



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. 0092

Revision 3

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DATE: August 3, 2015

1. SUBJECT: Fuel Quantity System Calibration
2. MODEL: F-28A, F-28C, F-28F, 280, 280C, 280F, and 280FX
3. EFFECTIVITY: All Serial Numbers

4. BACKGROUND:

Enstrom calibrates the fuel quantity system on all aircraft during manufacture; however, the fuel quantity system may go out of calibration after a period of time. This can be due to mechanical wear of the quantity transmitter, corrosion on the wire terminals, wire damage, and/or a defective indicator. Replacing components of the fuel quantity system can also cause the system to be out of calibration. Pilots can assist in determining if the fuel quantity system is operating correctly by monitoring the fuel quantity indication prior to and after refueling and comparing the indications to the total quantity of fuel used in servicing the tanks. In addition, a fuel dipstick, P/N 28-12478-11 for all 20 gallon (40 gallon total capacity) tanks, should be used during preflight inspection to verify fuel quantity on all aircraft so equipped.

This Service Directive Bulletin provides an inspection procedure and a more detailed calibration procedure for the fuel quantity system. Revision 2 adds the application of corrosion protection to the fuel quantity system wiring at each annual inspection. Revision 3 updates the inspection (para. 5.1) and calibration (para. 5.2) procedures and clarifies the approved corrosion inhibitor in the consumable materials list (para. 5.4) and the repetitive inspection requirements (para. 11).

5. COMPLIANCE:

At or before the next 100 hour/annual inspection, inspect the fuel quantity system in accordance with paragraph 5.1 (unless complied with at the previous annual inspection).

Inspect the fuel quantity system in accordance with paragraph 5.1 and calibrate the fuel quantity system in accordance with paragraph 5.2 any time the fuel quantity system is suspected of being out of calibration.

Calibrate the fuel quantity system in accordance with paragraph 5.2 after replacing a fuel quantity system component, i.e., quantity transmitter, wiring, or indicator.

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5.1. INSPECTION:

1. Remove the cover from the fuel transmitter located on the top of right side fuel tank.
2. Inspect the fuel transmitter for condition and corrosion. Inspect the wiring for condition and security. Clean the electrical contacts to remove any waxy or oily residue. Remove any corrosion from the fuel transmitter stud and/or ground location. Repair the wiring as required. Apply a corrosion inhibitor (see paragraph 5.4) to the ground wire and the transmitter wire connections. If the corrosion is excessive, replace the fuel transmitter in accordance with paragraph 5.3.
3. Determine the quantity of fuel in the tank using the dip stick or similar method. Verify that the fuel gauge reading matches the actual fuel quantity.
4. If the fuel quantity system is suspected of being out of calibration or if any maintenance on the fuel quantity system, i.e., right side fuel tank, quantity transmitter, wiring, or indicator has been performed, check the calibration of the fuel quantity system in accordance with paragraph 5.2.

NOTE

Ensure the spacers are installed on the transmitter cover screws.

5. Remove the old sealant from the fuel transmitter cover and fuel tank. Apply sealant (Dow Corning RTV 732 or equivalent) to the cover, under the cover screw heads, and seal the wire conduit. Install the cover and torque the screws to 12-15 in. lbs./1.4-1.7 Nm. Remove any excess sealant.

5.2. CALIBRATION:

1. Place the aircraft into a 6° nose down attitude and level the aircraft laterally to within $\pm 1/2$ degree using the ground handling wheels and shoring materials or other suitable means. Measure the 6° nose down angle at the lower fore and aft tube located on the left side of the pylon assembly and the lateral level angle using the cockpit floor.
2. Drain the fuel from the fuel system to include the sumps and the gascolator located in the lower right side of the engine compartment.
3. Close the sump drains and gascolator drain.
4. Service the tanks with unuseable fuel (zero fuel condition) as follows:
 1. F-28A aircraft with 15 gallon tanks (30 gallons total capacity): Service each tank with 21 oz/0.63 liters of fuel ($1/3$ gallon/1.25 liters total).
 2. All other aircraft with 20 gallon tanks (40 gallons total capacity): Service each tank with 1 gallon/3.78 liters of fuel (2 gallons/7.56 liters total).

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NOTE

Allow the fuel levels to stabilize in the fuel tanks before checking quantity indications or making adjustments. Verify the fuel level has stabilized with dip stick.

5. Turn the Master Switch "ON" and check that the fuel quantity indicator is at "0". If the indicator is not at "0", turn the Master Switch "OFF". Disconnect the wiring from the fuel transmitter and remove the transmitter from the tank in accordance with paragraph 5.3. Bend the float arm down at the approximate midpoint if the indicator is below "0", bend the float arm up at the approximate midpoint if the indicator is above "0" (See Figure 1). Reinstall the transmitter and check the "0" indication. Repeat the adjustment procedure as required.
6. Service the tanks with fuel as follows:
 1. F-28A aircraft with 15 gallon tanks (30 gallons total capacity): Service each tank with 3.75 gallons/14.19 liters of fuel (7.5 gallons/28.39 liters total).
 2. All other aircraft with 20 gallon tanks (40 gallons total capacity): Service each tank with 5 gallons/18.9 liters of fuel (10 gallons/37.85 liters total).

NOTE

Allow the fuel levels to stabilize in the fuel tanks before checking quantity indications or making adjustments.

7. Check the fuel quantity indication as follows:

NOTE

In the following checks, the location of the bend in the transmitter arm can be moved to adjust the indicator range movement. If the zero fuel indication is "0" and the "1/4" or "60" indication is high, move the location of the bend in the arm closer to the arm pivot. If the indication is low, move the bend location closer to the arm float. After making an adjustment to the bend in the arm, always recheck the zero fuel condition. The indicator must indicate "0" when the aircraft is in the zero fuel condition.

1. F-28A aircraft with 15 gallon tanks (30 gallons total capacity): Check that fuel quantity indication is "1/4" \pm 1 gallon/3.78 liters. Replace the fuel transmitter in accordance with paragraph 5.3 if the indication cannot be corrected by moving the bend location on the float arm.
2. All other aircraft with 20 gallon tanks (40 gallons total capacity): Check that the fuel quantity indication is "60" lbs \pm 1 gallon/3.78 liters. Replace the fuel transmitter in accordance with paragraph 5.3 if the indication cannot be corrected by moving the bend location on the float arm.

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5.3. FUEL TRANSMITTER REPLACEMENT:

1. Remove the cover from the fuel transmitter (If not already accomplished).

NOTE

Note the orientation of the fuel transmitter and screws before removal.

2. Disconnect the ground wire and the transmitter wire from the fuel transmitter.

NOTE

Due to the float arm, the fuel transmitter must be tipped to remove it from the tank.

3. Remove the one remaining screw and remove the fuel transmitter and gasket from the tank.
4. Install a new gasket and the replacement fuel transmitter into the tank. Install the one mounting screw and reconnect the ground wire and transmitter wire. Torque the screws to 12-15 in. lbs./1.4-1.7 Nm. Apply a corrosion inhibitor (see paragraph 5.4) to the ground wire and the transmitter wire connections.
5. Calibrate the fuel quantity system in accordance with paragraph 5.2.

NOTE

Ensure the spacers are installed on the transmitter cover screws.

6. Remove the old sealant from the fuel transmitter cover and fuel tank. Apply sealant (Dow Corning RTV 732 or equivalent) to the cover, under the cover screw heads, and seal the wire conduit. Install the cover and torque the screws to 12-15 in. lbs./1.4-1.7 Nm. Remove any excess sealant.

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5.4. PARTS:

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
Fuel Transmitter, 15 Gal.	ECD088-11 (Note 1)	1
Fuel Transmitter, 20 Gal.	ECD088-13 (Note 2)	1
Fuel Transmitter, 20 Gal.	ECD088-15 (Note 2)	1
Gasket	28-12409-1	1
Screw	AN525-832R24	3
Screw	AN525-832R8	2
Spacer	28-12410-1	3
Nut	AN345-10	1
Lockwasher	AN935-10L	1
Fuel Quantity Stick	28-12478-11 (Note 2)	1

CONSUMABLE MATERIALS:

<u>Description</u>		<u>Quantity</u>
Corrosion Inhibitor	ACF-50 (Lear Chemical Research Corp.) (Note 3)	As Required
Sealant	Dow Corning RTV 732 or equivalent	As Required

Notes:

1. F-28A aircraft with 15 gallon tanks (30 gallons total)
2. All other aircraft with 20 gallon tanks (40 gallons total)
3. Protects for up to one year (two years on new metal)

6. SPECIAL TOOLS:

None

7. MAN-HOURS:

2 Man-hours for the inspection and calibration.

1 Man-hour for the calibration.

8. WARRANTY:

Per Enstrom Warranty

9. WEIGHT CHANGE:

None

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10. LOG BOOK ENTRY:

Enter compliance with this Service Directive Bulletin.

11. REPETITIVE INSPECTIONS:

Repeat the inspection procedure in paragraph 5.1 anytime the fuel quantity system is suspected of being out of calibration.

Calibrate the fuel quantity system in accordance with paragraph 5.2 any time maintenance is performed on the fuel quantity system (i.e. replacing a quantity transmitter, wiring, or indicator).

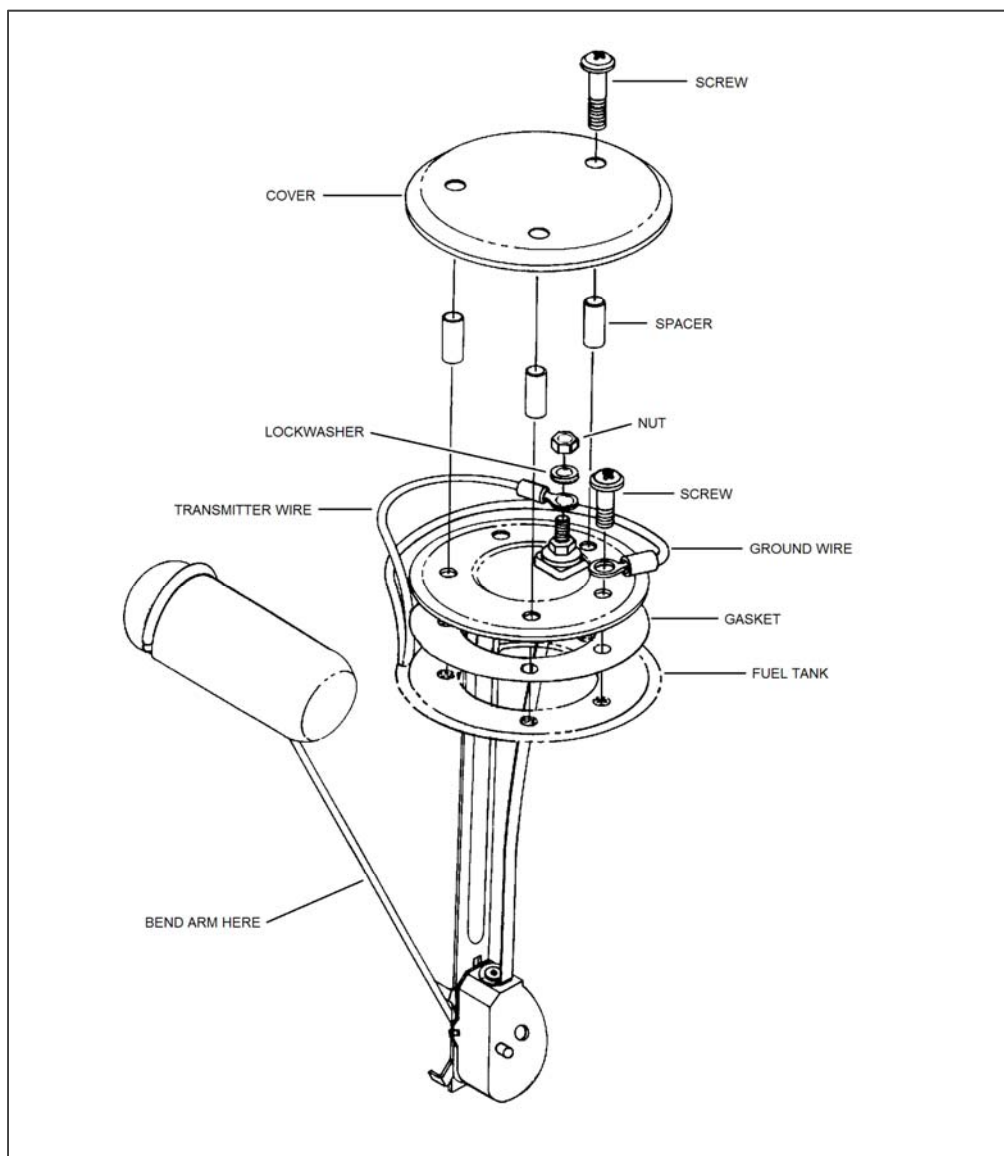


FIGURE 1. FUEL TRANSMITTER