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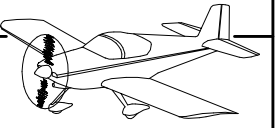
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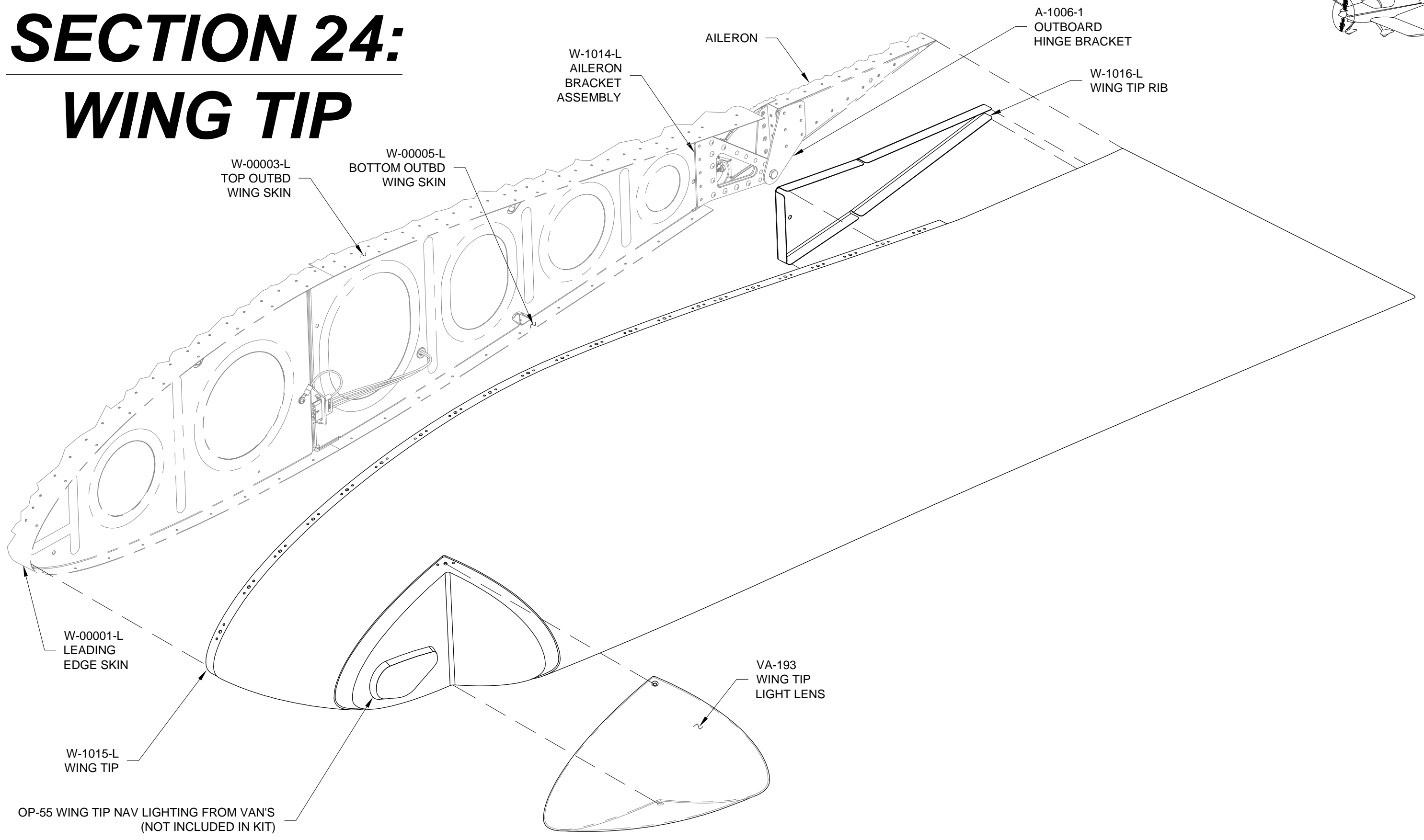
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REVISION DESCRIPTION:

Sections reprinted to include searchable text.



SECTION 24: WING TIP



NOTE: Special tools required to complete this section include a 10 foot [3 m] ratchet strap.

DATE OF COMPLETION: _____
PARTICIPANTS: _____
DATE: 04/15/13 REVISION: 0 RV-14 PAGE 24-01



NOTE: See Section 5.18 for more tips on working with the fiberglass fairings. Fiberglass will quickly dull tools. Locate and use the tools set aside for use in attaching the empennage fairings when working with the fiberglass wing tips.

Except where separate instructions and/or figures exist for both left and right sides of the aircraft, only the left side parts, assemblies, or installations will be shown.

It is the builder's choice as to whether to complete all steps for the left side before repeating those steps for the right side or to complete each step for both left and right sides before moving to the next step.

Step 1: Trim the top flange of the W-1015-L Wing Tip to the width shown in Figure 2 and even with the aft edge of the W-00003-L Top Outbd Wing Skin.

Trim the bottom flange of the wing tip to the width shown in Figure 3 and even with the aft edge of the W-00005-L Bottom Outbd Wing Skin. See Figure 3.

Notch the bottom flange of the wing tip to clear the W-1014 Aileron Hinge Bracket. See Detail A

Step 2: Trim the top and bottom inboard sides of the W-1015-L Wing Tip to provide a .188 [4.8 mm] minimum gap between the wing tip and the outboard edge of the aileron assembly. Verify the gap spacing between the forward edge of the A-1016 Aileron Hinge Bracket and the wing tip when the aileron is rotated to full trailing edge up deflection.

Use the W-00026 Alignment Template to hold the aileron assembly in the neutral position for trimming. See Page 23-10, Figure 2 for installation.

Use tape to keep the aileron aligned with the template.

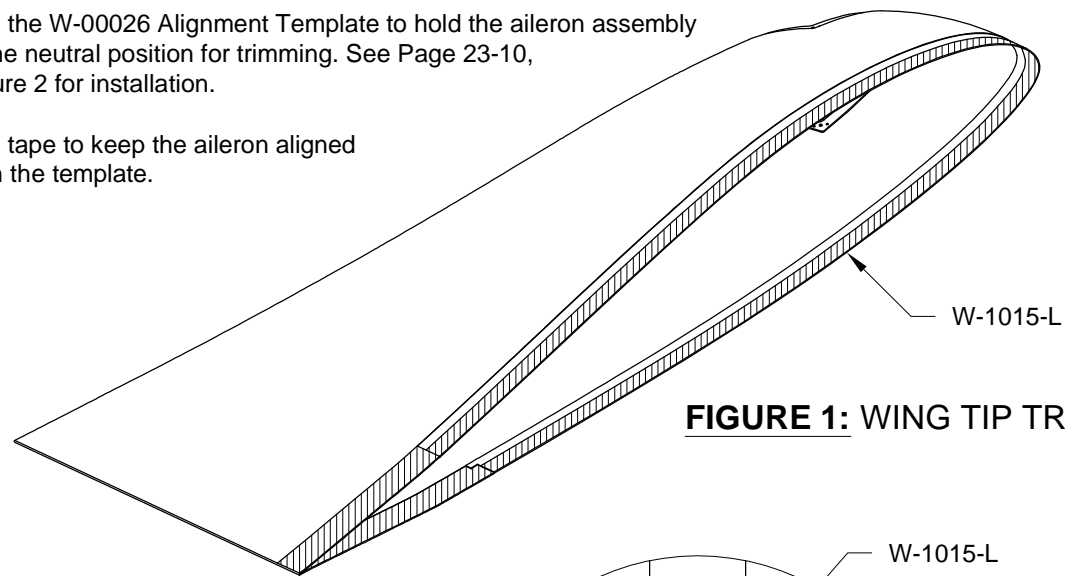
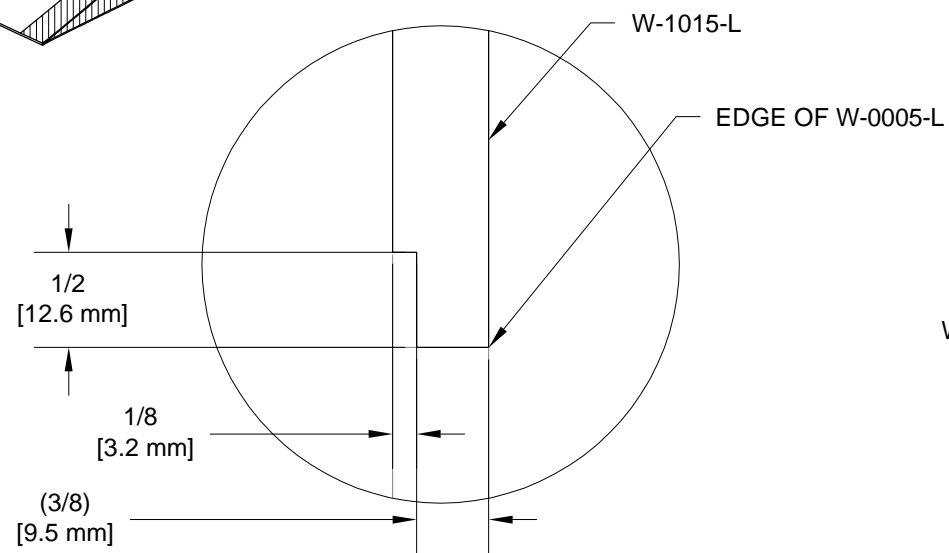


FIGURE 1: WING TIP TRIM OVERVIEW



DETAIL A: WING TIP BOTTOM NOTCH

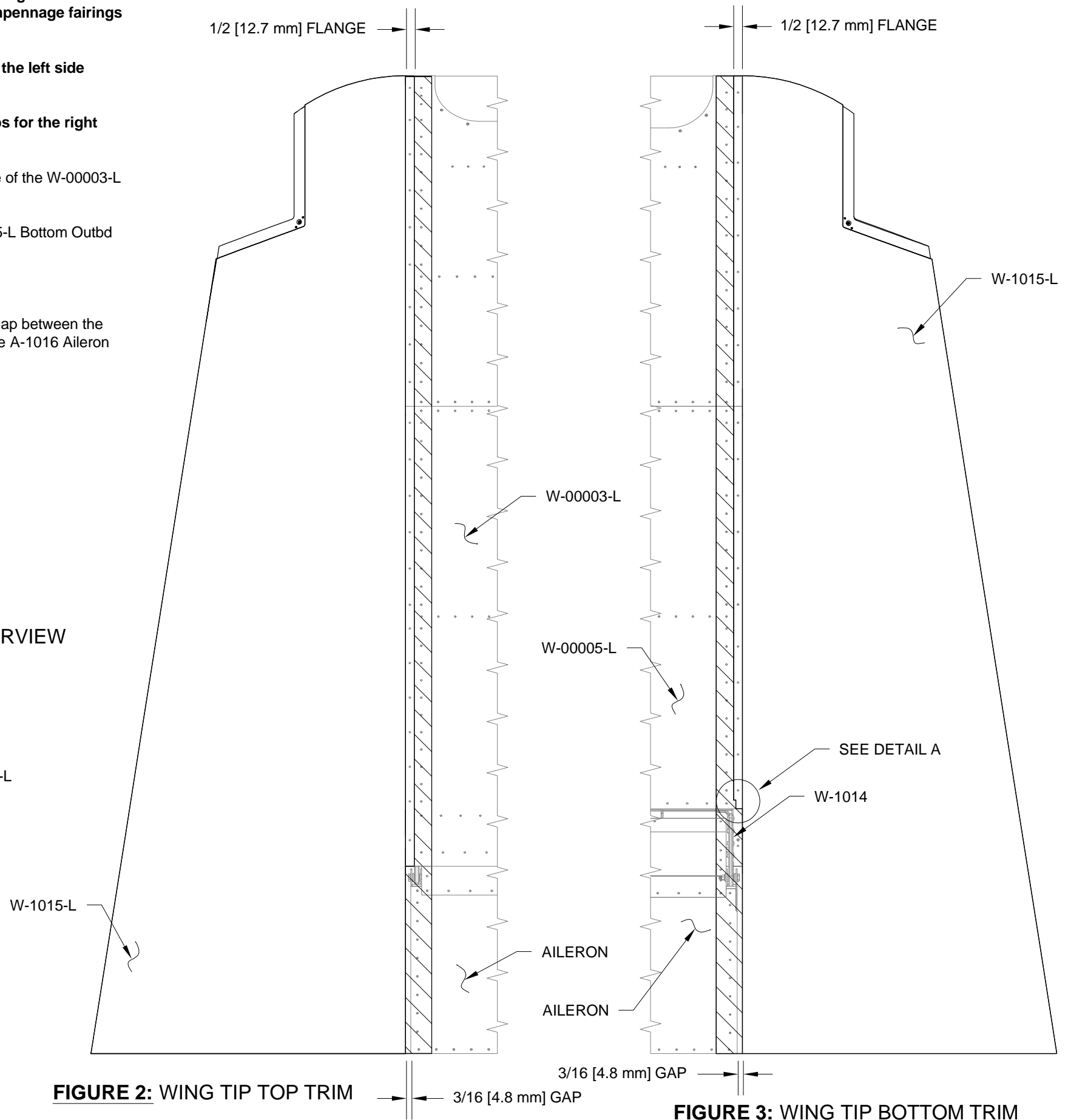
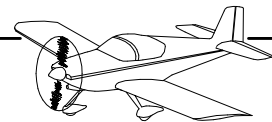


FIGURE 2: WING TIP TOP TRIM

FIGURE 3: WING TIP BOTTOM TRIM



Step 1: Square the inside edge and corner of the lens recess in the W-1015-L Wing Tip with a file and/or a razor blade to allow the lens to lay flush with the wing tip.

Step 2: Cut the VA-193 Wing Tip Light Lens in half as shown in Figure 1. Determine the right and left lenses by placing them on their respective wing tips, then set the VA-193-R Right Lens aside.

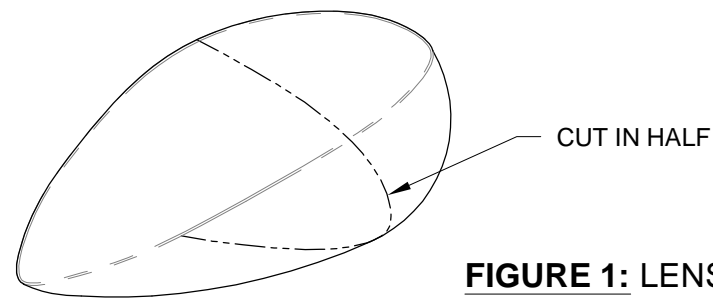


FIGURE 1: LENS MODIFICATION

NOTE: Final trim from the forward and outboard extents of the landing light first to allow the lens to fully nest in place. Then mark/trim the remaining areas. See Figure 2.

Step 3: Position the VA-193-L Left Lens on the W-1015-L Wing Tip and mark a trim line for the recess onto the left lens. Remove the left lens from the wing tip and roughly trim to within 1/8 [3.2 mm] of the trim line. Carefully trim the lens a little at a time to fit the recess until satisfied with the final trim, then tape the left lens in place on the W-1015-L Wing Tip.

Step 4: Drill #40 the VA-193-L Left Lens into the W-1015-L Wing Tip at the upper and lower corners using the dimensions given in Detail A. After drilling, cleco each hole. Remove the tape and check the fit.

Final-Drill #28 both holes in the wing tip and the left lens.

Step 5: Match-Drill #40 the nutplate attach pattern into the W-1015-L Wing Tip, orient the nutplate approximately as shown in Figure 2.

Machine countersink the VA-193-L Left Lens to fit the head of a #6 screw.

Machine countersink the nutplate rivet holes in the wing tip for the head of an AN426AD3 rivet. See Figure 2.

NOTE: When setting solid rivets in fiberglass composites, use soft rivets or leave normal rivets with a longer shop head (approximately 1.2 X the hole diameter).

Step 6: Install the VA-193-L Left Lens as shown in Figure 2.

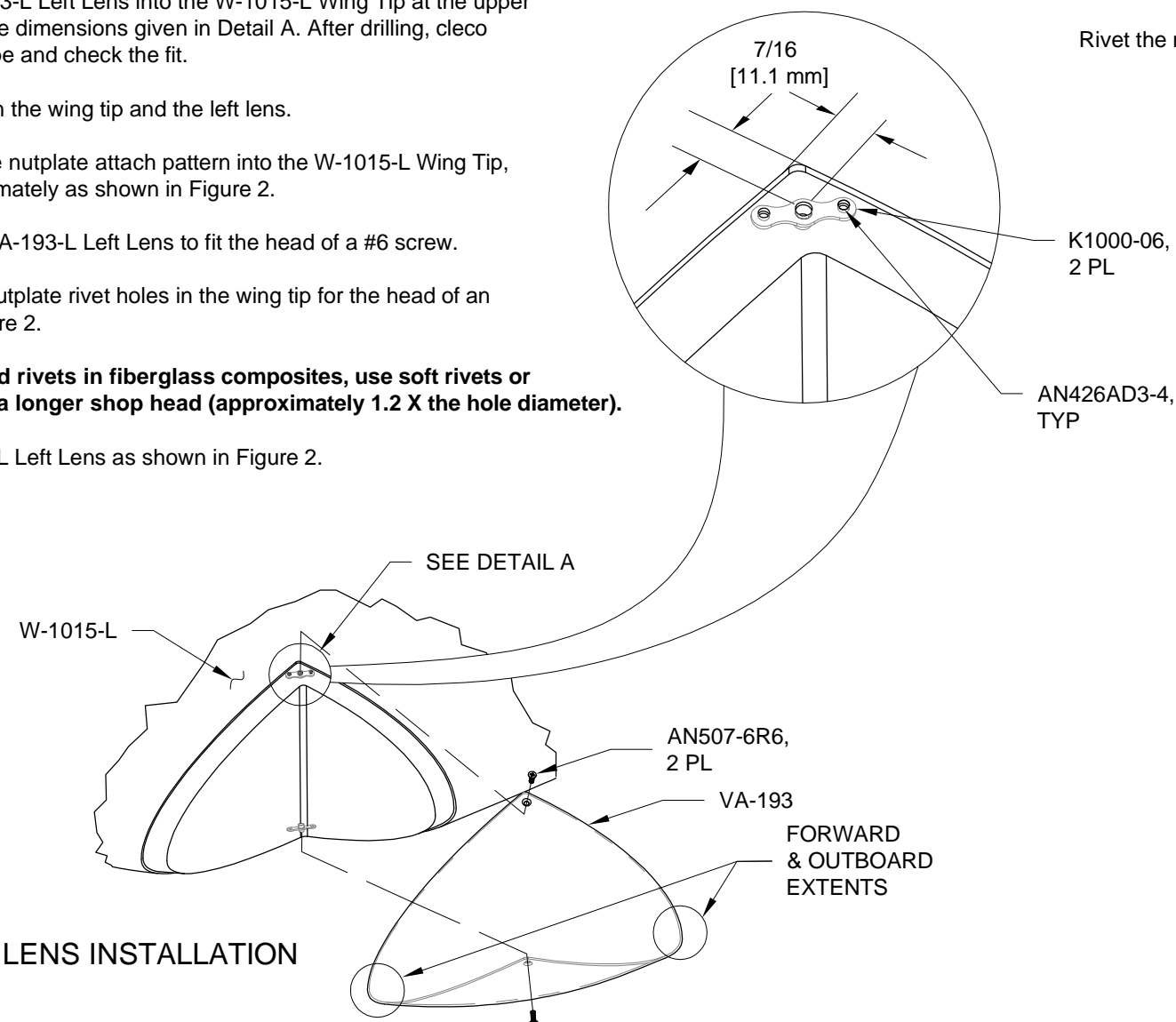


FIGURE 2: LENS INSTALLATION

Step 7: Insert the W-1015-L Wing Tip into the Wing Assembly and tape into place. Use a ratchet strap to pull the wing tip tightly toward the leading edge for the best fit.

NOTE: Before drilling use a straight edge to ensure that the top edge of the W-1015-L Wing Tip aligns with the top edge of the Aileron in both span and elevation.

Step 8: Match-Drill #40 and cleco the W-1015-L Wing Tip, using the .098 [2.5 mm] holes in the W-00001-L Leading Edge Skin, W-00003-L Top Outbd Wing Skin, W-00005-L Bottom Outbd Skin as guides. Drill from fwd to aft, alternating between the top and bottom holes.

Remove the wing tip from the Wing.

Step 9: Final-Drill #27 all wing tip attach holes in the W-00001-L Leading Edge Skin, W-00003-L Top Outboard Wing Skin and W-00005-L Bottom Outboard Wing Skin, then deburr and dimple these holes for a #6 screw.

Step 10: Use temporary screws to locate the nutplates on the W-1015-L Wing Tip.

Match-Drill #40 then cleco the nutplate rivet holes in the wing tip.

Machine countersink the nutplate rivet holes in the wing tip to fit the head of an AN426AD3 rivet. See Figure 4.

Final-Drill to #27 the screw attach holes in the wing tip.

Machine countersink the #27 holes to fit the dimples in the W-00001-L Leading Edge Skin, W-00003-L Top Outboard Wing Skin and W-00005-L Bottom Outboard Wing Skin.

Rivet the nutplates to the wing tip as shown in Figure 4.

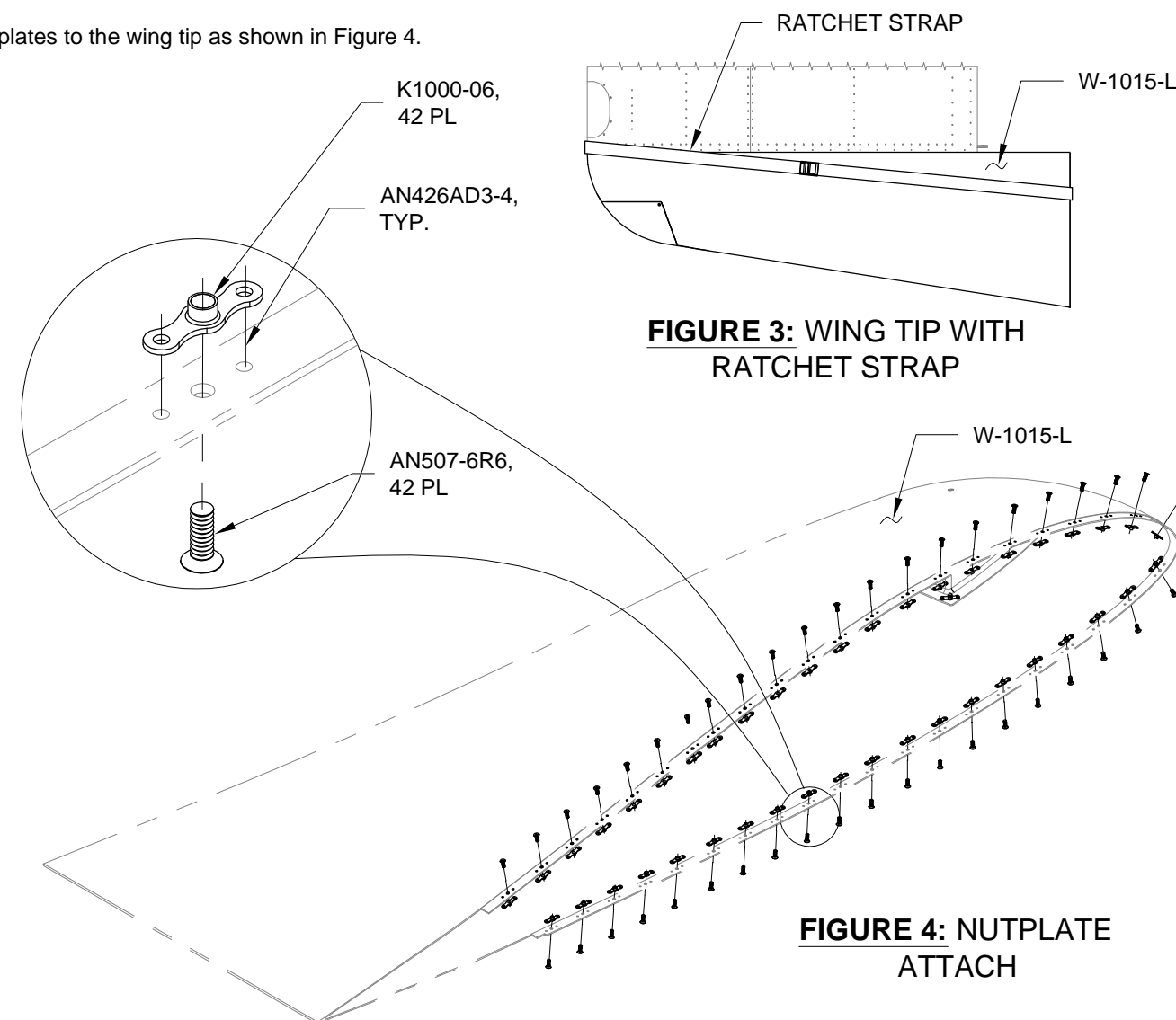
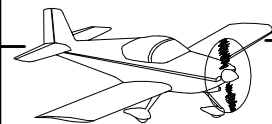


FIGURE 3: WING TIP WITH RATCHET STRAP

FIGURE 4: NUTPLATE ATTACH



NOTE: Pay attention to the location of the notches in the flanges when laying out the hole pattern.

Step 1: Attach the W-1015-L Wing Tip to the Wing and insert the W-1016-L Wing Tip Rib into the aft edge of the wing tip. Position the wing tip rib to fit snugly into the wing tip without distorting the wing tip or rib web. The wing tip rib should be flush with the inboard edges of the wing tip.

With the wing tip rib positioned as shown in Figure 1, mark the forward and aft ends of the flanges onto the bottom and top sides of the wing tip.

Using an edge distance of 5/16 [7.9 mm] from the inboard edge, lay out a rivet pattern on the bottom and top of the wing tip using the spacing between rivets and the forward and aft edges of the wing tip rib as shown in Figure 1.

Step 2: Drill #40 the forward and aft most holes in the pattern created in Step 1 into the W-1015-L Wing Tip as shown in Figure 1.

Draw a centerline on the flanges of the W-1016-L Wing Tip Rib and mark the forward most rivet location 5/16 [7.9 mm] from the forward edge of the forward upper flange. Insert the wing tip rib back into the wing tip. Use the marks visible through the holes in the wing tip for alignment. Tape the wing tip rib into place.

Match-Drill #40 and cleco the wing tip rib using the guide holes in the wing tip as reference. Drill moving aft from the first hole, alternating top to bottom.

Final Drill #33 the holes for the MK-319 Rivets as shown in Figure 1.

Step 3: Machine countersink the W-1016-L Wing Tip Rib attach holes in the W-1015-L Wing Tip to fit the head of an either an AN426AD3 or MK-319 rivet. See Figure 1.

Remove the wing tip rib from the Wing and deburr.

Prime the wing tip rib if/as desired.

Rivet the wing tip rib to the wing tip as shown in Figure 1.

Step 4: Use a straight edge to mark the tip trailing edge of the W-1015-L Wing Tip for final trimming.

Use a sanding block to remove excess material from the trailing edge of the wing tip.

Step 5: Install the wing tip to the the Left Wing Assembly.

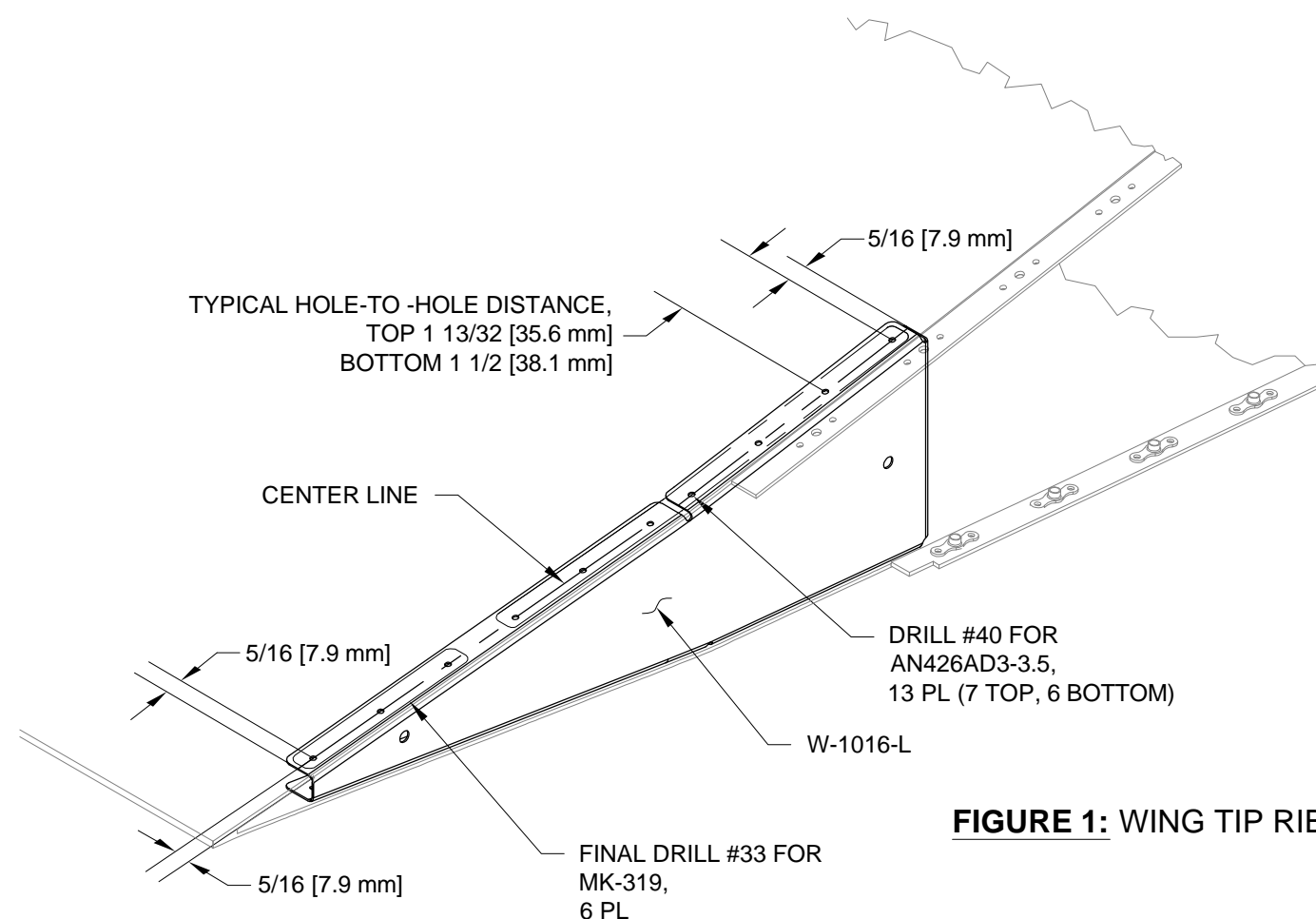


FIGURE 1: WING TIP RIB INSTALLATION