

MANDATORY SERVICE BULLETIN

NUMBER: SB-002

DATE: 04/23/2012

REVISION: 01

SUBJECT: FUEL SYSTEM; Mandatory Fuel Drain Valve Replacement

SUMMARY

QUEST AIRCRAFT RECOMMENDS THAT EACH OPERATOR COMPLY WITH THIS MANDATORY SERVICE BULLETIN IMMEDIATELY.

RECURRENT REQUIREMENTS

No recurrent requirements associated with this Service Bulletin.

BACKGROUND

Quest has identified a potentially serious safety issue with the fuel drain valves currently being used and installed in the KODIAK 100 fuel system. During a recent installation, it was discovered that the current fuel drain valve composite body has a tendency to crack when installed in accordance with the manufacturer's recommendations. If the fuel drain valve were to crack, the results could lead to a significant leakage path, draining fuel into the floor of the aircraft. This creates several potentially hazardous conditions that are associated with a fuel leak in-flight. Quest recommends that operators **DO NOT** fly their KODIAK aircraft until the replacement valves are installed.

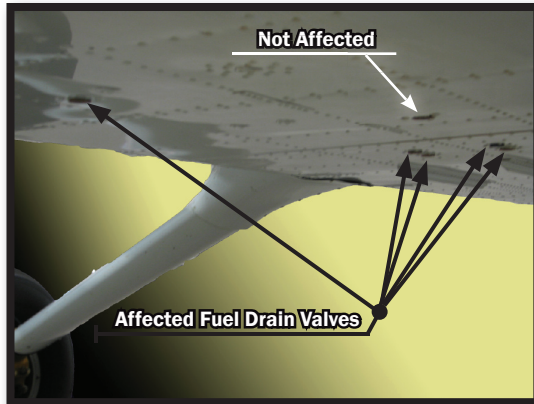


Figure 1 - KODIAK 100 Lower Cabin

ACTION

Instructions to replace the fuel drain valves are included in this Service Bulletin. After the fuel drain valves are removed, place them in the pre-paid shipping bag inside the Service Kit and return to Quest Aircraft.

EFFECTIVITY

KODIAK 100 Series Aircraft Serial Numbers: 100-0001 through 100-0005

AFFECTED PARTS

KODIAK PART AFFECTED:

- P/N 100-0140-0100 Fuel Drain Valve

REPLACEMENT PART FOR AIRCRAFT RECORDS:

- P/N SA5817-4C Saf-Air Metal Fuel Drain Valve

COMPLIANCE

This Service Bulletin needs to be completed prior to next flight.

INDUSTRY SUPPORT INFORMATION

None

MANPOWER

The instructions contained in this Service Bulletin will take approximately 5 hours to complete.

COMPLETION

Upon completion, please return the replaced fuel drain valves to Quest Aircraft as soon as possible.

NOTE:

There is a slight difference in operation of the new fuel drain valves from the replaced fuel drain valves. To drain fuel using the new valves, press in the center poppet valve and fuel will drain. The replaced valves were equipped with a locking feature which the operator could render the fuel drain valves open by pushing in and turning the valve. The new fuel drain valves **DO NOT** have this feature. Fuel can only be drained by manually pressing the poppet valve in.

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Fuel Drain Valve Replacement Instructions

1.1 Overview

This document provides instruction for replacing the KODIAK fuel drain valves.

Estimated Time to Complete: 5 hours

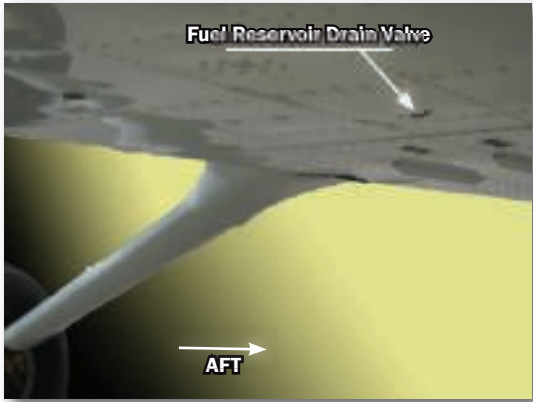
Parts Included in the Service Kit:

Part Number	Description	Quantity
SB-002	Service Bulletin and Replacement Instructions	1
SA 5817-4C	Saf-Air Fuel Drain Valves	5
	Fuel Tank Sealant	1


Tools Required:

Tool Name	Tool Duty
Face Style Spanner Wrench	Use to remove and install the fuel drain valves.
1" Inch Open End Wrench	Remove and install the retaining nut on the fuel drain valve.
9/16" Open End Wrench	Remove and install the fuel connectors to the fuel drain valves.
Open End Torque Wrench	Check the torque of the fuel connections.
Abrasive Scotch-Brite pad	Use to remove the paint and primer on the skin of the aircraft in preparation for the new fuel drain valve.
Phillips #2 Screwdriver	Remove and install forward fuel bay access panel.
Denatured Alcohol	Used to clean surfaces.

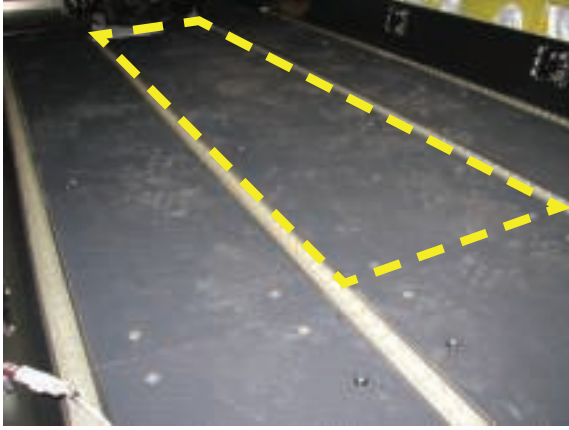

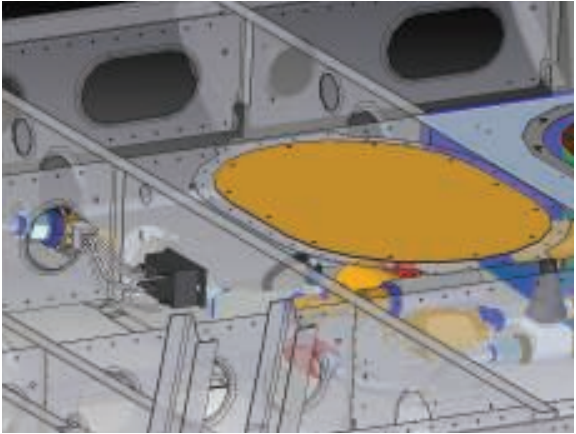
1.2 Step One: Turn off Fuel Valves and Drain Residual Fuel from Lines

Task	Instruction	Visual	Complete
1	Ground the Aircraft using an approved grounding wire and grounding point	No Visual	<input type="checkbox"/>
2	Turn the overhead fuel selector valves located in the cockpit to CLOSED .	No Visual	<input type="checkbox"/>
3	Using the fuel drain valves, drain the residual fuel from the fuel lines following the Instructions and procedures listed in the KODIAK 100 Pilot Operating Handbook, Page 4-9 of Section 4 .	No Visual	<input type="checkbox"/>
4	Empty the forward fuel tank reservoir into a suitable container (approximately 4.5 gallons) using the fuel reservoir drain valve.		<input type="checkbox"/>
5	<i>Step Reserved</i>	No Visual	

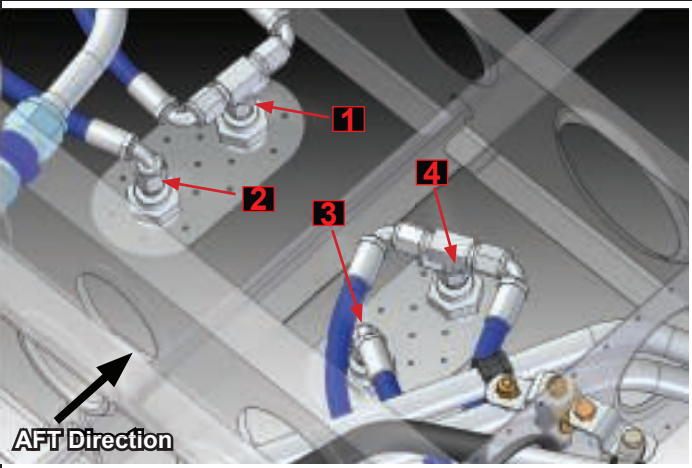
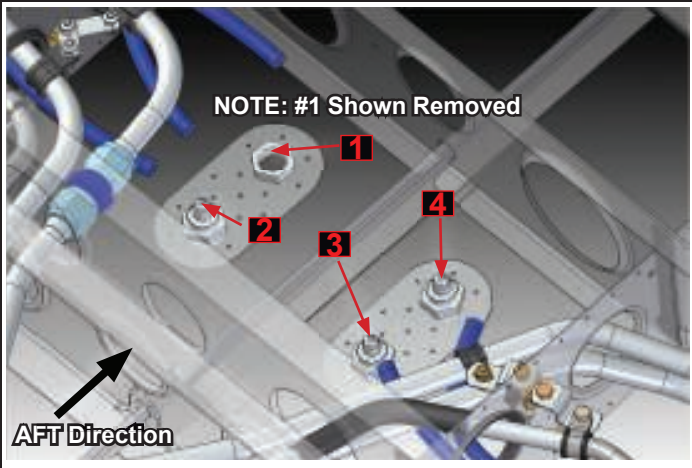
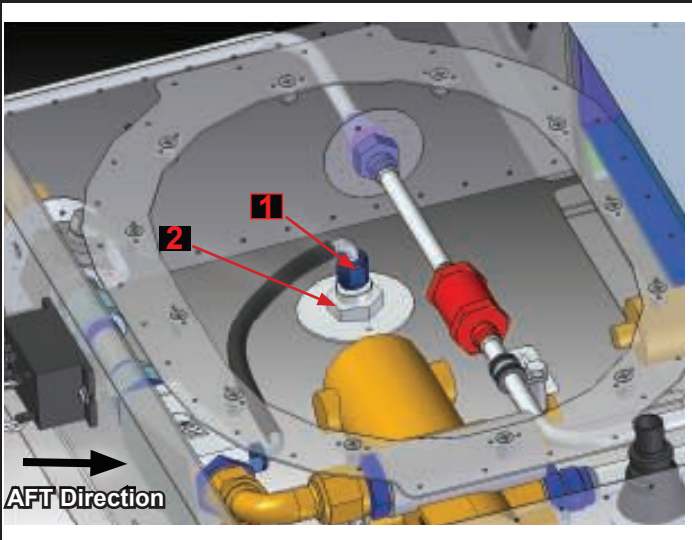
1.3 Step Two: Remove Passenger Seats and Cargo Floor.

Task	Instruction	Visual	Complete
1	Remove the pilot, copilot, and passenger seats in the cockpit and cargo compartment using the procedures defined in the KODIAK 100 Maintenance Manual.		<input type="checkbox"/>

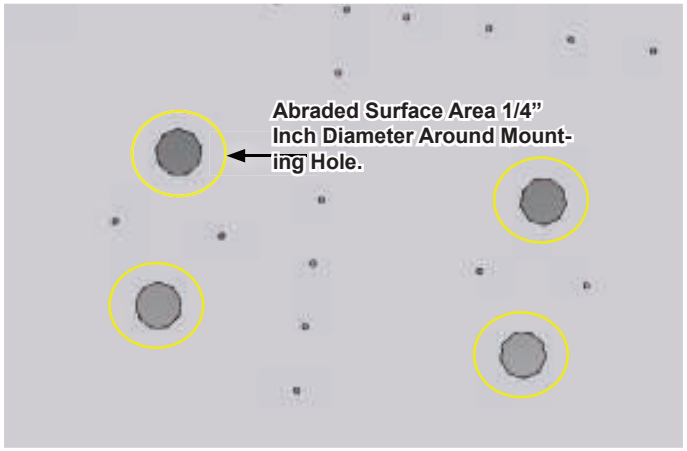
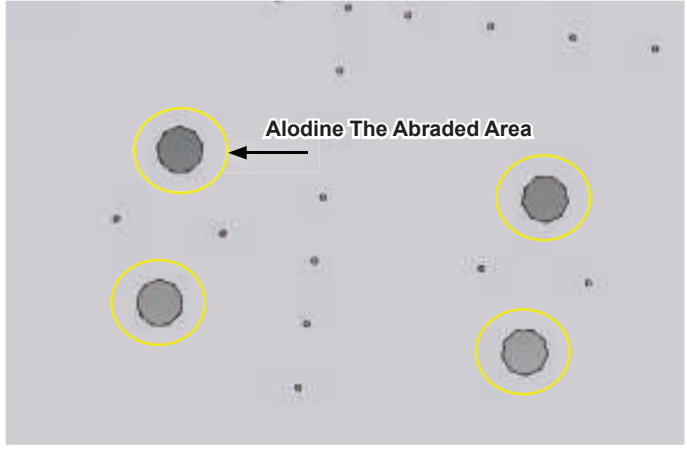
1.4 Step Two: Remove Passenger Seats and Cargo Floor Continued...

Task	Instruction	Visual	Complete
2	<p>Once all seats have been removed, use a Phillips #2 Screwdriver to remove the center cargo floor panel. (one panel, 8 screws)</p>		<input type="checkbox"/>
3	<p>Using a Phillips #2 Screwdriver, remove the center flooring in the cockpit. This will provide access to the forward fuel compartment.</p> <p>*CAUTION* to remove this section of flooring, the two rudder pedal foot rests need to be removed. Removal requires a Phillips #2 Screwdriver. DO NOT try to remove the flooring with out removing the metal foot rests. Damage to the cargo floor could occur.</p>		<input type="checkbox"/>
4	<p>Once the center cockpit floor has been removed, using a Phillips #2 Screwdriver, remove the 12 screws that secure the forward fuel compartment access panel to the floor.</p> <p>NOTE: Fuel bladder access (aft most access cover) is not required to accomplish this procedure.</p> <p>*CAUTION* - When removing, do not damage the seal located underneath the forward fuel compartment access panel.</p>		
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1.5 Step Three: Detach Fuel Lines and Remove Fuel Drain Valves

Task	Instruction	Visual	Complete
1	<p>Aft Fuel Drain Valves</p> <p>Detach the four fuel lines from the fuel drain valves using a 9/16" Open Ended Wrench.</p> <p>NOTE: In some aircraft, a thin bead of fuel tank sealant may be present between the fuel line connection and the fuel drain valve. If the sealant is present, make sure all sealant is removed from the fuel line connector prior to installing the fuel line on the new fuel drain valve to prevent fuel contamination.</p>		<input type="checkbox"/>
2	<p>Aft Fuel Drain Valves</p> <p>After detaching the fuel lines, move them aside and clear the area around the fuel drain valves. This next step requires two people. Using the Spanner wrench on the fuel drain valve on the outside of the plane and a 1"inch open ended wrench, remove 4 valves from inside of the aircraft.</p> <p>Once removed, place the old fuel drain valves in the return bag in the Service Kit. Retain the 1"inch nut for the new fuel drain valve.</p>		<input type="checkbox"/>
3	<p>Forward Fuel Drain Valve</p> <p>Using the same procedures defined in steps two and three, detach the fuel line from the forward fuel drain valve and remove the fuel drain valve from the aircraft.</p> <p>Once removed, place the old fuel drain valve in the return bag in the Service Kit. Retain the 1"inch nut for the new fuel drain valve.</p>		<input type="checkbox"/>
<p>Continue to next page >>></p>			

1.6 Step Four: Installation Preparation

Task	Instruction	Visual	Complete
1	<p>Now that all fuel drain valves are removed, the next step is to prep aircraft for the new fuel drain valves.</p> <p>To increase the ground between the new metal fuel drain valves and the aircraft, remove the paint and primer on the exterior of the aircraft 1/4" inch around the contacting surface of the fuel drain mounting hole. To accomplish this, use an abrasive Scotch-Brite pad.</p> <p>Note: Scotch-Brite pad not included.</p>		□
2	<p>After the aircraft surface is prepped, clean the area with denatured alcohol.</p> <p>Use a clean cotton cloth to wipe the area dry. Use Alodine to coat the exterior, abraded surface of the aircraft. This will prevent any corrosion from forming.</p>		□
3	<i>Step Reserved</i>	No Visual	□
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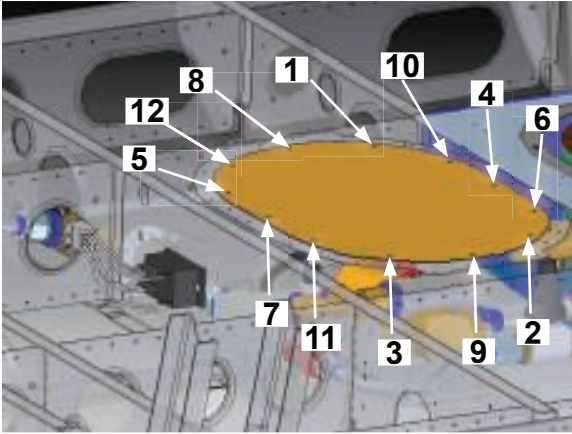

1.7 Step Five: New Fuel Drain Valve Installation

Task	Instruction	Visual	Complete
1	<p>With a Spanner Wrench and a 1" Open End Wrench, install the new fuel drain valve using the two person method previously used to remove the fuel drain valve.</p> <p>Torque the 1" inch jam nut to 120-150 inch-pounds.</p> <p>Repeat for every fuel drain valve. (5 total)</p>	No Visual	<input type="checkbox"/>
2	<p>Using a 9/16" Open End Wrench, reconnect the fuel lines to the new fuel drain valves.</p> <p>Torque the fuel fitting to 100-140 inch-pounds.</p>	No Visual	<input type="checkbox"/>
3	<p>After all fuel lines have been reassembled, turn the overhead fuel valves to OPEN and ensure there are no leaks in the fuel system.</p> <p>Once it is observed that there are no leaks in the fuel system, continue to the next step.</p>	No Visual	<input type="checkbox"/>
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1.8 Step Five: New Fuel Drain Valve Installation Continued...

Task	Instruction	Visual	Complete
4	<p>The next step is to reinstall the access panel to the forward fuel access bay.</p> <p>NOTE: The gasket must be properly aligned and reinstalled using an asymmetrical tightening.</p> <p>Insert the gasket on top of the fuel bay where the access door will be installed. Ensure that the holes in the gasket line up with the holes in the floor. Also, ensure that the gasket is flat and free of any foreign debris. Continue to step four for tightening procedure.</p>		□
5	<p>Place the forward fuel access bay cover on top of the gasket. Make sure all holes are aligned. Install the screws with a Phillips #2 Screwdriver and tighten each screw using the asymmetrical tightening diagram on the right.</p> <p>Torque the screws to 12-15 inch-pounds.</p> <p>DO NOT install the floor over the forward fuel access bay at this point. After tightening, allow 1 hour to pass and retighten the screws to the torque previously specified. This procedure ensures the gasket seals properly after settling.</p>		□
6	<p>Apply a thin bead of fuel tank sealant (provided in the Service Kit) to the area of the new fuel drain valves (5 total).</p> <p>The sealant will protect against moisture and corrosion between the valve and the aircraft skin.</p>		□
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1.9 Step Five: Post Installation

Task	Instruction	Visual	Complete
1	Re-install the center floor in the cargo compartment.		<input type="checkbox"/>
2	<p>Re-accomplish the tightening procedure in Section 1.8, Step 5.</p> <p>After each screw has been re-tightened, reinstall the cockpit floor.</p> <p>Re-install the rudder pedal foot rests.</p>		<input type="checkbox"/>
3	Reinstall the pilot, copilot, and passenger seats in the cockpit and cargo compartment using the procedures defined in the KODIAK 100 Maintenance Manual.		<input type="checkbox"/>
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1.10 Step Five: Post Installation Continued...

Task	Instruction	Visual	Complete
4	<p>Bleed the air from the fuel lines by pushing up on the poppet in the middle of each drain valve. At this time inspect the fuel to make sure that flow is normal and that contamination is not present.</p> <p>Perform an engine run to ensure the fuel flows are in the normal range. Note any anomalies.</p>	No Visual	<input type="checkbox"/>
5	<p>Send all fuel valves that were removed to Quest Aircraft.</p>	No Visual	<input type="checkbox"/>
6	<p>File this Service Bulletin for maintenance records.</p> <p style="text-align: center;">--END OF INSTRUCTIONS--</p>	No Visual	<input type="checkbox"/>
--END OF INSTRUCTIONS--			