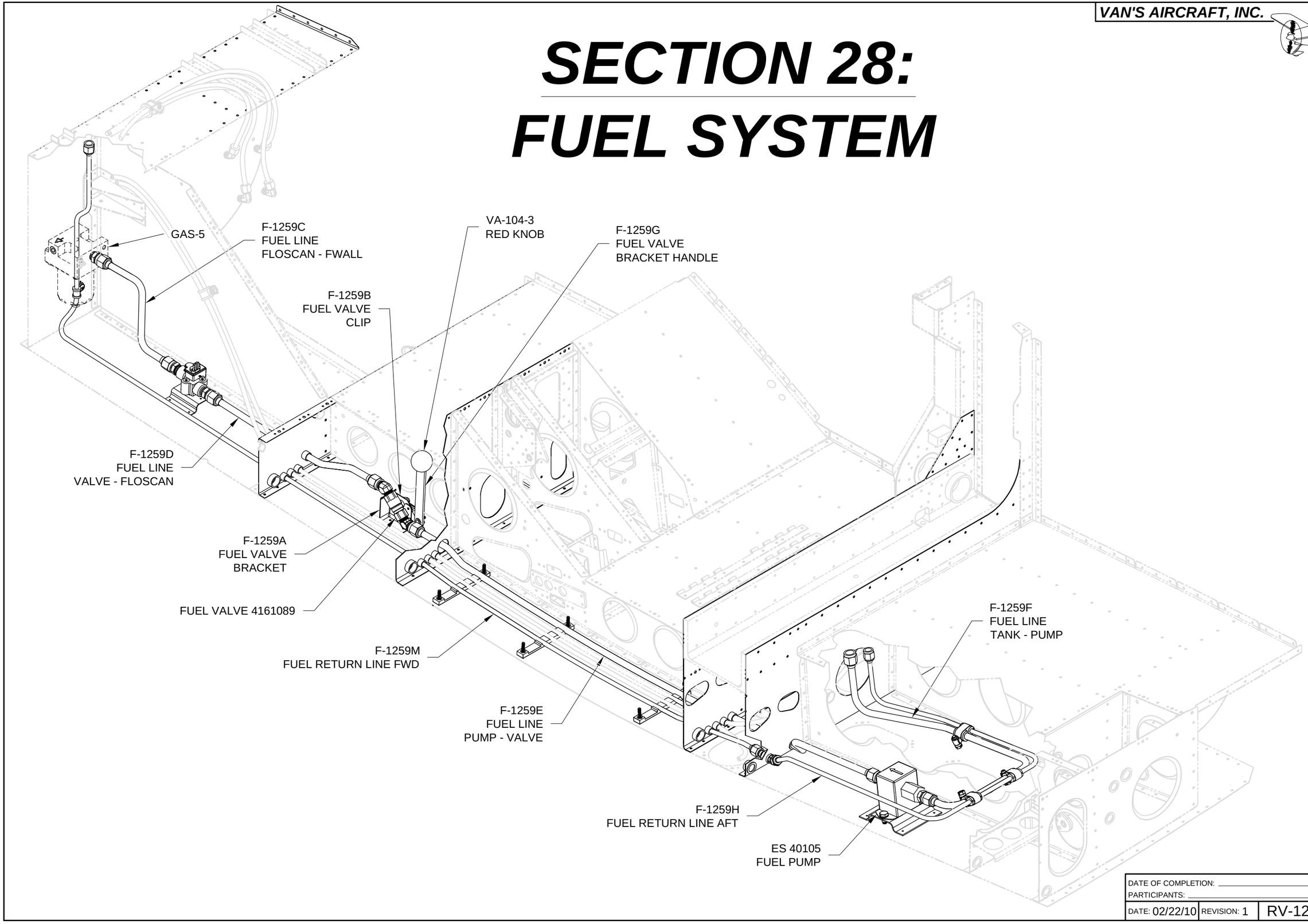
SECTION 28:
FUEL SYSTEM



DATE OF COMPLETION: _____
PARTICIPANTS: _____

Step 1: Install fluid fittings into the ES 40105 Fuel Pump as shown in Figure 1 (use a small amount of pipe thread sealant).

Step 2: Install the ES 40105 Fuel Pump to the F-1048F Facet Pump Bracket as shown in Figure 1 (check the flow direction).

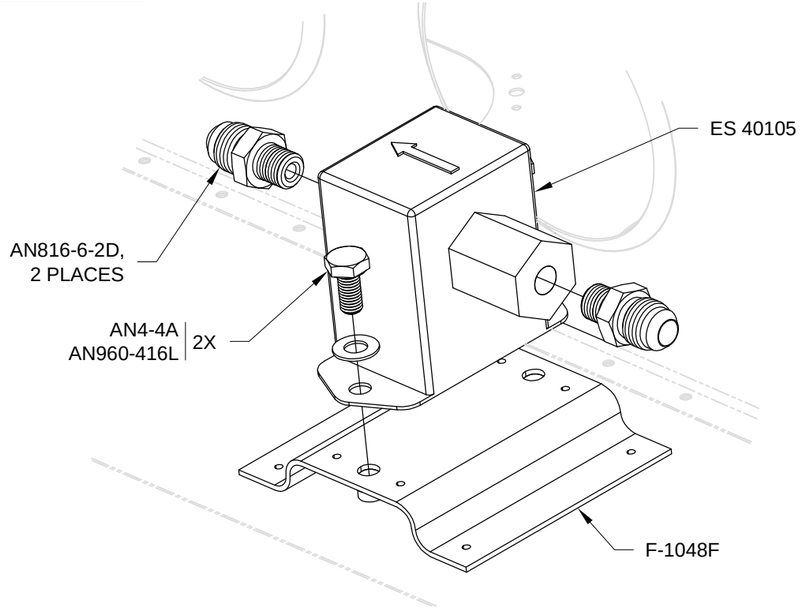


FIGURE 1: INSTALLING THE FUEL PUMP

Step 3: Drill #30 the FUEL VALVE 4161089 handle per the dimensions given in Figure 2.

Step 4: Install the VA-104-3 Red Knob to the F-1259G Fuel Valve Bracket Handle per the instructions supplied with the knob.

Step 5: Install the other end of the F-1259G Fuel Valve Bracket Handle to the FUEL VALVE 4161089 handle as shown in Figure 3. Install the fluid fitting shown in Figure 3 to the FUEL VALVE 4161089 (use a small amount of pipe thread sealant).

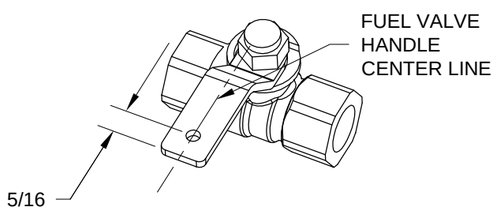


FIGURE 2: DRILLING THE FUEL VALVE 4161089 HANDLE

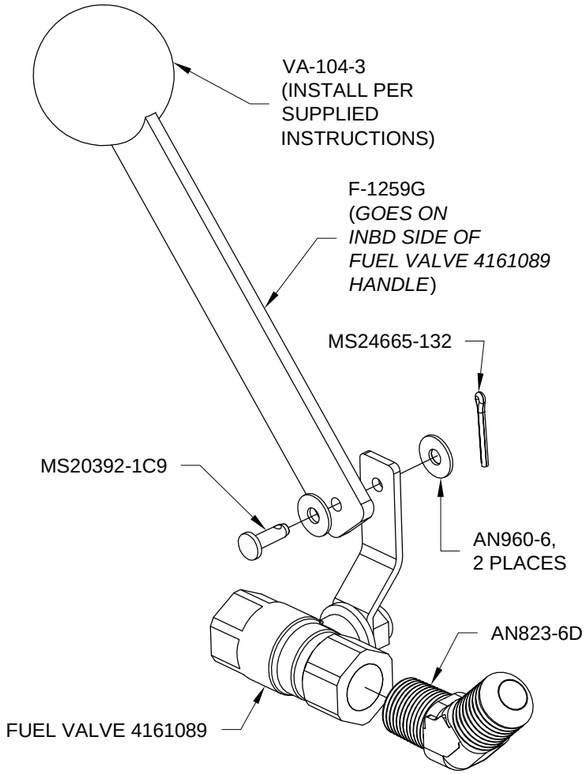


FIGURE 3: HANDLE ASSEMBLY

Step 6: Install the fluid fitting through the F-1259A Fuel Valve Bracket and into the FUEL VALVE 4161089 as shown in Figure 4 (use a small amount of pipe thread sealant).

Step 7: Rivet the F-1259B Fuel Valve Clip per the call-outs in Figure 4.

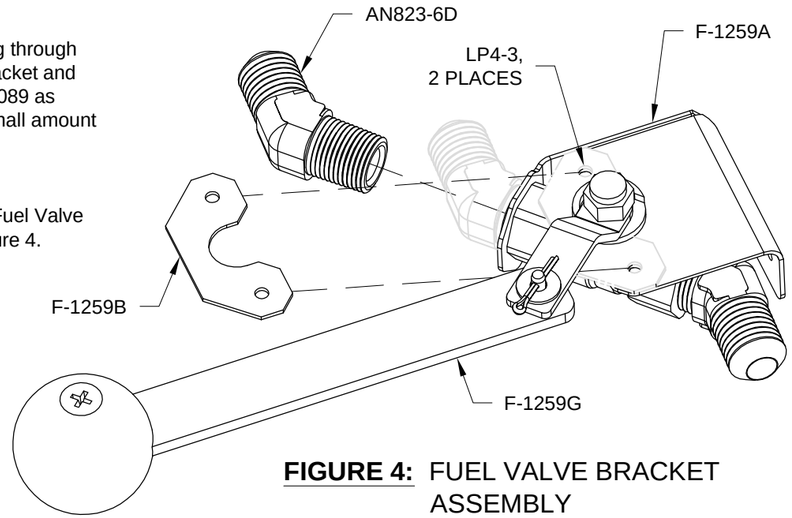


FIGURE 4: FUEL VALVE BRACKET ASSEMBLY

Step 8: Rivet the F-1259A Fuel Valve Bracket to the F-1276 Bottom Skin per the call-outs in Figure 5.

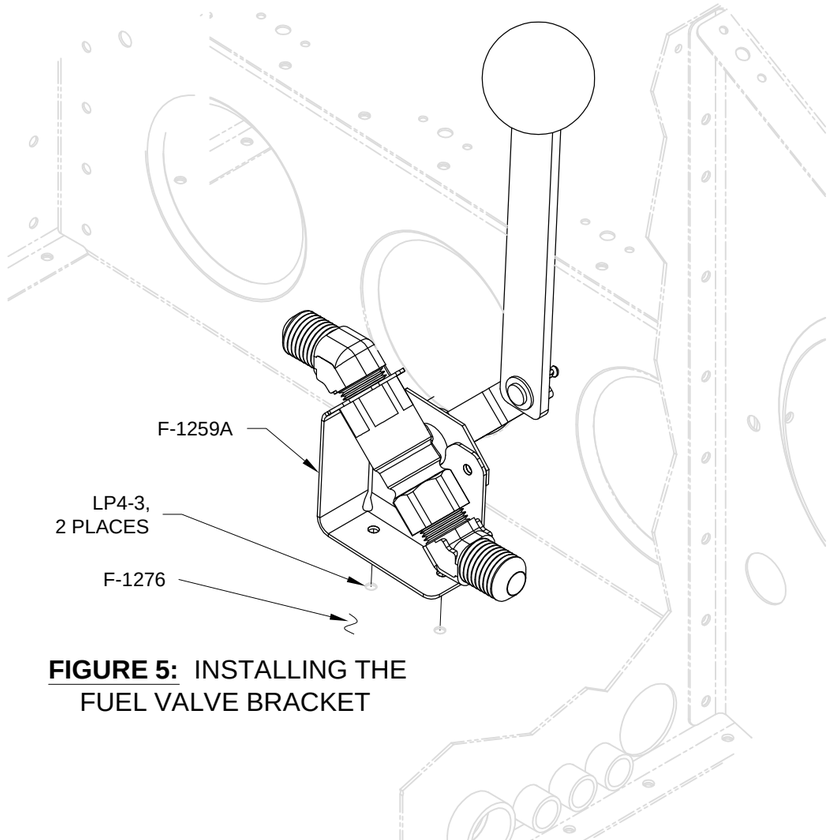


FIGURE 5: INSTALLING THE FUEL VALVE BRACKET

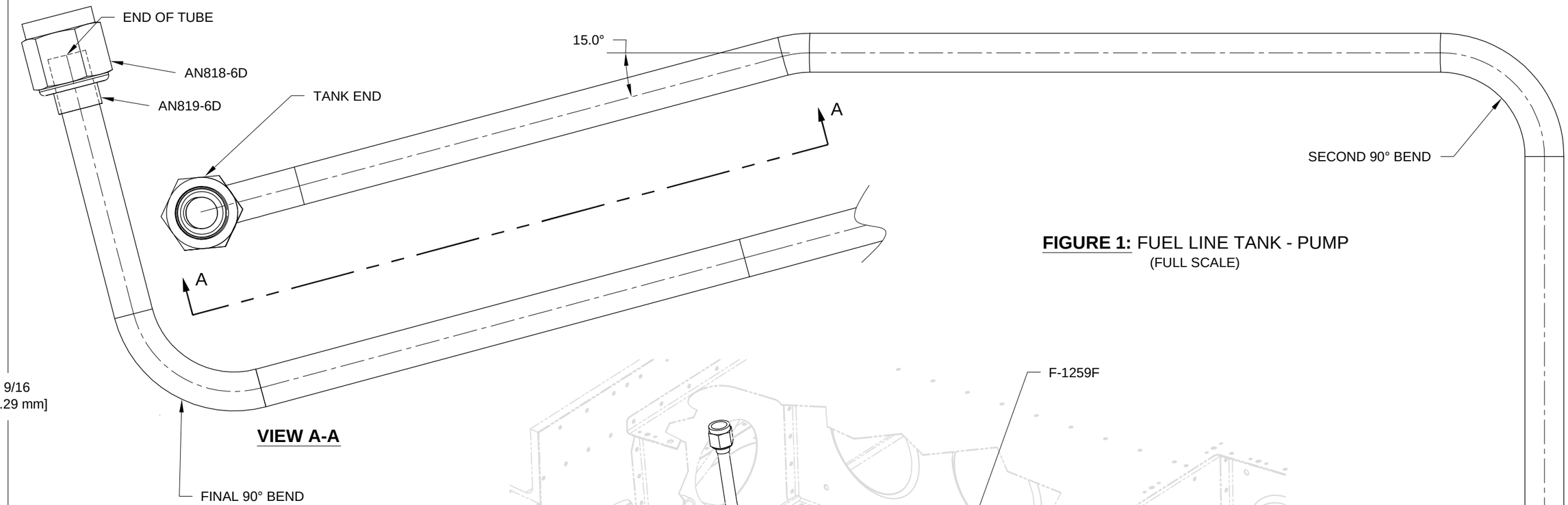
NOTE: See Section 5P for more information on the process to create fluid lines.

Step 1: Straighten out two feet of ATO-035X3/8 tubing. (Unrolling against a flat surface works well). Make the F-1259F Fuel Line Tank - Pump by starting at the pump end. Slip the nut then the sleeve called out in Figure 1 over the end of the tubing.

Step 2: Flare the end of the tube. Slide the sleeve up tight against the flare. Make the first 90° bend. Bend the second 90° bend and then the 15° bend to match the template in Figure 1. Make the final 90° bend going up to the tank by referencing View A-A in Figure 1 and Figure 2.

Step 3: Laying the tube over Figure 1, View A-A mark the end of tube. Cut the tube off. Place the nut and sleeve over the end of the tube. Check that the other nut and sleeve have not fallen off the tube. Flare the tank end of the tube.

Step 4: Install the F-1259F Fuel Line Tank - Pump to the ES 40105 Fuel Pump as shown in Figure 2. A small amount of bending/adjustment using your hands is acceptable.



VIEW A-A

FIGURE 1: FUEL LINE TANK - PUMP
(FULL SCALE)

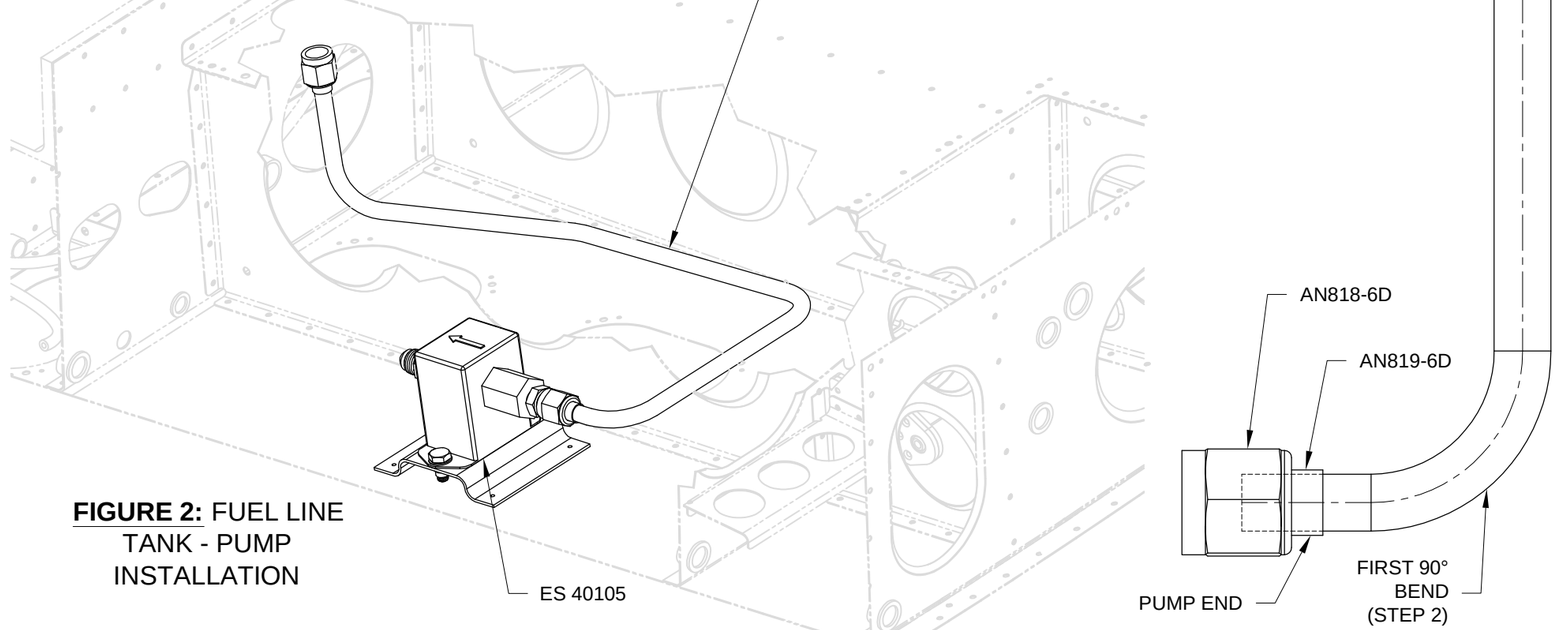


FIGURE 2: FUEL LINE TANK - PUMP INSTALLATION

16
[406.40 mm]

NOTE: CHECK PRINTED SCALE 1:1 PER SECTION 3 BEFORE USING THE TEMPLATE!

NOTE: When installing fuel lines it is acceptable to bend a large radius curve by hand to improve access, then restraighten after you are finished.

Step 1: Make the F-1259E Fuel Line Pump - Valve by unrolling and cutting off 40 1/2 inches of ATO-035X3/8 tube. Start at the pump end of the tube. Insert a nut and sleeve over the end of the tube and then flare the end of the tube.

Step 2: Make an S type bend in the F-1259E Fuel Line Pump - Valve as shown in Figure 3 between the pump and the F-1204D Center Section Aft Bulkhead.

Step 3: Insert the F-1259E Fuel Line Pump - Valve through the snap bushings in the F-1204A and F-1204D Center Section Bulkheads. Insert the fuel line through the right most hole in the F-1203A Bulkhead. Temporarily attach the nut to the ES 40105 Fuel Pump. Lay the tube into the right most recess in the F-1276C Systems Blocks adding a slight curve to follow the curvature of the F-1276 Bottom Skin. Add two slight bends to the fuel line where it passes through the F-1203A Bulkhead to align the front of the tube with the fitting on the fuel valve. Mark then cut the forward end of the tube as shown in Figure 2.

Step 4: Detach the nut from the ES 40105 Fuel Pump, pull the F-1259E Fuel Line Pump - Valve back enough to slip a nut and sleeve over the end of the fuel line and flare the end of the tube.

Step 5: Connect the forward end of the F-1259E Fuel Line Pump - Valve to the AN823-6D fitting coming out of the aft side of the Fuel Valve 4161089. Reconnect the aft end to the ES 40105 Fuel Pump.

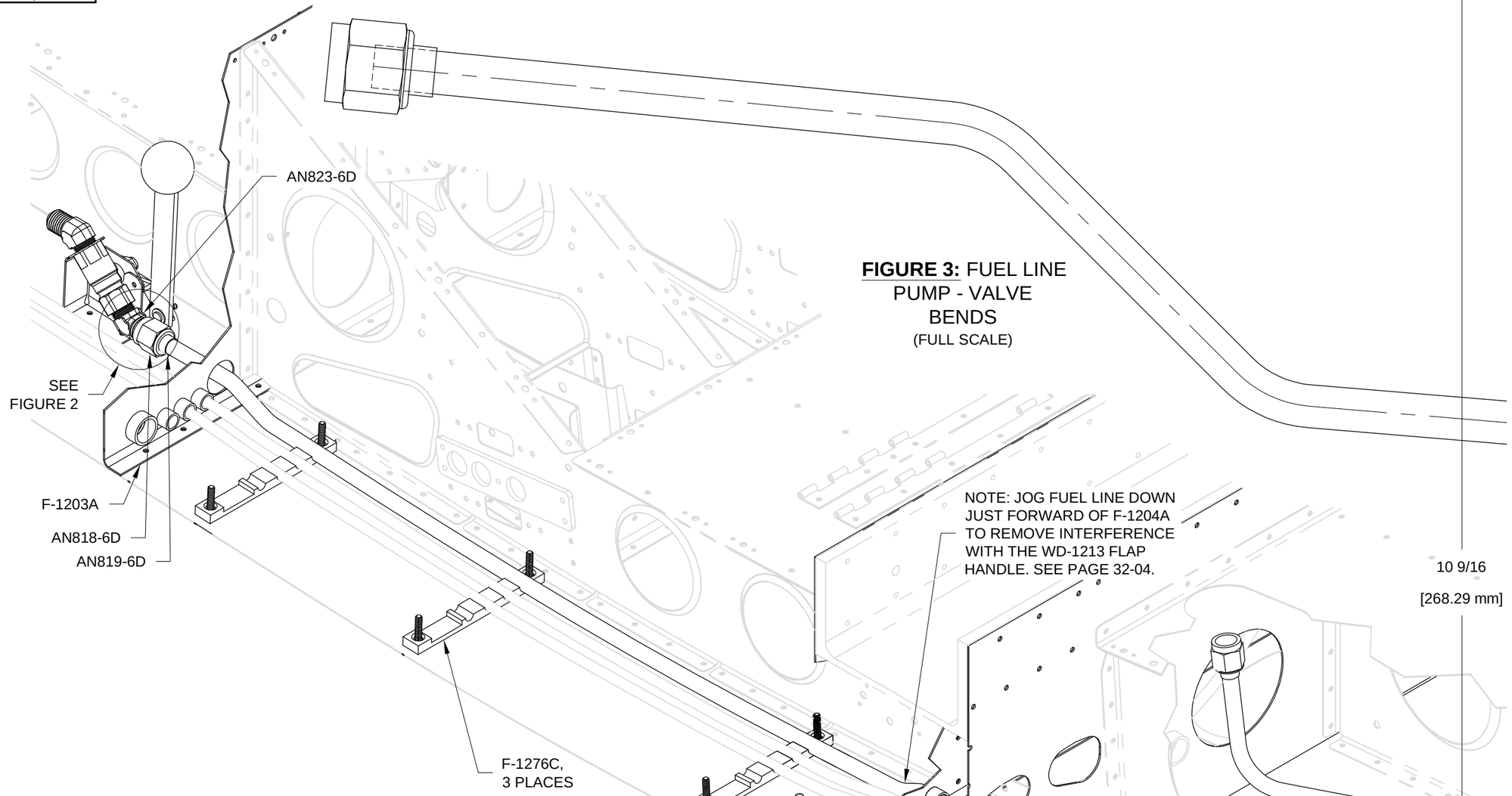


FIGURE 3: FUEL LINE PUMP - VALVE BENDS
(FULL SCALE)

FIGURE 1: FUEL LINE PUMP - VALVE INSTALL

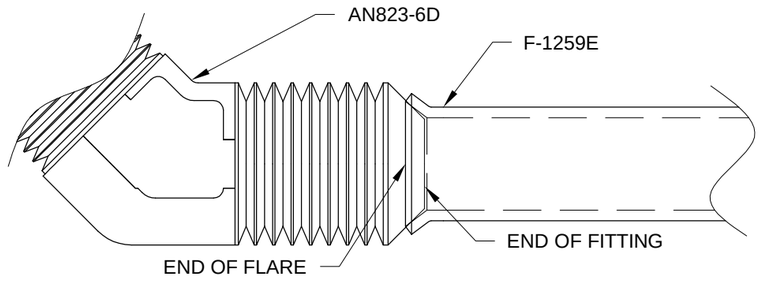


FIGURE 2: EXTRA LENGTH FOR FLARE

16
[406.40 mm]

NOTE: CHECK PRINTED SCALE 1:1 PER SECTION 3 BEFORE USING THE TEMPLATE!

NOTE: The fuel flow meter provided will be one of two types. Figure 1 includes a depiction of both types. Determine the fuel flow meter provided with the kit and use the applicable hardware.

Step 1: Install the fluid fittings to the FLO-SCAN or FT-60 Fuel Flow Meter then install the assembly to the VA-188 FLO-SCAN Mount Bracket per the hardware callouts in Figure 1 (use a small amount of pipe thread sealant). The forward bolt used to install the FT-60 is only temporarily installed until later.

Step 2: Install the elbow fluid fitting, both plugs and the drain to the GAS-5 Gascolator per the callouts in the detail view in Figure 1 (use a small amount of pipe thread sealant). Safety wire the four screws holding the gascolator bowl to the top of the gascolator.

Step 3: Install the GAS-5 Gascolator to the F-1201C Firewall Bottom using the hardware called out in Figure 1. Install the straight nipple to pipe fluid fitting into the gascolator from the aft side of the firewall bottom (use a small amount of pipe thread sealant).

Step 4: Make the F-1259C Fuel Line Floscan - Fwall by unrolling and cutting off 8 3/4 inches of ATO-035X3/8 tube. Start at the Gas-5 Gascolator end of the tube. Insert a nut and sleeve over the end of the tube and then flare the end of the tube. Make the two bends aft of the gascolator using the template given in Figure 2. Insert a nut and sleeve over the flo-scan end of the tube and then flare the end of the tube. Attach the completed fuel line to the gascolator and the FLO-SCAN or FT-60 Fuel Flow Meter.

Step 5: Make the F-1259D Fuel Line Valve-Floscan by unrolling and cutting off 13 3/16 inches of ATO-035X3/8 tube. Start at the FUEL VALVE 4161089 end of the tube. Insert a nut and sleeve over the end of the tube and then flare the end of the tube. Add two bends to the fuel line between the FUEL VALVE 4161089 and the F-1202F Bulkhead using the template given in Figure 3. Insert the tube through the snap bushing in the bulkhead. Insert a nut and sleeve over the forward end of the tube and then flare the end of the tube. Attach the completed fuel line to the FLO-SCAN or FT-60 Fuel Flow Meter and the FUEL VALVE 4161089.

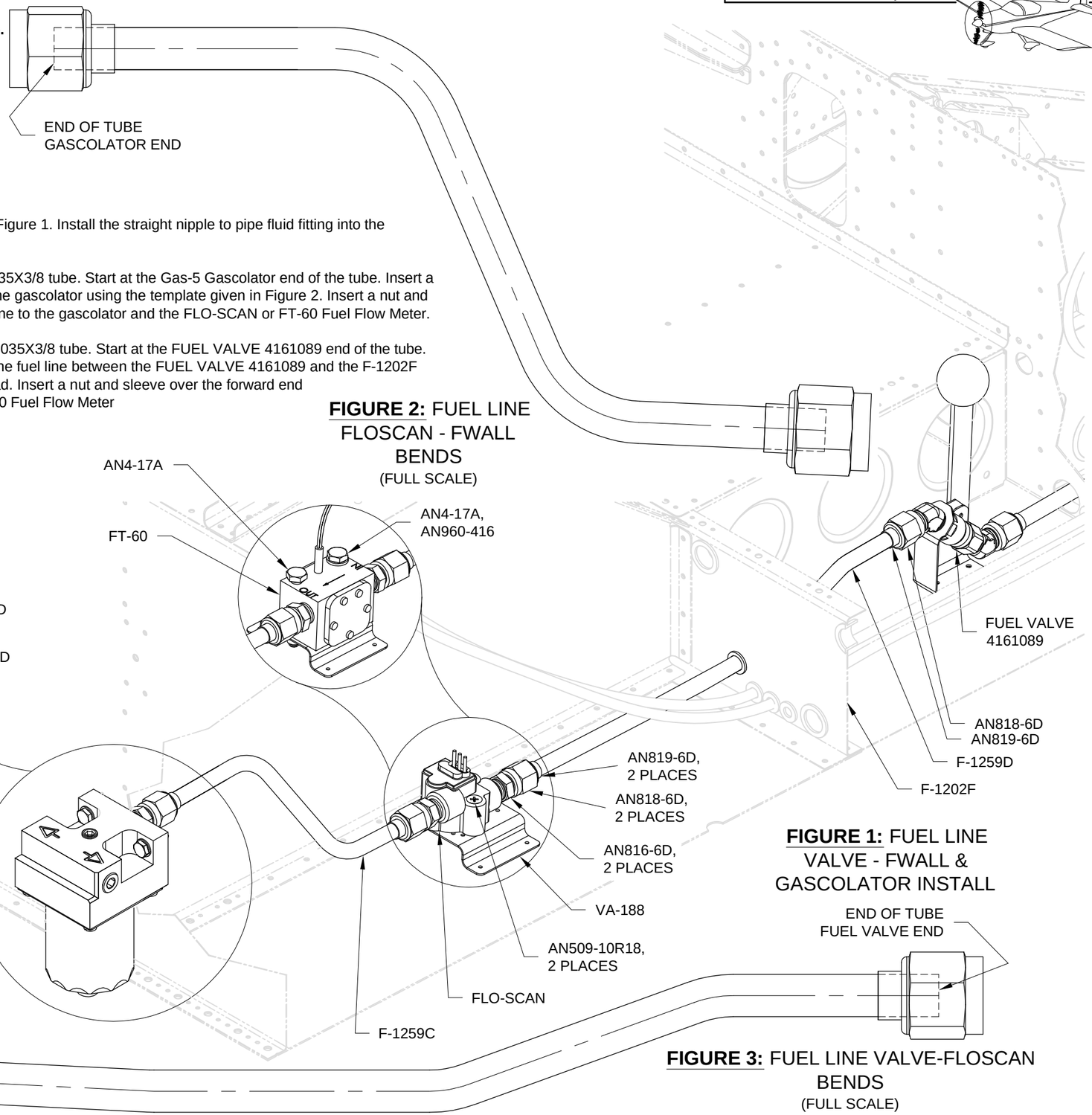


FIGURE 2: FUEL LINE FLOSCAN - FWALL BENDS
(FULL SCALE)

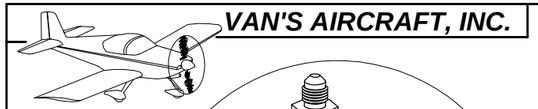
FIGURE 1: FUEL LINE VALVE - FWALL & GASCOLATOR INSTALL

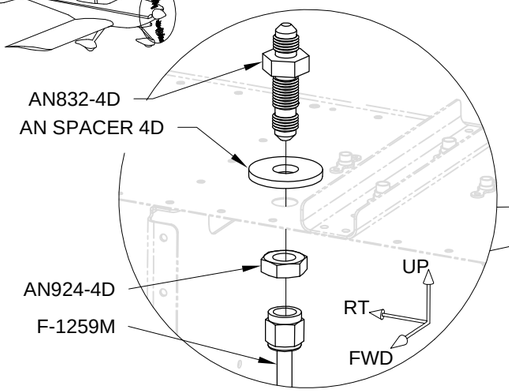
FIGURE 3: FUEL LINE VALVE-FLOSCAN BENDS
(FULL SCALE)

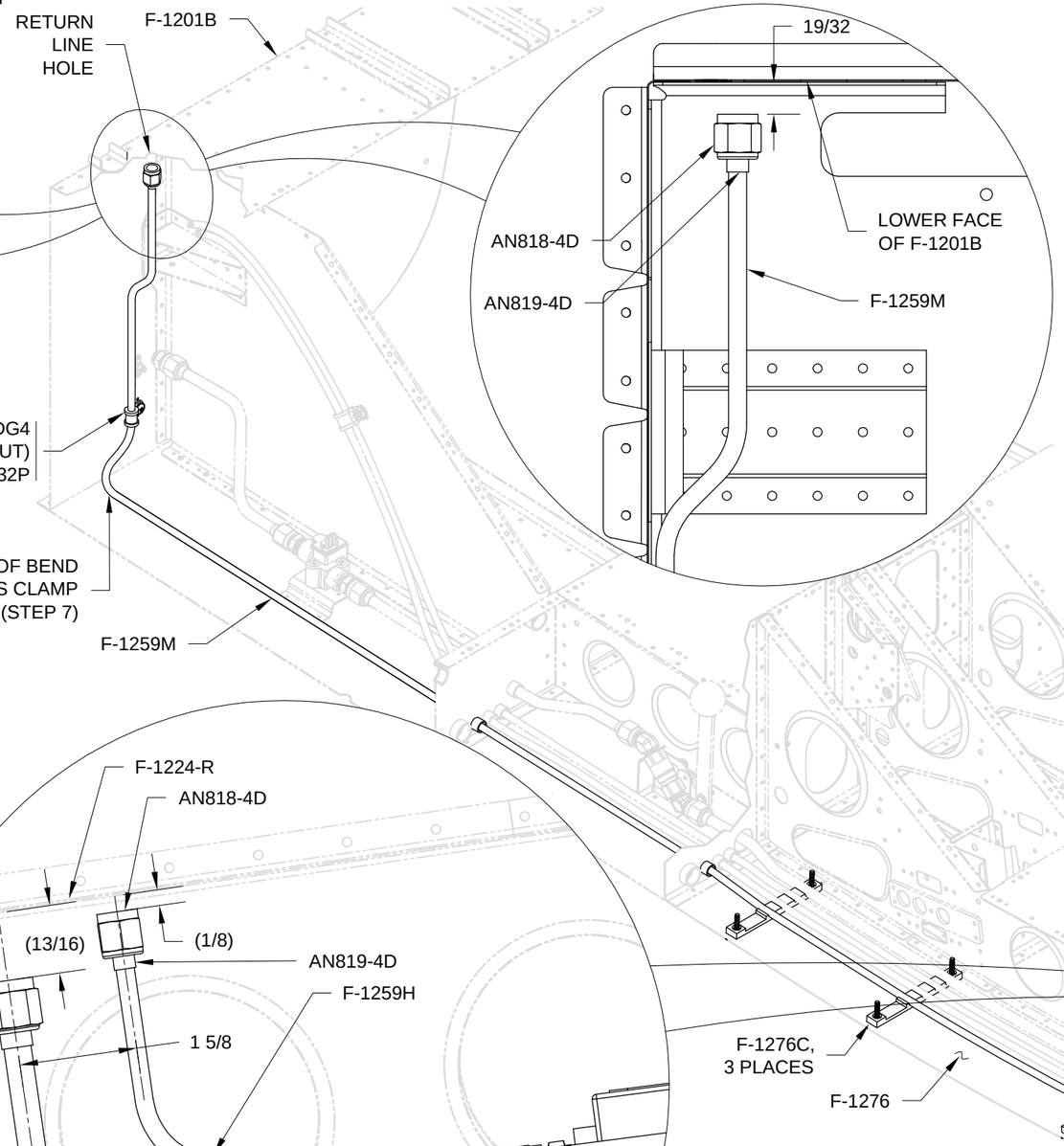
10 9/16 [268.29 mm]

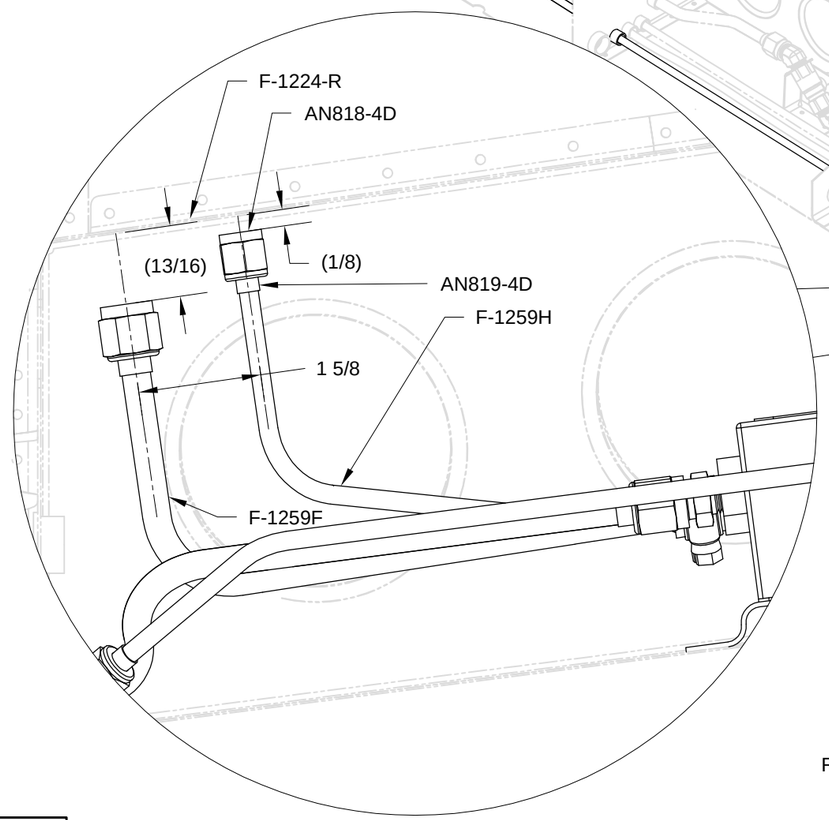
16 [406.40 mm]

NOTE: CHECK PRINTED SCALE 1:1 PER SECTION 3 BEFORE USING THE TEMPLATE!









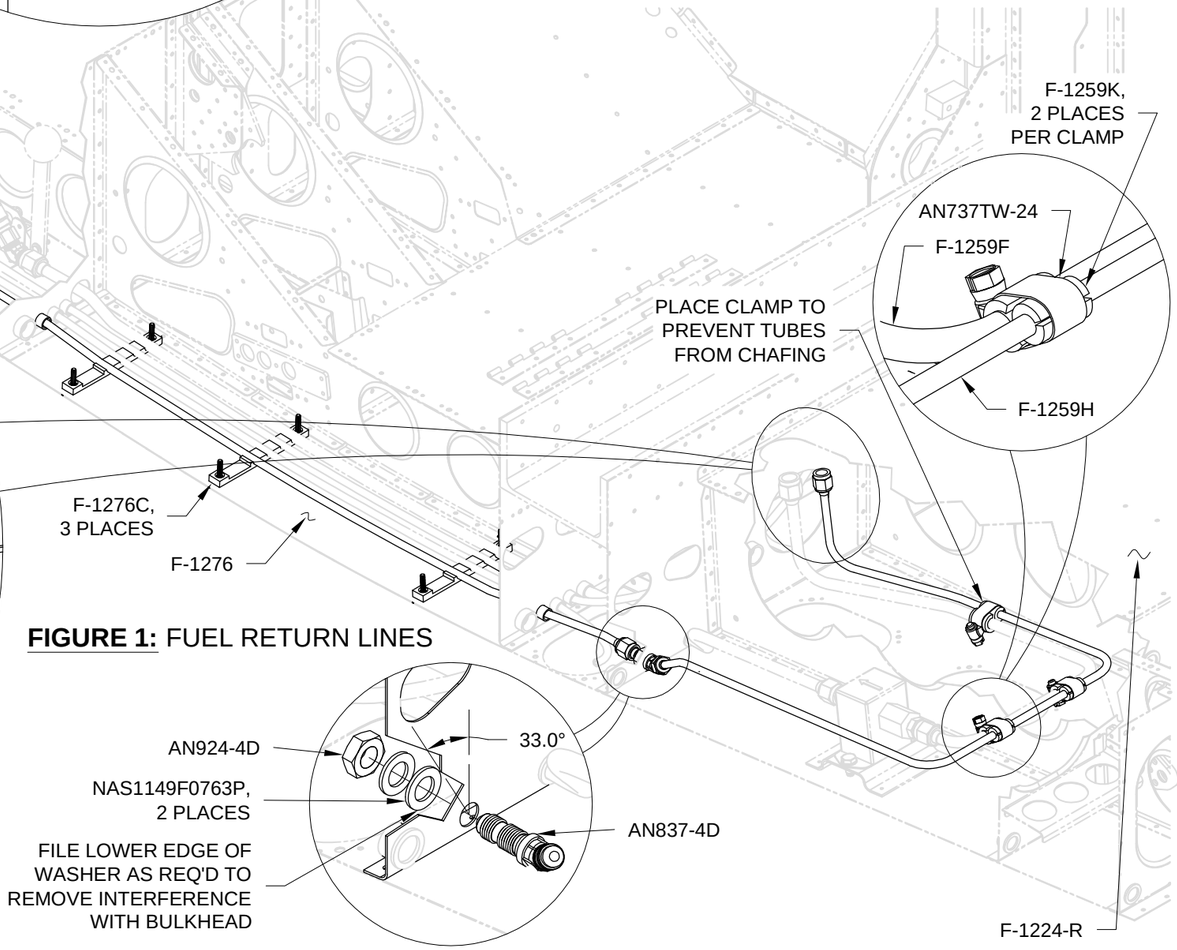


FIGURE 1: FUEL RETURN LINES

Step 1: Attach the bulkhead fitting called out in Figure 1 to the F-1204D Center Section Bulkhead.

Step 2: Make the F-1259H Fuel Return Line Aft by unrolling and cutting off 37 1/2 inches of ATO-032X1/4 tube. Start at the tank end of the tube. Insert a nut and sleeve over the end of the tube and then flare the end.

Step 3: Using the dimensions given in the side view detail in Figure 1 and the template on Page 28-07 bend the F-1259H Fuel Return Line Aft.

Step 4: Add a bend to the F-1259H Fuel Return Line Aft after it passes by the left side of the ES 40105 Fuel Pump to transition to the bulkhead fitting in the F-1204D Center Section Bulkhead. Slip a sleeve and nut over the forward end of the return line then flare the end. Attach the return line to the bulkhead fitting.

Step 5: Make six F-1259K Pads by cutting lengths of EA HOSE H175 hose 3/4 inches long and then slit them lengthwise. Place these around both the F-1259F Fuel Line Tank - Pump and F-1259H Return Line as shown in the detail view in Figure 1. At three locations clamp around both pieces of hoses as shown in Figure 1.

Step 6: Make the F-1259M Fuel Return Line Fwd by unrolling and cutting off 71 1/4 inches of ATO-032X1/4 tube. Start at the forward end of the tube. Insert a nut and sleeve over the end of the tube and then flare the end.

Step 7: Measure back 14 1/4 inches from forward end of F-1259M Fuel Return Line and mark start of bend line. Make a 90° bend toward clamp on firewall shown in Figure 1. Make remaining bends as req'd to position return line in same clamp as well as aligning the top of the line with the return line hole in the F-1201B Firewall Shelf. The distance of the completed return line to the lower face of the firewall shelf should match the dimensions given in the Detail View in Figure 1.

Step 8: Feed the F-1259M Fuel Return Line through snap bushings to the bulkhead fitting on the F-1204D Center Section Bulkhead. Lay the tube into the left most recess for a tube in the F-1276C Systems Blocks adding a slight curve to follow the curvature of the F-1276 Bottom Skin.

Step 9: Slide the F-1259M Fuel Return Line aft while curving it with your hands to exit the fuselage bottom through the center bottom access hole.

Step 10: Insert nut and sleeve over end of F-1259M Fuel Return Line and then flare end. Re-straighten the curve formed in Step 9 as fuel return line is slid forward to its installed position. Attach fuel return line to bulkhead fitting.

Step 11: Attach union bulkhead fitting to F-1201B Firewall Shelf per callouts in Figure 1. Attach F-1259M Fuel Return Line to union bulkhead fitting.

Step 12: Locate #8 screw for attaching F-1259M Fuel Return Line clamp to F-1201C Firewall Bottom. Cut to 3/8. Attach line to firewall bottom per callouts.

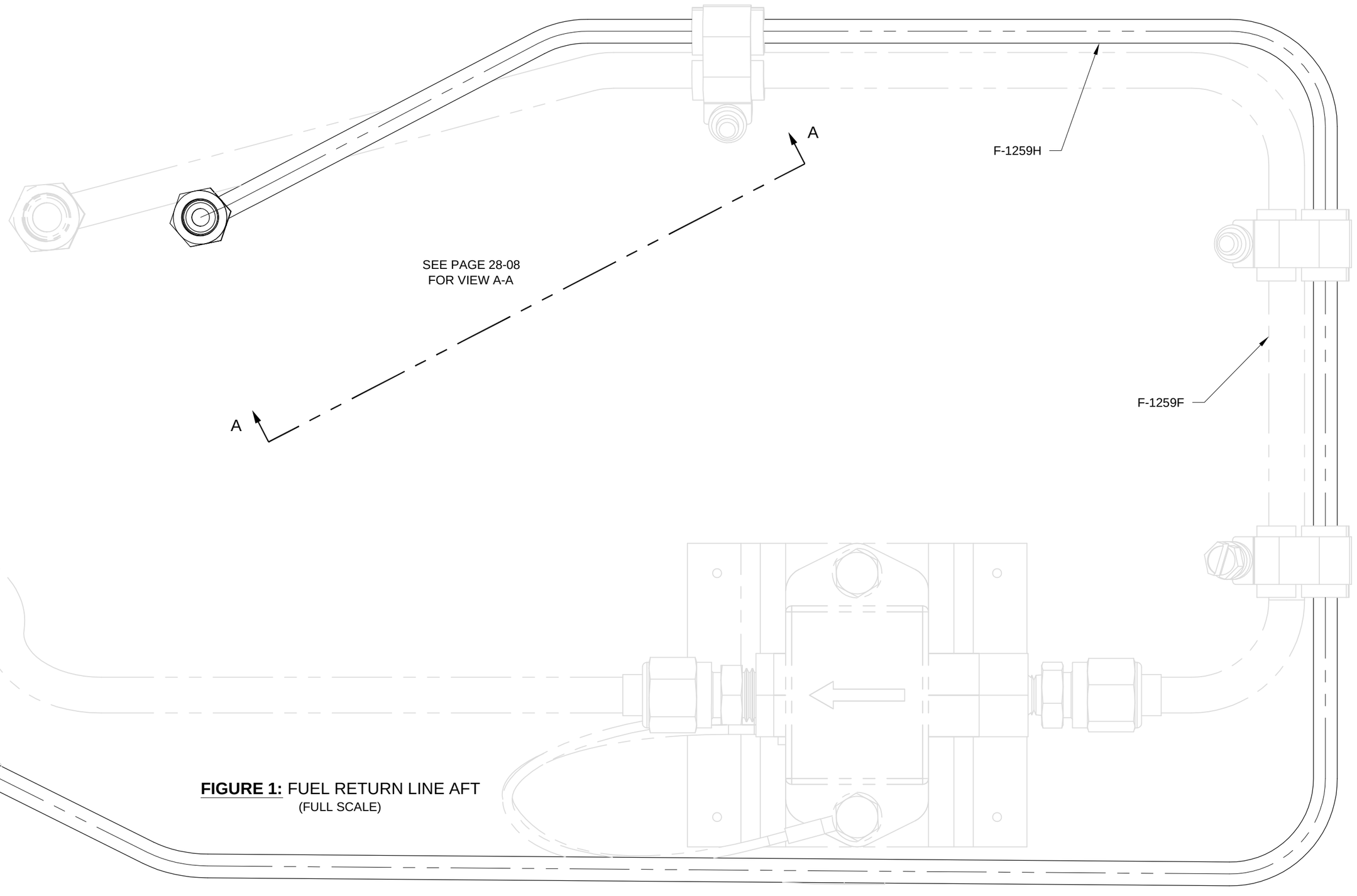
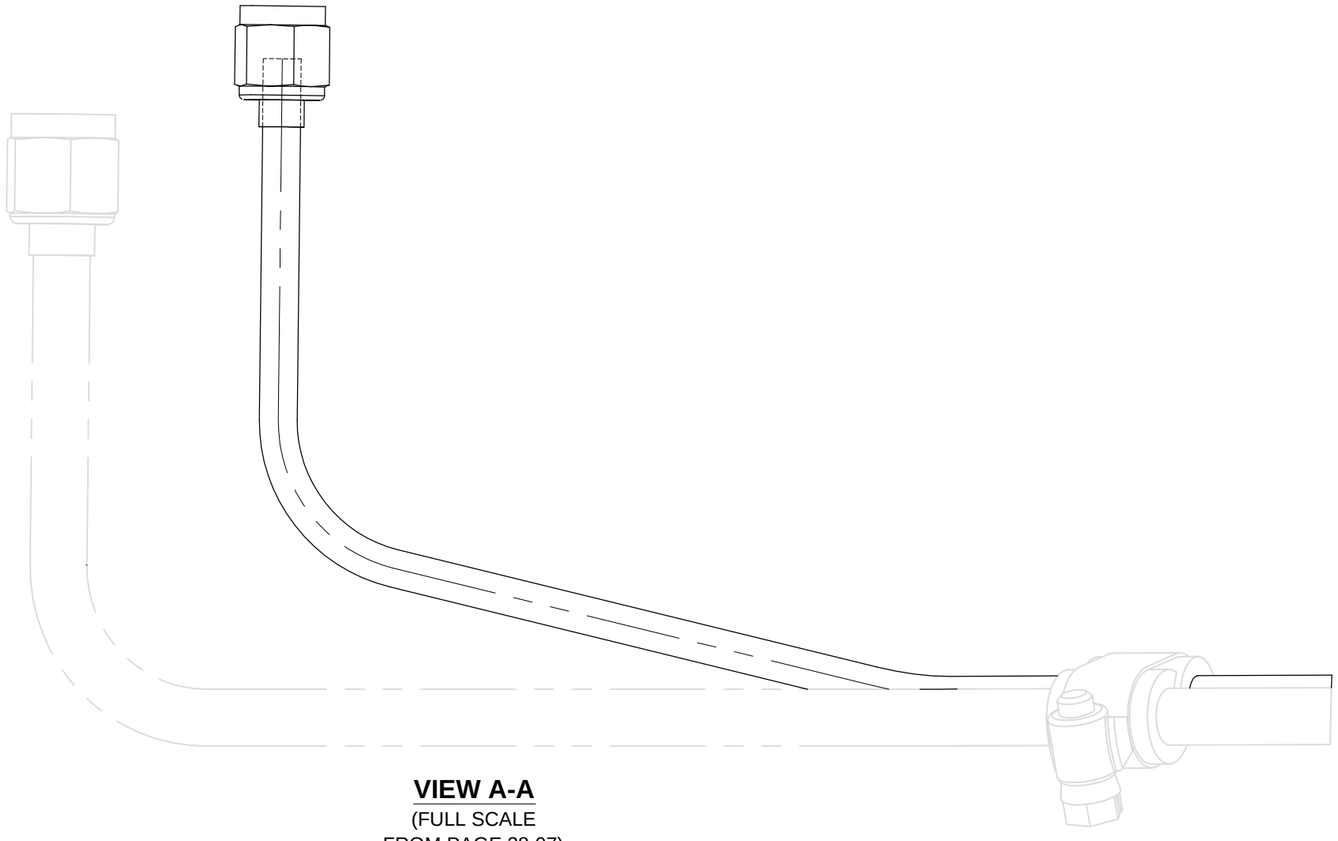


FIGURE 1: FUEL RETURN LINE AFT
(FULL SCALE)

NOTE: CHECK PRINTED SCALE 1:1 PER SECTION 3 BEFORE USING THE TEMPLATE!



VIEW A-A
(FULL SCALE
FROM PAGE 28-07)

10 9/16
[268.29 mm]

16
[406.40 mm]

NOTE: CHECK PRINTED SCALE 1:1 PER SECTION 3 BEFORE USING THE TEMPLATE!