

Date: 29 June 2017
To: Thai Aviation Services Limited
Regarding: Request For Fuel Line Pressure Check Procedure
Technical Case #: C0064152
Attn: Grant Robinson

There is a significant difference between the S-76D and S-76C in that the S-76D does not have foot valves like S-76C where the fuel lines connect to the fuel tanks. During the pressure check on the S-76C, these foot valves act like check valve to contain test pressure in the line above the tank, whereas on the S-76D there is nothing stopping the pressure from bleeding out into the tank and vents. So if applying the S-76C procedure to the S-76D, the customer will need to add additional steps of disconnecting and capping the fuel supply lines at the fuel tank outlet.

CAUTION

Appropriate care must be taken to avoid fuel tank FOD or caps inadvertently left installed.

If the connection inside the tank has not been disturbed, the capping can be done at next downstream connection outside the tank. We did check the Coatesville procedure (attached). Although this is a vacuum check procedure with special equipment, they do cap the lines at tank outlet.

In discussing this further with the S-76 Chief Engineer, we concluded that leaks between the tank and engine would be manifest by subsequent loss of prime and in the cross-feed line by possible engine flameout in checking cross feed operation. So in the case of this AOG, another alternative if not immediately returning to service would be to prime the system and visually inspect for leakage. Check starting and operation in direct and cross feed and then recheck starting and operation in direct/cross feed approximately 24 hours later. The pressure check however would more proactively check for the leak before filling with fuel and operating.

Best Regards,



Austin T. Lee
Service Engineering
Sikorsky Aircraft Corporation
124 Quarry Road
Trumbull, CT 06611-4816
austin.t.lee@lmco.com

Direct: 203.416.4396 | Mobile: 203.224.8544

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ACCEPTANCE TEST PROCEDURE NO. 15,294

DATED 11/6/2008

TITLE Fuel Lines, Vacuum Test Procedure For

MODEL S-76D

VERIFY CURRENT
REVISION STATUS
PRIOR TO USE

SAMPLE TESTING
PERMITTED..... YES NO PARTIAL

CHECKED BY K. Kuehne DATE 4/16/09
SYSTEM SAFETY ENGINEER
(FOR FLIGHT, PREFLIGHT & INSTALLATION PROCEDURES ONLY)

APPROVED BY O. A. Cuth DATE 3/24/09
DESIGN ENGINEER
(FOR INSTALLATION PROCEDURES ONLY)

PREPARED BY David Snyder
D. Snyder

CHECKED BY C. Smith
C. Smith

APPROVED BY C. Mascola
C. Mascola

DEMONSTRATED TO R. Draper DATE 11-13-08 DEMONSTRATED TO _____ DATE _____

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(See EPM 10.2 for Instructions)

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ATP NO. 15294



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TABLE OF CONTENTS

	<u>Page No.</u>
1.0 SCOPE	1
1.1 Purpose	1
1.2 Classification	1
2.0 APPLICABLE DOCUMENTS	1
2.1 Specifications	1
2.2 Drawings	1
2.3 Hand Books	1
3.0 QUALITY ASSURANCE PROVISIONS	1
4.0 TEST REQUIREMENTS	1
4.1 Test Conditions	1
4.2 Test Equipment	2
5.0 TEST PROCEDURES	3
5.1 Vacuum Test of Installed Fuel Lines	3

TABLE OF FIGURES

Figure 1: Fuel Selection Switch	3
Figure 2: Engine #2 Fuel Suction Line Connected to T7630-01022	4
Figure 3: Vent Gauge to Atmosphere	4
Figure 4: T7630-01022 Assembly	5



1.0 SCOPE

1.1 Purpose

Installed fuel lines shall be vacuum tested in accordance with this procedure to demonstrate compliance with the requirements of Reference 2.2.2.

1.2 Classification

<u>Nomenclature</u>	<u>Part Number</u>
Fuel System Instl	76307-72500
Lower Cabin	

2.0 APPLICABLE DOCUMENTS

2.1 Specifications

- 2.1.1 ESM-FI-4010, Engineering Standard Method Safety Requirements for Hydraulic and Pneumatic Test Installations

- 2.1.2 ESM-N3-5001, Engineering Standard Method for Calibration of Instrumentation.

2.2 Drawings

- ### 2.2.1 76307-72500, Fuel System Instl, Lower Cabin

- ## 2.2.2 76307-77501, Fuel System Instl, Integration

- ### 2.2.3 7655S-70036, Schematic Diagram, Fuel Selector

3.0 QUALITY ASSURANCE PROVISIONS

- 3.1 Calibration of measurement equipment shall be in accordance with ESM-N3-5001, Reference 2.1.2.

4.0 TEST REQUIREMENTS

- 4.1 The vacuum test of the fuel lines will be conducted on the assembly line at existing temperature, pressure, and humidity conditions.



4.2 Test Equipment

4.2.1 Standard

- (1) Standard shop air lines, fittings, caps, valves & plugs, as required.
- (2) Stopwatch
- (3) 28 V DC Aircraft Power
- (4) Petroleum Jelly

4.2.2 Military

None.

4.2.3 Special

- (1) T7630-01022 – S76D Fuel Vacuum Line Test Assembly
 - (1a) 0-30 in-hg vacuum gauge
 - (1b) Venturi Vacuum Pump
 - (1c) Needle Valve
 - (1d) Ball Valve

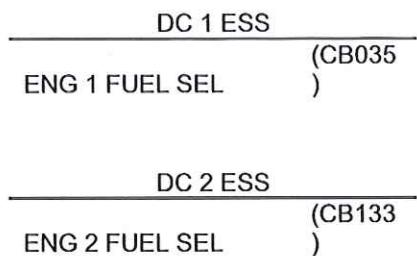
5.0 TEST PROCEDURES

 5.1 Vacuum Test of Installed Fuel Lines
NOTE

Vacuum testing of the fuel lines will be accomplished after completion of the fuel system installation in accordance with Sikorsky drawing 76307-77501 (for the D model).

5.1.1 Connect the 28 V DC Aircraft Power

5.1.2 Push in the following Circuit Breakers



5.1.3 Turn on Aircraft Power

5.1.4 Using the Fuel Selection Switch (See Figure 1: Fuel Selection Switch), place the #1 fuel selector switch in OFF and the #2 fuel selector switch in XFD (Cross-Feed).



Figure 1: Fuel Selection Switch

5.1.5 Disconnect the fuel suction lines in both tanks.

5.1.6 Cap the fuel suction line in tank #1

5.1.7 Disconnect the #2 main fuel suction line at the fuel inlet port on engine #2. Replace the suction line screws into the fuel inlet so that they are not lost and become FOD.

5.1.8

Connect the T7630-01022 Assembly to the end of the fuel suction line (Use Petroleum Jelly to grease the o-ring). See Figure 2: Engine #2 Fuel Suction Line Connected to T7630-01022 for the connection



Figure 2: Engine #2 Fuel Suction Line Connected to T7630-01022

NOTE:

If the Gauge does not read 0 in-hg, loosen the nut on the top of the gauge to vent to the atmosphere, and then retighten. See Figure 3: Vent Gauge to Atmosphere for how to vent the gauge to the atmosphere using a crescent wrench.



Figure 3: Vent Gauge to Atmosphere

- 5.1.9 Close the needle valve and open the ball valve on T7630-01022 Assembly. (See Figure 4: T7630-01022 Assembly for which valve is which)

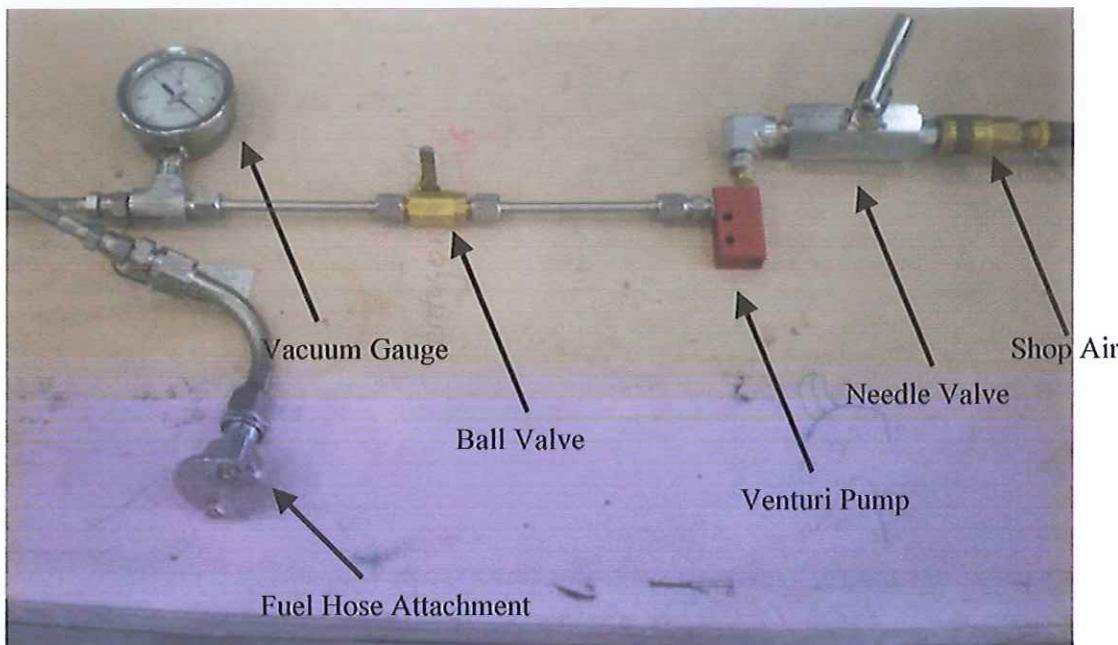


Figure 4: T7630-01022 Assembly

- 5.1.10 Connect shop air to the T7630-01022 assembly.
- 5.1.11 Open the needle valve and establish a reading of 4.0 inches Hg on the pressure gauge (12.7 PSIA). Then close the ball valve. Then close the needle valve and disconnect the shop air from the T7630-01022 assembly.
- 5.1.12 Observe the vacuum gauge for a 5 minute period. There shall be no change from 4.0 inches Hg.
- 5.1.13 Switch the #2 fuel selector switch to DIRECT. [The pressure should return to zero].
- 5.1.14 Switch the #1 fuel selector switch to XFD (Cross-Feed) and the #2 fuel selector switch to OFF.
- 5.1.15 Remove the T7630-01022 assembly and reconnect the suction line to the fuel inlet on the #2 engine. (Use petroleum jelly to grease the o-ring)
- 5.1.16 Uncap the fuel suction line in tank #1
- 5.1.17 Cap the fuel suction line in tank #2
- 5.1.18 Disconnect the #1 main fuel suction line at the fuel inlet port on engine #1. Replace the suction lines screws into the engine inlet so that they do not become FOD.

- 5.1.19 Connect the T7630-01022 Assembly to the end of the fuel suction line. (Use petroleum jelly to grease the o-ring)
- 5.1.20 Close the needle valve and open the ball valve on T7630-01022 Assembly.
- 5.1.21 Connect shop air to the T7630-01022 assembly.
- 5.1.22 Open the needle valve and establish a reading of 4.0 inches Hg on the pressure gauge (12.7 PSIA). Then close the ball valve. Then close the needle valve and disconnect the shop air from the T7630-01022 assembly.
- 5.1.23 Observe the vacuum gauge for a 5 minute period. There shall be no change from 4.0 inches Hg.
- 5.1.24 Switch the #1 engine fuel selector switch to DIRECT (The pressure should return to zero).
- 5.1.25 Switch the #1 engine fuel selector switch to OFF.
- 5.1.25 Remove the T7630-01022 assembly and reconnect the suction line to the fuel inlet on the #1 engine. (Use petroleum jelly to grease the o-ring)
- 5.1.26 Uncap the fuel suction line in tank #2
- 5.1.27 Reconnect both tank fuel suction lines to the tanks.
- 5.1.28 Unplug the circuit breakers from Step 5.1.2 if no longer needed.
- 5.1.29 Turn off the Aircraft power.
- 5.1.30 Remove the 28 VDC Aircraft Power.