



Date: May 1, 2007

Navion Service Bulletin No. 106 A

Subject: Fuel System- Inspection of the fuel system continued safe operation. This is due to several recent Navion accidents caused by improper inspection and maintenance of the fuel system and related components. **ALL SERVICE BULLETINS REFERENCED CAN BE ACCESSED AT: <http://www.navion.com/servicebulletins.html>**

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Approval Basis: **The technical aspects that affect the Airplane Type Design are FAA approved.**

Effectivity: All Navions, Serial Numbers NAV-4-002 thru NAV-4-2561 regardless of model designation.

Purpose: A. Before the accumulation of 10 flight hours, next 100 hour inspection or next Annual inspection, which ever occurs first: To require accomplishment of a one time inspection of the entire fuel system from firewall aft for condition of all fuel tanks installed including tip tanks, metal lines, fittings, hoses, vent system, vapor return, boost pump and fuel strainer.

B. Before the accumulation of 10 flight hours, or at next 100 hour or Annual inspection, which ever occurs first and **every annual inspection thereafter:** To require the fuel selector valve(s) be removed for inspection and testing unless terminating action is accomplished by compliance of Navion service bulletin 101A.

Compliance: Mandatory

Description: A. Before the accumulation of 10 flight hours, or at next 100 hr. inspection or next Annual inspection, whichever occurs first. Accomplish a detailed inspection of the entire fuel system from the firewall aft (Ref Service Manual September 01, 2005 or later revision, Section 21, Figure 21-0, Figure 21-1 and Figure 21-2)

Inspect condition of all fuel tanks including main, under seat, baggage, wing tip and accumulator tanks for security of clamps, condition of rubber connection hoses, corrosion, and fuel staining which could indicate cracks or pin holes (reference Navion Service Bulletin #87 for inspection and replacement of accumulator tank).

Inspect all gasket seals and drains for evidence of seepage and fuel staining.

Remove left and right wing access covers at WS 25 left gill cover and interior sidewall panels. Inspect all tank vent lines for security of all clamps, condition of all rubber connection hoses, obstructions, corrosion on metal lines, chafing and cracks.

Remove Right gill access cover. Inspect vapor return lines for security of tubing and clamps, proper operation of check valve, condition of rubber hoses, fittings, obstructions and corrosion on metal lines.

Remove the metal cover at aft side of nose wheel well. Inspect fuel strainer for evidence of fuel staining and leaking. Disassemble strainer and clean fuel screen. Inspect for damage and reassemble.

Perform Vacuum test of Gascolator :

- a) Plug outlet port and primer port as needed
- b) Connect hand operated vacuum pump and apply 24" of vacuum. (Ref Figure 2)
- c) Verify bleed down does not exceed 4" over one minute.
- d) Replace gaskets, fuel drain and/or gascolator as needed to ensure proper operation. (Reference Parts Manual January 01, 2006 or later Revision.)

Reinstall all access panels removed to accomplish inspection.

- a) Before the accumulation of 10 flight hours, next 100 hour inspection or next Annual inspection which ever occurs first. Repeat at every annual inspection unless terminating action is accomplished by installation of replacement selector valve in accordance with Service Bulletin 101A:
  1. Remove negative terminal from battery. Attach grounding cable to aircraft and drain fuel from all tanks into suitable storage containers. Extreme caution should be used when handling fuel.
  2. Remove fuel selector valve(s) from aircraft and cap all fuel lines.
  3. Perform an initial visual inspection of the valve to detect if:

- a) Valve turns freely with minimal effort.
- b) Valve detents are positive in all positions.
- c) No leaking or seepage is noted by evidence of fuel staining around stem or assembly nut.
- d) No evidence of previous rework or repairs of main valve assembly
- e) Remove AN or weatherhead fittings and verify valve bores are correct size (minimum .3125 at inner valve core and .340 at valve housing - smooth bore area) by measuring with ball guage or equivalent suitable measuring device. (For brass style valves only)
- f) Internal valve core is metallic and does not have a plastic core. (For brass style valves only)

If the selector valve fails any one of the previous checks it must not be returned to service and must be replaced in accordance with Service Bulletin 101A before further flight.

- 4. Perform the following vacuum test to detect external leakage:
  - a) Plug all inlet ports using AN922-6D or equivalent caps.
  - b) Connect hand operated vacuum pump to outlet port and apply 24" of vacuum as follows; Ref. Fig 1
  - c) With valve in the off position apply 24" of vacuum for 1 minute, note bleed down.
  - d) Repeat step (c) for all remaining positions.

If more than 1" of bleed down is noted in 1 minute, selector valve must not be returned to service and must be replaced in accordance with Service Bulletin 101A before further flight.

- 5. Perform the following vacuum test to detect internal leakage:

- a) Plug all inlet ports but one (e.g.; MAIN) using AN922-6D or equivalent caps.
- b) Connect hand operated vacuum pump to outlet port and apply 24" of vacuum as follows; Ref. Fig 1
- c) With valve in the off position apply 24" of vacuum for 1 minute, note bleed down.
- d) Repeat step (c) for all remaining positions except the open line.

If more than 1" of bleed down is noted in 1 minute, selector valve must not be returned to service and must be replaced in accordance with Service Bulletin 101A before further flight.

6. Perform the test in Paragraph 5 for each of the other inlet ports to detect internal leakage:

If more than 1" of bleed down is noted in 1 minute, selector valve must not be returned to service and must be replaced in accordance with Service Bulletin 101A before further flight.

END



Figure 1- Typical Valve Vacuum Test



Figure 2 Typical Gascolator Vacuum Test