

OPTIONAL SERVICE BULLETIN

NO. OSB-42-050/1

I TECHNICAL DETAILS

I.1 Category

Optional

I.2 Airplanes Affected

Type: DA 42

Serial Numbers: 42.004, 42.006, 42.009 to 42.156, 42.158 to 42.176,
42.178 to 42.190, 42.192 to 42.233, 42.235 to 42.246,
42.248 to 42.254, 42.256 to 42.261 42.263 to 42.269
42.AC001 to 42.AC109,
or all serial numbers with OÄM 42-074 not installed or
MÄM 42-240 installed and OÄM 42-129 not installed

I.3 Time of Compliance

Optional

I.4 Subject

Installation of additional ECU Backup Batteries to supply electric power solely to the ECU in the course of high transient causing a short term voltage drop in case of insufficient main battery power. The ECU Backup Battery capacity is sufficient for at least 30 minutes engine operation.

This Service Bulletin addresses the same technical issue as MSB-42-042, however provides extended stand alone Engine Operation as required in some countries. If OSB 42-050/1 is complied with, it is not necessary to carry out MSB-42-042.

ATA-Code: 72

I.5 Reason

On one occasion after starting the engines using ground power due to fully depleted main battery without following the procedures published in the AFM the airplane experienced a dual engine failure and total loss of electrical power.

In the course of the investigation ground tests on production aircraft in a similar scenario were carried out without showing the same results. Testing done by the engine manufacturer and subsequent further analysis revealed a potential for

experiencing the above mentioned failures under the circumstances of failed or fully depleted main battery and non adherence to the published AFM procedures.

According to the Thielert Aircraft Engines Installation Instructions, the alternator of the engine is viewed as the engine's own electrical power source. The battery is the source of electric power in the electrical system of the aircraft. The alternator is certified as part of the engine. The FADEC, alternator and battery are wired in such a way that the FADEC electrical power supply is provided by the alternator in the event of a failure of the battery as required by the Thielert Aircraft Engines Installation Instructions. It has been observed, that the alternator is not able to provide adequate electric power under such circumstances. Inrush currents of electric consumers may cause short term voltage drops (3 to 5 ms) which trigger a FADEC reset. During such a reset which lasts about 1.28 seconds the FADEC gives no commands to the fuel injectors or the propeller control system. This leads to a sudden engine RPM drop due to no combustion and a propeller auto feather command with subsequent insufficient electrical power generation if the engine RPM are below a certain limit. This results in a total loss of engine thrust and electric power.

I.6 Concurrent Documents

EASA AD No : 2007-0183

I.7 Approval

The technical information or instructions contained in this document relate to the Design Change Advisory No. OÄM 42-129, which has been approved under the authority of EASA Design Organization Approval No. EASA.21J.052.

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

I.8 Accomplishment/Instructions

If neither MÄM 42-240 nor OÄM 42-129 installed and MSB-42-042 not previously carried out:

Comply with WI-OSB-42-050, latest effective issue.

Incorporate TR-OÄM-42-129

Incorporate AMM-TR-OÄM 42-129

If MÄM 42-240 is installed or previous compliance with MSB-42-042 has been established and OÄM 42-129 is not implemented:

Uninstall MÄM 42-240 or MSB-42-042

Comply with WI-OSB-42-050, latest effective issue.

Incorporate TR-OÄM-42-129

Incorporate AMM-TR-OÄM 42-129

I.9 Mass (Weight) and CG

Update the Weight and Balance report of the aircraft in accordance with AMM Airplane Maintenance Manual, Doc. No. 7.02.01, latest effective issue.

II PLANNING INFORMATION

II.1 Material & Availability

See WI-OSB-42-050, latest effective issue.

II.2 Special Tools

See WI-OSB-42-050, latest effective issue.

II.3 Labor Effort

Approx. 10 to 13 hours, depending on airplane configuration

II.4 Credit

For credit contact Diamond Aircraft.

II.5 Reference Documents

Diamond Aircraft DA 42 Airplane Maintenance Manual, Doc. No. 7.02.01, latest effective issue.

WI-OSB-42-050, latest effective issue.

AMM-TR-OAM 42-129

TR-OAM-42-129

III REMARKS

1. Due to the complexity of the installation all measures may only be carried out by certified Diamond Aircraft Service Centers.
2. Accomplishment of the measures must be confirmed in the log book.
3. In case of any doubt, contact Diamond Aircraft Industries.

EXECUTION REPORT
for OSB 42-050

AIRPLANE DATA

Airplane Serial Number: _____

Airplane Registration: _____

Airplane Operator: _____

Hours of operation of airplane: _____

No. of landings: _____

Hours of operation-engine LH: _____

RH: _____

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

Date, Name, SignPlease fax the completed form to Fax No. **43-2622-26700-369 or e-mail to
airworthiness@diamond-air.at

WORK INSTRUCTION

WI-OSB-42-050

„INSTALLATION OF ECU BACKUP BATTERIES“

I GENERAL INFORMATION

I.1 Subject:

Installation of ECU backup batteries and modifications to the electrical system.

I.2 Reference Documents:

Diamond Aircraft DA42 Airplane Maintenance Manual, Doc. No. 7.02.01, latest effective issue.

I.3 Remarks:

- a) The work must be carried out by certified Diamond Aircraft Service Centers. In case of doubt, contact Diamond Aircraft.
- b) All works, particular those that are not especially described in this work instruction, have to be carried out in accordance with the referenced maintenance manual.

II DRAWINGS, SPECIAL TOOLS & MATERIALS

II.1 Drawings:

- D60-2463-21-00, Diode Assembly
- D60-2463-22-00, LH Relay/Diode Cable
- D60-2463-23-00, RH Relay/Diode Cable
- D60-2463-24-00x01, LH Diode/Relay Cable
- D60-2463-25-00x01, RH Diode/Relay Cable
- D60-2463-26-00x01, Battery Serial Connection Cable
- D60-2463-27-00x01, Battery Ground Cable
- D60-2463-28-00, Excitation Battery Fuse Assy
- D60-2463-29-00, Fuse Assembly, 5A
- D60-2463-30-00, Cable, Diode Assembly
- D60-2463-31-00-SB, Adapter Harness 1
- D60-2463-32-00-SB, Adapter Harness 2
- D60-2467-11-00, LH Battery/Diode Cable
- D60-2467-12-00, RH Battery/Diode Cable
- D60-2467-50-00, Large, ECU Back-Up Battery Installation
- D60-9224-30-03, Schematic, Electrical System, TAE125-02 [FAA]

II.2 Special Tools:

None.

II.3 Material

Qty	Description	Part Number
Material for Instructions given in Section III.2.		
4	Battery	LC-R127R2P
10	Screw	ISO 7380-M5x16-A2
10	Washer	DIN 125A-5.3-A2
1.0 m	Foam	Tesamoll
1	LH USense Cable	D60-2407-31-00
1	RH USense Cable	D60-2407-32-00
2	Fuse Assembly, USense	D60-2407-33-00
1	Diode Assembly	D60-2463-21-00
1	LH Diode/Relay Cable	D60-2463-24-00x01
1	RH Diode/Relay Cable	D60-2463-25-00x01
2	Battery Serial Connection Cable	D60-2463-26-00x01
2	Battery Ground Cable	D60-2463-27-00x01
1	Excitation Battery Fuse Assy	D60-2463-28-00
2	Fuse Assembly, 5A	D60-2463-29-00
2	Cable, Diode Assy	D60-2463-30-00
3	Adapter Harness 1	D60-2463-31-00-SB
3	Adapter Harness 2	D60-2463-32-00-SB
1	LH Battery/Diode Cable	D60-2467-11-00
1	RH Battery/Diode Cable	D60-2467-12-00
2	Rubber	D60-2467-50-01
2	Bracket Upper Shell	D60-2467-56-00
2	Bracket Lower Shell	D60-2467-57-00
1	Terminal Block	MS27212-1-8
1	Terminal Block Cover	MS18029-11S-8
3	Screw	MS35206-216
3	Washer	AN960-C4
3	Locknut	MS21083B04
1	Grommet dm 6mm	5616632
2	Insulating Boot	MS25171-3S
8	Locknut	MS21044N06
8	Washer	AN960D6L
1	Faston Receptacle	245-5446
Material for Instructions given in Section III.3.		
4	Battery	LC-R127R2P
10	Screw	ISO 7380-M5x16-A2
10	Washer	DIN 125A-5.3-A2
1.0 m	Foam	Tesamoll
1	LH USense Cable	D60-2407-31-00

Qty	Description	Part Number
1	RH USense Cable	D60-2407-32-00
2	Fuse Assembly, USense	D60-2407-33-00
1	Diode Assembly	D60-2463-21-00
1	LH Diode/Relay Cable	D60-2463-24-00x01
1	RH Diode/Relay Cable	D60-2463-25-00x01
2	Battery Serial Connection Cable	D60-2463-26-00x01
2	Battery Ground Cable	D60-2463-27-00x01
1	Excitation Battery Fuse Assy	D60-2463-28-00
2	Fuse Assembly, 5A	D60-2463-29-00
2	Cable, Diode Assy	D60-2463-30-00
1	LH Battery/Diode Cable	D60-2467-11-00
1	RH Battery/Diode Cable	D60-2467-12-00
2	Rubber	D60-2467-50-01
2	Bracket Upper Shell	D60-2467-56-00
2	Bracket Lower Shell	D60-2467-57-00
1	Grommet dm 6mm	5616632
2	Insulating Boot	MS25171-3S
1	Rubber	D60-3553-40-02

II.4 Recommended consumables

Qty	Description	Part Number
A/R	Cable Tie	PLT1MM30
A/R	Cable Tie	PLT2SM30
A/R	Cable Tie Base	EMS-A-D0
A/R	Spiral Wrap	T25N-C

III INSTRUCTIONS

III.1 General

1	Open the front baggage compartment doors. Refer to Section 52-40 of the AMM.
2	Remove the baggage compartment rear covers in accordance with the AMM.
3	Disconnect the airplane main battery in accordance with the AMM, Section 24-31.
4	Disconnect the alternator excitation batteries, at the fuse and remove the fuse assembly (if not crimped onto the wire).
5	Remove the passengers seats in accordance with the AMM, Section 25-10.

- 6 If the installed relay panel looks like the figure below, proceed with the instructions given in section III.2.



Figure 1

- 7 If the installed relay panel looks like the figure below, proceed with the instructions given in section III.3.

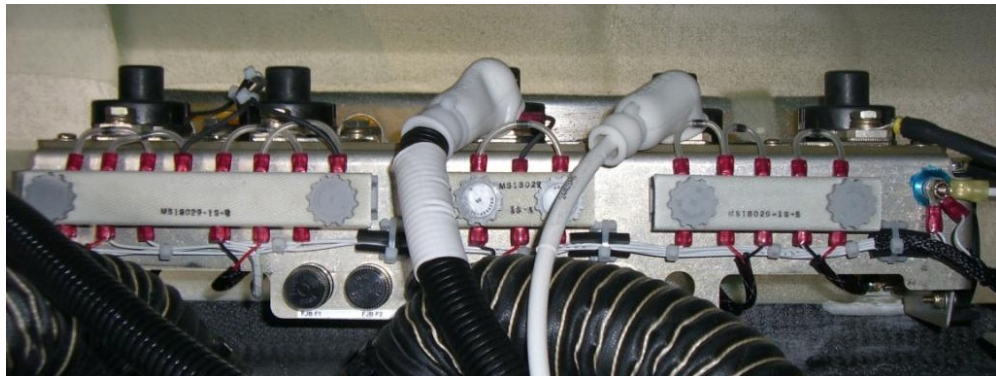
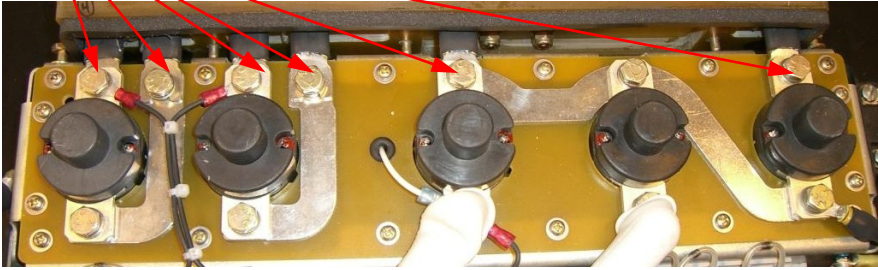
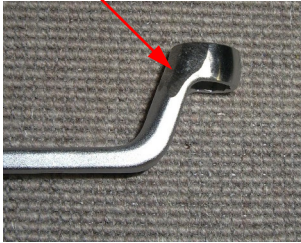
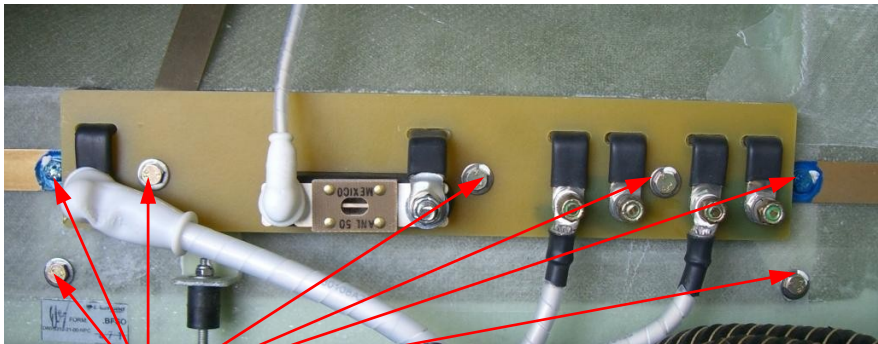



Figure 2

III.2 Instructions without terminal blocks installed

1	Remove the instrument panel cover in accordance with the AMM.
2	If the airplane is equipped with an oxygen system, disconnect the connector P2418, which is located on the left side of the front landing gear spar, on the instrument panel side.
3	If the airplane is equipped with an oxygen system, remove the connector J2418, mounted with 4 screws to the front landing gear spar.
4	<p>Loosen the 6 bolts of the relay panel in the forward baggage compartment using an "offset box wrench", as shown below. Modifications may be necessary to the wrench to gain access to the bolts of the relays.</p> <p>loosen this bolts</p>  <p>Figure 3</p> <p>if necessary grind here</p>  <p>Figure 4</p>

5	<p>Remove the 7 screws of the relay panel on the instrument panel side, as shown below.</p>  <p style="text-align: center;">Figure 5</p> <p style="text-align: center;">remove this screws</p>
6	<p>Disconnect the cables 24405A6N (EPU Ground), 24403A6 (EPU Plus) and 24001A2N (Battery Ground) from the relay panel. If more clearance is required or an oxygen system is installed, disconnect all wires necessary to proceed as stated in Step 7.</p>
7	<p>Move the relay panel forward, as far as possible. If the airplane is equipped with an oxygen system remove the relay panel clear of the airplane.</p>
8	<p>Modify the relay panel according the steps below.</p>
9	<p>Install the terminal block (P/N MS27212-1-8) 6 cm (2.4 ") from the right edge (as shown below), using the hardware MS35206-216 (screw), AN960-C4 (washer) and MS21083B04 (locknut). Two holes (3.0mm) must be drilled into the relay panel first. The two most outboard mounting holes of the terminal block should be used for mounting.</p>  <p style="text-align: center;">Figure 6</p>
10	<p>Disconnect RH alternator relay coil at the inline connector on the bottom side of the relay panel.</p>

- 11 Remove the jumper from the power side of the relay to the connector. Cut-off the ring terminal and the wire (including diode) as near as possible at the connector as shown below.

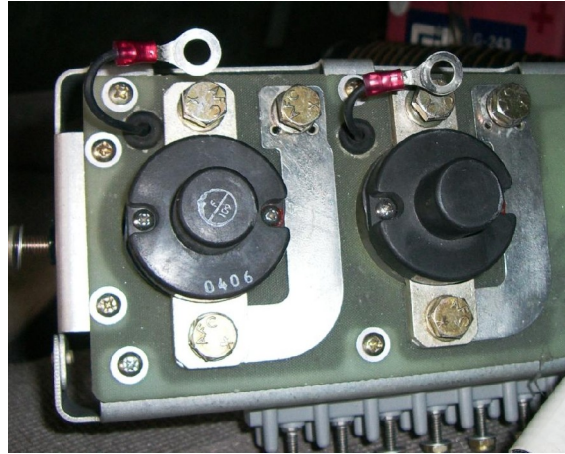


Figure 7a

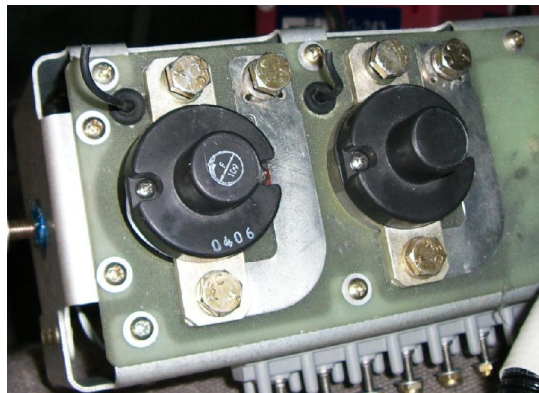


Figure 7b

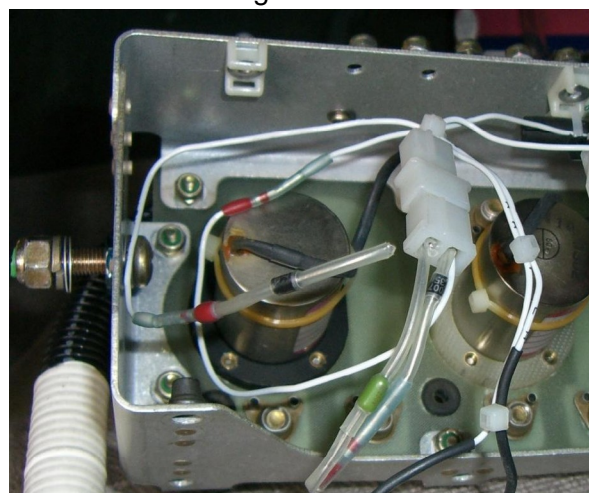


Figure 7c

- 12 Install the adapter harnesses D60-2463-31-00-SB and D60-2463-32-00-SB onto the connectors as shown below.



Figure 8

- 13 Repeat the steps above for the LH alternator relay and for the battery relay.
NOTE: The battery relay does not have a diode installed as the alternator relays.
NOTE: On the battery relay are two wires connected. The wire with the smaller gauge is the wire that must be removed.

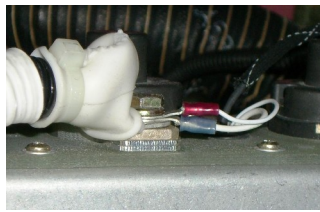


Figure 9

- 14 Connect the ring terminals of the 6 adapter harnesses (D60-2463-31-00-SB and D60-2463-32-00-SB), the fuse assemblies (D60-2463-29-00), the wire 24317A14 (D60-2463-24-00x01), the wire 24318A14 (D60-2463-25-00x01) and the cable, diode assemblies (D60-2463-30-00) to the terminal block as shown below.

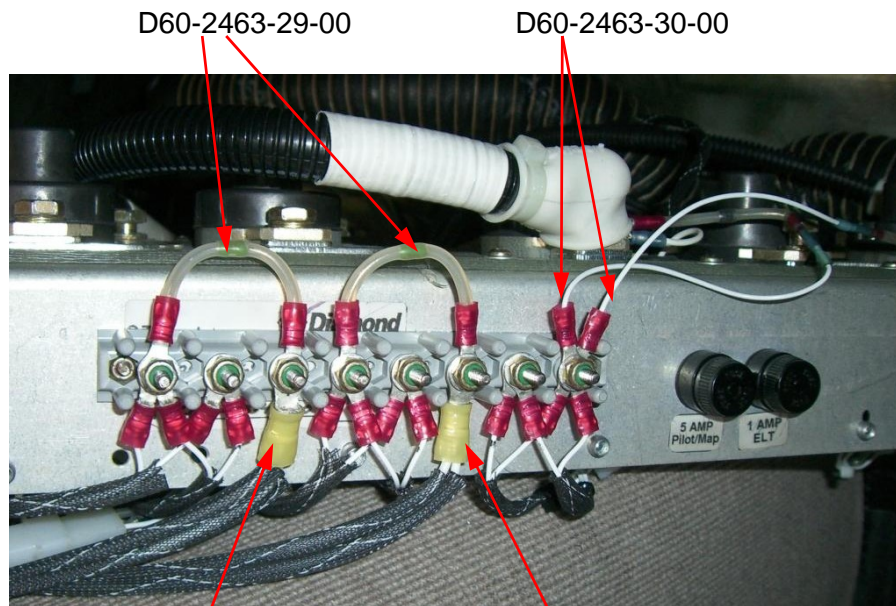


Figure 10a

24318A14

24317A14

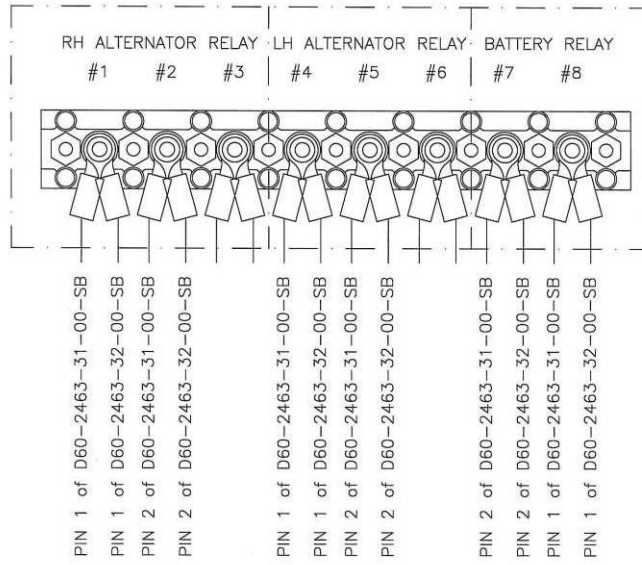


Figure 10b

Connect the other side of the cable, diode assemblies (D60-2463-30-00) to the relay bolts as shown below.

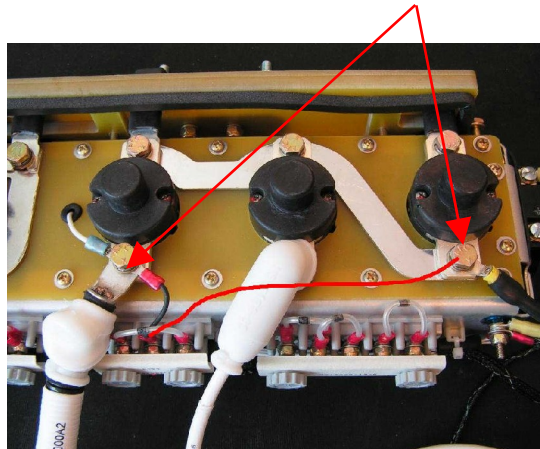


Figure 10c

- 15 Install the terminal block cover P/N MS 18029-11S-8 onto the terminal block.

- 16 If the fuse of the excitation batteries is crimped onto its wires (24027A22 and 24028A22), cut-off the fuse and crimp the faston receptacle P/N 245-5446 onto this wires.



Figure 11

- 17 Connect the fuse assembly D60-2463-28-00 to the faston, installed above.

- 18 Route the wires 24317A14 (D60-2463-24-00x01) and 24318A14 (D60-2463-25-00x01) from the nose baggage compartment to the instrument panel through the nose landing gear spar.

If the airplane is not equipped with an oxygen system, replace rubber plug with grommet dm 6 mm (P/N 5616632).

If the airplane is equipped with an oxygen system, drill a hole diameter 8,5 mm adjacent to the existing holes (see Figure 12) and protect edges with grommet dm 6 mm (P/N 5616632).



Figure 12

- 19 Re-install the relay panel including the diode assy D60-2463-21-00 on the right side of the front landing gear spar (instrument panel side) as shown below, using the two mounting bolts of the relay panel.

D60-2463-21-00



Figure 13

- 20 Disconnect the cables 24304A8 and 24305A8 at the LH and RH alternator relays respectively.

- 21 Install the cables D60-2463-22-00 (LH relay) and D60-2463-23-00 (RH relay), which are part of the diode assembly D60-2463-21-00, onto the above mentioned terminals of the alternator relays, including the insulating boots P/N MS 25171-3S.

D60-2463-22-00

D60-2463-23-00

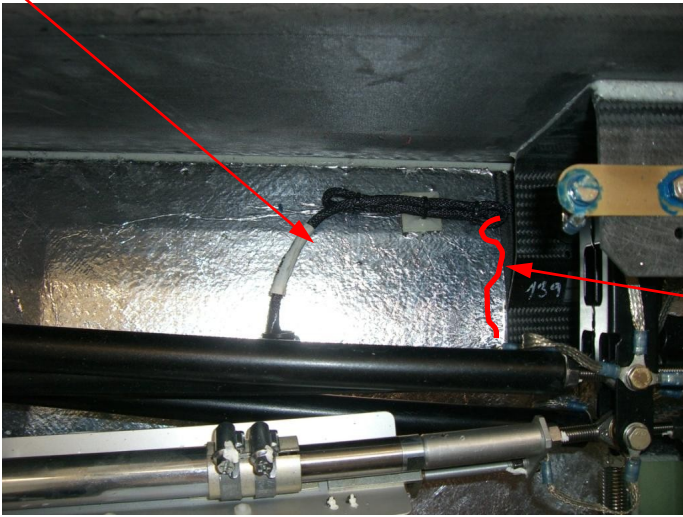


24304A8

24305A8

Figure 14

CAUTION: The cables D60-2463-22-00 and D60-2463-23-00 must have enough clearance to the canopy arm when in closed position.

22	Connect the cable 24304A8 (including insulating boot) to the positive side (marked "+") of the diode, installed on the top of the bracket. Refer also to drawing D60-2463-21-00 and the step above.
23	Connect the cable 24305A8 (including insulating boot) to the positive side (marked "+") of the diode, installed on the bottom of the bracket. Refer also to drawing D60-2463-21-00 and the step above.
24	<p>Relocate the harness for the flaps actuator.</p>  <p>new routing</p> <p>Figure 15</p>

- 25 Remove the aluminium foil at the positions shown below for mounting of the ECU Backup Batteries. Refer also to drawing D60-2467-50-00.

340 x 90 mm
(13.4 x 3.5 ")

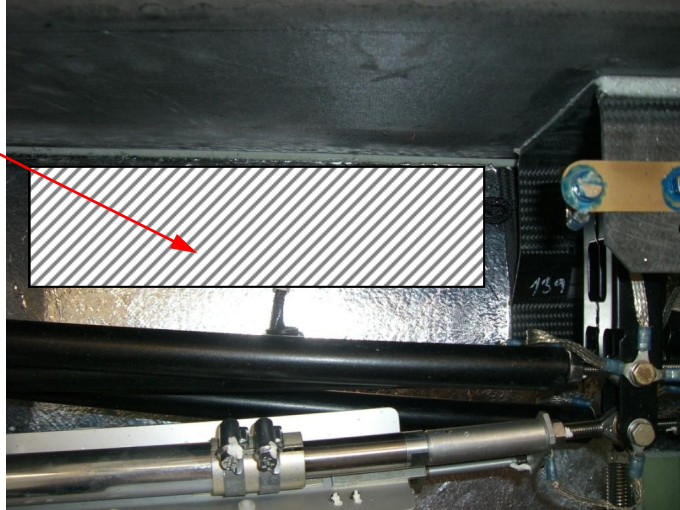


Figure 16a (LH)

340 x 90 mm
(13.4 x 3.5 ")

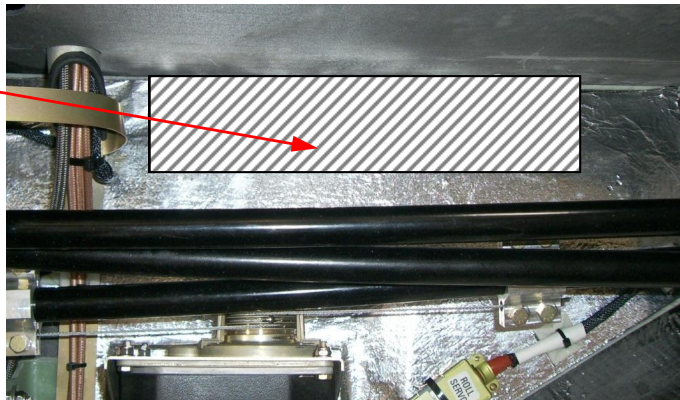


Figure 16b (RH)

- 26 Sand the bonding areas for the lower bracket.

CAUTION: Be careful not to damage the layers of the fuselage skin or the center wing

- 27 Bond the lower brackets (LH and RH) D60-2467-57-00 to the main structure using thickened resin according to AMM. Refer also to drawing D60-2467-50-00.



Figure 17

- 28 Route the wires 24315A14 (D60-2467-11-00) and 24316A14 (D60-2467-12-00) through the right hand lightning protection conduit to the instrument panel, along with the wires for the roll servo of the autopilot.

NOTE: Older serial numbers of the DA 42 can have a braid installed instead of the conduit.



Figure 18

- 29 Install the batteries (LC-R127R2P) into the lower brackets (D60-2467-57-00), the upper brackets (D60-2467-56-00) and tighten the 5 screws (ISO 7380-M5x16-A2) including the washers (DIN 125A-5.3-A2). Refer also to drawing D60-2467-50-00.

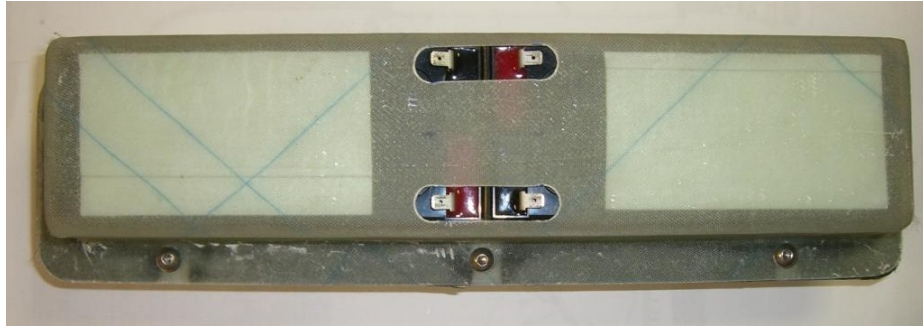


Figure 19

- 30 Install the batteries serial connection cable D60-2463-26-00x01, to gain 24V.



Figure 20

- 31 Install the batteries ground cables D60-2463-27-00x01 to the negative poles of the backup batteries and connect them to the lightning protection strap as shown below.

connection point LH

Connection point RH

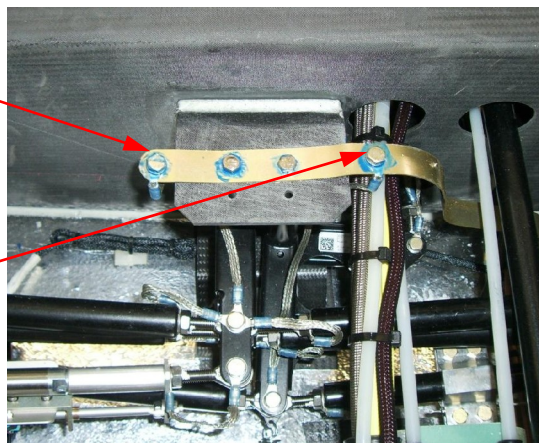
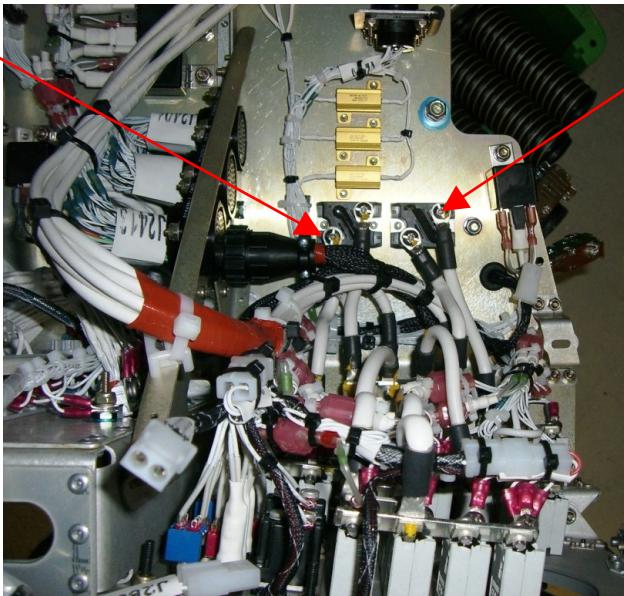


Figure 21

32	Crimp the supplied ring terminals (part of D60-2463-24-00x01 and D60-2463-25-00x01) onto the wires 24315A14 / 24317A14 and 24316A14 / 24318A14, part of D60-2467-11-00 / D60-2463-24-00x01 and D60-2467-12-00 / D60-2463-25-00x01, prior routed from the fuselage to the instrument panel and through the front landing gear spar (step 18).
33	<p>Connect the wires 24315A14 / 24317A14 and 24316A14 / 24318A14 to the two diodes installed on the bottom of the instrument panel sheet metal. Refer also to figure 22. CAUTION: Attention should be paid to the polarity of the diodes.</p> <div style="display: flex; justify-content: space-around; margin-bottom: 10px;"> 24315A14 / 24317A14 24316A14 / 24318A14 </div>  <p style="text-align: center;">Figure 22</p>
34	Remove the left and right outboard nacelle access covers.
35	Locate connector J2443 (USense) in the left nacelle and J2442 (USense) in the right nacelle.
36	Disconnect the connectors mentioned above and seal them by appropriate heatshrink.
37	Connect the LH USense cable D60-2407-31-00, including Fuse Assembly, USense, D60-2407-33-00 to the voltage sense connector of the alternator harness in the left nacelle.
38	Connect the RH USense cable D60-2407-32-00, including Fuse Assembly, USense, D60-2407-33-00 to the voltage sense connector of the alternator harness in the left nacelle.

39 Connect the Fuse Assembly, USense, D60-2407-33-00 to the top terminal of the fuse holder. Refer also to figure 23.

LH shown, RH mirrored

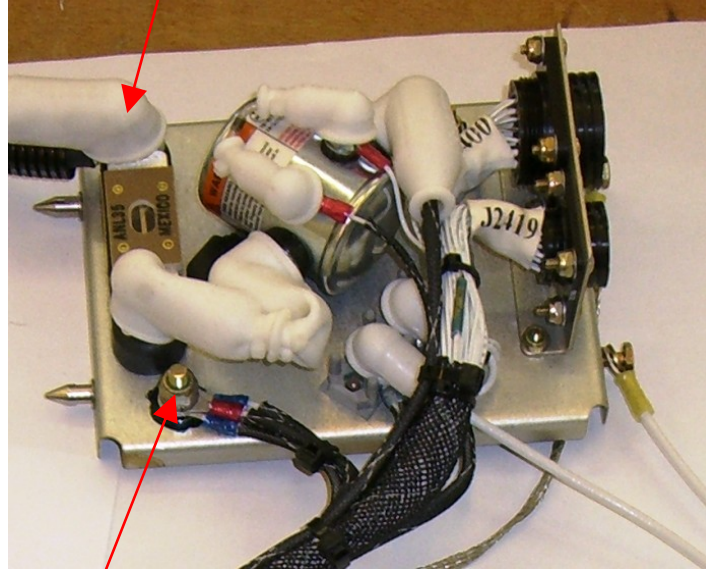


Figure 23


Connect the ring terminal of the cable here

40 Secure all cables using appropriate cable ties and cable tie bases.

41 Clean working areas, check for foreign objects.

42 Install the main battery, if removed. Refer to Section 24-31 of the AMM.

43 Install the instrument panel cover in accordance with the AMM.

44	<p>Connect the battery fuse assemblies (part of D60-2467-11-00 LH and D60-2467-12-00 RH) to the positive pole of the backup batteries.</p>  <p style="text-align: center;">Figure 24 (LH shown)</p>
45	Connect the alternator excitation batteries.
46	Connect the main battery in accordance with the AMM, Section 24-31.
47	Install the passengers seats in accordance with the AMM, Section 25-10.
48	<p>Conduct function check of the electrical system as shown below:</p> <ul style="list-style-type: none"> • During all this test the engines must not stop. • Start both engines and run them on IDLE. • Switch OFF the LH alternator switch. • Pull the LH ECU Bus circuit breaker. • Switch OFF the RH alternator switch. • Pull the RH ECU Bus circuit breaker. • Switch OFF the electric master switch. Both engines must still run. All other electrical equipment will loose power. <p>Bring the system back to normal operating condition.</p>
49	Check all altered, replaced, repaired parts for proper function.
50	<p>Update the current weight and balance report of the airplane with following values:</p> <p>Lever arm: 2958 mm Mass: 11.5 kg</p>
51	Make appropriate entries into aircraft log.

III.3 Instructions with terminal blocks installed

- 1 Relocate the harness for the flaps actuator.

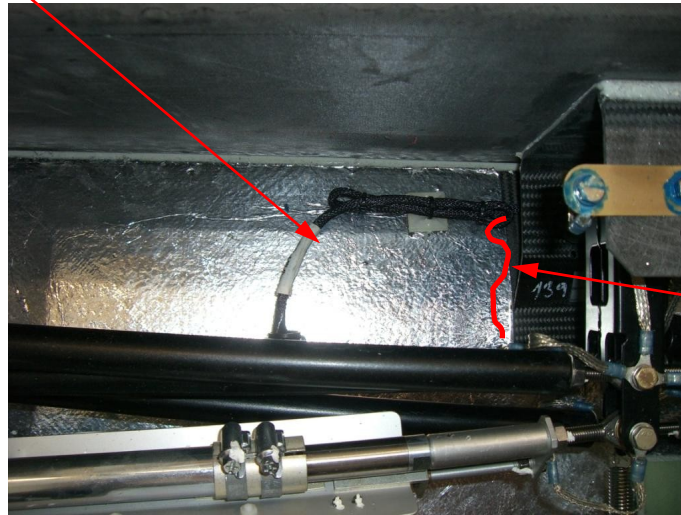


Figure 25

- 2 Remove the aluminium foil at the positions shown below for mounting of the ECU Backup Batteries. Refer also to drawing D60-2467-50-00.

340 x 90 mm
(13.4 x 3.5 ")

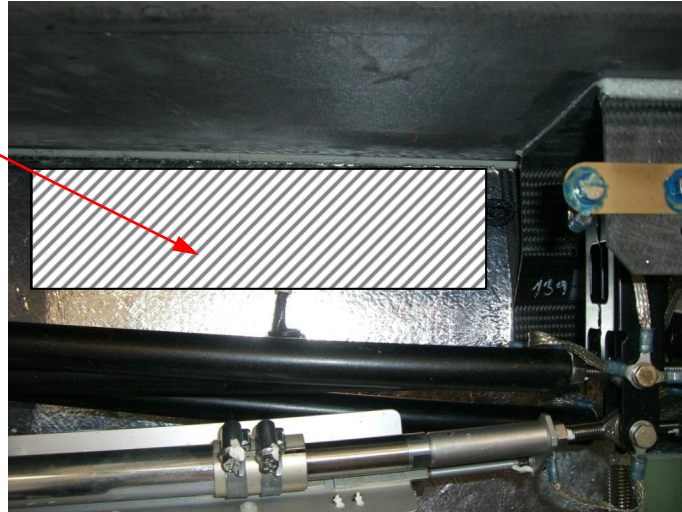


Figure 26a (LH)

340 x 90 mm
(13.4 x 3.5 ")

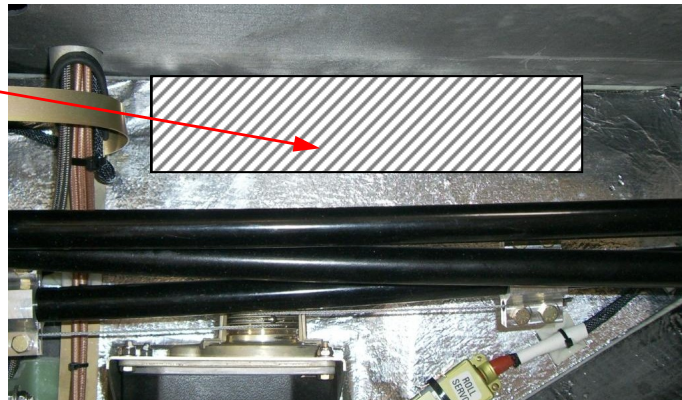


Figure 26b (RH)

- 3 Sand the bonding areas for the lower bracket.

CAUTION: Be careful not to damage the layers of the fuselage skin or the center wing

- 4 Bond the lower brackets (LH and RH) D60-2467-57-00 to the main structure using thickened resin according to AMM. Refer also to drawing D60-2467-50-00.



Figure 27

- 5 Remove the instrument panel cover in accordance with the AMM.

- 6 Route the wires 24315A14 (D60-2467-11-00) and 24316A14 (D60-2467-12-00) through the right hand lightning protection conduit to the instrument panel, along with the wires for the roll servo of the autopilot.

NOTE: Older serial numbers of the DA 42 can have a braid installed instead of the conduit.



Figure 28

- 7 Install the batteries (LC-R127R2P) into the lower brackets (D60-2467-57-00), the upper brackets (D60-2467-56-00) and tighten the 5 screws (ISO 7380-M5x16-A2) including the washers (DIN 125A-5.3-A2). Refer also to drawing D60-2467-50-00.

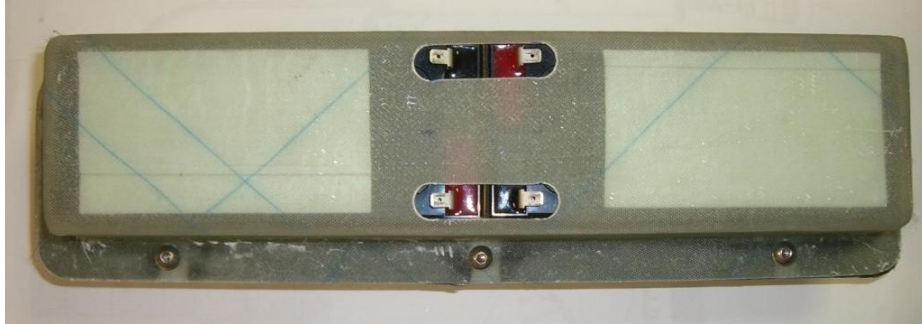


Figure 29

- 8 Install the batteries serial connection cable D60-2463-26-00x01, to gain 24V.



Figure 30

- 9 Install the batteries ground cables D60-2463-27-00x01 to the negative poles of the backup batteries and connect them to the lightning protection strap as shown below.

connection point LH

Connection point RH

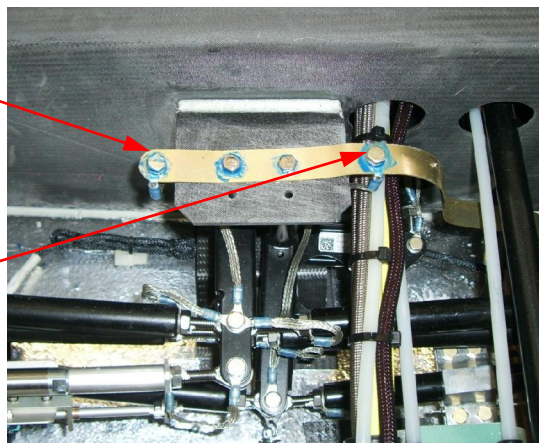


Figure 31

- 10 Route the wires 24317A14 (D60-2463-24-00x01) and 24318A14 (D60-2463-25-00x01) from the nose baggage compartment to the instrument panel through the nose landing gear spar.

If the airplane is not equipped with an oxygen system, replace rubber plug with grommet dm 6 mm (P/N 5616632).

If the airplane is equipped with an oxygen system, drill a hole diameter 8,5 mm adjacent to the existing holes (see Figure 32) and protect edges with grommet dm 6 mm (P/N 5616632).



Figure 32

- 11 If the airplane is equipped with an oxygen system, remove the main battery and remove the oxygen bottle in accordance with the AMM.

- 12 Drill a hole (maximum 65mm diameter) into the mounting bracket of the oxygen bottle to gain access to the terminal block mentioned in the steps below.

CAUTION: Insert a sheet metal or equivalent between the bracket and the relay panel to avoid damage to the relay panel.

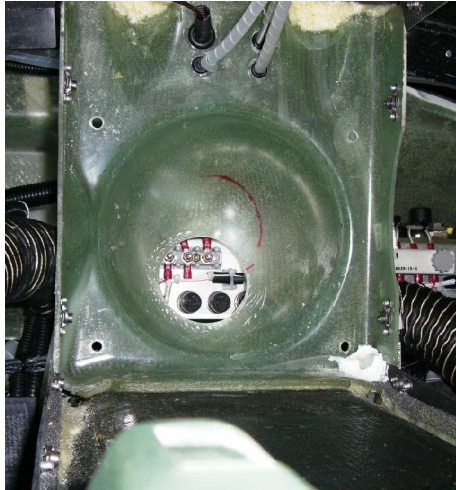
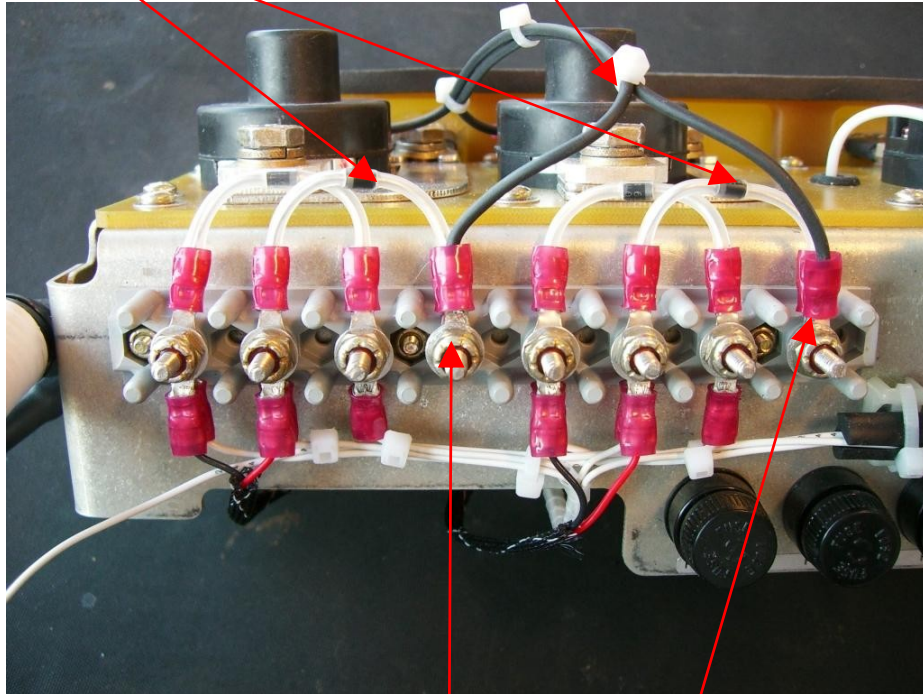


Figure 33

- 13 Disconnect the two wires connected to the alternator relay power side and sealed them with appropriate heatshrink. Replace the diode assemblies with the fuse assemblies D60-2463-29-00. Connect wires 24317A14 (D60-2463-24-00x01) and 24318A14 (D60-2463-25-00x01). Refer also to Figure 34

Replace diode assy's

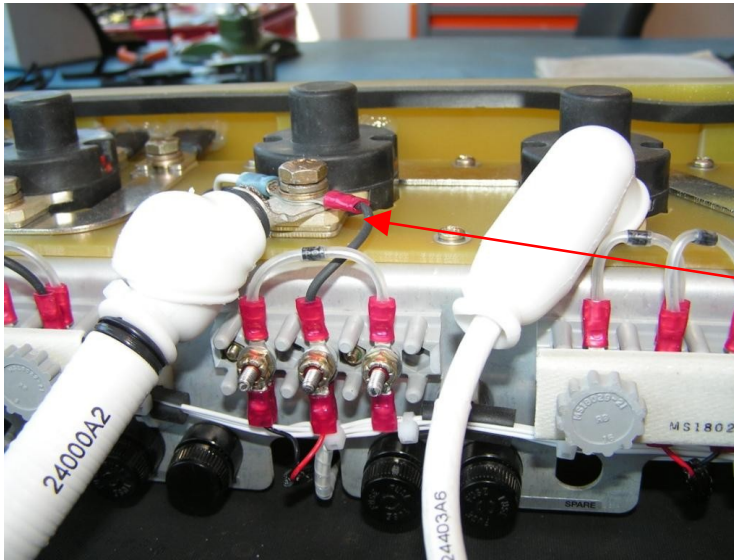
Disconnect and seal wires



Connect wires 24318A14 and 24317A14

Figure 34

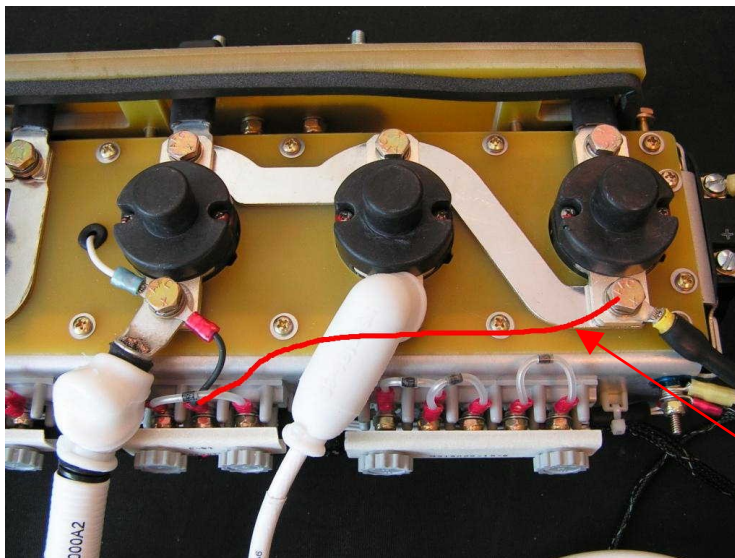
- 14 Replace the positive coil connection of the battery relay with the "Cable, diode assembly" D60-2463-30-00. Note the polarity of the diode. Refer to drawing D60-9224-30-03 and also to figure 35.



Replace cable with
D60-2463-30-00

Figure 35

- 15 Install the second "Cable, diode assembly" D60-2463-30-00 between the battery bus and the positive coil connection of the battery relay. Note the polarity of the diode. Refer to drawing D60-9224-30-02_02 and also to figure 36.



Install D60-2463-30-00

Figure 36

- 16 Crimp the supplied ring terminals (part of D60-2463-24-00x01 and D60-2463-25-00x01) onto the wires 24315A14 / 24317A14 and 24316A14 / 24318A14, part of D60-2467-11-00 / D60-2463-24-00x01 and D60-2467-12-00 / D60-2463-25-00x01, prior routed from the fuselage to the instrument panel (step 6) and through the front landing gear spar (step 10).

- 17 Connect the wires 24315A14 / 24317A14 and 24316A14 / 24318A14 to the two diodes installed on the bottom of the instrument panel sheet metal. Refer also to figure 37.
CAUTION: Attention should be paid to the polarity of the diodes.

24315A14 / 24317A14

24316A14 / 24318A14

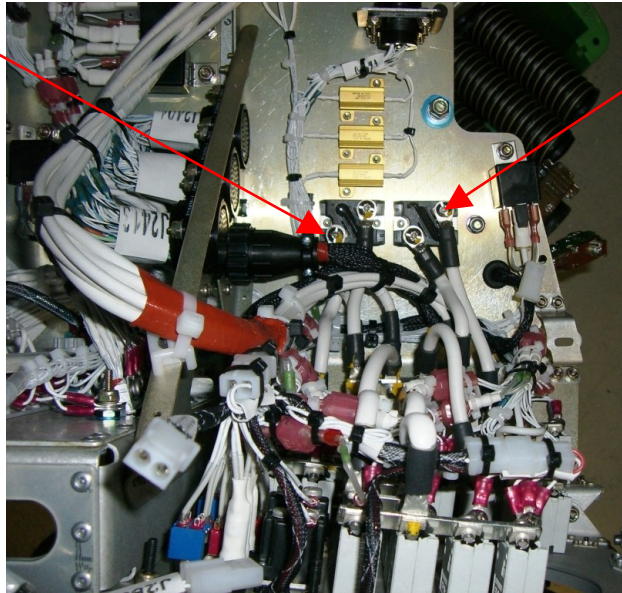


Figure 37

- 18 Connect the fuse assembly D60-2463-28-00 to wires (24027A22 and 24028A22) of the excitation battery.

- 19 Install the "Diode Assembly" D60-2463-21-00 onto the front landing gear spar by using the two mounting screws of the forward relay panel. Refer also to figure 38.

D60-2463-21-00



Figure 38

- 20 Disconnect the cables 24304A8 and 24305A8 at the LH and RH alternator relays respectively.

21 Install the cables D60-2463-22-00 (LH relay) and D60-2463-23-00 (RH relay), which are part of the diode assembly D60-2463-21-00, onto the above mentioned terminals of the alternator relays, including the insulating boots P/N MS 25171-3S.



Figure 39

CAUTION: The cables D60-2463-22-00 and D60-2463-23-00 must have enough clearance to the canopy arm when in closed position.

22 Connect the cable 24304A8 (including insulating boot) to the positive side (marked "+") of the diode, installed on the top of the bracket. Refer also to drawing D60-2463-21-00.

23 Connect the cable 24305A8 (including insulating boot) to the positive side (marked "+") of the diode, installed on the bottom of the bracket. Refer also to drawing D60-2463-21-00.

24 If the airplane is equipped with an oxygen system, install the supplied rubber D60-3553-41-02 onto the hole prior drilled into the oxygen bottle mounting bracket.

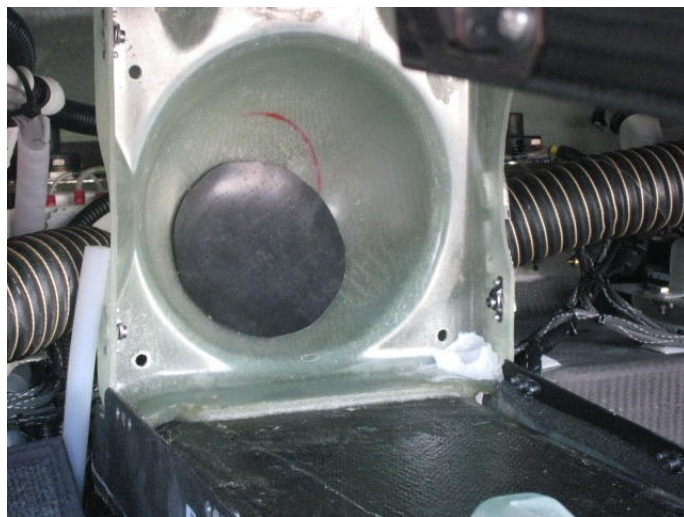
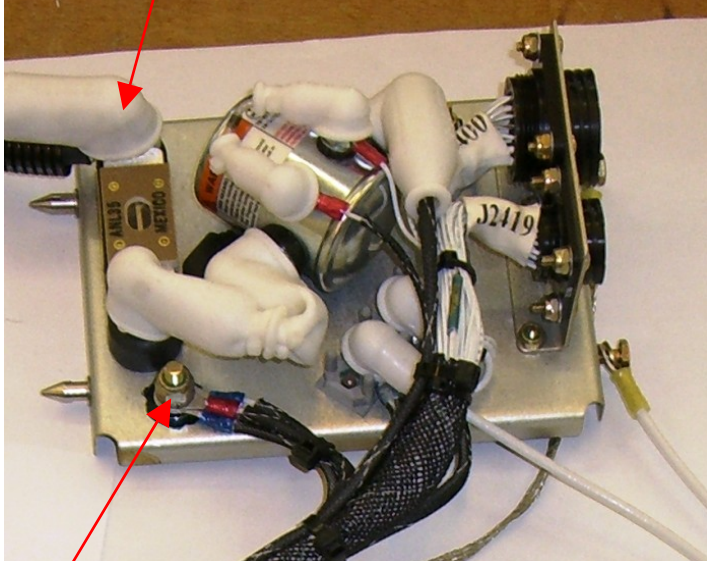



Figure 40

25 Remove the left and right outboard nacelle access covers.

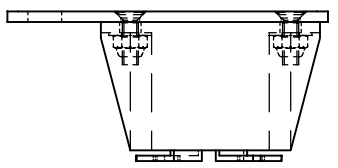
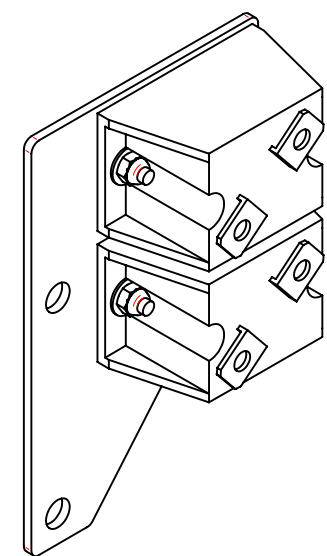
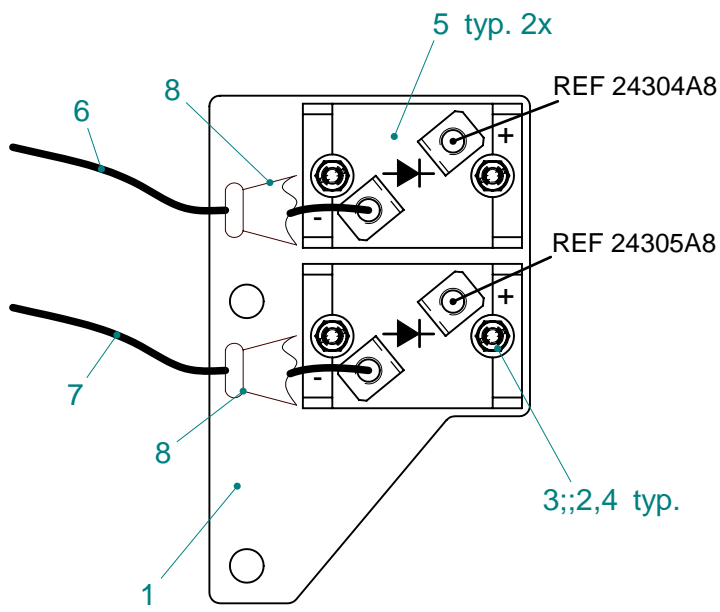
26 Locate connector J2443 (USense) in the left nacelle and J2442 (USense) in the right nacelle.

27	Disconnect the connectors mentioned above and seal them by appropriate heatshrink.
28	Connect the LH USense cable D60-2407-31-00, including Fuse Assembly, USense, D60-2407-33-00 to the voltage sense connector of the alternator harness in the left nacelle.
29	Connect the RH USense cable D60-2407-32-00, including Fuse Assembly, USense, D60-2407-33-00 to the voltage sense connector of the alternator harness in the left nacelle.
30	<p>Connect the Fuse Assembly, USense, D60-2407-33-00 to the top terminal of the fuse holder. Refer also to figure 41.</p> <p>LH shown, RH mirrored</p>  <p>Figure 41</p> <p>Connect the ring terminal of the cable here</p>
31	Secure all cables using appropriate cable ties and cable tie bases.
32	Clean working areas, check for foreign objects.
33	Install the oxygen bottle, if removed. Refer to Section 35-10 of the AMM.
34	Install the main battery, if removed. Refer to Section 24-31 of the AMM.
35	Install the instrument panel cover in accordance with the AMM.

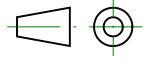

36	<p>Connect the battery fuse assemblies (part of D60-2467-11-00 LH and D60-2467-12-00 RH) to the positive pole of the backup batteries.</p>  <p style="text-align: center;">Figure 42 (LH shown)</p>
37	Install the passengers seats in accordance with the AMM, Section 25-10.
38	Connect the alternator excitation batteries.
39	Connect the main battery in accordance with the AMM, Section 24-31.
40	Install the baggage compartment rear covers.
41	<p>Conduct function check of the electrical system as shown below:</p> <ul style="list-style-type: none"> • During all this test the engines must not stop. • Start both engines and run them on IDLE. • Switch OFF the LH alternator switch. • Pull the LH ECU Bus circuit breaker. • Switch OFF the RH alternator switch. • Pull the RH ECU Bus circuit breaker. • Switch OFF the electric master switch. Both engines must still run. All other electrical equipment will loose power. • Bring the system back to normal operating condition.
42	Check all altered, replaced, repaired parts for proper function.
43	<p>Update the current weight and balance report of the airplane with following values:</p> <p>Lever arm: 2958 mm Mass: 11.5 kg</p>
44	Make appropriate entries into aircraft log.

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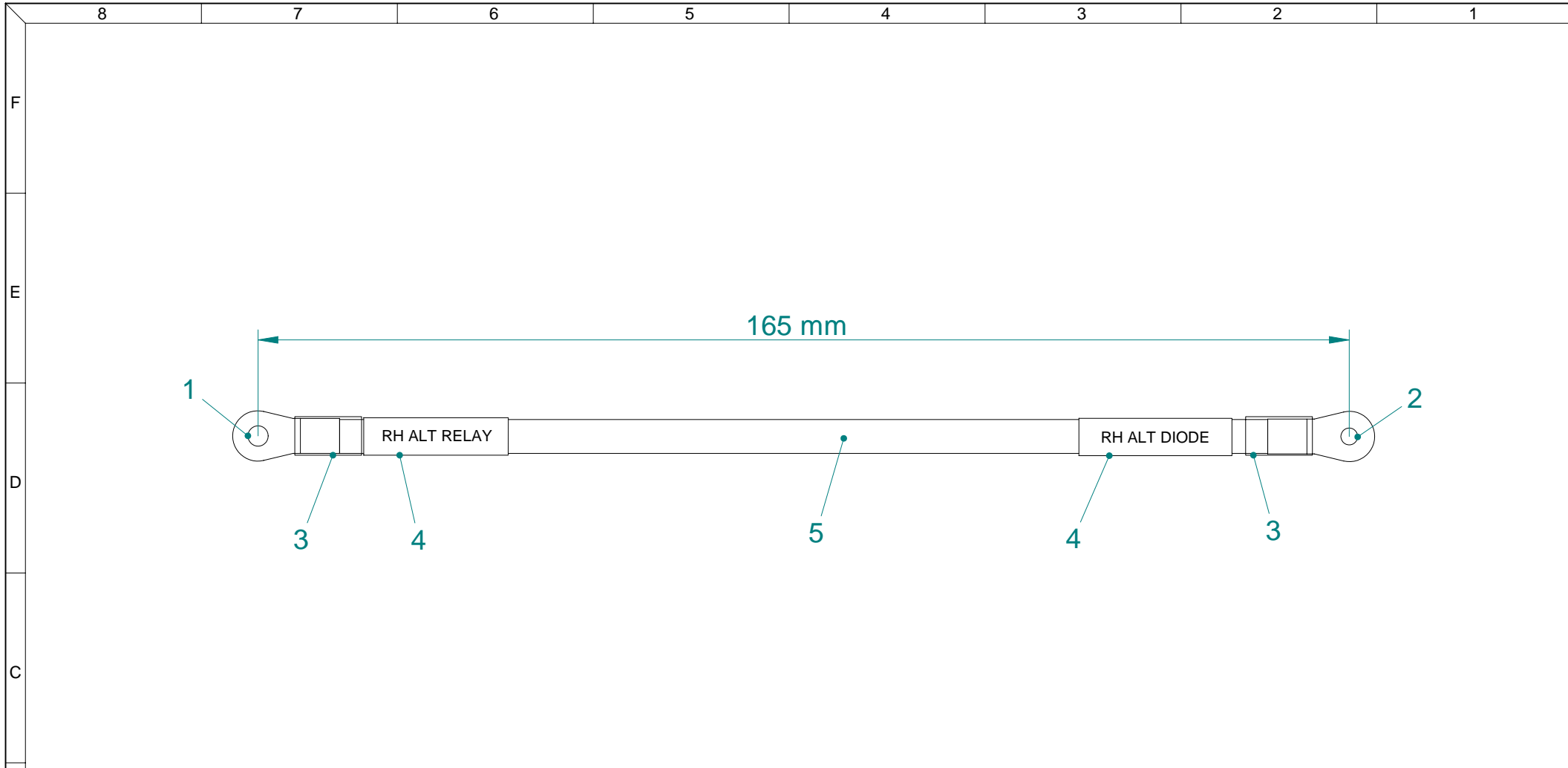
Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
8	2	-	MS25171-1S	Insulating Boot		
7	1	-	D60-2463-23-00	RH Relay/Diode Cable		Diamond
6	1	-	D60-2463-22-00	LH Relay/Diode Cable		Diamond
5	2	-	395-9163	Diode, T70HF40		RS Components
4	4	-	DIN 985-M3-A2	Locknut		
3	4	-	DIN 963-M3x10	Screw		
2	4	-	DIN 125A-3.2-A2	Washer		
1	1	-	D60-2463-21-01	Mounting Bracket, Diodes		Diamond Aircraft

Approved : Date: _____ Name: _____		Checked : Date: _____ Name: _____		General Tolerance : ISO 2768 medium		Scale: 1:1
		Next Higher Assembly : D60-2463-00-00		Title : Diode Assembly		
				Drawing Number: D60-2463-21-00		
a MAM 42-240a 12.07.07 Kowarsch *- MAM 42-240 18.04.07 Kowarsch		DA 42 Twin Star		Drawing Number: D60-2463-21-00		Sheet 1 from 1
Rev. Change Date Name		Saved under :		D60-2463-21-00a.dft		

Weight: 0,088 kg
 Calculated Weight: calculated

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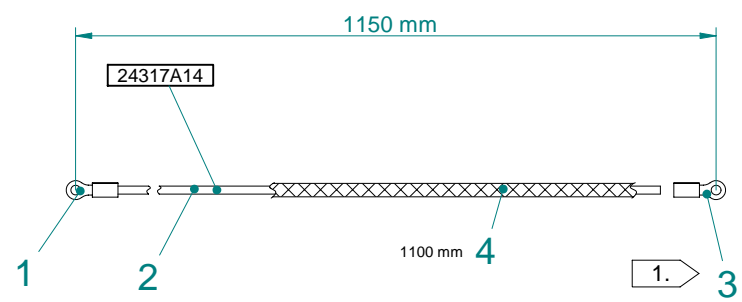
1. EITHER ITEM 5 OR 5a CAN BE INSTALLED.

1.	5a	-	-	N46-36T-700-1	Wire, 8 AWG		
1.	5	0.15 M	-	M22759/34-8-9	Wire, 8 AWG		
	4	2	-	3PS-500-2W	Label, Heat Shrinkabel		
	3	A/R	-	ATUM-1/4-0	Heatsink		
	2	1	-	33460	Ring Terminal		AMP
	1	1	-	33461	Ring Terminal		AMP
Pos.	QTYL	QTYR	Part Number		Description	Specification	Supplier
Approved :				Checked :		General Tolerance :	Scale:
Date	Name		Date	Name		ISO 2768 medium	NTS
				Next Higher Assembly :		Title : RH Relay/Diode Cable	
				D60-2463-21-00			
						Drawing Number: D60-2463-23-00	
Rev.	Change	Date	Name		Saved under :		Sheet 1 from 1
					D60-2463-23-00.dft		

Weight:	N/A
Calculated Weight:	N/A

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NOTES:

1. SUPPLY LOOSE.

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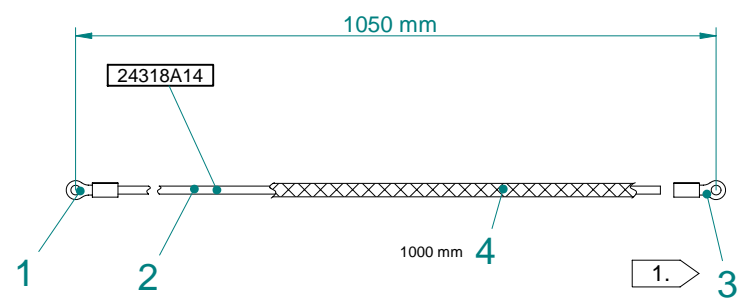
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3	1	-	130094	Ring Terminal		AMP
2	1.15m	-	M22759/16-14-9	Wire, 14 AWG		
1	1	-	320565	Ring Terminal		AMP

Approved : Date: _____ Name: _____		Checked : Date: _____ Name: _____		General Tolerance : ISO 2768 +/- 5mm		Scale: NTS
		Next Higher Assembly :		Title : LH Diode/Relay Cable		
				Drawing Number: D60-2463-24-00x01		
		DA 42 Twin Star		Sheet 1 from 1		
Rev.	Change	Date	Name	Saved under : D60-2463-24-00x01.dft		

Weight:	N/A
Calculated Weight:	N/A

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1. SUPPLY LOOSE.

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Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
4	1.0m	-	920-1/4"BKWH	Expando		
3	1	-	130094	Ring Terminal		AMP
2	1.05m	-	M22759/16-14-9	Wire, 14 AWG		
1	1	-	320565	Ring Terminal		AMP

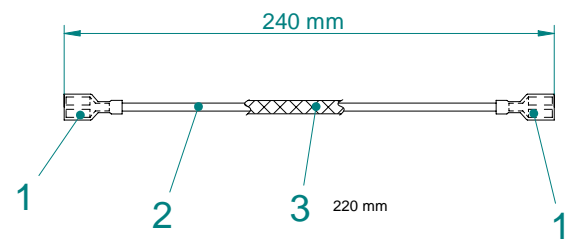
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		Next Higher Assembly :		Title : RH Diode/Relay Cable		
				Drawing Number: D60-2463-25-00x01		
		DA 42 Twin Star		Sheet 1 from 1		
Rev.	Change	Date	Name	Saved under : D60-2463-25-00x01.dft		

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Calculated Weight:	N/A

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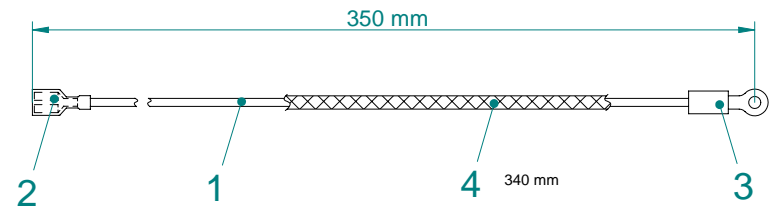
3	0.22m	-	920-1/4" BKWH	Expando		
2	0.24m	-	M22759/16-14-9	Wire, 14 AWG		
1	2	-	3-350820-2	Faston, sealed	AMP	
Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier

Approved : Date _____ Name _____		Checked : Date _____ Name _____		General Tolerance : ISO 2768 +/- 5mm	 Scale: NTS
		Next Higher Assembly : _____		Title : Battery Serial Connection Cable	
		 DA 42 Twin Star		Drawing Number: D60-2463-26-00x01	
Rev. Change		Date Name		Saved under : D60-2463-26-00x01.dft	
Weight: N/A Calculated Weight: N/A		OAM 42-129 23.07.07 Kowarsch		Sheet 1 from 1	

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4	0.34m	-	920-1/4" BKWH	Expando		
3	1	-	31906	Ring Terminal		AMP
2	1	-	3-350820-2	Faston, sealed		AMP
1	0.35m	-	M22759/16-14-9	Wire, 14 AWG		
Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier

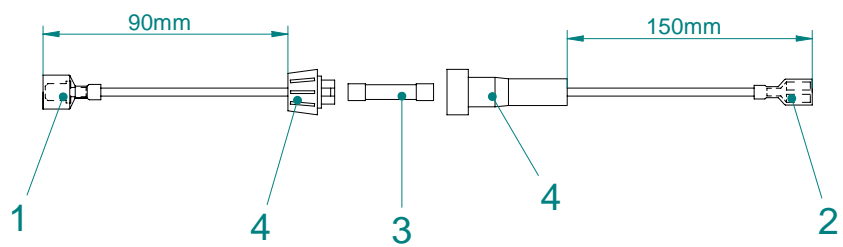
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				Drawing Number: D60-2463-27-00x01		
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Rev.	Change	Date	Name	Saved under : D60-2463-27-00x01.dft		

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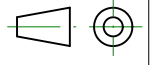

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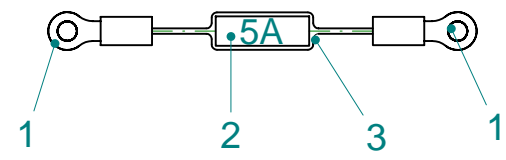
4	1	-	HRJ	Fuse Holder	Cooper	
3	1	-	AGC10	Fuse, 10A		
2	1	-	834410	Faston, sealed	Noviqua	
1	1	-	3-520107-2	Faston	AMP	
Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier

Approved : Date _____ Name _____		Checked : Date _____ Name _____		General Tolerance : ISO 2768 medium		Scale: NTS
		Next Higher Assembly : D60-2463-00-00		Title : Excitation Battery Fuse Assy		
				Drawing Number: D60-2463-28-00		
		DA 42 Twin Star		Sheet 1 from 1		
Rev.	Change	Date	Name	Saved under : D60-2463-28-00a.dft		
"a"	MAM 42-240a	16.07.07	Kowarsch			
"-"	MAM 42-240	25.04.07	Kowarsch			

Weight: N/A
Calculated Weight: N/A

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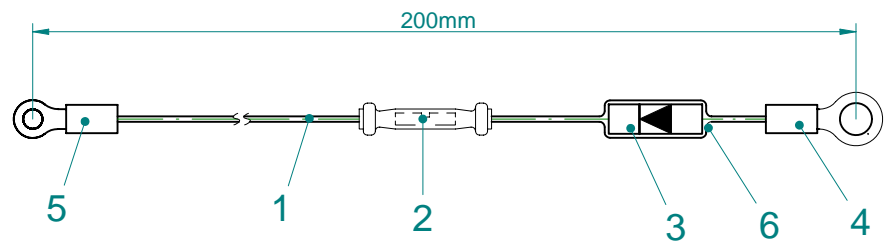
3	A/R	-	N820320	Heatsrink, clear		Noviqua
2	1	-	422-084	Fuse, 5A		RS Components
1	2	-	31890	Ring Terminal		AMP
Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
Approved :			Checked :		General Tolerance :	Scale :
Date	Name		Date	Name	ISO 2768 medium	NTS
			Next Higher Assembly :		Title :	
			D60-2463-40-00_01		Fuse Assembly, 5A	
					Drawing Number: D60-2463-29-00	
Rev.	Change	Date	Name	Saved under :		Sheet 1 from 1
				D60-2463-29-00.dft		

Weight: N/A
Calculated Weight: N/A

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6	A/R	-	N820320	Heatshrink, clear		Noviqua
5	1	-	31890	Ring Terminal		AMP
4	1	-	31894	Ring Terminal		AMP
3	1	-	1N4006	Diode		
2	1	-	D-436-36	Splice		AMP
1	0.12m	-	M22759/16-22-9	Wire, 22 AWG		
Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier

Approved :		Checked :		General Tolerance :		Scale:											
Date	Name	Date	Name	ISO 2768 medium		NTS											
		Next Higher Assembly :		Title :													
		D60-2463-40-00_01		Cable, Diode Assembly													
				Drawing Number:													
		DA 42 Twin Star		D60-2463-30-00													
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Rev.	Change	Date	Name														
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"-"	MAM 42-240	20.06.07	Kowarsch														
		Saved under :		D60-2463-30-00a.dft		from 1											

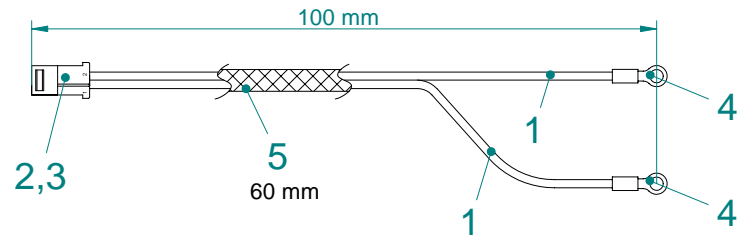
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Calculated Weight: N/A

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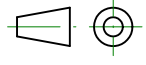

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PIN	WIRE
1	PIN 1
2	PIN 2



Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
8	0.06m	-	5021000632	Expando		
4	2	-	31890	Ring Terminal		AMP
3	2	-	60617-1	Socket		AMP
2	1	-	1-480318-0	Connector, 2 Socket		AMP
1	0.2m	-	M22759/16-22-9	Wire, 22 AWG		

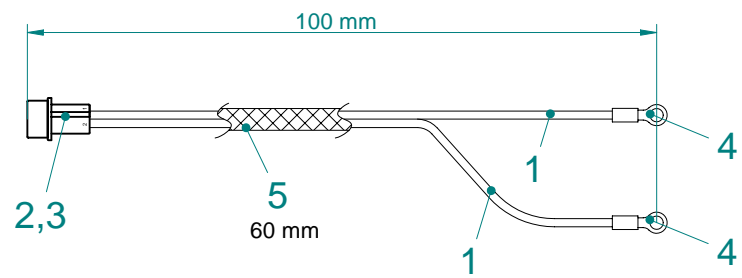
Approved : Date: _____ Name: _____		Checked : Date: _____ Name: _____		General Tolerance : ISO 2768 +/- 5mm	 Scale: NTS	
		Next Higher Assembly : N/A		Title : Adpater Harness 1		
				Drawing Number: D60-2463-31-00-SB		
		DA 42 Twin Star		Sheet 1 from 1		
Rev.	Change	Date	Name	Saved under : D60-2463-31-00-SB.dft		

Weight: N/A
 Calculated Weight: N/A

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PIN	WIRE
1	PIN 1
2	PIN 2

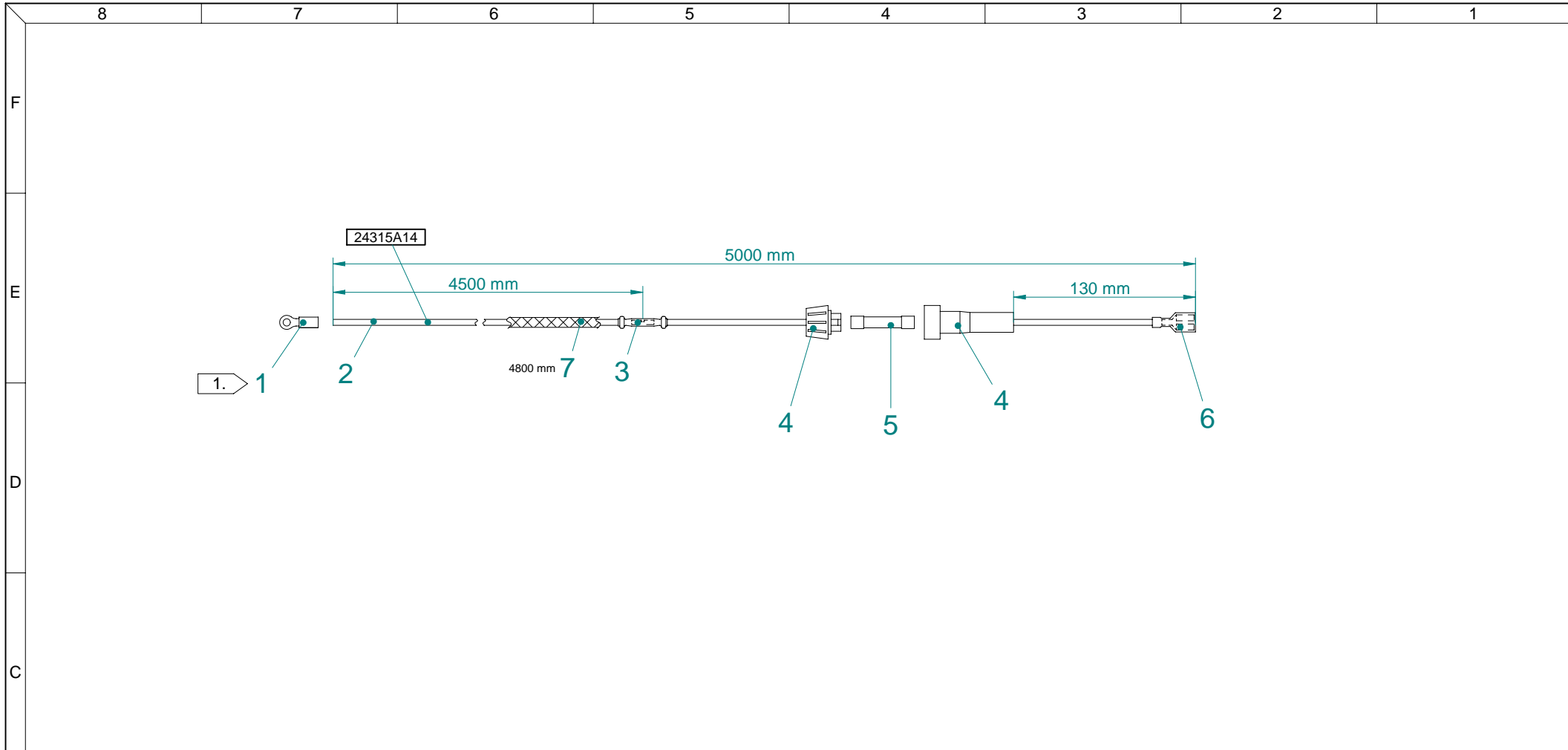


Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
8	0.06m	-	5021000632	Expando		
4	2	-	31890	Ring Terminal		AMP
3	2	-	60618-1	Pin		AMP
2	1	-	1-480319-0	Connector, 2 Pins		AMP
1	0.2m	-	M22759/16-22-9	Wire, 22 AWG		

Approved : Date: _____ Name: _____		Checked : Date: _____ Name: _____		General Tolerance : ISO 2768 +/- 5mm		Scale: NTS
		Next Higher Assembly : N/A		Title : Adpater Harness 2		
				Drawing Number: D60-2463-32-00-SB		
		DA 42 Twin Star		Sheet 1 from 1		
Rev.	Change	Date	Name	Saved under : D60-2463-32-00-SB.dft		

Weight: N/A
 Calculated Weight: N/A

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NOTES:

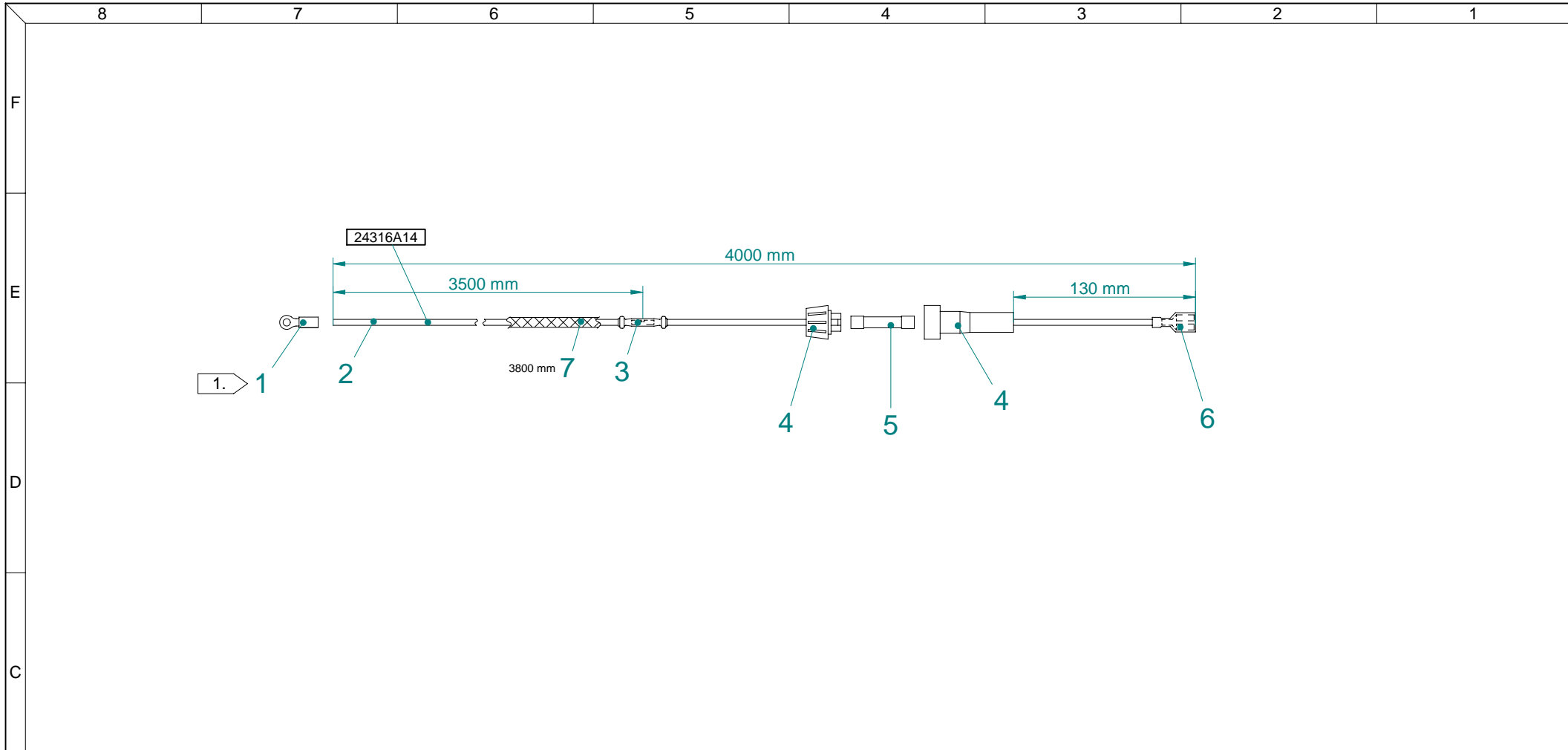
1. SUPPLY LOOSE.

1.

Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
7	4.8m	-	920-1/4" BKWH	Expando		
6	1	-	3-350820-2	Faston, sealed		AMP
5	1	-	270378	Fuse, 32A		Distrelec
4	1	-	HRJ	Fuse Holder		Cooper
3	1	-	D436-38	Splice		AMP
2	4.5m	-	M22759/16-14-9	Wire, 14 AWG		
1	1	-	130094	Ring Terminal		AMP

Approved : Date: _____ Name: _____		Checked : Date: _____ Name: _____		General Tolerance : ISO 2768 +/- 5mm	 Scale: NTS
		Next Higher Assembly : _____		Title : LH Battery/Diode Cable	
		 DA 42 Twin Star		Drawing Number: D60-2467-11-00	
Rev. Change Date Name		Saved under :		Sheet 1 from 1	
*- OAM 42-129 23.07.07 Kowarsch		D60-2467-11-00.dft			

Weight:	N/A
Calculated Weight:	N/A



NOTES:

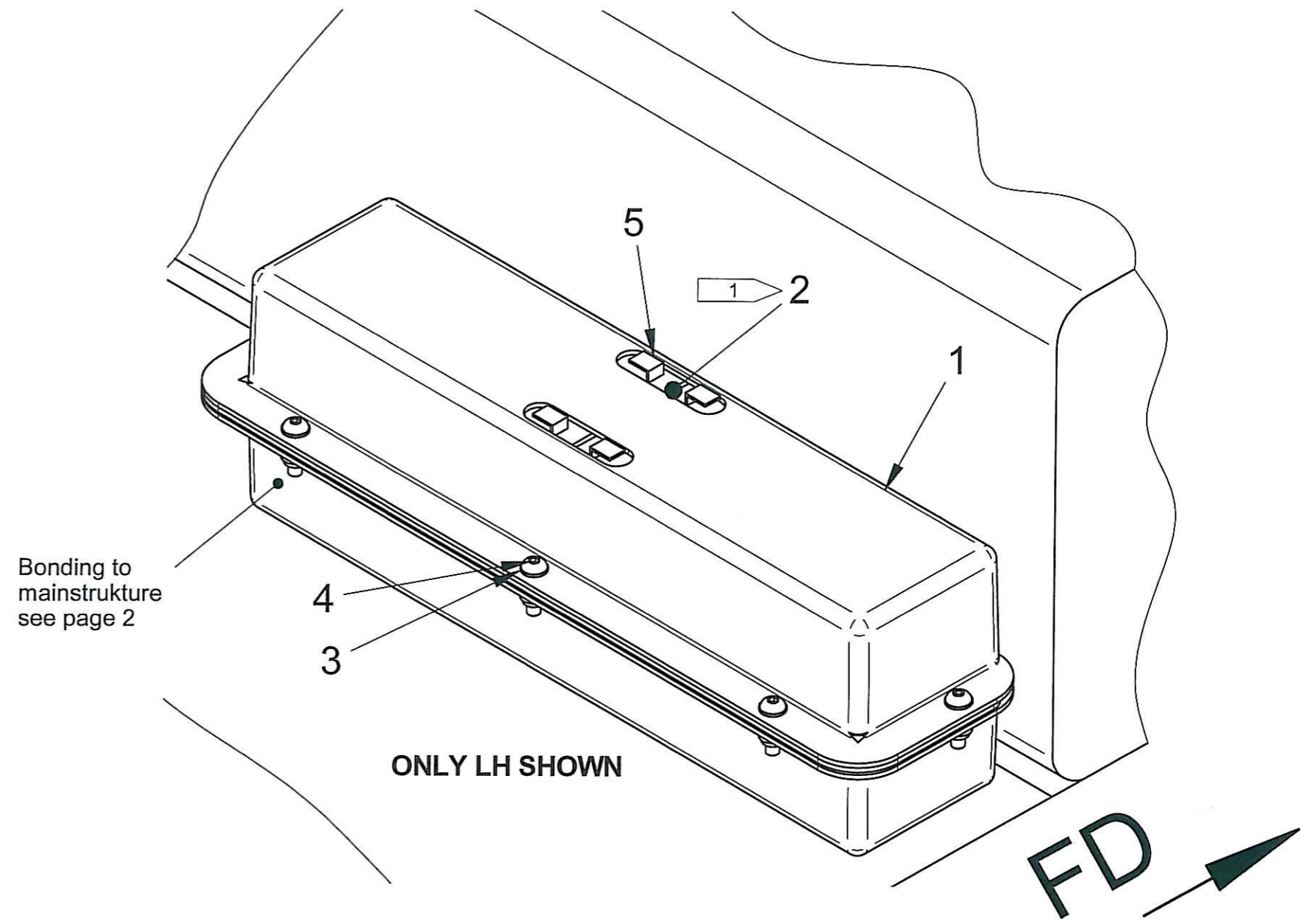
1. SUPPLY LOOSE.

1.

Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
7	3.8m	-	920-1/4" BKWH	Expando		
6	1	-	3-350820-2	Faston, sealed		AMP
5	1	-	270378	Fuse, 32A		Distrelec
4	1	-	HRJ	Fuse Holder		Cooper
3	1	-	D436-38	Splice		AMP
2	3.5m	-	M22759/16-14-9	Wire, 14 AWG		
1	1	-	130094	Ring Terminal		AMP

Approved : Date _____ Name _____		Checked : Date _____ Name _____		General Tolerance : ISO 2768 +/- 5mm	 Scale: NTS
		Next Higher Assembly :		Title : RH Battery/Diode Cable	
		 DA 42 Twin Star		Drawing Number: D60-2467-12-00	
Rev. Change Date Name		Saved under :		Sheet 1 from 1	
OAM 42-129 23.07.07 Kowarsch		D60-2467-12-00.dft			

Weight:	N/A
Calculated Weight:	N/A



Note:

1 Pos.2 (D60-2467-50-01) optional

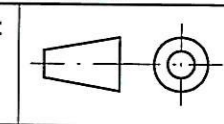
LH shown
RH opposite

Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
5	2	2	LC-R127R2P	Battery		Panasonic
4	5	5	ISO 7380-M5x16-A2	Screw		
3	5	5	DIN 125A-5,3-A2	Washer		
2	1	1	D60-2467-50-01	Rubber		
1	1	1	D60-2467-56-00	Bracket Upper Shell		

Approved: **C. Jutte**
Date: 23. AUG 2007 Name

Checked: **T. Krassnitzer**
Date: 23. AUG 2007 Name

General Tolerance :
ISO 2768
medium

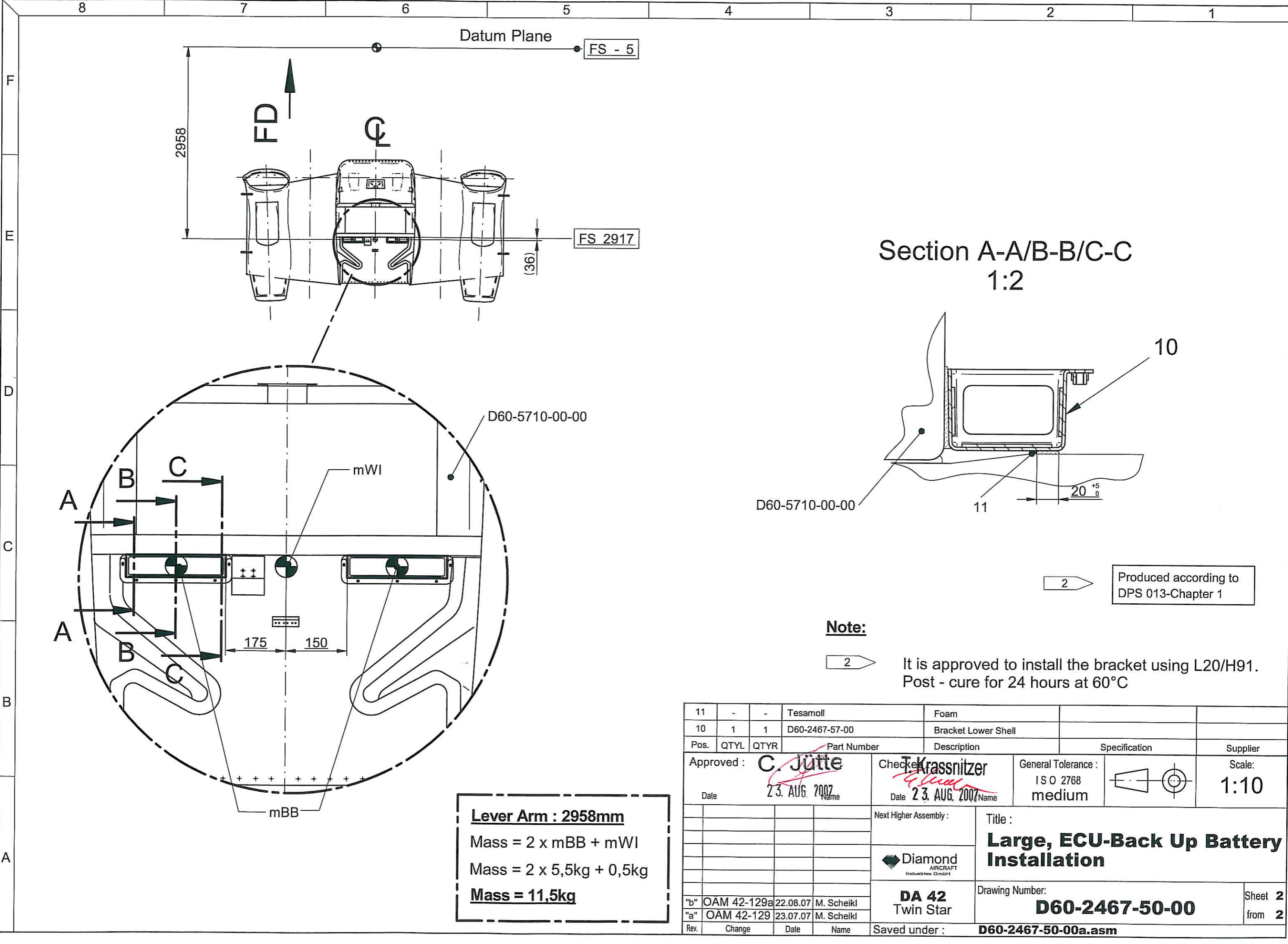


Scale:
1:2

Next Higher Assembly :		Title :	
		Large, ECU-Back Up Battery Installation	
DA 42 Twin Star		Drawing Number: D60-2467-50-00	
Rev. Change Date Name		Sheet 1 from 2	
Saved under :		D60-2467-50-00a.asm	

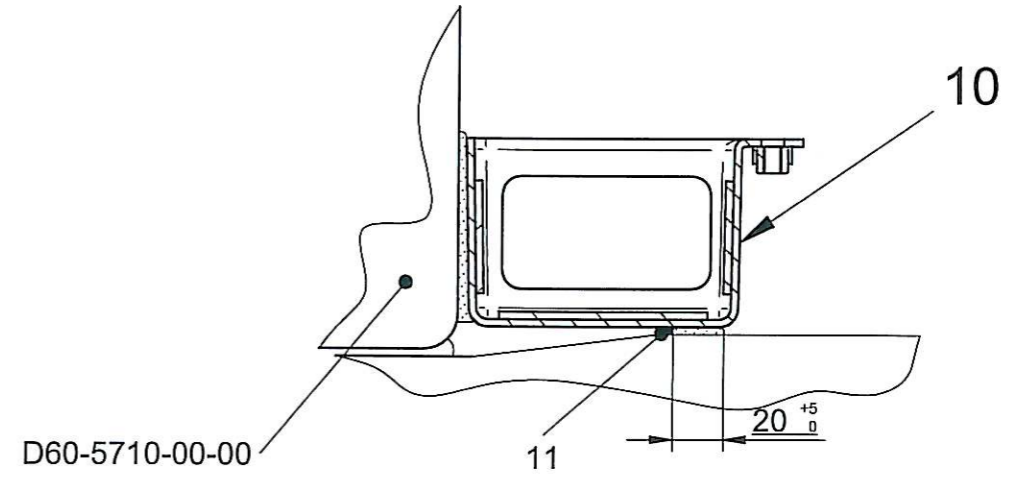
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Lever Arm : 2958mm
 Mass = 2 x mBB + mWI
 Mass = 2 x 5,5kg + 0,5kg
Mass = 11,5kg

**Section A-A/B-B/C-C
1:2**



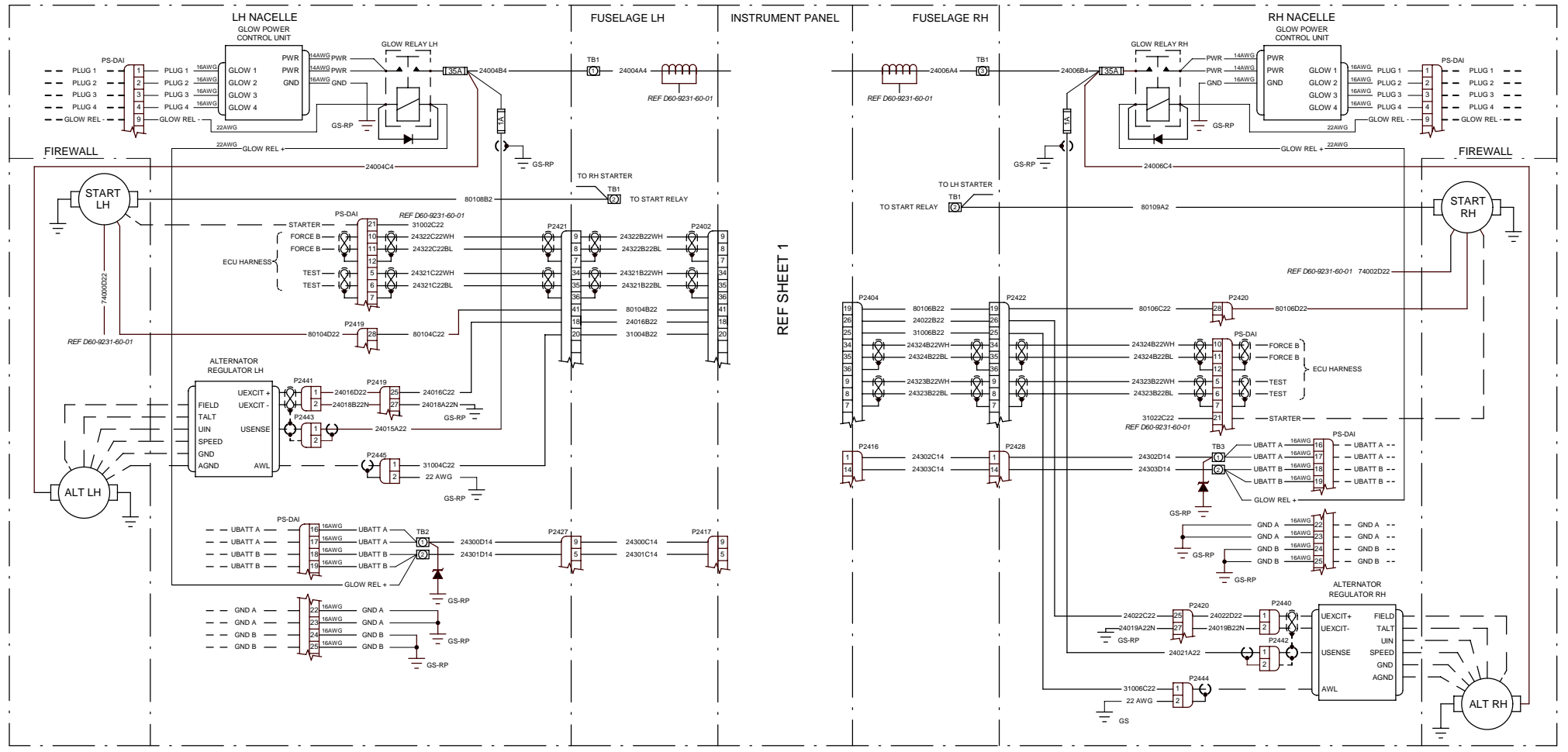
Produced according to
DPS 013-Chapter 1

Note:

It is approved to install the bracket using L20/H91.
Post - cure for 24 hours at 60°C

11	-	-	Tesamoll	Foam		
10	1	1	D60-2467-57-00	Bracket Lower Shell		
Pos.	QTYL	QTYR	Part Number	Description	Specification	Supplier
Approved : C. Jütte			Checked: T. Krassnitzer		General Tolerance : ISO 2768 medium	Scale: 1:10
Date: 23. AUG. 2007			Date: 23. AUG. 2007			
Next Higher Assembly :			Title : Large, ECU-Back Up Battery Installation			
			DA 42 Twin Star		Drawing Number: D60-2467-50-00	Sheet 2 from 2
Rev.	Change	Date	Name	Saved under : D60-2467-50-00a.asm		

F
E
D
C
B
A




NOTES:

1. DASHED LINES INDICATE A THIELERT HARNESS.

Approved :		Checked :		General Tolerance : ISO 2768		Scale: NTS	
Date	Name	Date	Name	Title : Schematic, Electrical System, TAE 125-02 [FAA]		Sheet 2 from 2	
		Next Higher Assembly : D60-9200-00-00		Drawing Number: D60-9224-30-03		Saved under : D60-9224-30-03.dft	
Rev.	Change	Date	Name				
		03.07.07	M. Scheikl				

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Weight: N/A
Calculated Weight: N/A

EASA	AIRWORTHINESS DIRECTIVE	
	<p>AD No : 2007-0183 R2 [Corrected: 07 November 2007]</p> <p>Date: 06 November 2007</p>	
No person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive unless otherwise agreed with the Authority of the State of Registry.		
Type Approval Holder's Name :		Type/Model designation(s) :
Diamond Aircraft Industries GmbH		DA 42
TCDS Number : EASA A.005		
Foreign AD : not applicable		
Revision: This Airworthiness Directive (AD) revises and replaces EASA AD 2007-0183 R1 dated 28 August 2007.		
ATA 76	Engine Controls – Engine Control Unit Back-up Batteries - Installation	
Manufacturer:	Diamond Aircraft Industries GmbH	
Applicability:	DA 42 airplanes, serial numbers 42.004, 42.006, 42.009 through 42.156, 42.158 through 42.176, 42.178 through 42.190, 42.192 through 42.233, 42.235 through 42.246, 42.248 through 42.254, 42.256 through 42.261, 42.263 through 42.269; and 42.AC001 through 42.AC109 (Canadian production line)	
Reason:	<p>Recently, a double in-flight engine shut down incident occurred on a DA42 aircraft equipped with TAE125-01 engines. The BFU (German Accident Investigation Body) found the root cause to be a violation of the Airplane Flight Manual procedures (taking-off with an insufficiently charged main aircraft battery) and momentary low voltage in the electrical system of the aircraft when retracting the main landing gear. This has been the subject of Diamond Service Information (SI) 42-040 and a subsequent EASA Safety Information Notice, SIN 2007-08, issued on 18 April 2007.</p> <p>The TAE125-01 and TAE125-02-99 engines, approved for installation on the DA42, are FADEC (Full Authority Digital Engine Control) controlled and are not totally independent from the aircraft electrical power supply. A significant drop of the voltage causes simultaneously a reset of the FADEC on both engines with subsequent feathering of the propeller blades. In the case of an empty battery this scenario may be considered as catastrophic at the aircraft level.</p> <p>The Thielert Aircraft Engines (TAE) Installation Manuals IM-02-01 Issue 4 and IM-02-02 Issue 1 have been revised to address this issue, which is the subject of EASA Airworthiness Directive (AD) 2007-0182.</p> <p>AD 2007-0183 was issued to require installation of additional Engine Control Unit</p>	

	<p>(ECU) Backup Batteries to supply electrical power to the ECU, preventing high transient power drains from causing a short-term voltage drop when insufficient power from the main battery might exist.</p> <p>This AD has been revised to extend the compliance time by one month, to 30 November 2007, and to include reference to an approved alternative method of compliance. Aircraft already in compliance with EASA AD 2007-0183 or its revision 1 are not affected by this change.</p> <p>This AD has been republished to correct a typographical error.</p>
Effective Date:	16 July 2007
Compliance:	<p>Within the next 200 Flight Hours, but not later than 30 November 2007, whichever occurs first after the effective date of this directive, accomplish the following:</p> <ul style="list-style-type: none"> • Modify the engine electrical system of the DA 42 by installing additional ECU backup batteries in accordance with Diamond Aircraft Industries (DAI) Mandatory Service Bulletin (MSB) 42-042 dated 22 June 2007 and DAI Work Instruction WI-MSB-42-042 dated 20 June 2007 or later approved revisions of these documents; and • Amend the DA 42 Aircraft Maintenance Manual by inserting DAI AMM-TR-MÄM-42-240 Temporary Revision dated 17 June 2007 or later approved AMM Revision, update the operator's maintenance programme and maintain the aircraft accordingly; and • Amend the DA 42 Airplane Flight Manual (AFM) by inserting a copy of AFM TR-MÄM-42-240 dated 17 June 2007 or later approved AFM Revision into the AFM, as instructed in that document. <p>Note: Modification of the engine electrical system of the DA 42 and accomplishment of related actions in accordance with the instructions contained in DAI Optional Service Bulletin (OSB) 42-050/1 or later approved revisions, including associated documents referenced therein, has been approved as an alternative method of compliance for the requirements of this AD.</p>
Ref. Publications:	<p>Diamond Aircraft Industries (DAI) Mandatory Service Bulletin MSB-42-042; DAI WI-MSB-42-042; DAI Service Information SI 42-040; DAI AFM TR-MÄM-42-240 and AMM-TR-MÄM-42-240;</p> <p>TAE Installation Manual IM-02-01 Issue 4, Revision 1, Chapter 13 (02-IM-13-01); and IM-02-02 Issue 1, Revision 3, Chapter 13, (02-IM-13-02).</p> <p>DAI Optional Service Bulletin OSB-42-050/1; DAI WI-OSB-42-050 Revision 2; DAI AFM TR-OÄM-42-129 and AMM-TR-OÄM-42-129.</p>
Remarks :	<ol style="list-style-type: none"> 1. If requested and appropriately substantiated, EASA can accept Alternative Methods of Compliance for this AD. 2. The original issue of this AD was posted as PAD 07-074 for consultation on 04 May 2007 with a comment period until 18 May 2007. The Comment Response Document can be found at http://ad.easa.europa.eu/ . 3. Enquiries regarding this AD should be addressed to the AD Focal Point - Certification Directorate, EASA. E-mail: ADs@easa.europa.eu 4. For any question concerning the technical content of the requirements in this AD, please contact Diamond Aircraft Industries GmbH, Austria. Ph.: +43 2622 26700 ; Fax: +43 2622 26780; E-mail: office@diamond-air.at