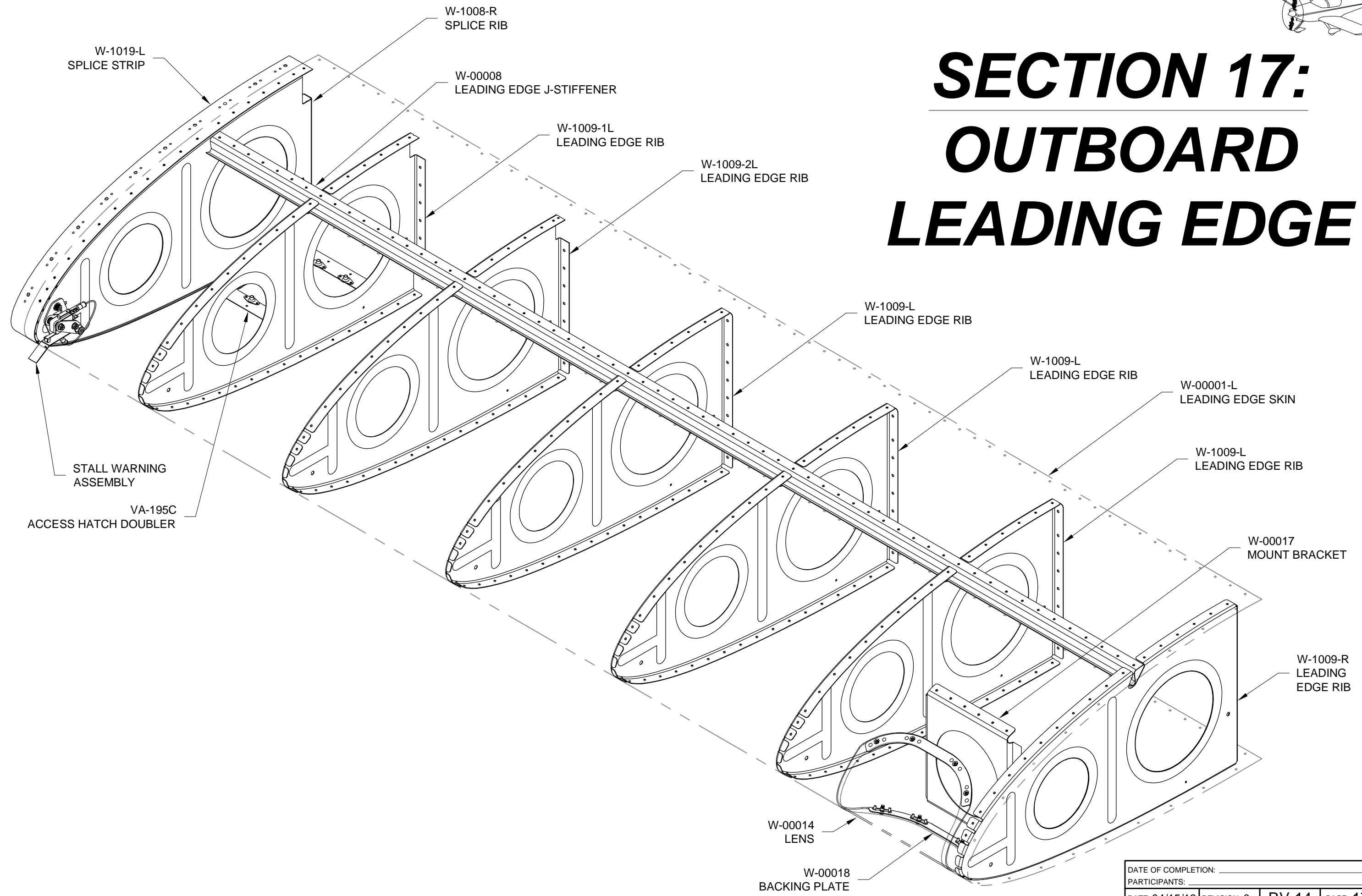


SECTION 17: OUTBOARD LEADING EDGE





Step 1: Create a cradle to hold both the leading edge and tank assemblies during assembly.

Remove the material indicated by the hatched area in Figure 1 from the VB-11 Wing Leading Edge Vee Blocks. Save the removed material, it will be used later to create the flap cradle.

Make clamp blocks 12 inches [304.8 mm] long from 2 X 2 wood blocks (U.S. wood dimensions being what they are, the nominal dimensions of these blocks should be approximately 1 3/4 inches [44.5 mm] x 1 3/4 inches [44.5 mm]) and screw them to the vee blocks as shown in Figure 2.

Pad the inside face of the vee blocks with duct tape or weather strip as shown in Figure 2.

Clamp the vee blocks to the edge of your work table as shown in Figure 2. It may be necessary to reposition the clamps during later steps.

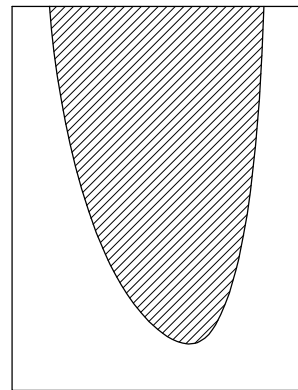


FIGURE 1: WING LEADING EDGE VEE BLOCK

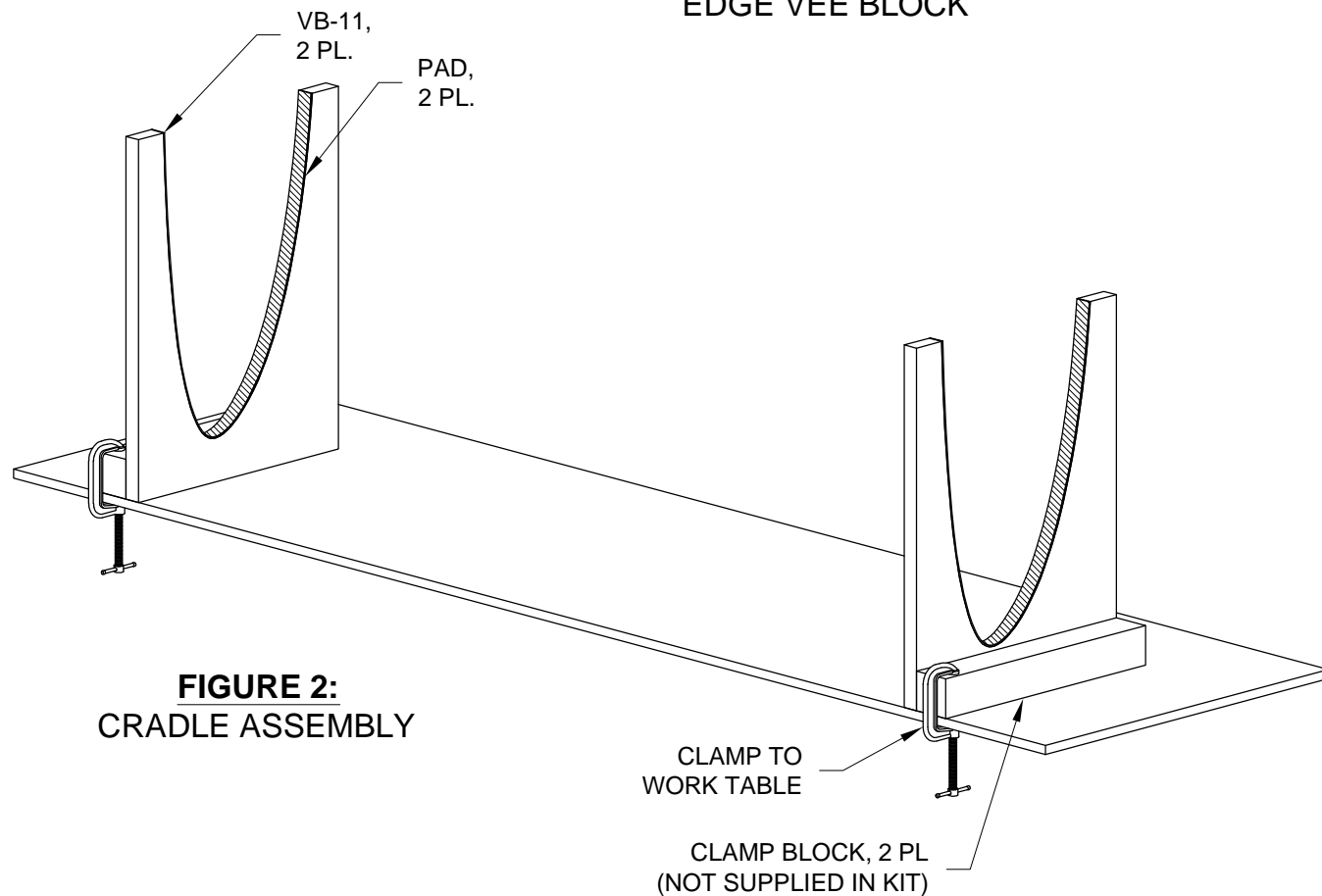


FIGURE 2: CRADLE ASSEMBLY

Step 2: Adjust all flange angles, flute, and straighten all the W-1008 Splice Ribs and W-1009 Leading Edge Ribs per Section 5.13.

Step 3: Final-Drill #40 all .094 [2.4 mm] diameter holes in all the W-1008-L & -R Splice Ribs and W-1009-L & -R Leading Edge Ribs.

Final-Drill #30 all .125 [3.2 mm] diameter holes in all the splice ribs and leading edge ribs.

Step 4: Modify two W-1009-L for the left wing assembly and two W-1009-R Leading Edge Ribs for the right wing assembly per the dimensions given in Table 1 and as shown in Figure 3. This will create W-1009-1L, W-1009-2L, W-1009-1R and W-1009-2R. The ribs must be notched to fit around the spar bars and rivet heads on the main spar assembly. Because the main spar bars are stepped (spanwise thickness changes) two different modified ribs will be required, see the isometric view on Page 17-01.

	X1	Y1	X2	Y2
W-1009-1L/R	0.406 [10.3 mm]	1.420 [36.1 mm]	0.156 [4.0 mm]	1.420 [36.1 mm]
W-1009-2L/R	0.281 [7.1 mm]	1.420 [36.1 mm]	N/A	N/A

TABLE 1: LEADING EDGE RIB TRIM

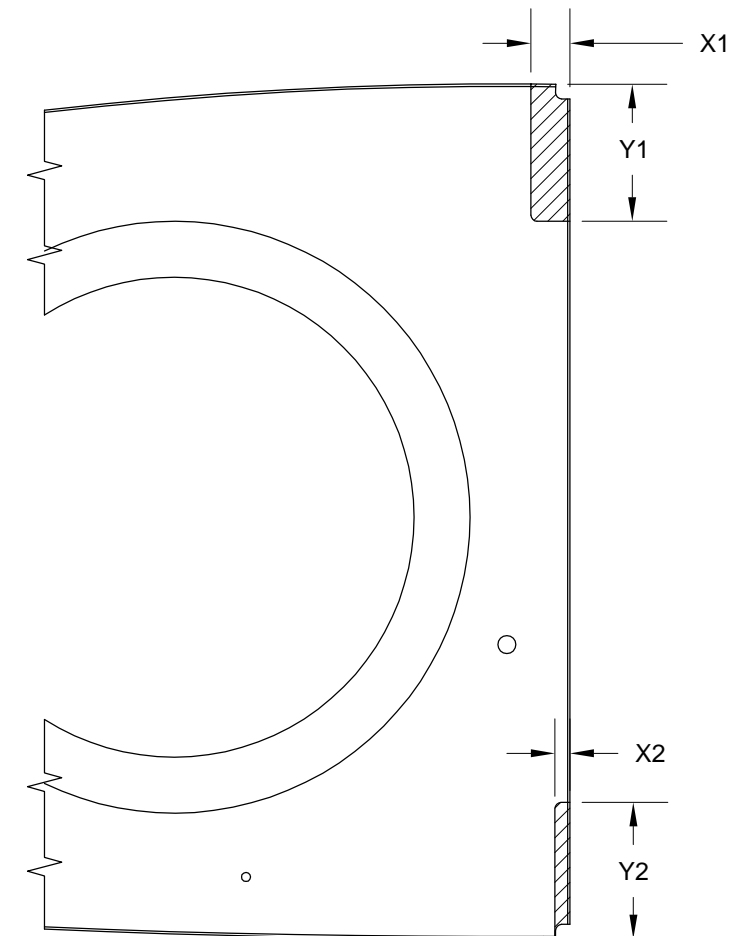


FIGURE 3: LEADING EDGE RIB TRIM



Step 1: The flanges of the W-1008 Splice Ribs and W-1009 Leading Edge Ribs are notched where they form around the tight curvature of the leading edge. Despite the notching, the flanges still do not form perfectly but turn-out slightly faceted.

Buff the edges of the splice and leading edge rib flanges as shown in Figure 1 on an abrasive wheel in order to minimize the tendency for them to appear faceted instead of curved.

Step 2: Deburr all holes and edges of the W-1008 Splice Ribs and W-1009 Leading Edge Ribs.

Step 3: Dimple all the #40 holes in the flanges of all the W-1008-L & -R Splice Ribs and W-1009-L & -R Leading Edge Ribs.

Dimple the #40 nutplate attach holes in the W-1008-R Splice Rib. See Page 17-06, Figure 1 to determine proper dimple orientation.

Final-Drill #40 the screw holes in the W-1008-R Splice Rib. See "Final Drill" call-out on Page 17-06, Figure 1.

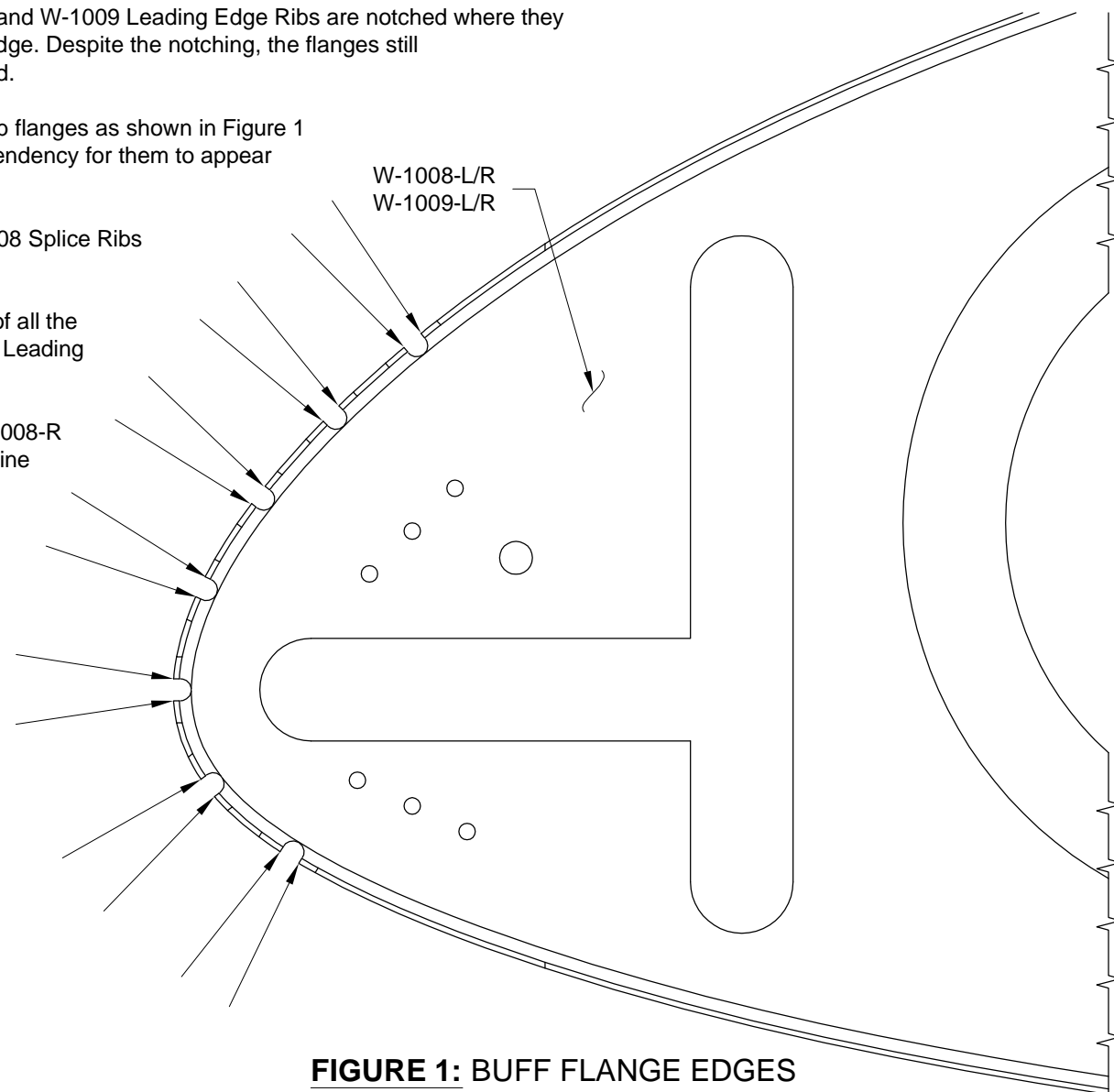
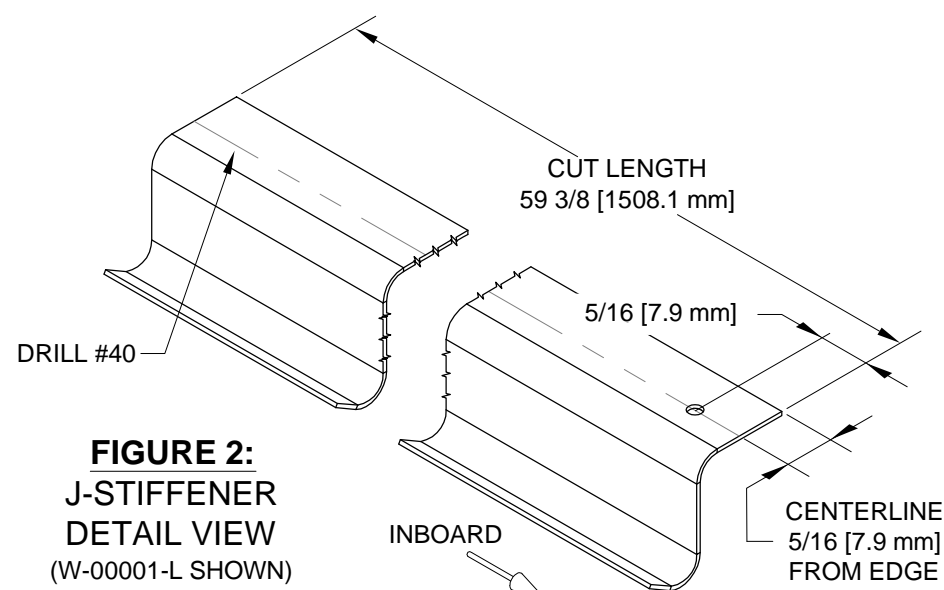


FIGURE 1: BUFF FLANGE EDGES

Step 4: Fabricate the W-00008-L & -R Leading Edge J-Stiffeners for both the left and right wing assemblies by cutting two pieces of J-channel, each one to the length called-out in Figure 2. An abrasive cutting disk in a die grinder works well for cutting the J-channel.

Draw a centerline on the flange of each J-stiffener as shown in Figure 2.

Drill #40 a hole in each J-stiffener located as shown in Figure 2.



**FIGURE 2:
J-STIFFENER
DETAIL VIEW
(W-00001-L SHOWN)**

Step 5: Remove the W-1019-L and W-1019-R Splice Strips from the T-00001-L and T-00001-R Fuel Tank Skins, see Figure 3. Careful use of a die-grinder with an abrasive cutting disk works well.

File the remaining tab material off both the splice strips and fuel tank skins.

Set aside the fuel tank skins as they will not be used in this section of the assembly manual.

NOTE: Holes dimpled for a #8 screw have a tendency to crack if not deburred carefully. First check that the hole has been drilled to final size. Before dimpling, thoroughly deburr the holes.

Step 6: Final-Drill #19 all .161 [4.1 mm] holes in the W-1019-L & -R Splice Strips.

Deburr the #19 holes.

Step 7: Dimple the #19 holes in the W-1019-L & -R Splice Strips for a #8 screw.

Step 8: Dimple all the .098 [2.5 mm] diameter holes in the W-1019-L & -R Splice Strips.

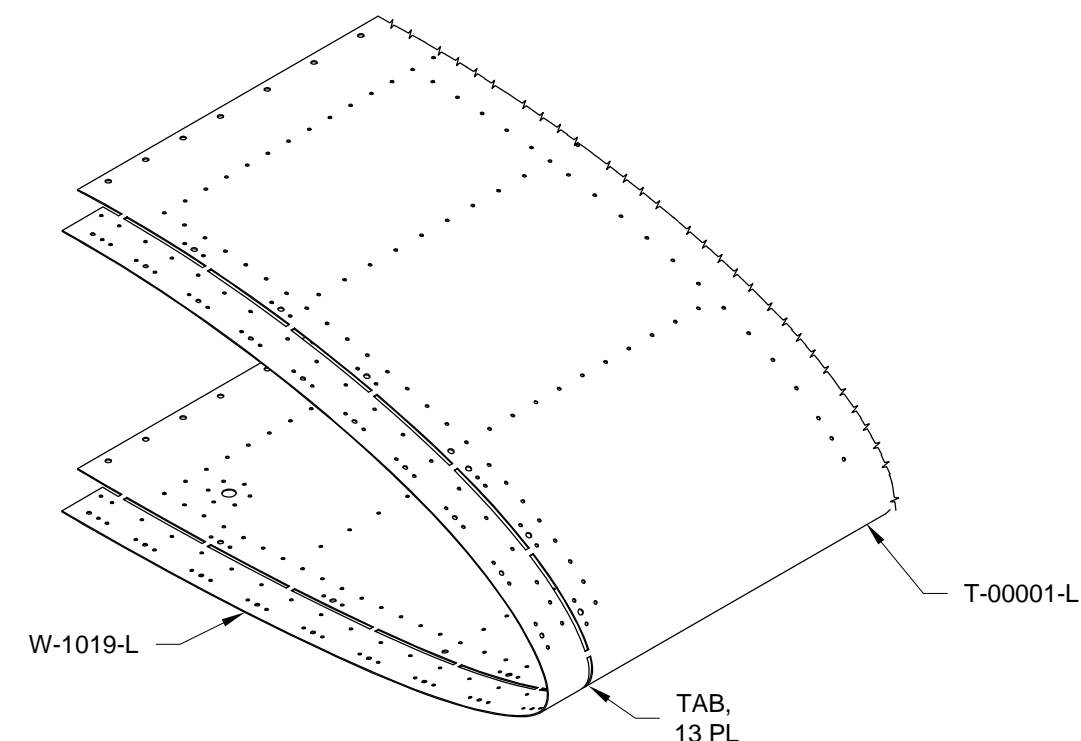


FIGURE 3: REMOVING SPLICE STRIP FROM FUEL TANK SKIN



Step 1: Remove the protective vinyl coating from the inside surface of the W-00001-L & -R Leading Edge Skins.

Step 2: Insert the W-00001-L Leading Edge Skin into the cradle. Cleco the W-1009-1L, W-1009-2L, and W-1009-L & -R Leading Edge Ribs to the leading edge skin as shown in Figure 1.

Step 3: Insert the W-00008-L Leading Edge J-Stiffener into the assembly as shown in Figure 1. Insert a cleco through the inboard most J-stiffener rivet hole in the W-00001-L Leading Edge Skin and the single hole in the J-stiffener. See Figure 1.

Align the centerline drawn on the flange of the W-00008-L Leading Edge J-Stiffener with the holes in the W-00001-L Leading Edge Skin, clamp in place then match-drill #40 and cleco the J-stiffener to the skin. Cleco as you drill.

Step 4: Match-Drill #40 the W-00001-L Leading Edge Skin to the W-1009-1L, W-1009-2L, and W-1009-L & -R Leading Edge Ribs at the aft most rib to skin rivet hole both top and bottom. See Figure 1.

Step 5: Final-Drill #10 both stall warning guide holes in the W-00001-L Leading Edge Skin. See Figure 1.

Remove the hatched area as shown in Figure 1. Drill a series of closely spaced #40 holes then use a small diagonal cutter to snip between the holes. Use a small file to finish the opening.

Step 6: Remove the W-00008-L Leading Edge J-Stiffener and W-1009-1L, W-1009-2L, and W-1009-L & -R Leading Edge Ribs from the W-00001-L Leading Edge Skin.

Remove the leading edge skin from the cradle.

Repeat Steps 1 through 4 on this page for the right side leading edge skin, ribs, and leading edge j-stiffener.

Step 7: Deburr then dimple the #40 holes in the W-00008-L & -R Leading Edge J-Stiffeners and W-1009-1, W-1009-2, and W-1009-L & -R Leading Edge Ribs.

NOTE: Do not dimple the outboard most row of holes in the leading edge skins (used later for wing tip attachment). Or the tie-down hole. See Page 17-08, Figure 1.

Step 8: Dimple the W-00001-L & -R Leading Edge Skins.

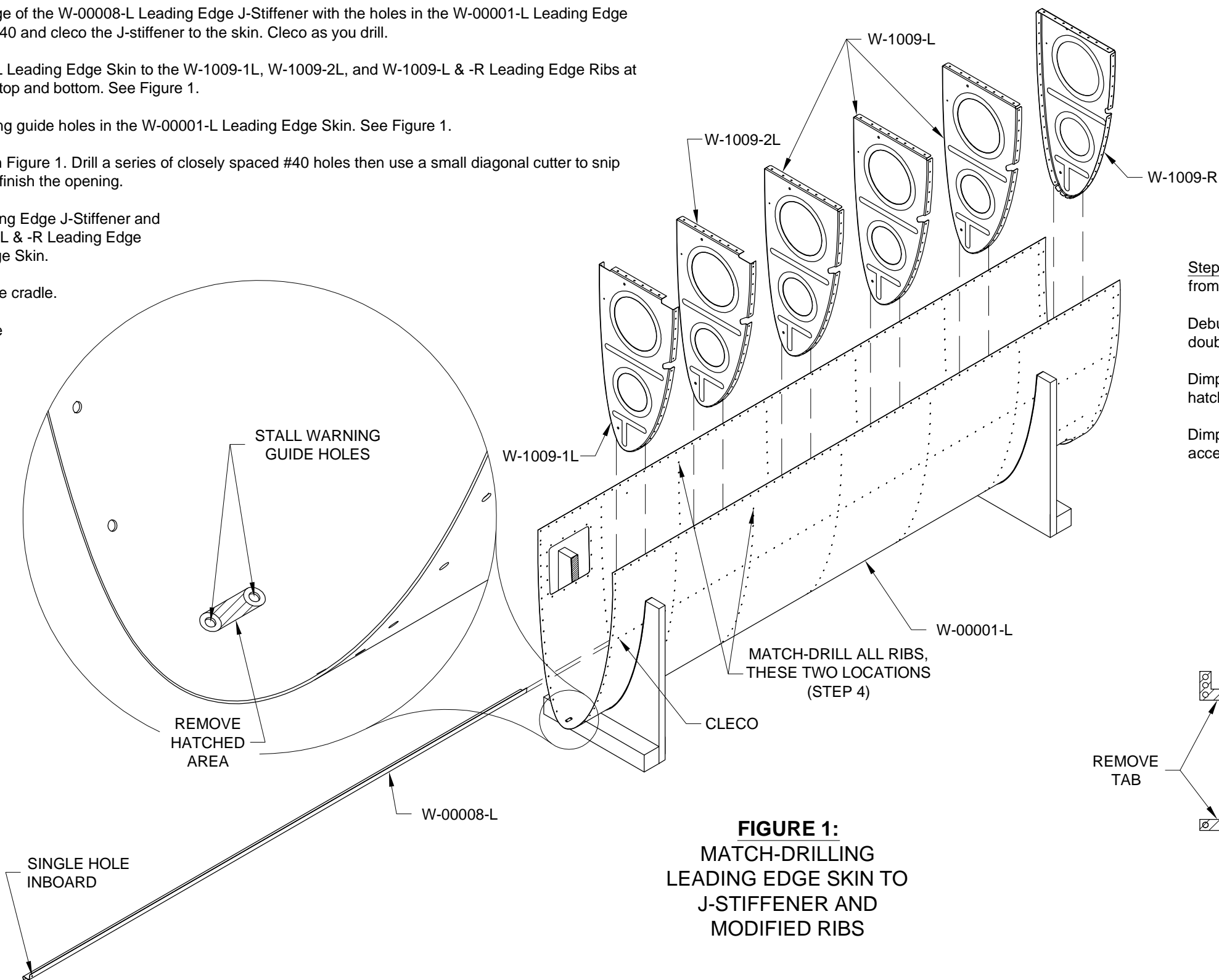


FIGURE 1:
MATCH-DRILLING
LEADING EDGE SKIN TO
J-STIFFENER AND
MODIFIED RIBS

Step 9: Remove the reference tabs shown in Figure 2 from the VA-195C Access Hatch Doubler.

Deburr the edges and holes of the access hatch doubler and VA-195D Access Hatch.

Dimple the screw holes in the access hatch and access hatch doubler for the head of a #6 screw. See Figure 2.

Dimple all the 0.98 [2.5 mm] diameter holes in the access hatch doubler. See Figure 2.

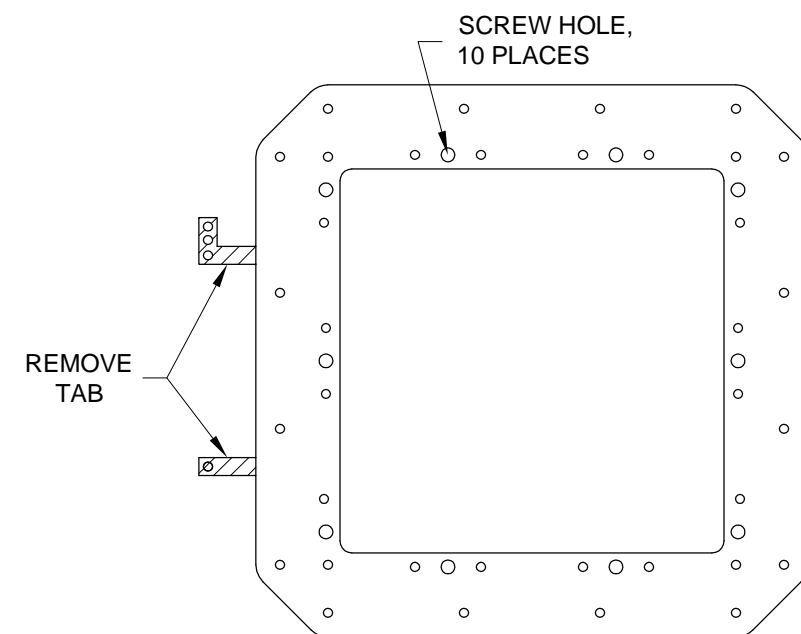
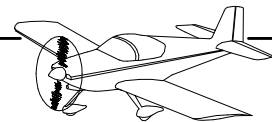


FIGURE 2:
ACCESS HATCH DOUBLER



Step 1: Dimple the .098 [2.5 mm] diameter holes in all four W-00018 Backing Plates. See Figure 1.

Dimple the .098 [2.5 mm] diameter holes in both W-00017 Mount Brackets. See Figure 2.

Step 2: Prime all parts if/as desired. For those builders preferring a finish such as matte black or gloss white inside the landing light covers, now is the recommended time to apply finish paint to the following parts/locations:

Outboard rib bays of W-00001-L & -R Leading Edge Skins.

Inboard sides of outboard W-1009-L & -R Leading Edge Ribs.

Outboard sides of second leading edge rib.

Forward sides of W-00017 Mount Brackets.

W-00018 Backing Plates.

Step 3: The nutplates called out in Figures 1 through 3 must have their attach holes dimpled before installation. Dimple one full shipset of all the nutplates called out in Figures 1 through 3. See Section 5.16 for more information on dimpling nutplates.

Step 4: Install nutplates to all four W-00018 Backing plates as shown in Figure 1.

Install nutplates to both W-00017 Mount Brackets as shown in Figure 2.

Install nutplates to the VA-195C Access Hatch Doubler as shown in Figure 3.

Install nutplates to the W-1019-L and W-1019-R Splice Strips as shown in Figure 4.

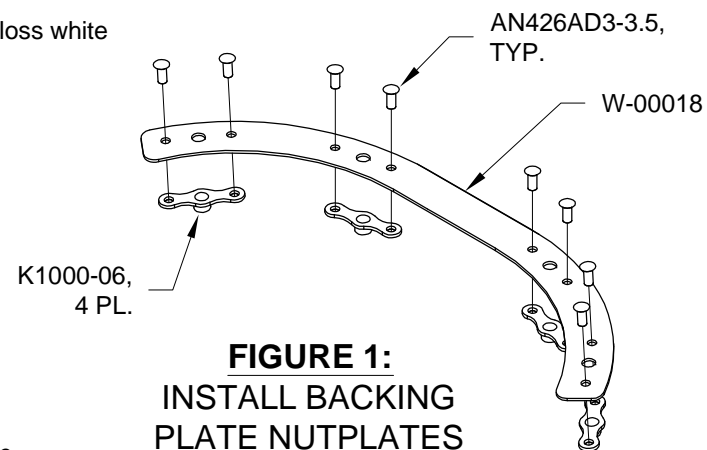


FIGURE 1:
INSTALL BACKING
PLATE NUTPLATES

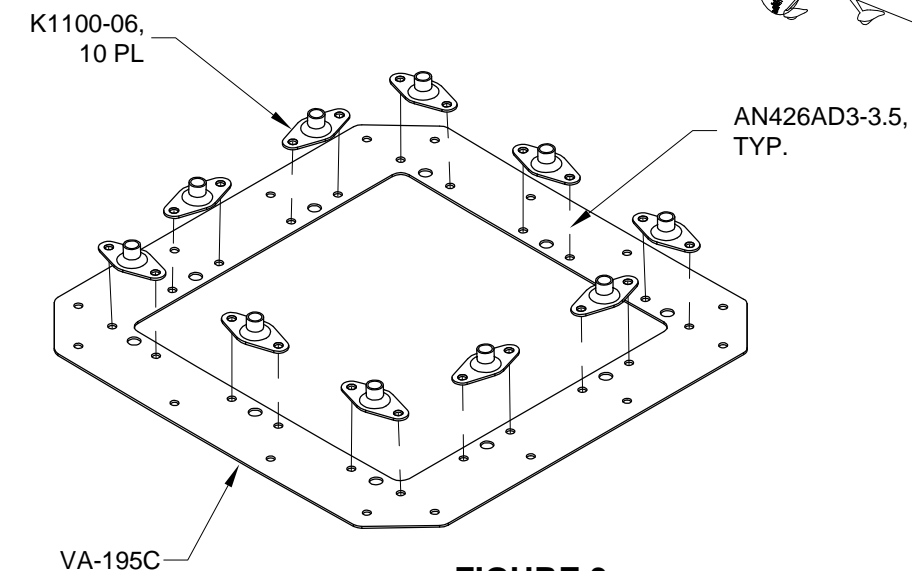


FIGURE 3:
INSTALL ACCESS
HATCH DOUBLER
NUTPLATES

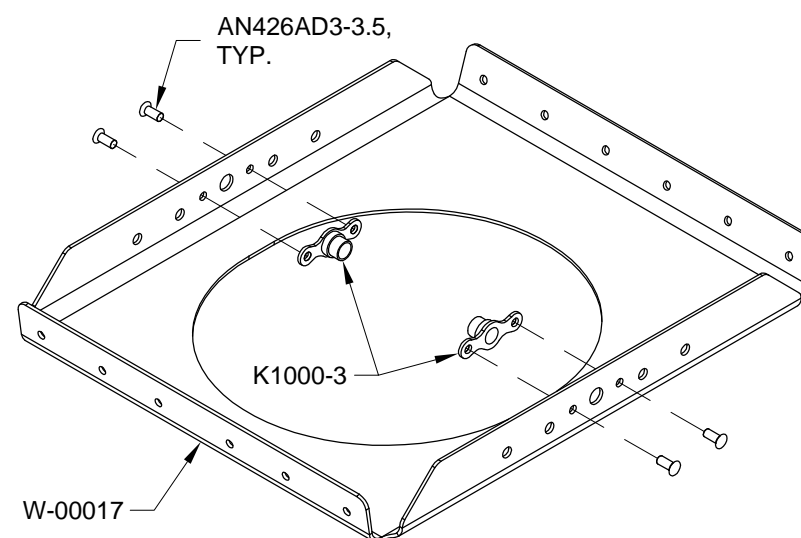


FIGURE 2:
INSTALL MOUNT
BRACKET NUTPLATES

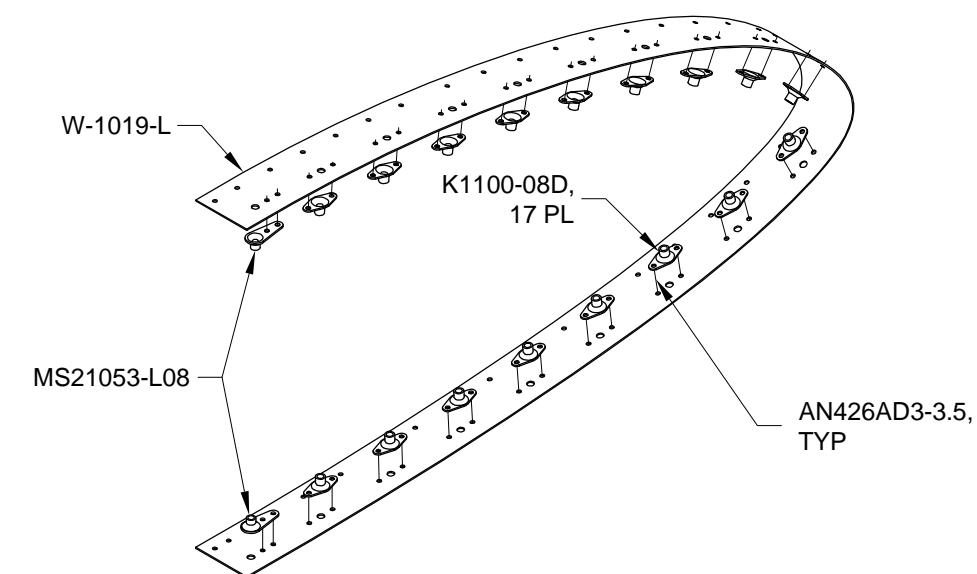
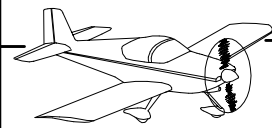


FIGURE 4:
INSTALL SPLICE
STRIP NUTPLATES



Step 1: Install nutplates to the W-1008-R Splice Rib as shown in Figure 1.

Step 2: Insert the W-00001-L Leading Edge Skin into the cradle.

NOTE: Refer to Page 17-08, Figure 1 for rivet call-outs.

Step 3: Cleco the VA-195C Access Hatch Doubler to the W-00001-L Leading Edge Skin and back rivet. The access hatch doubler must be oriented such that there are two nutplates on the forward and aft edges and three nutplates on its inboard and outboard edges. See Figure 2 and Page 17-05, Figure 3.

Step 4: Cleco all the W-1009 Leading Edge Ribs, the W-1019-L Splice Strip, and the W-1008-R Splice Rib to the W-00001-L Leading Edge Skin as shown in Figure 2.

Rivet the aft most two holes in the leading edge ribs and splice rib, top and bottom, then rivet all parts together progressively working towards the leading edge.

Step 5: Cleco then rivet the W-00017 Mount Bracket to the W-00001-L Leading Edge Skin. See Figure 2.

Step 6: Cleco then rivet the W-00008-L Leading Edge J-Stiffener to the W-00001-L Leading Edge Skin. See Figure 2.

Repeat steps 2, 4, 5, and 6 on this page for the right side leading edge skin, ribs, splice strip, mount bracket, and J-stiffener.

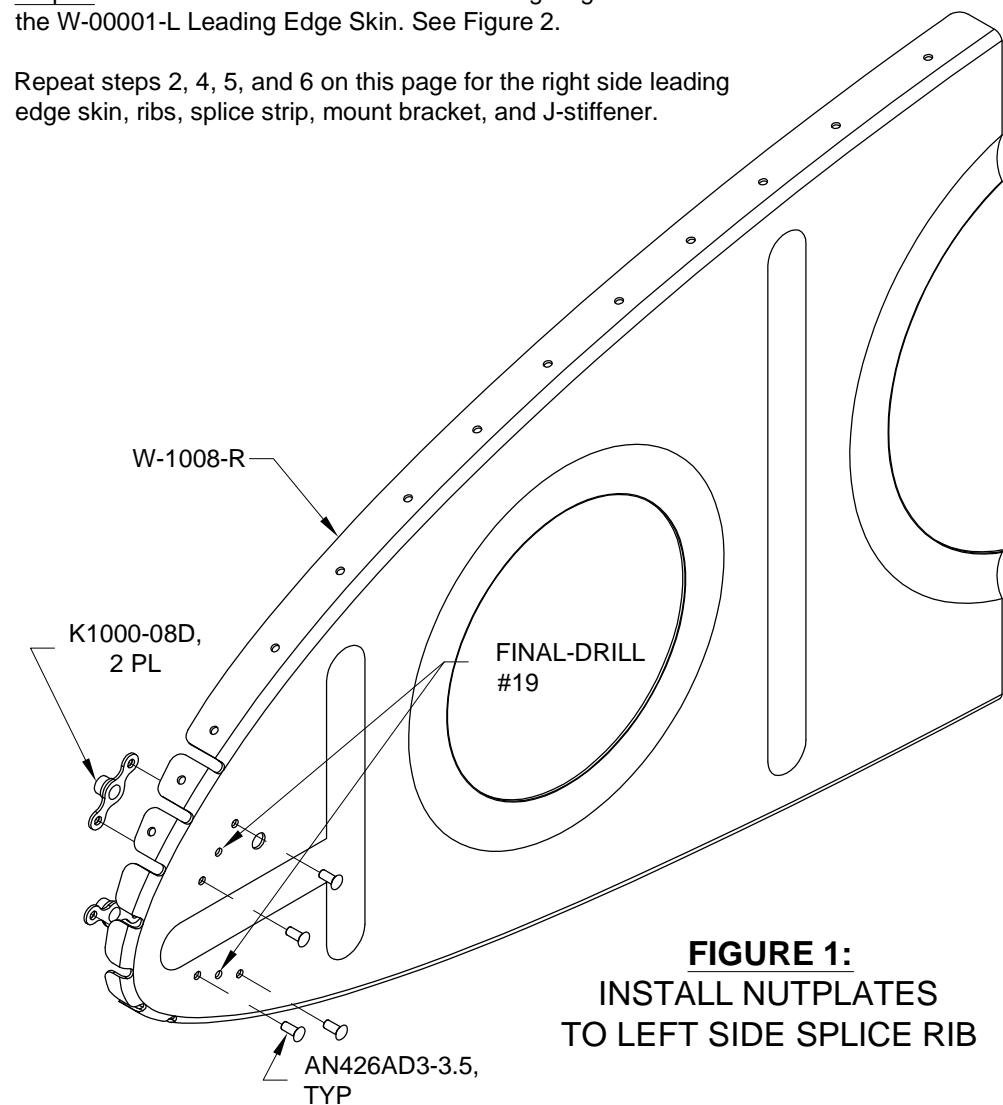


FIGURE 1:
INSTALL NUTPLATES
TO LEFT SIDE SPLICE RIB

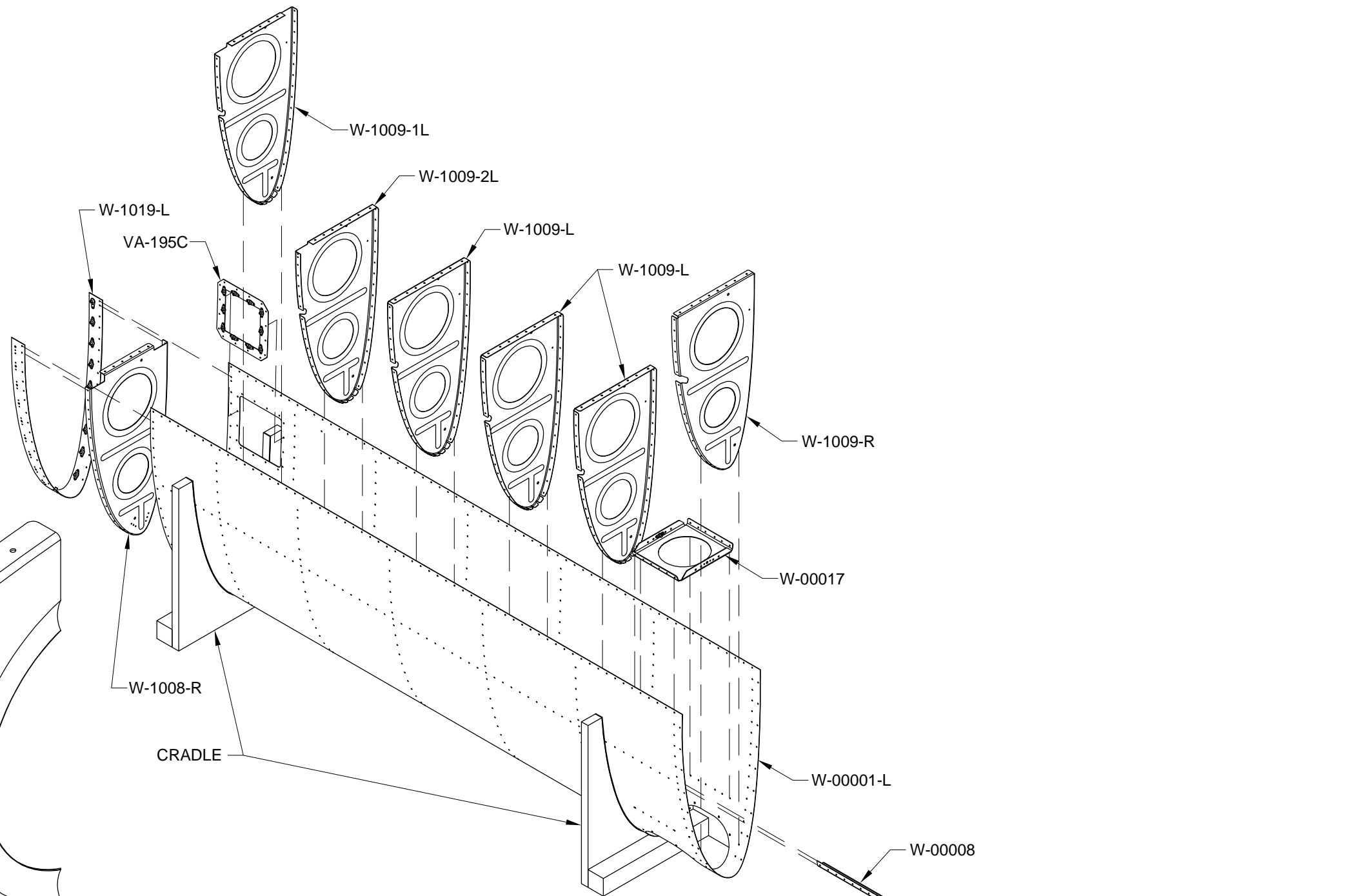
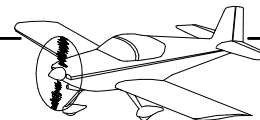


FIGURE 2:
OUTBOARD LEADING
EDGE SUBASSEMBLY



Step 1: Final-Drill #30 the holes in the VA-195A Stall Warning Mount Plate and VA-195B Stall Warning Keeper Plate. Machine countersink both holes to fit the head of a #4 screw on the inboard side. See Figure 1.

Step 2: Final-Drill #19 the holes in the VA-195A Stall Warning Mount Plate and VA-195B Stall Warning Keeper Plate that hold the screw on which the VA-196 Stall Warning Vane pivots. Machine countersink this hole on the inboard face of the mount plate to fit the head of a #8 screw. See Figure 1.

Step 3: Deburr all holes and edges. Prime the parts if/as desired.

Step 4: Assemble the Stall Warning Subassembly as shown in Figure 1. Do not over-torque the nut on the screw about which the VA-196 Stall Warning Vane pivots. Insure that the stall warning vane rotates freely.

Step 5: Install the Stall Warning Subassembly on the W-1008-R Splice Rib as shown in Figure 2.

Insert the upper screw through the slot in the VA-195A Mount Plate. This allows the angle of the stall warning subassembly to be adjusted. Adjust the stall warning subassembly until the VA-196 Stall Warning Vane activates and deactivates the ES E22-50K Micro Switch with the minimum travel possible (it is permissible to bend the arm on the micro switch if/as required).

Step 6: Double check that the VA-196 Stall Warning Vane in the at rest position is perpendicular to the surface of the wing skin. If the stall warning vane is not perpendicular, remove the stall warning subassembly and bend the stall warning vane as required. See Figure 3.

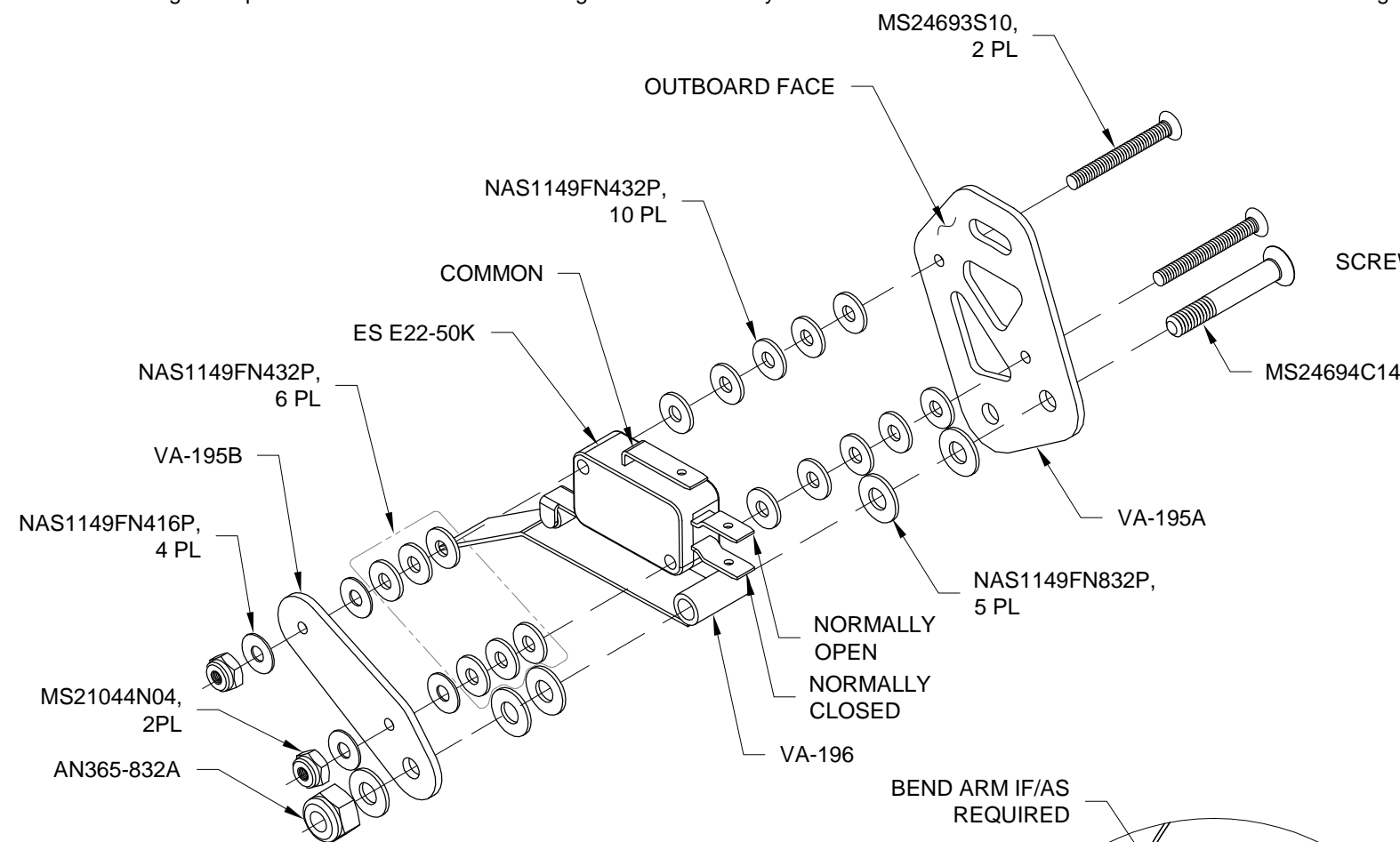


FIGURE 1: STALL WARNING SUBASSEMBLY

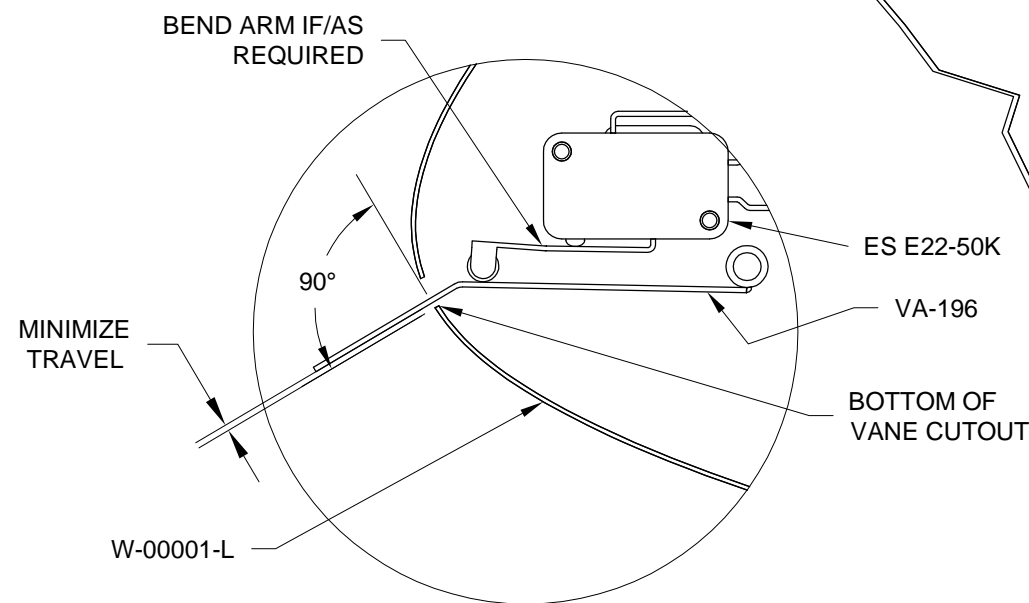


FIGURE 3: ACTIVATING THE MICRO SWITCH

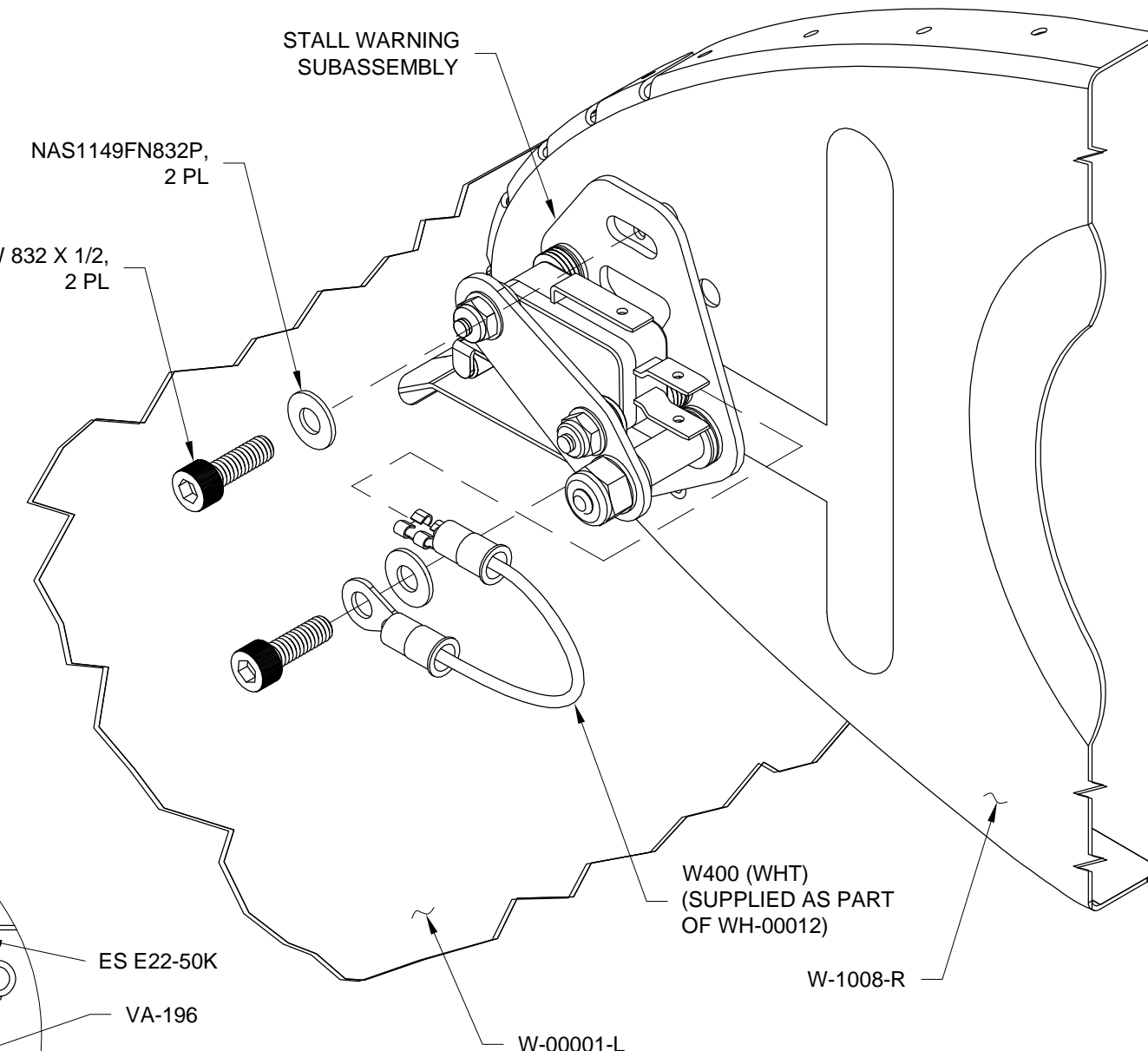


FIGURE 2: STALL WARNING SUBASSEMBLY INSTALLATION



Step 1: Final-Drill .375 [9.5 mm] the tie-down hole (indicated in Figure 1) to allow a tie-down ring to be inserted through the W-00001-L Leading Edge Skin into the W-00006-L Main Spar Assembly.

NOTE: Tie down rings are not provided in kit, order **BOLT EYE 3/8-16 T.D.** from **VAN'S ACCESSORIES CATALOG.**

Step 2: Remove any clecos holding the W-1012-R Outboard Wing Rib to the main spar assembly. Cleco the Leading Edge Assembly to the Main Spar Assembly. Check that the tie-down hole in the W-00001-L Leading Edge Skin is lined up with the hole in the W-00006E Tie Down Bracket in the Main Spar Assembly.

Step 3: Rivet the W-1009-R Leading Edge Rib to the Main Spar Assembly and W-1012-R Wing Rib as shown in Figure 2.

Step 4: Rivet the W-1008-R Splice Rib and all remaining W-1009 Leading Edge Ribs to the Main Spar Assembly as shown in Figure 2.

Step 5: Rivet the W-00001-L Leading Edge Skin to the Main Spar Assembly flanges. See Figure 1 for rivet call-outs.

Repeat the steps on this page for the right side outboard leading edge assembly.

Step 6: Install the VA-195D Access Hatch as shown in Figure 2.

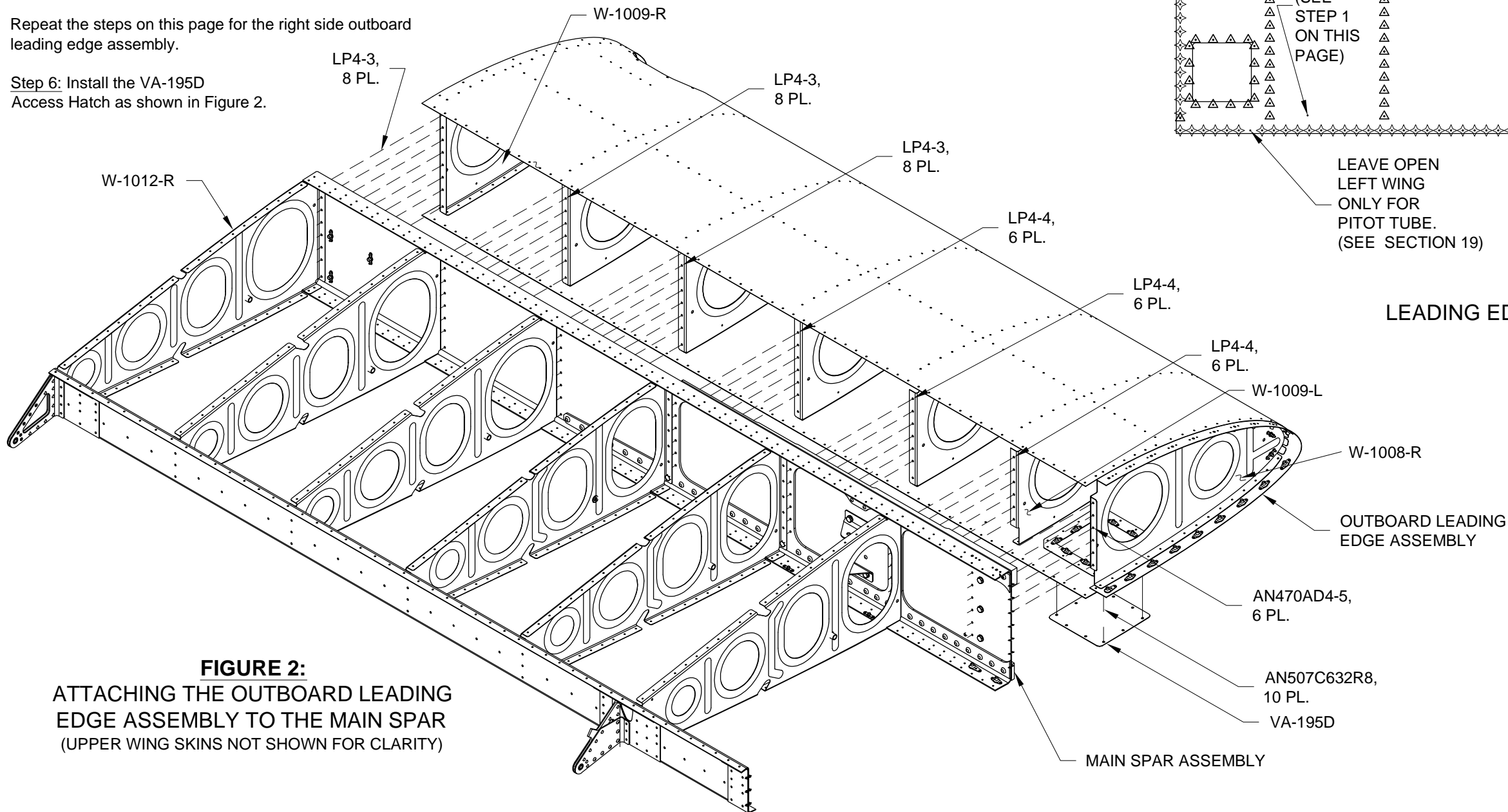
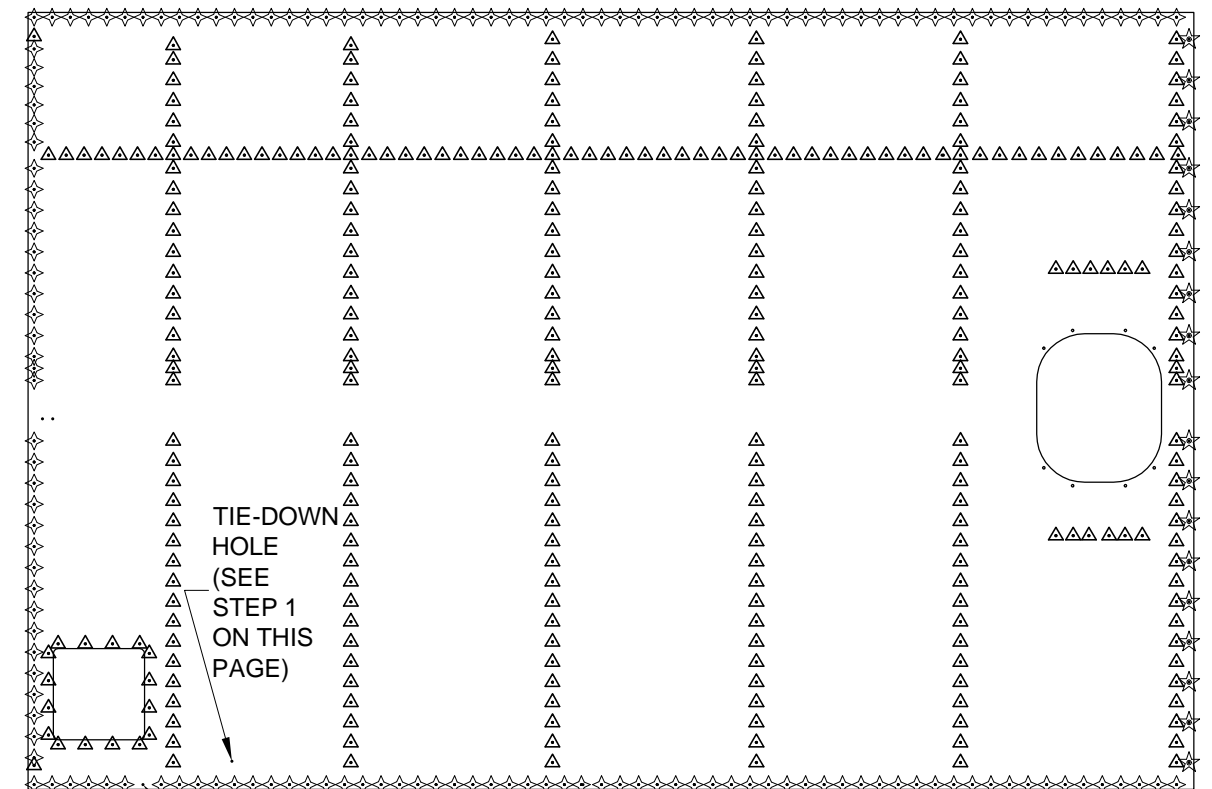


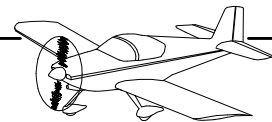
FIGURE 2:
ATTACHING THE OUTBOARD LEADING
EDGE ASSEMBLY TO THE MAIN SPAR
(UPPER WING SKINS NOT SHOWN FOR CLARITY)



LEAVE OPEN
LEFT WING
ONLY FOR
PITOT TUBE.
(SEE SECTION 19)

- ★ WING TIP ATTACH POINTS (DO NOT DIMPLE)
- ◇ AN426AD3-4
- △ AN426AD3-3.5

FIGURE 1:
LEADING EDGE SKIN RIVET DIAGRAM



NOTE: See Section 5.19 for tips on working with Plexiglass.

Be aware of "curled" edges on the lens.

Step 1: Place the W-00014 Lens over the outside of the wing as shown in Figure 1. Trace a line approximately 3/4 [19.0 mm] from the edge of the landing light cutout. Place the least "curled" part of the lens over the opening in the W-00001-L Leading Edge Skin.

Remove the lens from the wing and trim to the line just marked as shown in Figure 1.

Step 2: Cover the W-00014 Lens with masking tape to protect it. Attach additional pieces of tape around the lens as shown in Figure 1.

Step 3: Insert the W-00014 Lens into the opening in the W-00001-L Leading Edge Skin. Place the outboard edge against the outboard most rib flange. Pull on the tape to keep the lens snug against the inside leading edge of the wing.

Use a sharpie pen to trace the shape of the landing light cutout onto the lens.

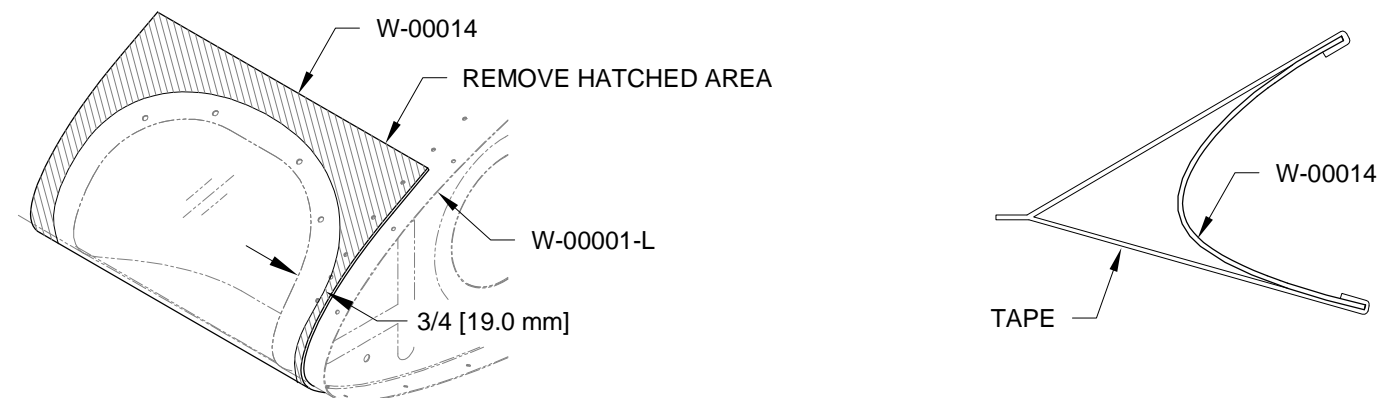


FIGURE 1: FITTING THE LENS

Step 4: Remove the W-00014 Lens from the wing.

Clamp the W-0018 Backing Plates onto the W-00014 Lens as shown in Figure 3.

Mark a line 1/4 [6.3 mm] from the aft edges of the backing plates, and 1/4 [6.3 mm] from the width of the landing light cutout line. See Figure 3.

Unclamp the backing plates.

Trim the lens to the line just marked. See Figure 3.

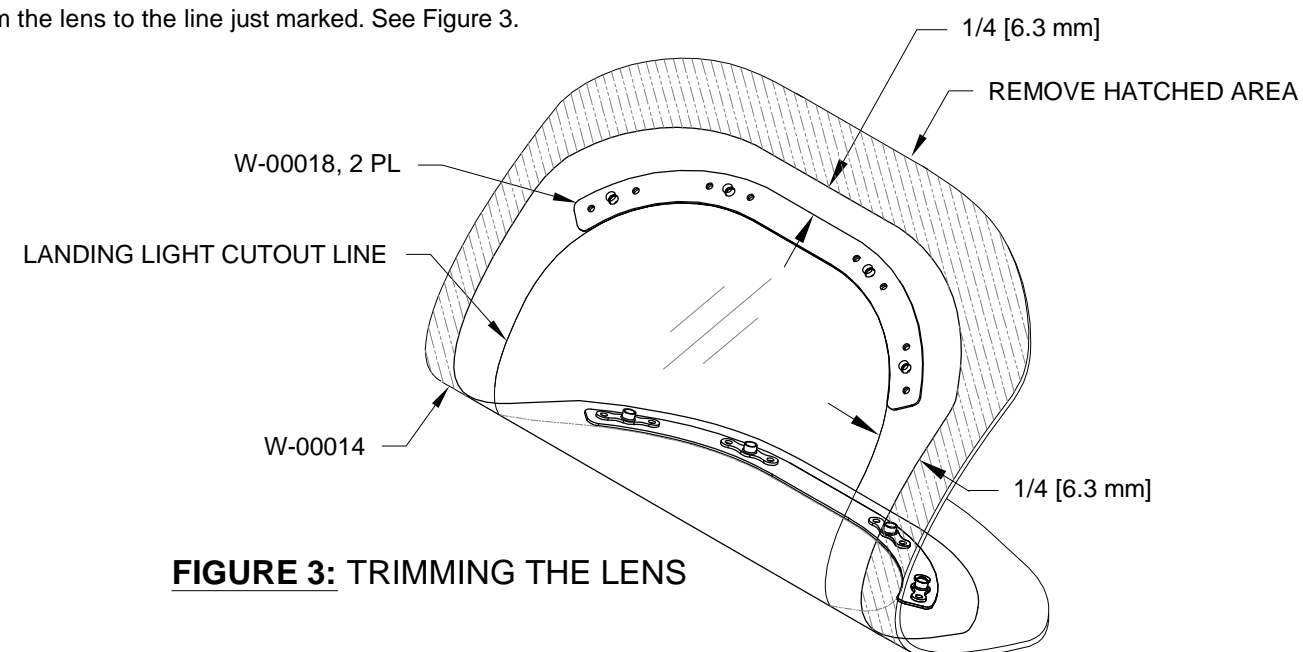


FIGURE 3: TRIMMING THE LENS

Step 5: Reinstall the W-00014 Lens into the W-00001-L Leading Edge Skin. Pull on the tape to keep the lens snug against the inside leading edge of the wing.

Match-drill #30 using a plexi-bit then cleco the lens to the leading edge skin as shown in Figure 4.

Step 6: Remove the W-00014 Lens from the wing.

Final-Drill #27, deburr, then dimple the eight holes surrounding the landing light cutout in the W-00001-L Leading Edge Skin to fit the head of a #6 screw.

Step 7: Match-Drill #27 the screw holes in the W-00014 Lens with a plexi-bit.

Machine countersink the screw holes in the lens for the corresponding dimples in the W-00001-L Leading Edge Skin.

Carefully deburr the interior edges of the screw holes as the sharp edges which result from countersinking are particularly susceptible to cracking.

Step 8: Radius any sharp edges of the W-00014 Lens as shown in Figure 5.

Smooth all trim marks with 220 grit sandpaper.

Step 9: Use double sided tape or equivalent adhesive to secure the W-00018 Backing Strips to the inside face of the W-00014 Lens as shown in Figure 5.

Step 10: Install the W-00014 Lens as shown in Figure 6.

Reach through the lightening hole in the W-1019-R Leading Edge Rib and push to provide leverage as the screws are tightened.

Someone with small hands works well here. Tips for acquiring spouses or children for this purpose are not covered within the scope of these documents.

Use rubber gloves to avoid getting human skin oils on the clean lens for final installation.

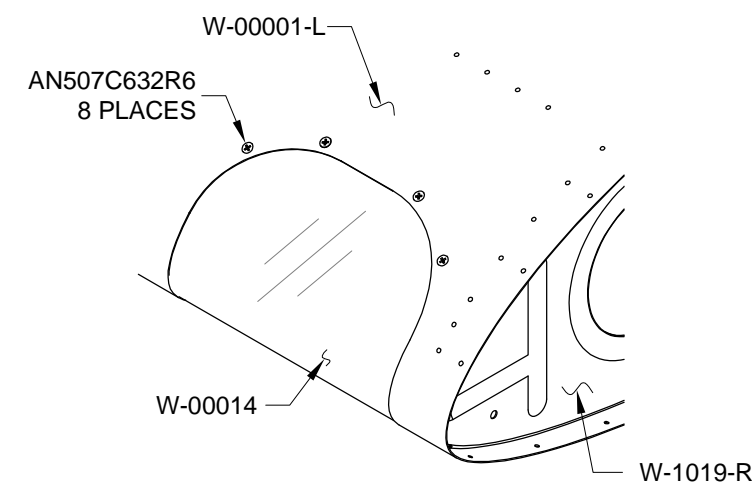


FIGURE 6: INSTALLING THE LENS

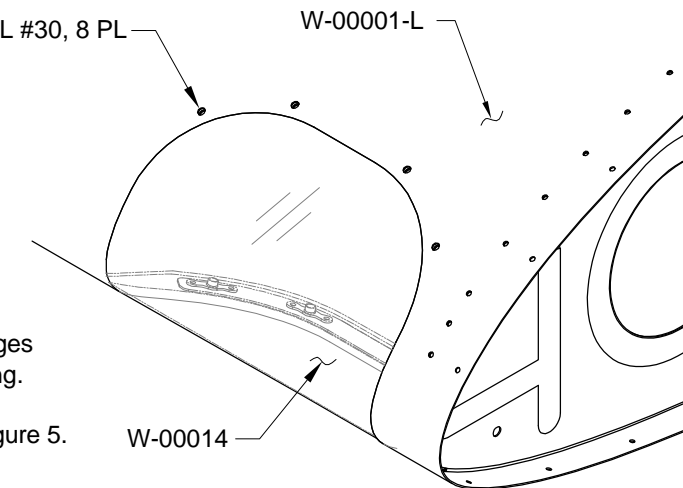


FIGURE 4: MATCH DRILL THE LENS

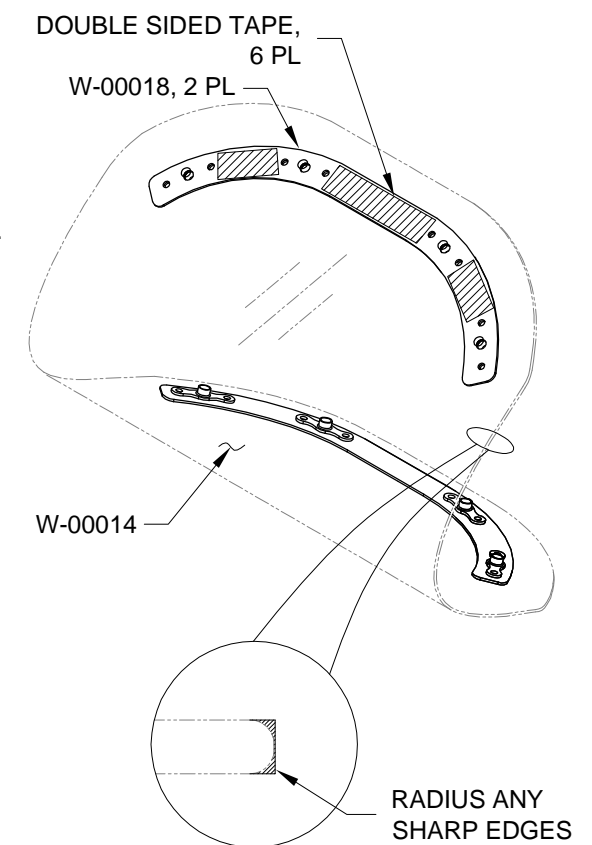


FIGURE 5: FINAL LENS SHAPE



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