

SUBJECT: FUEL SYSTEM MODIFICATIONS

MODELS THIS BULLETIN OBSOLETE ALON S.B. NO. 8

AFFECTED: Forney Model F1-A, S/N 5764 only
Alon Model A2, S/N A-2 thru A-245
Alon Model A2-A, S/N B-246 thru B-302

TIME OF COMPLIANCE: MANDATORY within next 25 hours.

INTRODUCTION: In some instances, fuel has been observed flowing during flight from the vented fuel-filler caps. To preclude this condition, accomplish Instruction I and II. Accomplish Instruction III to help prevent the possibility of fuel seeping into the air-frame during ground servicing.

INSTRUCTION I: Installation of fuel return and overboard vent assembly in fuselage fuel tank.

Step 1. Remove fuselage fuel tank.

- a. Remove instrument panels and control wheels with control wheel shafts.
- b. Disconnect clamps retaining engine controls to fuel tank.
- c. Drain fuselage fuel tank.
- d. Disconnect fuel lines at tank fittings.
- e. Remove filler cap.
- f. Remove screws securing tank.
- g. Place control column in full forward position.
- h. Lower tank and pull tank aft.
- i. Remove all fittings from tank.

Step 2. Purge tank of fuel and fumes by flowing steam or hot water into the tank, followed by blowing air into tank until dry. Rinse tank with two quarts of industrial alcohol.

Step 3. Modification of fuselage tank fuel return and overboard vent assembly.

- a. Install AN913-2 plug in overflow return line fitting from which T-fitting has been removed.
- b. Locate template on center line of aft side of fuselage tank using top of tank as locating reference (See Figure 1).

FIGURE 1

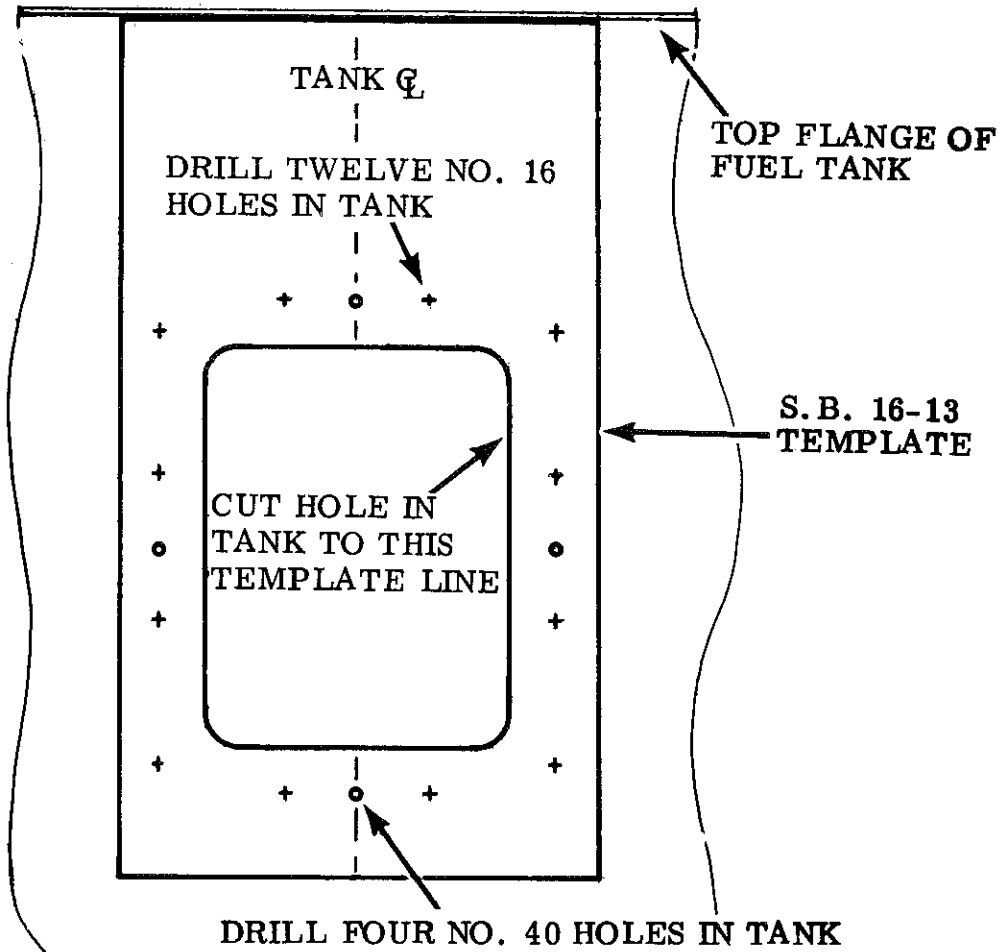
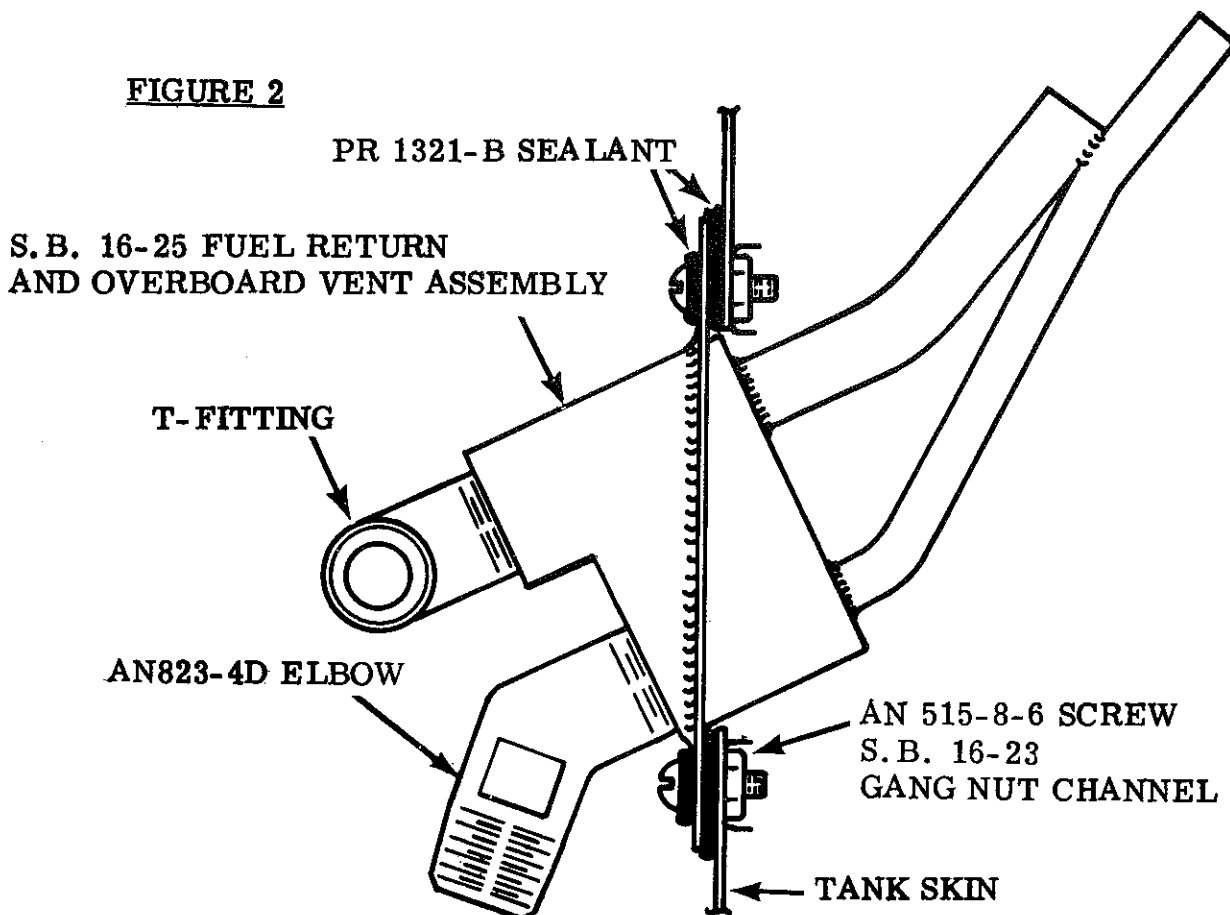


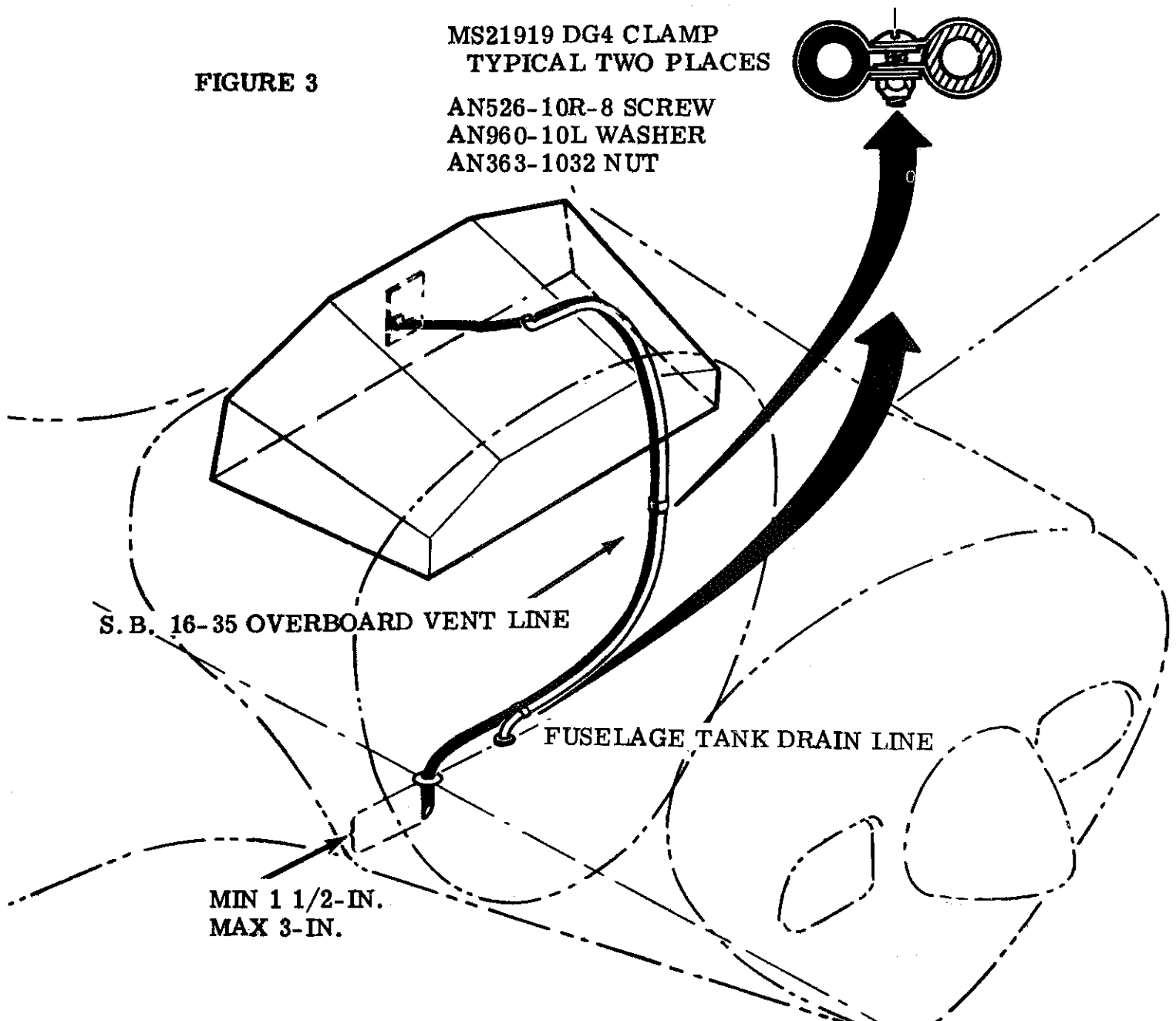
FIGURE 2



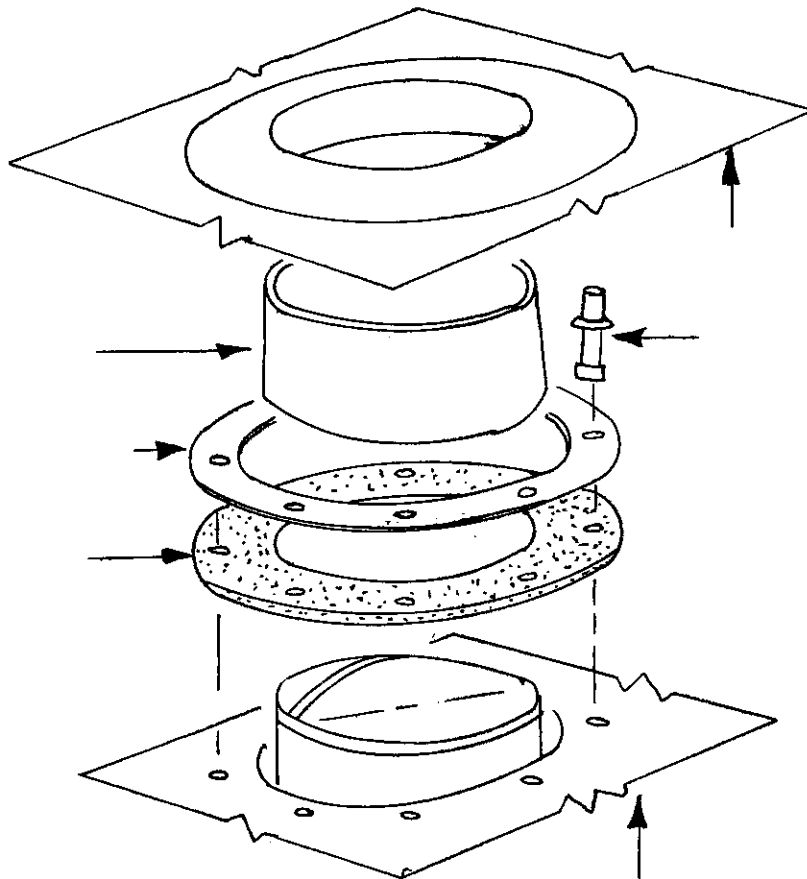
- c. Mark area to be cut, remove template, and cut hole in tank.
- d. Using template drill four #40 pilot holes through template and tank.
- e. Cleco template in place using pilot holes in template and tank.
- f. Drill twelve .166/.170 (NO. 16 drill) holes in tank using template as a guide.
- g. Remove template, locate gang channels under attaching holes, and drill #40 holes through pilot holes. Countersink holes through tank skin into gang channels 100^o x .05 inch.
- h. Thoroughly clean tank, removing all traces of burrs and metal shavings. Also clean faying surfaces of tank exterior and S. B. 16-25 assembly with an oil-free solvent.
- i. Attach gang channels in place inside tank using four each AN507B-440R-4 screws and AN363-440 self locking nuts.
- j. Apply PR1321-B sealant to tank skin outer faying surfaces and to outer surface around attaching holes on S. B. 16-25 assembly (See Figure 2).
- k. Install S. B. 16-25 assembly with AN515-8-6 (12) screws through tank skin and gang channels (See Figure 2) making sure that tubes point to inside top of tank. Tighten screws and allow sealant to cure about 24 hours under normal conditions.
- l. Using pipe-dope to seal fittings, reinstall fittings previously removed. Install T-fitting in top opening of S. B. 16-25 overflow assembly and install AN823-4D elbow fitting in bottom opening.
- m. Cap fittings, and leak-check tank by submerging it in water with 1-1/2 PSI maximum air pressure applied to tank. Repair any leaks encountered.
- n. Remove fitting caps and reinstall tank in aircraft.
- o. Cut left fuel return line (approximately 5 IN.) to fit installation to T-fitting in S. B. 16-25 assembly.
- p. Place fitting nut and sleeve on fuel return line and flair cut end of tubing. Attach fuel return line to T-fitting.
- q. Install S. B. 16-27 fuel return line extension and AN815-6D union attaching right fuel line to T-fitting.
- r. Drill 7/16-inch diameter hole through belly skin on aircraft center line, at same fuselage station as fuel drain valve (about 13-1/2 inches aft of firewall), and install AN931-4-7 grommet in hole.

- s. Connect S.B. 16-35 overboard fuel vent line assembly to bottom fitting of S.B. 16-25 assembly. Route line next to fuselage tank drain line and through grommet in belly skin. Be sure beveled edge of overboard vent line faces forward and that drain lines protrude a minimum of 1-1/2 inches below belly skin.
- t. Secure overboard vent line to fuselage tank drain line by positioning two pair of MS21919 DG4 clamps, using AN526-10R-8 screw, AN960-10L washer, and AN363-1032 nut, as shown on Figure 3.
- u. Reinstall instrument panels, control wheels, and shafts in reverse sequence of removal.
- v. Reattach engine control retaining clamps to tank.
- w. Reinstall fuel lines on tank fittings and leak-check all connections after refueling tank.

FIGURE 3



Step 4. Modify fuel-filler neck cutout in fuselage skin as shown in Figure 4.



- a. Remove top and side cowls.
- b. Assemble 610199 shield, 610204-3 seal, and 610204-5 doubler over fuel-filler neck with 610199 shield flush with top of neck.
- c. Use PR1321-B sealant to seal 610199 shield to fuel-filler neck. Allow sealant to cure about 24 hours prior to re-installing engine top cowling.
- d. Rivet 610204-5 doubler and 610204-3 seal to upper forward fuselage skin at fuel-filler neck cutout with eight (8) CR563-4-6 blind rivets. Pull rivets snug and cut stems with dykes.

NOTE: Use a drill stop (3/16-inch maximum penetration) when drilling rivet holes in fuselage skin.

INSTRUCTION II: Replacement of fuselage fuel-filler gauge/cap gasket and wing fuel-filler caps (not illustrated).

Step 1. Replace the fuselage tank fuel-filler gauge/cap gasket.

- a. Remove gasket from filler cap.
- b. Install gasket (P/N 610179).
- c. Install cap on fuselage tank.

Step 2. Replace wing tank fuel-filler caps.

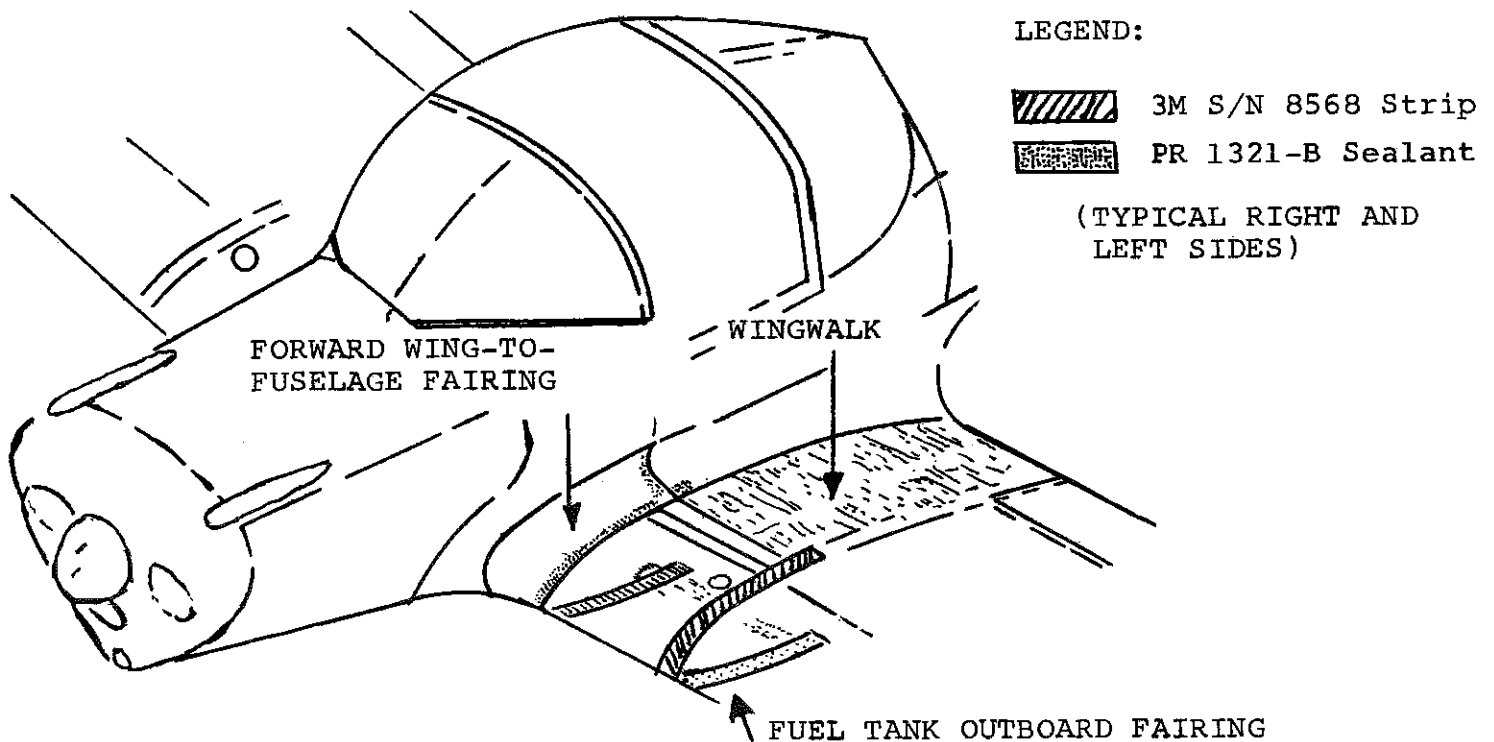
- a. Remove existing wing tank fuel-filler caps.
- b. Install new wing tank fuel-filler caps P/N 610014-1.

INSTRUCTION III Airframe Sealing (See Figure 5).

Step 1. Sealing area around wing tanks.

- a. Remove forward wing-to-fuselage fairing.
- b. Remove wing fairings from fuel tank outboard edges.
- c. Remove fuel lines and remove wing fuel tanks.
- d. Remove interfering sealing tape or antiscuff material, and clean all sealing surfaces with an appropriate cleaning compound.

FIGURE 5



Step 2. Apply sealant as shown in preceding illustration.

- NOTES: Make certain there are no gaps that could make sealing difficult where fairings contact the wing. Apply sealant (approximately 1/16 inch thick layer) between fraying surfaces.
- a. Apply a coat of PR1321-B sealant (about .50 to .75 inch wide) to outboard edge of forward wing-to-fuselage fairing extending from wing leading edge back to four inches aft of the fairing rear edges on both top and bottom sections of the fairing.
 - b. Apply PR1321-B sealant to upper and lower aft edges of fuel tanks. Seal any gaps found in wing-walk skin joggle above spar.
 - c. Reinstall wing tanks and fuel lines.
 - d. Use strip calk (3M P/N 8568) to seal top and bottom inboard edges of wing fuel tank outboard fairings.

Allow sealant to cure about 24 hours under normal conditions after reinstallation of tanks and fairings.

Step 3. Install a G51H-A caterpillar grommet (approximately 4 inches long) in fuel tank drain skin-cutout (not illustrated).

INSTRUCTION IV: Fill out and mail accompanying Service Bulletin Compliance card.

SERVICE BULLETIN
KIT:

No. (A2, A2-A) -16-1

S.B. 16-25 Fuel Return & Overboard Vent Assy. (1)	AN 823-4D Elbow Fitting (1)
S.B. 16-21 Gang Nut Channel "3" (2)	MS21919 DG4 Clamps.....(4)
S.B. 16-23 Gang Nut Channel 1-1/2"..... (2)	AN 526-10R8 Screws.....(2)
S.B. 16-13 Template... (1)	AN 960-10L Washer.....(2)
AN 515-8-6 Screw..... (12)	AN 363-1032 Nut.....(2)
AN 507B-440R-4 Screw.. (4)	P/N 8568 Strip Calk (Dum-Dum) 3M Co. 1/2 Box
AN 363-440 Nut..... (4)	610204-3 Seal.....(1)
AN 913-2 Plug..... (1)	610204-5 Doubler.....(1)
S.B. 16-27 Return Line Extension Assy..... (1)	CR 563-4-6 Rivet.....(8)
610199 Shield..... (1)	610179 Gasket.....(1)
AN 815-6D Union..... (1)	610014-1 Wing Tank Filler Cap.....(2)
S.B. 16-35 Overboard Vent Line Assy..... (1)	GS1H-A Grommet (8" long).(1)
AN 931-4-7 Grommet.... (1)	Service Bulletin Compliance Card.....(1)

Product Research 1321-B sealant--approximately two one-half pint cans.

NOTE: These kits may be purchased directly from your local Mooney distributor.