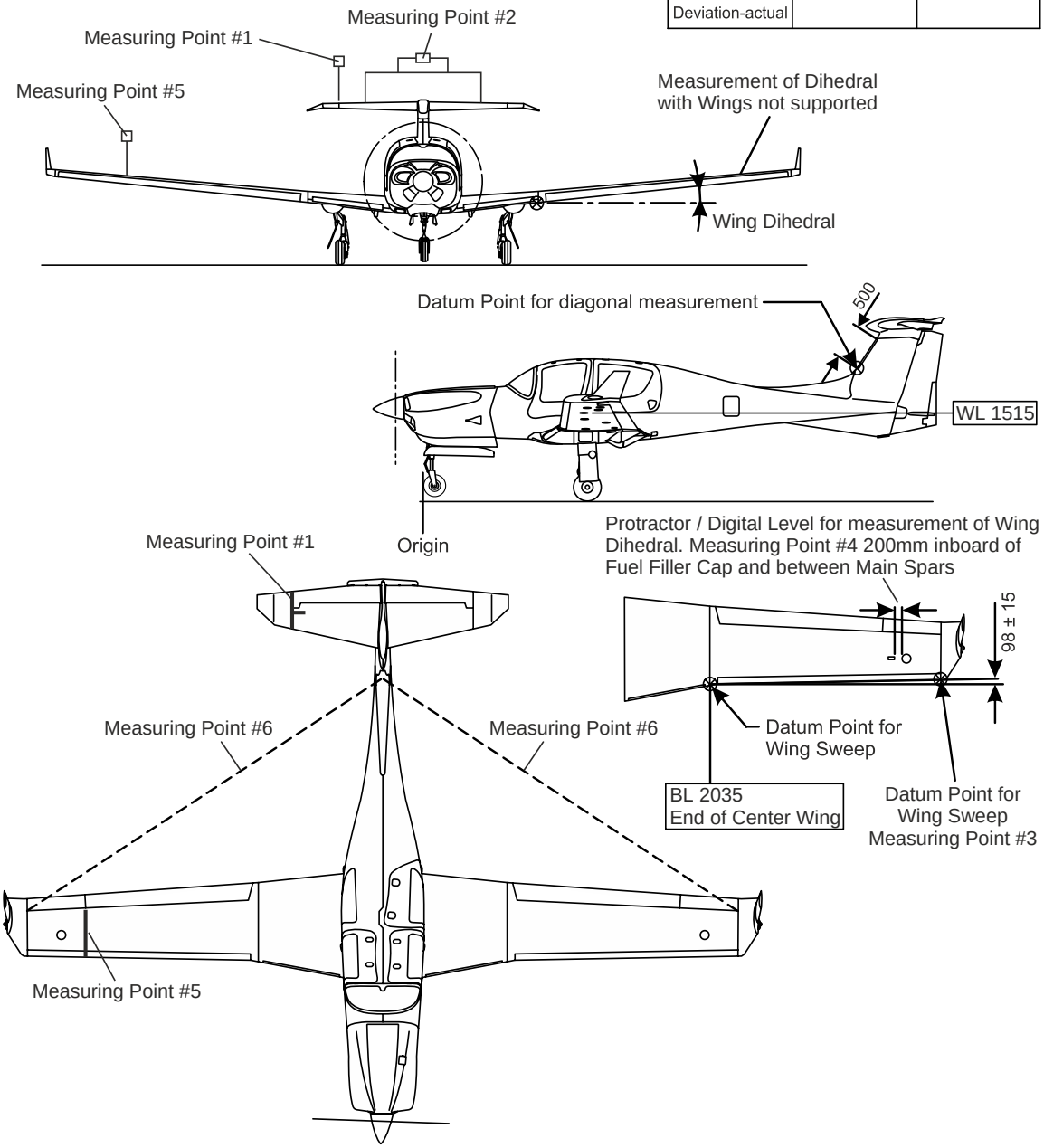


Figure 6 - Adjustment Report, General Items (Metric Dimensions)

Defuel the airplane to unusable fuel level and level the airplane (refer to Chapter 08-20) prior to performing measurement.

	Horizontal Stabilizer	
	Angle of Incidence #1 Use Template D67-5520-00-00_PL and Protractor / Digital Level. Read values from inboard.	Symmetry #2 Use Template D67-5510-00-00_PL and Protractor / Digital Level to Symmetry
Required angle [°]	*-2° ± 0.3°*	*0° ± 1°*
Actual angle [°]		

	Wing							
	Sweep #3		Dihedral #4		Angle of Incidence #5 Use Template D60-5753-00-00_PL and Protractor / Digital Level		Diagonal measurement #6	
	left	*right*	*left*	*right*	*left*	*right*	*left*	*right*
Required movement [in]	*(3.86 ± 0.59)*							
Actual movement [in]								
Required angle [°]			*4.5° ± 0.3°*		*1.6° ± 0.4°*			
Actual angle [°]								
			Deviation-Max		*0.50°*		*1.97 [in]*	
			Deviation-actual					

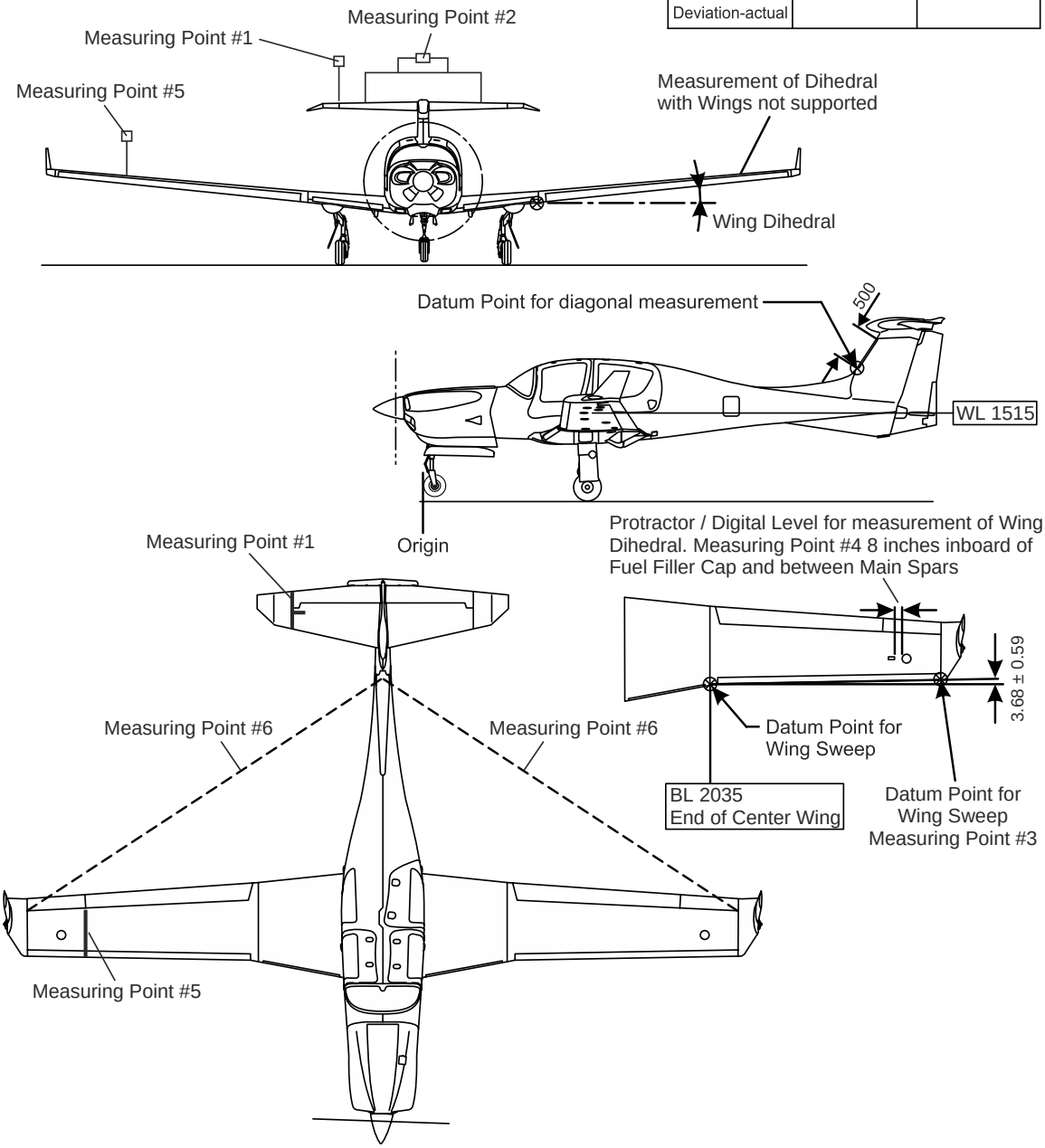


Figure 7 - Adjustment Report, General Items (Imperial Dimensions)

Main Landing Gear Wheel Track and Camber Report (for test/adjustment procedure refer to Section 32-10)		
	Check procedure	**Measured data**
(1)	Perform check at empty weight (fuel tank empty or max. 5 US gal per wing)	
(2)	Set airplane MLG wheels on relocatable plates (2 steel plates 250 x 300 x 2 mm, use Aeroshell grease between steel plates to reduce friction)	
(3)	Use either a track/camber fixture or perform the check manually. Measurement reference: rim face	
	Measure wheel track	
(4)	Track LH wheel	dvsl= ---------- °
(5)	Track RH wheel	dvsr= ---------- °
(6)	Angle between LH and RH wheel (dvsl + dvsr)	dvs= ---------- °
	Measure wheel camber	
(7)	Camber LH wheel	gl= ---------- °
(8)	Camber RH wheel	gr= ---------- °
	Measure track width (measure to the end of the axle)	
(9)	Overall track width (loaded with empty weight)	S= ---------- m

Figure 8 - Main Landing Gear Wheel Track and Camber Report

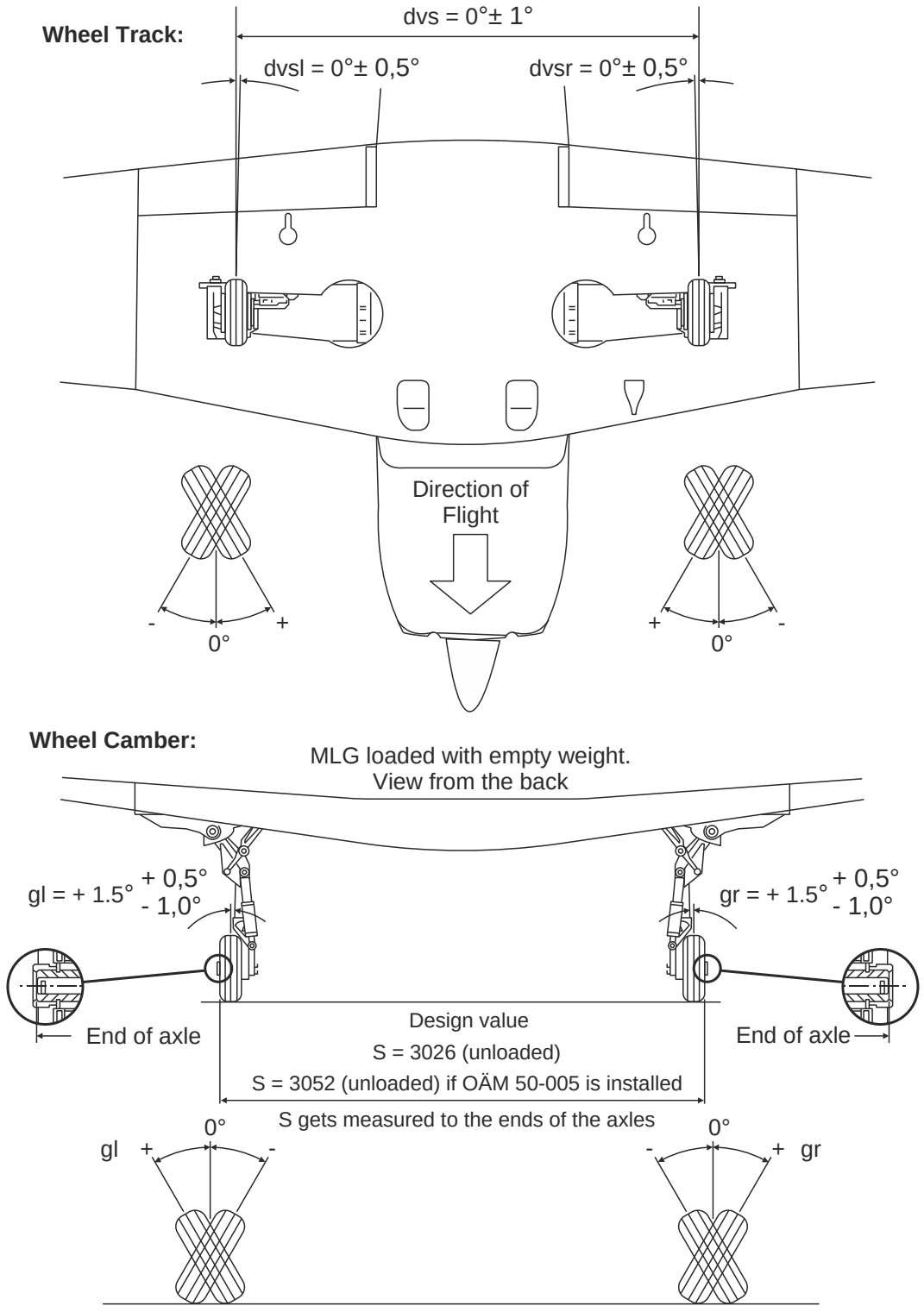


Figure 9 - Main Landing Gear Track and Camber

06-00-04 Weight and Static Moments of Control Surfaces

Description

1. Weight and Static Moments of Control Surfaces

WARNING

IF YOU REPAINT (OR DO REPAIRS TO) THE CONTROL SURFACES, YOU MUST MAKE SURE THAT THE WEIGHT AND STATIC MOMENTS OF THE CONTROL SURFACES ARE IN THE LIMITS GIVEN IN THE CONTROL SURFACE BALANCE REPORT. THIS WILL PREVENT CONTROL SURFACE FLUTTER.

To measure the static moments you must remove the control surface from the airplane. Refer to 51-60 Control Surface Balancing - Description for the measuring procedure.

If the values are not within the limits in the Control Surface Balance Report, you must ask the manufacturer for advice before you adjust the balancing weight.

07-00
LIFTING AND SHORING

07-00-01 Lifting, shoring, recovering and transporting

Description

1. General

The DA 50 C has no lifting points. You must use straps to lift the airplane. Two persons can lift the outer wing, or the horizontal stabilizer, or any of the airplane control surfaces.

07-10 Jacking - Jacking tells you how to lift the airplane with jacks.

07-10
JACKING

07-10-01 Jacking

Description

1. General

The DA 50 C has three jacking points. There are two main jacking points under each stub-wing and the tie-down hole in the lower fin makes the tail jacking point. For maintenance lift the fuselage with three hydraulic jacks. Use a trestle with a special former to hold the front of the fuselage. Use standard trestles under the wings at the position where the winglets connect to the wing.

Refer to Figure 1.

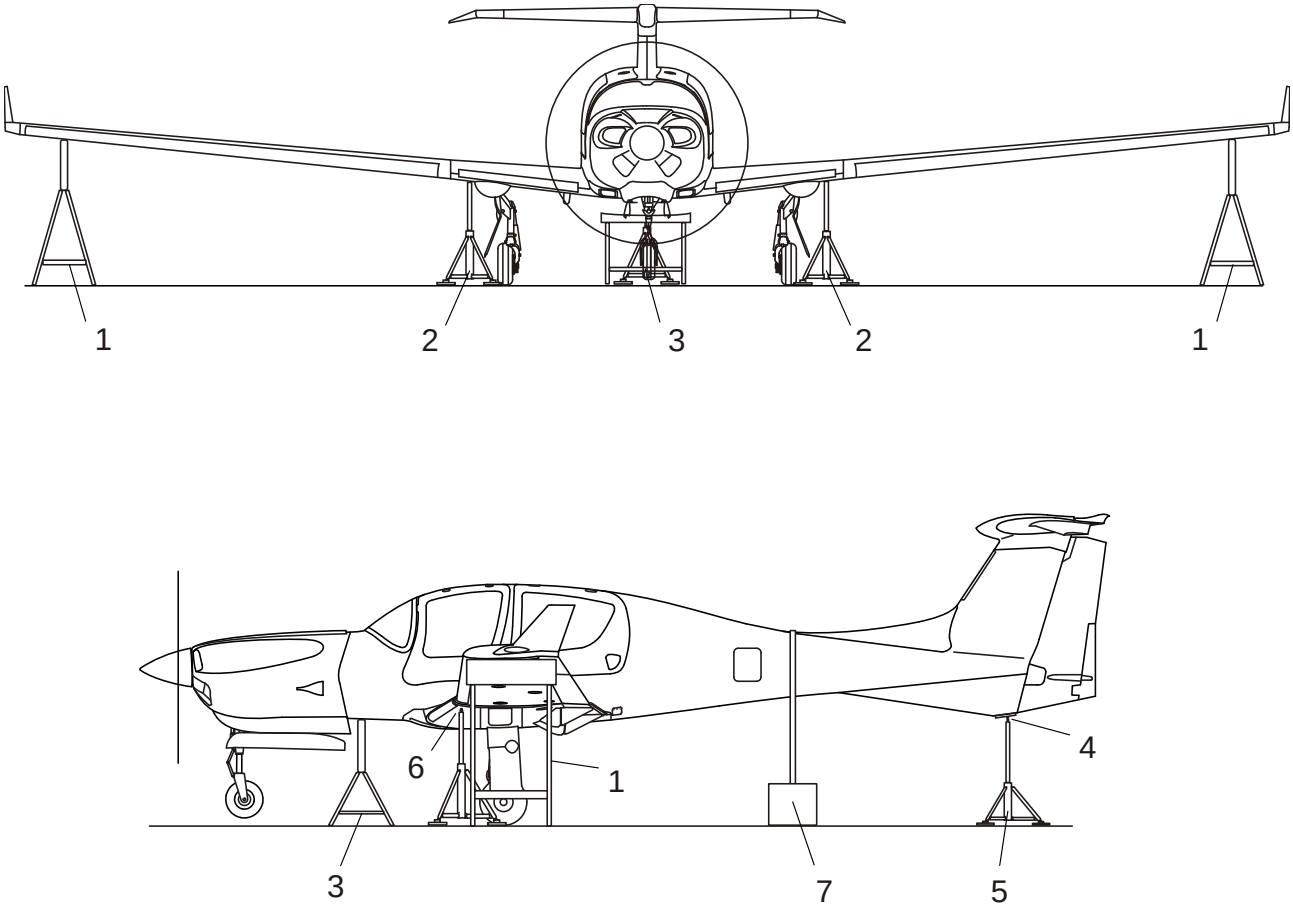


Figure 1 - Lifting the Airplane on Jacks

Legend

[1, Fig.1] Wing Trestle

[2, Fig.1] Main Jack

[3, Fig.1] Nose Trestle

[4, Fig.1] Tail Jacking Point

[5, Fig.1] Tail Jack

[6, Fig.1] Main Jacking Point LH and RH

[7, Fig.1] Ballast

07-10-02 Jacking

Jacking

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Nose trestle	Commercial	1
Wing trestles	Commercial	2
Ballast (min. 50 kg / 110 lb)	Local Manufacture	1
Belt	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Lifting the Airplane

CAUTION

IF THE AIRPLANE IS IN THE OPEN THEN ALIGN IT INTO THE WIND. MAXIMUM WIND SPEED: 10 KM/H (6 KTS).

(1) Put chocks under the main wheels.

(2) Put the 2 jacks into position under the main jacking points. Extend the jacks to engage with the jacking plates.

The jacking plates are bonded to the bottom surface of the stub wing, under of the forward main spar.

(3) Put the jack into position under the tail jacking point. Extend the jack until to engage with the lower fin skid plate. Tie down the tail section by use of a belt connected to the ballast.

(4) Extend all the jacks until the airplane wheels are clear of the ground.

You must operate all the jacks together to keep the airplane level. Do not lift the ballast.

(5) If necessary, level the airplane.

Refer to 08-20 Levelling - Mass & Balance.

CAUTION

DO NOT PUT TRESTLES UNDER THE MIDDLE OF THE WING. YOU MUST ONLY PUT TRESTLES AT THE TIPS OF THE WINGS.

(6) Put the wing trestles in position under each wing, at the tip.

CAUTION

YOU MUST USE THE NOSE TRESTLE. CG MOVEMENTS, E.G. RETRACTION/EXTENSION OF THE LANDING GEAR, MAY OVERBALANCE THE AIRPLANE. THE AIRPLANE CAN TILT FORWARD.

(7) Put the nose trestle into position under the front fuselage.

At the front bulkhead.

B. Lowering the Airplane

WARNING

MAKE SURE THAT THE AREA UNDER THE AIRPLANE IS CLEAR BEFORE YOU LOWER THE AIRPLANE WITH THE JACKS.

(1) Remove the nose trestle form under the front fuselage.

(2) Remove the wing trestles from under the wing tips.

(3) Retract the jacks until the airplane wheels are on the ground.

Rectract the 3 jacks equally to keep the airplane level at all times.

(4) Apply the parking brake. Put chocks under the wheels.

(5) Retract the 3 jacks fully and move the jacks clear of the airplane

(6) Remove the belt and the ballast from the fuselage.

07-11
HOISTING

07-11-01 Hoisting

Description

1. General

WARNING

DO NOT GO UNDER THE AIRPLANE WHEN IT IS HELD BY THE HOIST. IF THE HOIST FAILS, YOU CAN BE INJURED.

You do not need any lifting equipment to remove the wings and you do not need any lifting equipment to remove the horizontal stabilizer.

Use a sling assembly similar to the sling assembly shown in Figure 1. The sling assembly must have a lifting capacity of 2001 kg (4411 lb). If you remove any equipment (for example, an engine or landing gear leg), you move the center of gravity of the airplane. If you move the center of gravity of the airplane then you must change the lifting position of the lifting sling assembly. You can do this by repositioning the sling straps or by repositioning the shackle on the lifting beam.

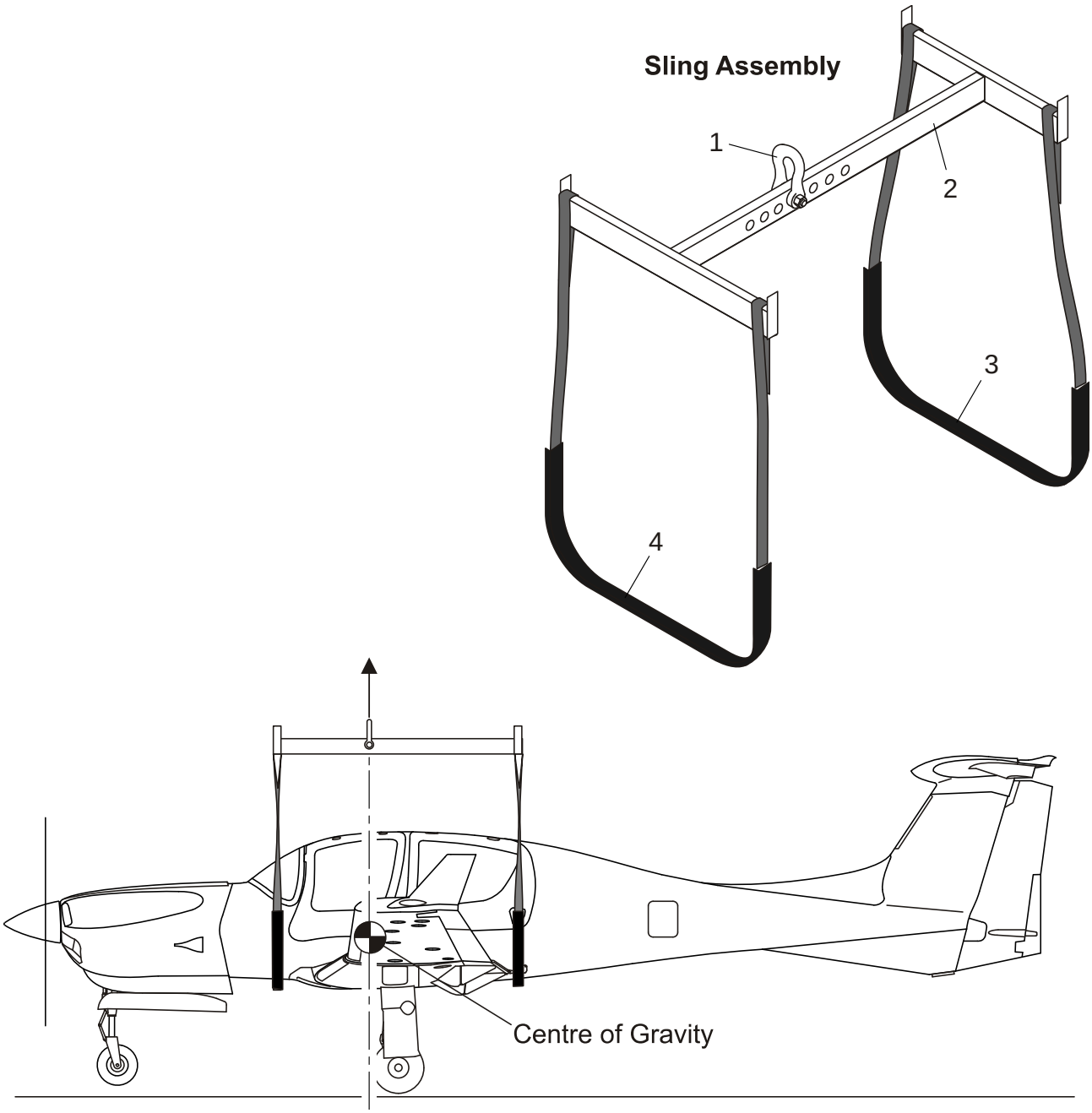


Figure 1 - Hoisting the Airplane

Legend

[1, Fig.1] Shackle

[2, Fig.1] Lifting Beam

[3, Fig.1] Rear Strap

[4, Fig.1] Front Strap

08-00
LEVELING AND WEIGHING

08-10
WEIGHING

08-10-01 Weighing

Description

1. General

Only operate the airplane within the permitted range of weight and center of gravity limits. This will give good flight performance and good handling qualities. It is also necessary for safe operation of the airplane.

If you make any changes to the airplane that may alter the weight (or the center of gravity), then you must calculate the new weight of the airplane. You must also calculate the center of gravity.

Only an approved person can weigh the airplane. The national Airworthiness Authority of the country where the airplane is registered gives approval for persons who can weigh the airplane. It also gives the time limits for when the airplane must be weighted.

Use the Weighing Report when you do the weight and balance calculations (Refer to 08-10 Weighing Report - Description).

You can use mechanical scales or electronic weighing units to weigh the airplane. Electronic weighing units give more accurate and consistent results. They are also easier to use. You must obey the manufacturer's instructions for using the scales or weighing units.

The reference plane for the DA 50 C is a transverse, vertical plane in front of the airplane. It is at right angles to the horizontal reference line. The reference plane lies at 2196 mm (86.46 in) in front of the stub-wing leading edge at the wing root rib.

08-10-02 Weighing

Mass & Balance

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Mechanical scales (the scales used for the main wheels must be the same)	Commercial	3
Spirit level	Commercial	1
Digital level / Protractor	Commercial	2
Plumb line	Commercial	1
Wooden blocks (various thicknesses)	Local Manufacture	A/R
Ramps	Local Manufacture	3
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3 (optional)
Weighing Tool	D54-0810-01-00_01_PL	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

3. Main Procedure

A. Weighing Procedure with Mechanical Scales Under the Wheels

Before you weigh the airplane do these items:

- Make sure that the airplane has all its equipment. The equipment must be in the location given in the Airplane Inventory.
- Defuel the airplane to the unusable fuel level 9.5 liter (2.5 US gal). Refer to 08-10 Weighing Report - Description and 12-10 Fuel - Defuel and drain fuel.
- Replenish the engine oils, hydraulic fluid and cooling fluid up to the maximum levels. Refer to 12-10 Replenishment - Description.
- Clean the airplane and dry it. Check that all the water drain holes are unobstructed. Refer to 12-30 Cleaning - Clean and apply surface protection and 05-20 Drain Holes Inspection - Description.

- Remove all objects which are not part of the Airplane Inventory (for example tools, baggage, etc.).

NOTE

Weigh the airplane in a closed room. This will avoid any wind causing weighing errors.

(1) Make a copy of the Weighing Report form.

Refer to 08-10 Weighing Report - Description.

(2) Put the weighing scales in position on the floor in front of each wheel.

(3) Zero the scales.

Refer to the scale manufacturer's instructions.

(4) Lift the airplane on jacks.

Refer to 07-10 Jacking - Jacking.

(5) Put the flat part of the ramps under each wheel.

(6) Lower the airplane onto the ramps with the jacks. Remove the jacks.

Refer to 07-10 Jacking - Jacking.

(7) Put a wooden block on the scale in front of each main wheel.

The blocks should be of the same thickness.

Refer to Figure 1.

(8) Push the airplane forward onto the scales.

Make sure that the wheels are above the center of the scales.

(9) Make the airplane level laterally:

Refer to 08-20 Levelling - Mass & Balance Figure 1.

- Place a protractor on the LH outer wing 20 cm (8 in) inboard of the fuel filler cap and measure the angle.
- Similarly, place a protractor on the RH outer wing 20 cm (8 in) inboard of the fuel filler cap and measure the angle.
- If necessary, use additional thin blocks between the scale and the main wheel on the low side so that the digital scale shows the same value when placed on LH and RH outer wing.

Push the airplane on and off the scales as necessary. Make sure that you do not touch the airplane when you read the spirit level.

(10) Make the airplane level longitudinally:

Refer to 08-20 Levelling - Mass & Balance Figure 2.

- Place the weighing tool on the pilot's door frame and place the protractor on top of it. Refer to Levelling - Mass & Balance Figure 2.
- Put thin blocks between the nose wheel and the scale to bring the protractor horizontal.
- Or, if necessary, reduce the air pressure in the nose wheel tire to bring the spirit level horizontal.

(11) Remove the levelling equipment from the airplane.

(12) Put the rear passenger seats in the upright position.

(13) Close all doors.

(14) Read the value from the left main wheel scale. Enter the value on the weighing form under MAIN G_{1LH} Gross.

(15) Read the value from the right main wheel scale. Enter the value on the weighing form under MAIN G_{1RH} Gross.

(16) Read the value from the nose wheel scale. Enter the value on the weighing form under NOSE G_2 Gross.

(17) Use the plumb line to mark the position of the datum point on the floor:

- Hold the plumb line against the leading edge of the wing where the wing joins the stub-wing.
- Mark this position on the floor on both sides.
- Draw a straight line between the 2 points you marked on the floor.
- Draw a second line 2196 mm (86.46 in) forward of the first line on both sides. This is the reference line.

(18) Use the plumb line to mark the position of the nose wheel center line on the floor.

(19) Use the plumb line to mark the position of each main wheel center line on the floor.

(20) Lift the airplane off the scales with the jacks.

Refer to 07-10 Jacking - Jacking.

(21) Read the weight of the wooden blocks on each of the scales. Record the values in the column headed TARE in the Weighing Report.

(22) Remove the scales and the ramps.

(23) Measure the distance X_{1LH} at the LH main wheel. Record the value in the Weighing Report.

(24) Measure the distance X_{1RH} at the RH main wheel. Record the value in the Weighing Report.

(25) Measure the distance X_2 at the nose wheel. Record the value in the Weighing Report.

(26) Refer to the calibration records for the weighing scales. If necessary, correct the Gross and Tare values of MAIN G_{1LH}, MAIN G_{1RH}, and NOSE G_2.

(27) Subtract each Tare value from the related Gross value. Record the result under Net in the Weighing Report.

(28) Lower the airplane with the jacks.

(29) Calculate the Empty Weight, G, from the Net values.

$G = \text{Net } G_{1LH} + \text{Net } G_{1RH} + \text{Net } G_2$

(30) Calculate the Empty Weight Moment, M.

$M = (\text{Net } G_{1LH} * X_{1LH}) + (\text{Net } G_{1RH} * X_{1RH}) + (\text{Net } G_2 * X_2)$

(31) Calculate the position of the Empty Weight Center-of-Gravity, X_{CG}.

$X_{CG} = M/G$

(32) Record the Empty Weight (G) and the Empty Weight Moment (M) in the Airplane Flight Manual.

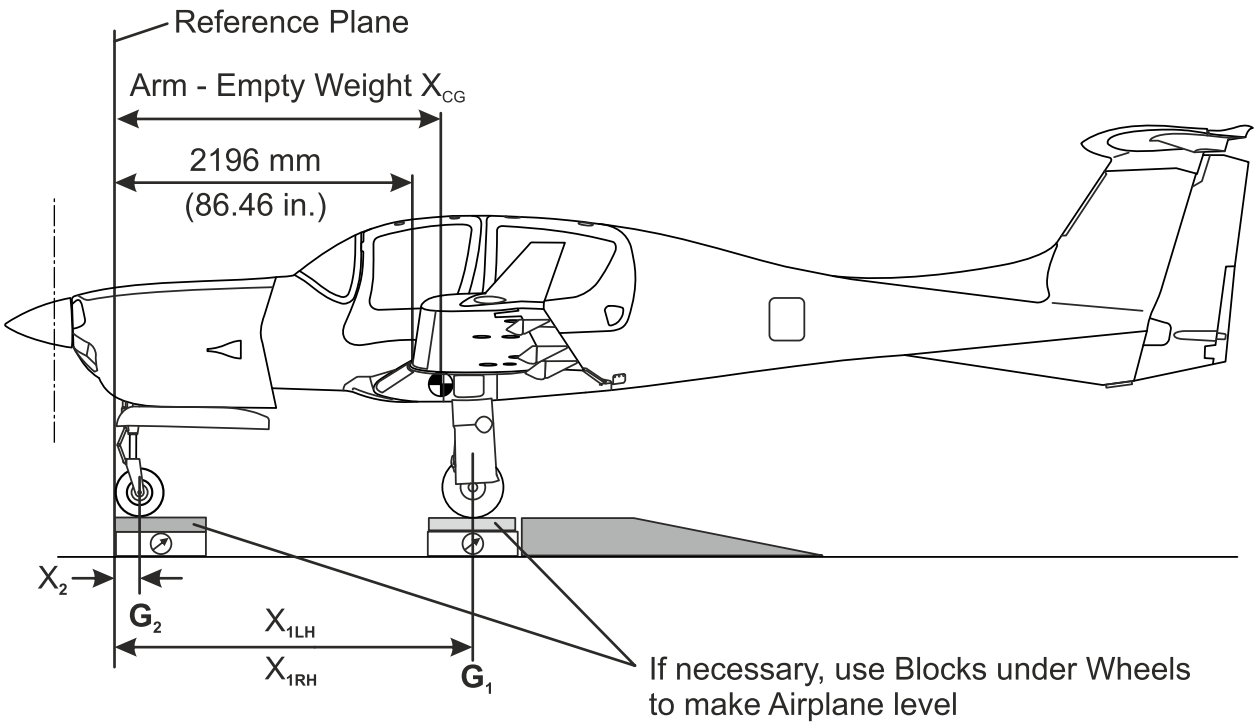


Figure 1 - Weighing Dimensions for Mechanical Scales Under the Wheels

08-10-03 Weighing Report

Description

1. Weighing Report

Model: DA 50 Serial Number:_____ Registration:_____

Data with reference to the Type Certificate Data Sheet and the Airplane Flight Manual.

Reference (Datum) Plane: Vertical plane 2.196 meters (86.46 in) forward of the most forward point of the root rib on the stub wing.

Horizontal reference line: level with weighing tool D54-0810-01-00_01_PL.

Equipment Inventory - dated:_____ Cause for Weighing:_____

A. Weight and Balance Calculations (Weighing at the wheels)

Weight Condition: Include brake fluid, hydraulic fluid, coolant, engine oil, gearbox oil and unusable fuel main tanks (LH (main) 1 US gal = 3.8 liters, RH (aux)1.5 US gal = 5.7 liters). Trim mass installed on front bulkhead _____ kg (lb) or in tail fin _____ kg (lb).

Support	Gross	Tare	Net	Lever Arm
MAIN G_{1LH}				X_{1LH} = ... mm (..... in.)
MAIN G_{1RH}				X_{1RH} = ... mm (..... in.)
NOSE G_2				X_2 = ... mm (..... in.)
		Empty Weight		

Table 1 - Weighing Table

Calculate the Empty Weight: G = MAIN G_{1LH} + MAIN G_{1RH} + NOSE G_2	G =
Calculate the Empty Weight Moment: M = $(G_{1LH} * X_{1LH})+(G_{1RH} * X_{1RH})+(G_2 * X_2)$	M =
Calculate the Empty Weight Center-of-Gravity position, X_{CG} = M/G	X_{CG} =
Maximum permitted all-up-weight (Max AUW):	1999 kg (4407 lb)
Maximum useful load = Max AUW - G	

Table 2 - Calculation Table

Record the Empty Weight (G) and the Empty-Weight Moment (M) in the Airplane Flight Manual.

Place/Date _____

Authorizing Stamp _____

Authorizing Signature _____

08-20
LEVELING

08-20-01 Levelling

Description

1. General

These procedures tell you how to make the airplane level. Refer to 07-10 Jacking - Jacking for lifting the airplane with jacks.

Make the airplane level with jacks unless you are weighing the airplane.

If you have to do an asymmetry test, use the jacks to make the airplane level. If you weigh the airplane, change the airplane tire pressures or use blocks to make the airplane level (see 08-00 Weighing - Mass & Balance).

08-20-02 Levelling

Mass & Balance

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Nose trestle	Commercial	1
Spirit level	Commercial	1
Digital level / Protractor	Commercial	2
Weighing Tool	D54-0810-01-00_01_PL	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Level the Airplane with Jacks

NOTE

Level the airplane in a closed room.

(1) Fasten a ballast with a belt at the fuselage tube as shown in Figure 2.

(2) Lift the airplane on jacks.

Refer to 07-10 Jacking - Jacking. Pay attention not to lift the ballast.

(3) Make the airplane level laterally:

Refer to Figure 1.

- Place a digital level on the LH outer wing 20 cm (8 in) inboard of the fuel filler cap and measure the angle.
- Similarly, place a digital level on the RH outer wing 20 cm (8 in) inboard of the fuel filler cap and measure the angle.
- Adjust the main jacks so that the digital scale shows the same value when placed on LH and RH outer wing.

(4) Make the airplane level longitudinally:

- Place the weighing tool on the pilot's door frame and place the protractor on top of it. Refer to Figure 2.
- Adjust the tail ballast to bring the airplane horizontal.

(5) Put trestles under each wing and the front fuselage.

Refer to Figure 2 and 07-10 Jacking - Description Figure 1.

(6) Remove the protractors from the airplane.

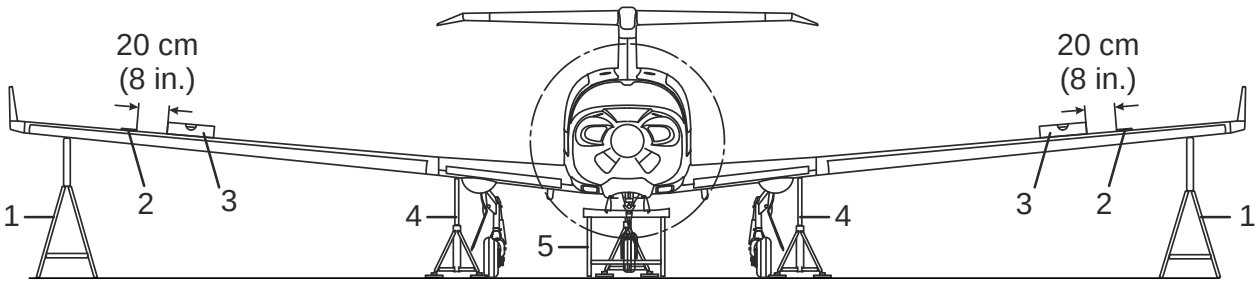


Figure 1 - Level the Airplane Laterally

Legend

[1, Fig.1] Wing Trestle

[2, Fig.1] Fuel Filler Cap

[3, Fig.1] Digital Level/ Protractor

[4, Fig.1] Main Jack

[5, Fig.1] Nose Trestle

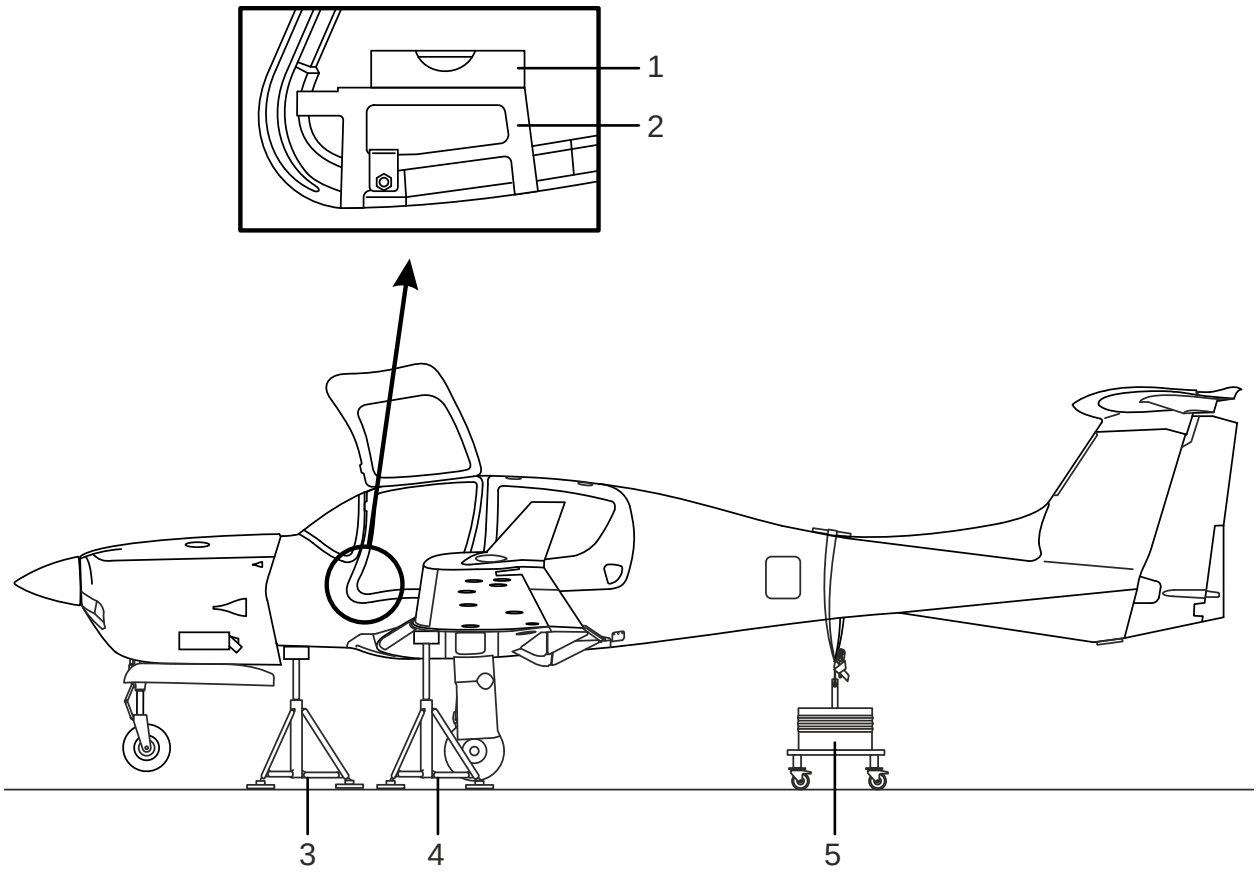


Figure 2 - Level the Airplane Longitudinally

Legend

[1, Fig.2] Digital Level / Protractor

[2, Fig.2] Weighing Tool D54-0810-01-00_01_PL

[3, Fig.2] Nose Trestle

[4, Fig.2] Main Jacks on Main Jacking Point LH and RH

[5, Fig.2] Tail Ballast

09-00
TOWING AND TAXIING

09-10
TOWING

09-10-01 Towing

Description

1. General

WARNING

YOU MUST NOT TAXI THE AIRPLANE UNLESS YOU HAVE BEEN TRAINED TO TAXI AND HAVE BEEN AUTHORIZED BY YOUR AIRWORTHINESS AUTHORITY.

WARNING

YOU MUST NOT TOW THE AIRPLANE WITH AIRCRAFT TRACTOR. TOWING THE AIRPLANE WITH AN AIRCRAFT TRACTOR MAY CAUSE DAMAGE TO THE NOSE GEAR LEG AND THE PROPELLER.

You can move the airplane on the ground by hand or by taxiing. Use the following procedures to move the airplane safely. 09-10 Towing - Towing tells you how to tow the airplane. 09-20 Taxiing - Taxiing tells you how to taxi the airplane.

09-10-02 Towing

Towing

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT PUSH ON THE SPINNER. IF YOU PUSH ON A SPINNER YOU CAN DAMAGE THE SPINNER WHICH CAN CAUSE VIBRATION.

CAUTION

NEVER USE FORCE ON THE PROPELLER TIPS OR ON THE CONTROL SURFACES. YOU CAN DAMAGE THE PROPELLER AND THE CONTROL SURFACES.

CAUTION

NEVER APPLY WEIGHTS TO THE TAILPLANE TO LIFT THE NOSE WHEEL. YOU CAN DAMAGE THE TAILPLANE.

CAUTION

NEVER TOW THE AIRPLANE IF THE WHEELS ARE BLOCKED BY SNOW OR MUD. YOU CAN DAMAGE THE LANDING GEAR.

CAUTION

THE NOSE MAXIMUM WHEEL STEERING ANGLE IS 42° TO THE LEFT AND RIGHT. IF YOU TURN THE WHEEL MORE THAN 42º YOU WILL CAUSE DAMAGE TO THE NOSE GEAR.

3. Main Procedure

A. General

You can move the airplane with or without using a steering bar. You can push or pull the DA 50 C at the inner section of the propeller blades near the spinner. You can push the DA 50 C at the wing nose and at the rough upper surface of the center wing. The use of a steering bar assisted by a person pulling or pushing on the wing or propeller (as described before) facilitates towing.

B. Forward Movement

Pull the airplane forward on the inner section of the propeller blades. The nose wheel will follow the movement of the airplane. You can change direction by pulling on the inner section of the appropriate propeller blade.

C. Rearward Movement

Push the airplane backwards on the propeller inner section and the inner wing leading edge. Use the steering bar for backward movement.

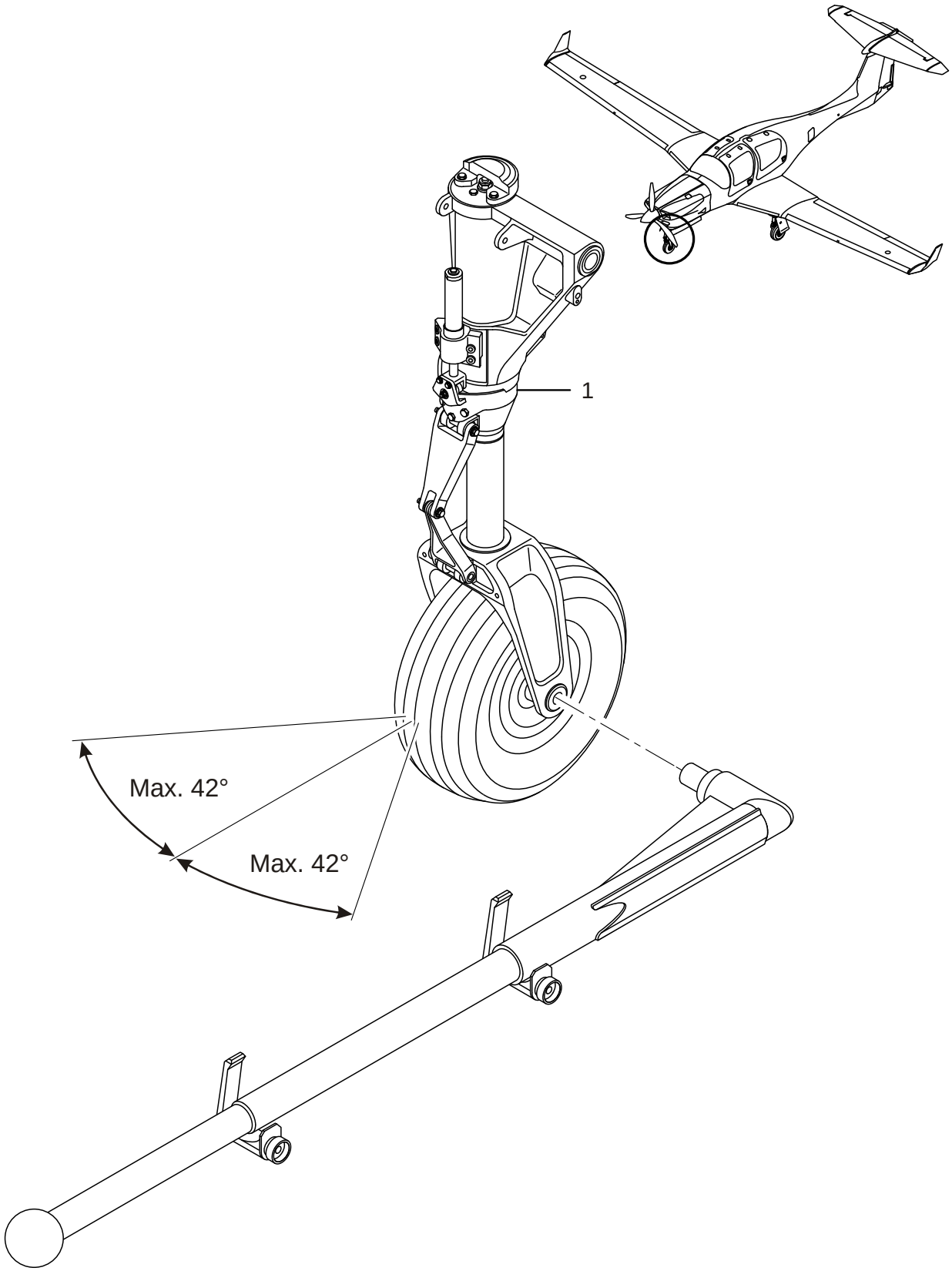


Figure 1 - Steering Bar

Legend

[1, Fig.1] Nose Wheel

09-20
TAXIING

09-20-01 Taxiing

Taxiing

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. General

The DA 50 C can easily be taxied by using the rudder pedals and wheel brakes.

B.

WARNING

YOU MUST NOT TAXI THE AIRPLANE UNLESS YOU HAVE BEEN TRAINED TO TAXI AND HAVE BEEN AUTHORIZED BY YOUR AIRWORTHINESS AUTHORITY.

CAUTION

THIS SECTION GIVES GENERAL DATA ON TAXIING ONLY. YOU MUST USE THE DA 62 AIRPLANE FLIGHT MANUAL WHEN YOU TAXI THE AIRPLANE.

(1) Make sure that the area around the airplane is clear of objects.

For example: Ground equipment and tools.

(2) Push the brake pedals and hold.

(3) Set the parking brake, then release the force on the brake pedals.

(4) If necessary, remove:

- The wheel chocks.
- The tow bar.
- The mooring ropes.

- Any other support equipment attached to the airplane.

WARNING

MAKE SURE THAT THERE ARE NO PERSONS OR OBJECTS NEAR THE AIRPLANE. THE AIRPLANE CAN INJURE PERSONS. OBJECTS CAN CAUSE DAMAGE TO THE AIRPLANE.

(5) Start the engine.

Refer to the DA 50 C Airplane Flight Manual.

(6) Release the parking brake:

- Push the brake pedals and hold.
- Operate the parking brake, then release the force on the brake pedals.

WARNING

MAKE SURE THAT THE BRAKES OPERATE CORRECTLY WHEN YOU TAXI THE AIRPLANE. IF THE BRAKES SHOULD FAIL, YOU MUST BE ABLE TO STOP THE AIRPLANE BEFORE YOU HIT PERSONS OR EQUIPMENT.

CAUTION

COMPLY WITH THE SAFETY AREA FOR TAXIING.

CAUTION

TAKE CARE IF YOU TAXI ON UNEVEN GROUND. THE PROPELLER MUST NOT TOUCH THE GROUND. LOOSE STONES AND GRAVEL CAN DAMAGE THE PROPELLER. USE THE LOWEST POSSIBLE RPM TO REDUCE THE RISK OF FOREIGN OBJECT DAMAGE TO THE PROPELLER.

(7) Taxi the airplane to the new position.

(8) Shut down the engine.

Refer to the DA 50 C Airplane Flight Manual.

(9) Park the airplane. If necessary, moor the airplane.

Refer to 10-00 Parking, mooring, storing and return to service - Description.

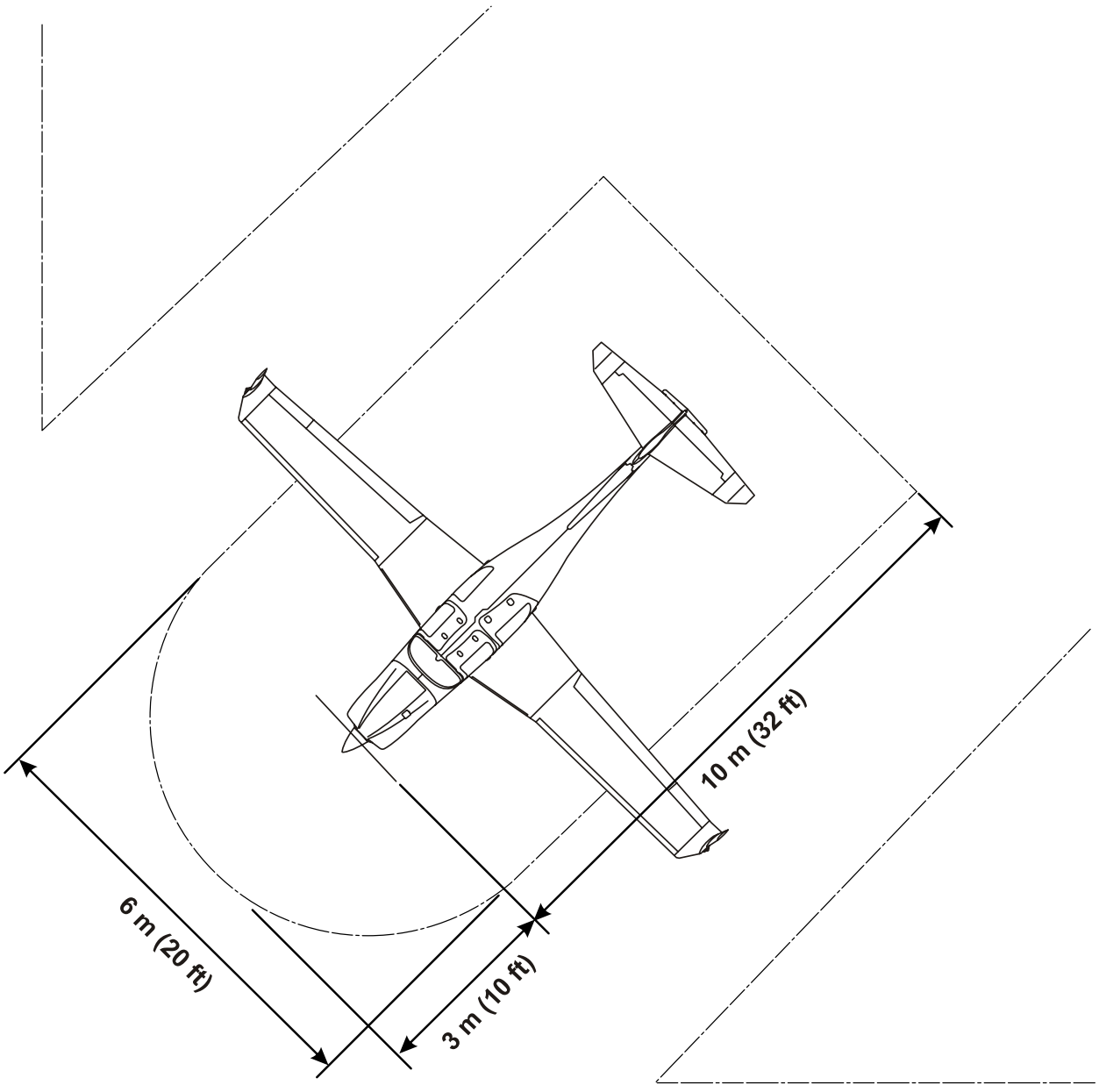


Figure 1 - Safety Area for Taxiing the DA 50 C Airplane

10-00
PARKING, MOORING, STORAGE AND RETURN TO SERVICE

10-00-01 Parking, mooring, storing and return to service

Description

1. General

CAUTION

MAKE SURE THAT THE AIRPLANE IS CORRECTLY MOORED AND PROTECTED IF STRONG WINDS ARE FORECAST. STRONG WINDS CAN CAUSE DAMAGE TO AN UNPROTECTED AIRPLANE.

Always park or moor the DA 50 C when it is not in use. Use the procedures given in 10-10 Parking - Handling for parking the airplane. Use the procedures given in 10-20 Mooring - Handling to moor the airplane. If the airplane is parked overnight we recommend that you moor the airplane. If strong winds are forecast, you must always moor the airplane.

Use these procedures to protect the airplane when it is parked. Use the short term parking procedure when the airplane will be parked for less than 5 days. Use the long term parking procedure when the airplane will be parked for 5 to 30 days. Use the storage procedure when the airplane will be parked for more than 30 days. All pilots and all maintenance staff for the DA 50 C must know the procedures in this Section.

10-10
PARKING AND STORAGE

10-10-01 Parking

Handling

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Wheel chocks	Commercial	4
Gust lock	Commercial	1
Pitot cover	Commercial	1
ECS NACA inlet plug	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Short-Term Parking

(1) If necessary, taxi or tow the airplane to the parking position.

Refer to 09-10 Towing - Description.

(2) Align the airplane into the wind (or forecast wind).

CAUTION

MAKE SURE THAT THE NOSE WHEEL IS ALIGNED STRAIGHT AHEAD WHEN THE AIRPLANE STOPS. THIS WILL PREVENT SIDE LOADS WHICH CAN DAMAGE THE NOSE LANDING GEAR.

(3) If the wind is gusty (or the weather is stormy) moor the airplane.

Refer to 10-20 Mooring - Handling.

(4) If there is packed snow or ice on the parking area, spread sand under the wheels.

CAUTION

DO NOT APPLY THE PARKING BRAKE WHEN THE BRAKES ARE OVER-HEATED. THE BRAKES CAN SEIZE ON.

(5) Keep both pedals pushed and then lock the parking brake.

(6) Put chocks in front and behind the main wheels.

(7) RELEASE the parking brake:

- Push both brake pedals and hold.
- Operate the parking brake to RELEASE.

(8) Set the airplane controls to neutral and install the gust lock:

- Move the rudder pedals fully rearward.
- Engage the control surfaces gust lock with the pedals.
- Engage the stick; wrap straps around stick once.
- Attach the locks and tighten the straps.

(9) Set the flaps to UP position.

Fully up.

(10) Make sure that all doors (LH & RH pilot, passenger doors) are closed and locked.

(11) Secure the emergency exit window on the RH passenger row:

- Install locking pin.

CAUTION

DO NOT INSTALL THE PITOT COVER WHILE THE PITOT TUBE IS HOT.

(12) Install Pitot cover on Pitot tube.

Located on the leading edge of the LH winglet.

(13) Install the ECS NACA inlet plug at LH side of the engine cowling.

B. Long-Term Parking

CAUTION

MAKE SURE THAT YOU DO THE LONG TERM PARKING PROCEDURE WHEN YOU PARK THE AIRPLANE FOR A LONG TIME. IF YOU DO NOT DO THE LONG TERM PARKING PROCEDURE CORRECTLY, THE ENGINE CYLINDERS AND WHEEL BEARINGS CAN CORRODE. ALSO THE TIRES CAN DEFORM.

(1) Do the procedure for short-term parking.

Refer to Procedure A..

NOTE

Do step B.(2) every 15 days.

(2) If the airplane can be moved, remove the chocks, move the airplane to turn the wheels 3 or 4 revolutions. Put the chocks back.

You can push or tow the airplane. Make sure that a different part of the tire touches the ground when you stop.

(3) Do the procedure for standstill period.

Refer to Continental Operation & Maintenance Manual, latest revision..

NOTE

Do step B.(4) after each rainy day to prevent water contamination due to leaky fuel tank caps.

(4) Do a test for water contamination of the fuel.

Refer to 12-10 Fuel - Contamination analysis.

10-20
MOORING

10-20-01 Mooring

Handling

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Rope (nylon preferred or hemp)	Commercial	A/R

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Mooring Procedure

(1) Park the airplane.

Refer to 10-10 Parking - Handling.

CAUTION

MOOR THE AIRPLANE AT THE MOORING POINTS ONLY.

CAUTION

WHEN USING HEMP ROPES, DO NOT MAKE THEM TIGHT. IF THE ROPES GET WET THEY WILL TIGHTEN AND MAY DAMAGE THE AIRPLANE. THIS IS MOST IMPORTANT WHEN YOU ARE USING SECURE GROUND ANCHOR POINTS.

(2) Make sure that the flaps are set to UP.

Fully up.

(3) Attach a rope to each mooring point and to the ground anchor point. Do not make the ropes too tight.

See Figure 1.

(4) Remove all items from the area that may cause damage to the airplane.

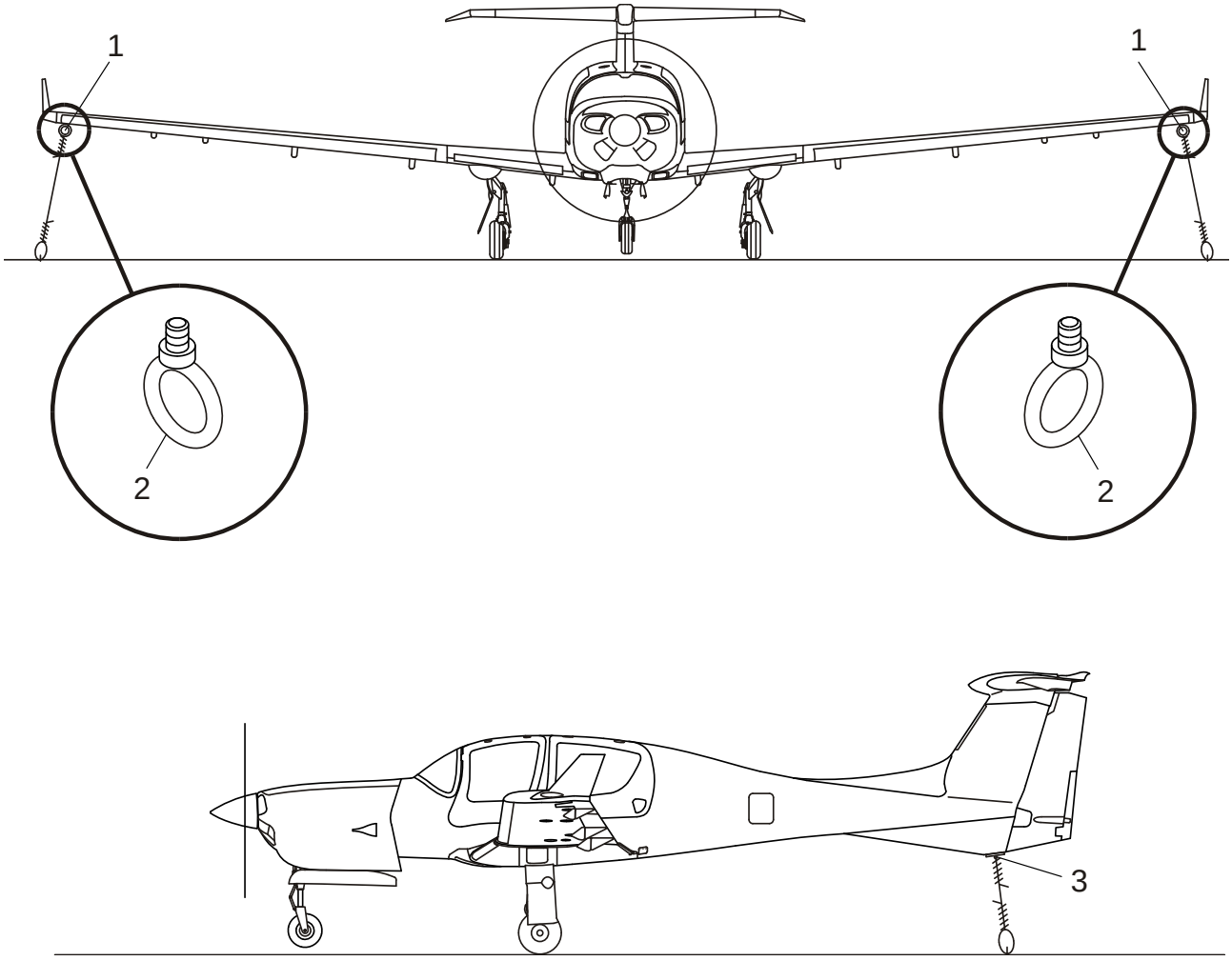


Figure 1 - Location of Mooring Points on the Airplane

Legend

[1, Fig.1] Wing Tie-Down Point

[2, Fig.1] Mooring Ring

[3, Fig.1] Rear Tie-Down Point

10-30
RETURN TO SERVICE

10-30-01 Storage

Preservation procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

(1) If the airplane is parked (or not operated) for more than 30 days, you have to do this storage procedure.

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Padded wing trestles	Commercial	A/R

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Storage

(1) If possible, ventilate the airplane in a dry atmosphere.

(2) Do the procedure for the long-term parking.

Refer to 10-10 Parking - Handling.

(3) Do the procedure for storage of an already installed engine.

Refer to Continental Operation & Maintenance Manual, latest revision.

(4) Close all engine openings airproof.

(5) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(6) Completely fill the fuel tanks with fuel.

Refer to 12-10 Fuel - Refuel .

(7) Wipe the tires with a dry cloth. When stored outside

it is recommended to protect tires with protective covers.

(8) Lubricate the airplane.

Refer to 12-20 Lubrication - Lubrication.

(9) Deactivate the ELT.

10-30-02 Monthly Routine Check

Procedure to keep item serviceable when in storage

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Monthly Routine Check

Do these steps each month while the airplane is stored.

(1) Remove all plugs from the engine openings.

(2) Tighten the v-ribbed belt.

Refer to Continental Operation & Maintenance Manual, latest revision.

(3) Engine ground run:

- Connect the main battery or connect the airplane to ground power.
- Start up the engine for at least 20 minutes.
- Disconnect the main battery or disconnect the airplane from ground power.

Refer to DA 50 C Airplane Flight Manual, Chapter 04.

CAUTION

THE ENGINE MUST NOT BE STARTED AFTER V-RIBBED BELT TENSION RELIEVE.

(4) Relieve v-ribbed belt tension.

Refer to Continental Operation & Maintenance Manual, latest revision.

(5) Close all engine openings air proof.

10-30-03 Return to Service

Procedure when item got out of storage

1. References

None

2. Preliminary Requirements

A. Required Conditions

(1) Airplane has been stored for more than 30 days.

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Storage Time Less Than One Year

(1) If necessary, install loose equipment which was removed for storage.

(2) If the battery has been removed:

- Install the airplane main battery.

Refer to 24-31 Main Battery - Install procedure.

(3) Do the test for water contamination of the fuel.

Refer to 12-10 Fuel - Contamination analysis.

(4) Do the test for correct air pressure in each tire. If necessary, inflate the tires.

Refer to 12-10 Tires - Fill with air.

(5) Check the strut extension of each gear damper. If necessary, charge the damper assemblies of main and nose landing gear.

Sliding bare piston should be visible. Refer to 32-10 Damper - Fill and 32-20 Damper - Fill.

(6) Check Pitot system and windshield for contamination/dirt.

(7) Open all engine openings.

(8) Install the v-ribbed belt according to the Continental Operation & Maintenance Manual, latest revision.

(9) Change the engine oil to approved engine oil.

Refer to DA 50 C Airplane Flight Manual, latest revision.

(10) Check oil and coolant level.

Refer to 12-10 Replenishment - Description.

(11) Perform an engine ground run according to the Continental Operation & Maintenance Manual, latest revision.

(12) Reactivate the ELT.

(13) Remove the gust lock:

- Loosen the straps and detach the locks.
- Disengage the stick from the straps.
- Disengage the pedals from the gust lock.
- Move the rudder pedals into position.

B. Storage Time One Year and More

(1) Contact the engine manufacturer Continental Aerospace Technologies.

(2) If necessary, install loose equipment which was removed for storage.

(3) If the battery has been removed:

- Install the airplane main battery.

Refer to 24-31 Main Battery - Install procedure.

(4) Remove the gust lock:

- Loosen the straps and detach the locks.
- Disengage the stick from the straps.
- Disengage the pedals from the gust lock.
- Move the rudder pedals into position.

(5) Do a 200 hour maintenance check.

Refer to 05-20 Scheduled maintenance checks - Description.

11-00
PLACARDS

11-20
EXTERIOR PLACARDS AND MARKINGS

11-20-01 Exterior placards and markings

Description

1. Exterior Placards and Markings

Figure 1 shows the exterior placards and markings.

Figure 2 shows the placard next to the ice protection fluid filler cap.

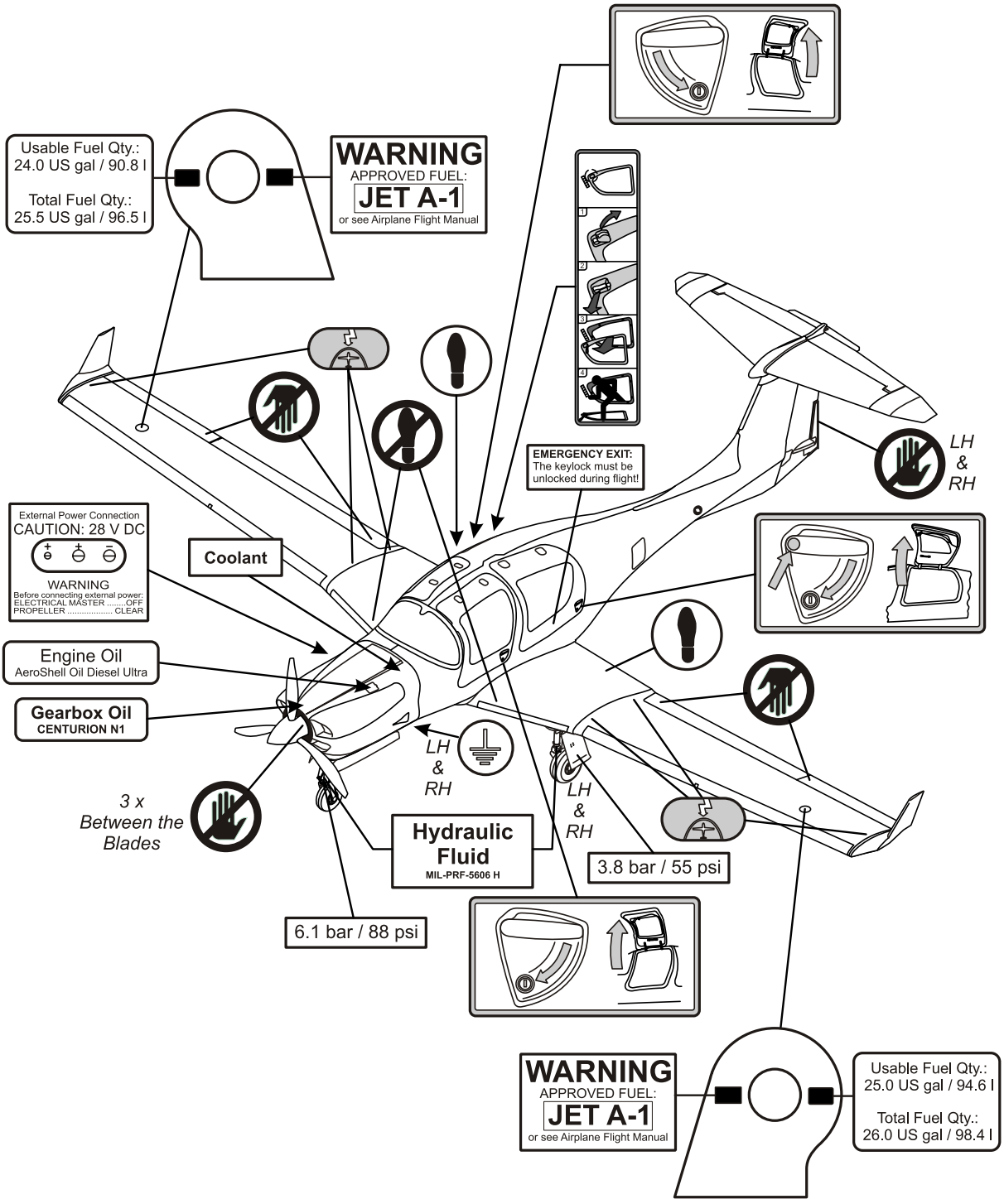


Figure 1 - Exterior Limitation Placards

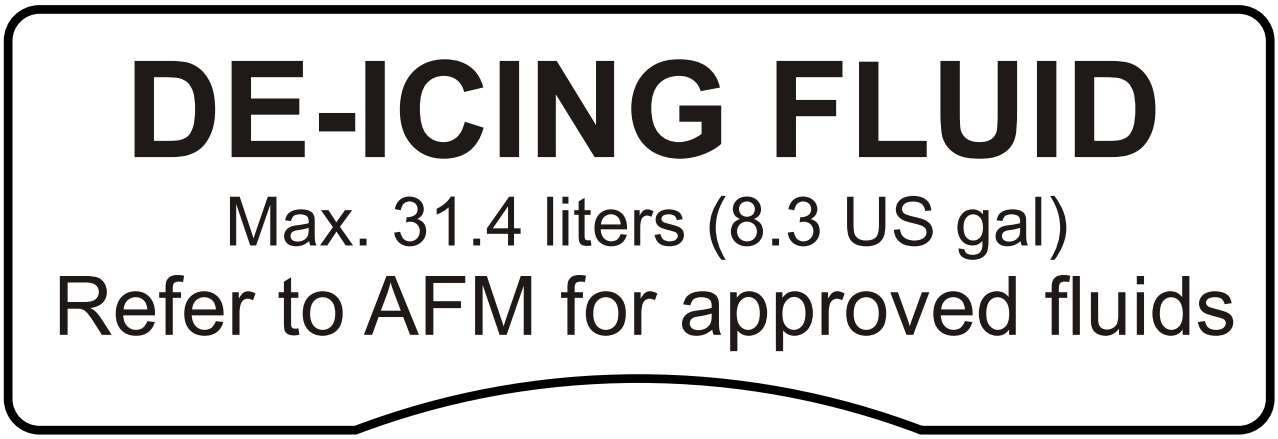


Figure 2 - Optional Ice Protection Fluid Placard (if OÄM 50-011 is installed)

11-30
INTERIOR PLACARDS AND MARKINGS

11-30-01 Interior placards and markings

Description

1. Interior Placards and Markings

Figure 1, Figure 2, Figure 4, Figure 5 and Figure 6 show the interior placards and markings in the cockpit.

The DA 50 C has self adhesive foil placards for the cockpit interior. The instrument panel has placard panels which are attached to the instrument panel with screws. The placard panels have integral lighting which is controlled by a combined ON/OFF dimmer switch. The dimmer switch is mounted on the top of the instrument panel. Refer to 33-10 Flight compartment - Description for more data about the dimmer switch and refer to 31-10 Instrument and Control Panels - Description for more data about the inverter for the placard panels.

You can replace each of the placard panels.

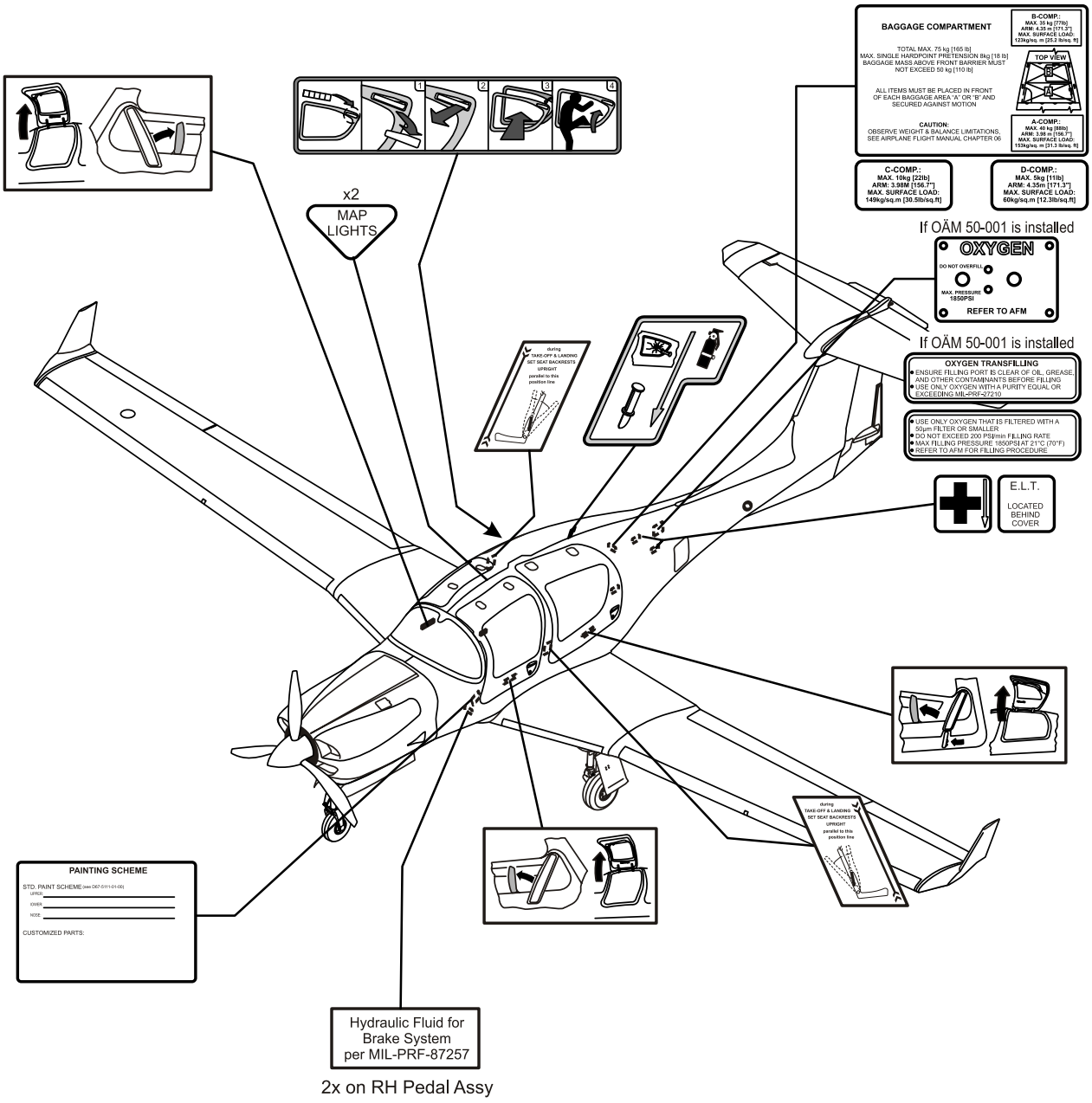


Figure 1 - Interior Placards - Instrument and Control Panels

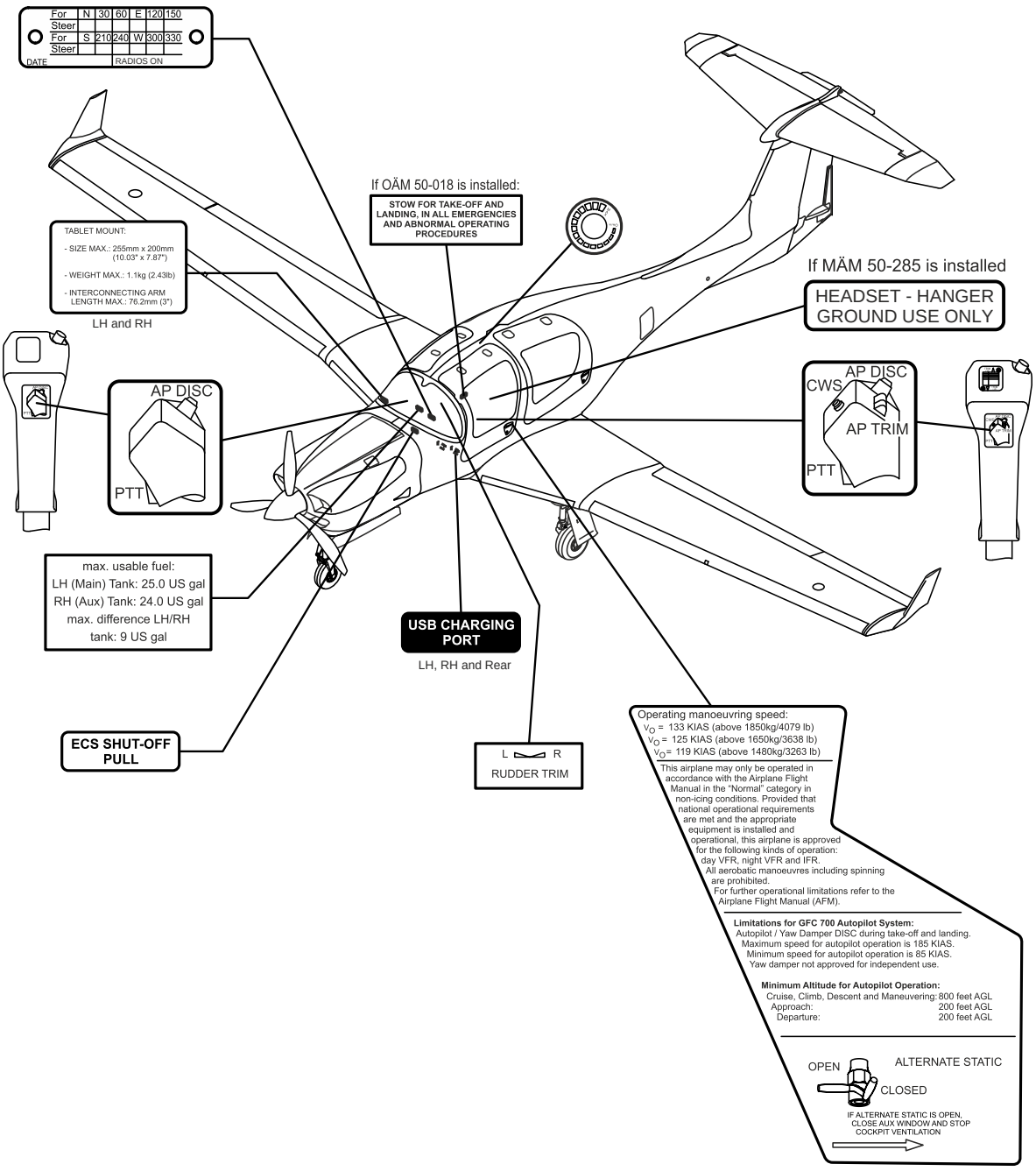


Figure 2 - Interior Placards - Overview 2

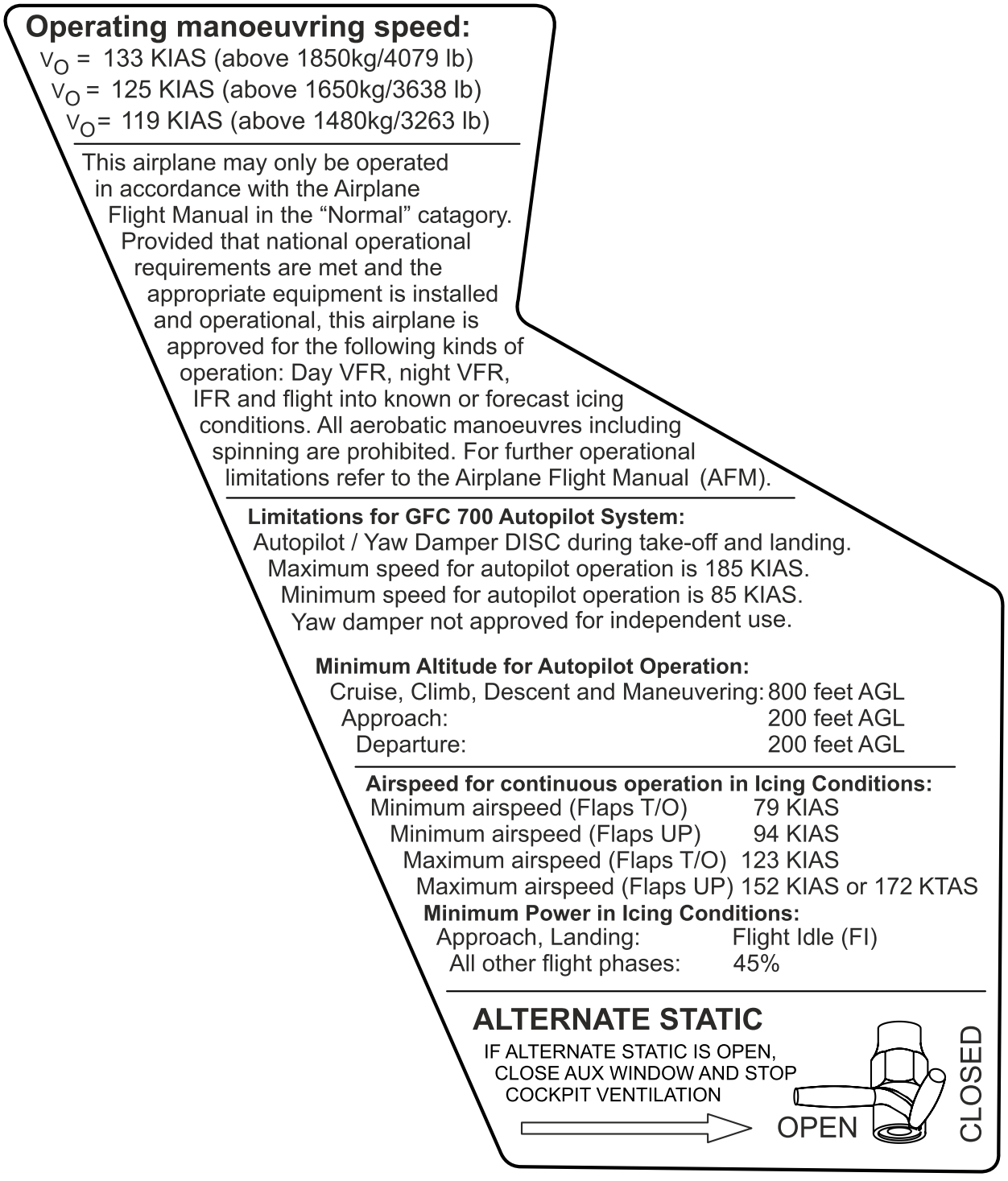


Figure 3 - Operating Limitation Placard (if OÄM 50-011 is installed)

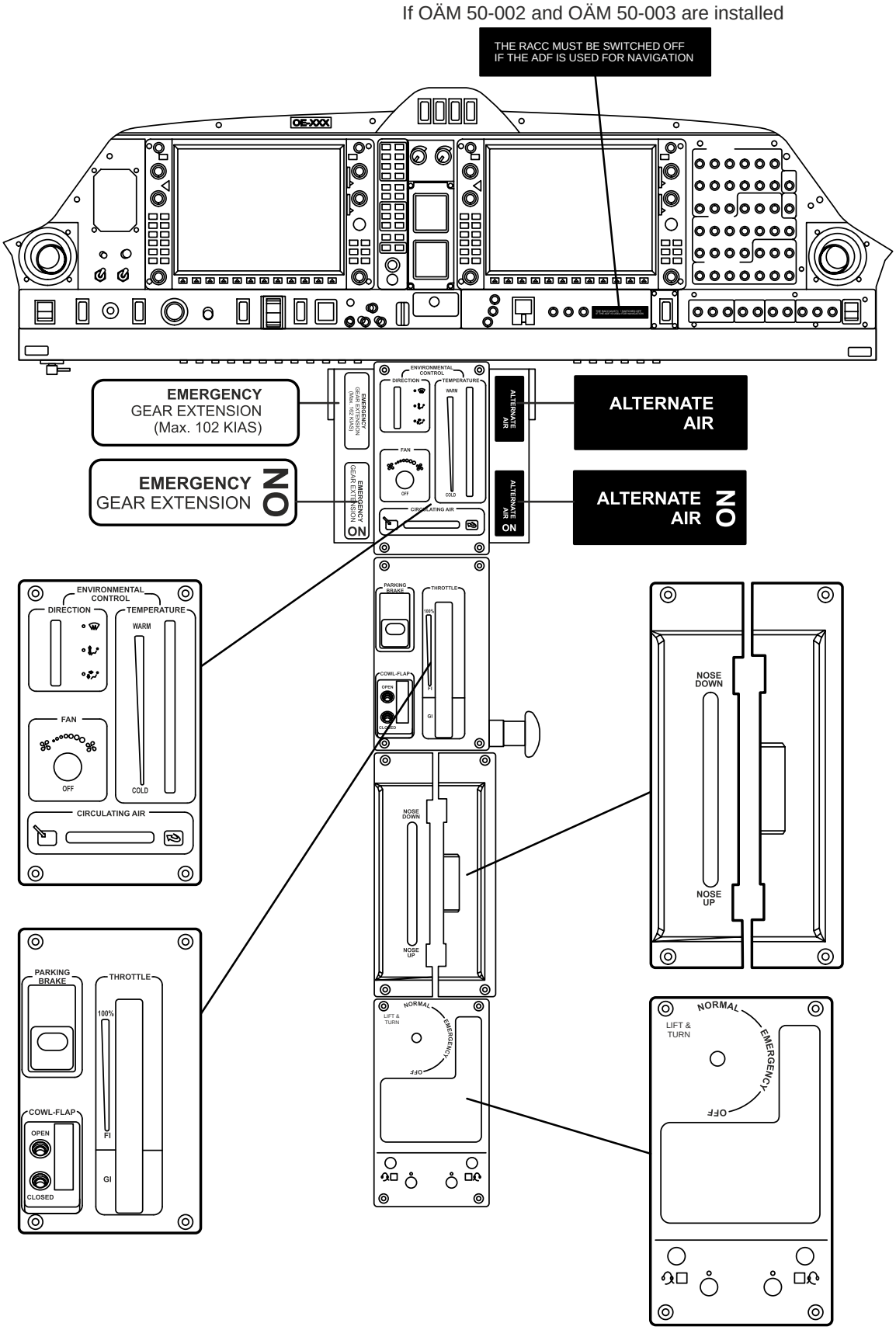


Figure 4 - Interior Placards - Instrument Panel

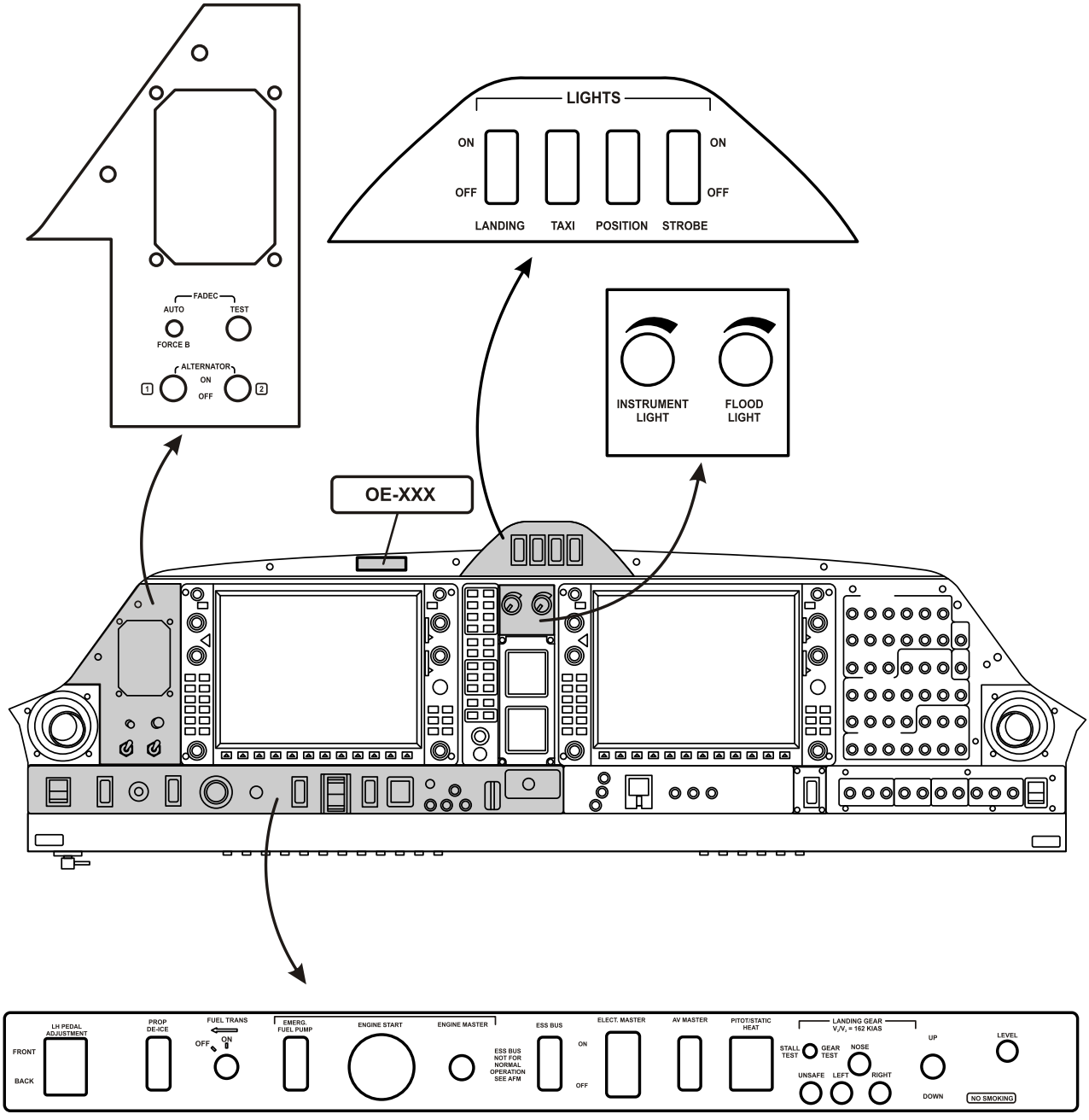


Figure 5 - Interior Placards - Instrument Panel Placard Panels 1

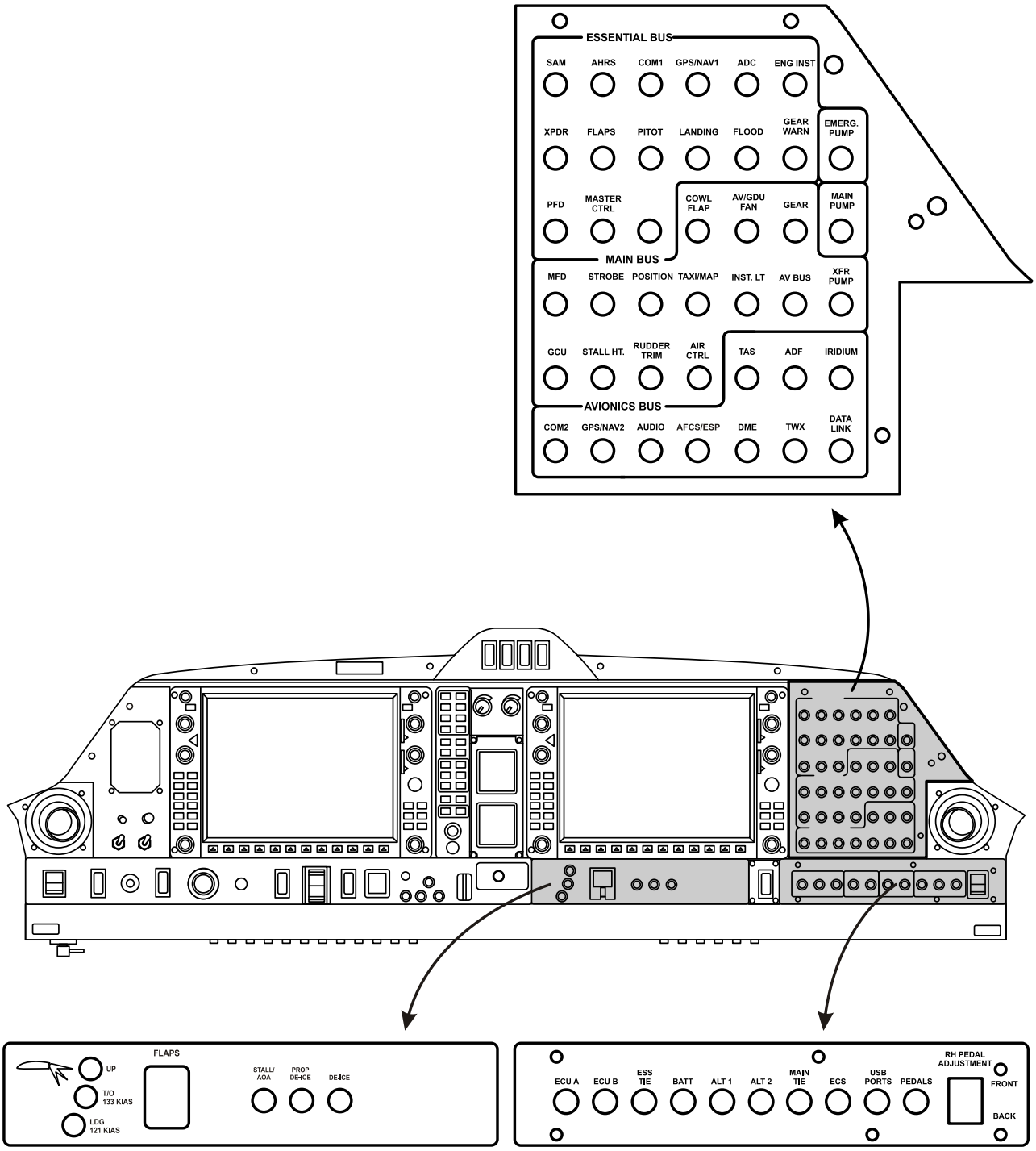


Figure 6 - Interior Placards - Instrument Panel Placard Panels 2

11-30-02 Placard Panel

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace a Placard Panel

(1) Disconnect the airplane battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(3) Disconnect the electrical cables from the placard panel that you will replace.

If necessary, at the inline connector.

(4) Replace the placard panel:

Use this procedure for all of the placard panels. To remove some placard panels it may be necessary to remove or disconnect switches. Refer to Section 24-60: DC Electrical Load Distribution - Description.

- Remove the screws that attach the placard to the instrument panel.
  Make sure that you remove all of the screws!
- Move the placard panel clear of the instrument panel.
- Move the new placard panel into position on the instrument panel.
  Make sure that you route the electrical cables correctly.
- Install the screws that attach the placard panel to the instrument panel.
- Connect the electrical cables for the placard panel.
  At the inline connector.

(5) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(6) Connect the airplane battery.

Refer to 24-31 Main Battery - Connect procedure.

(7) Do a test for the correct operation of the placard panel lights:

- Set the ELECT. MASTER to ON.
- Rotate the INSTRUMENT LIGHT dimmer switch fully clockwise.
  The placard lights must come on.
- Rotate the INSTRUMENT LIGHT dimmer switch a small amount counter-clockwise.
  The placard lights must dim.
- Rotate the INSTRUMENT LIGHT dimmer switch fully counter-clockwise.
  The placard lights must go out.
- Set the ELECT. MASTER to OFF.

12-00
SERVICING

12-00-01 Servicing

Description

1. Servicing

This Chapter gives the servicing tasks which apply to the whole airplane:

- 12-10 Replenishment - Description
- 12-20 Lubrication - Lubrication
- 12-30 Cleaning - Clean and apply surface protection
- 12-30 Snow and Ice Removal - Remove ice
- 12-30 Conservation of Exterior Parts - Clean and apply surface protection

The procedures for preventive and corrective maintenance of systems are given in the related Chapter of this manual. Refer to 05-00 Time Limits and Maintenance Checks - Description for the time limits and servicing schedules.

12-10
REPLENISHMENT

12-10-01 Replenishment

Description

1. Replenishment

Use the procedures in this Section to replenish the fluid systems of the airplane.

Figure 1 shows the location of the servicing points.

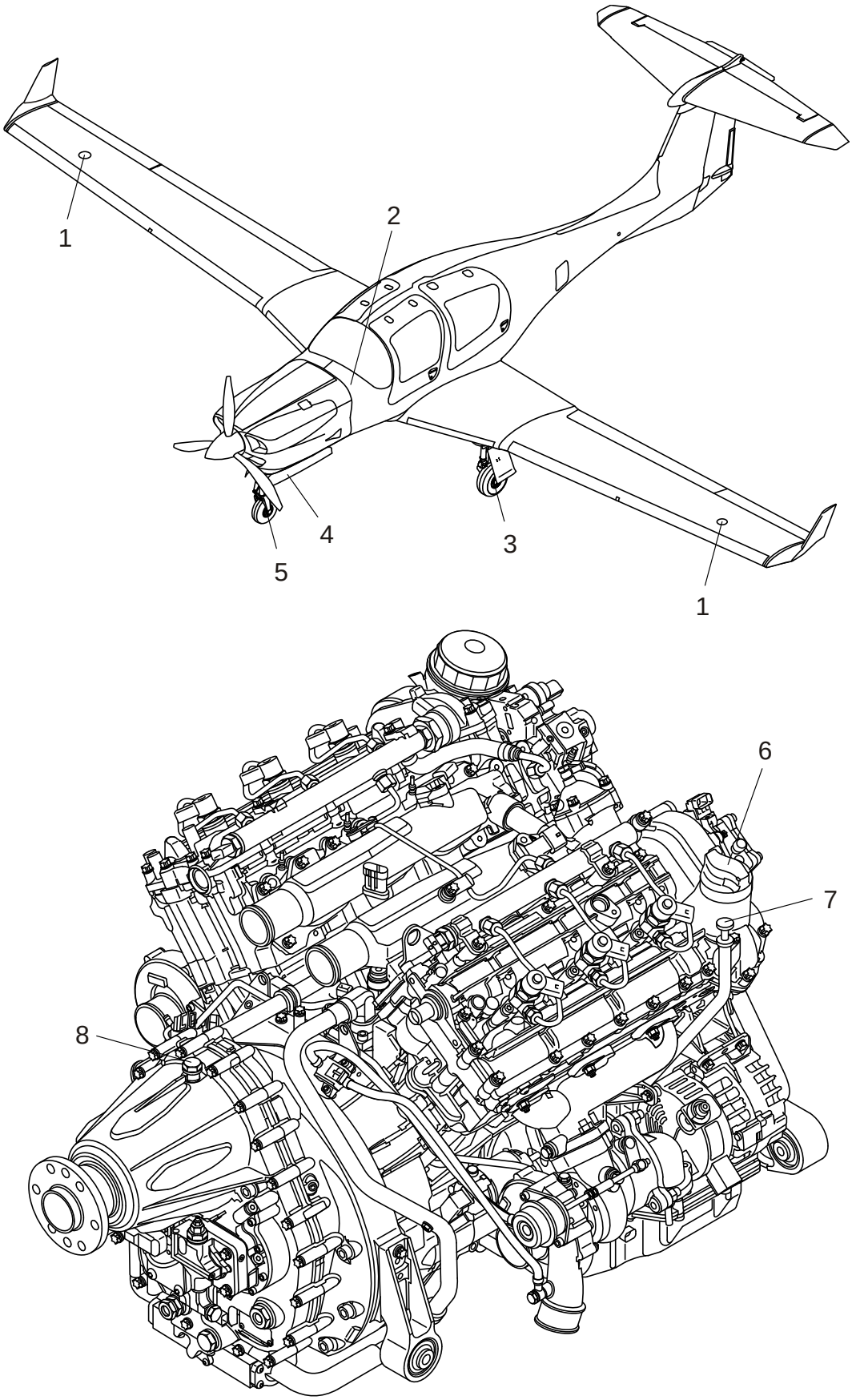


Figure 1 - Replenishment Points

Legend

[1, Fig.1] Fuel

[2, Fig.1] Brake Fluid (on Co-Pilot's Brake Pedals)

[3, Fig.1] Tire Air (LH and RH)

[4, Fig.1] Nitrogen and Hydraulic Fluid

[5, Fig.1] Tire Air

[6, Fig.1] Engine Oil

[7, Fig.1] Oil Dip Stick

[8, Fig.1] Gearbox Oil

12-10-02 Fuel

Description

1. Fuel Tanks

WARNING

DO NOT ALLOW FIRE, SPARKS OR HEAT NEAR FUEL. FUEL BURNS VIOLENTLY AND CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE AIRPLANE.

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

WARNING

CONNECT THE AIRPLANE AND THE FUEL SUPPLY VEHICLE TO ELECTRICAL GROUND BEFORE REFUELING. IF YOU DO NOT GROUND THE AIRPLANE, STATIC ELECTRICITY CAN CAUSE FIRE DURING REFUELING.

WARNING

MAKE SURE THAT A FIRE EXTINGUISHER IS AVAILABLE AT ALL TIMES DURING REFUELING/DEFUELING.

WARNING

TURN OFF ALL GROUND EQUIPMENT IN THE REFUELING AREA.

WARNING

DO NOT OPERATRE ELECTRICAL SWITCHES IN THE AIRPLANE DURING REFUELING.

CAUTION

USE ONLY FUEL TYPES GIVEN IN CHAPTER 2 OF THE AIRPLANE FLIGHT MANUAL.

There are three interconnected fuel tanks in each wing holding the fuel for the DA 50 C. The fuel tanks are located in the LH wing (main tank) and the RH wing (auxiliary tank), between the two main spars. The fuel capacity is 25 US gal (94.6 liter) for the main tank (LH) and 24 US gal (90.8) for the auxiliary tank (RH).

Each wing has a filler cap located on the top surface of the wing. The filler cap connects to the outboard end of the outer fuel tanks. Each fuel filler is marked with the words “Jet A-1” and the permissible fuel designation.

Exhaust portions of the engine exhaust are used as electrical bonding grounding point during refueling.

A fuel tank drain is located on the lower surface of each wing. A third drain is located below the front fuselage and is connected to the gascolator.

Tank Designation	Usable Capacity per Tank [US gal]	Usable Capacity per Tank [liter]
Main Tank (LH)	25	94.6
Auxiliary Tank (RH)	24	90.8

Table 1 - Usable Fuel Capacity

12-10-03 Fuel

Refuel

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

CONNECT THE AIRPLANE AND THE FUEL SUPPLY VEHICLE TO ELECTRICAL GROUND BEFORE REFUELING. IF YOU DO NOT GROUND THE AIRPLANE, STATIC ELECTRICITY CAN CAUSE FIRE DURING REFUELING.

WARNING

MAKE SURE THAT A SUITABLE FIRE EXTINGUISHER IS AVAILABLE AT ALL TIMES DURING REFUELING/ DEFUELING.

WARNING

TURN OFF ALL GROUND EQUIPMENT IN THE REFUELING AREA.

WARNING

DO NOT OPERATE ELECTRICAL SWITCHES IN THE AIRPLANE DURING REFUELING.

WARNING

REFUELING WITH PERSONS ON BOARD IS PROHIBITED.

CAUTION

USE ONLY THE FUEL TYPES GIVEN IN CHAPTER 2 OF THE AIRPLANE FLIGHT MANUAL.

3. Main Procedure

A. Refueling

(1) Shut down the engine.

(2) ENGINE MASTER OFF.

(3) All occupants leave the airplane.

(4) Ground the airplane electrically.

At the refueling connection.

(5) Ground the refueling vehicle electrically.

(6) Remove the fuel filler cap.

(7) Refuel the airplane.

(8) Install the fuel filler cap.

Make sure that the filler cap is locked.

(9) Do step A.(4) thru step A.(8) for the other wing.

(10) Remove the ground cable from the airplane.

(11) Remove the ground cable from the refueling vehicle.

12-10-04 Fuel

Defuel and drain fuel

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

CONNECT THE AIRPLANE AND THE FUEL SUPPLY VEHICLE TO ELECTRICAL GROUND BEFORE REFUELING. IF YOU DO NOT GROUND THE AIRPLANE, STATIC ELECTRICITY CAN CAUSE FIRE DURING REFUELING.

WARNING

MAKE SURE THAT A SUITABLE FIRE EXTINGUISHER IS AVAILABLE AT ALL TIMES DURING REFUELING/ DEFUELING.

WARNING

TURN OFF ALL GROUND EQUIPMENT IN THE REFUELING AREA.

WARNING

DO NOT OPERATE ELECTRICAL SWITCHES IN THE AIRPLANE DURING REFUELING.

WARNING

REFUELING WITH PERSONS ON BOARD IS PROHIBITED.

CAUTION

USE ONLY THE FUEL TYPES GIVEN IN CHAPTER 2 OF THE AIRPLANE FLIGHT MANUAL.

3. Main Procedure

A. Defueling

(1) Ground the airplane electrically.

At the refueling connection.

(2) Put a suitable container below the drain valve for the wing that you will defuel.

Make sure that you have enough containers to hold all the fuel. The LH wing (main tank) can hold 25 US gal (94.6 liter), the RH wing (auxiliary tank) can hold 24 US gal (90.8 liter).

(3) Open the drain valve.

(4) When the fuel stops draining, close the drain valve.

Make sure that the drain valve is seated correctly.

(5) If necessary, do step A.(2) thru step A.(4) for the other wing.

(6) Remove the ground cable from the airplane.

At the refueling ground connection.

12-10-05 Fuel

Contamination analysis

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Glass container	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

CONNECT THE AIRPLANE AND THE FUEL SUPPLY VEHICLE TO ELECTRICAL GROUND BEFORE REFUELING. IF YOU DO NOT GROUND THE AIRPLANE, STATIC ELECTRICITY CAN CAUSE FIRE DURING REFUELING.

WARNING

MAKE SURE THAT A SUITABLE FIRE EXTINGUISHER IS AVAILABLE AT ALL TIMES DURING REFUELING/ DEFUELING.

WARNING

TURN OFF ALL GROUND EQUIPMENT IN THE REFUELING AREA.

WARNING

DO NOT OPERATE ELECTRICAL SWITCHES IN THE AIRPLANE DURING REFUELING.

WARNING

REFUELING WITH PERSONS ON BOARD IS PROHIBITED.

CAUTION

USE ONLY THE FUEL TYPES GIVEN IN CHAPTER 2 OF THE AIRPLANE FLIGHT MANUAL.

3. Main Procedure

A. Fuel Contamination Test

(1) Put the glass container under the fuel tank drain valve, that you will take the fuel from.

(2) Open the drain valve.

(3) When the fuel container is half full, close the drain valve.

Make sure that the drain valve is seated correctly.

(4) Let the fuel in the glass container stand for 1 minute.

(5) Examine the fuel:

- It must be clear (JET A1).
- Look specifically for small drops of water in the bottom of the glass container.
- Look for small particles of solid material.

If you find any contamination, you must do the test again. If you still find contamination after 3 tests, you must drain the related fuel tank. Flush the tank (use fuel) and fill it with clean fuel.

(6) Perform step A.(1) thru step A.(5) for the other wing.

12-10-06 Engine Oil

Fill with oil

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

ENGINE OPERATION WITH NO OIL (OR VERY LOW OIL LEVEL) WILL CAUSE ENGINE MALFUNCTION OR DAMAGE.

3. Main Procedure

A. Replenish the Engine Oil System

The engine installed in the DA 50 C has a wet sump oil system. The oil capacities are given in the following table:

Oil Sump Capacity		Minimum Safe Quantity	
[liters]	[US qts]	[liters]	[US qts]
12.0	12.7	10.0	10.6

Table 1 - Oil Sump Capacity

You must only use engine oil specified by the engine manufacturer.

The oil filler is located on the LH side of the engine (Refer to Figure 2). There is an access panel implemented on the LH side of the mid cowling. The oil filler has a dip-stick attached.

A marginal oil consumption of 0.1 liter/h is normal. Measure the oil quantity before each flight (or engine ground runup). If necessary, replenish oil.

(1) Open access panel located on the LH side of the mid cowling.

CAUTION

USE ONLY THE CORRECT ENGINE OILS. REFER TO THE CONTINENTAL MAINTENANCE MANUAL, LATEST REVISION FOR THE CORRECT OIL SPECIFICATIONS AND CHAPTER 2 OF THE AFM. IF YOU DO NOT USE THE CORRECT ENGINE OIL, THE ENGINE CAN BE DAMAGED.

(2) For oil system replenishment procedures refer to Continental Operation & Maintenance Manual, latest revision.

(3) Close the access panel of the mid cowling.

B. Change the Engine Oil

Refer to 72-00 Engine - Change of oil.

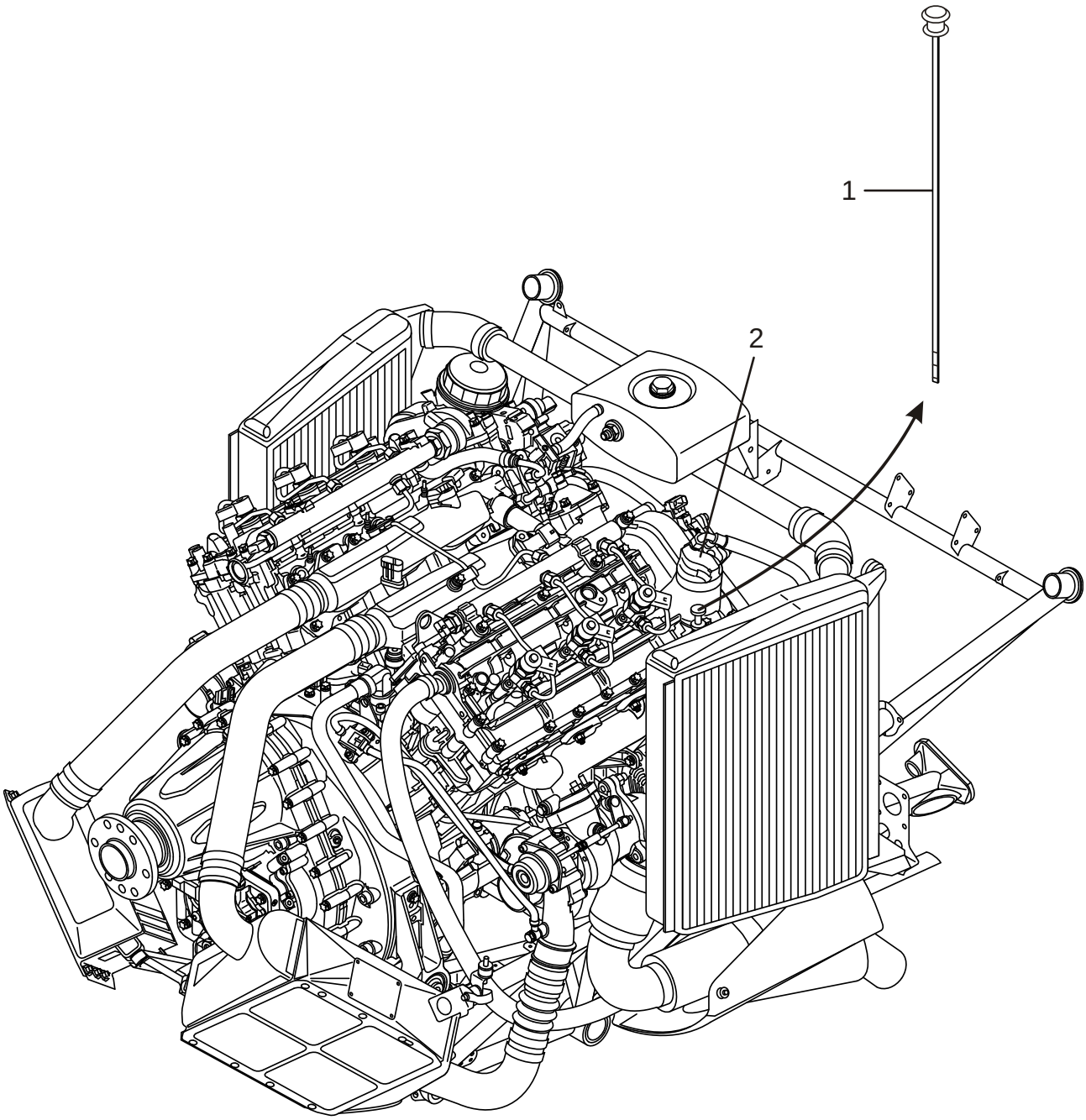


Figure 2 - Engine Oil Filler/Dipstick

Legend

[1, Fig.2] Engine Oil Dipstick

[2, Fig.2] Engine Oil Filler

12-10-07 Gearbox Oil

Fill with oil

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

ENGINE OPERATION WITH NO GEARBOX OIL (OR VERY LOW OIL LEVEL) WILL CAUSE ENGINE MALFUNCTION OR FAILURE.

CAUTION

IF THE GEARBOX OIL LEVEL IS LOW THE REASON MUST BE DETERMINED AND THE PROBLEM MUST BE CORRECTED BY AUTHORIZED PERSONNEL.

3. Main Procedure

A. Replenish the Gearbox Oil System

Refer to the Continental Operation & Maintenance Manual, latest revision for proper gearbox oil level.

(1) Remove the engine cowlings.

(2) For gearbox oil system replenishment procedures refer to the Continental Operation & Maintenance Manual, latest revision.

(3) Install the engine cowlings.

B. Change the Gearbox Oil

Refer to 72-00 Engine - Description.

12-10-08 Engine Coolant

Fill

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT REMOVE THE EXPANSION TANK FILLER CAP WHEN THE ENGINE IS HOT. THE TANK IS PRESSURIZED WITH HOT COOLANT. HOT COOLANT CAN CAUSE INJURY TO PERSONS.

WARNING

DURING NORMAL OPERATION THE CD-300 ENGINE SHOULD NOT CONSUME COOLANT. ANY COOLANT LOSS MUST BE INVESTIGATED BEFORE FURTHER OPERATION OF THE ENGINE. OPERATING THE ENGINE WITH A FAULTY COOLING SYSTEM CAN DAMAGE THE ENGINE

3. Main Procedure

A. Replenish the Engine Coolant

The DA 50 C engine uses liquid coolant to cool the engine and supply heating to the flight cabin. The coolant is circulated around the engine in an integral water jacket. When the coolant is at normal engine operating temperature a thermostatic valve directs the coolant to flow through a heat exchanger. The thermostatic valve controls the flow of coolant through the heat exchanger in order to control the temperature of the coolant.

A coolant expansion tank is located on the rear side of the engine (See Figure 3). The expansion tank has a filler cap, a pressure relief valve, a silicate pouch and a coolant level sensor. Use the procedures in this Paragraph to replenish the coolant system when the system has been drained for maintenance or system repair.

(1) Remove the engine cowlings.

WARNING

DO NOT REMOVE THE EXPANSION TANK FILLER CAP WHEN THE ENGINE IS HOT. THE TANK IS PRESSURIZED WITH HOT COOLANT. HOT COOLANT CAN CAUSE INJURY TO PERSONS.

(2) Remove safety lock wire.

(3) Carefully remove the filler cap from the coolant expansion tank.

CAUTION

USE ONLY THE CORRECT COOLANT. REFER TO CHAPTER 2 OF THE AIRPLANE FLIGHT MANUAL FOR THE CORRECT COOLANT SPECIFICATIONS. IF YOU DO NOT USE THE CORRECT COOLANT, THE ENGINE CAN BE DAMAGED.

(4) Add coolant until the fluid level is at the “max. % coolant level marking” in the filler neck.

(5) Install the filler cap:

Torque refer to 20-70 Standard Practices - Engine - Description.

Check O-Ring for deformation, apply EZ turn.

(6) Install safety lock wire to secure filler cap.

(7) Install the engine cowlings.

NOTE

When the coolant system has been drained for maintenance/repair air may get trapped in the system. The following steps are to remove any air trapped in the system and give a correct fluid level in the expansion tank.

(8) Do an engine ground run until the engine reaches normal operating temperature. Then shut-down the engine.

Refer to 71-00 Engine - Operation Test.

(9) Repeat step A.(1) thru step A.(8) until the coolant level remains constant at the correct level.

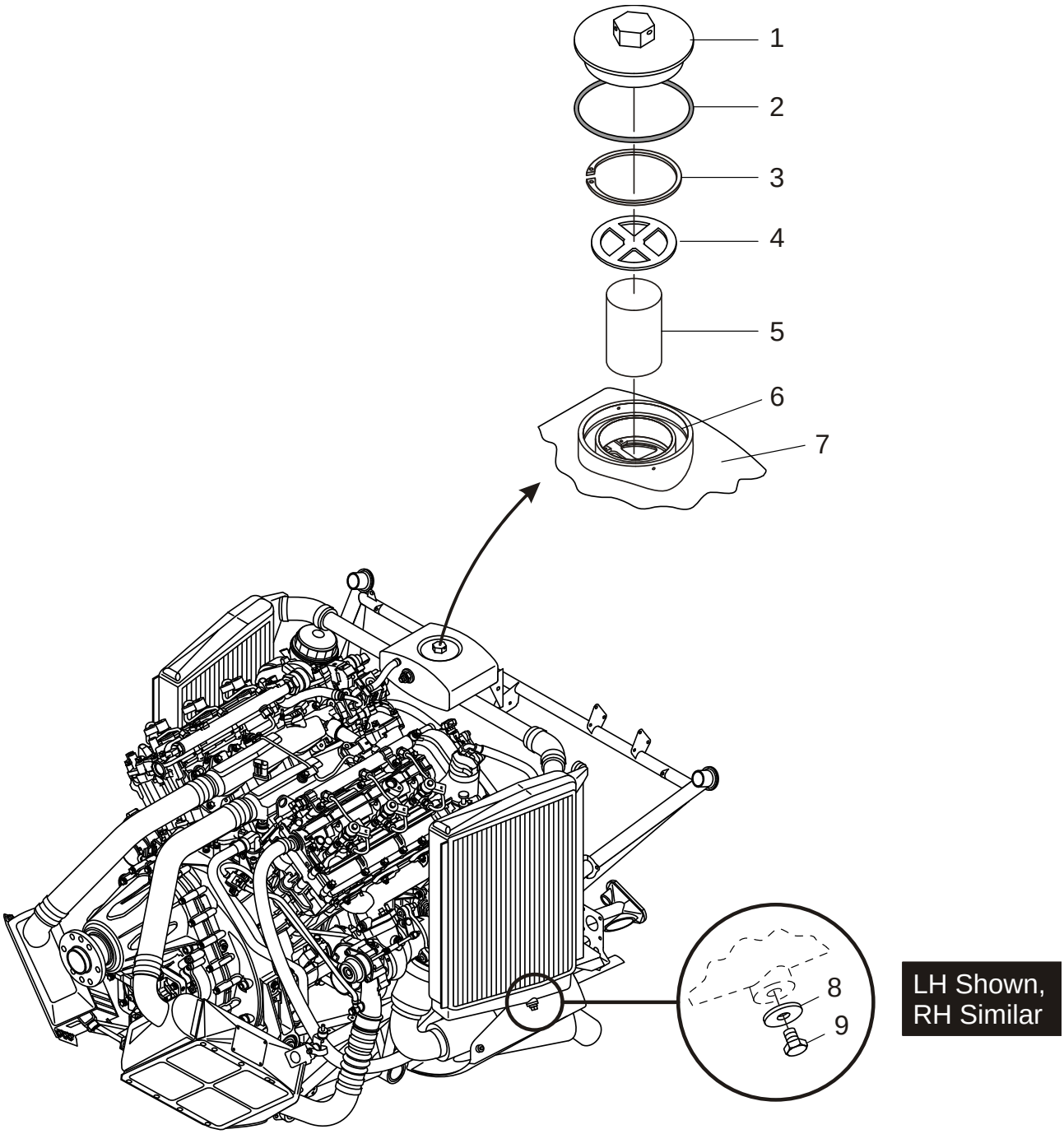


Figure 3 - Engine Coolant Expansion Tank / Filler Cap

Legend

[1, Fig.3] Filler Cap
[2, Fig.3] O-Ring
[3, Fig.3] Retaining Ring for Bores
[4, Fig.3] Level
[5, Fig.3] Silicate Pouch
[6, Fig.3] Cartridge
[7, Fig.3] Coolant Tank
[8, Fig.3] Washer
[9, Fig.3] Screw Plug

12-10-09 Brake System

Fill

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET BRAKE FLUID ON YOUR SKIN OR IN YOUR MOUTH. BRAKE FLUID IS TOXIC AND CAN CAUSE INTERNAL INJURY.

CAUTION

REMOVE SPILLED BRAKE FLUID IMMEDIATELY. BRAKE FLUID CAN CAUSE DAMAGE TO PAINT AND OTHER MATERIALS.

3. Main Procedure

A. Fill the Brake System Reservoirs

The brake fluid reservoirs are located on the brake master cylinders on the co-pilot's side. You get access in the cockpit below the instrument panel.

(1) Clean the top of the brake fluid reservoir and filler cap.

(2) Remove the filler cap.

(3) Fill the reservoir to the correct level.

Use hydraulic fluid per MIL-PRF-87257.

12 to 25 mm (0.5 to 1 in) below the top of the filler hole.

If OÄM 50-005 is installed: fill the reservoir to about 5 to 10 mm (0.1 to 0.4 in) below the top.

(4) Install the filler cap.

12-10-10 Tires

Fill with air

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Examine the Tires and Measure the Pressure

The DA 50 C uses these tires:

Main tires	6.00-6; 8 PR, TT, 160 mph, Flight Custom III, Goodyear
Nose tire	5.00-5; 10 PR, TT, 120 mph, Flight Special II, Goodyear

If OÄM 50-005 is installed:

Main tires	6.00-6; 8 PR, TL, 160 mph, Flight Custom III, Goodyear
Nose tire	5.00-5; 10 PR, TL, 190 mph, Flight Eagle LT, Goodyear

(1) Examine the tires.

Move the airplane as necessary so that each part of each tire can be seen.

Look specially for:

- Cuts and friction damage.
- Correct alignment of the slippage markers.
  If the slippage markers do not align, remove the wheel for shop maintenance.

(2) Measure the tire pressure. If necessary, inflate the tires to the correct pressure:

- Main tire: 3.8 bar (55 PSI).
- Nose tire: 6.1 bar (88 PSI).

12-10-11 Oxygen System

Fill with oxygen

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

OXYGEN STRONGLY SUPPORTS - RISK FOR FIRE AND EXPLOSION. SMOKING STRICTLY PROHIBITED. AVOID FLAMES, SPARKS AND OTHER SOURCES OF IGNITION. AVOID CONTACT WITH FLAMMABLE MATERIALS (E.G., OIL OR GREASE). SERIOUS PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT MAY RESULT.

CAUTION

OIL, GREASE OR OTHER LUBRICATIONS IN CONTACT WITH OXYGEN CREATE A SERIOUS HAZARD. SUCH CONTACT MUST BE AVOIDED WHEN HANDLING WITH ANY PART OF THE OXYGEN SYSTEM.

3. Main Procedure

A. Filling the Oxygen Cylinder

The continuous flow oxygen system is optional equipment (OÄM 50-001 incorporated). The oxygen cylinder is installed in its own vented compartment in the rear fuselage. Its capacity is 1419 liters (50.1 ft^3) of compressed oxygen at 128 bar (1850 PSI). The filling unit is also installed in the oxygen compartment accessible from the outside via a cover on the RH side of the rear fuselage.

(1) Check RH fuselage in the area of the oxygen access hatch for oil or oil residue. Clean area.

(2) Open the access hatch of the oxygen filling unit on the RH side of the fuselage and clean area to remove oil residues.

(3) Check pressure gauge by comparing the pressure indication of the filling block with the pressure indication on the G1000 NXi MFD.

(4) Remove the filling port protection nut and check the filling valve for dust and oil residue. Clean if necessary.

(5) Connect the oxygen filling station outlet port to the filling valve.

Do not use oxygen with a lower purity grade than prescribed by MIL-PRF-27210.

Use only filtered oxygen. A 50 µm filter is required in the filling station.

Do not fill at a rate higher than 200 PSI/min.

A filling rate of 100 PSI/min is recommended due to heat buildup in the system.

(6) Slightly open the valve of the oxygen filling station and check oxygen flow.

The oxygen cylinder is limited to a pressure of 128 bar (1850 PSI).

Refilling of a fully depleted cylinder will take approximately 20 minutes.

(7) Close the valve of the oxygen filling station when a pressure of 128 bar (1850 PSI) is reached.

(8) Disconnect the filling station outlet port from the filling valve.

(9) Reinstall the filling valve protection nut.

(10) Check pressure gauge by comparing pressure indication of the filling block with pressure indication on the G1000 NXi MFD.

(11) Close the cover of the oxygen filling unit.

12-20
SCHEDULED SERVICING

12-20-01 Lubrication

Lubrication

1. Scheduled Servicing

This Section gives lubrication data. It tells you where components are located. It gives a list of approved lubricants. It also gives components which MUST NOT be lubricated.

Most systems and components have maintenance-free bearings. These can be sealed ball/roller bearings or Teflon bushes. These bearings MUST NOT be lubricated. Table 1 shows the bearings which MUST NOT be lubricated.

Items Which MUST NOT Be Lubricated	
Rudder pedal sled.	DO NOT LUBRICATE
Flap rod-end bearings.	DO NOT LUBRICATE
Aileron rod-end bearings.	DO NOT LUBRICATE
Elevator rod-end bearings.	DO NOT LUBRICATE

Table 1 - Items Which MUST NOT Be Lubricated

2. Lubrication Schedule

Table 2 shows the lubrication schedule. Clean each lubrication point before lubrication.

See Figure 1 and Figure 2 for the location of the lubrication points listed on the left side of the table. The center column shows the type of lubricant. The right column shows the lubrication interval.

NOTE

(1) Lubricate at the time shown or at every disassembly / assembly.

(2) Lubricate more frequently in severe climates or operating conditions.

Location			Type of Lubricant							Interval
No.		Reference	1	2	3	4	5	6	7	Hours see notes (1), (2)
(1)	Brake pedal pivot shaft interior	[1, Fig.1]					○			1000
(2)	Rudder cable S-tubes	[2, Fig.1]			○					200
(3)	Flap actuator extension rod	[3, Fig.1]			○					200
(4)	Upper rudder pivot bearing	[4, Fig.1]	○							200

Table 2 - Lubrication Schedule

Location			Type of Lubricant							Interval
No.		Reference	1	2	3	4	5	6	7	Hours see notes (1), (2)
CAUTION DO NOT MIX AVIATION WHEEL BEARING GREASES WITH EACH OTHER. IF USING OTHER APPROVED GREASES, COMPLETE REMOVAL OF CONTAINED GREASE AND BEARING CLEANING IS REQUIRED. **NOTE** Do not grease on the threads. It will reduce the friction of the lock-nut. **NOTE** The wheel manufacturer lubricates the main wheel bearings with Mobil Aviation Grease SHC 100 Type 1 grease is completely compatible with the wheel bearings.										
(5)	Nose wheel bearing (only if OÄM 50-005 is not installed)	[5, Fig.1]	○						○	200
(6)	Wing main bolts	[6, Fig.2]	○							2000
(7)	Stick support pivot pins	[7, Fig.1]	○							1000
(8)	Battery terminals	[8, Fig.2]				○				1000
(9)	B-bolts	[9, Fig.2]	○							2000
(10)	B-bolt spherical bearings	[10, Fig.2]	○							2000
(11)	A-bolts	[11, Fig.2]	○							2000
(12)	A-bolt spherical bearings	[12, Fig.2]	○							2000
(13)	Brake pedal pivot	[13, Fig.1]		○						200
(14)	Flap actuator universal pivot block	[14, Fig.1]	○							1000
(15)	Brake caliper locating pins (only if OÄM 50-005 is not installed)	[15, Fig.1]						○		1000
CAUTION DO NOT MIX AVIATION WHEEL BEARING GREASES WITH EACH OTHER. IF USING OTHER APPROVED GREASES, COMPLETE REMOVAL OF CONTAINED GREASE AND BEARING CLEANING IS REQUIRED. **NOTE** Do not grease on the threads. It will reduce the friction of the lock-nut. **NOTE** The wheel manufacturer lubricates the main wheel bearings with Mobil Aviation Grease SHC 100 Type 1 grease is completely compatible with the wheel bearings.										
(16)	Main wheel bearings (only if OÄM 50-005 is not installed)	[16, Fig.1]	○						○	200
(17)	Landing gear actuator bearings						○			100

Table 2 - Lubrication Schedule

Location			Type of Lubricant							Interval
No.		Reference	1	2	3	4	5	6	7	Hours see notes (1), (2)
(18)	Bearing of NLG door actuation rod	[18, Fig.5]							○	200
(19)	NLG emergency gear extension spring								○	200
(20)	Flap rod and hinge bearings (only if MÄM 50-091 is NOT installed)	[20, Fig.3]		○						200
(21)	NLG centering unit rod (if MÄM 50-429 is NOT installed)	[21, Fig.1]						○		200
(22)	Flange of upper bearing of NLG damper strut (if MÄM 50-429 is NOT installed)	[22, Fig.4]							○	200 or 2 years (which occurs first)

Table 2 - Lubrication Schedule

Specification	Product	Manufacturer
TYPE 1		
MIL-G-3545 (obsolete)	AeroShell Grease 5	Shell Oil Company
	Grease CIATIM 201, GOST 6267-74	RUSMA LLC Company
	Grease CIATIM 221, GOST 9433-80	RUSMA LLC Company
	Mobil Aviation Grease SHC 100	Exxon Mobil Oil Corp.
TYPE 2		
MIL-L-7870	Royco 363	Royal Lubricants Co. Inc.
	Brayco 363	Bray Oil Co.
Warm climates only	LPS 2	LPS
TYPE 3		
Greaseless Lubricant	LPS 1	LPS
	NYCO 65 Vaseline S-743	NYCO
TYPE 4		
VV-P-236 (petrolatum)	Royco 1	Royal Lubricants Co. Inc.
	DC 4	Dow Corning
TYPE 5		
MIL-C-16173 (Grade 2)	LPS 3	LPS
TYPE 6		
	Multi-Purpose Lubricant	DRI SLIDE
	LPS Force 842	LPS
	Lubriplate X-357	Lubriplate
	Loctite 8191	Loctite
	Anti-Friction Spray MoS2	WEICON GmbH
TYPE 7		
MIL-PRF-81322, Grade 2 or	Aeroshell Grease 22	Shell Oil Company
DOD-G-24508 A	Mobil Aviation Grease SHC 100	Exxon Mobil Oil Corp.

Table 3 - Lubricant Specifications

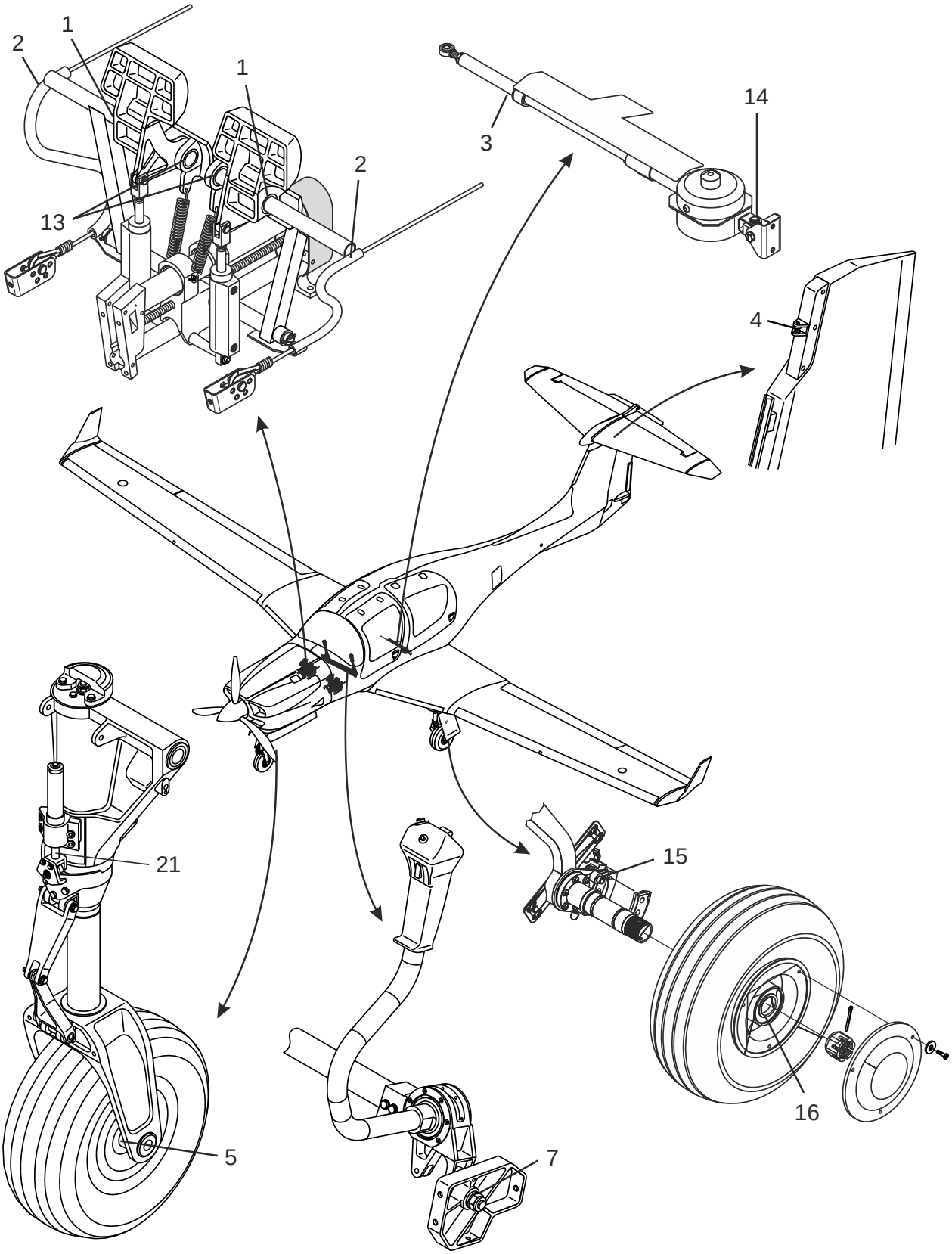


Figure 1 - Lubrication Points Sheet 1

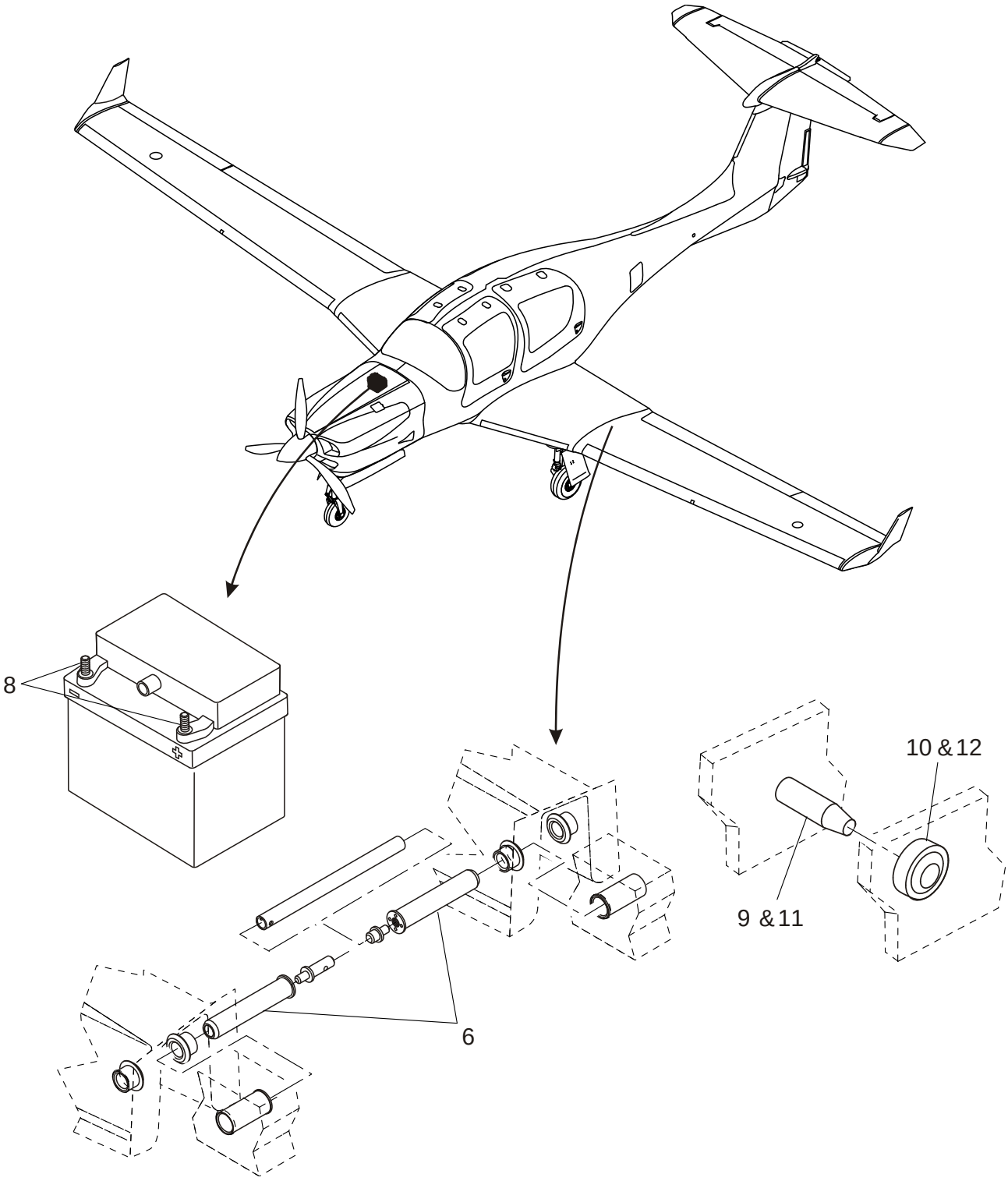


Figure 2 - Lubrication Points Sheet 2

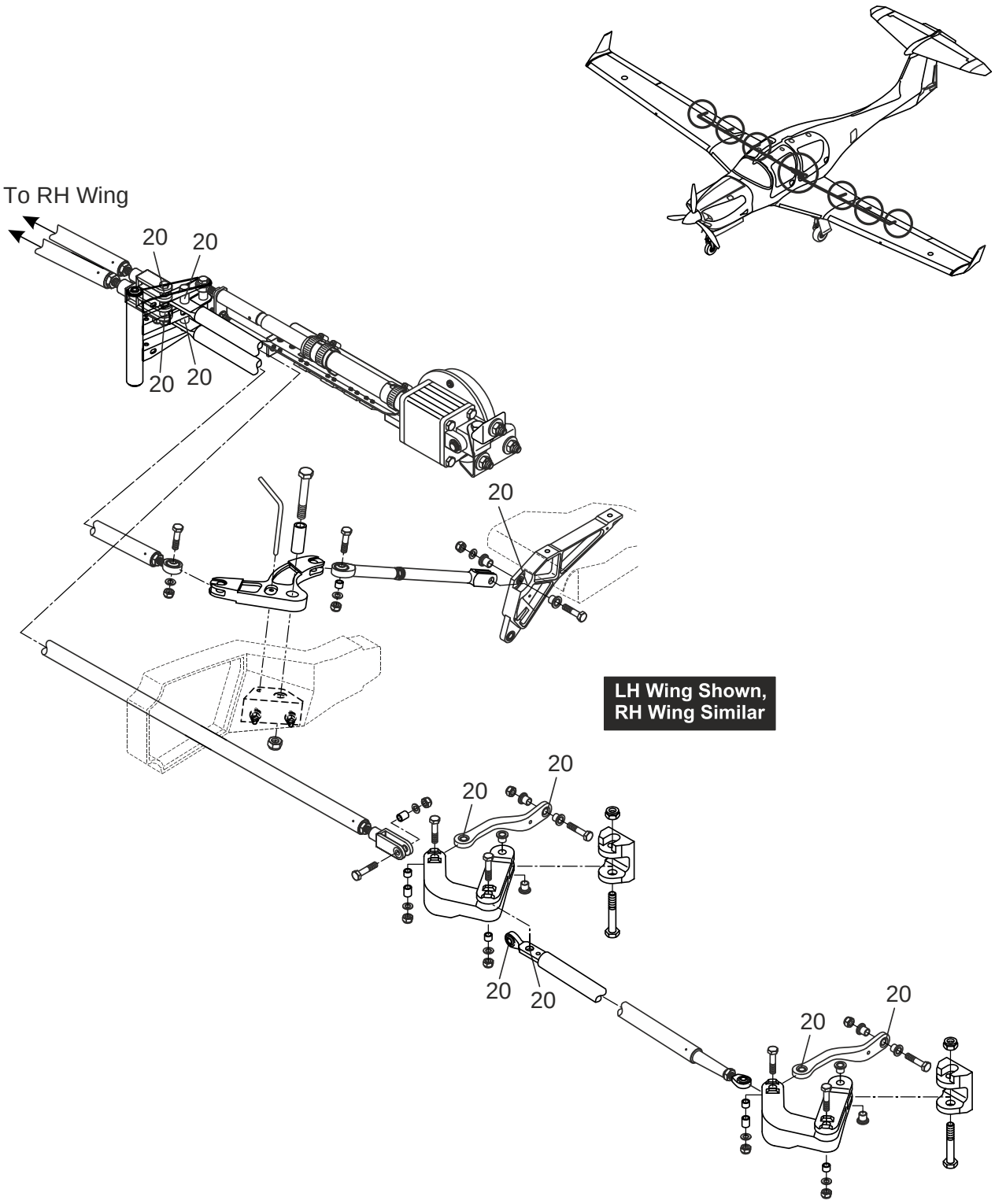


Figure 3 - Lubrication Points Sheet 3

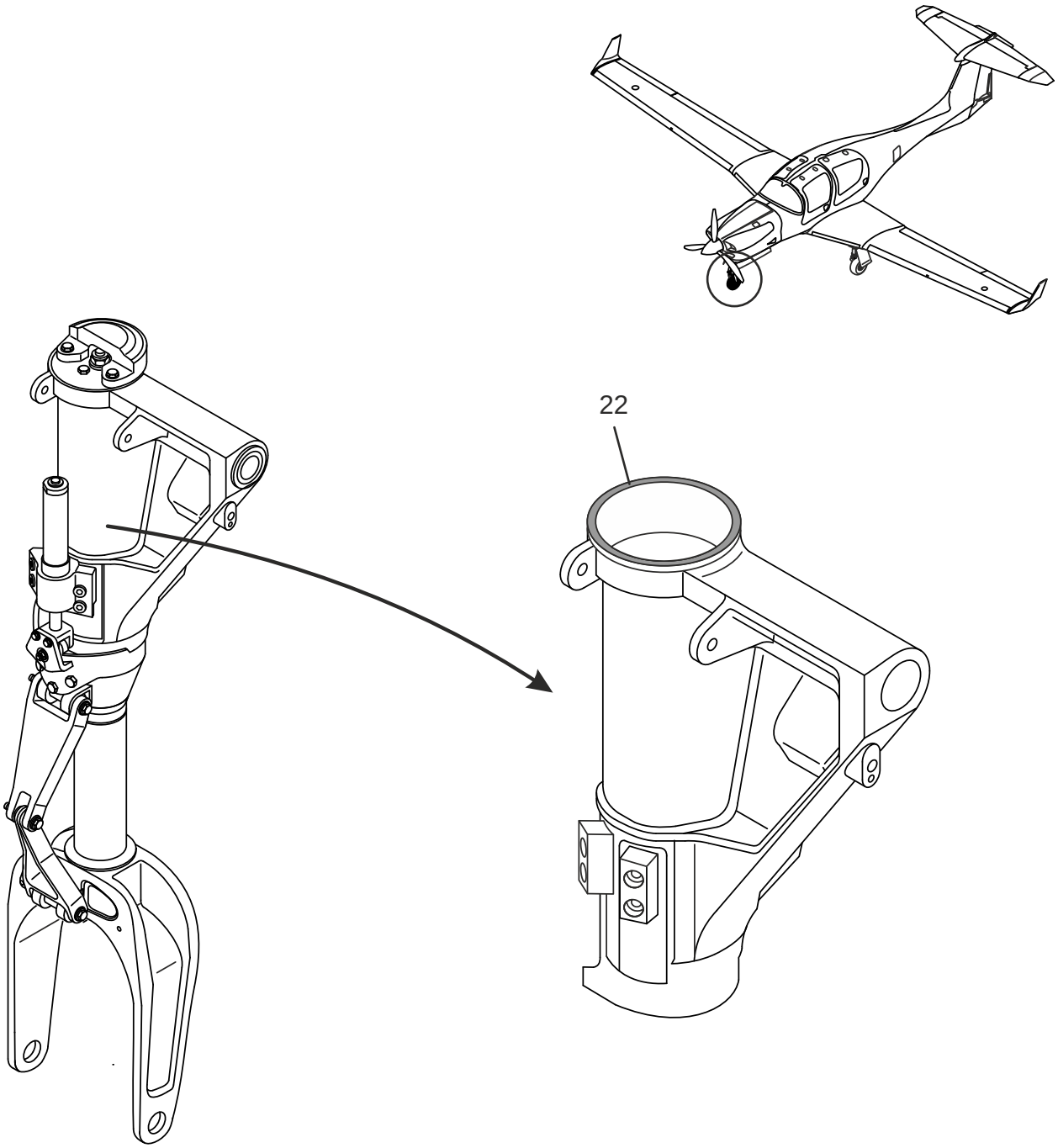


Figure 4 - Lubrication Points Sheet 4

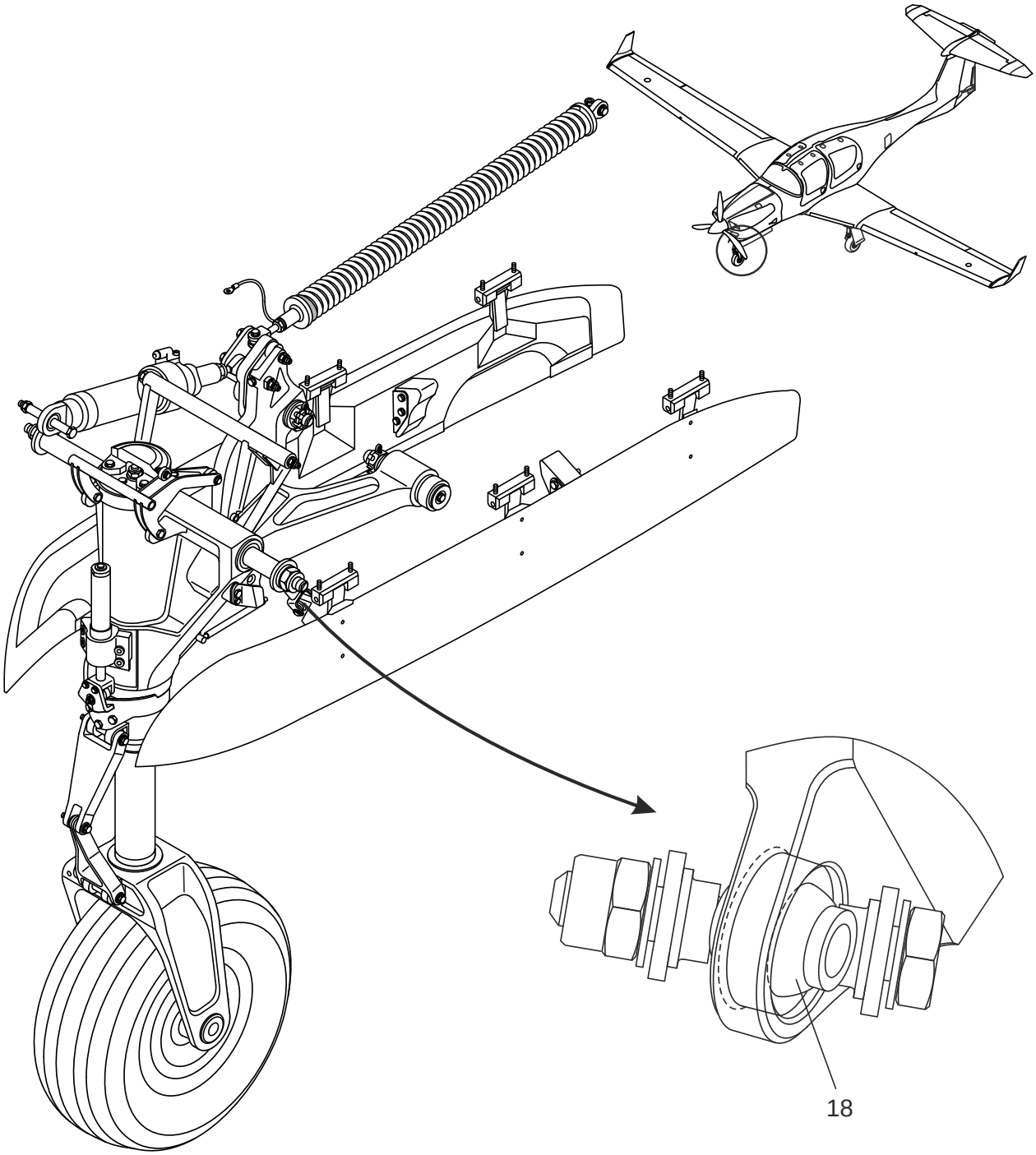


Figure 5 - Lubrication Points Sheet 5

12-30
UNSCHEDULED SERVICING

12-30-01 Cleaning

Clean and apply surface protection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Exterior Cleaning

The outer surfaces of the DA 50 C must be kept clean to maintain the good performance characteristics of the airplane. The leading edge of the wings are specially important.

(1) Protect all control surface bearings and other lubricated components.

CAUTION

DO NOT USE CLEANING OR POLISHING AGENTS WHICH CONTAIN SILICON. IF THE AIRPLANE NEEDS REPAIR AT a LATER TIME, RESIDUE OF SILICON CAN PREVENT REPAIR MATERIALS FROM BONDING CORRECTLY.

(2) Clean the airplane.

Use large quantities of water.

If necessary, add a mild cleaning agent to the water.

Remove excess dirt or dead insects immediately after flight. Dried on dirt and dead insects are very difficult to remove.

(3) Approximately once a year:

Apply a silicone-free automotive polish to the outer surface of the airplane.

B. Transparency Cleaning

CAUTION

DO NOT RUB THE TRANSPARENCIES WHILE THEY ARE DRY. DO NOT USE DIRTY CLOTHS OR SPONGES. THE ACRYLIC TRANSPARENCIES SCRATCH VERY EASILY WITH THE SMALLEST PARTICLES OF DUST OR DIRT.

(1) Clean the transparencies with large quantities of clean water.

Use clean sponges and good chamois leather that you should not use for any other purpose.

(2) Polish dull or scratched areas using a special acrylic cleaner.

Remove scratches with special transparency polishing systems (e.g. Micro-Mesh).

C. Interior Cleaning

(1) Clean the interior of the airplane cabin with a flame-proof vacuum cleaner.

D. Engine Cleaning

CAUTION

DO NOT CLEAN THE ENGINE WHILE THE ENGINE IS HOT.

CAUTION

DO NOT USE HIGHLY FLAMMABLE OR CORROSIVE CLEANING AGENTS TO CLEAN THE ENGINE.

CAUTION

DO NOT LET THE CLEANING AGENT GET INTO ELECTRICAL COMPONENTS AND ENGINE INTAKES.

CAUTION

DO NOT START THE ENGINE UNTIL ALL OF THE CLEANING AGENT HAS EVAPORATED.

(1) Use a cold cleaning agent (e.g. Berner Cold Cleaner No.13618.0 or refer to the Engine Maintenance Manual).

(2) Protect all electrical components and cables. Use polythene bags to seal intakes and other areas that you want to keep dry.

(3) After washing you can dry the engine using compressed air (< 8 bar (118 PSI)).

12-30-02 Snow and Ice Removal

Remove ice

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Snow and Ice Removal

Remove snow and ice as soon as possible to prevent water from the melting snow or ice re-freezing and causing damage.

CAUTION

DO NOT USE SHARP OBJECTS TO REMOVE SNOW OR ICE. YOU CAN DAMAGE THE AIRPLANE STRUCTURE.

(1) Use soft brushes to remove snow from the surfaces.

(2) Put the airplane in a heated hangar to remove ice or spray de-icing fluid onto ice-covered surfaces using a suitable spray bottle.

For approved de-icing fluids refer to AFM, Section 8.

(3) Use a soft piece of cloth to wipe the airplane dry.

12-30-03 Conservation of Exterior Parts

Clean and apply surface protection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Conservation of Exterior Parts

This Section tells you which exterior parts are protected with an anti-corrosion coating, when and how a new anti-corrosion coating must be applied.

(1) Anti-Corrosion Coating Check

Check the protected exterior parts for a film of the anti-corrosion coating. If the film is scratched or the part shows signs of corrosion, you must replace the anti-corrosion coating (refer to step A.(2) and step A.(3)).

CAUTION

YOU MUST USE THE APPROVED ANTI-CORROSION COATING CLEANING AGENTS IN ORDER TO PREVENT DAMAGE TO OTHER PARTS OF THE AIRPLANE.

(2) Remove the Anti-Corrosion Coating

Approved anti-corrosion coating cleaning agents are:

- Ardrox® AV 980
- Diestone DLS

Remove the anti-corrosion coating:

- Read the product datasheet carefully.
- Cover the airplane parts and surfaces in your working area, which are not subject to the cleaning.
- Apply the anti-corrosion cleaning agent to the parts.

- Use a cloth to remove the remains.
- Repeat until the surface is clean and dry.

CAUTION

YOU MUST USE THE APPROVED ANTI-CORROSION COATINGS IN ORDER TO PREVENT DAMAGE TO OTHER PARTS OF THE AIRPLANE.

(3) Apply the Anti-Corrosion Coating

Approved anti-corrosion coatings are:

- Ardrox® AV 30 (color: red; recommended for not visible parts)
- Socopac 65H (color: red; recommended for not visible parts)
- Cor - Ban 35 (color: transparent; recommended for visible parts)

Apply the anti-corrosion coating:

- Read the product datasheet carefully.
- Cover the airplane parts and surfaces in your working area, which are not subject to the anti-corrosion coating.
- Apply the anti-corrosion agent to the parts.
  Refer to the figure numbers in Table 1 to identify the parts, here anti-corrosion coatings must be applied.
  Make sure the surface is covered with a thin film of the anti-corrosion coating.
- The anti-corrosion coating needs 3 hours to dry.
- Remove the covers from the airplane.

(4) Anti-Corrosion Coating Checklist

Refer to the figure numbers in the following table to identify the parts, where anti-corrosion coatings must be applied.

Anti-Corrosion Coating Checklist		
Figure	**Part / Location**	**Initials**
	CENTER WING FLAPS LH/RH	
1	Bolt heads, washers and nuts	
1	Flap hinge screw heads, washers and nuts	
1	Selflocking castle nuts, washers	
	WING FLAPS LH/RH	
2	Bolt heads, washers and nuts	
2	Flap hinge screw heads, washers and nuts	
2	Selflocking castle nuts, washers	
	AILERONS LH/RH	
3	Control rod eye end fitting (2)	
3	Ball joint bolt and nut (2)	

Table 1 - Anti-Corrosion Coating Checklist

Anti-Corrosion Coating Checklist		
Figure	**Part / Location**	**Initials**
4	Flap outer guide rib, mounting bolts (2)	
	MAIN LANDING GEAR LH/RH	
5	Main landing gear axle, bolt heads and nuts (4)	
5,6	Main landing gear leg assy / trailing arm bolt head and nut	
5,6	Damper upper bolt head and nut	
5,6	Damper lower bolt head and nut	
6,7	Tension spring	
6,7	Forward pivot bearing, bolt head and nut	
6,7	Aft pivot bearing, bolt head and nut	
6,7	Latch operating arm, bolt heads and nuts (2)	
6,7	Driver plate and folding stay bracket	
6,8	Main landing gear bay, door hinges (2), bolt heads (10), nuts (8), MLG door actuation rod and attachment bolt heads (5) and nuts (6) LH/RH	
7	Actuator nipples	
7	Actuator body	
7	Actuator rod end bearing	
8	Main landing gear bay nuts (5)	
	ELEVATOR, ELEVATOR CONTROLS AND ELEVATOR TRIM SYSTEM	
9	Elevator push rod, upper eye end fitting	
9	Elevator upper eye end fitting, bolt head and nut	
9,10	Elevator trim bolt heads and nuts	
9,10	Elevator trim actuating lever attaching bolt head and nut	
11	Elevator push rod eye end fitting, bolt heads and nuts (2)	
11	Elevator bellcrank, bolt heads (1) and nuts (3)	
	RUDDER	
12	Rudder pedestal, nuts	
12	Rudder friction damper coupling and bolt heads	
12	Rudder plate, bolt heads and nuts	
13	Rudder upper bearing, bolts (3)	
	NOSE LANDING GEAR	
14,15	Centering unit guidance plate bolt heads (3), main body attachment bolt heads (4) and pressing unit bolt heads (2) and nut (1)	

Table 1 - Anti-Corrosion Coating Checklist

Anti-Corrosion Coating Checklist		
Figure	**Part / Location**	**Initials**
14	Nose wheel fork bolt heads (3)	
14	Torque links bolt heads (3) and nuts (3)	
14	Damper bushing bolt (2)	
14	Actuator body	
14	Main bearing upper drag brace crown nut	
14,15,16,17	Microswitch actuation sheet bolt heads	
15	Folding stay latching mechanism	
15	Folding stay latch operating arm nut	
15	Lower drag brace to strut connection bolt, nut and washer	
16	Bolt heads and nuts on upper drag brace	
16	Main bearing upper drag brace securing bolt head and nut LH/ RH	
16,17	Top centering unit connection rod, bolt heads and nuts	
17	Actuator eye end fitting, attachment bolt head and nut	
17	Door rod upper eye end fitting LH, RH	
14,16,18	Compression spring mounting bolt heads (2) and nuts (4)	
19	Door hinges LH (3) , RH (3)	
19	NLG door attachment bolt heads (2) LH/RH	.
19	Door rod, lower fork attachment bolt head and nut LH/RH	
	FUSELAGE	
20	Foot step screws LH (4), RH (4)	

Table 1 - Anti-Corrosion Coating Checklist

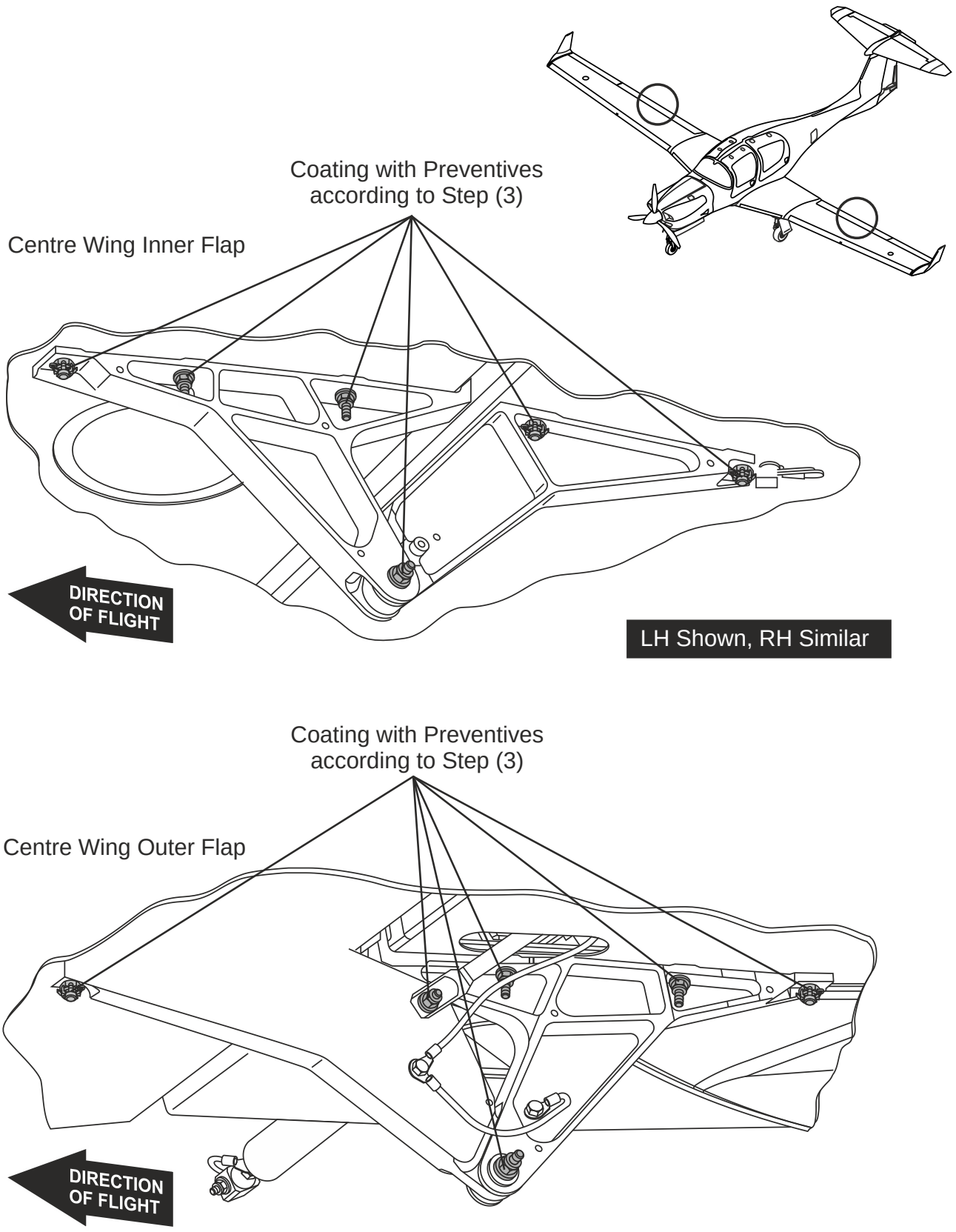


Figure 1 - Anti-Corrosion Coating - Center Wing Inner and Outer Flap LH/RH

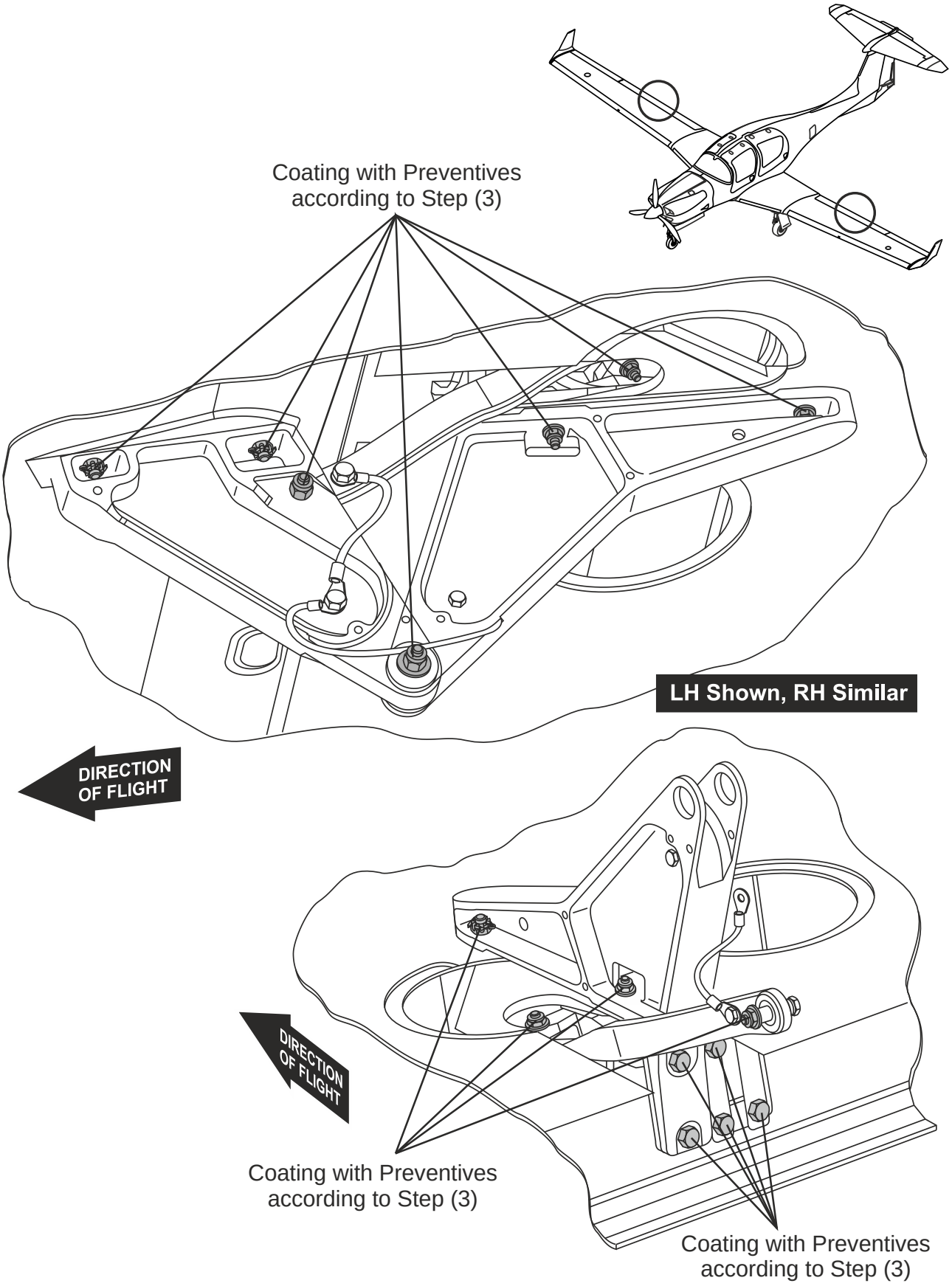
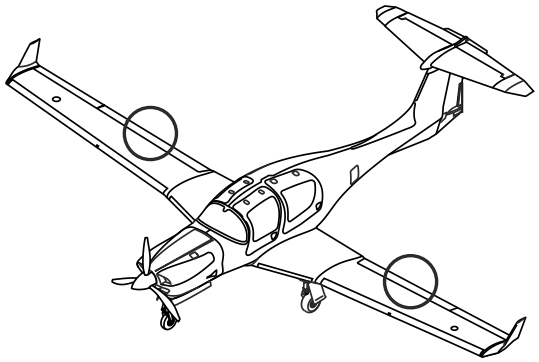


Figure 2 - Anti-Corrosion Coating - Wing Flap LH/RH



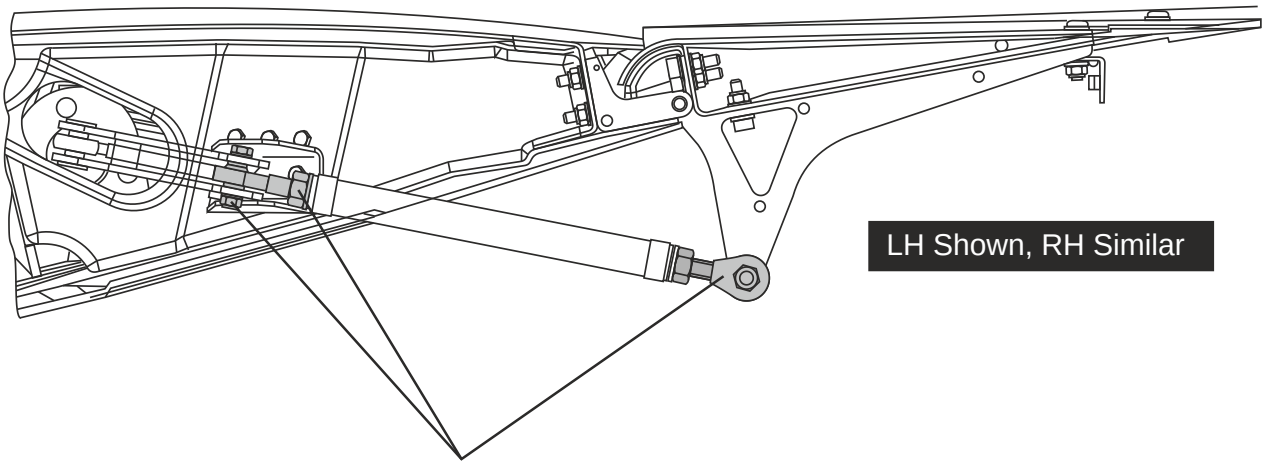


Figure 3 - Anti-Corrosion Coating - Control Rod Ailerons LH/RH

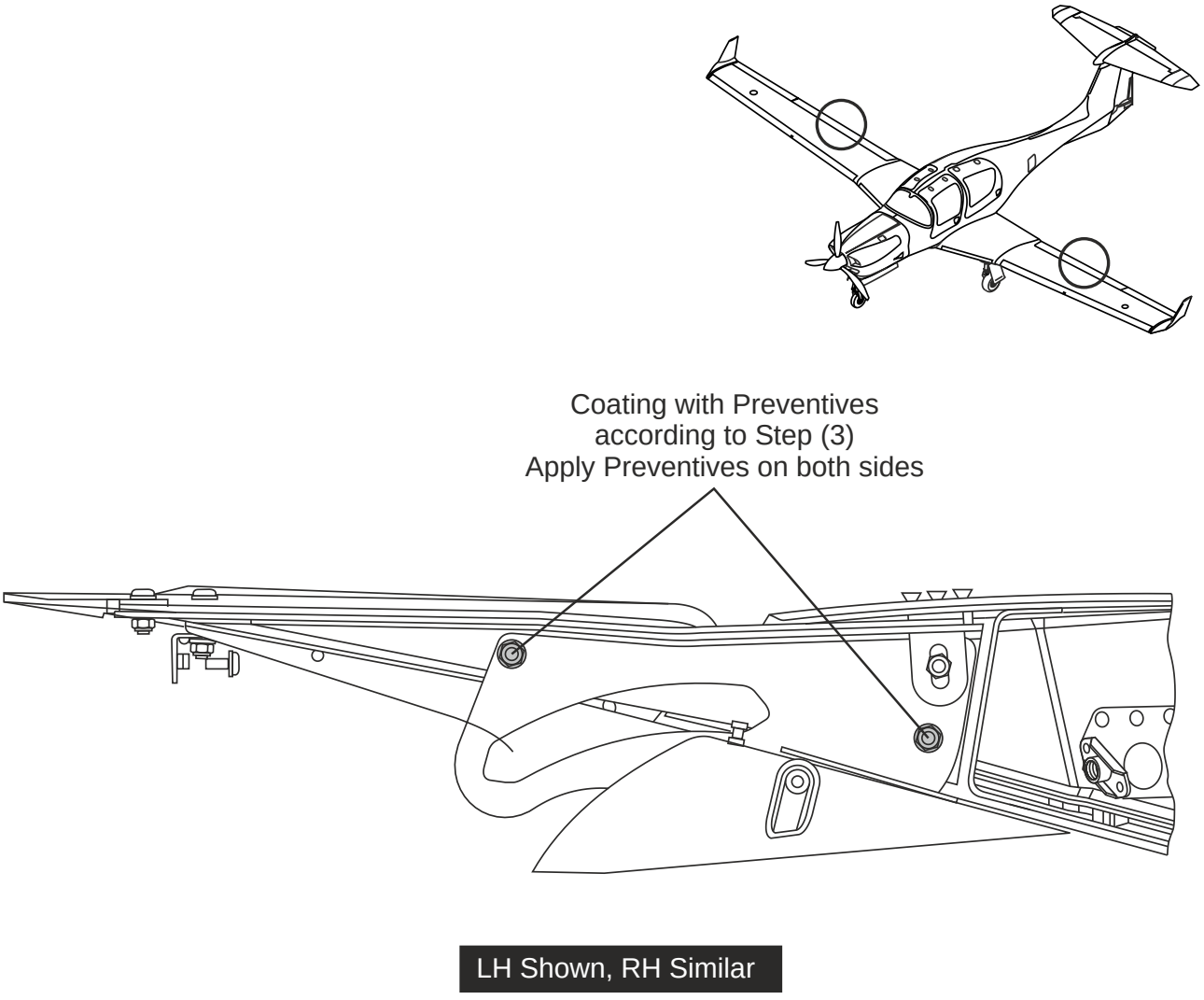


Figure 4 - Anti-Corrosion Coating - Flap Outer Guide

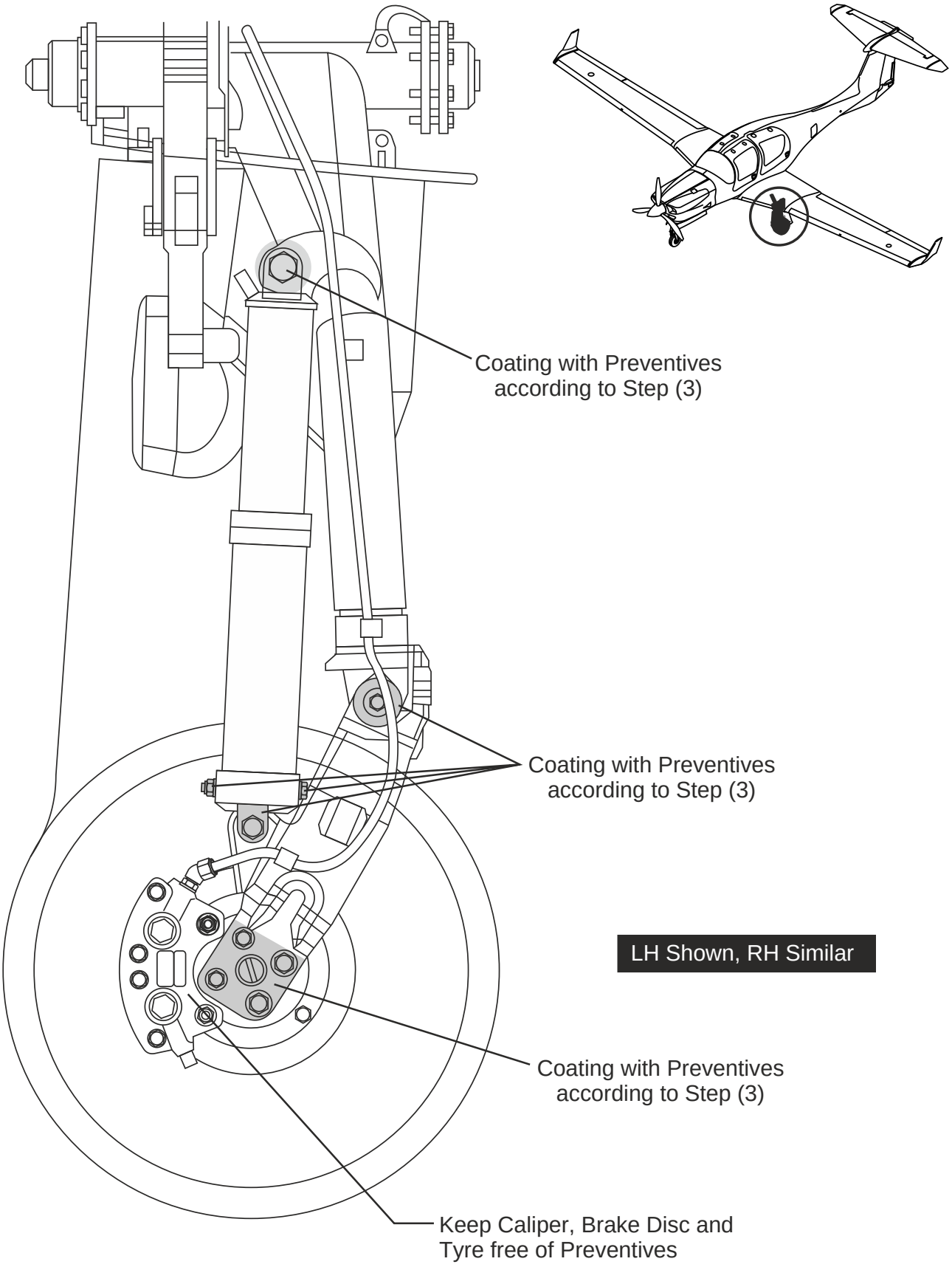


Figure 5 - Anti-Corrosion Coating - Main Landing Gear LH/RH (1)

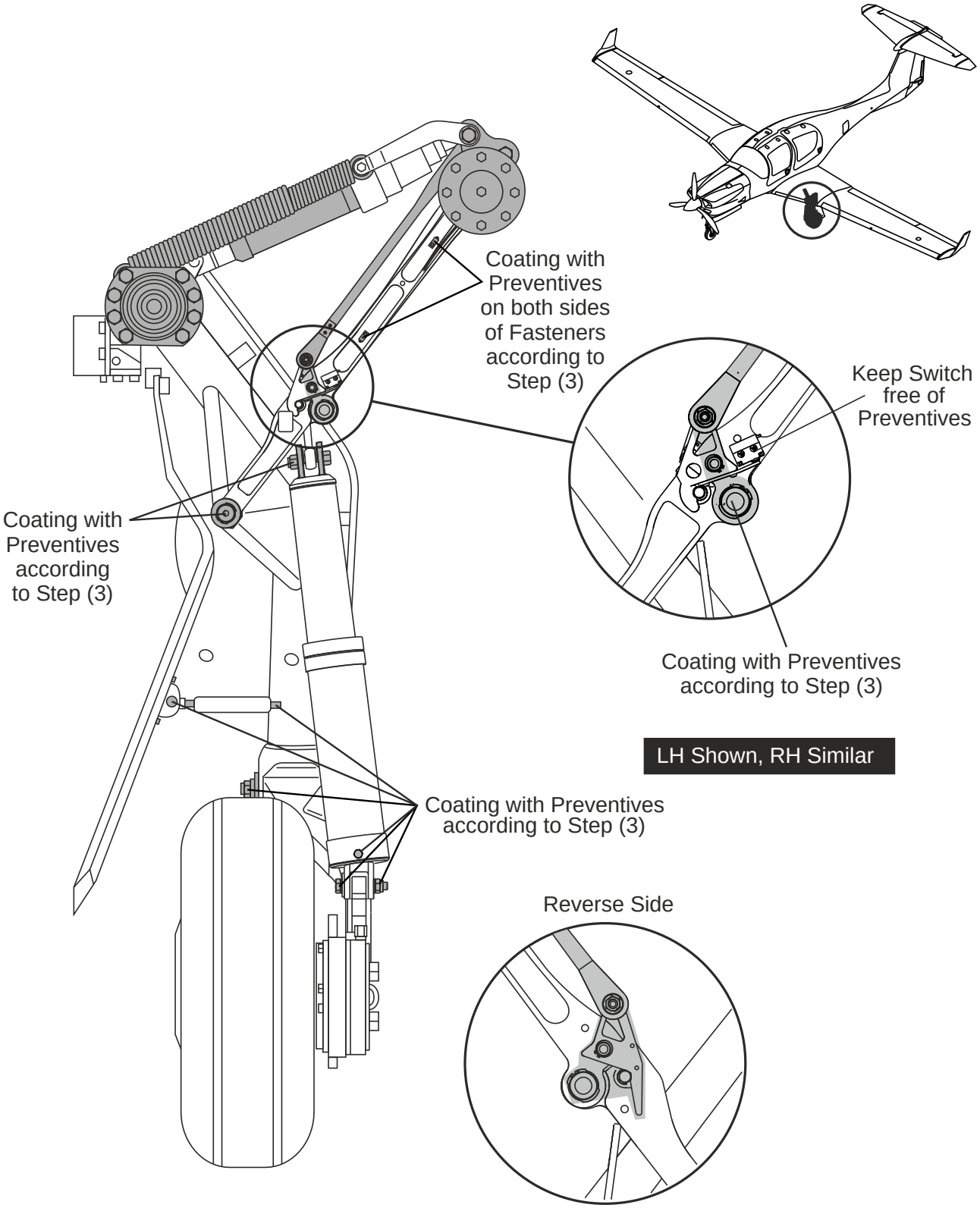


Figure 6 - Anti-Corrosion Coating - Main Landing Gear LH/RH (2)

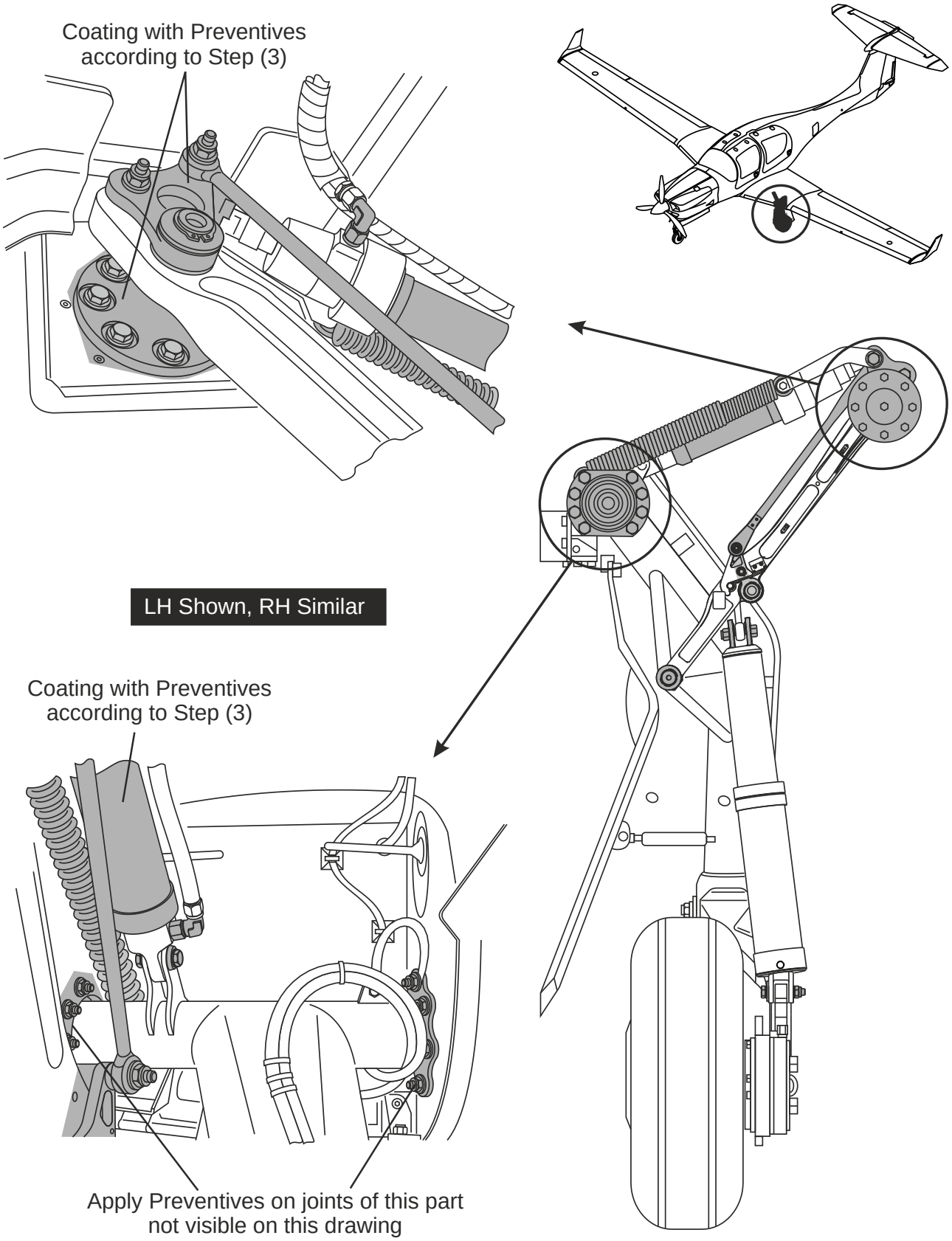


Figure 7 - Anti-Corrosion Coating - Main Landing Gear LH/RH (3)

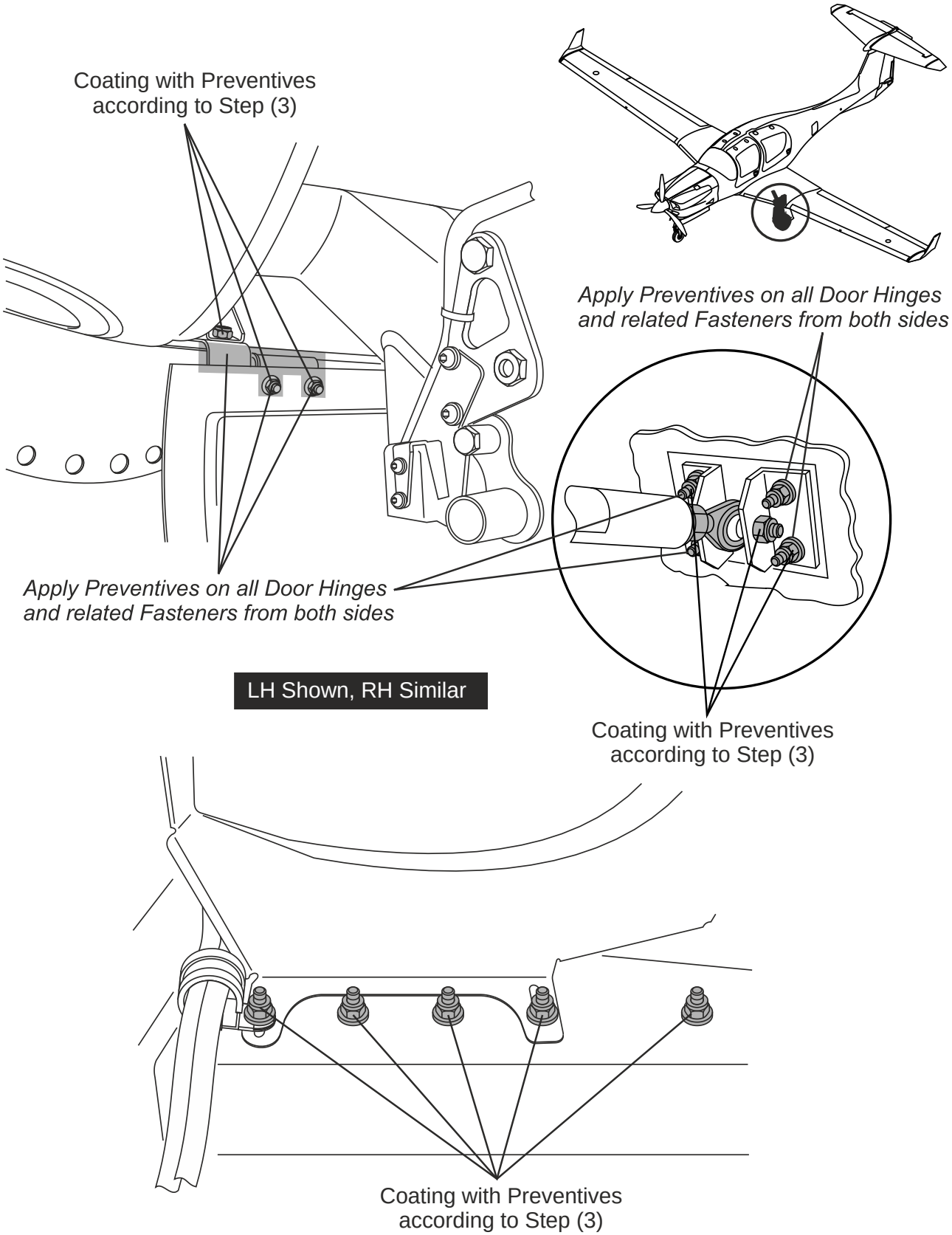


Figure 8 - Anti-Corrosion Coating - Main Landing Gear Bay LH/RH

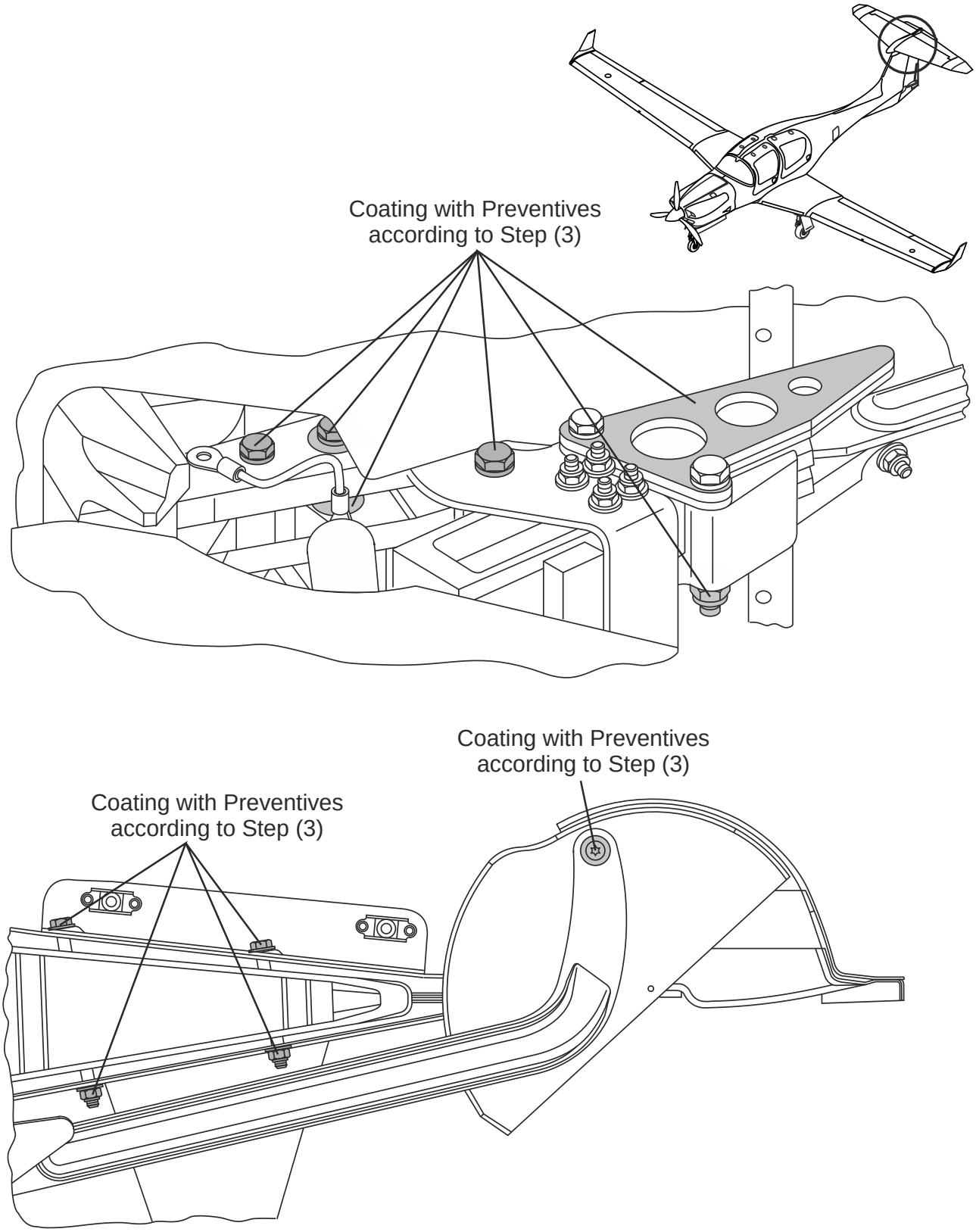


Figure 9 - Anti-Corrosion Coating - Elevator and Elevator Trim System (1)

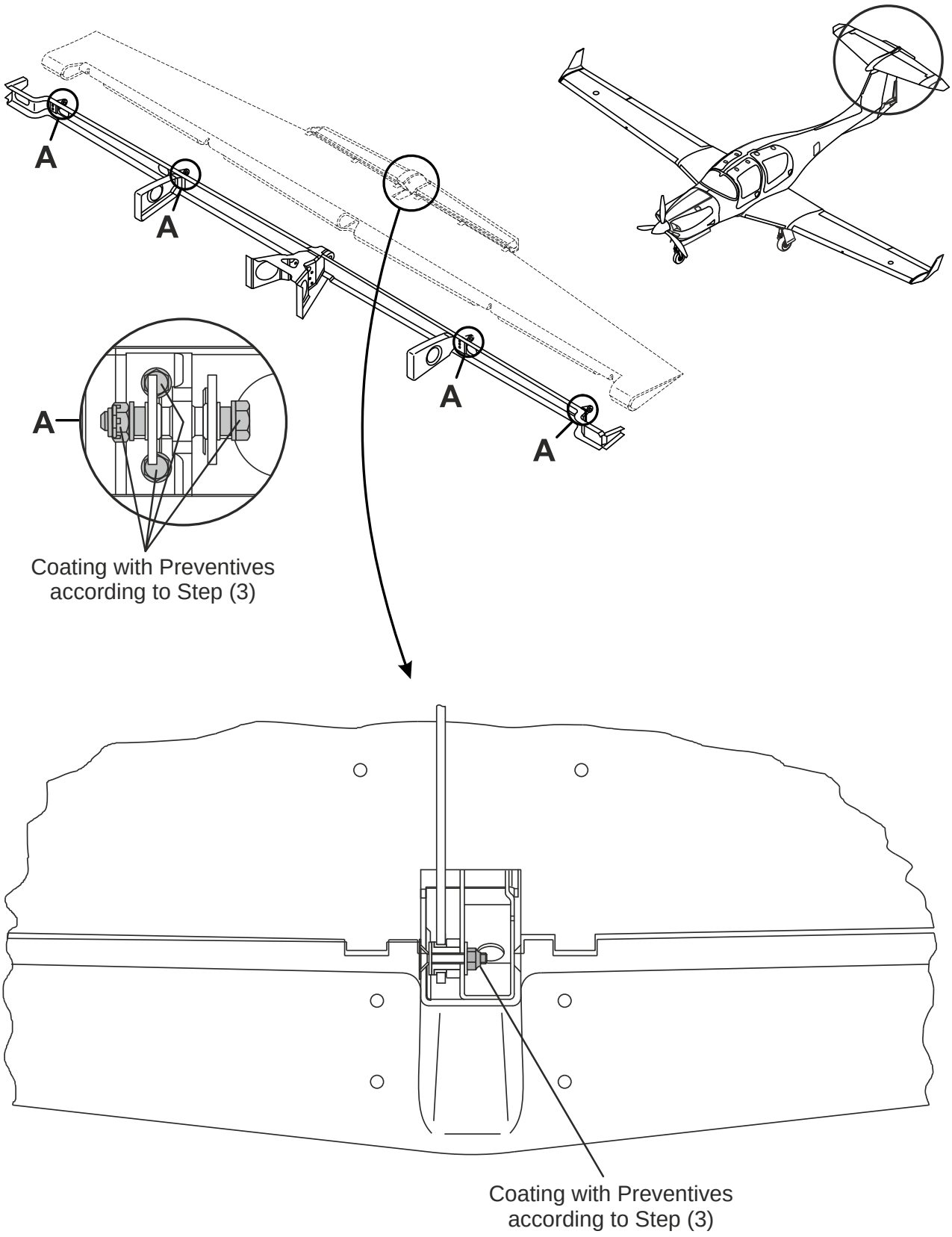


Figure 10 - Anti-Corrosion Coating - Elevator and Elevator Trim System (2)

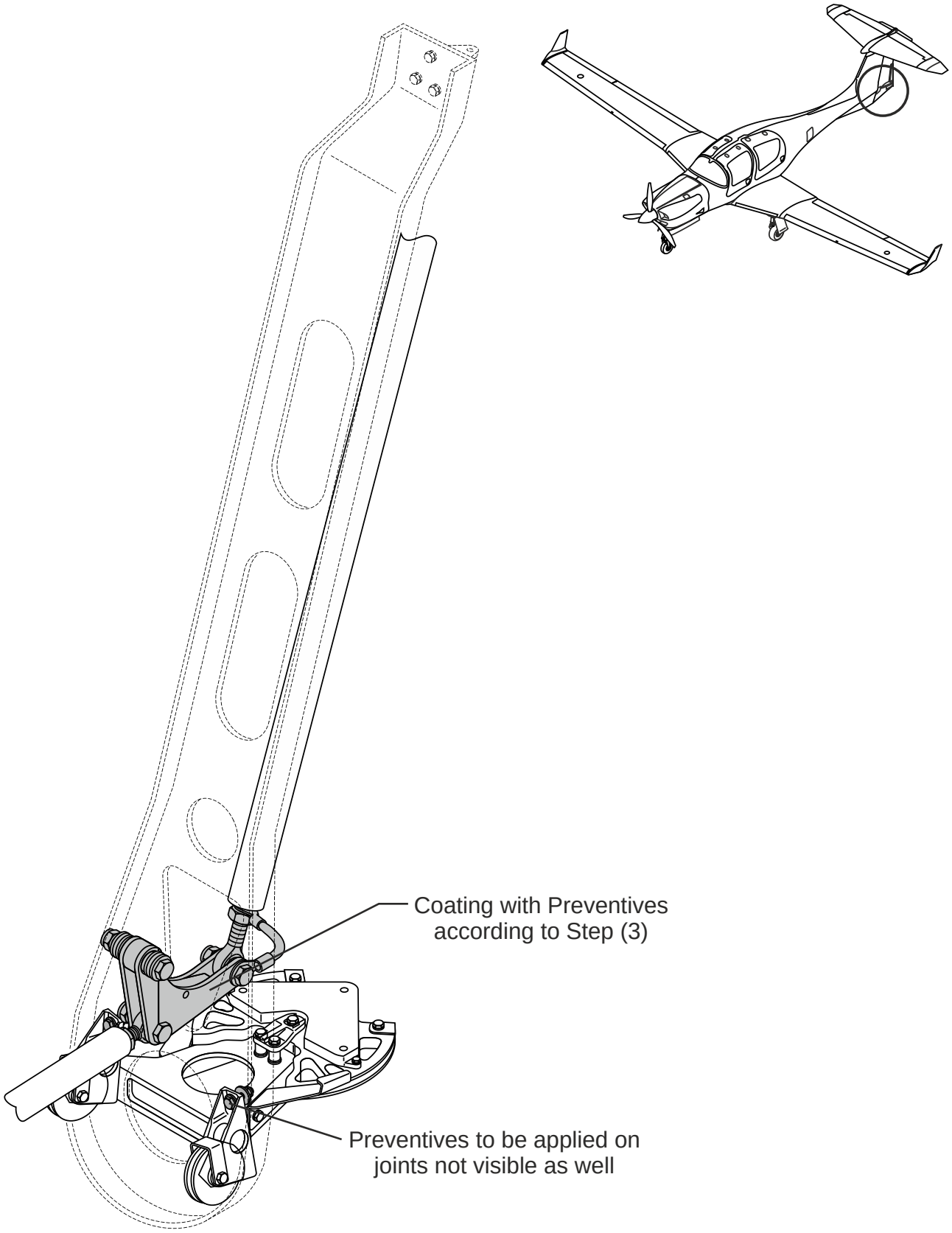


Figure 11 - Anti-Corrosion Coating - Elevator Controls

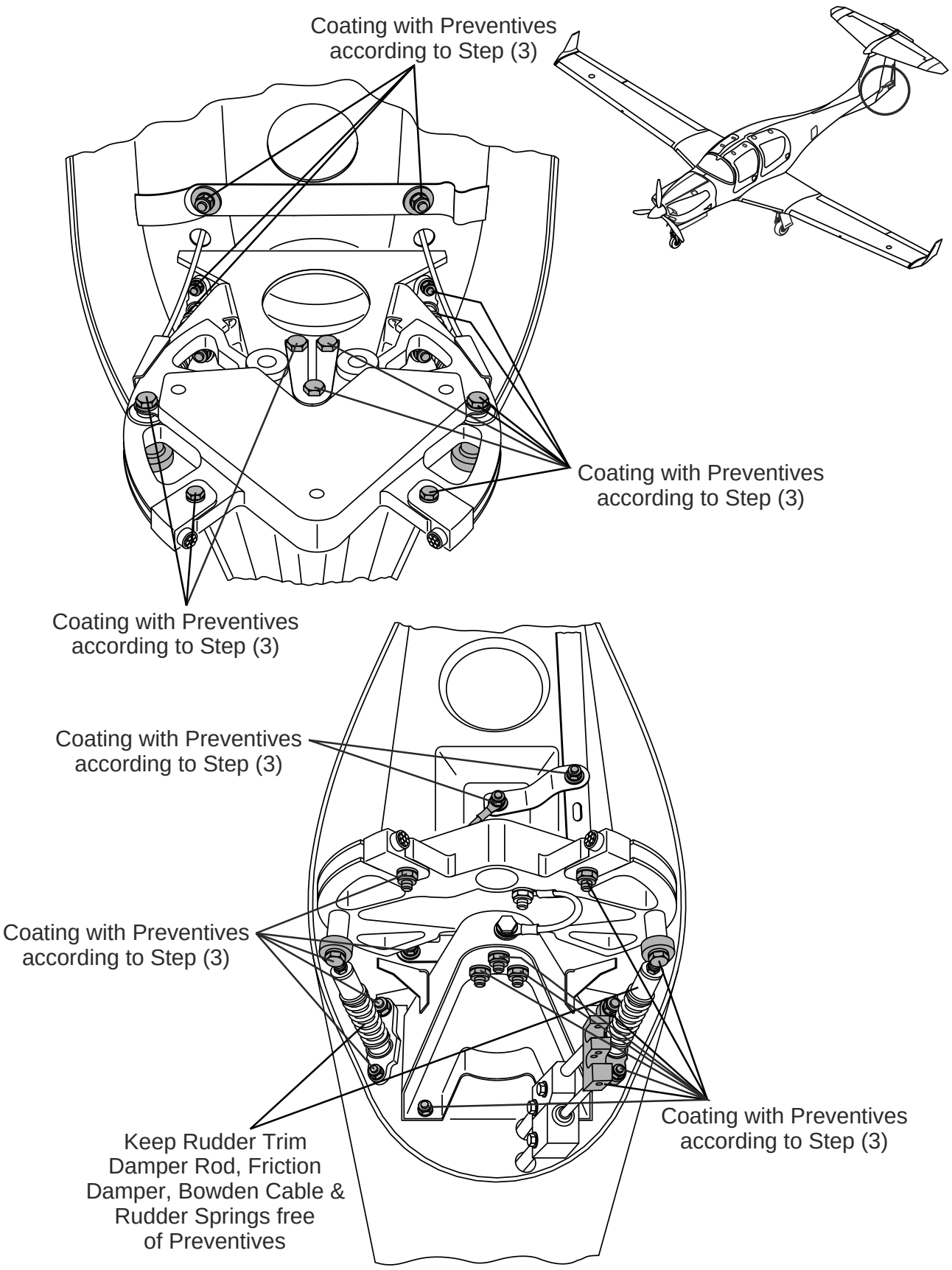


Figure 12 - Anti-Corrosion Coating - Rudder Pedestal

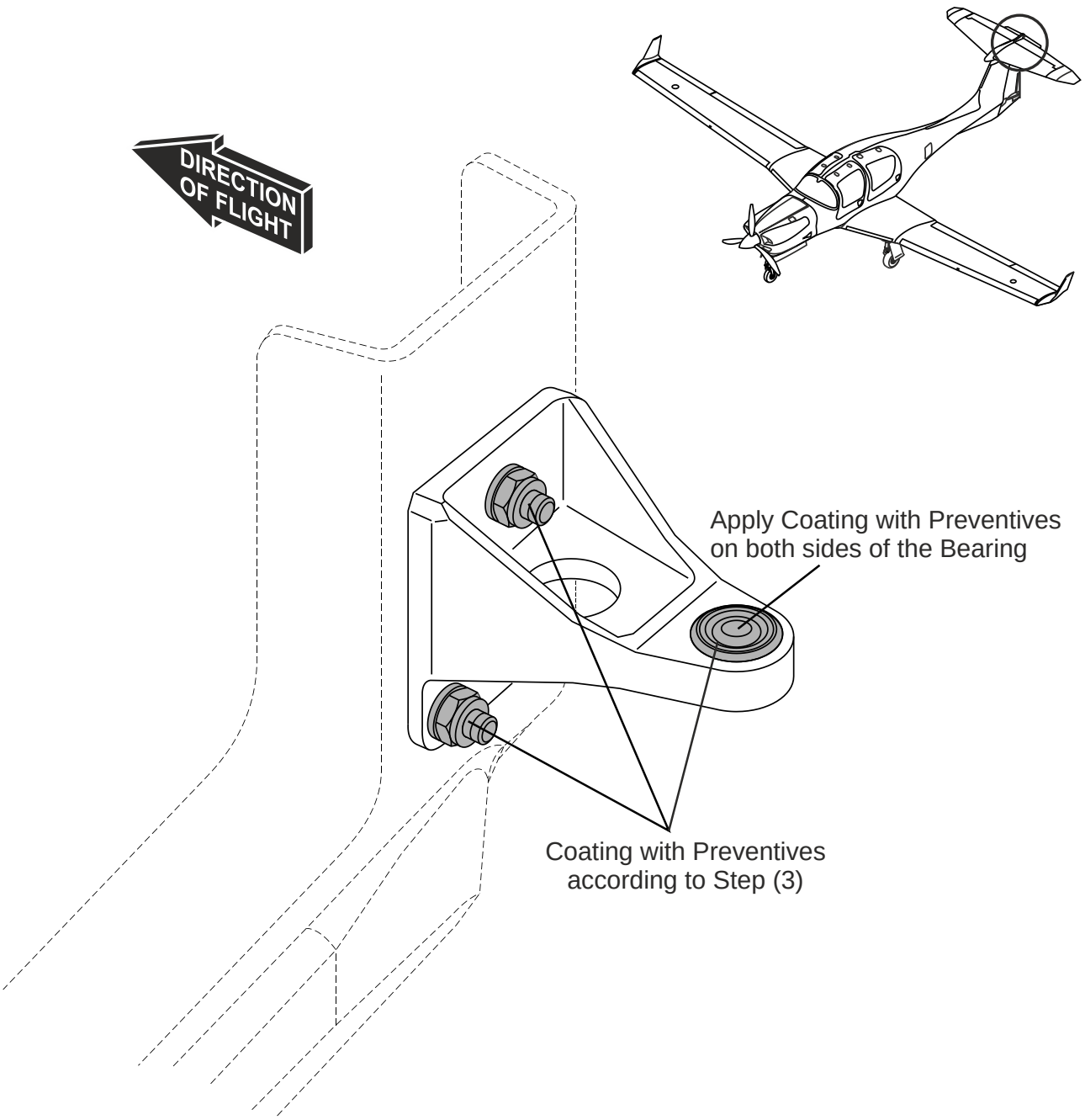


Figure 13 - Anti-Corrosion Coating - Rudder

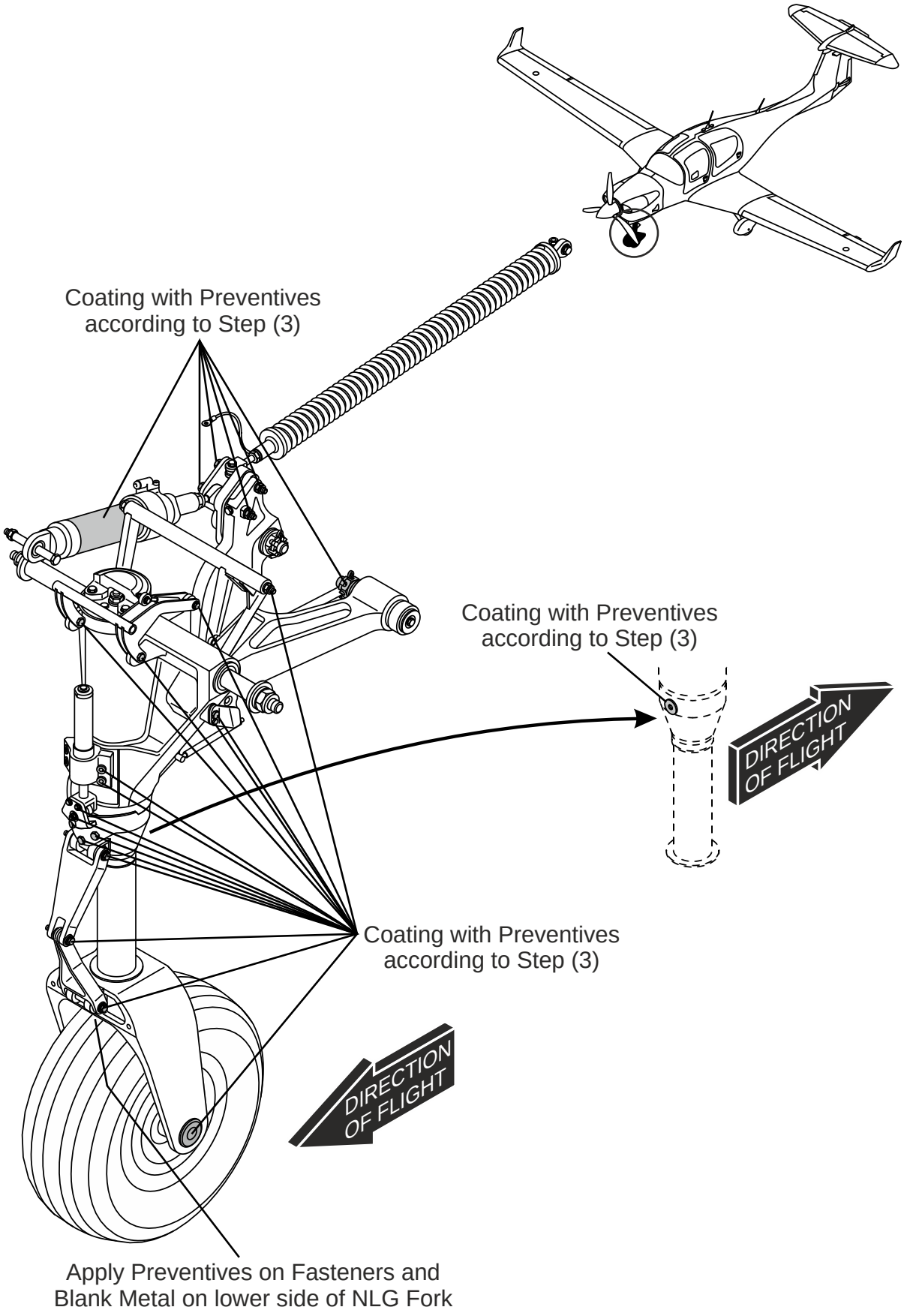


Figure 14 - Anti-Corrosion Coating - Nose Landing Gear (1)

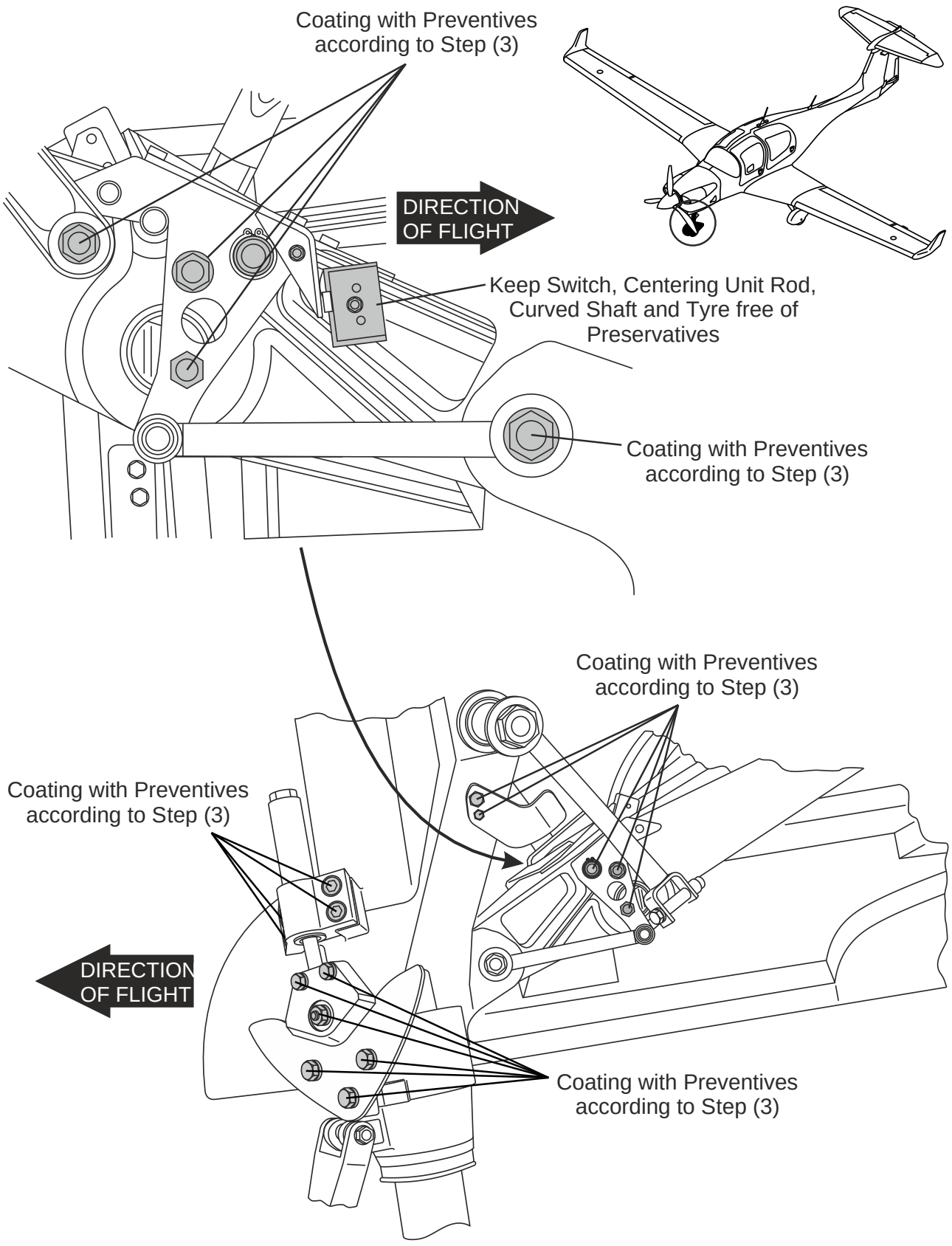


Figure 15 - Anti-Corrosion Coating - Nose Landing Gear (2)

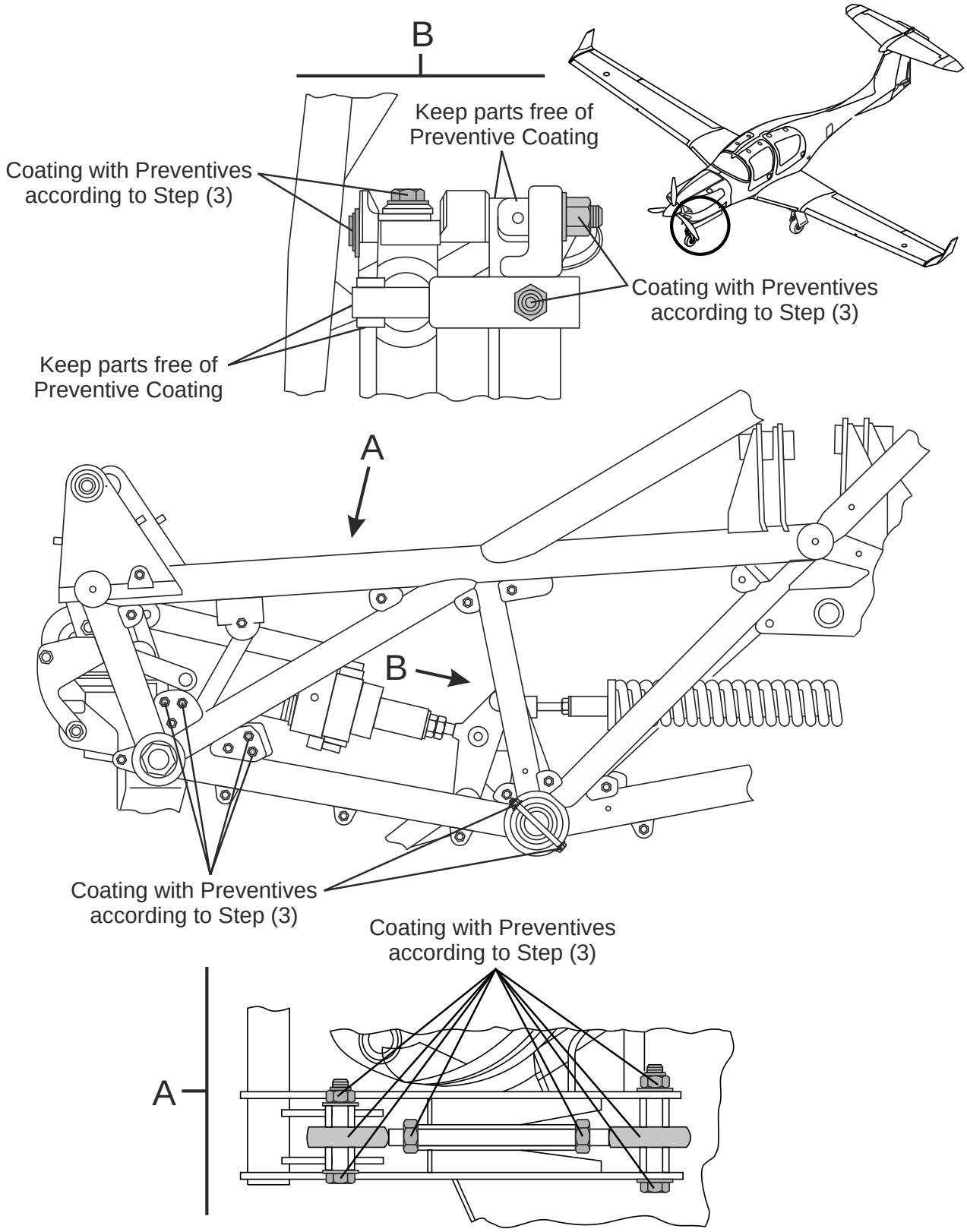


Figure 16 - Anti-Corrosion Coating - Nose Landing Gear (3)

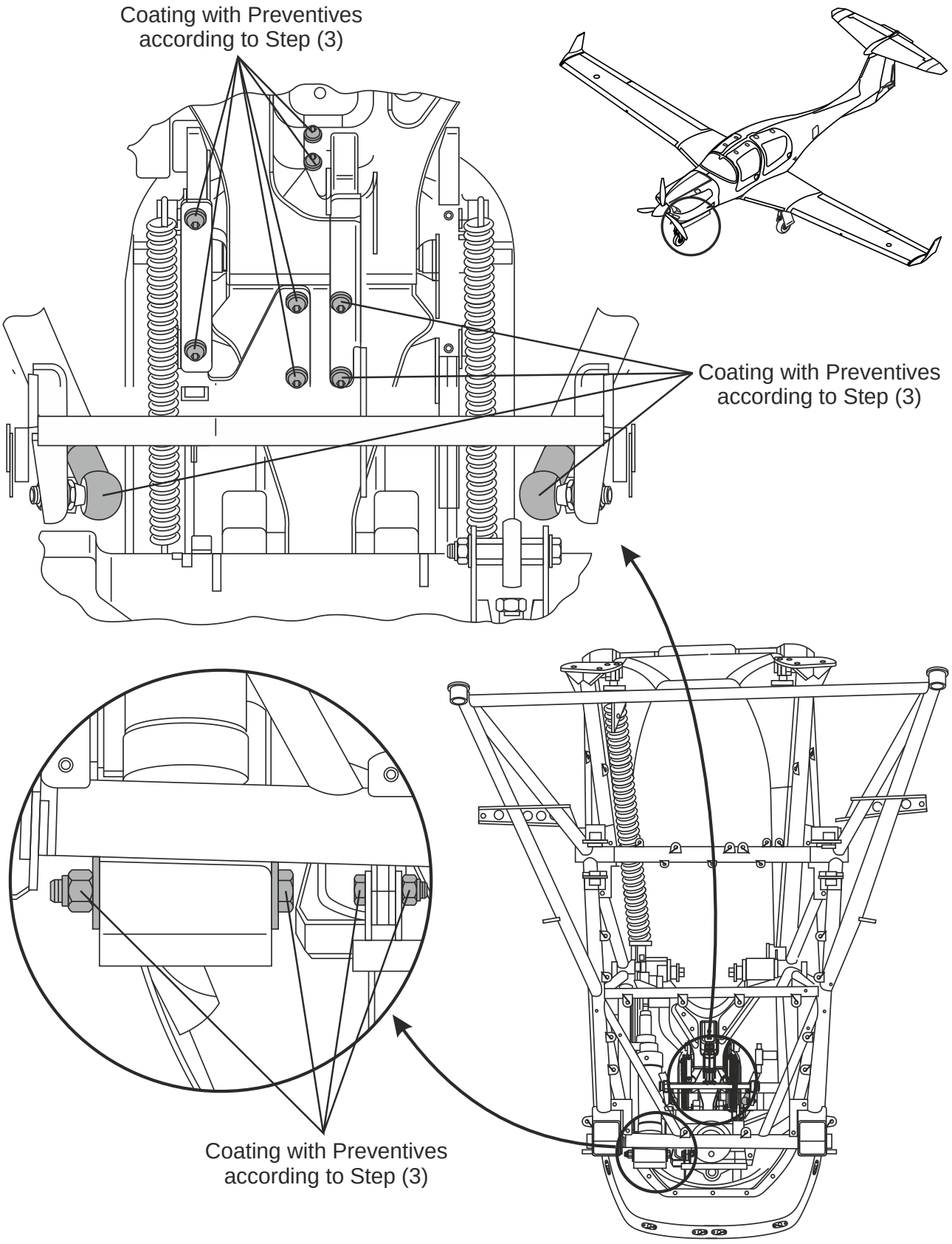


Figure 17 - Anti-Corrosion Coating - Nose Landing Gear (4)

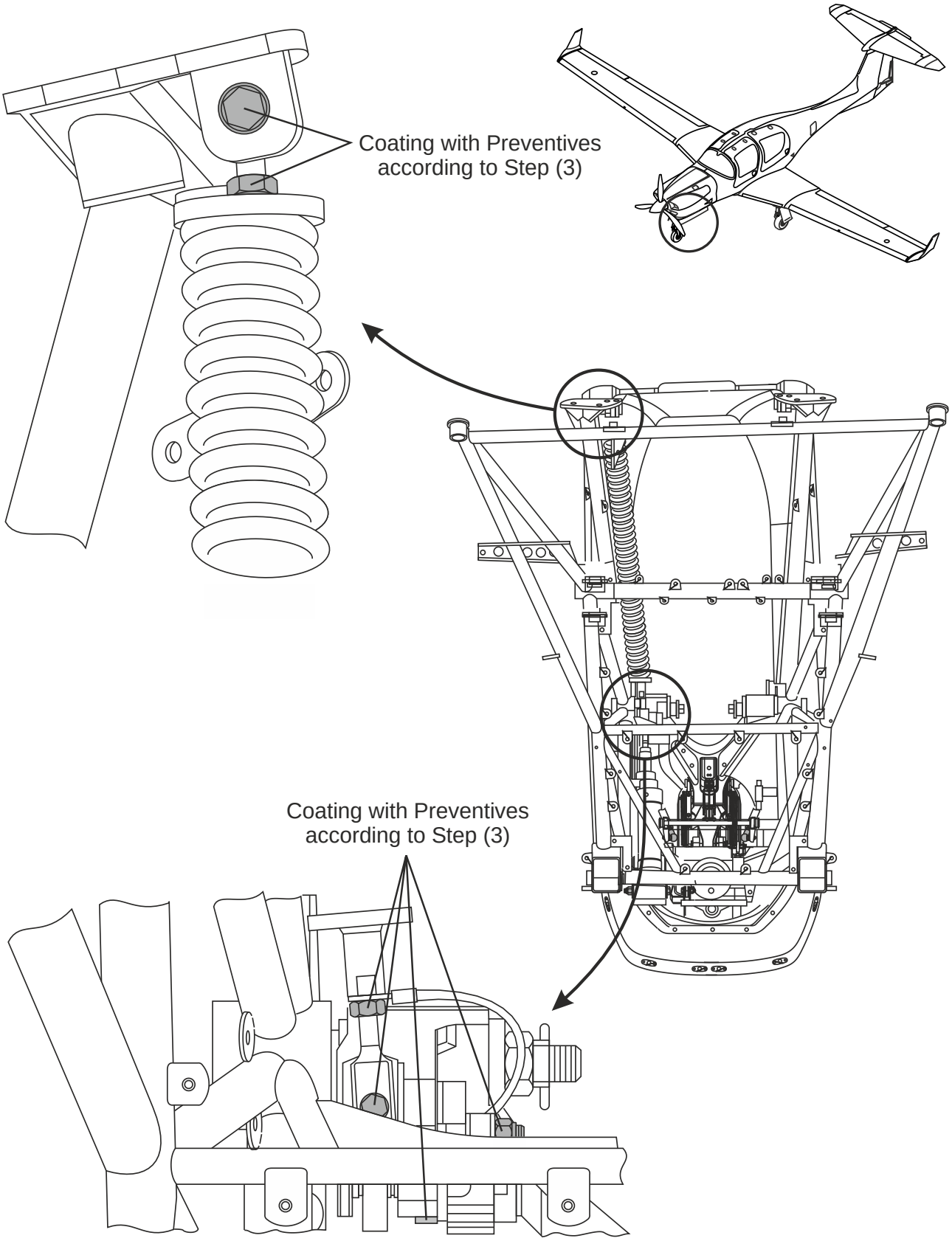


Figure 18 - Anti-Corrosion Coating - Nose Landing Gear (5)

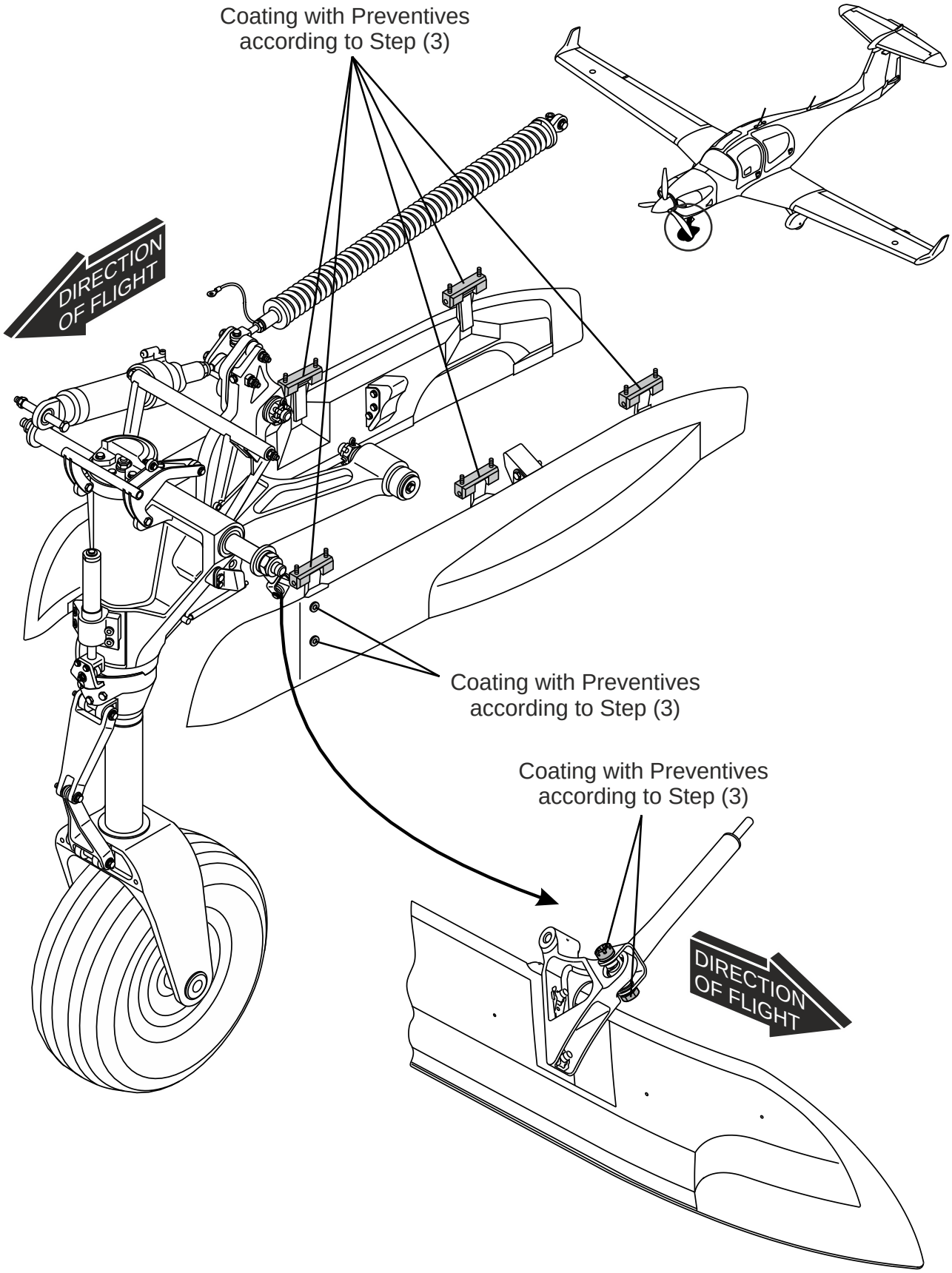


Figure 19 - Anti-Corrosion Coating - Nose Landing Gear (6)

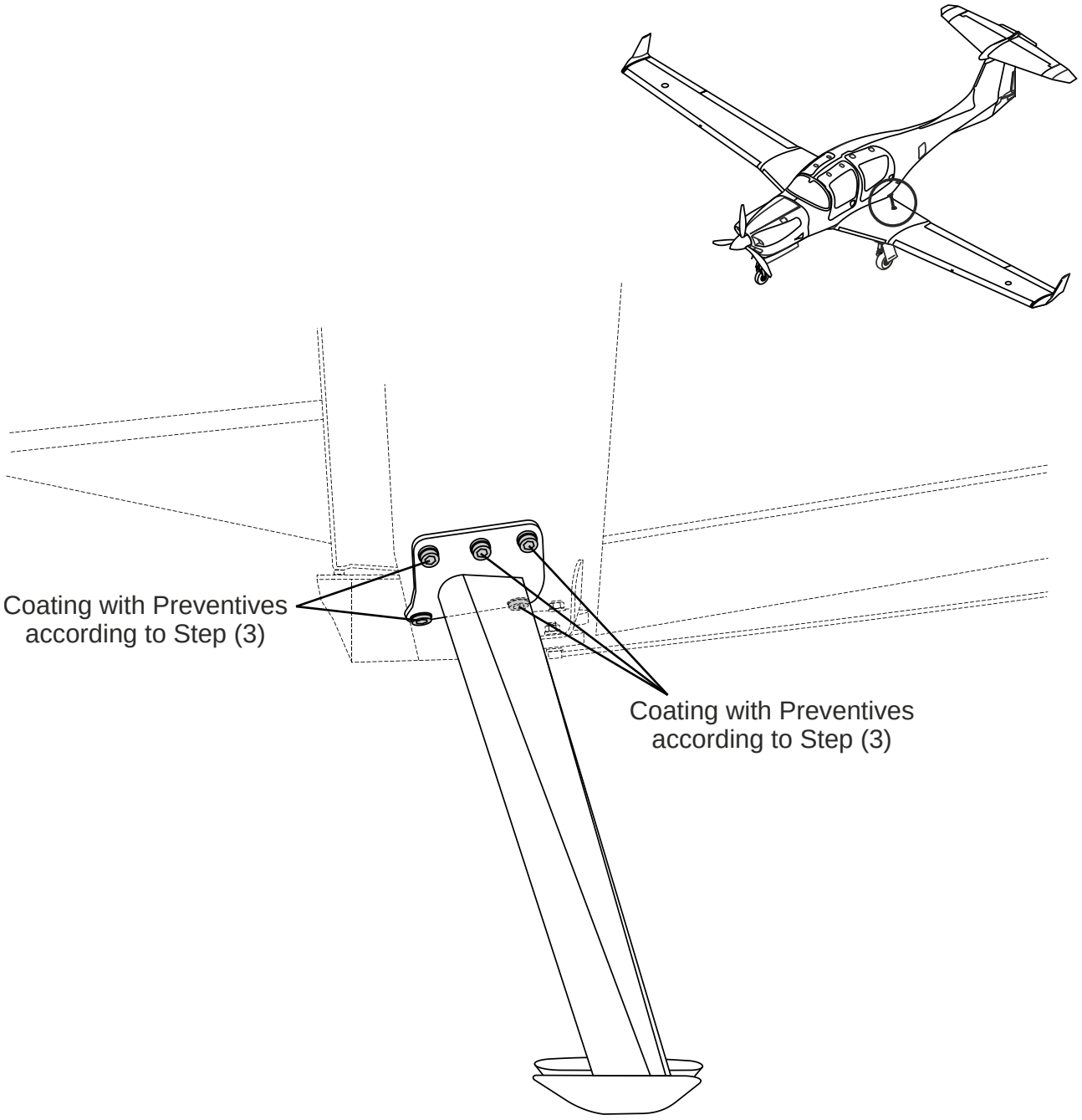


Figure 20 - Anti-Corrosion Coating - Foot Step Screws

20-00
STANDARD PRACTICES

20-00-01 Standard Practices

Description

1. General

This Chapter gives you the standard practices for the DA 50 C airplane. Use industry standard practice where no specific practice is given.

This Chapter has the following Sections:

Section 20-10. Standard Practices - Airframe - Description.

Section 20-30. Standard Practices - Electrical System - Description.

Section 20-70. Standard Practices - Engine - Description.

20-10
STANDARD PRACTICES - AIRFRAME

20-10-01 Standard Practices - Airframe

Description

1. Standard Practices - Airframe

This Section gives you data about the fasteners (bolts/screws/nuts) used in the DA 50 C airplane and their related torque values. This Section tells you the procedures used to tighten the fasteners.

NOTE

Use the standard torque values listed on the subsequent pages of this section where no specific values are given.

NOTE

Composite structures can have a different thickness for the same component or assembly. You must always make sure that you use the correct length of fastener. The length of fastener given in the Illustrated Parts Catalogue may NOT be correct for all components or assemblies.

20-10-02 Bolt and Nut Types Used in the Airplane

Description

1. Bolt and Nut Types Used in the Airplane

The DA 50 C airplane uses these bolts:

- ISO bolts.
- DIN bolts.
- MS bolts.
- LN bolts.
- AN bolts.

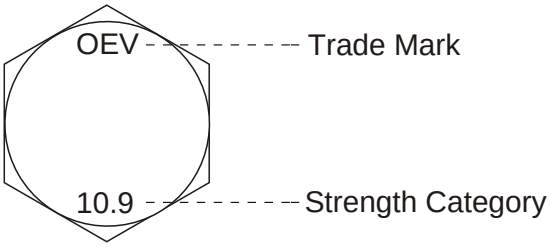
The minimum strength for the bolts is DIN specification 8.8. Letters and numbers on the head of the bolt identify the bolt type. The surface treatment also identifies the bolt.

Refer to Figure 1 for bolt head identifications.

The DA 50 C uses these types of standard nuts: DIN934, DIN 985, AN 364, AN 365, MS21042, MS21044, LN 9338, LN 9348.

A. DIN Bolts

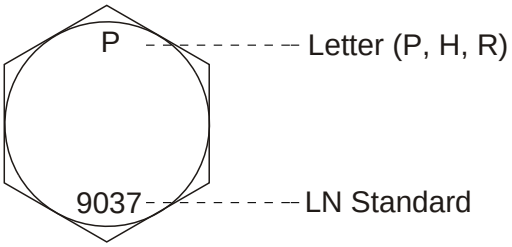
Bolt Head Identification



Surface Treatment - Galvanized

B. LN Bolts

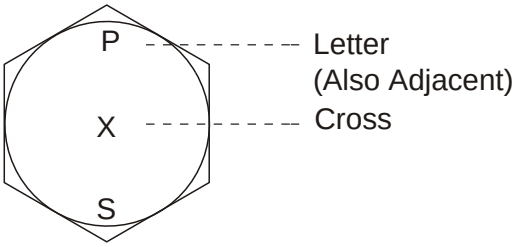
Bolt Head Identification



Surface Treatment - Galvanized and chromated yellow

C. AN Bolts

Bolt Head Identification



Surface Treatment - Galvanized or chromated yellow

Figure 1 - Bolt Head Identifications

20-10-03 Standard Torque Values

Description

1. Standard Torque Values

A. AN Fine Threads

Bolt Size	Torque (Nm)	Torque (lbf.ft.)
10 - 32	1.6	1.2
1/4 - 28	6.2	4.6
5/16 - 24	13.6	10
3/8 - 24	20.7	15.3
7/16 - 20	37.7	27.8
1/2 - 20	54.2	40
9/16 - 18	90.4	66.7
5/8 - 18	124.3	91.7

Table 1 - AN Fine Threads

B. AN Coarse Threads

Bolt Size	Torque (Nm)	Torque (lbf.ft.)
10 - 24	1.6	1.2
1/4 - 20	5.7	4.2
5/16 - 18	10.2	7.5
3/8 - 16	20.9	15.4
7/16 - 14	28.9	21.3
1/2 - 13	54.2	40
9/16 - 12	79	58.3
5/8 - 11	101.6	75

Table 2 - AN Coarse Threads

C. DIN and LN Specifications

Bolt Size	Torque (Nm)	Torque (lbf.ft.)
M4	1.8	1.3
M5	3.6	2.7
M6	6.4	4.7
M8	16	11.8
M10	32	23.6
M12	60	44.3

Table 3 - DIN and LN Specifications

20-10-04 Special Torque Values

Description

1. Special Torque Values

ATA	Part	Torque (Nm)	Torque (lbf.ft.)
21	Coolant cooler drain plugs. Refer to Heat Exchanger Assembly - Remove procedure.	13 ± 1*	9.6 ± 0.7*
27	Elevator trim handwheel. Refer to Elevator Trim - Mechanical - Install procedure.	4*	3*
27	Elevator trim indication. Refer to Elevator Trim - Mechanical - Install procedure.	6.5*	4.8*
27	Counter lock nut. Refer to Elevator Trim - Mechanical - Adjust, align and calibrate.	15*	11.1*
28	Hose clamps tank connection hoses. Refer to Fuel Tank Assembly - Assemble procedure.	3	2.2
28	Check valve and relief valve fuel tank.	12	8.9
28	Gascolator filter bowl. Refer to Gascolator Filter - Install procedure.	25 ± 5	18.44 ± 3.69
28	Gascolator drain valve.	14 ± 2	10.29 ± 1.48
28	Fuel drain valve. Refer to Fuel Tank Assembly - Install procedure.	1 - 3	0.74 - 2.21
28	Adapter (2x) for fuel cooler. Refer to Fuel Cooler - Install procedure.	25 - 30	18.44 - 22.13
29	Dump valve. Refer to Dump Valve - Change = Remove and install.	25	18.4
*) Values including friction.			

Table 1 - Special Torque Values

ATA	Part	Torque (Nm)	Torque (lbf.ft.)
29	Needle valve (damp valve). Refer to Hydraulic Accumulator - Bleed. Refer to Hydraulic System - Depressurize hydraulics. Refer to Pump Pressure Switch and Pressure Limitations Valve - Operation Test.	6 - 10	4.4 - 7.4
29	Counter nut (dump Valve). Refer to Hydraulic Accumulator - Bleed. Refer to Hydraulic System - Depressurize hydraulics. Refer to Pump Pressure Switch and Pressure Limitations Valve - Operation Test.	8 - 10	5.9 - 7.4
29	Hydraulic control block (assembly bolts). Refer to Hydraulic Control Block - Assemble procedure.	4	3
29	Hight pressure valve counter nut. Refer to Hydraulic Accumulator - Pressure check.	6 - 8	4.4 - 5.9
29	Hydraulic accumulator clamps. Refer to Hydraulic Accumulator - Install procedure.	4 - 5	3.0 - 3.7
29	Hydraulic accumulator charging valve. Refer to Accumulator Charging Valve - Change = Remove and install.	25	18.4
29	Pressure relief valve. Refer to Pressure Relief Valve - Change = Remove and install.	25	18.4
29	Hydraulic pump pressure switch. Refer to Pressure Relief Valve - Change = Remove and install.	18	13.3.
29	Electric Connector. Refer to Pressure Relief Valve - Change = Remove and install.	3.5	2.6
29	Solenoid valve on control block. Refer to Solenoid Valve - Change = Remove and install.	25	18.4
29	Solenoid valve on shaft. Refer to Solenoid Valve - Change = Remove and install.	max. 5	max. 3.7
*) Values including friction.			

Table 1 - Special Torque Values

ATA	Part	Torque (Nm)	Torque (lbf.ft.)
29	Flow regulation valve M1.7. Refer to Flow Regulation Valve - Change = Remove and install.	25	18.4
29	Flow regulation valve M1.5. Refer to Flow Regulation Valve - Change = Remove and install.	25	18.4
32	Bolts attaching the main landing gear brake back plates to the caliper. Refer to Brake Caliper - Install procedure.	Refer to Cleveland/Parker Maintenance Manual, latest revision or placard on brake cylinder assy. For Beringer wheels and brakes refer to Beringer Maintenance Manuals, latest revision or placards on parts.	
32	Trailing arm main landing gear attachment bolts M12 Refer to Leg - Assemble procedure.	48*	35.4*
32	Main landing gear damper attachment bolts M12 Refer to Damper - Install procedure.	48*	35.4*
32	Main rotation axle of NLG, M16 crown nut. Torque to given value, thereafter tighten to next split pin hole. Refer to Nose Landing Gear - Install procedure.	140 ± 3	103.3 ± 2.2
32	Two drag brace rotation axles, M16 crown nut. Torque to given value, thereafter tighten to next split pin hole. Refer to Nose Landing Gear - Install procedure.	40 ± 3	29.5 ± 2.2
32	Main wheel castle nut. If OÄM 50-005 is installed: Refer to Main Wheels - Install procedure.	min. 5 35	min. 3.7 25.8
32	Nose wheel axle bolt. If OÄM 50-005 is installed: Refer to Nose Wheel - Install procedure.	14 - 19* 20	10.3 - 14.0* 14.8
32	If OÄM 50-005 is installed: MLG axles (all M10 bolts) Refer to Leg - Assemble procedure.	36	26.6
32	If OÄM 50-005 is installed: MLG axles (all M12 bolts) Refer to Leg - Assemble procedure.	80	59
*) Values including friction.			

Table 1 - Special Torque Values

ATA	Part	Torque (Nm)	Torque (lbf.ft.)
34	GPS Antenna. Refer to GPS Antenna - Change = Remove and install a new item.	2.5 ± 0.3	1.8 ± 0.22
35	Oxygen cylinder mounting bracket bolts (when filling of cylinder is completed) Refer to Oxygen Cylinder - Install procedure.	8 +0/-1*	5.9 +0/-0.74*
55	Horizontal stabilizer attachment bolt. Refer to Horizontal stabilizer - Install procedure.	45*	33.2*
57	A and B bolts. Refer to A and B Bolts - Install procedure.	32	23.6
61	Propeller to engine nut. Refer to Propeller assembly - Install procedure.	110 - 115	81.8 - 84.82
61	Four M8 screws attaching prop. de-ice brushes bracket to gearbox (if OÄM 50-011 is installed)	20 ± 2	14.8 ± 1.5
71	Bolts attaching the engine mount to the firewall. Top 2x Refer to Engine Mount - Install procedure.	80± 8*	59 ± 5.9*
71	Bolts attaching the engine mount to the firewall. Below 4x Refer to Engine Mount - Install procedure.	20 ± 2*	14.75 ± 1.48*
71	Shock mount bolts. Refer to Engine - Install procedure.	93 ± 9*	68.6 ± 6.6*
71	Coolant hollow bolts. Refer to Engine - Install procedure.	10 - 12*	7.4 - 8.9*
75	Pressure relief valve for liquid cooling system. Refer to Pressure Relief Valve - Install procedure.	12 - 15*	8.9 - 11.1*
75	Coolant level sensor. Refer to Coolant Level Sensor - Change = Remove and install.	25 - 30*	18.44 - 22.13*
75	Filler cap on coolant expansion tank. Refer to Cooling System - Bleed.	12 - 15*	8.9 - 11.1*
78	Exhaust nuts turbo charger outlet Refer to Exhaust - Install procedure.	40	29.5
78	Exhaust nuts turbo charger outlet (if MÄM 50-110 is installed) Refer to Exhaust - Install procedure.	25 - 30	18.44 - 22.13
*) Values including friction.			

Table 1 - Special Torque Values

ATA	Part	Torque (Nm)	Torque (lbf.ft.)
81	V-clamp turbo on charger. Refer to Engine Intercooler - Install procedure.	5.5 ± 0.5	4.0 ± 0.4
*) Values including friction.			

Table 1 - Special Torque Values

20-10-05 Torque Measurement

Description

1. Torque Measurement

For self-locking nuts, add the torque value of the locking device (friction or brake torque) to the value in the table. Read the friction value from the torque wrench before the nut seats.

Where a bolt is tightened from the bolt-head, add the value of the shaft friction (the friction of the bolt in the attached part) to the value in the table. Read the friction value from the torque wrench before the bolt seats.

20-30
STANDARD PRACTICES - ELECTRICAL SYSTEM

20-30-01 Standard Practices - Electrical System

Description

1. Standard Practices - Electrical

This Section gives you the standard practices for the electrical system. Modern airplanes reliability depends on proper function of the electric and electronic systems to a greater extent than previous certified airplanes. Maintenance carried out must be of good workmanship strictly considering the guidelines of AC 43-13.1B. Any time you work on the engine harness refer to Continental Operation & Maintenance Manual, latest revision.

The satisfactory performance of a modern airplane, like the DA 50 C, depends to a great extent, on reliability of its electrical systems. Improperly or carelessly maintained wiring can be a source of potential danger, and many malfunctions and failures of an electrical system can be traced to this cause. The continued proper performance of the electrical systems depends on the knowledge of the personal who do the inspection and repair.

It is therefore important that maintenance is carried out in accordance with the best available techniques and properly trained maintenance personal, in order to eliminate possible failures.

20-30-02 Thread Locking

Description

1. Thread Locking

Many electrical terminals are locked with electrical varnish or lacquer. If you release a terminal that has been thread locked with lacquer or varnish then use Loctite 222 or equivalent to lock the thread when you re-assemble the terminal.

20-30-03 Repair and Maintenance

Description

1. Repair and Maintenance

Repair and maintenance of the electrical system wiring, not covered in a separate document (e.g. Service Bulletin, Work Instruction) is limited to the extent of:

- Replacement of wires and cables.
- Replacement of ring terminals.

A. Crimp Tools

Following crimp tools are commonly used for crimp contacts in the DA 50 C. Refer to the equipment manufacturer for more details of the tools and their use.

- Tyco, P/N 69478-1
- Tyco CERTI-LOK, P/N 169400
- Tyco SUPER CHAMP FT, P/N 720781-3
- Tyco CERTI-CRIMP, P/N 91523-1
- Tyco CERTI-CRIMP, P/N 91512-1
- Commercial, M22520/1-01
- Commercial, M22520/2-01
- Commercial, M22520/37-01

B. Wires and Cables

(1) Wires

For the purpose of electric and electronic installation, an insulated wire consists of a metal conductor covered with a dielectric or insulating material. Wires used in the airplane contain stranded conductors for flexibility. The insulation may consist of several materials and layers to provide:

- Dielectric insulation
- Thermal protection
- Abrasion resistance
- Moisture resistance
- Fluid resistance

Approved wires for the DA 50 C:

- M22759/16
- M22759/34

(2) Cables

The term “cable”, may refer to any of the following:

- Two conductors twisted together (twisted pair).
- A single center conductor with a metallic braided outer conductor (coaxial cable).
- Two or more insulated conductors contained in a common covering (multi conductor cable).
- One or more insulated conductors with an overall shield (shielded cable).

Approved cables for the DA 50 C are:

- M27500
- M17/60-RG142
- M17/128-RG400

(3) Wire Marking

Locating a specific wire within a large wiring loom would be extremely difficult without individual identification of each wire, or cable. To simplify maintenance, each interconnecting wire and cable installed in the airplane is marked with a combination of numbers and letters. If a wire or cable must be replaced, the wire must be marked according to the wiring diagrams in Chapter 92.

C. Testing

After a wire, cable or ring terminal has been replaced, testing must be done as listed below:

- Visual inspection of the crimp connection (all leads within the crimp, insulation not crimped etc.).
- Check for continuity between the two ends of the conductor.
- Check for NO continuity between the conductor and aircraft electrical ground.
- The crimp contact is not damaged of bend.

20-70
STANDARD PRACTICES - ENGINE

20-70-01 Standard Practices - Engine

Description

1. Standard Practices - Engine

This Section gives you data about the fasteners used on the CD-300 engine installed in the DA 50 C airplane. It also gives you the procedures for tightening the fasteners.

Refer to Continental Operation & Maintenance Manual, lastest revision for more data.

The powerplant on the DA 50 C is installed using standard fasteners. Refer to 20-10 Bolt and Nut Types Used in the Airplane - Description for more information of standard bolts and nutsused on the DA 50 C. Refer to 20-10 Standard Torque Values - Description for information on standard torque values.

For special torque value refer to the Continental Repair Manual, latest revison.

20-70-02 Worm Drive Clamps

Description

1. Installation and Tightening Torques of Worm Drive Clamps

The figures and tables show the proper installation and the tightening torques of worm drive clamps.

A. Single Worm Drive Clamp

CAUTION

DO NOT PLACE A WORM DRIVE CLAMP ON A TUBE BEAD. THIS CAN DAMAGE THE HOSE AND MAY (IN CASE OF ENGINE CHARGE AIR INSTALLATION) CAUSE LOSS OF ENGINE POWER.

Figure 1 shows the installation with a single worm drive clamp.

B. Two Worm Drive Clamps

(1) Axial Placement

CAUTION

DO NOT PLACE A WORM DRIVE CLAMP ON A TUBE BEAD. THIS CAN DAMAGE THE HOSE AND MAY (IN CASE OF ENGINE CHARGE AIR INSTALLATION) CAUSE LOSS OF ENGINE POWER.

Figure 2 shows the installation with two worm drive clamps and single bead (axial placement),

Figure 3 shows the installation with two worm drive clamps two beads (axial placement) and

Figure 4 shows the installation with two worm drive clamps two beads (axial placement) and a hose with flexible bellows.

(2) (2) Radial Placement

Figure 5 shows the installation with two worm drive clamps (radial placement).

C. Tightening Torques for Worm Drive Clamps

CAUTION

WORM DRIVE CLAMPS MUST BE TIGHTENED ACCORDING TO THE TABLE BELOW. OVER-TIGHTENING A WORM DRIVE CLAMP CAN DAMAGE THE HOSE AND MAY (IN CASE OF ENGINE INSTALLATIONS) CAUSE LOSS OF ENGINE POWER.

CAUTION

FOR WORM DRIVE CLAMP INSTALLATION THE ENGINE MUST BE COLD. INSTALLATION ON A HOT ENGINE CAN CAUSE DAMAGE TO THE HOSE AND MAY (IN CASE OF ENGINE INSTALLATIONS) CAUSE LOSS OF ENGINE POWER.

CAUTION

DO NOT RE-TIGHTEN A WORM DRIVE CLAMP ON A SILICONE HOSE PERFORMING AN AIRPLANE INSPECTION UNLESS IT IS LOOSE. REFER TO THE TABLE BELOW FOR THE CORRECT TIGHTENING TORQUES OF WORM DRIVE CLAMPS.

(1) Tightening Torques for Clamp Widths Below 12 mm (0.47 in)

Clamp Diameter	Torque (Nm)	Torque (lbf.ft.)
8-12	2.5 ± 0.5	1.8 ± 0.4
10-160	3.0 ± 0.5	2.2 ± 0.4

Table 1 - Tightening Torques for Clamp Widths Below 12 mm (0.47 in)

(2) Tightening Torques for Clamp Widths of 12 mm (0.47 in) and Higher

Clamp Diameter	Torque (Nm)	Torque (lbf.ft.)
8-160	5.0 ± 0.5	3.7 ± 0.4

Table 2 - Tightening Torques for Clamp Widths of 12 mm (0.47 in) and Higher

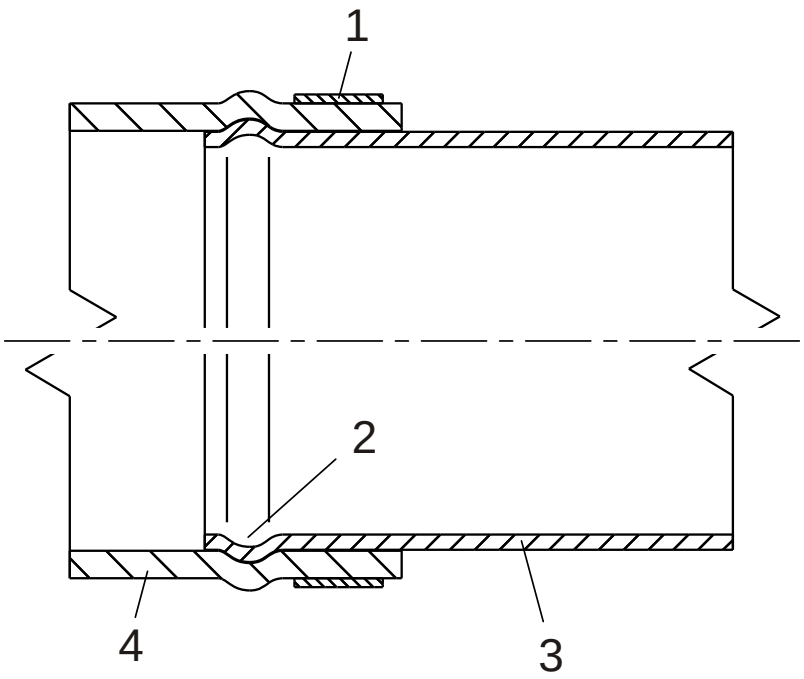


Figure 1 - Installation with Single Worm Drive Clamp

Legend

[1, Fig.1] Worm Drive Clamps

[2, Fig.1] Aluminium Tube Bead

[3, Fig.1] Aluminium Tube

[4, Fig.1] Silicon Hose

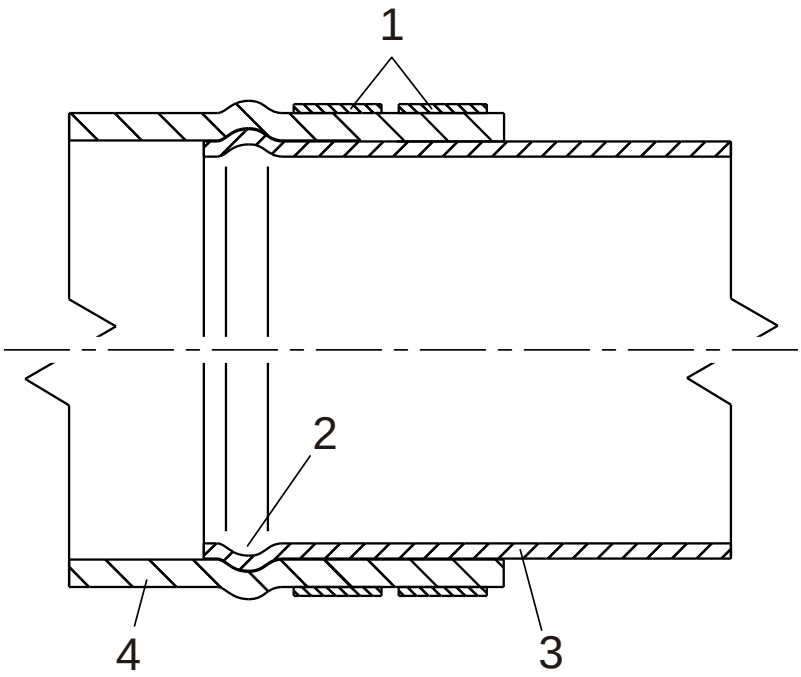


Figure 2 - Installation with Two Worm Drive Clamps and Single Bead (Axial Placement)

Legend

[1, Fig.2] Worm Drive Clamp

[2, Fig.2] Aluminium Tube Bead

[3, Fig.2] Aluminium Tube

[4, Fig.2] Silicon Hose

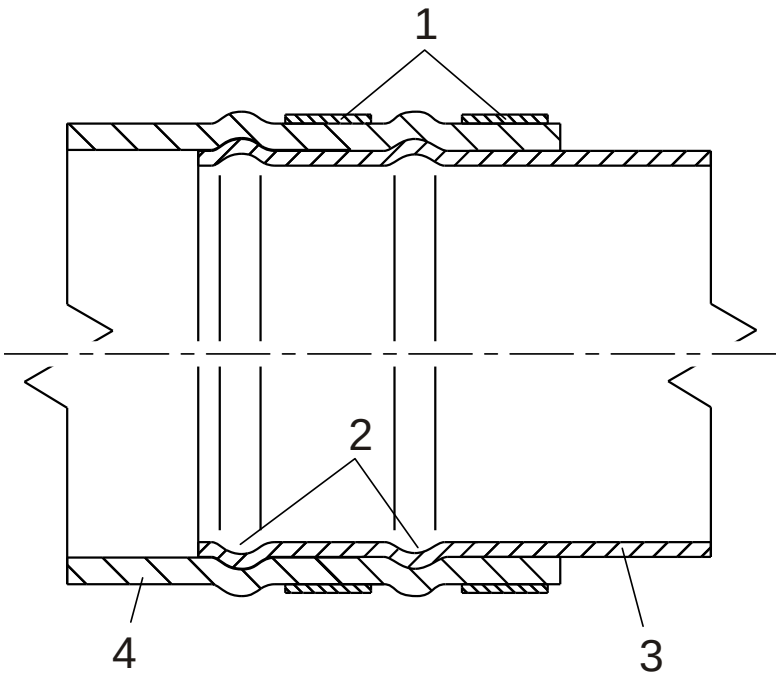


Figure 3 - Installation with Two Worm Drive Clamps Two Beads (Axial Placement)

Legend

[1, Fig.3] Worm Drive Clamps

[2, Fig.3] Aluminium Tube Beads

[3, Fig.3] Aluminium Tube

[4, Fig.3] Silicon Hose

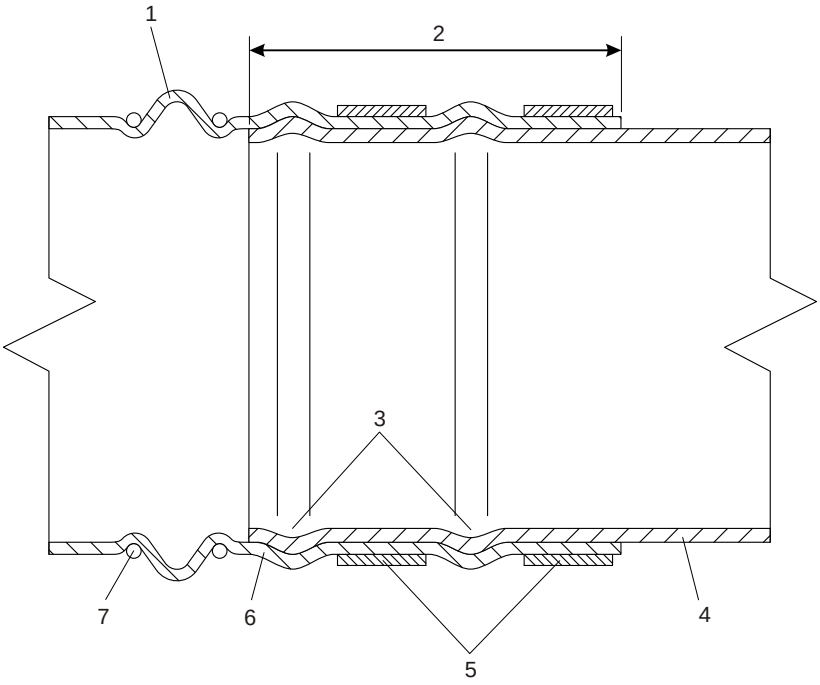


Figure 4 - Installation with Two Worm Drive Clamps Two Beads (Axial Placement) and a Hose with Flexible Bellows

Legend

[1, Fig.4] Expansion Bellows

[2, Fig.4] Maximum Insertion

[3, Fig.4] Aluminium Tube Beads

[4, Fig.4] AluminiumTube

[5, Fig.4] Worm Drive Clamps

[6, Fig.4] Silicon Hose

[7, Fig.4] Spring Steel Support Ring

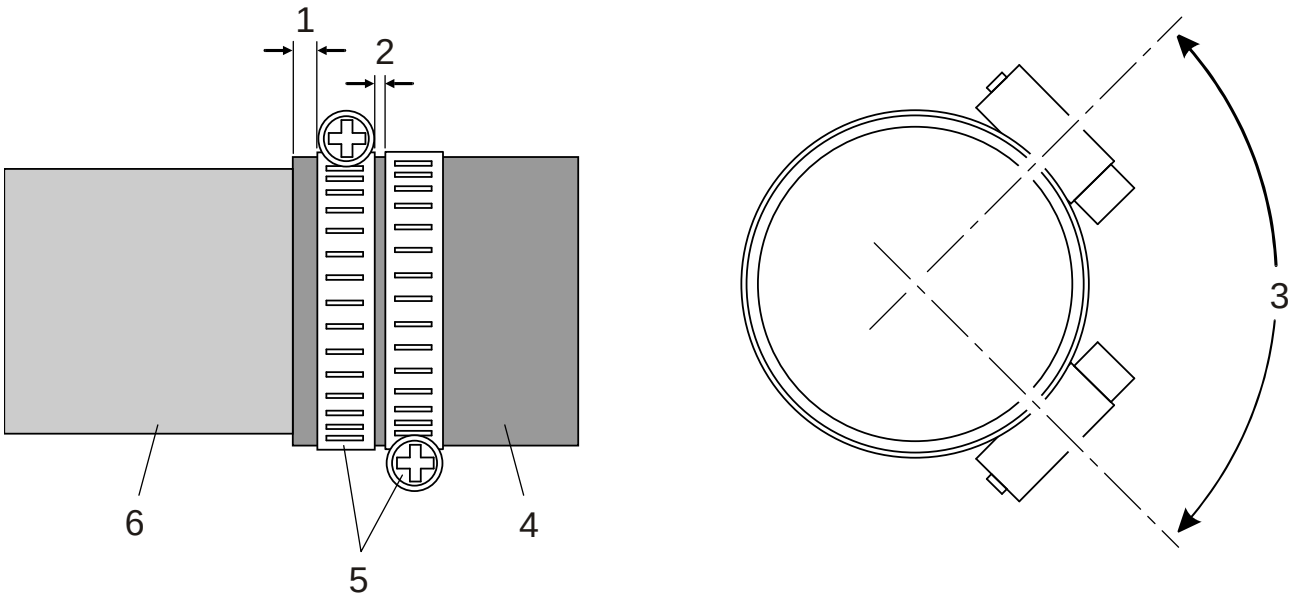


Figure 5 - Installation with Two Worm Drive Clamps (Radial Placement)

Legend

[1, Fig.5]	Minimum 4 mm
[2, Fig.5]	Minimum 2 mm
[3, Fig.5]	Minimum 90°
[4, Fig.5]	Silicon Tube
[5, Fig.5]	Hose Clamps
[6, Fig.5]	Connection Tube

21-00
AIR CONDITION, HEATING AND VENTILATION

21-00-01 Heating and Ventilation

Description

1. Heating and Ventilation

The heating and ventilation system provides the following main functions:

- Supply fresh, unheated air to the flight crew and passengers for cooling purposes, e.g. in a high ambient temperature environment;
- Provide cockpit heating to flight crew and passengers;
- Provide means for removal of fog or frost on the internal portion of the windshield.
- Provide means to isolate the cabin from contaminated external air with toxic gases.

Certain functions can be controlled/adjusted by the crew on the environmental control panel (ECS panel) which is located in the centre console of the cockpit.

A fan can be switched on by rotary knob located on the ECS panel, to increase the airflow through the system especially on the ground.

External (unheated) air leading to the fan eye is admitted through a conventional NACA type inlet. A recirculation valve installed upstream of the fan is used to isolate the external air supply from the cockpit. Basically, by selecting the recirculation mode, the external air supply is closed and only the air already present in the cabin is allowed to flow through the fan and back to the cabin. This procedure might be useful whenever rapid warm-up of the pilot compartment is necessary or for short time application during flight to prevent entering of contaminated air. That function is operated by a lever on the ECS panel called CIRCULATING AIR.

Downstream of the fan, the air flow is divided into two separate ducts with the aim of providing a heated or an unheated air supply. The incoming air is heated through heat transfer with the engine coolant in a heat exchanger.

The mixing valve installed downstream of the heat exchanger combines the external (or circulating) air flow and the heated air portion according to the TEMPERATURE position in the environmental control section of the centre console. An air distributor installed downstream of the mixing valve enables the flight crew to select the following settings/functions:

- Windshield defog/defrost only;
- Windshield defog/defrost and lower (feet area) air outlets;
- FEET and BODY air outlets.

and is operated by a lever on the environmental control panel called DIRECTION.

Windshield defog/defrost is achieved by 2 nozzles below the glare-shield. 4 nozzles are located near the feet of pilot and passengers. 2 nozzles are installed on the LH/RH side of the instrument panel for the comfort of the pilots, 2 nozzles in the rear middle console for the comfort of the passengers. These BODY air nozzles allow a change of the jet direction of each cone and the jet intensity can be regulated by rotation of the nozzle.

In emergency cases the cabin can be isolated by pulling the knob of the ECS shut-off valve. In this case the recirculation valve must remain in the FRESH AIR position The FAN will be automatically switched off.

This will completely separate cockpit from the outside.

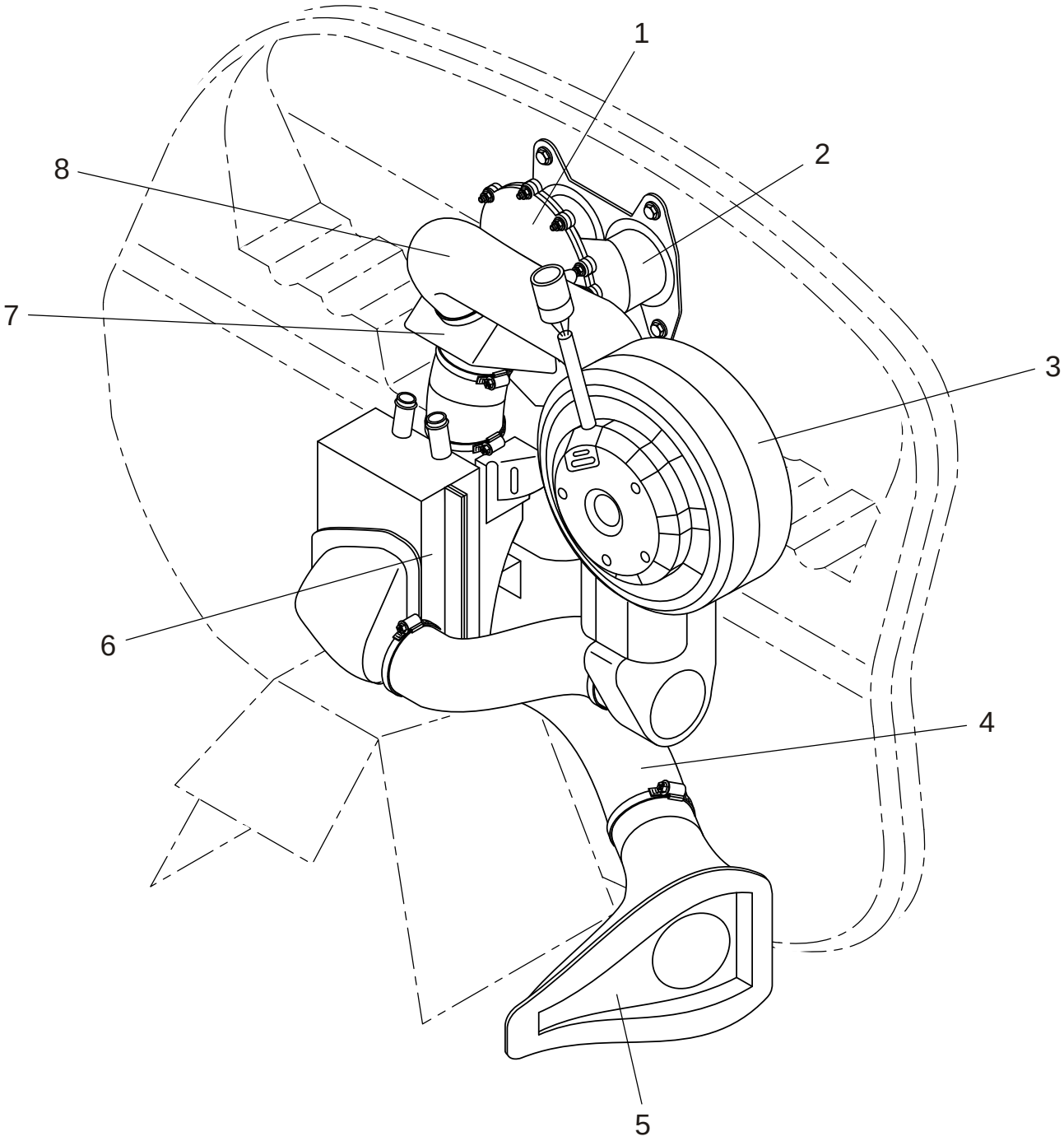


Figure 1 - Heating and Ventilation System

Legend

[1, Fig.1] ECS Shut-Off Valve

[2, Fig.1] Cabin Air Distribution

[3, Fig.1] ECS Fan Assy

[4, Fig.1] Fresh Air Hose

[5, Fig.1] NACA Air Inlet

[6, Fig.1] Cabin Heat Exchanger Assy

[7, Fig.1] ECS Temperature Control

[8, Fig.1] Air Hose

21-20
AIR DISTRIBUTION

21-20-01 Air Distribution

Description

1. Air Distribution

The DA 50 C has a ventilation system with integrated heating system. The ventilation system uses ambient or cabin air to ventilate or heat the cabin.

Warm air for windscreen defogging/defrosting and cabin heating is provided by a heat-exchanger located in the compartment behind the firewall.

This Section tells you about the air distribution system of the DA 50 C. Refer to Section 21-40 Heating - Description for details about the heat exchanger system and refer to Section 21-60 Temperature control - Description for details about the temperature mixing system.

The ambient air flows through a NACA duct into the system.

The air flows through a hose into the drain tube and thereafter through the recirculation valve to the fan.

A fan splits the airflow for hot air to a heat-exchanger and cold air directly to the temperature mixing valve.

The mixed air flows through a shut-off valve into the air distributor.

A. Drain

The DA 50 C heating and ventilation system includes a drain which ensures that water entering through the NACA inlet is drained off.

B. Recirculation Valve

A simple flapper valve is used to select the air recirculation mode of operation.

A control lever located in the cockpit center console controls the position of the flap of the recirculation valve via Bowden cable.

Moving the lever to FRESH AIR mode, fresh air flows through the valve to the fan.

Moving the lever to AIR RECIRCULATION mode, cabin air flows through the valve to the fan.

Refer to Figure 1.

C. Fan

A centrifugal fan is installed to create an airflow on the ground. The fan speed is controlled via a rotary knob located in the environmental control section in the cockpit center console.

On each fan outlet, a mesh is installed which prevents debris flowing into the system, potentially damaging or blocking heating and ventilation components, such as cabin heater and valves.

D. Shut-Off

In emergency cases the cabin can be isolated by pulling the knob of the ECS shut-off valve located on the LH side below the instrument panel. Via Bowden cable connection, a flap will interrupt the airflow.

This will completely separate the cockpit from the outside. For this mode the recirculation valve must remain in fresh air position.

E. Distributor

Air flow reaching the distributor inlet is guided through three different outlet ports. The airflow is guided downstream by flexible hoses to the defrost/defog, body nozzles and feet nozzles.

Two side-by-side flapper valves are controlled via one Bowden cable. With the DIRECTION lever in the cockpit center console the following settings are selectable:

- 1. DEFOG/DEFROST (windshield) outlets;
- 2. DEFOG/DEFROST and FEET outlets;
- 3. FEET and BODY outlets.

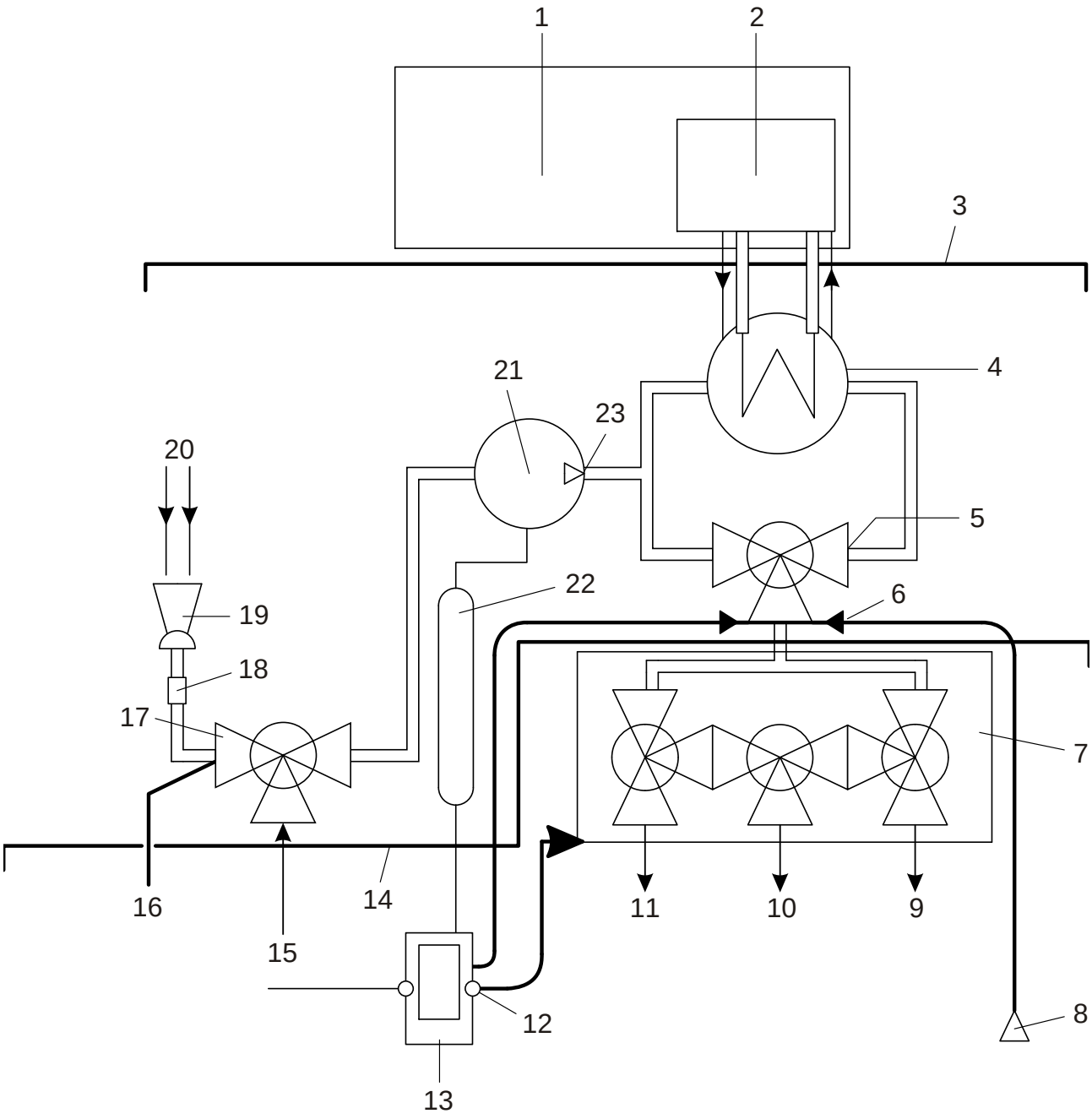


Figure 1 - Air Distribution Schematic

Legend

[1, Fig.1]	Powerplant
[2, Fig.1]	Cooling System
[3, Fig.1]	Firewall
[4, Fig.1]	Air Liquid Heat Exchanger
[5, Fig.1]	ECS Temperature Control
[6, Fig.1]	Shut-Off Valve
[7, Fig.1]	ECS Air Distribution
[8, Fig.1]	Shut Off Valve Actuation
[9, Fig.1]	Body Nozzles
[10, Fig.1]	Feet Nozzles
[11, Fig.1]	Defrost
[12, Fig.1]	ECS Control Panel
[13, Fig.1]	Cockpit
[14, Fig.1]	Main Front Bulkhead
[15, Fig.1]	Return Air Flow
[16, Fig.1]	Bowden Cable
[17, Fig.1]	ECS Recirculating Valve
[18, Fig.1]	ECS Drain
[19, Fig.1]	Fresh Air Inlet
[20, Fig.1]	Air Flow
[21, Fig.1]	Fan
[22, Fig.1]	Electrical Input
[23, Fig.1]	Mesh (Fan Outlet)

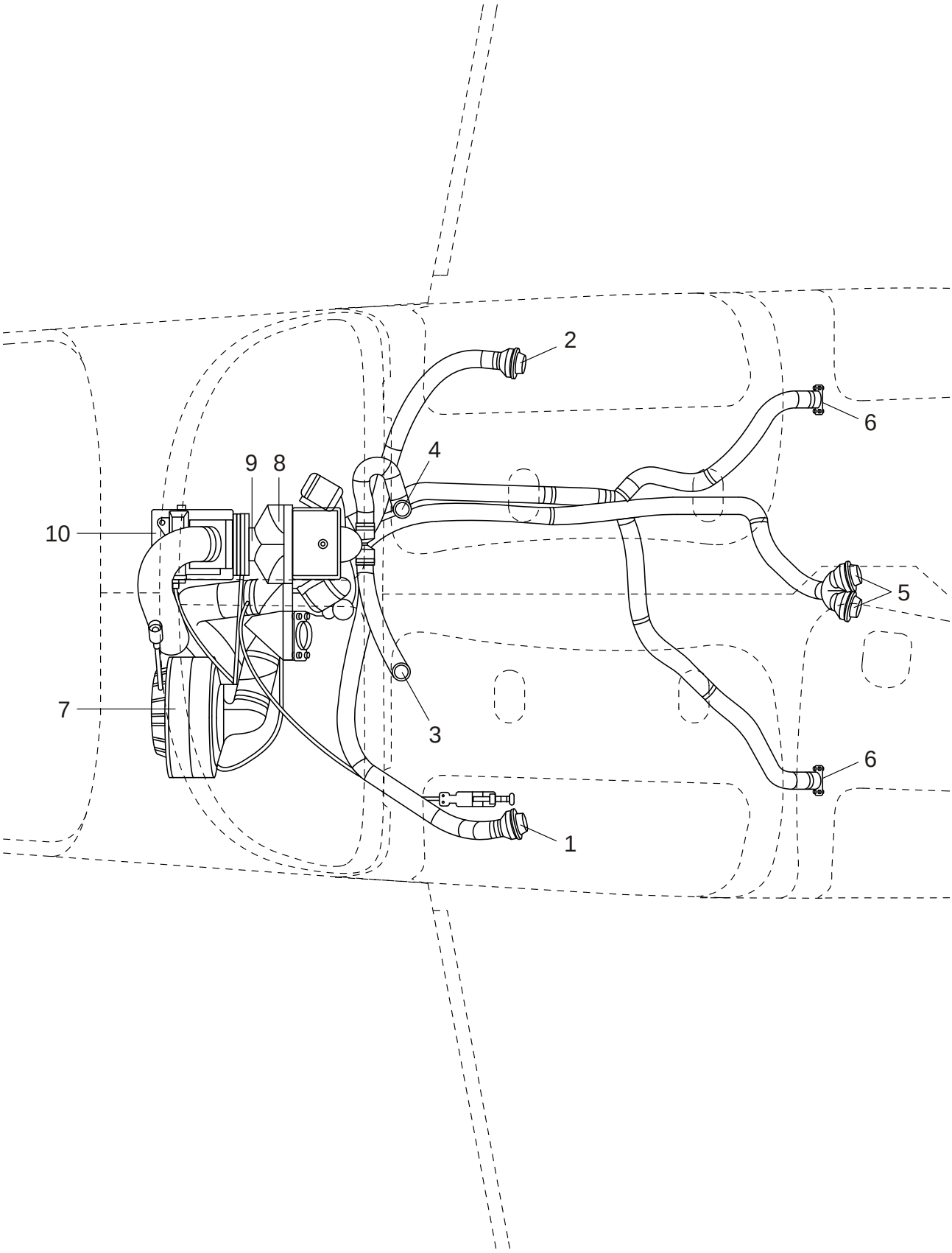


Figure 2 - Ventilation Air Distribution System Schematic

Legend

[1, Fig.2]	Cabin Air Outlet - Body Pilot
[2, Fig.2]	Cabin Air Outlet - Body Co-Pilot
[3, Fig.2]	Cabin Air Outlet - Feet Pilot
[4, Fig.2]	Cabin Air Outlet - Feet Co-Pilot
[5, Fig.2]	Cabin Air Outlet - Body Passengers
[6, Fig.2]	Cabin Air Outlet - Feet Passengers
[7, Fig.2]	ECS Fan Assy
[8, Fig.2]	Cabin Heat Exchanger
[9, Fig.2]	ECS Temperature Control
[10, Fig.2]	ECS Recirculating Valve

21-20-02 Air Distribution

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No air flows from the cabin air outlets.

1A. Examine the cabin air outlets.

Are the cabin air outlets closed?

Yes - go to step 1B.

No - go to step 1C.

1B. Open the air outlets.

1C. Examine the NACA air inlet duct.

Is the NACA air inlet duct blocked?

Yes - go to step 1D.

No - go to step 1E.

1D. Make sure the inlet duct is not blocked.

1E. Examine the flexible hoses.

Are the flexible hose(s) between the air inlet duct and cabin outlets blocked, damaged or disconnected?

Yes - go to step 1F.

No - go to step 1G.

1F. Repair or replace or reinstall the hoses as required.

1G. Check the shut-off control knob.

Is the shut-off control knob pulled out?

Yes - go to step 1H.

No - go to step 1I.

1H. Press the shut-off control knob.

1I. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Fan does not start to turn.

2A. Check the ELECT. MASTER switch.

Is the ELECT MASTER switch set OFF?

Yes - go to step 2B.

No - go to step 2C.

2B. Set ELECT. MASTER switch ON.

2C. Check the rotary knob.
Is the rotary knob in OFF position?
Yes - go to step 2D.
No - go to step 2E.

2D. Set rotary knob in other position.

2E. Examine the fan.
Is the fan blocked or damaged?
Yes - go to step 2F.
No - go to step 2G.

2F. Replace the fan.

2G. Check the shut-off control knob.
Is the shut-off control knob pulled out?
Yes - go to step 2H.
No - go to step 2I.

2H. Press the shut-off control knob.

2I. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

There is no control of the distributor.

3A. Examine distributor valve control cable.
Is the distributor valve control cable out of adjustment?
Yes - go to step 3B.
No - go to step 3C.

3B. Adjust the distributor valve control cable.

3C. *Is the distributor valve control cable broken?*
Yes - go to step 3D.
No - go to step 3E.

3D. Replace the distributor valve control cable.

3E. Examine related distributor valve.
Is the related distributor valve inoperative?
Yes - go to step 3F.
No - go to step 3G.

3F. Replace the distributor valve.

3G. Contact DAI.

21-20-03 Drain

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Drain

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the flexible hoses that are connected to the drain tube.

- Remove the worm drive clamps that attach the hoses to the air inlet and outlet.
- Remove the hoses from the air inlet and outlet.

(4) Remove the drain hose from the drain tube:

- Remove the hose clamp.

(5) Remove the drain tube:

- Remove the 4 nuts and washers from the bigheads.
- Move the drain tube clear of the compartment behind firewall.

21-20-04 Drain

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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3. Main Procedure

A. Install the Drain

(1) Move drain tube into position in the compartment behind the firewall.

(2) Install the drain tube:

- Install the 4 nuts and washers to the bigheads.
  Use new self-locking nuts.

(3) Connect the flexible hoses that connect the drain tube to the NACA inlet and recirculation valve:

- Move the worm drive clamps into position on the flexible hoses.
- Move the flexible hoses into position on the drain tube.
- Tighten the worm drive clamp.

(4) Connect the drain hose to the drain tube:

- Install the hose clamp.

(5) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-05 Air Recirculation Valve

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove the Air Recirculation Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Disconnect the control cable from the recirculation valve.

(4) Remove the recirculation valve:

- Remove the 4 nuts and washers.
- Move the recirculation valve clear of the compartment behind firewall.

21-20-06 Air Recirculation Valve

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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3. Main Procedure

A. Install the Air Recirculation Valve

(1) Move the recirculation valve into position at the compartment behind the firewall.

(2) Install the recirculation valve:

- Move the recirculation valve in position.
- Install the 4 bolts, and washers.

(3) Connect the control cable to the recirculation valve.

- Make sure that the flap position is the same as the control lever in the cockpit.

(4) Do a test for the correct operation of the recirculation valve.

Refer to 21-20 Air Recirculation Valve - Operation Test.

(5) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-07 Air Recirculation Inner Control Cable

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove an Air Recirculation Inner Control Cable

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the the cover plate from the environmental control section in the cockpit center console:

- Remove from each lever the knob (1 screw).
- Remove the 4 screws that attache the cover plate to the center console.
- Slide the cover plate clear of the control levers.

(4) Disconnect the control cable from the related control lever:

- Move the related control lever to the “fresh air” position.
- Loosen the screw that attaches the swivel fitting to the control lever.

(5) Disconnect the clevis from the control cable at the distributor valve-operating lever.

(6) Move the defective inner control cable clear of the cable outer sleeve.

Remove and retain the swivel fitting from the broken cable.

21-20-08 Air Recirculation Inner Control Cable

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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3. Main Procedure

A. Install an Air Recirculation Inner Control Cable

(1) Install the new inner control cable:

- Move the new inner cable into position in the outer sleeve.
- Connect the clevis from the control cable to the recirculation valve flap lever.
- Make sure that the distributor is in the “fresh air” position.
- Pass the cable through the swivel fitting at the control lever in the centre console.
- Connect the control cable to the related control lever:
  - Move the control lever to a position 3 mm (0.1 in) clear of the “fresh air” position. Put the cover plate to its location to check clearance.
  - Move the swivel fitting into position in the control lever.
  - Pass the cable through the swivel fitting.

- Tighten the swivel fitting screw.

(2) Install the cover plate from the environmental control in the cockpit:

- Move the cover into position at the center console.
- Install the 4 screws that attach the cover to the center console.
- Install from each lever the knob (1 screw).
- Make sure that the control lever move freely through the full range of movement.

(3) Do a test for the correct operation of the recirculation valve.

If necessary, adjust the recirculation valve cable.

Refer to 21-20 Air Recirculation Valve - Operation Test.

(4) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-09 Fan

Visual examination

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Visual Inspection of the Fan

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Make sure that the fan knob is set to OFF position.

- Set fan knob in the center console to OFF.

(3) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(4) Unplug the fan electrical connector.

(5) Examine the fan:

- Check GFRP housing for damage.
- Remove the 4 bolts and washers that hold the fan in the GFRP housing.
- Move the fan out of the housing and examine the impeller for damage.
  If the fan vanes are damaged /missing, replace the fan.
- Clean the housing from dirt or check for damages.
  - If the housing has a damage, repair the housing.
- Check the mesh at the fan outlets for contamination and clean it.

21-20-10 Fan

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install the Fan

(1) Move the fan into position at the fan housing.

(2) Install the fan:

- Install the 4 bolts and washers, that attach the fan to the fan housing.
- Tighten the bolts.

(3) Connect the plug of the fan.

- Make sure the fan knob in the center console is on OFF position.

(4) Do a functional test of the fan.

Refer to 21-20 Fan - Operation Test.

(5) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-11 Fan Housing

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove the Fan Housing

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Make sure that the fan knob is set to OFF position.

- Set fan knob in the center console to OFF.

(3) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(4) Disconnect the plug of the fan.

(5) Remove the flexible air hoses, that are connected to the fan housing:

- Remove the worm drive clamps, that hold the hoses to the air inlet and outlets.
- Remove the hoses from the air inlet and outlets.

(6) Remove the fan housing assembly:

- Remove the 3 bolts and washers on each side from the bracket to the engine mount.
- Move the fan housing assembly clear of the compartment behind the firewall.

21-20-12 Fan Housing

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install the Fan Housing

(1) Move the fan housing assembly into position at the compartment behind the firewall.

(2) Install the fan housing:

- Install the 3 bolts and washers on each side from the bracket, that attach the fan housing assembly to engine mount.

(3) Connect the flexible hose, that attaches the fan housing to the recirculation valve, temperature mixing valve and heat exchanger:

- Move the worm drive clamp into position on the flexible hose.
- Move the flexible hose into position on the fan housing assembly.
- Tighten the worm drive clamp.

(4) Connect the plug of the fan.

- Make sure the fan knob in the center console is on OFF position.

(5) Do a functional test of the fan.

Refer to 21-20 Fan - Operation Test.

(6) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-13 Shut-Off Valve

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Shut-Off Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Disconnect the control cable from the shut-off valve.

(4) Remove the shut-off valve:

- Remove the 4 nuts, washers and bolts, that hold the shut-off valve between the temperature mixing valve and distributor inlet.
- Move the shut-off valve clear of the ECS compartment.

21-20-14 Shut-Off Valve

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Shut-Off Valve

(1) Move the shut-off valve into position at the ECS compartment.

(2) Install the shut-off valve:

- Hold the shut-off valve in position.
- Install the 4 bolts, washers and nuts, that attach the shut-off valve between the temperature mixing valve and distributor inlet.

(3) Connect the control cable to the shut-off vavle.

- Fix the hoses with cable ties.

(4) Install the control cable on the distributor.

- Make sure that the lever is in the correct position.

(5) Do a test for the correct operation of the shut-off valve and if necessary adjust the shut-off valve control cable.

Refer to 21-20 Shut-Off Valve - Operation Test.

(6) Install the glare shield and the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(7) Do a test for the correct operation of the shut-off valve.

Refer to 21-20 Shut-Off Valve - Operation Test.

21-20-15 Shut-Off Control Cable

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove a Shut-Off Control Cable

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Disconnect the control cable from the related control flap:

- Move the related control flap to the open position.
- Loosen the screw, that attaches the swivel fitting to the control lever.
- Open the clevis.

(4) Disconnect the control cable from the cable holder unter the instrument panel LH side.

- Remove the nuts and knob from the Bowden cable.

(5) Remove the control cable.

21-20-16 Shut-Off Control Cable

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install a Shut-Off Control Cable

(1) Install the new control cable:

- Move the new control cable into position.
- Connect the clevis from the control cable to the related shut-off flap lever.
- Make sure that the shut-off is in the "open" position.
- Install the control cable under the LH side from the instrument panel.
  - Make sure that the control cable is in "pushed" position.
  - Tighten the nuts with the cable holder.
  - Tighten the knob on the control cable.

(2) Do a test for the correct operation of the related shut-off valve.

If necessary, adjust the shut-off valve cable.

Refer to 21-20 Shut-Off Valve - Operation Test.

(3) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-17 Air Distributor Valve

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove an Air Distributor Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the glare shield.

(4) Remove the flexible hoses, that attach to the distributor valve.

- Remove the cable ties, that hold the hose to the valve inlet.
- Remove the hose from the valve inlet.

(5) Disconnect the control cable from the distributor valve.

(6) Remove the distributor valve:

- Remove the 4 bolts, washers in the compartment behind the firewall, which hold the distributor valve.
- Move the distributor valve clear of the cabin.

21-20-18 Air Distributor Valve

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install an Air Distributer Valve

(1) Move the distributor valve into position in the cabin.

(2) Install the distributor vavle:

- Hold the distributor valve in position.
- Install the 4 bolts, washers in the compartment behind the firewall.

(3) Connect the flexible hoses to the air distributor valve:

- Fix the hoses with cable ties.

(4) Install the control cable on the distributor valve.

- Make sure that the flap position is the same as the control lever in the cockpit.

(5) Do a test for the correct operation of the related distributor valve.

Refer to 21-20 Air Distributor Valve - Operation Test.

(6) Install the glare shield and the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-19 Distributor Inner Control Cable

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove a Distributer Inner Control Cable

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the glare shield.

(3) Remove the the cover plate from the environmental control section in the cockpit center console:

- Remove the knob from each lever (1 screw).
- Remove the 4 screws that attache the cover plate to the center console.
- Slide the cover plate clear of the control levers.

(4) Disconnect the control cable from the related control lever:

- Move the related control lever to the “body/feet” position.
- Loosen the screw that attaches the swivel fitting to the control lever.
- Pull the cable of the swivel fitting.

(5) Disconnect the clevis from the control cable at the distributor valve-operating lever.

(6) Move the defective inner control cable clear of the cable outer sleeve.

Remove and retain the swivel fitting from the broken cable.

21-20-20 Distributor Inner Control Cable

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install a Distributer Inner Control Cable

(1) Install the new inner control cable:

- Move the new inner cable into position in the outer sleeve.
- Connect the clevis from the control cable to the related distributor valve flap lever.
- Make sure that the distributor is in the “body/feet” position.
- Pass the cable through the swivel fitting at the control lever in the centre console.
- Connect the control cable to the related control lever:
  - Move the control lever to a position 3 mm (0.1 in) clear of the “body/feet” position. Put the cover plate to its location to check clearance.
  - Move the swivel fitting into position in the control lever.
  - Pass the cable through the swivel fitting.

- Tighten the swivel fitting screw.

(2) Install the cover plate from the environmental control in the cockpit:

- Move the cover into position at the center console.
- Install the 4 screws that attach the cover to the center console.
- Install from each lever the knob (1 screw).
- Make sure that the control lever move freely through the full range of movement.

(3) Do a test for the correct operation of the related distributor valve.

If necessary, adjust the distributor valve cable.

Refer to 21-20 Air Distributor Valve - Operation Test.

(4) Install the glare shield cover.

21-20-21 Air Recirculation Valve

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Test/Adjust the Air Recirculation Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the air hose which connects drain tube with the recirculation valve:

- Remove the worm drive clamps that attach the hose to the air recirculation valve.
- Remove the hose from the air recirculaion valve.

(4) Test the operation of the air circulation valve:

- Set the related recirculation valve control lever to RECIRCULATING AIR position.
- Set the ELECT. MASTER switch to ON.
- Switch the fan to ON.
- Make sure that the flap of the recirculation valve fully opens.
  No suction shall be detected at the open connection at the recirculation valve.
- Set the related control lever in the cockpit to fresh air position.
  Suction shall be detected at the open conn. at the recirculation valve.
- Make sure that the flap of the recirculation valve fully closes.
- Switch the FAN to OFF.
- Set the ELECT. MASTER switch to OFF.

(5) If necessary, adjust the control cable:

- Set the related shut-off valve control lever to pushed (OPEN).
- On the swivel fitting in the center console:
  - Remove the cover plate from the environmental control in the cockpit
  - Loosen the screw in the swivel fitting and move the lever a small distance towards the RECIRCULATION position.
  - Tighten the screw in the swivel fitting.
- On the control cable clevis:
  - Loosen the nuts to move the control cable into the desired position.
  - Tighten the nuts.

(6) Repeat step A.(4) and step A.(5) as necessary to get the system work properly.

(7) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-22 Fan

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Test a Fan

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the air hose which connects drain tube with the recirculation valve:

- Remove the worm drive clamps that attach the hose to the air recirculation valve.
- Remove the hose from the air recirculation valve.

(4) Set the ELECT. MASTER switch to ON.

(5) Test the operation of the fan control:

- Set the fan control knob from OFF to another position.
- Make sure the fan is running and the air flow increases when the knob rotate clockwise.
  Check at an air outlet in the cockpit.
- Pull the ECS shut-off control cable to stop the fan.
- Push the ECS shut-off control to restart the fan.
- Hear whether the fan is running smoothly.

(6) If the fan works not correct:

- Check the wiring of the fan for damages.
  Repair or replace the wire as required.
- Check the electrical connector of the fan.
  Repair or replace the wire as required.
- Check the micro switch from the ECS shut-off.
  Refer to 21-20 Shut-Off Valve - Operation Test.
- Remove or replace the fan and clean the housing from dirt.
  Refer to 21-20 Fan - Visual examination.

(7) Repeat step A.(5) and step A.(6) as necessary to get the fan working.

(8) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-23 Shut-Off Valve

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Test/Adjust the Air Shut-Off

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Test the operation of the shut-off valve:

- Switch ELECT. MASTER switch to ON.
- Switch fan to ON.
- Open the BODY valves.
- Pull to shut-off handle to the stop.

Check that the airflow on the adjacent BODY valve stops immediately and that the fan stops working.

(3) If necessary, adjust the control cable:

- Remove the engine cowlings.
  Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.
- Set the related shut-off valve control lever to pushed (OPEN).
- On the control cable clevis side loosen the nuts to move the control cable into the desired position.
- Tighten the nuts.

(4) If necessary, adjust the micro switch position.

- Move the flap lever on closed position.
- Loosen the 2 bolts and nuts.
- Move the micro switch into the correct position.
- Tighten the 2 bolts and nuts.

(5) Repeat step A.(2), step A.(3) and step A.(4) as necessary to get the system work properly.

(6) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-20-24 Air Distributor Valve

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Test/Adjust the Air Distributor Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Test the operation of the air distributor valve:

- Switch ELECT. MASTER switch to ON.
- Switch fan to ON.
  - Set the related control leaver in cockpit to DEFROST position.
  - Make sure that the main airstream flows from the defrost nozzles.
  - Set the related control leaver in cockpit to DEFROST & FEET position.
  - Make sure that the main airstream flows from the DEFROST & FEET nozzles.
  - Set the related control leaver in cockpit to BODY & FEET position.
  - Make sure that the main airstream flows from the BODY & FEET nozzles.

(3) If necessary, adjust the control cable:

- Remove the glare shield.
- Set the related distributor valve control lever to DEFROST.
- On the swivel fitting in the center console:
  - Remove the cover plate from the environmental control section in the cockpit centre console.
  - Loosen the screw in the swivel fitting and move the lever a small distance towards the DEFROST & FEET position.
  - Tighten the screw in the swivel fitting.
- On the control cable clevis on the distributor:
  - Loosen the nuts to move the control cable into the desired position.
  - Tighten the nuts.
- Reinstall the glare shield.

(4) Repeat step A.(2) and step A.(3) as necessary to get the correct adjustment.

21-40
HEATING

21-40-01 Heating

Description

1. Heating

The DA 50 C has a heating system, that is integrated in the ventilation system.

This section tells you about the engine heat exchanger. Refer to Section 21-20 Air Distribution - Description for data about the air distribution system and section 21-60 Temperature control - Description for data about the temperature control system.

2. Description and Operation

With the engine running, or when the airplane is in flight, ambient air or recirculated air can be directed through the heat exchanger.

Hot coolant from the engine liquid cooling system flows through the core of the heat exchanger. The coolant is taken from upstream of the engine cooling system thermostatic valve. The temperature of the ambient air is raised as it flows through the matrix of the heat exchanger.

Two flexible airhoses connect the cabin heat exchanger to the ventilation system. Two coolant hoses connect the cabin heat exchanger to the engine liquid cooling system.

The cabin heat exchanger is mounted on the engine mount.

3. Maintenance Practices

The maintenance practices in this section tell you how to replace a heat exchanger and how to bleed the heat exchanger coolant system. Refer to Section 75-00 Cooling System - Description for more data about the engine liquid cooling system.

21-40-02 Heating

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

No warm air flows from the cabin air outlets.

1A. Examine the cabin air outlets.
Are the cabin air outlets closed?
Yes - go to step 1B.
No - go to step 1C.

1B. Open the air outlets.

1C. Examine the NACA air inlet duct.
Is the NACA air inlet duct blocked?
Yes - go to step 1D.
No - go to step 1E.

1D. Make sure the inlet duct is not blocked.

1E. Examine the flexible hoses.

Are the flexible hose(s) between the air inlet duct and cabin outlets blocked, damaged or disconnected?

Yes - go to step 1F.

No - go to step 1G.

1F. Repair or replace or reinstall the hoses as required.

1G. Check the engine coolant temperature.

Is the engine coolant temperature low?

Yes - go to step 1H.

No - go to step 1I.

1H. Allow the engine to warm-up to normal operating temperature.

1I. Examine the heat exchanger and heat exchanger supply system.

Is air trapped in the engine heat exchanger or heat exchanger coolant supply?

Yes - go to step 1J.

No - go to step 1K.

1J. Bleed the heat exchanger and heat exchanger supply system.

1K. *Is the engine heat exchanger matrix blocked or damaged?*

Yes - go to step 1L.

No - go to step 1M.

1L. Replace the heat exchanger.

1M. Contact DAI.

21-40-03 Heat Exchanger Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Heat Exchanger Assembly

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

WARNING

IF THE COOLANT SYSTEM IS HOT IT MAY BE PRESSURIZED. IF YOU BREAK INTO A PRESSURIZED SYSTEM YOU MAY SPILL HOT COOLANT. HOT COOLANT CAN CAUSE INJURY TO PERSONS.

(3) Release any over pressure from the coolant system:

- Turn the cap of the coolant tank a small distance to release the pressure.
  Refer to 75-20 Cooling System - Description.
- When the pressure has fully released, close the cap again tightly.

(4) Remove the flexible air hose that connects the heat exchanger outlet to the mixing valve.

- Remove the worm drive clamp.
- Remove the flexible hose.

(5) Remove the flexible hose that connects the heat exchanger inlet with the fan housing.

- Remove the worm drive clamp.
- Remove the flexible hose.

(6) Remove the shut-off and the temperature mixing valve from the air distributor inlet.

(7) Remove the heat exchanger drain from the bottom:

- Remove the hose clamp.

(8) Drain the engine coolant system by one coolant cooler drain:

- Remove safety wire.
- Remove drain screw and drain approx. 6 l of the coolant.

(9) Reinstall the coolant cooler drain plugs:

- Install screw with aluminium ring.
  Use new aluminium ring.
  Tighten with 13 Nm (9.6 lbf.ft.). Value includes frictions.
  Refer to Special Torque Values - Description.

(10) Remove the flexible hoses that connect the heat exchanger to the engine cooling system:

Make sure that the system is not pressurized.

- Remove the worm drive clamp from the heat exchanger coolant supply connection.
  At the heat exchanger.
- Remove the worm drive clamp from the heat exchanger coolant return connection.
  At the heat exchanger.
- Remove both the flexible hoses from the heat exchanger.
  Use a suitable container to catch spilt coolant.

(11) Remove the heat exchanger assembly from the engine mount:

- Remove the bolts and washers that attach the heat exchanger assembly to the engine mount.
- Move the heat exchanger assembly clear of the airplane and drain the contents of the heat exchanger into a suitable container.

21-40-04 Heat Exchanger Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Heat Exchanger Assembly

(1) Install the heat exchanger assembly:

- Move the heat exchanger assembly into position in the engine mount.
- Install the bolts and washers that attach the heat exchanger assembly to the engine mount.
- Tighten the bolts.

(2) Install the drain hose on the bottom from the heat exchanger:

- Install a hose clamp.

(3) Install the flexible hose that connect the heat exchanger inlet with the fan:

- Move the flexible hose into position at the inlet on the heat exchanger assembly.

- Install the worm drive clamp and tighten the worm drive clamp.

(4) Install the flexible hoses that connect the coolant supply and return to the heat exchanger:

- Move the supply hose into position on the heat exchanger supply pipe.
  Make sure that the hose is located correctly.
- Move the return hose into position on the heat exchanger return pipe.
  Make sure that the hose is located correctly.
- Install the worm drive clamps onto the hoses and tighten the clamps.

(5) Install the shut-off valve and the temperature mixing valve:

- Hold the temperature mixing valve in position.
- Install the 4 bolts, washers and nuts.
  Use new self-locking nuts.

(6) Install the flexible hose that connect the heat exchanger outlet with the temperature mixing valve:

- Move the flexible hose into position at the inlet on the heat exchanger assembly.
- Install the worm drive clamp and tighten the worm drive clamp.

(7) Replenish the coolant supply and then bleed the engine liquid cooling system.

Refer to 75-20 Cooling System - Bleed.

(8) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(9) Do an engine ground test and make sure that:

- The cooling system operates correctly.
- That there are no leaks.

(10) If necessary, replenish the liquid cooling system.

21-50
AIRCONDITIONING SYSTEM (RACC)

21-50-01 Airconditioning System (RACC System)

Description

1. Airconditioning System (RACC System)

With OÄM 50-002 an airconditioning system (RACC - recirculating air cabin cooling - system) is installed. The RACC system is an independent subsystem of the airplane and is electrically powered. It consists of the central unit (installed aft of baggage compartment), a control panel (in the cabin, in front of the central headliner device unit) and isolated hoses which lead the cool air from the central unit to the eyeball vent overhead air outlets.

A. Central Unit

WARNING

ALL MAINTENANCE AND REPLENISHMENT WHICH REQUIRES TO OPEN AND DEPRESSURIZE THE REFRIGERANT CIRCUIT MUST BE CARRIED OUT BY AUTHORIZED PERSONNEL ACCORDING TO NATIONAL AND INTERNATIONAL REGULATIONS FOR REFRIGERANT SYSTEMS.

The central unit operates with a refrigerant R134a vapor cycle cooling circuit. The system requires electrical power (28 V DC, max. 65 A) for operation, which is provided by alternator 2.

The central unit is subdivided into the following components:

- Compressor assembly (part of refrigerant circuit).
- Receiver/Dryer assembly (part of the refrigerant circuit).
- Condenser assembly (part of refrigerant circuit).
- Evaporator assembly (part of refrigerant circuit).
- Refrigerant hoses, including filling ports (parts of refrigerant circuit).
- Condenser radial fan.
- Evaporator radial fan.
- Electrical control system, including cooling fan.

Refer to Figure 1 for a system schematic of the RACC system.

NOTE

The refrigerant vapor cooling system is a hermetically sealed and pressurized circuit and contains the refrigerant R134a.

B. Control Panel

The control panel is situated in front of the headliner device unit in the cabin. It is electrically connected to the RACC controller and provides all necessary elements to control the center unit. An integrated display shows the preset air temperature.

Refer to Figure 2 for details about the RACC control panel.

C. Operation

If electrical power is provided to the RACC system, the blue LED on the control panel flashes.

The control panel of the RACC system in front of the central headliner device unit allows the crew to control the fan speed and the cabin temperature. A two digit display shows the preset cabin air temperature in °C. A push-button is used to set the RACC system to ON (if short depressed; display is illuminated and actual cabin temperature is displayed) and OFF (if pressed and held for approximately three seconds).

During power-up the software version of the control panel is displayed.

The central unit is located aft of the baggage compartment. The RACC controller is located on top of the condenser unit and controls the evaporator, condenser and controller fan and the compressor with respect to the control panel settings. With the control panel set to ON and a temperature preset lower than the current cabin air temperature, the refrigerant cooling circuit is activated. An electrically powered compressor takes the low-pressure low-temperature refrigerant gas and compresses it to a high-pressure and high temperature gas. The hot refrigerant gas is cooled down in the condenser and condenses to a subcooled liquid state. A radial condenser fan forces outside air through the condenser coils and vents the thus heated air overboard. The dryer / receiver bottle separates moisture from liquid and filters contaminations from refrigerant. The expansion valve controls the amount of refrigerant liquid flowing to the evaporator. The refrigerant boils in the evaporator and turns back into a low-pressure low-temperature gas while cooling the coils of the evaporator. A radial evaporator fan forces cabin air through the evaporator and thus remove heat and moisture from the cabin air. The cool cabin air cannot hold the moisture and water condensates on the evaporator cooling coils. The condensate is collected in the the evaporator air ducts and is drained overboard. The refrigerant gas returns to the compressor.

A low and high pressure switch installed to the receiver/dryer safeguards the refrigerant circle against failures, like leakage or overpressure. A thermostat installed on the compressor shell safeguards the compressor against overheating. A thermostat on the evaporator mesh safeguards the evaporator from freezing. An activation of one of these safety devices leads to a shut-down of the compressor motor.

Four vents in the rear baggage compartment cover enable cabin air to enter the RACC compartment ensuring sufficient compartment ventilation. A separate evaporator air outlet duct additionally promotes cooling of the compressor.

D. Fault Indicator Output

The controller indictes a fault condition by flashing the on board fault LED.

The flashing pattern will be ¼ second on and ¼ second off for each count then dwell 2½ seconds and repeat until the fault(s) are cleared. Listend below are the fault codes.

Flashes	Fault
1	Over Current
2	Over Voltage
3	Under Voltage
4	Controller Overheat
5	Motor Overheat
6	Stalled
7	Low Speed
8	Startup Failed

Table 1 - Fault Indication on Controller by Flashing LED

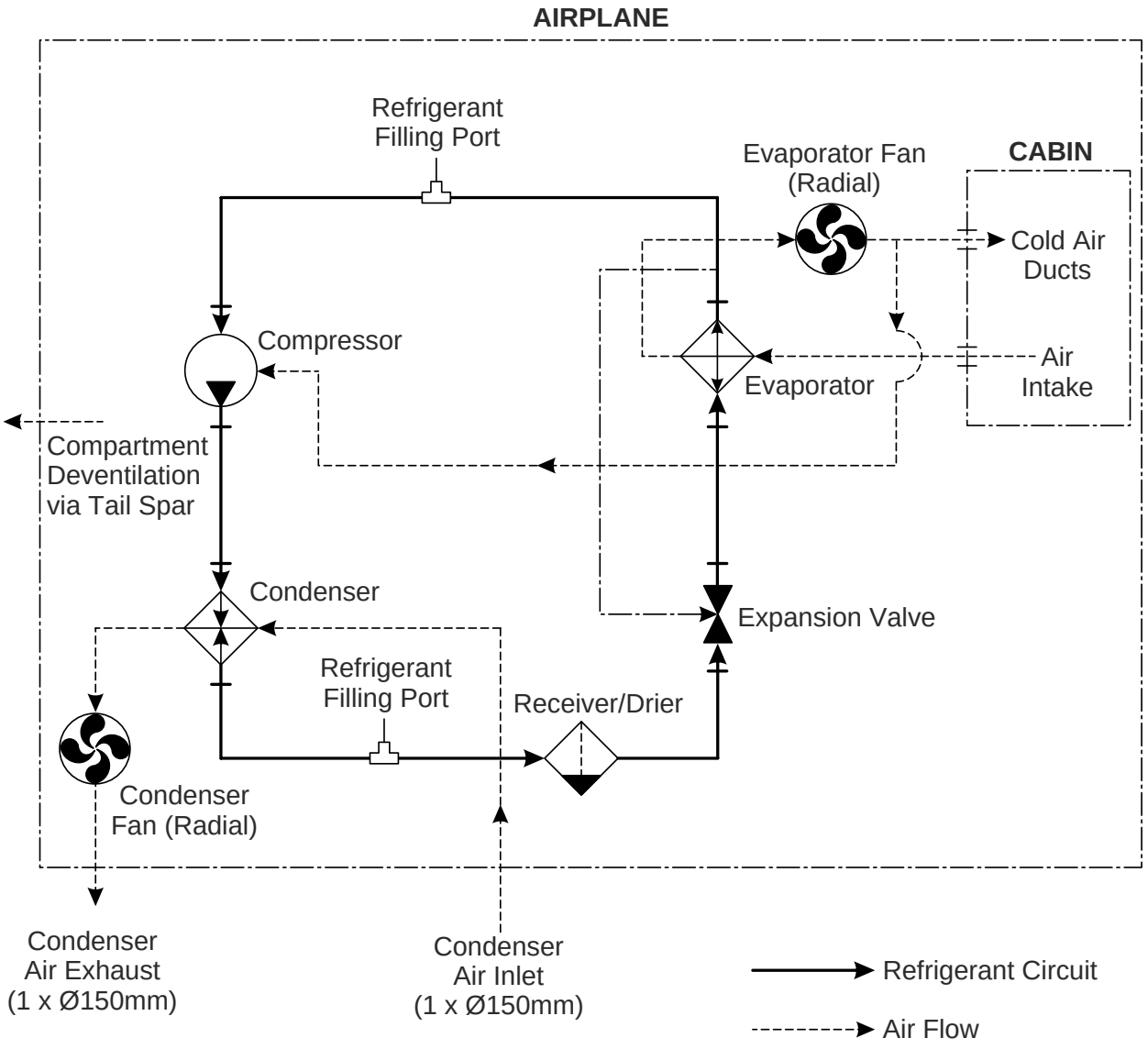


Figure 1 - RACC System System Schematic

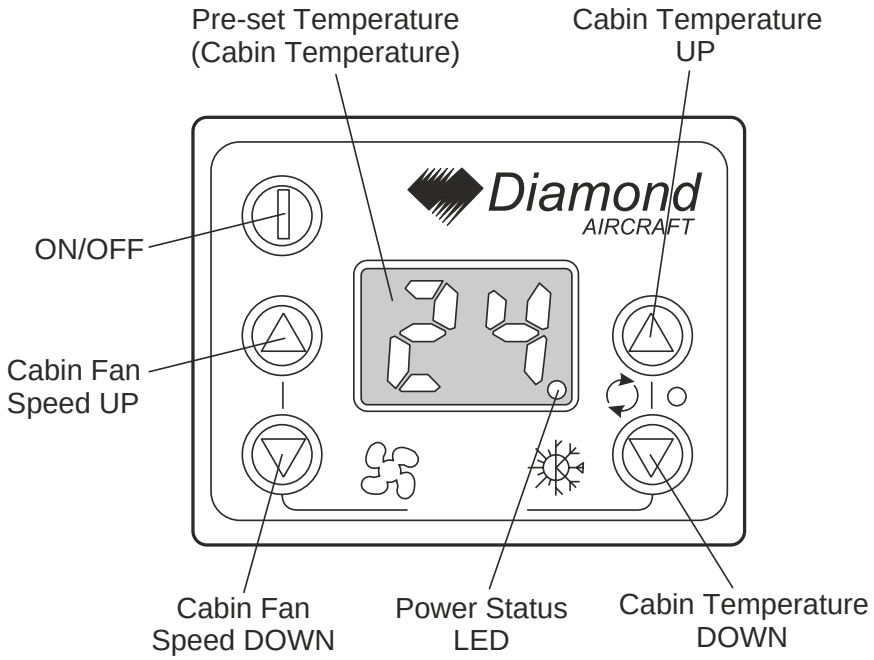


Figure 2 - RACC Control Panel

21-50-02 Airconditioning System (RACC System)

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The Power Status LED on control panel does not illuminate.

1A. Examine the RACC circuit breakers.

Are the RACC circuit breakers open?

Yes - go to step 1B.

No - go to step 1C.

1B. Set the RACC circuit breakers.

1C. Examine the RACC control panel.

Is the RACC control panel defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the RACC control panel.

1E. Examine alternator 2.
Is alternator 2 defective?
Yes - go to step 1F.
No - go to step 1G.

1F. Check RACC power supply of the airplane.

1G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Central unit does not power up.

2A. Examine the control panel.
Is the control panel defective?
Yes - go to step 2B.
No - go to step 2C.

2B. Replace the control panel.

2C. Examine the electrical control unit.
Is the electrical control unit defective?
Yes - go to step 2D.
No - go to step 2E.

2D. Replace the electrical control unit.

2E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Insufficient cooling.

3A. Examine hot air outlet on fuselage bottom.
Is the hot air outlet on fuselage bottom blocked?
Yes - go to step 3B.
No - go to step 3C.

3B. Remove blockage.

3C. Perform a leak test.
Is there leakage in the refrigerant circuit?
Yes - go to step 3D.
No - go to step 3E.

3D. Repair leak.
Charge the system.

3E. Examine the condenser.
Is the condenser faulty?
Yes - go to step 3F.
No - go to step 3G.

3F. Check air filter and condenser coils for dirt accumulation and remove dirt. / Replace air filter.

3G. Examine the evaporator.

Is the evaporator faulty?

Yes - go to step 3H.

No - go to step 3I.

3H. Check air filter and condenser coils for dirt accumulation and remove dirt. / Replace air filter.

3I. Examine the expansion valve.

Is the expansion valve faulty?

Yes - go to step 3J.

No - go to step 3K.

3J. Contact DAI.

3K. Examine the compressor.

Is the compressor faulty?

Yes - go to step 3L.

No - go to step 3M.

3L. Replace the compressor.

3M. Examine electrical power source.

Is the electrical power source insufficient?

Yes - go to step 3N.

No - go to step 3O.

3N. Check ground power source respective RACC power supply of airplane.

3O. Examine receiver/dryer assembly.

Is the receiver/dryer assembly inoperative?

Yes - go to step 3P.

No - go to step 3Q.

3P. Replace receiver/dryer assembly.

3Q. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Fault indication "FP" on control panel.

4A. Perform leak test.
Is there leakage in the refrigerant circuit (low pressure failure)?
Yes - go to step 4B.
No - go to step 4C.

4B. Repair leakage.

4C. Check refrigerant circle for clogging.
Is there clogging within refrigerant system (high pressure failure)?
Yes - go to step 4D.
No - go to step 4E.

4D. Replace receiver/dryer assembly.

4E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Fault indication "OP" or "SC" on control panel.

5A. Examine cabin temperatur sensor.

Is cabin temperatur sensor faulty?

Yes - go to step 5B.

No - go to step 5C.

5B. Replace cabin temperatur sensor.

5C. Check wiring of cabin temperatur sensor to control panel.

Is there a short circuit?

Yes - go to step 5D.

No - go to step 5E.

5D. Repair wiring.

5E. Contact DAI.

21-50-03 Airconditioning System (RACC System)

System Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A.

(1) Perform an engine ground test.

Refer to 71-00 Engine - Operation Test.

(2) Set the engine to 1000 to 1200 RPM.

The test procedure may be alternatively performed with power supplied by engine or GPU.

(3) Push the ON/OFF button on the RACC control panel once to switch the RACC system ON.

The preset temperature display on the RACC control panel must illuminate.

(4) Push the Preset Temperature DOWN button until the preset temperature shows ‘LO’ and switch the cabin fan speed to the highest stage (“3") .

(5) Verify that the cabin air temperature at outlet is significantly lower than the outside air temperature. Perform test at ambient temperature of (20-30 °C) and relative humidity of (20-90 %). The cabin air temperature at outlet must be at least 8-15 °C less than the ambient temperature.

(6) Set the cabin air preset temperature to a convenient temperature level.

Use the preset temperature UP and DOWN buttons on the control panel.

(7) Push the ON/OFF button on the RACC control panel for approximately 3 second to switch the RACC system to OFF.

21-50-04 RACC Central Unit

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the RACC Central Unit

(1) Fold the passenger seats.

(2) Remove the baggage rear cover.

(3) Remove the distributor from the evaporator fan housing.

- Cut and remove tie wraps.
- Remove compressor coolant hose at distributor.

(4) Remove the hot exhaust air duct from the RACC central unit.

Remove cover and metal mesh from condenser air outlet at the bottom of the RH fuselage shell.

Use cutter to disconnect sealant between airduct on RACC pedestal (access through the outlet duct).

(5) Unplug the electrical connections from the RACC central unit to:

- 2 heavy connectors at the RACC central unit terminal board (LH).
- 1 plug coming from the RACC control panel.

(6) Remove the four bolts which connect the base plate of the RACC pedestal.

(7) Lift and slide the RACC central unit forward.

Use 2 rails.

(8) Lift the RACC central unit clear of the airplane.

21-50-05 RACC Central Unit

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the RACC Central Unit

(1) Clean pedestal and upper hot air outlet duct from remainings of selant.

If necessary replace tesa moll.

(2) Check sealant cascade on condenser air inlet on pedestal for correct orientation.

(3) Lift the RACC central unit into the airplane.

(4) Slide the RACC central unit backward. Make sure to position the baseplate of the RACC central unit above the RACC pedestal.

Use 2 rails.

(5) Install four bolts which connect the baseplate of the RACC central unit to the RACC pedestal.

(6) Connect the electric cables to the RACC central unit to:

- 2 heavy connectors of the RACC central unit terminal board (LH).
- 1 plug coming from control panel.

(7) Seal the hot exhaust air duct to the RACC pedestal (access through the outlet duct).

Use sealant material "easy gasket".

Install metal mesh and cover to condenser air outlet at the bottom of the RH fuselage shell.

(8) Install the distributor to the evaporator fan housing. Check sealant prior installation of distributor for correct placement.

- Install with 2 tie wraps.
- Install compressor coolant hose to distributor with tie wrap.

(9) Install the baggage rear cover.

(10) Bring the passenger seats into upright position.

(11) Perform a cooling test of the RACC system.

Refer to 21-50 Airconditioning System (RACC System) - System Test.

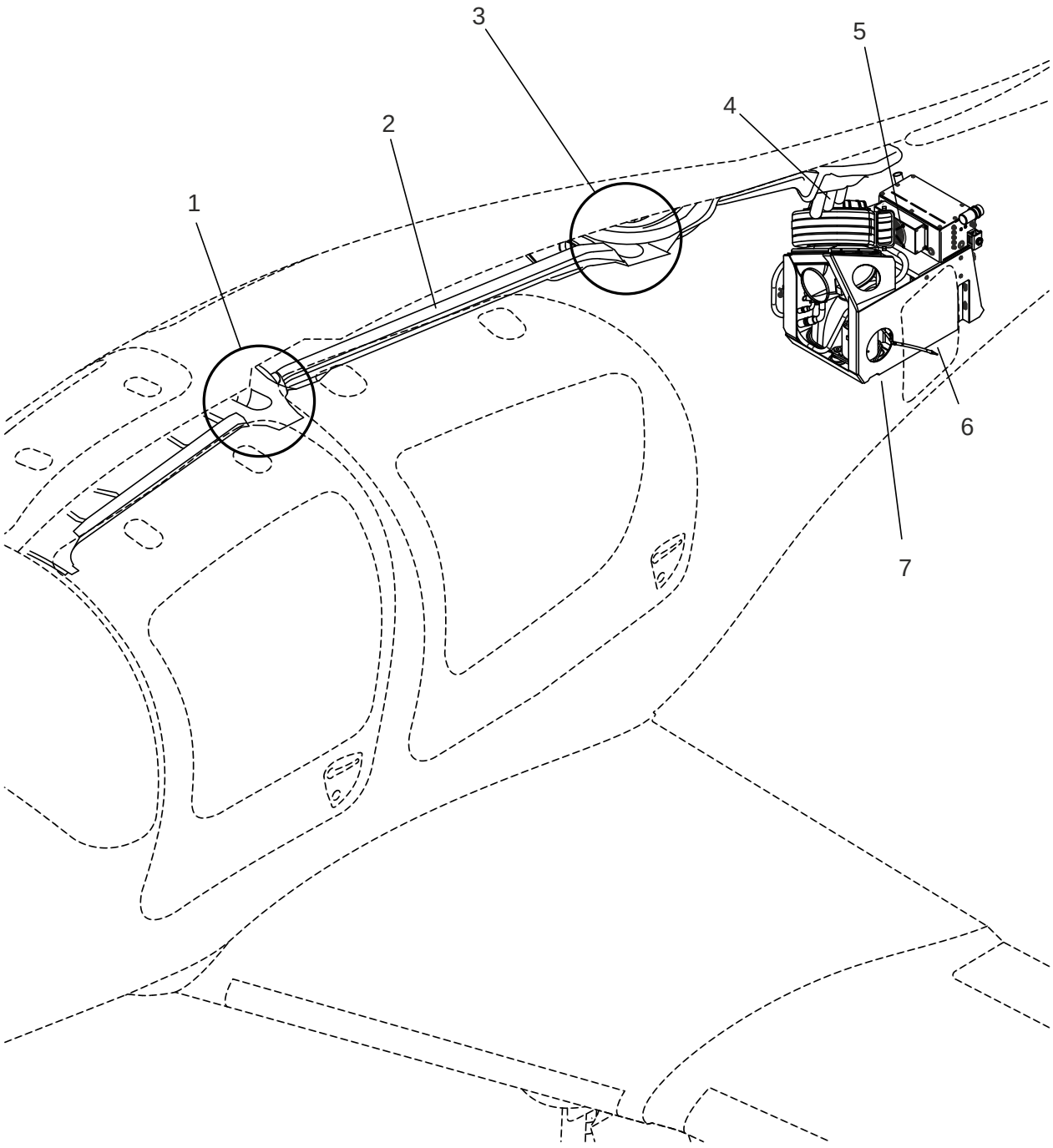


Figure 3 - RACC Central Unit Installation

Legend

[1, Fig.3] Central Headliner Device Unit

[2, Fig.3] Overhead Cold Air Tunnel

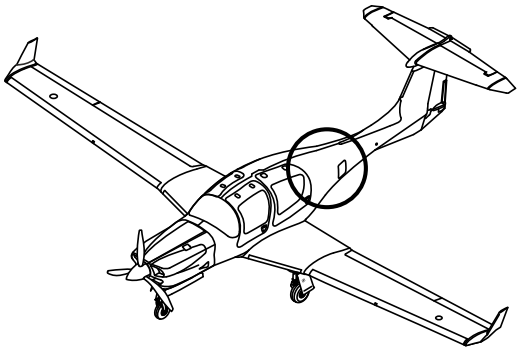
[3, Fig.3] Central Headliner Device Unit Baggage Compartment

[4, Fig.3] Flexible Cold Air Hose

[5, Fig.3] RACC Central Unit

[6, Fig.3] RACC Condenser Hot Exhaust Air Outlet

[7, Fig.3] RACC Condenser Air Inlet



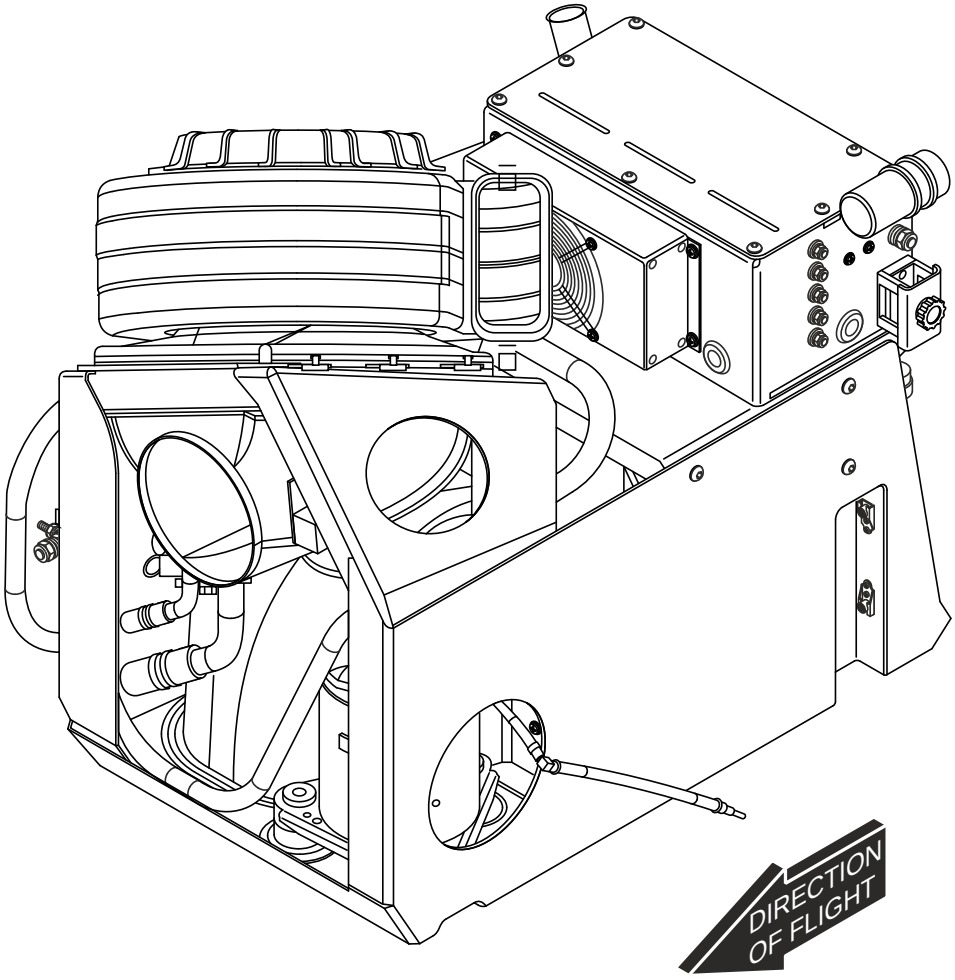
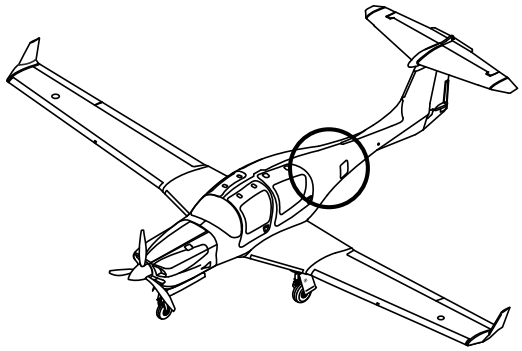


Figure 4 - Central Unit - Front and LH Side



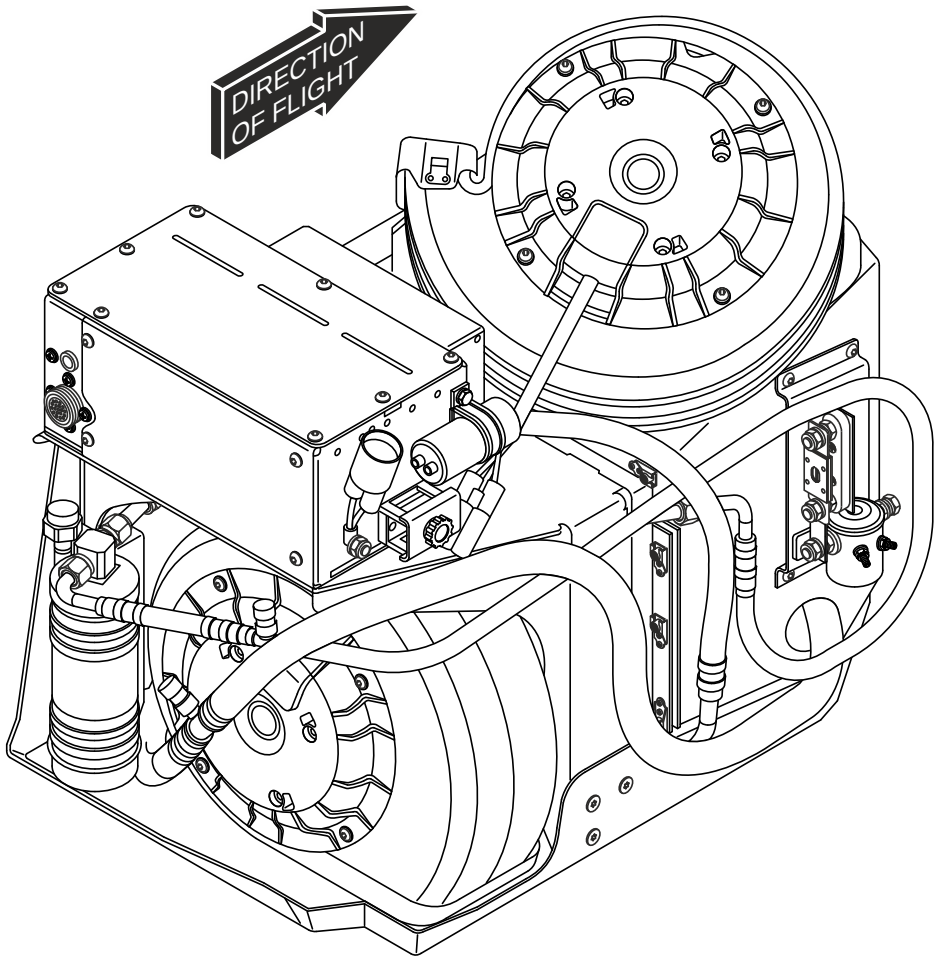


Figure 5 - Central Unit Back and RH Side

21-50-06 RACC Control Panel

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the RACC Control Panel

(1) Unscrew the overhead mounting plate of RACC control panel.

In front of central headliner device unit.

(2) Unplug the electrical connectors of the control panel.

(3) Unclip the RACC control panel from the mounting plate.

21-50-07 RACC Control Panel

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the RACC Control Panel

(1) Move the RACC control panel in position on the mounting plate.

(2) Push the RACC control panel into the mounting plate until the clips hold the panel in place.

(3) Connect the electrical connectors to the control panel.

(4) Screw the overhead mounting plate with the RACC control panel into the ceiling.

In front of central headliner device unit.

(5) Perform a RACC system test.

Refer to 21-50 Airconditioning System (RACC System) - System Test.

21-50-08 Refrigerant Circuit

Description

1. Remove/Install Parts of the Refrigerant Circuit

WARNING

ALL MAINTENANCE AND REPLENISHMENT WHICH REQUIRES TO OPEN AND DEPRESSURIZE THE REFRIGERANT CIRCUIT MUST BE CARRIED OUT BY AUTHORIZED PERSONNEL ACCORDING TO NATIONAL AND INTERNATIONAL REGULATIONS FOR REFRIGERANT SYSTEMS.

NOTE

The refrigerant vapor cooling system is a hermetically sealed and pressurized circuit and contains the refrigerant R134a.

Before you do any maintenance on parts of the refrigerant circuit you must remove the central unit from the airplane. Refer to 21-50 RACC Central Unit - Remove procedure.

A simple discharging and recharging of refrigerant can be performed without removing the central unit from the airplane.

Make sure to obey the regulations for handling the refrigerant.

If the refrigerant circuit is open for more than 30 min and the receiver/dryer assy is not sealed, Diamond Aircraft recommends to replace the receiver/dryer assy by a new one.

21-50-09 Refrigerant Circuit

Drain other liquid

1. References

None

2. Preliminary Requirements

A. Required Conditions

(1) One of the following automated discharge/charging stations or equivalent may be used.

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Silco CS 199	Commercial	1
Silco CS 195	Commercial	1
Silco CS 150	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Discharge the Refrigerant Circuit

(1) Remove the hydraulic compartment cover.

From the RH rear fuselage shell.

(2) Connect the RACC system to the discharge/charging station.

Follow the instructions of the discharge/charging station.

(3) Discharge the refrigerant.

Follow the instructions of the discharge/charging station.

(4) Print the protocol of the discharge/charging station and add it to the RACC system documentation.

Follow the instructions of the discharge/charging station.

21-50-10 Refrigerant Circuit

Fill

1. References

None

2. Preliminary Requirements

A. Required Conditions

(1) One of the following automated discharge/charging stations or equivalent may be used.

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Silco CS 199	Commercial	1
Silco CS 195	Commercial	1
Silco CS 150	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Charge the Refrigerant Circuit

(1) Make sure that all connectors of the refrigerant circuit are tight.

CAUTION

THE COMPRESSOR IS FILLED WITH THE CORRECT AMOUNT AND TYPE OF OIL WHEN NEW. THEREFORE ONLY FILL IT WITH FULL AMOUNT OF OIL, WHEN OIL WAS REMOVED COMPLETELY.

(2) Charge the refrigerant circuit with R134a (700 g ± 25 g) and add the amount of oil which was removed (compatible with R134a refrigerant, chemical structure: PVE, Viscosity: ISO VG 68 acc. ISO 3448). If refrigerant circuit and compressor was completely discharged add a total of 290 ccm of oil instead of the amount described above.

(3) Perform a leakage test if not automatically performed by the discharge/charging station.

Refer to 21-50 Refrigerant Circuit - Leak check.

(4) Print the protocol of the discharge/charging station and add it to the RACC system documentation.

Follow the instructions of the discharge/charging station.

(5) Disconnect the RACC system from the discharge/charging station.
Follow the instructions of the discharge/charging station.

(6) Perform a RACC system test.
Refer to 21-50 Airconditioning System (RACC System) - System Test.

(7) Install the hydraulic compartment cover.
To the RH rear fuselage shell.

21-50-11 Refrigerant Circuit

Leak check

1. References

None

2. Preliminary Requirements

A. Required Conditions

(1) After every discharge/charge of the refrigerant system it must be checked for leakages.

(2) Most of the charging stations run automatically a leakage check before charging the air condition system. If the applied service station was equipped with this function, but does not automatically perform a test, engage manually the check before charging the air condition system.

(3) If leakage in the air condition system was detected or the air condition unit lost more than 150 g/year of refrigerant, then one of the below described checks must be performed:

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Leakage Test of the Refrigerant Circuit

(1) Remove the RACC central unit from the airplane.

Refer to 21-50 RACC Central Unit - Remove procedure.

(2) Use a detection spray or soapy water at the suspicious areas and watch for bubbles and foam.

If a leak is detected, repair the leakage.

To order spare parts contact DAI.

(3) Use an electronic leak detector suitable to detect the R134a refrigerant with a minimum leakage detection sensitivity of 5 g per year.

If a leak is detected, repair the leakage.

To order spare parts contact DAI.

21-50-12 Compressor

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Compressor

(1) Discharge the refrigerant circuit.

Refer to 21-50 Refrigerant Circuit - Drain other liquid.

(2) Remove the RACC central unit from the airplane.

Refer to 21-50 RACC Central Unit - Remove procedure.

(3) Unplug the electrical connectors from the compressor.

(4) Loosen the hose connections of the refrigerant circuit on the compressor.

Use caps to plug the hose connectors.

(5) Remove the remaining two screws which attach the compressor to the RACC base plate.

(6) Move the compressor clear of the central unit.

21-50-13 Compressor

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Compressor

(1) Position the compressor on the RACC base plate.

(2) Use the two screws to attach the compressor to the RACC base plate.

(3) Connect the refrigerant circuit hoses to the compressor.

Remove the caps from the hose connectors and replace O-rings of circuit-hoses.

(4) Connect the electrical connectors to the compressor.

(5) Charge the refrigerant circuit.

Refer to 21-50 Refrigerant Circuit - Fill.

(6) Perform a leakage check.

Refer to 21-50 Refrigerant Circuit - Leak check.

(7) Install the RACC central unit in the airplane.

Refer to 21-50 RACC Central Unit - Install procedure.

(8) Perform a RACC system test.

Refer to 21-50 Airconditioning System (RACC System) - System Test.

21-50-14 Receiver/Dryer Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Receiver/Dryer Assembly

(1) Discharge the refrigerant circuit.

Refer to 21-50 Refrigerant Circuit - Drain other liquid.

(2) Remove the RACC central unit from the airplane.

Refer to 21-50 RACC Central Unit - Remove procedure.

(3) Remove the electrical connectors from the pressure sensor.

(4) Loosen the hose connections of the refrigerant circuit on the receiver/dryer assembly.

Use caps to plug the hose connectors.

(5) Remove the two screws which attach the receiver/dryer assembly to the central unit.

(6) Move the receiver/dryer assembly clear of the central unit.

21-50-15 Receiver/Dryer Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Receiver/Dryer Assembly

(1) Position the receiver/dryer assembly on the RACC base plate.

(2) Use the two screws to attach the receiver/dryer assembly to the central unit.

(3) Connect the refrigerant circuit hoses to the receiver/dryer assembly.

Remove the caps from the hose connectors and replace O-rings of circuit-hoses.

(4) Connect the electrical connectors to the pressure sensor.

(5) Charge the refrigerant circuit.

Refer to 21-50 Refrigerant Circuit - Fill.

(6) Perform a leakage check.

Refer to 21-50 Refrigerant Circuit - Leak check.

(7) Install the RACC central unit in the airplane.

Refer to 21-50 RACC Central Unit - Install procedure.

(8) Perform a RACC system test.

Refer to 21-50 Airconditioning System (RACC System) - System Test.

21-50-16 Air Filters

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove Air Filters

(1) Remove cover from cabin air inlet on rear baggage compartment cover.

(2) Remove filter elements.

(3) Remove grid from condenser air inlet on lower RH fuselage shell.

(4) Remove filter element from inlet duct.

21-50-17 Air Filters

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install Air Filters

(1) Replace filter element and install it into condenser air inlet duct.

(2) Install grid to condenser air inlet.

(3) Replace filter element for cabin air inlet.

(4) Install cover with new filter element to rear baggage compartment cover.

21-60
TEMPERATURE CONTROL

21-60-01 Temperature control

Description

1. Temperature Control

The DA 50 C has a temperature mixing valve in the ventilation and heating system. In the cockpit you can move the temperature lever In the ECS panel in WARM direction to increase the temperature that comes out of the cockpit outlets.

This section tells you about the temperature control. Refer to section 21-20 Air Distribution - Description for details about the air distribution system and section 21-40 Heating - Description for details about the heat exchanger system.

2. Description and Operation

The valve has two inlets, one for cold air which comes directly from the fan and the second comes from the heat exchanger.

An internal flap in the mixing valve can be set between cold or warm. The flap in the valve regulates the outlet air temperature.

The position of the flap in the mixing valve is controlled by a control lever in the ECS panel of the cockpit center console.

21-60-02 Temperature control

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

There is no control of the temperature-mixing valve.

1A. Examine the mixing valve.

Is the related mixing valve inoperative?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the mixing valve.

1C. Examine the related valve control cable.

Is the related valve control cable is out of adjustment?

Yes - go to step 1D.

No - go to step 1E.

1D. Adjust the mixing valve control cable.

1E. *Is the related valve cable is broken?*

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the mixing valve control cable.

1G. Contact DAI.

21-60-03 Temperature Mixing Valve

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove a Temperature Mixing Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the flexible hoses that connect the mixing valve with the fan housing and heat exchanger

- Remove the worm-drive-clamps that hold the hoses to the valve inlet.
- Remove the hoses from the valve.

(4) Disconnect the temperature mixing valve control cable from the mixing valve flap lever.

(5) Remove temperature mixing valve:

- Remove the 4 nuts, washers and bolts that attach the mixing valve to the air distributor inlet.
- Move the mixing valve clear of the compartment behind the firewall and support the ECS shut-off valve.

21-60-04 Temperature Mixing Valve

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install a Temperature Mixing Valve

(1) Move the temperature mixing valve into position in the compartment behind the firewall.

(2) Install the mixing valve:

- Hold the mixing valve in position.
- Install the 4 bolts, washer and nuts that attach the mixing valve to the ECS shut-off. Use new self-locking nuts.

(3) Connect the mixing valve control cable to the mixing valve flap lever:

- Move the clevis into position on the flap lever.
- Tighten the nuts from control cable on the bracket.

(4) Do a test for the correct operation of the temperature mixing valve.

Refer to 21-60 Temperature Mixing Valve - Operation Test.

(5) Connect the flexible hoses that connect the mixing valve with the fan outlet and the heat exchanger with mixing valve:

- Move the flexible hoses into position.
- Install the worm drive clamps and
- Tighten the worm drive clamp.

(6) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-60-05 Temperature Mixing Inner Control Cable

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove a Temperature Mixing Inner Control Cable

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the cover plate from the environmental control in the cockpit:

- Remove from each lever the knob (1 screw).
- Remove the 4 screws that attached the cover plate to the center console.

- Slide the cover plate clear of the control levers.

(4) Disconnect the control cable from the related control lever:

- Move the related control lever to the COLD position.
- Loosen the screw that attaches the swivel fitting to the control lever.

(5) Disconnect the clevis from the control cable at the recirculation valve-operating lever.

(6) Move the defective inner control cable clear of the cable outer sleeve.

Remove and retain the swivel fitting from the broken cable.

21-60-06 Temperature Mixing Inner Control Cable

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install a Temperature Mixing Inner Control Cable

(1) Install the new inner control cable:

- Move the new inner cable into position in the outer sleeve.
- Connect the clevis from the control cable to the related mixing valve flap lever.
- Make sure that the distributor is in the COLD position.
- Put the cable through the swivel fitting.
- Connect the control cable to the related control lever:
  - Move the control lever to a position 3 mm (0.1 in) clear of the FRESH AIR position.
  - Put the cover plate to its location to check clearance.
  - Move the swivel fitting into position in the control lever.

- Pass the cable through the swivel fitting.
- Tighten the swivel fitting screw.

(2) Do a test for the correct operation of the temperature mixing valve. If necessary, adjust the distributor valve cable.

Refer to 21-60 Temperature Mixing Valve - Operation Test.

(3) Install the cover plate from the environmental control in the cockpit:

- Move the cover into position at the center console.
- Install the 4 screws that attach the cover to the center console.
- Tighten the 4 screws.
- Install from each lever the knob (1 screw).
- Make sure that the control levers move freely through the full range of movement.

(4) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

21-60-07 Temperature Mixing Valve

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Test/Adjust the Temperature Mixing Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the flexible hose which comes from the fan housing at the mixing valve:

- Remove the worm-drive-clamps that hold the hose to the mixing valve inlet.
- Remove the hose from the valve.

(4) Test the operation of the temperature mixing control:

- Move the related mixing valve control lever to the COLD position.
- Make sure that the mixing valve flap closes the inlet from the heat exchanger fully. The flap must completely seal the heat exchanger outlet.
- Move the related mixing valve control lever to the WARM position.
- Make sure that the mixing valve flap closes the inlet from the cold air / fan outlet fully. The flap must completely seal the heat exchanger outlet.

(5) If necessary, adjust the control cable:

- Set the related temperature mixing valve control lever to COLD.
- On the swivel fitting in the center console:
  - Remove the cover plate from the environmental control in the cockpit.
  - Loosen the screw in the swivel fitting and move the lever a small distance towards the WARM position.
  - Tighten the screw in the swivel fitting.
- On the control cable clevis:
  - Loosen the nuts to move the control cable into the desired position.
  - Tighten the nuts.

(6) Repeat step A.(4) and step A.(5) as necessary to make the valve work as required.

(7) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

22-00
AUTOFLIGHT

22-00-01 Auto flight

Description

1. Auto-Flight

This chapter tells you about the auto flight (autopilot) system that is installed in the DA 50 C airplane. This chapter tells you about the components of the GFC 700 system installed in the airplane. This chapter does not tell you about the workshop maintenance of the equipment. For more data about the equipment you must refer to the equipment manufacturer's manuals. Refer to 22-10 Autopilot - Description for more data about the autopilot system installed in the DA 50 C airplane.

22-10
AUTOPILOT

22-10-01 Autopilot

Description

1. Autopilot

This Section tells you about the GFC 700 autopilot system that is installed in the DA 50 C.

The GFC autopilot system is a digital flight control system that provides roll, pitch, pitch trim and yaw steering with altitude control. The system has the following components (refer to Figure 1):

- Flight director (integral part of the Garmin G1000 NXi system)
- GSA 81 roll servo
- GSA 81 pitch servo
- GSA 81 pitch trim servo
- GSA 80 yaw servo

The GFC 700 autopilot system is controlled via the MFD of the Garmin G1000 NXi integrated cockpit system (ICS).

The GFC roll axis features includes wing leveler, heading select, and VOR/LOC intercept and tracking. The GFC 700 is also coupled to the ICS for navigation information. Attitude information is derived from the AHRS.

Pitch axis features include vertical speed, flight level change, glideslope and altitude hold along with the optional altitude preselect. Pitch information is derived from AHRS and GDC. Internal monitors keep constant track of the GFC 700's status and provide for automatic shutdown of the autopilot or trim system in the event of a malfunction.

A. GFC 700 Flight Control

For details about operation and the indications concerning GFC 700 functions refer to Garmin DA 50 Pilot's Guide, latest revision.

B. GSA 81 Roll Servo

The roll servo is located behind the rear main bulkhead on the right side. It is mounted on a mounting plate which is made from sheet aluminium. Two aluminium clamps connect a bridle cable to the aileron push rod.

C. GSA 81 Pitch Servo

The pitch servo is located aft of the baggage compartment frame. It is mounted on a mounting plate which is made from sheet aluminium. Two aluminium clamps connect a bridle cable to the elevator push-rod.

D. GSA 81 Pitch Trim Servo

The pitch trim servo is located under the co-pilot's seat. It is mounted on a mounting plate which is made from sheet aluminium. Servo movement is transmitted to the trim wheel through a chain gear on the servo, a cardan shaft, and a chain gear next to the trim wheel on the right side.

E. GSA 80 Yaw Servo

The yaw servo is located aft of the baggage compartment frame. It is mounted on a mounting rack made from sheet aluminium. A braided cable is connected to the two turnbuckles of the rudder control cables.

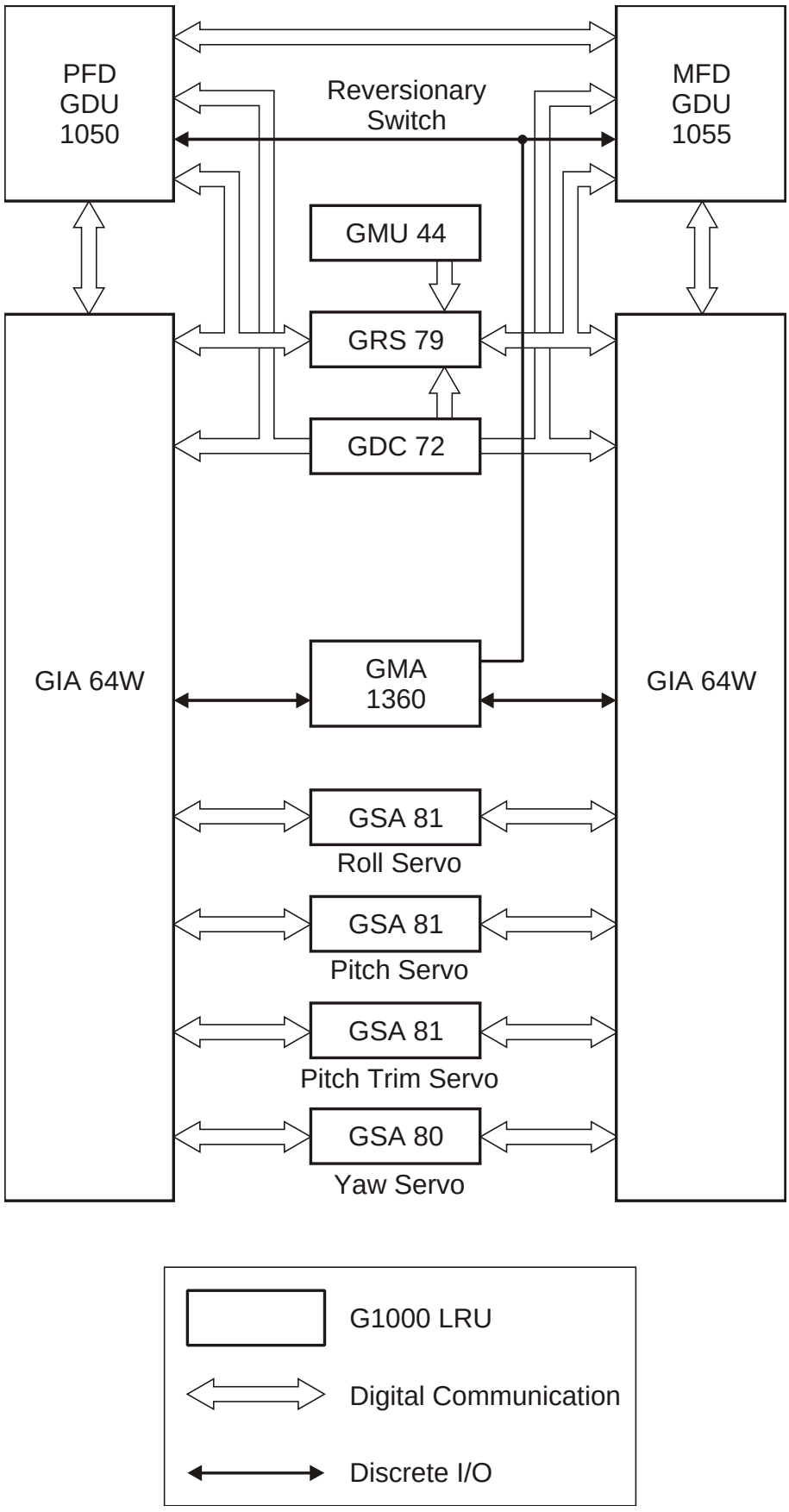


Figure 1 - GFC 700 Autopilot Schematic Diagram

22-10-02 Autopilot

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Mechanical Check of the Autopilot System

Do this check at the intervals given in 05-10 Component Time Limits - Description.

(1) Check bridle cable tension for the roll servo, adjust if necessary.

Refer to 22-10 Autopilot - Adjust, align and calibrate.

(2) Check bridle cable tension for the pitch servo, adjust if necessary.

Refer to 22-10 Autopilot - Adjust, align and calibrate.

(3) Perform a slip clutch override procedure.

Refer to 22-10 Autopilot - System Test.

22-10-03 Autopilot

Design data/tolerances check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Garmin slip clutch adjustment fixture	T10-00110-01	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check the Servo Clutch Torques

(1) Remove the clutch from the airplane.

Refer to Roll Servo Clutch - Remove procedure, Pitch Servo Clutch - Remove procedure, Pitch Trim Servo Clutch - Remove procedure or Yaw Servo Clutch - Remove procedure.

(2) Clean the servo output gears.

(3) Install the clutch assembly on the slip clutch test stand.

Refer to the equipment manufacturers' documentation.

(4) Measure clockwise (CW) and counterclockwise (CCW) clutch torque, replace if necessary.

Refer to the equipment manufacturers' documentation.

The correct clutch torques are:

- Roll servo: 5.1 ±0.7 Nm (45 ±6 lbf.in).
- Pitch servo: 10.2 ±1.5 Nm (90 ±13 lbf.in).
- Pitch trim servo: 5.1 ±0.7 Nm (45 ±6 lbf.in).
- Yaw servo: 10.2 ±1.5 Nm (90 ±13 lbf.in).

(5) Remove the clutch assembly from the slip clutch test stand.

(6) Apply grease to the servo output gears.

(7) Install the clutch to the airplane. Refer to Roll Servo Clutch - Install procedure, Pitch Servo Clutch - Install procedure, Pitch Trim Servo Clutch - Install procedure or Yaw Servo Clutch - Install procedure.

22-10-04 Autopilot

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Cable tension gauge (tensiometer)	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Adjust the Bridle Cable Tension of the Roll and Pitch Servos

(1) Loosen the bolts in the clamps, which connect the bridle cable to the push-rod.

Do not remove the bolts. Loosen just enough, so that the next step can be done.

(2) Move the clamps along the push-rod to adjust the bridle cable tension. Use a small plastic hammer.

Adjust tension to 156 ±9 N (35 ±2 lbf) for the pitch and roll servos. Measure cable tension with cable tension gauge.

(3) Tighten the bolts in the clamps, which connect the bridle cable to the push-rod.

22-10-05 Autopilot

System Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Slip Clutch Override Procedure

(1) Lift the airplane on jacks.

Refer to 07-10 Jacking - Jacking.

(2) With the autopilot disengaged, check freedom of control movement in all control axes, including pitch trim.

(3) Power up the Garmin G1000 NXi in Configuration Mode.

Refer to G1000 NXi System Maintenance Manual, latest revision.

(4) Navigate to the second of the GFC pages.

(5) Engage the pitch servo:

- Select the ENG CLCH soft-key.
- Set the DRIVE SERVO speed to zero.
- Select the DRV SRVO soft-key.

(6) Manually override the servo actuator slip clutch by moving the control stick forward and back through its range of motion.

The control should move with some resistance through its range of motion.

(7) Verify the servo motor does not turn by viewing the SPEED in the SERVO DATA area of the screen.

The motor of the servo actuator should remain stationary.

(8) Disengage the pitch servo:

- Select the STP SRVO soft-key.
- Select the DIS CLCH soft-key.

Verify freedom of movement of the pitch axis.

(9) Repeat step A.(5) to step A.(8) for each axis including pitch trim.

22-10-06 Roll Servo

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Roll Servo

(1) Remove the passenger seats.

Refer to 25-10 Passenger Seat - Remove procedure.

(2) Disconnect the connector from the servo.

(3) Remove the 4 screws, which attach the servo to the clutch.

Hold the servo.

(4) Remove the servo clear of the airplane.

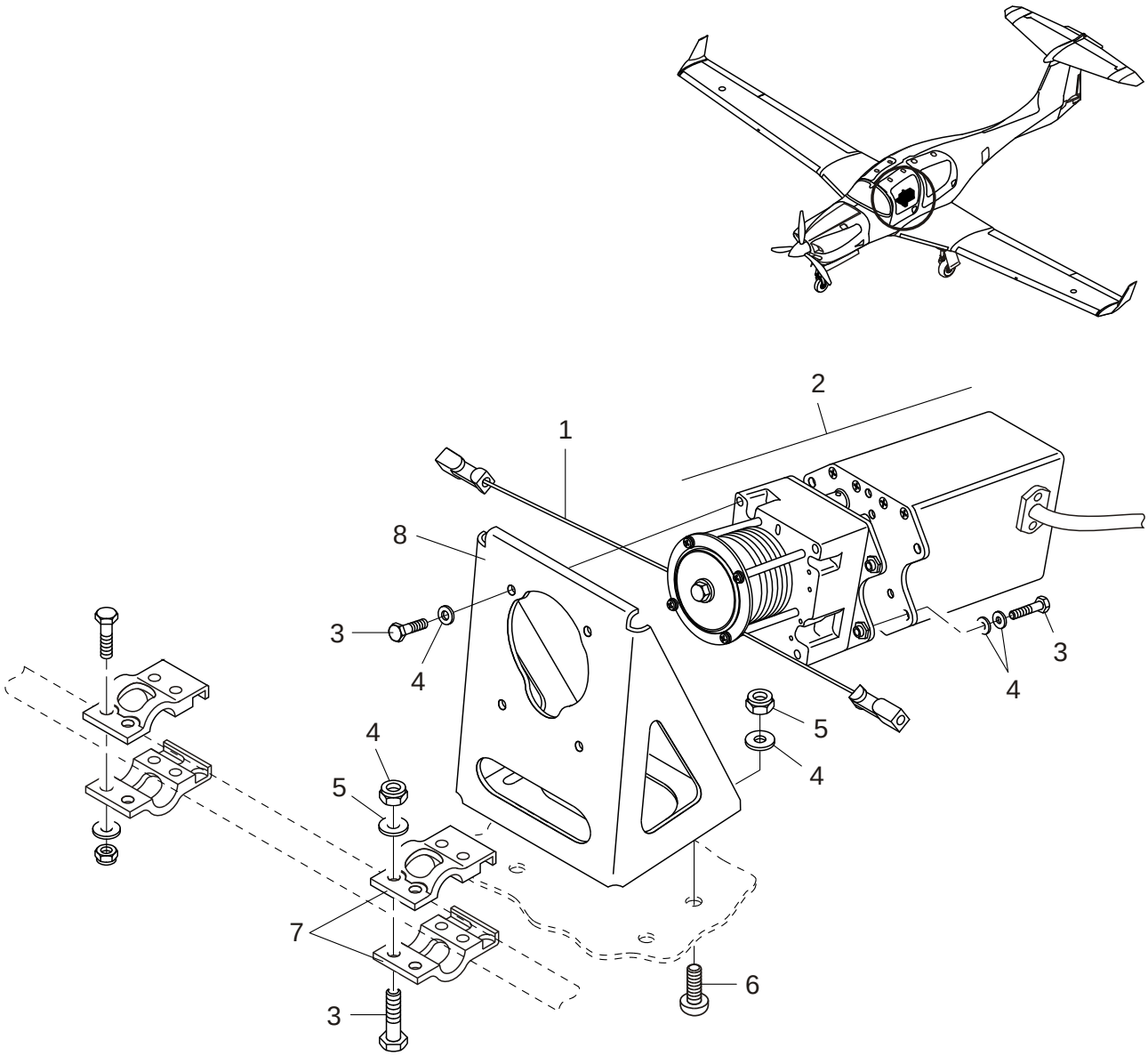


Figure 2 - Roll Servo Installation

Legend

[1, Fig.2] Bridle Cable

[2, Fig.2] Roll Servo Assy

[3, Fig.2] Bolt

[4, Fig.2] Washers

[5, Fig.2] Nut

[6, Fig.2] Screw

[7, Fig.2] Bridle Cable Clamp

[8, Fig.2] Servo Assy Mounting Bracket

22-10-07 Roll Servo

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Roll Servo

(1) Put the servo in place on the clutch.

(2) Install the 4 screws, which attach the servo to the mounting plate and clutch.

Refer to 22-10 Roll Servo - Remove procedure Figure 2.

(3) Connect the connector to the servo.

(4) Do a test of the autopilot system:

- Set ELECT. MASTER switch to ON.
- Set AV. MASTER switch to ON.
- Monitor self-test of the flight control computer.
  If no error message appears, then the system is operative.
- Set AV. MASTER switch OFF.
- Set ELECT. MASTER switch OFF.

(5) Install the passenger seats.

Refer to 25-10 Passenger Seat - Install procedure.

22-10-08 Roll Servo Clutch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Roll Servo Clutch

(1) Remove the roll servo.

Refer to 22-10 Roll Servo - Remove procedure.

(2) Release the clamps, which connect the bridle cable to the aileron push-rod.

(3) Remove the cable guard.

(4) Remove the 4 screws, which attach the clutch to the mounting plate.

Hold the clutch.

(5) Remove the clutch clear of the airplane.

22-10-09 Roll Servo Clutch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Cable tension gauge (tensiometer)	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Roll Servo Clutch

(1) Remove the pilot's seat or the co-pilot'seat.

To give access for the rigging pin.

Refer to 25-10 Pilots Seat - Remove procedure.

(2) Put the clutch in place on the mounting plate.

(3) Install the 4 screws, which attach the clutch to the mounting plate.

(4) Center the aileron control system with a rigging pin at one control stick.

Refer to 27-10 Aileron Control System - Adjust, align and calibrate.

(5) Center the capstan.

The recess for the ball in the middle of the bridle cable must be in the uppermost position.

(6) Install bridle cable to capstan.

The ball in the middle of the bridle cable must engage in the recess on the capstan. Wrap bridle cable around capstan 1.5 turns to each side.

(7) Connect the ends of the bridle cable to the aileron push-rod with the clamps.

Tighten clamps lightly to allow adjustment (see next step).

(8) Move the clamps along the push-rod to adjust the bridle cable tension. Use a small plastic hammer.

Adjust tension to 156 ±9 N (35 ±2 lbf). Measure cable tension with cable tension gauge.

(9) Tighten the clamps.

(10) Install the cable guard.

(11) Remove the rigging pin from the control stick.

(12) Install the front seat which was removed.

Refer to 25-10 Pilots Seat - Install procedure.

(13) Install the roll servo.

Refer to 22-10 Roll Servo - Install procedure.

22-10-10 Pitch Servo

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Pitch Servo

(1) Remove the baggage compartment.

(2) Disconnect the connector from the servo.

(3) Remove the 4 screws, which attach the servo to the clutch.

Hold the servo.

(4) Remove the servo clear of the airplane.

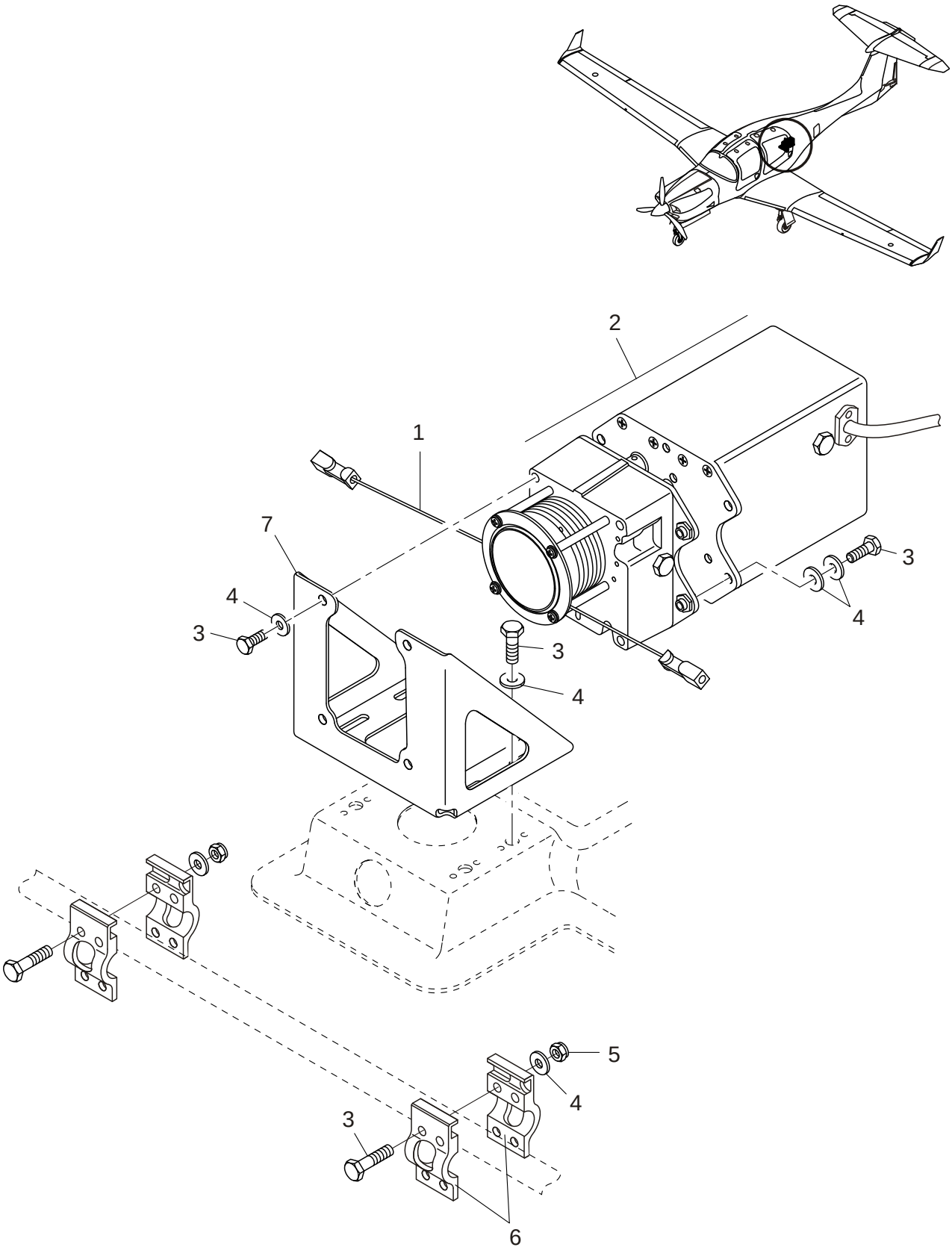


Figure 3 - Pitch Servo Installation

Legend

[1, Fig.3] Bridle Cable

[2, Fig.3] Pitch Servo Assy

[3, Fig.3] Bolt

[4, Fig.3] Washers

[5, Fig.3] Nut

[6, Fig.3] Bridle Cable Clamp

[7, Fig.3] Servo Assy Mounting Bracket

22-10-11 Pitch Servo

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Pitch Servo

(1) Put the servo in place on the clutch.

(2) Install the 4 screws, which attach the servo to the clutch.

(3) Connect the connector to the servo.

(4) Do a test of the autopilot system:

- Set ELECT. MASTER switch to ON.
- Set AV. MASTER switch to ON.
- Monitor self-test of the flight control computer.
  If no error message appears, then the system is operative.
- Set AV. MASTER switch OFF.
- Set ELECT. MASTER switch OFF.

(5) Install the baggage compartment.

22-10-12 Pitch Servo Clutch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Pitch Servo Clutch

(1) Remove the pitch servo.

Refer to 22-10 Pitch Servo - Remove procedure.

(2) Release the clamps, which connect the bridle cable to the elevator push-rod.

(3) Remove the cable guard.

(4) Remove the 4 screws, which attach the clutch to the mounting plate.

Hold the clutch.

(5) Remove the clutch clear of the airplane.

22-10-13 Pitch Servo Clutch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Cable tension gauge (tensiometer)	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Pitch Servo Clutch

(1) Remove the pilot's or the co-pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(2) Put the clutch in place on the mounting plate.

(3) Install the 4 screws, which attach the clutch to the mounting plate.

(4) Center the elevator control system with a rigging pin at one control stick.

Refer to 27-30 Elevator Control System - Adjust, align and calibrate.

(5) Center the capstan.

The recess for the ball in the middle of the bridle cable must be in the under most position.

(6) Install bridle cable to capstan.

The ball in the middle of the bridle cable must engage in the recess on the capstan. Wrap bridle cable around capstan 1.5 turns to each side.

(7) Connect the end of the bridle cable to the elevator push-rod with the clamps.

Tighten clamps lightly to allow adjustment (see next step).

(8) Move the clamps along the push-rod to adjust the bridle cable tension. Use a small plastic hammer.

Adjust tension to 156 ±9 N (35 ±2 lbf). Measure cable tension with cable tension gauge.

(9) Tighten the clamps.

(10) Install the cable guard.

(11) Remove the rigging pin from the control stick.

(12) Install the front seat, which was removed.

Refer to 25-10 Pilots Seat - Install procedure.

(13) Install the pitch servo.

Refer to 22-10 Pitch Servo - Install procedure.

22-10-14 Pitch Trim Servo

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Pitch Trim Servo

(1) Remove the co-pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(2) Disconnect the connector from the servo.

(3) Remove the 4 screws , which attach the servo to the clutch.

Hold the servo.

(4) Remove the servo clear of the airplane.

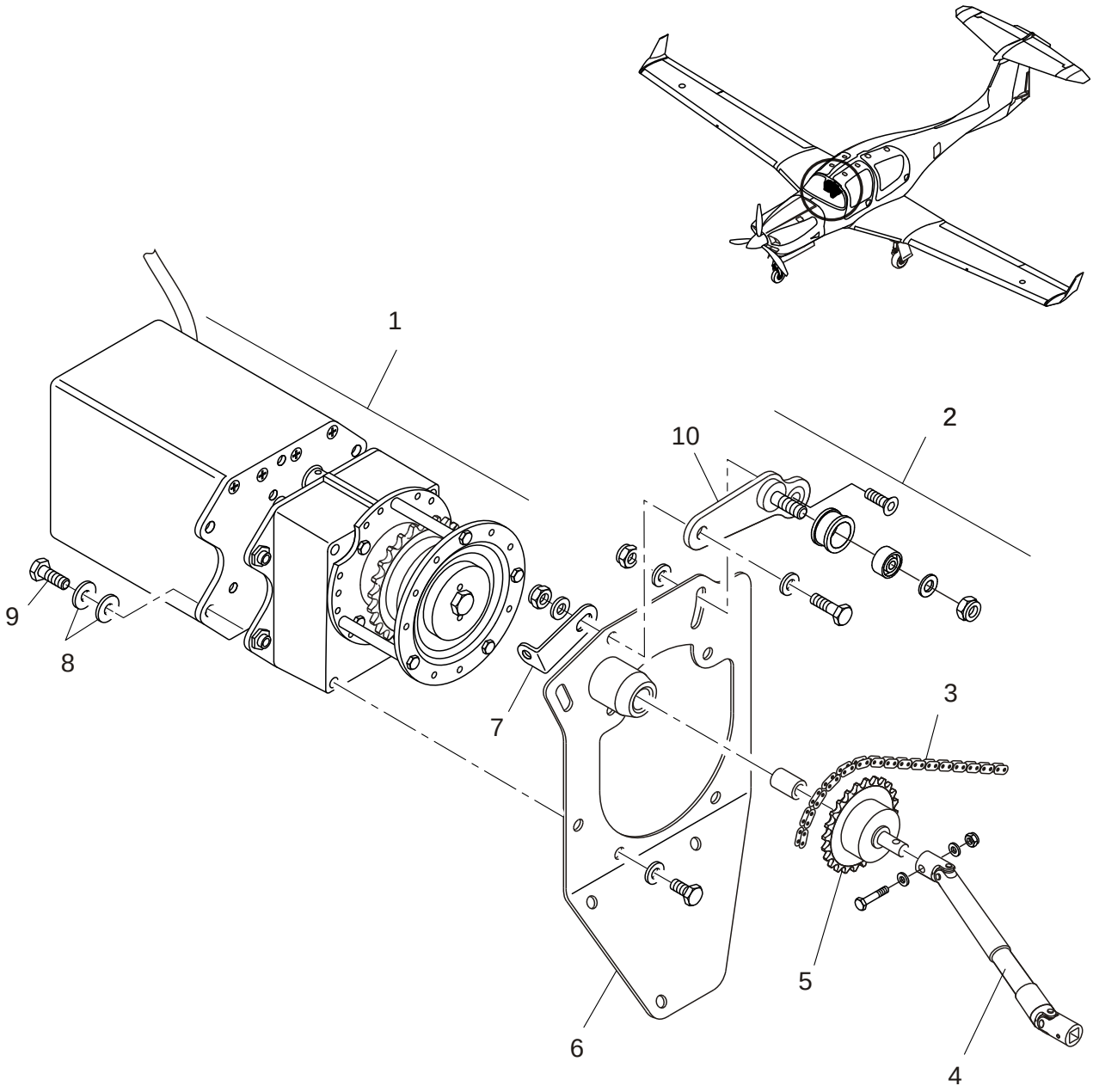


Figure 4 - Pitch Trim Servo Installation

Legend

[1, Fig.4]	Pitch Trim Servo Assy
[2, Fig.4]	Tension Arm Assy
[3, Fig.4]	Roller Chain
[4, Fig.4]	Autopilot Jackshaft
[5, Fig.4]	Gear Flange Assy
[6, Fig.4]	Mounting Bracket
[7, Fig.4]	Adjustment Shim
[8, Fig.4]	Washers
[9, Fig.4]	Bolt
[10, Fig.4]	Chain Adjuster

22-10-15 Pitch Trim Servo

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Pitch Trim Servo

(1) Put the servo in place on the clutch.

(2) Install the 4 screws, which attach the servo to the clutch.

(3) Connect the connector to the servo.

(4) Do a test of the autopilot system:

- Set ELECT. MASTER switch to ON.
- Set AV. MASTER switch to ON.
- Monitor the self-test of the flight control computer.
  If no error message appears, then the system is operative.
- Set AV. MASTER switch OFF.
- Set ELECT. MASTER switch OFF.

(5) Install the co-pilot's seat.

Refer to 25-10 Pilots Seat - Install procedure.

22-10-16 Pitch Trim Servo Clutch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DO NOT APPLY STRONG FORCES TO THE CARDAN SHAFT. THE UPPER CARDAN JOINT CONNECTS TO A PART WHICH IS WEAK BY DESIGN TO GIVE OCCUPANT PROTECTION IN AN EMERGENCY LANDING.

3. Main Procedure

A. Remove the Pitch Trim Servo Clutch

(1) Remove the pitch trim servo.

Refer to 22-10 Pitch Trim Servo - Remove procedure.

(2) Remove the screws, which hold the cap to the capstan.

(3) Remove the cap from the capstan.

(4) Release chain tension with chain adjuster.

On the chain gear next to the servo.

(5) Remove the chain from the chain gear.

(6) Remove the 4 screws, which attach the clutch and the chain adjuster to the mounting plate.

Hold the clutch and chain adjuster.

(7) Remove the clutch clear of the airplane.

22-10-17 Pitch Trim Servo Clutch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DO NOT APPLY STRONG FORCES TO THE CARDAN SHAFT. THE UPPER CARDAN JOINT CONNECTS TO A PART WHICH IS WEAK BY DESIGN TO GIVE OCCUPANT PROTECTION IN AN EMERGENCY LANDING.

3. Main Procedure

A. Install the Trim Servo Clutch

(1) Put the clutch and the chain adjuster in place on the mounting plate.

(2) Install the 4 screws, which attach the clutch and the chain adjuster to the mounting plate.

(3) Install the chain to the chain gear.

(4) Put the cap in place on the capstan.

(5) Install the screws, which hold the cap to the capstan.

(6) Install the pitch trim servo.

Refer to 22-10 Pitch Trim Servo - Install procedure.

22-10-18 Yaw Servo

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Yaw Servo

(1) Remove the baggage compartment.

(2) Disconnect the connector from the servo.

(3) Remove the 4 screws, which attach the servo to the clutch.

Hold the yaw servo.

(4) Remove the servo clear of the airplane.

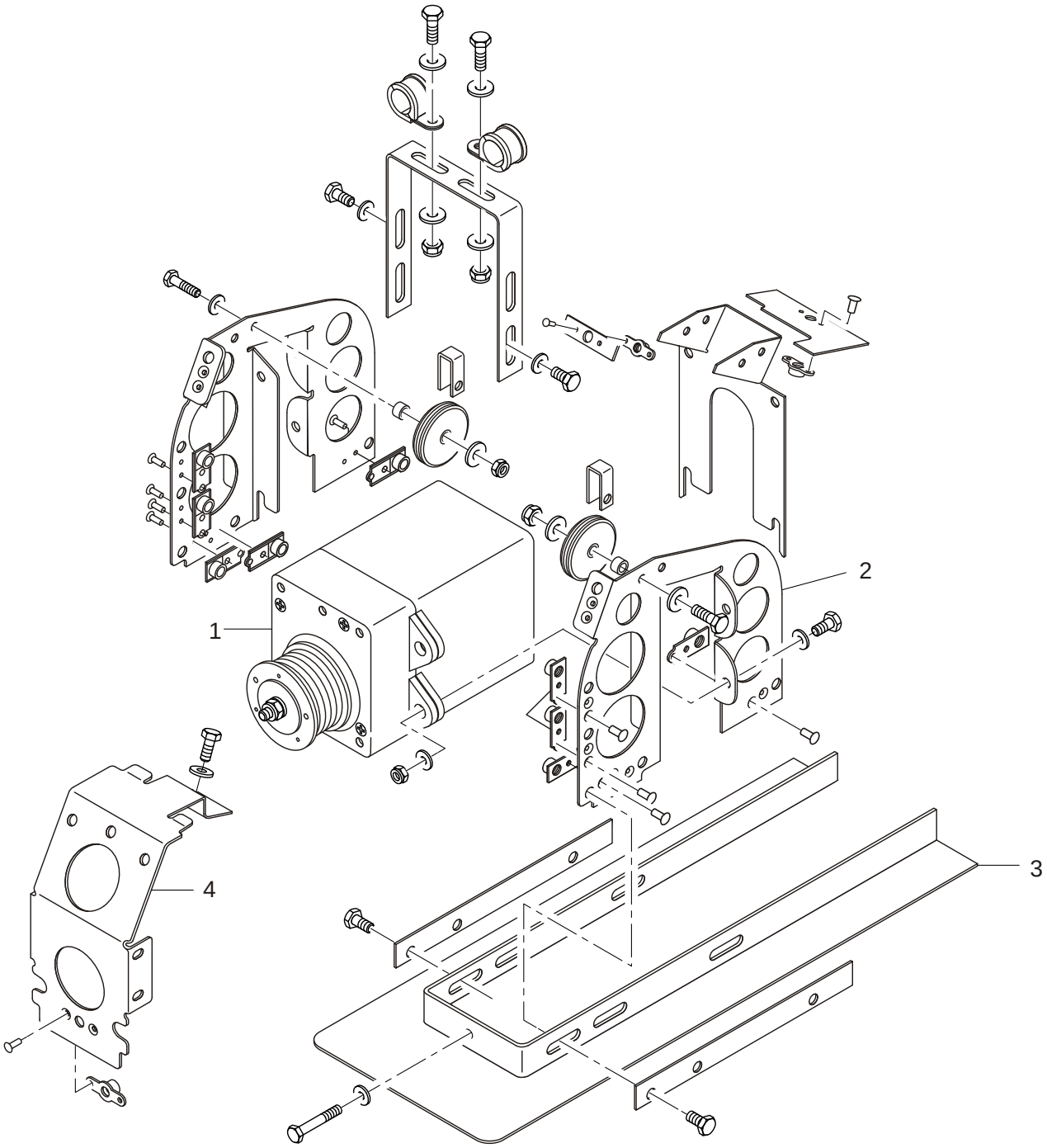


Figure 5 - Yaw Servo Installation

Legend

[1, Fig.5] Yaw Servo

[2, Fig.5] Yaw Damper Weld Assy

[3, Fig.5] Attachment Bracket

[4, Fig.5] Yaw Damper Tension Plate

22-10-19 Yaw Servo

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Yaw Servo

(1) Put the servo in place on the clutch.

(2) Install the 4 screws, which attach the servo to the mounting plate and clutch.

(3) Connect the connector to the servo.

(4) Do a test of the autopilot system:

- Set ELECT. MASTER switch to ON.
- Set AV. MASTER switch to ON.
- Monitor the self-test of the flight control computer.
  If no error message appears, then the system is operative.
- Set AV. MASTER switch OFF.
- Set ELECT. MASTER switch OFF.

(5) Install the baggage compartment.

22-10-20 Yaw Servo Clutch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Yaw Servo Clutch

(1) Remove the yaw servo.

Refer to 22-10 Yaw Servo - Remove procedure.

(2) Release the clamps, which connect the bridle cable to the rudder cables.

(3) Remove the 4 screws, which attach the clutch to the mounting plate.

Hold the clutch.

(4) Remove the bolts that hold the two pulleys in position.

(5) Remove the upper pulley support and the pulleys.

(6) Remove the clutch clear of the aircraft.

22-10-21 Yaw Servo Clutch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Yaw Servo Clutch Detail Steps/Work

(1) Put the clutch in place on the mounting plate.

(2) Install the 4 screws, which attach the clutch to the mounting plate.

(3) Center the capstan.

The recess for the ball in the middle of the bridle cable must be in the under most position.

(4) Install bridle cable to capstan.

The ball in the middle of the bridle cable must engage in the recess on the capstan. Wrap bridle cable around capstan 1.5 turns to each side.

(5) Center the rudder pedals.

(6) Connect the end of the bridle cable to the rudder cables.

Tighten the clamps slightly to allow adjustment (see step A.(7)).

(7) Using a small plastic hammer, move the clamps along the rudder cables to adjust the bridle cable tension.

Adjust tension to 156±22 N (35±5 lbf).

Measure cable tension with cable tension gauge.

(8) Tighten the clamps.

(9) Install the cable guard.

(10) Install the yaw servo.

Refer to 22-10 Yaw Servo - Install procedure.

23-00
COMMUNICATION

23-00-01 Communications

Description

1. General

This Chapter tells you about the communications system in the DA 50 C airplane. It tells you about the intercom system which lets the pilots and passengers talk to each other. It also tells you about the radio system which lets the pilots talk to the ground and other airplane.

This Chapter does not tell you about the communications equipment. Refer to the equipment manufacturers' manual for data about the equipment. Refer to Chapter 92 for the wiring diagrams.

2. Description

The DA 50 C communication system has these components:

- GMA 1360 audio panel.
- NAV/COM transceivers (integral with the Garmin GIA 64 W integrated avionics units).
- COM VHF antennas.
- NAV antenna externally on the vertical stabilizer.
- Push-to-talk (PTT) switches. A PTT switch is located in each of the pilot's control sticks.
- Headset sockets. Headset sockets are located on the center console for both the pilots and the passengers.

23-10
SPEECH COMMUNICATION

23-10-01 Speech communication

Description

1. Speech Communication

This Section tells you about the speech communication system in the DA 50 C. It does not tell you about the speech communication equipment. Refer to the equipment manufacturers' manuals for more data about the equipment.

Figure 1 shows the main components of speech communication system.

2. Description

The DA 50 C has dual VHF radio communications transceivers (COM 1 and COM 2) which are integral with the GIA 64 W integrated avionics units. The No.1 GIA 64 W and No. 2 GIA 64 W units are remotely located in the aft fuselage remote avionic box. The COM 1 antenna is located on the upper surface of the fuselage, aft of the cockpit. The COM 2 antenna is located on the lower surface of the fuselage, aft of the cockpit. Refer to 31-40 Central computers - Description for more data about the Garmin G 1000 ICS.

Figure 2 shows the Garmin G 1000 primary flight display (PFD). The speech communication system is integral with the Garmin G 1000 integrated cockpit system (ICS). Power is supplied to the dual VHF communications transceivers when the ICS is switched on. The COM selector knob is located at the top-right corner of each ICS display panel. A digital display in the top right corner of the primary flight display (PFD) screen shows which COM system and frequency is in use.

Both the active and standby frequencies are shown for both COM 1 and COM 2 systems. Pushing the inner knob of the COM selector will toggle the active COM system between COM 1 and COM 2. Push the COM FREQUENCY TRANSFER key to toggle between the active and standby frequency of the selected communication system. A box is displayed around the standby frequency.

Pressing and holding the COM FREQUENY TRANSFER key for approximately 2 seconds will override all previous selections and select the EMERGENCY COM frequency of 121.5 MHz.

You can only change the frequency that is currently selected as standby frequency. You must rotate the larger outer COM selector knob to select the MHz value of the frequency and rotate the small inner knob if the COM selector to select the kHz value of the frequency.

Above the COM knob is the VOL knob. You can control the volume level of the active radio receiver with the VOL knob. Press the knob to toggle the ON/OFF selection of the automatic squelch control.

The pilots use the audio control panel to control all the audio systems of the DA 50 C. Both speech and navigational audio can be sent to the pilots' or passengers' headphones. Refer to 23-50 Audio Integration - Description for more data about the audio control unit.

3. Maintenance Practices

This section tells you how to replace the main components of the speech communication system. Refer to the equipment manufacturers' manuals for more data about the equipment. The communications transceivers are integral with the GIA 64 W integrated avionics units (IAU). Refer to 31-40 Central computers - Description for data about replacing the GIA 64W IAUs.

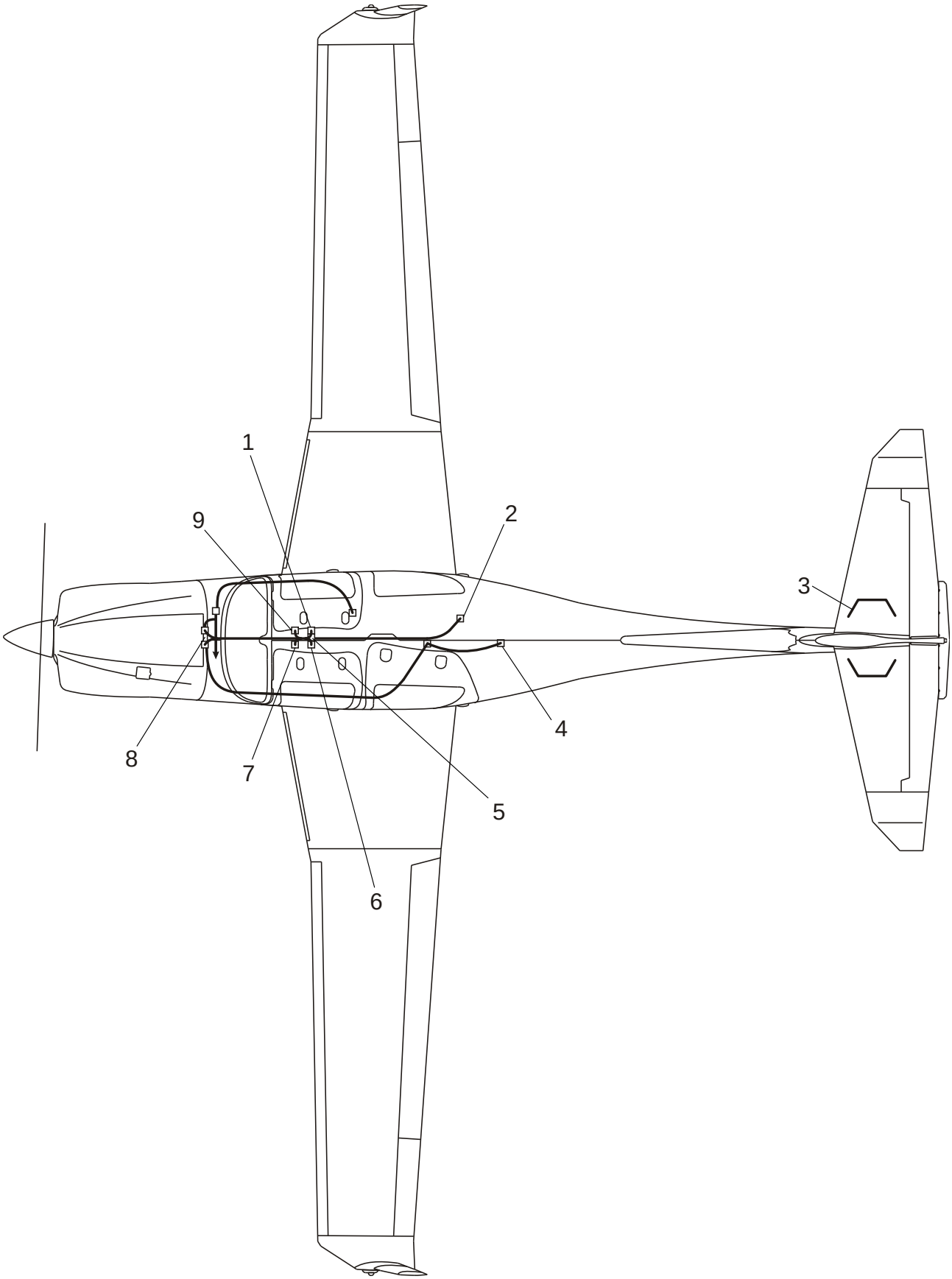


Figure 1 - Speech Communication System Main Components

Legend

[1, Fig.1] RH Passenger Headset

[2, Fig.1] COM 1 Antenna

[3, Fig.1] VOR Antenna

[4, Fig.1] COM 2 Antenna

[5, Fig.1] Center Passenger Headset

[6, Fig.1] LH Passenger Headset

[7, Fig.1] Pilot's Headset

[8, Fig.1] Audio Panel

[9, Fig.1] Co-Pilot's Headset

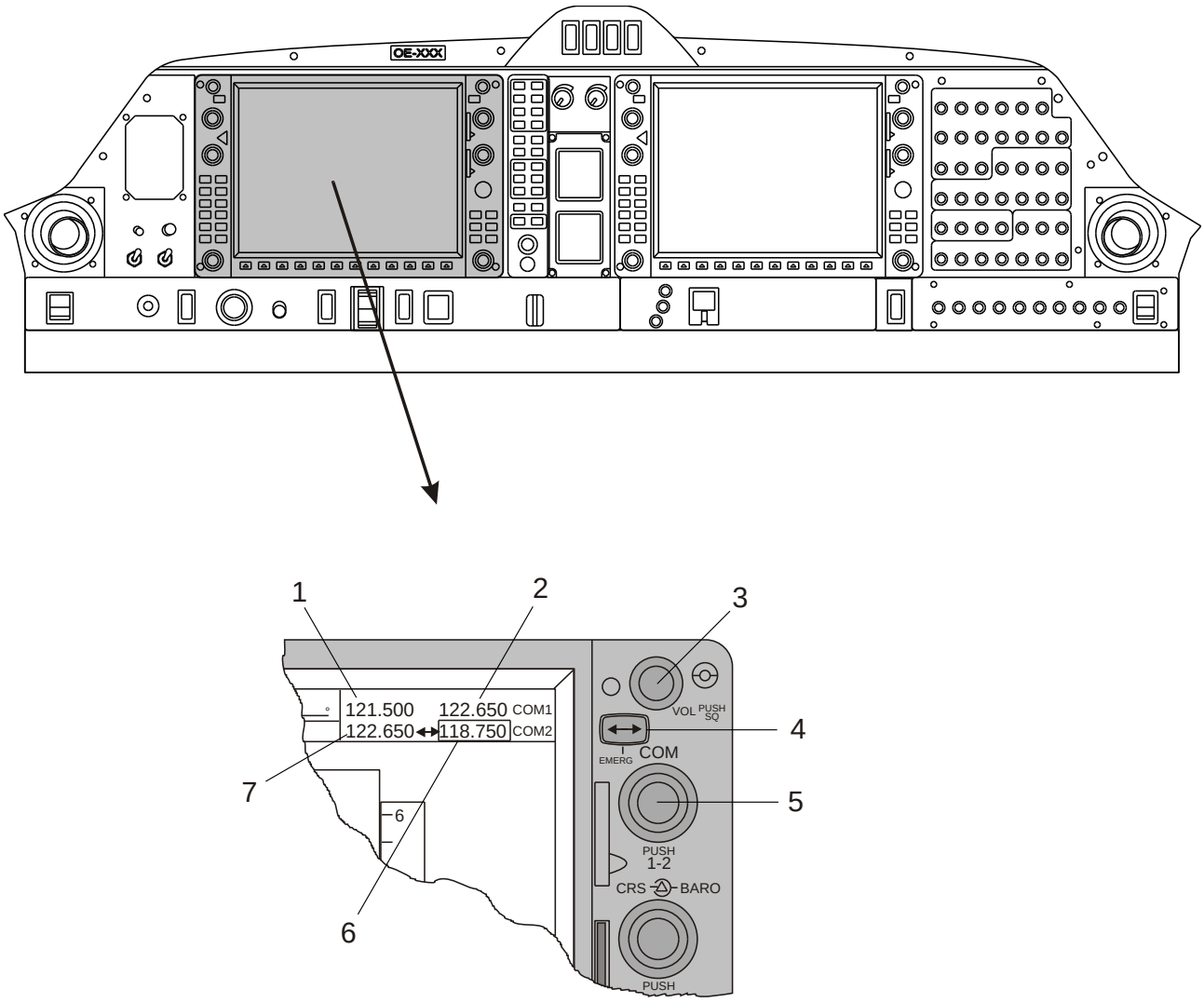


Figure 2 - Garmin G 1000 Primary Flight Display Panel

Legend

[1, Fig.2] Active Frequency (COM 1)

[2, Fig.2] Stand-by Frequency (COM 1)

[3, Fig.2] COM Volume Control Automatic Squelch

[4, Fig.2] Frequency Transfer Key / Emergency Frequency

[5, Fig.2] COM Selector Knob

[6, Fig.2] Stand-by Frequency (COM 2)

[7, Fig.2] Active Frequency (COM 2)

23-10-02 Speech communication

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Radio check reports readability good, strength poor due to low modulation on COM 1/COM 2.

1A. Check mic output.

Is the mic output low?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the defective mic.

1C. Examine the related GIA 64W IAU.

Is the related GIA 64W IAU defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the related GIA 64W IAU.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Radio check reports readability poor, strength good.

2A. Examine the related GIA 64W IAU.

Is the related GIA 64W IAU defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the related GIA 64W IAU.

2C. Examine the mic.

Is the mic defective?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the mic.

2E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Radio check reports readability poor, strength poor on COM 1/COM 2. Received audio is poor.

3A. Examine the coaxial cable and connections for condition and security.

Is the coaxial cable connector defective?

Yes - go to step 3B.

No - go to step 3C.

3B. Replace the coaxial cable connector.

3C. Examine the related GIA 64 W IAU.

Is the related GIA 64 W IAU defective?

Yes - go to step 3D.

No - go to step 3E.

3D. Replace the related GIA 64 W IAU.

3E. Examine the antenna.

Is the antenna defective?

Yes - go to step 3F.

No - go to step 3G.

3F. Replace the antenna.

3G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Short range in transmit mode, but reception is OK, COM1/COM2.

4A. Examine the related GIA 64W IAU.
Is the related GIA 64W IAU defective?
Yes - go to step 4B.
No - go to step 4C.

4B. Replace the related GIA 64W IAU.

4C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No voice modulation when transmitting from one pilot's side. The other pilot's side OK.

5A. Check the audio integration.

Is the audio integration defective?

Yes - go to step 5B.

No - go to step 5C.

5B. Refer to Audio Integration - General fault isolation procedure.

5C. Examine the related headset.

Is the related headset defective?

Yes - go to step 5D.

No - go to step 5E.

5D. Replace the related headset.

5E. Examine the related GIA 64W IAU.

Is the related GIA 64W IAU defective?

Yes - go to step 5F.

No - go to step 5G.

5F. Replace the related GIA 64W IAU.

5G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Cannot transmit. Transmit annunciator not shown in COM display.

6A. Examine the PTT switch.

Is the PTT switch defective?

Yes - go to step 6B.

No - go to step 6C.

6B. Replace the PTT switch.

6C. Do a test of the PTT wiring circuit.

Is the PTT wiring circuit defective?

Yes - go to step 6D.

No - go to step 6E.

6D. Repair the PTT wiring circuit.

6E. Contact DAI.

23-10-03 COM VHF Antenna

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a COM VHF Antenna

Use this procedure for both COM 1 and COM 2 antennas.

(1) Identify the antenna, that you will replace.

Lower antenna COM 2, top antenna COM 1.

(2) Remove the maintenance access cover of the rear door for the COM 1 antenna.

Refer to 52-40 Access Panels - Description

(3) Remove the aft baggage compartment frame for the COM 2 antenna.

Refer to 25-50 Baggage Compartment - Description.

(4) Disconnect the coaxial cable from the antenna.

At the bayonet connector.

(5) Remove the antenna:

- Remove the 4 screws, nuts and washers, that attach the antenna to the airplane structure.
- Move the antenna clear of the airplane.
  If necessary, cut the sealant around the base of the antenna. You must not damage the fuselage skin.

23-10-04 COM VHF Antenna

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a COM VHF Antenna

(1) Carefully remove any sealant from the area, where the antenna attaches to the fuselage.

Take care not to damage the fuselage. If necessary, use a commercial solvent.

(2) Install the antenna:

- Move the antenna into position on the fuselage.
- Make sure that the bonding strip for the antenna is correctly located.
- Install the 4 screws, washers and nuts, that attach the antenna to the fuselage.

(3) Connect the coaxial cable to the antenna.

At the bayonet connector.

(4) Do a test for the correct operation of the related speech communications system.

Refer to the Airplane Flight Manual.

(5) Install the aft baggage compartment frame or maintenance access cover.

Refer to 25-50 Baggage Compartment - Description or 52-40 Access Panels - Description.

(6) Seal the outer edge of the antenna to the fuselage skin with sealant.

Use Dow Corning 732 RTV. Follow the sealant manufacturer’s instructions.

23-10-05 PTT Switch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a PTT Switch

Use this procedure for both pilot's and co-pilot's switches.

(1) Set the ELECT. MASTER switch to OFF.

Instrument panel, left side.

(2) Open the AUDIO circuit breaker.

Instrument panel, right side.

(3) Remove the PTT switch:

Handle with care. You must not damage the bar end.

- Leverage the switch with a small screwdriver out of the stick's bar end.
- Disconnect the electrical cable from the switch and move the switch clear of the pilot's compartment.

(4) Remove the electrical cable, if necessary:

- Remove the appropriate pilot's seat.
  Refer to 25-10 Pilots Seat - Remove procedure.
- Unplug the cable.
  At the connector behind the main bulkhead.
- Pull the cable downward out.

Through the hole in the stick.

23-10-06 PTT Switch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a PTT Switch

(1) Install the electrical cable, if removed before:

- Push the cable through the inside of the stick.
  Through the hole in the stick.
- Connect the lower end of cable.
  At the connector behind the main bulkhead.

(2) Install the PTT switch:

- Connect the electrical cable to the switch and move the switch into position at the bar end of the stick.
  Put the single cables to the switch.
- Push the switch in to the cut out of the bar end.
  Push carefully. You must not damage the switch.

(3) Install the pilot's seat.

If removed. Refer to 25-10 Pilots Seat - Install procedure.

(4) Reset the AUDIO circuit breaker.

Instrument panel, right side.

23-15
SATELLITE TRANSCEIVER SYSTEM

23-15-01 Satellite Transceiver System

Description

1. Satellite Transceiver System (OÄM 50-010)

This section tells you about the satellite transceiver system that can be installed in the DA 50 C. Refer to the manufacturer's manual for more data about the equipment.

The Garmin GSR 56 provides airborne Iridium satellite telephone and SMS messaging service. Iridium telephone and text messaging are available to the flight crew through the MFD, audio panel and headset. The GSR 56 is also used to obtain worldwide weather information from Garmin Flight Data Services (GFDS). The G1000 NXi displays graphical weather information and associated text on the MFD and the PFD inset map.

The GSR 56 satellite transceiver is tray mounted and is located under the baggage compartment. The antenna of the satellite transceiver system is mounted on the fuselage, after the COM 1 antenna and before the ELT antenna.

The AVIONIC BUS supplies power to the satellite transceiver system. The ELECT. MASTER switch and the AV. MASTER switch must be set ON to supply power through a circuit breaker to the satellite transceiver system.

23-15-02 Satellite Transceiver System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

GSR 56 does not operate.

1A. Check circuit breaker.

Is the circuit breaker open?

Yes - go to step 1B.

No - go to step 1C.

1B. Set the circuit breaker.

1C. Do a test for continuity on each cable. Do a test for short circuit to ground and between the cables.

Are cables/connectors defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace defective cable.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

No or low-quality signal.

2A. Check antenna performance.

Is antenna performance poor?

Yes - go to step 2B.

No - go to step 2C.

2B. Ensure the iridium antenna has an unobstructed view of satellite constellation. Check the antenna cables and connectors.

2C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No audio output.

3A. Check wiring from GSR 56 to the audio panel.

Is the wiring defective?

Yes - go to step 3B.

No - go to step 3C.

3B. Replace the defective cable.

3C. Verify subscription with Garmin Iridium Services.

Is there no subscription with Garmin Iridium Services?

Yes - go to step 3D.

No - go to step 3E.

3D. Subcribe to Garmin Iridium Services.

3E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Unable to make a phone call.

4A. Check wiring from GSR 56 to the GIA 64 W No. 2.

Is the wiring defective?

Yes - go to step 4B.

No - go to step 4C.

4B. Replace the defective cable.

4C. Verify subscription with Garmin Iridium Services.

Is there no subscription with Garmin Iridium Services?

Yes - go to step 4D.

No - go to step 4E.

4D. Subcribe to Garmin Iridium Services.

4E. Contact DAI.

23-15-03 Satellite Transceiver System

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Test of the GSR 56 Satellite Transceiver

(1) Set the ELECT. MASTER switch and the AV. MASTER switch to ON.

(2) Select the AUX page group on the MFD.

Using the large FMS knob.

(3) Select the AUX-TELEPHONE page.

Using the small FMS knob.

(4) Ensure the system displays reasonable Iridium signal strength.

To improve signal strength, move airplane out of the hangar.

(5) Press the TEL button on the GMA 1360 audio panel.

(6) Press the DIAL softkey on the MFD.

(7) Enter the test phone number in the ENTER PHONE NUMBER field.

Using the FMS knobs or the softkeys on the MFD.

(8) Press ENT on the MFD.

To accept the phone number.

(9) Press ENT on the MFD again.

To initiate the dialling sequence.

(10) When the call is completed, press the HANGUP softkey on the MFD to end the call.

(11) Set the ELECT. MASTER switch and the AV. MASTER switch to OFF.

23-15-04 GSR56 Satellite Transceiver

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GSR 56 Satellite Transceiver

(1) Set the ELECT. MASTER switch and the AV. MASTER switch to OFF.

(2) Open the IRIDIUM circuit breaker.

(3) Remove the trim/cover from the front face of the baggage compartment.

(4) Loosen the lock nut, that attaches the transceiver to its mounting tray.

(5) Remove the satellite transceiver from the mounting tray.

23-15-05 GSR56 Satellite Transceiver

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GSR 56 Satellite Transceiver

(1) Put the satellite transceiver in position in the mounting tray.

(2) Tighten the lock nut that attaches the transceiver to its mounting tray.

(3) Install the baggage compartment.

(4) Close the IRIDIUM circuit breaker.

(5) Do a test of the satellite transceiver.

Refer to 23-15 Satellite Transceiver System - Operation Test.

23-15-06 Iridium Antenna

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Iridium Antenna

(1) Remove the baggage compartment.

(2) Open the IRIDIUM circuit breaker.

(3) Disconnect the connector of the Iridium antenna.

At the antenna.

(4) Remove the antenna:

- Remove the 4 screws, washer and nuts, that attach the antenna to the structure.
- If necessary, use a knife to carefully remove the sealant, that seals the antenna to the airplane outer surface.
  Take care not to damage the airplane surface!
- Move the antenna clear of the airplane.

23-15-07 Iridium Antenna

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Iridium Antenna

(1) Move the antenna into position.

(2) Install the 4 screws, washers and nuts, that attach the antenna to the airplane.

(3) Seal the outer edge of the antenna, where it contacts the airplane surface with sealant.

Refer to 34-50 Dependent position determining - Description for approved sealants.

(4) Remove the excess sealant, that has been forced out of the joint between the antenna and the airplane surface.

(5) Connect the coaxial cable to the antenna.

At the antenna.

(6) Reset the IRIDIUM circuit breaker.

(7) Do a test of the satellite transceiver system.

Refer to 23-15 Satellite Transceiver System - Operation Test.

(8) Install the baggage compartment.

23-15-08 GDL 69A Datalink System

Description

1. Description

The GDL 69A datalink system provides real-time weather information and audio entertainment. The GDL 69A datalink system communicates with the G1000 NXi via an Ethernet connection. The GDL 69A datalink system is located on the avionics rack in the rear fuselage, just aft of the rear baggage frame.

Refer to the G1000 NXi Line Maintenance Manual, P/N 190-02631-00.

23-15-09 GDL 69A Datalink Receiver

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GDL 69A Datalink Receiver

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the DATALINK circuit breaker. Pull the circuit breaker.

(3) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure

(4) Release the locking screw from the retainer.

(5) Lift the retainer clear of the unit.

(6) Remove the datalink receiver from the mounting tray.

Refer to Figure 1.

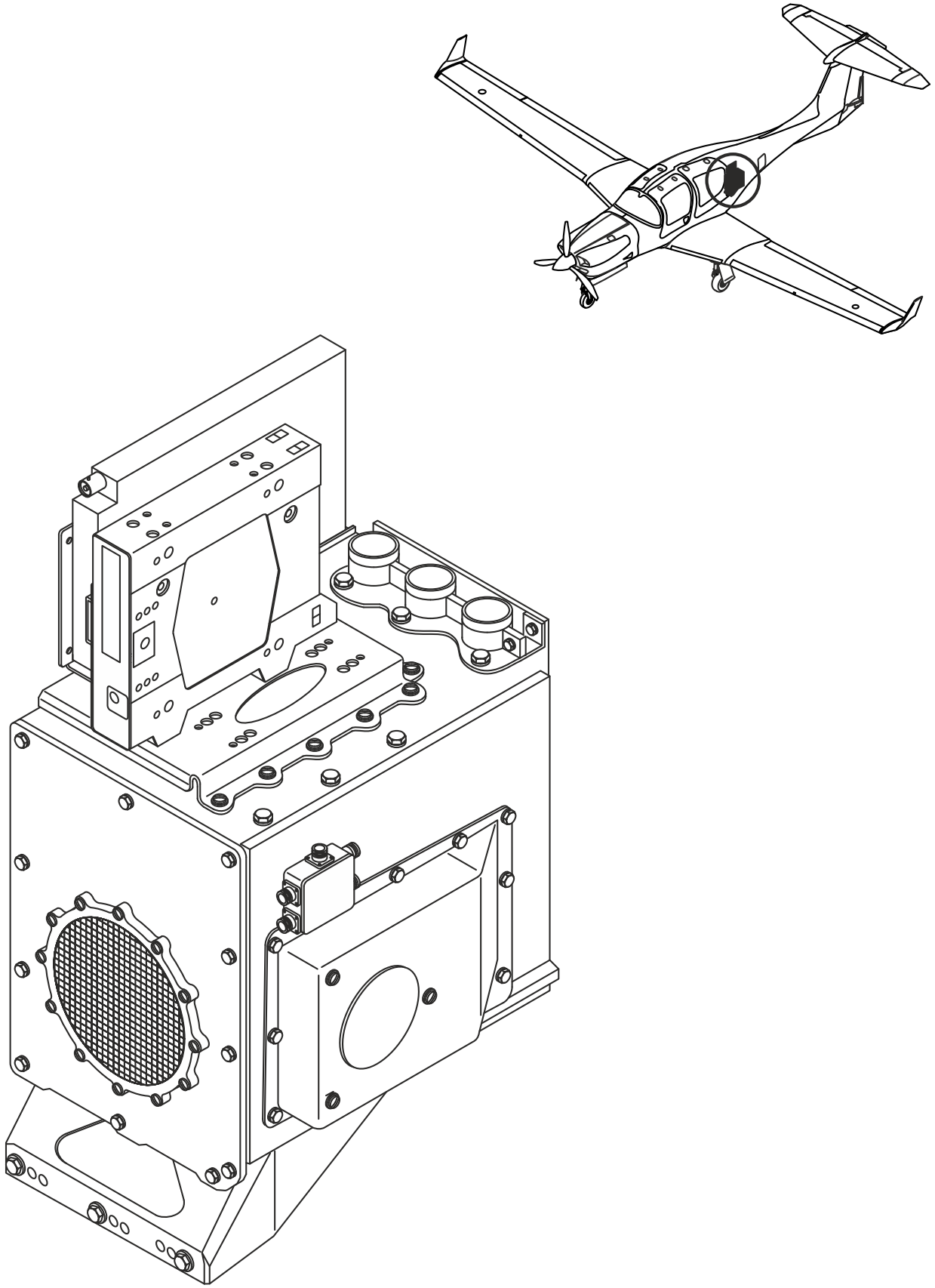


Figure 1 - Installation of the GDL 69A Datalink Receiver

23-15-10 GDL 69A Datalink Receiver

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GDL 69A Datalink Receiver

(1) Move the unit into position and insert the unit into its mounting rack.

(2) Move the retainer into position and secure the locking screw.

(3) Install the baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(4) Reset the DATALINK circuit breaker.

(5) Do a test of the datalink system.

Refer to 34-50 ADF System - System Test.

23-50
AUDIO INTEGRATION

23-50-01 Audio Integration

Description

1. Audio Integration

The DA 50 C has a voice-operated (VOX) intercom. This gives full hands free intercom when headsets are used. The pilot controls the intercom system with the audio control panel. The audio control panel is located in the instrument panel between the integrated cockpit system (ICS) display screens.

Push to talk (PTT) switches are installed in the handles of both control sticks (if OÄM 50-035 is installed, the RH control stick, including the PTT switch is removable by the pilot). The jack sockets for all the headsets are located at the center console.

2. Description and Operation

Figure 1 shows the GMA 1360 audio control panel of the DA 50 C airplane. The audio control panel is powered with the Garmin G 1000 ICS and is an integral component of the integrated cockpit system. The audio control panel makes an interface between the audio systems of the integrated cockpit system (ICS) and the pilots'/crew headsets.

The audio control panel is located in the instrument panel between the ICS displays. The control panel keys have LED annunciator labels and has backlighting which is controlled by the ICS. When a key is active the annunciator is lit by the LED. The control panel performs a self-test when power is applied to the panel which then resets the panel to the operating condition that was set when the panel was last powered off. If the control panel fails the self-test the panel switches to a fail safe mode and all fail safe audio output is directed to the pilot's headset.

The control panel has these keys and selectors:

- COM 1 MIC key. Press this key to select the COM 1 MIC as active MIC source. Selecting a MIC source automatically activates the corresponding COM audio if it is inactive. A solid annunciation in the key indicates the COM MIC active, while a flashing annunciation on the MIC key indicates Push to talk (PTT) has be keyed. The pilot has priority when transmitting.
- COM 2 MIC key. Press this key to select COM 2 as the active microphone source and to automatically deselect any COM MIC key that may have been previously selected.
- Pressing COM 1 MIC and COM 2 MIC keys simultaneously will activate the split COM mode, in which the pilot transmits on COM 1 and the co-pilot transmits on COM 2.
- COM 1 key. Press this key to select COM 1 as the active audio source. Selecting the COM 1 audio using this key maintains COM 1 as an audio source independent of any other selection. The annunciator illuminates when the COM 1 key is activated.
- COM 2 key. Press this key to select COM 2 as the active audio source. Selecting the COM 2 audio using this key maintains COM 2 as an audio source independent of any other selection. The annunciator illuminates when the COM 2 key is activated.
- AUX MIC/ AUX key. The AUX and AUX MIC keys can be configured to act as controls for a third transceiver or as control for a radio. Pressing the AUX key selects and deselects the corresponding radio as an active audio source.
- DME/ADF/NAV1/NAV2 keys. Press one of these keys to select the related audio source. The related annunciator illuminates when the key is active.
- SPKR/PA key. The SPKR/PA key selects and deselects the speaker. The key annunciations indicate the SPKR is active. Pressing the key 2 seconds, selects the PA system. The dead front PA

annunciation immediately to the right of the button indicates the PA status. While PA is active, the selected COM MICs become inactive. The selected COM MICs will become active again when the PA is inactive. When in Split COM mode, PA can be selected. The co-pilot will transmit over PA in Split COM mode, while the pilot transmits over the selected COM.

- PILOT, COPLT, PASS key. These keys control the intercom system (ICS) isolation system. The ICS isolation system has 8 modes of operation which can all be selected using a combination of the PILOT, COPLT and PASS keys. The system has these modes of operation:
  - All OFF mode. All OFF mode is selected when neither the PILOT, COPLT or the PASS keys are annunciated. In this mode the pilot and the co-pilot can hear the selected radios and aural alerts, but not each other or the passenger, and the passengers can only hear themselves.
  - PILOT mode/ COPLT mode. PILOT mode or COPLT mode is selected when the PILOT/ COPLT key is annunciated and the PILOT/COPLT and PASS keys are not. This mode is the same as the all OFF mode.
  - PASS mode. PASS mode is selected when the PASS key is annunciate and the PILOT and COPLT keys are not. In this mode the passenger(s) can hear the selected radios and aural alerts as well as themselves. The pilot and copilot still only hear the selected radio and the aural alerts.
  - PILOT and COPLT mode. In this mode the PILOT and the COPLT keys are annunciate. The pilot and the co-pilot hear besides the selected radios and aural alerts also each other. The passenger(s) only hear themselves.
  - PILOT AND PASS mode. In this mode the PILOT and PASS keys are annunciate. The pilot and the passenger(s) hear each other and the selected radios and the aural alerts. The co-pilot only hears the selected radios and the aural alerts.
  - COPLT and PASS mode. In this mode the COPLT and PASS keys are annunciate. The co-pilot and the passenger(s) hear(s) each other and the selected radios and aural alerts. The pilot only hears the selected radios and aural alerts.
  - All ON mode. In this mode the PILOT, COPLT and PASS keys are annunciate. Everybody hears the selected radios, the aural alerts and the pilot, the co-pilot as well as the passenger (s).
- TEL, MUS1 and MUS 2 keys. Press one of these keys to select or deselect the corresponding audio source.
- MKR/MUTE key. Selects and deselects marker beacon receiver audio. If active and currently receiving marker beacon audio, pressing the button will mute the currently received marker beacon audio. Marker beacon audio will return when a different marker signal is received.
- HI SENS key. Activates or deactivates higher marker beacon receiver sensitivity.
- MAN SQ key. Activates or deactivates manual ICS squelch. When manual ICS squelch is not active, ICS auto squelch is active.
- PLAY key. Press this key to replay the digital recording made by the ICS. The digital recording of recent audio activity will be heard over the headset. The annunciator illuminates when the PLAY key is active.
- DISPLAY BACKUP button. The DISPLAY BACKUP button activates reversionary mode on cockpit displays.
- VOLUME/SQ knob. This knob has 2 functions depending on the selection of the MAN SQ key.
  - MAN SQ key deselected. When the MAN SQ key is deselected the ICS squelch levels are set automatically. The VOLUME/SQ knob acts as a volume control and the VOL caption to the lower left of the knob illuminates. Rotate the inner knob clockwise to increase the volume level of the pilot's ICS and rotate the inner knob counter-clockwise to reduce the volume of the pilot's

ICS. Rotate the outer knob counter-clockwise to reduce the volume level of the co-pilot's and passengers' ICS.

- MAN SQ key selected. When the MAN SQ is selected the ICS squelch levels can be set manually and pressing the VOLUME/SQ knob toggles the manual squelch ON/OFF. Manual squelch is toggled ON when the SQ caption to the lower left of the knob illuminates. Rotate the inner knob clockwise to increase the squelch threshold of the pilot's ICS and rotate the inner knob counterclockwise to reduce the squelch threshold of the pilot's ICS. Rotate the outer knob clockwise to increase the squelch threshold of the co-pilot's and passengers' ICS. Rotate the outer knob counter-clockwise to reduce the squelch threshold of the co-pilot's and passengers' ICS.

3. Maintenance Practices

The maintenance practices tells you how to remove/install the GMA 1360 audio control panel. It also tells you how to adjust/test the ICS. Refer to the equipment manufacturers manuals for more data about the audio integrating system.

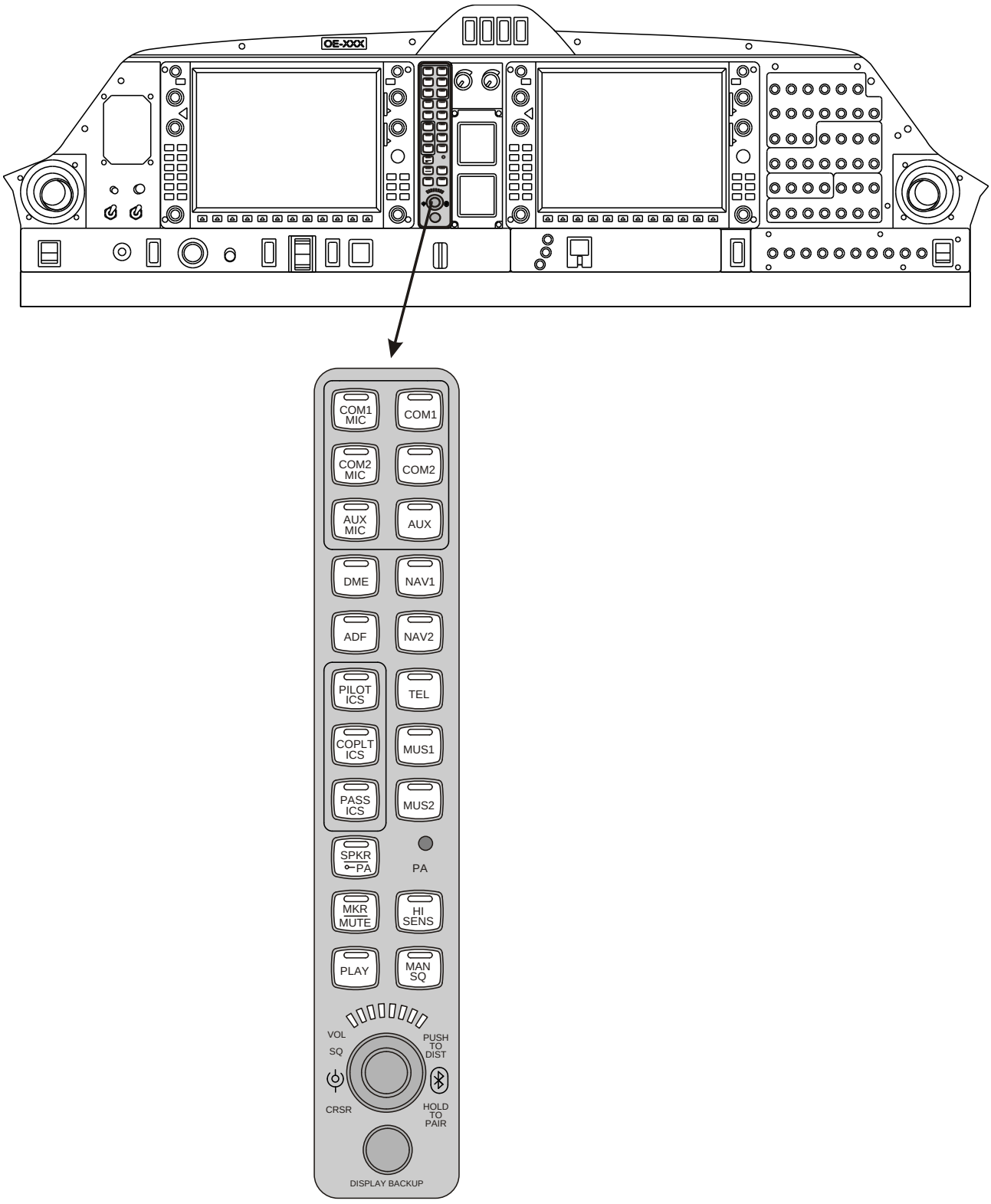


Figure 1 - Audio Control Panel

23-50-02 Audio Integration

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No voice modulation when transmitting from co-pilot's side on headset. Pilot's side is OK.

1A. Check the headset.

Is the headset defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the headset.

1C. Do a test of the mic audio wiring.

Is the mic audio line open?

Yes - go to step 1D.

No - go to step 1E.

1D. Close mic audio line.

1E. Check the GMA 1360.

Is the GMA 1360 defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the GMA 1360.

1G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No voice modulation when transmitting from the pilot's side on the headset. Co-pilot's side is OK.

2A. Check the headset.

Is the headset defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the headset.

2C. Do a test of the mic audio wiring.

Is the mic audio line open?

Yes - go to step 2D.

No - go to step 2E.

2D. Close mic audio line.

2E. Check the GMA 1360.

Is the GMA 1360 defective?

Yes - go to step 2F.

No - go to step 2G.

2F. Replace the GMA 1360.

2G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No intercom audio on pilot's headset. Receives radio transmission correctly.

3A. Check ICS mode.

Is the ICS mode set incorrectly?

Yes - go to step 3B.

No - go to step 3C.

3B. Set mode to required position, refer to GMA 1360 Audio Control Panel - Install procedure.

3C. Check the GMA 1360.
Is the GMA 1360 defective?
Yes - go to step 3D.
No - go to step 3E.

3D. Replace the GMA 1360.

3E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

No audio on pilot's headset with the ICS set to OFF.

4A. Check the headset.
Is the headset defective?
Yes - go to step 4B.
No - go to step 4C.

4B. Replace the headset.

4C. Do a test of the headset audio wiring.
Is the audio line open?
Yes - go to step 4D.
No - go to step 4E.

4D. Close the audio line.

4E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

No audio on co-pilot's or passenger headset.

5A. Do a test of the headset audio wiring.
Is the audio line open?
Yes - go to step 5B.
No - go to step 5C.

5B. Close the audio line.

5C. Check the GMA 1360.
Is the GMA 1360 defective?
Yes - go to step 5D.
No - go to step 5E.

5D. Replace the GMA 1360.

5E. Contact DAI.

23-50-03 GMA 1360 Audio Control Panel

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GMA 1360 Audio Control Panel

(1) Make sure that the ELECT. MASTER switch is set to OFF.

Instrument panel, lower center.

(2) Remove the audio control unit:

Refer to 23-50 Audio Integration - Description Figure 1.

- Insert a 3/32" hexagonal drive wrench into the access hole in the front of the panel.
- Rotate the locking mechanism counterclockwise to release the lock.
- Pull the audio control panel towards you and clear of the instrument panel.

23-50-04 GMA 1360 Audio Control Panel

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GMA 1360 Audio Control Panel

(1) Examine the connecters at the rear of the audio control panel. Look specially for bent or damaged pins.

(2) Insert a 3/32" hexagonal drive wrench into the access hole in the front of the panel and rotate the locking mechanism 90° counter-clockwise to make sure that the locking mechanism is in the unlocked position.

(3) Install the audio control panel:

- Move the audio control panel into position at the instrument panel.
- Carefully slide the panel into position in the instrument panel.
  Make sure that the audio control panel fully engages with the connectors at the rear of the panel.
- Insert a 3/32" hexagonal drive wrench into the access hole in the front of the panel and rotate the locking mechanism clockwise to lock the panel into position.
  Make sure that you cannot pull the audio control panel towards you!

(4) Do a test for the correct operation of the audio control panel. If you have installed a replacement audio control panel you may have to update the Garmin G1000 NXi integrated cockpit system software.

Refer to the G1000 NXi Line Maintenance Manual for data about installing software and testing the audio control panel.

23-60
STATIC DISCHARGING

23-60-01 Static Discharge

Description

1. Static Discharge

The static discharging system has 2 main parts, the airplane bonding system and the surface staticdischarging system. The bonding system gives the airplane good lightning protection.

A special bonding system is necessary for the composite structure of the DA 50 C. The composite structure does not conduct electricity. A series of metal tubes and strips make the airplane bonding system. All the metal components or the airplane and the antenna ground planes connect to the bonding system. Refer to 51-80 Lightning Protection - Description for more data about the airplane bonding system.

2. Description

The static discharging system removes the electrostatic charge which collects on the airplane surfaces. The composite structure of the DA 50 C does not let electricity flow through it. The airplane surfaces are covered with a special conductive filler through which the electrostatic charges can flow to the discharge wicks. The discharge wicks discharge the electrostatic charges back into the air.

Figure 1 shows the location of the static discharge wicks for the DA 50 C airplane.

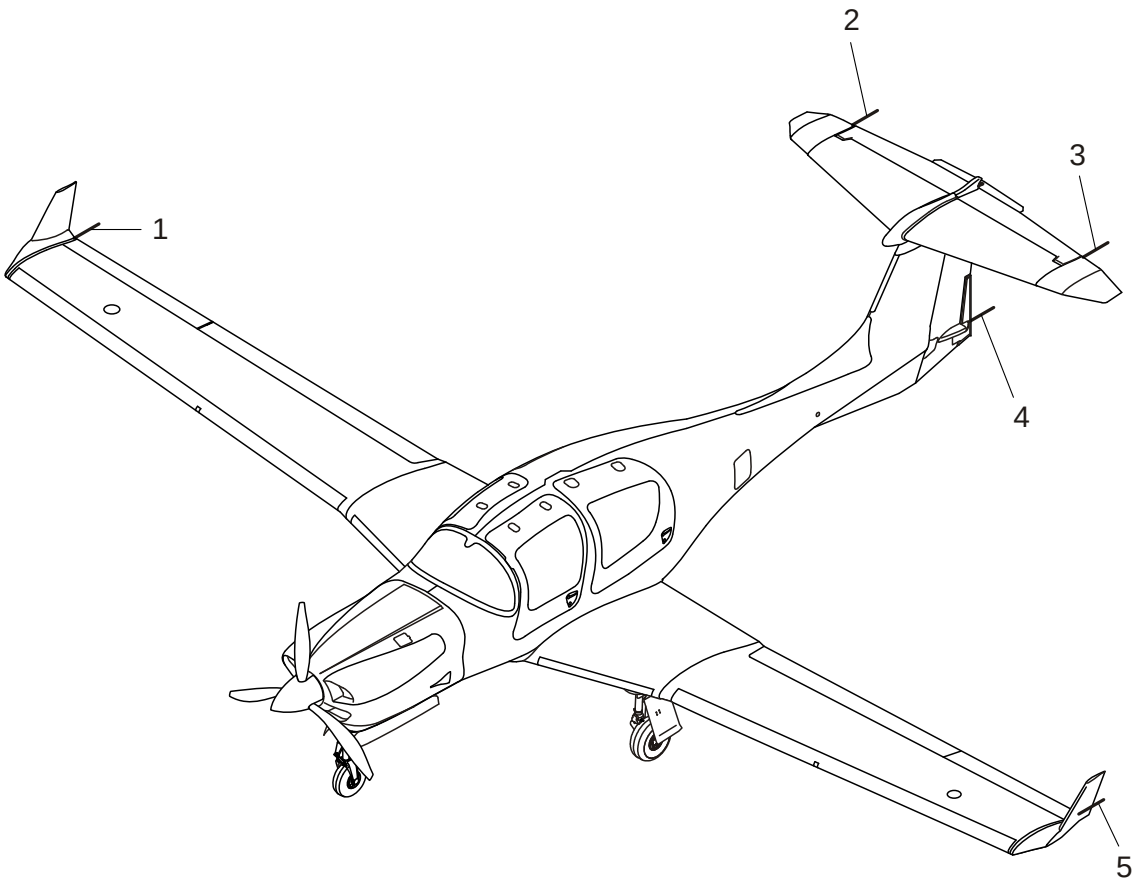


Figure 1 - Static Discharge Wick Locations DA 50 C

Legend

[1, Fig.1] Static Discharge Right Wing

[2, Fig.1] Static Discharge Right Horizontal Left Horizontal Stabilizer

[3, Fig.1] Static Discharge Left Horizontal Stabilizer

[4, Fig.1] Static Discharge Rudder

[5, Fig.1] Static Discharge Left Wing

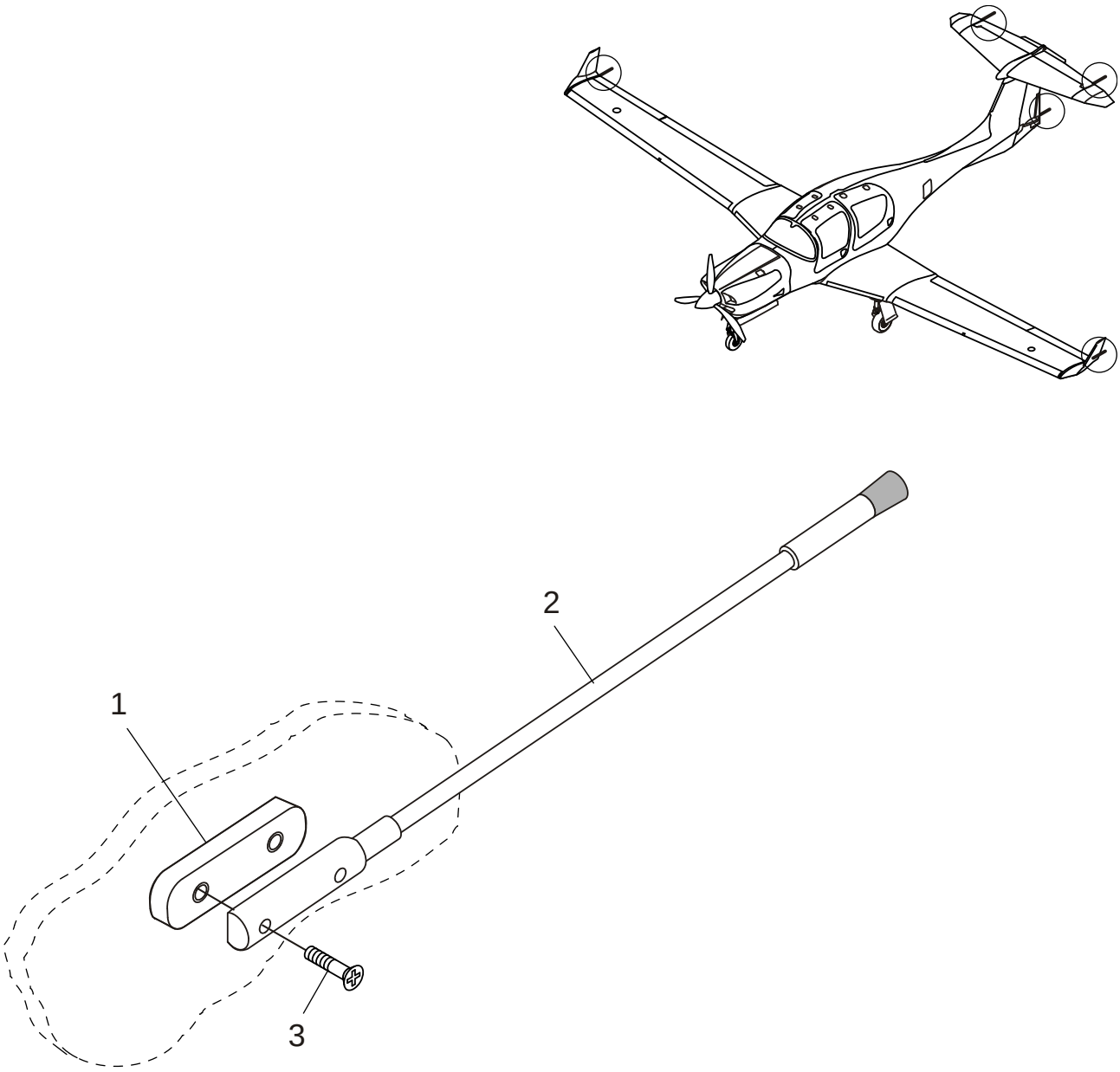


Figure 2 - Static Discharge Wick Installation

Legend

[1, Fig.2] Mounting Plate

[2, Fig.2] Static Discharger

[3, Fig.2] Screw

23-60-02 Static Discharge Wick

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Static Discharge Wick

(1) Remove the 2 screws, that attach the discharge wick to the wick mounting.

Refer to 23-60 Static Discharge - Description Figure 2.

(2) Make sure that the mounting is clean and correctly bonded to the airplane structure.

23-60-03 Static Discharge Wick

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Static Discharge Wick

(1) Move the new static discharge wick into position at the mounting.

(2) Install the 2 screws, that attach the wick to the mounting.

(3) Do a test for the correct bonding of the static discharge wick to the airplane bonding system.

Refer to 51-80 Lightning Protection - Description.

24-00
ELECTRICAL POWER

24-00-01 Electrical System

Description

1. Electrical System

The DA 50 C has a 24 V DC electrical system. This Section describes the complete system from the power supplies to the circuit breakers or other interface with the consumer components.

This Chapter has only simplified schematic diagrams and location diagrams. Refer to Chapter 92 for the wiring diagrams. Refer to the related Chapter for data about systems. For example, refer to 80-00 Starting - Description for data about the starter system.

For Trouble-Shooting and Maintenance Practices for this electrical system, refer to these Sections:

- Section 24-30. Electrical power generation. DC Generation - Description.
- Section 24-31. Battery installation. Battery Systems - Description.
- Section 24-40. External power. External Power - Description.
- Section 24-60. Power distribution. DC Electrical Load Distribution - Description.

24-00-02 Electrical System Description and Operation

Description

1. Electrical System Description and Operation

Figure 1 and Figure 2 show the electrical system simplified schematic diagrams.

A. Power Supplies

(1) Main Battery

The main battery is located in the engine compartment and is mounted on the forward RH side of the cockpit front bulkhead. It is a 24V, 13.6Ah sealed lead acid battery. The battery is connected to the main airplane ground, the battery relay and the battery HOT BUS.

(2) Alternators

The engine has two alternators located at the rear of the engine. A flat multi-vee belt with automatic tensioner turns the alternators. The alternators have external regulators, which are located at the back of the fire-wall in the engine compartment. The output from the alternators connects to the MAIN BUS, through terminal blocks, relays and fuses. Both alternators have an excitation battery each, which are located below the passenger seats.

(3) External Power Connector

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (E.G. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH (1 AND 2) ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

The external power connector is located on the lower right-hand side of the engine cowling. The external power connector connects to the external power relay in the relay junction box in the engine compartment.

- The control pin connects to the relay coil through a diode to prevent reverse connection.
- The + pin connects to the relay main input connection.
- The – pin connects to ground.

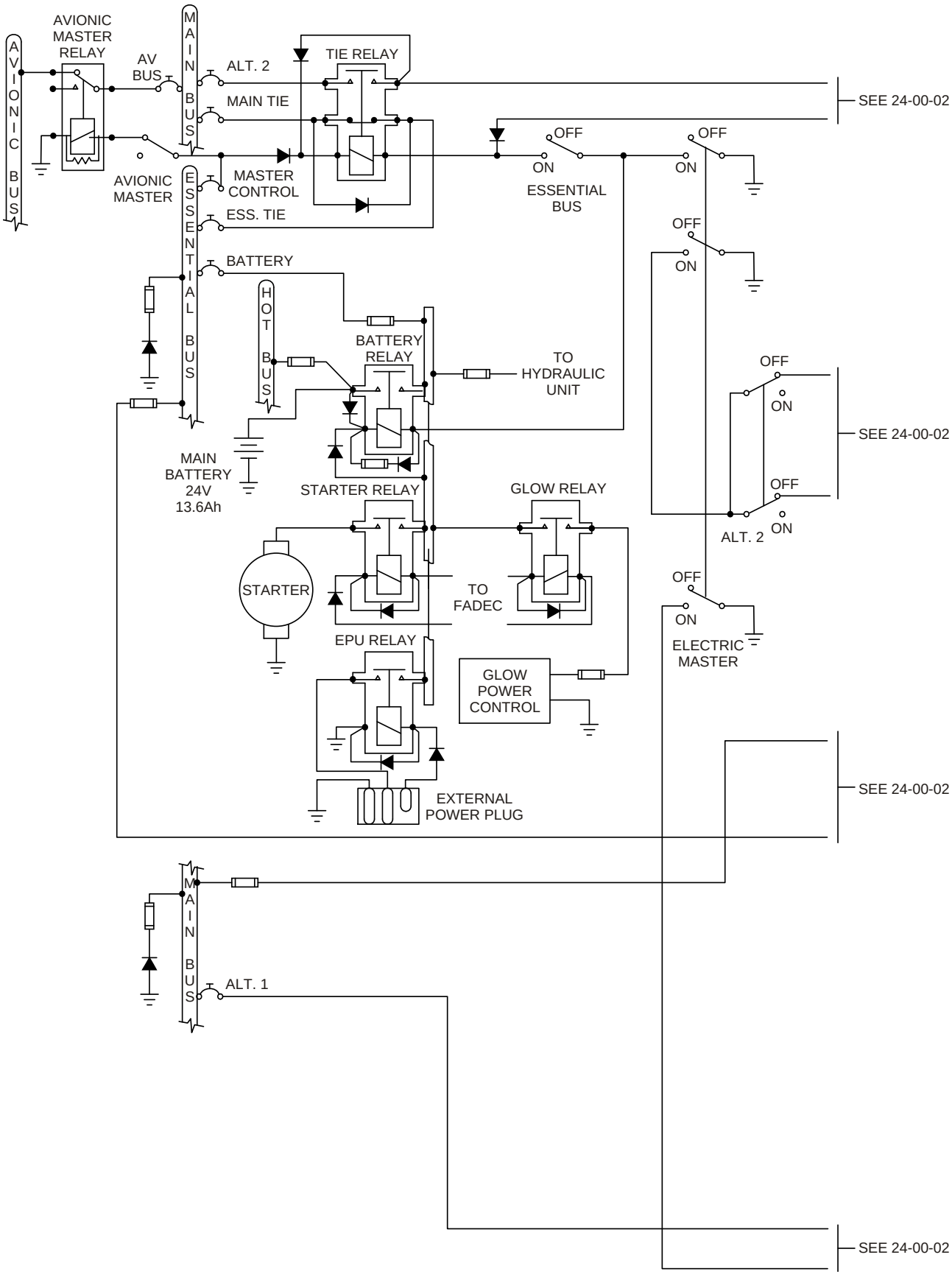


Figure 1 - Electrical Schematic (Simplified) - Sheet 1

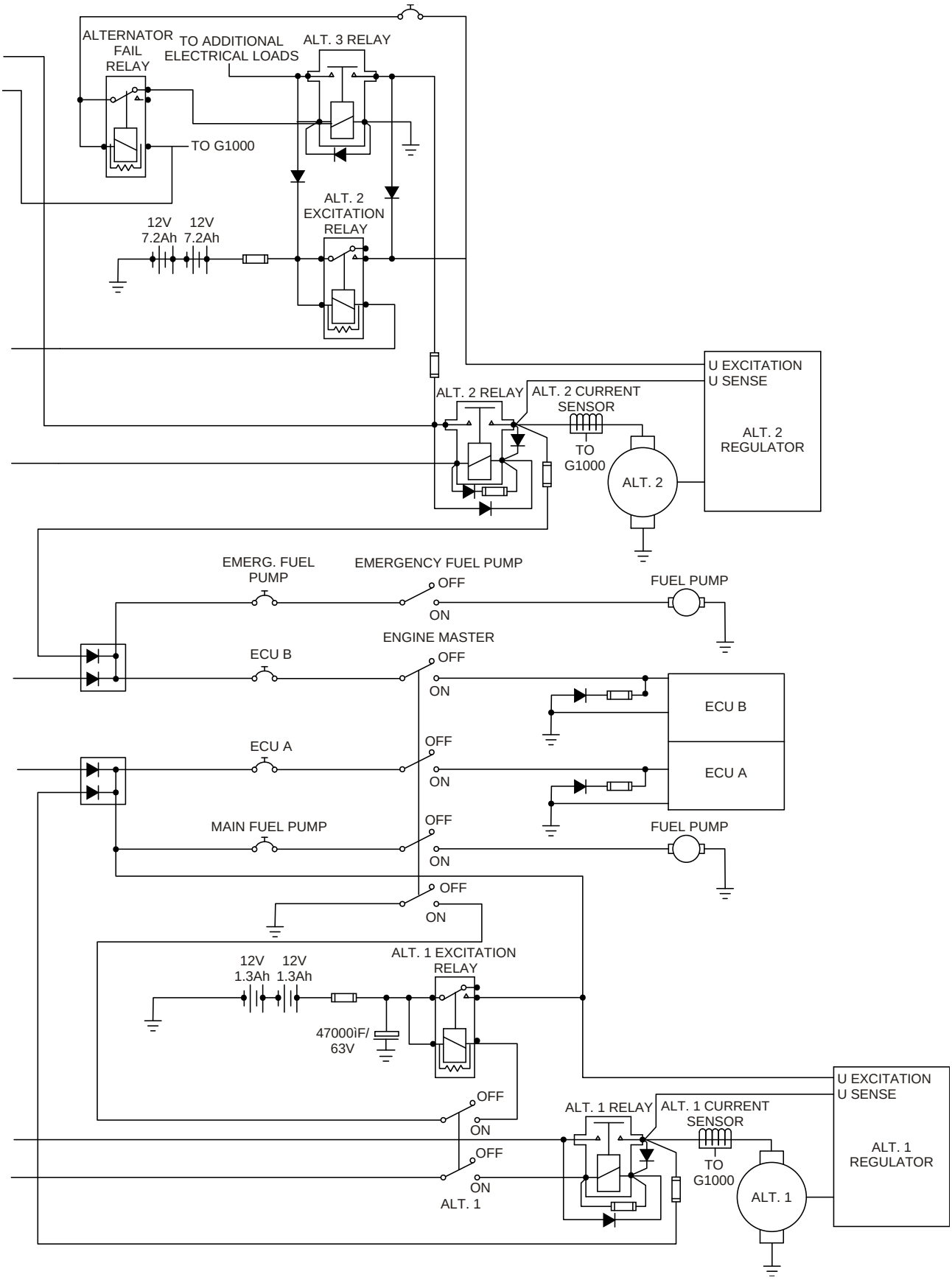


Figure 2 - Electrical Schematic (Simplified) - Sheet 2

24-00-03 Power Supply Control

Description

1. Power Supply Control

A. Battery Relay

The battery relay is located in the relay box in the engine compartment. The output from the battery relay connects directly to the BATTERY BUS bar. The coil of the battery relay is connected to the battery (+) via diodes. The ELECT. MASTER switch provides the coil with ground, when set to the ON position.

B. External Power Relay

The external power relay is located in the relay junction box in the engine compartment. The relay output connects directly to the BATTERY BUS bar. If a 28 V external power is connected, the +28 V DC on the control pin energizes the relay. The relay operates and connects the external power to the BATTERY BUS bar.

C. Starter Relay

The starter relay contacts connect to the BATTERY BUS bar. Power is applied to the coil of the starter relay, when the ELECT. MASTER and the ENGINE MASTER switches are set ON and the STARTER button is pressed. The energized coil operates the starter relay, which connects the power to the engine starter motor.

D. Bus Structure

All buses are flat metal strips connecting rows of circuit breakers. The circuit breakers are located on the instrument panel. The BATTERY BUS bar connects the GLOW Relay, the BATTERY Relay, the STARTER Relay and the EXTERNAL POWER Relay and is located on the relay panel in the engine compartment. The BATTERY BUS is connected via a 100 A fuse to the ESSENTIAL BUS and via a 50 A fuse to the hydraulic pump.

E. Hot Bus

The HOT BUS is connected to the main battery relay input connection. The HOT BUS supplies power for the PILOT MAP LIGHT.

F. Essential Bus

The ESSENTIAL BUS is connected via a 100 A fuse and a 60 A circuit breaker to the BATTERY BUS. It is also connected to the tie relay via a 50 A circuit breaker.

G. Main Bus

The MAIN BUS in connected to the ESSENTIAL BUS via a 50 A circuit breaker and the tie relay. In normal configuration, power is provided from alternator 1 via a 60 A circuit breaker. In case of alternator 1 failure, the MAIN BUS is provided with power from the second alternator via a relay and a 60 A circuit breaker, when switching the essential bus switch ON.

H. Avionics Bus

The AVIONICS BUS supplies power to the avionic consumers through circuit breakers and fuses. The power from the AVIONIC BUS is supplied by the MAIN BUS and is controlled by the avionics master relay and AV. MASTER switch.

I. Avionics Master Control System

The AV. MASTER switch and the avionic master relay make the main components of the avionics master control system.

In normal operation the AV. Master switch is set to the ON position. In the OFF position the power is supplied to the coil of the avionics master relay and the avionics master relay operates and removes power from the AVIONICS BUS.

The avionic master relay connects the AVIONICS BUS to the MAIN BUS. The AV. MASTER switch controls the avionics master relay.

J. Elect. Master Switch

The ELECT. MASTER switch is located on the bottom of the instrument panel, left side. It is a rocker switch that has 3 sets of contacts. When the switch is set to ON the contacts operate as follows:

- The coil of the battery is connected to ground and the battery relay operates.
- The ground side of the 1st alternator switch is connected to ground.
- The ground side of the 2nd alternator switch is connected to ground.

K. Start Button

Pressing the START button, with the ELECT. MASTER switch and the ENGINE MASTER switch set to ON will cause the engine starter motor to operate.

L. Engine Master

The ENGINE MASTER switch is located next to the STARTER button. The switch has 4 sets of contacts which operate as follows:

- The main fuel pump is energized if the ELECT. MASTER switch is set to ON.
- In serial connection with ALT. 1 switch, switched to ON, the ALT. 1 excitation relay is energized.
- The ESSENTIAL and MAIN BUS are connected to the related ECU A or B.

M. Alternator 1 and 2 Switches

Each engine alternator relay has a control switch. The control switches are labelled ALT. 1 and ALT. 2. When the ELECT. MASTER switch is set to ON setting the ALT. 1 or ALT. 2 switches to ON gives a ground to the related engine alternator relay. The relays operate and connect the related alternator to the MAIN BUS. For alternator 1, the ENGINE MASTER switch also need to be set to ON, for the alternator to operate.

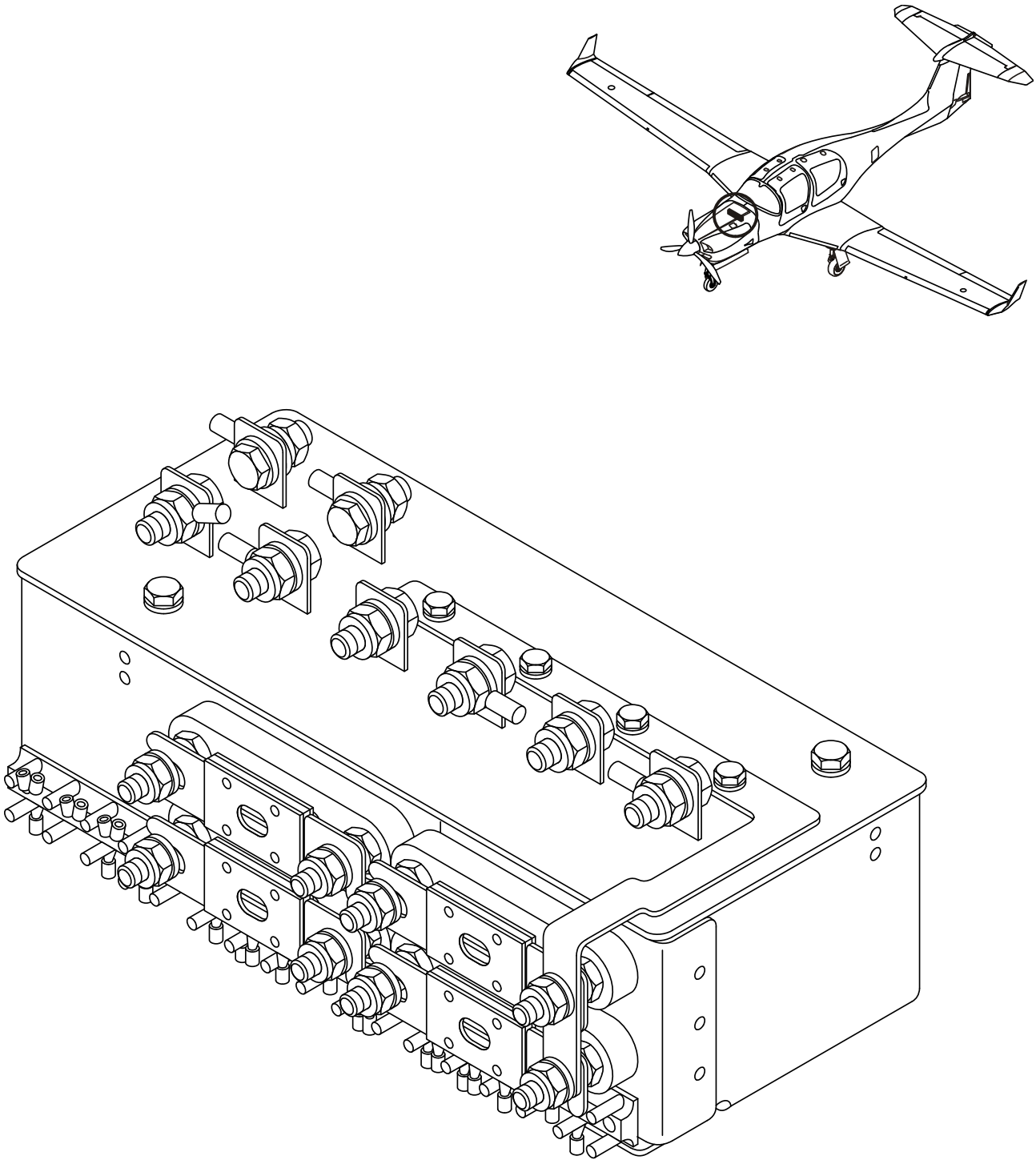


Figure 3 - Relay Locations in the Relay Box

24-30
DC GENERATION

24-30-01 DC Generation

Description

1. DC Generation

The DC generation system for the DA 50 C has these components:

- Alternators 1 and 2.
- Alternator relays 1 and 2.
- ENGINE MASTER switch.
- ELECT. MASTER switch.
- Alternator current sensors 1 and 2.
- Alternator regulators.
- Excitation Batteries (ALT. 1 and ALT. 2).

This Section gives you only the simplified description, Trouble-Shooting and Maintenance Practices for the DC generating system of the DA 50 C. Refer to 24-00 Electrical System - Description for a general description of complete electrical system.

2. Description and Operation

Figure 1 shows the generation system simplified schematic diagram.

A. Alternators

Both alternators are supplied with the engine. Each alternator uses a 28.5 VDC machine with a maximum output of 70 Ampere. The alternators are located at the rear of the engine. A multi-V-belt drives the alternators. An automatic system keeps the belt at the correct tension. The alternators have external regulators, which are located aft the firewall in the engine compartment.

B. Alternator Relays

The alternator relays connect the output of each alternator to the MAIN BUS (Alternator 1) and Essential Tie Relay (Alternator 2). The 1st alternator directly to the main bus, the 2nd alternator via a tie relay. Each alternator relay is controlled by a switch located on the instrument panel. The relays are located in the relay box, which is located in the engine compartment.

C. Alternator Current Sensors

A current sensor monitors the current supplied by the alternator outputs and indicates them on the Garmin G1000 NXi system. They are installed in the engine compartment, aft of the firewall, adjacent to the alternator regulators and monitor the current between the alternator and the related alternator relay.

D. Alternator Regulators

Each alternator has an external regulator. The regulator controls the output of the alternator.

E. Excitation Batteries

To excite the alternators, additional sealed-lead-acid batteries are connected to the alternator regulators.

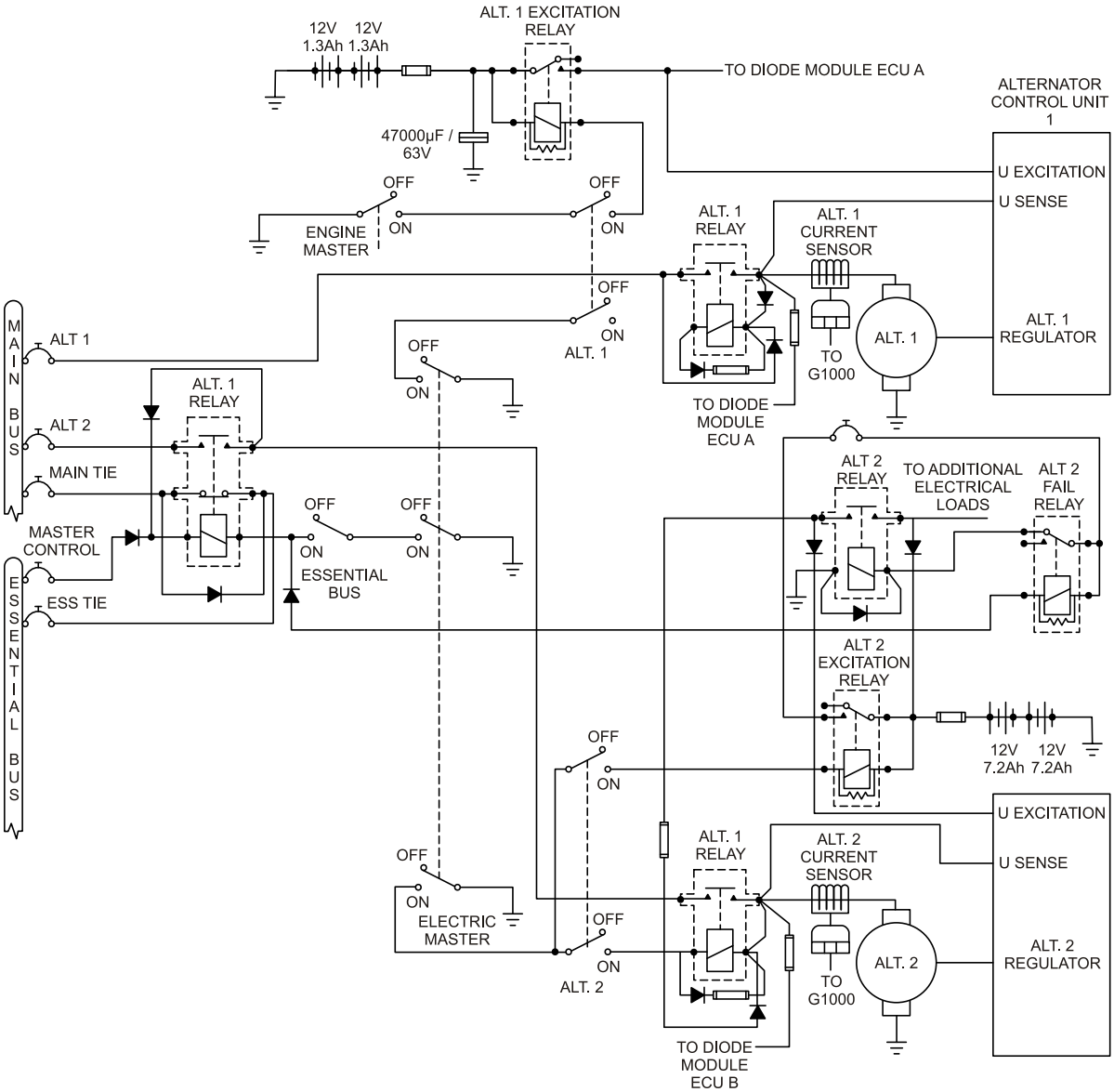


Figure 1 - DC Generation Schematic Diagram 1

24-30-02 DC Generation

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

1st or 2nd alternator warning light illuminated.

1A. Examine related alternator.

Is the related alternator defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Refer to the engine manufacturer.

1C. Contact DAI.

24-30-03 Relay in Relay Box

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Remove a Relay from the Relay Box

(1) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(2) Disconnect the battery for maintenance.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Disconnect the BATTERY BUS bar:

- Remove the bolts and washers, that attach the relays to the BATTERY BUS bar.

(4) Disconnect all electrical cables from the relay box.

(5) Disconnect the electrical cables from the relay on the terminal block.

(6) Remove the cover from the relay box.

(7) Remove the bolts and washer, that connects the relay to the relay box.

(8) Remove the relay clear of the relay box.

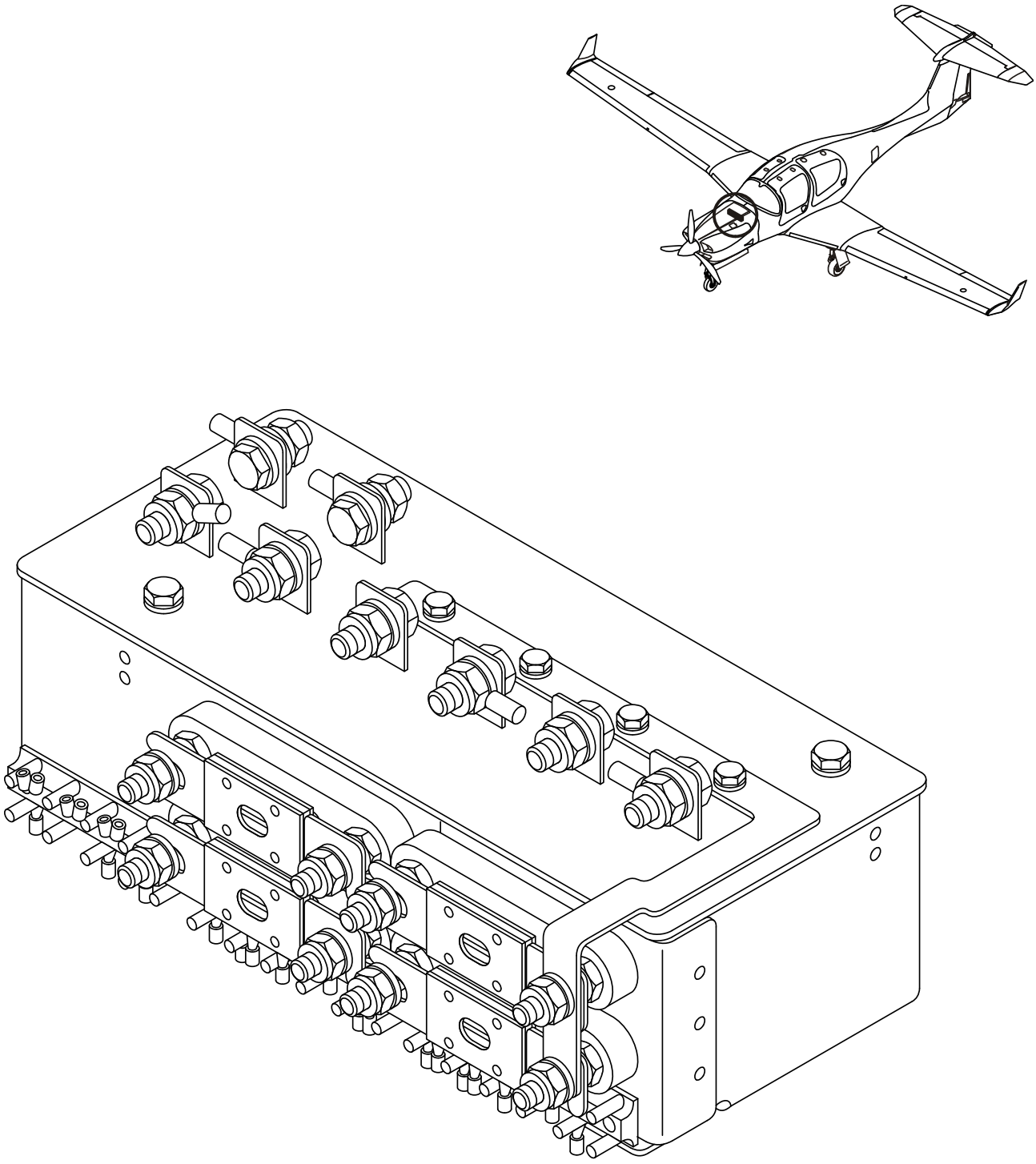


Figure 2 - Relay Box in the Engine Compartment

24-30-04 Relay in Relay Box

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Install a Relay in the Relay Box

(1) Move the relay into position in the relay box and install the bolts and washer to attach the relay.

(2) Connect the control cables to the terminal block.

Check for correct polarity.

(3) Install the relay box cover.

(4) Connect the BATTERY BUS BAR:

- Install the washer and bolts, that attach the BATTERY BUS bar to the relay box.

(5) Connect all electrical cables.

(6) Connect the airplane battery.

Refer to 24-31 Main Battery - Connect procedure.

(7) Do a test for correct operation of the alternator relay:

- Do a ground run up of the engine.
  Refer to 71-00 Engine - Operation Test.
- Make sure that the alternator comes online
- Shut down the engine.

(8) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

24-30-05 Excitation Batteries

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Remove the Excitation Batteries

(1) Remove the engine cowling.

Refer to 71-10 Mid Cowling - Remove procedure.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the excitation batteries:

Refer to Figure 3 and Figure 4.

- Remove the passenger seats.
  Refer to 25-10 Passenger Seat - Remove procedure.
- Disconnect the negative cable from the batteries, that you will remove.
- Disconnect the positive cable from the batteries you will remove.
- Disconnect the serial connection cable from the batteries, that you will remove.
- Release the batter pack hold cover (clamp).
- Move the related batteries clear of the airplane.

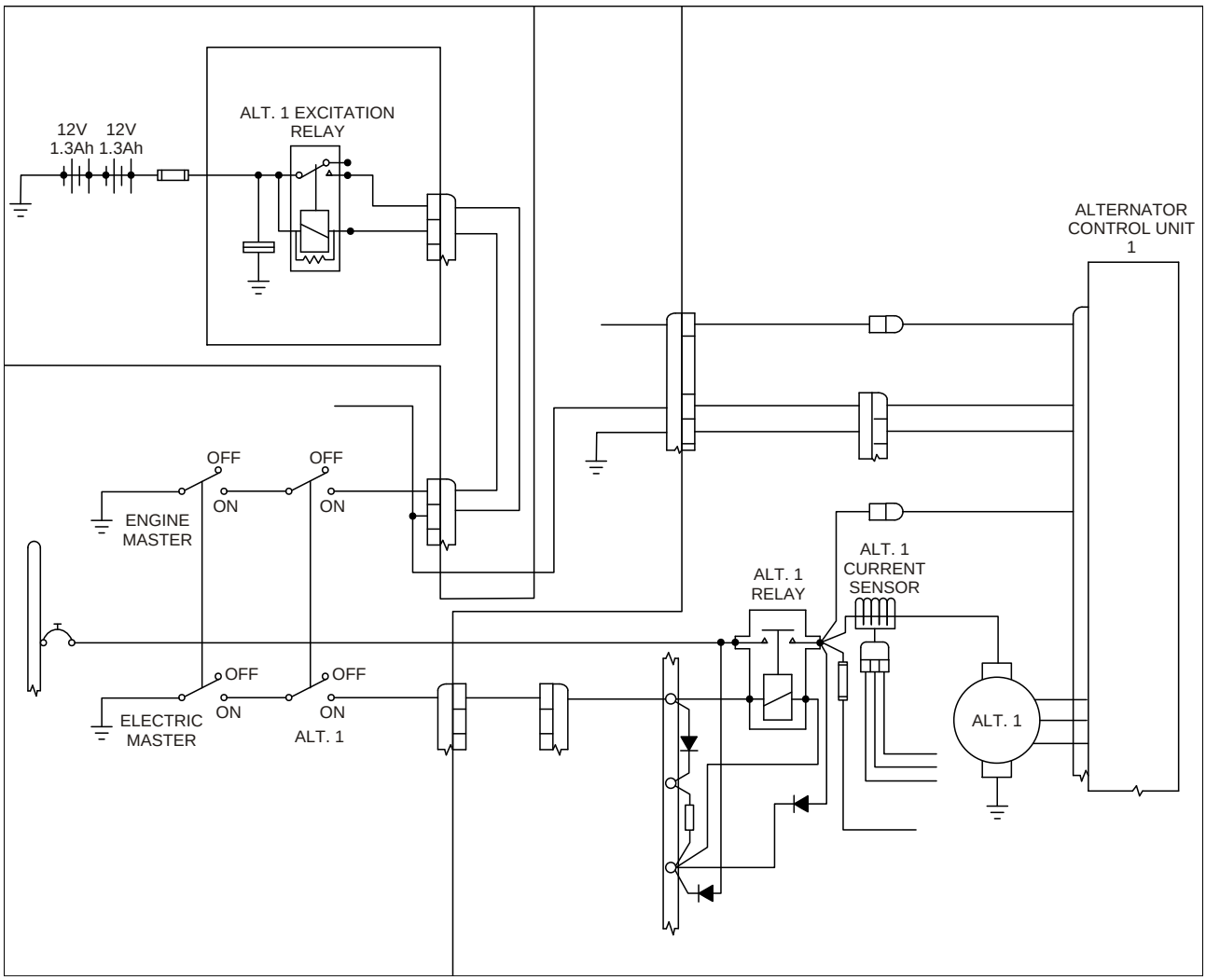


Figure 3 - Excitation Batteries (ALT 1)

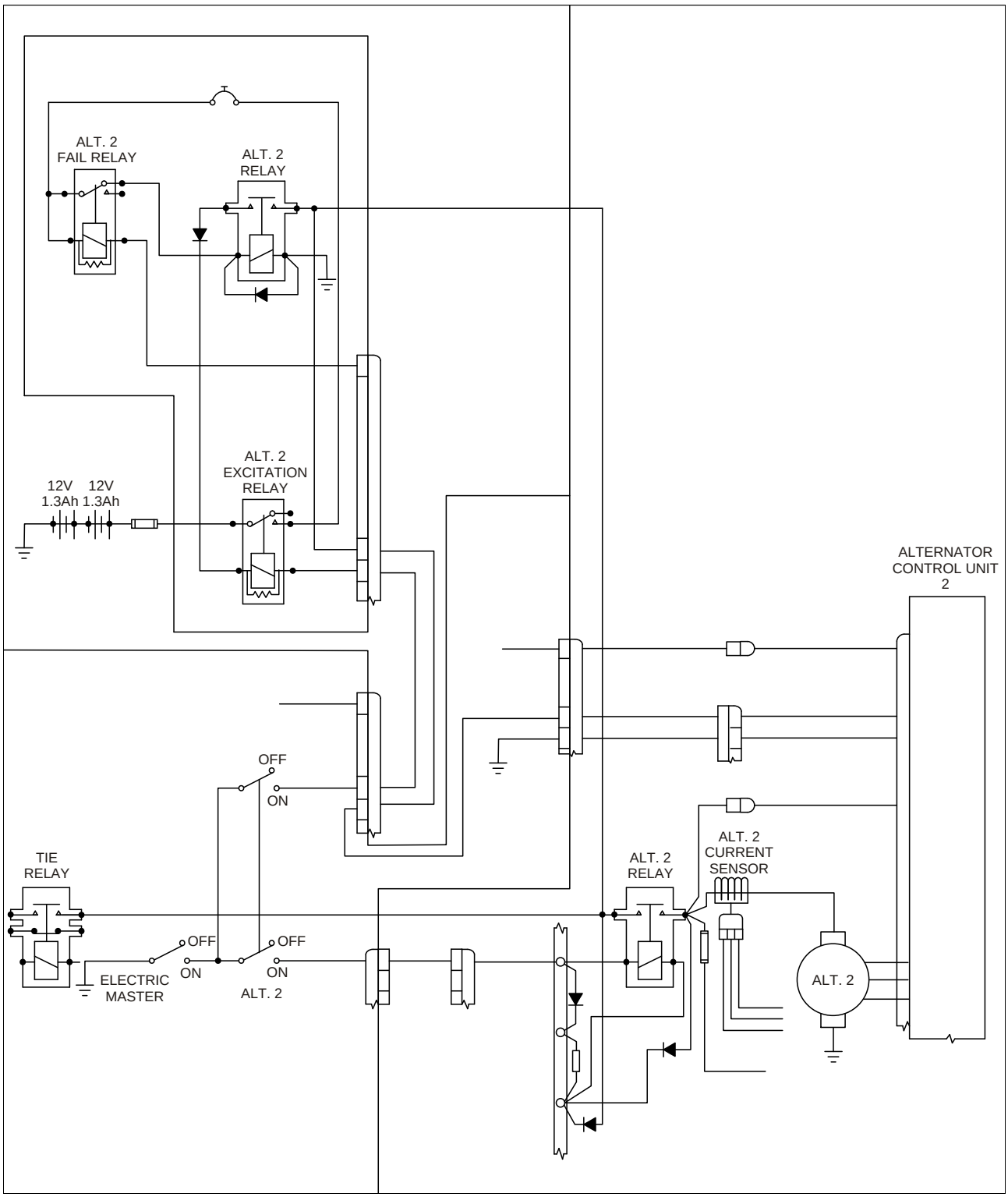


Figure 4 - Excitation Batteries (ALT 2)

24-30-06 Excitation Batteries

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Install the Excitation Batteries

(1) Move the batteries into position in its mounts.

(2) Install the battery pack holder cover (clamp).

(3) Connect the related batteries:

- Connect the serial connection cable to the batteries that you installed.
- Connect the positive cable to the batteries that you installed.
- Connect the negative cable to the batteries that you installed.
- Install the passenger seats.
  Refer to 25-10 Passenger Seat - Install procedure.

(4) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(5) Do an engine ground run-up.

Make sure that the electrical system operates correctly.

Refer to 71-00 Engine - Operation Test

(6) Install the engine cowling.

Refer to 71-10 Mid Cowling - Install procedure.

24-31
BATTERY SYSTEMS

24-31-01 Battery Systems

Description

1. General

This Section tells you about the battery systems for the DA 50 C airplane. See 24-00 Electrical System - Description and 24-30 DC Generation - Description for the description and operation of the batteries in the electrical generation system.

The DA 50 C has these battery systems:

- A main battery located in the engine compartment. This battery provides the usual airplane electrical services.
- Excitation batteries.

2. Main Battery Description and Operation

The main battery is a 24V, 13.6Ah sealed battery. A battery tray located on the forward face of the cockpit bulkhead holds the battery. You can access the battery through removing the engine cowling. A clamp and 2 bolts hold the battery in position. The positive and negative cables attach to terminals on the top of the battery, at the front. The usual rubber caps protect the electrical connections.

When either, or both of the engine alternators are on-line, the system voltage is greater than the battery voltage, and the system charges the battery.

When either or both alternators are on-line, the integrated cockpit system (ICS) display shows the voltage of the system and not of each alternator. When both alternators are offline, the ICS shows the battery voltage.

The battery supplies current to the BATTERY BUS bar through the battery relay. There is no circuit protection. The BATTERY BUS bar supplies power to the ESSENTIAL BUS and the hydraulic pump. The ESSENTIAL BUS is protected by a 100A fuse and a 60A circuit breaker. The landing gear system is protected by a 50A fuse.

The battery also supplies the HOT BUS.

3. Maintenance Practices

Regular maintenance of the battery system is necessary. Do not wait until a problem occurs.

Keep the battery clean. Remove the grease and other contaminants from the battery case. Remove dirt from the area of the terminals. Protect the terminals and cable lugs with Dow Corning compound 4 (DC4). If you do not use the airplane regularly, you must remove the battery for charging.

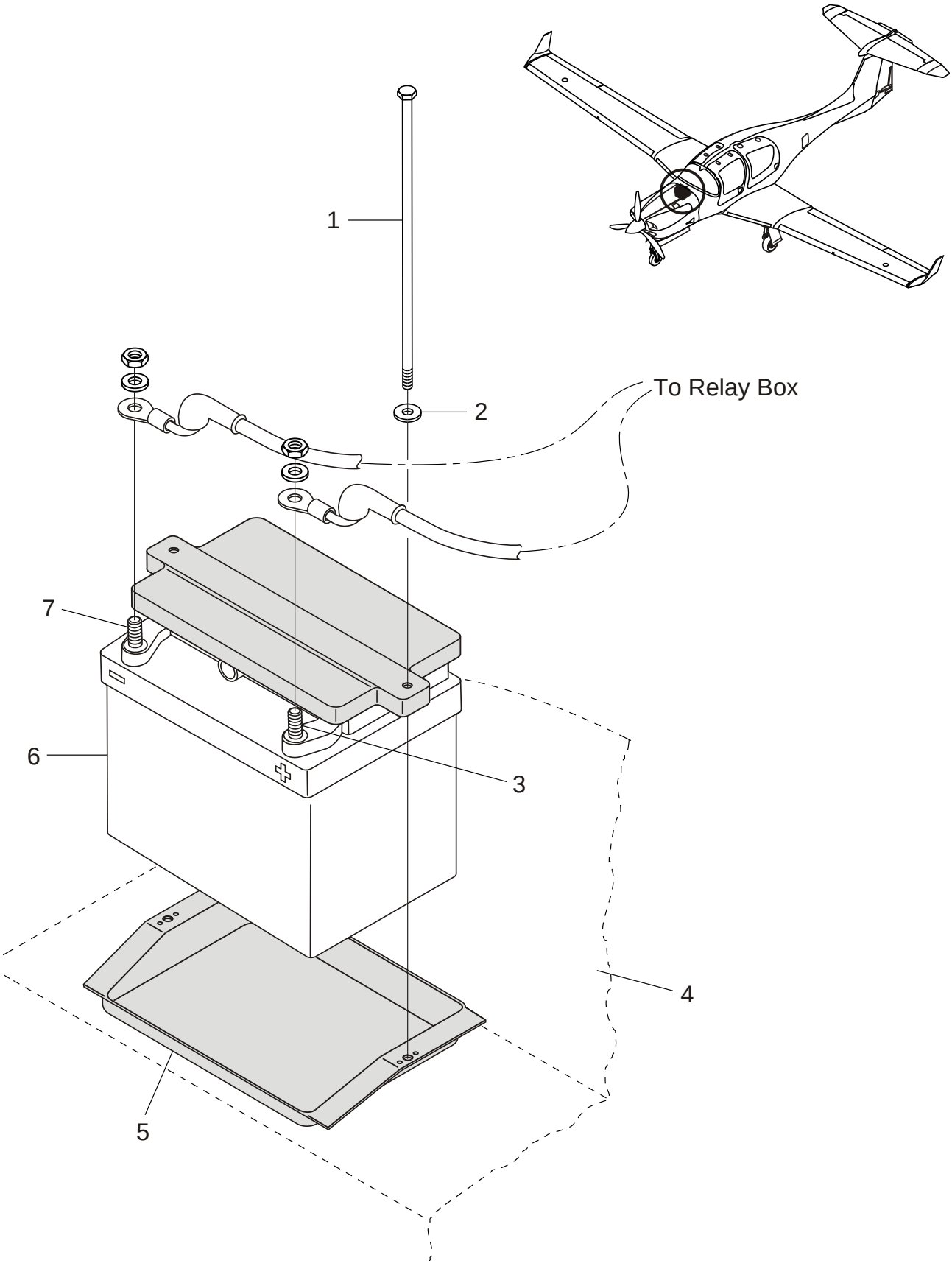


Figure 1 - Main Battery Installation

Legend

[1, Fig.1] Battery Retaining Bolt

[2, Fig.1] Washer

[3, Fig.1] Battery Positive Terminal

[4, Fig.1] Cockpit Forward Bulkhead

[5, Fig.1] Battery Mount

[6, Fig.1] Battery

[7, Fig.1] Battery Negative Terminal

24-31-02 Battery Systems

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Main battery voltage low.

1A. Do a capacity test.

Is the battery capacity low?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the battery.

1C. Check the alternator(s) output.

Is the alternator(s) output low?

Yes - go to step 1D.

No - go to step 1E.

1D. Trouble-shoot the alternator(s). Refer to DC Generation - General fault isolation procedure.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Main battery will not connect to the BATTERY BUS.

2A. Examine the battery relay.
Is the battery relay defective?
Yes - go to step 2B.
No - go to step 2C.

2B. Replace the battery relay.

2C. Examine the ELECT. MASTER switch.
Is the ELECT. MASTER switch defective?
Yes - go to step 2D.
No - go to step 2E.

2D. Replace the ELECT. MASTER switch.

2E. Do a test of the battery system wiring.
Is the battery system wiring defective?
Yes - go to step 2F.
No - go to step 2G.

2F. Replace the defective wiring.

2G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Ammeter on ICS display shows zero at all times for 1st or 2nd alternator.

3A. Examine the related transducer.
Is the related transducer defective?
Yes - go to step 3B.
No - go to step 3C.

3B. Replace the related transducer.

3C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Voltmeter on ICS display shows zero with the ELECT. MASTER switch to ON.

4A. Examine the voltmeter.

Is the voltmeter defective?

Yes - go to step 4B.

No - go to step 4C.

4B. Trouble-shoot the ICS.

4C. Do a test of the voltmeter system wiring.

Is the wiring in the voltmeter system defective?

Yes - go to step 4D.

No - go to step 4E.

4D. Replace the defective wiring.

4E. Contact DAI.

24-31-03 Main Battery

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

INSTALL ONLY A BATTERY WHICH IS APPROVED BY THE AIRPLANE MANUFACTURER.

NOTE

Obey the instructions of the battery manufacturer.

NOTE

Always disconnect the battery before you do work on the airplane electrical system. You must disconnect the negative cable first. Connect the negative cable last.

3. Main Procedure

A. Remove the Main Battery from the Airplane

(1) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(2) Disconnect the negative cable from the battery:

Refer to 24-31 Battery Systems - Description Figure 1.

- Pull back the rubber boot from the cable end.
- Remove the bolt and washer, that attaches the negative cable to the battery terminal.
- Move the negative cable clear of the battery terminal.

(3) Disconnect the positive cable from the battery:

- Pull back the rubber boot from the cable end.
- Remove the bolt and washer, that attaches the positive cable to the battery terminal.
- Move the positive cable clear of the battery terminal.

(4) Remove the battery retaining clamp:

- Remove the 2 bolts and washers, that hold the battery clamp.
- Remove the battery clamp.

(5) Remove the battery from the airplane.

24-31-04 Main Battery

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

INSTALL ONLY A BATTERY WHICH IS APPROVED BY THE AIRPLANE MANUFACTURER.

CAUTION

MAKE SURE THAT YOU CONNECT THE CABLES TO THE CORRECT TERMINALS. INCORRECT CONNECTION CAN DAMAGE THE ELECTRICAL AND AVIONICS SYSTEMS.

NOTE

Obey the instructions of the battery manufacturer.

NOTE

Always disconnect the battery before you do work on the airplane electrical system. You must disconnect the negative cable first. Connect the negative cable last.

3. Main Procedure

A. Install the Main Battery in the Airplane

(1) Make sure that the battery is clean and dry.

(2) Move the battery into position in the battery tray.

Refer to 24-31 Battery Systems - Description Figure 1.

(3) Connect the positive cable to the positive terminal of the battery:

- Move the cable end fitting into place over the positive battery terminal.
- Install the washer and bolt, that attaches the cable to the battery terminal.
- Move the rubber boot into position over the cable end.

(4) Install the battery clamp:

- Move the battery clamp into position over the battery cover.
- Install the washers on the battery clamp bolts.
- Install and tighten the battery clamp bolts.
  Tighten the bolts equally.

(5) Connect the negative cable to the negative terminal of the battery:

- Move the cable end fitting into place over the negative battery terminal.
- Install the washer and bolt, that attaches the cable to the battery terminal.
- Move the rubber boot into position over the cable end.

(6) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

24-31-05 Main Battery

Disconnect procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

INSTALL ONLY A BATTERY WHICH IS APPROVED BY THE AIRPLANE MANUFACTURER.

NOTE

Obey the instructions of the battery manufacturer.

NOTE

Always disconnect the battery before you do work on the airplane electrical system. You must disconnect the negative cable first. Connect the negative cable last.

3. Main Procedure

A. Disconnect the Main Battery for Maintenance

(1) Remove the engine cowling.

Refer to 71-10 Mid Cowling - Remove procedure.

(2) Disconnect the negative cable from the battery:

Refer to 24-31 Battery Systems - Description Figure 1.

- Pull back the rubber boot from the cable end.
- Remove the bolt and washer, that attaches the negative cable to the battery terminal.
- Move the negative cable clear of the battery terminal.

(3) Disconnect the positive cable from the battery:

- Pull back the rubber boot from the cable end.
- Remove the bolt and washer, that attaches the positive cable to the battery terminal.
- Move the positive cable clear of the battery terminal.

24-31-06 Main Battery

Connect procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

INSTALL ONLY A BATTERY WHICH IS APPROVED BY THE AIRPLANE MANUFACTURER.

CAUTION

MAKE SURE THAT YOU CONNECT THE CABLES TO THE CORRECT TERMINALS. INCORRECT CONNECTION CAN DAMAGE THE ELECTRICAL AND AVIONICS SYSTEMS.

NOTE

Obey the instructions of the battery manufacturer.

NOTE

Always disconnect the battery before you do work on the airplane electrical system. You must disconnect the negative cable first. Connect the negative cable last.

3. Main Procedure

A. Connect the Main Battery after Maintenance

(1) Connect the positive cable to the positive terminal of the battery

Refer to 24-31 Battery Systems - Description Figure 1:

- Move the cable end fitting into place over the positive battery terminal.
- Install the washer and bolt, that attaches the cable to the battery terminal.
- Move the rubber boot into position over the cable end.

(2) Connect the negative cable to the negative terminal of the battery:

- Move the cable end fitting into place over the negative battery terminal.
- Install the washer and bolt, that attaches the cable to the battery terminal.
- Move the rubber boot into position over the cable end.

(3) Install the engine cowling.

Refer to 71-10 Mid Cowling - Install procedure.

24-31-07 Battery Relay

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Battery Relay

Refer to 24-30 Relay in Relay Box - Remove procedure.

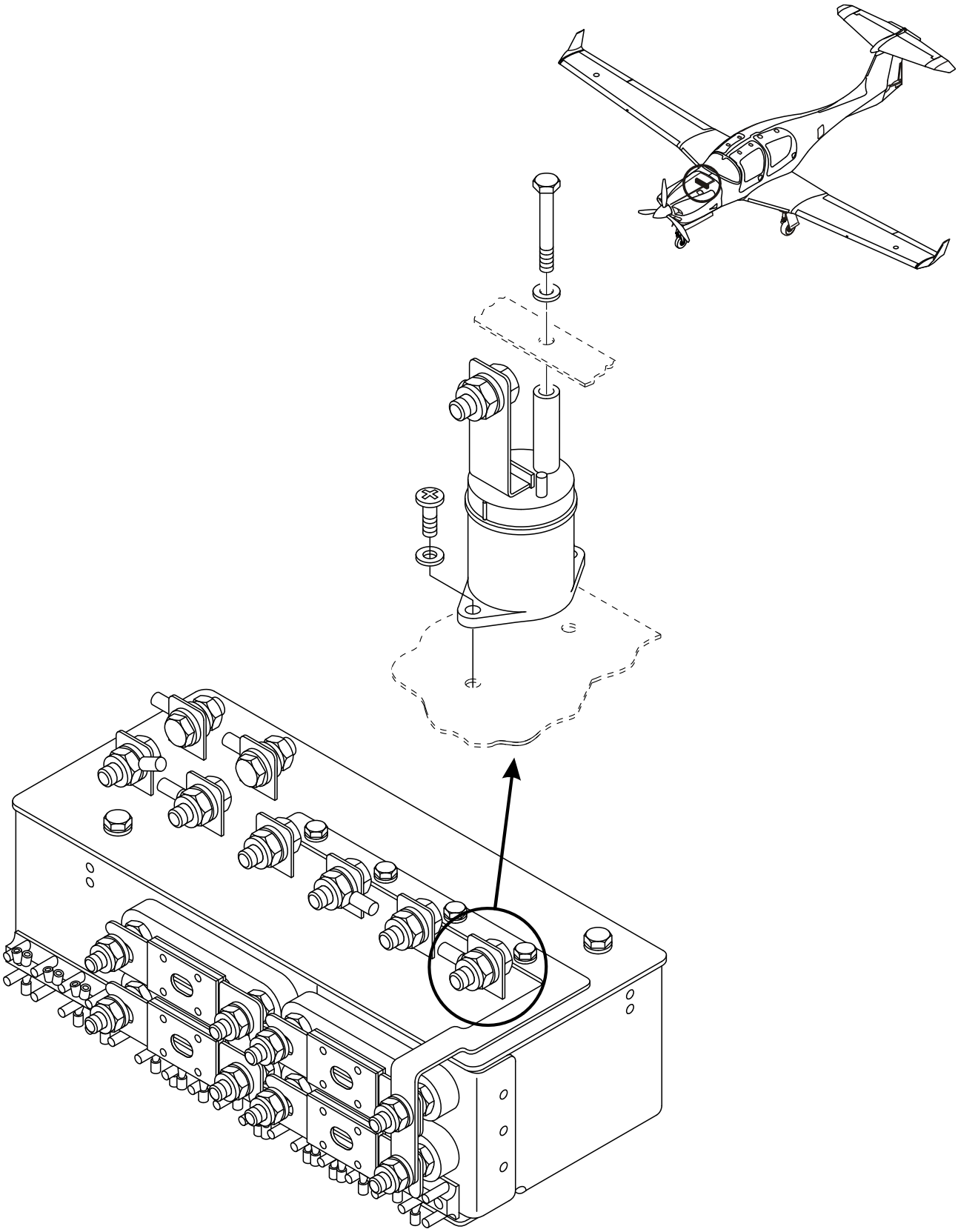


Figure 2 - Battery Relay

24-31-08 Battery Relay

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Battery Relay

Refer to 24-30 Relay in Relay Box - Install procedure.

24-31-09 Starter Relay

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Starter Relay Functional Test

Do this test in an area, where the engine can be run.

(1) Set the ELECT. MASTER switch to ON.

(2) Set the ENGINE MASTER to ON.

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

(3) Press the START button.

The engine starter motor must operate. You do not have to start the engine.

(4) Release the START button.

(5) Set the ENGINE MASTER switch to OFF.

(6) Set the ELECT. MASTER switch to OFF.

24-40
EXTERNAL POWER

24-40-01 External Power

Description

1. External Power

The DA 50 C has an external power socket located on the lower right side of the engine cowling. It is a standard 28V DC power socket. When you connect the external power to the external power socket, the external power control relay is energized and the external power comes online.

2. Description

Figure 1 shows a simple schematic diagram of the external power system. The external power system has these components:

A. 28 Volt Socket

The 28V DC power socket is located on the lower right side of the engine cowling. The socket has 3 pins:

- A large negative pin.
- A large positive pin.
- A small positive pin.

A diode connected between the small positive pin and the external power relay solenoid, protects the system from a reverse polarity.

B. External Power Relay

The external power relay is located in the relay box mounted in the engine compartment. You can access the relay box through the engine compartment. A heavy duty cable connects the large positive pin to the input terminal of the relay. Another heavy duty cable connects the large negative pin to a ground point.

The small positive pin connects to the solenoid of the external power relay via a diode.

3. Operation

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (E.G. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

When you connect a 28V DC power supply to the external power socket, these things happen:

- Current can flow from the small positive pin to the solenoid of the external power relay, the solenoid operates and closes the relay.
- Current can flow from the large positive pin through the external power relay to the battery bus.
- The large negative pin is connected to ground.

If the polarity of the power supply is incorrect, then the diode will prevent current from flowing through the solenoid. The solenoid will not operate and current cannot flow through the external power relay to the BATTERY BUS.

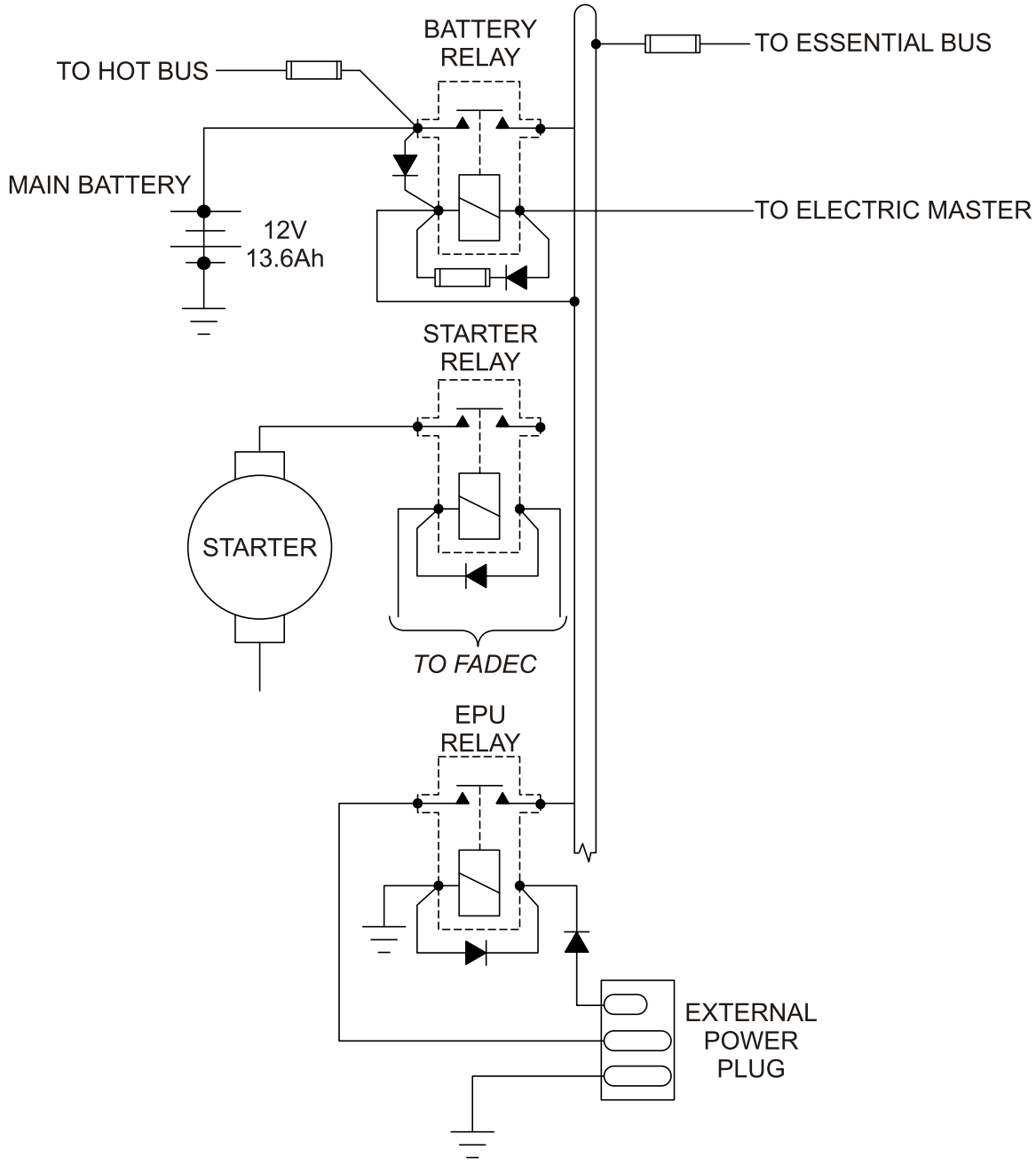


Figure 1 - External Power Supply System Schematic

24-40-02 External Power

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

External power will not come on line.

1A. Examine the external power plug.

External power plug is not securely in the socket?

Yes - go to step 1B.

No - go to step 1C.

1B. Make sure that the external power plug is securely in the socket.

1C. Check the external power.

Is the external power not operating correctly?

Yes - go to step 1D.

No - go to step 1E.

1D. Make sure that the external power is operating correctly.

1E. Do a test of the external power relay.
Is the external power relay defective?
Yes - go to step 1F.
No - go to step 1G.

1F. Replace the external power relay.

1G. Contact DAI.

24-40-03 External Power Relay

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the External Power Relay

Refer to 24-30 Relay in Relay Box - Remove procedure.

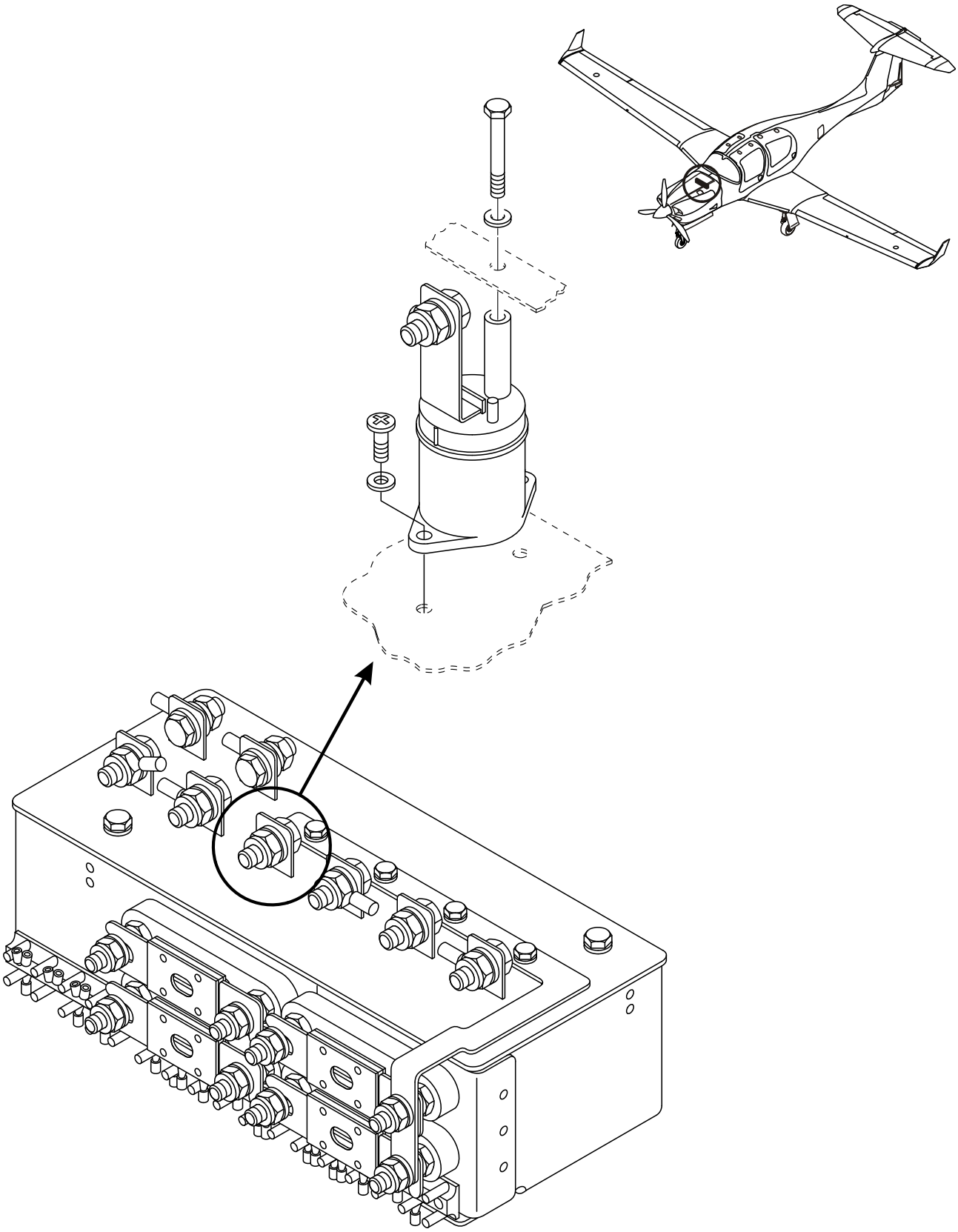


Figure 2 - External Power Relay

24-40-04 External Power Relay

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the External Power Relay

Refer to 24-30 Relay in Relay Box - Install procedure

24-60
DC ELECTRICAL LOAD DISTRIBUTION

24-60-01 DC Electrical Load Distribution

Description

1. General

This Section tells you about the system which supplies DC electrical power to other systems. The DC electrical load distribution system has these components:

- BATTERY BUS.
- HOT BUS.
- MAIN BUS.
- ESSENTIAL BUS.
- AVIONICS BUS.
- Battery relay.
- Starter relay.
- Glow relay.
- Tie relay.
- Avionic master relay.
- Switches.
- Circuit breakers.
- Fuses.

Figure 1 shows the electrical bus structure for the DA 50 C. Figure 2 shows the layout of the switches and circuit breakers in the instrument panel.

2. Trouble-Shooting

The General fault isolation procedure tells you how to trouble-shoot the DC electrical distribution system. It does not tell you about the equipment. For faults on an item of equipment, or a system, refer to the applicable chapter. For example, for no oil pressure indication, see Chapter 77-ENGINE INDICATING. Make sure that there is 28V DC on the MAIN BUS and that the alternators are supplying power.

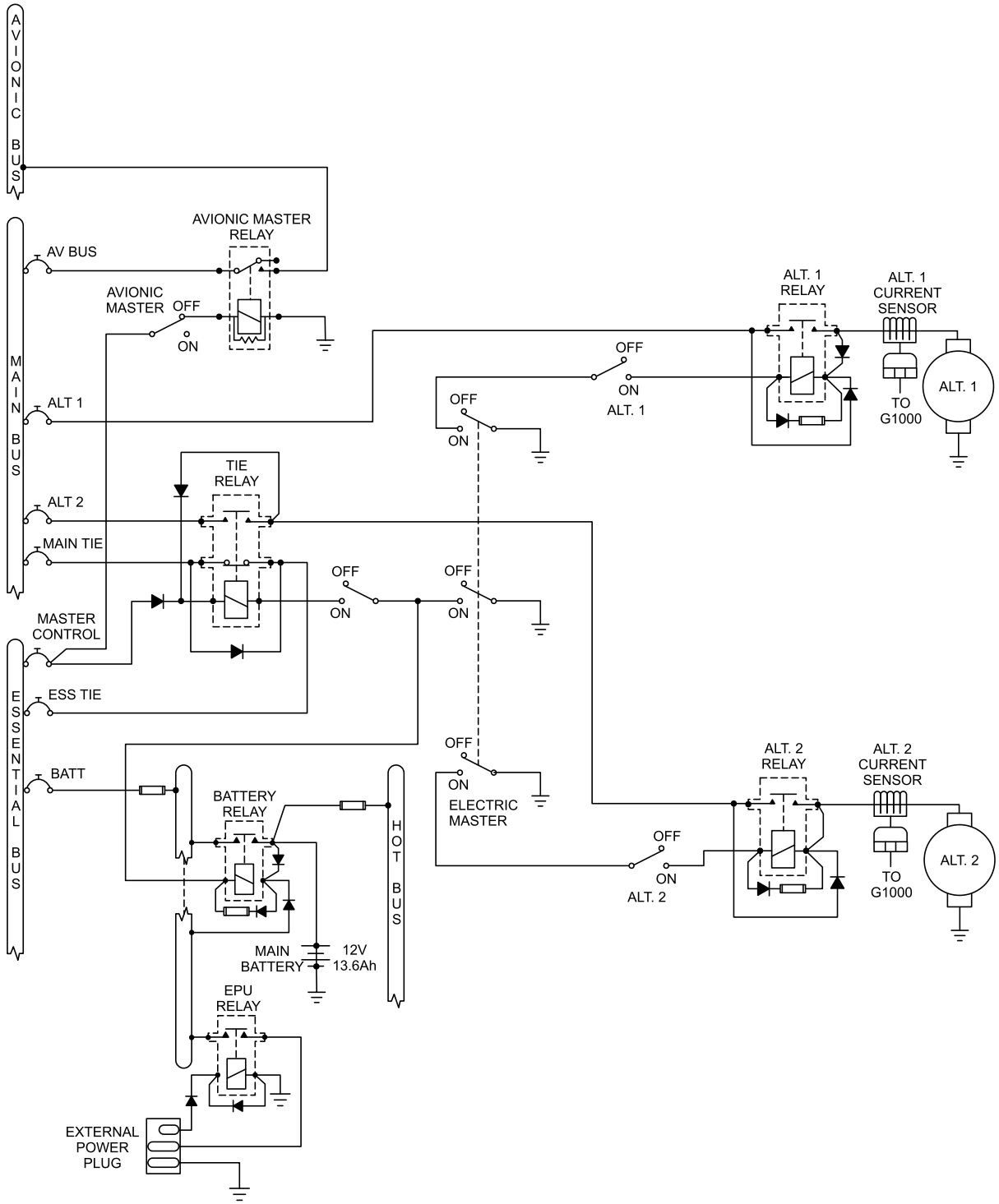


Figure 1 - Electrical System Bus Structure Simplified Diagram

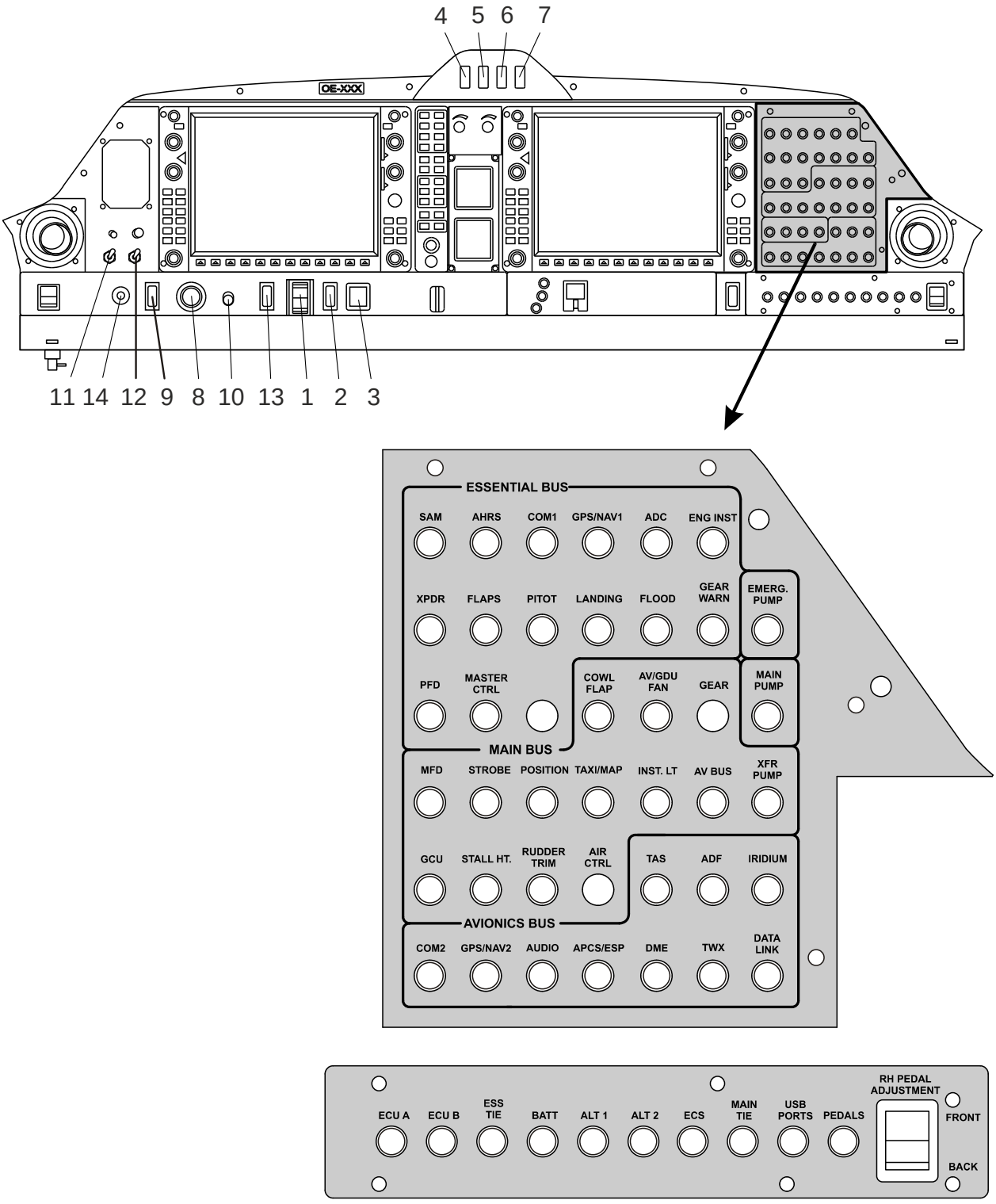


Figure 2 - Location of Electrical Switches and Circuit Breakers

Legend

[1, Fig.2]	ELECT. MASTER
[2, Fig.2]	AV. MASTER
[3, Fig.2]	PITOT
[4, Fig.2]	LANDING
[5, Fig.2]	TAXI
[6, Fig.2]	POSITION
[7, Fig.2]	STROBE
[8, Fig.2]	START Button
[9, Fig.2]	EMERGENCY FUEL PUMP Switch
[10, Fig.2]	ENGINE MASTER
[11, Fig.2]	ALT 1 Switch
[12, Fig.2]	ALT 2 Switch
[13, Fig.2]	ESSENTIAL BUS Switch
[14, Fig.2]	FUEL XFER Switch

24-60-02 DC Electrical Load Distribution

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

There is 28V DC on the MAIN BUS but not on the AVIONICS BUS.

1A. Examine AV. MASTER switch.

Is the AV. MASTER switch is set to OFF?

Yes - go to step 1B.

No - go to step 1C.

1B. Set the AV. MASTER switch to ON.

1C. Examine the AVIONIC BUS circuit breaker.

Is the AVIONIC BUS circuit breaker not set?

Yes - go to step 1D.

No - go to step 1E.

1D. Set the AVIONIC BUS circuit breaker.

1E. Examine the avionics master relay.

Is the avionics master relay defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the avionics master relay.

1G. Do a continuity test of the cables.

Is there a failure of the cables which connect the AVIONICS BUS to the MAIN BUS?

Yes - go to step 1H.

No - go to step 1I.

1H. Repair/replace defective wiring.

1I. Contact DAI.

24-60-03 Avionics Master Relay

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Remove the Avionics Master Relay

(1) Remove the engine cowling.

Refer to 71-10 Mid Cowling - Remove procedure.

(2) Disconnect the battery for maintenance.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(4) Locate the avionics master relay.

Refer to Figure 3.

(5) Disconnect the electrical cables from the relay.

Make a note of the connections.

(6) Remove the nut, washer and bolt that attaches the relay to the instrument panel floor.

(7) Move the relay clear of the airplane.

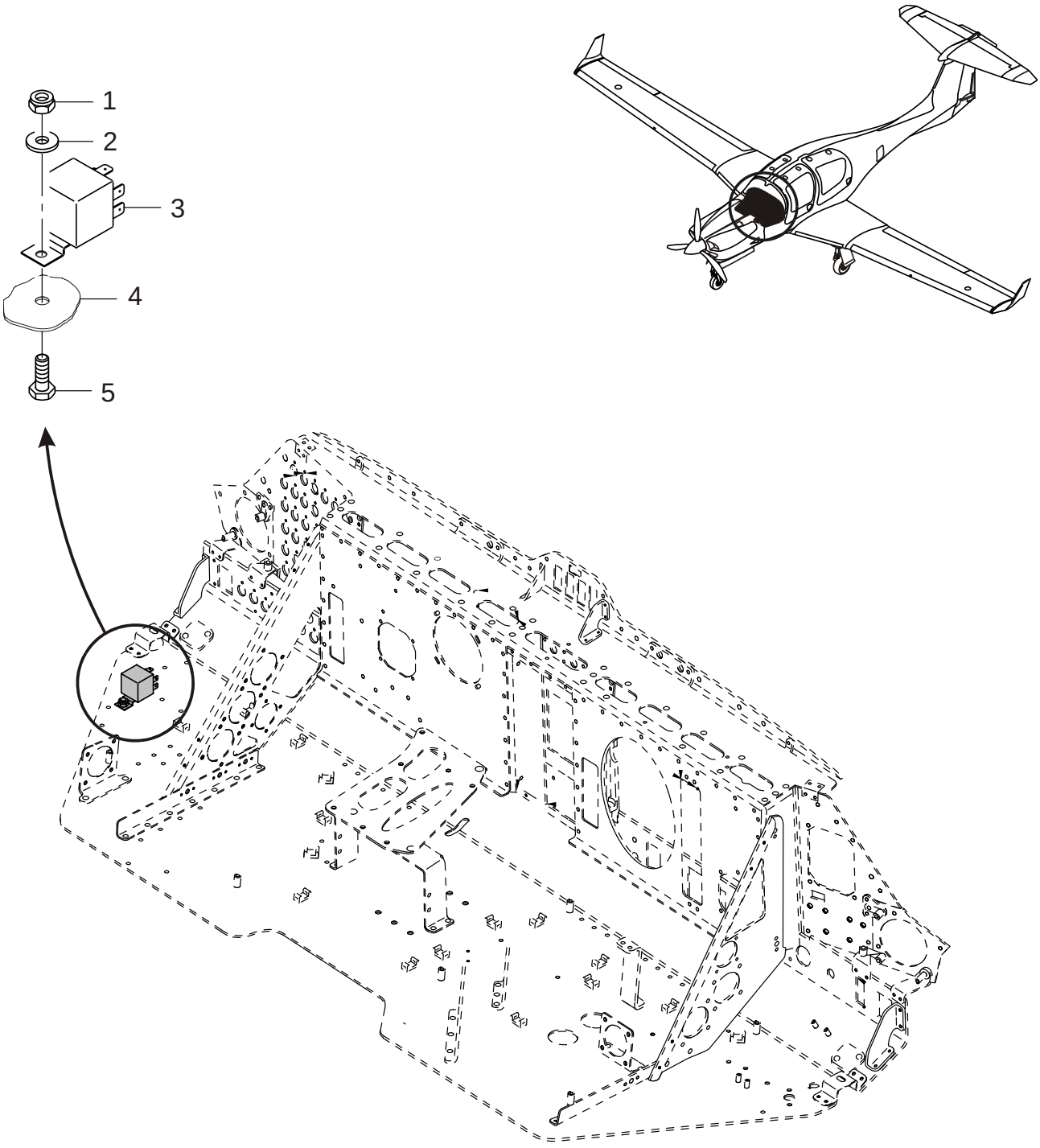


Figure 3 - Avionics Master Relay Installation

Legend

[1, Fig.3] Nut

[2, Fig.3] Washer

[3, Fig.3] Avionics Master Relay

[4, Fig.3] Instrument Panel Shelf

[5, Fig.3] Bolt

24-60-04 Avionics Master Relay

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Install the Avionics Master Relay

(1) Move the new relay into position on the instrument panel floor.

(2) Install the bolt, washer and nut that attaches the relay to the instrument panel floor.

(3) Connect the electrical cables to the relay.

Refer to the wiring diagrams and 24-60 Avionics Master Relay - Remove procedure.

(4) Install the instrument panel cover.

(5) Reconnect the main battery.

Refer to 24-31 Main Battery - Connect procedure.

(6) Install the engine cowling.

Refer to 71-10 Mid Cowling - Install procedure.

(7) Do a test of the relay:

- Set the ELECT. MASTER switch to ON.
- Set the AV. MASTER switch to ON.
  All avionics must operate.
- Set the AV. MASTER switch to OFF.
- Set the ELECT. MASTER switch to OFF.

24-60-05 Circuit Breaker

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Remove a Circuit Breaker

To remove some circuit breakers and switches, it may be necessary to remove a placard panel from the instrument panel. Refer to 11-30 Placard Panel - Change = Remove and install.

(1) Remove the engine cowling.

Refer to 71-10 Mid Cowling - Remove procedure.

(2) Disconnect the main battery for maintenance.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(4) Remove the nuts and washers, that attach the circuit breakers to the instrument panel.

Do this for all the circuit breakers, that are attached to the same bus bar.

(5) Remove the screw that connects the circuit breaker, that you will replace to the bus bar.

(6) Disconnect the electrical cables(s) from the circuit breaker, that you will replace.

(7) Move the bus bar and all the circuit breakers attached to it away from the instrument panel.

(8) Remove the circuit breaker clear of the instrument panel.

24-60-06 Circuit Breaker

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Install a Circuit Breaker

(1) Move the circuit breaker into position in the instrument panel.

(2) Move the bus bar back into position with the remaining circuit breakers.

(3) Reconnect the electric cables to the circuit breaker.

Refer to Chapter 92 for the wiring diagrams.

(4) Install the screw, that attaches the circuit breaker to the bus bar.

(5) Install the washers and nuts, that attach the circuit breakers to the instrument panel.

(6) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(7) Reconnect the main battery.

Refer to 24-31 Main Battery - Connect procedure. Connect the positive cable first.

(8) Install the engine cowling.

Refer to 71-10 Mid Cowling - Install procedure.

(9) Do a test for the correct function of the circuit breaker:

- Set the ELECT. MASTER to ON.
  Apply the full electrical load to the system.
- Operate the electrical system related to the circuit breaker, that you will test.
- Pull the circuit breaker.
  The system must stop operating. Make sure that there is no power to the system.
- Set the circuit breaker.
- Set the ELECT. MASTER switch to OFF.

24-60-07 Clip Secured Instrument Panel Switch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Remove a Clip-Secured-Type Instrument Panel Switch

To remove some circuit breakers and switches it may be necessary to remove a placard panel from the instrument panel. Refer to 11-30 Placard Panel - Change = Remove and install.

Use the following procedure and 24-60 Clip Secured Instrument Panel Switch - Install procedure for these clip secured switches:

- AV. MASTER.
- EMERG. FUEL PUMP.
- PITOT.
- ESS. BUS.
- LANDING LIGHT.
- TAXI LIGHT.
- POSITION LIGHTS.
- STROBE.
- PROP. DE-ICE.
- LH/RH PEDAL ADJUSTMENT.

Use the procedure given in 24-60 Nut Secured Instrument Panel Switch - Remove procedure and 24-60 Nut Secured Instrument Panel Switch - Install procedure for the other switches.

(1) Remove the engine cowling.

Refer to 71-10 Mid Cowling - Remove procedure.

(2) Disconnect the main battery for maintenance.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure .

(4) Disconnect the electrical cables for the switch, that you will remove.

(5) Remove the switch from the instrument panel, with your fingers, from the back of the instrument panel:

- Press the locking clips at the sides of the switch to release the switch from the instrument panel.
- Move the switch clear of the instrument panel, from the pilot's side of the instrument panel.

24-60-08 Clip Secured Instrument Panel Switch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Install a Clip-Secured-Type Instrument Panel Switch

(1) Hold the clips on the switch compressed and move the switch into position in the instrument panel.

From the pilot's side of the instrument panel. Make sure that the clips have expanded and that the switch is correctly located.

(2) Connect the electrical cables to the switch.

Refer to Chapter 92 for the wiring diagrams.

(3) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(4) Reconnect the main battery.

Refer to 24-31 Main Battery - Connect procedure. Connect the positive cable first.

(5) Install the engine cowling.

Refer to 71-10 Left and Right Cowling - Install procedure.

(6) Do a test for the correct function of the switch:

- Set the ELECT. MASTER to ON.
- Set the switch that you installed to ON.
  The system must operate correctly.
- Set the switch that you installed to OFF.
  The system must switch off.
- Set the ELECT. MASTER to OFF.

24-60-09 Nut Secured Instrument Panel Switch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

3. Main Procedure

A. Remove a Nut-Secured-Type Instrument Panel Switch

Use this procedures and Nut Secured Instrument Panel Switch - Install procedure for these nut secured switches:

- START BUTTON.
- ALT. 1.
- ALT. 2.
- FADEC.
- FADEC TEST.
- GEAR SELECTOR.
- STALL / GEAR TEST.
- FUEL TRANS.
- ENGINE MASTER.
- INSTRUMENT LIGHT.
- FLOOD LIGHT.
- FLAPS.

Use the procedures given in 24-60 Clip Secured Instrument Panel Switch - Remove procedure and 24-60 Clip Secured Instrument Panel Switch - Install procedure for other switches.

(1) Remove the engine cowling.

Refer to 71-10 Mid Cowling - Remove procedure.

(2) Disconnect the main battery for maintenance.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure .

(4) Remove the nut and washer that attaches the switch to the instrument panel.

(5) Move the switch forward and clear of the instrument panel to give access to disconnect the electrical cables from the switch.

(6) Disconnect the electrical cables from the switch and move the switch clear of the airplane.

24-60-10 Nut Secured Instrument Panel Switch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DISCONNECT THE BATTERY BEFORE YOU CAN DO ANY WORK ON THE ELECTRICAL SYSTEM. MAKE SURE THAT YOU DISCONNECT THE NEGATIVE LEAD FIRST.

CAUTION

AFTER DOING ELECTRICAL MAINTENANCE ALWAYS DO A CONFIDENCE TEST ON THE SYSTEM WITH A 24 VOLT POWER SUPPLY THAT HAS OVER-CURRENT PROTECTION. DO THIS BEFORE CONNECTING THE BATTERY.

CAUTION

WHEN OPERATING THE AIRPLANE ELECTRICAL SYSTEM WITH ENGINE MASTER ON AND THE ENGINE IS NOT RUNNING (e.g. EVENT LOG READOUT) ALWAYS SWITCH OFF BOTH ALTERNATOR SWITCHES. OTHERWISE THE ALTERNATORS MAY BE DAMAGED.

CAUTION

USE ONLY DA 50 C SPARE PARTS THAT ARE APPROVED BY THE MANUFACTURER.

NOTE

The DA 50 C has a low voltage DC electrical system. When correctly maintained it is safe to do work on. The battery can supply heavy current through low resistance circuits (for example, if you ground the battery positive with a wrench by accident).

NOTE

Always follow the usual safety practices for working on electrical equipment. Allow only qualified persons to maintain the electrical system.

3. Main Procedure

A. Install a Nut-Secured-Type Instrument Panel Switch

(1) Move the switch into position near to the switch electrical cables.

(2) Connect the electrical cables to the switch.

Refer to Chapter 92 for the wiring diagrams.

(3) Move the switch into position in the instrument panel.

Hold the switch into position.

(4) Install the washer and nut, that attaches the switch to the instrument panel.

(5) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(6) Reconnect the main battery.

Refer to 24-31 Main Battery - Connect procedure. Connect the positive cable first.

(7) Install the engine cowling.

Refer to 71-10 Mid Cowling - Install procedure.

(8) Do a test for the correct function of the switch:

- Set the ELECT. MASTER to ON.
- Set the switch that you installed to ON.
  The system must operate correctly.
- Set the switch that you installed to OFF.
  The system must switch off.
- Set the ELECT. MASTER to OFF.

25-00
EQUIPMENT/FURNISHING

25-00-01 Equipment/furnishings

Description

1. General

This Chapter tells you about the equipment and the furnishings in the flight compartment of the DA 50 C airplane. Figure 1 shows the location of the cabin equipment.

25-10 Flight compartment - Description provides information on the flight compartment trim panels, the cabin seats and the safety harnesses.

25-60 Emergency Equipment - Description tells you about the emergency location transmitter (ELT) and the first aid kit. Refer to 26-20 Fire Extinguisher - Description for data about the hand fire extinguisher.

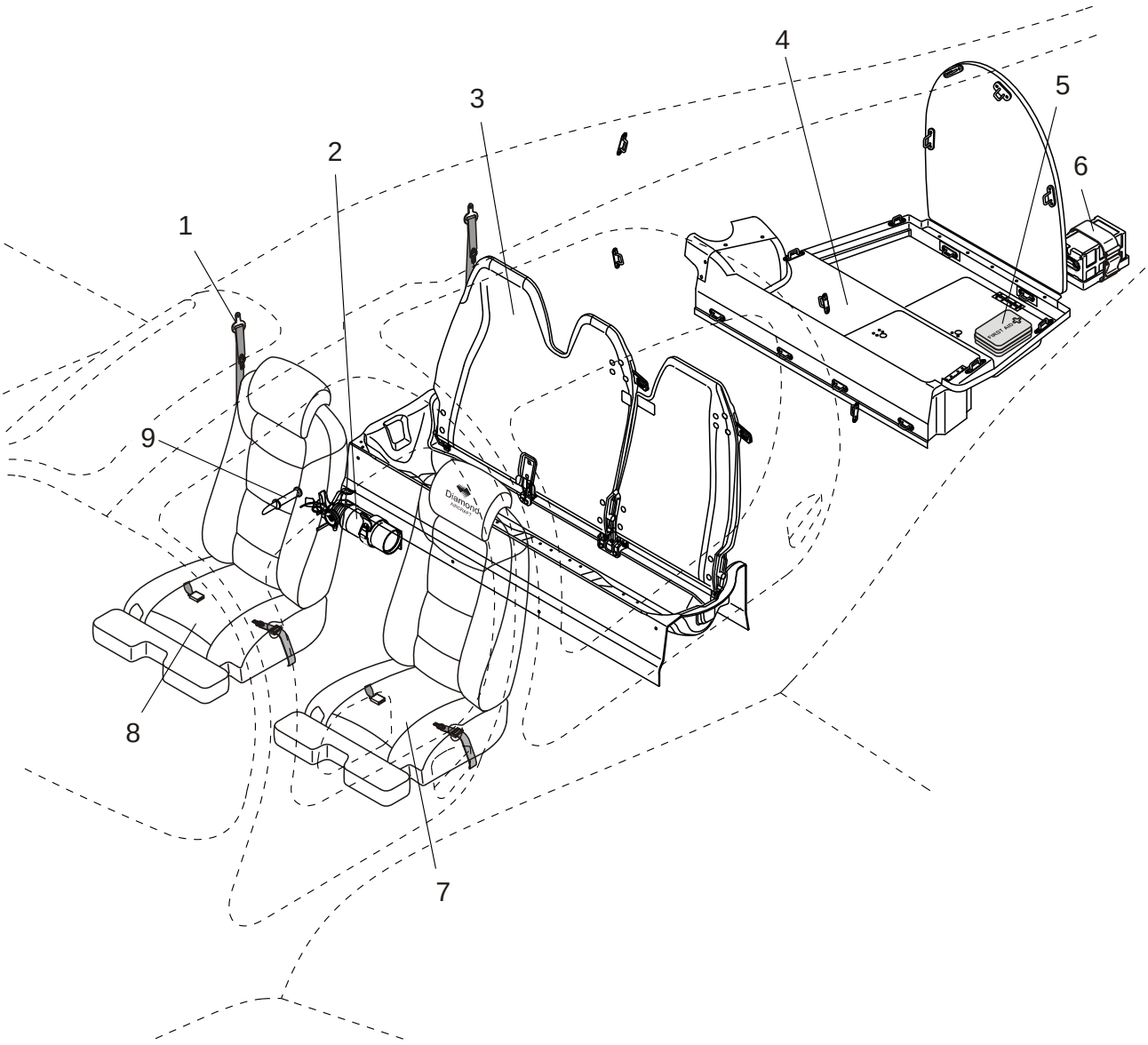


Figure 1 - Cabin Equipment

Legend

[1, Fig.1] Safety Belt
[2, Fig.1] Fire Extinguisher
[3, Fig.1] Passengers Seats
[4, Fig.1] Baggage Compartment
[5, Fig.1] First Aid Kit
[6, Fig.1] ELT
[7, Fig.1] Pilot's Seat
[8, Fig.1] Co-Pilot's Seat
[9, Fig.1] Egress Hammer

25-10
FLIGHT COMPARTMENT

25-10-01 Flight compartment

Description

1. General

The flight compartment of the DA 50 C has fixed seats for the two pilots and up to three passengers.

Each seat has a safety harness. The pilots‘ seats are equipped with adjustable backrests.

The fuselage shell is trimmed with fabric wall panels. Carpets cover the floor areas and the aft baggage compartment floor. Map pockets are located on the center console for each pilot.

GFRP moldings make the instrument panel cover and the center console.

Refer to 25-60 Emergency Equipment - Description for data about the ELT and the first aid kit.

2. Description and Operation

A. Pilots Seats

Refer to Figure 1 and 25-10 Pilots Seat - Description.

B. Passenger Seats

Refer to Figure 2 and 25-10 Passenger Seat - Description.

Refer to Figure 3 and 25-10 Passenger Seat - Description for business seating configuration passenger seat row (if OÄM 50-047 is installed).

C. Crash Elements

Each seat rests on crash elements. Each crash element has a special rigid foam. The crash elements compress under the high loads, which occur in accidents, thus reducing the injuries to pilots and passengers in an accident.

The rear of each pilot’s seat rests on two crash elements. They are located just outboard of the safety harness attachments. The passenger seat pan rests on three crash elements. They are located under the anchor plates on each side and in the middle.

D. Safety Harness

Figure 4 shows the safety harness installation. Each seat has a fixed lap strap and an inertia sensitive shoulder strap. The lap belt has two straps. The outboard strap has an adjuster to tighten the strap in use. It also has tongue to engage the buckle on the inboard strap. The inboard strap is a fixed length. The buckle has a button to release the tongue of the outboard lap strap. Push the tongue into the end of the buckle to lock them together.

Bolts with washer plates and anchor nuts attach each lap strap to the seat pan. You must remove the seat to remove the lap strap.

The shoulder strap attaches to an inertia reel. The inertia reel has a latch, which senses acceleration. With the airplane flying straight and level, the inertia reel lets the shoulder strap pull out against a light spring tension. If the airplane is accelerated (for example, in turbulence), the latch stops the shoulder strap from pulling out.

The inertia reels for the pilot's safety harnesses are located on the fuselage wall behind the seat. The strap passes up through a guide attached to the roll-bar just above the pilots shoulder and down to the tongue on the outboard lap strap. The end fitting on the shoulder strap hooks onto a stud on the tongue.

The inertia reels for the rear passenger’s safety harnesses are located above and to the rear of the passengers. They are mounted on the fuselage inner surface.

E. Fabric Wall Panels

Fabric wall panels bond to the inside of the fuselage shell.

F. Instrument Panel Cover

A GFRP cover goes over the instrument panel. Screws attach the cover to the instrument panel. The instrument panel cover has a defog/defrost manifold to guide air from the heating and ventilation system onto the inside of the windscreen to windscreen defog/defrost. Flexible hoses connect the manifold to the airplane heating and ventilation system.

G. Center Console Panel

A GFRP panel goes between the rear wall of the floor panel and the front face of the main front bulkhead. The center console panel covers the trim mechanism, power lever, fuel control lever, com plugs and a center arm rest. There is a map pocket for each pilot installed on the side of the center console.

H. Baggage Compartment

The baggage compartment is located behind the passenger seat row.

Refer to 25-50 Baggage Compartment - Description.

I. Headset Hangers (if MÄM 50-285 is installed)

The pilot's and co-pilot's seat can be equipped with four headset hangers. They are located on the rear and inboard face of the pilot's and co-pilot's seat backrests. The headset hangers consist of a magnetic clip fixed on a removable leather belt, which is attached to the backrest cover on the rear end. The headset hangers can be used to carry a headset while the airplane is parked or moving on ground. The headset hangers are intended for ground use only. The headset hanger placard is located on each of the headset hangers.

Refer to Figure 1 and 11-30 Interior placards and markings - Description Figure 2.

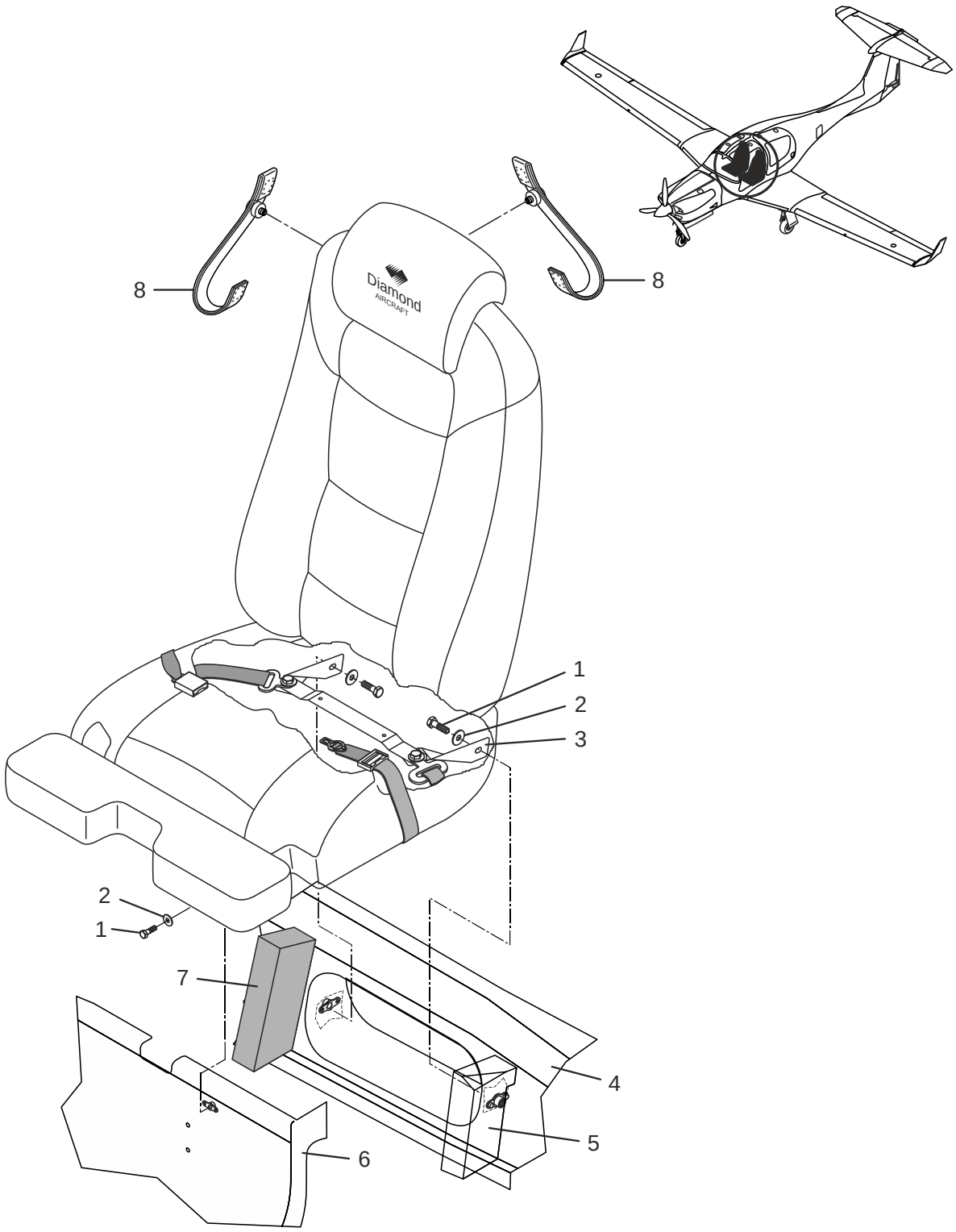


Figure 1 - Pilot's Seat Installation

Legend

[1, Fig.1] Bolt

[2, Fig.1] Washer

[3, Fig.1] Anchor Plate

[4, Fig.1] Front Main Bulkhead

[5, Fig.1] Outer Crash Element

[6, Fig.1] Rear Face of Floor Panel

[7, Fig.1] Inner Crash Element

[8, Fig.1] Headset Hangers (if MÄM 50-285 is installed)

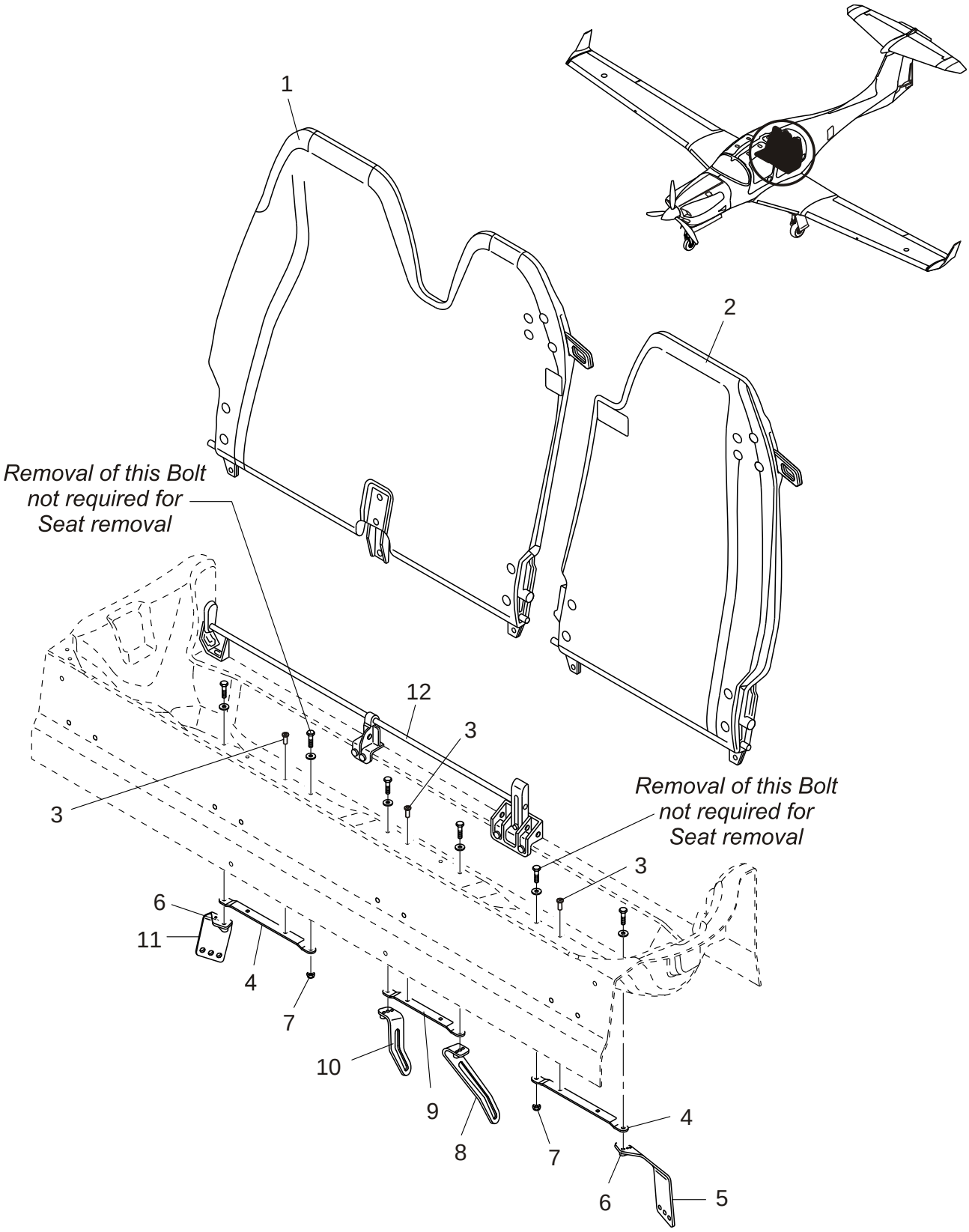


Figure 2 - Passenger Seat Installation

Legend

[1, Fig.2]	Backrest Assy, RH
[2, Fig.2]	Backrest Assy, LH
[3, Fig.2]	Bolt
[4, Fig.2]	Belt Bracket
[5, Fig.2]	Seat Bracket Outboard LH
[6, Fig.2]	Rivet Nut
[7, Fig.2]	Nut
[8, Fig.2]	Seat Bracket Inboard LH
[9, Fig.2]	Center Belt Bracket
[10, Fig.2]	Seat Bracket Inboard RH
[11, Fig.2]	Seat Bracket Outboard RH
[12, Fig.2]	Seat Backrest Spindle

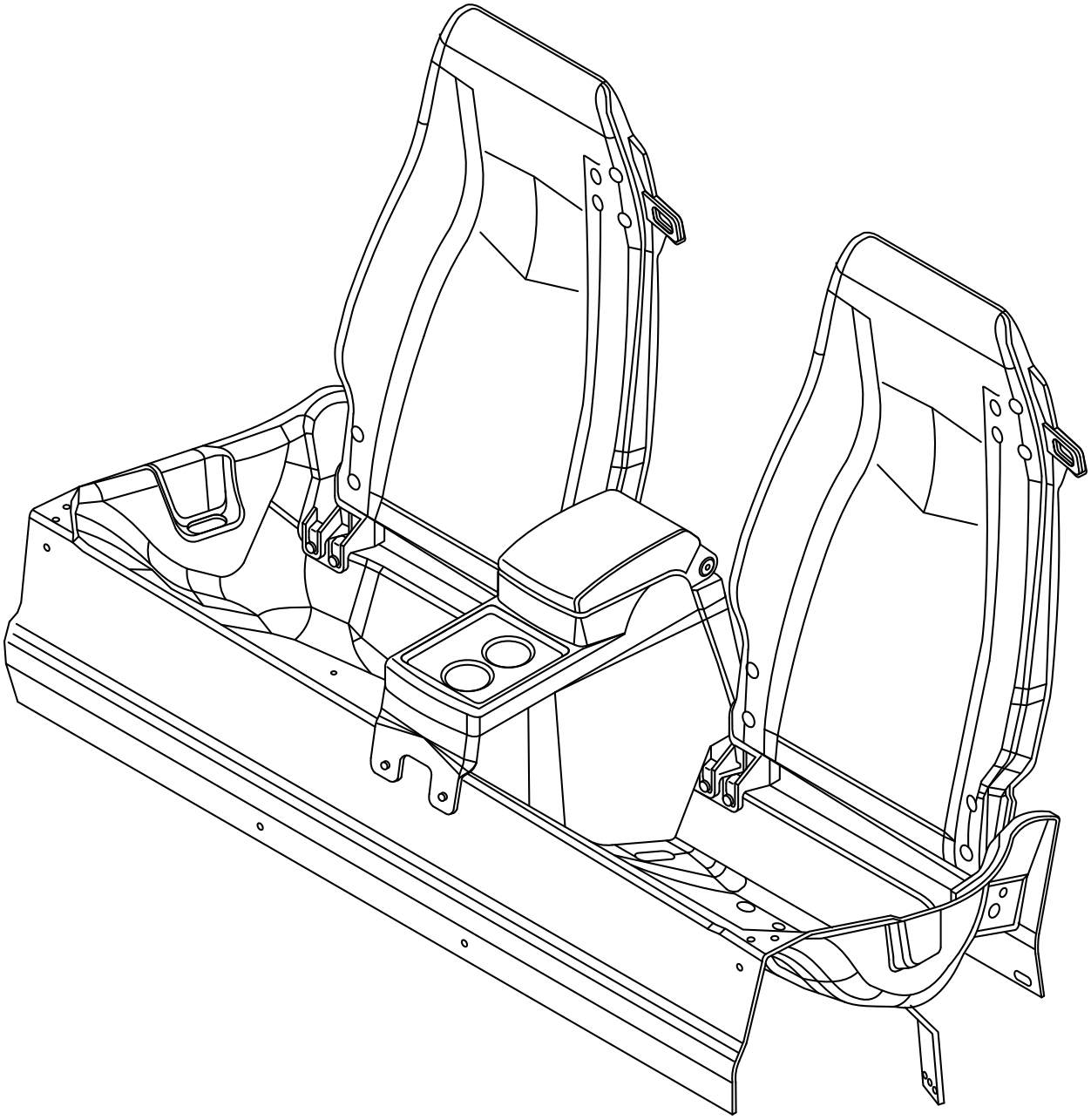


Figure 3 - Business Seating Configuration Passenger Row

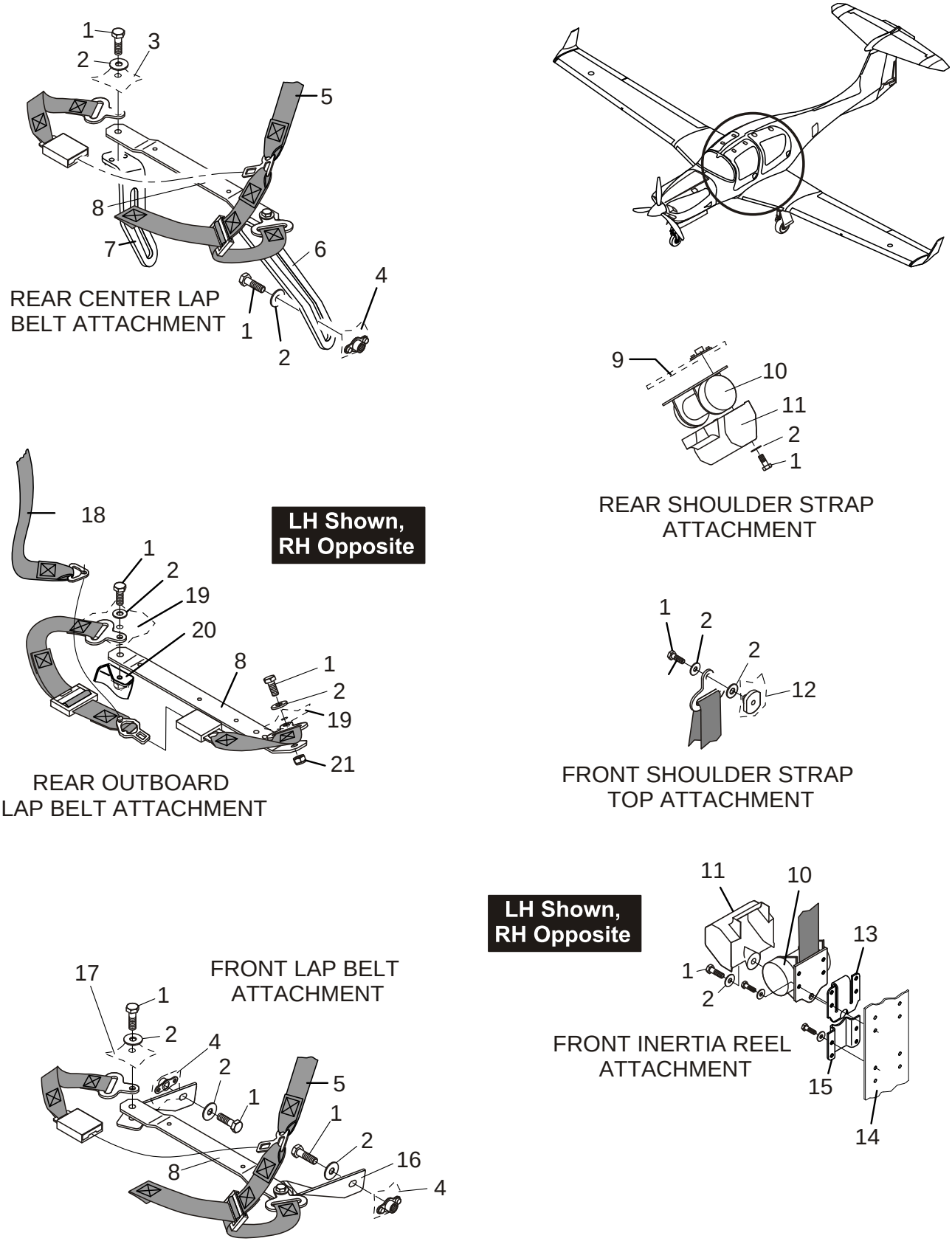


Figure 4 - Safety Harness Installation

Legend

[1, Fig.4]	Bolt
[2, Fig.4]	Washer
[3, Fig.4]	Rear Seat Pan
[4, Fig.4]	Rivet Nut
[5, Fig.4]	Shoulder Strap
[6, Fig.4]	Anchor Plate
[7, Fig.4]	Anchor Plate
[8, Fig.4]	Belt Bracket
[9, Fig.4]	Fuselage Structure
[10, Fig.4]	Inertia Reel
[11, Fig.4]	Cover
[12, Fig.4]	Roll Bar
[13, Fig.4]	Load Limiter
[14, Fig.4]	Front Closing Rib
[15, Fig.4]	Load Limiter Clamp
[16, Fig.4]	Anchor Plate
[17, Fig.4]	Front Seat Pan
[18, Fig.4]	Shoulder Strap
[19, Fig.4]	Rear Seat Pan
[20, Fig.4]	Seat Bracket
[21, Fig.4]	Nut

25-10-02 Pilots Seat

Description

1. Pilot Seats

CAUTION

BEFORE ADJUSTING THE ANGLE, LEAN AGAINST THE BACKREST TO COUNTERACT THE SPRING LOAD; OTHERWISE THE BACKREST MAY SLAP FORWARD AND CAN CAUSE INJURY.

Figure 5 shows a pilots-seat.

Each pilot seat consists of a seat pan and a backrest. To increase passive safety, the seats are constructed using a carbon fiber/Kevlar hybrid material and GFRP. The seats are removable to allow maintenance and inspection of the underlying controls. Covers on the control sticks prevent loose objects from falling into the area of the controls.

Rivets attach a metal plate to the bottom of the seat pan at the back. Two bolts go through the seat pan and the metal plate to hold the lap straps of the safety harness. These bolts also hold metal anchor plates which attach to anchor nuts in the large cutout in the front main bulkhead.

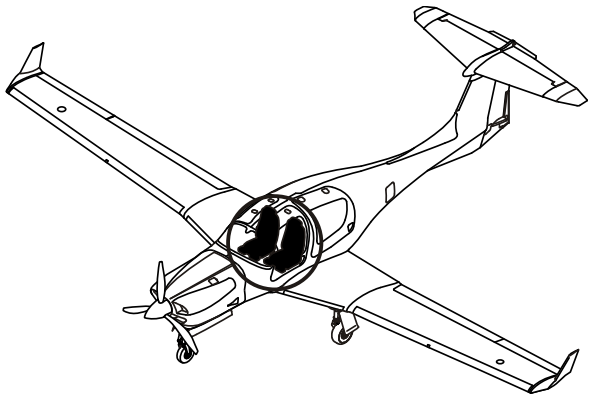
The seats have removable furnishings and are equipped with energy-absorbing foam elements.

The front seats have adjustable backrests installed. The angle of the backrests and the lumbar can be adjusted for best comfort. The backrest release button is situated on the inboard side of the backrest. However, during take-off, landing and emergency landing the backrests must be fixed in the upright position designated by a placard on the roll over bar.

The lumbar support can be adjusted by operating the lumbar support lever mounted on the outboard side of the seat pan.

For adjustment, press the button and bend the backrest forward or backward to the desired backrest angle. For fixing the position release the button.

In case of a malfunction of the release button the backrest can be moved into the upright position by pulling the backrest in flight (FWD) direction.



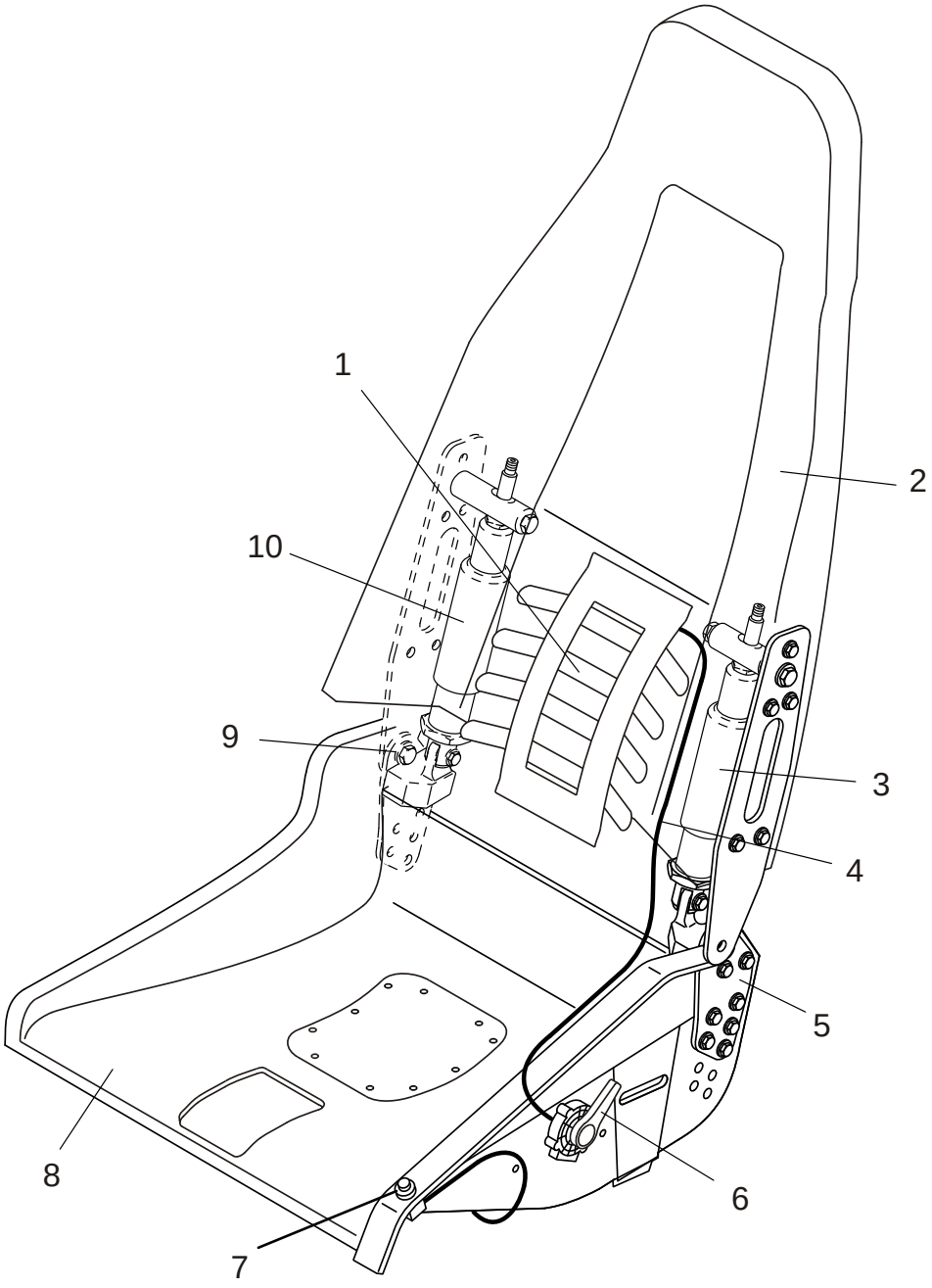


Figure 5 - Pilots Seat

Legend

[1, Fig.5]	Lumbar Support
[2, Fig.5]	Backrest
[3, Fig.5]	Hydrolok Cylinder LH
[4, Fig.5]	Bowden Cable
[5, Fig.5]	LH Hinge
[6, Fig.5]	Lumbar Support Lever
[7, Fig.5]	Release Button for Adjustable Backrest
[8, Fig.5]	Seat Pan
[9, Fig.5]	RH Hinge
[10, Fig.5]	Hydrolok Cylinder RH

25-10-03 Passenger Seat

Description

1. Passenger Seat

The passenger seat row has three main parts. It has a triple seat pan which is the full width of the cockpit and also has three seat backs (divided in two parts) which attach to the seat pan with hinges. A latch at the left side of each seat back locks the seat in the upright position. You can lift the latch pin to fold the seat-backs forward for access to the aft baggage compartment.

The LH backrest has a release. If you pull the handle, the backrest is released and can be put away. You can reattach the backrest by putting it into place and releasing the handle. The bolts are forced into locking position by springs.

A padded seat cushion covers the seat molding. Velcro tapes attach the forward part of the seat cushion to the seat pan. Padded cushions also cover the seat backs.

Rivets attach a metal plate under each half of the seat pan at the back. Two bolts go through each half of the seat pan and the metal plate to hold the lap straps of the safety harness. Three bolts with washer plates on each side of the seat pan go through the seat pan and metal plate to anchor nuts in metal anchor plates. The anchor plates are bolted to the wing center root rib. Two bolts with washer plates attach the front of the seat pan to ribs on top of the center tunnel rearward.

2. Business Seating Configuration Passenger Row (if OÄM 50-047 is installed)

The business seating configuration passenger seat row has two fixed seats. Both backrests are derived from the 1/3 foldable backrest of the standard passenger seat installation with three seats. The backrests are installed to the triple seat pan where the seat backrest spindle is replaced by a middle hinge. The middle seat is replaced by the center console that is attached to the triple seat pan. The attachment to the fuselage is similar to the attachment of the standard passenger seat row installation with three seats. Access panels under the seat cushion and under the center console allow access to the systems and other elements below the seats.

Both backrests have an emergency release. If you pull the red handle, the backrest is released and can be put away. You can reattach the backrest by putting it into place and releasing the handle. The bolts are forced into locking position by springs.

In case of an emergency, the seat backrests can be released by pulling the red handle on the back side of the seat pan of the business seating configuration passenger seats row. The seat backrests can be released for easier access to the baggage compartment. The center console has an upward foldable armrest. Under the armrest is a storage box for small items like two drinking bottles or cell phones and pens. A foam insert keeps the items in position. In front of the armrest a foam insert serves as cup holder.

25-10-04 Pilots Seat

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Pilot's Seat

CAUTION

DO NOT PUSH THE RELEASE BUTTON FOR THE ADJUSTABLE BACKREST OF THE FRONT SEATS UNINTENTIONALLY. THE SPRING LOADED BACKREST MAY SNAP FORWARD AND CAN CAUSE INJURY.

NOTE

Some maintenance procedures described in the AMM require the removal of a front seat. However, if the maintenance hole in the seat gives sufficient access to the system beneath it, it is acceptable to leave the seat in place and remove only the maintenance access panel. Refer to 25-10 Pilots Seat Access Panel - Remove procedure.

(1) Set backrest to the upright position:

- Sit down in the front seat.
- Press the release button.
- Adjust the backrest to the upright position.
- Release the release button.

(2) Release the velcro tapes at the front of the seat cushion.

Move the cushion to give access to the attaching bolts for the seat.

(3) Remove the 2 bolts with washer plates, which attach the anchor plates to the front main bulkhead.

From the passenger compartment behind the pilot's seat.

(4) Remove the bolts with washer plates, which attach the front of the seat to the rear wall of the floor panel.

(5) Remove the lap strap from the seat.

(6) Lift the seat forward and out of the cockpit.

25-10-05 Pilots Seat

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Pilot's Seat

CAUTION

DO NOT PUSH THE RELEASE BUTTON FOR THE ADJUSTABLE BACKREST OF THE FRONT SEATS UNINTENTIONALLY. THE SPRING LOADED BACKREST MAY SNAP FORWARD AND CAN CAUSE INJURY.

(1) Examine the crash elements. Look specially for delaminating and buckling.

(2) Make sure that the area below the seat is clean and has no unwanted objects.

For example, tools.

(3) Move the seat into position so, that the anchor plates go through the large holes in the front main bulkhead.

(4) Install the bolts and washer plates, which attach the seat to the floor panel.

(5) Install the bolts and washer plates, which attach the anchor plates to the front main bulkhead.

From the passenger compartment behind the pilot's seat.

(6) Fasten the velcro tapes which attach the seat cushion.

(7) Perform a test of the adjustable backrest:

- Do a test of the backrest adjustment mechanism.
  Refer to 25-10 Adjustable Backrest Mechanism Assembly - Operation Test Procedure A.
- Do a test of the lumbar support mechanism.
  Refer to 25-10 Adjustable Backrest Mechanism Assembly - Operation Test Procedure B.

25-10-06 Adjustable Backrest Mechanism Assembly

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Test the Backrest Adjustment Mechanism of a Front Seat

CAUTION

DO NOT PUSH THE RELEASE BUTTON FOR THE ADJUSTABLE BACKREST OF THE FRONT SEATS UNINTENTIONALLY. THE SPRING LOADED BACKREST MAY SNAP FORWARD AND CAN CAUSE INJURY.

NOTE

If the adjustable backrest mechanism does not pass the following test, perform a visual inspection. Refer to 25-10 Adjustable Backrest Mechanism Assembly - Visual examination.

(1) Sit down in the front seat.

(2) Lean against the backrest.

To counteract the spring loaded backrest mechanism.

(3) Press the seat button.

(4) Move the backrest fully rearward:

Push with your back rearwards.

- Check for limited range of movement and interference.
- Move the backrest at different angles and check for proper fixation.

(5) Allow the backrest to move forward to the upright position:

- Check for interference.
- Check for lack of spring force.
  The spring must be strong enough to move the backrest from the full rearward position to the upright position designated by a placard on the roll-over bar.

(6) A person sitting on the passenger seat bench shall push the pilot/co-pilot backrest at the top of the backrest in flight direction.

- Check for limited range of movement and interference.
- Perform the test at different backrest angles and check for proper fixation.

(7) Move the seat back to the upright position.

B. Test the Lumbar Support Mechanism of a Front Seat

(1) Sit down in the front seat.

(2) Turn the lumbar support lever.

You must feel the mechanism increasing and decreasing the effect of the lumbar support cushion in the backrest.

25-10-07 Adjustable Backrest Mechanism Assembly

Visual examination

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Visual Inspection of the Adjustment Mechanism

(1) Remove seat from airplane.

(2) Carefully separate the leather lining from the backrest:

- Remove cushion from seat pan (attached with velcro).
- Release the three plastic brackets for the rubber bands to the seat pan.
- Pull off the rubber bands from the plastic brackets.
- Carefully remove the leather lining from the cover by opening all velcro fasteners. Turn lining inside out together with the bag while pulling off.

(3) Move cover forward to remove it from the hinge.

The cover remains attached to the cushion.

(4) Check hydrolok installation for deformation and cleanness and leakage. Check actuator cables for damage.

(5) Install cover by moving it over the hinge.

(6) Re-install the leather lining to the seat:

- Attach the leather lining to the cover using the velcro fasteners.
- Put the rubber bands into the plastic brackets.
- Clip the plastic brackets onto the seat pan.

- Attach the cushion to the seat pan using the velcro.

25-10-08 Adjustable Backrest Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Backrest Assembly from the Seat

Each seat contains a left and right side mechanism. Before you can disassemble the backrest mechanism, you must do the following steps:

(1) Remove seat from airplane.

(2) Carefully separate the leather lining from the backrest.

Turn lining inside out together with the bag while pulling off.

(3) Disconnect the lumbar actuator bowden cable.

(4) Remove the bolt, washer and bushing connecting the hydrolok fixing bracket to the backrest bracket.

(5) Remove the bolt, washer and the inner bushing connecting the hydrolok fixing bracket to the inner surface of the seat shell.

(6) Remove the 5 outer bolts and washers from the backrest brackets as they become accessible. Refer to 25-10 Adjustable Backrest Mechanism Assembly - Disassemble procedure Figure 6.

(7) Pull off the backrest shell.

(8) Measure and note down distance between hydrolok fixing bracket and upper end of hydrolok piston.

25-10-09 Adjustable Backrest Mechanism Assembly

Disassemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Disassemble the Adjustable Backrest Mechanism

The following steps describe the disassembling of a single backrest mechanism. The disassembly procedure is used for both sides. Refer to Figure 6.

(1) Remove the backrest as described in 25-10 Adjustable Backrest Assembly - Remove procedure.

(2) Disconnect the bowden cable at the actuation rod end.

(3) Remove the bolt and bushing along the rotation axis of the backrest connecting the backrest bracket to adjustment bracket seat side (if required).

(4) Remove the two screws attaching the hydrolok attachment bracket to the adjustment bracket seat side.

(5) Remove the bolt connecting the lower end of the hydrolok cylinder to the hydrolok attachment bracket.

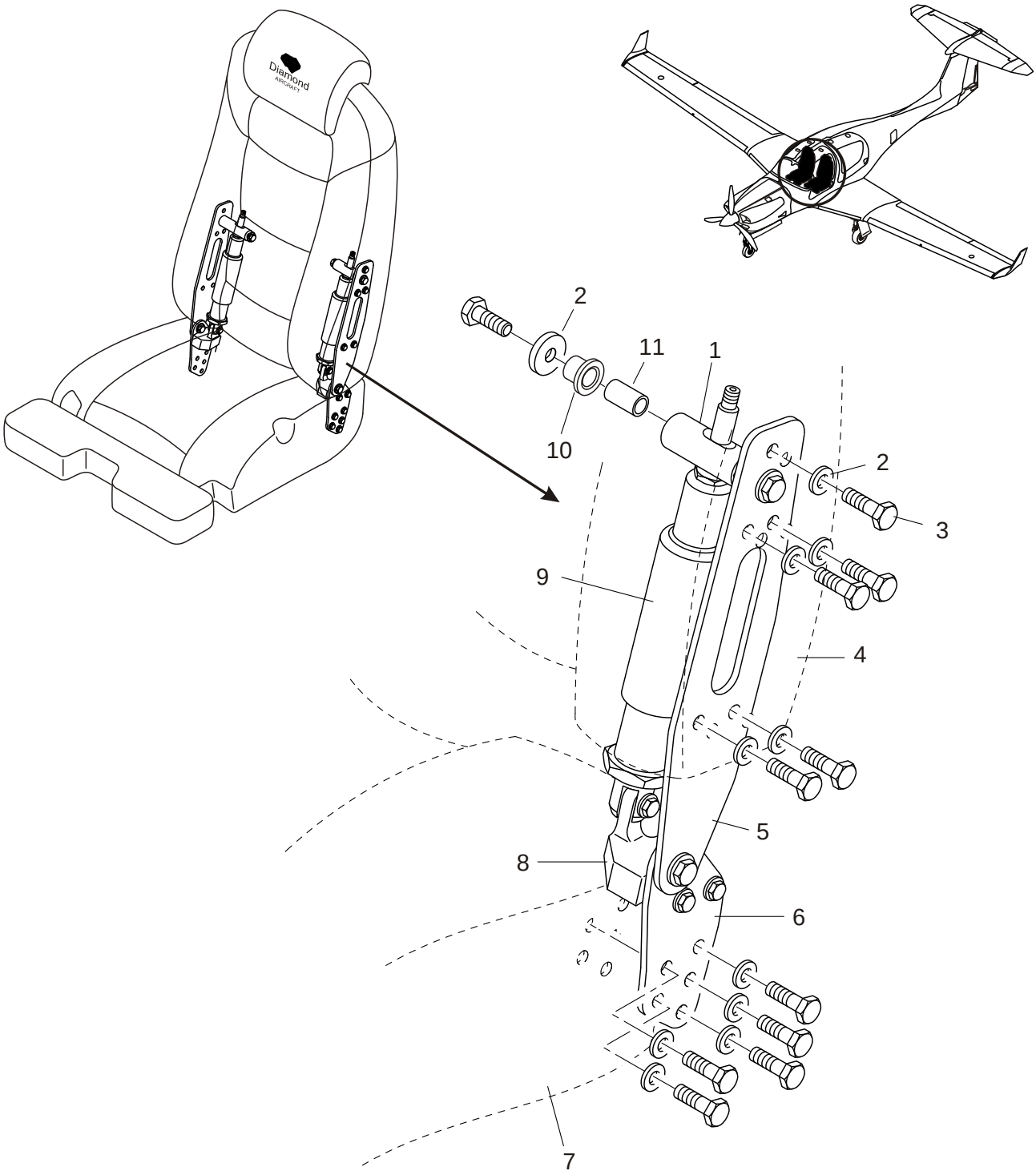


Figure 6 - Adjustable Backrest Mechanism Assembly

Legend

[1, Fig.6]	Hydrolok Fixing Bracket
[2, Fig.6]	Washer
[3, Fig.6]	Bolt
[4, Fig.6]	Backrest
[5, Fig.6]	Backrest Bracket
[6, Fig.6]	Adjustment Bracket Seat Side
[7, Fig.6]	Seat Pan
[8, Fig.6]	Hydrolok Attachment Bracket
[9, Fig.6]	Hydrolok Cylinder
[10, Fig.6]	Flanged Bush
[11, Fig.6]	Bushing

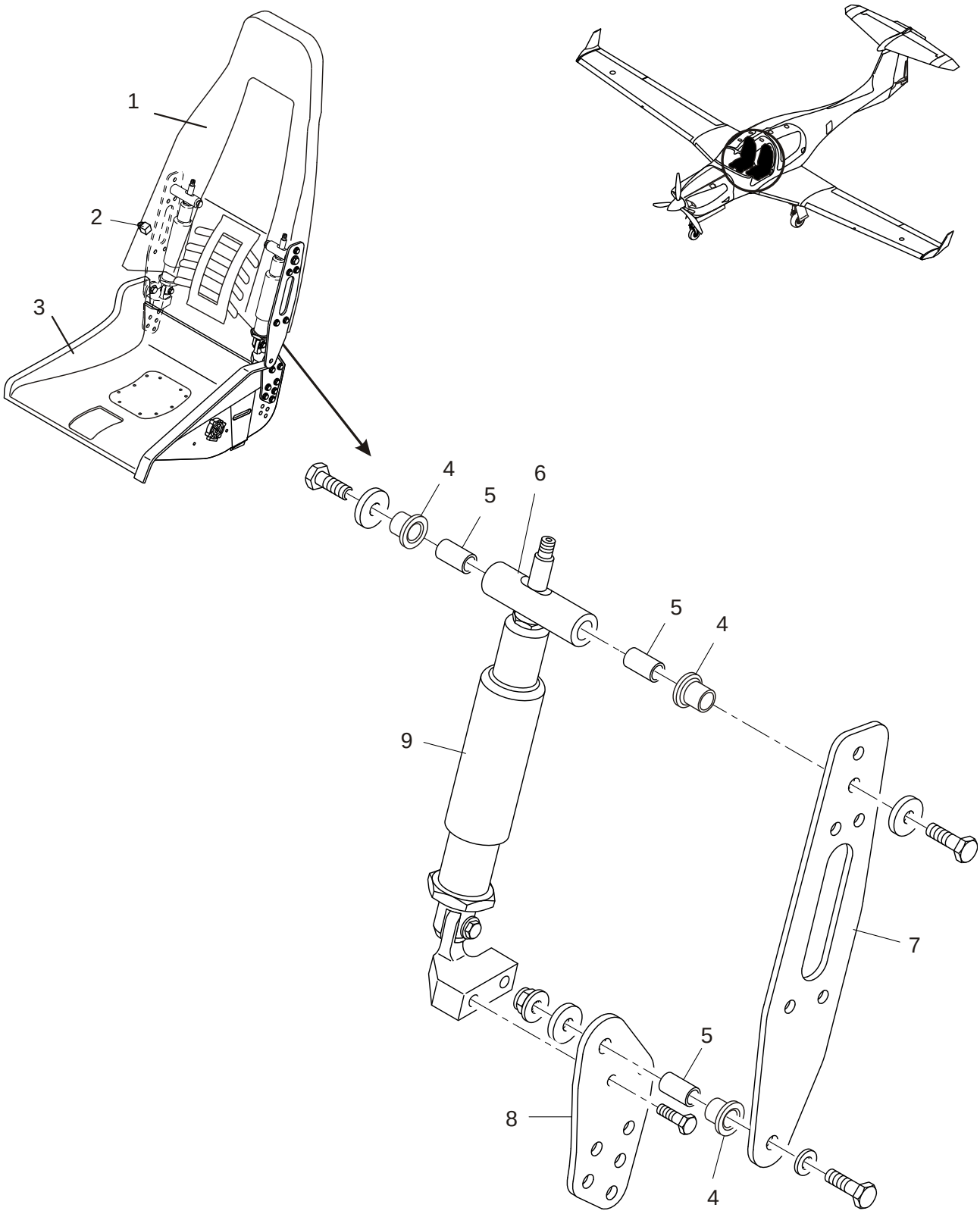


Figure 7 - Adjustable Backrest Assembly

Legend

[1, Fig.7] Backrest

[2, Fig.7] Mechanical Control Assy

[3, Fig.7] Seat Pan

[4, Fig.7] PAF Bush

[5, Fig.7] Bush

[6, Fig.7] Hydrolok Fixing Bracket

[7, Fig.7] Backrest Adjustment Bracket

[8, Fig.7] Adjustment Bracket Seat Side

[9, Fig.7] Hydrolok Cylinder

25-10-10 Adjustable Backrest Mechanism Assembly

Assemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Assemble the Adjustable Backrest Mechanism

The following steps describes the assembling of a single backrest mechanism. The assembly procedure is used for both sides. Refer to 25-10 Adjustable Backrest Mechanism Assembly - Disassemble procedure Figure 7.

(1) Screw the hydrolok fixing bracket on the actuating shaft as per measurement done during removal of the bracket. Refer to 25-10 Adjustable Backrest Assembly - Remove procedure.

(2) Attach the lower end of the hydrolok cylinder to the hydrolok attachment bracket.

(3) Attach the hydrolok attachment bracket to the seat bracket seat side using 2 screws.

(4) Attach the backrest bracket and the seat bracket seat side with a bolt, bushing and nut through the rotation hole, if previously removed.

25-10-11 Adjustable Backrest Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Adjustable Backrest Mechanism in the Seat

After assembling the adjusting mechanisms on both sides install the backrest using the steps in the opposite sequence as described in 25-10 Adjustable Backrest Assembly - Remove procedure.

25-10-12 Pilots Seat Access Panel

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Pilot's Seat Access Panel

(1) Remove the cloth coating from the seat.

(2) Remove the 8 bolts which attach the access panel to the seat.

(3) Lift the access panel clear of the airplane.

25-10-13 Pilots Seat Access Panel

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Pilot's Seat Access Panel

(1) Move the access panel in place in the seat.

(2) Install the 8 bolts which attach the access panel to the seat.

(3) Fasten the cloth coating on the seat.

25-10-14 Passenger Seat

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Passenger Seat

(1) Release the velcro tapes at the front of the seat cushion.

Refer to 25-10 Passenger Seat - Description. Move the cushion to give access to the attaching bolts for the seat.

(2) Remove the 6 bolts and washer plates (3x LH and 3x RH) which attach the seat pan to the rib on top of the rear main spar.

(3) Remove the outer two and middle two bolts and washer plates which attach the seat pan to the rear crash elements.

(4) Fold the seat-backs forward.

Lift the handle on the backrest

(5) Remove the 3 bolts and washers which attach the rear of the seat pan to the footwell.

(6) Release the 3 inertia reels of the clip system

(7) Lift the seat forward and up out of the fuselage.

25-10-15 Passenger Seat

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Passenger Seat

(1) Examine the crash elements. Look specially for delaminating and buckling.

(2) Make sure that the area below the seat is clean and has no foreign objects.

For example, tools.

(3) Move the seat into position in the fuselage with the seat-backs folded forward.

Lift the latch pins at the left side of each seat-back.

(4) Install the 3 inertia reels in the clip system.

(5) Install the 3 bolts and washer plates which attach the rear of the seat pan to the footwell.

(6) Install the 6 bolts and washer plates (3x LH and 3x RH) which attach the seat pan to the rib on top of the rear main spar.

(7) Install the outer two und middle two bolts and washer plates which attach the seat pan to the rear crash elements.

(8) Fasten the velcro tapes which hold the seat cushion.

25-10-16 Safety Harness

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Safety Harness

(1) Remove the seat.

Refer to 25-10 Pilots Seat - Remove procedure or 25-10 Passenger Seat - Remove procedure.

(2) Remove the bolts and washers which attach the straps to the seat.

Refer to 25-10 Flight compartment - Description Figure 1.

For the pilots' seats only:

- Make a note of the position of the anchor plates which these bolts also hold.

(3) Move the straps through the holes in the seat pan and remove them.

(4) Release the bolts and washers which attach the inertia reels and its covers to the fuselage.

(5) Release the bolt and washer which attach the guide to the roll bar.

For pilot seat only.

(6) Remove the shoulder strap.

25-10-17 Safety Harness

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Safety Harness

(1) Put the lap straps through the holes in the seat pan.

The buckle goes to the inboard side of the pilots' seats (front) and the outboard side of the passenger seat (rear).

(2) Put the lap straps between the seat pan and the metal plate. Install the bolts and washer plates from the top of the seat pan.

(3) Move the anchor plates into position on the bolts.

For the pilots' seats only.

(4) Install the seat.

Refer to 25-10 Pilots Seat - Install procedure or 25-10 Passenger Seat - Install procedure.

(5) Install the bolt and washer which attach the guide to the roll-bar. Use Loctite 243 or 241 for securing the bolt.

(6) Install the bolt and washer which attach the inertia reel and its cover to the structure.

Refer to 25-10 Flight compartment - Description Figure 1.

(7) Install washer plates and self-locking nuts onto the bolts.

25-10-18 Instrument Panel Cover

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Instrument Panel Cover

(1) Remove the screws which attach the instrument panel cover to the instrument panel and the fuselage.

(2) Lift the cover for access to the defrost system flexible hoses.

(3) Loosen the tie wraps that hold the flexible hoses to the defrost manifold.

(4) Disconnect the electrical connectors of the flood lights.

(5) Lift the cover clear of the instrument panel and the airplane.

25-10-19 Instrument Panel Cover

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Instrument Panel Cover

(1) Make sure that the area below the instrument panel cover is free of unwanted objects.

For example; tools.

(2) Move the instrument panel cover into position near the instrument panel.

(3) Connect the flexible hoses to the defrost manifold:

- Move the tie wraps into position on the flexible hoses.
- Push the flexible hoses onto the defrost manifold of the cover.
- Tighten the worm-drive-clamps.

(4) Connect the electrical connectors of the flood lights.

(5) Lower the cover into position on the instrument panel.

(6) Install the screws which attach the instrument panel cover to the instrument panel and the fuselage.

25-10-20 Center Armrest

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Center Armrest

(1) Remove the blind plug on both sides of the center armrest.

(2) Remove the screw and the washer on the LH side of the armrest.

(3) Remove the screw and the washer together with the bushing on the RH side.

(4) Lift armrest clear of lower assembly.

25-10-21 Center Armrest

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Center Armrest

(1) Move armrest into position.

(2) Insert bushing with washer and screw on the RH side.

Apply Loctite 243 on bolt thread

(3) Install screw and washer on the LH side.

Apply Loctite 243 on bolt thread.

(4) Use screws to adjust the friction of the armrest.

(5) Install the blind plugs on both sides.

25-10-22 Flight compartment

Clean and apply surface protection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Cleaning of Seats

(1) The seat cushions are made from a fire resistant material. Clean the cushions with a vacuum cleaner.

Use a mild soap solution to remove stains.

Make sure that the area is well ventilated after cleaning to remove all moisture.

B. Cleaning of Safety Harnesses

(1) Use a mild soap solution to clean the straps of the harnesses.

25-50
BAGGAGE COMPARTMENT

25-50-01 Baggage Compartment

Description

1. Baggage Compartment

Figure 1 shows the baggage compartment.

The baggage compartment is located aft of the passenger seat row. The compartment is enclosed in the rear with the baggage rear cover, to the sides and top by the fuselage shell and to the bottom by the baggage tray. All components of the baggage compartment are made from CFRP with rigid foam core.

The baggage compartment is divided into 2 main areas and 2 compartments below floor level. Carpet covers the floor of the baggage compartment.

A cargo net covers baggage compartment and secures the contents of the baggage compartment. The cargo net attaches to special net tie-down brackets that are located through out the compartment.

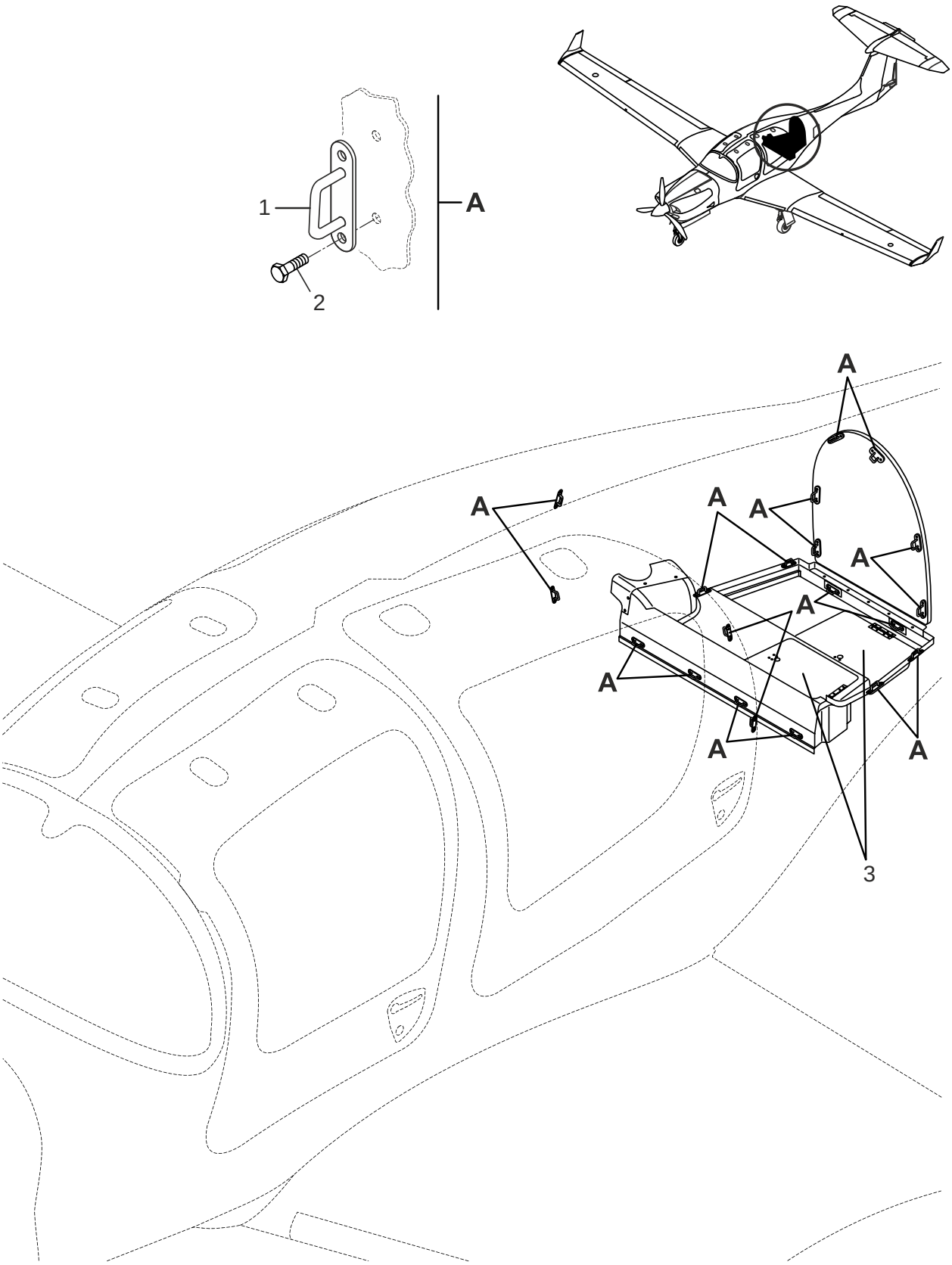


Figure 1 - Aft Baggage Compartment

Legend

[1, Fig.1] Cargo Net Clamp

[2, Fig.1] Bolt

[3, Fig.1] Access Panels

25-50-02 Baggage Compartment

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Baggage Tray

(1) Fold the passenger seat backs forward into the down position.

Refer to 25-10 Passenger Seat - Description.

(2) If necessary remove the cargo net and move any equipment stowed in the baggage compartment clear of the airplane.

(3) Fold the carpet on the floor of the baggage compartment forward and clear of the baggage compartment.

(4) Remove the 4 forward and 2 rear cargo net clamps.

(5) Remove the baggage rear cover:

- Remove the screws and clamps at the top and middle.
- Remove the two screws at the bottom.

(6) Remove the 5 vertical bolts which attach the rear flange of the baggage tray to the flange of the rearward baggage frame.

(7) Move the baggage tray forward and upwards out of the rear fuselage and clear of the airplane.

25-50-03 Baggage Compartment

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Baggage Tray

(1) Make sure that the rear fuselage is clear of loose objects.

For example, tools, cleaning cloths or other hardware.

(2) Install the baggage tray:

- Move the baggage tray into position at the rear fuselage.
- Make sure that baggage tray is fully into position.
- Install the 4 forward and 2 rear cargo net clamps.
- Install the 5 screws on the rear flange.
- Position the baggage rear cover and tighten the screws and clamps of the back wall.

(3) Move the floor carpet back into position on the baggage compartment floor.

(4) If necessary, install any equipment that you removed from the baggage compartment and install the cargo net.

(5) Move the passenger seat backs into the upright position.

Make sure that the seat backs are correctly locked into position.

25-60
EMERGENCY EQUIPMENT

25-60-01 Emergency Equipment

Description

1. Emergency Equipment

This Section tells you about the emergency equipment installed in the DA 50 C airplane. It tells you about the emergency location transmitter (ELT).

Refer to 25-00 Equipment/furnishings - Description Figure 1 for position of the first aid kit and the egress hammer. Refer to the equipment manufacturers manuals for more data.

Refer to 26-00 Fire protection - Description for data about the hand fire extinguisher which is installed in the cabin of the DA 50 C.

25-60-02 Emergency Location Transmitter

Description

1. Emergency Location Transmitter ELT

The ELT is located in the rear fuselage, aft of the remote avionics box. A buckle belt with a draw latch attached to a mounting bracket holds the ELT in position. The ELT antenna is mounted on the upper surface of the fuselage, above the ELT. A Remote Control Panel/Indicator (RPCI) is mounted on the instrument panel, right side.

The ELT transmits signals automatically after a crash on the emergency frequencies of 121.5 and 406 Megahertz (MHz). Every 50 seconds the transmitter transmits a signal on the 406 MHz frequency to a satellite. The signal to the satellite contains the serial number of the ELT transmitter or the airplane ID, a country code and a unique identity code. The satellite will also give the emergency services a more accurate location of the airplane.

The ELT has its own battery pack to supply electrical power. When the ELT is ON and transmitting, the batteries will keep the ELT transmitting until the battery power is gone, on the 121.5 MHz frequency and for up to 24 hours on the 406 MHz frequency.

It is important to monitor the battery expiry dates for the battery pack. The expiry date for the battery pack is shown on the identity plate of the transmitter. The battery pack must be replaced when:

- After use in an emergency.
- After the transmitter has been accidentally switched ON for an unknown period of time.
- After 1 hour of accumulated use (testing).
- On or before the battery pack expiry date.

You must do regular functional tests. Refer to the Maintenance Practices in this Section and for further information to the Manufacturers Documentation.

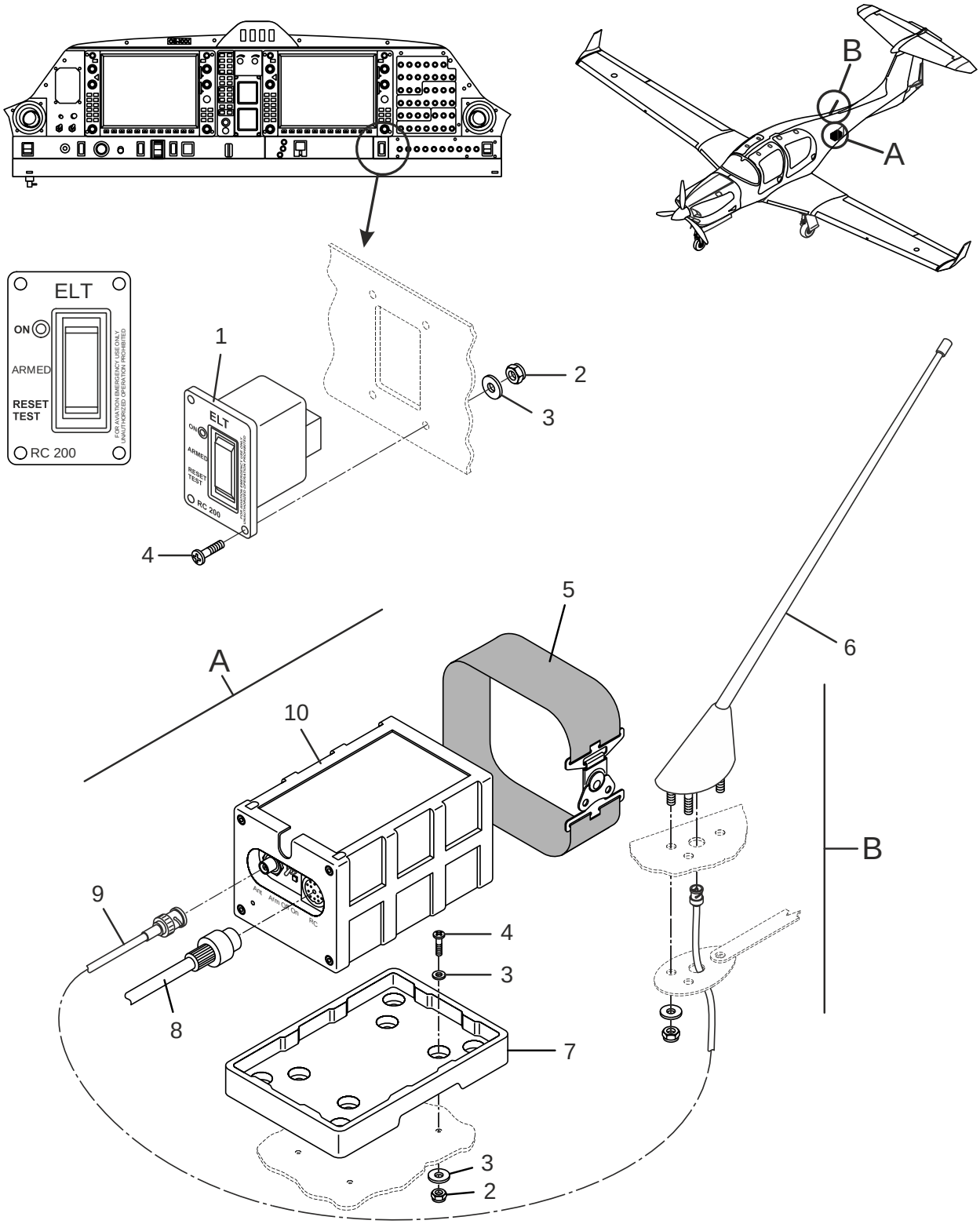


Figure 1 - ELT Main Components

Legend

[1, Fig.1]	ELT Control Panel
[2, Fig.1]	Nut
[3, Fig.1]	Washer
[4, Fig.1]	Screw
[5, Fig.1]	Mounting Strap
[6, Fig.1]	Antenna
[7, Fig.1]	Mounting Tray
[8, Fig.1]	Electric Cables
[9, Fig.1]	Antenna Connector
[10, Fig.1]	ELT Unit

25-60-03 Emergency Location Transmitter

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DO NOT INTEND TO LISTEN TO THE 121.5 MHz BY SWITCHING THE ELT ON. RISK OF FALSE ALERT!

3. Fault Isolation Main Procedure

ELT does not operate on test.

1A. Check the ELT batteries.

Are the ELT batteries discharged?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the ELT batteries.

1C. Check the ELT.

Is the ELT defective?

Yes - go to step 1D.

No - go to step 1E.

1D. If the ELT batteries are serviceable then replace the ELT.

1E. Do a continuity test of the cables between the RCPI and the ELT.
RCPI or cables defective?
Yes - go to step 1F.
No - go to step 1G.

1F. Replace defective cables. If the cables are not defective then replace the RCPI.

1G. Contact DAI.

25-60-04 Kannad AF Integra ELT

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Kannad AF Integra ELT

(1) Remove the LH fuselage access cover.

(2) Disconnect these cables at the front of the ELT:

- The coaxial cable.
  At the bayonet connector.
- The electrical cables.
  At the in-line connector.

(3) Open the draw latch.

(4) Remove the ELT from the ELT mounting tray:

- Lift the ELT from the mounting tray.
- Move the ELT clear of the mounting tray.
- Move the ELT clear of the airplane.

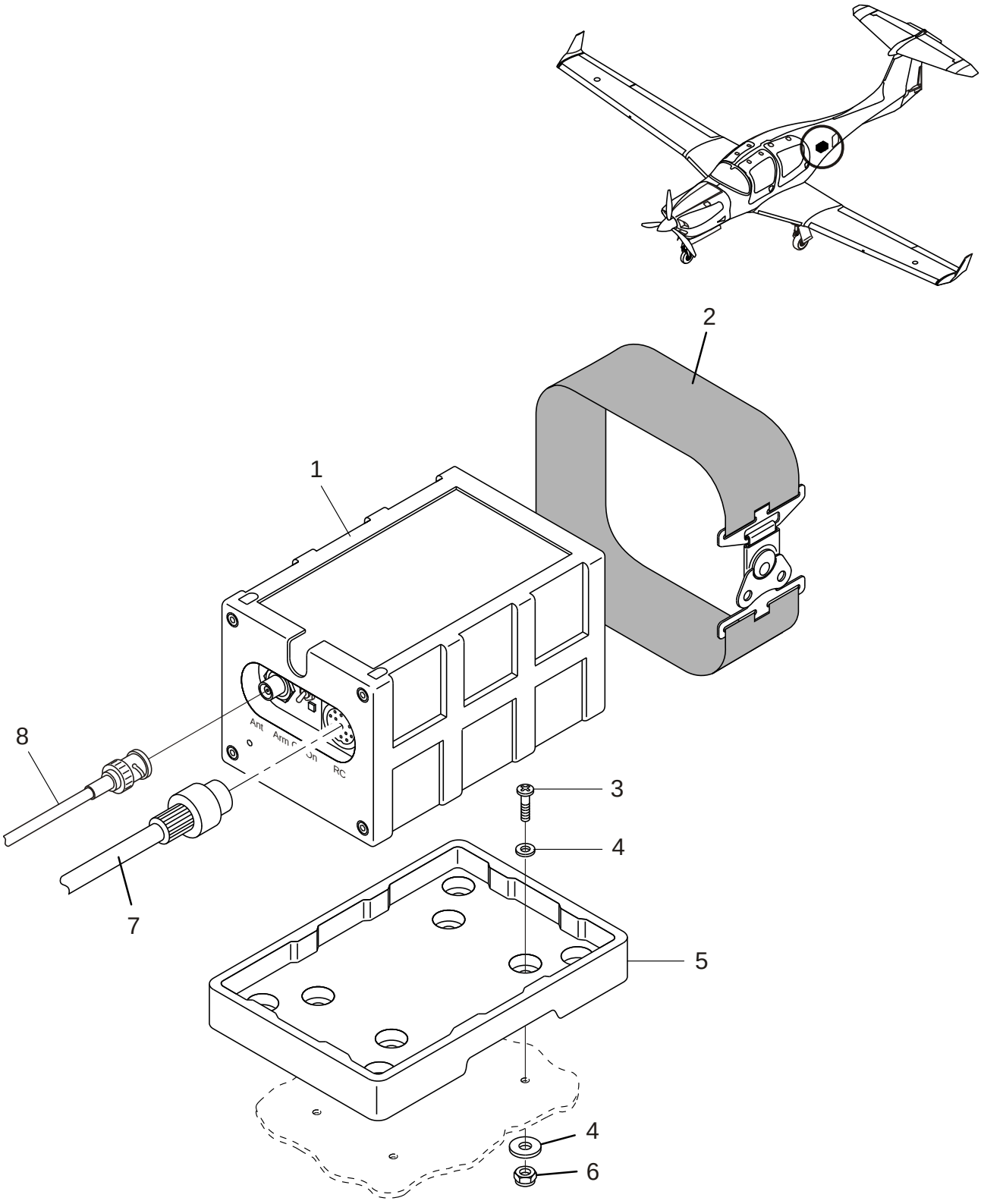


Figure 2 - Kannad 406 AF-Compact ELT Installation

Legend

[1, Fig.2] ELT Unit
[2, Fig.2] Mounting Strap
[3, Fig.2] Screw
[4, Fig.2] Washer
[5, Fig.2] Mounting Tray
[6, Fig.2] Nut
[7, Fig.2] Electric Cables
[8, Fig.2] Antenna Connector

25-60-05 Kannad AF Integra ELT

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Kannad AF Integra ELT

(1) Make sure that the battery pack is serviceable and the battery expiration date is valid.

(2) Install the ELT into the mounting tray:

- Move the ELT into position at the mounting tray.
- Make sure that the ON/OFF switch at the front of the ELT is set to OFF.
- Pass the strap with the buckle above the ELT.
- Do a quarter turn counterclockwise to the latch then bring the hook of the latch onto the buckle of the attaching strap.
- Do a quarter turn clockwise to the latch to fix the attaching strap by sliding the hook down.
- Pull down the latch to lock the attaching strap.
- Align the center of the latch with the center of the buckle.

(3) Connect the electrical cables.

At the in-line connector.

(4) Connect the coaxial cable.

At the bayonet connector.

(5) Make sure that both, the electrical cable and the coaxial bayonet connector are correctly located.

(6) Do a test for the correct operation of the ELT.

Refer to 25-60 Kannad AF Integra ELT - Operation Test.

25-60-06 ELT Remote Control Panel/Indicator RCPI

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the ELT Remote Control Panel/Indicator RCPI

(1) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(2) Disconnect the electrical cables from the rear of the RCPI.

Refer to Figure 3.

(3) Remove the RCPI:

Hold the RCPI.

- Remove the 4 nuts, washers and screws that attach the RCPI to the instrument panel.
- Move the RCPI towards the rear of the airplane and clear of the instrument panel.
- Move the RCPI clear of the airplane.

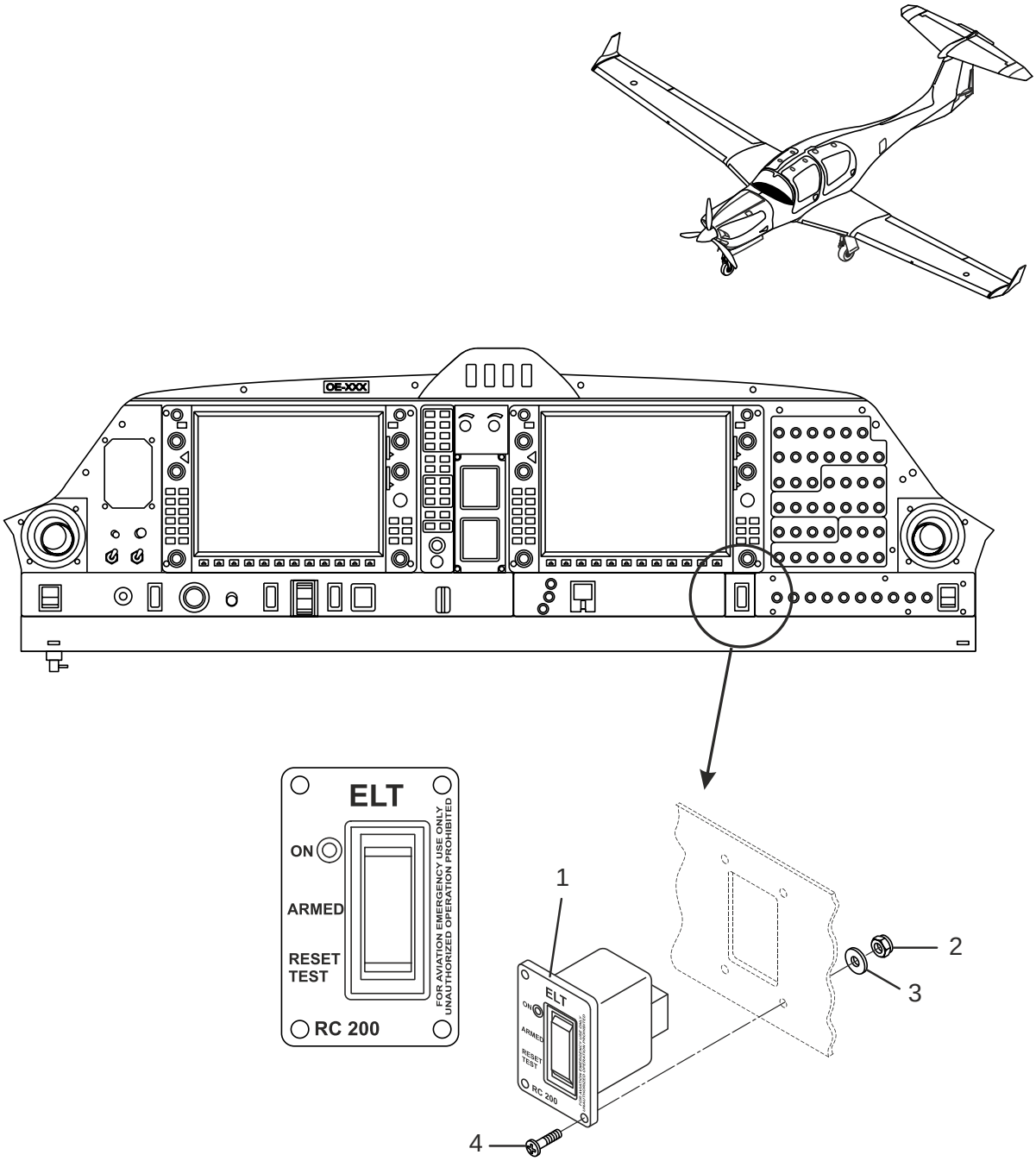


Figure 3 - RCPI Installation

Legend

[1, Fig.3] ELT Control Panel

[2, Fig.3] Nut

[3, Fig.3] Washer

[4, Fig.3] Screw

25-60-07 ELT Remote Control Panel/Indicator RCPI

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the ELT Remote Control Panel/Indicator RCPI

(1) Move the RCPI into position at the instrument panel.

(2) Install the RCPI:

- Move the RCPI into position in the instrument pane.
  From the cockpit side.
- Install the 4 screws, washers and nuts that attach the RCPI to the instrument panel.

(3) Connect the electrical cables to the rear of the RCPI.

At the inline connector.

(4) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(5) Do a functional test of the ELT system.

Refer to 25-60 Kannad AF Integra ELT - Operation Test.

25-60-08 Kannad AF Integra ELT

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

DO NOT INTEND TO LISTEN TO THE 121.5 MHz BY SWITCHING THE ELT ON. RISK OF FALSE ALERT!

NOTE

Do this test only in the first 5 minutes of each hour. If you are at a location with a control tower or other monitoring facility, tell them before you do the test.

NOTE

ELT annual test and inspection: Refer to the instructions of FAA AC 91-44A Change 1, Section 9, or those of section 7.2.4 of EUROCAE ED-62B.

3. Main Procedure

A. Kannad AF Integra ELT Functional Test

(1) Set the ELECT. MASTER switch to ON.

(2) Set the AV. MASTER switch to ON.

(3) Set the communications radio to receive 121.50 MHz.

(4) Press RESET/TEST on the RCP or switch ELT from OFF to ARM.

Red indicator flashes.

(5) Monitor the communications receiver for the ELT sweep tones.

Only 2 sweep tones are heard after 5 seconds, then it stops.

(6) Leave the ELT on ARM.

(7) Set the AV. MASTER switch to OFF.

(8) Set the ELECT. MASTER switch to OFF.

26-00
FIRE PROTECTION

26-00-01 Fire protection

Description

1. General

This Chapter tells you about the fire extinguisher installed in the airplane. There are two approved fire extinguishers for the DA 50 C:

- Amerex A620T
  The fire extinguisher Amerex A620T uses a siliconized sodium bicarbonate based by dry chemical.
- Amerex 337TS
  The fire extinguisher Amerex 337TS uses a Halocarbon Clean Agent named Halotron BrX.

See the fire extinguisher manufacturer's manual for more data about the extinguisher.

26-00-02 Fire Extinguisher

Description

1. Fire Extinguisher

26-00 DA50-A-26-00-00-00A-040A-D shows the installation of the fire extinguisher in the airplane. The fire extinguisher is located behind the co-pilot's seat. Two screws attach the fire extinguisher mount of the fire extinguisher to the rear main spar.

Off-airplane maintenance must be performed on regular basis according to Chapter 5 and the Owners Service Manual (Refer to 05-00 Referenced Maintenance Data - Description).

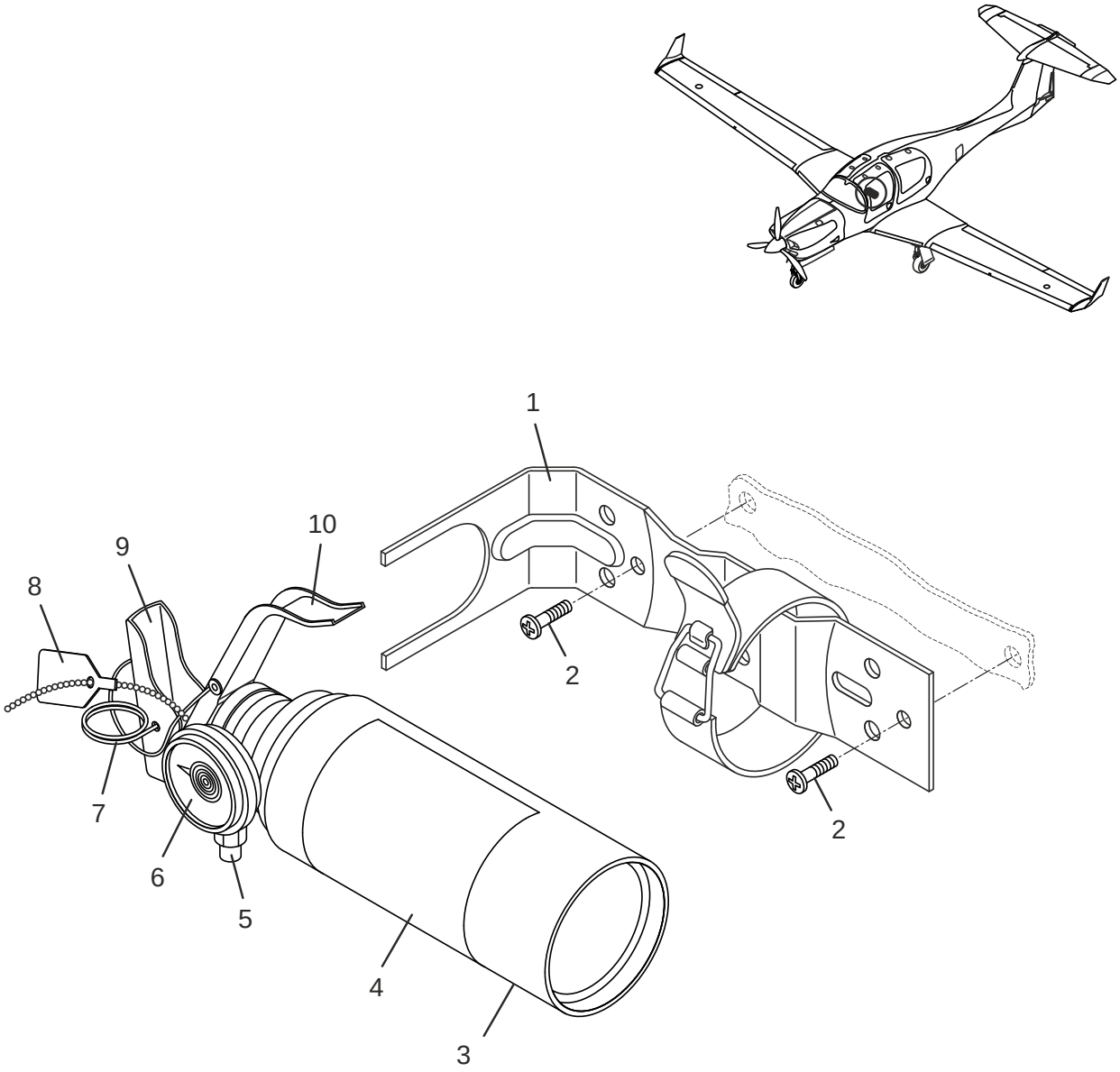


Figure 1 - Fire Extinguisher Installation

Legend

[1, Fig.1]	Fire Extinguisher Mount
[2, Fig.1]	Screw
[3, Fig.1]	Container
[4, Fig.1]	Label
[5, Fig.1]	Nozzle
[6, Fig.1]	Pressure Gauge
[7, Fig.1]	Pull Pin
[8, Fig.1]	Tamper Seal
[9, Fig.1]	Release Lever
[10, Fig.1]	Carry Handle

26-00-03 Fire Extinguisher Amerex 337TS

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace the Fire Extinguisher Amerex 337TS

(1) When you replace the fire extinguisher Amerex 337TS:

- Weigh the new fire extinguisher Amerex 337TS. This weight is the initial weight. Weigh the fire extinguisher without the fire extinguisher mount.
- Record the inital weight on the bottom of the new fire extinguisher. Do this with a permanent black marker. Record the initial weight with two decimal places (for example: 1.34 kg (2.95 lb)).

27-00
FLIGHT CONTROLS

27-00-01 Flight Controls

Description

1. General

This Chapter tells you about the flight controls of the DA 50 C. It tells about the operation of the controls and it tells you about the assembly and adjustment of the controls. Refer to the related Section for the data about a specific system.

This Section tells you how standard parts are used to make the flight controls for each system.

2. Description

Figure 1 shows the basic control surfaces of the DA 50 C. The DA 50 C has the usual flight controls. An elevator attached to the horizontal stabilizer gives longitudinal control. Ailerons attached to the trailing edge of each wing gives lateral control. Rudder attached to the vertical stabilizer gives yaw control. Flaps attached to the trailing edge of each wing give extra lift for take-off and landing. The rudder and the elevator both have trim systems.

Each pilot has a set of rudder pedals. The rudder pedal assembly attaches to the cockpit floor. Each pilot can adjust the position of the rudder pedals electrically with a switch on the instrument panel. Rudder trim switches are mounted on the power lever, which drive an actuator. A flexible drive cable connects the actuator to the rudder trim tab.

The pilot uses the control stick to move the ailerons and elevator. Both the ailerons and elevator are moved by a series of bellcranks and pushrods. Flexible cables connect the rudder pedal assembly to the rudder. An electric actuator operates the flaps.

The elevator trim tab can be operated in two ways, an elevator trim wheel is mounted in the center console and elevator trim switches are located on the control stick. The elevator trim switches drive an actuator which is connected with the elevator trim wheel. A flexible drive cable connects the elevator trim wheel to the elevator trim tab.

Each pilot has a control stick. If OÄM 50-035 is installed, the RH control stick is removable. The pilot can set the elevator trim by using a hand wheel located in the center console or electrically by using a switch mounted on the pilot’s control stick.

3. Pushrods

The pushrods used in the DA 50 C have standard end fittings. Most control rods also use a standard diameter tube. Only the length of the rods are special. Some rods have one fixed fork end fitting and an adjustable eye end fitting. Other rods have two adjustable eye end fittings.

Figure 2 shows an example of a standard pushrod. The rod has adjustable end fittings. The adjustable fittings have eye ends with a threaded shaft. The eye end has a spherical self-aligning bearing. A jam nut on the threaded shaft locks the eye end in position. Toothed washers lock the nut. You can turn the eye ends to adjust the length of the pushrod.

A steel tube makes the rod which connects the end fittings. Threaded inserts are welded into the ends of the tube to make the connections for the eye ends. Safety holes are drilled into the tube at the end fittings. The safety holes shows you if the installation of the eye end into the control rod is correct. If you can push safety wire through the hole when the eye end is installed then the eye end fitting is NOT installed correctly. You cannot push safety wire through the hole if the eye end fitting is installed correctly.

Refer to the maintenance practices in this Section for the procedures for adjusting the length of adjustable pushrods.

4. Control Rigging

The flight controls of the DA 50 C have been designed to make correct rigging of the controls as easy as possible. Most levers and bellcranks have holes for rigging pins. The rigging pins lock the levers in the neutral position.

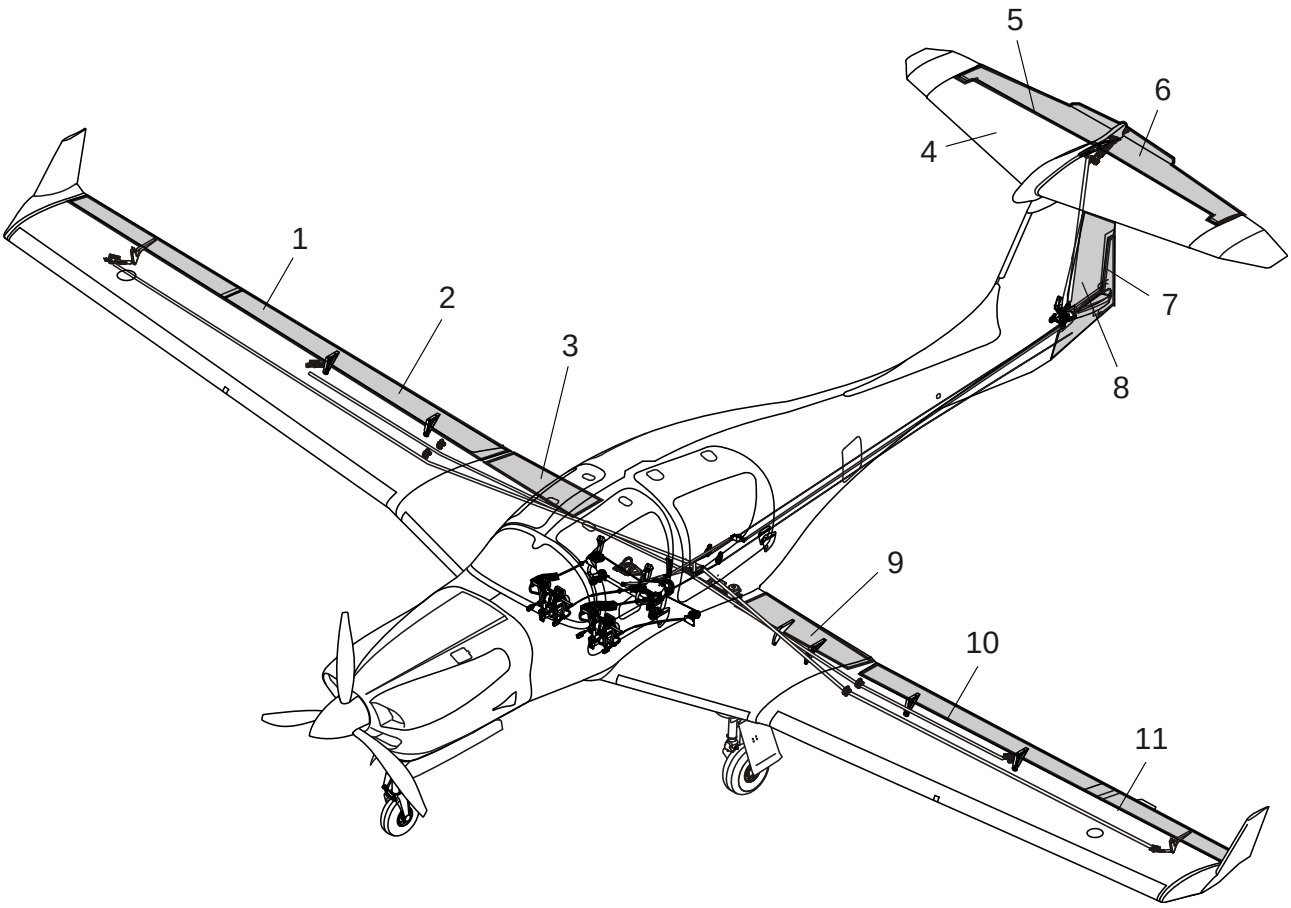


Figure 1 - DA 50 C Control Surfaces

Legend

[1, Fig.1]	Aileron RH
[2, Fig.1]	Flap Outer RH
[3, Fig.1]	Flap Inner RH
[4, Fig.1]	Horizontal Stabilizer
[5, Fig.1]	Elevator
[6, Fig.1]	Elevator Trim Tab
[7, Fig.1]	Rudder Trim Tab
[8, Fig.1]	Rudder
[9, Fig.1]	Flap Inner LH
[10, Fig.1]	Flap Outer LH
[11, Fig.1]	Aileron LH

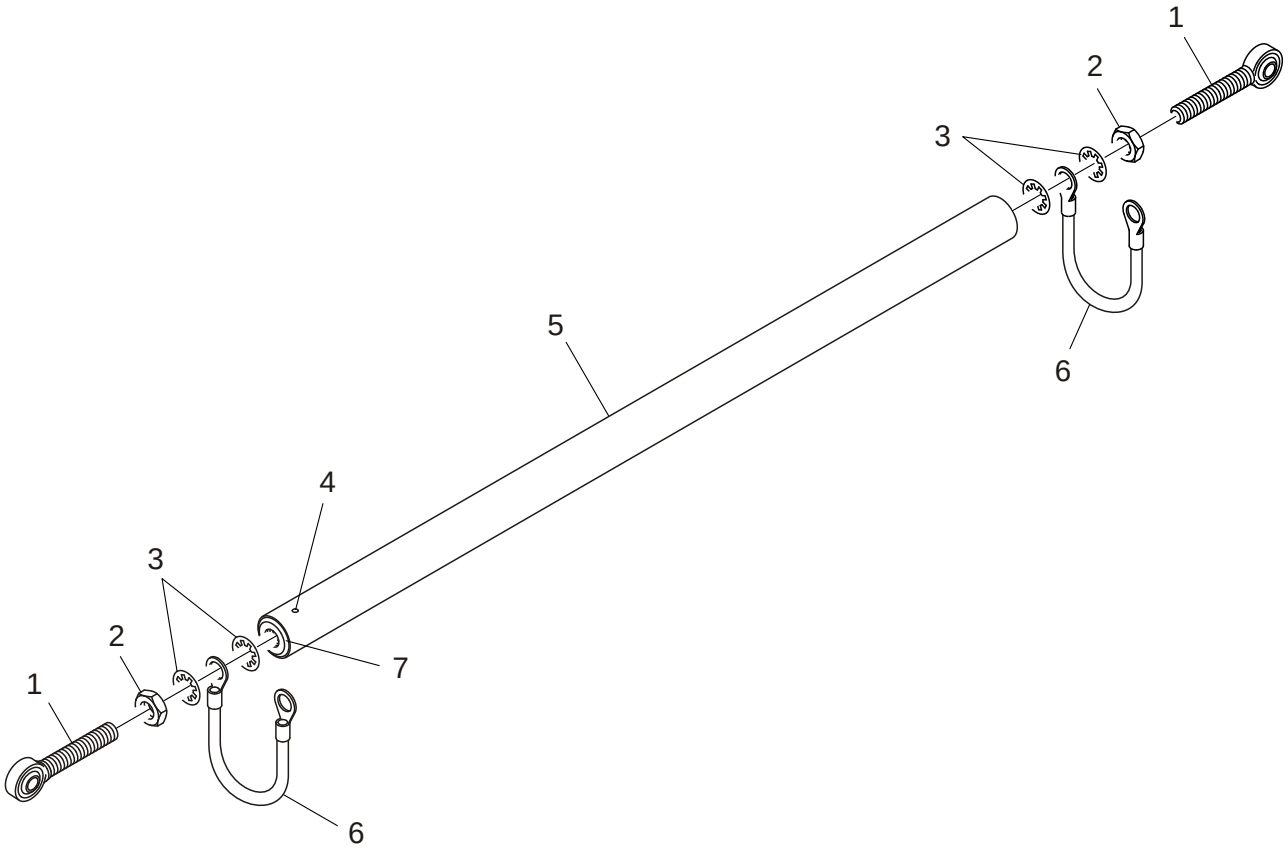


Figure 2 - DA 50 C Standard Control Pushrod

Legend

[1, Fig.2] Eye-End Fitting with Spherical Bearing

[2, Fig.2] Jam-Nut

[3, Fig.2] Toothed Washers

[4, Fig.2] Safety Test Hole

[5, Fig.2] Push Rod

[6, Fig.2] Bonding Wire

[7, Fig.2] Threaded End Fitting Welded into Place

27-00-02 Push-Rod

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

IF YOU DO AN ADJUSTMENT OF A PUSHROD, YOU MUST MAKE SURE THAT THE PUSHROD IS STILL IN SAFETY. IF YOU DO NOT DO THIS, THE PUSH ROD CAN DISCONNECT. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Push-Rod Adjustment

(1) Release the bolt which attaches the pushrod adjustable fitting to its related lever or bellcrank.

(2) Loosen the jam nut that locks the adjustable fitting.

Refer to 27-00 Flight Controls - Description Figure 2.

Disconnecting not necessary.

(3) Turn the eye end to adjust the length of the rod.

Turn the eye end clockwise to make the rod shorter, turn the eye end counterclockwise to make the rod longer.

(4) When you have adjusted the eye end do a test for safety of the eye end:

- Try to push lock wire through the safety hole.

The lock wire MUST NOT go through the safety hole and out of the other side.

(5) Tighten the jam-nut.

(6) Move the eye end fitting into position in its related lever or bellcrank.

(7) Install the bolt, washer and self locking nut that attaches the control rod to its related lever or bellcrank.

You must always use a new self locking nut.

(8) Do an inspection of the control that you have adjusted:

- If necessary for your Airworthiness Authority, do a duplicate inspection of the control system that you adjusted.
- Do a friction check of the appropriate control system.

Make sure that there is no undue friction within the control system.

27-00-03 Levers

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Lever or Bellcrank

(1) Release the bolts attaching the pushrods to the lever or bellcrank.

(2) Remove the pivot bolt assembly from the lever or bellcrank.

(3) If necessary, remove the lever or bellcrank mounting bracket:

- Remove the bolts and washers that attach the mounting bracket to the structure.

Where you have access to both side of the attachment, bolts with washers and nuts are used. In all other cases, anchor nuts are used.

27-00-04 Levers

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Lever or Bellcrank

(1) If necessary, put the mounting bracket into position.

NOTE

You must always use new self locking nuts when installing control levers or bellcranks. Do NOT use a self locking nut more than once.

(2) Install the bolts, washers and nuts that attach the mounting bracket to the structure.

(3) Put the lever or bellcrank into position at the mounting bracket.

Make sure that bushes and spacers are correctly located.

(4) Install the pivot bolt, washer and nut.

(5) Install the bolts, washers and self locking nuts which attach the push rods.

(6) Do a test of the control system.

Refer to the related Section.

(7) Do an inspection of the control that you have adjusted:

- If necessary for your Airworthiness Authority, do a duplicate inspection of the control system that you adjusted.
- Do a friction check of the appropriate control system.

Make sure that there is no undue friction within the control system.

27-00-05 Hinge

Design data/tolerances check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Caliper	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Measure the Play in a Hinge

(1) Measure the Axial Play of a Control Surface Hinge

Move the control surface by hand along the direction of the hinge line in both directions (up and down for the rudder, inboard and outboard for the other control surfaces). Measure the maximum travel from one limit position to the other.

(2) Measure the Radial Play of a Control Surface Hinge

Move the control surface by hand perpendicular to the direction of the hinge line in both directions (left and right for the rudder, up and down for the other control surfaces). Measure the maximum travel from one limit position to the other.

27-00-06 RH Control Stick

Description

1. Remove/Install the RH Control Stick (if OÄM 50-035 is installed)

If OÄM 50-035 is installed, the RH stick can be removed by the pilot and consists of two parts, the control stick base and the removable control stick. With the control stick removed, the control stick base is protected with a dust cap. For removal of the removable control stick refer to Supplement O008 of the AFM.

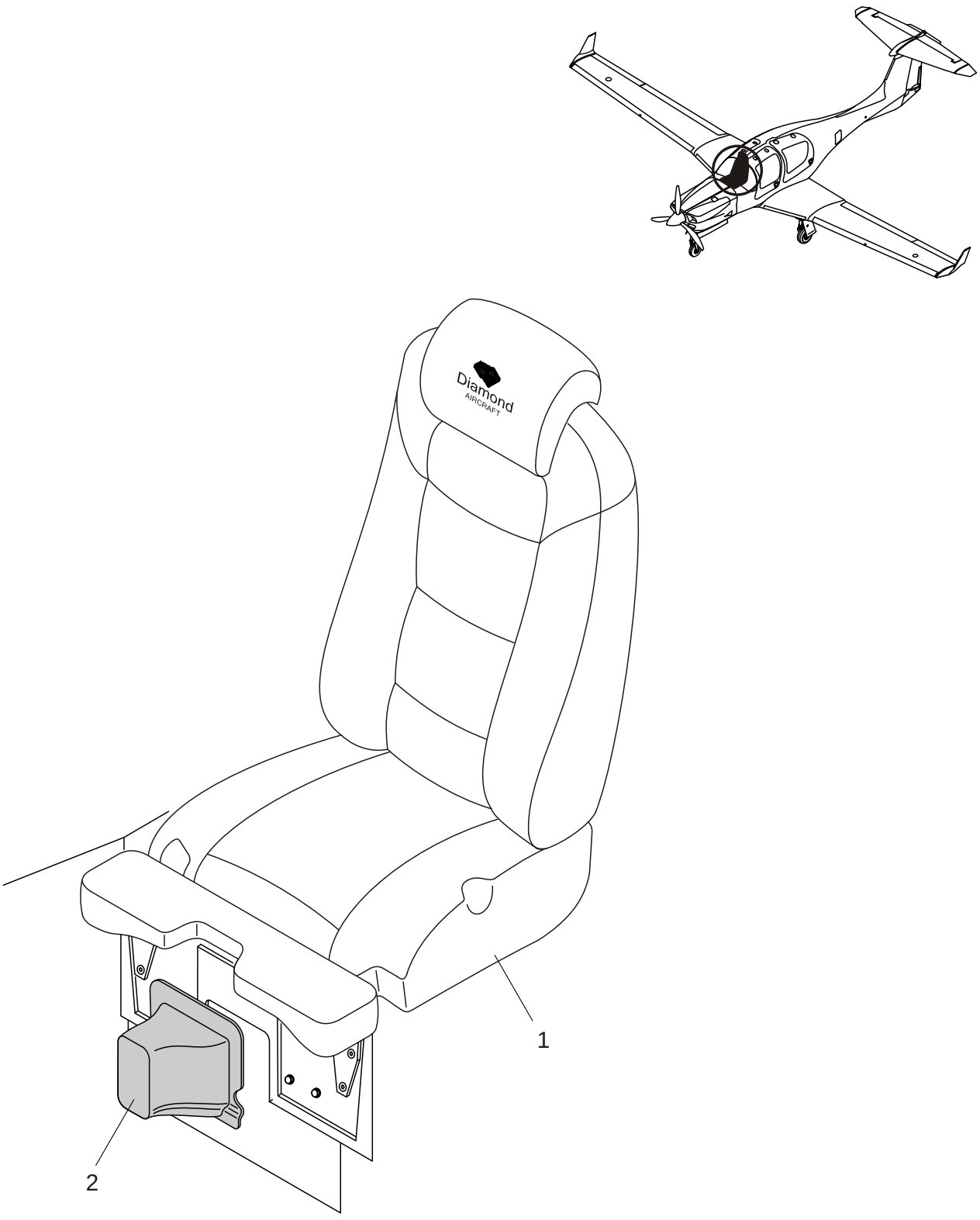


Figure 3 - RH Stick removed (if OÄM 50-035 is installed)

Legend

[1, Fig.3] RH Pilot's Seat

[2, Fig.3] Cover

27-10
AILERON CONTROL SYSTEM

27-10-01 Aileron Control System

Description

1. Description

The DA 50 C has a control stick for each pilot. If OÄM 50-035 is installed, the RH control stick is removeable. The control sticks operate the ailerons and elevator via control rods. Aileron pushrods connect to the bottom of the control sticks. The pushrods connect to the aileron front bellcrank at the control bulkhead. The front bellcrank at the control bulkhead connects to a short pushrod under the center console. Refer to Figure 1.

The short pushrod connects to an idler lever attached to the front main bulkhead. Another push-rod connects the idler lever to the aileron rear bellcrank. The aileron rear bellcrank attaches to the rear face of the rear main bulkhead. Refer to Figure 1.

The rear bellcrank connects to the two pushrods in the center section. Each of these rods connect to long pushrod assemblies located in each of the wings. Refer to Figure 2.

Each long pushrod assembly has four pushrod guides. The first pushrod guide attaches to a rib located in the wing center section. The second pushrod guide attaches to the outer wing root rib. Small ribs hold the third and fourth pushrod guide. The two long pushrod assemblies attach to the aileron bellcranks which are mounted in each wing, at the aileron control rib. Refer to Figure 2.

Short pushrods connect the aileron bellcrank to the aileron horn. You can adjust the short pushrods to move the aileron range-of-movement up or down. Refer to Figure 2.

The aileron stop which limits the movement of the control sticks to the right (right aileron up, left aileron down) is located to the left of the pilot's control stick (Figure 1). The aileron stop which limits the movement of the control stick to the left (left aileron up, right aileron down) is located to the right of the co-pilot's control stick. Each aileron stop consists of an aileron stop bush which is mounted using a bolt to the stick bearing. When the stick is rotated, the bottom edge of the aileron stick lever collides with the aileron stop bush.

Additional, non adjustable stops are located in front of the leading edge of the LH and RH aileron. Each stop consists of a GFRP block with a rubber coating, bonded to the inside of the upper wing skin. When the aileron is deflected fully downward, the aileron paddle is deflected fully upward and contacts the stop.

The aileron rear bellcrank is secured with a guard.

A spring connected to the front bellcrank provides the centering of the ailerons.

2. Aileron Pushrod Access

Aileron Pushrod	Remove/Install Access	References
Between the control stick and the bellcrank at the control bulkhead.	Pilot's seat.	25-10 Flight compartment - Description.
Between the bellcrank at the control bulkhead and the idler lever at the front main bulkhead.	Pilot's seat.	25-10 Flight compartment - Description.
Between the idler lever at the front main bulkhead and the bellcrank at the rear main bulkhead.	Pilot's seat Passenger seat.	25-10 Flight compartment - Description.
Between the bellcrank at the rear main bulkhead and the center section closing rib.	Passenger seat. Center section access panels.	25-10 Flight compartment - Description. 52-40 Access Panels - Description.
Between the center section closing rib and the bellcrank in the left/right wing.	Center section access panels. Aileron bellcrank access panels under each wing.	52-40 Access Panels - Description.
Between the bellcrank in the left/right wing and the ailerons.	Aileron bellcrank access panels under each wing.	52-40 Access Panels - Description.

Table 1 - Aileron Pushrod Access

3. Aileron Bellcrank and Lever Access

Aileron Bellcrank/Lever	Remove/Install Access	References
Bellcrank at the control bulkhead.	Pilot's seat.	25-10 Flight compartment - Description.
Idler lever at the front main bulkhead.	Pilot's seat.	25-10 Flight compartment - Description.
Bellcrank at the rear main bulkhead.	Passenger seat.	25-10 Flight compartment - Description.
Bellcrank in the wing.	Aileron bellcrank access panels under each wing.	52-40 Access Panels - Description.

Table 2 - Aileron Bellcrank and Lever Access

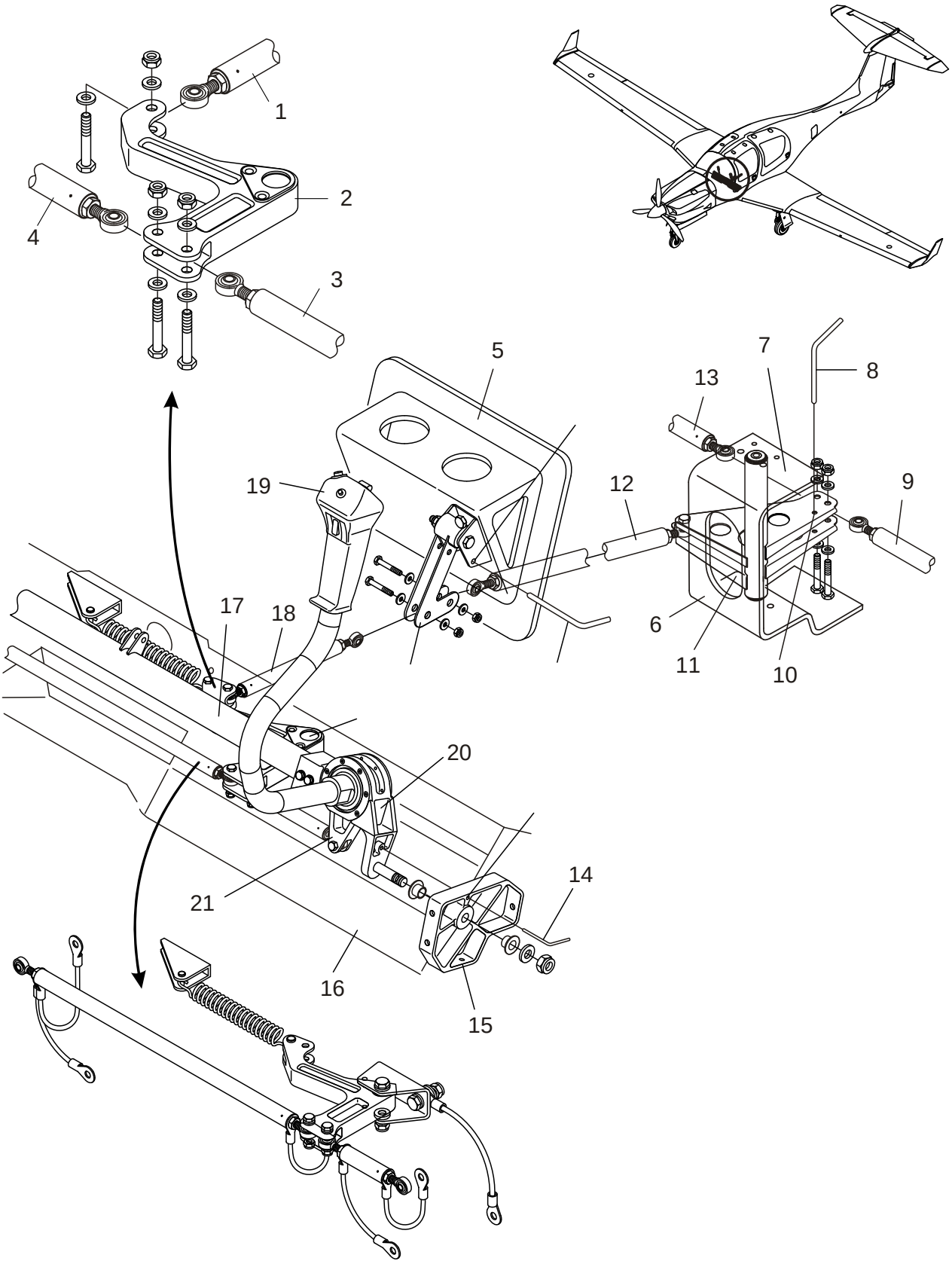


Figure 1 - Aileron Controls in the Fuselage

Legend

[1, Fig.1]	Push Rod
[2, Fig.1]	Aileron Lever
[3, Fig.1]	Push Rod
[4, Fig.1]	Push Rod
[5, Fig.1]	Idler Lever Support Bracket
[6, Fig.1]	Aileron Bellcrank Support Bracket
[7, Fig.1]	Aileron Bellcrank Support Bracket
[8, Fig.1]	Rigging Pin
[9, Fig.1]	Push Rod to Left Wing
[10, Fig.1]	Rigging Pin Hole
[11, Fig.1]	Aileron Bellcrank 1
[12, Fig.1]	Push Rod from Idler Lever
[13, Fig.1]	Push Rod to Right Wing
[14, Fig.1]	Rigging Pin
[15, Fig.1]	Control Stick Mounting Block
[16, Fig.1]	Control Bulkhead
[17, Fig.1]	Torque Tube Assy
[18, Fig.1]	Push Rod
[19, Fig.1]	Left Stick
[20, Fig.1]	Stick Bearing
[21, Fig.1]	Aileron Stick Lever

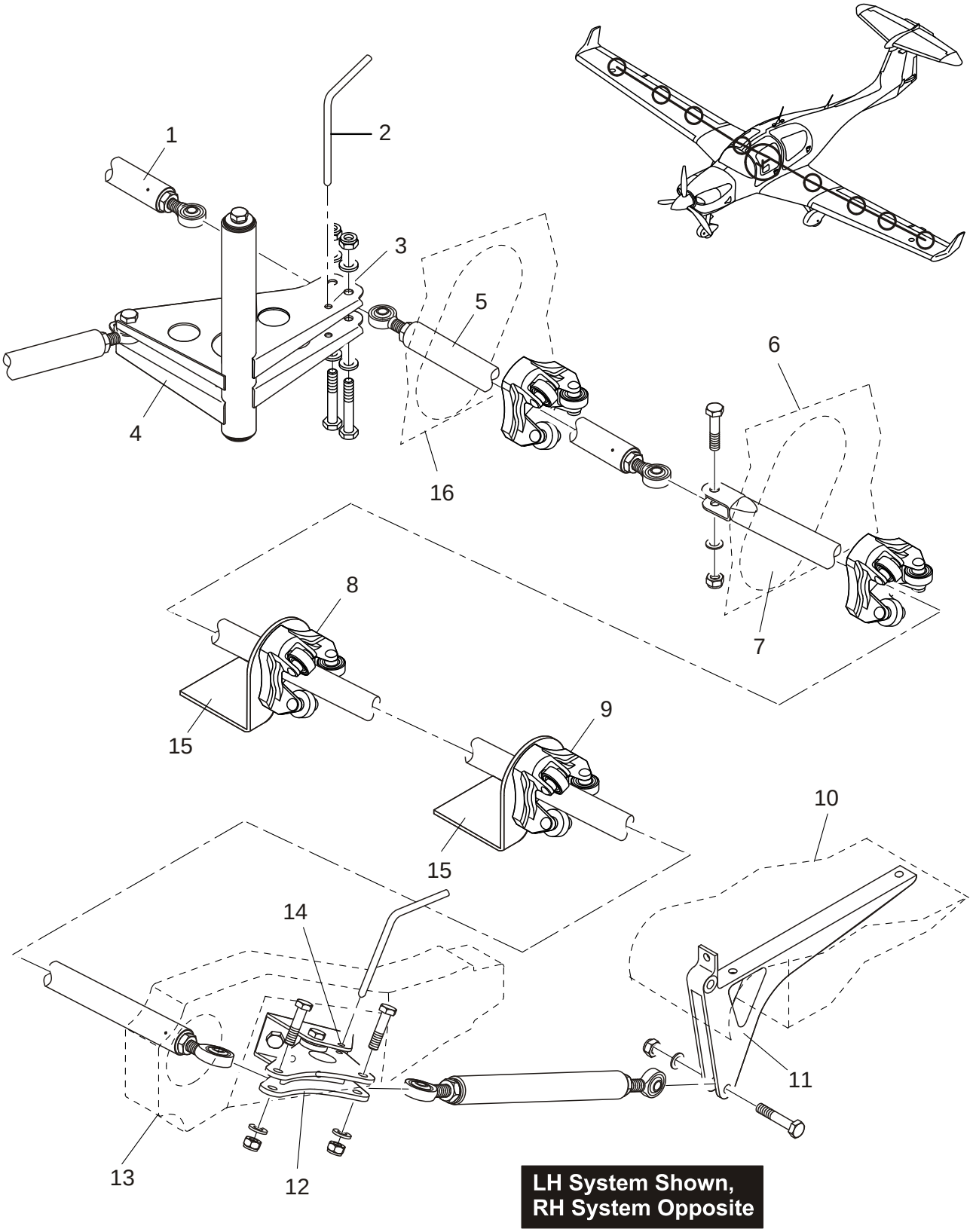


Figure 2 - Aileron Controls in the Wings

Legend

[1, Fig.2]	Push Rod to Right Wing
[2, Fig.2]	Rigging Pin
[3, Fig.2]	Rigging Pin Hole
[4, Fig.2]	Aileron Bellcrank 1
[5, Fig.2]	Push Rod to Left Wing
[6, Fig.2]	Wing Root Rib
[7, Fig.2]	Guide Rollers
[8, Fig.2]	Guide Rollers
[9, Fig.2]	Guide Rollers
[10, Fig.2]	Aileron
[11, Fig.2]	Aileron Horn
[12, Fig.2]	Left Aileron Bellcrank
[13, Fig.2]	Aileron Control Rib
[14, Fig.2]	Rigging Pin Hole
[15, Fig.2]	Support Bracket
[16, Fig.2]	Center Wing Root Rib

27-10-02 Aileron Control System

Description of function

1. Operation

If you move the control stick to the left:

- The pushrods connected to the stick move to the right.
- The front bellcrank moves the pushrod below the center console towards the rear.
- The push-rod below the center console moves the idler lever and second short pushrod to the rear.
- The second short pushrod moves the rear bellcrank so that the long pushrods in the wing move to the left.
- The left aileron bellcrank in the left wing moves the short pushrod attached to the left aileron horn to the rear.
- The left aileron moves up.

If you move the control sticks to the right:

- The left aileron moves down.
- The right aileron moves up.

27-10-03 Aileron Control System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Airplane moves about the longitudinal axis in flight with no input from the pilot.

1A. Examine the aileron pushrods.

Are the aileron pushrods out of adjustment?

Yes - go to step 1B.

No - go to step 1C.

1B. Adjust the aileron pushrods.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Aileron controls stiff/catch.

2A. Examine bearings in the control rod eye end.

Is a bearings in the control rod eye end defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the defective eye end.

2C. Examine the control rod guide(s).

Are control rod guide(s) defective?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the guides.

2E. Examine the pushrod.

Is the pushrod bent?

Yes - go to step 2F.

No - go to step 2G.

2F. Replace the pushrod.

2G. Contact DAI.

27-10-04 Aileron Control System

Design data/tolerances check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Control stick rigging pins (Ø 4 mm [0.16 in])	D41-2757-30-00-VR	2
Electronic angle protractor (altern.)	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

WARNING

WHEN YOU COMPLETE WORK ON THE CONTROLS, MAKE SURE THAT YOU REMOVE ALL LOOSE ITEMS OR TOOLS FROM THAT AREA. LOOSE ITEMS OR TOOLS CAN PREVENT FULL AND FREE MOVEMENT OF THE AIRPLANE CONTROLS. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Aileron Control System Test for Correct Range of Movement

(1) Make a copy of the Control Surfaces Adjustment Report.

Refer to 06-00 Adjustment Reports - Adjust, align and calibrate.

Use it to record the measurements.

(2) Remove the left pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(3) Install the control stick rigging pins:

- Through any of the six holes at the bottom of stick circumference.
- Through the left mounting bracket.

(4) Install the flap / aileron check gauge on the wings.

(5) Check the trailing edges of both ailerons.

- Adjust the ailerons in accordance with 27-10 Aileron Control System - Adjust, align and calibrate if necessary.
- Report the measurements in the adjustment report.

(6) Remove the rigging pins from the following:

- The bottom of the control stick.
- The left stick mounting bracket.

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

(7) Move the control stick fully to the left and hold it against the stop.

(8) Check the trailing edges of both ailerons.

- Adjust the ailerons in accordance with 27-10 Aileron Control System - Adjust, align and calibrate if necessary.
- Report the measurements in the adjustment report.

(9) Move the control stick fully to the right and hold it against the stop.

(10) Check the trailing edges of both ailerons

- Adjust the ailerons in accordance with 27-10 Aileron Control System - Adjust, align and calibrate if necessary.
- Report the measurements in the adjustment report.

.

(11) Install the left pilot's seat.

Refer to 25-10 Pilots Seat - Install procedure.

27-10-05 Aileron Control System

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Control stick rigging pins (Ø 4 mm [0.16 in])	D41-2757-30-00-VR	7
Electronic angle protractor (altern.)	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

IF YOU DO AN ADJUSTMENT OF A PUSHROD, YOU MUST MAKE SURE THAT THE PUSHROD IS STILL IN SAFETY. IF YOU DO NOT DO THIS, THE PUSH ROD CAN DISCONNECT. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Aileron Control System Adjustments

If you cannot get the correct range of movement of the aileron control system, use this procedure to adjust the system. Gust travel refers to the amount of travel remaining at the control surface with the control stick held against the cockpit stop.

(1) Remove these items for access:

- Pilots' seats. Refer to 25-10 Pilots Seat - Remove procedure.
- Passenger seat. Refer to 25-10 Passenger Seat - Remove procedure.
- Pushrod access panels under the center section. Refer to 52-40 Access Panels - Description.
- Aileron bellcrank access panels under each wing.

(2) Install rigging pins in the following:

- The bottom of each control stick.
  Refer to 27-10 Aileron Control System - Description Figure 1.
  To lock the stick to the torque tube.
- The left stick mounting bracket.
  The lock the elevator movement.
- The front bellcrank.
  On the control bulkhead.
- The idler lever.
  On the front main bulkhead.
- The rear bellcrank.
  On the rear main bulkhead.
- The left aileron bellcrank.
  In the left wing.
- The right aileron bellcrank.
  In the right wing.

NOTE

Keep the aileron rigging pins into position until you have finished making the adjustments. Lock each lever or bellcrank in sequence.

(3) If you cannot put a rigging pin into a lever or bellcrank, adjust the pushrod(s) as necessary.

Refer to 27-00 Push-Rod - Adjust, align and calibrate for the pushrod adjustment procedure.

(4) Install the flap / aileron check gauge on the wings.

(5) Remove the rigging pins from the following:

- The bottom of each control stick.
- The left stick mounting bracket.
- The front bellcrank.
  On the control bulkhead.
- The idler lever.
  On the front main bulkhead.
- The rear bellcrank.
  On the rear main bulkhead.
- The left aileron bellcrank.
  In the left wing.
- The right aileron bellcrank.
  In the right wing.

WARNING

ALL RIGGING PINS MUST BE REMOVED TO AVOID DAMAGE OF THE CONTROL SYSTEM.

(6) Do the Aileron Control System Test Procedure.

Refer to 27-10 Aileron Control System - Design data/tolerances check.

(7) If necessary, adjust the pushrods between the aileron bellcranks in the wings and the ailerons.

Refer to 27-00 Push-Rod - Adjust, align and calibrate.

Adjust the rods to give the measurements in the original Control Surfaces Adjustment Report supplied with the airplane.

Remove guard on bellcrank if necessary. (Reattach after adjustment and secure with cable tie. Ratchet facing inward.)

(8) If necessary, adjust the aileron stop bolts in the torque tube assembly:

- Release the jam nut on the stop bolt.
  Refer to 27-10 Aileron Control System - Description Figure 1.
- Adjust the stop bolt to give the correct range of movement.
  The aileron positions must be the distances shown in the original Control Surfaces Adjustment Report (measured from the neutral position).
- Tighten the jam nut on the stop bolt.

(9) Do an inspection of the controls that you have adjusted. If necessary for your Airworthiness Authority, do a duplicate inspection of the controls.

Check correct position of guard and cable tie on bellcrank guard (Ratchet facing inward.)

(10) Install these items:

- Pilots' seats. Refer to 25-10 Pilots Seat - Install procedure.
- Passenger seat. Refer to 25-10 Passenger Seat - Install procedure.
- Pushrod access panels under the center section. Refer to 52-40 Access Panels - Description.
- Aileron bellcrank access panels under each wing.

27-20
RUDDER CONTROL SYSTEM

27-20-01 Rudder Control System

Description

1. Rudder Control System

The DA 50 C has a set of rudder control pedals for each pilot. The pedal assembly can be adjusted.

Figure 1 shows the rudder control system. Figure 2 shows the rudder pedal assembly with electrical pedal adjustment. Figure 3 shows the rudder control in the cockpit and Figure 4 shows the rudder controls in the fuselage The system has these components:

- A rudder pedal assembly for each pilot at the front of the cockpit. The forward part of each pedal connects to a brake master cylinder (refer to 32-40 Wheels and brakes - Description for more data about the brake system).
- An adjuster switch for each pilot, located on each side of the instrument panel .
- A rudder control wheel assembly in the fuselage below the center console. The rudder control wheel bracket attaches to the bottom of the control bulkhead and to the fuselage shell.
- A rudder control assy at the rear of the fuselage. The rudder lower mounting-bracket is attached to the rudder leading edge. It connects the rudder to the rudder control assy.
- Cable assemblies. Flexible control cables connect the cockpit front bulkhead to the rudder control wheel. Two long flexible control cables connect the rudder control wheel to the rudder control rear assy. Each of the long flexible cables has a turnbuckle assembly for adjusting the length of the cable.

Six bolts attach each rudder pedal assembly to the cockpit floor.

Each rudder pedal assembly has two pedals. Each pedal has a lever and a foot pad. Each pedal has an “S” shaped tube. The lower part of the tube aligns with the pivot of the pedal. The upper part of the tube aligns with the foot pad of the pedal.

Four control cables (cockpit cables) go from the cockpit front bulkhead to enter the bottom of each “S” shaped tube. A multihole fitting at the bulkhead gives adjustment for each fitting. Each cable goes through an “S” shaped tube and comes out at the top of the tube. Each cable then goes from the tube to the idler pulley.

Each outboard control cable goes through a Teflon tube in the aft face of the floor panel. Each outboard control goes inboard through a guide pulley on the control bulkhead. The cables connect each outer pedal to the control wheel.

Each inboard control cable goes through a Teflon tube in the aft face of the floor panel. The cables connect each inner pedal to the control wheel.

Two cable assemblies (fuselage cables) attach to the lower groove of the control wheel. Each cable has a short front cable and a longer rear cable. All cables go through Teflon tubes. Turnbuckles connect the front cable to the rear cable. The turnbuckles can adjust the tension in the fuselage cables and the neutral position of the rudder.

The two fuselage cables go through Teflon tubes in the rear fuselage. The cables attach to the rudder control rear assy.

The rudder stops which limit the rudder deflection to the left and to the right side are located in the rudder control rear assy (Figure 4).

Rudder Cable/Rudder Control Wheel Assy	Remove/Install Access	References
Cockpit cables between the cockpit front bulkhead and the rudder control wheel assy.	Pilot’s seat.	25-10 Flight compartment - Description.
Rear fuselage cables between the rudder control wheel assy and the rudder rear assy.	Pilot’s seat. Passenger seat. Rudder.	25-10 Flight compartment - Description. 55-40 Rudder - Description.
Rudder control wheel assy.	Pilots' seats.	25-10 Flight compartment - Description.

Table 1 - Access

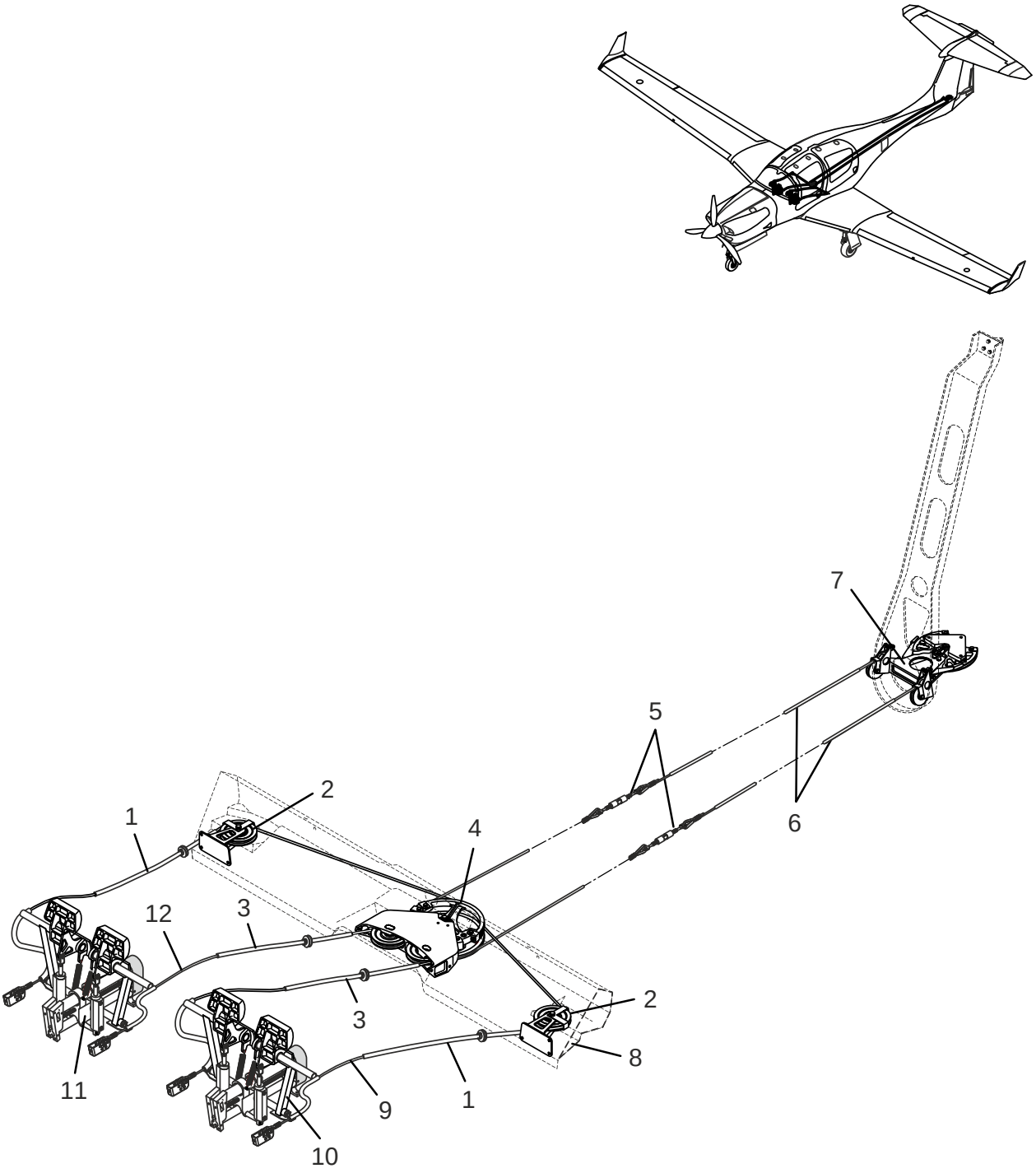


Figure 1 - Rudder Control System

Legend

[1, Fig.1]	Outboard Teflon Tubes which Guide Cockpit Cables
[2, Fig.1]	Pulley
[3, Fig.1]	Inboard Teflon Tubes which Guide Cockpit Cables
[4, Fig.1]	Control Wheel
[5, Fig.1]	Turnbuckles
[6, Fig.1]	Fuselage Cables with Guide Tubes
[7, Fig.1]	Rudder Lower Mounting-Bracket
[8, Fig.1]	Control Bulkhead
[9, Fig.1]	Outboard Control Cable
[10, Fig.1]	Pilot's Rudder Pedal Assembly
[11, Fig.1]	Co-Pilot's Rudder Pedal Assembly
[12, Fig.1]	Inboard Control Cable

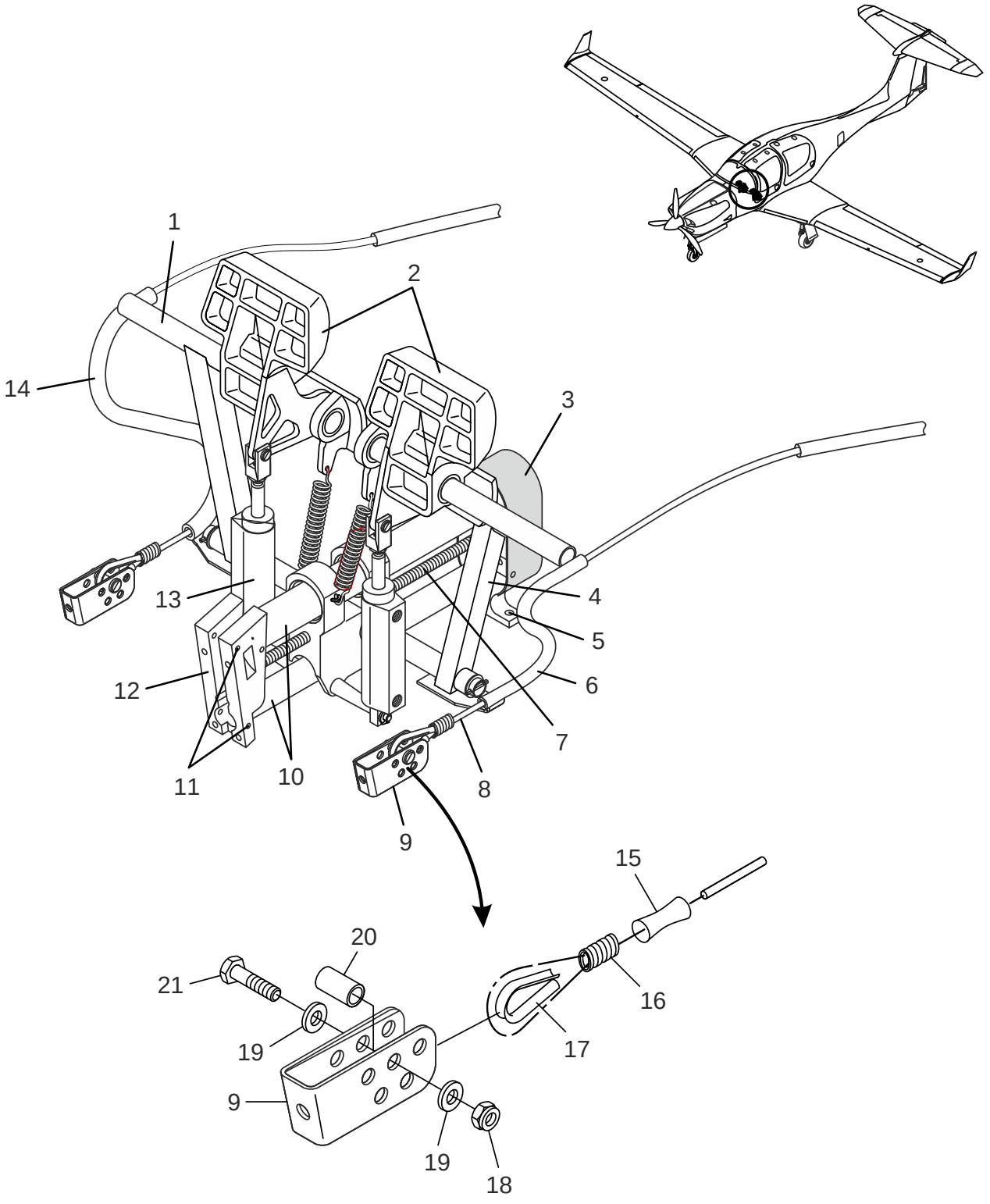


Figure 2 - Rudder Pedal Assembly with Electrical Adjustment

Legend

[1, Fig.2]	Right Rudder Pedal
[2, Fig.2]	Brake Pedals
[3, Fig.2]	Transmission Mechanism
[4, Fig.2]	Left Rudder Pedal
[5, Fig.2]	Aft Attachment to Floor Panel
[6, Fig.2]	'S' Tube for Control Cables
[7, Fig.2]	Adjuster Rod
[8, Fig.2]	Rudder Control Cable
[9, Fig.2]	Multi-Hole Bracket (Attachment for Cables)
[10, Fig.2]	Sledge Tubes
[11, Fig.2]	Roll-Pins
[12, Fig.2]	Front Attachment to Floor Panel
[13, Fig.2]	Brake Master Cylinder
[14, Fig.2]	S' Tube for Control Cables
[15, Fig.2]	Heat Shrink Tube
[16, Fig.2]	Sleeve
[17, Fig.2]	Thimble
[18, Fig.2]	Self-Locking Nut
[19, Fig.2]	Washer
[20, Fig.2]	Spacer
[21, Fig.2]	Screw

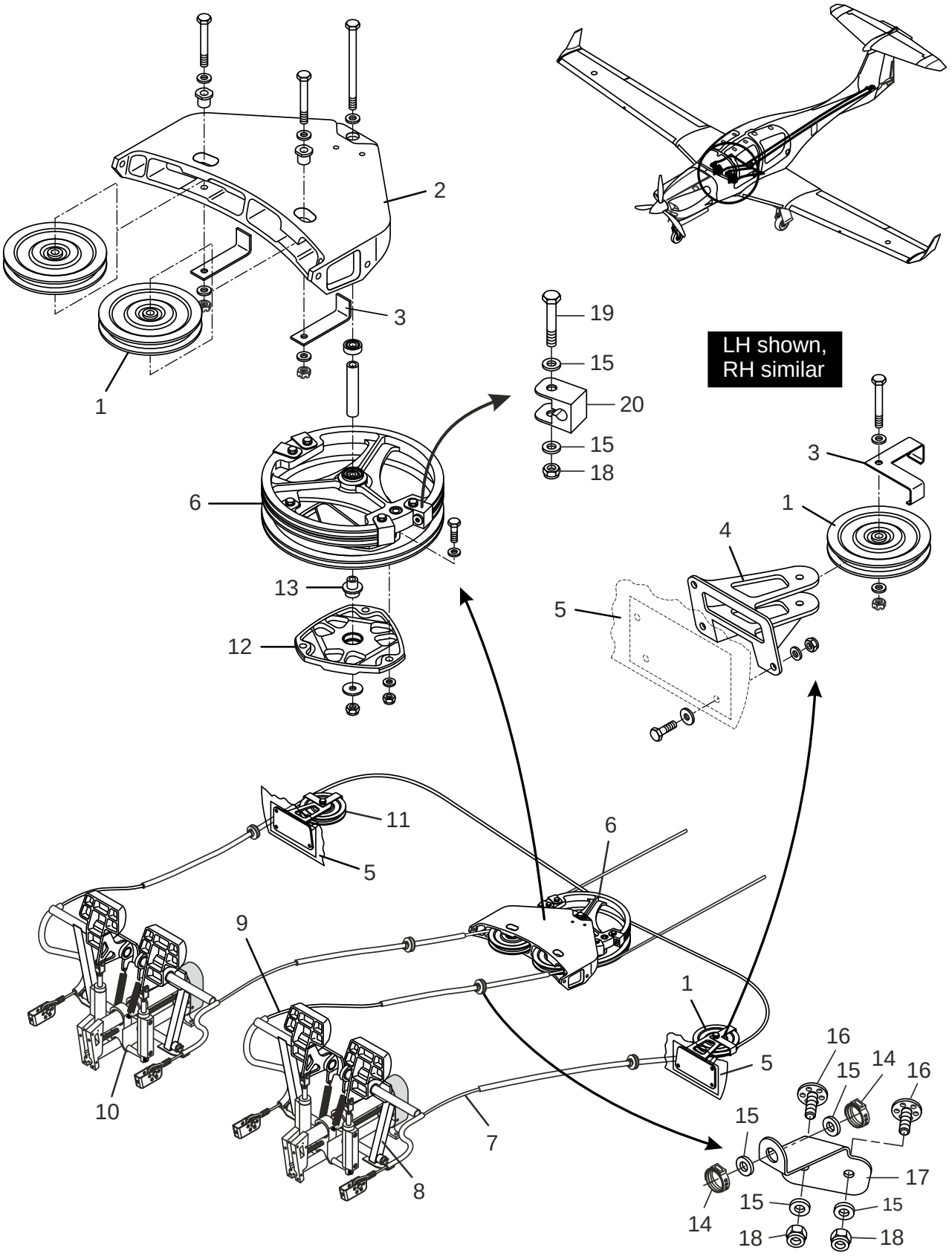


Figure 3 - Rudder Controls Installation in the Cockpit

Legend

[1, Fig.3]	Pulley
[2, Fig.3]	Control Wheel Bracket
[3, Fig.3]	Cable Guard
[4, Fig.3]	Bracket
[5, Fig.3]	Control Bulkhead
[6, Fig.3]	Control Wheel
[7, Fig.3]	Outboard Control Cable
[8, Fig.3]	Pilot's Rudder Pedal Assembly
[9, Fig.3]	Inboard Control Cable
[10, Fig.3]	Co-Pilot's Rudder Pedal Assembly
[11, Fig.3]	Pulley Assembly
[12, Fig.3]	Bearing Housing
[13, Fig.3]	Bush
[14, Fig.3]	Clamp
[15, Fig.3]	Washer
[16, Fig.3]	Threaded Stud
[17, Fig.3]	Tube Bracket
[18, Fig.3]	Self-Locking Nut
[19, Fig.3]	Bolt
[20, Fig.3]	Clip

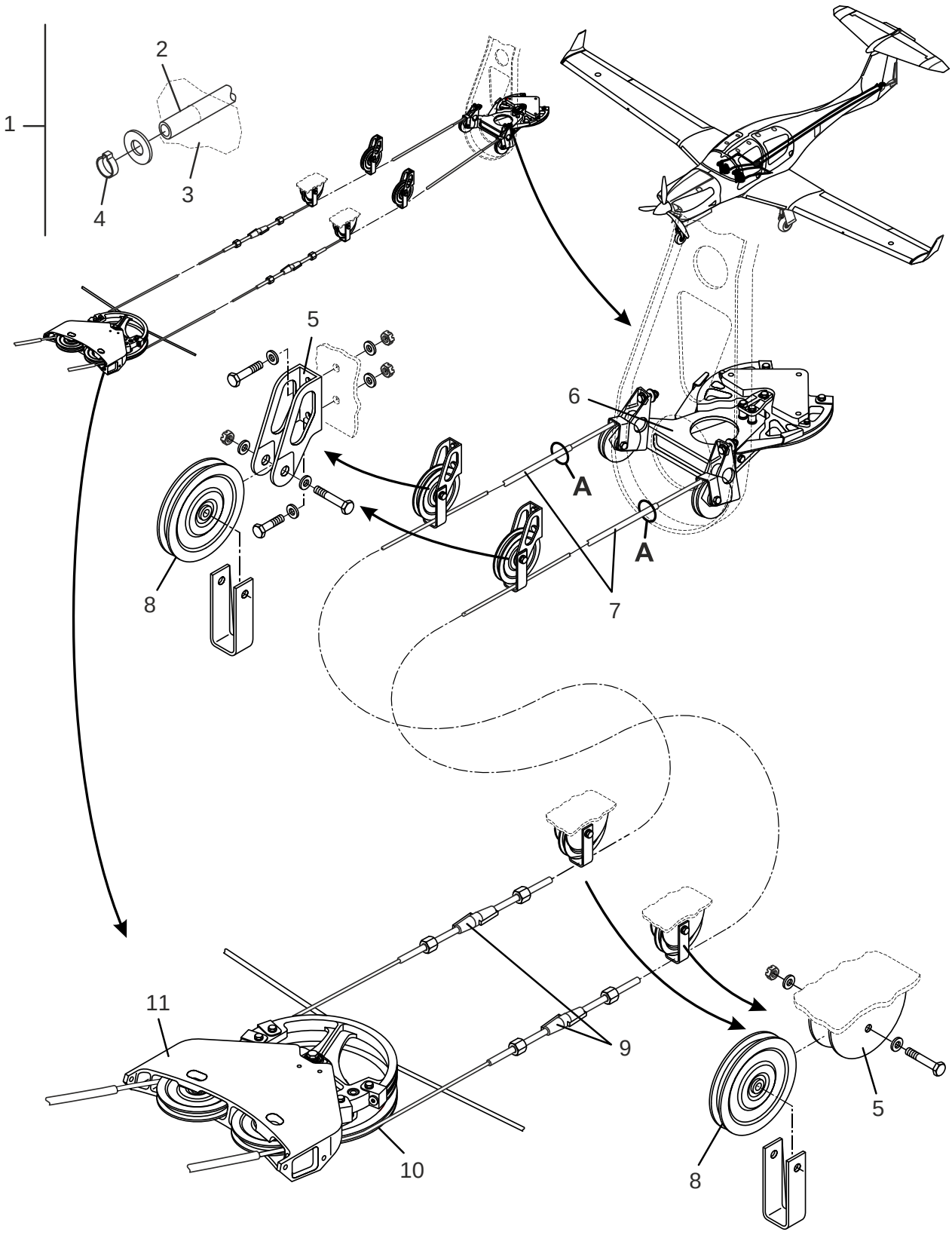


Figure 4 - Rudder Controls Installation in the Rear Fuselage

Legend

[1, Fig.4]	Detail A
[2, Fig.4]	Teflon Tube
[3, Fig.4]	Frame
[4, Fig.4]	Oetiker Clamp
[5, Fig.4]	Cable Pulley Bracket
[6, Fig.4]	Rudder Lower Mounting-Bracket
[7, Fig.4]	Fuselage Cables with Guide Tubes
[8, Fig.4]	Pulley
[9, Fig.4]	Turnbuckles
[10, Fig.4]	Control Wheel
[11, Fig.4]	Control Wheel Bracket

27-20-02 Rudder Control System

Description of function

1. Operation

If you move the left rudder pedal forward:

- The top of the “S” shaped tube moves forward.
- The “S” shaped tube pulls the left cockpit cable.
- The left cockpit cable moves the rudder control wheel assy.
- The rudder control wheel assy pulls the left fuselage cable, the control rear assy and the rudder to the left side.
- The rudder movement pulls the other fuselage cable aft. This cable connects to the right side of the control wheel assy, the control wheel assy and to the right side of the rudder.

If you move the right rudder pedal forward each part moves in the opposite sense. The rudder moves to the right and pulls the left cables aft.

27-20-03 Rudder Control System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Airplane moves about its yaw axis with no input from the pilot.

1A. Examine the rudder control cable.

Are the rudder control cables out of adjustment?

Yes - go to step 1B.

No - go to step 1C.

1B. Adjust the rudder control cables.

1C. Examine the rudder trim system.

Is the rudder trim system defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Refer to Rudder Trim-Tab Control System - Description.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Rudder controls stiff/catch.

2A. Examine the bearings.

Are the bearings defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the defective bearing.

2C. Examine cables in the guide tubes.

Are cables chafing in the guide tubes?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the cables and guide tubes.

2E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Cable tension too low.

3A. Examine the cables.

Are cables worn out?

Yes - go to step 3B.

No - go to step 3C.

3B. Replace rudder control cable. Adjust rudder control system.

3C. Examine the pulley.

Is the pulley worn out?

Yes - go to step 3D.

No - go to step 3E.

3D. Replace pulley.

3E. Contact DAI.

27-20-04 Rudder Control Cables (Front)

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Rigging pins	D41-2723-50-00-VR	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

WARNING

WHEN YOU COMPLETE WORK ON THE CONTROLS, MAKE SURE THAT YOU REMOVE ALL LOOSE ITEMS OR TOOLS FROM THAT AREA. LOOSE ITEMS OR TOOLS CAN PREVENT FULL AND FREE MOVEMENT OF THE AIRPLANE CONTROLS. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Remove a Front Rudder Control Cable

Refer to Rudder Control System - Description Figure 1, Rudder Control System - Description Figure 2 and Rudder Control System - Description Figure 3.

NOTE

The remove procedure is given for the pilot's side inboard and outboard control cables. The procedure for the co-pilot's side is similar.

(1) Remove these items for access:

- The pilot seat's.
  Refer to 25-10 Pilots Seat - Remove procedure.
- The passengers seat.
  Refer to 25-10 Passenger Seat - Remove procedure.

(2) Install the rigging pin in the control wheel.

(3) Remove the cable between the cockpit front bulkhead and the rudder control wheel:

- Remove the nut, washers, bolt and spacer that attach the control cable to the multi-hole bracket at the bulkhead.
- Remove the nut, washers, bolt, and clip that attach the cable to the control wheel.

(4) Cut the thimble-eye from the cable that you will remove, at the bulkhead end.

Discard the thimble-eye end.

(5) Remove the old cable.

- Outboard: Pull the cable out of the 'S' tube, through the pulley assembly at the control bulkhead and remove it from the control wheel.
- Inboard: Pull the cable out of the 'S' tube and remove it from the control wheel.

27-20-05 Rudder Control Cables (Front)

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Rigging pins	D41-2723-50-00-VR	1
Nicopress oval and stop sleeve gauge for 1/8 inch sleeves	Commercial	1
Swaging tool for ball terminals	Commercial	1
Swaging tool for Nicopress sleeves	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

WARNING

WHEN YOU COMPLETE WORK ON THE CONTROLS, MAKE SURE THAT YOU REMOVE ALL LOOSE ITEMS OR TOOLS FROM THAT AREA. LOOSE ITEMS OR TOOLS CAN PREVENT FULL AND FREE MOVEMENT OF THE AIRPLANE CONTROLS. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

WARNING

INSTALLATION OF THIMBLE-EYES AND BALL TERMINALS MUST BE DONE BY TRAINED AND AUTHORIZED PERSONS. IF THE THIMBLE-EYES OR BALL TERMINALS ARE NOT INSTALLED CORRECTLY, THE RUDDER CONTROLS CAN FAIL. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Install a Front Rudder Control Cable

Refer to Rudder Control System - Description Figure 1, Rudder Control System - Description Figure 2 and Rudder Control System - Description Figure 3.

NOTE

Install swaged ball terminals and thimble-eye splices in accordance with FAA AC 43.13-1B Chapter 7.

(1) Install the ball terminal to the cable before you install it into the airplane:

- Swage the ball terminal to the cable.
- Inspect the swaged terminal for correct assembly.
- If necessary for your Airworthiness Authority, send a sample swaged ball terminal for proof test.

(2) Install the cables to the control wheel:

- Install the inboard and outboard control cables with the balls on the control wheel.
- Install the bolts, washers, clips and new self-locking nuts that attach the inboard and outboard cables to the control wheel.

(3) Install the outboard control cables to the rudder pedal assemblies:

- Push the outboard control cables through the pulley assemblies and the Teflon tubes.
- Push the outboard control cables on the pilot's and co-pilot's side through the outboard "S" tubes on the pilot's and co-pilot's rudder pedal assemblies.

(4) Install the inboard control cables:

- Push the inboard control cables through the pulleys on the control wheel bracket.
- Push the inboard control cables on the pilot's and co-pilot's side through the inboard "S" tubes on the pilot's and co-pilot's rudder pedal assemblies.

(5) Install the thimble-eyes to the inboard and outboard control cables:

- Set the electric adjustment mechanism of pilot's and co-pilot's rudder pedal assemblies to the fully aft position.
- Set the left and right rudder pedals on the pilot's and co-pilot's side to central.
- Install the thimble-eyes to the inboard and outboard control cables.
  Use the thimble, heat shrink tube and sleeve.
- Inspect the thimble-eye splices for correct assembly.

(6) Install the inboard and outboard control cables to the multi-hole brackets:

- Install the thimble-eyes and spacers into the multi-hole brackets.
  Use the appropriate hole position to prevent slack of the inboard and outboard control cables.
- Install the bolts, washers and new self-locking nuts.

(7) Remove the rigging pin from the control wheel.

(8) Do a test for the correct range of rudder movement. If necessary adjust the rudder controls.

(9) Do an inspection of all the controls that you have adjusted. If necessary for your Airworthiness Authority do a duplicate inspection of the controls.

(10) Install these items:

- The pilot seat's.
  Refer to 25-10 Pilots Seat - Remove procedure.
- The passengers seat.
  Refer to 25-10 Passenger Seat - Remove procedure.

27-20-06 Rudder Control System

Design data/tolerances check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Rigging pins	D41-2723-50-00-VR	4
Rudder check gauge	D67-5540-00-00_01-PL	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

WARNING

WHEN YOU COMPLETE WORK ON THE CONTROLS, MAKE SURE THAT YOU REMOVE ALL LOOSE ITEMS OR TOOLS FROM THAT AREA. LOOSE ITEMS OR TOOLS CAN PREVENT FULL AND FREE MOVEMENT OF THE AIRPLANE CONTROLS. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Rudder Control System Test for Correct Range of Movement

(1) Make a copy of the Control Surfaces Adjustment Report.

Refer to 06-00 Adjustment Reports - Adjust, align and calibrate. Use it to record the measurements.

(2) Set both rudder pedals fully forward.

(3) Install the rudder check gauge.

(4) Set the rudder pedals central.

The left pedal must align with the right pedal.

Make sure that the rudder is in the neutral position shown in the Control Surfaces Adjustment Report for the airplane.

(5) Set the rudder pedals to fully left.

The rudder must hit the stops at the rudder control rear assy.

The rudder position must be the distance to the left shown in the Control Surfaces Adjustment Report for the airplane.

(6) Set the rudder pedals to fully right.

The rudder must hit the stops at the rudder control rear assy.

The rudder position must be the distance to the right shown in the Control Surfaces Adjustment Report for the airplane.

(7) Make sure that the left and right rudder pedals are free to move when they are set in all of the adjustable positions.

27-20-07 Rudder Control System

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Rudder Adjustment Procedure

(1) Remove these items for access:

- The pilot's seat.
- The passengers seat.
- Install the rudder / rudder trim check gauge.

Refer to 25-10 Flight compartment - Description.

(2) Set both rudder pedals fully forward.

(3) Set the rudder pedals central.

Make sure that the rudder is in the neutral position. The left rudder pedal must align with the right rudder pedal

(4) If necessary, adjust the length of the cables between the rudder control wheel assy and the rudder control, rear assy:

- Remove the lock wire from the turnbuckles.
- Adjust the turnbuckles to set the rudder to neutral.
  Below the passenger seat.
- Do a test for the correct cable tension.
  Use the tensiometer.
  Required value: 15 daN (33.72 lbf.) - 17 daN (38.22 lbf.).
- Tighten the turnbuckles and install the lockwire.

Refer to 27-20 Rudder Control System - Description Figure 3.

(5) Set the rudder pedals to fully left.

The rudder must hit the stops at the rudder control rear assy.

The rudder position must be the distance to the left shown in the Control Surfaces Adjustment Report for the airplane.

(6) Set the rudder pedals to fully right.

The rudder must hit the stops at the rudder control rear assy.

The rudder position must be the distance to the right shown in the Control Surfaces Adjustment Report for the airplane.

(7) Do an inspection of all the controls that you have adjusted. If necessary for your Airworthiness Authority do a duplicate inspection of the controls.

(8) Install these items:

- The passenger seat.
- The pilots' seats.

Refer to 25-10 Flight compartment - Description.

(9) Remove the rudder check gauge.

27-20-08 Rudder Trim-Tab Control System

Description

1. Description

The mechanical rudder trim system has three main parts:

- Electric switches on the power lever which drive an electric trim actuator.
- A long flexible cable which connects the trim tab actuator to the trim tab operating mechanism.
- The trim tab actuator assembly.

A. Electrical Switches on Power Lever

Two switches on the power lever control the rudder trim system. Pushing the left or the right switch on the power lever moves the electrical trim actuator so that the flexible cable gets pulled or pushed.

B. Flexible Cable

A long flexible cable connects the rudder trim actuator with the trim tab actuation assembly. The cable goes through holes in all the fuselage ring frames and through the bottom of vertical stabilizer.

The cable has an inner core with threaded end fittings. Fork end fittings attach to the threaded endfittings of the inner core. The fork end fittings attach to the electric trim actuator at one end and to the trim tab operating rods at the other end.

The outer sleeve of the flexible cable has threaded sections at each end. These threaded sections screw into fixings at the electric trim actuator and the trim actuator assembly. Locknuts are used on the threaded ends to secure the flexible cable in position.

C. Trim Tab Actuator Assembly

The trim tab is a GFRP molding. The trim tab has a control horn with two integral levers. Two trim tab operating rods connect the integral levers to the flexible cable fork end fitting. The operating rods have spherical end fittings screwed into each end of the rods. The spherical end fittings are bolted to the integral levers and the fork end fitting.

The end of the flexible cable outer sleeve screws into a guide block assembly. The coupler of this guide block assembly has a hole with an internal thread. The flexible cable outer sleeve screws into this threaded hole.

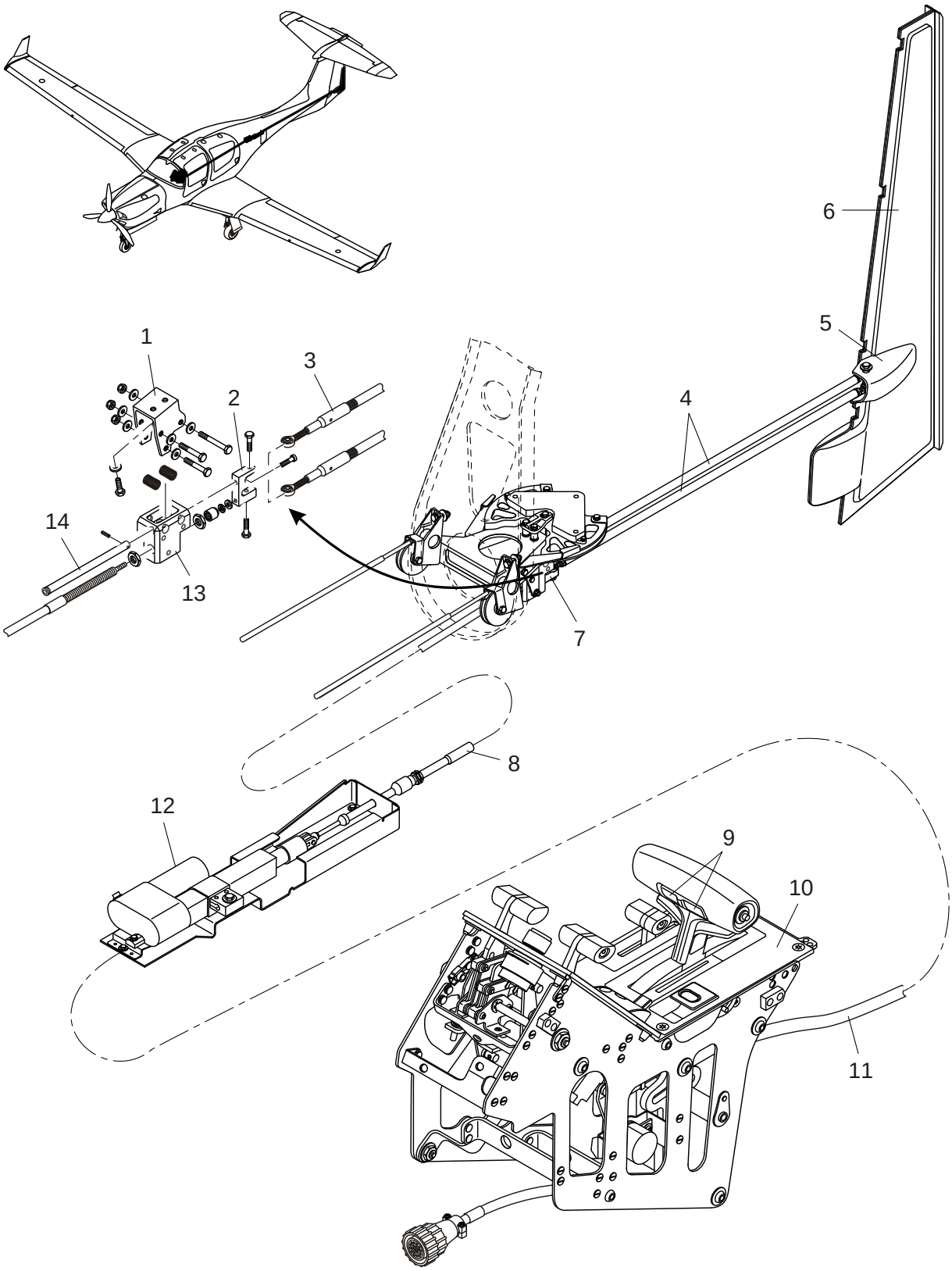


Figure 5 - Rudder Trim Assembly

Legend

[1, Fig.5]	Guide Block Mounting Bracket
[2, Fig.5]	Coupling
[3, Fig.5]	Connecting Rod
[4, Fig.5]	Trim Tab Operating Rods
[5, Fig.5]	Trim Tab Control Horn
[6, Fig.5]	Trim Tab
[7, Fig.5]	Guide Block Assembly
[8, Fig.5]	Bowden Cable
[9, Fig.5]	Power Lever Trim Element
[10, Fig.5]	Center Console
[11, Fig.5]	Electric Cable
[12, Fig.5]	Rudder Trim Actuator Mounting
[13, Fig.5]	Guiding Block
[14, Fig.5]	Guiding Rod

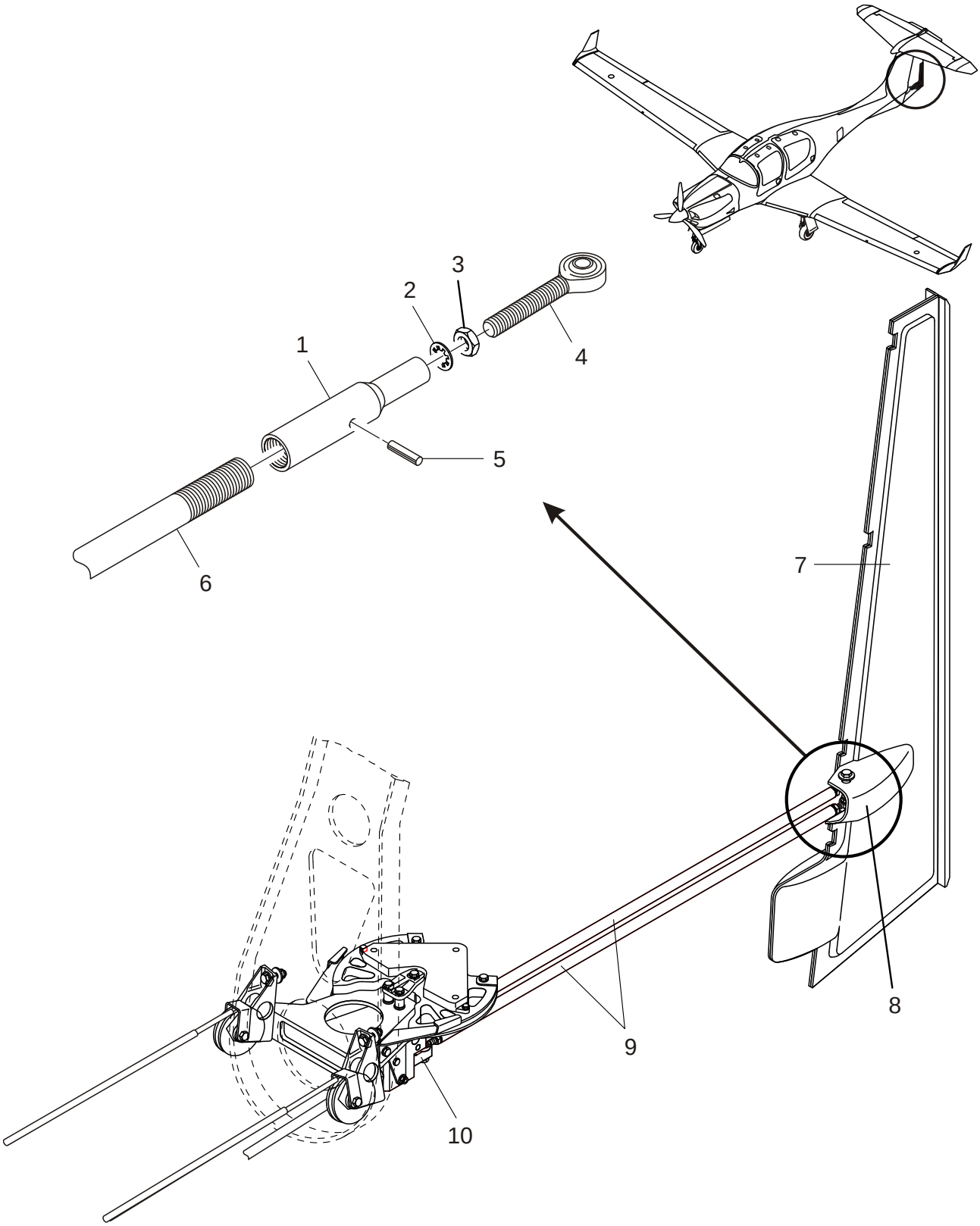


Figure 6 - Rudder Trim Pushrods

Legend

[1, Fig.6]	Aluminum Fitting
[2, Fig.6]	Washer
[3, Fig.6]	Nut
[4, Fig.6]	Rod End-Fitting
[5, Fig.6]	Roll Pin
[6, Fig.6]	Operating Rod
[7, Fig.6]	Trim Tab
[8, Fig.6]	Trim Tab Control Horn
[9, Fig.6]	Trim Tab Operating Rods
[10, Fig.6]	Friction Block Assembly

27-20-09 Rudder Trim-Tab Control System

Description of function

1. Operation

If the pilots push the right trim switch on the power lever during flight, then these events occur:

- An electric current drives the electric actuator and pulls the inner core of the flexible cable forward.
- The flexible cable fork end fitting moves forward and the trim tab control rods move forward.
- The trim tab moves to the left and the dynamic forces acting on the rudder trim tab move the rudder to the right.

If the pilots push the left trim switch on the power lever during flight, the system operates in the revers direction.

27-20-10 Rudder Trim-Tab Control System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Airplane moves about its yaw axis with no input from the pilot.

1A. Examine rudder control cables.

Are the rudder control cables out of adjustment?

Yes - go to step 1B.

No - go to step 1C.

1B. Refer to Rudder Control System - Description.

1C. Examine the rudder trim system.

Is the rudder trim system defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Adjust the rudder trim tab control system.

1E. Contact DAI.

27-30
ELEVATOR CONTROL SYSTEM

27-30-01 Elevator Control System

Description

1. Description

Figure 1 shows the elevator controls in the cockpit. Figure 2 shows the elevator controls in the rear fuselage.

Each pilot has a control stick that attaches to the torque tube assembly. The torque tube assembly has a lever which attaches to a short pushrod. The short pushrod connects to an idler lever on the front main bulkhead. The idler lever connects to another pushrod that is connecting another idler lever on the rear spar which connects then to a bell crank. This bell crank connects to a long pushrod.

The long pushrod has three guide bearings. The aft baggage frame, ring frame 1 and ring frame 2 have pushrod guides. Each guide has three rollers.

The long pushrod attaches to a bellcrank at the bottom of the vertical stabilizer. The bellcrank attaches to a vertical pushrod in the vertical stabilizer. The vertical pushrod connects to the elevator horn.

The elevator stop for the downward movement consists of a GFRP block which is bonded to the inside of the upper skin of the horizontal stabilizer. When the elevator is deflected fully downwards, the forward extension of the elevator horn is deflected fully upwards and contacts the stop.

The elevator stop for the upward movement consists of a bolt/bush assembly which is installed in the trim actuator mounting bracket in a transverse direction. When the elevator is deflected fully upwards, the forward extension of the elevator horn is deflected fully downward and contacts the stop.

Two springs are installed under the center tunnel rearward to pull the control stick with a specific force.

2. Operation

If you move the control stick forward:

- The torque tube assembly turns.
- The lever above the torque tube assembly pulls the short pushrod forward.
- The short pushrod pulls the next two pushrods forward.
- The last of these two pushrods pulles the first bell crank forward which pushes the long pushrod aft.
- The long pushrod pushes the aft bellcrank rearward.
- The bellcrank pushes the vertical pushrod up.
- The vertical pushrod moves the front of the elevator horn upwards.
- The elevator moves down.

If you move the control stick aft:

- The torque tube assembly turns.
- The short and the next two pushrods move aft and the long pushrod moves forward.
- The bellcrank pulls the vertical pushrod downwards.
- The elevator moves up.

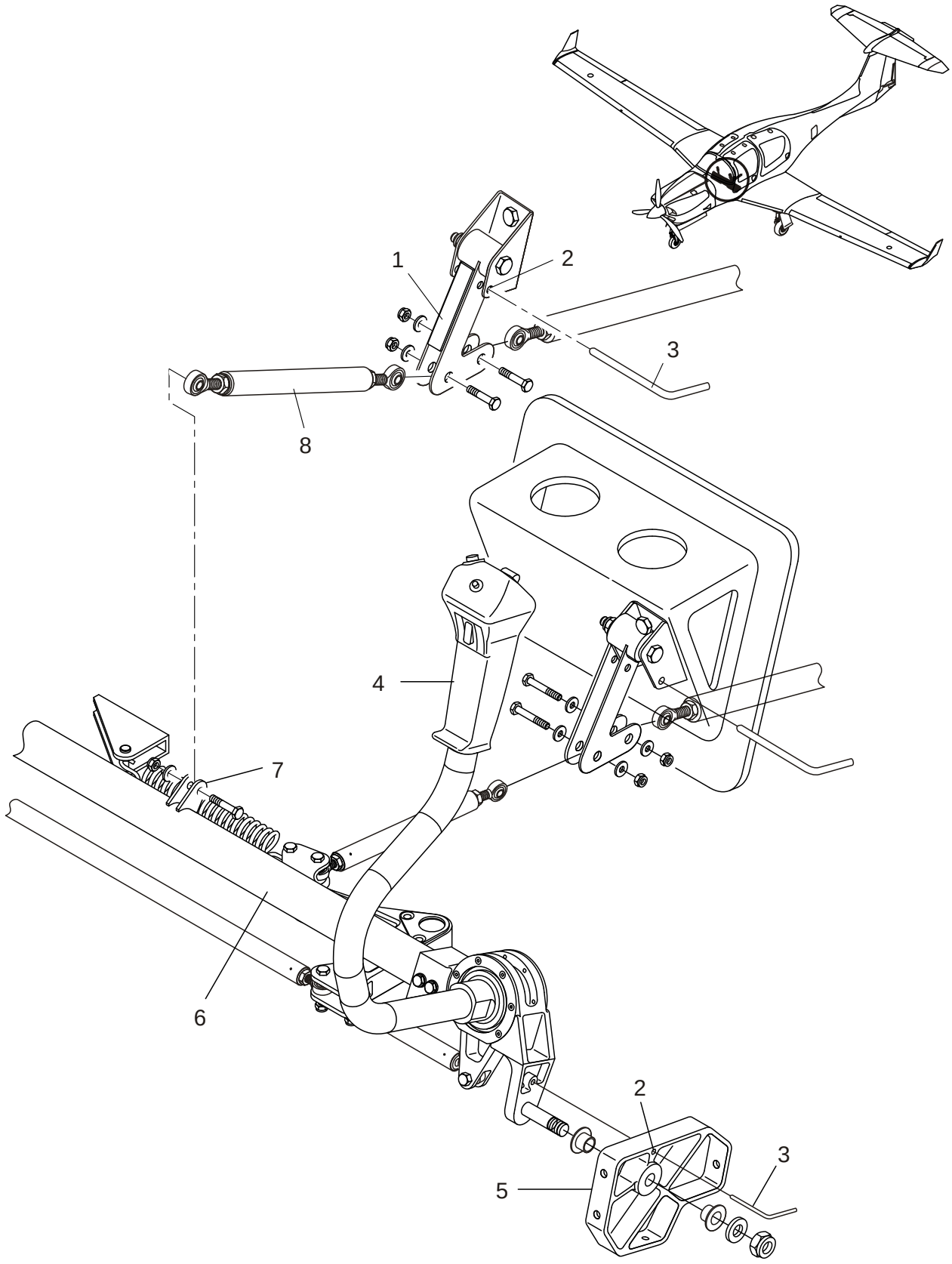


Figure 1 - Elevator Control Installation in the Cockpit

Legend

[1, Fig.1] Idler Lever
[2, Fig.1] Rigging Pin Hole
[3, Fig.1] Rigging Pin
[4, Fig.1] Left Stick
[5, Fig.1] Control Stick Mounting Block
[6, Fig.1] Torque Tube Assy
[7, Fig.1] Elevator Lever
[8, Fig.1] Push Rod to Idler Lever

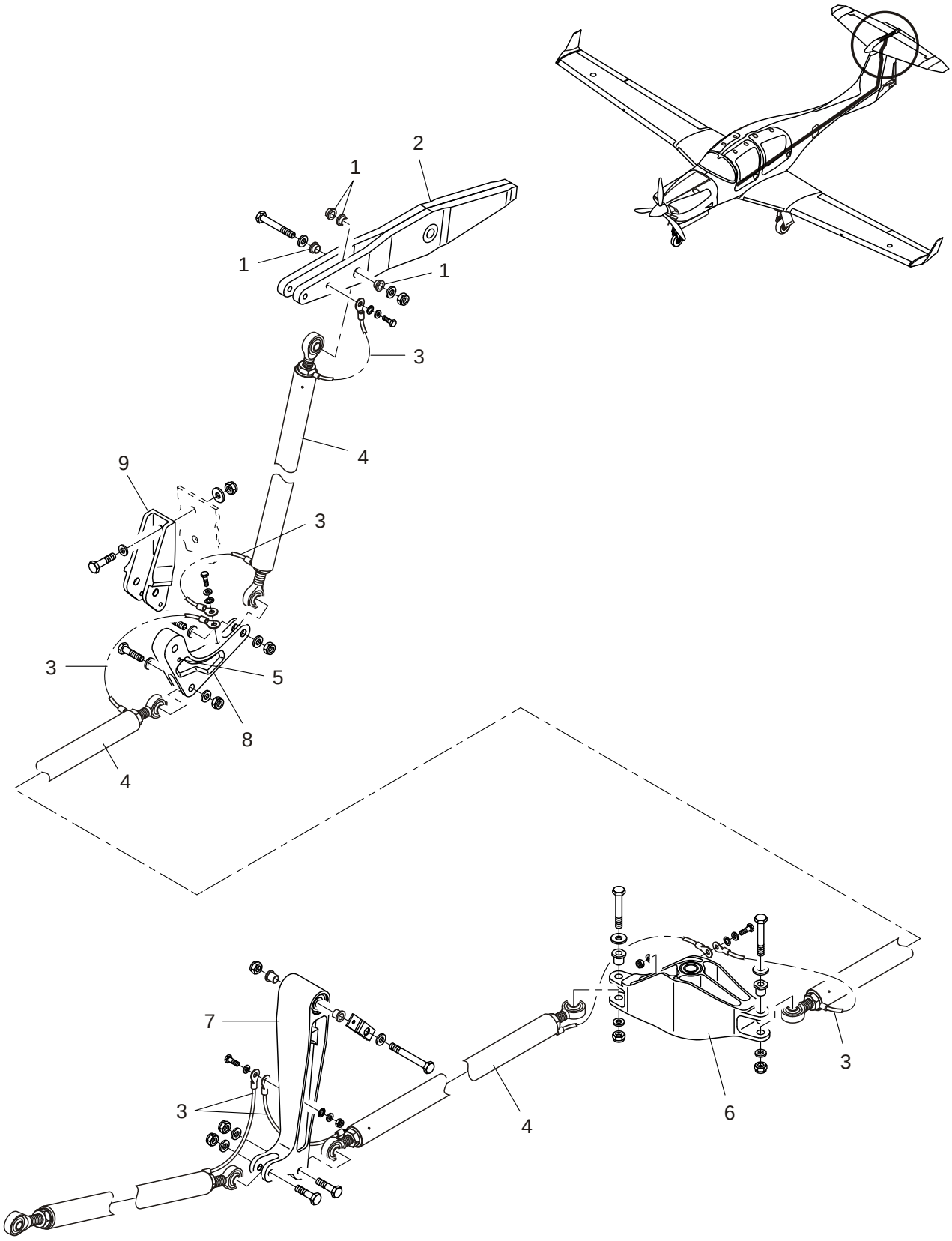


Figure 2 - Elevator Controls Installation in the Rear Fuselage

Legend

[1, Fig.2] Collar Bush
[2, Fig.2] Elevator Actuating Lever
[3, Fig.2] Earthing Strip
[4, Fig.2] Elevator Push Rod
[5, Fig.2] Rigging Pin Hole
[6, Fig.2] Bellcrank Assembly
[7, Fig.2] Crank Assembly Rear Spar
[8, Fig.2] Hinge Aft Vertical Spar Assembly
[9, Fig.2] Mounting Bracket

27-30-02 Elevator Control System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Control vibration during flight.

1A. Examine the flight control system.

Too much backlash in the flight controls?

Yes - go to step 1B.

No - go to step 1C.

1B. Examine the flight control system to isolate the problem. Replace the defective part.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Elevator controls stiff/catch.

2A. Examine the bearings.

Are the bearings defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the defective eye end.

2C. Examine the pushrod.

Is the pushrod deformed?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the deformed pushrod.

2E. Contact DAI.

27-30-03 Elevator Control System

Design data/tolerances check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Control stick rigging pins (Ø 4 mm [0.16 in])	D41-2757-30-00-VR	1
Elevator check gauge	D67-5520-00-00-PL	1
Fuselage trestle	Commercial	1
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2

D. Consumable Materials

Nomenclature	Identification No.	Qty
Adhesive	PPG PR-1440B2	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

WARNING

WHEN YOU COMPLETE WORK ON THE CONTROLS, MAKE SURE THAT YOU REMOVE ALL LOOSE ITEMS OR TOOLS FROM THAT AREA. LOOSE ITEMS OR TOOLS CAN PREVENT FULL AND FREE MOVEMENT OF THE AIRPLANE CONTROLS. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Elevator Control Test Procedure

(1) Make a copy of the Control Surfaces Adjustment Report.

Refer to 06-00 Adjustment Reports - Adjust, align and calibrate.

Use it to record measurements.

(2) Remove the left pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure .

(3) Install the rigging pin through the stick mounting block.

Refer to 27-30 Elevator Control System - Description Figure 1.

NOTE

Place the elevator check gauge between the stabilizer tips and the stabilizer so that the markings face backwards to the elevator.

(4) Make sure that the elevator check gauge is placed correctly.

At the stabilizer.

(5) Read the angle of deflection of the elevator on the elevator check gauge.

Record the measurement.

(6) Remove the rigging pin from the stick mounting block.

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

(7) Move the control stick fully forward and hold it against the stop.

(8) Read the angle of deflection of the elevator on the elevator check gauge.

Record the measurement. The distance must be as shown in the Control Surfaces Adjustment Report.

(9) Move the control stick fully aft and hold it against the stop.

(10) Read the angle of deflection of the elevator on the elevator check gauge.

Record the measurement.

The distance must be as shown in the Control Surfaces Adjustment Report.

(11) Install the pilot's seat.

Refer to 25-10 Pilots Seat - Install procedure.

(12) Remove the elevator check gauge.

At the stabilizer.

27-30-04 Elevator Control System

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Elevator check gauge	D67-5520-00-00-PL	1
Rigging pins	D41-2757-30-00-VR	3

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

IF YOU DO AN ADJUSTMENT OF A PUSHROD, YOU MUST MAKE SURE THAT THE PUSHROD IS STILL IN SAFETY. IF YOU DO NOT DO THIS, THE PUSH ROD CAN DISCONNECT. THIS CAN CAUSE DEATH OR INJURY TO PERSONS.

3. Main Procedure

A. Elevator Control System Adjustments

(1) Remove these items for access:

- The pilots' seat.
  Refer to 25-10 Pilots Seat - Remove procedure.
- The rudder.
  Refer to 55-40 Rudder - Remove procedure.

(2) Install rigging pins in the following:

- Through the stick mounting block.
  On the control bulkhead.
- The idler lever.
- The rear bellcrank.
  On the front main bulkhead.

On the vertical stabilizer rear web.

Refer to 27-30 Elevator Control System - Description Figure 1 and 27-30 Elevator Control System - Description Figure 2.

(3) If you cannot put a rigging pin into a lever or bellcrank, adjust the pushrods as necessary.

Refer to 27-00 Push-Rod - Adjust, align and calibrate for the push-rod adjustment procedure.

(4) Make sure that the elevator is in the 0° position.

(5) If the elevator does not align with the elevator check gauge 0° position, adjust the vertical push-rod at the rear bellcrank.

Refer to 27-00 Push-Rod - Adjust, align and calibrate for the push-rod adjustment procedure.

(6) Remove the rigging pins from the following:

- The stick mounting block.
  On the control bulkhead.
- The idler lever.
- The rear bellcrank.
  On the front main bulkhead.
  On the vertical stabilizer rear web.

(7) Do a test for the correct range of elevator movement.

(8) Do an inspection of all the controls that you have adjusted. If necessary for your Airworthiness Authority, do a duplicate inspection of the controls.

(9) Install these items:

- The pilots' seats.
  Refer to 25-10 Pilots Seat - Install procedure.
- The rudder.
  Refer to 55-40 Rudder - Install procedure.

27-30-05 Elevator Trim - Mechanical

Description

1. Description

The mechanical trim installation has three main parts:

- A handwheel assembly with trim indicator.
- A flexible cable which connects the handwheel to the trim tab.
- The trim tab actuator assembly.

Figure 3 shows the elevator trim mechanism in the cockpit. Figure 4 shows the trim tab actuator assembly.

A. Trim Handwheel Assembly

A handwheel assembly on the center console controls the mechanical elevator trim system. The assembly has a metal mounting frame. The frame attaches to the rear of the engine control assembly and the top of the control bulkhead.

A long bolt through the mounting frame carries the handwheel. The bolt also holds friction discs, plain washers and spring washers against the handwheel. Two jam nuts let you adjust the friction.

A small gear wheel attaches to the handwheel. The small gear wheel engages with a large gear segment with internal teeth. The gear segment has a pivot bolt at the bottom of the mounting frame. A ballstud attaches the eye end of a long flexible cable to the gear segment. An extension to the mounting frame at the rear makes the anchor point for the outer sheath of the flexible cable.

The gear segment is also the trim indicator. The top face of the segment has a white line across it midway between the front and back. The top face can be seen by the pilot through a slot in the cover plate. The side of the cover plate have markings to show the trim position.

B. Flexible Cable

A long flexible cable connects the trim handwheel assembly to the trim tab. The cable goes through holes in the front and rear main bulkheads, the aft baggage frame, and each of the fuselage ring frames. It goes up the front face of the front web of the vertical stabilizer and through a slot near the top. It goes through a large hole at the top of the rear web of the vertical stabilizer to the trim tab actuator assembly.

The cable has an inner core with threaded end fittings. Spherical end fittings at front end connect to the gear segment in the cockpit and forkend fittings connects it to the cranked activating lever at the trim mechanism on the horizontal stabilizer.

Clamp blocks hold the outer core of the cable to the mounting frame at the front and a bracket from the horizontal stabilizer at the back.

C. Trim Tab Actuator Assembly

The trim tab is a one-piece GFRP molding. The tab has an integral lever. One cranked actuating lever attaches to the integral lever. The cranked actuating lever connects to the long flexible cable.

D. Operation

When you move the top of the trim handwheel forward, these things happen:

- The small gear wheel moves the top of the gear segment forward.
- The gear segment pulls the inner core of the flexible cable forward.
- The inner core of the flexible cable pulls the cranked actuating lever forward.
- The cranked actuating lever pulls the trim tab lever forward to move the trim tab upwards.
- The up movement of the trim tab uses aerodynamic forces to push the elevator down in flight giving nose-down trim.

When you move the top of the trim handwheel aft, the gear segment moves aft, the cable moves aft and the trim tab moves down. This pushes the elevator up during flight to give nose up trim.

In each case the pilot can see the trim position from the white mark on the gear segment.

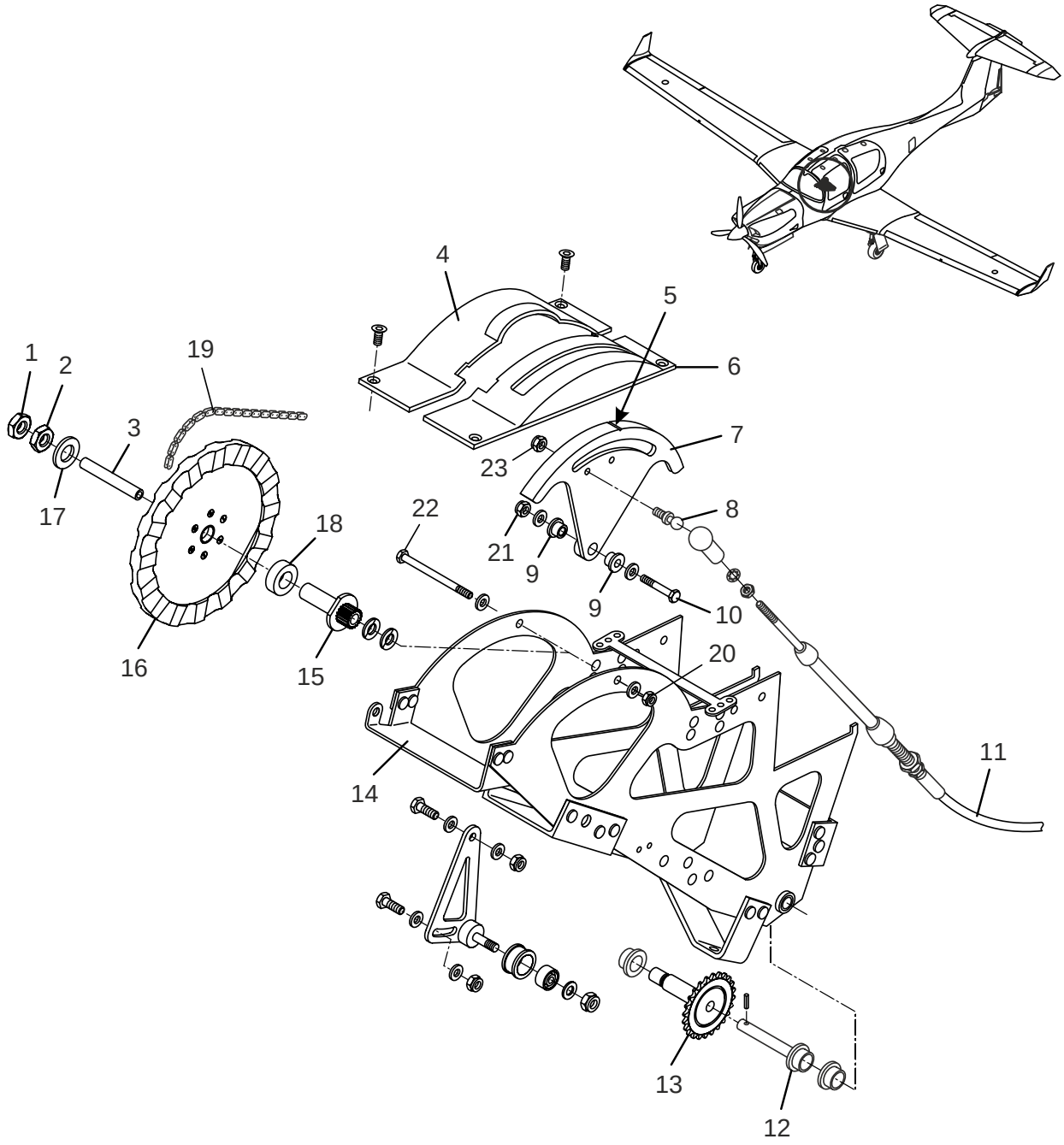


Figure 3 - Elevator Mechanical Trim Mechanism in the Cockpit

Legend

[1, Fig.3]	Lock Nut
[2, Fig.3]	Friction Clutch Nut
[3, Fig.3]	Distance Bush
[4, Fig.3]	Right Cover Plate
[5, Fig.3]	Trim Indicator Mark
[6, Fig.3]	Left Cover Plate
[7, Fig.3]	Trim Indicator
[8, Fig.3]	Ball Stud
[9, Fig.3]	Bush
[10, Fig.3]	Indicator Bolt
[11, Fig.3]	Flexible Cable
[12, Fig.3]	Lower Chain Wheel Shaft
[13, Fig.3]	Cogwheel Shaft
[14, Fig.3]	Frame Assembly
[15, Fig.3]	Trim Gear Assembly
[16, Fig.3]	Handwheel
[17, Fig.3]	PA Washer
[18, Fig.3]	Friction Clutch
[19, Fig.3]	Roller Chain
[20, Fig.3]	Handwheel Self-Locking Nut
[21, Fig.3]	Indicator Self-Locking Nut
[22, Fig.3]	Handwheel Bolt
[23, Fig.3]	Ball Stud Self-Locking Nut

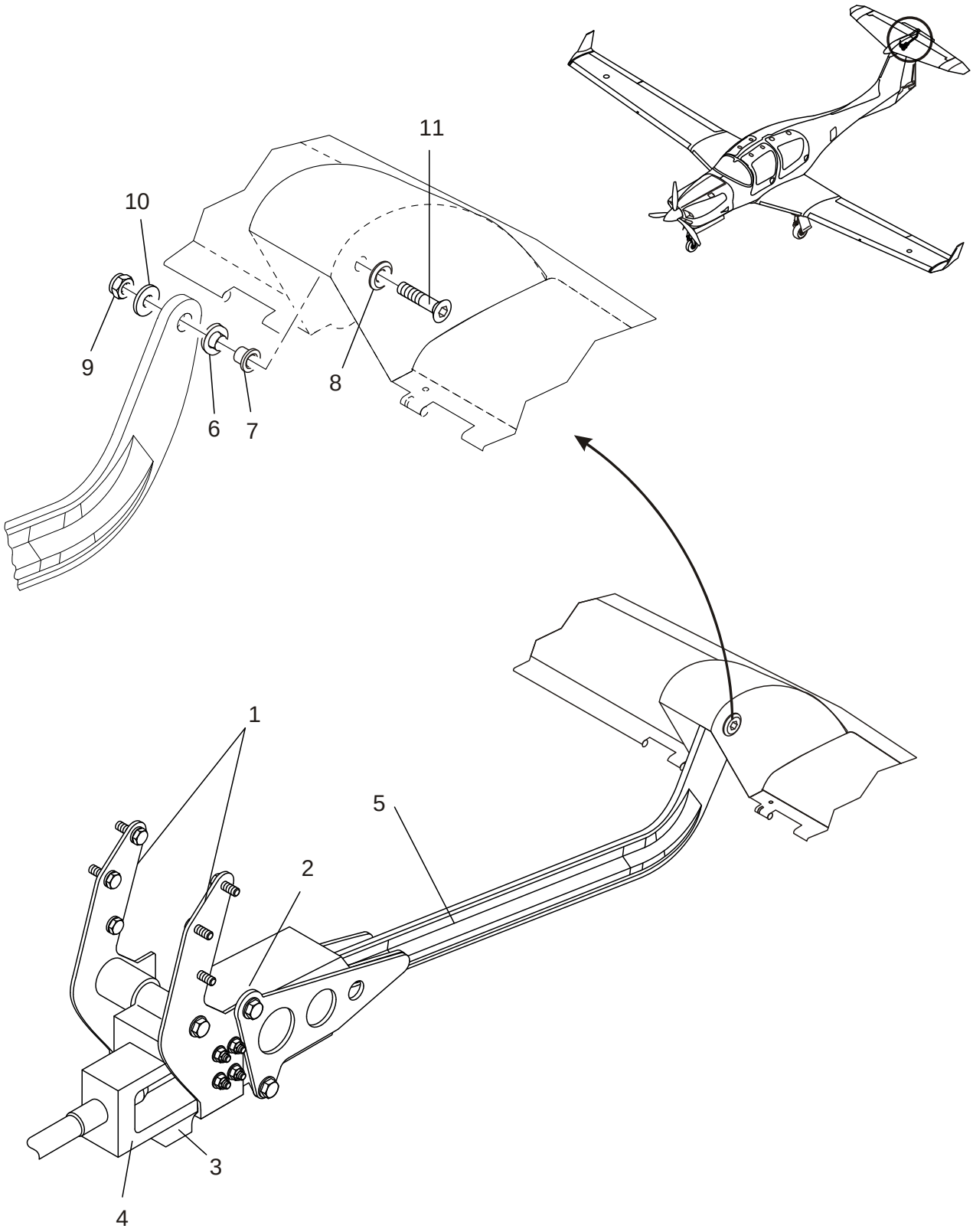


Figure 4 - Trim Tab Actuator Assembly

Legend

[1, Fig.4]	Elevator Trim Mounting Plate
[2, Fig.4]	TR Anode
[3, Fig.4]	Elevator Trim Clamp Big
[4, Fig.4]	Elevator Trim Sliding Carriage
[5, Fig.4]	Trim Tab Link Assy
[6, Fig.4]	Bushing
[7, Fig.4]	Distance Bushing
[8, Fig.4]	Dimpled Washer
[9, Fig.4]	Nut
[10, Fig.4]	Washer
[11, Fig.4]	Screw

27-30-06 Elevator Trim - Mechanical

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Too much play in the mechanical trim system.

1A. Examine bearings and joints.

Are bearings or joints worn?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the defective items.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Trim handwheel stiff to move.

2A. Examine the trim damper.

Is the trim damper incorrectly adjusted?

Yes - go to step 2B.

No - go to step 2C.

2B. Adjust the trim damper.

2C. Remove the flexible cable from the indicator to check the handwheel and flexible cable. Examine the flexible cable.

Is the flexible cable damaged?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the flexible cable.

2E. Examine the trim handwheel.

Is the handwheel stiff or stuck?

Yes - go to step 2F.

No - go to step 2H.

2F. Repair the handwheel assy.

Refer to 27-30 Elevator Trim - Mechanical - Change = Remove and install.

2G. Install the flexible cable on the indicator. Do an inspection of all the controls that you have adjusted.

2H. Contact DAI.

27-30-07 Elevator Trim - Mechanical

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Trim Handwheel

(1) Remove these item for access:

- The pilot's and copilot's seats.
  Refer to 25-10 Pilots Seat - Remove procedure and Passenger Seat - Remove procedure.
- The center console cover left and right.
- The left and right cover plate of the trim handwheel assembly.
  Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(2) Remove the roller chain.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(3) Disconnect the flexible cable from the ball stud and remove the ball stud from the trim indicator, retain the self-locking nut of the stud.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(4) Remove the self-locking nut on the handwheel bolt and the self-locking nut from the indicator bolt.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(5) Remove the handwheel bolt and the indicator bolt.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(6) Lift the whole handwheel assy with the trim indicator out of the frame assembly.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

27-30-08 Elevator Trim - Mechanical

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Trim Handwheel

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(1) Install the handwheel and trim indicator in the frame assembly.

(2) Tighten the self-locking nut on the handwheel bolt with 4 Nm (3 lbf.ft). Value includes friction.

Refer to Special Torque Values - Description.

(3) Tighten the self-locking nut on the indicator bolt with 6.5 Nm (4.8 lbf.ft). Value includes friction.

Refer to Special Torque Values - Description.

(4) Reinstall the ball stud on the trim indicator and connect the flexible cable on the ball stud.

(5) Reinstall the roller chain. Make sure it rests on the tensioner and not over the plates.

(6) Do an inspection of all the controls that you have adjusted. If necessary, for your Airworthiness Authority do a duplicate inspection of the controls.

(7) Install the left and right cover plate of the trim handwhell assembly.

(8) Install the center console cover left and right side.

(9) Install the pilot and copilot seats.

Refer to 25-10 Pilots Seat - Install procedure and Passenger Seat - Install procedure

27-30-09 Elevator Trim - Mechanical

Design data/tolerances check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Control stick rigging pins (Ø 4 mm [0.16 in])	D41-2757-30-00-VR	1
Elevator trim check gauge	D67-5525-00-00_PL	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

WHEN YOU DO WORK ON THE AIRPLANE CONTROLS, YOU MUST MAKE SURE THAT THE AREA AROUND THE CONTROL SURFACES ARE CLEAR OF PERSONNEL AND EQUIPMENT. IF YOU DO NOT DO THIS, INJURY TO PERSONNEL AND DAMAGE TO THE CONTROL SURFACES CAN OCCUR.

3. Main Procedure

A. Elevator Mechanical Trim Control System Test for Correct Range of Movement

(1) Make a copy of the Control Surfaces Adjustment Report.

Refer to 06-00 Adjustment Reports - Adjust, align and calibrate.

Use it to record the measurements.

(2) Check elevator for correct range of movement.

Refer to 27-30 Elevator Control System - Design data/tolerances check.

(3) Set the elevator to horizontal position:

- Install the rigging pin through the stick mounting block.

Refer to 27-30 Elevator Control System - Description Figure 1.

Elevator should have 0° deflection referred later as the horizontal position.

(4) Place the elevator trim check gauge onto the elevator.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(5) Set the elevator trim hand wheel to NEUTRAL.

(6) Check the elevator trim angle limits:

- Read the angle deflection from the elevator trim check gauge.
- Record your measurement.

Check your measurements with the elevator trim angle limits table in this section.

(7) Set the elevator trim hand wheel to NOSE UP.

Repeat step A.(6).

(8) Set the elevator trim hand wheel to NOSE DOWN.

Repeat step A.(6).

(9) Set the elevator to 10° inclined position.

Use the elevator trim check gauge to measure the inclined position.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(10) Set the elevator trim hand wheel to NEUTRAL.

Repeat step A.(6).

(11) Set the elevator trim hand wheel to NOSE UP.

Repeat step A.(6).

(12) Set the elevator trim hand wheel to NOSE DOWN.

(13) Set the elevator to 10° declined position.

Use the elevator trim check gauge to measure the declined position.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(14) Set the elevator trim hand wheel to NEUTRAL.

Repeat step A.(6).

(15) Set the elevator trim hand wheel to NOSE UP.

Repeat step A.(6).

(16) Set the elevator trim hand wheel to NOSE DOWN.

Repeat step A.(6).

(17) If your measurements do not comply with the limits in the trim angle limit table, then re-adjust the trim elevator.

Refer to 27-30 Elevator Trim - Mechanical - Adjust, align and calibrate.

(18) Remove the elevator trim check gauge from the elevator.

(19) Do an inspection of all the controls that you have adjusted. If necessary for your Airworthiness Authority, do a duplicate inspection of the controls.

27-30-10 Elevator Trim - Mechanical

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Control clamp	Commercial	1
Elevator trim check gauge	D67-5525-00-00_PL	1
Fuselage trestle	Commercial	1
Spring balance	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Elevator Mechanical Trim Control System Adjustment

(1) Remove these items for access:

- The pilot's seat.
- The center console cover.
- Install the elevator trim check gauge.

Refer to 25-10 Flight compartment - Description.

(2) Put a trestle under the rear fuselage.

To prevent movement in pitch.

(3) Hold the trailing edge of the elevator in line with the horizontal stabilizer.

Use a clamp at the tips.

(4) Set the trim handwheel to neutral.

See the trim indicator.

(5) Check elevator trim tap 0° position on the elevator check gauge.

If necessary adjust the flexible cable:

- Loosen the nuts that hold the outer sheath of the flexible cable to the mounting frame for the trim handwheel.
  Move the outer sheath forward to move the trim tab down. Move the outer sheath aft to move the trim tab up.
- Turn the nuts to move the outer sheath forward or aft as necessary.
- Tighten the nuts.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(6) Do an inspection of all the controls that you have adjusted. If necessary for your Airworthiness Authority do a duplicate inspection of the controls.

(7) Install these items:

- The center console cover.
- The pilot's seat.

Refer to 25-10 Flight compartment - Description.

(8) Remove the clamps from the elevator/horizontal stabilizer tips.

(9) Remove the trestle from under the rear fuselage.

B. Elevator Mechanical Trim Handwheel Friction Clutch Adjustment Procedure

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(1) Remove the trim gear assembly.

Refer to 27-30 Elevator Trim - Mechanical - Remove procedure.

(2) Loosen the lock nut and the friction clutch nut for the handwheel.

(3) Adjust the friction clutch nut. Tighten the nut to increase the friction force and loosen the nut to decrease the friction force.

(4) Measure the friction force (clamp a spring balance onto the handwheel and measure force).

(5) The friction force must be 60 ± 10 N (13.5 ± 2.25 lbf) on the corded area of the trim handwheel. This corresponds to a friction torque 3.2 - 4.4 Nm (2.4 - 3.2 lbf.ft).

(6) Adjusten the friction clutch nut as necessary to set the correct friction force and secure the friction clutch nut with Loctite 243.

(7) Tighten the lock nut with 15 Nm (11.1 lbf.ft). Value includes friction.

Refer to Special Torque Values - Description.

(8) After countering, reinstall the trim handwheel.

Refer to 27-30 Elevator Trim - Mechanical - Install procedure.

27-30-11 Elevator Trim - Mechanical

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Reamer 8H7	Commercial	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Molykote 33 medium	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Repair the Trim Gear Assembly

(1) Remove the trim gear assembly.

Refer to 27-30 Elevator Trim - Mechanical - Remove procedure.

(2) Remove the distance bush.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(3) Replace the trim gear assembly. Pay attention to the correct order of the parts when assembling.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(4) Install the trim gear assembly to the handwheel.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(5) Adjust the friction clutch.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(6) After tightening of the friction clutch nut and the lock nut, ream hole of the trim gear assembly with 8H7.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(7) Clean the hole after reaming and lubricate it with Molykote 33 medium.

(8) Lubricate distance bush on the outside and reinstall it.

Refer to 27-30 Elevator Trim - Mechanical - Description Figure 3.

(9) Reinstall the trim handwheel.

Refer to 27-30 Elevator Trim - Mechanical - Install procedure.

27-30-12 Elevator Trim - Electrical

Description

1. General

This Section tells you about the elevator electrically controlled trim system. Refer to 27-30 Elevator Trim - Mechanical - Description for data about the elevator mechanical trim control system.

A thumb switch on the pilot's control stick operates the DA 50 electrically controlled elevator trim system.

2. Description

The DA 50 C elevator has a trim tab that can be operated mechanically via the usual trim wheel in the center console or electrically via a trim switch on the pilot's control stick. The elevator electrical trim system is integrated with the autopilot control system. For more data about the autopilot control system and the interaction with the elevator electrical trim system refer to 22-10 Autopilot - Description.

The elevator electric trim system has two main components:

A. Pilot's Control Stick Switch

A thumb switch on the pilot's control stick operates the elevator electrical trim servo. The switch is spring loaded at the neutral position. The switch can be pushed against the spring in a forward or aft direction. When pushed forwards the trim servo will trim the airplane more nose down and when pushed aft the trim servo will trim the airplane more tail heavy.

B. Elevator Trim Servo

The DA 50 C has a pitch trim servo located below the co-pilot's seat. The servo is mounted on an aluminum plate and is attached to the plate with a GFRP bracket. A chain gear on the servo, a cardan shaft and a chain gear on the right side of the cockpit trim wheel transmits the movement of the servo to the elevator trim wheel.

When the pilot operates the electric trim switch on the control stick the servo will operate and drive the mechanical trim wheel to the required position.

3. Maintenance Practices

For data about the removal/installation of the elevator trim electrical servo and the removal/installation of the elevator trim servo clutch refer to 22-10 Autopilot - Description.

27-30-13 Stall Warning System

Description

1. Stall Warning System

The DA 50 C has an electrical stall warning system. The stall warning system consists of the following items:

- Lift transducer.
- Stall warning computer.
- Stall warning horn.
- Toggle to test switch.

2. Description and Operation

A lift transducer is mounted on the left wing's leading edge. It has heater elements in the vane, the case and the mounting plate to prevent icing. A switch on the instrument panel controls the stall warning heat. To avoid overheating the heaters are supplied via a resistor if the airplane is on the ground. A circuit breaker protects the system.

The stall warning computer is installed in the LH corner behind the passenger row and in front of the baggage compartment. It is covered by a carpet and a box.

The computer supplies the lift transducer with an excitation signal and processes the output signal from the lift transducer and the flaps to produce a stall warning signal.

The computer drives a 28 VDC signal when the lift transducer attains the pre-stall warning angle and activates the stall warning horn. The stall warning output has a preset value as a function of each of the flap positions.

The computer has an additional input to permit biasing of the stall warning to lower angles in case an optionally installed ice protection system is activated.

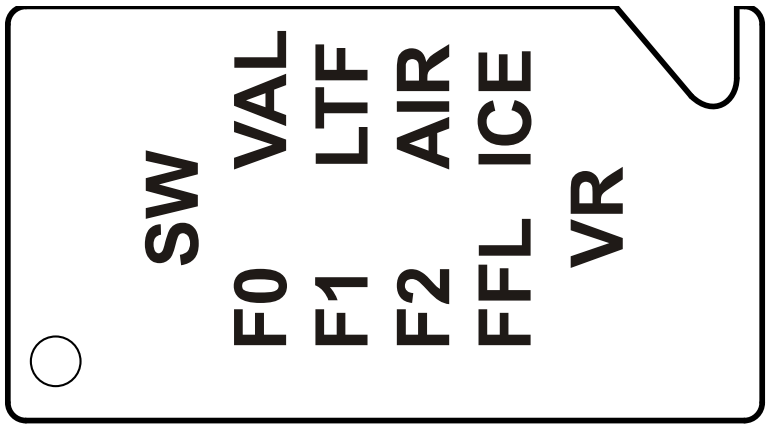
The computer drives an output in case it detects a system fault. The system failure is then indicated via the CAS message "STALL WARN FAIL" on the G1000 NXi PFD.

Furthermore there are LED indicators to aid in trouble-shooting. These are visible during maintenance when the computer access panel is opened. Refer to Figure 5.

Switch and LED Nomenclature on Circuit Board	Nomenclature on Access Panel	LED Color	Description/Function
S1	SW	N/A	Eight position stall warning adjustment switch.
S2	VR	N/A	Eight position for 1.3 Vs (center mark)
DS1	VAL	Green	LED is ON when the system is vaild (no faults detected).
DS2	LTF	Red	LED is ON when the computer senses a fault from the lift transducer or the wiring in between the lift transducer and computer.
DS3	AIR	Green	LED is ON when the computer is in "In-Air" mode. The computer enters "In-Air" mode when the ground signal is removed from pin 1 of the computer through the aircraft's weight-on-wheels (WOW) switch. The computer must be in "In-Air" mode to enable the stall warning output from pin 15.
DS4	ICE	Green	LED is on when the system is in "Ice" mode. The computer enters "Ice" mode when it receives 28 VDC on pin 11 through the integrated avionics. This occurs when the aircraft's ice protection system is activated. When the system is in "Ice" mode, it will output the stall warning signal at a higher speed to compensate for the increased stall speed due to ice accumulation on the aircraft.
DS5	F0	Green	Indication of up flap position (F0 = 0° flaps).
DS6	F1	Green	Indication of take-off flaps position.
DS7	F2	Green	Indication of down flaps position.
DS8	FFL	Red	Indication of flap failure (FFL).

Table 1 - LEDs and Switches Below Computer Access Panel

The system provides a toggle to test switch on the instrument panel for self-test. The test function simulates an in-air condition and activates the stall warning horn.



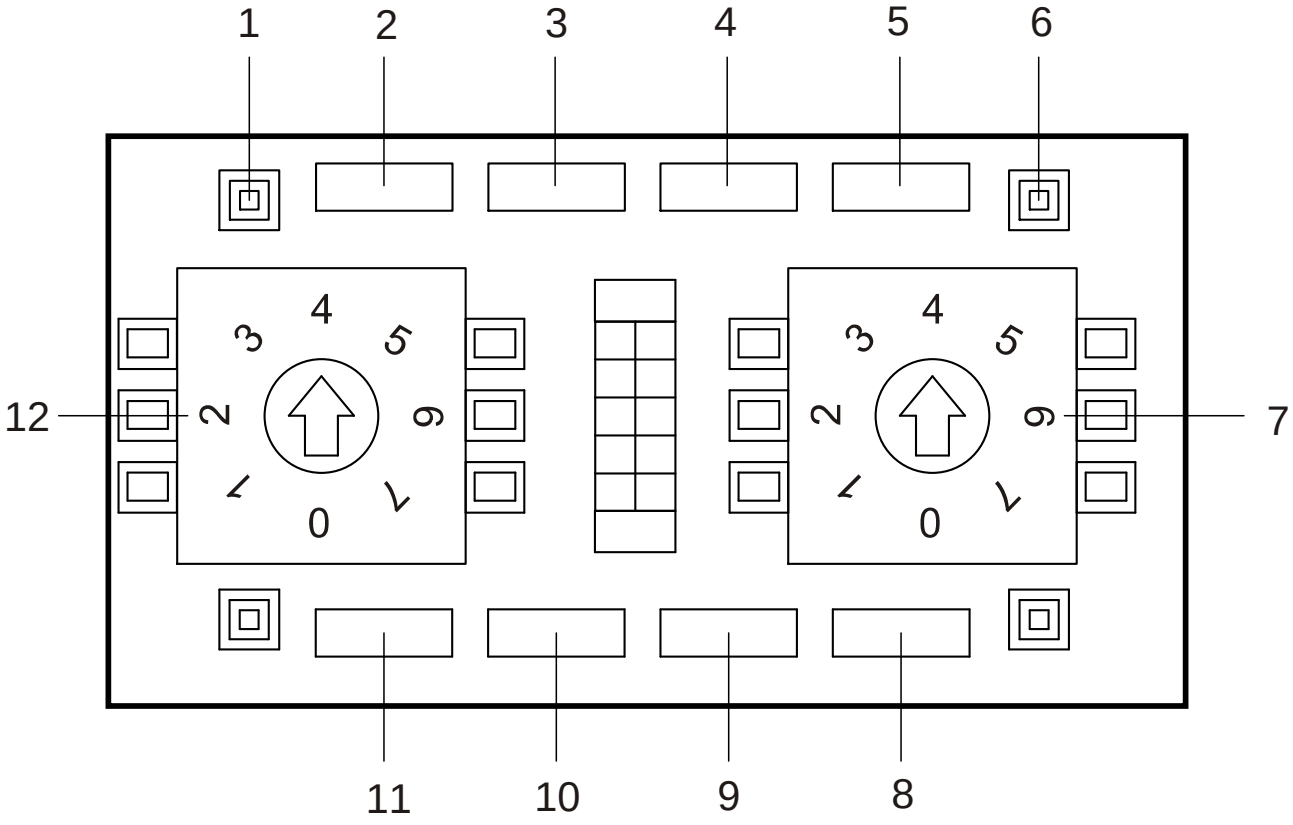


Figure 5 - LEDs and Switches Below Computer Access Panel

Legend

[1, Fig.5]	TP1
[2, Fig.5]	VAL
[3, Fig.5]	LTF (Red)
[4, Fig.5]	AIR
[5, Fig.5]	ICE
[6, Fig.5]	TP0
[7, Fig.5]	8 Position Switch to Adjust Reference Approach Speed (Center Mark) (S2)
[8, Fig.5]	FFL (Red)
[9, Fig.5]	F2 (Full)
[10, Fig.5]	F1
[11, Fig.5]	F0 (Zero)
[12, Fig.5]	8 Position Switch to Adjust Stall Warning Speed (S1)

27-30-14 Stall Warning System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Stall warning horn does not operate.

1A. Check the circuit breaker.

Is the circuit breaker not set?

Yes - go to step 1B.

No - go to step 1C.

1B. Set the circuit breaker.

1C. Examine the stall warning horn.

Is the stall warning horn defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the stall warning horn.

1E. Examine the lift transducer and lift computer.

Is the lift transducer or the lift computer defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the lift transducer or the lift computer.

1G. Do a test for continuity in each cable. Do a test for short circuit to ground and between cables.

Are cables/connectors defective?

Yes - go to step 1H.

No - go to step 1I.

1H. Replace defective cables.

1I. Examine the stall warning relay.

Is the stall warning relay defective?

Yes - go to step 1J.

No - go to step 1K.

1J. Replace the stall warning relay.

1K. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

"STAL HT FAIL" caution is indicated on the PFD in flight.

2A. Check the resistance values of the individual heaters. Refer to 27-30 Lift Transducer - Test and inspection.

Are resistance values out of specification?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the lift transducer.

2C. Examine the RH weight on wheel switch.

Is the RH weight on wheel switch defective?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the RH weight on wheel switch, refer to Position and warning - Description.

2E. Examine the PITOT HEAT switch.

Is the PITOT HEAT switch defective?

Yes - go to step 2F.

No - go to step 2G.

2F. Replace the PITOT HEAT switch, refer to 24-60 DC Electrical Load Distribution - Description

2G. Examine the stall heat control relay.

Is the stall heat control relay defective?

Yes - go to step 2H.

No - go to step 2I.

2H. Replace the stall heat control relay.

2I. Do a test for continuity in each cable. Do a test for short circuit to ground and between cables.

Are cables/connectors defective?

Yes - go to step 2J.

No - go to step 2K.

2J. Replace defective cables.

2K. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

"STAL WARN FAIL" caution is indicated on the PFD on ground / in flight.

3A. Check the LEDs below stall warning computer access panel.

Is there no power to the stall warning system (no LEDs illuminated)?

Yes - go to step 3B.

No - go to step 3C.

3B. Check the wiring from the STALL WARN circuit breaker to pin 13 of the computer. Check DC pin 24 to ground. (Less than one ohm).

3C. Check FFL (DS8) LED below stall warning computer access panel

Is red FFL (DS8) LED illuminated?

Yes - go to step 3D.

No - go to step 3G.

3D. The computer checks for missing flap information as well as multiple flap inputs at the same time. Remove the computer mating connector. Check for 28 VDC at pin 2 (flap zero), pin 3 (flap T/O) and 12 (flap full).

Is 28 VDC missing?

Yes - go to step 3E.

No - go to step 3F.

3E. Replace the flap transmitter component.

3F. Replace the stall warning computer.

3G. Check the LTF (DS2) LED below stall warning computer access panel.

Is the red LTF (DS2) LED illuminated?

Yes - go to step 3H.

No - go to step 3P.

3H. Check the lift transducer signal at TP0 (LO) and TP1 (HI).

Is the signal less than -3.75 VDC with vane puhed down and greater than +3.75 VDC with vane fully lifted?

Yes - go to step 3I.

No - go to step 3J.

3I. Replace the stall warning computer.

3J. Disconnect the computer mating connector. Check the lift transducer primary resistance between pins 9 and 10.

Is the resistance between 112 to 168 ohms?

Yes - go to step 3K.

No - go to step 3M.

3K. Check the lift transducer secondary resistance between pins 6 and 8 of the mating connectors.

Is the resistance between 544 to 736 ohms?

Yes - go to step 3L.

No - go to step 3M.

3L. Replace the stall warning computer.

3M. Check the wiring between the stall warning computer and the lift transducer.

Is the connection between the harness and the lift transducer's connector ok?

Yes - go to step 3N.

No - go to step 3O.

3N. Replace the lift transducer.

3O. Repair the wiring.

3P. Contact DAI.

27-30-15 Lift Transducer

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Lift Transducer

(1) Open the STALL WRN circuit breaker.

(2) Loosen the screws that attach the lift transducer to the wing.

(3) Disconnect the electrical wires. At the in-line connectors.

(4) Remove the lift transducer from the wing.

27-30-16 Lift Transducer

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Lift Transducer

(1) Connect the electrical wires. At the in-line connectors.

(2) Put the lift transducer into position on the wing.

(3) Install the screws that attach the lift transducer to the wing.

Secure the screws with Loctite 241.

(4) Close the STALL WRN circuit breaker.

(5) Do a function test of the stall warning system.

Refer to 27-30 Stall Warning System - Function Test

(6) If new lift transducer was installed:

Do a flight check of the stall warning system:

Conditions:

CG between 2.41 m and 2.44 m.

Calm air only.

Min. test altitude: 3000 ft AGL.

Max. test altitude: 6500 ft pressure altitude.

Trim speed: 90 KIAS.

Flaps: T/O.

GEAR: UP.

Power: Flight IDLE.

Attitude: Wings level.

- Reduce airspeed at 1kts per second.
- Record stall warning speed with 1 digit precision.
- If the stall warning airspeeds according to Table 1 are not achived or nuisance warnings are experienced during take-off or approach, adjust the stall warning switch (S1) on the computer:
  - Get access to the stall warning switch (S1) of the stall warning computer by removing carpet, opening the hatch of the box and access panel of the computer.
  - Record the pre-set of the switch (S1) position.
    If warning shall be activated at higher speed, rotate the switch (S1) to a lower number.
    Rotate the switch (S1) to a higher number to get the warning activated at lower speed.

NOTE

Do at least 3 approaches to stall. Determine the reference stall warning speed from Table 1, considering test weight. Interpolate between weights. The average airspeed value from the flight checks should be within -1/+1 KIAS from the reference stall warn speed.

- Repeat the flight check until the test is passed
- Record the switch position (S1).

Weight [kg]	Stall Warning Speed [KIAS]
1900	71
1800	69
1700	67

Table 1 - Stall Warning Speed, Flaps T/O, Gear Up

27-30-17 Lift Transducer

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check the Lift Transducer

(1) Remove the lift transducer.

Refer to 27-30 Lift Transducer - Remove procedure.

(2) Check the resistance values of the individual heaters.

Refer to Table 1 and Table 2 and Figure 6.

(3) If the resistances are out of specification replace the lift transducer.

(4) Install the lift transducer.

Refer to 27-30 Lift Transducer - Install procedure.

P1 (white) Pins	Function	Readings (nominal)
2 to 5	Sensor Primary	140 ohms
3 to 4	Sensor Secondary	320 ohms
1 to 4	Sensor Secondary	320 ohms
A to B	Case Heater	38 ohms
C to D	Vane Heater	38 ohms

See Figure 6 for P1 connector pin orientation.

NOTE

The resistance values above are nominal. A 15% deviation from nominal is acceptable.

Table 1 - P1 Connector Resistance Measurements (Large)

P2 (black) Pins	Function	Readings (nominal)
B to C	Plate Heater #1	8 ohms
A to D (on P1 connector)	Plate Heater #2	8 ohms

See Figure 6 for P2 connector pin orientation.

NOTE

The resistance values above are nominal. A 15% deviation from nominal is acceptable.

Table 2 - P2 Connector Resistance Measurements (Small)

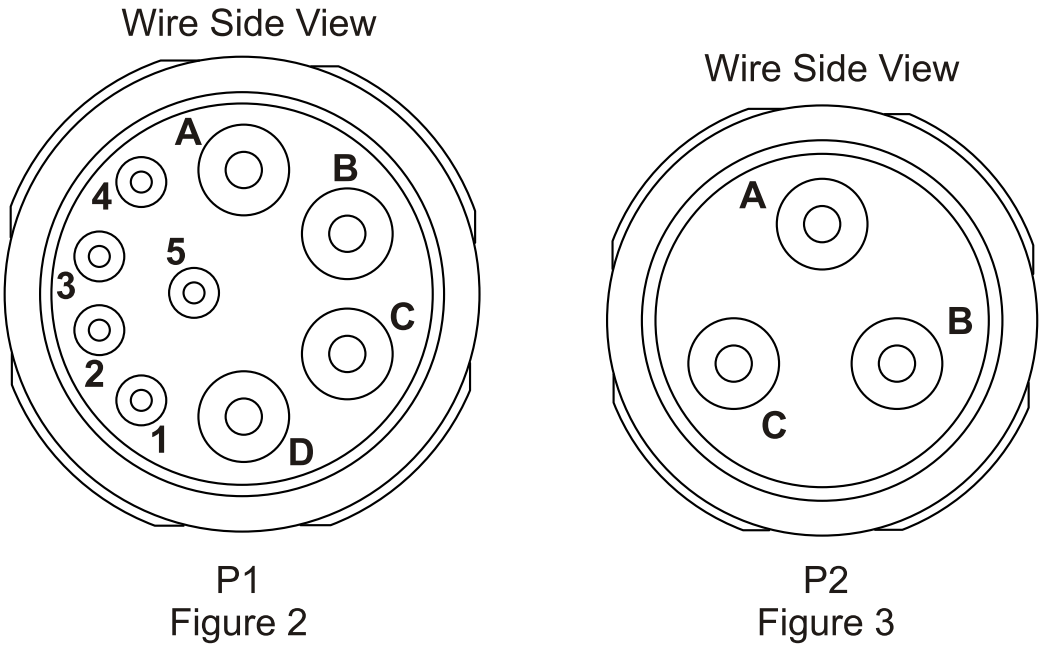


Figure 6 - Stall Warning Connectors

27-30-18 Stall Warning Horn

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Stall Warning Horn

(1) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(2) Open the STALL WRN circuit breaker.

(3) Disconnect the electrical wires of the stall warning horn.

Note the connections.

(4) Remove the nut which attaches the stall warning horn to the instrument panel.

(5) Remove the stall warning horn from the instrument panel.

27-30-19 Stall Warning Horn

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Stall Warning Horn

(1) Put the stall warning horn in position in the instrument panel.

(2) Install the nut that attaches the stall warning horn to the instrument panel.

(3) Connect the electrical wires to the stall warning horn.

Refer to Chapter 92.

(4) Close the STALL WRN circuit breaker.

(5) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(6) Do a test of the stall warning system.

Refer to 27-30 Stall Warning System - Function Test.

27-30-20 Stall Warning Computer

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Stall Warning Computer

(1) Get access to the stall warning computer:

- Remove the carpet in the LH corner behind passenger row and in front of the baggage compartment.
- Remove top cover of box by removing three screws and washers.

(2) Remove the stall warning computer:

- Remove four screws and washers which attach the stall warning computer to the box.
- Remove the connector cables from the computer.
- Move the computer clear of the airplane.

NOTE

The setting of the switch position (S1) of computer should correspond the setting written down from production flight test.

(3) Computer settings:

- Open the access hatch of computer.
- Record the stall warning switch position (S1) of computer and compare with setting written down in production test flight form, refer to aircraft production documentation.
- Close the access hatch of computer.

27-30-21 Stall Warning Computer

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Stall Warning Computer

(1) If new computer is installed:

- Open access hatch of the computer.
- Set the stall warning switch (S1) to the position recorded from the old computer, corresponding to the setting recorded in production test flight form.

(2) Install the stall warning computer.

(3) If new/overhauled computer is installed:

- Check stall warning computer.
  Refer to 27-30 Stall Warning Computer - Test and inspection.
- Do a check flight of stall warning system as given in 27-30 Lift Transducer - Install procedure.

Otherwise do a function test of the stall warning system.

Refer to 27-30 Stall Warning System - Function Test.

27-30-22 Stall Warning Computer

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check the Stall Warning Computer

(1) Connect the external power supply to the airplane.

(2) Remove the pitot cover.

(3) Open the stall warning computer access hatch:

- Remove carpet in the LH corner behind the passenger row and in front of the baggage compartment.
- Open access hatch of box and computer.

(4) Record the position of the stall warning switch (S1).

(5) Ensure the circuit breaker of stall warning system (STALL/AoA) is set.

(6) Ensure the PITOT HEAT switch is OFF.

(7) Set the ELECT. MASTER switch to ON.

(8) Ensure/set the flaps to UP.

(9) Set the stall warning switch (S1) to position 4.

(10) Check on G1000 NXi that no CAS message "STALL WARN FAIL" or "STALL HEAT FAIL" is displayed.

(11) Check on access panel of computer that no red LED is illuminated.

(12) Set the PITOT HEAT switch to ON.

(13) Check/measure temperature change of the vane and front plate of the lift transducer.

(14) Turn OFF the PITOT HEAT switch.

(15) Perform following check of computer:

Step	Input	Result
1		VAL (DS1) LED is illuminated.
2		F0 (DS5) LED is illuminated.
3	Set the flaps to take-off (T/O) position.	F1 (DS6) LED shall illuminate.
		F0 (DS5) LED shall extinguish.
4	Set the flaps to landing position.	F2 (DS7) LED shall illuminate.
		F1 (DS6) LED shall extinguish.
5	Activate the stall warning computer self-test (STALL TEST switch) to TEST.	The stall warning horn shall activate.
6	Set the aircraft to "In-Air" mode (bypass WOW switch).	Air (DS3) LED shall illuminate.
7	If OÄM 50-011 is installed: Switch ON the de-icing system or activate "Annunciation test" of TKS system via toggle switch.	Ice (DS4) LED shall illuminate.
8	If OÄM 50-011 is installed: Switch OFF the de-icing system.	Ice (DS4) LED must still be illuminated.
9	Set the aircraft to "On-Ground" mode. If OÄM 50-011 is installed:	Air (DS3) LED shall extinguish. Ice (DS4) LED shall extinguish.
10	Use a voltmeter on TP0 (LO) and TP1 (HI) for the next three steps. See Stall Warning System - Description Figure 5 for test point locations.	
11	Measure the voltage at the neutral vane position.	The reading shall be +100 to +600 mVDC.
12	Move the lift transducer vane full UP, to the forward stop.	The reading shall be greater than 4.00 VDC.
13	Move the lift transducer vane full DOWN, to the aft stop.	The reading shall be greater than -4.00 VDC.
14	Test complete. If necessary, set S1 switch to the position noted down.	

Table 1 - Computer Check

TP0	Test point ground.
TP1	Demodulated lift voltage from LT. 150 mVDC/TG, (+) = decreasing TG (SLOW)

Table 2 - Computer Test Point Information

(16) Close and secure the computer access panel.

(17) Return the aircraft to the configuration prior to the system ground check.

27-30-23 Stall Warning System

Function Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check the Stall Warning Computer

(1) Connect the external power supply to the airplane.

(2) Remove the pitot cover.

(3) Open the stall warning computer access hatch:

- Remove carpet in the LH corner behind the passenger row and in front of the baggage compartment.
- Open access hatch of box and computer.

(4) Ensure the circuit breaker of stall warning system (STALL/AoA) is ON.

(5) Ensure the PITOT HEAT switch is OFF.

(6) Set the ELECT. MASTER switch to ON.

(7) Ensure/set the flaps to UP.

(8) Check on G1000 NXi that no CAS message "STALL WARN FAIL" or "STALL HEAT FAIL" is displayed.

(9) Check on access panel of computer that no red LED is illuminated.

(10) Check that VAL (DS1) LED is illuminated.

Check that FO (DS5) LED is illuminated.

(11) Toggle the test switch on the instrument panel for self-test of stall warning system.

- The stall warning horn shall activate and no CAS message "STALL WARN FAIL" shall be displayed on the G1000 NXi PFD.

(12) Set the ELECT. MASTER to OFF.

(13) Close the access hatch of computer and box.

(14) Install the carpet in the LH corner behind the passenger row and in front of the baggage compartment.

27-50
FLAP CONTROL SYSTEM

27-50-01 Flap Control System

Description

1. General

A. The DA 50 C has flaps for approach and landing. There are two flaps attached to the trailing edges of each wing. The inboard and outboard flap assemblies of each wing are directly coupled. The outboard end of the inner flap has a tongue which engages with a slot in the inboard end of the outer flap.

An electric flap actuator moves the flaps. See 57-50 Flaps - Description for data about the flap structure.

A three position toggle switch controls the flaps. The switch is in the right side of the instrument panel.

Lights located to the left of the flap toggle switch come on when these flap positions are set:

- Green lit, both white off - flaps UP.
- White lit, green and bottom white off - flaps at TAKE OFF.
- White lit, green and middle white off - flaps at LANDING.

2. Description

A. Flap Actuator

An electric actuator operates the flaps. The electric actuator is under the left passenger row seat. A mounting bracket on the left rear closing rib attaches the actuator to the structure.

The actuator has an electric motor. The motor has a reduction gear which turns a spindle. The spindle operates a pushrod. The pushrod connects to an idler lever attached to the center wing spar B.

A cam attached to the pushrod operates five micro switches. The micro switches are part of the flaps electronic control circuit.

B. Push-Rods and Bellcranks

The idler lever on the center wing spar B connects to four pushrods. The pushrods from the RH have fork end mountings which connect to the push rods from LH at the extreme end holes. The inner hole on the LH pushrod ends connects each pushrod to the flap idler lever using bolts. The other end of the inner flap pushrods connect to a inner flap bellcrank. A short activation pushrod connects each inner flap bellcrank to the inner flap horn.

The outer end of the outer flap inner pushrods connect to the outer flap outer pushrod rod ends. The outer flap inner bellcrank is also connected to the inner rod end of the outer flap outer pushrod. The other end of the outer flap outer pushrod is connected to the outer flap outer bellcrank. Two short outer flap pushrods connects the outer flap inner end outer bellcranks to the outer flap horns on each side.

C. Flap Electrical Control

The main bus supplies the power for the flaps. A circuit breaker protects the system. See Chapter 92 for the Wiring Diagrams.

The flap electrical control system uses solid state electronics. It has an electronic control unit and a switchboard. The electronic control unit is mounted on the instrument panel. The switchboard attaches to the flap actuator.

The electronic control unit has a 3-position selector switch and a flap position indicator. The selector switch can be set to:

- UP (fully up) 0° +1° / -1°
- T/O (approach) 20° +1° / -1°
- LDG (landing) 38° +1° / -1°

The flap position indicator has three light emitting diodes. The top diode lights when the flaps are in the UP position. The middle diode lights when the flaps are in the APP position. The bottom diode lights when the flaps are in the LDG position.

The switch board attaches to the body of the flap actuator. The switch board has five micro switches. It also has a solid state logic board.

The logic circuits monitor the outputs from the selector switch and the micro switches on the switch board. They control four power transistors. Two of the power transistors can connect the power supply to the flap motor. The other two can connect the motor to ground.

Two screws attach each micro switch to the switchboard. You can adjust the position of the switch board with three worm drive clamps. The micro switches have these functions:

- Micro switch 1 - UP position.
- Micro switch 2 - UP indication and T/O position moving down.
- Micro switch 3 - T/O indication.
- Micro switch 4 - LDG position.
- Micro switch 5 - LDG indication T/O position moving up.

Cable harnesses with multi pin connectors connect the components.

3. Flap Push-Rod Access

Flap Pushrod	Remove/Install Access	References
Between the idler lever at the center wing spar B and the center section closing ribs.	Passenger seat. Center section access panels.	25-10 Flight compartment - Description. 52-40 Access Panels - Description.
Between the center section closing ribs and the inner flap bellcranks.	Passenger seat. Inner flap bellcrank access panels under each wing.	25-10 Flight compartment - Description. 52-40 Access Panels - Description.
Between the center section closing ribs and the outer flap bellcranks.	Passenger seat. Outer flap bellcrank access panels under each wing.	25-10 Flight compartment - Description. 52-40 Access Panels - Description.
Between the inner flap bellcranks and the inner flap horns.	Inner flap bellcrank access panels under each wing.	52-40 Access Panels - Description.

Table 1 - Flap Push-Rod Access

Flap Pushrod	Remove/Install Access	References
Between the outer flap bellcranks and the outer flap horns.	Outer flap bellcrank access panels under each wing.	52-40 Access Panels - Description.
Between the outer flap outer and inner pushrods.	Outer flap bellcrank access panels under each wing.	52-40 Access Panels - Description.

Table 1 - Flap Push-Rod Access

4. Flap Bellcrank and Lever Access

Flap Pushrod	Remove/Install Access	References
Idler lever at the center wing spar B.	Passenger seat.	25-10 Flight compartment - Description.
Bellcranks in wings.	Inner and outer bellcrank access panels under each wing.	52-40 Access Panels - Description.

Table 2 - Flap Bellcrank and Lever Access

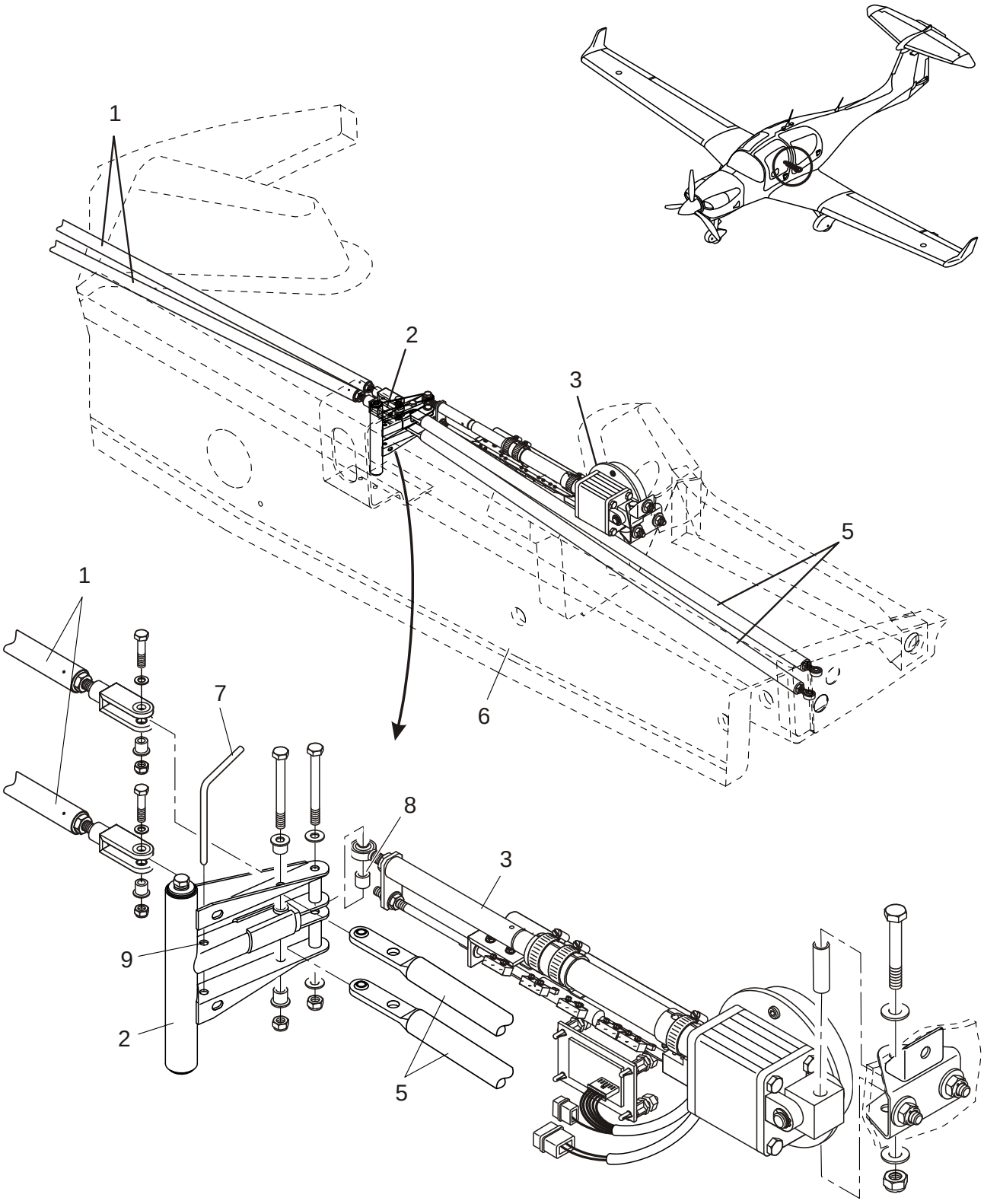


Figure 1 - Flap Control System in the Fuselage

Legend

[1, Fig.1] Push Rods to Right Wing

[2, Fig.1] Idler Lever

[3, Fig.1] Flap Actuator

[5, Fig.1] Push Rods to Left Wing

[6, Fig.1] Rear Main Bulkhead

[7, Fig.1] Rigging Pin

[8, Fig.1] Spacer

[9, Fig.1] Rigging Pin Hole

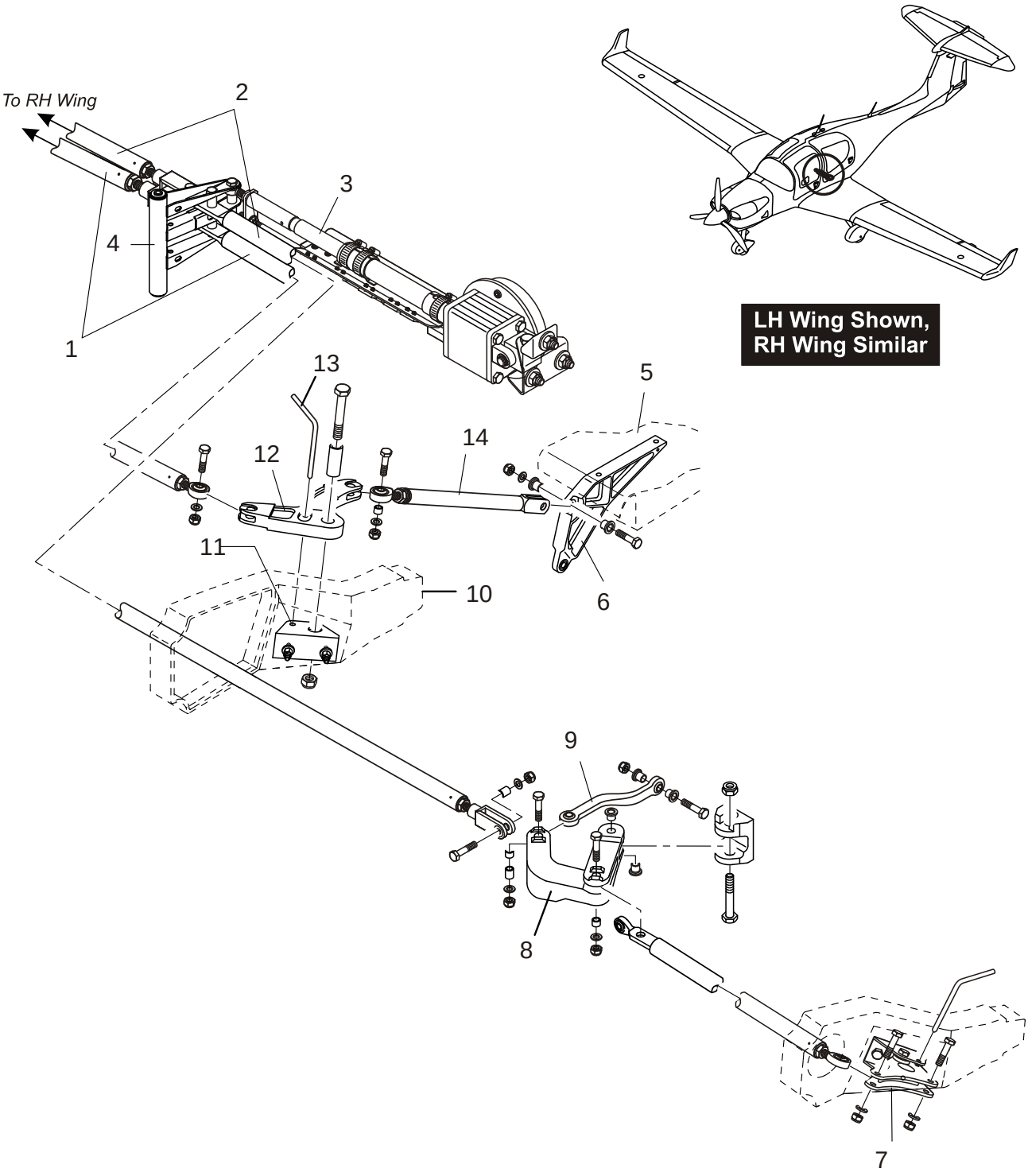
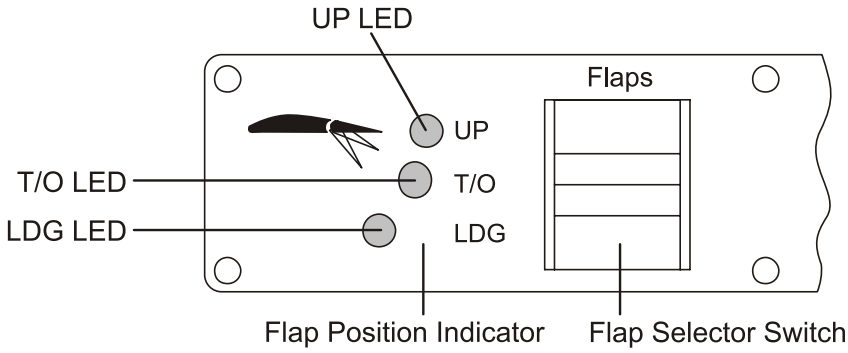


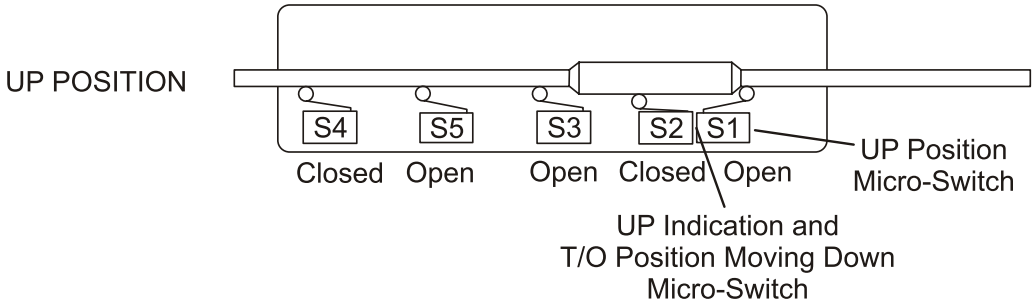
Figure 2 - Flap Push-Rods and Bellcranks in the Wings

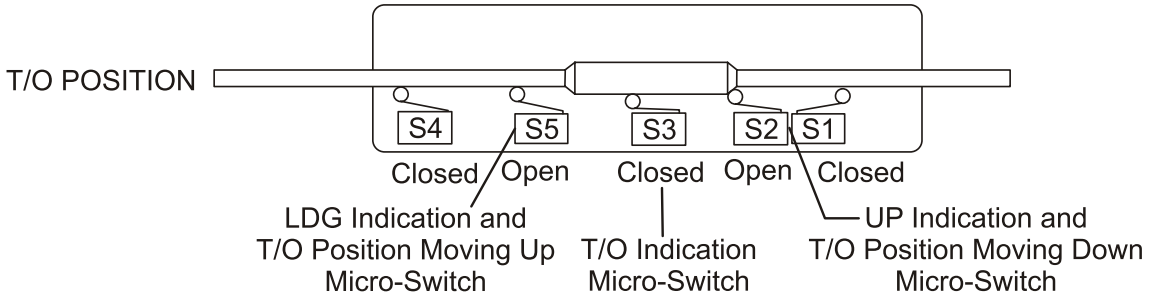
Legend

[1, Fig.2]	Inner Flap Push Rods
[2, Fig.2]	Outer Flap Push Rods
[3, Fig.2]	Actuator Control Rod
[4, Fig.2]	Flap Idler Lever in the Fuselage
[5, Fig.2]	Left Inner Flap
[6, Fig.2]	Inner Flap Horn
[7, Fig.2]	Outer Flap Outer Bellcrank
[8, Fig.2]	Outer Flap Inner Bellcrank
[9, Fig.2]	Outer Flap Short Actuation Push Rod
[10, Fig.2]	Left Flap Rib
[11, Fig.2]	Rigging Pin Hole
[12, Fig.2]	Inner Flap Bellcrank
[13, Fig.2]	Rigging Pin
[14, Fig.2]	Inner Flap Short Actuation Push Rod



FLAP CONTROL UNIT IN THE INSTRUMENT PANEL
(View Looking Forward)





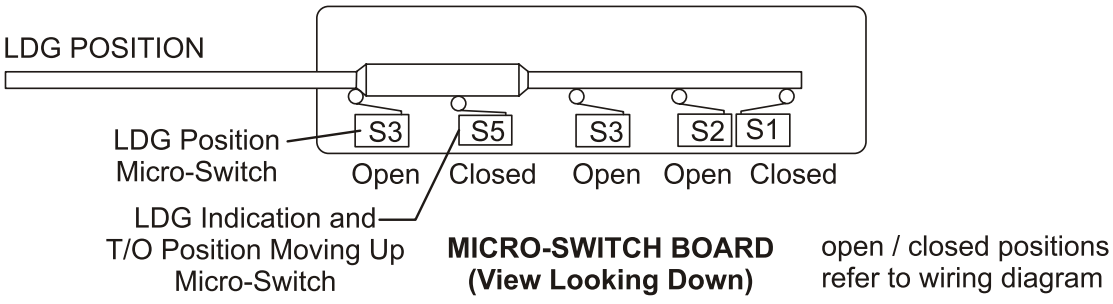


Figure 3 - Flap Electrical Control System

27-50-02 Flap Control System

Description of function

1. Operation

If you operate the flap selector switch these things happen:

- The switch energizes the related logic circuit.
- The logic circuit switches on the related transistors to supply power/ground to the flap motor.
- The flap motor turns the reduction gear and spindle. This moves the actuator pushrod towards the new set position.
- The push rod turns the idler lever around its axis.
- The idler lever moves the flap operating pushrods in the fuselage and the wings.
- The push-rods move the flap bellcranks in the left and right wings.
- The short pushrods move the flaps.

When the flap position reaches the position set by the flap selector:

- The cam on the flap actuator operates the related flap position and indication micro switches.
- The logic circuit switches off the related transistors to de-energize the flap motor.
- The flap position indicator shows the new flap position.

2. Fail-Safe Operation

The flap control system has these fail-safe properties:

- If the LDG position micro switch fails, the flap actuator pushrod will continue to travel for about 5 mm (0.2 in) until it reaches an internal stop. This prevents damage to the flaps. The FLAP circuit breaker opens and breaks the flap operating circuit.
- If the UP position micro switch fails, the actuator pushrod contacts the end of the actuator body after about 5 mm (0.2 in) of movement. This prevents damage to the flaps. The FLAP circuit breaker opens and breaks the flap operating circuit.

27-50-03 Flap Control System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flaps do not operate.

1A. check the circuit breaker.

Is the circuit breaker not set?

Yes - go to step 1B.

No - go to step 1C.

1B. Set the flap circuit breaker.

1C. Do a test of the airplane electrical system voltage.

Is the airplane electrical system voltage low?

Yes - go to step 1D.

No - go to step 1E.

1D. Refer to Electrical System - Description.

1E. Examine the flap selector switch.

Is the flap selector switch defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the flap electronic control unit.

1G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker will not stay closed.

2A. Do an insulation test between each wire to the electrical control unit and ground.

Is there a short to ground in the wires to the electrical control unit or the micro switches?

Yes - go to step 2B.

No - go to step 2C.

2B. Repair or replace defective wires.

2C. Examine the electrical control unit.

Is there a short to ground in the electrical control unit?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the electrical control unit.

2E. Examine the micro switches.

Is there a short to ground in a micro switch?

Yes - go to step 2F.

No - go to step 2G.

2F. Replace the micro switch.

2G. Do an insulation test between each wire between a closed micro switch and the control unit and ground.

Is there a short to ground in a wire between a closed micro switch and the control unit?

Yes - go to step 2H.

No - go to step 2I.

2H. Repair or replace defective wires.

2I. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens when flap selector switch moved to any down position.

3A. Do an insulation test between motor supply wires and ground.
Is there a short to ground in a motor supply wire?
Yes - go to step 3B.
No - go to step 3C.

3B. Repair or replace defective wires.

3C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens when flap selector switch moved to any down position.

4A. Do an insulation test between motor supply wires and ground.
Is there a short to ground in a motor supply wire?
Yes - go to step 4B.
No - go to step 4C.

4B. Repair or replace defective wires.

4C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens when flap selector switch moved to any up position.

5A. Do an insulation test between motor supply wires and ground.
Is there a short to ground in a motor supply wire.
Yes - go to step 5B.
No - go to step 5C.

5B. Repair or replace defective wires.

5C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens when the flaps stop at the chosen position.

6A. Do an insulation test between between each wire to the electrical control unit from the related indication micro switch and ground.

Is there a short to ground in the wires to the electrical control unit from the related indication micro switch.

Yes - go to step 6B.

No - go to step 6C.

6B. Repair or replace defective wires.

6C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens when the flaps have moved only a short distance from the UP setting.

7A. Do an insulation test between between each wire to the electrical control unit from micro switch 1 and ground.

Is there a short to ground in the wires to the electrical control unit from micro switch 1.

Yes - go to step 7B.

No - go to step 7C.

7B. Repair or replace defective wires.

7C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens when the flaps have moved only a short distance from the LDG setting.

8A. Do an insulation test between between each wire to the electrical control unit from micro switch 4 and ground.

Is there a short to ground in the wires to the electrical control unit from micro switch 4.

Yes - go to step 8B.

No - go to step 8C.

8B. Repair or replace defective wires.

8C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flaps move slowly.

9A. Do a test of the airplane electrical system voltage.

Is the airplane electrical system voltage low.

Yes - go to step 9B.

No - go to step 9C.

9B. Refer to Electrical System - Description.

9C. Examine the flap motor.

Is the flap motor defective?

Yes - go to step 9D.

No - go to step 9E.

9D. Do a test for 24 V at the motor with flaps selected. If there is 24 V at the motor, replace the actuator.

9E. Examine the flap actuator.

Is the flap actuator defective?

Yes - go to step 9F.

No - go to step 9G.

9F. Replace the flap actuator.

9G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flaps do no not align with the wing trailing edge.

10A. Examine the flap system.

Do flaps extended at too high airspeed?

Yes - go to step 10B.

No - go to step 10C.

10B. Replace damaged parts. Adjust the system.

10C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flaps will not move to LDG position. Flaps move to T/O and UP correctly.

11A. Examine micro switch 4.

Is micro switch 4 defective?

Yes - go to step 11B.

No - go to step 11C.

11B. Replace the micro switch.

11C. Do a continuity test of the wiring.

Is there an open circuit in the micro switch 4 wiring?

Yes - go to step 11D.

No - go to step 11E.

11D. Repair or replace the defective wire.

11E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Flaps will not move to UP position. Flaps move to T/O and LDG correctly.

12A. Examine micro switch 1.
Is micro switch 1 defective?
Yes - go to step 12B.
No - go to step 12C.

12B. Replace the micro switch.

12C. Do a continuity test of the wiring.
Is there an open circuit in the micro switch 1 wiring?
Yes - go to step 12D.
No - go to step 12E.

12D. Repair or replace the defective wire.

12E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No LDG indication when the flaps are in the LDG position. Flaps will not move from LDG to T/O. Flaps move from LDG to UP correctly.

13A. Examine micro switch 5.

Is micro switch 5 defective?

Yes - go to step 13B.

No - go to step 13C.

13B. Replace the micro switch.

13C. Do a continuity test of the wiring.

Is there an open circuit in the micro switch 5 wiring?

Yes - go to step 13D.

No - go to step 13E.

13D. Repair or replace the defective wire.

13E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No UP indication when the flaps are in the UP position. Flaps will not move from UP to T/O. Flaps move from UP to LDG correctly.

14A. Examine micro switch 2.

Is micro switch 2 defective?

Yes - go to step 14B.

No - go to step 14C.

14B. Replace the micro switch.

14C. Do a continuity test of the wiring.

Is there an open circuit in the micro switch 2 wiring?

Yes - go to step 14D.

No - go to step 14E.

14D. Repair or replace the defective wire.

14E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No T/O indication when the flaps are in the T/O position. Flaps move to all positions correctly.

15A. Examine micro switch 3.

Is micro switch 3 defective?

Yes - go to step 15B.

No - go to step 15C.

15B. Replace the micro switch.

15C. Do a continuity test of the wiring.

Is there an open circuit in the micro switch 3 wiring?

Yes - go to step 15D.

No - go to step 15E.

15D. Repair or replace the defective wire.

15E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens at the end of down movement.

16A. Examine micro switch 4.

Is micro switch 4 defective?

Yes - go to step 16B.

No - go to step 16C.

16B. Replace the micro switch.

16C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flap circuit breaker opens at the end of up movement.

17A. Examine micro switch 1.

Is micro switch 1 defective?

Yes - go to step 17B.

No - go to step 17C.

17B. Replace the micro switch.

17C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

LDG LED stays on when the flaps are not in the LDG position. The other indications operate correctly.

18A. Examine micro switch 5.

Is micro switch 5 defective?

Yes - go to step 18B.

No - go to step 18C.

18B. Replace the micro switch.

18C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

UP LED stays on when the flaps are not in the UP position. The other indications operate correctly.

19A. Examine micro switch 2.

Is micro switch 2 defective?

Yes - go to step 19B.

No - go to step 19C.

19B. Replace the micro switch.

19C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

T/O LED stays on when the flaps are not in the T/O position. The other indications operate correctly.

20A. Examine micro switch 3.

Is micro switch 3 defective?

Yes - go to step 20B.

No - go to step 20C.

20B. Replace the micro switch.

20C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flaps move to LDG when T/O set from UP.

21A. Examine micro switch 2.

Is micro switch 2 defective?

Yes - go to step 21B.

No - go to step 21C.

21B. Replace the micro switch.

21C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Flaps move to UP when T/O set from LDG.

22A. Examine micro switch 5.

Is micro switch 5 defective?

Yes - go to step 22B.

No - go to step 22C.

22B. Replace the micro switch.

22C. Contact DAI.

27-50-04 Flap Actuator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Flap Actuator

(1) If possible set the flaps to the LDG position.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the passenger seat.

Refer to 25-10 Passenger Seat - Remove procedure.

(4) Disconnect the electrical supply connector to the flap motor.

At the flap motor.

(5) Disconnect the control harness plug from the switch board.

(6) Remove the bolt which attaches the actuator pushrod to the idler lever.

At the rear center wing spar B. Support the flaps.

NOTE

Slightly shaking the flaps up and down from LH and RH wings will help to remove the bolt.

(7) Lower the flaps by hand until they stop.

(8) Remove the bolt which attaches the actuator body to the mounting bracket.

At the left fuselage wall.

(9) Remove the actuator from the airplane.

27-50-05 Flap Actuator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Flap Actuator

(1) Put the flap actuator into position in the fuselage.

(2) Install the bolt which attaches the actuator body to the mounting bracket.

At the left rear closing rib. Make sure that the bush is in the correct position in the actuator swivel block.

(3) Install the bolt which attaches the actuator push-rod to the idler lever.

At the rear main bulkhead. Hold the flaps. Take care of the spacer position.

(4) Connect the control harness plug for the switch-board.

(5) Connect the electrical supply connector to the flap motor.

(6) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(7) Do the flap adjustment procedure.

Refer to 27-50 Flap Control System - Design data/tolerances check.

(8) Do an inspection of all the controls that you connected. If necessary for your Airworthiness Authority do a duplicate inspection of the controls.

(9) Install the passenger seat.

Refer to 25-10 Passenger Seat - Install procedure.

27-50-06 Flap Control System

Design data/tolerances check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Flap check gauge	D54-5753-00-00-PL	1
Electronic angle protractor (altern.)	Commercial	2
Spring balance	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Test the Flap Control System with the Flap Check Gauge

(1) Make a copy of the Control Surfaces Adjustment Report.

Refer to 06-00 Adjustment Reports - Adjust, align and calibrate.

Use it to record the measurements.

(2) Position gauge at inboard hinge of outer flap, orient in flight direction, parallel to flap hinge.

(3) Make sure that the flaps are fully UP:

- Set the ELECT. MASTER switch to ON.
- Set the flaps to T/O.

(4) Read the angles of the left and right outer flap on the flap check gauge. Record the values in the Control Surfaces Adjustment Report.

The values must be as shown in the Control Surfaces Adjustment Report.

(5) Set the flaps to LDG.

(6) Read the angles of the left and right outer flap on the flap check gauge. Record the values in the Control Surfaces Adjustment Report.

The values must be as shown in the Control Surfaces Adjustment Report.

(7) Set the flaps to UP:

- Set the ELECT. MASTER switch to ON.
- When the flaps stop moving, set the ELECT. MASTER switch to OFF.

B. Test the Flap Control System with the Electronic Angle Protractor

(1) Make a copy of the Control Surfaces Adjustment Report.

Refer to 06-00 Adjustment Reports - Adjust, align and calibrate.

Use it to record the measurements.

(2) Position the electronic angle protractors:

- Put one electronic angle protractor at the most inboard flap hinge of the outer flap (fix it with tape to the upper surface of the LH outer flap). Align flush with trailing edge and orient in flight direction (parallel to local hinge).
- Put the second electronic angle protractor on the same position of the flap on the RH side.

(3) Make sure that the flaps are fully UP:

- Zero electronic protractors.
- Set the ELECT. MASTER switch to ON.
- Set the flaps to T/O.

(4) Read the angles of the left and right outer flap on the electronic angle protractors. Record the values in the Control Surfaces Adjustment Report.

The values must be as shown in the Control Surfaces Adjustment Report.

(5) Set the flaps to LDG.

(6) Read the angles of the left and right outer flap on the electronic angle protractors. Record the values in the Control Surfaces Adjustment Report.

The values must be as shown in the Control Surfaces Adjustment Report.

(7) Set the flaps to UP:

- Set the ELECT. MASTER switch to ON.
- When the flaps stop moving, set the ELECT. MASTER switch to OFF.

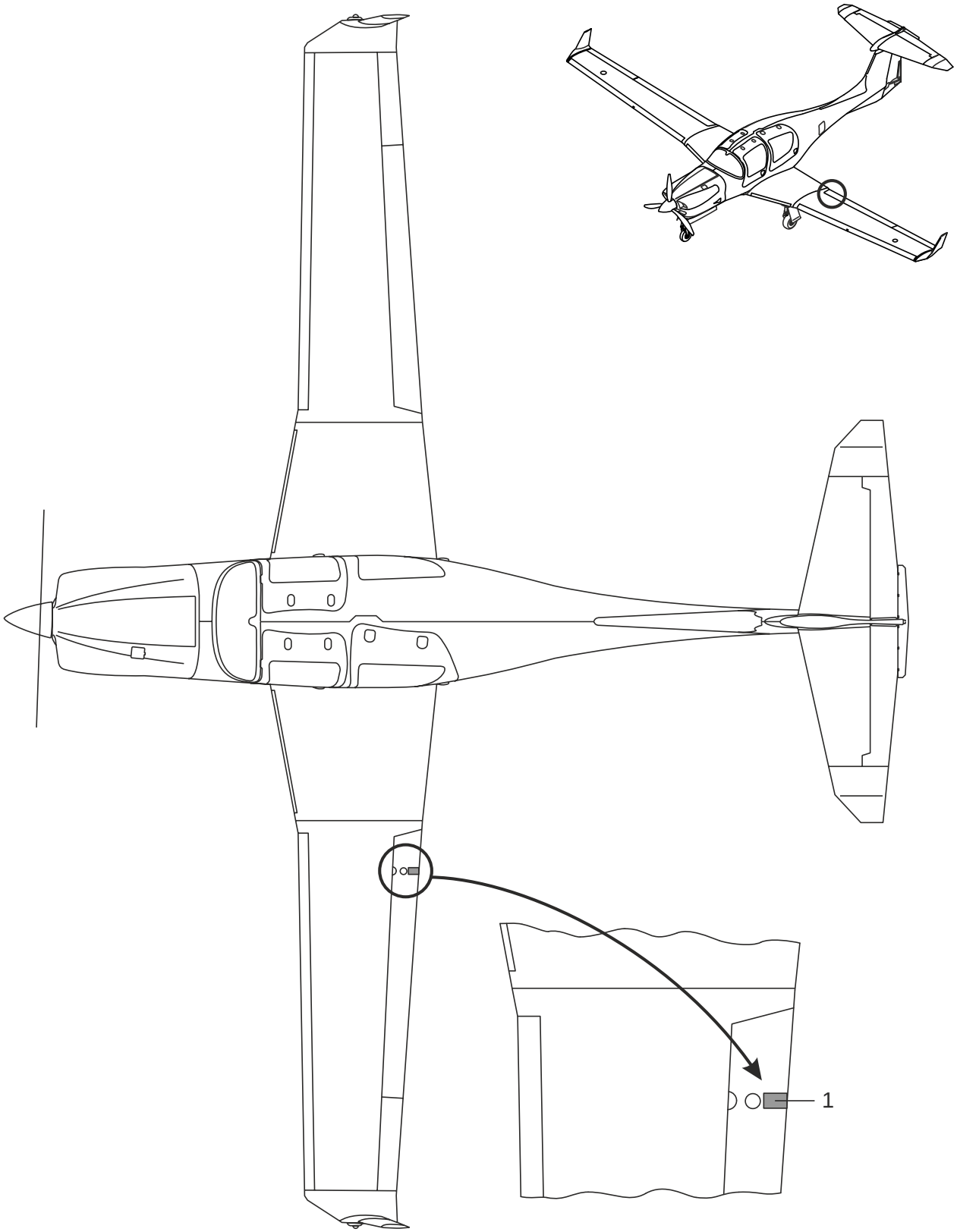


Figure 4 - Electronic Angle Protractor Position

Legend

[1, Fig.4] Electronic angle protractor

28-00
FUEL SYSTEM

28-00-01 Fuel System

Description

1. Fuel System

This Chapter describes the DA 50 C airplane fuel system. It does not include the fuel system of the engine. For more data on the engine fuel system refer to Continental Operation & Maintenance Manual, latest revision.

Figure 1 shows the fuel system schematic of the DA 50 C.

The DA 50 C has a fuel tank in each wing. The total usable fuel capacity of the fuel system is 49 US gal (185 liter). One engine driven high pressure pump, one engine driven low pressure pump and two electrically driven fuel pump supply fuel to the engine. A fuel filter provides protection to sensitive components. An electric transfer pump transfers fuel from the right wing fuel tank (aux) to the left wing fuel tank (main) as necessary.

The pilot controls the fuel transfer system with a switch which activates the electrically driven fuel transfer pump. A fuel valve provides a backup system for fuel transfer and emergency operation. A fuel quantity indicator shows the quantity of fuel in the fuel tanks. Refer to these Sections for more data on these systems:

- Section 28-10. Fuel storage.
  Storage - Description.
- Section 28-20. Fuel distribution.
  Distribution - Description.
- Section 28-40. Fuel quantity indication.
  Indicating - Description.
- Section 73-00. Engine fuel system.
  Engine fuel and control - Description.

A. Fuel Tanks

A tank located inboard in each wing holds the fuel. Each tank has a fuel filler assembly and a vent connection at the outboard end. Small diameter flexible hoses connect the top outer corners of the tank to the top of the fuel filler just below the cap. Two short hoses connect to the fuel filler.

The main tank (LH) has an usable fuel capacity of 25.0 US gal (94.6 liter) and the aux tank (RH) has an usable fuel capacity of 24.0 US gal (90.8 liter).

Each wing tank assembly has three separate chambers. The chambers are connected by large diameter flexible hoses. Smaller hoses interconnect the chambers at the top to provide a vent system for the fuel tank assembly.

Each tank has a fuel drain and a finger filter at the connection to the fuel feed line. The fuel feed outlet of the right tank (aux tank) connects to the fuel valve and the transfer pump. The outlet from the transfer pump connects to the fuel feed line of the left tank (main tank).

Fuel level sensors and fuel quantity probes are installed in both fuel tanks. The right tank (aux tank) has a transfer pump shut-off switch (low fuel level sensor) located at the bottom inner corner. The left tank (main tank) has a transfer pump shut-off switch (high fuel level sensor) located at the top outer corner. The left tank (main tank) also has a switch for the FUEL LOW caution light (low fuel sensor) located at the bottom inner corner.

The fuel quantity probes go from the bottom inner corner of each tank to the top outer corner. The fuel level changes the probe electrical properties. The fuel quantity system measures the probe capacitance. It uses the value as an analogue of fuel quantity. The value for each tank is shown on the MFD of the G1000 NXi.

A fuel temperature sensor is installed in each fuel tank. The LH and RH fuel temperatures are indicated on the MFD of the G1000 NXi.

To cool down the hot return fuel a fuel cooler is installed in the return line from the right tank (aux tank) to the left tank (main tank) direct at the right tank (aux tank).

Flexible hoses connect the fuel tanks in the wings to the fuel valve and electrically driven fuel pumps in the center fuselage. A gascolator attaches to the fuel valve. The gascolator has a filter and a fuel drain valve. A flexible hose connects the gascolator to the electrically driven fuel pumps.

An engine driven high pressure pump supplies the fuel to the engine fuel injection system. A return line from the engine connects to the right wing tank (aux tank). A loop of pipe inside the right tank (aux tank) functions as a heat exchanger to cool the return fuel. A flexible hose connects the outlet of the loop via a fuel cooler to the left tank (main tank).

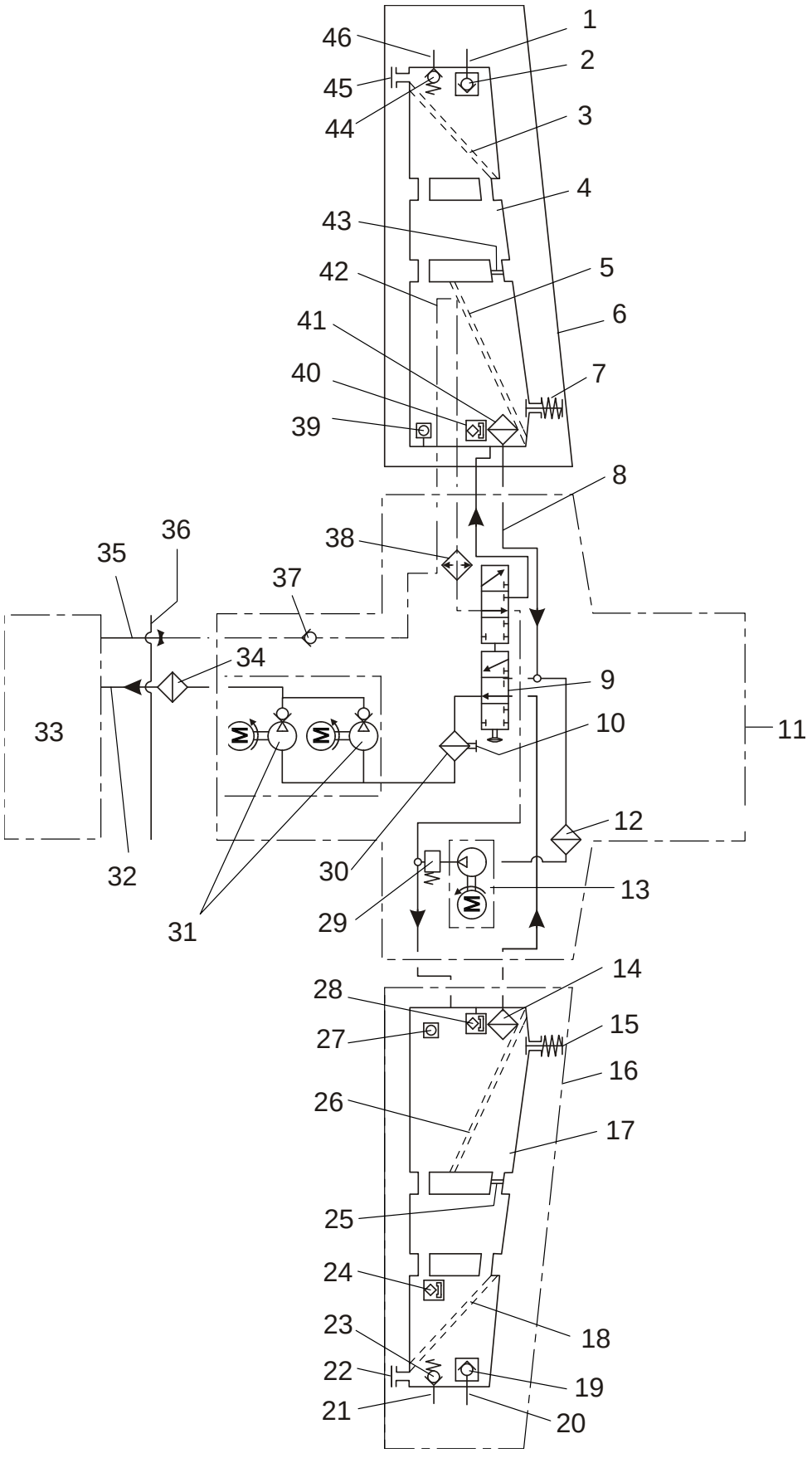


Figure 1 - Fuel System Schematic Drawing

Legend

[1, Fig.1]	Fuel Tank Vent	[24, Fig.1]	High Fuel Transfer Switch
[2, Fig.1]	Check Valve with Capillary	[25, Fig.1]	Flapper Valve
[3, Fig.1]	Fuel Quantity Probe	[26, Fig.1]	Fuel Quantity Probe
[4, Fig.1]	Fuel Tank	[27, Fig.1]	Fuel Temp Sensor
[5, Fig.1]	Fuel Quantity Probe	[28, Fig.1]	Low Fuel Sensor
[6, Fig.1]	Wing RH	[29, Fig.1]	Solenoid Valve
[7, Fig.1]	Drain	[30, Fig.1]	Gascolator
[8, Fig.1]	Fuel Transfer Line	[31, Fig.1]	Fuel Pumps
[9, Fig.1]	Fuel Valve	[32, Fig.1]	Fuel Supply
[10, Fig.1]	Drain	[33, Fig.1]	Engine
[11, Fig.1]	Fuselage	[34, Fig.1]	Fuel Fine Filter
[12, Fig.1]	Transfer Pump Filter	[35, Fig.1]	Return Line
[13, Fig.1]	Electric Transfer Pump	[36, Fig.1]	Firewall
[14, Fig.1]	Finger Filter	[37, Fig.1]	Check Valve
[15, Fig.1]	Drain	[38, Fig.1]	Fuel Cooler
[16, Fig.1]	Wing LH	[39, Fig.1]	Fuel Temp Sensor
[17, Fig.1]	Fuel Tank	[40, Fig.1]	Low Fuel Transfer Switch
[18, Fig.1]	Fuel Quantity Probe	[41, Fig.1]	Finger Filter
[19, Fig.1]	Check Valve with Capillary	[42, Fig.1]	Cooling Loop
[20, Fig.1]	Fuel Tank Vent	[43, Fig.1]	Flapper Valve
[21, Fig.1]	Fuel Tank Vent	[44, Fig.1]	Pressure Relief Valve
[22, Fig.1]	Fuel Filler	[45, Fig.1]	Fuel Filler
[23, Fig.1]	Pressure Relief Valve	[46, Fig.1]	Fuel Tank Vent

28-00-02 Fuel System

Description of function

1. Fuel System Operation

A. Normal Operation

Fuel flows through the finger filter of the left tank to the fuel valve. From the valve it flows through the gascolator. The gascolator functions also as a water separator. From there the fuel flows to the electrically driven fuel pumps and fuel fine filter to the engine.

The fuel pumps always supply more fuel than the fuel injection system can use. The residual fuel flows back though the cooling loop in the right fuel tank. Heat transfers from the return fuel to the cold fuel in the right tank. The return fuel flows from the cooling loop to the left tank via an additional fuel cooler.

This process keeps the fuel warm in both tanks when the airplane operates in cold conditions.

As the engine uses fuel, the fuel level in the left tank decreases. A vent system allows to equalize tank and outside pressure. This prevents the tank pressure from decreasing to less than atmospheric pressure, and allows the fuel pumps to continue to take fuel from the tank.

B. Fuel Transfer

As the engine uses fuel, the fuel level in the left tank decreases. The fuel level in the right tank does not change. To balance the tank contents, the electric transfer pump moves fuel from the right tank to the left tank. It is operated through a switch (marked FUEL TRANS←) on the left of the instrument panel.

The high fuel sensor in the left tank outer top corner automatically switches off the fuel transfer pump when the fuel level is high in the left tank. The low fuel sensor in the right tank inner bottom corner automatically switches off the fuel transfer pump when the fuel level is low in the right tank.

C. Emergency Operation

In an emergency (for example, the transfer pump fails) you can set the fuel valve to connect the right tank transfer line to the fuel supply line. This is the EMERGENCY setting. The engine takes fuel from the right tank. However, the return fuel still flows through the cooling loop to the left tank. As fuel is used from the right tank, the level of fuel in the left tank will increase.

D. Shut-Off Valve Function

During the usual operation, the shut-off function of the fuel valve is used only to isolate the fuel system when the engine is not operating. In an emergency, the shut-off valve function is used to stop all fuel flow to the engine.

E. Refueling

Add fuel to the system through the fuel fillers on top of each wing. Fuel flows down the large filler tube to the related tank. Air in the tank can escape back past the fuel. As the tank becomes full, the air can also escape through the hoses between the tank and the fuel filler.

F. Fuel Drains

You can use the fuel drain valve in each tank and the drain valve in the gascolator (flush push to drain) to defuel the airplane. Also use it to drain a small quantity of fuel to test for water or other contamination. Push the bottom part of the valve at the fuel tanks up to release fuel. A spring inside the valve closes it automatically. The gascolator drain has to be pushed down to release fuel.

28-10
FUEL STORAGE SYSTEM

28-10-01 Storage

Description

1. Fuel Storage System

This Section describes the following components of the fuel storage system for the DA 50 C airplane:

- Fuel tanks.
- Fuel filler assembly.
- Fuel tank vents.

Refer to 28-00 Fuel System - Description for a general description of the fuel system and a schematic of the fuel system.

A. Fuel Tanks

Figure 1 and Figure 2 show the fuel tank installation. The airplane has two fuel tank assemblies. One in the left wing (main tank) and one in the right wing (aux tank). The main tank (LH) has a usable capacity of 25 US gal (94.6 liter), the aux tank (RH) has a usable capacity of 24 US gal (90.8 liter). The tanks are located in the inner part of each wing.

Three chambers connected by flexible couplings make the fuel tank assembly. Each chamber is a welded aluminum structure. Each chamber has an oval cross section and flat end plates. Baffles in the chambers prevent the fuel from moving quickly from one end of the tank to the other. The chambers have bosses welded into the end plates to make connections for the flexible hoses and other components that attach to the end plates of the chambers.

A tank outlet is located at the inboard end plate of the inner chamber. A finger filter at the tank outlet prevents debris from entering the engine fuel systems. A drain valve is located at the lower surface of the inner chamber. You can use this drain valve to check for fuel contamination and for draining the fuel tanks.

A fuel temperature sensor and a low fuel sensor are also mounted on the inboard end plate of the inner fuel tank chamber. The fuel return/transfer line also connects to the inboard end plate. The outer end plate of the inner chamber has mountings for the flexible connecting hose.

The end plates of the middle chamber have fittings attached for the flexible connecting hoses that join the middle chamber to the inner and outer chambers.

The inboard end plate of the outer fuel chamber has fittings attached for the flexible connecting hose and a fuel high level switch (only LH). The inboard end plate also has fittings attached for the fuel tank vents. The top surface of the outboard fuel tank has an attachment for the fuel filler assembly.

Fuel level sensors are installed in both the inner and outer chambers. The sensors go from the lower inboard corner to the upper outboard corner of each chamber. The signals from the sensors are displayed on the MFD of the integrated cockpit system. Refer to 28-40 Indicating - Description for more data about the fuel indicating system.

Ribs and the two main spars of the wings hold the fuel tank chambers in position. Rubber strips go between the tank chambers and the ribs. The filler cap assembly is attached to the upper surface of the wing with screws which holds the tank assembly in position.

B. Fuel Filler Assembly

Figure 1 and Figure 2 also show the fuel filler assembly. It is a welded tubular aluminum component, approximately 75 mm (3 in) in diameter. The outboard end has a flange that attaches to the top skin of the wing. It also has slots that engage the fuel filler cap.

The filler cap has a locking lever. You pull the locking lever up and turn the filler cap counter-clockwise to release it. You turn the cap clockwise to install it and push down the locking lever to lock it. The area just below the flange has four adapters for the vent system hoses.

NOTE

If the filler cap operates too easily, then fuel can leak out. Leaking fuel can cause the paint finish to become yellow.

A short flexible coupling attaches the fuel filler assembly to the outer face of the fuel tank. Two worm drive clamps at each end hold the flexible coupling to the tank and the fuel filler assembly. Two small diameter flexible hoses connect the vent adapters at the top of the tank to the two inboard adapters on the fuel filler flange.

A bleed type check valve is screwed into one of the two outer adapters on the filler flange. A short flexible hose connects the bleed type check valve to an adapter in the outer fuel tank access panel at the bottom surface of the wing.

A second short flexible hose connects to the other outer adapter on the fuel filler flange. It has a restrictor (right wing) or relief valve (left wing) in it. It connects to an adapter in the outer fuel tank access panel at the bottom surface of the wing.

Bonding strips connect the tank to the fuel filler assembly and the airplane bonding system.

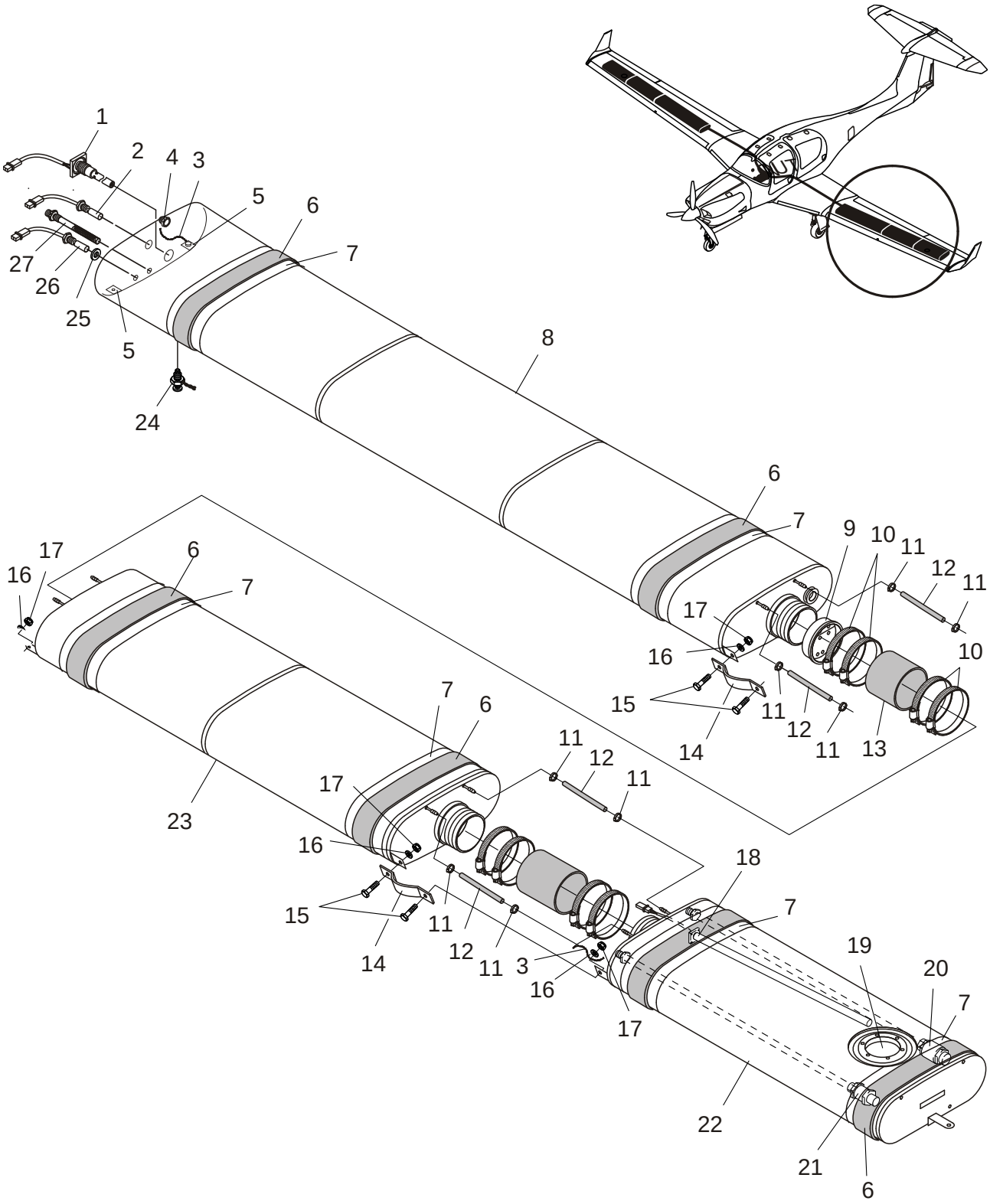


Figure 1 - Main Tank - Left Hand Fuel Tank Installation

Legend

[1, Fig.1]	Fuel Quantity Probe
[2, Fig.1]	Low Fuel Sensor
[3, Fig.1]	Bonding Wire
[4, Fig.1]	Fuel Return Fitting
[5, Fig.1]	Bonding Connection
[6, Fig.1]	Rubber Band
[7, Fig.1]	Scotch Glide Band
[8, Fig.1]	Inboard Fuel Chamber
[9, Fig.1]	Fuel Tank Flapper Valve
[10, Fig.1]	Worm Drive Clamp
[11, Fig.1]	Oetiker 1 - Ear Clamp
[12, Fig.1]	Vent Hose
[13, Fig.1]	Flexible Coupling
[14, Fig.1]	Connecting Link
[15, Fig.1]	Screw
[16, Fig.1]	Washer
[17, Fig.1]	Nut
[18, Fig.1]	Fuel Quantity Probe
[19, Fig.1]	Tank Filler
[20, Fig.1]	Pressure Relief Valve
[21, Fig.1]	Check Valve
[22, Fig.1]	Outboard Fuel Chamber
[23, Fig.1]	Middle Fuel Chamber
[24, Fig.1]	Drain Valve
[25, Fig.1]	Copper Seal
[26, Fig.1]	Fuel Temperature Sensor
[27, Fig.1]	Finger Filter

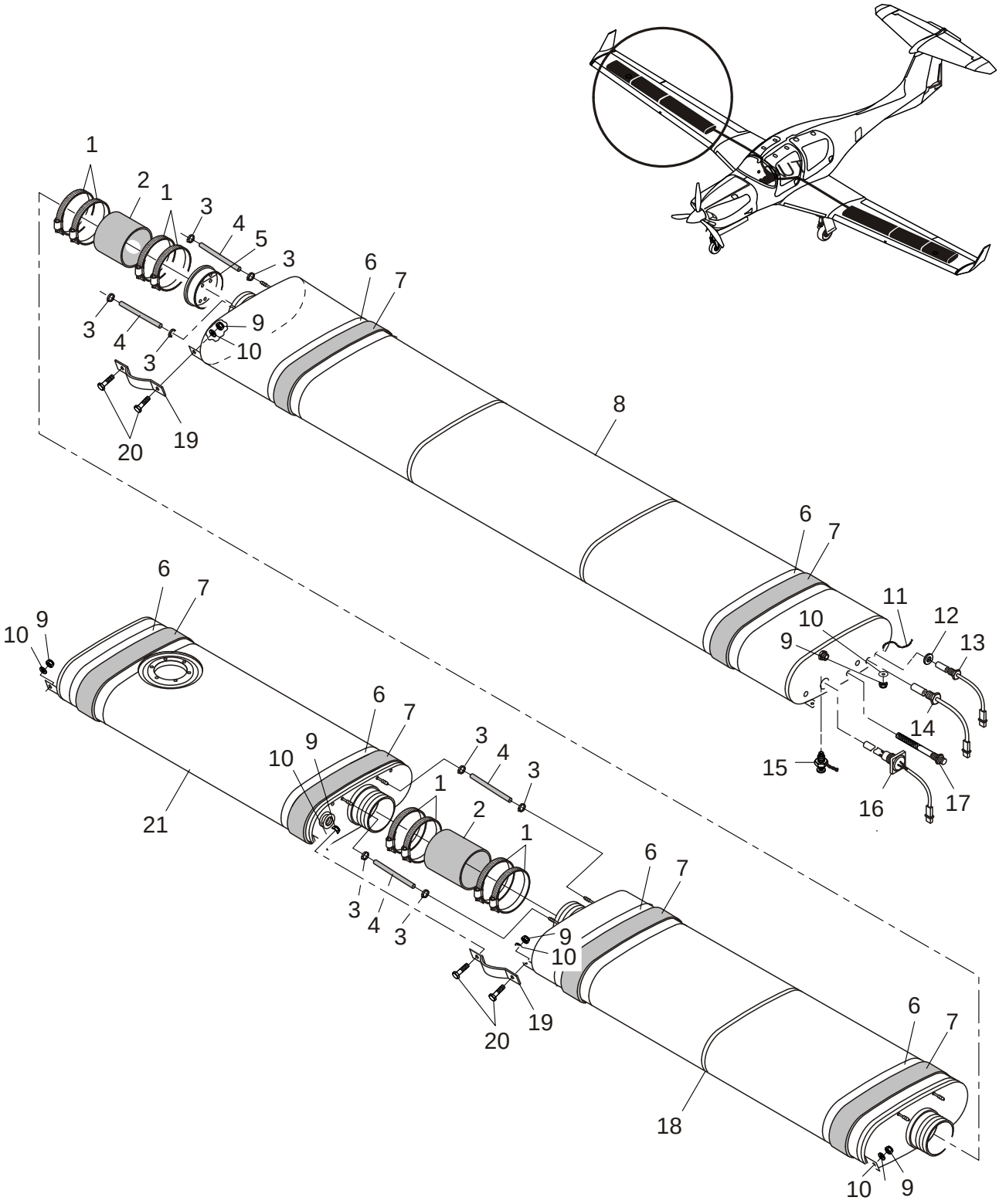


Figure 2 - Aux Tank - Right Hand Fuel Tank Installation

Legend

[1, Fig.2]	Worm Drive Clamp
[2, Fig.2]	Flexible Coupling
[3, Fig.2]	Oetiker 1 - Ear Clamp
[4, Fig.2]	Vent Hose
[5, Fig.2]	Fuel Tank Flapper Valve
[6, Fig.2]	Scotch Glide Band
[7, Fig.2]	Rubber Band
[8, Fig.2]	Inboard Fuel Chamber
[9, Fig.2]	Nut
[10, Fig.2]	Washer
[11, Fig.2]	Bonding Wire
[12, Fig.2]	Copper Seal
[13, Fig.2]	Temperature Sensor
[14, Fig.2]	Low Fuel Warning Sensor
[15, Fig.2]	Drain Valve
[16, Fig.2]	Fuel Quantity Probe
[17, Fig.2]	Fuel Strainer / Finger Filter
[18, Fig.2]	Middle Fuel Chamber
[19, Fig.2]	Connecting Link
[20, Fig.2]	Screw
[21, Fig.2]	Outboard Fuel Chamber

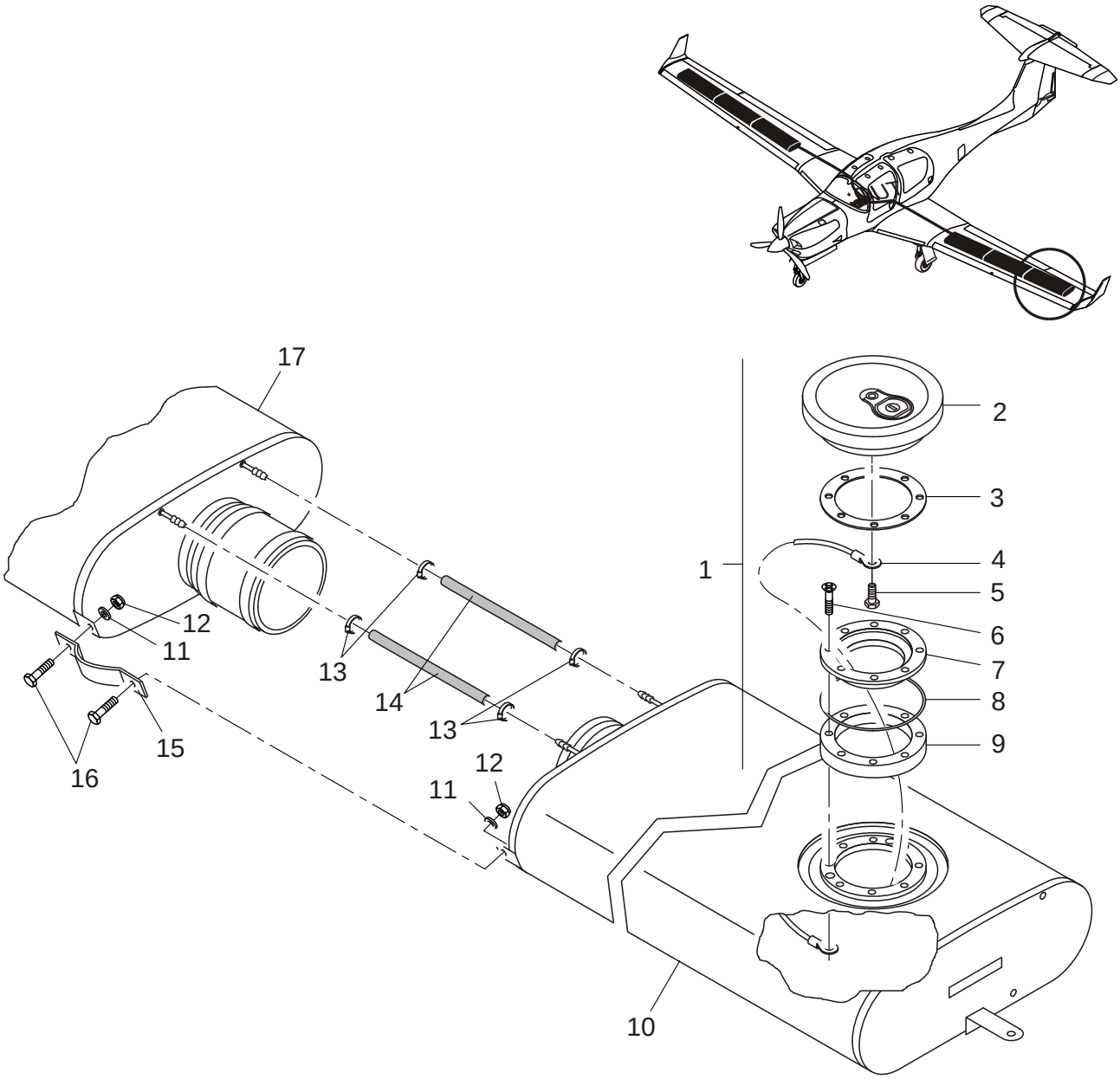


Figure 3 - Fuel Filler Assembly LH

Legend

[1, Fig.3]	Fuel Filler Assembly
[2, Fig.3]	Fuel Filler Cap
[3, Fig.3]	Gasket
[4, Fig.3]	Fuel Cap Retrainer
[5, Fig.3]	Screw
[6, Fig.3]	Screw
[7, Fig.3]	Flange Neck
[8, Fig.3]	O-Ring
[9, Fig.3]	Lower Flange
[10, Fig.3]	Outboard Fuel Tank
[11, Fig.3]	Washer
[12, Fig.3]	Nut
[13, Fig.3]	Oetiker 1-Ear Clamp
[14, Fig.3]	Vent Hoses
[15, Fig.3]	Connecting Link
[16, Fig.3]	Screw
[17, Fig.3]	Middle Fuel Tank

28-10-02 Storage

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Filler cap is leaking.

1A. Check the filler cap gasket.

Is the filler cap gasket damaged?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace filler cap gasket.

1C. Check the filler cap fit.

Does the filler cap fit tight?

Yes - go to step 1D.

No - go to step 1E.

1D. Tighten nut on lower side of cap.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Fuel drain valve leaking.

2A. Check the drain valve.
Is the drain valve damaged?
Yes - go to step 2B.
No - go to step 2C.

2B. Replace the fuel drain valve.

2C. Check the drain valve for contamination.
Is there contamination in the drain valve?
Yes - go to step 2D.
No - go to step 2E.

2D. Open and close drain valve to flush containment. Do this until the drain seals. If the drain does not seal then replace the drain valve.

2E. Contact DAI.

28-10-03 Fuel Tank Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the Fuel Tank Assembly

(1) Make sure that the fuel tank that you will remove is empty.

Defuel and drain the fuel tank.

(2) Remove the outer wing which has the fuel tank that you will remove and support the wing on trestles.

Refer to 57-10 Wing structure - Remove procedure.

(3) Remove the fuel tank assembly access panels from the lower surface of the wing.

Refer to 52-40 Access Panels - Description.

(4) Remove the fuel drain valve:

- Cut the lock-wire.

- Remove the drain valve from its mounting.

(5) Remove the fuel tank access panels from the wing root rib:

- Remove the 11 nuts and washers that attach the access panel to the wing root.
- Move the access panel clear of the wing root.

(6) Disconnect the electrical connector for the fuel quantity probe at the inboard end of the outer fuel chamber.

(7) Release the bonding strip from the inboard end of the tank assembly:

- Remove the nut and washer from the bolt.
- Remove the bonding strip from the bolt and move it clear of the tank.
- Remove the bolt.

(8) Remove the fuel vent line access panel. Near the outboard end of the lower wing:

- Remove the access panel from the outer lower surface of the wing.
  Refer to 52-40 Access Panels - Description.

(9) Disconnect the bonding wire cable from the fuel tank access panel:

- Remove the nut and washer from the bolt.
- Remove the bonding strip from the bolt and move it clear of the tank.
- Remove the bolt.

(10) Remove the fuel filler assembly:

- Remove the fuel filler cap.
- Remove the 8 screws that attach the filler flange to the to the fixing ring in the outer fuel chamber.
  Note the location of the bonding cable.
- Remove the filler flange, the O-ring seal, the spacer ring and the fixing ring.
  Discard the O-ring seal.

(11) Remove the fuel tank assembly:

- Remove the nut, washer and bolt that attaches the outer fuel chamber to the retaining bracket in the wing.
- Gently pull the fuel tank assembly out of the wing through the wing root rib. Move the tank clear of the wing and support the tank on a clean workbench.

28-10-04 Fuel Tank Assembly

Disassemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Disassemble the Fuel Tank Assembly

(1) Remove the fuel tank assembly that you will disassemble and support on a clean workbench.

Refer to 28-10 Fuel Tank Assembly - Remove procedure

(2) Remove the connecting link that attach the inboard fuel chamber to the middle fuel chamber:

- Remove the nuts, washers and bolts that attach each end of the link to the fuel chambers.
- Move the link clear of the fuel chambers.

(3) Remove the connecting link that attach the middle fuel chamber to the outboard fuel chamber:

- Remove the nuts, washers and bolts that attach each end of the link to the fuel chambers.
- Move the link clear of the fuel chambers.

(4) Remove the vent connector hoses that connect the inboard fuel chamber to the middle fuel chamber:

- Remove the hose clips from the 2 hoses.
- Pull the hoses off the fuel chamber connectors and clear of the fuel chambers.

(5) Remove the vent connector hoses that connect the middle fuel chamber to the outboard fuel chamber:

- Remove the hose clips from the 2 hoses.
- Pull the hoses off the fuel chamber connectors and clear of the fuel chambers.

(6) Remove the flexible coupling that connects the inboard fuel chamber to the middle fuel chamber:

- Remove the worm drive clamps from the flexible coupling.
- Pull the flexible coupling off the fuel chamber connectors and clear of the fuel chambers.

(7) Remove the flexible coupling that connects the middle fuel chamber to the outboard fuel chamber:

- Remove the worm drive clamps from the flexible coupling.
- Pull the flexible coupling off the fuel chamber connectors and clear of the fuel chambers.

28-10-05 Fuel Tank Assembly

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Preparation for Assemble/Install the Fuel Tank Assembly

(1) Examine the fuel chambers. Look specially for:

- Damage to the skins and welded seams of the chambers.
  Use a x 10 magnifying glass.
- Corrosion.
- Damage/wear to the rubber mounting bands which go around the outside of the fuel chambers.

(2) Examine all the flexible hoses and couplings which connect the fuel chambers together. Look specially for:

- Cuts or damage, specially at the ends where the clips and worm drive clamps locate.
- Distortion or cracking.

(3) Examine the fuel filler flange on the outer fuel chamber. Look specially for:

- Corrosion on the mating surfaces.
  Use a strong light and x 10 magnifying glass.
- Cracking around the flange.

(4) Make sure that the insides of all the fuel chambers are clean.

28-10-06 Fuel Tank Assembly

Assemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Assemble the Tank

(1) Lay the fuel chambers on a clean workbench in the order in which you will assemble them.

(2) Install the flexible coupling that connects the outboard fuel chamber to the middle fuel chamber:

- Push a flexible coupling over the large connector on the outboard fuel cell.
- Move the middle fuel chamber towards the outer fuel chamber until the large connector engages with the open end of the flexible coupling.
- Push the fuel chambers together until the flexible coupling is fully located of the fuel chamber connectors.
- Install the worm drive clamps onto the flexible couplings.
  Torque: 3 Nm (2.21 lbf.ft.). Refer to Special Torque Values - Description.

(3) Install the flexible coupling that connects the inboard fuel chamber to the middle fuel chamber:

- Install the fuel tank flapper on the large connector of the inboard fuel chamber.
- Push a flexible coupling over the large connector on the middle fuel chamber.
- Move the inboard fuel chamber towards the middle fuel chamber until the large connector engages with the open end of the flexible coupling.
- Push the fuel chambers together until the flexible coupling is fully located of the fuel chamber connectors.
- Install the worm drive clamps onto the flexible couplings.
  Torque: 3 Nm (2.21 lbf.ft.). Refer to Special Torque Values - Description.

(4) Install the flexible vent hoses that connect the middle fuel chamber to the outboard fuel chamber:

- Install 2 flexible hoses over the vent connectors on the outboard fuel chamber.
- Install the other end of the 2 flexible hoses on the vent connectors of the middle fuel chamber.
- Install the worm-drive-clamps onto the flexible hoses.
- Install the vent lines of the outboard fuel chamber which vent to the outside of the wing.

(5) Install the flexible vent hoses that connect the inboard fuel chamber to the middle fuel chamber:

- Install 2 flexible hoses over the vent connectors on the middle fuel chamber.
- Install the other end of the 2 flexible hoses on the vent connectors of the inboard fuel chamber.
- Install the worm drive clamps onto the flexible hoses.

(6) Install the connecting links that connect the fuel chambers together:

- Move the link into position between the outboard fuel chamber and the middle fuel chamber.
- Install the bolts, washers and nuts that attach the connecting link to the fuel chambers.
- Move the link into position between the middle fuel chamber and the inboard fuel chamber.
- Install the bolts, washers and nuts that attach the connecting link to the fuel chambers.

28-10-07 Fuel Tank Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install the Tank Assembly

(1) Move the tank assembly into position in the wing.

Make sure that the tank assembly is correctly located in the wing.

(2) Install the fuel filler assembly:

- Make sure that the mounting in the outboard fuel chamber is correctly aligned with the hole in the top surface of the wing.
  If necessary, move the tank assembly to give the correct alignment.
  Apply sealant to the tank filler mounting. Use WEICON GmbH Plast-O-Seal or equivalent. Follow the sealant manufacturer's instructions.
- Install the spacer ring onto the tank filler mounting.
- Install a new O-ring seal in position over the spacer ring.
  Make sure that the O-ring is correctly positioned.

- Install the bonding wire cable.
  At the position noted in 28-10 Fuel Tank Assembly - Remove procedure.
  Apply sealant to the top face of the spacer ring. Use WEICON GmbH Plast-O-Seal or equivalent. Follow the sealant manufacturer's instructions.
- Install the 6 screws which attach the fuel filler to the outboard fuel chamber.
  Finger tight only.
- When all 6 screws are installed, then tighten the screws.
  Tighten opposite screws.
  Important: be sure to remove any excess sealant squeeze-out from the fuel filler assembly.

(3) Install the bolt, washer and nut that attaches the bracket at the outboard end of the outboard fuel chamber to the bracket in the wing.

(4) Install the bonding strip at the inboard end of the tank assembly:

- Install the bolt through the bracket on the fuel chamber and the bonding strip.
- Install the washer and nut onto the bolt.

(5) Install the fuel vent line access panel:

- Install the access panel from the outer lower surface of the wing.

(6) Connect the bonding cable to the fuel tank access panel:

- Install the bolt through the bonding cable and the bonding bracket.
- Install the washer and nut onto the bolt.

(7) Connect the electrical connector for the fuel quantity probe at the inboard end of the outer fuel chamber.

At the inline connector.

(8) Install the fuel tank access panel at wing root rib:

- Move the access panel into position over the studs.
- Install the 11 washers and nuts that attach the panel to the wing root rib.

(9) Install the fuel drain valve on the lower surface of the inboard fuel chamber:

- Install a new seal onto the fuel drain.
- Install the fuel drain valve into the lower surface of the fuel chamber.
  Torque: 1 - 3 Nm (0.74 - 2.21 lbf.ft).
  Refer to Special Torque Values - Description.
- Secure the drain valve with lock-wire.

(10) Install the wing assembly onto the airplane.

Refer to 57-10 Wing structure - Install procedure.

(11) Refuel or transfer fuel into the wing tank assembly that you removed and do a test for fuel leaks. Look specially at the hose connections and around the fuel filler assembly.

Refer to 12-10 Fuel - Refuel.

(12) Install all the fuel tank access panels in the lower surface of the wing.

Refer to 52-40 Access Panels - Description.

(13) Do an engine ground run up. Refer to 71-00 Engine - Operation Test. Make sure that:

- Make sure that the fuel quantity and temperature indications operate correctly.
- Make sure that the FUEL LOW caution on the integrated cockpit system display panel operates at the correct fuel level.

28-20
DISTRIBUTION

28-20-01 Distribution

Description

1. Fuel Distribution System

This Section describes the fuel distribution system of the DA 50 C airplane. The fuel distribution system supplies fuel from the fuel tanks to the engine. The following components are part of the fuel distribution system:

- Flexible fuel hoses.
- Fuel valve.
- Fuel gascolator with filter.
- Fine fuel filter.
- Electric fuel transfer pump.
- Electrically driven fuel pumps.
- Fuel cooler and check valve.

Refer to 28-00 Fuel System - Description for a general description of the fuel system and for the schematic diagram of the fuel system.

Figure 1 shows the main components of the fuel distribution system for the DA 50 C.

A flexible fuel hose connects the left wing fuel tank to the fuel valve. The fuel valve is located in the center fuselage, below the cockpit floor. The fuel valve connects to the gascolator.

Flexible hoses connect the outlet of the gascolator to the fuel pump assy. A fuel line connects the the fuel pumps to the fuel fine filter and then to the engine driven low pressure fuel pump and from there to the engine driven high pressure fuel pump.

The fuel return line from the engine is routed through the firewall and connects to a check valve in the fuselage. From there a fuel line connects to the cooling loop inlet of the right wing tank. The cooling loop outlet from the right tank leads to the fuel cooler and then via the return line to the return inlet of the left fuel tank.

A flexible hose connects the right wing tank outlet to the emergency inlet of the fuel valve. A flexible hose from the T-fitting connects to a check valve and further to the inlet of the fuel transfer pump. Another flexible hose leads from the outlet of the fuel transfer pump to the fuel fine filter.

A. Fuel System Components

(1) Flexible Hoses

The fuel system uses synthetic flexible hoses. The flexible fuel lines in the engine compartment have integral fire-protection sleeves.

Use only approved flexible hoses in the fuel system.

(2) Fuel Valve

The fuel valve is located below the cockpit floor. It is a duplex valve. A shaft connects the valve to a control lever which is located in the center console of the cockpit, aft of the engine control assembly.

To move the control lever you must lift a safety lock on top of the lever while you turn the control lever.

If the control lever is set to NORMAL only the left wing tank will supply fuel. If the control lever is set to EMERGENCY then only the right wing tank will supply fuel. If the control lever is set to OFF then fuel will not be supplied from the tanks.

(3) Fuel Gascolator and Filter

The gascolator connects to the fuel valve and is equipped with a fuel filter and a fuel drain. The filter can be removed for cleaning/replacement. Use the fuel drain to drain the fuel distribution system and to drain fuel to test for fuel contamination.

(4) Fine Fuel Filter

A fine fuel filter is located firewall aft and is installed to the firewall via a bracket.

(5) Fuel Transfer Pump

The fuel transfer pump is located in the LH wing stub between the wing spars. Electrical power is supplied from the main electrical bus. The FUEL TRANS← switch in the lower left side of the instrument panel controls the fuel transfer pump. A 5 A circuit-breaker protects the fuel transfer pump electrical system. The pump is a high-pressure rotary pump.

(6) Electrically Driven Fuel Pumps

The two electrically driven fuel pumps are located below the cockpit floor.

(7) Fuel Cooler and Check Valves

The fuel cooler is located in the RH wing stub between the wing spars. It is accessible through the RH main landing gear cover on the bottom side of the RH wing stub.

The fuel return line incorporates a check valve which is located in the fuselage upstream of the auxiliary fuel tank cooling loop.

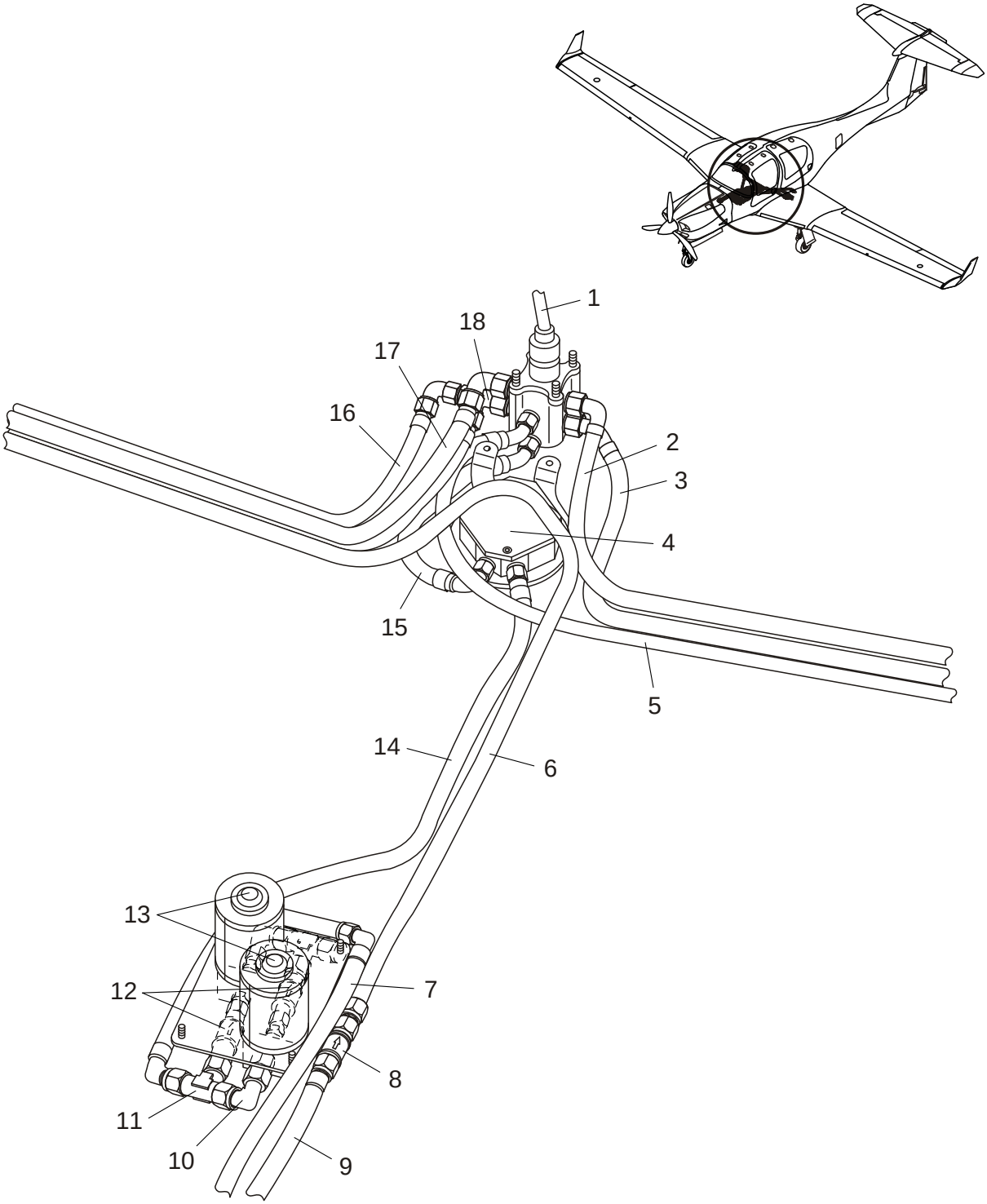


Figure 1 - Fuel System Components in the Fuselage

Legend

[1, Fig.1]	Fuel Selector
[2, Fig.1]	Return Line LH
[3, Fig.1]	Feed Line LH
[4, Fig.1]	Gascolator
[5, Fig.1]	Transfer Line LH
[6, Fig.1]	Cooling Loop Input Line
[7, Fig.1]	Pump Firewall Line
[8, Fig.1]	Check Valve
[9, Fig.1]	Firewall Alt Return
[10, Fig.1]	90° Fitting
[11, Fig.1]	T-Fitting
[12, Fig.1]	Check Valve
[13, Fig.1]	Fuel Pumps
[14, Fig.1]	Gascolator Pump Line
[15, Fig.1]	Gascolator FS Line
[16, Fig.1]	Feed Line RH
[17, Fig.1]	Return Line RH
[18, Fig.1]	Connector

28-20-02 Distribution

Description of function

1. Fuel Transfer System Operation

In the usual operation, fuel flows from the left tank, through the fuel valve to the engine. Return fuel from the engine passes through the cooling loop in the right tank and then into the left tank.

If the FUEL TRANS← switch is set to ON, the transfer pump moves fuel from the right tank to the left tank until either:

- The fuel transfer pump shut-off switch (high fuel sensor) in the left tank senses that the left tank is full. This shuts the pump OFF.
- The fuel transfer pump shut-off switch (low fuel sensor) in the right tank senses that the fuel tank is empty. This shuts the pump OFF.

28-20-03 Distribution

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Airplane smells of fuel.

1A. Examine all hoses and pipes.

Is a hose or pipe leaking?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace damaged or defective components.

1C. Examine all connections.

Are there loose connections?

Yes - go to step 1D.

No - go to step 1E.

1D. Tighten loose connections.

1E. Examine all components.
Is a component leaking?
Yes - go to step 1F.
No - go to step 1G.

1F. Replace defective components.

1G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Fuel does not transfer correctly.

2A. Check the fuel transfer pump circuit-breaker.
Is the fuel transfer pump circuit-breaker set?
Yes - go to step 2C.
No - go to step 2B.

2B. Set the transfer pump circuitbreaker.

2C. Check the fuel transfer pump.
Is the fuel transfer pump defective?
Yes - go to step 2D.
No - go to step 2E.

2D. Replace the transfer pump.

2E. Check the low fuel sensor in right tank.
Is the low fuel sensor in right tank defective?
Yes - go to step 2F.
No - go to step 2G.

2F. Replace the low fuel sensor in right tank.

2G. Check the high fuel sensor in left tank.
Is the high fuel sensor in left tank defective?
Yes - go to step 2H.
No - go to step 2I.

2H. Replace the high fuel sensor in left tank.

2I. Check FUEL TRANS← switch in instrument panel.
Is the FUEL TRANS← switch in instrument panel defective?
Yes - go to step 2J.
No - go to step 2K.

2J. Replace the FUEL TRANS← switch in instrument panel.

2K. Check the wiring.
Is the wiring defective?
Yes - go to step 2L.
No - go to step 2M.

2L. Repair the wiring.

2M. Contact DAI.

28-20-04 Fuel Valve and Gascolator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the Fuel Valve and the Gascolator

Remove the fuel valve and the gascolator as an assembly.

(1) Defuel the airplane.

Refer to 12-10 Fuel - Defuel and drain fuel.

(2) Remove the access panel from the bottom of the fuselage around the gascolator drain valve.

Refer to 52-40 Access Panels - Description.

(3) Drain the fuel from the distribution system.

Use a suitable container. Drain the fuel from the gascolator drain valve.

(4) Disconnect the flexible hose which connects the left fuel tank to the fuel valve, at the valve.

Put caps on the connections.

(5) Disconnect the T-fitting which connects the fuel transfer line.

Put caps on the connections.

(6) Disconnect the fuel line to the fuel pumps.

Put caps on the connections.

(7) Remove the fuel valve and the gascolator:

- Remove the bolts and washers which attach the gascolator mounting bracket.
- Remove the four bolts and washers which attach the fuel valve to the fuselage. Hold the fuel valve!
- Lower the fuel valve and the gascolator clear of the airplane.

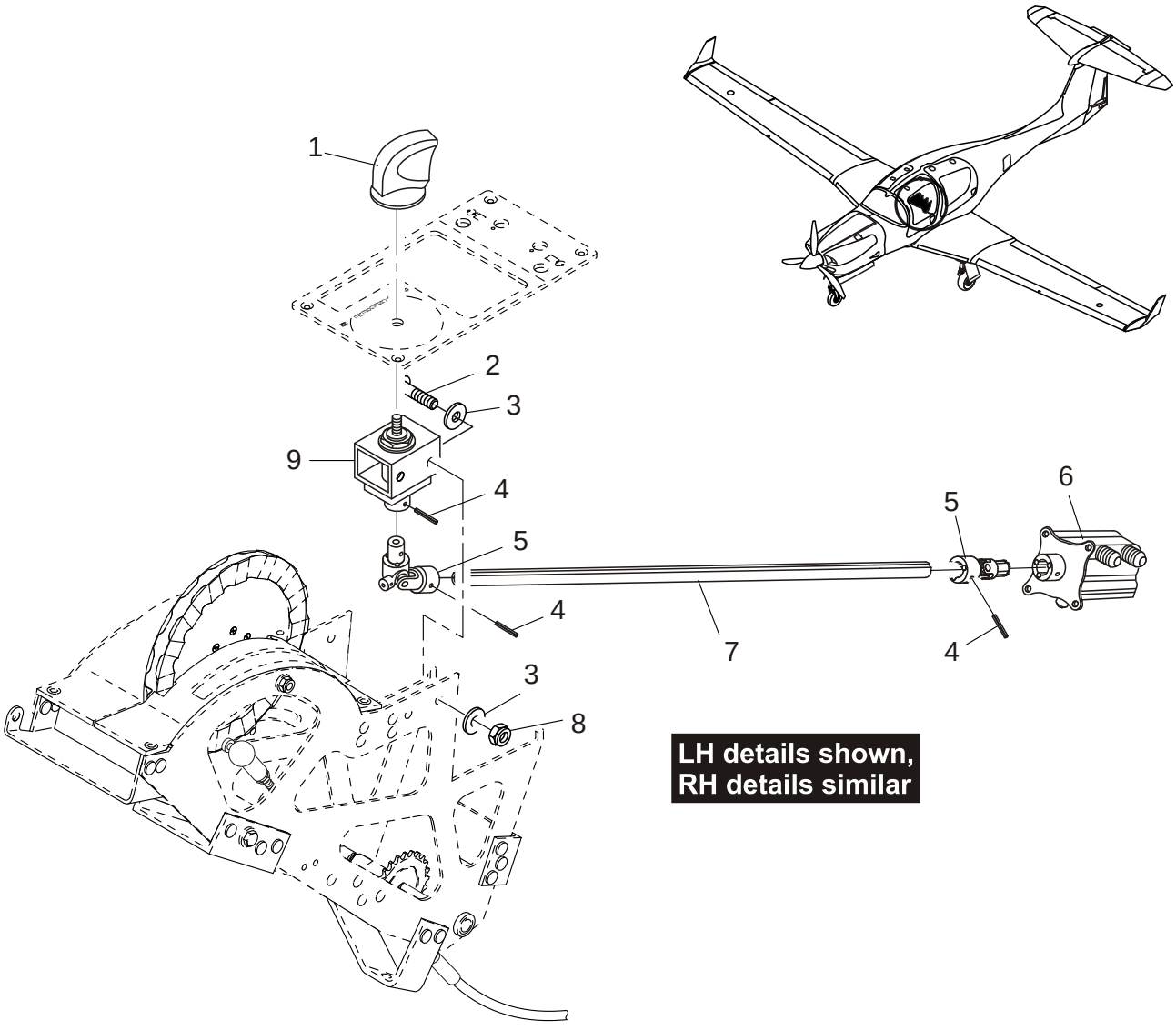


Figure 2 - Fuel Transfer/Shut-Off Valve Installation

Legend

[1, Fig.2] Fuel Selector Lever
[2, Fig.2] Screw
[3, Fig.2] Washer
[4, Fig.2] Pin
[5, Fig.2] Universal Joint
[6, Fig.2] Fuel Selector Valve
[7, Fig.2] Connecting Rod
[8, Fig.2] Nut
[9, Fig.2] Fuel Selector Bracket

28-20-05 Fuel Valve and Gascolator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install the Fuel Valve and the Gascolator

(1) Remove the left pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(2) Move the fuel valve and the gascolator into position in the fuselage.

Make sure that the gascolator mounting bracket is correctly located.

Slide connecting shaft into the mating part of the fuel valve.

Make sure that both the control lever in the cockpit and the fuel valve are at the same position.

(3) Install the fuel valve and the gascolator:

- Install the 4 washers on the 4 bolts.
- Put the bolts and washers into position through the fuel valve into the anchor-nuts.
- Install the bolts and washers which attach the gascolator mounting bracket.
- Tighten the bolts.

(4) Connect the pipe from the gascolator to the firewall.

(5) Connect the T-fitting to the selector valve.

(6) Connect the flexible hose from the left fuel tank to the selector valve.

(7) Refuel the airplane.

Refer to 12-10 Fuel - Refuel.

(8) Do a test for fuel leaks from the connections which you have worked on.

(9) Install the access panel under the fuselage around the gascolator drain valve.

Refer to 52-40 Access Panels - Description.

(10) Install the left pilot's seat.

Refer to 25-10 Pilots Seat - Install procedure.

(11) Do an engine ground run-up. Make sure that the fuel system operates correctly.

28-20-06 Fuel Valve

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

CAUTION

YOU MUST REPLACE THE SOLENOID VALVE IF THE TEST FAILS.

3. Main Procedure

A. Test the Fuel Valve

(1) Remove the cowling.

(2) Set the ENGINE MASTER switch to OFF.

(3) Disconnect the fuel return line from the engine driven fuel pump:

- Remove lock-wire.
- Put caps on open fuel lines.

(4) Connect the external fuel line to the engine driven fuel pump outlet.

(5) Set the fuel valve to NORMAL.

(6) Set the ENGINE MASTER switch to ON.

Catch fuel in a suitable container.

Fuel must flow with a rate of about 3 liter/min.

(7) Turn ON the fuel pump.

Flow rate must be increased.

(8) Turn OFF the fuel pump.

(9) Set fuel valve to EMERGENCY.

Verify that fuel level is reducing in auxiliary fuel tank (see G1000 NXi MFD).

(10) Set the fuel valve to OFF.

Fuel flow must be interrupted.

(11) Set the ENGINE MASTER switch to OFF.

(12) Disconnect the external fuel line from the engine driven fuel pump outlet.

(13) Install the fuel return line to the engine driven fuel pump:

- Install lock-wire.

(14) Install the cowling.

28-20-07 Gascolator Filter

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the Gascolator Filter

(1) Set the fuel valve to OFF.

(2) Remove the access panel under the fuselage around the gascolator drain valve.

Refer to 52-40 Access Panels - Description .

(3) Drain the fuel from the gascolator drain valve.

Use a suitable container.

(4) Remove the lock-wire from the gascolator filter bowl.

Loosen filter bowl.

Hold the filter bowl!

Lower the filter bowl clear of the gascolator.

(5) Extract the retaining ring which holds the filter inside of the gascolator. Remove the filter from the gascolator.

28-20-08 Gascolator Filter

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install the Gascolator Filter

(1) Put the filter into position in the gascolator, install its retaining ring.

(2) Inspect the gascolator seal. Install a new gascolator seal if the seal is damaged.

(3) Install the filter bowl:

- Move the filter bowl into position onto the gascolator.
  Make sure that the seal is correctly positioned and lubricated with fuel lube.
- Tighten the filter bowl with 25 ± 5 Nm (18.44 ± 3.69 lbf.ft). Refer to Special Torque Values - Description.
- Secure the filter bowl with lock-wire.

(4) Do a test for leaks of the gascolator filter bowl:

- Make sure that there is fuel in the left tank.
- Set the fuel valve to NORMAL.
- Examine the gascolator bowl for leaks.
- Set the fuel valve to OFF.

(5) Install the access panel under the fuselage around the gascolator drain valve.
Refer to 52-40 Access Panels - Description .

28-20-09 Fuel Filter Body

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the Fuel Filter Body

(1) Make sure that the related FUEL SELECTOR lever is set to SHUT-OFF.

In the cockpit.

(2) Remove the LH engine cowling.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the fuel filter element:

- Remove the fuel filter cover.
- Remove the worm drive clamp.
- Unscrew the filter body from the filter assembly.

- Use a suitable container to catch spilt fluid.

28-20-10 Fuel Filter Body

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install the Fuel Filter Body

(1) Install the filter body assembly into the fuel filter cap.

Make sure that the integral sealings at the new fuel filter body are not damaged.

(2) Install the worm drive clamp to the fuel filter body.

(3) Do a test for leaks of the filter assembly:

- Make sure that there is fuel in the related fuel tank.
- Set the FUEL SELECTOR lever to the related tank.
- Examine the filter assembly for leaks.

28-20-11 Electrically Driven Fuel Pumps

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove the Electrically Driven Fuel Pumps

(1) Set the ENGINE MASTER to OFF.

(2) Remove the access panel from the bottom fuselage around the gascolator drain valve.

Refer to 52-40 Access Panels - Description .

(3) Disconnect electrical wire from the fuel pumps.

(4) Set the fuel selector to OFF.

(5) Drain the gascolator.

(6) Remove fuel lines to and from the fuel pumps.

(7) Remove the two nuts which attach the fuel pump banjo to the support bracket.

(8) Remove the fuel pump assy:

- Loosen the four worm drive clamps.
- Move the worm drive clamps to each other.
- Remove the fuel pump assy.

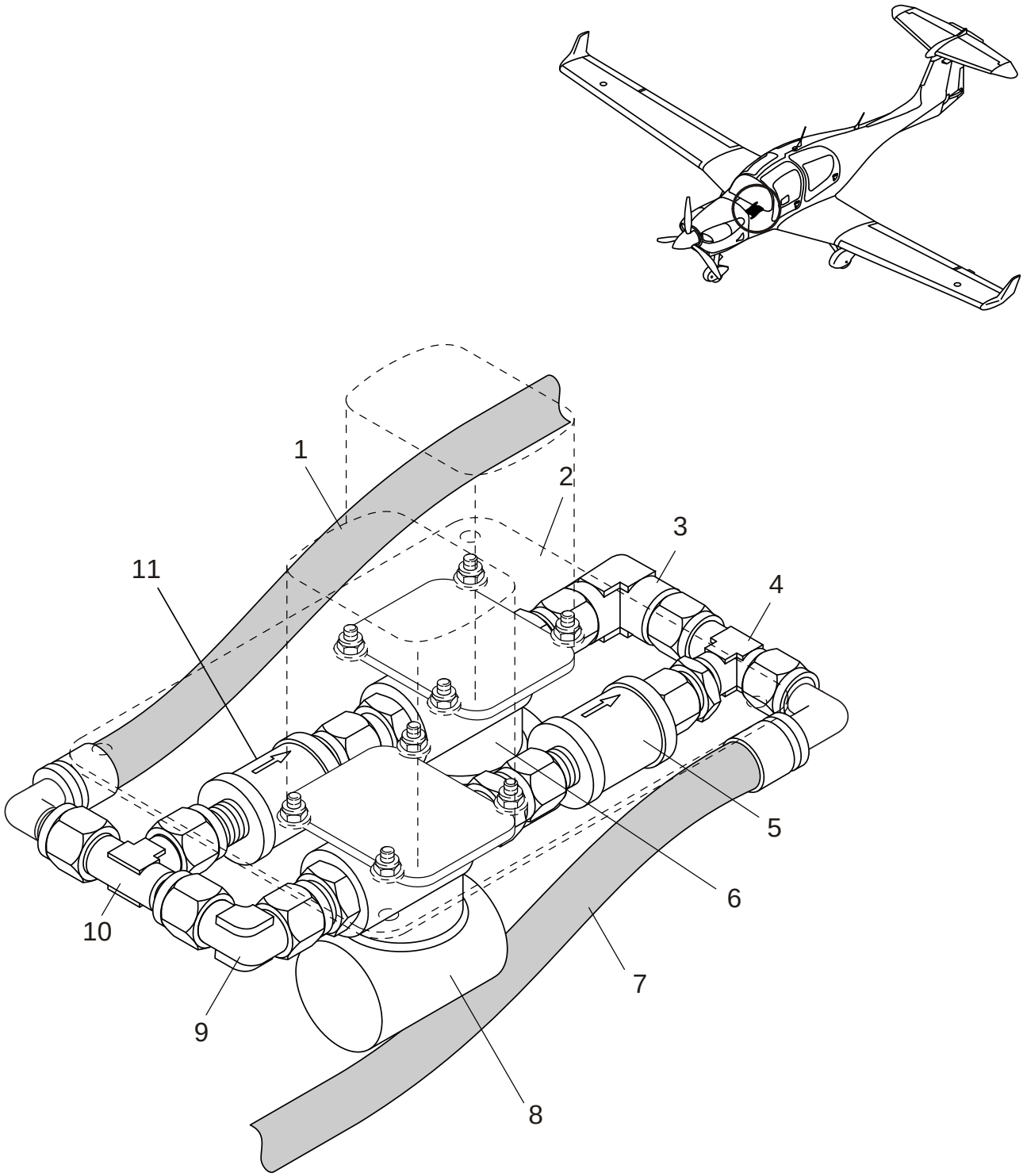


Figure 3 - Fuel Pumps

Legend

[1, Fig.3]	Fuel Line
[2, Fig.3]	Fuel Pump Mounting Plate
[3, Fig.3]	90 Deg. Elbow Fitting
[4, Fig.3]	Swivel Nut Branch Tee
[5, Fig.3]	Check Valve
[6, Fig.3]	Fuel Pump
[7, Fig.3]	Fuel Line
[8, Fig.3]	Fuel Pump
[9, Fig.3]	90 Deg. Elbow Fitting
[10, Fig.3]	Swivel Nut Branch Tee
[11, Fig.3]	Check Valve

28-20-12 Electrically Driven Fuel Pumps

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install the Electrically Driven Fuel Pumps

(1) Install the fuel pump assembly and tighten the four worm drive clamps.

(2) Install and tighten the two nuts which attach the fuel pump banjo to the support bracket.

(3) Connect the electrical wires of the fuel pumps to the airplane electrical system.

(4) Install the access panel under the fuselage around the gascolator drain valve.

Refer to 52-40 Access Panels - Description.

(5) Conduct an engine ground run.

Refer to 71-00 Engine - Operation Test.

(6) Inspect the airplane for fuel leakage.

28-20-13 Fuel Transfer Pump Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the Fuel Transfer Pump

(1) Defuel the airplane.

Refer to 12-10 Fuel - Defuel and drain fuel.

(2) Remove the cover plate next to the left main landing gear.

(3) Disconnect the electrical connector from the fuel transfer pump.

(4) Disconnect both fuel lines from the transfer pump.

Mark fuel lines for ease of assembly.

(5) Remove the P-clamps and the fuel transfer pump.

(6) Disconnect the ground wire from the fuel transfer pump.

Mark position of ground wire.

(7) Remove the fuel transfer pump.

28-20-14 Fuel Transfer Pump Assembly

Disassemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Disassemble the Fuel Transfer Pump Assembly

(1) Loosen jam nuts on 90° fittings and remove fittings from ”in” and ”out” port of the pump.

Note the installation direction of the fittings.

(2) Remove O-rings from the fittings.

Discard O-rings.

(3) Remove the drain fitting.

Hold the drain fitting.

(4) Remove lock wire from bolt of pump housing which holds the bonding cable.

(5) Remove bolt and bonding cable.

Hold the bonding cable.

(6) Re-install bolt.

(7) Put caps on the open connections.

28-20-15 Fuel Transfer Pump Assembly

Assemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Assemble a New Fuel Transfer Pump Assembly

(1) Cut electrical wires and crimp connectors onto the ends.

Length: 24 cm (9.4 in).

(2) Fix pins in the housing and apply appropriate chafing protection on the wires.

There is no sensitivity to the polarity.

(3) Examine the thread and the conical seats of the fittings.

(4) Install new O-rings on the fittings.

(5) Remove protective caps from the pump and install the fittings to the pump ”in” and ”out” ports.

Observe the installation direction of the fittings.

(6) Tighten the jam nuts.

(7) Install the enclosed new screw on top of the pump housing.
"Top" means related to the installation in the airplane.

(8) Install the drain fitting on the bottom side of the pump housing.

(9) Remove one of the top bolts from the pump housing.
"Top" means related to the installation in the airplane.
Remove the lock wire.

(10) Grind housing around the hole where the bolt is removed.
To get electrical conductivity.

(11) Install bolt together with the bonding cable and tighten the bolt.

(12) Install new lock wire on the bolts.

(13) Seal the grinded area around bolt of the pump housing with paint.
To prevent corrosion.

28-20-16 Fuel Transfer Pump Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install the Fuel Transfer Pump

(1) Move the fuel transfer pump into position.

(2) Connect the ground wire to the previous marked position at the fuel transfer pump.

As marked in 28-20 Fuel Transfer Pump Assembly - Remove procedure.

(3) Install and tighten the P-clamps.

(4) Install both fuel lines of the fuel transfer pump.

(5) Connect electrical wire of the fuel transfer pump.

(6) Install the cover plate next to the left main landing gear.

(7) Conduct an engine ground run.

Refer to 71-00 Engine - Operation Test.

(8) Inspect the airplane for fuel leakage.

28-20-17 Fuel Transfer Pump Filter

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the Fuel Transfer Pump Filter

(1) Defuel the airplane.

Refer to 12-10 Fuel - Defuel and drain fuel.

(2) Remove the cover plate next to the left main landing gear.

(3) Disconnect the electrical connector from the fuel transfer pump.

(4) Disconnect the transfer fuel line from the fuel transfer pump filter.

(5) Unscrew the fuel transfer pump filter from the elbow fitting and remove it.

Use a suitable container to catch spilt fluid.

(6) Put caps on the connections.

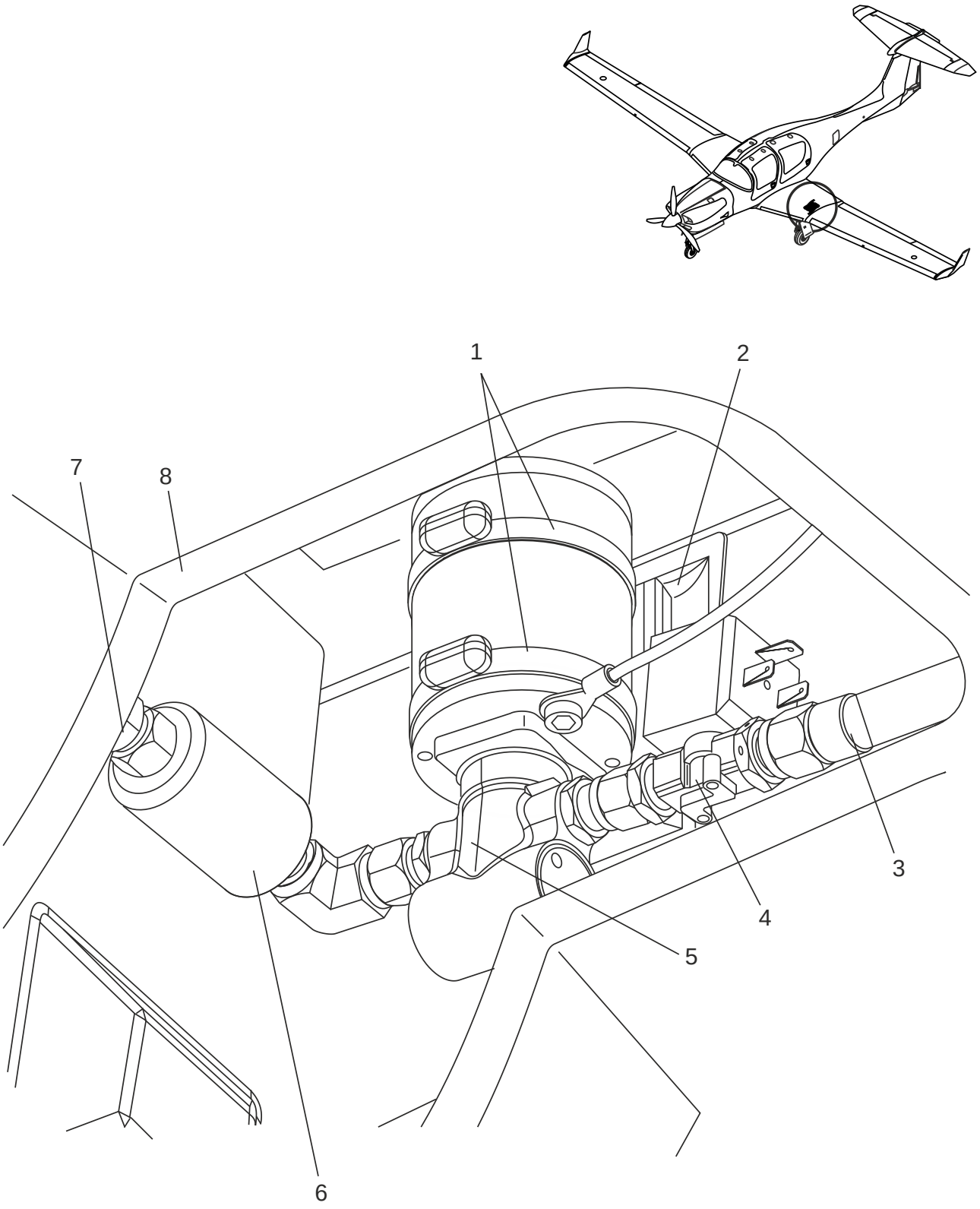


Figure 4 - Fuel Transfer Pump and Filter

Legend

[1, Fig.4] Worm Drive Clamps
[2, Fig.4] Pump Bracket
[3, Fig.4] Output Hose
[4, Fig.4] Solenoid Valve
[5, Fig.4] Fuel Transfer Pump
[6, Fig.4] Fuel Transfer Pump Filter
[7, Fig.4] Input Hose
[8, Fig.4] Center Wing Shell Opening

28-20-18 Fuel Transfer Pump Filter

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install the Fuel Transfer Pump Filter

(1) Move the fuel transfer pump filter into position.

Make sure of the correct installation direction.

(2) Screw the fuel transfer pump filter to the elbow fitting.

(3) Connect the transfer fuel line to the fuel transfer pump filter.

(4) Connect the electrical connector to the fuel transfer pump.

(5) Do a test for leaks of the fuel transfer pump filter:

- Make sure that there is fuel in the left tank.
- Switch on the fuel transfer pump.
- Examine the fuel transfer pump filter for leaks.

- Switch off the fuel transfer pump.

(6) Install the cover plate next to the left main landing gear.

28-20-19 Fuel Transfer Pump Filter

Other procedure to clean

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Clean the Fuel Transfer Pump Filter

(1) Defuel the airplane.

Refer to 12-10 Fuel - Defuel and drain fuel.

(2) Remove the cover plate next to the left main landing gear.

(3) Disconnect the electrical connector from the fuel transfer pump.

(4) Disconnect the transfer fuel line from the fuel transfer pump filter.

(5) Remove the retaining ring of the fuel transfer pump filter.

Use a suitable container to catch spilt fluid.

(6) Remove the filter mesh from the filter housing.

(7) Clean the filter mesh and filter housing with fuel approved for the airplane.

(8) Install the filter mesh into the filter housing and secure it with the retaining ring.

(9) Connect the transfer fuel line to the fuel transfer pump filter.

(10) Connect the electrical connector to the fuel transfer pump.

(11) Do a test for leaks of the fuel transfer pump filter:

- Make sure that there is fuel in the left tank.
- Switch on the fuel transfer pump.
- Examine the fuel transfer pump filter for leaks.
- Switch off the fuel transfer pump.

(12) Install the cover plate next to the left main landing gear.

28-20-20 Fuel Cooler

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the Fuel Cooler

(1) Defuel the airplane.

Refer to 12-10 Fuel - Defuel and drain fuel.

(2) Remove the RH main landing gear cover.

(3) Remove the rubber gasket on the air duct.

(4) Remove the air duct.

(5) Dis-connect the fuel lines at the fuel cooler.

(6) Open the mounting bolts (4x).

Mark position of ground wire.

(7) Remove the fuel cooler.

28-20-21 Fuel Cooler

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install the Fuel Cooler

(1) Install the fuel cooler port adapters. Use Loctite 243.

Torque: 25 - 30 Nm (18.44 - 22.13 lbf.ft.).

Refer to Special Torque Values - Description.

(2) Put the fuel cooler in place.

(3) Attach the fuel cooler including ground wire with the four bolts.

(4) Connect the fuel lines to the fuel cooler.

(5) Put the air duct to the fuel cooler.

(6) Install rubber gasket on air duct.

(7) Install RH main landing gear cover.

(8) Conduct an engine ground run.

Refer to 71-00 Engine - Operation Test.

(9) Inspect the airplane for fuel leakage.

28-20-22 Check Valve

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

CAUTION

YOU MUST REPLACE THE SOLENOID VALVE IF THE TEST FAILS.

3. Main Procedure

A. Test the Check Valve in the Fuel Return Line

(1) Make sure that the left fuel tank (main tank) is full.

Refer to 12-10 Fuel - Refuel .

(2) Remove the cowling.

(3) Set the ENGINE MASTER switch to OFF.

(4) Disconnect the fuel return line at the firewall forward connection.

(5) Connect an external fuel line with the additional fuel pump to the firewall forward fuel return fitting.

(6) Turn ON the external fuel pump.

Only a small amount of fuel is allowed to come out of the additional fuel pump.

(7) Turn OFF the external fuel pump.

(8) Disconnect the external fuel line with additional fuel pump from the firewall forward fuel return fitting.

(9) Connect the fuel return line from the engine to the firewall forward fuel return fitting.

28-40
FUEL INDICATION

28-40-01 Indicating

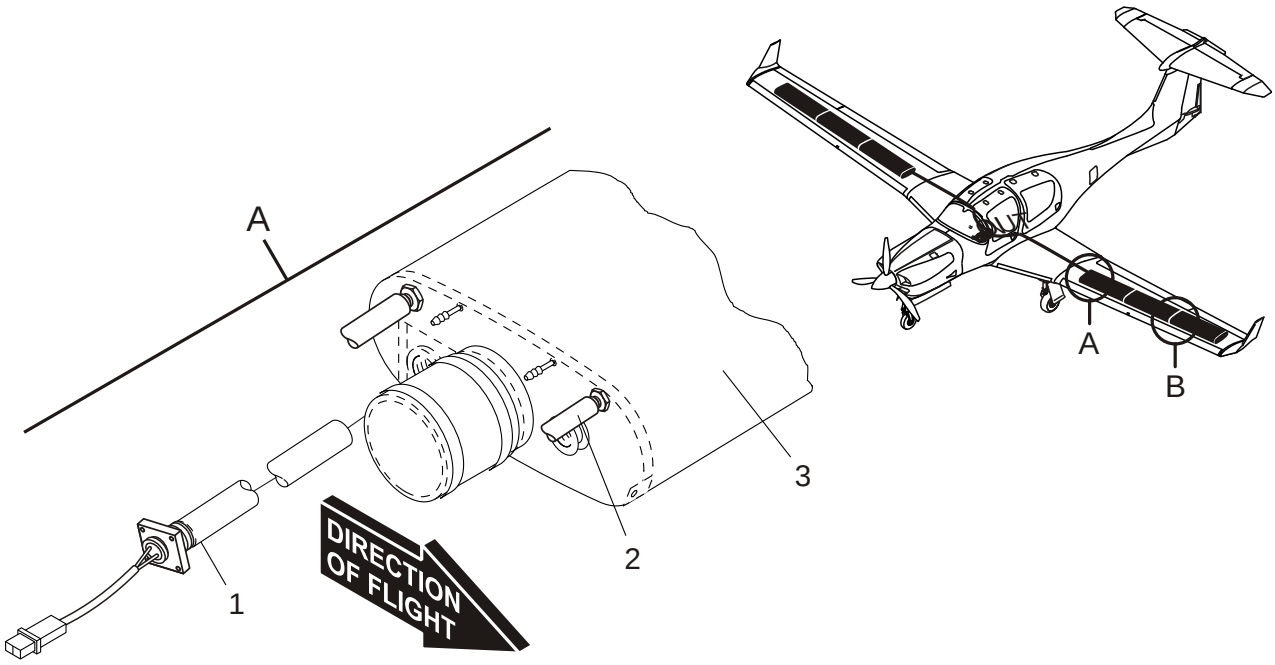
Description

1. Fuel Quantity Indicating

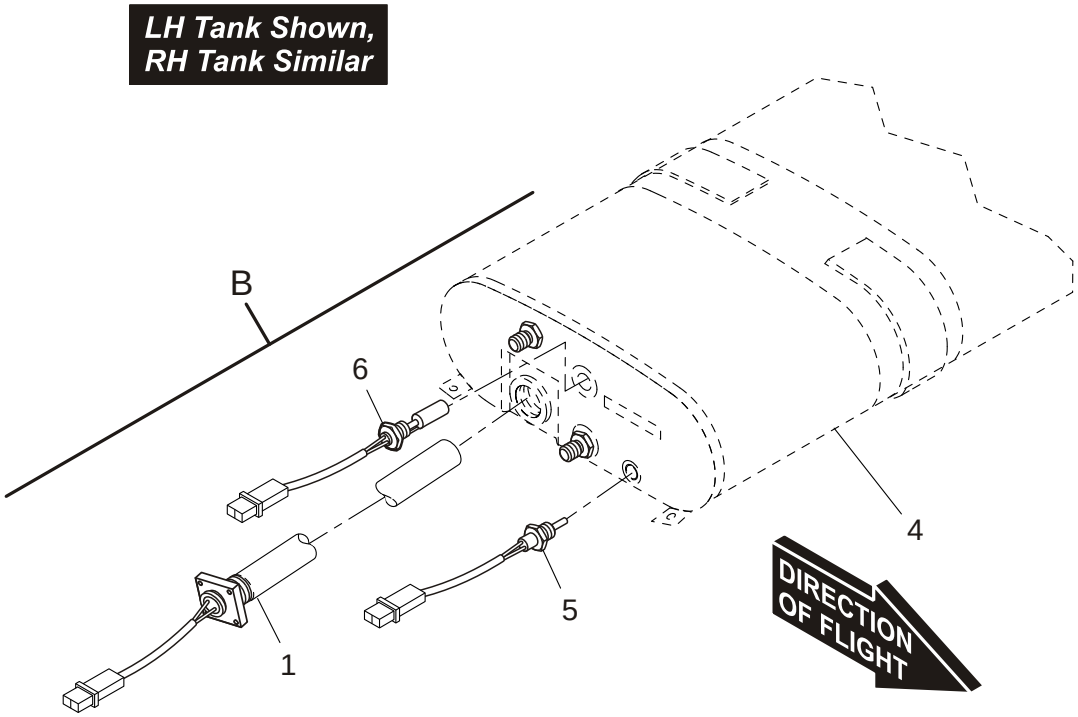
This Section describes the fuel quantity indicating system of the DA 50 C. Refer to 28-00 Fuel System - Description for the general data on the fuel system. Refer to 31-40 Central computers - Description for data on replacing the fuel quantity indicator.

Figure 1 shows the main components of the fuel indicating systems. The DA 50 C has these fuel system indications which are displayed on the integrated cockpit system (ICS) display.

- Fuel quantity. Fuel level probes are installed in the inboard and outboard fuel chambers of both the left and right main fuel tank assemblies.
- Fuel temperature. Fuel temperature probes are installed on the inboard end of each inboard fuel chamber.
- Fuel low-level. A fuel low-level sensor is installed on the inboard end of the LH inboard fuel chamber. A low level fuel transfer pump shut off switch is installed on the inboard end of the RH inboard fuel chamber.



VIEW ON INBOARD END OF LEFT OUTBOARD FUEL TANK



VIEW ON INBOARD END OF LEFT INBOARD FUEL TANK

Figure 1 - Fuel Quantity Indication Components

Legend

[1, Fig.1] Fuel Contents Probe

[2, Fig.1] Balance/Vent Hose

[3, Fig.1] Outboard Fuel Tank

[4, Fig.1] Inboard Fuel Tank

[5, Fig.1] Fuel Temperature Sensor

[6, Fig.1] Low Fuel Switch

28-40-02 Indicating

Description of function

1. Fuel Indication - Operation

A. Fuel Quantity

As the fuel level in the fuel tanks decreases, the area of the fuel probes which are ‘wetted’ with fuel also decreases. The amount of ‘wetted’ area of each tank probe is converted into electrical signals which set the fuel quantity indication which is displayed on the ICS. The fuel quantity indication shows the amount of fuel in the left fuel tank and the right fuel tank. The display shows the fuel quantities in US gallons.

Electrical cables connect the fuel probes to the ICS. Refer to 31-40 Central computers - Description for more data about the ICS.

B. Fuel Temperature

The electrical resistance of the fuel temperature probes change with temperature. This change of electrical resistance is used to set the fuel temperature indications shown on the ICS. Electrical cables connect the fuel temperature probes to the ICS.

The display shows the temperature of the fuel in the left main fuel tank and in the right main fuel tank. The temperature is given in °C.

C.

The fuel low-level sensors are float-type switches. When the fuel level in the fuel left tank falls below 2 US gal the float operates a micro-switch. The micro-switch operates an electrical circuit which gives a FUEL LOW caution on the ICS.

Electrical cables connect the fuel low-level switches to the ICS. Refer to 31-40 Central computers - Description for more data about the ICS.

28-40-03 Fuel Quantity Probe

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove a Fuel Quantity Probe

(1) Remove the wing where the fuel quantity probe will be removed, and support the wing on trestles.

Refer to 57-10 Wing structure - Remove procedure.

(2) Remove fuel tank assembly from the wing.

Refer to 28-10 Fuel Tank Assembly - Remove procedure.

(3) Remove the fuel quantity probe from the threaded mounting.

28-40-04 Fuel Quantity Probe

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install a Fuel Quantity Probe

(1) Separate the fuel filler assembly from the fuel tank.

Refer to 28-10 Fuel Tank Assembly - Disassemble procedure.

To gain access to the guide at the outboard end of the fuel tank.

(2) Install the fuel quantity probe into the fuel tank:

- Apply sealant to the thread of the fuel quantity probe.
  Use 'seal-lube' or 'fuel-lube'.
- Install a new O-ring seal.
- Install the Teflon sleeve to the fuel probe.
- Carefully move the fuel quantity probe into position in the inboard tank. Engage the thread.

Make sure that the fuel quantity probe goes into the guide at the outboard end of the fuel tank.

- Turn the probe clockwise, by hand, until the fuel quantity probe is fully engaged in its mount.
- Tighten the fuel quantity probe until the O-ring seals.

(3) Re-connect the fuel filler assembly to the fuel tank.

Refer to 28-10 Fuel Tank Assembly - Assemble procedure.

(4) Install fuel tank assembly into wing.

Refer to 28-10 Fuel Tank Assembly - Install procedure.

(5) Install the wing to the airplane.

Refer to 57-10 Wing structure - Install procedure.

(6) Examine the fuel quantity probe installation for fuel leaks.

(7) Install the access panel for the fuel tank.

Refer to 52-40 Access Panels - Description.

28-40-05 Low Level Fuel Sensor

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove a Low Fuel Sensor

(1) Remove the wing where the low fuel sensor will be removed.

Refer to 57-10 Wing structure - Remove procedure.

(2) Remove the access panel from the root rib of the wing:

- Remove the 11 nuts and washers from the studs.
- Pull the access panel off the studs and clear of the airplane.

(3) Disconnect the electrical cables of the low fuel sensor.

At the in-line connector.

(4) Remove the low fuel sensor from the tank.

28-40-06 Low Level Fuel Sensor

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install a Low Fuel Sensor

(1) Install the low fuel sensor in the fuel tank:

- Apply sealant to the thread of the low fuel sensor.
  Use Loctite 243 or 'seal-lube' or 'fuel-lube'.
- Move the low fuel sensor into position in the fuel tank mount.
- Screw the low fuel sensor fully home into the mount.
- Tighten the low fuel sensor.
  The arrow must point down.

(2) Connect the electrical cables to the low fuel switch.

At the in-line connector.

(3) Install the access panel at the wing root rib:

- Put the access panel into position on the studs.
- Install the 11 washers and nuts.
- Tighten the nuts.

(4) Install the wing, but do not refuel the airplane.

Refer to 57-10 Wing structure - Install procedure.

(5) Do a test for the correct operation of the low fuel sensor.

Right tank: Make sure that it switches off the fuel transfer pump when the fuel level is low.

Left tank: Make sure that it switches on the LOW FUEL caution light when the fuel level is at 3 US gal (+2/-1 US gal).

(6) Refuel the airplane.

Refer to 12-10 Fuel - Refuel.

(7) Do a check for leaks.

28-40-07 High Level Fuel Sensor

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Remove the High Fuel Sensor

Only the left tank has a high fuel sensor.

(1) Remove the left wing.

Refer to 28-10 Fuel Tank Assembly - Remove procedure.

(2) Remove the left fuel tank assembly.

Refer to 28-10 Fuel Tank Assembly - Remove procedure.

(3) Disconnect the electrical cables of the high fuel sensor.

At the in-line connector near the high fuel sensor.

(4) Remove the high fuel sensor from the tank.

28-40-08 High Level Fuel Sensor

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT BREATHE FUEL VAPOR. FUEL VAPOR CAN MAKE CAUSE DISEASE.

3. Main Procedure

A. Install the High Fuel Sensor

Only the left tank has a high fuel sensor.

(1) Install the high fuel sensor in the fuel tank:

- Apply sealant to the thread of the high fuel sensor.
  Use 'seal-lube' or 'fuel-lube'.
- Move the high fuel sensor into position in the fuel tank mount.
- Screw the high fuel sensor fully home into the mount.
  The arrow must point up.
- Tighten the high fuel sensor.

(2) Connect the electrical cables to the high fuel sensor.

At the in-line connector.

(3) Install the left fuel tank assembly.

Refer to 28-10 Fuel Tank Assembly - Install procedure.

(4) Install the left wing, but do not refuel the airplane.

Refer to 57-10 Wing structure - Install procedure.

(5) Do a test for the correct operation of the high fuel sensor.

Make sure that the fuel transfer pump switches off when the fuel level in the left tank is high.

(6) Refuel the airplane.

Refer to 12-10 Fuel - Refuel .

(7) Do a check for leaks.

29-00
HYDRAULIC POWER

29-00-01 Hydraulic System

Description

1. Hydraulic System

This Chapter tells you about the hydraulic system of the DA 50 C. It gives you the system description. It also gives you the trouble-shooting data and tells you how to remove and install the main components of the hydraulic system.

2. Description

The hydraulic main unit contains all components which are necessary to produce the hydraulic power for the DA 50 C. It consists of the hydraulic pump, the hydraulic fluid tank, the hydraulic main control block and the hydraulic accumulator.

The hydraulic main unit is shown in Figure 1.

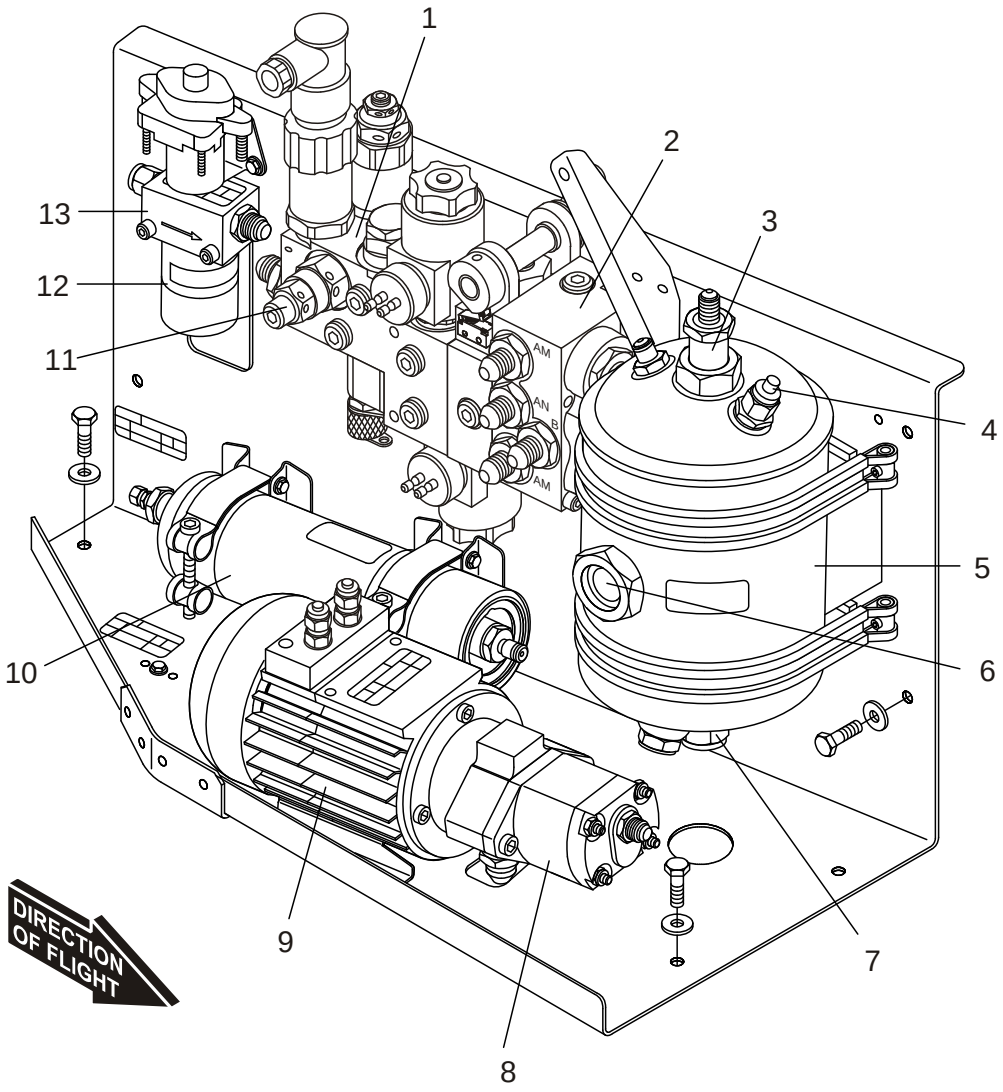


Figure 1 - Hydraulic Supply and Control Assembly

Legend

[1, Fig.1]	Hydraulic Control Block
[2, Fig.1]	Hydraulic Supply Manifold
[3, Fig.1]	Reservoir Filter
[4, Fig.1]	Fill Port
[5, Fig.1]	Hydraulic Reservoir
[6, Fig.1]	Inspection Glass
[7, Fig.1]	Drain Port
[8, Fig.1]	Hydraulic Pump
[9, Fig.1]	Electric Motor
[10, Fig.1]	Accumulator
[11, Fig.1]	Dump Valve
[12, Fig.1]	H.P. Filter
[13, Fig.1]	Filter Housing

29-00-02 Hydraulic System

Fill

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Fuselage trestle	Commercial	1
Hand pump	P/N X11-P004	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Hydraulic fluid	MIL-PRF-5606 H (e.g. Aeroshell Fluid 41) or GOST 6794-75 Amdt 1-5 (AMG-10)	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

CAUTION

DO NOT MIX OR REPLACE HYDRAULIC FLUIDS OF DIFFERENT TYPES OR MANUFACTURERS.

3. Main Procedure

A. First Fill/Replenishment of the Hydraulic System

Item	Capacity
Hydraulic reservoir.	0.9 l (0.24 US gal) (mid-level on the inspection glass)
Extended landing gear (when hydraulic actuators are retracted).	All actuators: Approx. 0.5 l (0.13 US gal)
Accumulator.	Approx. 0.09 l (0.02 US gal)
Hoses and misc. components.	Approx. 0.25 l (0.07 US gal)
Total hydraulic system.	Approx. 1.74 l (0.46 US gal)

NOTE

If the level of the hydraulic reservoir differs 1 cm (0.4 inch) it equals approx. 0.12 liter (0.03 US gal) of hydraulic fluid.

Table 1 - Fuel Capacity

(1) Pull the GEAR circuit breaker.

Located on the right side of instrument panel.

(2) Lift the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Description.

(3) Connect an external power supply to the airplane.

Refer to 24-40 External Power - Description.

(4) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

CAUTION

DO NOT MIX OR REPLACE HYDRAULIC FLUIDS OF DIFFERENT TYPES OR MANUFACTURERS.

(5) ONLY FOR FIRST FILL: Fill the hydraulic reservoir with 1.25 liter (0.33 US gal) using a hand pump which connects to the FILL port of the hydraulic reservoir.

(6) Reset the GEAR circuit-breaker.

Located on the right side of the instrument panel.

(7) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(8) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(9) Charge the hydraulic accumulator:

- Set the ELECT. MASTER switch to ON.
- The hydraulic pump must operate until the system pressure stabilizes.
- The hydraulic pump must stop.
- Set the ELECT. MASTER switch to OFF.

Approx. 13 ± 5 sec with a completely empty accumulator.

(10) Check the fluid level of the hydraulic reservoir.

Refer to 29-00 Hydraulic System - Check filling quantity.

CAUTION

DO NOT FILL THE HYDRAULIC TANK FULL BECAUSE IT MAY OVERFLOW. FILL IT IN SMALL STEPS.

(11) Use the hand pump to refill the hydraulic reservoir to adjust the fluid level.

(12) Repeat step A.(10) and step A.(11) until the fluid level of the hydraulic reservoir is correct.

(13) Do the normal operational test of the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(14) Move the wing and rear fuselage trestles clear of the airplane.

(15) Lower the airplane with the jacks.

Make sure that the area around the airplane is clear.

29-00-03 Hydraulic System

Drain other liquid

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

CAUTION

DO NOT OPERATE THE HYDRAULIC MAIN PUMP WITH LOW FLUID LEVEL IN THE HYDRAULIC RESERVOIR.

3. Main Procedure

A. Drain Fluid from the Hydraulic System

(1) Pull the GEAR circuit-breaker.

Located on the right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(3) Prepare the drain hose:

- Put a container under the drain hose to collect spilt hydraulic fluid.

Use a drain hose which can be connected to the MiniMess 1215 plug.

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(4) Install the drain hose:

- Remove the protection cap from the MiniMess 1215 plug.
- Install the drain hose onto the plug.

The MiniMess 1215 plug is installed on the hydraulic control block.

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(5) Reset the GEAR circuit breaker.

Located on the right side of instrument panel.

(6) Drain hydraulic fluid from the hydraulic system:

- Turn the ELECT. MASTER switch to ON.
- The hydraulic pump starts to pump and drains hydraulic fluid into the container.
- Turn the ELECT. MASTER switch to OFF.

(7) Remove the drain hose:

- Remove the drain hose from the MiniMess 1215 plug.
- Install the protection cap back onto the plug.

29-00-04 Hydraulic System

Bleed

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Fuselage trestle	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

3. Main Procedure

A. Bleed the Hydraulic System

(1) Pull the GEAR circuit-breaker.

Located on the right side of instrument panel

(2) Lift the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Jacking.

(3) Connect an external power supply to the airplane.

Refer to 24-40 External Power - Description.

(4) Extend and retract the landing gear to bleed the system:

Refer to 32-30 Normal Operation - Test and inspection.

- Retract and extend the landing gear 2 to 4 times with short breaks in between. Check the times of extending and retracting the landing gear.
- Between the extension/retraction the dump valve should be operated 3 to 4 times to release possible air pockets.
  Refer to 29-00 Hydraulic System - Description.
- Refill hydraulic fluid if necessary.

(5) Operate the emergency extension of the landing gear (repeat this step 1 to 2 times).

Refer to 29-11 Emergency Operation Function Test - Operation Test.

(6) Move the wing and rear fuselage trestles clear of the airplane.

(7) Lower the airplane with the jacks.

Make sure that the area around the airplane is clear.

29-00-05 Hydraulic System

Check filling quantity

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check the Hydraulic Fluid Level of the Hydraulic System

(1) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(2) Charge the hydraulic accumulator:

- Set the ELECT. MASTER switch to ON.
- The hydraulic pump must operate until the system pressure stabilizes.
- The hydraulic pump must stop.
- Set the ELECT. MASTER switch to OFF.

Approx. 13 ± 5 sec with a completely empty accumulator.

(3) Check the fluid level on the hydraulic reservoir:

- The accumulator must be fully charged and the landing gear has to be fully extended.
- The airplane must stay on a flat ground and the fluid level should be in the middle of the inspection glass.

29-00-06 Hydraulic System

Change of hydraulic fluid

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Tail trestle	Commercial	1
Pump (for emptying the reservoir)	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN UP SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN CAUSE DAMAGE TO AIRPLANE COMPONENTS.

CAUTION

DO NOT OPERATE THE HYDRAULIC MAIN PUMP WITH LOW FLUID LEVEL IN THE HYDRAULIC RESERVOIR.

3. Main Procedure

A. Fluid Change of the Hydraulic System

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Description.

(2) Connect an external power supply to the airplane.

Refer to 24-40 External Power - Description.

(3) Retract the landing gear

Refer to 32-30 Extension and retraction - Description.

(4) Pull the GEAR circuit breaker

Right side of instrument panel.

(5) Extend the landing gear with the emergency extension switch.

(6) Set the landing gear handle down.

(7) Set the emergency gear lever up.

(8) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(9) Remove the fluid from the hydraulic reservoir using a pump to suck it out.

(10) Replace the high pressure filter.

Refer to 29-10 High Pressure Filter - Remove procedure and 29-10 High Pressure Filter - Install procedure.

(11) Do the maintenance of the hydraulic reservoir filter.

Refer to 29-10 Hydraulic Reservoir Filter - Other procedure to clean.

(12) First fill / refill the hydraulic system.

Refer to 29-00 Hydraulic System - Fill.

(13) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(14) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(15) Reset the GEAR circuit breaker.

Right side of instrument panel

(16) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(17) Refill the hydraulic system, if necessary

Refer to 29-00 Hydraulic System - Fill.

(18) Check level of the hydraulic reservoir

Refer to 29-00 Hydraulic System - Check filling quantity.

(19) Repeat step A.(17) and step A.(18) until the level of the hydraulic reservoir is correct.

(20) Lower the airplane with the jacks.

Make sure that the area around the airplane is clear.

Refer to 07-10 Jacking - Description.

B. Fluid Change of the Hydraulic System from Aero Shell Fluid 41 to AMG-10

(1) Repeat the Fluid Change of the Hydraulic System procedure 3 times.

Refer to Procedure A.

(2) Apply the hydraulic fluid placard and mark the used fluid.

Mark hydraulic fluid type by punching

Refer to Figure 2.

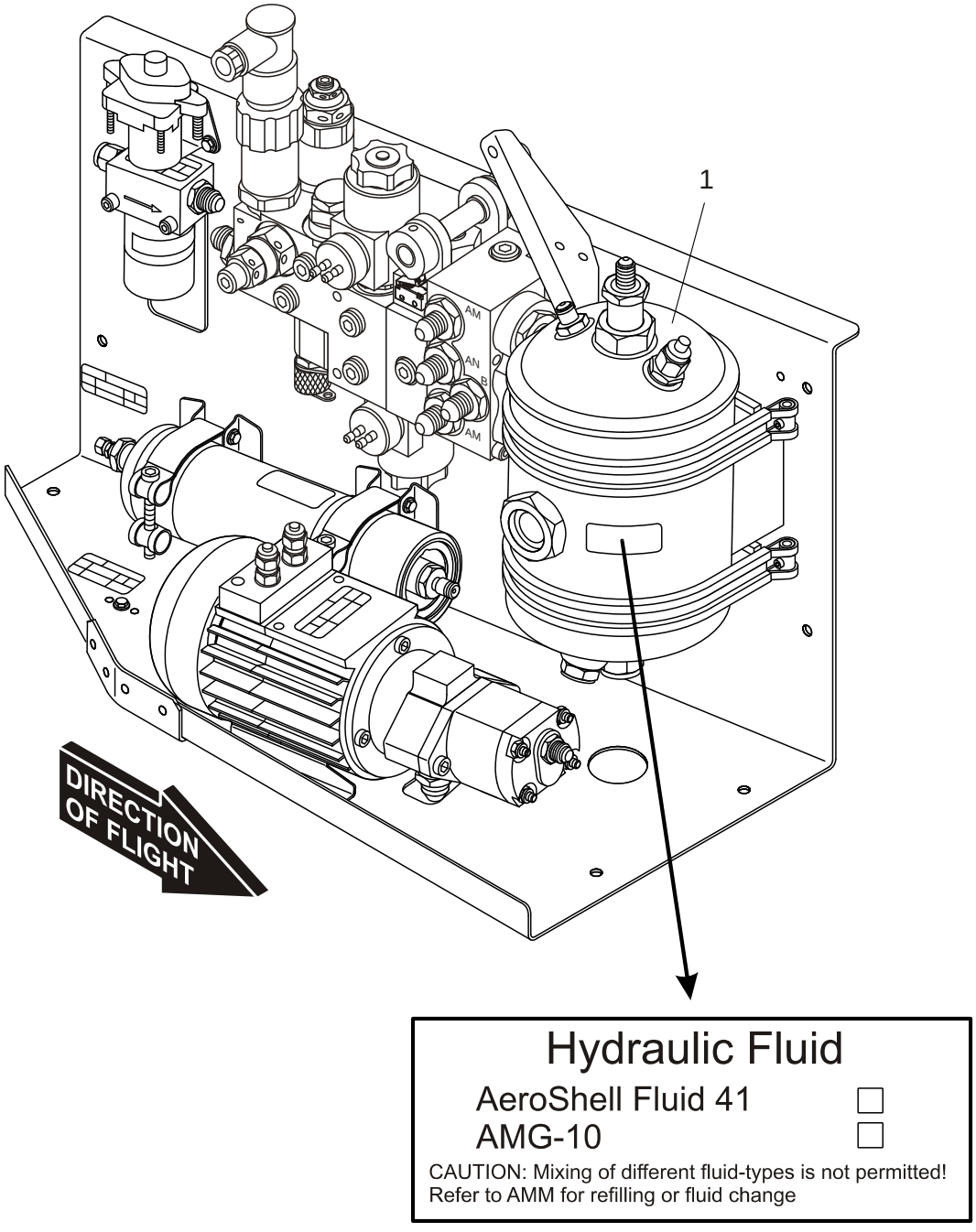


Figure 2 - Position of the Hydraulic Fluid Placard

Legend

[1, Fig.1] Hydraulic Fluid Reservoir

29-00-07 Hydraulic System

Depressurize hydraulics

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Fuselage trestle	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Depressurize the Hydraulic System

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position.

(2) Retract the landing gear.

(3) Pull the GEAR circuit-breaker.

Located on the right side of instrument panel.

(4) Remove the protection cap from the MiniMess 1215 plug.

(5) Install a test manometer on the MiniMess 1215 plug. The normal pressure should be between 95 and 120 bar (1378 to 1740 PSI).

Located on the hydraulic control block. Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(6) Operate the dump valve:

- Remove the lock wire from the dump valve.
- Loosen the counter nut.
- Loosen the hexagon socket to open the dump valve.
- After emptying wait 10 to 15 min until the accumulator is thermally balanced.

Wrench size 19 mm.

Wrench size 1/4 in.

(7) Operate the pressure button on the upper solenoid valve, located on the top of the hydraulic control block.

See

Use a little metal pin or ball pen to operate the button.

(8) Check if pressure decreased on the manometer.

There should be no remaining pressure.

(9) Close the dump valve:

- Tighten the hexagon socket to close the dump valve.
- Tighten the counter nut.
- Install the lock wire onto the dump valve.

6 - 10 Nm (4.4 - 7.4 lbf.ft.), wrench size 1/4 in (needle valve).

8 - 10 Nm (5.9 - 7.4 lbf.ft.), wrench size 19 mm (counter nut).

Refer to Special Torque Values - Description.

(10) Disconnect the test manometer from the MiniMess 1215 plug.

(11) Install the protection cap onto the MiniMess 1215 plug.

29-10
MAIN HYDRAULIC SYSTEM COMPONENTS

29-10-01 Hydraulic Relay

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Relay

(1) Pull the GEAR circuit breaker.

Located on the right side of instrument panel.

(2) Getting access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(3) Disconnect all electric connectors from the relay.

Remember how the cables where connected to the relay.

(4) Remove the 2 bolts which hold the relay onto the mounting plate

29-10-02 Hydraulic Relay

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Relay

(1) Install the new relay with two bolts onto the hydraulic panel.

(2) Reconnect all electric connectors with the relay.

(3) Reset the GEAR circuit breaker.

Located on the right side of instrument panel.

(4) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(5) Install the access cover on the RH fuselage tube.

29-10-03 Hydraulic Reservoir

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Remove the Hydraulic Reservoir

(1) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(2) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(3) Drain the hydraulic tank:

- Remove the drain ports from the hydraulic tank.
- Remove the fluid from the hydraulic reservoir until the tank is fully empty.

(4) Remove the hydraulic reservoir:

- Remove the intake line and the return line from the reservoir.

- Put caps onto the open ends of the lines and the end fittings of the reservoir.
- Remove the 4 bolts from the clamp which secure the hydraulic tank.
- Then move the tank clear from the hydraulic system.

29-10-04 Hydraulic Reservoir

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Install the Hydraulic Reservoir

(1) Install the hydraulic reservoir:

- Move the reservoir into position.
- Install the 4 bolts onto the clamp to secure the hydraulic tank.
- Install the intake line and the return line onto the reservoir.

(2) Refill the hydraulic reservoir with hydraulic fluid.

Refer to 29-00 Hydraulic System - Fill.

(3) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(4) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(5) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(6) Install the access cover on the RH fuselage tube.

(7) Reset the GEAR circuit breaker.

Right side of instrument panel.

29-10-05 Hydraulic Pump

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Remove Hydraulic Pump

(1) Pull the GEAR circuit breaker.

Located on the right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(3) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(4) Drain fluid from the hydraulic system.

Refer to 29-00 Hydraulic System - Drain other liquid.

The fluid level should be lower than the hydraulic lines of the motor-pump.

(5) Disconnect the motor-pump:

- Disconnect the two hydraulic connectors from the pump.
- Put caps onto the hydraulic lines and on the pump so that no hydraulic fluid can leak.
- Disconnect the electric connectors from the motor.

Refer to 29-00 Hydraulic System - Description Figure 1.

Remember which one is the plus and minus pole.

(6) Remove the motor-pump:

- Remove the bolts which hold the motor-pump on the hydraulic panel.
- Move the motor-pump clear from the hydraulic system.

29-10-06 Hydraulic Pump

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Install the Hydraulic Pump

(1) Install the new motor-pump:

- Move the motor-pump into position.
- Install the bolts which hold the motor-pump onto the hydraulic panel.

(2) Connect the motor pump:

- Connect the electric connectors onto the motor.
- Remove the caps from the hydraulic lines and the pump.
- Connect the two hydraulic connectors onto the pump.

(3) If hydraulic fluid was drained, refill the hydraulic reservoir with hydraulic fluid.

Refer to 29-00 Hydraulic System - Fill.

(4) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(5) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(6) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(7) Install the access cover on the RH fuselage tube.

(8) Reset the GEAR circuit breaker.

Located on the right side of instrument panel.

29-10-07 Hydraulic Control Block

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Remove the Hydraulic Control Block

(1) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(2) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(3) Remove all hydraulic hoses from the hydraulic control block.

Use a suitable container to catch spilt hydraulic fluid. Fit caps on all open connections.

(4) Remove all electrical connections from the hydraulic control block.

(Pump pressure switch connector, solenoid valve connections)

(5) Remove the emergency extension micro switch.

Refer to Figure 1.

(6) Disconnect the Bowden cable from the emergency extension block.

Refer to Figure 1.

(7) Remove the control block:

- Remove the three bolts which secure the hydraulic control block.
- Move the control block clear from the rest of the hydraulic system.

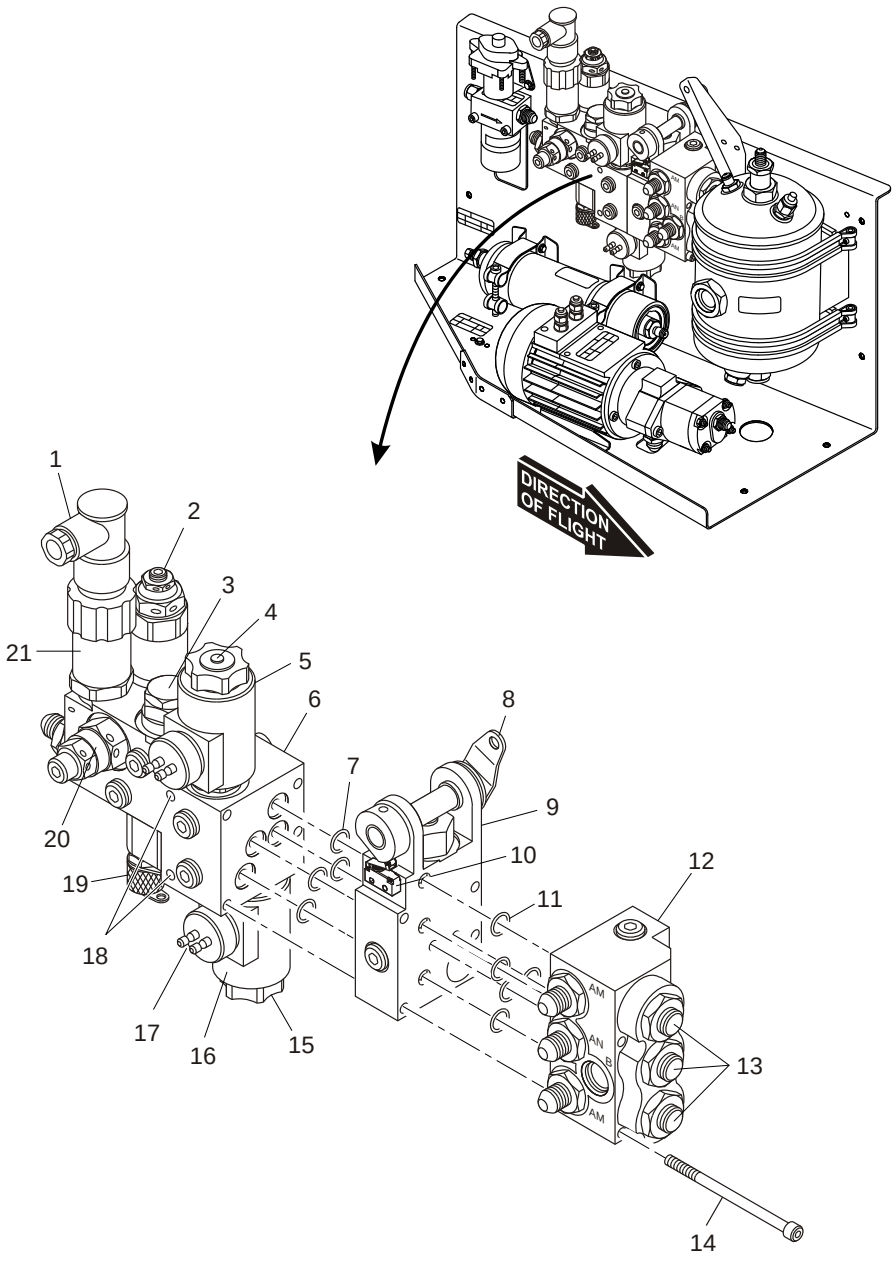


Figure 1 - Hydraulic Control Block

Legend

[1, Fig.1]	Pump Pressure Switch Cap (Electric Connector)
[2, Fig.1]	Pressure Relief Valve
[3, Fig.1]	Protection Valve
[4, Fig.1]	Pressure Button
[5, Fig.1]	Top Solenoid Valve
[6, Fig.1]	Control Block
[7, Fig.1]	O-Ring
[8, Fig.1]	Emergency Extension Lever
[9, Fig.1]	Emergency Extension Block
[10, Fig.1]	Microswitch
[11, Fig.1]	O-Ring
[12, Fig.1]	Hydraulic Supply Block
[13, Fig.1]	Flow Regulation Valves
[14, Fig.1]	Bolt
[15, Fig.1]	Knurled Nut
[16, Fig.1]	Bottom Solenoid Valve
[17, Fig.1]	Electric Connector
[18, Fig.1]	Bolts (Remove/Install Control Block)
[19, Fig.1]	Mini Mess 1215
[20, Fig.1]	Dump Valve
[21, Fig.1]	Pump Pressure Switch

29-10-08 Hydraulic Control Block

Disassemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Disassemble Hydraulic Control Block

(1) Remove hydraulic control block.

Refer to 29-10 Hydraulic Control Block - Remove procedure.

(2) Remove the four bolts from the hydraulic supply block (size 4 hexagon socket head).

(3) Separate the three main blocks.

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(4) Remove the control block:

- Clean the holes and bolts from residues of the adhesive.
- Remove the seal rings from contact surface of the blocks.

Standard MS28778-4 seal rings are used.

29-10-09 Hydraulic Control Block

Assemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Assemble Hydraulic Control Block

(1) Prepare the three main blocks:

- Make sure there is no residues of the adhesive on the holes and bolts.
  So that the plane surface where the seals get installed is horizontal.
- Position the three main blocks vertical so that seal rings can be installed easier.
  Make sure there is no dirt on the plane surfaces otherwise the control block may be leaking.
- Install the seal rings onto the blocks.

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(2) Install the four bolts to secure the three main parts:

- Apply some Loctite 243 onto each bolt thread to secure it.
- Install the bolts and tighten them with 4 Nm (3 lbf.ft.). Refer to Special Torque Values - Description.

(3) Install the hydraulic control block.

Refer to 29-10 Hydraulic Control Block - Install procedure.

29-10-10 Hydraulic Control Block

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Install the Hydraulic Control Block

(1) Install the control block:

- Move the control block into position onto the hydraulic system.
  Use hexagon socket size 4.
- Install the three bolts which secure the hydraulic control block but do not tighten them yet.

(2) Connect the Bowden cable onto the emergency extension module.

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(3) Install the emergency extension micro switch.

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(4) Install all electrical connections onto the hydraulic control block (Pump pressure switch connector, solenoid valve connections).

Check polarity of solenoid valve connections.

(5) Install all hydraulic hoses onto the hydraulic control block.

Remove the caps from the connections.

(6) Tighten the three bolts which secure the hydraulic control block.

(7) If hydraulic fluid was drained, replenish the hydraulic reservoir with hydraulic fluid.

Refer to 29-00 Hydraulic System - Fill.

(8) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(9) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(10) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(11) Do a test for the correct operation of the emergency extension system.

Refer to 29-11 Emergency Operation Function Test - Operation Test.

(12) Reset the GEAR circuit breaker.

Right side of instrument panel.

29-10-11 Hydraulic Accumulator

Fill with nitrogen

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Nitrogen bottle with pressure reducer	X11-P003	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Charge the Hydraulic Accumulator with Nitrogen

(1) Pull the GEAR circuit breaker.

Right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

NOTE

Make sure when loosening the counter nut on the accumulator that you do not accidentally loosen the whole high pressure valve.

(3) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

WARNING

IF THE HOSE OF THE MANOMETER IS NOT CONNECTED PROPERLY TO THE HIGH PRESSURE VALVE, NITROGEN CAN LEAK FROM THE ACCUMULATOR. IF THAT IS THE CASE, CLOSE THE COUNTER NUT IMMEDIATELY AND CHECK ALL CONNECTIONS AGAIN.

(4) Connecting the nitrogen bottle:

- First, check that the pressure reducer on the nitrogen bottle is set to 90 bar (1305 PSI).
- Remove the yellow protection cap from the accumulator charging valve.
- Screw the swivel nut of the charging hose onto the adapter.
- Loosen the counter nut on the high pressure valve until it reaches the end face. Now slowly continue to loosen the nut -> this will cause the valve to open.

(5) Charge the accumulator:

- Read the pressure on the manometer of the pressure reducer.
- Charge the accumulator to a pressure of 85 - 90 bar (1233 - 1305 PSI).
- Close the valve on the nitrogen bottle and wait 10 min until the accumulator is thermally balanced.
- Check the pressure of the accumulator again and fine tune the pressure with the pressure reducer on the nitrogen bottle until the set-point is reached.

Set-point:

- 80 bar, 1160 PSI (15°C)
- 82.8 bar, 1200 PSI (25°C)

(6) Disconnect the nitrogen bottle:

- Tighten the counter nut on the valve with 6 - 8 Nm (4.4 - 5.9 lbf.ft.). Refer to Special Torque Values - Description.
- Close the valve on the nitrogen bottle and release the remaining pressure with the pressure reducer.
- Remove the nitrogen bottle from the adapter.
- Put the yellow protection cap back onto the high pressure valve.

(7) Reset the GEAR circuit breaker.

Right side of instrument panel.

(8) Check operation of the hydraulic accumulator.

Refer to 29-11 Normal Operation Test - Operation Test.

(9) Install the access cover on the RH fuselage tube.

29-10-12 Hydraulic Accumulator

Bleed

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Fuselage trestle	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Bleed the Accumulator

(1) Check level of hydraulic reservoir.

Refer to 29-00 Hydraulic System - Check filling quantity.

(2) Replenish hydraulic reservoir if necessary.

Refer to 29-00 Hydraulic System - Fill.

(3) Set GEAR circuit breaker.

Right side of instrument panel.

(4) Set ELECT. MASTER switch to ON.

(5) Open the dump valve:

- Remove the lock wire from the dump valve.
- Loosen the counter nut.
  Wrench size 19 mm.
- Loosen the hexagon socket to open the dump valve.
  Wrench size 1/4 in.
- After emptying wait 10-15 min until the accumulator is thermally balanced.

(6) Close the dump valve:

- Tighten the hexagon socket to close the dump valve.
  6-10 Nm (4.4 - 7.4 lbf.ft.), wrench size 1/4 in.
  Refer to Special Torque Values - Description.
- Tighten the counter nut.
  8 - 10 Nm (5.9 - 7.4 lbf.ft.), wrench size 19 mm.
  Refer to Special Torque Values - Description.
- Install the lock wire onto the dump valve.

(7) The hydraulic pump must operate until the system pressure stabilizes.

The hydraulic pump must stop operating.

(8) Pull GEAR circuit breaker.

Right side of instrument panel.

(9) Set the ELECT. MASTER switch to OFF.

29-10-13 Hydraulic Accumulator

Pressure check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Manometer to test pressure on the accumulator	X11-P002	1
Adapter MS28889-2 / MiniMess 1615	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check the Accumulator

The accumulator should be checked every 200 hours of operation respectively once a year if there is any inner leakage and the correct pre-fill pressure.

(1) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

NOTE

Make sure when loosening the counter nut on the accumulator that you do not accidentally loosen the whole high pressure valve.

(2) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

WARNING

IF THE HOSE OF THE MANOMETER IS NOT CONNECTED PROPERLY TO THE HIGH PRESSURE VALVE, NITROGEN CAN LEAK FROM THE ACCUMULATOR. IF THAT IS THE CASE, CLOSE THE COUNTER NUT IMMEDIATELY AND CHECK ALL CONNECTIONS AGAIN.

(3) Connecting the test manometer:

- Remove the yellow protection cap from the high pressure valve on the accumulator.
- Screw the Adapter (MS28889-2 / MiniMess 1615) onto the valve as far as it will go (sealing face).
- Screw the swivel nut from the manometer onto the adapter.
- Hold the valve body and loosen the counter nut on the valve until it reaches the end face. Now slowly continue to loosen the nut -> this will cause the valve to open.

(4) Check the pressure on the manometer:

- The required pressure is 80 bar (1160 PSI) at 15°C, (82.8 bar [1200 PSI] at 25°C).

If the measured pressure differs a lot compared to the set-point, see the Troubleshooting section.

(5) Disconnecting the test manometer:

- Tighten the counter nut on the valve with 6 - 8 Nm (4.4 - 5.9 lbf.ft.).
  Refer to Special Torque Values - Description.
- Remove the manometer from the adapter.
- Remove the Adapter (MS28889-2 / MiniMess 1615) from the valve.
- Put the yellow protection cap back onto the high pressure valve.

(6) Reset the GEAR circuit breaker.

Right side of instrument panel.

(7) Check for correct charging time of the hydraulic accumulator:

- Set the ELECT. MASTER switch to ON.
- The hydraulic pump must operate until the system pressure stabilizes.
- The hydraulic pump must stop operating.
- Set the ELECT. MASTER switch to OFF.

Approx. 13 ± 5 seconds with a completely empty accumulator.

(8) Install cover.

29-10-14 Hydraulic Accumulator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Remove the Accumulator

(1) Pull the GEAR circuit breaker.

Right side of instrument panel.

(2) Open the dump valve:

- Remove the lock wire from the dump valve.
  Wrench size 19 mm.
  Wrench size 1/4 in.
- Loosen the counter nut.
- Loosen the hexagon socket to open dump valve.
- After emptying wait 10-15 min. until the accumulator is thermally balanced.

(3) Operate the pressure button on the upper solenoid valve on the top of the hydraulic control block.

See 29-10 Hydraulic Control Block - Remove procedure Figure 1.

Use a little metal pin or ball pen to operate the button.

(4) Remove the accumulator:

- Remove the hydraulic hose from the accumulator.
- Open the bolts which hold the accumulator in place and open the clamp
- Move the accumulator clear from the hydraulic system.

29-10-15 Hydraulic Accumulator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Accumulator

(1) Pull the GEAR circuit breaker.

Right side of instrument panel.

(2) Install the accumulator:

- Move the accumulator in position with placard in field of view.
- Close the clamps and install the bolts which hold the accumulator in place.
  Tighten with 4 - 5 Nm (3.0 - 3.7 lbf.ft.).
  Refer to Special Torque Values - Description.
  Bolt axis parallel to vertical mounting sheet wall.
- Install the hydraulic hose from the accumulator.

(3) Check the hydraulic fluid level of the hydraulic reservoir.

Refer to 29-00 Hydraulic System - Check filling quantity.

(4) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(5) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(6) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

29-10-16 Dump Valve

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Replace the Dump Valve

(1) Pull the GEAR circuit-breaker.

Right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(3) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(4) Replace the dump valve:

- Remove both lock wires from the valve.
- Remove the dump valve.
  Use wrench size 22.
- Install the new dump valve.
  Put Rivolta F.L.A onto the thread and the O-ring and tighten the valve with 25 Nm (18.4 lbf.ft.).
  Refer to Special Torque Values - Description.
- Install lock wires on the dump valve.
- If hydraulic fluid was drained in step 3, replenish the hydraulic reservoir with hydraulic fluid.
  Refer to 29-00 Hydraulic System - Fill.
- Bleed the accumulator.
  Refer to 29-10 Hydraulic Accumulator - Bleed.
- Bleed the hydraulic system.
  Refer to 29-00 Hydraulic System - Bleed.
- Do the normal operation test for the hydraulic system.
  Refer to Normal Operation Test - Operation Test.
- Reset the GEAR circuit breaker.
  Right side of instrument panel.

29-10-17 Pressure Relief Valve

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Replace the Pressure Relief Valve / Pump Pressure Switch

(1) Pull the GEAR circuit-breaker.

Right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(3) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(4) Remove the pump pressure switch:

- Remove the electric connector from the switch.
- Remove the pump pressure switch.

To get a better access to the pressure relief valve remove the pump pressure switch first.

NOTE

step A.(5) and step A.(6) are not required if only the pump pressure switch should be replaced.

(5) Install a cap onto the main control block where the pump pressure switch was installed.

This is to protect the control block from dirt/dust. Use a DIN908-G 1/4 size plug.

(6) Replace the pressure relief valve:

- Remove the valve carefully.
  Make sure not to damage the backup ring on the valve.
- Apply Rivolta F.L.A onto the thread and O-ring and tighten with 25 Nm (18.4 lbf.ft.).
  Refer to Special Torque Values - Description.

(7) Install the pump pressure switch:

- Install the switch.
- Apply Rivolta F.L.A. onto the thread and the O-ring. Tighten with 18 Nm (13.3 lbf.ft.).
  Refer to Special Torque Values - Description.
- Install the electric connector back onto the switch. Tighten the electric connector with approx. 3.5 Nm (2.6 lbf.ft).
  Refer to Special Torque Values - Description.

(8) If hydraulic fluid was drained in step 3, replenish the hydraulic reservoir with hydraulic fluid.

Refer to 29-00 Hydraulic System - Fill.

(9) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(10) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(11) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(12) Reset the GEAR circuit breaker.

Right side of the instrument panel.

29-10-18 Solenoid Valve

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace/Check a Solenoid Valve

(1) Pull the GEAR circuit breaker.

Right side of instrument panel.

(2) Remove the electric connector from the solenoid valve.

(3) Remove the knurled nut on the top of the valve.

Use special tool to remove the nut.

(4) Remove the solenoid from the shaft.

Make sure all the O-rings are removed from the shaft.

(5) Remove the solenoid valve from the control block.

(6) Install the new solenoid valve onto the control block.

Apply Rivolta F.L.A. onto the thread and O-ring and tighten with 25 Nm (18.4 lbf.ft).

Refer to Special Torque Values - Description.

(7) Install the new solenoid onto the shaft. Tighten the valve by hand (max. 5 Nm (3.7 lbf.ft.)).

Refer to Special Torque Values - Description.

Make sure the valve is installed properly otherwise you can damage it. Make sure the solenoid is installed in the correct direction.

(8) Plug the electric connector back onto the solenoid valve.

(9) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(10) Reset the GEAR circuit breaker.

Right side of instrument panel.

B. Electric States of the Solenoid Valves

Checkpoint	Set-Point
Retracting.	Top solenoid valve: energized. Bottom solenoid valve: not energized.
Fully retracted.	Top solenoid valve: energized. Bottom solenoid valve: energized.
Extending / Fully extended.	Top solenoid valve: not energized. Bottom solenoid valve: not energized.

Table 1 - Electric States of the Solenoid Valves

29-10-19 Accumulator Charging Valve

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace the Accumulator Charging Valve

(1) Pull the GEAR circuit breaker.

Right side of instrument panel

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

NOTE

Make sure when loosening the counter nut that you do not accidentally loosen the whole accumulator charging valve.

(3) Releasing the nitrogen from the accumulator:

- Remove the yellow protection cap from the accumulator charging valve.
- Loosen the counter nut on the accumulator charging valve until you feel a resistance. Now slowly continue to loosen the nut. This will cause the valve to open. Use wrench size ¾ in.

Make sure to release the nitrogen slowly. The accumulator cools down while releasing the nitrogen.

(4) Replace the accumulator charging valve:

- Remove the accumulator charging valve by loosening the hexagon head of valve body (not the counter nut).
- Install the new accumulator charging valve.
  Apply Rivolta F.L.A onto the O-ring and tighten the valve with 25 Nm (18.4 lbf.ft.).
  Refer to Special Torque Values - Description.

MS-28889-2 standard valve is used. Use wrench size ¾ in.

(5) Charge the accumulator with nitrogen.

Refer to Hydraulic System - Fill.

(6) Test the accumulator charging valve for leaktightness.

Apply some leak-finder spray onto the valve and look for air bubbles.

(7) Install yellow protection cap.

(8) Reset the GEAR circuit breaker.

Right side of instrument panel.

29-10-20 Flow Regulation Valve

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace the Flow Regulation Valve

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

(1) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(2) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(3) Drain fluid from the hydraulic system.

Refer to 29-00 Hydraulic System - Drain other liquid.

The fluid level should be lower than the hydraulic control manifold

(4) Remove the flow regulation valves.

- Remove the valves and two seal rings on each valve.
  Wrench size 22 mm.
- Make sure to catch spilt hydraulic fluid.

(5) Install flow regulation valves:

- Install the M1.7 valve in the middle hole of the hydraulic supply manifold and tighten it with 25 Nm (18.4 lbf.ft.).
  Refer to Special Torque Values - Description.
  Put Rivolta F.L.A on both, the thread and the O-ring.
- Install the two M1.5 valves in the top and bottom hole of the hydraulic supply manifold and tighten them with 25 Nm (18.4 lbf.ft.).
  Refer to Special Torque Values - Description.
  Put Rivolta F.L.A on both, the thread and the O-rings.

(6) Replenish the hydraulic reservoir with hydraulic fluid.

Refer to 29-00 Hydraulic System - Fill.

(7) Bleed the accumulator.

Refer to 29-10 Hydraulic Accumulator - Bleed.

(8) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(9) Do the normal operation test for the hydraulic system.

Refer to 29-11 Normal Operation Test - Operation Test.

(10) Reset the GEAR circuit breaker.

Right side of instrument panel.

29-10-21 Hydraulic Reservoir Filter

Other procedure to clean

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Maintain Hydraulic Reservoir Filter

NOTE

A contaminated filter causes a bad intake performance of the pump, because it needs a minimum intake pressure of 370 mbar.

(1) Pull the GEAR circuit breaker.

Right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(3) Remove the vent hose by disconnecting the 90° fitting on the top of the hydraulic reservoir.

(4) Maintain the filter assembly (fitting and filter):

- Remove the lock wire from the filter fitting.

- Hold the reservoir lid screw with a wrench that the lid doesn't turn while removing the filter.
- Remove the filter fitting while holding the lid.
- Clean the filter by using benzine or other washing solvent. Blow the filter with compressed-air to remove dirt.
  Make sure to blow the filter in the correct direction.

(5) If removed, install vent hose by connecting the 90° fitting on the top of the hydraulic reservoir.

(6) Reset the GEAR circuit-breaker.

Right side of instrument panel.

29-10-22 High Pressure Filter

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

CAUTION

BECAUSE OF ITS DESIGN THIS FILTER ELEMENT CAN NOT BE CLEANED. IT HAS TO BE REPLACED IF IT'S CONTAMINATED.

3. Main Procedure

A. Remove the High Pressure Filter

NOTE

The high pressure filter is located between the pressure pipe of the hydraulic pump and the hydraulic control unit. It consists of a metal/ paper filter element.

(1) Pull the GEAR circuit-breaker.

Right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(3) Remove high pressure filter:

- Remove filter housing.
  Put paper towel underneath to avoid spilling of hydraulic fluid.
- Pull the old filter element clear of the filter body.
- Push and slightly turn the filter element into the filter body until it's secure.
  Metal/paper filter element.

29-10-23 High Pressure Filter

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

CAUTION

BECAUSE OF ITS DESIGN THIS FILTER ELEMENT CAN NOT BE CLEANED. IT HAS TO BE REPLACED IF IT'S CONTAMINATED.

3. Main Procedure

A. Install the High Pressure Filter

NOTE

The high pressure filter is located between the pressure pipe of the hydraulic pump and the hydraulic control unit. It consists of a metal/ paper filter element.

(1) Install high pressure filter:

- Install filter housing.
  Refer to 29-00 Hydraulic System - Description Figure 1.

(2) Install the access panel on the RH fuselage tube.

(3) Reset the GEAR circuit-breaker.

Right side of instrument panel.

29-10-24 Hydraulic Supply and Control Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Tail trestle	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

CLEAN UP SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN CAUSE DAMAGE TO AIRPLANE COMPONENTS.

3. Main Procedure

A. Remove the Hydraulic Supply and Control Assembly

(1) Pull the GEAR circuit breaker.

Located on the right side of instrument panel.

(2) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(3) Disconnect these hydraulic hoses from the hydraulic supply manifold:

Use a suitable container to catch spilt fluid.

- Disconnect the 3 return hoses from the hydraulic manifold.
  Fit blanking caps to all connectors.
- Disconnect the pressure hose from the hydraulic manifold.
  Fit blanking caps to all connectors.

(4) Disconnect these electrical cables from the hydraulic supply and control assembly:

- Disconnect the electrical cables from the solenoid valves.
  At the in-line connectors.
- Disconnect the electrical cables from the hydraulic pump pressure switch.
  At the in-line connectors.
- Disconnect the electrical cables from the hydraulic pump motor.
  At the hydraulic pump electric motor.

(5) Disconnect the flexible cable from the emergency extension valve:

- Loosen the bolt on the cable swivel fitting.
- Move the cable clear of the swivel fitting.
- Release the cable clamp and move the cable clear of the supply and control assembly.

(6) Remove the hydraulic supply and control assembly:

- Remove the 7 bolts and washers that attach the mounting tray to the surrounding structure.
  Note the location of the bonding strip connection and the earth wire.
- Lift the complete assembly clear of the airplane. Hold the assembly level to minimize hydraulic fluid spillage.
  Use a suitable container/material to catch spilt hydraulic fluid.

29-10-25 Hydraulic Supply and Control Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

CLEAN UP SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN CAUSE DAMAGE TO AIRPLANE COMPONENTS.

3. Main Procedure

A. Install the Hydraulic Supply and Control Assembly

(1) Install the hydraulic supply and control assembly:

- Move the hydraulic supply and control assembly into position in the hydraulic compartment
- Install the 7 bolts and washers that attach the hydraulic supply and control assembly mounting to the hydraulic compartment.

Attach the bonding strip and earth cable in the location noted in 29-10 Hydraulic Supply and Control Assembly - Remove procedure.

(2) Connect the flexible hydraulic hoses to the hydraulic supply and control assembly:

Make sure that all the blanking caps are removed.

- The 3 return hoses to the hydraulic manifold.
- The supply hose to the hydraulic manifold.

(3) Connect these electrical cables to the hydraulic supply and control assembly:

- Connect the electrical cables to the hydraulic pump motor.
  At the motor.
- Connect the electrical cables to the solenoid valves.
  At the in-line connectors.
- Connect the electrical cables to the hydraulic pump pressure switch.
  At the in-line connector.

(4) Connect the flexible cable to the emergency extension valve:

- Make sure that the emergency extension valve is in the fully closed (normal) position.
- Make sure that the emergency extension control lever in the cockpit is fully forward.
- Attach the flexible cable outer sheath to the mounting bracket.
- Pass the flexible cable through the swivel fitting in the emergency extension valve operating lever and tighten the screw.

(5) Do a visual test for the correct adjustment of the emergency extension valve operating cable:

- Set and hold the lever in the cockpit to the EMERGENCY position.
  The emergency valve at the supply and control panel must be in the emergency position. The hydraulic pump cut-out micro switch must be open.
- Set the lever in the cockpit to the NORMAL position.
  The emergency valve at the supply and control panel must be in the normal position. The hydraulic pump cut-out micro switch must be closed.

(6) If necessary, fill the hydraulic reservoir with fluid.

Refer to 29-00 Hydraulic System - Fill.

(7) If necessary, charge the hydraulic accumulator with nitrogen.

(8) Bleed the hydraulic system.

Refer to 29-00 Hydraulic System - Bleed.

(9) Do a test for the normal operation of the landing gear extension and retraction system.

Refer to 29-11 Normal Operation Test - Operation Test.

(10) Do a test for the correct operation of the emergency extension system.

Refer to 29-11 Emergency Operation Function Test - Operation Test.

(11) Install the access cover on the RH fuselage tube.

(12) Reset the GEAR circuit breaker.

Located on the RH side of the instrument panel.

29-11
HYDRAULIC SYSTEM TESTS

29-11-01 Normal Operation Test

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Tail trestle	Commercial	1
Magnetic Testing Device	X11-P005	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Normal Operation Test of the Hydraulic System

(1) Pull the GEAR circuit-breaker.

Located on the right side of instrument panel.

(2) Get access to the hydraulic system:

- Remove the access panel on the RH fuselage tube.

(3) Depressurize the hydraulic system.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(4) Reset the GEAR circuit-breaker

Located on the right side of instrument panel.

(5) Measure the charge time of the accumulator:

- Set the ELECT. MASTER switch to ON.
- Charge time of a fully empty accumulator until the electronic pump pressure switch turns it off.
  13 ±5 sec.
- Set the ELECT. MASTER switch to OFF.

B. Time to Extend and Retract of the Landing Gear

Make sure to lift the airplane according to 07-10 Jacking - Jacking and connect an external power supply according to 24-40 External Power - Description before doing this test. If the measured values are equivalent to the set-points, the function of the “differential pressure mode for the retraction” is given automatically.

Cycle	Set-point
Time to retract.	7 (+2/-2) sec
Follow-up time of the pump.	8 (+3/-3) sec
Time to extend.	7 (+2/-2) sec
Follow-up time of the pump.	9 (+3/-3) sec
These values assume that the hydraulic system is fully bled.	

Table 1 - Normal Operation

C. Differential Pressure Mode for the Retraction of the Landing Gear

(1) Retract the landing gear.

Refer to 32-30 Extension and retraction - Description.

(2) Get access to the hydraulic system:

- Remove the access panel on the RH fuselage tube.

(3) Use a screwdriver or any magnetizable material and hold it close to the upper solenoid valve.

A magnetic testing device can also be used to test the solenoid valve.

If the tool gets pulled to the valve it means it is energized and the differential mode is OFF.

(4) In case the solenoid valve is not energized, check the micro switches in the nose landing gear bay.

Refer to 32-60 Position and warning - Test and inspection.

D. Internal Leak Tightness

High re-pump cycles as a result of internal leakage at the fully bled system are usually a maximum of one cycle in 1 hour.

Re-pump cycles at completely bled and thermally balanced system cycle	Set-point
Retracted landing gear.	Max. 1 cycle per hour.
Extended landing gear.	Max. 1 cycle per hour.

NOTE

When the system is cooling down it starts to re-pump earlier. High re-pump cycles can be caused by internal leakage in the valves or also by the piston sealing of the actuator.

Table 2 - Internal Leak Tightness

29-11-02 Emergency Operation Function Test

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Fuselage trestle	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

3. Main Procedure

A. Emergency Operation Function Test of the Hydraulic System

(1) Pull the GEAR circuit-breaker.

Located on the right side of the instrument panel.

(2) Lift the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Description.

(3) Connect an external power supply to the airplane.

Refer to 24-40 External Power - Description.

(4) Retract the landing gear.

(5) Emergency extension:

- Set engine power lever to MAX.
  This prevents the activation of the gear warning system.
- Pull the GEAR circuit breaker:
  - Time to extend: max. 10 sec.
- Reset the GEAR circuit breaker:
  - Landing gear retracts again.
  - Wait until hydraulic unit stops to operate.
- Operate the emergency extension lever. (Located in the cockpit)
  See 29-10 Hydraulic Control Block - Remove procedure Figure 1.
  Time to extend: max. 6 sec.
- Set the landing gear lever to DOWN.

(6) Check landing gear indication lights:

- No red lights visible.
- 3 green lights visible.
- Test time counts from activation up to indication of 3 green lights.

Refer to 32-30 Emergency Operation - Test and inspection.

(7) Reset the emergency extension lever.

(8) Perform normal extension and retraction.

Refer to 32-30 Extension and retraction - Description.

(9) Move the wing and rear fuselage trestles clear of the airplane.

(10) Lower the airplane with the jacks.

Make sure that the area around the airplane is clear.

29-11-03 Leak Tightness Test

Leak check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

3. Main Procedure

A. Leak Tightness Test of the Hydraulic System

(1) Pull the GEAR circuit-breaker.

Located on the right side of the instrument panel.

(2) Lift the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Description.

(3) Connect an external power supply to the airplane.

Refer to 24-40 External Power - Description.

(4) Retract the landing gear.

Refer to 32-30 Normal Operation - Test and inspection (Landing Gear Extension and Retraction Test).

(5) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(6) Switch to permanent differential pressure mode:

- Remove the electrical plug from the upper solenoid valve.

This causes the hydraulic system to stay in differential pressure mode. Refer to Figure 4 to see the solenoid valve.

(7) Drain fluid from the hydraulic system.

Refer to 29-00 Hydraulic System - Drain other liquid.

This is important because when testing the hydraulic system, fluid gets pumped into the system and can cause an overflow.

(8) Install the hand pump:

- Remove the protection cap from the MiniMess 1215 plug.
- Install the hand pump onto the plug.

The MiniMess 1215 plug is situated on the hydraulic control block.

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

NOTE

Make sure to use clean hydraulic fluid with the hand pump for testing the hydraulic system. Don't overfill the hydraulic reservoir by pumping too much hydraulic fluid with the hand pump into the system.

(9) Adjust the pressure limitation valve of the hand pump to 190 bar (2775 PSI).

(10) Check for external/internal leakage:

- Increase the pressure with the hand pump in the hydraulic system to 170 bar (2466 PSI).
  If the pressure drops below 165 bar (2393 PSI) and there is no external leakage visible it can be assumed that there is an internal leakage. Please contact after sales support at Diamond Aircraft.
- Keep this pressure for 5 minutes and check for any pressure decrease.
- Use checklist for leakage test.
  Refer to 29-11 External Leakage - Leak check (Checklist for external leakage).

(11) Check operation of the protection valve on the main control block:

- Increase the pressure of the hydraulic system to >180 bar (2610 PSI).
- The protection valve should open and after the valve closes and the pressure in the hydraulic system is stabilized the pressure is steady at 150 bar (2175 PSI).

Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.

(12) Move the wings and rear fuselage trestles clear of the airplane.

(13) Lower the airplane with the jacks. Make sure that area around the airplane is clear.

(14) Reset the GEAR circuit breaker.

Right side of instrument panel.

29-11-04 External Leakage

Leak check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Checklist for External Leakage

Check the hydraulic hoses on the hydraulic kit. Also check the connections of the hoses on the hydraulic control block and on the hydraulic actuators visually for leak-tightness.

Checkpoint	Set-point
Leakage on the fittings of the hydraulic kit.	No leakage.
Leakage on the hose connections of the manifold (located in the center console between the passenger feet area), the control block and the lead through the NLG bay.	No leakage.
Leakage on the hose connections of the hydraulic actuators.	No leakage.
Leakage on the piston seal of the hydraulic actuator.	No drop formation allowed. Maximum a little amount of dried fluid on the cylinder head respectively on the piston rod end.

Table 1 - Checklist for External Leakage

After fixing a leakage on the fittings or hose connections a leak tightness test has to be done.

(1) External Leakage

In general you should check if there is any damage of the piston of the hydraulic actuator when the landing gear is retracted. (Refer to 32-30 Extension and retraction - Description Landing Gear Extension and Retraction Test). Look for scratches, bumps, grooves or any other physical damage. If there are any damages in the range of the piston seal the hydraulic actuator piston has to be replaced. (Refer to 32-20 Actuator - Remove procedure)

If a hydraulic actuator has a major leakage (drop formation visible) send the hydraulic actuator to the vendor for a repair.

If a hydraulic actuator has a minor leakage (a little amount of dried fluid, no drop formation) perform a detailed check.

(2) Detailed Check

Static (landing gear extended, ELECT. MASTER switch ON / set GEAR circuit breaker):

- Max. leakage 1 drop of fluid in 10 hours.

Dynamic (after 25 extend/retract cycles):

- Max. leakage 1 drop of fluid.

If one of the measurements does not comply with these set-points send the actuator to the vendor for a repair. Otherwise you can continue the operation but observe the situation.

29-11-05 Pump Pressure Switch and Pressure Limitations Valve Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Wing trestles	Commercial	2
Fuselage trestle	Commercial	1
Manometer to test hydraulic pressure	X11-P001	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

3. Main Procedure

A. Pump Pressure Switch and Pressure Limitation Valve Operation Test

(1) Pull the GEAR circuit-breaker.

Located on the right side of the instrument panel.

(2) Lift the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Description.

(3) Connect an external power supply to the airplane.

Refer to 24-40 External Power - Description.

(4) Get access to the hydraulic system:

- Remove the access cover on the RH fuselage tube.

(5) Remove the protection cap from the test plug (MiniMess 1215) located on the main control block and connect the manometer.

(6) Reset the GEAR circuit-breaker.

Located on the right side of the instrument panel.

(7) Check of the pressure limitation valve:

- Landing gear fully extended.
  Set-point: 120 (-0 / +5) bar (1740 [-0 / +72] PSI).
- Pump is still running to charge the accumulator.

NOTE

step A.(8) and step A.(9) (steps to test the pump pressure switch) are not required if the system is working properly.

(8) Check switching point of the pump pressure switch:

- Retract the landing gear fully.
  Refer to 32-30 Normal Operation - Test and inspection.
- Operate the emergency extension lever just a little bit, so that the micro switch on the emergency extension doesn't switch but that the valve is opened a little bit.
  Refer to 29-10 Hydraulic Control Block - Remove procedure Figure 1.
- The pressure on the manometer should decrease slowly.
- When the pump switches on, read the manometer value.
  93 ±1 bar (1349 ± 14.5 PSI).

(9) Check opening point of the pump pressure switch:

- Extend the landing gear fully.
  Refer to 32-30 Normal Operation - Test and inspection.
- Open dump valve until the pump switches ON:
  - Remove the lock wire from the dump valve.
  - Loosen the counter nut.
  - Loosen the hexagon socket to open the dump valve.
- Slowly close the dump valve so that the pressure on the manometer increases slowly. Adjust the dump valve so that the circulation pressure is at 110 bar (1595 PSI).
- Now wait approx. 20 sec so that the accumulator can charge fully.
- Slowly close the dump valve completely and check the pressure with the manometer:
  Set-point: 114 ±1 bar (1653 ± 14.5 PSI).
  - Tighten the hexagon socket to close the dump valve.
    6 - 10 Nm (4.4 - 7.4 lbf.ft.), wrench size 1/4 in.
    Refer to Special Torque Values - Description.

- Tighten the counter nut.
  8 - 10 Nm (5.9 - 7.4 lbf.ft.), wrench size 19 mm.
  Refer to Special Torque Values - Description.
- Install the lock wire onto the dump valve.

(10) Install the access cover on the RH fuselage tube.

(11) Move the wings and rear fuselage trestles clear of the airplane.

(12) Lower the airplane with the jacks. Make sure that area around the airplane is clear.

30-00
ICE PROTECTION SYSTEM

30-00-01 Ice Protection System

Description

1. Ice Protection System

WARNING

DO NOT GET ICE PROTECTION FLUID ON YOUR SKIN OR ON YOUR CLOTHES. ICE PROTECTION FLUID IS HARMFUL AND CAN CAUSE INJURIES TO PERSONS AND CAN DAMAGE YOUR CLOTHING.

CAUTION

HANDLE ICE PROTECTION FLUID WITH CARE. ICE PROTECTION FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

This Section explains the ice protection system of the DA 50 C airplane installed via change OÄM 50-011. It gives you general data and the trouble-shooting data on the system.

A. Airframe and Windshield Ice Protection System

The ice protection system is electrically operated. It is supplied with power via the DE-ICE circuit breaker. The airframe and windshield ice protection system is fluid based and a so called Tecalemit-Kilfrost-Sheepbridge Stokes (TKS) system whereby a fluid acts as a freezing point depressant (FDP).

Refer to 30-00 Airframe and Windshield Ice Protection System - Description.

(1) Airframe Ice Protection System

The fluid is distributed via a tubing system to each part of the aircraft structure (fuselage, wing, tail) necessary to be protected by preventing ice accretion during flight in FIKI condition. The core of the system are porous panels located on the leading edge of protected surfaces that are used to distribute the fluid to the skin of each surface. The fluid mixes with the accreting ice or freezing water decreasing the freezing point and therefore preventing formation and accretion of ice.

(2) Windshield Ice Protection System

The windshield ice protection system consists of two spray nozzles that, on demand, spray fluid to the lower portions of the windshield. The fluid soaks into potential ice on the windshield and depresses the freezing point so the ice becomes liquid and is removed by aerodynamic forces.

B. Propeller Ice Protection System

The electric propeller ice protection system functions on the principle of electrically heated de-icing boots on the inner sections of the propeller. The heated pads increase the surface temperature of the propeller and reduce adhesion of ice, thus ice accumulating on the propeler blades when operating in icing condition is periodically shedded due to centrifugal forces.

The ice protection system of the propeller is activated via an ON/OFF switch in the cockpit which supplies power from Alternator 2 bus to the timer box and a relay if the engine is running. Based on the outside air temperature the relay bypasses the timer box at temperatures below -10°C (14°F). The timed mode is required to prevent electric boots from overheating during ground use or at high OATs.

The current supplied to the brushes is measured and triggers the CAS message PROP DE-ICE FAIL of the Garmin 1000 NXi in case of low amperage.

Refer to 30-00 Propeller Ice Protection System - Description.

30-00-02 Airframe and Windshield Ice Protection System Description

1. Airframe and Windshield Ice Protection System

Figure 1 shows the schematic diagram for the mechanical parts of the fluid based ice protection system on the DA 50 C. The mechanical part of the ice protection system consists of:

- Porous panels on the leading edge of the horizontal tail.
- Porous panel on the leading edge of the vertical tail.
- Porous panels on the leading edge of the center wing and outboard wings.
- Ice protection fluid tank with integrated level sensor and low level switch.
- 2 Ice protection fluid metering pumps.
- Ice protection fluid filter.
- Proportioning units in LH and RH center wing.
- Proportioning unit in the vertical tail.
- Low pressure switch in the vertical tail.
- 2 low pressure switches in the LH and RH horizontal tail.
- Low pressure switch in the RH center wing.
- High pressure switch next to the filter inlet.
- Windshield pump with solenoid valve in the middle tunnel.
- 2 spray nozzles in front of the windscreen.

These system components are connected with nylon tubing.

Figure 2 shows the schematic diagram for the electrical parts of the fluid based ice protection system on the DA 50 C. The electrical part of the ice protection system consists of:

- Ice protection control box.
- Ice protection control panel.
- Low level switch.
- Ice protection fluid level gauge.
- 4 low pressure switches.
- High pressure switch
- 2 metering pumps.
- Windshield pump.
- Solenoid valve.
- 2 ice lights.

The ice protection system is electrically operated. It is supplied with power via the DE-ICE circuit breaker.

A. Ice Protection Fluid Tank

The ice protection fluid tank has an integrated filler neck, including an inlet strainer. The tank is made from polyethylene (XPE) and has a maximum capacity of 8.3 US gal (31.4 liter), an useable volume of 8.2 US gal (31 liter) and is located within the aircraft fuselage in a designated compartment behind the rear seats.

A fluid level sensor provides the signal for the fluid level indication on the G1000 NXi. A low level switch in the tank provides indication of low level of ice protection fluid (1.85 US gal (7 liter)) via a caution message on the G1000 NXi.

In case the aircraft will be out of service or not using the ice protection system for more than one month, ensure at least 0.5 US gal (2 liters) of ice protection fluid per MIL-DTD- 406B are in the ice protection fluid tank.

From the outlet, nylon tubing feeds the fluid to the inlet of the metering pump assembly.

B. Metering Pump Assembly

The metering pump assembly consists of two electrical pumps. These pumps are mounted under a cover next to the ice protection fluid tank.

The metering pump assembly has two outlets. One outlet supplies the airframe ice protection system. The other outlet supplies the windshield de-icing system.

C. Airframe Ice Protection System

(1) High Pressure Switch

A high pressure switch is situated between the main pump assembly and the filter. It is mounted on the metering pump assy. In case of a high pressure condition upstream of the filter (e.g. when resistance of the filter becomes too high), the sensor activates a caution message ("DEIC PRES HI") on the Garmin G1000 PFD. The system remains operative, but the cause of the high pressure condition must be eliminated (e.g. by replacement of the filter cartridge).

(2) Ice Protection Fluid Filter

The fluid filter protects all components downstream (as are the capillaries of the proportioning units and the porous panels) from fouling.

D. Wing Ice Protection System

(1) Proportioning Unit

A proportioning unit is located on each side of the center wing, directly behind the center wing TKS panel. It is accessible after removal of the small inspection panel on the lower side of the center wing.

The proportioning unit divides the fluid flow into four sub-branches. For each sub-branch there is a capillary which ensures that the correct amount of ice protection fluid flows to the related sub-branch.

One sub-branch goes (on the RH side via a low pressure switch) to the center wing panel. Three branches go to the outer wing to feed the porous panels of the outer wing.

(2) Wing Ice Protection System

Porous titanium panels are fitted to the leading edge of the center wing and outer wing. Each panel contains a porous membrane and a cavity along the porous front plate (active area) that serves as a reservoir. The porous panels weep the fluid at a low rate through fine holes.

The panels are bonded to the wing leading edge. They cannot be removed without damage.

E. Empennage Ice Protection System

(1) Proportioning Unit

A proportioning unit is attached forward of the front spar of the vertical stabilizer.

The proportioning unit divides the fluid flow into three sub branches. For each sub-branch there is a capillary which ensures that the correct amount of ice protection fluid flows to the related horizontal or vertical tail porous panel.

(2) Horizontal Tail Ice Protection System

Porous panels are attached to the LH and RH leading edge of the horizontal stabilzer. Each panel contains a porous membrane and a cavity along the porous front plate (active area) that serves as a reservoir. The porous panels weep the fluid at a low rate through fine holes.

The panels are bonded to the horizontal tail leading edge. They cannot be removed without damage.

(3) Vertical Tail Ice Protection System

One porous panel is attached to the leading edge of the vertical stabilzer. The panel contains a porous membrane and a cavity along the porous front plate (active area) that serves as a reservoir. The porous panel weeps the fluid at a low rate through fine holes.

The panel is bonded to the vertical tail leading edge. It cannot be removed without damage.

F. Low Pressure Switches

Four low pressure switches are situated between the proportioning unit and the porous panels on the empennage and the RH center wing. If one of these panels is not supplied with sufficient pressure, then the switch activates a caution message on the G1000 NXi PFD ("DEIC PRES LO").

G. Windscreen De-Icing System

(1) Windshield De-Icing Pump

One outlet on the suction side of the main pump assembly is connected to the inlet of the windshield de-icing pump. The pump is mounted in the middle tunnel between pilot and co-pilot seat.

(2) Solenoid Valve

A solenoid valve is located upstream the windshield de-icing pump. When the pilot operates the switch for the windshield de-icing system, then the valves allow the ice protection fluid to flow to the spray nozzles for 5 seconds. The solenoid valve prevents that air is drawn into the system via the spray nozzles.

(3) Spray Nozzles

Two spray nozzles are located in front of the windscreen. When activated, they spray ice protection fluid onto the windscreen.

H. Ice Protection Control System

(1) Ice Protection Control Box

The ice protection control box consists basically of relays and is connected to the de-ice control panel. It is supplied with electrical power via the DE-ICE circuit breaker. It is installed to control all 3 pumps of the airframe and windshield ice protection system. The ice protction control box is mounted next to the main pumps behind the rear seats.

(2) De-Ice Control Panel

The airframe and windshield ice protection system (including ice-lights) installed on the DA 50 C is operated via the de-ice control panel. The de-ice control panel is connected to the ice protection control box and to the instrument panel lighting bus. It is supplied with electrical power via the DE-ICE circuit breaker.

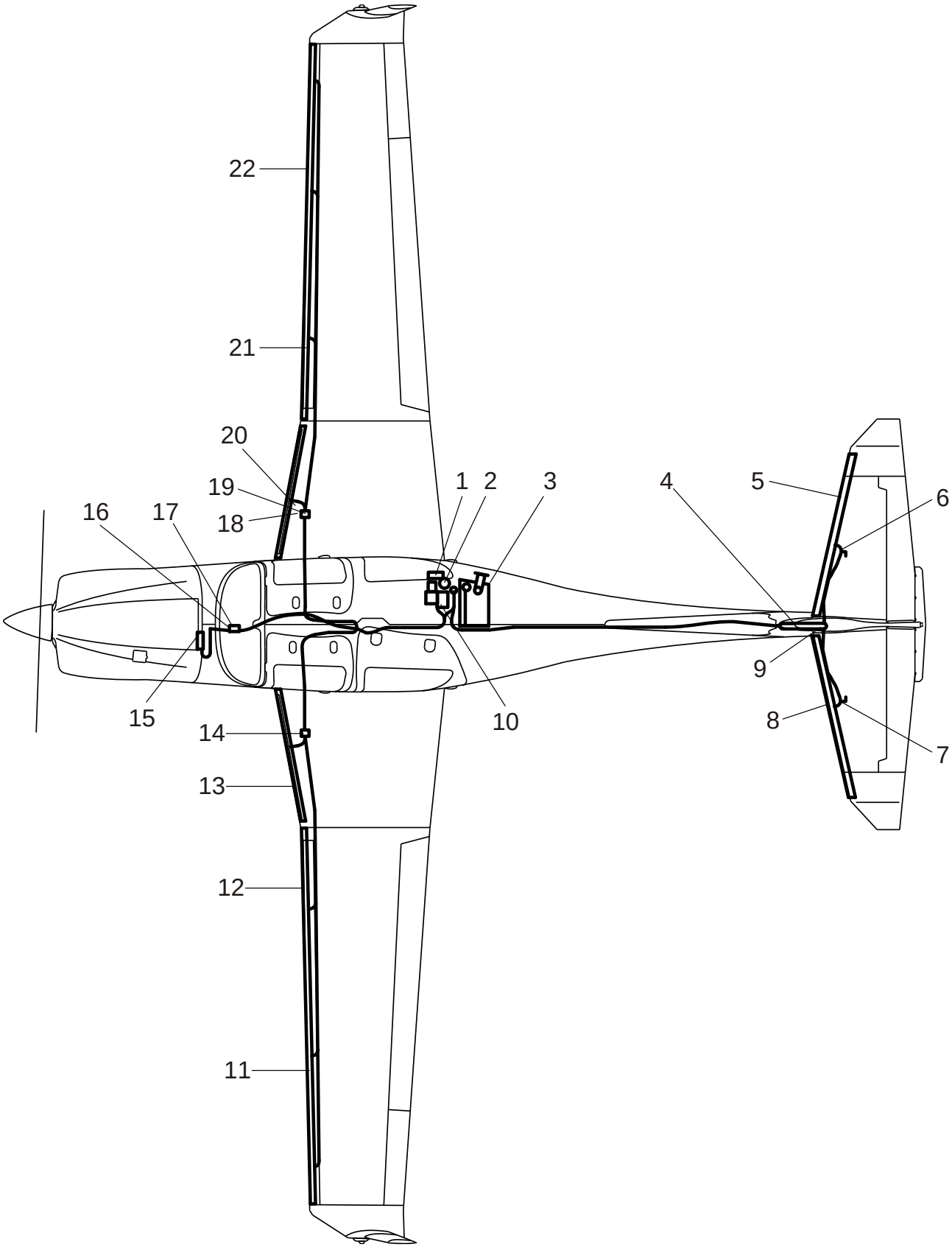


Figure 1 - Ice Protection System - Mechanical Schematic

Legend

[1, Fig.1]	HP Switch
[2, Fig.1]	Filter
[3, Fig.1]	TKS Fluid Tank
[4, Fig.1]	Vertical Tail Porous Panel
[5, Fig.1]	Horizontal Tail Porous Panel, RH
[6, Fig.1]	LP Switch, Horizontal Tail RH
[7, Fig.1]	LP Switch, Horizontal Tail LH
[8, Fig.1]	Horizontal Tail Porous Panel, LH
[9, Fig.1]	Tail Bracket Assy (LP Switch Vertical Tail and Proportioning Unit Empennage)
[10, Fig.1]	Metering Pumps
[11, Fig.1]	Porous Panel, Outboard Wing, LH
[12, Fig.1]	Porous Panel, Mid Wing, LH
[13, Fig.1]	Porous Panel, Center Wing, LH
[14, Fig.1]	Proportioning Unit, LH
[15, Fig.1]	Spray Nozzles
[16, Fig.1]	Windshield Pump
[17, Fig.1]	Solenoid Valve
[18, Fig.1]	LP Switch, Center Wing, RH
[19, Fig.1]	Proportioning Unit, RH
[20, Fig.1]	Porous Panel, Center Wing RH
[21, Fig.1]	Porous Panel, Mid Wing, RH
[22, Fig.1]	Porous Panel, Outboard Wing, RH

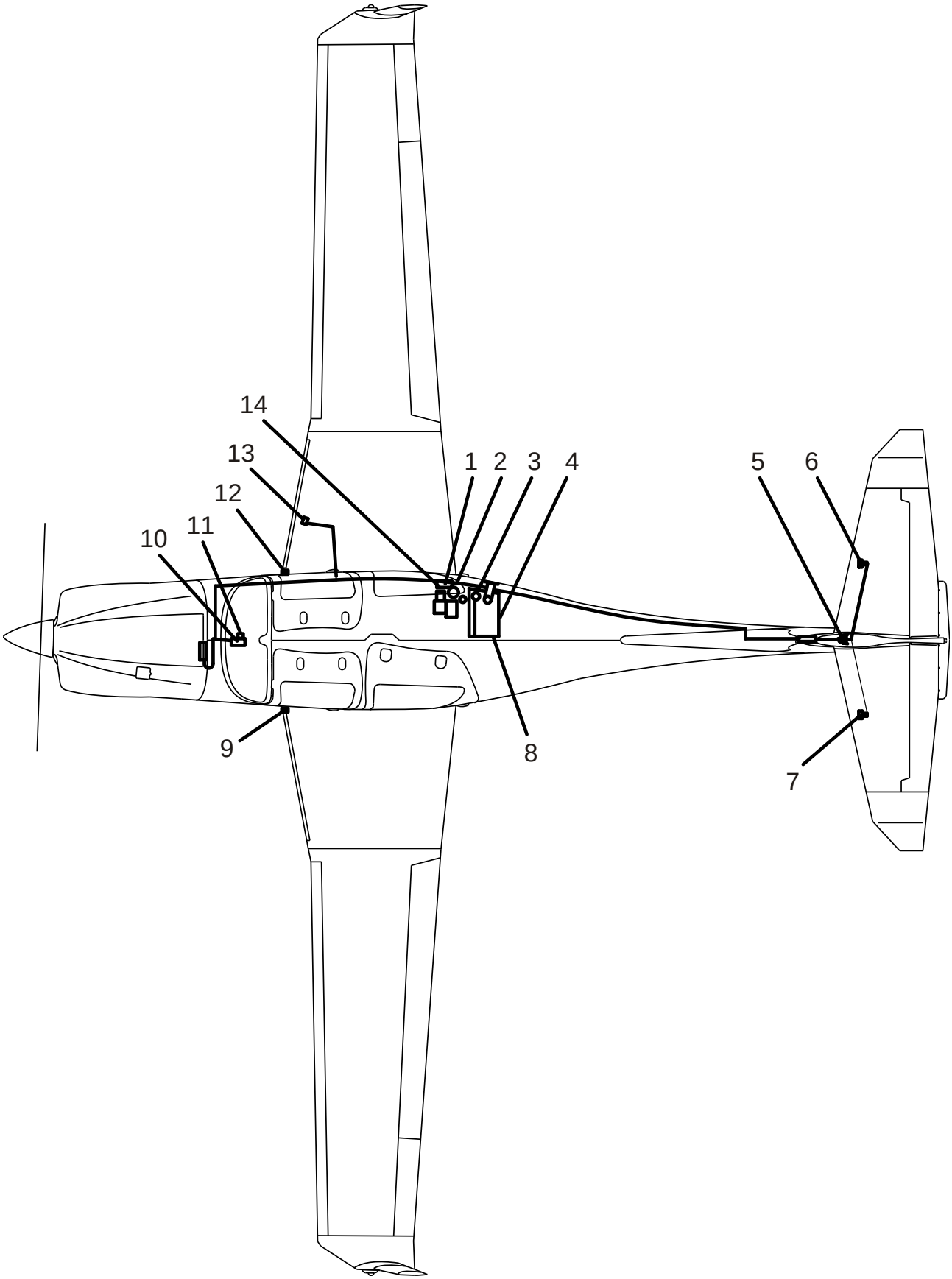


Figure 2 - Ice Protection System - Electrical Schematic

Legend

[1, Fig.2]	Control Box
[2, Fig.2]	Metering Pumps
[3, Fig.2]	Fluid Level Gauge
[4, Fig.2]	TKS Fluid Tank
[5, Fig.2]	Tail Bracket Assy (LP Switch Vertical Tail and Proportioning Unit Empennage)
[6, Fig.2]	LP Switch, Horizontal Tail, RH
[7, Fig.2]	LP Switch, Horizontal Tail, LH
[8, Fig.2]	Low Fluid Level Switch
[9, Fig.2]	Ice Light, LH
[10, Fig.2]	Windshield Pump
[11, Fig.2]	Solenoid Valve
[12, Fig.2]	Ice Light, RH
[13, Fig.2]	LP Switch, Center Wing, RH
[14, Fig.2]	HP Switch

30-00-03 Airframe and Windshield Ice Protection System

Description of function

1. Operation of the Airframe and Windshield Ice Protection System (TKS System)

A. OFF/NORM/HIGH Switch

The left OFF/NORM/HIGH switch activates the airframe ice protection system and allows choice of the two constant system modes as described below:

Down position	Airframe ice protection system OFF.
Center position	The NORMAL mode is cycled 30 seconds active, 90 seconds inactive with both pumps in use resulting in 50% average design flowrate. The mode is to be used for the often encountered, but not very severe continuous maximum icing conditions. The NORMAL mode is selected when icing conditions (visible moisture and OAT < 5°C) are encountered and prior to ice formation. Maximum system fluid consumption is 3 US gal/h (11.3 liter/h). Conservative maximum system operating time is 2 hrs 44 min.
Up position	The HIGH mode is a constant mode with one (voted) metering pump active providing a constant flow rate. This mode ia also called the "design mode" or 100% mode being reference for all design flow and pressure calculations. This mode is designed to cover all continuous maximum and most of the intermittent maximum icing conditions as defined by FAR 25 Appendix C, and is selected when icing conditions are more demanding. Maximum fluid consuption is 6 US gal/h (22.6 liter/h). Conservative maximum system operating time is 1 hrs 22 min.

B. MAX Push Button

The upper push button activates the MAX mode of the airframe ice protection system when the system is presently in the HIGH mode.

The MAX mode can be activated for 120 seconds having both metering pumps active providing a 200% design flowrate. This mode is used in case the HIGH mode is not sufficient for complete anti-ice as in severe intermittend maximum encounters. Additionally, the MAX mode provides limited de-ice capabilities in case of delayed activation or conditions outside the envelope. Each activation consumes 0.4 US gal (1.5 liter) of ice protection fluid.

C. PUMP1/PUMP2 Switch

A switch on the RH lower side of the IPS control panel selects one of the two main pumps if HIGH mode is active.

D. ALTERNATE Switch

The ALTERNATE switch connects main pump 2 directly to the essential bus. Thus, in case of a total loss of the main bus in icing conditions, operation of the ice protection system similar to the HIGH mode is possible.

E. ICE LIGHT / ANNUN-TEST Switch

This switch activates either both ice lights or the annunciation test procedure.

(1) Ice Lights Operation

The ice lights are switched ON by setting the toggle switch to the upper position.

(2) Test of Annunciations

Proper function of the fluid level switch and the low pressure switches can be tested without activation of the ice protection system with the annunciation test mode.

(a) Test of the DEIC PRES LO Annunciation

After the switch is set to ANNUN-TEST, the DEIC PRES LO annunciation in the alert window of the PFD appears with a delay of 2 minutes.

(b) Test of the DEICE LVL LO Annunciation

This test can only be carried out if the fluid level in the ice protection fluid tank is less than 7 liter (1.9 US gal). After the switch is set to ANNUN-TEST, the DEICE LVL LO annunciation in the alert window of the PFD appears.

F. WINDSHIELD Push Button

The WINDSHIELD push button activates the windshield de-icing pump for a duration of 5 seconds. During this time it feeds de-icing fluid to the spray nozzles in front of the windshield.

The windshield de-icing works even when the OFF/NORM/HIGH switch of the ice protection system is set to OFF. Air removal from the ice protection system is also provided by this pump by continuously pressing the WINDSHIELD push button.

30-00-04 Ice Protection Porous Panel

Description

1. Handling of Porous Panels

CAUTION

DON'T USE OTHER MATERIALS AS THE BELOW STATED ONES. THE MICROSCOPIC LASER DRILLED HOLES MAY BE CLOGGED BY USE OF ANY OTHER MATERIALS LIKE ADHESIVES, SEALANTS, PAINT, OR ANY FINE PARTICLES. THIS MAY AFFECT PANEL PERFORMANCE AND IS CAUSE FOR PANEL REJECTION.

Only the following solvents are permitted for use on the porous panels:

- Water with soap or detergent.
- Approved ice protection fluids.
- Propylene glycol.
- Avgas.
- Jet fuel.
- Isopropylalcohol.
- Ethyl alcohol.
- Industrial methylated spirit.

Mask panel active area with low tack tape and plug inlet ports when working with adhesives near panels or in a dusty environment.

The inlets should be protected with appropriate caps.

NOTE

The porous panels are not approved for temperatures above 82°C (180°F).

The following tapes are approved for use on the porous panels:

- Low tack masking tape: Scotch Flatback tape 2517, width 48 mm.
- Surface protection film: 3M Protective tape type 7007 AB, width 150 mm.

30-00-05 Propeller Ice Protection System

Description

1. Propeller Ice Protection System

The propeller ice protection system consists of the following main components:

- An electric timer box including an electric bypass.
- A brush block assembly.
- A slip ring assembly.
- 3 propeller electrothermal de-icers (one for each blade of the propeller) with tapered heating distribution.

30-00-06 Propeller Ice Protection System

Description of function

1. Operation of the Propeller Ice Protection System

The propeller ice protection system must be activated if the aircraft is operated in visible moisture at or below an indicated outside air temperature of +5°C (41°F).

The propeller ice protection system of the propeller is activated via the PROP DE-ICE switch in the cockpit which supplies power from Alternator 2 bus to the timer box and a relay if the engine is running. The switch is located on the lower left side of the instrument panel.

Activation of the propeller de-ice is indicated by the Garmin G1000 NXi via the annuncitation PROP DE-ICE ON.

30-00-07 Airframe and Windshield Ice Protection System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Cycle time of the WINDSHIELD, NORM or/and MAX- mode is/are out of tolerance.

1A. Examine the ice protection control box.
Is there an internal failure of the ice protection control box?
Yes - go to step 1B.
No - go to step 1C.

1B. Replace control box.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No ice protection fluid comes out of the spray nozzles or porous panels.

2A. Examine ice protection fluid tank.

Is the ice protection fluid tank empty?

Yes - go to step 2B.

No - go to step 2C.

2B. Replenish.

2C. Examine the ice protection fluid pumps.

Is the fluid pump defective?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace pump.

2E. Examine the ice protection fluid filter.

Is fluid filter clogged?

Yes - go to step 2F.

No - go to step 2G.

2F. Replace filter(s).

2G. Examine ice protection fluid tubing.

Is ice protection fluid tubing leaky?

Yes - go to step 2H.

No - go to step 2I.

2H. Replace the affected part of the tubing.

2I. Examine ice protection fluid tubing.
Is ice protection fluid tubing clogged?
Yes - go to step 2J.
No - go to step 2K.

2J. Replace the affected part of the tubing.

2K. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

No fluid dissipates from part of the active area of a porous panel.

3A. Examine porous panel.
Is trapped air in porous panel?
Yes - go to step 3B.
No - go to step 3C.

3B. Purge system.

3C. Contact DAI.

30-00-08 Propeller Ice Protection System

General fault isolation procedure

1. Fault Isolation

Refer to Goodrich Installation and Maintenance Manual for Prop De-Icing Systems.

If a mt-Propeller propeller de-ice controller is installed, refer also to the mt-Propeller Operation and Installation Manual Electric De-Ice Controller.

30-00-09 Airframe and Windshield Ice Protection System

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
TKS system test set	A 00305	1
TKS system test cart	D60-3004-00-00-ST	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET ICE PROTECTION FLUID ON YOUR SKIN OR ON YOUR CLOTHES. ICE PROTECTION FLUID IS HARMFUL AND CAN CAUSE INJURIES TO PERSONS AND CAN DAMAGE YOUR CLOTHING.

CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

CAUTION

DO NOT APPLY POLISH OR WAX TO THE PANELS. CERTAIN SOLVENTS, PARTICULARLY METHYL ETHYL KETONE (MEK), ACETONE, LACQUER THINNER AND OTHER TYPES OF THINNERS AND SOLVENTS DAMAGE THE INNER MEMBRANE OF THE PANELS. MASK ACTIVE AREA OF PANELS WITH A LOW TACK TAPE WHEN USING SOLVENTS OR PAINTING THE AIRPLANE IN THE PROXIMITY OF THE PANELS OR WHEN THE AIRPLANE IS STORED IN A DUSTY ENVIRONMENT. REFER TO PARAGRAPH 4 “HANDLING OF POROUS PANELS” IN THE GENERAL SECTION OF THIS CHAPTER.

NOTE

It is of particular importance that components and tubes upstream of the pumps and between the filter and the proportioning units are protected from ingress of foreign matter, as particles in the orifices of the proportioning units may cause a malfunction of the system. Cap ends of loose tubes during maintenance with plastic caps. The use of self adhesive tape is not recommended as protective material for nylon tubes.

3. Main Procedure

A. Operational Test Start

(1) Drain the ice protection fluid tank and verify that it is empty.

(2) Verify the following de-ice control panel settings:

- OFF/NORM/HIGH switch: OFF
- ICE LIGHT / ANNUN-TEST switch: OFF
- PUMP SELECTOR: PUMP 1

(3) Set the ELECT. MASTER switch to ON.

(4) Press ENGINE softkey on the MFD to indicate ice protection fluid level.

Check the following indications:

- MFD: Ice protection fluid level indication must show empty.
- PFD: No ice protection system related message in the alert window is active.

B. Annunciation Check

(1) Switch to ANNUN-TEST mode on the de-ice control panel and check that the DEICE LVL LO message appears in the alert window of the PFD.

The DEICE LVL LO message appears only if less then approx. 7 liter (1.9 US gal) are in the ice protection fluid tank.

(2) Wait 2 minutes and verify that the DEIC PRES LO message appears in the alert window of the PFD.

(3) Turn the ICE LIGHT / ANNUN-TEST switch back into the OFF position and verify that both messages disappear immediately.

C. Fluid Emission Test Preparation

(1) Verify that all gutters, catchment tanks and shieldings are fixed on the airplane and protection tapes on the porous panels are removed.

Recommended when system is turned on inside of hangar. See also TKS system test set.

(2) Sprinkle all 9 porous protection panels with approved ice protection fluid by using a clean, lint free cloth.

(3) Fill the ice protection fluid tank.

(4) Verify that the ice protection fluid level indication on the MFD shows full.

(5) Switch to the ANNUN-TEST mode on the de-ice control panel and verify that there is no DEICE LVL LO message in the alert window of the PFD.

(6) Set ICE LIGHT / ANNUN-TEST - switch to OFF.

D. Windshield Spray Nozzles Check

(1) Verify that the doors are closed.

(2) Check that each hole on the windshield spray nozzles emits ice protection fluid:

- Press the WINDSHIELD push-button on the de-ice control panel for 1 second.
- Repeat procedure until ice protection fluid emits from all holes of the spray nozzles.

(3) If the check described in the previous step was not successful, then shortly apply high air pressure to blocked holes of the spray nozzles and repeat the check procedure.

E. Main De-Ice Control Panel Test

(1) Verify that the pump-selector switch on the de-ice control panel is in PUMP 1 position.

(2) Set the OFF/NORM/HIGH switch to the HIGH position and check operation of the middle, amber annunciation light on the de-ice control panel.

The DEIC PRES LO annunciation may appear on the PFD in HIGH-mode. The ice protection system pressure depends on the fluid temperature.

(3) Check all porous panels for evidence of ice protection fluid.

(4) After each part of the ice protection panels become wet select PUMP 2 on the de-ice control panel.

The DEIC PRES LO annunciation may appear on the PFD in HIGH-mode. The ice protection system pressure depends on the fluid temperature.

(5) Check that each panel emits ice protection fluid with pump 1 and pump 2.

(6) Set the OFF/NORM/HIGH switch in NORM position and check the lower, white annunciation light if on.

(7) Verify that both main pumps are running.

(8) Verify that no DEIC PRES LO warning is now indicated in the alert window on the PFD.

Above 20°C (68°F) ambient temperature the DEIC PRES LO annunciation may appear in NORM and MAX mode.

F. Cycle Time Test

(1) In the NORM - Mode the operation of both main pumps is cycled. Therefore check runtime of the cycles:

- Pumps ON: 30 s (Tolerance +1 s / -3 s)
- Pumps OFF: 90 s (Tolerance +9 s / -1 s)

(2) Set the OFF/NORM/HIGH switch in the HIGH position, press the MAX push-button and check operation of both amber annunciation lights.

(3) Check the runtime of the MAX-mode.

- Pumps ON: 120 s (± 10 s).

(4) Check the runtime of the WINDSHIELD-pump. Verify that all doors are closed.

- Pump ON: 5 s (± 1s).

(5) Set the OFF/NORM/HIGH switch in OFF position.

G. ICE LIGHT / ANNUN-TEST - Test

(1) Set the ICE LIGHT / OFF/ ANNUN TEST switch in ICE LIGHT position and check operation of the LH and the RH Ice Light.

(2) Set the ICE LIGHT / OFF/ ANNUN TEST back in the OFF position.

(3) Set the ELECT. MASTER switch to OFF.

30-00-10 Ice Protection Fluid Tank

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET ICE PROTECTION FLUID ON YOUR SKIN OR ON YOUR CLOTHES. ICE PROTECTION FLUID IS HARMFUL AND CAN CAUSE INJURIES TO PERSONS AND CAN DAMAGE YOUR CLOTHING.

CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Remove the Ice Protection Fluid Tank

(1) Drain the ice protection system.

(2) Remove the baggage tray assy. Refer to 25-50 Baggage Compartment - Remove procedure.

(3) Disconnect all hoses, including the filler hose.

Use caps to protect the loose line connections from contamination.

(4) Disconnect the outlet hose of the ice protection fluid tank from the filter pump unit.

Prepare to recover spilled fluid.

Use caps to protect the loose line connections from contamination.

(5) Disconnect all electrical connections from the tank.

(6) Remove the WX 500 and its tray (if OÄM 50-013 is installed).

(7) Remove the two screws fixing both tank belts.

(8) Remove the two screws fixing the hinged backplate of the mounting tray.

(9) Move the ice protection fluid tank clear of the airplane.

30-00-11 Ice Protection Fluid Tank

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Install the Ice Protection Fluid Tank

(1) Move the ice protection fluid tank into position behind the rear seats.

Route the outlet hose through the provided hole in the baggage frame.

(2) Install the outlet hose to the ice protection filter pump unit.

Remove caps. Use new O-rings. Keep the aluminum olives free from dust.

(3) Install all hoses, including the filler hose and electric connectors.

Remove caps.

(4) Install the two screws fixing the hinged backplate of the mounting tray.

(5) Install the two screws fixing both tank belts.

(6) Install the WX 500 and its tray (if OÄM 50-013 is installed).

(7) Install the baggage tray assy.

Refer to 25-50 Baggage Compartment - Install procedure.

(8) Replenish the ice proctection system.

(9) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-12 Ice Protection Fluid Inlet Strainer

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Drive slot tool	D67-3003-01-00-ST	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Ice Protection Fluid Inlet Strainer

(1) Remove the ice protection fluid tank.

Refer to 30-00 Ice Protection Fluid Tank - Remove procedure.

(2) Removal of the inlet strainer:

- Put drive pins of tool into drive slots on the top of the strainer. Use drive slot tool.
- Unscrew the strainer counter-clockwise.
- Take out inlet strainer of filler neck.

(3) Close filler with cap.

30-00-13 Ice Protection Fluid Inlet Strainer

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Drive slot tool	D67-3003-01-00-ST	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Ice Protection Fluid Inlet Strainer

(1) Remove cap from ice protection fluid tank.

Verify that interior of tank is clean before installing the strainer.

CAUTION

MAKE SURE THAT THE STRAINER DOES NOT TURN. A TURNING STRAINER CAN DAMAGE THE TANK VENTILATION.

(2) Installation of inlet strainer:

- Move strainer in place in the filler neck.
- Put drive pins of tool into drive slots on the top of the strainer. Use drive slot tool.
- Tighten the strainer by twisting clockwise.

(3) Install the ice protection fluid tank.

Refer to 30-00 Ice Protection Fluid Tank - Install procedure.

30-00-14 Ice Protection Metering Pump

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Remove an Ice Protection System Metering Pump

(1) Remove the bolts and washers which attach the metering pumps cover behind the rear seats.

(2) Drain the ice protection fluid tank.

(3) Disconnect all electrical connectors from the pumps.

(4) Remove the locking wire from all hose connections.

(5) Disconnect all hose connections from the pumps.

Use caps to protect the loose line connections from contamination.

(6) Remove the bolts and washers which hold the pump to the mounting bracket.

(7) Remove the ice protection system metering pump from the mounting bracket.

30-00-15 Ice Protection Metering Pump

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Install an Ice Protection System Metering Pump

(1) Move the ice protection system metering pump in place on the mounting bracket.

(2) Install the bolts and washers which hold the pump to the mounting bracket.

(3) Connect all hose connections to the pump. Remove caps. Use new seals.

(4) Secure all hose connections with locking wire

(5) Connect all electrical connectors to the pumps.

(6) Install the bolts and washers which attach the metering pumps cover.

(7) Fill the ice protection fluid tank with ice protection fluid.

(8) Bleed the ice protection system.

(9) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-16 High Pressure Switch

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Replace the High Pressure Switch

HP Switch Value	
Activate.	10.34 bar / 150 PSI
Reset.	8.27 bar / 120 PSI

Table 1 - High Pressure Switch Values

(1) Remove the bolts and washers which attach the metering pumps cover behind the RH rear seats.

(2) Remove the locking wire of hose connections.

(3) Disconnect hose line connections.

Use caps to protect the loose line connections from contamination.

(4) Disconnect the electrical connector from the high pressure switch.

(5) Remove the bolts and washers which hold the high pressure switch to the mounting bracket.

(6) Replace the high pressure switch.

(7) Install the bolts and washers which attach the new high pressure switch to the mounting bracket.

(8) Connect all hose connections to the new high pressure switch.

Remove caps. Use new seals.

(9) Secure all hose connections with locking wire.

(10) Connect the electrical connector of the high pressure switch.

(11) Install the bolts and washers which attach the metering pumps cover.

(12) Bleed the ice protection system.

(13) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-17 Windshield Pump

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Replace the Windshield Pump

(1) Remove interior from LH side of middle tunnel beside the pilots seat.

(2) Remove the 6 bolts and washers from the maintenance cover. The windshield pump and solenoid valve is mounted on the cover.

Pay attention to the electric wiring and fluid hoses upon removal of the cover.

(3) Move the cover with windshield pump and solenoid valve clear from the middle tunnel as far as required to obtain access to the hose connectors and wiring connectors.

Do not stress the electric wiring or fluid hoses.

(4) Remove the locking wire of hose connections.

(5) Ensure the tank filler level is lower than the lines before opening the connections.

(6) Disconnect hose line connections.

Use caps to protect the loose line connections from contamination.

Prepare rags to collect spilled fluid.

(7) Disconnect the electrical connector from the windshield pump.

(8) Remove the bolts and washers which hold the windshield pump to the cover.

(9) Replace the windshield pump.

(10) Install the bolts and washers which attach the new windshield pump to the cover.

(11) Connect all hose connections to the new windshield pump.

Remove caps. Use new O-rings. Keep the aluminum olives free from dust.

(12) Secure all hose connections with locking wire.

(13) Connect the electrical connector of the windshield pump.

(14) Install the bolts and washers which attach the cover to the middle tunnel.

(15) Install the interior.

(16) Bleed the windshield pump by operating the windshield de-ice push button until fluid comes from the spray nozzles.

Collect spilled fluid.

(17) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-18 Solenoid Valve

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Replace the Solenoid Valve

(1) Remove interior from LH side of middle tunnel beside the pilots seat.

(2) Remove the 6 bolts and washers from the maintenance cover. The windshield pump and solenoid valve is mounted on the cover.

Pay attention to the electric wiring and fluid hoses upon removal of the cover.

(3) Move the cover with windshield pump and solenoid valve clear from the middle tunnel as far as required to obtain access to the hose connectors and wiring connectors.

Do not stress the electric wiring or fluid hoses.

(4) Remove the locking wire of hose connections.

(5) Ensure the tank filler level is lower than the lines before opening the connections.

(6) Disconnect hose line connections.

Use caps to protect the loose line connections from contamination.

Prepare rags to collect spilled fluid.

(7) Disconnect the electrical connector from the solenaoid valve.

(8) Remove the bolts and washers which hold the solenoid valve to the cover.

(9) Replace the solenoid valve.

(10) Install the bolts and washers which attach the new solenoid valve to the cover.

(11) Connect all hose connections to the new solenoid valve.

Remove caps. Use new O-rings. Keep the aluminum olives free from dust.

(12) Secure all hose connections with locking wire.

(13) Connect the electrical connector of the solenoid valve.

(14) Install the bolts and washers which attach the cover to the middle tunnel.

(15) Install the interior.

(16) Bleed the windshield pump by operating the windshield de-ice push button until fluid comes from the spray nozzles.

Collect spilled fluid.

(17) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-19 Ice Protection Fluid Filter

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Replace the Filter Cartridge

(1) Unscrew the clamps that hold the filter cartridge housing/assembly.

(2) Open the housing by turning the lower part of the cartridge.

(3) Check the O-ring for damage.

Replace if necessary.

(4) Replace the filter cartridge.

(5) Close the filter cartridge housing.

(6) Check the securing clip for correct position.

(7) Tighten the clamps that hold the filter cartridge.

(8) Install the bolts and washers which attach the metering pumps cover.

(9) Bleed the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Bleed.

(10) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-20 Airframe and Windshield Ice Protection System

Bleed

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Bleed the Ice Protection System

(1) Bleed the metering pumps:

- Fill the ice protection fluid tank to at least one quarter of its capacity.
- Close all doors.
- Set the ELECT. MASTER switch to ON.
- Operate the windshield pump of the ice protection system until ice protection fluid is expelled from the spray nozzles.
  This removes air from the suction lines of the metering pumps.
- Operate the system on HIGH mode until evidence of ice protection fluid on the porous panels is noticed.
- Do not let the ice protection fluid tank run dry, re-fill the ice protection fluid tank with at least 2 liter (0.5 US gal) of ice protection fluid.

(2) Bleed the filter element:

- Set the ELECT. MASTER switch to ON.
- Set OFF/NORM/HIGH switch of the de-icing control panel to HIGH.
- Operate system until fluid free of air bubbles is discharged from all panels.
- Set OFF/NORM/HIGH switch of the de-icing control panel to OFF.
- Set the ELECT. MASTER switch to OFF.

30-00-21 Airframe and Windshield Ice Protection System

Purge

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
TKS system test set	A 00305	1
TKS system test cart	D60-3004-00-00-ST	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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CAUTION

DO NOT APPLY POLISH OR WAX TO THE PANELS. CERTAIN SOLVENTS, PARTICULARLY METHYL ETHYL KETONE (MEK), ACETONE, LACQUER THINNER AND OTHER TYPES OF THINNERS AND SOLVENTS DAMAGE THE INNER MEMBRANE OF THE PANELS. MASK ACTIVE AREA OF PANELS WITH A LOW TACK TAPE WHEN USING SOLVENTS OR PAINTING THE AIRPLANE IN THE PROXIMITY OF THE PANELS OR WHEN THE AIRPLANE IS STORED IN A DUSTY ENVIRONMENT. REFER TO PARAGRAPH 4 “HANDLING OF POROUS PANELS” IN THE GENERAL SECTION OF THIS CHAPTER.

3. Main Procedure

A. Purge the Ice Protecton System

(1) Remove the access covers in the center wing (LH/RH wing proportioning unit) or bullet fairing (empennage proportioning unit).

To give access to the proportioning units.

(2) Remove locking wire of hose connection of the panel to be purged from the proportioning unit.

(3) Disconnect the panel to be purged from the proportioning unit.

Use caps. Prepage rags to collect spilled fluid.

(4) Connect the panel inlet line to the TKS system test chart using a straight fitting.

The outboard wing panel has two lines. Connect both lines with a T-fitting and connect the TKS system test chart to the inlet of the T-fitting.

(5) Apply fluid with pressure 60 ± 5 PSI to the inlet of the panel.

Continue purging unless bubble free fluid is emitted from the whole active area of the panel.

Use filtration (0.6 micrometer).

Ensure the TKS system test chart does not run empty during the purging procedure.

It is advised to recover the fluid expelled from the panels.

(6) Ensure the pressure of the TKS system test chart is reduced to 0 PSI and disconnect the panel inlet from the TKS system test chart.

(7) Connect the panel inlet line(s) to the proportioning unit outlet.

Use new O-rings. Keep the aluminum olives free from dust.

Refer to Table 1 for proportioning unit port numbering.

(8) Secure all hose connections with locking wire.

(9) Install the access cover / bullet fairing.

Panel	Proportioning Unit	Proportioning Unit Outlet
Wing outboard, LH (16802-01)	PU321DW237 LH Wing	1 (inboard)
		2 (outboard)
Wing, midboard, LH (16802-03)		4
Wing, inboard/center wing, LH (16802-05)		3
Wing outboard, RH (16802-02)	PU321DW238 RH Wing	5 (inboard)
		6 (outboard)
Wing, midboard, RH (16802-04)		4
Wing, inboard/center wing, RH (16802-06)		3
Tail vertical (15502-11)	PU319CT236 Empennage	1
Tail horizontal, RH (16802-10)		2
Tail horizontal, LH (16802-09)		3

Table 1 - Proportioning Unit Ports

30-00-22 Proportioning Unit of the Wing Ice Protection System

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET ICE PROTECTION FLUID ON YOUR SKIN OR ON YOUR CLOTHES. ICE PROTECTION FLUID IS HARMFUL AND CAN CAUSE INJURIES TO PERSONS AND CAN DAMAGE YOUR CLOTHING.

CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Remove a Proportioning Unit from the Center Wing

(1) Remove the access covers from the lower sides of the center wing.

CAUTION

YOU MUST MARK THE HOSES AND PORTS SO THAT YOU CAN RE-CONNECT THE HOSES TO THE CORRECT PORTS ON THE PROPORTIONING UNIT. IF YOU DO NOT RE-CONNECT THE HOSES CORRECTLY, THE SYSTEM WILL NOT WORK PROPERLY.

(2) Remove the bolts, washers and the spacers holding the proportioning unit.

Hold the proportioning unit.

Clearly mark all hose connections to the proportioning units before disconnecting them.

Refer to 30-00 Airframe and Windshield Ice Protection System - Purge for proportioning unit port numbering.

(3) Remove the locking wire from the hose connections to the proportioning unit.

(4) Disconnect all hoses from the proportioning unit.

Use caps to protect the loose line connections from contamination.

(5) Move the proportioning unit clear of the airplane.

30-00-23 Proportioning Unit of the Wing Ice Protection System

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Install a Proportioning Unit to the Center Wing

(1) Move the proportioning unit in position.

CAUTION

YOU MUST CONNECT THE HOSES TO THE CORRECT PORTS. IF YOU DO NOT CONNECT THE HOSES CORRECTLY, THE SYSTEM WILL NOT WORK PROPERLY.

(2) Connect all hose connections to the proportioning unit.

Remove caps.

Refer to 30-00 Airframe and Windshield Ice Protection System - Purge for proportioning unit port numbering.

(3) Secure all hose connections with lock wire.

(4) Install all bolts and washers which hold the proportioning unit.

(5) Install the access covers.

(6) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-24 Ice Protection Porous Panel

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace an Ice Protection Porous Panel

The porous panels for the ice protection system are bonded to the wing, vertical and horizontal stabilizer leading edges. They cannot be removed without damage to the panels. Refer to the airplane manufacturer when you must replace a porous panel.

30-00-25 Ice Protection Fluid Nylon Tubing

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace Ice Protection Fluid Nylon Tubing

Used diameters are: 3/16 in, 5/16 in and 1/2 in. Only replace tubes by tubes with the same diameter.

Refer to the CAV Aerospace Nylon Tubing and Coupling General Practices Manual for the replacement procedure. Minimum bending radius cold formed are:

Tool No.	Tube Outside Diameter	Min. recommended bend radius inch (mm) measured to inside wall of tube, cold formed
T300 - 112 A.	3/16 in	1 in (25 mm)
T300 - 120 A.	5/16 in	3 in (75 mm)
T300 - 144 A.	1/2 in	4 in (100 mm)

Table 1 - Minimum Bending Radius

30-00-26 Ice Protection Control Box

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A.

(1) Confirm that the DE-ICE circuit breaker is pulled.

(2) Remove the ice protection metering pumps cover which is located behind the RH rear seat.

(3) Unscrew the 2 mounting screws fixing the control box to the frame.

(4) Disconnect electric connector from control box.

(5) Connect electric connector to new control box.

(6) Move the de-ice control box to the prior position and fix it by using the 2 mounting screws.

(7) Install the ice protection metering pumps cover.

30-00-27 Low Pressure Switch of Vertical Tail Panel

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Remove the Low Pressure Switch Proportioning Unit Bracket

(1) Remove the faring cover from the empennage.

(2) Remove cable ties.

CAUTION

YOU MUST MARK THE HOSES AND PORTS SO THAT YOU CAN RE-CONNECT THE HOSES TO THE CORRECT PORTS ON THE PROPORTIONING UNIT. IF YOU DO NOT RE-CONNECT THE HOSES CORRECTLY, THE SYSTEM WILL NOT WORK PROPERLY.

(3) Disconnect the electrical connector from the low pressure switch.

(4) Remove locking wire from the hose connections pointing in flight direction.

(5) Disconnect the VT panel inlet from the pressure switch outlet.

Disconnect the two hose connections from the LH and RH pressure switches mounted in the horizontal tail to the proportioning unit outlets.

Use caps to protect the loose line connections from contamination.

(6) Remove bolts and washers, which hold the low pressure switch proportioning unit to the vertical stabilizer.

(7) Pull low pressure switch proportioning unit bracket assy upward.

To give access to the feeder line of the fuselage section.

(8) Remove locking wire from the feeder line connection.

(9) Disconnect feeder line to the low pressure switch proportioning unit.

Use caps to protect the loose line connections from contamination.

(10) Remove low pressure switch proportioning unit bracket assy.

30-00-28 Low Pressure Switch of Vertical Tail Panel

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Install a Low Pressure Switch Proportioning Unit Bracket Assy

(1) Connect feeder line to the low pressure switch proportioning unit.

(2) Secure feeder line connection with locking wire.

(3) Move low pressure switch proportioning unit in position in the vertical stabilizer.

(4) Install bolts and washers which hold the low pressure switch proportioning unit to the vertical stabilizer.

CAUTION

YOU MUST CONNECT THE HOSES TO THE CORRECT PORTS. IF YOU DO NOT CONNECT THE HOSES CORRECTLY, THE SYSTEM WILL NOT WORK PROPERLY.

(5) Connect the VT panel inlet to the pressure switch outlet.

Connect the 2 hoses from the LH and RH pressure switches mounted in the horizontal tail to the proportioning unit outlets.

(6) Secure all hose connections with lock wire.

(7) Connect the electrical connectors to the low pressure switches.

(8) Install cable ties.

(9) Install fairing cover to empennage.

(10) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-29 Low Pressure Switch of Horizontal Tail Panel

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET ICE PROTECTION FLUID ON YOUR SKIN OR ON YOUR CLOTHES. ICE PROTECTION FLUID IS HARMFUL AND CAN CAUSE INJURIES TO PERSONS AND CAN DAMAGE YOUR CLOTHING.

CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Remove the Low Pressure Switch of Horizontal Tail Panel

(1) Remove the maintenance cover from the lower side of the respective side of the horizontal tail.

(2) Remove cable ties.

(3) Disconnect the electrical connector from the low pressure switch.

(4) Remove bolts and washers, which hold the low pressure switch to the horizontal tail.

(5) Remove locking wire from the hose connections of the low pressure switch.

(6) Disconnect the HT panel inlet from the pressure switch.

Use caps to protect the loose line connections from contamination.

(7) Disconnect feeder line from the low pressure switch.

Use caps to protect the loose line connections from contamination.

(8) Remove the low pressure switch.

30-00-30 Low Pressure Switch of Horizontal Tail Panel

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Install a Low Pressure Switch of Horizontal Tail Panel

(1) Move low pressure switch in position in the horizontal tail.

(2) Connect feeder line to the low pressure switch.

(3) Secure feeder line connection with locking wire.

(4) Connect the HT panel inlet to the pressure switch outlet.

(5) Secure all hose connections with lock wire.

(6) Install bolts and washers which hold the low pressure switch to the horizontal tail.

(7) Connect the electrical connector to the low pressure switch.

(8) Install cable ties.

(9) Install the maintenance access cover to the lower side of the horizontal tail.

(10) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-31 Low Pressure Switch of RH Center Wing Panel

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Remove the Low Pressure Switch of RH Center Wing Panel

(1) Remove the mainteanance cover from the lower side of the RH center wing.

(2) Remove cable ties.

(3) Disconnect the electrical connector from the low pressure switch.

(4) Remove bolts and washers, which hold the low pressure switch to the center wing low pressure switch mounting bracket.

(5) Remove locking wire from the hose connections of the low pressure switch.

(6) Disconnect the RH center wing panel inlet from the pressure switch outlet.

Use caps to protect the loose line connections from contamination.

(7) Disconnect feeder line from the low pressure switch.

Use caps to protect the loose line connections from contamination.

(8) Remove the low pressure switch.

30-00-32 Low Pressure Switch of RH Center Wing Panel

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET ICE PROTECTION FLUID ON YOUR SKIN OR ON YOUR CLOTHES. ICE PROTECTION FLUID IS HARMFUL AND CAN CAUSE INJURIES TO PERSONS AND CAN DAMAGE YOUR CLOTHING.

CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Install a Low Pressure Switch of RH Center Wing Panel

(1) Move low pressure switch in position in the RH center wing.

(2) Connect feeder line to the low pressure switch.

(3) Secure feeder line connection with locking wire.

(4) Connect the RH center wing panel inlet to the pressure switch outlet.

(5) Secure all hose connections with lock wire.

(6) Install bolts and washers which hold the low pressure switch to the RH center wing.

(7) Connect the electrical connector to the low pressure switch.

(8) Install cable ties.

(9) Install the maintenance cover to the lower side of the RH center wing.

(10) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

30-00-33 Low Pressure Switch

Function Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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CAUTION

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3. Main Procedure

A. Test Low Pressure Switch

(1) Check ice protection system is set to OFF.

For a minimum of 5 min.

(2) Remove the bullet fairing from tail.

(3) Get access to the low pressure switch tail unit.

(4) Pull the black cap from the upper low pressure switch from the VT panel.

Do not damage the cap.

(5) Perform a continuity test for the switch.

SYSTEM OFF - the low pressure switch must be in the OPEN position - therefore no continuity.

(6) If continuity is measured, the switch is stuck in the closed position and needs to be replaced.

(7) Bring the black cap back in place of the switch.

(8) Install the bullet fairing.

(9) Remove the access covers from the lower side of the horizontal tail giving access to the LH and RH low pressure switches.

(10) Repeat step step A.(4) to step A.(6) for the horizontal tail low pressure switch.

(11) Install the access cover to the lower side of the horizontal tail.

(12) Remove the access cover from the lower side of the RH center wing giving access to the RH center wing low pressure switch.

(13) Repeat step step A.(4) for the center wing low pressure switch.

(14) Install the access cover to the lower side of the RH center wing

30-00-34 High Pressure Switch

Function Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET ICE PROTECTION FLUID ON YOUR SKIN OR ON YOUR CLOTHES. ICE PROTECTION FLUID IS HARMFUL AND CAN CAUSE INJURIES TO PERSONS AND CAN DAMAGE YOUR CLOTHING.

WARNING

TAKE PRECAUTIONS BEFORE YOU PERFORM THE HIGH PRESSURE SWITCH TEST. THE ICE PROTECTION FLUID IS UNDER HIGH PRESSURE (UP TO 10 BAR / 150 PSI) AND CAN CAUSE SERIOUS INJURY TO PERSONS, IF THE SYSTEM IS NOT DEPRESSURIZED PROPERLY.

CAUTION

HANDLE DE-ICING FLUID WITH CARE. DE-ICING FLUID IS FLAMMABLE AND CAN CAUSE DAMAGE TO EQUIPMENT.

3. Main Procedure

A. Test the High Pressure Switch

(1) Remove the ice protection metering pumps cover which is located behind the RH rear seat.

(2) Remove the lock wire from the inlet tube of the filter housing.

(3) Disconnect the inlet tube from the filler.

(4) Install a blind plug on the tube connection in order to block the line (simulation of a blocked filter).

Install a pressure gauge additionally if necessary.

(5) Set the ice protection system to HIGH mode for a maximum of 30 sec.

The tube pressure shall reach the HPS set pressure (150 PSI).

(6) Set ice protection system to OFF.

(7) Turn Annunciation Test ON.

(8) DEICE PRES HI annunciation shall appear. After 15 seconds.

DEICE PRES LO annunciation shall appear. After 120 seconds.

(9) Set Annunciation Test OFF.

(10) Carefully depressurize the system.

(11) Remove the blind plug.

Remove pressure gauge, if installed

(12) Connect the inlet tube to the filter.

Use new seal.

(13) Install the locking wire.

Use new locking wire.

(14) Do the operational test of the ice protection system.

Refer to 30-00 Airframe and Windshield Ice Protection System - Operation Test.

Check for leakage.

31-00
INDICATING SYSTEMS

31-00-01 Indicating/Recording Systems

Description

1. General

This Chapter tells you about the indicating systems installed in the airplane. Refer to these Sections for the related data:

- Section 31-10. Instrument and Control Panels - Description. The instrument and control panels installed in the DA 50 C.
- Section 31-20. Independent instruments.
- Section 31-40. Central computers - Description. The integrated cockpit system (ICS).

The DA 50 C has these indicating systems:

- An instrument panel. The instrument panel is made in several pieces with a shelf. The shelf goes between the panel and the cockpit forward bulkhead.
- A control panel in the center console. This panel has the engine controls, fuel controls, cabin heat control levers, parking brake and trim. It has a forward part and an aft part.
- Integrated cockpit system (ICS). The airplane has an integrated cockpit system with 2 displays which give the airplane flight and navigation displays, engine instrument displays and airplane systems indications. The ICS has “softkeys” on the display screens for the option of selecting which indications will be displayed on the screen.

This Section does not tell you about the indicators that belong to systems. See the related system for data. For example, see 27-20 Rudder Trim-Tab Control System - Description for data about the trim indicator.

31-10
INSTRUMENT AND CONTROL PANELS

31-10-01 Instrument and Control Panels

Description

1. General

The DA 50 C has these instrument and control panels:

- An instrument panel. The instrument panel is made in several pieces with a shelf. The shelf goes between the panel and the instrument panel frame.
- A control panel in the center console. This panel has a forward cover and an aft cover. The forward cover has the cabin heat control levers, parking brake lever and rudder trim control. The aft cover has the engine controls and fuel transfer/shut-off valve.

See the related Chapter or Section for data about the controls. For example, see 76-00 Engine controls - Description for data on the engine controls.

2. Instrument Panel Description

Figure 1 shows the instrument panel.

Several pieces of aluminum alloy make the instrument panel. The panel has a vertical face with instruments and a horizontal 'shelf' with electrical components. The shelf goes between the forward bulkhead of the cockpit and the vertical face of the panel.

The DA 50 C has an integrated cockpit system (ICS). The ICS has two large LCD display screens which are located in the instrument panel. These two display screens can digitally display all of the flight, navigation and airplane system data. An audio control panel is located between the display screens. The audio control panel integrates with the ICS and is used to control all of the airplane radio and navigation audio systems. Refer to 31-40 Central computers - Description for more data about the ICS.

The Standby Attitude Module (SAM), located between the Audio Panel and the MFD, serves as backup instrument in the event of a power failure and loss of the ICS. The SAM has two separate displays in one unit. The upper display serves as an artificial horizon and the lower display incorporates an airspeed indicator and altimeter. The SAM has an internal battery which automatically provides electrical power to the SAM for at least 60 min. A magnetic compass is installed on the top center of the windshield.

The circuit breakers for the electrical systems are located on the right side of the instrument panel. The electrical system bus-bars are directly connected to the rear of the circuit-breakers.

Along the bottom of the instrument panel are the electrical, avionic and engine master switches. The landing gear and flap control switches and fuel pump switches are also located along the bottom of the instrument panel. The instrument panel and airplane light switches are located at the top-center of the instrument panel.

The shelf part of the instrument panel holds relays, junction blocks, connectors and ground studs.

The instrument panel has a cover attached by screws.

Refer to 24-00 Electrical System - Description for more data about the electrical system and Chapter 22 for more data about the autopilot system.

3. Center Console Description

Figure 2 shows the center console structure. Refer to the related chapters for the data on the controls.

The center console holds the engine control assembly. The engine control assembly holds the rudder trim, cowl flap, parking brake, heating controls and engine power lever. Aft of the engine control assembly are the controls for the fuel and the elevator trim wheel. There are no user maintainable parts in the engine control assembly structure or the center console structure.

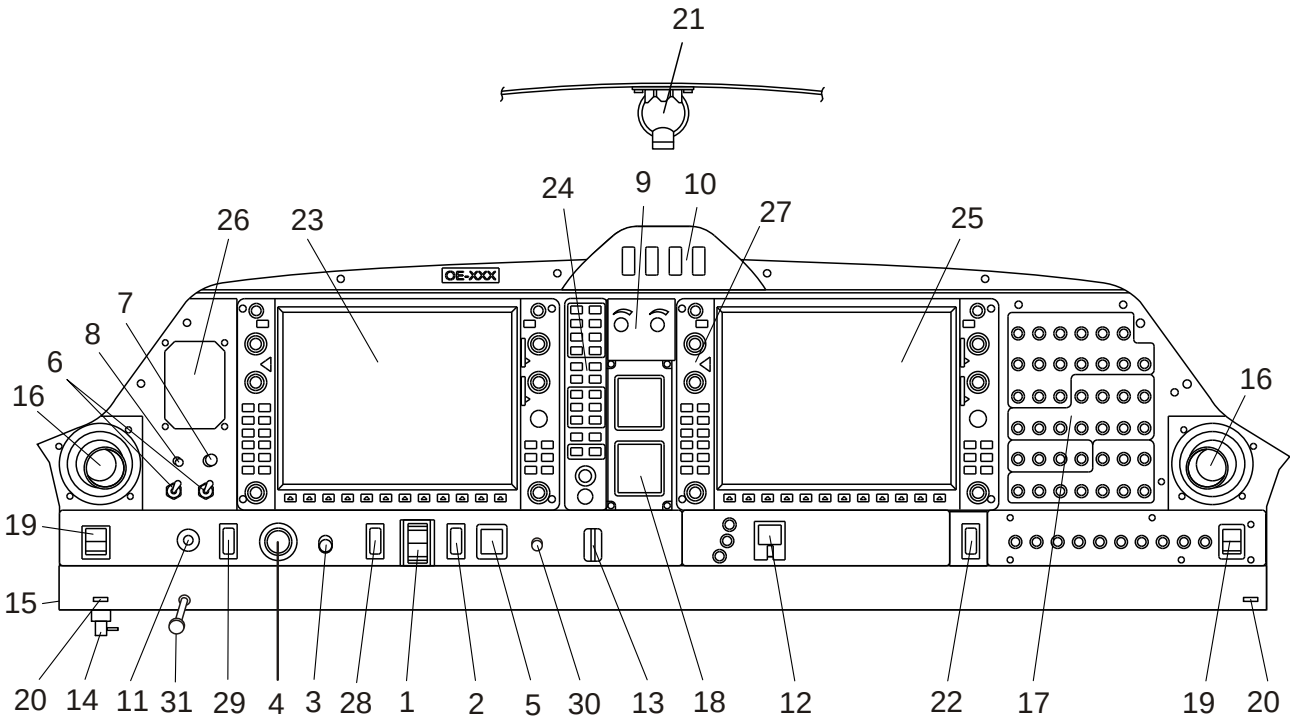


Figure 1 - Instrument Panel

Legend

[1, Fig.1] Electric Master Switch
[2, Fig.1] Avionic Master Switch
[3, Fig.1] Engine Master Switch
[4, Fig.1] Start Button
[5, Fig.1] Pitot/Stall Heat Switch
[6, Fig.1] Alternator Switches
[7, Fig.1] FADEC Test Button
[8, Fig.1] FADEC Force B Switch
[9, Fig.1] Instrument and Flood Light Rotary Buttons
[10, Fig.1] Light Switches
[11, Fig.1] Fuel Transfer Rotary Button
[12, Fig.1] Flap Selector Switch
[13, Fig.1] Landing Gear Switch
[14, Fig.1] Alternate Static Valve
[15, Fig.1] Microphone Socket
[16, Fig.1] Ventilation Nozzles
[17, Fig.1] Circuit Breakers
[18, Fig.1] Standby Attitude Module
[19, Fig.1] Rudder Pedal Switches
[20, Fig.1] USB Charging Ports
[21, Fig.1] Emergency Compass
[22, Fig.1] ELT Control Unit
[23, Fig.1] Primary Flight Display (PFD)
[24, Fig.1] Audio Amplifier/Intercom/Marker Beacon Receiver
[25, Fig.1] Multi Function Display (MFD)
[26, Fig.1] De-Ice Control Panel
[27, Fig.1] Autopilot Control Unit (Part of MFD)
[28, Fig.1] Essential Bus Switch
[29, Fig.1] Emergency Fuel Pump Switch
[30, Fig.1] Toggle to Test Switch for LG / Stall Warning
[31, Fig.1] ECS Shut-Off

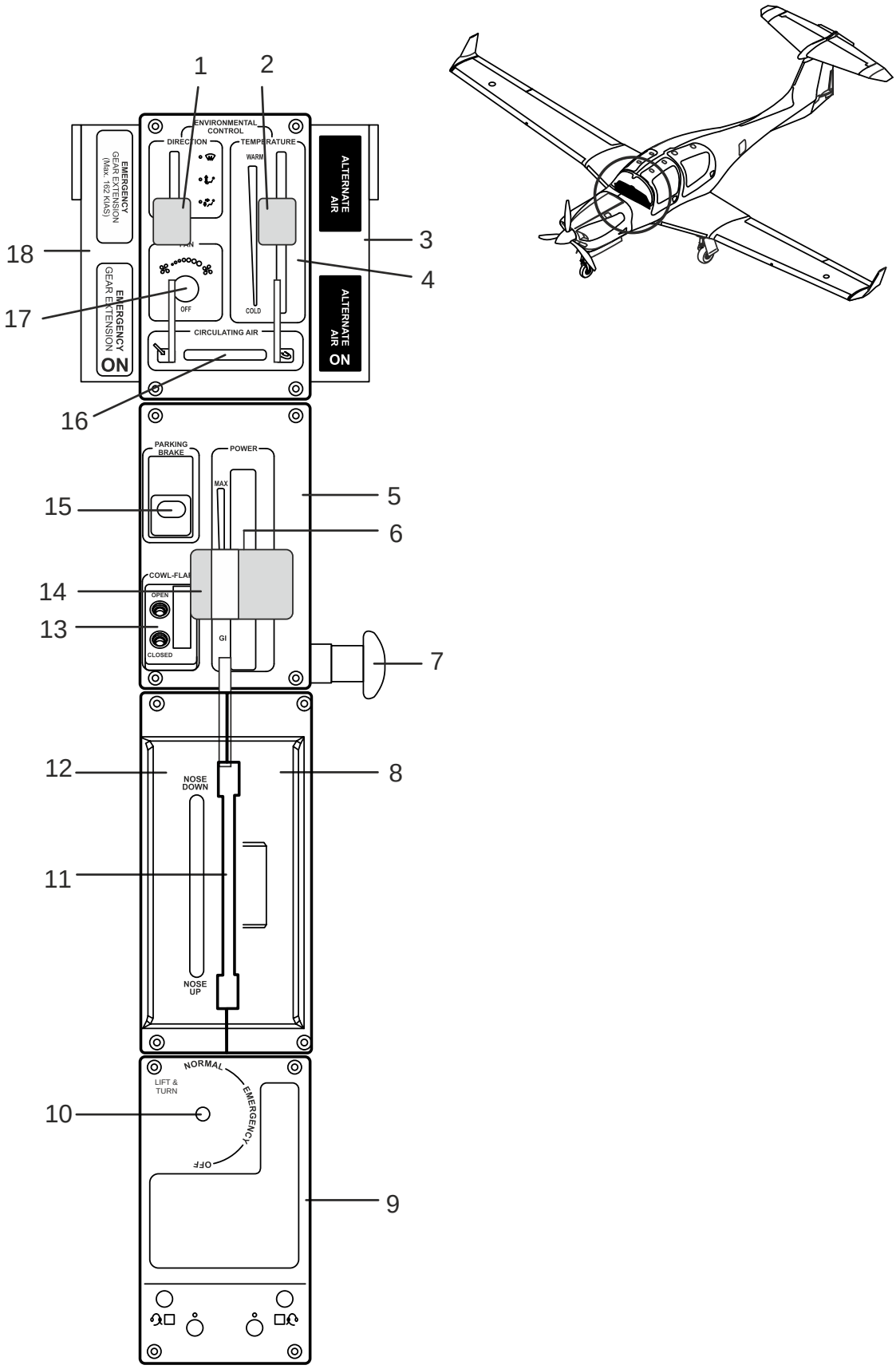


Figure 2 - Center Console

Legend

[1, Fig.2]	Distributor Control
[2, Fig.2]	Temperature Control
[3, Fig.2]	Alternate Air Lever
[4, Fig.2]	Environmental Controls Cover Plate
[5, Fig.2]	Engine Control Cover Plate
[6, Fig.2]	Rudder Trim Switches
[7, Fig.2]	Friction Control
[8, Fig.2]	Trim Wheel Cover Plate RH
[9, Fig.2]	Fuel Selector Cover Plate
[10, Fig.2]	Fuel Selector
[11, Fig.2]	Elevator Trim Wheel
[12, Fig.2]	Trim Wheel Cover Plate LH
[13, Fig.2]	Cowl Flap Switch
[14, Fig.2]	Engine Power Lever
[15, Fig.2]	Parking Brake Control
[16, Fig.2]	Recirculation Control
[17, Fig.2]	Fan Control
[18, Fig.2]	Landing Gear Emergency Extension Lever

31-10-02 Engine Control Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Engine Control Assembly

(1) Remove the knob from the rudder trim control:

- Remove the grub screw from the recess in the knob.
- Pull the knob clear of the spindle.

(2) Remove the knob from the parking brake control lever:

- Remove the screw that attaches the plain knob to the threaded knob.
- Remove the knobs and spacer from the lever.

(3) Remove the knobs from the heater control levers. Do this procedure for each lever:

- Remove the screw that attaches the plain knob to the threaded knob.
- Remove the knobs and spacer from the lever.

(4) Remove the forward cover plate:

- Remove the 4 screws that attach the cover plate to the engine control assembly.
- Lift the cover plate clear of the engine control assembly.

(5) Remove the engine control cover plate:

- Remove the 4 screws that attach the cover plate to the engine control assembly.
- Lift the cover plate clear of the engine control assembly.

(6) Remove the knobs from the fuel transfer/shut off control levers. Do this procedure for each lever:

- Remove the screw that attaches the plain knob to the threaded knob.
- Remove the knobs and spacer from the lever.

(7) Remove the fuel transfer/shut off control assembly cover plate:

- Remove the 4 screws that attach the cover plate to control assembly.
- Move the cover plate clear of the center console.

(8) Remove the engine control assembly:

- Remove the 2 bolts that attach the aft end of the engine control assembly to the structure.
- Lift the engine control assembly up from the center console and release these components as they become accessible:
  - The parking brake control cable.
    Refer to 32-40 Wheels and brakes - Description.
  - The heater control cables.
    Refer to Sections 21-20 and 21-40.
  - The electrical cables for the engine power lever.
    Refer to 76-00 Engine controls - Description.
  - The rudder trim cable.
    Refer to 27-20 Rudder Control System - Description.
  - The electrical cables for the engine control assembly micro switches.
    At the in-line connectors.
- When all the components are released lift the engine control assembly clear of the center console.

31-10-03 Engine Control Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Engine Control Assembly

(1) Install the engine control assembly:

- Move the control into position in the cockpit and hold above the center console and:
  - Connect the rudder trim cable.
    Refer to 27-20 Rudder Control System - Description.
  - Connect the electrical cables for the micro switches in the engine control assembly.
    At the in-line connectors.
  - The electrical cables for the engine power lever.
    Refer to 76-00 Engine controls - Description.
  - The heater control cables.
    Refer to Sections 21-20 and 21-40.
  - The parking brake control cable.
    Refer to 32-40 Wheels and brakes - Description.
- When all the components are connected lower the engine control assembly into position in the center console.
- Install the 2 bolts at the rear of the engine control assembly that attach the engine control assembly to the center console.

(2) Install the fuel transfer/shut off control assembly cover plate:

- Move the cover plate into position at the center console.

- Install the 4 screws that attach the cover plate to control assembly.

(3) Install the knobs onto the fuel transfer/shut off control levers. Do this procedure for each lever:

- Install the plain knob, spacers and threaded knob onto the lever.
- Install the screw that attaches the plain knob to the threaded knob.

(4) Install the engine control cover plate:

- Move the cover plate into position over the power lever.
- Install the 4 screws that attach the cover plate to the engine control assembly.

(5) Install the forward cover plate:

- Move the cover plate into position over the engine control assembly.
- Install the 4 screws that attach the cover plate to the engine control assembly.

(6) Install the knobs onto the heater control levers. Do this procedure for each lever:

- Install the plain knob, spacer and threaded knob onto the lever.
- Install the screw that attaches the plain knob to the threaded knob.

(7) Install the knobs onto the parking brake lever:

- Install the plain knob, spacer and threaded knob onto the lever.
- Install the screw that attaches the plain knob to the threaded knob.

(8) Install the knob onto the rudder trim control:

- Move the knob into position over the spindle.
- Install the grub-screw into the recess in the knob.

(9) Do a test for the correct operation of the rudder trim system. If necessary for your Airworthiness Authority do a duplicate inspection of the rudder trim system.

Refer to 27-20 Rudder Control System - Description of function.

(10) Do a test for the correct operation of the parking brake system.

Refer to 32-40 Wheels and brakes - Description.

(11) Do a test for the correct operation of the airplane heating and ventilation system.

Refer to Sections 21-20 and 21-40.

(12) Do a test for the correct operation of the engine control system.

Refer to 76-00 Engine controls - Description.

31-40
CENTRAL COMPUTERS

31-40-01 Central computers

Description

1. General

The DA 50 C has a Garmin G1000 NXi integrated cockpit system (ICS). The ICS integrates all the usual flight, avionic and airframe system indications into one system. The system displays the data on two display screens located in the instrument panel. An audio control panel is located between the two display screens. The audio control panel integrates and controls the airplane radio, navigation and intercom systems.

Refer to 23-50 Audio Integration - Description for more data about the audio control panel.

Electrical power is supplied to the ICS control and display screens when the ELECT. MASTER switch is set to ON. Power is supplied to the audio control panel when the AV. MASTER switch is set to ON.

During normal operation the left display screen is referred to as the primary flight display (PFD) and the right display screen as the multi function display (MFD). Either display can be used as PFD or MFD. If one display fails the remaining screen can be toggled automatically to reversionary mode.

For more detailed data about the ICS refer to the G1000 NXi Cockpit Reference Guide for the DA 50 C Airplane.

Figure 1 shows the ICS system schematic.

2. Description

Figure 2 shows the Garmin G1000 NXi Display Screens and Audio Integrating Unit.

The ICS has these main components:

A. Primary Flight Display (PFD)

The PFD is a 10.4 in liquid crystal display. Bezels on the left and right side of the PFD have the controls for the ICS. The lower edge of the PFD has 'softkeys'. The function of the softkeys relates to the on-screen display and the display will show the function of the key.

Figure 3 shows the primary flight display.

The PFD shows the basic primary flight display plus a number of additional options that can selected manually. Some other indications will be generated automatically for example, alert captions.

The left side bezel has these controls:

- NAV VOL/SQ knob. This controls the NAV audio level. Press the knob to toggle the ident filter OFF/ON.
- NAV frequency transfer key. Press this key to make the standby NAV frequency the active frequency.
- NAV knob. This control has a large outer knob and a smaller inner knob. Rotate these knobs to select the NAV frequency. Rotate the large outer knob to select the MHz and the inner knob to select the kHz. Pressing the smaller inner knob will toggle the tuning cursor between the NAV1 and NAV2 frequency display.
- HDG knob. You can manually select the heading with this control. Pressing this knob will cause a heading window to momentarily appear to the left of the heading indicator. This window will show the airplane heading in a digital display and the heading bug will align with the compass lubber line.
- ALT SEL knob. Sets the selected altitude in the window over the altimeter tape display. The large outer knob sets the thousands indication and the inner knob sets the hundreds indication.

The right side bezel has these controls:

- COM VOL/SQ knob. Controls the COM audio level. Press the knob to toggle the COM automatic squelch ON/OFF.
- COM frequency transfer key. Press this key momentarily to make the standby COM frequency active. Press and hold this key to automatically make the emergency frequency (121.5 MHz) the standby frequency.
- COM knob. This control has a large outer knob and a smaller inner knob. Rotate these knobs to select the COM frequency. Rotate the large outer knob to select the MHz and the inner knob to select the kHz. Pressing the smaller inner knob will toggle the tuning cursor between the COM1 and COM2 frequency display.
- CRS/BARO knob. This control has a large outer knob and a small inner knob. The outer knob sets the barometric pressure. The inner knob sets the airplane course.
- RANGE/PAN JOYSTICK knob. Rotate the knob to increase/decrease the map scale. Use the knob as a joystick to pan the map display.
- DIRECT TO key. Press this key to activate the direct-to function. This will give the direct course to a waypoint selected from the active route or to a position indicated by the map cursor.
- MENU key. Press the key to display the menu. The menu displays the options associated with the currently displayed page.

- FPL key. Press this key to display the active flight plan page. You can create or edit an existing flight plan using the bezel controls and soft keys when this page is displayed.
- PROC key. Press this key to display the procedures page. If this page is used with a selected flight plan then the procedures page will display the data associated with the flight plan. If the page is not used with a flight plan then an airfield and its relate procedures can be selected from a database.
- CLR key. Press this key to cancel an entry or delete information. Press and hold this key to immediately display the 'Default Navigation Map Page'.
- ENT key. Press to accept a menu selection or data entry. Use this key to approve an operation or to complete a data entry.
- FMS knobs. Use these concentric knobs select the page to be displayed. The outer large knob selects a page group and the inner knob selects a specific page from within the selected page group. Press the inner knob to activates an on-screen cursor. When the cursor is activated the outer knob can be used to move the cursor on the page and the small inner knob can used to scroll the cursor through an item or menu selected by the outer knob.
- Secure Digital (SD) cards. Secure Digital cards can be inserted into the slots in the right side bezel. These cards can contain data such as updated GPS navigation charts or special-to-type airplane checklists.

The PFD window displays the usual primary flight instruments in a standard ‘T’ configuration. The basic flight instruments are:

- Airspeed indicator (ASI). The airspeed indicator is on the left side of the display and indicates the airspeed on a rolling number gauge using a moving tape. The airspeed indicator also displays speed ranges for different airplane configurations, airspeed trends and ‘V’ speeds. If the airspeed indicator fails the display marks the airspeed display area with a red ’X’ and yellow text spelling out ‘AIRSPEED FAIL’.
- TAS. True airspeed is digitally displayed in a small window below the airspeed indicator.
- Attitude indicator (Artificial Horizon). The attitude indicator is located in the center of the PFD, at the top. The attitude indicator shows the pitch, roll and yaw situation of the airplane. If the attitude indicator fails the display marks the pitch attitude display area with a red ’X’ and yellow text spelling out ‘ATTITUDE FAIL’.
- Altimeter. The altimeter is located at the top right of the PFD. The altimeter displays the airplane altitude in feet on a rolling number gauge using a moving tape. The altimeter also shows a altitude ‘bug’ at the selected altitude or the edge of the tape, whichever is closest to the current altitude. If the altitude indicator fails the display marks the tape display area with a red ’X’ and yellow text spelling out ‘ALTITUDE FAIL’.
- Barometric pressure indicator. The barometric pressure indicator is located immediately below the altitude indicator. The indicator shows the barometric pressure that has been set in either inches of mercury (Hg) or hectopascal number (hPa)
- Vertical speed indicator (VSI). The vertical speed indicator is located to the right of the altitude indicator. The indicator displays the airplane vertical speed in feet/min. A numeric pointer moves vertically up/down a fixed tape. The vertical speed indication is also shown digitally on the pointer. A negative sign is shown on the pointer to indicate negative vertical speeds (airplane descending). If the VSI fails the display marks the tape display area with a red ’X’ and yellow text spelling out ‘VERT SPEED FAIL’.
- Horizontal situation indicator (HSI). The HSI s located in the center of the PFD at the bottom. The HSI displays a rotating circular compass with heading markings. The HSI shows the following information:

- Heading information. The heading is shown digitally in a window at the top of the rotating compass.
- Turn rate indicator. A turn rate indicator is located between the digital heading window and the rotating compass.
- Course deviation indicator (CDI). The CDI is a line with an arrowhead that points to the airplane heading on the rotating compass. The line can slide left or right of the center marking to show the deviation of the actual course being flown to the required course. Course data can be supplied from the airplane VOR, LOC or GPS system. If the heading data is invalid the digital heading display window is marked with a red cross and yellow text spelling 'HDG'.
- Vertical deviation (glidescope) indicator. The glidescope indicator is located to the left of the altimeter.
- Alerts window. The alerts window is located on the lower right side of the PFD. This window opens when an alert is activated or when the WARNINGS softkey is operated.
- Warnings and cautions window. The warnings and cautions window is located above the alerts window. This window opens when a warning or caution is activated or if the WARNING softkey is operated.
- NAV MAP. The NAV MAP window is located in the lower left of the PFD. The window is activated by pressing the INSET softkey and when activated shows a pictorial view of the airplane on a moving map.

Small windows in the top left corner of the PFD show active and standby NAV frequencies. Small windows in the top right of the PFD show active and standby COM frequencies. A larger window in the top of the PFD flight planning data when activated and autopilot mode annunciations.

A small window in the bottom left of the PFD shows the outside air temperature (OAT). A small windows on the bottom right of the PFD shows the transponder settings and operational state. Another small window in the right bottom corner of the PFD shows a digital clock.

A set of labels along the very bottom of the PFD identify the function of the softkeys for the current page being displayed on the PFD.

The PFD has a self-monitoring system. If the PFD self-monitoring system detects a fault the PFD enters reversionary mode. In the reversionary mode the PFD is configured to display the flight instrument symbology and the basic engine parameter monitoring indications. The PFD reversionary mode can also be entered by pressing the DISPLAY BACKUP selector. The DISPLAY BACKUP selector is located on the bottom of the audio control panel.

B. Multi-Function Display (MFD)

The MFD is a 10.4 in liquid crystal display. Bezels on the left and right side of the MFD have the controls for the ICS. The lower edge of the MFD has ‘softkeys’. The function of the soft keys relates to the on-screen display and if a key has a function related to the current display the display will show the function of the key.

Figure 4 shows the multi-function display.

The MFD displays engine and airplane pages on the left slide of the screen. The remainder of the screen is used to display navigational pages. The bezels on the left and right side of the MFD have the same controls and function as the bezels on the PFD. The left side bezel on the MFD has also the controls for the autopilot system. Refer to 22-00 Auto flight - Description for more information about the autopilot.

The MFD has these displays:

The engine indication window, on the left side of the MFD, displays these engine parameters:

- Engine load. The engine load indicator is at the top of the EIS window. The engine load is displayed as percentage. A pointer indicates on a dial graph the engine load. If the system fails, the display shows a red cross.
- Engine RPM. The engine RPM indicator is located below the engine load indicator. A pointer on the dial graph shows the engine RPM. If the system fails, the display shows a red cross.
- Fuel Flow. The fuel flow indication is located below the engine RPM indication. It shows a numerical value in gallons per hour.
- Oil pressure. The oil pressure indicator is located below the fuel flow indication and is displayed as a horizontal bar graph. The value of the oil pressure is not shown. Only the position of the pointer, above the graph, gives an optical indication. If the system fails a red cross is displayed.
- Oil temperature. Below the oil pressure indication is the oi temperature indication. The oil temperature indication is a horizontal bar graph. The value is shown only by the position of the pointer on the bar graph. There is no indication of the temperature value. If the system fails a red cross is displayed.
- Coolant temperature. Below the oil temperature indication is the engine coolant temperature indication. The coolant temperature indication is a horizontal bar graph with no value indication. Only an optical indication via the position of the pointer above the graph is given. If the system fails a red cross is shown.
- Gearbox temperature. The engine gearbox temperature is located below the engine coolant temperature. The engine gearbox temperature is a horizontal bar graph with no value indication. Only the position of the pointer above the bar graph gives an indication. If the system fails a red cross is shown.
- Volts. Essential bus voltage is displayed below the engine gearbox temperature. It is shown by a horizontal range bar. The horizontal range bar is colour coded. The red section indicated too low or too high voltage and the green section indicates that the voltage is within limits.
- Fuel Quantity. Below the voltage indication is the fuel quantity indication. The fuel quantity indication is a horizontal bar graph with a scale from 0 to 25 and two pointers. The pointers are labelled “R” and “L”. The “L” pointer is located above the graph and the “R” pointer is located below the graph.
- Rudder Trim. The rudder trim indication is located at the bottom of the EIS. It shows a pointer on a scale with a marker in the middle of the scale.

The engine indication system window (EIS) that displays these engine parameters:

- Engine load. At the top left corner of the EIS is the engine load indicator located. It displays the engine load in form of a dial graph. The value, shown in percentage, is displayed in a numerical form under the load indicator. If the system is not working a red cross is displayed.
- Engine RPM. Located right next to the engine load indicator, the engine RPM indicator shows the engine rpm, in a dial graph, with a pointer. The value is shown under the graph. If the system is not working a red cross is displayed.
- Next to the engine RPM indication is the electrical indication, consisting of:
  - Ammeter. Shows the load generated by the generators. Pointers above the horizontal range bar shows the generator loads. The range bar is colour coded, green in the normal load range and then red at the high end of the range. A numerical value is shown on the right and left above the bar. The value on the top right is the second generator and the value on the on the top left is the first generator.
  - Volts. Below the ammeter, the voltage of the essential bus is shown. A pointer shows the bus voltage. The rang bar is colour coded. The green central section of the bar indicates that the voltage is within limits. The red section at the left and right end of the bar indicates too high or low voltage. Above the bar, on the right side, the essential bus voltage is displayed digitally.
- Oil pressure. The engine oil pressure indicator is located on the left side of the EIS below the engine load indication. A pointer above a range bar indicate the oil pressure. The engine oil pressure is shown on the right side above the bar digitally. The range bar is colour coded. Yellow at the low pressure (left) end of the range bar, green to show the normal operating range, yellow in the cautionary range and red in the high range. The pointer moves from left to right to indicate the oil pressure.
- Oil temperature. The engine oil temperature is located below the engine oil pressure. A pointer above the range bar shows the engine oil temperature. The engine oil temperature is shown digitally on the right side, above the range bar. The range bar is colour coded. Red at the low and high end indicates to low or to high oil temperature. The lower yellow indicates the lower caution range and the higher yellow indicates the higher caution range. Green indicates the normal operating range. The pointer moves rom the left, low oil temperature, to the right, high temperature.
- Coolant temperature. Below the engine oil temperature is the engine coolant temperature. A pointer above the range bar indicates the engine coolant temperature. The value is digitally displayed on the right side above the range bar. The range bar is colour coded, with a low red, a low yellow, a green arc, as the normal operation range, a high yellow and a high red. The pointer moves from left, low temperature, to the right, high temperature.
- Gearbox temperature. The gearbox temperature is located below the engine coolant temperature. A pointer above the range bar indicates the gearbox temperature and moves from the left, low temperature, to the right, high temperature. The range bar is colour coded with a low red, a low yellow, a green section, that indicates the normal operation range, a high yellow and a high red.
- Rudder trim. Below the gearbox temperature is the rudder trim indication. The rudder trim indication is a scale, with the end points “L” on the left side and “R” on the right side. A pointer indicates in which direction the rudder is trimmed.
- Fuel information. Below the engine RPM indicator is the fuel information window. The fuel information window consists of:
  - Fuel quantity. The fuel quantity indication is a range bar with a scale. Above and below the bar are pointers, which indicate the right and left fuel quantity. The pointers are

labelled “L” and “R”. Above the bar is digitally displayed the fuel quantity value, on the left for the left tank, and on the right for the right tank.

- Fuel temperature. Below the fuel quantity is the fuel temperature. The fuel temperature is digitally displayed on the upper left of the bar range, for the left fuel tank, and on the upper right, for the right fuel tank. The bar range has two pointers, one above the bar and one below. The pointers are labelled “L” for the upper and “R” for the lower pointer.
- Fuel pressure. The fuel pressure indication is located below the fuel temperature indication. The bar range has a pointer, which indicates the fuel pressure. The fuel pressure is digitally shown on the upper right side of the bar range. The bar range is colour coded with a low red and a high red section for to low/ to high fuel pressure and a green section, for the normal operation range.
- Fuel calculator window. Below the bar range of the fuel pressure is the fuel calculator windows. This window provides the gallons remaining, the gallons used and the approximately range, in a digital format.

From this page you can use softkeys to enter data for the fuel system. Refer to the Garmin G1000 NXi Cockpit Reference Guide for more data about entering data into the ICS.

C. GMA 1360 Audio Control Panel

The GMA 1360 audio control panel is located in the airplane instrument panel between the two display screens. The audio control panel integrates the NAV/COM digital audio, intercom system and marker beacon controls. Manual display reversion is also controlled from the GMA 1360. For more data about the audio control panel refer to 23-50 Audio Integration - Description.

D. GIA 64 W Integrated Avionics Unit (IAU)

The ICS has two GIA 64W IAUs. The two IAUs are identical and independent. They are both installed in the remote avionics box in the back of the fuselage. The IAU processes all the data that is displayed on the cockpit display. Either IAU can supply data to either cockpit display. You cannot service the IAU.

E. GTX 3X5R Transponder

The GTX 3X5R transponder is a Mode-S transponder. The transponder provides modes A, C and S functions. The unit is operated directly through the PFD in the cockpit. The transponder is installed in the remote avionics box in the back of the fuselage.

F. GRS 79 Attitude, Heading and Reference Unit (AHRS)

The GRS 79 provides airplane attitude and related flight data to the cockpit displays. The GRS 79 receives data from the air data computer, the GMU 44/B magnetometer and GPS signals from the GIA 64W. The GRS is located next to the remote avionics box, in the back of the fuselage.

G. GDC 72 Air Data Computer (ADC)

The ADC receives data from the pitot/static system, OAT sensor. The ADC uses this data to provide pressure altitude, airspeed, vertical speed and outside air temperature data to the G1000 NXi system. The ADC is located on the instrument panel shelf.

H. GEA 71B

The GEA 71B is a microprocessor based unit that receives and processes signals from airframe and engine sensors. The GEA 71B communicates directly with both IAUs. The GIA 71B is located on the instrument panel shelf.

I. GMU 44/B Magnetometer

The magnetometer senses magnetic field information. Data is sent to the GRS 79 AHRS for processing. The magnetometer receives power from the GRS 79 and communicates with the GRS 79. The magnetometer is located in the right outer wing and can be accessed through a panel in the lower surface of the wing.

J. GCU 476 PFD / MFD Control Unit

The optional PFD / MFD Control Unit is a user interface allowing data entry, PFD / MFD operation and NAV / COM tuning. The PFD / MFD Control Unit is installed in the center armrest, if OÄM 50-018 is carried out.

3. Trouble-Shooting

The Garmin ICS has a built-in test and trouble-shooting facility. For more data about troubleshooting the ICS refers to the G1000 NXi Line Maintenance Manual.

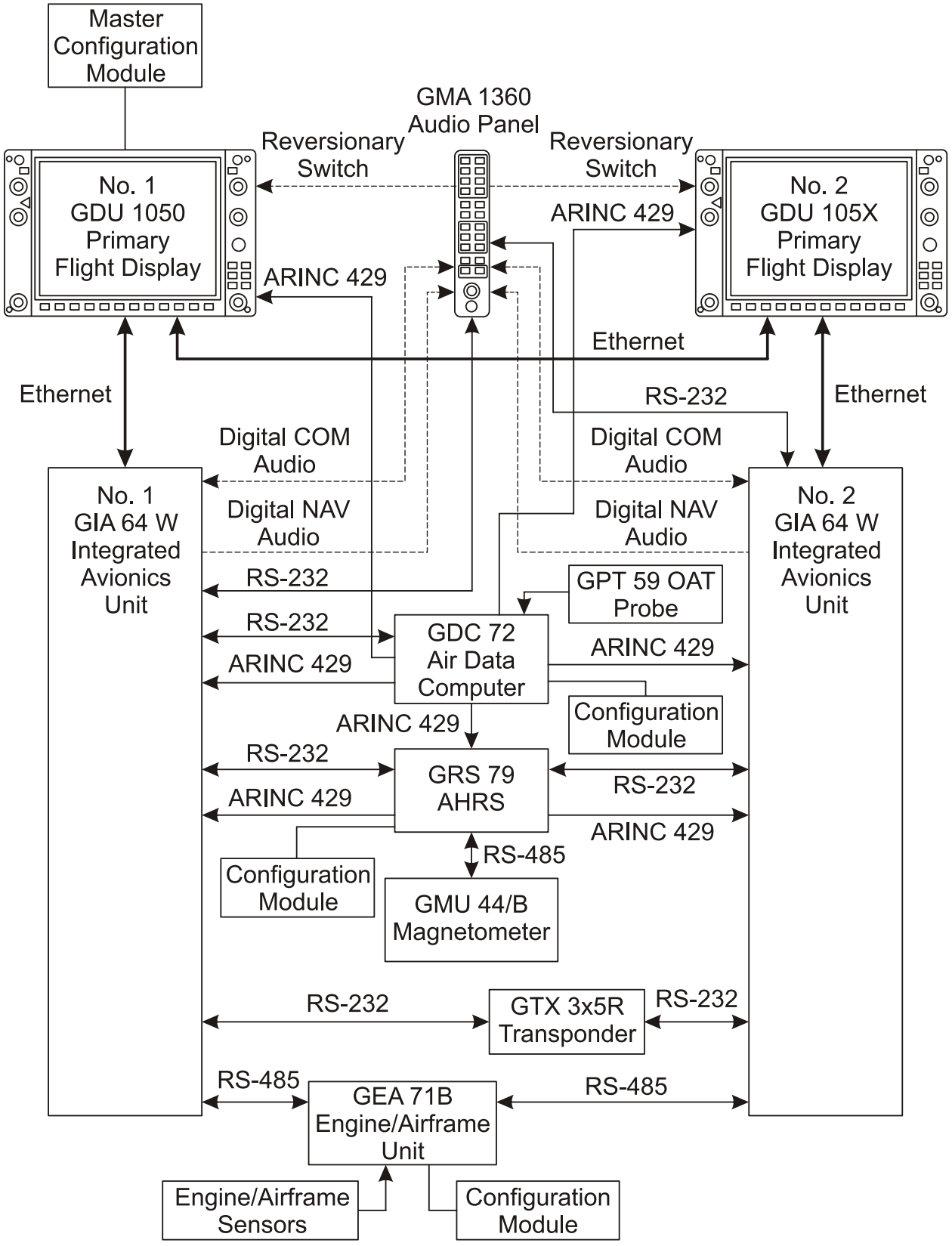


Figure 1 - Integrated Cockpit System Schematic Diagram

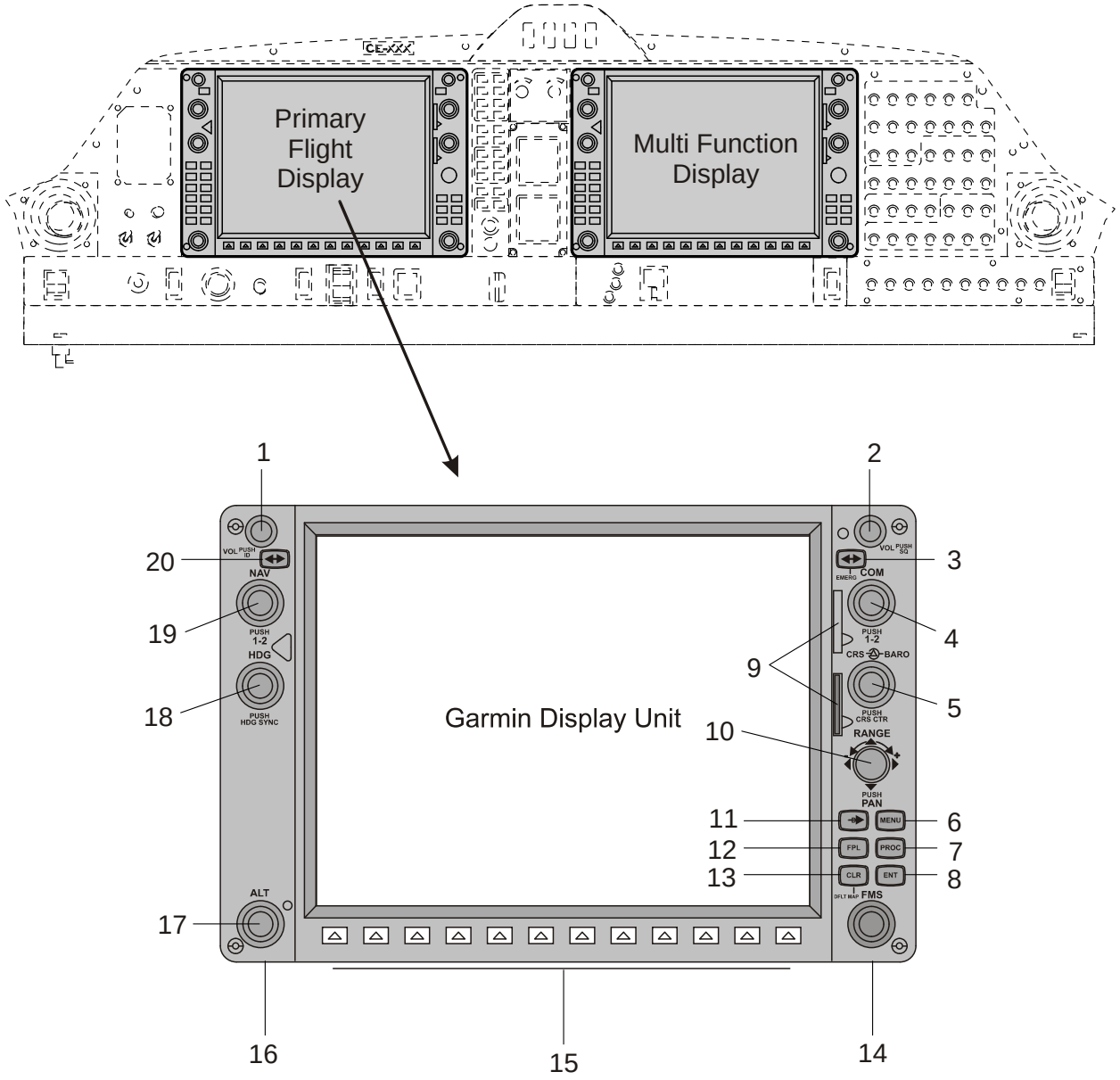


Figure 2 - Garmin G1000 NXi Display Screens and Audio Integrating Unit

Legend

[1, Fig.2] NAV Vol/Sq
[2, Fig.2] COM Vol/Sq
[3, Fig.2] COM Frequency Transfer
[4, Fig.2] COM Frequency Selector
[5, Fig.2] Course (inner) and Baro (outer) Selector
[6, Fig.2] Menu
[7, Fig.2] Procedures
[8, Fig.2] Enter
[9, Fig.2] SD Card Slots
[10, Fig.2] Map Scale and Panning Function Control
[11, Fig.2] Direct-to
[12, Fig.2] Flight Plan
[13, Fig.2] Flight Management System
[14, Fig.2] Right Side Bezel
[15, Fig.2] Soft Keys
[16, Fig.2] Left Side Bezel
[17, Fig.2] Altitude Selector
[18, Fig.2] Heading Selector
[19, Fig.2] NAV Frequency Selector
[20, Fig.2] NAV Frequency Transfer

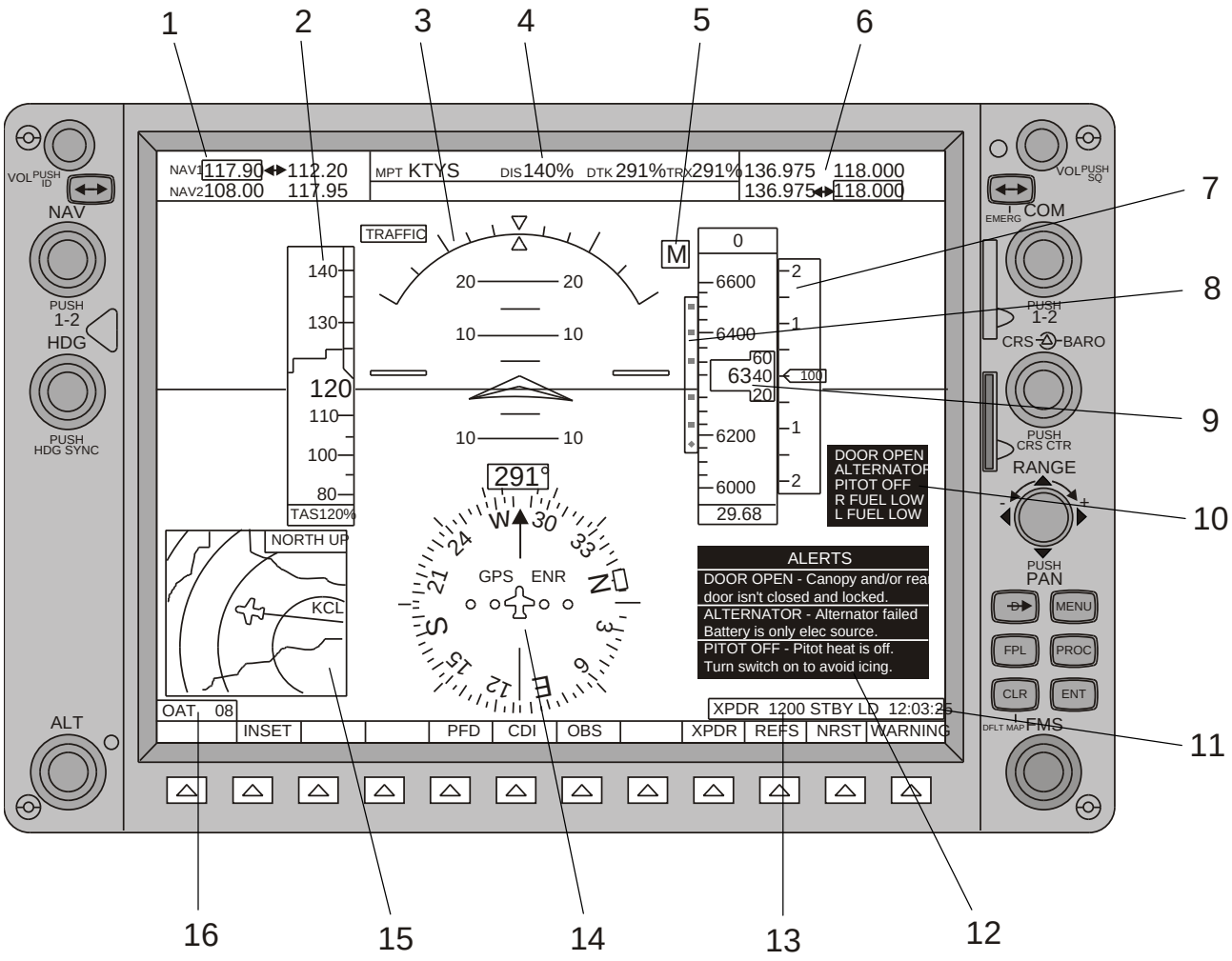


Figure 3 - Primary Flight Display

Legend

[1, Fig.3] Nav Frequency Window
[2, Fig.3] Airspeed Indicator
[3, Fig.3] Attitude Indicator
[4, Fig.3] Waypoint Status
[5, Fig.3] Marker Beacon Annunciation
[6, Fig.3] Com Frequency Window
[7, Fig.3] Vertical Speed Indicator
[8, Fig.3] Glideslope Indicator
[9, Fig.3] Altitude Indicator
[10, Fig.3] Warnings and Cautions Annunciation
[11, Fig.3] System Time
[12, Fig.3] Alerts Window
[13, Fig.3] Transponder Window
[14, Fig.3] Horizontal Situation Indicator
[15, Fig.3] Nav Map
[16, Fig.3] Outside Air Temperature Window

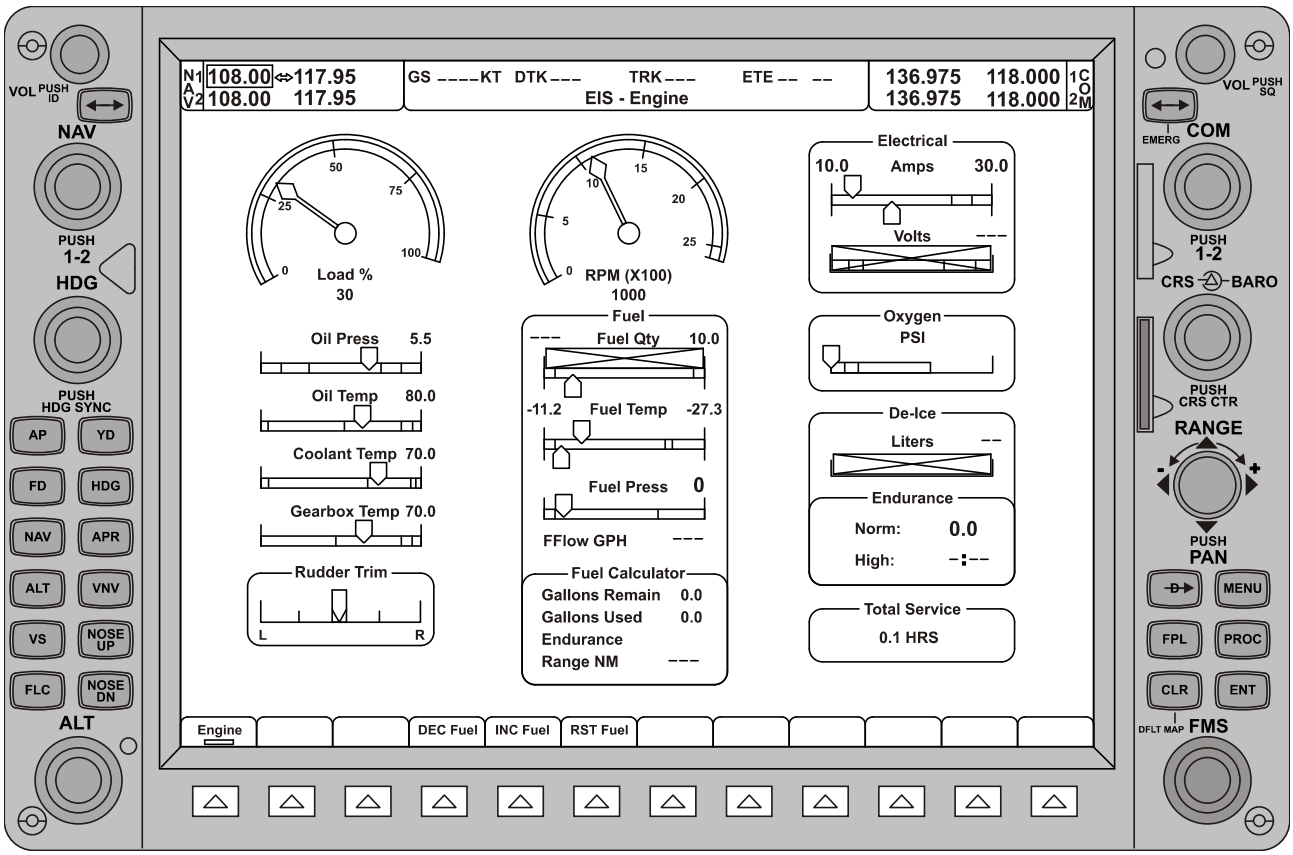


Figure 4 - Multi Function Display

31-40-02 Maintenance Info

Description

1. Maintenance Practices

The Maintenance Practices tell you how to replace the main components of the ICS. They do not how to maintain the components. For data about removing/installing the GMA 1360 audio control unit refer to 23-50 Audio Integration - Description. For more data about maintaining the equipment refer to the G1000 NXi Line Maintenance Manual. The G1000 NXi Line Maintenance Manual gives you particular information on:

- Unit related alerts and problems.
- Equipment removal and installation.
- Uploading software, configuring and testing.
- Final system checkout.
- Periodic maintenance.
- G1000 NXi system software and configuration.
- GDU lighting setup.

Refer to the DAI MSB 50-003 for data about the approved software configurations.

The specific DA 50 C values as to the equipment basic setting are given in the table below:

Transponder Configuration

VFR Code	specific to Country (e.g. USA: 1200)
Aircraft Categorie	Light
Max Airspeed	<= 300 kts
Address ICAO	Europe: hex id USA: "N" number aircraft registration
Flight ID Type	Europe: PFD Entry USA: same as tail

NOTE

Unlisted items are preset. You must not change their values.

NOTE

Some items are specific to the airplane. Note down the settings prior to performing a software upload.

31-40-03 GDU 105X Display

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a GDU 105X Display

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Set the PFD and MFD circuit breakers open.

Right side of instrument panel.

(3) Remove the display unit:

Refer to Figure 5.

- Rotate the 4 locking studs that attach the display to the instrument panel 90° counterclockwise.
- Move the display aft and disconnect the electrical cables.
  At the in-line connector.
- Move the display unit clear of the instrument panel.

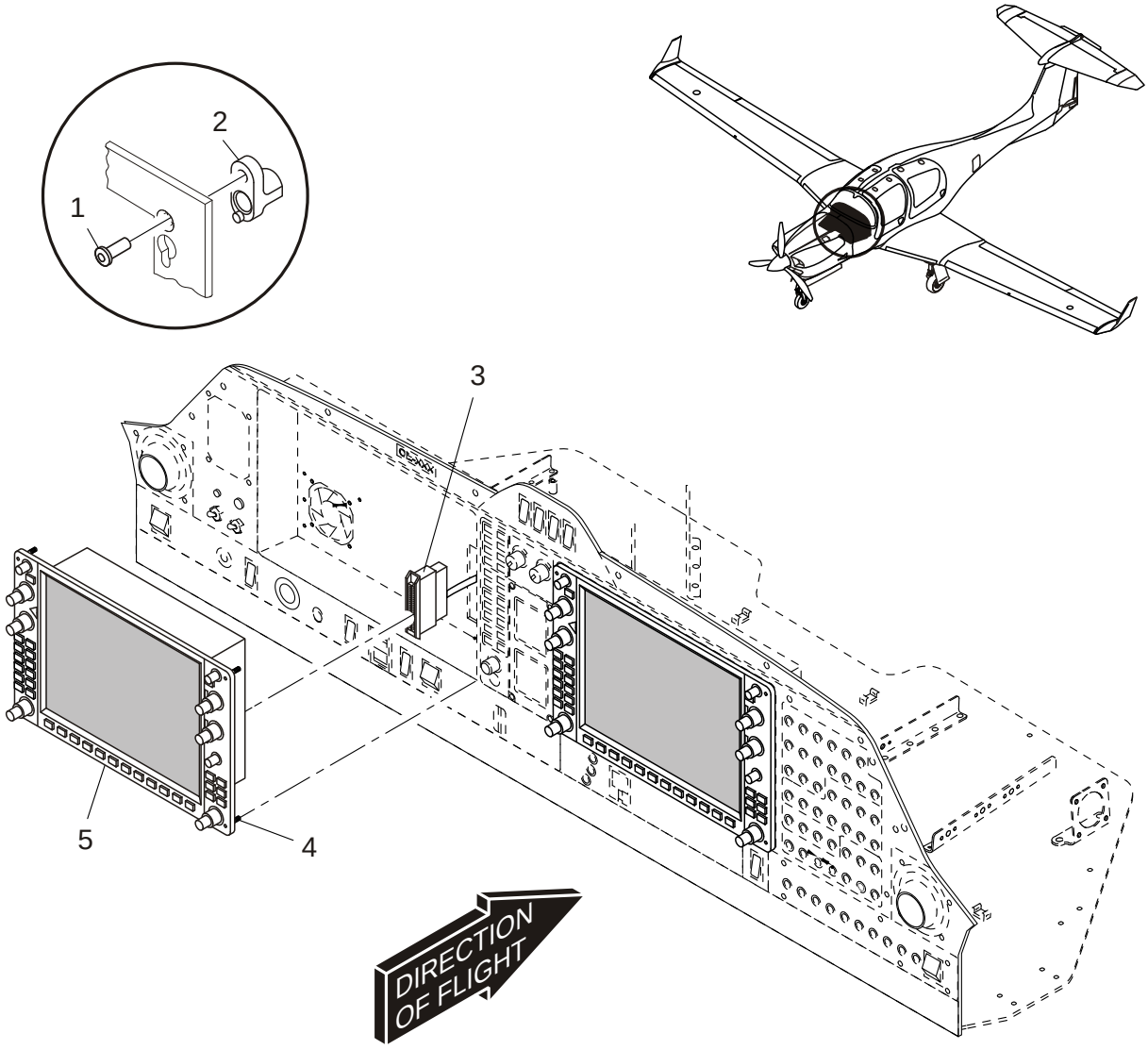


Figure 5 - GDU 105X Display Unit Installation

Legend

[1, Fig.5] Rivet

[2, Fig.5] Locking Socket

[3, Fig.5] In-Line Connector

[4, Fig.5] Locking Studs

[5, Fig.5] GDU 105X Display Unit

31-40-04 GDU 105X Display

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a GDU 105X Display

(1) If necessary, set the PFD and MFD circuit breakers open.

Right side of instrument panel.

(2) Install the display unit:

- Move the display unit into position at the instrument panel.
- Connect the electrical cables to the display unit.
  At the in-line connector.
- Move the display unit fully forward into position on the instrument panel.
  Make sure that you do not trap the electrical cables.
- Rotate the 4 locking studs that attach the display unit to the instrument panel 90° clockwise.
  The locking studs should be oriented with the alignment marks in the vertical position for installation. When locked, the alignment marks are in the horizontal position.

(3) Reset the PFD and MFD circuit breakers.

Right side of instrument panel.

(4) Do a test for the correct operation of the integrated cockpit system (ICS):

- Set the ELECT. MASTER switch to ON.
  The ICS must power-up and successfully complete its self-test procedure

- Set the ELECT. MASTER switch to OFF.

31-40-05 GIA 64W Integrated Avionics Unit (IAU)

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a GIA 64 W Integrated Avionics Unit (IAU)

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure .

(3) Remove the HIRF box cover.

(4) Remove the GIA IAU:

Refer to Figure 6.

- Identify the unit that you will remove.
- Release the locking screw from the retainer.
- Lift the retainer clear of the unit.
- Lift the IAU clear of the mounting rack and the airplane.

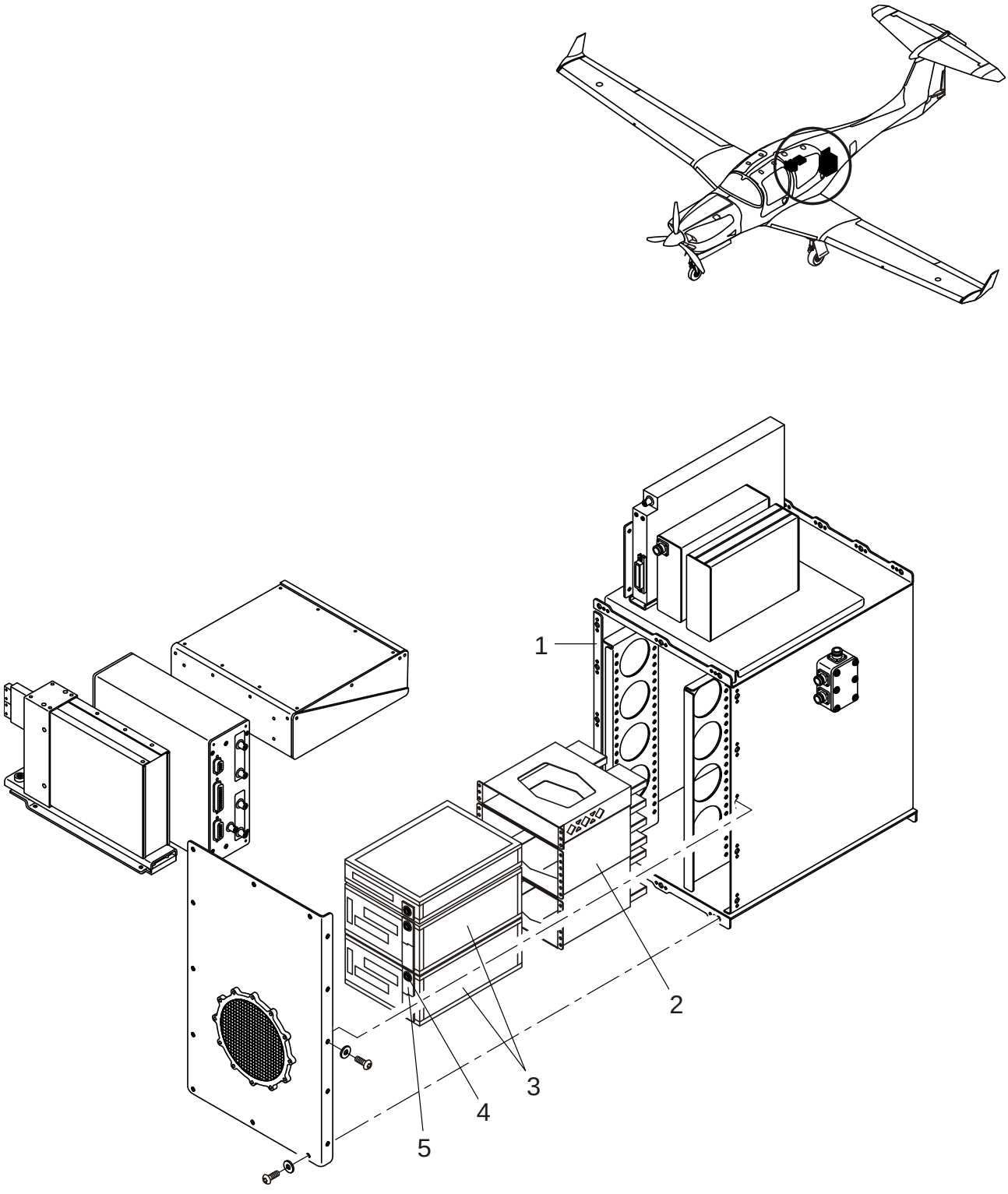


Figure 6 - GIA 64 W Integrated Avionics Unit (IAU) Installation

Legend

[1, Fig.6] Avionics Enclosure

[2, Fig.6] GIA 64 W Mounting Racks

[3, Fig.6] GIA 64 W Unit

[4, Fig.6] Locking Screw

[5, Fig.6] Retainer

31-40-06 GIA 64W Integrated Avionics Unit (IAU)

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a GIA 64 W Integrated Avionics Unit (IAU)

(1) Install the IAU:

- Move the GIA IAU into position at the mounting and lower the unit into position in the rack.
  Make sure that the unit is seated correctly. Do not force the unit into position!
- Move the retainer into position and secure with the locking screw.

(2) Install the HIRF box cover.

(3) Install the bagagge compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(4) Do a test for the correct operation of the integrated cockpit system (ICS):

- Set the ELECT. MASTER switch to ON.
- Set the AVIONIC MASTER switch to ON.
  The ICS must power up and successfully complete its selftest procedure.
- Set the ELECT. MASTER switch to OFF.

31-40-07 GTX 3X5R Transponder

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GTX 3X5R Transponder

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure.

(3) Remove the HIRF box cover.

(4) Remove the GTX 3X5R:

Refer to Figure 7.

- Identify the unit that you will remove.
- Release the locking screw from the retainer.
- Lift the retainer clear of the unit.
- Lift the GTX 3X5R clear of the mounting rack and the airplane.

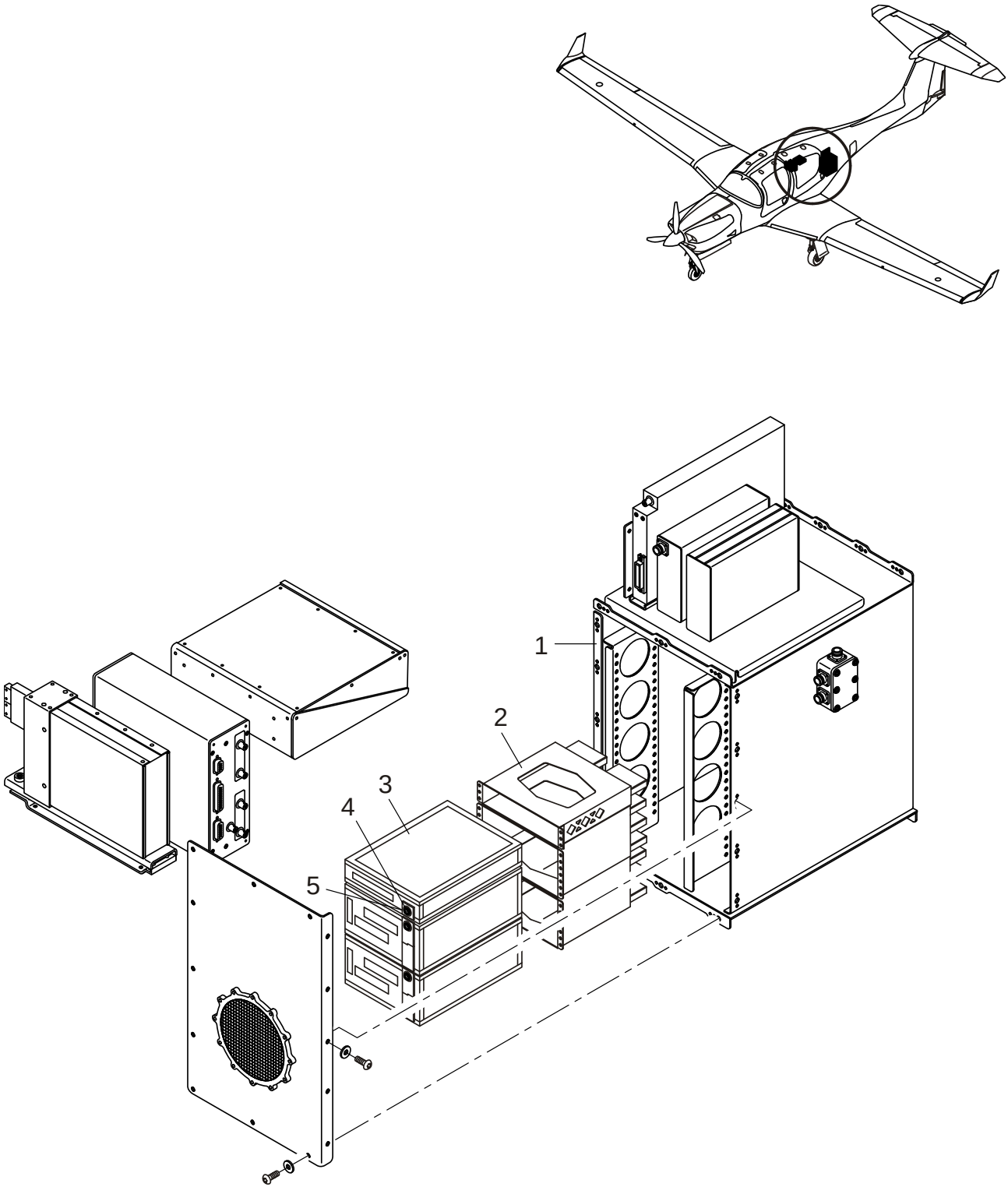


Figure 7 - GTX 3X5R Transponder Installation

Legend

[1, Fig.7] Avionics Enclosure

[2, Fig.7] GTX 3X5R Transponder Mounting Rack

[3, Fig.7] GTX 3X5R Transponder

[4, Fig.7] Locking Screw

[5, Fig.7] Retainer

31-40-08 GTX 3X5R Transponder

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. GTX 3X5R Transponder Installation

(1) Install the GTX 3X5R:

- Move the GTX 3X5R into position at the mounting and lower the unit into position in the rack.
  Make sure that the unit is seated correctly. Do not force the unit into position!
- Move the retainer into position and secure with the locking screw.

(2) Install the HIRF box cover.

(3) Install the baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(4) Do a test for the correct operation of the integrated cockpit system (ICS):

- Set the ELECT. MASTER switch to ON.
  The ICS must power-up and successfully complete its self-test procedure.
- Set the ELECT. MASTER switch to OFF.

31-40-09 GRS 79 Attitude, Heading and Reference Unit (AHRS)

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GRS 79 Attitude, Heading and Reference Unit (AHRS)

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure.

(3) Remove the GRS 79:

Refer to Figure 8.

- Disconnect the electrical cables.
- Loosen the 2 screws that attach the GRS 79 to the mounting.
- Move the GRS 79 clear of the airplane.

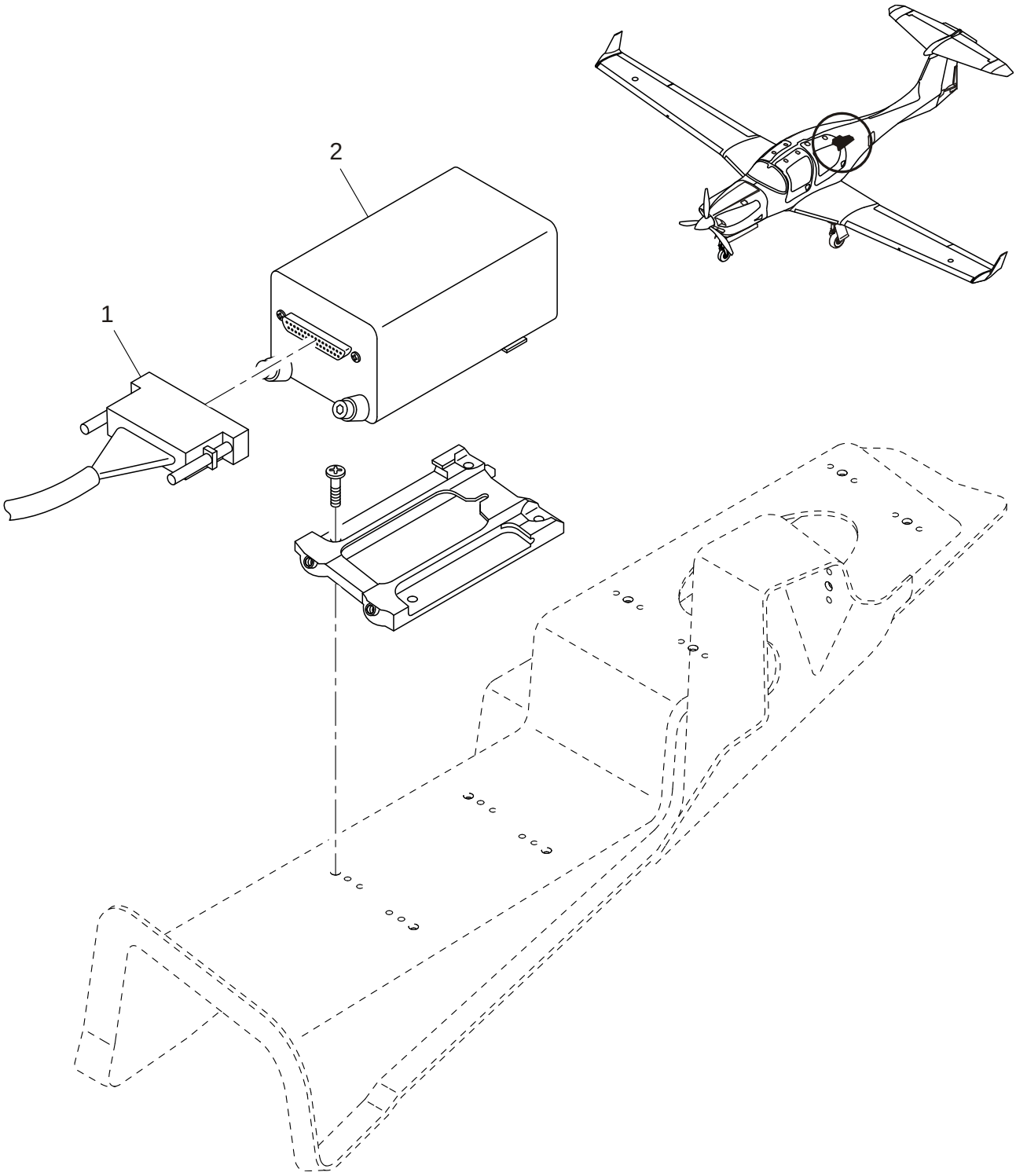


Figure 8 - GRS 79 Attitude, Heading and Reference Unit (AHRS) Installation

Legend

[1, Fig.8] Connector

[2, Fig.8] GRS79 AHRS Unit

31-40-10 GRS 79 Attitude, Heading and Reference Unit (AHRS)

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GRS 79 Attitude, Heading and Reference Unit (AHRS)

(1) (a) Install the GRS 79 unit:

- Move the unit into position next to the avionics rack.
- Tighten the 2 screws that attach the unit to the mount.
- Connect the electrical cables.
  At the in-line connector.

(b) Install the baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(c) Do a test for the correct operation of the integrated cockpit system (ICS):

- Set the ELECT. MASTER switch to ON.
  The ICS must power up and successfully complete its selftest procedure.
- Set the ELECT. MASTER switch to OFF.

31-40-11 GDC 72 Air Data Computer

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GDC 72 Air Data Computer (ADC)

(1) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(3) Remove the GDC 72:

Refer to Figure 9.

- Locate the GDC 72 on the instrument panel shelf.
- Disconnect the electrical cables.
- Disconnect the Pitot/static tubes from the unit.
  Note the connections!
- Loosen the screw of the adapter plate that attaches the GDC 72 to its mounting rack.
- Move the GDC 72 clear of the airplane.

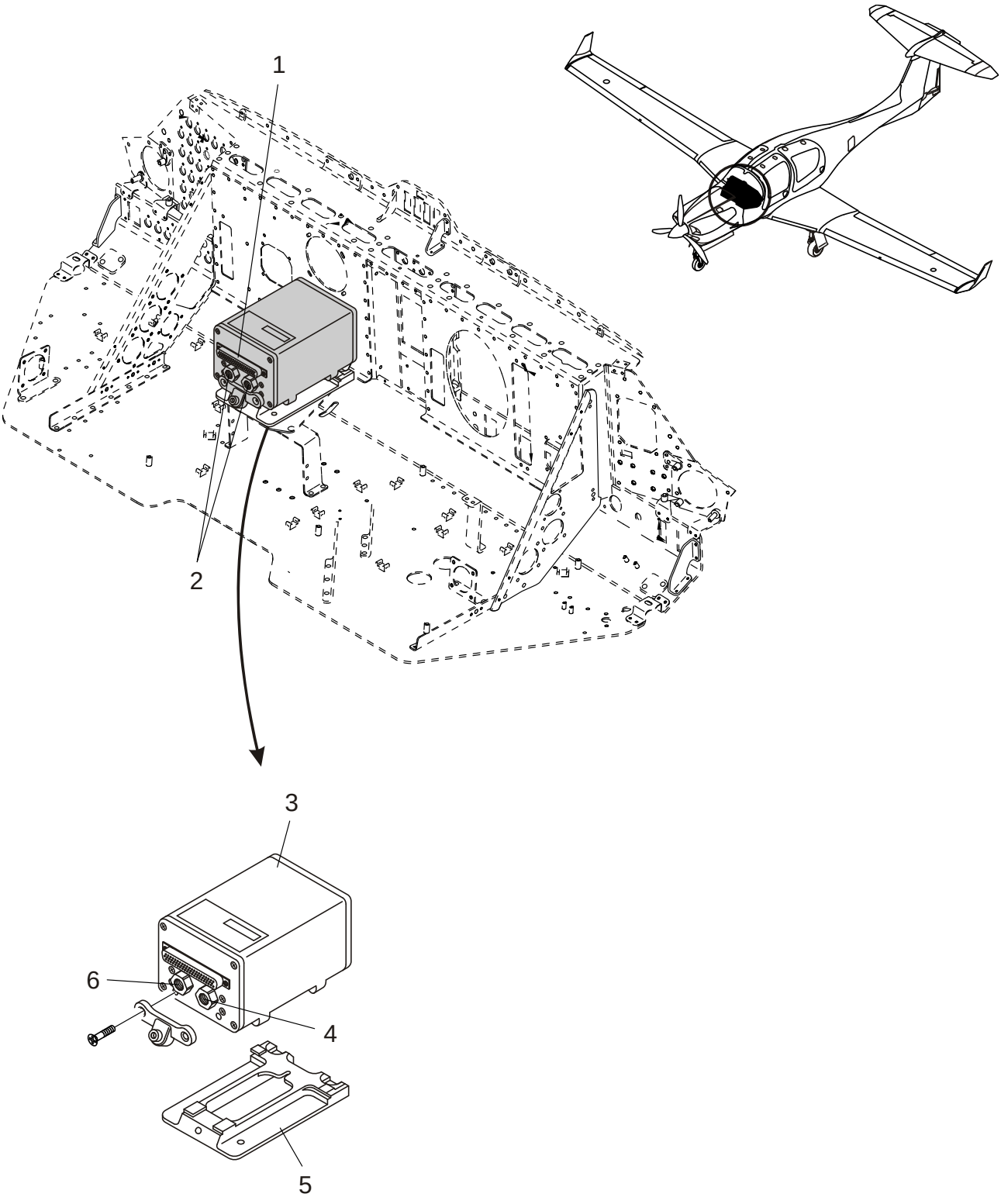


Figure 9 - GDC 72 Air Data Computer (ADC) Installation

Legend

[1, Fig.9] In-Line Electrical Connector

[2, Fig.9] Pitot/Static Connectors

[3, Fig.9] Garmin GDC 72 Unit

[4, Fig.9] Static Air Port

[5, Fig.9] Mounting Rack

[6, Fig.9] Pitot Air Port

31-40-12 GDC 72 Air Data Computer

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GDC 72 Air Data Computer (ADC)

(1) Install the GDC 72:

- Move the GDC 72 assembly into position on the mounting rack.
- Install the adapter plate and tighten the screw that attach the GDC 72 to the mounting rack.
- Connect the Pitot/Static tubes to the unit.
  As noted in 31-40 GDC 72 Air Data Computer - Remove procedure step A.3.
- Connect the electrical cables.
  At the in-line connector.

(2) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(3) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(4) Do a test for the correct operation of the integrated cockpit system (ICS):

- Set the ELECT. MASTER switch to ON.
  The ICS must power-up and successfully complete its self-test procedure.
- Set the ELECT. MASTER switch to OFF.

(5) Do a Pitot/static leak test.

Refer to 34-10 Pitot-Static System - Test and inspection.

31-40-13 GEA71B Processor

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GDC 71B Processor

(1) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Remove the PFD.

Refer to 31-40 Central computers - Description

(3) Remove the GEA 71B:

Refer to Figure 10.

- Locate the GEA 71B instrument panel shelf.
- Release the screw that secures the retainer.
- Move the retainer clear and lift the GEA 71B clear of the mounting.

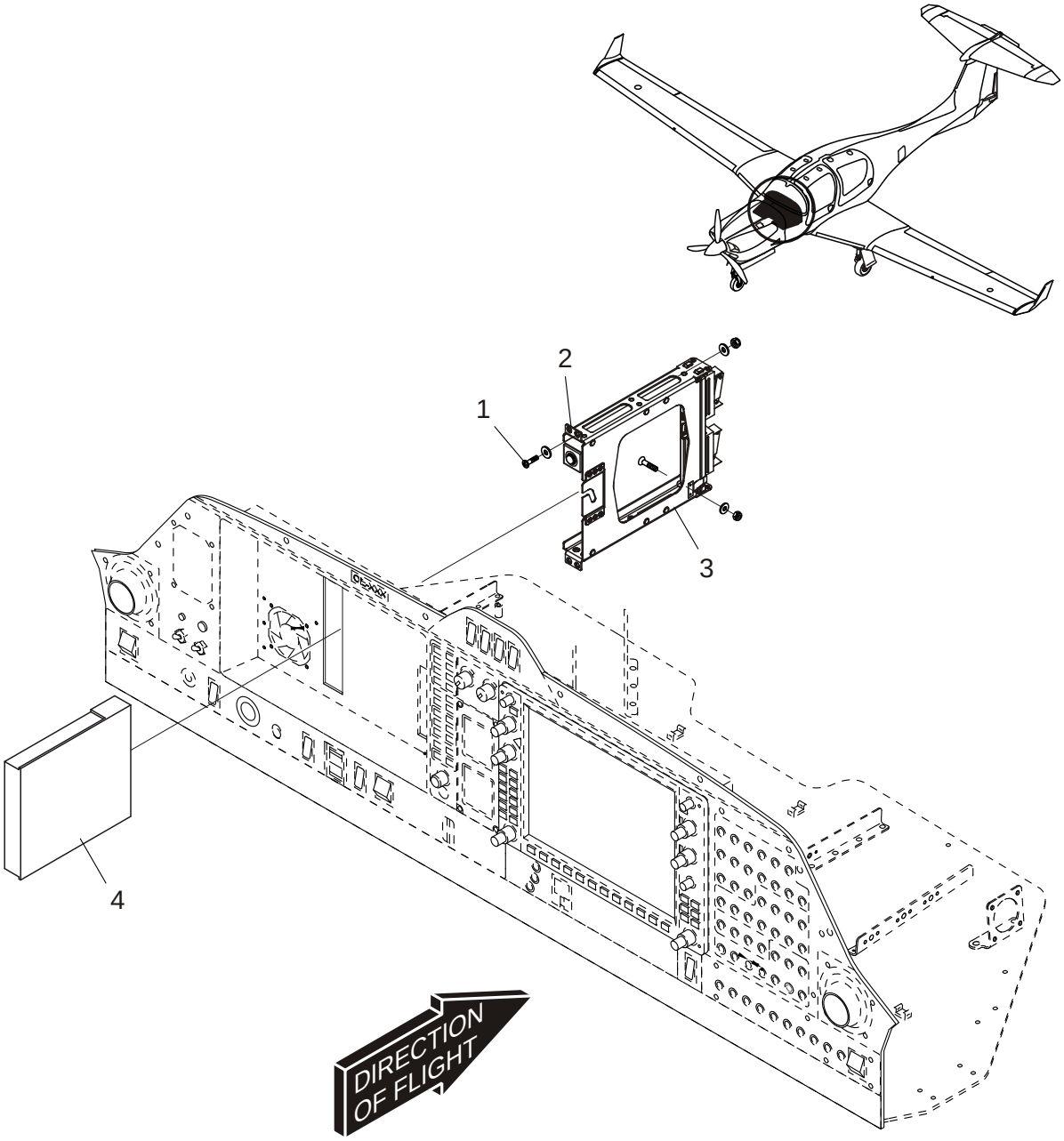


Figure 10 - GEA 71B Processor Installation

Legend

[1, Fig.10] Retainer Screw

[2, Fig.10] Retainer

[3, Fig.10] Mounting Rack

[4, Fig.10] Garmin GEA71 Unit

31-40-14 GEA71B Processor

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GEA 71B Processor

(1) Install the GEA 71B:

- Move the GEA 71B into position at its mounting.
- Slide the GEA 71B into its mounting.
- Install the retainer and secure the retainer with the retaining screw.

(2) Install the PFD.

Refer to 31-40 Central computers - Description.

(3) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(4) Do a test for the correct operation of the integrated cockpit system (ICS):

- Set the ELECT. MASTER switch to ON.
  The ICS must power-up and successfully complete its selftest procedure.
- Set the ELECT. MASTER switch to OFF.

31-40-15 GMU 44/B Magnetometer

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GMU 44/B Magnetometer

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Remove the magnetometer assembly:

Refer to Figure 11 for GMU 44, refer to Figure 12 for GMU 44B.

- Remove the 3 screws that attach the magnetometer assembly to the lower surface of the right wing.
  Support the assembly.
- Lower the magnetometer assembly clear of the structure and disconnect the electrical cables.
- Move the magnetometer assembly clear of the airplane.

(3) If necessary, remove the magnetometer from the panel.

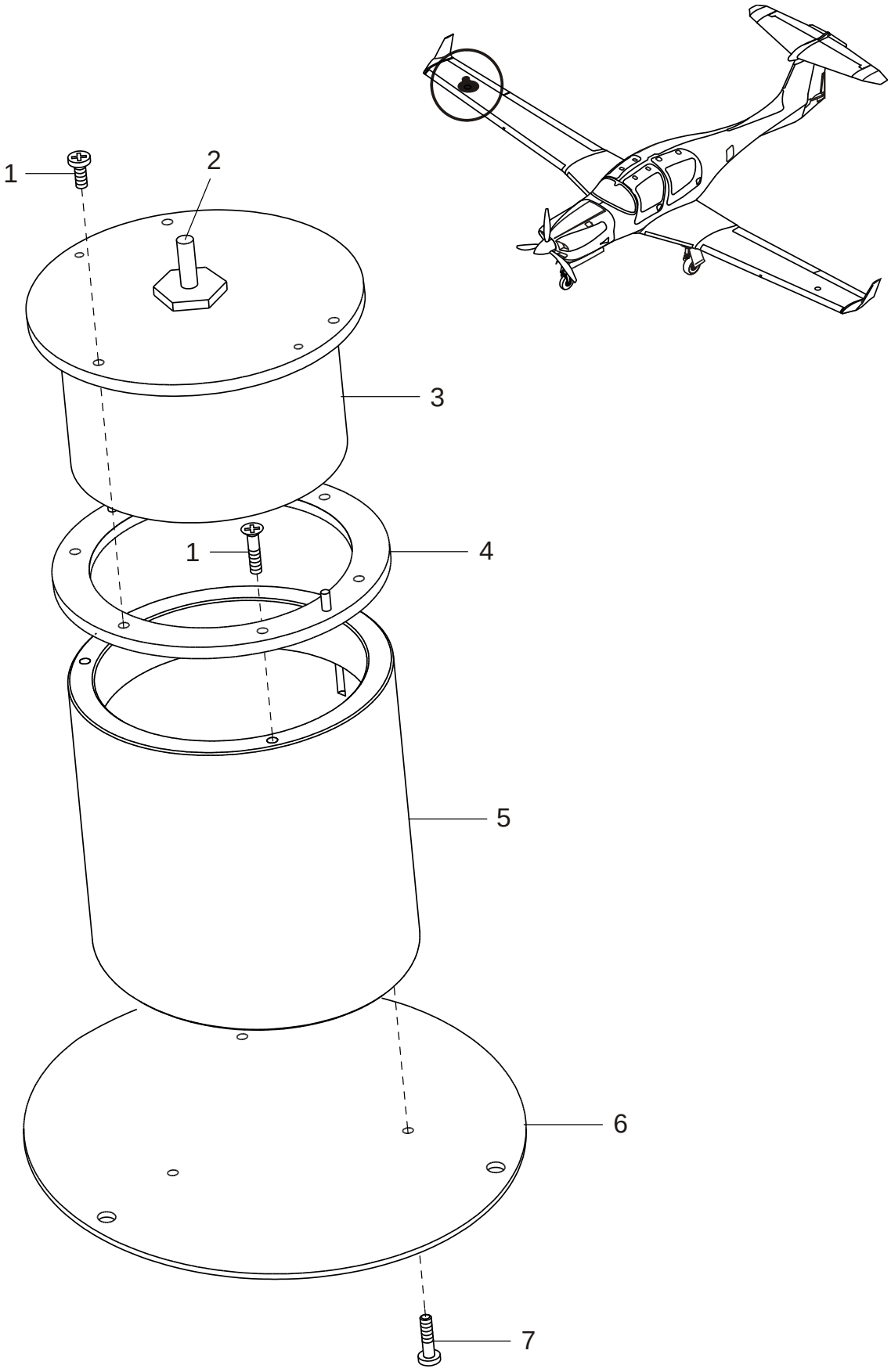


Figure 11 - Magnetometer Assembly Installation GMU 44

Legend

[1, Fig.11] Screw
[2, Fig.11] Electrical Connector
[3, Fig.11] Magnetometer, GMU 44
[4, Fig.11] Mounting Ring
[5, Fig.11] Spacer
[6, Fig.11] Inspection Panel
[7, Fig.11] Panel Screw

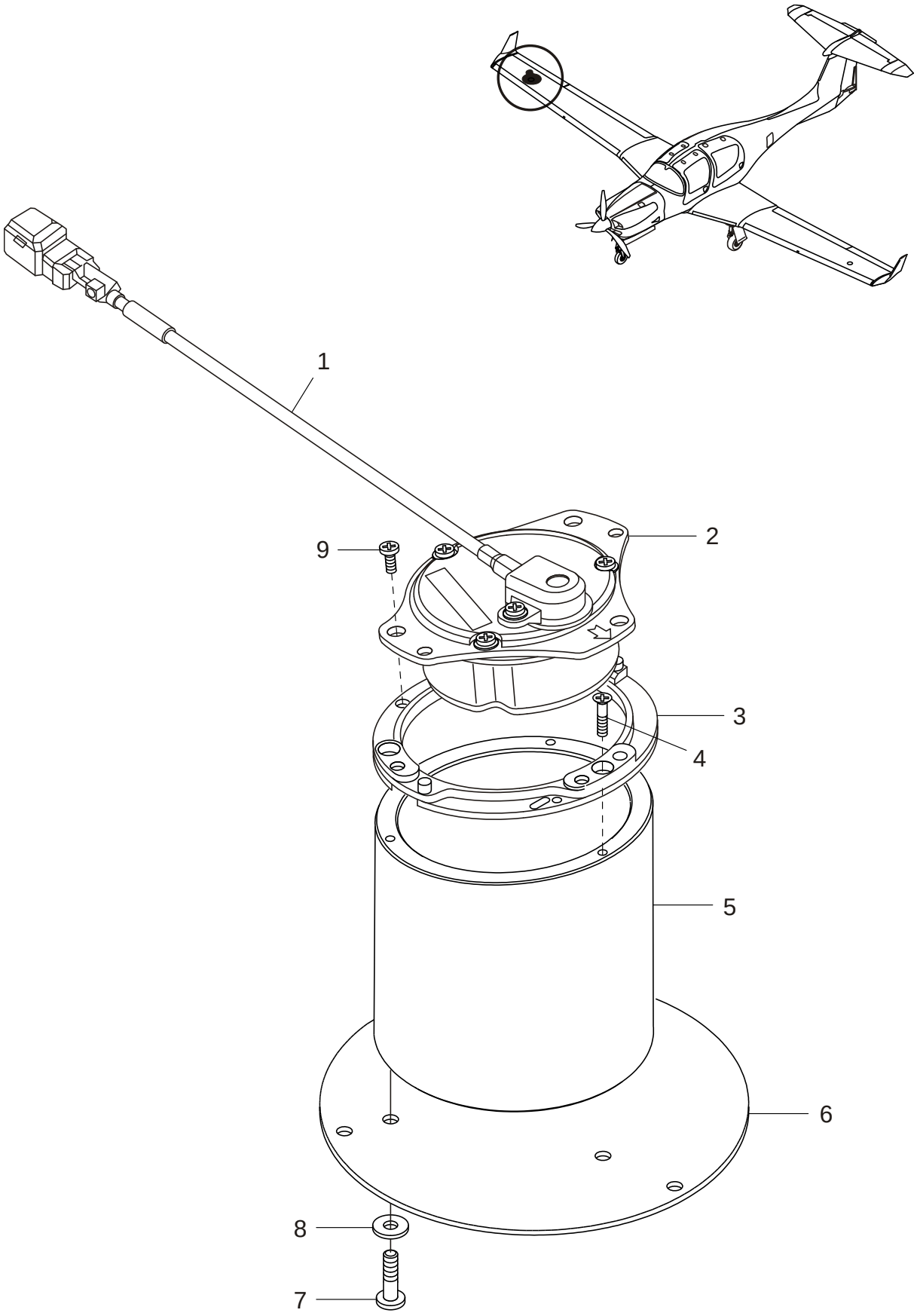


Figure 12 - Magnetometer Assembly Installation GMU 44B

Legend

[1, Fig.12] Electrical Connector Cable
[2, Fig.12] Magnetometer GMU 44B
[3, Fig.12] Mounting Ring
[4, Fig.12] Mounting Ring Screw
[5, Fig.12] Spacer
[6, Fig.12] Inspection Panel
[7, Fig.12] Panel Screw
[8, Fig.12] Panel Washer
[9, Fig.12] Screw

31-40-16 GMU 44/B Magnetometer

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GMU 44/B Magnetometer

(1) Install the magnetometer assembly:

- Move the magnetometer assembly into position at the right wing.
  Pay attention on the dedicated mounting direction marked by an arrow!
- Connect the electrical cables to the magnetometer assembly.
  At the in-line connector.
- Move the magnetometer assembly fully into position in the lower surface of the right wing.
- Install the 3 screws that attach the magnetometer assembly to the wing.

(2) Do a test for the correct operation of the integrated cockpit system (ICS):

- Set the ELECT. MASTER switch to ON.
  The ICS must power up and successfully complete its selftest procedure.

(3) Do a magnetometer calibration.

Refer to 31-40 GMU 44/B Magnetometer - Calibrate.

31-40-17 GMU 44/B Magnetometer

Calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. G1000 NXi Magnetometer Calibration

Refer to the G1000 NXi Line Maintenance Manual for more information on the post installation configuration and checkout procedure.

NOTE

This calibration procedure must be carried out on a compass rose in order to guarantee measurements free of environmental magnetic disturbances. Attempting to carry out this maneuver on a typical ramp area will not yield a successful calibration. The accuracy of the AHRS cannot be guaranteed if this calibration is not performed on a magnetically clean compass rose.

(1) Taxi the airplane to a compass rose. Ensure that there are no nearby magnetic materials. If unavoidable, maneuver the airplane to keep the magnetometer from passing within 6 meter (19.7 feet) of such objects. At the compass rose, align the airplane to a heading of magnetic north (± 5°).

(2) With the airplane stationary, initiate the GRS 79 AHRS magnetometer calibration procedure as follows:

- Enter the GDU configuration mode by holding the ENTER button while applying power. Release the ENTER button when the words INITIALIZING SYSTEM are displayed on the GDU.
- Press the FMS inner knob to select which calibration procedure to run. Select MAGNETOMETER and press the ENTER button.

- Follow the checklist items displayed on the GDU and press the ENTER button as each one is completed or confirmed. When the CALIBRATE field is blinking, press the ENTER button to begin the procedure.
- The GDU display advises the operator when to turn the airplane, when to stop, and when to turn again.

(3) Upon advice to turn, taxi the airplane in a right turn. After approximately 25° to 30° of turn from the last heading the GDU display advises the operator to stop the airplane.

(4) The GDU display guides the operator to dwell at multiple headings around a complete circle.

NOTE

The operator may use outside references to turn the airplane by 30° of each time the GDU displays that it is time to turn, rather than attempting to use the GDU's real time indication of how much additional turn is needed. Simply turning the airplane roughly 30° (±5°) increments and dwelling for the time recommended by the GDU is all that is needed for successful calibration.

(5) Repeat the turn and stop process until the GDU display advises that a successful calibration is complete. The GRS 79 AHRS then enters its normal operation mode. Press the ENTER button on the GDU to conclude the procedure.

31-40-18 GCU 476 Control Unit

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the GCU 476 Control Unit

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Set the GCU circuit breaker open.

Right side of instrument panel.

(3) Remove the control unit:

- Turn the jackscrew counter-clockwise until the unit disengages from the mounting rack.
- Move the control unit up and disconnect the electrical cables.
  At the in-line connector.
- Move the control unit clear of the center armrest.

Refer to Figure 13.

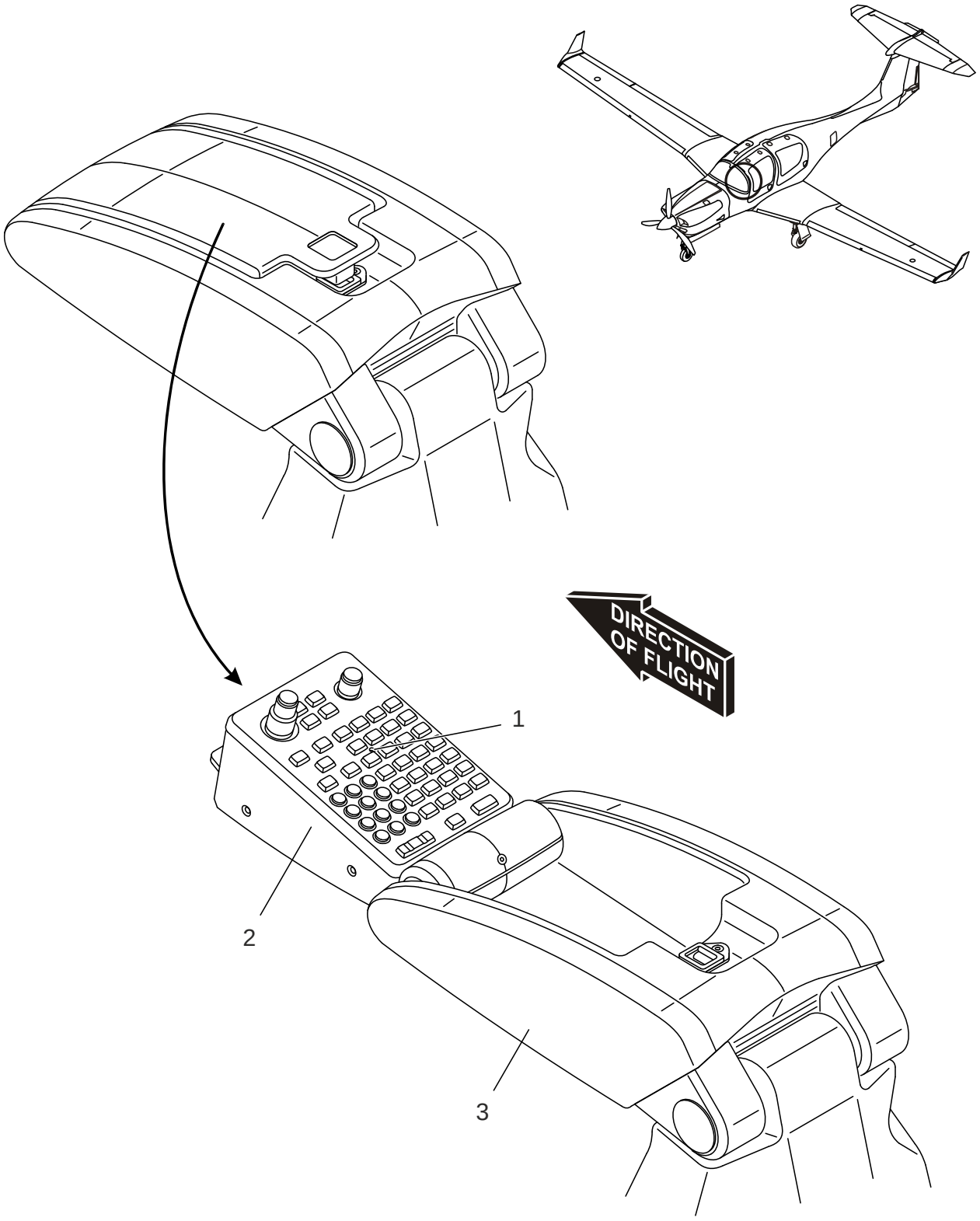


Figure 13 - GCU 476 PDF/MDF Control Unit Installation

Legend

[1, Fig.13] Jack Screw

[2, Fig.13] GCU 476 PFD/MFD Control Unit

[3, Fig.13] Middle Armrest

31-40-19 GCU 476 Control Unit

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the GCU 476 Control Unit

(1) If necessary, set the GCU circuit breaker open.

Right side of instrument panel.

(2) Install the control unit:

- Move the control unit into position at the center armrest.
- Connect the electrical cable to the control unit.
  At the in-line connector.
- Move the control unit into position.
  Make sure that you do not trap the electrical cables.
- Turn the jackscrew clockwise until the control unit is firmly seated into the rack.
  Do not over-tighten the jackscrew.

(3) Reset the GCU circuit breaker.

Right side of instrument panel.

(4) Do a test for the correct operation of the GCU 476 control unit.

32-00
LANDING GEAR

32-00-01 Landing gear

Description

1. Landing Gear

Figure 1 shows the main components of the landing gear. The landing gear absorbs landing loads and let you move the airplane on the ground. The landing gear also provides steering control and braking when the airplane is on the ground.

The DA 50 C has a tricycle landing gear. The landing gear can retract. The left main gear leg attaches to the wing center section on the left side of the fuselage. The right main landing gear attaches the wing center section on the right side of the fuselage. The nose gear leg attaches to the engine mount. All three legs have CFRP doors that seal the landing gear bays when the landing gear is retracted in flight.

Each main leg is a tubular steel strut. A trailing arm attaches to the bottom of the strut and an axle for the wheel assembly attaches to the trailing arm. A damper behind the tubular strut also attaches to the trailing arm and absorbs the landing loads. The landing gear hydraulic system holds the main gear legs in the retracted position. When the main gear legs are extended the legs geometrically lock and a latch holds the legs in the locked position during rebound loads.

Each main gear leg has a single main-wheel and a hydraulic disk-brake. Toe pedals on the rudder pedals operate the disk-brakes.

The nose gear leg attaches to the engine mount. A steel strut with an integral telescopic damper absorbs the landing loads. The nose gear leg carries a single nose-wheel. The pilot uses the rudder control pedals and brakes to steer the nose-wheel. Two steering stops attached to the gear leg limit the rotary motion of the nose landing gear.

The landing gear hydraulic system holds the nose leg in the retracted position. When the nose leg is extended the leg geometrically locks and a latch holds the leg in the locked position during rebound loads.

The landing gear has an electrically powered hydraulic supply and control system. The hydraulic supply and control system is mounted on a bracket located in the fuselage tube. Refer to 29-00 Hydraulic System - Description and 32-30 Extension and retraction - Description for more data about the hydraulic system.

2. Operation on Ground

The pilot can steer the airplane with the rudder pedals and brakes. When he pushes the left rudder pedal and brake forward the nose gear leg turns to the left and the airplane turns to the left. When he pushes the right rudder pedal and brake forward the nose gear turns to the right and the airplane turns to the right.

If the pilot pushes the toe brake pedals, hydraulic fluid from the brake master cylinders flows to the disk brake cylinders and applies the brakes. If the pilot sets the parking brake lever while he pushes the toe brake pedals, the parking brake valve keeps the brakes in the ON position.

Refer to 32-40 Wheels and brakes - Description for more data about the wheels and brakes.

Each landing leg has an oil/gas damper. When the airplane is moving on the wheels over uneven ground the dampers can compress and absorb the loads. The dampers can absorb loads that are greater than the normal landing loads.

Refer to 32-10 Main Landing Gear - Description for more data about the main landing gear components and refer to 32-20 Nose Landing Gear - Description for more data about the nose landing gear components.

3. Operation in the Air

When the airplane is airborne, the pilot can retract the landing gear into the landing gear bays. The landing gear bays have doors which close when the landing gear is retracted. Refer to 32-30 Extension and retraction - Description for more data about the extension and retraction system for the landing gear.

4. Emergency Operation

If the hydraulic system fails the pilot can extend the landing gear by setting the landing gear lever to the DOWN position and by pulling the manual gear extension handle. The weight of the landing gear assisted by a spring, will cause the gear to extend. When the gear is fully extended spring loaded latches operate and hold the landing gear legs geometrically locked in the down position. The pilot can make a normal landing. The pilot can NOT retract the landing gear if the hydraulic system has failed.

NOTE

A failure of the on-board electrical system causes the landing gear automatically to extend. The hydraulic pump is not driven anymore and both solenoid valves open. The hydraulic locking mechanism of the landing gear system is inoperable. When the gear is fully extended it will geometrically lock in the down position.

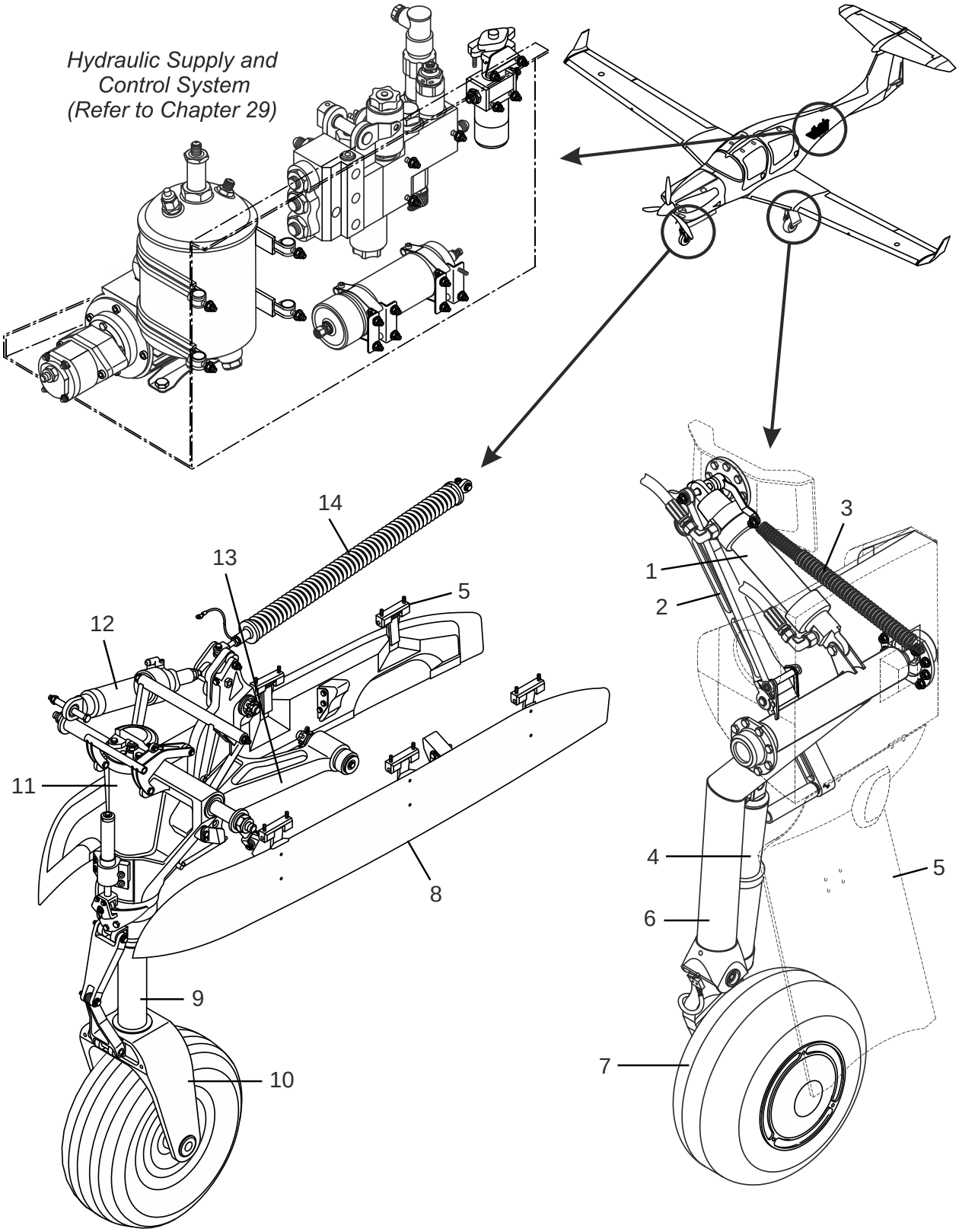


Figure 1 - Landing Gear - Main Components

Legend

[1, Fig.1]	Hydraulic Actuator
[2, Fig.1]	Folding Stay
[3, Fig.1]	Tension Spring
[4, Fig.1]	Damper
[5, Fig.1]	Right Door
[6, Fig.1]	Tubular Steel Strut
[7, Fig.1]	Main Wheel
[8, Fig.1]	Left Door
[9, Fig.1]	Damper Assembly
[10, Fig.1]	Nose Wheel
[11, Fig.1]	Nose Gear Leg
[12, Fig.1]	Hydraulic Actuator
[13, Fig.1]	Folding Stay
[14, Fig.1]	Compression Spring

32-10
MAIN LANDING GEAR

32-10-01 Main Landing Gear

Description

1. Main Landing Gear

This Section tells you about the main landing gear. See the related Sections for data about these systems that connect to the main gear:

- Section 32-30. Extension and retraction. Extension and retraction - Description.
- Section 32-40. Wheels and brakes. Wheels and brakes - Description.
- Section 32-60. Position and warning. Position and warning - Description.
- Section 57-00. Wing structure. Wings - Description.

Refer to Chapter 92 for data about the electrical wiring of the landing gear systems.

2. Description

Figure 1 shows the main landing gear.

Each main landing gear is a tubular steel strut. The strut has a longitudinal pivot at the top. Large bearings at each end of the longitudinal pivot hold the leg to the wing structure. A trailing arm attaches to the bottom of the tubular steel strut. A gas/oil filled damper attaches to the rear of the tubular steel strut and it attaches to the trailing arm.

The trailing arm carries an axle for the main-wheel assembly. Four bolts attach the axle to the trailing arm. The axle has a steel plate that holds the brake unit. Clips and cable binders hold the hydraulic hose for the brake unit and the electrical cables for the micro-switches to the leg.

Each main gear leg has a large hydraulic actuator to retract and extend the leg. One end of the hydraulic actuator connects to the top of the tubular steel strut, near the longitudinal pivot. The other end of the actuator connects to the wing structure via a folding stay.

3. Operation

Each main leg transmits vertical loads (for example, landing loads) to the airplane structure. When the leg has a vertical load, the wheel pushes up the trailing arm. The trailing arm moves and compresses the damper. The damper pushes up on the top of the tubular strut.

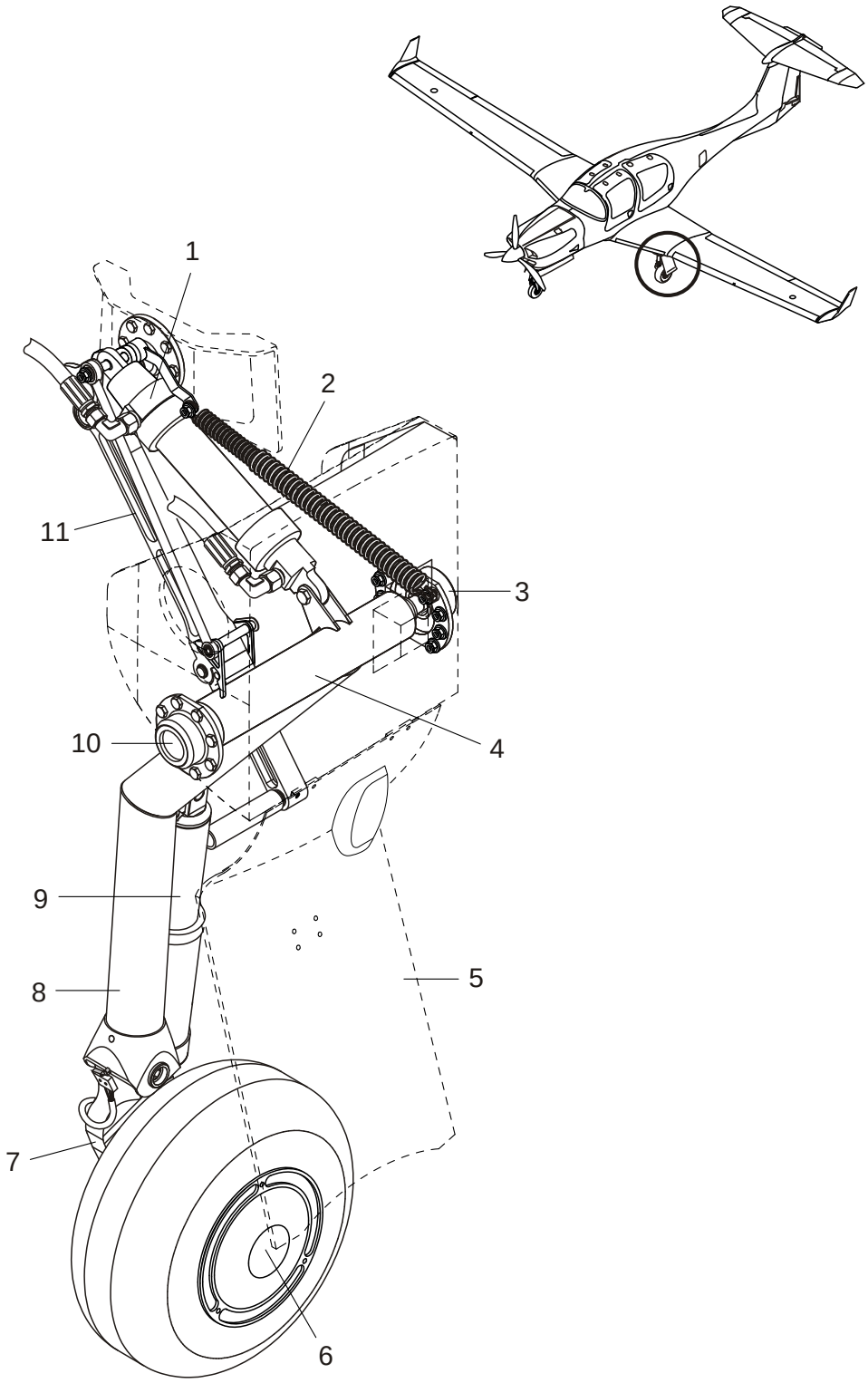


Figure 1 - Main Landing Gear

Legend

[1, Fig.1]	Hydraulic Actuator
[2, Fig.1]	Tension Spring
[3, Fig.1]	Aft Pivot Bearing
[4, Fig.1]	Longitudinal Pivot
[5, Fig.1]	CFRP Door
[6, Fig.1]	Axle
[7, Fig.1]	Trailing Arm
[8, Fig.1]	Tubular Steel Strut
[9, Fig.1]	Damper
[10, Fig.1]	Forward Pivot Bearing
[11, Fig.1]	Folding Stay

32-10-02 Main Landing Gear

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Airplane stands on ground with one wing low.

1A. Check the ground for uneveness.

Is the ground uneven?

Yes - go to step 1B.

No - go to step 1C.

1B. Move airplane to level ground.

1C. Check for a heavy landing.

Has there been a heavy landing?

Yes - go to step 1D.

No - go to step 1E.

1D. Do a test for heavy landing. Replace damaged parts.

1E. Check the damper.

Is the damper defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace damper.

1G. Contact DAI.

32-10-03 Main Landing Gear

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Slide sheets	Commercial	4
E-protractor	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Measure Wheel Track and Camber

(1) Make sure that the airplane is at the empty weight.

Refer to Wheel Track and Camber Report.

(2) Remove the main landing gear doors.

Refer to 32-10 Door - Remove procedure.

(3) Move the airplane to put the main wheels on the slide sheets. Make sure there is no horizontal friction load on the landing gear.

Make sure the floor is level in the work area. Refer to Figure 3.

(4) Measure the wheel track.

Refer to Figure 2 and Figure 3:

- Measure from the wing root edge LH and RH leading edge (between wing and fuselage) perpendicular to the ground.
- Mark these points on the ground and draw a line or use a straight beam which aligns with both points.
- Use a metal angle or similar and hold it onto the measured line from the previous step to the rim of the main gear wheel.
- Measure the wheel track of the rim in the front and the rear.

- Substract the two measurements and write this wheel track measurement down.
- Use the wheel track table to convert your wheel track measurement into degrees.

(5) Measure the camber using an e-protractor.

(6) Fill out the Wheel Track and Camber Report.

(7) If the Wheel Track and Camber Report does not meet the requirement: contact DAI.

(8) Measure the track width. If the track width does not meet the requirement: contact DAI.
Refer to Figure 3.

(9) Move the airplane off the slide sheets.

(10) Install the main gear door.
Refer to 32-10 Door - Install procedure.

DA 50 Wheel Track Table					
(valid for DA 50 with 6" - Parker rim P/N: 40-406C or Beringer rim P/N RF-017)					
mm	°	mm	°	mm	°
0,1	0,03	3,4	1,04	6,7	2,05
0,2	0,06	3,5	1,07	6,8	2,08
0,3	0,09	3,6	1,10	6,9	2,11
0,4	0,12	3,7	1,13	7	2,15
0,5	0,15	3,8	1,16	7,1	2,18
0,6	0,18	3,9	1,20	7,2	2,21
0,7	0,21	4	1,23	7,3	2,24
0,8	0,25	4,1	1,26	7,4	2,27
0,9	0,28	4,2	1,29	7,5	2,30
1	0,31	4,3	1,32	7,6	2,33
1,1	0,34	4,4	1,35	7,7	2,36
1,2	0,37	4,5	1,38	7,8	2,39
1,3	0,40	4,6	1,41	7,9	2,42
1,4	0,43	4,7	1,44	8	2,45
1,5	0,46	4,8	1,47	8,1	2,48
1,6	0,49	4,9	1,50	8,2	2,51
1,7	0,52	5	1,53	8,3	2,54
1,8	0,55	5,1	1,56	8,4	2,57
1,9	0,58	5,2	1,59	8,5	2,61
2	0,61	5,3	1,62	8,6	2,64
2,1	0,64	5,4	1,65	8,7	2,67
2,2	0,67	5,5	1,69	8,8	2,70
2,3	0,70	5,6	1,72	8,9	2,73
2,4	0,74	5,7	1,75	9	2,76
2,5	0,77	5,8	1,78	9,1	2,79
2,6	0,80	5,9	1,81	9,2	2,82
2,7	0,83	6	1,84	9,3	2,85
2,8	0,86	6,1	1,87	9,4	2,88
2,9	0,89	6,2	1,90	9,5	2,91
3	0,92	6,3	1,93	9,6	2,94
3,1	0,95	6,4	1,96	9,7	2,97
3,2	0,98	6,5	1,99	9,8	3,00
3,3	1,01	6,6	2,02	9,9	3,03

Figure 2 - DA 50 C Wheel Track Table

Note: Ensure that the floor is levelled in the work area

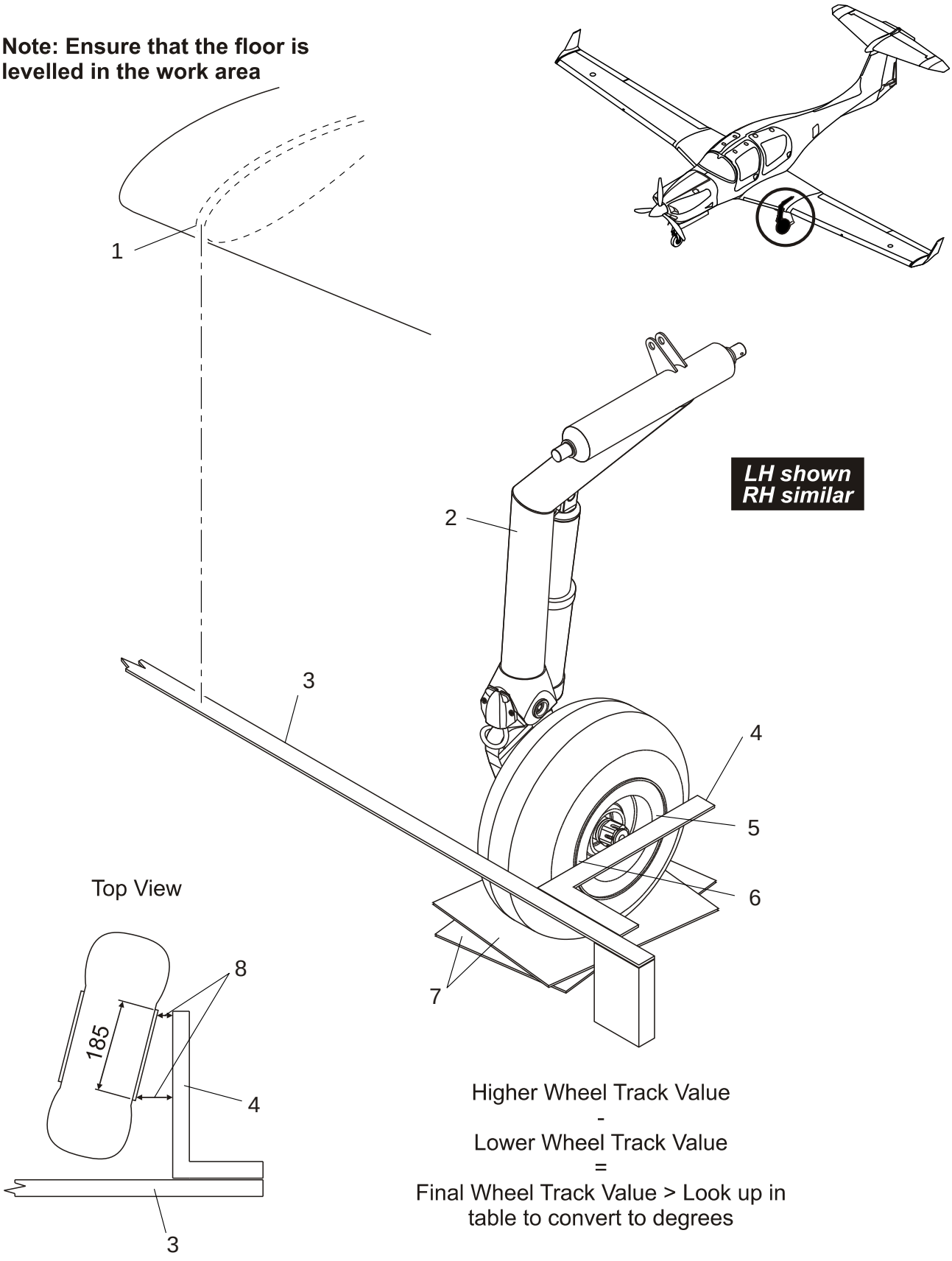


Figure 3 - Main Gear Wheel Track

Legend

[1, Fig.3] Wing Root Edge

[2, Fig.3] Main Landing Gear Leg

[3, Fig.3] Straight Edge

[4, Fig.3] Angle Bracket

[5, Fig.3] Rear Wheel Track Measurement

[6, Fig.3] Front Wheel Track Measurement

[7, Fig.3] Greased Plates

[8, Fig.3] Wheel Track Measurements

32-10-04 Main Landing Gear

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

3. Main Procedure

A. Adjustment of the Main Landing Gear Wheel in Retracted Position

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Jacking.

(2) Remove the dust cup from the wheel.

(3) Verify the tire pressure.

Refer to the AFM for correct pressure.

(4) Disconnect the MLG door from the MLG leg.

Refer to 32-10 Door - Remove procedure.

(5) Set the ELECT. MASTER switch to ON.

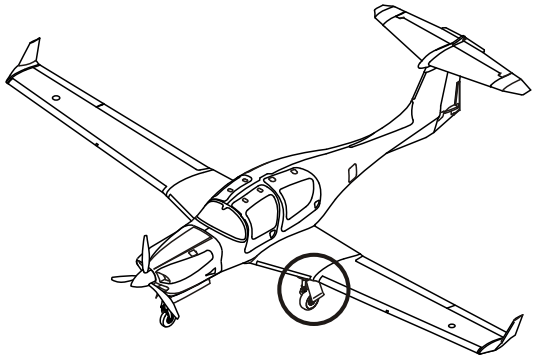
(6) Retract the landing gear.

(7) Check the clearance between the MLG tire and the lower wing-shell, wheel bay cutout:

- Put a trestle under the MLG wheel.
- Set the emergency gear lever to the EXTEND position.
- Set the ELECT. MASTER switch to OFF.
- Support the MLG wheel in the position shown in Figure 4.
- Measure the clearance between the MLG tire and the wheel bay cutout.
  Minimum clearance: 10 mm (0.4 in) circumferential.
- Remove the trestle and extend landing gear.

(8) If the clearance is asymmetric between front and rear side:

- Adjust the clearance by use of a larger or shorter MLG damper.
  For replacement refer to 32-10 Damper - Remove procedure and 32-10 Damper - Install procedure.
- Too small gap on front side: use a shorter damper.
- Too big gap on front side: use a longer damper.



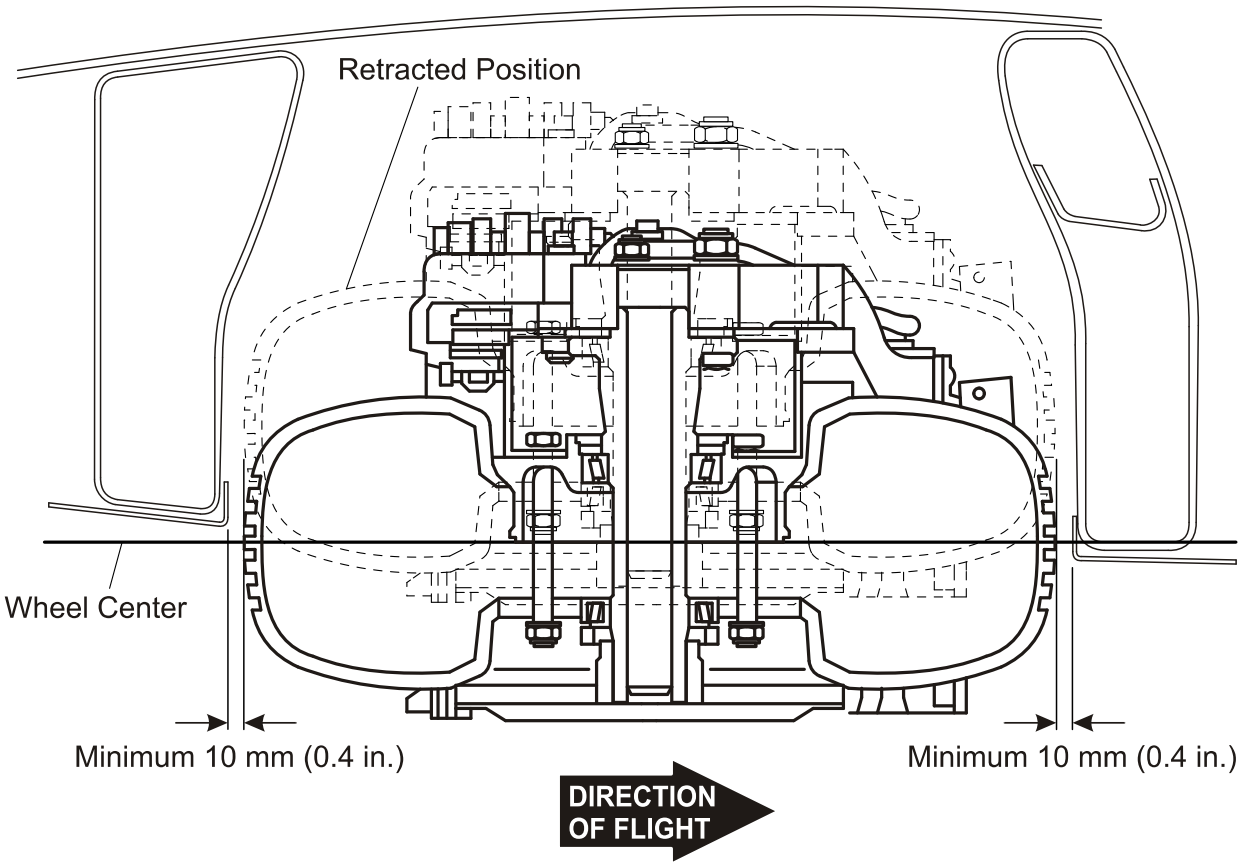


Figure 4 - Main Landing Gear Tire Clearance Measurement

32-10-05 Door

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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3. Main Procedure

A. Remove a Main Gear Door

(1) Pull the GEAR circuit breaker.

On the right side of instrument panel.

(2) Disconnect the door operating rod from the door that will be removed.

Refer to Figure 5:

- Remove the nut, washers, spacers and the bolt from the rod end.
  At the door end of the rod.
- Pull the operating rod clear of the angle bracket.

(3) Remove the door:

- Remove the two bolts, washers and self locking nuts from one of the hinges.
  At the hinge mounted on the door.
- Remove the hinge.
- Unhinge and move the door clear of the main gear bay.

Support the door.

- Mount the hinge back on the door with the two bolts and washers.
  For not loosing the hinge and hardware.

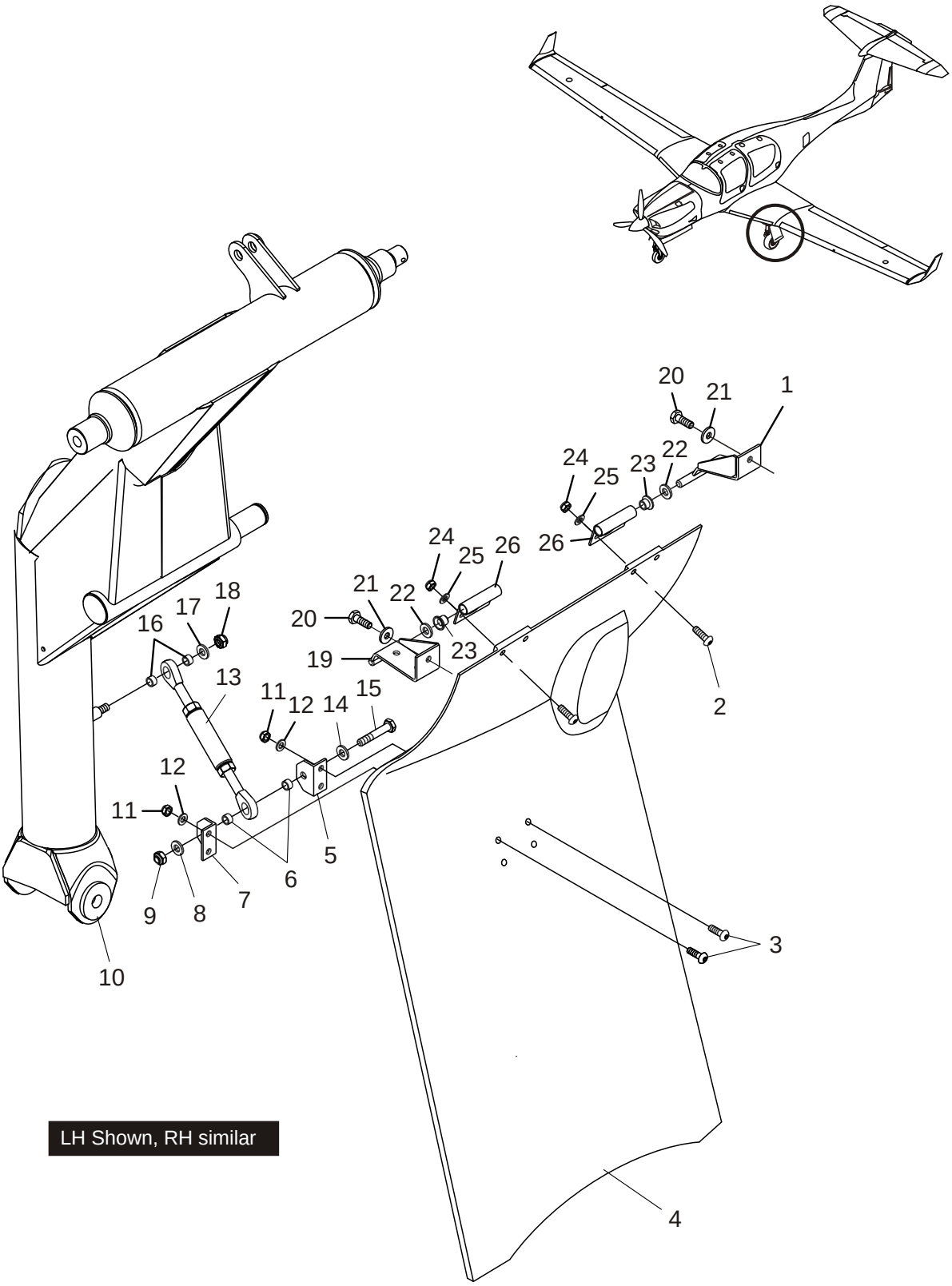


Figure 5 - Main Landing Gear Door

Legend

[1, Fig.5]	Hinge, Rear
[2, Fig.5]	Screw
[3, Fig.5]	Screw
[4, Fig.5]	Main Landing Gear Door
[5, Fig.5]	Angle Bracket
[6, Fig.5]	Spacer
[7, Fig.5]	Angle Bracket
[8, Fig.5]	Washer
[9, Fig.5]	Nut
[10, Fig.5]	Main Landing Gear Leg
[11, Fig.5]	Nut
[12, Fig.5]	Washer
[13, Fig.5]	Door Operating Rod
[14, Fig.5]	Washer
[15, Fig.5]	Bolt
[16, Fig.5]	Spacer
[17, Fig.5]	Washer
[18, Fig.5]	Nut
[19, Fig.5]	Hinge, Front
[20, Fig.5]	Screw
[21, Fig.5]	Washer
[22, Fig.5]	Washer
[23, Fig.5]	Bushing
[24, Fig.5]	Self Locking Nut
[25, Fig.5]	Washer
[26, Fig.5]	Hinges

32-10-06 Door

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

3. Main Procedure

A. Install a Main Gear Door

(1) Install the main gear door:

- Remove the two bolts, washers and self locking nuts from one of the hinges on the main gear door.
- Move the main gear into position at the main gear bay.
- Push the removed hinge onto the hinge in the main gear bay and align the gear door with the hinge.
  Refer to 32-10 Door - Remove procedure Figure 5.
- Install the two bolts, washers and self locking nuts.
  Use new self locking nuts.

(2) Connect the door operating rod to the door that you installed:

- Push the door operating rod onto the angle bracket.
  Refer to 32-10 Door - Remove procedure Figure 5.
- Install the nut, washers, spacers and the bolt onto the rod end on the door side.

Use a new self locking nut.

(3) Reset the GEAR circuit breaker.

On the right side of the instrument panel.

(4) Carry out a test of the MLG door preload.

(5) Do a test of the extension/retraction system.

Refer to 32-30 Normal Operation - Test and inspection.

32-10-07 Door

Other check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check of Main Landing Gear Door Pre-Load

(1) Begin with 32-10 Main Landing Gear - Adjust, align and calibrate.

(2) Connect the MLG door.

Refer to 32-10 Door - Install procedure.

(3) Push the emergency landing gear extension lever.

(4) Set the ELECT. MASTER switch to ON.

(5) Retract the landing gear.

(6) Measure the distance between the end plane of the wheel axle and the lower wing shell.

Refer to Figure 6.

(7) If the measurement does not meet the requirements:

- Adjust the rod end bearing of the MLG actuator until obtaining the above mentioned value. Therefore change screw-in depth of rod and bearing.
  Refer to 32-10 Actuator - Remove procedure and Actuator - Install procedure.

NOTE

Check assembly for min. screw-in depth.

(8) Measure the MLG door pre-load.

Refer to Figure 7:

- Attach the spring-scale / load cell to the MLG door.

- Calibrate the spring scale / load cell to display zero.
- Read the force value, when the MLG door starts to lift off from the lower wing shell.

The correct pre-load is 5 to 10 kg (11 to 22 lbf).

(9) If the measurement does not meet the requirements:

- Adjust the MLG door pre-load with the MLG door operating rod.

(10) Carry out a test of the correct operation of the landing gear retraction and extension system.

Refer to 32-30 Normal Operation - Test and inspection.

(11) Extend the landing gear.

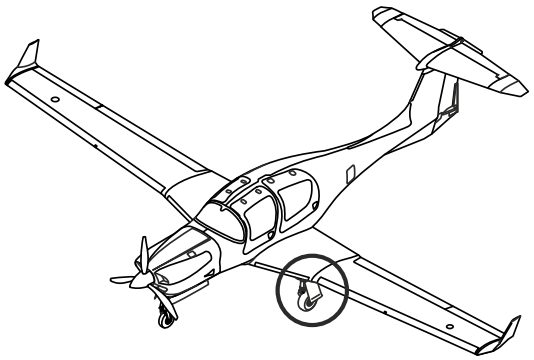
(12) Set the ELECT. MASTER switch to OFF.

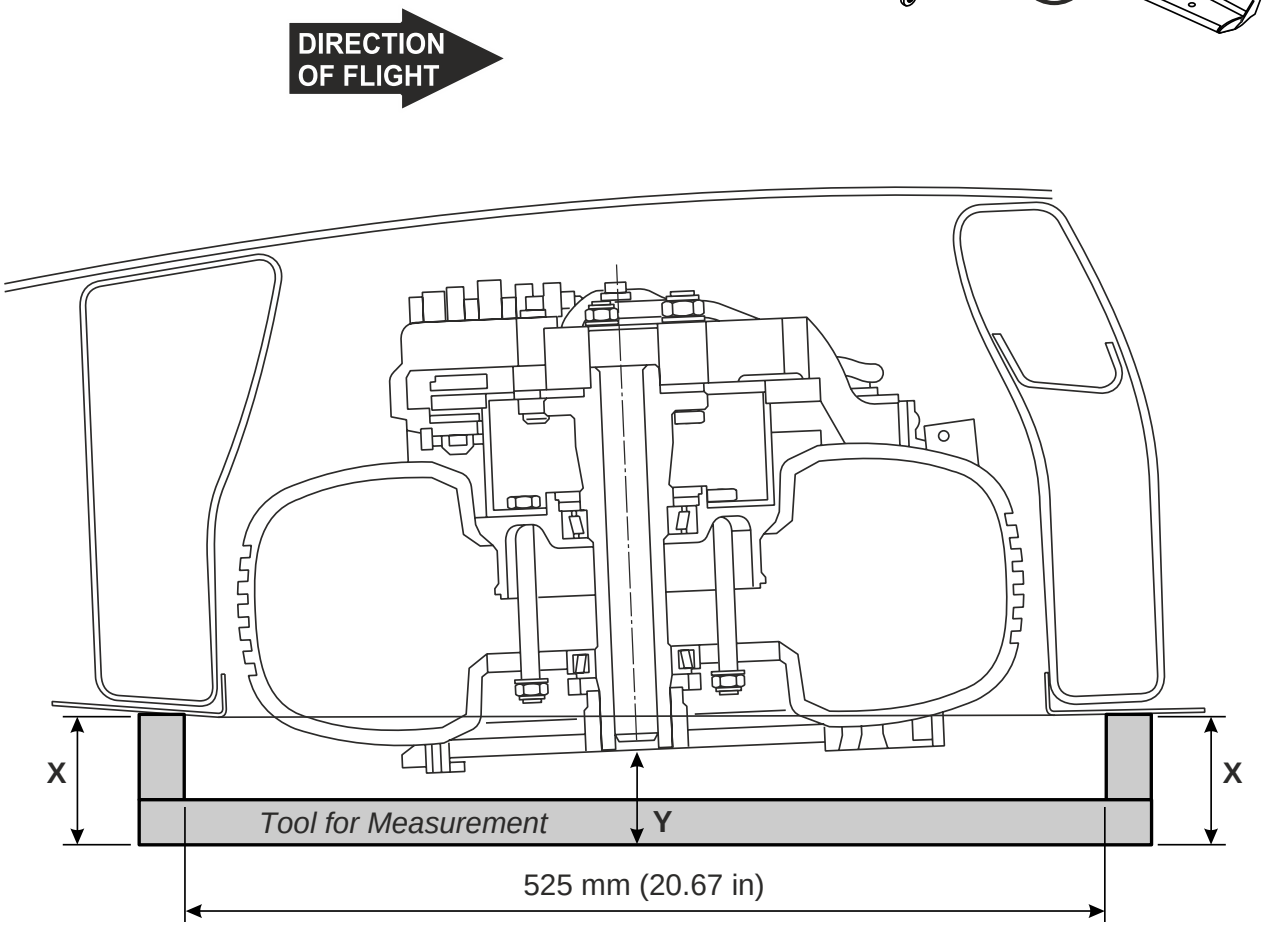
(13) Install the dust cap on the wheel.

(14) Move the wing and rear fuselage trestles clear of the airplane.

(15) Lower the airplane.

Refer to 07-10 Jacking - Jacking.





X - Y = 8 mm +/- 7 mm (0.31 in +/- 0.28 in) for Cleveland / Parker Wheel Installation

X - Y = 22 mm +/- 7 mm (0.87 in +/- 0.28 in) for Beringer Wheel Installation

Measurement with connected MLG doors with 5 - 10 kg (11 - 22 lb) pre-load.

Figure 6 - Main Landing Gear Door Measurement

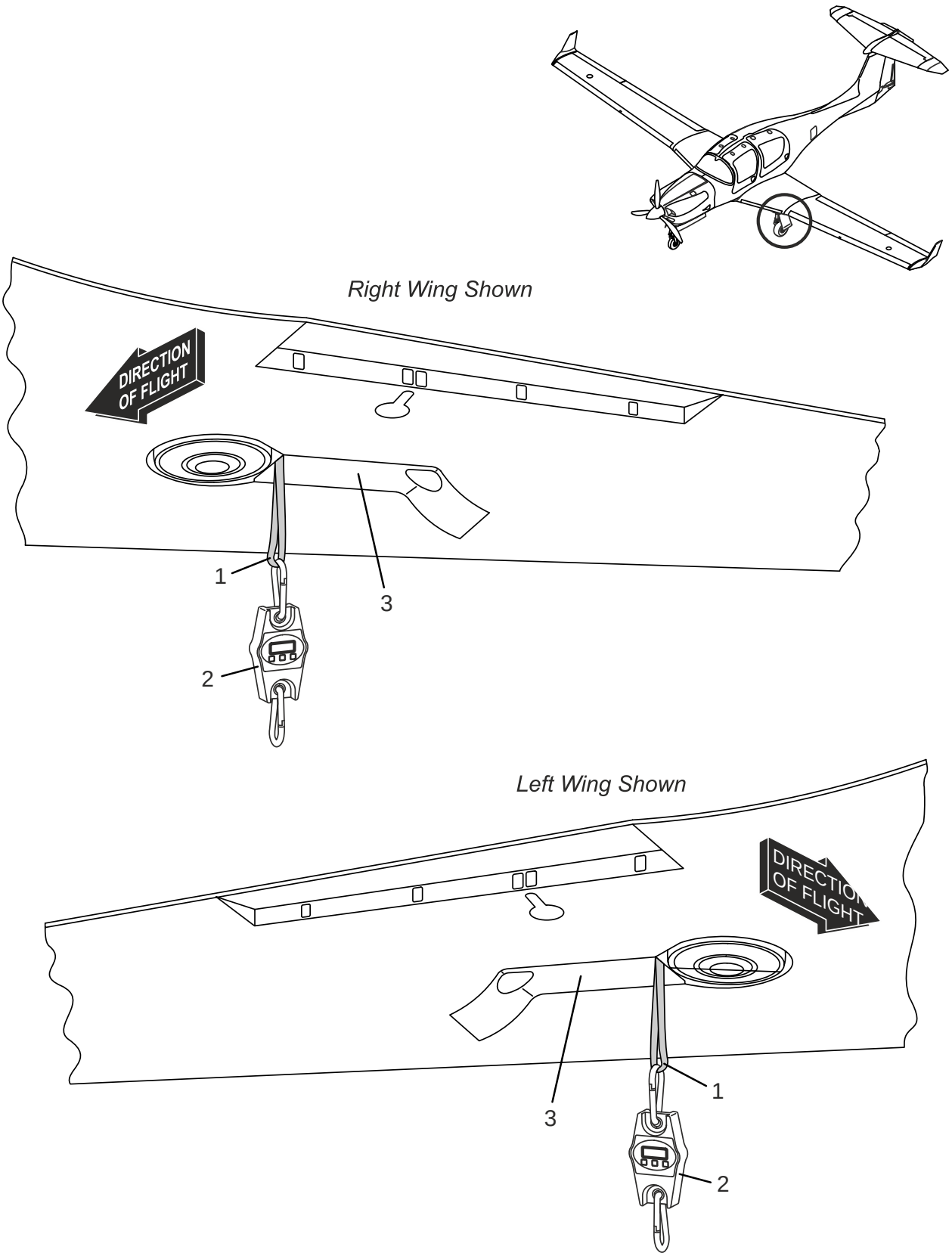


Figure 7 - Main Landing Gear Door Pre-Load Measurement

Legend

[1, Fig.7] Reinforced Tape Loop

[2, Fig.7] Scale

[3, Fig.7] Main Landing Gear Door

32-10-08 Leg

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2
Aft bearing centering tool	VR-D60-3217-12-31	1
Front bearing centering tool	VR-D60-3217-12-30	1
Bearing housing puller	VR-D60-3217-11-00	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

WARNING

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A. Remove the Main Landing Gear Leg

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(2) Bleed the system. Refer to 32-40 Brake System - Bleed:

- Retract the landing gear to bleed the system.
- Operate the emergency extension of the landing gear (repeat this step one or two times).

(3) Pull the GEAR circuit breaker. Right side of instrument panel.

(4) Disconnect the main gear door from the main gear leg:

- Remove the nut, washer and spacer that attach the door connecting arm to the main gear leg.
- Pull the connecting arm clear of the main gear leg attachment and secure to the door.
- Move and hold the main gear door clear of the main gear leg.

(5) Remove the brake calliper. Refer to 32-40 Brake Caliper - Remove procedure.

(6) Remove front and rear MLG bubble fairings.

(7) Remove the main-wheel. Refer to 32-40 Main Wheels - Remove procedure.

(8) Remove all cable ties which secure the flexible brake hose and the electric cables to the micro switch.

(9) Remove the weight-on-wheels switch. Refer to 32-60 Position and warning - Description.

(10) Remove the MLG folding stay switch. Refer to 32-60 Position and warning - Description.

(11) Disconnect the folding stay assembly of the MLG. Refer to 32-10 Folding Stay Bracket - Remove procedure.

(12) Remove the rear bearing housing.

Refer to Figure 9:

- Remove the cotter-pin from the castle nut.
- Remove the castle nut.
  Support the main gear leg and make sure not to scratch the surface.
- Remove the 7 bolts, nuts and washers and washer sheet(s), which hold the bearing housing onto the fuselage.
- Remove the bolt, 3 washers, 2 spacers, the spacer sleeve and the nut from the bearing housing.
- Disconnect the lightning protection sheet.
- Use the bearing housing puller to get the bearing housing off the longitudinal pivot.

(13) Remove the front bearing housing.

Refer to Figure 9:

- Remove the 8 bolts, nuts, washers and washer sheet(s) which hold the bearing housing onto the fuselage.
- Remove one bonding wire and disconnect lightning protection sheet.
- Use the bearing housing puller to get the bearing housing off the longitudinal pivot.

(14) Remove the main gear leg:

- Move the leg aft to slide the forward longitudinal pivot clear of its bearing housing.
- Lower the forward longitudinal pivot clear of the landing gear bay.
- Move the leg forward until aft longitudinal pivot is clear of the main gear housing.
- Move the leg clear of the airplane.

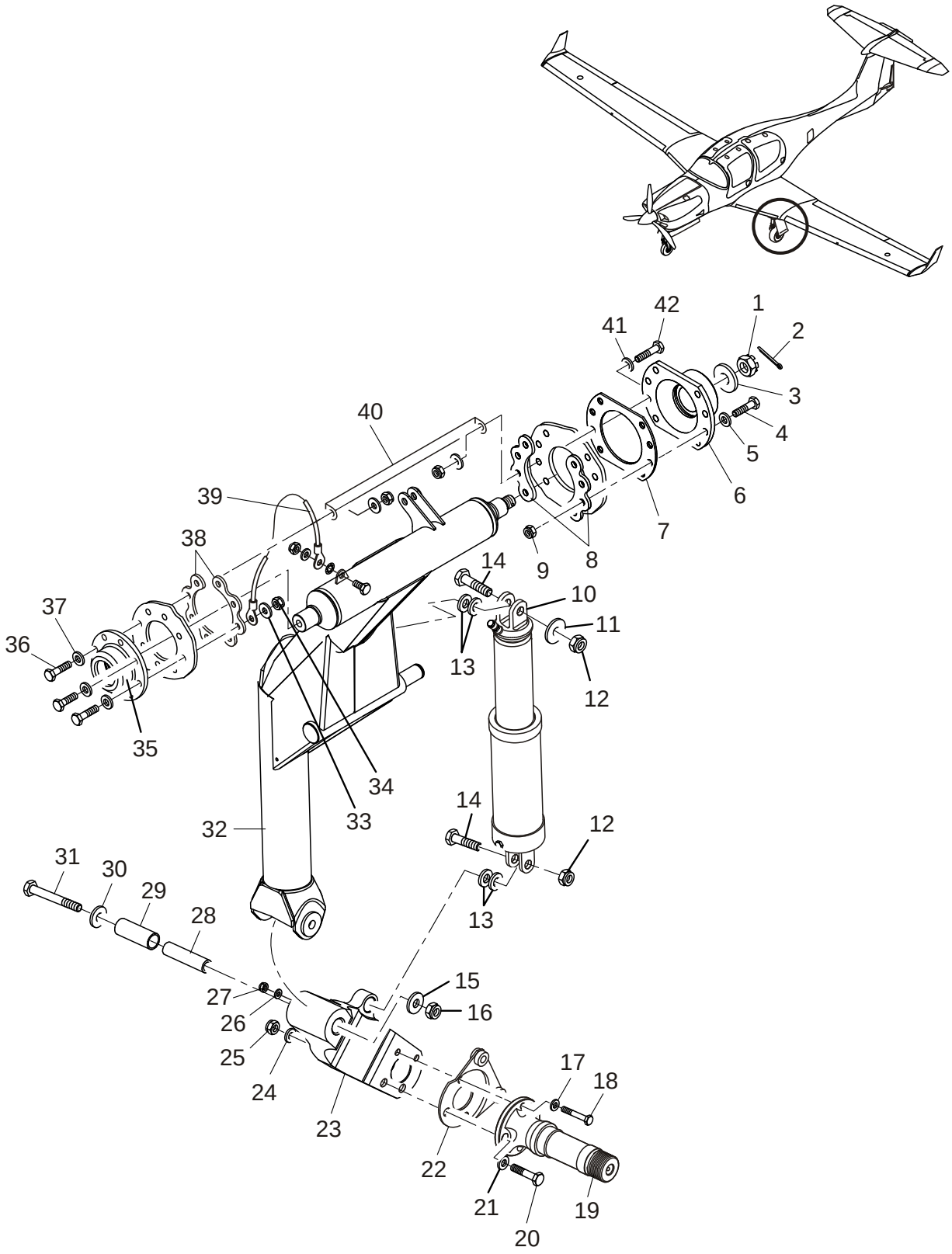


Figure 8 - Main Landing Gear Leg Assy

Legend

[1, Fig.8]	Castle Nut	[22, Fig.8]	Torque Plate
[2, Fig.8]	Cotter Pin	[23, Fig.8]	Trailing Arm LH
[3, Fig.8]	Washer	[24, Fig.8]	Washer
[4, Fig.8]	Bolt 6x	[25, Fig.8]	Self Locking Nut
[5, Fig.8]	Washer 6x	[26, Fig.8]	Washer
[6, Fig.8]	Aft Pivot Bearing	[27, Fig.8]	Self Locking Nut
[7, Fig.8]	GFRP Spacer	[28, Fig.8]	Bushing
[8, Fig.8]	Washer Sheets	[29, Fig.8]	Spacer
[9, Fig.8]	Nut 6x	[30, Fig.8]	Washer
[10, Fig.8]	Damper Unit	[31, Fig.8]	Bolt
[11, Fig.8]	Washer	[32, Fig.8]	Main Landing Gear Leg Assy, LH
[12, Fig.8]	Nut	[33, Fig.8]	Washer 8x
[13, Fig.8]	Washer	[34, Fig.8]	Nut 8x
[14, Fig.8]	Bolt	[35, Fig.8]	Forward Pivot Bearing
[15, Fig.8]	Washer	[36, Fig.8]	Bolt 8x
[16, Fig.8]	Nut	[37, Fig.8]	Washer 8x
[17, Fig.8]	Washer	[38, Fig.8]	Washer Sheets
[18, Fig.8]	Bolt	[39, Fig.8]	Bonding Wire
[19, Fig.8]	Axle	[40, Fig.8]	Lightning Protection
[20, Fig.8]	Bolt	[41, Fig.8]	Washer
[21, Fig.8]	Washer	[42, Fig.8]	Bolt

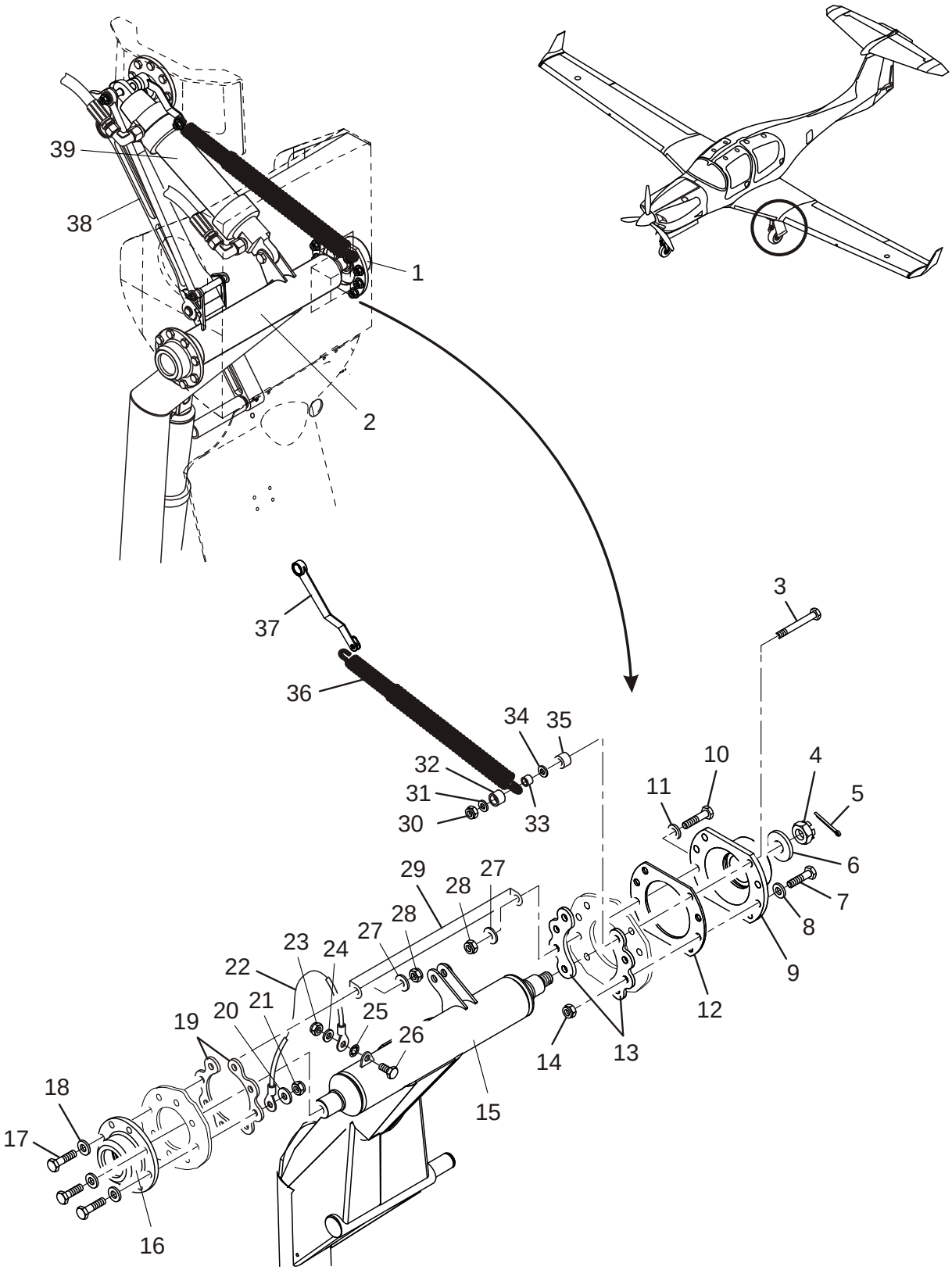


Figure 9 - Main Landing Gear Installation

Legend

[1, Fig.9]	Aft Pivot Bearing	[21, Fig.9]	Nut
[2, Fig.9]	Longitudinal Pivot	[22, Fig.9]	Bonding Wire
[3, Fig.9]	Bolt	[23, Fig.9]	Nut
[4, Fig.9]	Castle Nut	[24, Fig.9]	Washer
[5, Fig.9]	Cotter Pin	[25, Fig.9]	Washer
[6, Fig.9]	Washer	[26, Fig.9]	Bolt
[7, Fig.9]	6 Bolts	[27, Fig.9]	Washer
[8, Fig.9]	6 Washers	[28, Fig.9]	Nut
[9, Fig.9]	Aft Pivot Bearing	[29, Fig.9]	Lightning Protection
[10, Fig.9]	Bolt	[30, Fig.9]	Nut
[11, Fig.9]	Washer	[31, Fig.9]	Washer
[12, Fig.9]	GFRP Spacer	[32, Fig.9]	Spacer
[13, Fig.9]	Washer Sheets	[33, Fig.9]	Spacer Sleeve
[14, Fig.9]	6 Nuts	[34, Fig.9]	Washer
[15, Fig.9]	Main Landing Gear Leg	[35, Fig.9]	Spacer
[16, Fig.9]	Forward Pivot Bearing	[36, Fig.9]	Tension Spring
[17, Fig.9]	8 Bolts	[37, Fig.9]	Spring Lever
[18, Fig.9]	8 Washers	[38, Fig.9]	Folding Stay
[19, Fig.9]	Washer Sheets	[39, Fig.9]	Hydraulic Actuator
[20, Fig.9]	Washer		

32-10-09 Leg

Disassemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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3. Main Procedure

A. Disassemble Main Landing Gear Leg

(1) Remove main landing gear leg.

Refer to 32-10 Leg - Remove procedure.

(2) Optional:

If not removed before, remove the main gear wheel.

Refer to 32-40 Main Wheels - Remove procedure.

(3) Remove the main gear damper.

Refer to 32-10 Damper - Remove procedure.

(4) Remove the trailing arm from the main gear leg:

- Remove the bolt, self locking nut, washers, bushing and the spacer.

(5) Remove the axle installation from the trailing arm:

- Remove the four bolts, washers and self locking nuts which hold the axle.
- Remove the torque plate.

32-10-10 Leg

Assemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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3. Main Procedure

A. Assemble Main Landing Gear Leg

(1) Install the axle installation onto the trailing arm:

- Move the torque plate and the axle in position.
- Install the four bolts, washers and self locking nuts which secure the axle and the torque plate.
  If OÄM 50-005 is installed, tighten all M10 bolts with 36 Nm (26.6 lbf.ft) and all M12 bolts with 80 Nm (lbf.ft).
  Refer to 20-10 Special Torque Values - Description.
  Use a new self locking nut.

(2) Install the top of the damper to the main landing gear leg.

Refer to 32-10 Damper - Install procedure.

(3) Install the trailing arm onto the main gear leg:

- Slide the outer spacer into the trailing arm.
- Move the trailing arm into position.
- Slide the inner spacer through the main landing gear leg and trailing arm.
- Install the trailing arm onto the main gear leg by installing the bolt, washers and self locking nut.
  Torque: 48 Nm (35.4 lbf.ft.). Value includes friction.
  Refer to Special Torque Values - Description.
  Use a new self locking nut.

(4) Install the joint on main landing gear leg.

32-10-11 Leg

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2
Aft bearing centering tool	VR-D60-3217-12-31	1
Front bearing centering tool	VR-D60-3217-12-30	1
Bearing housing puller	VR-D60-3217-11-00	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Install the Main Landing Gear Leg

(1) Install the main gear leg.

Support the main gear leg and make sure not to scratch the surface. For wet installation of components use CA 1000:

- Slide the main gear leg into the aft main gear web.
- Move the forward longitudinal pivot up and engage it with the front bearing.
- Move the leg forward until the forward longitudinal pivot is fully engaged in the front main gear bearing.

(2) Install the front bearing housing:

- Use the front bearing centering tool to push the bearing housing onto the longitudinal pivot.
- Install the 8 bolts, nuts, washer and sheets which secure the bearing housing onto the fuselage.
  Use new self-locking nuts.
  Take care to reinstall the bonding wire and lightning protection sheet.

(3) Install the rear bearing housing:

- Use the aft bearing centering tool to push the bearing housing onto the longitudinal pivot.
  For wet installation of components use CA 1000.
- Install the 7 bolts, nuts, washers and sheets which secure the bearing housing onto the fuselage.
  Use new self-locking nuts. Take care to reinstall the lightning protection sheet.
- Install the bolt, 3 washers, 2 spacers, the spacer sleeve, lightning protection sheet and the nut onto the bearing housing.
  Use new self-locking nuts.
- Check the axial clearance of the gear leg.
  Required axial clearance: max. 0.2 mm.
- Install the castle nut and adjust axial clearance by tightening the castle nut.
  Tighten by hand.
- Check the axial clearance again.
- Install the cotter-pin onto the castle nut.

(4) Connect the folding stay assembly of the MLG. Refer to 32-10 Folding Stay Bracket - Install procedure

(5) Install the main gear wheel.

Refer to 32-40 Main Wheels - Install procedure.

(6) Install the brake calliper.

Refer to 32-40 Brake Caliper - Install procedure.

(7) Bleed the brake system.

Refer to 32-40 Brake System - Bleed.

(8) Install the weight on wheels switch.

Refer to 32-60 Position and warning - Description

(9) Install the MLG folding stay switch.

Refer to 32-60 Position and warning - Description

(10) Adjust the weight on wheels switch and the MLG folding stay switch.

Refer to 32-60 Position and warning - Description

(11) Install all cable ties to secure the electrical cables and the flexible brake hose.

(12) Install the front and rear MLG bubble fairings.

(13) Reset the GEAR circuit breaker. Right side of instrument panel.

(14) Adjust the wheel in retracted position and check MLG door pre-load.

Refer to 32-10 Main Landing Gear - Adjust, align and calibrate and 32-10 Door - Other check.

(15) Move the wing and rear fuselage trestles clear of the airplane.

(16) Lower the airplane.

Refer to 07-10 Jacking - Jacking.

32-10-12 Damper

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

WARNING

THE TRAILING ARM AND THE WHEEL ARE CONNECTED TO THE GAS LOADED DAMPER. DUE TO THE HIGH FORCES INVOLVED THE ELEMENTS OF THE DAMPING SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS.

WARNING

ALWAYS WEAR SAFETY GLASSES.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

NOTE

It is possible but not necessary to remove the main landing gear from the aircraft.

3. Main Procedure

A. Remove a Main Landing Gear Damper

(1) Pull the GEAR circuit breaker.

Right side of instrument panel.

(2) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Jacking.

(3) Release the nitrogen pressure from the damper:

- Remove the dust cap from the charging valve.
- Press and hold down the pin inside the valve until all the pressure is released.

(4) Remove the nut, washer, spacers and bolt that attach the top of the damper to the main gear leg.

(5) Remove the nut, washer, spacers and bolt that attach the bottom of the damper to the trailing arm.

(6) Move the damper clear of the main gear leg.

Label the damper's location of installation (LH/RH), if both dampers are removed.

Dampers with different length may be used on LH and RH MLG of airplane. Damper length is used to adjust clearance of wheel in MLG bay. Three different dampers are available:

P/N	Extended Length	Distance Ring P/N	Height
D67-3211-10-00	507.5 mm	D67-3210-10-04	2 mm
D67-3211-10-00X01	505.5 mm	-	-
D67-3211-10-00X02	510.5 mm	D67-3210-10-05	5 mm

Table 1 - Damper Length

32-10-13 Damper

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

THE TRAILING ARM AND THE WHEEL ARE CONNECTED TO THE GAS LOADED DAMPER. DUE TO THE HIGH FORCES INVOLVED THE ELEMENTS OF THE DAMPING SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS.

3. Main Procedure

A. Install a Main Landing Gear Damper

NOTE

Different damper lengths may be used on LH and RH MLG of the airplane. The damper length is used to adjust the clearance of the wheel in the MLG bay.

(1) Move the damper in position at the main gear leg.

Make sure to use correct damper for LH and RH side.

(2) Install the nut, washers and bolt that attach the bottom of the damper to the trailing arm.

Use a new lock nut. Wet installation of bolt with CA 1000. Take care to reinstall the two plastic washers between the spherical bearing and damper.

Torque: 48 Nm (35.4 lbf.ft.). Value includes friction.

Refer to Special Torque Values - Description.

(3) Install the nut, washers and bolt that attach the top of the damper to the main gear leg.

Use a new lock nut. Wet installation of bolt with CA 1000. Take care to reinstall the two plastic washers between the spherical bearing and damper.

Torque: 48 Nm (35.4 lbf.ft.). Value includes friction.

Refer to Special Torque Values - Description.

(4) Fill the damper if necessary.

Refer to 32-10 Damper - Fill.

(5) Charge the damper.

Refer to 32-10 Damper - Fill.

(6) Remove the trestles and lower the airplane with the jacks.

Refer to 07-10 Jacking - Jacking.

(7) Reset the GEAR circuit breaker.

Right side of instrument panel.

32-10-14 Damper

Fill

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Bottle	Commercial	1
Bleed tube	Commercial	1
Valve core removal tool	Commercial	1
Nitrogen charging equipment	Commercial	1
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2
Nose trestle	Commercial	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Hydraulic fluid	MIL-PRF-5606 H (e.g. Aeroshell Fluid 41) or GOST 6794-75 Amdt 1-5 (AMG-10)	A/R
Gaseous nitrogen	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

WARNING

DO NOT LET NITROGEN AT HIGH PRESSURE BLOW ONTO YOUR SKIN. NITROGEN AT HIGH PRESSURE CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY.

WARNING

THE TRAILING ARM AND THE WHEEL ARE CONNECTED TO THE GAS LOADED DAMPER. DUE TO THE HIGH FORCES INVOLVED THE ELEMENTS OF THE DAMPING SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS.

WARNING

ALWAYS WEAR SAFETY GLASSES.

WARNING

YOU MUST RELEASE ALL THE NITROGEN PRESSURE FROM THE DAMPER BEFORE YOU REMOVE THE CHARGING VALVE. NITROGEN AT HIGH PRESSURE CAN PENETRATE YOUR SKIN. THIS CAN CAUSE INJURY.

CAUTION

DO NOT MIX OR REPLACE HYDRAULIC FLUIDS OF DIFFERENT TYPES OR MANUFACTURERS.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

CAUTION

YOU MUST FILL/CHARGE THE MAIN-WHEEL DAMPER ASSEMBLIES CORRECTLY. IF YOU DO NOT FILL/ CHARGE THE MAIN-WHEEL DAMPER CORRECTLY THE MAIN LANDING GEAR WILL NOT OPERATE CORRECTLY. THIS CAN CAUSE DAMAGE TO THE MAIN LANDING GEAR AND THE AIRPLANE STRUCTURE.

3. Main Procedure

A. Fill/Charge the Damper Assemblies on the Main Gear Legs

(1) Pull the GEAR circuit breaker. Right side of instrument panel.

(2) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(3) Release the nitrogen pressure from the damper:

- Remove the dust cap from the charging valve.
- Press and hold down the pin inside the valve until all the pressure is released.

(4) Remove the core of the charging valve from the damper assembly.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

(5) Connect the tube of the hydraulic fluid filler bottle to the charging valve.

WARNING

YOU MUST RELEASE ALL THE NITROGEN PRESSURE FROM THE DAMPER BEFORE YOU REMOVE THE CHARGING VALVE. NITROGEN AT HIGH PRESSURE CAN PENETRATE YOUR SKIN. THIS CAN CAUSE INJURY.

(6) Compress the damper assembly.

CAUTION

DO NOT MIX OR REPLACE HYDRAULIC FLUIDS OF DIFFERENT TYPES OR MANUFACTURERS.

NOTE

A placard is installed by the airplane manufacturer identifying the type of hydraulic fluid. All airplanes have been manufactured with Hydraulic Fluid per MIL-PRF-5606 H. The identification placard must be installed if a hydraulic fluid change to another fluid type is carried out.

(7) Turn the bottle to the open position and allow the hydraulic fluid to flow from the bottle into the damper.

Use Aeroshell Fluid 41 (MIL-PRF-5606 H) or AMG-10 (GOST 6794-75 Amdt 1-5) hydraulic fluid (see CAUTION above).

(8) Extend the damper assembly slowly by hand to allow the hydraulic fluid to fill the damper assembly.

(9) Compress and extend the damper not less than 6 times to release the air from the damper and allow the hydraulic fluid to flow into the damper.

NOTE

Take care to extend the damper 336.5 mm (13.25 in). This is necessary for correct damper characteristic of the MLG.

(10) Compress the damper completely and then extend it again to damper length 336.5 mm (13.25 in). Close the bottle and remove the tube from the charging valve.

Keep the damper in that position.

Refer to Figure 10.

(11) Install the core of the charging valve.

(12) Connect the gaseous nitrogen charging equipment to the damper charging valve. Allow the damper to extend as it is charged.

(13) Charge the damper with nitrogen to the correct pressure. The damper must be fully extended.

(14) Disconnect and remove the gaseous nitrogen charging equipment from the damper charging valve.

(15) Install the dust cap onto the charging valve.

(16) Reset the GEAR circuit breaker. Right side of instrument panel.

(17) Remove the rear fuselage and wing trestles clear of the airplane.

(18) Lower the airplane with the jacks. Make sure that the area around the airplane is clear of equipment. Refer to 07-10 Jacking - Jacking.

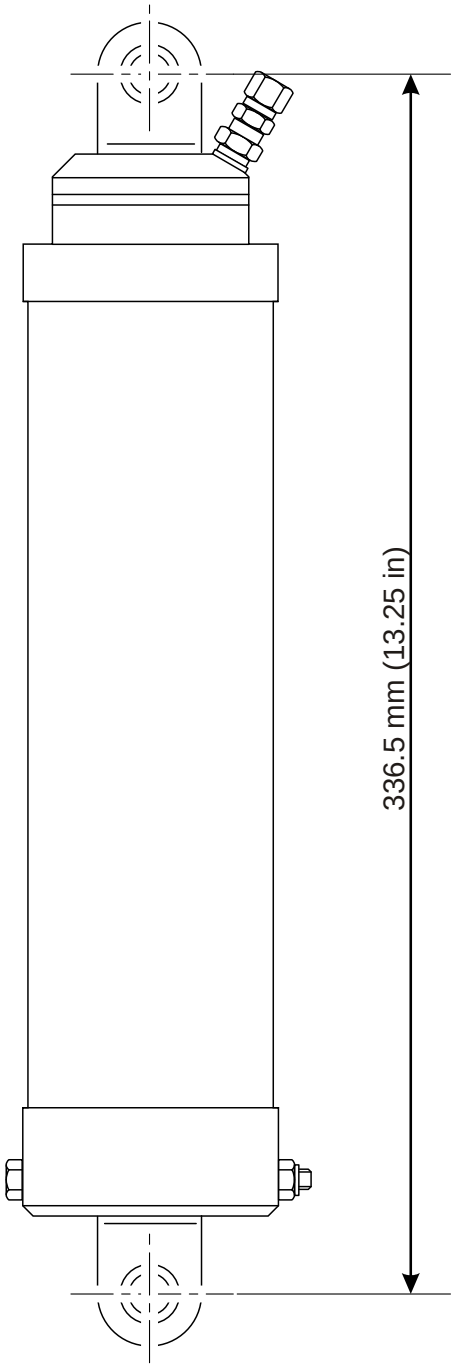


Figure 10 - Fill/Charge Damper

32-10-15 Damper

Change of liquid/gas

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Hydraulic Fluid Change

NOTE

If the damper is disassembled, clean the inner surface of the damper and fill with approved hydraulic fluid. Refer to 32-10 Damper - Fill and to step A.(2).

(1) Repeat the Fill/Charge the Damper Assemblies on the Main Gear Legs procedure 3 times.

Refer to 32-10 Damper - Fill

(2) Apply the hydraulic fluid placard and mark the used fluid.

32-10-16 Damper

Dimensions check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Required Strut Extension of the Main Gear Damper Assemblies

(1) The subsequent table tells you about the correct strut extension and pressure of the unloaded, fully extended main landing gear dampers.

MLG Damper	Strut Extension (unloaded) (visible length of bare piston)	Gas Pressure
LH	18.5 cm (7.3 inches)	20 bar (290 PSI).
RH	18.5 cm (7.3 inches)	20 bar (290 PSI).

32-10-17 Actuator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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WARNING

ALWAYS WEAR SAFETY GLASSES.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Remove the Folding Stay / Hydraulic Actuator

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane.

Refer to 07-10 Jacking - Jacking.

(2) Retract the landing gear.

Use the landing gear switch.

(3) Pull the GEAR circuit breaker.

Right side of instrument panel.

(4) Set the ELECT. MASTER switch to OFF.

(5) Depressurize the hydraulic system:

- Operate the emergency extension lever of the landing gear.

Refer to 29-00 Hydraulic System - Depressurize hydraulics.

(6) Disconnect the main landing gear door from the main landing gear leg.

Refer to 32-10 Door - Remove procedure Figure 5.

(7) Remove the folding stay switch.

Refer to 32-60 Position and warning - Description

(8) Disconnect the MLG folding stay assembly.

Refer to 32-10 Folding Stay Bracket - Remove procedure.

(9) Disconnect the hydraulic lines from the actuator. (Only if removing the actuator).

Use a suitable container to catch spilt hydraulic fluid. Fit caps on all open connections.

(10) Measure and record the distance from the actuator safety lock washer to the center of spherical rod-end bearing.

Note the distance marked ‘x’. Refer to Figure 11.

(11) Disassemble the folding stay/actuator.

Refer to Figure 12:

- Remove the nut, 4 spacers, washer and bolt from the driver plate.
- Move the spring lever with spring, the latch operating arm, the drag lever assembly and the actuator clear from the airplane.

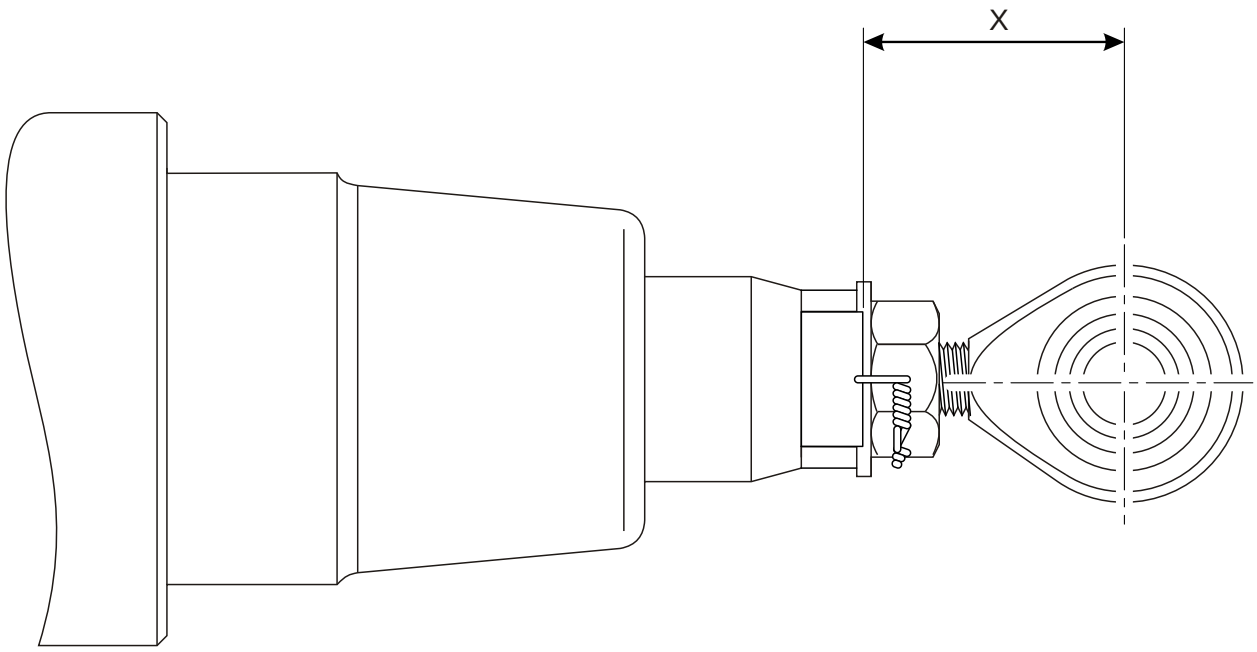


Figure 11 - MLG Actuator Measurement

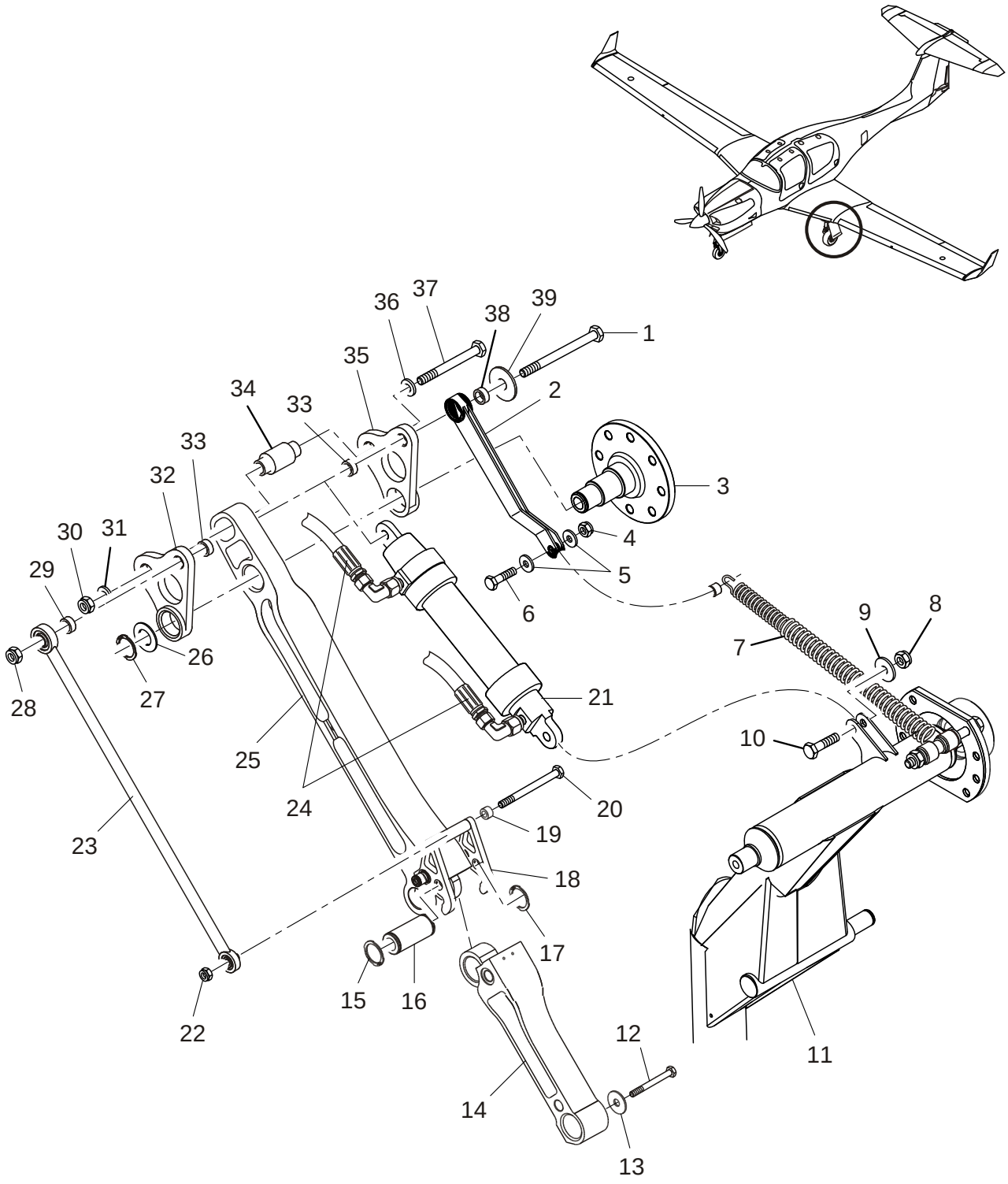


Figure 12 - Main Landing Gear Folding Stay

Legend

[1, Fig.12]	Bolt	[21, Fig.12]	Actuator
[2, Fig.12]	Spring Lever	[22, Fig.12]	Self Locking Nut
[3, Fig.12]	Folding Stay Bracket	[23, Fig.12]	Latch Operating Arm
[4, Fig.12]	Self Locking Nut	[24, Fig.12]	Hydraulic Lines
[5, Fig.12]	Washer	[25, Fig.12]	Drag Lever
[6, Fig.12]	Bolt	[26, Fig.12]	Washer
[7, Fig.12]	Tension Spring	[27, Fig.12]	Snap Ring
[8, Fig.12]	Self Locking Nut	[28, Fig.12]	Nut
[9, Fig.12]	Washer	[29, Fig.12]	Spacer
[10, Fig.12]	Bolt	[30, Fig.12]	Self Locking Nut
[11, Fig.12]	Main Landing Gear Leg	[31, Fig.12]	Washer
[12, Fig.12]	Bolt	[32, Fig.12]	Driver Plate
[13, Fig.12]	Washer	[33, Fig.12]	Spacer
[14, Fig.12]	Drag Strut	[34, Fig.12]	
[15, Fig.12]	Snap Ring	[35, Fig.12]	Driver Plate
[16, Fig.12]	Bearing Shaft	[36, Fig.12]	Washer
[17, Fig.12]	Snap Ring	[37, Fig.12]	Bolt
[18, Fig.12]	Lock Hook	[38, Fig.12]	Spacer
[19, Fig.12]	Spacer	[39, Fig.12]	Washer
[20, Fig.12]	Bolt		

32-10-18 Actuator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

WARNING

ALWAYS WEAR SAFETY GLASSES.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Install the Folding Stay / Hydraulic Actuator

(1) Verify the distance from the actuator safety lock washer to the center of the spherical rod-end bearing with your record or adjust base setting of 34 mm (1.34 in).

Base setting equals min. screw-in depth. Maximum distance x (min. screw-in depth): 34 mm (1.34 in). Refer to 32-10 Actuator - Remove procedure Figure 11.

(2) Connect actuator with folding stay.

Refer to 32-10 Actuator - Remove procedure Figure 12:

- Following parts will be connected in the next step: Spring lever, latch operating arm, the drag lever assembly and the actuator.
- Install the nut, 4 spacers, washer and bolt onto the driver plate.

(3) Connect the hydraulic lines with the actuator.

Remove caps from all open connections.

(4) Replenish the hydraulic reservoir if necessary. Refer to 29-00 Hydraulic System - Fill.

(5) Connect the folding stay assembly of the MLG.

Refer to 32-10 Folding Stay Bracket - Install procedure

(6) Install and adjust the folding stay switch of the MLG.

Refer to 32-60 Position and warning - Description

(7) Reset the GEAR circuit-breaker.

Right side of instrument panel.

(8) Bleed the hydraulic system.

(9) Carry out a test for the correct operation of the landing gear retraction and extension system.

Refer to 32-30 Normal Operation - Test and inspection.

(10) Carry out a test for the correct pre-load of the main landing gear door.

Refer to 32-10 Door - Other check.

(11) Move the wing and rear fuselage trestles clear of the airplane.

(12) Lower the airplane.

Refer to 07-10 Jacking - Jacking.

32-10-19 Folding Stay Bracket

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

3. Main Procedure

A. Remove a Folding Stay Bracket

(1) Remove the folding stay / hydraulic actuator. Refer to 32-10 Actuator - Remove procedure.

(2) Remove the folding stay bracket:

- Mark or record the orientation of the folding stay bracket flange.
- Remove 8 bolts and 8 washers.
- Move the folding stay bracket clear from the airplane.

32-10-20 Folding Stay Bracket

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

3. Main Procedure

A. Install a Folding Stay Bracket

(1) Move the folding stay bracket in place. Refer to 32-10 Actuator - Remove procedure Figure 12.

Make sure that the flange is orientated like your record or marking.

(2) Install the folding stay bracket:

- Install 8 bolts and 8 washers.
  For wet installation of components use CA 1000.

(3) Install the MLG folding stay. Refer to 32-10 Actuator - Install procedure.

32-20
NOSE LANDING GEAR

32-20-01 Nose Landing Gear

Description

1. Nose Landing Gear

The nose landing gear is housed in the nose gear bay and is attached directly to the engine mount structure. The nose gear leg has an oleopneumatic strut and a single wheel. The nose gear bay has two composite doors. The nose gear is able to caster through an angular range of ±42°.

2. Description

Figure 1 and Figure 2 show the nose landing gear. The nose gear bay is located in the nose of the airplane below the engine installation. The nose landing gear attaches directly to the engine mount. Two bolts attach the drag brace to the engine mount. One long bolt attaches the nose landing gear to the engine mount in the front.

The nose gear leg has a tubular aluminum housing. The tubular aluminum housing makes the top of the leg and has the leg swivel mountings. Brass bushes (or plastic bushings if MÄM 50-429 is installed) in the tubular aluminum housing hold a tubular strut. The strut can turn in the housing. Stops on the tubular aluminum housing and the tubular steel strut limit the amount that the tubular steel strut can turn.

The tubular strut carries a Teflon centering unit at the top. When the nose landing gear is retracted, a cross tube engages with the Teflon part, centers the nose landing gear and ensures correct retraction of the nose landing gear.

A sliding tube is located in the bottom of the tubular steel strut. The bottom part of the sliding tube contains hydraulic fluid. The top part of the tubular steel strut contains nitrogen at high pressure. These components make the nose gear leg damper. Two torque-links hold the sliding tube aligned with the tubular steel strut. Where the sliding tube the tubular steel strut, a gasket cascade ensures a leakage free movement of the part.

Three bolts secure the conical connection between the nose wheel fork and the bottom of the sliding tube. The fork holds the nose wheel. Refer to 32-40 Wheels and brakes - Description for more data about the nose wheel.

The nose gear bay is sealed by two doors when the landing gear is retracted. Each nose gear door has three hinges. Two short operating rods connect the nose gear bay doors to the nose gear leg operating mechanism.

Refer to 32-30 Extension and retraction - Description for data about the extension and retraction system.

3. Operation

The nose gear leg's main function is to absorb vertical loads during landing and taxiing.

If the nose gear has vertical load (for example during landing), the sliding tube moves up into the tubular strut. This movement forces hydraulic fluid through the middle cap and compresses the nitrogen in the damper. When the load decreases the sliding tube moves out of the tubular strut. The sliding tube can move quickly into the tubular strut. In the reverse direction the speed of the sliding tube is limited by a valve in the middle cap. This prevents the airplane from being pushed up after the landing and it also prevents vibration.

Refer to 32-30 Extension and retraction - Description.

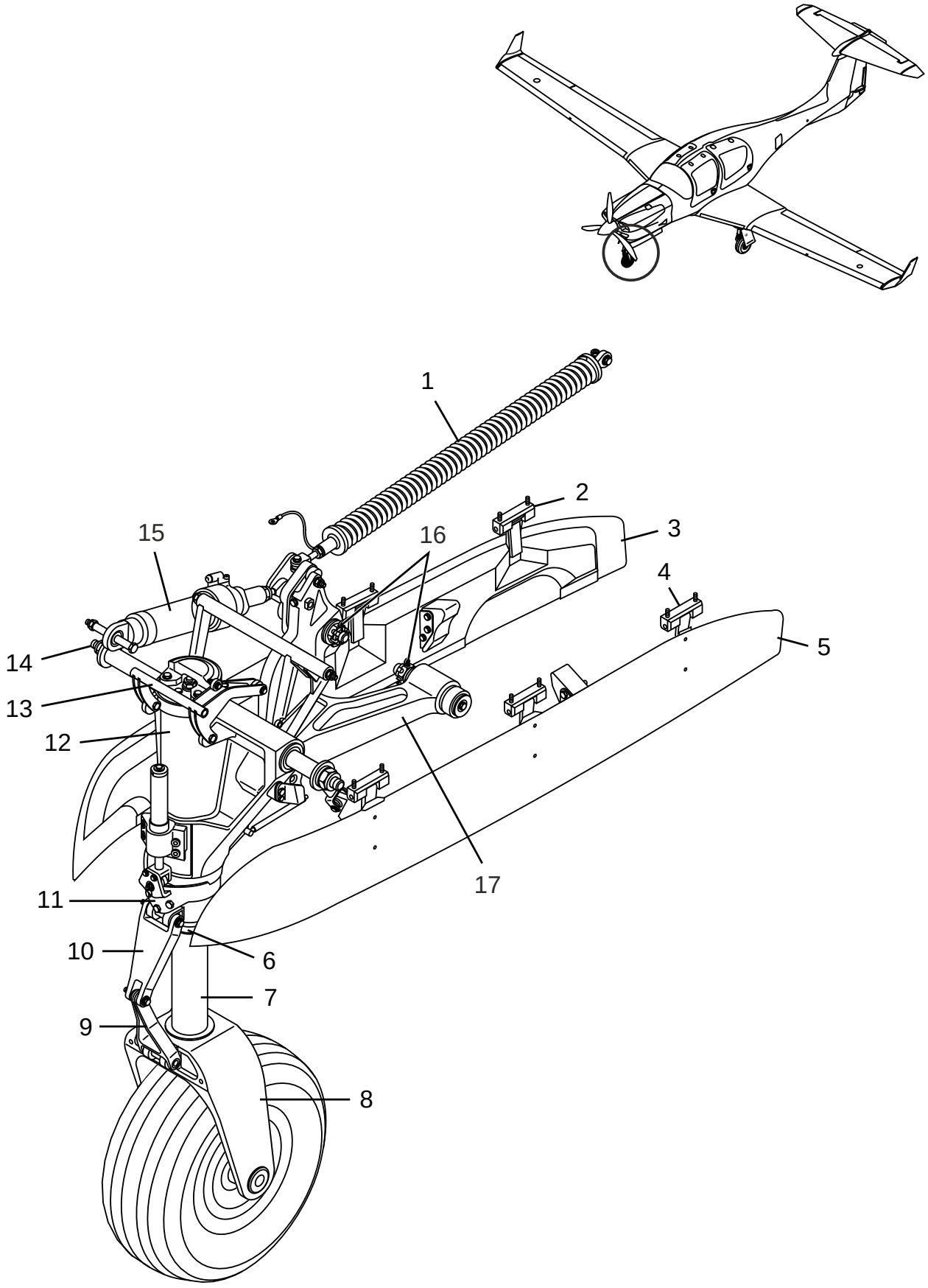


Figure 1 - Nose Gear Assembly

Legend

[1, Fig.1]	Compression Spring
[2, Fig.1]	Hinge
[3, Fig.1]	Right Door
[4, Fig.1]	Hinge
[5, Fig.1]	Left Door
[6, Fig.1]	Collar Bushing
[7, Fig.1]	Damper Sliding Tube
[8, Fig.1]	Nose Wheel Fork
[9, Fig.1]	Torque Link, Lower
[10, Fig.1]	Torque Link, Upper
[11, Fig.1]	Centering Unit
[12, Fig.1]	Nose Gear Leg
[13, Fig.1]	Retraction Centering System
[14, Fig.1]	Main Rotation Axle
[15, Fig.1]	Hydraulic Actuator
[16, Fig.1]	Drag Brace Rotation Axle
[17, Fig.1]	Folding Stay

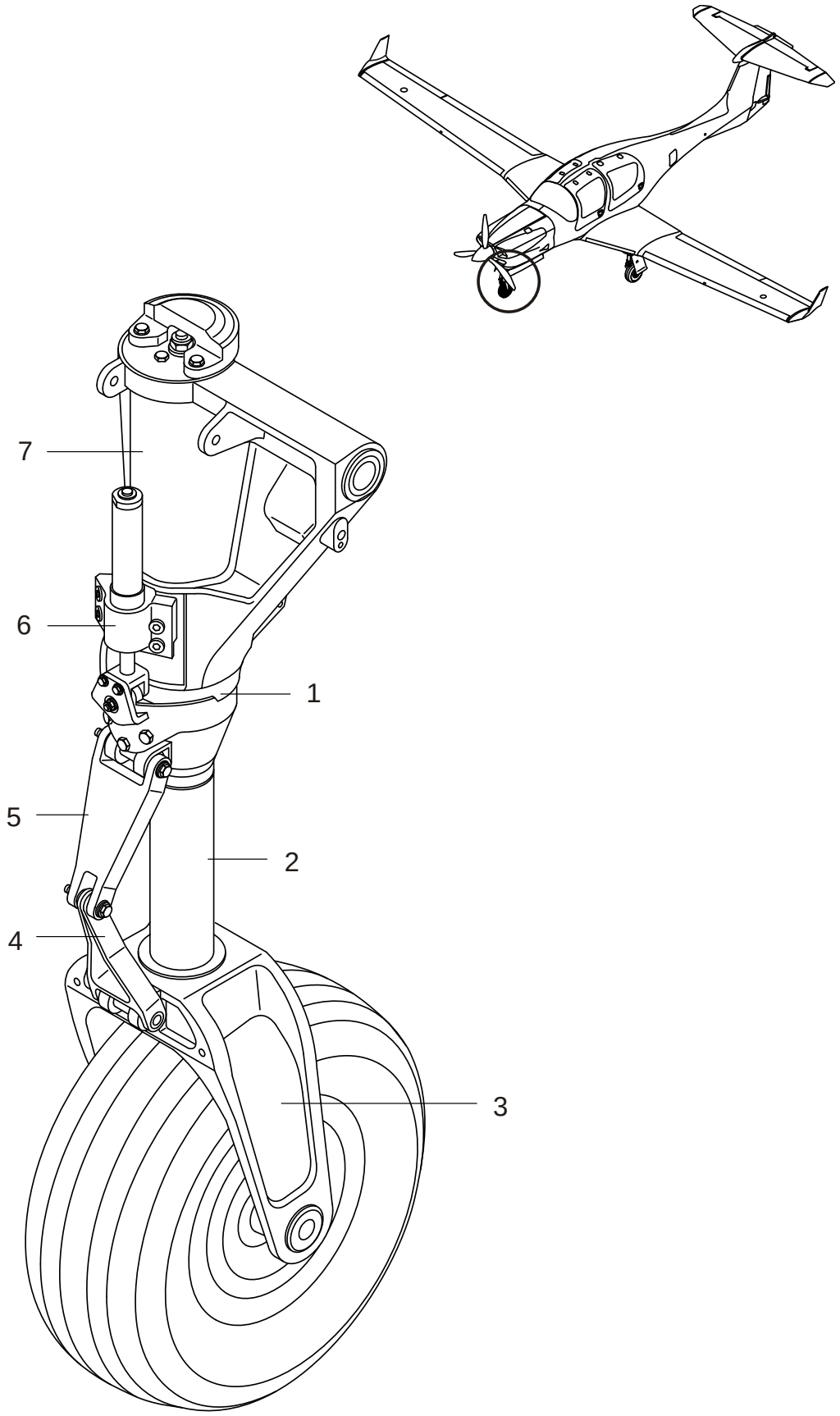


Figure 2 - Nose Gear Leg Assembly

Legend

[1, Fig.2] Steering Stop

[2, Fig.2] Damper Sliding Tube

[3, Fig.2] Nose Wheel Fork

[4, Fig.2] Torque Link, Lower

[5, Fig.2] Torque Link, Upper

[6, Fig.2] Centering Unit

[7, Fig.2] Nose Gear Leg Tubular Strut

32-20-02 Nose Landing Gear

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Nose gear leg cracked or bent.

1A. Check for a hard landing.

Has there been a hard landing?

Yes - go to step 1B.

No - go to step 1C.

1B. Do the hard landing inspection given in Section 05-50.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

THE FOLDING STAY AND THE DAMPER ARE SPRING LOADED. DUE TO THE HIGH FORCES INVOLVED THE ELEMENTS OF THE DAMPING SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS.

3. Fault Isolation Main Procedure

Nose gear leg extension too small. Airplane sits nose-down when parked on level ground.

2A. Check the nitrogen pressure in the damper.

Is the nitrogen pressure in the damper to low?

Yes - go to step 2B.

No - go to step 2C.

2B. Charge the leg with nitrogen to the correct pressure.

2C. Check the damper.

Is the damper defective?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace the damper.

2E. Contact DAI.

32-20-03 Nose Landing Gear

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Spring compressor		1
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

THE FOLDING STAY AND THE DAMPER ARE SPRING LOADED. DUE TO THE HIGH FORCES INVOLVED THE ELEMENTS OF THE DAMPING SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS.

3. Main Procedure

A. Remove the Nose Landing Gear

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(2) Depressurize the hydraulic system.

(3) Pull the GEAR circuit breaker.

(4) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

Nose landing gear fairing and doors need not to be removed.

(5) Remove the four nose gear electrical switches and move them together with the electrical connections clear of the nose landing gear.

(6) Disconnect the nose landing gear door actuation levers:

- Remove nut, washer and bolt at the interconnection to the door.
- Remove safety clip at the other end.
- Pull operating rod clear of the ball fitting.

(7) Disconnect the door actuation system from the nose landing gear leg:

- Remove the nut, washer and long bolt which connects the actuation lever to the leg.

(8) Remove the retraction centering system from the engine mount:

- Remove bolt and nut which connects the actuation rod to the engine mount.

(9) Move the spring compressor to the emergency gear extension spring. Release the spring force from the attachment points by actuating the spring compressor.

(10) Safe guard the spring compressor. Disconnect the emergency gear extension spring.

(11) Disconnect the nose landing gear actuator from the drag brace and engine mount.

De-install the hydraulic lines from the nose landing gear actuator and blank off all open ends.

Do not loosen the counternut of the actuator spherical rod end.

(12) Disconnect the two springs from the drag brace locking hooks.

(13) Remove the drag brace connection bolt which connects the drag brace with the nose landing gear leg.

(14) Remove the two drag brace axles which connect the drag brace with the engine mount:

- Remove the bearing securing bolts, the split pins, washers, crown nuts and distance washers.
  Note down position of distance washers.

(15) Remove the drag brace from the aircraft.

(16) Remove split pin, crown nut and washers from main axle.

Note down position and amount of washers.

Remove main axle from the engine mount.

(17) Move nose landing gear leg clear of the aircraft.

32-20-04 Nose Landing Gear

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Spring compressor		1
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install the Nose Landing Gear

(1) Move the nose landing gear leg including the bushing in the top bearing to the installation position.

(2) Install the main axle with washer from left to right into the top bearing to connect the nose landing gear leg with the engine mount:

- Install washer, crown nut and split pin.
  Install the washers as noted. Use Molykote DX for installation of nut.
  Torque: 140 ± 3 Nm (103.3 ± 2.2 lbf.ft.).
  Refer to Special Torque Values - Description.

(3) Install the drag brace assembly to the engine mount:

- Check drag brace attachment bearings in engine mount for cleanliness, excessive play and free movement.
- Move drag brace assembly to its engine mount attachment points and install the drag brace axles, including distance washers, washers, crown nuts and new split pins.
  Use Molykote DX for installation of nut.
  Torque: 40 ± 3 Nm (29.5 ± 2.2 lbf.ft.).
  Refer to Special Torque Values - Description.
  Install distance washers as noted. Drag brace shall then be centered.
- Install the bearing securing bolts including washers and new locking nut. Bolt orientation from bottom to top.
  Check that retaining rings of the bearing are installed.

(4) Install the drag brace assembly to the nose landing gear:

- Check spherical bearings in drag brace for cleanliness, excessive play and free movement.
- Connect the drag brace with the nose landing gear leg using the drag brace connection bolt, washer and self locking nut.
  Use new locking nut.

(5) Install the two locking hook springs to the locking hook assembly.

- Connect them with open legs to the drag brace bolt.
- Connect them with closed leg to the hook assembly.

(6) Install the nose landing gear actuator:

- Install all lines to the actuator.
- Install the actuator first with the actuator cylinder body side to the engine mount with bolt and self locking nut. Nut at the outboard side.
  Use new self locking nut.
- Install the spherical bearing on the piston end to drag brace:
  Install drag brace actuator bolt and secure it with retaining ring and cross bolt, washers and nut.
  Use new self locking nut.
  Do not forget to insert bushing at retaining ring side.

(7) Move the spring compressor including pre-loaded emergency gear extension spring close to attachment points.

(8) Install spring assembly to the drag brace with two bushes, bolt and nut. Bolt orientation from top to bottom.

Use new self locking nut.

(9) Slowly actuate the spring compressor for engagement of the rear spring attachment at the engine mount.

Install bolt, washers (4x) and nut. Nut at the outboard side.

(10) Slowly actuate the spring compressor up to the point where the spring compressor disconnects from the emergency gear extension spring.

Remove the safeguard from the spring compressor and remove the spring compressor from the aircraft.

(11) Install the two electrical switches to the drag brace and the other two switches to their attachment sheets.

(12) Install the door actuation system to the nose landing gear leg.

Connect the actuation lever with the nose landing gear leg using the long bolt, washer and nut.

Use new self locking nut.

(13) Install the nose landing gear door actuation levers at the top:

- Push the rod to the ball fitting and secure it with safety clip.

Connect lever at lower side with nose landing gear door:

- Install bolt and washers and self locking nut.
  Use new self locking nut.

(14) Install the retracting centering system to the engine mount:

- Install bolt and nut which connects actuation rod to the engine mount.

(15) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(16) Reset the GEAR circuit breaker. Right side of instrument panel.

(17) Do a test of the retraction/extension system. Refer to 32-30 Normal Operation - Test and inspection.

(18) Remove the rear fuselage and wing trestles clear of the airplane.

(19) Lower the airplane with the jacks. Make sure that the area around the airplane is clear of equipment. Refer to 07-10 Jacking - Jacking.

32-20-05 Door

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove a Nose Gear Door

(1) Pull the GEAR circuit breaker. Right side of instrument panel.

(2) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(3) Disconnect the door operating rod from the door that you will remove:

- Remove the nut, bolt, washers from the end of the operating rod. At the door-end of the rod.
- Move the operating rod clear of the spherical bearing.
- Remove the door operating rod by removing the safety clip and then pulling clear of the ball fitting.

(4) Remove the door:

- Remove the screws from the door hinges. All 3 hinges.
- Move the door clear of the nose gear bay.

(5) Remove the door hinges from the door:

- Remove the spring pins from the door hinge pins. All 3 hinges.
- Remove the 3 hinge pins from the door.
- Move the door hinges clear of the door.

32-20-06 Door

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install a Nose Gear Door

(1) Install the nose gear door hinges to the door:

- Move the nose gear door hinges into position at the nose gear door.
- Align the hinges of the door with the nose gear door and install the 3 hinge pins.

- Install the spring pins into the door hinges. Use new spring pins.

(2) Install the nose gear door:

- Move the nose gear door into position at the nose gear bay.
- Install the screws which connect the door hinges to the gear bay. all 3 hinges.

(3) Connect the door operating rod to the door that you installed:

- Push the rod onto the ball-end fitting at the upper connection.
- Install the safety clip onto the end of the operating rod.
- Install the rod onto the spherical bearing at the door and install bolt, washers and nut. Use new self locking nut.

(4) Reset the GEAR circuit breaker. Right side of instrument panel.

(5) Do a test of the nose landing gear door preload. Refer to 32-20 Door - Other check.

(6) Do a test of the retraction/extension system. Refer to 32-30 Normal Operation - Test and inspection.

(7) Remove the rear fuselage and wing trestles clear of the airplane.

(8) Lower the airplane with the jacks. Make sure that the area around the airplane is clear of equipment. Refer to 07-10 Jacking - Jacking.

32-20-07 Door

Other check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check of Nose Landing Gear Door Pre-Load

(1) Pull the GEAR circuit-breaker.

Located on the right side of instrument panel.

(2) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(3) Install a tape loop at the position of the hinge of the door actuation at one door.

Make sure it does not interfere with the other door during retraction of the NLG.

(4) Set the ELECT. MASTER switch to ON.

(5) Retract the landing gear.

(6) Measure the NLG door pre-load.

Refer to Figure 3.

- Both doors must be connected for the test.
- Attach the spring-scale / load cell to one NLG door.
- Calibrate the spring scale / load cell to display zero.
- Read the force value, when the NLG door starts to lift off from the cowling at the most forward edge.

The correct pre-load is:

- if MÄM 50-429 is NOT installed:
  1 to 3 kg (2.2 to 6.6 lbf)

- if MÄM 50-429 is installed:
  4 to 6 kg (8.8 to 13.2 lbf)

(7) If the measurement does not meet the requirements:

- Adjust length of door actuation rod by adjusting screw-in depth of rod end bearing.
- Minimum screw-in depth of the angle joint is 6 mm.

(8) Repeat the test for the second door.

(9) Do a test of the correct operation of the landing gear retraction and extension system.

Refer to 32-30 Normal Operation - Test and inspection.

(10) Extend the landing gear.

(11) Set the ELECT. MASTER switch to OFF.

(12) Move the wing and rear fuselage trestles clear of the airplane.

(13) Lower the airplane.

Refer to 07-10 Jacking - Jacking.

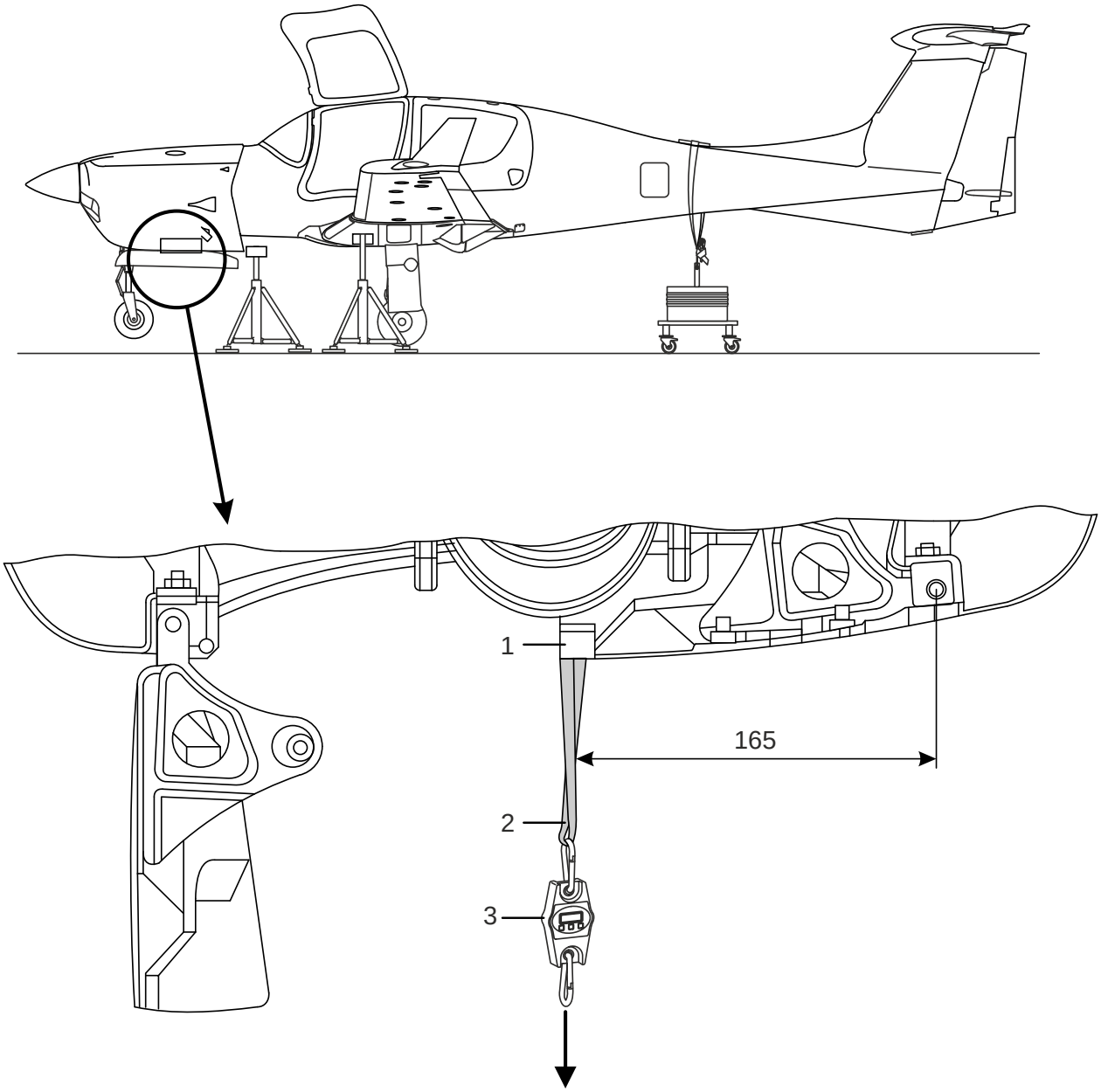


Figure 3 - Nose Landing Gear Door Pre-Load Measurement

Legend

[1, Fig.3] Load Application at the Door Plane of the Door Actuator Rods

[2, Fig.3] Reinforced Tape Loop

[3, Fig.3] Scale

32-20-08 Leg

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove the Nose Landing Gear Leg

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(2) Depressurize the hydraulic system.

(3) Pull the GEAR circuit breaker. Right side of instrument panel.

(4) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

Nose landing gear fairing and doors need not to be removed.

(5) Remove the wheel from the leg.

Refer to 32-40 Nose Wheel - Remove procedure.

(6) Remove the four electrical switches and move them together with the electrical connections clear of the landing gear.

(7) Disconnect the nose landig gear door actuation levers:

- Remove the nut, washer and bolt at the interconnection to the door.
- Remove the safety clip at the other end.
- Pull the operating rod clear of the ball fitting.

(8) Disconnect the door actuation system from the nose landing gear leg:

- Remove the nut, washer and long bolt which connects the steering pushrod to the leg.

(9) Remove the rectraction centering system from the engine mount:

- Remove the bolt and the nut which connect the actuation rod to the engine mount.

(10) Move the spring compressor to the emergency gear extension spring. Release the spring force from the attachment points by actuating the spring compressor.

When the bolt is removed, allow the drag brace to rotate downwards.

(11) Disconnect the NLG folding stay assembly from the nose landing gear leg:

- Disconnect the two locking hook springs, at first from the hook side.
- Remove the nut and the washer from the connection bolt between the drag brace and the nose landing gear leg.

(12) Remove the nose landing gear leg:

- Remove the split pin, washers and crown nut on the RH side of the nose gear and remove the bolt to the LH side.
- Move the nose gear leg clear of the airplane. Support the nose gear.

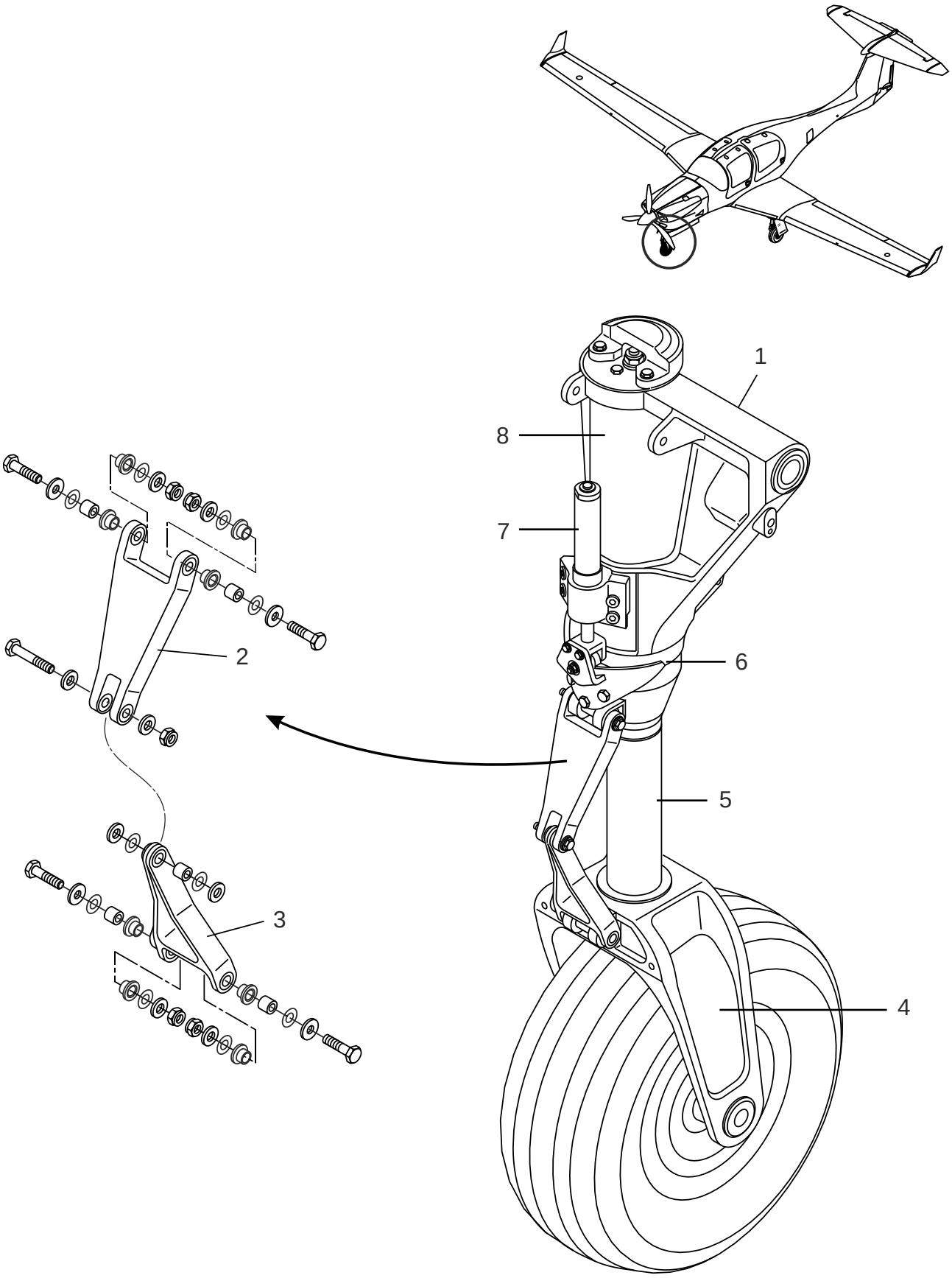


Figure 4 - Nose Landing Gear Leg Installation

Legend

[1, Fig.4] Nose Landing Gear Mounting
[2, Fig.4] Steering Brace, Upper
[3, Fig.4] Steering Brace, Lower
[4, Fig.4] Nose Wheel Fork
[5, Fig.4] Damper Sliding Tube
[6, Fig.4] Steering Stop
[7, Fig.4] Centering Unit
[8, Fig.4] Nose Gear Leg Tubular Strut

32-20-09 Leg

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install Nose Landing Gear Leg

(1) Install the nose gear leg:

- Slightly grease the bushing with Type 7 (refer to 12-20 Lubrication - Lubrication Table 2) and install into the NLG leg.

- Move the nose gear leg including the bushing into position. Support the nose gear.
- Slightly grease with Type 7 (refer to 12-20 Lubrication - Lubrication Table 2) and install the main axle with washer from left to right into the top bearing to connect the nose landing gear leg with the engine mount.
- Install washer, crown nut and new split pin.
  Install washers as noted. Use Molykote DX for installation of nut.
  Tighten the crown nut to 140 Nm (103.3 lbf.ft).
- Check that the NLG rotates freely after tightening. Max. axial clearance: 0.9 mm (0.04 in)

(2) Connect the nose landing gear folding stay assembly with the nose landing gear leg:

- Check spherical bearing in drag brace for cleanliness, excessive play and free movement.
- Slightly grease the connection bolt with Type 7 (refer to 12-20 Lubrication - Lubrication Table 2) and move the drag brace towards the nose landing gear leg and connect the drag brace with the nose landing gear leg by installing the connection bolt from left to right.
- Install washer and self locking nut.
  Use new self locking nut. Use Molykote DX for installation of nut.
- Install the two hook springs, at first at bolt side.

(3) Install the wheel to the leg.

Refer to 32-40 Nose Wheel - Install procedure.

(4) Install the retraction centering system to the engine mount:

- Install bolt and nut which connects the actuation lever to the engine mount.

(5) Load the spring by moving the compressor. Remove the safeguard from the spring compressor and remove the spring compressor from the aircraft.

(6) Install the door actuation system to the nose landig gear leg. Connect the steering pushrod with the nose landig gear leg using the long bolt, washer and nut.

Use a new self-locking nut.

(7) Connect the lever at the lower side with the nose landing gear door:

- Install the bolt, washers and self-locking nuts.
  Use new self-locking nuts.

Install the nose landing gear door actuation levers at the top:

- Push the rod to the ball fitting and secure it with a safety clip.

(8) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(9) Reset the GEAR circuit breaker. Right side of instrument panel.

(10) Do a test of the retraction/extension system. Refer to 32-30 Normal Operation - Test and inspection.

(11) Remove the rear fuselage and wing trestles clear of the airplane.

(12) Lower the airplane with the jacks. Make sure that the area around the airplane is clear of equipment. Refer to 07-10 Jacking - Jacking.

32-20-10 Damper

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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3. Main Procedure

A. Remove the Nose Landing Gear Damper Assembly

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(2) Remove the nose landing gear leg. Refer to 32-20 Leg - Remove procedure.

(3) Remove the damper assembly. Support the nose gear:

- Remove the bushing from the main bearing.
- Remove the two bolts, which connect the centering cover to the top of the leg.
- Remove the four bolts which hold the whole damper assembly.
- Remove the top damper attachment plate, the slide plate and shim (if installed).

- Slide the damper assembly out of the nose gear.
- Remove the centering unit clear from the leg.
  Support the centering unit while sliding the damper assembly out of the nose gear leg.

(4) Remove the torque links:

- Remove the bolts, washers, spacers and lock nuts from the nose gear.
- Move the torque links clear from the nose gear.

(5) Remove the centering guidance plate:

- Remove the washers and bolts.
- Move the centering guidance plate clear from the damper assembly.

32-20-11 Damper

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

3. Main Procedure

A. Install the Nose Landing Gear Damper Assembly

(1) Install the centering guidance plate:

- Move the centering guidance plate into position.
- Install the three washers and bolts. Apply Loctite 243 on the thread.

(2) Install the torque links:

- Move the torque links into position. Use a new self locking nut.
- Install the three bushings, bolts, washers and lock nuts onto the nose gear. Wet installation of the bolts with CA 1000. There must be a play sideways of 0.1 - 0.3 mm (0.004 - 0.012 in) of the torque links.

(3) Install the nose gear damper assembly:

- Install the centering unit on the leg.
- Slide the damper assembly into the nose gear.
- Move the shim, slide plate and the top damper attachment plate into position.
- Install the four bolts which hold the whole damper assembly. Apply Loctite 243 onto the thread.
- Install the centering cover with the two bolts to the top of the leg.

(4) Install the bushing to the main bearing of the leg.

(5) Install the nose landing gear leg. Refer to 32-20 Leg - Install procedure.

(6) Reset the GEAR circuit breaker. On the right side of instrument panel.

(7) Do a test of the retraction/extension system. Refer to 32-30 Normal Operation - Test and inspection.

(8) Remove the rear fuselage and wing trestles clear of the airplane.

(9) Lower the airplane with the jacks. Make sure that the area around the airplane is clear of equipment. Refer to 07-10 Jacking - Jacking.

32-20-12 Damper

Fill

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Bottle	Commercial	1
Bleed tube	Commercial	1
Valve core removal tool	Commercial	1
Nitrogen charging equipment	Commercial	1
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Nomenclature	Identification No.	Qty
Hydraulic fluid	MIL-PRF-5606 H (e.g. Aeroshell Fluid 41) or GOST 6794-75 Amdt 1-5 (AMG-10)	A/R
Gaseous nitrogen	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

WARNING

DO NOT LET NITROGEN AT HIGH PRESSURE BLOW ONTO YOUR SKIN. NITROGEN AT HIGH PRESSURE CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY.

CAUTION

DO NOT MIX OR REPLACE HYDRAULIC FLUIDS OF DIFFERENT TYPES OR MANUFACTURERS.

CAUTION

CLEAN UP SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN CAUSE DAMAGE TO AIRPLANE COMPONENTS.

CAUTION

YOU MUST FILL/CHARGE THE NOSE-WHEEL DAMPER ASSEMBLY CORRECTLY. IF YOU DO NOT FILL/ CHARGE THE NOSE-WHEEL DAMPER CORRECTLY THE NOSE LANDING GEAR WILL NOT OPERATE CORRECTLY. THIS CAN CAUSE DAMAGE TO THE NOSE LANDING GEAR AND THE AIRPLANE STRUCTURE.

3. Main Procedure

A. Fill/Charge the Damper Assembly on the Nose Gear Leg

(1) Pull the GEAR circuit breaker. Right side of instrument panel.

(2) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(3) Disconnect and remove the door operating rods:

- Remove nut, washers, bolt which connects the door operating rod to the door. Mark LH and RH rod.
- Remove door operating rod by removing safety clip at the upper connection and pull rod clear of the ball fitting.

(4) Reset the GEAR circuit breaker and retract the landing gear. Secure the landing gear lever.

(5) Remove retraction centering unit:

- Remove the two nuts and bolts which connect it to the nose landing gear leg.
- Remove the nut and bolt which connect it to the engine mount.
- Move the retraction centering unit clear of the landing gear.

.

(6) Remove the two bolts and washers which connect the centering cover to the top of the leg and remove the cover.

(7) Extend the landing gear and pull the GEAR circuit breaker.

(8) Release the nitrogen pressure from the damper:

- Remove the dust cap from the charging valve.
- Press and hold down the pin inside the valve until all the pressure is released.

WARNING

YOU MUST RELEASE ALL THE NITROGEN PRESSURE FROM THE ACCUMULATOR BEFORE YOU REMOVE IT. NITROGEN AT HIGH PRESSURE CAN PENETRATE THE SKIN. THIS CAN CAUSE DISEASE.

(9) Deflect the nose landing gear fully to the left and block the centering unit and nose landing gear in that position.

(10) Remove the core of the charging valve from the damper assembly.

(11) Compress the damper assembly.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

DO NOT MIX OR REPLACE HYDRAULIC FLUIDS OF DIFFERENT TYPES OR MANUFACTURERS.

NOTE

A placard is installed by the airplane manufacturer identifying the type of hydraulic fluid. All airplanes have been manufactured with hydraulic Fluid (MIL-PRF-5606 H). The identification placard must be installed if a hydraulic fluid change to another fluid type is carried out.

(12) Connect the tube of the hydraulic fluid filler bottle to the charging valve.

(13) Turn the bottle to the open position and allow the hydraulic fluid to flow from the bottle into the damper. Use hydraulic fluid per MIL-PRF-5606 H or AMG-10 (GOST 6794-75 Amdt 1-5) hydraulic fluid (see CAUTION above).

(14) Extend the damper assembly by hand to allow the hydraulic fluid to fill the damper assembly.

(15) Compress and extend the damper not less than 6 times to release the air from the damper and allow the hydraulic fluid to flow into the damper.

(16) Compress the damper and hold the damper compressed while you close the bottle and remove the tube from the charging valve. Keep the damper compressed.

(17) Install the core of the charging valve.

(18) Connect the gaseous nitrogen charging equipment to the damper charging valve. Allow the damper to extend as it is charged.

(19) Charge the damper with nitrogen to the correct pressure. Refer to 32-20 Damper - Dimensions check. The damper must be fully extended.

(20) Disconnect and remove the gaseous nitrogen charging equipment from the damper charging valve.

(21) Install the dust cap onto the charging valve.

(22) Remove the blocking of the centering unit and let the nose landing gear center.

(23) Reset the GEAR circuit breaker. Right side of instrument panel.

(24) Retract the landing gear and secure the landing gear activation lever in the cockpit.

(25) Install the centering cover with two bolts with washers to the top of the leg.

(26) Connect the retraction centering unit to the nose landing gear leg:

- Install the bolt and nut which connects the operating rod to the engine mount.
- Install the centering unit to the leg with the two bolts and nuts.
  use new self locking nuts.

CAUTION

THE CROSS TUBE MUST BE CLOSE TO THE CENTERING COVER.

(27) Extend the landing gear and pull the GEAR circuit breaker. Right side of the instrumen panel.

(28) Connect the door operating rods with the nose landing gear doors:

- Install door operating rod to the ball fitting and secure it with safety clip.
- Check spherical bearings in nose landing gear doors for leanliness, excessive play and free movement.
- Move the opening rod in position. Install correct rod to LH/RH side as marked in step A.(3).
- Connect the door with the operating rod by installing bolt washers and self locking nut. Use new self locking nut. Wet installation with CA1000.

(29) Rest the GEAR circuit breaker. Right side of the instrument panel.

(30) Remove the rear fuselage and wing trestles clear of the airplane.

(31) Lower the airplane with the jacks. Make sure that the area around the airplane is clear of equipment. Refer to 07-10 Jacking - Jacking.

32-20-13 Damper

Dimensions check

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Required Strut Extension of the Nose Landing Gear Damper Assembly

The subsequent table tells you about the correct strut extension and pressure of the unloaded, fully extended nose landing gear damper.

Min. Strut Extension (unloaded) (visible length of bare piston)	Gas Pressure
10 cm (4 inches)	8 bar (116 PSI) at 20°C (68°F)

32-20-14 Actuator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

3. Main Procedure

A. Remove the Nose Landing Gear Actuator

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(2) Retract the landing gear. Use the landing gear switch.

(3) Pull the GEAR circuit breaker and secure against inadvertent operation. Right hand side of instrument panel.

(4) Set the ELECT. MASTER switch to OFF.

(5) Depressurize the hydraulic system:

- Operate the emergency extension of the landing gear. Refer to 29-10 Hydraulic System - Depressurize hydraulics.

(6) Disconnect the nose landing gear doors:

- Remove the nut, bolt, washers that attach the door connecting arms to the nose landing gear door. At the door-end of the rod.
- Remove the connecting arm by removing safety clip and then pulling it clear of the ball fitting.
- Move the connecting arms clear of the nose landing gear door.

WARNING

DO NOT REMOVE THE PIN WHICH CONNECTS THE NOSE LANDING GEAR FOLDING STAY DRAG LEVER AND THE DRAG STRUT WHEN STILL MOUNTED IN THE AIRPLANE. THE FOLDING STAY SWINGS BACK AND CAN CAUSE SERIOUS INJURY TO PERSONS.

WARNING

THE NOSE LANDING GEAR FOLDING STAY IS SPRING LOADED. DUE TO THE HIGH FORCES INVOLVED THE ELEMENT OF THE FOLDING STAY CAN CAUSE SERIOUS INJURY TO PERSONS.

(7) Remove the bolt which connects the actuator to the rear drag brace:

- Remove circlip.
- Remove cross bolt, nut and washers from hook lever.
- Remove actuator connection bolt and bushing.

(8) Remove nut and bolt which connects actuator to the engine mount.

Move the actuator clear of the nose landing gear bay.

(9) Disconnect the hydraulic lines from the actuator. Use a suitable container to catch spilt hydraulic fluid. Fit caps on all open connections.

(10) Measure and record the distance from the actuator safety lock washer to the center of the ball joint. Refer to Figure 5. Note the distance marked ‘Y’.

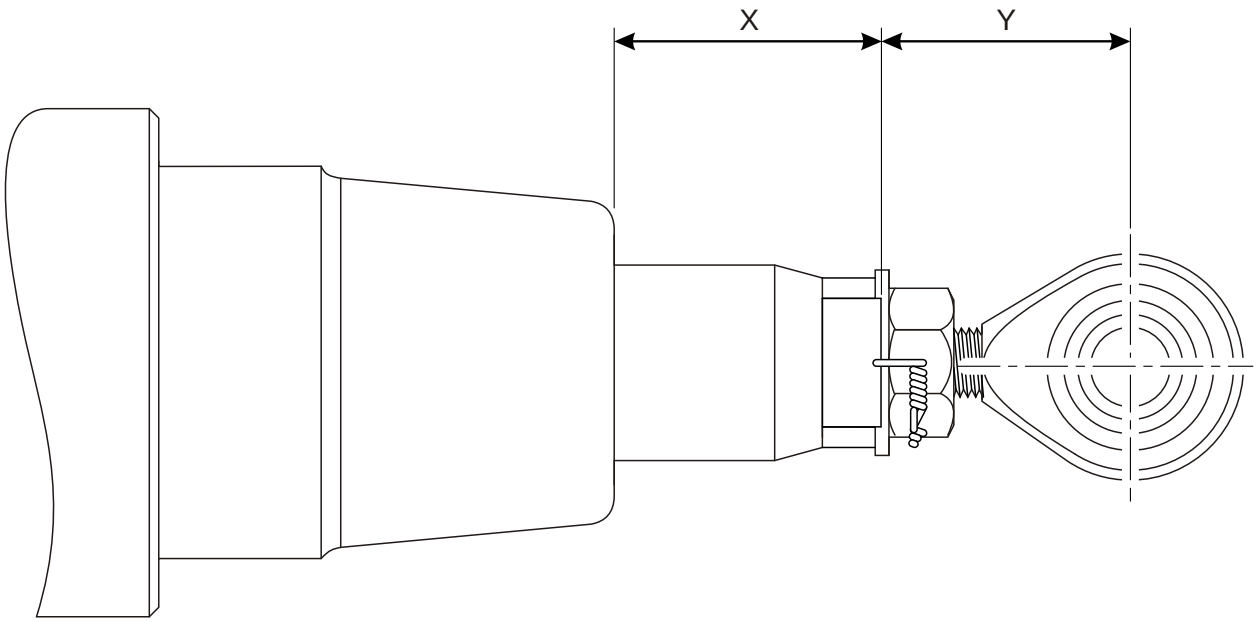


Figure 5 - Nose Landing Gear Actuator Measurements

32-20-15 Actuator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

3. Main Procedure

A. Install the Nose Landing Gear Actuator

(1) Install the ball joint rod to the piston rod of the actuator. Adjust the ball joint center according to the measurement ‘Y’.

Max. distance Y (min. screw in depth of rod end bearing.): 34 mm (1.34 in).

Wet installation of thread with Rivolta F.L.A.

Refer to 32-20 Actuator - Remove procedure Figure 5.

(2) Tighten the NLG actuator counter nut and install the safety lock wire.

(3) Connect the hydraulic lines to the actuator. Remove all caps.

(4) Connect the nose landing gear actuator to the nose landing gear:

- Move the nose landing gear actuator into position at the engine mount.
- Install the bolt and nut connecting the actuator to the engine mount. Use new self locking nut.
  Wet installation of bolt with CA1000. Nut at the outboard side.

(5) Connect actuator to drag brace:

- Install actuator connection bolt to connect actuator with drag brace assembly.
- Adjust orientation of that bolt by turning so that cross bolt fits.
  Install cross bolt with washers and nut to connect hook lever with actuator cross bolt. Use nes self locking nut. Use CA1000 for cross bolt.
- Make sure that bushing is installed and then install new circlip.

(6) Bleed the hydraulic system. Refer to 29-10 Hydraulic System - Bleed.

(7) Replenish the hydraulic reservoir as necessary. Refer to 29-10 DA50-A-29-00-00-00A-214A-D.

WARNING

DUE TO THE HIGH FORCES INVOLVED, THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS. MAKE SURE THAT NO PERSON CAN BE HIT OR CRUSHED WHEN OPERATING THE LANDING GEAR RETRACTION SYSTEM.

(8) Set the GEAR circuit breaker.

(9) Set the ELECT. MASTER switch to ON.

(10) Retract the landing gear:

- Set the Landing Gear switch to the UP position and secure against inadvertent operation.

(11) Check the clearance between the nose landing gear tire and the nose landing gear doors as well as circumferential clearance:

- Close one NLG door by hand.
- The clearance must be at least 10 mm (0.4 in).
- Circumferential clearance must be at least 10 mm (0.4 in).

(12) Check the clearance between the torque links and the nose landing gear doors: There must be positive clearance.

(13) Check the clearence between the folding stay and cross tube of engine mount: The clearance must be at least 7 mm ±2 mm (0.28 in ±0.08 in).

(14) If necessary, adjust the pushrod of the NLG actuator to achieve above given dimensions.

Maximum distance Y (Min. Screw-in depth of rod end bearing): 34 mm (1.34 in).

(15) Set the Landing Gear switch to DOWN.

Check clearance between actuator bolt bushing and slotted hole. The clearance should be ≥ 0 mm. Note down bare piston length of actuator.

Check that nose landing gear is fully extended and drag brace closed and hooks fully closed.

(16) Retract landing gear and then pull the GEAR circuit breaker.

Set ELECT. MASTER OFF.

Depressurize hydraulic system by operating emergency extension.

Check that the nose landig gear is fully extended and the drag brace and the hookes are fully closed.

Push the rotrating arm, which acuates the hookes, by hand force down towards the stop of the actuator.

Check clearance between actuator bolt bearing and slotted hole. Note down bare piston length of actuator.

There should be a max. difference of 0.1 mm.

(17) Connect the nose landing gear door arms to the nose landing gear doors.

(18) Perform a test of the correct operation of the landing gear extension and retraction system. Refer to 32-30 Normal Operation - Test and inspection.

(19) Move the wing and rear fuselage trestles clear of the airplane.

(20) Lower the airplane to the ground. Refer to 07-10 Jacking - Jacking.

32-30
EXTENSION AND RETRACTION

32-30-01 Extension and retraction

Description

1. Extension and Retraction

This Section tells you about the components that extend and retract the landing gear. It tells you how the system operates in normal operation and it tells you how the systems operates in an emergency.

Refer to Section 32-10 for data about the main gear legs. Refer to Section 32-20 for data about the nose gear leg. Refer to Section 32-60 for data about the landing gear position and warning system. Refer to the wiring manual for data about the related electrical systems.

2. Description

Figure 1 shows the main components of the of the extension and retraction system. Figure 2 shows the main landing gear extension and retraction system and Figure 3 shows the nose landing gear extension and retraction system. The landing gear has a dedicated hydraulic system to extend and retract the legs. Folding stays that attach to the legs and the surrounding structure unfold to lock the legs in the extended position. A spring operated latching mechanism hold the folding stays in a geometrically locked position. The initial movement of the gear actuator when moving to retract the landing gear operates the mechanism to unlock the folding stay. As the gear retracts, the folding stay folds and retracts into the landing gear bay with its related leg. The landing gear extension and retraction system has these main components:

A. Hydraulic Actuators

The hydraulic actuators are located in the related gear bay. The actuators use hydraulic fluid pressure to extend and retract the airplane landing gear during normal operation of the system.

B. Folding Stays

Each landing gear leg has a folding stay. The folding stay holds the extended leg locked in the down position. When the leg extends to the fully down position the folding stay unfolds and a latching mechanism locks the stay in the unfolded position. When the pilot retracts the landing gear the hydraulic actuator operates a mechanism to unlatch the folding stay. The folding stay then folds into the landing gear bay with the landing gear.

C. Selector Handle

The selector handle is located in the cockpit, in the instrument panel. The selector lever is used for normal extension and retraction of the landing gear. Four LEDs located on the instrument panel next to the selector handle show the status of the landing gear.

D. Emergency Extension System

The emergency extension system allows the pilot to extend the landing gear in the event of a system failure. The forces of gravity and springs are used to extend the legs and a spring-loaded mechanism on each leg folding-stay locks the leg in the extended position. The main component of the emergency extension system is the:

- Emergency extension valve. The emergency extension valve is located on the hydraulic control block at the hydraulic supply and control assembly and is operated by the emergency extension lever. When the emergency extension valve is operated (emergency extension position) the return flow from the actuators by-passes the actuator regulating valves. The

emergency extension lever is located on the left side of the center console, below the instrument panel. A micro switch located at the emergency extension valve isolates the hydraulic pump when the valve has been set to the EMERGENCY position.

3. Operation

A. Retraction

When the pilot sets the landing gear selector handle to UP during flight the following occurs:

- The electrical circuit to the hydraulic pump is made and the pump will operate if the system pressure is less than 93 bar (1350 PSI). The retract solenoid valve is energized through the LH main gear 'weight-on-wheels' micro switch and allows fluid to flow from the pump to the retract side of the actuator. The extend solenoid valve is de-energized and allows fluid to flow from the pump to the extend side of the actuator (Refer to Figure 4).
- The pump pressure switch operates the pump as necessary to maintain the system pressure at 93 - 114 bar (1350 - 1650 PSI). Fluid at pump pressure acts on both sides of the actuator piston. The effective surface area of the retract side of the piston is larger than the effective surface area on the extend side of the actuator piston. Because the same fluid pressure is acting on different effective areas of the actuator pistons the resulting 'differential pressure' acting on the piston causes the actuator to move the landing gear leg towards the retract position.
- The initial movement of the hydraulic actuators towards the retract position releases the folding stay latching mechanism. The folding stay can then fold into the landing gear bay with the landing gear.
- When the landing gear is fully retracted the nose landing gear UP micro switch operates and the extend solenoid valve is energized and moves to the 'full pressure' position (Refer to Figure 5). Fluid returning from the extend side of the actuators flows through the extend solenoid valve and back into the reservoir. The full pump pressure acting on the retract side of the actuator pistons holds the landing gear in the fully retracted position.
- The pump pressure switch operates the pump as necessary, to maintain the system pressure at 93 - 114 bar (1350 - 1650 PSI). If there are no internal leaks in the system the hydraulic accumulator will maintain the pressure in the system without the hydraulic pump operating.

B. Extension

When the pilot sets the landing gear selector handle to DOWN during normal operation the following occurs:

- The electrical circuit to the hydraulic pump is closed and the pump will operate if the system pressure is less than 93 bar (1350 PSI). The extend solenoid valve de-energizes (Refer to Figure 6) and fluid from the hydraulic pump flows through the extend solenoid valve into the extend side of the actuator. The retract solenoid valve de-energizes and allows the hydraulic fluid to flow from the retract side of the actuators, through the regulating valves and back into the reservoir.
- The pump pressure switch operates the pump as necessary to maintain the system pressure at 93 -114 bar (1350 - 1650 PSI). The pressure acting on the extend side of the actuator piston moves the piston to extend the landing gear legs.
- As the legs reach the fully extended position the latches on the folding stays operate against spring pressure to lock the stay in the unfolded position.

- When all the hydraulic actuators are fully retracted (legs fully extended) the pressure in the system increases until the system pressure reaches 114 bar (1650 PSI). The pump pressure switch opens at 114 bar (1650 PSI) and isolates the hydraulic pump. If there are no internal leaks in the system the hydraulic accumulator will maintain the pressure in the system without the hydraulic pump operating.

C. Emergency Extension

Figure 7 shows the schematic diagram for the main landing gear emergency hydraulic extension system. The pilot can use this system to extend the landing gear when there is a problem with the normal extension system. You cannot retract the landing gear with the emergency system. The emergency extension lever is located on the left side of the center console, below the instrument panel. A flexible cable connects the emergency extension lever to the emergency extension valve. When the pilot operates the emergency extension lever these events occur:

- The emergency control lever opens the emergency extension valve. The actuating lever for the emergency extension valve also operates a micro switch which isolates the electrical power from the hydraulic pump. The pump cannot run.
- Gravity causes the weight of each landing gear leg to move the piston in each actuator inwards. The open emergency extension valve allows the fluid on the retract side of the piston in each actuator to flow through the by-pass valves. The by-pass valves allow the hydraulic fluid flowing from the actuators to by-pass the regulating valves and return to the reservoir. The position of the solenoid valves does not affect the operation of the emergency extension system.
- As each landing gear leg extends the related folding stay unfolds. Springs located in each landing gear bay ensure that each folding stay fully unfolds. When the stay fully unfolds the spring operated latching mechanism positively locks the folding stay open. The locked stay holds the related landing gear leg fully extended.
- When the folding-stays are locked, the related folding-stay switches (LDG GEAR DOWN) are closed and electrical ground is supplied to the related green indicator lights. The electrical circuit for the selected indicator light is closed and the green light illuminates.

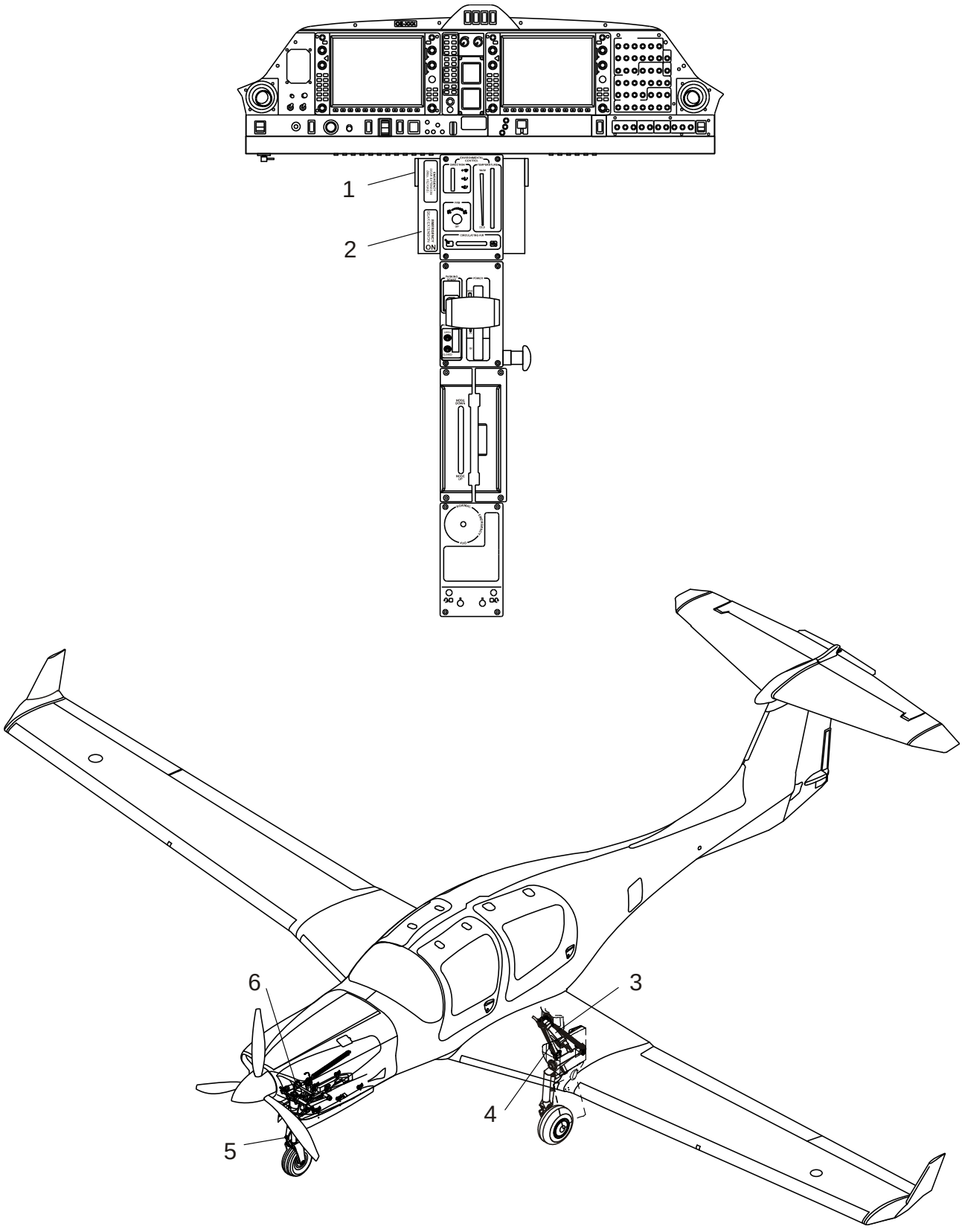


Figure 1 - Extension and Retraction System Main Components

Legend

[1, Fig.1] Selector Handle

[2, Fig.1] Emergency Extension Lever

[3, Fig.1] Extension/Retraction Actuator

[4, Fig.1] Main Gear Folding Stay

[5, Fig.1] Nose Gear Folding Stay

[6, Fig.1] Hydraulic Supply and Control System

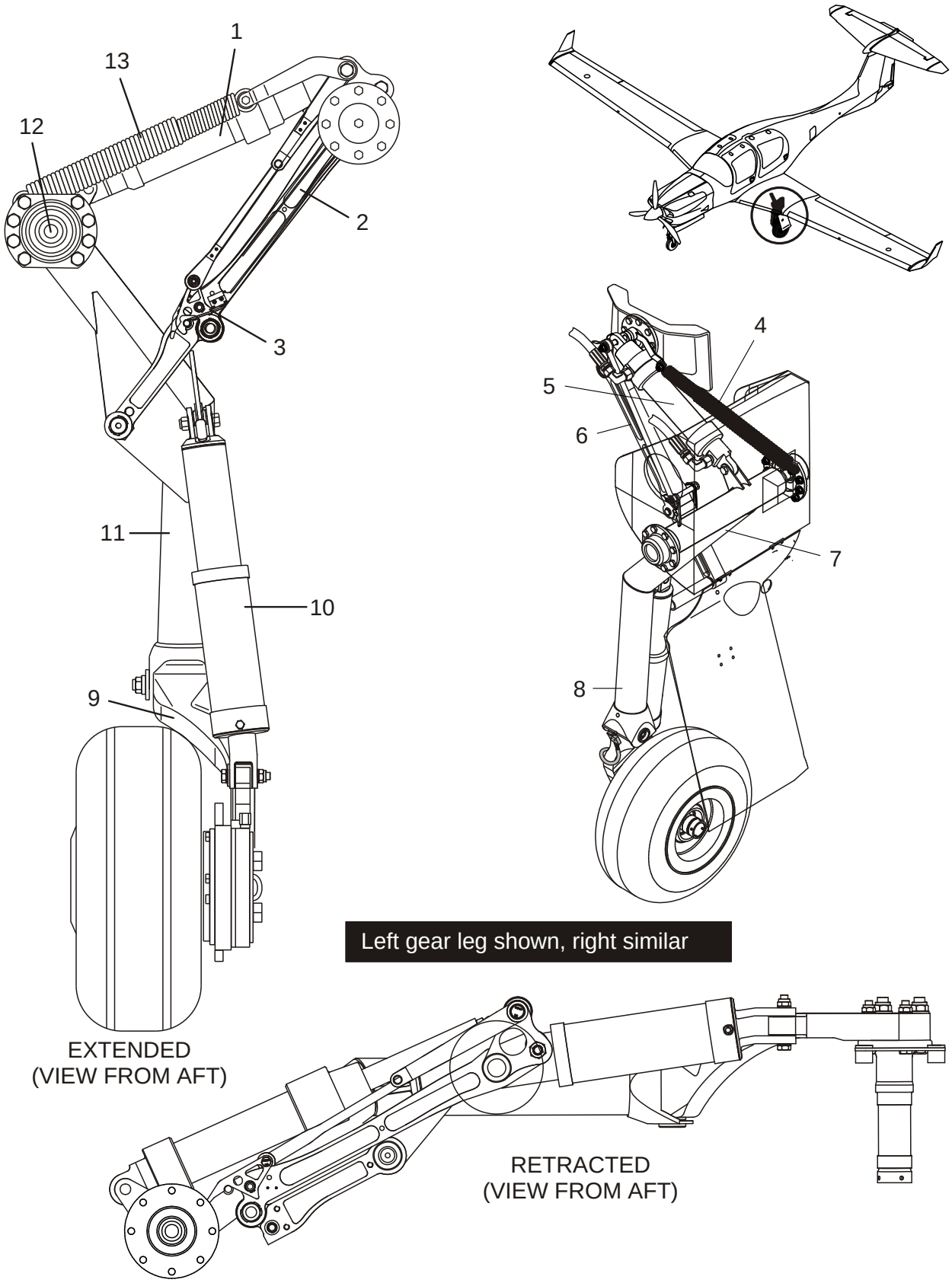


Figure 2 - Main Landing Gear - Extension and Retraction

Legend

[1, Fig.2]	Hydraulic Actuator
[2, Fig.2]	Folding Stay
[3, Fig.2]	Latching Mechanism
[4, Fig.2]	Tension Spring
[5, Fig.2]	Hydraulic Actuator
[6, Fig.2]	Folding Stay
[7, Fig.2]	Longitudinal Pivot
[8, Fig.2]	Tubular Steel Strut
[9, Fig.2]	Trailing Arm
[10, Fig.2]	Damper
[11, Fig.2]	Tubular Steel Strut
[12, Fig.2]	Longitudinal Pivot
[13, Fig.2]	Tension Spring

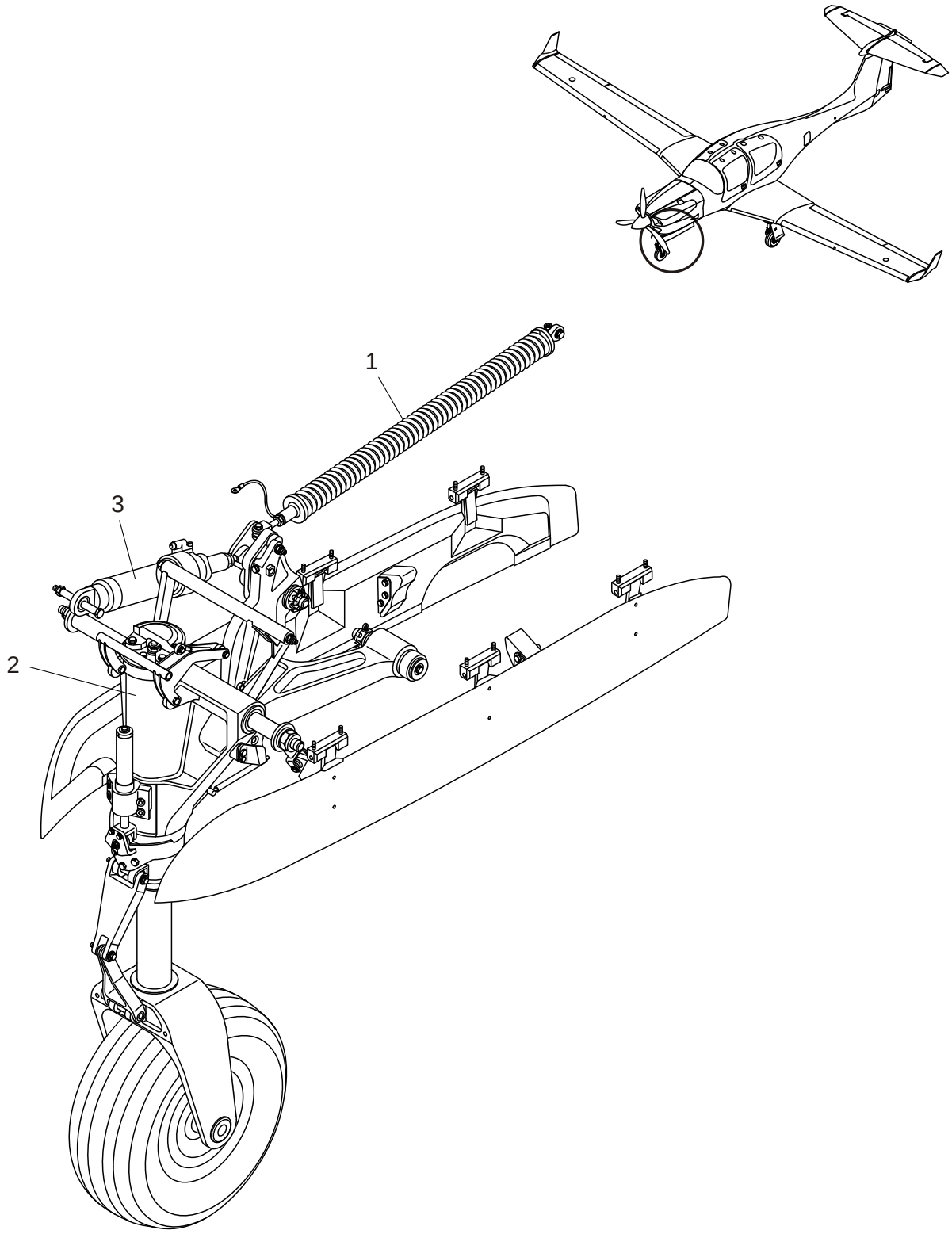


Figure 3 - Nose Landing Gear - Extension and Retraction

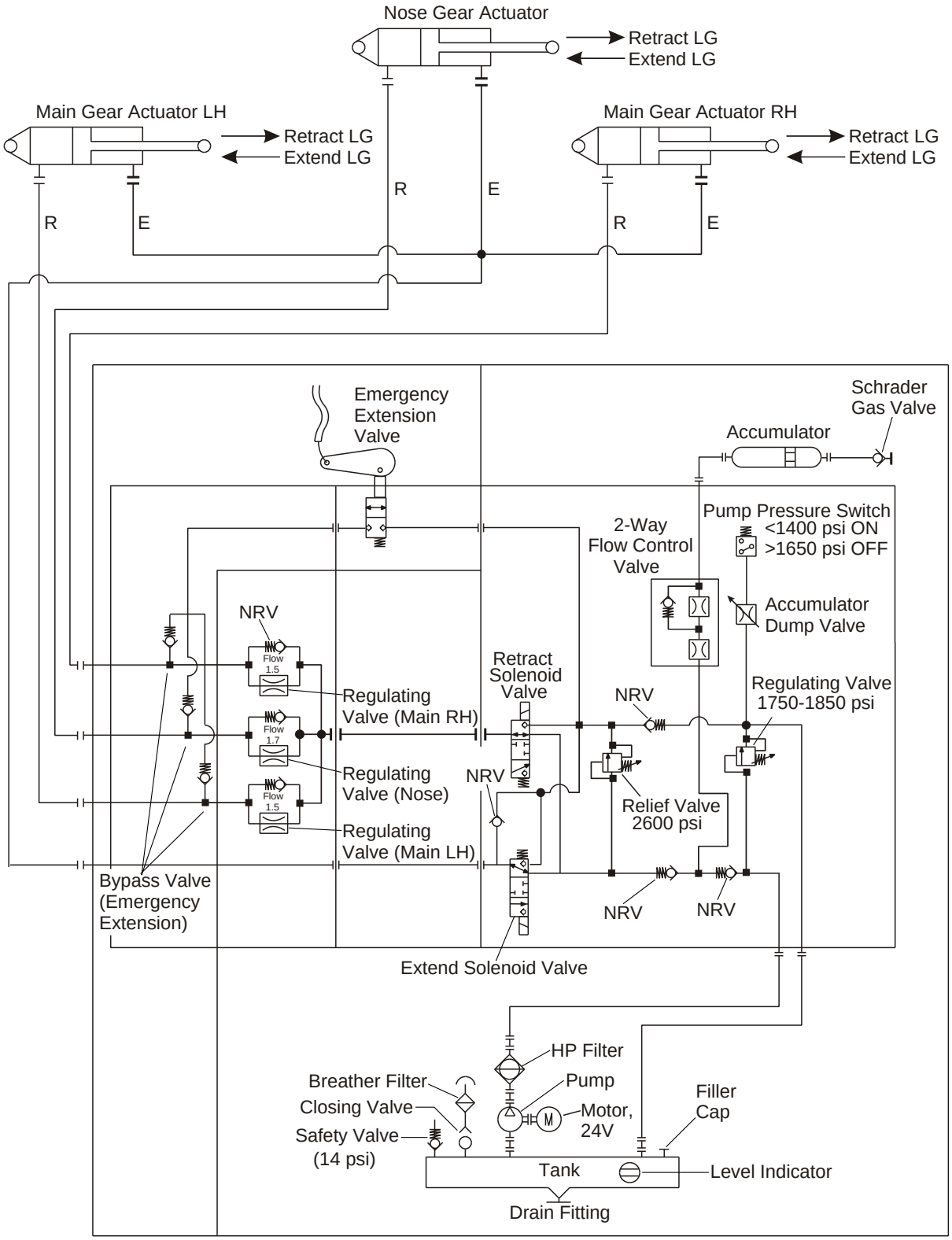


Figure 4 - Hydraulic Schematic Diagram - 'Differential Pressure' Retraction Operation

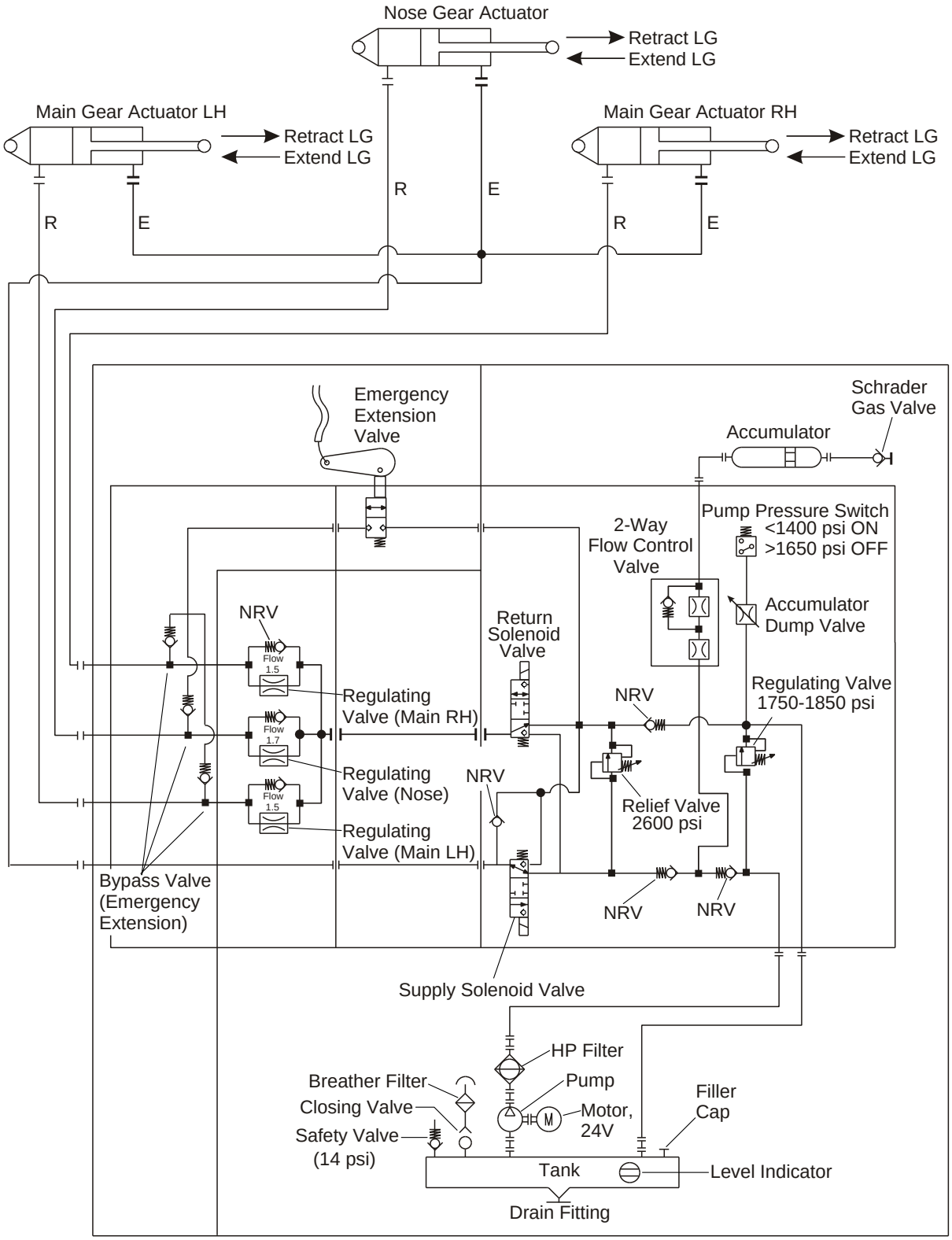


Figure 5 - Hydraulic Schematic Diagram - 'Full Pressure' Retraction Operation

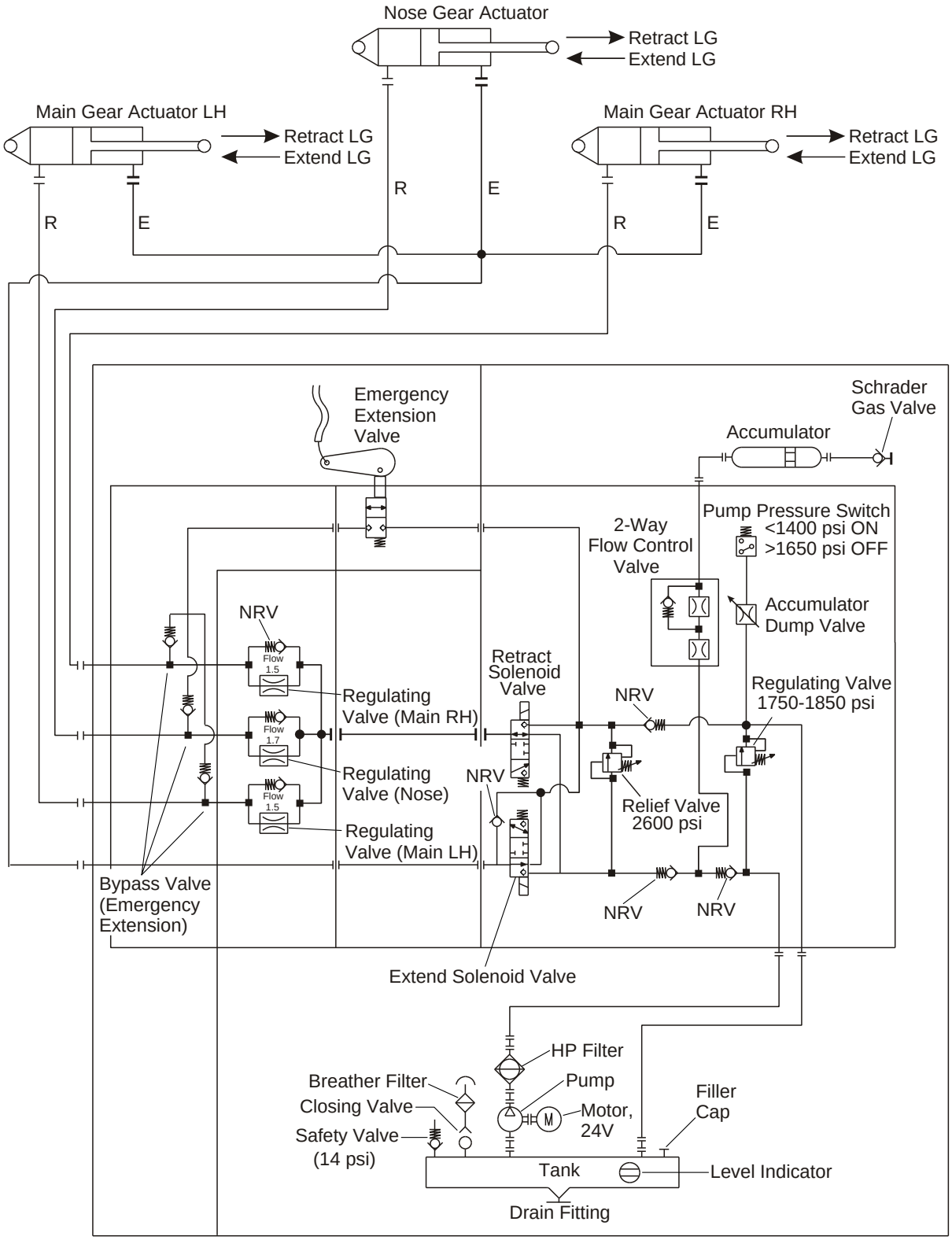


Figure 6 - Hydraulic Schematic Diagram - Normal Extension Operation

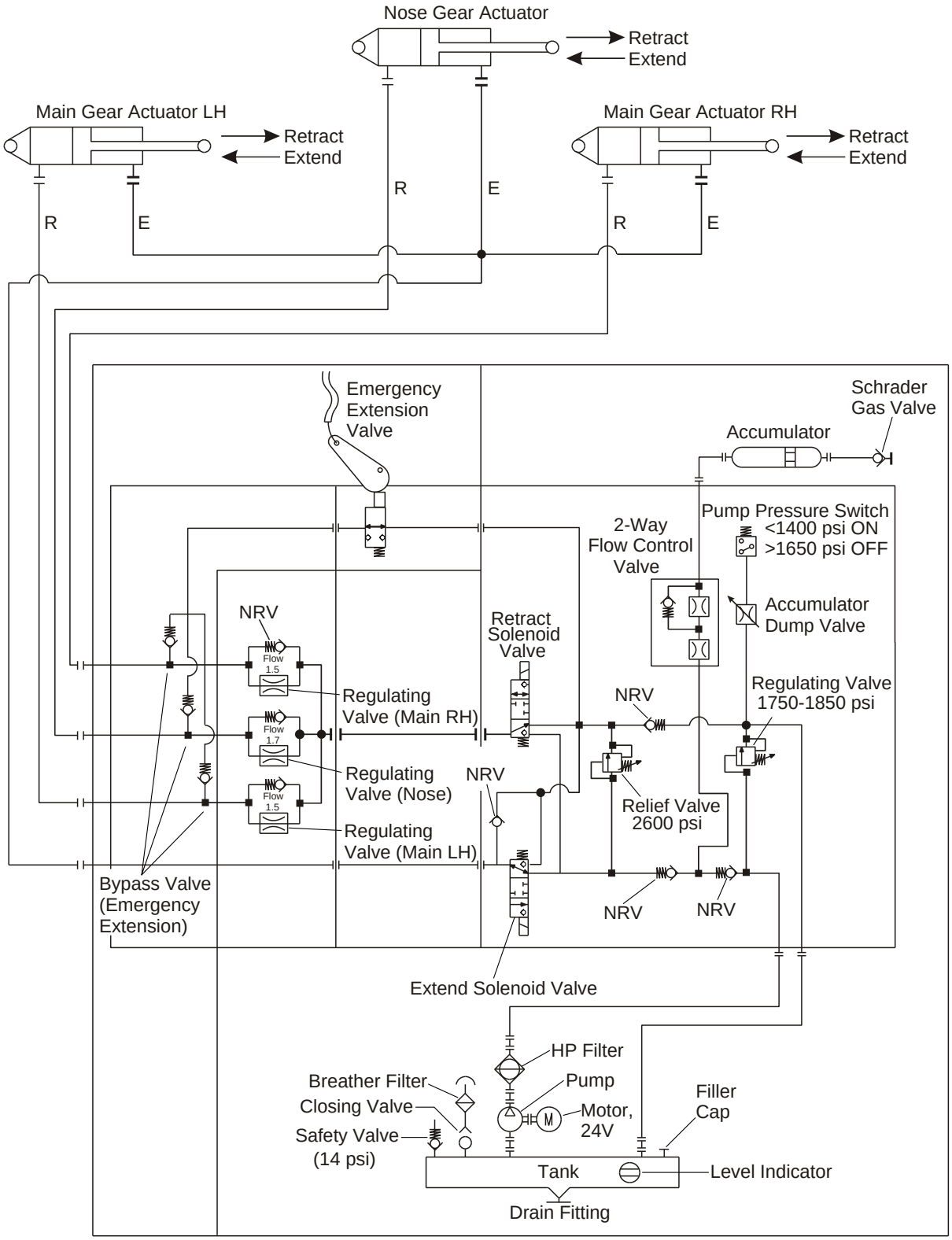


Figure 7 - Hydraulic Schematic Diagram - Emergency Extension Operation

32-30-02 Extension and retraction

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Landing gear does not retract when the selector lever is set to UP.

1A. Check the hydraulic pump (GEAR) circuit breaker.

Is the hydraulic pump (GEAR) circuit breaker pulled?

Yes - go to step 1B.

No - go to step 1C.

1B. Reset GEAR circuit breaker.

1C. Check the emergency extension lever.

Is the emergency extension lever operated?

Yes - go to step 1D.

No - go to step 1E.

1D. Reset emergency extension lever.

1E. Check the hydraulic pump.

Is the hydraulic pump defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace hydraulic pump.

1G. Check the hydraulic supply and control assembly.

Is the hydraulic supply and control assembly defective?

Yes - go to step 1H.

No - go to step 1I.

1H. Replace hydraulic supply and control assembly.

1I. Check the wiring from landing gear selector to hydraulic supply and control panel.

Is the wiring from landing gear selector to hydraulic supply and control panel defective?

Yes - go to step 1J.

No - go to step 1K.

1J. Do a test for continuity of the related wiring. Replace or repair defective wiring as necessary.

1K. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Landing gear does not extend when the selector lever is set to DOWN.

2A. Check the hydraulic supply and control assembly.

Is the hydraulic supply and control assembly defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace hydraulic supply and control assembly.

2C. Check the wiring from landing gear selector to hydraulic supply and control panel.

Is the wiring from landing gear selector to hydraulic supply and control panel defective?

Yes - go to step 2D.

No - go to step 2E.

2D. Do a test for continuity of the related wiring. Replace or repair defective wiring as necessary.

2E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

One landing gear leg does not retract correctly.

3A. Check the hydraulic actuator.
Is the hydraulic actuator defective?
Yes - go to step 3B.
No - go to step 3C.

3B. Replace defective hydraulic actuator.

3C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Hydraulic pump runs continuously / keeps cycling.

4A. Check the accumulator pressure.
Is the accumulator pressure low / the accumulator defective?
Yes - go to step 4B.
No - go to step 4C.

4B. Recharge/replace accumulator.

4C. Check the pump pressure switch.
Is the pump pressure switch defective?
Yes - go to step 4D.
No - go to step 4E.

4D. Replace pump pressure switch.

4E. Check the hydraulic supply and control assembly for internal leaks.
Is there an internal leak in the hydraulic supply and control assembly?
Yes - go to step 4F.
No - go to step 4G.

4F. Replace hydraulic supply and control assembly.

4G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Hydraulic system fluid level low.

5A. Check hydraulic fluid leaks.
Is there a hydraulic fluid leak?
Yes - go to step 5B.
No - go to step 5C.

5B. Do a test for leaks in the hydraulic system. Tighten leaking connections. Repair/ replace leaking components.

5C. Contact DAI.

32-30-03 Normal Operation

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2
External Power Supply	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT LET PERSONS NEAR THE LANDING GEAR WHEN YOU DO THE EXTENSION AND RETRACTION TEST. THE LANDING GEAR CAN CAUSE INJURY TO PERSONS.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

3. Main Procedure

A. Landing Gear Normal Extension and Retraction Test

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking

(2) Connect an external power supply to the airplane.

Refer to 24-40 External Power Relay - Install procedure.

(3) Set the ELECT. MASTER switch to ON.

(4) Set the engine power lever to MAX (fully forward).

(5) Retract the landing gear:

- Set the landing gear selector lever to UP and these events must occur:
  - The hydraulic pump operates.
  - The green (SAFE) leds switch off.
    For more data about the landing gear indicating system refer to 32-60 Position and warning - Description
  - The red led (UNSAFE) illuminates.
  - The landing gear retracts.
- When the gear is fully retracted:
  - The red led (UNSAFE) switches off.
  - The hydraulic pump stops operating (allow 15 sec. after gear is fully retracted).

(6) Do a test for the correct operation of the landing gear warning horn:

- Move the engine power lever to IDLE. The landing gear warning horn must operate.
- Move the engine power lever to MAX. The landing gear warning horn must operate.

(7) Do a test of the correct operation of the landing gear extension system:

- Set the landing gear selector lever to DOWN and these events must occur:
  - The hydraulic pump operates.
  - The red led (UNSAFE) illuminates.
  - The landing gear extends.
- When all the landing gear legs are fully extended and locked:
  - The red led (UNSAFE) switches off.
  - The green (SAFE) leds illuminate.
  - The hydraulic pump stops operating (allow 15 sec. after gear is fully extended).
  - Set the engine power lever to IDLE.

(8) Set the ELECT. MASTER switch to OFF.

(9) Disconnect the external power supply from the airplane.

(10) Move the wing and fuselage trestles clear of the airplane.

(11) Lower the airplane with the jacks. Make sure that the area around the airplane is clear.

32-30-04 Emergency Operation

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2
External Power Supply	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT LET PERSONS NEAR THE LANDING GEAR WHEN YOU DO THE EMERGENCY EXTENSION TEST. THE LANDING GEAR CAN CAUSE INJURY TO PERSONS.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

3. Main Procedure

A. Landing Gear Emergency Extension Test

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(2) Connect an external power supply to the airplane.

Refer to 24-40 External Power Relay - Install procedure.

(3) Set the ELECT. MASTER switch to ON.

(4) Set the engine power lever to MAX (fully forward).

(5) Retract the landing gear:

- Set the landing gear selector lever to UP and these events must occur:
  - The hydraulic pump operates.
  - The green (SAFE) leds switch off.
    For more data about the landing gear indicating system refer to 32-60 Position and warning - Description
  - The red led (UNSAFE) illuminates.
  - The landing gear retracts.
- When the gear is fully retracted:
  - The red led (UNSAFE) switches off.
  - The hydraulic pump stops operating (allow 15 sec. after gear is fully retracted).

(6) Set the EMERGENCY EXTENSION lever to the EXTEND position (pull fully aft), these events must occur:

- The hydraulic pump must not operate.
- The red (UNSAFE) led illuminates.
- The landing gear extends. When the landing gear is fully extended and locked:
  - The red (UNSAFE) led remains on.
  - The 3 green (SAFE) leds illuminate.

(7) Reset the landing gear emergency extension lever:

- Set the normal landing gear selector to DOWN.
- Set the emergency extension lever to close (fully forward) and these events must occur:
  - The hydraulic pump operates until the system pressure stabilizes at 93 - 114 bar (1350 - 1650 PSI).

(8) Do a test of the correct operation of the landing gear normal retraction and extension system. Refer to 32-30 Normal Operation - Test and inspection

(9) Move the wing and fuselage trestles clear of the airplane.

(10) Lower the airplane with the jacks. Make sure that the area around the airplane is clear.

32-40
WHEELS AND BRAKES

32-40-01 Wheels and brakes

Description

1. Wheels and Brakes

The DA 50 C has two main wheels and a nose wheel. All wheels have split hubs and tires with inner tubes. The main wheels are standard Cleveland components. If OÄM 50-005 is installed, the wheels are hubeless and use Beringer components. Refer to 05-42 Wheels - Description.

The main wheels have brake disks and a brake caliper. Toe-brake pedals operate hydraulic cylinders. Hydraulic hoses connect the cylinders to the brake calipers. A parking valve locks the brakes ON.

Each main wheel has an independent brake system. The left pedal of each rudder pedal assembly operates the left wheel brake and the right rudder pedal operates the right wheel brake.

2. Main Wheels

Figure 1 shows the main and nose wheel assemblies. The main wheel hub has two halves. Each half of the hub is made from light alloy. Three bolts with nuts and washers hold the two halves of the hub together. The bolts also hold a brake disk to the wheel.

Each half of the hub has a roller bearing assembly. Each bearing has a ring grease seal and a molded grease seal. Snap rings hold each bearing assembly in position.

Each main wheel has a Goodyear 6.00-6, 8 PR, TT, 160 mph, FC III tire with a Goodyear 6.00-6 / G15/6.00-6 inner tube, valve type TR 20. Two red slip marks - one on the tire and the other on the wheel - are aligned.

If OÄM 50-005 is installed, the main wheels are of a design by Beringer Aero (refer to Figure 2). Refer to the Wheel System Description MM-02-001 for wheel RF-017. Each main wheel has a Goodyear tyre 6.00-6, 8PR, TL, 160 mph, Flight Custom III installed.

3. Nose Wheel

Figure 1 shows the main and nose wheel assemblies. The nose wheel has a split hub. Each half of the hub is made from light alloy. Three AN-bolts hold the two halves of the hub together. Each hub half has a sealed bearing.

The nose wheel has a Goodyear 5.00-5, 10 PR, TT, 120 mph, FS II tire with a Goodyear 5.00-5 inner tube.

If OÄM 50-005 is installed, the nose wheel is of a design by Beringer Aero (refer to Figure 2). Refer to the Wheel System Description MM-02-001 for wheel RA-014. The nose wheel has a goodyear tyre 5.00-5, 10 PR, TL, 190 mph, Flight Eagle LT installed.

4. Brake System

Figure 4 shows the brake system schematic diagram of the Cleveland/Parker installation.

If OÄM 50-005 is installed, refer to Figure 5 for the brake system schematic diagramm.

The left and right wheel brakes are independent systems. Each system has a reservoir on the co-pilot's brake pedals. The reservoirs are directly connected to the brake master cylinders. Two flexible hoses connect the master cylinders on the co-pilot's brake pedals to the master cylinders on the pilot's brake pedals.

Two more flexible hoses connect the pilot's left and right master cylinders to the parking brake valve. Flexible hoses connect the parking brake valve to each main-wheel brake caliper. The parking brake valve is mounted on the LH side panel of the center console. A flexible cable connects the parking brake valve to an operating lever mounted in the cockpit center console.

The brake calipers are standard Cleveland or Beringer Aero components. Pistons in each caliper push a friction lining against the brake disk and a back-plate attached to the caliper pulls the other friction lining against the outer face of the brake disk. The caliper can move laterally on two anchor pins for the Cleveland/Parker installation. If OÄM 50-005 is installed, the brake disc is floating and the brake caliper is fixed.

Each main wheel has a brake disc. Bolts attach the brake disk to the wheel for Cleveland/Parker installation. If OÄM-50-005 is installed, the brake disc is floating. The brake disk turns between the friction linings in the brake caliper. The caliper is located on a torque plate which is attached to the landing gear axle.

5. Brake System Operation

If you press on the toe brake of a rudder pedal the fluid in the master cylinder is pushed along the outlet hose. The fluid at the brake caliper pushes the pistons. The pistons push the pressure plate onto the wheel brake disk. The reaction of the pressure plate pushing on the wheel brake disk forces the brake caliper away from the wheel disk. The caliper moving away from the brake disk pulls the friction lining of the caliper back-plate against the other side of the disk. The wheel brake disk is held between the friction linings.

If you release the pressure on the brake pedal the fluid can flow back into the master cylinder and the brake caliper releases the brake disk. The wheel is free to turn.

The right brake pedal of each set of rudder pedals operates the right wheel brake. The left brake pedal of each set of rudder pedals operates the left wheel brake.

If you push on the left brake pedal and the right brake pedal together, then both wheel brakes operate. If you set the parking brake to LOCK while you push on both brake pedals the parking brake valve traps the fluid in the brake units and the wheel brakes stay on. Push on the brake pedals and then move the parking brake lever to RELEASE to release the brakes.

6. SensAIR (if OÄM 50-066 is installed)

SensAIR was developed by Beringer Aero to ease the reading of tire pressure and temperature, but does NOT replace normal tyre pressure reading as described by the procedure below. Made from latest laser sintering technology, high grade materials and carbon parts - using readily available Bluetooth technology, smart phones and tablets - it is now possible to keep track of this valuable data. The application "BERINGER AERO SensAIR" is downloadable on GooglePlay and Appstore.

Refer to Beringer Manual SM-08 for further details.

Refer to 05-00 Referenced Maintenance Data - Description Table 1.

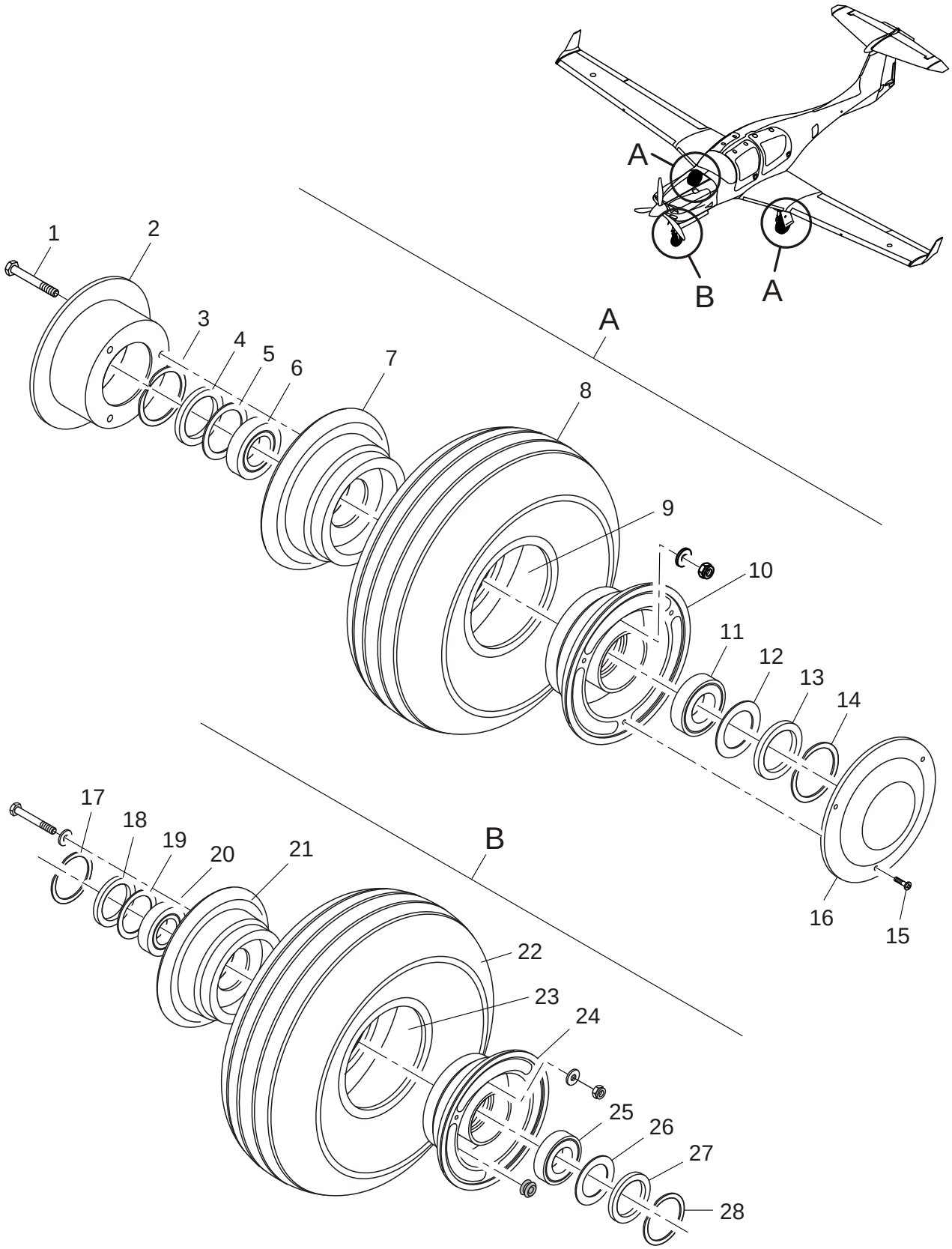


Figure 1 - Main and Nose Wheel Assemblies

Legend

[1, Fig.1]	Bolt
[2, Fig.1]	Brake Disc
[3, Fig.1]	Snap Ring
[4, Fig.1]	Molded Grease Seal
[5, Fig.1]	Ring-Grease Seal
[6, Fig.1]	Bearing
[7, Fig.1]	Hub
[8, Fig.1]	Tire
[9, Fig.1]	Inner Tube
[10, Fig.1]	Hub
[11, Fig.1]	Bearing
[12, Fig.1]	Ring-Grease Seal
[13, Fig.1]	Molded Grease Seal
[14, Fig.1]	Snap Ring
[15, Fig.1]	Screw
[16, Fig.1]	Dust Shield
[17, Fig.1]	Snap Ring
[18, Fig.1]	Molded Grease Seal
[19, Fig.1]	Ring-Grease Seal
[20, Fig.1]	Bearing
[21, Fig.1]	Hub
[22, Fig.1]	Tire
[23, Fig.1]	Inner Tube
[24, Fig.1]	Hub
[25, Fig.1]	Bearing
[26, Fig.1]	Ring-Grease Seal
[27, Fig.1]	Felt-Grease Seal
[28, Fig.1]	Snap Ring

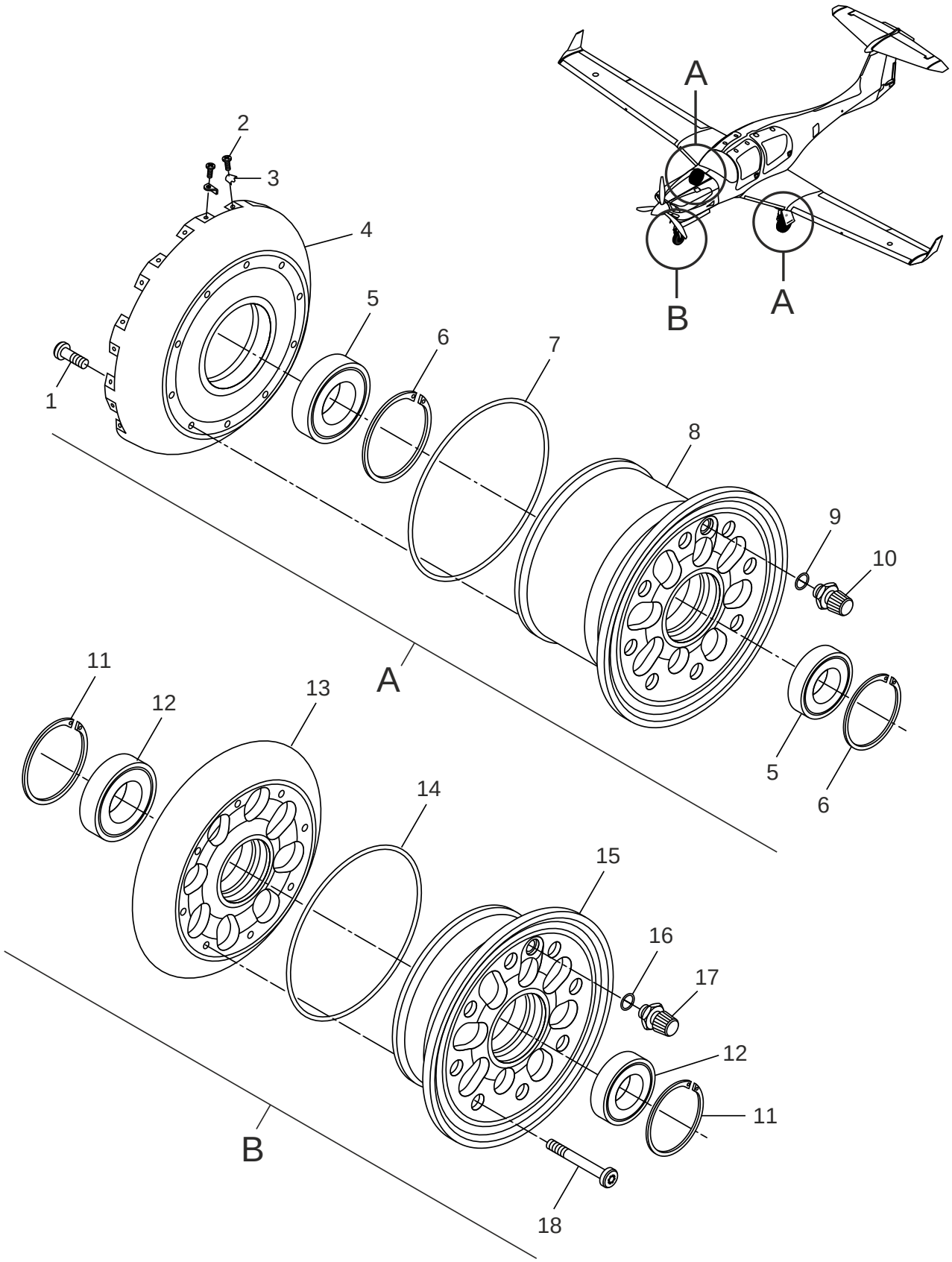


Figure 2 - Main and Nose Wheel Assemblies (if OÄM 50-005 is installed)

Legend

[1, Fig.2]	Screw
[2, Fig.2]	Clip Screw
[3, Fig.2]	Clip
[4, Fig.2]	Inner Wheel Half
[5, Fig.2]	Bearing
[6, Fig.2]	Circlip
[7, Fig.2]	O-Ring
[8, Fig.2]	Outer Wheel Half
[9, Fig.2]	Valve O-Ring
[10, Fig.2]	Valve
[11, Fig.2]	Circlip
[12, Fig.2]	Bearing
[13, Fig.2]	Inner Wheel Half
[14, Fig.2]	O-Ring
[15, Fig.2]	Outer Wheel Half
[16, Fig.2]	Valve O-Ring
[17, Fig.2]	Valve
[18, Fig.2]	Screw

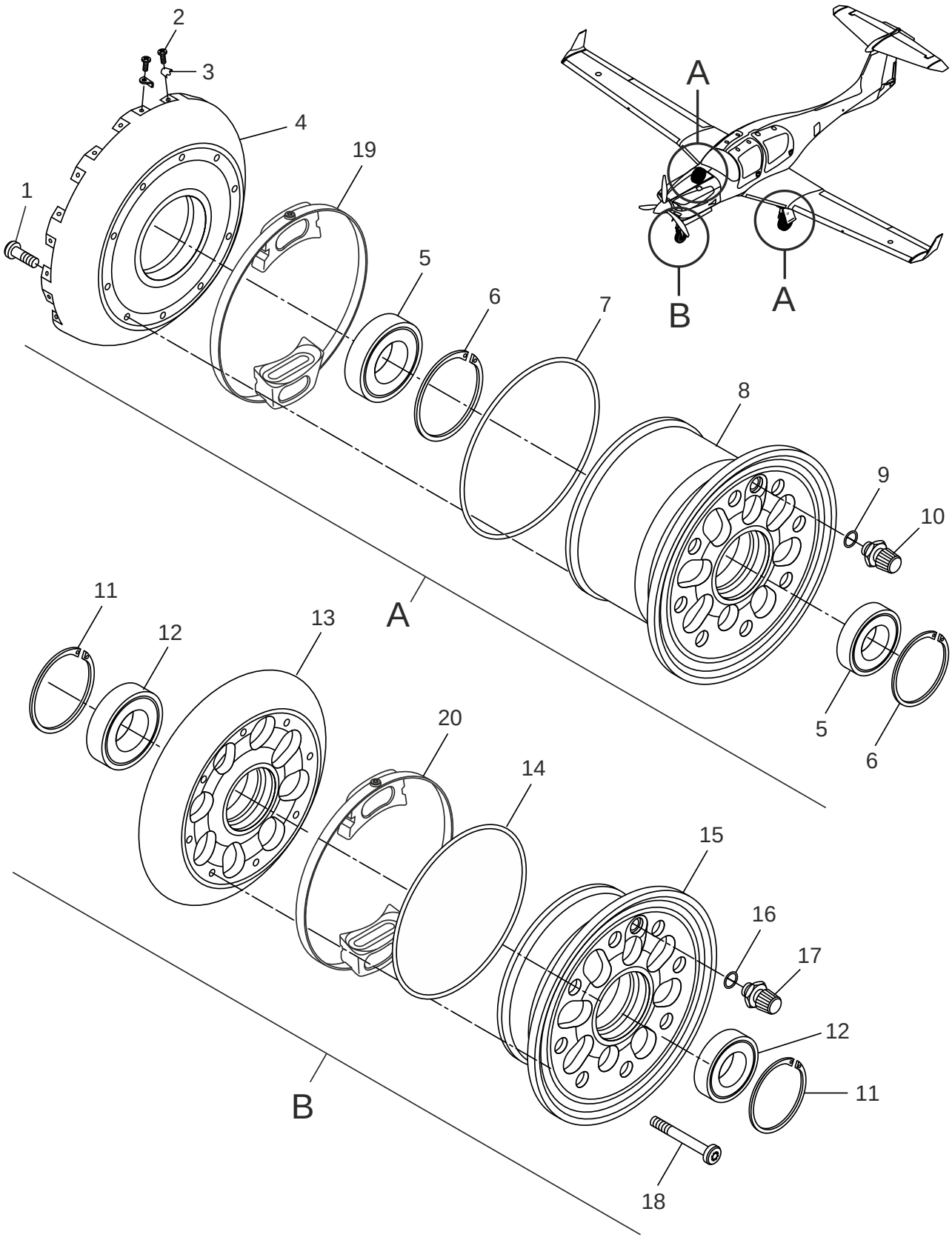


Figure 3 - Main and Nose Wheel Assemblies (if OÄM 50-005 and OÄM 50-066 are installed)

Legend

[1, Fig.3]	Screw
[2, Fig.3]	Clip Screw
[3, Fig.3]	Clip
[4, Fig.3]	Inner Wheel Half
[5, Fig.3]	Bearing
[6, Fig.3]	Circlip
[7, Fig.3]	O-Ring
[8, Fig.3]	Outer Wheel Half
[9, Fig.3]	Valve O-Ring
[10, Fig.3]	Valve
[11, Fig.3]	Circlip
[12, Fig.1]	Bearing
[13, Fig.3]	Inner Wheel Half
[14, Fig.3]	O-Ring
[15, Fig.3]	Outer Wheel Half
[16, Fig.1]	Valve O-Ring
[17, Fig.3]	Valve
[18, Fig.3]	Screw
[19, Fig.3]	SensAIR TP-006
[20, Fig.3]	SensAIR TP-005

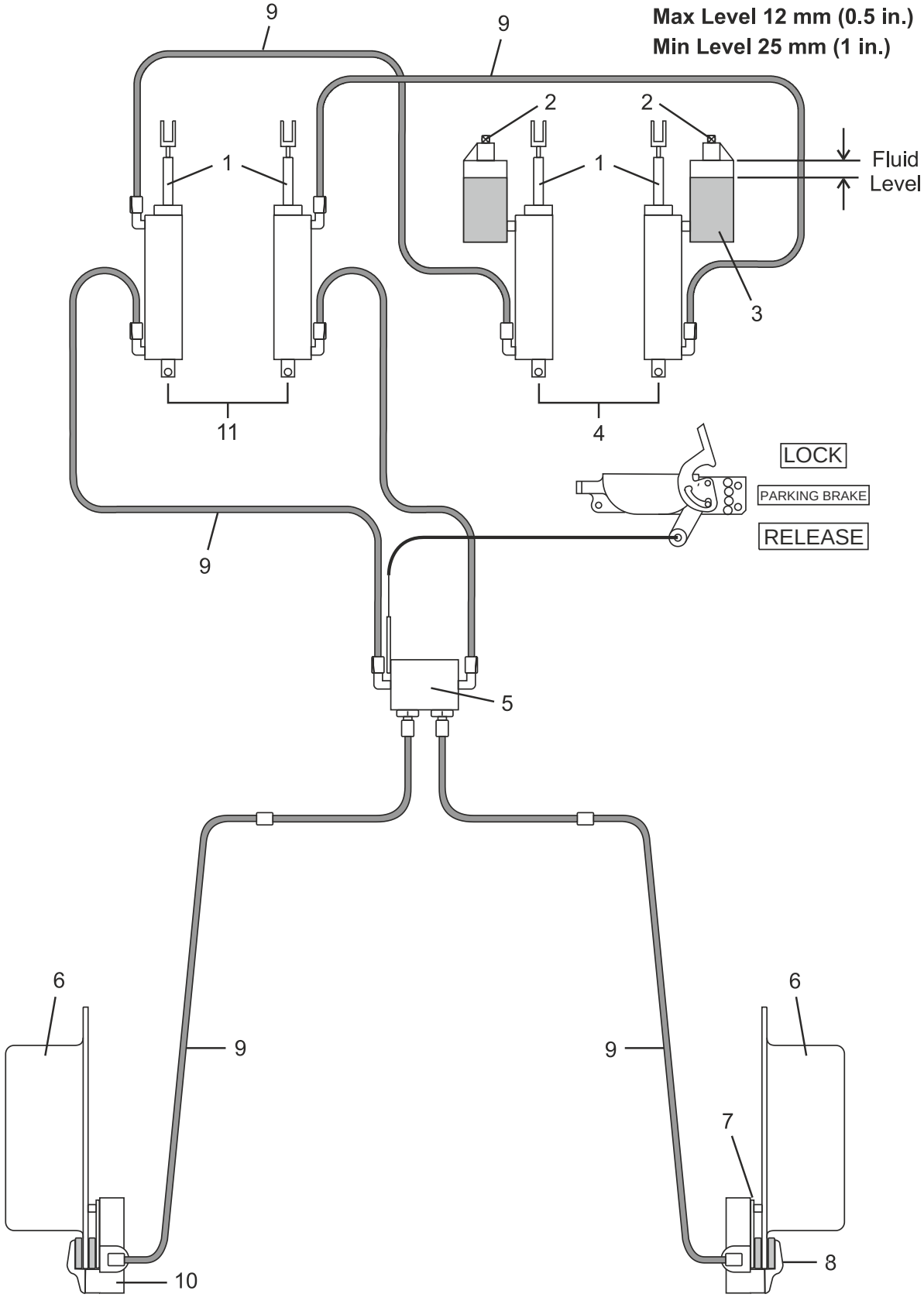


Figure 4 - Wheel Brake System Schematic Diagram

Legend

[1, Fig.4]	Master Cylinders
[2, Fig.4]	Vented Plug
[3, Fig.4]	Brake Fluid Reservoir
[4, Fig.4]	Installation Co-Pilot Side
[5, Fig.4]	Parking Brake Valve
[6, Fig.4]	Brake Disk
[7, Fig.4]	Pressure Plate
[8, Fig.4]	Back Plate
[9, Fig.4]	Flexible Hose
[10, Fig.4]	Brake Caliper
[11, Fig.4]	Installation Pilot Side

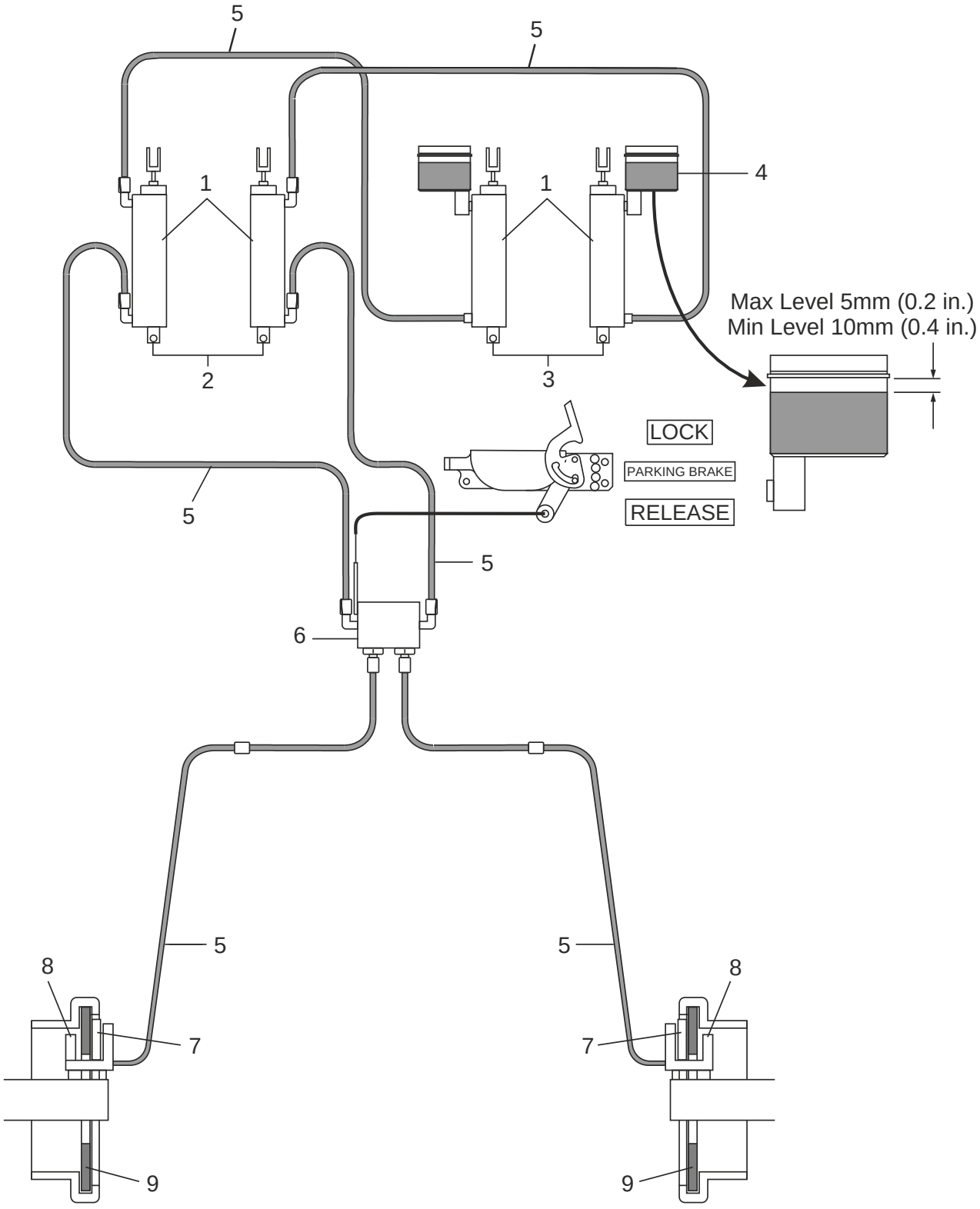


Figure 5 - Wheel Brake System Schematic (if OÄM 50-005 is installed)

Legend

[1, Fig.5] Master Cylinder
[2, Fig.5] Installation Pilot's Side
[3, Fig.5] Installation Co-Pilot's Side
[4, Fig.5] Brake Fluid Reservoir
[5, Fig.5] Flexible Hose
[6, Fig.5] Parking Brake Valve
[7, Fig.5] Pressure Plate
[8, Fig.5] Brake Caliper
[9, Fig.5] Brake Disk

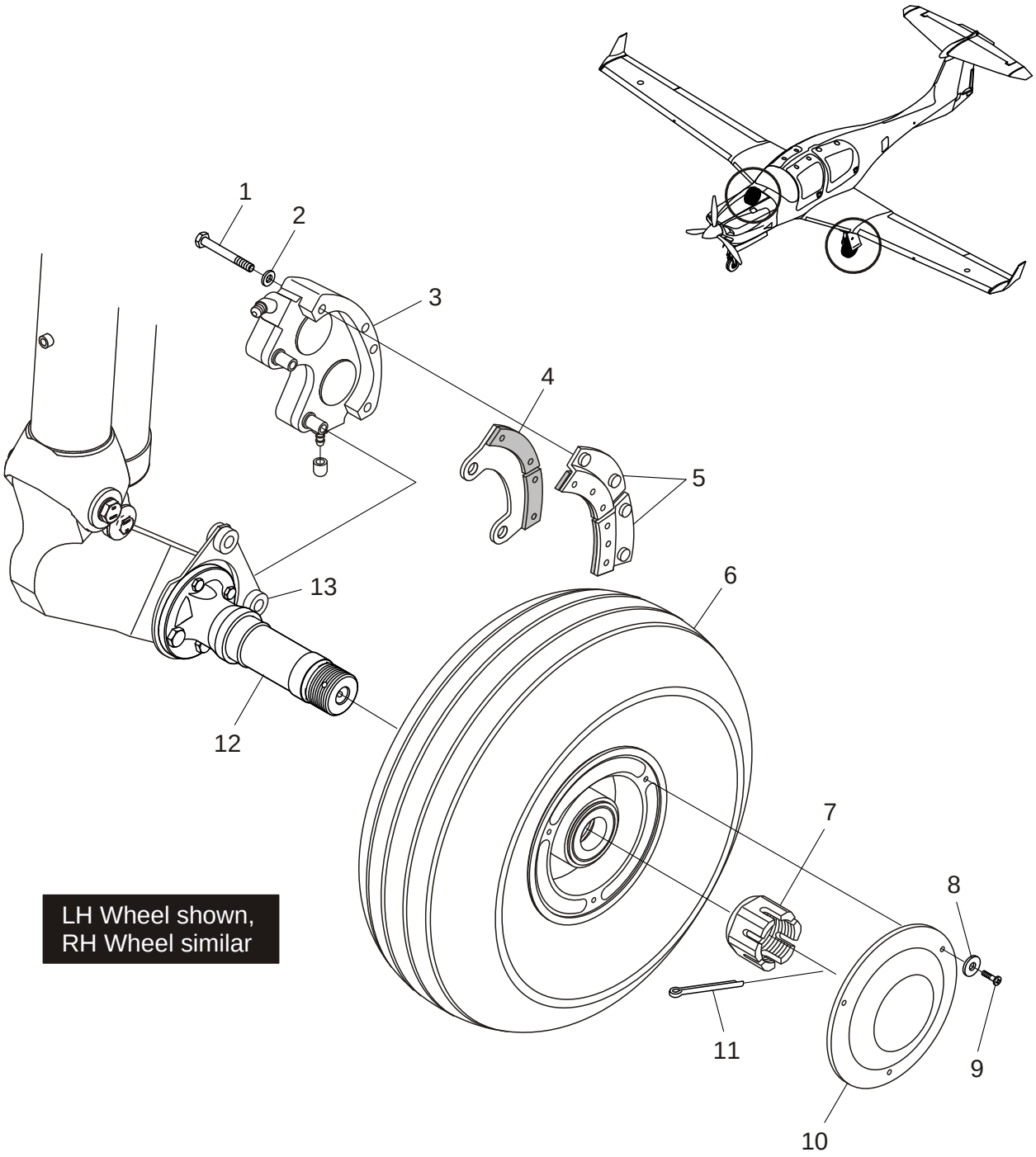


Figure 6 - Main Wheel Brake Assembly

Legend

[1, Fig.6]	Back Plate Attaching Bolt
[2, Fig.6]	Washer
[3, Fig.6]	Caliper
[4, Fig.6]	Pressure Plate
[5, Fig.6]	Backplates
[6, Fig.6]	Wheel Assembly
[7, Fig.6]	Castellated Nut
[8, Fig.6]	Washer
[9, Fig.6]	Screw
[10, Fig.6]	Dust Shield
[11, Fig.6]	Cotter Pin
[12, Fig.6]	Axle
[13, Fig.6]	Brake Torque Plate

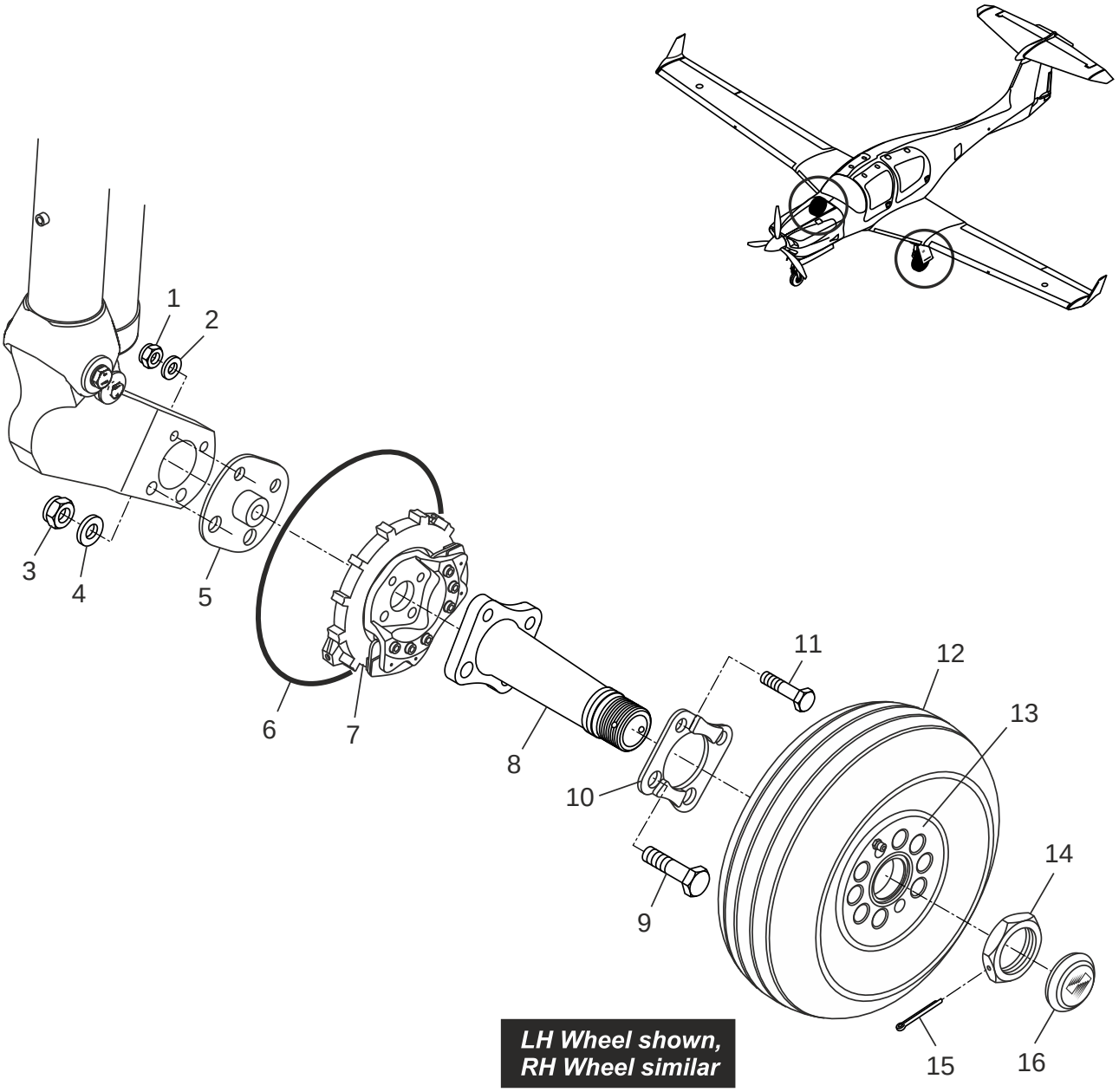


Figure 7 - MLG Wheel Assy (if OÄM 50-005 is installed)

Legend

[1, Fig.7]	Nut
[2, Fig.7]	Washer
[3, Fig.7]	Nut
[4, Fig.7]	Washer
[5, Fig.7]	Plug
[6, Fig.7]	Safety Wire
[7, Fig.7]	Brake Assy
[8, Fig.7]	Axle
[9, Fig.7]	Screw
[10, Fig.7]	Main Axle Washer
[11, Fig.7]	Screw
[12, Fig.7]	Tire
[13, Fig.7]	Wheel Assy
[14, Fig.7]	Axle Nut
[15, Fig.7]	Cotter Pin
[16, Fig.7]	Wheel Cap

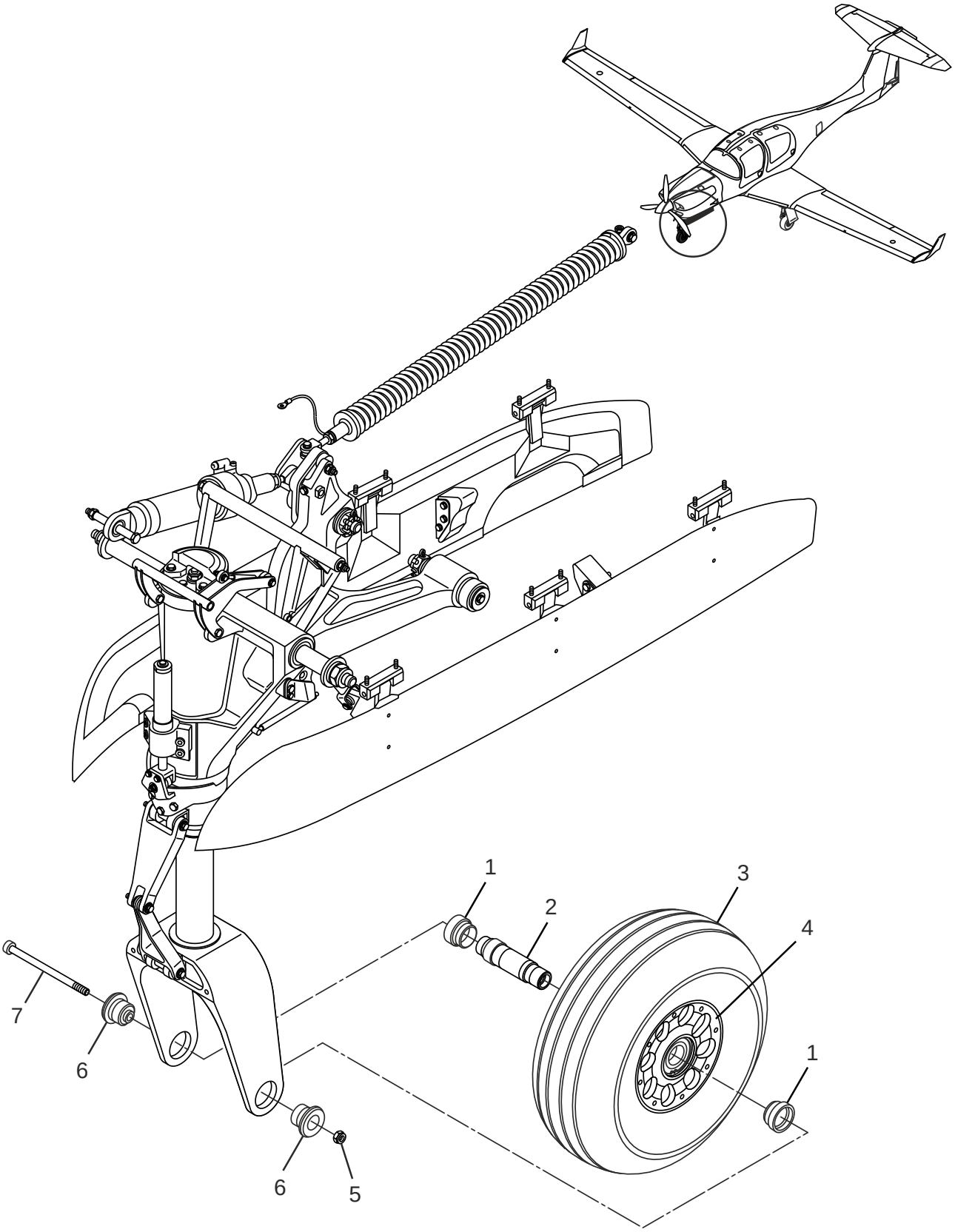


Figure 8 - NLG Wheel Assy (if OÄM 50-005 is installed)

Legend

[1, Fig.8]	Bearing Spacer
[2, Fig.8]	Nose Wheel Axle
[3, Fig.8]	Tyre
[4, Fig.8]	Nose Wheel Assy
[5, Fig.8]	Self-Locking Nut
[6, Fig.8]	Axle End
[7, Fig.8]	Bolt

32-40-02 Brake System

Description

1. Brake System

Wheels and brakes - Description Figure 4 shows the brake system functional diagram.

A. Wheel Brakes

Hydraulically operated disk brakes act on the wheels of the main landing gear. The wheel brakes are individually operated by means of toe pedals.

B. Parking Brake

The lever is located on the small center console under the instrument panel on the left side of the power lever and is in the upper position when the brakes are set. To operate the parking brake, push the toe pedals and then pull the lever upwards until it catches. To release the parking brake, push again on the toe brake pedals, while unlocking the lever and pushing it forward.

32-40-03 Wheels and brakes

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Too much wheel run-out.

NOTE

If OÄM 50-005 is installed, further troubleshooting guidance can be found in Beringer Aero Maintenance Manuals SM-01, SM-02 and SM-03.

1A. Check the wheel bearings.

Is/are the wheel bearing(s) defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the defective wheel bearing(s).

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Brake disk damaged.

NOTE

If OÄM 50-005 is installed, further troubleshooting guidance can be found in Beringer Aero Maintenance Manuals SM-01, SM-02 and SM-03.

2A. Check the aircraft logbooks.

Has there been a hard landing?

Yes - go to step 2C.

No - go to step 2B.

2B. *Has there been excessive braking?*

Yes - go to step 2D.

No - go to step 2E.

2C. Replace damaged brake disk(s). Do a hard landing inspection.

2D. Replace brake disk(s).

2E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Brake(s) do not operate.

NOTE

If OÄM 50-005 is installed, further troubleshooting guidance can be found in Beringer Aero Maintenance Manuals SM-01, SM-02 and SM-03.

3A. Check the brake fluid level.

Is there no brake fluid?

Yes - go to step 3B.

No - go to step 3C.

3B. Examine the brake system. Look specially for leaks. Repair/replace defective components. Fill the brake reservoir(s) with brake fluid.

3C. Examine the brake system.

Is air trapped in the brake system?

Yes - go to step 3D.

No - go to step 3E.

3D. Bleed the brake system.

3E. Examine the master cylinder. Look specially for leaks. Do a test for the correct operation of each master cylinder.

Is the master cylinder defective?

Yes - go to step 3F.

No - go to step 3G.

3F. Replace defective master cylinder(s).

3G. Examine the brake caliper. Look specially for leaks and for a piston that is seized.

Is the brake caliper defective?

Yes - go to step 3H.

No - go to step 3I.

3H. Repair/replace the caliper.

3I. Examine the brake friction linings.

Are the brake friction linings worn excessively?

Yes - go to step 3J.

No - go to step 3K.

3J. Replace the brake friction linings.

3K. Check the brake hose connector.

Is the brake hose connector leaking?

Yes - go to step 3L.

No - go to step 3M.

3L. Tighten/replace leaking connectors.

3M. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Parking brake does not operate correctly.

NOTE

If OÄM 50-005 is installed, further troubleshooting guidance can be found in Beringer Aero Maintenance Manuals SM-01, SM-02 and SM-03.

4A. Examine the parking brake valve operating cable.

Is the parking brake valve operating cable out of adjustment?

Yes - go to step 4B.

No - go to step 4C.

4B. Adjust the parking brake valve operating cable.

4C. Examine the parking brake valve.

Is the parking brake valve defective?

Yes - go to step 4D.

No - go to step 4E.

4D. Replace parking brake valve.

4E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

SensAIR does not operate correctly.

5A. If OÄM 50-066 is installed, further trouble shooting guidance can be found in Beringer Aero SensAIR Servicing Manual SM-08.

32-40-04 Main Wheels

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT LIFT THE AIRPLANE ON JACKS IN THE OPEN IF THE WIND SPEED IS MORE THAN 10 KM/H (6 KNOTS).

WARNING

TAKE PRECAUTIONS BY SECURING THE AREA AROUND THE AIRPLANE BEFORE YOU PERFORM MAINTENANCE ON THE LANDING GEAR. THE LANDING GEAR RETRACTION SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS IF OPERATED ACCIDENTALLY.

3. Main Procedure

A. Remove a Main Wheel

If OÄM 50-005 is installed, refer to Beringer Aero Servicing Manual SM-02.

(1) Lift the airplane on jacks. Refer to 07-10 Jacking - Jacking

(2) Pull the GEAR circuit breaker. Right side of instrument panel.

CAUTION

MAKE SURE THAT THE PARKING BRAKE IS SET TO RELEASE BEFORE YOU RELEASE THE BRAKE CALIPER.

CAUTION

DO NOT STRAIN THE BRAKE HOSE. YOU CAN CAUSE DAMAGE TO THE BRAKE HOSE AND CAUSE BRAKE FAILURE.

(3) Release the brake caliper:

- Remove the 4 bolts that attach the backplates to the caliper.
- Move the back-plates clear of the wheel disk. Do NOT remove the brake caliper from the torque plate.

(4) Examine the wheel. Make sure that the wheel turns smoothly.

(5) Remove the wheel from the axle:

- Remove the dust shield.
- Remove the cotter pin from the castle nut.
- Remove the castle nut that holds the wheel to the axle.
- Pull the wheel off the axle and clear of the airplane.

(6) Examine the wheel bearings:

- Examine the wheel bearings for contamination. Look specially for sand, dust or similar contaminants.
- Look for damage to the bearings. Signs of overheating or scoring. Replace damaged bearings.
- Turn the bearing slowly and listen for noise that may indicate wear to the bearings. Make sure that the bearing turns freely and quietly. Replace damaged bearings.

32-40-05 Main Wheels

Disassemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DEFLATE THE TIRE COMPLETELY BEFORE YOU DISASSEMBLE THE WHEEL. IF YOU DO NOT DEFLATE THE TIRE COMPLETELY BEFORE YOU DISASSEMBLE THE WHEEL YOU MAY GET INJURED.

3. Main Procedure

A. Disassemble the Main Wheel

(1) Remove the wheel from the airplane. Refer to 32-40 Main Wheels - Remove procedure

(2) Deflate the tire.

(3) Remove the bolts that hold the 2 halves of the hub together. Refer to 32-40 Wheels and brakes - Description.

(4) Remove the brake disk from the wheel.

(5) Remove the hubs from the tire.

(6) Remove the inner tube from the tire.

(7) Remove the bearings from each hub of the wheel:

- Remove the snap ring.
- Remove the grease seals from the hub. Note the order of the seals.
- Remove the bearing cones. Refer to Cleveland/Parker Maintenance Manual, latest revision.

(8) Examine the wheel hubs, brake disc and the bearings for wear/damage. Refer to Cleveland/ Parker Maintenance Manual, latest revision.

32-40-06 Main Wheels

Assemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Assemble Main Wheel

(1) Install the bearings into each half of the wheel hub:

- Make sure that the hub is clean.
- Grease and install the bearing cones. Refer to Cleveland/Parker Maintenance Manual, latest revision.
- Install the grease seals. In the order note in 32-40 Main Wheels - Disassemble procedure step A.7.
- Install the snap ring.

(2) Move the inner tube into position in the tire.Refer to Goodyear Tire Care and Maintenance Manual. Prior to mounting make sure tire bead is clean. Apply talcum powder to the outside of the inner tube. Align valve on tube with red balance dot on tire.

(3) Assemble the main wheel:

- Move the main wheel hubs into position in the tire.
- Move the brake disk into position at the inner hub.
- Install the bolts that attach the brake disk and the 2 hub halves.
- Install the washers and nuts onto the bolts. Torque according to Cleveland/Parker Maintenance Manual, latest revision or placard on rim.

(4) Inflate the tire. Refer to 12-10 Tires - Fill with air.

(5) Paint a red slip mark on the tire and on the hub.

(6) Install the wheel on to the airplane. Refer to 32-40 Main Wheels - Install procedure.

32-40-07 Main Wheels

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	2
Wing trestles	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Main Wheel

(1) Install the wheel:

- Make sure that the axle is clean.
- Move the wheel into position on the axle.
- Install the castle nut. Tighten the castle nut with 17 - 23 Nm (12 - 17 lbf.ft.) during turning the wheel. Thereafter untighten it completely. Repeat fastening with min 5 Nm (3.7 lbf.ft.). Then tighten the wheel nut until split pin fits into next drillhole.
  If OÄM 50-005 is installed, tighten the castle nut with 35 Nm (22.1 lbf.ft).
  Refer to 20-10 Special Torque Values - Description.
- Install the cotter pin.

(2) Make sure that the wheel turns freely and with no noise. No perceptible play in the bearings allowed.

(3) Move the caliper into position at the wheel. Make sure that the mounting spigots engage with the locating bushes of the torque plate. Make sure that the pressure plate is correctly located within the caliper.

(4) Install the back-plates:

- Move the back-plates into position at the caliper.
- Install the 4 bolts and washers that attach the back-plates to the caliper, finger tight.
- Make sure that the wheel brake disk can rotate freely between the caliper pressure plate and the back-plates.
- Tighten the bolts that attach the back-plates to the caliper. Torque according to Cleveland/Parker Maintenance Manual, latest revision or placard on caliper.

(5) Install dust shield.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

CAUTION

MAKE SURE THAT THE LANDING GEAR IS LOCKED DOWN BEFORE YOU LOWER THE AIRPLANE WITH THE JACKS.

(6) Reset the GEAR circuit breaker and make sure that the landing gear selector is set to DOWN.

(7) If a tire/wheel change is performed check minimum clearance between MLG tire and the lower wing shell / wheel bay cut-out. Refer to 32-10 Main Landing Gear - Adjust, align and calibrate

(8) Carry out a test of the correct operation of the landing gear retraction and extension system. Refer to 32-30 Normal Operation - Test and inspection

(9) Move the wing and fuselage trestles clear of the airplane.

(10) Lower the airplane with the jacks. Make sure that the area around the airplane is clear.

32-40-08 Nose Wheel

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	2
Wing trestles	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Nose Wheel

If OÄM 50-005 is installed, refer to Beringer Aero Servicing Manual SM-02.

(1) Raise the nose of the airplane on an airplane jack. Move the wing and rear fuselage trestle into position to steady the airplane.

(2) Examine the wheel. Make sure that the wheel can turn easily and quietly.

(3) Remove the nose wheel form the airplane:

- Remove the nut and washer that holds the axle bolt in the wheel fork.
- Remove the axle bolt and flanged bushes. Support the nose wheel.
- Move the nose wheel clear of the airplane.
- Remove and retain the spacers and tubular axle from the wheel.

(4) Examine the wheel bearings:

- Examine the wheel bearings for contamination. Look specially for sand, dust or similar contaminants.
- Look for damage to the bearings. Signs of overheating or scoring. Replace damaged bearings.

- Turn the bearing slowly and listen for noise that may indicate wear of the bearings. Make sure that the bearing turns freely and quietly. Replace damaged bearings.

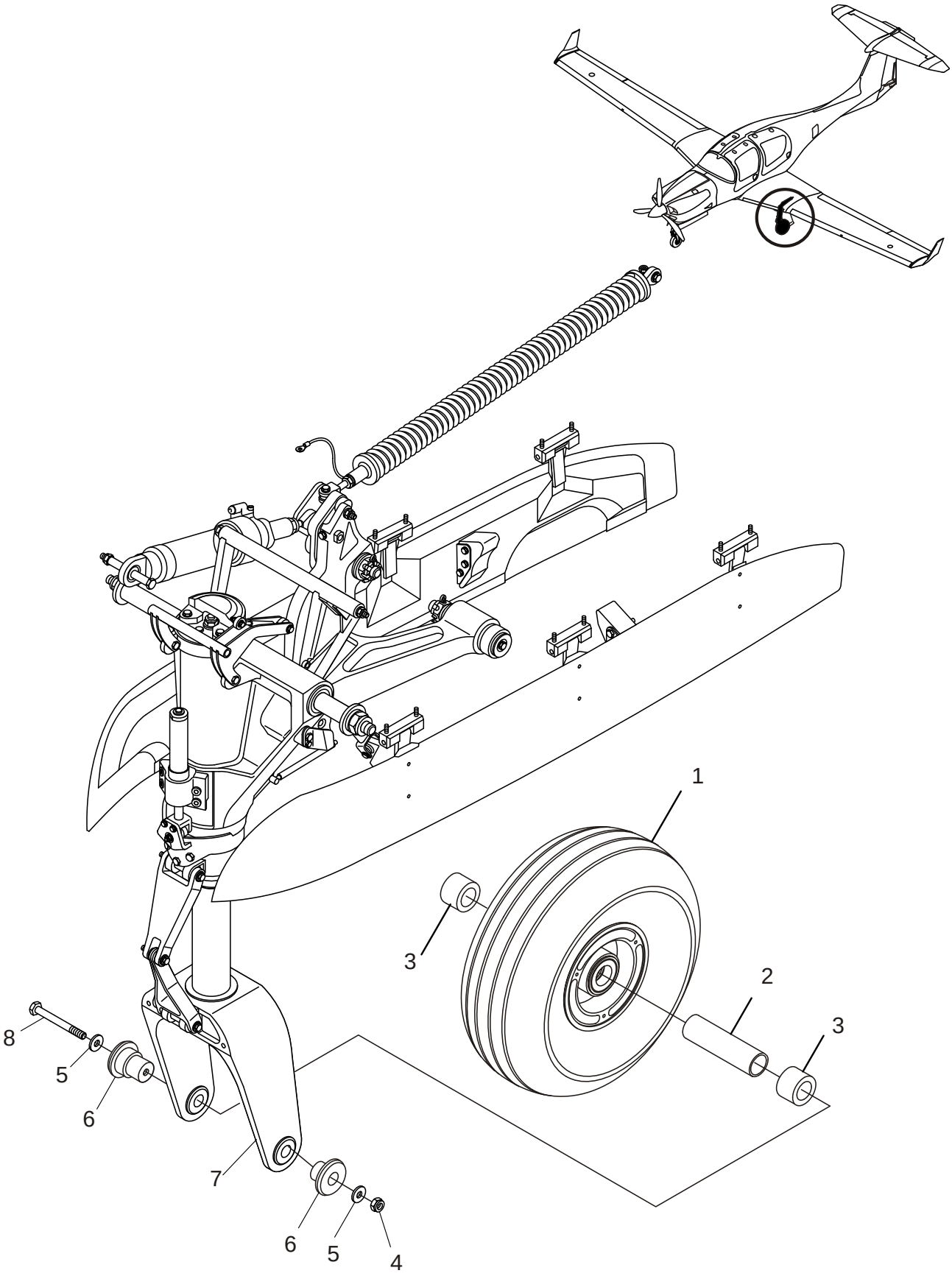


Figure 9 - Remove/Install the Nose Wheel

Legend

[1, Fig.9] Wheel Assembly
[2, Fig.9] Axle
[3, Fig.9] Spacer
[4, Fig.9] Nut
[5, Fig.9] Washer
[6, Fig.9] Flanged Bush
[7, Fig.9] Wheel Fork
[8, Fig.9] Bolt

32-40-09 Nose Wheel

Disassemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DEFLATE THE TIRE COMPLETELY BEFORE YOU DISASSEMBLE THE WHEEL. IF YOU DO NOT DEFLATE THE TIRE COMPLETELY BEFORE YOU DISASSEMBLE THE WHEEL YOU MAY GET INJURED.

3. Main Procedure

A. Disassemble the Nose Wheel

(1) Remove the wheel from the airplane. Refer to 32-40 Nose Wheel - Remove procedure

(2) Deflate the tire.

(3) Remove the bolts that hold the 2 halves of the hub together.

(4) Remove the hubs from the tire.

(5) Remove the inner tube from the tire.

(6) Remove the bearings from each hub of the wheel:

- Remove the snap ring.
- Remove the grease seals from the hub. Note the order of the seals.
- Remove the bearing cones. Refer to Cleveland/Parker Maintenance Manual, latest revision.

(7) Examine the wheel hubs and bearings for wear/damage. Refer to Cleveland/Parker Maintenance Manual, latest revision.

32-40-10 Nose Wheel

Assemble procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Assemble Nose Wheel

(1) Install the bearings into each half of the wheel hub:

- Make sure that the hub is clean.
- Grease and install the bearing cones. Refer to Cleveland/Parker Maintenance Manual, latest revision.
- Install the grease seals. In the order note in 32-40 Nose Wheel - Disassemble procedure step A.6).
- Install the snap ring.

(2) Move the inner tube into position in the tire. Refer to Goodyear Tire Care and Maintenance Manual. Prior to mounting make sure tire bead is clean. Apply talcum powder to the outside of the inner tube. Align valve on tube with red balance dot on tire.

(3) Assemble the nose wheel:

- Move the nose wheel hubs into position in the nose tire.
- Install the bolts, washers and nuts that hold the hub halves. Torque according to Cleveland/Parker Maintenance Manual, latest revision or placard on rim.

(4) Inflate the tire. Refer to 12-10 Tires - Fill with air.

(5) Paint a red slip mark on the tire and on the hub.

(6) Install the wheel on to the airplane. Refer to 32-40 Nose Wheel - Install procedure.

32-40-11 Nose Wheel

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	2
Wing trestles	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Nose Wheel

If OÄM 50-005 is installed, refer to Beringer Aero Servicing Manual SM-02.

(1) Install the wheel:

- Make sure that the tubular axle is clean and install the axle into the wheel.
- Install the spacer bushes on the tubular axle.
- Move the wheel into position in the fork.
- Install the flanged bushes.
- Install the axle bolt with washer through the fork and wheel.
  Wet installation with CA1000.
- Install the washer and nut that holds the axle bolt into the fork. Tighten the nut with 14 - 19 Nm (10.3 - 14.0 lbf.ft) during turning the wheel. Value includes friction. Thereafter untighten it. Repeat fastening with 14 - 19 Nm (10.3 - 14.0 lbf.ft).Value includes friction.
  If OÄM 50-005 is installed: Install the washer and nut that holds the axle bolt into the fork. Tighten the nut with 20 Nm (18.4 lbf.ft).
  Refer to 20-10 Special Torque Values - Description.

(2) Make sure that the wheel turns freely and with no noise. No perceptible play in the bearings allowed.

(3) Make sure that the nose gear leg is locked down.

(4) Move the wing trestles and rear fuselage trestles clear of the airplane.

(5) Lower the nose of the airplane with the jack.

32-40-12 Brake System

Bleed

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Hydraulic bleeding equipment	Commercial	1
Syringe for hydraulic fluid	Commercial	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Hydraulic fluid	MIL-PRF-87257 (for example, Castrol Brayco Micronic 881)	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

RELEASE PRESSURE FROM THE WHEEL BRAKE SYSTEM BEFORE YOU DO WORK ON THE SYSTEM. HYDRAULIC FLUID AT HIGH PRESSURE CAN PENETRATE YOUR SKIN AND CAUSE DISEASE.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

NOTE

Put caps on all open hydraulic connections to prevent contamination.

NOTE

Put a container below a connection before you release the connection to catch spilt hydraulic fluid.

NOTE

If you open a brake system connection you must bleed the brake system after you have reconnected it.

3. Main Procedure

A. Bleed the Wheel Brake System

(1) Remove the cap from the brake fluid reservoir. If necessary remove fluid until the fluid level is at MINIMUM. On the co-pilot's brake pedals. Use a syringe.

(2) Set the parking brake to RELEASE. At the center console.

(3) Connect the brake bleeding tool to the caliper:

- Remove the blanking cap from the left brake caliper bleed nipple.
- Connect the outlet hose of the hydraulic bleeding tool to the bleed nipple of the left brake caliper.

(4) Bleed the left brake system:

- Open the bleed nipple on the brake caliper a small amount until fluid flows from the bleeding tool into the airplane brake system. Monitor the level of fluid in the left brake fluid reservoir. If necessary use a syringe to remove brake fluid.
- Let hydraulic fluid continue to flow into the airplane brake system until no more air bubbles can be seen in the airplane reservoir.
- Close the bleed nipple on the brake caliper.
- Disconnect the outlet hose of the bleeding tool from the nipple of the brake caliper.
- Install the blanking cap onto the nipple.

(5) Do steps step A.(3) and step A.(4) for the right wheel brake system.

(6) Make sure that both brake fluid reservoirs are filled to the correct level. The MAXIMUM line on the reservoir.

(7) Install both the left and right reservoir caps onto the reservoirs. Use "vented caps".

(8) Do a test for the correct operation of the wheel brake systems.

32-40-13 Brake Master Cylinder

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Hydraulic bleeding equipment	Commercial	1
Syringe for hydraulic fluid	Commercial	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Hydraulic fluid	MIL-PRF-87257 (for example, Castrol Brayco Micronic 881)	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

RELEASE PRESSURE FROM THE WHEEL BRAKE SYSTEM BEFORE YOU DO WORK ON THE SYSTEM. HYDRAULIC FLUID AT HIGH PRESSURE CAN PENETRATE YOUR SKIN AND CAUSE DISEASE.

WARNING

ALWAYS WEAR SAFETY GLASSES.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

NOTE

Put caps on all open hydraulic connections to prevent contamination.

NOTE

Put a container below a connection before you release the connection to catch spilt hydraulic fluid.

NOTE

If you open a brake system connection you must bleed the brake system after you have reconnected it.

3. Main Procedure

A. Remove a Brake Master Cylinder

(1) If necessary, remove the brake fluid reservoir: Co-pilot's pedals only.

- Remove the hose from lower hydraulic connection. Use a container to catch spilt fluid.
- Remove the reservoir from the top hydraulic connection. Put caps on all open connections.

(2) Disconnect the hoses from the upper and lower hydraulic connection. Pilot's pedals only. Use a container to catch spilt fluid. Put caps on all open connections.

(3) Remove the upper clevis pin:

- Remove the cotter pin from the clevis pin.
- Remove the washer.
- Remove the clevis pin.

(4) Release the master cylinder from the lower mounting spindle:

- Remove the cotter pin from the mounting spindle.
- Remove the washer.
- Move the master cylinder clear of the pedal assembly.
- Remove and retrain the spacer from the lower mounting spindle.

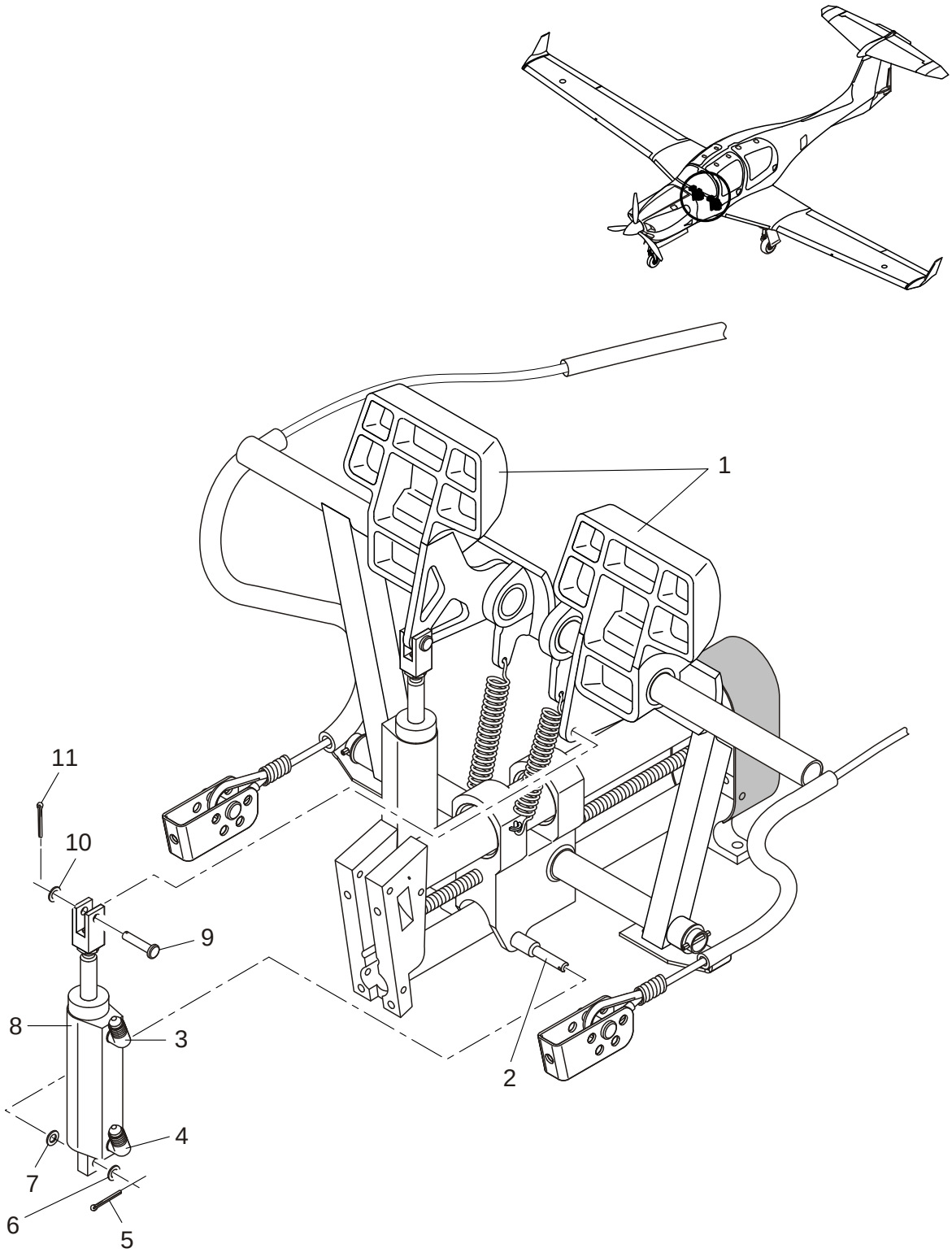


Figure 10 - Brake Master Cylinder Installation

Legend

[1, Fig.10]	Brake Pedals
[2, Fig.10]	Lower Mounting Spindle
[3, Fig.10]	Upper Hydraulic/Reservoir Connection
[4, Fig.10]	Lower Hydraulic Connection
[5, Fig.10]	Lower Cotter Pin
[6, Fig.10]	Washer
[7, Fig.10]	Spacer
[8, Fig.10]	Brake Master Cylinder
[9, Fig.10]	Top Clevis Pin
[10, Fig.10]	Washer
[11, Fig.10]	Upper Cotter Pin

32-40-14 Brake Master Cylinder

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Hydraulic bleeding equipment	Commercial	1
Syringe for hydraulic fluid	Commercial	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Hydraulic fluid	MIL-PRF-87257 (for example, Castrol Brayco Micronic 881)	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

RELEASE PRESSURE FROM THE WHEEL BRAKE SYSTEM BEFORE YOU DO WORK ON THE SYSTEM. HYDRAULIC FLUID AT HIGH PRESSURE CAN PENETRATE YOUR SKIN AND CAUSE DISEASE.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

NOTE

Put caps on all open hydraulic connections to prevent contamination.

NOTE

Put a container below a connection before you release the connection to catch spilt hydraulic fluid.

NOTE

If you open a brake system connection you must bleed the brake system after you have reconnected it.

3. Main Procedure

A. Install a Brake Master Cylinder

(1) Move the master cylinder into position at the brake pedal assembly.

(2) Install the master cylinder onto the lower mounting spindle:

- Install the spacer onto the lower mounting spindle.
- Move the master cylinder into position on the mounting spindle.
- Install the washer.
- Install the cotter pin.

(3) Install the upper clevis pin:

- Align the top of the master cylinder with the mounting on the brake pedal.
- Install the upper clevis pin.
- Install the washer onto the clevis pin.
- Install the cotter pin.

(4) Install the hose onto the lower hydraulic connection on the master cylinder. Make sure that all blanking caps are removed.

(5) Install the hose onto the upper hydraulic connection on the master cylinder. Pilot's pedals only. Make sure that all blanking caps are removed.

(6) Install the hydraulic reservoir onto the upper hydraulic connection of the master cylinder. Co-pilot's pedals only. Make sure that all blanking caps are removed.

(7) Bleed the brake system. Refer to 32-40 Brake System - Bleed

(8) Do a test for the correct operation of the brake system.

32-40-15 Parking Brake Valve

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

RELEASE PRESSURE FROM THE WHEEL BRAKE SYSTEM BEFORE YOU DO WORK ON THE SYSTEM. HYDRAULIC FLUID AT HIGH PRESSURE CAN PENETRATE YOUR SKIN AND CAUSE DISEASE.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

NOTE

Put caps on all open hydraulic connections to prevent contamination.

NOTE

Put a container below a connection before you release the connection to catch spilt hydraulic fluid.

NOTE

If you open a brake system connection you must bleed the brake system after you have reconnected it.

3. Main Procedure

A. Remove the Parking Brake Valve

(1) Open the cover in the center console.

(2) Disconnect the actuation rod:

- Remove the safety clip and then pull the rod clear of the ball fitting.

(3) Remove the 2 nuts, bolts and washers that attach the parking brake valve to its mounting.

(4) Disconnect the 4 brake hoses from the parking brake valve. Use a suitable container to catch spilt fluid. Install blanking caps on all open connections.

(5) Move the valve clear of the airplane.

32-40-16 Parking Brake Valve

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

RELEASE PRESSURE FROM THE WHEEL BRAKE SYSTEM BEFORE YOU DO WORK ON THE SYSTEM. HYDRAULIC FLUID AT HIGH PRESSURE CAN PENETRATE YOUR SKIN AND CAUSE DISEASE.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

NOTE

Put caps on all open hydraulic connections to prevent contamination.

NOTE

Put a container below a connection before you release the connection to catch spilt hydraulic fluid.

NOTE

If you open a brake system connection you must bleed the brake system after you have reconnected it.

3. Main Procedure

A. Install the Parking Brake Valve

(1) Connect the 4 brake hoses to the parking brake valve. Remove all blanking caps.

(2) Move the parking brake valve into position by its mounting.

(3) Install the 2 bolts, washers, toothed washers and nuts that attach the parking brake valve to its mounting. Use new self locking nuts.

Do not forget to reinstall the bonding wire.

(4) Connect the actuation rod to the parking brake valve:

- Push the rod onto the ball-end fitting.
- Install the safety clip onto the end of the operating rod.

(5) Bleed the brake system. Refer to 32-40 Brake System - Bleed

(6) Do a test for the correct operation of the parking brake system:

- Push and hold both brake pedals on the pilot's rudder pedal assembly.
- Set the PARKING BRAKE to PARK.
- Both wheel brakes must stay on.
- Set the PARKING BRAKE to RELEASE.
- Both wheel brakes must release.

(7) Install the cover in the center console.

32-40-17 Brake Caliper

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE PARKING BRAKE IS SET TO RELEASE BEFORE YOU DISCONNECT THE HYDRAULIC HOSE TO THE BRAKE CALIPER. HYDRAULIC FLUID AT HIGH PRESSURE CAN PENETRATE YOUR SKIN AND CAUSE DISEASE.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

NOTE

Put caps on all open hydraulic connections to prevent contamination.

NOTE

Put a container below a connection before you release the connection to catch spilt hydraulic fluid.

NOTE

If you open a brake system connection you must bleed the brake system after you have reconnected it.

3. Main Procedure

A. Remove a Brake Caliper

If OÄM 50-005 is installed, refer to Beringer Aero Servicing Manual SM-01.

(1) Disconnect the brake hose from the brake caliper. Use a suitable container to catch spilt fluid. Put blanking caps on all open connectors.

CAUTION

DO NOT OPERATE THE BRAKES WHILE THE CALIPER BACK PLATES ARE REMOVED OR THE CALIPER IS REMOVED FROM THE AIRPLANE. IF YOU DO OPERATE THE BRAKES, THE PISTONS BE PUSHED OUT FROM THE CYLINDERS.

(2) Remove the backing plates from the brake caliper:

- Remove the 4 bolts and washers that attach the backing plate to the brake caliper.
- Remove the backing plates.

(3) Move the caliper inboard until the anchor pins are clear of the torque plate, then move the caliper clear of the airplane. Retain the pressure plate with the caliper.

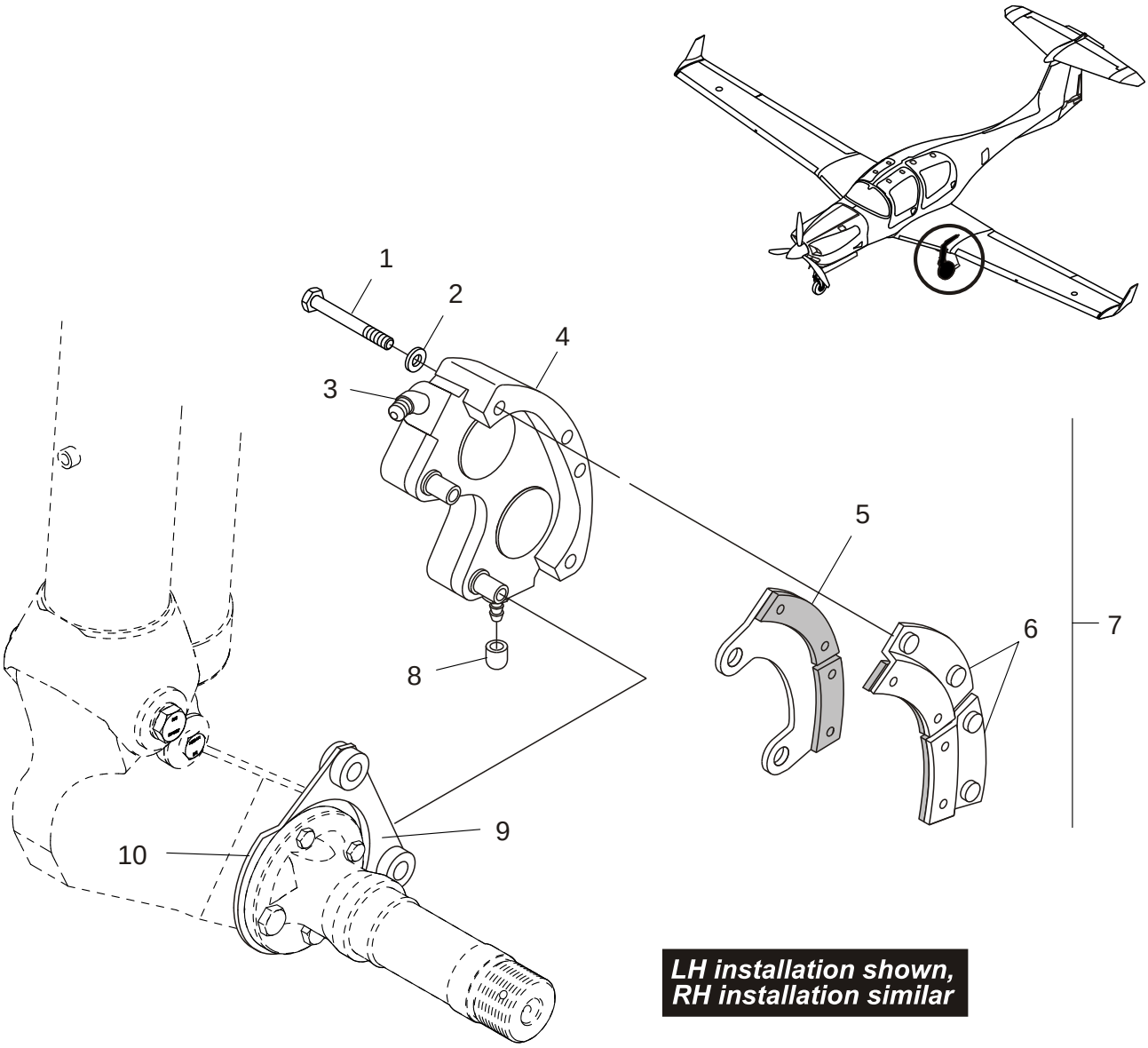


Figure 11 - Brake Caliper Installation

Legend

[1, Fig.11]	Back Plate Attaching Bolt
[2, Fig.11]	Washer
[3, Fig.11]	Brake Hose Connector
[4, Fig.11]	Caliper
[5, Fig.11]	Pressure Plate
[6, Fig.11]	Back Plates
[7, Fig.11]	Brake Caliper Assembly
[8, Fig.11]	Bleed Nipple
[9, Fig.11]	Brake Torque Plate
[10, Fig.11]	Shim

32-40-18 Brake Caliper

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE PARKING BRAKE IS SET TO RELEASE BEFORE YOU DISCONNECT THE HYDRAULIC HOSE TO THE BRAKE CALIPER. HYDRAULIC FLUID AT HIGH PRESSURE CAN PENETRATE YOUR SKIN AND CAUSE DISEASE.

WARNING

DO NOT GET HYDRAULIC FLUID ON YOUR SKIN. HYDRAULIC FLUID CAN CAUSE SKIN DISEASE. IT CAN ALSO DAMAGE CLOTHING.

CAUTION

CLEAN OFF SPILT HYDRAULIC FLUID IMMEDIATELY. HYDRAULIC FLUID CAN DAMAGE THE AIRPLANE STRUCTURE. IT CAN ALSO REMOVE THE PAINT FROM SOME COMPONENTS.

NOTE

Put caps on all open hydraulic connections to prevent contamination.

NOTE

Put a container below a connection before you release the connection to catch spilt hydraulic fluid.

NOTE

If you open a brake system connection you must bleed the brake system after you have reconnected it.

3. Main Procedure

A. Install the Brake Caliper

(1) Make sure that the friction linings on both the pressure plate and the back-plate are in good condition. Refer to Cleveland/Parker Maintenance Manual, latest revision.

(2) Make sure that the anchor pins on the caliper are clean.

(3) Make sure that the anchor pin locating bushes on the brake torque plate are clean.

(4) Move the caliper into position at the wheel. Make sure that the anchor pins engage with the locating bushes of the torque plate. Make sure that the pressure plate is correctly located within the caliper.

(5) Install the back-plates:

- Move the back-plates into position at the caliper.
- Install the 4 bolts and washers that attach the back-plates to the caliper, finger tight.
- Make sure that the wheel brake disk can rotate freely between the caliper pressure plate and the back-plates.
- Tighten the bolts that attach the back-plates to the caliper. Torque according to Cleveland/Parker Maintenance Manual, latest revision or placard on caliper.

(6) Connect the hydraulic brake hose to the connection on the caliper.

(7) Bleed the brake system. Refer to 32-40 Brake System - Bleed.

(8) Do a test for the correct operation of the brake system.

32-40-19 Brake Friction Linings

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Nomenclature	Identification No.	Qty
Cleveland brake friction linings for Brake Caliper 30-233E	Cleveland 066-15500	4 per brake

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT BREATHE THE DUST FROM BRAKE LININGS. THE DUST CAN CAUSE DISEASE.

CAUTION

MAKE SURE THAT THE PARKING BRAKE IS SET TO RELEASE BEFORE YOU RELEASE THE BRAKE CALIPER BACK-PLATE.

NOTE

For detailed instructions refer to Cleveland/Parker Maintenance Manual, latest revision.

NOTE

For brake component limits refer to Cleveland/Parker Maintenance Manual, latest revision.

3. Main Procedure

A. Remove the Brake Friction Linings.

If OÄM 50-005 is installed, refer to Beringer Aero Servicing Manual SM-01.

(1) Remove the brake caliper from the wheel assembly. Refer to 32-40 Brake Caliper - Remove procedure.

Do not disconnect the brake hose from the caliper.

(2) Remove the pressure plate from the caliper.

(3) Remove the brake friction lining from the pressure plate by prying off with screw driver. Check lining attachment pins for damage.

(4) Remove the brake friction linings from the back plates by prying off with screw driver. Check lining attachment pins for damage.

32-40-20 Brake Friction Linings

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Nomenclature	Identification No.	Qty
Cleveland brake friction linings for Brake Caliper 30-233E	Cleveland 066-15500	4 per brake

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT BREATHE THE DUST FROM BRAKE LININGS. THE DUST CAN CAUSE DISEASE.

CAUTION

MAKE SURE THAT THE PARKING BRAKE IS SET TO RELEASE BEFORE YOU RELEASE THE BRAKE CALIPER BACK-PLATE.

NOTE

For detailed instructions refer to Cleveland/Parker Maintenance Manual, latest revision.

NOTE

For brake component limits refer to Cleveland/Parker Maintenance Manual, latest revision.

3. Main Procedure

A. Install the Brake Friction Linings

(1) Install the new friction linings onto the pressure plate and the back-plates. Use only approved parts. Check lining attachment pins for tight fit to the linings.

(2) Install the pressure plate into the caliper.

(3) Install the brake caliper. Refer to 32-40 Brake Caliper - Install procedure

(4) Do a test for the correct operation of the airplane braking system:

- Perform conditioning procedure for metallic brake linings.

32-60
POSITION AND WARNING

32-60-01 Position and warning

Description

1. Description

The landing gear position and warning system has these functions:

- Landing gear control.
- Landing gear position.
- Landing gear warning.
- To give position data for the extension and retraction system.

The system has these components:

- A cockpit selector handle and indicators. The cockpit selector handle controls the position of the landing gear. The indicators show the position/condition of the landing gear legs.
- Switches that sense 'weight-on-wheels'.
- Switches that sense 'folding-stay locked'.
- Switches that sense 'landing gear retracted'.
- Switches that sense the position of the engine power lever.
- Control relays and circuit breakers.

Figure 1 shows the landing gear electrical system schematic diagram.

A. Landing Gear Selector

The landing gear selector is in the middle of the instrument panel. The gear selector has a handle and can be set to UP or DOWN. Next to the gear selector are three green indicators and a red indicator. There is also a momentary toggle type TEST switch. Each landing gear has a related green indicator. The green indicators will light if all the landing gear legs are down and locked when the gear selector is set to DOWN. The green indicators will not light if all the landing gear legs are fully up when the gear selector is set to UP. During the movement of the legs during extension or retraction the red UNSAFE indicator will light and the green indicators will be off.

The red indicator will stay lit if one, or more, of the landing gear legs has not fully retracted when the selector has been set to UP. The red indicator will stay lit if one, or more, of the landing gear legs has not fully locked down when the selector has been set to DOWN. The related leg green indicator will also not be lit.

Activate the TEST switch to make sure that the red and green indicators are serviceable and to test the landing gear audible warning horn.

B. Weight-on-Wheels Switches

The LH main landing gear leg has a weight-on-wheel switch (squat switch). When the airplane is on the ground the weight of the airplane causes the trailing arm to move up and compress the damper. This movement of the trailing arm causes the weight-on-wheels switch to open. With these switches open the electrical power to the solenoid valves of the hydraulic supply and control system is isolated. This over-rides the position of the landing gear selector handle and selects the landing gear to the DOWN position when the airplane is on the ground.

C. Folding-Stay Switches

Each landing gear leg has a folding-stay. When the landing gear leg is fully down the folding-stay will lock in the unfolded position to hold the leg locked down. When the folding-stay is locked the related folding-stay switch (LDG GEAR DOWN) is closed and an electrical ground is supplied for the related green indicator. The green indicator for the related gear leg will be illuminated.

D. Landing Gear Retracted Switches

Each landing gear leg has landing gear retracted switch (LDG GEAR UP) located in the top of the landing gear bay. When the landing gear has fully retracted the switch will open and isolate the electrical ground for the red UNSAFE indicator. If all three switches are open the red UNSAFE indicator will not be illuminated.

E. Engine Power Lever Switches

A switch senses the position of the engine power lever. When the engine power lever is moved towards the IDLE position the engine power lever switch closes. If the switch is closed and the GEAR selector is set to UP the landing gear audible warning horn will operate. If the engine power lever is moved towards TAKE-OFF or the GEAR selector is set to DOWN the audible warning horn will not operate.

F. Control Relay and Circuit Breakers

The position and warning system has these relays and circuit breakers:

- UNSAFE control relay. The UNSAFE control relay is energized when the GEAR selector is set to DOWN. When energized the relay gives an electrical ground for the red UNSAFE indicator through the folding stay switch in the OPEN position (folding-stay not locked). When the GEAR selector is set to UP the relay is de-energized. The de-energized relay gives an electrical ground for the red UNSAFE indicator through the landing gear retracted switches in the CLOSED position (landing gear not retracted).
- The GEAR and GEAR ANNUN. circuit breakers give circuit protection to the UNSAFE control relay and the position indicating and warning systems.

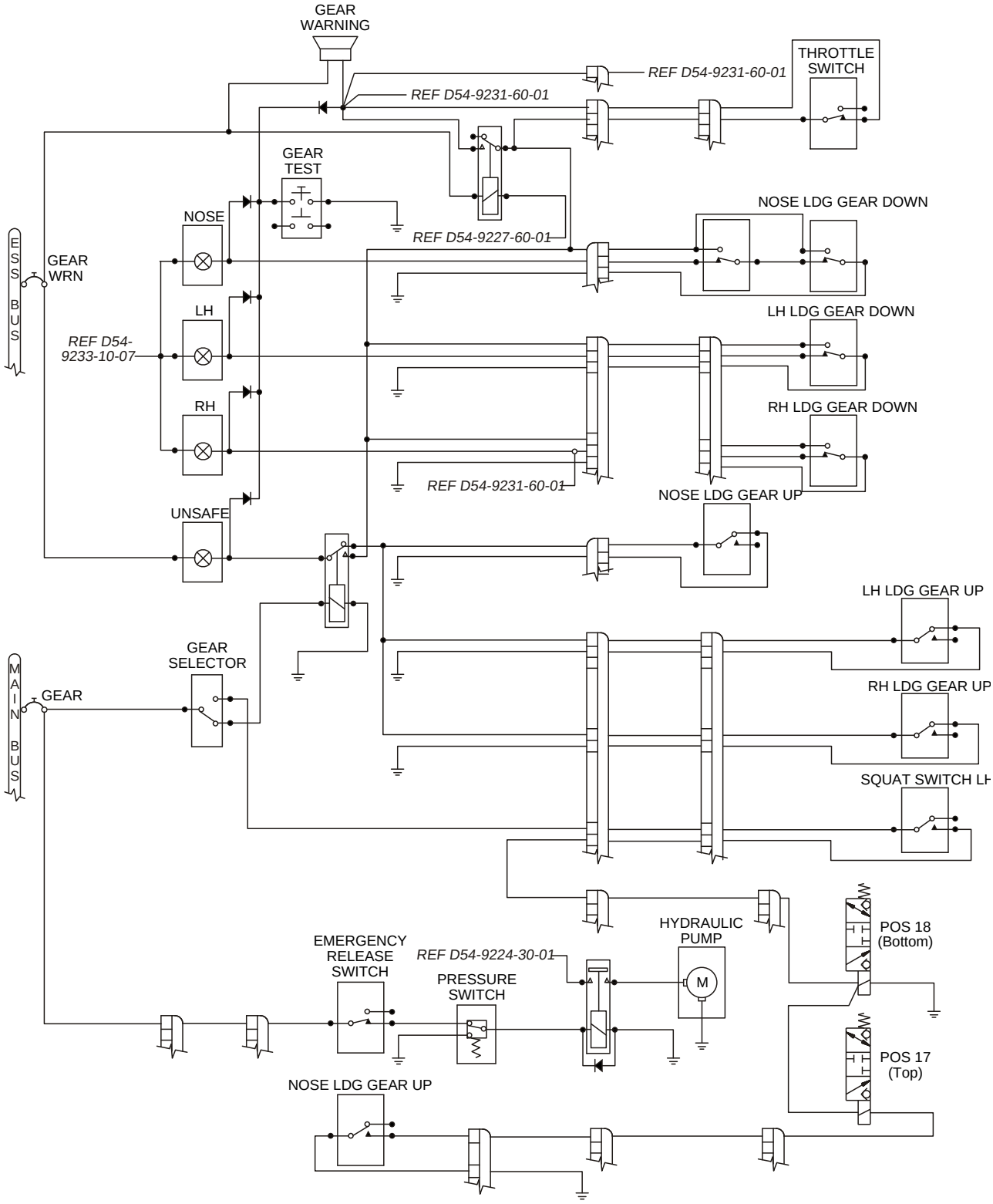


Figure 1 - Landing Gear Electrical Schematic Diagram

32-60-02 Position and warning

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The red UNSAFE indicator stays lit when the landing gear is retracted.

1A. Check the landing gear retracted switches.

Is one of the landing gear retracted switches defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the related landing gear retracted switch.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

The red UNSAFE indicator stays lit when the landing gear is down. All green indicators are lit.

2A. Check the control relay.
Is the control relay defective?
Yes - go to step 2B.
No - go to step 2C.

2B. Replace the control relay.

2C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The red UNSAFE indicator stays lit when the landing gear is down. One of the 3 green indicators not lit.

3A. Check the adjustment of the folding-stay switch.

Is the folding-stay switch not adjusted properly?

Yes - go to step 3B.

No - go to step 3C.

3B. Adjust the folding-stay switch properly.

3C. Check the folding-stay switch of the related landing gear leg.

Is the folding-stay switch defective?

Yes - go to step 3D.

No - go to step 3E.

3D. Replace the related folding-stay switch.

3E. Check the green indicator led and the control relay.

Is the green indicator led unserviceable and/or the control relay defective?

Yes - go to step 3F.

No - go to step 3G.

3F. Check the light bulb and replace as necessary. Replace the control relay.

3G. Contact DAI.

32-60-03 Position and warning

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Airplane jacks (1000 kg / 2200 lb minimum lifting capacity)	Commercial	3
Fuselage trestle	Commercial	1
Wing trestles	Commercial	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT LET PERSONS NEAR THE LANDING GEAR WHEN YOU DO THE EXTENSION AND RETRACTION TEST. THE LANDING GEAR CAN CAUSE INJURY TO PERSONS.

CAUTION

MAKE SURE THAT THE AREA AROUND THE AIRPLANE IS CLEAR. IF THE LANDING GEAR HITS AN OBJECT THE LANDING GEAR CAN BE DAMAGED.

3. Main Procedure

A. Test the Landing Gear Position and Warning System

(1) Raise the airplane on jacks and move the wing and rear fuselage trestles into position to support the airplane. Refer to 07-10 Jacking - Jacking.

(2) Connect an external power supply to the airplane.

(3) Set the ELECT. MASTER switch to ON.

(4) Set the engine power lever to MAX. Fully forward.

(5) Retract the landing gear:

- Set the landing gear selector lever to UP and you must have these indications:
  - All 3 green (SAFE) leds switch off.
  - The red led (UNSAFE) illuminates.
  - The landing gear retracts.
- When the gear is fully retracted:
  - The red led (UNSAFE) switches off.

(6) Do a test for the correct operation of the landing gear warning horn:

- Move the engine power lever to IDLE.
  The landing gear warning horn must operate.
  CAS message "CHECK GEAR" must be annunciated on the G1000 NXi.
  Voice alert "CHECK GEAR" must be provided by the G1000 NXi.
- Move the engine power lever to MAX.
  The landing gear warning horn must not operate.
  Gear warnings provided by the G1000 NXi must clear.

(7) Extend the landing gear:

- Set the landing gear selector lever to DOWN and you must have these indications:
  - The red led (UNSAFE) illuminates.
  - The landing gear extends.
- When all the landing gear legs are fully extended and locked:
  - The red led (UNSAFE) switches off.
  - All 3 green (SAFE) leds illuminate.

33-00
LIGHTS

33-00-01 Lights

Description

1. Lights

This Chapter tells you about the cockpit and exterior lighting of the DA 50 C. 33-10 Flight compartment - Description tells you about the flight compartment lighting and 33-40 External Lighting System - Description tells you about the exterior lighting.

Figure 1 shows the location of the lights.

The DA 50 C has these flight compartment lights:

- Map/reading lights.
- Placard lights.

Some avionic equipment has internal lighting. Refer to the related Section and the equipment manufacturers handbook for the equipment in your airplane. A combined ON/OFF and dimmer switch for the placard lighting is located in the instrument panel, top center.

The DA 50 C has these exterior lights in one light unit at each wing tip:

- Left and right position lights. The front part of the assembly has red (left) or green (right) LEDs with clear lenses. The light can only be seen from the front and the side.
- Rear position lights. The aft part of each wing tip light unit has a clear lens with white LEDs. The lights can be seen only from the rear of the airplane.
- Strobe light. The middle part of each wing tip light unit has a clear lens. White LEDs provide a high-intensity flash. The strobe light can be seen from all directions.

The DA 50 C has these exterior lights mounted in a unit under the center fuselage:

- Landing light. The landing light has a clear lens and a 35 Watt HID Xenon bulb. It is located in a recess located under the center fuselage, next to the taxi light.
- Taxi light. The taxi light has a clear lens and a 35 Watt HID Xenon bulb. It is located in a recess located under the center fuselage, next to the landing light.

The switches for the landing and taxi lights are in the top center of the instrument panel. The landing and taxi lights each have HID ballasts for the Xenon filaments. The HID ballasts are located on the center section floor, below the pilot's seats.

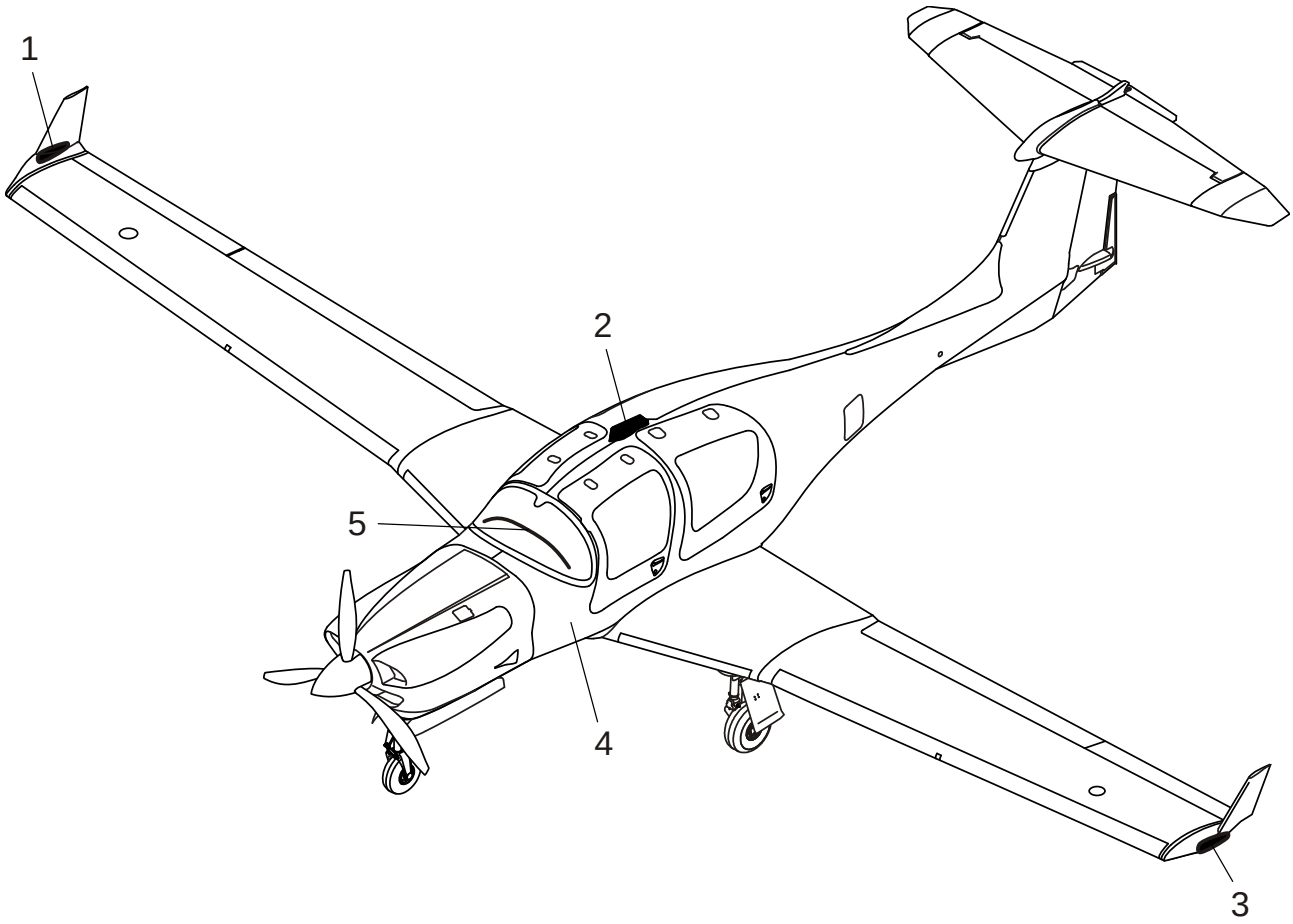


Figure 1 - Flight Compartment

Legend

[1, Fig.1] Right Wing Tip Light Assembly

[2, Fig.1] Map/Reading Lights and Dome Light

[3, Fig.1] Left Wing Tip Light Assembly

[4, Fig.1] Landing/Taxi Light Assembly

[5, Fig.1] Instrument Panel Flood Light

33-10
LIGHTS IN FLIGHT COMPARTMENT

33-10-01 Flight compartment

Description

1. Lights - Flight Compartment

This section tells you about the flight compartment lights of the DA 50 C airplane. Refer to Chapter 92 for the wiring diagrams.

The DA 50 C has these flight compartment lights:

- Map/reading lights.
- Instrument panel flood lighting.
- Instrument lights (placard lights).

Some avionic equipment has internal lighting. Refer to the related Section and the equipment manufacturers handbooks for the equipment installed in your airplane. Combined ON/OFF and dimmer switches for the placard lights and the flood light are located in the instrument panel, top center.

A. Map/Reading Lights

Map/reading lights are located in a headlight unit on the roof in the flight compartment. The map lights are controlled by a single ON/OFF dimmer switch. The reading lights are controlled by a normal ON/OFF switches.

B. Instrument Panel Flood Lighting

Two 115V AC foil type light stripes make the instrument panel food light. The intensity of the light is controlled by a combined ON/OFF dimmer switch located at the top center of the instrument panel. Turn the dimmer switch clockwise to turn the flood light on and set the level of lighting that you require. Turn the dimmer switch fully counter-clockwise to turn the flood light off. The strip lights are held in place under the instrument panel cover with double-sided pressure sensitive tape. A solid state inverter supplies 115V AC current and the system is protected by a circuit breaker located on the right side of the instrument panel.

C. Instrument Lights (Placard Lights)

The DA 50 C has placards that are attached onto panels. There are 11 placard panels on the DA 50 C instrument panel. Most placard panels have a dedicated light source. When the light source is switched ON the placards are illuminated. The intensity of the light sources are controlled by a single ON/OFF dimmer switch located on the top center of the instrument panel. Turn the dimmer switch fully counter-clockwise to turn the placard lights OFF. Turn the dimmer switch clockwise to turn the placard lights On and to set the level of lighting that you require. All placard panels are attached to the instrument panel with screws. You can replace a placard panel. Refer to 11-30 Interior placards and markings - Description for more data about the placard panels.

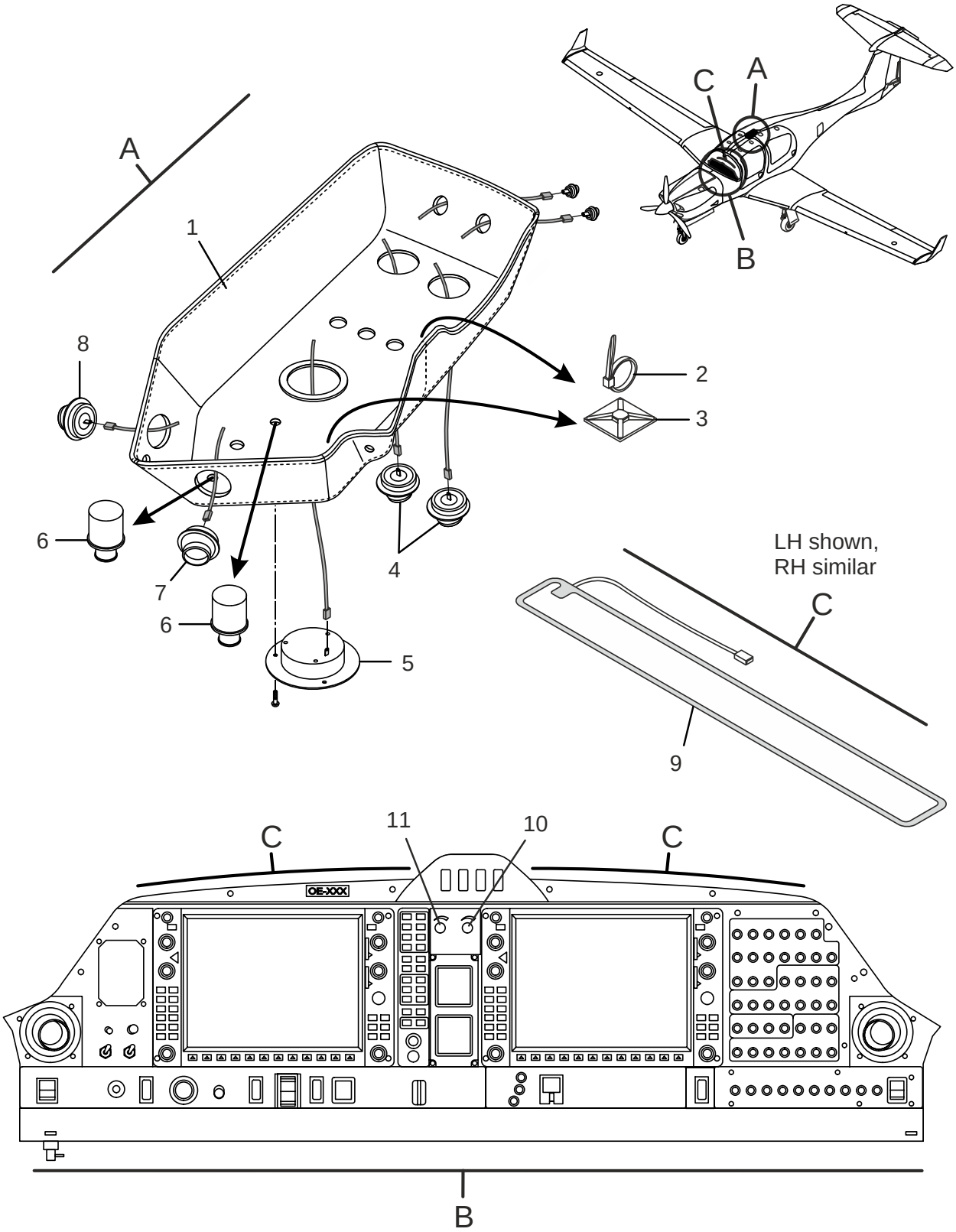


Figure 1 - Flight Compartment Lights

Legend

[1, Fig.1]	Central Headliner Device Unit
[2, Fig.1]	Cable Tie
[3, Fig.1]	Cable Tie Base
[4, Fig.1]	Reading Light (Passengers)
[5, Fig.1]	Dome Light
[6, Fig.1]	Map Light / Dome Light Dimmer Switches
[7, Fig.1]	Reading Light (Pilot)
[8, Fig.1]	Reading Light (Co-Pilot)
[9, Fig.1]	Flood Light (Foil Strip)
[10, Fig.1]	Flood Light Dimmer Switch
[11, Fig.1]	Instrument Light Dimmer Switch

33-10-02 Flight compartment

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

One of the map/reading lights does not operate.

1A. Examine the light unit.

Is the light unit defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the light unit.

1C. Examine the dimmer switch.

Is the dimmer switch defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the dimmer switch.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

The instrument panel flood light does not operate correctly.

2A. Examine the circuit breaker.
Is the circuit breaker not set?
Yes - go to step 2B.
No - go to step 2C.

2B. Reset the circuit breaker.

2C. Examine the dimmer switch.
Is the dimmer switch defective?
Yes - go to step 2D.
No - go to step 2E.

2D. Replace the dimmer switch.

2E. Examine the solid state inverter.
Is the solit state inverter defective?
Yes - go to step 2F.
No - go to step 2G.

2F. Replace the solid state inverter.

2G. Examine the light strip.

Is the light strip defective?

Yes - go to step 2H.

No - go to step 2I.

2H. Replace the light strip.

2I. Do a continuity test of the wiring.

Is the wiring defective?

Yes - go to step 2J.

No - go to step 2K.

2J. Repair/replace defective wiring. Refer to Chapter 92 for the wiring diagrams.

2K. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The instrument lights (placard lights) do not operate correctly. One or more light panels not operating correctly.

3A. Examine the circuit breaker.

Is the circuit breaker not set?

Yes - go to step 3B.

No - go to step 3C.

3B. Reset the circuit breaker.

3C. Examine the light panels.
Is one or are more light panels defective?
Yes - go to step 3D.
No - go to step 3E.

3D. Replace defective light panel(s).

3E. Examine the dimmer switch.
Is the dimmer switch defective?
Yes - go to step 3F.
No - go to step 3G.

3F. Replace the dimmer switch.

3G. Do a continuity test of the wiring.
Is the wiring defective?
Yes - go to step 3H.
No - go to step 3I.

3H. Repair/replace defective wiring. Refer to Chapter 92 for the wiring diagrams.

3I. Contact DAI.

33-10-03 Map / Reading Light Assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Map/Reading Light Assembly

(1) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Remove the light assembly:

- Release the screws that hold the light assembly in position.
- Lower the light assembly from the cabin roof and disconnect the electrical cables. At the in-line connector.
- Move the light assembly clear of the airplane.

33-10-04 Map / Reading Light Assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Map/Reading Light Assembly

(1) Move the light assembly into position in the airplane cabin.

Hold the light assembly.

(2) Connect the electrical cables to the light assembly.

At the in-line connector.

(3) Move the light assembly into position and install the screws.

Make sure that the light assembly is correctly installed.

(4) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(5) Do a test for the correct function of the light assembly.

33-10-05 Dimmer Switch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Dimmer Switch

Use this procedure for both the FLOOD light dimmer switch and the INSTRUMENT lights dimmer switch.

(1) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(3) Remove the knob from the dimmer switch that you will remove:

- Loosen the grub screw that attaches the knob to the switch spindle.
- Pull the knob off the switch spindle.

(4) Disconnect the electrical cables from the rear of the dimmer switch.

Make a note of the connections.

(5) Remove the placard panel.

Refer to 11-30 Interior placards and markings - Description.

(6) Remove the nut and washer from the front of the dimmer switch.

Hold the dimmer switch.

(7) Move the dimmer switch forward and clear of the instrument panel.

33-10-06 Dimmer Switch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Dimmer Switch

Use this procedure for both the FLOOD light dimmer switch and the INSTRUMENT lights dimmer switch.

(1) Move the dimmer switch into position in the instrument panel.

From the forward side of the panel. Make sure that the locating peg on the switch engages with the hole in the instrument panel.

(2) Install the washer and nut that attaches the dimmer switch to the instrument panel.

Make sure that the dimmer switch is installed with the correct orientation.

(3) Connect the electrical cables to the rear of the dimmer switch.

Refer to Chapter 92 for the wiring diagrams. Use the note that you made at 33-10 Dimmer Switch - Remove procedure step A.4.

(4) Install the placard panel.

Refer to 11-30 Interior placards and markings - Description.

(5) Install the knob to the front of the dimmer switch:

- Align the flat on the switch spindle with the flat in the bore of the knob.
- Push the knob onto the switch spindle.
- Tighten the grub screw that holds the knob onto the switch spindle.

(6) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(7) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(8) Do a test for the correct operation of the dimmer switch:

- Set the ELECT. MASTER switch to ON.
- Rotate the dimmer switch clockwise.
  The system light(s) must come on.
- Rotate the dimmer switch fully clockwise.
  The intensity of the light(s) must increase.
- Rotate the dimmer switch fully counterclockwise to the OFF position.
  The light(s) must go off.
- Set the ELECT. MASTER switch to OFF.

33-10-07 Flood Light Strip

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace a Flood Light Strip

You cannot remove a flood light strip without causing damage to the strip. Only remove the flood light/instrument light strip if it is defective.

(1) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Remove the instrument panel cover and place on a clean work bench.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(3) Remove the light strip from the inside of the instrument panel cover:

- Peel the light strip away from the panel cover.

(4) Install the new flood light/instrument light strip to the inside of the instrument panel cover:

- Make sure that the area where the light strip attaches to the instrument cover is clean. Use a commercial solvent. Obey the solvent manufacturer's directions.
- Apply double-sided tape to the back of the light strip.
  Use the tape specified in the DA 50 C Illustrated Parts Catalog or that is supplied with the flood light strip.
- Position the flood light strip and firmly press into place.

(5) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(6) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(7) Do a test for the correct operation of the flood light/instrument light panel:

- Set the ELECT. MASTER switch to ON.
- Rotate the FLOOD light dimmer switch fully clockwise.
  The light strips must come on bright.
- Rotate the FLOOD light dimmer switch a small amount counter-clockwise.
  The light strips must go dimmer.
- Rotate the FLOOD light dimmer switch fully counter-clockwise.
  The light strips must go off.
- Set the ELECT. MASTER switch to OFF.

33-10-08 Solid State Inverter

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Solid State Inverter

Use this procedure for both the flood light inverter and the instrument lights inverter.

(1) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(3) Disconnect the electrical cables from the inverter.

At the in-line connector.

(4) For removal of the instrument light inverter, remove the PFD.

Refer to 31-40 GDU 105X Display - Remove procedure.

(5) Remove the inverter:

- Remove the 2 screws, washers and nuts that attach the inverter to the instrument panel floor.
- Move the inverter clear of the instrument panel.

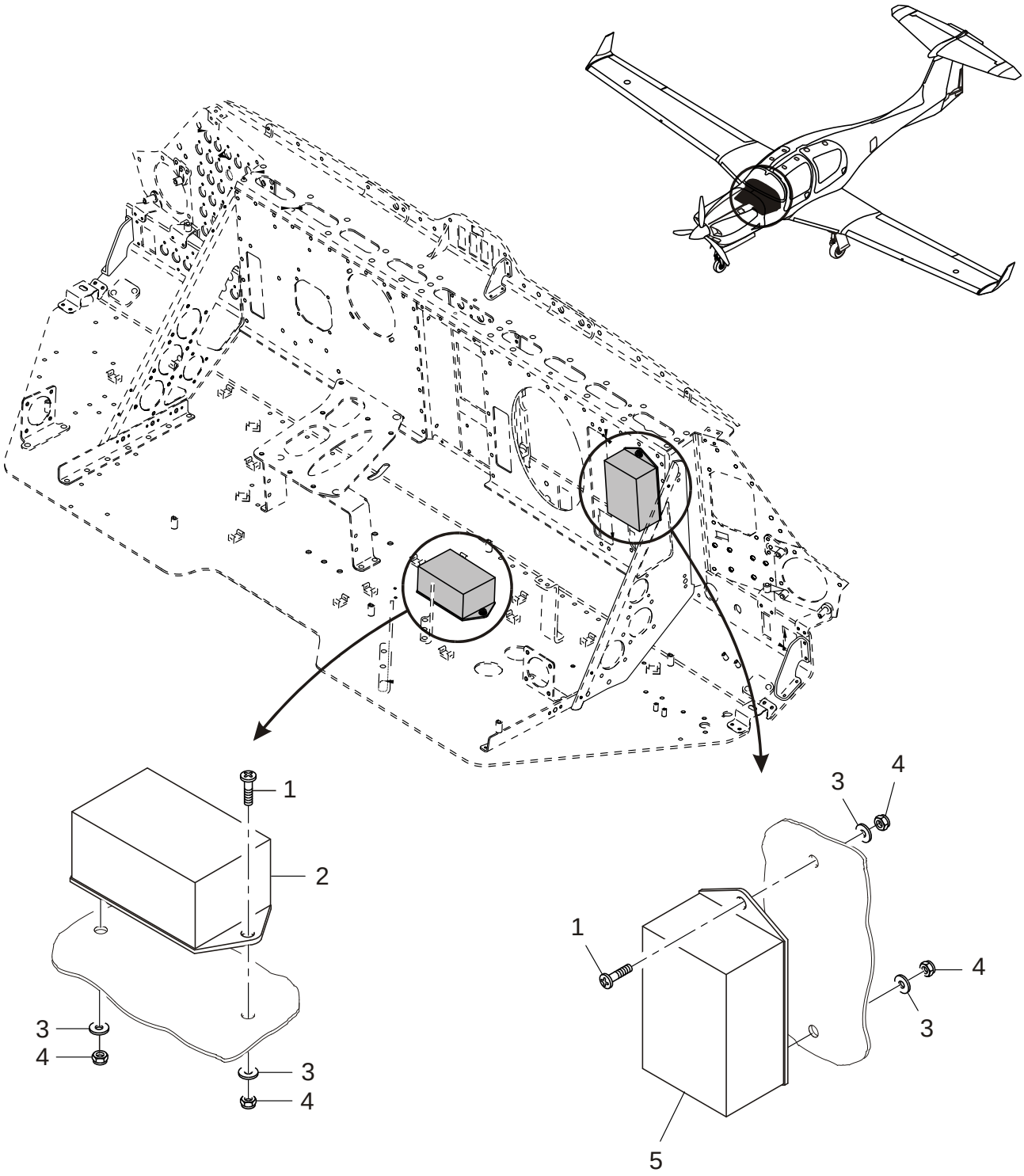


Figure 2 - Solid State Inverters for the Instrument and Flood Lights

Legend

[1, Fig.2] Screw

[2, Fig.2] Solid State Inverter (Flood Lights)

[3, Fig.2] Washer

[4, Fig.2] Nut

[5, Fig.2] Solid State Inverter (Placards / Instruments)

33-10-09 Solid State Inverter

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a Solid State Inverter

Use this procedure for both the flood light inverter and the instrument lights inverter.

(1) Install the inverter:

- Move the inverter into position on the instrument panel floor.
- Install the 2 washers, screws and nuts that attach the inverter to the instrument panel floor.

(2) For the instrument light inverter, install the PFD.

Refer to 31-40 GDU 105X Display - Install procedure.

(3) Connect the electrical cables to the inverter.

At the in-line connector.

(4) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(5) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(6) Do a test for the correct operation of the inverter:

- Set the ELECT. MASTER switch to ON.
- Rotate the related dimmer switch clockwise.
  The system light(s) must come on.

- Rotate the related dimmer switch fully clockwise.
  The intensity of the light(s) must increase.
- Rotate the dimmer switch fully counterclockwise to the OFF position.
  The light(s) must go off.
- Set the ELECT. MASTER switch to OFF.

33-40
EXTERNAL LIGHTING SYSTEM

33-40-01 External Lighting System

Description

1. Description

This Section tells you about the exterior lights of the DA 50 C. The DA 50 C has these exterior lights:

- Position Lights.
- Strobe Lights.
- Landing Light.
- Taxi Light.

The DA 50 C has the position lights and the strobe lights in a single light unit in each wing tip. The taxi and landing lights are located below the fuselage. Figure 1 shows the wing tip light unit and Figure 2 shows the landing and taxi lights.

A. Position Lights and Strobe Light (Anti-Collision Light – ACL)

The DA 50 C has left and right LED position and anti-collision light assemblies. The position and anti-collision lights are installed on a base plate covered by a clear lens. The LEDs provide the coloration. The forward position light is covered with red (left) and green (right) LEDs. The rear position light is designed with two white LEDs. The anti-collision light is designed with 24 white LEDs. If one of the LEDs fails, the unit must be replaced. The position lights and the anticollision lights are controlled by separate switches and are protected by individual circuit breakers.

B. Landing Light

The landing light is located in a housing below the center fuselage, on the right. The landing light has a clear lens and Xenon filament. The landing light has a HID ballast located on the wing center section floor, below the pilots' seats. A switch on the top left of the instrument panel controls the landing light and a circuit breaker protects the system.

C. Taxi Light

The taxi light is located in a housing below the center fuselage, on the left. The taxi light has a clear lens and Xenon filament. The taxi light has a HID ballast located on the wing center section floor, below the pilots´ seats. A switch on the top left of the instrument panel controls the taxi light and a circuit breaker protects the system.

2. Maintenance Practices

WARNING

DO NOT OPERATE THE STROBE LIGHTS WHEN PERSONS ARE CLOSE TO THE AIRPLANE. DO NOT LOOK AT THE LIGHT WHEN IT OPERATES. STROBE LIGHTS CAN CAUSE EYE DAMAGE.

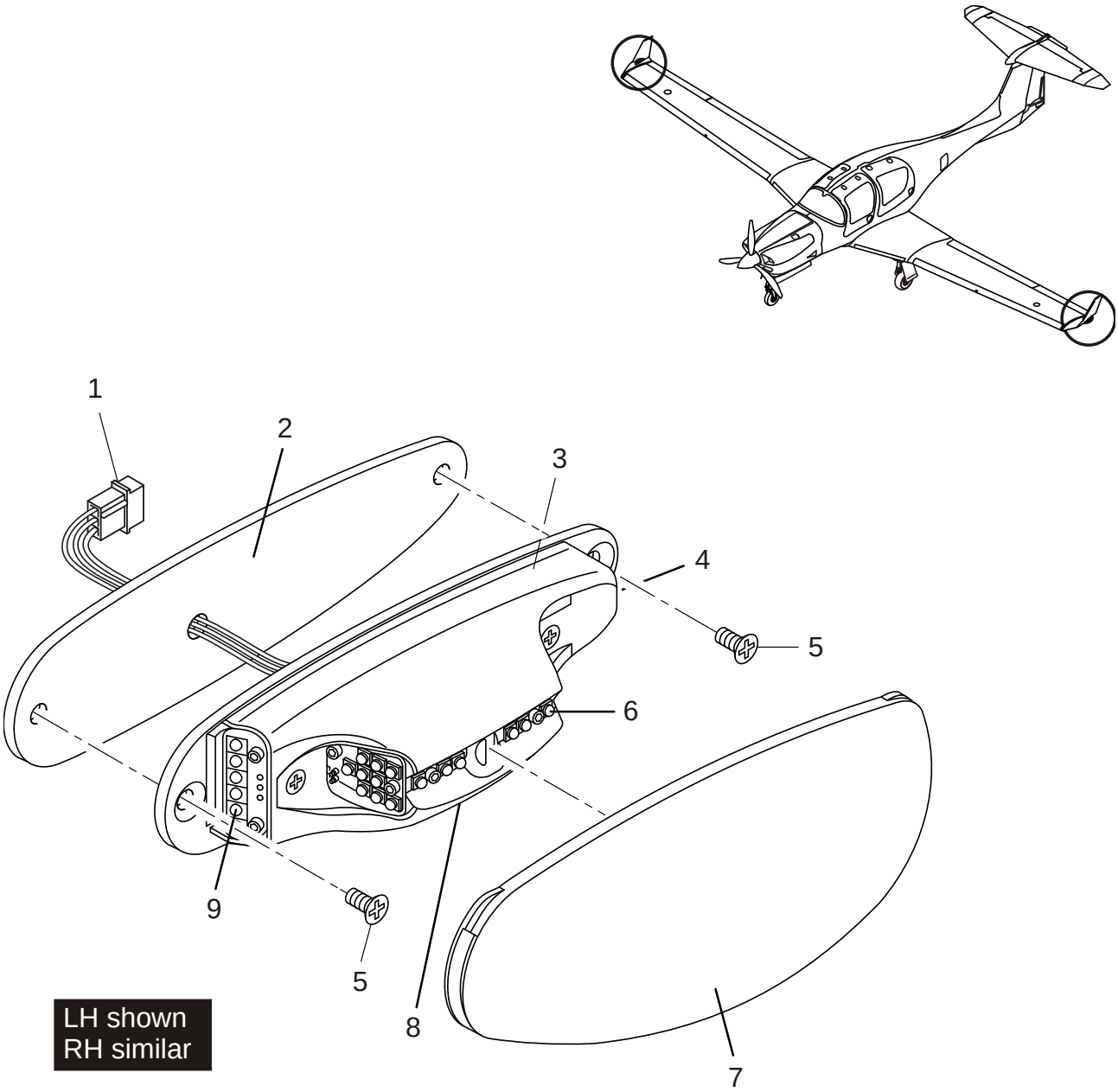


Figure 1 - Wing Tip Light Unit and Strobe Power Unit

Legend

[1, Fig.1] In-Line Connector

[2, Fig.1] Base Plate

[3, Fig.1] LED Position and Anti-Collision Light Assy

[4, Fig.1] Rear Position Light

[5, Fig.1] Screw

[6, Fig.1] LED’s

[7, Fig.1] Clear Lens

[8, Fig.1] Anti-Collision Light

[9, Fig.1] Forward Position Light

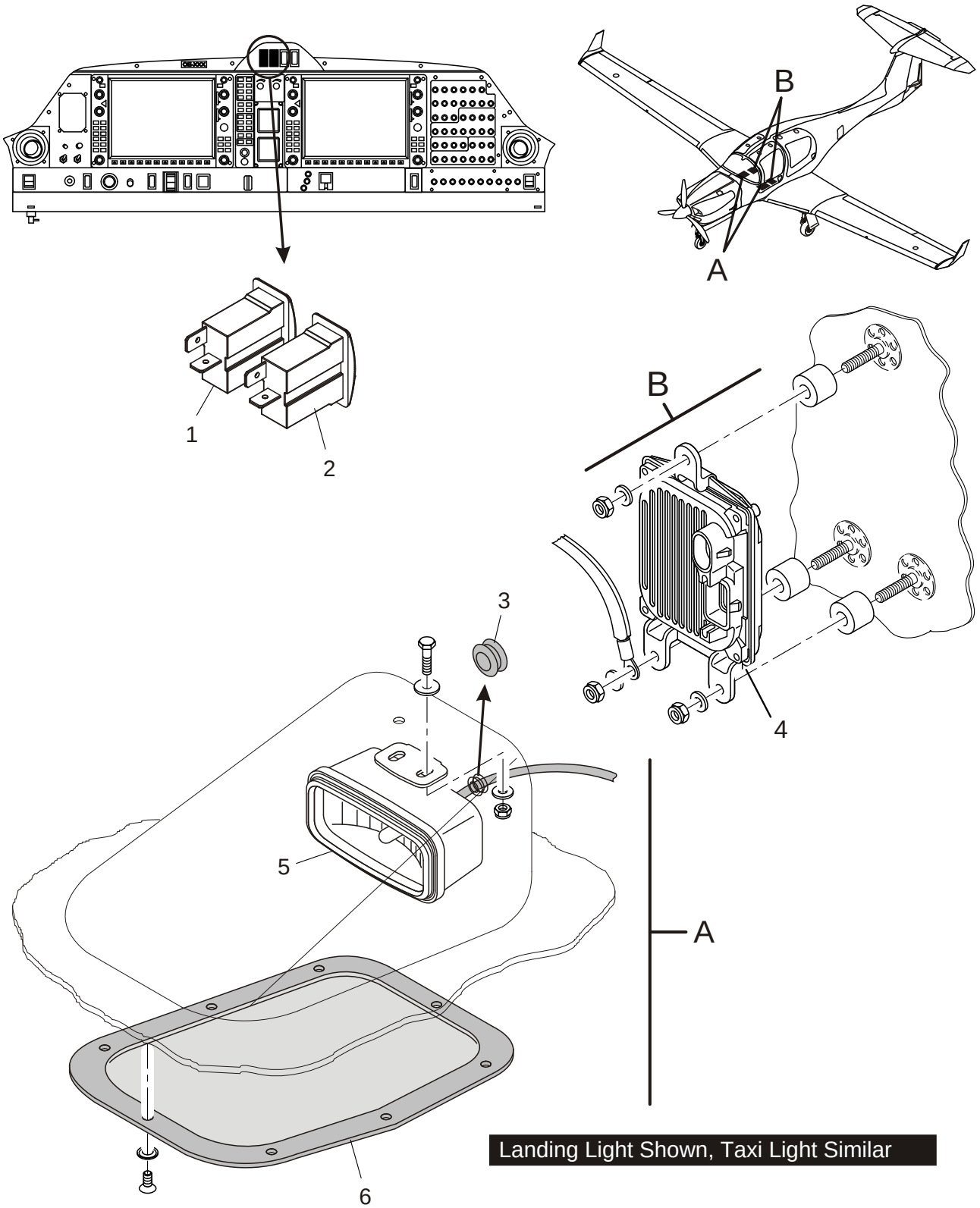


Figure 2 - Landing and Taxi Light Installation

Legend

[1, Fig.2] Taxi Light Switch

[2, Fig.2] Landing Light Switch

[3, Fig.2] Rubber Grommet

[4, Fig.2] HID Ballast

[5, Fig.2] Landing Light

[6, Fig.2] Transparent Cover

33-40-02 External Lighting System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Both position lights do not operate.

1A. Examine the circuit breaker.

Is the circuit breaker not set or defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Reset/replace circuit breaker.

1C. Examine the position light switch.

Is the position light switch defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the position light switch.

1E. Do a continuity test of the wiring.
Is wiring defective?
Yes - go to step 1F.
No - go to step 1G.

1F. Repair/replace defective wiring. Refer to Chapter 92 for the wiring diagrams.

1G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

One position light does not operate.

2A. Examine the light unit.
Is the light unit defective?
Yes - go to step 2B.
No - go to step 2C.

2B. Replace the light unit.

2C. Do a continuity test of the wiring.
Is the wiring defective?
Yes - go to step 2D.
No - go to step 2E.

2D. Repair/replace defective wiring. Refer to Chapter 92 for the wiring diagrams.

2E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Both strobe lights do not operate.

3A. Examine the circuit breaker.
Is the circuit breaker not set or defective?
Yes - go to step 3B.
No - go to step 3C.

3B. Reset/replace circuit breaker.

3C. Examine the strobe light switch.
Is the strobe light switch defective?
Yes - go to step 3D.
No - go to step 3E.

3D. Replace the strobe light switch.

3E. Do a continuity test of the wiring.
Is wiring defective?
Yes - go to step 3F.
No - go to step 3G.

3F. Repair/replace defective wiring. Refer to Chapter 92 for the wiring diagrams.

3G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

One strobe light does not operate.

4A. Examine the light unit.

Is the light unit defective?

Yes - go to step 4B.

No - go to step 4C.

4B. Replace the light unit.

4C. Do a continuity test of the wiring.

Is the wiring defective?

Yes - go to step 4D.

No - go to step 4E.

4D. Repair/replace defective wiring. Refer to Chapter 92 for the wiring diagrams.

4E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Strobe and position light do not operate on one side.

5A. Examine the connector.

Is the connector at outer wing to center section disconnected?

Yes - go to step 5B.

No - go to step 5C.

5B. Connect the connector.

5C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Landing light or taxi light does not operate.

6A. Examine the light unit.

Is the light unit defective?

Yes - go to step 6B.

No - go to step 6C.

6B. Replace the light unit.

6C. Examine the HID ballast.

Is the HID ballast defective?

Yes - go to step 6D.

No - go to step 6E.

6D. Replace the defective HID ballast.

6E. Examine the circuit breaker.

Is the circuit breaker not set or defective?

Yes - go to step 6F.

No - go to step 6G.

6F. Reset/replace circuit breaker.

6G. Examine the landing light switch and the taxi light switch.

Is the landing light switch or the taxi light switch defective?

Yes - go to step 6H.

No - go to step 6I.

6H. Replace the defective switch.

6I. Examine the connector at the light unit.

Is the connector at the light unit loose?

Yes - go to step 6J.

No - go to step 6K.

6J. Connect the connector correctly.

6K. Do a continuity test of the wiring.

Is the wiring defective?

Yes - go to step 6L.

No - go to step 6M.

6L. Repair/replace defective wiring. Refer to Chapter 92 for the wiring diagrams.

6M. Contact DAI.

33-40-03 Taxi Light

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Taxi Light

(1) Set the ELECT. MASTER switch to OFF.

(2) Set the TAXI light switch to OFF.

(3) Set the TAXI/MAP circuit breaker open.

Pull.

(4) Remove the pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(5) Remove the taxi light cover from below the center fuselage:

Refer to 33-40 External Lighting System - Description Figure 2.

- Remove the 8 screws and washers that attach the light cover to the housing.
- Move the light cover clear of the housing.

(6) Remove the 2 nuts, washers and bolts that attach the taxi light unit to the structure.

(7) Hold the taxi light and move out a small way from the housing and disconnect the electrical cables. Move the taxi light clear of the housing.

At the in-line connector.

33-40-04 Taxi Light

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Taxi Light

(1) Install the taxi light unit:

Refer to 33-40 External Lighting System - Description Figure 2.

- Move the light unit into position by the housing.
- Connect the electrical connections to the light unit.
  At the in-line connector.
- Move the light unit fully into position in the housing.
- Install the 2 bolts, washer and nuts that attach the light unit to the structure.

(2) Install the light cover:

- Move the light cover into position below the fuselage.
- Install the 8 screws and washers that attach the light cover to the light housing.

(3) Reset the TAXI/MAP circuit breaker.

(4) Set the ELECT. MASTER switch to ON.

(5) Do a test for the correct operation of the taxi light:

- Set the TAXI light switch to ON.
- The taxi light must come on.
- Set the TAXI light switch to OFF.
- The taxi light must go off.

(6) Set the ELECT. MASTER switch to OFF.

Instrument panel.

(7) Install the pilot's seat.

Refer to 25-10 Pilots Seat - Install procedure.

33-40-05 Landing Light

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Landing Light

(1) Set the ELECT. MASTER switch to OFF.

Instrument panel.

(2) Set LANDING light switch to OFF.

Top left of instrument panel.

(3) Set the LANDING circuit breaker open.

Pull the circuit breaker.

(4) Remove the co-pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(5) Remove the landing light cover from below the center fuselage:

Refer to 33-40 External Lighting System - Description Figure 2.

- Remove the 8 screws and washers that attach the cover to the light housing.
- Move the light cover clear of the housing.

(6) Remove the 2 nuts, washers and bolts that attach the landing light unit to the structure.

(7) Hold the landing light and move out a small way from the housing and disconnect the electrical cables. Move the landing light clear of the housing.

At the in-line connector.

33-40-06 Landing Light

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Landing Light

(1) Install the landing light unit:

Refer to 33-40 External Lighting System - Description Figure 2.

- Move the light unit into position by the housing.
- Connect the electrical connections to the light unit.
  At the in-line connector.
- Move the light unit fully into position in the housing.
- Install the 2 bolts, washers and nuts that attach the light unit to the structure.

(2) Install the light cover onto the housing:

- Move the light cover into position at the housing.
- Install the 8 screws and washers that attach the light cover to the light housing.

(3) Reset the LANDING circuit breaker.

Instrument panel, right side.

(4) Set the ELECT. MASTER switch to ON.

Instrument panel.

(5) Do a test for the correct operation of the landing light:

- Set the LANDING light switch to ON.
- The landing light must come on.
- Set the LANDING light switch to OFF.
- The landing light must go off.

(6) Set the ELECT. MASTER switch to OFF.

Instrument panel.

(7) Install the co-pilot's seat.

Refer to 25-10 Pilots Seat - Install procedure.

33-40-07 Wing Tip Light Unit

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a Wing Tip Light Unit

(1) Set the ELECT. MASTER switch to OFF.

(2) Set these circuit breakers open:

- POSITION.
- STROBE.

(3) Remove the light unit cover from the wing tip unit:

Refer to 33-40 External Lighting System - Description Figure 1.

- Remove the screws that attach the cover to the unit.
  Hold the cover and glasses.
- Remove the cover.
- Remove the seals.

(4) Remove the light unit from the wing tip:

- Remove the screws that attach the light unit to the wing tip.
- Carefully move the light unit out from the wing tip.
- Disconnect the electrical in-line connectors from the rear of the light unit.
- Move the light unit clear of the airplane.

33-40-08 Wing Tip Light Unit

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT OPERATE THE STROBE LIGHTS WHEN PERSONS ARE CLOSE TO THE AIRPLANE. DO NOT LOOK AT THE LIGHT WHEN IT OPERATES. STROBE LIGHTS CAN CAUSE EYE DAMAGE.

3. Main Procedure

A. Install a Wing Tip Light Unit

(1) Install the light unit:

Refer to 33-40 External Lighting System - Description Figure 1.

- Move the light unit into position at the wing tip.
- Connect the electrical connectors at the rear of the light unit.
- Move the light unit into the wing tip.
- Install the screws that attach the light unit to the wing tip.

(2) Install the light unit cover:

- Move the light unit cover into position.
  Make sure that the seals are correctly located.
- Install the screws that attach the cover to the wing tip.

(3) Set these circuit breakers:

- POSITION.
- STROBE.

WARNING

DO NOT OPERATE THE STROBE LIGHTS WHEN PERSONS ARE CLOSE TO THE AIRPLANE. DO NOT LOOK AT THE LIGHT WHEN IT OPERATES. STROBE LIGHTS CAN CAUSE EYE DAMAGE.

(4) Do a test for the correct operation of the strobe light:

- Set the ELECT. MASTER switch to ON.
- Set the STROBE light switch to ON.
  The strobe lights must both operate.
- Set the STROBE light switch to OFF.
  The strobe lights must all go off.

(5) Do a test for the correct operation of the position light:

- Set the POSITION light switch to ON.
  The position lights must all come on.
- Set the POSITION light switch to OFF.
  The position lights must all go off.
- Set the ELECT. MASTER switch to OFF.

33-40-09 HID Ballast

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a HID Ballast

Use this procedure for both the landing and taxi light HID ballasts.

(1) Set the ELECT. MASTER switch to OFF.

(2) Set LANDING/TAXI light switch to OFF.

(3) Set the LANDING or TAXI/MAP circuit breaker open as necessary. Pull.

(4) Remove the pilot's/co-pilot's seat as required.

Refer to 25-10 Pilots Seat - Remove procedure.

(5) Remove the HID ballast:

Refer to 33-40 External Lighting System - Description Figure 2.

- Disconnect the electrical cables from the HID ballast.
- Remove the nuts, washers, bolts and bonding wire lead that attach the HID ballast to the structure.
  Note the position of the wire bonding lead.
- Move the HID ballast clear of the airplane.

33-40-10 HID Ballast

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a HID Ballast

(1) Install the HID ballast:

- Move the HID ballast into position under the pilot's/co-pilot's seat.
- Install the bolts, washers, wire bonding lead and nut that attaches the HID ballast to the airplane structure.

(2) Connect the electrical cables to the HID ballast.

At the in-line connectors.

(3) Do a test for the correct operation of the LANDING/TAXI light:

- Set the LANDING or TAXI/MAP circuit breaker as necessary.
  Push the circuit breaker in. Right side of instrument panel.
- Set the ELECT. MASTER switch to ON.
  Instrument panel, lower.
- Set the LANDING/TAXI light switch to ON.
  The related light must come on.
- Set the LANDING/TAXI light switch to OFF.
  The related light must go off.
- Set the ELECT. MASTER switch to OFF.

(4) Install the pilot's/co-pilot's seat as required.

Refer to 25-10 Pilots Seat - Install procedure.

34-00
NAVIGATION

34-00-01 Navigation

Description

1. Navigation System

This Chapter tells you about the navigation system in the airplane. It only tells you about the installation in the airplane. Refer to the equipment manufacturers' manuals for more data about the equipment and refer to the Wiring Diagrams in Chapter 92 for more data about the electrical wiring for the navigation system.

Refer to 23-10 Speech communication - Description for more data about the NAV system which is part of the speech communication system.

The DA 50 C has these navigation systems. Refer to these Sections for data about the systems:

- Section 34-10 Flight environment data (Pitot/static/OAT/flight instruments).
  Refer to Flight environment data - Description.
- Section 34-20 Attitude and direction (compass/artificial horizon).
  Refer to Attitude and direction - Description.
- Section 34-30 Landing and taxiing aids (localizer).
  Refer to Central computers - Description.
- Section 34-40 Independent position determining.
  Refer to Stormscope System - Description and Traffic Advisory System (TAS) - Description.
- Section 34-50 Dependent position determining (VOR/transponder/GPS).
  Refer to Dependent position determining - Description.

A. Flight Environment Data

The DA 50 C has the usual flight environment data system. It has a Pitot system, with the Pitot probe located at the left wingtip. The probe has an electric heater. The heater is controlled by a switch on the left side of the instrument panel. Flexible plastic hoses connect the Pitot probe to the airplane instruments.

The Pitot system and the static system connect to these flight instruments and systems:

- Standby attitude module.
- Integrated cockpit system (ICS).
- The DA 50 C also has an electronic outside air temperature (OAT) indicator. The indicator is integral with the ICS. Refer to 31-40 Central computers - Description for more data about the ICS. The probe for the OAT is located on the right wing.

B. Attitude and Direction

The DA 50 C has a magnetic compass mounted on the windscreen, at the top center. The airplane is also equipped with a standby attitude module mounted on the instrument panel, centrally arranged.

C. Landing and Taxiing Aids

The DA 50 C has a localizer system which is part of the ICS.

It has the following landing and taxiing aids:

- Localizer system.
- Glideslope system.
- Marker beacon receiver.

Refer to 31-40 Central computers - Description for more data about the landing and taxiing aids which are part of the ICS.

D. Independent Position Determining

The DA 50 C may be equipped with the following independent position determining systems:

- Stormscope system, consisting of stormscope processor and stormscope antenna (if OÄM 50-013 is installed)
- Traffic advisory system, consisting of a processor, two antennas and a transponder coupler (optional) (if OÄM 50-006 or OÄM 50-050 is installed).

E. Dependent Position Determining

The DA 50 C has these dependent position determining systems that are integral with the ICS:

- VOR/LOC.
- Global positioning system (GPS).
- Transponder.
- DME (if OÄM 50-004 is installed).
- ADF (if OÄM 50-003 is installed).
- Marker beacon receiver.

Refer to 31-40 Central computers - Description for more data about the integrated cockpit system.

34-10
FLIGHT ENVIRONMENT DATA

34-10-01 Flight environment data

Description

1. Flight Environment Data

This Section tells you about the Pitot System and the OAT sensor. It does not tell you about the OAT indication. The OAT indication is integral with the ICS. Refer to 31-40 Central computers - Description for more data about the ICS.

A. Pitot System

The pitot system supplies Pitot pressure to the standby attitude module and the ICS. A pitot probe mounted on the left wingtip senses the Pitot pressure as well as the static pressure. An alternate static vent is located under the instrument panel, left side. The alternate static vent is normally closed. The pilot can open the alternate static vent by operating a valve-lever.

The pitot probe has a heater element to prevent icing. A switch on the instrument panel controls the Pitot heater and a circuit breaker protects the system. The Pitot heater status is shown on the ICS.

Flexible hoses connect the Pitot probe to the standby attitude module and the ICS. Pitot hoses are green and static hoses are blue/purple or red. Push fit plastic connectors make the connections in the flexible hoses. Plastic T-pieces make junctions in the hoses.

Both Pitot and static hoses have water traps at the lowest parts of the hose run (under the pilot's seat). T-pieces divide the hoses into 2 runs. The top runs go directly into the instruments. The bottom runs form sumps before joining the top-runs at T-pieces.

Refer to Figure 1 and Figure 2.

B. Outside Air Temperature (OAT) Probe

The OAT indicator is integral with the ICS. The OAT sensor is located at the right wing. The ICS supplies the power for the OAT probe. Refer to 31-40 Central computers - Description for more data about the ICS.

C. Air Speed Indicator (ASI)

The DA 50 C has an airspeed indicator integral of the standby attitude module as well as the speed indication displayed on the G1000 NXi's PFD.

The airspeed indicator integral with the ICS or standby attitude module displays airspeed on a rolling number gauge using a moving tape. Speed ranges, speed references and an airspeed trend vector are also displayed on the PFD or SAM. Refer to the G1000 NXi system or MD302 SAM installation manual and the airplane flight manual for particular information on the ICS or SAM implemented airspeed indicator.

D. Altimeter

The DA 50 C has an altimeter integral of the standby attitude module as well as the altimeter displayed on the G1000 NXi's PFD.

The altimeter integral with the ICS or standby attitude module displays barometric altitude values on a rolling number gauge using a moving tape. Refer to the G1000 NXi system or MD302 SAM installation manual and the airplane flight manual for particular information on the ICS or SAM implemented altimeter.

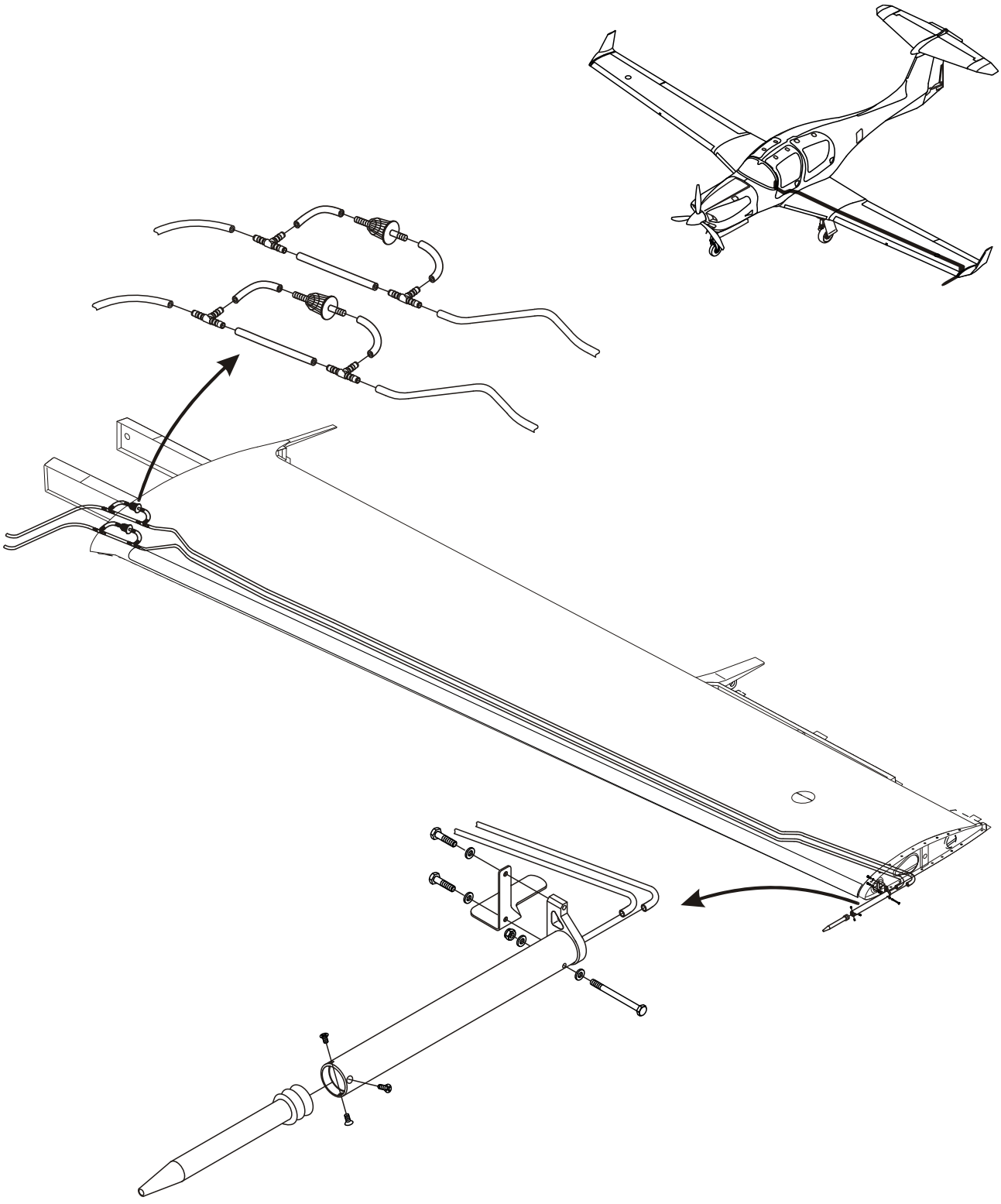


Figure 1 - Pitot Probe and Static System Hoses

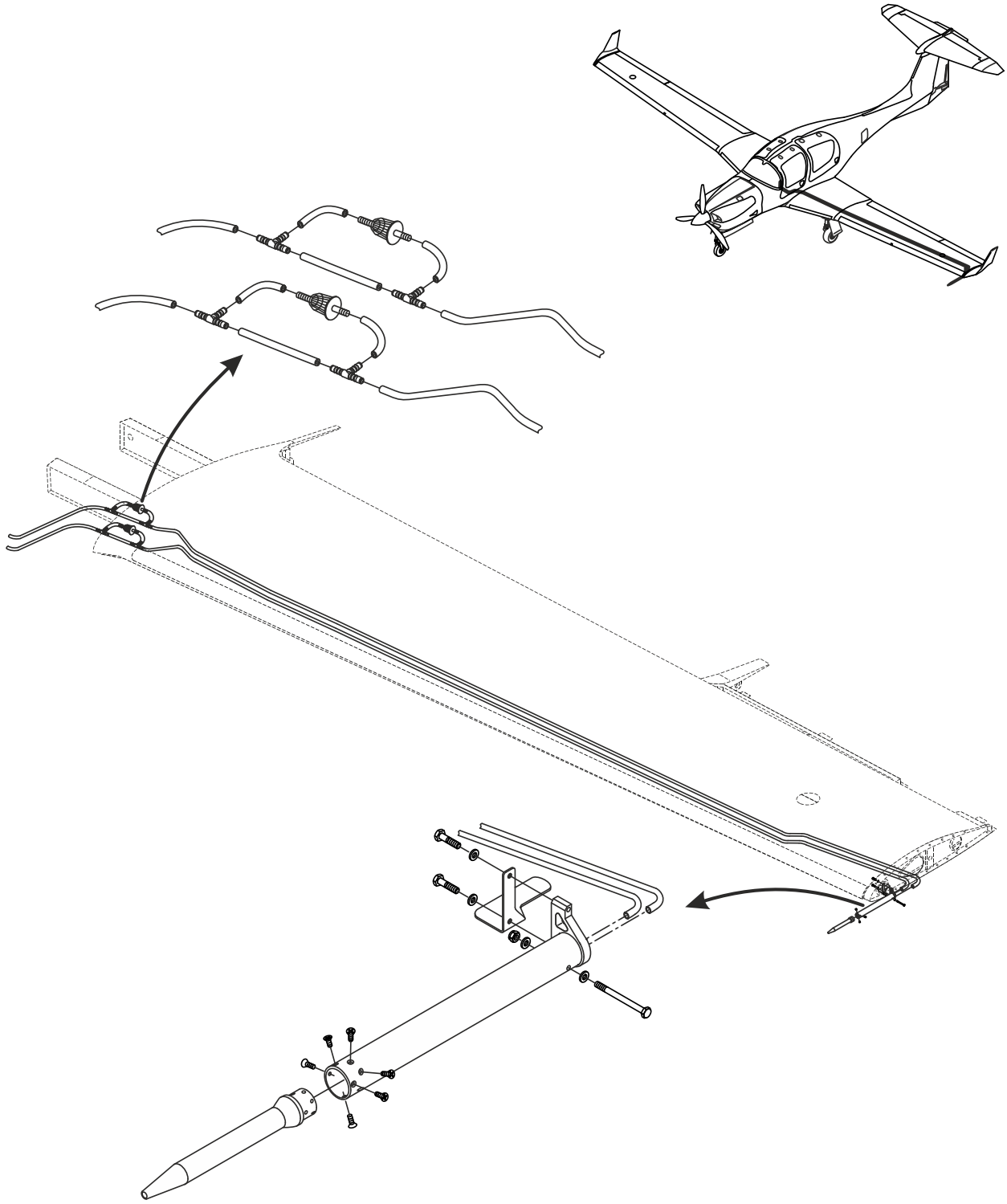


Figure 2 - Pitot Probe and Static System Hoses (if MÄM 50-232 is installed)

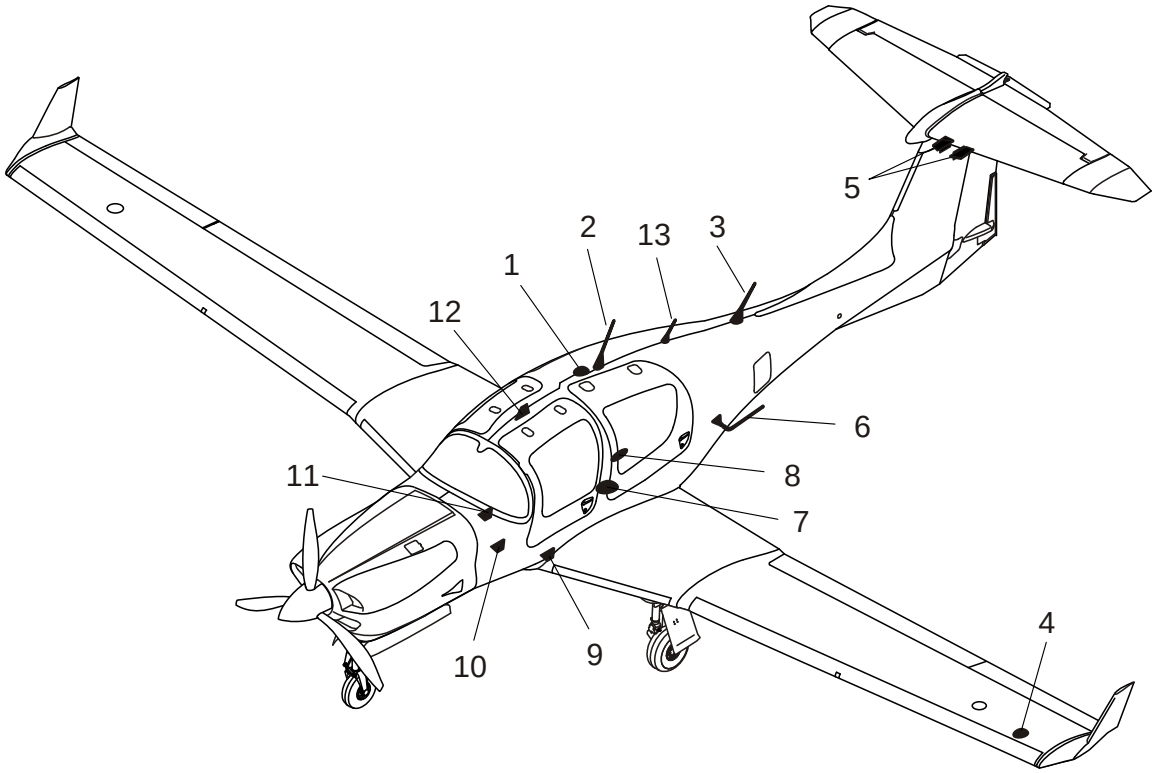


Figure 3 - Flight Environment Data – Component Locations

Legend

[1, Fig.3]	GPS 1 Antenna
[2, Fig.3]	COM 1 / GPS 2 Antenna
[3, Fig.3]	ELT Antenna
[4, Fig.3]	WX-500 Antenna (Optional)
[5, Fig.3]	VOR Antenna
[6, Fig.3]	COM 2 Antenna
[7, Fig.3]	ADF Antenna (Optional)
[8, Fig.3]	Marker Antenna
[9, Fig.3]	Transponder Antenna
[10, Fig.3]	TAS Antenna (Optional)
[11, Fig.3]	DME Antenna
[12, Fig.3]	TAS Antenna (Optional)
[13, Fig.3]	GSR Antenna (Optional)

34-10-02 Flight environment data

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Altimeter lags or reads incorrectly. VSI (on ICS) reads incorrectly.

1A. Examine the static hose.

Is the static hose blocked or kinked?

Yes - go to step 1B.

No - go to step 1C.

1B. Clear/straighten the hose.

1C. Examine the static system.

Is water in the static system?

Yes - go to step 1D.

No - go to step 1E.

1D. Drain the static system.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Airspeed indication incorrect (low).

2A. Examine the Pitot hose.
Is the Pitot hose blocked or kinked?
Yes - go to step 2B.
No - go to step 2C.

2B. Clear/straighten the hose.

2C. Examine the Pitot system.
Is water in the Pitot system?
Yes - go to step 2D.
No - go to step 2E.

2D. Drain the Pitot system.

2E. Do a Pitot-static leak test.
Is there a Leak in the Pitot hose?
Yes - go to step 2F.
No - go to step 2G.

2F. Replace the defective hose.

2G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Pitot heater does not operate.

3A. Check the Pitot circuit breaker.

Is the circuit breaker not set?

Yes - go to step 3B.

No - go to step 3C.

3B. Reset the circuit breaker. If the circuit breaker opens again, do a test for a shortcircuit in the Pitot heat wiring system.

3C. Examine the Pitot circuit breaker.

Is the Pitot circuit breaker defective?

Yes - go to step 3D.

No - go to step 3E.

3D. Replace the circuit breaker.

3E. Do a continuity test of the Pitot heat wiring system.

Is the Pitot heat wiring defective?

Yes - go to step 3F.

No - go to step 3G.

3F. Repair/replace defective wiring. Refer to Chapter 92 for the Wiring Diagrams.

3G. Examine the Pitot probe.
Is the Pitot probe defective?
Yes - go to step 3H.
No - go to step 3I.

3H. Replace the Pitot probe.

3I. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

OAT indication (on ICS) incorrect.

4A. Examine the OAT probe.
Is the OAT probe defective?
Yes - go to step 4B.
No - go to step 4C.

4B. Replace the OAT probe.

4C. Contact DAI.

34-10-03 Pitot Probe

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Pitot Probe

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the PITOT circuit breaker.

(3) Remove the left wing tip.

Refer to 57-10 Wing structure - Description.

(4) Disconnect the electrical cables from the Pitot probe.

At the in-line connector.

If MÄM 50-232 is installed, open the connector and extract the pins of the connector.

(5) Disconnect the Pitot-static hose connections.

Install dust caps on the hose.

(6) Remove the Pitot probe:

- Remove the bolts that attach the probe to the wing tip.
  Hold the probe!
- Move the probe clear of the airplane.

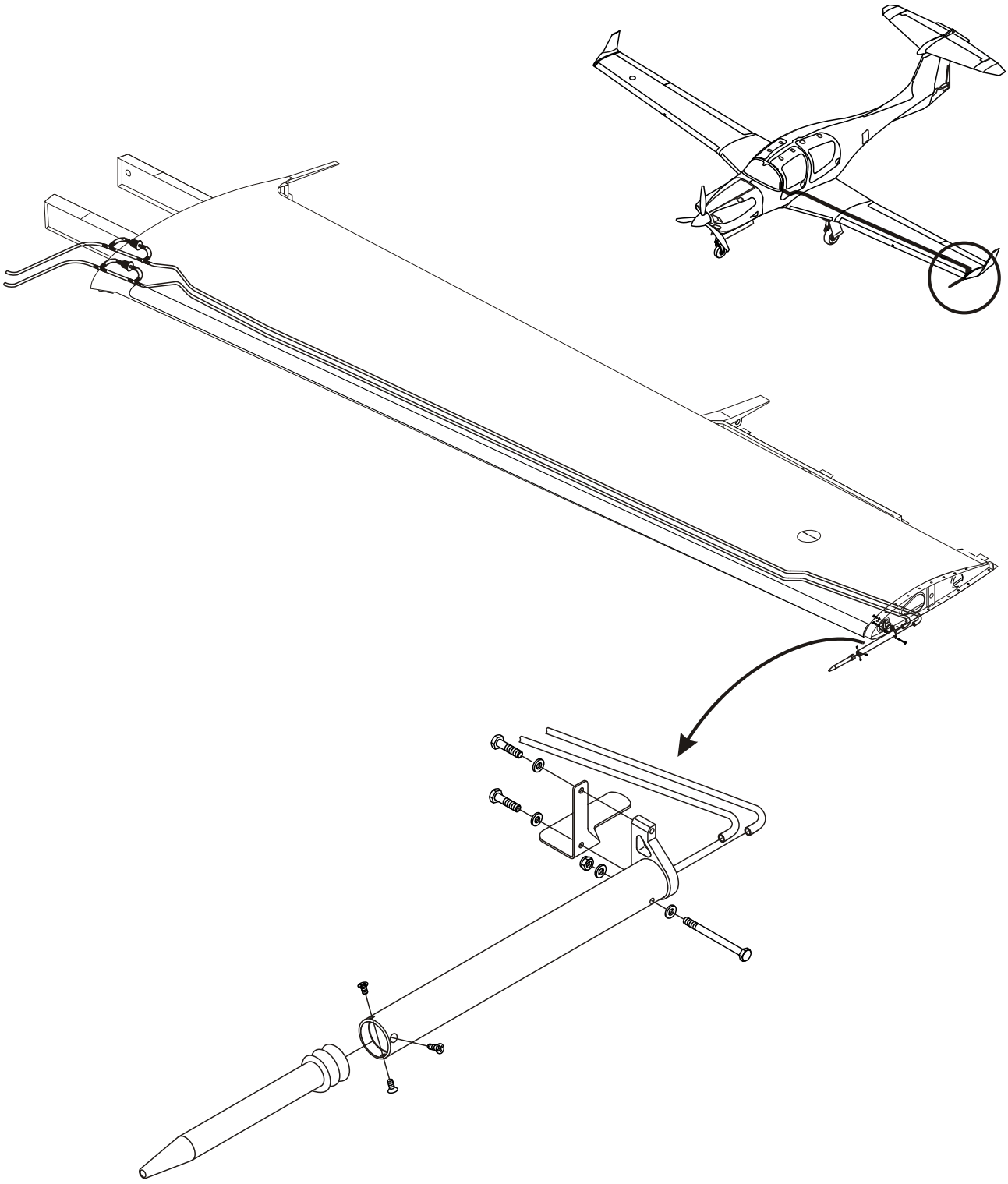


Figure 4 - Pitot Probe Installation

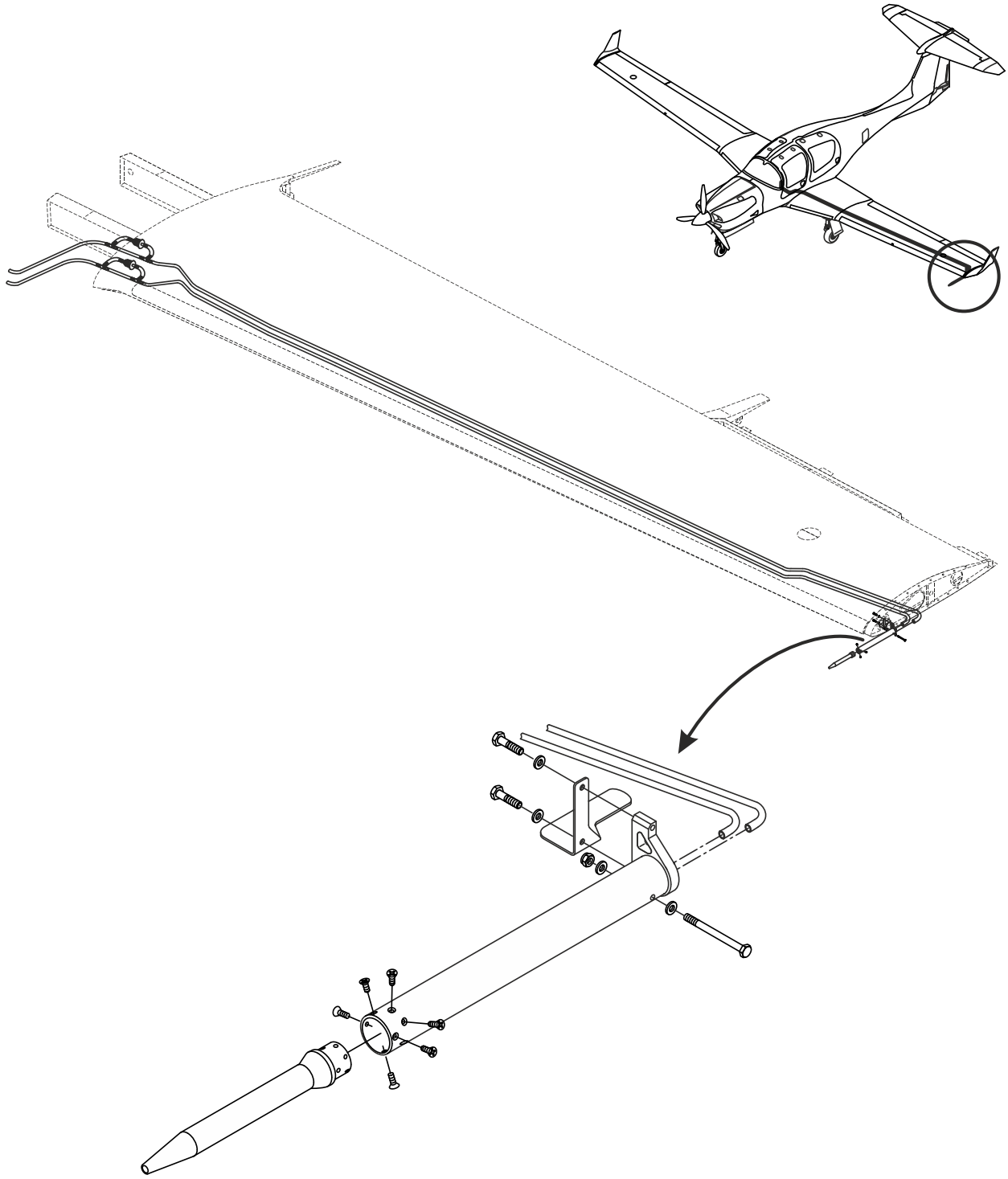


Figure 5 - Pitot Probe Installation (if MÄM 50-232 is installed)

34-10-04 Pitot Probe

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

THE PITOT PROBE GETS VERY HOT. THIS CAN CAUSE INJURY TO PERSONS.

3. Main Procedure

A. Install the Pitot Probe

(1) Move the Pitot probe into position at the wing tip.

(2) Install the probe into the wing tip:

- Move the probe into position in the wing tip tube.
- Install the bolts that attach the probe to the wing tip.

(3) Connect the Pitot-static hose to the probe.

(4) Connect the electrical cables to the probe.

At the in-line connector.

If MÄM 50-232 is installed, insert the pins into the connector and assemble the connector.

(5) Install the left wing tip.

(6) Do a test of the Pitot probe heat system:

- Set the ELECT. MASTER switch to ON.
- Reset the PITOT circuit breaker.
- Set the PITOT switch to ON.
  The pitot probe must get warm.
- Set the PITOT switch to OFF.

The pitot probe must cool down.

- Set the ELECT. MASTER to OFF.

(7) Do a Pitot leak test.

Refer to 34-10 Pitot-Static System - Test and inspection.

(8) Install a dust cap onto the Pitot probe.

34-10-05 Outside Air Temperature (OAT) Probe

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the OAT Probe

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the wing cover on the right side of the center wing.

(3) Disconnect the electrical cables from the OAT probe.

At the in-line connector.

(4) Remove the nut and the sealing washer that attach the OAT probe to the wing cover.

(5) Move the OAT probe clear of the airplane.

Note the position of the bonding wire.

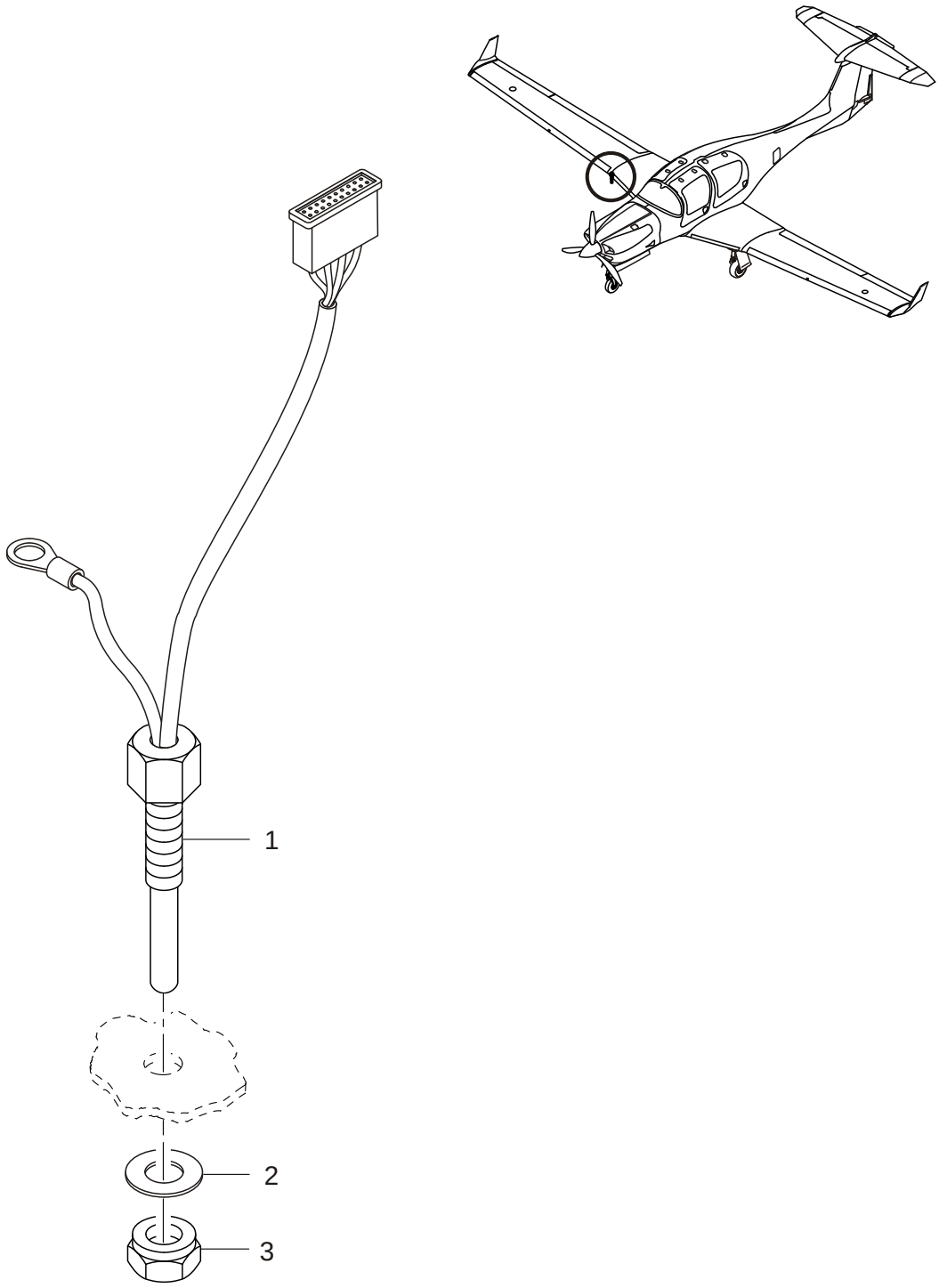


Figure 6 - OAT Probe

Legend

[1, Fig.6] OAT Probe

[2, Fig.6] Washer

[3, Fig.6] Nut

34-10-06 Outside Air Temperature (OAT) Probe

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the OAT Probe

(1) Connect the bonding wire to the OAT Probe.

Install the bonding wire as noted in 34-10 Outside Air Temperature (OAT) Probe - Remove procedure step A.5.

(2) Move the OAT probe into position on the wing cover.

(3) Install the sealing washer and the nut that attach the probe to the wing.

(4) Connect the electrical cables from the OAT probe.

(5) Install the wing cover to the center wing.

(6) Set the ELECT. MASTER switch to ON.

(7) Do a nominal/actual value comparison with a reliable digital or mercury thermometer to test the serviceability of the OAT probe.

Read the OAT indication on the ICS.

34-10-07 Pitot-Static System

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Pitot-static probe adaptor	PS47699-4-4 or equivalent	1
Pitot-static leak tester	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

OBEY THE FOLLOWING PRECAUTIONS WHEN YOU DO A PITOT OR STATIC LEAK-TEST. IF YOU DO NOT OBEY THE PRECAUTIONS YOU CAN DAMAGE THE AIR DATA INSTRUMENTS.

CAUTION

THE G1000 CONFIGURATION MODE CONTAINS CERTAIN PAGES AND SETTINGS THAT ARE CRITICAL TO AIRPLANE OPERATION AND SAFETY. THESE PAGES ARE PROTECTED AND CAN NOT BE MODIFIED, UNLESS THE TECHNICIAN IS PROPERLY AUTHORIZED AND EQUIPPED. HOWEVER, MOST PROTECTED PAGES ARE VIEWABLE TO ALLOW SYSTEM AWARENESS FOR TROUBLESHOOTING.

NOTE

Refer to Component Maintenance Manual for the PST300-AR-2 Pitot Static Probe (if MÄM 50-232 is installed).

3. Main Procedure

A. Precautions

- The pressure in the Pitot system must always be equal to (or greater than) the pressure in the static equipment.
- Reversal of the Pitot and static hoses can cause damage to the air data instruments.
- The applied pressure (and the rate of change of pressure) must not be greater than the design limits of the equipment that you will test.
- After doing the test, you must always return the system to usual operating conditions.

B. Low-Range Static Leak Test

Follow the Pitot-static leak tester manufacturer's instructions for the use of the test-set. Obey the safety precautions for Pitot-static leak-testing at all times.

CAUTION

THE G1000 CONFIGURATION MODE CONTAINS CERTAIN PAGES AND SETTINGS THAT ARE CRITICAL TO AIRPLANE OPERATION AND SAFETY. THESE PAGES ARE PROTECTED AND CAN NOT BE MODIFIED, UNLESS THE TECHNICIAN IS PROPERLY AUTHORIZED AND EQUIPPED. HOWEVER, MOST PROTECTED PAGES ARE VIEWABLE TO ALLOW SYSTEM AWARENESS FOR TROUBLESHOOTING.

(1) Remove the dust cap from the Pitot-static probe and connect the Pitot-static leak tester to the probe.

Use the test set adaptor.

(2) Make sure that the alternate static port is fully closed.

Under the instrument panel, left side.

(3) Prepare the G1000 NXi system for the test:

Only required for airplanes for which 14 CFR §91.411 and 14 CFR §91.411 part 43 Appendix E is applicable.

- Allow the unit to warm up for 15 minutes before performing the following tests.
- Start the G1000 NXi system in normal mode.
- Remove power to the PFD.
  Pull the PFD circuit breaker.
- Turn the PFD on in configuration mode by pressing and holding ENT key on the PFD while applying power.
- Release the ENT key after 'INITIALIZING SYSTEM' appears on the upper left corner of the PFD.
- Using the outer FMS knob on the PFD turn to the GRS page group, use the B ALT field for all CFR Part 43 Appendix E test for G1000 NXi altitude.
- Place the MFD in reversionary mode by pressing the red "DISPLAY BACKUP" button on the GMA 1360 audio panel. Baro settings can then be read from the MFD for the CFR Part 43 Appendix E tests.

(4) Apply a partial vacuum to the static port until you get a pressure altitude of 1000 ft above the ambient pressure altitude.

Note the altitude.

(5) Let the pressure stabilize.

(6) Monitor the system pressure.

The system pressure change must not be more than 100 ft/min.

(7) Compare the test equipment altimeter and the airplane altimeter.

The indication error must be less than shown in Table 1.

(8) Slowly adjust the system pressure to the ambient pressure.

(9) Return both the MFD and PFD to normal mode.

Only required for airplanes for which 14 CFR §91.411 and 14 CFR §91.411 part 43 Appendix E is applicable.

(10) Disconnect the Pitot- static probe adapter and install a blanking cap, with pennant, onto the airplane Pitot static probe.

Altitude	Permissible Error
-1000 ft.*	±20 ft.*
Sea level.	±20 ft.
4,000 ft.	±35 ft.
8,000 ft.	±60 ft.
12,000 ft.	±90 ft.
16,000 ft.	±110 ft.
20,000 ft.	±130 ft.
* Only required for airplanes for which 14 CFR § 91.411 and 14 CFR § 91.411 part 43 Appendix E is applicable.	

Table 1 - Altimeter Indication Error

C. Pitot Leak Test

Follow the Pitot static leak tester manufacturer's instructions for the use of the test set. Obey the safety precautions for Pitot static leak testing at all times.

(1) Remove the blanking cap from the Pitotstatic probe and connect the Pitot-static leak tester to the probe.

Use the test-set adaptor.

(2) Slowly apply a pressure to the Pitot port that gives an indication of 150 kts on the ASI.

(3) Let the pressure stabilize.

(4) Monitor the system pressure.

The leak rate must not be more than 10 kts/min.

(5) Compare the test equipment ASI and the airplane ASI.

The indication error must be less than shown in Table 2.

(6) Slowly release the system pressure.

(7) Disconnect the Pitot-static probe adaptor and install a blanking cap, with pennant, onto the airplane Pitot-static probe.

Airspeed	Permissible Error
160 kts	±2 kts
100 kts	±2 kts
50 kts	±1.7 kts

Table 2 - Table 2: ASI Indication Error

34-10-08 Pitot-Static System

Other procedure to clean

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Compressed air equipment with oil separator and pressure regulator	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

OBEY THE FOLLOWING PRECAUTIONS WHEN YOU CLEAN THE PITOT STATIC SYSTEM. IF YOU DO NOT OBEY THE PRECAUTIONS YOU CAN DAMAGE THE AIR DATA INSTRUMENTS.

NOTE

Refer to Component Maintenance Manual for the PST300-AR-2 Pitot Static Probe (if MÄM 50-232 is installed).

3. Main Procedure

A. Precautions

- Never apply pressurized air to the air data instruments. Always apply compressed air to the hoses from the inboard end to the outboard end.
- Do not apply excessive pressure (above 1 bar/14.5 PSI) to the Pitot and static hoses.
- Do not use compressed air without oil separator.
- Reversal of the Pitot and static hoses can cause damage to the air data instruments.
- After cleaning the system, you must always return the system to usual operating conditions.

B. Cleaning Procedure

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(3) Remove the pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(4) Disconnect the Pitot static hoses from the rear of the standby attitude module (SAM).

(5) Disconnect the Pitot static hoses from the air data computer (ADC).

(6) Disconnect the Pitot static hoses from the water traps.

Under the pilot's seat.

(7) Blow compressed air through each of the Pitot static hoses from the inboard end to the outboard end.

Maximum pressure: 1 bar (14.5 PSI).

(8) Check the water traps for dirt. Replace if necessary.

(9) Reconnect the Pitot static hoses to the water traps.

(10) Reconnect the Pitot static hoses to the Pitot probe.

(11) Reconnect the Pitot static hoses to the air data computer (ADC).

(12) Reconnect the Pitot static hoses to the rear of the standby attitude module (SAM).

(13) Do a low-range static leak test.

Refer to 34-10 Pitot-Static System - Test and inspection.

(14) Do a Pitot static leak test.

Refer to 34-10 Pitot-Static System - Test and inspection.

(15) Install the pilot's seat.

Refer to 25-10 Pilots Seat - Remove procedure.

(16) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure .

34-20
ATTITUDE AND DIRECTION

34-20-01 Attitude and direction

Description

1. Attitude and Direction

This Section tells you about the attitude and direction system installed in the DA 50 C airplane. The main attitude and direction systems are integral with the integrated cockpit system (ICS) that is installed in the DA 50 C airplane. Refer to 31-40 Central computers - Description for more data about the ICS. The DA 50 C has the usual magnetic compass. The magnetic compass is installed on the windscreen at the top, center. There is also an artificial horizon integral of the standby attitude module installed in the instrument panel, arranged centrally.

A. Magnetic Compass

The magnetic compass shows the heading of the airplane related to magnetic north. Fluid in the compass bowl gives damping. Each graduation of the compass is 5°.

A compass deviation card is located next to the compass. You must do a test for the correct operation of the compass (compass swing):

- After replacing a major component.
- After replacing the compass.
- After a major modification to the airplane.
- After a lightning strike has been reported.
- If the airplane has been parked for more than 90 days.

B. Standby Attitude Module

The Mid Continent MD302 Standby Attitude Module is a self-contained situational awareness instrument that provides airplane attitude, altitude, airspeed and slip indication. The Standby Attitude Module consists of two separate LCD displays. The top display of the Standby Attitude Module MD302 represents the attitude indicator. The background of the display consists of the representative white horizon line separating the “sky” (blue) from the “ground” (brown).

The roll scale depicted as an arc of graduations representing bank angles of 0 (triangle), 10, 20, 30, 45 (small triangle) and 60. The roll scale can be configured during installation to be fixed to the sky/ horizon or fixed to the top of the display.

The roll pointer is the triangle just below the roll scale and represents the airplane in relation to its bank angle. It is configured, by definition, to operate conversely to the roll scale behaviour. That is, a rotating scale produces a fixed roll pointer and a fixed roll scale produces a rotating roll pointer.

The pitch scale is depicted as a series of graduations representing pitch angles of every 5°, with every 10° graduation extended and numbered.

The symbolic airplane will always remain in the center of the display, with the background elements moving behind it to represent the aircraft's relative position. Refer to the manufacturer's documentation for more information of the Standby Attitude Module.

34-20-02 Attitude and direction

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Magnetic compass damping fluid leaking.

1A. Examine the compass.

Is the compass housing defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the compass.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Compass deviation more than 10°.

2A. Do a test for residual magnetism using a handheld compass.

Is there residual magnetism of a metal component in the airplane?

Yes - go to step 2B.

No - go to step 2C.

2B. If necessary, degauss the component.

2C. Examine the compass.

Is the compass defective?

Yes - go to step 1B.

No - go to step 2D.

2D. Check the compass calibration.

Is the compass out of calibration?

Yes - go to step 2E.

No - go to step 2F.

2E. Do a compass swing.

2F. Contact DAI.

34-20-03 Standby Attitude Module

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the SAM

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(3) Disconnect the Pitot-static hoses from the rear of the SAM.

(4) Disconnect the electrical connector from the rear of the SAM.

(5) Remove the screws that attach the SAM to the instrument panel.

Hold the SAM!

(6) Remove the SAM from the instrument panel and clear of the airplane.

Fit dust caps to all open connections.

34-20-04 Standby Attitude Module

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the SAM

(1) Remove the dust-covers from all open connections.

If necessary, install the dust covers from the new SAM onto the SAM that you removed.

(2) If necessary, install Pitot-static hose connections onto the new SAM.

Use the connections from the SAM that you removed.

(3) Move the SAM into position at the instrument panel.

Hold the SAM!

(4) Install the screws that attach the SAM to the instrument panel.

(5) Connect the electrical connector from the rear of the SAM.

(6) Connect the Pitot-static hoses to the rear of the SAM.

(7) Do a low-range static leak check and a Pitotstatic leak check.

Refer to 34-10 Pitot-Static System - Test and inspection.

(8) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

34-20-05 Magnetic Compass

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Magnetic Compass

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Disconnect electrical cables at the in-line connector.

(3) Remove the 2 screws that attach the compass to the windscreen.

Hold the compass!

(4) Move the compass clear of the windscreen.

Remove and discard the compass deviation table.

34-20-06 Magnetic Compass

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Magnetic Compass

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Move the magnetic compass into position at the windscreen.

Hold the compass in position.

(3) Install the 2 screws that attach the compass to the windscreen.

(4) Connect electrical cables.

(5) Do a compass swing.

Refer to 34-20 Magnetic Compass - Test and inspection.

34-20-07 Magnetic Compass

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Calibrated land compass	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

USE ONLY NON-MAGNETIC TOOLS TO ADJUST THE COMPASS.

CAUTION

DO NOT WEAR OR CARRY METALLIC OBJECTS (WATCHES, BRACELETS ETC) WHEN YOU ADJUST THE COMPASS COMPENSATING MAGNETS OR OPERATE THE LAND COMPASS. METALLIC OBJECTS NEAR THE COMPASS CAN CAUSE ERRORS.

3. Main Procedure

A. Test/Adjust the Magnetic Compass (Compass Swing)

You must do a test for correct operation of the compass (compass swing):

- After replacing a major component.
- After replacing the compass.
- After a major modification to the airplane.
- After a lightning strike has been reported.
- If the airplane has been parked for more than 90 days.

If possible, use a compass swing area that has been tested for magnetic interference. In any case, you must use a level area that is away from metal structures, underground pipes, reinforced concrete, other airplane and ground servicing equipment.

B. Compass Swing

(1) Adjust the compensating magnets in the compass to a neutral position.

Refer to the compass manufacturer's instructions.

(2) Start the engine and set all electrical loads to ON.

Refer to the Airplane Flight Manual.

(3) Use the land compass to align the airplane to magnetic north.

Adjust the N-S compensator magnet so that the airplane compass indicates a heading of 0°.

(4) Use the land compass to align the airplane to magnetic east.

Adjust the E-W compensator magnet so that the airplane compass indicates a heading of 90°.

(5) Use the land compass to align the airplane to magnetic south.

Adjust the N-S compensator magnet to remove half of the error between the indicated heading and 180°.

(6) Use the land compass to align the airplane to magnetic west.

Adjust the E-W compensator magnet to remove half of the error between the indicated heading and 270°.

(7) Turn the airplane through 360°, record the deviation at each 30° radial. Prepare a deviation table that shows the corrections that must be applied to each of the 30° radials.

If large deviations occur when you operate electrical equipment/systems, the deviation table must also show the corrections to apply to each 30° radial when that particular equipment/ system is operating.

(8) Install the new deviation table in the compass card holder next to the compass.

34-30
LANDING AND TAXIING AIDS

34-30-01 Landing and taxiing aids

Description

1. Landing and Taxiing Aids

This Section tells you about the landing and taxiing aids that can be installed in the DA 50 C.

Refer to the equipment manufacturers' manuals for more data about other options of landing and taxiing aids.

2. Description

The DA 50 C has the following landing and taxiing aids:

- Localizer system, which is part of the G1000 NXi integrated avionics system. Refer to Section 31-40 Central computers - Description for more data about the G1000 NXi integrated avionics system.
- Glideslope system, which is part of the G1000 NXi integrated avionics system. Refer to Section 31-40 Central computers - Description for more data about the G1000 NXi integrated avionics system.
- Marker beacon receiver, which is part of the G1000 NXi integrated avionics system. Refer to Section 31-40 Central computers - Description for more data about the G1000 NXi integrated avionics system.

34-40
INDEPENDENT POSITION DETERMINING

34-40-01 Stormscope System

Description

1. Description and Operation

The WX-500 is a passive sensor that listens for electromagnetic signals with a receiving antenna. The antenna detects intra-cloud, inter-cloud, or cloud-to-ground electrical discharges within a 200 nm radius of the airplane and sends the resulting 'discharge signals' to the processor. The processor digitizes, analyzes, and converts the discharge signals into range and bearing data. This information is stored in the storm buffer.

A. Stromscope Processor

The stormscope processor is tray mounted and is located iunder the baggage compartment.

The AVIONICS BUS supplies power to the lightning detection system. The ELECT. MASTER switch and the AV. MASTER switch must be set to ON to supply power through the TWX circuit breaker to the lightning detection system.

The processor houses the lightning data acquisition circuitry as well as the circuitry necessary to process heading information and communicate with the G1000 NXi system. All functions are controlled through the MFD of the G1000 NXi system.

B. Stromscope Antenna

The stromscope antenna is located on the bottom of the left outer wing. The antenna is a combined cross-loop and sense antenna. The antenna is sealed against environmental extremes and is non-repairable.

34-40-02 Stormscope Processor

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Stormscope Processor

(1) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure.

(2) Open the TWX circuit breaker.

(3) Loosen the screw that attaches the processor to its mounting tray.

(4) Remove the stromscope processor from the mounting tray.

34-40-03 Stormscope Processor

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Stormscope Processor

(1) Put the stormscope processor in position in the mounting tray.

(2) Tighten the screw that attaches the processor to its mounting tray.

(3) Install the baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(4) Close the TWX circuit breaker.

(5) Do a test of the stormscope system.

Refer to 34-40 Stormscope System - Test and inspection.

34-40-04 Stormscope Antenna

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Stormscope Antenna

(1) Remove the wing maintenance access panel.

(2) Open the TWX circuit breaker.

(3) Disconnect the connector of the stormscope antenna.

(4) Remove the screws which attach the stormscope antenna to the mounting bracket.

Hold the antenna!

(5) Remove the stormscope antenna from the aircraft.

34-40-05 Stormscope Antenna

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Stormscope Antenna

(1) Put the stormscope antenna in position on the fuselage.

(2) Install the screws which attach the stormscope antenna to the mounting bracket.

(3) Connect the connector of the stormscope antenna.

(4) Close the TWX circuit breaker.

(5) Install the wing maintenance access panel.

(6) Do a test of the stormscope system.

Refer to 34-40 Stormscope System - Test and inspection.

34-40-06 Stormscope System

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Test of the Stormscope System

Perform the installation checkout as outlined in L-3 Stormscope Installation Manual.

P/N 009-11500-001 Chapter 3, ‘Installation Checkout’.

34-40-07 Traffic Advisory System (TAS)

Description

1. Description and Operation

The Ryan/Avidyne and Garmin traffic advisory systems (collectively known as TASs) are actively interrogating on-board air traffic detection systems used to identify potential collision threats. The TAS computes relative altitude and range of threats from nearby transponder-equipped airplanes. Airplanes with non-Mode C transponders can provide range information. The TAS does not detect airplanes without an operating transponder.

A. Processor

The TAS processor is tray mounted and is located in the avionic bay.

The AVIONICS BUS supplies power to the traffic advisory system. The ELECT. MASTER switch and the AV. MASTER switch must be set to ON to supply power through the TAS circuit breaker to the traffic advisory system.

The TAS processor communicates to the Garmin G1000 NXi system which indicates nearby traffic on the MFD. All functions of the TAS are controlled through the MFD.

B. Transponder Coupler (optional)

The transponder coupler is mounted directly above the TAS processor. The transponder coupler supplies the processor with a signal indicating the on-board transponder is transmitting a reply.

C. Antennas

The TAS has two directional antennas. The top antenna is located on top of the fuselage between the LH and RH pilot doors, and the bottom antenna is located on the fuselage bottom between the taxi - and landing lights.

34-40-08 Traffic Advisory System (TAS)

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

TAS does not operate.

1A. Examine the circuit breaker.

Is the Circuit breaker not set?

Yes - go to step 1B.

No - go to step 1E.

1B. Set the circuit breaker.

1C. If OÄM 50-050 (Garmin) is installed:

Is the configuration improper?

Yes - go to step 1D.

No - go to step 1E.

1D. Reconfigure the Traffic Advisory System.

1E. Examine the cable.

Is the cable faulty?

Yes - go to step 1F.

No - go to step 1G.

1F. Do a test for continuity on each cable. Do a test for short circuit to ground and between cables. Replace the defective cables.

1G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The TAS bearing shows opposite to the traffic forward and aft, and it shows correctly left and right.

2A. Examine the antennas.

Are the antenna co-axes for the top antenna backwards?

Yes - go to step 2B.

No - go to step 2C.

2B. Examine the antenna connections.

2C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

The TAS bearing shows opposite to the traffic left and right, and it shows correctly forward and aft.

3A. Examine the antennas.

Are the antenna co-axes for the bottom antenna backwards?

Yes - go to step 3B.

No - go to step 3C.

3B. Examine the antenna connections.

3C. Contact DAI.

34-40-09 TAS Processor

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the TAS Processor

(1) Make sure that the ELECT. MASTER switch is set to OFF.

Instrument panel, left side.

(2) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure.

(3) Open the TAS circuit breaker.

Instrument panel, right side.

(4) Disconnect the connectors and antenna cables from the TAS processor.

(5) Loosen the diagonal retaining screws that attaches the processor to its mounting tray.

If GTS 800 (OÄM 50-050) is installed:

Loosen the hold down clamp of the unit by turning it counterclockwise. Do this until it disengages the hold down tap of the unit.

(6) Slide the TAS processor out of its mounting tray and clear of the airplane.

Along the rails.

34-40-10 TAS Processor

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the TAS Processor

(1) Move the TAS processor into its mounting tray.

Along the rails.

(2) Tighten the diagonal retaining screws that attached the processor to its mounting tray.

If Garmin GTS 800 (OÄM 50-050) is installed:

Pull the locking clamp up and turn it clockwise to tightly engage the hold down tap.

CAUTION

WRONG CONNECTION OF THE ANTENNA CABLES WILL LEAD TO A WRONG INDICATION.

(3) Connect the connectors and antenna cables to the TAS processor.

(4) Close the TAS circuit breaker.

(5) Install the baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(6) Do a test of the traffic advisory system.

Refer to the TAS Installation Manual, latest revision.

If Garmin GTS 800 (OÄM 50-050) is installed: Refer to Garmin Line Maintenance Manual.

34-40-11 Transponder Coupler

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Transponder Coupler

NOTE

This procedure only is applicable if the Avidyne TAS is installed.

(1) Make sure that the ELECT. MASTER switch is set to OFF.

Instrument panel, left side.

(2) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure.

(3) Open the TAS circuit breaker.

Instrument panel, right side.

(4) Disconnect the antenna cables from the transponder coupler.

(5) Remove the screws that attach the transponder coupler to the mounting rack.

Hold the transponder coupler!

(6) Remove the transponder coupler clear of the airplane.

Fit dust caps to all connections.

34-40-12 Transponder Coupler

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Transponder Coupler

NOTE

This procedure only is applicable if the Avidyne TAS is installed.

(1) Remove the dust-cover(s) from all connections.

If necessary, install the dust covers from the new transponder coupler onto the transponder coupler that you removed.

(2) Move the transponder coupler into position on the mounting rack.

Hold the transponder coupler!

(3) Install the screws that attach the transponder coupler to the mounting rack.

(4) Connect the antenna cables to the transponder coupler.

(5) Close the TAS circuit breaker.

(6) Install the baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(7) Do a test of the traffic advisory system.

Refer to the TAS Installation Manual, latest revision.

34-40-13 TAS Antenna

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove a TAS Antenna

(1) Make sure that the ELECT. MASTER switch is set to OFF.

Instrument panel, left side.

(2) Open the TAS circuit breaker.

Instrument panel, right side.

(3) Remove the maintenance access cover for the LH & RH pilot door if you will replace the top mounted antenna. Refer to 52-40 Access Panels - Description.

Remove both pilots' seats if you will replace the bottom mounted antenna. refer to 25-10 Pilots Seat - Remove procedure.

(4) Disconnect the coaxial cables from the antenna that you will replace. At the antenna.

(5) Remove the antenna:

- Remove the 4 screws that attach the antenna to the structure.
  Hold the antenna.
- If necessary, use a knife to carefully remove the sealant that seals the antenna to the airplane outer surface.
  Take care not to damage the airplane surface!
- Move the antenna clear of the airplane.

34-40-14 TAS Antenna

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install a TAS Antenna

(1) Make sure that the contact surfaces of the antenna and the ground plane where the antenna will be installed are clean and free of grease.

(2) Move the antenna into position.

(3) Install the 4 screws that attach the antenna to the airplane.

(4) Seal the outer edge of the antenna where it contacts the airplane surface with sealant.

Refer 34-50 Dependent position determining - Description for an approved sealant.

(5) Remove the excess sealant that has been forced out of the joint between the antenna and the airplanes surface.

CAUTION

WRONG CONNECTION OF THE ANTENNA CABLES WILL LEAD TO A WRONG INDICATION.

(6) Connect the coaxial cables to the antenna. At the antenna

(7) Install the access cover or seat if necessary.

Refer to 52-40 Access Panels - Description or 25-10 Pilots Seat - Install procedure.

(8) Reset the TAS circuit breaker. Instrument panel, right side.

(9) Do a test of the traffic advisory system.

Refer to the Avidyne TAS Installation Manual, latest revision.

If GTS 800 (OÄM 50-050) is installed: Refer to Garmin Line Maintenance Manual.

34-50
DEPENDENT POSITION DETERMINING

34-50-01 Dependent position determining

Description

1. Description

The DA 50 C has these dependent position determining systems and antennas:

- Transponder.
- DME.
- GPS (2x).
- Marker.
- VOR/G/S.
- ADF.

Refer to 34-10 Flight environment data - Description Figure 3.

Flexible coaxial cables connect the antennas to their related equipment. You can replace the coaxial cables. The antennas are all attached to the surface of the airplane and can be replaced.

Refer to 31-40 Central computers - Description for more data about the dependent position determining systems and their related displays.

2. Used Types of Flexible Coaxial Cables

Antenna/Receiver	Coaxial Cable
Transponder	RG 142
DME	RG 142
GPS	RG 400
Marker	RG 400
ADF	RG 400

Table 1 - Used Types of Flexible Coaxial Cables

3. Sealant Specification

Use an adhesive bonding compound on the basis of polyurethane or acrylic to seal the antennas to the airplane outer surface. Make sure the sealant is free of silicone and it is temperature resistant from -40 ° C (-40 °F) to +60 °C (+140 °F).

34-50-02 ADF System

Description

1. ADF System

The Automatic Direction Finder, ADF 3500, System comprises automatic radio compass direction finding equipment which operates in the 190kHz – 1799.5kHz range. It consists of three components which are, the ADF receiver, the RMI converter and the ADF antenna.

A. ADF receiver / RMI converter

The ADF receiver and the RMI converter are tray mounted and located above the avionic box.

The AVIONIC BUS supplies power to the automatic direction finder system. The ELECT. MASTER switch and the AV. MASTER switch must be set to ON to supply power, through the ADF circuit breaker, to the ADF system.

The ADF receiver and the RMI converter houses the circuitry necessary to process direction information and communicate with the G1000 NXi system. All functions are controlled through the PFD/MFD of the G1000 NXi system.

B. ADF antenna

The automatic direction finder antenna is located on the centre bottom of the fuselage. The antenna comprises a loop, a sense antenna and the corresponding amplifier and the electronic switch.

34-50-03 Dependent position determining

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

ATC reports no transponder reply. Transponder reply symbol operates. Low output power.

1A. Examine antenna connections.

Are antenna connections defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Repair/replace defective antenna connections.

1C. Examine the antenna.

Is the antenna defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the antenna.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

ATC reports no transponder reply. Transponder reply symbol not operating. Poor received signal.

2A. Examine antenna connections.
Are antenna connections defective?
Yes - go to step 2B.
No - go to step 2C.

2B. Repair/replace defective antenna connections.

2C. Examine the antenna.
Is the antenna defective?
Yes - go to step 2D.
No - go to step 2E.

2D. Replace the antenna.

2E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

DME/GPS/MARKER/ADF/VOR/G/S systems give poor performance. Poor received signal.

3A. Examine antenna connections.

Are antenna connections defective?

Yes - go to step 3B.

No - go to step 3C.

3B. Repair/replace defective antenna connections.

3C. Examine the antenna.

Is the antenna defective?

Yes - go to step 3D.

No - go to step 3E.

3D. Replace the antenna.

3E. Contact DAI.

34-50-04 Transponder or DME Antenna

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace the Transponder or DME Antenna

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the XPDR/DME circuit breaker.

Pull the circuit breaker.

(3) Remove the pilot's seat if you will replace the transponder antenna.

Remove only the co-pilot's seat if you will replace the DME antenna.

Refer to 25-10 Pilots Seat - Remove procedure .

(4) Disconnect the coaxial cable from the antenna that you will replace.

At the antenna.

(5) Remove the antenna:

- Remove the 2 nuts and washers that attach the antenna to the structure.
  Hold the antenna.
- If necessary, use a knife to carefully remove the sealant that seals the antenna to the airplane outer surface.
  Take care not to damage the airplane surface!
- Move the antenna clear of the airplane.

(6) Install the antenna:

- Make sure that the contact surfaces of the antenna and the airplane surface where the antenna will be installed are clean and free of grease.

- Move the antenna into position under the fuselage.
- Seal the outer edge of the antenna where it contacts the airplane surface with sealant. Use sealant. Refer to 34-50 Dependent position determining - Description Para 3..
- Install the 2 washers and nuts that attach the antenna to the airplane structure.
- Remove the excess sealant that has been forced out of the joint between the antenna and the airplane surface.

(7) Connect the coaxial cable to the antenna.

At the antenna.

(8) Install the seat(s) that you removed at step A.(3).

Refer to 25-10 Pilots Seat - Install procedure.

(9) Reset the XPDR/DME circuit breaker.

(10) Do a test of the transponder.

Only if you replaced the transponder antenna.

(11) Do an operational test of the DME on the next flight.

Only if you replaced the DME antenna.

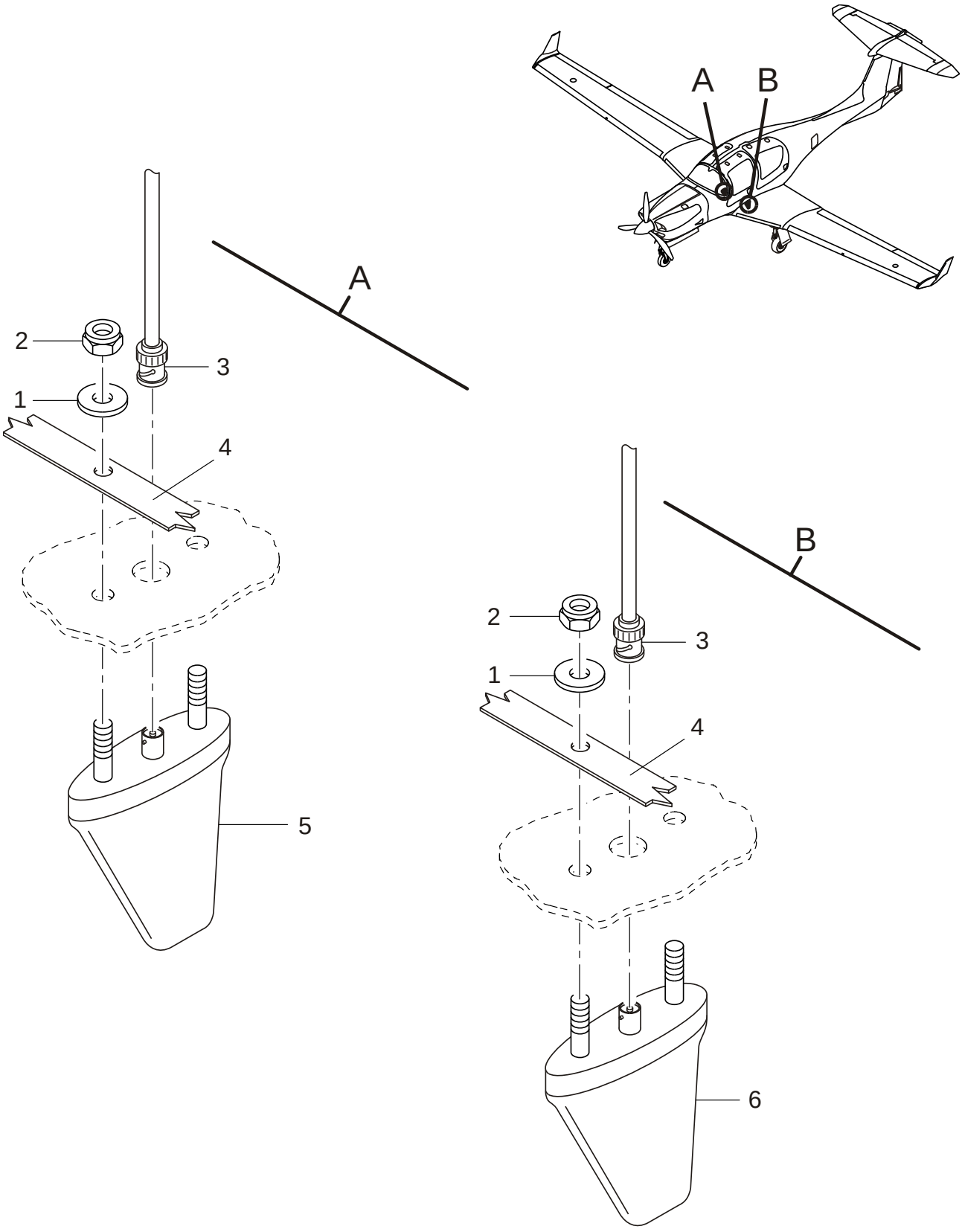


Figure 1 - Transponder and DME Antenna Installation

Legend

[1, Fig.1] Washer

[2, Fig.1] Nut

[3, Fig.1] Connector

[4, Fig.1] Lightning Protection

[5, Fig.1] DME Antenna

[6, Fig.1] Transponder Antenna

34-50-05 GPS Antenna

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace a GPS Antenna

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the GPS/NAV1 and/or GPS/NAV2 circuit breaker. Pull the circuit breaker.

(3) Remove the reading/map light(s) as necessary to gain access to the antenna that you will replace.

Refer to 33-10 Map / Reading Light Assembly - Remove procedure.

(4) Disconnect the coaxial cable from the antenna that you will replace.

At the antenna.

(5) Remove the antenna:

- Remove the 4 screws, nuts and washers that attach the antenna to the airplane. Hold the antenna.
- Remove the ground-plate.
- If necessary, use a knife to carefully remove the sealant that seals the antenna to the airplane outer surface.
  Take care not to damage the airplane surface!
- Move the antenna clear of the airplane.
  From the outside.

(6) Install the antenna:

- Make sure that the contact surfaces of the antenna and the airplane surface where the antenna will be installed are clean and free of grease.
- Move the antenna into position on the top of the fuselage.
- Seal the outer edge of the antenna where it contacts the airplane surface with sealant. Use sealant. Refer to 34-50 Dependent position determining - Description Para 3..
- Install the ground plate.
- Install the 4 screws, washers and nuts that attach the antenna to the airplane. Torque 2.5 ± 0.3 Nm (1.8 ± 0.22 lbf.ft.).
  Refer to Special Torque Values - Description.

(7) Connect the coaxial cable to the antenna.

At the antenna.

(8) Install the reading/map light(s) that you removed at step A.(3).

(9) Set the GPS/NAV1 and/or GPS/NAV2 circuit breaker.

(10) Do a test of the GPS system(s).

Refer to 31-40 Central computers - Description.

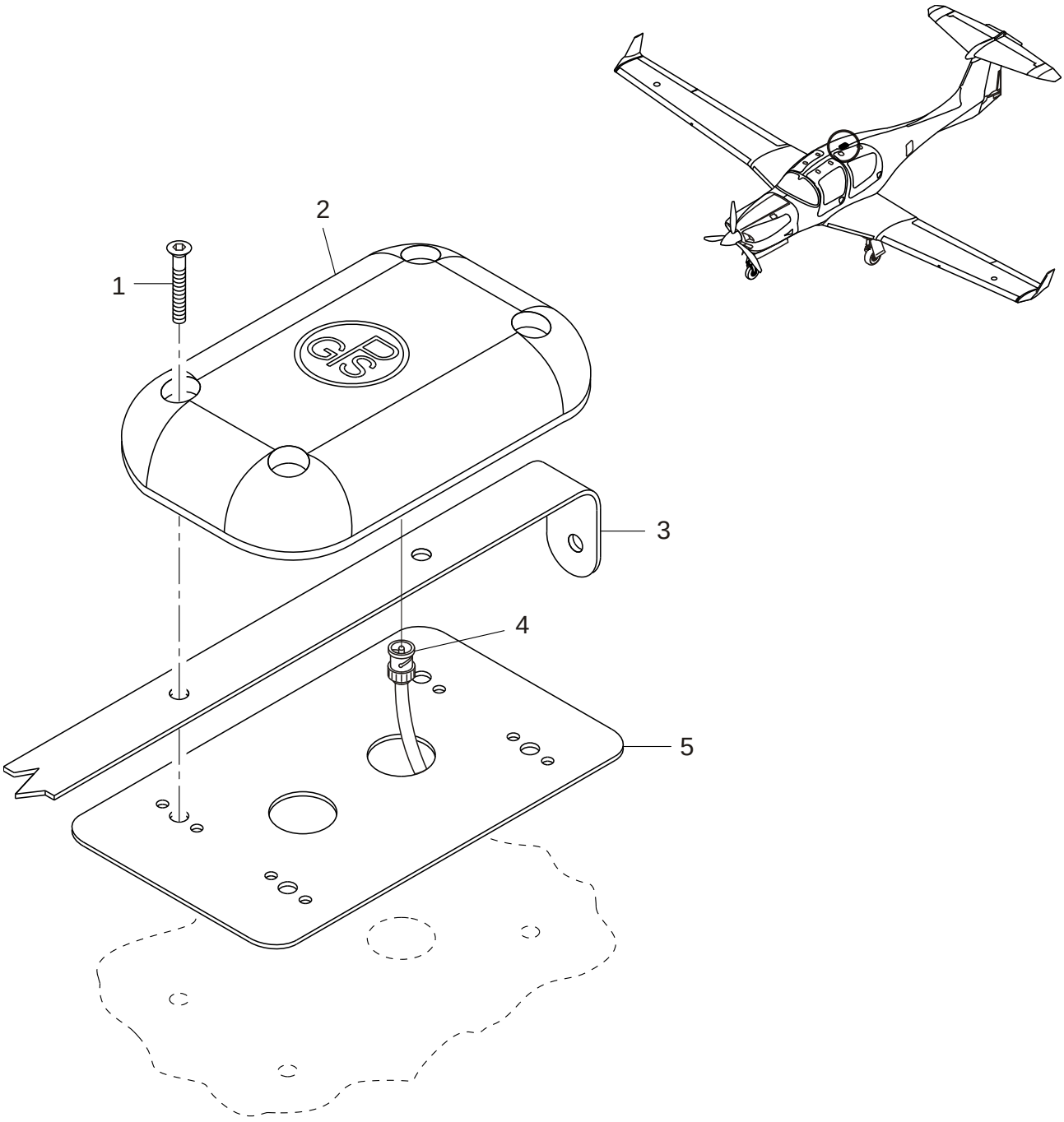


Figure 2 - Replace a GPS Antenna

Legend

[1, Fig.2] Screw
[2, Fig.2] GPS Antenna
[3, Fig.2] Lightning Protection
[4, Fig.2] Connector
[5, Fig.2] Ground Plate

34-50-06 Marker Antenna

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace a Marker Antenna

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Remove the aft baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure.

(3) Disconnect the coaxial cable from the antenna that you will replace.

At the antenna.

(4) Remove the antenna:

- Remove the 4 screws, nuts and washers that attach the antenna to the airplane. Hold the antenna.
- Remove the ground plate.
  If necessary, use a knife to carefully remove the sealant that seals the antenna to the airplane outer surface.
  Take care not to damage the airplane surface!
- Move the antenna clear of the airplane.
  From the outside.

(5) Install the antenna:

- Make sure that the contact surfaces of the antenna and the airplane surface where the antenna will be installed are clean and free of grease.
- Move the antenna into position on the bottom of the fuselage.

- Seal the outer edge of the antenna where it contacts the airplane surface with sealant. Use sealant. Refer to 34-50 Dependent position determining - Description Para 3..
- Install the 4 screws, washers and nuts that attach the antenna to the airplane.

(6) Connect the coaxial cable to the antenna.

At the antenna.

(7) Install the aft baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(8) Do an operational test of the marker system on the next flight.

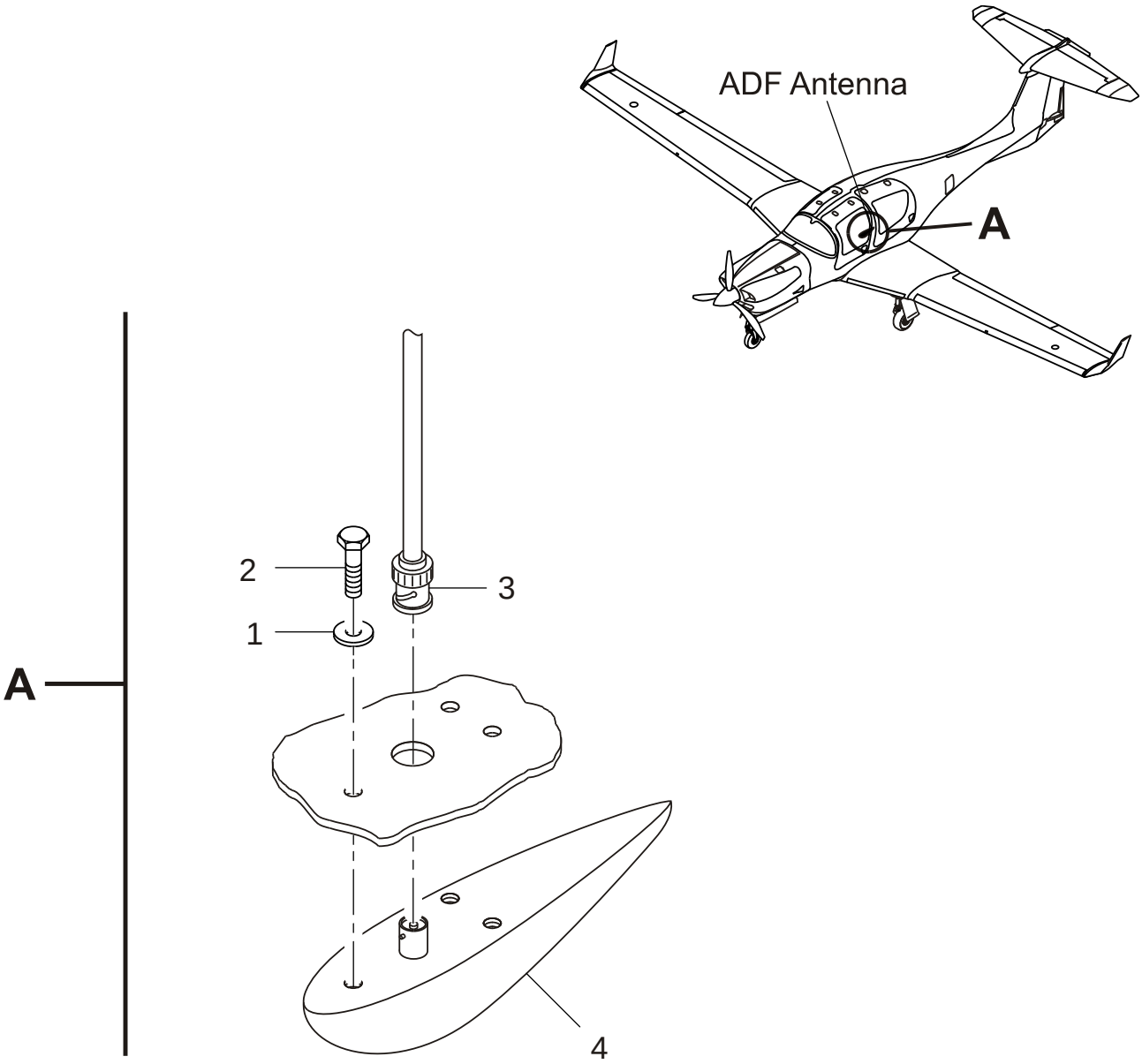


Figure 3 - Replace a Marker Antenna

Legend

[1, Fig.3] Washer

[2, Fig.3] Bolt

[3, Fig.3] Connector

[4, Fig.3] Marker Antenna

34-50-07 VOR/LOC/GS Antenna

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace a VOR/LOC/GS Antenna

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the GPS/NAV1 and/or GPS/NAV2 circuit breaker.

Pull the circuit breaker.

(3) Remove the rudder to gain access to the VOR/LOC/GS antenna via the hole in the stabilizer spar.

Refer to 27-20 Rudder Control System - Description.

(4) Disconnect the coaxial cable from the antenna that you will replace.

At the antenna.

(5) Remove the antenna:

- Remove the 4 nuts and washers that attach the antenna to the airplane.
- If necessary, use a knife to carefully remove the sealant that seals the antenna to the airplane outer surface.
- Move the antenna clear of the airplane with the ground plate.
  From the outside.

(6) Install the antenna:

- Make sure that the contact surfaces of the antenna and the airplane surface where the antenna will be installed are clean and free of grease.
- Move the ground plate with the antenna into position.

- Seal the outer edge of the antenna where it contacts the airplane surface with sealant. Use sealant. Refer to 34-50 Dependent position determining - Description Para 3..
- Install the 4 screws, washers and nuts that attach the antenna to the airplane.

(7) Connect the coaxial cable to the antenna.

At the antenna.

(8) Install the rudder.

Refer to 27-20 Rudder Control System - Description.

(9) Do an operational test of the VOR/LOC/GS system on the next flight.

34-50-08 Transponder (XPDR)

Description

1. General

The DA 50 C has a transponder system which is an integral part of the Garmin G1000 NXi system.

Refer to the G1000 NXi Maintenance Manual, Doc.No.190-02631-00, latest revision for more details about the transponder (XPDR) system of the DA 50 C airplane.

34-50-09 ADF Receiver / RMI Converter

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the ADF Receiver /RMI Converter

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the ADF circuit breaker. Pull the circuit breaker.

(3) Remove the baggage compartment.

Refer to 25-50 Baggage Compartment - Remove procedure

(4) Disconnect the connector of the ADF receiver / RMI converter.

(5) Open the two quick release bolts that attach the receiver or the one quick release bolt that attaches the converter, to its mounting tray.

(6) Remove the ADF receiver / RMI converter from the mounting tray.

Refer to Figure 4.

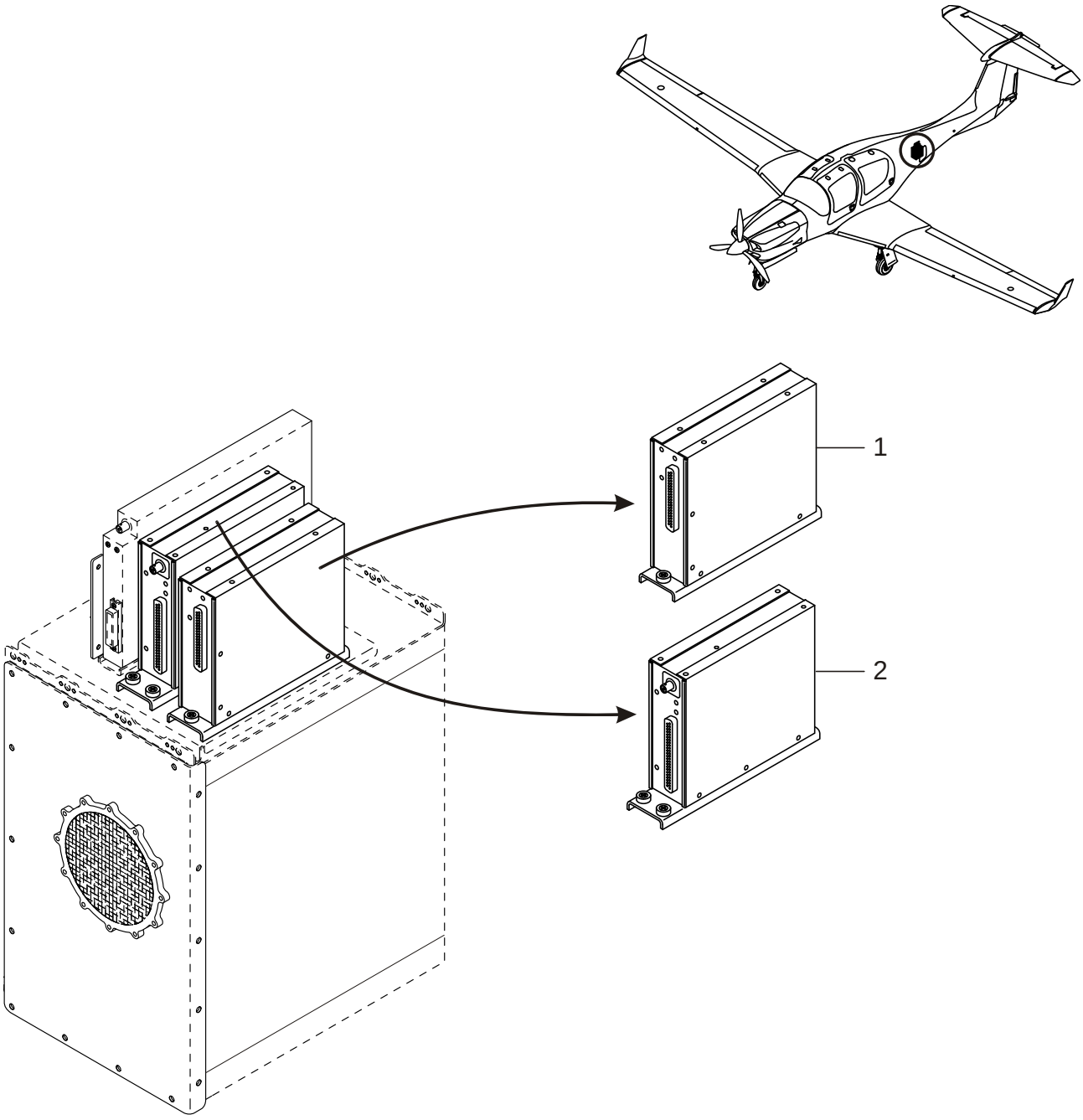


Figure 4 - ADF Receiver / RMI Converter Installation

Legend

[1, Fig.4] RMI Converter

[2, Fig.4] ADF Receiver

34-50-10 ADF Receiver / RMI Converter

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the ADF Receiver /RMI Converter

(1) Push the ADF receiver / RMI converter into the mounting plate and lock the one, for the RMI converter, or two, for the ADF receiver, quick-release bolt(s).

Refer to 34-50 ADF Receiver / RMI Converter - Remove procedure Figure 4.

(2) Connect the connector of the ADF receiver / RMI converter.

(3) Install the baggage compartment.

Refer to 25-50 Baggage Compartment - Install procedure.

(4) Reset the ADF circuit breaker.

(5) Do a test of the ADF system.

Refer to 34-50 ADF System - System Test.

34-50-11 ADF Antenna

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the ADF Antenna

(1) Make sure that the ELECT. MASTER switch is set to OFF.

(2) Open the ADF circuit breaker. Pull the circuit breaker.

(3) Remove the passenger's seat. Refer to Passenger Seat - Remove procedure.

(4) Remove the rear centre tunnel cover.

(5) Disconnect the connector of the ADF antenna.

(6) Remove the screws which attach the ADF antenna to the aircraft.

Hold the antenna!

If necessary, use a knife to carefully remove the sealant that seals the antenna to the airplane outer surface.

Take care not to damage the airplane surface!

(7) Remove the ADF antenna from the aircraft.

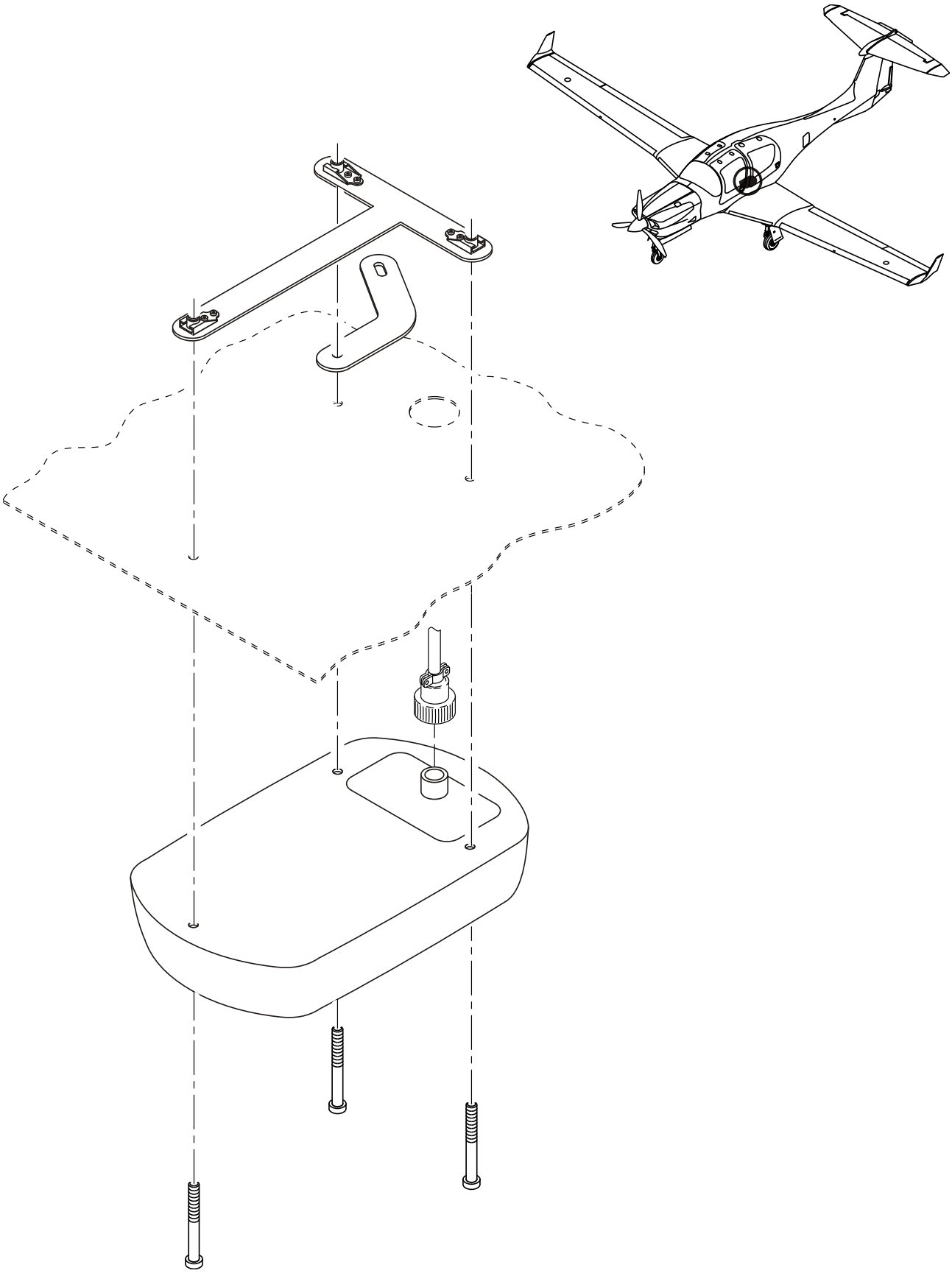


Figure 5 - ADF Antenna Installation

34-50-12 ADF Antenna

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the ADF Antenna

(1) Make sure that the contact surfaces of the antenna and the airplane surface where the antenna will be installed are clean and free of grease.

(2) Move the ADF antenna into position on the bottom of the fuselage.

(3) Install the screws which attach the ADF antenna to the fuselage.

Refer to ADF Antenna - Remove procedure Figure 5.

Seal outer edge of the antenna where it contacts the airplane surface with sealant.

Refer to 34-50 Dependent position determining - Description Para 3..

(4) Connect the connector of the ADF antenna.

(5) Reset the ADF circuit breaker.

(6) Install the rear centre tunnel cover.

(7) Install the passenger's seat. Refer to Passenger Seat - Install procedure.

(8) Do a test of the ADF system.

Refer to 34-50 ADF System - System Test.

34-50-13 ADF System

System Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

3. Main Procedure

A. Post-Installation Check of the ADF System

After installing the equipment, check the indicator reading is correct and determine whether or not quadrantal error correction (refer to 34-50 ADF System - Adjust, align and calibrate) is necessary. If so, correction should be first carried out on the ground, then in the air. It is also necessary to establish whether any equipment in the airplane electrical system is generating interference.

Operational check:

(1) Locate the airplane on the correction platform and using the bearing compass point the nose of the airplane to a radio beacon in boundary range.

(2) Switch on the ADF, adjust to the correct frequency and observe the indication in the ADF operation mode.

The indicator should read 0 relative bearing.

(3) Turn the airplane about its vertical axis to a larger heading.

The indicator should move to the left.

(4) Turn the airplane about its vertical axis to a smaller heading.

The indicator should move to the right.

If the reading is incorrect or should the indicator move in the wrong direction, check the wiring of the equipment for agreement with the wiring diagram and correct if necessary.

If the airplane is accurately aligned with the NDB beacon, but a relative bearing reading of 0° is not indicated, this is an indication that the antenna has been wrongly installed. Recheck the antenna for agreement with the centerline of the airplane and correct if necessary.

34-50-14 ADF System

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Quadrantal Error Correction - Ground Procedure

(1) Point the nose of the aircraft to the NDB so that the indicator shows 0° relative bearing.

(2) Set the aircraft directional gyro to 0°.

(3) Turn the aircraft to 45° relative heading. The indicator should show 315°.

NOTE

If the indicated bearing deviates more than 3°, when the aircraft is turned to 45° correct quadrantal error with the variable resistor, which is located on the rear side of the RMI converter.

(4) Turn the aircraft to 315° relative heading. The indicator should show 45° relative bearing.

B. Quadrantal Error Correction - Flight Check Procedure

NOTE

Effects due to the ground of the undercarriage may cause the quadrantal error in the air to change form that established during ground testing, especially when the loop antenna is located under the fuselage.

(1) Align the aircraft to a radio beacon roughly 60km away (indicator =0° relative bearing).

(2) Set the direction of gyro to 0° relative bearing.

(3) Fly the aircraft as described in Figure 6. Total deviation should not exceed ±5°. Table 1 may be used during this procedure.

NOTE

Alterations to indicator readings compared with the results of the ground test can be performed on the indicator during flight with the aid of the variable resistor. As described in the ground testing procedure, this control is accessible on the rear side of the RMI converter.

NOTE

When flying directly over a NDB an uncertainty in bearing indication may occur for a certain time depending on the flight altitude. This uncertainty is caused by the cone of silence of the NDB. Within this cone of silence receiving the NDB is not possible. When bearing the cone of silence, the bearing indicator will immediately show the correct bearing.

NOTE

It is obliging to proceed in accordance with FAA AC 43.13-1A and FAA AC 43.13-2A requirements.

(4) Fly over a radio beacon and note the behaviour of the indicator. The bearing should swing continuously through 90° or 270° to a back bearing.

Q.E. Correction Table			
NDB Station Used:		**Frequency:**	
Pilot:		**Recorder:**	
Reference Point:		**Date:**	
Aircraft-Type:		**Aircraft No.:**	
Bearing before Q.E. Correction		**Bearing after Q.E. Correction**	
Relative Heading	**Relative Bearing**	**Indicator Reading**	**Compensated Indicator Reading**
0	360		
15	345		
30	330		
45	315		
60	300		
75	285		
90	270		
105	255		
120	240		
135	225		
150	210		
165	195		
180	180		
195	165		
210	150		
225	135		
240	120		
255	105		
270	90		
285	75		
300	60		
315	45		
330	30		
345	15		
360	0		

Table 1 - Q.E. Correction Table

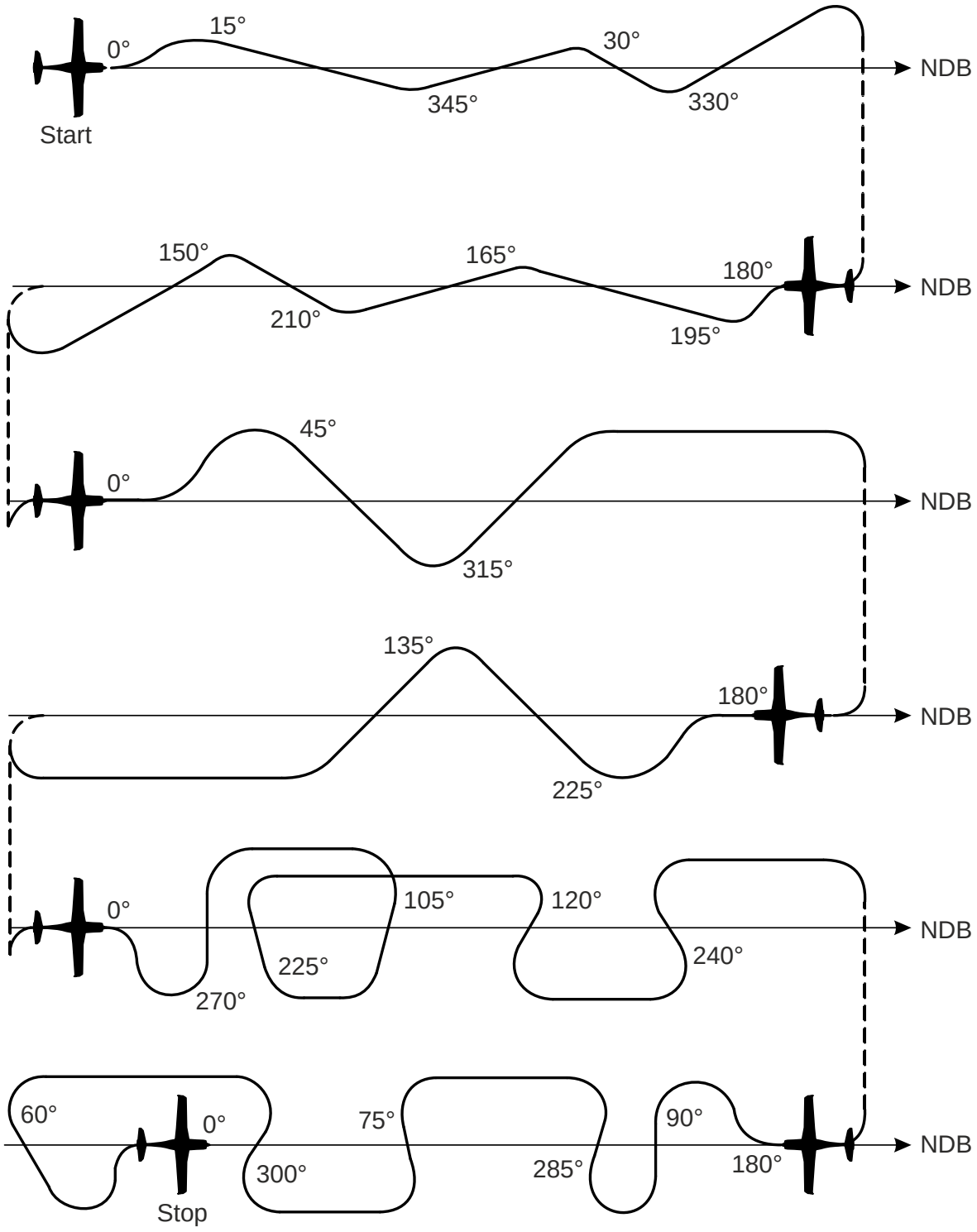


Figure 6 - Flight Test Procedure

35-00
OXYGEN SYSTEM

35-00-01 Oxygen

Description

1. Oxygen System

This oxygen system supplies supplemental oxygen for flights at altitudes where it is required in accordance to the operating rules. Each pilot or passenger can connect a mask or cannula to the oxygen system via a separate outlet port. The operation of the oxygen is controlled via a Bowden cable which is operated from the overhead panel. Information concerning the endurance of the system, which is in direct relation to the cylinder pressure, is indicated on the G1000 NXi MFD engine/system page (Refer to Figure 2).

An oxygen system overview is given in Figure 1.

The system consists of six main sections:

- Oxygen compartment, ventilation / drain.
- High pressure overboard discharge assembly with indicator.
- Oxygen cylinder / regulator valve assembly with low pressure discharge and pressure transducer.
- Activation Bowden cable.
- Filling block with high pressure line to regulator.
- Outlet ports and low pressure lines.

Not shown in Figure 1.

- Interfaces: masks, cannulas.

The high pressure system components are connected with copper tubing (filling block to regulator valve assembly; regulator valve assembly to overboard discharge). The low pressure system components are connected via aluminum tubing. Those tubings are routed within a PVC hose in the area behind the baggage compartment. In case of a leakage in the aluminum tubing, the oxygen flows back to the oxygen compartment from where it is vented overboard.

2. Description

A. Oxygen Cylinder Pressure Indication

On the regulator assembly in the oxygen compartment a pressure transducer is installed. It provides a voltage signal to the Garmin G1000 NXi system. The Garmin G1000 NXi system processes this signal and indicates the oxygen bottle pressure on the MFD's engine/system page (Refer to Figure 2). The oxygen pressure is directly related to the remaining amount of oxygen.

(1) Indications

The following warnings and cautions are provides to the flight crew via the G1000 NXi system:

Warning/Caution	Description	Remark
Advisory	Oxygen pressure low	Pressure below 850 PSI[1]
Aural caution (standard tone)	Oxygen pressure low	Pressure below 500 PSI[1]
[1] The annunciation is active when oxygen pressure is lower than 850/500 PSI and the pressure altitude is higher than 10,100 ft. The annunciation does automatically clear when the oxygen pressure is higher than or equal to 850/500 PSI.		

Table 1 - Warnings and Cautions

(2) Instrumentation

The oxygen pressure is represented with a triangular pointer in bar graph form and displayed in digital format at the right side of the above bar in white letters. (Refer to Figure 2). The display resolution is 10 PSI. All pressures are depicted in pounds per square inch (PSI). The gauge ranges are specified in Table 2.

Gauge Ranges	Oxygen Pressure Range	Remark
Warning Range	0 - 250 PSI	RED numerals, RED bar
Caution Range	250 - 500 PSI	YELLOW numerals, YELLOW bar
Normal Range	500 - 1850 PSI	WHITE numerals, GREEN bar
Buffer Range	1850 - 2150 PSI	WHITE numerals, BLACK bar

Table 2 - Oxygen Pressure Ranges

B. Oxygen Cylinder and Regulator Valve Assembly

The Kevlar oxygen cylinder is installed in the oxygen compartment in its own vented compartment. The cylinder capacity is 10.7 liters (650 cu.in.), respectively 1419 liters (50.1 cu.ft.) of compressed oxygen at 128 bar (1850 PSI).

The oxygen flow is controlled by a regulator valve assembly which is switched by a push/pull knob Bowden cable assembly. The main task of the regulator valve is to reduce the oxygen pressure to 4.8 bar (70 PSI). Each mask or cannula is equipped with its own adjustable flow meter, therefore each user can adjust the amount of supplemental oxygen required for the respective altitude. In case of a regulator failure, high pressure could enter the low pressure side of the system. This is prevented by pressure relief valves.

C. Filling Block

Refilling of the oxygen cylinder, which is firmly installed in the airplane, is done via the filling block assembly which is installed on the RH side of the oxygen compartment. It is accessible via a small cover on the RH side of the fuselage tube. It consists of a valve and a pressure gauge.

The cylinder is limited to a pressure of 128 bar (1850 PSI). The system is limited for use with filtered oxygen according to MIL-PRF-27210. The maximum allowed filling rate is 200 PSI/min. A filling rate of 100 PSI/min is recommended due to heat buildup in the system. The refilling of a fully depleted oxygen cylinder takes approximately 20 min.

A high pressure copper line connects the filling block with the regulator valve.

D. Outlet Ports

The pilot and each passenger has his own outlet port to which the mask or cannulas including their flow meters can be connected. The outlet ports are connected via aluminum tubing to the low pressure side of the regulator.

E. Oxygen Compartment with Ventilation / Drain

The oxygen cylinder with regulator valve assembly and pressure transducer are installed in the oxygen compartment in the rear fuselage.

The compartment is separated from the fuselage tube to prevent any contamination.

In case of an oxygen leakage, the oxygen is vented to the outboard via the ventilation/drain hose. Its opening is at the lower tail fin on the RH side. The compartment is accessible via two maintenance covers.

F. High Pressure Overboard Discharge Assembly with Indicator

In case of too high pressure in the bottle a safety mechanism relieves all oxygen via the overboard discharge to the outside. This can be detected by the indicator on the lower tail fin on the RH side.

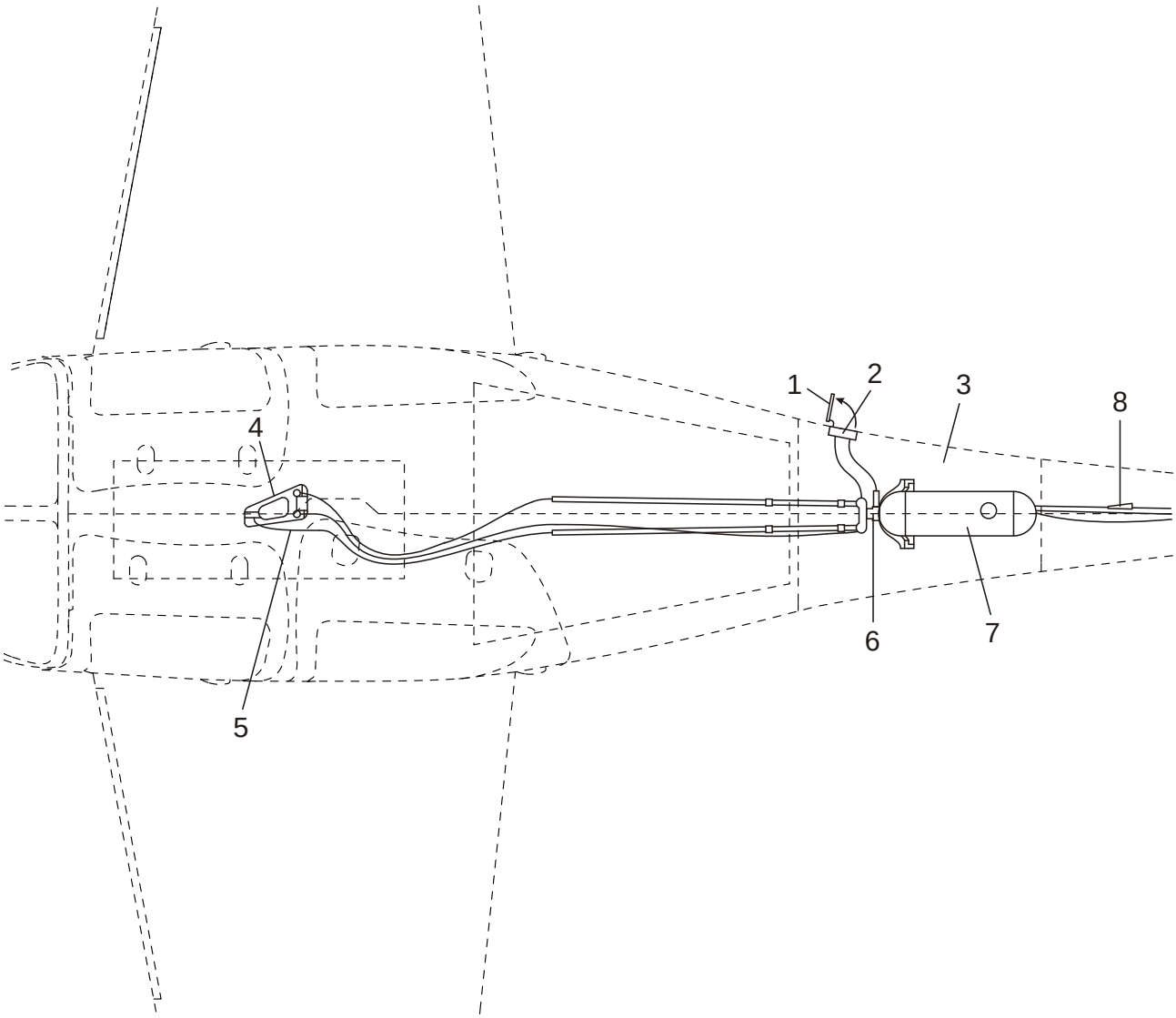


Figure 1 - AEROX Oxygen System

Legend

[1, Fig.1] Oxygen Filling Cover
[2, Fig.1] Oxygen Filling Compartment
[3, Fig.1] Oxygen Compartment
[4, Fig.1] Oxygen Outlet Manifold Installation
[5, Fig.1] Oxygen Remote Cable Assembly
[6, Fig.1] Oxygen Shut-Off Valve
[7, Fig.1] Oxygen Cylinder Installation
[8, Fig.1] Oxygen Drain Cover



Figure 2 - G1000 NXi MFD Engine/System Page

35-00-02 Oxygen

Description of function

1. Operation

CAUTION

OIL, GREASE OR OTHER LUBRICANTS IN CONTACT WITH OXYGEN CREATES A SERIOUS HAZARD. SUCH CONTACT MUST BE AVOIDED WHEN HANDLING OXYGEN EQUIPMENT.

CAUTION

THE SYSTEM IS LIMITED FOR USE WITH FILTERED OXYGEN ACC. TO MIL-PRF-27210. THE MAX. ALLOWED FILLING RATE IS 200 PSI/MIN.

The oxygen system provides the supplementary oxygen necessary for continuous flight at high altitude for all occupants. An oxygen cylinder is located behind the baggage compartment in the rear fuselage tube, in its own enclosed and vented oxygen compartment. A combined pressure regulator/shut-off valve attached to the cylinder automatically reduces pressure to the delivery pressure required for the operating altitude. The oxygen cylinder filler valve is located on the RH side of the oxygen compartment, accessible through a hatch from the outside at the RH fuselage tube.

The oxygen cylinder (capacity: 50.1 cubic feet / 1419 liters) may be filled to 1850 PSI while installed in the airplane and has a pressure gauge located next ot the filler valve to indicate the amount of oxygen in the cylinder.

Bottle pressure is provided to the flight crew via G1000 NXi indication on the MFD's engine/system page. The oxygen supply shut-off control is located on the overhead panel. It is cable connected to the oxygen regulator valve, controlling the oxygen system by pulling the green control knob forward for ON and pushing the same knob backward for system supply OFF. The system should be left OFF when not in use.

The oxygen ports are located (one each) in the dome panel / middle ceiling panel for the pilot and co-pilot. The passengers' oxygen ports for the passenger row are located overhead next to the pilot/co-pilot ports. The individual cannula or mask supply tubes are plug-in connected to each port and contain the individual flow adjustments (flow meter-needle valve) for each occupant. Note that these ports are serviced directly from the oxygen regulator valve.

The oxygen cylinder when fully charged, contains 50.1 cubic feet / 1419 liters of aviator's breathing oxygen under a pressure of 1850 PSI at 21°C (70°F).

Filling pressures will vary due to the ambient temperatures in the filling area and the rise of temperature resulting from the compression of the oxygen. Due to these factors merely filling the cylinder to 1850 PSI will not result in a properly filled cylinder. Fill oxygen cylinders to the pressures indicated in the table shown below, based on the filling area's ambient temperature. The oxygen system pressure is limited and rated to 1850 PSI at 21°C (70°F).

Ambient Temperature °C (°F)	Filling Pressure PSI
4 (40)	1700
10 (50)	1760
16 (60)	1800
21 (70)	1850
27 (80)	1890
32 (90)	1940
38 (100)	1980
43 (110)	2040

Table 1 - Oxygen System Pressure

2. Maintenance Practices

The following sections tell you how to perform a functional test of the oxygen system. They also tell you how to remove and install the main components of the oxygen system. For detailed information for trouble shooting/maintenance, disassembly/assembly, testing, inspections and checks, cleaning and repair of the oxygen cylinder regulator assembly, refer to the manufacturer's CMM (Refer to Referenced Maintenance Data - Description).

35-00-03 Oxygen

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No oxygen comes out of the connected masks and cannulas.

1A. Examine the flow meter needle valve.

Is the flow meter-needle valve not correctly adjusted?

Yes - go to step 1B.

No - go to step 1C.

1B. Adjust the flow meter needle valve.

1C. Examine the flow meter needle valve.

Is the flow meter needle valve defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the flow meter needle valve.

1E. Examine the outlet port.

Is the outlet port defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the outlet port.

1G. Examine the regulator valve assembly.

Is the regulator valve assembly defective?

Yes - go to step 1H.

No - go to step 1I.

1H. Replace the regulator valve assembly.

1I. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

No pressure indicated or pressure indication does differ from indication of gauge on filling block.

2A. Examine the pressure transducer and gauge on filling block.

Is the pressure transducer or gauge on filling block defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the defective pressure transducer or gauge on filling block.

2C. Contact DAI.

35-00-04 Oxygen

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

CAUTION

THE SYSTEM IS LIMITED FOR USE WITH FILTERED OXYGEN ACCORDING TO MIL-PRF-27210.

USE ONLY FILTERED OXYGEN WITH A 50 MICRON FILTER.

DO NOT FILL AT A RATE HIGHER THAN 200 PSI/MIN.

THE MAXIMUM FILLING PRESSURE DOES VARY WITH AMBIENT TEMPERATURE. REFER TO 35-00 OXYGEN - DESCRIPTION OF FUNCTION TABLE 1.

3. Main Procedure

A. Functional Test

(1) Fill up the oxygen cylinder to a max. pressure of 128 bar (1850 PSI).

Refer to 12-10 Oxygen System - Fill with oxygen.

Do not use oxygen with a lower purity grade than prescribed by MIL-PRF-27210.

(2) Check each plug-in outlet port.

Use the flow meter-needle valve assembly; open every needle valve completely and make sure the ball floats to the top of the flow meter. Make sure that every plug in is fully opened.

(3) Check pressure gauges by comparing the one attached on the filling block with the G1000 NXi oxygen pressure indication.

If the difference between both pressure indications is more than 100 PSI exchange inaccurate pressure gauge on filling block or pressure transducer.

35-00-05 Oxygen

Release oxygen pressure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

THE OXYGEN CYLINDER VALVE ASSEMBLY MUST BE COMPLETELY DISCHARGED PRIOR TO REMOVAL OF ANY COMPONENTS. DO NOT VENT THE CYLINDER PRESSURE IN AN AREA WHERE THERE IS ANY HYDRAULIC FLUID, FUEL, OR ELECTRICAL EQUIPMENT.

WARNING

DO NOT DISASSEMBLE THE CYLINDER ASSEMBLY OR ANY OTHER COMPONENTS OF THE OXYGEN SYSTEM IN THE PRESENCE OF HYDROCARBONS SUCH AS FUELS OR OILS. PERFORM DISASSEMBLY, REPAIR, AND OVERHAUL IN A CLEAN ENVIRONMENT USING TOOLS FREE OF ALL OILS AND CONTAMINANTS.

3. Main Procedure

A. Empty the Oxygen System

(1) Place airplane outside of hangar.

(2) Open the doors.

(3) Check that the ON/OFF knob is in the OFF position.

(4) Plug in one connection tube in the pilot's outlet port. Plug in only the connection tube including the flow meter needle valve assembly.

(5) Pull ON/OFF knob in ON position and adjust the needle valve to maximum flow.

(6) Confirm that the outlet of the flow meter needle valve assembly does not point towards oil or grease (engine).

(7) The cylinder is depleted when the flow meter ball shows no flow.

35-00-06 Pressure Transducer

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DURING DISASSEMBLY AND ASSEMBLY OF PARTS OF THE OXYGEN SYSTEM IT HAS TO BE ASSURED THAT NO CONTAMINATION WITH DUST AND HYDROCARBONS (SUCH AS FUEL, OIL, GREASE, PETROLEUM PRODUCTS) CAN OCCUR.

WARNING

TESTING PARTS AND ASSEMBLIES WITH HIGH PRESSURE OXYGEN CAN BE HAZARDOUS. VERIFY ALL FITTINGS ARE TIGHTLY ATTACHED BEFORE APPLYING HIGH PRESSURE. ALL PARTS, INCLUDING NEW PARTS, MUST BE CLEANED FOR USE IN OXYGEN SYSTEMS AND MUST MEET OR EXCEED SAE ARP1176-3-300.

WARNING

IF LEAKAGE IS DETECTED, DO NOT ATTEMPT TO TIGHTEN ANY CONNECTION WHILE THE CYLINDER IS CHARGED. EMPTY THE OXYGEN SYSTEM TO ZERO PRESSURE BEFORE PROCEEDING.

3. Main Procedure

A. Remove the Pressure Transducer

(1) Empty the oxygen system. Refer to 35-00 Oxygen - Release oxygen pressure.Confirm that the oxygen cylinder is empty.

(2) Open the maintenance cover on the RH fuselage shell.

(3) Visually check the rear fuselage floor for residues of oil. Clean up if necessary.

(4) Open front access cover of the oxygen compartment.

(5) Remove electrical connector from pressure transducer.

(6) Remove transducer from regulator assembly. Blank off the regulator port and the pressure transducer with appropriate clean plugs. Remove residues of tefon tape from regulator port.

35-00-07 Pressure Transducer

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DURING DISASSEMBLY AND ASSEMBLY OF PARTS OF THE OXYGEN SYSTEM IT HAS TO BE ASSURED THAT NO CONTAMINATION WITH DUST AND HYDROCARBONS (SUCH AS FUEL, OIL, GREASE, PETROLEUM PRODUCTS) CAN OCCUR.

WARNING

TESTING PARTS AND ASSEMBLIES WITH HIGH PRESSURE OXYGEN CAN BE HAZARDOUS. VERIFY ALL FITTINGS ARE TIGHTLY ATTACHED BEFORE APPLYING HIGH PRESSURE. ALL PARTS, INCLUDING NEW PARTS, MUST BE CLEANED FOR USE IN OXYGEN SYSTEMS AND MUST MEET OR EXCEED SAE ARP1176-3-300.

WARNING

IF LEAKAGE IS DETECTED, DO NOT ATTEMPT TO TIGHTEN ANY CONNECTION WHILE THE CYLINDER IS CHARGED. EMPTY THE OXYGEN SYSTEM TO ZERO PRESSURE BEFORE PROCEEDING.

3. Main Procedure

A. Install the Pressure Transducer

(1) Clean oxygen compartment if contaminated.

(2) Remove plugs from transducer and regulator and install transducer immediately to regulator assembly. Apply Teflon tape on the thread of the transducer.

(3) Install electrical connector to the pressure transducer.

(4) Fill cylinder to 600 PSI, 1200 PSI and 1850 PSI. Refer to 12-10 Oxygen System - Fill with oxygen.

(5) Perform leak test at connections which were opened at each pressure step.

Therefore apply leak detector spray to the connectors which were opened.

(6) Clean access cover installation flange from residues of sealing material if sealing was replaced. Remove any debris from oxygen compartment.

Install front access cover of the oxygen compartment.

Use sealant PR 1428 from PPG Industries, if necessary.

(7) Close maintenance cover on RH fuselage shell.

(8) Perform functional test of the oxygen system. Refer to 35-00 Oxygen - Test and inspection.

35-00-08 Oxygen Cylinder

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DURING DISASSEMBLY AND ASSEMBLY OF PARTS OF THE OXYGEN SYSTEM IT HAS TO BE ASSURED THAT NO CONTAMINATION WITH DUST AND HYDROCARBONS (SUCH AS FUEL, OIL, GREASE, PETROLEUM PRODUCTS) CAN OCCUR.

WARNING

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WARNING

IF LEAKAGE IS DETECTED, DO NOT ATTEMPT TO TIGHTEN ANY CONNECTION WHILE THE CYLINDER IS CHARGED. EMPTY THE OXYGEN SYSTEM TO ZERO PRESSURE BEFORE PROCEEDING.

3. Main Procedure

A. Remove the Oxygen Cylinder Assembly

(1) Empty the oxygen system. Refer to 35-00 Oxygen - Release oxygen pressure.Confirm that the oxygen cylinder is empty.

(2) Open the maintenance cover on the RH fuselage shell.

(3) Visually check the rear fuselage floor for residues of oil. Clean up if necessary.

(4) Open front access cover of the oxygen compartment.

(5) Disconnect all high pressure lines from the reglator assembly. Blank off all parts and lines with appropriate clean plugs.

(6) Disconnect the low pressure lines from the regulator at the T-fitting from the regulator assembly. Blank off all parts and lines with appropriate clean plugs.

(7) Untighten the high pressure line connection at the filling block to allow the line to be movable.

(8) Disconnect the Bowden cable attachments at the regulator assembly.

(9) Untighten the two bolts of the mounting bracket of the oxygen cylinder.

(10) Remove electrical connector from pressure transducer.

(11) Remove the two bolts of mounting bracket of the oxygen cylinder assembly completely and support cylinder. Remove the bracket from the aircraft.

(12) Remove cylinder assembly carefully through front access cover and maintenance cover on the RH fuselage shell.

35-00-09 Oxygen Cylinder

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DURING DISASSEMBLY AND ASSEMBLY OF PARTS OF THE OXYGEN SYSTEM IT HAS TO BE ASSURED THAT NO CONTAMINATION WITH DUST AND HYDROCARBONS (SUCH AS FUEL, OIL, GREASE, PETROLEUM PRODUCTS) CAN OCCUR.

WARNING

TESTING PARTS AND ASSEMBLIES WITH HIGH PRESSURE OXYGEN CAN BE HAZARDOUS. VERIFY ALL FITTINGS ARE TIGHTLY ATTACHED BEFORE APPLYING HIGH PRESSURE. ALL PARTS, INCLUDING NEW PARTS, MUST BE CLEANED FOR USE IN OXYGEN SYSTEMS AND MUST MEET OR EXCEED SAE ARP1176-3-300.

WARNING

IF LEAKAGE IS DETECTED, DO NOT ATTEMPT TO TIGHTEN ANY CONNECTION WHILE THE CYLINDER IS CHARGED. EMPTY THE OXYGEN SYSTEM TO ZERO PRESSURE BEFORE PROCEEDING.

3. Main Procedure

A. Install the Oxygen Cylinder Assembly

(1) Check foam tape for degradation, damage and correct installation according to Figure 3.

Replace if necessary.

NOTE

The foam tape prevents chafing of the oxygen cylinder on the attachment.

(2) Clean oxygen compartment if contaminated.

(3) Move the cylinder assembly carefully through the maintanance cover on the RH fuselage shell and front access cover to the oxygen compartment.

Support to cylinder and install the mounting bracket and engage the two attachment bolts.

(4) Install electrical connector to the pressure transducer.

(5) Turn regulator/cylinder assembly so that is aligned with the connectors of tubing.

(6) Remove the plugs and connect all high and low pressure lines to the regulator assembly.

(7) Install the two bolts of the mounting bracket of the oxygen cylinder and tighten to 5 Nm (including friction) uniformly.

(8) Install Bowden cable to regulator.

Engage inner cable to actuation lever.

Install sleve flush with clamping and tighten two bolts.

Thereafter tighten clamping of inner cable with single bolt.

Check correct operation and full movement of actuation lever by operating the Bowden cable knob in the cockpit.

(9) Fill cylinder to 600 PSI, 1200 PSI and 1850 PSI. Refer to 12-10 Oxygen System - Fill with oxygen.

(10) Perform leak test at connections which were opened at each pressure step.

Therefore apply leak detector spray to the connectors which were opened.

Then turn the system ON by pulling the ON/OFF knob.

Apply leak detector spray to all low-pressure connections/parts which were opened.

Thereafter turn the system OFF by pushing in the ON/OFF knob.

(11) Tighten the two bolts of the mounting bracket of the oxygen cylinder uniformly to 8 +0/-1 Nm (5.9 +0/-0.74 lbf.ft). Value includes friction.

Refer to Special Torque Values - Description.

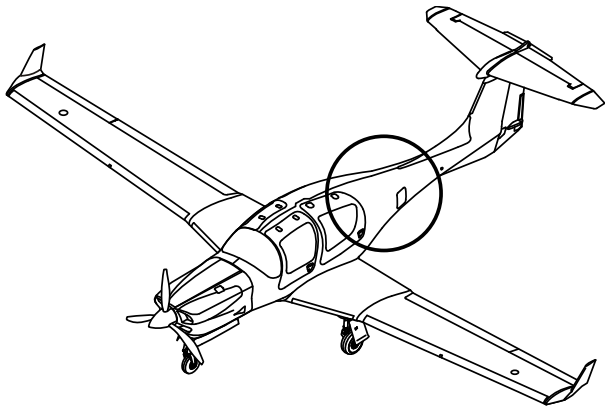
(12) Clean access cover installation flange from residues of sealing material if sealing was replaced. Remove any debris from oxygen compartment.

Install front access cover of the oxygen compartment.

Use sealant PR 1428 from PPG Industries, if necessary.

(13) Close maintenance cover on RH fuselage shell.

(14) Perform functional test of the oxygen system. Refer to 35-00 Oxygen - Test and inspection.



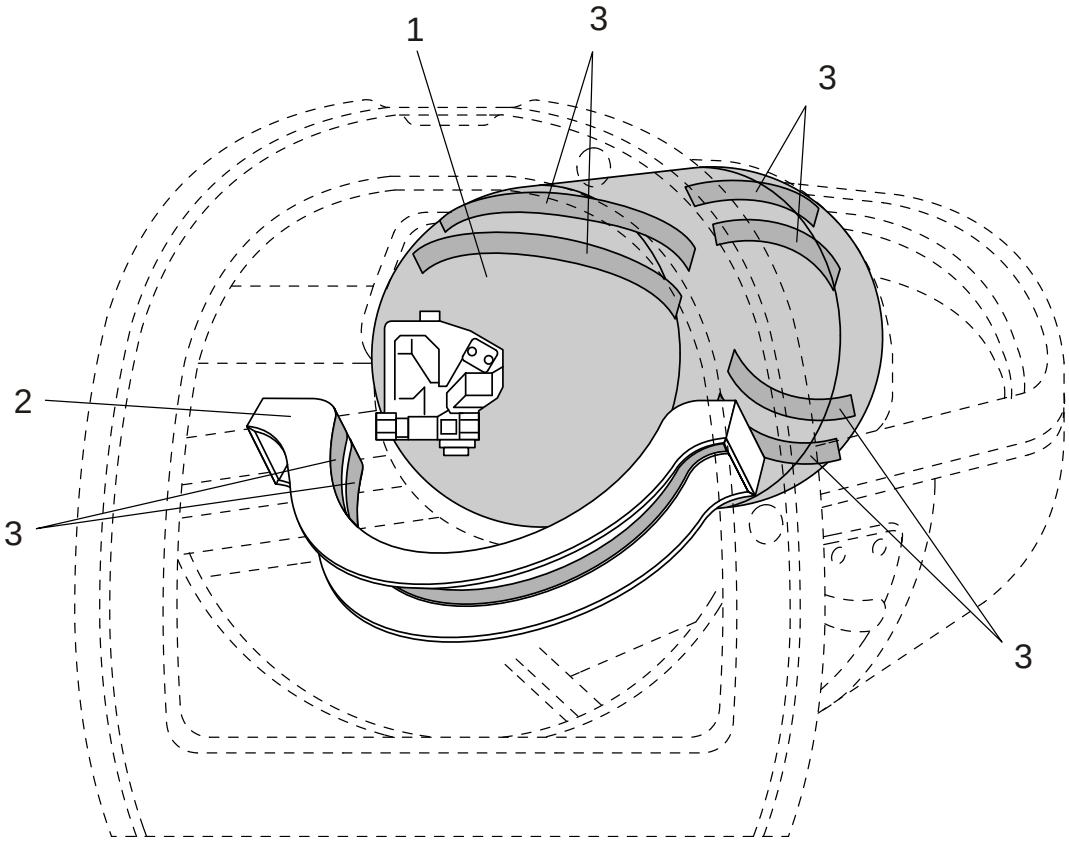


Figure 3 - Oxygen Tank Installation

Legend

[1, Fig.3] Oxygen Cylinder Assembly

[2, Fig.3] Oxygen Tank Bracket

[3, Fig.3] Foam Tapes

35-00-10 Oxygen Regulator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Oxygen Regulator

(1) Remove the oxygen cylinder assembly.

Refer to 35-00 Oxygen Cylinder - Remove procedure.

(2) Follow instructions given in the Aerox CMM to remove the regulator from the oxygen cylinder.

35-00-11 Oxygen Regulator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Oxygen Regulator

(1) Follow instructions given in the Aerox CMM to install the regulator to the oxygen cylinder.

(2) Install the oxygen cylinder assembly.

Refer to 35-00 Oxygen Cylinder - Install procedure.

35-00-12 Filling Block

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Filling Block Assembly

(1) Empty the oxygen system. Refer to 35-00 Oxygen - Release oxygen pressure. Confirm that the oxygen cylinder is empty.

(2) Check both oxygen pressure gauges and check the ON/OFF knob is in OFF position.

(3) Open the maintenance cover on the RH fuselage shell.

(4) Visually check the rear fuselage floor for residues of oil. Clean up if necessary.

(5) Open the access hatch of the filling block on the RH fuselage shell. Clean the filling block.

(6) Open / remove the forward cover of the oxygen compartment.

(7) Pull ON/OFF knob in ON position and confirm that the cylinder is empty.

(8) Carefully disconnect the high pressure filling copper line from the filling block.

Refer to 35-00 Swagelok Tube Fitting - Change = Disconnect and connect an item.

(9) Remove the bonding wires from the back of the filling block assembly.

(10) Remove the filling block with aluminum coverplate by removing 4 screws and pull out the filling block assembly.

35-00-13 Filling Block

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

IF LEAKAGE IS DETECTED, DO NOT ATTEMPT TO TIGHTEN ANY CONNECTION WHILE THE CYLINDER IS CHARGED. EMPTY THE OXYGEN SYSTEM TO ZERO PRESSURE BEFORE PROCEEDING.

3. Main Procedure

A. Install the Filling Block Assembly

(1) Clean oxygen compartment if contaminated.

(2) Mount the filling block assembly with aluminum coverplate by using 4 screws.

(3) Install the bonding wires to the back of the filling block assembly. Use new toothed washers.

(4) Connect the high pressure filling copper line to the filling block.

Refer to 35-00 Swagelok Tube Fitting - Change = Disconnect and connect an item.

(5) Fill cylinder to 600 PSI, 1200 PSI and 1850 PSI. Refer to 12-10 Oxygen System - Fill with oxygen.

(6) Perform leak test at connections which were opened at each pressure step.

Therefore apply leak detector spray to the connectors which were opened.

(7) Perform functional test of the oxygen system. Refer to 35-00 Oxygen - Test and inspection.

(8) Close the maintenance cover on the RH fuselage shell.

35-00-14 Swagelok Tube Fitting

Change = Disconnect and connect an item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

ALWAYS DEPRESSURIZE THE SYSTEM BEFORE DISASSEMBLING A SWAGELOK TUBE FITTING.

WARNING

DO NOT USE THE SWAGELOK GAP INSPECTION GAUGE WITH REASSEMBLED FITTINGS.

3. Main Procedure

A. Disassembly / Reassembly Swagelok Tube Fitting

You may disassemble and reassemble Swagelok tube fittings many times.

(1) Prior to disassembly, mark the tube at the back of the nut; mark a line along the nut and fitting body flats. Refer to Figure 4.

Use these marks to ensure that you return the nut to the previously pulled-up position.

(2) Insert the tube with preswaged ferrules into the fitting until the front ferrule seats against the fitting body.

(3) While holding the fitting body steady, rotate the nut with a wrench to the previously pulled-up position, as indicated by the marks on the tube and flats. At this point, you will feel a significant increase in resistance. Tighten the nut slightly.

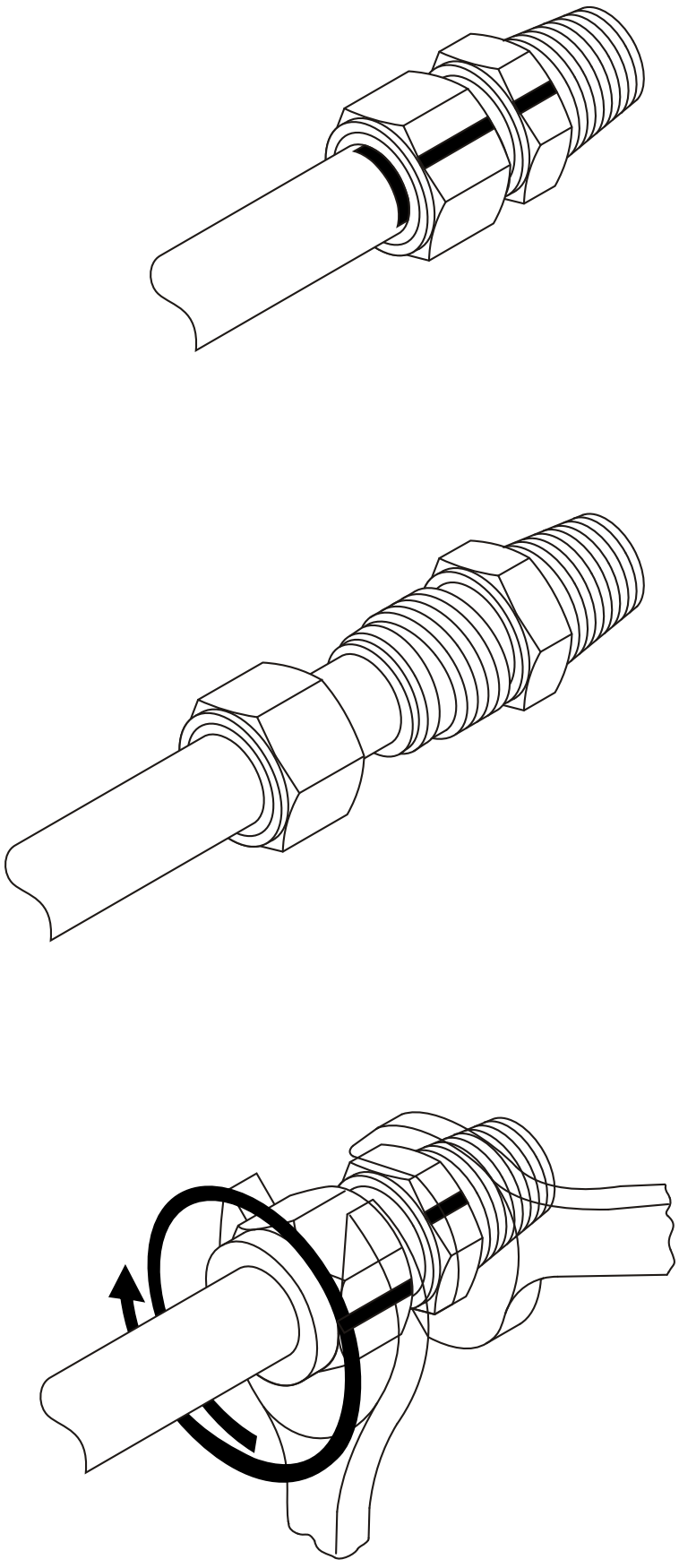


Figure 4 - Disassembly / Reassembly Swagelok Tube Fitting

35-00-15 Outlet Manifold

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DURING DISASSEMBLY AND ASSEMBLY OF PARTS OF THE OXYGEN SYSTEM IT HAS TO BE ASSURED THAT NO CONTAMINATION WITH DUST AND HYDROCARBONS (SUCH AS FUEL, OIL, GREASE, PETROLEUM PRODUCTS) CAN OCCUR.

WARNING

TESTING PARTS AND ASSEMBLIES WITH HIGH PRESSURE OXYGEN CAN BE HAZARDOUS. VERIFY ALL FITTINGS ARE TIGHTLY ATTACHED BEFORE APPLYING HIGH PRESSURE. ALL PARTS, INCLUDING NEW PARTS, MUST BE CLEANED FOR USE IN OXYGEN SYSTEMS AND MUST MEET OR EXCEED SAE ARP1176-3-300.

WARNING

IF LEAKAGE IS DETECTED, DO NOT ATTEMPT TO TIGHTEN ANY CONNECTION WHILE THE CYLINDER IS CHARGED. EMPTY THE OXYGEN SYSTEM TO ZERO PRESSURE BEFORE PROCEEDING.

3. Main Procedure

A. Remove the Outlet Manifolds

(1) Empty the oxygen system. Refer to 35-00 Oxygen - Release oxygen pressure.

Confirm that the oxygen cylinder is empty.

(2) Open the threaded ring of the outlet manifolds and loosen nut of Bowden cable attachment inside of the central headliner.

(3) Disconnect map and dome light electrical connectors.

(4) If OÄM 50-002 is installed:

- Disconnect hoses from eyeball vents.

(5) Rotate the central headliner device unit away from the manifolds.

(6) Open the connection to the low pressure aluminum lines. Refer to 35-00 Swagelok Tube Fitting - Change = Disconnect and connect an item. Plug all open connections with appropriate clean plugs.

(7) Remove bonding wire and remove manifold mounting bracket by removing three self locking nuts from mounting stud.

(8) Deinstall manifold from mounting bracket by removing screws and washers from backside.

35-00-16 Outlet Manifold

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DURING DISASSEMBLY AND ASSEMBLY OF PARTS OF THE OXYGEN SYSTEM IT HAS TO BE ASSURED THAT NO CONTAMINATION WITH DUST AND HYDROCARBONS (SUCH AS FUEL, OIL, GREASE, PETROLEUM PRODUCTS) CAN OCCUR.

WARNING

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WARNING

IF LEAKAGE IS DETECTED, DO NOT ATTEMPT TO TIGHTEN ANY CONNECTION WHILE THE CYLINDER IS CHARGED. EMPTY THE OXYGEN SYSTEM TO ZERO PRESSURE BEFORE PROCEEDING.

3. Main Procedure

A. Install the Outlet Manifolds

(1) Install manifolds to manifold bracket with screws and toothed washers. Use new thoothed washers.

(2) Install mounting bracket to the mounting studs. Install the bonding wire to the lightning protection stripe. Use new self locking nuts.

(3) Install the low pressure aluminum tubes to the manifolds. Refer to 35-00 Swagelok Tube Fitting - Change = Disconnect and connect an item.

(4) Fill cylinder to 1850 PSI. Refer to 12-10 Oxygen System - Fill with oxygen.

(5) Perform leak test at connections which were opened.

Therefore apply leak detector spray to the connectors which were opened.

Then turn the system ON by pulling the ON/OFF knob.

Thereafter turn the system OFF by pushing in the ON/OFF knob.

(6) Re-connect electrical connectors of map and dome light.

(7) If OÄM 50-002 is installed:

- Connect hoses to eyeball vents.

(8) Tighten nut of Bowden cable attachment inside of central headliner unit.

(9) Install central headliner device unit.

(10) Install threaded ring of the outlet manifolds.

(11) Perform functional test of the oxygen system. Refer to 35-00 Oxygen - Test and inspection.

51-00
STANDARD PRACTICES AND STRUCTURES

51-00-01 Airplane Structure

Description

1. General

The DA 50 C is a single engine, low wing monoplane of composite construction. The airplane has a standard T-tail and vertical stabilizer with a tail skid. It has a retractable landing gear with a nose wheel that can caster.

The DA 50 C fuselage has a semi-monocoque structure. Two carbon fiber reinforced plastic (CFRP) halfshells make the fuselage skin. The fuselage shells have many layers of carbon cloth. Rigid foam inserts give stiffness to the fuselage shells where necessary. All of the main structural components are CFRP or GFRP rigid moldings. Many layers of carbon or glass cloth bond together to make each molding. Carbon fiber cloth gives more strength and stiffness.

The vertical stabilizer is part of the fuselage. The aft part of the left and right fuselage shells make the left and right shells of the vertical stabilizer.

The DA 50 C has a wing center section and the left and right wings attach to the wing center section. The wing center section is divided into two areas, these are the wing stubs and center section.

The flight loads from the wings are transferred to two spar bridges running laterally through the wing center-section. The wings are connected to the center section with spar stubs that extend into the wing center-section. Each wing is attached to the center section with four main bolts and two auxiliary bolts.

Each wing has top and bottom shells. It has front and rear spars and a wing root rib made in three parts. Each shell has a carbon fiber reinforced plastic (CFRP) outer skin, a rigid foam core and a GFRP inner skin.

Each wing has two I-section spars. The front spar on one side is the same as the rear spar on the other side. Many layers of uni-directional carbon fiber make the spar caps. The number of layers in the spar caps decreases from root to tip. Each spar has a shear web. The shear web has GFRP skins and a rigid foam core. Glass cloth fillets attach the spar caps to the shear web.

A rear web closes the trailing edge of the wing. An end rib closes the outboard end of the wing. A removable winglet attaches to the wing shells and outer rib with screws.

The flaps and ailerons have top and bottom shells. Each shell has a mixture of CFRP and GFRP cloth. The shells have rigid foam cores and bond together.

The horizontal stabilizer has top and bottom shells. Each shell has CFRP skins. The horizontal stabilizer has a front spar and a rear spar. Three pairs of ribs give strength to the central area. The elevator has top and bottom shells. Each shell has GFRP skins with a rigid foam core.

The rudder has left and right shells. Each shell has GFRP skins with a rigid foam core. The shells bond together at a flange.

The engine is located in the front of the cockpit and is separated for the composite structure with a firewall, installed directly on the engine mount. The firewall is designed as a diaphragm or simple seperations type non load carrying bulk head, made of 0.6 mm thick stainless steel the engine mount is fixed to the front bulkhead by 6 bolts at 4 structural points.

The three doors are a CFRP molding with inner and outer frames that bond together. Each door has an acrylic transparency. The windscreen is an acrylic transparency.

A polyurethane paint finish protects the outer skins of the airplane from ultraviolet rays and humidity.

2. Types of Structure

The DA 50 C is constructed from two main types of composite structure.

A. Glass Fiber Reinforced Plastic (GFRP)

GFRP is very thin glass fibers bonded together by resin. The glass fibers give most of the strength and the resin maintains the shape. The resin also bonds to other structural components such as metal attachment brackets or metal bushings.

The glass fibers are woven to make glass cloth. The orientation and the weave of the glass in the cloth affects the structural strength of the cloth. A component can have many layers of cloth bonded together with resin. This is called lamination.

GFRP has very good properties. It is strong and flexible. It is very resistant to chemical attack and very little maintenance of GFRP laminates is necessary.

B. Carbon Fiber Reinforced Plastic (CFRP)

CFRP is very thin carbon fibers bonded together by resin. The carbon gives most of the strength and the resin maintains the shape. The resin also bonds to other structural components such as metal attachment brackets or metal bushings.

CFRP is very similar to GFRP. The main advantage of CFRP is that it is stronger and more rigid than GFRP.

C. Laminated Components

A laminated component has two or more layers of glass/carbon cloth. The direction of the fibers in the cloth give the properties of each layer. Extra layers are bonded to some areas to give more strength.

D. Sandwich Construction

Many of the components in the DA 50 C have a sandwich of two skins and a core. GFRP or CFRP make the skins and rigid foam makes the core.

The skins must bond to the core of a sandwich structure completely. If the skins do not bond to the core the component can fail.

E. Bonded Components

A number of components can bond together to make a larger component. Special thick resin bonds these components together and fills the gap in a joint.

F. Repair Limitations

Repairs which are categorized as 'Class 1' in accordance with 51-10 Damage Classification - Description, may only be carried out in accordance with a repair scheme which has been approved by Diamond Aircraft Industries. Such repairs are not described in the Airplane Maintenance Manual (AMM).

51-10
INVESTIGATION

51-10-01 Investigation

Description

1. General

This Section tells you how to assess the class of damage. It also tells you how to inspect glass fiber reinforced plastic (GFRP), carbon fiber reinforced plastic (CFRP) composite structures and adhesive foil structures. Damage assessment and repairs must be carried out by approved persons.

Refer to 51-00 Airplane Structure - Description for the types of structures used in the DA 50 C and for repair limitations. Refer to 51-20 Repair Processes - Description for general repair procedures.

51-10-02 Damage Classification

Description

1. Damage Classification

Damage is divided into the classes described below. If you are not sure about the classification of any damage you must refer to the airplane manufacturer.

A. Class 1 Damage

Any damage, that is not Class2 through 4 damage is counted among Class 1.

B. Class 2 Damage

Damage to primary structural components (fuselage, wings, empennage) and control surfaces (dimensions <25 mm [1.0 in] in either direction) as well as holes and cracks passing through both skins of a sandwich construction component. The core damage must be able to be covered by a 13 mm (0.5 in) diameter circle.

C. Class 3 Damage

Small holes or cracks in the outer skin of primary structural components (fuselage, wings, empennage) and control surfaces where there is no internal damage to the component, the sandwich material or the inner skin.

D. Class 4 Damage

Minor scratches, abrasions or similar damage which is not a puncture or crack in the airplane skin as well as any sort of damage to non-load-bearing structures (e.g. fairings, cowlings, carpetings, canopies).

51-10-03 Types of Damage

Description

1. Types of Damage

There are two basic types of damage that can occur in composite structures and which can not be readily found with visual examination:

- Disbonding.
- Delamination.

Disbonding is the failure of the bonding between two or more components. For example between the wing skin and a wing rib. Or between a metal component and a composite component. Or between a composite skin and a sandwich core material.

Delamination is the failure of a bond between one or more layers of glass/carbon cloth in a laminated component.

There are also two main types of cracks that can occur in composite structures:

- Micro cracks.
- Major cracks.

Micro cracks occur in the surface of the resin and do not affect the integrity of the cloth.

Major cracks have broken fibers in the cloth. Major cracks do not occur with normal flight loads or normal landing loads. You must carefully examine the areas around major cracks for indications of further damage which can transmitted into other components.

You must repair all major cracks. If you are not sure how to proceed with further inspections of major cracks you should contact the airplane manufacturer for advice.

51-10-04 Inspection Techniques

Description

1. Inspection Techniques

A. Visual Examination

Use this method to find all types of damage to composites. Use a bright light to examine visually the inside of a component. GFRP must be green or brown in color. If it has white areas, then it may be damaged. Look specially where components bond to the GFRP.

CFRP must be black in color. Apply a small load to the area where you expect a damage, e.g. by pushing slightly on it. Check for abnormal flexibility or noises. Broken lamination often crackles under load. Look specially in areas where components bond to the CFRP.

Look carefully at the outer surface of a component. If the paint has cracks or bubbles, then the composite below may be damaged. Refer to Paragraph 2..

Also look for dents and deformation. Look specially in the areas where stones can hit the fuselage and wings below the airplane. Look specially in the areas of the wing walkways.

B. Light Test

CAUTION

DO NOT LET THE COMPOSITE GET HOT. HEAT CAN CAUSE DAMAGE TO COMPOSITES.

Use the light test to find delamination. Use this test on components which do not have rigid foam cores.

Point a very bright light at the surface and look at the surface from the opposite side to the light source. Damage usually shows as dark areas in the component. You can point the light from the inside of the component or the outside of a component.

NOTE

You can use the light test on thick sections of GFRP but it is difficult to use on CFRP.

C. Coin Tap Test

Use the coin tap test to find delamination and disbonding. Tap a coin on the laminate surface across the area you will test. The sound of the coin tapping on the surface of the laminate will change as you move the coin over damaged laminate.

Look specially in the area around the damage for secondary damage, which can remain undetected.

2. Further Inspection

If you find damage to the paint when you examine a composite structure then do this further inspection.

Find a way to see the inside of the structure or component. If necessary, remove panels (or other components), or you can use remote viewing equipment. For example, remove a winglet to see inside the wing. If you can see damage inside the component or structure you must do a repair.

Remove the paint coat in the area that you think is damaged. Remove the paint coat carefully, you must not damage the surface under the paint coat.

Look carefully at the surface under the paint coat. Push the middle of the area to be tested with your thumb. If you can feel the skin hitting against the core of the sandwich (or other layer/component) then the skin is disbonded and you must repair the structure.

In some cases you may need to cut inspection holes in the structure to do the test correctly. If you must make inspection holes then you must contact Diamond Aircraft Industries for advice.

51-20
REPAIR PROCESSES

51-20-01 Repair Processes

Description

1. Repair Processes

A. General

This Section tells you how to repair composite structures. Repairs must be carried out by approved persons. Refer to 51-00 Airplane Structure - Description for data about the types of structure.

Refer to 51-10 Damage Classification - Description for data about the classification of damage.

Inspect the damaged area(s). Look specially at the adjacent structure. Damage can go a long way under the surface of a composite. Use the inspection techniques given in 51-10 Inspection Techniques - Description.

The Maintenance Practices tell you about composite repair processes and how to repair Class 2, 3 and 4 damage to the composite structure. Class 1 damage may only be repaired in accordance with a repair scheme approved by the manufacturer.

You must only use the materials approved by the manufacturer when repairing the airplane. Refer to 51-30 Approved Materials - Description for data about approved repair materials.

You must take care to do the repair correctly. The outer shell of a composite structure is stressed. Failure of the structure can cause an accident.

B. Center of Gravity Limits

When you repair an airplane you change the weight of the airplane. If you change the weight of an airplane then you change the center of gravity. The further the distance of a repair from the center of gravity, the greater the effect of the repair will have on the center of gravity. You must always weigh the airplane after a large repair and calculate the center of gravity. Refer to 08-00 Weighing - Description for data about weighing the airplane and calculating the center of gravity.

C. Control Surface Balancing

When you repair a control surface it becomes heavier. Make an estimate of the new weight of the control surface if you were to carry out the repair. (Weigh the materials that you will use to do the repair and add the weight to the actual weight of the control surface). If the post repair weight is greater than the permitted weight then do not do the repair. You must install a new control surface. Refer to 06-00 Weight and Static Moments of Control Surfaces - Description for data about the weight and balance of control surfaces.

When you repair a control surface and/or apply a new paint coat you must weigh the control surface and check the balance of the control surface. 51-60 Control Surface Balancing - Description tells you how to check the balance of a control surface. Refer to 06-00 Weight and Static Moments of Control Surfaces - Description for data about the weight and balance of control surfaces.

D. Drain/Vent Holes

You must keep all drain and vent holes in the structure of the DA 50 C open. If you close a drain or vent hole during a repair you must make a new hole in the same position after the repair is complete.

E. Holding a Component During a Repair

You must hold a component in the correct position when you do a repair. If you do not hold a component correctly it may move during the repair and cause further damage. It can also change the airplane alignment.

Hold the component in a special device (jig/fixture) before you cut out the damaged area. If necessary, lift the airplane on jacks and level the airplane. Refer to 07-10 Jacking - Description for more data about lifting the airplane on jacks and refer to 08-00 Levelling - Description for data about levelling the airplane.

F. Safety Precautions

WARNING

DO NOT GET RESIN ON YOUR SKIN. RESIN CAN CAUSE SKIN DISEASE.

WARNING

DO NOT GET RESINS, HARDENERS OR SOLVENTS IN YOUR MOUTH OR IN YOUR EYES. THESE CHEMICALS CAN CAUSE DISEASE.

WARNING

DO NOT GET COMPOSITE DUST PARTICLES IN YOUR EYES, OR IN YOUR MOUTH, OR ON YOUR SKIN. THESE PARTICLES CAN CAUSE DISEASE.

Moist resins can cause skin disease. When you use resins/hardeners use a protective barrier cream on all exposed skin, specially your hands. You must always wear protective gloves.

The resins, hardeners and solvents used for composite repairs are poisonous. You must not take food or drinks into the work area. Use a mask to protect your face and use eye protection.

When you grind composites you make small particles of composite dust. These particles can irritate the skin and eyes. If you breathe these particle they can cause lung disease.

When you grind composite you must always use a protective cream on all exposed skin, specially your hands. Wear overalls that seal; at the neck, sleeves and ankles. You must always wear protective gloves and if necessary, change them often. Use a suitable mask to protect your face and lungs. Always wear safety goggles to protect your eyes.

If your skin comes into contact with composite dust, then wash it off with clean flowing water. Do not rub your skin while there is dust on it.

G. Workshop Conditions

Keep the workshop clean and free from dust. Remove grinding dust as it occurs. The working area must not be affected by draughts.

The workshop temperature must be maintained between 18 °C (65 °F) and 23 °C (80 °F) and must not fall below 15 °C (59 °F). The relative humidity during mixing, applying or curing resins must not be allowed to rise above 65%.

Maintain the workshop temperature as near to 25 °C (77 °F) as possible during curing.

2. Maintenance Practices

These Maintenance Practices tell you about composite repair processes and how to repair Class 2, 3 and 4 damage to the composite structure. Refer to 51-10 Damage Classification - Description for data about damage classification. Class 1 damage may only be repaired in accordance with a repair scheme approved by the manufacturer. All repairs must only be carried out by approved persons.

You must only use the materials approved by the manufacturer when repairing the airplane. Refer to 51-30 Approved Materials - Description for data about approved materials.

Inspect the damaged area(s). Look specially at the adjacent structure. Damage can go a long way under the surface of a composite. Use the techniques given in Section 51-10 Inspection Techniques - Description.

You must take care to do the repair correctly. The outer shell of a composite structure is stressed. Failure of the structure can cause an accident.

51-20-02 Resin

Description

1. Resin System

You must use the correct quantity of mixed resin for the repair. Weigh all the cloth patches that you will use for the repair. The ratio for glass cloth to resin mix is 100 : 70. For example, 100 grams of dry cloth require 70 grams of mixed resin. The ratio for carbon cloth to mixed resin is 100 : 85. For example, 100 grams of dry carbon cloth requires 85 grams of mixed resin.

Measure the quantities of resin and hardener accurately (± 0.5% by weight). Mix the resin and hardener thoroughly before laminating, or adding fillers or other additives.

Always use clean containers for mixing resin and only mix as much resin as you can use within its 'working life'.

When using large quantities of resin put it in shallow containers. This will increase the ratio surface area to volume which will reduce the risk of an exothermic reaction.

2. Resin System RIM 935 for Repairs

The standard resin system for repairs is RIM 935.

3. Resin System L285 for Repairs

Only use the resin system L285 for approved zones and parts to maintain the structural strength of the airplane.

The resin system L285 can be used for the repair of the following parts (refer to Figure 1):

- The fuselage shells [1, Fig.1] below the cockpit floor assy in front of the center wing.
- The center wing lower shell [2, Fig.1] with jacking points.
- Aft of the baggage frame (refer to Figure 1):
  - The fuselage shells [3, Fig.1].
  - The fuselage frames [3, Fig.1].
  - The fuselage ribs [3, Fig.1].
  - The fuselage brackets [3, Fig.1].
- The vertical stabilizer and fin [4, Fig.1] up to 70 mm (2.8 in) below the center of the mounting access hole [5, Fig.1] of the horizontal tail.
- The outer wing upper shells [6, Fig.1] with the attachment ribs of the fuel tank.
- The horizontal tail [7, Fig.1] except the front and main spar.
- The outer wing lower shells [8, Fig.1] with the attachment ribs of the fuel tank.

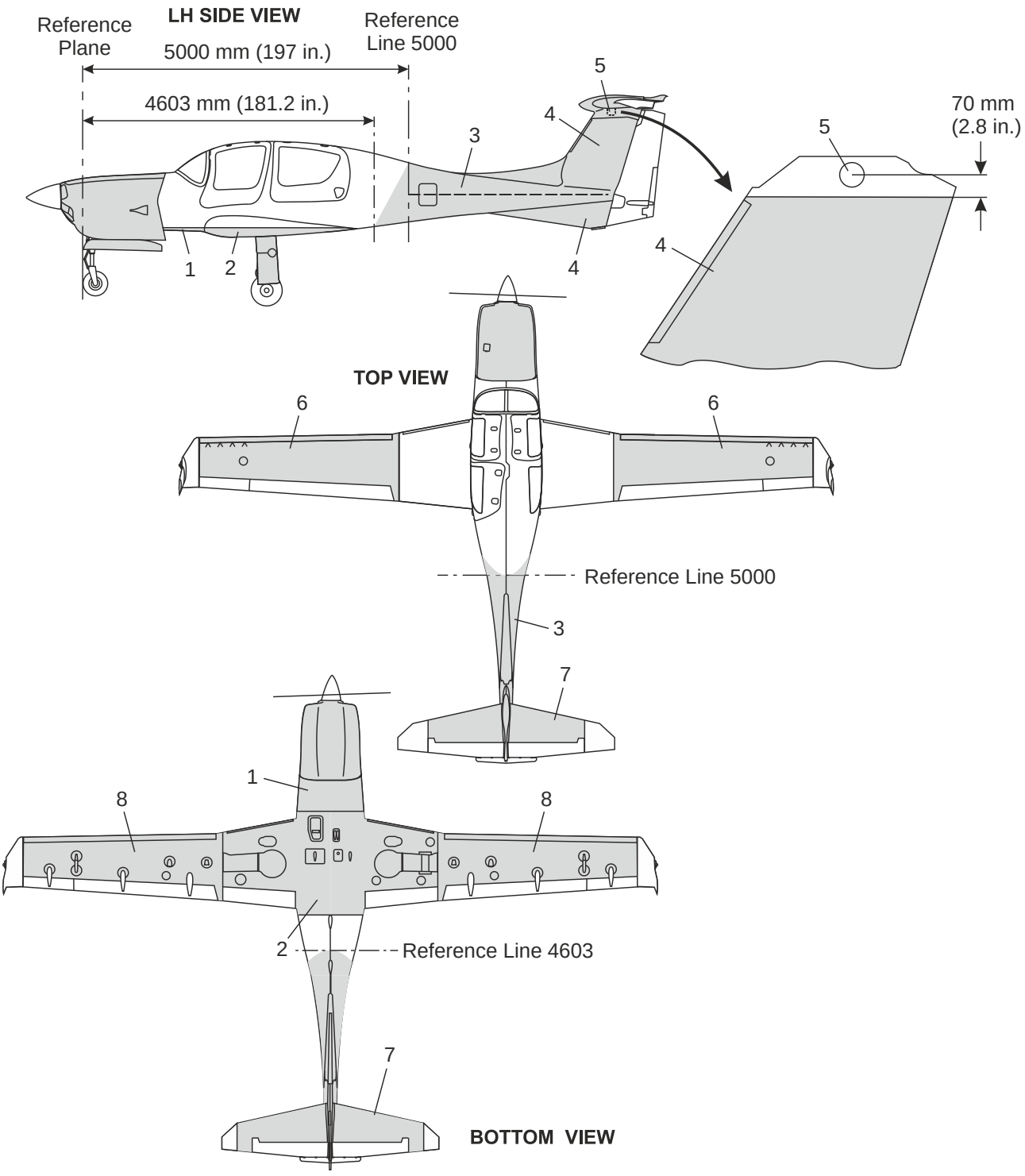


Figure 1 - Resin System L285 Approved Zones and Parts

Legend

[1, Fig.1] Fuselage Shells below the Cockpit Floor

[2, Fig.1] Center Wing Lower Shell

[3, Fig.1] Shells, Frames, Ribs and Brackets aft of the Baggage Frame

[4, Fig.1] Vertical Stabilizer and Fin

[5, Fig.1] Mounting Access Hole

[6, Fig.1] Outer Wing Upper Shells

[7, Fig.1] Horizontal Tail

[8, Fig.1] Outer Wing Lower Shells

51-20-03 Glass and Carbon Cloth

Description

1. Glass and Carbon Cloth

You must always use the correct cloth for the repair. Refer to the lay-up drawing of the repair area for data about the type of cloth you must use for the repair. The lay-up drawing will tell you:

- The correct type of cloth.
- The fiber direction.
- The dimensions of the layer.

Make sure that the fibers in each layer of cloth point in the direction given by the lay-up drawing. This gives the correct strength to the laminate.

Only use sharp shears or scissors to cut the cloth to size. Make sure that the fibers in the cut cloth point in the correct relative direction. Make sure that the fiber strands are not broken or damaged. The cloth must be free of any damage or contamination.

51-20-04 Core Material

Description

1. Core Material

You must always use the correct sandwich core for the repair. Refer to the lay-up drawing of the repair area for data about the core material that you must use.

Make sure that the core material is not damaged or contaminated.

Use a sharp knife to cut the core to the exact size for the repair. The edges of the cut must be clean so that the core will bond correctly. You can profile the core by cutting or sanding.

Small damages of the core (diameter # ½ inch) may be repaired by resin thickened with micro balloons or Q-Cell.

51-20-05 Laminating

Repair procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Laminating

A prescribed stack of resin impregnated cloth makes a laminate. A laminate which is used to repair an airplane becomes an integral part of the airplane structure once the laminate has hardened and fully cured.

You can make a laminate in place on the airplane or you can make a laminate on a work bench and then apply the wet laminate to the airplane repair. When you make the laminate on a work bench:

- It is easier to do.
- It is easier to control and correct the laminating process.
- You can make sure that the cloth layers in the stack are correct before you apply the resin.
- You can make the repair neater.
- You do not have to work upside down to make the laminate.

B. **(1) Laminating Directly on the Airplane**

(a) Prepare the damaged area for laminating:

- Make sure that the repair is clean and free of contamination.
- Do not touch the area to be repaired. Especially particles of skin protecting cream on your hands may act as a separating agent within the lamination.

Refer to the relevant repair procedure in this Section.

(b) Prepare the layers of cloth that you will use for the repair.

Refer to the lay-up drawing.

WARNING

DO NOT GET RESIN ON YOUR SKIN. RESIN CAN CAUSE SKIN DISEASE.

WARNING

DO NOT GET RESINS, HARDENERS OR SOLVENTS IN YOUR MOUTH OR IN YOUR EYES. THESE CHEMICALS CAN CAUSE DISEASE.

(c) Protect the area of the structure around the repair from contamination by the repair materials.

Use plastic/polythene sheeting held in place by self-adhesive tape.

(d) Apply a thin coat of resin to the repair.

(e) Apply the first layer (the biggest one) of cloth to the repair and trim to the correct size.

Make sure that the fibers in the cloth point in the correct direction.

(f) Use a roller, squeegee and a stipple brush to remove all trapped air. Make sure that the cloth is completely impregnated with resin. If necessary, add more resin.

(g) When the excess resin has been brought to the surface with the rolling and stippling process.

Apply the next layer of cloth. Trim the cloth to the correct size.

Make sure that the fibers in the cloth point in the correct direction.

(h) Do step B.(1)(f) and step B.(1)(g) as necessary until all the layers of cloth are in place

(i) Use the roller and squeegee to remove the excess resin

(j) Put a layer of peel ply over the laminate.

WARNING

DO NOT PUT HOLLOW COMPONENTS COMPLETELY INTO A VACUUM BAG. YOU MAY DESTROY THEM.

(k) If necessary, apply a vacuum bag to the laminate

Refer to the lay-up drawing and/or repair drawing.

(2) Laminating on a Work-Bench

(a) Prepare the damaged area for laminating:

- Make sure that the repair is clean and free of contamination.

Refer to the relevant repair procedure in this Section.

(b) Prepare the layers of cloth that you will use for the repair.

Refer to the lay-up drawing.

(c) Put a layer of clean transparent plastic/polythene sheeting over the repair area and hold in place with self-adhesive tape.

(d) Use an indelible ink marker to:

- Trace onto the plastic sheet the extreme outline of the repair.

- Trace onto the plastic sheet the contour lines of each layer of cloth in the structure.

The outer layer of the structure must be tapered to avoid stress risers and to give a good finish.

(e) Remove the transparent sheet from the repair area and place it upside down on a work-bench.

NOTE

The cloth layers are laid in reverse order when you laminate on a table. You must take care to put the cut cloth layers in the correct order and that the fibers in each cloth layer point in the correct direction.

(f) Cut the layers of cloth to fit the contour lines that you traced onto the transparent sheet.

(g) Apply a thin coat of resin to the transparent sheet.

(h) Apply the first inner layer of cloth to the transparent sheet and trim to the correct size.

Make sure that the fibers in the cloth point in the correct direction.

(i) Use a roller squeegee and a stipple brush to remove all trapped air. Make sure that the cloth is completely impregnated with resin. If necessary, add more resin.

(j) When the excess resin has been brought to the surface with the rolling and stippling process. Apply the next layer of cloth. Trim the cloth to the correct size.

Make sure that the fibers in the cloth point in the correct direction.

(k) Do step B.(2)(i) and step B.(2)(j) as necessary until all the layers of cloth are in place.

(l) Apply a thin coat of resin to the area of the repair on the airplane structure where you will attach the laminate patch.

(m) Put the laminate patch carefully into position on the airplane structure using the transparent sheet.

Make sure that the fibers in the cloths point in the correct direction.

(n) Carefully remove the transparent sheet from the patch.

(o) Use the roller and squeegee to remove the excess resin.

(p) Put a layer of peel ply over the laminate.

(q) If necessary, apply a vacuum bag to the laminate.

Refer to the lay-up drawing and/or repair drawing.

51-20-06 Bonding Paste (Thickened Resin)

Description

1. Bonding Paste (Thickened Resin)

CAUTION

FOR BONDING OF PARTS WHICH ARE MADE WITH SELF EXTINGUISHING RESIN, THE BONDING PASTE MUST ALSO BE MIXED FROM SELF EXTINGUISHING RESIN. REFER TO 51-30 APPROVED MATERIALS - DESCRIPTION.

Use bonding paste to bond GFRP/CFRP components together and in the repair of sandwich cores. Resin and thickening filers make the bonding paste. Table 1 gives you the proportion by weight of resin to thickening fillers. You can change the proportion of Sil-Cell and Cotton Flakes relative to each other but you must keep the total weight of the Sil-Cell/Cotton Flakes mix constant.

Material	Weight in Grams								
Mixed Resin	50	100	150	200	250	300	350	400	450
Cotton Flakes	6.1	12.2	18.3	24.4	30.5	36.6	42.7	48.8	54.9
Sil Cell 300 or Eurocell 300	3.9	7.8	11.7	15.6	19.5	23.4	27.3	31.2	35.1

Table 1 - Bonding Paste Mixing Proportions

51-20-07 Curing

Repair procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Curing Process of Resin RIM 935

Refer to the Material Safety Data Sheet (MSDS) for the resin system.

You must cure a composite structure to make it strong. If you do not cure a composite structure correctly it may fail. Curing is a two part process, pre curing and post curing. The following procedure gives a curing process for resin RIM 935. You must follow the resin manufacturer's instructions for the resin that you are using.

(1) Bring and maintain the temperature of the repair to 40 to 55 °C (104 to 131 °F) for at least 10 hours to pre-cure the repair.

If you do not have an oven or a warming room you can make a temporary enclosure around the repair to trap the heat from a flame proof air heater.

CAUTION

DO NOT ALLOW THE TEMPERATURE TO GET TOO HIGH DURING THE CURE. A TEMPERATURE THAT IS TOO HIGH CAN DAMAGE THE COMPOSITE STRUCTURE.

(2) After 10 hours raise the temperature of the repair to 130 ± 5 °C (266 ± 9 °F) over a minimum of 4 hours.

(3) Maintain this temperature for a minimum of 14 hours to complete the final post-cure.

Monitor the temperature every 15 minutes for the first hour then hourly. The post cure time can be divided into sections but you must make sure that the repair has a minimum total of 14 hours at post cure temperature.

CAUTION

DO NOT HEAT UP ABOVE 135 °C (275 °F). THE FOAM CORE MIGHT BE DESTROYED.

(4) After min. 14 hours lower the temperature to room temperature over a minimum of 4 hours.

B. Curing Process of Resin L285

Refer to the Material Safety Data Sheet (MSDS) for the resin system.

You must cure a composite structure to make it strong. If you do not cure a composite structure correctly it may fail. Curing is a two part process, pre curing and post curing. The following procedure gives a curing process for resin L285. You must follow the resin manufacturer's instructions for the resin that you are using.

CAUTION

ONLY USE THE RESIN SYSTEM L285 FOR APPROVED ZONES AND PARTS. IF THE RESIN SYSTEM L285 IS APPLIED TO NON-APPROVED ZONES AND PARTS, IT WILL DECREASE THE STRUCTURAL STRENGTH OF THE AIRPLANE.

(1) Bring and maintain the temperature of the repair to 20 to 23 °C (68 to 73.5 °F) for at least 20 hours to pre-cure the repair.

If you do not have an oven or a warming room you can make a temporary enclosure around the repair to trap the heat from a flame proof air heater.

CAUTION

DO NOT ALLOW THE TEMPERATURE TO GET TOO HIGH DURING THE CURE. A TEMPERATURE THAT IS TOO HIGH CAN DAMAGE THE COMPOSITE STRUCTURE.

(2) After 20 hours raise the temperature of the repair to 64 ± 4 °C (147 ± 7 °F) over a minimum of 2 hours and maintain this temperature for another 4 hours.

(3) After 4 hours raise the temperature of the repair to 84 ± 4 °C (183 ± 7 °F) over a minimum of 2 hours. Maintain this temperature for at least 14 hours to complete the final post-cure.

Monitor the temperature every 15 minutes for the first hour then hourly. The post cure time can be divided into sections but you must make sure that the repair has a minimum total of 14 hours at post cure temperature.

(4) After min. 14 hours lower the temperature to 20 to 49°C (68 to 120°F).

51-20-08 Exterior Paint Finish

Repair procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Safety walk substrate sprinkler	DAI-9011-20-03_LV	1
Plastic spattle	Commercial	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Rivets	Cleveland 105-00200.	1
Grease for sliding interfaces	DOD-L-25681 or NATO S-1735 (for exampe, Mocil 50/50)	1
Adhesive	Terostat MS 9380	3
Cyanacrylat	Commercial	1

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Exterior Paint Finish

CAUTION

YOU MUST PAINT THE AIRPLANE TO THE PAINT COLOR SCHEME. IF YOU DO NOT PAINT THE AIRPLANE TO THE PAINT COLOR SCHEME YOU MAY CAUSE DAMAGE TO THE AIRPLANE STRUCTURE.

(1) Paint Color Scheme

Since full strength of the fiber composite structure has only been shown up to the most critical climate conditions expected in service with certain paint colors, the outer surface of the airplane must be painted in accordance with a paint color scheme of a certain solar absorptivity. Refer to Chapter 04 of this manual.

Refer to Figure 2 for the details of the paint color scheme.

- Zone 1. Colors coded A*** according to Table 1 have to be used on:
  - the upper shell of the outer wings, from the outer wing root rib to 1000 mm (40 in) outboard,
  - 50 mm (2 in) radial distance from hinges on the upper shells of the aileron, the elevator, the elevator trim tab and the outer flaps.
- Zone 2. This zone can either be painted with:
  - colors coded A*** according to Table 1 or
  - a combination of colors in patterns (e.g. stripes, squares, lines) with a maximum solar absorptivity of 0.87 (measured in the spectrum 305 - 1700 Nm according to ASTM G173-03) averaged over any 125 mm x 125 mm (5 in x 5 in) square. Examples which meet this criterion are:
    - Registration markings, warning markings, trim or striping of any shape, provided that colors with a solar absorptivity not exceeding 0.87 are used.
    - A stripe of any color on a white background (solar absorptivity 0.3) results in a maximum width of the stripe of 50 mm (2 in) within the 125 mm x 125 mm (5 in x 5 in) square.
- Zone 3. PU based single layer paint finish of any color may be applied in this zone. No clear coat shall be used in this Zone.
- Zone 4. PU based paint finish of any color may be applied in this zone.

Suppliers other than MIPA can be used in Zone 3, Zone 4 and for color codes marked with * in Table 1. Compatibility with the basis paint layers must be verified.

The definition of the separation line between Zone 3 and 4 is shown in Figure 2.

CODE	Base Coat Color Number (Airplane)	Supplier	CODE	Base Coat Color Number (Metal Free Colors)	Supplier
A000	White PU-based color with a solar absorptivity not exceeding 0.3. Examples: RAL 9016, Mercedes DB 147, BMW 218, Volvo XG28, Volvo BC76, Saab 5AC6, Alfa Romeo 230	MIPA*	N000	Use only approved white coating paints according to 51-30 Approved Materials - Description, 8(D)(1).	Refer to 51-30 Approved Materials - Description.
A001	BC A-71061 RUMPF SILBER MET TOY-199	MIPA	N001	BC A-71072 RADARNASE SILBER PEARL TOY-199	MIPA

Table 1 - Approved Base Coat Colors

CODE	Base Coat Color Number (Airplane)	Supplier	CODE	Base Coat Color Number (Metal Free Colors)	Supplier
A002	BC A-71062 RUMPF ANTHRAZ-IT TOY-1E5	MIPA	N002	BC A-71071 RADARNASE AN-THRAZIT PEARL TOY-1E5	MIPA
A003	BC A-3819 RADARNASE ROT PEARL TOY-3L6	MIPA	N003	BC A-3819 RADARNASE ROT PEARL TOY-3L6	MIPA
A004	BC A-50466 RUMPF BLAU MET FEU-MLTC	MIPA	N004	BC A-50467 RADARNASE BLAU PEARL FEU-MLTC	MIPA
A005	BC A-10416 RUMPF GOLD MET BMW-301	MIPA	N005	BC A-10417 RADARNASE GOLD PEARL BMW-301	MIPA
A006	BC A-50478 RUMPF BLAUGRÜN MET BMW-288	MIPA	N006	NOT AVAILABLE	MIPA
A007	BC A-50474 PANTONE 281 c	MIPA	N007	BC A-50474 PANTONE 281 c	MIPA
A008	PU 240-05 FS 35237 STUMPF-MATT	MIPA	N008	PU 240-05 FS 35237 STUMPF-MATT	MIPA
A009	BC A-60667 PANTONE 3302 c GREEN PEARL	MIPA	N009	BC A-60667 PANTONE 3302 c GREEN PEARL	MIPA
A010	BC A-3855 PANTONE 201 c SEMINOLE RED PEARL	MIPA	N010	BC A-3855 PANTONE 201 c SEMINOLE RED PEARL	MIPA
A011	TSR-2655 LIGHT SUNSET ORANGE	MIPA	N011	TSR-2655 LIGHT SUNSET ORANGE	MIPA

Table 1 - Approved Base Coat Colors

CODE	Base Coat Color Number (Airplane)	Supplier	CODE	Base Coat Color Number (Metal Free Colors)	Supplier
A012	TSR-2656 DARK SUNSET ORANGE	MIPA	N012	TSR-2656 DARK SUNSET ORANGE	MIPA
A013	TSR-3993 FLAMENCO RED	MIPA	N013	TSR-3993 FLAMENCO RED	MIPA
A014	TSR-50652 SAN MARINO BLUE	MIPA	N014	TSR-50652 SAN MARINO BLUE	MIPA
A015	TSR-71229 AIR SUPERIORITY GREY GLOSS LEV-EL MT	MIPA	N015	TSR-71229 AIR SUPERIORITY GREY GLOSS LEV-EL MT	MIPA
A016	TSR-71229 AIR SUPERIORITY GREY GLOSS LEV-EL SM	MIPA	N016	TSR-71229 AIR SUPERIORITY GREY GLOSS LEV-EL SM	MIPA
A017	TSR-50687 LIGHT BLUE	MIPA	N017	TSR-50687 LIGHT BLUE	MIPA
A018	TSR-10617 AURORA GOLD	MIPA	N018	TSR-10617 AURORA GOLD	MIPA
A019	BC A-71062 RUMPF ANTHRAZ-IT TOY-1E5 GLOSS LEVEL MT	MIPA	N019	BC A-71071 RADARNASE AN-THRAZIT PEARL TOY-1E5 GLOSS LEVEL MT	MIPA
A020	A-90641 CREME WHITE PEARL**	MIPA	N020	A-90641 CREME WHITE PEARL**	MIPA
A021	TSR-51176 FERRARI BLUE	MIPA	N021	TSR-51176 FERRARI BLUE	MIPA

Table 1 - Approved Base Coat Colors

* For Suppliers other than MIPA, compatibility with the basis paint layers must be verified.

** This base coat includes a base coat and subsequent effect coat. For application obey manufacturer's instructions.

B. Painting a Large Repair Area

This procedure must be followed when the diameter of the area which must be painted is larger than 200 mm (8 in).

WARNING

DO NOT GET ACETONE, FILLER, OR PAINT ON YOUR SKIN. ACETONE, FILLER, AND PAINT CAN CAUSE SKIN DISEASE.

WARNING

DO NOT BREATHE ACETONE, FILLER, OR PAINT FUMES. ACETONE, FILLER, AND PAINT FUMES CAN CAUSE DISEASE.

CAUTION

THERE MUST BE NO GREASE OR DUST ON THE REPAIR AREA. GREASE AND DUST PREVENT A GOOD BOND.

(1) Carefully scarf the edges of the existing paint finish.

Refer to Figure 3. Do not sand through the existing antistatic filler.

Minimum scarf length: 25 mm (1 in). To ensure the at the antistatic filler of the existing paint is electrically connected to the antistatic filler of the new paint.

(2) Make sure that the area to be repaired is clean and free from any contaminants.

If necessary, use acetone and re-sand the area.

(3) Apply HS filler to the repair area.

Obey the filler manufacturer's instructions.

(4) Allow the HS filler to cure.

2 hours at 45 °C (113 °F).

(5) Lightly sand the HS filler with 320 grit sanding paper.

(6) Make sure that the area to be repaired is clean and free from any contaminants.

If necessary, use acetone and re-sand the area.

(7) Apply two layers of anti-static spray filler to the repair area.

Obey the filler manufacturer's instructions.

(8) Allow the anti-static filler to dry.

At 60 °C (140 °F).

(9) Carefully sand the HS filler with 320 grit sanding paper.

Remove as little antistatic filler as possible. Do not sand through the edges.

(10) Make sure that the area to be repaired is clean and free from any contaminants.

If necessary, use acetone and re-sand the area.

(11) Apply the paint coat.

Obey the paint manufacturer’s instructions.

(12) Allow the paint coat to dry.

90 minutes at 45 °C (113 °F), then 2 days at 20 °C (68 °F).

C. Painting a Small Repair Area

This procedure must be followed when the diameter of the area which you will paint is 200 mm (8 in) or less.

WARNING

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WARNING

DO NOT BREATHE ACETONE, FILLER, OR PAINT FUMES. ACETONE, FILLER, AND PAINT FUMES CAN CAUSE DISEASE.

CAUTION

THERE MUST BE NO GREASE OR DUST ON THE REPAIR AREA. GREASE AND DUST PREVENT A GOOD BOND.

(1) Make sure that the area to be repaired is clean and free from any contaminants.

If necessary, use acetone and re-sand the area.

(2) Apply 2 layers of HS filler to the repair area.

Obey the filler manufacturer's instructions.

(3) Allow the HS filler to cure.

2 hours at 45 °C (113 °F).

(4) Lightly sand the HS filler with 320 grit sanding paper.

(5) Make sure that the area to be repaired is clean and free from any contaminants.

If necessary, use acetone and re-sand the area.

(6) Apply the paint coat.

Obey the paint manufacturer's instructions

(7) Allow the paint coat to dry.

90 minutes at 45 °C (113 °F), then 2 days at 20 °C (68 °F).

D. Coated Safety Walk Repair

WARNING

WHEN HANDLING CHEMICALS ALWAYS OBSERVE HEALTH AND SAFETY REGULATIONS GIVEN BY THE MANUFACTURER OF THE CHEMICALS.

(1) Clean the entire area between fuselage and rootribs. Use water to remove dirt from the surface. If necessary, add a mild cleaning agent.

Refer to Section 12-30 Cleaning - Clean and apply surface protection.

(2) Use a commercial solvent to remove grease from the surface. The surface must be totally clean from grease or dirt.

(3) Place the safety walk cover on the center wing and mark the position with a pencil on the center wing surface.

Refer to Figure 4.

(4) Make sure that the safety walk cover orientation is parallel to flight direction.

(5) Remove the protective layer from the safety walk cover.

(6) Place the safety walk cover corresponding to the marks on center wing (don't use soap water) and remove the transfer foil smoothly.

(7) Remove air bubbles from the edges of the cutouts with a plastic spattle.

(8) Prepare the surface at the cutouts of the safety walk cover:

- Carefully roughen the paint with sandpaper (grit 320), for the ends of strips use red Scotch-Brite.

(9) Clean the surface at the safety walk cutouts with a vacuum cleaner and silicon remover.

(10) Cover the airplane's surface around the safety walk cover.

(11) Prepare lacquer P/N 22101980 in acc. with the technical information sheet.

Shake 2 minutes before and after operating the red button.

Press red button with the ball of your hand until stop is reached.

(12) Spray a thick film at the cutouts of the safety walk cover.

(13) Use safety walk substrate sprinkler to apply safety walk substrate evenly over cutouts.

(14) Apply a second layer of lacquer:

- Make sure the whole substrate is evenly covered with a sufficient amount of paint.

(15) Carefully pull off the safety walk cover starting from one edge. Remove the cover in direction of the strips within 15 minutes.

(16) Let the system dry for 12 hours in a dry and weather protected area at temperatures from 20 to 30°C (68 to 86 °F).

(17) Remove the cover from the airplane surface.

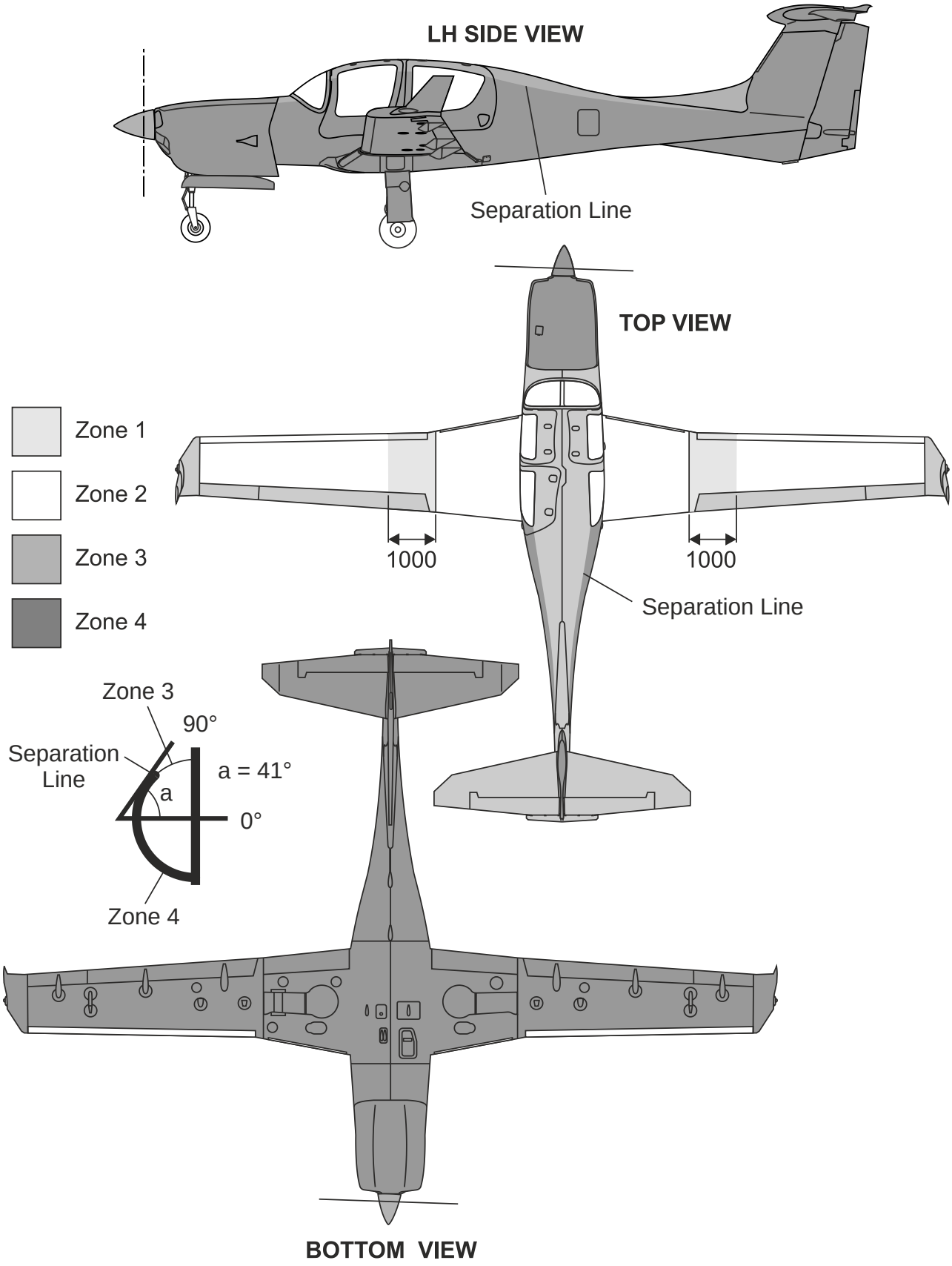


Figure 2 - Paint Color Scheme

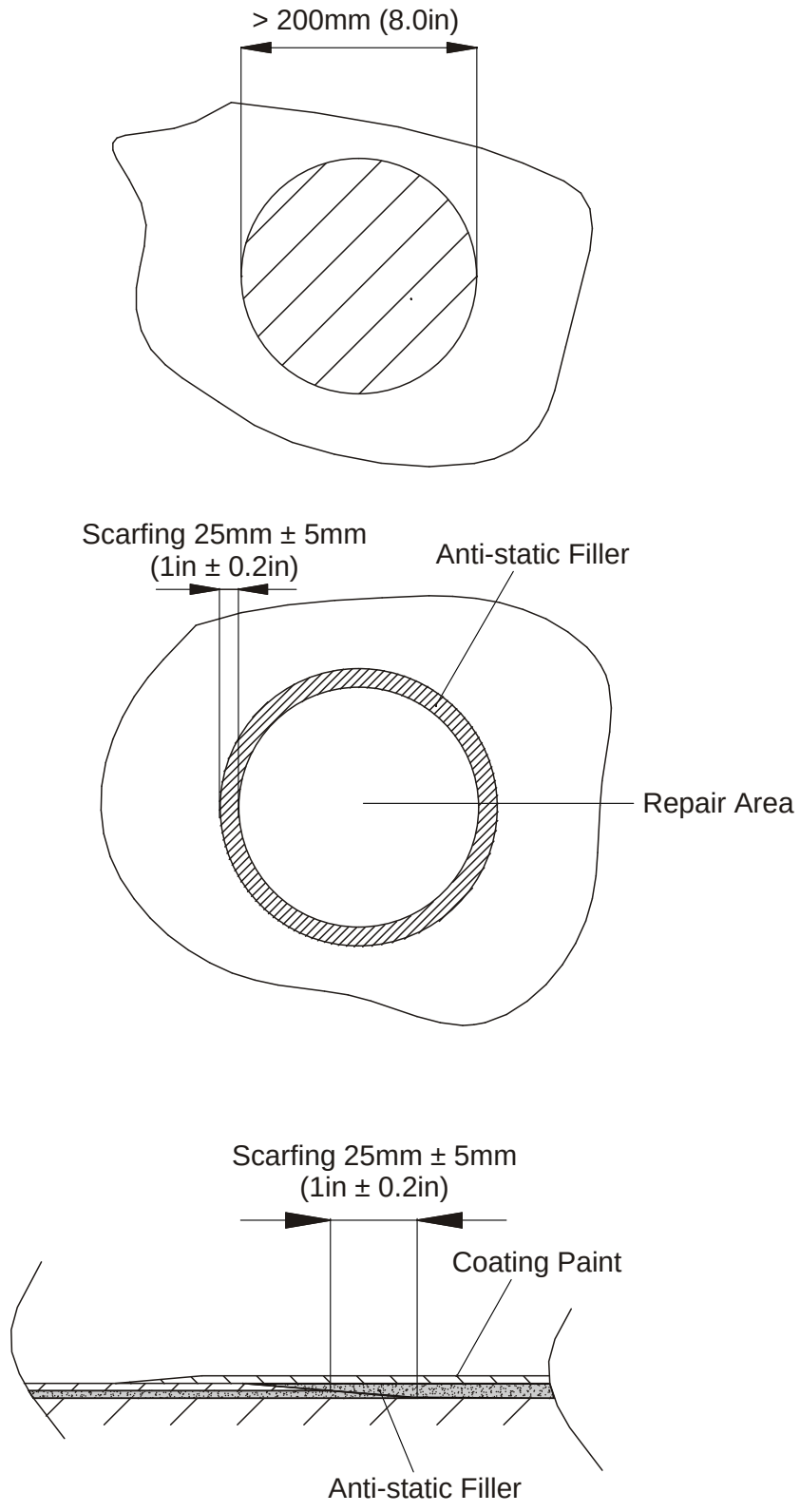


Figure 3 - Scarfing the Paint Coat

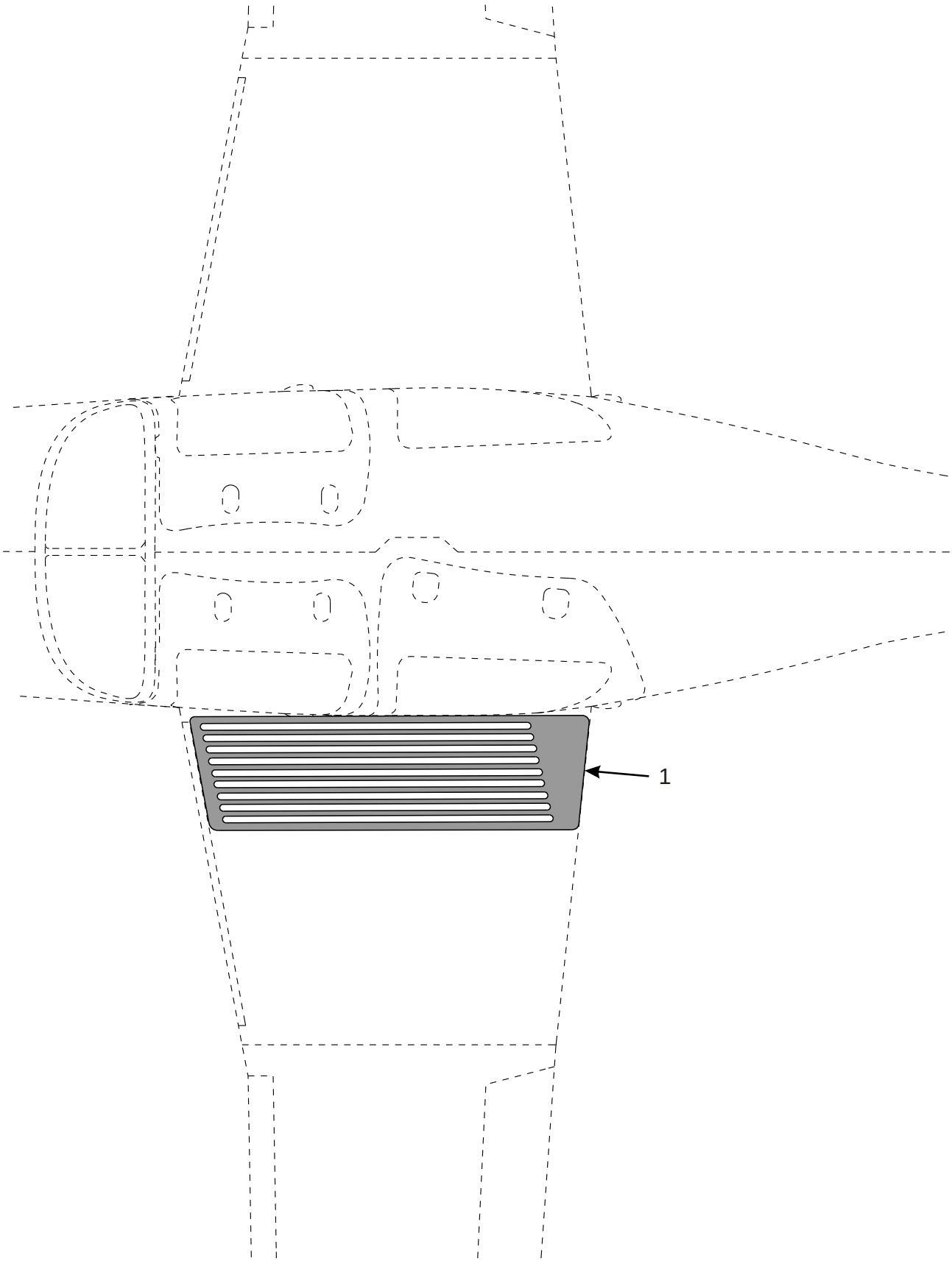


Figure 4 - Safety Walk Cover Positioning

Legend

[1, Fig.4] Safety Walk Cover

51-20-09 Repairs

Repair procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Class 4 Repairs

The repair of minor scratches, abrasions or similar damage which is not a crack or a puncture in the skin.

WARNING

DO NOT GET ACETONE, FILLER, OR PAINT ON YOUR SKIN. ACETONE, FILLER, AND PAINT CAN CAUSE SKIN DISEASE.

WARNING

DO NOT BREATHE ACETONE, FILLER, OR PAINT FUMES. ACETONE, FILLER, AND PAINT FUMES CAN CAUSE DISEASE.

(1) Sand the repair area with 150 grit sanding paper.

(2) Make sure that the area to be repaired is clean and free from any contaminants.

If necessary, use acetone.

(3) Apply putty to the repair area to fill any damage.

Obey the putty manufacturer's instructions.

Fill to the original contour of the structure.

(4) Allow the putty to cure.

5 to 20 minutes.

(5) Lightly sand the putty with 150 grit sanding paper.

(6) Apply filler(s) and paint coat.

Refer to 51-20 Exterior Paint Finish - Repair procedure.

B. Class 3 Repairs

Small holes or cracks in the outer skin where there is no internal damage to the component, the sandwich material, or the inner skin.

Refer to Figure 5 for an example of a typical Class 3 repair scheme.

(1) Make sure that the area around the damage is clean.

(2) Carefully examine the area around the damage. Look specially for disbonding between the inner laminate layers and any core material.

Do a coin tap test to find the extent of any disbonding or delamination.

(3) Remove damaged/loose laminate until the edges of the laminates are bonded together and to any core material.

Refer to Figure 5.

Use a sharp knife or grinding disk.

(4) Scarf the edges of the repair area with a grinding disk or block.

Scarf glass cloth at 50:1 (50x cloth thickness) minimum and carbon cloth at 100:1 (100x cloth thickness) minimum.

(5) Count the layers of fabric that you will need to replace.

Refer to the lay-up drawing for the related structure for data about the cloth type and orientation.

WARNING

DO NOT GET ACETONE, FILLER, OR PAINT ON YOUR SKIN. ACETONE, FILLER, AND PAINT CAN CAUSE SKIN DISEASE.

WARNING

DO NOT BREATHE ACETONE, FILLER, OR PAINT FUMES. ACETONE, FILLER, AND PAINT FUMES CAN CAUSE DISEASE.

CAUTION

THERE MUST BE NO GREASE OR DUST ON THE REPAIR AREA. GREASE AND DUST PREVENT A GOOD BOND.

(6) Clean the area of the repair.

If you use acetone to remove any grease or dirt then you must lightly re-sand the repair area.

WARNING

DO NOT GET RESIN ON YOUR SKIN. RESIN CAN CAUSE SKIN DISEASE.

WARNING

DO NOT GET RESINS, HARDENERS OR SOLVENTS IN YOUR MOUTH OR IN YOUR EYES. THESE CHEMICALS CAN CAUSE DISEASE.

(7) Repair the laminate.

Use one of the 2 methods given in 51-20 Laminating - Repair procedure.

(8) Pre-cure the repair.

Refer to 51-20 Curing - Repair procedure.

(9) Post-cure the repair.

Refer to 51-20 Curing - Repair procedure.

(10) When the repair is fully post cured, remove the peel ply and sand smooth the surface of the repair.

(11) Contour the repair so that the final surface level of the repair is slightly lower than the original surrounding area.

Use 150 grit sanding paper.

To allow for the paint coat.

(12) Apply filler(s) and paint coat.

Refer to 51-20 Exterior Paint Finish - Repair procedure.

C. Class 2 Repairs

Holes and cracks passing through both skins of a sandwich construction component. The core damage must be able to be covered by a 13 mm (0.5 in) diameter circle.

Refer to Figure 6 for an example of a typical Class 2 repair scheme.

(1) Make sure that the area around the damage is clean.

(2) Carefully examine the area around the damage. Look specially for disbonding between the inner laminate layers and any core material.

Do a coin tap test to find the extent of any disbonding or delamination.

(3) Remove damaged/loose laminate until the edges of the laminates are bonded together and to any core material.

Refer to Figure 6.

Use a sharp knife or grinding disk.

(4) Remove the damaged foam core.

Remove sufficient foam core to give a minimum of 20 mm (0.8 in) edge around the outside of the damaged area. Refer to Figure 6.

(5) Scarf the edges of the external laminate repair area with a grinding disk or block.

Scarf glass cloth at 40:1 (40x cloth thickness) minimum and carbon cloth at 60:1 (60x cloth thickness) minimum.

WARNING

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WARNING

DO NOT BREATHE ACETONE, FILLER, OR PAINT FUMES. ACETONE, FILLER, AND PAINT FUMES CAN CAUSE DISEASE.

CAUTION

THERE MUST BE NO GREASE OR DUST ON THE REPAIR AREA. GREASE AND DUST PREVENT A GOOD BOND.

(6) Clean the area of the repair.

Use acetone only if any grease or dirt comes to the surface of the repair.

(7) Cut and shape a piece of foam core to replace the damaged foam core that you removed in step C.(4).

Use a sharp knife to cut the foam.

(8) Prepare the layers of cloth that you will need to laminate on the inner surface of the foam core.

Refer to the lay-up drawing for the related structure for data about the cloth type and orientation.

WARNING

DO NOT GET RESIN ON YOUR SKIN. RESIN CAN CAUSE SKIN DISEASE.

WARNING

DO NOT GET RESINS, HARDENERS OR SOLVENTS IN YOUR MOUTH OR IN YOUR EYES. THESE CHEMICALS CAN CAUSE DISEASE.

(9) Prepare the foam core for inserting in the repair:

- Apply a thin coat of resin to the foam core.
- Apply a coat of thickened resin to the foam core.
- Laminate the inner layers of cloth onto the inner surface of the foam core. Make sure that the fibers of the cloth point in the correct direction.

Refer to 51-20 Bonding Paste (Thickened Resin) - Description.

Use one of the 2 methods given in 51-20 Laminating - Repair procedure.

(10) Apply a thin coat of resin to the area to be repaired.

(11) Put the foam core and inner laminate into position in the repair.

(12) Pre-cure the repair.

Refer to 51-20 Curing - Repair procedure.

(13) Use a sanding disk or block to contour the foam core of the repair.

Refer to Figure 6.

(14) Clean the repair.

(15) Apply a coat of thickened resin to the foam core of the repair.

(16) Apply a thin coat of resin to the scarfed edges of the outer laminate of the repair.

(17) Repair the outer laminate.

Use one of the 2 methods given in 51-20 Laminating - Repair procedure.

(18) Pre cure the repair.

Refer to 51-20 Curing - Repair procedure.

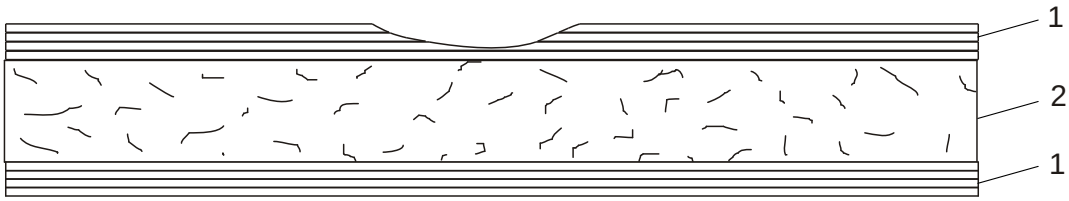
(19) Post cure the repair.

Refer to 51-20 Curing - Repair procedure.

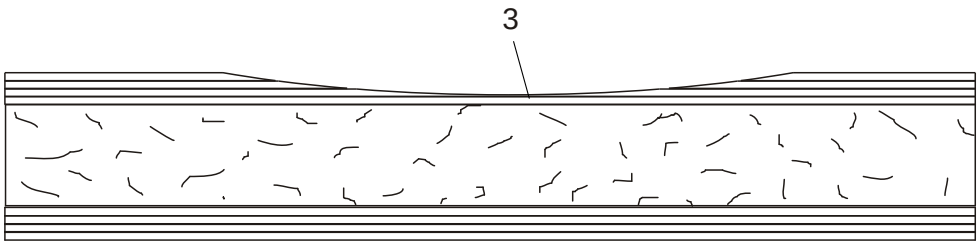
(20) When the repair is fully post cured, remove any peel ply and sand smooth the surface of the repair.

(21) Contour the repair so that the final surface level of the repair is lower than the original surrounding area. To allow for the paint coat.

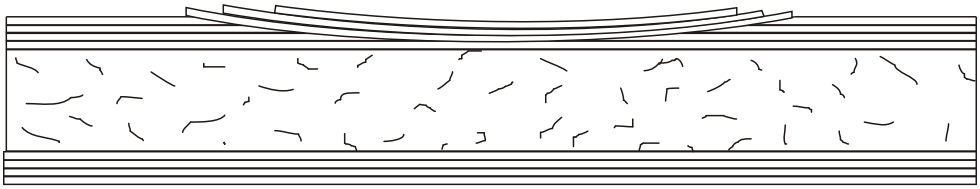
Use 150 grit sanding paper.



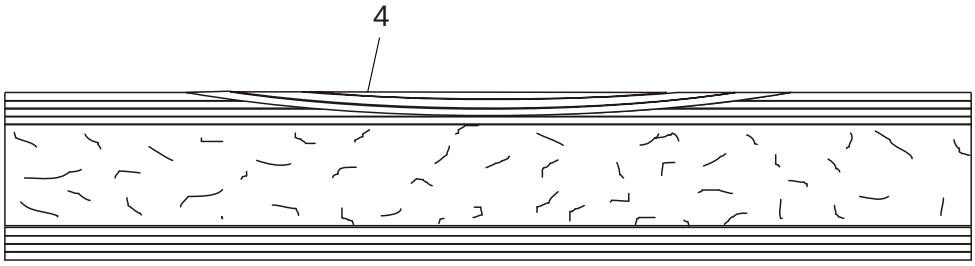
Remove Damaged /Loose Laminate



Scarf the Edges of the Repair Area



Repair the Laminate



Contour the Laminate

Figure 5 - Typical Class 3 Repair

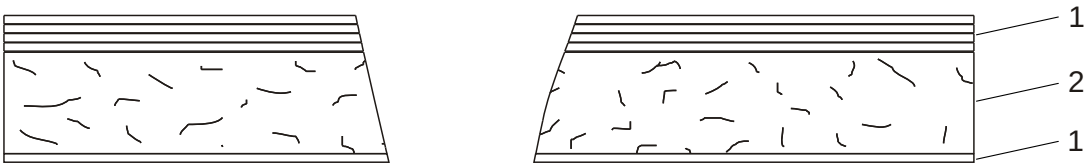
Legend

[1, Fig.5] Laminate

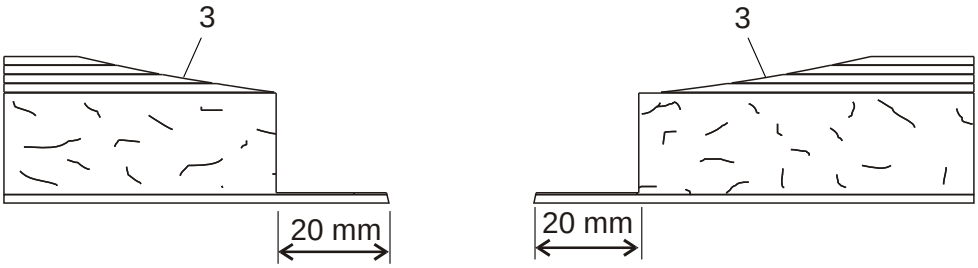
[2, Fig.5] Foam Core

[3, Fig.5] Scarf

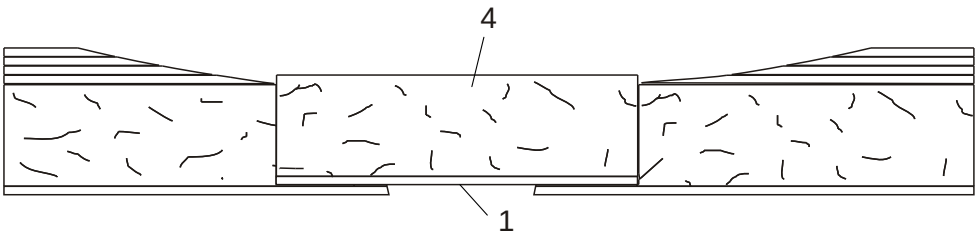
[4, Fig.5] New Laminate



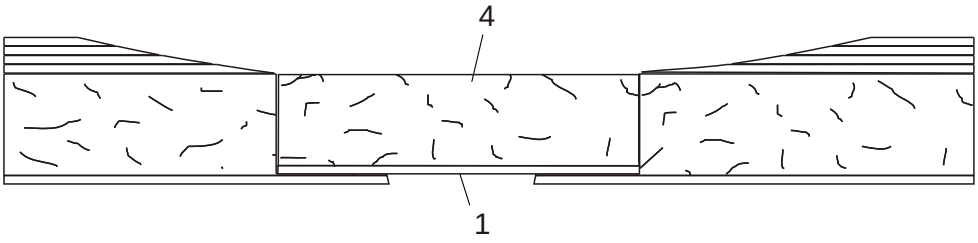
Remove Damaged/Loose Laminate



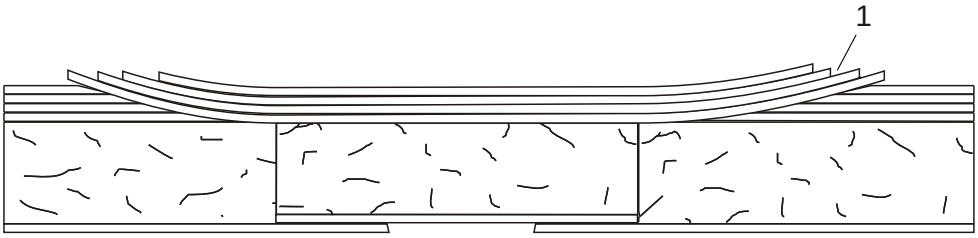
Remove Damaged Foam Core and Scarf Laminate



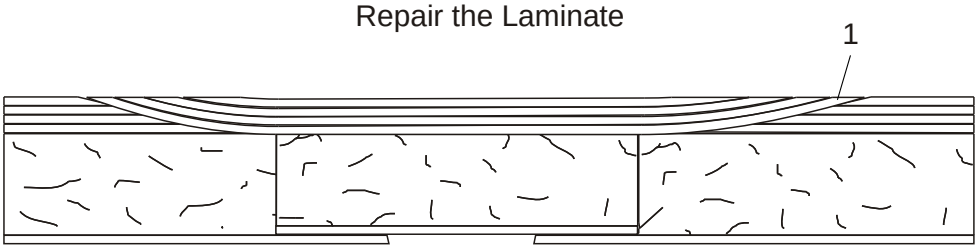
Insert the Laminate and Foam Core Into the Repair with Bonding Paste



Profile the Foam Core Insert



Repair the Laminate



Contour the Laminate

Figure 6 - Typical Class 2 Repair

Legend

[1, Fig.6] Laminate

[2, Fig.6] Foam Core

[3, Fig.6] Scarf

[4, Fig.6] Foam Insert

51-30
MATERIAL

51-30-01 Approved Materials

Description

1. Resin System RIM 935

Resin	RIM 935
Hardener	RIMH937
Mixture	100 parts resin and 38 ±2 parts of hardener (by weight)
Supplier	Westlake Esslingen GmbH Fritz-Müller-Straße 114 D-73730 Esslingen am Neckar, Germany Phone: +49-711-389800-0

2. Resin System L285

Resin	L285
Hardener	LH287
Mixture	100 parts resin and 40 ±2 parts of hardener (by weight)
Supplier	Westlake Esslingen GmbH Fritz-Müller-Straße 114 D-73730 Esslingen am Neckar, Germany Phone: +49-711-389800-0

3. Self- Extinguishing Resin System

Resin	L940
Hardener	H286
Mixture	100 parts resin and 24 ±2 parts of hardener (by weight)
Supplier	Westlake (see above)

4. Glass Fiber Cloth

WLB No. (German Aviation Standard)	Weave	Weight per unit area [g/m²]	Interglas Type	Porcher Type
8.4548.60	2/2 twill	163		917
8.4551.60	2/2 twill	280		3063
8.4554.60	2/2 twill	390		1989
8.4520.60	UD	220	92145	
8.4525.60	UD	425	92146	
	PLAIN	49		2037

Table 1 - Title

All cloth types consist of alkali free E-glass with K 506 or FK 144 finish and comply with LN9169 (German Aviation Standard).

Supplier for Interglas cloth

Interglas
P-D Interglas Technologies GmbH
Benzstraße 14
D-89155 Erbach, Germany
Phone: +49(0)-7305955-0
Fax: +49(0)-7305955-513

Supplier for Porcher cloth

Porcher Industrietextilien GmbH
Holzgraben 13/15
D-52062 Aachen, Germany
Phone: +49-241-48225
Fax: +49-241-48229

5. Carbon Fiber Cloth

WLB No. (German Aviation Standard)	Weave	Mass per unit area [g/m²]	ECC Type	SGL Type	J.H. vom Baur Type
	2/2 twill	200	CCC 452		
	2/2 twill with aluminum fibers	220	CCC 459 Al		
	UD tape	380		Sigratex KDU 1034	
	UD cloth	280	CCC 796		
	plain	80	CCC 461		

Table 2 - Title

The cloth complies with LN9169 (German Aviation Standard).

Supplier for Vom Baur
J.H. vom Baur Sohn GmbH & CoKG
Marktstrasse 34
D-42369 Wuppertal, Germany
Phone: +49(0)-20224661-0
Fax: +49(0)-2024660033

Supplier for Cramer cloth
ECC GmbH + CoKG
Weberstrasse 21
D-48619 Heek-Nienborg, Germany
Phone: +49-2568-3883-34
Fax: +49-2568-3883-97

Supplier for SGL tape
SGL Technik GmbH
Werner von Siemens-Str. 8
D-86405 Meitingen, Germany
Phone: +49-8271-832152
Fax: +49-8271-831427

6. Peel Ply

Type	PA20-63, compliant with LN98690
Supplier	Strübel Vertriebs GbR Herrlingerstr. 36/1 D-89081 Ulm, Germany Phone: +49-731-388577-1, -2 Fax: +49-731-39387353

7. Sandwich Core Material

Type	Airex C71.55
Manufacturer	AIREX AG
Supplier	Polychem HandelsgesmbH Markt Allhau Nr. 463 A-7411 Markt Allhau, Austria Phone: +43-3356-20444 Fax: +43-3356-20445 E-Mail: chemie@polychem.at

8. Fillers for Resin

Type	Cotton flakes FB1/035
Supplier	Rudolf Usner GmbH (see above)
Type	Silcell 300, Eurocell 300
	Supplier Joh. Klinglhuber & Söhne Handelsgesellschaft mbH Wallgasse 21 A-1060 Vienna, Austria Phone: +43-1-5974712-0 Fax: +43-1-5974712-16
Type	Aerosil 380
Supplier	Polychem HandelsgesmbH Markt Allhau Nr. 463 A-7411 Markt Allhau, Austria Phone: +43-3356-20444 Fax: +43-3356-20445 E-Mail: chemie@polychem.at

9. Exterior Painting Materials

A. Putty

Type	Sikkens Polysoft
Manufacturer	Akzo Nobel
Supplier	Akzo Nobel Coatings GesmbH Baudißg.10 A-1110 Vienna, Austria Phone: +43-1-7674488 Fax: +43-1-7674488-33

Type	ICI P551-1052
Manufacturer	ICI Paints, Berkshire, Great Britain
Supplier	ICI Autocolor der PPG Austria Handels GmbH Siezenheimerstrasse 31 A-5020 Salzburg, Austria Phone: +43-1-662-420425-0 Fax: +43-1-662-435640

B. EP Filler

EP Filler	ICI P580-2100
Manufacturer	ICI Paints, Berkshire, Great Britain
Supplier	ICI Autocolor (see above)

C. Anti-Static Filler

Anti-Static Filler	Streicolor 2K PU ESD-Leitlack, matt
Manufacturer	Streicolor AG
Supplier	Streicolor AG Niederwil CH-8502 Frauenfeld, Switzerland Phone: +41–52-7232150 Fax: +41-52-7232169

D. Coating Paint

(1) White

Type	PPG Turbo Plus 493; Color 6-KVW (white)
Manufacturer	PPG Deutschland
Supplier	Nexa Autocolor der PPG Austria Handels GmbH Siezenheimerstrasse31 A-5020 Salzburg, Austria Phone: +43-662-420425-0 Fax: +43-662-435640

(2) Other Colors

Type	Refer to 51-20 Exterior Paint Finish - Repair procedure.
Manufacturer	MIPA Professional Coating System AG
Supplier	MIPA Professional Coating System AG Am Oberen Moos 1 D-84051 Essenbach, Germany

10. Interior Painting Materials

A. Putty

Type	Sikkens Polysoft
Manufacturer	Akzo Nobel
Supplier	Akzo Nobel Coatings GesmbH (see above)

Type	ICI P551-1052.
Manufacturer	ICI Paints, Berkshire, Great Britain
Supplier	ICI Autocolor der PPG Austria Handels GmbH (see above)

B. Coating Paint

Glare shield	Nuvovern DS 10/1 + Nuvovern ACR
Inst. Panel cover	Nuvovern DS 10/1 + Nuvovern ACR
General	Nuvovern DS 10/1
Manufacturer	Mäder Lacke AG, Killwangen, Switzerland
Supplier	Walter Mäder GmbH Wiener Str.99 A-2514 Traiskirchen, Austria Phone: +43-2252-53038 Fax: +43-2252-52297

11. Fire Retardant Paint

A. PPG Aerospace

Fire retardant paint	7330BP0802
Finishing varnish	PU 2K- Klarlack CA9008BO900D_DESOTHANE HSBUFFABLE
Hardener	PU-Härter FN39-1327
Supplier	PRC-DeSoto Deutschland GmbH PPG Aerospace Hein-Saß- Weg 29 D-21129 Hamburg, Germany Phone: +49-40-742193-10 Fax: +49-40-742139-69

B. Hensel

Fire retardant paint	Hensotherm 2 KS (white)
Coating paint	Hensotop 84f
Supplier	Rudolf Hensel GmbH Lack- und Farbenfabrik Lauenburger Landstrasse 11 D-21039 Börnsen, Germany Phone: +49-40-72106210 Fax: +49-40-72106252

12. Acrylic Glass Cement

Acrylic glass cement	Polymerization Cement Acrifix 92
Manufacturer	Röhm D-64275 Darmstadt, Germany Phone: +49-6151-1801 Fax: +49-6151-1802
Supplier	Röhm Austria GmbH & Co. KG Lamezanstrasse 17 1239 Wien, Austria Phone: +43-1616-7510-0 Fax: +43-1616-7510-33

51-40
FASTENERS

51-40-01 Fasteners

Description

1. Description

The DA 50 C uses two main types of fasteners. It has quick release camloc fasteners for panels which you remove often, for example, engine cowlings, and it has screws for all other access panels.

Figure 1 shows the quick release camloc fastener. The fastener has three parts, a receptacle with a cam track, a grommet and a stud. Rivets attach the receptacle to the structure or base panel. A spring ring attaches the stud assembly to the access panel and a compression spring holds the stud in the stud assembly.

The T shaped end of the stud locates in the slot of the receptacle. When you turn the stud clockwise through 90° it engages the cam-track in the receptacle and pulls the access panel into position. When the stud is turned fully 90° clockwise the T-shaped end of the stud engages in a small indent in the cam-track. The compression spring in the stud assembly holds the stud in position in the detent.

There are different length studs. Short studs for thin panels and longer studs for thicker panels. Not all airplane serial numbers have the same length studs in the same positions. This is because composite structures and components can vary in thickness. If you must replace a fastener, make sure that the new fastener that you install has the correct length stud. You can replace a stud in a stud assembly.

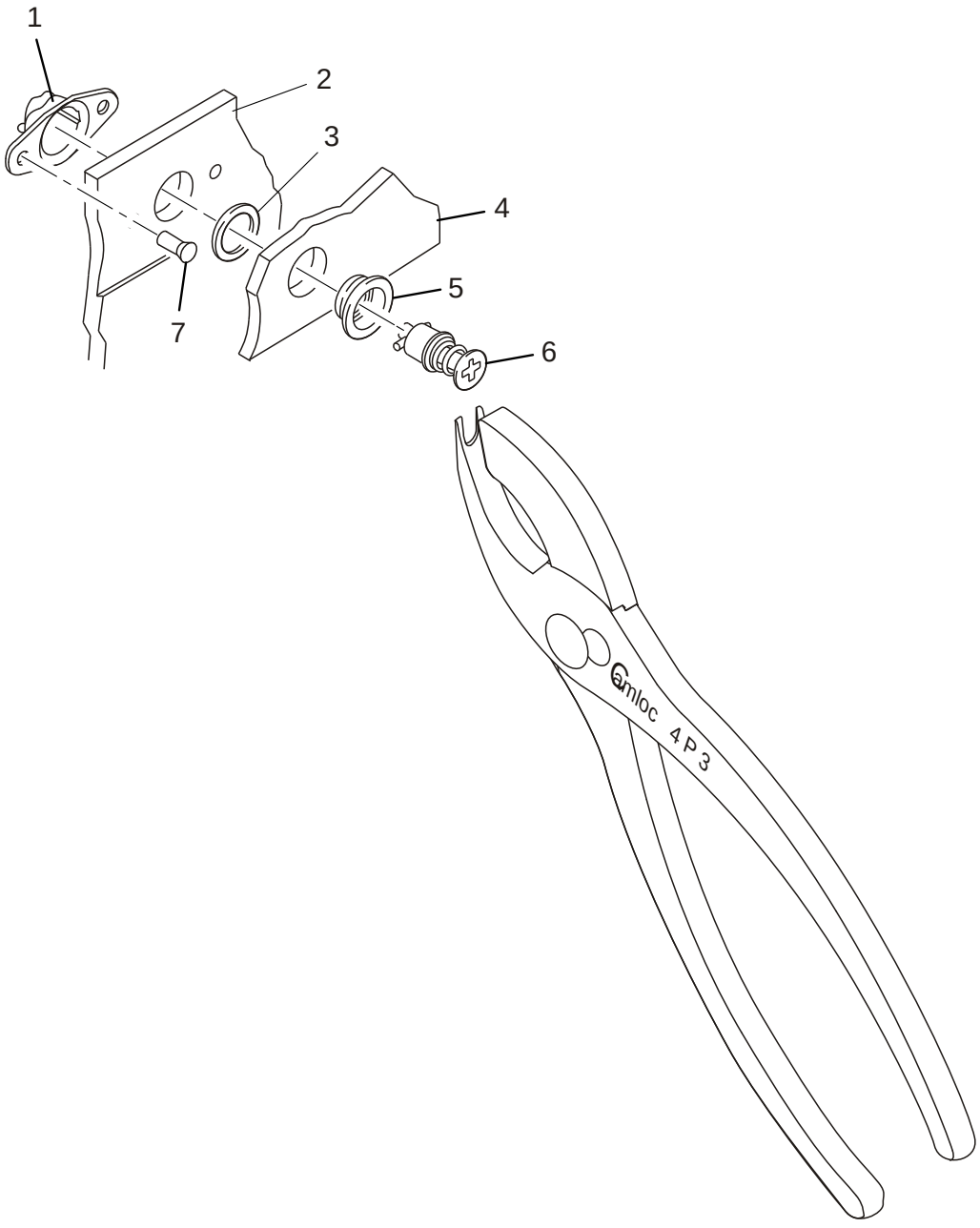


Figure 1 - Quick Release Fastener Assembly

Legend

[1, Fig.1] Receptacle

[2, Fig.1] Aircraft Structure

[3, Fig.1] Spring Ring

[4, Fig.1] Access Panel

[5, Fig.1] Grommet

[6, Fig.1] Stud

[7, Fig.1] Rivet

51-40-02 Fasteners

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Stud pliers	Camloc 4 P 3	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Camloc fastener	Commercial	A/R
Fastener stud	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Replace a Quick Release Fastener Stud

(1) Remove the damaged stud assembly:

- Turn the stud 90° counter clockwise to release it from the receptacle.
- Move the U-jaw of the stud pliers into position under the rim of the stud assembly. Refer to 51-40 Fasteners - Description Figure 1.
- Compress the stud assembly with the stud pliers and remove the stud assembly from the grommet.
  Turn the stud assembly approximately 30° off-axis.

(2) Install the new stud assembly:

- Select the correct length stud assembly.
- Put the stud assembly into the U jaw of the stud pliers.
- Compress the stud assembly and move the stud assembly into position in the grommet and then release the stud assembly.
  Turn the stud assembly approximately 30° off-axis.
- Engage the stud in the receptacle and turn the stud 90° clockwise to lock the stud.

Make sure that the panel is pulled fully into position and that the stud is in the detent of the receptacle.

51-60
CONTROL SURFACE BALANCING

51-60-01 Control Surface Balancing

Description

1. Control Surface Balancing

WARNING

YOU MUST WEIGH AND CHECK THE BALANCE OF A CONTROL SURFACE AFTER ANY WORK WHICH COULD AFFECT ITS WEIGHT OR ITS BALANCE. AN OUT OF BALANCE CONTROL SURFACE CAN FLUTTER AND CAUSE STRUCTURAL FAILURE.

This section tells you how to weigh and measure the residual moment of the control surfaces. Figure 1, Figure 2, Figure 3 and Figure 4 show typical Weights and Residual Moments Reports for the DA 50 C airplane.

Correct control surface balance is critical to flight safety. You must remove a control surface to weigh it and check its balance after:

- Any repair to the control surface.
- Painting the control surface.
- Any report of control vibration or flutter in flight.

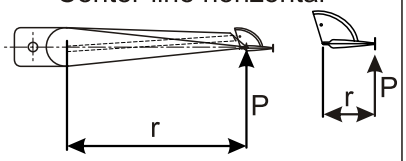
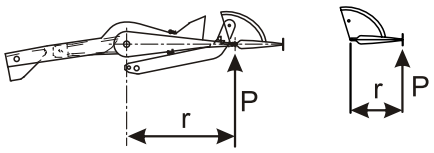
You can use any convenient method to weigh a control surface. If you use anything to connect the control surface to the weighing device then you must weigh the device, (for example, a sling) separately and deduct its weight from the total value. For example, you use a rope sling to weigh an aileron with a spring balance:

- Weight of aileron and the rope sling = 3.8 kg (8.378 lb).
- Weight of rope sling = 0.7 kg (1.543 lb).
- Weight of aileron = (3.8 kg - 0.7 kg) = 3.1 kg (6.835 lb).

When you do a test for the correct balance of a control surface, the pivot angle of the control must be as shown in the Weights and Residual Moments Report.

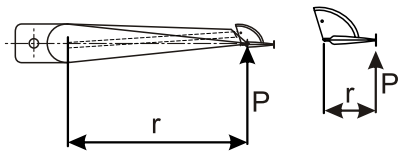
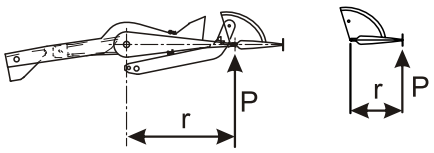
We recommend that for balancing the flaps, aileron, elevator and elevator trim tab, you put a suitable size rod through the hinge bearings. Support the rod at two points to keep it horizontal.

To balance the rudder it must be supported at the rudder upper hinge and the bottom mounting bracket. The center line of the rudder must be horizontal.

DA 50 SN:		Rudder	Rudder Trim	Elevator	Elevator Trim Tab
Weight incl. mass balance	Limits [kp]	8.667 to 9.773*	0.657 to 0.803	9.519 to 10.735	0.837 to 1.003
	Actual [kp]				
Mass Balance [kg]		Leading Edge Mounted Balancing Mass [2.727 ± 0.05]	Build into composite structure [0.355 ± 0.02]	Centre: [2.07 ± 0.05] Push Rod: [0.733 ± 0.1] L: R: [0.850 ± 0.05]	[0.366 ± 0.03]
P [kp]					
r [cm]					
Static Moment	Limits [kp cm]	81.01 to 98.509	-1.488 to -1.047	1.57 to 15.278	-1.583 to -0.872
	Actual [kp cm]				
M = P*r P [kp] r [cm]		Center-line horizontal  Rudder Trim Tab and Push Rod		Center-line horizontal  Elevator Trim Tab and Push Rod	

* Mass and moments with upper hinge, trim tab, trim tab pushrod and fairings.

Figure 1 - Typical Weights and Residual Moments Report DA 50 C Airplane - Sheet 1 (Metric Dimensions)

DA 50 SN:		Rudder	Rudder Trim	Elevator	Elevator Trim Tab
Weight incl. mass balance	Limits [lbf]	19.12 to 21.55*	1.45 to 1.77	20.99 to 23.67	1.85 to 2.21
	Actual [lbf]				
Mass Balance [lb]		Leading Edge Mounted Balancing Mass [6.0 ± 0.11]	Build into composite structure [0.783 ± 0.044]	Centre: [4.564 ± 0.11] Push Rod: [1.616 ± 0.22] L: R: [1.874 ± 0.11]	[0.801 ± 0.66]
P [lbf]					
r [in]					
Static Moment	Limits [lbf in]	70.31 to 85.50	-1.29 to -0.91	1.36 to 13.26	-1.37 to -0.76
	Actual [lbf in]				
M = P*r P [lbf] r [in]		Center-line horizontal  Rudder Trim Tab and Push Rod		Center-line horizontal  Elevator Trim Tab and Push Rod	

* Mass and moments with upper hinge, trim tab, trim tab pushrod and fairings.

Figure 2 - Typical Weights and Residual Moments Report DA 50 C Airplane - Sheet 1 (Imperial Dimensions)

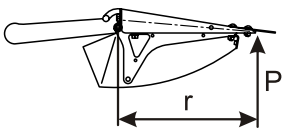
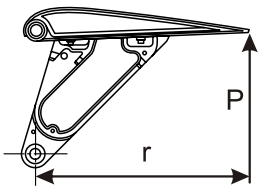
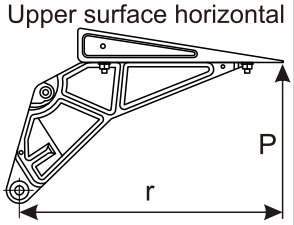
DA 50 SN:		Aileron		Outer Flap		Inner Flap	
		Left	Right	Left	Right	Left	Right
Weight incl. mass balance	Limits [kp]	2.2 to 3.0		3.4 to 4.3		6.8 to 8.5	
	Actual [kp]						
Mass Balance [kg]		0.455 ± 0.005	0.455 ± 0.005				
P [kp]							
r [cm]							
Static Moment	Limits [kp cm]	-0.7 to 3.2					
	Actual [kp cm]						
M = P*r P in [kp] r in [cm]		Upper surface horizontal 		Upper surface horizontal 		Upper surface horizontal 	

Figure 3 - Typical Weights and Residual Moments Report DA 50 C Airplane - Sheet 2 (Metric Dimensions)

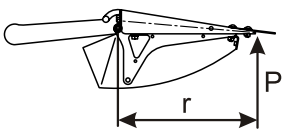
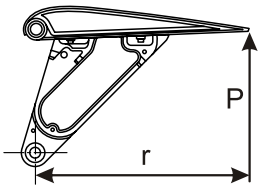
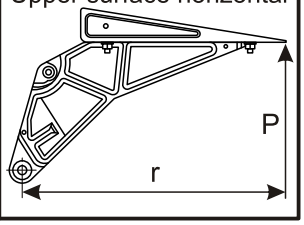
DA 50 SN:		Aileron		Outer Flap		Inner Flap	
		Left	Right	Left	Right	Left	Right
Weight incl. mass balance	Limits [lbf]	4.85 to 6.61		7.50 to 9.48		14.99 to 18.74	
	Actual [lbf]						
Mass Balance [lb]		1.003 ± 0.011	1.003 ± 0.011				
P [lbf]							
r [in]							
Static Moment	Limits [lbf in]	-0.61 to +2.78					
	Actual [lbf in]						
M = P*r P in [lbf] r in [in]		Upper surface horizontal 		Upper surface horizontal 		Upper surface horizontal 	

Figure 4 - Typical Weights and Residual Moments Report DA 50 C Airplane - Sheet 2 (Imperial Dimensions)

51-60-02 Rudder Static Balance

Description

1. Rudder Static Balance

Refer to 51-60 Control Surface Balancing - Description Figure 1 and 51-60 Control Surface Balancing - Description Figure 2 for the weight and residual moment.

Use any suitable method to support the rudder horizontally at the pivot axis. The rudder must be able to rotate freely around the pivot axis.

The residual moment is tail heavy.

Balance includes upper hinge, trim tab, trim tab pushrods and fairings.

Bottom mounting of rudder not included.

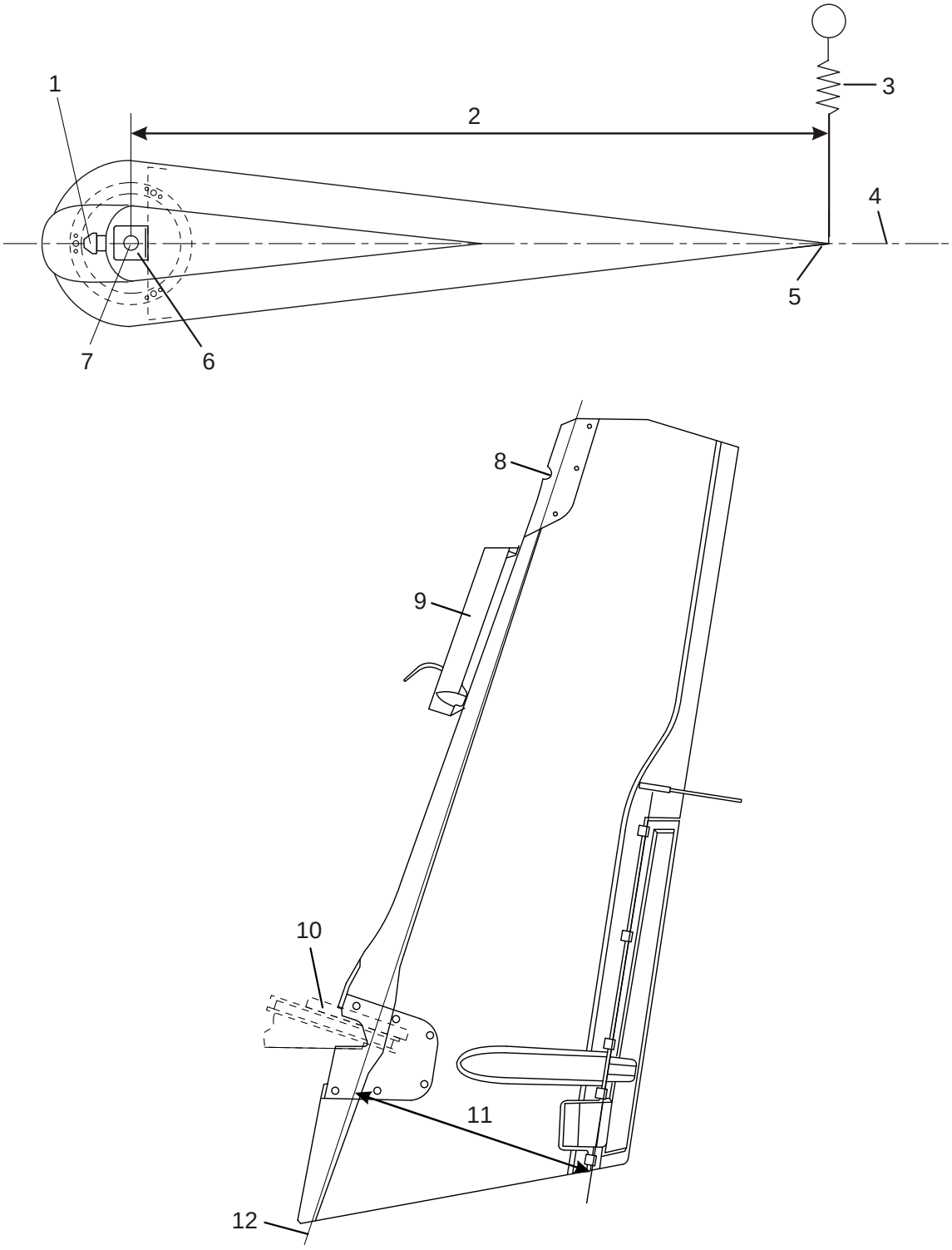


Figure 5 - Rudder Static Balance

Legend

[1, Fig.5]	Mass Balance Weight
[2, Fig.5]	Moment Arm
[3, Fig.5]	Spring Balance
[4, Fig.5]	Horizontal
[5, Fig.5]	Tape
[6, Fig.5]	Top Pivot Bracket
[7, Fig.5]	Hinge Line
[8, Fig.5]	Top Pivot Bracket
[9, Fig.5]	Mass Balance Weight
[10, Fig.5]	Rudder Control Assembly
[11, Fig.5]	Moment Arm
[12, Fig.5]	Hinge Line

51-60-03 Rudder Trim Tab Static Balance

Description

1. Rudder Trim Tab Static Balance

Refer to 51-60 Control Surface Balancing - Description Figure 1 and 51-60 Control Surface Balancing - Description Figure 2 for the weight and residual moment.

Use any suitable method to support the trim horizontally at the pivot axis. The trim tab must be able to rotate freely around the pivot axis.

The residual moment is leading edge heavy.

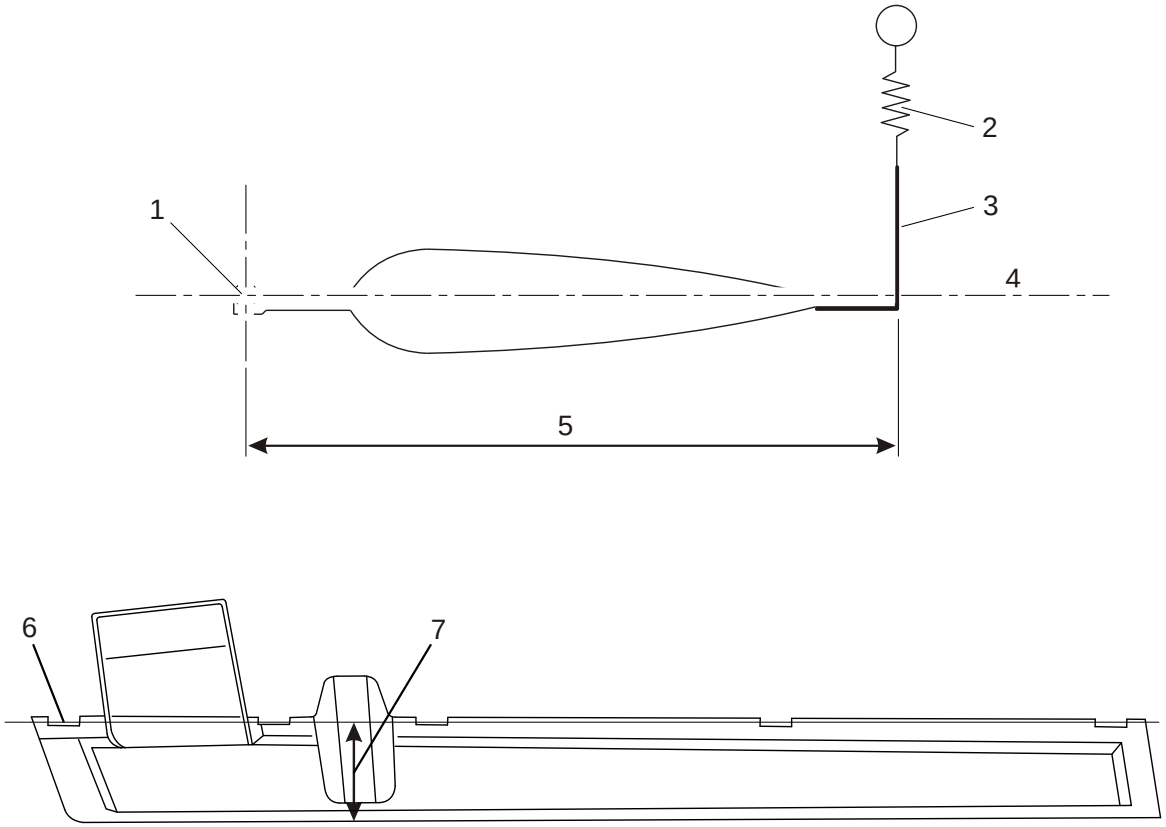


Figure 6 - Rudder Trim Tab Static Balance

Legend

[1, Fig.6] Hinge Line

[2, Fig.6] Spring Balance

[3, Fig.6] Tape

[4, Fig.6] Horizontal

[5, Fig.6] Moment Arm

[6, Fig.6] Hinge Line

[7, Fig.6] Moment Arm

51-60-04 Elevator Static Balance

Description

1. Elevator Static Balance

Refer to 51-60 Control Surface Balancing - Description Figure 1 and 51-60 Control Surface Balancing - Description Figure 2 for the weight and residual moment.

Use any suitable method to support the elevator horizontally at the pivot axis. The elevator must be able to rotate freely around the pivot axis.

The residual moment is tail heavy.

The balance includes elevator trim tab, trim control lever and control horn.

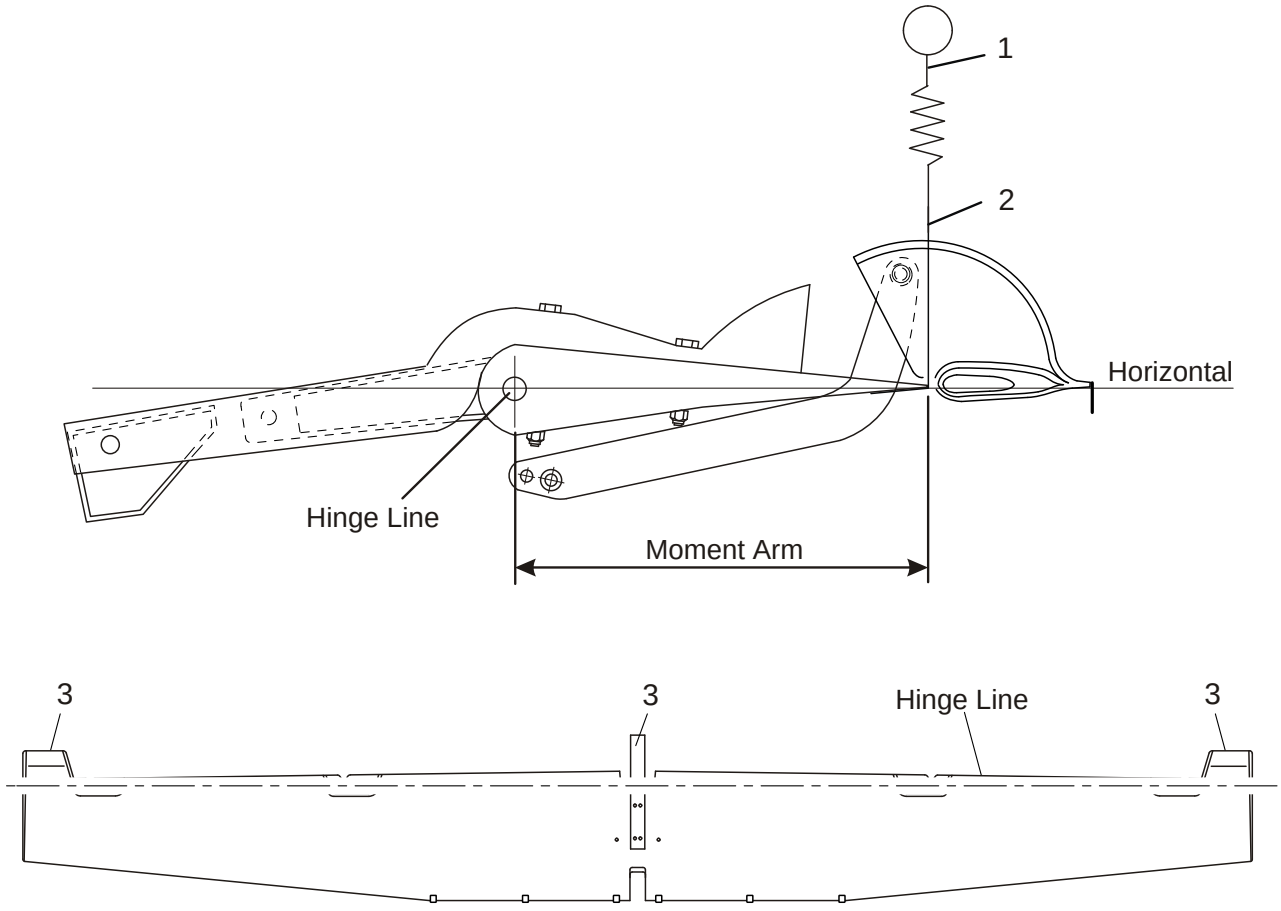


Figure 7 - Elevator Static Balance

Legend

[1, Fig.7] Spring Balance

[2, Fig.7] Tape

[3, Fig.7] Balance Weight

51-60-05 Elevator Trim Tab Static Balance

Description

1. Elevator Trim Tab Static Balance

Refer to 51-60 Control Surface Balancing - Description Figure 1 and 51-60 Control Surface Balancing - Description Figure 2 for the weight and residual moment.

Use any suitable method to support the trim horizontally at the pivot axis. The trim tab must be able to rotate freely around the pivot axis.

The residual moment is leading edge heavy.

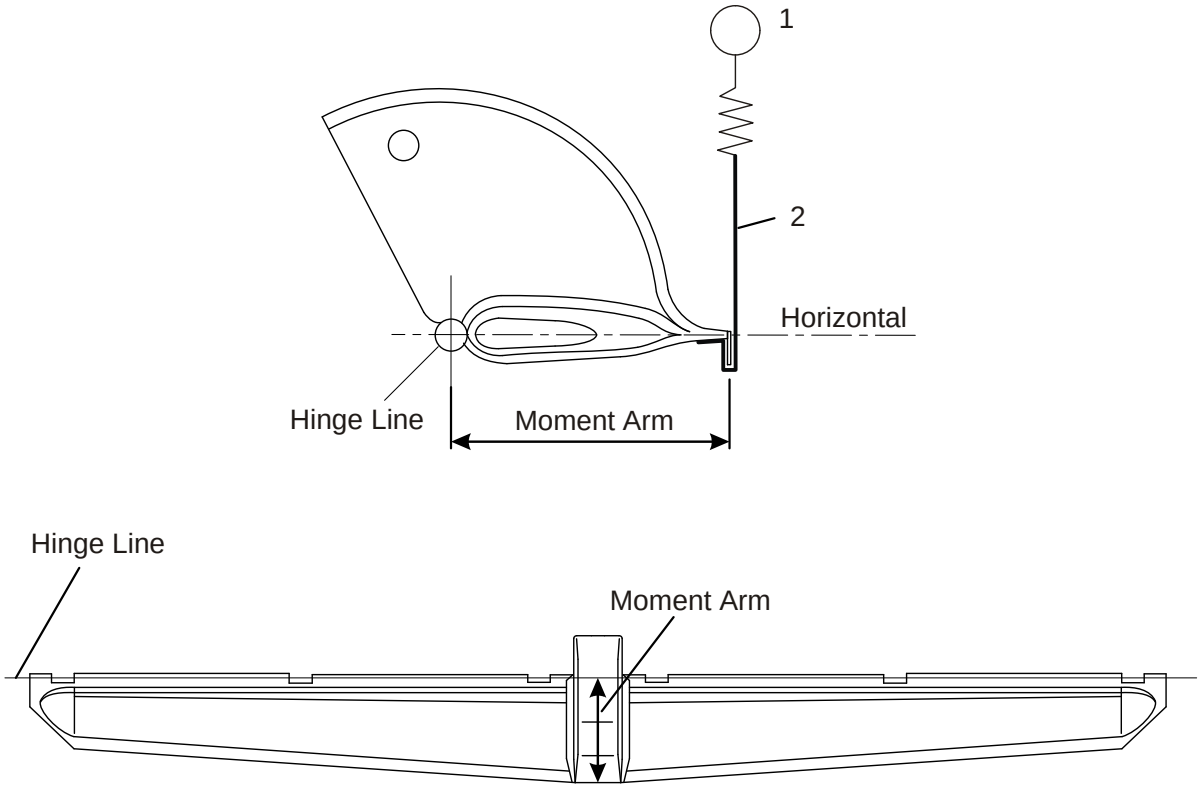


Figure 8 - Elevator Trim Tab Static Balance

Legend

[1, Fig.8] Spring Balance

[2, Fig.8] Tape

51-60-06 Aileron Static Balance

Description

1. Aileron Static Balance

Refer to 51-60 Control Surface Balancing - Description Figure 1 and 51-60 Control Surface Balancing - Description Figure 2 for the weight and residual moment.

Use any suitable method to support the aileron horizontally at the pivot axis. The aileron must be able to rotate freely around the pivot axis.

The balance includes the horn, fairing, trim plate and hinges.

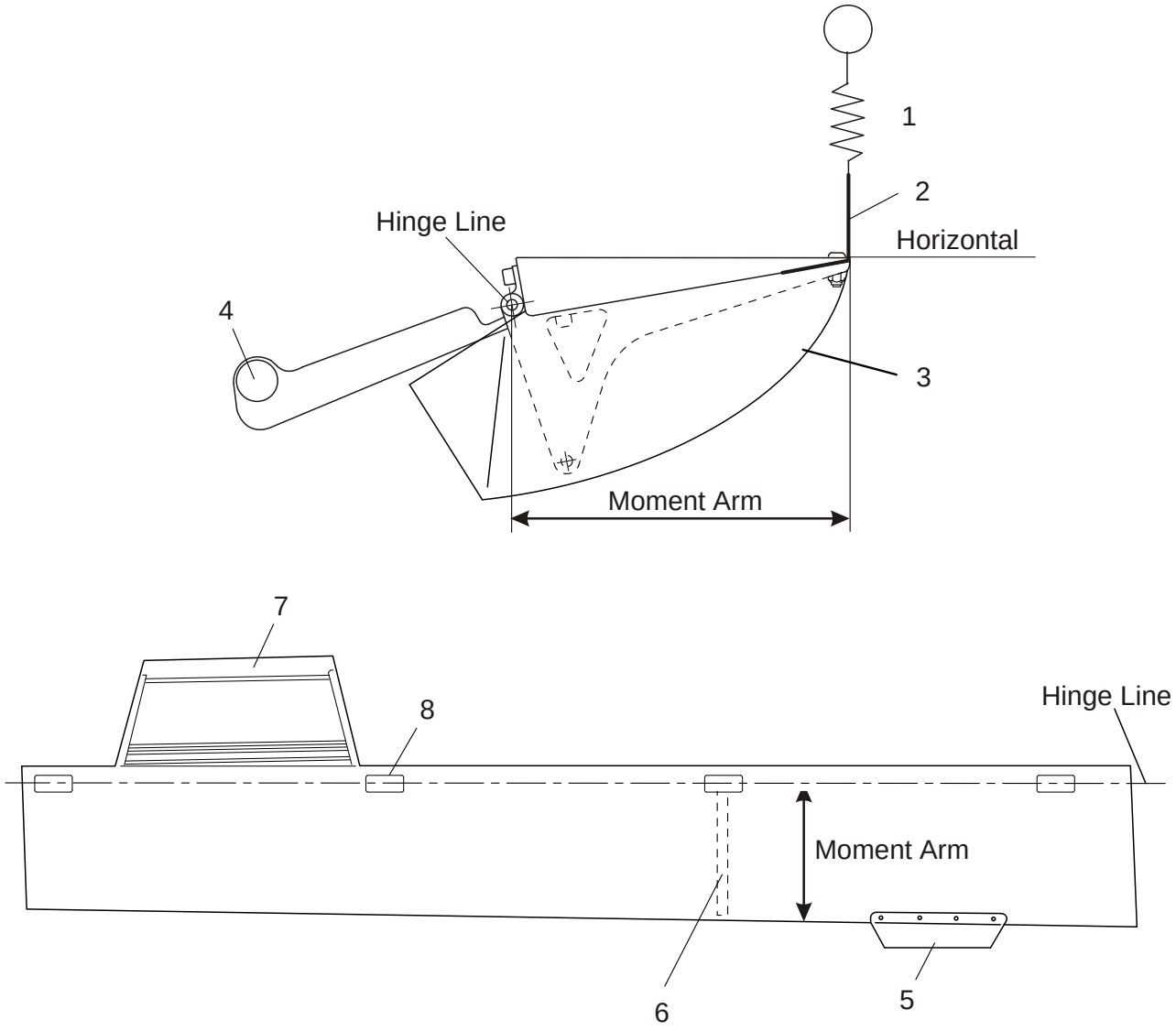


Figure 9 - Aileron Static Balance

Legend

[1, Fig.9] Spring Balance

[2, Fig.9] Tape

[3, Fig.9] Fairing

[4, Fig.9] Mass Balance

[5, Fig.9] Trim Plate (LH only)

[6, Fig.9] Horn, Fairing

[7, Fig.9] Mass Balance Weight

[8, Fig.9] Hinges

51-60-07 Wing Outer Flap Static Balance

Description

1. Wing Outer Flap Static Balance

Refer to 51-60 Control Surface Balancing - Description Figure 1 and 51-60 Control Surface Balancing - Description Figure 2 for the weight and residual moment.

Use any suitable method to support the outer flap horizontally at the pivot axis. The outer flap must be able to rotate freely around the pivot axis.

The balance includes the horn, fairing and hinges.

The residual moment is tail heavy.

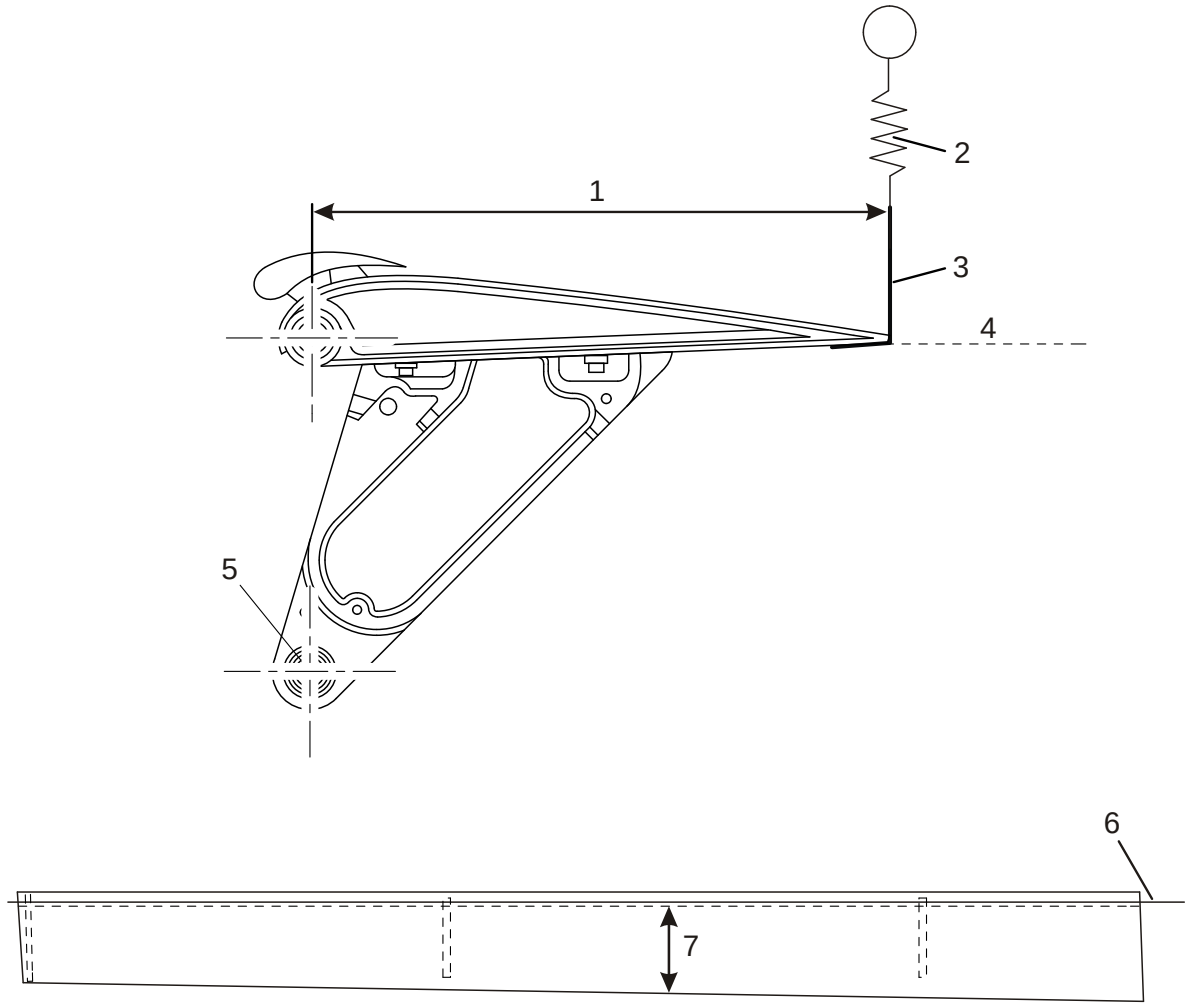


Figure 10 - Wing Outer Flap Static Balance

Legend

[1, Fig.10] Moment Arm
[2, Fig.10] Spring Balance
[3, Fig.10] Tape
[4, Fig.10] Horizontal
[5, Fig.10] Hinge Line
[6, Fig.10] Hinge Line
[7, Fig.10] Moment Arm

51-60-08 Wing Inner Flap Static Balance

Description

1. Wing Inner Flap Static Balance

Refer to 51-60 Control Surface Balancing - Description Figure 1 and 51-60 Control Surface Balancing - Description Figure 2 for the weight and residual moment.

Use any suitable method to support the inner flap horizontally at the pivot axis. The inner flap must be able to rotate freely around the pivot axis.

The balance includes the horn, fairing and hinges.

The residual moment is tail heavy.

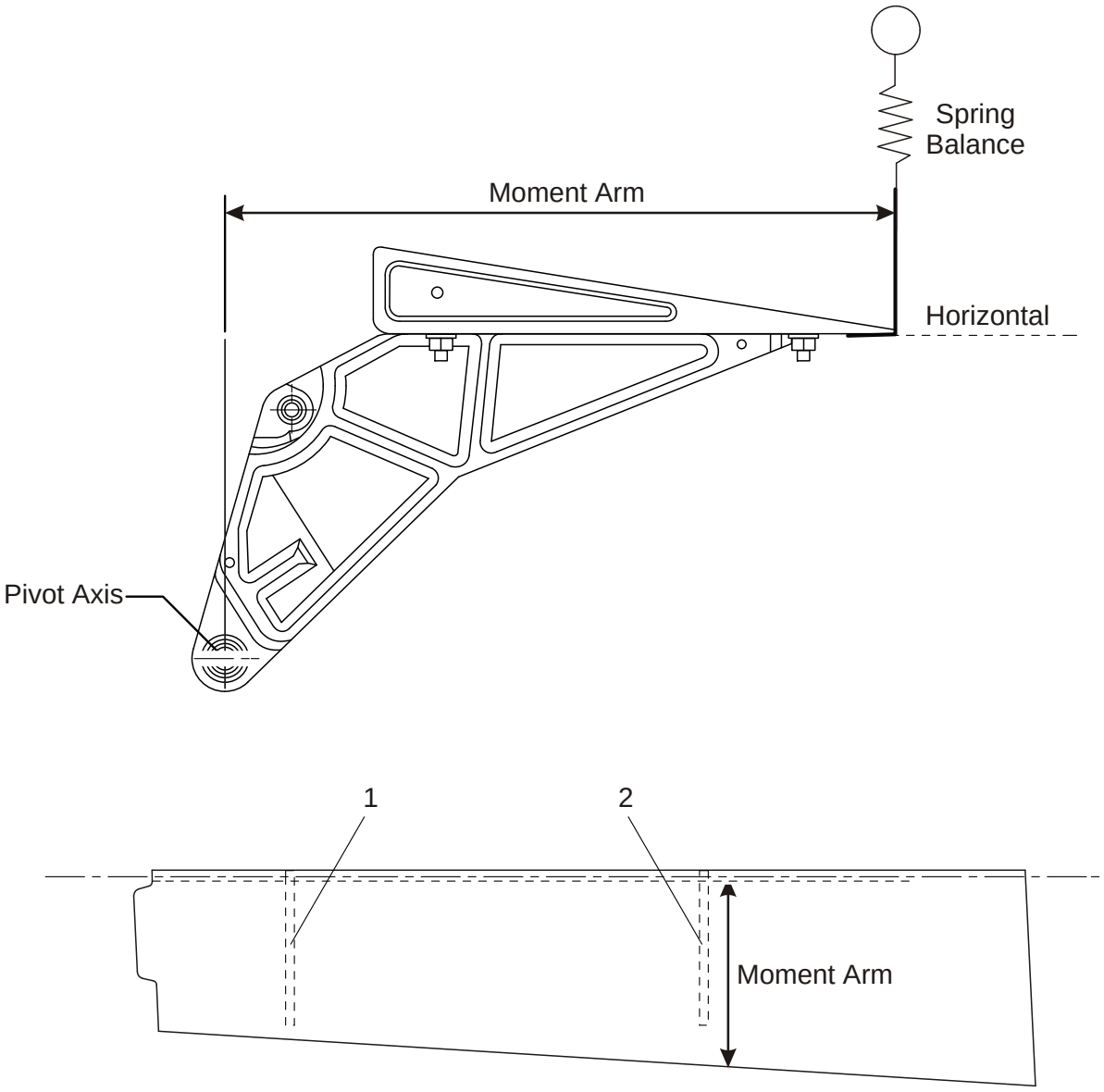


Figure 11 - Wing Inner Flap Static Balance

Legend

[1, Fig.11] Horn, Fairing

[2, Fig.11] Horn, Fairing

51-80
LIGHTNING PROTECTION

51-80-01 Lightning Protection

Description

1. General

Lightning protection for the DA 50 C is provided by the airplane bonding system. A special bonding system is necessary for the composite structure of the DA 50 C. Without this special system, the composite structure would not sufficiently conduct electricity.

Refer to 23-60 Static Discharge - Description for data about the static discharge wicks.

2. Description

Figure 1 shows the simplified bonding system schematic diagram.

The lightning conductor system is the main part of the bonding system. High capacity aluminum alloy tubes and strips make the basis of the lightning conductor system.

The lightning conductor system has a longitudinal system and a lateral system. The longitudinal system runs from the propeller and engine through the engine mount to the fuselage front bulkhead, through both sides and center of the wing center section, through the right side of the rear fuselage and up into the vertical stabilizer. From the vertical stabilizer aluminum strips and braids connect to the horizontal stabilizer, the elevator and trim tab.

The lateral system runs from the wing tips, through the front of the wing and through the center wing section where it connects to the longitudinal system. Aluminum strips and braids connect the fuel tanks and other metal components installed along the wings to the main lateral system.

The following design features also add to the lightning protection system:

- The aluminum tubes of the lightning protection system also provide the conduit system for electrical cables.
- Carbon fiber material is used for parts of the wing and fuselage skins. Carbon fiber material is conductive and is used to form part of the lightning protection system.
- Carbon fiber material with interwoven aluminum fibers is used on the upper wing skin, the fuselage and the engine cowlings. Carbon fiber material with interwoven aluminum fibers is conductive.
- Lightning conductor strips are integrated into the horizontal stabilizer.
- The propeller blades are non-conductive (except for the blade sheaths), therefore currents cannot flow in structural parts of the propeller.

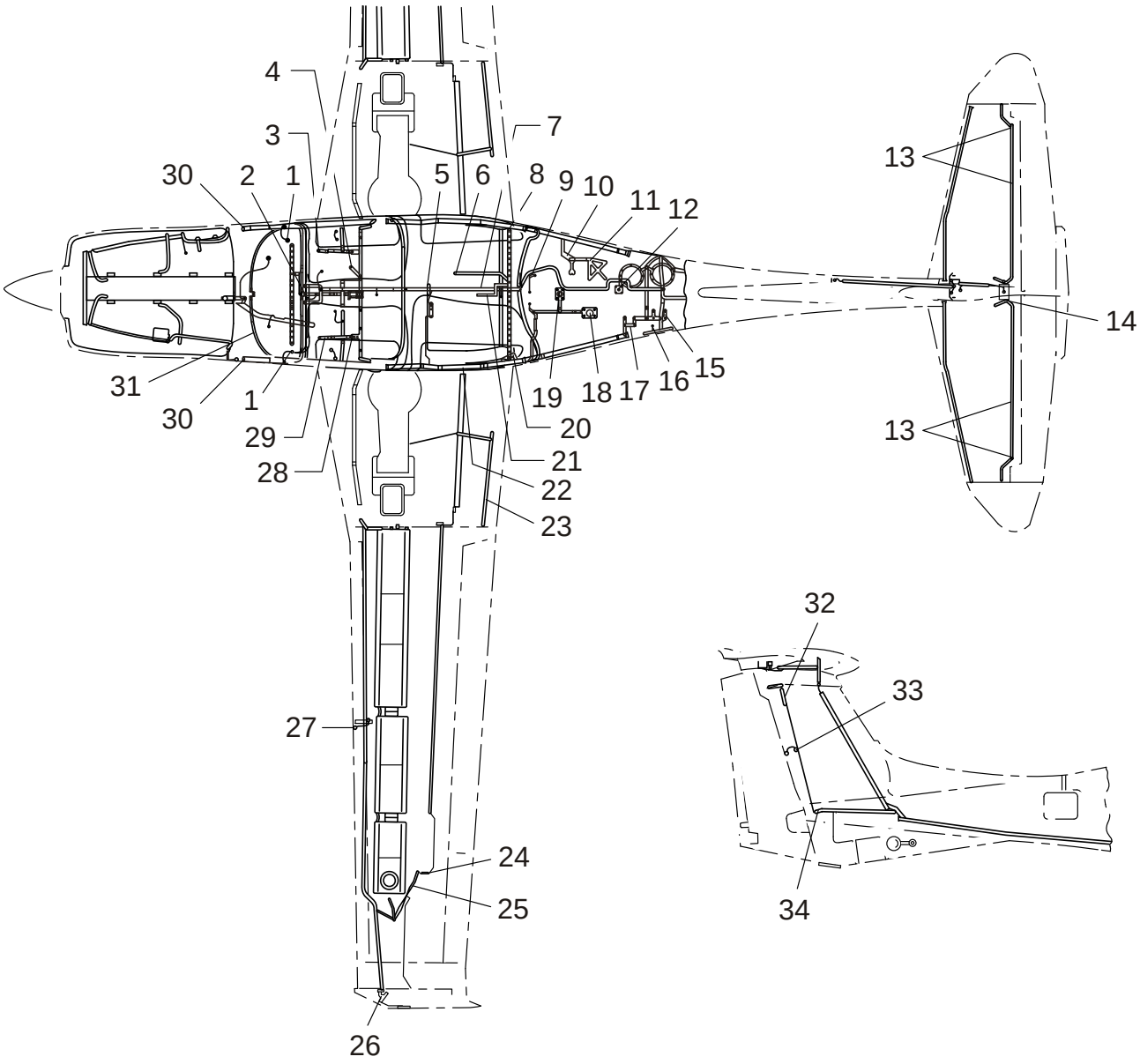


Figure 1 - Lightning Protection System Schematic Diagram

Legend

[1, Fig.1]	Instrument Panel
[2, Fig.1]	Throttle Assy
[3, Fig.1]	Landing Light
[4, Fig.1]	Pitch Trim Servo
[5, Fig.1]	GPS 2 Antenna
[6, Fig.1]	Roll Servo
[7, Fig.1]	COMM 1/GPS 1 Antenna
[8, Fig.1]	RH Step
[9, Fig.1]	Marker Antenna
[10, Fig.1]	WX500 & GSR Processor
[11, Fig.1]	TAS Processor
[12, Fig.1]	COMM 2 Antenna
[13, Fig.1]	Elevator Hinge
[14, Fig.1]	Elevator Trim
[15, Fig.1]	ELT
[16, Fig.1]	Avionic Box
[17, Fig.1]	AHRS
[18, Fig.1]	Pitch Servo
[19, Fig.1]	Yaw Servo
[20, Fig.1]	LH Step
[21, Fig.1]	ADF Antenna
[22, Fig.1]	Flap Actuator
[23, Fig.1]	Inner Flap
[24, Fig.1]	Aileron Rib Wing
[25, Fig.1]	Aileron Bell Cranck
[26, Fig.1]	Pitot Tube
[27, Fig.1]	Stall Warning Switch
[28, Fig.1]	XPDR Antenna
[29, Fig.1]	Taxi Light
[30, Fig.1]	Engine Mount
[31, Fig.1]	Windshield
[32, Fig.1]	Rudder Hinge
[33, Fig.1]	Rudder Balancing Mass
[34, Fig.1]	Control System

51-80-02 Lightning Protection

Bonding Check

1. Test the Electrical Bonding System

The resistance measurements on the DA 50 C are divided into three categories:

- Very low resistance measurements for conduits in the direct lighting path and electrical power grounds.
- Low resistance measurements for bonding of controls and cabin doors.
- High resistance measurements for antistatic precipitation e.g. static wicks.

Do the low resistance bonding measurements with a milliohmmeter and Kelvin probes. The test current must be approximately 2 Amps.

Do the high resistance measurements with a high voltage megaohmmeter (500 V). Measure the static discharge wicks and the precautions against static charge of the airplane.

All measurements are referenced to the negative pole of the battery, except where noted. The airplane must be serviceable during the tests and the engine cowlings must be removed.

A. Very Low Resistance Measurements

Item	Attachment Point	Max. Allow-able (mΩ)	Measured L/R (mΩ)	Passed
FUSELAGE AND CENTER SECTION W/O WINGS				
Engine Compartment				
Firewall		5.0		
Engine mount		5.0		
Engine	Propeller bearing, front	5.0		
Heating cooler	Case	6.0		
Oil cooler	Case	6.0		
Water cooler	Case	6.0	/	
Intercooler	Case	6.0	/	
Engine to firewall	Engine block - firewall	3.0		
Relay panel	Sheet metal	3.0		
External power connector	Outer large pin	5.0		
Air distribution box	Case	10.0		
Fuselage Components				
Fuel cooler		15.0		
Instrument panel	Above co-pilot's left knee	3.0		
Taxi Light	Mounting screw	4.0		

Table 1 - Very Low Resistance Measurements

Item	Attachment Point	Max. Allow-able (mΩ)	Measured L/R (mΩ)	Passed
Landing light	Mounting screw	4.0		
Remote avionic box	Case	3.0		
Relay panel	Sheet metal	3.0		
Fuel transfer pump	Case	10.0		
Fuel pumps (main/emerg.)	Bracket	10.0		
TKS spray nozzles		5.0	/	
Hydraulic module	Sheet metal	6.0		
O2 compartment cover	Mounting screws	10.0		
Lower fin maint. door	Mounting screws	10.0		
Nose LDG gear door hinge	Front hinge	10.0		
External Conductive Parts				
LH/RH step	Mounting screws	5.0		
OAT sensor		10.0		
Front LDG gear	Yoke exposure mount. screw	10.0		
Main LDG gear LH	Axis mounting screw	10.0		
Main LDG gear RH	Axis mounting screw	10.0		
Rear TKS refill (opt.)	Ring	6.0		
Antennas				
Top COM/GPS antenna	Mounting screws	6.0		
Bottom COM antenna	Mounting screws	6.0		
GPS antenna	Mounting screws	6.0		
ELT antenna	Mounting screws	6.0		
NAV antenna	Mounting screws	10.0		
Top TAS antenna (opt.)	Mounting screws	6.0		
Bottom TAS antenna (opt.)	Mounting screws	5.0		
WX-500 antenna (opt.)	Mounting screws	10.0		
Iridium antenna (opt.)	Mounting screws	6.0		
Stabilizer				
Vert. lightning prot. tube	Upper end	8.0		
Hor. stab LH lightning strap	Tip	15.0		
Hor. stab RH lightning strap	Tip	15.0		
Horizontal Stabilizer	Front bracket	10.0		

Table 1 - Very Low Resistance Measurements

Item	Attachment Point	Max. Allow-able (mΩ)	Measured L/R (mΩ)	Passed
Horizontal Stabilizer	Rear bracket	10.0		
Hor. Stab. TKS panel (opt.)	LH inner panel section	15.0		
Hor. Stab. TKS panel (opt.)	LH outer panel section	15.0		
Hor. Stab. TKS panel (opt.)	RH inner panel section	15.0		
Hor. Stab. TKS panel (opt.)	RH outer panel section	15.0		
Vert. TKS panel (opt.)	Upper panel section	25.0		
Vert. TKS panel (opt.)	Bottom panel section	25.0		
TKS low press. switches (opt.)	Mounting bracket	20.0		
FUSELAGE AND CENTER SECTION WITH WINGS INSTALLED				
LH Wing				
Fuel tank drain	Drain	5.0		
Tank refill	Ring	5.0		
Tank vent	Plate	10.0		
Pitot tube	Mounting screws	7.0		
Wingtip light	Cover mounting screws	10.0		
Aileron pushrod attach-ment	Bond. strap connection	50.0		
Outer flap pushrod attach-ment	Bond. strap connection	50.0		
Inner flap pushrod attach-ment	Bond. strap connection	50.0		
Center wing TKS panel (opt.)	Outer panel section	15.0		
Inner TKS panel (opt.)	Inner panel section	15.0		
Outer TKS panel (opt.)	Inner panel section	15.0		
Outer TKS panel (opt.)	Outer panel section	10.0		
RH Wing				
Fuel tank drain	Drain	5.0		
Tank refill	Ring	5.0		
Tank vent	Plate	10.0		
Wingtip light	Cover mounting screws	10.0		
Aileron pushrod attach-ment	Bond. strap connection	50.0		

Table 1 - Very Low Resistance Measurements

Item	Attachment Point	Max. Allow-able (mΩ)	Measured L/R (mΩ)	Passed
Outer flap pushrod attach-ment	Bond. strap connection	50.0		
Inner flap pushrod attach-ment	Bond. strap connection	50.0		
Center wing TKS panel (opt.)	Outer panel section	15.0		
Inner TKS panel (opt.)	Inner panel section	15.0		
Outer TKS panel (opt.)	Inner panel section	15.0		
Outer TKS panel (opt.)	Outer panel section	10.0		

Table 1 - Very Low Resistance Measurements

B. Low Resistance Measurements in Control System

Item	Attachment Point	Max. Allow-able (mΩ)	Measured L/R (mΩ)	Passe d
Pilot stick	Tube		50.0	
Co-pilot stick	Tube		50.0	
Lever	Frame		50.0	
Pilot pedal assy			150.0	
Co-pilot pedal assy			150.0	
Cabin door LH	Mounting screws		100.0	
Cabin door RH	Mounting screws		100.0	
Cabin rear door	Mounting screws		100.0	
Center console	Frame		50.0	

Table 2 - Low Resistance Measurements

C. High Resistance Measurements

Use a wet sponge to get a constant electrical connection to the static dischargers.

Item	Attachment Point	Max. Allow-able (MΩ)	Measured L/R (MΩ)	Passed
Static Wicks				
LH wingtip		200.0		
RH wingtip		200.0		
Rudder		200.0		
Horizontal stabilizer LH		200.0		
Horizontal stabilizer RH		200.0		
Tires				
Nose		100.0		
LH		100.0		
RH		100.0		

Table 3 - High Resistance Measurements

52-00
DOORS

52-00-01 Doors

Description

1. Description

Each pilot door is a CFRP molding with inner and outer frames. The frames are bonded together. Each door has a large one-piece acrylic glass window. Each window has direct vision panels. You can open the direct vision panels in flight. Refer to 56-10 Flight Compartment Windows - Description for information about windows.

Two hinges attach the door to the top of the fuselage near the center-line. A gas strut is integrated into each hinge. The gas strut holds the door open.

Each door has a handle, which operates two locking bolts. The handle is red on the inside of the door and gray on the outside. The locking bolts are at the bottom front and rear corners of the door.

The passenger door is a CFRP molding with inner and outer frames. The frames are bonded together. The door has a acrylic glass window.

Two hinges attach the door to the top of the fuselage near the center-line. A gas strut is integrated into each hinge. The gas strut holds the door open.

A handle on the door operates two locking bolts. The handle is red on the inside of the door and gray on the outside. The locking bolts are at the bottom front and rear corners of the door.

The DA 50 C has a small number of access panels. Panels which must be used often (for example, engine cowlings) have quick release fasteners. Other panels have the usual screws.

52-00-02 Doors

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Door is difficult to move.

1A. Check door frame.

Is the door frame damaged?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the door.

1C. Check the door hinges.

Are the door hinges damaged?

Yes - go to step 1B.

No - go to step 1D.

1D. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Door handle is difficult to move.

2A. Check locking bolts.
Are the locking bolts damaged?
Yes - go to step 2B.
No - go to step 2C.

2B. Replace the door.

2C. Check the handle bushes.
Are the are the handle bushes damaged?
Yes - go to step 2B.
No - go to step 2D.

2D. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Incorrect operation of door warning caption on the ICS display.

3A. Check door micro switch.

Is the door micro switch defective?

Yes - go to step 3B.

No - go to step 3C.

3B. Replace the defective micro switch.

3C. Check the wiring.

Is the wiring defective?

Yes - go to step 3D.

No - go to step 3E.

3D. Do a continuity test of the wiring. Refer to the wiring diagrams.

3E. Contact DAI.

52-10
LH/RH PILOT DOOR AND PASSENGER DOOR

52-10-01 LH/RH Pilot Door

Description

1. LH/RH Pilot Door Description and Operation

Figure 1 and Figure 2 show the LH/RH pilot door installation and locking mechanism.

The LH/RH pilot door is a CFRP molding with inner and outer frames. The frames are bonded together with thickened resin. Each part of the frame has multiple layers of carbon cloth and one layer of glass cloth. Areas of high stresses are reinforced with extra layers of carbon cloth. Mounting bushes for the handle and locking bolts are screwed to the inside of the frame.

The doors have a large one-piece acrylic glass window. A special flexible adhesive bonds the window to the door frame. A flexible filler seals the small gap between the edge of the window and the frame.

The window has a direct vision panels on each side. You can open the direct vision panels in flight. Refer to 56-10 Flight Compartment Windows - Description for data about windows.

Two hinges attach the door to the top of the fuselage near the center-line. A gas strut is integrated into each hinge. The gas strut holds the door open.

You can remove the door by removing the bolts and nuts on each hinge.

The door can be pushed up and out to open. With the door fully closed, push the door handle towards the door frame. This engages the locking bolts in the fuselage holes. Both locking bolts operate a door unlocked micro switch. When the handle is flush with the door frame, the door is locked. Push outwards on the bottom of the door frame to make sure that it is locked. A key operated lock can be used to secure the door in the closed position when the airplane is parked.

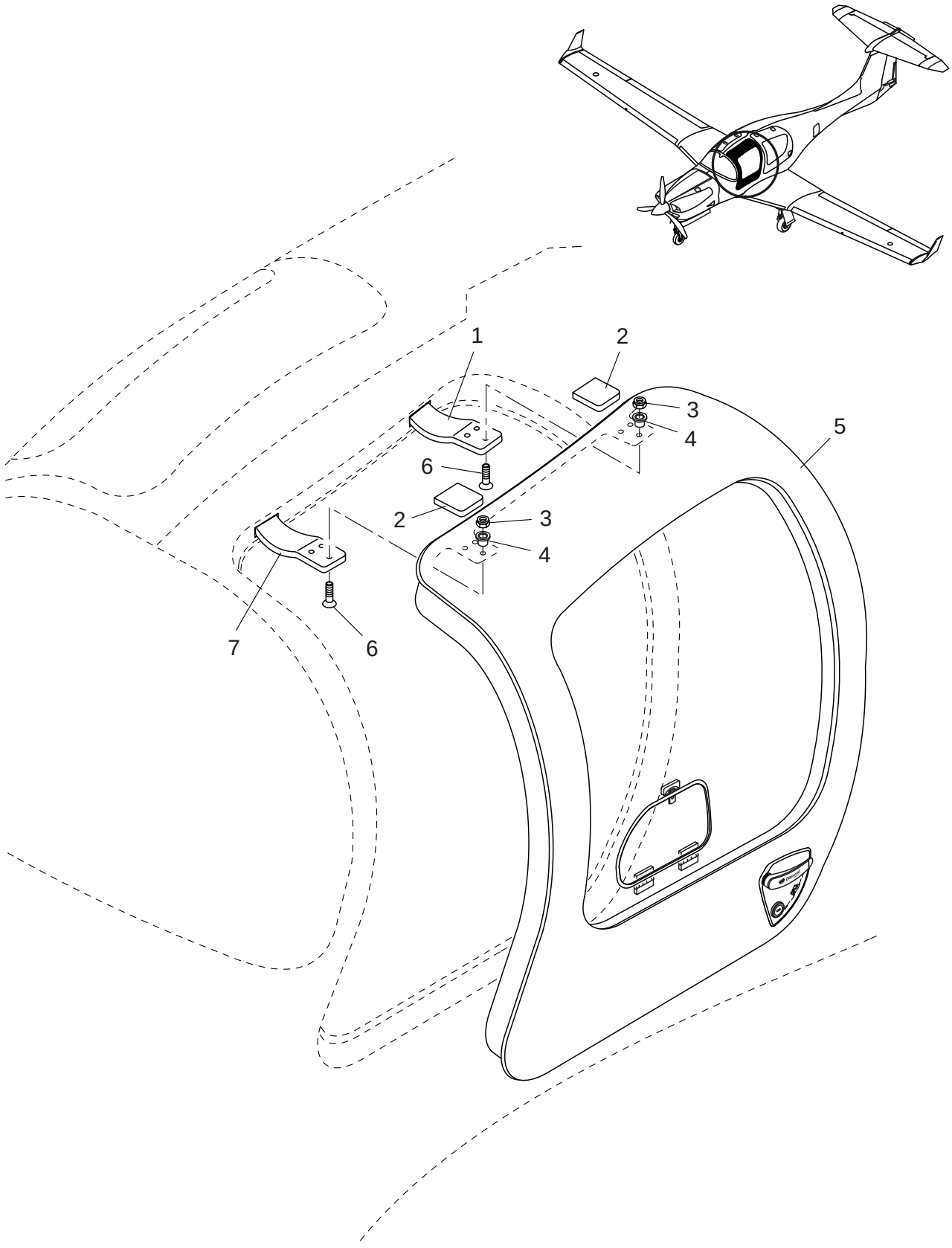


Figure 1 - Pilot Door Installation

Legend

[1, Fig.1]	Door Hinge, Rear
[2, Fig.1]	Cover
[3, Fig.1]	Nut
[4, Fig.1]	Bushing
[5, Fig.1]	Crew Door, LH
[6, Fig.1]	Screw
[7, Fig.1]	Door Hinge, Front

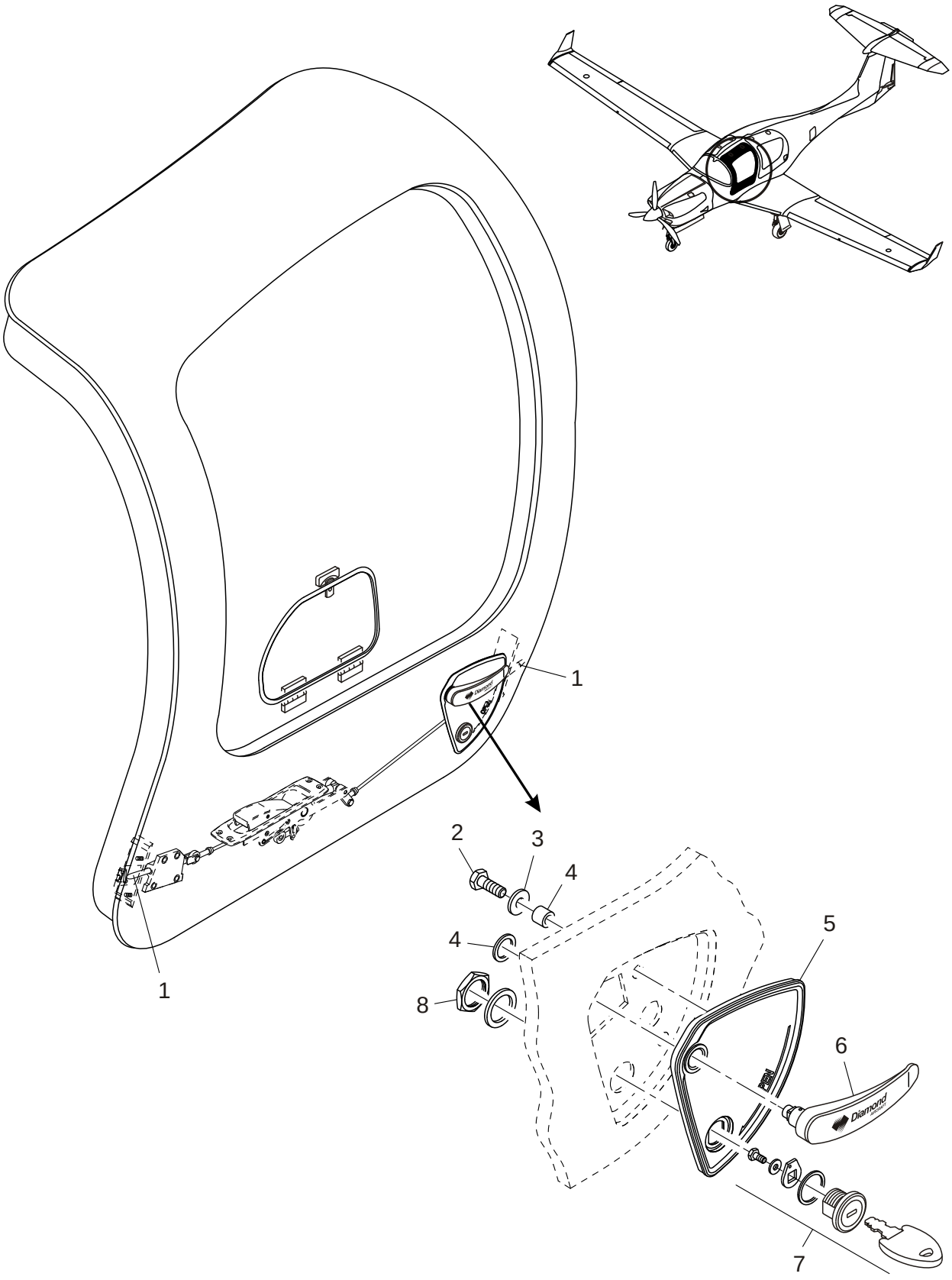


Figure 2 - Pilot Door Locking Mechanism

Legend

[1, Fig.2] Locking Bolt
[2, Fig.2] Bolt
[3, Fig.2] Washer
[4, Fig.2] Bushing
[5, Fig.2] Door Handle Plate LH
[6, Fig.2] Outer Door Handle LH
[7, Fig.2] Door Lock and Key Assy
[8, Fig.2] Nut

52-10-02 Passenger Door

Description

1. Passenger Door Description and Operation

Figure 3 and Figure 4 show the passenger door installation and locking mechanism. The passenger door is a CFRP molding with inner frame and outer frame with foam core. The frames are bonded together with thickened resin. Each part of the frame has multiple layers of carbon cloth and one layer of glass cloth. Areas of high stress are reinforced with extra layers of carbon cloth. Mounting bushes for the locking bolts are screwed to the inside of the frame.

The door has an acrylic glass window. A special flexible adhesive bonds the window to the door frame. A flexible filler seals the small gap between the edge of the window and the frame.

Two hinges attach the door to the top of the fuselage near the center-line. The hinges bolt to the door frame. A gas strut is integrated into each hinge. The gas strut holds the door open. A door unlocked warning caption on the ICS display operates when the door is unlocked.

A handle on the door operates two locking bolts. The locking bolts are at the bottom front and rear corners of the door.

You must lift the safety handle before you can operate the red handle from inside the passenger compartment. To operate the red handle from the outside you must push the button next to the red handle to lift the inner safety lock.

The door can be pushed up and out to open. With the door fully closed, push the door handle towards the door frame. This engages the locking bolts in the fuselage holes. Both locking bolts operate a door unlocked micro switch. When the handle is flush with the door frame, the door is locked. Push outwards on the bottom of the door frame to make sure that it is locked. A key operated lock can be used to secure the door in the closed position when the airplane is parked.

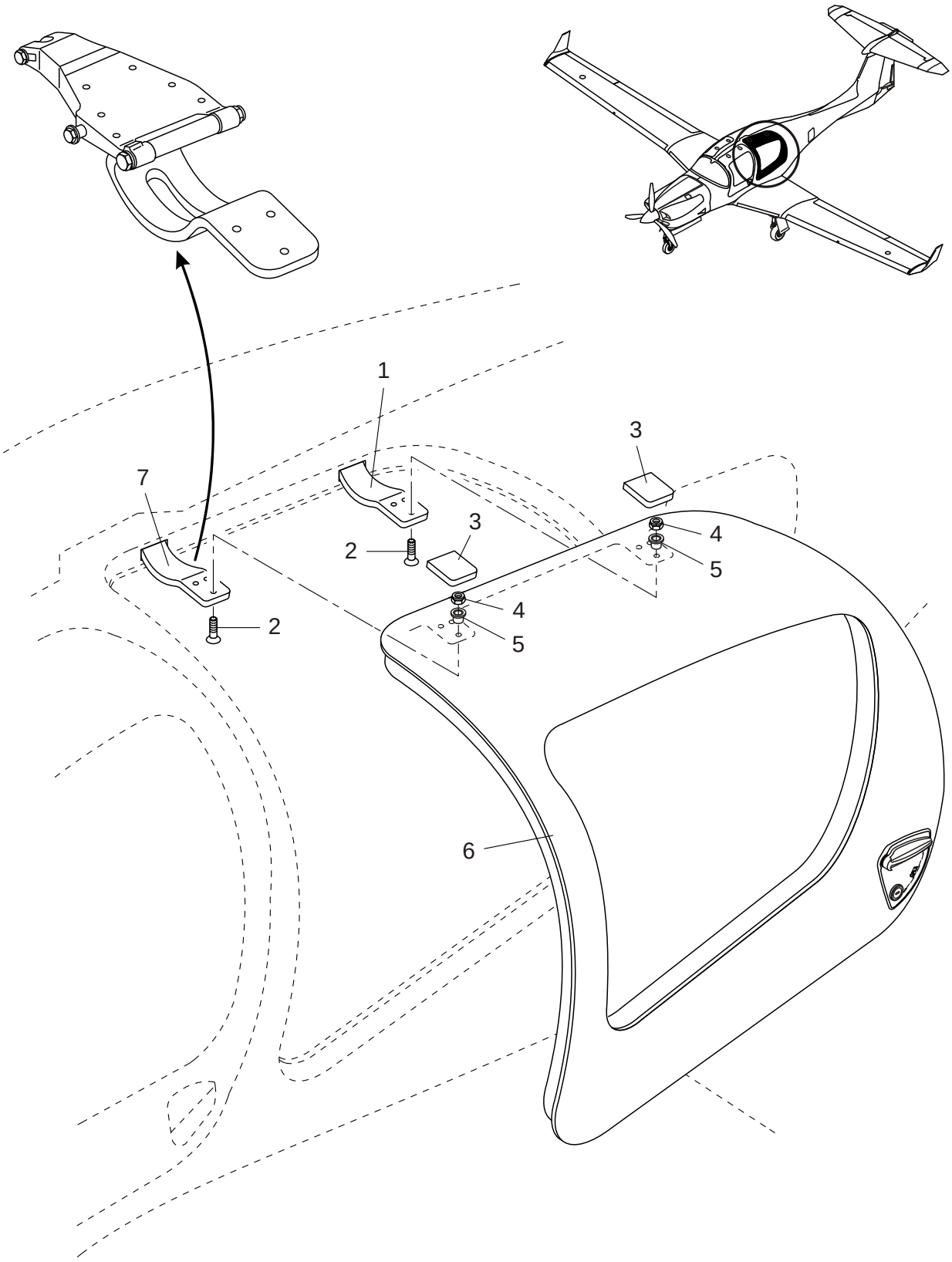


Figure 3 - Passengers Door Installation

Legend

[1, Fig.3]	Door Hinge, Rear
[2, Fig.3]	Screw
[3, Fig.3]	Cover
[4, Fig.3]	Nut
[5, Fig.3]	Bushing
[6, Fig.3]	Passenger Door
[7, Fig.3]	Door Hinge, Front

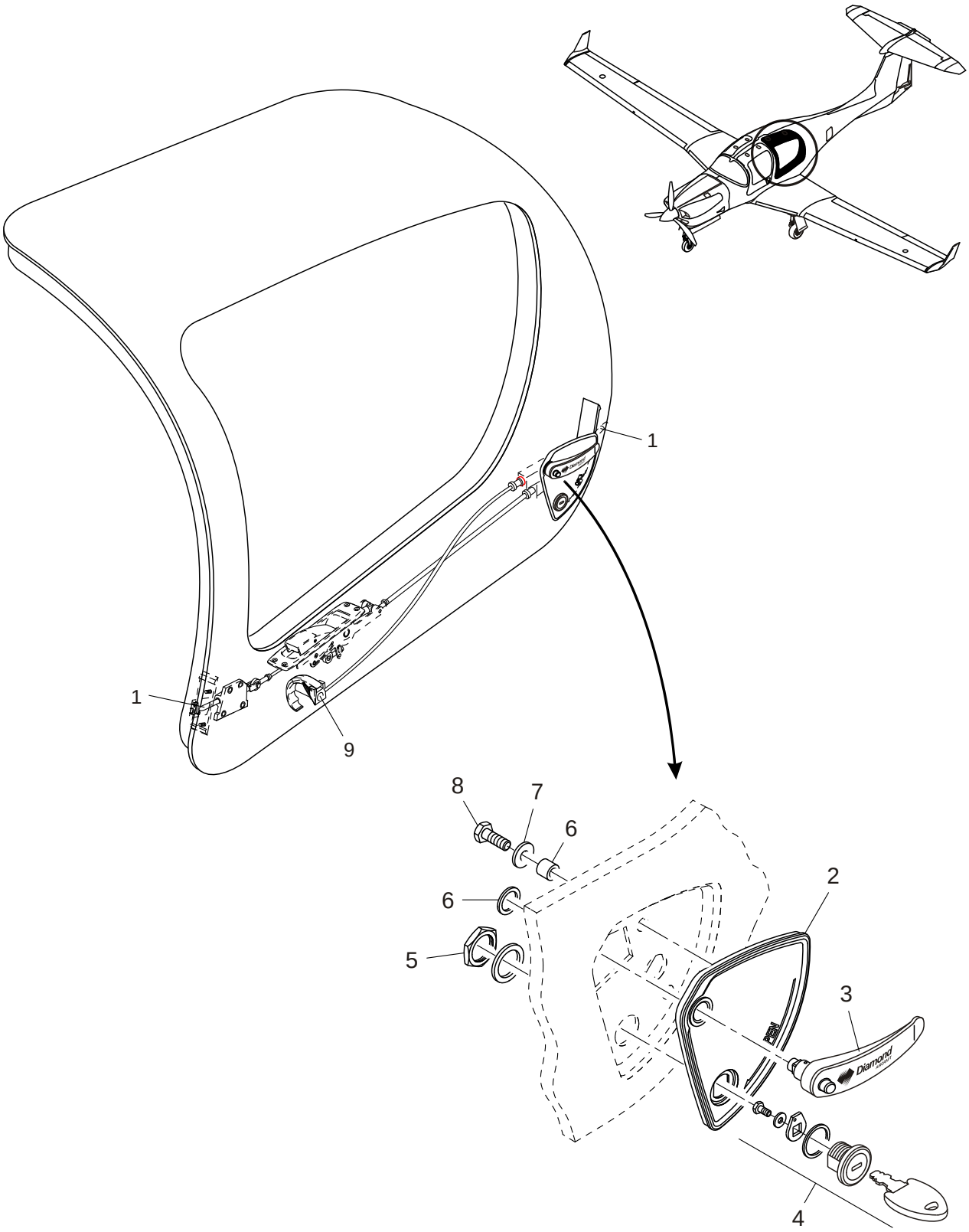


Figure 4 - Passengers Door Locking Mechanism

Legend

[1, Fig.4] Locking Bolt
[2, Fig.4] Door Handle Plate
[3, Fig.4] Outer Door Handle
[4, Fig.4] Door Lock and Key Assy
[5, Fig.4] Nut
[6, Fig.4] Bushing
[7, Fig.4] Washer
[8, Fig.4] Bolt
[9, Fig.4] Child Safety Lock

52-10-03 LH/RH Pilot Door

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

ALWAYS OPEN THE DOOR COMPLETELY BEFORE REMOVING THE BOLTS AND NUTS. DUE TO THE HIGH FORCES INVOLVED, THE GAS STRUT CAN CAUSE SERIOUS INJURY TO PERSONS.

3. Main Procedure

A. Remove the LH/RH Pilot Door

(1) Open the pilot door until it reaches the stop.

(2) Remove the cover of both door hinges.

Refer to 52-10 LH/RH Pilot Door - Description Figure 1.

(3) Remove the 2 nuts and 2 bolts that attach the door to each door hinge.

Hold the door! 2 persons needed.

(4) Lift the door clear of the airplane.

2 persons needed.

52-10-04 LH/RH Pilot Door

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the LH/RH Pilot Door

(1) Move the door into position on the airplane.

2 persons needed.

(2) Align the door mountings with the door hinges and:

- Install the 2 nuts and 2 bolts on each hinge.
- Install the cover on both door hinges.

2 persons needed. Refer to 52-10 LH/RH Pilot Door - Description Figure 1.

(3) Close the door.

52-10-05 Passenger Door

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

ALWAYS OPEN THE DOOR COMPLETELY BEFORE REMOVING THE BOLTS AND NUTS. DUE TO THE HIGH FORCES INVOLVED, THE GAS STRUT CAN CAUSE SERIOUS INJURY TO PERSONS.

3. Main Procedure

A. Remove the Passenger Door

(1) Open the passenger door.

(2) Remove the cover of both door hinges.

Refer to 52-10 Passenger Door - Description Figure 3

(3) Remove the 3 nuts and 3 bolts that attach the door to each door hinge.

Hold the door! 2 persons needed.

(4) Lift the door clear of the airplane.

2 persons needed.

52-10-06 Passenger Door

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the LH/RH Passenger Door

(1) Move the door into position on the airplane.

2 persons needed.

(2) Align the door mountings with the door hinges and:

- Install the 3 nuts and 3 bolts on each hinge.
- Install the cover on both door hinges.

2 persons needed. Refer to 52-10 Passenger Door - Description Figure 3

(3) Close the door.

52-10-07 LH/RH Pilot Door and Passenger Door

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Inspection of the Door Locking and Safety Hook Mechanisms

(1) Make sure the door lock mechanism works correctly:

- The pins must engage in the guarding plates of the door frame correctly.

(2) Make sure that the safety hook mechanism works correctly. (Passenger door only.)

- Make sure the safety hook engages correctly into the retaining block on the fuselage when the door is closed but unlatched.

52-22
EMERGENCY EXIT WINDOW

52-22-01 Emergency exit

Description of function

1. Emergency Exit Window

The emergency exit window is attached by 7 locks located on the window frame. When the activation handle is pulled, either from the inside or the outside, the internal belt system moves a pulley system. This moves a stainless steel rope, which activates the locks. During this process each lock 1 slides against the interior attachment bracket and enables each lock 2 to rotate and thus release the window.

52-22-02 Emergency exit

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Emergency Exit Window Test

(1) Open the outer cover.

(2) Pull the activation handle.

CAUTION

DO NOT DROP THE WINDOW. THIS CAN CAUSE DAMAGE TO THE WINDOW AND THE AIRCRAFT STRUCTURE.

(3) Remove window from the aircraft.

52-22-03 Emergency exit

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Installation of Emergency Exit Window

(1) Do the emergency exit window function test. Refer to Emergency exit - Operation Test.

(2) Remove the interior panel:

- Remove the screws.
- Remove interior panel.

(3) Reset the activation handle:

- Reset the rope mechanism.

(4) Install the locks (7x) (refer to Figure 1 and Figure 2):

- Rotate lock 2 into position.
- Slide lock 1 back into locked position.

(5) Reset the securing latch. Refer to Figure 3.

(6) Install the interior panel:

- Put interior cover into position.
- Install al screws.

(7) Install the inner cover.

(8) Install the outer cover.

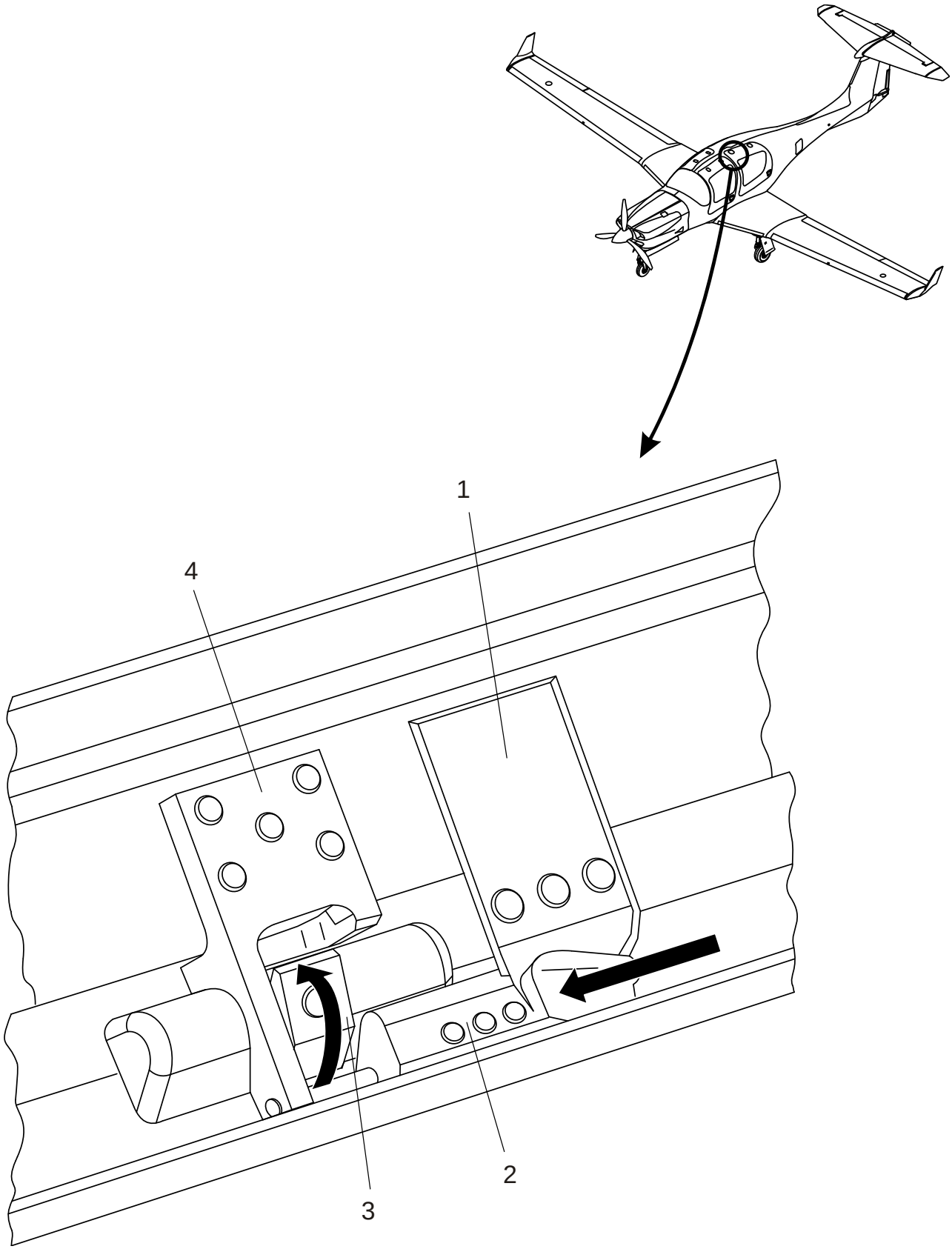


Figure 1 - Emergency Exit Window Locks - Open Position

Legend

[1, Fig.1] Interior Attachment CFRP Bracket

[2, Fig.1] Locking Bolt

[3, Fig.1] Locking Lever

[4, Fig.1] Fuselage Bracket

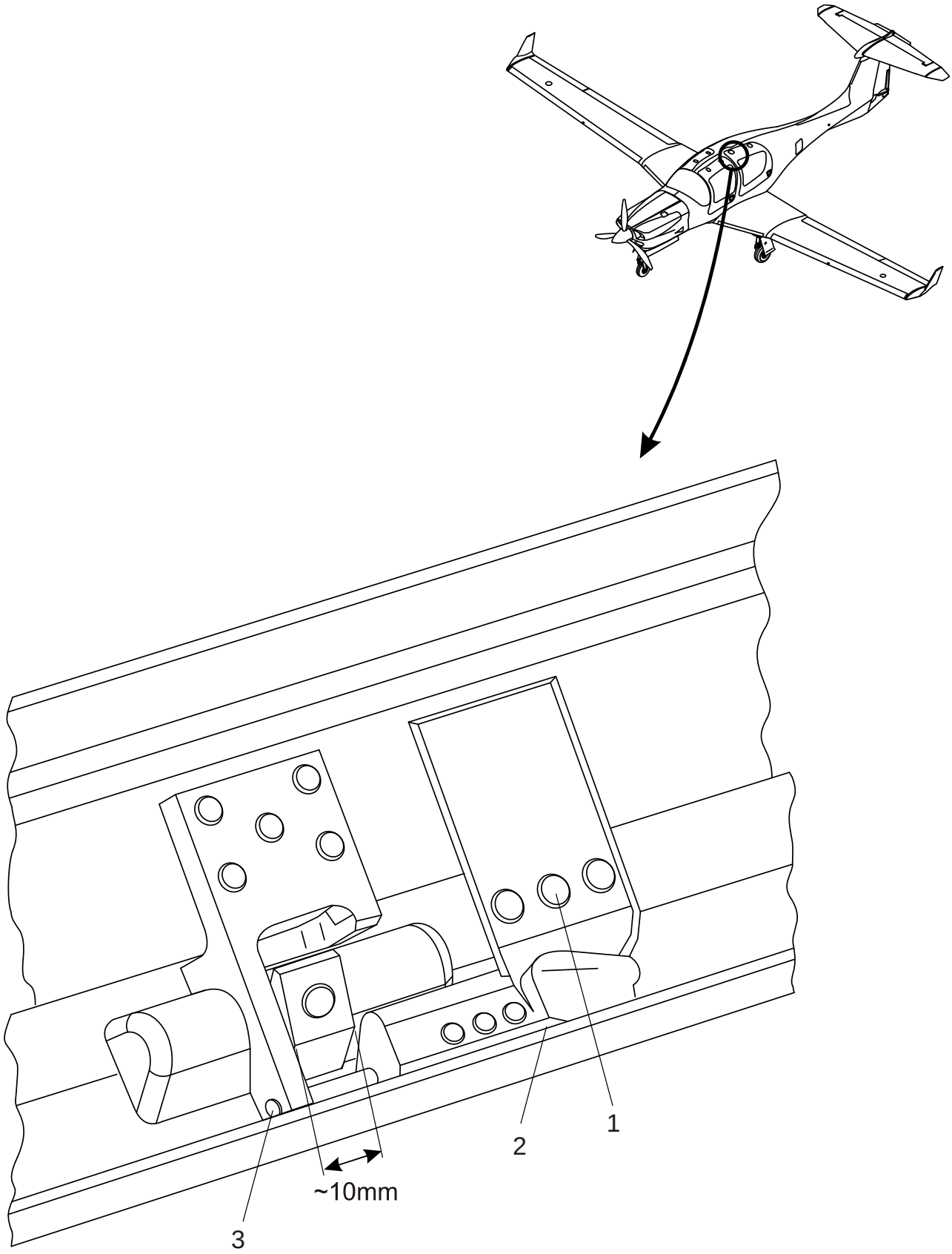


Figure 2 - Emergency Exit Window Locks - Closed Position

Legend

[1, Fig.2] Interior Attachment Point

[2, Fig.2] Activation Rope

[3, Fig.2] Locking Bolt

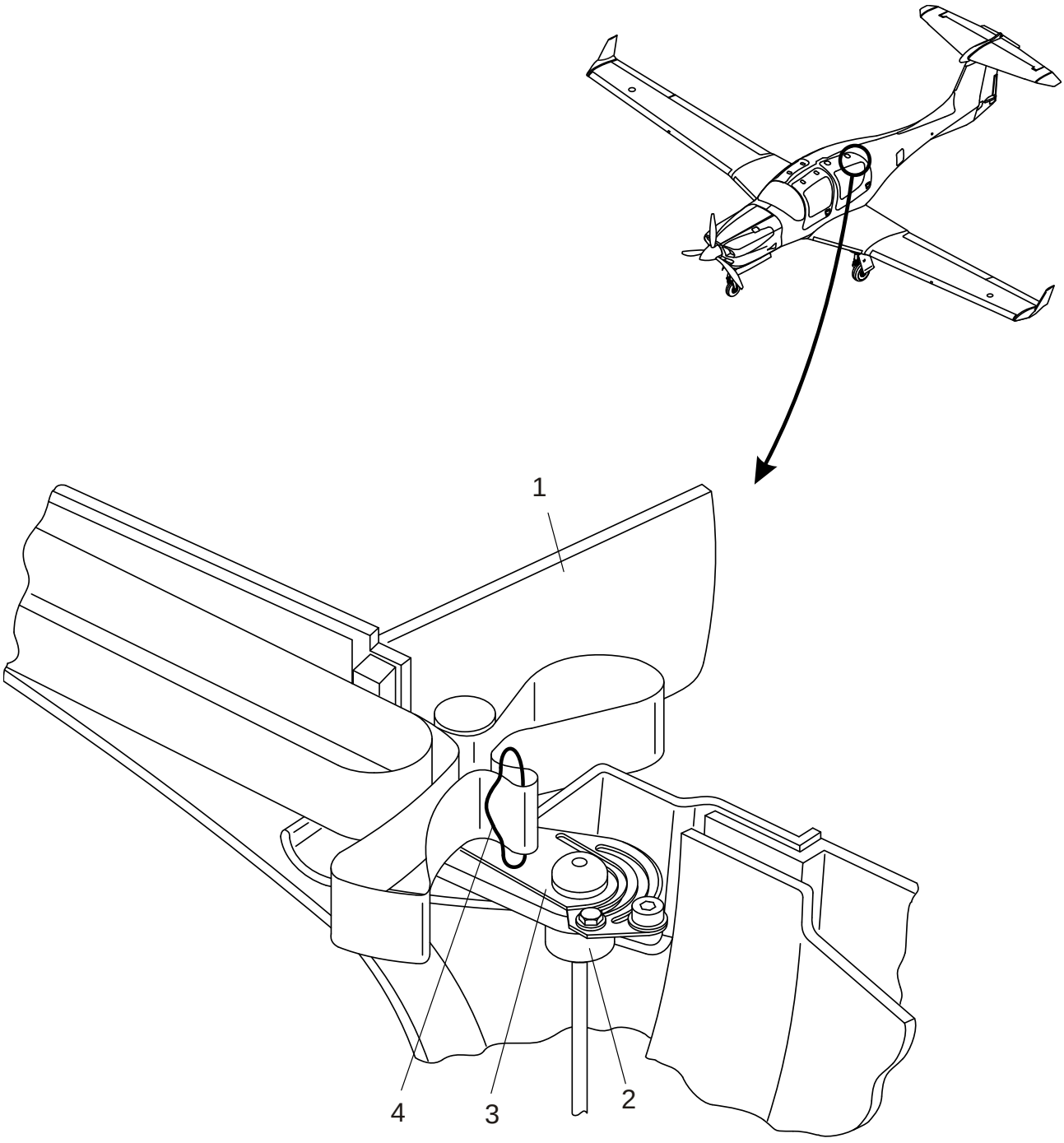


Figure 3 - Securing Latch

Legend

[1, Fig.3] Activation Handle Cover Outside

[2, Fig.3] Activation Cable Bush

[3, Fig.3] Securing Latch

[4, Fig.3] Connection Between Handle Belt and Securing Latch

52-40
ACCESS PANELS

52-40-01 Access Panels

Description

1. Description

The DA 50 C has access panels where needed for routine maintenance of the airplane and its systems (Refer to Figure 1). Panels which must be removed more often (for example, the engine cowlings) have quick-release fasteners. Other access panels have the usual screws. Refer to 71-10 Cowlings - Description for data about the engine cowlings.

Most panels are CFRP/GFRP moldings. Screws hold the panels in position. There are no special procedures for removing the access panels. When installing access panels you must make sure that the area inside the access panel has no loose objects (for example, tools or rags).

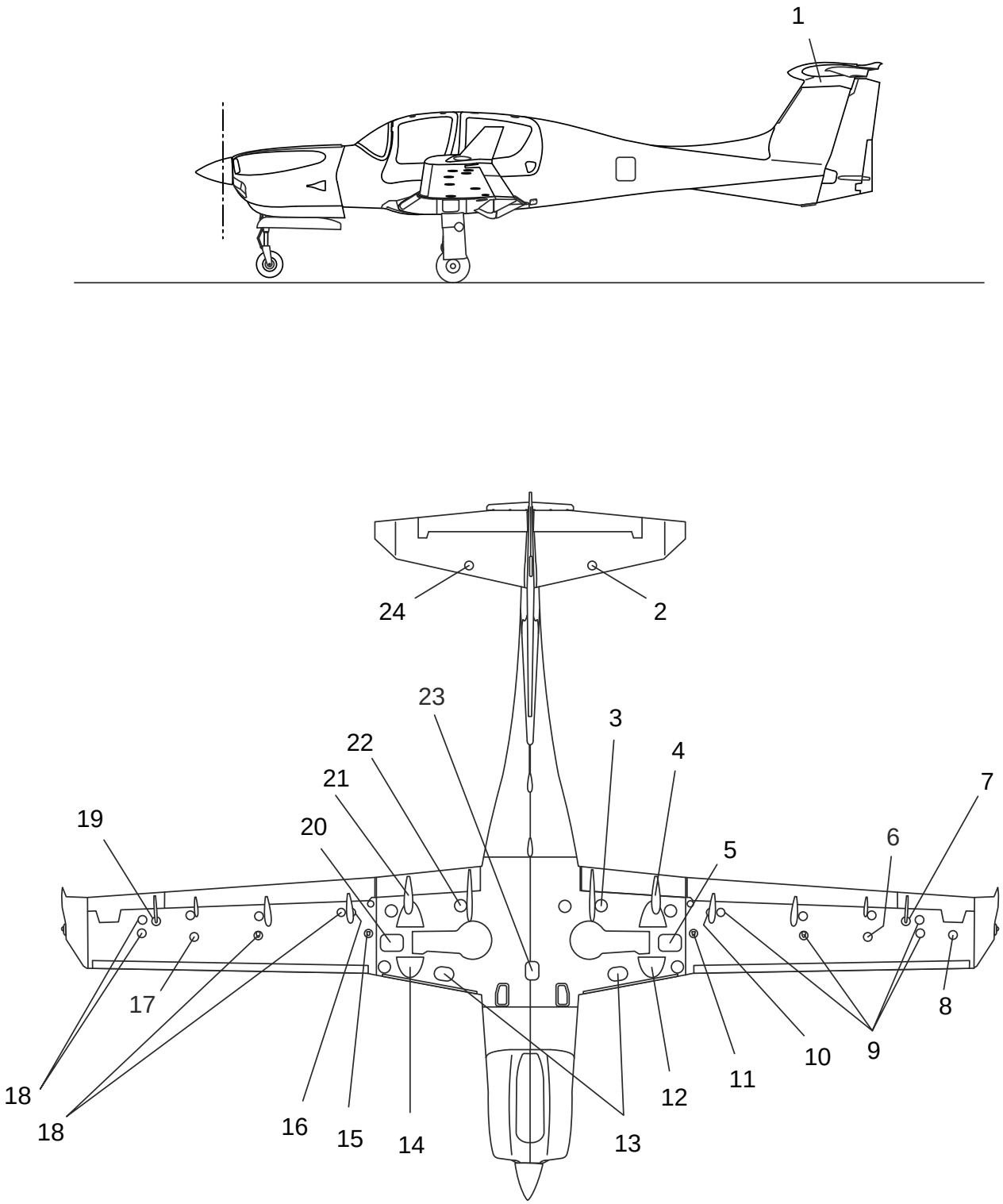


Figure 1 - Access Panels

Legend

[1, Fig.1]	Stabilizer Fairing
[2, Fig.1]	TKS RH
[3, Fig.1]	Centre Wing Cover
[4, Fig.1]	Flap Hinge Cover RH
[5, Fig.1]	Fuel Compartment Cover RH
[6, Fig.1]	Drain Cover RH
[7, Fig.1]	Aileron Maintenance Cover RH
[8, Fig.1]	Magnetometer
[9, Fig.1]	Maintenance Cap RH
[10, Fig.1]	Flap Maintenance Cover RH
[11, Fig.1]	Fuel Cell Cap RH
[12, Fig.1]	Main Landing Gear Cover
[13, Fig.1]	TKS Cover, Centre Wing
[14, Fig.1]	Main Landing Gear Cover
[15, Fig.1]	Fuel Cell Cap LH
[16, Fig.1]	Flap Maintenance Cover LH
[17, Fig.1]	Drain Cover LH
[18, Fig.1]	Maintenance Cap LH
[19, Fig.1]	Aileron Maintenance Cover LH
[20, Fig.1]	Fuel Compartment Cover LH
[21, Fig.1]	Flap Hinge Cover LH
[22, Fig.1]	Centre Wing Cover
[23, Fig.1]	Gascolator Cover
[24, Fig.1]	TKS LH

53-00
FUSELAGE

53-00-01 Fuselage

Description

1. General

The DA 50 C fuselage has a semi-monocoque structure. Two CFRP half-shells make the fuselage skin. CFRP frames and webs give the fuselage strength and stiffness. The vertical stabilizer is an integral part of the fuselage.

The fuselage shells have many layers of carbon cloth with some layers of glass cloth. Some areas have more layers of cloth than other areas. This gives more strength and stiffness where it is needed. Rigid foam inserts give stiffness where necessary.

The frames and webs also have many layers of carbon cloth. Some components also have rigid inserts of CFRP for attaching brackets or other components.

For the data of the fuselage structure refer to 53-10 Fuselage structure - Description.

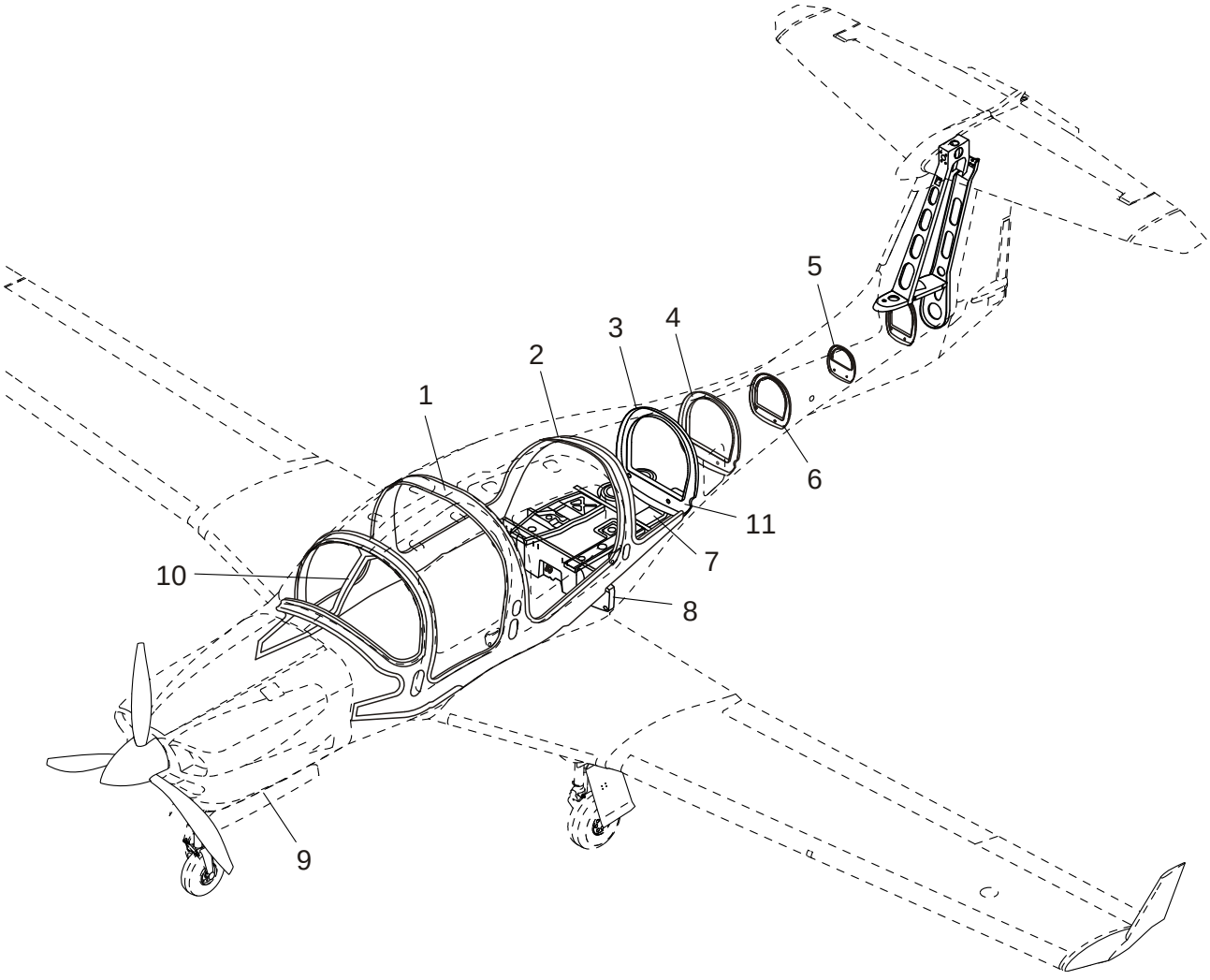


Figure 1 - Fuselage Structure - Main Components

Legend

[1, Fig.1]	Roll-Over Molding
[2, Fig.1]	Roll-Over Molding
[3, Fig.1]	Shell
[4, Fig.1]	Ring Frame 1
[5, Fig.1]	Ring Frame 3
[6, Fig.1]	Ring Frame 2
[7, Fig.1]	Seat Bracket LH Assy
[8, Fig.1]	Baggage Frame Fwd
[9, Fig.1]	Nose Wheel Compartment
[10, Fig.1]	Center Pillar
[11, Fig.1]	Baggage Frame Rwd

53-00-02 Fuselage structure

Description

1. General

This Section gives you the data about the fuselage structure. It also includes the vertical stabilizer. Refer to 51-20 Repair Processes - Description for data about repair to the structure.

All of the main structural components are CFRP and GFRP rigid moldings. Many layers of carbon cloth bond together to make each molding. Some components have more layers of carbon fiber cloth. This gives more strength and stiffness.

Most components have rigid GFRP inserts. The inserts give strength and stiffness for attaching other components such as brackets for controls.

Bonding paste (thickened resin) bonds components to other components. Most of the components in the fuselage are also bond to the fuselage shell.

2. Description

A. Fuselage Shells

Two CFRP shells make the outer skin of the fuselage. The shells transmit structural loads. The shells bond to each other at the top and bottom of the fuselage. Each shell has many layers of carbon cloth. Some areas on the shell have more layers to give more strength and stiffness. Some areas have rigid foam inserts to give more stiffness. The vertical stabilizer is integral with the fuselage shells.

Thickened resin bonds all other structural components to the fuselage shells. Many small components bond to the fuselage shells, these include:

- Air inlet and outlet ducts.
- Conduits for electrical wires, antenna cables and fuel pipes.
- Mountings for airplane system components.

B. Nose Fairing

In engine fairing is a non-structural part and act as a aerodynamic fairing for the smooth flow of air and houses the engine, engine mount, landing gear and other engine accessories. This fairing is composed of three parts: top shell, LH shell and RH shell. These shells are made from CFRP with rigid foam inserts.

Adjacent shells are bolted together in the front and along the length of the fairings. At the rear, these shells are bolted to the LH and RH fuselage shells. For easy removal of these fairings, quick release fasteners are used. Refer to 51-40 Fasteners - Description.

C. Wing Center Section

The wing center section attaches to the fuselage shells and is an integral part of the fuselage.

The wing center section has the mountings for the wings and the main landing gear. It has a front box spar and it has a rear box spar. The box spars have the mountings for the outer wings. The spar extensions of the outer wings slide into the box spars and are secured with special bolts. The box spars are CFRP rigid moldings. The control bellcrank mounting-bracket is bonded to the rear face of the rear main bulkhead, in the center.

Front, middle and rear inner-root-ribs bond to the inner ends of the front and rear box spars. The ribs are rigid CFRP moldings which make the inner face of the wing center section.

Front, middle and rear closing ribs bond to the box spars at the outer end of the center section. These ribs close the end of the wing center section.

The rear inner ribs and flap ribs bond to the aft face of the rear box spar. The flap rib has the mountings for the inner flap relay lever and the rear inner rib gives rigidity to the rear of the wing center section.

A rigid CFRP bottom shell bonds to the lower surface of the center section and makes the bottom surface of the wing center section and fuselage. Rigid CFRP top shells bond to the top outer surface of the center section and makes the top surface of the wing center section.

D. Floor Panel

The floor panel is a rigid CFRP molding. It bonds to the inner bottom skin of the fuselage shell and the instrument panel frame. The center part of the floor panel makes the center console.

The rear part of the floor makes the front support for the pilots' seats. It also holds the front of the control stick support brackets. The rudder pedal assembly for each pilot attaches to the floor panel.

Do not use surface protection except the certified.

E. Roll Over Molding

The roll-over molding is a rigid CFRP molding. Carbon tape gives strength and stiffness to the molding. The roll over molding bonds to the inner face of the fuselage shell and around the canopy, window and passenger door cut-outs.

F. Baggage Frame Rearward

The baggage frame rearward is a rigid CFRP molding. It closes the rear of the cabin and supports the baggage tray at the rear. The frame bonds to the fuselage shells.

The lower part of the frame has holes for the rudder cables and trim control. It also has a control rod guide for the elevator control rod.

G. Baggage Frame Forward

The baggage frame forward is a rigid CFRP molding. It is located behind the pax seat row and supports the baggage tray at the front. The frame bonds to the fuselage shells and the inner frame. The lower part of the frame has holes for the rudder cables and trim control. It also has control rod guide for the elevator control rod.

H. Ring Frame 1

The ring frame 1 is a rigid CFRP molding. It bonds to the fuselage shells just aft of the baggage compartment frame. It has holes for the rudder control cables and trim control. It also has a control rod guide for the elevator control rod.

I. Ring Frame 2

The ring frame 2 is a rigid CFRP molding. It bonds to the fuselage shells aft of ring frame 1. It has holes for the rudder control cables and trim control. It also has a control rod guide for the elevator control.

J. Ring Frame 3

The ring frame 3 is a rigid CFRP molding. It bonds to the fuselage shells just forward of the vertical stabilizer. It has holes for the rudder control cables and trim control.

K. Vertical Stabilizer Front Lower Rib

The vertical stabilizer front lower rib is a rigid CFRP molding. It bonds to the fuselage shell at the bottom of the vertical stabilizer. It also bonds to the vertical stabilizer front web. It has a hole for the flexible control cable for the elevator trim tab.

L. Vertical Stabilizer Rear Lower Rib

The vertical stabilizer rear lower rib is a rigid CFRP molding. It bonds to the fuselage shell at the bottom of the vertical stabilizer. It also bonds to the vertical stabilizer front and rear webs. It has a large slot for the elevator control pushrod.

M. Vertical Stabilizer Front Spar

The vertical stabilizer front web is a rigid CFRP molding. It bonds to the fuselage shell. It also bonds to the vertical stabilizer lower ribs and to the top of the rear web.

The top of the front web is a rigid channel section. CFRP inserts give strength to the area where the horizontal stabilizer mounts attach.

N. Vertical Stabilizer Rear Spar

The vertical stabilizer rear web is a rigid CFRP molding. It bonds to the fuselage shell and it bonds to the vertical stabilizer front web. The top of the rear web has the top mounting for the rudder. It also has a reinforcing rib bonded to the rear face.

The vertical stabilizer rear web closes the rear of the vertical stabilizer.

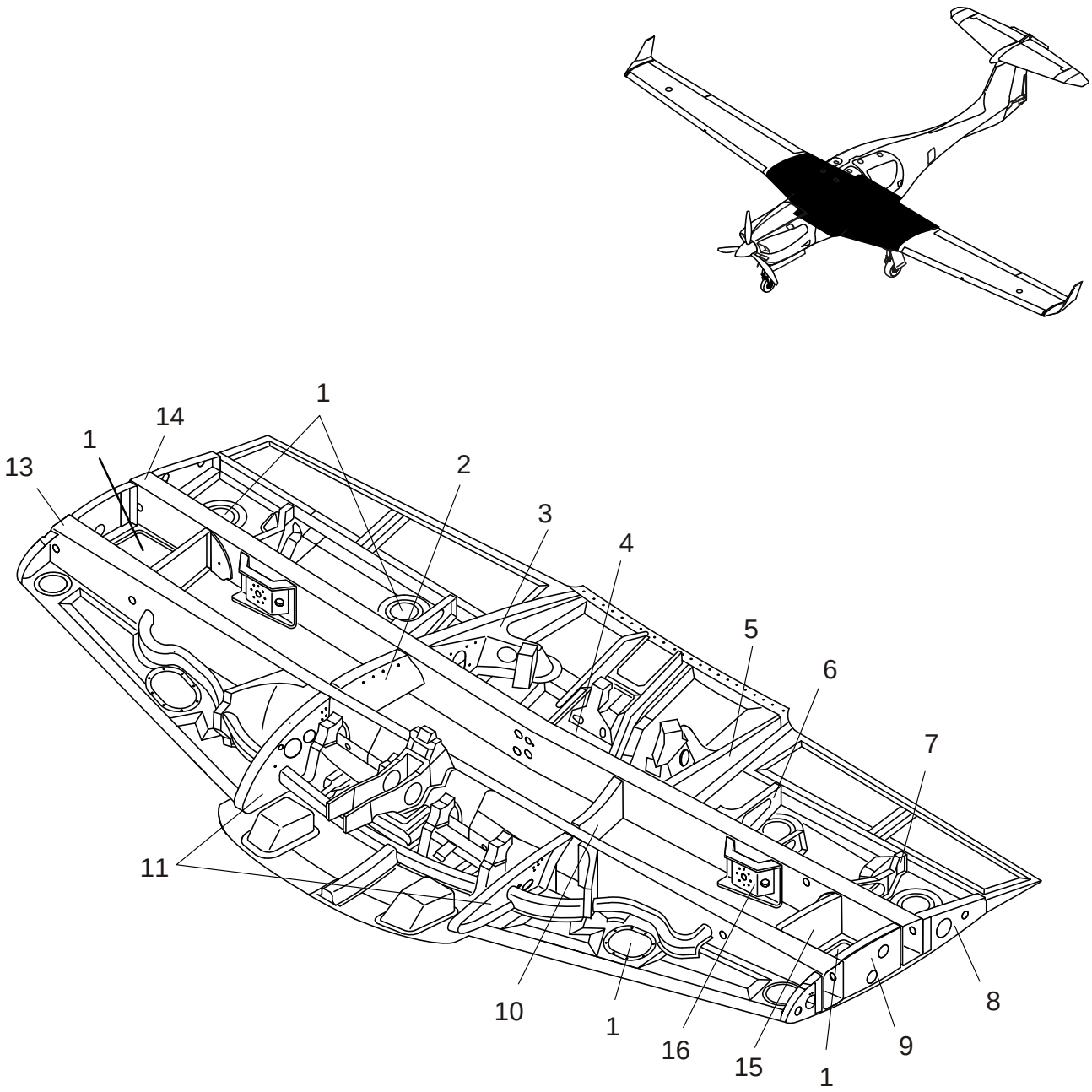


Figure 2 - Fuselage Structure - Wing Center Section

Legend

[1, Fig.2]	Inspection Hole in Internal Rib
[2, Fig.2]	Middle Inner Root Rib RH
[3, Fig.2]	Rear Inner Root Rib RH
[4, Fig.2]	Control Bellcrank Mounting Bracket
[5, Fig.2]	Rear Inner Root Rib LH
[6, Fig.2]	Flap Rib
[7, Fig.2]	Rear Inner Rib
[8, Fig.2]	Rear Outer Rib
[9, Fig.2]	Middle Outer Root Rib
[10, Fig.2]	Middle Inner Root Rib LH
[11, Fig.2]	Front Inner Root Rib
[13, Fig.2]	Front Center Wing Spar
[14, Fig.2]	Rear Center Wing Spar
[15, Fig.2]	Main Landing Gear Rib
[16, Fig.2]	Drag Brace Bar

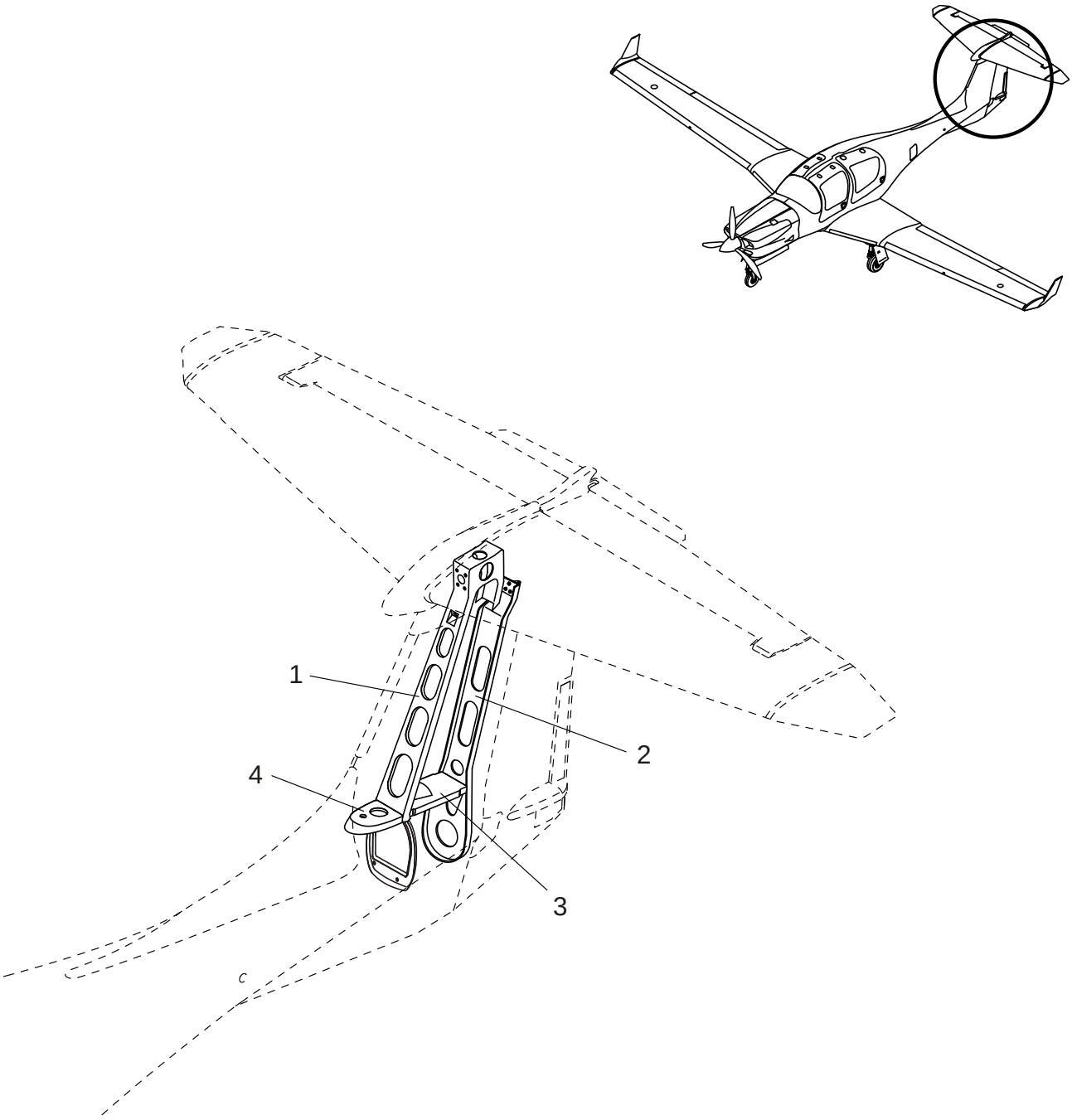


Figure 3 - Fuselage Structure - Vertical Stabilizer

Legend

[1, Fig.3] Vertical Stabilizer Front Spar

[2, Fig.3] Vertical Stabilizer Rear Spar

[3, Fig.3] Vertical Stabilizer Rear Lower Rib

[4, Fig.3] Vertical Stabilizer Front Lower Rib

53-00-03 Trim Weight in Tail

Description

1. Trim Weight System in Tail

To adjust the airplanes CG, it is possible to install a trim weight in the lower vertical tail. The trim weight can be varied from 1.0 kg (2.2 lb) up to 20 kg (44 lb) in 1 kg (2.2 lb) steps by installing the required number of steel plates. The steel plates are fixed by two bolts in the trim weight container.

NOTE

Any change in the configuration of the airplane requires a new determination of the empty mass and corresponding CG position in accordance with 08-00 Weighing - Description.

NOTE

All measures must be carried out by a certified airplane maintenance station or a certified airplane mechanic.

The trim weight system in the lower vertical tail consists of the following main parts (Refer to Figure 4):

- Trim weight container.
- Steel plates.

A. Trim Weight Container

The trim weight container is made out of CFRP and serves as a provision to install a trim mass in the vertical tail fin. The mass can be varied from 1.0 kg (2.2 lb) up to 20 kg (44 lb) in 1 kg (2.2 lb) steps by installing the required number of steel plates. The steel plates are fixed by two bolts in the trim weight container. If less than 20 kg (44 lb) are used, distance bushings and/or washers must be installed to prevent moving of the trim weights.

B. Lightning Protection System

All attachment screws of the Trim Weight Container are connected to the airplane lightning protection system.

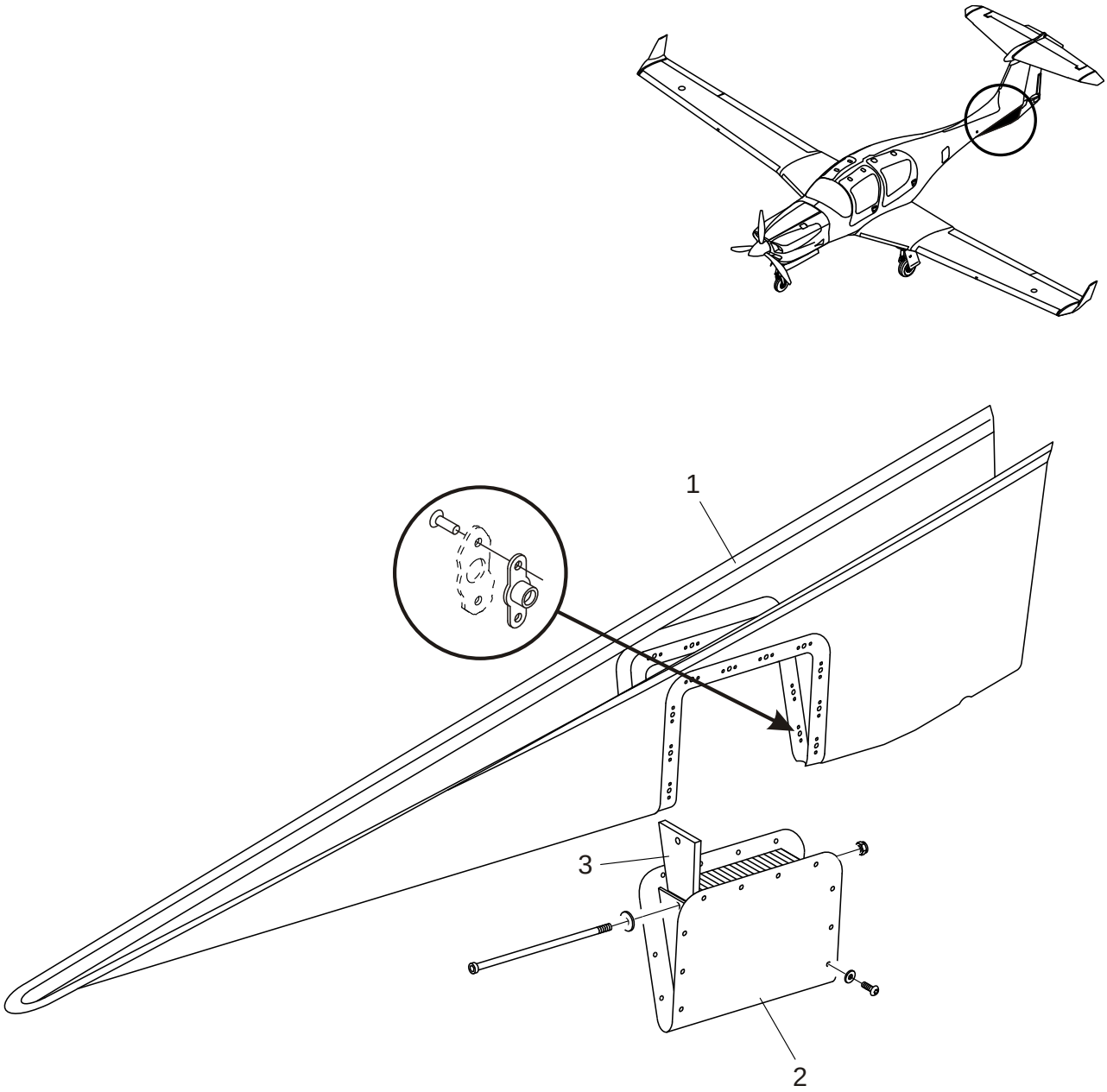


Figure 4 - Trim Weight in Tail

Legend

[1, Fig.4] Vertical Tail Fin

[2, Fig.4] Trim Weight Container

[3, Fig.4] Steel Plates

53-00-04 Fuselage structure

General maintenance procedure

1. General Maintenance Practices

There are no special Maintenance Practices for the DA 50 C fuselage. You must keep the airplane clean and you should visually examine the airplane fuselage for damage when you clean it. Refer to 12-30 Cleaning - Clean and apply surface protection for data about airplane cleaning.

If you find any damage you must refer to 51-10 Damage Classification - Description for data about damage classification. Only authorized persons can classify and repair damage to the DA 50 C airplane.

53-00-05 Trim Weight in Tail

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Trim Weight Container

(1) Loosen and remove the LH and RH attachment screws.

Use an Allen-wrench size 3.

(2) Remove the trim weight container by pulling downward.

B. Remove Trim Weights

(1) Loosen and remove the two bolts.

53-00-06 Trim Weight in Tail

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install Trim Weight

(1) Install trim weight in container with two bolts.

Verify proper fitting. Refer to 53-10 Trim Weight in Tail - Description Para A..

B. Install the Trim Weight Container

(1) Check the trim weight container for:

- Delamination.
- Disbonds.
- Cracks.
- Corrosion.
- Loose items.

(2) Carefully put the trim weight container into position.

(3) Tighten all 20 screws.

Use an Allen-wrench size 3.

(4) Verify completeness of the tools.

C. Weighing Report

(1) Make sure the Weighing Report is up to date.

55-00
STABILIZERS

55-00-01 Stabilizers

Description

1.

The vertical stabilizer is part of the fuselage. Refer to Figure 1. The aft part of the left and right fuselage shells make the left and right shells of the vertical stabilizer. Refer to 53-10 Fuselage structure - Description for more information on the fuselage structure.

The horizontal stabilizer has upper and lower shells. Each shell is made from CFRP. The horizontal stabilizer has a front spar and a rear spar. Both spars have mounting brackets. Three pairs of ribs give strength to the center area. Two trailing edge webs hold the hinges for the elevator.

The elevator has top and bottom shells. Each shell is made from GFRP with a rigid foam core. The bottom shell also makes the leading edge spar. The hinges attach to the bottom shell. A large horn with the mass balance weight attaches to the bottom shell at the center. The trailing edge carries a trim tab.

The lower fin is a CFRP molding. Bolts attach the lower fin to the bottom of the fuselage.

The rudder has left and right shells. Each shell has GFRP skins with a rigid foam core. The shells bond together at a flange. The hinges attach to the top face of the rudder and a flat face near the bottom of the leading edge.

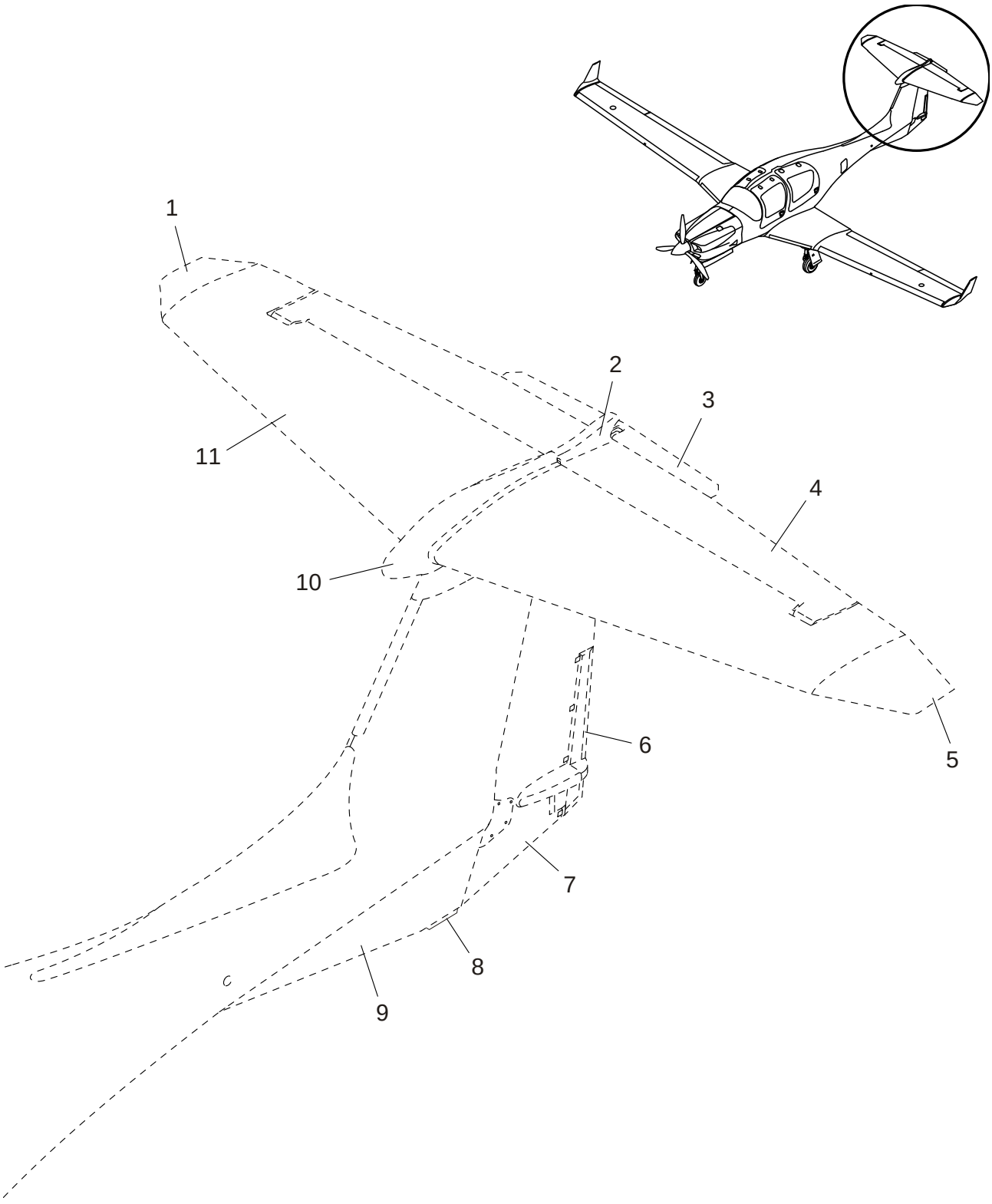


Figure 1 - Stabilizers

Legend

[1, Fig.1]	Horizontal Stabilizer Tip, RH
[2, Fig.1]	Cover
[3, Fig.1]	Elevator Trim Tab
[4, Fig.1]	Elevator
[5, Fig.1]	Horizontal Stabilizer Tip, LH
[6, Fig.1]	Rudder Trim Tab
[7, Fig.1]	Rudder
[8, Fig.1]	Tail Skid
[9, Fig.1]	Lower Fin
[10, Fig.1]	Bullet Fairing
[11, Fig.1]	Horizontal Stabilizer

55-10
HORIZONTAL STABILIZER

55-10-01 Horizontal stabilizer

Description

1. Description

The DA 50 C has an entended horizontal stabilizer. The horizontal stabilizer attaches to the top of the vertical stabilizer. The elevator attaches to the trailing edge of the horizontal stabilizer. Refer to 55-20 Elevator - Description for information about the elevator structure.

Figure 1 shows the horizontal stabilizer structure.

The horizontal stabilizer has top and bottom shells. Each shell is made from CFRP. The top shell has no cut-outs. The bottom shell has a large cut-out at the rear for the elevator horn and mass balance, two smaller holes forward and aft of the front spar and two more access holes close to the leading edge, left and right of the front spar.

The horizontal stabilizer has two spars. The spars are made from CFRP with rigid CFRP inserts at the main mounting points. They also have top and bottom caps. The ends of the front spar turn back to join the aft spar at mid span. The rear spar goes almost to the tip of the horizontal stabilizer. The spars bond to the top and bottom shells with resin.

Each spar has four holes for a mounting bracket. You can get access to the attachment bolts from below. The mounting brackets go down through the cut-outs in the bottom shell. Four more holes in the bottom part of each mounting bracket attach to the vertical stabilizer front web.

Three pairs of ribs give strength to the center area on each side of the access holes. All are rigid CFRP moldings. They bond to the other components with resin. The rear 'box' ribs make a box round the large cut-out in the bottom skin. A short rear rib at mid-span gives strength to the area between the rear spar and the aft stringer.

The rear box rib has sides with bends and a top face which joins the sides. It closes the sides of the large cut-out in the bottom shell. The aft part has three holes on each side for the anchor bracket for the trim-tab mechanism.

The aft stringer close the trailing edges of the top and bottom shells. The outboard end of the stringer is a 'J' shape which goes round the outboard balance weight of the elevator. It extends aft at the outer side to close the elevator cut-out. The aft stringer bond to the top and bottom shells and the rear and rear 'box' ribs with resin. The aft stringer supports 4 hinges for the elevator.

A rigid GFRP fairing goes around the joint between the horizontal stabilizer and the vertical stabilizer. Four screws attach the fairing to the vertical stabilizer.

The end ribs of the stabilizer are formed by extending the upper and lower shells. They also act as the attachment ribs for the horizontal tail tips.

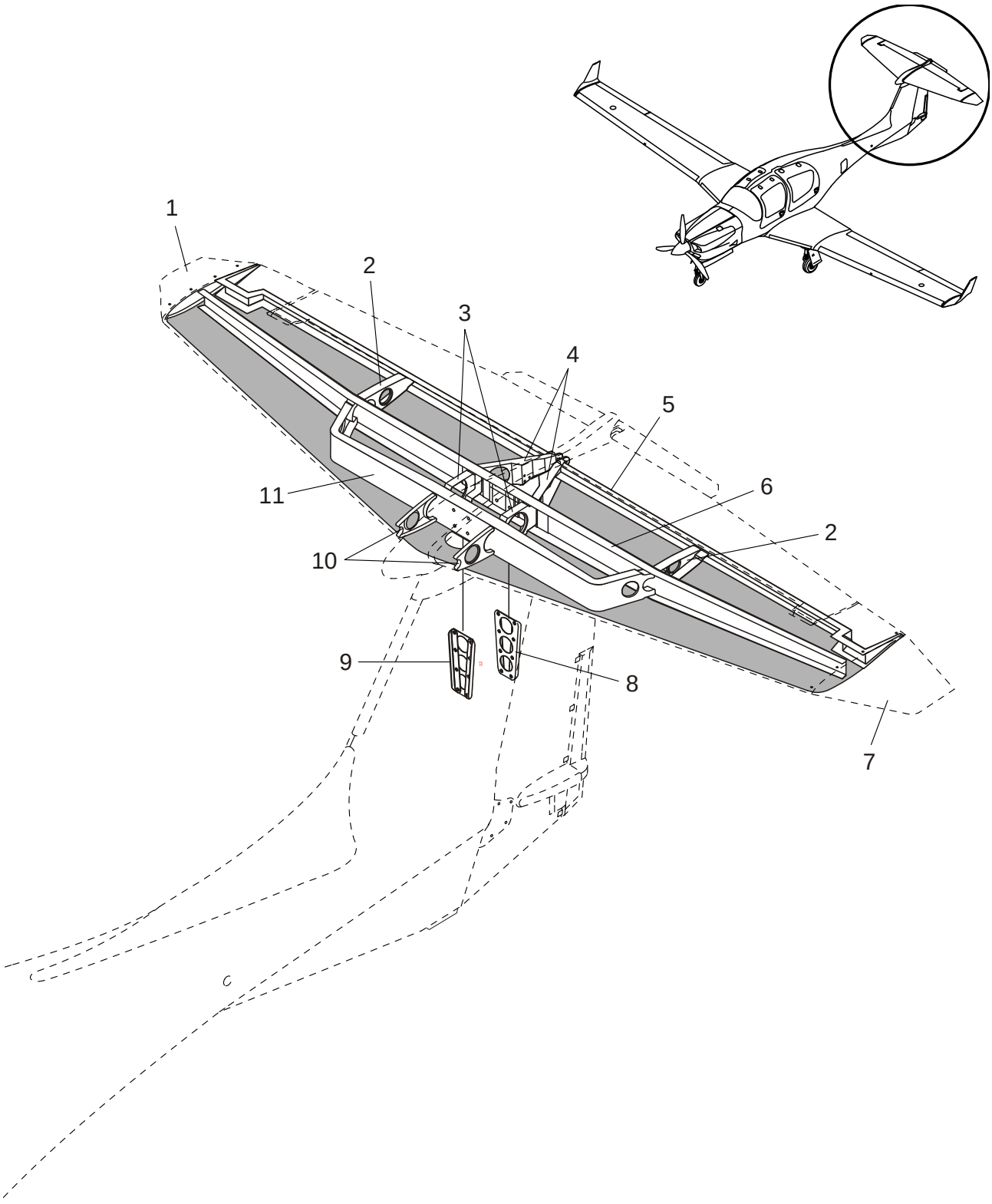


Figure 1 - Horizontal Stabilizer Structure

Legend

[1, Fig.1]	Horizontal Stabilizer Tip, RH
[2, Fig.1]	Rear Rib
[3, Fig.1]	Center Ribs
[4, Fig.1]	Rear 'Box' Ribs
[5, Fig.1]	Trailing Edge Web
[6, Fig.1]	Rear Spar
[7, Fig.1]	Horizontal Stabilizer Tip, LH
[8, Fig.1]	Rear Mounting Bracket
[9, Fig.1]	Front Mounting Bracket
[10, Fig.1]	Front Ribs
[11, Fig.1]	Front Mounting Bracket

55-10-02 Horizontal stabilizer

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Horizontal Stabilizer

NOTE

Two persons are needed to remove/install the horizontal stabilizer.

(1) Remove the horizontal stabilizer bullet fairing.

- Hold the fairing.
- Remove the screws that attach the faring to the structure.

(2) Disconnect the trim-tab pushrod from the pushrod mechanism.

(3) Release the 2 fork-end fittings from the trim-tab cranked actuating levers (Under the elevator):

- Remove the 3 bolts that attaches the mechanism to the elevator trim mounting plate.
- Remove TR anode plate and elevator trim clamp big.
- Remove the retaining ring from the elevator trim link bolt and remove the bolt to disconnect the Bowden cable and trim pushrod.
- Remove the bushing and bolt that attach the pushrod.

(4) Release the trim-tab mechanism from its mounting bracket.

Refer to 27-30 Elevator Trim - Mechanical - Description.

(5) Move the trim-tab mechanism forward through the hole in the vertical stabilizer web, clear of the mounting bracket.

(6) Disconnect the elevator push-rod from the elevator horn:

- Loosen the 4 bolts holding the elevator mass-balance lever.
  Refer to 55-20 Elevator - Description Figure 2.
- Remove the nut, bolt and washer which connects the elevator vertical push rod to the elevator horn.
  Refer to Figure 2.
- Remove and retain the large washer, bush and spacer from the push rod to elevator horn assembly.
  Note the location of the large washer, bush and spacer.

(7) Remove the 8 lower bolts which attach the horizontal stabilizer and lightning protection strip to the front and rear mounting brackets.

Hold the horizontal stabilizer.

(8) Lift the horizontal stabilizer clear of the airplane.

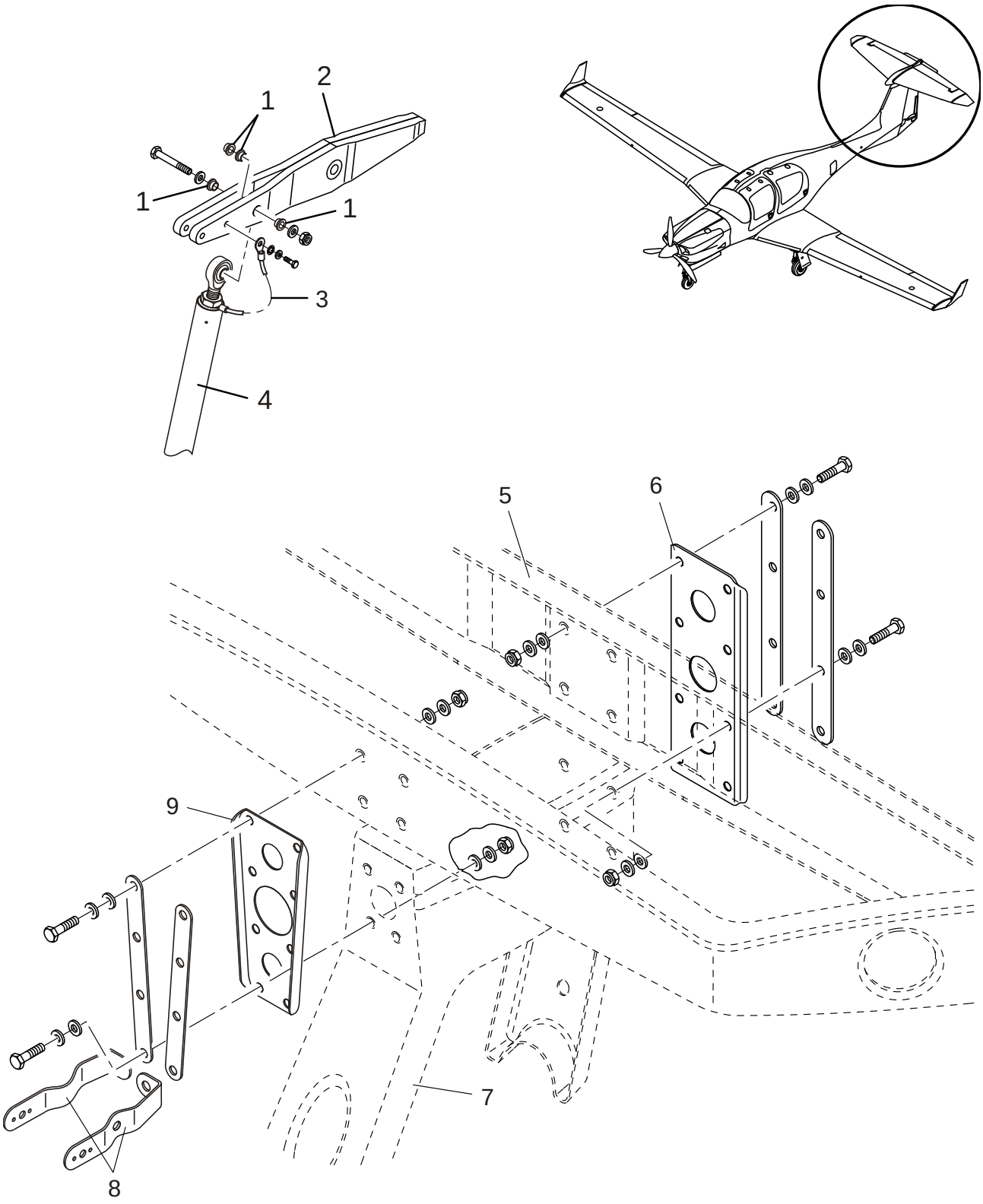


Figure 2 - Horizontal Stabilizer Installation

Legend

[1, Fig.2] Collar Bush
[2, Fig.2] Elevator Actuating Lever
[3, Fig.2] Earthing Strip
[4, Fig.2] Elevator Push Rod
[5, Fig.2] Horizontal Stabilizer Rear Spar
[6, Fig.2] Rear Mounting Plate
[7, Fig.2] Vertical Stabilizer Front Web
[8, Fig.2] Lightning Protection Straps
[9, Fig.2] Front Mounting Plate

55-10-03 Horizontal stabilizer

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Horizontal Stabilizer

(1) Examine the horizontal stabilizer attachments. Look specially for:

- Corrosion or wear of the bolts.
- Distortion of the mounting brackets.
- Cracks in the mounting brackets.
- Damage to the mounting holes.

(2) Put the horizontal stabilizer in position on the vertical stabilizer.

Hold the horizontal stabilizer.

(3) Install the 8 lower horizontal stabilizer attachment bolts, washers and nuts which attach the horizontal stabilizer and lightning protection strip to the front and rear mounting brackets.

Use new self-locking nuts.

Torque: 45 Nm (33.2 lbf.ft.). Value includes friction.

Refer to Special Torque Values - Description.

(4) Connect the elevator control push rod to the elevator horn:

- Install the large washer, bush and spacer into the push rod to elevator horn assembly.
  As noted in 55-10 Horizontal stabilizer - Remove procedure step A.6
- Install the bolt, washer and nut that attaches the elevator control push-rod to the elevator horn.
  Use a new self-locking nut.
- Tighten the 4 bolts holding the elevator mass-balance lever.
  That you loosened in 55-10 Horizontal stabilizer - Remove procedure step A.6

(5) Move the trim-tab mechanism aft through the hole in the vertical stabilizer web, through the mounting bracket for the trim mechanism.

(6) Reconnect the trim tab pushrod and the bowden cable using the previously removed elevator trim link bolt:

- Reinstall the retaining ring.
- Reinstall the elevator trim clamp big and the TR anode.

(7) Attach the trim-tab mechanism to its mounting bracket:

- Install 3 bolts, washers, distance bushing and nuts.

Use new self-locking nuts.

55-20
ELEVATOR

55-20-01 Elevator

Description

1. Elevator Description

The DA 50 C has the usual elevator. The elevator attaches to the aft stringer of the horizontal stabilizer. Refer to 27-30 Elevator Control System - Description for information about the elevator controls.

Figure 1 shows the elevator structure. Figure 2 shows the installation of the elevator on the horizontal stabilizer.

The elevator has top and bottom shells. Each shell has GFRP skins with a rigid foam core. The leading edge of each shell has a curve. The shells bond together where the curves overlap. The shells also bond together at the ends and at the trailing edge.

The elevator has a horn rib in the middle. It forms a box structure with an open front. The elevator horn goes into the horn rib.

The horn has a hole with a bush to which the elevator push rod is attached. The front of the horn has the elevator mass balance weight. More mass balance weight are installed on the leading edges of the lower shell on both sides.

Five bearings hold the elevator. The elevator horn has a plain bearing. A bolt and spacer attach the elevator horn to the aft stringer of the horizontal stabilizer.

The hinge assembly has an eye-end connected to a clevis assy. The eye-end has a spherical bearing. The shank engages in a bush in the aft stringer.

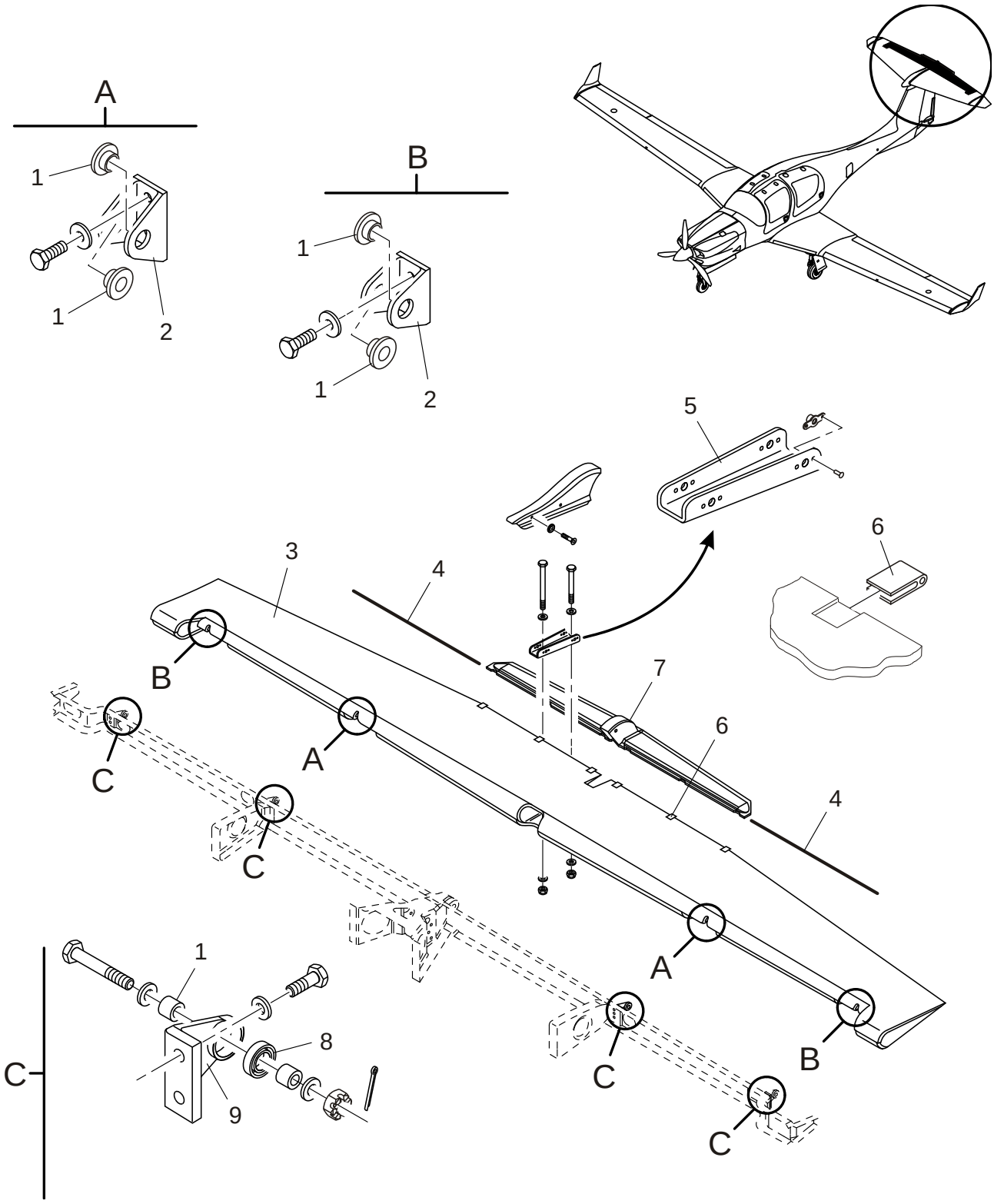


Figure 1 - Elevator Structure

Legend

[1, Fig.1] Bush
[2, Fig.1] Elevator Mounting Bracket
[3, Fig.1] Elevator
[4, Fig.1] Hinge Rod
[5, Fig.1] Elevator Hood Support Assy
[6, Fig.1] Trim Tab Hinge
[7, Fig.1] Trim Tab
[8, Fig.1] Bearing
[9, Fig.1] Elevator Hinge

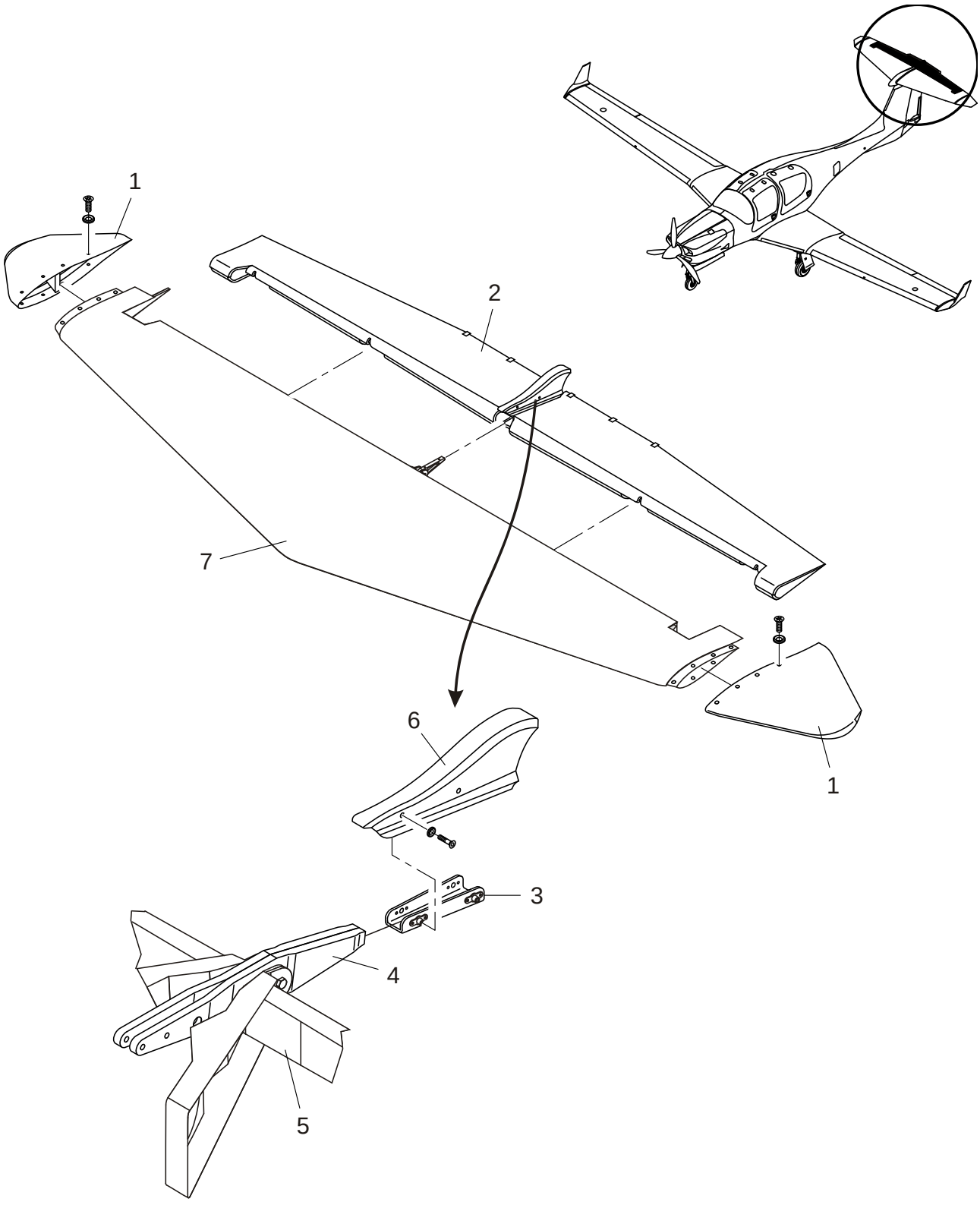


Figure 2 - Horizontal Stabilizer - Elevator Installation

Legend

[1, Fig.2] Removable Tip

[2, Fig.2] Elevator

[3, Fig.2] Elevator Horn Rib

[4, Fig.2] Elevator Hood Support Assy

[5, Fig.2] Trailing Edge Web

[6, Fig.2] Elevator Hood Assy

[7, Fig.2] Horizontal Stabilizer

55-20-02 Elevator Trim Tab

Description

1. Trim Tab Description

A GFRP trim tab attaches to the trailing edge of the elevator. The trim tab has six GFRP hinges. The front half of each hinge bonds to the trailing edge of the elevator. The rear half of each hinge bonds to the leading edge of the trim tab. Two hinge rods go through the hinges. Lock wires hold the hinge rods in place.

Figure 3 shows the trim tab installation.

An elevator trim tab balance weight cover assy is bonded to the upper shell at the center of the leading edge. The trim actuation rod is conected to his cover.

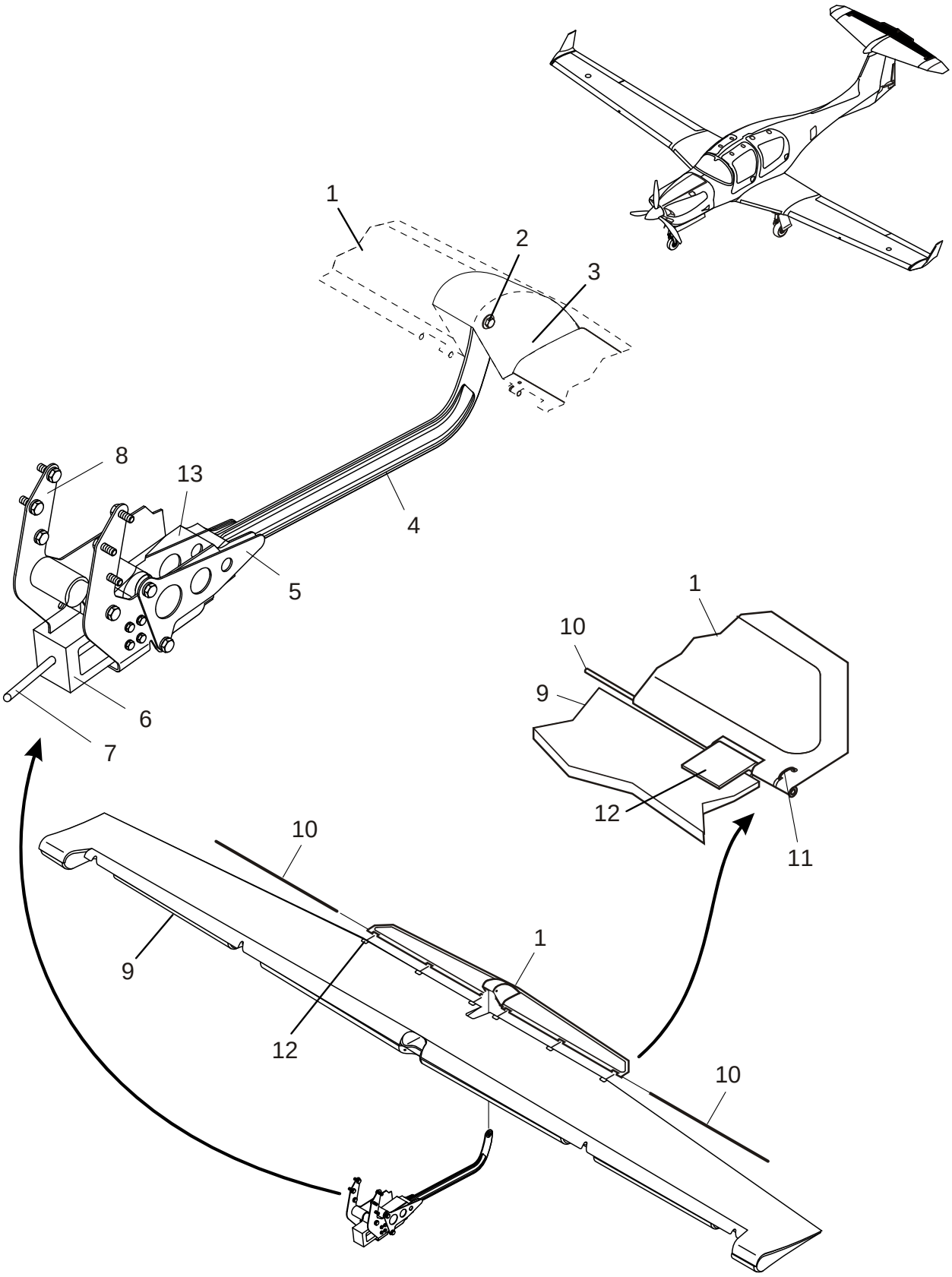


Figure 3 - Trim-Tab Installation

Legend

[1, Fig.3]	Trim Tab
[2, Fig.3]	Attaching Bolt
[3, Fig.3]	Trim Tab Horn
[4, Fig.3]	Elevator Trim Tab Pushrod / Cranked Activating Lever
[5, Fig.3]	TR Anode
[6, Fig.3]	Elevator Trim Sliding Carriage
[7, Fig.3]	Bowden Cable
[8, Fig.3]	Elevator Trim Mounting Plate
[9, Fig.3]	Elevator
[10, Fig.3]	Hinge Rod
[11, Fig.3]	Lock Wire
[12, Fig.3]	Trim Tab Hinge
[13, Fig.3]	Elevator Trim Clamp Big

55-20-03 Elevator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Elevator

(1) Remove the horizontal stabilizer bullet fairing.

- Remove the screws that attach the fairing to the structure.

(2) Release the trim tab actuation rod connection to the trim tab horn by removing the attaching screws, washers and nut at the elevator trim tab horn.

(3) Remove 4 bolts, nuts and washers which attach the elevator horn rib to the elevator.

Refer to 55-20 Elevator - Description Figure 2.

(4) Remove the pivot pins from the hinge:

- Remove bolts, washers and nuts.

Hold the elevator.

(5) Pull the elevator aft to release the elevator horn and hinge assemblies.

(6) Put the elevator in a stand or on a padded surface.

55-20-04 Elevator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A.

(1) Put the elevator in position aft of the horizontal stabilizer:

- Align the elevator with the horn.
- Move the elevator forward over the horn.
- Align the eye brackets and clevis assemblies at mid-span with the bushes in the trailing edge web of the horizontal stabilizer.
- Push the elevator forward to install washer.

Refer to 55-20 Elevator - Description Figure 2.

(2) Install the bolts, washers and nuts which attach the elevator to the elevator horn.

Use new self-locking nuts.

(3) Install the bolt, washer and nut connecting the trim-tab cranked actuating lever to the trim tab horn.

(4) Install the horizontal stabilizer bullet fairing:

- Install screws that attach the fairing to the structure.

(5) Do a test for correct range of movement of the elevator control.

Refer to 27-30 Elevator Control System - Design data/tolerances check.

(6) Do a test for correct range of movement of the elevator trim control.

Refer to 27-30 Elevator Trim - Mechanical - Design data/tolerances check.

(7) If necessary for your Airworthiness Authority do a duplicate inspection of the elevator trim control.

55-20-05 Elevator Trim Tab

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Elevator Trim-Tab

(1) Remove the nut, washer and bolt which attaches the cranked actuating lever to the trim tab horn.

Refer to 55-20 Elevator Trim Tab - Description Figure 3.

CAUTION

DO NOT USE FORCE TO REMOVE THE LOCK WIRE FROM THE TRIM TAB HINGE. YOU CAN DAMAGE THE GFRP HINGE.

(2) Remove the lock wire at the outer hinge on each side of the trim tab.

(3) Move the hinge rods out of the hinges.

Hold the trim tab.

(4) Remove the trim tab from the elevator.

55-20-06 Elevator Trim Tab

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Elevator Trim-Tab

(1) Put the trim tab in position on the elevator.

Refer to 55-20 Elevator Trim Tab - Description Figure 3.

(2) Align the hinges.

(3) Install the hinge rods in each side.

CAUTION

DO NOT USE FORCE TO INSTALL THE LOCK WIRE IN THE TRIM TAB HINGE. YOU CAN DAMAGE THE GFRP HINGE.

(4) Lock the hinge rods in position with wire.

Use new lock wire.

(5) Align the cranked actuating lever with the trim tab horn.

(6) Install the bolt, washer and nut which attaches the cranked actuating lever to the trim tab horn.

(7) Do a test for correct range of movement of the elevator trim control.

Refer to 27-30 Elevator Trim - Mechanical - Design data/tolerances check.

(8) If necessary for your Airworthiness Authority do a duplicate inspection of the elevator trim control system.

55-30
LOWER FIN

55-30-01 Lower Fin

Description

1. Lower Fin

The DA 50 C has a lower fin. The lower fin is a CFRP molding that is bonded to the bottom of the rear fuselage. A tail-skid is attached to the bottom of the lower fin.

55-40
RUDDER AND TRIM TAB

55-40-01 Rudder

Description

1. Rudder

The DA 50 C has the usual rudder. The rudder attaches to the rear web of the vertical stabilizer. Refer to 27-20 Rudder Control System - Description for data about the rudder controls.

The rudder has an electromechanical trim-tab. A rudder trim actuation switch on the power lever controls the rudder trim-tab. Refer to 27-20 Rudder Trim-Tab Control System - Description for data about the rudder trim-tab controls.

Figure 1 shows the rudder structure.

The rudder has left and right shells. Each shell is made from GFRP with a rigid foam core. The leading edge of each shell has a curve and a flange. The shells bond together at the flanges. The shells also bond together at the top, bottom and at the trailing edge. The left shell has a molded fairing for the ruder trim control rods.

The rudder has a flat face at the bottom of the leading edge. The flat face has two bonded bolts. The bolts attach the rudder to the rudder lower mounting bracket. Refer to 27-20 Rudder Control System - Description for data about the rudder lower mounting bracket.

The rudder has a mass balance weight screwed to the leading edge. You cannot adjust the mass balance.

The control block contains one hinge on the upper attachment and the rudder rear control assembly.

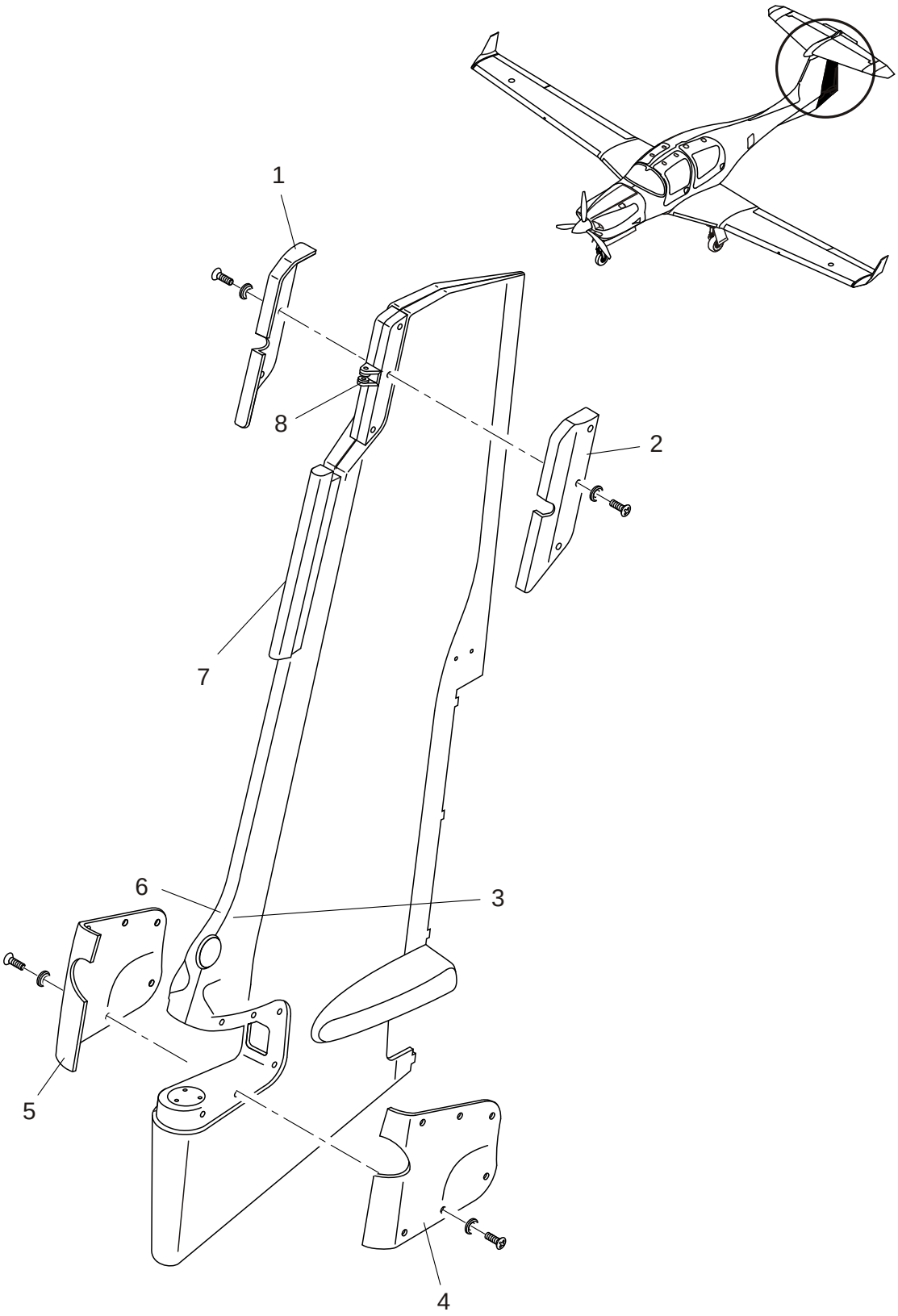


Figure 1 - Rudder Assembly

Legend

[1, Fig.1] Rudder Hinge Cover, RH

[2, Fig.1] Rudder Hinge Cover, LH

[3, Fig.1] Rudder Left Shell

[4, Fig.1] Rudder Inspection Cover, LH

[5, Fig.1] Rudder Inspection Cover, RH

[6, Fig.1] Rudder Right Shell

[7, Fig.1] Mass Balance

[8, Fig.1] Top Pivot Bracket

55-40-02 Rudder Trim Tab

Description

1. Rudder Trim-Tab

Figure 2 shows the rudder trim-tab.

The trim-tab has left and right shells. Each shell is made from GFRP. A rigid foam insert strengthens the trim-tab at the leading edge. The leading edge of each shell has a curve and a flange. The leading edge flange has a vertical tube for the trim-tab hinge-wire. The shells bond together at the flanges. The shells also bond together at the top, bottom and at the trailing edge.

At the lower end, the shells extends forward of the leading edge and accomodates the trim balance weight. On the LH shell, slighly above the balance weight horn, the shell is designed to form a control horn. The trim actuation rod is connected to this horn.

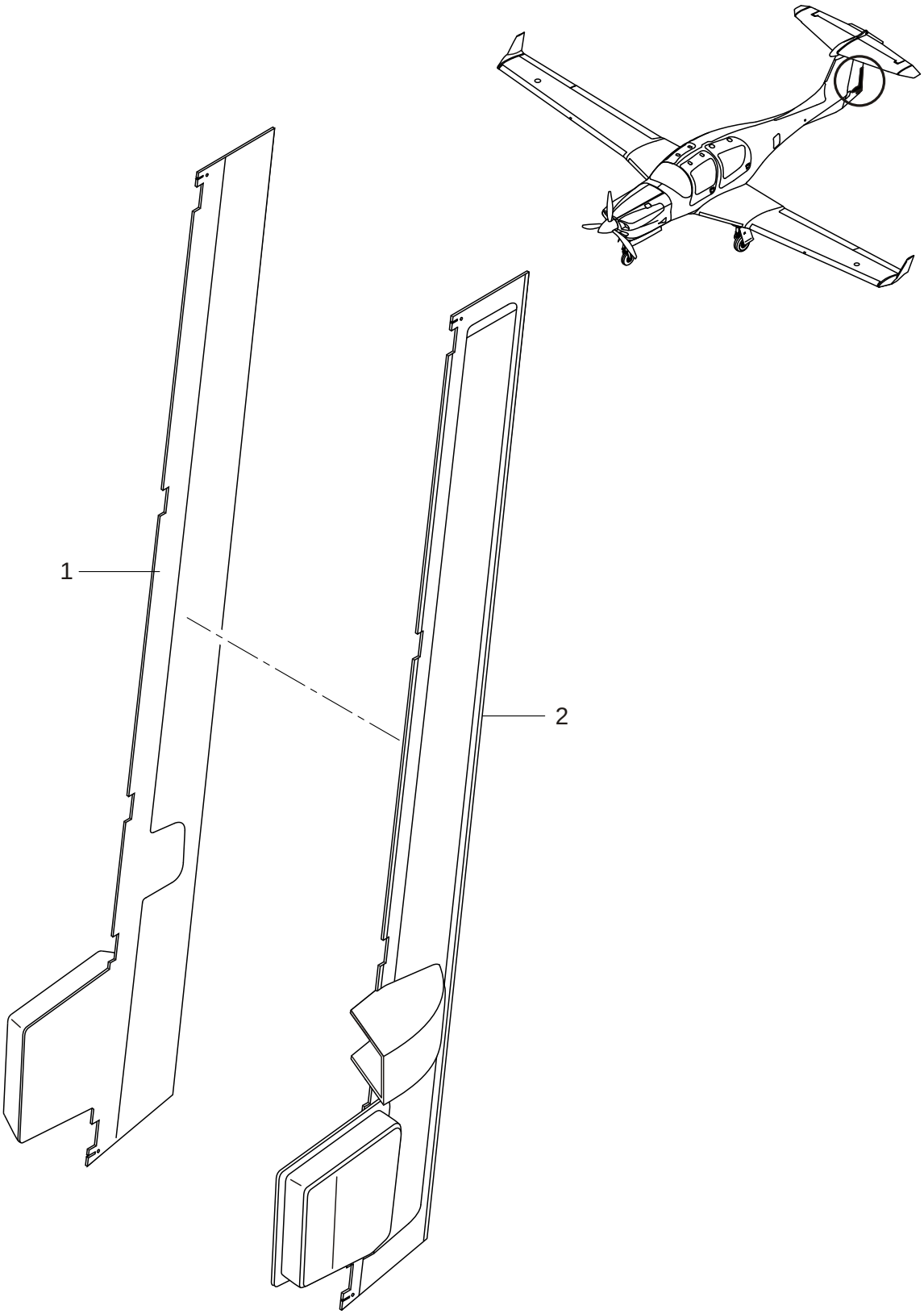


Figure 2 - Rudder Trim-Tab

Legend

[1, Fig.2] Right Shell

[2, Fig.2] Left Shell

55-40-03 Rudder

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Rudder Assembly

(1) Remove the upper and lower hinge covers:

- Remove washers and bolts.
- Remove the covers.

(2) Install surface protection on the rudder.

(3) Disconnect the 2 control rods for the rudder trim-tab:

- Remove the 2 nuts, washers and bolts that attach the control rods to the trim operating lever. At the rudder bottom bracket.
- Move the rods clear of the operating lever.

Refer to 55-40 Rudder Trim Tab - Remove procedure Figure 4.

(4) Disconnect the upper hinge:

- Remove pin.
- Remove nut, bolt and bushing.

(5) Remove 3 bolts and washers which attach the rudder to the rudder rear control assy.

Hold the rudder.

(6) Pull the rudder aft to disengage the rudder of the vertical stabilizer.

(7) Put the rudder in a stand or on a padded surface.

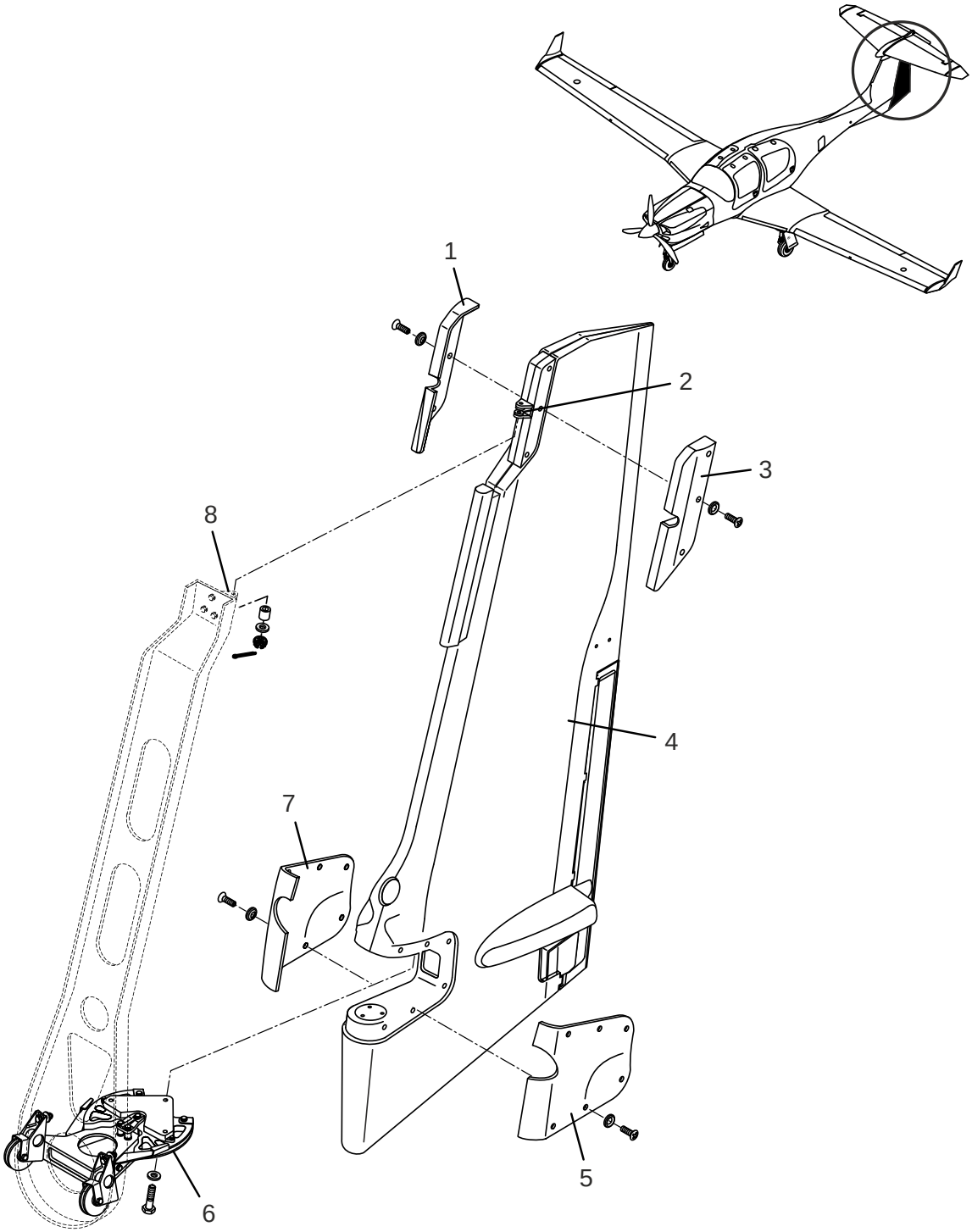


Figure 3 - Rudder Trim-Tab Installation

Legend

[1, Fig.3] Rudder Hinge Cover, RH

[2, Fig.3] Top Pivot Bracket

[3, Fig.3] Rudder Hinge Cover, LH

[4, Fig.3] Rudder Assembly

[5, Fig.3] Rudder Inspection Cover, LH

[6, Fig.3] Rudder Control Assembly

[7, Fig.3] Rudder Inspection Cover, RH

[8, Fig.3] Rudder Upper Hinge Assembly

55-40-04 Rudder

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Rudder Assembly

(1) Move the rudder assembly into position at the vertical stabilizer.

(2) Install the rudder assembly:

- Move the rudder to engage the rudder upper hinge assy.
- Install the bolt, washer and nut that attach the rudder to the rudder upper hinge assy. Use new pin.
- Install the pin.

(3) Install the 3 bolts and washer on the rudder rear control assy.

(4) Connect the trim-tab control rods:

- Align the control rod eye-ends with the trim control levers.
- Install the 2 bolts, washers and nuts that attach the eye-ends to the control levers.

(5) Do a test for the correct range of movement of the rudder control.

Refer to 27-20 Rudder Control System - Design data/tolerances check.

(6) Do a test for the correct range of movement of the rudder trim control.

(7) Install upper and lower hinge covers.

(8) Remove the surface protection from the rudder.

(9) If necessary for your Airworthiness Authority do a duplicate inspection of the rudder control system.

55-40-05 Rudder Trim Tab

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Rudder Trim-Tab

(1) Disconnect the 2 control rods for the rudder trim-tab:

- Remove the 2 nuts, washers and bolts that attach the trim control rods to the trim control horn.
- Move the rods clear of the operating lever.

Refer to Figure 4.

(2) Remove the trim-tab:

- Remove the locking wire that secures the hinge pin.
- Remove the hinge pin from the trim-tab.
  Hold the trim-tab!
- Move the trim-tab clear of the airplane.

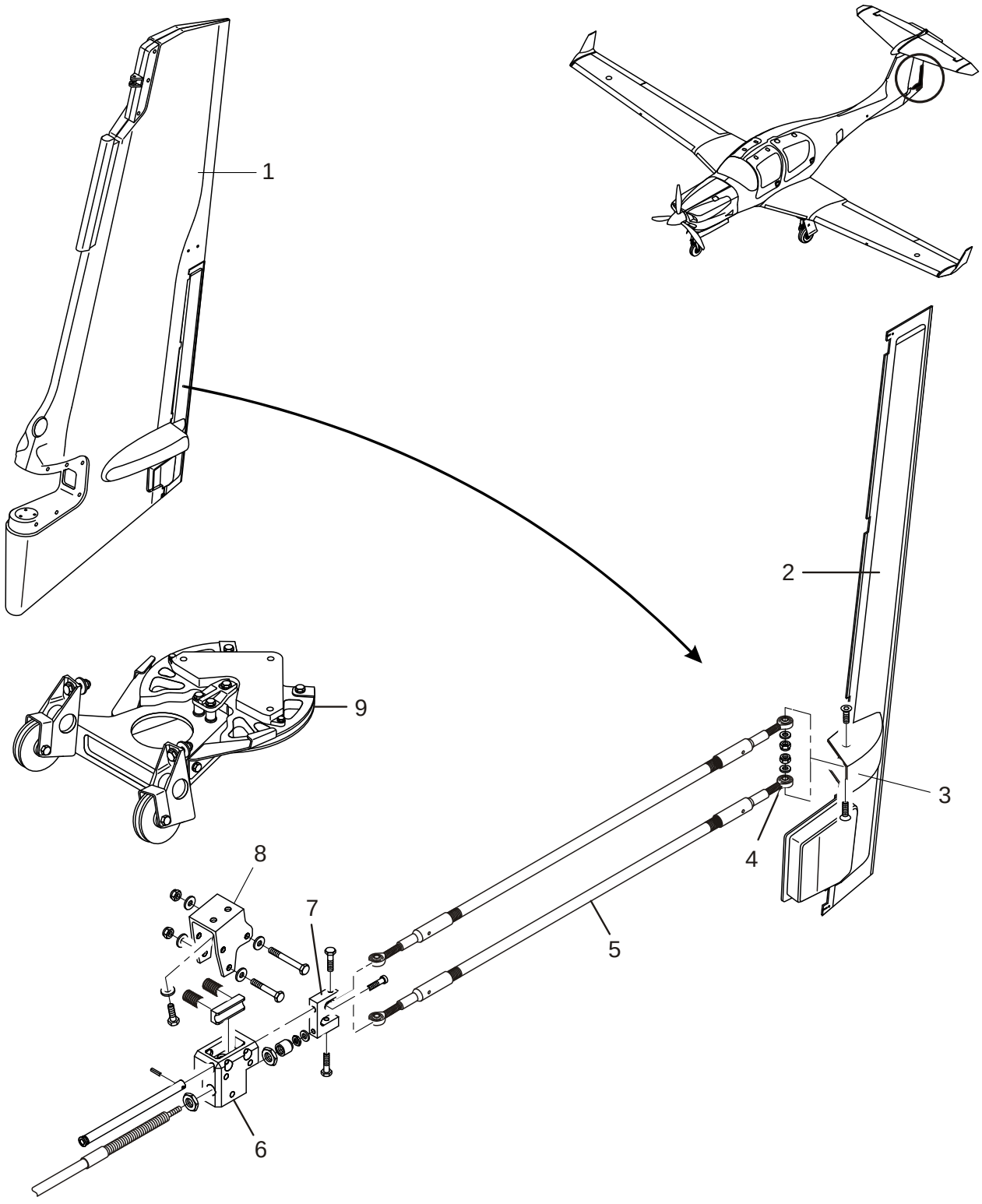


Figure 4 - Rudder Trim-Tab Installation

Legend

[1, Fig.4] Rudder Assembly
[2, Fig.4] Trim Tab
[3, Fig.4] Trim Control Horn
[4, Fig.4] Eye-End
[5, Fig.4] Connecting Rod
[6, Fig.4] Friction Damper
[7, Fig.4] Coupling
[8, Fig.4] Friction Damper Mounting Bracket
[9, Fig.4] Rudder Control Assembly

55-40-06 Rudder Trim Tab

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Trim-Tab

(1) Install the trim-tab:

- Move the trim-tab into position at the rudder.
- Align the hinges in the trim tab with the hinges in the rudder.
- Install the hinge pin.
- Secure the hinge pin with lock-wire.
  Use new lock-wire.

(2) Connect the control rods for the trim-tab:

- Align the eye-ends of the control rods with the trim tab control horn.
- Install the bolt, spacer, washers and nut that attaches the control rods to the control horn.

(3) Do a test for the correct range of movement of the rudder trim-tab control system.

(4) If necessary for your Airworthiness Authority do a duplicate inspection of the rudder trim control system.

56-00
WINDOWS

56-00-01 Flight Compartment Windows

Description

1. Description and Operation

The DA 50 C has five windows. Each window is polycast molded acrylic glass (plexiglass). A high performance elastic adhesive bonds each window to the structure. A flexible sealant fills the small gap between the edge of the window and the structure.

The two gull wing doors cover the pilots' cockpit. The windscreen is separated. Each pilot and co-pilot door window has a small direct-vision panel. The direct-vision panels have hinges. You can open the direct-vision panels in flight.

The passenger door has a window for the left side of the passenger compartment. The right side of the fuselage also has a window for the passenger seat row. The rear right window also acts as escape window (emergency exit window) in case of an emergency. It is operated by a handle located in the top right corner. The handle is protected by a cover.

Each window has a band of paint over the area where it bonds to the structure. New windows are painted by the manufacturer.

Figure 1 shows the windows.

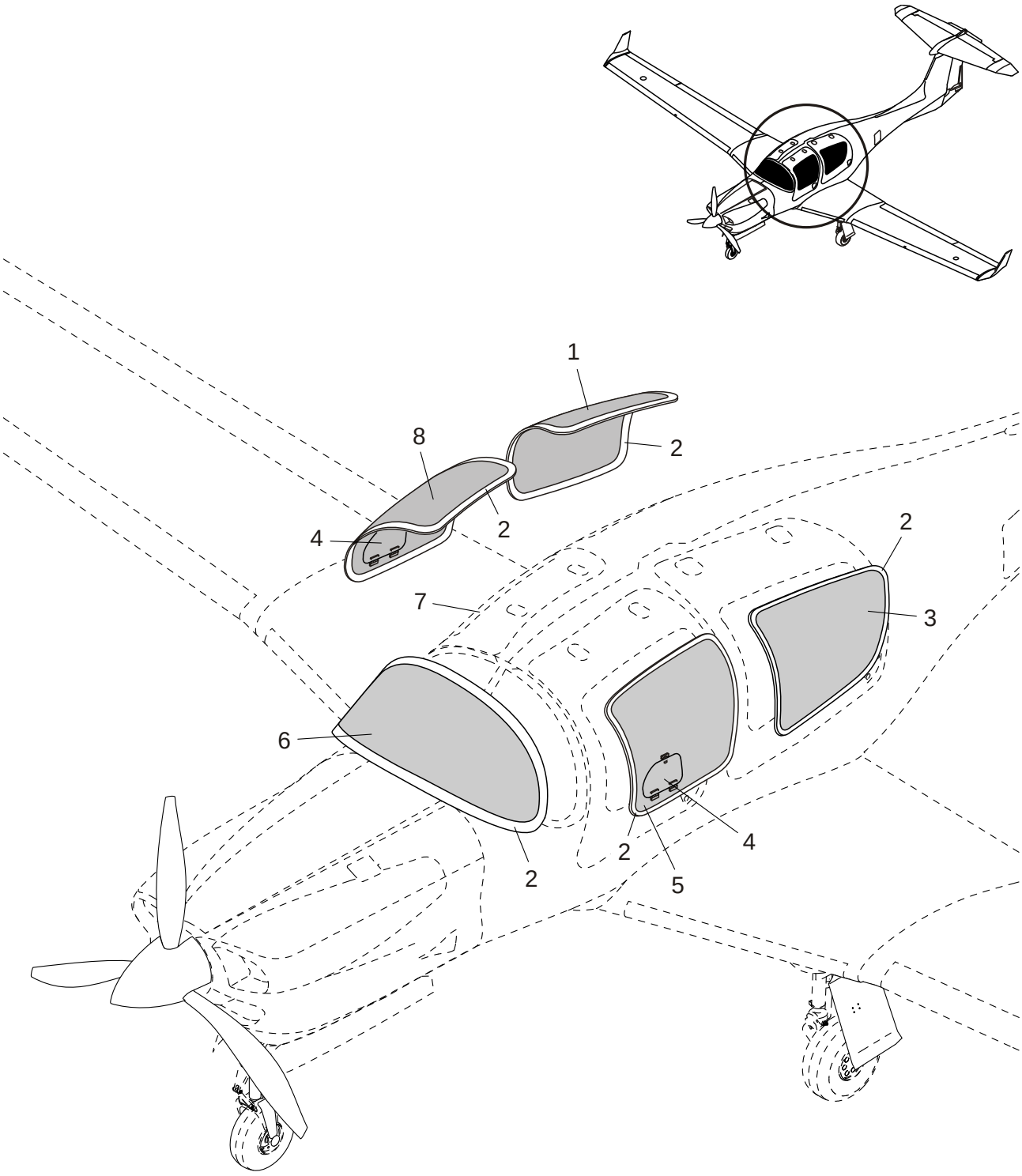


Figure 1 - Windows

Legend

[1, Fig.1] Passenger Window (Emergency Exit)

[2, Fig.1] Painted Edge

[3, Fig.1] Passenger Door Window

[4, Fig.1] Direct Vision Panel

[5, Fig.1] LH Pilot Door Window

[6, Fig.1] Windscreen

[8, Fig.1] RH Pilot Door Window

56-00-02 Emergency Exit Window

Description

1. Emergency Exit Window

The emergency exit is integrated in the window structure (composite frame with mechanical system bonded to the window and covered by an interior panel from the inside). The emergency exit window is secured with a pin against unauthorized access from the outside when parked. The pin is marked with a "Remove Before Flight" Streamer and must be removed before operation of the aircraft.

Activation of the emergency exit window is done via the red handle at the rear upper corner of the window. The handle is closed by covers (inside and outside) to avoid mishandling. These covers remain installed until the emergency exit must be used. Activation is possible from the inside as well as from the outside after opening the covers.

The activation process is the same from inside and outside:

- Open the cover
- Pull the handle
- Remove the window

The process is also shown on pictogram type placards next to the covers.

As a further option, an egress hammer is easily accessible to the occupants and all windows could be opened by use of this tool in case of blocked emergency exit.

56-00-03 Flight Compartment Windows

Repairs and locally make procedures and data

1. References

None

2. Preliminary Requirements

A. Required Conditions

(1) Maximum crack length: 150 mm (6 in). Do not repair cracks which are more than 150 mm (6 in) from the edge of the window.

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Small high-speed rotary grinder	Commercial	1

D. Consumable Materials

Nomenclature	Identification No.	Qty
Plastic adhesive tape	Commercial	A/R
Masking tape	Commercial	A/R
Filler: Acryfix 190 or Tensol cement No. 70	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

NOTE

Fillers become smaller when they cure. Apply enough filler to be above the level of the window surface. Cut the filler back when it has cured.

If you repair a vertical crack, keep the filler in place with plastic adhesive tape. Apply a second coat of filler after the first coat has cured.

3. Main Procedure

A. Temporary Repairs to Windows (including Emergency Window)

(1) Stop-drill the ends of short cracks. Use a 2.5 mm (3/32 in) drill. Refer to Figure 2.

B. Permament Repairs to Windows (including Emergency Window)

(1) If you will repair the door window, Remove the door. Put the door on a firm working surface with the crack horizontal.

Refer to 52-10 LH/RH Pilot Door - Remove procedure or 52-10 Passenger Door - Remove procedure.

(2) Put protective covers over the inside of the cockpit if your are repairing the windscreen window or right pax window (emergency exit window).

(3) Mask the area around the crack on both inner and outer surfaces.

(4) Cut a groove along the crack in the outer surface of the window.

Refer to Figure 2 - Step 1.

(5) Countersink temporary stop-drill holes.

(6) Seal the stop-drill holes on the inner surface.

Use plastic adhesive tape.

(7) Apply filler to the groove and the stop-drill holes.

Use Acryfix 190 or Tensol cement no. 70. Refer to Figure 2 - Step 2.

(8) Let the filler cure.

Refer to the manufacturer's data.

(9) If possible, turn the window so that the inner surface is up. Remove any plastic adhesive tape.

(10) Cut a groove along the crack in the inner surface of the window.

Refer to Figure 2 - Step 3.

NOTE

This groove is less deep than the outer surface groove. It must cut into the outer layer of filler. This prevents holes in the filler.

(11) Countersink the filler in the stop-drill holes on the inner surface to 1 mm (0.04 in).

(12) Apply filler to the groove and the stop-drill holes.

Refer to Figure 2 - Step 4.

(13) Let the filler cure.

Refer to the manufacturer's data.

(14) Remove the masking materials.

(15) Grind the filler to the profile of the surface.

Grind both sides. Refer to Figure 2 - Step 5.

(16) Polish the repair area with fine abrasive paper.

(17) Verify sufficient remaining thickness of the window in the repair area.

Measure thickness, for example with an ultrasonic thickness gauge. Minimum thickness: 4.25 mm (0.167 in).

(18) Install the door.

Refer to 52-10 LH/RH Pilot Door - Install procedure or 52-10 Passenger Door - Install procedure.

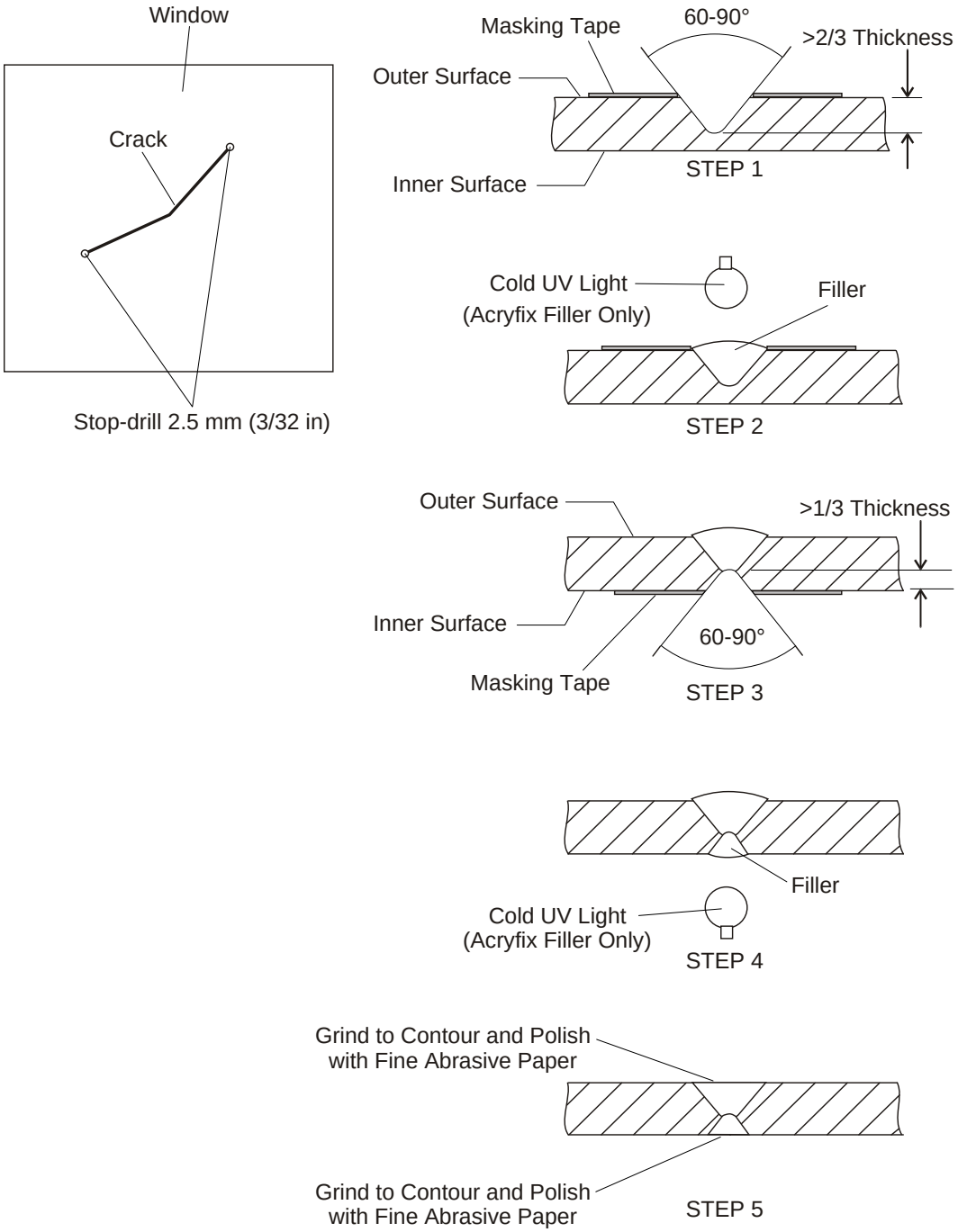


Figure 2 - Window Repairs

56-00-04 Flight Compartment Windows

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Rocker saw with non-rotating saw blade	Commercial	1
Adhesive extrusion gun	N/A	N/A

D. Consumable Materials

Nomenclature	Identification No.	Qty
Isopropanol	Commercial	A/R
Primer	209D	A/R
Cyanacrylat	Commercial	A/R
Sikatack Move Transportation	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MIXING AND APPLICATION OF ADHESIVE ACCORDING TO MANUFACTURERS INSTRUCTIONS.

NOTE

Use cleaning agent Isopropanol on windows.

3. Main Procedure

A. Replace a Window (except Emergency Exit Window)

This procedure is not valid for the emergency exit window (right pax window). Refer to 56-10 Emergency Exit Window - Change = Remove and install a new item for replacement of an emergency exit window.

(1) If the door window must be replaced, remove the door. Put the door on a firm working surface.

Refer to 52-10 LH/RH Pilot Door - Remove procedure or 52-10 Passenger Door - Remove procedure.

(2) Put protective covers on the inside of the cockpit if your are replacing a windscreen window.

(3) Cut the damaged window from the frame.

Use the rocker saw with non-rotating saw blade.

(4) Grind the frame in order to remove the remaining window material and sealant.

(5) Carefully remove the protective coating from the new window on the future bonding surface.

NOTE

The primed surfaces must not be contaminated. Bonding must be done within 8 hours, otherwise priming must be repeated.

(6) Prepare the surfaces:

- Clean composite and PMMA: Isopropanol, break cleaner can be used if allowed to flash off quickly. Otherwhise it can damage composite and PMMA.
- Window:
  Use sand paper (grid size 220) until the surface is rough and not shiny. Apply a thin coat of Sika Primer 205D to the cleaned surface (don't apply on composite) by brush and allow to dry for at least 30 minutes.
- Door frame/ fuselage
  Use sand paper (grid size 80). Apply a thin coat of Sika Primer 205D to the cleaned surface (don't apply on PMMA) by brush and allow to dry for at least 30 minutes. After drying remove excess adhesion promoter Sika Primer 205D from composite bonding area with a clean cloth.
- Remove dust from the bonding surfaces and make sure to get no grease or silicone on the bonding surfaces.

(7) Put the new window in frame position. Align the 2 holes in the window (center front and back) with the holes in the frame.

- To ensure that the window is flush to the fueslage shell, insert circular spacers of elastic material
  (shore A: 40-70 mm (1.574 - 2.755 in), DIA < 10mm (0.393 in), min. distance between spaers: 15 cm (5.905 in)).
  Fix spacers to the fuselage shell with cyanacrylat .
  Check gap between window and fuselage shell for correct fit of 4 +1/-0.5 mm (0.157 +0.039/-9.019 in).

(8) Apply thin red adhesive tape on the frame and the window.

Refer to Figure 3.

NOTE

It is very important that the window is positioned within 15 minutes after the adhesive has been applied.

(9) Apply the adhesive using an extrusion gun and follow the suggested shape and positioning around the entire door frame/fuselage.

Make sure to apply a constant amount of adhesive. Refer to Figure 3.

NOTE

Apply a single bead which is squeezed to the whole width of the bond by pressing the PMMA to the correct position to avoid air being trapped in the bond.

(10) Position the window in place on the door frame/fuselage by use of the 2 pins.

(11) Push the window into position. After first positioning, do not move the window again, to prevent adhesive smearing.

Align the window with the frame surface. Refer to Figure 3.

(12) Carefully remove the excess adhesive along the joint (1 - 2 mm [0.04 - 0.08 in] deep).

Use plastic spattle.

(13) Use adhesive tape to hold the window in place.

(14) Allow the adhesive to cure according to manufacturers instructions.

(15) Remove the 2 pins.

(16) Remove the adhesive tape which holds the window in place on the frame.

(17) Apply masking tape on both sides of the joint.

Refer to Figure 3.

(18) Use sealant to fill the joint and the pinholes and smoothen the surface.

Use plastic spattle.

(19) Spray the joint with a water/cleaning solvent solution and smooth the surface by hand.

(20) Remove all adhesive and masking tapes.

(21) Allow the sealant to cure.

Minimum 24 hrs.

(22) Install the door.

Only if door window is replaced. Refer to 52-10 LH/RH Pilot Door - Install procedure or 52-10 Passenger Door - Install procedure.

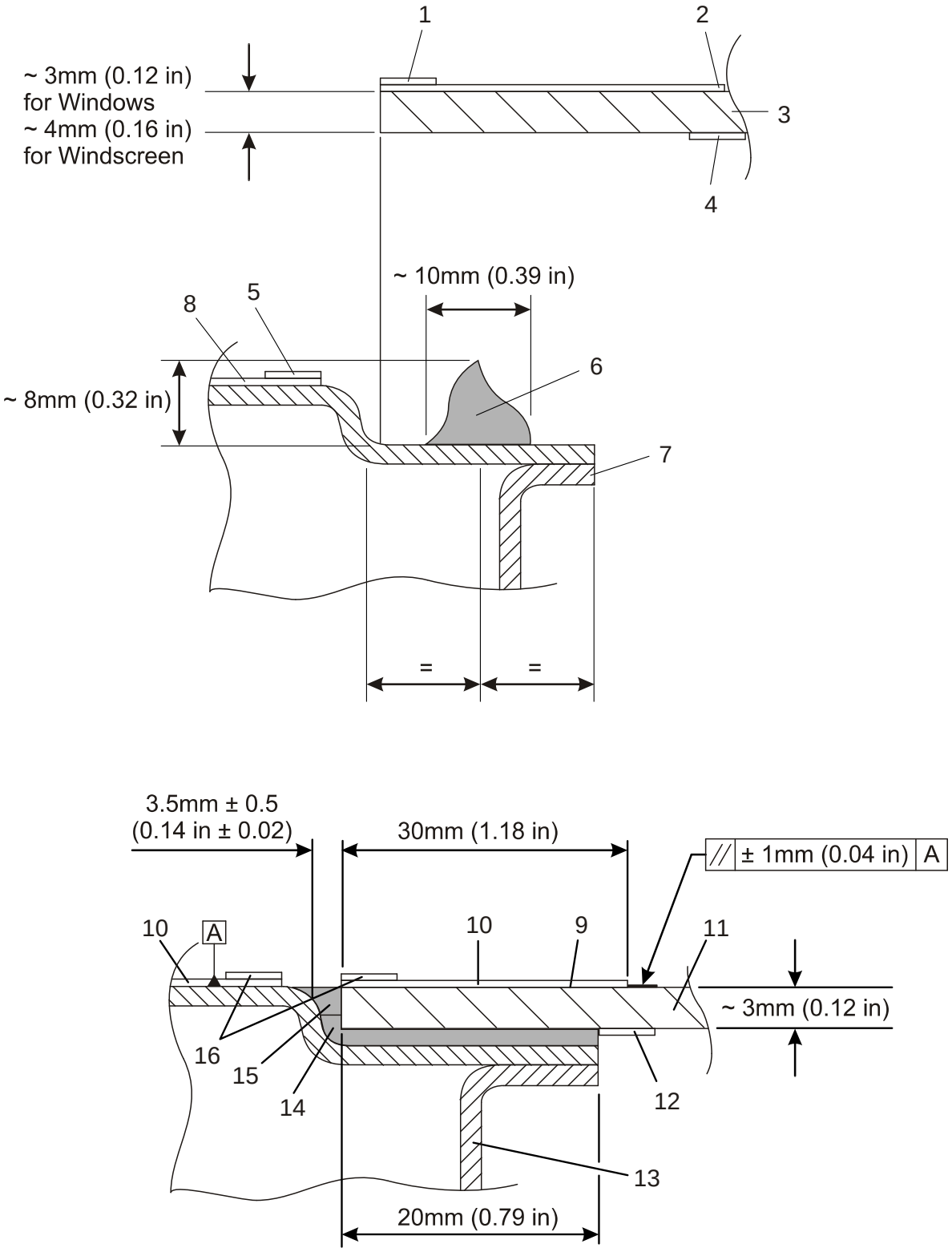


Figure 3 - Position and Form of the Applied Adhesive and Sealant

Legend

[1, Fig.3]	Tesafilm Red
[2, Fig.3]	Visible Edge (End of Paint)
[3, Fig.3]	Window
[4, Fig.3]	Tesafilm Red
[5, Fig.3]	Tesafilm Red
[6, Fig.3]	Sealant
[7, Fig.3]	Door Frame
[8, Fig.3]	Masking Tape
[9, Fig.3]	Painting of the Door
[10, Fig.3]	Masking Tape
[11, Fig.3]	Door Window
[12, Fig.3]	Tesafilm Red
[13, Fig.3]	Door Frame
[14, Fig.3]	Adhesive
[15, Fig.3]	Sealant
[16, Fig.3]	Tesafilm Red

56-00-05 Emergency Exit Window

Change = Remove and install a new item

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Rocker saw with non-rotating saw blade	Commercial	1
Adhesive extrusion gun	N/A	N/A

D. Consumable Materials

Nomenclature	Identification No.	Qty
Isopropanol	Commercial	A/R
Primer	209D	A/R
Cyanacrylat	Commercial	A/R
Sikatack Move Transportation	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MIXING AND APPLICATION OF ADHESIVE ACCORDING TO MANUFACTURERS INSTRUCTIONS.

NOTE

Use cleaning agent Isopropanol on windows.

3. Main Procedure

A. Replace the Emergency Exit Window

(1) Remove the activation handle hatch.

(2) Pull handle to release emergency window.

Push out window.

Two persons required to support the window.

(3) Cut the damaged window from the frame.

Use the rocker saw with non-rotating saw blade.

(4) Grind the frame in order to remove the remaining window material and sealant.

(5) Carefully remove the protective coating from the new window on the future bonding surface.

NOTE

The primed surfaces must not be contaminated. Bonding must be done within 8 hours, otherwise priming must be repeated.

(6) Prepare the surfaces:

- Clean composite and PMMA: Isopropanol, break cleaner can be used if allowed to flash off quickly. Otherwhise it can damage composite and PMMA.
- Window:
  Use sand paper (grid size 220) until the surface is rough and not shiny. Apply a thin coat of Sika Primer 205D to the cleaned surface (don't apply on composite) by brush and allow to dry for at least 30 minutes.
- Frame
  Use sand paper (grid size 80). Apply a thin coat of Sika Primer 205D to the cleaned surface (don't apply on PMMA) by brush and allow to dry for at least 30 minutes. After drying remove excess adhesion promoter Sika Primer 205D from composite bonding area with a clean cloth.
- Remove dust from the bonding surfaces and make sure to get no grease or silicone on the bonding surfaces.

(7) Put the window frame into position in the fuselage.

(8) Insert all retaining pins.

(9) Put the new window in frame position. Align the 2 holes in the window (center front and back) with the holes in the frame.

- To ensure that the window is flush to the fueslage shell,
  insert circular spacers of elastic material
  (shore A: 40-70 mm (1.574 - 2.755 in), DIA < 10mm (0.393 in),
  min. distance between spaers: 15 cm (5.905 in)).
  Fix spacers to the fuselage shell with cyanacrylat.
  Check gap between window and fuselage shell
  for correct fit of 5 +1/-1 mm (0.197 +0.039/-0.039 in).

(10) Apply thin red adhesive tape on the frame and the window.

NOTE

It is very important that the window is positioned within 15 minutes after the adhesive has been applied.

(11) Apply the adhesive using an extrusion gun and follow the suggested shape and positioning around the entire frame.

Make sure to apply a constant amount of adhesive.

NOTE

Apply a single bead which is squeezed to the whole width of the bond by pressing the PMMA to the correct position to avoid air being trapped in the bond.

(12) Position the window in place on the frame by use of the 2 pins.

(13) Push the window into position. After first positioning, do not move the window again, to prevent adhesive smearing.

Align the window with the frame surface.

(14) Carefully remove the excess adhesive along the joint (1 - 2 mm [0.04 - 0.08 in] deep).
Use plastic spattle.

(15) Use adhesive tape to hold the window in place.

(16) Allow the adhesive to cure.
According to manufacturers instructions.

(17) Remove the 2 pins.

(18) Remove the adhesive tape which holds the window in place on the frame.

(19) Apply masking tape on both sides of the joint.

(20) Use sealant to fill the joint and the pinholes and smoothen the surface.
Use plastic spattle.

(21) Spray the joint with a water/cleaning solvent solution and smooth the surface by hand.

(22) Remove all adhesive and masking tapes.

(23) Allow the sealant to cure.
Minimum 24 hrs.

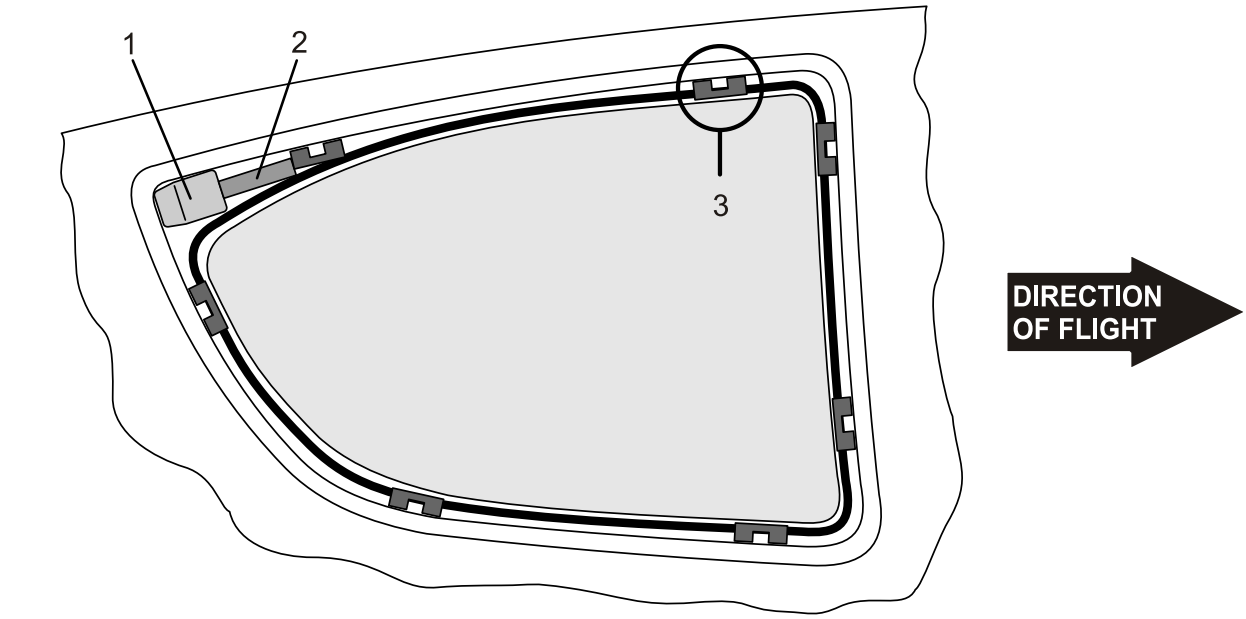
(24) Re-install emergency exit window according to 52-22 Emergency exit - Install procedure.

(25) Close all activation handle hatches.

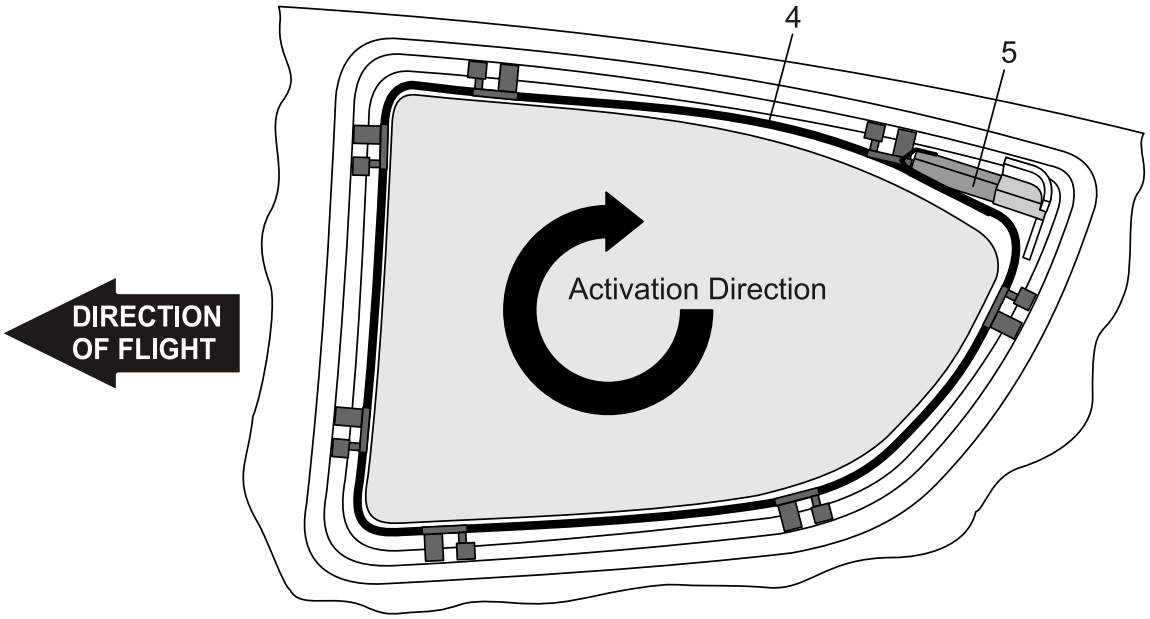
(26) Check contour markings of the activation handle hatches.

(27) Apply new placards if necessary.

Emergency Exit Outside View
(Composite frame shown as transparent)



Emergency Exit Inside View



Activation is done via handle at the upper rear window corner; same handle accessible from inside and outside.
Window locks moved by the single activation rope in the clockwise direction.

Figure 4 - Emergency Exit Window

Legend

[1, Fig.4] Activation Handle Cover

[2, Fig.4] Activation Handle

[3, Fig.4] Window Attachments (7x)

[4, Fig.4] Activation Rope

[5, Fig.4] Activation Handle

57-00
WINGS

57-00-01 Wings

Description

1. Wing Description

The DA 50 C is a low wing monoplane with cantilever wings. A wing center section with stub wings attaches to the fuselage. Refer to 53-10 Fuselage structure - Description for more data about the fuselage center section.

The outer wings attach to the wing center section stub wings. Each outer wing has a double slotted flap near the inboard trailing edge of the outer wing and a split flap attached to the inboard trailing edge of the stub wing. An aileron attaches to the outboard trailing edge of each outer wing.

The wings have a semi-monocoque structure. Each wing has top and bottom shells. The shells have GFRP outer skins, a rigid foam core and CFRP inner skins. Each wing has two I-section spars. Unidirectional carbon fiber cloth makes the spar caps. Each wing also has GFRP ribs and webs.

The flaps and ailerons have a mixture of CFRP and GFRP cloth in the shells. The shells have rigid foam cores.

Refer to 51-00 Airplane Structure - Description for general composite repair data. Refer to 27-00 Flight Controls - Description for data about the control systems which operate the flaps and ailerons.

57-10
WING STRUCTURE

57-10-01 Wing structure

Description

1. Wing Structure

Figure 1 shows the wing structure. The wing has top and bottom shells. It has front and rear spars and a root rib made in three parts. Five ribs hold the fuel tanks between the spars. Flap and aileron control ribs hold the bellcranks for the control systems.

A rear web closes the trailing edge of the wing. An end rib closes the outboard end of the wing. A removable GFRP tip attaches to the wing shells and outer rib with screws.

Bonding paste (thickened resin) bonds the wing components to each other. The following section gives more data about the main parts:

A. Wing Shells

Each wing has top and bottom shells. The fibers in the layers of cloth which cover the whole wing run at ± 45° to the lateral axis of the wing. The outer layer of the wing is carbon fiber. The inner layer of the wing is glass fiber.

Some areas have more layers of cloth to give more strength. For example, the area around each access hole has extra layers of carbon fiber cloth.

The bottom shell of the RH wing has 8 access holes and the bottom shell of the LH wing has 7 access holes. These give access to the flap and aileron bellcranks and fuel tanks. The top shell has a hole for the fuel cap of the outer fuel chamber.

B. Spars

Each wing has two I-section spars. The front spar on one side is the same as the rear spar on the opposite side.

Many layers of uni-directional carbon fiber make the spar caps. The number of layers in the spar caps decreases from root to tip.

Each spar has a shear web. The shear web has GFRP skins and a rigid foam core. Glass cloth fillets attach the spar caps to the shear web.

The inboard end of each spar (the 'stub') goes past the root rib. The spar stub is a box-section with many layers of glass cloth wrapped round the spar caps. Two large bushes bond into the spar stub. The wing main bolts engage these bushes and attach the wing to the fuselage center section. The bushes and bolts transmit the wing bending loads into the center section. Figure 2 shows the main bolt installation.

C. Root Rib

Each outer wing has a three-piece root rib. Each piece is a GFRP molding with many layers of glass fiber cloth. The front root rib bonds to the top and bottom shells and the front face of the front spar. It has a housing for the A-bolt. The A-bolt transmits torsional loads into the center section.

The middle part of the root rib bonds to the top and bottom shells, the aft face of the front spar and the front face of the rear spar. It has a large oval access panel for removing the fuel tanks.

The rear root rib bonds to the top and bottom shells, the aft face of the rear spar and the rear web. It has a housing for the B-bolt. The B-bolt transmits torsional loads into the center section. It also has guide rollers for the flap and aileron push rods.

D. Fuel Tank Ribs

Six ribs hold the fuel tanks in each wing. Each rib is a GFRP molding with a large oval hole. The hole has a flat inner flange to hold the tank. The ribs bond to the top and bottom shells, the aft face of the front spar and the front face of the rear spar.

E. Flap and Aileron Control Ribs

Each wing has two flap and one aileron control ribs. The ribs are GFRP moldings. Each rib has a bend with a solid insert. The insert gives extra strength where the control bellcrank attaches. The ribs bond to the top and bottom shells, the aft face of the rear spar and the rear web.

F. Rear Web

Each wing has a rear web. The web closes the trailing edge of the wing. The web bonds to the top and bottom shells. It also bonds to the rear faces of the rear root rib, the flap control ribs and the aileron control rib. The rear web has extra layers where the flap and aileron hinges attach. Rivets hold anchor-nut plates to the forward face of the rear web where the hinges attach.

G. Wing End Rib

Each wing has an end rib. The end rib is a GFRP molding. The end rib has twelve anchor nuts which attach the wing tip. It also has a threaded strong-point for a tie-down ring.

H. Wing Tip

The wing tip is a CFRP molding with top and bottom shells. The wing tip holds the external lights.

The left wing tip also accomodates the pitot probe.

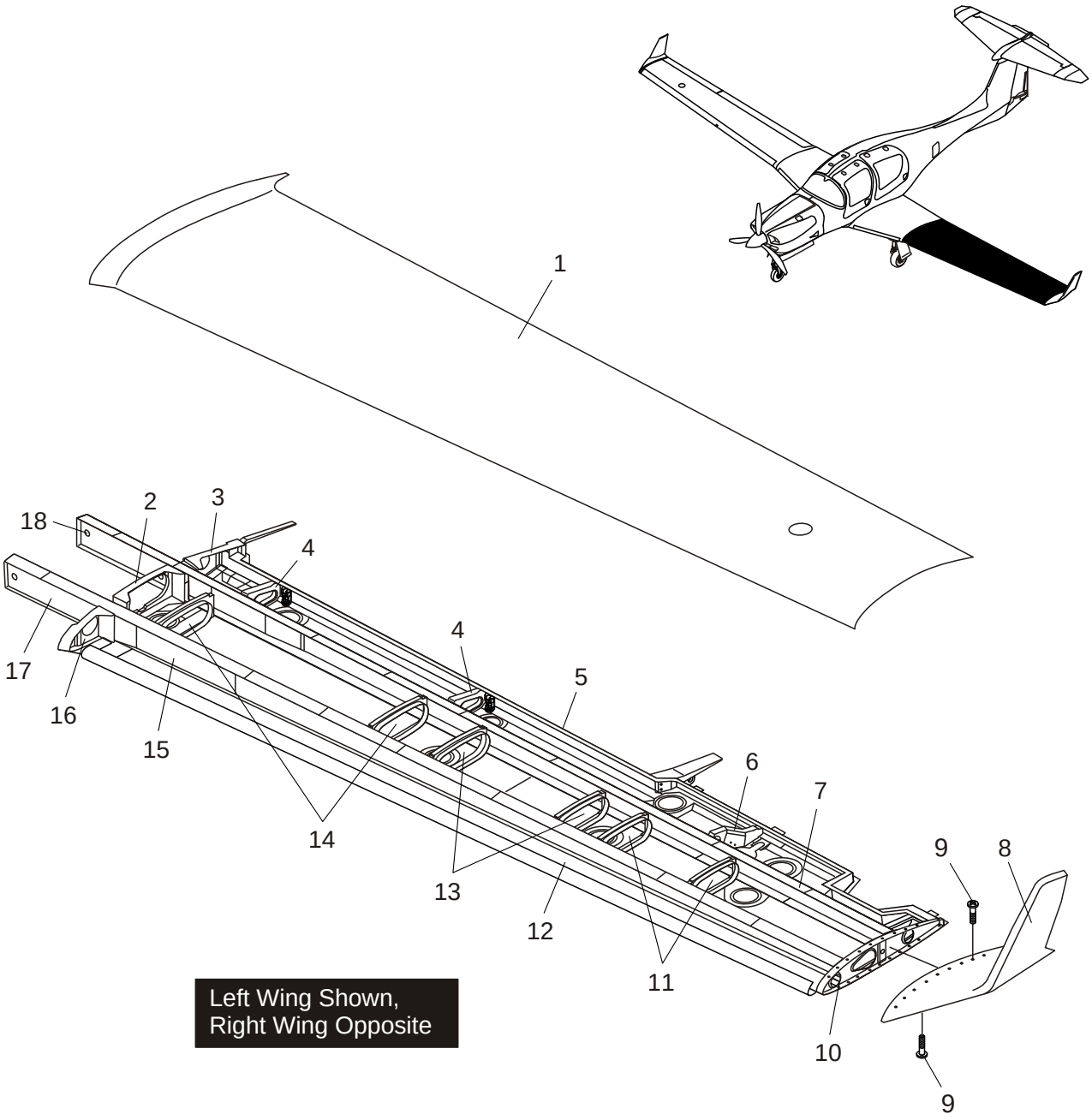


Figure 1 - Wing Structure

Legend

[1, Fig.1]	Top Shell
[2, Fig.1]	Middle Root Rib
[3, Fig.1]	Rear Root Rib
[4, Fig.1]	Flap Control Rib
[5, Fig.1]	Rear Web
[6, Fig.1]	Aileron Control Rib
[7, Fig.1]	Rear Spar
[8, Fig.1]	Removable Wing Tip
[9, Fig.1]	Screw
[10, Fig.1]	End Rib
[11, Fig.1]	Outer Fuel Chamber Ribs
[12, Fig.1]	Bottom Shell
[13, Fig.1]	Mid Fuel Chamber Ribs
[14, Fig.1]	Inner Fuel Chamber Ribs
[15, Fig.1]	Front Spar
[16, Fig.1]	Front Root Rib
[17, Fig.1]	Spar Stub
[18, Fig.1]	Bush

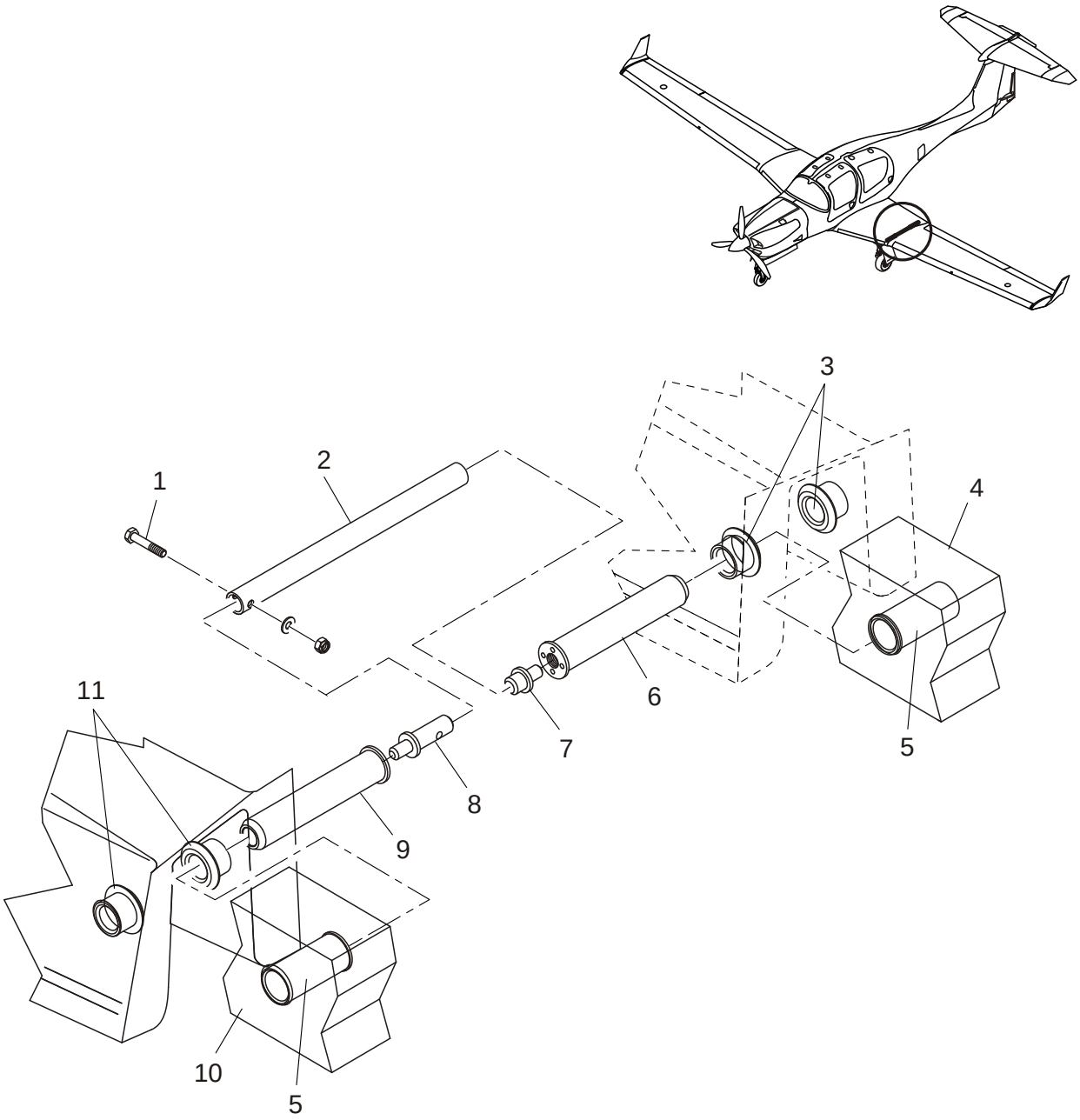


Figure 2 - Wing Main Bolt Installation

Legend

[1, Fig.2]	Locking Bolt
[2, Fig.2]	Locking Tube
[3, Fig.2]	Rear Center Wing-Spar Bushes
[4, Fig.2]	Rear Outer Wing Spar
[5, Fig.2]	Spar Bush
[6, Fig.2]	Rear Main Bolt
[7, Fig.2]	Short End-Piece
[8, Fig.2]	Long End-Piece
[9, Fig.2]	Front Main Bolt
[10, Fig.2]	Front Outer Wing Spar
[11, Fig.2]	Front Center Wing-Spar Bushes

57-10-02 Wing structure

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Padded wing trestles	Commercial	4
Main bolt removal tool	N/A	1
Wing stand	Commercial	1 per wing

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Wings

WARNING

MAKE SURE THAT THE AREA AROUND THE FLAPS IS CLEAR OF PERSONS AND EQUIPMENT BEFORE YOU LOWER THE FLAPS. IF NOT, THE FLAPS CAN INJURE PERSONS OR BE DAMAGED BY EQUIPMENT.

(1) Lower the flaps.

(2) Disconnect the main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Defuel the airplane.

Refer to 12-10 Fuel - Defuel and drain fuel.

(4) Put trestles under both wing tips.

Under the end rib.

(5) Disconnect the flap push-rod:

- Remove the nut, washer and bolt.

At the flap idler lever in the fuselage. Refer to 27-50 Flap Control System - Description for more information on the mechanical connections and maintenance procedures.

(6) Disconnect the aileron pushrod:

- Remove the nut, washer and bolt.

At the outer flap inner fairing. Refer to 27-10 Aileron Control System - Description.

(7) Disconnect the cable for the fuel probes and the fuel sensor.

At the fuel tank. Refer to 28-00 Fuel System - Description.

(8) Disconnect these items at the center wing root:

- The Pitot hose.
  The hose is 8 mm (5/16 in) diameter (green color).
- The static hose.
  The hose is 8 mm (5/16 in) diameter (purple color).

Left wing only.

Refer to 34-00 Navigation - Description.

(9) Disconnect the wing electrical connector.

At the maintenance hole located close to the leading edge of the center wing near the end rib.

Refer to 24-00 Electrical System - Description.

(10) Disconnect the wing bonding connections.

(11) Disconnect the fuel lines.

Refer to 28-00 Fuel System - Description.

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

(12) Disconnect the fuel hose from the fuel tank.

Put a container to catch a small quantity of fuel. Remove spilt fuel.

Refer to 28-00 Fuel System - Description.

(13) Remove the locking tube from the inboard and outboard main bolts:

- Remove the nut, washer and bolt.
- Move the tube over the long end piece.
- Remove the short end piece.
- Remove the tube and the long end piece.

Refer to 57-10 Wing structure - Description Figure 2.

WARNING

USE 3 PERSONS TO LIFT THE WING. IF YOU DO NOT, YOU CAN CAUSE INJURY.

CAUTION

DO NOT LIFT ON THE FLAP. YOU CAN DAMAGE THE FLAP.

NOTE

For the rest of this procedure, one person must lift the wing tip. One person must lift the leading edge at the root rib. One person must lift the trailing edge at the root rib.

(14) Remove the main bolts:

- Take the weight off the wing.
  If necessary, move the wing tip a small amount up and down to help release the main bolts.
- For each bolt:
  - Install the main bolt removal tool.
    Make a note of the location of each bolt.
  - Extract the bolt.

(15) Lift the wing away from the center section.

Make sure that the electrical cables do not catch on the center section conduit.

NOTE

If you use trestles, put one trestle under the spar stubs. Put the second trestle under the wing end rib.

(16) Put the wing on trestles or a wing stand.

57-10-03 Wing structure

Preparation before installation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Wing Pre-Installation Procedure

(1) Examine the inner faces of the front and rear boxspars. Look specially for:

- Damage to the main bolt bushes.
  Clean the bushes.
- Damage to the structure round the bushes.
- Looseness between the bushes and the structure.
- Damage to the top and bottom shells of the center section (where the spar stubs can touch the shells during wing removal).
- Delamination between the boxspars and the shells.

Refer to the manufacturer if you find damage in any of these areas.

(2) Examine the front, middle and rear end ribs in the wing center section. Look specially for:

- Damage to the A and B-bolt bushes.
  Clean the bushes.
- Looseness between the A and B-bolt bushes and the end ribs.
- Delamination between the end ribs, the boxspars and the shells.

Refer to the manufacturer if you find damage in any of these areas.

(3) Examine the wing spar stubs. Look specially for:

- Damage to the main bolt bushes.
  Clean the bushes.
- Damage to the spar stub around the bushes.
- Looseness between the bushes and the spar stub.
- Delamination between the spars and the shells.

Refer to the manufacturer if you find damage in any of these areas.

(4) Examine the wing root ribs. Look specially for:

- Damage to the A and B-bolts and bushes.
  Clean the bolts and bushes.
- Damage to the front and rear root ribs around the bushes.
- Looseness between the bushes and the root ribs.
- Delamination between the root ribs, the spars and the shells.

Refer to the manufacturer if you find damage in any of these areas.

For removal of A and B bolts refer to 57-10 A and B Bolts - Remove procedure.

(5) Clean the main bolt assembly.

Examine the main bolt assemblies. Look specially for:

- Corrosion of the end-pieces or tube.
  Remove corrosion. Repair the surface finish. Refer to 12-30 Conservation of Exterior Parts - Clean and apply surface protection.
- Corrosion of the main bolts.
  No corrosion permitted.
- Scratches on the bearing surfaces.
  Maximum depth 0.1 mm (0.004 in).
- Deformation.
  No deformation permitted.
- Damage to the threads for the removal tool.
  Replace the bolt if you cannot attach the removal tool correctly.

(6) Measure the radial play of each main bolt in the related main bulkhead bushes.

Maximum radial play 0.2 mm (0.008 in).

(7) Measure the radial play of each main bolt in the related spar stub bush.

Maximum radial play 0.2 mm (0.008 in).

(8) Lubricate these items:

- Main bolts.
- Front and rear main bulkhead bushes.
- Spar bushes.
- A and B-bolt bushes in the end ribs.
- A and B-bolts in the wing root ribs.

Refer to 12-20 Lubrication - Lubrication.

(9) Examine the flap. Look specially for damage at flap inter connection, on flap and wing horns, on composite close to the flap and wing horns and connection between the flap vane and the flap surface.

Refer to manufacturer if you find damages in these areas.

57-10-04 Wing structure

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Padded wing trestles	Commercial	4
Main bolt removal tool	N/A	1
Wing stand	Commercial	1 per wing

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Wings

(1) Do the pre-installation check.

Refer to 57-10 Wing structure - Preparation before installation.

WARNING

USE 3 PERSONS TO LIFT THE WING. IF YOU DO NOT, YOU CAN CAUSE INJURY.

CAUTION

DO NOT LIFT ON THE FLAP. YOU CAN DAMAGE THE FLAP.

CAUTION

DO NOT LET THE SPAR STUBS TOUCH THE CENTER SECTION SHELLS. YOU CAN DAMAGE THE SHELLS.

NOTE

Until you install the main bolts, one person must lift the wing tip. One person must lift the leading edge at the root rib. One person must lift the trailing edge at the root rib.

(2) Lift the wing into position:

- Install inboard fuel tank access panel.
- Move the spar stubs part way into the front and rear box spars.
  Hold the wing in position.
- Put the electrical cable, Pitot static and fuel lines through the conduit in the leading edge of the center section.
  Hold the wing in position. Pitot static tube left wing only.
- Align the A and B bolts on the outer wing with their corresponding bearing on the center wing.
  Hold the wing in position.
- Move the wing fully into the center section to engage the A and B-bolts and the outer flap to inner flap transfer lug.

(3) Install the main bolts:

- Hold the weight of the wing.
- Install each bolt.

If necessary, move the wing tip a small amount up and down to help install the main bolts.

(4) Install the locking tubes on the inboard and outboard main bolts:

- Install the long end piece in one main bolt.
- Move the tube over the long end piece.
- Install the short end piece in the other main bolt.
- Move the tube over the short end piece.
- Install the bolt, washer and self-locking nut through the tube and the long end piece.

Refer to 57-10 Wing structure - Description Figure 2.

(5) Connect these items:

- The Pitot hose.
  The hose is 8 mm (5/16 in) diameter (green color).
- The static hose.
  The hose is 8 mm (5/16 in) diameter (purple color).

Left wing only.

(6) Connect the electrical connector.

At the maintenance hole close to the leading edge of the center wing near the end rib.

(7) Connect the bonding connections.

(8) Connect the fuel hose.

At the fuel tank.

(9) Connect the fuel probe and fuel sensor cables.

At the fuel tank.

(10) Connect the flap pushrod:

- Install the bolt, washer and a new self-locking nut.

At the flap idler lever in the fuselage. Refer to 27-50 Flap Control System - Description for more information on the mechanical connections and maintenance practices.

(11) Connect the aileron pushrod:

- Install the bolt, washer and a new self-locking nut.

Outer flap inner faring.

(12) If you must also install the other wing, repeat all steps for the other wing.

(13) Connect the battery.

Refer to 24-31 Main Battery - Connect procedure.

(14) Do a test for correct operation and range of movement of the flap system. If necessary, adjust the flap system.

Refer to 27-50 Flap Control System - Design data/tolerances check.

(15) Do an inspection of the flap controls which you have connected or adjusted.

- If necessary for your Airworthiness Authority, do a second inspection of the controls.

(16) Do a test for correct operation and range of movement of the aileron system. If necessary, adjust the aileron system.

Refer to 27-10 Aileron Control System - Design data/tolerances check.

(17) Do an inspection of the aileron controls which you have connected or adjusted.

- If necessary for your Airworthiness Authority, do a second inspection of the controls.

(18) Do a functional check of these lights:

- Position lights.
- Strobe lights (ACLs).

Refer to 33-40 External Lighting System - Description.

(19) Do a Pitot and static system leak test.

Left wing only. Refer to 34-10 Pitot-Static System - Test and inspection.

(20) Refuel the airplane to the unusable fuel level.

Refer to 12-10 Fuel - Refuel.

(21) Do a fuel quantity indication calibration check.

Refer to 28-40 Indicating - Description.

(22) Do a check flight.

Refer to the DA 50 C Airplane Flight Manual.

57-10-05 A and B Bolts

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the A or B-Bolts

(1) Remove the wing.

Refer to 57-10 Wing structure - Remove procedure.

(2) Remove the A or B-bolt:

- Hold the flats on the flange of the bolt with a wrench.
- Remove the self-locking nut from the A or B-bolt.
  Access for the A-bolt through the hole in the front root rib.
  Access for the B-bolt through the access panel in the bottom shell.
- Remove the A or B-bolt.

Refer to Figure 3.

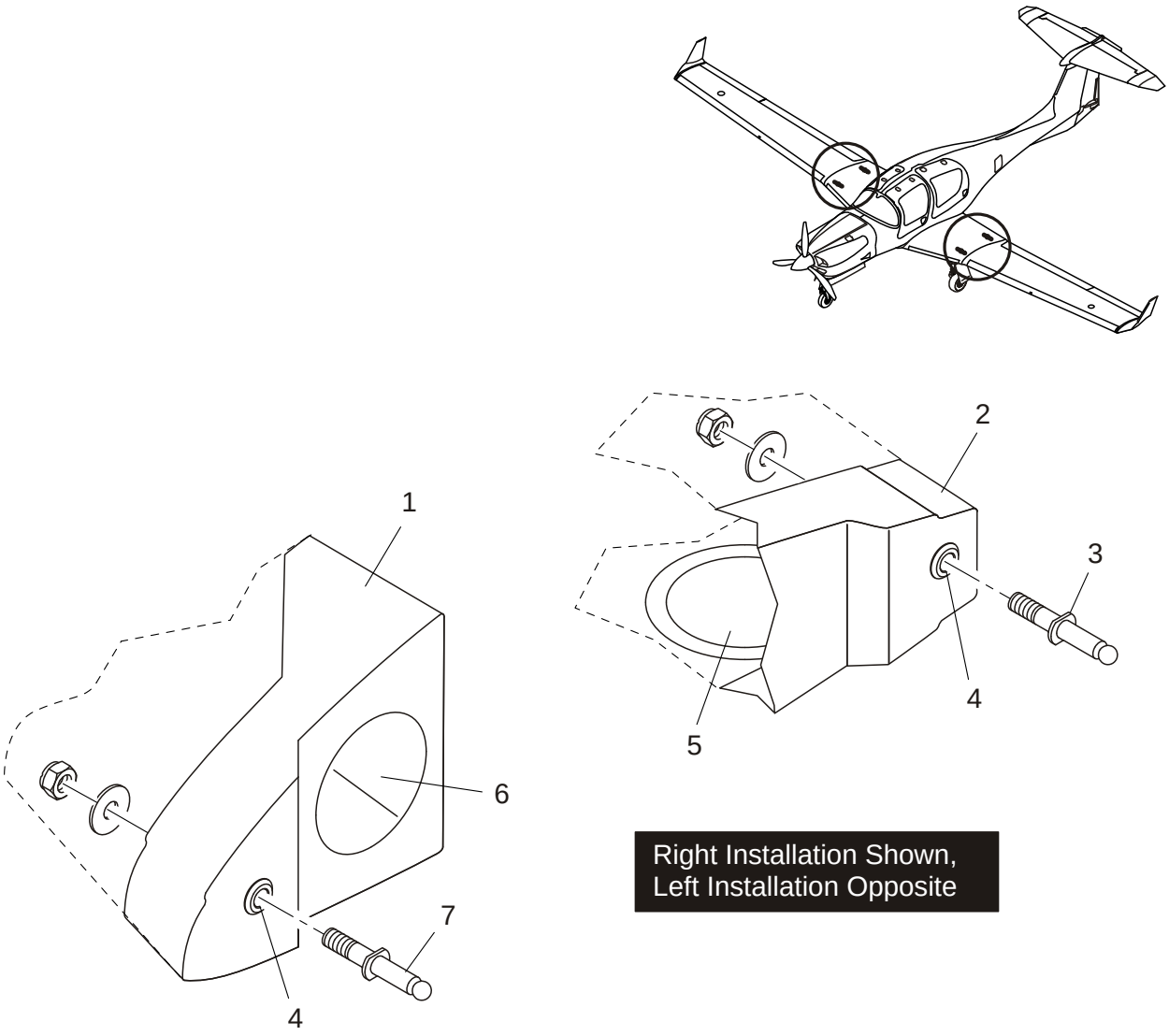


Figure 3 - A and B-Bolt Installation

Legend

[1, Fig.3] Front Root Rib

[2, Fig.3] Rear Root Rib

[3, Fig.3] B-Bolt

[4, Fig.3] Bonded Bush

[5, Fig.3] Access Panel

[6, Fig.3] Access Hole

[7, Fig.3] A-Bolt

57-10-06 A and B Bolts

Visual examination

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Inspection of A or B-Bolt

(1) Examine the A or B-bolt. Look specially for:

- Corrosion.
  No corrosion permitted.
- Scratches on the bearing surfaces.
  Maximum depth 0.1 mm (0.004 in).
- Deformation.
  No deformation permitted.
- Damage to the threads.
  No damage permitted.

(2) Examine the A or B-bolt bush. Look specially for:

- Looseness between the A or B-bolt bush and the root rib.
- Damage to the root rib where the bush attaches.
- Damage to the bush.

57-10-07 A and B Bolts

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the A or B-Bolt

(1) Install the A or B-bolt:

- Install the bolt in the bush.
- Hold the flats on the flange of the bolt with a wrench.
  Access for the A-bolt through the hole in the front root rib.
  Access for the B-bolt through the access panel in the bottom shell.
- Install the washer and self-locking nut.
  Torque: 32 Nm (23.6 lbf.ft.).
  Refer to Special Torque Values - Description.

Refer to 57-10 A and B Bolts - Remove procedure Figure 3.

(2) Install the wing.

Refer to 57-10 Wing structure - Install procedure.

57-10-08 Control System Hinge Bracket On Wing

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove Aileron Control Surface Hinge Bracket On Wing

(1) Remove the aileron control surface.

Refer to 57-60 Ailerons - Remove procedure.

(2) For hinge brackets at the control horn:

- Remove the control bell crank access panel under the wing.
- Remove the attaching nuts and washers.
  From inside of the wing.
- Remove the bolts and washers.
  The aileron brackets have 2 bolts.
- Remove the bracket.

(3) For hinge brackets not at the control horn:

- Remove the bolts and washers from outside.
- Remove the bracket.

All brackets have 2 bolts.

B. Remove Flap Control Surface Wing Hinge Bracket (Wing Horns)

(1) Remove the flap control surface: refer to 57-50 Flaps - Description.

(2) Bolts to rear web:

- Remove locking wire.
- Remove the two horizontal bolts and washers that attaches the flap wing horn to the rear web of the wing.
- Remove the backplate/nutplate from inside the wing.

(3) Bolts on the lower shell and support ribs:

- Remove the flap control bellcrank access panels under the wing.
- Remove the nuts and washers from outside. Hold the wing horn hinge!
- Remove the two bolts and the washers.

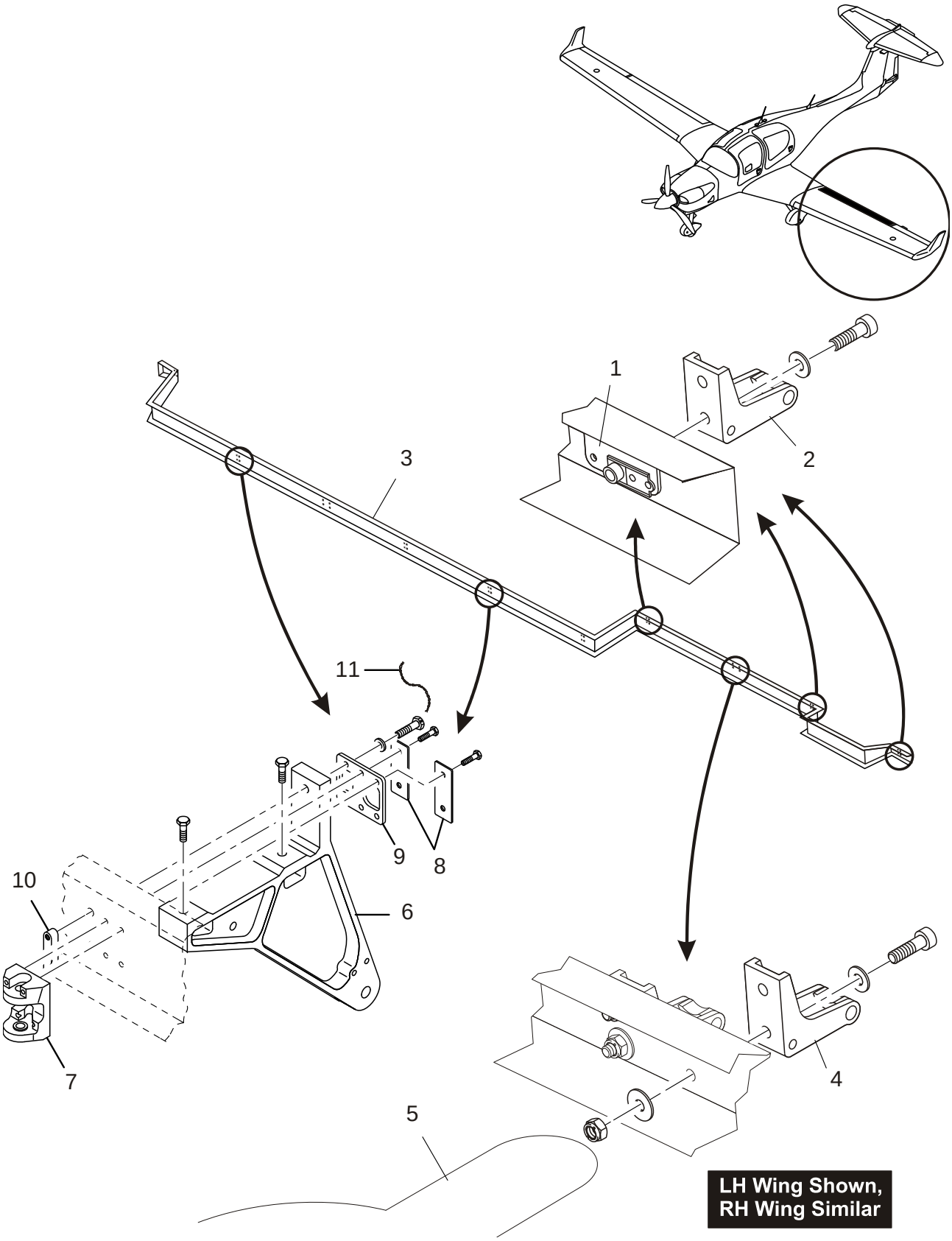


Figure 4 - Control Surface Hinge Bracket Installation

Legend

[1, Fig.4]	Anchor-Nut Plate
[2, Fig.4]	Aileron Outer Hinge
[3, Fig.4]	Rear Web
[4, Fig.4]	Aileron Control Horn Hinge
[5, Fig.4]	Aileron Bellcrank Access Panel
[6, Fig.4]	Inner Flap Hinge
[7, Fig.4]	Bellcrank Hinge Bracket
[8, Fig.4]	Securing Sheet
[9, Fig.4]	Flap Hinge Support
[10, Fig.4]	Backplate / Nut Plate
[11, Fig.4]	Wire Locking

57-10-09 Control System Hinge Bracket On Wing

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install an Aileron Control Surface Hinge Bracket On Wing

(1) For hinge brackets at the control horn:

- Put the bracket in position on the rear web.
- Install the bolts with washers.
  The aileron brackets have 2 bolts.
- Install the washers and self-locking nuts.
  Torque from inside of the wing.
- Install the control bellcrank access panel under the wing.

(2) For hinge brackets not at the control horn:

- Put the bracket in position on the rear web.
  All brackets have 2 bolts.
- Install the bolts and small washers.

(3) Install the aileron control surface.

Refer to 57-60 Ailerons - Install procedure.

B. Install Flap Control Surface Hinge Bracket (Wing Horns)

(1) Put the bracket in positions under the wing with the rear vertical surface flush with the rear web of the wing.

(2) Install the bolts with washers. 2 bolts on the rear web, bolted to anchor nut plate/backplate on the inside face of the rear web and two more bolts on the lower side from inside the wing.

(3) Install the washer and nut from outside on the under side of the wing.

(4) Secure the upper bolt to the rear web using locking wire to the adjustment nut as shown in Control System Hinge Bracket On Wing - Remove procedure Figure 4.

57-50
FLAPS

57-50-01 Flaps

Description

1. Flaps Overview

The DA 50 C has an inner and an outer flap on each wing. Both flaps have a similar construction. The outer flap attaches to the outer wing and the inner flap attaches to the airplane wing center section. The flap selector in the cockpit controls both inner and outer flaps.

Refer to 27-50 Flap Control System - Description for data about the flap control system.

57-50-02 Outer Flap

Description

1. Outer Flap

Figure 1 shows the outer flaps.

The outer flap has a top shell and a bottom shell and a vane attached using bolts to the leading edge.

The bottom shell has a single outer layer of GFRP and many layers of CFRP with a foam core. The leading edge of the shell bends up to form a web.

The leading edge, the ends, and the area where the horn attaches have more carbon fiber cloth to give more strength and stiffness.

The top shell has a single GFRP outer skin and many layers CFRP with a foam core in between. The outer edge of the shell forms a rib structure to provide stiffness and also accomodate the tube for the guide pin. The top shell bonds to the bottom shell and the inner end rib.

The flap has an inner end rib. The inner end rib is a CFRP molding. The rib has an recess which engages with an extension on the inner flap. The end rib bonds to the top and bottom shells.

The vane consists of two composite sandwich shells bonded at the leading and trailing edges. Each shell consists of a GFRP outer skin and CFRP inner layers with a foam core. The vane is attached to the body of the outer flap using seven bolts.

Two flap horn drives the outer flap. The flap horn is an aluminum alloy component. Two bolts attach the horn to the bottom surface of the flap. A small hole on the upper shell of the flap gives access to the attaching bolts. These horns also act as one part of the flap hinges.

The wing horns form the second part. The lower part of the wing and the flap horns are connected using bolts and form the flap hinges.

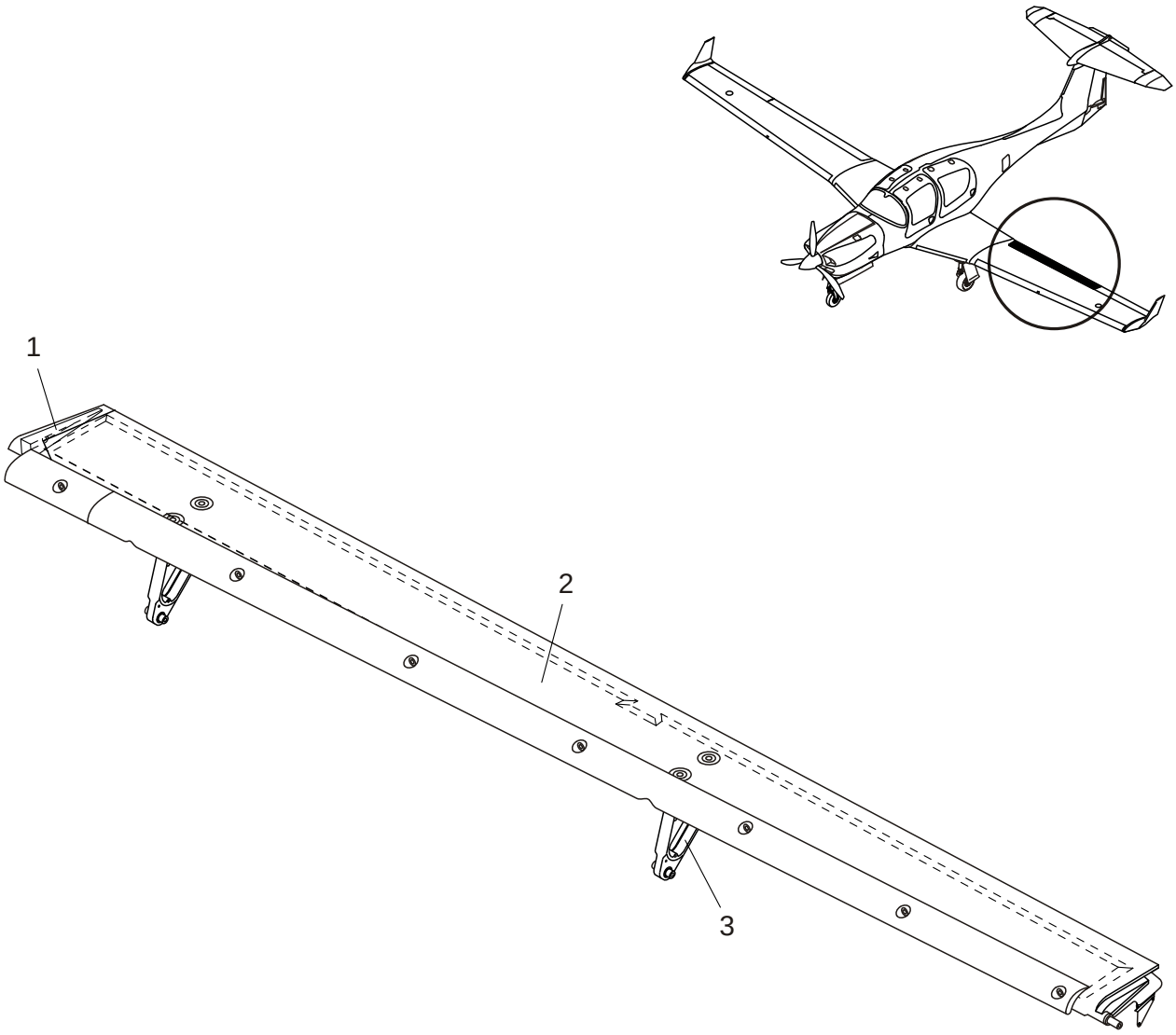


Figure 1 - Outer Flap Assembly

Legend

[1, Fig.1] Inner End Rib

[2, Fig.1] Flap Outer, LH

[3, Fig.1] Flap Horn

57-50-03 Inner Flap

Description

1. Inner Flap

Figure 2 shows the inner flaps.

The inner flap has a top shell and a bottom shell.

The bottom shell has inner and outer skins which bond to a foam core. The outer layer of the skins are GFRP. The inner layers are CFRP. The leading edge of the shell bends up to form a web.

The inboard end of the bottom shell also bends up to close the end of the flap. The leading edge, the ends, and the area where the horn attaches have more carbon fiber cloth to give more strength and stiffness.

The top shell has inner and outer GFRP skins which bond to a foam core. The outer layer of the skins are GFRP. The inner layers are CFRP. The top shell bonds to the bottom shell and the inner end rib.

The flap upper and lower shell extends outboard to form a flange. These flanges are bonded together and engages with a recess on the outer flap.

A pair of flap horn made from aluminum alloy is attached using 2 bolts to the bottom surface of the flap. Small holes in the upper shell of the flap gives access to the attaching bolt and washers.

A pair of center wing horn are attached to each side below the wing using three bolts through the lower shell and one bolt to the trailing edge web of the wing. Access holes on the lower shell give access to the four bolts through the lower shell. The lower ends of these center wing horns are connected with the lower ends of the flap horns using bolts and bushing, thus forming the hinges of the center wing flaps. The inner flap actuation pushrod is connected to the outboard horn of the inner flap and drives the flap.

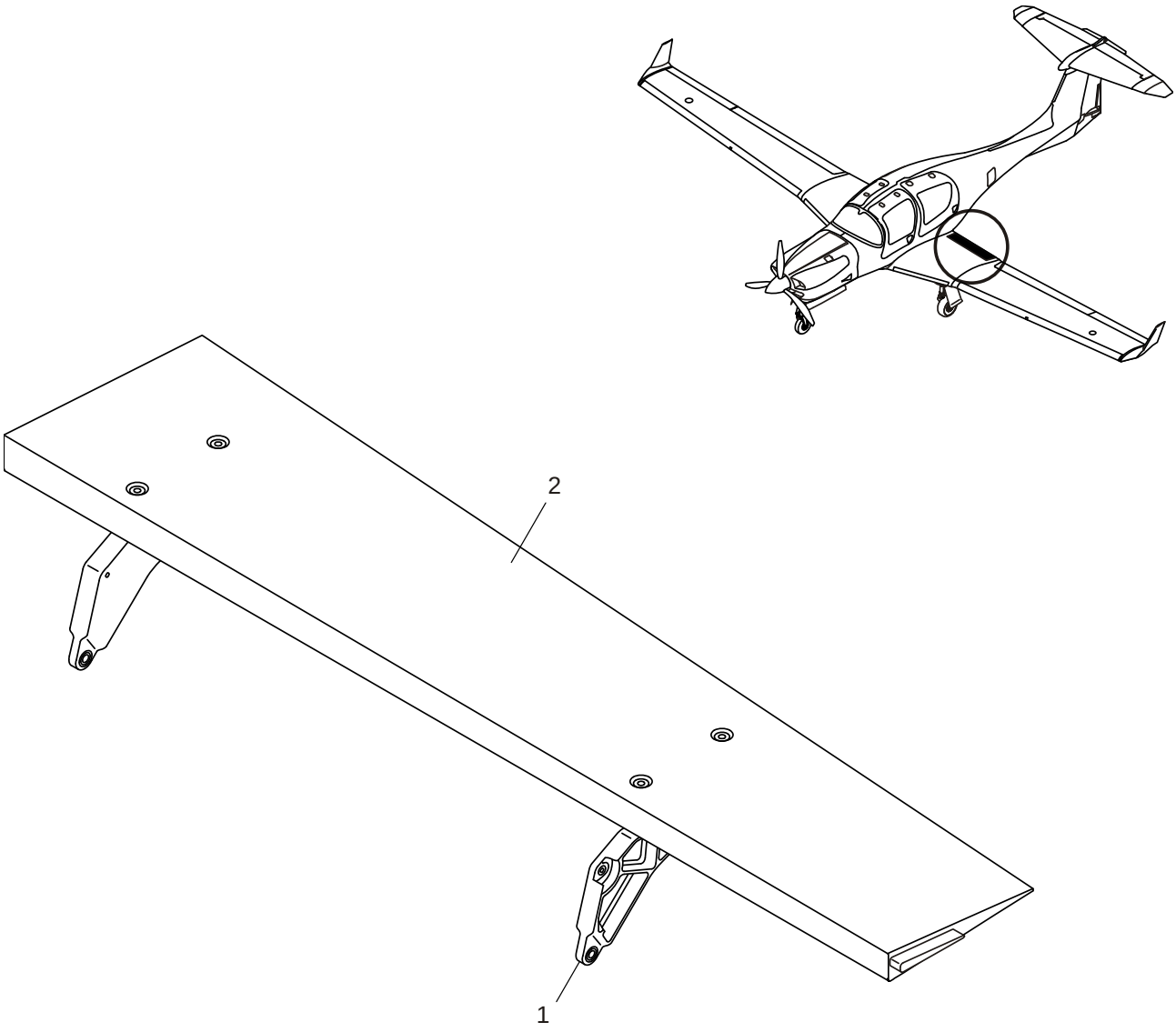


Figure 2 - Inner Flap Assembly

Legend

[1, Fig.2] Flap Horn

[2, Fig.2] Flap Inner, LH

57-50-04 Outer Flap

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA AROUND THE FLAPS IS CLEAR OF PERSONS AND EQUIPMENT BEFORE YOU LOWER THE FLAPS. IF NOT, THE FLAPS CAN INJURE PERSONS OR BE DAMAGED BY EQUIPMENT.

3. Main Procedure

A. Remove an Outer Flap

(1) Lower the flaps:

- Set the ELECT. MASTER switch to ON.
- Set the flap selector to LDG.
- When the flaps stop moving.
- Set the ELECT. MASTER switch to OFF.

(2) Open the circuit breaker for the flap control.

Instrument panel. Right side.

(3) Remove the flap hinge cover:

- Remove the bolts and washers which attach the flap hinge cover to the flap horn.
- Remove the flap hinge cover including the bushings.

(4) Disconnect the flap push rod from the flap horn:

- Remove the nut and washer from the bolt which attaches the push rod to the horn.
- Remove the attachment bolt and washer from the horn.

Hold the flap. Refer to Figure 3.

(5) Remove the flap guide rail on outboard edge of the outer flap:

- Remove the nut and the washer which attaches the flap guide to flap guide rib.
- Hold the flap guide and remove the attachment bolts and washers.

(6) Remove the 2 hinge bolts that connect the flap horn and the wing horn.

- Remove the nut and washer from the bolts
- Remove the attachent bolts and the bushes from the horn.

Support the flap assembly!

(7) Carefully move the flap outboard, and clear of the airplane.

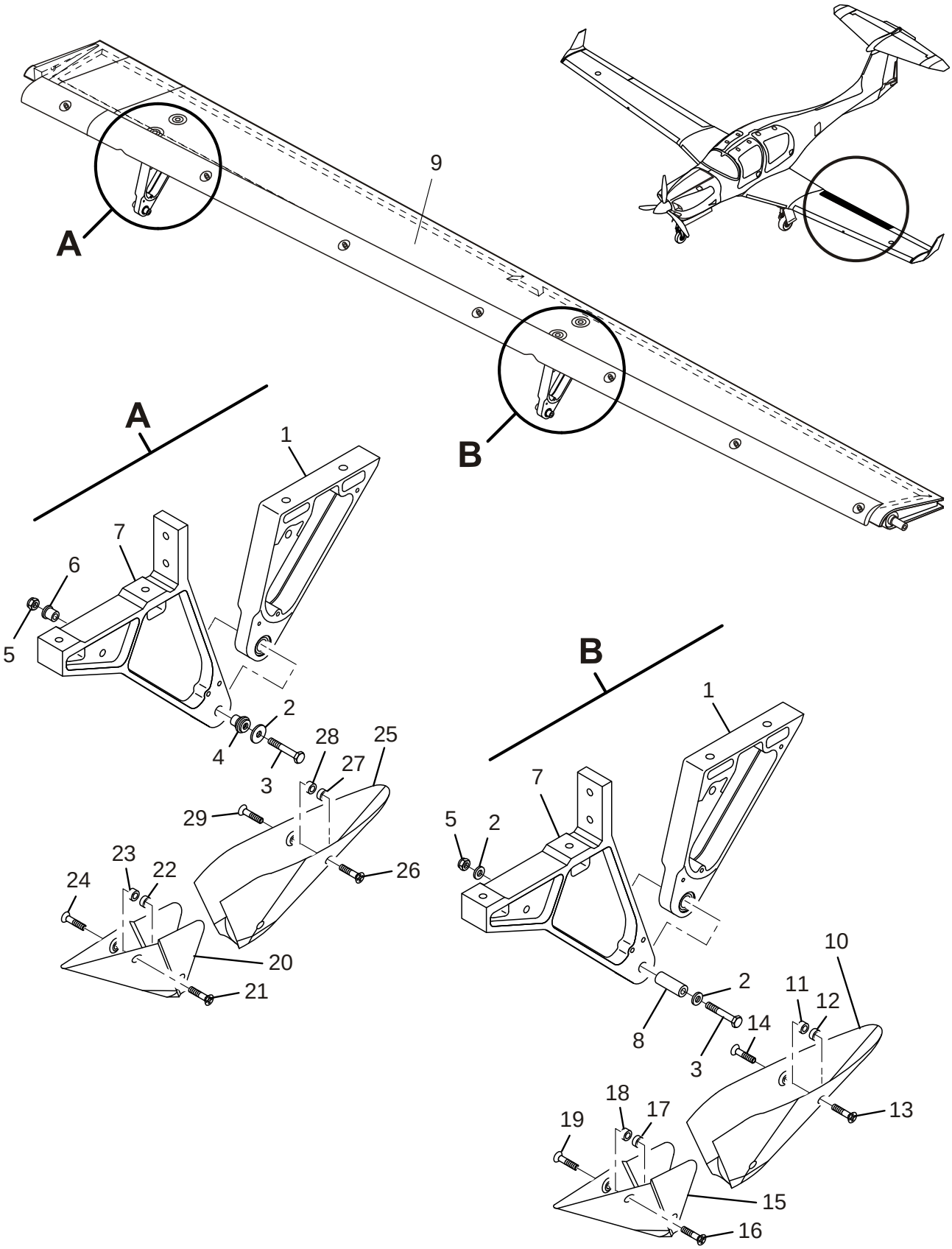


Figure 3 - Outer Flap Installation

Legend

[1, Fig.3]	Outer Flap Horn
[2, Fig.3]	Washer
[3, Fig.3]	Bolt
[4, Fig.3]	Outer Flap Inner Horn Outboard Bushing
[5, Fig.3]	Nut
[6, Fig.3]	Outer Flap Inner Horn Inboard Bushing
[7, Fig.3]	Outer Wing Horn
[8, Fig.3]	Outer Flap Outer Horn Bushing
[9, Fig.3]	Outer Flap
[10, Fig.3]	Outer Flap Outer Horn Flap Hinge Cover Rwd
[11, Fig.3]	Washer
[12, Fig.3]	Washer
[13, Fig.3]	Panhead Screw
[14, Fig.3]	Panhead Screw
[15, Fig.3]	Outer Flap Outer Horn Flap Hinge Cover Fwd
[16, Fig.3]	Panhead Screw
[17, Fig.3]	Washer
[18, Fig.3]	Washer
[19, Fig.3]	Panhead Screw
[20, Fig.3]	Outer Flap Inner Horn Flap Hinge Cover Fwd
[21, Fig.3]	Panhead Screw
[22, Fig.3]	Washer
[23, Fig.3]	Washer
[24, Fig.3]	Panhead Screw
[25, Fig.3]	Outer Flap Inner Horn Flap Hinge Cover Rwd
[26, Fig.3]	Panhead Screw
[27, Fig.3]	Washer
[28, Fig.3]	Washer
[29, Fig.3]	Panhead Screw

57-50-05 Outer Flap

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install an Outer Flap

(1) Make sure that the hinge bolts and bushes are clean and not damaged.

(2) Put the flap into position on the airplane.

(3) Install the bushes on the flap horn and wing horn. Insert the hinge bushes and bolts.

- Push the hinge bushes into position.
- Align the holes in the wing horn with the holes in the flap horn bushes and install the hinge bolts.

Refer to 57-50 Outer Flap - Remove procedure Figure 3.

(4) Install the bolt which attaches the flap push rod to the flap horn:

- Install a washer on the bolt.
- Push the bolt through the horn and the push rod.
- Install the washer and the nut on the bolt.

(5) Do a test for correct adjustment of the flaps.

Refer to 27-50 Flap Control System - Design data/tolerances check.

(6) Install the flap hinge cover:

- Position the flap hinge cover to the flap horn.
- Install the bushings.
- Install the washer and bolts.

Apply Loctite Screw Locking 243 (blue) or equivalent.

(7) If necessary for your Airworthiness Authority, do a second inspection of the flap controls.

57-50-06 Inner Flap

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA AROUND THE FLAPS IS CLEAR OF PERSONS AND EQUIPMENT BEFORE YOU LOWER THE FLAPS. IF NOT, THE FLAPS CAN INJURE PERSONS OR BE DAMAGED BY EQUIPMENT.

3. Main Procedure

A. Remove an Inner Flap

(1) Lower the flaps:

- Set the ELECT. MASTER switch to ON.
- Set the flap selector to LDG.
- When the flaps stop moving.
- Set the ELECT. MASTER switch to OFF.

(2) Open the circuit breaker for the flap control, located on the right side of the instrument panel.

(3) Remove the flap hinge cover:

- Remove the bolts and washers which attach the flap hinge cover to the flap horn.
- Remove the flap hinge cover including the bushings.

Refer to Figure 4.

(4) Disconnect the flap push rod from the flap horn located at the outboard hinge:

- Remove the nut and washer from the bolt which attaches the push rod to the horn.
- Remove the attachment bolt and washer from the horn.

Hold the flap. Refer to Figure 4.

(5) Remove the 2 hinge bolts from the flap hinges and the flap horn:

- Remove the nuts and washer from the bolts.
- Remove the hinge bolts and bushes from the horn.

Support the flap assembly!

(6) Carefully move the flap aft and inboard clear of the airplane.

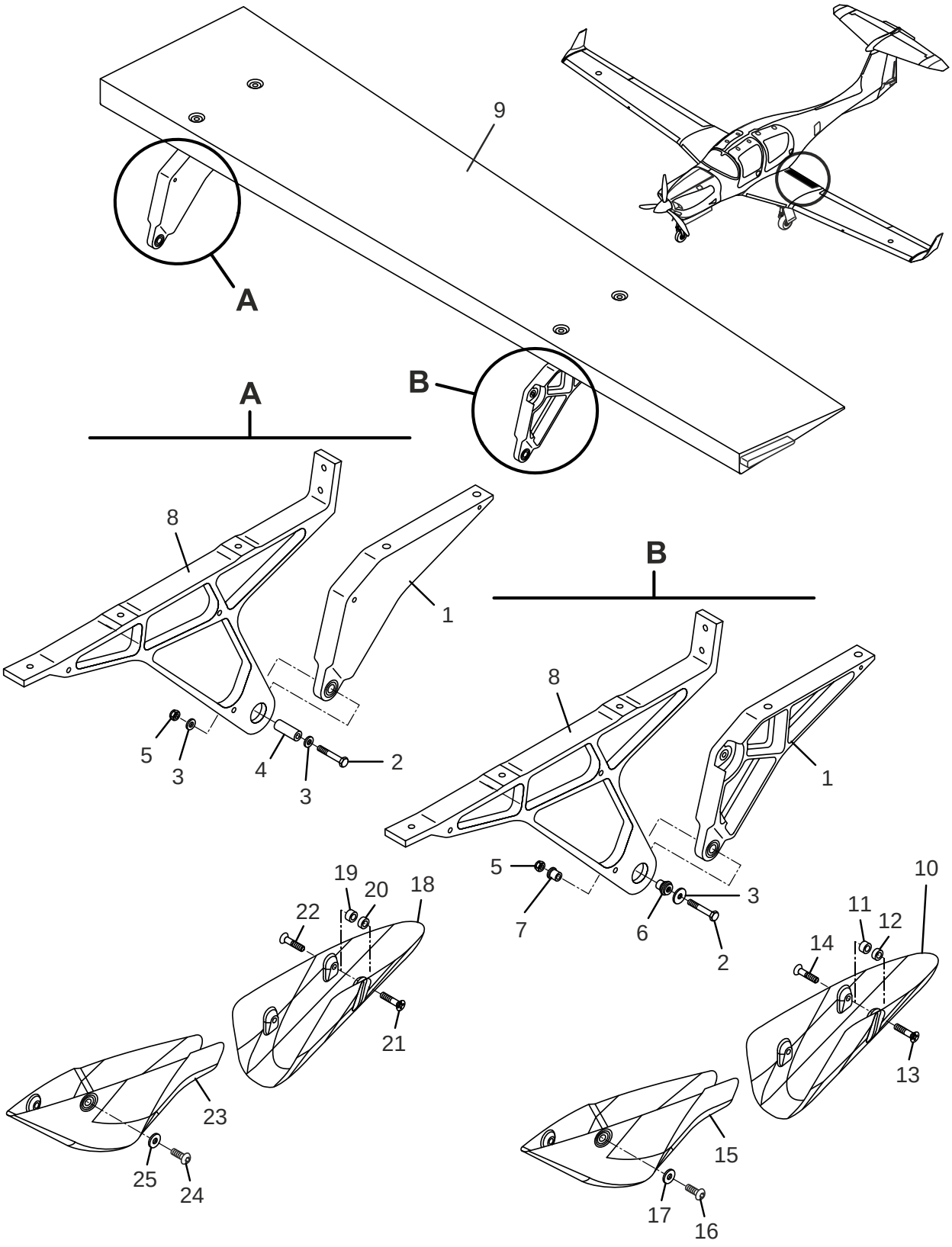


Figure 4 - Inner Flap Installation

Legend

[1, Fig.4]	Inner Flap Horn
[2, Fig.4]	Bolt
[3, Fig.4]	Washer
[4, Fig.4]	Inner Flap Inner Horn Bushing
[5, Fig.4]	Nut
[6, Fig.4]	Inner Flap Outer Horn Outboard Bushing
[7, Fig.4]	Inner Flap Outer Horn Inboard Bushing
[8, Fig.4]	Inner Wing Horn
[9, Fig.4]	Inner Flap
[10, Fig.4]	Outer Horn Flap Hinge Cover Rwd
[11, Fig.4]	Washer
[12, Fig.4]	Washer
[13, Fig.4]	Panhead Screw
[14, Fig.4]	Panhead Screw
[15, Fig.4]	Outer Horn Flap Hinge Cover Fwd
[16, Fig.4]	Screw
[17, Fig.4]	Washer
[18, Fig.4]	Inner Horn Flap Hinge Cover Rwd
[19, Fig.4]	Washer
[20, Fig.4]	Washer
[21, Fig.4]	Panhead Screw
[22, Fig.4]	Panhead Screw
[23, Fig.4]	Inner Horn Flap Hinge Cover Fwd
[24, Fig.4]	Screw
[25, Fig.4]	Washer

57-50-07 Inner Flap

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install an Inner Flap

(1) Make sure that the bolts and bushes are clean and not damaged.

(2) Put the flap into position on the airplane.

(3) Install the two hinge bolts along with the bushes in the flap and wing horn:

- Push the hinge bushes into position.
- Align the holes in the wing horn with the hole in the flap horn bushing and install the hinge bolts.

(4) Install the bolt which attaches the flap push rod to the flap horn:

- Install a washer on the bolt.
- Push the bolt through the horn and the push rod.
- Install the washer and the nut on the bolt.

(5) Do a test for correct adjustment of the flaps.

Refer to 27-50 Flap Control System - Design data/tolerances check.

(6) Install the flap hinge cover:

- Position the flap hinge cover to the flap horn.
- Install the bushings.
- Install the washer and bolts.

Apply Loctite Screw Locking 243 (blue) or equivalent.

(7) If necessary for your Airworthiness Authority, do a second inspection of the flap controls.

57-60
AILERONS

57-60-01 Ailerons

Description

1. Ailerons

Figure 1 shows the aileron assembly.

The aileron has a bottom shell and a top shell. The bottom shell is a sandwich panel made from CFRP and GFRP with a foam core. The leading edge of the shell bends up to form a web. It then curves forward to form a shroud which seals the gap between aileron and wing when the aileron moves down.

The ends of the bottom shell also bend up to close the ends of the aileron. The leading edge, the ends and the area where the horn attaches have more carbon fiber cloth to give more strength and stiffness.

The top shell is a sandwich panel made from CFRP and GFRP with foam core.

The aileron horn is an aluminum alloy component. Two bolts attach the horn to the bottom surface of the aileron and one bolt to the leading edge of the aileron. A small hole in the leading edge of the aileron gives access to the front attaching nuts and washers. The horn also makes one of the aileron hinges.

Each aileron has four hinges (as well as the aileron horn). Two bolts attach each hinge to the leading edge of the aileron. A small hole in the middle of the hinge gives access to the attaching nuts and washers. Each hinge has a flanged bush at the inboard end. A plastic plug seals the outboard end.

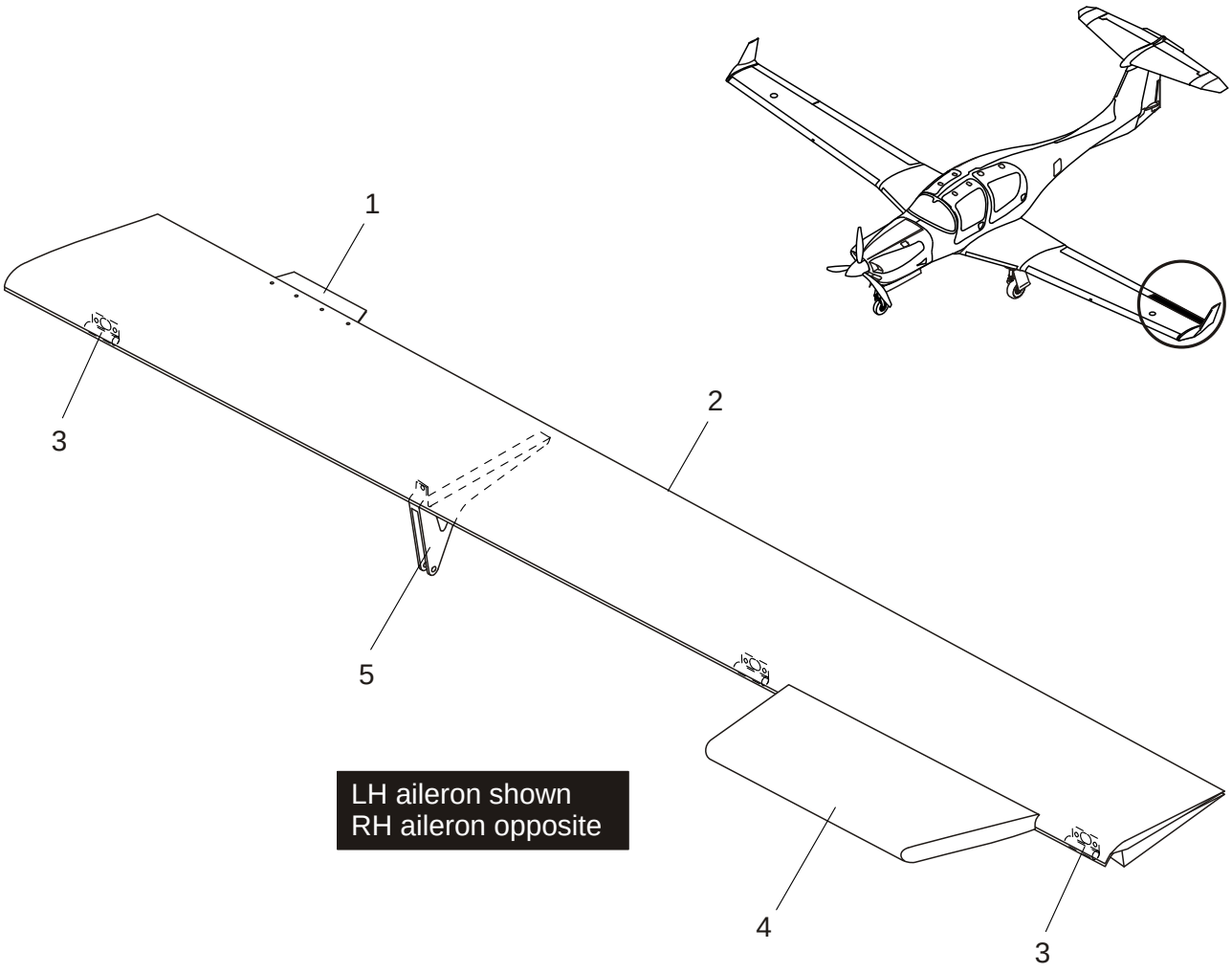


Figure 1 - Aileron Assembly

Legend

[1, Fig.1] Trim Tab (LH only)

[2, Fig.1] Aileron

[3, Fig.1] Hinge

[4, Fig.1] Mass Balance

[5, Fig.1] Aileron Horn

57-60-02 Ailerons

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove an Aileron

(1) Remove the aileron hinge cover:

- Remove the bolts and washers which attach the aileron hinge cover to the aileron horn.
- Remove the aileron hinge cover including the bushes.

Refer to Figure 2.

(2) Disconnect the aileron push rod from the aileron horn:

- Remove the nut and washer from the bolt which attaches the push rod to the horn.
- Remove the attachment bolt and washer from the horn.

Hold the aileron.

(3) Remove the 4 hinge pins from the aileron hinges and the aileron horn:

- Remove the roll pins which locate the aileron hinge pins.
- Move the hinge pins inboard, and clear of the hinges.

Support the aileron assembly!

(4) Carefully move the aileron aft, and clear of the airplane.

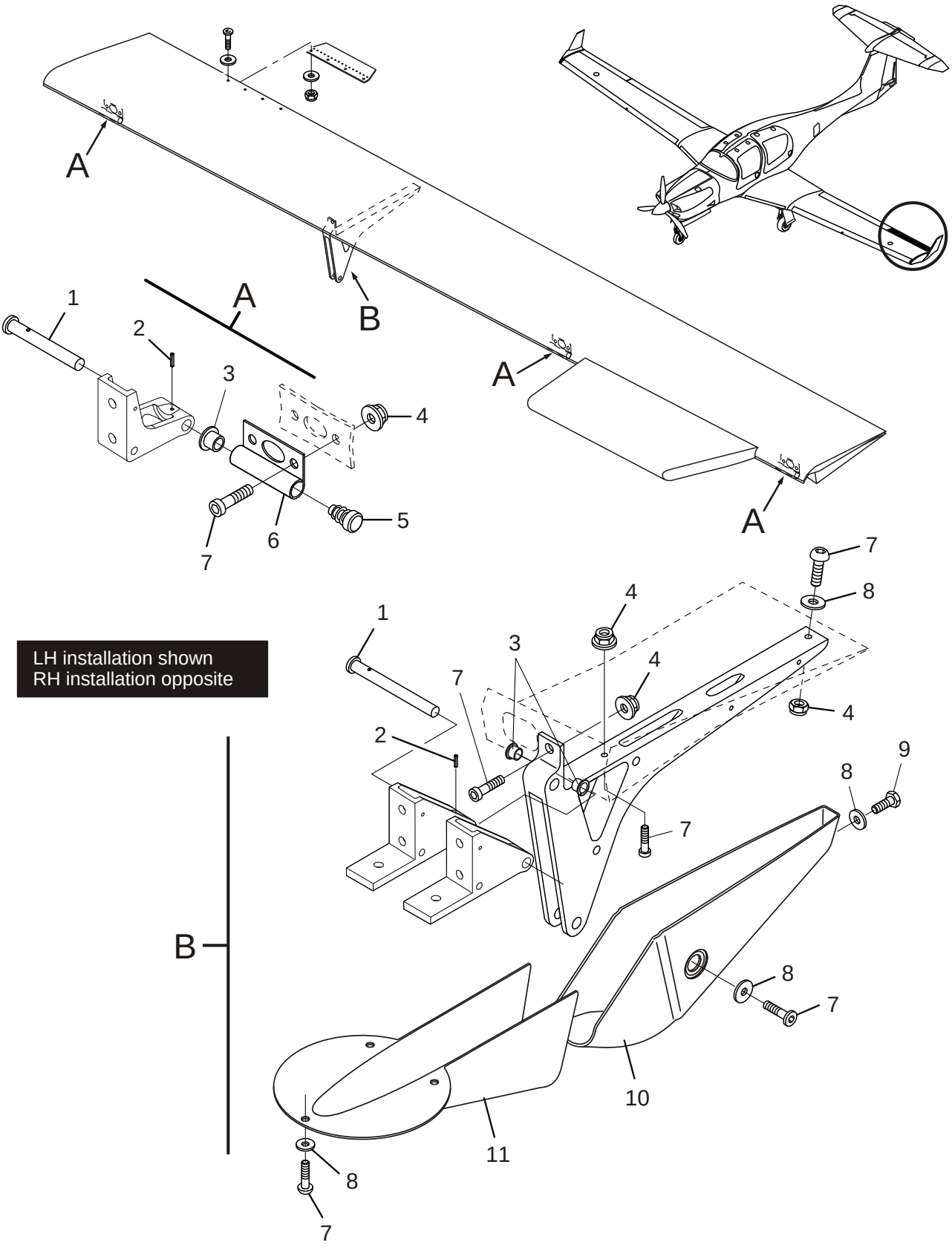


Figure 2 - Aileron Installation

Legend

[1, Fig.2]	Hinge Pin
[2, Fig.2]	Split Pin
[3, Fig.2]	Bushing
[4, Fig.2]	Nut
[5, Fig.2]	Blanking Plug
[6, Fig.2]	Hinge
[7, Fig.2]	Screw
[8, Fig.2]	Washer
[9, Fig.2]	Bolt
[10, Fig.2]	Hinge Cover
[11, Fig.2]	Maintenance Cover

57-60-03 Ailerons

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install an Aileron

(1) Make sure that the hinge pins are clean and not damaged.

(2) Put the aileron into position on the airplane.

(3) Install the 4 hinge pins in the hinges and aileron horn:

- Push the hinge pins into position from the inboard side.
- Align the holes in the hinges with the holes in the hinge pins and install the roll pins.

Make sure that there is a gap of 0.5 - 2.5 mm (0.002 - 0.010 in) between the faces of the hinge at the horn and a gap of 1 - 3 mm (0.004 - 0.012 in) between the faces at the other hinges.

(4) Install the bolt which attaches the aileron push rod to the aileron horn:

- Install a washer on the bolt.
- Push the bolt through the horn and the push rod.
- Install the washer and the nut on the bolt.

(5) Do a test for correct adjustment of the aileron.

Refer to 27-10 Aileron Control System - Design data/tolerances check.

(6) Install the aileron hinge cover:

- Position the aileron hinge cover to the aileron horn.
- Install the bushings.

- Install the washer and bolts.
- Apply Loctite Screw Locking 243 (blue) or equivalent.

(7) If necessary for your Airworthiness Authority, do a second inspection of the aileron controls.

61-00
PROPELLER

61-00-01 Propellers/propulsors

Description

1. Propeller

This Chapter describes the propeller installation of the DA 50 C. Refer to 61-10 Propeller assembly - Description for data about the propeller and refer to 61-20 Propeller Control - Description for data about the propeller control. For more data on the propeller refer to the propeller manufacturer's manuals.

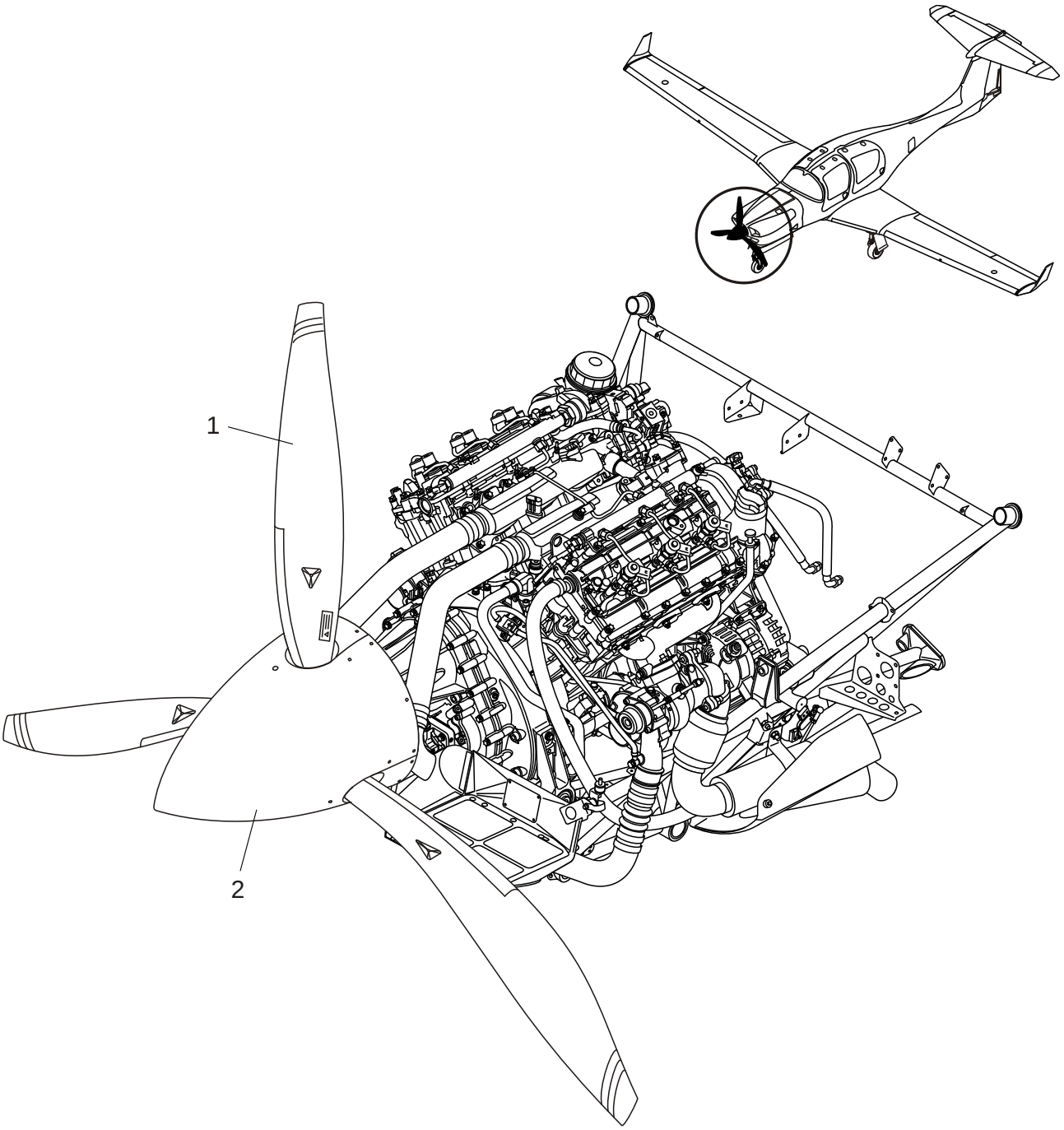


Figure 1 - Propeller Assembly

Legend

[1, Fig.1] Propeller

[2, Fig.1] Spinner

61-10
PROPELLER ASSEMBLY

61-10-01 Propeller assembly

Description

1. Propeller Assembly

A. General

The DA 50 C has a MTV-12-D/210-56 constant speed propeller installed. The propeller has three blades. The blades are made from wood and are covered with GFRP. The blades have an acrylic lacquer painted finish. The outboard leading-edges of the blades are protected from erosion by a stainless-steel sheath. The stainless-steel sheath is bonded into position. The inboard section of the leading-edge is protected by a self-adhesive rubber strip (PU tape).

This Section describes how to remove and install the propeller and how to do a propeller blade tracking test.

Refer to the propeller manufacturer manual for more data.

B. Description

Figure 1 shows the propeller. The propeller hub has six studs on the rear face. The propeller attaches to the engine gearbox flange with six nuts and washers.

A spinner bulkhead (spinner backplate) attaches to the rear of the hub with six bolts. The bolts are secured with lock-wire. A front support plate attaches to the front of the hub with six screws. The screws are also secured with lock-wire. A spinner which is made from composite material attaches to the front/aft bulkhead with screws.

When the engine is running, aerodynamic as well as spring forces push the propeller blades towards fine pitch.

The engine has a Full Authority Digital Engine Control Unit (FADEC) which includes an electronic engine control. Gearbox oil flows through the constant speed control system and controls the oil pressure in the propeller pitch change mechanism. The oil pressure is increased to obtain propeller blade pitch increase and reduced to lower the blade pitch angles. The oil to govern the propeller blade pitch flows through the hollow propeller and gearbox hub.

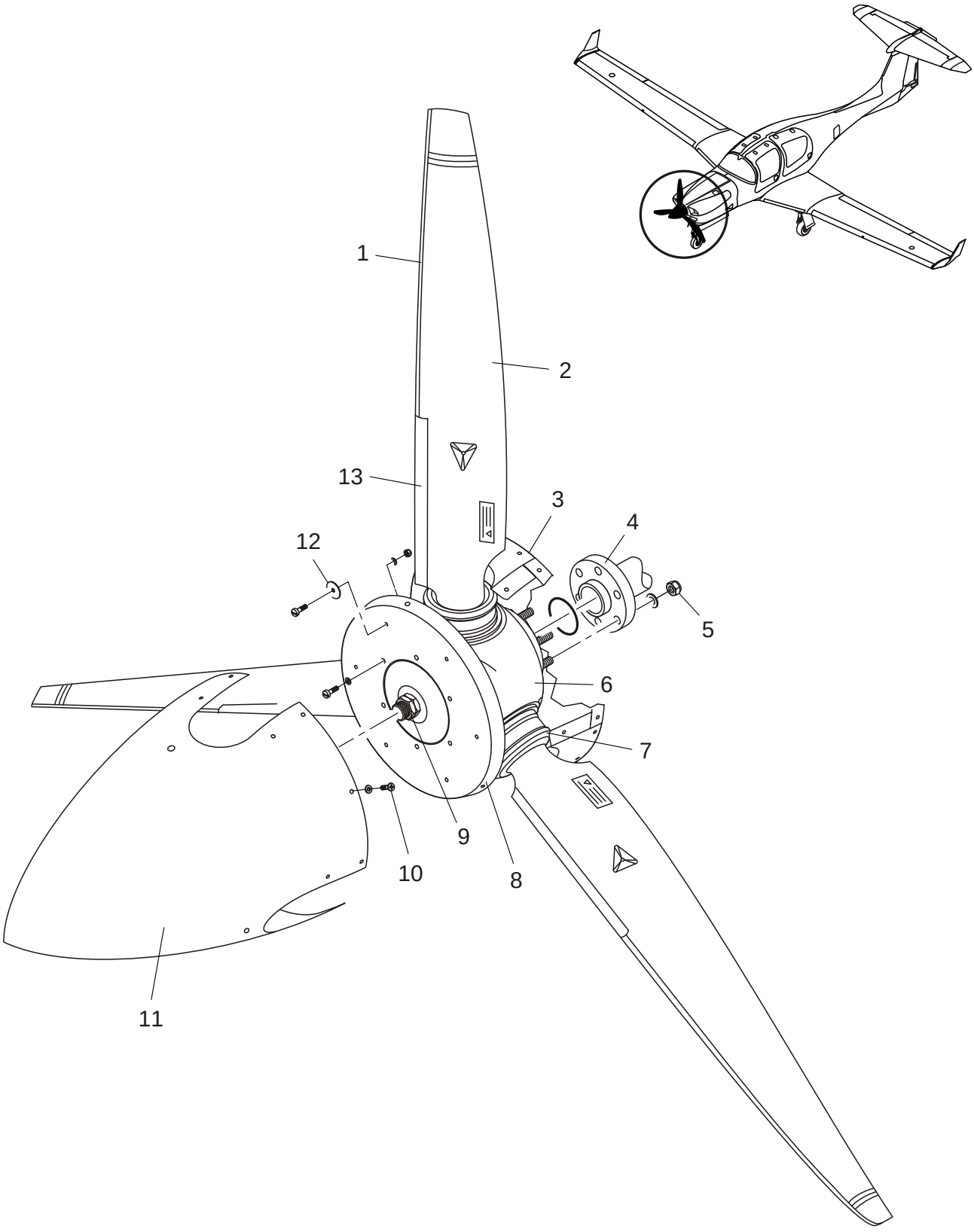


Figure 1 - Propeller Assembly

Legend

[1, Fig.1]	Metal Erosion Sheath
[2, Fig.1]	Wood / Composite Blade
[3, Fig.1]	Spinner Bulkhead
[4, Fig.1]	Engine Flange
[5, Fig.1]	Attaching Nut and Washer
[6, Fig.1]	Hub
[7, Fig.1]	Blade Ferrule
[8, Fig.1]	Front Support Plate
[9, Fig.1]	Low Pitch Stop
[10, Fig.1]	Spinner Attaching Screws
[11, Fig.1]	Spinner Dome
[12, Fig.1]	Balance Weights
[13, Fig.1]	PU Tape

61-10-02 Propeller assembly

Description of function

1. Propeller Assembly Operation

When the propeller is turning aerodynamic and spring forces cause the blades to turn towards fine pitch.

High pressure oil is used to move the propeller blades to high pitch. Oil from the engine gearbox is pumped to the pulse valve. The pulse valve directs the oil to the propeller as necessary to control the propeller pitch.

The propeller pitch control system is integrated into the FADEC system. The pitch is controlled automatically by the FADEC. Depending on the power setting the propeller pitch is adjusted such that the required RPM will be obtained as shown in Figure 2.

An adjustable pitch stop limits the amount of blade movement towards coarse pitch.

If the oil pressure fails during normal flight aerodynamic propeller blade forces and spring forces of the propeller pitch change mechanism pushes the blades into fine pitch.

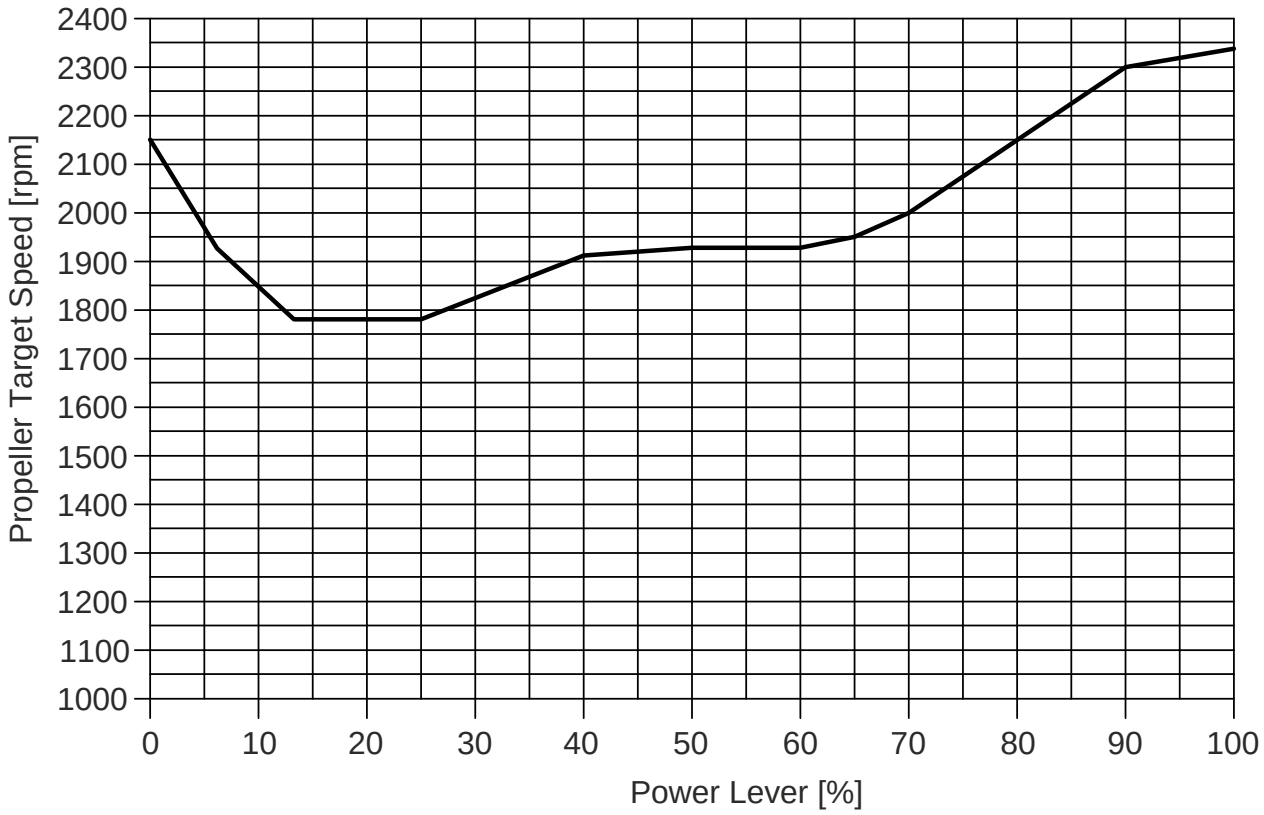


Figure 2 - Propeller RPM Adjusted by the Engine FADEC System

61-10-03 Propeller assembly

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Engine vibration.

1A. Examine the propeller.

Is the propeller out of balance?

Yes - go to step 1B.

No - go to step 1C.

1B. If you find damage refer to the manufacturer's Owners Manual.

1C. Examine the spinner.

Is the spinner out of balance?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the spinner.

1E. Examine the propeller mounting.

Is the propeller mounting loose?

Yes - go to step 1F.

No - go to step 1G.

1F. Tighten the mounting nuts to the correct torque. Refer to the manufacturer's Owners Manual. Use new nuts.

1G. Examine the spinner attaching screws.

Are the spinner attaching screws loose?

Yes - go to step 1H.

No - go to step 1I.

1H. Tighten the attaching screws. Refer to the manufacturer's Owners Manual.

1I. Examine blade tracking.

Is the blade tracking not correct?

Yes - go to step 1J.

No - go to step 1K.

1J. Refer to the manufacturer's Owners Manual.

1K. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Cracks in the blades.

2A. Check speed.

Over-speed detected?

Yes - go to step 2B.

No - go to step 2C.

2B. Refer to the manufacturer's Owners Manual.

2C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Holes/nicks/dents in the blade.

3A. Examine blades.

Stone damage detected?

Yes - go to step 3B.

No - go to step 3C.

3B. Repair/replace the propeller. Refer to the manufacturer's Owners Manual.

3C. Contact DAI.

61-10-04 Propeller assembly

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Propeller

(1) Make sure that the engine is safe:

- Set the ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

NOTE

Mark the propeller, spinner, front support plate and spinner bulkhead, with an index mark. This will help you install these items in the correct position.

(4) Remove the spinner:

Refer to Figure 3:

- Mark the spinner and spinner bulkhead with index marks to aid installation.
- Release the screws holding the spinner to the spinner bulkhead and move the spinner clear of the airplane.

(5) Remove the nuts and washers which attach the propeller to the propeller shaft flange.

Hold the propeller!

(6) Pull the propeller forward and clear of the propeller shaft flange.

(7) Use caps to cover open lines.

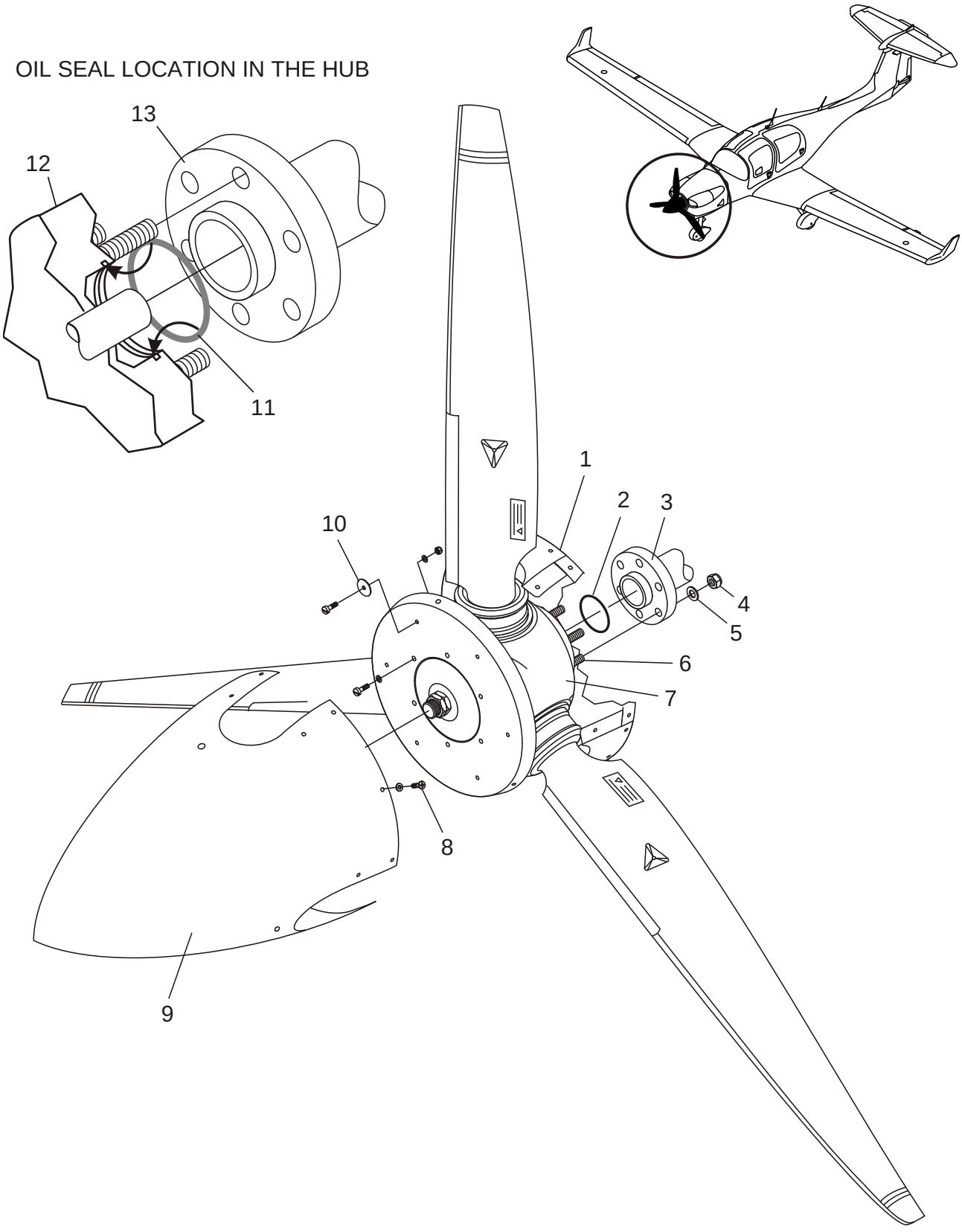


Figure 3 - Propeller Installation

Legend

[1, Fig.3]	Spinner Bulkhead
[2, Fig.3]	Oil Seal
[3, Fig.3]	Engine Flange
[4, Fig.3]	Nut
[5, Fig.3]	Washer
[6, Fig.3]	Attaching Bolts
[7, Fig.3]	Hub
[8, Fig.3]	Spinner Attaching Screws
[9, Fig.3]	Spinner Dome
[10, Fig.3]	Balance Weights
[11, Fig.3]	Oil Seal
[12, Fig.3]	Hub
[13, Fig.3]	Engine Flange

61-10-05 Propeller assembly

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Propeller

(1) Make sure that the engine is safe:

- Set the ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Verify that the airplane battery is disconnected.

(3) Make sure that the propeller shaft flange and the propeller flange are clean and dry.

(4) Make sure that the shipping plug is removed and check the inside of the propeller hub area for contamination.

(5) Make sure that a new O-ring oil seal is in place in the propeller hub. Lightly oil the seal.

Use clean gearbox oil.

Refer to 61-10 Propeller assembly - Remove procedure Figure 3

(6) Move the propeller into position on the gearbox flange.

Take care not to damage the propeller O-ring seal.

NOTE

Make sure that the propeller is pushed into the correct position by hand.
Do not use the nuts to pull the propeller into position.

(7) Install the 6 washers and nuts.

Torque: 110 - 115 Nm (81.8 - 84.82 lbf.ft.).

Refer to Special Torque Values - Description.

(8) When the propeller is in the correct position, fully tighten the nuts in opposing pairs.

Refer to mt-Propeller Operation and Installation Manual, latest revision.

(9) Check gearbox oil level and refill if necessary.

Refer to 12-10 Gearbox Oil - Fill with oil.

(10) Do a test for correct blade track.

Refer to 61-10 Propeller assembly - Test and inspection

(11) Install the spinner.

Align the index mark:

- Loosely install the screws and plastic washers which attach the spinner to the spinner bulkhead.
- Tighten all the attaching screws.
  Refer to mt-Propeller Operation and Installation Manual, latest revision.

(12) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(13) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(14) Do an engine run-up. Do a test for correct operation of the propeller.

Refer to 71-00 Engine - Operation Test.

(15) Check for oil leaks.

(16) Check gearbox oil level and refill if necessary.

Refer to 12-10 Gearbox Oil - Fill with oil.

61-10-06 Propeller assembly

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Tracking stand	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Propeller Blade Tracking Test

Refer to mt-Propeller Operation and Installation Manual, latest revision.

(1) Make sure that the engine is safe:

- Set the ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Put the tracking stand behind the propeller that you will test.

Do not move the tracking stand during the test.

(4) Turn the propeller backwards to align a blade with the tracking stand.

(5) Measure the distance from the stand to the blade.

Measure from the stand to a point on the trailing edge 10 cm (4 in) from the blade tip.

(6) Do steps 3 and 4 for the other blades and record the values.

(7) The difference between any blades must not be more than 3 mm (1/8 in).

(8) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

61-20
PROPELLER CONTROL

61-20-01 Propeller Control

Description

1. Propeller Control

The DA 50 C has a MTV-12-D/210-56 constant speed propeller with an engine mounted constant speed control system. The constant speed control system is controlled by the FADEC system. The pulse valve controls the propeller blade angle (pitch).

For further information about the constant speed control system refer to Continental Operation & Maintenance Manual, latest revision.

2. Description and Operation

The DA 50 C has a MTV-12-D/210-56 constant speed propeller. When the propeller is rotating the aerodynamic and spring forces causes the blades to move towards fine pitch. The propeller uses oil pressure to increase the blade angle (pitch).

The constant speed control system is controlled by the engine control unit (FADEC). The pilot has one lever to control the engine performance. The propeller blade angle is adjusted automatically based on power lever position.

The FADEC senses engine performance and sets the control system to regulate oil pressure to the propeller to change blade angle as required. Depending on the power setting the propeller pitch is adjusted such, that the required RPM will be obtained.

Figure 1 shows the propeller control system schematic diagram.

If the engine speed is too high, the constant speed control system operates the pulse valve such that the oil flows in the propeller hub which increases the propeller pitch and reduces the RPM.

If the engine speed is too low, the pulse valve releases oil flow out of the propeller hub. The piston moves aft to reduce the blade angle which will increase engine RPM.

For further information of the pulse valve's working principles refer to the Engine Operation and Installation Manual, latest revision.

During normal operation a preset coarse-pitch-stop prevents the propeller blades from moving past a preset maximum blade angle. If the engine fails in flight, or if the propeller oil supply fails in flight, aerodynamic and spring forces will reduce the blade pitch angle which keeps the propeller rotating.

The specified propeller settings are given as follows:

Low pitch:	12.5° ± 0.2° (@ 0.75 R)
High pitch:	35° ± 1° (@ 0.75 R)

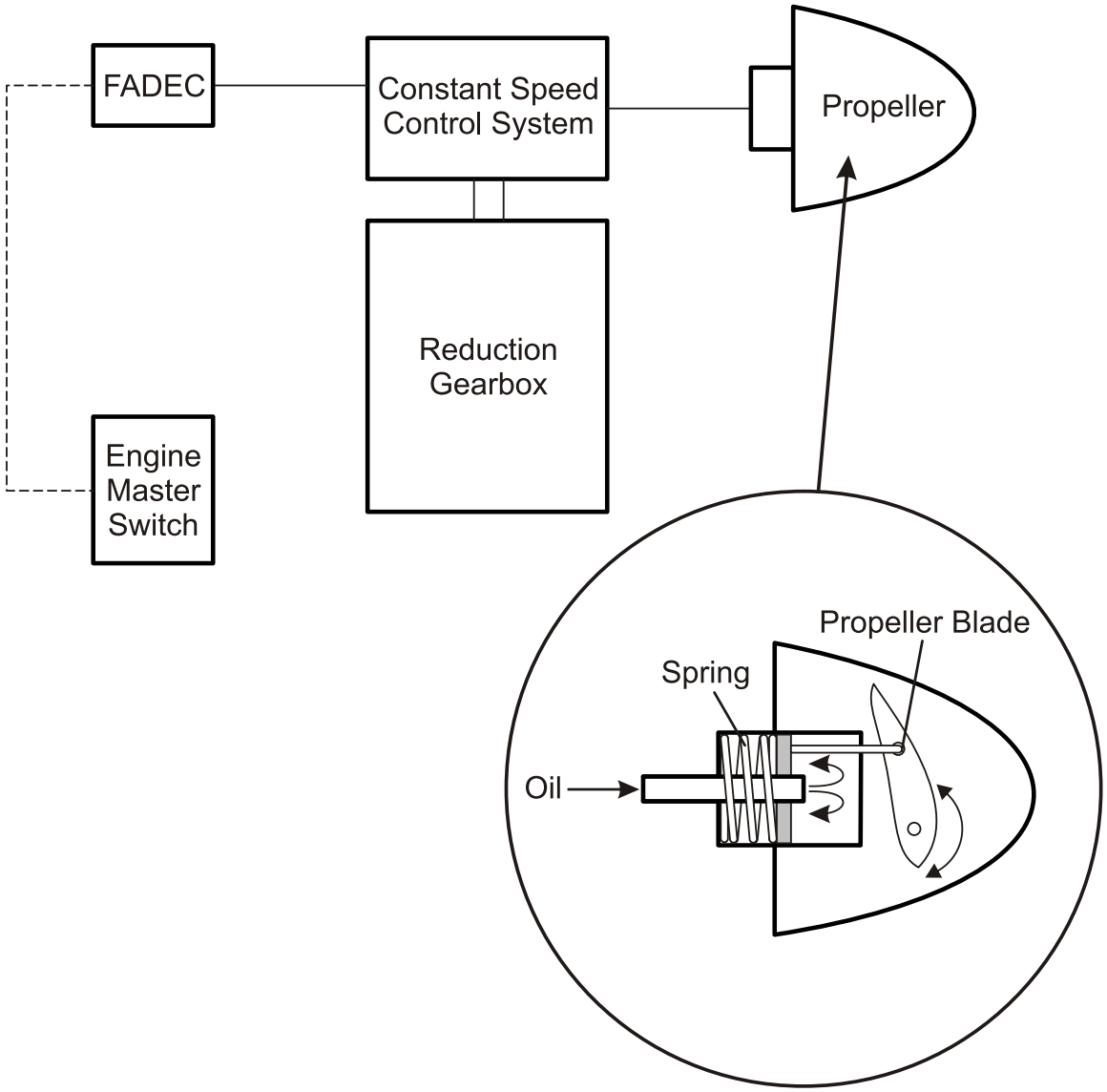


Figure 1 - Propeller Control System Schematic Diagram

71-00
POWER PLANT

71-00-01 Power Plant

Description

1. Power Plant

This Chapter describes the power plant removal and installation of the DA 50 C.

For data on conducting an engine test after installation refer also to the Continental Operation & Maintenance Manual for the CD-300 engine. Refer to the DA 50 C Airplane Flight Manual for engine start/ stop procedures. For particular information on the firmware refer to the applicable DAI Service Bulletin.

Refer to these Chapters for data about other engine systems:

- Chapter 72. Engine. 72-00 Engine - Description. Refer to the Continental Operation & Maintenance Manual, latest revision for data on the engine.
- Chapter 73. Engine fuel and control. 73-00 Engine fuel and control - Description. Refer to the Continental Operation & Maintenance Manual, latest revision for data on the fuel injection system.
- Chapter 76. Engine controls. 76-00 Engine controls - Description.
- Chapter 77. Engine indicating. 77-00 Engine Indicating - Description.
- Chapter 78. Exhaust system. 78-00 Exhaust - Description.
- Chapter 79. Oil system. 79-00 Oil Cooling - Description. Refer to the Continental Operation & Maintenance Manual, latest revision for data on the engine oil system.
- Chapter 80. Starter system control and installation. 80-00 Starting - Description. Refer to the Continental Operation & Maintenance Manual, latest revision for data on the starter.
- Chapter 81. Turbo charger. 81-00 Turbo Charger - Description.

2. Description and Operation

The DA 50 C has a Continental CD-300 liquid-cooled, V6-cylinder four-stroke compression ignition engine. The direct fuel injection is realized by means of a common rail technology and the engine is turbocharged.

The propeller is activated by a gearbox driven constant speed control unit which is controlled by the FADEC. All engine components are controlled by a FADEC system.

The power plant is protected by four engine cowlings, a left side cowling, a right side cowling, a mid cowling and a lower engine cowling. All the cowlings attach to each other and to the airframe with Camloc quick release fasteners.

The LH cowling has air intakes for the engine cooling, the cabin heat and for the engine air intake. The RH cowling has air intakes for the engine cooling and for the engine air intake.

The engine mount attaches to the nose landing gear bulkhead at four mounting points. The engine attaches to the engine mount with four rubber elements which make the engine shock-mounts.

The wiring harness is lead through the firewall to connect the engine to the FADEC and give electrical supply to the engine sensors. Electrical cables from the main battery and from the generator supply electrical power to the airplane electrical system.

3. Engine Specification

NOTE

The engine drives the propeller through a speed-reducing gear. All RPMs are shown as propeller RPMs.

Continental Centurion 3.0 - CD-300 Engine Specification	
Engine manufacturer.	Continental Aerospace Technologies GmbH.
Engine model.	Centurion 3.0 (Sales name CD-300).
Engine operating limits: - Maximum take-off power. - Maximum continuous power. - Maximum overspeed (max. 20 sec).	 - 221 kW (296.4 DIN-hp) at 2340 RPM. - 200 kW (268.2 DIN-hp) at 2300 RPM. - 2500 RPM.
Oil pressure.	Refer to Airplane Flight Manual.
Oil temperature.	Refer to Airplane Flight Manual.
Oil consumption - maximum.	0.1 liter/hr. (0.11 US qt/hr.).
Oil quantity.	Refer to Airplane Flight Manual.
Coolant temperature.	Refer to Airplane Flight Manual.
Fuel consumption.	Refer to Airplane Flight Manual.
Gearbox oil capacity.	1.8 liter (1.9 US qts).
Engine weight, dry.	265 kg (584.2 lb).
Fuel grade.	Refer to Airplane Flight Manual.
Engine oil.	Refer to Airplane Flight Manual.
Coolant.	Refer to Airplane Flight Manual.
Gearbox oil.	Refer to Airplane Flight Manual.

Table 1 - Continental Centurion 3.0 - CD-300 Engine Specification

4. Trouble Shooting

WARNING

YOU MUST BE CAREFUL WHEN YOU DO POWER PLANT TROUBLE SHOOTING. OPERATION OF A DAMAGED ENGINE CAN CAUSE MORE DAMAGE TO THE ENGINE. THIS CAN CAUSE INJURY TO PERSONNEL.

71-00 Power Plant - General fault isolation procedure lists possible defects of the power plant. It does NOT give information about trouble shooting for the engine or the engine systems. Refer to the Continental Operation & Maintenance Manual, latest revision for engine and engine system trouble-shooting.

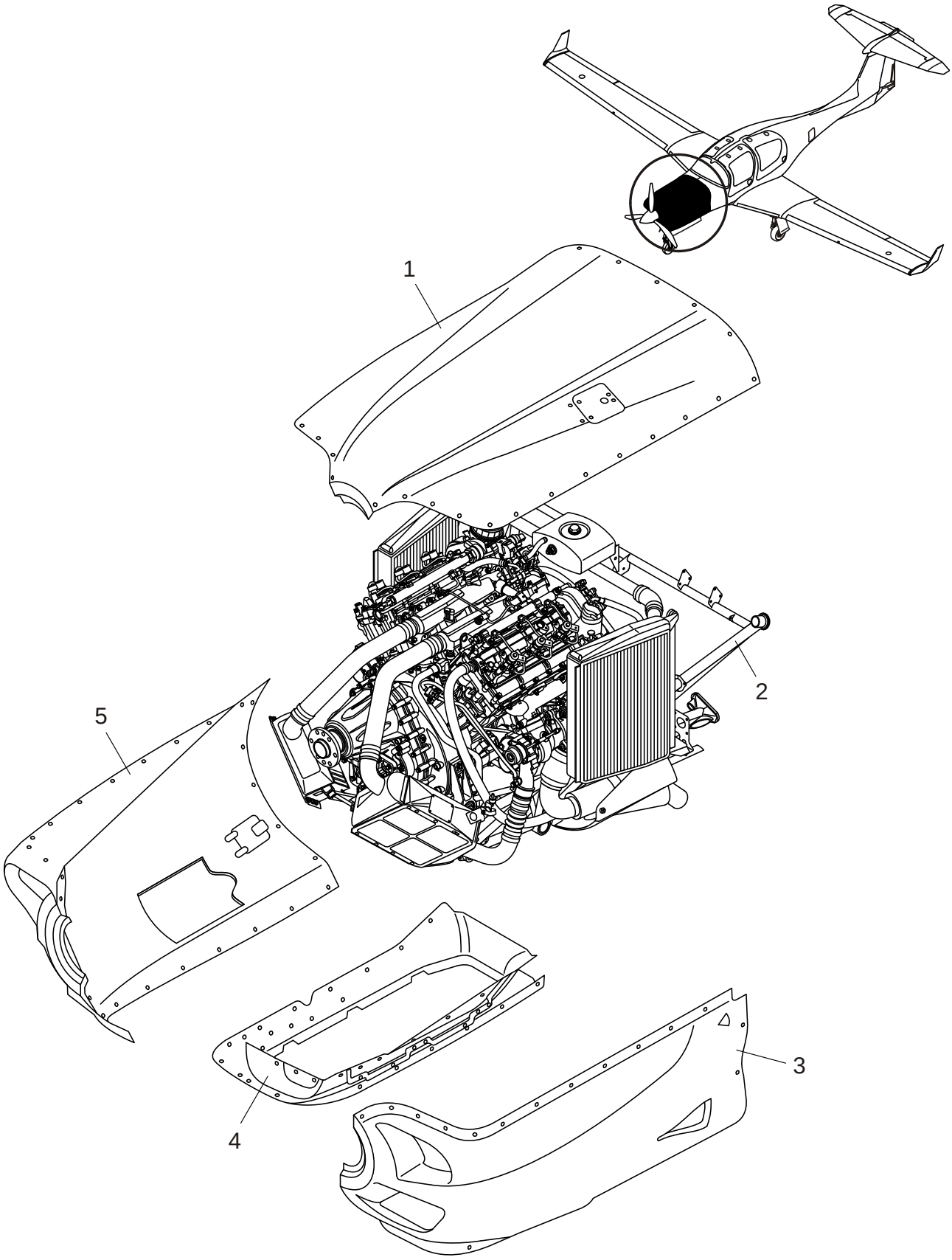


Figure 1 - Power Plant

Legend

[1, Fig.1] Mid Engine Cowling

[2, Fig.1] Engine Mount

[3, Fig.1] Left Engine Cowling

[4, Fig.1] Lower Engine Cowling

[5, Fig.1] Right Engine Cowling

71-00-02 Power Plant

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Engine vibration.

1A. Check the shock mounts.

Are the shock mounts damaged?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the shock mounts.

1C. Check the propeller.

Propeller unbalance detected?

Yes - go to step 1D.

No - go to step 1E.

1D. Balance the propeller.

1E. Check fuel injectors.
Operates engine with only 5 fuel injectors?
Yes - go to step 1F.
No - go to step 1G.

1F. Refer to the engine manufacturer.

1G. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Engine does not produce full power.

2A. Check engine air intake.
Is the engine air intake blocked?
Yes - go to step 2B.
No - go to step 2C.

2B. Remove air intake blockage.

2C. Check the air filter.
Is the air filter blocked?
Yes - go to step 2D.
No - go to step 2E.

2D. Replace the air filter.

2E. Check sensor signals.

Are sensor signal out of limits?

Yes - go to step 2F.

No - go to step 2G.

2F. Read Continental engine data with laptop computer via CAN interface. Refer to the Continental Operation & Maintenance Manual, latest revision.

2G. Contact DAI.

71-00-03 Engine

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Hoist	Commercial	1
Engine sling	Commercial	1
Tail trestle	Commercial	1
Hoisting points	N/A	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

WARNING

DO NOT GO UNDER THE AIRPLANE WHEN IT IS HELD BY THE HOIST. IF THE HOIST FAILS, YOU CAN BE INJURED.

WARNING

DO NOT GET ENGINE OIL, GEAR OIL OR COOLANT ON YOUR SKIN. THESE LIQUIDS CAN CAUSE SKIN DISEASE.

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

CAUTION

YOU MUST ATTACH CAPS TO HOLES/PIPES WHEN YOU REMOVE THE ENGINE. IF YOU DO NOT DO THIS, CONTAMINATION CAN ENTER THE HOLES/PIPES. THIS CAN CAUSE BLOCKAGE TO THE AIRPLANE SYSTEMS.

3. Main Procedure

A. Remove the Engine

(1) Read the engine FADEC data out and send them via email to Continental Aerospace Technology. Refer to the Continental Operation & Maintenance Manual, latest revision.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

(2) Set the engine FUEL SELECTOR to OFF.

(3) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(4) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(5) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(6) Remove the propeller.

Refer to 61-10 Propeller assembly - Remove procedure.

(7) Drain the coolant system.

Refer to 75-20 Cooling System - Drain liquid and release pressure.

(8) Drain the engine oil.

Refer to the Continental Operation & Maintenance Manual, latest revision.

(9) Drain the gearbox oil.

Refer to the Continental Operation & Maintenance Manual, latest revision.

(10) Disconnect the hose from the alternate air valve to the turbo charger.

(11) Disconnect the coolant hoses from the coolant radiators.

(12) Disconnect the alternator cooling hoses.

(13) Remove the coolant radiators with the attached coolant radiator ducts and air filter.

(14) Remove both intercoolers with the attached hoses.

Refer to 81-00 Engine Intercooler - Remove procedure.

(15) Remove the exhaust.

Refer to 78-00 Exhaust - Remove procedure.

(16) Remove the crankcase breather line.

Refer to 71-70 Oil Separator Breather Hose - Remove procedure.

(17) Disconnect the electrical cables on the alternators:

- Release all clips and ties holding the cables to the engine.

(18) Disconnect the electrical cables from the starter motor.

Do not remove clips and ties on the engine mount.

- Disconnect the two control cables at the solenoid.
- Disconnect the main supply cable at the solenoid.
- Release all clips and ties holding the cables to the engine.

(19) Disconnect the electrical connections (glow plugs, injectors, etc.).

Refer to the Continental Operation & Maintenance Manual, latest revision.

- If OÄM 50-011 is installed:
  Release all clips and ties holding the ice protection cables of the propeller to the engine.

(20) Remove the hoses that connect the turbo charger outlets to the intercoolers.

Refer to the Continental Operation & Maintenance Manual, latest revision.

(21) Disconnect the engine harness from the aircraft systems.

Refer to 76-00 Engine Control System Electrical Harness - Remove procedure.

(22) Disconnect the fuel hoses.

(23) Remove the bonding cables at the engine near each engine shock-mount.

(24) Support the airplane at the tail.

Use the tail trestle. Refer to 07-10 Jacking - Description.

(25) Remove the right intercooler bracket.

(26) Attach the sling to the engine.

Attach the sling to the hoist.

The two lifting points are:

- Front of the left cylinder head
- Rear of the right cylinder head.

Refer to the Continental Operation & Maintenance Manual, latest revision.

(27) Support the weight of the engine with the hoist.

(28) Remove the nuts, bolts and washers that attach the engine shock mounts to the engine mount.

(29) Lower the engine into the cradle of the crate.

Refer to the Continental Operation & Maintenance Manual, latest revision.

(30) Put caps on the engine openings and pipes.

(31) Prepare engine for shipping.

Note TTSO hours and reason for removal.

(32) Clean firewall and engine mount.

(33) Examine the engine mount for cracks and corrosion.

(34) Check lifetime of the hoses and replace as necessary.

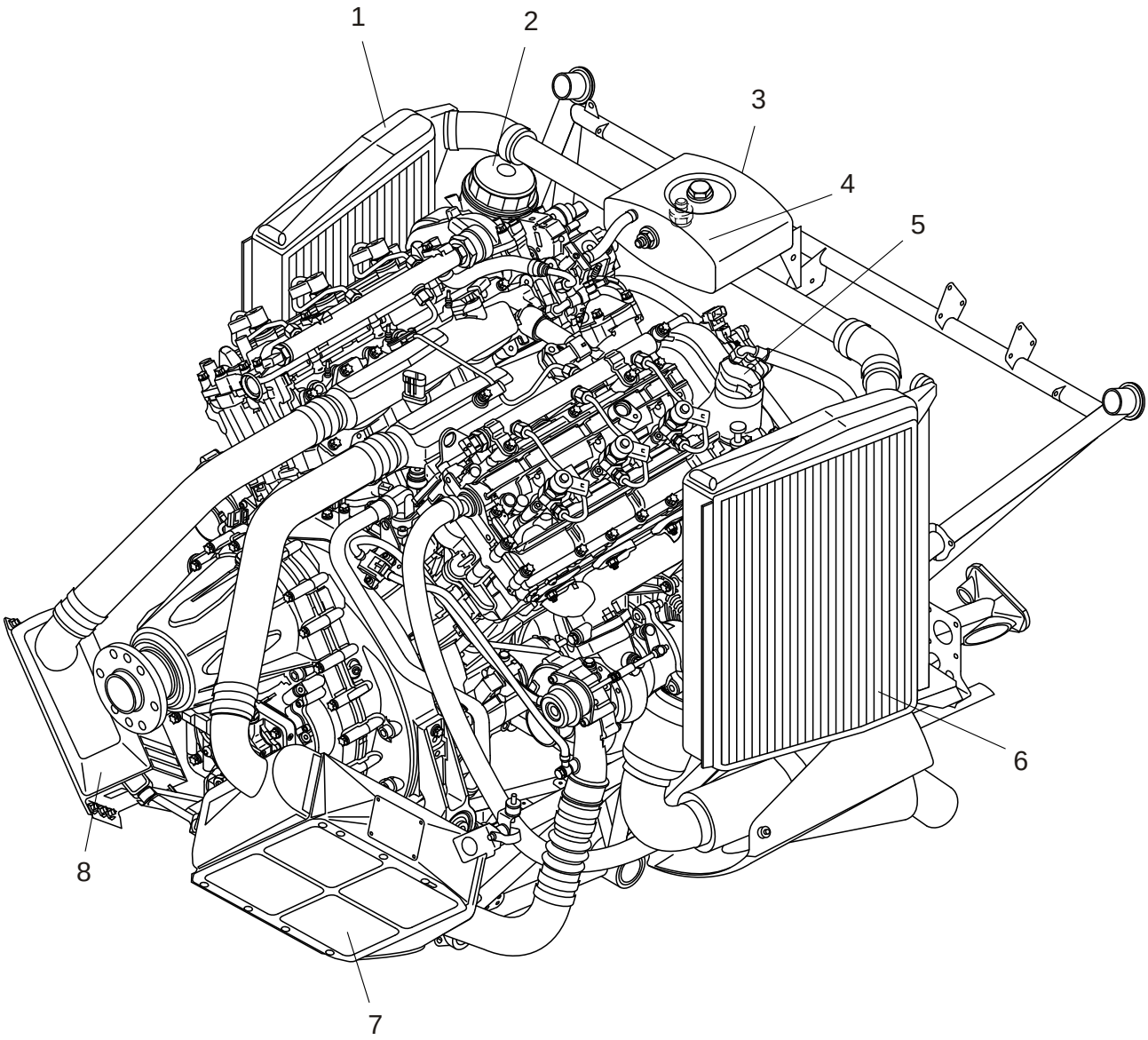


Figure 2 - Engine

Legend

[1, Fig.2] Coolant Radiator RH

[2, Fig.2] Oil Filter

[3, Fig.2] Coolant Tank

[4, Fig.2] Coolant Level Sensor

[5, Fig.2] Oil Filler

[6, Fig.2] Coolant Radiator LH

[7, Fig.2] Intercooler LH

[8, Fig.2] Intercooler RH

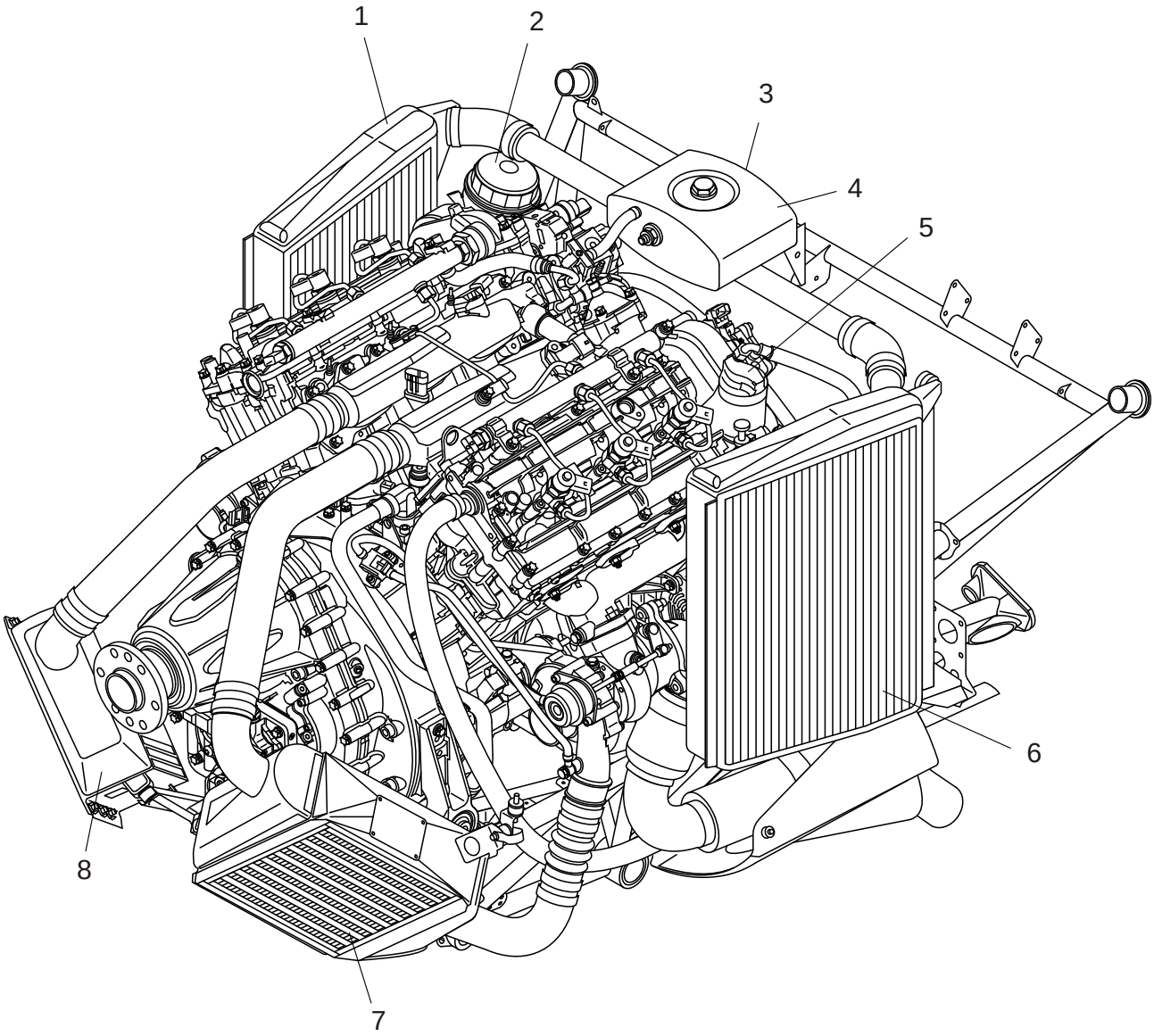


Figure 3 - Engine (if MÄM 50-210 is installed)

Legend

[1, Fig.3]	Coolant Radiator RH
[2, Fig.3]	Oil Filter
[3, Fig.3]	Coolant Tank
[4, Fig.3]	Coolant Level Sensor
[5, Fig.3]	Oil Filler
[6, Fig.3]	Coolant Radiator LH
[7, Fig.3]	Intercooler LH
[8, Fig.3]	Intercooler RH

71-00-04 Engine

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Hoist	Commercial	1
Engine sling	Commercial	1
Tail trestle	Commercial	1
Hoisting points	N/A	2

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

WARNING

DO NOT GO UNDER THE AIRPLANE WHEN IT IS HELD BY THE HOIST. IF THE HOIST FAILS, YOU CAN BE INJURED.

WARNING

DO NOT GET ENGINE OIL, GEAR OIL OR COOLANT ON YOUR SKIN. THESE LIQUIDS CAN CAUSE SKIN DISEASE.

WARNING

DO NOT GET FUEL ON YOUR SKIN. FUEL CAN CAUSE SKIN DISEASE.

DO NOT ALLOW FIRE NEAR FUEL. FUEL BURNS AND CAN CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT.

CAUTION

YOU MUST ATTACH CAPS TO HOLES/PIPES WHEN YOU REMOVE THE ENGINE. IF YOU DO NOT DO THIS, CONTAMINATION CAN ENTER THE HOLES/PIPES. THIS CAN CAUSE BLOCKAGE TO THE AIRPLANE SYSTEMS.

CAUTION

MAKE SURE THAT EACH CARBON BRUSH IS IN THE MIDDLE OF ITS SLIP RING.

3. Main Procedure

A. Install the Engine

(1) Attach the sling to the engine.

Attach the sling to the hoist.

The two lifting points are:

- Front of the left cylinder head.
- Rear of the right cylinder head.

(2) Lift the engine from the crate.

(3) Insert the bushings into the shock mounts (wet installation with CA 1000-PRC De Soto).

(4) Insert the flange bushings into the engine mount (wet installation with CA 1000-PRC De Soto).

(5) Carefully position the engine in the engine mount.

(6) Install the bolts, nuts and washers that attach the engine shock mounts to the engine mount (see Figure 4).

- Front Bolts:
  Wet installation with CA 1000-PRC De Soto.
  Torque: 93 ± 9 Nm (68.6 ± 6.6 lb.ft.). Value includes friction.
  Refer to Special Torque Values - Description.
- Rear Bolts:
  Apply Molykote D-Paste.
  Torque: 93 ± 9 Nm (68.6 ± 6.6 lb.ft.). Value includes friction.
  Refer to Special Torque Values - Description.

(7) Install the four bonding cables at the engine near the LH and RH front shock mount and the rear below the LH and RH alternator.

(8) Connect the fuel hoses.

Secure with lock wire.

(9) Install the oil seaprator breather hose.

Refer to 71-70 Oil Separator Breather Hose - Install procedure.

(10) Install the exhaust.

Refer to 78-00 Exhaust - Install procedure.

(11) Install the right intercooler bracket.

(12) Install the coolant radiators with the attached coolant radiator ducts and air filter.

Refer to 75-20 Coolant Radiator - Install procedure.

(13) Install and connect the coolant hoses.

For coolant hollow bolts torque: 10 - 12 Nm (7.4 - 8.9 lbf.ft.). Value includes friction.

Refer to 20-10 Special Torque Values - Description.

(14) Install the intercoolers.

Refer to 81-00 Engine Intercooler - Install procedure.

(15) Install and connect the intercooler hoses.

(16) Route and connect the engine harness to the aircraft systems.

Refer to 76-00 Engine Control System Electrical Harness - Install procedure.

(17) Connect the electrical connections (glow plugs, injectors, etc.).

(18) Connect the electrical cables of the starter motor.

(19) Connect the electrical cables of the alternators.

(20) If OÄM 50-011 is installed:

Attach the ice protection cables of the propeller to the engine.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

CAUTION

MAKE SURE THAT EACH CARBON BRUSH IS IN THE MIDDLE OF ITS SLIP RING.

(21) Install the propeller.

Refer to 61-10 Propeller assembly - Install procedure.

If OÄM 50-011 is installed:

Refer to the Goodrich Installation and Maintenance Manual for Prop De-Icing Systems.

(22) Fill and bleed the cooling system.

Refer to 75-20 Cooling System - Bleed.

(23) Fill the engine with oil.

Refer to 12-10 Engine Oil - Fill with oil.

(24) Fill the gearbox with oil.

Refer to 12-10 Gearbox Oil - Fill with oil.

(25) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(26) Install the engine cowling.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(27) Remove the tail trestle.

Refer to 07-10 Jacking - Description.

(28) Do an engine test.

Refer to 71-00 Engine - Operation Test.

(29) Check engine fluids after engine test and fill up if necessary.

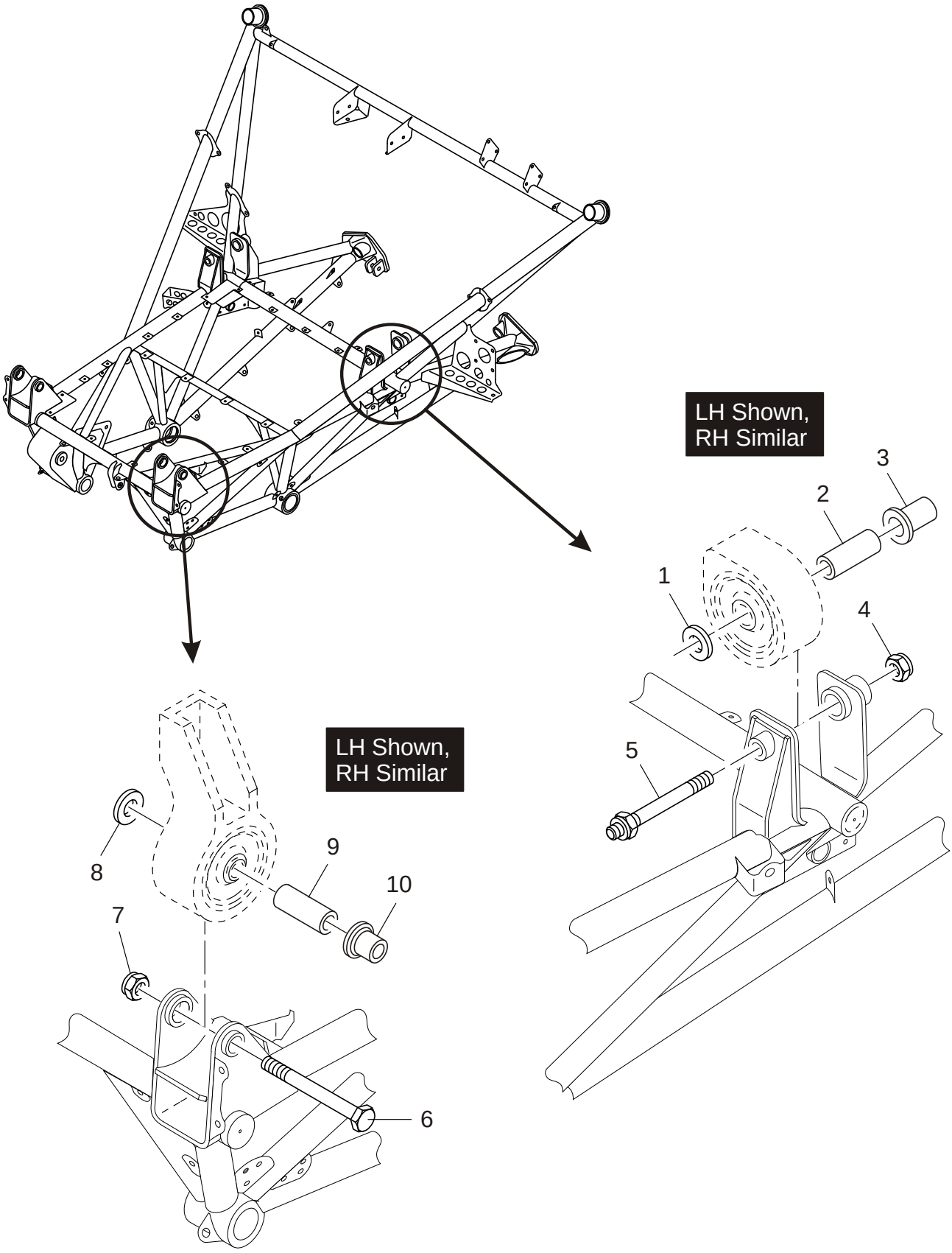


Figure 4 - Engine Shock Mounts

Legend

[1, Fig.4]	Washer
[2, Fig.4]	Bushing
[3, Fig.4]	Collar Bushing
[4, Fig.4]	Nut
[5, Fig.4]	Shock Mount Bolt
[6, Fig.4]	Bolt
[7, Fig.4]	Nut
[8, Fig.4]	Washer
[9, Fig.4]	Bushing
[10, Fig.4]	Collar Bushing

71-00-05 Engine

Operation Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Wheel chocks	Commercial	2
Fuel sample kit	Commercial	1
Laptop computer	Commercial	1
Wizard 300 software, latest approved revision	N/A	n/a
CAN interface	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

CAUTION

ONLY AUTHORIZED PERSONNEL MAY READ ENGINE DATA WITH THE 'ECU OPERATOR' SOFTWARE.

NOTE

The engine drives the propeller through a speed-reducing gear. All RPMs are shown as propeller RPMs.

3. Main Procedure

A. Engine Test

These procedures describe how to do an engine test.

For data on the engine and engine performance testing, refer to the Continental Operation & Maintenance Manual, latest revision.

Figure 5 shows the safety zone for engine testing.

(1) Preparation

Proceed according to Pre-Flight Inspection given in the AFM.

Refer to Airplane Flight Manual, latest revision.

(2) Engine Starting and Warm-Up

Refer to Continental Operation & Maintenance Manual, latest revision for operating limitations.

Conduct Engine Start and Warm Up according to the AFM.

Refer to Airplane Flight Manual, latest revision.

WARNING

DO NOT CONTINUE WITH THE FADEC TEST IF THE ECU CAUTION LIGHTS DO NOT GO ON AND OFF WHEN REQUIRED, OR IF A CAUTION LIGHT STARTS FLASHING. STOP THE GROUND TEST AND FIND THE FAULT.

WARNING

DO NOT OPERATE THE AIRPLANE IF THE ENGINE STOPS RUNNING DURING THE FADEC TEST.

(3) FADEC Test, Propeller Control Test and FADEC Voter Test

Perform an FADEC Test according to the AFM.

Refer to Airplane Flight Manual, latest revision.

CAUTION

THE ENGINE PARAMETERS MUST BE IN THE GREEN RANGE FOR THE PERFORMANCE CHECK. DO THE PERFORMANCE CHECK IMMEDIATELY AFTER WARM-UP AND FADEC TEST.

(4) Performance Check

NOTE

The engine is controlled by the FADEC. The performance check is therefore different from the usual airplane engines. If the values are within the limits as shown in the AFM and no caution or warning light is illuminated the engine works properly.

Perform an Available Power Check according to the AFM.

Refer to Airplane Flight Manual, latest revision.

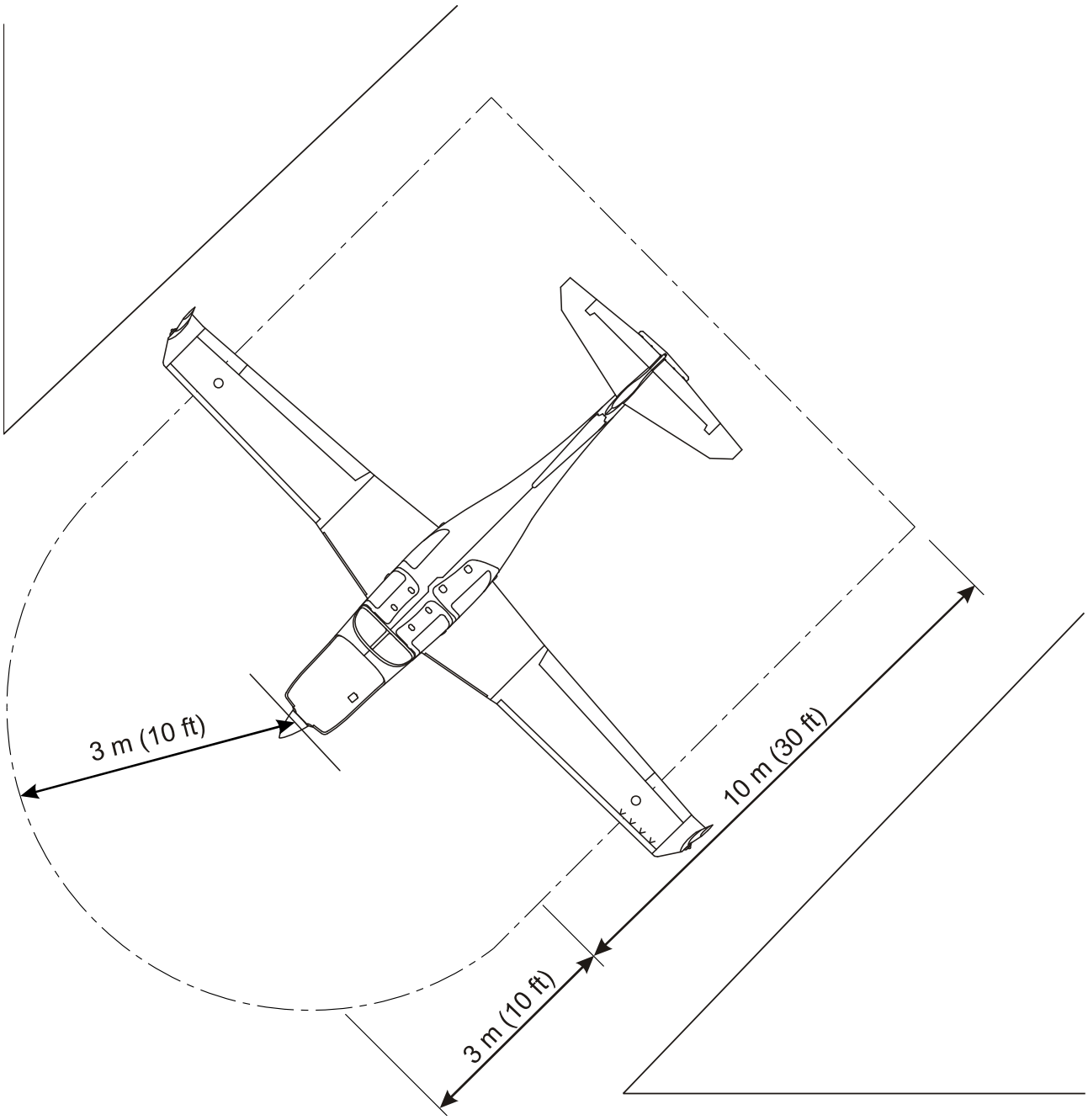


Figure 5 - Engine Testing Safety Zone

71-10
ENGINE COWLINGS

71-10-01 Cowlings

Description

1. Engine Cowlings

The DA 50 C has four carbon fiber reinforced plastic (CFRP) panels which make the engine cowlings. A mid cowling, a LH cowling, a RH cowling and a lower cowling. The cowlings give aerodynamic shape to the nose of the airplane. They are very easy to remove and give good access to the engine.

Refer to 51-00 Airplane Structure - Description for repair data for the cowlings. Refer to 51-40 Fasteners - Description for data on the quick-release fasteners.

2. Description

Figure 1 shows the cowlings.

Camloc quick-release fasteners attach the cowlings to each other and to the fuselage. All the cowlings are very light and one person can hold them easily.

The LH and RH cowling has two air intakes, one on the front left/right side and one on the upper left/right side of the cowling. The front opening supplies air to the LH/RH coolant cooler and air filter box and the upper one for the LH/RH intercooler.

Two NACA inlets for battery compartment ventilation are on the upper rear LH/RH side wall of the LH/RH cowling.

Two cowl flaps on the LH/RH bottom of the LH/RH cowling can electrically be operated to increase/reduce the engine cooling.

The lower cowling does not have to be removed for maintenance work.

On the LH cowling, there is a fresh air intake on the rear left side wall of the cowling.

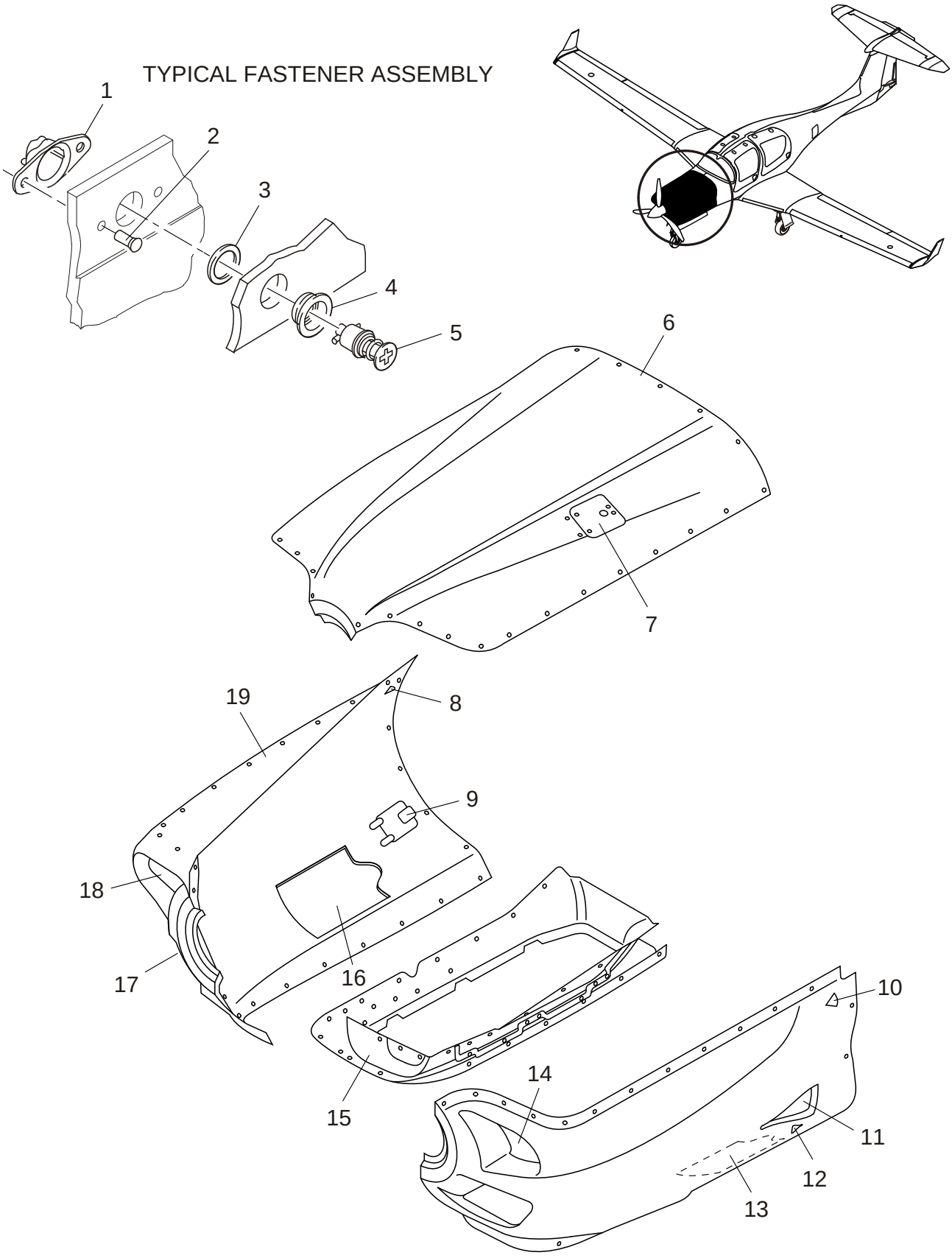


Figure 1 - Engine Cowlings

Legend

[1, Fig.1]	Camloc Receptacle
[2, Fig.1]	Rivet
[3, Fig.1]	Ring
[4, Fig.1]	Grommet
[5, Fig.1]	Camloc Stud
[6, Fig.1]	Mid Cowling
[7, Fig.1]	Access Panel
[8, Fig.1]	Battery Ventilation
[9, Fig.1]	Access Panel
[10, Fig.1]	Battery Ventilation
[11, Fig.1]	Fresh Air
[12, Fig.1]	Fuel Filter Compartment Ventilation
[13, Fig.1]	Cowl Flap Opening
[14, Fig.1]	Cowling Air Intake
[15, Fig.1]	Lower Cowling
[16, Fig.1]	Cowl Flap Opening
[17, Fig.1]	Intercooler Air Intake
[18, Fig.1]	Cowling Air Intake
[19, Fig.1]	RH Cowling

71-10-02 Cowlings

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Outer surface of the cowling discolored. Paint blistered.Black soot on the inner surface.

1A. Examine the engine for hot gas leaks. Examine the exhaust for cracks and leaking gaskets.

Engine overheating, hot gas leak or engine fire detected?

Yes - go to step 1B.

No - go to step 1C.

1B. Replaced damage items. Repaint the cowling.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Oil/fuel/coolant on the inner surface of the cowling.

2A. Examine the engine. Look specially for oil, fuel and coolant leaks.

Oil, fuel or coolant leak detected?

Yes - go to step 2B.

No - go to step 2C.

2B. Correct the problems which you have found. Clean the cowling.

2C. Contact DAI.

71-10-03 Mid Cowling

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Mid Cowling

(1) Make sure that the engine is safe:

- Set the ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Release the fasteners that attach the mid cowling to the LH and RH cowling and the fuselage. Refer to 71-10 Cowlings - Description Figure 1.

(3) Pull the side of the mid cowling gently outwards and upwards.

Take care not to scratch the cowling on the propeller!

(4) Move the mid cowling away from the airplane.

Take care not to scratch the cowling on the propeller!

71-10-04 Left and Right Cowling

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Left and Right Cowling

(1) Make sure that the engine is safe:

- Set the ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Release the fasteners that attach the left and right cowling to each other, the lower cowling and the fuselage.

Refer to 71-10 Cowlings - Description Figure 1

(3) Release the two fasteners on the LH cowl flap opening.

(4) Disconnect the cabin heat hose from the left cowling.

(5) Pull the top of the left cowling up and away from the right and lower cowling and clear of the airplane.

Take care not to scratch the cowling on the propeller!

(6) Release the two fasteners on the RH cowl flap opening.

(7) Pull the bottom edge of the right cowling away from the lower cowling and clear of the engine.

Take care not to scratch the cowling on the propeller!

71-10-05 Left and Right Cowling

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Left and Right Cowling

(1) Examine the left and right cowlings. Make sure that:

- The cowlings are clean.
- The cowlings are not damaged.
  Repair any damage.
- The quick-release fasteners are not missing/damaged.
  Replace missing/damaged fasteners.

(2) Install the right cowling:

- Move the right cowling into position on the airplane fuselage.
  Make sure that the fasteners engage correctly in the fuselage and lower cowling.

(3) Open the RH cowl flap and tighten the two fasteners to the cowl flap.

(4) Connect (worm drive clamp) the cabin heat hose to the right cowling.

(5) Install the left cowling:

- Move the left cowling into position on the airplane fuselage.
  Make sure that the fasteners engage correctly in the right cowling, the fuselage and lower cowling.

(6) Open the LH cowl flap and tighten the two fasteners to the cowl flap.

(7) Tighten all the fasteners that attach the left and right cowlings to the lower engine cowling and the fuselage.

71-10-06 Mid Cowling

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE PROPELLER. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Mid Cowling

(1) Examine the mid cowling. Make sure that:

- The cowling is clean.
- The cowling is not damaged.
  Repair any damage.
- The quick-release fasteners are not missing/damaged.
  Replace missing/damaged fasteners.

(2) Move the mid cowling into position.

(3) Gently pull the edges of the cowling apart and lower the cowling into position.

(4) Tighten the quick-release fasteners.

71-10-07 Cowlings

Clean and apply surface protection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Clean the Cowling

(1) Wash the outer surface with a mixture of water and a mild detergent.

Obey the detergent manufacturer’s instructions.

(2) Wash the inner surface with a mixture of water and a mild detergent.

Obey the detergent manufacturer’s instructions.

CAUTION

DO NOT USE POLISH CONTAINING SILICONE. SILICONE MAKES CFRP REPAIR DIFFICULT.

(3) Polish the outer surface with wax polish.

Obey the polish manufacturer’s instructions. Do not use silicone polish.

71-10-08 Cowlings

Paint and apply marking

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Paint the Insides of the Cowling

This Paragraph gives the data for painting the inside of the engine cowling with fire protection paint. Refer to 51-20 Exterior Paint Finish - Repair procedure for repairs and painting the outside of the cowling.

(1) Clean the inside of the cowling.

(2) Make the area rough for painting.

Use 150-320 grade wet and dry paper.

WARNING

DO NOT GET ACETONE, FILLER, OR PAINT ON YOUR SKIN. ACETONE, FILLER, AND PAINT CAN CAUSE SKIN DISEASE.

WARNING

DO NOT BREATHE ACETONE, FILLER, OR PAINT FUMES. ACETONE, FILLER, AND PAINT FUMES CAN CAUSE DISEASE.

CAUTION

REMOVE ACETONE AS SOON AS POSSIBLE FROM GFRP. ACETONE CAN CAUSE THE RESIN TO SOFTEN AND FAIL.

(3) Clean the area for painting.

Use acetone.

(4) Paint the inside of the cowling with fire protection paint.

Obey the paint manufacturer’s instructions.

(5) Paint the inside of the cowling with clear top coat.

Obey the paint manufacturer’s instructions.

71-20
ENGINE MOUNTS

71-20-01 Engine Mount

Description

1. Engine Mount

The engine mount is constructed from tubular steel which is welded at the joints. Powder coating protects the frame from corrosion. Welded brackets hold components such as coolant radiators, intercoolers, fan and cabin heat exchanger in position. Rubber lined P-clamps and cable ties hold electrical cables and other equipment components to the engine mount.

The engine mounting-frame has four small mounting pads at the rear of the frame. Bolts through the pads attach the engine mount to the NLG bulkhead.

The engine attaches to the engine mount at four mounting pads. Rubber shock-mounts are built between the engine mounting arms and the engine mount pads and isolate the airframe from engine vibrations.

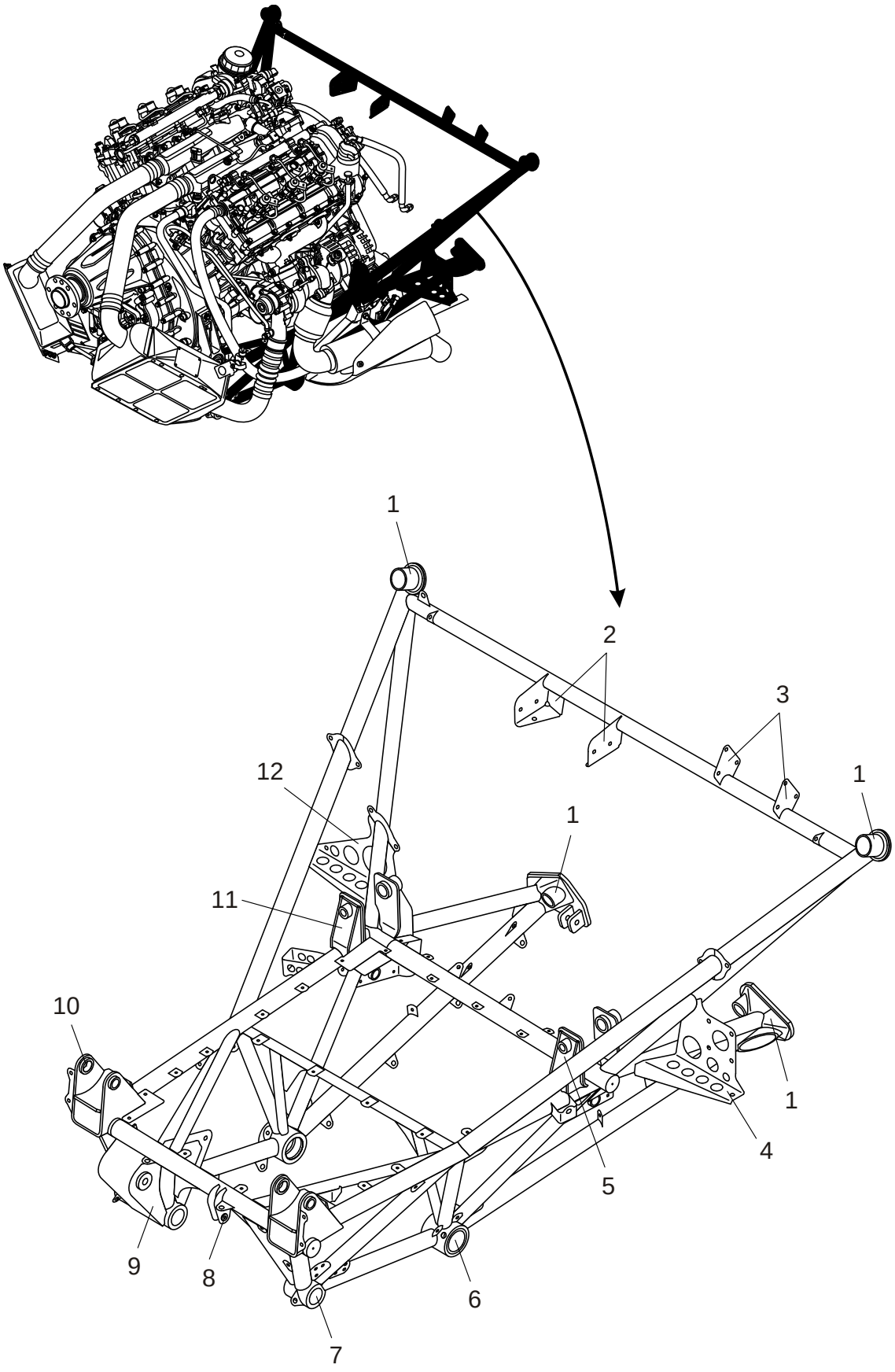


Figure 1 - Engine Mount Assembly

Legend

[1, Fig.1]	NLG Bulkhead Mounting Pad
[2, Fig.1]	Cabin Heat Exchanger Mounting
[3, Fig.1]	Fan Mounting
[4, Fig.1]	Coolant Cooler Mounting
[5, Fig.1]	Shock Mount
[6, Fig.1]	NLG Mount
[7, Fig.1]	Front Shock Mount
[8, Fig.1]	NLG Lock Attachment
[9, Fig.1]	NLG Actuator Mount
[10, Fig.1]	Shock Mount
[11, Fig.1]	Shock Mount
[12, Fig.1]	Coolant Cooler Mounting

71-20-02 Engine Mount

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Engine vibration.

1A. Examine the engine mount. Look specially for cracks at the welded joints.

Are the shock mounts defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the shock mounts.

1C. Refer to the engine manufacturer.

71-20-03 Engine Mount

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Hoist	Commercial	1
Engine sling	Commercial	1
Tail trestle	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GO UNDER THE AIRPLANE WHEN IT IS HELD BY THE HOIST. IF THE HOIST FAILS, YOU CAN BE INJURED.

3. Main Procedure

A. Remove the Engine Mount (Without Engine Installed)

(1) Remove the engine.

Refer to 71-00 Engine - Remove procedure.

(2) Release all clamps, clips and ties holding the electrical harness and hoses to the engine mount.

(3) Remove the cabin heat-exchanger and shroud.

Refer to 21-40 Heat Exchanger Assembly - Remove procedure.

(4) Remove the engine coolant coolers.

Refer to 75-20 Coolant Radiator - Remove procedure.

(5) Remove the intercoolers with coolant tank.

Refer to 75-20 Coolant Expansion Tank - Remove procedure.

(6) Remove the 6 bolts and washers which attach the engine mount to the NLG bulkhead.

(7) Move the engine mount clear of the airplane.

71-20-04 Engine Mount

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Hoist	Commercial	1
Engine sling	Commercial	1
Tail trestle	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

DO NOT GO UNDER THE AIRPLANE WHEN IT IS HELD BY THE HOIST. IF THE HOIST FAILS, YOU CAN BE INJURED.

3. Main Procedure

A. Install the Engine Mount (Without Engine Installed)

(1) Move the engine mount into position on the NLG bulkhead.

(2) Install the 6 bolts which attach the engine mount to the NLG bulkhead:

- Fasten the bolts through the NLG bulkhead.
  The two upper bulkead bolts: Torque: 80 ± 8 Nm (59.0 ± 5.9 lbf.ft.). Value inculdes friction.
  Refer to Special Torque Values - Description.
  The remaining four bolts: Torque: 20 ± 2 Nm (14.75 ± 1.48 lbf.ft.). Value includes friction.
  Refer to Special Torque Values - Description.

(3) Install the engine coolant coolers.

(4) Install the intercoolers with coolant tank.

(5) Install the cabin heat-exchanger and shroud.

(6) Install all the clamps, clips and ties that hold the electrical harness and hose to the engine mount.

The clamps, clips and ties that you removed in 71-20 Engine Mount - Remove procedure.

71-20-05 Trim Weight on Front Bulkhead

Description

1. Trim Weight System on Front Bulkhead

To adjust the airplanes CG, it is possible to install a trim weight on the front bulkhead. The trim weight can be varied from 0 up to 12.5 kg (27.6 lb) in 2.5 kg (5.5 lb) steps by installing the required number of lead plates. The lead plates are fixed by four bolts.

NOTE

Any change in the configuration of the airplane requires a new determination of the empty mass and corresponding CG position in accordance with 08-00 Weighing - Description.

NOTE

All measures must be carried out by a certified airplane maintenance station or a certified airplane mechanic.

The trim weight system on the front bulkhead consists of the following main parts (refer to Figure 2):

- Connecting components (bolts, bushings, washers and nuts).
- Lead plates.

A. Lead Plates

The trim weights consists of lead. Each trim plate weighs 2.5 kg (5.5 lb). The mass can be varied from 0 up to 12.5 kg (27.6 lb) in 2.5 (5.5 lb) steps by installing the required number of lead plates.

A maximum of 5 plates can be installed. Each plate shifts the emtpy center of gravity by approx. 2 mm forward.

The lead plates are fixed by four bolts to the front bulkhead. If less than five plates are used, distance bushings and/or washers must be installed to prevent movement of the trim weights.

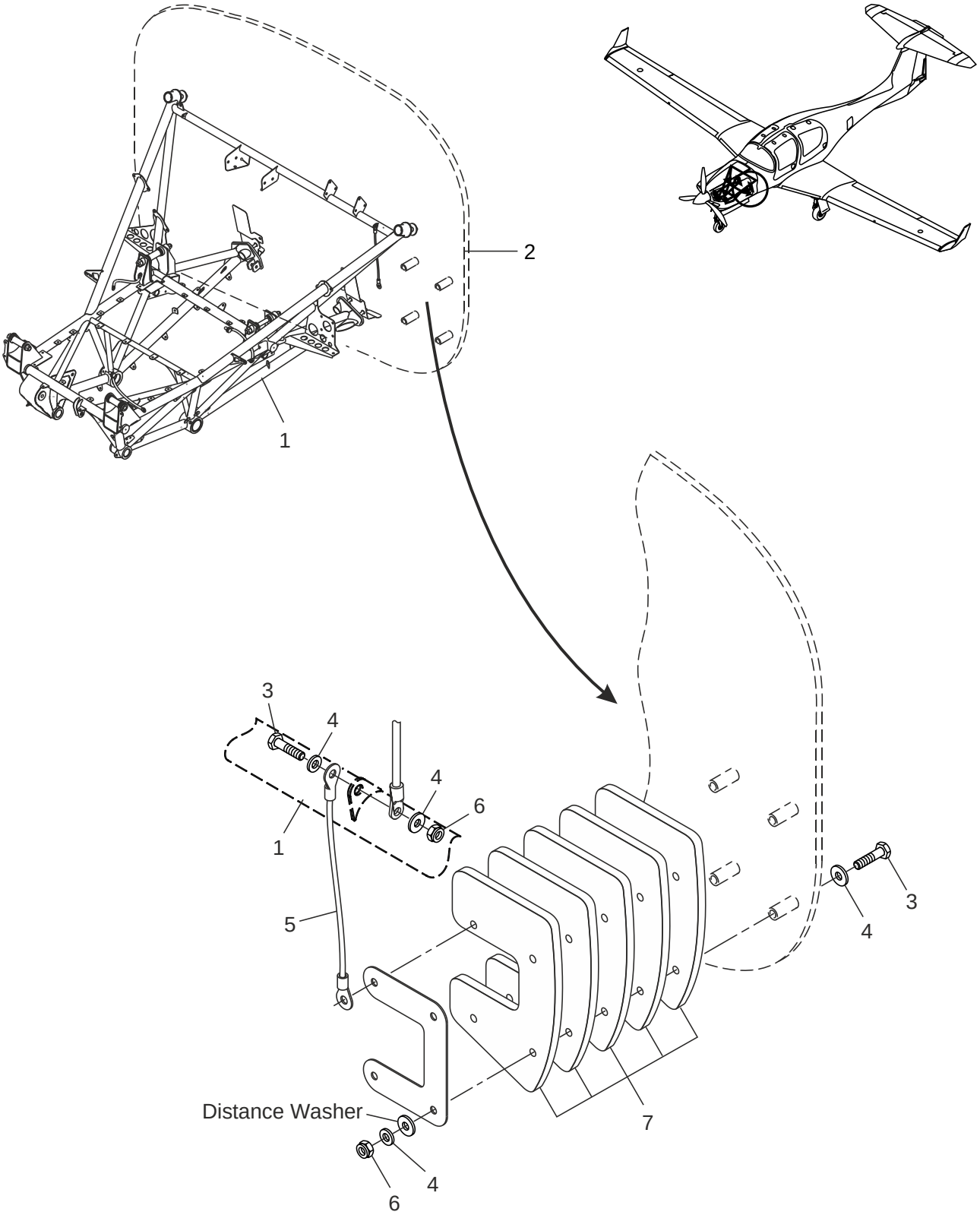


Figure 2 - Trim Weights on Front Bulkhead

Legend

[1, Fig.2] Engine Mount

[2, Fig.2] NLG Bulkhead

[3, Fig.2] Bolt

[4, Fig.2] Washer

[5, Fig.2] Bonding Wire

[6, Fig.2] Nut

[7, Fig.2] Trim Plates (Max. 5)

71-20-06 Trim Weight on Front Bulkhead

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove Trim Weights

This procedure is only applicable if OÄM 50-065 is installed.

(1) Loosen and remove the four bolts, nuts, washers and bushes.

(2) Remove the trim weights.

71-20-07 Trim Weight on Front Bulkhead

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Trim Weight

This procedure is only applicable if OÄM 50-065 is installed.

(1) Check the trim weight and its attachment structure for:

- Delamination.
- Disbonds.
- Cracks.
- Corrosion.
- Loose items.

(2) Carefully put the trim weight into position and verify proper fit.

Use new self-locking nuts!

(3) Install the distance washers, bolts, washers and nuts.

(4) Tighten all four bolts.

(5) Verify completeness of the tools.

B. Weighing Report

(1) Make sure the Weighing Report is up to date.

71-50
ELECTRICAL CABLES IN THE ENGINE COMPARTMENT

71-50-01 Electrical harness

Description

1. Electrical Cables in the Engine Compartment

The engine compartment has a main electrical wiring harness. The harness is supplied as part of the engine installation. The harness incorporates all of the low-power cables for the engine control system. It is integral part of the engine control system. Refer to 76-00 Engine controls - Description for data about the main electrical wiring harness.

There is a small number of separate cables for the alternator and starter. See Chapter 24 Electrical System - Description for data about the battery and alternator wiring. See Chapter 80 Starting - Description for more data about the starter cables. See Chapter 92 wiring diagrams for data about the cables in each system.

71-60
AIR INTAKES

71-60-01 Air intakes

Description

1. Air Intakes

An air filter housing, air filter and alternate air valve assembly on each side make the engine air intake system of the DA 50 C airplane. The alternate air valve flange is connected to the air filter box via camlocs. A flexible hose feeds the air from the alternate air valve to the turbo charger. A lever below the instrument panel on the right side of the center console, operates the alternate air valves (LH and RH) simultaneously.

Figure 1 shows the engine air filter and alternate air valve.

2. Description

The air intake has four main parts:

- Alternate air valve assembly.
- Air filter housing.
- Air filter.
- Alternate air valve operating cables.

A. Alternate Air Assembly

Refer to Figure 1. The alternate air valve is attached to the aft face of the air filter housing. The air filter attaches to the front of the alternate air valve. The alternate air valve also has an inlet direct from the engine compartment. Operation of the alternate air valve control lever moves a flap to the engine compartment which allows unfiltered air to enter the engine induction system.

B. Air Filter Housing

The air filter housing is made of GFRP. The air filter housing is integrated to the coolant cooler duct.

C. Air Filter

Refer to Figure 1. The air filter is a K&N RU high-flow air filter. The air filter is located in the forward LH and RH of the engine compartment in the air filter box.

D. Alternate Air Valve Operating Cables

A control lever on the right side of the center console, below the instrument panel operates the alternate air valves. Two Bowden cables connect the control lever to the left and right engine sides alternate air valve operating levers.

3. Operation

When the pilot pulls the alternate air valve control lever aft:

- The control lever pulls the cables of the left and right alternate valves.
- Both engine alternate air valves move to the alternate air position (unfiltered air).

When the pilot moves the alternate air valve control lever forward both alternate air valves move back to the normal (OFF) position.

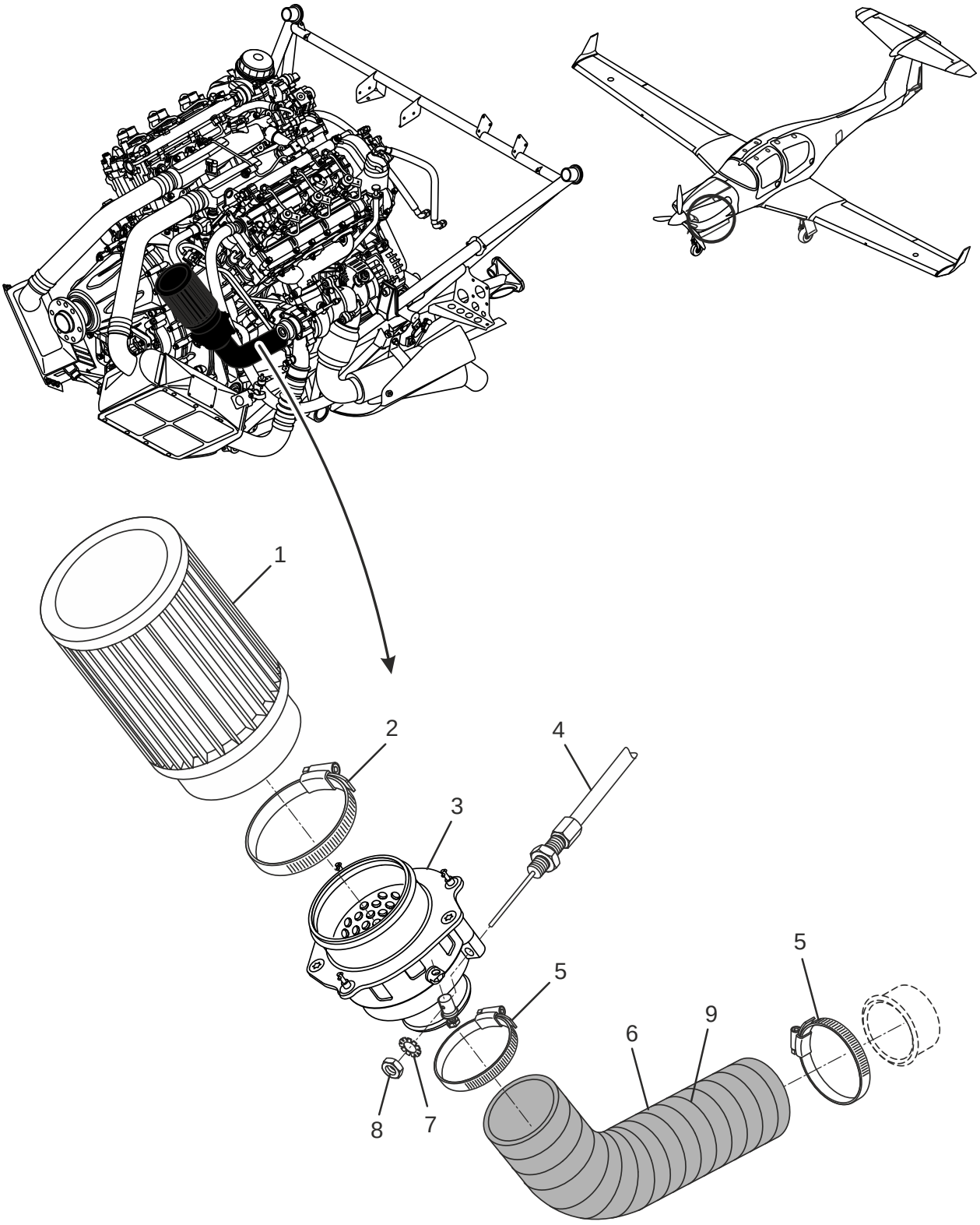


Figure 1 - Air Filter and Alternate Air Assembly

Legend

[1, Fig.1] Air Filter
[2, Fig.1] Worm-Drive Clamp
[3, Fig.1] Alternate Air Valve
[4, Fig.1] Bowden Cable
[5, Fig.1] Worm-Drive Clamp
[6, Fig.1] Turbo-Charger Intake Hose
[7, Fig.1] Washer
[8, Fig.1] Nut
[9, Fig.1] Wire Coil Spring

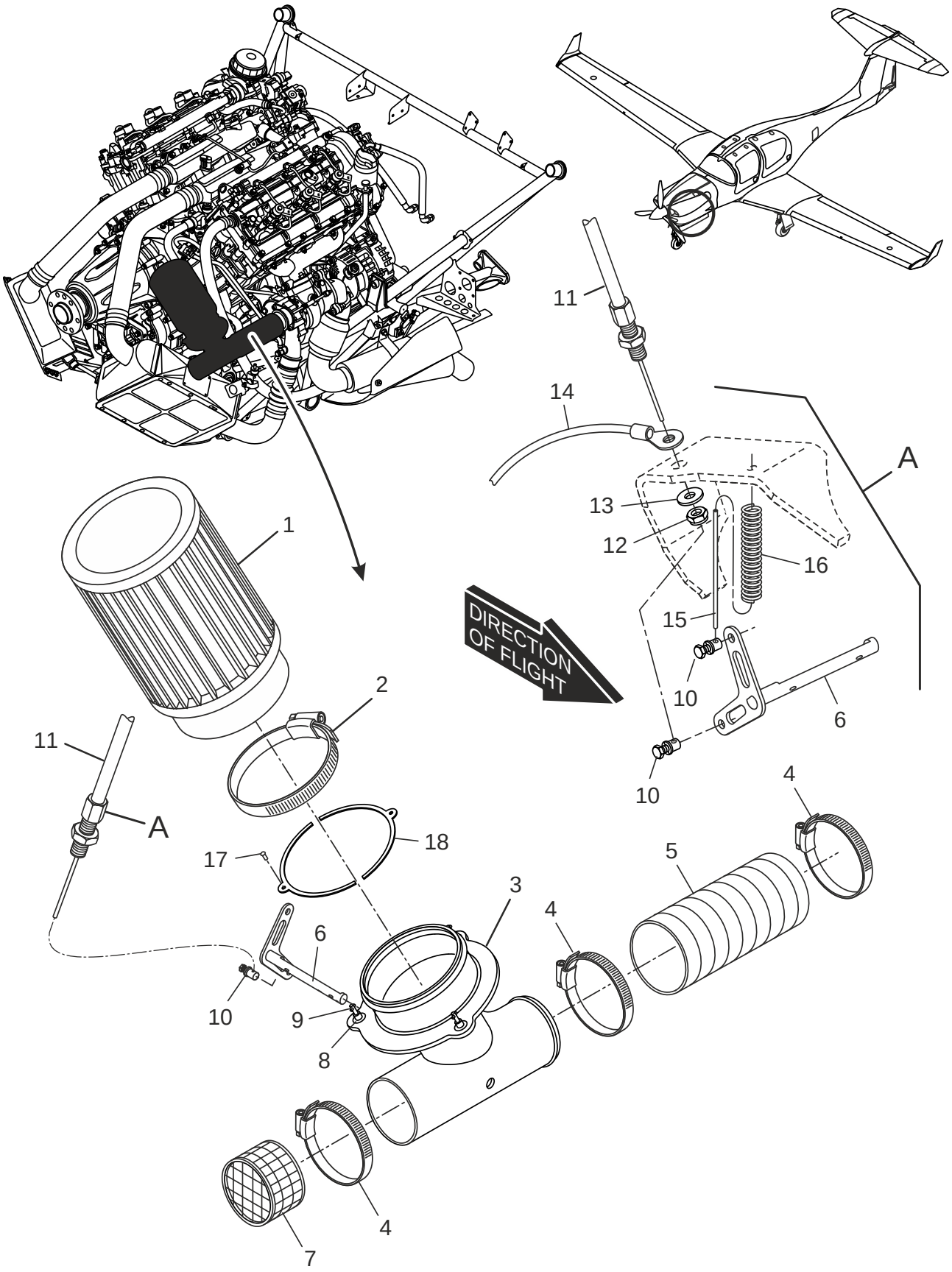


Figure 2 - Air Filter and Alternate Air Assembly (if MÄM 50-110 is installed)

Legend

[1, Fig.2]	Air Filter
[2, Fig.2]	Worm-Drive Clamp
[3, Fig.2]	Air Valve Plate
[4, Fig.2]	Worm-Drive Clamp
[5, Fig.2]	Turbo-Charger Intake Hose
[6, Fig.2]	Valve Lever Assembly
[7, Fig.2]	Air Strainer
[8, Fig.2]	Retaining Washer
[9, Fig.2]	Quarter Turn Bolt
[10, Fig.2]	Cable Nipple
[11, Fig.2]	Bowden Cable
[12, Fig.2]	Nut
[13, Fig.2]	Washer
[14, Fig.2]	Bonding Wire
[15, Fig.2]	Steel Wire
[16, Fig.2]	Compression Spring
[17, Fig.2]	Blind Rivet
[18, Fig.2]	Retainer

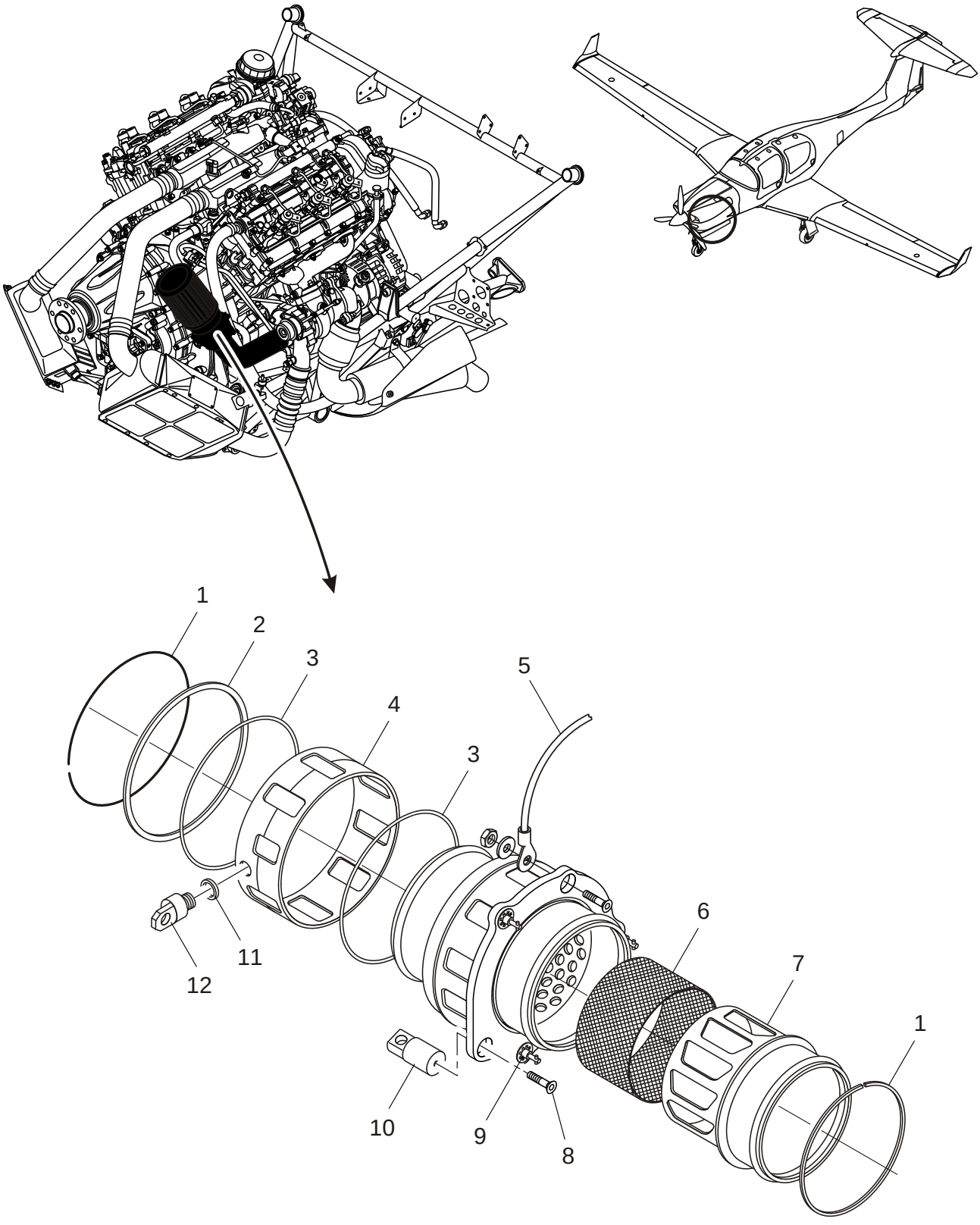


Figure 3 - Air Valve Assembly

Legend

[1, Fig.3]	Locking Ring
[2, Fig.3]	Ring
[3, Fig.3]	O-Ring
[4, Fig.3]	Alternate Air Valve Body
[5, Fig.3]	Bonding Wire
[6, Fig.3]	Mesh
[7, Fig.3]	Suction Nozzle
[8, Fig.3]	Screw
[9, Fig.3]	Camloc Bolt & Lock Washer
[10, Fig.3]	Bowden Cable Guide
[11, Fig.3]	Bushing
[12, Fig.3]	Guide Bolt

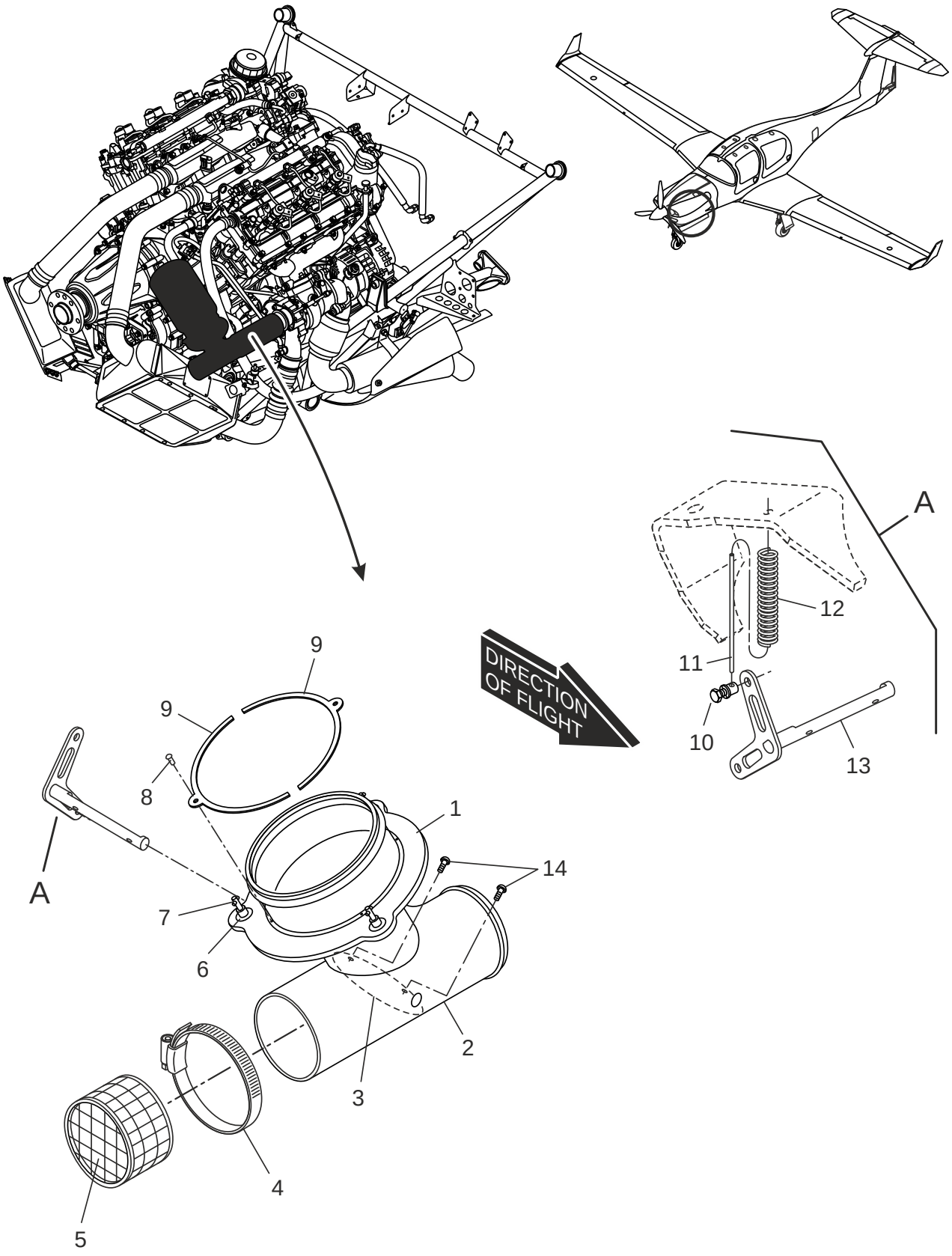


Figure 4 - Air Valve Assembly (if MÄM 50-110 is installed)

Legend

[1, Fig.4]	Air Valve Plate
[2, Fig.4]	Air Valve Body
[3, Fig.4]	Air Valve Disk
[4, Fig.4]	Worm-Drive Clamp
[5, Fig.4]	Air Strainer
[6, Fig.4]	Retaining Washer
[7, Fig.4]	Quarter Turn Bolt
[8, Fig.4]	Blind Rivet
[9, Fig.4]	Retainer
[10, Fig.4]	Cable Nipple
[11, Fig.4]	Steel Wire
[12, Fig.4]	Compression Spring
[13, Fig.4]	Valve Lever Assembly
[14, Fig.4]	Screw

71-60-02 Air intakes

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

An engine does not develop full power.

1A. Examine the air filter.

Is the air filter blocked or defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Replace the air filter.

1C. Contact DAI.

71-60-03 Air Filter

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove an Air Filter

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Remove the air intake hose from the turbocharger.

(5) Disconnect the alternate air valve Bowden cable.

(6) Open the 3 Camlocs of the alternate air valve.

(7) Pull out the alternate air valve with the attached filter element.

(8) Open the worm-drive clamp which holds the filter element. Pull off the filter from the alternate air valve.

71-60-04 Air Filter

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install the Air Filter

(1) Place the filter on the alternate air valve. Close the worm drive clamp which holds the filter element. Do not use the worm drive clamp provided with K&N filter package. Use 9 mm (3/8 in) wide worm drive clamp instead.

(2) Place the alternate air valve with the attached filter element into the air filter box.

(3) Close the 3 Camlocs of the alternate air valve.

(4) Connect the alternate air valve Bowden cables.

(5) Install the air intake hose to the turbo charger, together with wire coil spring.

(6) Check if position of the alternate air valve is in accordance to the selector handle position.

Refer to 71-60 Alternate Air Control Inner Cable - Adjust, align and calibrate and 71-60 DA50-A-71-60-00-04A-270A-D

(7) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(8) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

71-60-05 Alternate Air Valve

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Alternate Air Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Remove the air intake hose from the turbocharger and alternate air valve.

(5) Disconnect the alternate air control cable.

(6) Open the 3 Camlocs of the alternate air valve.

(7) Move the alternate air valve clear of the airplane.

(8) Disconnect the air filter.

(9) If the FOD screen of the alternate air valve is contaminated:

- Clean FOD screen.

71-60-06 Alternate Air Valve

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Alternate Air Valve

(1) Install the air filter.

Refer to 71-60 Air Filter - Install procedure.

(2) Install the alternate air valve to the air filter housing.

(3) Connect the alternate air valve control cable to the valve.

(4) Adjust the alternate air control cable.

Refer to 71-60 Alternate Air Control Inner Cable - Adjust, align and calibrate.

(5) Connect the hose that connects the alternate air valve to the turbo charger inlet:

- Connect the hose with the wire coil spring on outside to the alternate air valve.
- Tighten the worm-drive clamp.
- Connect the hose to the turbo charger inlet.
- Space the spring coils regularly, tighten the spring by twisting, make sure the spring ends are under the worm-drive clamps.
- Tighten the worm-drive clamp.

(6) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(7) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

71-60-07 Alternate Air Control Inner Cable

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove an Alternate Air Control Inner Cable

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Disconnect the control cable from the alternate air valve.

Refer to Figure 5 and Figure 6.

- Loosen the screw on the cable swivel fitting at the alternate air valve.
- Pull the inner control cable clear of the swivel fitting.
  Retain the swivel fitting.

(5) Disconnect the control cable from the alternate air control operating lever in the cockpit.

Refer to Figure 5 and Figure 6.

- Loosen the screw on the cable swivel fitting at the operating lever.
- Remove the swivel fitting from the cable.
  Retain the swivel fitting.

(6) Remove the inner control cable form the sheath.

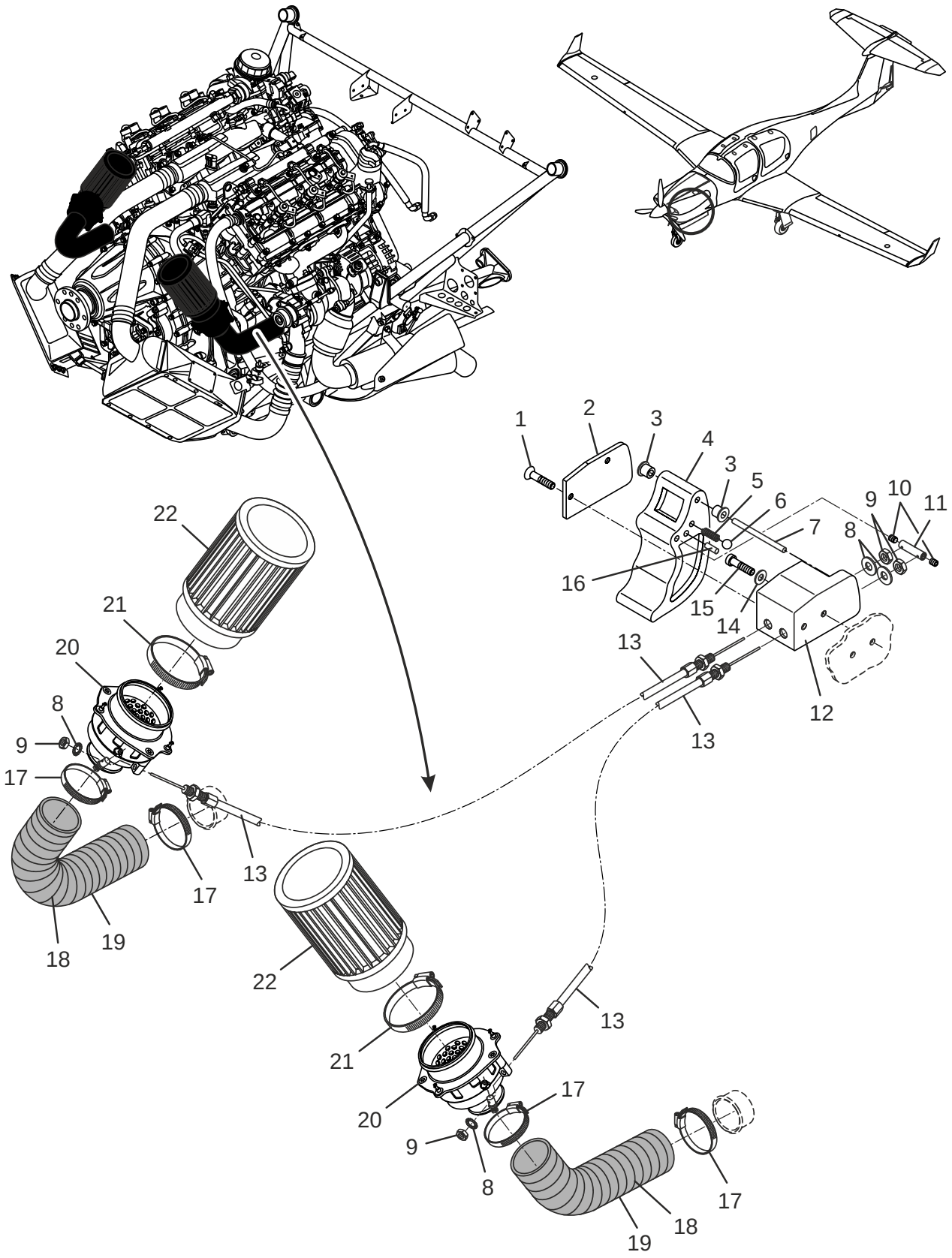


Figure 5 - Alternate Air Valve Operating Cables

Legend

[1, Fig.5]	Screw
[2, Fig.5]	Alternate Air Control Cover
[3, Fig.5]	Bearing
[4, Fig.5]	Operating Lever
[5, Fig.5]	Compression Spring
[6, Fig.5]	Steel Ball
[7, Fig.5]	Parallel Pin
[8, Fig.5]	Washer
[9, Fig.5]	Nut
[10, Fig.5]	Hexagon Socket Set Screw
[11, Fig.5]	Swivel Fitting
[12, Fig.5]	Alternate Air Control Bracket
[13, Fig.5]	Bowden Cable
[14, Fig.5]	Washer
[15, Fig.5]	Screw
[16, Fig.5]	Parallel Pin
[17, Fig.5]	Worm-Drive Clamp
[18, Fig.5]	Wire Coil Spring
[19, Fig.5]	Turbo-Charger Intake Hose
[20, Fig.5]	Alternate Air Valve
[21, Fig.5]	Worm-Drive Clamp
[22, Fig.5]	Air Filter

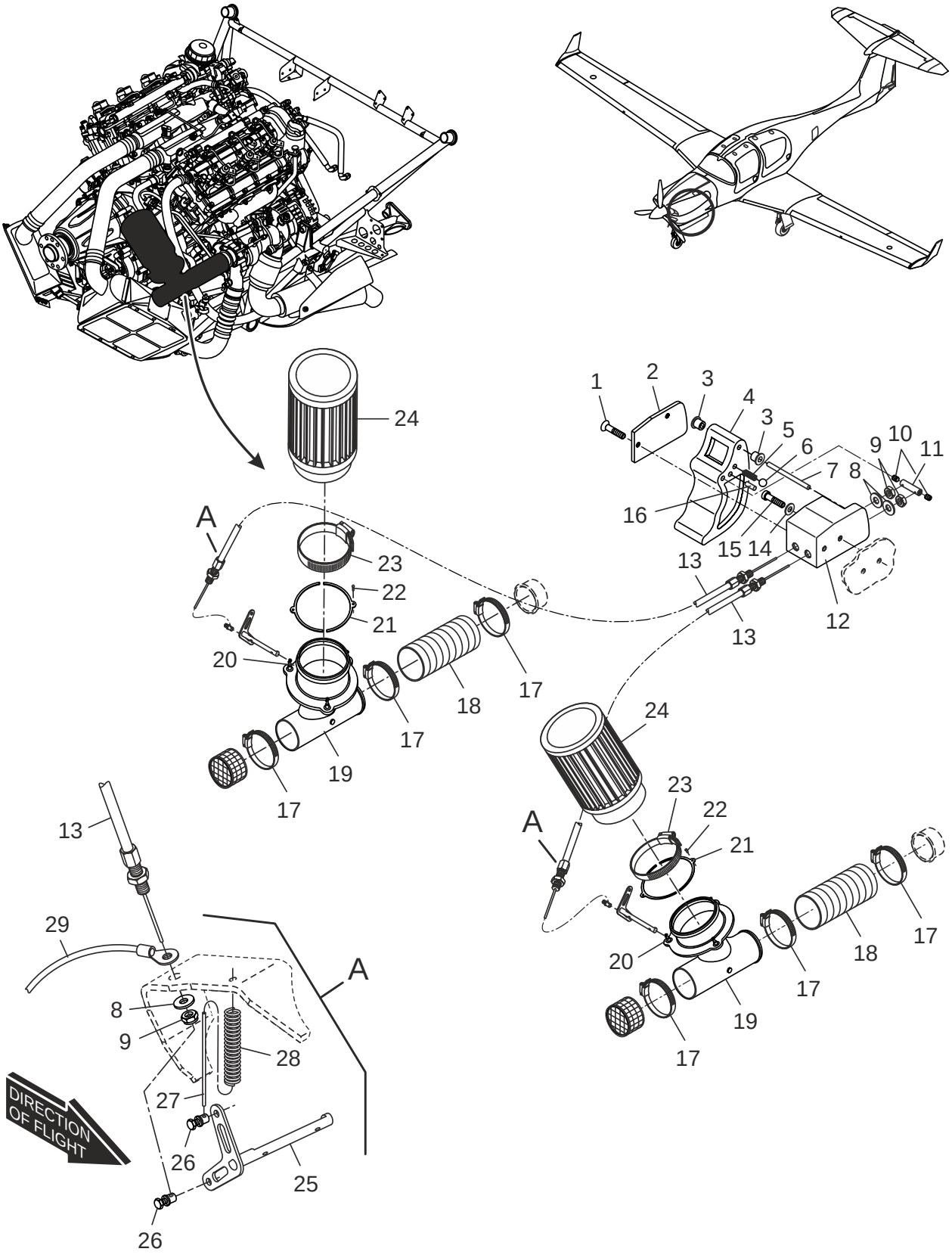


Figure 6 - Alternate Air Valve Operating Cables (if MÄM 50-110 is installed)

Legend

[1, Fig.6]	Screw
[2, Fig.6]	Alternate Air Control Cover
[3, Fig.6]	Bearing
[4, Fig.6]	Operating Lever
[5, Fig.6]	Compression Spring
[6, Fig.6]	Steel Ball
[7, Fig.6]	Parallel Pin
[8, Fig.6]	Washer
[9, Fig.6]	Nut
[10, Fig.6]	Hexagon Socket Set Screw
[11, Fig.6]	Swivel Fitting
[12, Fig.6]	Alternate Air Control Bracket
[13, Fig.6]	Bowden Cabel
[14, Fig.6]	Washer
[15, Fig.6]	Screw
[16, Fig.6]	Parallel Pin
[17, Fig.6]	Worm-Drive Clamp
[18, Fig.6]	Turbo-Charger Intake Hose
[19, Fig.6]	Alternate Air Valve
[20, Fig.6]	Quarter Turn Bolt
[21, Fig.6]	Retainer
[22, Fig.6]	Blind Rivet
[23, Fig.6]	Worm-Drive Clamp
[24, Fig.6]	Air Filter
[25, Fig.6]	Valve Lever Assembly
[26, Fig.6]	Cable Nipple
[27, Fig.6]	Steel Wire
[28, Fig.6]	Compression Spring
[29, Fig.6]	Bonding Cable

71-60-08 Alternate Air Control Inner Cable

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install an Alternate Air Control Inner Cable

(1) Make sure that the alternate air control cable outer sheath is in good condition and is not kinked.

(2) Make sure that the new alternate air valve control inner cable is clean and dry.

(3) Install the new alternate air valve control inner cable.

- Pull the new cable into the outer sheat.

(4) Connect the alternate air inner cable to the operating lever in the cockpit.

Refer to 71-60 Alternate Air Control Inner Cable - Remove procedure Figure 5.

- Install the swivel fitting into the operating lever.
- Pass the inner cable through the swivel fitting and tighten the swivel fitting.

(5) Connect the alternate air inner cable to the alternate air valve:

Refer to 71-60 Alternate Air Control Inner Cable - Remove procedure Figure 5.

- Install the swivel fitting into the alternate air valve.
- Pass the inner cable through the swivel fitting and tighten the swivel fitting screw.

(6) Adjust the alternate air cable that you installed.

Refer to 71-60 Alternate Air Control Inner Cable - Adjust, align and calibrate.

(7) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(8) Install the engine cowlings that you removed.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

71-60-09 Alternate Air Control Inner Cable

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Adjust an Alternate Air Control Inner Cable

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) If necessary, disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) If necessary, remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Move the alternate air lever in the cockpit from OFF to ON:

Fully aft.

- Make sure the lever moves freely with no restrictions.

(5) Set the alternate air lever in the cockpit to OFF:

Fully forward.

- Make sure that both left and right alternate air valves are fully closed.
  Make sure that the control lever holds in closed position detent.

(6) Set the alternate air lever in the cockpit to ON and hold it in position:

- Make sure that both left and right alternate air control valves are in the fully open position.

NOTE

If MÄM 50-110 is installed:

There should be a gap of 0-2 mm between the lever and the open-position-end-stop.

(7) If necessary, adjust the alternate air control inner cable to get the correct settings at step A.(5).

At the alternate air lever.

(8) Do step A.(5) to step A.(7) again as necessary.

(9) Connect the airplane battery.

Refer to 24-31 Main Battery - Connect procedure.

(10) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

71-60-10 Alternate Air Control Left/Right Cable

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove an Alternate Air Control Left/Right Cable

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Disconnect the control cable from the operating lever in the cockpit:

- Loosen the screw on the cable swivel fitting at the operating lever.
- Pull the control cable clear of the swivel fitting.
  Retain the swivel fitting.
- Loosen and remove the nut holding the sheath in the control lever bracket.

(5) Disconnect the control cable from the related alternate air valve:

- Loosen the screw on the cable swivel fitting at the alternate air valve.
- Pull the control cable clear of the swivel fitting.
  Retain the swivel fitting.
- Loosen and remove the nut holding the sheath in the alternate air valve bracket.

(6) Make the cable free along its length.

Pull the complete cable out of the airplane.

71-60-11 Alternate Air Control Left/Right Cable

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install an Alternate Air Control Left/Right Cable

(1) Make sure that the alternate air control cable outer sheath is in good condition and is not kinked.

(2) Make sure that the new alternate air valve control cable is clean and dry.

(3) Install the new alternate air valve left/right control cable.

- Pull the new cable into the airplane.
- Attach it with cable-ties where necessary and seal the pass through.

(4) Connect the alternate air cable to the related alternate air valve operating lever.

- Install and tighten the nut holding the sheath in the control lever bracket.
- Install the swivel fitting into the alternate air valve operating lever.
- Pass the cable through the swivel fitting and tighten the swivel fitting screw.

(5) Connect the alternate air cable to the alternate air valve:

Refer to 71-60 Alternate Air Control Inner Cable - Remove procedure Figure 5.

- Install and tighten the nut holding the sheath in the alternate air valve bracket.
- Install the swivel fitting into the alternate air valve.
- Pass the cable through the swivel fitting and tighten the swivel fitting screw.

(6) Adjust the alternate air cable that you installed.

Refer to 71-60 DA50-A-71-60-00-04A-270A-D .

(7) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(8) Install the engine cowlings that you removed.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

71-60-12 Cowl Flap

Description

1. Cowl Flap

At the bottom of the LH and RH cowling electrically operated cowl flaps (refer to Figure 7) are installed. The cowlings allow to optimize the engine cooling and minimize the associated aerodynamic drag in various phases of the flight. The cowl flaps are driven by an electrical linear actuator which is mounted to the engine mount via bracket. The arm of the actuator is connected to the middle of the control tube. The LH and RH end of the control tube are connected to the LH and RH cowl flap via push rods and ball joints. The cowl flaps are made of CFRP and are mounted to the cowling with bolts and bushings.

The operation of the cowl flap is controlled by a toggle switch on the cockpit center console. The cowl flap mechanism is equipped with limit switches at the left cowl flap control arm which is controlling the cowl flap control lights on its control panel next to the control switch. Both the "open" and "closed" positions are electrically limted by the limit switches. The "open" and "closed" position are signalled by control lights next ot the toggle switch in the cockpit.

Refer to Chapter 92 for the wiring diagram Wiring Diagram Manual - Description.

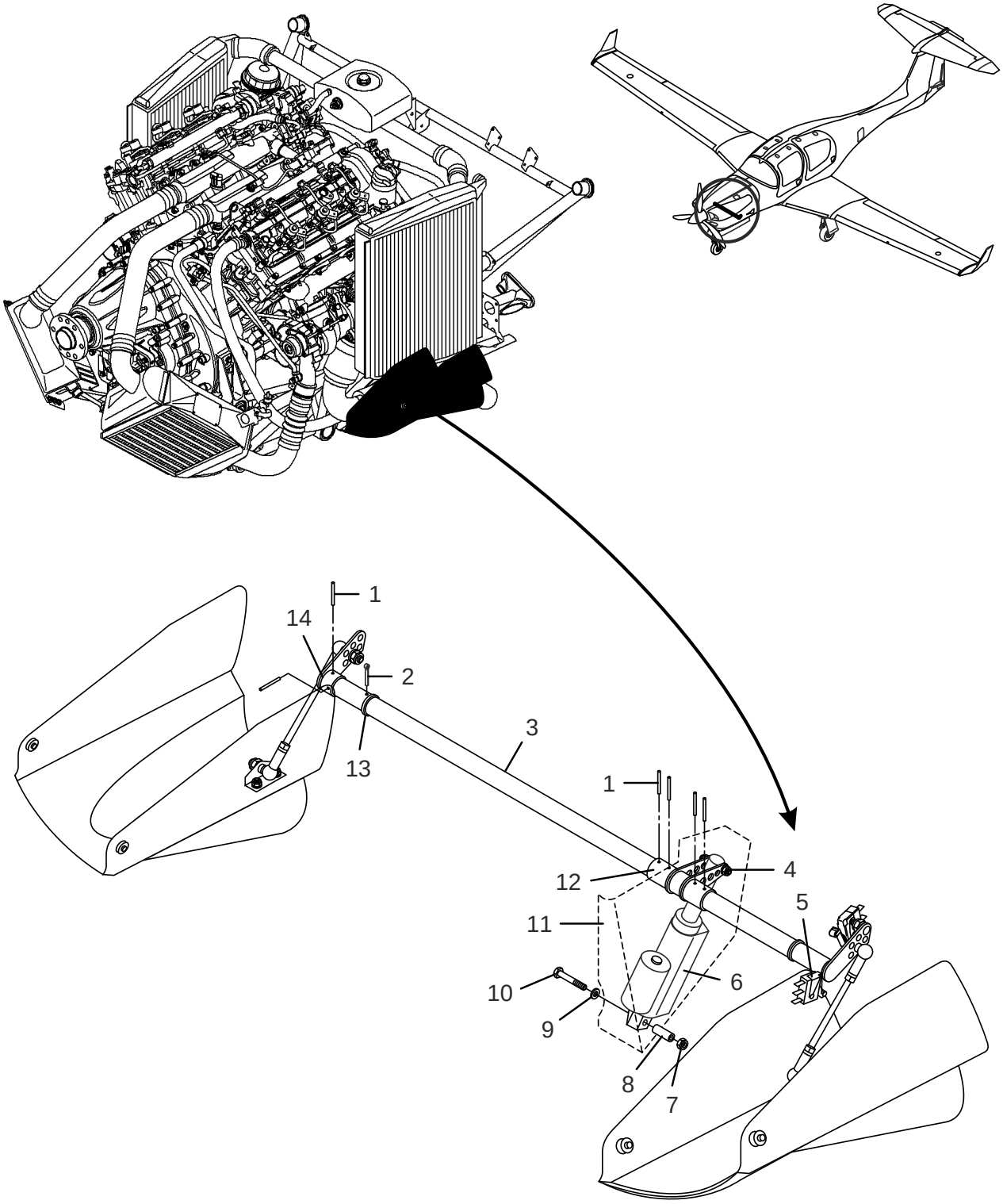


Figure 7 - Cowl Flap Installation

Legend

[1, Fig.7]	Slotted Pin
[2, Fig.7]	Split Pin
[3, Fig.7]	Cowl Flap Control Tube
[4, Fig.7]	Actuator Arm Bolt
[5, Fig.7]	Limit Switches
[6, Fig.7]	Linear Actuator
[7, Fig.7]	Nut
[8, Fig.7]	Bushing
[9, Fig.7]	Washer
[10, Fig.7]	Actuator Pivot Bolt
[11, Fig.7]	Actuator Cover
[12, Fig.7]	Actuator Arm
[13, Fig.7]	Retaining Ring
[14, Fig.7]	Cowl Flap Control Arm

71-60-13 Cowl Flap

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Cockpit Control light does not illuminate.

1A. Open or closed cockpit control light does not illuminate.

Are the limit switches adjusted so that they are fully depressed at the end of the actuator's movement?

Yes - go to step 1C.

No - go to step 1B.

1B. Adjust the limit switches.

1C. Check the cowl flap electrical installation.

Is the wiring defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the defective wiring component.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

No movement of the cowl flap.

2A. Check the actuator's connector.
Is the voltage present at the actuator's connector?
Yes - go to step 2B.
No - go to step 2C.

2B. Replace the actuator.

2C. Check the cowl flap electrical installation.
Is the wiring defective?
Yes - go to step 2D.
No - go to step 2E.

2D. Replace the defective wiring component.

2E. Contact DAI.

71-60-14 Cowl Flap

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Cowl Flap

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the two bolts holding the cowl flap in the left or right cowling.

Refer to Figure 8.

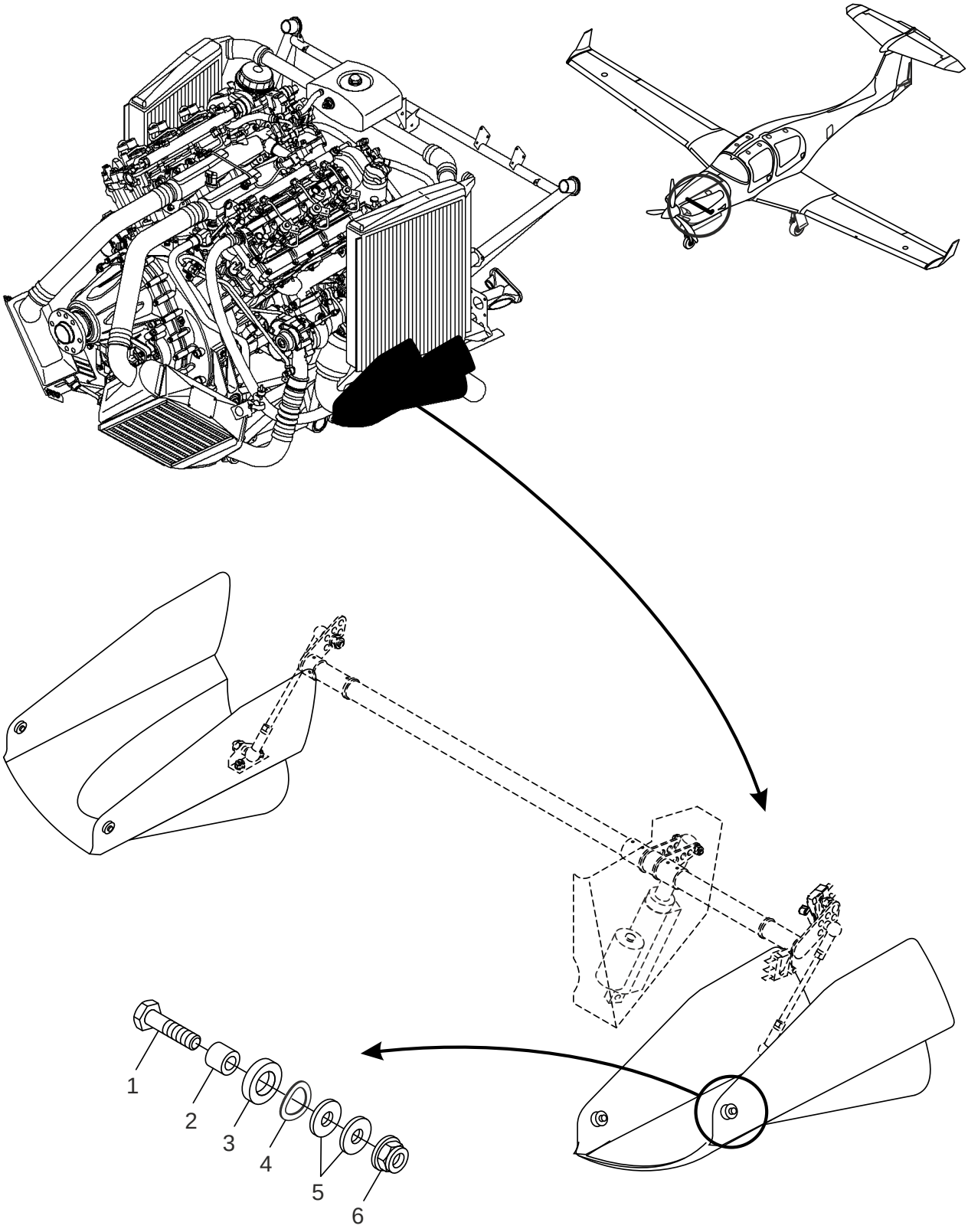


Figure 8 - Cowl Flap Bolt

Legend

[1, Fig.8] Cowl Flap Bolt

[2, Fig.8] Distance Bushing

[3, Fig.8] Bonded-In Bushing (not removable)

[4, Fig.8] Spring Washer

[5, Fig.8] Flat Washer

[6, Fig.8] Nut

71-60-15 Cowl Flap

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Cowl Flap

(1) Install the two bolts holding the cowl flap in the left or right cowling.

Refer to 71-60 Cowl Flap - Remove procedure Figure 8.

(2) Install the engine cowlings.

Refer to 71-10 DA50-A-71-10-00-01A-720A-D and 71-10 Left and Right Cowling - Install procedure.

71-60-16 Linear Actuator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Actuator

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the actuator cover located in the NLG bay.

Refer to 71-60 Cowl Flap - Description Figure 7.

(4) Disconnect the actuator's electrical cable.

(5) Remove the actuator arm bolt while supporting the actuator by hand.

Refer to 71-60 Cowl Flap - Description Figure 7.

(6) Remove the actuator pivot bolt and take out the actuator.

Refer to 71-60 Cowl Flap - Description Figure 7.

71-60-17 Linear Actuator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Actuator

(1) Install the actuator pivot bolt to attach the actuator to the engine mount.

(2) Install the actuator arm bolt to attach the control arm to the actuator's piston.

Refer to 71-60 Cowl Flap - Description Figure 7.

(3) Connect actuator's electrical cable.

(4) Install the actuator cover.

Refer to 71-60 Cowl Flap - Description Figure 7.

71-60-18 Mechanical Control System

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Mechanical Control System

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(3) Remove the cowl flap actuator cover in the NLG bay.

(4) Push out pins holding the cowl flap control arm at the right end of the control tube.

Refer to 71-60 Cowl Flap - Description Figure 7.

(5) Remove the control arm.

Refer to 71-60 Cowl Flap - Description Figure 7.

(6) Push out the pins holding the actuator arm on the control tube.

Refer to 71-60 Cowl Flap - Description Figure 7.

(7) Remove the split pin and retaining ring and shims from the control tube.

Refer to 71-60 Cowl Flap - Description Figure 7.

(8) Slide the control tube out to the left side.

Refer to 71-60 Cowl Flap - Description Figure 7.

71-60-19 Mechanical Control System

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Mechanical Control Systsem

(1) Slide in the cowl flap control tube with one shim through the engine mount bushings and the actuator arm.

Refer to 71-60 Cowl Flap - Description Figure 7.

(2) Slide in the shims and retaining ring and check if new split pin is installable.

Refer to 71-60 Cowl Flap - Description Figure 7.

(3) Adjust the number and placement of shims so that the axial play if the control tube is 0.1 mm - 0.6 mm and the actuator bushings are not binding when the actuator arm holes are aligned.

Refer to 71-60 Cowl Flap - Description Figure 7.

(4) Fully install new split pin.

(5) Push in new four pins through the actuator arm.

Refer to 71-60 Cowl Flap - Description Figure 7.

(6) Attach the control arm to the right cowl flap control tube end and push through its two pins.

Refer to 71-60 Cowl Flap - Description Figure 7.

(7) Check the movement of the mechanism by operating the cowl flap switch.

(8) Adjust the limit switches.

Refer to 71-60 Limit Switches - Adjust, align and calibrate.

(9) Install the cowl flap actuator cover.

Refer to 71-60 Cowl Flap - Description Figure 7.

(10) Adjust the cow flap position.

Refer to 71-60 Push-Rod - Adjust, align and calibrate.

(11) Install cowlings that you removed.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(12) Test the cowl flap movement.

71-60-20 Limit Switches

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Limit Switches Adjustments

Refer to Figure 9.

The limit switches are adjusted by sliding the limit switches with their attachment screws in the switches holding bracket:

(1) Loosen the limit switch holding screws and slide both switches all the way in their slots, away from the control arm.

(2) Switch the control switch in the cockpit to “open” position and let the actuator reach its internal end of the stroke.

(3) Slide the "open" limit switch towards the control arm until it triggers. Do an "open" control light check in the cockpit. If the light does not illuminate refer to 71-60 Cowl Flap - General fault isolation procedure.

(4) Tighten the “open” limit switch screws to fix it in place and secure with adhesive Loctite 222.

(5) Repeat the procedure for “closed” position, the “closed” control light and switch.

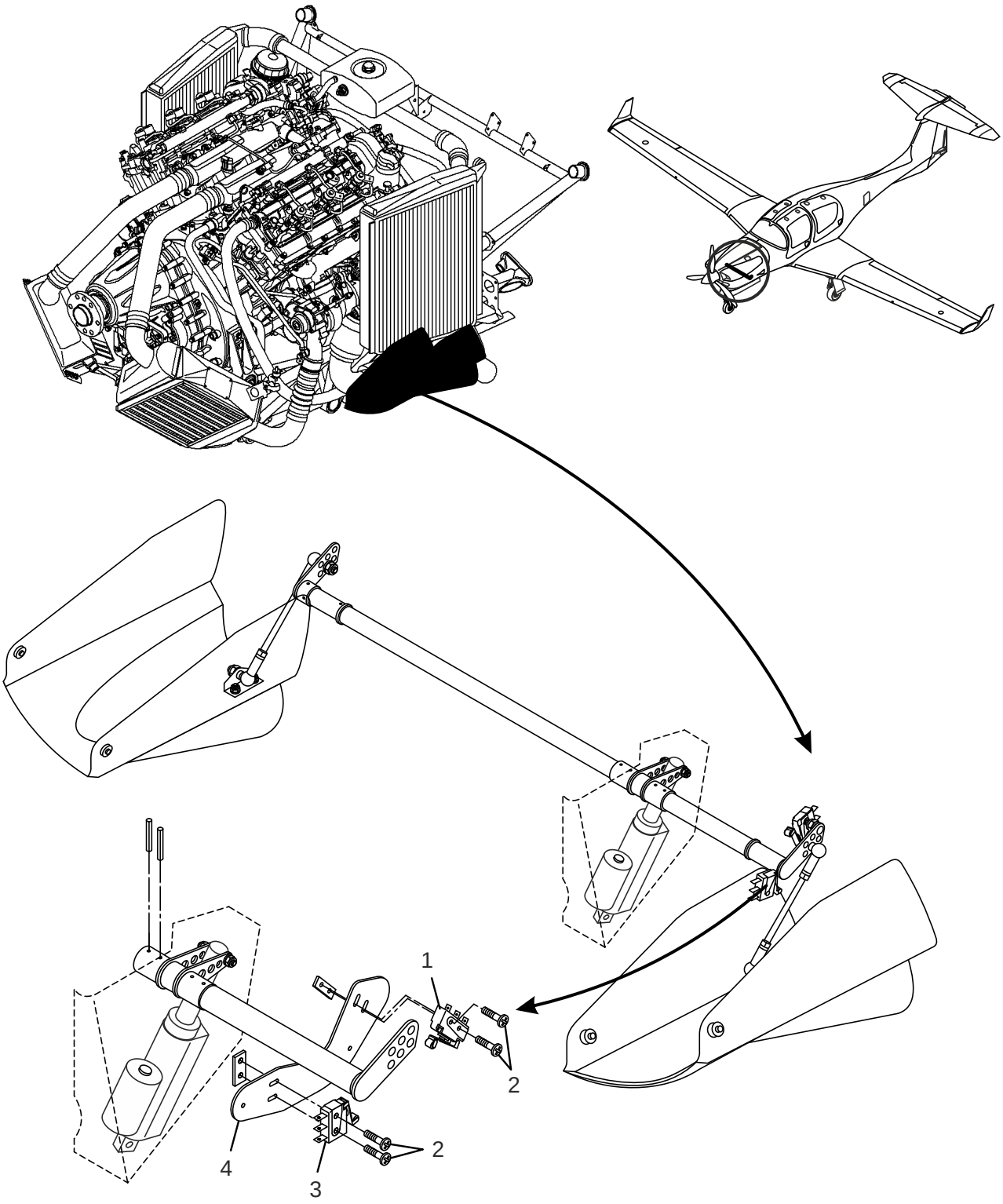


Figure 9 - Limit Switches

Legend

[1, Fig.9] "Closed" Switch

[2, Fig.9] Switch Screw

[3, Fig.9] "Open" Switch

[4, Fig.9] Switch Holding Bracket

71-60-21 Push-Rod

Adjust, align and calibrate

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Push-Rod Adjustment

(1) Make sure that the cowl flap push rod upper ball end is in the 3rd hole from the control tube axis. In cases of push-rod exhaust clearance problems the end can be moved in to the 4th hole.

Refer to 71-60 Cowl Flap - Description Figure 7.

(2) Loosen the connecting rod nuts at the threaded rod to enable length adjustment.

(3) Operate the cowl flap control switch in the cockpit to drive the actuator to “closed” end position.

(4) Install the cowlings. Do not connect the cowl flap bracket fasteners.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(5) Adjust the length of the push rod so that after installing the cowl flap bracket fasteners the cowl flap is closed flush with the cowling, without tension in the linkages.

(6) Repeat for both LH and RH cowl flap.

(7) Tighten the threaded rod nuts and apply anti-tampering lacquer.

71-60-22 Cowl Flap

Function Test

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Check the Function of the Cowl Flap

(1) Do a functional test with LH and RH cowling installed and mid cowling deinstalled:

- Observe the cowl flap free movement during its operation and correct control light indication in the cockpit.

71-70
ENGINE DRAINS

71-70-01 Engine drains

Description

1. Engine Drains

The DA 50 C has a breather for the oil separator. Refer to 72-00 Engine - Description for more data about the engine oil system and refer to 75-20 Cooling System - Description for more data about the engine liquid cooling system.

The breather hose of the oil separator connects to an outlet at the top of the oil separator. A worm-drive-clamp secures the hose at the outlet. The other end of the breather hose connects to a breather pipe. The breather outlet position discharges at the lower left part of the cowling.

71-70-02 Oil Separator Breather Hose

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Oil Separator Breather Hose

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Remove the cable ties and P-clamps that secure the breather hose assembly to the engine mounting frame.

Refer to Figure 1.

(5) Remove the breather hose:

- Remove the worm drive clamp that secures the breather hose to the outlet at the top left side of the oil separator.
- Pull the breather hose from the outlet at the top of the separator.
- Remove the worm drive clamp that secures the breather hose to the breather pipe.
- Move the breather hose clear of the engine.

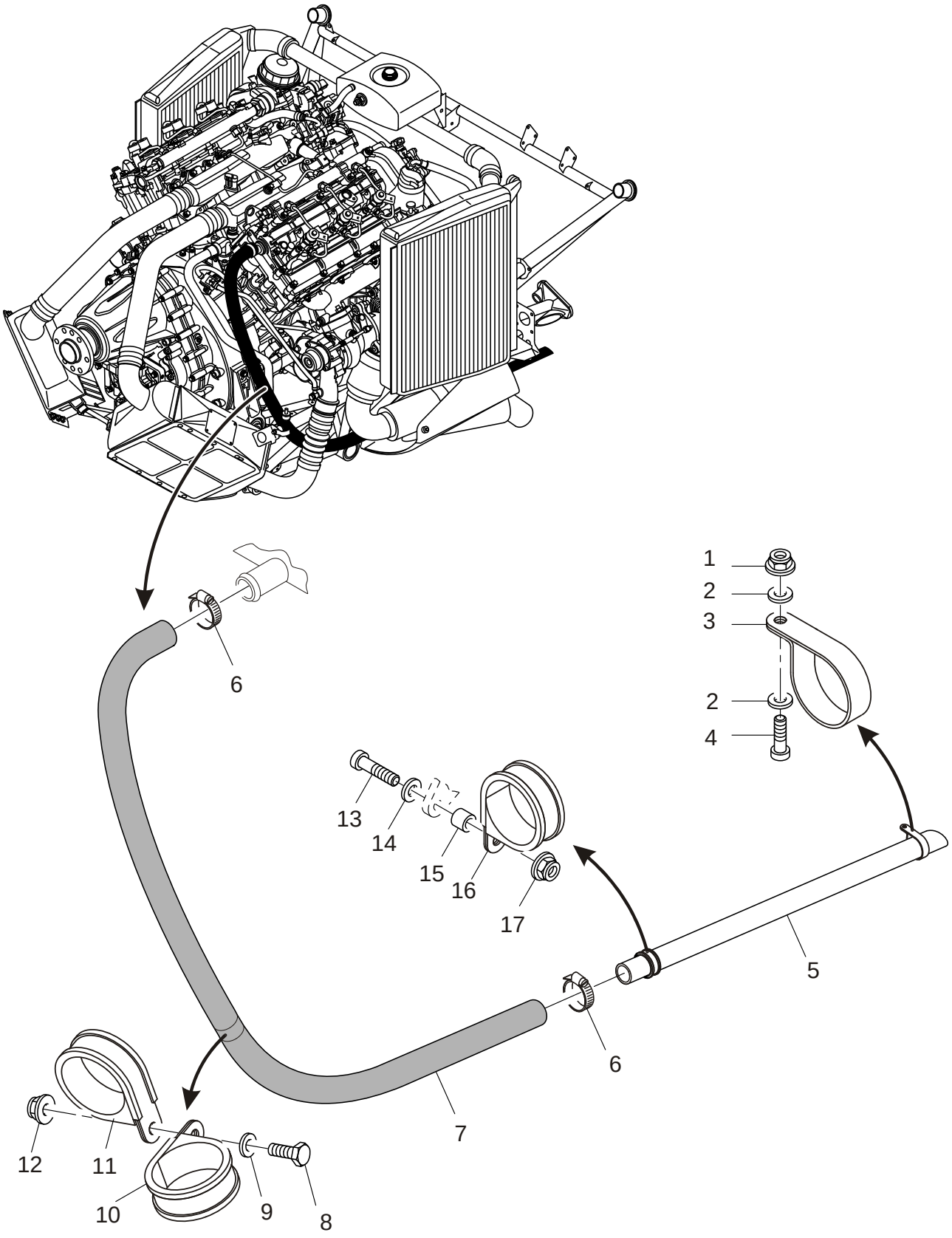


Figure 1 - Engine Drain

Legend

[1, Fig.1]	Nut
[2, Fig.1]	Washer
[3, Fig.1]	Crankcase Breather Tab
[4, Fig.1]	Screw
[5, Fig.1]	Crankcase Breather Pipe Assy
[6, Fig.1]	Hose Clamp
[7, Fig.1]	Crankcase Breather Hose
[8, Fig.1]	Screw
[9, Fig.1]	Washer
[10, Fig.1]	P-Clamp
[11, Fig.1]	P-Clamp
[12, Fig.1]	Nut
[13, Fig.1]	Screw
[14, Fig.1]	Washer
[15, Fig.1]	Spacer
[16, Fig.1]	P-Clamp
[17, Fig.1]	Nut

71-70-03 Oil Separator Breather Hose

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Oil Separator Breather Hose

(1) Install a new worm drive clamp onto the breather hose and connect the hose to the breather outlet and tighten the worm drive clamp.

(2) Connect the breather hose with the breather pipe.

Refer to 71-70 Oil Separator Breather Hose - Remove procedure Figure 1.

(3) Install the P-clamps that attaches the breather hose to the engine mounting frame.

(4) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(5) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

72-00
ENGINE

72-00-01 Engine

Description

1. Engine

This Section provides background information about the Continental CD-300 engine installed on the DA 50 C airplane and describes maintenance events of the oil system of the Continental CD-300 engine.

Refer to these Chapters for more data about the engine systems:

- Chapter 73. Engine fuel and control. Engine fuel and control - Description.
- Chapter 75. Liquid cooling system. Cooling System - Description.
- Chapter 76. Engine controls. Engine controls - Description.
- Chapter 77. Engine indicating. Engine Indicating - Description.
- Chapter 78. Engine exhaust. Exhaust - Description.
- Chapter 79. Oil cooling. Oil Cooling - Description.
- Chapter 80. Engine starting. Starting - Description
- Chapter 81. Turbo charger. Turbo Charger - Description.

NOTE

Only Continental authorized maintenance organizations may carry out maintenance and inspection work on the Continental CD-300 engine. Any engine malfunction must be reported to Continental Aerospace Technologies.

2. Description

The Continental CD-300 engine is a liquid-cooled, V6-cylinder four-stroke compression ignition engine with a double overhead camshaft (DOHC). The valves are actuated by a cam follower. The direct injection operates based on the common rail technology and is charged by two turbochargers. All engine components are controlled by a FADEC system. The engine is equipped with an electrical starter, an alternator, a water pump, an oil pump, a coolant system and an oil cooler. The propeller is powered by a directly integrated gearbox with a dual mass flywheel.

3. Engine Oil System

The engine has a regular wet sump oil system. The sump has a maximum capacity of 12 liter (12.7 US qt). Refer to the Airplane Flight Manual Chapter 2 for data about the oil types to be used in the engine.

The internal oil pump supplies oil to all bearings and other components that require oil. Oil galleries inside the engine crankcase and cylinder head supply oil to the internal components.

Refer to the Continental Operation & Maintenance manual, latest revision for maintenance on the engine oil system of the Continental CD-300 engine. The engine has the following maintenance points:

- An oil filter located at the top right side rear of the engine adjacent to the cylinder head. You must replace the filter at the times specified in Chapter 05.
- An engine oil drain plug in the middle left of the engine sump.
- An engine oil filler located at the top left side rear of the engine.
- A gearbox oil filler plug located at the top of the gearbox.

- A gearbox oil level window located at the LH side of the gearbox.
- A gearbox oil drain plug located at the bottom of the gearbox.
- An oil separator is located on the rear RH side of the engine.

4. Trouble Shooting

The trouble-shooting given in 72-00 Engine - General fault isolation procedure is limited to those items where maintenance is permitted. For all other engine troubles, refer to an approved Continental CD-300 repair facility or the engine manufacturer.

5. Maintenance Practices

The Maintenance Practices describe how to service the oil system on the Continental CD-300 engine. Further maintenance practices are described in the Continental service documents. Refer to an approved Continental CD-300 maintenance facility or the engine manufacturer for all other engine maintenance.

A. Read an Engine Event Log

CAUTION

ONLY CONTINENTAL AUTHORIZED PERSONNEL MAY DOWNLOAD DATA FROM THE ENGINE.

Refer to Continental Operation & Maintenance Manual, latest revision for the "FADEC Read-out" procedure.

72-00-02 Engine

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Engine oil pressure low.

1A. Check the engine oil quantity.

Is the engine oil quantity too low?

Yes - go to step 1B.

No - go to step 1C.

1B. Fill the engine with oil.

1C. Examine oil pressure regulator valve.

Is the oil pressure regulator valve defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Refer to the engine manufacturer.

1E. Examine the oil pump.

Is the oil pump defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Refer to the engine manufacturer.

1G. Contact the engine manufacturer.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Gearbox oil temperature high.

2A. Check the gearbox oil quantity.

Is the gearbox oil quantity too low?

Yes - go to step 2B.

No - go to step 2C.

2B. Find the reason for the loss of gearbox oil and correct the problem. Fill the gearbox with oil. Refer to the AFM for approved oil types.

2C. Contact DAI.

72-00-03 Engine

Change of oil

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

WARNING

DO NOT GET OIL ON YOUR SKIN. OIL CAN CAUSE SKIN DISEASE.

CAUTION

ALWAYS PUT A CAP ON OPEN CONNECTIONS. IF YOU DO NOT PUT A CAP ON OPEN CONNECTIONS, THEN CONTAMINATION CAN GET INTO THE SYSTEM AND CAUSE DAMAGE.

CAUTION

DO NOT MIX OIL TYPES. IF YOU MIX OIL TYPES THE OIL CAN LOSE ITS PROPERTIES AND THE ENGINE WILL WEAR MORE QUICKLY.

3. Main Procedure

A. Change the Engine Oil and Replace the Oil Filter

NOTE

A sample of the oil and the used oil filter must be stored in a clean container, labeled, and made available to Continental Aerospace Technologies on request for the complete engine life time. The label must show the airplane serial number, registration number, engine serial number, operation time and date. Quantity of the oil sample must be 100 ml.

NOTE

For environment protection, changing oil is only allowed on sealed surfaces. Used oil has to be disposed according to the applicable regulations. The environment and ground water must not be contaminated.

(1) Allow the engine to warm up.

(2) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(3) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(4) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

CAUTION

USE ONLY THE CORRECT ENGINE OILS. REFER TO THE CONTINENTAL MAINTENANCE MANUAL, LATEST REVISION FOR THE CORRECT OIL SPECIFICATIONS AND CHAPTER 2 OF THE AFM. IF YOU DO NOT USE THE CORRECT ENGINE OIL, THE ENGINE CAN BE DAMAGED.

(5) Change the engine oil and replace the engine oil filter.

Refer to Continental Operation & Maintenance Manual, latest revision.

(6) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(7) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(8) Allow the engine to warm up for approx. 2 minutes at idle speed.

Refer to 71-00 Engine - Operation Test and Continental Operation & Maintenance Manual, latest revision.

(9) Check the engine oil level via oil dipstick.

Refer to 71-00 Power Plant - Description and Continental Operation & Maintenance Manual, latest revision.

72-00-04 Gearbox

Change of oil

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

WARNING

DO NOT GET OIL ON YOUR SKIN. OIL CAN CAUSE SKIN DISEASE.

CAUTION

ALWAYS PUT A CAP ON OPEN CONNECTIONS. IF YOU DO NOT PUT A CAP ON OPEN CONNECTIONS, THEN CONTAMINATION CAN GET INTO THE SYSTEM AND CAUSE DAMAGE.

CAUTION

DO NOT MIX OIL TYPES. IF YOU MIX OIL TYPES THE OIL CAN LOSE ITS PROPERTIES AND THE ENGINE WILL WEAR MORE QUICKLY.

3. Main Procedure

A. Replace the Gearbox Oil

NOTE

For environment protection, changing gearbox oil is only allowed on sealed surfaces. Used gearbox oil has to be disposed according to the applicable regulations. The environment and ground water must not be contaminated.

(1) Allow the engine to warm up.

(2) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(3) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(4) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

CAUTION

YOU MUST USE A GEARBOX OIL THAT AGREES WITH THE SPECIFICATION IN THE AIRPLANE FLIGHT MANUAL, CHAPTER 2.

(5) Change the gearbox oil.

Refer to Continental Operation & Maintenance Manual, latest revision.

(6) Connect the airplane main battery.

Refer to Main Battery - Connect procedure.

(7) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(8) Do a ground test of the engine.

Refer to 71-00 Engine - Operation Test and Continental Operation & Maintenance Manual, latest revision.

73-00
ENGINE FUEL AND CONTROL

73-00-01 Engine fuel and control

Description

1. Engine Fuel and Control

This Section describes the fuel system of the Continental CD-300 engine and provides general data and trouble shooting information of the system.

Refer also to the engine manufacturer's Repair Manual for the Continental CD-300 engine. You can replace components in the air intake system and the fuel filter. Refer to the engine manufacturer for data on the engine fuel system.

2. Description and Operation

The power generation system has two main parts:

- Air intake system. This system supplies air from the inlet to the air filter to the engine intake manifold. Refer to 71-60 Air intakes - Description.
- Engine fuel system. The engine fuel system takes fuel from the airplane fuel system and injects it into the cylinders.

A. Air Intake System

The air intake system has an air filter located on the top left and top right side of the engine compartment. The filter attaches to the forward face of the alternate air valve. The alternate air valve also has an inlet direct from the engine compartment. The valve can select either filtered air or warm, unfiltered air. Refer to 71-60 Air intakes - Description for more data on the air filter and alternate air valve.

The outlet of the alternate air valve connects to the turbo charger. The outlet from the turbocharger connects then to an intercooler and the engine intake manifold. Refer to Chapter 81 for more data on the turbocharger and intercooler.

B. Engine Fuel System

The fuel from the main tank flows through the fuel selector, gascolator (filter size 87 µm) to the electrically driven low pressure fuel pumps. These fuel pumps supply the engine driven low pressure fuel pump with the required fuel pressure and flow. A fine fuel filter is installed upstream of the low pressure pump to assure clean fuel supply. The mechanical low pressure pump supplies fuel to the engine driven high pressure injection pump.

The high-pressure pump supplies fuel to a common rail connected to the injectors. A fuel metering unit at the engine driven high pressure fuel pump which ensures that only the required quantity of fuel is compressed. The necessary rail pressure, which is measured directly at the rail, is controlled by the rail pressure valve. Surplus fuel returns to the airplane main fuel system. The fuel returning from the engine is hot. The hot fuel passes through a fuel cooler located in the fuselage wing attachment area. From there the fuel returns via a cooling loop through the auxiliary tank to the fuel main tank.

3. Trouble Shooting

73-00 Engine fuel and control - General fault isolation procedure lists possible defects of the engine fuel and control system. Only data about the air intake, air filter and fuel filter are provided. For more data on troubleshooting the engine fuel and control system refer to the engine manufacturer.

4. Maintenance Practices

Only an approved Continental repair shop can repair the engine fuel system. For more data on the engine fuel and control system refer to the engine manufacturer.

Refer to 28-20 Distribution - Description for more data on the fuel distribution system.

Refer to 71-60 Air intakes - Description for maintenance data on the air filter and alternate air valve.

Refer to 81-20 Turbo Charger - Description for maintenance data on the turbo charger system.

73-00-02 Engine fuel and control

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Loss of engine power.

1A. Examine the air intake.

Is the air intake blocked?

Yes - go to step 1B.

No - go to step 1C.

1B. Remove any obstructions. Refer to Section 71-60.

1C. Examine the air filter.

Is the air filter dirty or damaged?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the air filter. Refer to Section 71-60.

1E. Examine the fuel filter.

Is the fuel filter dirty or damaged?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the fuel filter. Look for contaminated fuel in the airplane fuel system. Refer to Section 28-00 and Section 28-20.

1G. Examine the fuel distribution system.

Is air in the fuel distribution system?

Yes - go to step 1H.

No - go to step 1I.

1H. Bleed the fuel distribution system. Refer to Section 28-20.

1I. Contact DAI.

75-00
LIQUID COOLING SYSTEM

75-00-01 Cooling System

Description

1. Liquid Cooling System

This Section describes the liquid cooling system of the DA 50 C airplane and the Maintenance Practices to remove/install the liquid cooling system components.

Figure 1 shows the liquid cooling system schematic. Figure 2 show the installation of the liquid cooling system in the airplane.

2. Description

The engine has a water-based liquid cooling system. The liquid coolant is a mixture of water and antifreeze. Refer to the Airplane Flight Manual for approved coolant types.

The engine has an integral coolant pump. The coolant pump is located at the LH rear of the engine and is powered by the v-ribbed belt. An automatic tensioner keeps the belt tension at the correct value.

A temperature sensor at the engine coolant outlet connects to the engine control system. The integrated cockpit system (ICS) displays the coolant temperature (COOLING TEMPERATURE).

The cooling system consists of three circuits (see Figure 1).

A. Short Cooling Circuit

The circuit is active at cooling temperature below 84 °C (183 °F) and allows quick engine warm up. Coolant circulates from the closed thermostatic valve to the water pump and the engine.

B. Bypass Cooling Circuit

The bypass cooling circuit is always active. Coolant circulates from the engine to the heat exchanger, to the water pump and back to the engine.

C. External Cooling Circuit

This circuit starts opening at 84 °C (183 °F) and is fully opened at 94 °C (201 °F). Coolant circulates post the thermostatic valve to the radiators (located on the LH and RH side in the rear part of the engine) back to the water pump and the engine.

D. Components

A coolant expansion tank is located on top of the engine next to thermostatic valve. This is the highest point in the system. A small diameter hose connects the highest point of the system to the top of the coolant expansion tank. The tank has an over pressure valve which opens at too high coolant system pressure.

A de-airing line connects the top of the coolant to the thermostat housing.

A small diameter hose connects the bottom of the coolant tank to the lower water manifold.

A coolant level sensor is installed in the coolant tank. It operates the WATER LEVEL caution light in the ICS.

On top of the coolant expansion tank a pressure relief valve is installed. The pressure relief valve limits the over and under pressure in the cooling circuit.

A cartridge contains a replaceable silicate pouch and is situated in the filler neck of the coolant expansion tank.

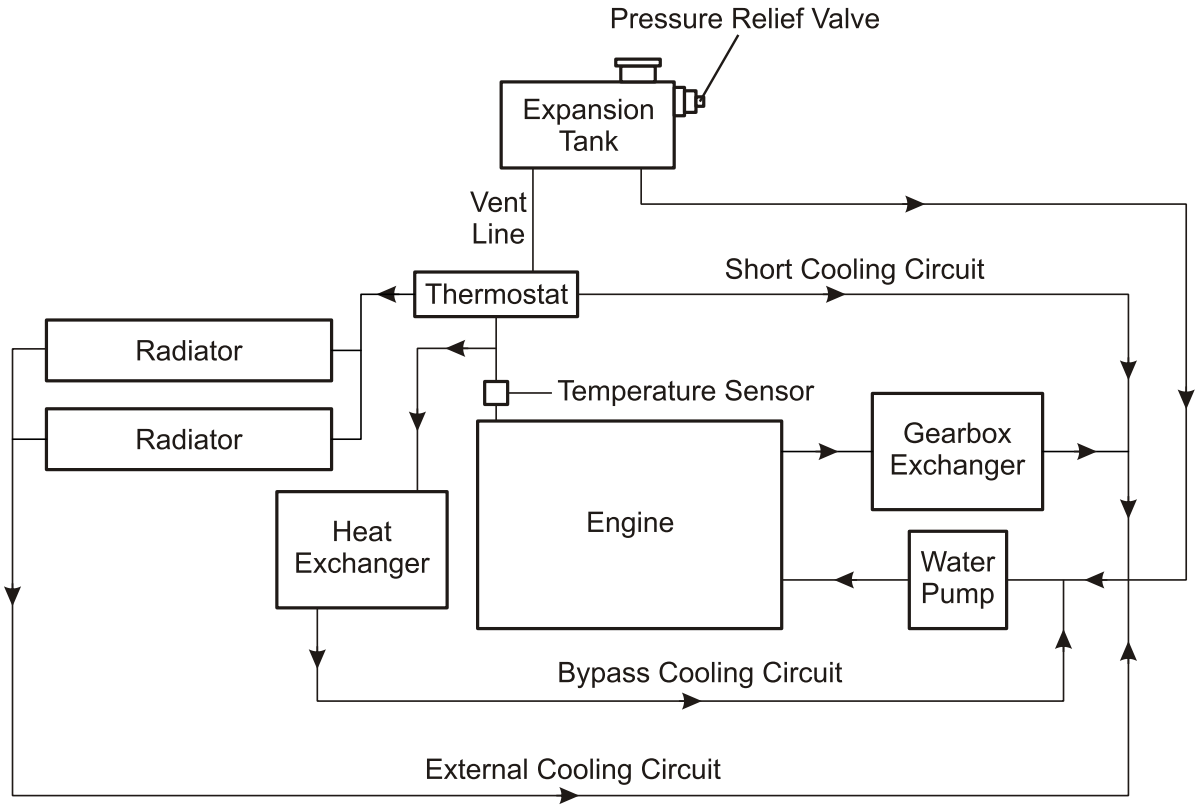


Figure 1 - Liquid Cooling System Schematic Diagram

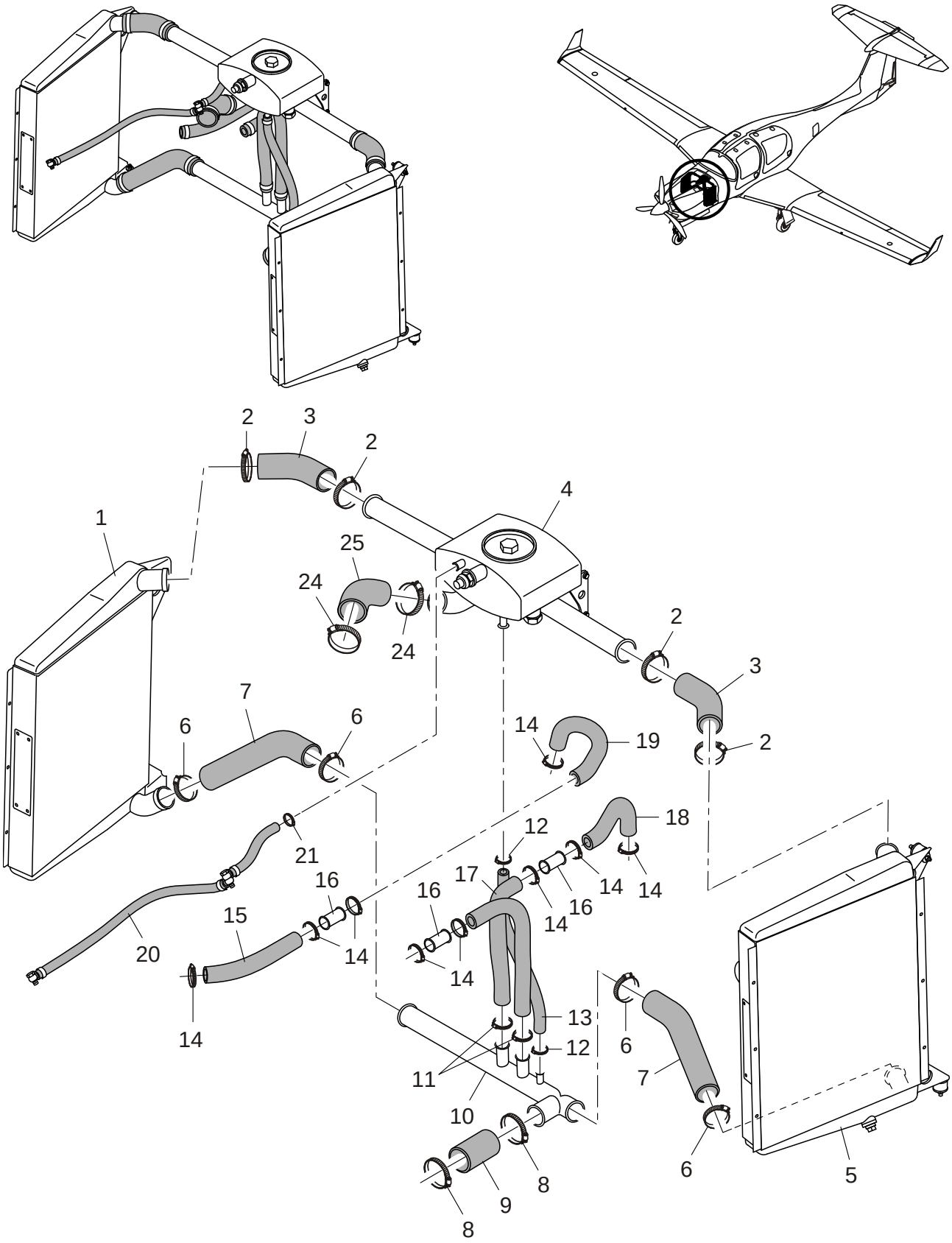


Figure 2 - Liquid Cooling System Installation

Legend

[1, Fig.2]	Coolant Cooler RH
[2, Fig.2]	Hose Clamp
[3, Fig.2]	Coolant Hose, Top
[4, Fig.2]	Coolant Tank
[5, Fig.2]	Coolant Cooler LH
[6, Fig.2]	Hose Clamp
[7, Fig.2]	Coolant Hose, Bottom
[8, Fig.2]	Hose Clamp
[9, Fig.2]	Coolant Hose, Bottom Manifold
[10, Fig.2]	Coolant Manifold
[11, Fig.2]	Hose Clamp
[12, Fig.2]	Hose Clamp
[13, Fig.2]	Coolant Hose, Expansion Tank
[14, Fig.2]	Hose Clamp
[15, Fig.2]	Coolant Hose, Cabin Heat Source
[16, Fig.2]	Coolant Bulkhead Fitting
[17, Fig.2]	Coolant Hose, Cabin Heat Return
[18, Fig.2]	Cabin Heater Output Hose
[19, Fig.2]	Cabin Heater Input Hose
[20, Fig.2]	Hose, Coolant
[21, Fig.2]	Hose Clamp
[24, Fig.2]	Hose Clamp
[25, Fig.2]	Adapter Hose

75-20
COOLING SYSTEM

75-20-01 Cooling System

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Engine overheats.

1A. Examine the flat belt.

Is the flat-belt worn or broken?

Yes - go to step 1B.

No - go to step 1C.

1B. Refer to the engine manufacturer.

1C. Check the coolant level.

Is the coolant level low?

Yes - go to step 1D.

No - go to step 1E.

1D. Fill the cooling system. Refer to Section 12-10.

1E. Look for leaks at all system joints.
Is coolant leaking?
Yes - go to step 1F.
No - go to step 1G.

1F. Repair or replace defective components.

1G. Examine the cooling system for trapped air.
Is air in the cooling system?
Yes - go to step 1H.
No - go to step 1I.

1H. Bleed the cooling system.

1I. Examine the radiator matrix.
Is the radiator matrix blocked by foreign objects?
Yes - go to step 1J.
No - go to step 1K.

1J. Remove foreign objects and clean radiator matrix.

1K. Examine the thermostat valve.
Is the thermostat valve defective?
Yes - go to step 1L.
No - go to step 1M.

1L. Refer to the engine manufacturer.

1M. Examine the coolant pump.
Is the coolant pump defective?
Yes - go to step 1N.
No - go to step 1O.

1N. Refer to the engine manufacturer.

1O. Examine the cylinder head gasket.
Is the cylinder head gasket defective?
Yes - go to step 1P.
No - go to step 1Q.

1P. Refer to the engine manufacturer.

1Q. Contact DAI.

75-20-02 Cooling System

Drain liquid and release pressure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Drain the Engine Cooling System

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE FILLER CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(4) Remove the filler cap from the coolant tank to relief any pressure which may be resident in the system:

- Turn the cap counterclockwise a small distance to release the pressure.
- When the pressure has fully released, remove the cap.

(5) Drain the coolant system:

- Remove the safety lock wire from the drain plugs at the LH and RH coolant radiator.
- Remove the drain plugs from the bottom left (RH coolant radiator) and bottom right (LH coolant radiator) side of the coolant radiator.

75-20-03 Cooling System

Bleed

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Fill and Bleed the Engine Cooling System

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(4) Install the two radiators drain plugs (refer to Special Torque Values - Description) and secure with lock wire.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(5) Fill the cooling system:

Allow time for coolant to move through the system.

- To accelerate the de-airing, disconnect the thermostat-coolant tank hose at the tank and squeeze the radiators connecting hose repeatedly.
- Add coolant to the tank.
- When coolant comes from the thermostat-coolant tank hose without air bubbles, connect the thermostat-coolant tank hose back.
- Fill coolant to max. coolant level marking in the filler neck.
- Check O-ring for deformation.
  Renew if necessary. Apply EZ TURN.
- Install the filler cap to the coolant expansion tank.
  Torque: 12 - 15 Nm (8.9 - 11.1 lbf.ft.). Value includes friction.
  Refer to 20-10 Special Torque Values - Description.
- Install safety lock wire to secure filler cap.
  Wire diameter 0.8 mm (0.032 in).

(6) Do an engine ground run:

Refer to the Airplane Flight Manual.

- Let the coolant temperature rise up to the point where the coolant flows from the thermostat valve through the main circuit.
- After shut down, check for leaks.

(7) Let the engine cool down.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(8) Check the ethyleneglycol concentration of the coolant.

(9) Remove the filler cap from the coolant tank:

- Turn the cap counterclockwise a small distance to release the pressure.
- When the pressure has fully released, remove the cap.

(10) Check coolant level. Repeat step A.(1) to step A.(5) until the system is completely free of trapped air and the fluid level is at the coolant tank tab.

(11) Install the cap to the coolant tank.

(12) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(13) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

75-20-04 Cooling System

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Pressure test equipment	Commercial	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Cooling System Pressure Test

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(4) Remove the filler cap from the coolant tank and install the pressure test equipment instead.

(5) Remove the over pressure valve. Plug opening with blind plug.

(6) Pressurize the coolant system.

Apply 3.0 bar (43.5 PSI) relative pressure for 2 minutes.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(7) Check the coolant system including cabin heating for leaks.

(8) Remove the pressure test equipment from the coolant tank.

- Open the pressure relief valve of test equipment.
  If existent.
- Remove the test equipment carefully to relieve the remaining pressure.

(9) Remove blind plug. Install the over pressure valve.

(10) Install the coolant tank cap.

(11) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(12) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

75-20-05 Coolant Expansion Tank

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Coolant Expansion Tank

NOTE

Use only new worm-drive clamps for hose installation of liquid cooling system.

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(4) Remove the filler cap from the coolant tank:

- Turn the cap counterclockwise a small distance to release the pressure.
- When the pressure has fully released, remove the cap.
- Drain coolant.
  Refer to 75-20 Cooling System - Drain liquid and release pressure

(5) Disconnect the hose that connects the expansion tank to the supply system:

Use a suitable container to collect split coolant.

- Remove the worm-drive-clamp that secures the hose.
- Pull the hose from the connector at the expansion tank.

(6) Disconnect the electrical cables for the coolant level sensor.

At the inline connector, at the sensor.

(7) Remove the hose from the coolant tank which connects to the thermostat vent.

(8) Remove the nuts and bolts which attach the coolant tank to the firewall.

(9) Move the expansion tank clear of the engine.

75-20-06 Coolant Expansion Tank

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Coolant Expansion Tank

NOTE

Use only new worm-drive clamps for hose installation of liquid cooling system.

(1) Install the expansion tank to the firewall.

(2) Connect the electrical cables for the coolant level sensor.

(3) Install the hose that connects the coolant tank to the thermostat vent.

(4) Connect the hose that connects the expansion tank to the supply system:

- Push the hose onto the connector at the expansion tank.
- Install the worm-drive-clamp that secures the hose connection.

(5) Fill and bleed the liquid coolant system.

Refer to 75-20 Cooling System - Bleed

(6) Perform coolant pressure test.

Refer to 75-20 Cooling System - Test and inspection

75-20-07 Pressure Relief Valve

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove the Pressure Relief Valve

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(3) Remove the locking wire from the pressure relief valve.

(4) Remove the pressure relief valve.

75-20-08 Pressure Relief Valve

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Pressure Relief Valve

(1) Install the pressure relief valve.

Torque 12-15 Nm (8.9 - 11.1 lbf.ft.). Value includes friction.

Refer to Special Torque Values - Description.

Check O-ring for deformation and delocation. Apply EZ TURN.

(2) Install locking wire.

Wire diameter 0.8 mm (0.032 in).

(3) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

75-20-09 Pressure Relief Valve

Test and inspection

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Nomenclature	Identification No.	Qty
Pressure test equipment	Commercial	1
Test cap	D44-7521-00-00-ST	1

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Pressure Relief Valve Test

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(4) Remove the filler cap from the coolant tank and install the pressure test equipment instead.

Remove safety lock wire and use pressure tool D44-7521-00-00-ST. Torque refer to 20-70 Standard Practices - Engine - Description.

(5) Pressurize the coolant system.

Apply 2.5 bar (36.3 PSI).

(6) Verify:

- Pressure relief valve (PRV) opens between 2.0 and 2.5 bar (29 and 36.3 PSI).
- If the PRV does not open, depressurize the coolant system by opening the pressure relief valve of the test equipment. Mechanically open the PRV by pulling on the outer ring until it moves approx. 2 mm (0.08 in) outward. Remove the PRV.
- Clean the PRV with water.
- Install the PRV
- Repeat the PRV test. If the PRV does not open between 2.0 and 2.5 bar (29 and 36.3 PSI): Replace the PRV with a new PRV.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(7) Remove the pressure test equipment.

If existent.

(8) Install the coolant tank cap.

Torque: refer to 20-10 Special Torque Values - Description. Check O-ring, apply EZ TURN.

Install safety lock wire (diameter 0.8 mm (0.032 in)).

(9) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(10) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

75-20-10 Coolant Radiator

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove a Coolant Radiator

NOTE

Use only new worm-drive clamps for hose installation of liquid cooling system.

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE PRESSURE CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(4) Remove the filler cap from the coolant tank to relief any pressure which may be resident in the system:

- Turn the cap counterclockwise a small distance to release the pressure.
- When the pressure has fully released, remove the cap.
- Drain coolant.

(5) Drain the coolant system.

Refer to 75-20 Cooling System - Drain liquid and release pressure.

(6) Remove the hoses from the radiator:

Note the position and orientation of the hoses on the radiator!

- Remove the worm-drive-clamps that secure the hoses.
- Pull the hoses from the connectors on the radiator.

(7) Remove the radiator:

- Remove the cable tie from the alternator cooling hose at the alternator cooling bracket.
- Remove the nuts and washers that attach the radiator to the engine mount and firewall.
- Remove the bonding wire from charge air system.
- Remove nuts and washers that attach the shock mount to the air duct brackets.
- Move the radiator together with the coolant cooler duct clear of the engine compartment.
- Remove screws (6 pcs.), washers (9 pcs.) and nuts (3 pcs.) that attach the radiator to the coolant cooler duct.
- Move radiator clear of the coolant cooler duct.

75-20-11 Coolant Radiator

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install a Coolant Radiator

NOTE

Use only new worm-drive clamps for hose installation of liquid cooling system.

(1) Install the radiator:

- Move the radiator into position to the coolant cooler duct.
- Install the screws (6 pcs.), washers (9 pcs.) and nuts (3 pcs.) that attach the radiator to the coolant cooler duct.
- Move the radiator together with the attached coolant radiator duct into position LH/RH in the rear part of the engine compartment.
- Install washers and nuts that attach the shock mounts to the air duct brackets.
- Install bonding wire to the charge air system.

- Install the washers and nuts that attach the radiator to the engine mount and firewall.
- Put the alternator cooling hose into the alternator cooling bracket and secure it with new cable tie.

(2) Install the hoses onto the radiator in the position and orientation noted in 75-20 Coolant Radiator - Remove procedure:

- Install the radiator hoses onto the radiator inlet and outlet.
- Secure the hoses with worm-drive-clamps.

(3) Fill and bleed the liquid coolant system.

Refer to 75-20 Cooling System - Bleed.

(4) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(5) Perform coolant pressure test.

Refer to 75-20 Pressure Relief Valve - Test and inspection.

75-20-12 Coolant Level Sensor

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove/Install the Coolant Level Sensor

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE FILLER CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(3) Remove the safety lock wire from the filler cap on the coolant expansion tank.

(4) Remove the filler cap from the coolant tank to relief any pressure which may be resident in the system:

- Turn the cap counterclockwise a small distance to release the pressure.
- When the pressure has fully released, turn the cap fully counterclockwise.

(5) Drain engine cooling system.

Refer to 75-20 Cooling System - Drain liquid and release pressure.

(6) Disconnect the electrical cables for the coolant level sensor.

At the inline connector, at the sensor.

(7) Remove the coolant level sensor.

(8) Install new coolant level sensor, use new copper gasket.

Use Loctite 243.

Torque: 25 - 30 Nm (18.44 - 22.13 lbf.ft.). Value includes friction.

Refer to Special Torque Values - Description.

(9) Connect the the electrical cables to the inline connector and to the to the coolant sensor.

(10) Fill and bleed the engine coolant system.

Refer to 75-20 Cooling System - Bleed.

75-20-13 Silicate Pouch

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove/Install Silicate Pouch

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

WARNING

DO NOT REMOVE THE FILLER CAP FROM THE COOLANT TANK IF THE ENGINE IS HOT. THE PRESSURE IN THE SYSTEM CAN FORCE HOT COOLANT TO COME OUT AND BURN YOU.

(3) Remove the safety lock wire from the filler cap on the coolant expansion tank.

(4) Remove the filler cap from the coolant tank to relief any pressure which may be resident in the system:

- Turn the cap counterclockwise a small distance to release the pressure.
- When the pressure has fully released, turn the cap fully counterclockwise.

(5) Remove retaining ring inside the filler neck.

(6) Remove max coolant level plate.

(7) Remove the used silicate pouch. Remove cartridge and clean it with water. Reinstall cartridge. Insert new silicate pouch.

(8) Install the max coolant level plate.

Be sure that the engraved max coolant marking is on the top.

(9) Install the retaining ring.

(10) Check coolant level, refill if required.

Refer to 75-20 Cooling System - Bleed.

(11) Install cap on the coolant expansion tank.

Torque: refer to 20-10 Special Torque Values - Description.

Check O-ring for deformation.

Renew O-ring if necessary. Apply EZ TURN.

(12) Install safety lock wire to secure filler cap.

Wire diameter 0.8 mm (0.032 in).

(13) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

76-00
ENGINE CONTROLS

76-00-01 Engine controls

Description

1. Engine Controls

This Section describes the DA 50 C engine controls. The engine has one control (power) lever. Electrical cables connect the power lever to the engine control system.

2. Description and Operation

Figure 1 shows the schematic diagram of the engine control system.

The system has a full authority digital engine control (FADEC) system. The system has these main components:

- Two digital engine control units (ECU A and ECU B located in one box behind the instrument panel).
- An electric harness that connects the ECUs to the engine, the power lever, control buttons and some instruments.
- Sensors that measure engine parameters.
- An electrical power lever located in the center console.
- Control switches for switching between the ECUs and testing the control system.

A. Engine Control Units

The ECU A and ECU B are contained in one box located behind the instrument panel. A harness connects the box to the engine, the power lever and the integrated cockpit system (ICS).

In the usual operation, the alternator supplies power for the system. Refer to 24-00 Electrical System - Description for more data about the electrical supply for the engine control system.

The FADEC switch, on the left of the instrument panel, let you toggle between AUTOMATIC and FORCE B. For all normal operation, the switch is set to AUTO and one ECU controls the engine. The FADEC test button, on the left of the instrument panel, let you test the system.

Refer to 71-00 Engine - Operation Test for the FADEC test procedure.

B. Electrical Harness

The electric harness is an engine component. The harness connects the power lever and sensors to the FADEC. It also provides connection for the ICS.

The electrical harness comes through the engine firewall. P-clamps and tie-wraps attach the electrical harness to the engine.

The repair of the electrical harness is limited to damage that occurs near the ends of the cables, outside of the isolated section. If a cable fails within the isolated section, then you must replace the complete harness.

C. Power Lever

Figure 2 shows the installation of the engine power lever.

The power lever is located in the center console. The power lever assembles as a unit to the engine control assembly in the center console. The power lever has two electrical systems. One system

provides signals to the ECU A. The other system provides signals to ECU B. Either system can control the engine.

The lever operates electrical sensors (HALL effect) that give signals in proportion to the power lever position. The signals are used by the FADEC to set the power output. The control system also sets the propeller governor to give best RPM for the power setting. Refer to 61-20 Propeller Control - Description for more data on the propeller control function.

A push rod connects the power lever to the Hall-sensors. You can adjust the relative position of the power lever relative to its hall angle sensor by adjusting the length of the push rod.

3. Maintenance Practices

These Maintenance Practices tell you how to remove and install the main components in an engine control system. All other work on the engine control system can only be done by a Continental approved maintenance shop or the manufacturer.

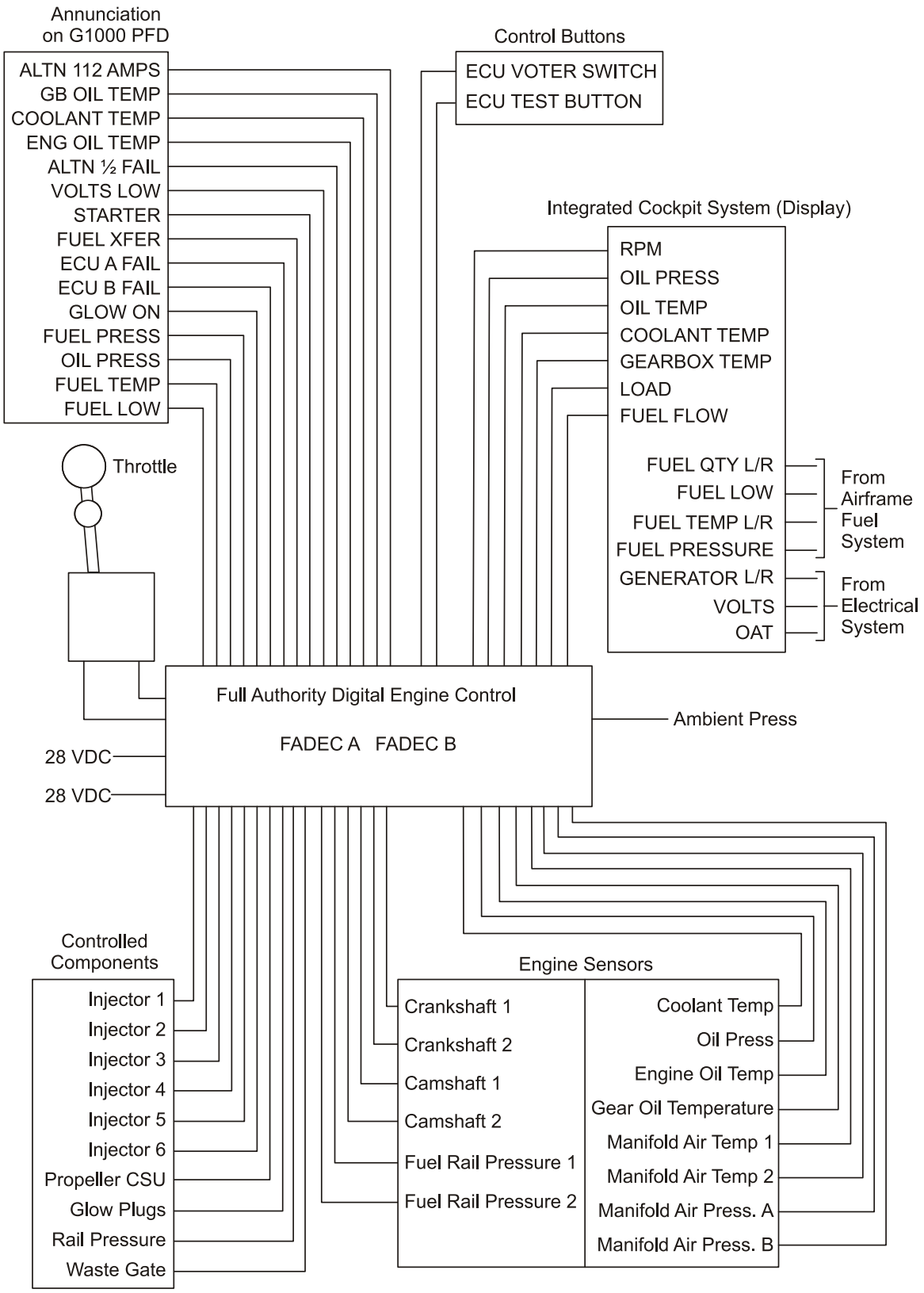


Figure 1 - Engine Control System Schematic

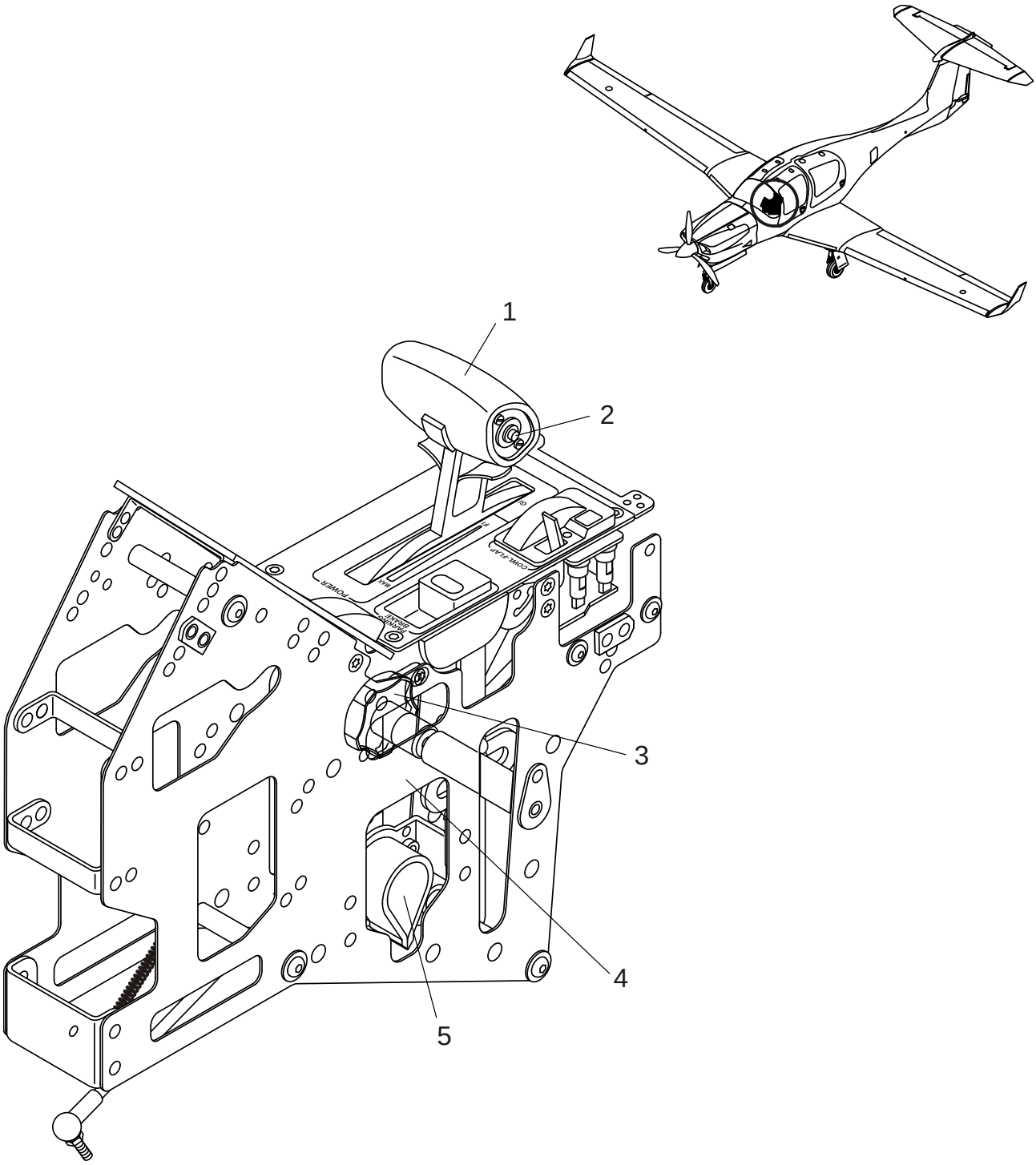


Figure 2 - Engine Power Lever

Legend

[1, Fig.2] Power Lever

[2, Fig.2] Thumb Switch

[3, Fig.2] Friction Knob Assy

[4, Fig.2] Power Lever Frame Assy

[5, Fig.2] Load Potentiometer Assy

76-00-02 Engine controls

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

An ECU caution light comes ON.

1A. Read engine event log (Refer to Section 72-00).
Is the related ECU defective?
Yes - go to step 1B.
No - go to step 1C.

1B. Refer to the engine manufacturer.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The engine does not respond correctly to power lever movement.

2A. Run diagnostic routine in ECU Operator software (Refer to Section 72-00).

Suspicious output?

Yes - go to step 2B.

No - go to step 1C.

2B. Refer to the engine manufacturer.

76-00-03 Power Lever Hall Angle Sensor

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove a Power Lever Potentiometer

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove both center console side access panels (four screws).

(4) Remove the four bolts which position the throttle quadrant to the center console and the two bolts which connects the trim placards.

(5) Lower the throttle quadrant until obtaining access to the potentiometer installation bolts.

(6) Remove the two bolts which attach each potentiometer to the throttle quadrant bracket.

(7) Remove the potentiometer from the throttle quadrant and disconnect the wire harness from the potentiometer.

76-00-04 Power Lever Hall Angle Sensor

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Install a Power Lever Potentiometer

(1) Connect the wire harness to the potentiometer. Position the potentiometer on the proper location of the throttle quadrant bracket.

(2) Install and tighten the two bolts which attach each potentiometer to the throttle quadrant.

(3) Calibrate the potentiometer.

Contact Continental.

(4) Lift the throttle quadrant into position on the center console and fix it with the four bolts.

(5) Install and tighten the two bolts which connect to the trim placards.

(6) Install both center console side access panels.

(7) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(8) Conduct an engine test.

Refer to 71-00 Engine - Operation Test .

76-00-05 Engine Control Unit (FADEC)

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Engine Control Unit (FADEC)

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure .

(4) Disconnect the 2 electrical connectors from the ECU (FADEC).

(5) Remove the ECU (FADEC) from the mounting bracket:

- Release the 4 bolts and washers that hold the ECU (FADEC) to the mounting bracket.

76-00-06 Engine Control Unit (FADEC)

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

CAUTION

YOU MUST CONTACT THE ENGINE MANUFACTURER BEFORE YOU INSTALL A NEW ECU.

3. Main Procedure

A. Install the Engine Control Unit (FADEC)

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Install the ECU (FADEC):

- Move the ECU (FADEC) into position behind the instrument panel.

- Install the 4 washers and bolts that attach the ECU to the mounting brackets.

(3) Connect the 2 electrical connectors to the ECU (FADEC).

(4) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure .

(5) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

76-00-07 Engine Control System Electrical Harness

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Engine Control System Electrical Harness

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel.

Refer to 25-10 Instrument Panel Cover - Remove procedure .

(4) Disonnect the 2 electrical connectors from the ECU (FADEC).

(5) Remove the cockpit access panels.

(6) Disconnect the two cockpit connectors.

Behind the instrument panel.

(7) Disconnect the engine wire harness and bonding cables from the electrical sensors.

Refer to Continental Operation & Maintenance Manual, latest revision.

(8) Remove the cable ties and P-clamps that attach the cable harness to the engine and structure.

Make a note of the type and location of each attachment.

(9) Remove the shields and Teflon liners for the feed-through at the firewall and main front bulkhead.

(10) Carefully move the harness forward through the firewall and main front bulkhead.

Make sure not to damage the connectors.

(11) Remove the harness from the fuselage.

76-00-08 Engine Control System Electrical Harness

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Nomenclature	Identification No.	Qty
DAPCO 2200	Commercial	A/R

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Remove the Engine Control System Electrical Harness

(1) Carefully move the engine wire harness from the firewall aft through the firewall feed-through.

Make sure not to damage the connectors. Adjust the harness position so that all connections can be made without stress.

(2) Connect the engine wire harness and bonding cables to the electrical sensors.

Refer to Continental Operation & Maintenance Manual. Latest revision.

(3) Connect the two cockpit connectors.

Behind the instrument panel.

(4) Connect the 2 electrical connectors from the ECU (FADEC).

Make sure that the bayonet locks are correctly engaged.

(5) Install the cable-ties and clamps that attach the cable harness to the engine and structure.

Refer to the notes that you made during removal for the type and location of each attachment.

(6) Install the pass through foams (replace pass through foams with new ones if necessary), Teflon liners and shields for the feed-through at the firewall and main front bulkhead.

Seal with DAPCO 2200 from ECS compartment side.

(7) Install the engine cowlings.

Refer to Left and Right Cowling - Install procedure and Mid Cowling - Install procedure.

(8) Install the instrument panel.

Refer to Instrument Panel Cover - Install procedure.

(9) Connect the airplane main battery.

Refer to Main Battery - Connect procedure.

(10) Do an engine run up.

Refer to Engine - Operation Test.

77-00
ENGINE INDICATING

77-00-01 Engine Indicating

Description

1. Engine Indication

This Section describes the engine indicating system of the DA 50 C airplane. The integrated cockpit system (ICS) display screens which are located in the instrument panel give all engine and related airplane system indications. For normal operations the left display is the primary flight display (PFD) and the right is the multi-function display (MFD). Both displays are similar, except the autopilot control buttons.

Refer to 31-40 Central computers - Description for more data about the ICS.

A Full Authority Digital Engine Control (FADEC) system provides most of the indications for the engine. Refer to 76-00 Engine controls - Description for data about the engine control system. The ICS also shows airframe fuel system data. Refer to 28-40 Indicating - Description for data about the airframe parts of the system.

2. Description and Operation

The ICS displays the engine indications on the MFD screen. The MFD gives the following engine indications:

- Load. Indicates the engine loads from GI to MAX.
- RPM. Indicates the engine RPM from 0 to 2600 RPM.
- Gearbox temperature in °C.
- Coolant temperature in °C.
- Oil temperature in °C.
- Oil pressure in bar.
- Rudder trim.

The MFD also gives these auxiliary displays with the engine displays:

- Voltage.
- Generator output, in AMPS.

The MFD can also display the following fuel system information (Refer to 28-40 Indicating - Description):

- L and R fuel tank quantity.
- L and R fuel tank temperature in °C.
- Engine fuel flow in gal/hour.

Engine alerts are given on the PFD screen. A flashing warning annunciator appears in the PFD when an alert is activated. Pressing the WARNING softkey at the bottom of the PFD opens an alert window on the PFD. The alerts window gives more details of the alert. The ICS alert system gives alerts and warning captions for engine and airplane systems. Refer to 31-40 Central computers - Description for more data about the ICS.

A. Default Engine / System Page

Figure 1 shows the default engine / system page.

B. Full Engine / System Indication Page

Figure 2 shows the default engine / system page.

3. Maintenance Practices

The Maintenance Practices give instructions how to replace the following sensors:

- Crankshaft (RPM).
- Gearbox oil temperature.
- Liquid coolant temperature.
- Engine oil temperature.
- Engine oil pressure.

Refer to the related Chapter or the Continental Operation & Maintenance Manual, latest revision for maintenance data on the sensors. Where the engine control system provides data for the engine indicating system, only the engine manufacturer or an Continental approved maintenance shop can replace sensors.

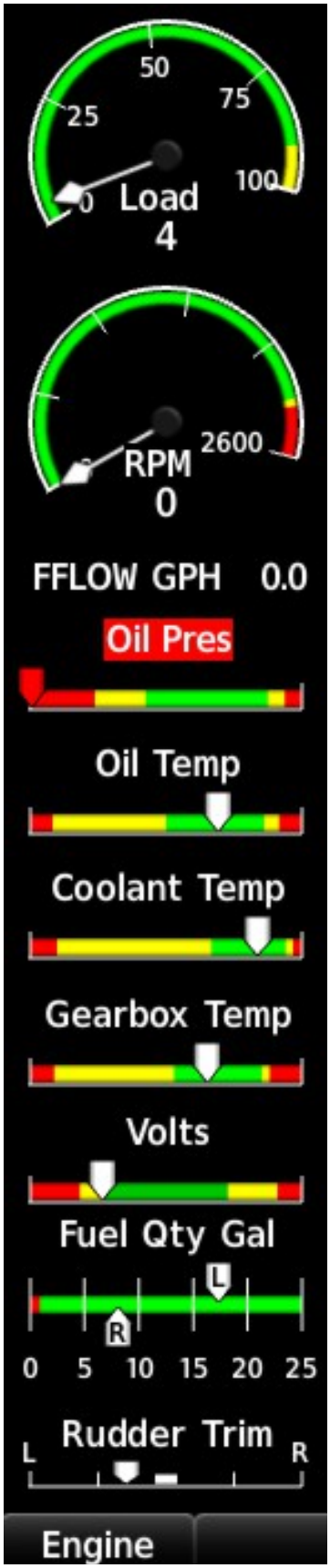


Figure 1 - Default Engine / System Page



Figure 2 - Full Engine / System Page

77-00-02 Engine Indicating

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

One of the indicators in an integrated instrument does not indicate correctly.

1A. Do a test for continuity of the cables for the relevant sensor.

Is the sensor/transducer defective?

Yes - go to step 1B.

No - go to step 1C.

1B. If the cables are serviceable, then refer to the engine manufacturer.

Refer to Indicating - Description for the fuel quantity indicating system.

Refer to Engine controls - Description for the location of engine sensors.

1C. Contact DAI.

77-00-03 Sensor

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

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WARNING

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3. Main Procedure

A. Replace a Sensor

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Locate the sensor that you will replace.

(5) Disconnect the electrical cables of the sensor.

At the sensor or in-line connector.

(6) Replace the sensor.

Refer to Continental Operation & Maintenance Manual, latest revision.

(7) Connect the electrical cables to the sensor.

At the sensor or in-line connector.

(8) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(9) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(10) Do a ground test of the engine and monitor the engine indication.

Refer to 71-00 Engine - Operation Test.

78-00
EXHAUST

78-00-01 Exhaust

Description

1. Exhaust

The DA 50 C engine has a simple exhaust system. Each cylinder bank has a single exhaust pipe that bolts to the turbocharger outlet and passes through the engine cowling at the bottom.

Figure 1 shows the engine exhaust system.

Figure 2 shows the engine exhaust system if MÄM 50-220 is installed.

Figure 3 shows the engine exhaust system if MÄM 50-321 is installed.

Figure 4 shows the engine exhaust system if MÄM 50-110 is installed.

Figure 5 shows the engine exhaust system if MÄM 50-382 is installed.

The exhaust system has a fixed integral muffler.

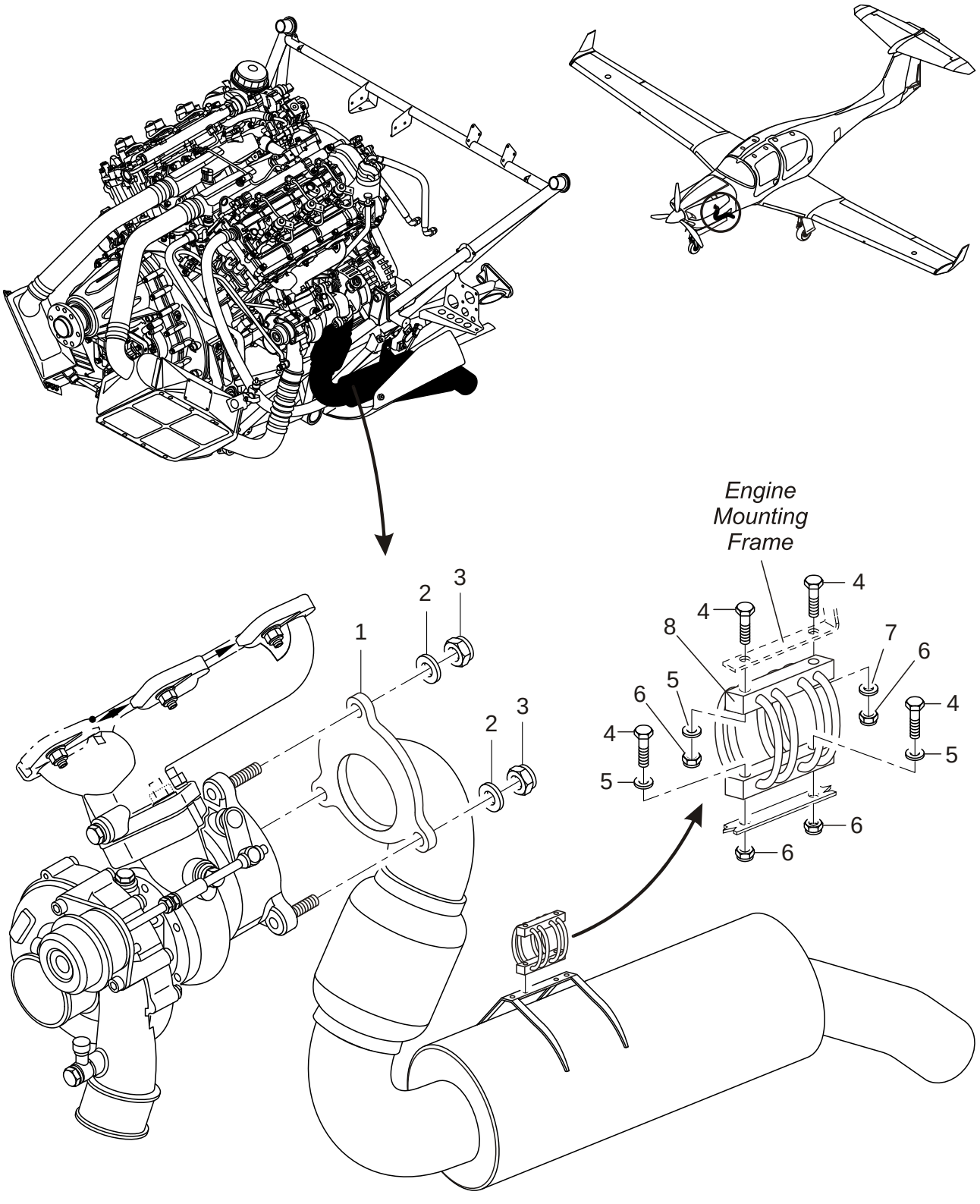


Figure 1 - Exhaust System Installation

Legend

[1, Fig.1] Mounting Flange
[2, Fig.1] Washer
[3, Fig.1] Nut
[4, Fig.1] Bolt
[5, Fig.1] Washer
[6, Fig.1] Nut
[7, Fig.1] Washer
[8, Fig.1] Vibration Damper

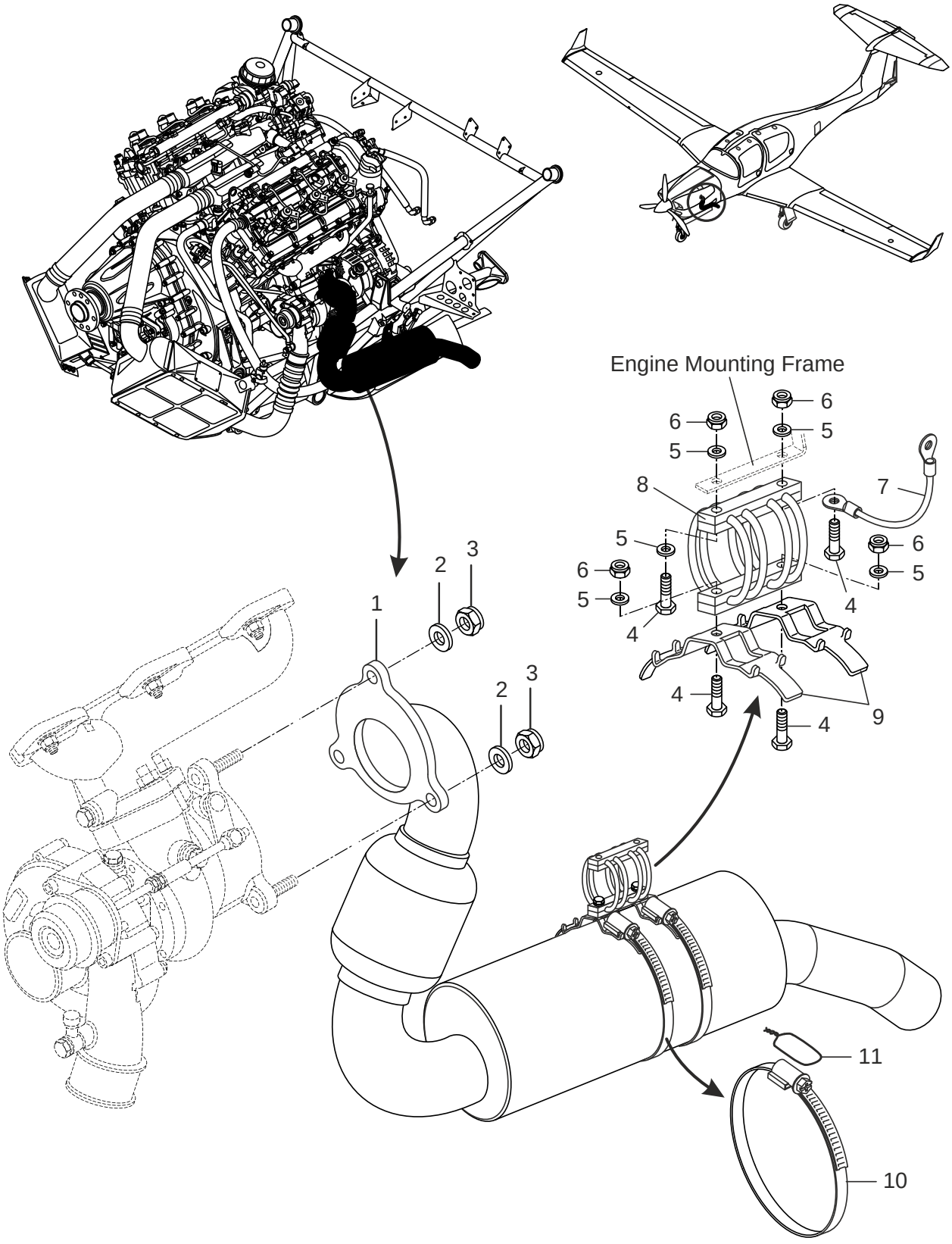


Figure 2 - Exhaust System Installation (if MÄM 50-220 is installed)

Legend

[1, Fig.2]	Mounting Flange
[2, Fig.2]	Washer
[3, Fig.2]	Nut
[4, Fig.2]	Bolt
[5, Fig.2]	Washer
[6, Fig.2]	Nut
[7, Fig.2]	Bonding Wire
[8, Fig.2]	Vibration Damper
[9, Fig.2]	Exhaust Bracket
[10, Fig.2]	Worm Drive Clamp
[11, Fig.2]	Locking Wire

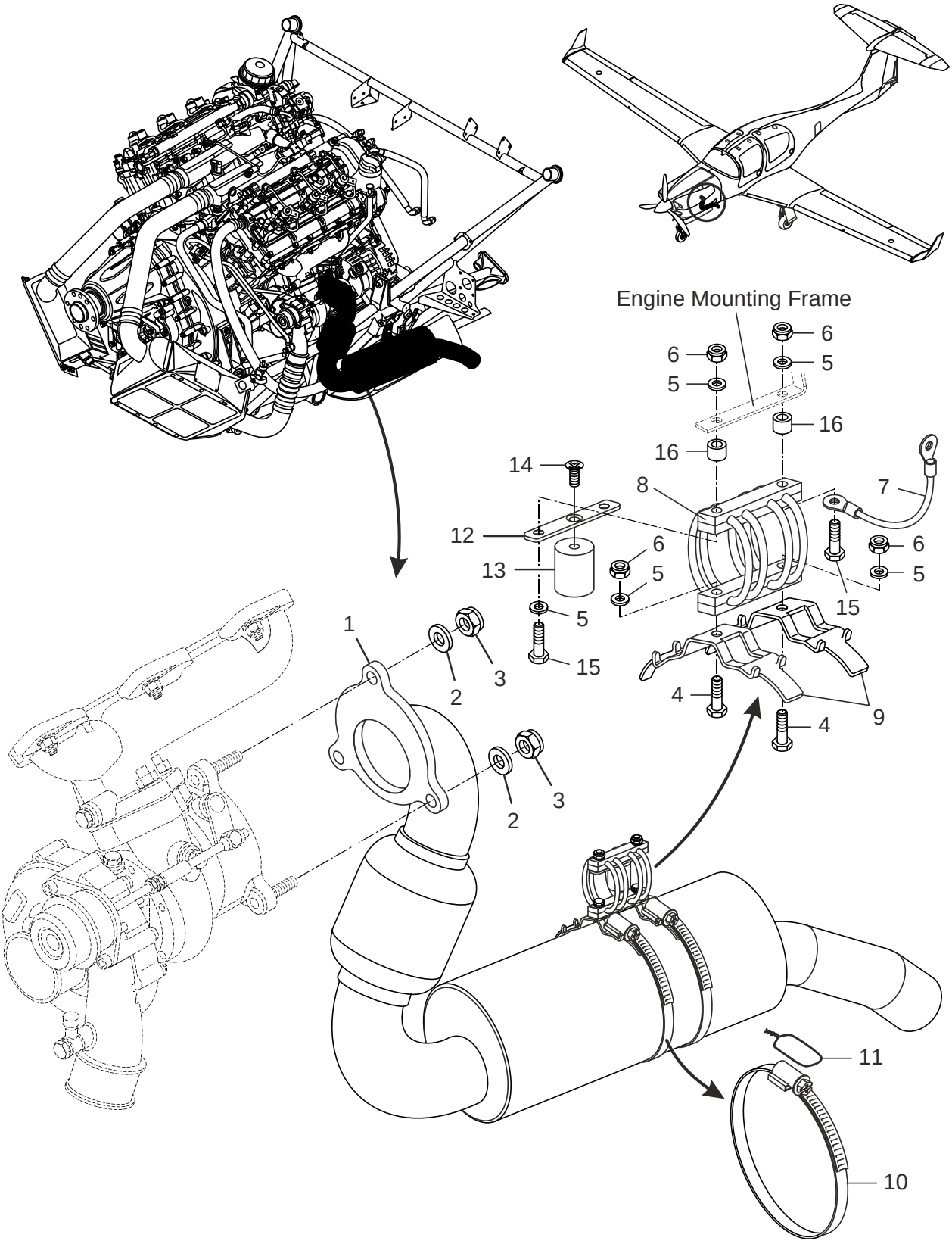


Figure 3 - Exhaust System Installation (if MÄM 50-321 is installed)

Legend

[1, Fig.3]	Mounting Flange
[2, Fig.3]	Washer
[3, Fig.3]	Nut
[4, Fig.3]	Bolt
[5, Fig.3]	Washer
[6, Fig.3]	Nut
[7, Fig.3]	Bonding Wire
[8, Fig.3]	Vibration Damper
[9, Fig.3]	Exhaust Bracket
[10, Fig.3]	Worm Drive Clamp
[11, Fig.3]	Locking Wire
[12, Fig.3]	End Stop Holder
[13, Fig.3]	Rubber Stop
[14, Fig.3]	Countersunk Bolt
[15, Fig.3]	Bolt
[16, Fig.3]	Distance Bush (optional)

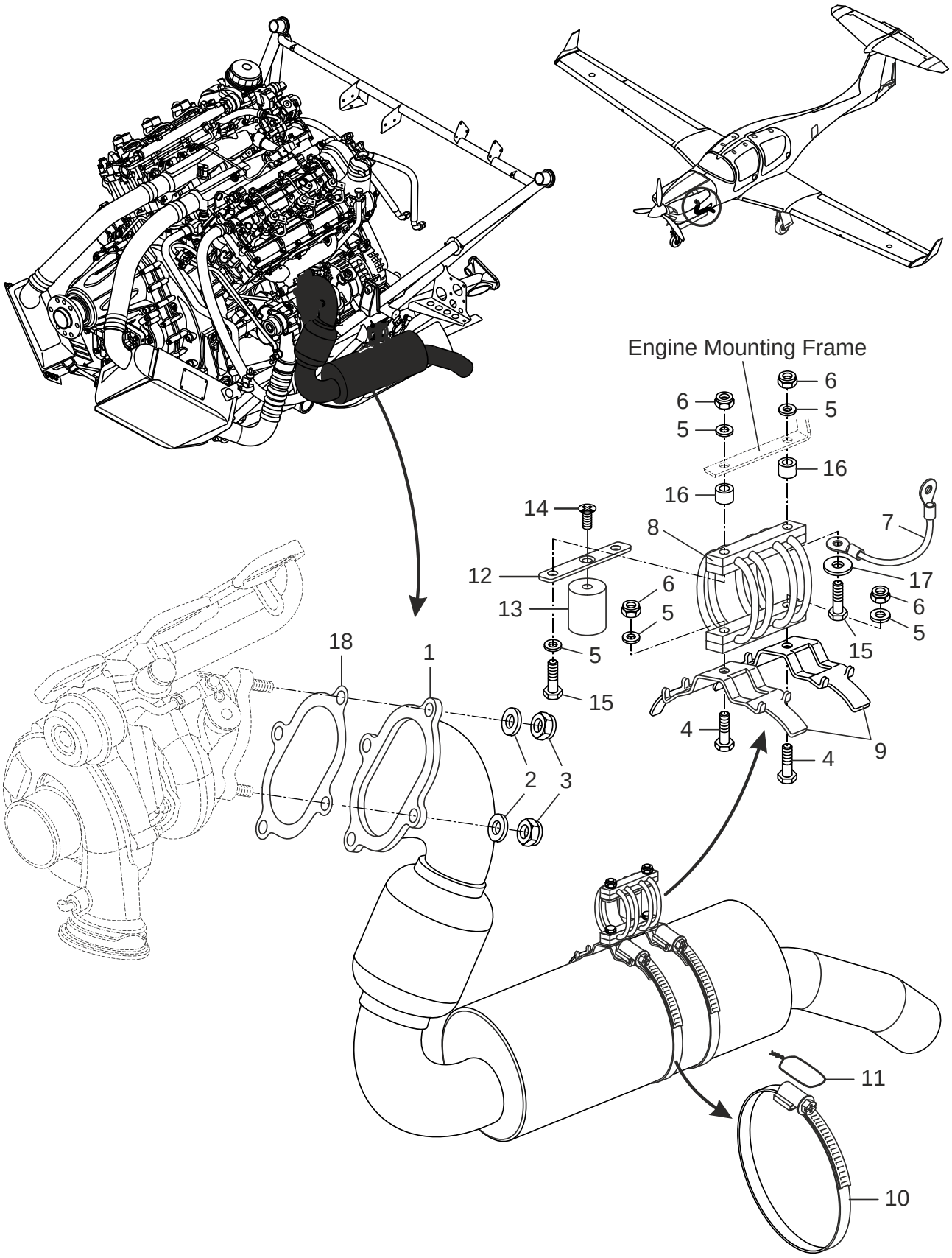


Figure 4 - Exhaust System Installation (if MÄM 50-110 is installed)

Legend

[1, Fig.4]	Mounting Flange
[2, Fig.4]	Washer
[3, Fig.4]	Nut
[4, Fig.4]	Bolt
[5, Fig.4]	Washer
[6, Fig.4]	Nut
[7, Fig.4]	Bonding Wire
[8, Fig.4]	Vibration Damper
[9, Fig.4]	Exhaust Bracket
[10, Fig.4]	Worm-Drive Clamp
[11, Fig.4]	Locking wire
[12, Fig.4]	End Stop Holder
[13, Fig.4]	Rubber Stop
[14, Fig.4]	Countersunk Bolt
[15, Fig.4]	Bolt
[16, Fig.4]	Distance Bush
[17, Fig.4]	Washer
[18, Fig.4]	Exhaust Gasket

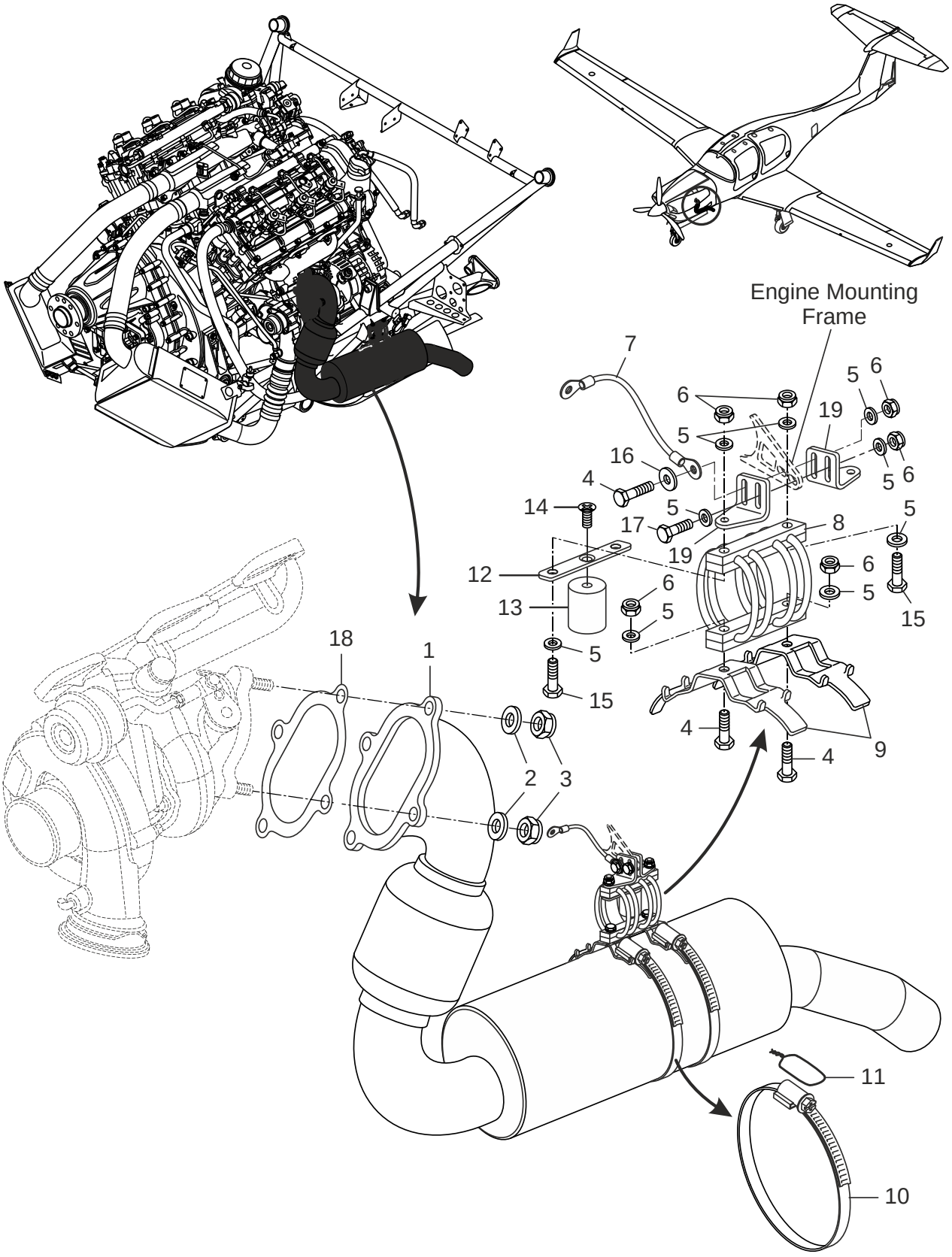


Figure 5 - Exhaust System Installation (if MÄM 50-382 is installed)

Legend

[1, Fig.5]	Mounting Flange
[2, Fig.5]	Washer
[3, Fig.5]	Nut
[4, Fig.5]	Bolt
[5, Fig.5]	Washer
[6, Fig.5]	Nut
[7, Fig.5]	Bonding Wire
[8, Fig.5]	Vibration Damper
[9, Fig.5]	Exhaust Bracket
[10, Fig.5]	Worm-Drive Clamp
[11, Fig.5]	Locking Wire
[12, Fig.5]	End Stop Holder
[13, Fig.5]	Rubber Stop
[14, Fig.5]	Countersunk Bolt
[15, Fig.5]	Bolt
[16, Fig.5]	Washer
[17, Fig.5]	Bolt
[18, Fig.5]	Exhaust Gasket
[19, Fig.5]	L-Bracket

78-00-02 Exhaust

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

More noise than usual.

1A. Examine the exhaust pipe. Look for signs of exhaust gas leaks.
Is the exhaust pipe cracked?
Yes - go to step 1B.
No - go to step 1C.

1B. Replace the exhaust pipe.

1C. Examine the exhaust muffler.
Is the exhaust muffler cracked?
Yes - go to step 1D.
No - go to step 1E.

1D. Replace cracked muffler.

1E. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Signs of exhaust gas leaks in the engine compartment.

2A. Examine the exhaust pipe. Look for signs of exhaust gas leaks.

Is the exhaust pipe cracked?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the exhaust pipe.

2C. Examine the exhaust muffler.

Is the exhaust muffler cracked?

Yes - go to step 2D.

No - go to step 2E.

2D. Replace cracked muffler.

2E. Contact DAI.

78-00-03 Exhaust

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THE EXHAUST SYSTEM IS COOL BEFORE YOU DO MAINTENANCE ON THE ENGINE. THE EXHAUST SYSTEM CAN BE HOT. THIS CAN CAUSE INJURY TO PERSONS.

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove an Engine Exhaust Pipe

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Mid Cowling - Remove procedure and 71-10 Left and Right Cowling - Remove procedure.

(4) Remove the exhaust pipe:

- Remove the nuts that attach the exhaust pipe to the turbo charger.
- Remove the anti-vibration mount of the exhaust.

78-00-04 Exhaust

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THE EXHAUST SYSTEM IS COOL BEFORE YOU DO MAINTENANCE ON THE ENGINE. THE EXHAUST SYSTEM CAN BE HOT. THIS CAN CAUSE INJURY TO PERSONS.

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install an Engine Exhaust Pipe

(1) Install the exhaust pipe:

- Move the exhaust pipe into position.
- Install the exhaust gasket to the studs on the turbo charger outlet. Use a new gasket.
- Move the exhaust pipe flange over the studs on the turbo charger outlet.
- Install the nuts that attach the exhaust pipe to the turbo charger outlet.
  Torque: 40 Nm (29.5 lbf.ft.).
  Refer to Special Torque Values - Description.
  If MÄM 50-110 is installed: Torque: 25 - 30 Nm (18.44 - 22.13 lbf.ft.).
  Refer to Special Torque Values - Description.
  Use new nuts.
- Install the anti-vibration mount to the exhaust.
- If MÄM 50-321 or MÄM 50-110 is installed:
  Install the anti-vibration mount and rubber stop to the exhaust. Use the 5 mm (0.2 in) or 10 mm (0.39 in) distance bush with appropriate bolt length to achieve correct exhaust position.
- If MÄM 50-382 is installed:
  Install the anti-vibration mount with the rubber stop and the two l-brackets to the exhaust.
  Use the l-brackets to adjust the position of the exhaust.
  Make sure that the exhaust points through the middle of the cowl flap opening while maintaining sufficient clearances.
  Install locking wire on both worm drive clamps.
- If MÄM 50-220 or MÄM 50-321 or MÄM 50-110 are installed:
  Adjust brackets position to achieve final exhaust position through the middle of the cowl flap opening while maintaining sufficient clearances:
  Install locking wire on both worm drive clamps.
  Refer to 20-70 Worm Drive Clamps - Description for tightening torques for clamp widths below 12 mm (0.47 in).

(2) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(3) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(4) Do an engine ground run-up and then check the exhaust pipe for leaks.

Specially around the gasket at the turbo charger outlet.

79-00
OIL COOLING

79-00-01 Oil Cooling

Description

1. Oil Cooling

The engine has a conventional wet-sump lubrication system. The bottom part of the engine crankcase makes up the oil sump. An oil filler tube with a screw cap connects to the crankcase on the left of the engine.

The oil cooler is an integrated oil water heat exchanger which is located under the oil filter case.

The oil breather system has an oil separator located under the injector cover. A flexible hose at the rear of the oil separator vents blow-by gases and any remaining oil mist to the outside of the cowling. A small hose drains accumulated oil underneath the injector cover.

To protect the breather system from blockage due to icing of moist blow by gases an engine integrated over pressure valve is provided below the injector cover.

79-00-02 Oil Cooling

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The engine oil temperature is too high.

1A. Examine the oil cooler.

Is the oil cooler blocked internally?

Yes - go to step 1B.

No - go to step 1C.

1B. Contact the engine manufacturer.

1C. Check the oil level.

Is the oil level low?

Yes - go to step 1D.

No - go to step 1E.

1D. Replenish oil system. Refer to Engine Oil - Fill with oil.

1E. Contact the engine manufacturer.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

The engine oil pressure is too high.

2A. Check the oil pressure sensor.
Is the oil pressure sensor defective?
Yes - go to step 2B.
No - go to step 2C.

2B. Refer to Continental Operation & Maintenance Manual, latest revision.

2C. Contact the engine manufacturer.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The engine oil pressure is too low at normal operating temperatures.

3A. Check the oil level.

Is the oil level low?

Yes - go to step 3B.

No - go to step 3C.

3B. Replenish oil system. Refer to Engine Oil - Fill with oil.

3C. Check the oil pressure sensor.

Is the oil pressure sensor defective?

Yes - go to step 3D.

No - go to step 3E.

3D. Refer to Continental Operation & Maintenance Manual, latest revision.

3E. Contact the engine manufacturer.

80-00
STARTING

80-00-01 Starting

Description

1. Starting

This Section tells you about the system that cranks the CD-300 engine for starting. Refer to 24-60 DC Electrical Load Distribution - Description for more data on the electrical supplies to the system. Refer to 76-00 Engine controls - Description for data about the engine control system.

Figure 1 shows the simplified schematic diagram of the starter system. The system operates off a 24 VDC supply.

The starter motor is located on the left side of the engine. Either the airplane battery or the external power system can supply the bis for the starter.

The ELECT. MASTER switch is located on the left side of the instrument panel. Push the switch to supply power to the main bus. The engine master switch, located on the bottom left of the instrument panel, controls the ground connection for the engine starter relay. The switch must be set to ON for the starter system to operate. The start push button is located between the ENGINE MASTER switch and the EMERG. FUEL PUMP switch, at the bottom left of the instrument panel. A START warning light on the ALERT panel of the integrated cockpit display comes ON when there is power to the starter.

2. Maintenance Practices

The Maintenance Practices gives you only Maintenance Practices for the airplane part of the starter system. No repairs are permitted on the CD-300 engine. Only an authorized repair shop or the manufacturer can repair the engine part of the system.

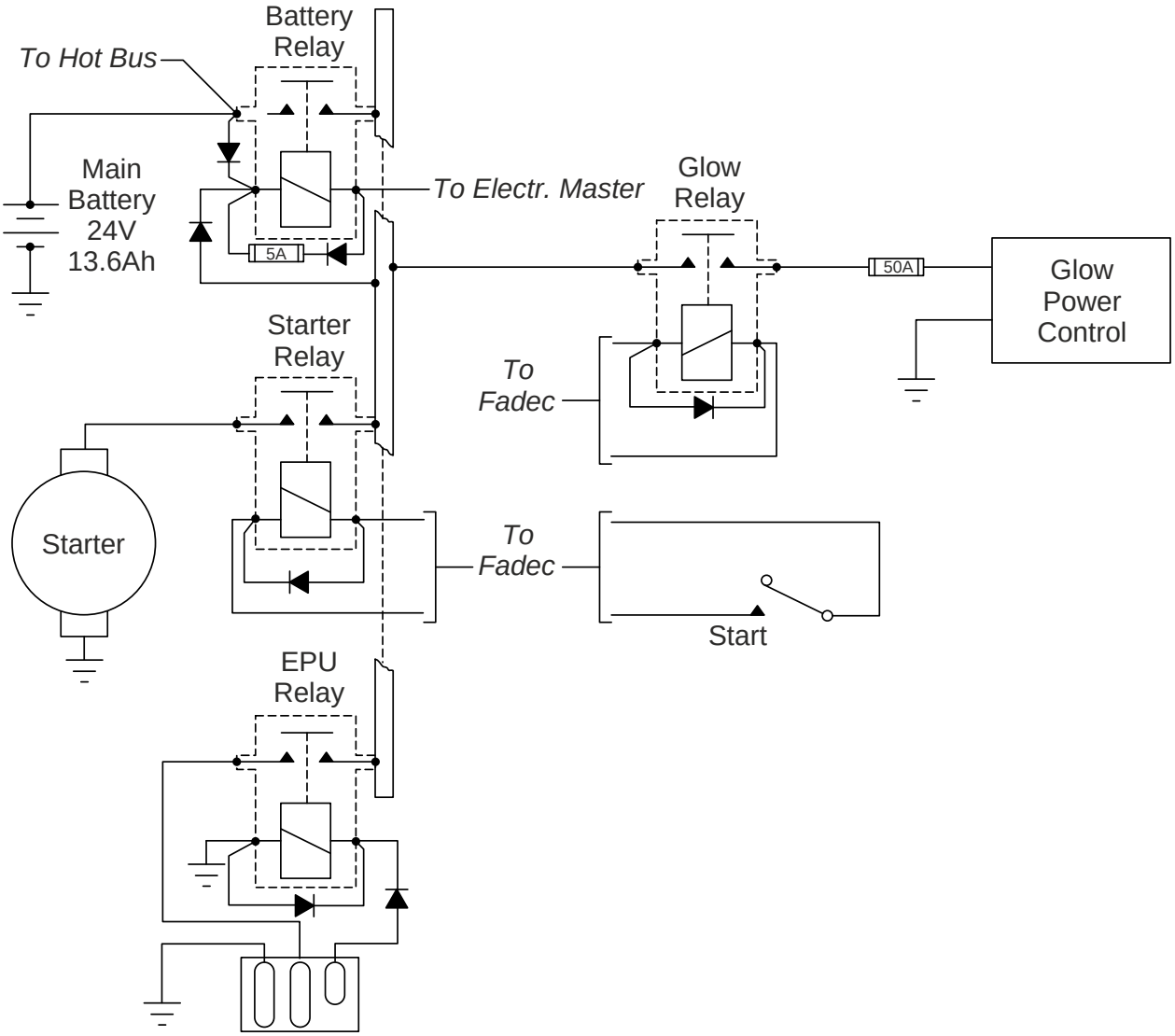


Figure 1 - Engine Starter System Schematic Diagram

80-00-02 Starting

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

DISCONNECT AND ISOLATE THE STARTER POWER CABLES BEFORE DOING TESTS IN THIS SECTION. THE ENGINE MAY TURN AND CAUSE INJURY TO PERSONS.

3. Fault Isolation Main Procedure

The starter does not operate when the ELECT. MASTER switch is set to ON, the ENGINE MASTER is ON and the engine START button is pressed.

1A. Examine the airplane main battery.

Is the airplane main battery discharged?

Yes - go to step 1B.

No - go to step 1C.

1B. Charge the airplane main battery.

1C. Examine the ENGINE MASTER switch.

Is the ENGINE MASTER switch defective?

Yes - go to step 1D.

No - go to step 1E.

1D. Replace the ENGINE MASTER switch.

1E. Examine the START button.

Is the START button defective?

Yes - go to step 1F.

No - go to step 1G.

1F. Replace the START button.

1G. Examine the starter relay.

Is the starter relay defective?

Yes - go to step 1H.

No - go to step 1I.

1H. Replace the starter relay.

1I. Examine the engine starter motor assembly.

Is the engine starter motor assembly defective?

Yes - go to step 1J.

No - go to step 1K.

1J. Replace the engine starter motor assembly.

1K. Do a test of the electrical cables.

Is a cable in the engine start system is defective?

Yes - go to step 1L.

No - go to step 1M.

1L. Refer to Chapter 92 for the wiring diagrams. Repair/replace the defective cable. Refer to 71-50 Electrical harness - Description for repair limits of the engine harness.

1M. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The starter power-on indication stays after the START push button is released.

2A. Examine the starter relay.

Is the starter relay defective?

Yes - go to step 2B.

No - go to step 2C.

2B. Replace the starter relay.

2C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

Difficult cold starting.

3A. Examine the glow plugs.

Are the glow plugs worn?

Yes - go to step 3B.

No - go to step 3C.

3B. Replace the glow plugs. Refer to the engine manufacturer.

3C. Examine the glow fuse.

Is the glow fuse defective?

Yes - go to step 3D.

No - go to step 3E.

3D. Replace the glow fuse.

3E. Contact DAI.

80-00-03 Engine Master Switch

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE STARTER SYSTEM. IF THE ENGINE STARTS THE PROPELLER CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the ENGINE MASTER Switch

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(4) Remove the lower placard panel from the instrument panel.

Refer to 11-30 Placard Panel - Change = Remove and install.

(5) Remove the ENGINE MASTER switch:

Refer to Figure 2:

- Remove the nut and washer from the front of the instrument panel.

- Move the switch forward and clear of the instrument panel.
- Hold the switch and disconnect the electrical cables.
  Note the position of the cables.
- Move the switch clear of the instrument panel.

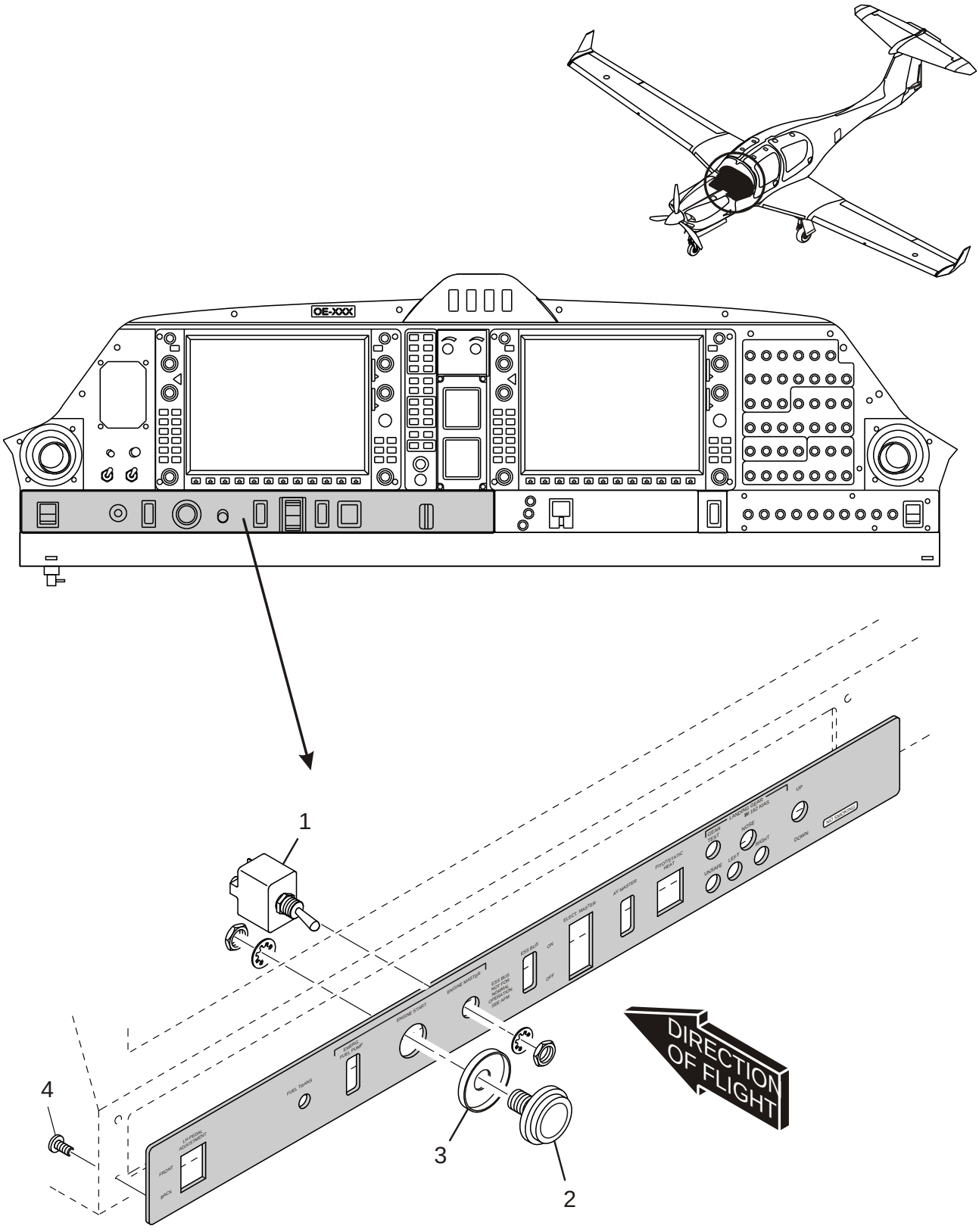


Figure 2 - Engine Master Switch and Start Switch Installation

Legend

[1, Fig.2] Engine Master Switch

[2, Fig.2] Engine Start Button

[3, Fig.2] Ring

[4, Fig.2] Screw

80-00-04 Engine Master Switch

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE STARTER SYSTEM. IF THE ENGINE STARTS THE PROPELLER CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the ENGINE MASTER Switch

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Install the switch:

- Move the switch into position by the instrument panel and hold the switch.
- Connect the electrical cables to the terminals on the switch.
  Refer to Chapter 92 for the wiring diagrams.
- Move the switch fully into position in the instrument panel.
- Install the washer and nut onto the front of the switch.
  Make sure the switch is correctly orientated.

(3) Install the lower placard panel onto the instrument panel.

Refer to 11-30 Placard Panel - Change = Remove and install.

(4) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(5) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(6) Do an engine ground run-up and do a test for the correct operation of the ENGINE MASTER switch and the lower placard.

Refer to 71-00 Engine - Operation Test.

80-00-05 Engine Start Push Button

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE STARTER SYSTEM. IF THE ENGINE STARTS THE PROPELLER CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove the Engine START Push Button

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Remove procedure.

(4) Remove the lower placard panel from the instrument panel.

Refer to 11-30 Placard Panel - Change = Remove and install.

(5) Remove the START switch:

Refer to 80-00 Engine Master Switch - Remove procedure Figure 2:

- Remove the nut and washer from the front of the instrument panel.

- Move the switch forward and clear of the instrument panel.
- Hold the switch and unsolder the electrical cables.
  Note the position of the cables.
- Move the switch clear of the instrument panel.

80-00-06 Engine Start Push Button

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE STARTER SYSTEM. IF THE ENGINE STARTS THE PROPELLER CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Install the Engine START Push Botton

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Install the switch:

- Move the switch into position by the instrument panel and hold the switch.
- Solder the electrical cables to the terminals on the switch.
  Refer to Chapter 92 for the wiring diagrams.
- Move the switch fully into position in the instrument panel.
- Install the washer and nut onto the front of the switch.

(3) Install the lower placard panel onto the instrument panel.

Refer to 11-30 Placard Panel - Change = Remove and install.

(4) Install the instrument panel cover.

Refer to 25-10 Instrument Panel Cover - Install procedure.

(5) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(6) Do an engine ground run-up and do a test for the correct operation of the ENGINE MASTER switch and the lower placard.

Refer to 71-00 Engine - Operation Test.

80-00-07 Engine Start Relay

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Remove the Engine Start Relay

Refer to 24-30 Relay in Relay Box - Remove procedure.

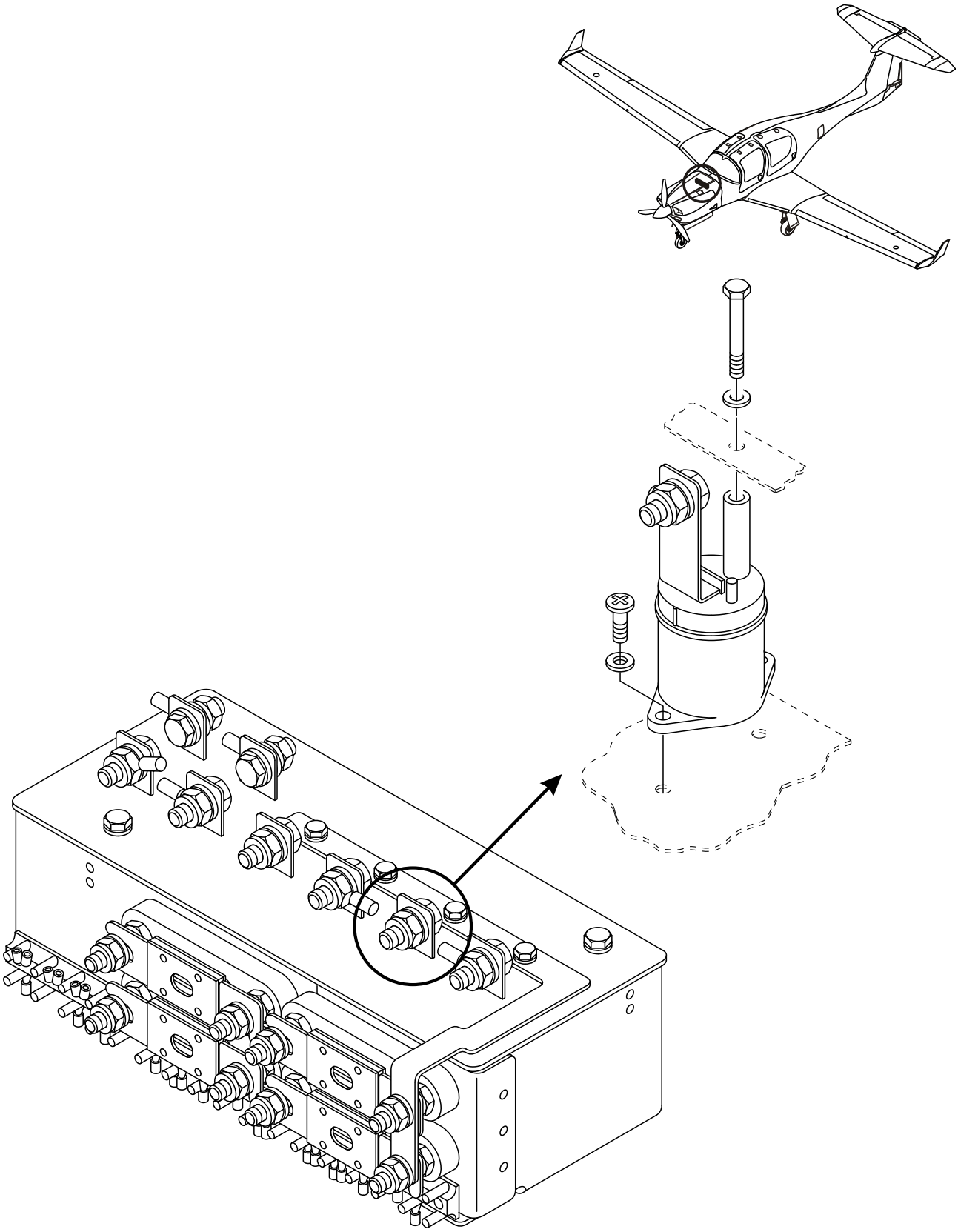


Figure 3 - Engine Starter Relay Installation

80-00-08 Engine Start Relay

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Install the Engine Start Relay

Refer to 24-30 Relay in Relay Box - Install procedure.

80-00-09 Glow Fuse

Change = Remove and install

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE STARTER SYSTEM. IF THE ENGINE STARTS THE PROPELLER CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Replace the Glow Fuse

(1) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(2) Locate the glow fuse on the relay box in the engine compartment.

Refer to Chapter 92 for the wiring diagrams.

(3) Remove the fuse:

Refer to Figure 4.

- Loosen the nut that attaches the electrical cable and fuse to the fuse holder. Left side. Do not remove the nut.
- Loosen the nut that attaches the bus bar and fuse to the fuse holder. Right side. Do not remove the nut.
- Pull the fuse clear of the fuse holder.

(4) Install a new fuse:

- Move the new fuse into position at the fuse holder.

- Tighten the 2 nuts.

(5) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(6) Do a engine ground run-up and make sure that the glow plugs operate correctly.

Refer to 71-00 Engine - Operation Test.

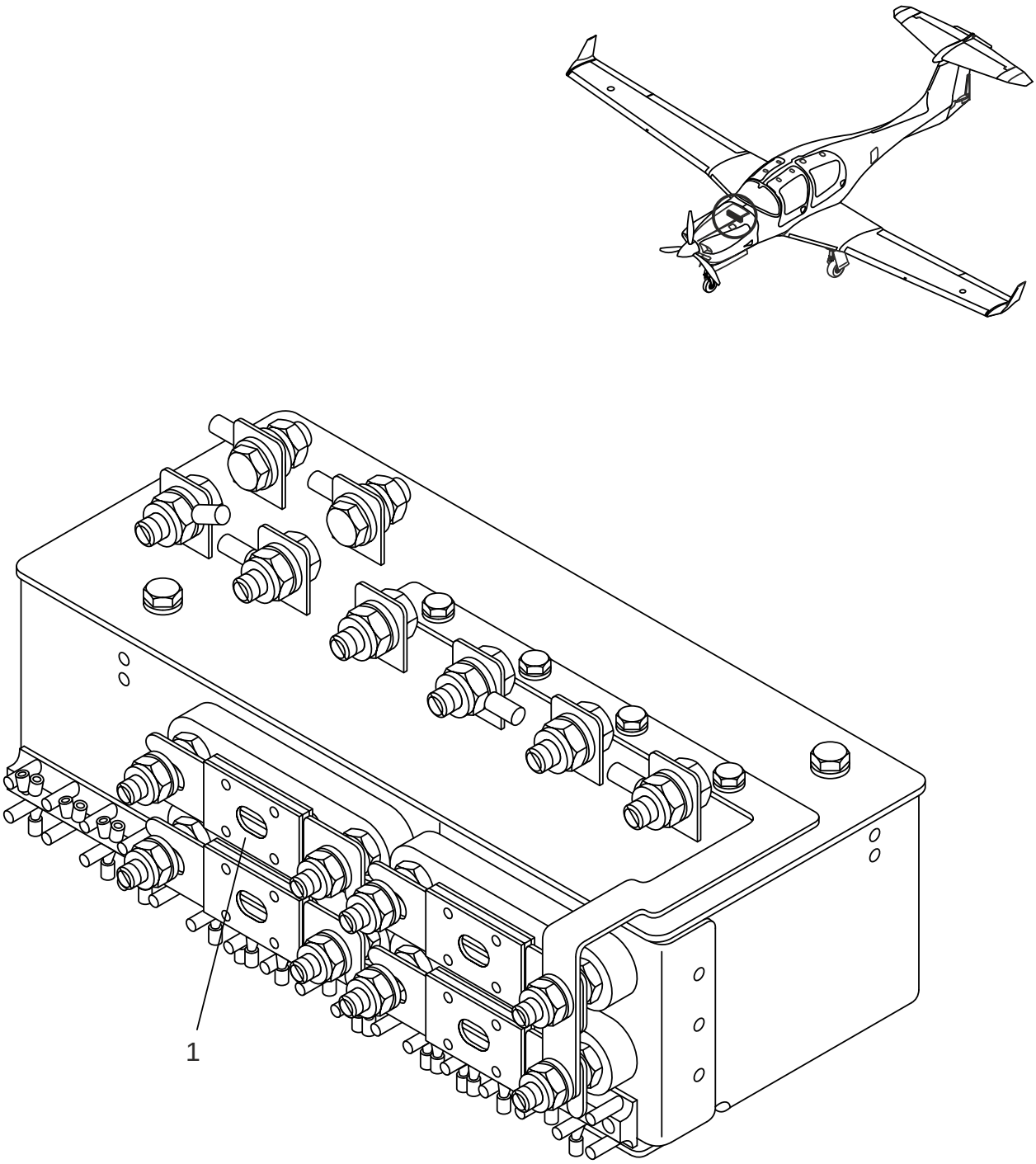


Figure 4 - Location of the Glow Fuse

Legend

[1, Fig.4] Glow Fuse

81-00
TURBO CHARGER

81-00-01 Turbo Charger

Description

1. Turbo Charger

This Chapter describes the charged air system of the DA 50 C airplane.

The DA 50 C has 2 separate charged air systems. One charged air sstem for the LH cylinder bank and one for the RH cylinder bank.

The turbo charger compresses and therefore heats up the air. The outlet from the turbo charger connects to the intercooler, which cools down the hot compressed air.

The intercoolers are located on the front LH and RH side of the engine. The outlets of the intercoolers connect to the engine intake manifolds. A manifold pressure and air temperature sensor is attached to each engine intake manifold.

2. Operation

Figure 1 and Figure 2 show the charged air system schematic.

When the engine is running the exhaust gases from the engine flow through a manifold to the turbo charger turbine. A waste gate in the turbo charger turbine inlet can open to allow some of the exhaust gases from the engine to bypass the turbine and flow directly in to the engine exhaust pipe. The waste gate opening is controlled by the engine FADEC.

Ambient air flows through the air filter (normal operation) or from the engine compartment (alternate air operation) into the turbo charger compressor. The air gains heat while being compressed in the turbo charger. The hot compressed air flows through a flexible hose to the intercooler.

The hot compressed air flows through the matrix of the intercooler. Cooling air is guided from the left and right side of the cowling duct to the intercooler and flows around the intercooler matrix. The hot compressed air is cooled. The cooled compressed air from the intercooler matrix flows through a flexible hose to the engine air intake manifold.

3. Maintenance Practices

CAUTION

YOU CANNOT DO MAINTENANCE ON THE INTERCOOLER.

CAUTION

DO NOT TRY TO ADJUST THE WASTE GATE CONTROL PUSH ROD. ANY ADJUSTMENT WILL AFFECT THE CHARACTERISTICS OF THE ELECTRONIC CONTROL SYSTEM.

Refer to 81-20 Engine Intercooler - Remove procedure and 81-20 Engine Intercooler - Install procedure for information on how to remove/install the engine intercooler.

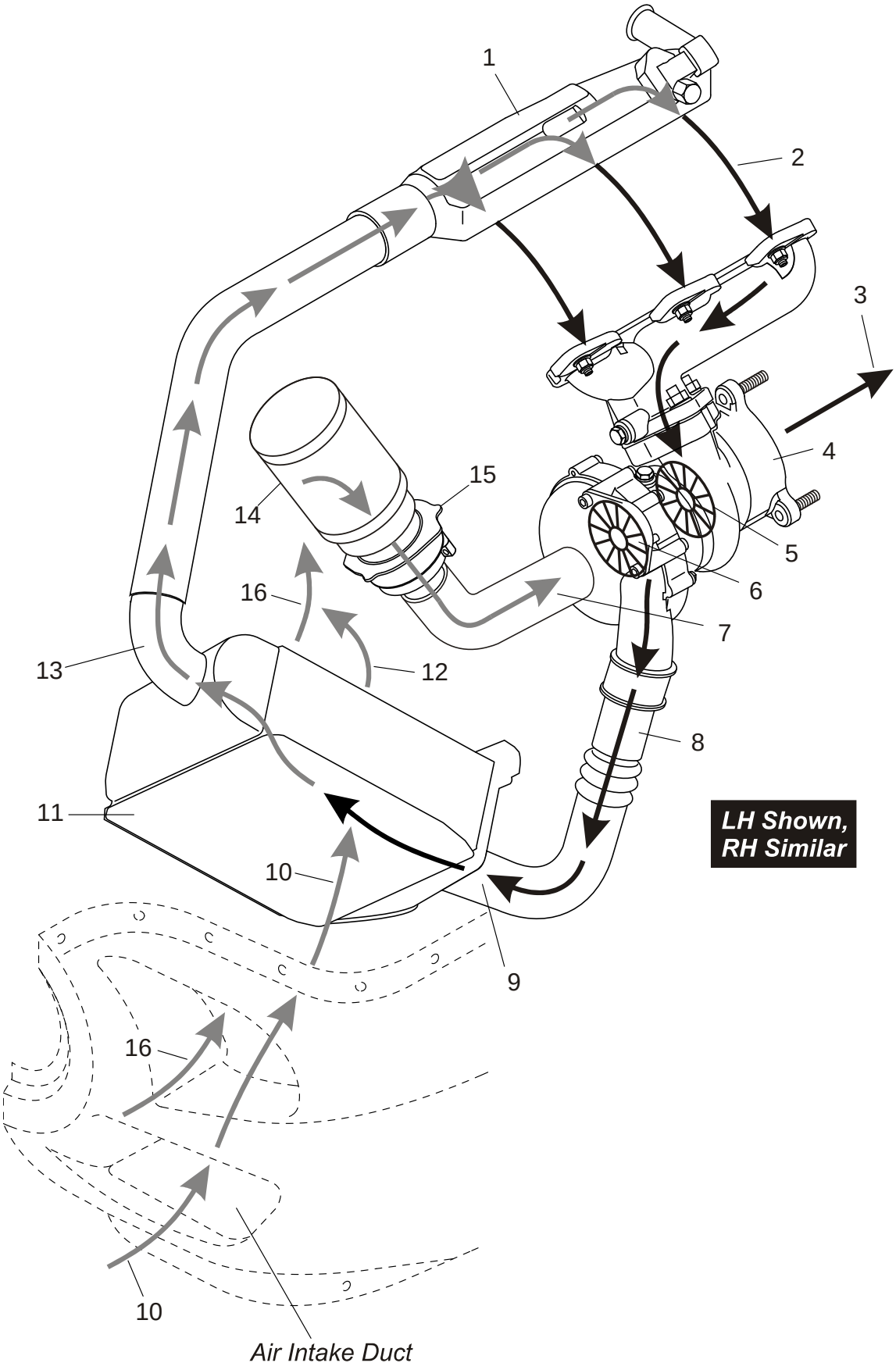


Figure 1 - Engine Turbo Charger Schematic

Legend

[1, Fig.1]	Engine Intake Manifold
[2, Fig.1]	Exhaust Gases from Engine Manifold
[3, Fig.1]	Engine Exhaust Gases
[4, Fig.1]	Turbo Charger
[5, Fig.1]	Turbine
[6, Fig.1]	Compressor
[7, Fig.1]	Compressor Input
[8, Fig.1]	Compressed Air, Out
[9, Fig.1]	Intercooler Input
[10, Fig.1]	Cooling Air, In
[11, Fig.1]	Intercooler
[12, Fig.1]	Cooling Air, Out
[13, Fig.1]	Intercooler Output
[14, Fig.1]	Air Filter
[15, Fig.1]	Alternate Air Valve
[16, Fig.1]	Ambient Air, In

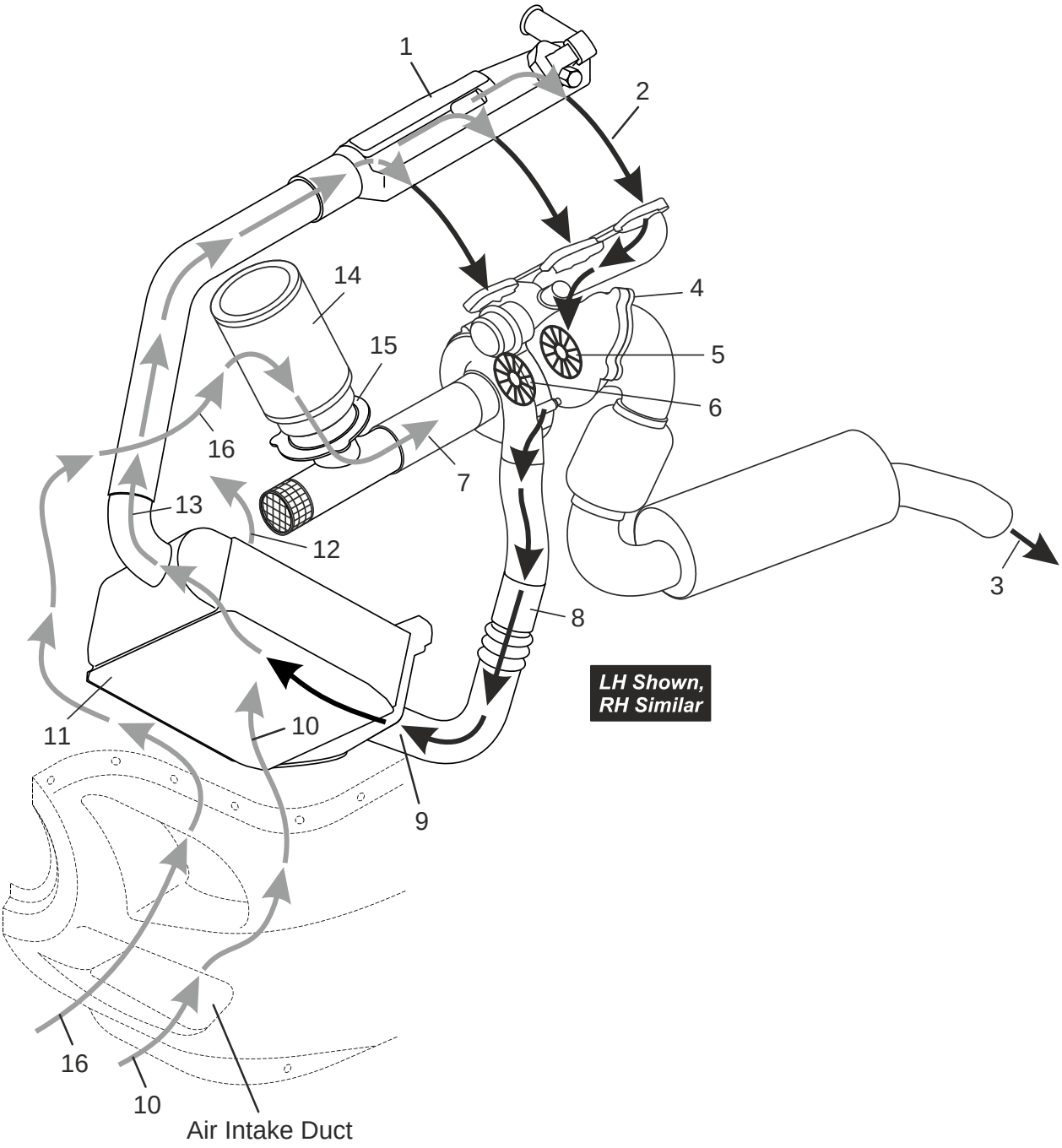


Figure 2 - Engine Turbo Charger Schematic (if MÄM 50-110 is installed)

Legend

[1, Fig.1]	Engine Intake Manifold
[2, Fig.1]	Exhaust Gases from Engine Manifold
[3, Fig.1]	Engine Exhaust Gases
[4, Fig.1]	Turbo Charger
[5, Fig.1]	Turbine
[6, Fig.1]	Compressor
[7, Fig.1]	Compressor Input
[8, Fig.1]	Compressed Air, Out
[9, Fig.1]	Intercooler Input
[10, Fig.1]	Cooling Air, In
[11, Fig.1]	Intercooler
[12, Fig.1]	Cooling Air, Out
[13, Fig.1]	Intercooler Output
[14, Fig.1]	Air Filter
[15, Fig.1]	Alternate Air Valve
[16, Fig.1]	Ambient Air, In

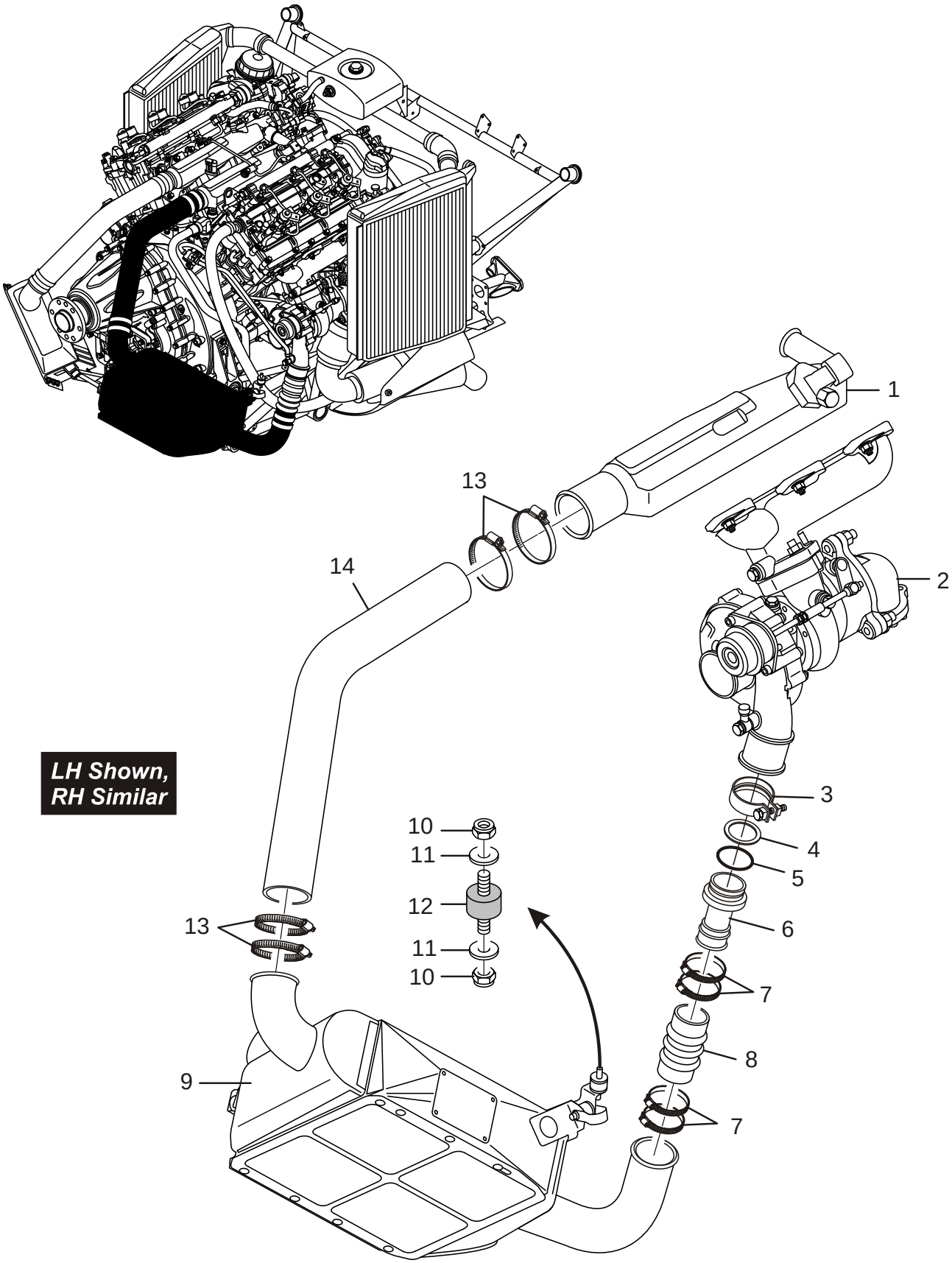


Figure 3 - Intercooler Installation

Legend

[1, Fig.3]	Engine Air Intake Manifold
[2, Fig.3]	Turbo Charger
[3, Fig.3]	V-Clamp
[4, Fig.3]	Shim
[5, Fig.3]	O-Ring
[6, Fig.3]	Turbo Adapter
[7, Fig.3]	Hose Clamp
[8, Fig.3]	Flexible Charge Air Hose
[9, Fig.3]	Intercooler
[10, Fig.3]	Nut
[11, Fig.3]	Washer
[12, Fig.3]	Shock Mount
[13, Fig.3]	Hose Clamp
[14, Fig.3]	Intercooler Output Hose

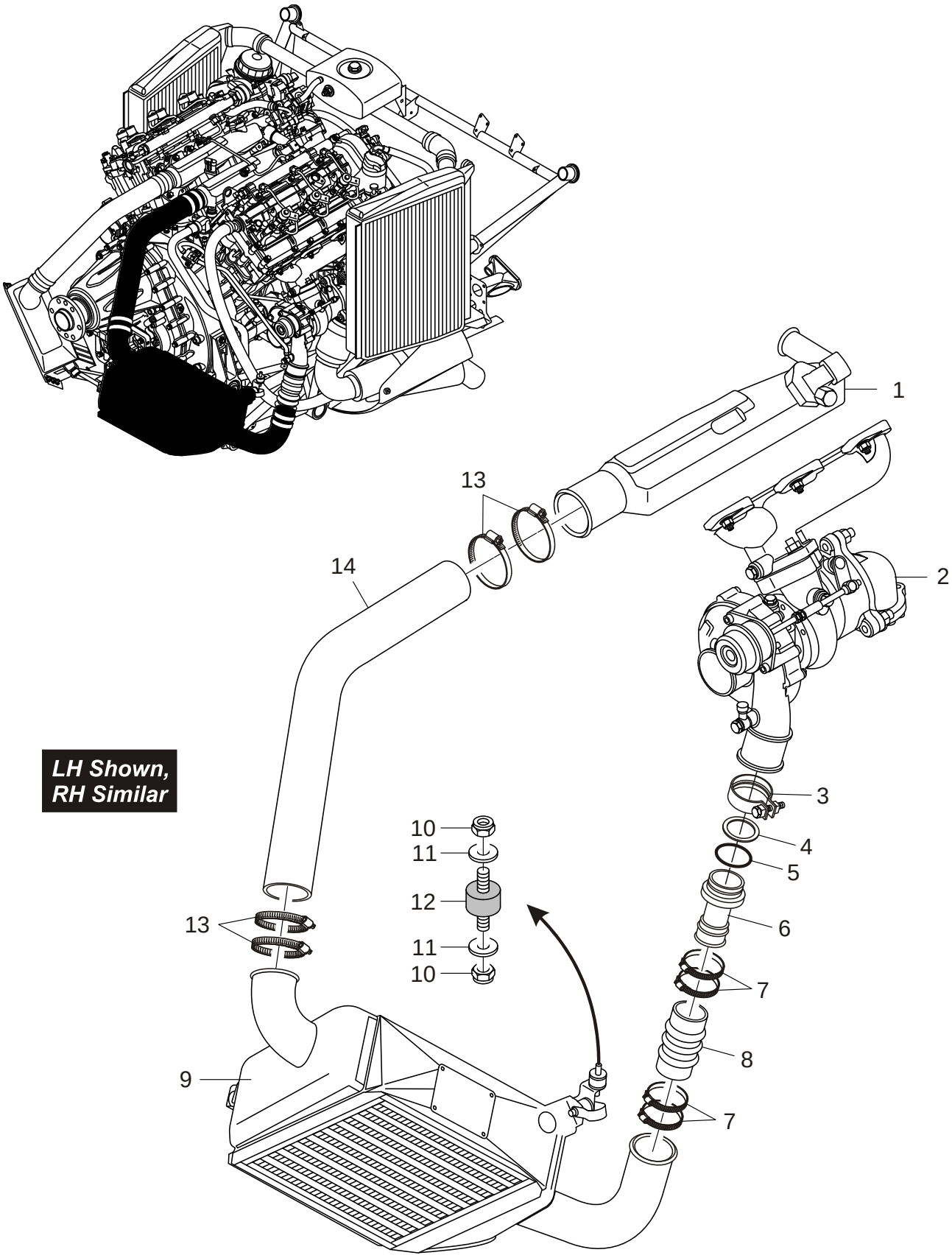


Figure 4 - Intercooler Installation (if MÄM 50-210 is installed)

Legend

[1, Fig.4]	Engine Air Intake Manifold
[2, Fig.4]	Turbo Charger
[3, Fig.4]	V-Clamp
[4, Fig.4]	Shim
[5, Fig.4]	O-Ring
[6, Fig.4]	Turbo Adapter
[7, Fig.4]	Hose Clamp
[8, Fig.4]	Flexible Charge Air Hose
[9, Fig.4]	Intercooler
[10, Fig.4]	Nut
[11, Fig.4]	Washer
[12, Fig.4]	Shock Mount
[13, Fig.4]	Hose Clamp
[14, Fig.4]	Intercooler Output Hose

81-00-02 Turbo Charger

General fault isolation procedure

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Fault Isolation Main Procedure

The engine intake manifold pressure is too low/ too high.

1A. Examine the waste gate valve.

Is the waste gate valve defective?

Yes - go to step 1B.

No - go to step 1C.

1B. Refer to the engine manufacturer.

1C. Contact DAI.

Fault Isolation

1. References

None

2. Preliminary Requirements

A. Required Conditions
Not applicable

B. Required Persons
Not applicable

C. Fixtures, Tools and Support Equipment
Not applicable

D. Consumable Materials
Not applicable

E. Expendable Parts
Not applicable

F. Safety Conditions
Not applicable

3. Fault Isolation Main Procedure

Inlet air temperature too high.

2A. Examine the intercooler matrix.
Is the intercooler matrix blocked/damaged?
Yes - go to step 2B.
No - go to step 2C.

2B. Clear intercooler matrix of obstructions. Replace intercooler if necessary.

2C. Contact DAI.

81-00-03 Engine Intercooler

Repair procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

Not applicable

3. Main Procedure

A. Repair of the Engine Intercooler Fins

(1) Remove the left and right engine cowlings to get access to the whole frontal area of both engine intercoolers.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(2) Inspect the engine intercooler for damage.

(3) The bent front surface fins of the engine intercooler can be repaired if the fins are not cracked or separated.

(4) Use the flat nose pliers to straighten the bent webs on to their original from.

Avoid tool marks.

(5) Install the left and right engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure.

81-00-04 Engine Intercooler

Remove procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

3. Main Procedure

A. Remove an Engine Intercooler

NOTE

All hose clamp connections (except such secured with self locking nuts) in the charge air system must be secured with lock wire.

(1) Make sure that the engine is safe:

- Set ELECT. MASTER switch to OFF.
- Set the ENGINE MASTER switch to OFF.
- Set the power lever to IDLE.

(2) Disconnect the airplane main battery.

Refer to 24-31 Main Battery - Disconnect procedure.

(3) Remove the engine cowlings.

Refer to 71-10 Left and Right Cowling - Remove procedure.

(4) Disconnect the flexible hoses that connect the intercooler to the turbo charger and engine air intake manifold:

Refer to 81-20 Turbo Charger - Description Figure 3.

- Remove the worm-drive-clamps.
  At the intercooler.
- Pull the hoses off the intercooler connectors and the turbo charger inlet.

(5) Remove the intercooler:

- Remove the 3 nuts and washers that attach the intercooler by shock mounts to the engine mount and the intercooler bracket.
- Move the intercooler clear of the engine.
  Take care not to damage the intercooler matrix!

81-00-05 Engine Intercooler

Install procedure

1. References

None

2. Preliminary Requirements

A. Required Conditions

Not applicable

B. Required Persons

Not applicable

C. Fixtures, Tools and Support Equipment

Not applicable

D. Consumable Materials

Not applicable

E. Expendable Parts

Not applicable

F. Safety Conditions

WARNING

MAKE SURE THAT THE AREA OF THE PROPELLER IS CLEAR BEFORE YOU OPERATE THE STARTER MOTOR. PROPELLERS CAN CAUSE INJURY OR DEATH.

WARNING

MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU DO WORK ON THE ENGINE. IF THE PROPELLER TURNS IT CAN CAUSE INJURY OR DEATH.

CAUTION

MAKE SURE THAT TURBO CHARGER HOSES ARE ROUTED CORRECTLY WITHOUT KINKS. FALSE INSTALLED HOSES MAY RESULT IN DAMAGE TO THE TURBO CHARGER.

3. Main Procedure

A. Install an Engine Intercooler

(1) Install the intercooler to the engine mount:

- Install the 3 nuts and washers that attach the intercooler to the engine mount and intercooler bracket by shock mounts.

NOTE

Do not bend or kink the charger hoses during installation. If there are signs of kinking, replace the engine intercooler hose.

(2) Connect the flexible hoses that connect the intercooler to the turbo charger and engine air intake manifold:

- Move the worm-drive-clamps into position on the flexible hoses.
  Do not tighten the worm-drive-clamps!
- Apply water to the inside of the hoses to ease hose installation.
- Push the flexible hose onto the intercooler connector.
- Make sure that the position of the support rings of the bellows are in front of the turbo adapter and not on it. Check that the bellows of the hose are not compressed or stretched. If necessary realign charge air hose.
- Move the worm-drive-clamps into the correct position.
- Bond the protective pad using Dow Corning 736 to the turbo charger hoses underneath the housings of the worm-drive-clamps.
- Move the worm-drive-clamps into the correct position and tighten the worm-drive-clamps.
  Refer to 20-00 Standard Practices - Description for correct installation and tightening torque of worm-drive-clamps.

(3) Install the nut BN175-M6-PZ on the end of the screw of the new V-clamp so that there is no gap.

Refer to Figure 5.

(4) Put the V-clamp in position on the flanges.

Refer to Figure 6.

NOTE

Do not pull the V-clamp over the turbo charger tube since the V-clamp will be permanently deformed.

(5) Before tightening the V-clamp make sure that there is no gap between the turbo adapter and the turbo charger flange. When correctly installed the turbo adapter must fit into the turbo charger flange without tension.

(6) Tighten V-clamp on turbo-charger.

Torque: 5.5 ± 0.5 Nm (4.0 ± 0.4 lbf.ft).

Refer to Special Torque Values - Description.

(7) Make sure the circumferential gap to the turbo charger is equal (if not, use rubber mallet to tap V-clamp into position). If tapping with a rubber mallet was required, retighten the V-clamp.

Refer to Figure 7.

(8) Make sure that the distance between V-flanges on the lock is between 6 mm (0.24 in.) and 10 mm (0.39 in.). If necessary insert turbo connector shims to obtain the required distance.

Refer to Figure 8 and Figure 9

(9) Connect the airplane main battery.

Refer to 24-31 Main Battery - Connect procedure.

(10) Install the engine cowlings.

Refer to 71-10 Left and Right Cowling - Install procedure and 71-10 Mid Cowling - Install procedure.

(11) Do an engine ground run-up and do a test for the correct operation of the engine intercooler.

Refer to 71-00 Engine - Operation Test.

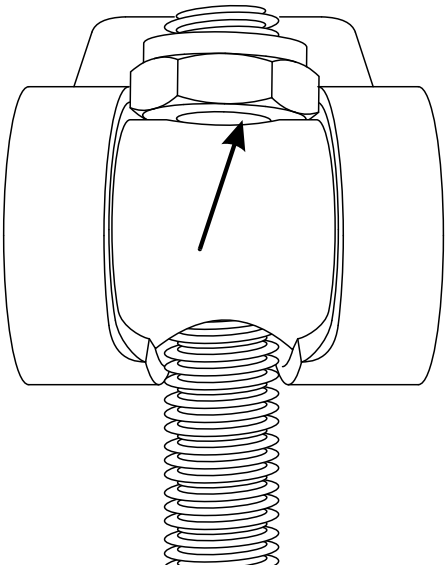


Figure 5 - Nut BN175-M6-PZ Installation

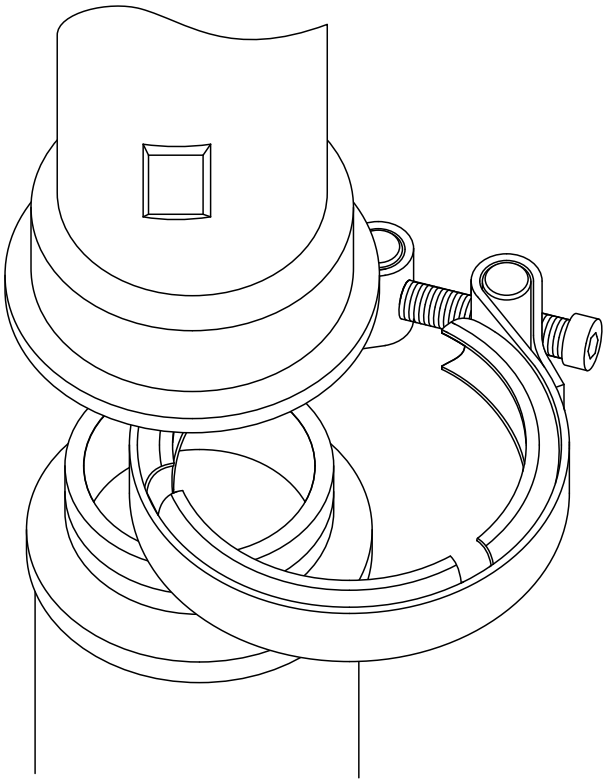


Figure 6 - V-Clamp Position

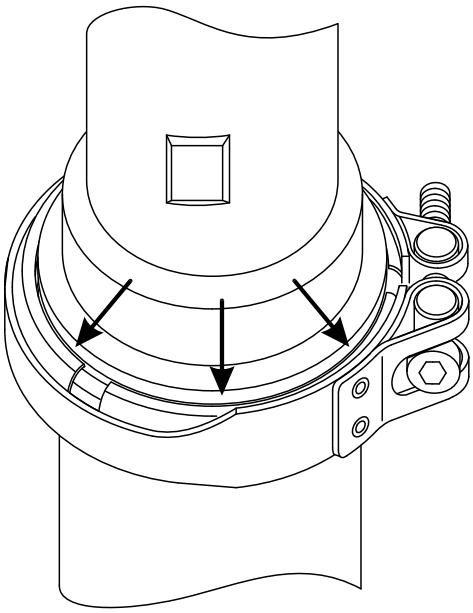


Figure 7 - Circumferential Gap

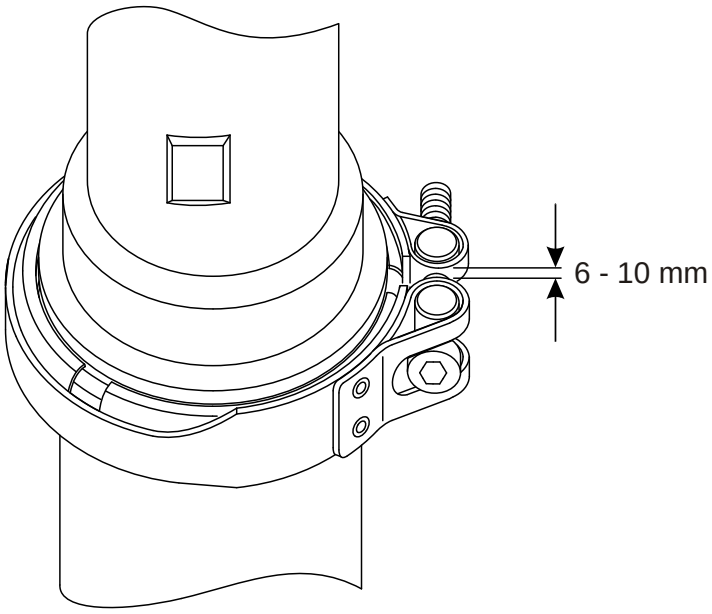


Figure 8 - V-Flange Distance

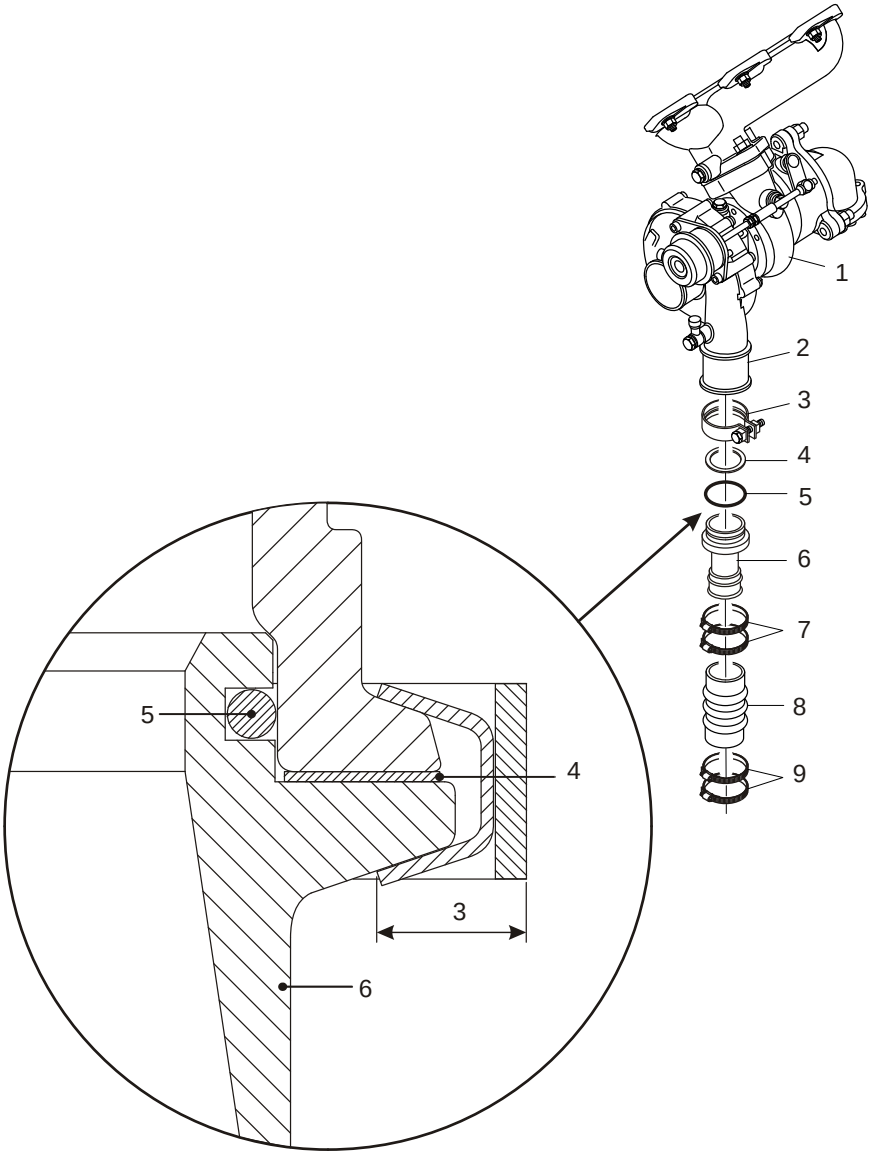


Figure 9 - V-Flange Distance II

Legend

[1, Fig.9] Turbo Charger
[2, Fig.9] Turbo Charger Flange
[3, Fig.9] V-Clamp
[4, Fig.9] Shim (0.3 or 0.6 mm)
[5, Fig.9] O-Ring
[6, Fig.9] Turbo Adapter
[7, Fig.9] Worm Drive Clamps
[8, Fig.9] Hose
[9, Fig.9] Worm Drive Clamps

92-00
WIRING DIAGRAMS

92-00-01 Wiring Diagram Manual

Description

1. Wiring Diagrams

This Chapter contains the wiring diagrams for each system. The wiring diagrams use the ATA Chapter/ Section numbering system.

Title	Drawing No.	Rev. No.	No. of Sheets
Schematic, Equipment Cooling	D54-9221-20-01	-	1
Schematic, ECS Fan Control	D54-9221-30-01	E	1
Schematic, RACC System Wiring	D54-9221-50-01	B	1
Schematic, GFC 700 Wiring	D54-9222-10-01	B	1
Schematic, GSR 56 Wiring	D54-9223-15-00	-	1
Schematic, Bose, Lemo Jacks Wiring	D54-9223-50-01	-	1
Schematic, Electrical System and FADEC	D54-9224-30-01	E	4
Schematic, Electrical System and FADEC	D54-9224-30-01_01	-	4
Schematic, Electrical System and FADEC	D54-9224-30-01_02	A	4
Schematic, Electrical System and FADEC	D54-9224-30-01_03	-	4
Schematic, Second External Power Plug	D54-9224-30-02	A	1
Schematic, USB Charging Ports	D54-9224-60-01	-	1
Schematic, For ACC - Power 4 Pins Connector	D54-9224-60-02	-	1
Schematic, Kannad AF-Integra ELT	D54-9225-60-01	-	1
Schematic, Removable Co-Pilot Stick Wiring	D54-9227-03-00	-	1
Schematic, Rudder Pedals Wiring	D54-9227-20-01	-	1
Schematic, Rudder Trim Wiring	D54-9227-30-01	D	1
Schematic, Flaps Wiring	D54-9227-50-01_01	-	1
Schematic, Flaps Wiring	D54-9227-50-01_02	-	1
Schematic, Aux Fuel Wiring	D54-9228-20-01	-	1
Schematic, Pitot Heating System	D54-9230-30-01_02	-	1
Schematic, De- Ice (TKS) Control System	D54-9230-40-01	A	1
Schematic, Prop De- Ice System	D54-9230-50-01_01	-	1
Schematic, Door Warning Switches	D54-9231-00-01	-	1
Schematic, De- Ice Warning System	D54-9231-00-02	A	1
Schematic, Stall Warning/ AOA System	D54-9231-30-01_02	A	1
Schematic, G1000 NXi	D54-9231-60-01	K	6

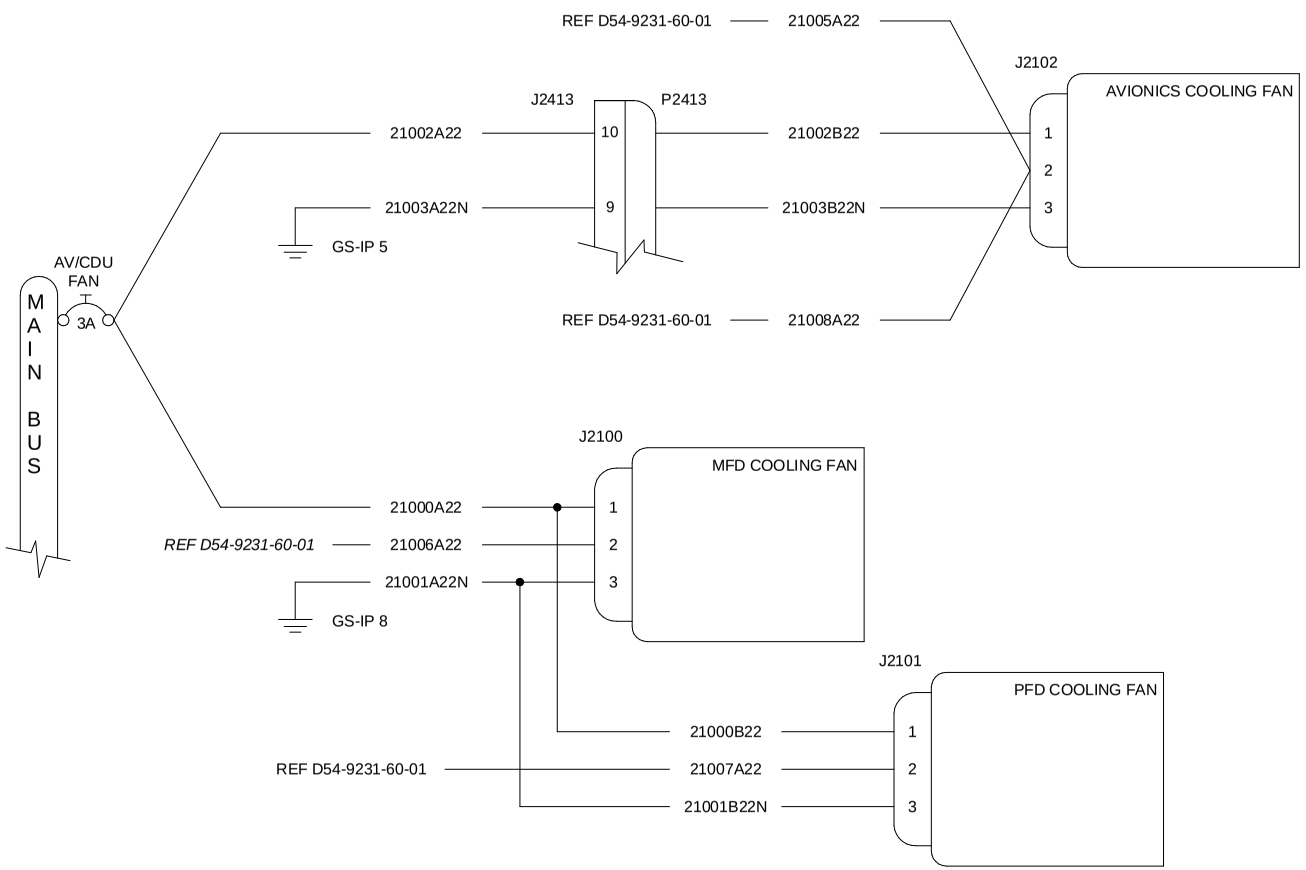
Table 1 - Wiring Diagrams

Title	Drawing No.	Rev. No.	No. of Sheets
Schematic, GTS 800 Wiring	D54-9231-60-01X01	-	1
Schematic, Landing Gear Wiring	D54-9232-00-01	D	1
Schematic, Flood Light	D54-9233-10-01	-	1
Schematic, Dimming Regulator and Placards	D54-9233-10-07	-	1
Schematic, Interior Lights	D54-9233-20-01_01	A	1
Schematic, Exterior Lighting	D54-9233-40-01	F	1
Schematic, MD302 SAM Wiring	D54-9234-10-01	-	1
Schematic, ADF	D54-9234-50-01	B	1
Schematic, Cowl Flaps Wiring	D54-9271-10-01	A	1

Table 1 - Wiring Diagrams

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REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	01.04.2019



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, Equipment Cooling**	
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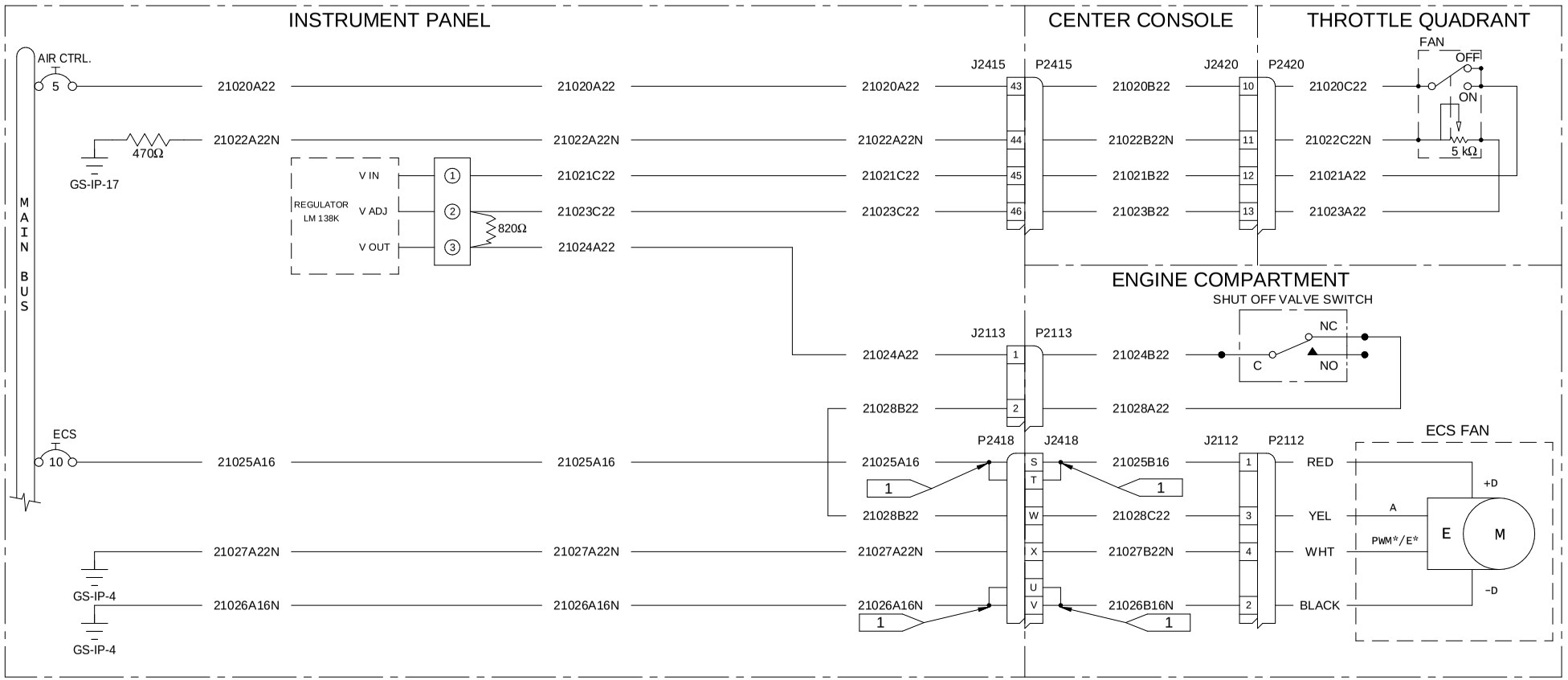
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REV	SH	ZONE	DESCRIPTION	DATE
B	01	ALL	VÄM 50-002 PINOUT OF CONNECTOR J/P2420 CORRECTED.	13.03.2020
C	01	ALL	MÄM 50-078 ECS CIRCUIT BREAKER CORRECTED TO 10A AND 10A FUSE REMOVED. SHUT OFF VALVE SWITCH WIRING ADDED.	29.01.2021
D	01	ALL	MÄM 50-089 SHUT OFF VALVE SWITCH CONNECTIONS CORRECTED.	06.05.2021
E	01	ALL	MÄM 50-189 ZONING CORRECTED.	02.02.2022



FLAG NOTES

1 SPLICE TO AWG 20.

IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, ECS Fan Control**	
SCALE	CHECKED:	DWG.NO. **D54-9221-30-01**	REV "E"
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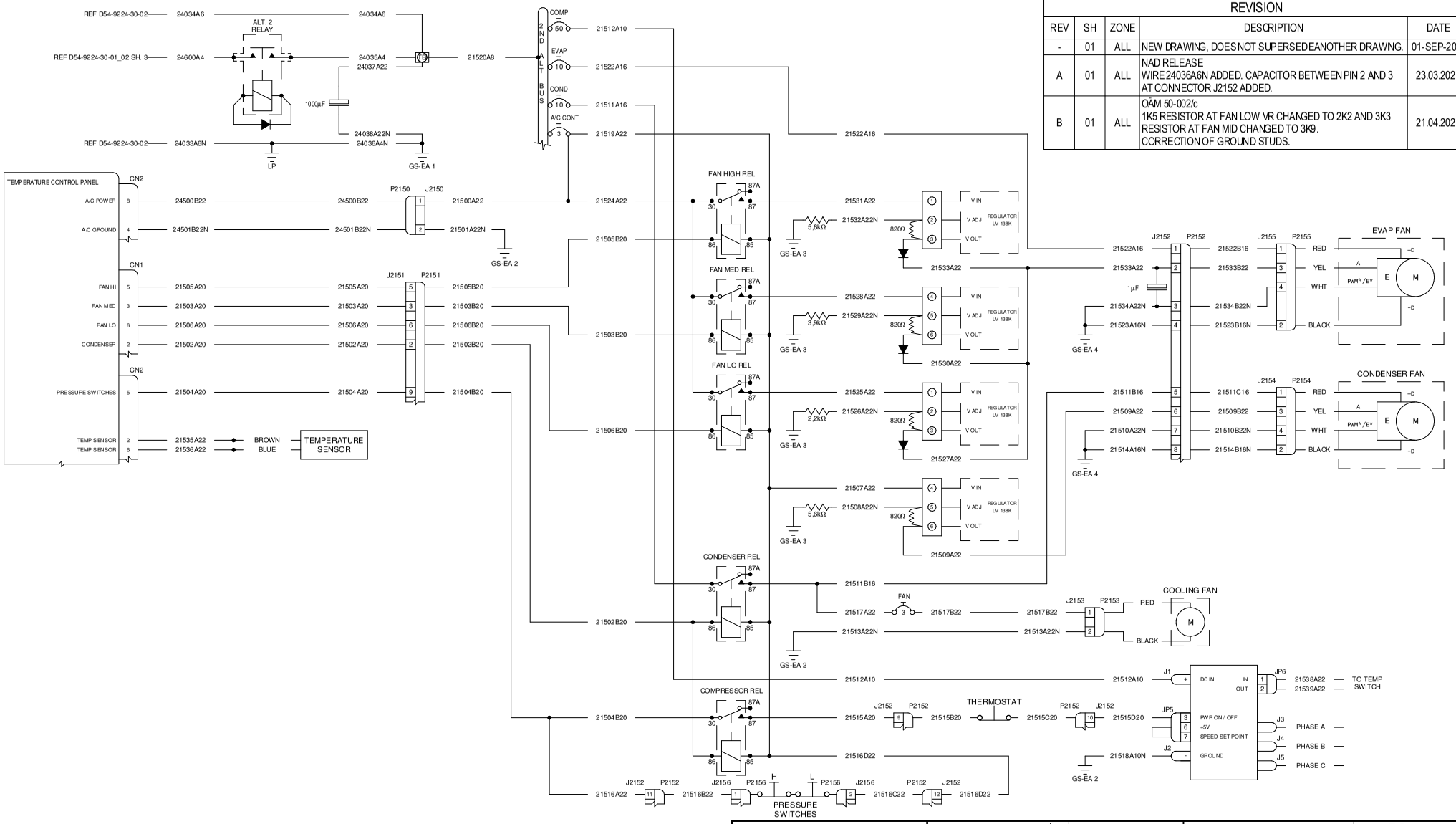
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REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	01-SEP-2019
A	01	ALL	NAD RELEASE WIRE 24036A6N ADDED. CAPACITOR BETWEEN PIN 2 AND 3 AT CONNECTOR J2152 ADDED.	23.03.2022
B	01	ALL	OÄM 50-002/c 1K5 RESISTOR AT FAN LOW VR CHANGED TO 2K2 AND 3K3 RESISTOR AT FAN MID CHANGED TO 3K9. CORRECTION OF GROUND STUDS.	21.04.2022



IDENTIFICATION MARKINGS **DP-S-17-00001** CLASSIFICATION: **NONE**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
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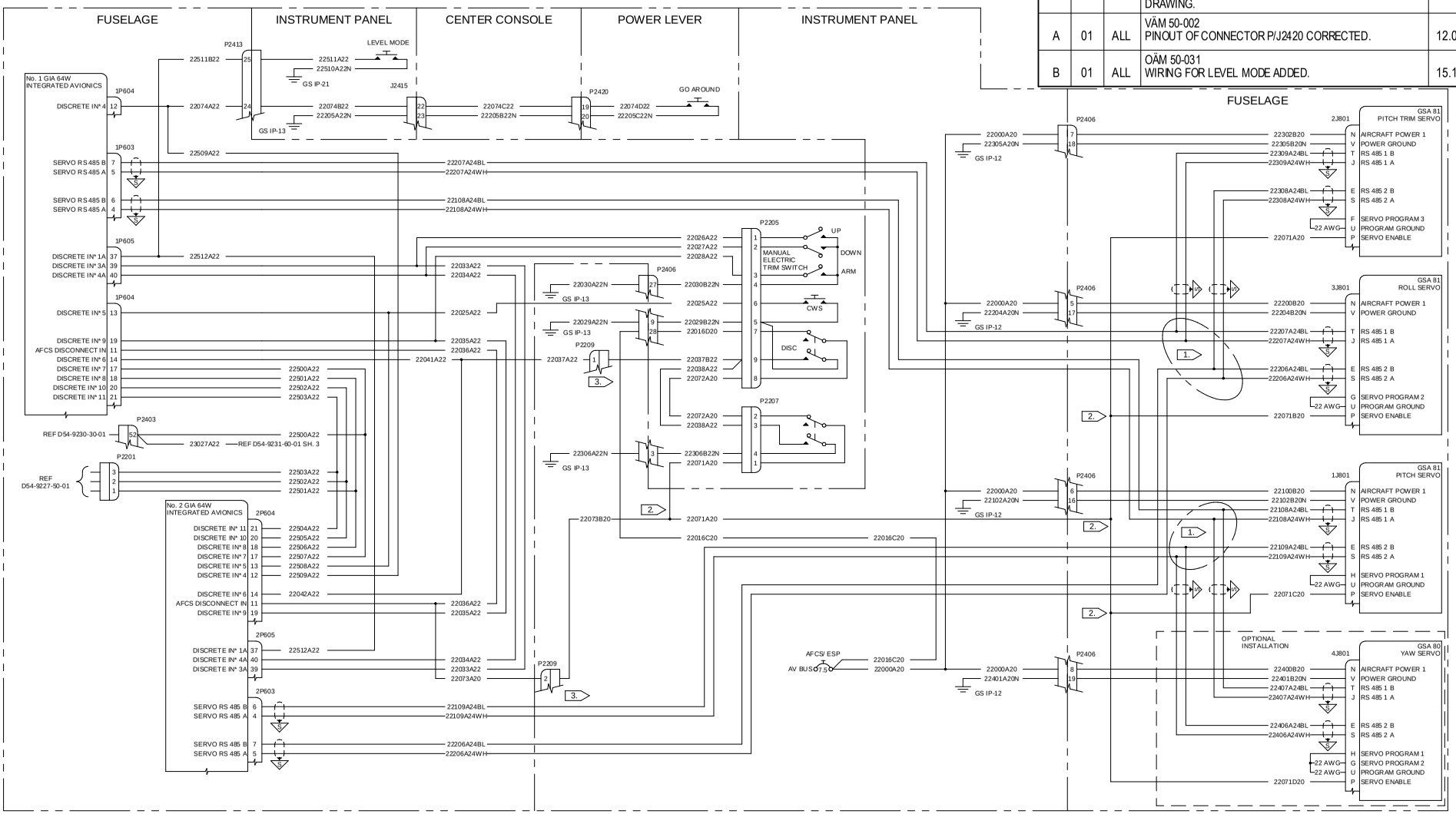
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REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	01.04.2019
A	01	ALL	VÄM 50-002 PINOUT OF CONNECTOR P/J2420 CORRECTED.	12.03.2020
B	01	ALL	OÄM 50-031 WIRING FOR LEVEL MODE ADDED.	15.10.2020



FLAG NOTES

1. TERMINATED AT GIA CONNECTORS
2. TERMINATED AT CONNECTOR J2207
3. LOCATED IN FUSELAGE

IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
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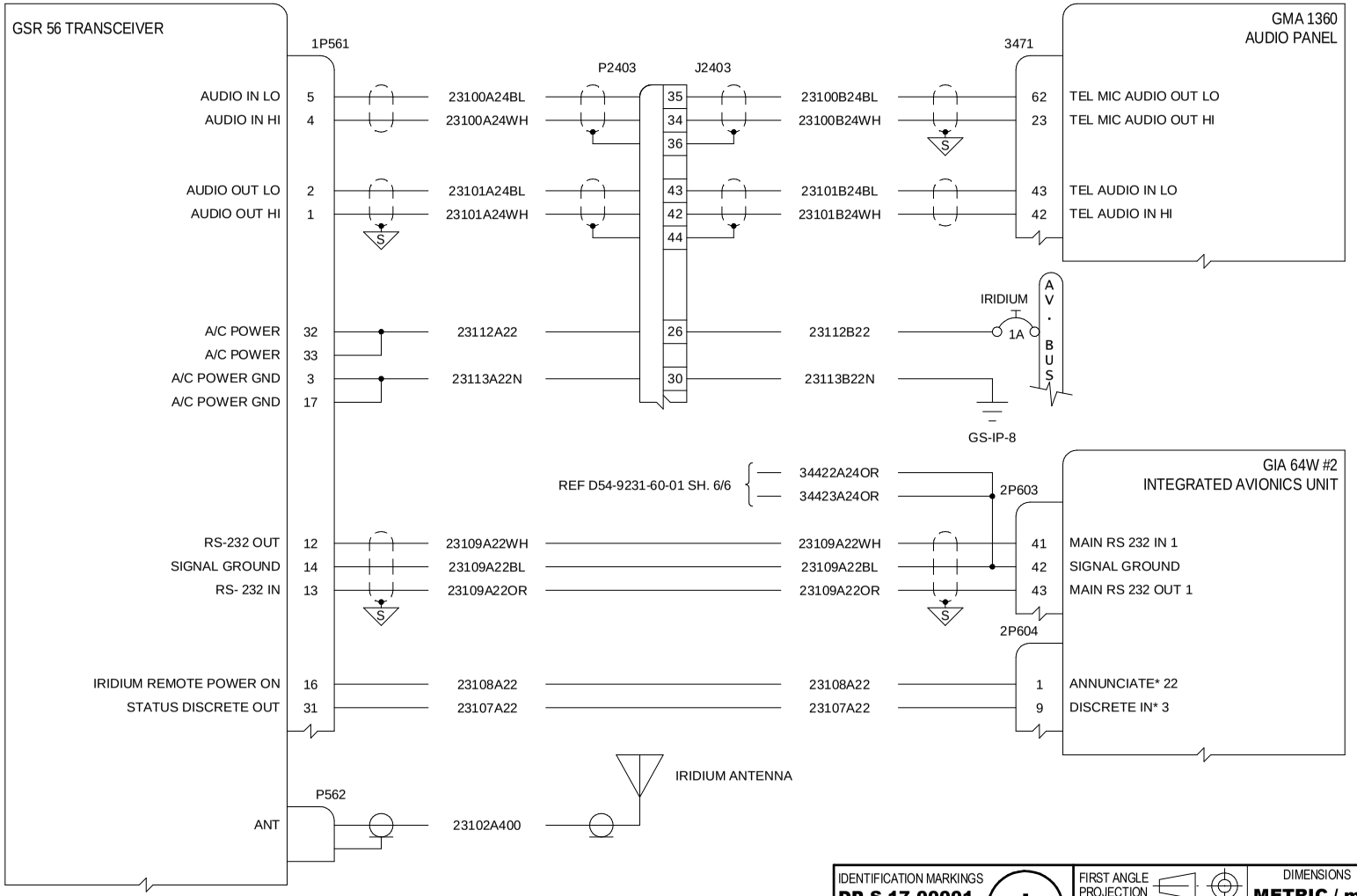
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-	01	ALL	OÄM 50-010 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	04.12.2020



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CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, GSR 56 Wiring**	
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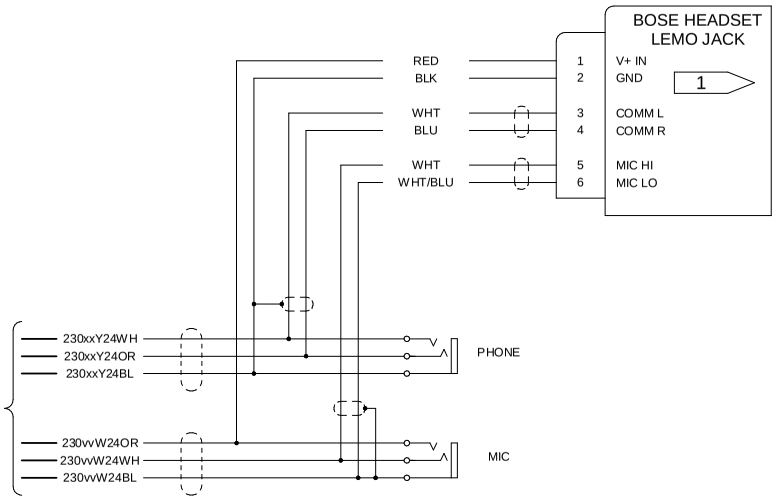
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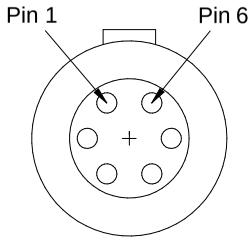
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	12.12.2019



Pinout



FLAG NOTES

1 CONNECT BOSE CONNECTOR KIT P/N 323172-0010 TO EXISTING HEADSET JACKS AS SHOWN.

GENERAL NOTES

1. REFER TO WIRING SCHEMATIC D54-9231-60-01

IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, Bose, Lemo Jacks Wiring**	
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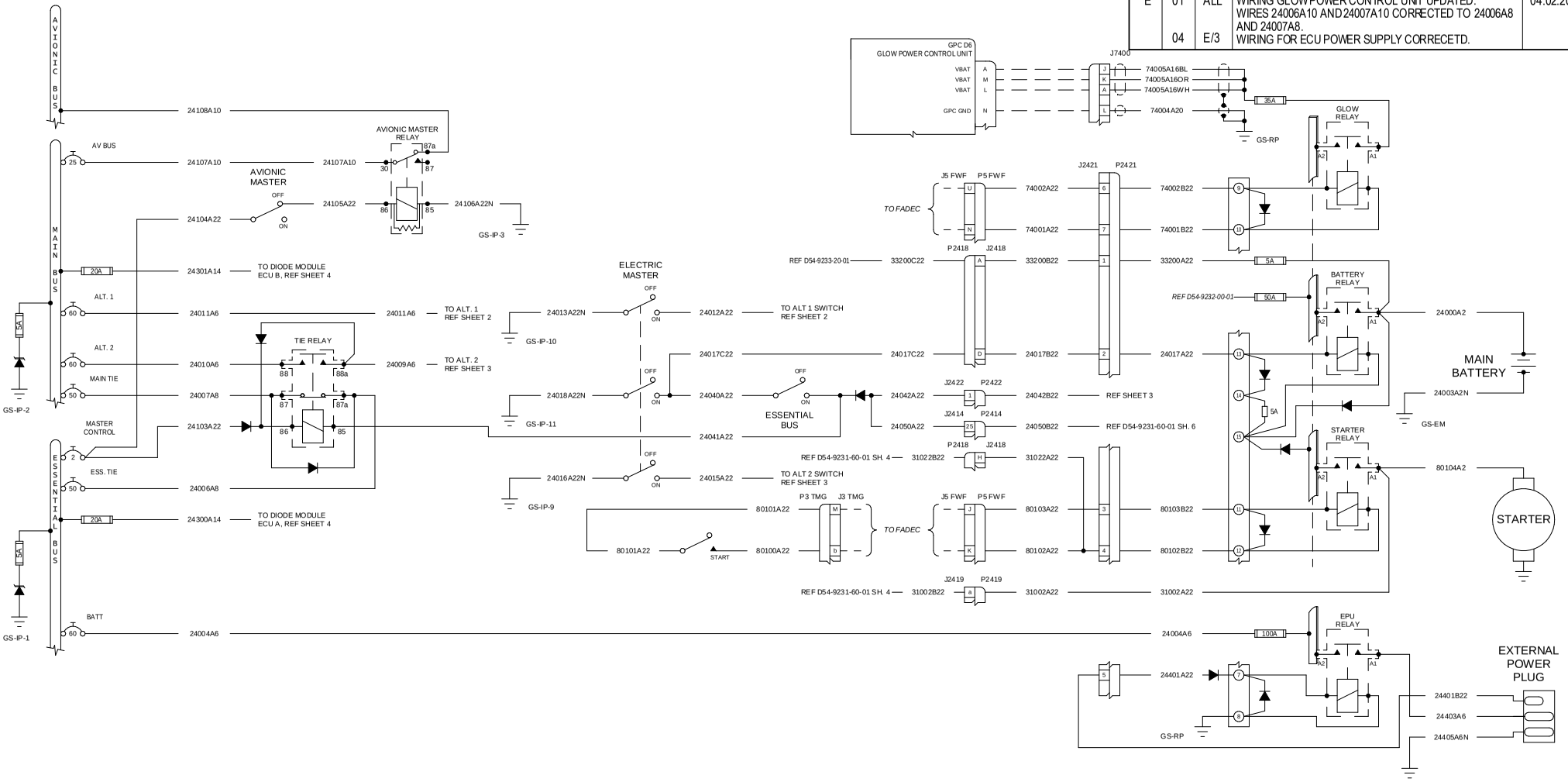
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
D	03 ALL	E-7 ALL	MÄM 50-009 Diode at 2nd Alternator Relay corrected (was reversed). Pinout Terminal Block added.	14.05.2020
E	01 04	ALL E/3	MÄM 50-078 WIRING GLOW POWER CONTROL UNIT UPDATED. WIRES 24006A10 AND 24007A10 CORRECTED TO 24006A8 AND 24007A8. WIRING FOR ECU POWER SUPPLY CORRECETD.	04.02.2021



GENERAL NOTES

1. DASHED LINES INDICATE CONTINENTAL HARNESS.

FLAG NOTES

1 — SPLICE TO AWG 20

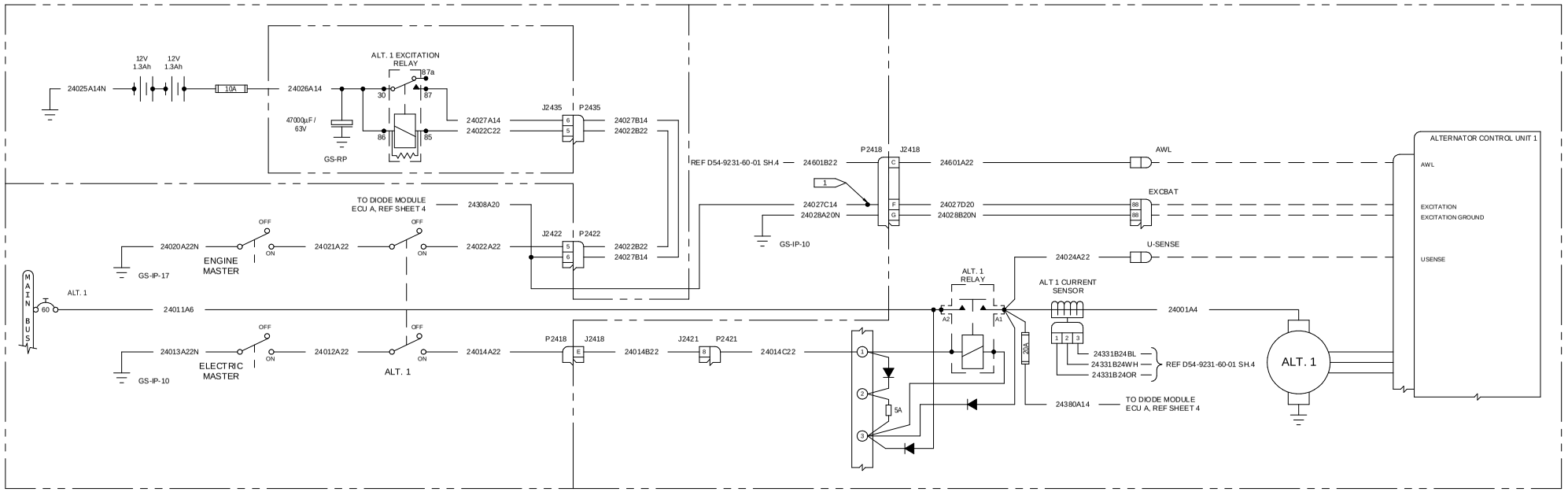
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CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **N/A**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK** 3.2	DRAWN:	TITLE **Schematic, Electrical System and FADEC**	
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FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
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IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **N/A**
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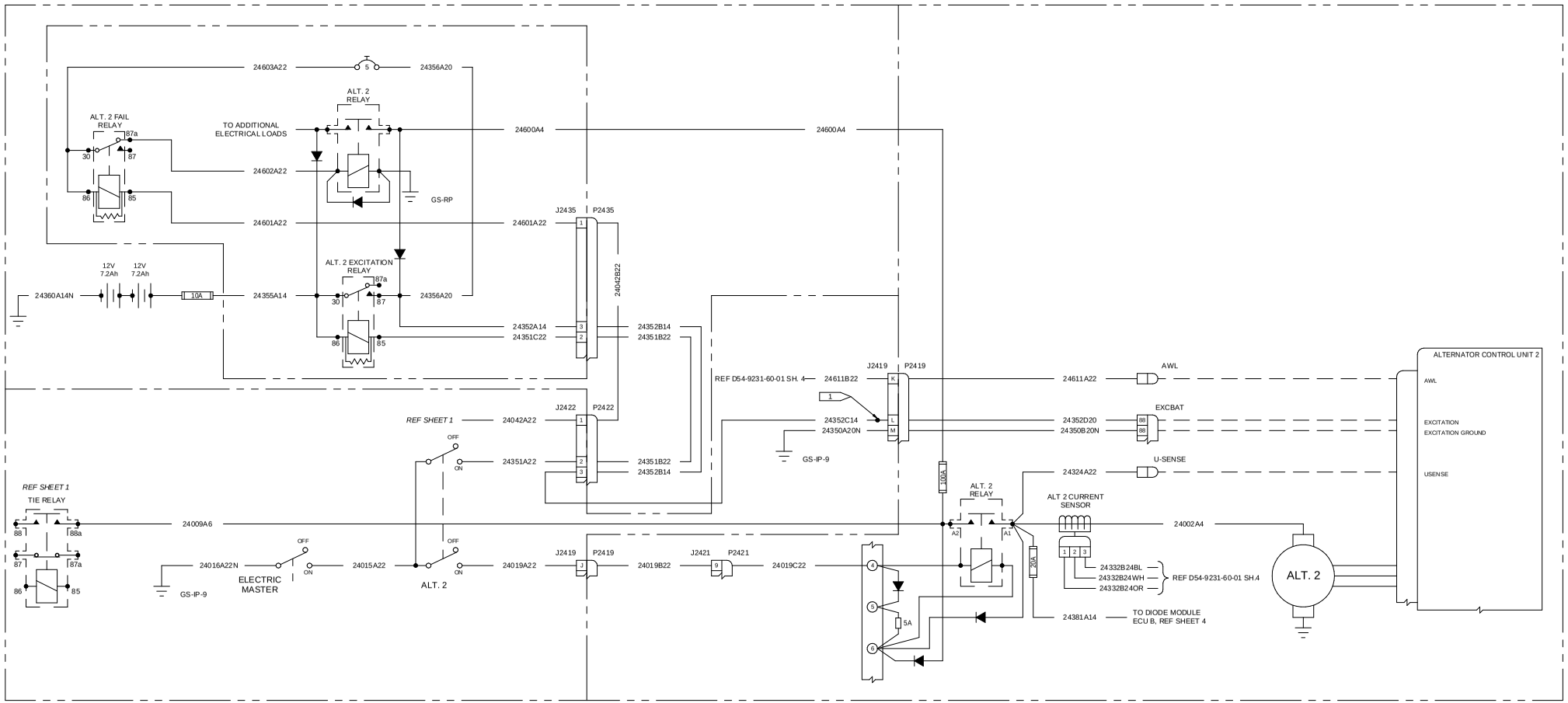
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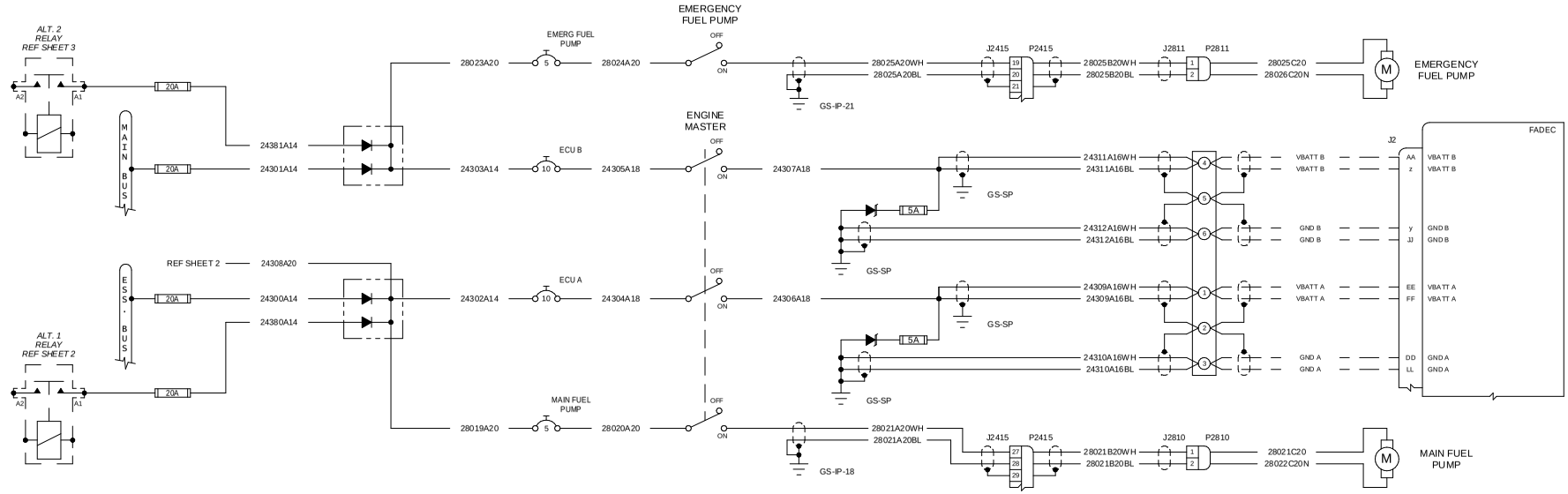


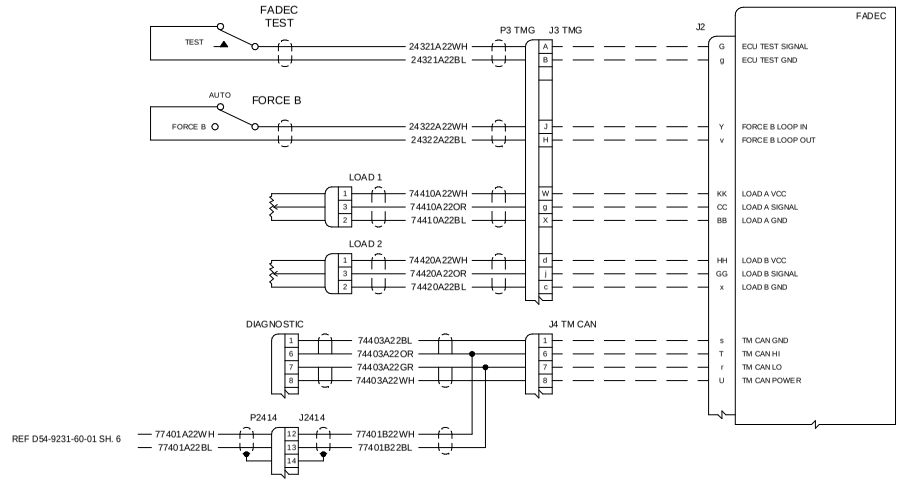
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IDENTIFICATION MARKINGS **DP-S-17-00001**	- / -	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**
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IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK**	3.2		
SCALE NTS		DRAWN:	
FORMAT **A3**		CHECKED:	
SOLID EDGE PDM **N**		RELEASED:	

NAME / SIGN / DATE

PROJECT **DA 50 C**

Diamond Aircraft Industries GmbH

WEIGHT: N/A N/A

INTERCHANGEABLE PART **N/A**

TITLE

Schematic, Electrical System and FADEC

DWG.NO. **D54-9224-30-01**

REV "E"

NEXT HIGHER ASSY **N/A**

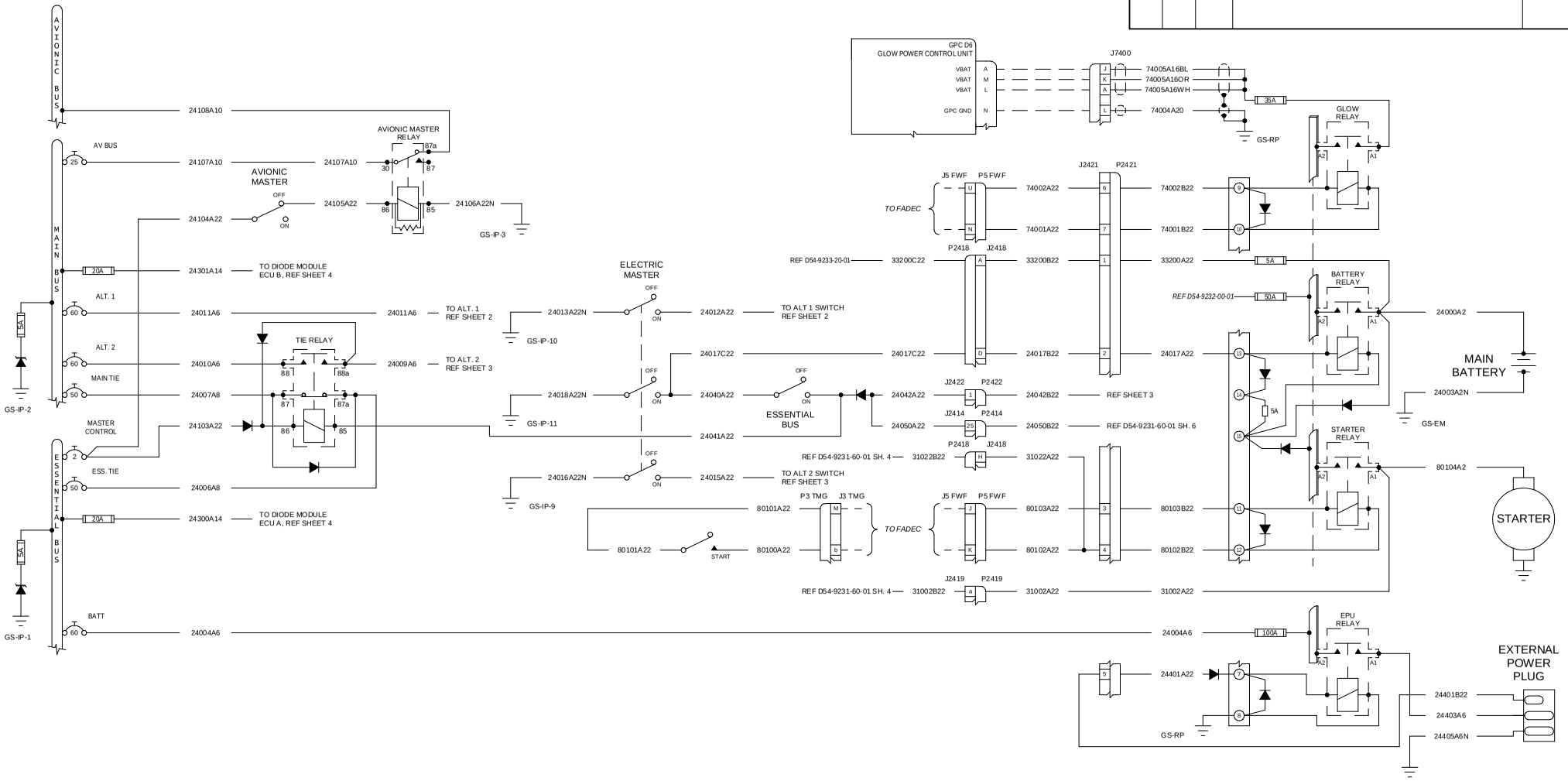
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SH **04** OF **04**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
"-"	01	ALL	MÄM 50-123 NEW DRAWING, SUPERSEDES D54-9224-30-01 .	15.06.2021



GENERAL NOTES

1. DASHED LINES INDICATE CONTINENTAL HARNESS.

FLAG NOTES

1 SPLICE TO AWG 20

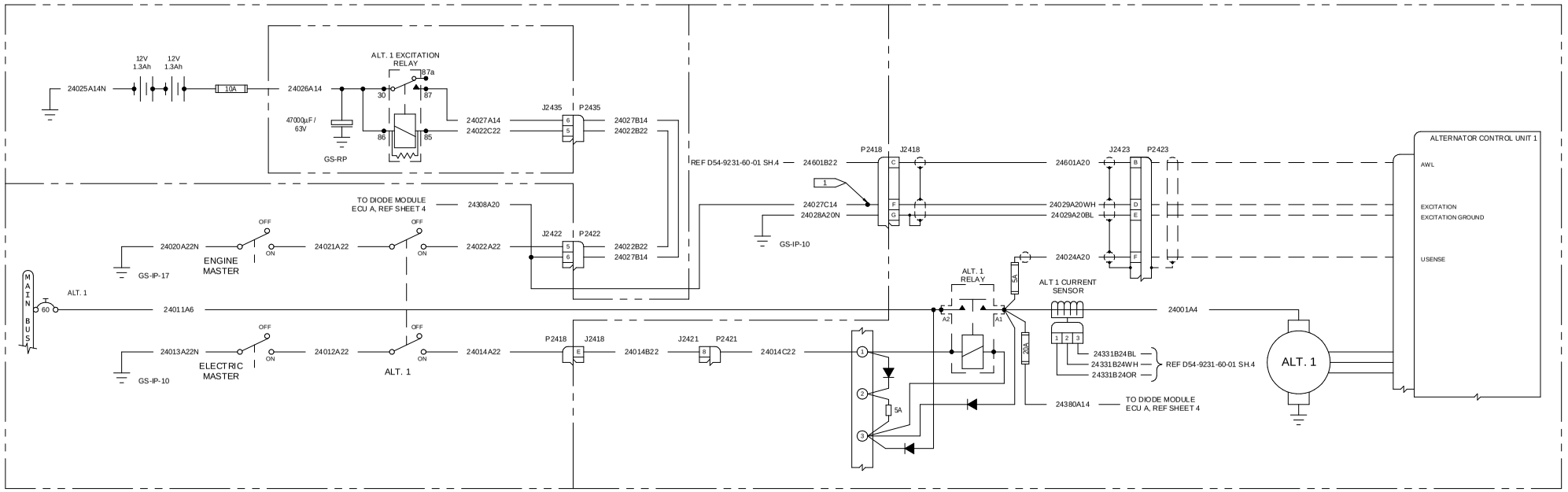
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CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **N/A**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK** 3.2	DRAWN:	TITLE **Schematic, Electrical System and FADEC**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9224-30-01_01**	REV "-"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9224-30-01_01.dft**	SH **01** OF **04**

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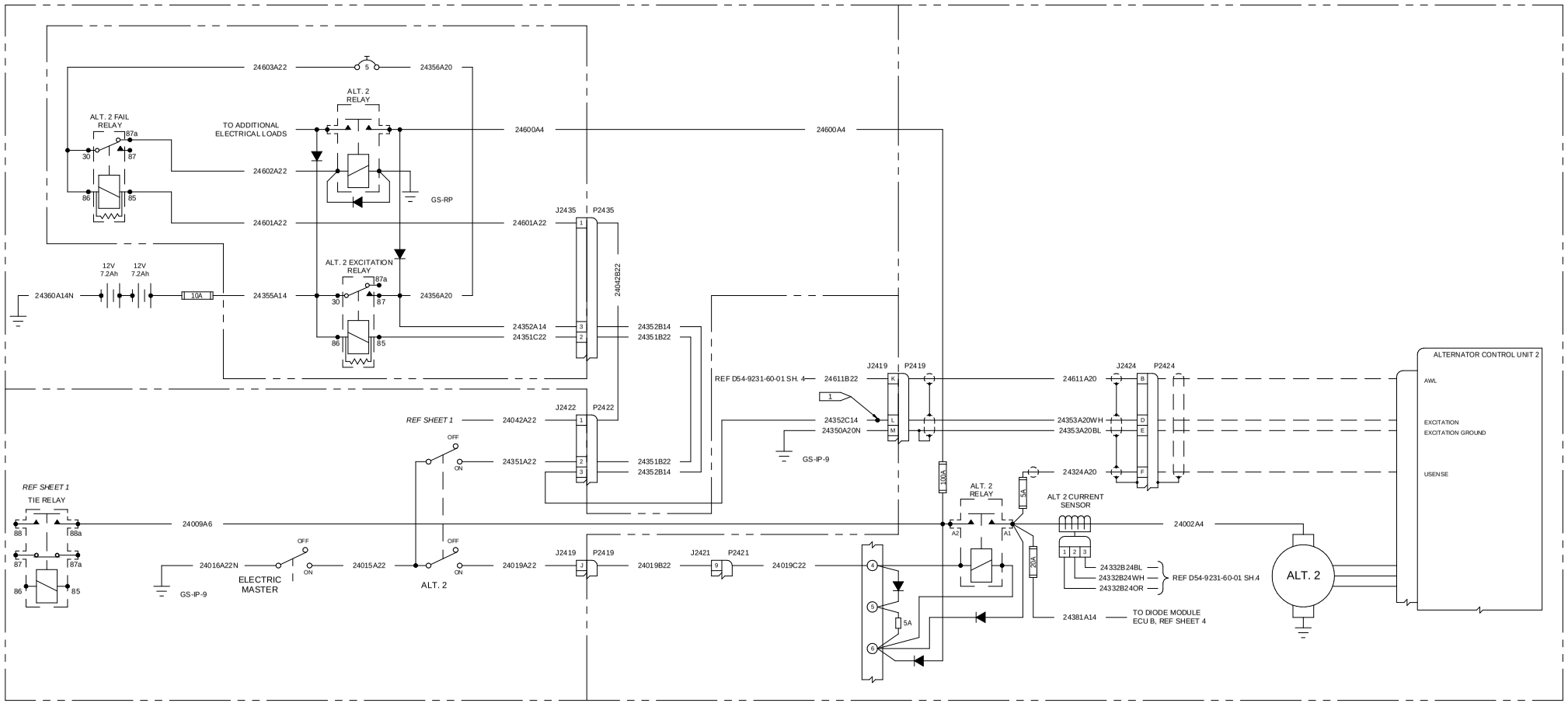
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SOLID EDGE PDM **N**		FILENAME **D54-9224-30-01_01.dft**	SH **02** OF **04**

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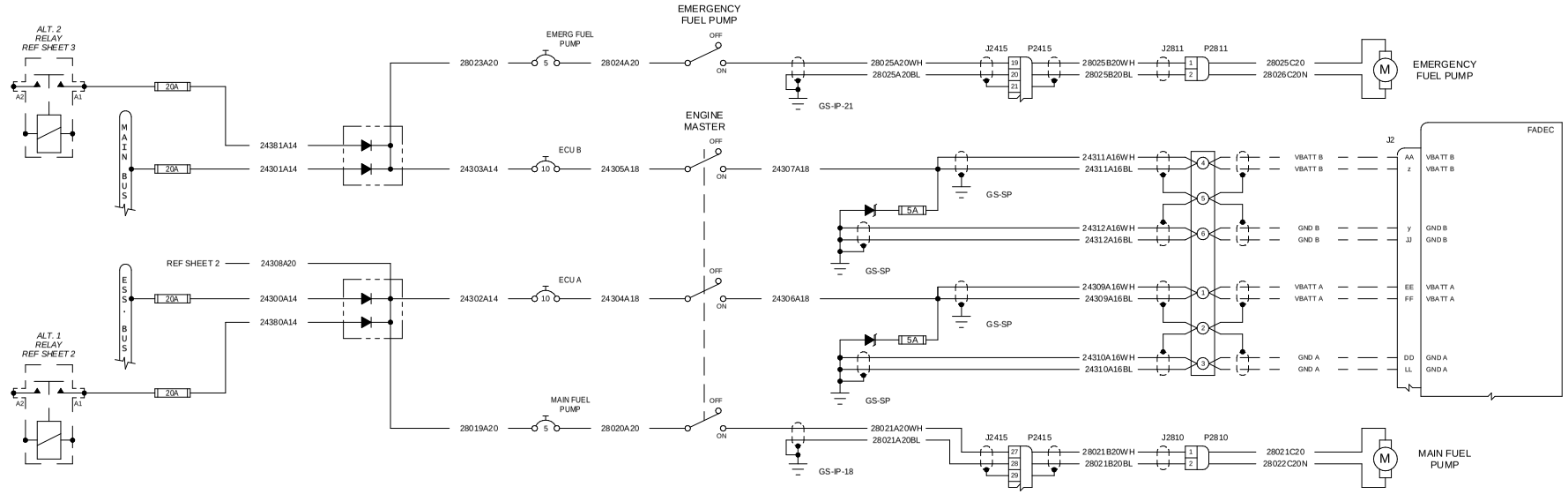


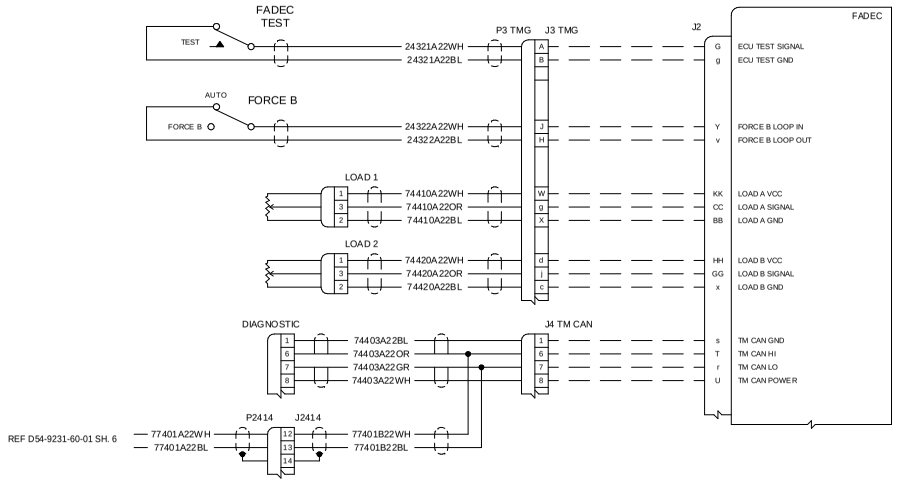
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IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **N/A**
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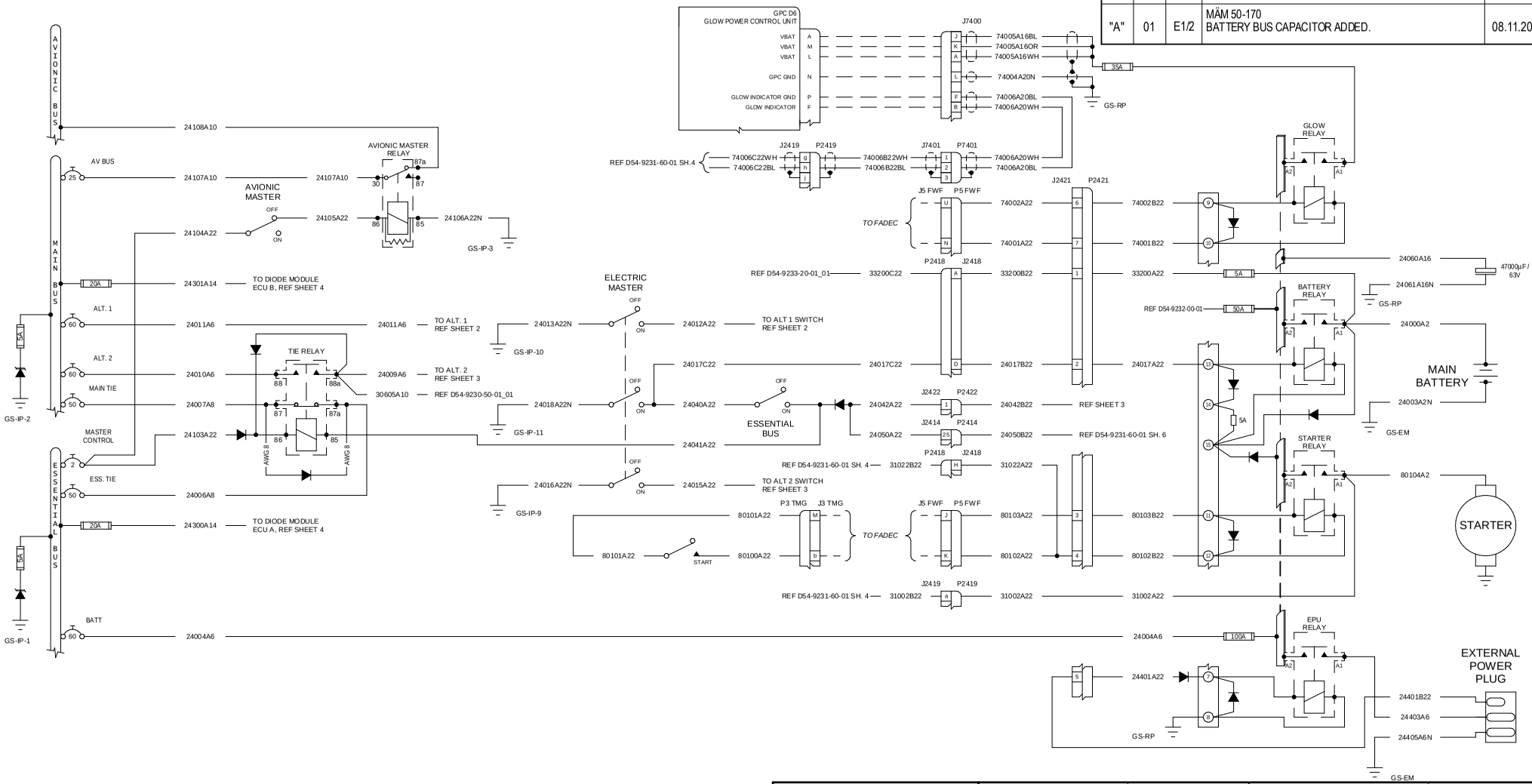
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SCALE NTS		DRAWN:	WEIGHT: N/A N/A
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
"-"	01	ALL	MÄM 50-131 NEW DRAWING, SUPERSEDES D54-9224-30-01_01 .	07.07.2021
"A"	01	E1/2	MÄM 50-170 BATTERY BUS CAPACITOR ADDED.	08.11.2021



GENERAL NOTES

1. DASHED LINES INDICATE CONTINENTAL HARNESS.

FLAG NOTES

1 SPLICE TO AWG 20

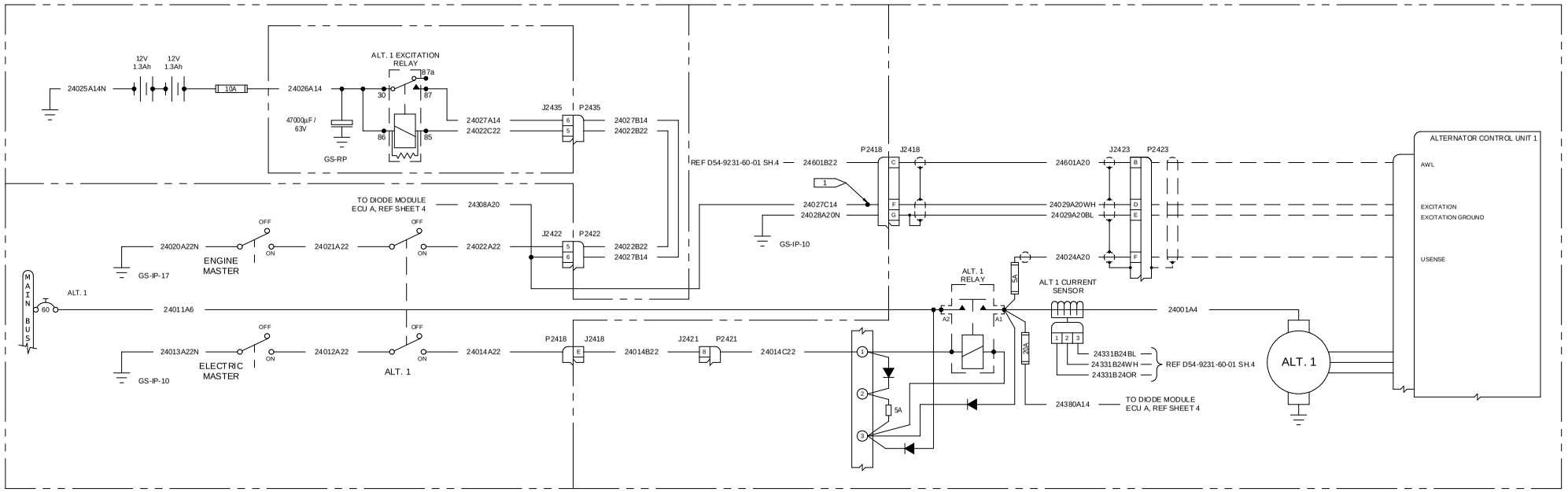
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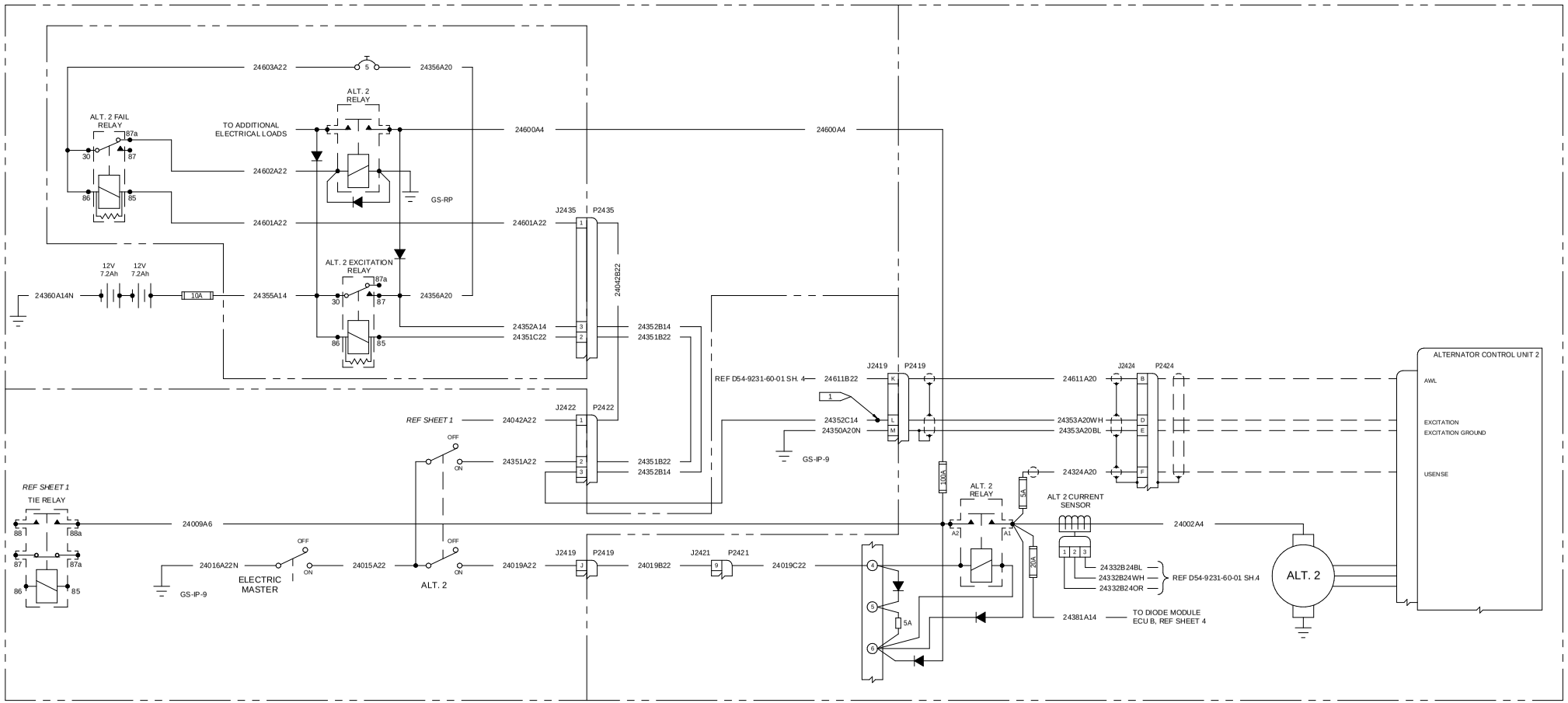
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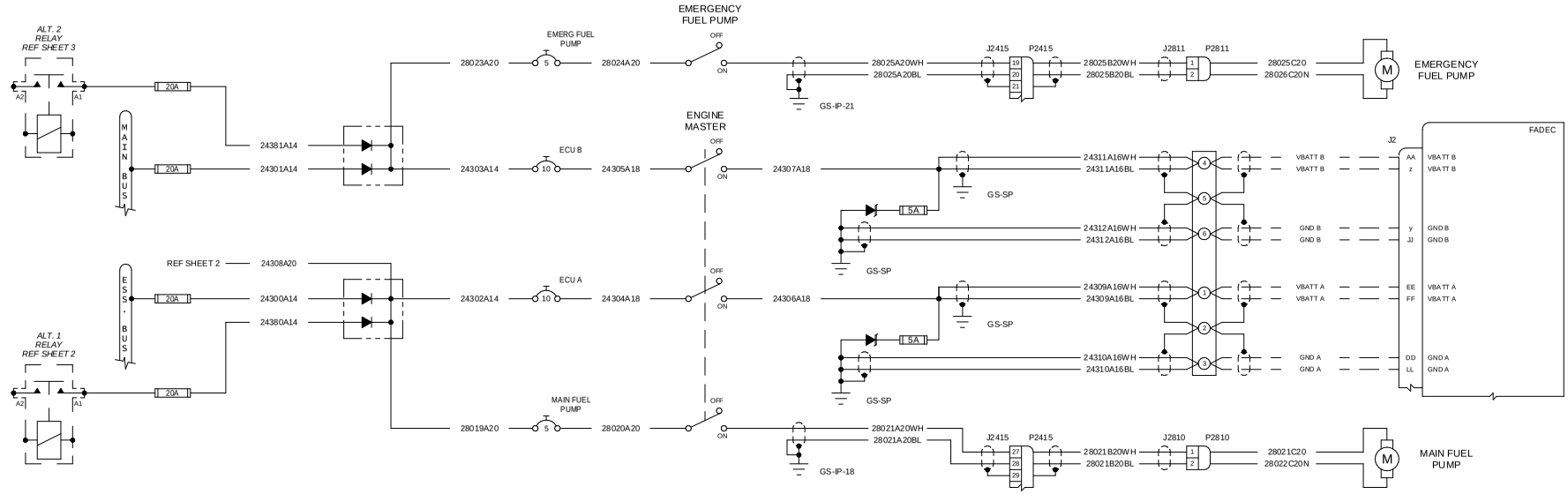


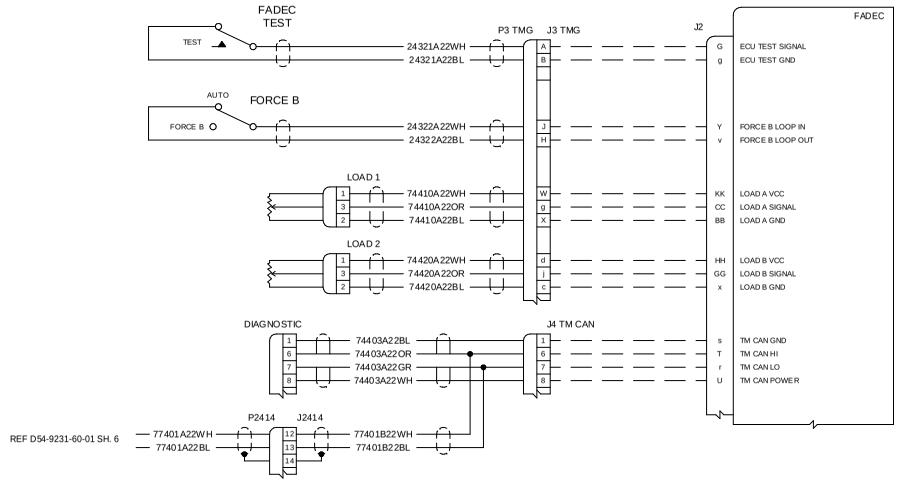
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IDENTIFICATION MARKINGS **DP-S-17-00001**	- / -	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**
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FORMAT **A3**		CHECKED:	
SOLID EDGE PDM **N**		RELEASED:	

NAME / SIGN / DATE

PROJECT **DA 50 C**

Diamond Aircraft Industries GmbH

WEIGHT: N/A N/A

INTERCHANGEABLE PART **N/A**

TITLE

Schematic, Electrical System and FADEC

DWG.NO. **D54-9224-30-01_02**

REV "A"

NEXT HIGHER ASSY **N/A**

FILENAME **D54-9224-30-01_02a.dft**

SH **04** OF **04**

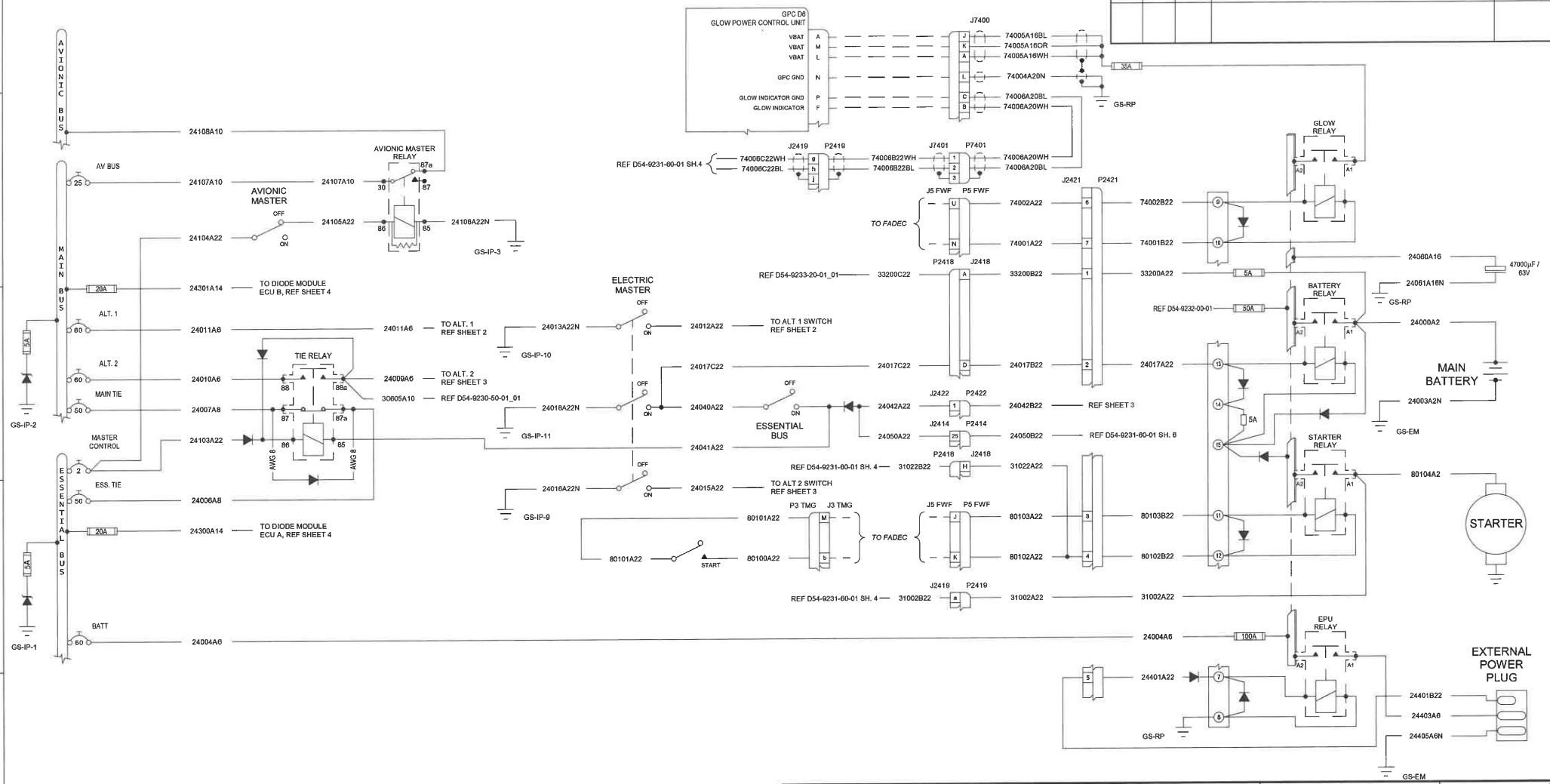
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
"-"	01	ALL	MÄM 50-184 NEW DRAWING, SUPERSEDES D54-9224-30-01_02 .	09.12.2021



GENERAL NOTES

1. DASHED LINES INDICATE CONTINENTAL HARNESS.

FLAG NOTES

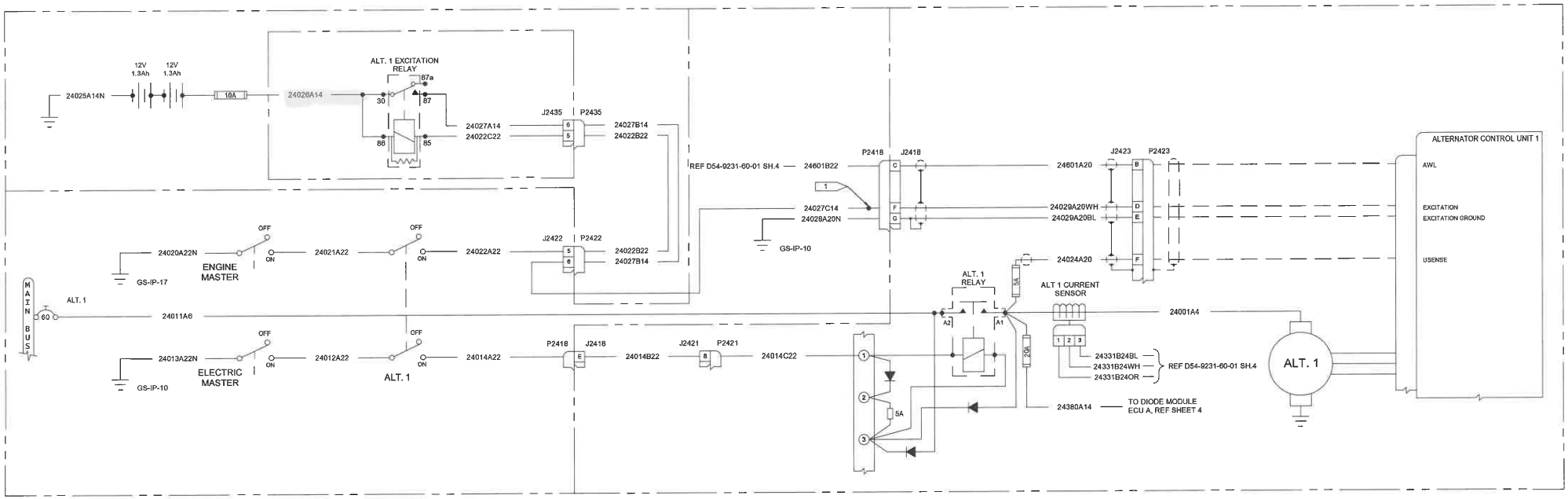
1 SPLICE TO AWG 20

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CLASSIFICATION: **NONE**	NAME / SIGN / DATE		WEIGHT: N/A N/A
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK** 3.2	DRAWN: C. Dworak 09.12.2021		INTERCHANGEABLE PART **N/A**
SCALE NTS	CHECKED: M. Kowarsch 15 MAR 22		TITLE **Schematic, Electrical System and FADEC**
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SOLID EDGE PDM **N**			NEXT HIGHER ASSY **N/A**
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DWG.ORIG. CODE: 710197



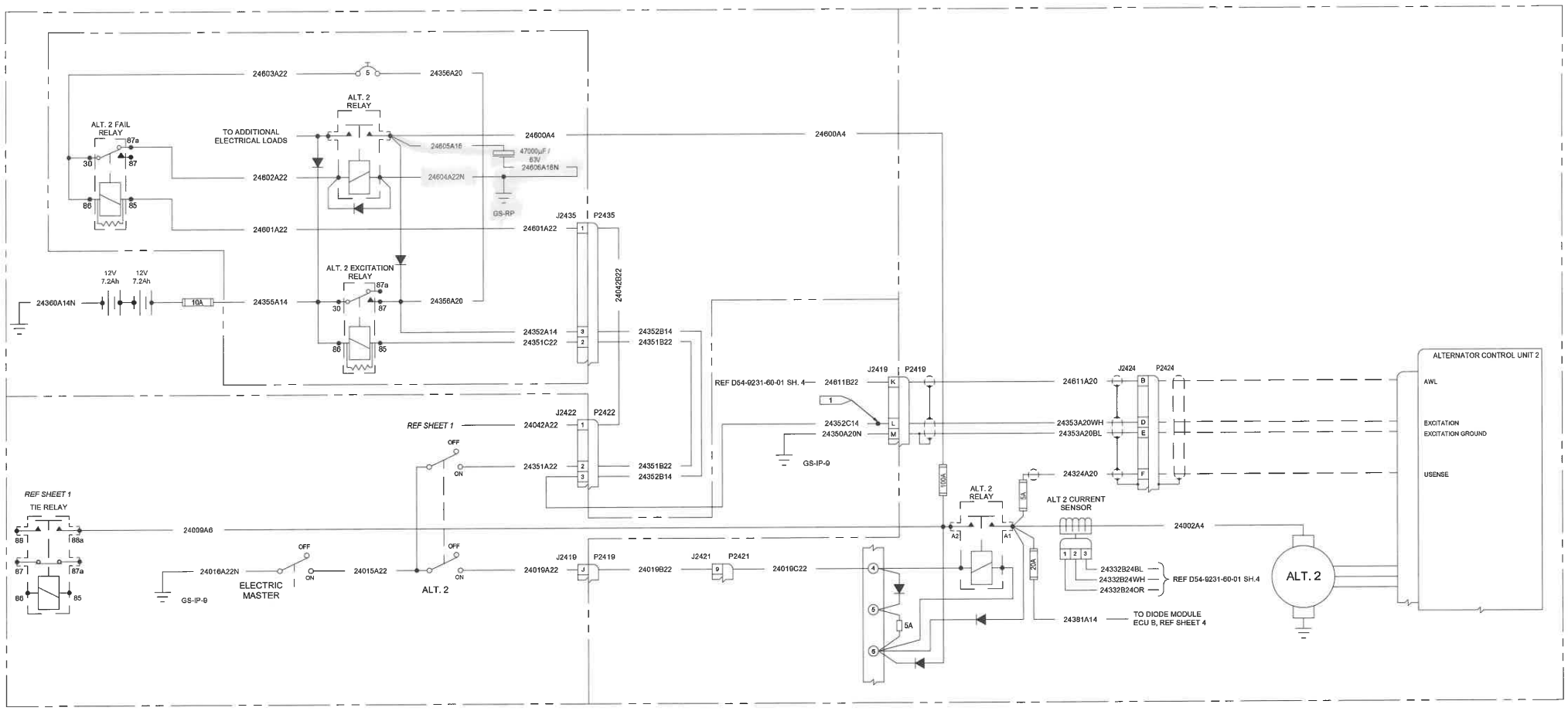
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DWG.ORIG.CODE: 710197



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
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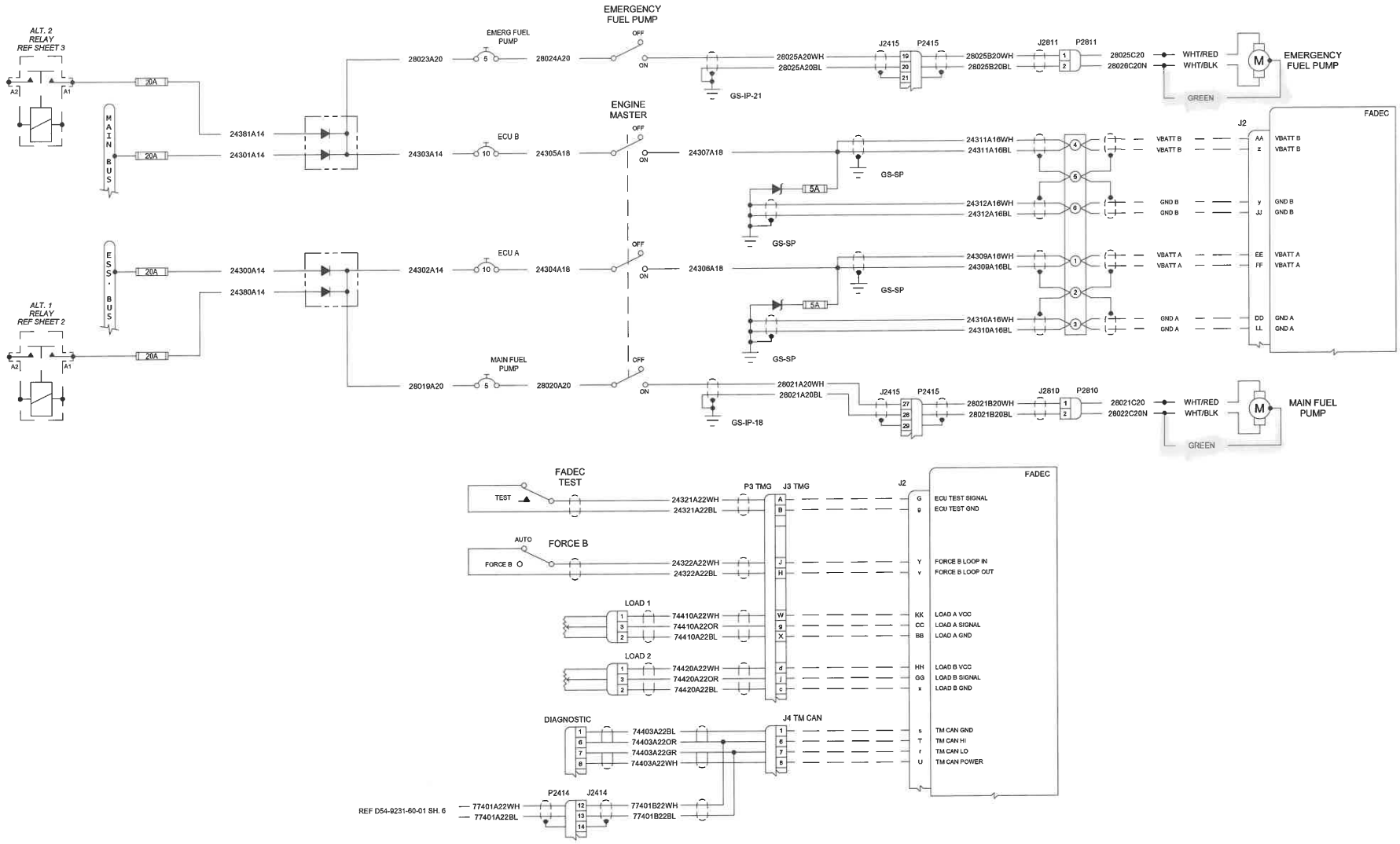
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INTERCHANGEABLE PART **N/A**

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DWG.ORIG. CODE: 710197



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE		WEIGHT: N/A N/A
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK** 3.2	DRAWN: C. Dworak 09.12.2021		TITLE **Schematic, Electrical System and FADEC**
SCALE NTS	CHECKED: M. Kowarsch 15 MAR 22		DWG.NO. **D54-9224-30-01_03** REV "-"
FORMAT **A3** SOLID EDGE PDM N	RELEASED: L. Helmi 22 MAR 22		NEXT HIGHER ASSY N/A
			FILENAME **D54-9224-30-01_03.dft** SH **04** OF **04**

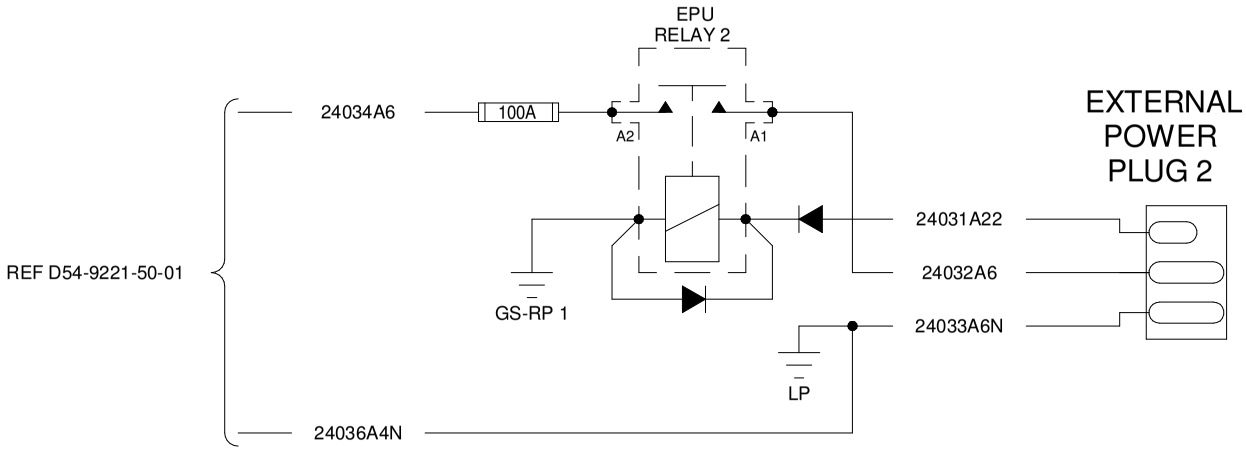
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INTERCHANGEABLE PART **N/A**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	NAD RELEASE NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING	23.03.2022
A	01	ALL	OÄM 50-002/c DIODE AT WIRE 24031A22 ADDED.	27.04.2022



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, Second External Power Plug**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9224-30-02**	REV "A"
FORMAT **A3** SOLID EDGE PDM N	RELEASED:	NEXT HIGHER ASSY **N/A**	
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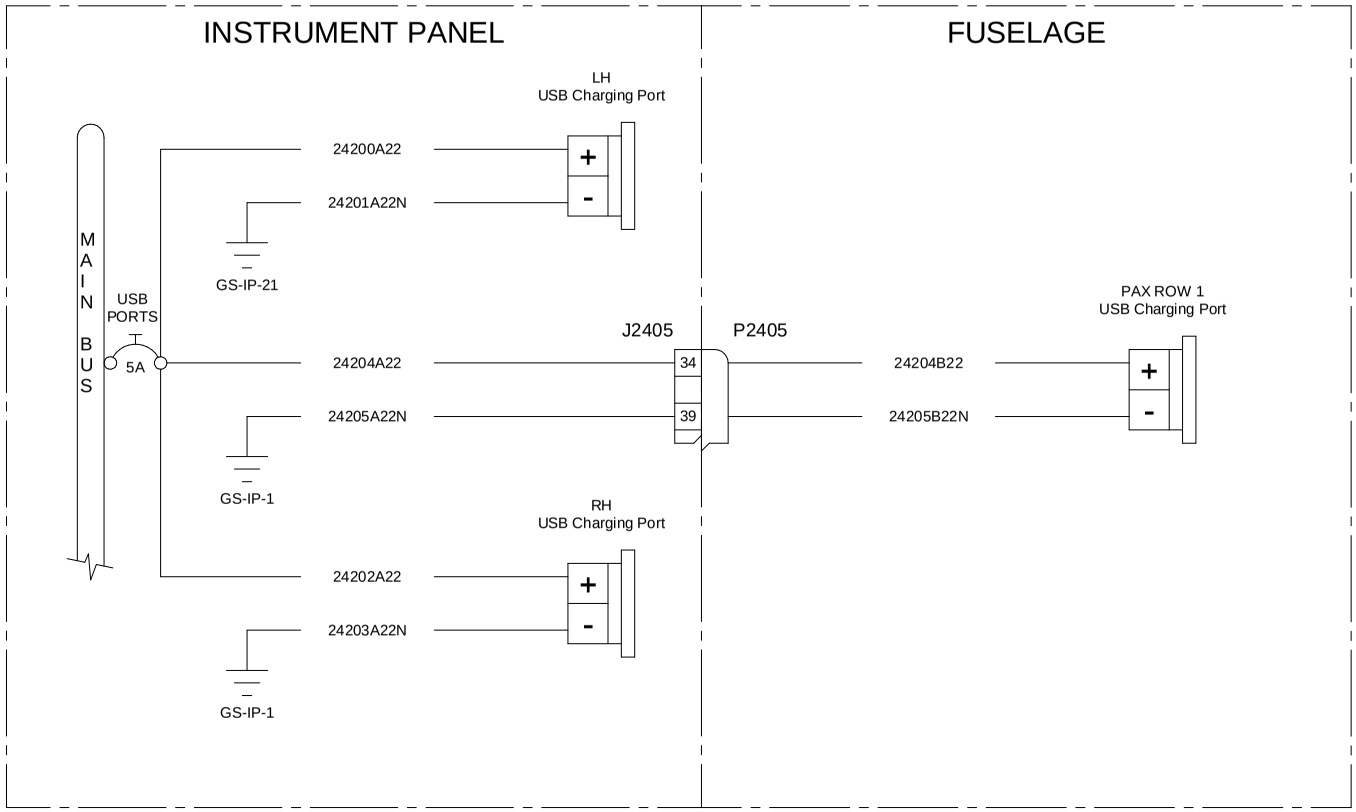
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	11.04.2019

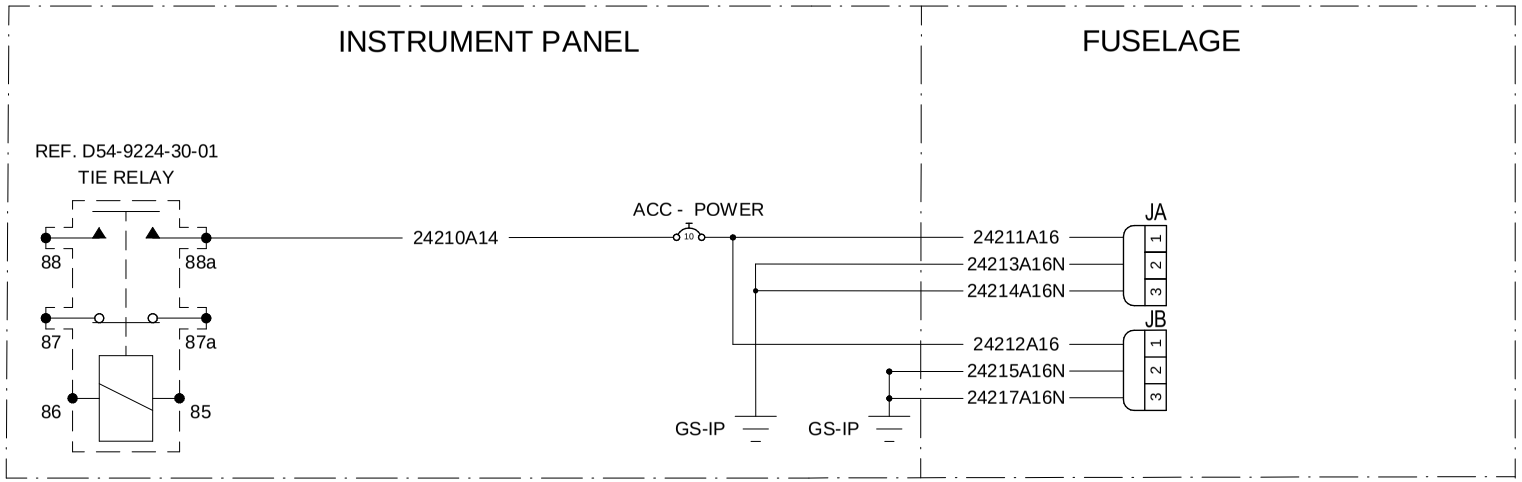


IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, USB Charging Ports**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9224-60-01**	REV "-"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9231-60-01.dft**	SH **01** OF **01**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	OÄM 50-042 New drawing,does not supersede another drawing.	31.05.2021



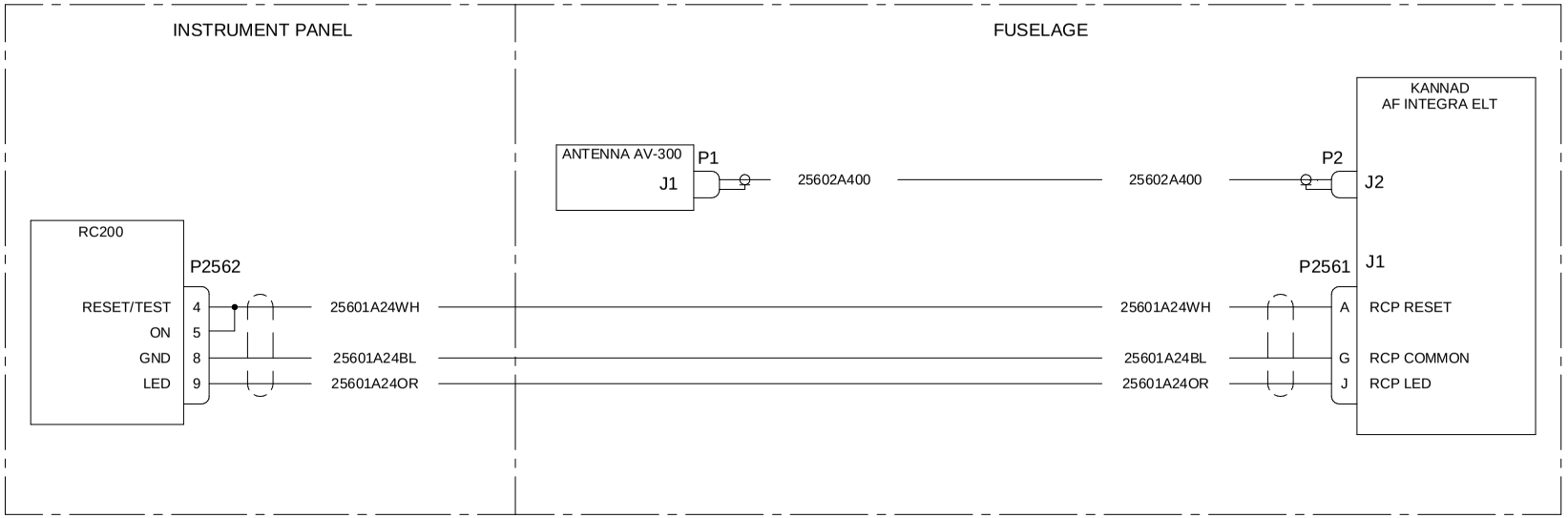
IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK**	DRAWN:	TITLE **SCHEMATICS FOR ACC - POWER 4 PINS CONNECTOR**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9224-60-02**	REV -
FORMAT **A3** SOLID EDGE PDM **NO**	RELEASED:	NEXT HIGHER ASSY	
		FILENAME **D54-9224-60-02.dft**	SH **01** OF **01**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	11.04.2019



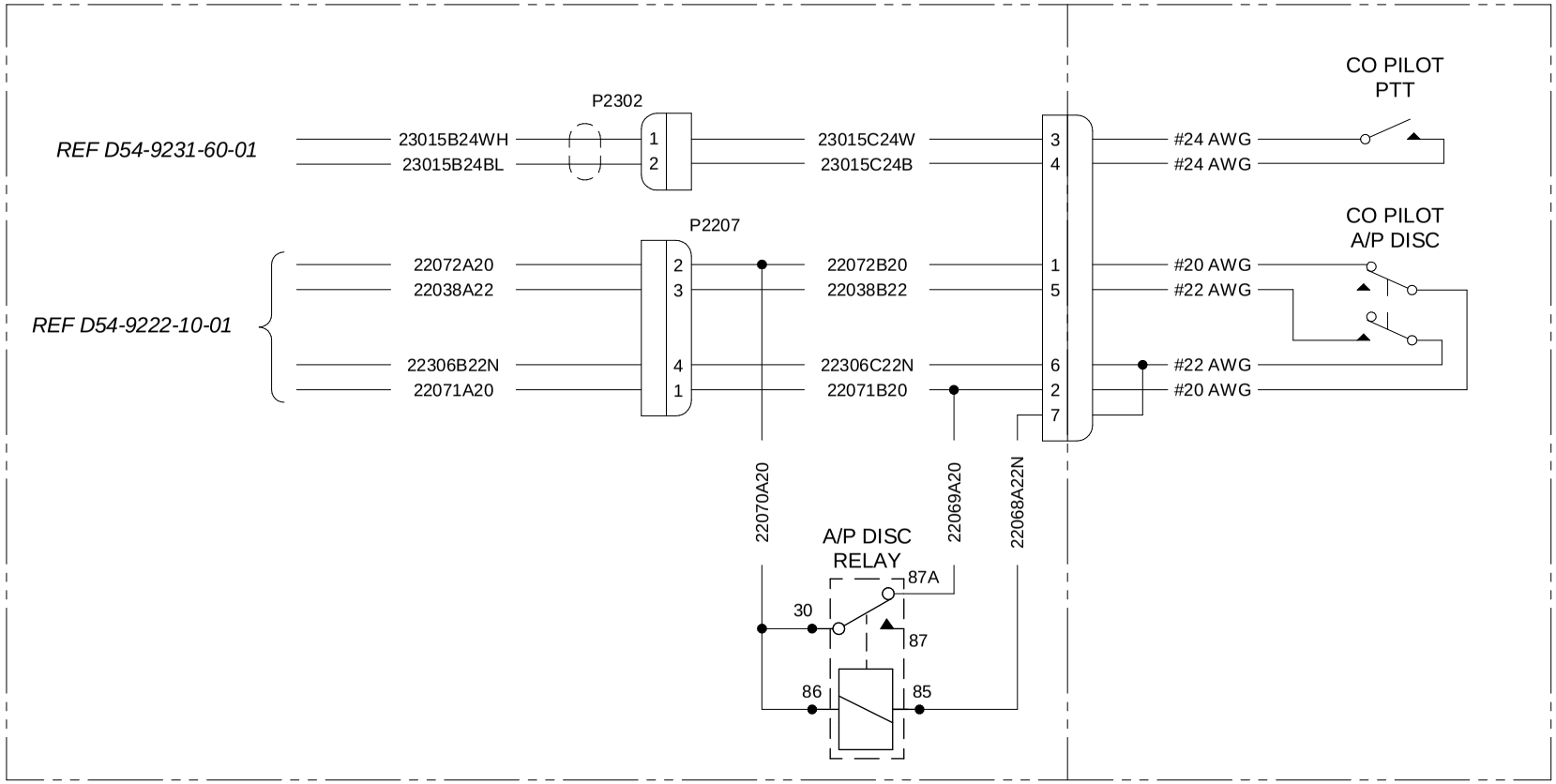
IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** — 3.2	DRAWN:	TITLE **Schematic, Kannad AF-Integra ELT**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9225-60-01**	REV "-"
FORMAT **A3** — **SOLID EDGE** — PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9225-60-01.dft**	SH **01** OF **01**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	OÄM 50-035 New drawing,does not supersede another drawing.	25.11.2020



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK**	DRAWN:	TITLE **SCHEMATIC, REMOVABLE CO-PILOT STICK WIRING**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9227-03-00**	REV -
FORMAT **A3** SOLID EDGE PDM NO	RELEASED:	NEXT HIGHER ASSY	
		FILENAME **D54-9227-03-00.dft**	SH **01** OF **01**

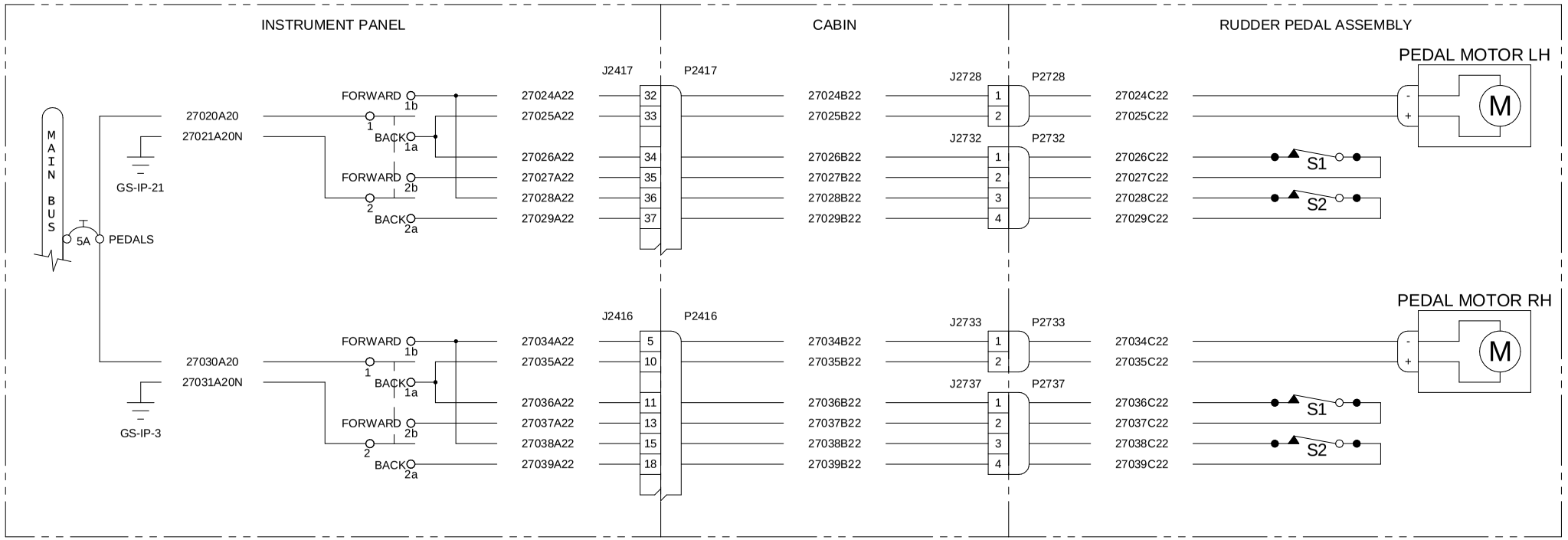
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	11.04.2019



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IDENTIFICATION MARKINGS: **DP-S-17-00001**
CLASSIFICATION: **NONE**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK**
3.2
SCALE NTS
FORMAT **A3**
SOLID EDGE
PDM **N**

FIRST ANGLE PROJECTION
DIMENSIONS **METRIC / mm**
PROJECT **DA 50 C**
Diamond Aircraft Industries GmbH
NAME / SIGN / DATE
DRAWN:
CHECKED:
RELEASED:
WEIGHT: N/A N/A
INTERCHANGEABLE PART **NO**

TITLE
Schematic, Rudder Pedals Wiring

DWG.NO. **D54-9227-20-01**
REV "-"

NEXT HIGHER ASSY **N/A**
FILENAME **D54-9227-20-01.dft**
SH **01** OF **01**

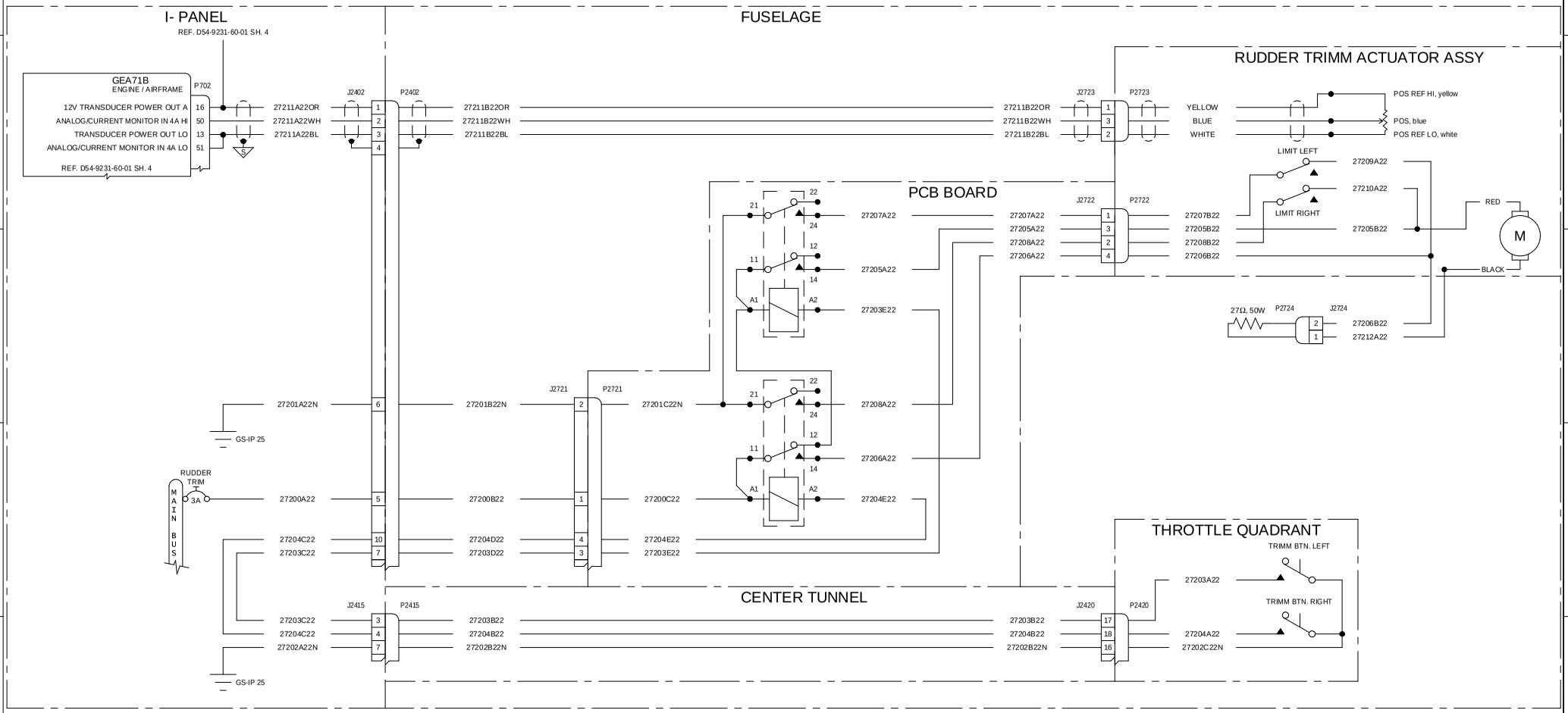
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
B	01	ALL	MÄM 50-009 RESISTOR AND WIRE 27212A22 ADDED.	10.07.2020
D	01	ALL	MÄM 50-078 WIRES 27201A22N AND 27202A22N CORRECTED TO GS-IP 25.	03.02.2021



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, Rudder Trim Wiring**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9227-30-01**	REV "D"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9227-30-01d.dft**	SH **01** OF **01**

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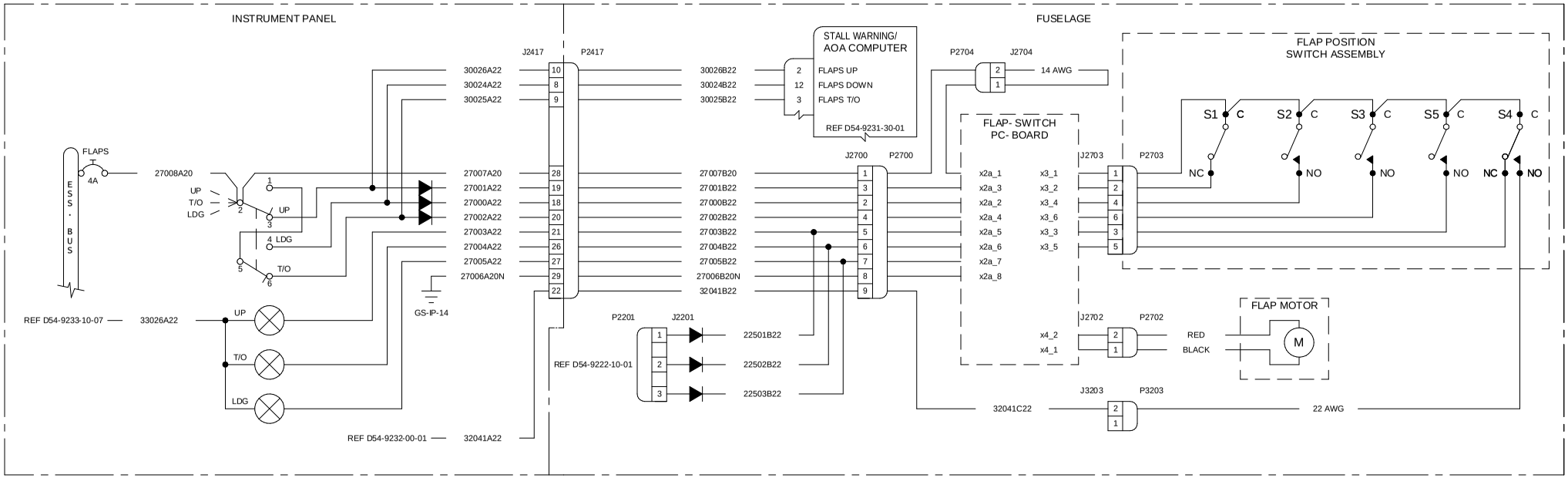
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	MÄM 50-033 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	15.10.2020



IDENTIFICATION MARKINGS **DP-S-17-00001**	- / -	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**
CLASSIFICATION: **NONE**			
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK**	3.2		
SCALE NTS		DRAWN:	
FORMAT **A3**		CHECKED:	
SOLID EDGE PDM **NO**		RELEASED:	

NAME / SIGN / DATE

PROJECT **DA 50 C**

Diamond Aircraft Industries GmbH

WEIGHT: N/A N/A

INTERCHANGEABLE PART **NO**

TITLE

Schematic, Flaps Wiring

DWG.NO. **D54-9227-50-01_01**

REV "-"

NEXT HIGHER ASSY **N/A**

FILENAME **D54-9227-50-01_01.dft**

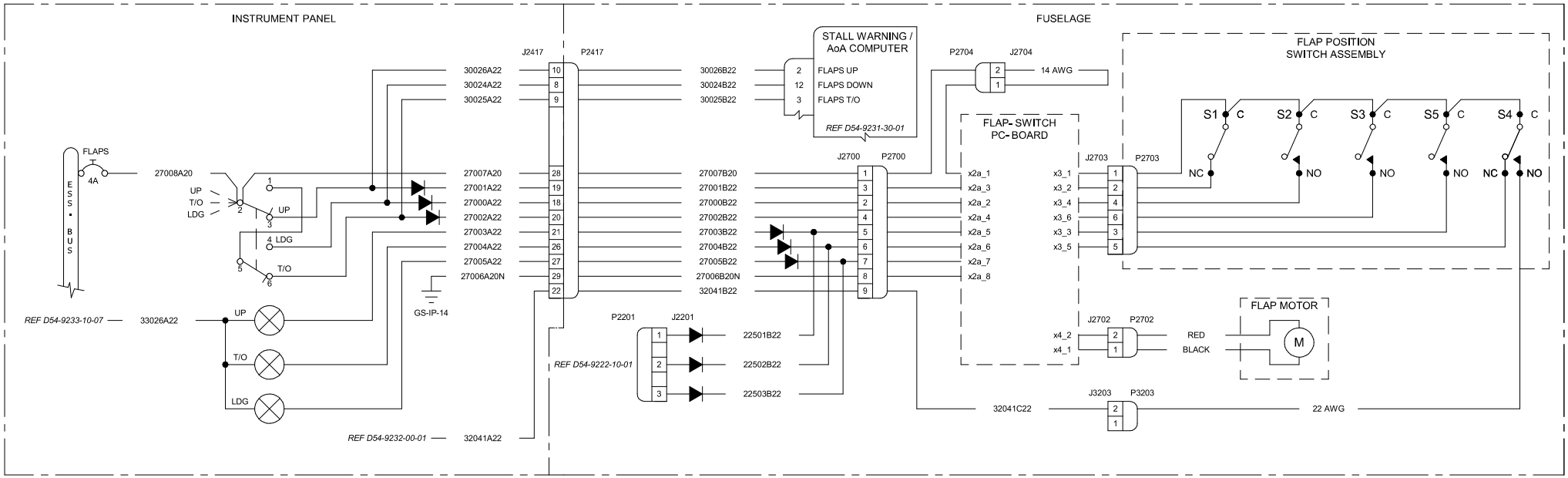
SH **01** OF **01**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	MÄM 50-492 NEW DRAWING, SUPERSEDES DRAWING D54-9227-50-01_01.	25.11.2024



IDENTIFICATION MARKINGS **DP-S-17-00001**	- / -	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**
CLASSIFICATION: **NONE**			
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK**	3.2		
SCALE NTS		NAME / SIGN / DATE	
FORMAT **A3**		DRAWN:	
SOLID EDGE		CHECKED:	
PDM **NO**		RELEASED:	

PROJECT **DA 50 C**

Diamond Aircraft Industries GmbH

WEIGHT: N/A N/A

INTERCHANGEABLE PART **NO**

TITLE
Schematic, Flaps Wiring

DWG.NO.
D54-9227-50-01_02

REV "-"

NEXT HIGHER ASSY **N/A**

FILENAME **D54-9227-50-01_02.dft**

SH **01** OF **01**

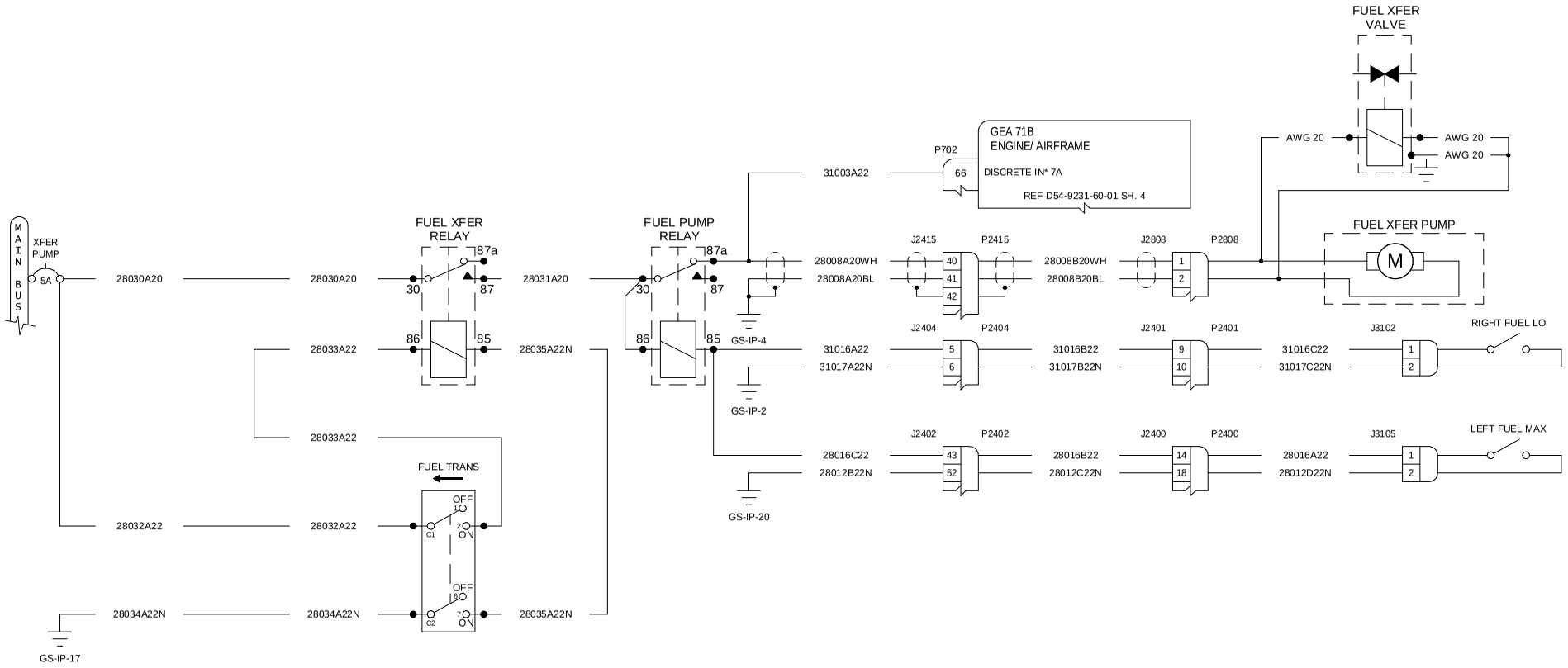
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	19.04.2019



IDENTIFICATION MARKINGS **DP-S-17-00001**	- / -	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**
CLASSIFICATION: **NONE**			
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK**	3.2		
SCALE NTS		DRAWN:	
FORMAT **A3**		CHECKED:	
SOLID EDGE PDM **N**		RELEASED:	

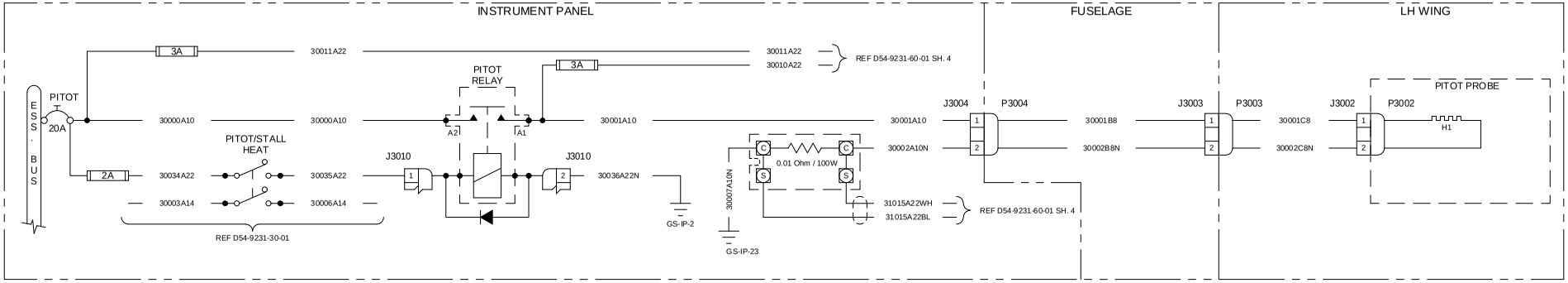
PROJECT **DA 50 C**	Diamond Aircraft Industries GmbH
NAME / SIGN / DATE	
WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
TITLE **Schematic, Aux Fuel Wiring**	
DWG.NO. **D54-9228-20-01**	REV "-"
NEXT HIGHER ASSY **N/A**	
FILENAME **D54-9228-20-01.dft**	SH **01** OF **01**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	OÄM 50-011/f NEW DRAWING, SUPERSEDES D54-9230-30-01_01.	19.10.2021



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK** (3.2)	DRAWN: C. Dworak 19.10.2021	TITLE **Schematic, Pitot Heating System**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9230-30-01_02**	REV "-"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
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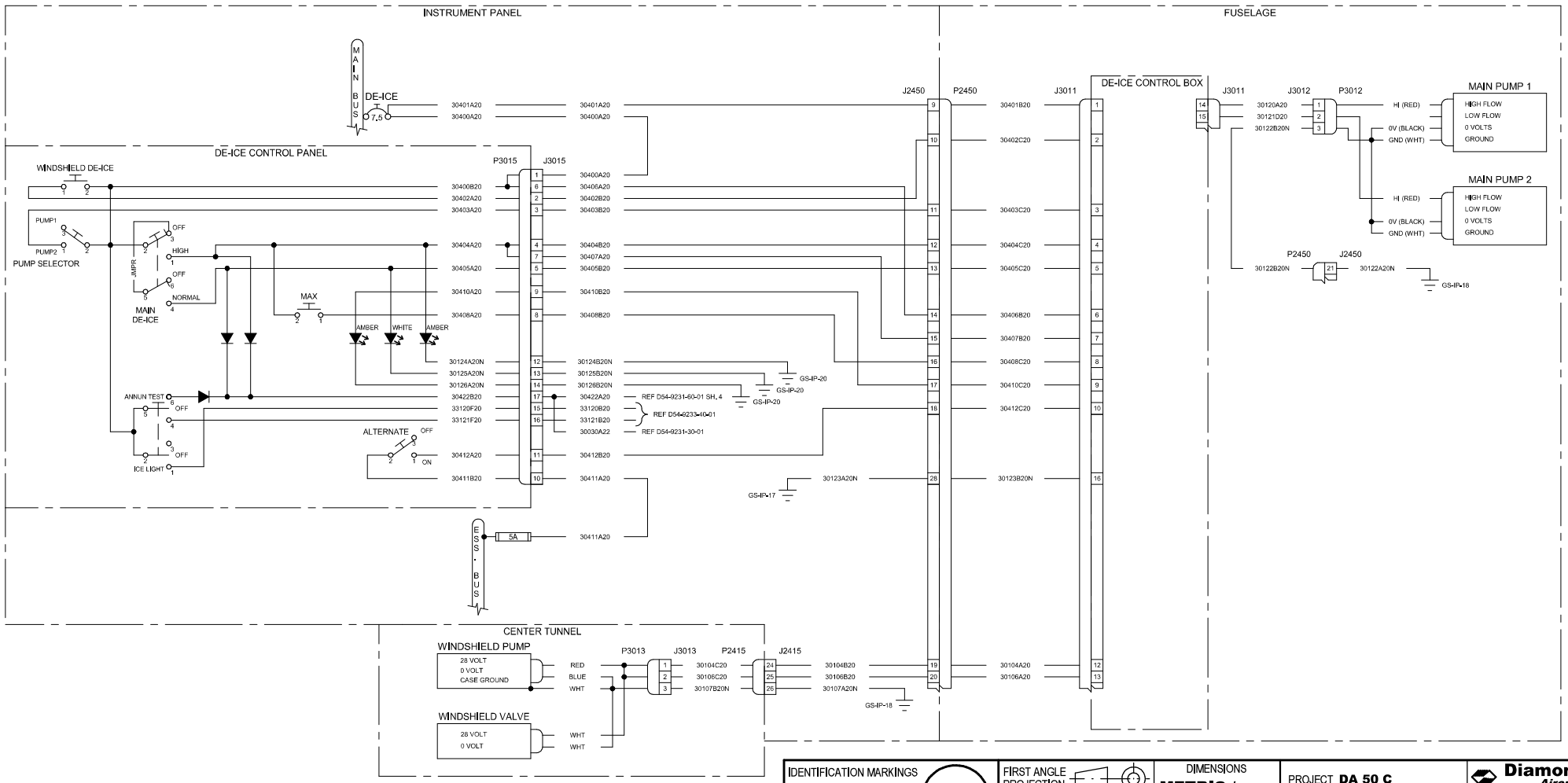
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	OÄM 50-011 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	19.11.2020
A	01	B6	OÄM 50-011/t Ground Connection to the Windshield Pump added.	12.06.2024



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE		WEIGHT: N/A N/A
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:		INTERCHANGEABLE PART **NO**
SCALE NTS	CHECKED:		TITLE **Schematic, De- Ice (TKS) Control System**
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:		DWG.NO. **D54-9230-40-01** REV **"a"**
			NEXT HIGHER ASSY **N/A**
			FILENAME **D54-9230-40-01a.dft** SH **01** OF **01**

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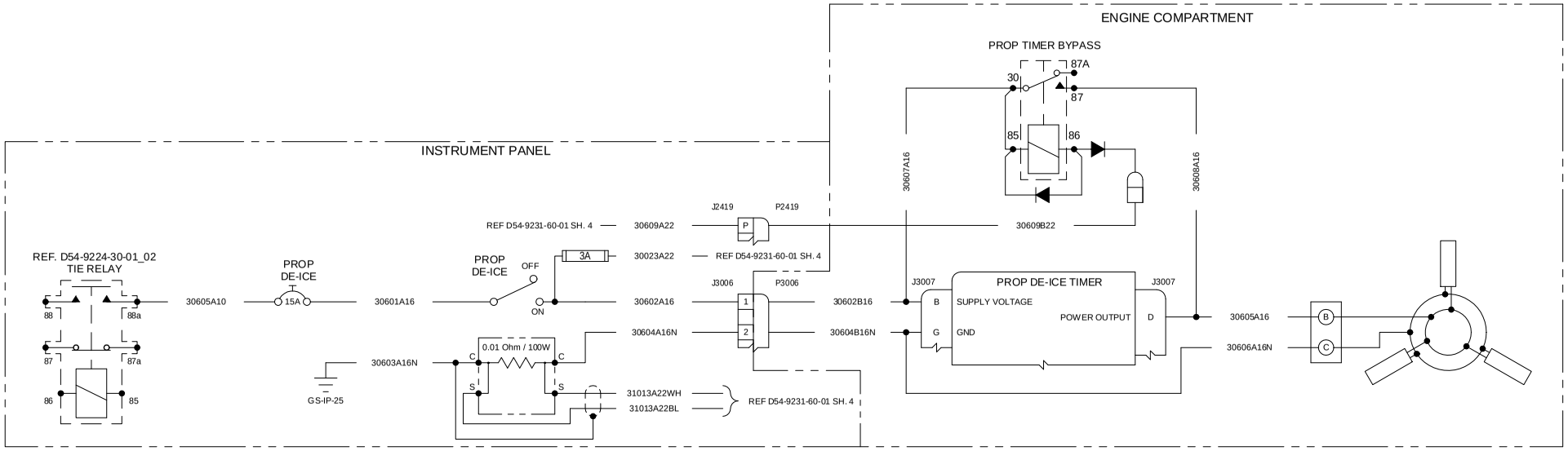
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	OÄM 50-011/f NEW DRAWING, SUPERSEDES DRAWING D54-9230-50-01.	18.10.2021



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK** 3.2	DRAWN: C. Dworak 18.10.2021	TITLE **Schematic, Prop De-Ice System**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9230-50-01_01**	REV "-"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9230-50-01_01.dft**	SH **01** OF **01**

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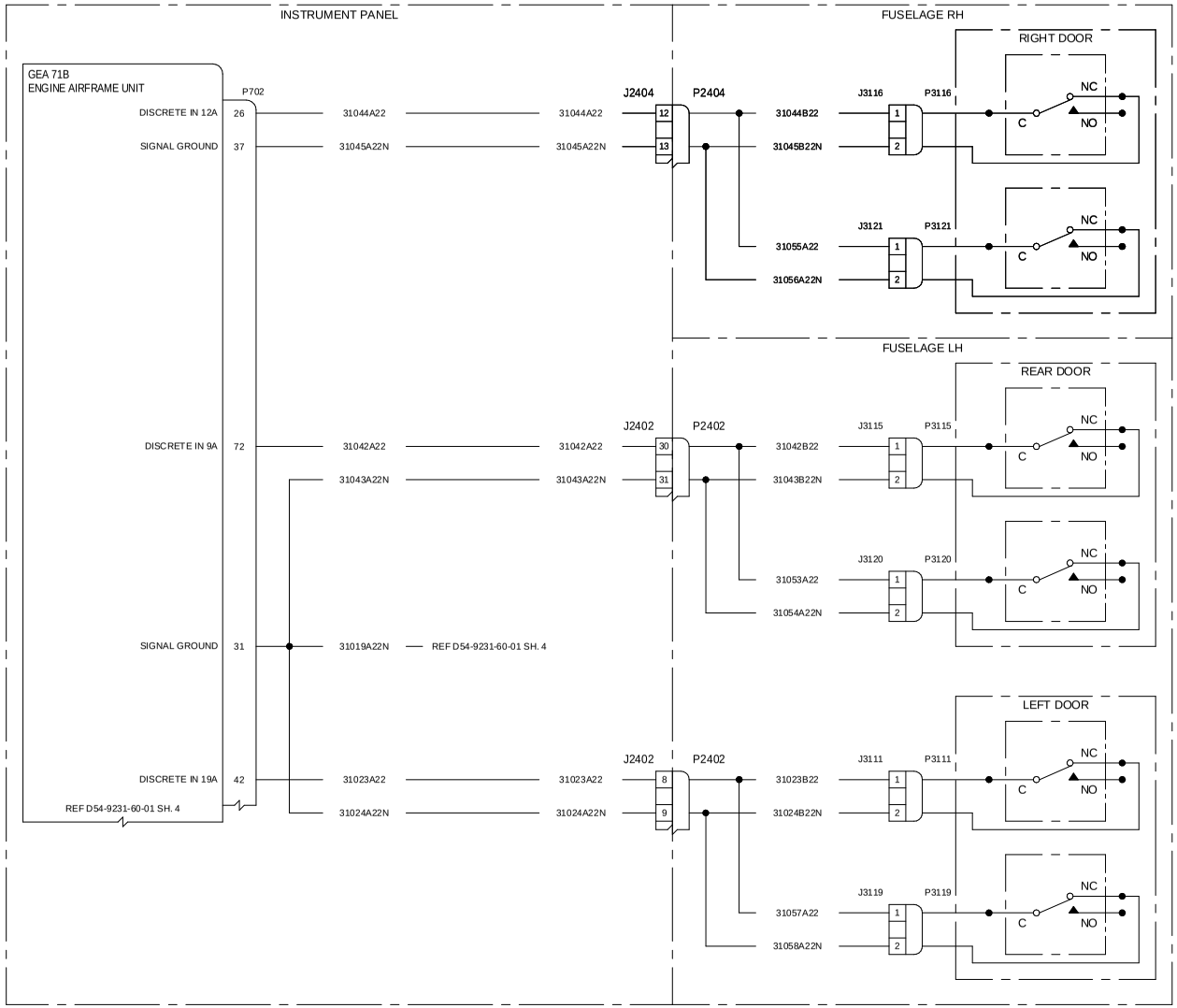
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	26.11.2019



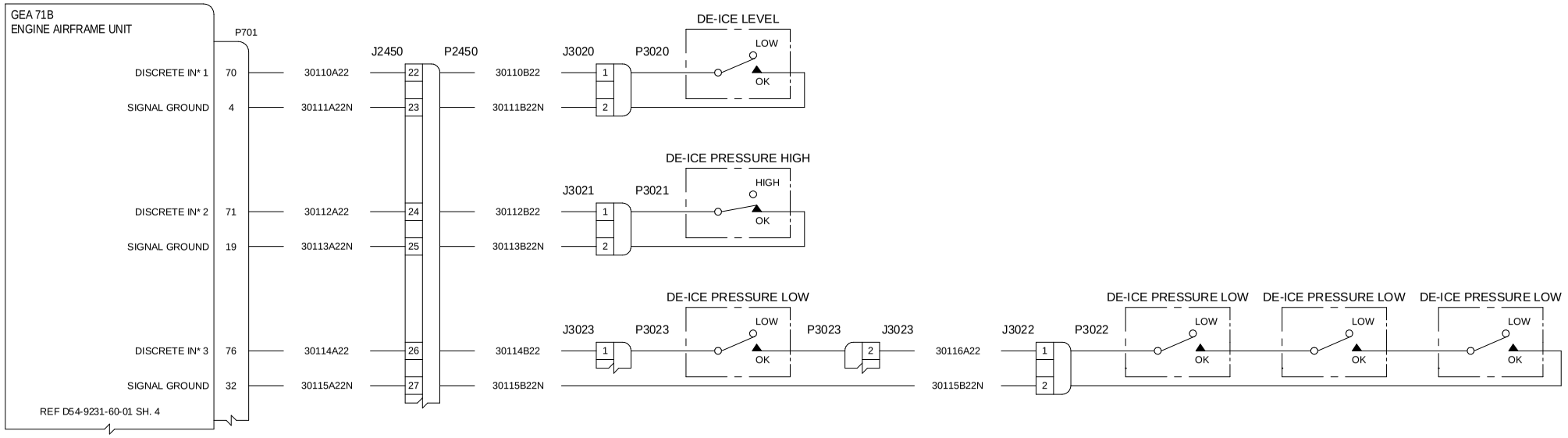
IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, Door Warning Switches**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9231-00-01**	REV "-"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9231-00-01.dft**	SH **01** OF **01**

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DWG.ORIG. CODE: 710197

REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	NAD RELEASE NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	19.11.2020
A	01	ALL	OÄM 50-011 WIRING FOR ADDITIONAL PRESSURE SWITCH ADDED.	31.03.2021



GENERAL NOTES

1. SWITCHES SHOWN IN UNPOWERED STATE AND NO FLUID IN DE-ICE TANK

IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** — 3.2	DRAWN:	TITLE **Schematic, De- Ice Warning System**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9231-00-02**	REV "A"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9231-00-02a.dft**	SH **01** OF **01**

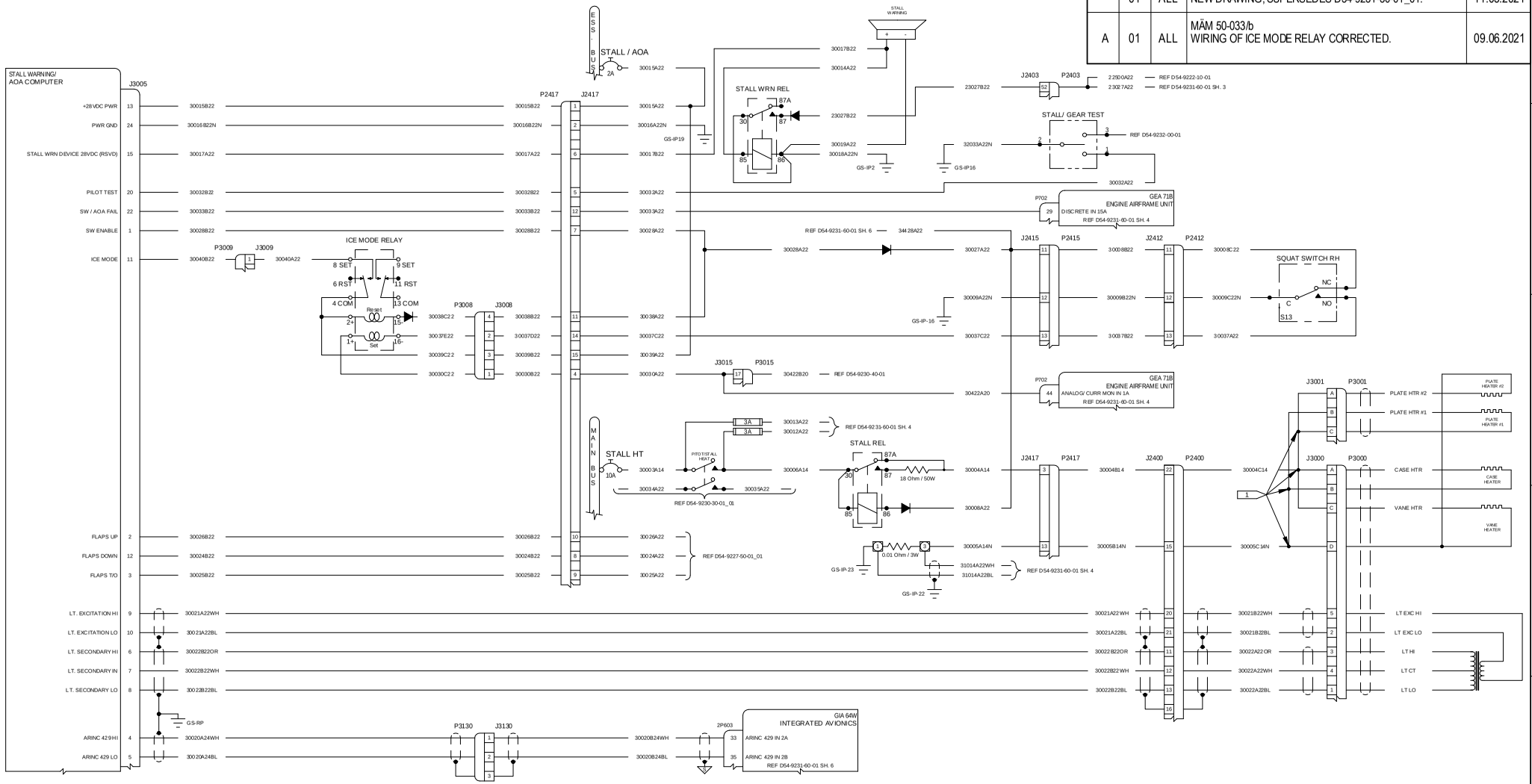
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DAIA

DWG.ORIG. CODE: 710197

Confidential

REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	MÄM 50-033/a NEW DRAWING, SUPERSEDES D54-9231-30-01_01.	11.05.2021
A	01	ALL	MÄM 50-033/b WIRING OF ICE MODE RELAY CORRECTED.	09.06.2021



GENERAL NOTES

1. WIRING SHOWN WITH AIRPLANE ON GROUND AND NOT POWERED.
2. S13 OPENED WHEN THE AIRPLANE IS AIRBORNE.

FLAG NOTES

1 SPLICE TO AWG 16.

IDENTIFICATION MARKINGS
DP-S-17-00001
CLASSIFICATION:
NONE

IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO
ISO 2768- mK

3.2

FIRST ANGLE PROJECTION

DIMENSIONS
METRIC / mm

PROJECT **DA 50 C**

Diamond Aircraft Industries GmbH

NAME / SIGN / DATE	
DRAWN:	C. Dworak 09.06.2021
CHECKED:	
RELEASED:	

WEIGHT: N/A N/A

INTERCHANGEABLE PART **NO**

TITLE
Schematic,
Stall Warning/ AOA System

DWG.NO.
D54-9231-30-01_02

REV "A"

SCALE NTS

FORMAT **A3**

SOLID EDGE

PDM **N**

NEXT HIGHER ASSY **N/A**

FILENAME **D54-9231-30-01_02a.dft**

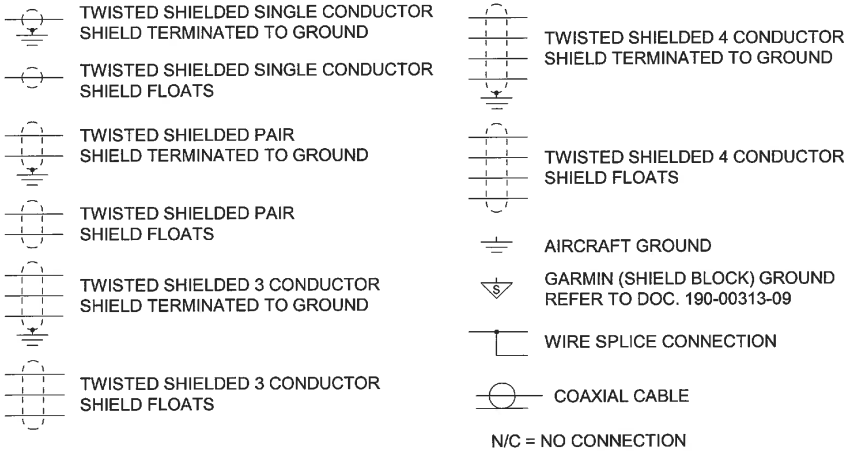
SH **01** OF **01**

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
"-"	01	ALL	NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	02.12.2019
A	06	ALL	WIRE 24050A22 CORRECTED TO 24050B22.	13.01.2020
B	04	ALL	VÄM 50-002 WIRE 27213A22 CORRECTED TO 27211A22. AT CONNECTOR P702 WIRE 28002A22WH CORRECTED TO PIN 77 AND WIRE 28004A22WH CORRECTED TO PIN 76. WIRING FOR COOLANT LVL ADDED. WIRING OF OXYGEN PRESSURE SENSOR CORRECTED. PULL DOWN RESISTORS AT WIRES 24601A22 AND 24611A22 ADDED.	27.04.2020
C	04	ALL	OÄM 50-001 PINOUT OF CONNECTOR J3501 CORRECTED.	08.10.2020
D	06	ALL	OÄM 50-013 CONNECTOR P3442 ADDED. JUMPER COMP. A/C ADDED.	25.01.2021
E	04	ALL	WIRING FOR TKS SYSTEM PROP DE- ICE ADDED.	26.01.2021
F	01,04	ALL	MÄM 50-078 FLAG NOTE 4 ADDED.	05.03.2021
G	01,04	ALL	MÄM 50-033 CORRECTION OF STALL WRN, PITOT HT AND PROP DE- ICE AMP SENSOR GROUND STUDS. OPTIONAL WIRING FOR O2 SENSORS ADDED. FLAG NOTE 5 ADDED	23.04.2021
H	04	B/4	MÄM 50-033/a REFERENCE D54-9230-30-01 CORRECTED TO D54-9231-30-01_02.	01.06.2021
I	04,06 04 04	ALL C/8 E/3	MÄM 50-131 REFERENCE D54-9224-30-01 CORRECTED TO D54-9224-30-01_02. WIRING FOR GLOW INDICATION ADDED. CONNECTOR P40 ADDED.	07.07.2021
J	03 04 05	B-C/4 F/3-4 E/5	OÄM 50-011/f VOLUME AND CHANNEL SWITCHES REMOVED. PROP DE-ICE TIMER BYPASS RELAY OUTPUT ADDED. OPTIONAL WIRING FOR GMU44B ADDED.	18.10.2021
K	04	C/7-8	MÄM 50-184 JUMPER WIRE AT CONNECTOR P701 PIN 2 TO PIN 24 ADDED. AT CONN. P702 WIRE 30609A22 CORRECTED TO PIN 2.	09.12.2021

NOTES:

1. SYMBOL DESIGNATIONS



FLAG NOTES

1. USE DOUBLE- SHIELDED WIRING: BOTH SHIELDS SHOULD BE GROUNDED ON THE RECEIVING SIDE; ON THE TRANSMITTING SIDE; ONLY THE OUTER SHIELD SHOULD BE GROUNDED, WHILE THE INNER SHIELD SHOULD FLOAT.
2. WIRE / CABLE NOT INSTALLED WITH GTX 345R.
3. EITHER CABLE 34430B24 (TAS6XXA) OR 34523A24 (GTX 345R) ARE INSTALLED IN CONNECTOR P2414.
4. SPLICE TO AWG #22 AS CLOSE TO THE CONNECTOR AS PRACTICABLE.
5. DEPENDENT ON INSTALLED OXYGEN PRESSURE SENSOR USE EITHER PINOUT FOR ADZ NAGANO IZ-809148-A OR PINOUT FOR AEROX 4110-1126.

DIMENSIONS **METRIC**
FIRST ANGLE PROJECTION
FORMAT **A3**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK**
DIMENSIONS IN **mm**
3.2 FINISH IN MICRO-METER

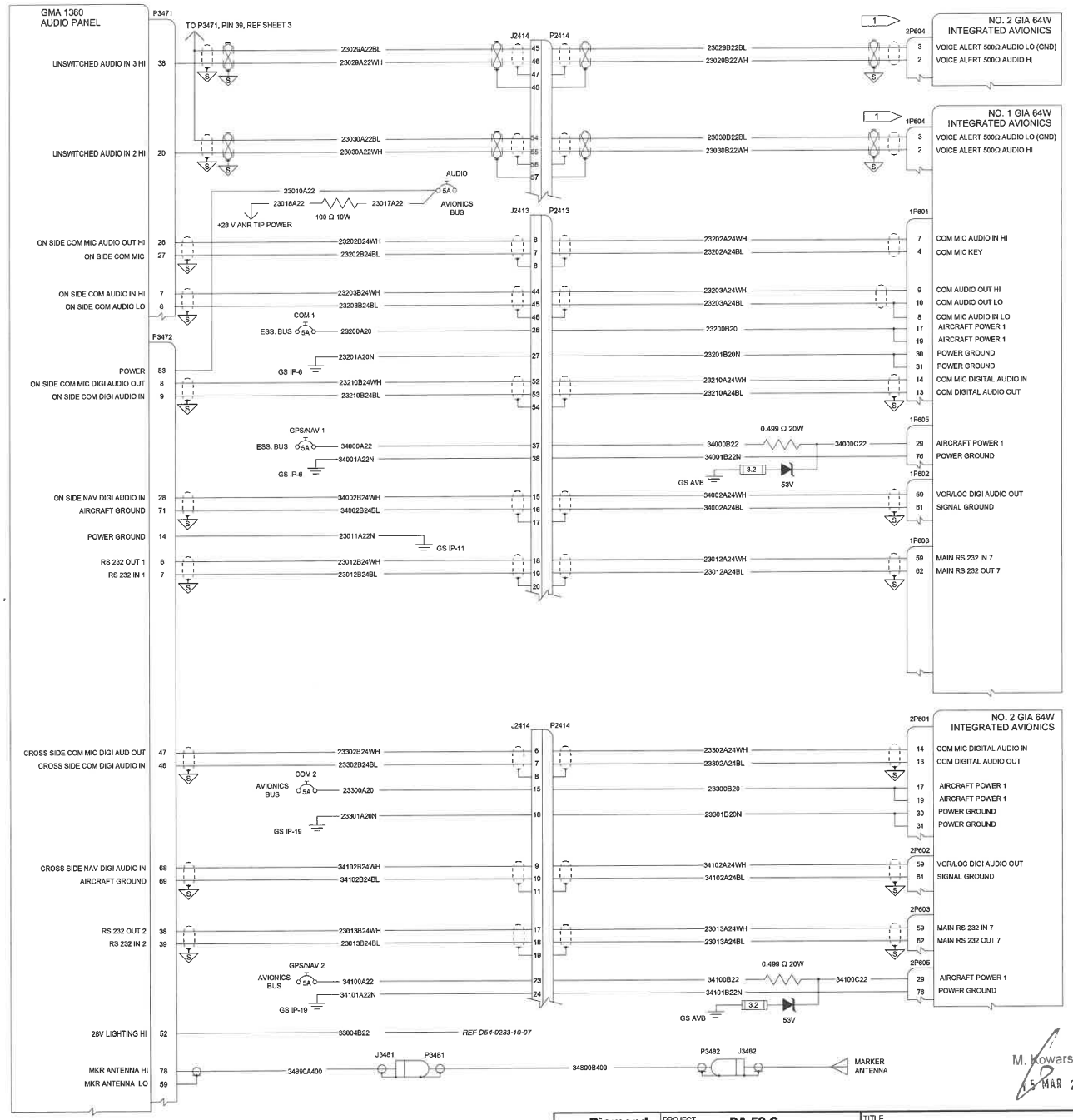
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CLASSIFICATION: **NONE**
INTERCHANGEABLE PART **NO**
THIS DRAWING WAS PRODUCED USING
SOFTWARE: **SOLID EDGE ST6**
FILENAME **D54-9231-60-01k.dft**

Diamond Aircraft Industries GmbH — Diamond Aircraft Industries — N. A. Otto-Straße 5, A-2700 Wiener Neustadt

NAME / SIGN / DATE	
DRAWN:	C. Dwarak 09/12/2021
CHECKED:	M. Kowarsch 5 MAR 22
RELEASED:	L. Helm 22 MAR 22

PROJECT **DA 50 C**
TITLE **Schematic, G1000 NXi**
DWG.ORIG. **DAIA**
DWG.NO. **D54-9231-60-01**
REV **"K"**
CODE **710197** SCALE SH **01** OF **06**

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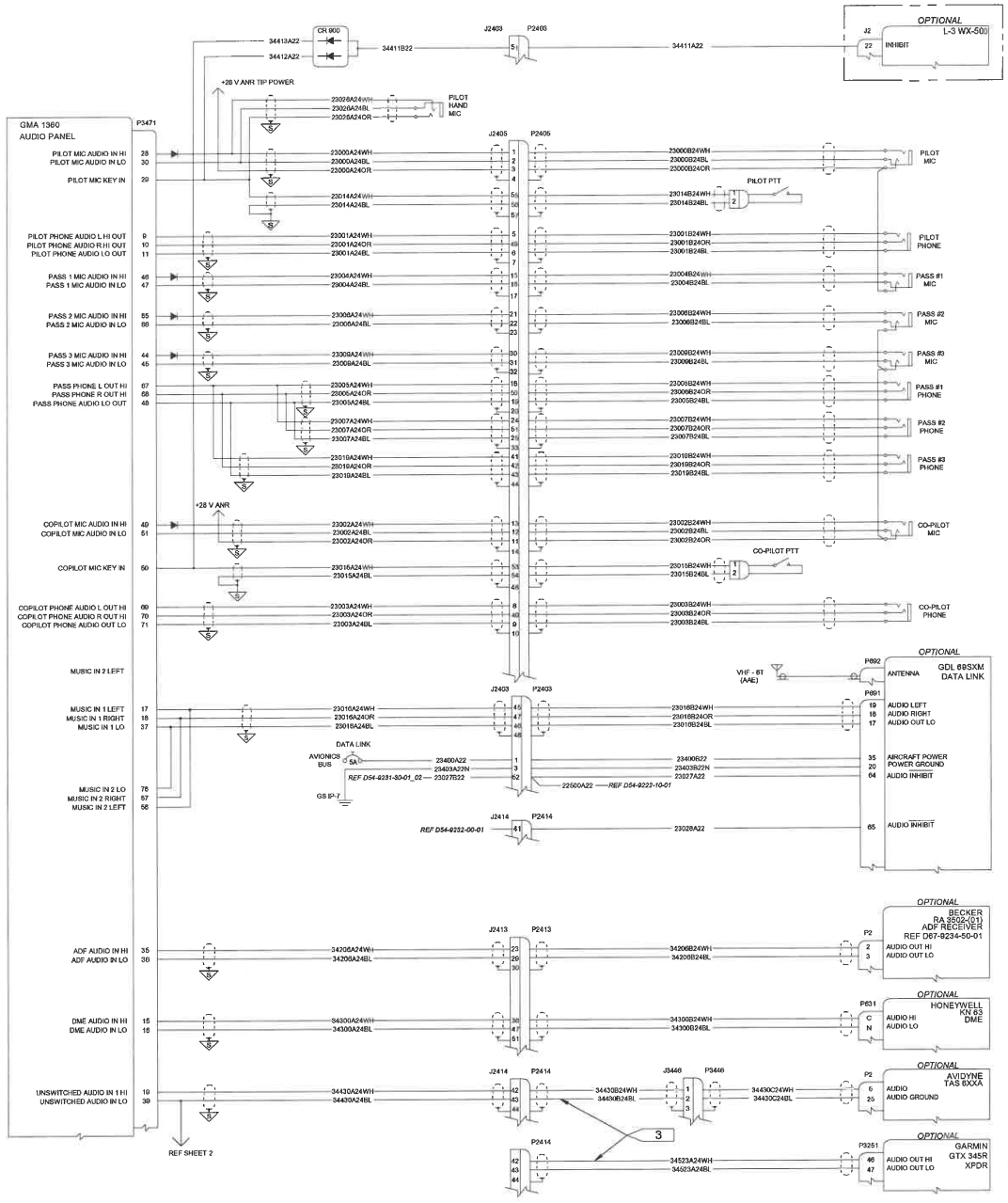


M. Kowarsch
15 MAR 22

L. Hehn
22 MAR 22

Diamond Aircraft Industries GmbH	PROJECT DA 50 C	TITLE Schematic, G1000 NXi	DWG.ORIG. DAIA	DWG.NO. D54-9231-60-01	REV "K"
Diamond Aircraft Industries N. A. Otto-Straße 5 A-2700 Wiener Neustadt			CODE 710197	SCALE	SH 02 OF 06

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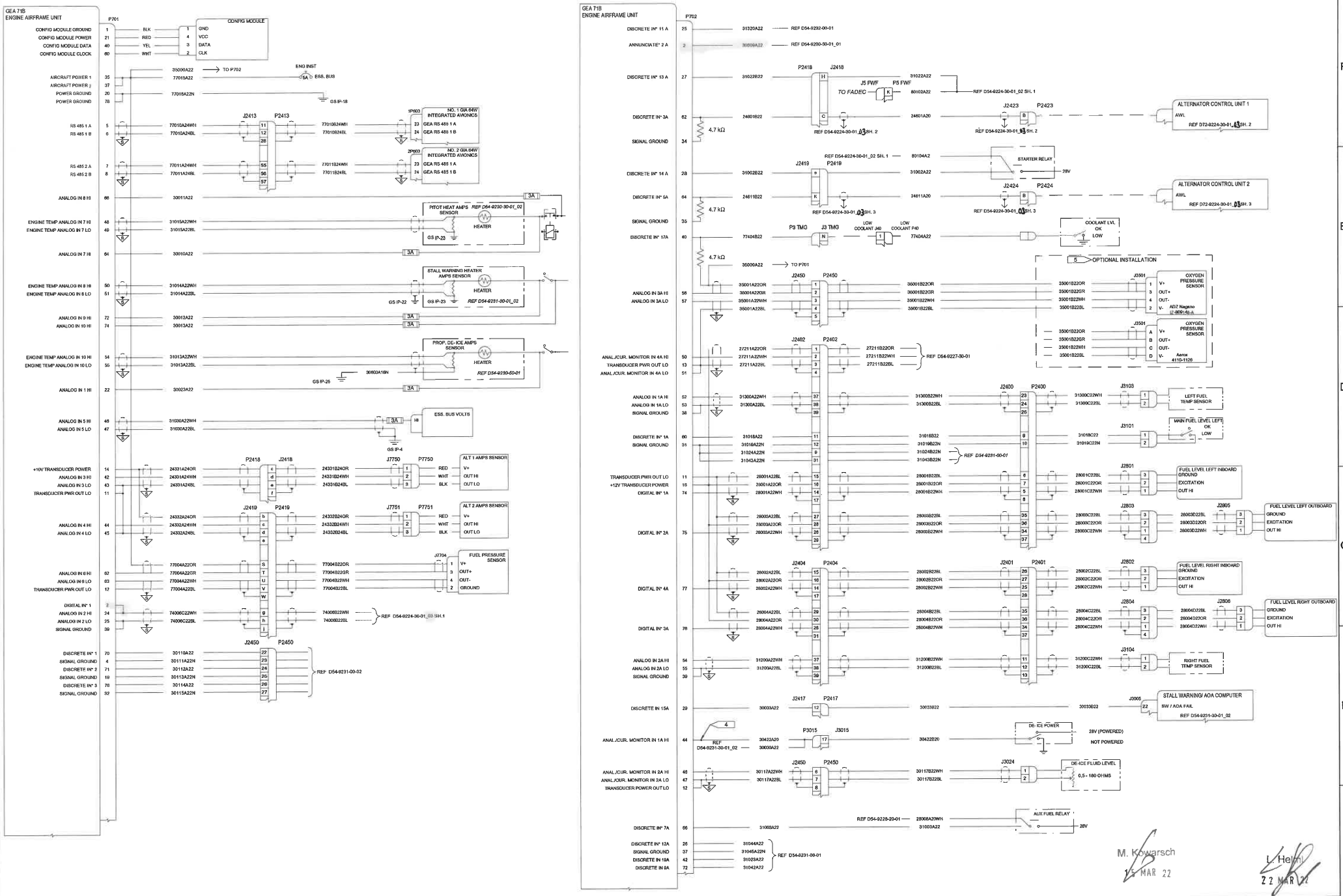


M. Kowarsch 15 MAR 22

L. Heim 22 MAR 22

Diamond Aircraft Industries GmbH	PROJECT DA 50 C	TITLE **Schematic, G1000 NXi**	DWG.ORIG. DAIA	DWG.NO. D54-9231-60-01	REV "K"
Diamond Aircraft Industries N. A. Otto-Straße 5 A-2700 Wiener Neustadt			CODE 710197	SCALE	SH 03 OF 06

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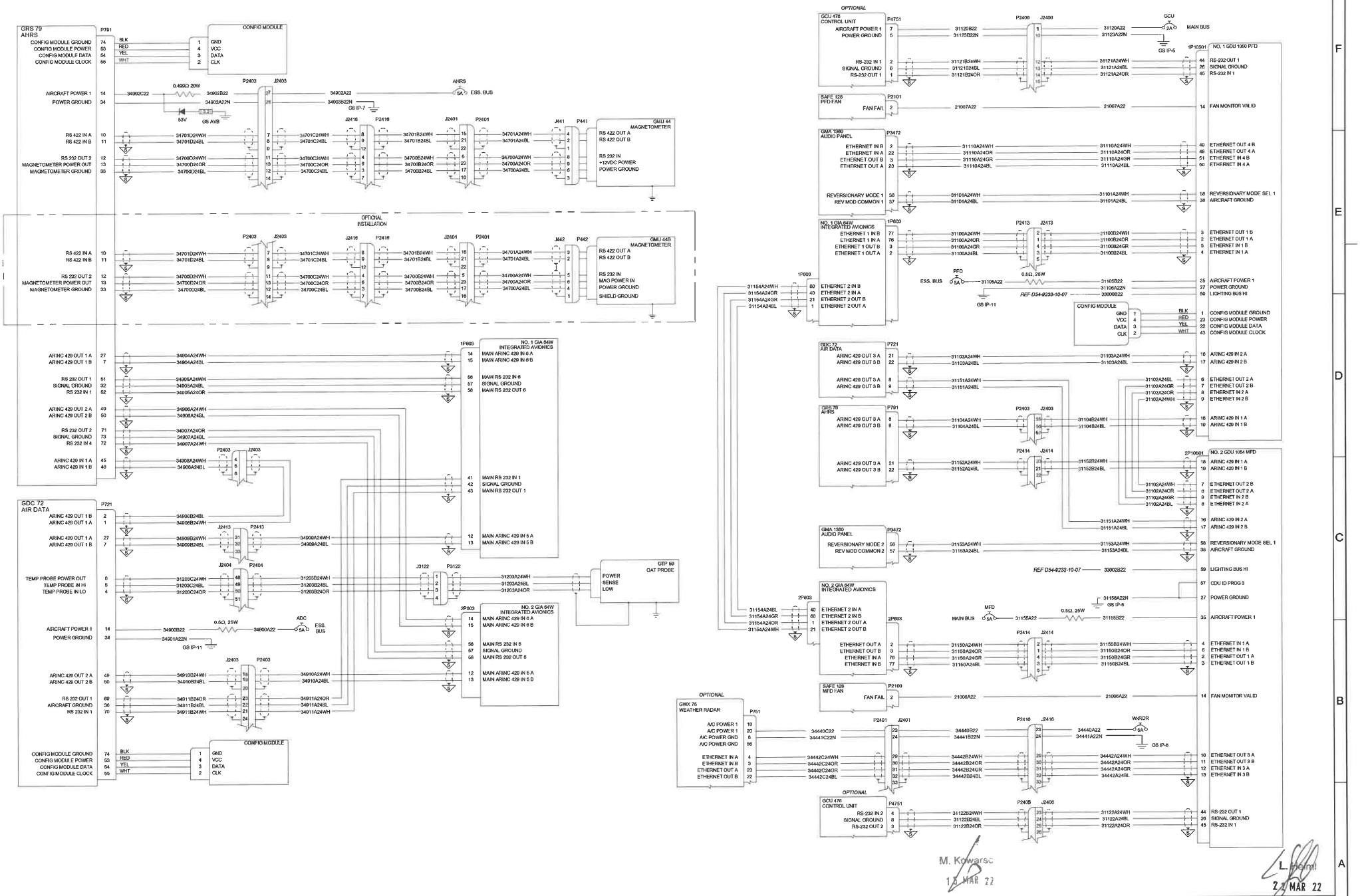
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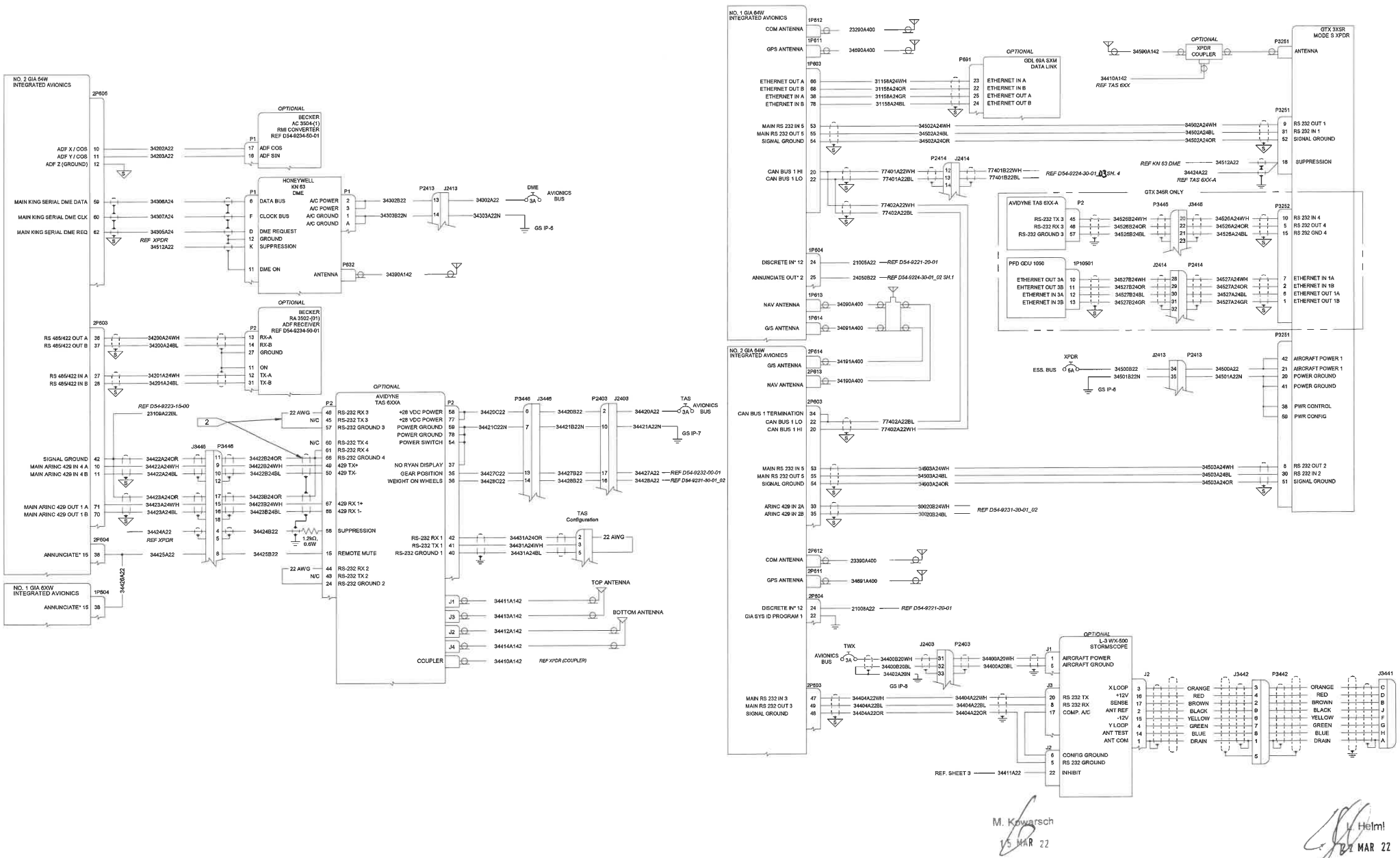
M. Kowarsch
15 MAR 22

L. Helmi
22 MAR 22

Diamond Aircraft Industries GmbH	PROJECT DA 50 C	TITLE **Schematic, G1000 NXi**	DWG.ORIG. DAIA	DWG.NO. D54-9231-60-01 REV "K"
Diamond Aircraft Industries N. A. Otto-Straße 5 A-2700 Wiener Neustadt			CODE 710197 SCALE	SH 04 OF 06

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GRS 79 AHRS
CONFIG MODULE GROUND
CONFIG MODULE POWER
CONFIG MODULE DATA
CONFIG MODULE CLOCK
AIRCRAFT POWER 1
POWER GROUND
RS 422 IN A
RS 422 IN B
RS 232 OUT 2
MAGNETOMETER POWER OUT
MAGNETOMETER GROUND
CONFIG MODULE
GMU 44 MAGNETOMETER
RS 422 OUT A
RS 422 OUT B
RS 232 IN
+12VDC POWER
POWER GROUND
OPTIONAL INSTALLATION
GMU 44B MAGNETOMETER
SHIELD GROUND
ARINC 429 OUT 1 A
ARINC 429 OUT 1 B
RS 232 OUT 1
SIGNAL GROUND
RS 232 IN 1
ARINC 429 OUT 2 A
ARINC 429 OUT 2 B
RS 232 OUT 2
SIGNAL GROUND
RS 232 IN 4
ARINC 429 IN 1 A
ARINC 429 IN 1 B
NO. 1 GIA 64W INTEGRATED AVIONICS
MAIN ARINC 429 IN 6 A
MAIN ARINC 429 IN 6 B
MAIN RS 232 IN 6
SIGNAL GROUND
MAIN RS 232 OUT 6
MAIN RS 232 IN 1
SIGNAL GROUND
MAIN RS 232 OUT 1
MAIN ARINC 429 IN 5 A
MAIN ARINC 429 IN 5 B
GDC 72 AIR DATA
TEMP PROBE POWER OUT
TEMP PROBE IN HI
TEMP PROBE IN LO
GTP 59 OAT PROBE
POWER
SENSE
LOW
NO. 2 GIA 64W INTEGRATED AVIONICS
MAIN ARINC 429 IN 6 A
MAIN ARINC 429 IN 6 B
MAIN RS 232 IN 6
SIGNAL GROUND
MAIN RS 232 OUT 6
MAIN ARINC 429 IN 5 A
MAIN ARINC 429 IN 5 B
ARINC 429 OUT 2 A
ARINC 429 OUT 2 B
RS 232 OUT 1
AIRCRAFT GROUND
RS 232 IN 1
CONFIG MODULE GROUND
CONFIG MODULE POWER
CONFIG MODULE DATA
CONFIG MODULE CLOCK
OPTIONAL
GCU 476 CONTROL UNIT
AIRCRAFT POWER 1
POWER GROUND
RS-232 IN 1
SIGNAL GROUND
RS-232 OUT 1
SAFE 126 PFD FAN
FAN FAIL
GMA 1360 AUDIO PANEL
ETHERNET IN B
ETHERNET IN A
ETHERNET OUT B
ETHERNET OUT A
REVERSIONARY MODE 1
REV MOD COMMON 1
NO. 1 GDU 1060 PFD
FAN MONITOR VALID
ETHERNET OUT 4 B
ETHERNET OUT 4 A
ETHERNET IN 4 B
ETHERNET IN 4 A
REVERSIONARY MODE SEL 1
AIRCRAFT GROUND
NO. 1 GIA 64W INTEGRATED AVIONICS
ETHERNET 1 IN B
ETHERNET 1 IN A
ETHERNET 1 OUT B
ETHERNET 1 OUT A
ETHERNET 2 IN B
ETHERNET 2 IN A
ETHERNET 2 OUT B
ETHERNET 2 OUT A
ESS. BUS
PFD
MAIN BUS
GCU
AIRCRAFT POWER 1
POWER GROUND
LIGHTING BUS HI
REF D54-9233-10-07
33000B22
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CONFIG MODULE GROUND
CONFIG MODULE POWER
CONFIG MODULE DATA
CONFIG MODULE CLOCK
GDC 72 AIR DATA
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ARINC 429 OUT 3 B
ARINC 429 IN 2 A
ARINC 429 IN 2 B
ETHERNET OUT 2 A
ETHERNET OUT 2 B
ETHERNET IN 2 A
ETHERNET IN 2 B
ARINC 429 IN 1 A
ARINC 429 IN 1 B
NO. 2 GDU 1054 MFD
CDU ID PROG 3
NO. 2 GIA 64W INTEGRATED AVIONICS
ETHERNET 2 IN A
ETHERNET 2 IN B
ETHERNET 2 OUT A
ETHERNET 2 OUT B
MFD
ETHERNET OUT A
ETHERNET OUT B
ETHERNET IN A
ETHERNET IN B
ETHERNET OUT 1 A
ETHERNET OUT 1 B
ETHERNET IN 1 A
ETHERNET IN 1 B
SAFE 126 MFD FAN
GWX 75 WEATHER RADAR
A/C POWER 1
A/C POWER GND
ETHERNET IN A
ETHERNET IN B
ETHERNET OUT A
ETHERNET OUT B
WxRDR
ETHERNET OUT 3 A
ETHERNET OUT 3 B
ETHERNET IN 3 A
ETHERNET IN 3 B
RS-232 IN 2
RS-232 OUT 2
RS-232 OUT 1
RS-232 IN 1
M. Kowarsc
18 MAR 22
L. Hemi
22 MAR 22
Diamond Aircraft Industries
PROJECT DA 50 C
N. A. Otto-Straße 5
A-2700 Wiener Neustadt
TITLE
Schematic, G1000 NXi
DWG.ORIG. DAIA
DWG.NO. D54-9231-60-01
REV "K"
CODE 710197
SCALE
SH 05 OF 06
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M. Kowarsch
15 MAR 22

L. Helm!
22 MAR 22

Diamond Aircraft Industries GmbH	PROJECT DA 50 C	TITLE **Schematic, G1000 NXi**	DWG.ORIG. **DAIA**	DWG.NO. **D54-9231-60-01**	REV "K"
Diamond Aircraft Industries N. A. Otto-Straße 5 A-2700 Wiener Neustadt			CODE **710197**	SCALE	SH **06** OF **06**

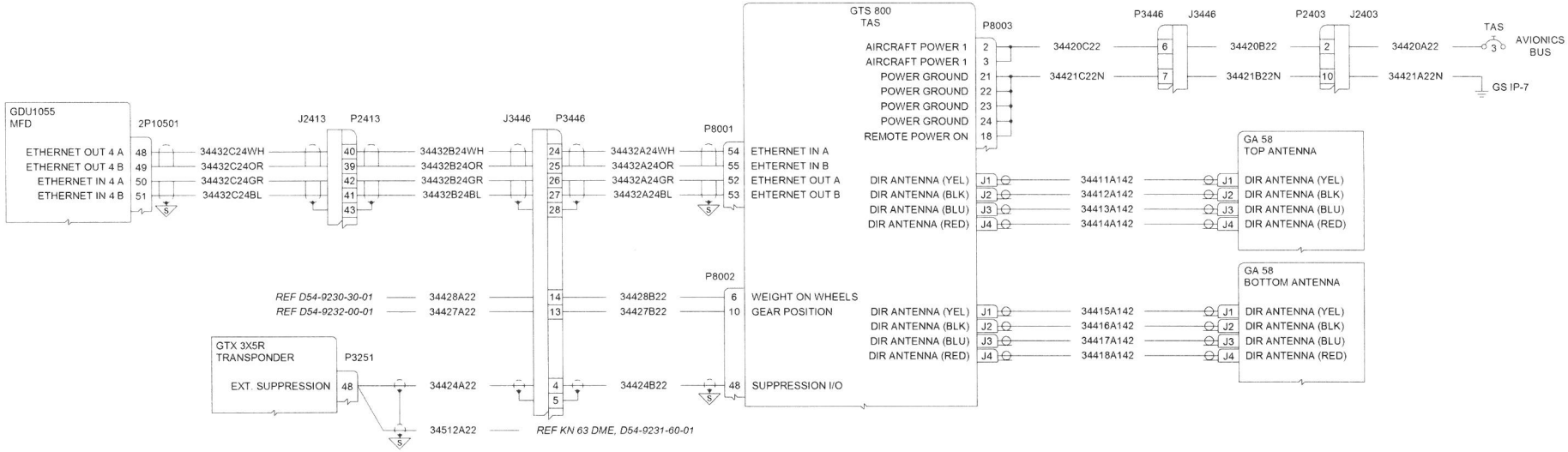
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DAIA
DWG.ORIG. CODE: 710197

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	OÄM 50-050 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING	22-JUN-2023



IDENTIFICATION MARKINGS: **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS: **METRIC / mm**	PROJECT: **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART: **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO: **ISO 2768-mK** 3.2	DRAWN:	TITLE: **SCHEMATIC, GTS 800 WIRING**	
SCALE: NTS	CHECKED:	DWG.NO.: **D54-9231-60-01X01**	REV: "-"
FORMAT: **A3**	RELEASED:	NEXT HIGHER ASSY: **N/A**	
SOLID EDGE		FILENAME: **D54-9231-60-01x01.dft**	SH **01** OF **01**
PDM: **N**			

Diamond Aircraft Industries GmbH

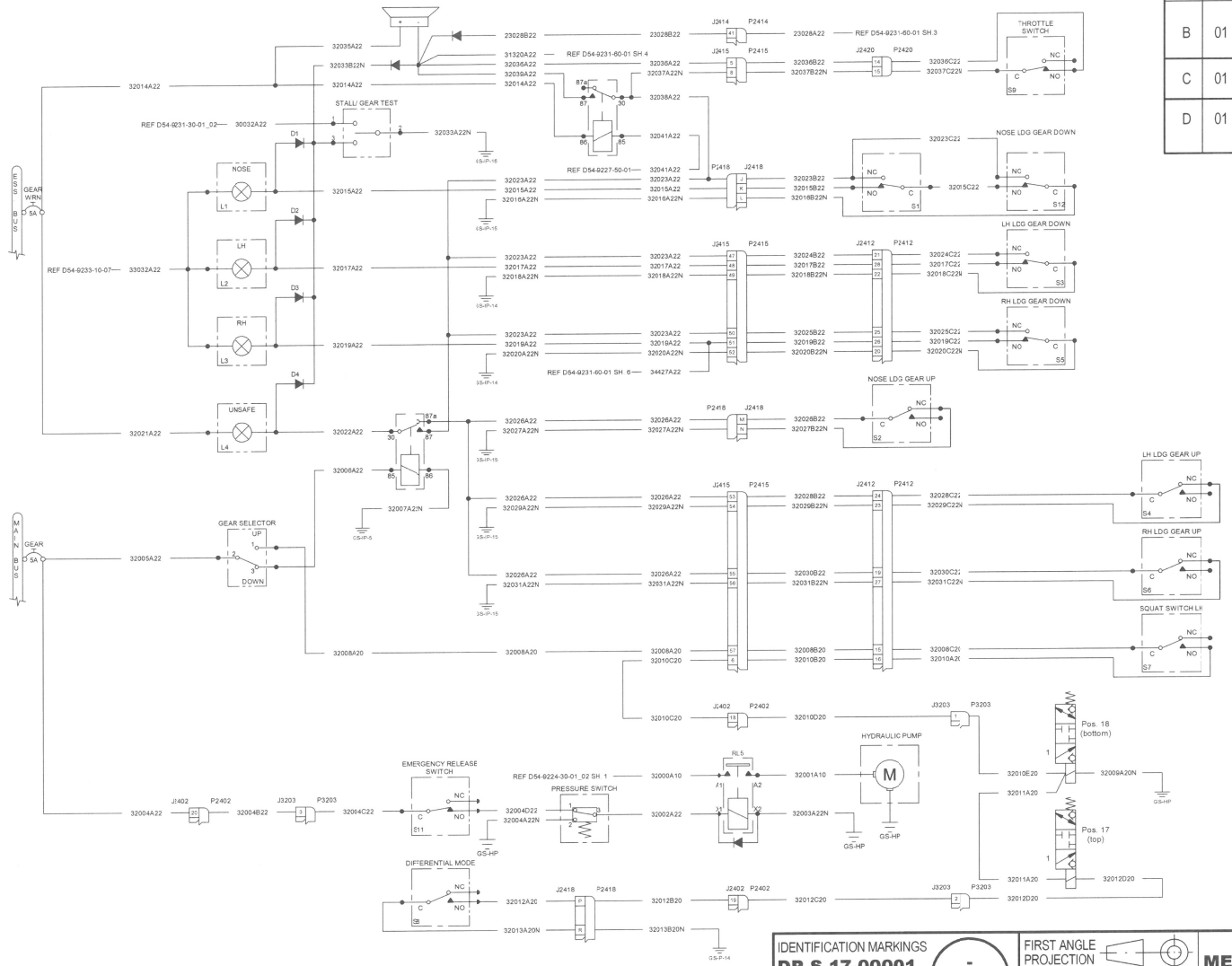
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DAIA

DWG.ORIG. CODE: 710197

REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
A	01	C,D/4	VÄM 50-002 Pinout of connector J/P2420 corrected. Wiring of gear up switches (S2, S4, S6) corrected.	13.03.2020
B	01	E/6	MÄM 50-033 Wiring for stall/gear test added. Wires 32C15C22 and 32023C22 added.	17.05.2021
C	01	F/6	OÄM 50-027/a Diode at Landing Gear Warning horn, wire 23028B22 added.	07.09.2023
D	01	F/6	MÄM 50-445 In Sector B6 NOSE LDG GEAR UP corrected to DIFFERENTIAL MODE. (Redlinecorr.)	18.07.2024



GENERAL NOTES

1. WIRING SHOWN WITH LANDING GEARS DOWN AND LOCKED, THROTTLE ON IDLE AND NOT POWERED.
2. S1, S3, S5, S12 CLOSED WHEN LANDING GEARS DOWN AND LCCKED, S7 OPENED WHEN AIRPLANE ON GROUND,
   S2, S4, S6 OPENED WHEN LANDING GEARS UP AND LOCKED, S7 CLOSED WHEN AIRPLANE AIRBORN.
   S8 OPENED WHEN NOSE LANDING GEAR DOWN, S8 CLOSED WHEN NOSE LANDING GEAR UP.
   S9 AND S10 CLOSED WHEN BOTH POWER LEVERS ARE IN IDLE POSITION.

IDENTIFICATION MARKINGS
DP-S-17-00001
CLASSIFICATION:
NONE
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO
ISO 2768- mK

FIRST ANGLE PROJECTION | DIMENSIONS **METRIC / mm** | PROJECT **DA 50 C** | **Diamond Aircraft Industries GmbH**

NAME / SIGN / DATE

DRAWN:
CHECKED:
RELEASED:

WEIGHT: N/A N/A
INTERCHANGEABLE PART **NO**

TITLE
SCHEMATIC, LANDING GEAR WIRING

DWG.NO. **D54-9232-00-01** REV **D**

NEXT HIGHER ASSY

FILENAME **D54-9232-00-01d.dft** SH **01** OF **01**

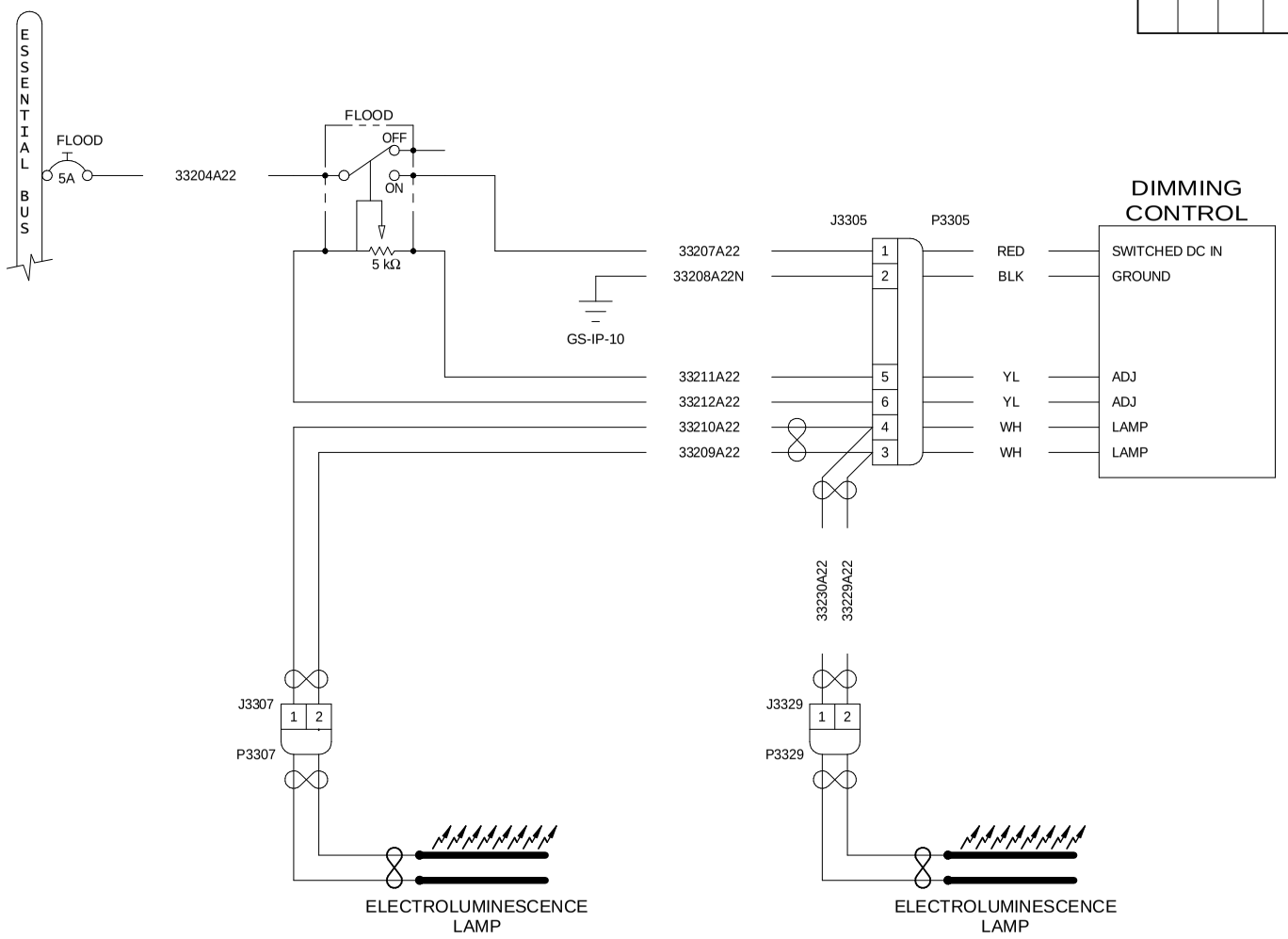
SCALE NTS
FORMAT **A3**
SOLID EDGE
PDM **NO**

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DAIA

DWG.ORIG. CODE: 710197

REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	21.11.2019



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:	TITLE **Schematic, Flood Light**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9233-10-01**	REV "-"
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9233-10-01.dft**	SH **01** OF **01**

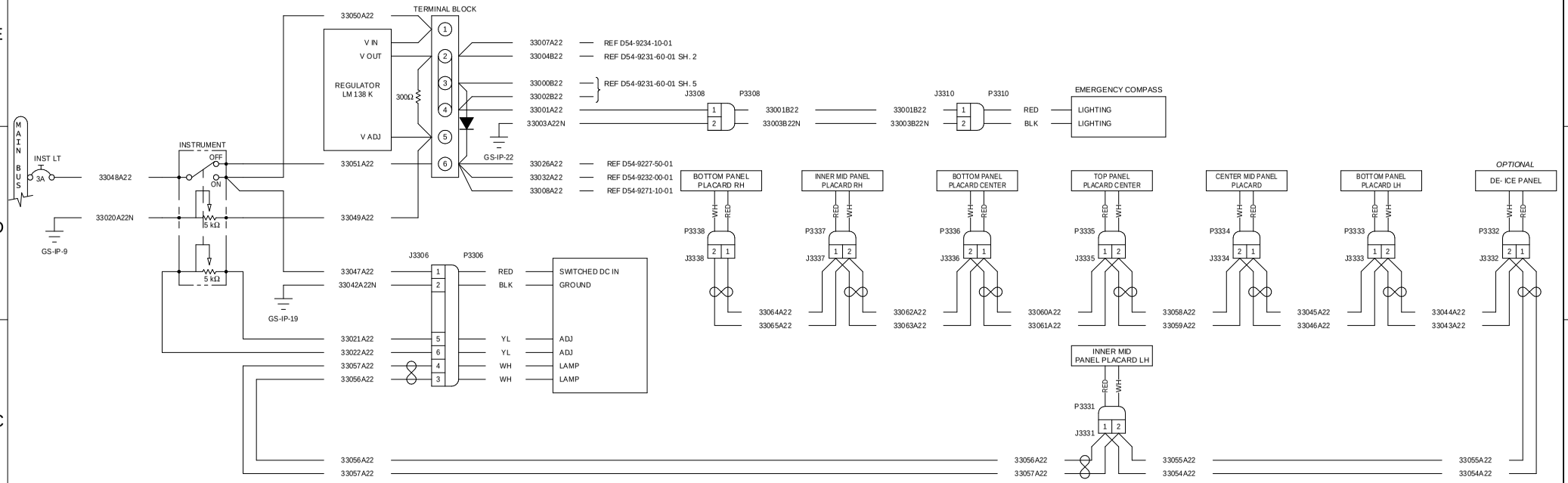
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DAIA

DWG.ORIG. CODE: 710197

REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	18.04.2019



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IDENTIFICATION MARKINGS
DP-S-17-00001
CLASSIFICATION:
NONE
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO
ISO 2768- mK
3.2
SCALE NTS
FORMAT **A3**
SOLID EDGE
PDM **N**

FIRST ANGLE PROJECTION
DIMENSIONS **METRIC / mm**
PROJECT **DA 50 C**
Diamond Aircraft Industries GmbH
NAME / SIGN / DATE
DRAWN:
CHECKED:
RELEASED:
WEIGHT: N/A N/A
INTERCHANGEABLE PART **NO**

TITLE
Schematic, Dimming Regulator and Placards

DWG.NO. **D54-9233-10-07**
REV "-"

NEXT HIGHER ASSY **N/A**
FILENAME **D54-9233-10-07.dft**
SH **01** OF **01**

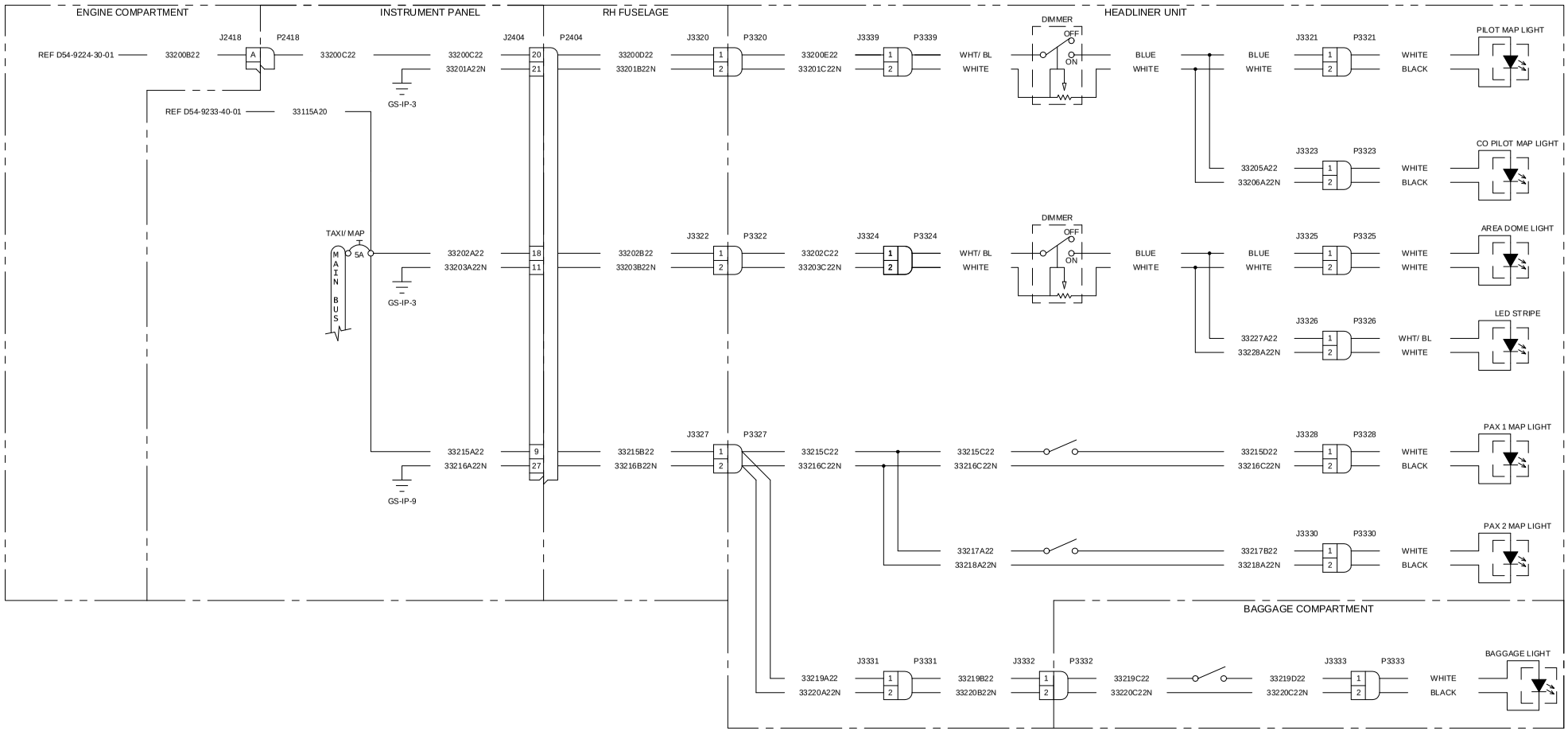
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DAIA

DWG.ORIG. CODE: 710197

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	MÄM 50-054 NEW DRAWING, SUPERSEDES D54-9233-20-01.	01.09.2020
A	01	ALL	MÄM 50-124 WIRING FOR BAGGAGE LIGHT ADDED.	01.09.2020



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **NO**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN: C. Dworak 16.06.2021	TITLE **Schematic, Interior Lights**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9233-20-01_01**	REV "A"
FORMAT **A3** SOLID EDGE PDM N	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9233-20-01_01a.dft**	SH **01** OF **01**

Diamond Aircraft Industries GmbH

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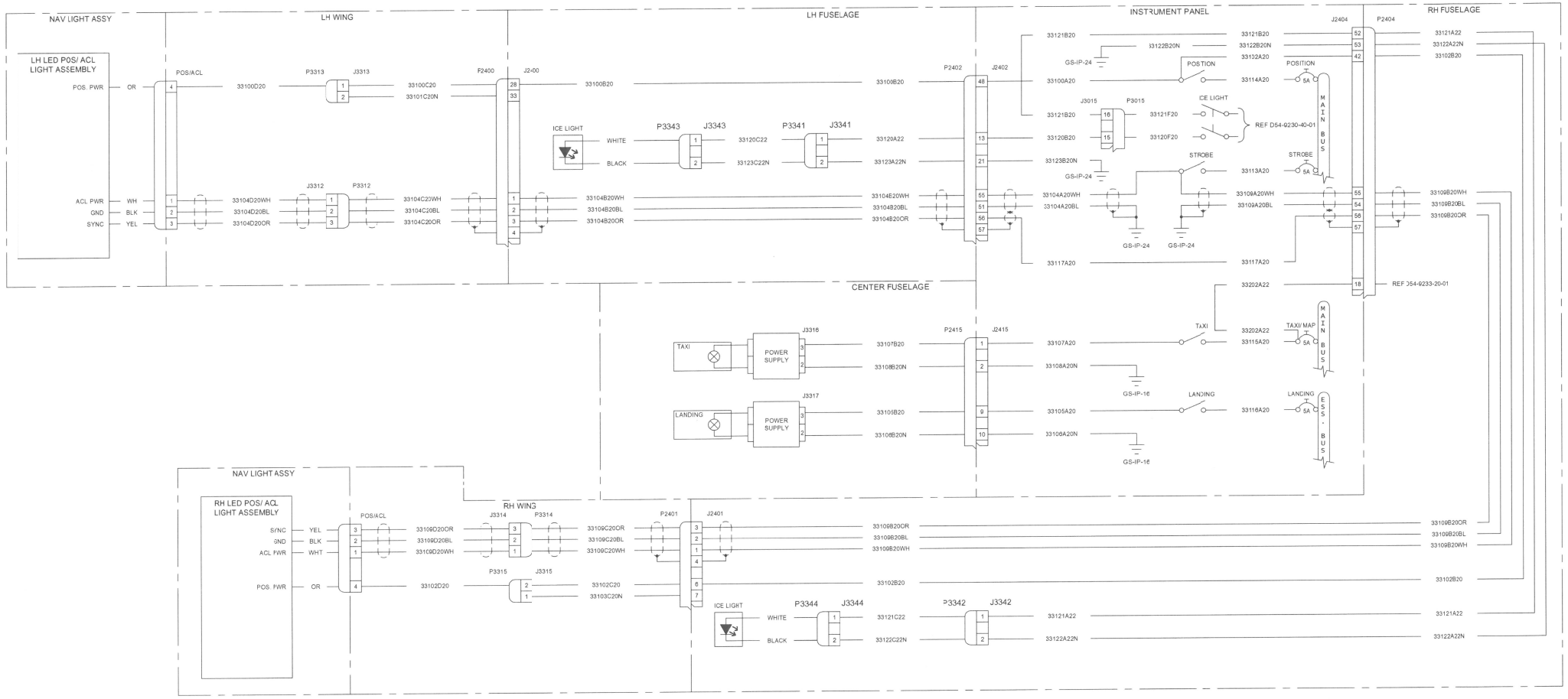
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DWG.ORIG. CODE: 710197

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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
D	01	A..L	OÄM 50-011/c Connectors P/J3343 and P/J3344 added.	11.06.2021
E	01	A..L	MÄM 50-172 At connector 3015 P and J corrected.	23.12.2021
F	01	A..L	MÄM 50-445 In Sector C6 connector J3314/P3314 pin numbers corrected. (Redlinecorr.)	18.07.2024



IDENTIFICATION MARKINGS **DP-S-17-00001** CLASSIFICATION: **NONE**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK**	NAME / SIGN / DATE	PROJECT **DA 50 C**
SCALE NTS	DRAWN:	WEIGHT: N/A N/A
FORMAT **A3** **SOLID EDGE** PDM **NO**	CHECKED:	INTERCHANGEABLE PART **NO**
	RELEASED:	TITLE **SCHEMATIC, EXTERIOR LIGHTING**
		DWG.NO. **D54-9233-40-01**
		REV F
		NEXT HIGHER ASSY
		FILENAME **D54-9233-40-01f.dft**
		SH **01** OF **01**

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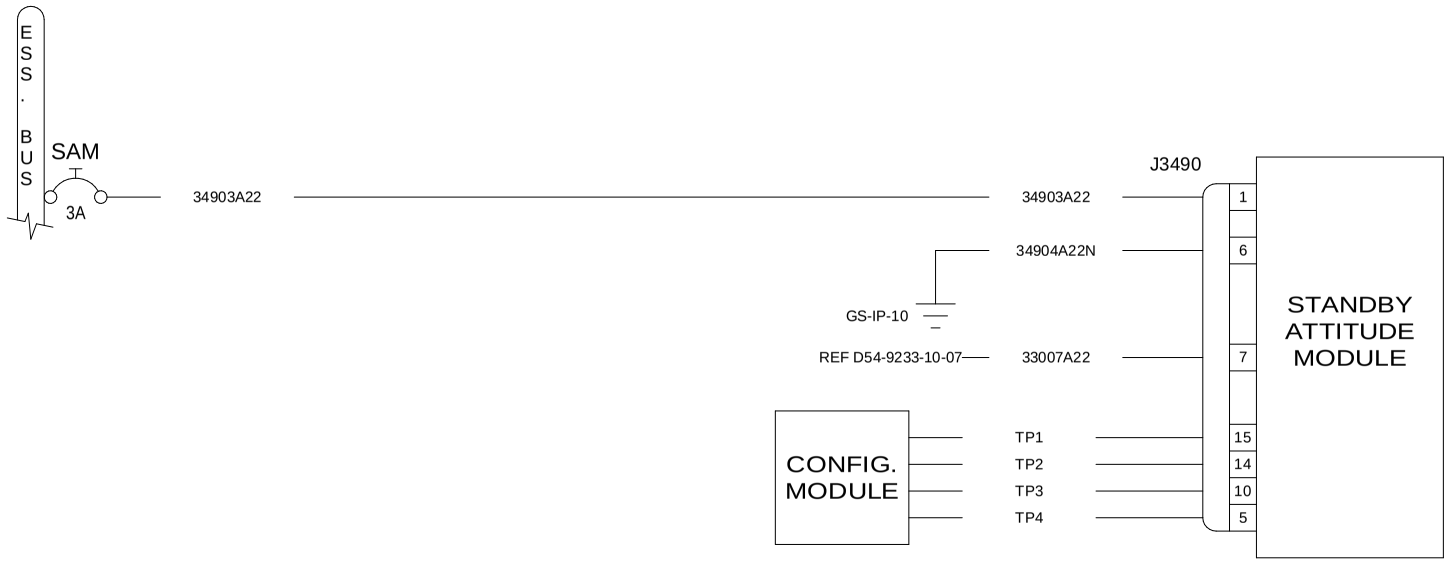
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	VÄM 50-002 NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	04.09.2019



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE	WEIGHT: N/A N/A	INTERCHANGEABLE PART **N/A**
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768-mK** — 3.2	DRAWN:	TITLE **Schematic, MD302 SAM Wiring**	
SCALE NTS	CHECKED:	DWG.NO. **D54-9234-10-01**	REV "-"
FORMAT **A3** — **SOLID EDGE** — PDM **N**	RELEASED:	NEXT HIGHER ASSY **N/A**	
		FILENAME **D54-9234-10-01.dft**	SH **01** OF **01**

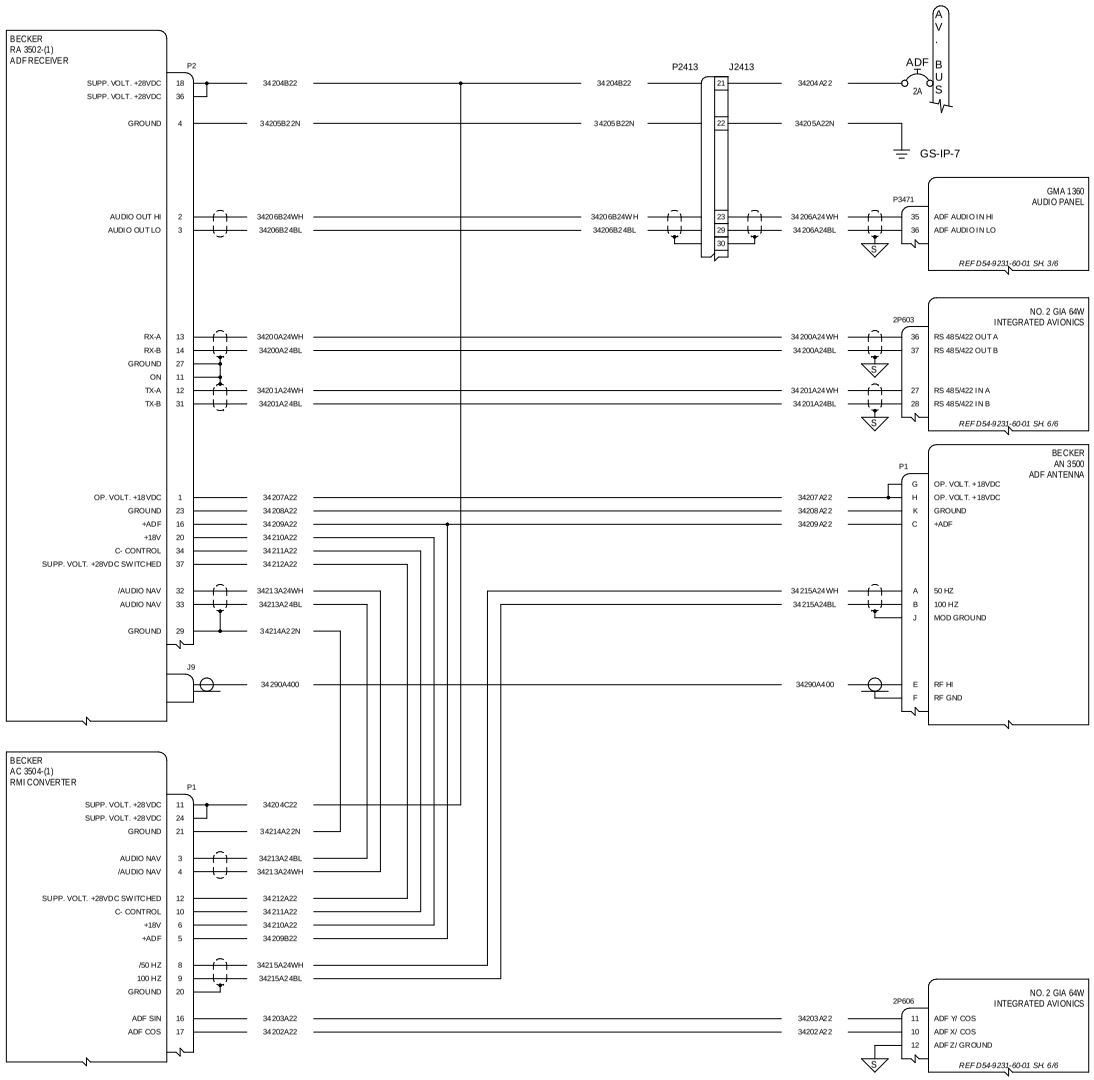
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	02.04.2019
A	01	ALL	OÄM 50-003 AT ADF RECEIVER JUMPER TO PIN 11 ADDED.	07.07.2020
B	01	E/4	MÄM 50-172 AT CONNECTOR P3471, WIRE 34206A24 SHIELD BLOCK ADDED.	30.11.2021



IDENTIFICATION MARKINGS **DP-S-17-00001**	- / -	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**
CLASSIFICATION: **NONE**		NAME / SIGN / DATE	
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK**	3.2	DRAWN:	
SCALE NTS		CHECKED:	
FORMAT **A3**		RELEASED:	
SOLID EDGE PDM **N**			

PROJECT **DA 50 C**

Diamond Aircraft Industries GmbH

WEIGHT: N/A N/A

INTERCHANGEABLE PART **NO**

TITLE

Schematic, ADF

DWG.NO. **D54-9234-50-01**

REV "B"

NEXT HIGHER ASSY **N/A**

FILENAME **D54-9234-50-01b.dft**

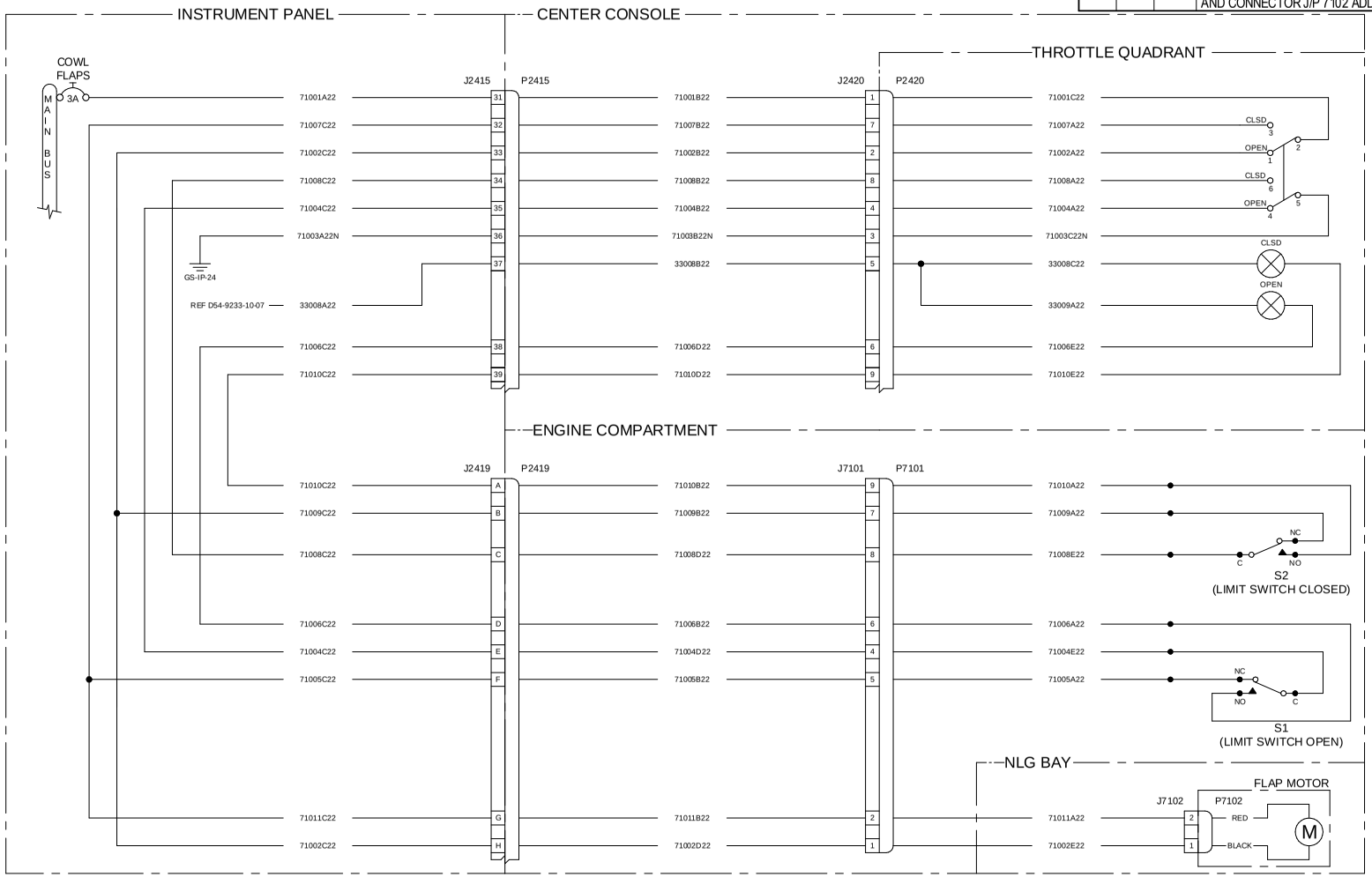
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REVISION				
REV	SH	ZONE	DESCRIPTION	DATE
-	01	ALL	NEW DRAWING, DOES NOT SUPERSEDE ANOTHER DRAWING.	04.09.2019
A	01	ALL	VÄM 50-002 PINOUT OF CONNECTOR J/P2420 CORRECTED AND CONNECTOR J/P 7102 ADDED.	25.03.2020



IDENTIFICATION MARKINGS **DP-S-17-00001**	FIRST ANGLE PROJECTION	DIMENSIONS **METRIC / mm**	PROJECT **DA 50 C**
CLASSIFICATION: **NONE**	NAME / SIGN / DATE		WEIGHT: N/A N/A
IF NOT OTHERWISE SPECIFIED GEOMETRIC DIMENSIONING AND TOLERANCING ACC. TO **ISO 2768- mK** 3.2	DRAWN:		INTERCHANGEABLE PART **NO**
SCALE NTS	CHECKED:		TITLE **Schematic, Cowl Flaps Wiring**
FORMAT **A3** SOLID EDGE PDM **N**	RELEASED:		DWG.NO. **D54-9271-10-01** REV "A"
			NEXT HIGHER ASSY **NA**
			FILENAME **D54-9271-10-01a.dft** SH **01** OF **01**

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