

OPTIONAL SERVICE BULLETIN

NO. OSB D4-061/3

SUPERSEDES OSB D4-061/2

I TECHNICAL DETAILS

I.1 Category

Optional.

I.2 Airplanes affected

Type: DA 40 D

Serial Numbers: 40.080, 40.084
D4.001 up to and incl. D4.184
D4.187 up to and incl. D4.253
D4.255 up to and incl. D4.278
D4.281
D4.288 up to and incl. D4.295
40.DS001 through 40.DS004

I.3 Time of Compliance

At owner's discretion.

I.4 Subject

Retrofit of the TAE 125-02-99 engine.
ATA-Code: 71

I.5 Reason

Optional installation of the TAE 125-02-99 engine since the TAE-125-01 engine will no longer be available from TAE in the future.

I.6 Concurrent Documents

None.

I.7 Approval

The technical information or instructions contained in this document relate to the Design Change Advisories No. MÄM 40-256/a and MÄM 40-347, which have been approved under the authority of DOA No. EASA.21J.052.

The technical content of this document has been approved under the authority of DOA No. EASA.21J.052.

I.8 Accomplishment / Instructions

WI-OSB-D4-061, latest effective issue must be complied with.
A new noise certificate must be applied for.

I.9 Mass (Weight) and CG

New weighing is prescribed with this change.

II PLANNING INFORMATION

II.1 Material & Availability

The Work Instruction WI-OSB D4-061 is available through Diamond Aircraft Industries GmbH.

Appropriate necessary materials are available through Thielert Aircraft Engines and Diamond Aircraft Industries GmbH. For further information, please refer to the mentioned work instruction.

II.2 Special Tools

None.

II.3 Credit

None.

II.4 Labor effort:

Approx. 25 hours.

II.5 Reference Documents

DA 40 Series Airplane Maintenance Manual Doc. No. 6.02.01, latest effective issue

III REMARKS

1. All measures must be carried out by a certified aircraft mechanic at an authorized TAE and DAI Service Center.
2. Accomplishment of the measures must be confirmed in the log book.
3. In case of any doubt, contact Thielert Aircraft Engines or Diamond Aircraft Ind.



Diamond Aircraft Industries GmbH
N. A. Otto-Straße 5
2700 Wiener Neustadt
Austria

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22-Nov-2012

EXECUTION REPORT for OSB D4-061/3

AIRPLANE DATA

Airplane Serial Number: _____

Airplane Registration: _____

Airplane Operator: _____

Hours of operation of airplane: _____

No. of landings: _____

Hours of operation-engine: _____

Typical operation of airplane: private, club, training, other _____

Date, Name, Sign

Please fax the completed form to Fax No. +43-2622-26700-1369 or e-mail to
airworthiness@diamond-air.at

WORK INSTRUCTION

WI-OSB D4-061

TAE125-02-99 Preassembled Engine Retrofit Installation

(Change from TAE 125-01 to TAE 125-02-99)

I GENERAL INFORMATION

I.1 Subject

Retrofit Installation of the TAE125-02-99 engine.

I.2 Reference Documents

DA 40 Series Airplane Maintenance Manual, Doc. No. 6.02.01, latest effective issue MSB D4-045/3 or later revision.

I.3 Remarks

- a) All measures must be carried out by a certified aircraft mechanic at an authorized TAE and DAI Service Center.
- b) All works, particularly those that are not especially described in this work instruction, have to be carried out in accordance with the referenced maintenance manual.
- c) Part numbers of Thielert Aircraft Engines call up the revision level in the last two digits. With this work instruction only TAE part numbers with the mentioned revision levels are approved.

II DRAWINGS, SPECIAL TOOLS & MATERIALS

II.1 Drawings

- D4D-2401-40-00-SB, Adapter Harness, Central Connector, latest effective revision.
- D4D-2401-41-00-SB, Cable, Glow Rel +, latest effective revision.
- D4D-2406-26-00-SB, Glow Harness, latest effective revision.
- D4D-2406-27-00-SB, Adapter Harness, Coolant Level, latest effective revision.
- D4D-2433-01-00, Alternator Regulator Installation, latest effective revision.
- D4D-7807-00-00-SB Exhaust Installation, latest effective revision.
- D41-5312-21-99-SB Reinforcement of firewall, latest effective revision.
- D4D-7103-00-00 sheet 4 Firewall construction, latest effective revision.
- D4D-7116-13-99-SB Lower cowling, latest effective revision.
- D4D-7116-13-98-SB Cowling Insert, latest effective revision.

II.2 Special Tools

- Crimp Tool, "Super Champ", Tyco P/N 720781-3 or equivalent
- Crimp Tool, Raychem P/N AD-1377 or equivalent
- Crimp Tool, Tyco P/N 4102509 or equivalent

II.3 Material

All material listed within this table must be ordered at Diamond Aircraft Industries GmbH.		
Qty	Description	Part Number
1	Adapter Harness, Central Connector	D4D-2401-40-00-SB
1	Cable, Glow Rel +	D4D-2401-41-00-SB
1	Fuse Assy, 5A	D4D-2401-31-00
1	Glow Harness	D4D-2406-26-00-SB
1	Adapter Harness, Coolant Level	D4D-2406-27-00-SB
2	Cable Guide	D4D-7103-00-04
1	Cowling Insert	D4D-7116-13-98-SB
2	MAP Line Fitting	D4D-7156-11-00
2	Fitting	P-EVW 3/8 J/C ALU
1	Ring Terminal	373-386
1	Ring Terminal	31890
1	Ring Terminal	0-0328998-0
2	Rivet	DIN7337-A3.2x8-A2
2	Rivet	DIN7337-A3.2x12.7-A2
2	Washer	DIN134-A3.2-ZP
1	Terostate	180TE43697
3 m	Sleeve for cable loom	ROUNDIT2000NX5-5
50	Cable Tie	PLT1MM30
50	Cable Tie	PLT2SM30
50	Cable Tie	PLT4SM30
0.2 m	Edge protection	GE52-C69
1	Sealer PR812	PR812 KIT25
2	Clamp	SGTS_70-90_9W1C7
2	Clamp	05392812003100
1	LN-Screw M6 x 18	LN9037-M6x18
2	LN-Screw M6 x 26	LN9037-M6x26

All material listed within this table must be ordered at Diamond Aircraft Industries GmbH.		
Qty	Description	Part Number
1	Bonding wire	DS BW1-B14-RB6-RB4-47
2 x 2.5 m	Rubber hose	3225-10052
2 x 1.0 m	Spiral protection	T50 F-TL
10	Socket	163084-2

All material listed within this table must be ordered at Thielert Aircraft Engines.		
Qty	Description	Part Number
1	Engine preassembled	05-7200-K000101
4	Spring	20-7810-H001601
1	Heat shield	30-7120-17166R2 (20-7120-H004401)
1	Sceet-hose	40-7160-13138R3
1	Inlet duct for Intercooler	50-7110-H000201
1	Bonding wire	50-7150-H000101
1	Altreg Loom DA40 (Thielert)	50-7150-E000302
1	Bonding wire	50-7150-H000601
1	Bonding wire	50-7150-H000701
1	Blow By	50-7250-H001601
1	Breather line	50-7250-H002301
1	Strut	50-7520-H000201
1	Tube	50-7520-H000501
1	Mounting plate	50-7520-H000902
1	Strut	50-7520-H001101
1	Mounting plate	50-7520-H001202
2	Hose connector	50-7520-H001302
1	Coolant tank	50-7520-H001602
1	Water cooler	50-7520-H002104
2	Rubber washer	50-7520-H002301
1	Oil line	50-7250-H003101

All material listed within this table must be ordered at Thielert Aircraft Engines.		
Qty	Description	Part Number
1	Turbo-pipe	50-7520-H006104
1	Exhaust pipe	50-7810-H000202
3	Nut	52-7120-H000501
1	Wiggins ring	52-7520-H001301
1	Silicone hose 90°	52-7520-H002801 (NM-0000-0056801)
2	Silicone hose 45°	52-7520-H002901 (NM-0000-0056901)
26	Washer	NM-0000-0003801
1	Washer	NM-0000-0004001
1	Ball joint	NM-0000-0014501
4	Washer	NM-0000-0014801
5	Washer	NM-0000-0015101
2	Clamp	NM-0000-0015501
1	Clamp, oil line	NM-0000-0015901
2	Clamp	NM-0000-0016001
10	Clamp	NM-0000-0016901
10	Clamp	NM-0000-0017001
1	Nut	NM-0000-0017301
9	Nut	NM-0000-0018001
19	Nut	NM-0000-0018101
7	Screw	NM-0000-0019301
2	Screw	NM-0000-0019501
4	Screw	NM-0000-0019601
4	Screw	NM-0000-0019701
1	Screw	NM-0000-0019801
2	Clamp	NM-0000-0021501
10	Clamp	NM-0000-0021601
1.3 m	Compri-seal	NM-0000-0022701
2	O-seal	NM-0000-0022801

All material listed within this table must be ordered at Thielert Aircraft Engines.		
Qty	Description	Part Number
1	Screw	NM-0000-0034201
1	Clamp, engine mount	NM-0000-0041001
0.07m	Silicone hose, slotted	NM-0000-0042401
0.05m	Edge protection	NM-0000-0045501
1	Clamp	NM-0000-0054301
9	Washer	NM-0000-0058501
1	Screw	NM-0000-0062401
1	Rubber damper	NM-0000-0109901
2	Silicone hose	NM-0000-0139801
1	Clamp, thermostat	NM-0000-0142701
3	Rubber damper	NM-0000-0149501
3	Screw	NM-0000-0150001
1	Silicone hose	NM-0000-0153401
1	Silicone hose 90° 30/35 mm	NM-0000-0153501
1	Rubber damper	NM-0000-0159101
1.0 m	Rubber hose	NM-0000-0160101
0.8 m	Rubber hose	NM-0000-0160201
1	Screw	NM-0000-0163701
3	Silicone hose 90°	NM-0000-0167501
1*) a. r.	CED-125	02-7730-5501-(06)-(02)

*) Required only if a **CONVENTIONAL** (G1000 not installed) instrument panel is installed.

All material listed within this table must be ordered at Diamond Aircraft Industries GmbH (as required)		
Qty (as required)	Description	Part Number
1*) a. r.	Adapter ring	D4D-7807-00-30
1*) a. r.	Ball joint	D4D-7806-60-05
1*) a. r.	Muffler	D4D-7807-10-00
2*) a. r.	Screw	LN9037-M6x14
4*) a. r.	Washer	DIN9021B-M6
2*) a. r.	Nut	LN9338-M6
1*) a. r.	Clamp	D4D-7807-14-00
1 **) a. r.	Firewall lead-through	D4D-7103-01-30_1
2 **) a. r.	Plate	D4D-7103-00-04
***) a. r.	Material (glass fiber cloth) listed in drawing D41-5312-21-99-SB (For equivalent products refer to AMM.) Resin and Hardener acc. to AMM.	n. a.
100 g***) a. r.	Cerafelt Bonding Agent OG 800	9193
1 ****) a. r.	Orifice	D4D-3716-00-30_1
0.1 m ****) a. r.	Heat shrink	727020-1
2 ****) a. r.	Screw	DIN7985-AM4X20-A2
8 ****) a. r.	Washer	DIN125-A4.3-A2
2 ****) a. r.	Locknut	DIN985-M4-A2
2 ****) a. r.	Nut	DIN934-M4-A2
4 ****) a. r.	Lockwasher	DIN6797-JM4-A2

*) Depending on Mod-Status of the Airplane (Required if the muffler was not installed)

**) Depending on Mod-Status of the Airplane (Required for Airplanes with Serial Numbers from D4.001 up to and incl. D4.110 and D4.112 up to and incl. D4.129)

***) Depending on Mod-Status of the Airplane (Required if the suction pump is in use)

****) Only for airplanes with **GARMIN G1000** instrument panel installed.

III INSTRUCTIONS

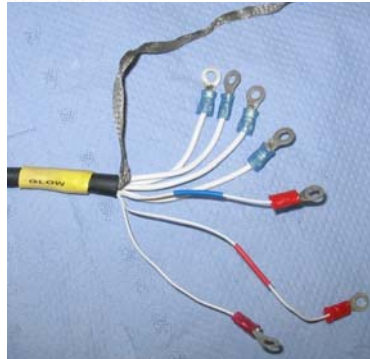
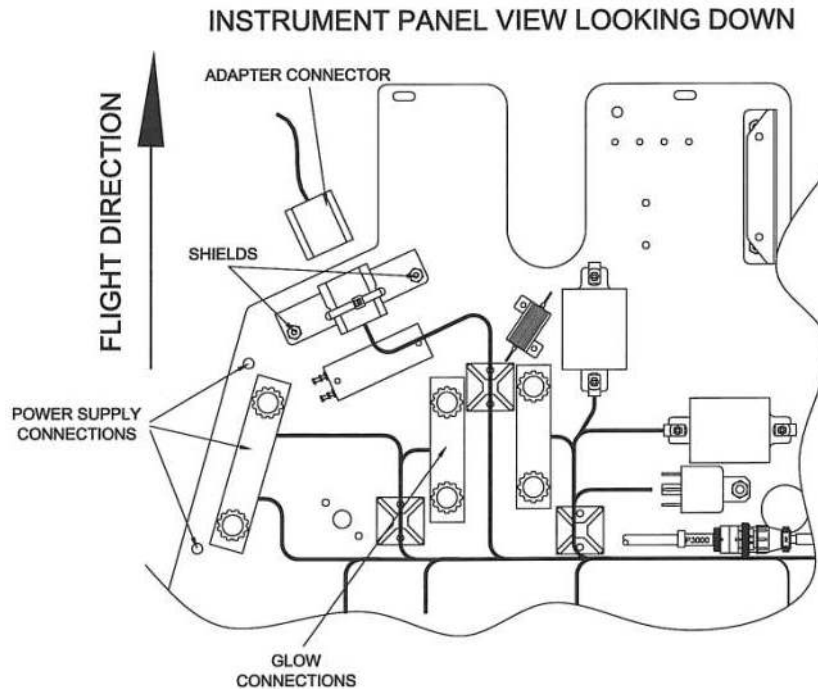
GENERAL:

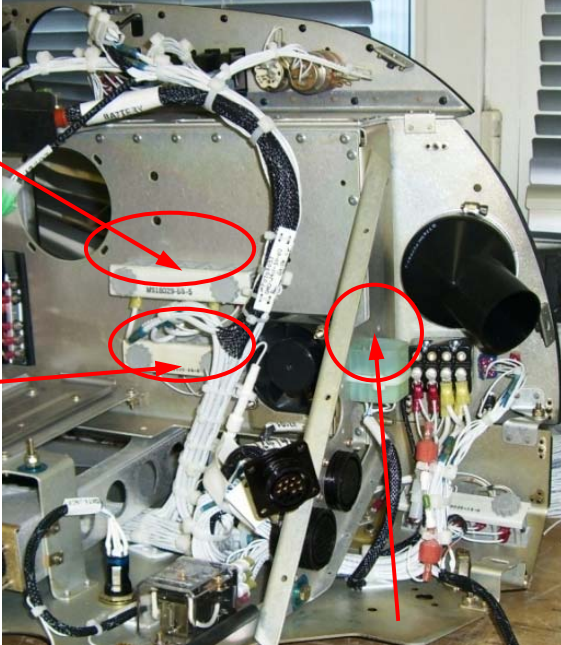


Torque all screws without special torque acc. to the values given in the AMM, Section 20.
Secure all screws with Loctite 243 and apply torque seal. Lock wire screws as required.


1	Remove engine cowlings (refer to AMM, Section 71-11)
2	Remove the Propeller. (refer to AMM, Section 61-10)
3	Drain the coolant system (refer to AMM, Section 75-01)
4	Drain the engine oil (refer to AMM, Section 72-00)
5	Remove the coolant cooler and the intercooler (refer to AMM, Section 75-01 and Section 81-00)
6	Disconnect airplane main battery (refer to AMM, Section 24-34)
7	Disconnect coolant level sensor at the ring terminal.
8	Disconnect ECU backup battery.
9	Remove the instrument panel cover.
10	Disconnect alternator excitation battery (refer to AMM, Section 24-33).
11	Disconnect alternator and starter (all wires and connectors).
12	Remove the cover of the relay panel.
13	If installed, disconnect the Thielert Glow Loom at the glow relay.
14	Remove wire 24004A10 (Glow Power) clear of the airplane.
15	Remove the screws of the relay panel and loosen the relay panel from the firewall.
16	Disconnect Thielert harness on the engine (all connections and shields). Remove fire sleeve.


17

For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, disconnect Thielert harness in the instrument panel (Glow, ECU A & B, GND's, Adapter- connector, Load 1 & 2 connectors, CAN connector and all shields).
NOTE: Load 1 & 2 and CAN connectors are not shown in the figures below.



<p>18</p>	<p>For airplanes with GARMIN G1000 instrument panel, disconnect Thielert harness in the instrument panel (Glow, ECU A & B, GND's, Adapter- connector, Load 1 & 2 connectors, CAN connector and all shields).</p> <p>NOTE: Load 1 & 2 and CAN connectors are not shown in the figures below.</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Power Supply Connections</p> </div>  </div> <div style="display: flex; align-items: center; margin-top: 20px;"> <div style="margin-right: 20px;"> <p>Glow Connections</p> </div>  </div> <div style="display: flex; align-items: center; margin-top: 20px;"> <div style="margin-right: 20px;"> <p>Adapter Connector</p> </div>  </div>
<p>19</p>	<p>Remove TAE125-01 engine (refer to AMM Section 71-01, item B).</p>
<p>20</p>	<p>Disconnect the FADEC at the two inline connectors.</p>
<p>21</p>	<p>Remove locknuts and washers of the instrument panel shock mounts (6).</p>

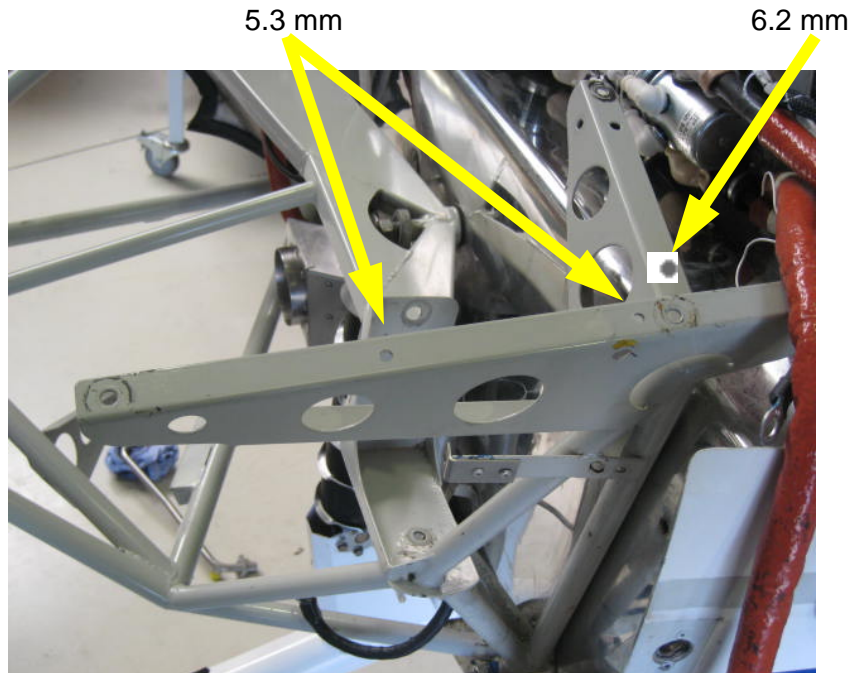
22	<p>Disconnect all connectors and cables on the LH instrument panel side, necessary to move the panel backwards as far as possible.</p> <p>NOTE: If the Modification of the fire wall is required (up to and including serial number D4.129), remove the instrument panel.</p>
23	<p>Drill out rivets of engine loom cover on fire wall and remove sealant and cover. Remove the Teflon bushing (firewall to instrument panel).</p> 
24	<p>Remove the Thielert engine harness by moving it backwards under the pilot's seat.</p>
25	<p>Disconnect static and MAP hoses from the FADEC.</p>
26	<p>Remove the FADEC clear of the airplane.</p>
27	<p>For airplanes with CONVENTIONAL (G1000 not installed) instrument panel, disconnect CED-125 and remove it clear of the airplane.</p>
28	<p>If OSB D4-036 (external alternator regulator installation on the firewall) has been performed, remove the regulator and its harness.</p>
29	<p>Disconnect EPU ground cable, wire number 24405A6N.</p>
30	<p>Disconnect braided cable between the engine and relay panel, that runs along the Thielert engine harness.</p>
31	<p>Remove TAE- engine harness.</p>
32	<p>Remove the alternator regulator (if alternator regulator is installed under the pilot seat)</p>

33	<p>Picture after disconnections:</p> 
34	<p>Clean engine compartment, engine mount and fire wall.</p>
35	<p>Carry out an inspection of the engine mount, the remaining cables and fuel lines. Examine the engine mount for cracks and corrosion. Clean and examine the intercooler, oil cooler and air box of the heat exchanger. Check all remaining parts for damage.</p>
36	<p>Modifications on firewall:</p> <p>For the following serial numbers a modification of the firewall is necessary. (Reinforcement of firewall due to the enlargement of the hole to 64 mm) D4.001 up to and incl. D4.110 and D4.112 up to and incl. D4.129)</p> <p>Remove the L-Bracket, where the instrument panel was installed. Remove the heat shield of the LH engine mount attachment point.</p> <p>Reinforce the firewall acc. drawing D41-5312-21-99-SB. Bond in the L-Bracket for the instrument panel acc. to drawing D41-5312-21-00_1 (Detail Y) Resin system, post curing acc. to AMM, Section 51. Bond in the heat shield with Cerafelt Bonding Agent OG800</p> <p>Drill hole for the harness acc. to drawing D4D-7103-00-00 sheet 4.</p>
37	<p>Modification of upper Cowling:</p> <p>Cut out the inlet duct of the coolant-cooler from upper Cowling. Take care not to damage carbon layers underneath. Apply fire retardant paint acc. to AMM, Section 51-30.</p> <p>Modification of lower Cowling:</p> <p>Establish cutout in bottom cowling i.a.w. Dwg. No. D4D-7116-13-99-SB. Sand bonding area in bottom cowling. Do not damage the carbon layers. Remove peel ply from cowling insert, P/N D4D-7116-13-98-SB. Bond in cowling insert with Terostat. Install 2 blind rivets i.a.w. Dwg. No. D4D-7116-13-99-SB. Apply fire retardant paint in repair area acc. to AMM, Section 51-30.</p>

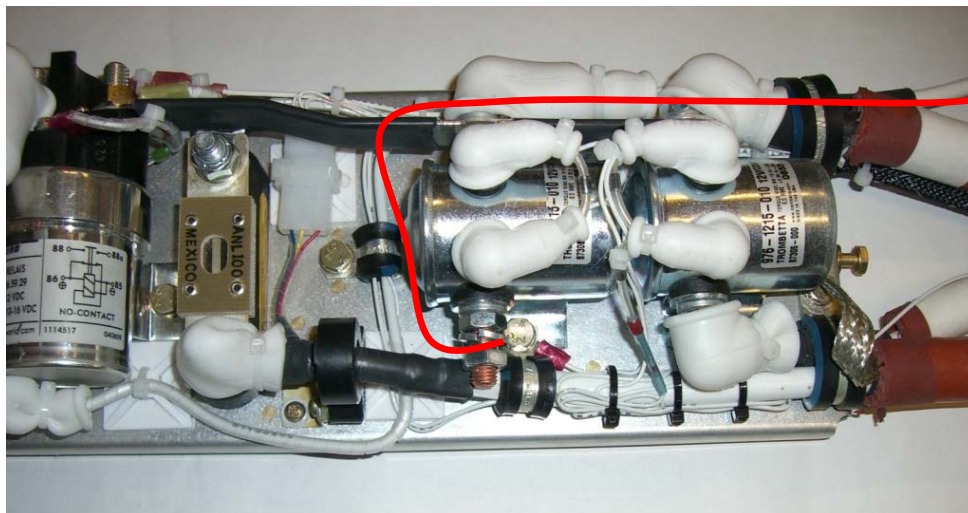
38 Modification of engine mount:

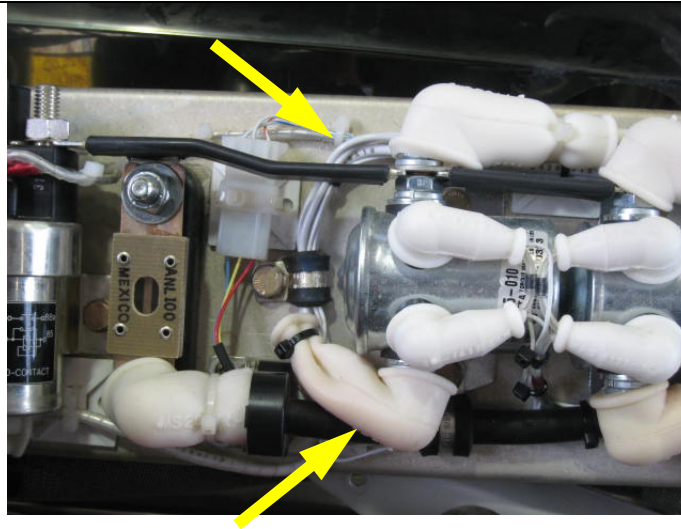
Drill holes diameter 5.3 mm into engine mount. Use P/N 50-7520-H001202 as template to mark the positions for the holes.

Drill hole diameter 6.2 mm into engine mount. Use P/N 50-7520-H000903 as template to mark the position for the holes.



39 Connect Glow PWR, wires 74002A14 and 74003A14 (part of the glow harness, D4D-2406-26-00-SB) to the Glow Relay installed in the fwd relay panel.





40 Install engine onto engine mount:

Necessary new material:

- 1) 1 x 05-7200-K000101 (Engine preassembled)
- 2) 1 x NM-0000-0163701 (Screw)
- 3) 4 x NM-0000-0014801 (Washer)
- 4) 3 x 52-7120-H000501 (Nut)
- 5) 1 x NM-0000-0062401 (Screw)
- 6) 1 x NM-0000-0034201 (Screw)
- 7) 1 x NM-0000-0004001 (Washer)
- 8) 1 x 30-7120-17166R2 (Heat shield) (20-7120-H004401)
- 9) 1 x 50-7520-H0011101 (Strut)

Disconnect the engine from the transport frame and lift the engine up by using the following lifting gear lengths:

Gearbox: 910 mm, Cylinder head back: 580 mm, Cylinder head front: 600 mm

Remove stud from the left rear engine mount.

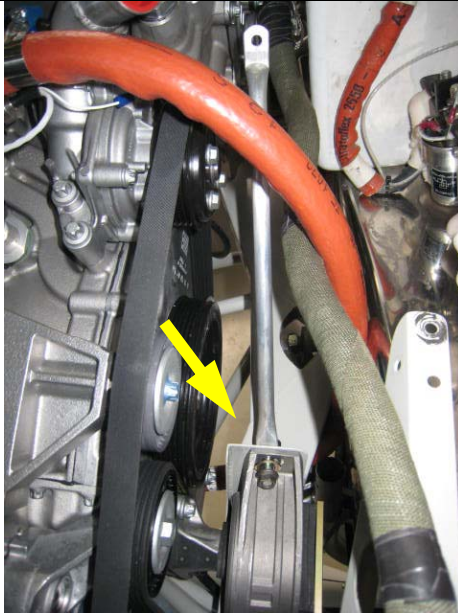
Remove the oil return line between turbo charger and oil pan.

Lower the engine slowly above the engine mount.

Install the screw, and the heat shield on the front engine shock mount (item 2,3,4 and 8)

Adjust the rear right engine shock mount and install screw and washer on the bottom of the bearing (item 6 and 7).

Install the screw on the side of the rear left mount (item 3, 4, 5 and 9), tighten screw in a later step.

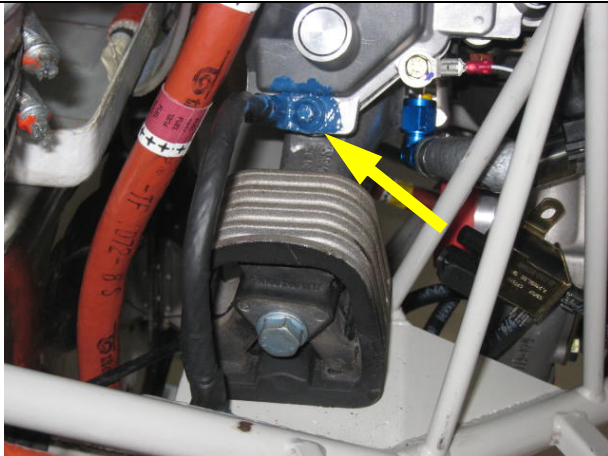


Torque rear right screw on engine shock mount with 55 Nm.
Torque rear left screw on engine shock mount (item 6) with 25 Nm.
Torque the top screw on engine shock mount (rear, left) in a later step.
Torque the screw on the front engine shock mount with 55 Nm.
Remove the hoisting device.

Connect the bonding wires according the following pictures:



Torque screw on front bearing with 40 Nm.

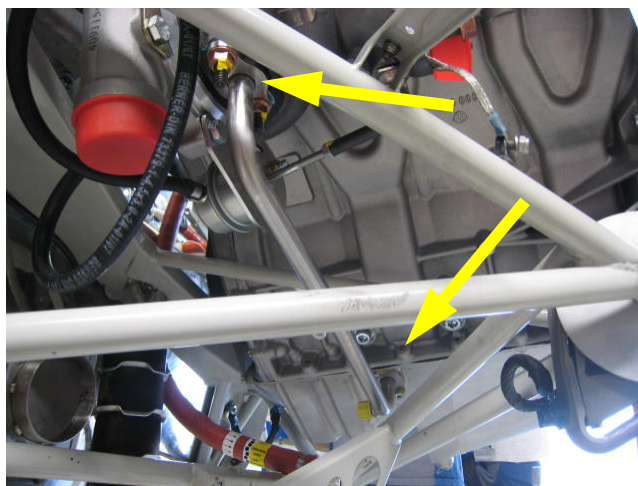


Torque screw above rear right engine shock mount with 12 Nm.



Torque screw on rear left bearing with 20 Nm.

Reinstall the oil return line between turbocharger and oil pan.



Torque the screws on the oil pan with 10 Nm.
Torque the screws on the turbo charger with 20 Nm

41 Modify and install the oil cooler:

Remove the 90°-fittings from the oil cooler and clean the thread.
Bond in the fittings with Loctite 572. Adjust the left fitting approx. 20° inboard and the right fitting approx. 20° outboard. Do not over torque and damage the thread of the oil cooler.



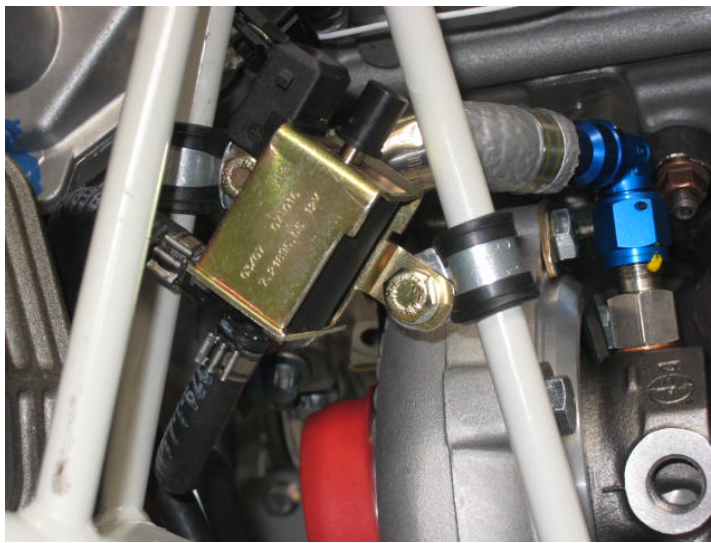
Install the oil cooler onto engine mount. Use screws nuts and washers from former installation.
Torque the oil lines with 55 Nm on the connection to the oil cooler and with 45 Nm on the connection to the engine.

42 Install the Waste Gate Regulator Valve:

Necessary new material:

- 2 x NM-0000-0018101 (Nut)
- 2 x NM-0000-0019601 (Screw)
- 2 x NM-0000-0003801 (Washer)
- 2 x NM-0000-0015501 (Clamp)
- a. r. Tie wraps

Remove the hoses from the Waste Gate Regulator Valve and install the valve with the clamps onto the engine mount. Shorten the hoses as required. Reconnect the hoses and install tie wraps as required.



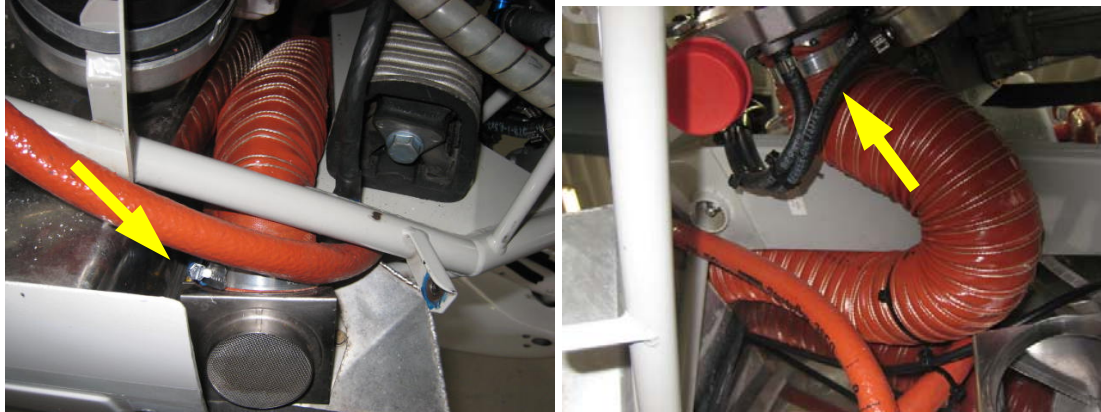
43 Install the sceet-hose between turbo charger and air box:

Necessary new material:

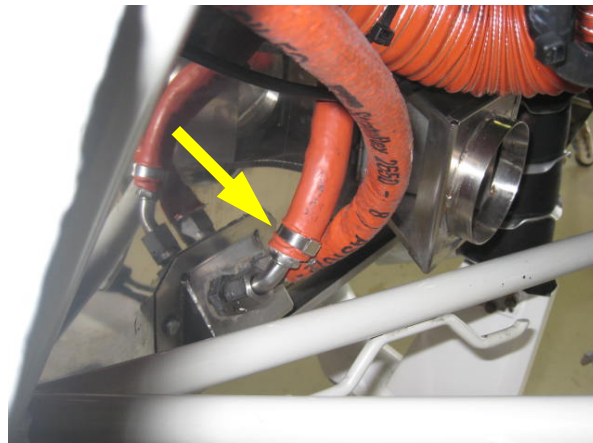
1 x 40-7160-13138R3 (Sceet-hose)

2 x NM-0000-0017001 (Clamp)

a. r. Tie wraps



44 Connect the fuel lines onto the firewall.



45 If instruments requiring the suction pump are installed:

Remove the cap of the suction pump, install the orifice D4D-3716-00-30_1 into the tube and connect the hose. Shorten the hose as required.



46 Connect the fuel line to the filter bowl. Secure the fuel line with lock wire

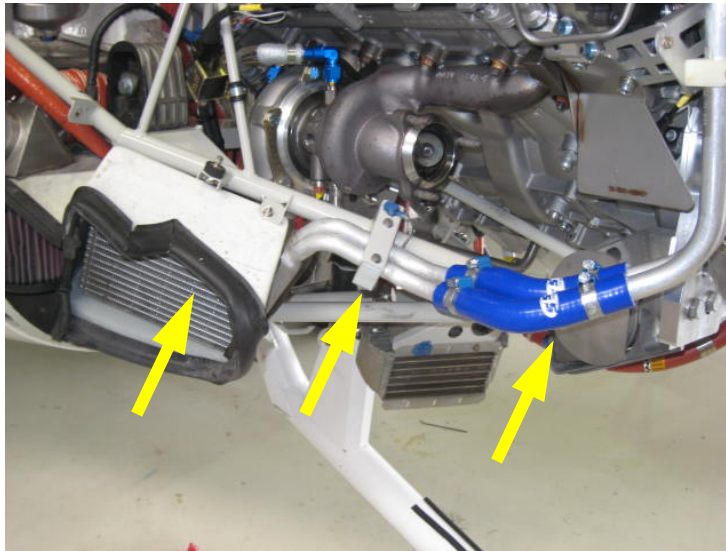
- 47 Install the heat exchanger box and the heat exchanger.
Replace the nuts (heat exchanger box, bonding wire, mounting bracket for pipes)

Necessary new material:

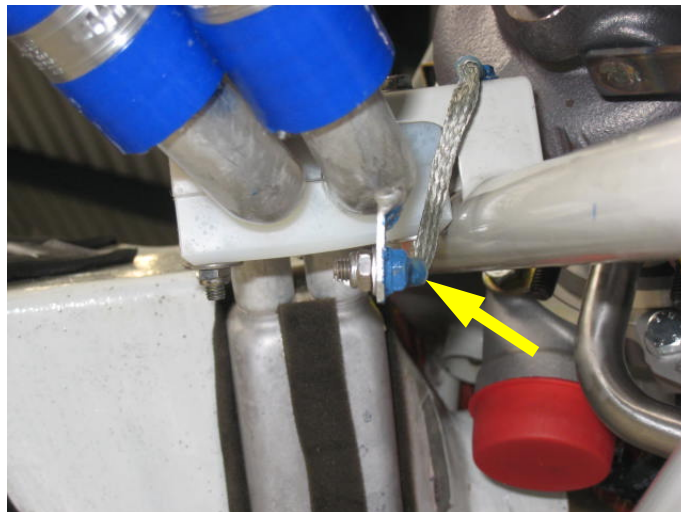
2 x NM-0000-0139801 (Silicone hose)

4 x NM-0000-0016901 (Clamp)

5 x NM-0000-0018001 (Nut)



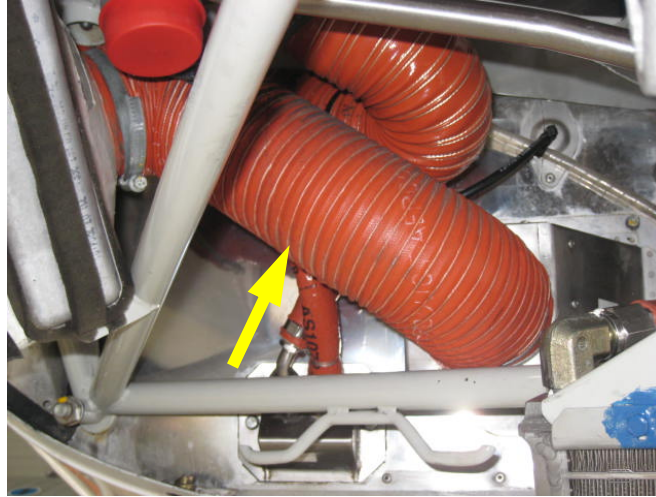
Shorten the silicone tubes on both sides as required (approx. 20 mm each side)
Tighten the clamps with 8 Nm.



Connect the bonding wire

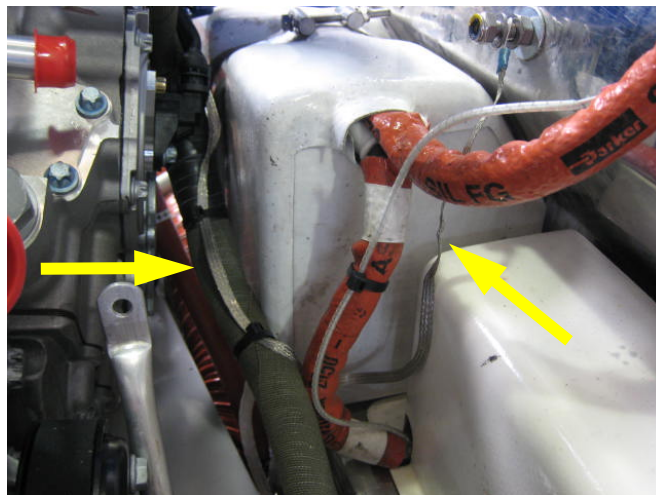
48 Install the scat-hose between heat exchanger box and firewall, replace the clamps:

Necessary new material:
2 x SGTS_70-90_9W1C7 (Clamp)



49 Shorten the bonding wire of the engine as required (approx. 800 mm) Tighten bonding wire on connection point on fire wall in a later step.

Required new material:
1 x 0-0328998-0 (Ring terminal)
a. r. Tie wraps



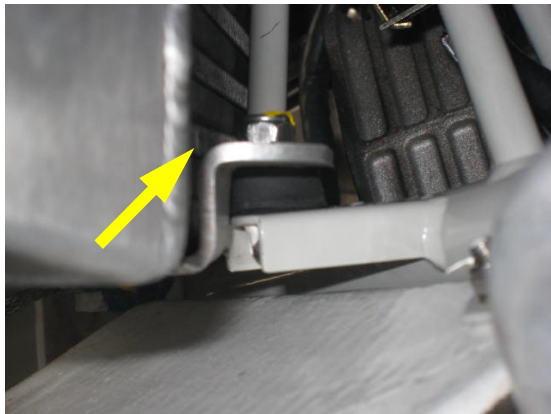
50 Install the intercooler, replace the rubber damper:

Necessary new material:

- 1 x 52-7520-H001301 (Wiggins ring)
- 2 x 50-7520-H002301 (Rubber washer)
- 1 x 50-7520-H006104 (Turbo-pipe)
- 2 x NM-0000-0022801 (O-seal)
- 8 x NM-0000-0017001 (Clamp)
- 4 x NM-0000-0018101 (Nut)
- 1 x NM-0000-0153401 (Silicone hose)
- 1 x NM-0000-0109901 (Rubber damper)



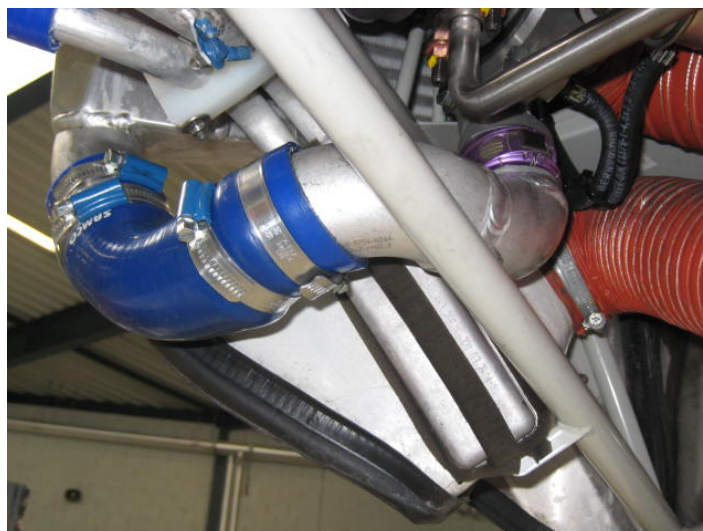
Install the intercooler on the engine mount. Install the rubber washers between engine mount and intercooler.



Use new self locking nuts.



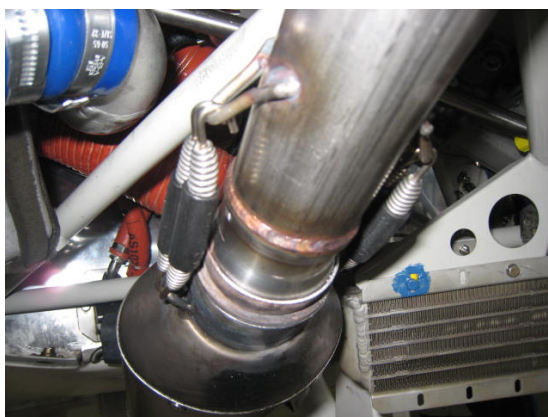
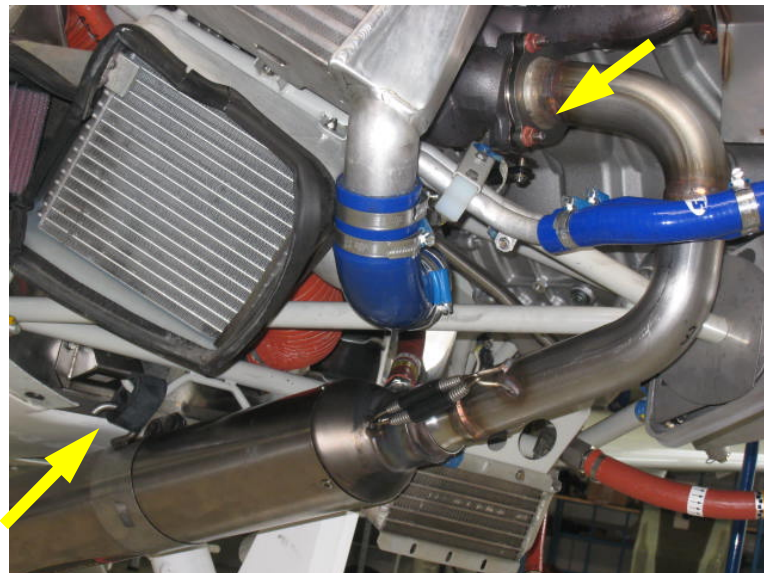
Connect the bonding wire.



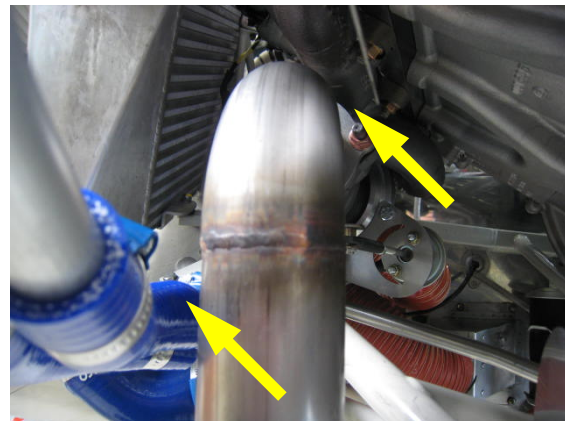
- 51 Insert the seal ring in the turbo charger. Remove the nuts from the bolts on the turbo charger and install the exhaust pipe. Torque the three nuts with 20 Nm. Install the muffler and replace the rubber dampers:

Necessary new material:

- 1 x 50-7810-H000202 (Exhaust pipe)
- 4 x 20-7810-H001601 (Spring)
- 2 x 255-971 (Rubber damper)
- (a. r.) 1 x D4D-7807-00-30 (Adapter ring)
- (a. r.) 1 x D4D-7806-60-05 (Ball joint)
- (a. r.) 1 x D4D-7807-10-00 (Muffler)
- (a. r.) 2 x LN9037-M6x14 (Screw)
- (a. r.) 4 x DIN9021B-M6 (Washer)
- (a. r.) 2 x LN9338-M6 (Nut)
- (a. r.) 1 x D4D-7807-14-00 (Clamp)



Install two springs each side.



Check for sufficient clearance of the exhaust pipe between heat shield and silicone hose.

52 Route the new TAE- engine loom, the DAI- engine harness, the alternator harness and the MAP-Lines through fire wall, install the Teflon bushing , the out side rivet of the heat shield plates and install edge protection.

Use sealer PR812. Apply light soapsuds with rubber gloves on the ready mixed sealer. Model a sausage from the sealer and put the sealer around the engine loom and lines. Model the sealer acc. the picture.

Necessary new material:

(a. r., depending on MOD-status of airplane) 1 x D4D-7103-01-30_1 (Teflon bushing)

(a. r., depending on MOD-status of airplane) 2 x D4D-7103-00-04 (Plate)

1 x PR812 KIT25 (Sealer)

2 x DIN7337-A3.2x8-A2 (Rivet)

0.2 m GE52-C69 (Edge protection)



Close the two holes in the fire wall with PR812 Sealer, if the external alternator regulator was installed.

53 Install the relay box cover, install the two screws that connect the relay box onto the fire wall.

54 Preassembling of the coolant tank:

Necessary new material:

1 x 50-7150-H000701 (Bonding wire)
1 x D4D-2406-27-00-SB (Adapter harness coolant level)
1 x 50-7520-H001602 (Coolant Tank)
1 x 50-7520-H000902 (Mounting plate)
2 x NM-0000-0019501 (Screw)
2 x NM-0000-0003801 (Washer)

2 x 50-7520-H001302 (Hose connector)
3 x NM-0000-0167501 (Silicone hose 90°)
6 x NM-0000-0016901 (Clamp)

1 x NM-0000-0014501 (Ball joint)
1 x NM-0000-0017301 (Nut)
1 x NM-0000-0018101 (Nut)
2 x NM-0000-0003801 (Washer)

Shorten the silicone hoses acc. the following picture prior assembling. Adjust the position of the hoses, afterwards tighten the clamps.

Install the coolant tank on the bracket in the most downward position.

Shorten silicone hose 20 mm.

Sand bonding area on mounting bracket.



Shorten silicone hoses 60 mm.

55 Install the preassembled coolant tank

Necessary new material:

1 x MN-0000-0019601 (Screw)

1 x LN9037-M6x18 (Screw)

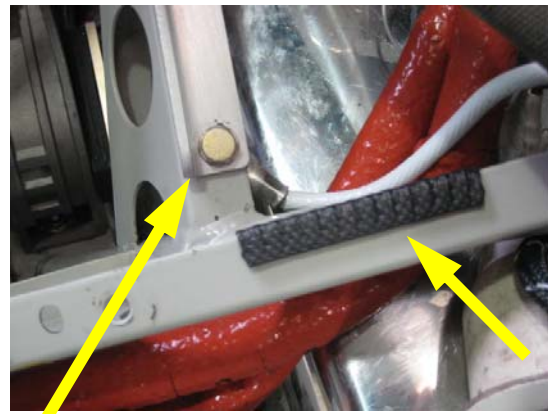
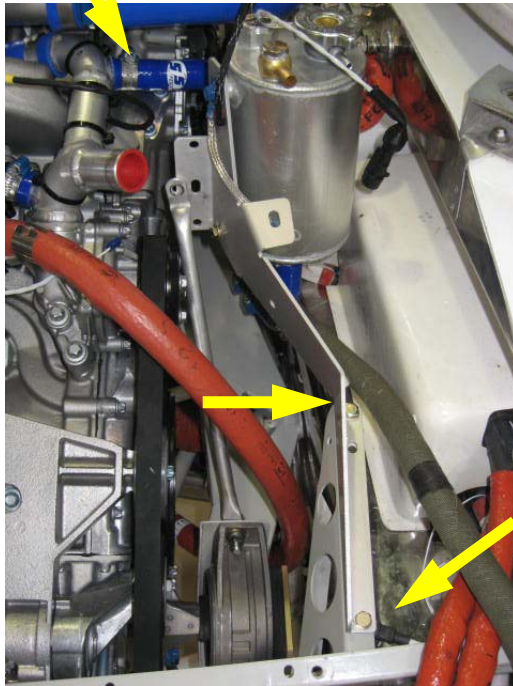
2 x MN-0000-0018101 (Nut)

4 x NM-0000-0003801 (Washer)

0.05 m NM-0000-0045501 (Edge protection)

1 x 373-386 (Ring terminal)

Connect the silicone hose to the pipe and tighten the clamp.



Replace the ring terminal of the EPU ground wire, 24405A6N.
Use the longer LN-screw to connect the bonding wire.
Install the edge protection on the engine mount.

56 Adjust and tighten the oil line on the oil separator

Necessary new material:

1 x 50-7250-H001601 (Blow by)

1 x 50-7250-H003101 (Oil line)



Torque the oil line with 30 Nm.

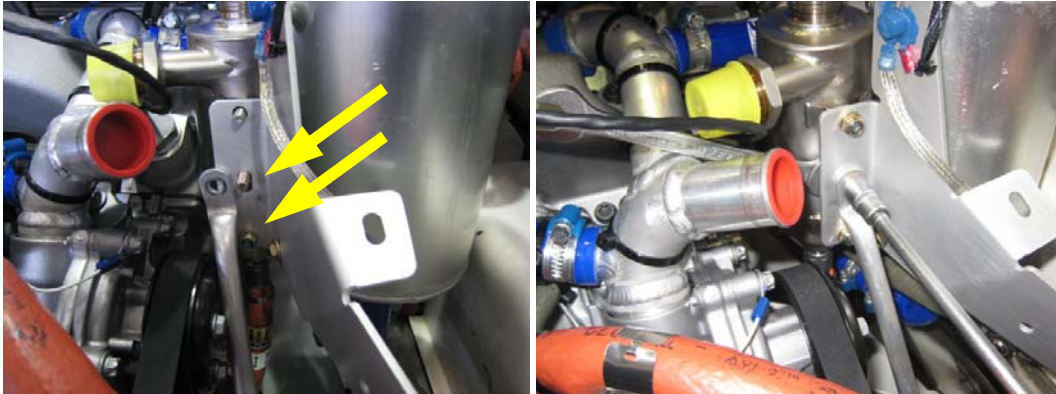
- 57 Install the washer and screw for the strut and the oil separator. Tighten the bottom screw of the oil separator. Afterwards hook in the strut, and tighten the strut and the top screw of the oil separator.

Necessary new material:

3 x NM-0000-0018101 (Nut)

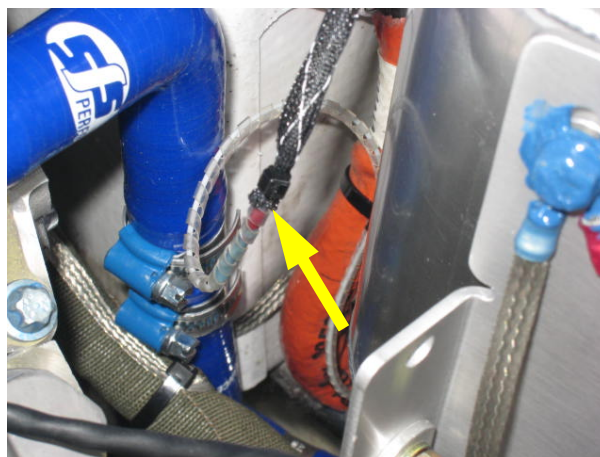
1 x NM-0000-0019601 (Screw)

4 x NM-0000-0003801 (Washer)



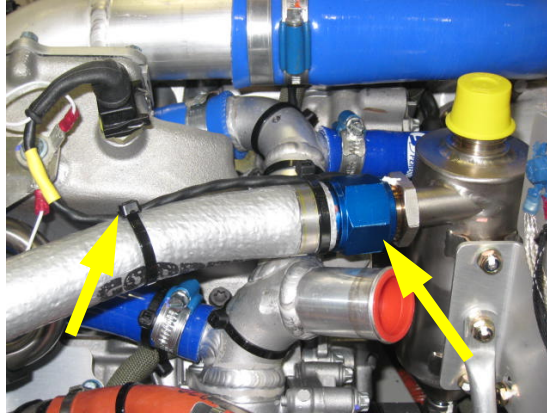
Torque the bottom screw of the strut on the engine bearing with 55 Nm

- 58 Cut-off the ring terminal from the coolant level wire, crimp adapter harness onto wire 77403A22 using inline crimp tool Raychem P/N AD-1377 and heat shrink the tubing.



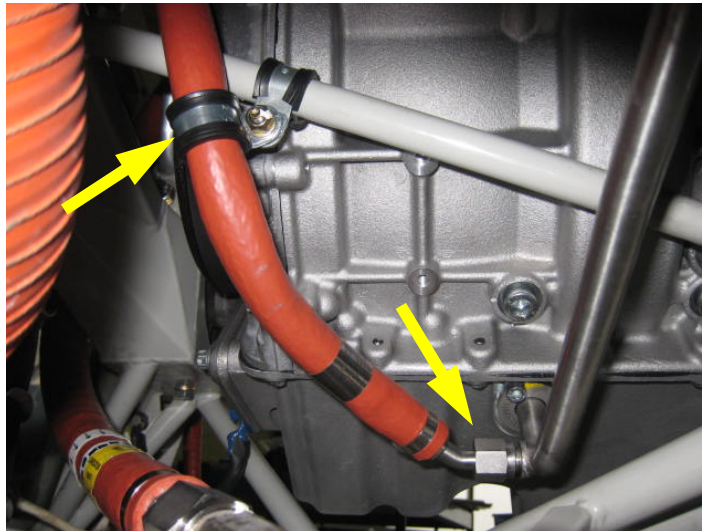
59 Connect the oil line of the oil separator and tighten the oil line with 50 Nm. Install the wire onto the oil line with tie wraps.

Necessary new material:
a. r. Tie wraps



60 Connect the bottom oil line of the oil separator with clamps onto the engine mount and connect the line on the return line of the turbo charger.

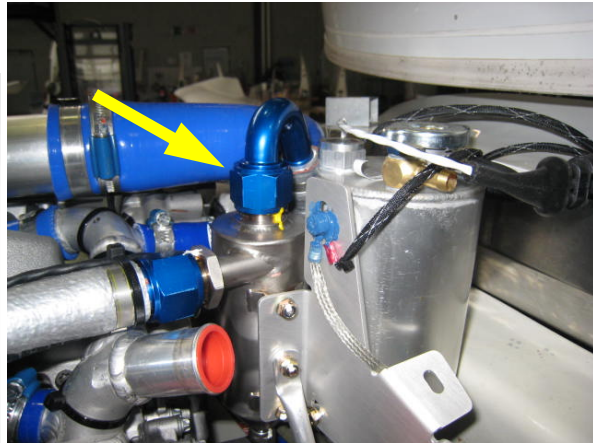
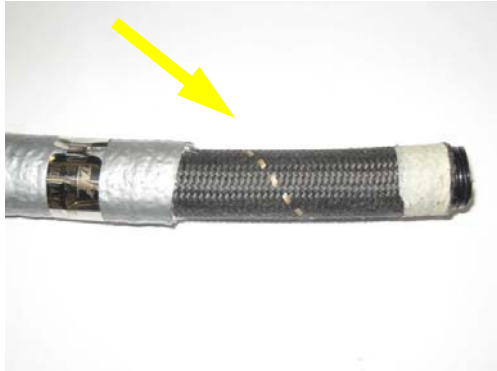
Necessary new material:
1 x NM-0000-0019701 (Screw)
2 x NM-0000-0003801 (Washer)
1 x NM-0000-0018101 (Nut)
1 x NM-0000-0015901 (Clamp, oil line)
1 x NM-0000-0041001 (Clamp, engine mount)



- 61 Shorten the fire sleeve of the breather line approx. 150 mm and install it on the oil separator. Insert the breather line in the outlet tube on the fire wall.

Necessary new material:

1 x 50-7250-H002301 (Breather line)



Torque the top fitting of the breather line with 55 Nm

- 62 Install the clamp to connect the oil line to the ball joint on the mounting plate:

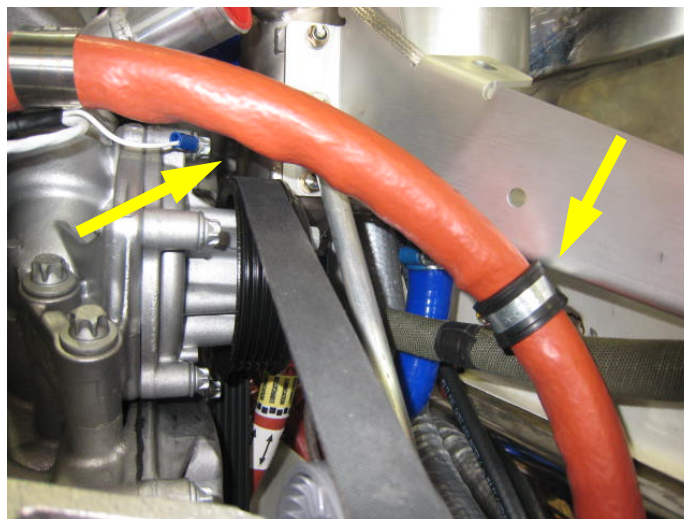
Necessary new material:

1 x NM-0000-0016001 (Clamp)

1 x NM-0000-0019801 (Screw)

2 x NM-0000-0003801 (Washer)

1 x NM-0000-0018101 (Nut)



Make sure to have sufficient clearance between engine and oil line!

- 63 Install the rubber hose between thermostat and coolant tank.
Install the coolant drain line.

Necessary new material:

- 1 x NM-0000-0160201 (Rubber hose)
- 2 x NM-0000-0021501 (Clap)
- 1 x NM-0000-0160101 (Rubber hose)
- 1 x NM-0000-0054301 (Clamp)
- a. r. Tie wraps



Battery- and coolant tank drain installed with tie wraps.

64 Remove the paint of the engine mount and install the bonding wire. Install the clamp for the engine loom.

Necessary new material:

- 1 x NM-0000-0016001 (Clamp)
- 1 x NM-0000-0019701 (Screw)
- 2 x NM-0000-0003801 (Washer)
- 1 x NM-0000-0018101 (Nut)
- 1 x 50-7150-H000601 (Bonding wire)
- 1 x NM-0000-0019301 (Screw)
- 2 x NM-0000-0015101 (Washer)
- 1 x NM-0000-0018001 (Nut)



65 Adjust and install the strut, the bonding wires and the rubber damper on the mounting plate and protect the bonding wires with bonding lacquer:

Necessary new material:

- 1 x 50-7150-H000101 (Bonding wire)
- 1 x 50-7520-H000201 (Strut)
- 1 x NM-0000-0159101 (Rubber damper)
- 1 x NM-0000-0018101 (Nut)
- 1 x NM-0000-0003801 (Washer)



66 Connect the coolant level sensor and attach the connector with tie wraps onto the rubber hose.

Use tie wraps as required.



67 Install the MAP-Lines

Necessary new material:

2 x D4D-7156-11-00 (MAP line Fitting)

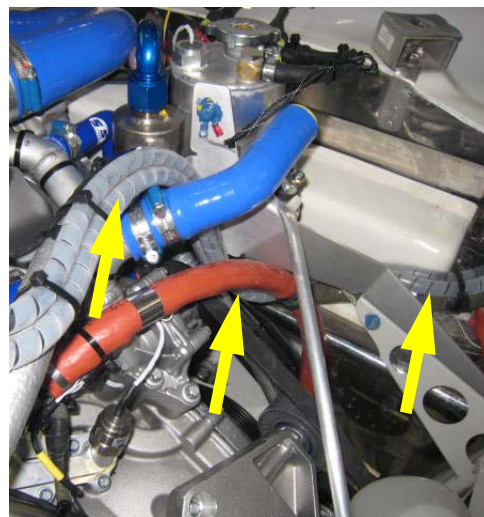
2 x P-EVW 3/8 J/C ALU (Fitting)

2 x 2.5 m 3225-10052 (Rubber hose)

2 x 1.0 m T50F-TL (Spiral protection)

2 x 05392812003100 (Clamp)

a. r. tie wraps



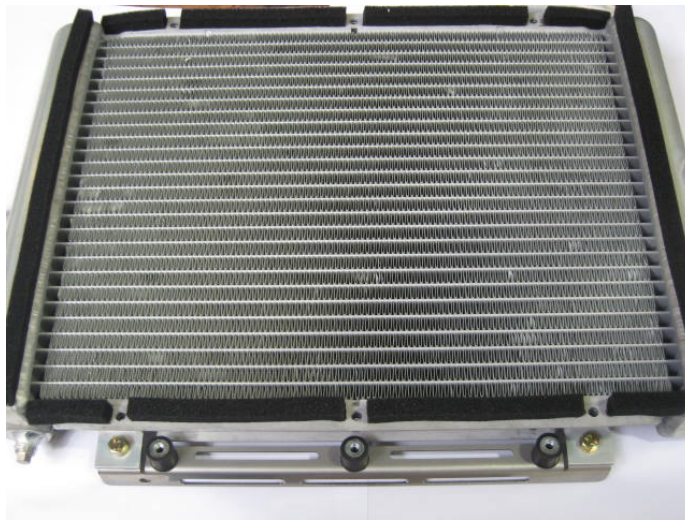
Route the MAP-lines acc. the picture to the fire wall. Install tie wraps as required.

68 Preassembly of the water cooler

Necessary new material:

- 1 x 50-7520-H002104 (Water cooler)
- 1 x 50-7520-H001202 (Mounting plate)
- 2 x NM-0000-0019701 (Screw)
- 4 x NM-0000-0003801 (Washer)
- 2 x NM-0000-0018101 (Nut)
- 3 x NM-0000-0149501 (Rubber damper)
- 3 x NM-0000-0015101 (Washer)
- 3 x NM-0000-0018001 (Nut)

1.3 m NM-0000-0022701 (Compri-seal)



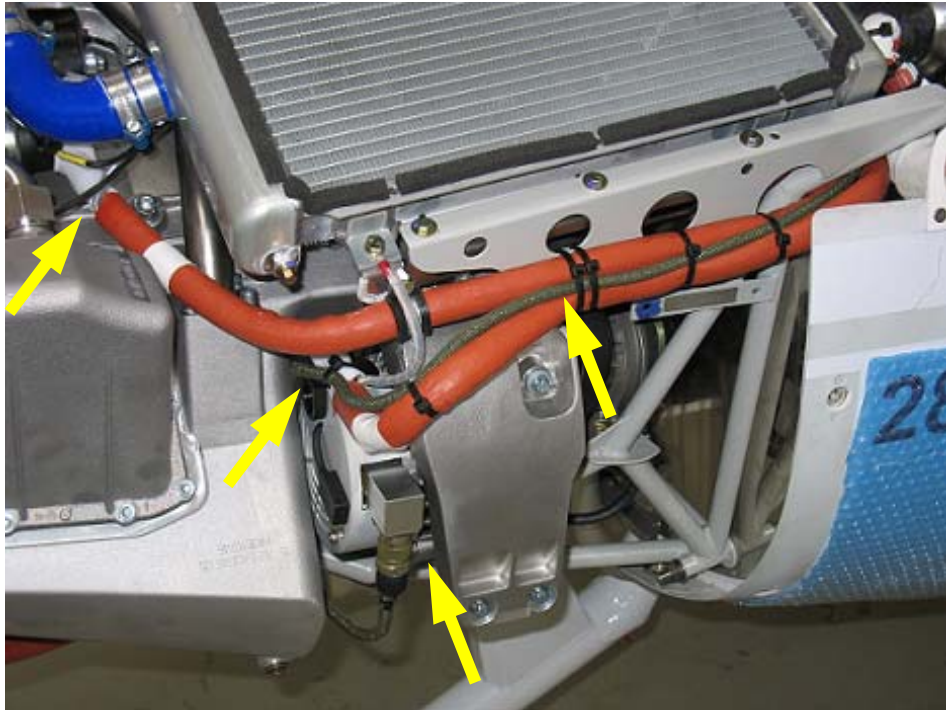
Bond the Compri-seal on the water cooler acc. the picture. Install the mounting plate on the water cooler and the rubber dampers on the mounting plate.

69

Pull out the alternator excitation wire from the fire sleeve, if installed. Connect the Starter+, Starter switch cable, the Alternator+ cable and the Alternator loom.

Ensure that the alternator cable routing and the cable tie positioning are carried out as shown in the picture below.

Necessary new material:
a. r. tie wraps



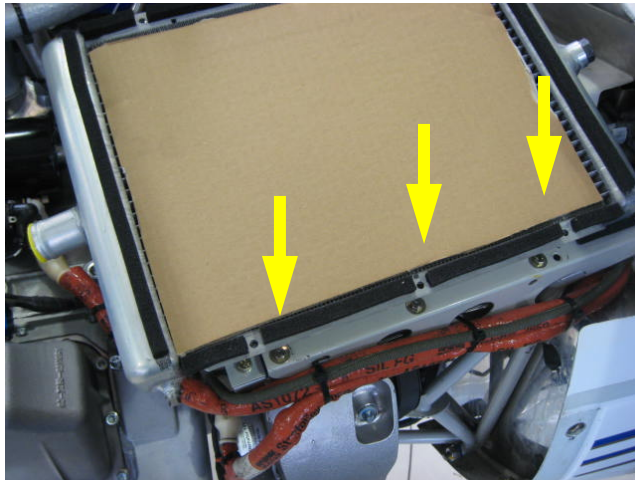
NOTE: Make sure that there is no tension on the alternator cable and enough flexibility for the relative movement of the engine.

CAUTION: When installing the alternator cable to the alternator it is not allowed to bend the ring terminal of the alternator cable. Bending the ring terminal may lead to its breakage during operation.

70 Install the preassembled water cooler and protect the cooler against damage:

Necessary new material:

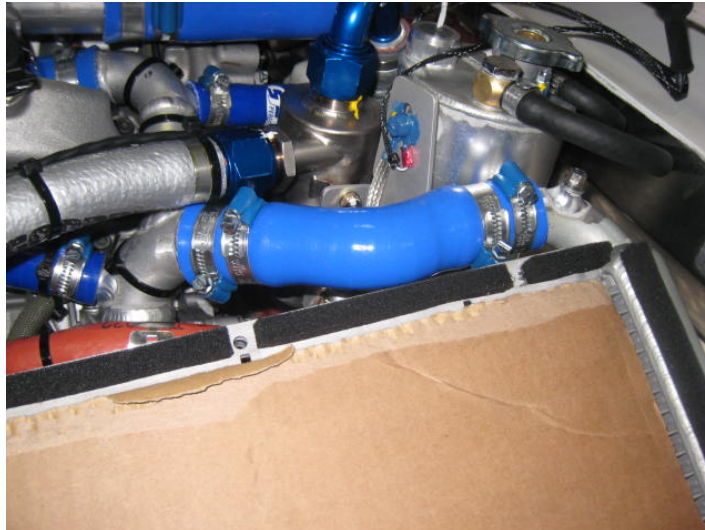
- 3 x NM-0000-0150001 (Screw)
- 3 x NM-0000-0058501 (Washer)
- 1 x NM-0000-0018101 (Nut)
- 1 x NM-0000-0003801 (Washer)



71 Install the silicone hose on the outlet of the cooler:

Necessary new material:

- 4 x NM-0000-0021601 (Clamp)
- 1 x 52-7520-H002901 (Silicone hose 45°) (NM-0000-0056901)

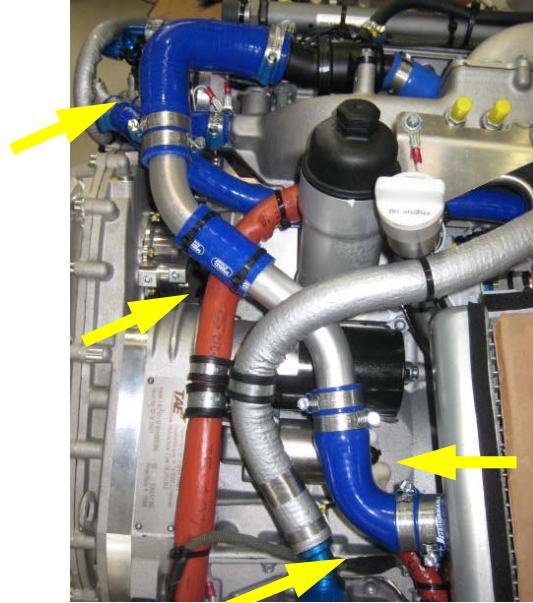


Shorten the silicone tube as required

72 Install the silicone hoses and the water tube on the inlet side of the water cooler:

Necessary new material:

- 1 x NM-0000-0153501 (Silicone hose 90° 30/35mm)
- 1 x 50-7520-H000501 (Tube)
- 1 x 52-7520-H002801 (Silicone hose 90°) (NM-0000-0056801)
- 1 x NM-0000-0142701 (Clamp, thermostat)
- 6 x NM-0000-0021601 (Clamp)
- 0.1m NM-0000-0042401 (Silicone hose, slotted)
- a. r. Tie wraps



Shorten the silicone hose as required

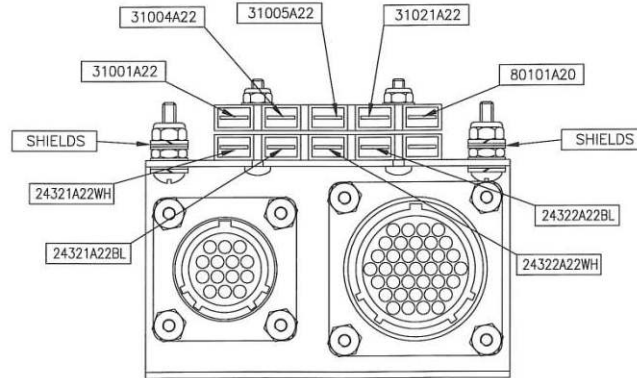
73 Remove the protection of the cooler and install the inlet duct on the water cooler:

Necessary new material:

- 6 x NM-0000-0019301 (Screw)
- 6 x NM-0000-0058501 (Washer)
- 1 x 50-7110-H000201 (Inlet duct for intercooler)

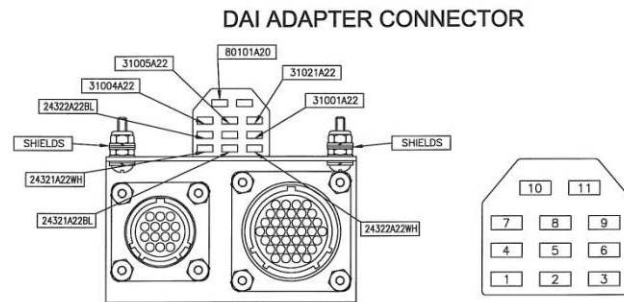


74 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel and for serial numbers up to D4.111, disconnect faston connectors and ring terminals of the shields at the adapter.

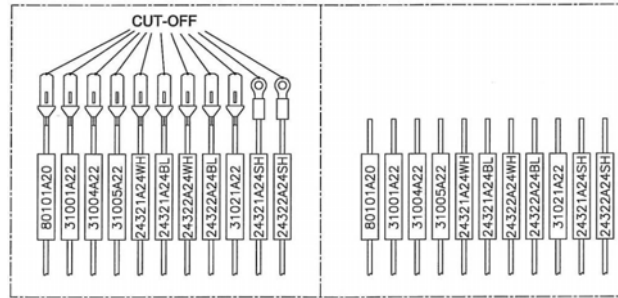


75 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel and for serial numbers up to D4.111, remove the adapter and its mounting hardware clear of the airplane.

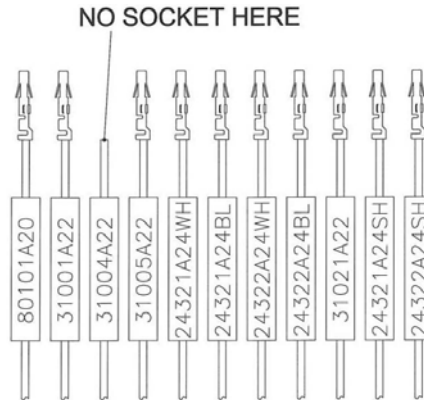
76 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel and for serial numbers above D4.111, extract all faston tabs of the 11-pin adapter connector and disconnect the shields of the connector.



77 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, cut-off the faston tabs or receptacles and ring terminals as shown in the figure below.

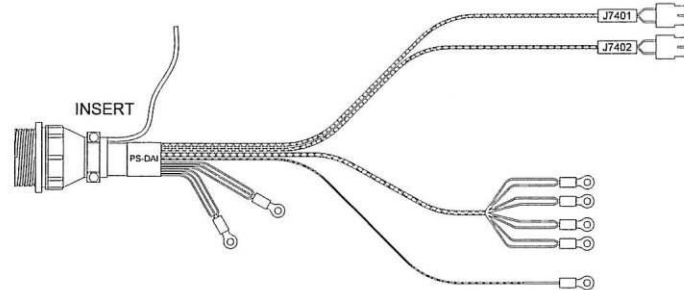


78 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, Crimp sockets (P/N 163084-2) onto the wires mentioned above, except the wire 31004A22 (Alternator Warning Lamp, AWL) using an appropriate crimping tool.



79 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, insert the sockets mentioned above into adapter harness D4D-2401-40-00-SB, as shown in the figure below.

PS-DAI	
PIN	WIRE
1	74011A16
2	74012A16
3	74013A16
4	74014A16
INSERT	5 24321A24WH
INSERT	6 24321A24BL
INSERT	7 24321A24SH
9	GLOW REL -
INSERT	10 24322A24WH
INSERT	11 24322A24BL
INSERT	12 24322A24SH
INSERT	13 31001A22
INSERT	14 31021A22
INSERT	15 31005A22
16	UBATT A
17	UBATT A
18	UBATT B
19	UBATT B
INSERT	21 80101A20
22	GND A
23	GND A
24	GND B
25	GND B
26	SHIELD
27	SHIELD
28	SHIELD
29	SHIELD
30	SHIELD
31	SHIELD



NOTE: OTHER PINOUT SHOWN FOR REFERENCE ONLY

80 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, connect the adapter harness (D4D-2401-40-00-SB) as shown below. Refer also to drawing D4D-2401-40-00-SB.

CAUTION: Take care of the polarity of the diode, installed on the glow relay, when connecting the wire "Glow Rel -". Refer also to drawing D4D-9224-30-01.

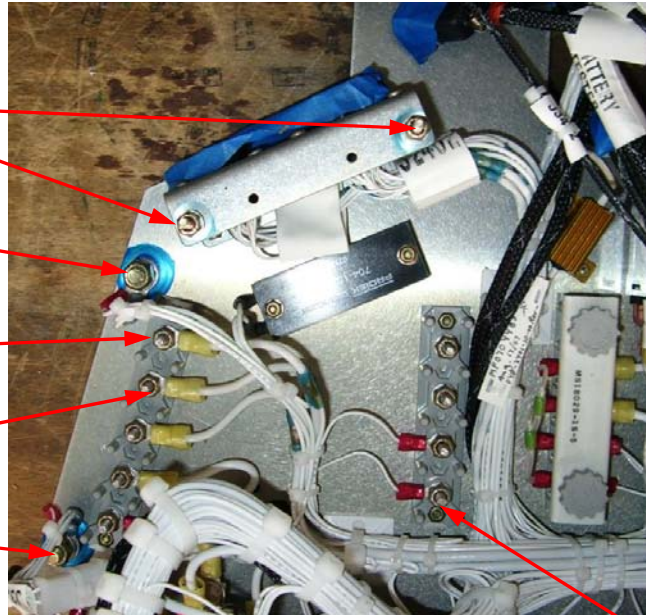
Shields

GND A

UBATT A /
24305A10

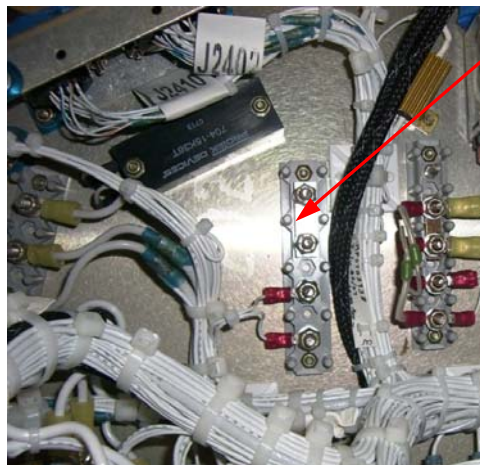
UBATT B /
24306A10

GND B



Glow Rel - / 74001B22

81 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, remove bus bar at Glow terminal block, as shown in the figure below.



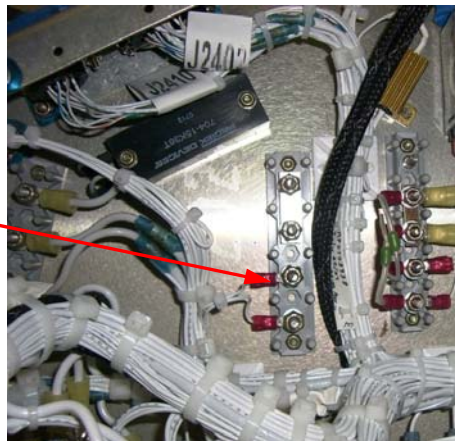
82 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, connect the Glow Rel + cable D4D-2401-41-00-SB, including fuse assembly D4D-2401-31-00 to terminal block and Engine Master switch as shown below.

CAUTION: Take care of the polarity of the diode, installed on the glow relay, when connecting the wire "Glow Rel +". Refer also to drawing D4D-9224-30-01.

Fuse assy, 5A /
24306A10



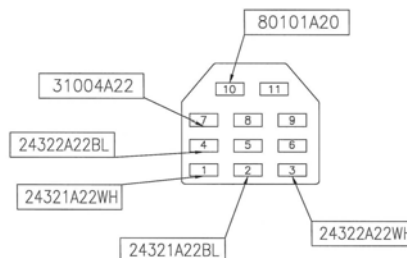
Cable, Glow Rel + /
74000B22



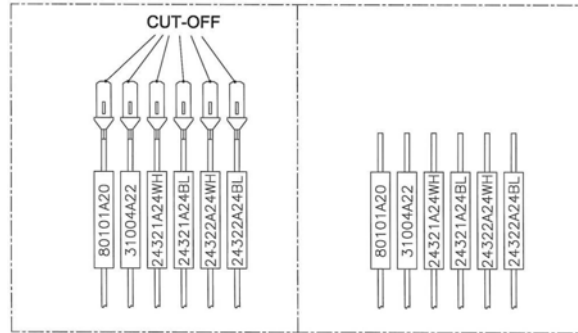
83 For airplanes with the **GARMIN G1000** instrument panel installed, extract all faston tabs of the 11-pin adapter connector.



DAI ADAPTER CONNECTOR

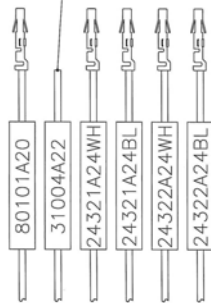


84 For airplanes with the **GARMIN G1000** instrument panel installed, cut-off the faston tabs as shown in the figure below.



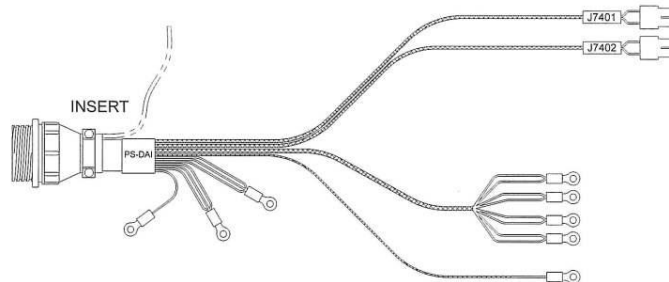
85 For airplanes with the **GARMIN G1000** instrument panel installed, crimp sockets (P/N 163084-2) onto the wires mentioned above, except the wire 31004A22 (Alternator Warning Lamp, AWL) using an appropriate crimping tool.

NO SOCKET HERE



86 For airplanes with **GARMIN G1000** instrument panel, insert the sockets mentioned above into adapter harness D4D-2401-40-00-SB, as shown in the figure below.

PS-DAI	
PIN	WIRE
1	74011A16
2	74012A16
3	74013A16
4	74014A16
INSERT	5 24321A24WH
INSERT	6 24321A24BL
	9 GLOW REL -
INSERT	10 24322A24WH
INSERT	11 24322A24BL
	16 UBATT A
	17 UBATT A
	18 UBATT B
	19 UBATT B
INSERT	21 80101A20
	22 GND A
	23 GND A
	24 GND B
	25 GND B
	26 SHIELD
	27 SHIELD
	28 SHIELD
	29 SHIELD
	30 SHIELD
	31 SHIELD



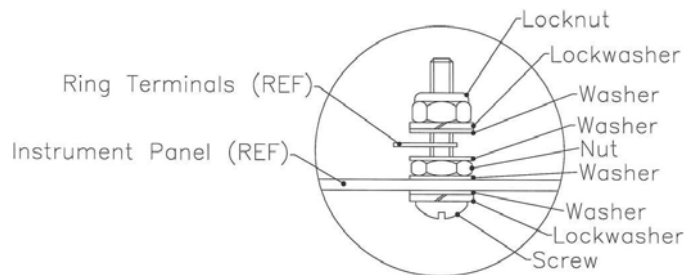
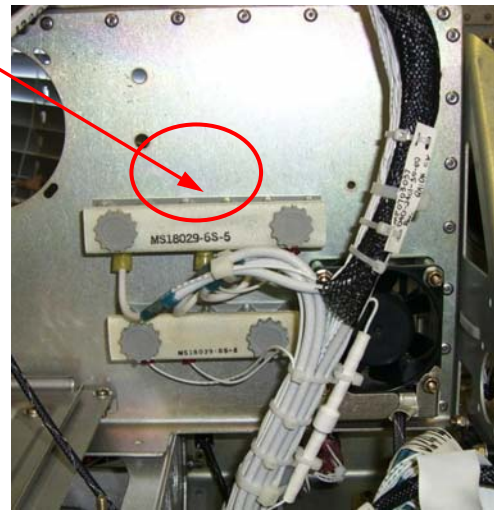
NOTE: OTHER PINOUT SHOWN FOR REFERENCE ONLY

87

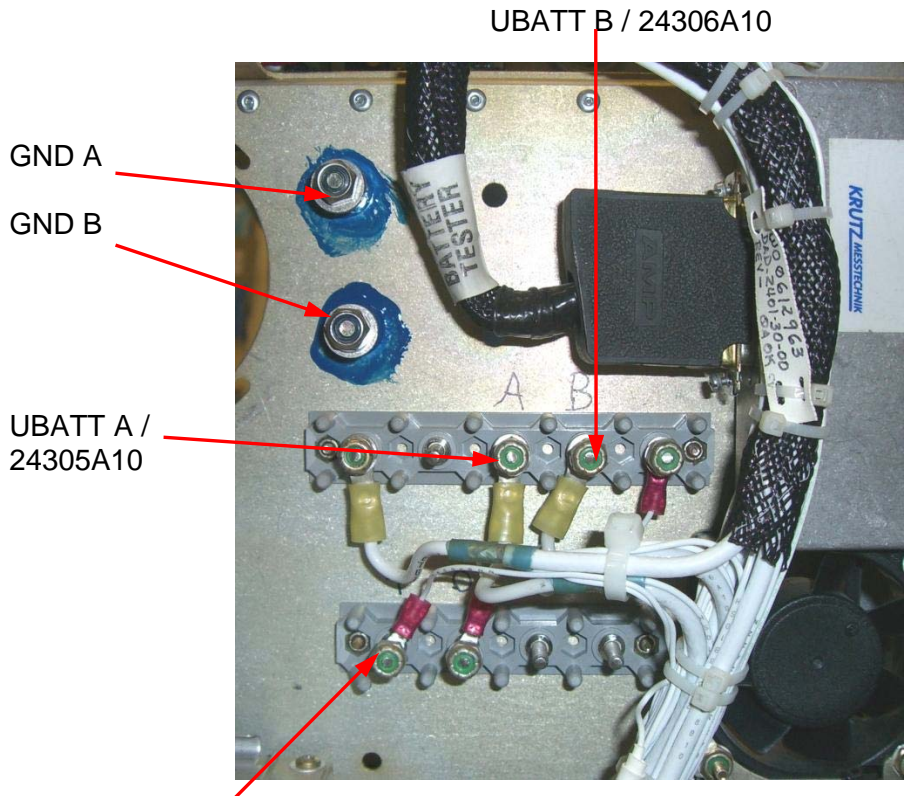
For airplanes with **GARMIN G1000** instrument panel, install two new ground studs on the positions shown below. Note that the shields of the adapter harnesses and alternator harness will be connected to this ground studs. Sand bonding area around the holes prior to installation of the ground studs and seal afterwards with bonding paint.

- Necessary new material:
 2 x DIN7985-AM4X20-A2
 2 x DIN985-M4-A2
 2 x DIN934-M4-A2
 4 x DIN6797-JM4-A2
 8 x DIN125-A4.3-A2

Locations for new ground studs

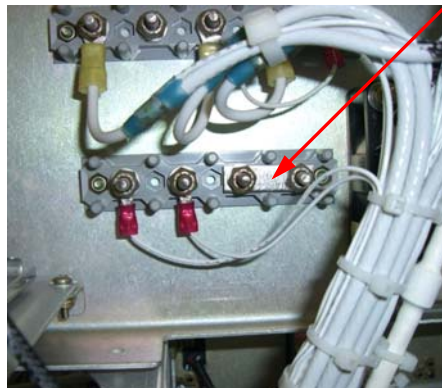


88 For airplanes with **GARMIN G1000** instrument panel, connect the adapter harness (D4D-2401-40-00-SB) as shown below. Connect the shields to the ground studs, installed in the steps above. Refer also to drawing D4D-2401-40-00-SB.
CAUTION: Take care of the polarity of the diode, installed on the glow relay, when connecting the wire "Glow Rel -". Refer also to drawing D4D-9224-30-04.



Glow Rel - / 77401B22

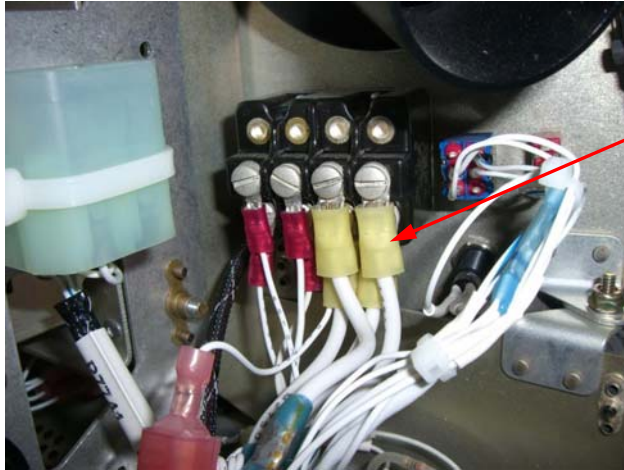
89 For airplanes with **GARMIN G1000** instrument panel, remove the bus bar at the Glow terminal block, as shown in the figure below.



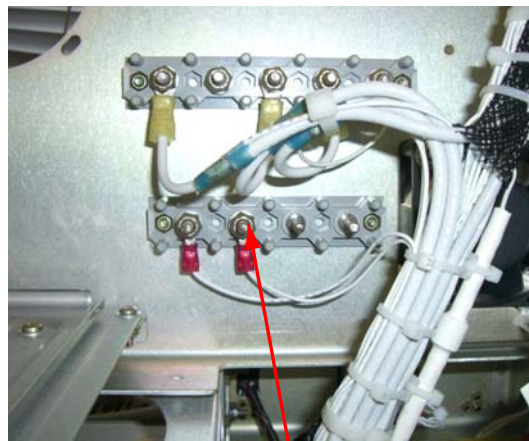
90

For airplanes with **GARMIN G1000** instrument panel, connect the Glow Rel + cable D4D-2401-41-00-SB, including fuse assembly D4D-2401-31-00 to terminal block and Engine Master switch as shown below.

CAUTION: Take care of the polarity of the diode, installed on the glow relay, when connecting the wire "Glow Rel +". Refer also to drawing D4D-9224-30-04.



Fuse assy, 5A /
 2406A10
 (bottom connections)



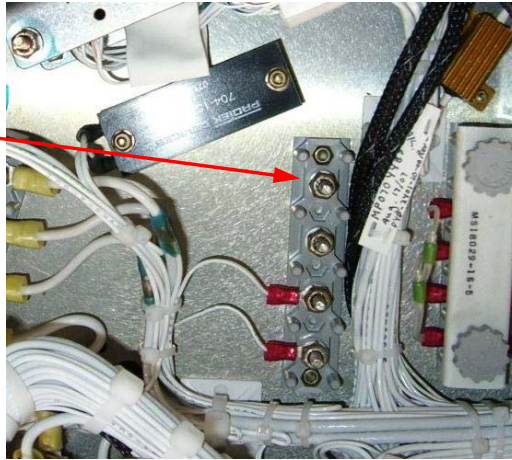
Cable, Glow Rel + / 74000B22

91 Crimp the ring terminal (P/N 31890) onto wire 31004A22 (AWL).

92 Install the instrument panel.

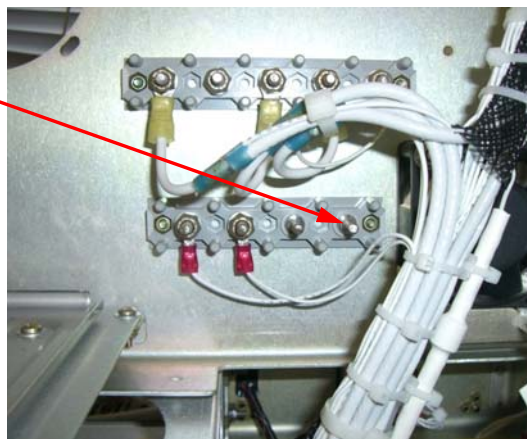
93 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, connect the wire mentioned above to the terminal block, as shown in the figure below.

31004A22 (AWL)



94 For airplanes with **GARMIN G1000** instrument panel, connect the wire mentioned above to the terminal block, as shown in the figure below.

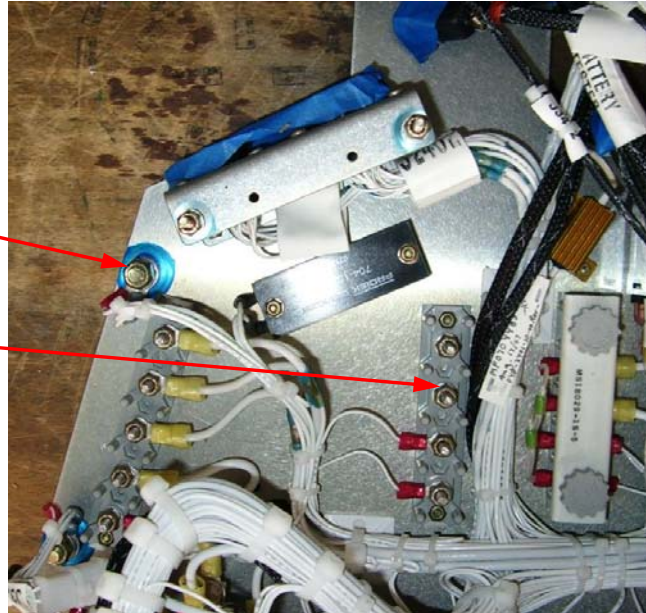
31004A22 (AWL)



- 95 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, connect Glow Harness (Lamp, GND, Plugs) and route it on the left fuselage side under the pilot's seat, except PWR.
NOTE: The two connectors for the plugs are not shown. Connect them to the corresponding connectors of the Adapter Harness, Central Connector

Ground
74005A16N

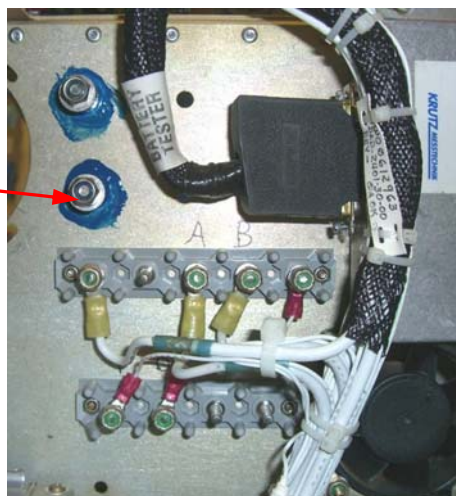
Lamp
31005B22
Glowindicator

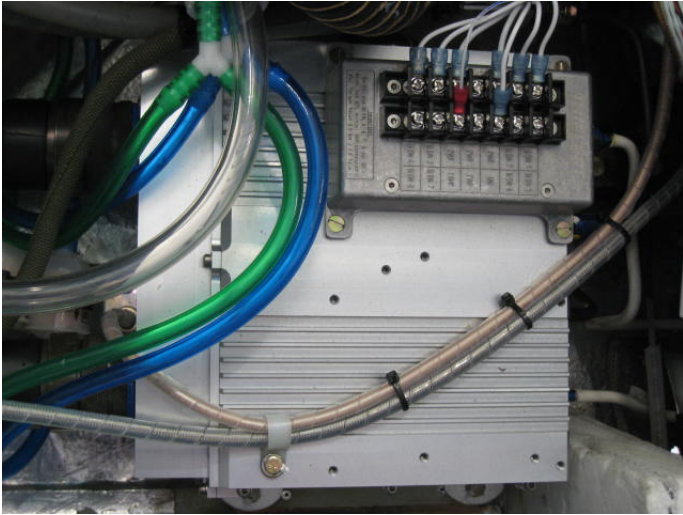


- 96 For airplanes with **GARMIN G1000** instrument panel, connect Glow Harness and route it on the left fuselage side under the pilot's seat.
NOTE: The two connectors for the plugs (P7401 and P7402) are not shown. Connect them to the corresponding connectors of the Adapter Harness, Central Connector

Seal the ring terminal of wire 31005B22 (Lamp) using heatshrink P/N 727020-1.

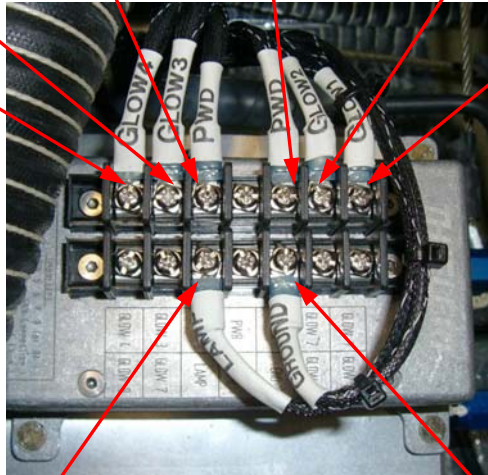
Ground
74005A16N



97	<p>Install the new FADEC (ECU)</p> <p>Check fit of new ECU P/N 02-7610-55180R1. ECU must have a clearance of at least 3 millimeters to the RH crash element of the pilots seat.</p> <p>If clearance to the crash element is at least 3 mm, install new ECU P/N 02-7610-55180R1 acc. to AMM section 25-10-00.</p> <p>If the clearance is less than 3 mm drill holes acc. to Thielert repair instruction into ECU-mounting bracket and reposition the bracket or use already modified TAE-bracket. (both available through Thielert Aircraft Engines).</p> <p>Install the new ECU (refer to AMM, section 25-10)</p>
98	<p>Connect the two connectors of the engine harness to the FADEC, connect static and MAP hoses to the FADEC.</p>
99	<p>Install the Glow Power Control Unit onto FADEC</p> <p>Necessary new material:</p> <p>4 x DIN963-AM4x8-YZP (Screw)</p> 

100 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, connect the glow harness D4D-2406-26-00-SB to the glow power control unit as shown below.

74014B16 74013B16 74002A14 74003A14 74012B16 74011B16



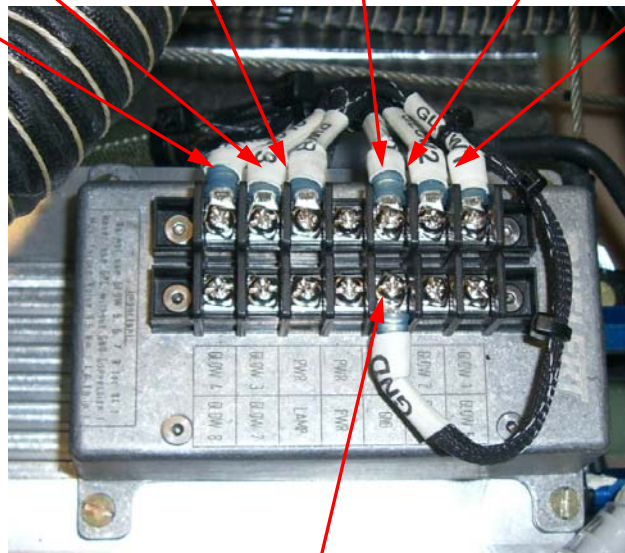
31005B22

74005A16N

101 For airplanes with **GARMIN G1000** instrument panel, connect the glow harness D4D-2406-26-00-SB to the glow power control unit as shown below.

Seal the ring terminal of wire 31005B22 (Lamp) using heatshrink P/N 727020-1.

74014B16 74013B16 74002A14 74003A14 74012B16 74011B16



74005A16N

102 Install alternator regulator under the pilot's seat, as shown on drawing D4D-2433-01-00 and in the figure below.
Connect bonding wire with mounting bracket J2400.

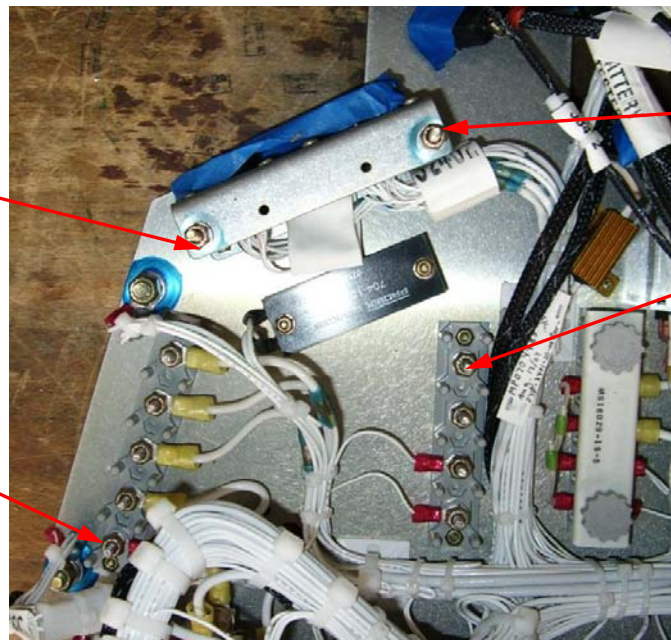
Necessary new material:
1 x DS BW1-B14-RB6-RB4-470 (Bonding wire)
2 x LN9037 M6x26 (Screw)



103 For airplanes with **CONVENTIONAL** (G1000 not installed) instrument panel, connect the Thielert alternator harness in the instrument panel.

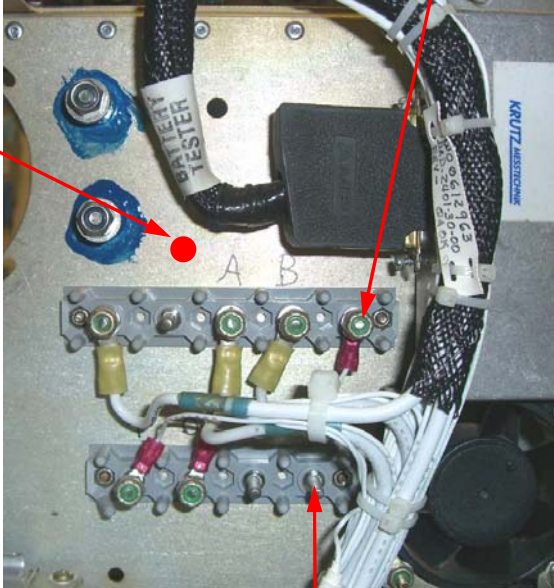
EXCBAT
Shield &
Ground

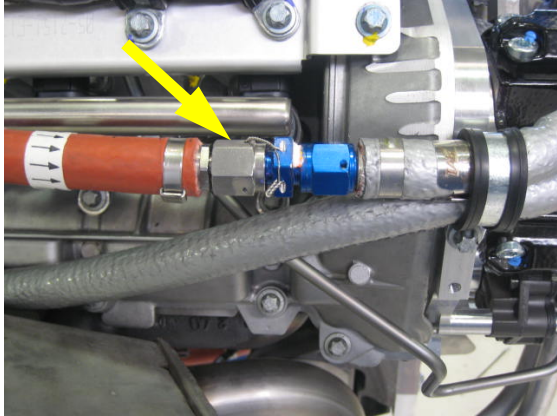
EXCBAT



AWL Shield

AWL

104	<p>For airplanes with GARMIN G1000 instrument panel, connect the Thielert alternator harness in the instrument panel.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="248 472 408 600" style="text-align: left;"> <p>EXCBAT Shield & Ground & AWL Shield</p> </div> <div data-bbox="525 439 1082 1025" style="text-align: center;">  </div> <div data-bbox="916 371 1034 398" style="text-align: right;"> <p>EXCBAT</p> </div> </div> <div style="text-align: center; margin-top: 10px;"> <p>AWL</p> </div>
105	<p>For airplanes with CONVENTIONAL (G1000 not installed) instrument panel, connect the Thielert engine harness in the instrument panel (PS-DAI, Load 1, Load 2, CAN and Glow Indicator)</p>
106	<p>For airplanes with GARMIN G1000 instrument panel, connect the Thielert engine harness in the instrument panel (PS-DAI, Load 1, Load 2 and CAN) Seal the ring terminal of the Glow Indicator of the Thielert engine harness using heatshrink P/N 727020-1.</p>
107	<p>For airplanes with CONVENTIONAL (G1000 not installed) instrument panel, install the new CED-125 (P/N 02-7730-5501-(06)-(02)) into its position in the instrument panel.</p>
108	<p>For airplanes with CONVENTIONAL (G1000 not installed) instrument panel, connect the CED-125 and tighten the screws that hold the connector.</p>
109	<p>Connect braided cable between engine and ground stud on firewall.</p>
110	<p>Connect the Engine-GND-Cable and the Battery GND-Cable onto the firewall.</p>
111	<p>Fill and bleed cooling system (refer to AMM, Section 75-01).</p>
112	<p>Fill the engine with oil (refer to AMM, Section 12-10).</p>
113	<p>Fill the reduction gear with oil. (refer to AMM, Section 12-10).</p>
114	<p>Connect the airplane main battery. (refer to AMM, Section 24-34).</p>
115	<p>Connect the ECU Backup battery.</p>
116	<p>Connect the Alternator Excitation battery (refer to AMM, Section 24-33).</p>
117	<p>Install the Propeller (refer to AMM, Section 61-11).</p>
118	<p>Perform functional check of all systems in working area.</p>
119	<p>Check working area for foreign objects.</p>
120	<p>Install the engine cowlings.</p>
121	<p>Install instrument panel cover.</p>

122	For airplanes with GARMIN G1000 instrument panel, perform a G1000 Software update according MSBD4-045/3, or later revision
123	Perform weighing (refer to AMM, Section 08-10).
124	Remove the engine cowlings, refuel the airplane, fill and bleed fuel system. Note: Tighten and lock wire the fitting in the fuel line. 
125	Install the engine cowlings (refer to AMM, Section 71-11).
126	Perform engine ground test (refer to the Operators Manual of TAE for the TAE 125-02 engine and AMM, Chapter 71-01, (Engine Test-General).
127	Perform a check flight (refer to AMM, Chapter 05-20).
128	Make appropriate entries into aircraft log.
129	Incorporate the Temporary Revision AMM-TR-MÄM-40-256 (latest revision) into the AMM.
130	For airplanes with CONVENTIONAL (G1000 not installed) instrument panel, Incorporate the Temporary Revision AMM-TR-OÄM-40-293 (latest revision) into the AMM.
131	Incorporate the Temporary Revision TR-MÄM-40-256 (latest revision) into the AFM.
132	For airplanes with CONVENTIONAL (G1000 not installed) instrument panel, incorporate the Temporary Revision TR-OÄM-40-293 (latest revision) into the AFM.
133	Send work report to Diamond Aircraft Ind.