

Service Bulletin No.: DAC1-73-04 Rev 5

Date Issued: 26 November 2010

Title: Engine Fuel System Conversion from IO-240-B17B to IO-240-B3B

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- **1. ATA Code:** 7300
- 2. Effectivity: DA20-C1 S/N C0380 to C0456, C0467 to C0471, C0482 to C0488, C0496, C0497, C0504, C0505, C0511 to C0513 and C0536 or earlier aircraft on which SB DAC1-73-01 has been accomplished (the aircraft equipped with IO-240-B17B engine). Requires removal of altitude compensating fuel system (TCM Service Information Letter SIL 07-7).
- **3. General:** This service bulletin addresses operational issues with the IO-240-B17B engine. The associated engine fuel system changes are addressed in the referenced TCM Service Information Letter. Revision 5 of this Service Bulletin revises the effectivity of the aircraft S/N.
- **4. Compliance:** Compliance with this Service Bulletin is Optional/Recommended.
- **5. Approval:** Engineering data referenced or contained in this Service Bulletin is approved as part of the type design.
- **6. Labour:** Approximately 10-12 hours will be required to accomplish this Service Bulletin.

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
	22-2824-02-00	Fuel Pump	1
	22-7301-00-01	Duct Collar, Induction	1
	22-7310-62-00	Splash Shield, Fuel Lines	1
	22-7330-00-01	Gauge, Fuel Pressure	1
	22-7522-90-07	Forward baffle	1
	22-7612-63-00	Bracket, Mixture Cable	1
	AE3660001B0084	Hose, Fuel Pressure Transducer	1
	MS21919WCG24	P-Clamp	1
	MS21044N3	Nut	1
	MS28778-6	O-Ring, Fuel Pump	2
	AN3-4A	Bolt, Hex	1
	AN816-3	Adapter, Straight, Pipe to Tube	1
	AN910-1D	Coupling, Pipe	1
	AN929-4J	Cap, Flare (stainless)	1
	AN929-4	Cap, Flare (aluminum)	1
	AN960-4	Washer, Flat	10
	AN960-10	Washer	2



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BSPQ-43	Rivet	10
2-520184-2	Faston crimp	2
825-350	Rubber Channel	4 inch
ORO375	Gascolator, O-Ring	1

The above material can be ordered as kit **DAC1-73-04-AMK1**. (See also referenced documents)

- 8. Special Tools: Clean fuel hose for flushing fuel system components Approved fuel container Paper filters (e.g. paint or coffee filters)
- **9. References:** DA20-C1 Aircraft Maintenance Manual (AMM), Document Number DA201-C1, TCM Service Information Directive SID 97-3, Revision C or higher, and TCM Service Information Letter SIL 07-7, latest approved revision.

10. Accomplishment Instructions:

10.1 Part 1 - Electric Fuel Pump

- 10.1.1 Remove the engine cowlings. Refer AMM Chapter 71-10-00.
- 10.1.2 Disconnect the aircraft battery. Refer to AMM Chapter 24-31-00.
- 10.1.3 Ground the aircraft.
- 10.1.4 Remove the fuel-tank access-panels from the bottom of the fuselage.
- 10.1.5 Close the maintenance shut off valve.
- 10.1.6 Clean the gascolator filter AMM Chapter 28-20-00. If contamination is found, flush the fuel tank. Replace the Gascolator O-ring if necessary.
- 10.1.7 Remove the existing electric fuel pump. Refer to AMM, Chapter 28-20-00.
- 10.1.8 Put the end of the fuel feed hose into an approved container through a paper filter. Open the maintenance shut off valve and allow approximately 1qt (1I) of fuel to flow into the filter. If contamination is found in filter, flush the fuel tank.
- 10.1.9 Install the electric fuel pump 22-2824-02-00. Refer to AMM Chapter 28-20-00. Do not connect the fuel hose to the pump outlet.
- 10.1.10 Connect a clean fuel line to the outlet of the pump and put the end of the hose into an approved container through a paper filter.

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- 10.1.11 Connect the battery. Refer to AMM Chapter 24-31-00.
- 10.1.12 Open the maintenance shut off valve and operate the electric fuel pump on PRIME until a steady stream of fuel is seen out of the line and allow approximately 1qt (1I) of fuel to flow into the filter. If contamination is found, flush the fuel tank and the electric fuel pump.
- 10.1.13 Close the maintenance shut off valve.
- 10.1.14 Disconnect the battery. Refer to AMM Chapter 24-31-00.
- 10.1.15 Connect the fuel hose to the electric fuel pump outlet.

10.2 Part 2 - Mixture Cable

- 10.2.1 Remove the SCAT duct from the throttle body and the intake assembly. Retain the duct and hose clamps.
- 10.2.2 Disconnect the mixture cable at the engine fuel pump, retaining the attach hardware.
- 10.2.3 Remove the mixture cable from the mixture cable bracket on the forward baffle, retaining the attach hardware.
- 10.2.4 Drill out the 4 rivets locating the mixture cable bracket to the apron baffle.
- 10.2.5 Remove the mixture cable bracket from the forward baffle. Retain the attach screw, the washer and the nut. Refer to AMM Chapter 75-00-00.
- 10.2.6 Disconnect the left side of the apron baffle from the LH baffle. Retain attach hardware. Refer to AMM Chapter 75-00-00.
- 10.2.7 Drill out the 4 rivets locating the forward baffle to the apron baffle.
- 10.2.8 Remove and discard the existing forward baffle.
- 10.2.9 Using the forward baffle 22-7522-90-07 as a guide drill the mixture cable hole in the apron baffle. Refer to Figure 1.
- 10.2.10 Install the forward baffle on the apron baffle with 4 BSPQ-43 rivets. Install the rubber channel around the edge of the opening in the forward baffle/apron where the fuel line from the mechanical fuel pump passes through. Use Loctite 495 or equivalent.

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- 10.2.11 Using the mixture cable bracket 22-7612-63-00 as a guide, drill 1/8 in (3.2 mm) rivet holes in LH forward cylinder baffle and apron baffle.
- 10.2.12 Install the mixture cable bracket 22-7612-63-00 with retained hardware, and 3 BSPQ-43 rivets. Install the rivet through the vertical face of the forward cylinder baffle from the aft side. Install the rivet on the inboard side of the mixture bracket from the bottom side.

10.3 Part 3 - Engine Fuel System Components

- 10.3.1 Remove the splash shield from the firewall. Retain the splash shield and the attach hardware.
- 10.3.2 Do the work in TCM Service Information Letter SIL-07-7, latest approved revision. Note the orientation of the throttle lever on the throttle body before removal. Retain the fuel pressure transducer.
- 10.3.3 Ensure that the filter screen P/N 656143-1 is installed in the 90 degrees fitting at the inlet of the mechanical fuel pump. Make sure that the filter screen tag is installed on the fuel supply line.
- 10.3.4 Reconnect the left side of the apron baffle to the LH baffle. Refer to AMM Chapter 75-00-00.
- 10.3.5 Install the mixture control lever on the engine fuel pump. Orient the lever so that at the idle shut off, the lever is pointed forward and up. Support the mixture control lever during installation to prevent side or torsion loads on the shaft.
- 10.3.6 Install the mixture cable in the bracket and install the keeper using the retained hardware.
- 10.3.7 Check the mixture control for proper range of motion and ensure that the cable swivel end has clearance to the mechanical fuel pump. If necessary, adjust the orientation of the mixture lever on the engine fuel pump.
- 10.3.8 Install the throttle control lever on the throttle body in the same orientation in which it was removed. Support the throttle control lever during installation to prevent side or torsion loads on the shaft.
- 10.3.9 Connect the throttle cable to the throttle control lever.
- 10.3.10 Check the throttle control for proper range of motion. If necessary, adjust the orientation of the throttle lever on the throttle body.

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10.3.12 Connect the SCAT duct and the induction duct collar 22-7301-00-01 to the throttle body with the retained hose clamp.

10.4 Part 4 - Fuel and Drain Lines

- 10.4.1 For the aircraft with fuel return line AE7010001E0593, remove the T-fitting from the firewall bulkhead fitting and connect the fuel return line to the bulkhead fitting. Install the splash shield 22-7310-62-00 using retained hardware.
- 10.4.2 For the aircraft with fuel return line AE7010001E0567, install the cap, P/N AN929-4J, on the T-fitting at the firewall. Re-install the splash shield, P/N 22-7313-62-00 using the retained hardware.
- 10.4.3 Install the fuel hose AE3660001B0084 on the 90 degree fitting on the front of the manifold valve and route through the existing hole on the right side of the aft baffle.
- 10.4.4 Install the fuel pressure transducer on the fuel hose, P/N AE3660001B0084, with AN816-3 Adapter and AN910-1D coupling then install the pressure transducer on the engine mount with the P-clamp, P/N MS21919WCG24, AN3-4A bolt, AN960-10 washers and MS21044N3 nut. Refer to Figure 3.
- 10.4.5 Cut off the Faston crimps from the fuel pressure transducer wires 73301A20 and 73303A20N and remove the spiral wrap for wires.
- 10.4.6 Re-route the wires to exit the wire bundle with starter relay wires (80100A20 and 80109A20N).
- 10.4.7 Re-spiral wrap wires from the breakout point to the transducer and re-crimp the new Faston crimps (2-520184-2).
- 10.4.8 Connect the Faston crimps to the fuel pressure transducer.
- 10.4.9 Disconnect the drain line, P/N 22-7173-62-00, from the T-fitting under the fuel pump.
- 10.4.10 Install the cap, P/N AN929-4, on the T-fitting in the drain assembly.
- 10.4.11 Fabricate aluminum blanking plate and plug the transducer hole on the left side of the aft baffle as shown in Figure 2.



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10.5 Part 5 - Instrument Panel

- 10.5.1 Remove instrument panel cover in accordance with AMM Chapter 25-10-00.
- 10.5.2 Remove fuel pressure gauge 22-7330-02-00.
- 10.5.3 Install fuel pressure gauge 22-7330-00-01.
- 10.5.4 Do a check for foreign objects then install the instrument panel cover. Refer to AMM Chapter 25-10-00.
- 10.5.5 Remove placard 22-1130-00-33 ("This aircraft is equipped with an altitude compensating fuel system...") from instrument panel. If necessary, remove any adhesive residue with solvent.
- 10.6 Part 6 Final Tasks
 - 10.6.1 Connect the battery. Refer to AMM Chapter 24-31-00.
 - 10.6.2 Open the maintenance fuel shut off valve.
 - 10.6.3 Do a check for fuel leaks.
 - 10.6.4 Install the fuel-tank access-panels in the bottom of the fuselage.
 - 10.6.5 Do the engine ground test. Refer to AMM Chapter 05-20-00.
 - 10.6.6 Install the engine cowlings. Refer to AMM Chapter 71-10-00.

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Figure 1 - Mixture Cable Holes in Apron Baffle



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Figure 2 - Plug Mixture Cable Hole in Aft Baffle

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Figure 3 - Fuel Pressure Transducer Installation

- 11. Weight and Balance: The weight and balance is not affected by this Service Bulletin.
- 12. Availability: Contact Diamond Aircraft Industries Inc.
- 13. Electrical Load Data: There is no impact to the electrical load.

None.

14. Credit:





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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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