

SERVICE BULLETIN



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Date Issued: 05 October 2012

Title: ADF System Improvements

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- 1. ATA Code:** 3450
- 2. Effectivity:** All DA42 aircraft with Transport Canada Civil Aviation (TCCA) STC SA09-54 or Federal Aviation Administration (FAA) STC SA02725NY installed.
- 3. General:** This Service Bulletin (SB) gives instructions for overall improvements of the ADF System installed on the aircraft. There are three options available.

Revision 2 of this SB changes the orientation of the EMI Filter.

- 4. Compliance:** Compliance with this SB is optional.
- 5. Approval:** Engineering data referenced or contained in this SB is approved as part of the Supplemental Type Certificate (STC) design.
- 6. Labour:** For Option 1, EMI Filter installation, approximately 2.0 hours will be required to accomplish this SB.
- For Option 2, EMI Filter and copper foil installation, approximately 4.0 hours will be required to accomplish this SB.
- For Option 3, EMI Filter, copper foil and ground cable installation, approximately 8.0 hours will be required to accomplish this SB.

This estimate is for direct labour performed by a technician and it does not include setup, planning, familiarization, cure time, part fabrication or tool acquisition.

7. Material:	Part Number	Description	Qty
Option 1:	A-9756	EMI Filter	2
	1N	Spiral Wrap, length: 300 mm	2
Option 2: (Plus items listed under Option 1)	Part Number	Description	Qty
	1181-2	Tape, Copper, 2 in, length: 3000 mm	1
	1181-16	Tape, Copper, 16 in, length: 1100 mm	1
	DA4-3450-20-73	Bonding Strap	1
	DIN985-M5-A2	Nut, Locking	1
DIN9021-M5-A2	Washer	1	

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	Part Number	Description	Qty
Option 3:	N46-36T-751-2	Wire 4 AWG, length: 800 mm	1
(Plus items	N46-36T-751-2	Wire 4 AWG, length: 1000 mm	1
listed under	33115	Ring terminal	2
Option 1 and	LN9037-M8x16	Bolt	2
items listed	31811	Ring Terminal	2
under Option 2)	ATUM-1/2-0	Heat Shrink, length: 160 mm	1
	LN9037-M6x12	Bolt	2
	DIN125A-M6-A2	Washer, Stainless	2
	DIN985-M6-A2	Nut, Hexagon	2
	PLT-2-SM-76	Cable Tie	20
	MS21919WDG7	Clamp, P Type	2
	MS21919WDG10	Clamp, P Type	2
	AN3-5A	Bolt	2
	NAS1149F0363P	Washer	4
	MS21044N3	Nut, Self Locking	2
	MS3367-5-9	Cable, Tie	4

The materials for Option 1 may be ordered as a **Kit D42L-34-01**.

The materials for Option 2 may be ordered as a **Kit D42L-34-02**.

The materials for Option 3 may be ordered as a **Kit D42L-34-03**.

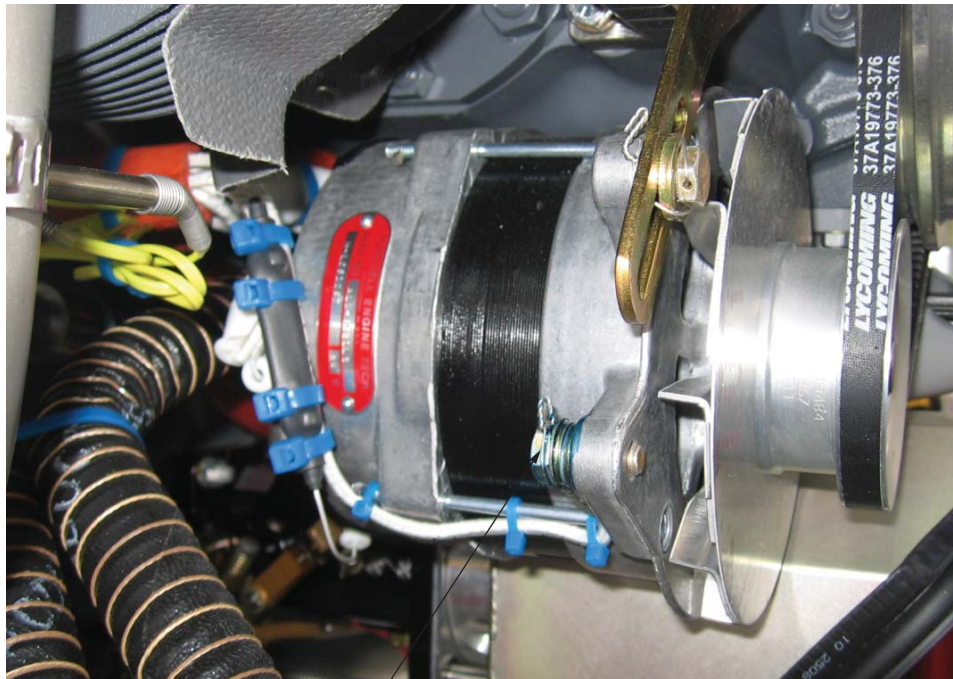
8. Special Tools: Ring Terminal Crimpers (4 AWG wire)

9. References: DA42 L360 Aircraft Maintenance Manual (AMM), Supplemental Document No. D42L-AMM-001 (latest revision)
DA42 Series AMM, Document No. 7.02.01(latest revision)

10. Accomplishment Instructions:

10.1 Option 1: EMI Filter Installation.

- 10.1.1 Disconnect the aircraft battery. Refer to the DA42 AMM Document No. 7.02.01 Chapter 24-31.
- 10.1.2 Remove the Left Hand (LH) side and Right Hand (RH) side engine top cowling. Refer to the AMM Document No. D42L-AMM-001 Chapter 71-10.
- 10.1.3 Disconnect the LH alternator cable at the LH alternator.
- 10.1.4 Remove the alternator ground bolt and clean area with isopropyl alcohol for grounding connection. Refer to Figure 1.



Remove bolt and clean

Figure 1

- 10.1.5 Apply spiral wrap (P/N 1N) to ADF filter pigtail.
- 10.1.6 Install the EMI filter (P/N A-9756) onto the alternator flange as shown in Figure 2.

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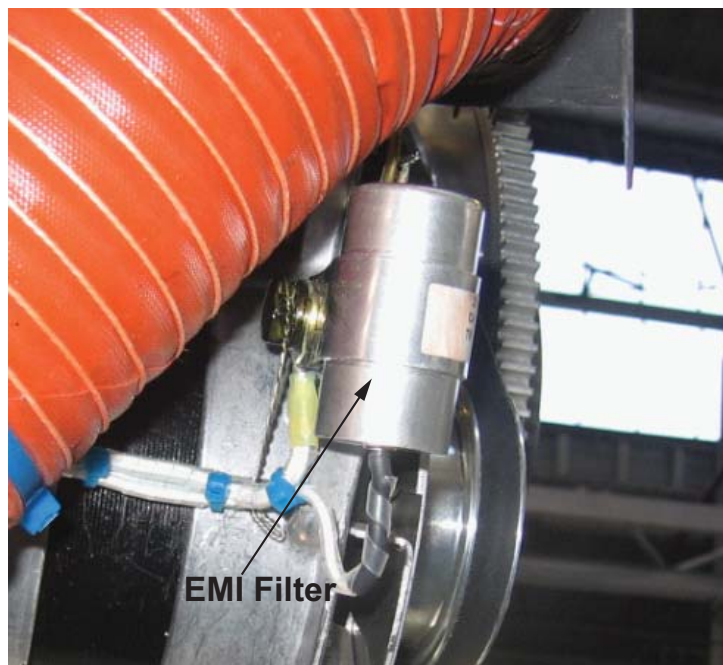


Figure 2

- 10.1.7 install the lockwire after EMI filter is installed. Apply Nycote 7-11 or equivalent.
- 10.1.8 Install the LH alternator cable and the EMI filter pigtail wire onto the LH alternator post. See Figure 3.

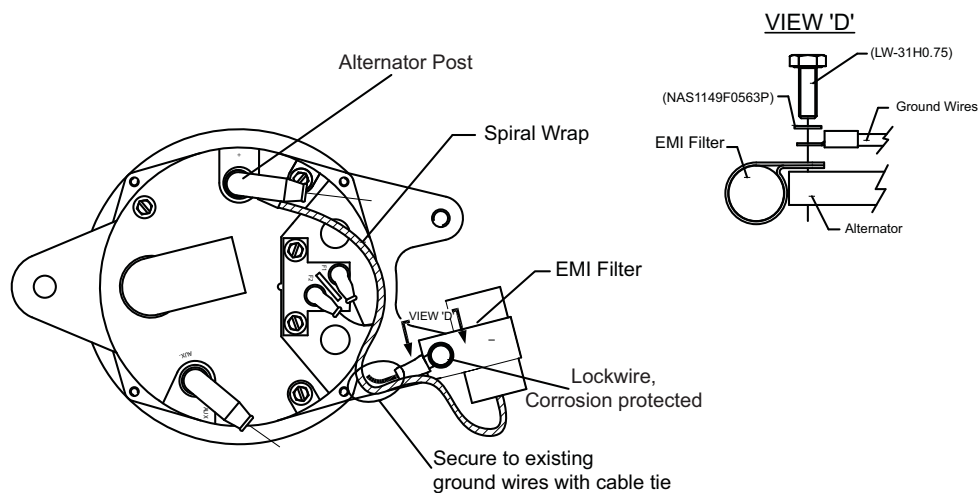


Figure 3

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- 10.1.9 Repeat steps 10.1.3 through 10.1.8 with the RH alternator and the EMI filter.
- 10.1.10 Remove all tools, equipment, and unwanted materials from the work area and inspect LH and RH engine as required.
- 10.1.11 Go to Closeout - Para 10-4.
- 10.2 Option 2: Option1 plus copper foil installation
 - 10.2.1 Complete OPTION 1 steps 10.1.1 to 10.1.10.
 - 10.2.2 Remove the Aft Baggage Compartment. Refer to the DA42 AMM Document # 7.02.01 Chapter 25-50.
 - 10.2.3 Remove the passenger seats. Refer to the DA42 AMM Document # 7.02.01 Chapter 25-10.
 - 10.2.4 Install 2" copper tape (P/N 1181-2) to ADF antenna area as shown in Figure 4.

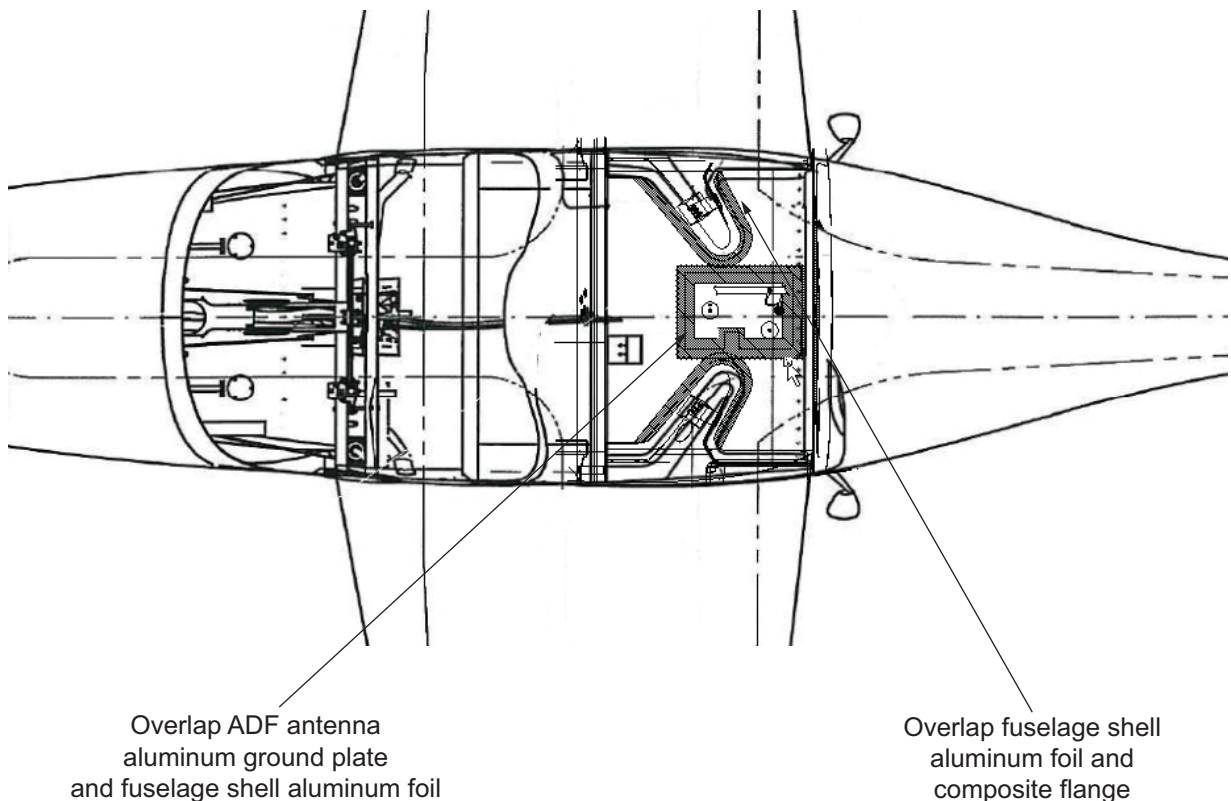


Figure 4

- 10.2.5 If the ADF antenna bonding strap (P/N DA4-3450-20-73) is not installed, install to aircraft the LP strap as shown in Figure 5. Use supplied locknut (P/N DIN985-M5-A2) and washer (P/N DIN9021-M5-A2).

NOTE: Use the existing ADF antenna screw.

NOTE: Remove the surface protection from the LP strap and clean with isopropyl alcohol prior to installation of bonding strap.

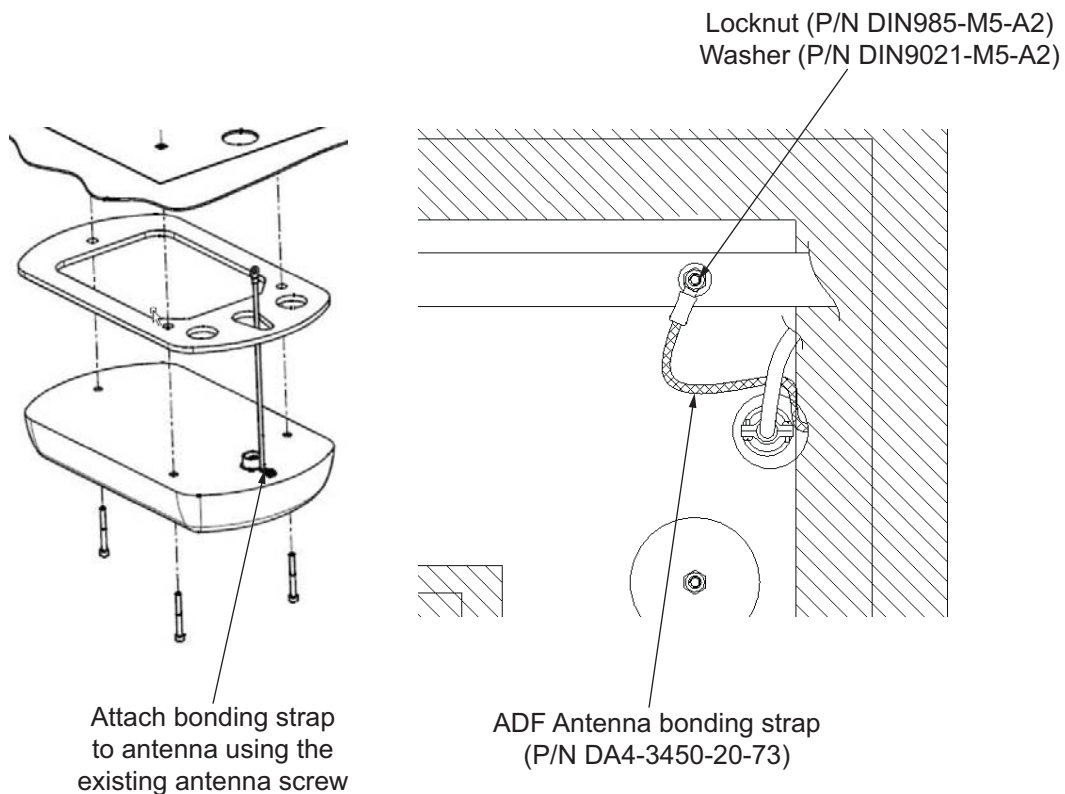


Figure 5

- 10.2.6 Apply Nycote 7-11, or equivalent, to ADF antenna bonding connection.
- 10.2.7 Apply 16" copper tape (P/N 1181-16) to the bulkhead. Overlap with fuselage shell aluminum foil by approximately 1 inch. See Figure 6.

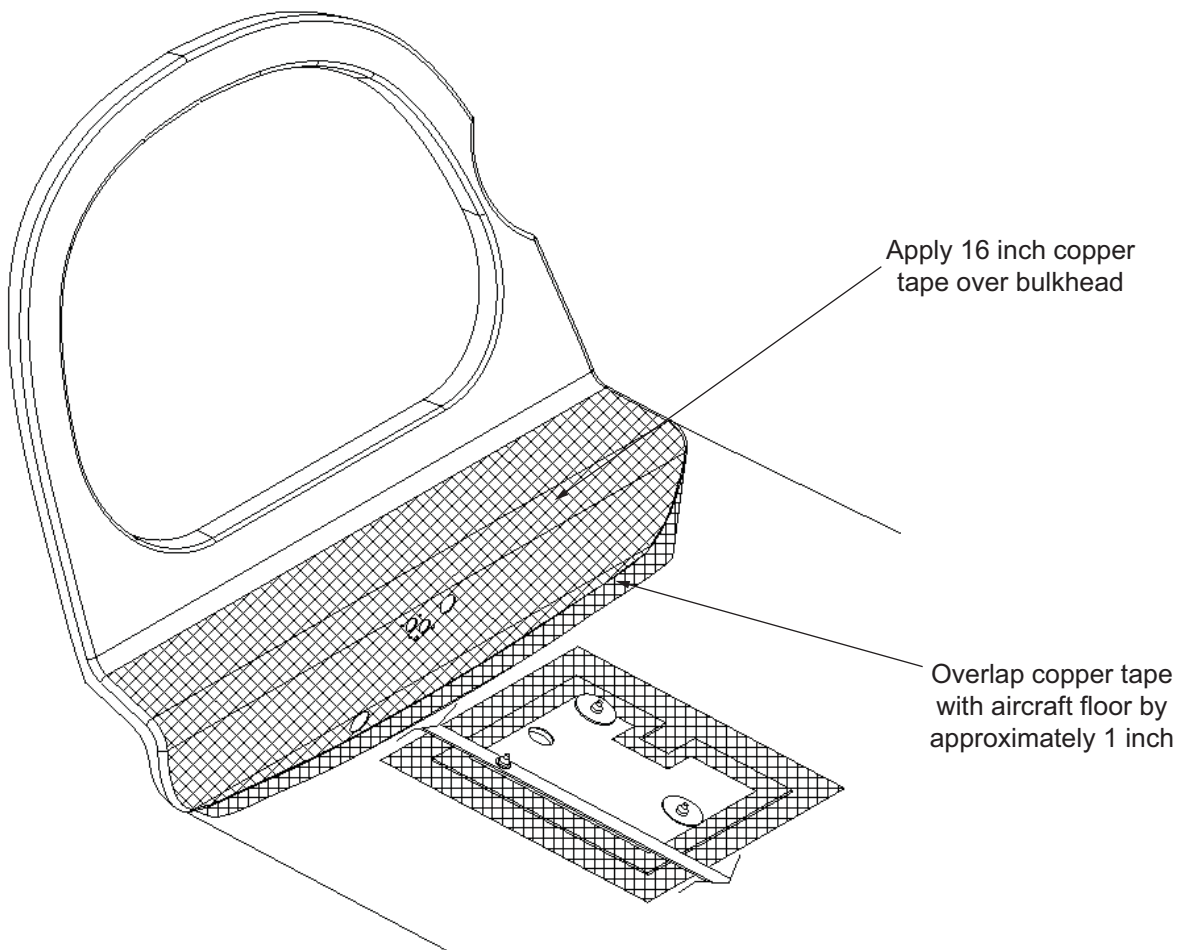


Figure 6

- 10.2.8 Remove all tools, equipment, and unwanted materials from the work area and inspect LH and RH engine as required.
- 10.2.9 Install the Aft Baggage Compartment. Refer to the DA42 AMM Document # 7.02.01 Chapter 25-50.
- 10.2.10 Install the passenger seats. Refer to the DA42 AMM Document # 7.02.01 Chapter 25-10.
- 10.2.11 Go to Closeout - Para 10-4.

10.3 Option 3: Option 1, Option 2 and Ground Cable

10.3.1 Ground cable installation for LH engine:

10.3.1.1 Do Option 1 steps 10.1.1 to 10.1.10.

10.3.1.2 Do Option 2 steps 10.2.2 to 10.2.10.

10.3.1.3 Crimp ring terminal (P/N 33115) onto 1000 mm 4 AWG cable (P/N N46-36T-751-2).

10.3.1.4 Apply 1 inch piece of heat shrink (P/N ATUM-1/2-0) for strain relief.

10.3.1.5 Secure the crimped 4 AWG cable to the LH engine mount ground tab. Apply Nycote 7-11 (or equivalent) after installation. See Figure 7.

10.3.1.6 Route the cable and secure as shown in Figure 7.

NOTE: Clean the ground tab with isopropyl alcohol prior to installing.

NOTE: Make sure to re-connect the existing bonding cable when installing new cable.

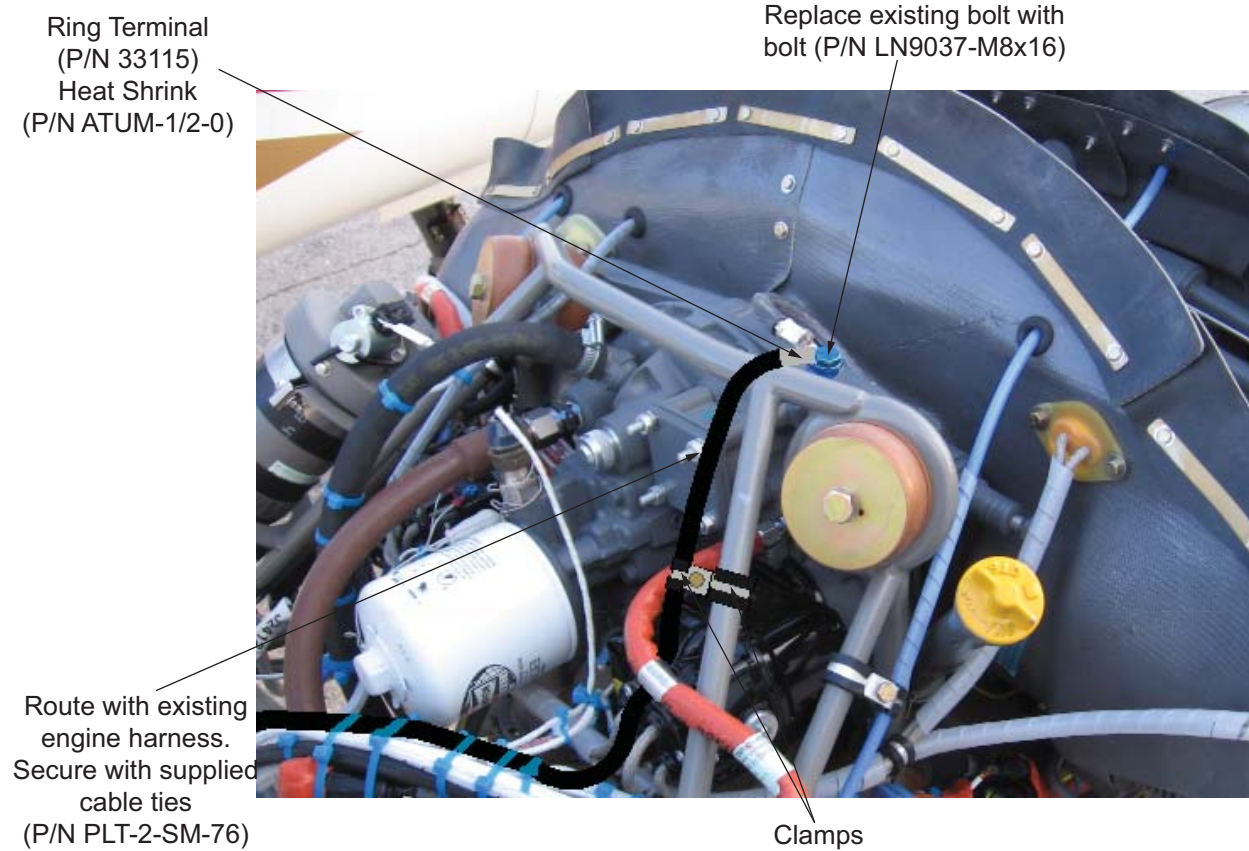


Figure 7

10.3.1.7 Clamp the ground cable as shown in Figure 7 and Figure 8.

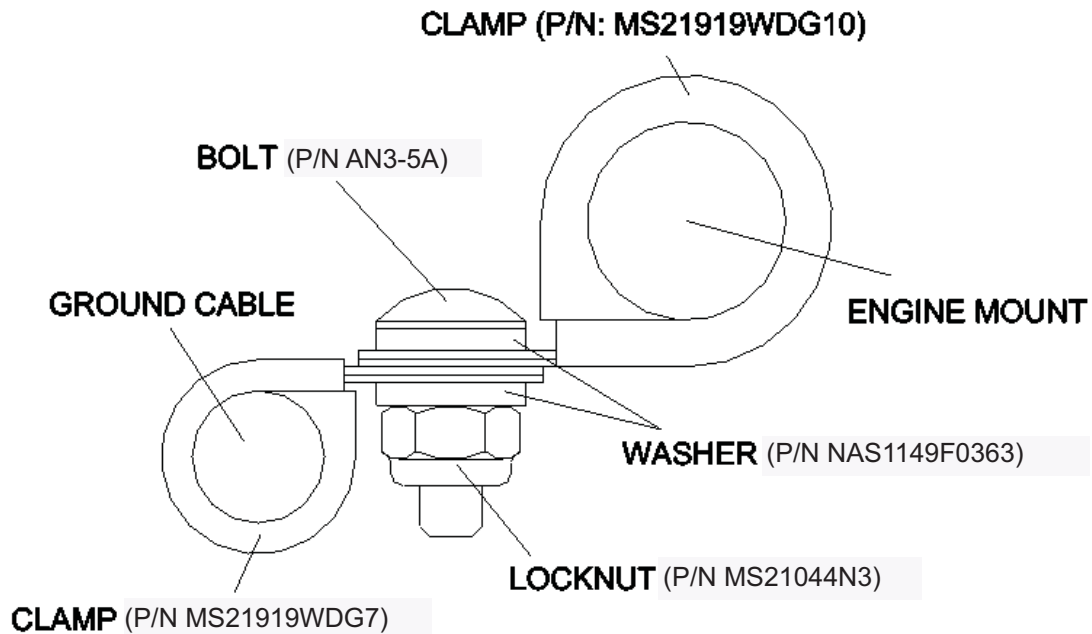


Figure 8

- 10.3.1.8 Remove high temperature sealant located at firewall.
See Figure 9.

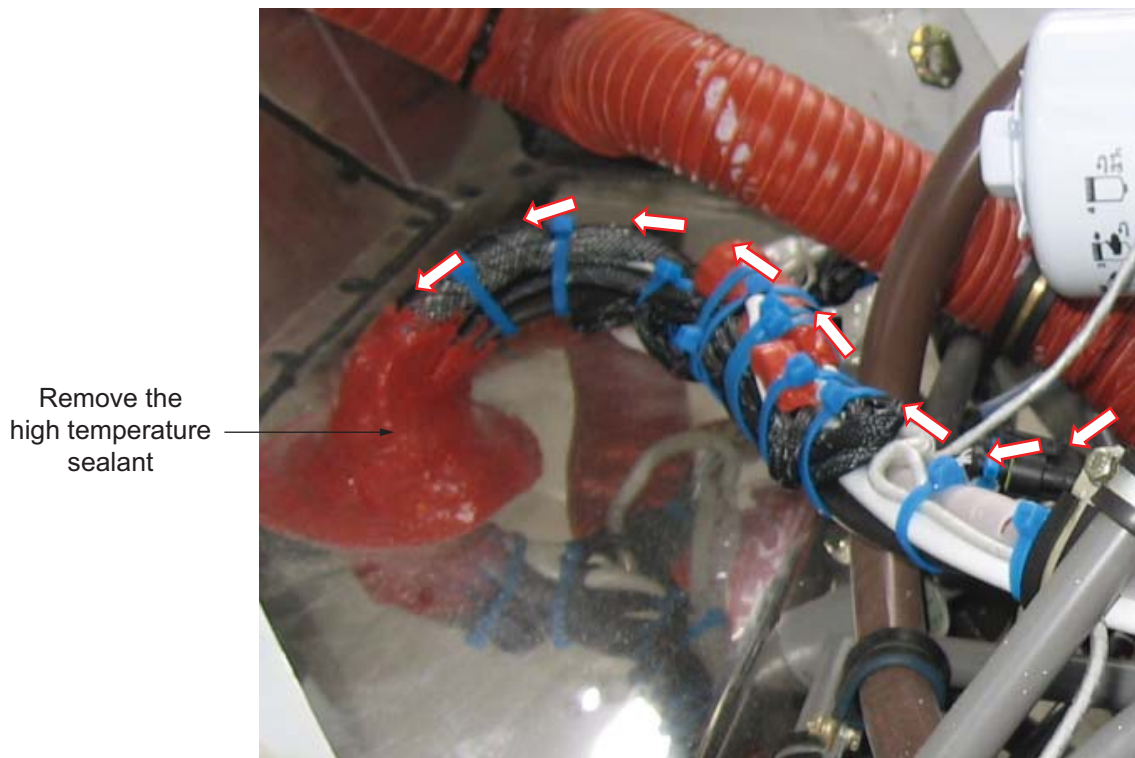


Figure 9

- 10.3.1.9 Route the ground cable through the nylon spacer into the nacelle compartment.
- 10.3.1.10 Remove the access panel located on outboard of the nacelle.
- 10.3.1.11 Crimp the ring terminal (P/N 31811) onto 4 AWG wire (P/N N46-36T-751-2) and apply heat shrink (P/N ATUM-1/2-0) for strain relief.
- 10.3.1.12 Secure the ground cable to the LP strap with the hardware shown in Figure 10. Apply Nycote 7-11 (or equivalent) after installation.

NOTE: Clean area with isopropyl alcohol prior to installation of cable.

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Figure 10 - LH Engine Nacelle

- 10.3.1.13 Seal firewall opening with high temperature sealant (RTV 736 or equivalent).
- 10.3.1.14 Install the access panel located on outboard of the nacelle.
- 10.3.2 Ground cable installation for RH engine:
 - 10.3.2.1 Crimp the ring terminal (P/N 33115) onto 800 mm 4 AWG cable (P/N N46-36T-751-2).
 - 10.3.2.2 Apply 1 inch piece of heat shrink (P/N ATUM-1/2-0) for strain relief.
 - 10.3.2.3 Secure the crimped 4 AWG cable to the RH engine mount ground tab.

10.3.2.4 Apply Nycote 7-11, or equivalent, after installation. See Figure 7.

10.3.2.5 Route the cable and secure as shown in Figure 7 and Figure 8.

NOTE: Clean the ground tab with isopropyl alcohol prior to installing.

NOTE: Make sure to re-connect the existing bonding cable when installing new cable.

10.3.2.6 Remove the high temperature sealant located at firewall. See Figure 9.

10.3.2.7 Route the ground cable through the nylon spacer into the nacelle compartment.

10.3.2.8 Remove the access panel located on outboard of the nacelle.

10.3.2.9 Crimp the ring terminal (P/N 31811) onto the 4 AWG wire. Apply heat shrink (P/N ATUM-1/2-0) over the crimped ring terminal and the cable for strain relief.

10.3.2.10 Secure the ground cable to the LP strap with the hardware shown in Figure 11. Apply Nycote 7-11 (or equivalent) after installation.

NOTE: Clean area with isopropyl alcohol prior to installation of cable

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Ring Terminal (P/N 31811)
Heat Shrink (P/N ATUM-1/2-0)

Secure ground cable with:
Bolt (P/N LN9037-M6x12)
Washer (P/N DIN125A-M6-A2)
Locknut (P/N DIN985-M6-A2)



Secure with supplied cable tie
(P/N MS3367-5-9)

Figure 11 - RH Engine Nacelle

10.3.2.11 Seal the firewall opening with high temperature sealant (RTV 736 or equivalent).

10.3.2.12 Install the access panel located on outboard of the nacelle.

10.4 Closeout.

10.4.1 Connect the aircraft battery. Refer to the DA42 AMM Document No. 7.02.01 Chapter 24-31.

10.4.2 Install the LH and RH top engine cowlings. Refer to the AMM Document # D42L-AMM-001 Chapter 71-10.

10.5 Do the functional test of generating system and ADF operations check.

10.5.1 Switch ELECT MASTER to ON position.

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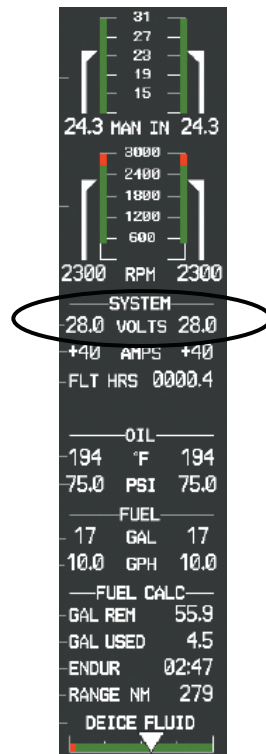
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10.5.2 Run LH and RH engines.

10.5.3 Make sure that the aircraft voltage on MFD's System Display page is approximately 28.0Vdc. See Figure 12.



NOTE: All other information depicted is for reference only.

Figure 12

10.5.4 Make sure that the 'L VOLTS LOW' or 'R VOLTS LOW' amber annunciation does not appear on the PFD.

10.5.5 Confirm functionality of ADF system by switching the ADF to operating mode and tuning to the nearest NDB station in boundary range. Make sure that the bearing indicator moves according to the position of the selected bearing.

10.5.6 Shut down LH and RH engines.

10.5.7 Switch ELECT MASTER to OFF position.

10.6 Make a log book entry that Option 1, Option 2, or Option 3 of this SB has been incorporated.

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11. Weight and Balance: Make the following adjustments to the aircraft weight and balance based on the Option installed.

Option 1		
ITEM	WEIGHT kg (lbs)	ARM m (in)
EMI Filter	+0.130 (+0.286)	+1.387 (+54.6)

Option 2		
ITEM	WEIGHT kg (lbs)	ARM m (in)
EMI Filter	+0.130 (+0.286)	+1.387 (+54.6)
Copper Foil	+0.280 (+0.617)	+3.58 (+140.9)

Option 3		
ITEM	WEIGHT kg (lbs)	ARM m (in)
EMI Filter	+0.130 (+0.286)	+1.387 (+54.6)
Copper Foil	+0.280 (+0.617)	+3.58 (+140.9)
Ground cable	+0.552 (+1.216)	+1.50 (+59.1)

12. Availability: Contact Diamond Aircraft Industries Inc. at London, Ontario.

13. Electrical Load Data: This SB has no impact on the electrical load.

14. Credit: None.

To obtain satisfactory results, procedures specified in this service bulletin must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft Industries Inc. cannot be responsible for the quality of work performed in accomplishing the requirements of this service bulletin. Diamond Aircraft reserves the right to void continued warranty coverage in the area affected by this service bulletin if it is not incorporated.

If you no longer own the aircraft to which this service bulletin applies, please forward it to the current owner and send the name of the current owner to Diamond Aircraft Industries Inc. at the address below.

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