
Service Bulletin

August 30, 2004

SB04-28-03

TITLE

ENGINE FUEL RETURN SYSTEM INSTALLATION

EFFECTIVITY

Model	Serial Numbers
172R	17280001 thru 17281187
172S	172S8001 thru 172S9490

REASON

To provide parts and instructions to install an engine fuel return system.

DESCRIPTION

The engine fuel return system carries a metered amount of fuel from the engine fuel-air control unit to the fuel reservoir tank. The increased fuel flow due to the return system results in lower fuel temperatures at the engine inlet and helps to minimize the amount of fuel vapor generated in the fuel lines during high ambient temperature extended ground operations.

COMPLIANCE

Optional: may be accomplished if desired.

APPROVAL

FAA approval has been obtained on technical data in this publication that affects airplane type design.

MANPOWER

Approximately 5.0 man-hours to install MK172-28-01

REFERENCES

Model 172 Series 1996 and On Maintenance Manual

NOTE: This information shall be considered an amendment to the Cessna Manufacturer's Service/Maintenance Manual.

OTHER PUBLICATIONS AFFECTED

Model 172R and Model 172S Illustrated Parts Catalog

NOTE: Make sure all publications used are complete and current.

MATERIAL PRICE AND AVAILABILITY

The part below is available from Cessna Parts Distribution through an appropriate Cessna Service Station for the suggested list price shown.

<u>Part Number</u>	<u>Description</u>	<u>Qty/Airplane</u>	<u>Price</u>
MK172-28-01	Engine Fuel Return System Installation Kit	1	\$ 1,297.00 (A) ea
172RPHUSR09 (See Note)	Revision 9, Model 172R Pilot's Operating Handbook	1 (as required)	\$ 56.00 (F) ea
172SPHUSR05 (See Note)	Revision 5, Model 172S Pilot's Operating Handbook	1 (as required)	\$ 56.00 (F) ea
172R180PHUSR03 (See Note)	Revision 3, Model 172R 180HP Pilot's Operating Handbook	1 (as required)	\$ 56.00 (F) ea

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE

NOTE: This revision has been sent to applicable owners of record. Refer to SB04-11-02 for detailed information.

CREDIT INFORMATION

Not applicable

ACCOMPLISHMENT INSTRUCTIONS

Modification Kit MK172-28-01: Engine Fuel Return System Installation instructions are attached.

OWNER NOTIFICATION

On September 13, 2004 the following message will be sent to applicable owners of record in SB04-28-03A.

Dear Cessna Owner:

This Owner Advisory is to inform you that Service Bulletin SB04-28-03 has been issued to provide parts and instructions to install an engine fuel return system.

The engine fuel return system carries a metered amount of fuel from the engine fuel-air control unit to the fuel reservoir tank. The increased fuel flow due to the return system results in lower fuel temperatures at the engine inlet and helps to minimize the amount of fuel vapor generated in the fuel lines during high ambient temperature extended ground operations.

NOTE: Section 4 of the Pilot's Operating Handbook contains standard fuel vapor procedures.

Compliance is optional: may be accomplished if desired.

The information contained in the referenced Cessna Service Bulletin shall be considered an amendment to the Cessna Manufacturer's Service/Maintenance Manual.

Please contact a Cessna Single Engine Service Station for detailed information and arrange to have Cessna Service Bulletin SB04-28-03 accomplished on your airplane.

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MODIFICATION KIT



MK172-28-01

TITLE

ENGINE FUEL RETURN SYSTEM INSTALLATION

EFFECTIVITY

Model	Serial Numbers
172R	17280001 thru 17281187
172S	172S8001 thru 172S9490

DESCRIPTION

To provide parts and instructions to install the fuel return system modification.

APPROVAL

FAA approval has been obtained on technical data in this publication that affects airplane type design.

REFERENCE

SB04-28-03

CHANGE IN WEIGHT AND BALANCE

Model	172R/172S
Weight Change	+1.0 Pound
ARM	0
Resultant Moment	0
Moment/1000	0

MATERIAL INFORMATION

The following parts will be necessary:

NEW P/N	QUANTITY	DESCRIPTION	OLD P/N	DISPOSITION
MK172-28-01	1	Kit , consisting of the following parts:		
AE3663163E0240	1	Hose Assembly	None	None
AN832-4	1	Union	None	None
AN924-4	1	Nut	None	None
MS21062L3	1	Nut	None	None
MS2191WDG5	1	Clamp	None	None
MS21929WDG10	1	Clamp	None	None
MS35207-264	1	Screw	None	None
NAS1149F0332P	1	Washer	None	None
MS29512-04	1	O-Ring	MS29512-04	Discard
S2218-4	1	Check Valve	None	None
02G22973	1	Orificed Fitting	Existing Plug	Discard
0500118-49	1	Line Assembly	None	None
0500118-53	1	Line Assembly	None	None
0516009-24	1	Fuel Reservoir Assembly	0516009-18	Discard
MK172-28-01	1	Instructions		

In addition to the MK172-28-01 Kit, the following (or later revision) will be necessary.

<u>Part Number</u>	<u>Description</u>
172RPHUSR09 (See Note)	Revision 9, Model 172R Pilot's Operating Handbook
172SPHUSR05 (See Note)	Revision 5, Model 172S Pilot's Operating Handbook
172R180PHUSR03 (See Note)	Revision 3, Model 172R 180HP Pilot's Operating Handbook

NOTE: This revision has been sent to applicable airplane owners of record. Refer to SB04-11-02 for detailed information.

ACCOMPLISHMENT INSTRUCTIONS

1. Electrically ground the airplane and turn all switches to the "OFF" position. If external power is connected to the airplane, disconnect external power from receptacle.
2. Disconnect the airplane battery. (Refer to the Model 172 Series 1996 and On Maintenance Manual, Chapter 24, Electrical Power.)
3. Attach maintenance warning tags to the battery and external power receptacle with the following instruction: **DO NOT CONNECT ELECTRICAL POWER - MAINTENANCE IN PROGRESS.**
4. Remove the upper and lower engine cowls. (Refer to the Model 172 Series 1996 and On Maintenance Manual, Chapter 71, Powerplant.)

WARNING: DURING ALL FUEL SYSTEM SERVICING PROCEDURES, FIRE FIGHTING EQUIPMENT MUST BE AVAILABLE. TWO GROUND WIRES FROM TIE DOWN RINGS ON THE AIRPLANE TO APPROVED GROUND STAKES SHALL BE USED IN CASE OF ACCIDENTAL DISCONNECTION OF ONE GROUND WIRE.

5. Defuel the airplane. (Refer to the Model 172 Series 1996 and On Maintenance Manual, Fuel - Servicing.)
6. Remove the copilot seat and carpet. (Refer to Chapter 25, Front Seats and Rails - Maintenance Practices and Chapter 25, Interior Upholstery - Maintenance Practices.)
 - A. Remove the copilot side 0515075-40 Panel to get to the fuel reservoir assembly.
 - B. Remove the copilot side 0513512-9 Forward Floorboard and the access panel behind the rudder pedals to get to the fuel reservoir.
7. (Refer to Figure 1.) Remove the safety wire and plug in the forward top side of the fuel servo and install a 02G22973 Orificed Fitting with a MS29512-04 O-Ring.

CAUTION: INSTALL A PROTECTIVE CAP ON THE ORIFICED FITTING UNTIL THE HOSE IS INSTALLED TO THE FITTING.

CAUTION: BEFORE YOU DRILL INTO THE FIREWALL, MAKE SURE THAT THE AREA BEHIND THE FIREWALL, WHERE THE NEW HOLE WILL BE DRILLED, IS CLEAR OF ANY AIRPLANE STRUCTURE OR ANY OTHER ITEMS THAT MAY PREVENT THE INSTALLATION OF THE NEW FUEL LINE AND FITTINGS.

8. (Refer to Figure 2, Sheet 1 and 2.) Drill 0.438 inch diameter fuel return hole in the firewall as shown.
9. (Refer to Figure 3, Sheet 2.) Install a AN832-4 Union, NAS1149F0932P Washer, and AN924-4 Nut in the firewall fuel return hole as shown.
10. (Refer to Figure 1, View A-A.) Install a AE3663163E0240 Hose Assembly between the fuel servo orificed fitting and the firewall AN832-4 Union.
 - A. Remove the protective cap on the 02G22973 Orificed Fitting installed in Step 7 and install the AE3663163E0240 Hose Assembly nut to the orificed fitting. Leave the nut loose until the hose is positioned and clamped to the brace as shown.

NOTE: The AE3663163E0240 Hose Assembly must be in a relaxed and smooth position before the nuts are tightened.
 - B. Install the other end of the AE3663163E0240 Hose Assembly nut to the firewall AN832-4 Union. Leave the nut loose until the hose is positioned and clamped to the brace as shown.
 - C. Attach the AE3663163E0240 Hose Assembly to the 0750625-4 Brace with clamps and hardware as shown.
 - D. Tighten the AE3663163E0240 Hose Assembly nuts but make sure it is in a relaxed and smooth condition after the nuts are tightened.
11. (Refer to Figure 3, Sheet 1.) Install the 0500118-49 Line Assembly from the aft side of the firewall AN832-4 Union to the S2218-4 Check Valve. Install the S2218-4 Check Valve and make sure the check valve flow arrow points to the reservoir.

WARNING: BEFORE THE FUEL RESERVOIR IS REMOVED, MAKE SURE TO DRAIN THE FUEL FROM THE SUMP DRAIN ON THE RESERVOIR TO KEEP FUEL SPILLAGE TO A MINIMUM.

12. Remove the 0516009-18 Fuel Reservoir Assembly that is installed in the airplane, keep all hardware. (Refer to the Model 172 Series 1996 and On Maintenance Manual, Chapter 28, Storage and Distribution-Maintenance Practices.)
13. Install a new 0516009-24 Fuel Reservoir Assembly into the airplane with the kept hardware.

14. Install a new 0500118-53 Line Assembly from the aft end of the S2218-4 Check Valve to the new 0516009-24 Fuel Reservoir Assembly. (Refer to the Model 172 Series 1996 and On Maintenance Manual, Chapter 28, Storage and Distribution- Maintenance Practices.)
15. Fuel the airplane and do a fuel leak inspection.
16. Install the floorboards and the side panels removed in Step 6.

CAUTION: MAKE SURE THE ATTACH SCREWS DO NOT TOUCH THE NEW INSTALLED FUEL LINE WHEN THE FLOORBOARDS AND ACCESS PANELS ARE INSTALLED.

17. Install the copilot's seat and carpet. (Refer to Chapter 25, Front Seats and Rails - Maintenance Practices and Chapter 25, Interior Upholstery - Maintenance Practices.)
18. Reconnect the airplane battery. (Refer to the Model 172 Series 1996 and On Maintenance Manual, Chapter 24, Electrical Power.)
19. Install the upper and lower engine cowls. (Refer to the Model 172 Series 1996 and On Maintenance Manual, Chapter 71, Powerplant.)
20. Remove maintenance warning tags from battery and external power receptacle.
21. (Refer to the Pilot's Operating Handbook) Do a "before takeoff engine operation check".
22. Put the applicable revision into the Pilot's Operating Handbook if it has not previously been incorporated.

NOTE: Model 172R Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, Revision 9, or latest revision.

Model 172S Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, Revision 5, or latest revision.

Model 172R 180HP Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, Revision 3, or latest revision.

23. Make an entry in the airplane logbook that states this Modification Kit has been installed.

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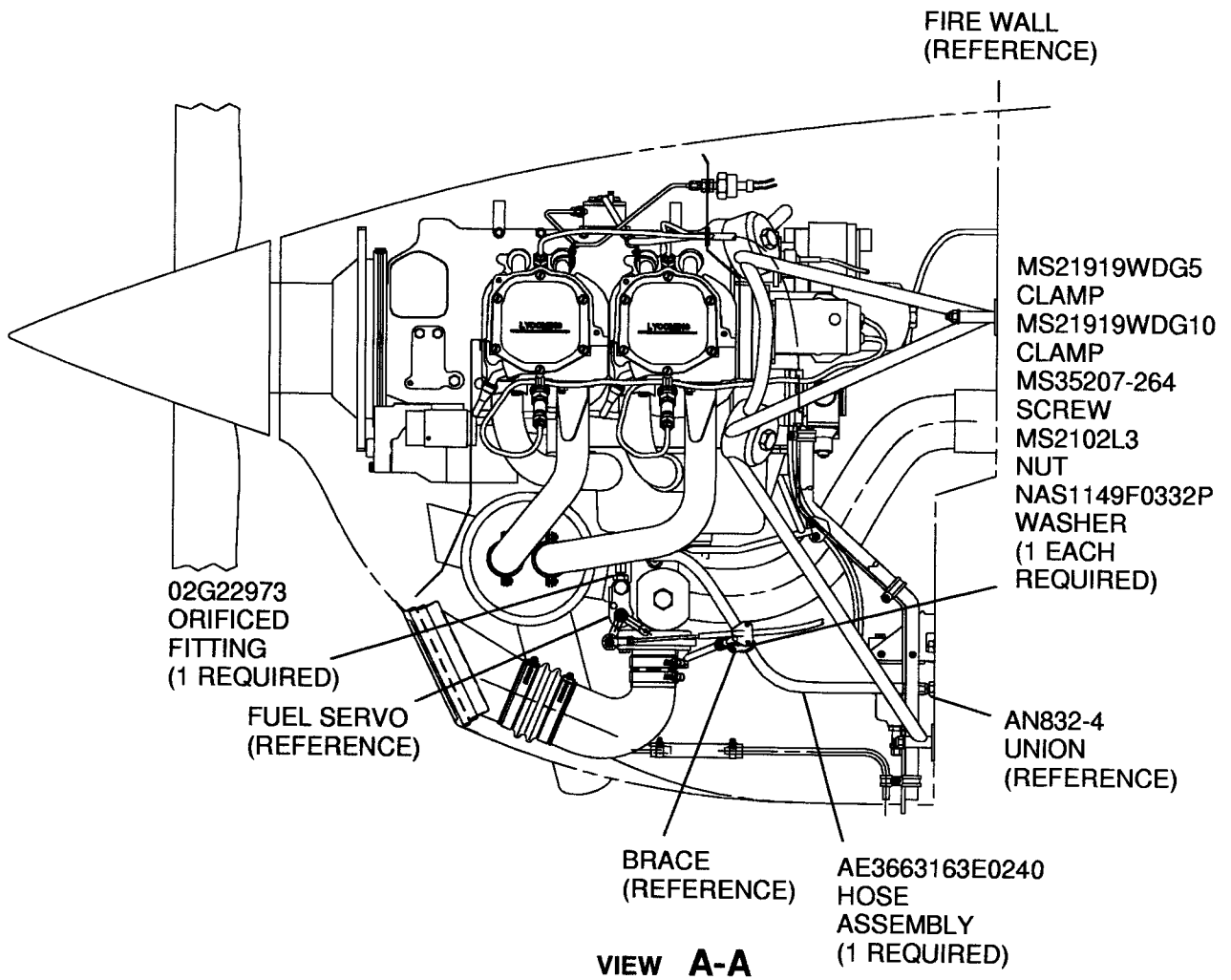
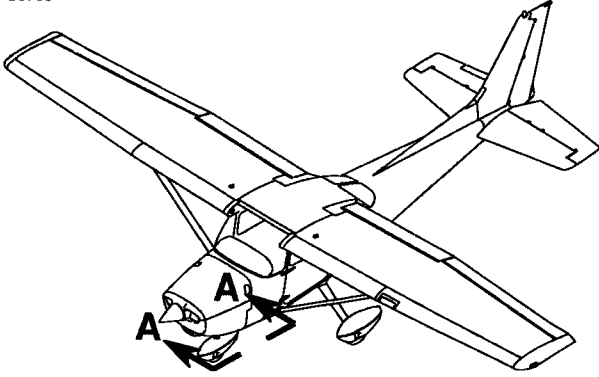
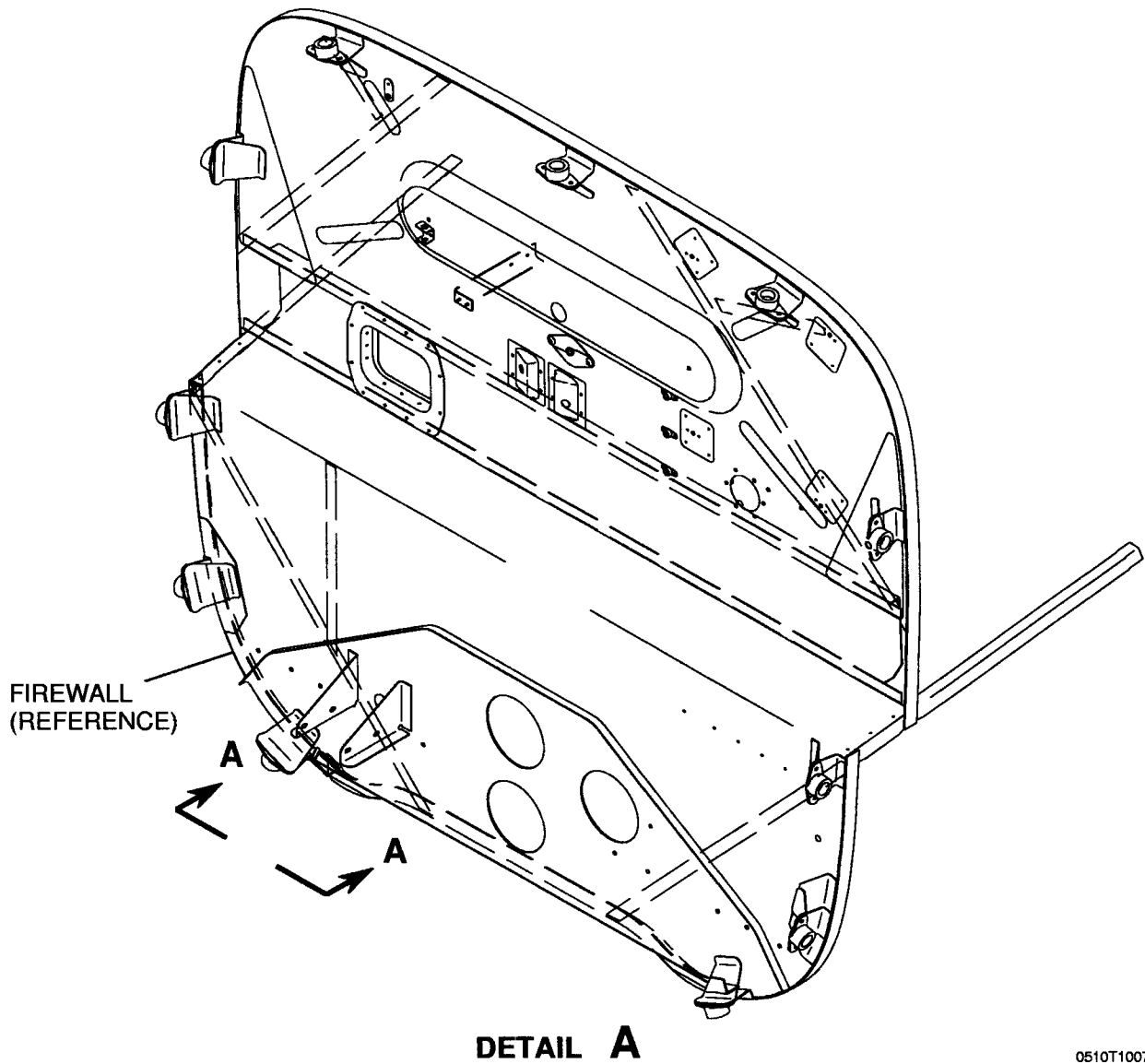
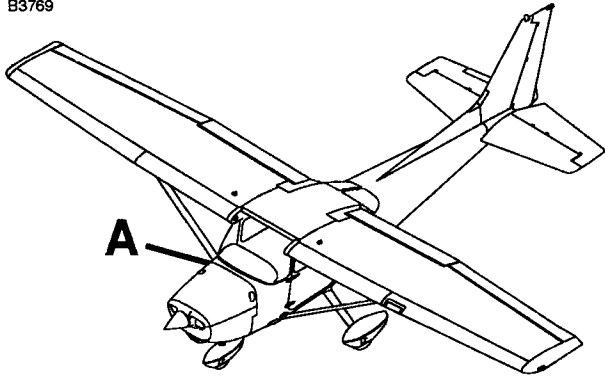


Figure 1. Fuel Return System Installation (Sheet 1)

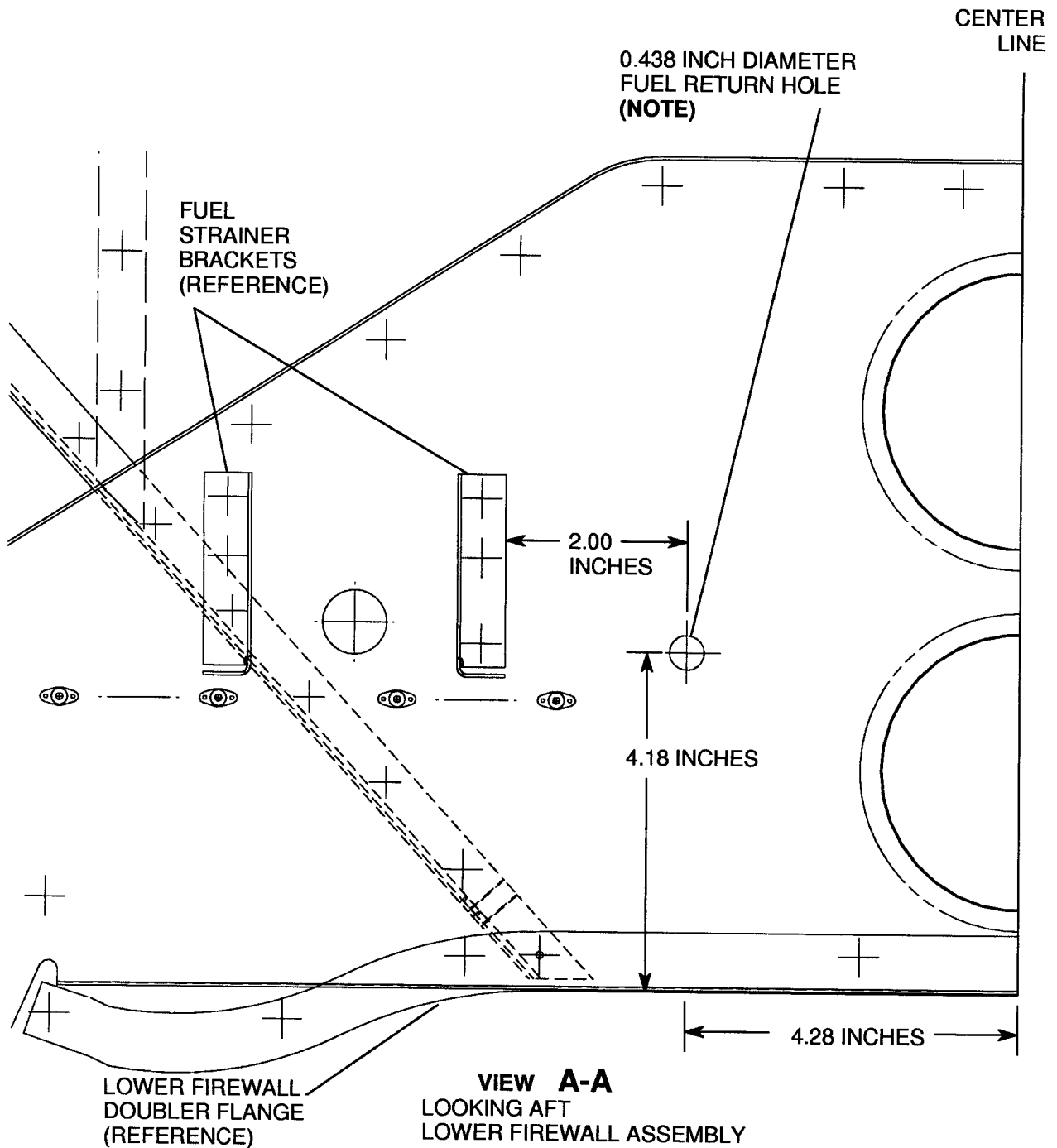
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Figure 2. Fuel Return Firewall Hole Installation (Sheet 1)

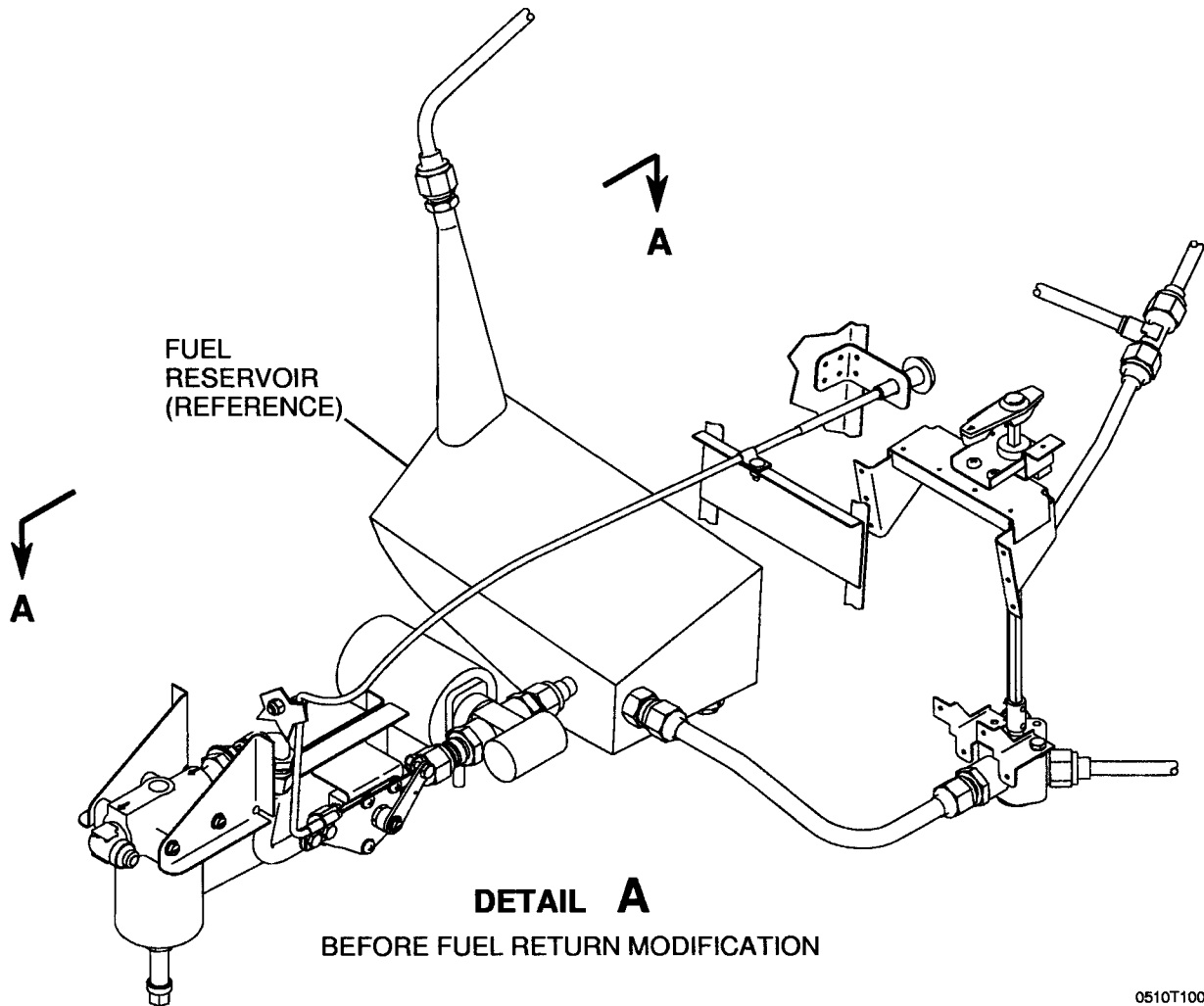
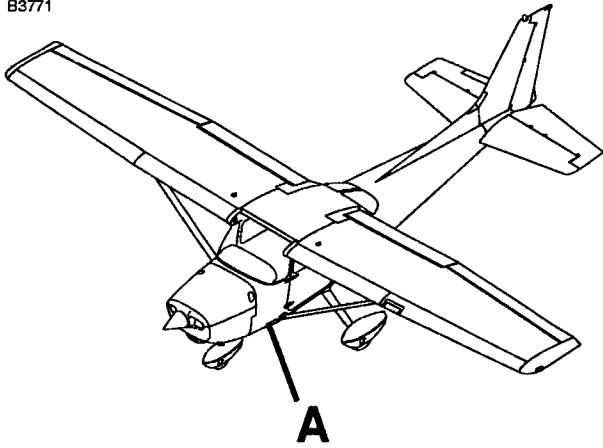


NOTE: DRILL A 0.438 INCH DIAMETER HOLE IN THE LOCATION SHOWN AND MAKE SURE YOU DO NOT DRILL INTO ANY OBSTRUCTIONS OR STRUCTURE ON THE AFT SIDE OF FIREWALL.

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Figure 2. Fuel Return Firewall Hole Installation (Sheet 2)

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Figure 3. Fuel Return to Reservoir Installation (Sheet 1)

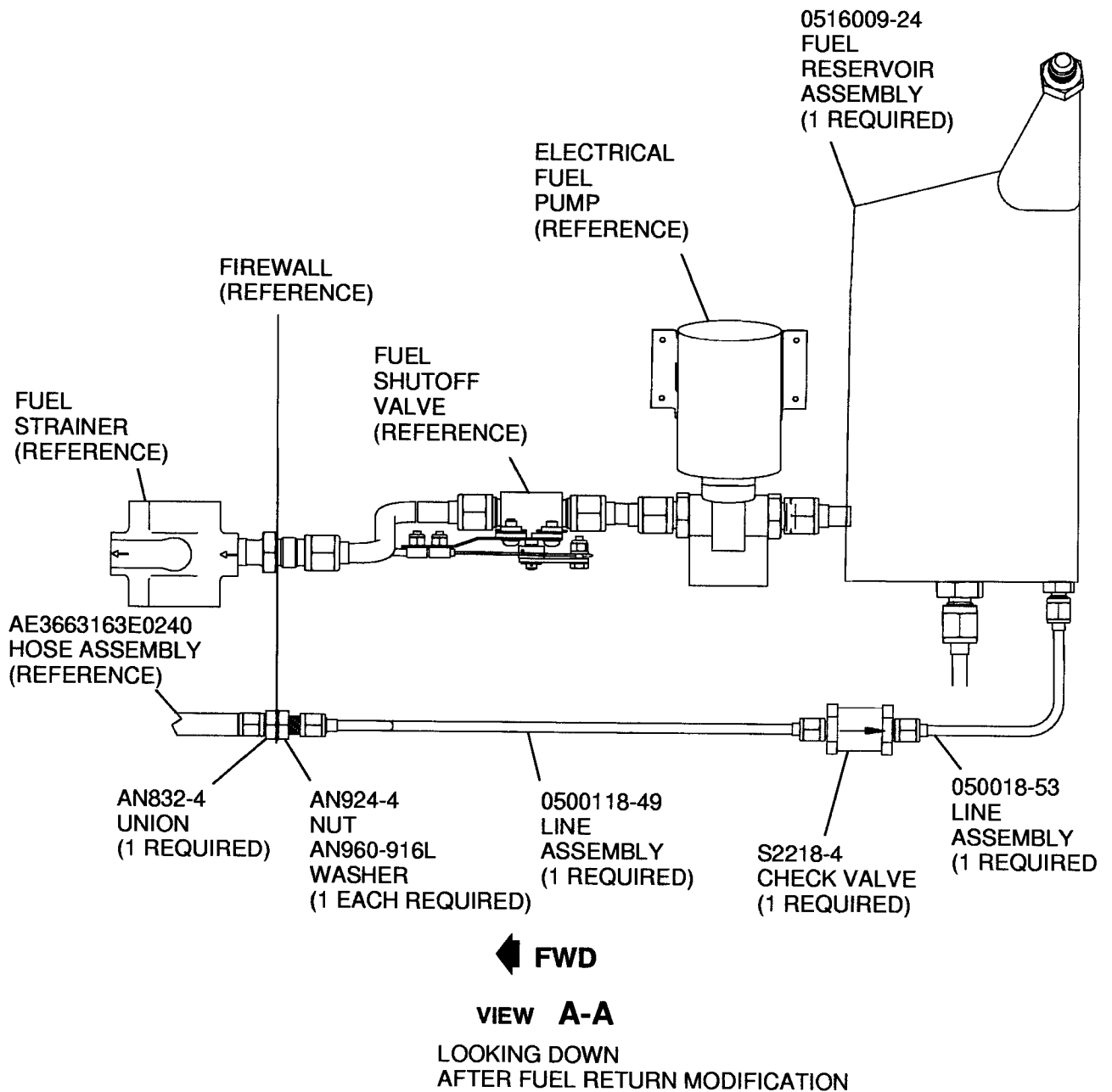


Figure 3. Fuel Return to Reservoir Installation (Sheet 2)

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