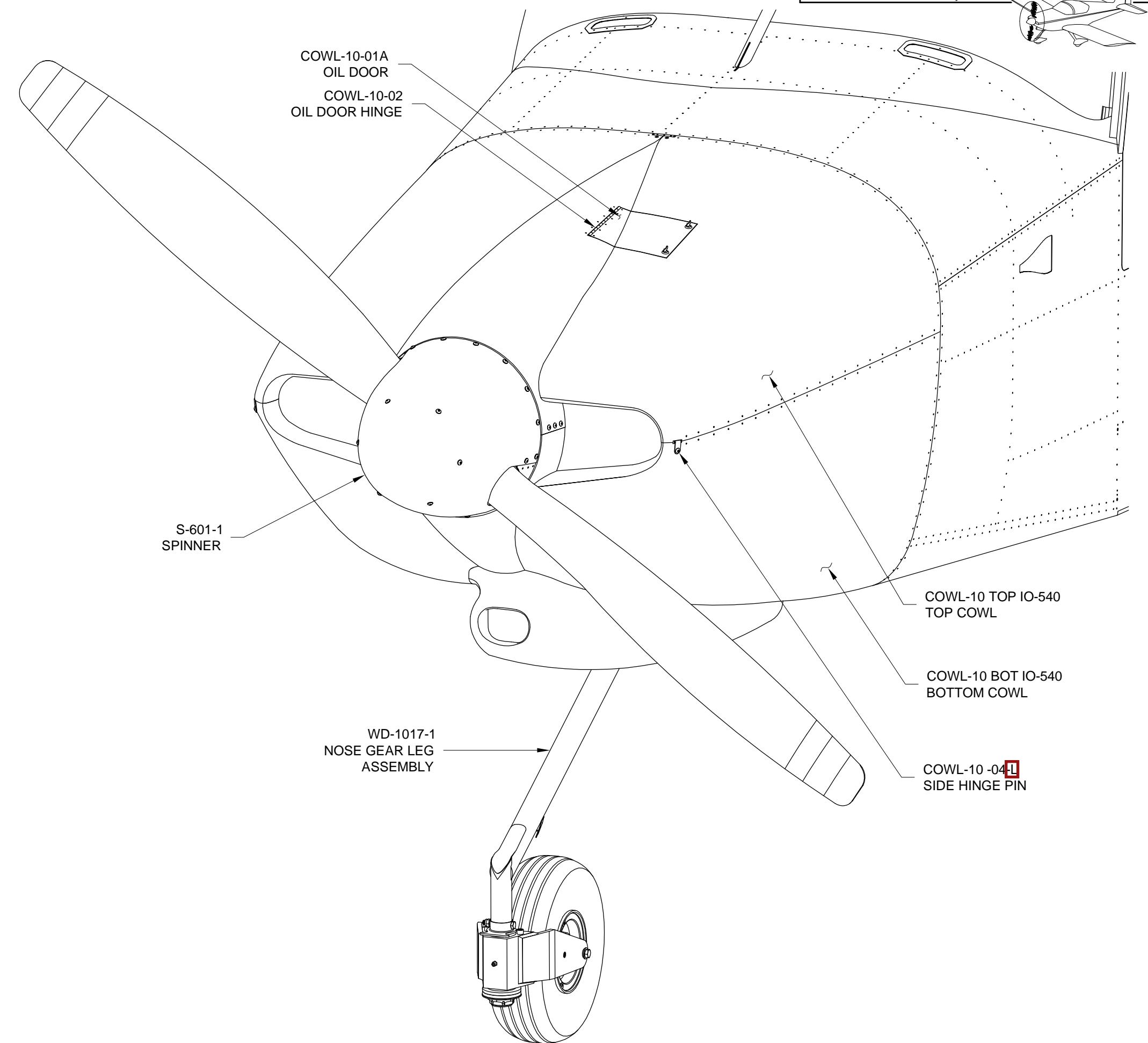
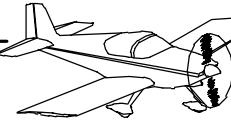


SECTION 47: SPINNER & COWLING





VAN'S AIRCRAFT, INC.

CAUTION: Before continuing, read the documentation concerning propeller installation included with your propeller and engine.

Step 1: As shown in Figure 1, locate the S-602B Doubler Ring on the S-602-1 Spinner Back Plate using bolts through the four holes in both parts.

Match-Drill #30 all of the 1/8" holes of the doubler ring into the spinner back plate and cleco.

Step 2: Trace the inside perimeter of the S-602B Doubler Ring onto the S-602-1 Spinner Back Plate. Remove the doubler ring, then cut along the trace to remove the hatched area (shown in Figure 1) from the spinner back plate.

Step 3: Deburr the holes and edges of both parts, prime if/as desired, then rivet them together using the rivets called-out in Figure 1.

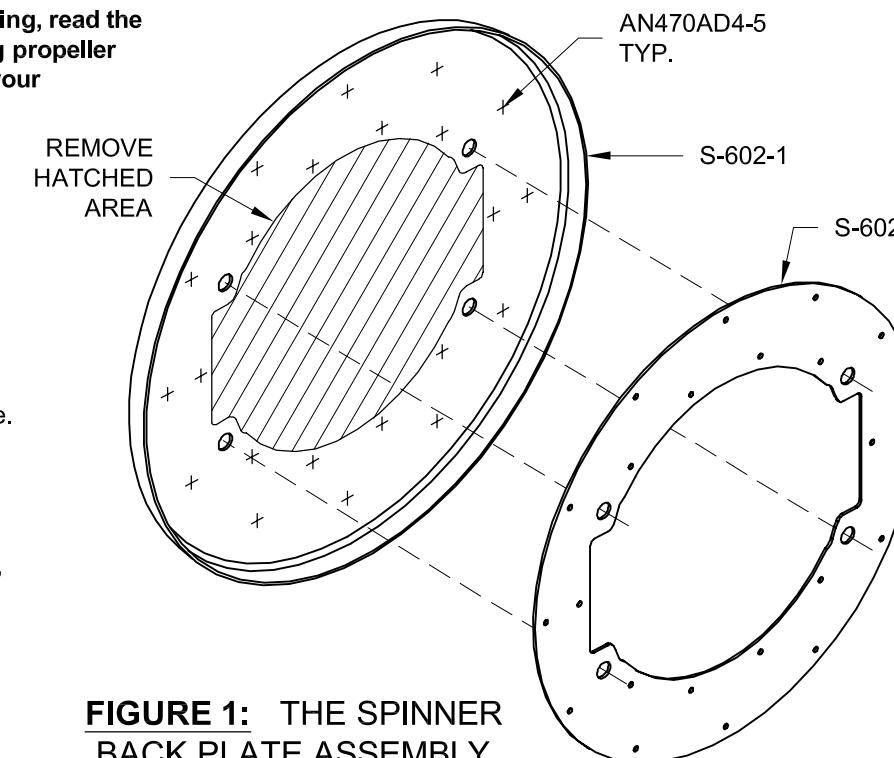


FIGURE 1: THE SPINNER BACK PLATE ASSEMBLY

Step 4: Secure the Spinner Back Plate Assembly and the S-603 Spinner Front Plate to the propeller hub as shown in Figure 2. The spacers and hardware used to secure the Spinner Back Plate Assembly are supplied with the propeller. The four bolts used to secure the spinner front plate need to be safety wired when they are permanently installed. Torque according to the propeller manufacturers instructions.

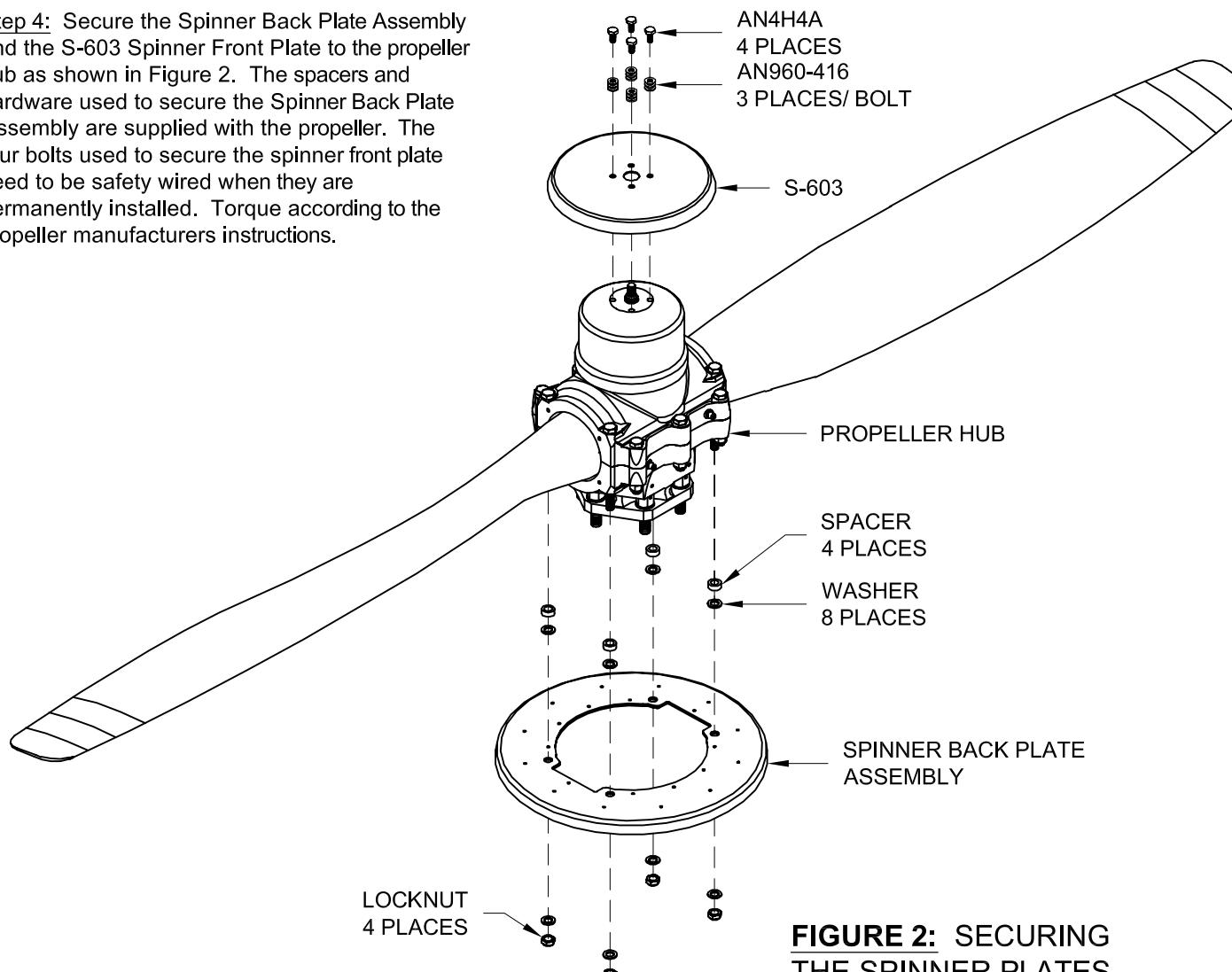


FIGURE 2: SECURING THE SPINNER PLATES

Step 5: Cut a piece of single-ply cardboard (shoe box type) to use as a template for locating the propeller blade cut-outs in the S-601-1 Spinner. Lay the cardboard over the S-603 Spinner Front Plate and the Spinner Back Plate Assembly as shown in Figure 3.

Make a cut-out in the cardboard that fits the contour of the propeller blade and that extends down both sides of the propeller blade perpendicular to the Spinner Back Plate Assembly flange. Once the cut-out is made and fits the contour well, mark and trim the cardboard along the flange edge of the Spinner Back Plate Assembly as shown in Figure 3.

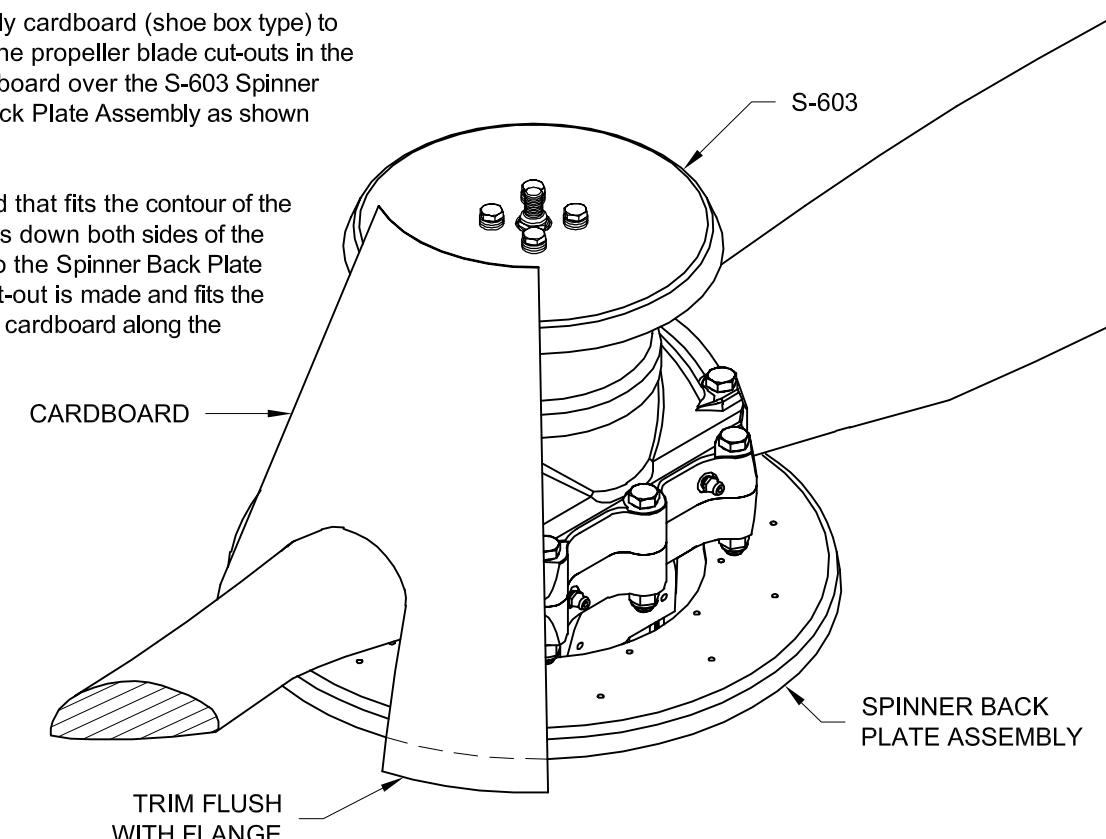


FIGURE 3: MAKING A CARDBOARD TEMPLATE

Step 6: Mark a point on the edge of the S-601-1 Spinner, then mark a second point on the edge 180° from the first point. (A good way to locate the second mark is to measure the circumference of the spinner edge and place the second mark at a distance which is a half circumference away from the first mark.)

Step 7: Lay the cardboard template on the S-601-1 Spinner with the trimmed edge of the template flush with the edge of the spinner. As shown in Figure 4, align a corner of the template with one of the marks made on the spinner in Step 6, then trace the template cut-out onto the spinner. Align the corner of the template with the second mark on the spinner, and trace the cut-out. It doesn't matter which corner of the template is used to locate it on the marks as long as the same one is used for both marks.

Step 8: Trim the S-601-1 Spinner along the traces made in Step 7.

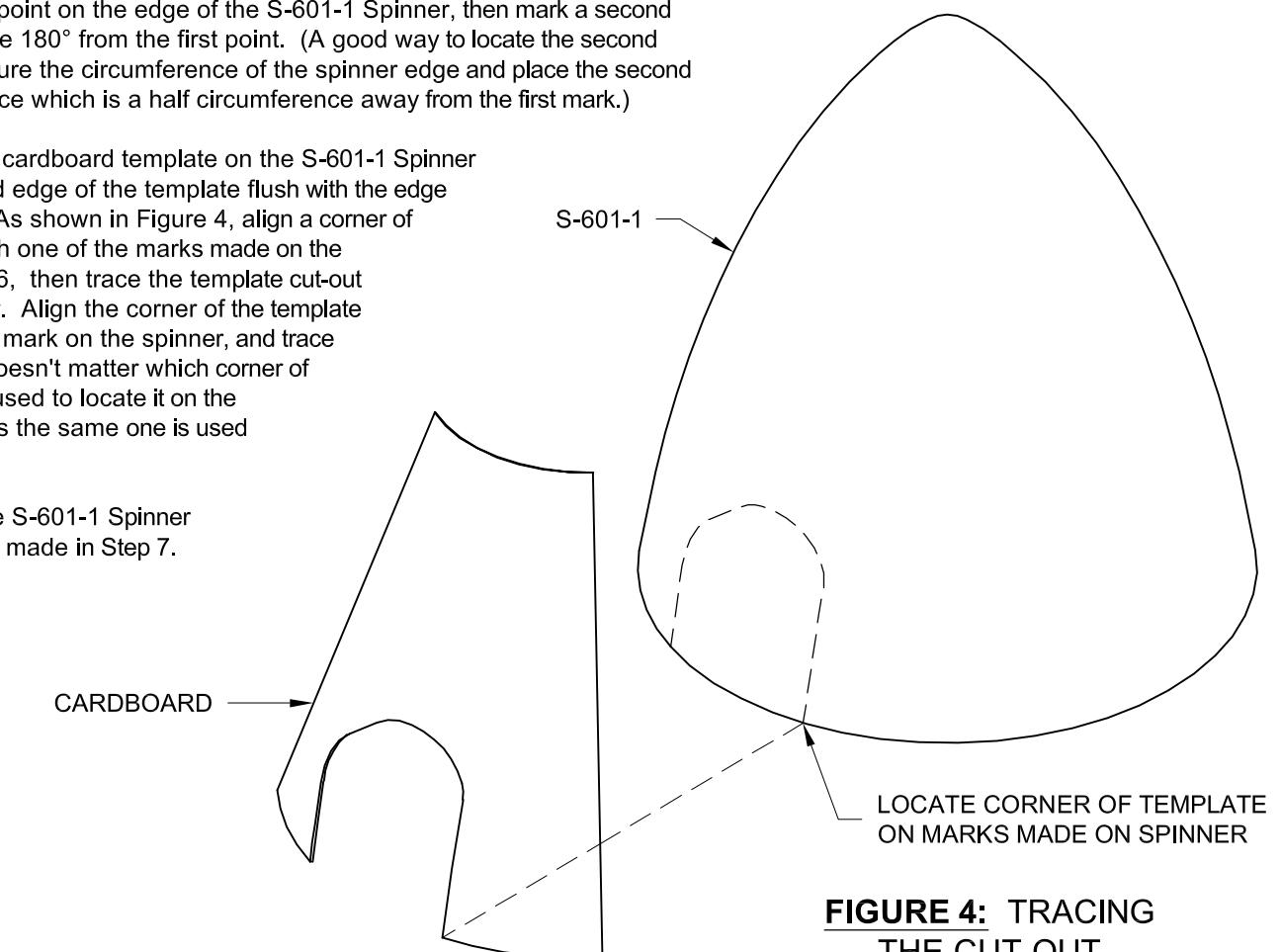
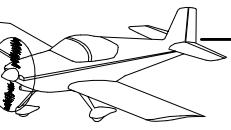


FIGURE 4: TRACING THE CUT-OUT



NOTE: If your spinner is opaque, refer to Section 5.18
MATCH-DRILLING OPAQUE FIBERGLASS PARTS for help
with locating the spinner front plate underneath the spinner.

Step 1: Slide the S-601-1 Spinner onto the propeller hub (tape around the propeller blades to protect them from being scratched by the spinner). Progressively trim the cut-outs of the spinner until it clears the propeller blades, through all blade angles, by a 1/16" to 1/8" as shown in Figure 1. Be sure the spinner is seated firmly on the propeller hub. When this is the case, the spinner will be in contact with the Spinner Back Plate Assembly (any overhang of the spinner beyond the Spinner Back Plate Assembly is trimmed after the spinner is drilled and clecoed in place).

Step 2: Mark the locations for the six screws used to secure the S-601-1 Spinner to the S-603 Spinner Front Plate, and mark the locations for the fourteen screws used to secure the spinner to the Spinner Back Plate Assembly. Locate the screws approximately as shown in Figure 1.

Step 3: Hold the S-601-1 Spinner in place by clamping it to the flange of the Spinner Back Plate Assembly. Using a #30 bit, drill pilot holes for the screws that secure the spinner to the S-603 Spinner Front Plate. Cleco while drilling.

Drill pilot holes for the screws that secure the spinner to the Spinner Back Plate Assembly. To prevent "pillowing" of the spinner between the screws, start drilling midway between the propeller blade cut-outs working outward toward the cut-outs.

Step 4: Trim any overhang of the S-601-1 Spinner beyond the Spinner Back Plate Assembly. A file works well here.

Step 5: From AS3-063 aluminum sheet, make two S-1001 Gap Fillers and two S-1002 Backing Plates to fit as shown in Figure 2. Once again, make sure there is a 1/16" to 1/8" clearance between the propeller blade and gap fillers.

Drill four #30 rivet holes for securing the gap filler to the Spinner Back Plate Assembly, and two #30 rivet holes for securing the gap filler to the backing plate. Locate the holes approximately as shown in Figure 2.

Cleco the backing plate to the gap filler, then cleco the gap filler to the Spinner Back Plate Assembly. Drill a #30 pilot hole in the S-601-1 Spinner and backing plate for the screw that will secure the two parts together.

Step 6: Final-Drill #19 all the holes common to the S-601-1 Spinner and the S-603 Spinner Front Plate, common to the spinner and Spinner Back Plate Assembly, and common to the spinner and S-1002 Backing Plate.

Step 7: Remove the S-601-1 Spinner. Drill #40 holes in the Spinner Back Plate Assembly, the S-603 Spinner Front Plate, and the S-1002 Backing Plate for the rivets used to attach the nutplates called-out in Figures 1 and 2.

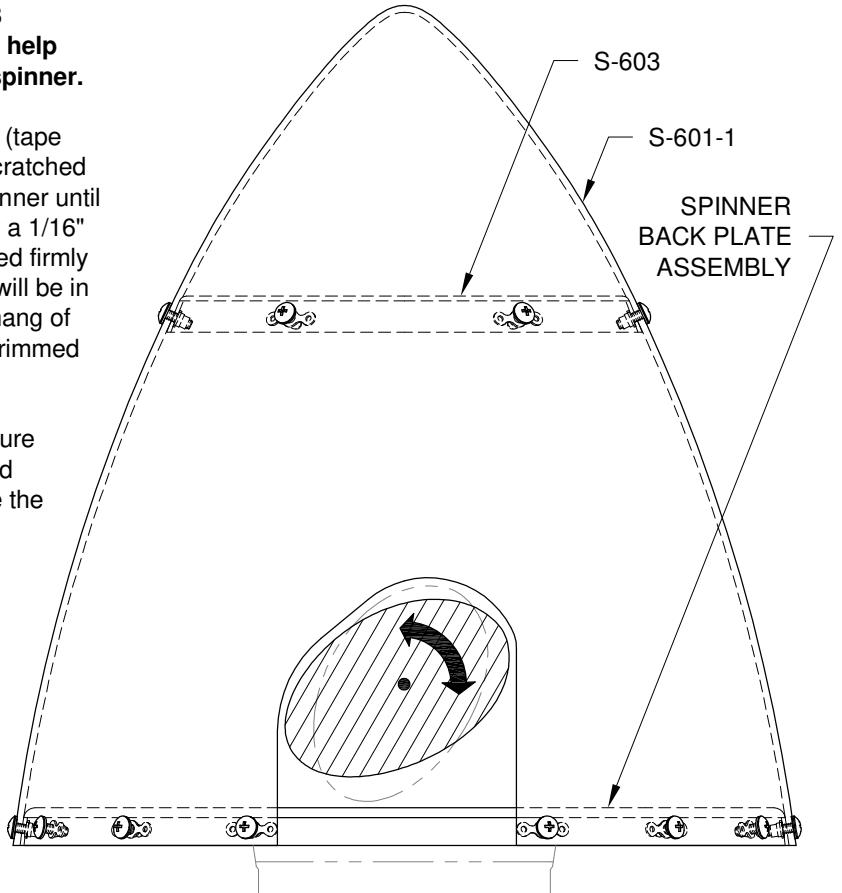


FIGURE 1: SECURING THE SPINNER

Step 8: Machine countersink the holes drilled in the previous step for the heads of AN426AD3 rivets.

Machine countersink the six #30 holes in both S-1001 Gap Fillers for the heads of AN426AD4 rivets.

Step 9: Deburr all holes drilled, then rivet the nutplates called-out in Figures 1 and 2 to the Spinner Back Plate Assembly, the S-603 Spinner Front Plate, and the S-1002 Backing Plates.

Step 10: Rivet the S-1002 Backing Plate to the S-1001 Gap Filler, then rivet the gap filler to the Spinner Back Plate Assembly.

Step 11: Secure the S-601-1 Spinner to the S-603 Spinner Front Plate, the Spinner Back Plate Assembly, and to the S-1002 Backing Plate using the screws and washers called-out in Figures 1 and 2.

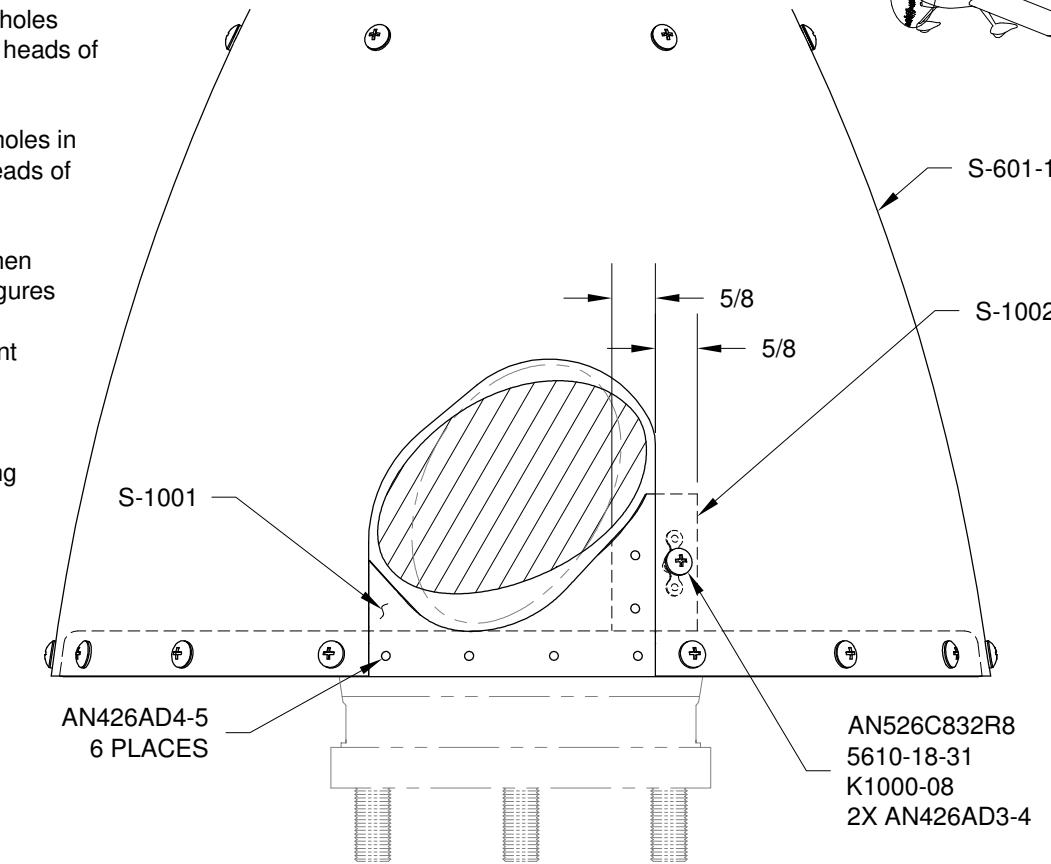


FIGURE 2: SECURING THE GAP FILLER

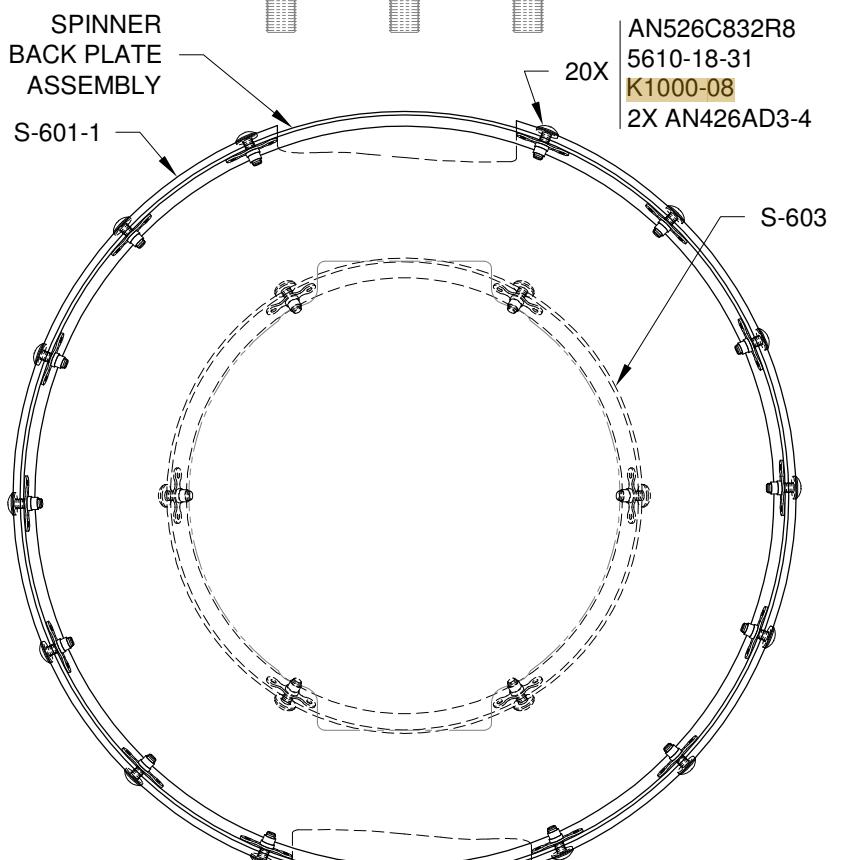
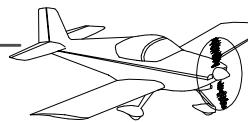


FIGURE 3: ATTACHING THE PROPELLER



Step 1: Lay a straight edge across the spinner opening in the top cowl. Adjust the straight edge up and down until the width of the spinner opening is twice its height. Rotate the straight edge until the outboard air inlet heights match. When both of these criteria are met, mark a trim line across all forward portions of the top cowl. See Figure 1.

Step 2: Trim the excess material away from the lower edge of the top cowl spinner opening and inboard side of the air inlets.

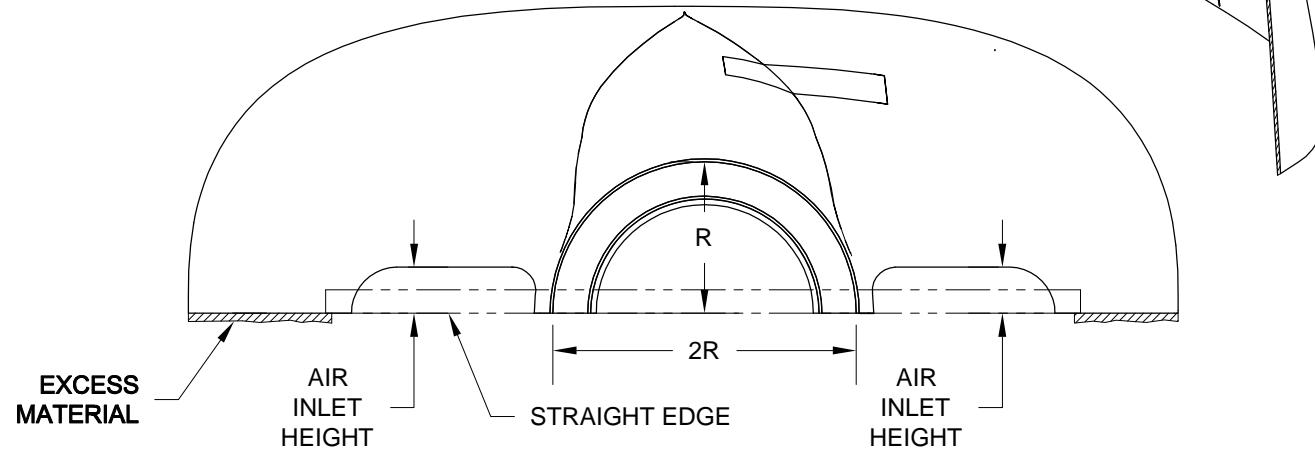


FIGURE 1: TRIMMING THE TOP COVL

Step 3: Lay a straight edge across the spinner opening in the bottom cowl, see Figure 2. Place the straight edge against the flange joggles in the spinner opening, see Figure 3. Mark a trim line across the forward outboard portions of the air inlets in the bottom cowl.

Step 4: Using the trim lines marked out in Step 1 and Step 3, trim the excess material away from both cowls near the outboard side of the air inlets **just enough** to allow the top and bottom cowl halves to be slipped together. **Do not trim** the excess material along **the sides** of the cowls (shown as hatched areas in Figure 1 and Figure 2) at this time.

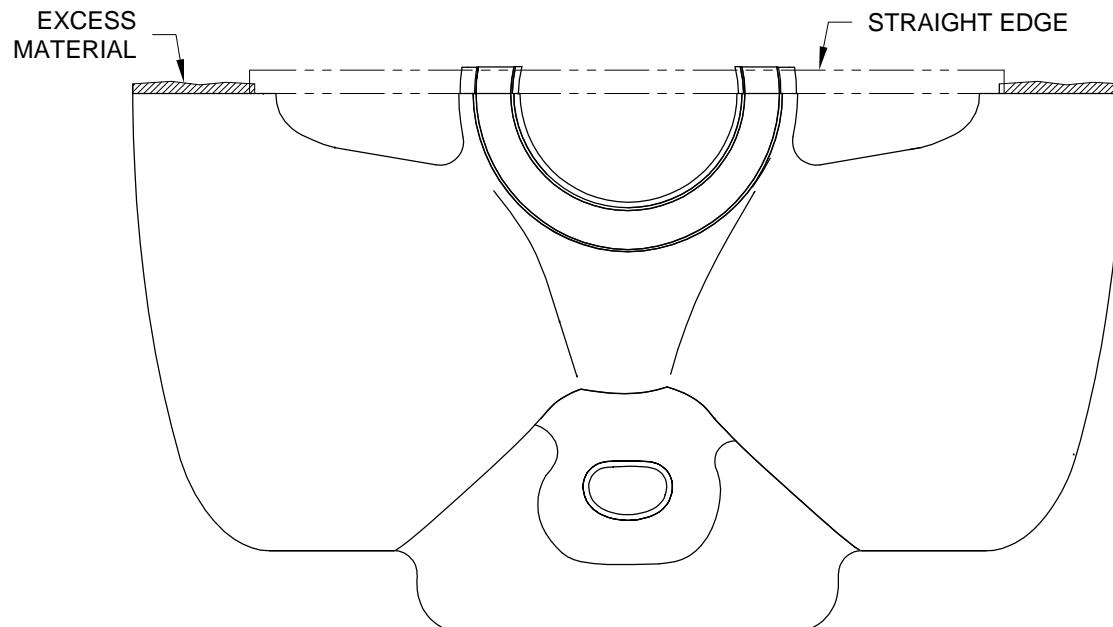
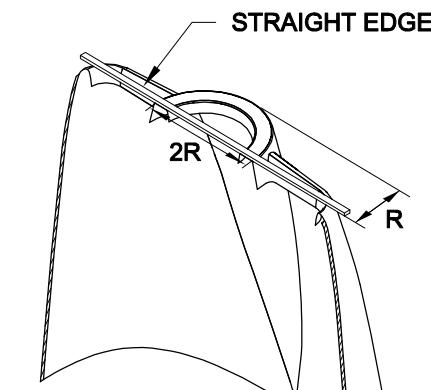


FIGURE 2: TRIMMING THE BOTTOM COVL



Step 5: Clean any excess resin that may have cured along the flange joggle on the bottom cowl. Remove abnormal glass and resin buildup from the inside surface of the top cowl (see Figure 4). Sand down the corners of the flange on the bottom cowl (see Figure 3) until the top cowl can fit into place (see Figure 5).

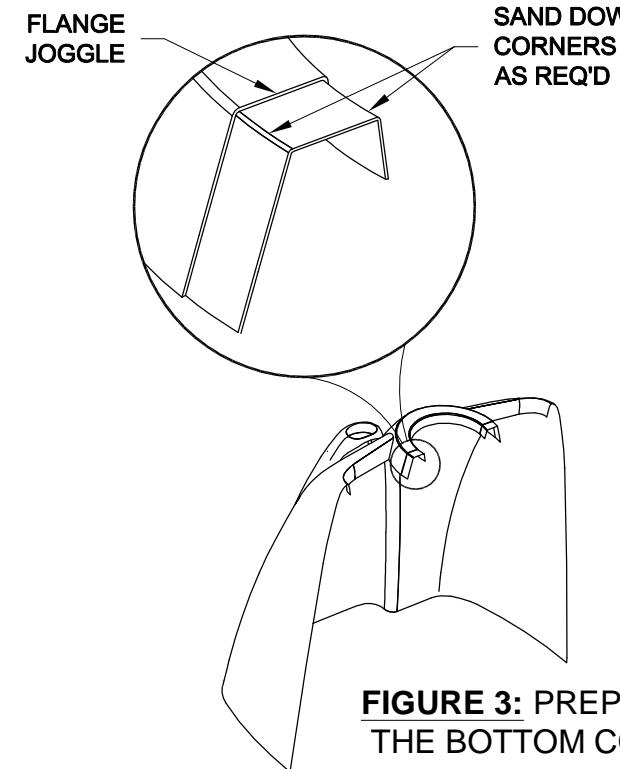


FIGURE 3: PREPPING THE BOTTOM COVL

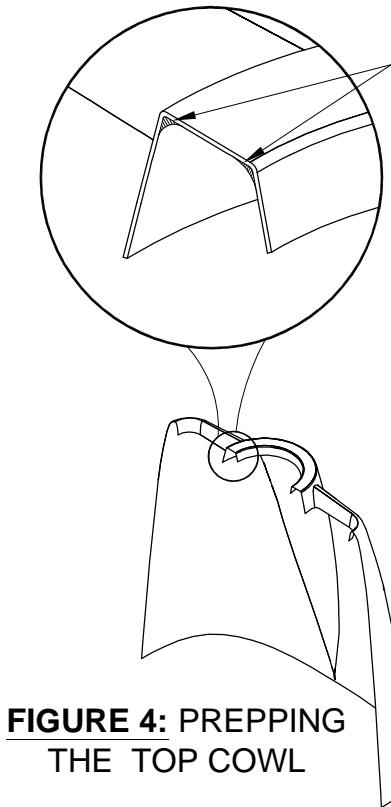


FIGURE 4: PREPPING THE TOP COVL

Step 6: Fit the top and bottom cowl halves together as shown in Figure 5. Using the dimensions in Figure 5, evenly trim the aft edge of the air inlets.

Step 7: Clamp the top and bottom cowls together as shown in Figure 5. Of the three hole pattern shown in Figure 5, mark the location of the **forward** most hole on both sides of the top cowl spinner opening. Drill #40 then cleco the forward most hole only.

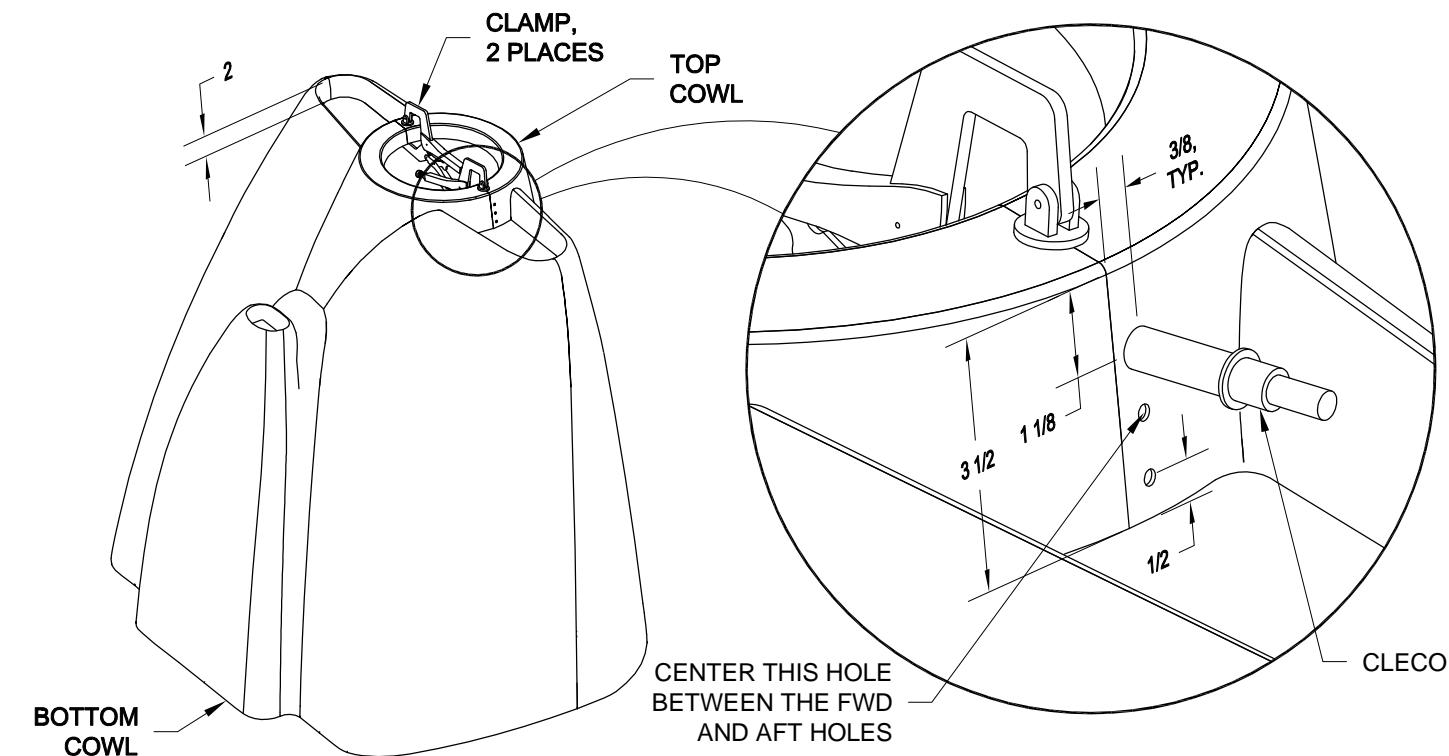


FIGURE 5: FASTENER LOCATIONS



Step 1: Carefully mark a line three inches back from the forward edge of the F-1069-L and R Fwd Side Skins, F-1071 Fwd Fuse top Skin and F-1072 Fwd Fuse bottom Skin as shown in Figure 1.

Step 2: Tape 1/8 inch thick spacers to the forward face of the top cowl in at least three locations as shown in Figure 1.

Step 3: Level the aircraft laterally. Place the top cowl on the aircraft, centering it behind the spinner. Hang plumb bobs from symmetrical points on the forward edge of the top cowl air inlets to the floor as shown in Figure 1. When the length of the plumb bobs is equal, the top cowl is level with the aircraft. Make a reference mark on the aft edge of the top cowl that extends onto the F-1071 Fwd Fuse top Skin.

Step 4: Draw a line onto the top cowl three inches forward of the line made in Step 1. This line corresponds to the the forward edge of the F-1071 Fwd Fuse top Skin. Extend this line approximately 15 inches to either side of the aircraft centerline.

Step 5: Remove the top cowl and from fifteen inches on either side of the centerline, trim the excess material aft of the line drawn in Step 4. Reinstall the cowl. The upper edge of the top cowl should drop down onto both F-1001N Cowl Attach Hinges. If further trimming is required remove the top cowl and slowly remove material with a long straight sanding block.

Step 6: Mark the forward edge of the skins onto the sides of the top cowl using the same method used in Step 4. Remove the top cowl and trim away the remaining excess material along the sides.

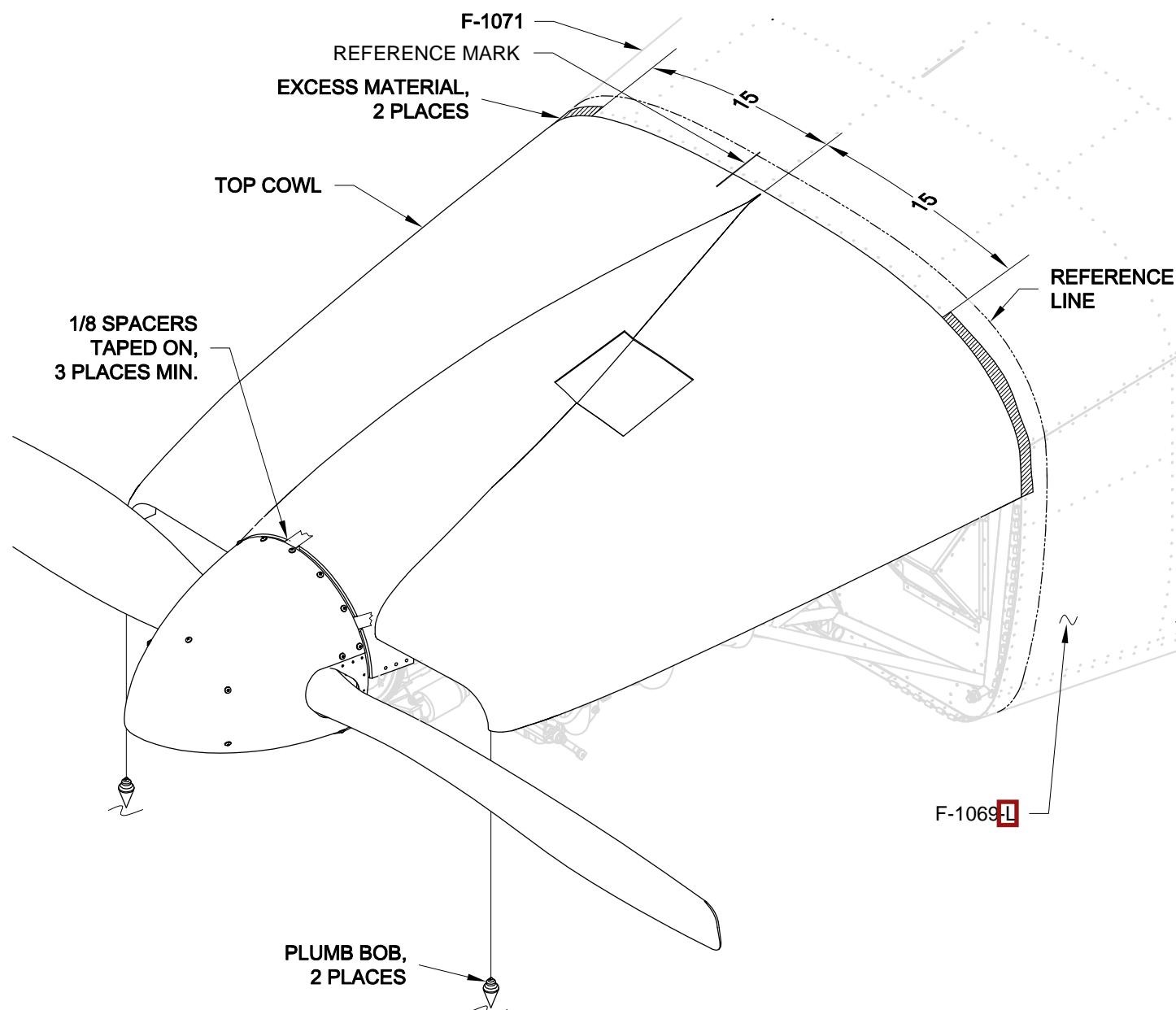


FIGURE 1: FITTING THE TOP COWL

Step 7: Cut a slot centered on the scoop of the bottom cowl per the dimensions given in Figure 2.

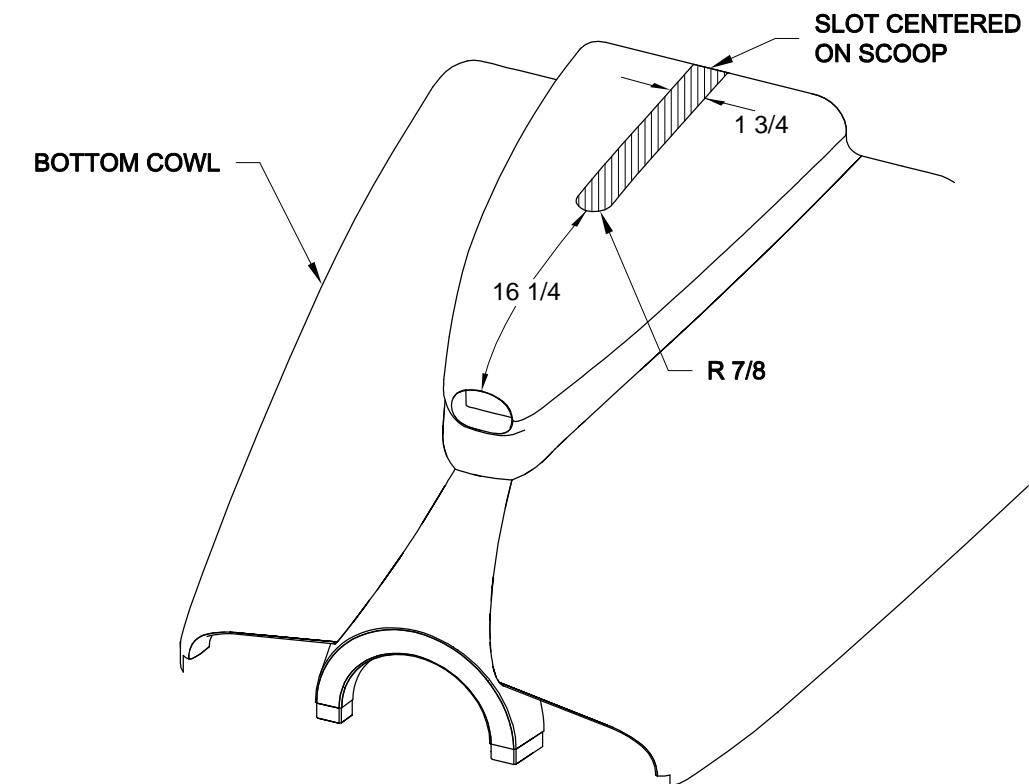


FIGURE 2: CUTTING A SLOT IN THE BOTTOM COWL SCOOP

Step 8: Fit the COWL, 10 INLET LEFT and RIGHT (called inlet ramps throughout the remainder of this section) to the top cowl, trimming and sanding as necessary for a good fit. See Figure 3.

Step 9: Drill #40 and cleco the inlet ramps in place. (The holes can be easily filled when finishing the outside surface of the cowl). See Figure 3. Remove the inlet ramps.

NOTE: Left inlet ramp must be trimmed to clear prop governor.

Step 10: Sand the area to be bonded on both the top cowl and the inlet ramps with 40-60 grit sandpaper. Sand away all the glossy surface of the resin on the inlet ramps.

Step 11: Use epoxy resin to bond the inlet ramps to the top cowl. Cleco the inlet ramps to the top cowl until the resin has cured. Sand away any excess resin that may have oozed out of place. Fill the joggle formed by the air inlets aft edge with body filler. Sand and fill this area until there is a smooth transition between the air inlets and the inlet ramps.

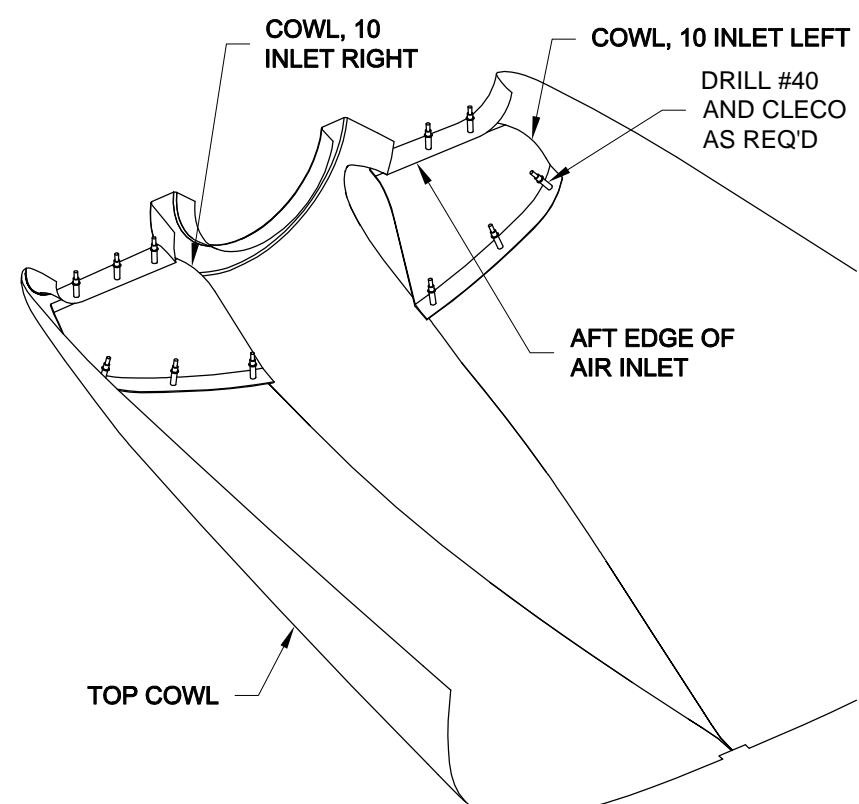
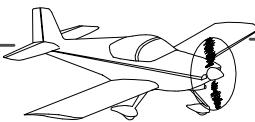


FIGURE 3: INSTALLING THE INLET RAMPS



NOTE: For Step 1 through Step 12 refer to Figure 1.

Step 1: Tape 1/8 inch thick spacers to the forward face of the bottom cowl in at least three locations.

Step 2: Fit the bottom cowl to the aircraft. Slip the excess material along the sides of the bottom cowl (top edge) over the excess material along the lower edge of the top cowl. If required slightly increase the width of the slot created on Page 47-5, Step 7.

Step 3: Using the reference line drawn on Page 47-5, Step 1, mark a line along the **bottom** edge of the bottom cowl three inches forward that corresponds to the forward edge of the F-1072 Fwd Fuse bottom Skin. The line need only extend far enough that when the excess material aft of the line is removed the bottom of the cowl will lay flat against the F-1001Q-L and F-1001Q-R Cowl Attach Hinges. Do **not** mark the sides of the bottom cowl yet!

Step 4: Remove the bottom cowl and trim away the excess material aft of the line drawn in Step 3. Check that the bottom cowl will lay flat against the F-1001Q-L and F-1001Q-R Cowl Attach Hinges. Do not bother to trim the excess material aft of the bottom cowl scoop at this time.

Step 5: Using the reference line drawn on Page 47-5, Step 1, mark a line along the aft sides of the bottom cowl three inches forward that corresponds to the forward edge of the F-1069-L and F-1069-R Fwd Fuse Side Skins. Remove the bottom cowl. Cut away the remaining excess material along the side aft edges of the bottom cowl.

NOTE: When laying out holes that attach hinges to the top and bottom cowls, offset the holes $5/16$ from the outside edge and the ends of the hinge unless otherwise specified. Lay out the holes with approximate one inch spacing. Periodically check and clean out any debris between the hinges and the cowl while drilling!

Step 6: Lay out then drill #27 the inboard most hole common to the F-1001Q-L and F-1001Q-R Cowl Attach Hinges and the bottom cowl. Evenly space, drill #40, then cleco the four remaining rivet holes in the cowl attach hinge.

Lay out, drill #40, then cleco the holes common to the F-1001N Cowl Attach Hinges and the top cowl. Start at the inboard end and work outboard.

Lay out, drill #40, then cleco the holes common to the F-1001P Cowl Attach Hinges and the bottom cowl. Start at the bottom and work upwards.

Deburr the cowl attach hinges. Machine countersink the cowl hinge attach holes in the top and bottom cowl.

Step 7: Install the hardware in the inboard most hole common to the F-1001Q-L and F-1001Q-R Cowl Attach Hinges and the bottom cowl.

Step 8: Rivet the cowl attach hinges to the top and bottom cowl per the callout in Figure 1.

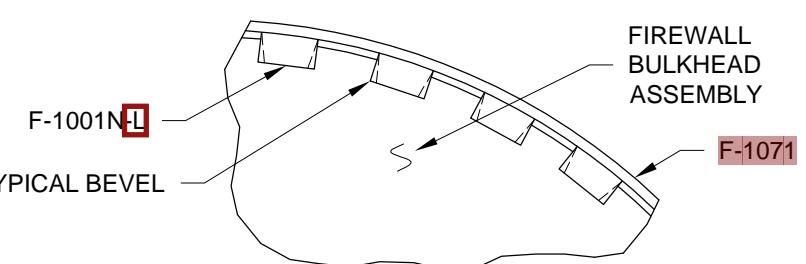
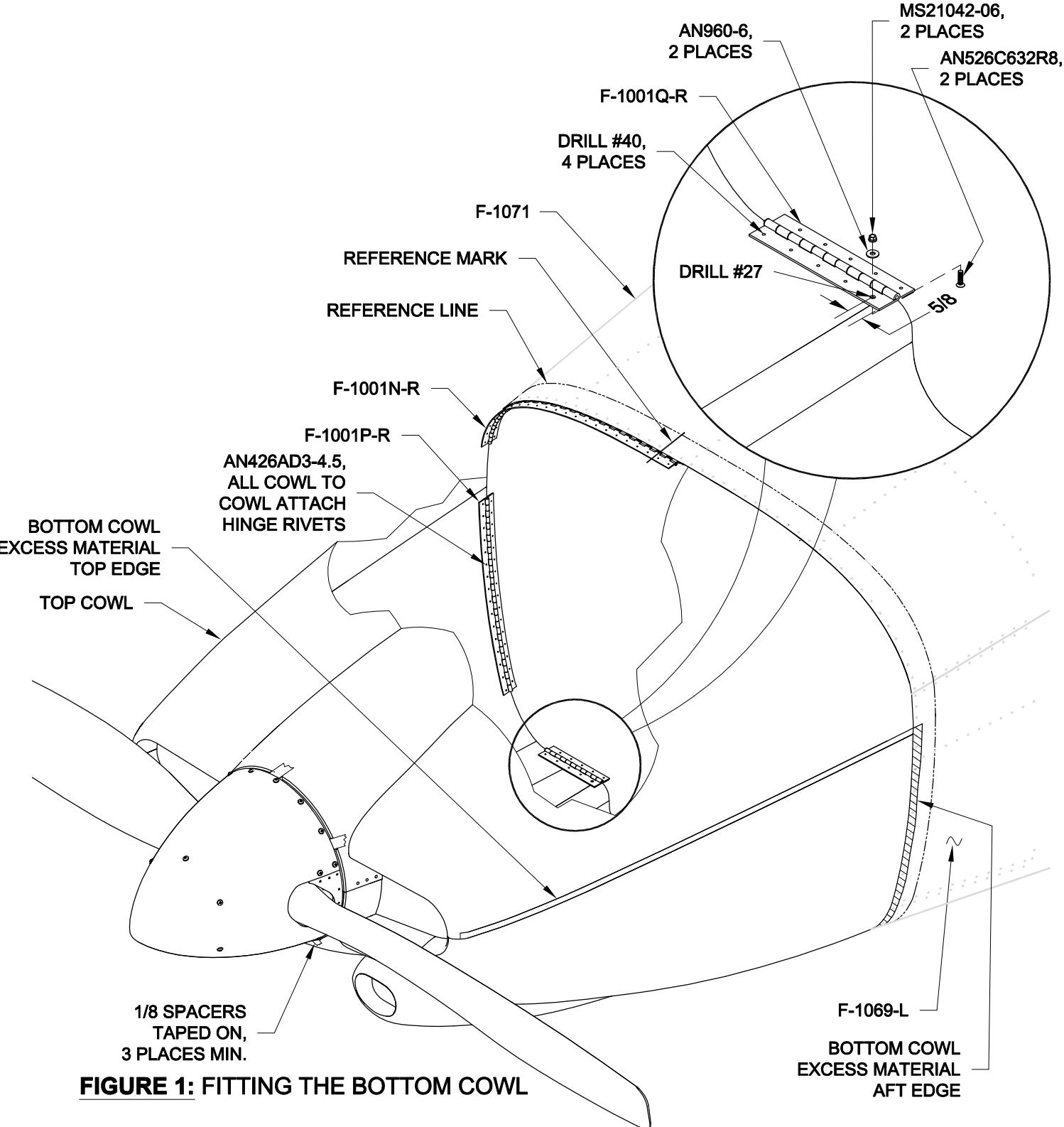
Step 9: Lay out on the top cowl the two remaining holes on either side of the spinner opening as shown on Page 47-4, Figure 5. Drill these holes #19 into the top and bottom cowl. Final-Drill the forward most hole #19.

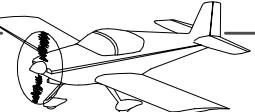
Step 10: Lay out the split line along the sides of the top and bottom cowls. This line will extend from the aft edge of the cutouts made on Page 47-4, Step 4 to the forward edge of the F-1069-L and F-1069-R Fwd Fuse Side Skins. Adjust the overall split line as necessary if there is insufficient excess material on either the top or bottom cowls.

Step 11: Remove the bottom cowl. Remove the excess material above the split line. Remove the 1/8 spacers from the front of the bottom cowl. Reinstall the bottom cowl.

Step 12: Using the bottom cowl as a guide, mark the split line on the top cowl. Remove the top cowl and remove the material below the split line. Remove the 1/8 spacers from the front of the top cowl. Adjust the split line to obtain a .020 to .032 gap (approximately the width of a hacksaw blade) between the top and bottom cowls.

Step 13: Bevel the eyelets along the curved portion of the F-1001N Cowl Attach Hinges as shown in Figure 2.





Step 1: Make two F-1001S Cowl top Hinge Pins from SSP-090 hinge pin per the dimensions in Figure 1. These pins will replace the soft aluminum pins provided for the F-1001N Cowl Attach Hinge.

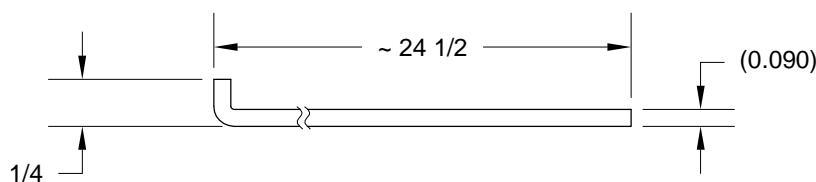


FIGURE 1: FABRICATING THE COWL TOP HINGE PINS

Step 2: Make two F-1001T Cowl Side Hinge Pins from SSP-120 hinge pin per the dimensions in Figure 2. These pins will replace the soft aluminum pins provided for the F-1001P Cowl Attach Hinge.

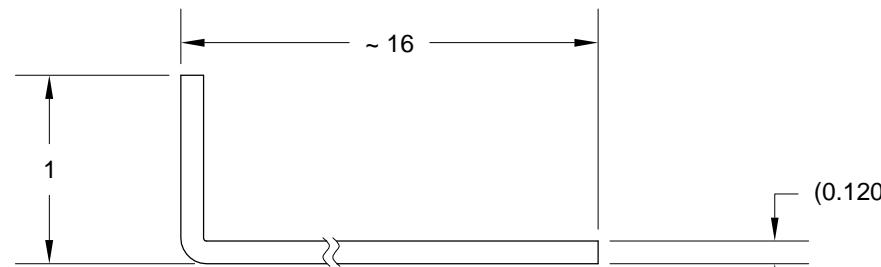


FIGURE 2: FABRICATING THE COWL SIDE HINGE PINS

Step 3: Make two F-1001U Cowl Both Hinge Pins from SSP-120 hinge pin per the dimensions in Figure 3. These pins will replace the soft aluminum pins provided for the F-1001Q Cowl Attach Hinge.

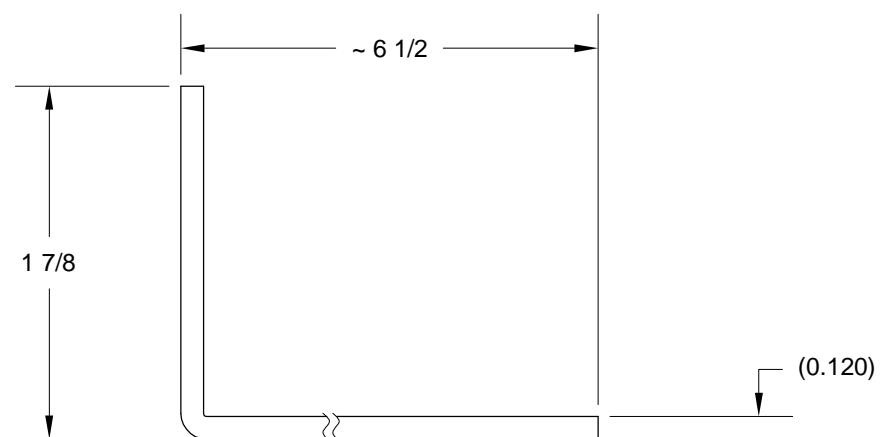


FIGURE 3: FABRICATING THE COWL BOT HINGE PINS

Step 4: Make two F-1001V Cowl Pin Retainers from HINGE PIANO 1/8 per the dimensions in Figure 4.

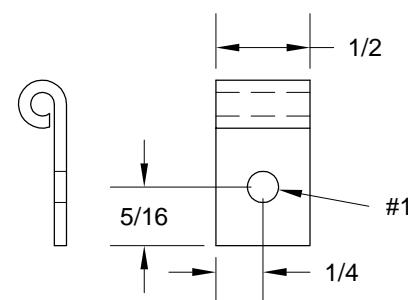


FIGURE 4: FABRICATING THE COWL PIN RETAINERS

Step 5: Grind the ends of the cowl pins created in Step 1, Step 2 and Step 3 as shown in Figure 5. Offset the point.

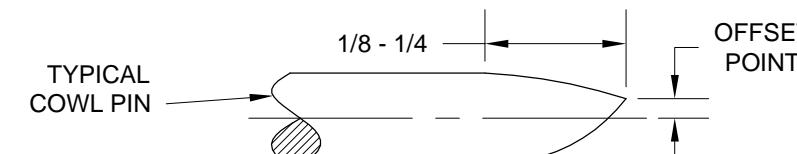


FIGURE 5: SHAPING THE COWL PIN ENDS

Step 6: Cleco the F-1001Y Cowl Upper Pin Retainer to the F-1001Z Filler Plate. Final-Drill #40 all the rivet holes in both parts. Final-Drill #27 the screw holes in the cowl upper pin retainer. See Figure 6.

Step 7: Dissassemble the F-1001Y Cowl Upper Pin Retainer and F-1001Z Filler Plate. Deburr both parts. Machine countersink the rivet holes in both parts.

Step 8: Rivet the F-1001Y Cowl Upper Pin Retainer to the F-1001Z Filler Plate per the callouts in Figure 6. Do not rivet the nutplates on yet!

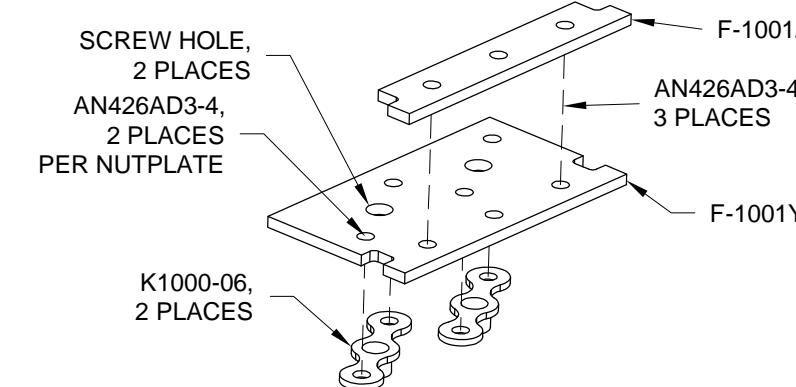


FIGURE 6: MAKING THE COWL UPPER PIN RETAINER ASSEMBLY

Step 9: Cut a notch in the middle aft edge of the top cowl per the dimensions shown in Figure 7.

Step 10: Fit the Cowl Upper Pin Retainer Assembly into the notch made in Step 9. Match-Drill #27 the two screw holes in the F-1001Y Cowl Upper Pin Retainer into the top cowl. Machine countersink the screw holes for the head of an #6 screw.

Step 11: Rivet the nutplates to the Cowl Upper Pin Retainer Assembly per the callouts in Figure 6.

Step 12: Fasten the Cowl Upper Pin Retainer Assembly to the top cowl with the screws called out in Figure 7.

Step 13: If painting the airplane postpone this step. Gall the last thread on the end of both screws that attach the Cowl Upper Pin Retainer Assembly. This will prevent the screw from backing out of the nutplate.

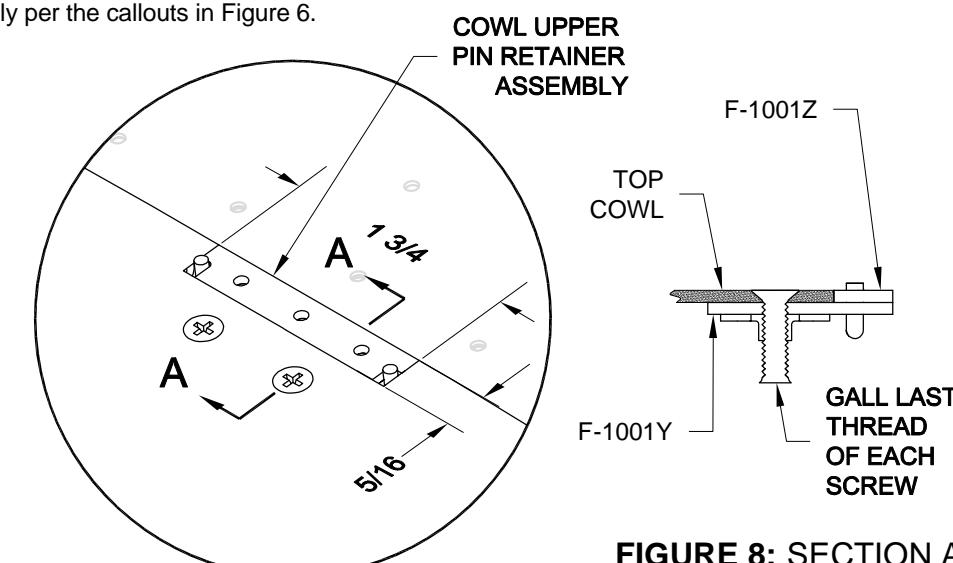


FIGURE 8: SECTION A-A

FIGURE 7: MAKING THE COWL UPPER PIN RETAINER CUTOUT



Step 1: Create two COWL-10-03 Side Hinges from AN257-P3 piano hinge per the dimensions given in Figure 1. Do not cut the pin supplied with the hinge.

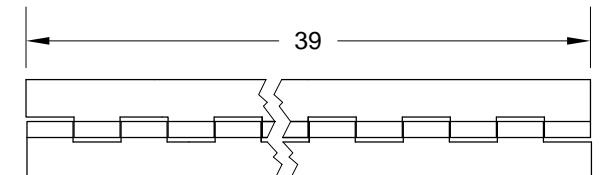


FIGURE 1: MAKING THE SIDE HINGES

Step 2: Clamp the lower half of both COWL-10-03 Side Hinges to the upper edge of the bottom cowl with a 1/64 - 1/32 inch gap between the notch bottom and the bottom cowl upper edge. See Figure 2. The aft edge of the side hinges should be flush with the aft edge of the bottom cowl. See Figure 3 and Figure 6.

Step 3: Using the shadow of the COWL-10-03 Side Hinges visible through the bottom cowl, lay out a rivet pattern with one inch spacing. Leave 5/16 edge distance at the forward and aft ends of the side hinges.

Step 4: Drill #40 the rivet pattern laid out in Step 3 into the bottom cowl and COWL-10-03 Side Hinges.

Step 5: Remove the lower half of the COWL-10-03 Side Hinges from the bottom cowl. Deburr the side hinges. Machine countersink the holes drilled in Step 4.

Step 6: Rivet the lower half of the COWL-10-03 Side Hinges to the bottom cowl per the callouts in Figure 2.

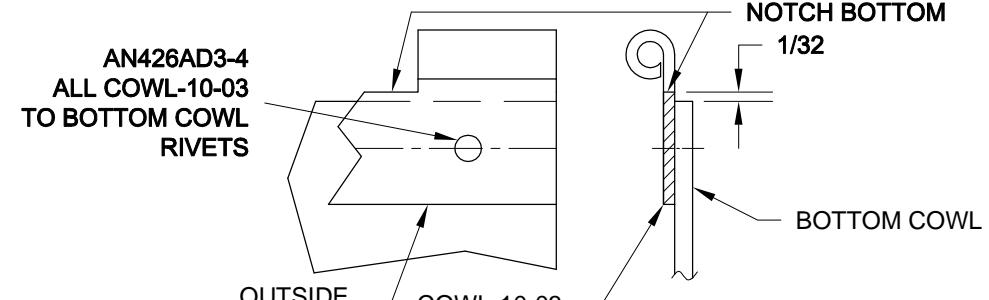


FIGURE 2: DRILLING THE BOTTOM COWL

Step 7: Using the pin supplied with the hinge, attach the upper half of the COWL-10-03 Side Hinges to the lower half already riveted to the bottom cowl. Insert the pin until it contacts the Firewall Bulkhead Assembly. See Figure 3. Mark the pin/cowl intersect point on the bottom cowl. See Figure 4.

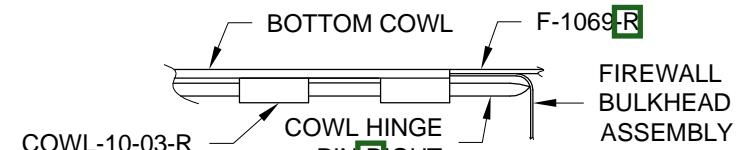


FIGURE 3: SETTING THE PIN LENGTH

NOTE: The COWL HINGE PIN-LEFT and R Side Hinge Pins are an optional part available in Vans Aircraft Accessories Catalog.

Step 8: Trim the COWL HINGE PIN-LEFT and R Side Hinge Pins until the aft edge of the knuckles lines up with the pin-cowl intersect point. Bend the knuckles parallel with the side of the bottom cowl. See Figure 5. Shape the ends of the side hinge pins per Page 47-7, Step 5.

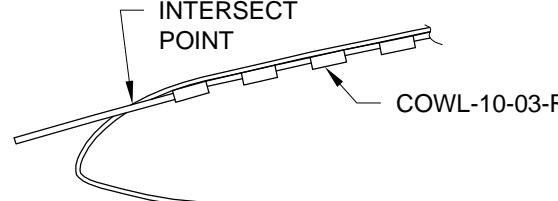


FIGURE 4: KNUCKLE LOCATION

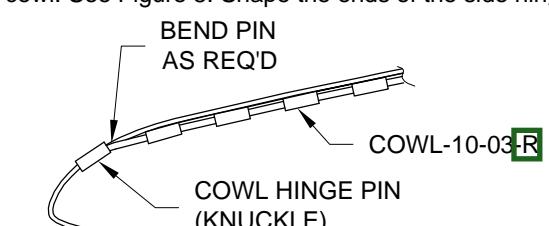


FIGURE 5: KNUCKLE BEND

Step 9: Install the top cowl. Mark the location of the knuckle. Remove the top cowl and create a notch for the knuckle. Reinstall the top cowl.

Step 10: Using the shadow of the top half of the COWL-10-03 Side Hinges visible through the top cowl, lay out a rivet pattern with one inch spacing. Leave 5/16 edge distance at the forward and aft ends of the side hinges.

Step 11: Reach in through the air inlet and hold the forward portion of the side hinge tightly against the top cowl. Drill #40, starting at the front, the top cowl to the side hinges. Cleco each hole after it is drilled. Machine countersink the holes just drilled.

Step 12: Remove the top cowl and the upper half of the COWL-10-03 Side Hinges. Deburr the side hinges.

Step 13: Rivet the upper half of the COWL-10-03 Side Hinges to the top cowl per the callouts in Figure 2.

NOTE: The remaining steps reference Figure 6.

Step 14: Match-Drill #19 the hole in the knuckle flange of the COWL HINGE PIN into the bottom cowl. Remove the side hinge pin.

Step 15: Use a #8 screw to temporarily hold a K1000-08 nutplate in the knuckle attach hole. Match-Drill #40 the holes in the nutplate into the bottom cowl. Machine countersink the nutplate attach holes in the bottom cowl. Rivet the nutplate to the bottom cowl.

Step 16: Align the lower edge of a F-1001V Cowl Pin Retainer with the end of the F-1001U Cowl Bot Hinge Pin. Match-Drill #19 the hole in the cowl bot hinge pin retainer into the bottom cowl.

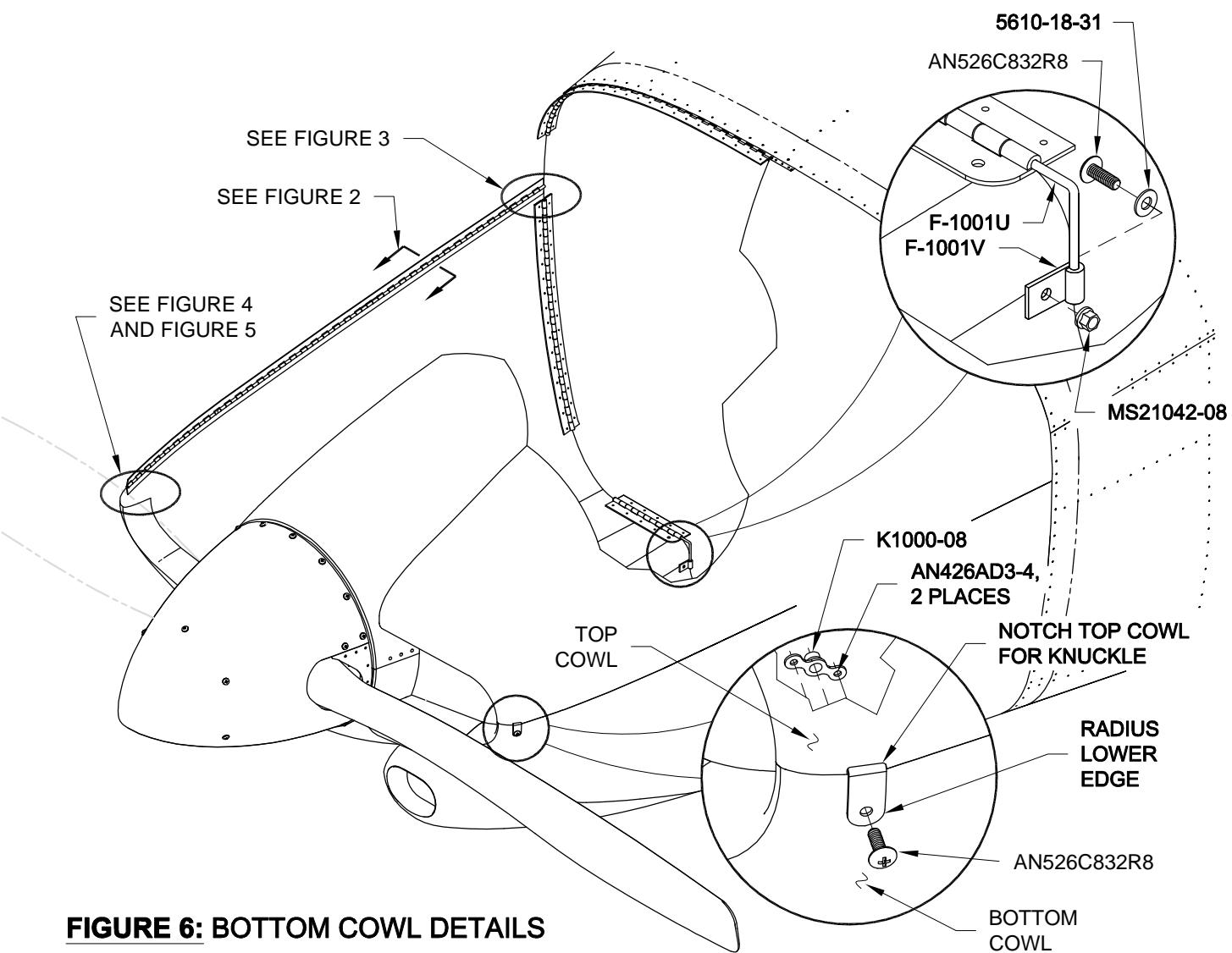


FIGURE 6: BOTTOM COWL DETAILS



Step 1: Remove the bottom cowl.

Step 2: Use a #8 screw to align a nutplate with one of the six screw holes that attach the top and bottom cowls together on either side of the spinner opening. Match-Drill #40 the nutplate attach holes into the flange on the bottom cowl. Machine countersink the holes just drilled. See Figure 1. Repeat this step for the five remaining screw holes.

Step 3: Rivet six nutplates to the bottom cowl flange per the hardware callouts given in Figure 1.

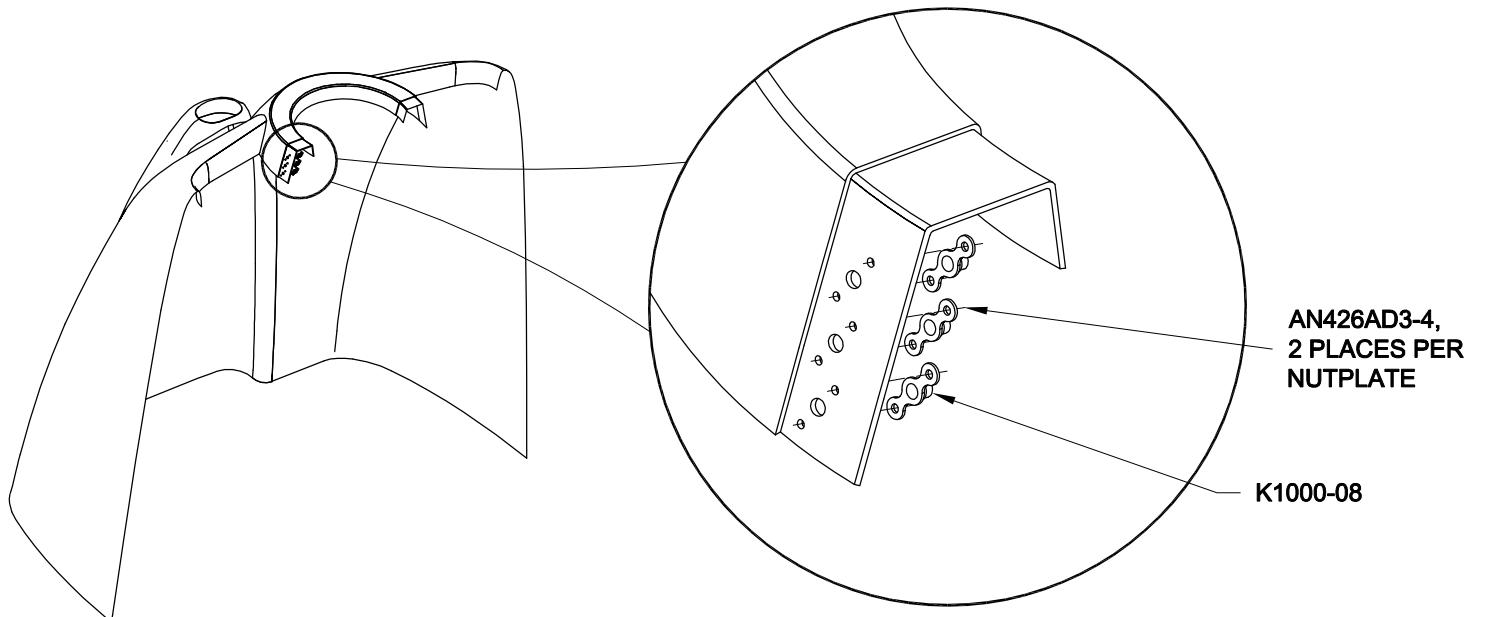


FIGURE 1: INSTALLING NUTPLATES

Step 4: Figure 2 shows the hardware used to attach the top cowl to the bottom cowl.

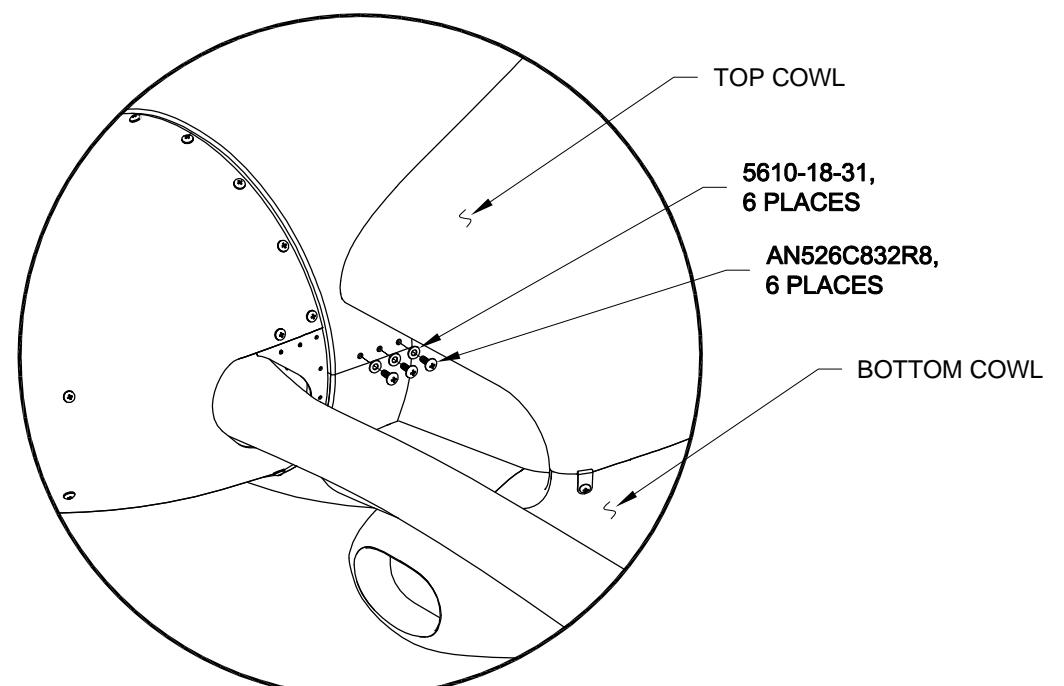
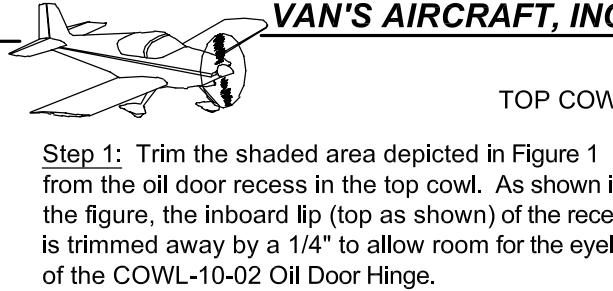


FIGURE 2: COULD ATTACH HARDWARE



Step 1: Trim the shaded area depicted in Figure 1 from the oil door recess in the top cowl. As shown in the figure, the inboard lip (top as shown) of the recess is trimmed away by a $\frac{1}{4}$ " to allow room for the eyelets of the COWL-10-02 Oil Door Hinge.

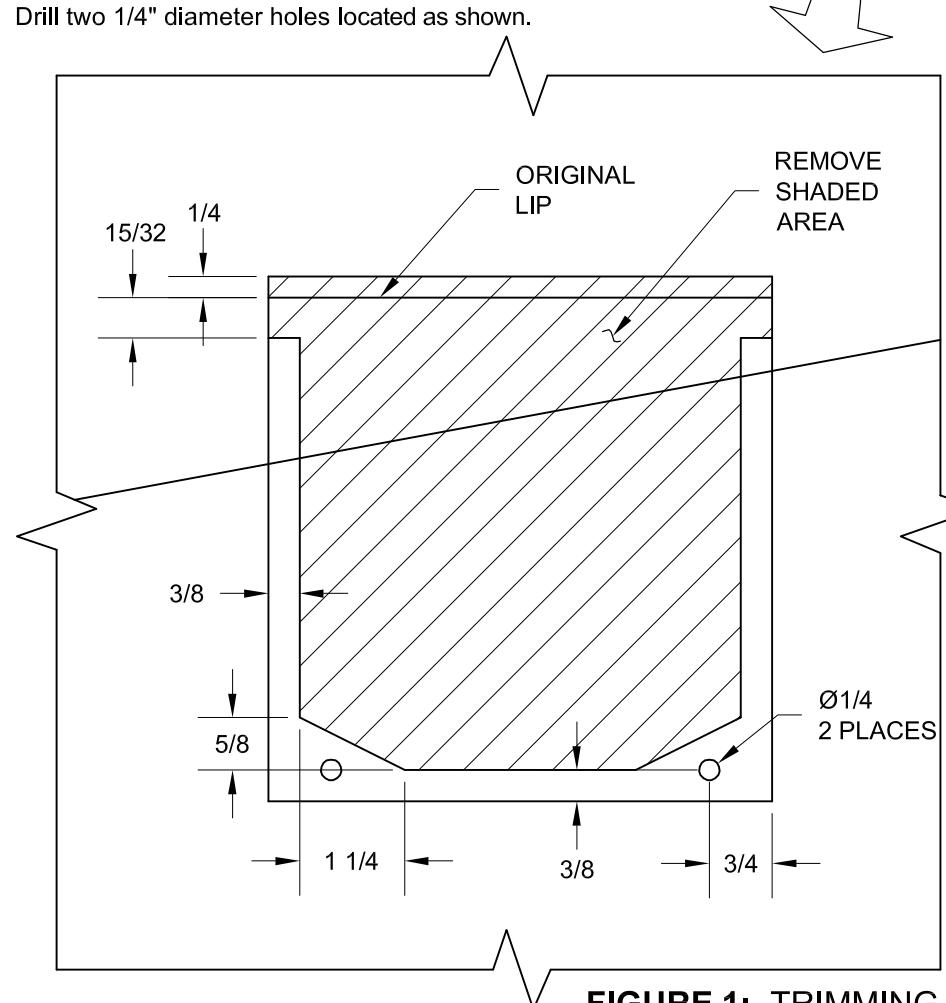


FIGURE 1: TRIMMING THE OIL DOOR RECESS

Step 2: Make the COWL-10-02 Oil Door Hinge by cutting a length (approximately 6 inches, just long enough to fit within the oil door recess) of AN257-P3. Drill #40 holes located as shown in Figure 2.

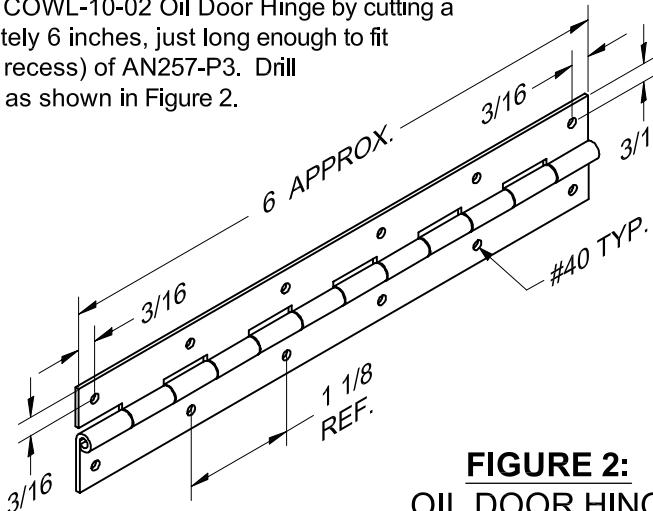


FIGURE 2:
OIL DOOR HINGE

Step 3: Locate the COWL-10-02 Oil Door Hinge on the inside of the top cowl, as shown in Figure 3, with a 0.025" gap between the trimmed edge of the top cowl and the oil door hinge eyelets. Match-Drill #40 the holes of the oil door hinge into the top cowl. Cleco while drilling.

Step 4: Center an HW 212-12 camlock receptacle on one of the 1/4" holes in the oil door recess using an HW 2600-3W camlock fastener. Align the camlock fastener in the direction of the airstream, as shown in Figure 3, then match-drill #40 the two camlock receptacle attachment rivet holes into the oil door recess.

Repeat for the second 1/4" hole.

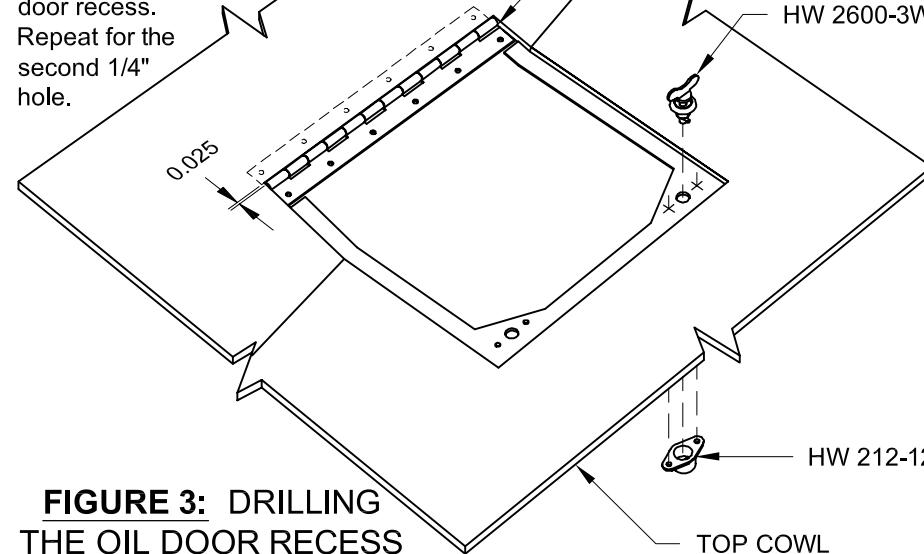


FIGURE 3: DRILLING THE OIL DOOR RECESS

Step 5: Trim the COWL-10-01A Oil Door to fit into the oil door recess with a .025" gap between the oil door and the eyelets of the COWL-10-02 Oil Door Hinge.

Step 6: Match-Drill #40 the holes in the COWL-10-02 Oil Door Hinge into the COWL-10-01A Oil Door.

Step 7: Trace the trimmed edges of the oil door recess and the edge of the COWL-10-02 Oil Door Hinge onto the COWL-10-01A Oil Door.

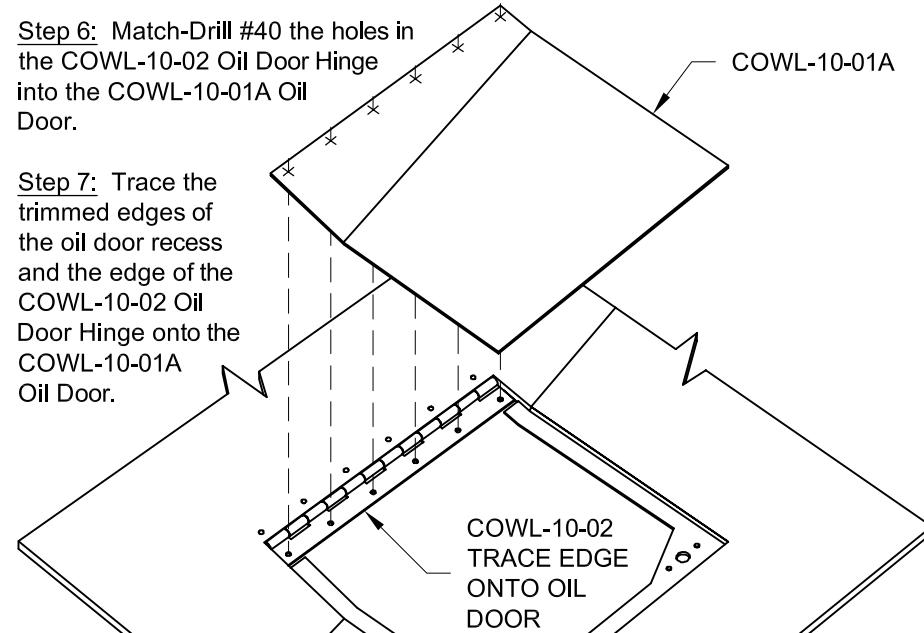


FIGURE 4:
DRILLING THE OIL DOOR

Step 8: Trim the COWL-10-01B Oil Door Core to roughly fit the trace made on the COWL-10-01A Oil Door as shown in Figure 5. Use epoxy resin to bond it to the oil door, then sand the edges until they are inside the trace by an $\frac{1}{8}$ " and beveled approximately 45°. Apply a single ply of 8 or 9 oz. glass with epoxy resin over the oil door core, even with the edges of the oil door.

When cured, match-drill the #40 holes previously drilled in the oil door into the new lay-up.

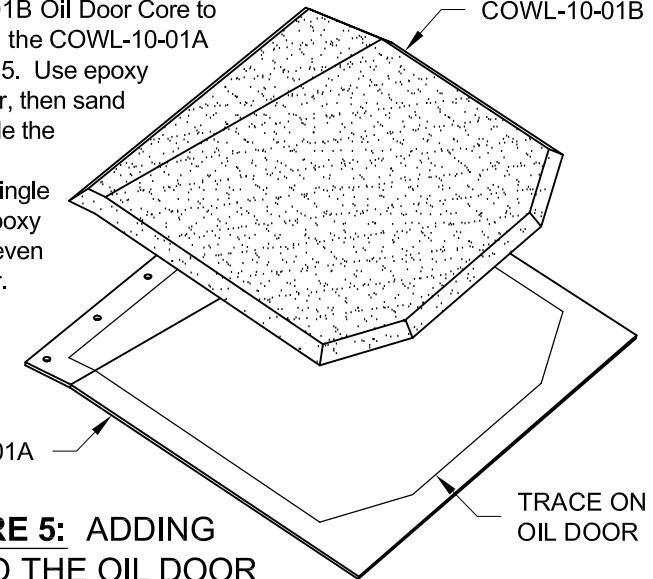


FIGURE 5: ADDING CORE TO THE OIL DOOR

Step 9: Machine countersink all relevant holes in the top cowl and the COWL-10-01A Oil Door for the flush head rivets called-out in Figure 6.

Step 10: Using the rivets called-out in Figure 6, rivet the COWL-10-02 Oil Door Hinge to the top cowl, then rivet the COWL-10-01A Oil Door to the oil door hinge. (To minimize the projection of the oil door hinge eyelets above the top cowl, .032 to .040 shims may be inserted between the oil door hinge and the oil door and top cowl.)

Step 11: Match-Drill the two 1/4" holes in the oil door recess into the COWL-10-02 Oil Door using a 1/4" drill bit. Final-Drill the 1/4" holes of the oil door recess (only the oil door recess, NOT the oil door) using a 1/2" drill bit.

Step 12: Rivet the HW 212-12 camlock receptacles to the top cowl using the rivets called-out in Figure 6.

Secure the HW 2600-3W camlock fasteners to the COWL-10-01A Oil Door using HW 2600-LW camlock washers.

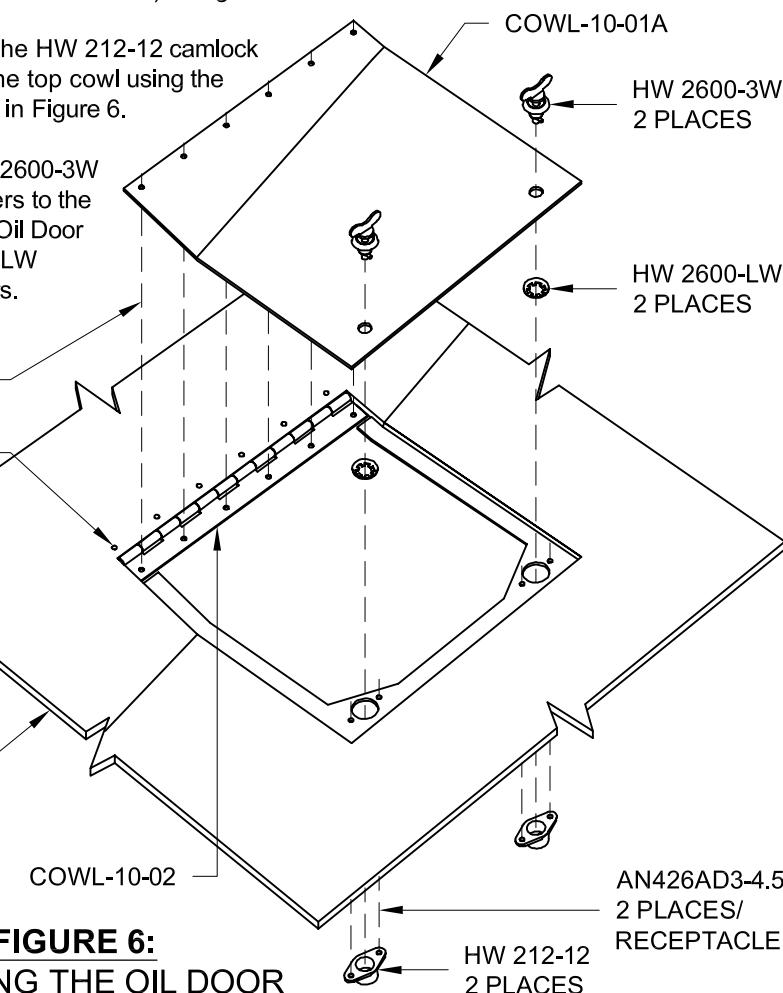
AN426AD3-4
6 PLACES

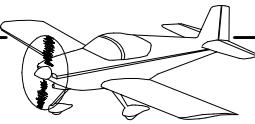
AN426AD3-4
6 PLACES

TOP COWL

COWL-10-02

FIGURE 6:
SECURING THE OIL DOOR





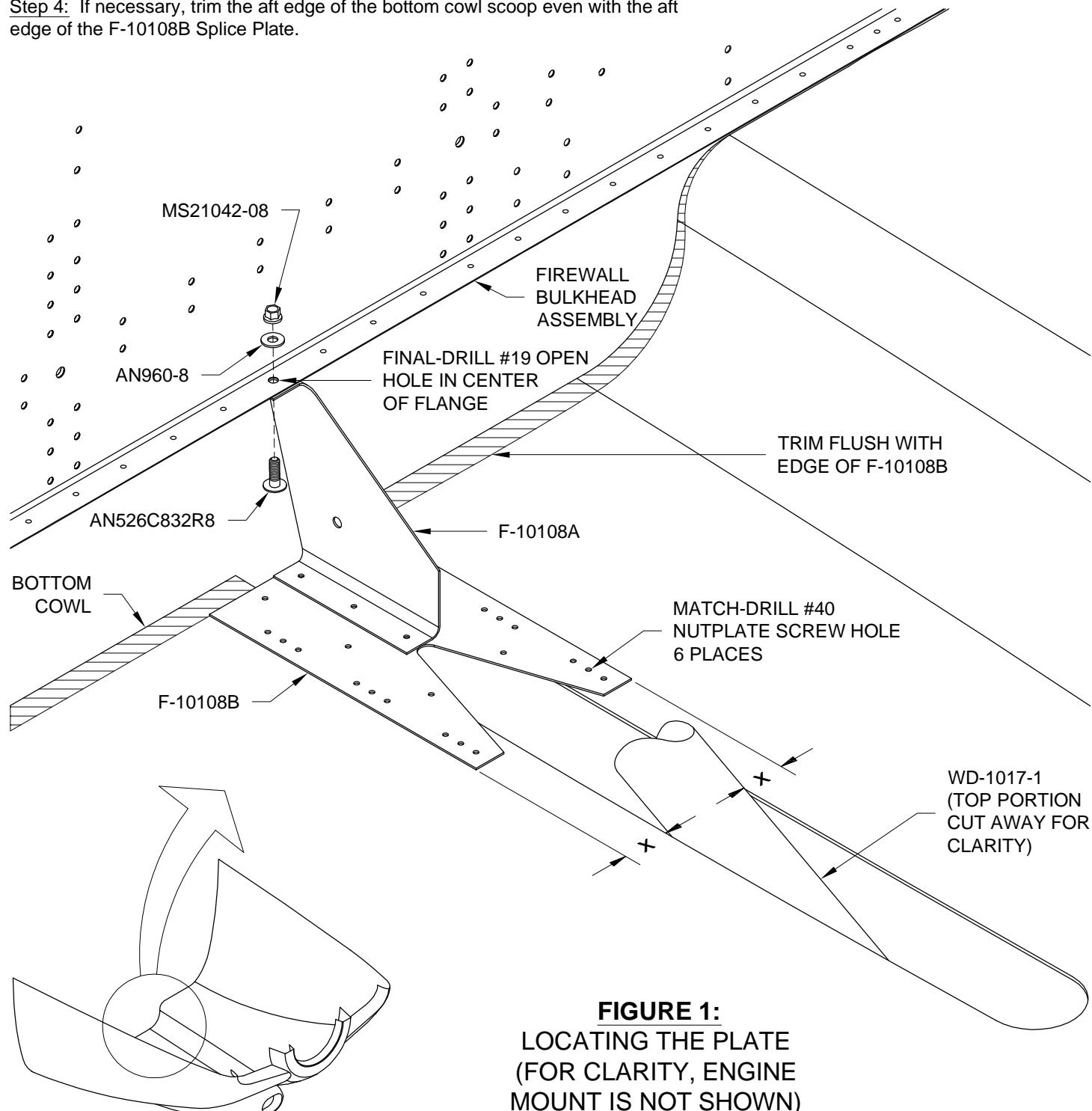
Step 1: Cleco the F-10108A Support Bracket to the F-10108B Splice Plate. Final-Drill #19 the open hole in the center of the Firewall Bulkhead Assembly bottom flange. Attach the support bracket to the bottom flange using this hole and the hardware shown in Figure 1.

Step 2: Make sure the F-10108A Support Bracket is vertical, not angled toward the left or right, then align the centerline of the F-10108B Splice Plate with the WD-1017-1 Nose Gear Leg Assembly. This can be accomplished, as shown in Figure 1, by projecting two lines off the edges of the splice plate and rotating the splice plate until there is equal distance between these lines and the Nose Gear Leg Assembly.

Clamp the splice plate in position then trace the side and aft edges of the splice plate onto the bottom cowl. Remove the bottom cowl, the F-10108A Support Bracket, and the F-10108B Splice Plate from the plane.

Step 3: Reposition the F-10108B Splice Plate on the bottom cowl using the trace made in Step 2. Match-Drill #40 the six 3/32" nutplate screw holes along the sides of the splice plate into the bottom cowl.

Step 4: If necessary, trim the aft edge of the bottom cowl scoop even with the aft edge of the F-10108B Splice Plate.

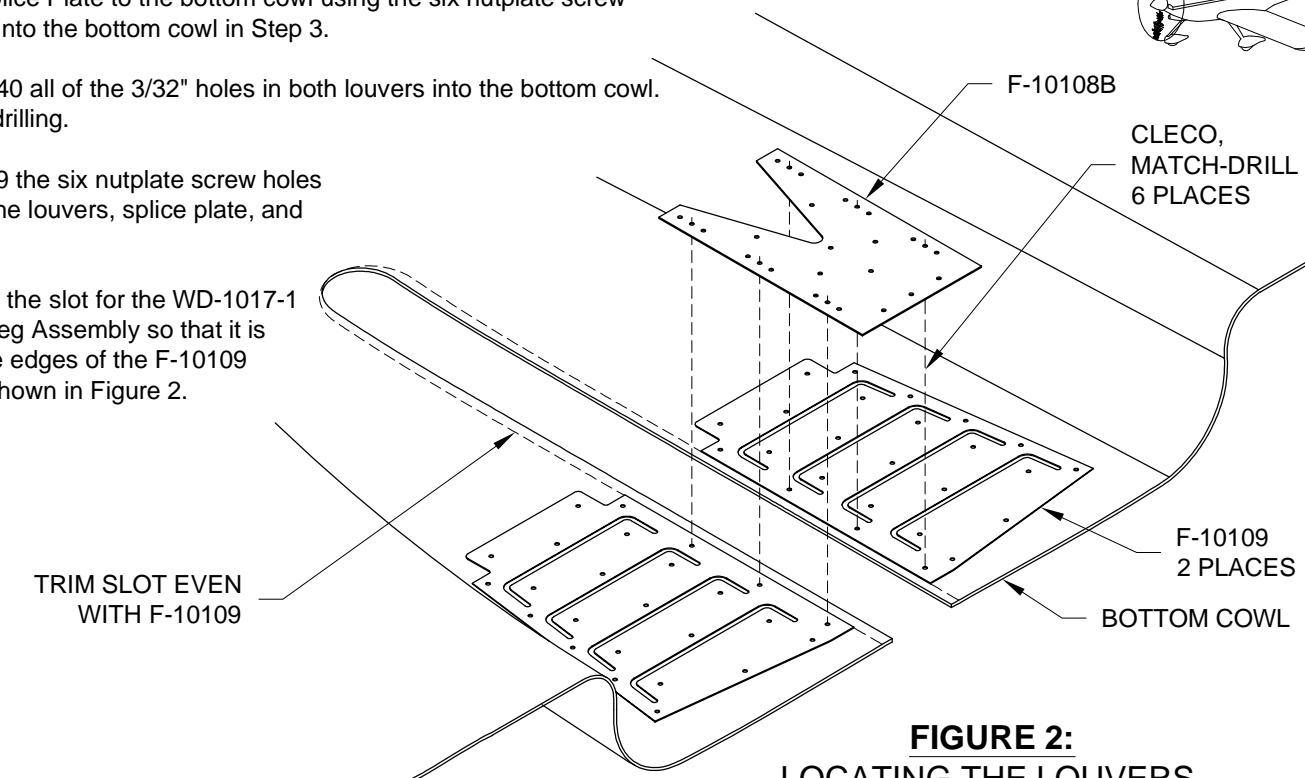


Step 5: As shown in Figure 2, cleco the two F-10109 Louvers and the F-10108B Splice Plate to the bottom cowl using the six nutplate screw holes drilled into the bottom cowl in Step 3.

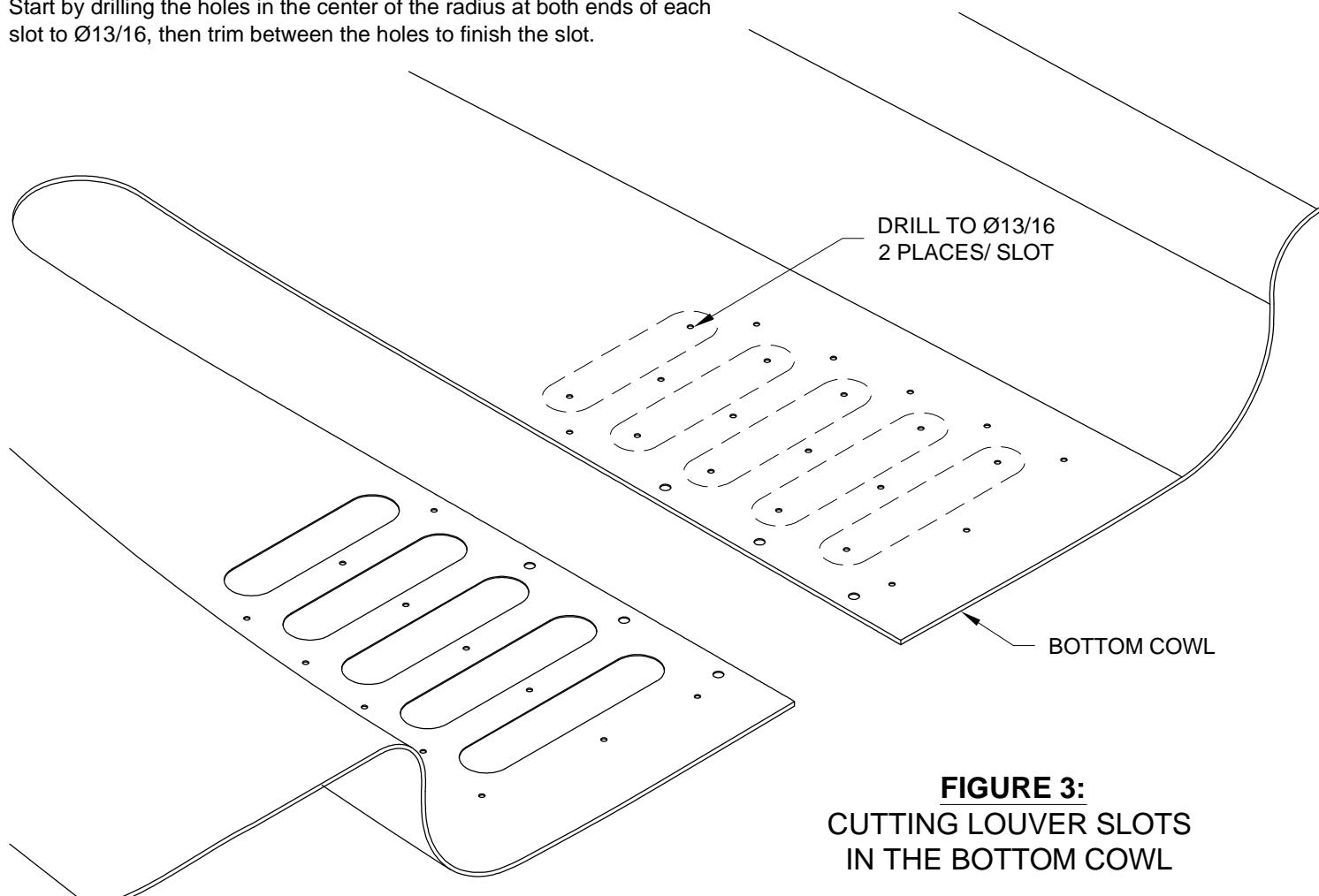
Match-Drill #40 all of the 3/32" holes in both louvers into the bottom cowl. Cleco while drilling.

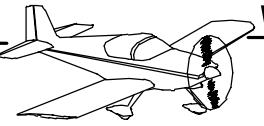
Final-Drill #19 the six nutplate screw holes common to the louvers, splice plate, and bottom cowl.

Step 6: Trim the slot for the WD-1017-1 Nose Gear Leg Assembly so that it is even with the edges of the F-10109 Louvers as shown in Figure 2.



Step 7: Cut the ten louver slots, shown in Figure 3, into the bottom cowl. Start by drilling the holes in the center of the radius at both ends of each slot to Ø13/16, then trim between the holes to finish the slot.





Step 1: Bend the tabs on both F-10109 Louvers to form the F-10109-L and -R Louvers. Bend each tab approximately 45° along the bend lines shown in Figure 1.

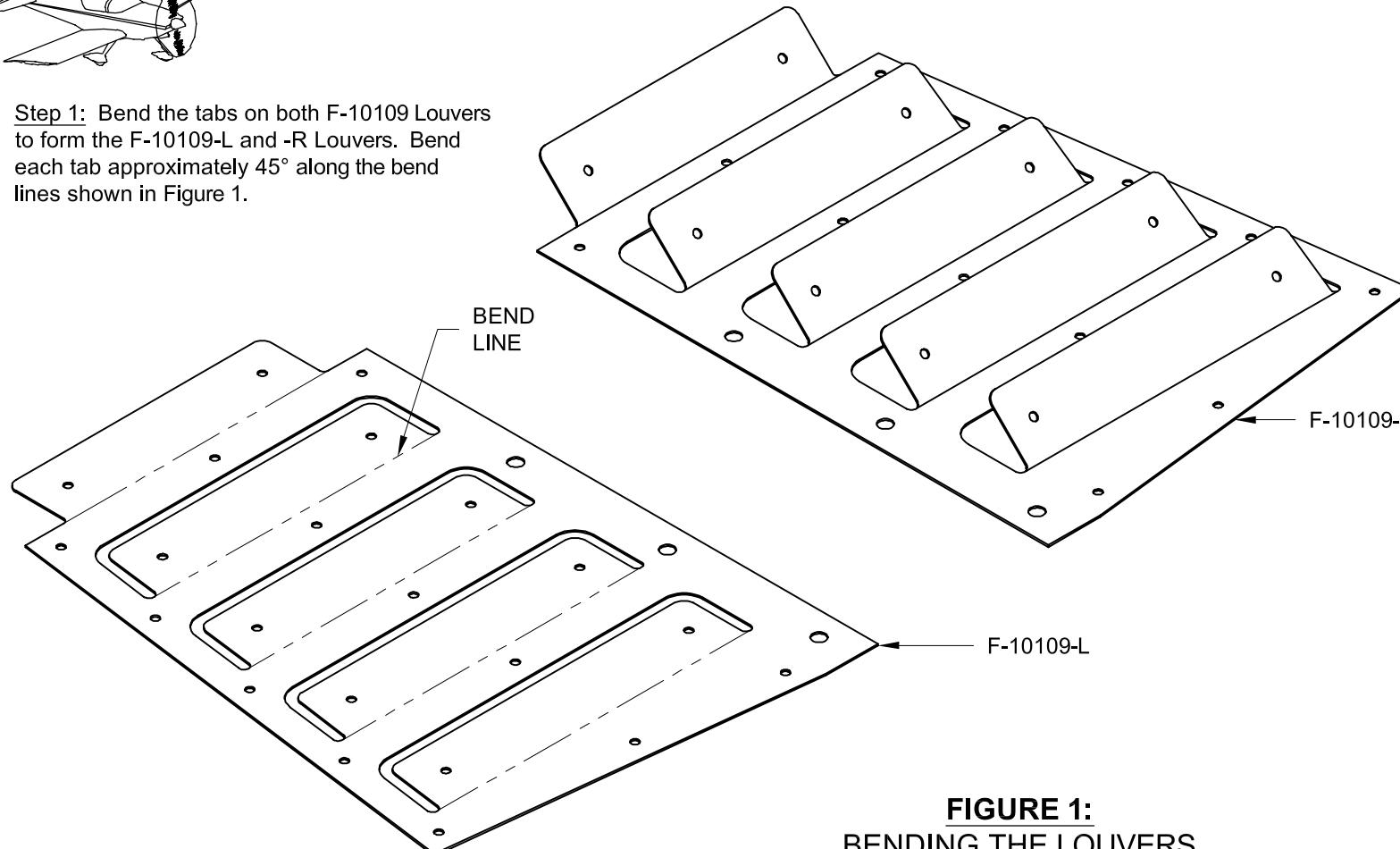


FIGURE 1:
BENDING THE LOUVERS

Step 2: Cleco together the F-10108A Support Bracket, the F-10108B Splice Plate, and the F-10108C Plate as shown in Figure 3. Final-Drill #40 all of the 3/32" holes common to the three parts and the six pairs of nutplate attachment rivet holes in the splice plate.

Step 3: Machine countersink the nutplate attachment rivet holes in the F-10108B Splice Plate and all the holes in the F-10108C Plate for AN426AD3 rivets.

Step 4: Attach the six nutplates to the F-10108B Splice Plate using the rivets called-out in Figure 2.

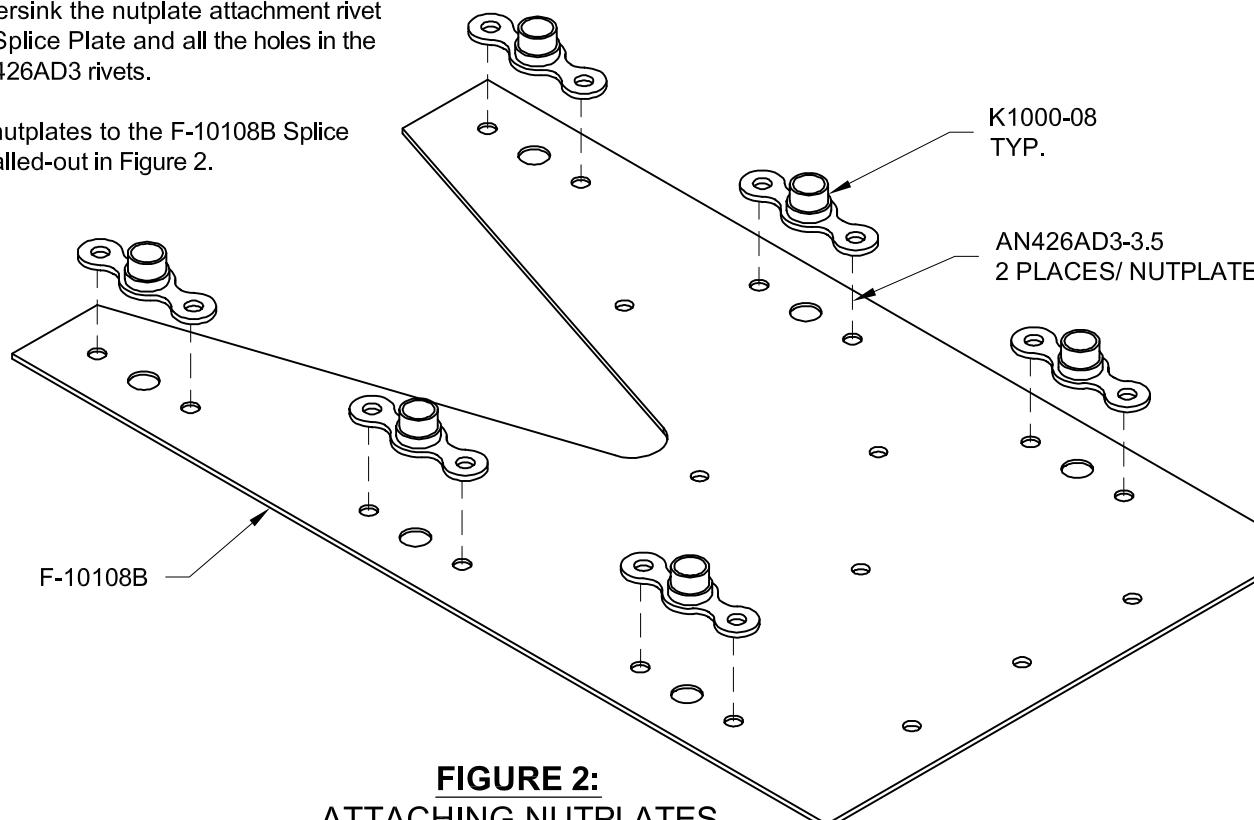


FIGURE 2:
ATTACHING NUTPLATES

Step 5: Rivet together the F-10108A Support Bracket, the F-10108B Splice Plate, and the F-10108C Plate using the rivets called-out in Figure 3.

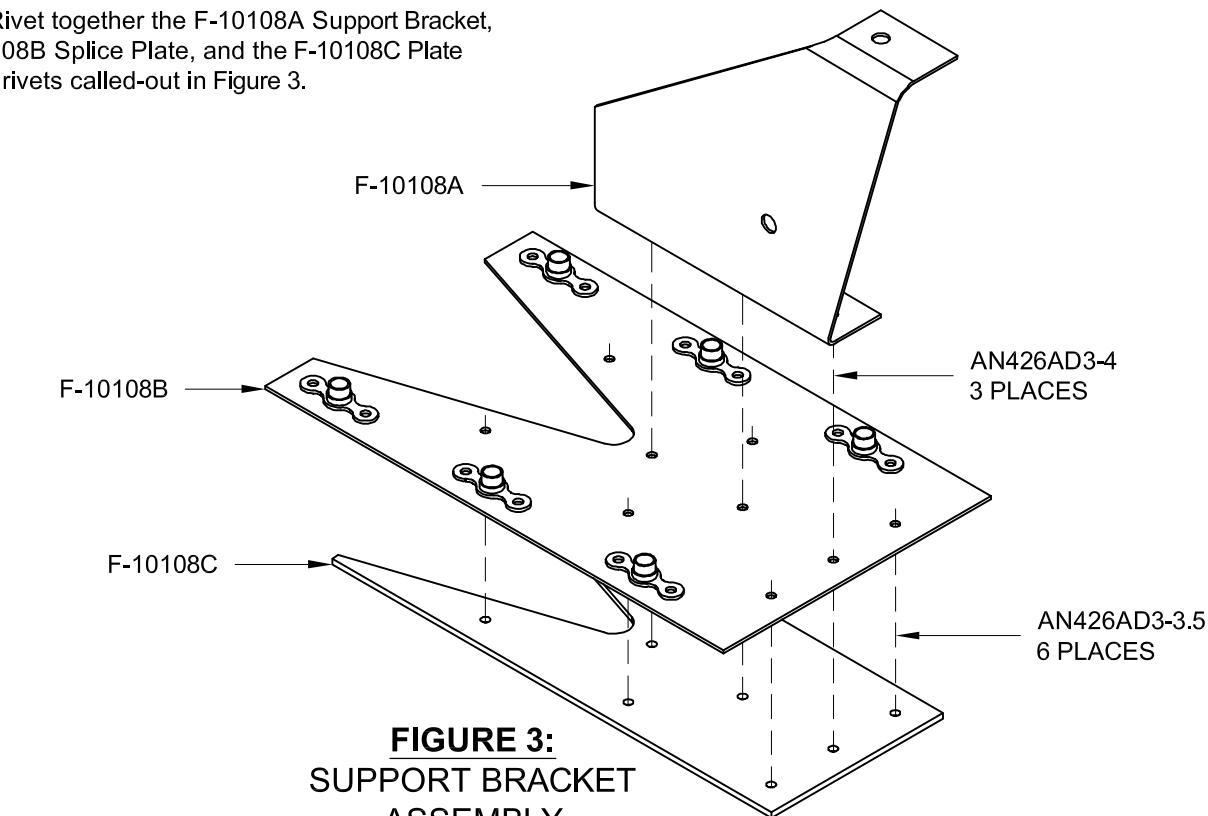


FIGURE 3:
SUPPORT BRACKET
ASSEMBLY

Step 6: Machine countersink the holes in the bottom cowl used to attach the F-10109 Louvers for the heads of AN426AD3 rivets. Rivet the louvers to the bottom cowl using the rivets called-out in Figure 4.

Step 7: Secure the Support Bracket Assembly to the bottom cowl using the hardware called-out in Figure 4, and secure it to the F-1001A Firewall Bulkhead using the hardware called-out on Page 47-11, Figure 1.

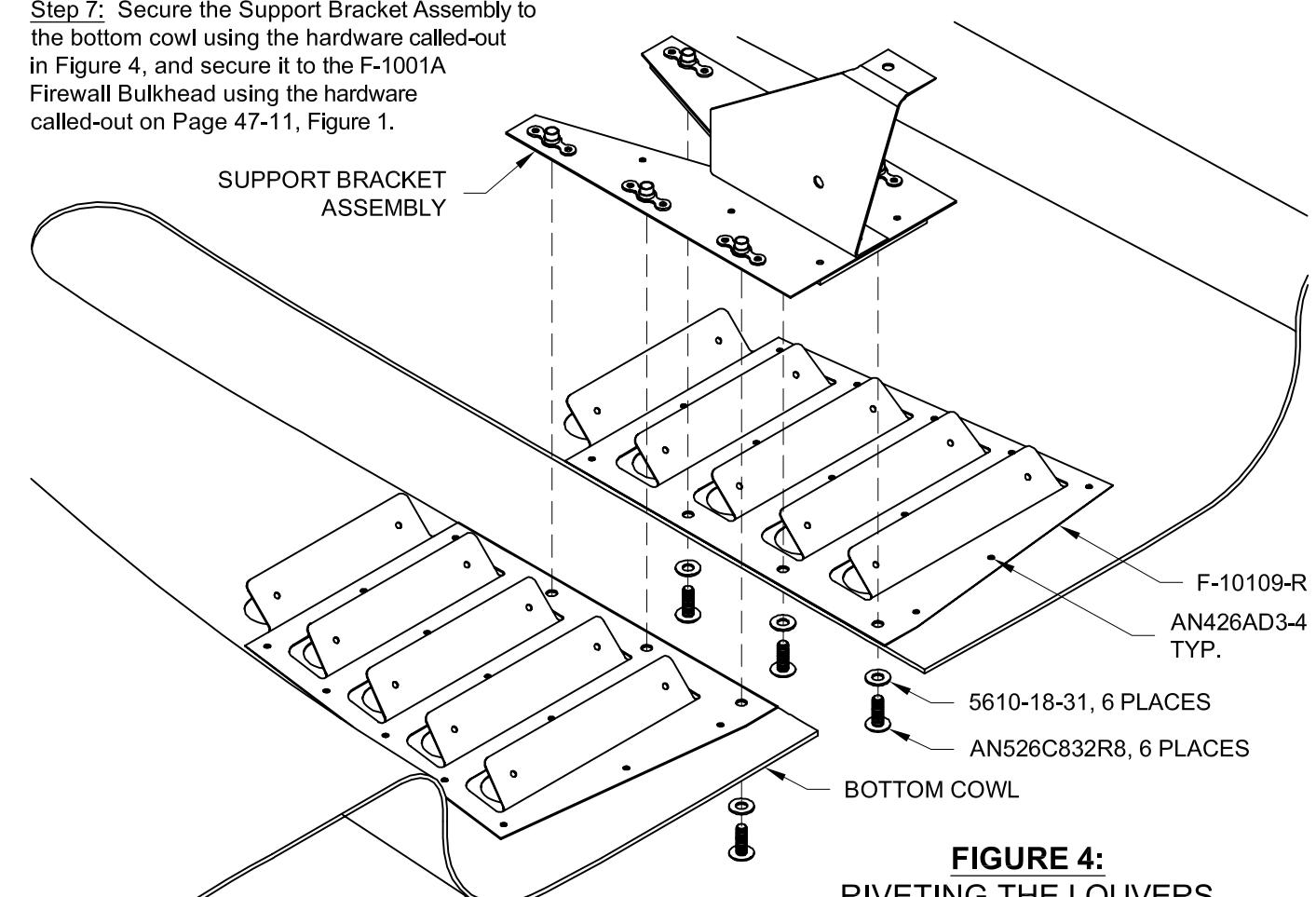


FIGURE 4:
RIVETING THE LOUVERS