

## STORAGE

### 1. DESCRIPTION

- *Serials 0002 thru 2437:*

The fuel storage system consists primarily of a vented integral 42-gallon (159-liters) capacity fuel tank in each wing, a integral fuel collector tank/sump in each wing, a three-position selector valve, an electric boost pump, gascolator, an engine-driven fuel pump, and five fuel drains.

Each wing contains an integral fuel tank bounded by the upper and lower wing skins, main spar web, aft wing shear web, and the inboard and outboard fuel tank ribs. The wing skins and fuel ribs, are of fiberglass composite with foam core sandwich construction. A fuel baffle rib is integral to each tank to reduce fuel slosh. Fuel return lines are fed to the top of each fuel tank. Access panels are located in each fuel tank bay for servicing. Fuel tank fittings and screens are accessible through wing access panels. Fuel flows by gravity from each fuel tank to the corresponding integral collector tank. Fuel then feeds into a fuel tube located in the fuselage.

Sumps are built into the fuel tanks and collector tanks. Integral collector tanks are located at the inboard wing root area of each wing. The collector tank offers a sediment and water collection area, and capacity for ensuring fuel flow to the engine during uncoordinated maneuvering. A drain is located in each tank for preflight inspection. The collector tank drains are located at the fuel system low points. The center of the fuel drains can be pushed inward with the fuel sampler to inspect for water or contaminants. A flapper assembly (swing check valve) is installed in the line from the wing tanks to the collector tank to keep fuel in the collector tanks during uncoordinated maneuvers. Each collector tank holds approximately 3.5 gallons (13.2 liters). The integral collector tank access cover is supported by a continuous flange around the lower skin opening.

A 1/16-inch mesh strainer is installed on each of the two ports in each integral fuel tank. The strainers are accessible by removing the inboard fuel tank access cover. The stainless steel strainers are brazed to stainless steel nuts that connect to a bulkhead fitting on the wing rib. The fuel strainers in the fuel tanks should always be cleaned after the airplane has been in storage. If any damage or restrictions are noted during inspection, the strainers must be replaced.

Each fuel cap assembly has a viton o-ring which seals the fitting in the upper wing skin. The fuel cap is grounded to the airframe through a resistive (approximately 100 ohm) connection through the aircraft lightning protection. Fuel tabs are integrated into the fuel filler necks and indicate approximately 23.0 usable gallons (87.0 liters) in each tank.

Each integral fuel tank is vented from the top of each fuel tank to a flush NACA style scoop vent located in an access panel on the lower wing skin. Vent lines from the main fuel tanks are constructed of fuel resistant plastic. The fuel tank vent lines do not have any points in which moisture can accumulate during normal ground or level flight operation. The top of each collector tank is vented to the inboard fuel rib of the corresponding fuel tank.

Fuel drains are provided at various locations throughout the fuel system for drainage of water and sediment from the fuel system. To activate the drain valves, a fuel sampler cup/screwdriver is furnished with the flyaway kit. Drain valves are located at the inboard access panel of each integral fuel tank, both collector tanks, and the gascolator.

**Note:** When servicing fuel system pipe thread fittings, apply a small amount of grease (MIL-G-60320 Type 1) to the external threads.

- *Serials 2438 & subs:*

The fuel storage system consists primarily of a vented integral 47.5-gallon (180-liters) capacity fuel tank in each wing, a integral fuel collector tank/sump in each wing, a three-position selector valve, an electric boost pump, gascolator, an engine-driven fuel pump, and five fuel drains.

Each wing contains an integral fuel tank bounded by the upper and lower wing skins, main spar web, aft wing shear web, and the inboard and outboard fuel tank ribs. The wing skins and fuel ribs, are of fiberglass composite with foam core sandwich construction. Two fuel baffle ribs are integral to each tank to reduce fuel slosh. Fuel return lines are fed to the top of each fuel tank. Access panels are located in each fuel tank bay for servicing. Fuel tank fittings and screens are accessible through wing access panels. Fuel flows by gravity from each fuel tank to the corresponding integral collector tank. Fuel then feeds into a fuel tube located in the fuselage.

Sumps are built into the fuel tanks and collector tanks. Integral collector tanks are located at the inboard wing root area of each wing. The collector tank offers a sediment and water collection area, and capacity for ensuring fuel flow to the engine during uncoordinated maneuvering. A drain is located in each tank for preflight inspection. The collector tank drains are located at the fuel system low points. The center of the fuel drains can be pushed inward with the fuel sampler to inspect for water or contaminants. A flapper assembly (swing check valve) is installed in the line from the wing tanks to the collector tank to keep fuel in the collector tanks during uncoordinated maneuvers. Each collector tank holds approximately 2.8 gallons (10.6 liters). The integral collector tank access cover is supported by a continuous flange around the lower skin opening.

A 1/16-inch mesh strainer is installed on each of the two ports in each integral fuel tank. The strainers are accessible by removing the inboard fuel tank access cover. The stainless steel strainers are brazed to stainless steel nuts that connect to a bulkhead fitting on the wing rib. The fuel strainers in the fuel tanks should always be cleaned after the airplane has been in storage. If any damage or restrictions are noted during inspection, the strainers must be replaced.

Each fuel cap assembly has a viton o-ring which seals the fitting in the upper wing skin. The fuel cap is grounded to the airframe through a resistive (approximately 100 ohm) connection through the aircraft lightning protection. Fuel tabs are integrated into the fuel filler necks and indicate approximately 30.0 usable gallons (114 liters) in each tank.

Each integral fuel tank is vented from the top of each fuel tank to a flush NACA style scoop vent located in an access panel on the lower wing skin. Vent lines from the main fuel tanks are constructed of fuel resistant plastic. The fuel tank vent lines do not have any points in which moisture can accumulate during normal ground or level flight operation. The top of each collector tank is vented to the inboard fuel rib of the corresponding fuel tank.

Fuel drains are provided at various locations throughout the fuel system for drainage of water and sediment from the fuel system. To activate the drain valves, a fuel sampler cup/screwdriver is furnished with the flyaway kit. Drain valves are located at the inboard access panel of each integral fuel tank, both collector tanks, and the gascolator.

**Note:** When servicing fuel system pipe thread fittings, apply a small amount of grease (MIL-G-60320 Type 1) to the external threads.

**2. MAINTENANCE PRACTICES**

**A. Fuel Cap Assembly - Serials 0002 thru 2437 (See Figure 28-101)**

- (1) Removal - Fuel Cap Assembly

**WARNING: Never attempt to remove fuel cap assembly with pressure in fuel system.**

- (a) Unlock fuel cap with key and remove.
- (b) Remove screws securing fuel cap housing to wing.
- (c) Remove gasket.
- (2) Disassembly - Fuel Cap
  - (a) Remove nut and washer securing fuel cap stem.
  - (b) Remove clip securing lock core.
  - (c) Remove outer o-ring.
  - (d) Remove stem o-ring.
- (3) Reassembly - Fuel Cap
  - (a) Install stem o-ring.
  - (b) Install outer o-ring.
  - (c) Install clip securing lock core.
  - (d) Install nut and washer securing fuel cap stem.
- (4) Installation - Fuel Cap Assembly
  - (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Gasket Sealant	AC-240 B-1/2	Dynamold, Inc. Fort Worth, TX. 76107 817-335-0862	Sealant.
Isopropyl Alcohol	TT-I-735 Grade A or B	Any Source	Cleaner.
White Petroleum Jelly	VV-P-236	Any Source	Lubricant.

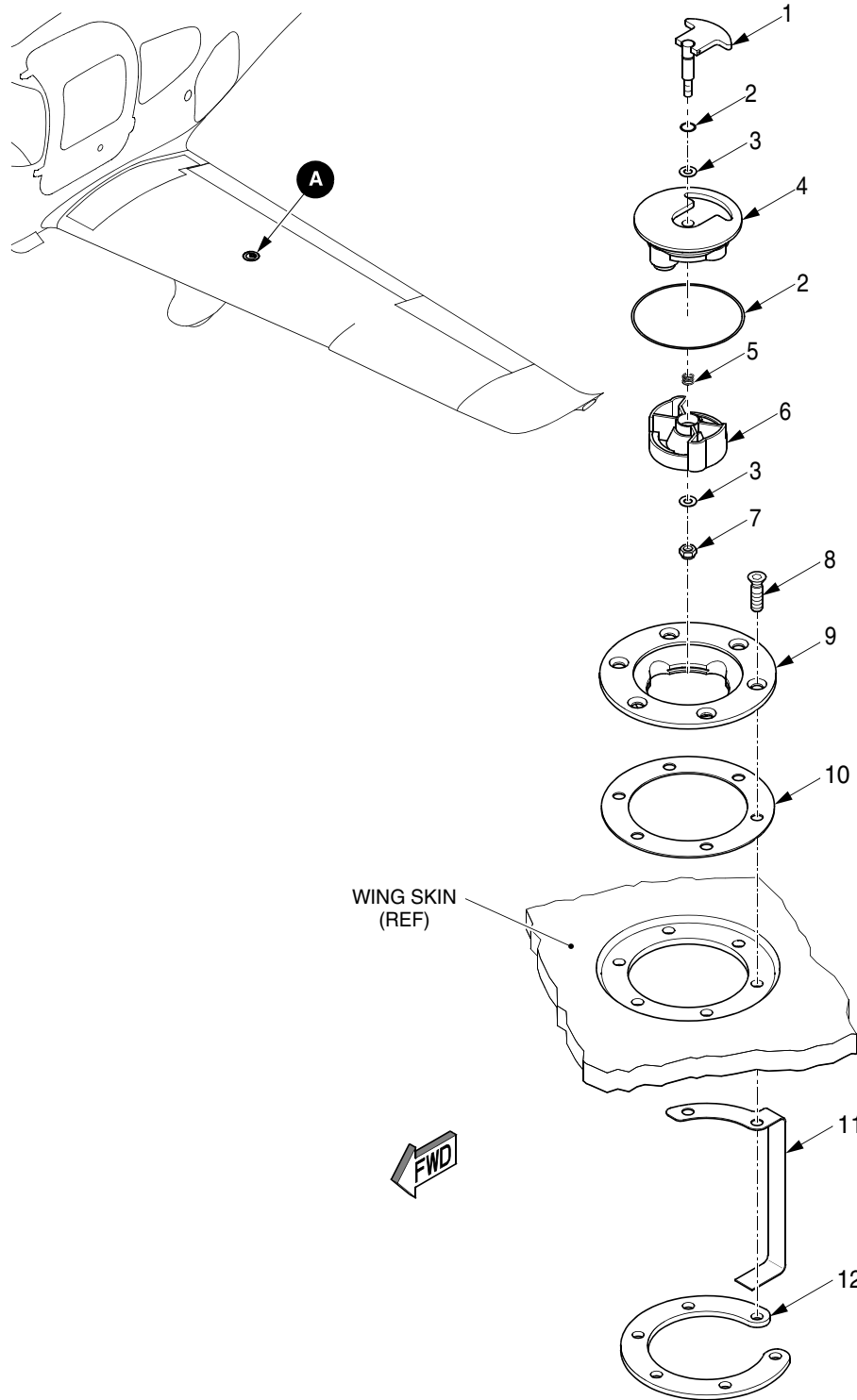
- (b) Solvent clean gasket installation area on wing with isopropyl alcohol. (Refer to 20-30)
- (c) Apply sealant to bottom of gasket.
- (d) Position gasket to wing and press to install.
- (e) Position fuel cap housing to wing and secure with screws.
- (f) Insert fuel cap and lock with key.
- (g) Lightly lubricate lock, lever, and center pin with petroleum jelly.
- (5) Functional Test - Fuel Cap Assembly
  - (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Ohmmeter	-	Any Source	Check resistance.

- (b) Connect one lead of ohmmeter with an alligator clip to LH exhaust pipe.
- (c) Measure and record resistance from LH exhaust pipe to LH fuel cap.
- (d) Connect one lead of ohmmeter with an alligator clip to RH exhaust pipe.

EFFECTIVITY:  
Serials 0002 thru 2437

- (e) Measure and record resistance from RH exhaust pipe to RH fuel cap.
- (f) Verify grounding resistance is less than 25 ohms from each fuel cap to each exhaust pipe.
- (g) Connect one lead of ohmmeter with an alligator clip to RH exhaust pipe, and connect the other lead of ohmmeter with an alligator clip to LH exhaust pipe.
- (h) Verify grounding resistance is less than 1 ohm between both exhaust pipes.



- LEGEND**
- 1. Fuel Cap Stem
  - 2. O-Ring
  - 3. Washer
  - 4. Fuel Cap
  - 5. Spring
  - 6. Fuel Cap Saddle
  - 7. Locknut
  - 8. Screw
  - 9. Ring
  - 10. Gasket
  - 11. Fuel Level Tab
  - 12. Nut Ring

Serials 0002 thru 2333, 2335 thru 2419, 2421 thru 2437.

**DETAIL A**

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**Figure 28-101**  
**Fuel Cap Assembly - Serials 0002 thru 2437**

**EFFECTIVITY:**  
 Serials 0002 thru 2437

**B. Fuel Cap Assembly - Serials 2438 & subs (See Figure 28-102)**

- (1) Removal - Fuel Cap Assembly

**WARNING: Never attempt to remove the fuel cap assembly with pressure in the fuel system.**

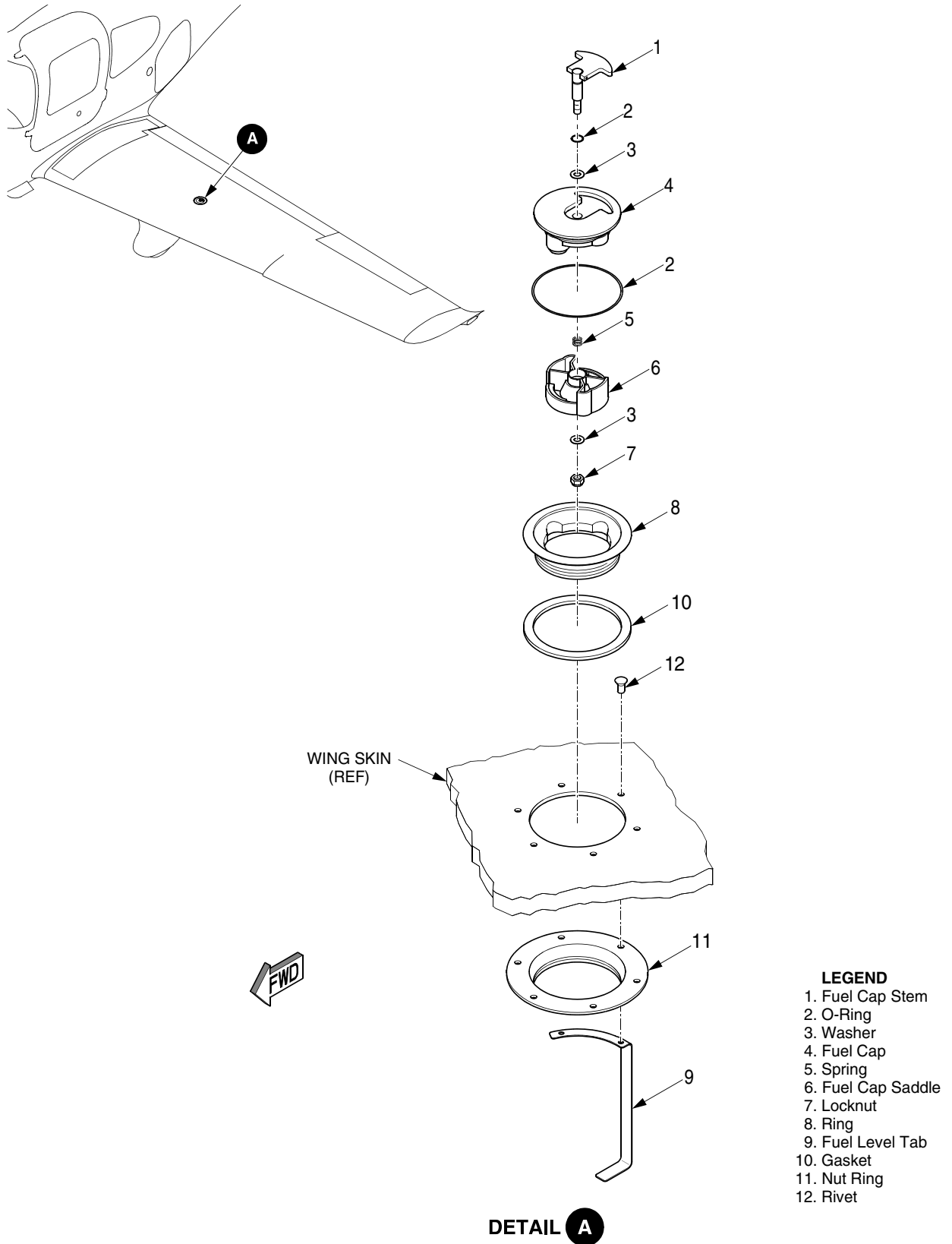
- (a) Unlock fuel cap with key and remove.
- (b) Rotate fuel cap housing counter-clockwise to remove from wing.
- (2) Disassembly - Fuel Cap
  - (a) Remove nut and washer securing fuel cap stem.
  - (b) Remove clip securing lock core.
  - (c) Remove outer o-ring.
  - (d) Remove stem o-ring.
- (3) Reassembly - Fuel Cap
  - (a) Install stem o-ring.
  - (b) Install outer o-ring.
  - (c) Install clip securing lock core.
  - (d) Install nut and washer securing fuel cap stem.
- (4) Installation - Fuel Cap Assembly
  - (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Sealant	PR2001 B-1/2	PRC-Desoto International Indianapolis, IN 46278 317-290-1600	Sealant.
White Petroleum Jelly	VV-P-236	Any Source	Lubricant.

- (b) Apply sealant to fuel cap housing threads.
- (c) Position fuel cap housing to wing and rotate clockwise to secure. Hand tighten fuel cap housing, then back off 1/4 turn for correct orientation.
- (d) Insert fuel cap and lock with key.
- (e) Lightly lubricate lock, lever, and center pin with petroleum jelly.
- (5) Functional Test - Fuel Cap Assembly
  - (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Ohmmeter	-	Any Source	Check resistance.

- (b) Connect one lead of ohmmeter with an alligator clip to LH exhaust pipe.
- (c) Measure and record resistance from LH exhaust pipe to LH fuel cap.
- (d) Connect one lead of ohmmeter with an alligator clip to RH exhaust pipe.
- (e) Measure and record resistance from RH exhaust pipe to RH fuel cap.
- (f) Verify grounding resistance is less than 25 ohms from each fuel cap to each exhaust pipe.
- (g) Connect one lead of ohmmeter with an alligator clip to RH exhaust pipe, and connect the other lead of ohmmeter with an alligator clip to LH exhaust pipe.
- (h) Verify grounding resistance is less than 1 ohm between both exhaust pipes.



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**Figure 28-102**  
**Fuel Cap Assembly - Serials 2438 & subs**

**EFFECTIVITY:**  
 Serials 2438 & subs

**C. Wing Fuel Tank (See Figure 28-103)**

- (1) Adjustment/Test - Wing Fuel Tank Pressure Test
  - (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Rubber Vent Hose	-	Any Source	Test fuel system.
Tee Fitting	-	Any Source	Test fuel system.
Air Pressure Gage	0-5 psi	Any Source	Verify pressure.
Water Manometer	-	Any Source	Verify pressure.
Soapy Water Solution	-	Any Source	Inspect for leaks.

- (b) Drain fuel tanks. (Refer to 12-10)
- (c) Set fuel selector valve to OFF position.
- (d) *Serials 0002 thru 2437:* Remove wing access panel LW14 or RW14. (Refer to 06-00)
- (e) *Serials 2438 & subs:* Remove wing access panel LW10 or RW10. (Refer to 06-00)
- (f) Remove clamps securing vent hoses to NACA scoop vents.
- (g) Plug outboard end of either vent hose.
- (h) Connect a rubber hose and tee to the unplugged vent hose.

**Note:** The water manometer will be the primary checking device for pressure measurements. The low pressure air gage is the backup gage and will serve as a check on the manometer.

- (i) Attach a water manometer and a low pressure air gage to the tee.
- (j) Record ambient and calculated maximum water pressure and level readings.

**WARNING:** Never attempt to remove fuel cap with pressure in fuel system. Never apply regulated or unregulated air from an air compressor to fuel vent hose.

**CAUTION:** Do not pressurize fuel tanks to more than 55.4 inches of water (2.0 psi). Major structural damage to the fuel tank/wing may occur if more than 55.4 inches of water (2.0 psi) is applied. Stop pressurizing fuel system when either gage indicates maximum allowable pressure or level. If pressure or level exceeds 55.4 inches of water (2.0 psi), the fuel system may sustain damage that cannot be repaired. Always blow into hose, never inhale fuel or vapor.

- (k) Blow into open end of hose until manometer indicates 55.4 inches of water (2.0 psi).
- (l) Pinch or clamp hose to maintain maximum pressure in fuel tanks.
- (m) Leave fuel system pressurized for 10-20 minutes.
- (n) Inspect fuel tanks, collector tanks, fittings, and caps for signs of leakage.
- (o) If leakage is suspected (manometer level or pressure readings drop), apply soapy water to area in question and inspect for bubbles.



**WARNING:** If fuel system leaks, release all pressure from system before removing fuel caps. Never attempt to remove fuel cap with pressure in fuel system. Never remove fuel cap when a soapy water solution is present or contamination of fuel system could occur.

**Note:** Inspect fuel tank seams, fuel lines, hoses, caps, connections, collector tank seams and fittings, and all other fuel related areas for leakage with soapy water.

Minor fuel cap leaks may be stopped by adjusting fuel cap nut clockwise to apply more tension on stem o-ring.

- (p) If fuel cap leaks, replace outer o-ring. If leak is observed in recessed area around stem, disassemble fuel cap, and replace stem o-ring.
- (q) If either tank leaks, release all pressure from fuel system. Repair fuel tank as required. [\(Refer to 28-10\)](#)
- (r) Install fuel caps.
- (s) Remove manometer, low pressure air gage, plug, rubber hose, and tee from vent hoses.
- (t) Position vent hoses to NACA scoop vents and secure with clamps.
- (u) *Serials 0002 thru 2437:* Install wing access panel LW14 or RW14. [\(Refer to 06-00\)](#)
- (v) *Serials 2438 & subs:* Install wing access panel LW10 or RW10. [\(Refer to 06-00\)](#)
- (w) Set selector valve to ON position.

(2) Inspection/Check - Wing Fuel Tank

**Note:** No detectable fuel leaks are allowed after repair procedure has been performed. [\(Refer to 28-10\)](#)

- (a) Drain a pint of fuel from fuel tank drain valve into a clean, clear container. Visually inspect fuel sample for evidence of contaminants.
- (b) Drain a quart of fuel from collector tank drain valve. Visually inspect fuel sample for evidence of contaminants.
- (c) If no contaminants are found then no further action is required. Make an entry in the airplane logbook stating the inspection was performed.
- (d) If contaminants are found then the fuel tank must be drained and cleaned. [\(Refer to 12-10\)](#)

(3) Cleaning - Wing Fuel Tank

**WARNING:** Special precautions must be observed when using solvents for cleaning. Solvents used in cleaning are toxic and flammable. Fresh air masks and/or adequate ventilation, eye protection, and skin protection must be used in all closed areas.

- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Methyl Ethyl Ketone (MEK)	ASTM D-740 Type 1 or 2	Any Source	Cleaning.
Acetone	ASTM D-329	Any Source	Cleaning.

- (b) Vacuum thoroughly to remove all chips, filings, and dirt from the tank area.

EFFECTIVITY:  
All

**CAUTION:** Always pour solvent on cloth to prevent contaminating solvent. Do not allow cloth to drip. Wipe surfaces with clean, dry cloths until white haze disappears. Never use contaminated solvent.

(c) Solvent clean all surfaces to be sealed by wiping with a clean cloth dampened with Methyl Ethyl Ketone (MEK), acetone or similar solvent. Dry surfaces with a clean cloth before solvent evaporates.

(4) Approved Repair - Wing Fuel Tank

The following procedures are to be used for sealing integral fuel tanks made of composite materials. If a repair must be made to a bondline, joint or seam, the repair should be made using a sealant that meets or exceeds MIL-S-8802. (Refer to 20-10) If the leak is coming from a small pinhole located away from any bondlines, joints or seams, the repair must be made using a Type 2, Class 1 non-structural resin system. Repair procedures for composites are covered in Chapter 51-00. (Refer to 51-00)

**WARNING:** Purge fuel tank with argon or carbon dioxide gas prior to sealing leaks. This will help minimize the possibility of an explosion. Use a portable vapor detector to determine when it is safe to seal the fuel tank(s). Use only non-sparking tools during the sealing process.

**Prevent fuel drains, vent openings, and outlet screens from becoming restricted when sealing fuel tanks.**

(a) Acquire necessary tools, equipment, and supplies.

Item	P/N or Spec.	Supplier	Purpose
Methyl Ethyl Ketone (MEK)	ASTM D740 Type 1 or 2	Any Source	General cleaning.
Non-Structural Resin Repair System	Shell EPON 862/heloxly 68 & Teta 3234 resin system Type 2 Class 1	Shell Oil	Seal pinholes that are away from bondlines, joints or seams.
Gloves	-	Any Source	Protect hands.
Cotton Cloth (clean and lint free)	-	Any Source	General cleaning.
Application Brush (nylon)	-	Any Source	Tank repair.
Compressed Air (clean, oil and moisture free)	-	Any Source	General cleaning.
Argon or CO2 gas	-	Any Source	Eliminate fuel vapors.
Vapor Detector	18995T57	McMaster-Carr	Detect fuel vapor.
Sealant Gun	-	Any Source	Apply sealant.
Sandpaper - Aluminum Oxide	200 grit	Any Source	Prepare surface.

(b) Ground airplane exhaust pipe to the earth and a suitable fuel drainage container.

(c) Disconnect battery 1. (Refer to 24-30)

- (d) Drain fuel tank. (Refer to 12-10)
- (e) *Serials 0002 thru 2437*: Remove appropriate wing access panel LW10, RW10, LW11, or RW11. (Refer to 06-00)
- (f) *Serials 2438 & subs*: Remove appropriate wing access panel LW6, RW6, LW7, RW7, LW8, or RW8. (Refer to 06-00)
- (g) Position inert gas supply hose to fuel tank and allow gas to flow into tank until no fuel vapor remains.
- (h) Using vapor detector in accordance with the manufacturer's instructions, verify no fuel vapors exist in the fuel tank.
- (i) Solvent clean repair area with acetone. (Refer to 20-30)

**Note:** Prepare and seal an area larger than initial repair area.

- (j) Lightly sand composite areas to be sealed with 200-grit sandpaper. Sand an area larger than initial repair area.

**CAUTION:** Do not sand through resin coat exposing fibers. Sanding through the resin coat and exposing fibers will be cause for composite repair.

- (k) Using a stiff bristle brush, remove all large contaminants.
- (l) Solvent clean surfaces to be sealed with acetone or isopropyl alcohol. (Refer to 20-30)

**Note:** If fuel leak is located at a bondline, joint or seam, mix sealant (MIL-8802 Type 2 Class A and/or Class B) per manufacturer's instructions. (Refer to 20-10)

If the leak is coming from a small pinhole located away from any bondlines, joints or seams, mix non-structural resin (Type 2, Class 1) per the manufacturer's instructions. (Refer to 20-10)

- (m) Fillet, fay or injection seal as required. Brush sealant or resin over repair area making sure brushed area is larger than the repaired area. (Refer to 20-10)
- (n) Allow sealant or resin to fully cure.
- (o) *Serials 0002 thru 2437*: Install wing access panel LW10, RW10, LW11, or RW11. (Refer to 06-00)
- (p) *Serials 2438 & subs*: Install wing access panel LW6, RW6, LW7, RW7, LW8, or RW8. (Refer to 06-00)
- (q) Fill fuel tank. (Refer to 12-10)
- (r) Visually inspect tank seams for any signs of leakage or stains. If any leaks are present, repair tank as needed. (Refer to 28-10)
- (s) Connect battery 1. (Refer to 24-30)
- (t) Remove ground from airplane exhaust pipe.

**D. Collector Tank (See Figure 28-103)**

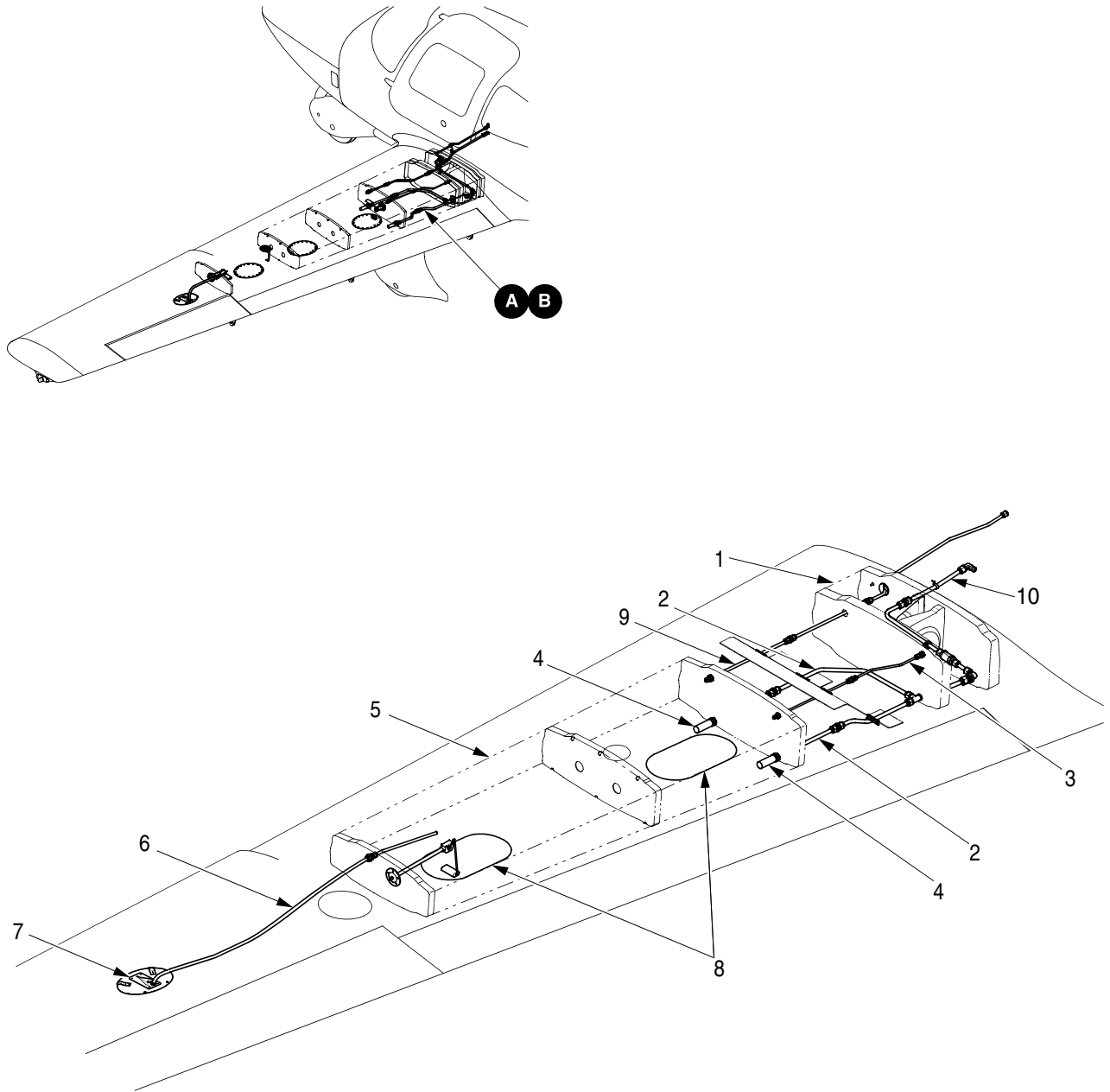
- (1) Adjustment/Test - Collector Tank
  - (a) Perform Adjustment/Test - Wing Fuel Tank Pressure Test. (Refer to 28-10)
- (2) Inspection/Check - Collector Tank
  - (a) Drain corresponding fuel and collector tank bays for side being serviced. (Refer to 12-10)
  - (b) Remove wing access panel LW3 or RW3. (Refer to 06-00)
  - (c) Visually inspect collector tank bay for any signs of damage, leaks or stains. If any damage, stains or leaks are present, repair tank.
  - (d) Install wing access panel LW3 or RW3. (Refer to 06-00)
  - (e) Fill fuel tank.
  - (f) Inspect fuel tank, collector tank, hoses, and lines for any signs of leakage. Service as required.

**E. Fuel Strainers (See Figure 28-103)**

- (1) Removal - Fuel Strainers
  - (a) Drain corresponding fuel tank for side being serviced. (Refer to 12-10)
  - (b) *Serials 0002 thru 2437*: Remove wing access panel LW10 or RW10. (Refer to 06-00)
  - (c) *Serials 2438 & subs*: Remove wing access panel LW6 or RW6. (Refer to 06-00)
  - (d) Remove fuel strainer from bulkhead fitting.
- (2) Installation - Fuel Strainers
  - (a) Install fuel strainer to bulkhead fitting.
  - (b) *Serials 0002 thru 2437*: Install wing access panel LW10 or RW10. (Refer to 06-00)
  - (c) *Serials 2438 & subs*: Install wing access panel LW6 or RW6. (Refer to 06-00)
  - (d) Fill fuel tank.
  - (e) Inspect fuel tank for any signs of leakage. Service as required.
- (3) Inspection/Check - Fuel Strainers
  - (a) Visually inspect strainers for signs of damage or restrictions. If damage or restrictions exist, replace fuel strainer.

**F. Fuel System Ventilation (See Figure 28-103)**

- (1) Removal - Fuel System Ventilation
  - (a) *Serials 0002 thru 2437*: Remove wing access panels LW13 and LW14 or RW13 and RW14. (Refer to 06-00)
  - (b) *Serials 2438 & subs*: Remove wing access panel LW10 or RW10. (Refer to 06-00)
  - (c) Remove clamp securing vent hose to NACA scoop vent.
  - (d) Remove clamp securing vent hose to bulkhead fitting on wing rib.
  - (e) Remove vent hose from airplane.
- (2) Installation - Fuel System Ventilation
  - (a) Position vent hose to bulkhead fitting on wing rib and secure with clamp.
  - (b) Position vent hose to NACA scoop vent and secure with clamp.
  - (c) *Serials 0002 thru 2437*: Install wing access panels LW13 and LW14 or RW13 and RW14. (Refer to 06-00)
  - (d) *Serials 2438 & subs*: Install wing access panel LW10 or RW10. (Refer to 06-00)
- (3) Inspection/Check - Fuel System Ventilation
  - (a) Inspect vent hose for obstructions, kinks, chaffing, or cuts. Replace hose if damaged.



- LEGEND**
- 1. Collector Tank
  - 2. Fuel Supply Line
  - 3. Fuel Vent Line
  - 4. Fuel Tank Strainers
  - 5. Fuel Tank, Left Integral
  - 6. Fuel System Vent Hose
  - 7. NACA Vent
  - 8. Fuel Tank Access Panel (Underside of Wing)
  - 9. Fuel Return Line
  - 10. Supply Tube Assembly

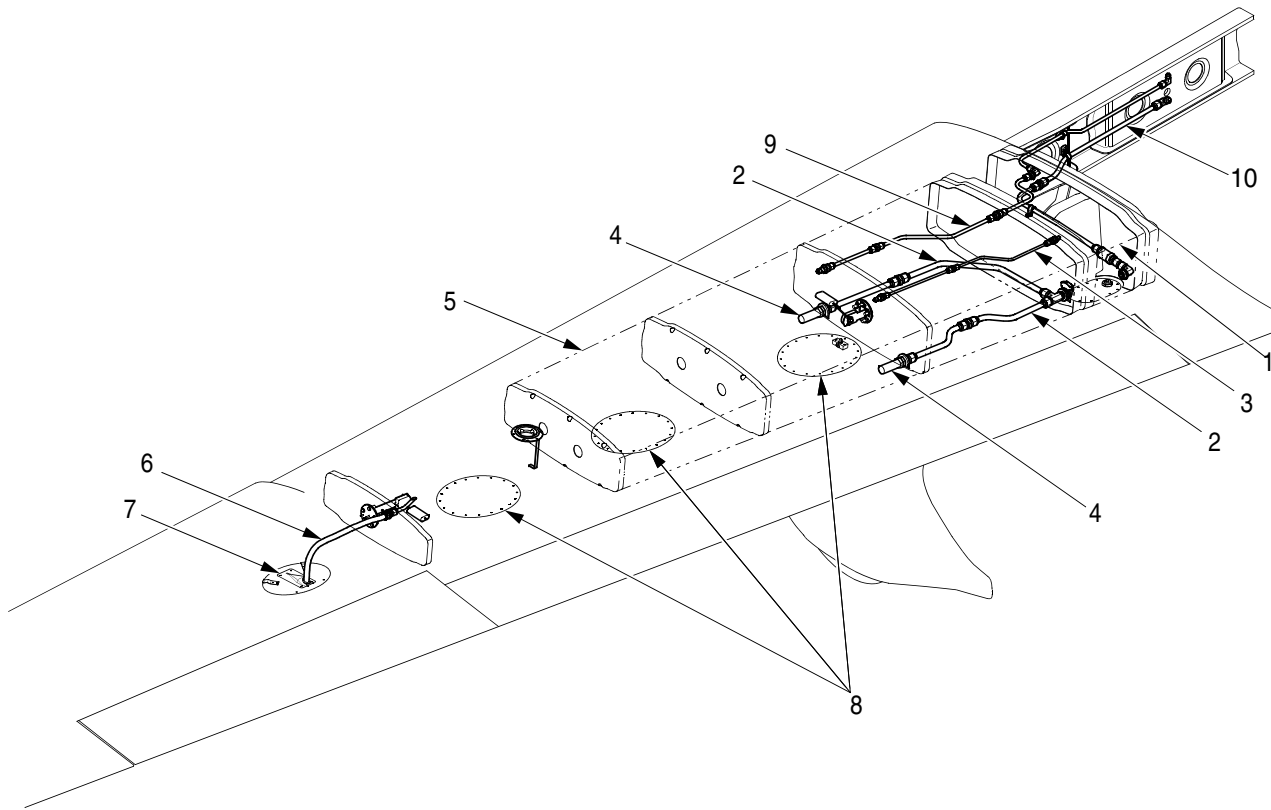
Serials 0002 thru 2333, 2335 thru 2419, 2421 thru 2437.

**DETAIL A**

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**Figure 28-103**  
**Wing Fuel System Components - Serials 0002 thru 2437 (Sheet 1 of 2)**

**EFFECTIVITY:**  
 Serials 0002 thru 2437



**DETAIL B**

- LEGEND**
- 1. Collector Tank
  - 2. Fuel Supply Line
  - 3. Fuel Vent Line
  - 4. Fuel Tank Strainers
  - 5. Fuel Tank, Left Integral
  - 6. Fuel System Vent Hose
  - 7. NACA Vent
  - 8. Fuel Tank Access Panel (Underside of Wing)
  - 9. Fuel Return Line
  - 10. Supply Tube Assembly

Serials 2334, 2420, 2438 & subs.

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**Figure 28-103**  
**Wing Fuel System Components - Serials 2438 & subs (Sheet 2 of 2)**

EFFECTIVITY:  
 Serials 2438 & subs



**G. Fuel Tank Drain Valve (See Figure 28-104)**

- (1) Removal - Fuel Tank Drain Valve
  - (a) Acquire necessary tools and equipment.

Description	P/N or Spec.	Supplier	Purpose
Fire Extinguisher (Type AB, or ABC)	-	Any Source	Extinguish fire in an emergency.
Fuel Drain Container	-	Any Source	Drain old fuel into.
Fuel Sampler Cup	(Refer to IPC 25-00-01)	Cirrus Design	Drain gascolator and collector tanks.

- (b) Position fuel drain container under fuel drain valve.
  - (c) Ground fuel drain container to exhaust pipe outlet and airplane to a suitable earth ground.
  - (d) Remove safety wire securing fuel drain valve to retainer block mounting screw.
  - (e) Remove fuel drain valve from access panel.
  - (f) Allow all fuel and any contaminates to drain from fuel tank.
  - (g) To completely drain fuel system, use fuel sampler cup to remove all fuel and any contaminates from gascolator and collector tanks.
  - (h) Remove and discard o-ring from fuel drain valve.
- (2) Installation - Fuel Tank Drain Valve
  - (a) Acquire necessary tools and equipment.

Description	P/N or Spec.	Supplier	Purpose
Fuel Sampler Cup	(Refer to IPC 25-00-01)	Cirrus Design	Drain gascolator and collector tanks.
Fuel Drain Valve O-Ring	(Refer to IPC 28-10-01)	Any Source	Replacement o-ring for fuel drain valve.

- (b) Install new o-ring to fuel drain valve.
  - (c) Install fuel drain valve to access panel. Torque fuel drain valve to 60 - 80 in-lb (6.8 - 9.0 Nm).
  - (d) Safety wire fuel drain valve to retainer block mounting screw. (Refer to 20-50)
  - (e) Fuel airplane. (Refer to 12-10)
  - (f) Place fuel sampler cup under fuel drain valve and test valve for proper operation. Inspect fuel for any contaminates.
  - (g) Inspect complete fuel system for any signs of leaks and service as required.

**CAUTION:** If fuel system is drained or a fuel tank is empty for any reason, air may enter the system. To ensure proper engine operation, ground run engine for several minutes on each fuel tank until air is removed. Refer to the Pilot's Operating Handbook before starting and operating engine.

- (h) Ground run engine to purge air from fuel system.
  - (i) Reinspect complete fuel system for any signs of leaks and service as required.

EFFECTIVITY:  
All

**H. Collector Tank Drain Valve (See Figure 28-104)**

- (1) Removal - Collector Tank Drain Valve
  - (a) Drain corresponding wing fuel tank. (Refer to 12-10)
  - (b) Remove wing access panel LW3 or RW3. (Refer to 06-00)
  - (c) Remove nut securing fuel drain valve to access panel.
- (2) Installation - Collector Tank Drain Valve
  - (a) Acquire necessary tools and equipment.

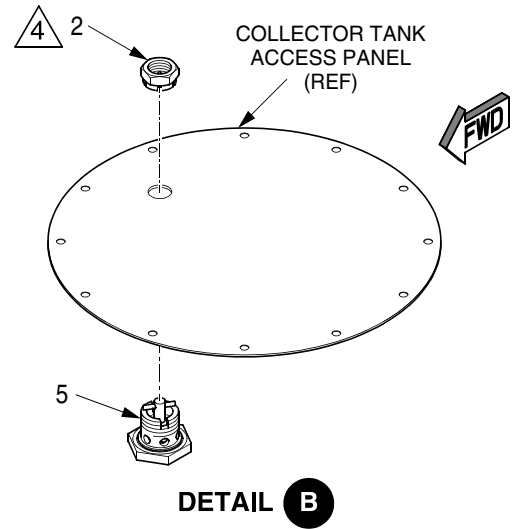
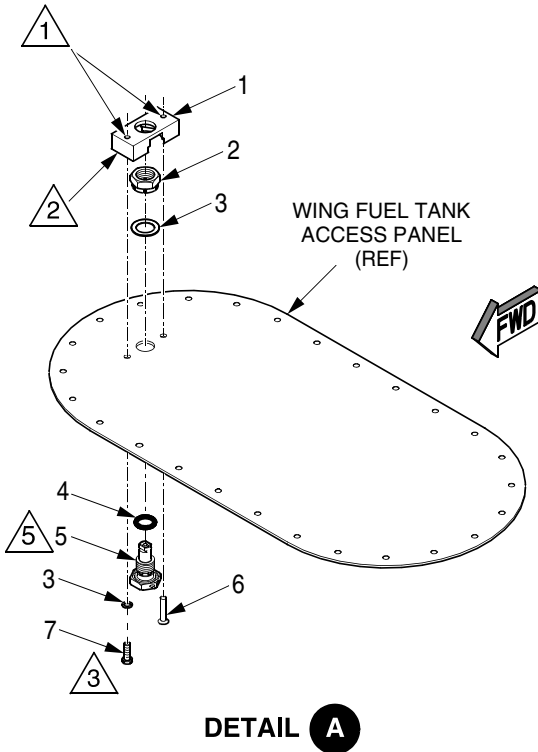
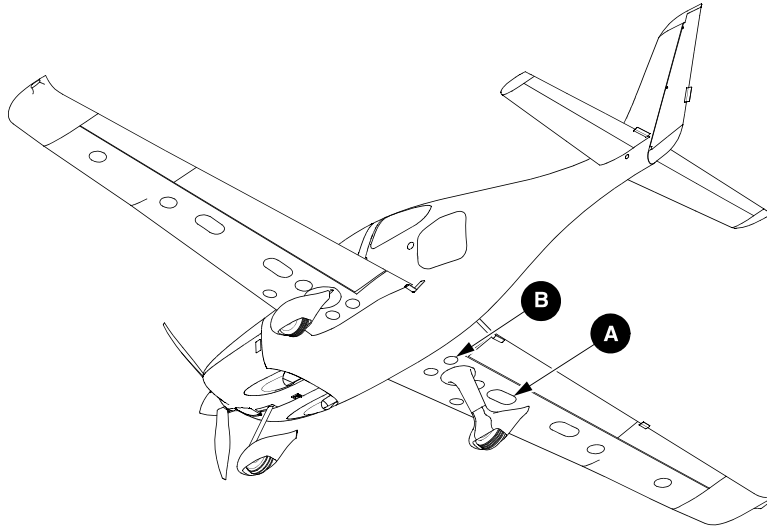
Description	P/N or Spec.	Supplier	Purpose
Fuel Sampler Cup	(Refer to IPC 25-00-01)	Cirrus Design	Drain gascolator and collector tanks.

**CAUTION:** To maintain lightning protection, the drain valves must be installed onto a clean, bare metal surface. Ensure entire base of drain valve makes contact with the access panel and no paint or contaminates exist between the surfaces. Failure to do so may result in potential ignition sources in the collector tank due to lightning.

- (b) Inspect drain valve contact area for any paint or other contaminates. Remove contaminates as necessary to obtain a clean and bare metal contact area.
- (c) Position fuel drain valve to access panel and secure with nut. Torque nut to 90 - 100 in-lb (10.2 - 11.3 Nm).
- (d) Verify entire base of fuel drain valve makes contact with access panel.
- (e) Install wing access panel LW3 or RW3. (Refer to 06-00)
- (f) Fuel airplane. (Refer to 12-10)
- (g) Place fuel sampler cup under fuel drain valve and test valve for proper operation. Inspect fuel for any contaminates.
- (h) Inspect complete fuel system for any signs of leaks and service as required.

**CAUTION:** If fuel system is drained or a fuel tank is empty for any reason, air may enter the system. To ensure proper engine operation, ground run engine for several minutes on each fuel tank until air is removed. Refer to the Pilot's Operating Handbook before starting and operating engine.

- (i) Ground run engine to purge air from fuel system.
- (j) Reinspect complete fuel system for any signs of leaks and service as required.



**NOTE**

- ① Apply fuel tank sealant to tip of fasteners.
- ② Apply fuel tank sealant to lower mating surface.
- ③ Safety wire fuel drain valve to screw.
- ④ Torque nut to 90 - 100 in-lb (10.2 - 11.3 Nm).
- ⑤ Torque fuel drain valve to 60 - 80 in-lb (6.8 - 9.0 Nm).

**LEGEND**

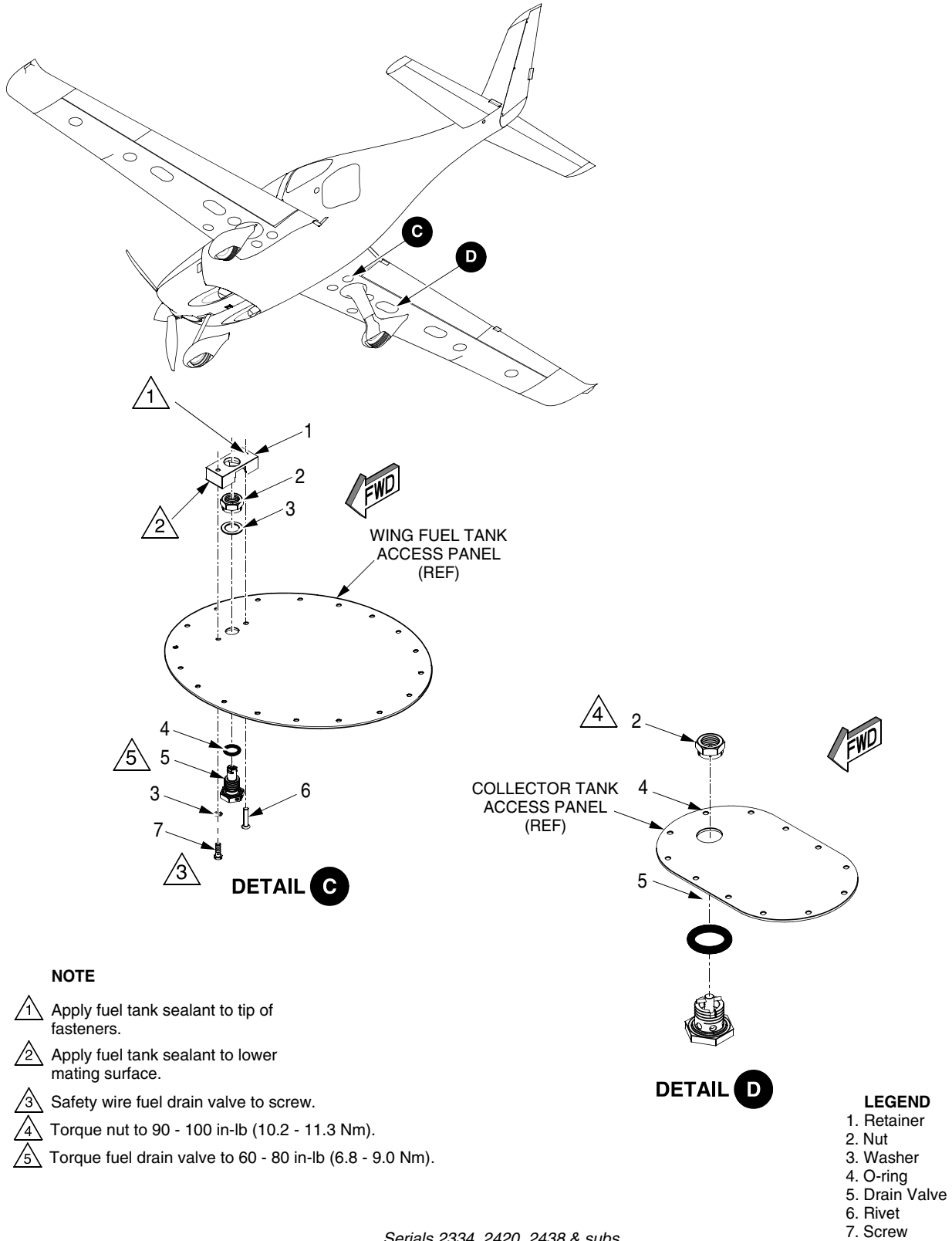
- 1. Retainer
- 2. Nut
- 3. Washer
- 4. O-ring
- 5. Drain Valve
- 6. Rivet
- 7. Screw

Serials 0002 thru 2333, 2335 thru 2419, 2421 thru 2437.

SR22\_MM28\_1347C

**Figure 28-104**  
**Fuel Drain Valve Installation - Serials 0002 thru 2437 (Sheet 1 of 2)**

EFFECTIVITY:  
 Serials 0002 thru 2437



**NOTE**

- ① Apply fuel tank sealant to tip of fasteners.
- ② Apply fuel tank sealant to lower mating surface.
- ③ Safety wire fuel drain valve to screw.
- ④ Torque nut to 90 - 100 in-lb (10.2 - 11.3 Nm).
- ⑤ Torque fuel drain valve to 60 - 80 in-lb (6.8 - 9.0 Nm).

**LEGEND**

- 1. Retainer
- 2. Nut
- 3. Washer
- 4. O-ring
- 5. Drain Valve
- 6. Rivet
- 7. Screw

Serials 2334, 2420, 2438 & subs.

SR22\_MM28\_2618

**Figure 28-10**  
**Fuel Drain Valve Installation - Serials 2438 & subs (Sheet 2 of 2)**

**I. Inspection/Check - Fuel Storage System**

A wet or stained spot on the wing can be an indication of a fuel leak. Not all fuel leaks require immediate repair. Fuel leaks which do not constitute a flight hazard can be repaired at the next scheduled servicing. Fuel leaks that do not constitute a flight hazard are stains, seeps, and heavy seeps which are not in an enclosed area. Fuel tanks are sealed with MIL-S-8802 Type II sealant.

Repairs that break the fuel tank access panel seal will necessitate resealing of that fuel tank. All repairs made within the fuel tank must be fay surface sealed and fillet sealed. All boundaries and any other place that could leak must be sealed. Stains and seeps which are not immediately repaired must be inspected prior to and immediately after each flight until they have been repaired.

- (1) Stain
  - (a) Stains are 3/4 of an inch in size or less.
- (2) Seep
  - (a) Seeps range in size from 3/4 of an inch up to 1 1/2 inches.
- (3) Heavy seep
  - (a) Heavy seeps range in size from 1 1/2 inches up to 4 inches.
- (4) Running Leak
  - (a) A running leak will vary in size depending on location and intensity of the leak. Fuel usually will flow and immediately drip after being wiped dry.

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