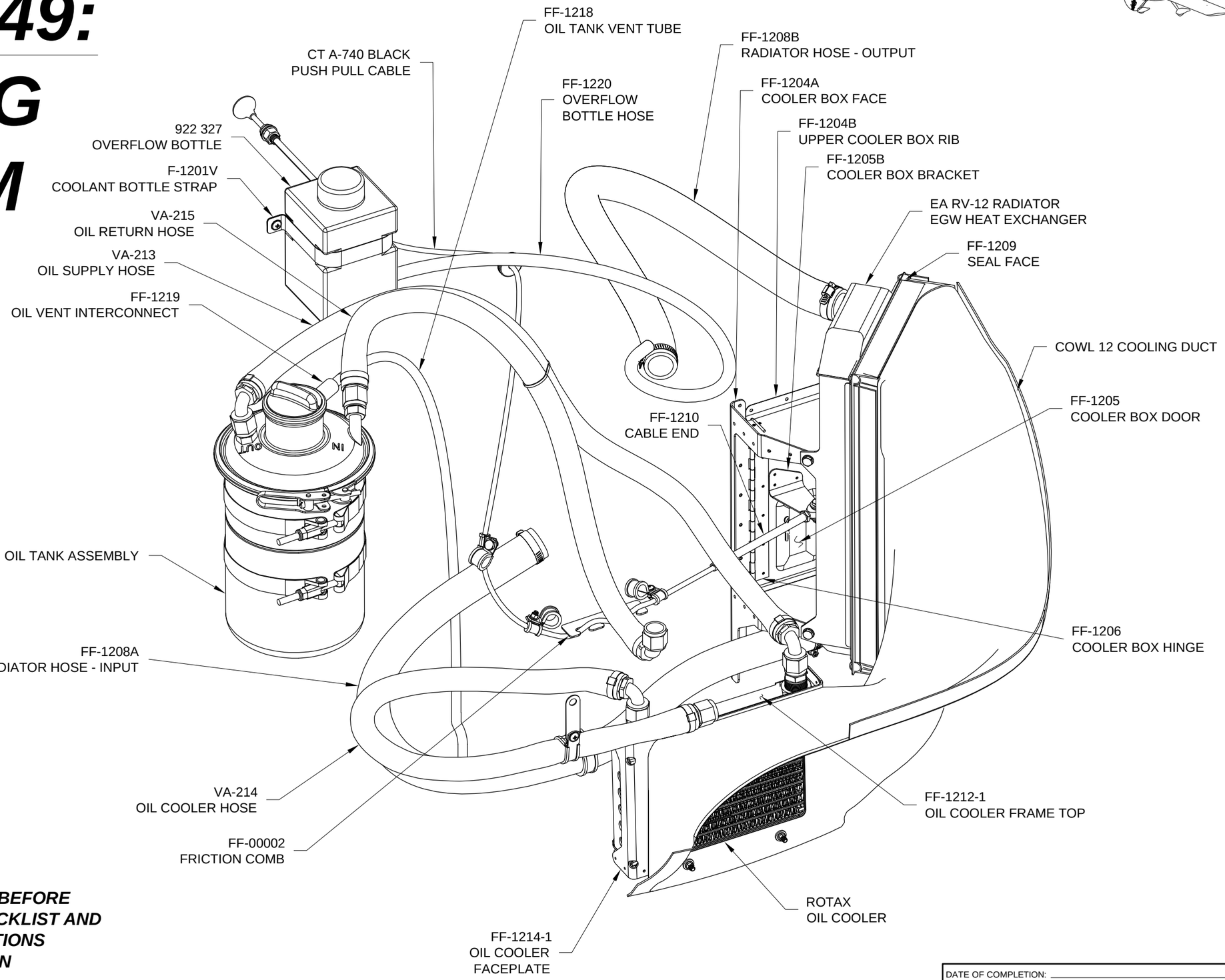
SECTION 49: COOLING SYSTEM



WARNING: DO NOT START ENGINE BEFORE COMPLETING THE PREFLIGHT CHECKLIST AND ROTAX ENGINE SERVICE INSTRUCTIONS RELATED TO ENGINE INSTALLATION

DATE OF COMPLETION: _____
PARTICIPANTS: _____

NOTE: Save excess EA HOSE H151 material for use in Section 50.

Step 1: Cut two lengths of EA HOSE H151 per the dimensions given in Figure 1 to make the FF-1208A Radiator Hose - Input and FF-1208B Radiator Hose - Output.

Step 2: Cut 2.0 in. [50.8 mm] from the end of one of the FF-1208C Expansion Springs. Deburr the ends of both FF-1208C.

Step 3: Insert the longer FF-1208C inside of the FF-1208A and the shorter FF-1208C iside of the FF-1208B in the location called out in Figure 1. Grab the end of the spring with pliers and twist spring to reduce its outside diameter if necessary.

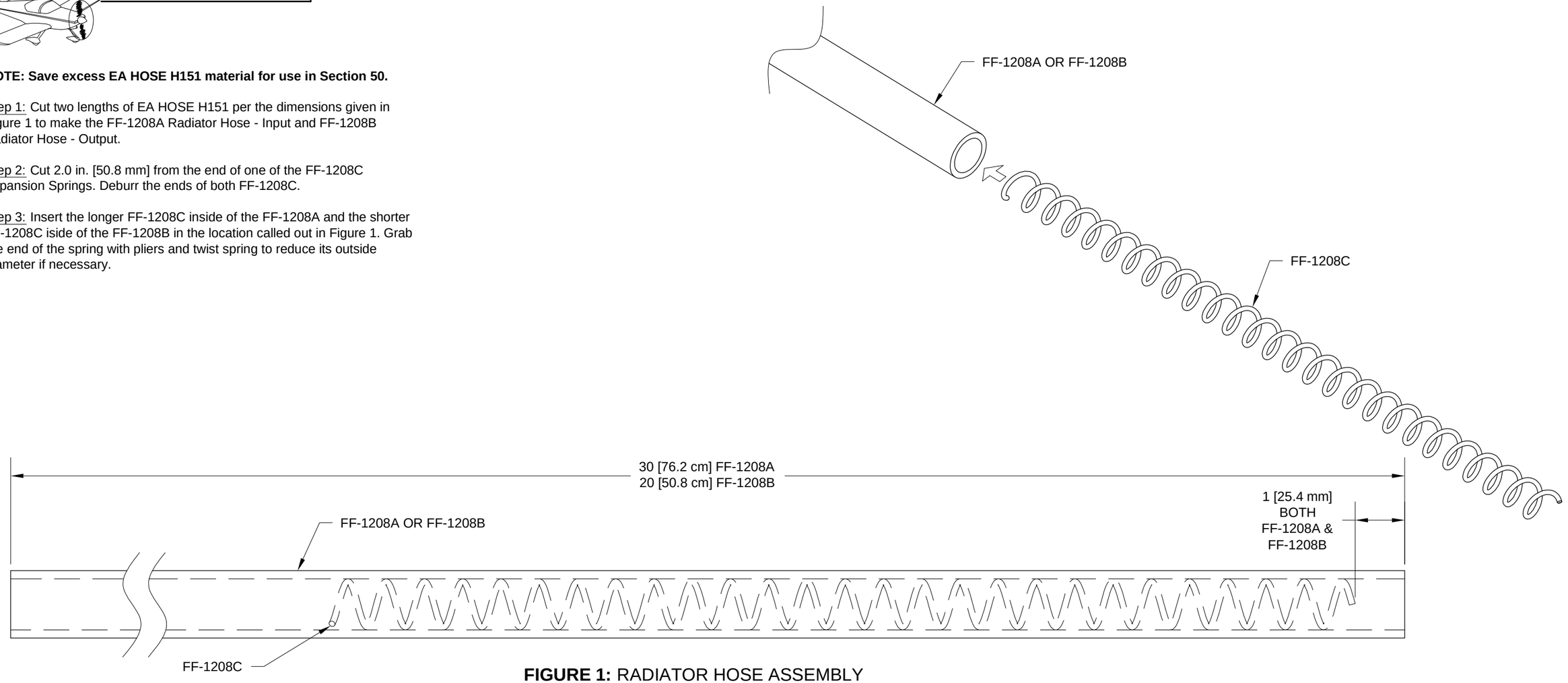


FIGURE 1: RADIATOR HOSE ASSEMBLY

Step 4: Make the FF-1206A and FF-1206B Cooler Box Hinges from MS20257C4-4 Stainless Steel Hinge using the dimensions given in Figure 2.

Step 5: Make the FF-1206C Hinge Pin from SSP-120 Stainless Steel Hinge Pin.

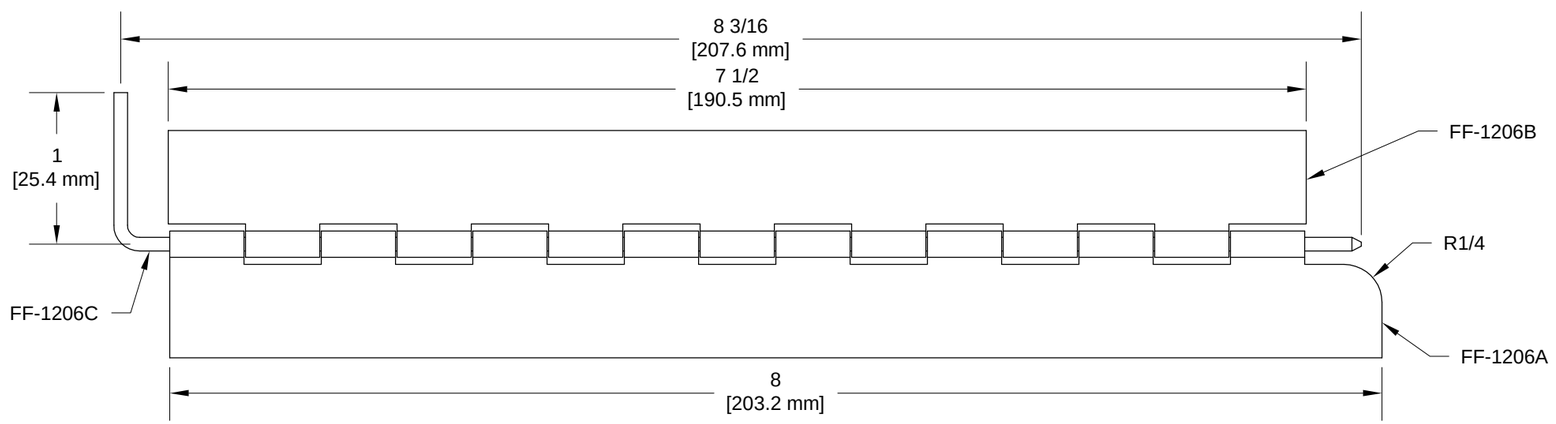


FIGURE 2: COOLER BOX HINGE

Step 1: Align the FF-1206B Cooler Box Hinge with the FF-1205 Cooler Box Door as shown in Figure 1. Match-Drill #40 the holes in the cooler box door into the cooler box hinge. Cleco as you drill.

Step 2: Disassemble the FF-1206B Cooler Box Hinge from the FF-1205 Cooler Box Door. Deburr the cooler box hinge.

Step 3: Dimple all the #40 holes in the FF-1205 Cooler Box Door per the rivet call-outs in Figure 1.

Step 4: Machine countersink the #40 holes in the FF-1206B Cooler Box Hinge and FF-1205B Cooler Box Bracket for the dimples in the FF-1205 Cooler Box Door.

Step 5: Rivet the FF-1206B Cooler Box Hinge to the FF-1205 Cooler Box Door. See Figure 1.

Step 6: Rivet the FF-1205B Cooler Box Bracket to the FF-1205 Cooler Box Door per the call-outs in Figure 1. This will complete the Cooler Box Door Assembly.

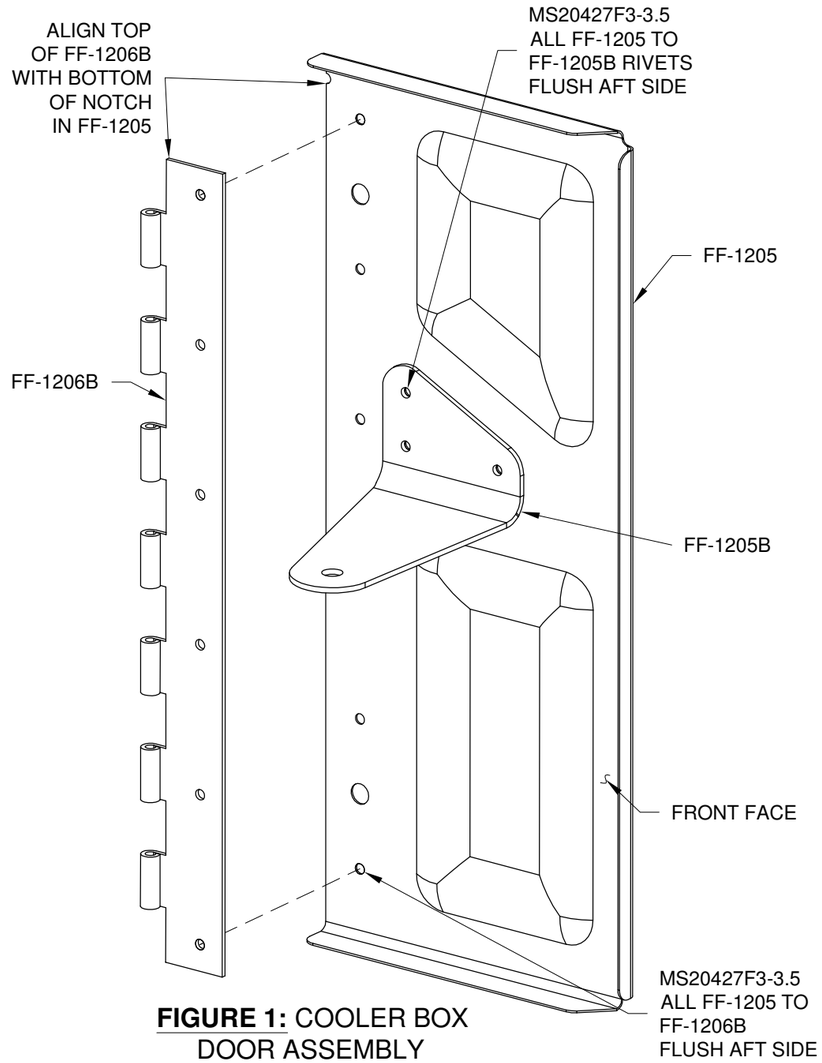


FIGURE 1: COOLER BOX DOOR ASSEMBLY

Step 7: Align then clamp in place the FF-1206A Cooler Box Hinge with the FF-1204A Cooler Box Face as shown in Figure 2. Match-Drill #30 the holes in the cooler box face into the cooler box hinge. Cleco as you drill.

Step 8: Disassemble the FF-1206A Cooler Box Hinge from the FF-1204A Cooler Box Face. Deburr the cooler box hinge.

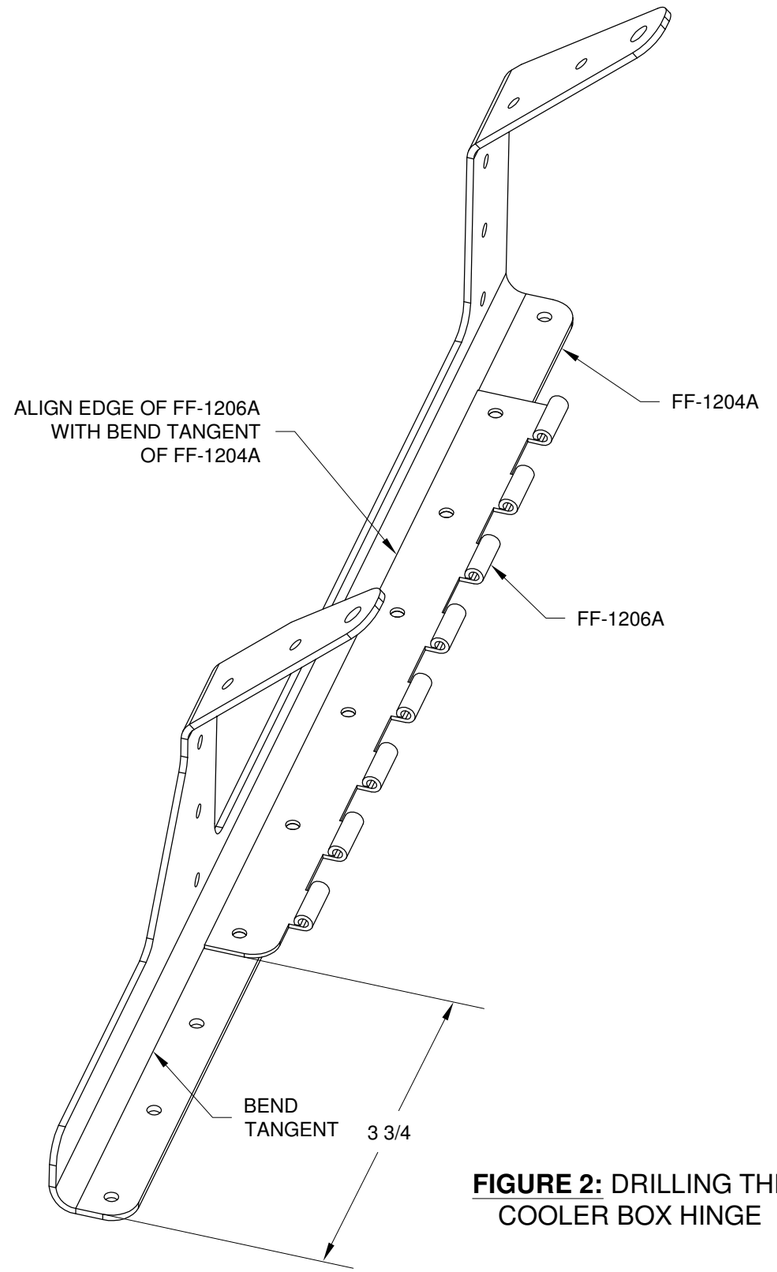


FIGURE 2: DRILLING THE COOLER BOX HINGE

Step 1: Rivet the FF-1204A Cooler Box Face and FF-1206A Cooler Box Hinge to the F-1201C Firewall Bottom using the call-outs in Figure 1. Rivet the remaining holes common between the cooler box face and the firewall bottom.

Step 2: Rivet the FF-1204B Upper Cooler Box Rib and FF-1204C Lower Cooler Box Rib to the F-1201C Firewall Bottom using the call-outs in Figure 1.

Step 3: Rivet the FF-1204A Cooler Box Face to the FF-1204B Upper Cooler Box Rib and FF-1204C Lower Cooler Box Rib using the call-outs in Figure 1.

Step 4: Use the FF-1206C Hinge Pin to attach the Cooler Box Door Assembly to the FF-1206A Cooler Box Hinge. Safety wire the hinge pin to the FF-1204B Upper Cooler Box Rib. Use the provided safety wire holes in the upper cooler box rib. See Figure 1.

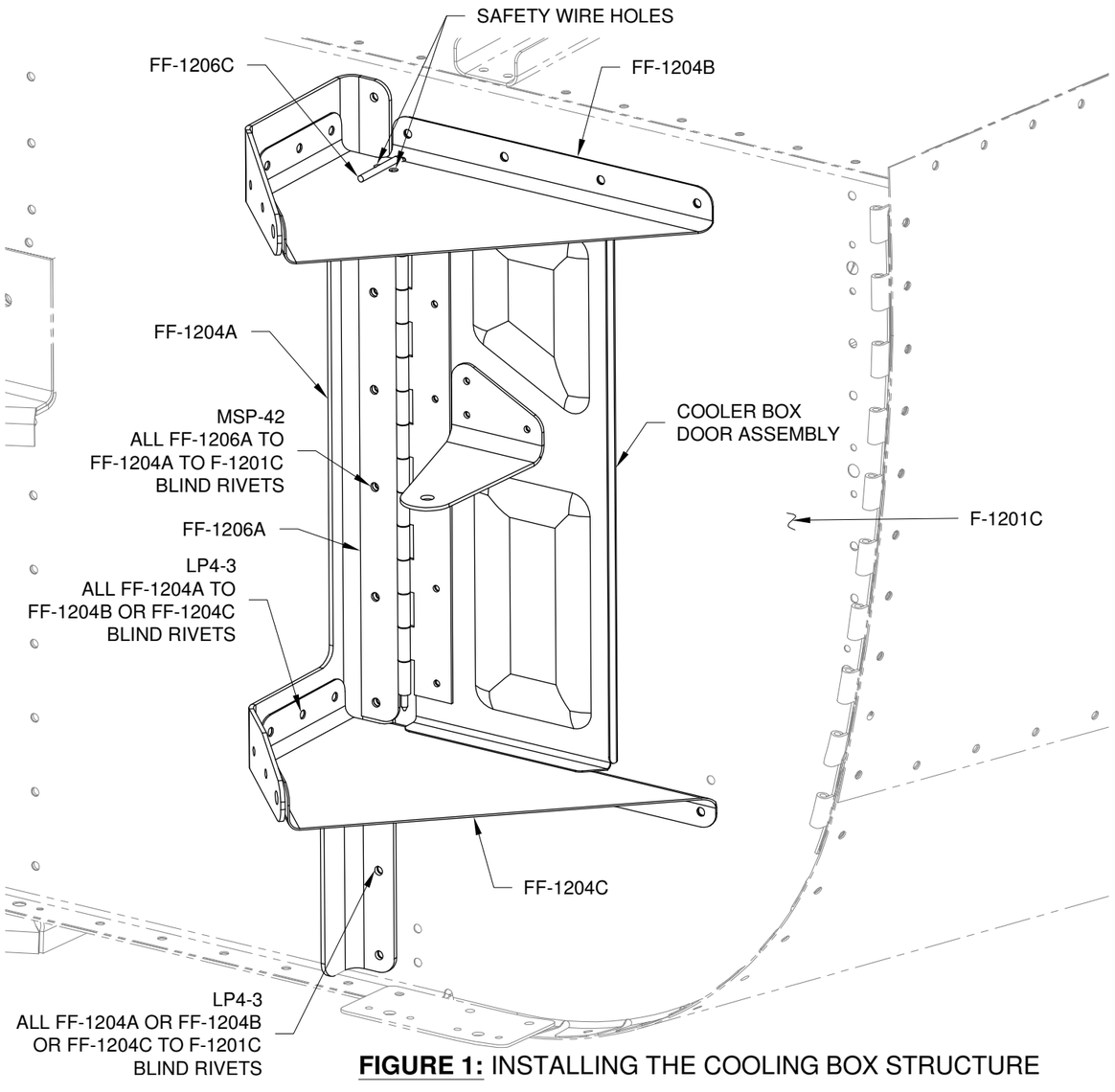


FIGURE 1: INSTALLING THE COOLING BOX STRUCTURE

Step 5: Cover the F-1201C Firewall Bottom with wax beneath the Cooler Box Door Assembly.

Step 6: Scour the aft face of the FF-1205 Cooler Box Door with Scotch Brite around the edge where the RTV gasket is depicted in Figure 2.

Step 7: Add a bead of high temp RTV around the edge of the FF-1205 Cooler Box Door as shown in Figure 2 then close the Cooler Box Door Assembly firmly against the firewall. Temporarily hold the door closed with tape from the end of the FF-1205B Cooler Box Bracket to the edge of the fuselage.

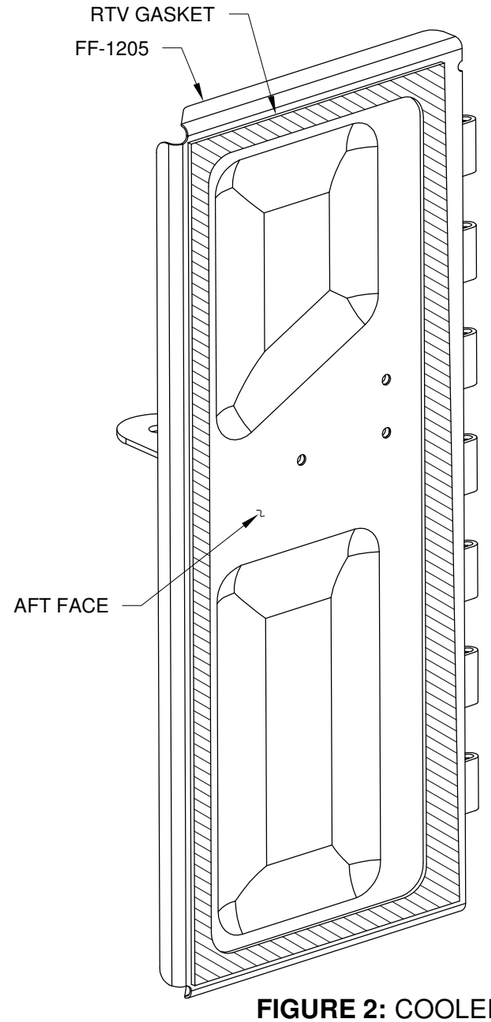


FIGURE 2: COOLER BOX DOOR GASKET

Step 1: Bolt the EA RV-12 RADIATOR EGW Heat Exchanger to the F-1201C Firewall Bottom using the hardware called out in Figure 1.

Step 2: Bolt the EA RV-12 RADIATOR EGW Heat Exchanger to the FF-1204A Cooler Box Face, FF-1204B Upper Cooler Box Rib and FF-1204C Lower Cooler Box Rib using the hardware called out in Figure 1. Extra washers may be required between the EGW heat exchanger and the cooler box face to fill any gaps. Check that there is a constant gap as called out in View A-A from Figure 1 between the face of the radiator and the upper and lower cooler box ribs. Slot the EGW heat exchanger attach holes horizontally as required to obtain the prescribed gap.

Step 3: Slip the FF-1209 Seal Face over the EA RV-12 RADIATOR EGW Heat Exchanger and note where the upper and lower flanges of the seal face overlap the EGW heat exchanger. Remove the seal face and place a 1/8 inch bead of silicone across the upper and lower parts of the heat exchanger in the areas just noted. Slide the seal face back onto the EGW heat exchanger and tape it in place top and bottom. Run a bead of silicone down each side of the EGW heat exchanger covering the bend radius on the flanges of the seal face. Use a Popsicle stick to smooth the silicone along each side of the heat exchanger.

Step 4: Install the FF-1208A Radiator Hose - Input (the end farthest from the spring) and FF-1208B Radiator Hose - Output to the EA RV-12 RADIATOR EGW Heat Exchanger using clamps as shown in Figure 1.

Step 5: Install a cushioned clamp around the FF-1208A Radiator Hose - Input then fasten the clamp to the WD-1201-1 Nose Gear Assembly with the bolt called out in Figure 1.

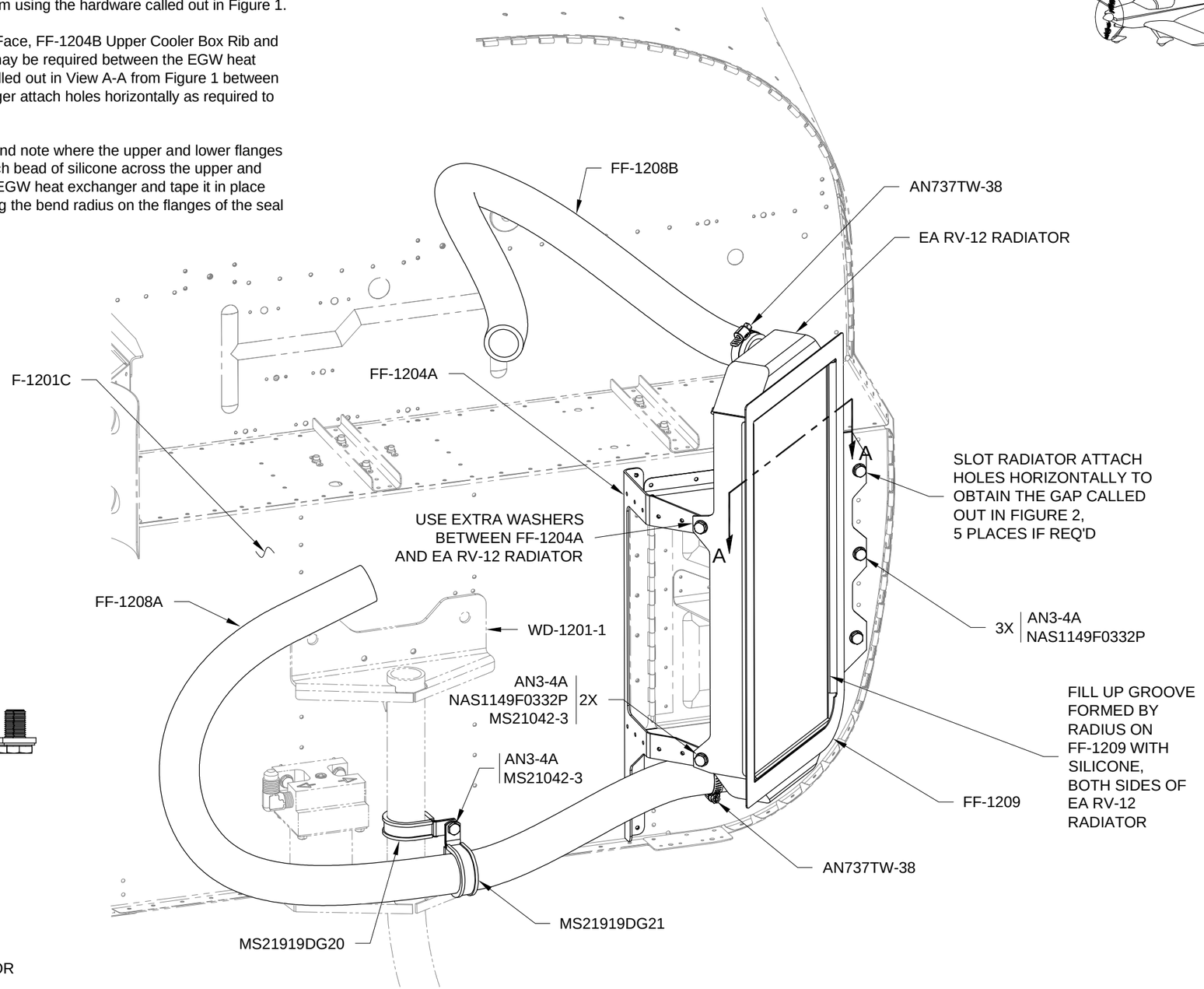
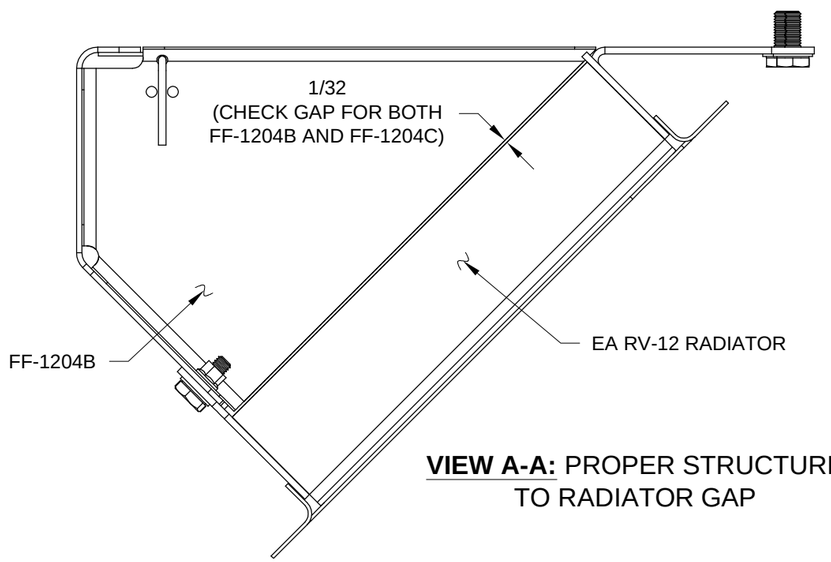


FIGURE 1: INSTALLING THE RADIATOR



VIEW A-A: PROPER STRUCTURE TO RADIATOR GAP

Step 1: Install the Oil Tank Assembly using two band clamps as shown in Figure 1. Trim bolts on clamps if desired leaving a minimum 1/4 inch of exposed threads.

Step 2: Cut a 1 1/2 inch long piece of EA H177 Hose to make the FF-1219 Oil Vent Interconnect.

Step 3: Cut a 28 inch long piece of .062X3/8 104-0375062 Tube to make the FF-1218 Oil Tank Vent Tube.

Step 4: Cut a 24 inch long piece of EA HOSE H175 to make the FF-1220 Overflow Bottle Hose.

Step 5: Slip the FF-1219 Oil Vent Interconnect onto the barbed stem on the Oil Tank Assembly and secure with hose clamp. Insert the FF-1218 Oil Tank Vent Tube into the oil vent interconnect and secure with hose clamp. See Figure 1.

Step 6: Drill #19 through the F-1201Q Battery Mount Angle as shown in Figure 1.

Insert small tie wrap through hole and secure loosely. Loop a second tie wrap through the first and around the FF-1218 Oil Tank Vent Tube. Secure vent tube to prevent it from rubbing against the adjacent air filter.

Step 7: Remove the right bolt and washer attaching the GAS-5 Gascolator, slip a cushioned clamp over the bolt, slide the FF-1218 Oil Tank Vent Tube through the cushioned clamp then reinstall the bolt as shown in Figure 1.

Step 8: Bend the FF-1218 Oil Tank Vent Tube below the cushioned clamp attached to the GAS-5 Gascolator as necessary to clear the flange in the F-1201C Firewall Bottom.

Tie wrap FF-01225 Fuel Drain Hose to the oil tank vent tube as shown in Figure 1.

Step 9: Hold the 922 327 Overflow Bottle in the installed position as shown in Figure 1. Note the face that will lay against the F-1201A Firewall Upper. Smear a thin layer of RTV over the two ridges on this face of the overflow bottle to prevent them from chafing against the firewall upper.

Step 10: Slip the FF-1220 Overflow Bottle Hose over the stem on the 922 327 Overflow Bottle and secure with the hose clamp.

Step 11: Attach the 922 327 Overflow Bottle to the F-1201A Firewall Upper using the F-1201V Coolant Bottle Strap and hardware called out in Figure 1.

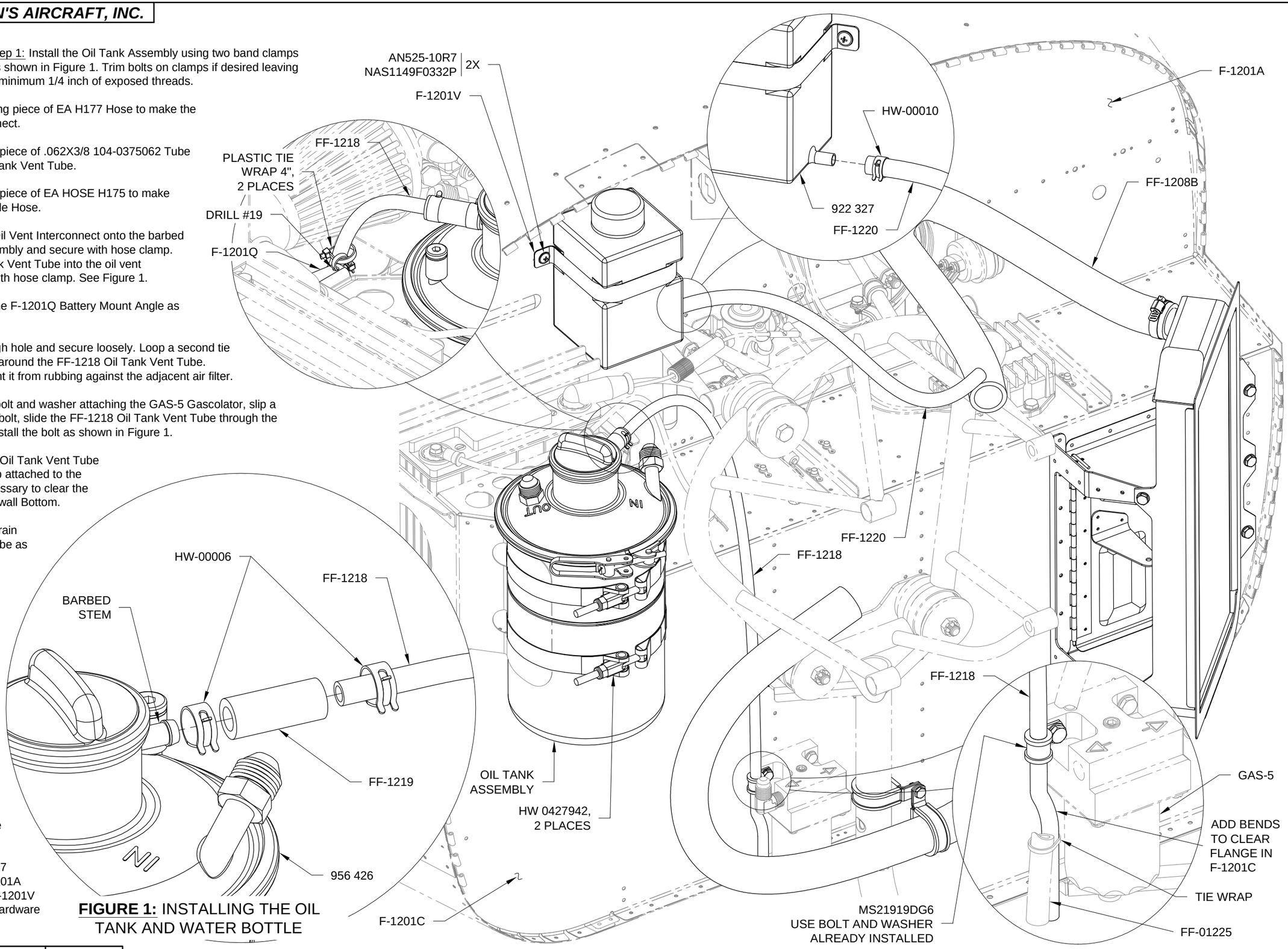


FIGURE 1: INSTALLING THE OIL TANK AND WATER BOTTLE

Step 1: Slide the free end of the F-1220 Overflow Bottle Hose over the barbed stem on the 922 665 Expansion Tank Assembly as shown in Figure 1.

Step 2: Route the F-1220 Overflow Bottle Hose using tie-wraps as shown in Figure 2.

Step 3: Install the free end of the FF-1208B Radiator Hose - Output onto the 922 665 Expansion Tank Assembly using clamps as shown in Figure 1.

Step 4: Install the free end of the FF-1208A Radiator Hose - Input onto the 922 218 Water Inlet Elbow using clamps as shown in Figure 1.

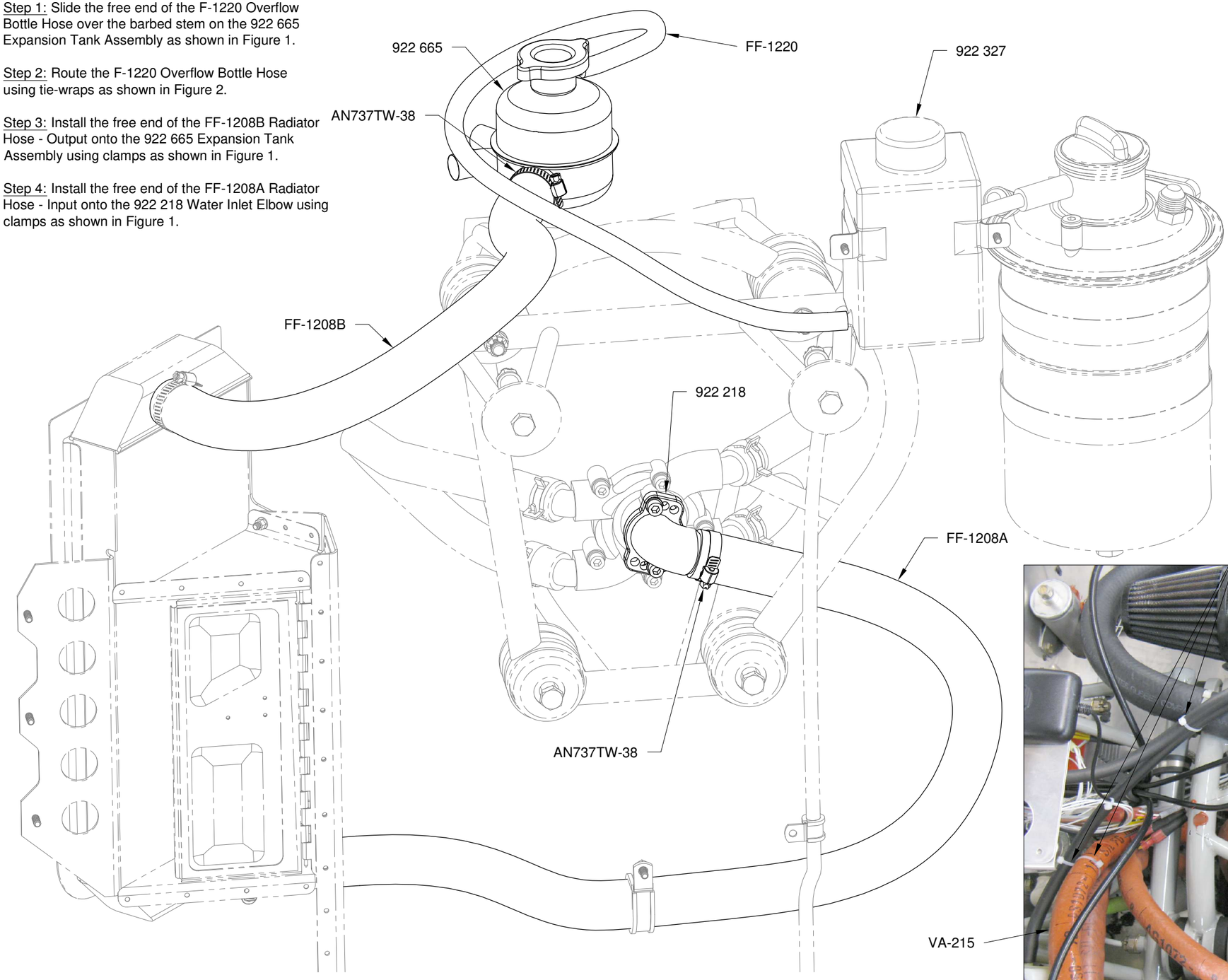


FIGURE 1: INSTALLING THE INPUT/OUTPUT RADIATOR HOSES AND OVERFLOW BOTTLE HOSE

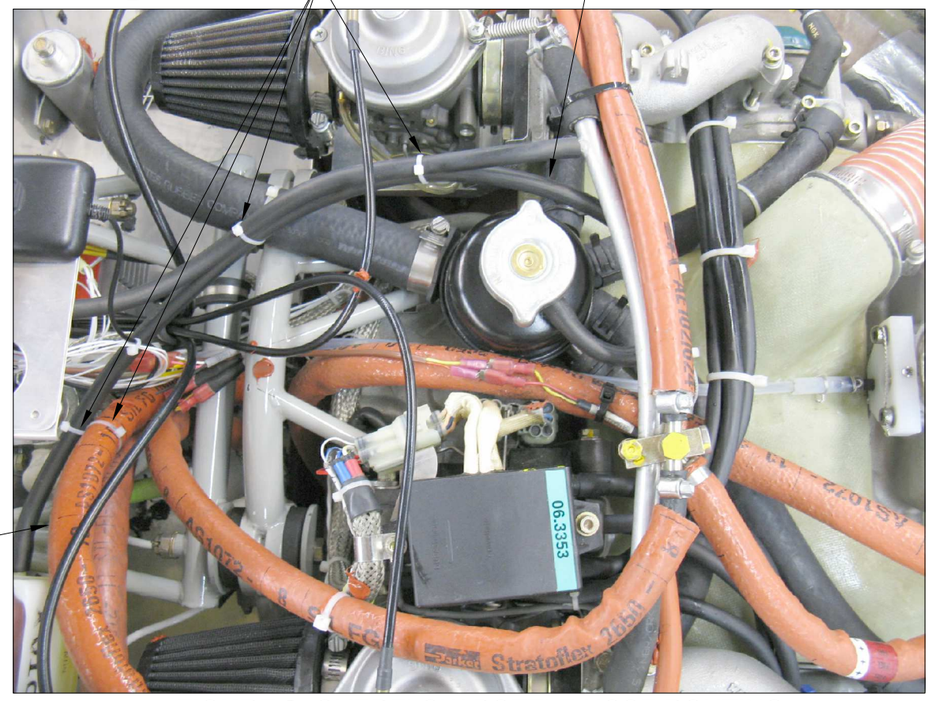


FIGURE 2: OVERFLOW BOTTLE HOSE ROUTING

Step 1: Install the CT A-740 BLACK Push Pull Cable into the F-1202A Instrument Panel and through the firewall grommet. See Figure 1.

Step 2: Install a cushioned clamp on the F-1202B Panel Base to support the CT A-740 BLACK Push Pull Cable as shown in Figure 1.

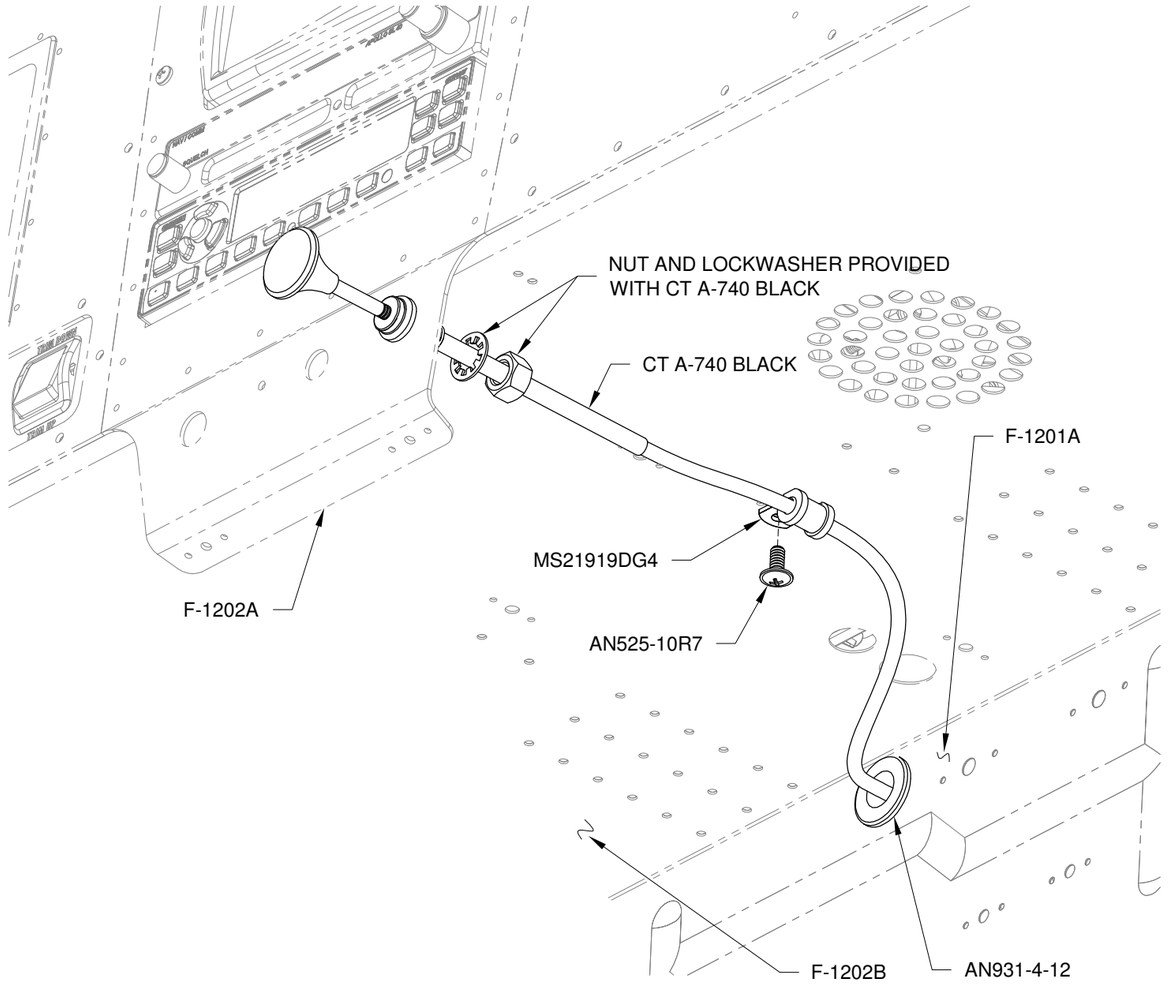


FIGURE 1: INSTALLING THE CABIN HEAT CABLE

Step 1: Add three sets of cushioned clamps to the WD-1220 Engine Mount Ring routing the CT A-740 BLACK Push Pull Cable through each. See Figure 1.

Step 2: Install the FF-00002 Friction Comb between the lower set of cushioned clamps by weaving the CT A-740 BLACK Push Pull Cable through the notches in the friction comb as shown in Figure 1.

Step 3: Pull the handle and attached wire of the CT A-740 BLACK Push Pull Cable completely out of the cable sheath.

Step 4: Using the dimensions in Figure 1 trim the CT A-740 BLACK Push Pull Cable sheath.

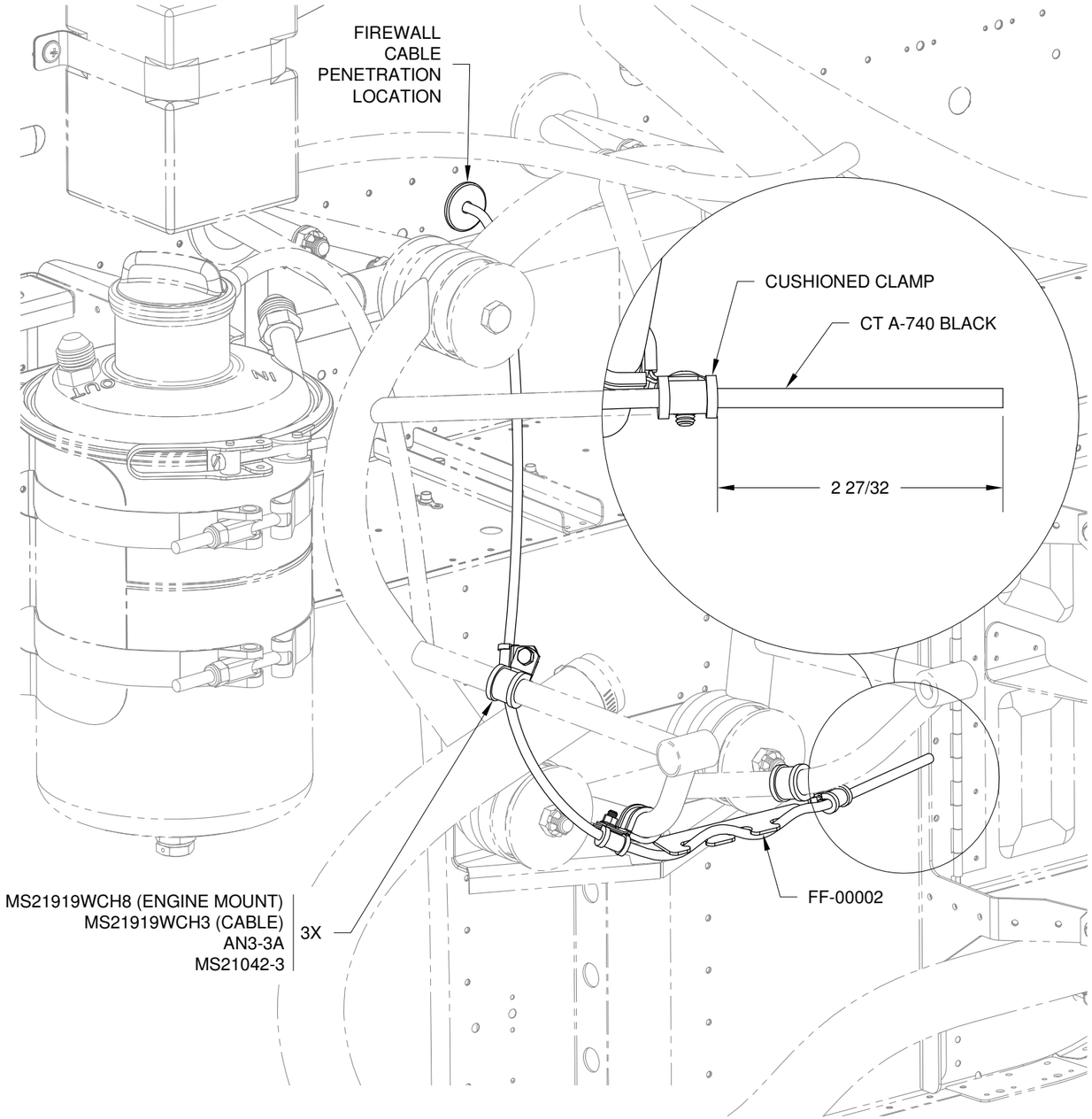


FIGURE 1: TRIMMING THE PUSH PULL CABLE

Step 1: Reinsert the CT A-740 BLACK Push Pull Cable into its sheath. Close the Cooler Box Door Assembly.

Step 2: Screw the jam nut all the way onto the rod end then screw the rod end all the way into the FF-1210 Cable End as shown in Figure 1. Using the bolt called out in Figure 1 temporarily attach the rod end to the FF-1205B Cooler Box Bracket.

Step 3: Push the CT A-740 BLACK Push Pull Cable wire in, leaving a 1/16 gap between the knob and the F-1202A Instrument Panel. Mark the location of the hole in the FF-1210 Cable End on the wire. Disassemble the rod end, nut and cable end from the FF-1205B Cooler Box Bracket.

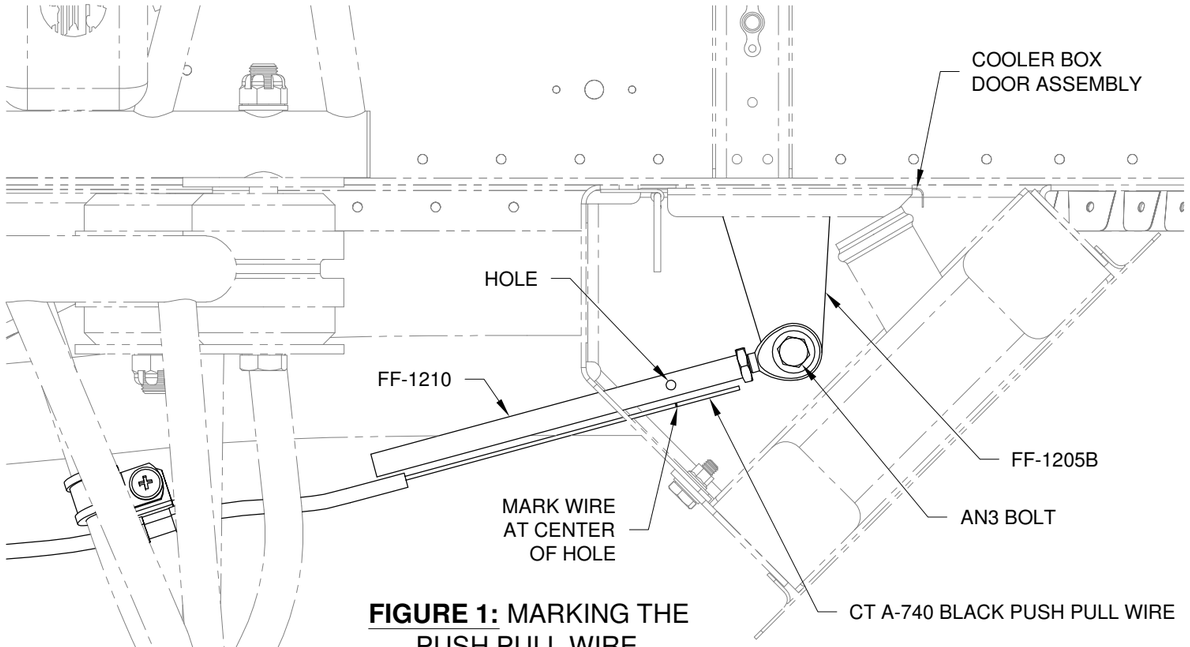


FIGURE 1: MARKING THE PUSH PULL WIRE (TOP VIEW)

Step 4: Bend the end of the CT A-740 BLACK Push Pull Cable wire to fit around the cotter pin as shown in Figure 2. Trim away excess wire.

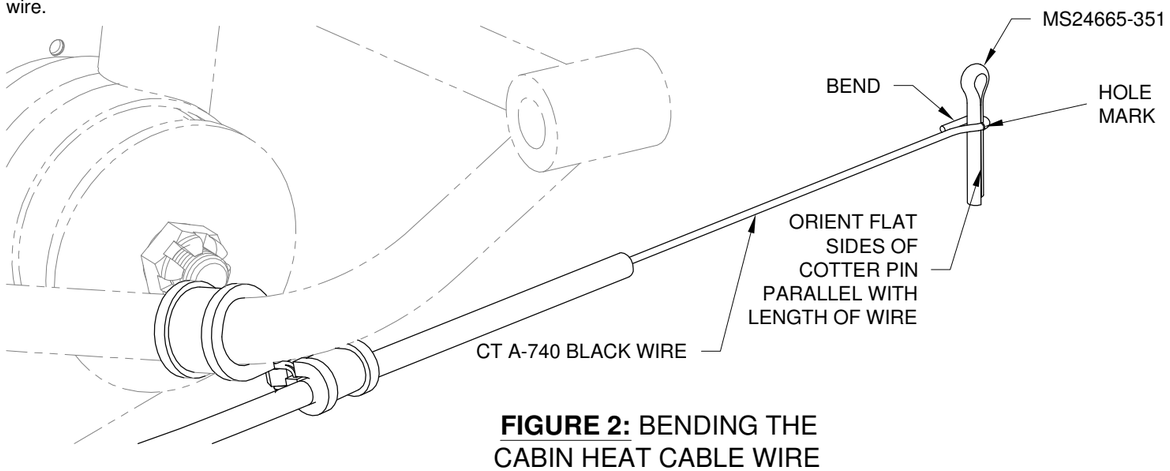


FIGURE 2: BENDING THE CABIN HEAT CABLE WIRE

Step 5: Insert the bent end of the CT A-740 BLACK Push Pull Cable wire into the FF-1210 Cable End as shown in Figure 3.

Step 6: Insert the cotter pin through the hole in the FF-1210 Cable End with the eyelet facing the side of the cable end (as shown in Figure 3). Rotate the cotter pin 90 degrees then bend the legs of the cotter pin around the cable end.

Step 7: Screw the jam nut onto the rod end as shown in Figure 3. Screw the rod end all the way into the FF-1210 Cable End until it bottoms out on the CT A-740 BLACK Push Pull Cable wire. Tighten the jam nut against the cable end.

Step 8: Using the hardware called out in Figure 3 attach the rod end to the FF-1205B Cooler Box Bracket.

Step 9: Verify proper operation of the Cooler Box Door Assembly. If needed, loosen the clamps and reposition the CT A-740 BLACK Push Pull Cable so that the cooler box door assembly closes tightly leaving a 1/16 gap between the knob and the F-1201A-1 Instrument Panel. When satisfied safety wire the push pull cable to the cushioned clamp as shown in Figure 3.

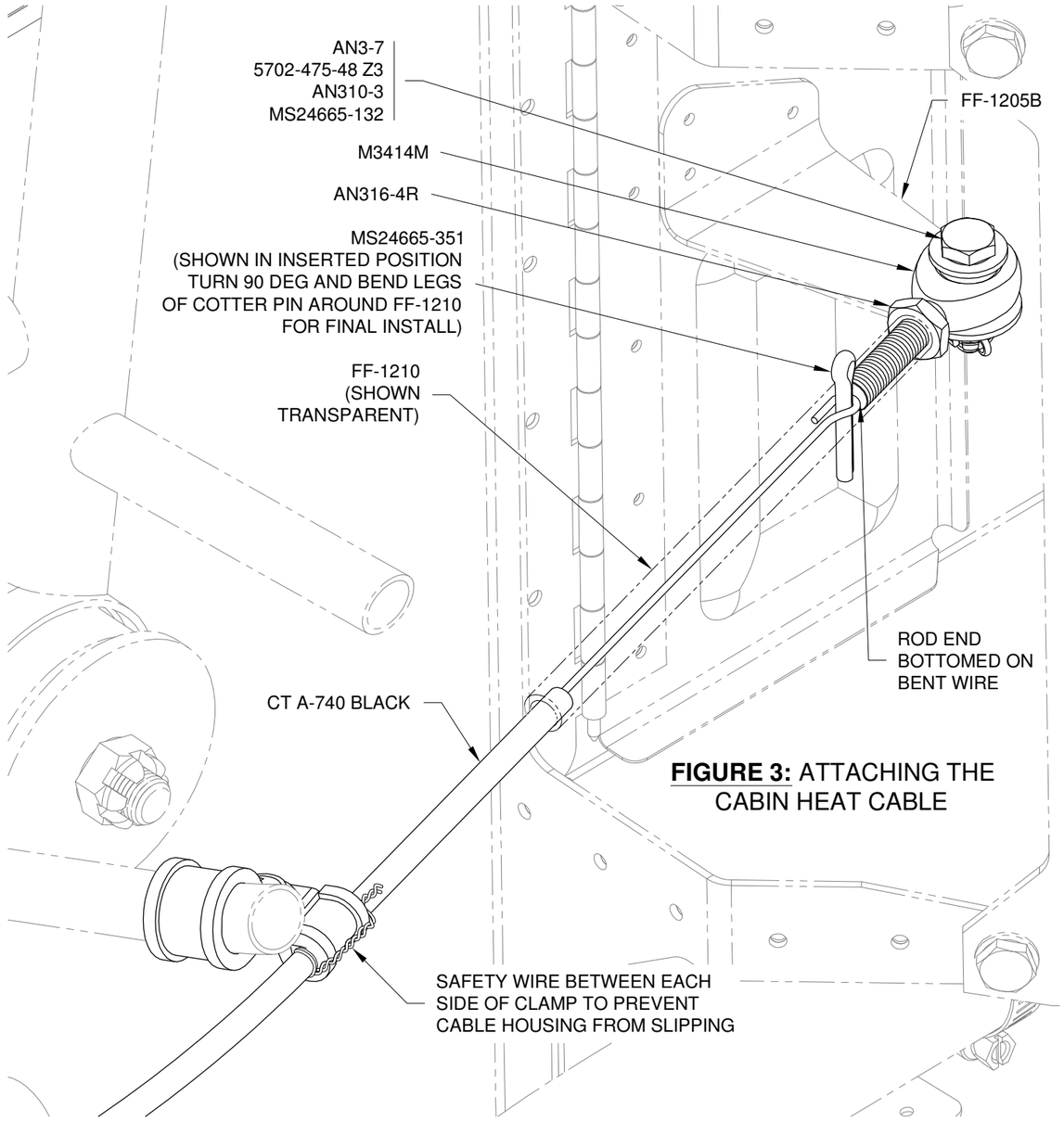


FIGURE 3: ATTACHING THE CABIN HEAT CABLE

NOTE: For the following steps refer to Figure 1.

Step 1: Deburr the edges of the FF-1212-1 Oil Cooler Frame Top, FF-1213-1 Oil Cooler Frame Bottom and the FF-1214-1 Oil Cooler Faceplate. Ensure the two slots in the oil cooler frame have been fully deburred.

Step 2: Chamfer the bottom forward edges of the oil cooler frame to fit snugly against the inside of the Cowl 12 Cooling Duct.

Step 3: Cleco together the Oil Cooler Box Assembly as shown.

Step 4: Final-Drill #40 the holes called out, then un-cleco the assembly.

Step 5: Except for the holes called out, machine-countersink the holes on the forward face of the FF-1214-1 Oil Cooler Faceplate flush on the forward side.

Step 6: Machine-countersink the eight holes on the sides of the FF-1214-1 Oil Cooler Faceplate flush on the outboard sides.

Step 7: Except as noted in Figure 1, cleco, then rivet the FF-1212-1 Oil Cooler Frame Top to the FF-1214-1 Oil Cooler Faceplate.

Step 8: Fabricate a rectangular plate from a piece of flat wood using the dimensions shown in Figure 2.

NOTE: Complete Steps 9-14 in one work session.

Step 9: Apply a 1/8 in. [3.18 mm] thick line of RTV to the inside of the Oil Cooler Box Assembly where shown in Figure 1.

Step 10: Tilt the oil cooler to keep it out of the RTV as much as possible, then slide it into the Oil Cooler Box Assembly.

Step 11: Cleco, then rivet the FF-1213-1 Oil Cooler Frame Bottom to the Oil Cooler Box Assembly as shown in Figure 1.

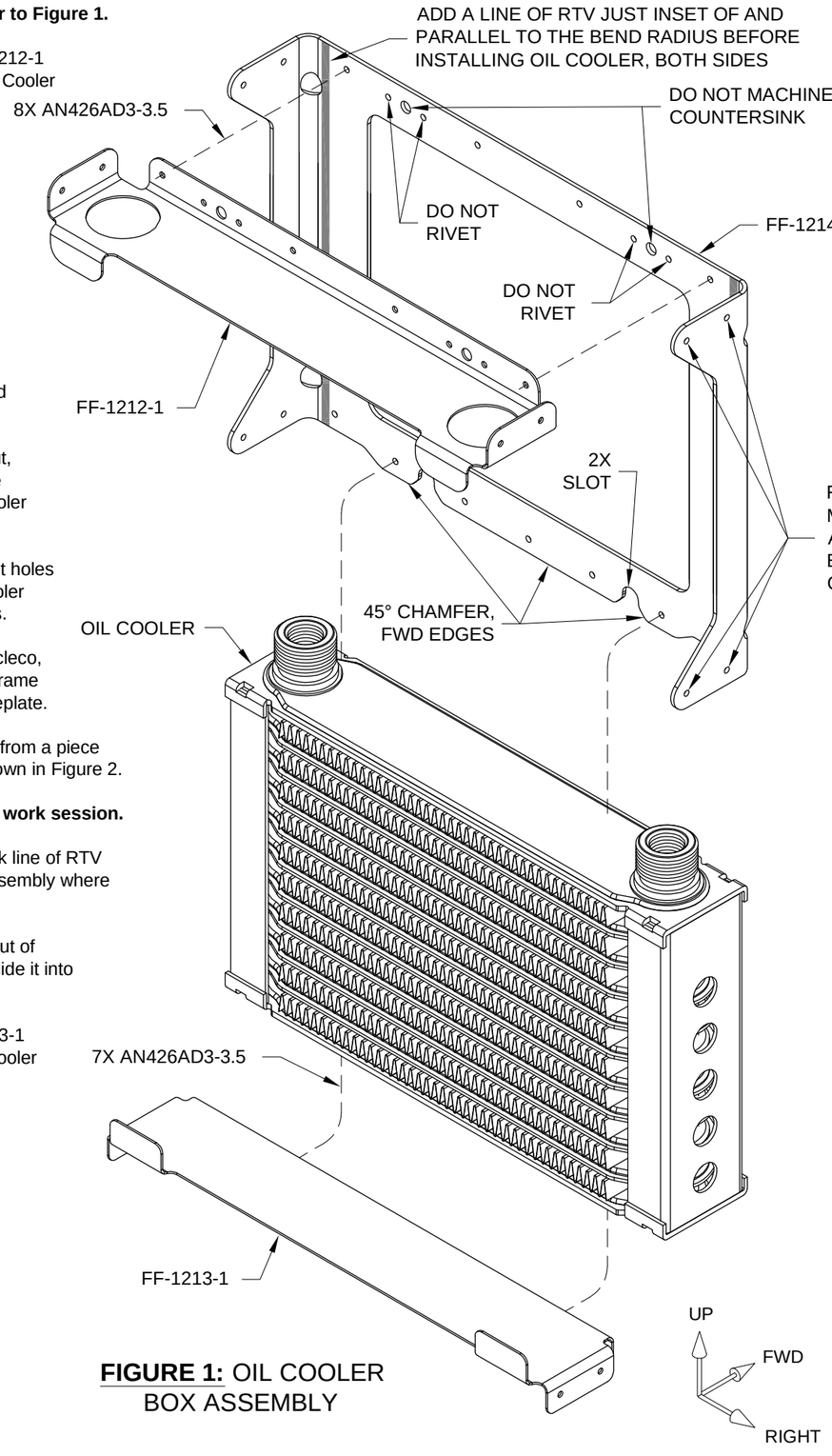


FIGURE 1: OIL COOLER BOX ASSEMBLY

Step 12: Position the rectangular plate on the face of the oil cooler as shown in Figure 2.

Step 13: Apply approximately 20 lbs [9.1 kg] to the plate to ensure that the oil cooler is seated fully in the Oil Cooler Box Assembly.

Step 14: Apply RTV underneath the Oil Cooler Box Assembly tabs as shown in Figure 2.

NOTE: Do not disturb the Oil Cooler Box Assembly further until the RTV has cured.

Step 15: Install the 956 643 Hose Nipples and 230 387 Gasket Rings into the oil cooler as shown in Figure 2. Use Loctite 243 on the lower threads of the hose nipples.

Step 16: Plug the 956 643 Hose Nipples to prevent construction debris from entering the oil cooler.

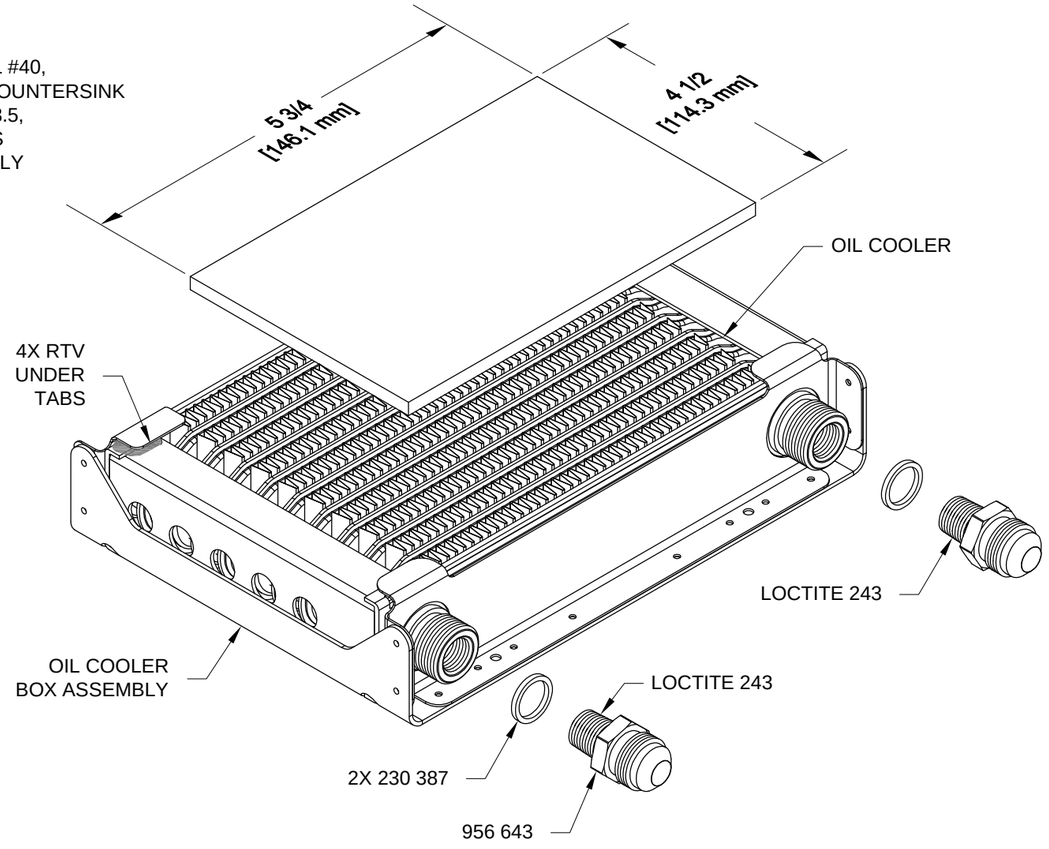


FIGURE 2: OIL COOLER BOX FINAL ASSEMBLY

Step 1: Use snips to trim the COWL 12 COOLING DUCT to within 1/16 of the scribe lines which match the shape of the cutout in the Oil Cooler Box Assembly. Trim away the area inside the scribe line for the oil cooler opening on the cooling duct. Sand the remaining material away to the scribe lines.

Step 2: Align the oil cooler opening in the COWL 12 COOLING DUCT with the opening/fin area on the Oil Cooler Box Assembly, then clamp the two together at the bottom flange of the Oil Cooler Box Assembly. See Figure 2.

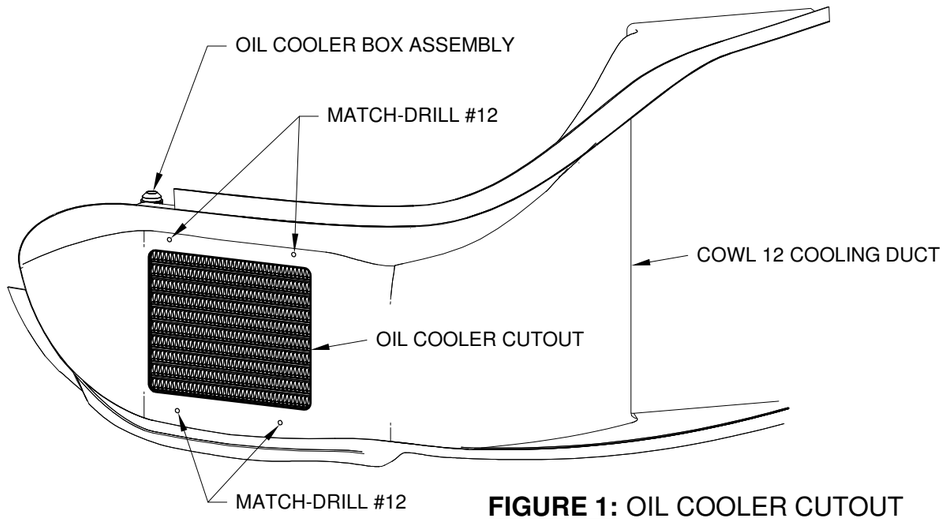


FIGURE 1: OIL COOLER CUTOUT

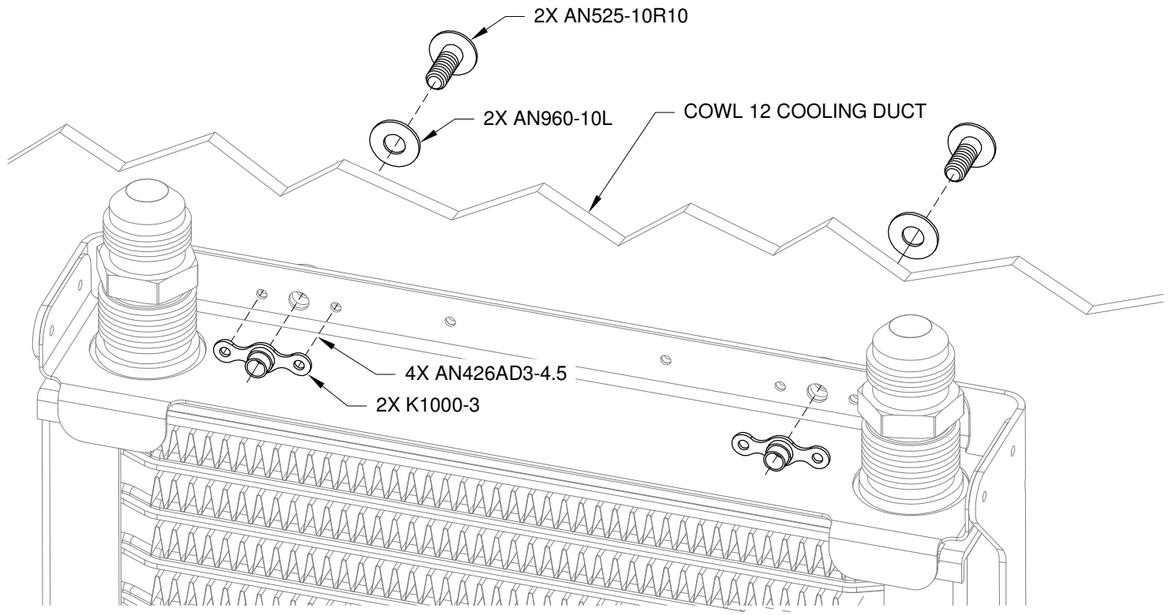


FIGURE 2: INSTALLING THE OIL COOLER ASSEMBLY

Step 3: Match-Drill #12 the two attach holes in the top flange of the Oil Cooler Box Assembly into the COWL 12 COOLING DUCT.

Step 4: Unclamp the Oil Cooler Box Assembly from the COWL 12 COOLING DUCT, then install the nutplates shown in Figure 2.

Step 5: Attach the Oil Cooler Box Assembly to the COWL 12 COOLING DUCT using the hardware called out in Figure 2.

Step 6: Press the COWL 12 GUIDE tightly into the top of each slot in the bottom edge of the Oil Cooler Box Assembly as shown in Figure 3 and match-drill #12 the hole in the guide into the COWL 12 COOLING DUCT.

Step 7: Attach the COWL 12 GUIDE to the COWL 12 COOLING DUCT using the hardware called out in Figure 3.

Step 8: Remove the Oil Cooler Box Assembly.

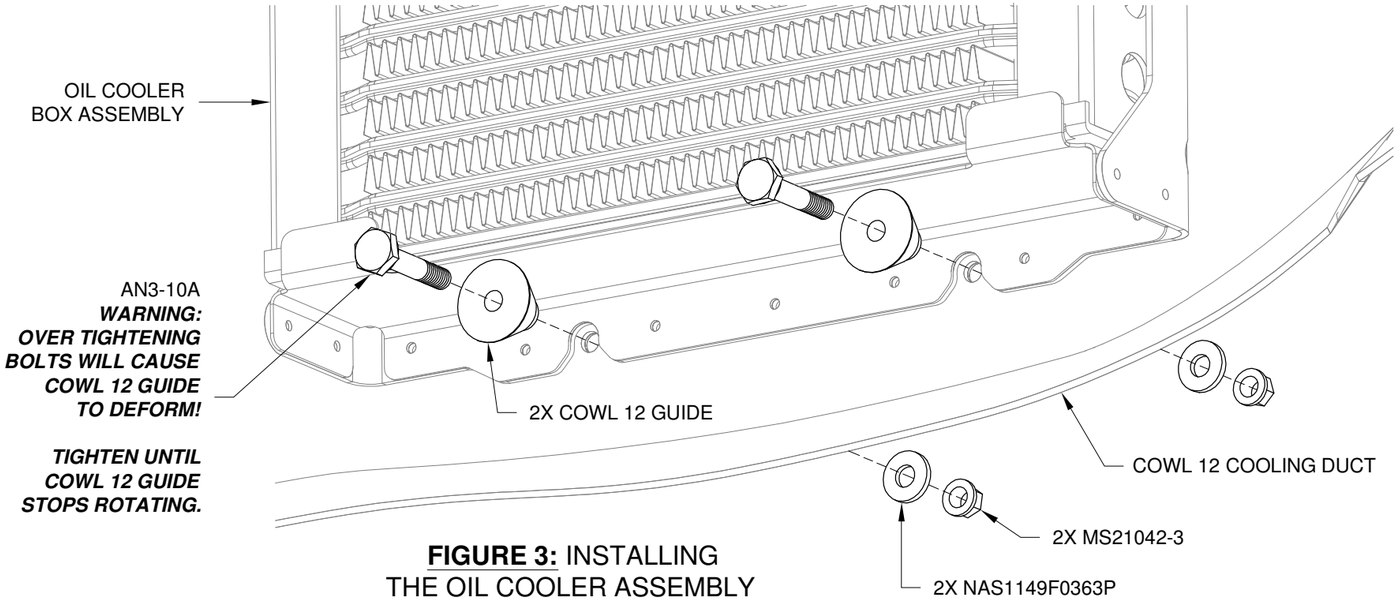


FIGURE 3: INSTALLING THE OIL COOLER ASSEMBLY

NOTE: If required, refer to Section 5.18 MATCH-DRILLING OPAQUE FIBERLGASS PARTS.

Step 1: Except for the edge noted in Figure 1 trim the COWL 12 DUCT INTERFACE with snips to within 1/16 of the scribe lines then sand the remaining material away to the scribe lines.

Step 2: Remove the left hinge pin attaching the COWL 12 BOTTOM to the fuselage. This will allow the cowling to be flexed enough to insert the COWL 12 COOLING DUCT into position. Re-install the hinge pin.

Step 3: Align the front of the COWL 12 COOLING DUCT with the oval shaped air inlet on the front of the COWL 12 BOTTOM per the detail view in Figure 2, View A-A. This may require trimming the aft edge of the cooling duct to the forward face of the EA RV-12 RADIATOR.

Step 4: Using the dimension in Figure 2, View C-C clamp the the COWL 12 COOLING DUCT to the COWL 12 BOTTOM.

Step 5: Drill #40 and cleco the **top** flange of the COWL 12 COOLING DUCT to the COWL 12 BOTTOM every 6 to 8 inches. Do not worry about abandoning a mis-drilled hole and re-drilling if you decide to reposition the cooling duct slightly since the holes will be filled when finishing the lower cowl later.

Step 6: Look with a mirror through the COWL 12 BOTTOM air exit to ensure that the bottom of the COWL 12 COOLING DUCT is parallel to the bottom of the EA RV-12 RADIATOR. Drill #40 a single hole in the bottom flange of the cooling duct near the aft edge.

Step 7: Remove the COWL 12 BOTTOM and check the fit of the top and bottom edges of the COWL 12 DUCT INTERFACE on the aft edge of the COWL 12 COOLING DUCT. If not satisfied with the fit of the interface repeat Step 6 to change the position of the cooling duct's bottom flange. When satisfied drill #40 and cleco the bottom flange of the duct interface to the cowl bottom every 6 to 8 inches. Re-install the cowl bottom.

Step 8: Mark the COWL 12 COOLING DUCT 5/16 of an inch away from the FF-1209 Seal Face. Remove the COWL 12 BOTTOM and cooling duct and trim away material aft of the marked line to make room for the COWL 12 DUCT INTERFACE.

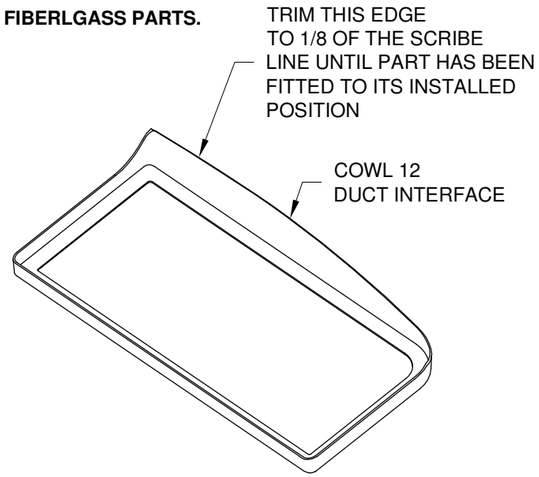


FIGURE 1: TRIMMING THE DUCT INTERFACE

Step 9: Slide the COWL 12 DUCT INTERFACE over the aft trimmed edge of the COWL 12 COOLING DUCT. Material may need to be removed from the outboard flange of the duct interface abutting the COWL 12 BOTTOM. When satisfied with the fit of the duct interface to the cooling duct, reinstall the cowl bottom with the interface in place. See Figure 2.

Step 10: Use 1/4 inch thick spacers to evenly space the top and sides of the COWL 12 DUCT INTERFACE off of the FF-1209 Seal Face (the COWL 12 COOLING DUCT may need to be trimmed further). See Figure 2, View B-B. Drill #40 and cleco the duct interface to the top and side of the COWL 12 COOLING DUCT in several locations. Remove the COWL 12 BOTTOM and continue drilling #40 the lower and bottom sides that were inaccessible with the cowl bottom installed. See Figure 2.

Step 11: Mark the edges of the COWL 12 COOLING DUCT on the COWL 12 BOTTOM.

Step 12: Remove the clecos holding the COWL 12 DUCT INTERFACE, COWL 12 BOTTOM and COWL 12 COOLING DUCT together.

Step 13: Use 100 grit sand paper to sand the entire bonding areas between the COWL 12 DUCT INTERFACE, COWL 12 BOTTOM and COWL 12 COOLING DUCT. Also sand the areas where layups will be made, see Page 49-12.

Step 14: Drill #30 two drain holes in the COWL 12 COOLING DUCT as shown in Figure 2. Be careful to not drill through the outside of the COWL 12 BOTTOM.

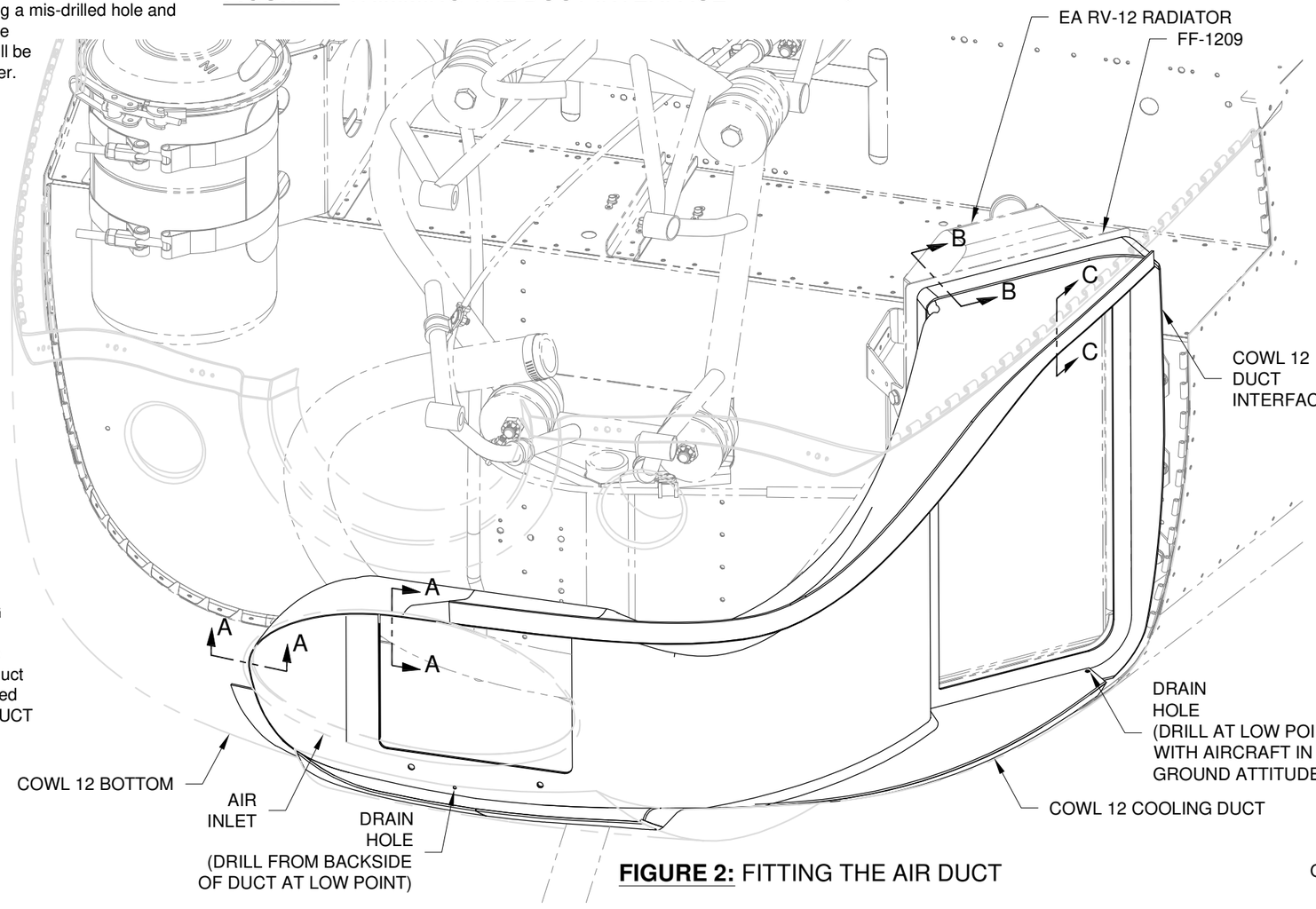
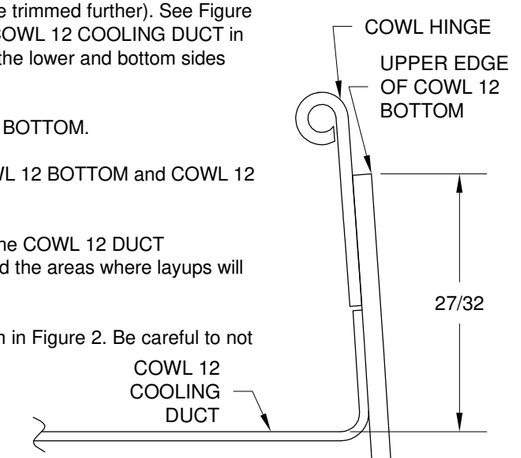
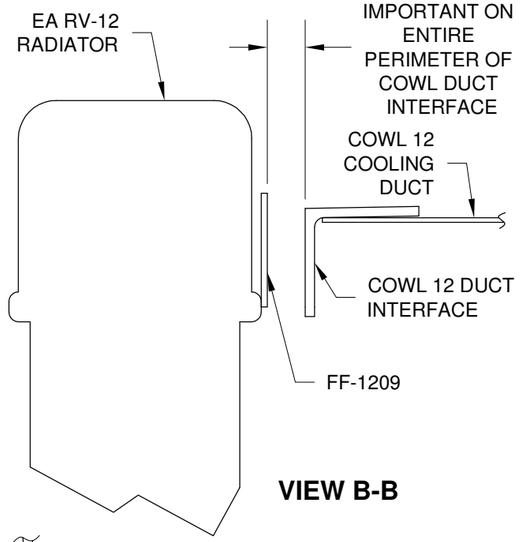


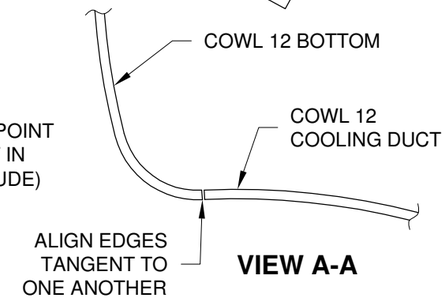
FIGURE 2: FITTING THE AIR DUCT



VIEW C-C



VIEW B-B



VIEW A-A

NOTE: Read through the remainder of this page and precut any fiberglass strips that will be required before mixing up epoxy. Use the same fiberglass cloth used on the canopy fairing. All steps on this page should be done in one work session. Plan on 2 - 3 hours of work time.

NOTE: Prepare all bonding surfaces with a light coat of epoxy resin before applying flox epoxy resin mixture.

Step 1: Install the Oil Cooler Box Assembly.

Step 2: Prepare approximately 4-5 fluid o.z. (1/3+ of a 12 oz. Solo Drink Cup) of flox epoxy resin mixture. Mix in flox until the concoction is just thick enough not to pour from the cup.

Step 3: Place the flox epoxy resin mixture in a appropriate size ziplock bag, remove all air and seal the bag. Cut one corner of the bag to produce a 1/8 - 3/16 inch wide hole.

Step 4: Apply a 3/16 inch bead of flox epoxy resin mixture around the aft perimeter of the COWL 12 COOLING DUCT, slightly squeeze the aft ends of the cooling duct together (a helper is a good idea), then slide the COWL 12 DUCT INTERFACE in place (avoid wiping the flox mixture). Cleco the duct interface to the cooling duct from the inside.

Step 5: Apply a 3/16 inch bead of flox epoxy resin mixture to the flange areas of the COWL 12 COOLING DUCT. Cleco the cooling duct to the COWL 12 BOTTOM. Use pop-sicle sticks to remove excess flox epoxy resin mixture.

Step 6: Install fiberglass strips 1 3/4 inch wide bridging the joint between the COWL 12 DUCT INTERFACE and the COWL 12 BOTTOM. See Figure 1.

Step 7: Install 1 3/4 inch wide fiberglass strips along the upper aft edge of the COWL 12 COOLING DUCT and the COWL 12 BOTTOM junction (Step 6 Area). See Figure 1.

Step 8: Install 1 3/4 inch wide fiberglass strips to the COWL 12 BOTTOM and COWL 12 COOLING DUCT Air Duct in the upper right region of the oval shaped air inlet on the front of the cowl. See Figure 2.

Step 9: Install both the COWL 12 BOTTOM and COWL 12 TOP to the aircraft with all pins and screws until resin is fully cured.

Step 10: Look on the inside of the oval air inlet flange at the front of the COWL 12 BOTTOM. If gaps between the bottom cowl and the COWL 12 COOLING DUCT are large, fill them with a flox epoxy resin mixture. If they are minor then fill them with a polyester based body filler (Bondo). Sand this junction smooth to blend the lip of the oval air inlet to the inner surface of the cooling duct.

Step 11: Remove clecos and fill holes with flox epoxy mixture. Double check that drain holes are still open.

Step 12: Cut out the label printed on Page 49-19 (or photo copy label if preferred) and position on top of the COWL 12 COOLING DUCT as shown in Figure 2. A glue stick may be used on the back of the label to tack it in place.

Brush over the label with epoxy resin so that the label is well coated and bonded with the cooling duct.

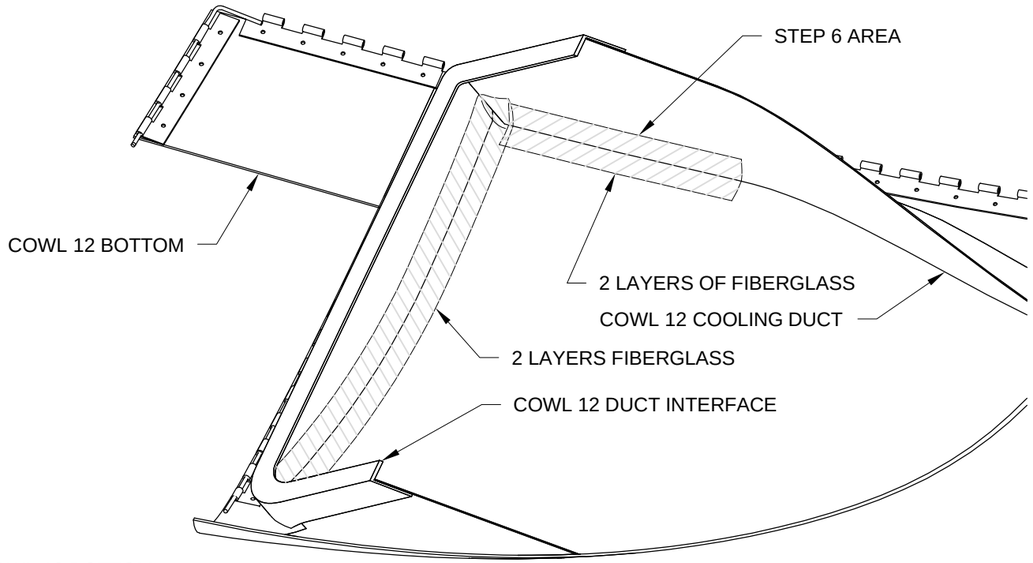


FIGURE 1: BONDING THE COOLING DUCT AND INTERFACE

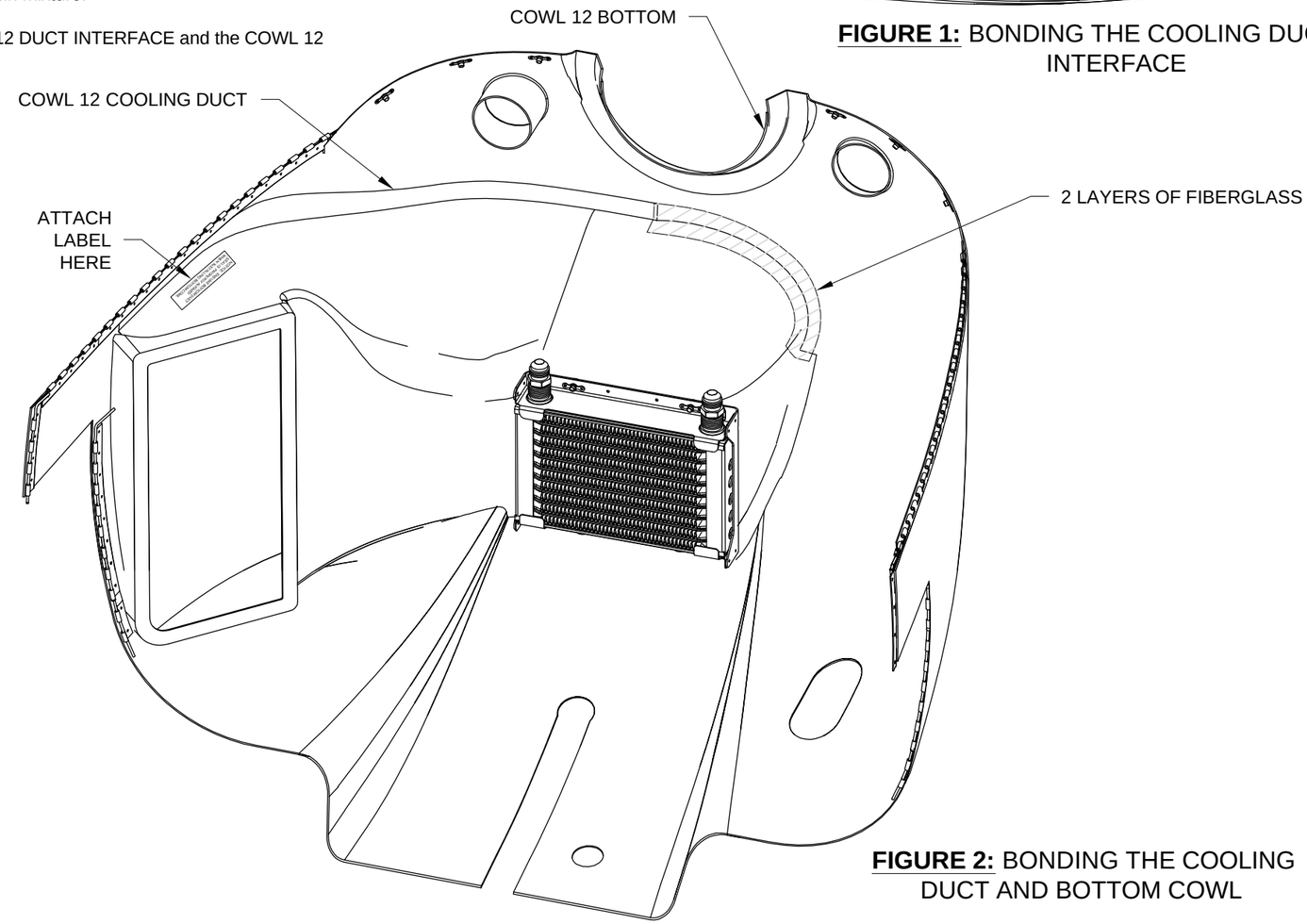


FIGURE 2: BONDING THE COOLING DUCT AND BOTTOM COWL

Step 1: Cut VA-198 P-Seal material into lengths shown in Figure 1 to create the COWL 12 DUCT SEAL A, B & C.

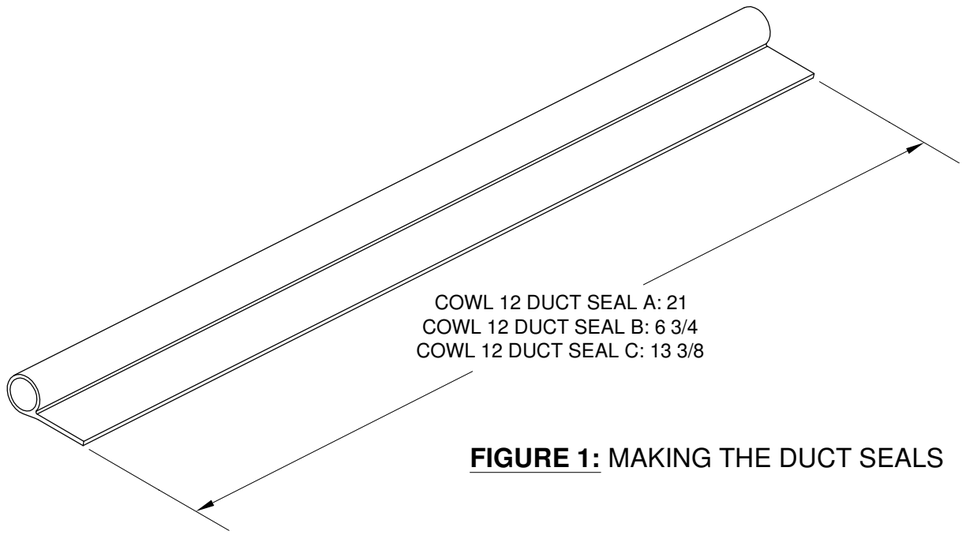


FIGURE 1: MAKING THE DUCT SEALS

Step 2: Sand the entire bonding area on the perimeter of the COWL DUCT INTERFACE with 100 grit sandpaper.

Step 3: Clean COWL 12 DUCT SEAL A, B & C with denatured alcohol.

Step 4: Bond the seals to the COWL DUCT INTERFACE using silicone (use scrap aluminum and clamps on the curved area).

Step 5: After the silicone is dry, use a razor blade to slit the lower outboard portion of the COWL DUCT SEAL C to allow the seal to compress without bunching up.

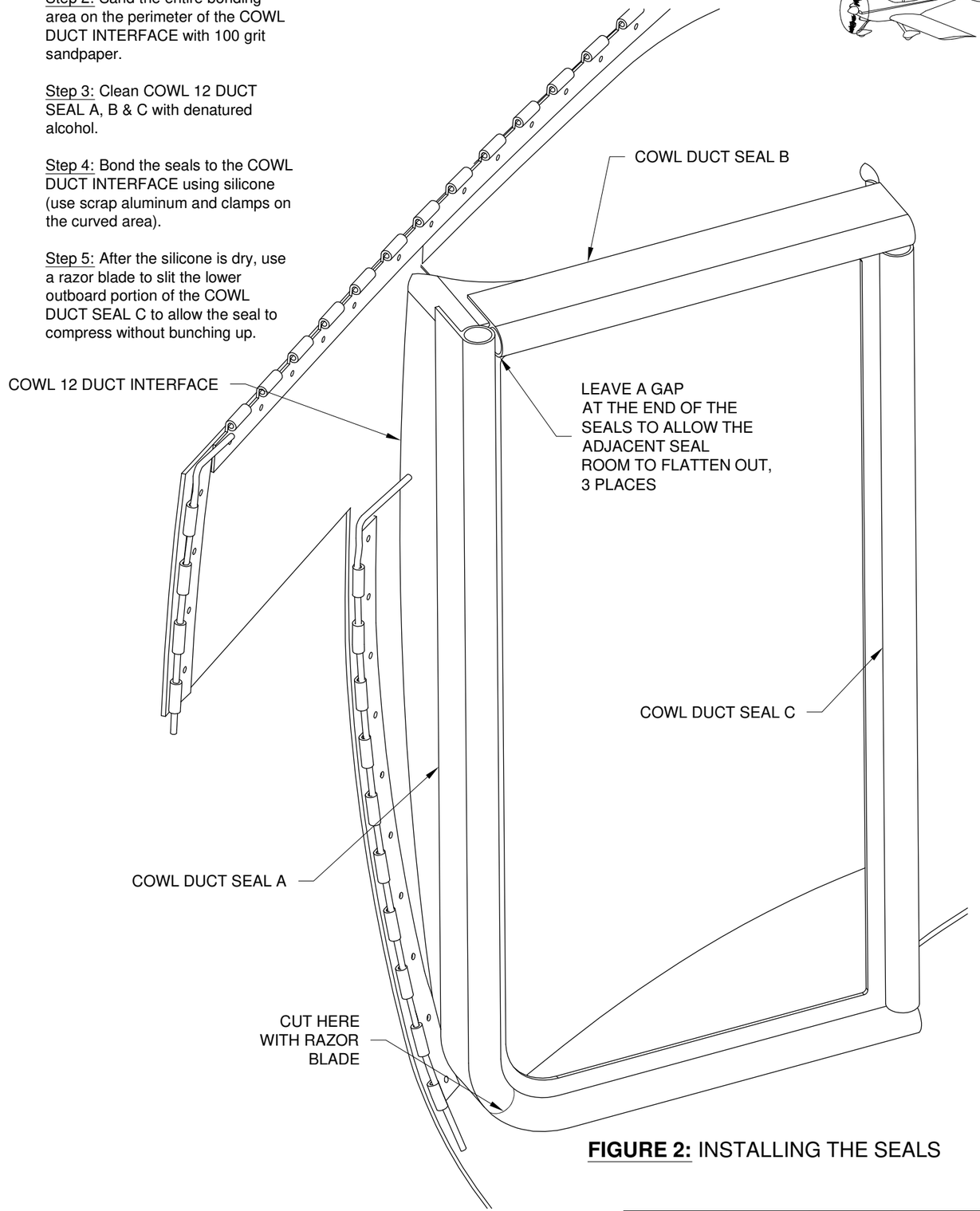


FIGURE 2: INSTALLING THE SEALS

Step 1: Use newspaper and scissors to make paper templates for the COWL-00100 Heat Shield shown in Figure 1.

Tape the templates to the inside of the COWL 12 BOTTOM, then temporarily hold the cowl in the installed position and note the location of the EXH-1201 Cylinder #1 Exhaust Pipe and EXH-1202 Cylinder #2 Exhaust Pipe. Check that each template in the area of the exhaust pipes are roughly centered about the exhaust pipe location nearest the cowl surface.

Step 2: Lightly mark the edges of the templates onto the COWL 12 BOTTOM. Remove the templates and scuff the areas of the cowl around the edge of the templates using heavy grit sandpaper.

Step 3: Lay the templates created in Figure 1 over the COWL-00100 Heat Shield, trace and cut out parts.

Step 4: Add the COWL-00100 Heat Shield parts to the inside of the COWL 12 BOTTOM as shown in Figure 1.

Step 5: Seal the edges of the COWL-00100 Heat Shield parts with epoxy resin.

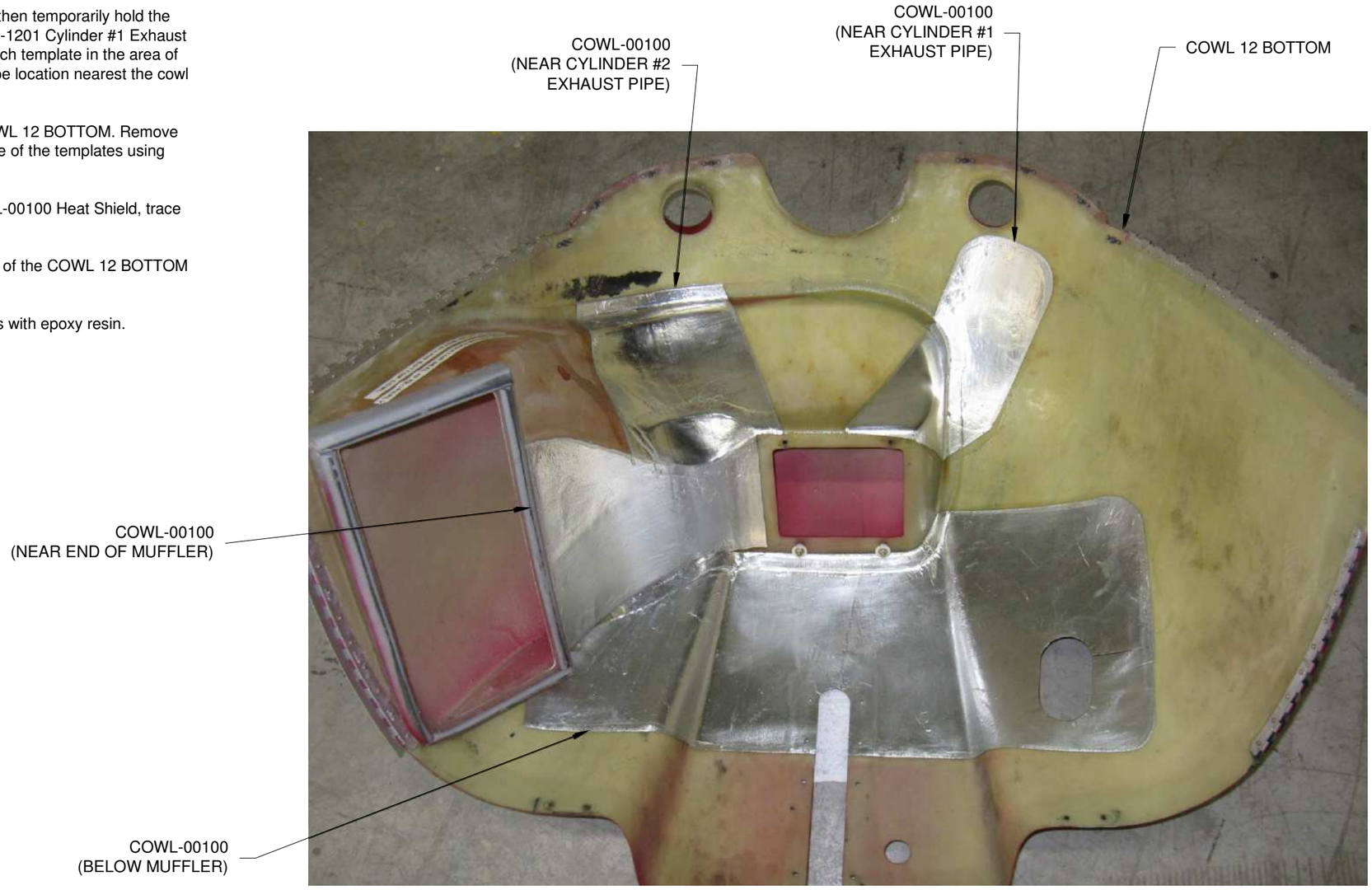


FIGURE 1: COWL HEAT SHIELD

NOTE: It is important to install the hoses without the lines being pushed or twisted into position. When the cowling is removed the lines will then hold the oil cooler in position; which will make installing the cowl and oil cooler much easier.

Step 1: Remove the lower nut holding the Cylinder #1 Exhaust Pipe and install the FF-1221 Hose Bracket as shown in Figure 2.

NOTE: Temporarily loosen the clamps holding the 956 426 Oil Tank Assembly to allow rotating for the best fit of the oil hoses.

Step 2: Install the VA-213 Oil Supply Hose between the out port of the 956 426 Oil Tank Assembly and the Left Oil Cooler Nipple (finger tight) as shown in Figure 1 and Figure 2. Pass the hose behind the WD-1221 Engine Mount Standoff. See Figures on Page 49-18.

Step 3: Install the VA-214 Oil Cooler Hose between the Right Oil Cooler Nipple (finger tight) and the oil pump inlet nipple on the front of the engine as shown in Figure 1 and Figure 2.

Step 4: Attach a cushioned clamp to the FF-1221 Hose Bracket and around the VA-214 Oil Cooler Hose as shown in Figure 2.

Step 5: Install the VA-215 Oil Return Hose between the in port of the 956 426 Oil Tank Assembly and the oil return nipple on the bottom of the engine as shown in Figure 1 and Figure 3. Pass the hose between the WD-1220 Engine Mount and the WD-1221 Engine Mount Standoff. See Figures on Page 49-18.

Step 6: With both oil cooler hoses that attach to the oil cooler only finger tight, install the COWL 12 BOTTOM and drop the Oil Cooler Box Assembly into position on the two COWL 12 GUIDES (See Page 49-12, Figure 2). Remove the bottom cowl without disturbing the hose positions then tighten the hoses. Tie-Wrap the hoses together behind the engine in the location indicated in Figure 1 and Page 49-18, Figure 1.

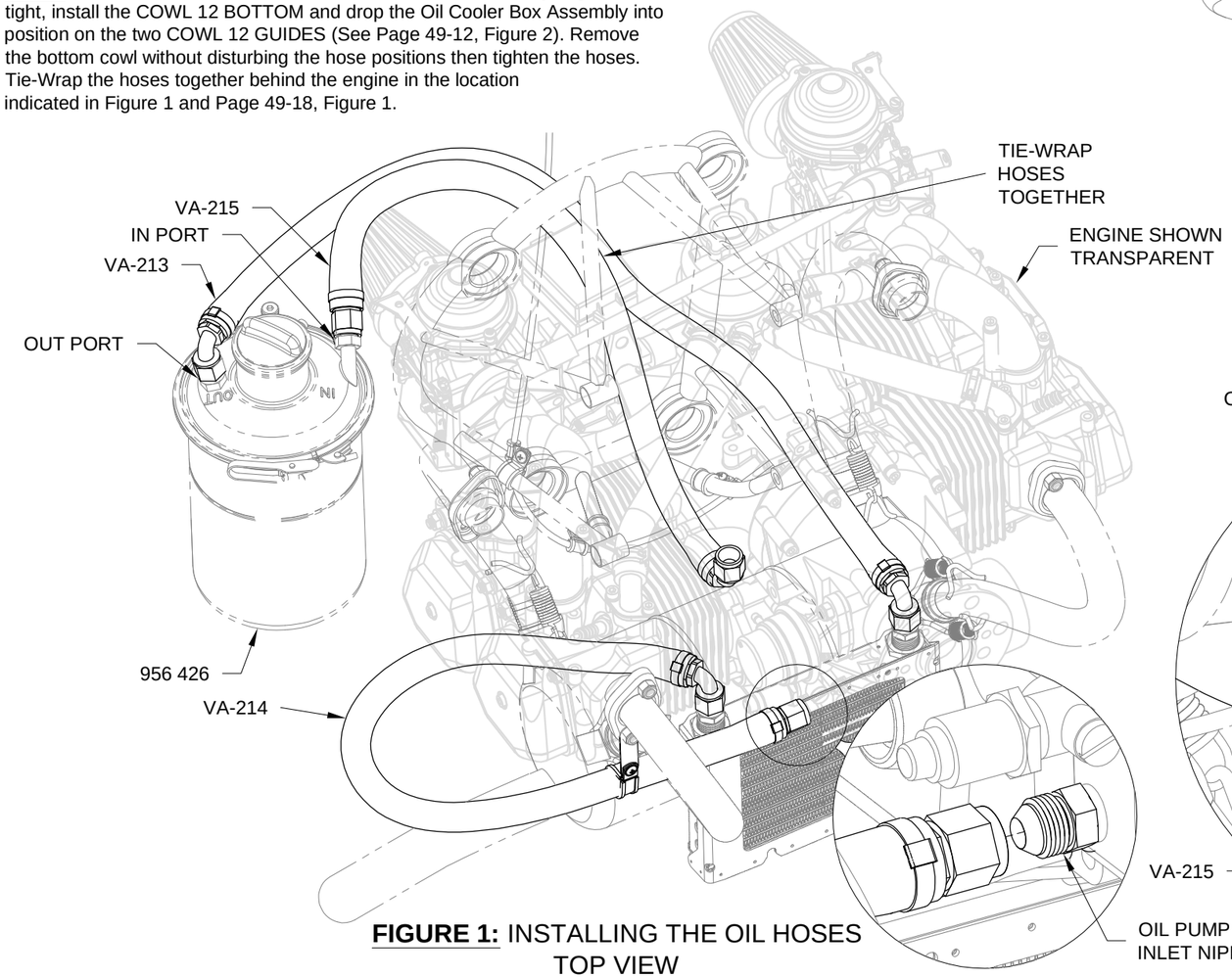


FIGURE 1: INSTALLING THE OIL HOSES TOP VIEW

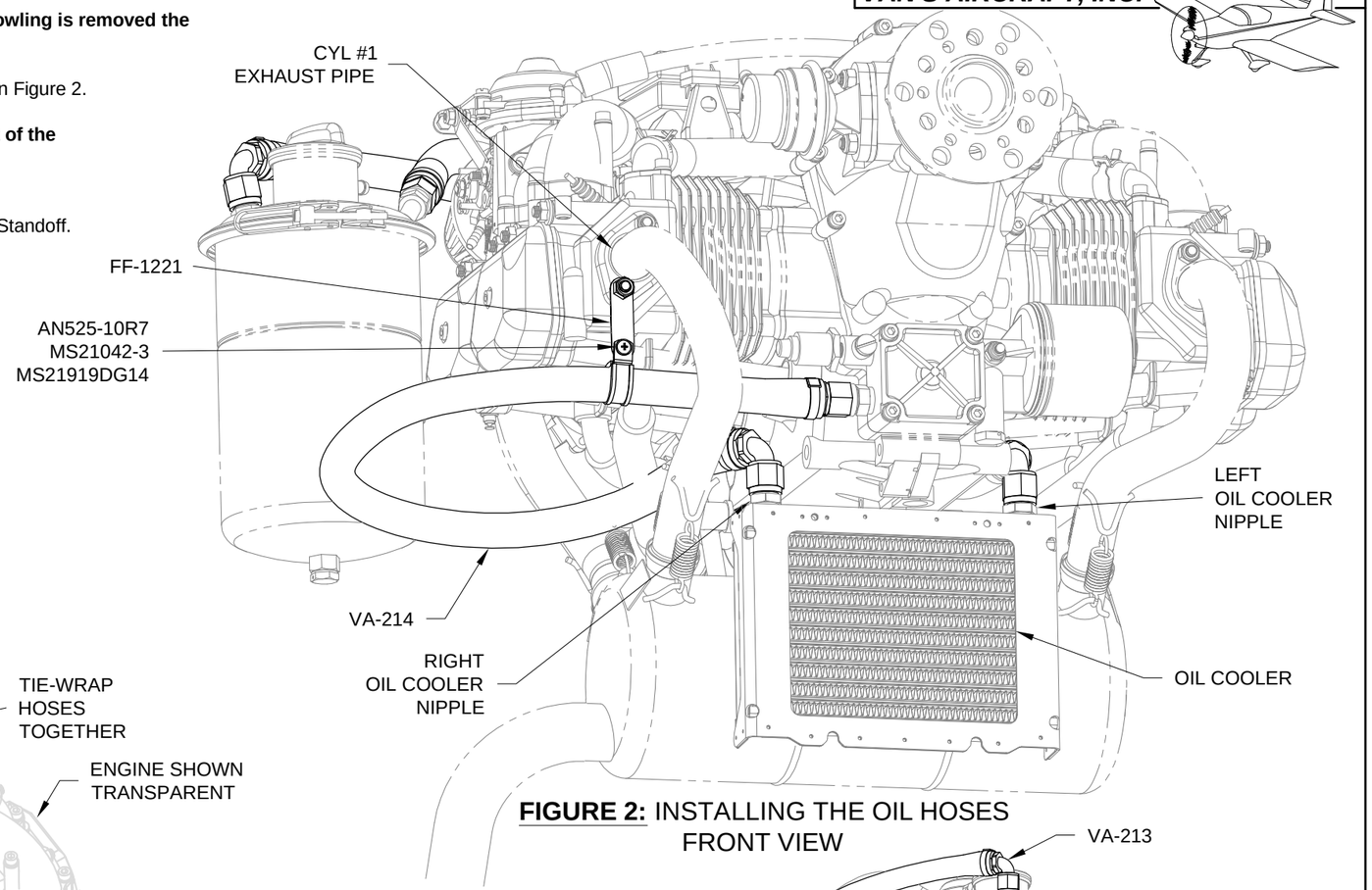


FIGURE 2: INSTALLING THE OIL HOSES FRONT VIEW

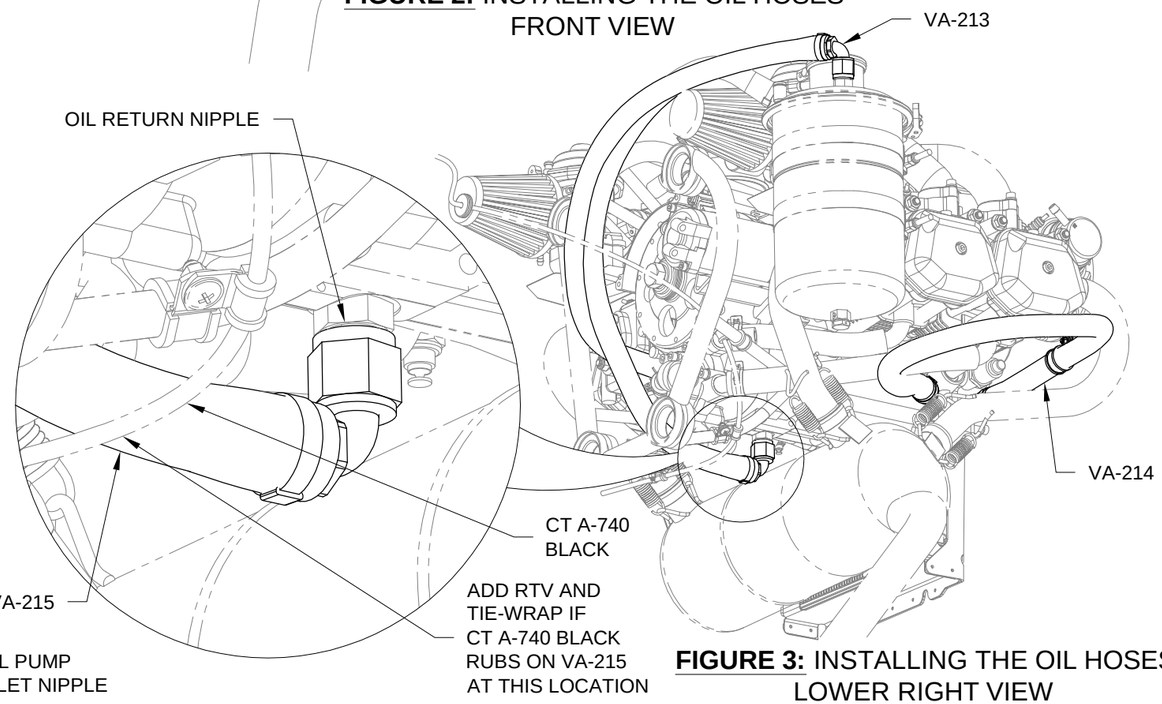


FIGURE 3: INSTALLING THE OIL HOSES LOWER RIGHT VIEW

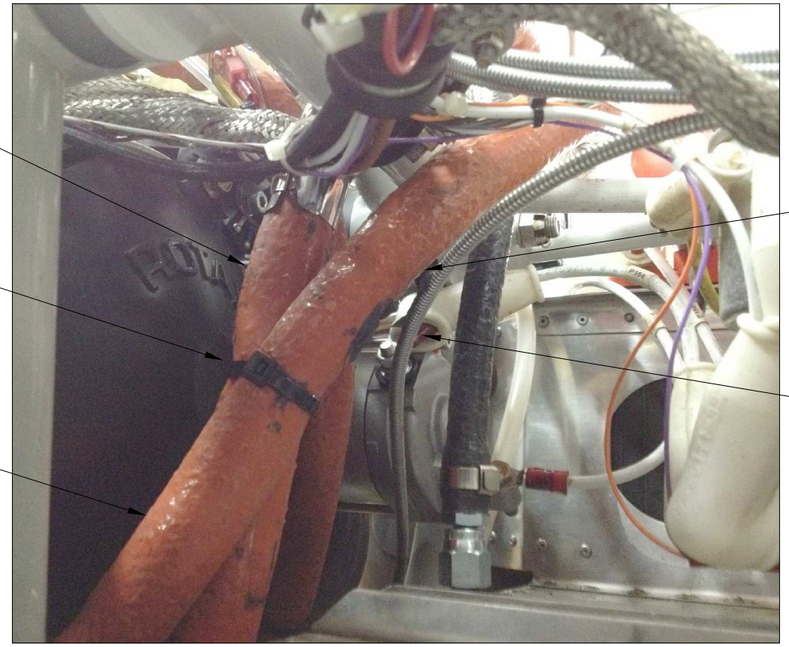


FIGURE 1: INSTALLING THE OIL HOSES VIEW FROM BELOW

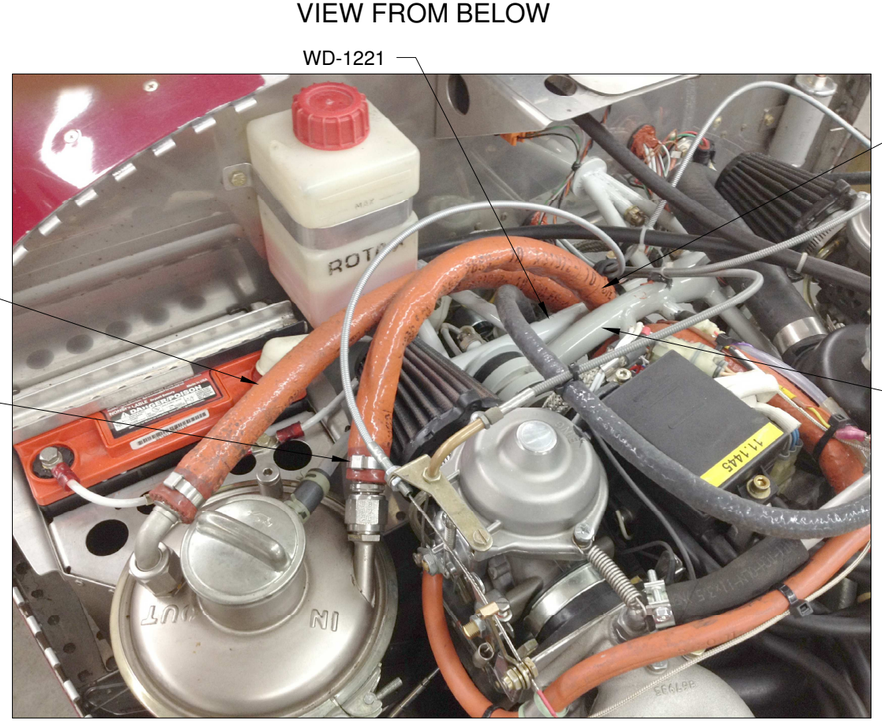


FIGURE 2: INSTALLING THE OIL HOSES VIEW FROM ABOVE

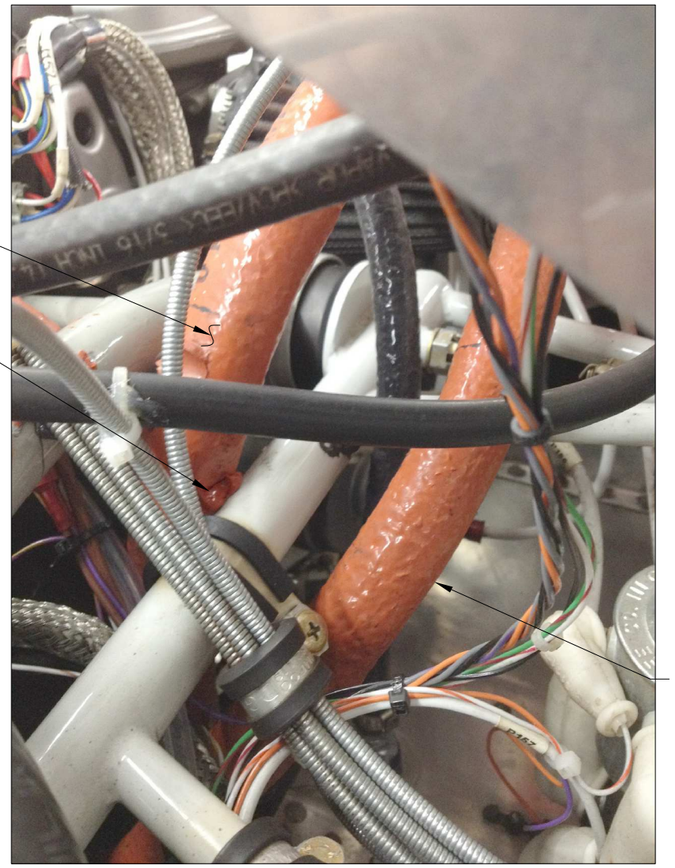


FIGURE 3: INSTALLING THE OIL HOSES ENGINE MOUNT ROUTING DETAILS

NOTICE: ENSURE BOTTOM DUCT SEAL IS PROPERLY ALIGNED AFTER INSTALLING BOTTOM COWL.

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