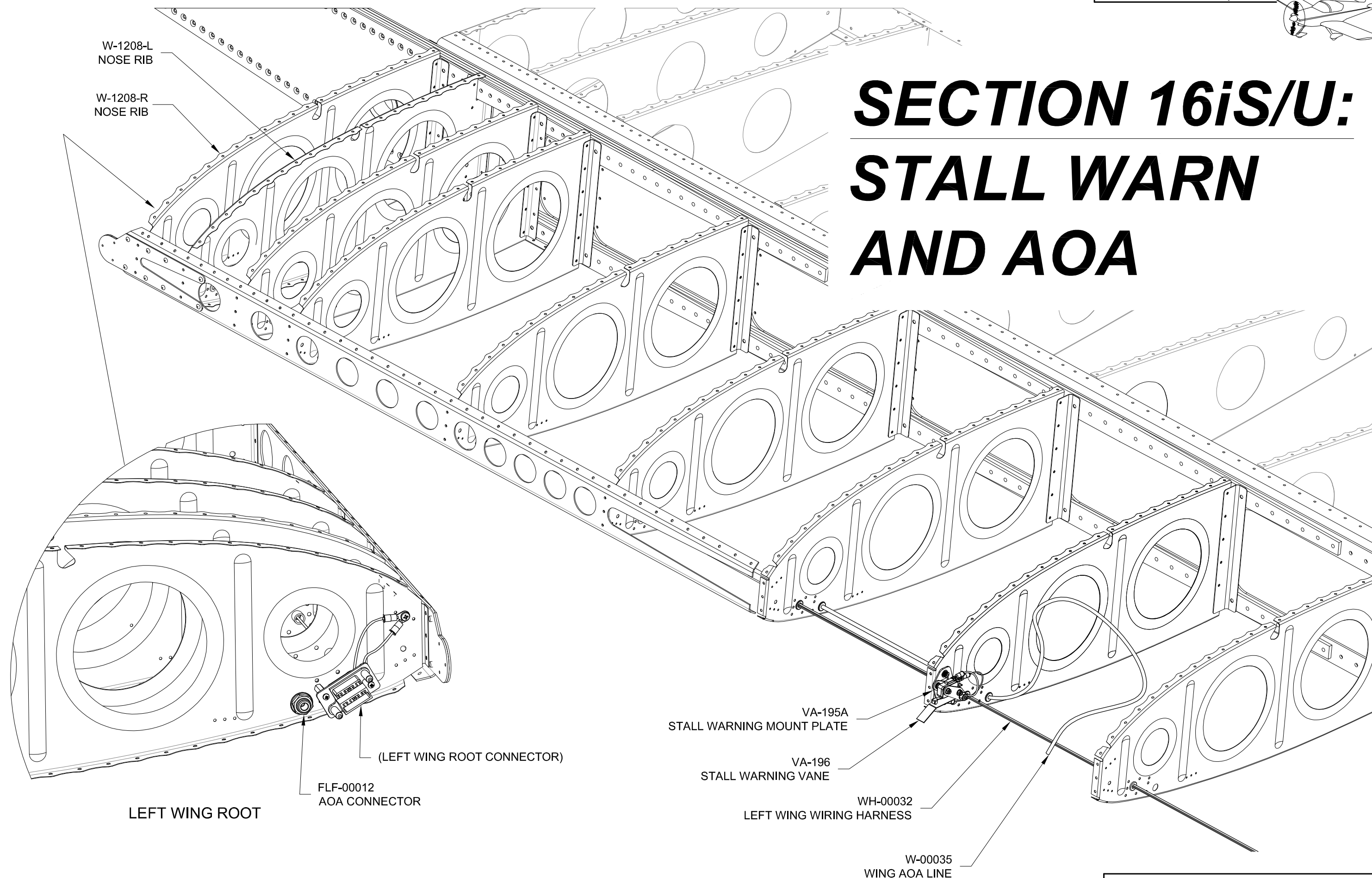
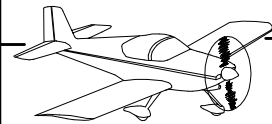




# SECTION 16iS/U: STALL WARN AND AOA





Step 1: Final-Drill #30 the holes in the VA-195A and VA-195B Stall Warning Keeper Plate that are used to mount the ES E22-50K Micro Switch.

Machine countersink the two holes on the inboard face of the VA-195A for the the flush head of a #4 screw. See Figure 1.

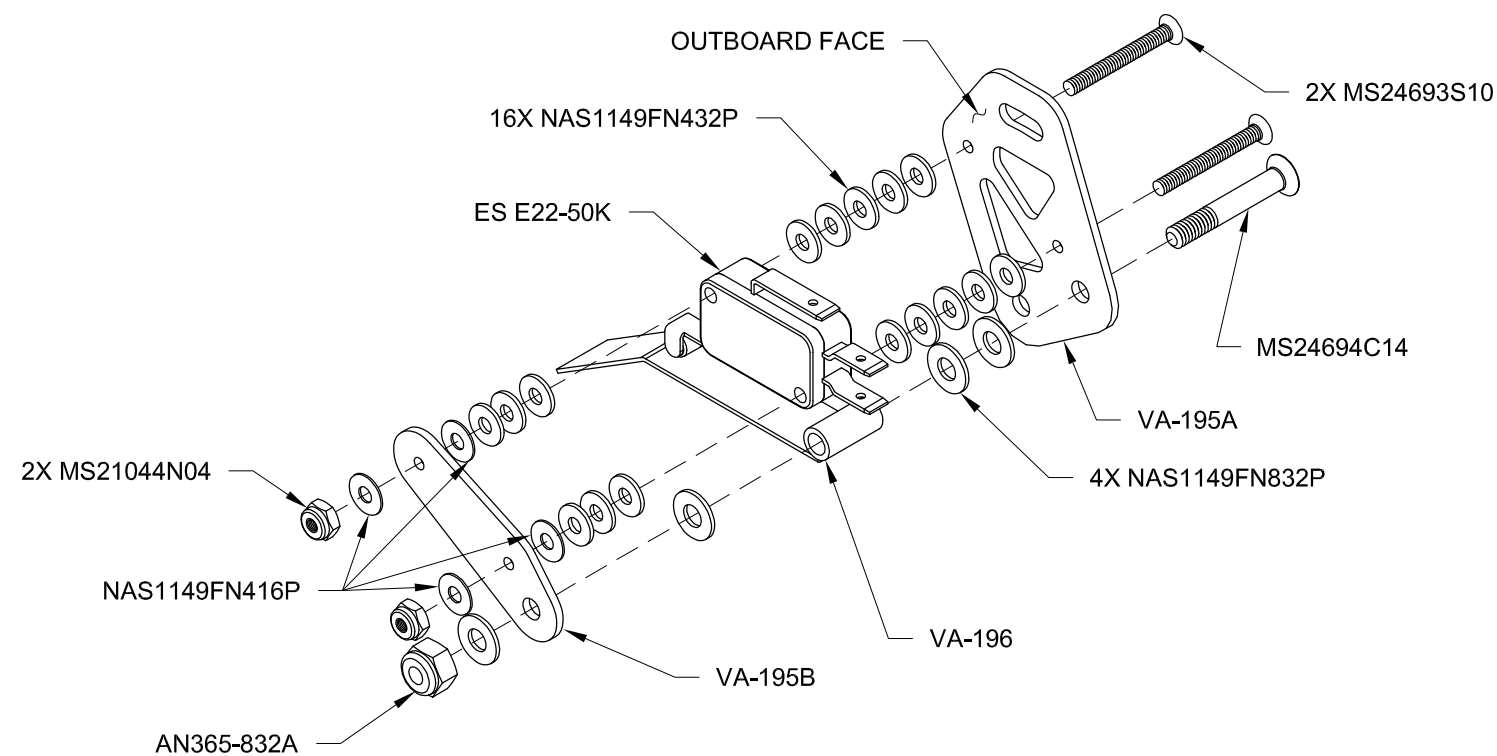
Step 2: Final-Drill #19 the hole in the VA-195A Mount Plate and VA-195B Keeper Plate that holds the #8 screw on which the VA-196 pivots.

Machine countersink this hole in the mount plate on the inboard side for the flush head of a #8 screw. See Figure 1.

Step 3: Deburr all holes and edges.

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 pivots. Make sure that the VA-196 can rotate freely.



**FIGURE 1: STALL WARNING SUBASSEMBLY**

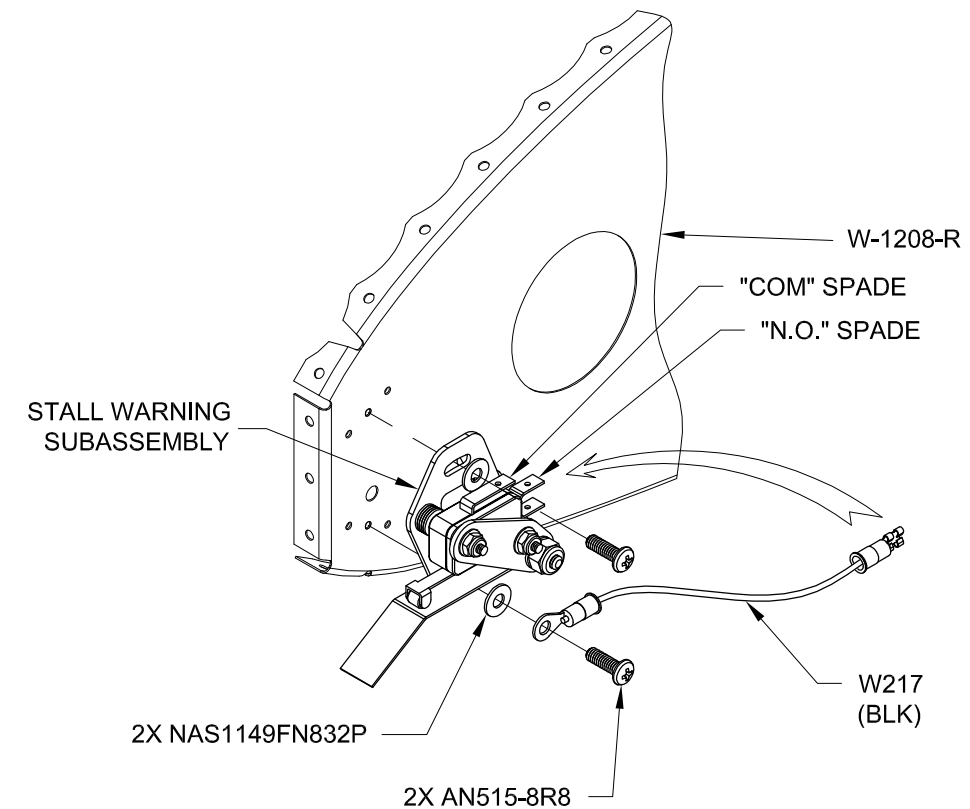
**NOTE:** See Section 5.21 for information on proper installation of electrical connectors onto wire ends.

Step 5: Locate the W217 (BLK) stall warn ground wire (included with the WH-00140 Wing Harness Grounds). See Figure 2.

Step 6: Install the Stall Warning Subassembly on the W-1208-R as shown in Figure 2.

The upper screw goes through the slot in the VA-195A and allows the angle of the Stall Warning Subassembly to be adjusted.

The lower screw passes through the Ring Terminal on the W217 (BLK) stall warn ground wire as shown in Figure 2.

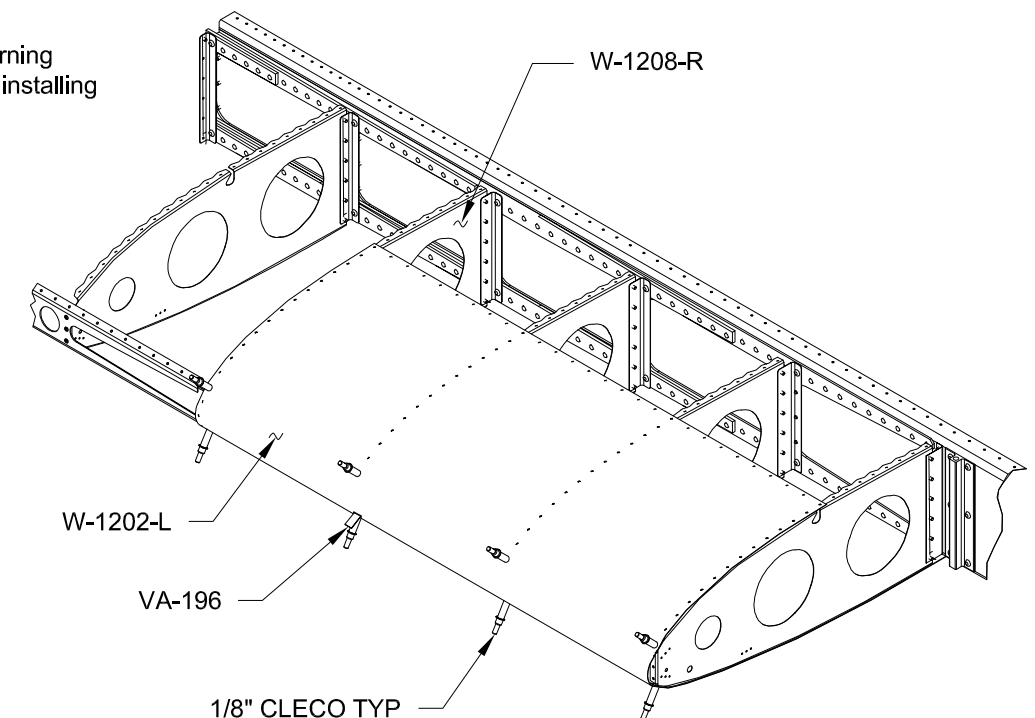


**FIGURE 2: INSTALLING THE STALL WARNING SUBASSEMBLY**

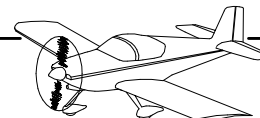
Step 7: Connect the Female Spade Connector of the W217 (BLK) to the normally open "N.O." spade on the ES E22-50K. See Figure 2.

Step 8: Carefully position the W-1202-L Mid Wing Skin over the W-1208-R Nose Ribs and Stall Warning Subassembly and cleco as shown in Figure 3.

Adjust the angle of the Stall Warning Subassembly as required while installing the W-1202-L.



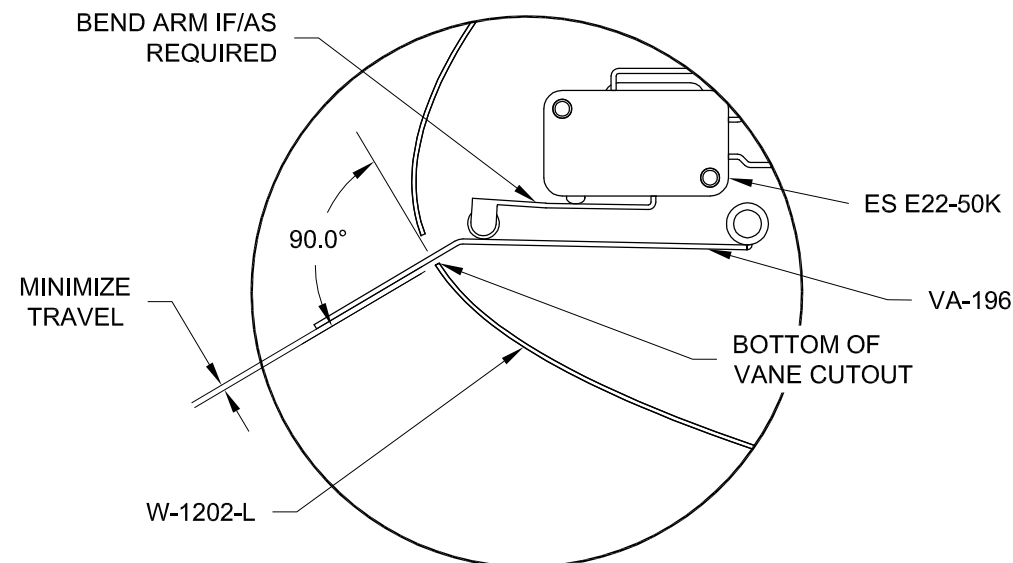
**FIGURE 3: POSITIONING THE WING SKIN**



Step 1: Double check that the VA-196 is perpendicular to the surface of the wing skin when in the "at rest" position.

If the VA-196 is not perpendicular, remove the Stall Warning Subassembly and bend the VA-196 as required. See Figure 1.

Adjust the Stall Warning Subassembly until the VA-196 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).

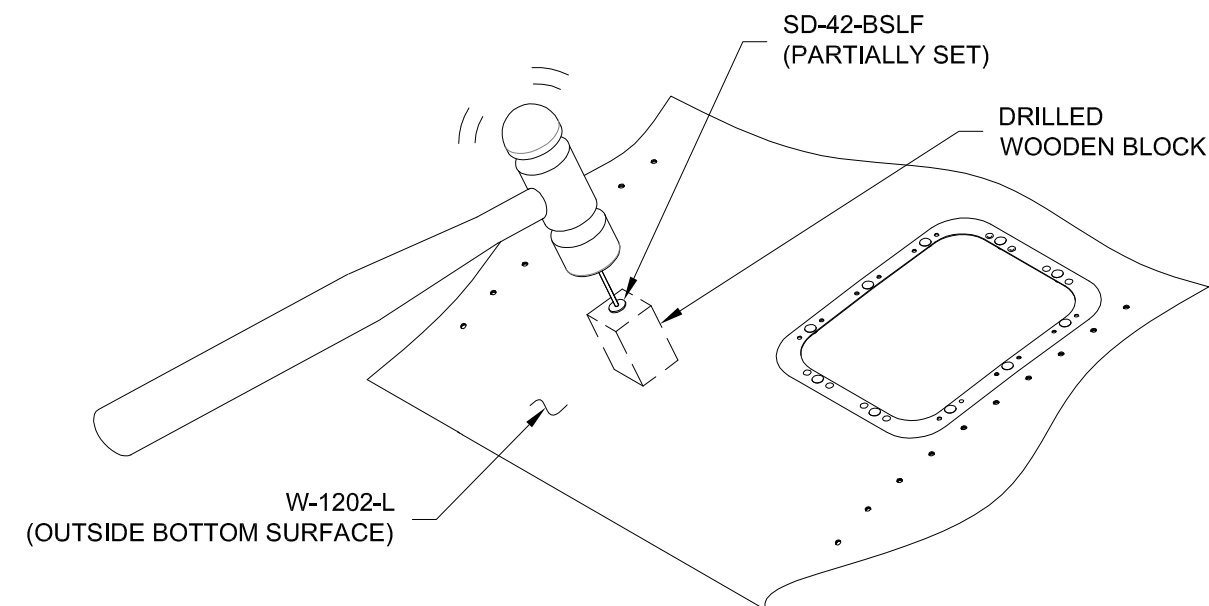


**FIGURE 1: ACTIVATING THE MICRO SWITCH**

Step 2: Remove the clecos securing the W-1202-L, then position W-1202-L on a padded workbench with the bottom wing surface facing up and the aft edge facing away as shown in Figure 2.

Step 3: Fabricate the AOA Port by setting an SD-42-BSLF rivet in the AOA port location until it is tight in the skin without breaking the mandrel off.

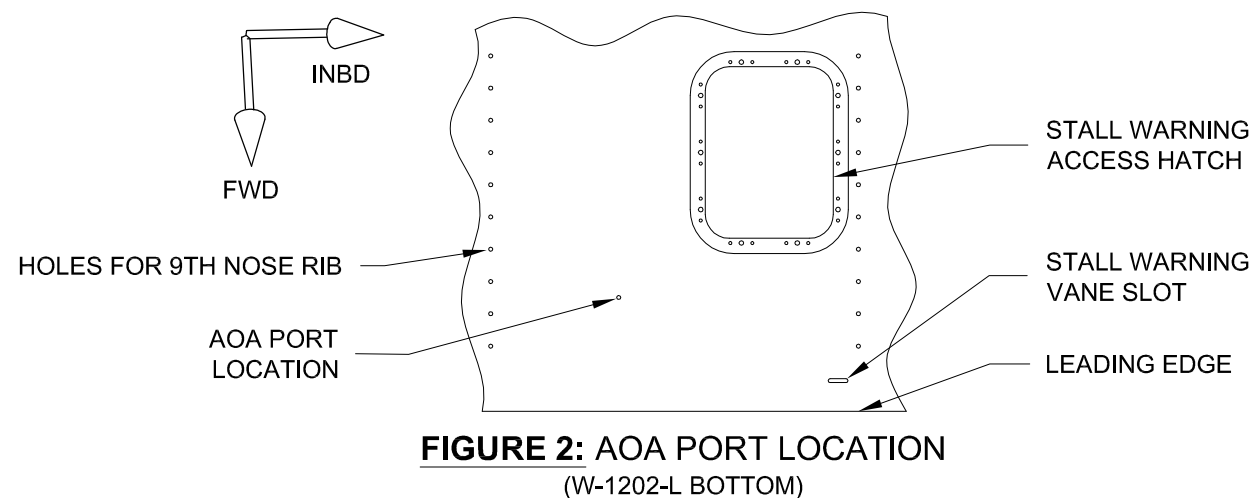
Place a block of wood with a 3/16 [4.8 mm] hole behind the rivet so as to not distort the wing skin while driving out the mandrel, then drive out the mandrel with a hammer. See Figure 2 and 3.



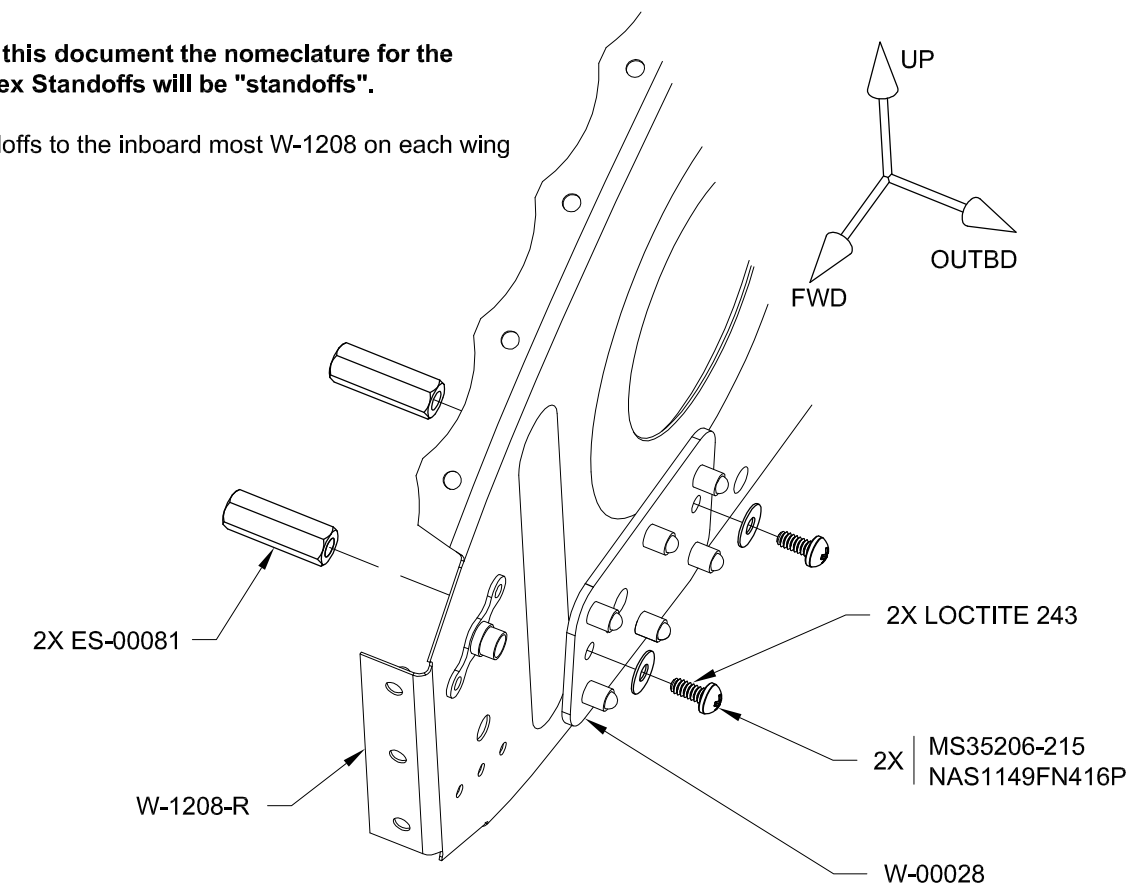
**FIGURE 3: FABRICATING THE AOA PORT**

**NOTE: For the remainder of this document the nomenclature for the ES-00081 4-40 F/F .750 1/4 Hex Standoffs will be "standoffs".**

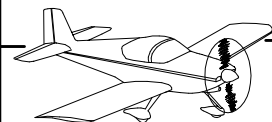
Step 4: Attach ES-00081 standoffs to the inboard most W-1208 on each wing as shown in Figure 4.



**FIGURE 2: AOA PORT LOCATION (W-1202-L BOTTOM)**



**FIGURE 4: ATTACHING THE STANDOFFS (LEFT WING SHOWN, STUB SPAR NOT SHOWN FOR CLARITY)**



**NOTE:** Installation of the WH-00032 Left Wing Wiring Harness is detailed on this page. With the exception of the stall warn wiring, the following steps should be mirrored for installation of the WH-00033 Right Wing Wiring Harness.

**Step 1:** Remove the SB375-4 snap bushings from the two most inboard W-1208 Nose Ribs as called out in Figure 1.

**Step 2:** Starting at the wing root, route the WH-00032 outboard through the W-1208 Nose Ribs as shown in Figure 1 and 2. Feed the nav/strobe cable through first, followed by the landing light wires, and lastly the stall warn wire.

**NOTE:** The surface of the W-1208-R contacted by the ring terminals in the following step is an electrical ground and should be free of paint and primer.

**Step 3:** Secure the grounding ring terminals of the L6310 (GRN) and L216 (BLK) wing root grounds to the W-1208-R as shown in Figure 2.

**NOTE:** Orientation of the Wing Root Connectors in Step 4 is critical. Study Figure 2 before installing connectors.

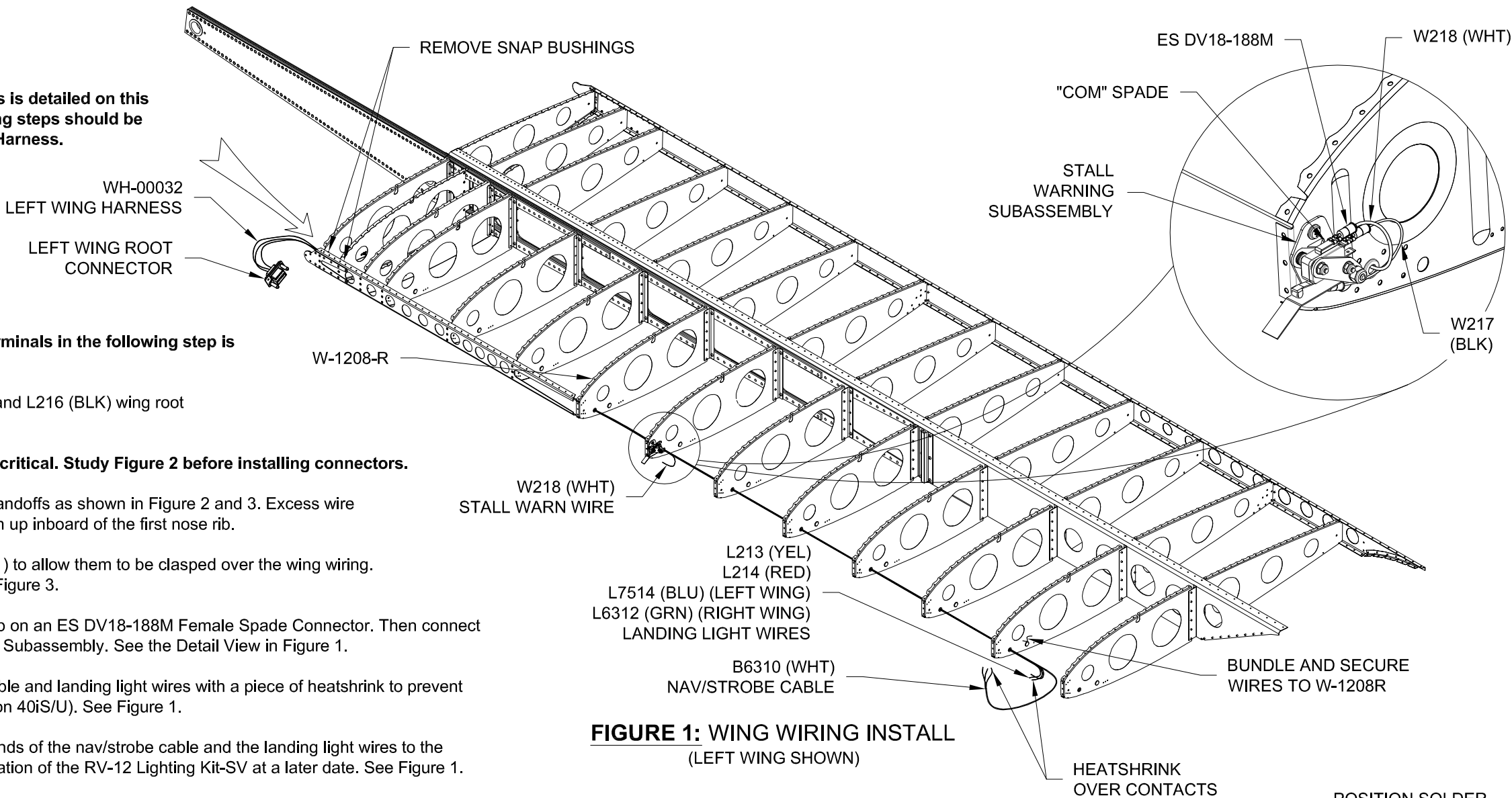
**Step 4:** Secure the Left Wing Root Connector to the ES-00081 standoffs as shown in Figure 2 and 3. Excess wire should be pulled through the nose ribs so the wire does not bunch up inboard of the first nose rib.

**Step 5:** Cut a slit in each of the snap bushings (removed in Step 1) to allow them to be clasped over the wing wiring. Reinstall the snap bushings into the W-1208-R & -L as shown in Figure 3.

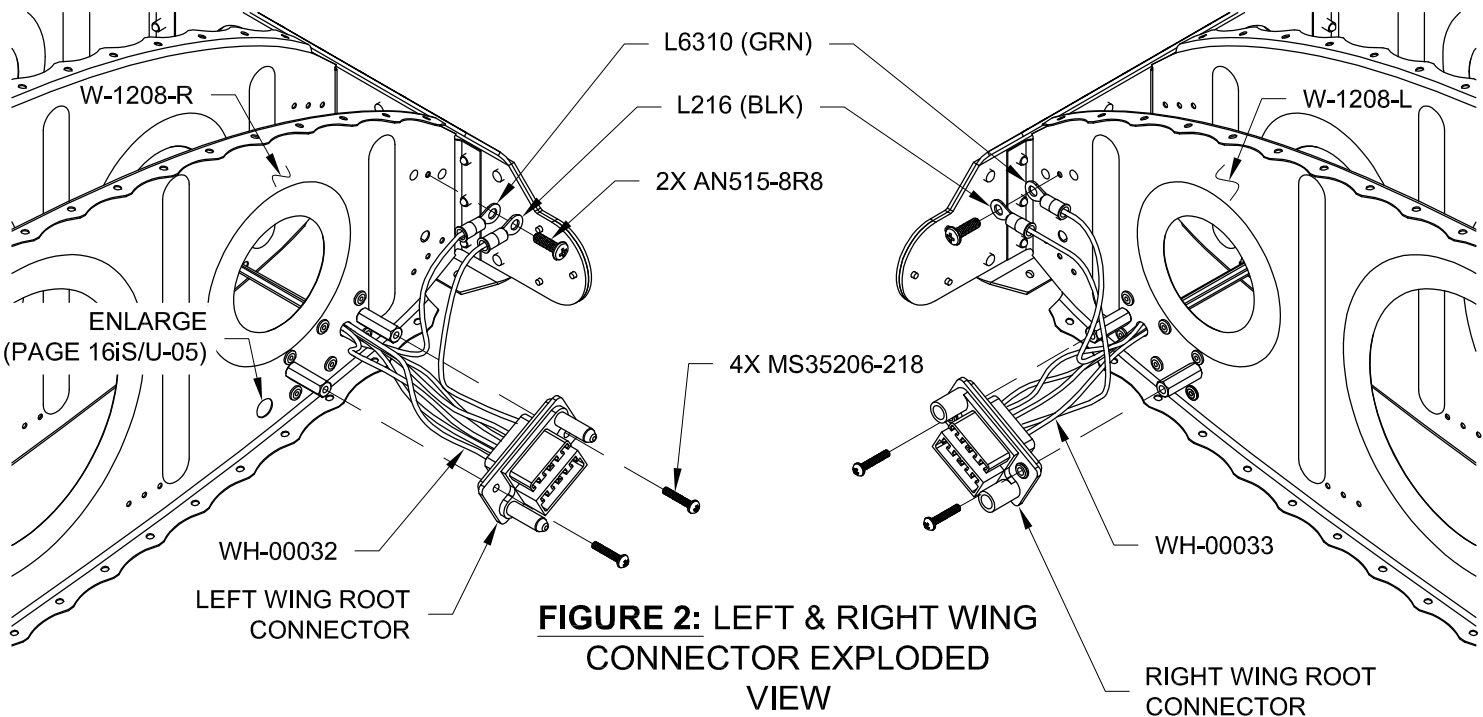
**Step 6:** Strip the end of the W218 (WHT) stall warn wire and crimp on an ES DV18-188M Female Spade Connector. Then connect the spade connector to the top "COM" spade of the Stall Warning Subassembly. See the Detail View in Figure 1.

**Step 7:** Cover each of the exposed contacts on the nav/strobe cable and landing light wires with a piece of heatshrink to prevent electrical shorts until the RV-12 Lighting Kit-SV is installed (Section 40iS/U). See Figure 1.

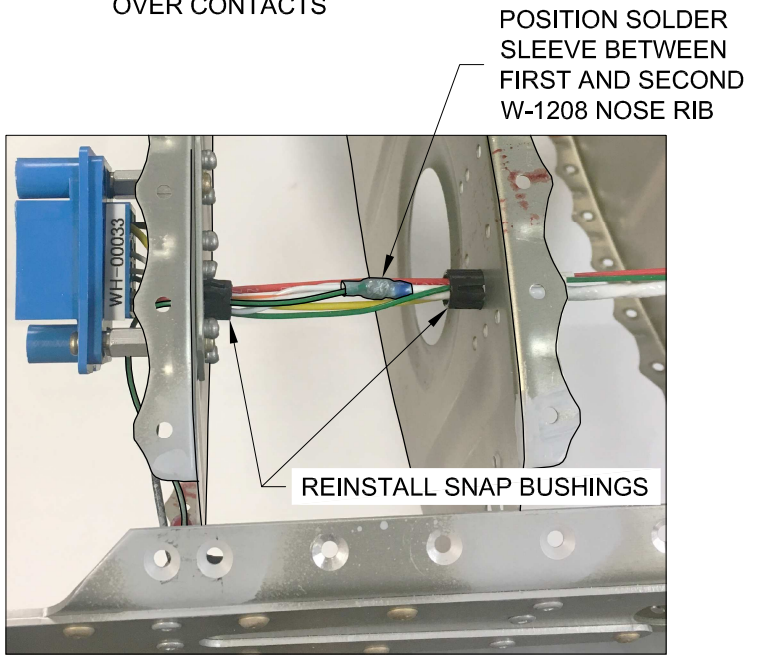
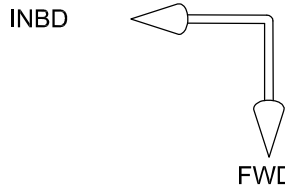
**Step 8:** Bundle and secure (to an airworthy condition) the loose ends of the nav/strobe cable and the landing light wires to the adjacent W-1208-R where they can be easily accessed for installation of the RV-12 Lighting Kit-SV at a later date. See Figure 1.



**FIGURE 1: WING WIRING INSTALL**  
(LEFT WING SHOWN)



**FIGURE 2: LEFT & RIGHT WING**  
**CONNECTOR EXPLODED**  
**VIEW**



**FIGURE 3: WING WIRING POSITIONING**





**NOTE:** The FLF-00012 AOA Connector is designed to allow the nuts to only come off one end. Proper installation of these fittings takes advantage of this feature. Thread one nut all the way onto each fitting until it will not go on any further, this becomes the "fixed nut", see Figures 1 & 2. Tighten the adjustable nut to 10 in. lbs. when installing these fittings.

**Step 1:** Use a step drill to enlarge the .375 [9.5 mm] hole in the inboard W-1208-R of the left wing to 15/32. See Figure 2 on page 16iS/U-04.

**Step 2:** Install the FLF-00012 AOA Connector into the hole enlarged in Step 1 with the "fixed nut" end facing inboard. See Figure 1 and 5.

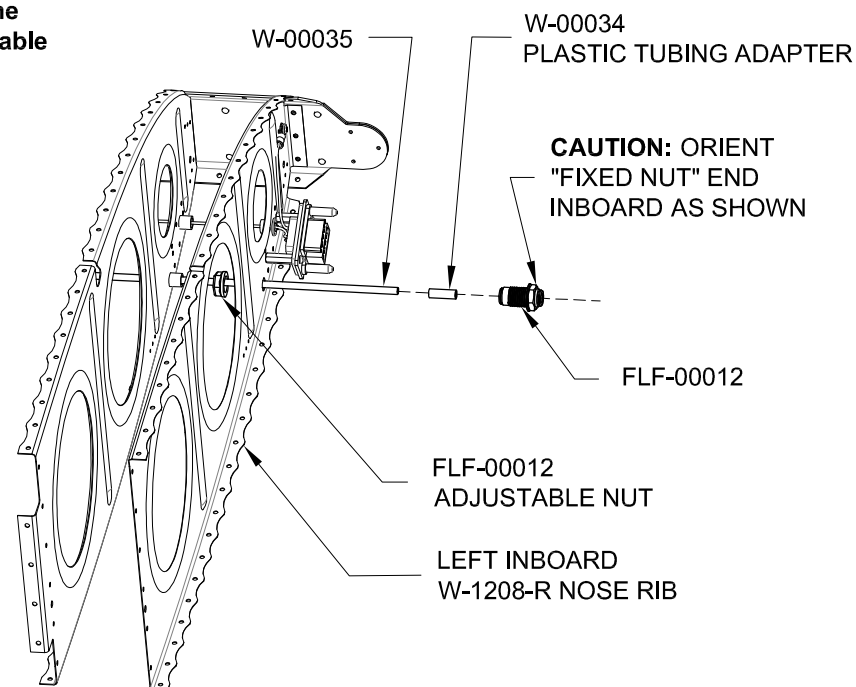
**Step 3:** Fabricate the W-00034 Plastic Tubing Adapter from a piece of PT-035X1/4 plastic tube 3/4 in. [19.1 mm] long.

**Step 4:** Fabricate the W-00035 Wing AOA Line 87 inches long from PT 1/8 CLR Plastic Tubing.

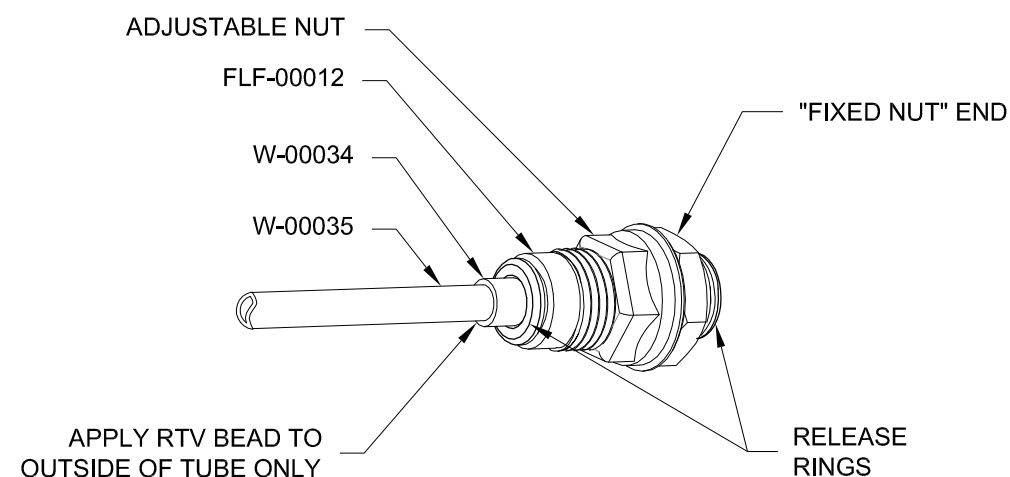
**NOTE:** Do not get RTV inside the Wing AOA Line or the FLF-00012 AOA fitting.

**Step 5:** Push the wing root end of W-00035, 3/8 in. [9.5 mm] into the W-00034 and seal with RTV. See Figure 2.

**Step 6:** Install the W-00034 and the end of the W-00035 in the outboard end of the FLF-00012. See Figure 2.



**FIGURE 1: INSTALLING THE WING ROOT FLF-00012 AOA FITTING**

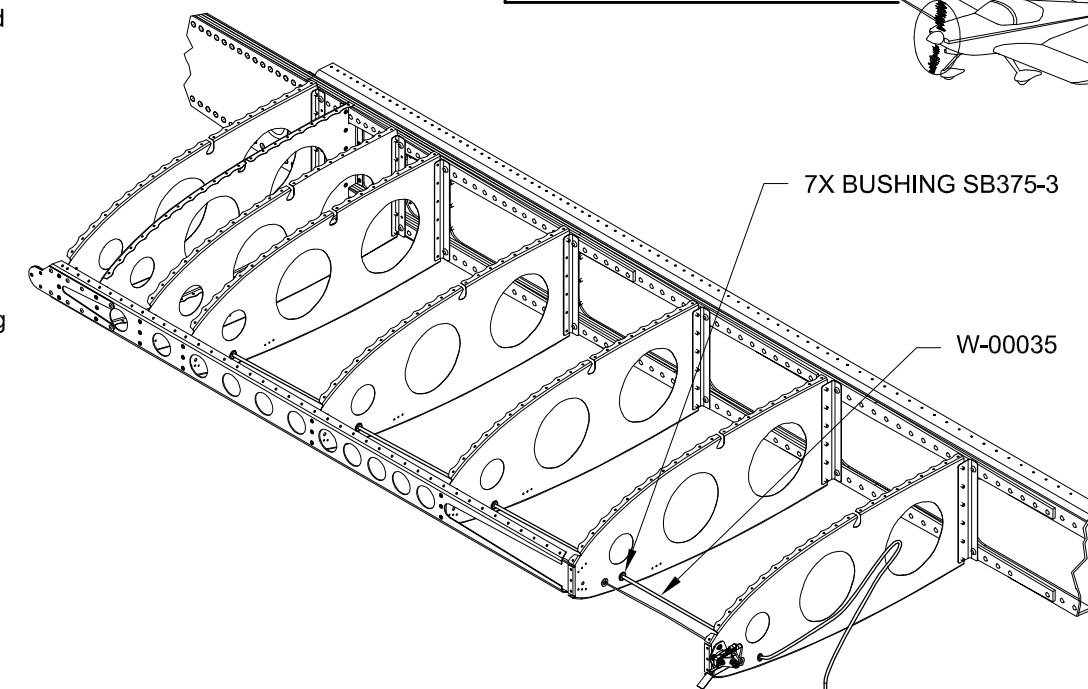


**FIGURE 2: WING AOA LINE ASSEMBLY DETAILS**

**Step 6:** Starting with the second nose rib from the inboard end, install the snap bushings as shown in Figure 3.

**Step 7:** Route the W-00035 outboard through the snap bushings just installed.

Leave the excess W-00035 tubing coiled in the stall warning wing bay. See Figure 3.



**FIGURE 3: WING AOA TUBING ROUTING**

**NOTE:** The length of the FLF-00016 Aluminum Connector Tube is critically important for proper AOA system operation.

**Step 8:** Fabricate the FLF-00016 Aluminum Connector Tube from the piece of AT6-049X1/4 aluminum tube, see Figure 4.

Radius both ends of the FLF-00016 1/32 in. [0.8 mm].

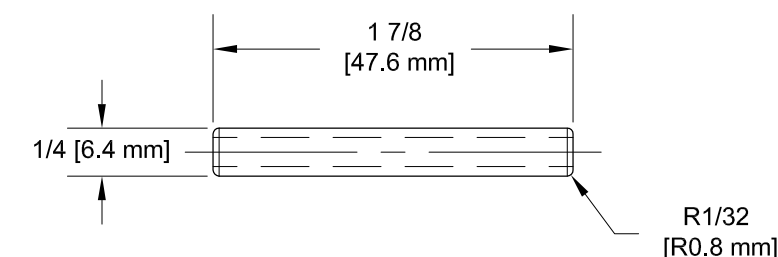
The ends of the FLF-00016 must be free of burrs, scratches, and debris.

**Step 9:** Wipe a thin coating of Dow Corning DC4 silicone compound on both ends of the FLF-00016, then insert the FLF-00016 into the FLF-00012 connector. See Figure 5.

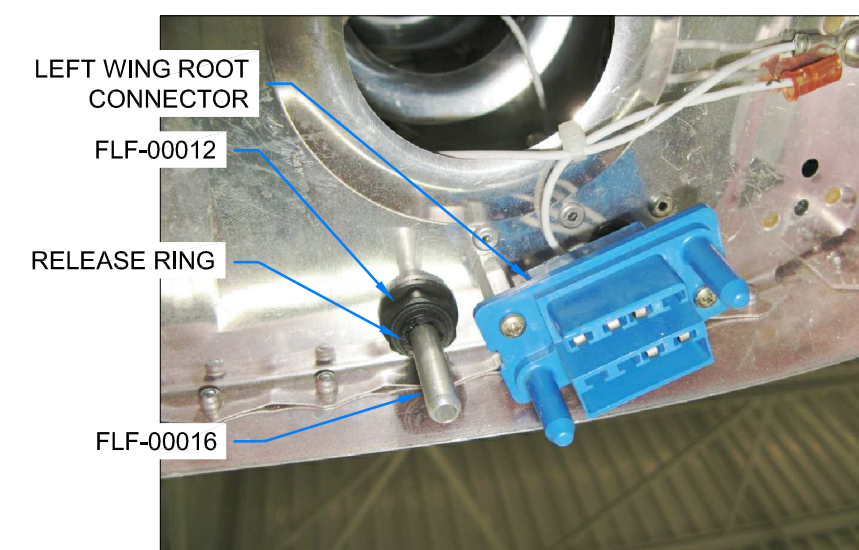
**Step 10:** Give a slight tug on the FLF-00016 to test the FLF-00012 connector retention function.

The FLF-00016 must not come out of the wing FLF-00012 connector unless the release ring is depressed.

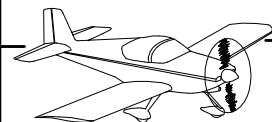
Leave the FLF-00016 in its installed location in the wing FLF-00012 connector.



**FIGURE 4: FLF-00016 ALUMINUM CONNECTOR TUBE**



**FIGURE 5: FLF-00016 INSTALLED**



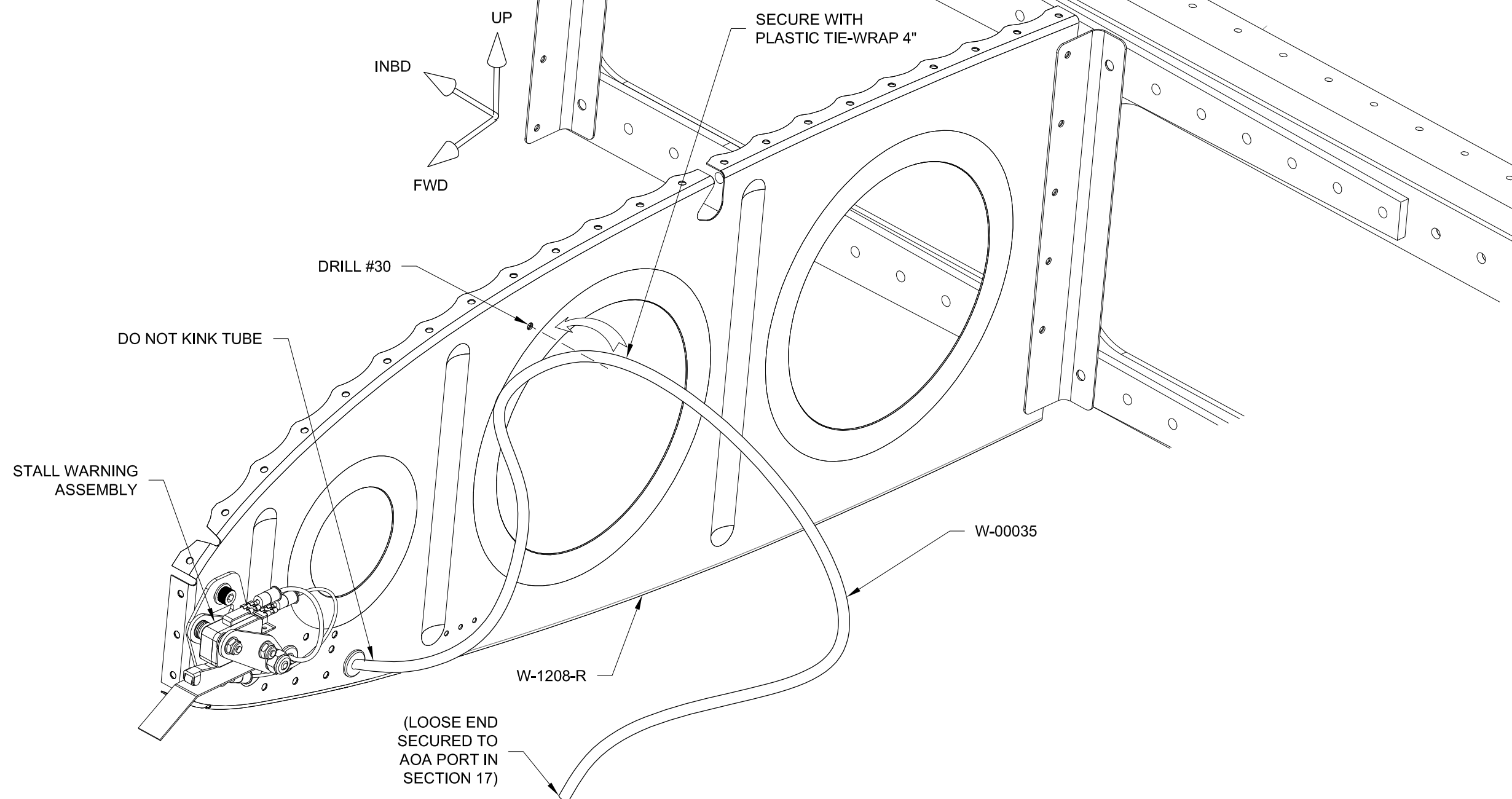
Step 1: Drill a #30 hole in the location shown in Figure 1 (just outside of and above the bead around the lightening hole) in the W-1208-R Nose Rib which has the Stall Warning Assembly mounted to it.

**NOTE: When securing the W-00035 in Step 2, do not tighten the tie-wrap enough to deform or constrict the tube. Ensure that there are no kinks in the tube as it makes the sharp turn out of the snap bushing. Securing the tube to this point on the W-1208-R provides a high point in the W-00035 to keep water out of the system.**

Step 2: Secure the W-00035 to the W-1208-R using a tie-wrap through the hole just drilled. See Figure 1.

The loose end of the W-00035 will be connected to the AOA port during installation of the wing skins.

END OF SECTION.



**FIGURE 1: SECURING THE WING AOA LINE**