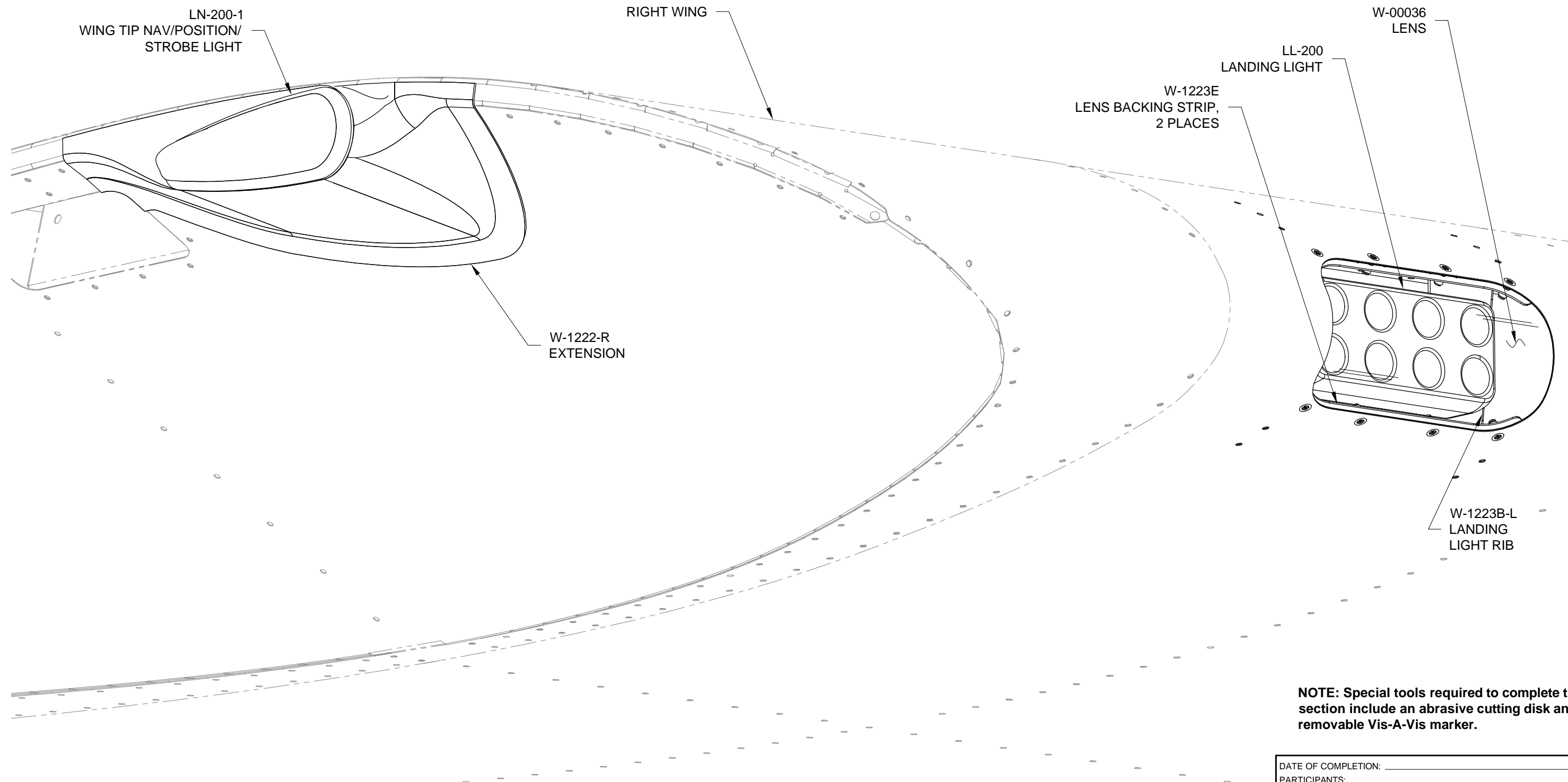
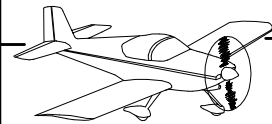


SECTION 40iS/U: LIGHTING



NOTE: Special tools required to complete this section include an abrasive cutting disk and a removable Vis-A-Vis marker.



NOTE: This section details installation of the lighting kit for aircraft built with W-1203-R-1 & -L-1 Outbd Wing Skins (with prepunched landing light cutouts), as well as with WH-00032, WH-00033, and WH-00140 Prefabricated Wing Wiring Harnesses. See Section 40 for instructions pertaining to older wing kits.

NOTE: This section shows installation of a single landing light on the right hand side of the aircraft. For aircraft equipped with a Rotax 912iS engine a second landing light may be installed on the left wing (mirror the instructions shown for the right side).

WARNING: Installation of a second landing light on an aircraft equipped with a Rotax 912ULS will overload the electrical system. This may cause damage to the control module, voltage regulator or stator.

NOTE: The electrical schematic for your entire aircraft can be downloaded from the downloads page of the Van's Aircraft web site for reference. The schematic for the wing wiring is shown on Page 40iS/U-05

NOTE: Throughout this section, aircraft structure is used for an electrical ground. Areas of aircraft structure contacted by ring terminals should be free of paint or primer to provide reliable electrical continuity. See Section 5.21 for further information on aircraft electrical systems.

Step 1: Remove the three rivets indicated in Figure 1 from the W-1204D-L Wing Tip Close-Out.

Step 2: Use a step drill to enlarge the hole in the W-1204D-L to 3/8 as shown in Figure 1. Deburr the enlarged hole.

Step 3: Repeat Steps 1 and 2 for the right side of the aircraft.

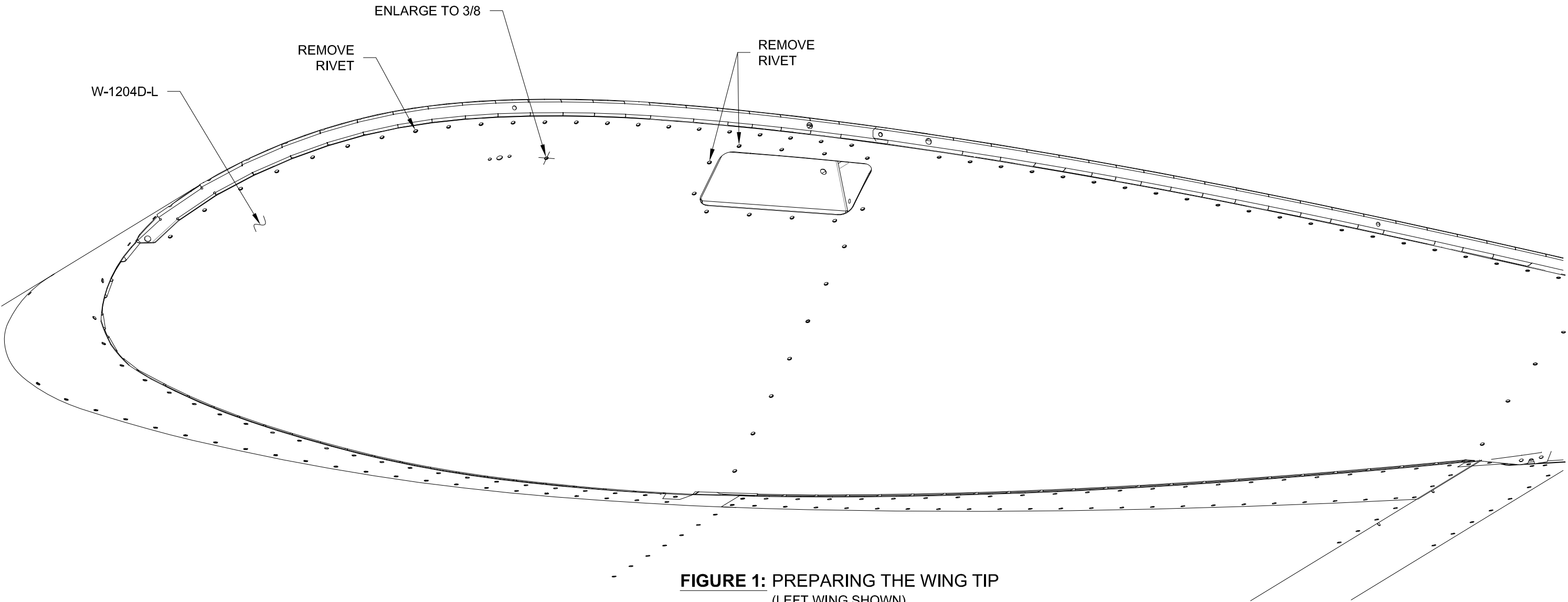
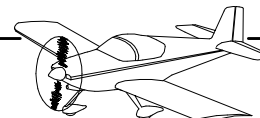


FIGURE 1: PREPARING THE WING TIP
(LEFT WING SHOWN)



Step 1: Wrap masking tape around each end of the W-00036 then insert the W-000136 into the opening in the W-1203-R-1. See Figure 1.

Step 2: Use the tape to hold the W-00036 tight against the W-1203-R-1.

Match-Drill #30 using a plexi bit and cleco the eight holes in the W-1203-R-1 surrounding the landing light cutout in the W-00036. See Figure 1.

Step 3: Mark the inbd and outbd edges of the landing light cutout in the W-1203-R-1 onto the W-00036 with a wet-erase Vis-A-Vis marker or equivalent. See Figure 1.

Step 4: Remove the W-00036 and the tape.

Final-Drill #27 using a plexi bit the holes in the W-00036.

Step 5: Trim the W-00036 using the dimensions in Figure 1 and the reference marks made in Step 3.

Start by trimming within 1/32 inch of the final shape with an abrasive cutting disk then finish by sanding.

Step 6: Final-Drill #27, debur, then dimple the eight holes in the W-1203-R-1 surrounding the landing light cutout for the head of a #6 screw.

Step 7: Machine countersink the screw holes in the W-00036 for the corresponding dimples in the W-1203-R-1.

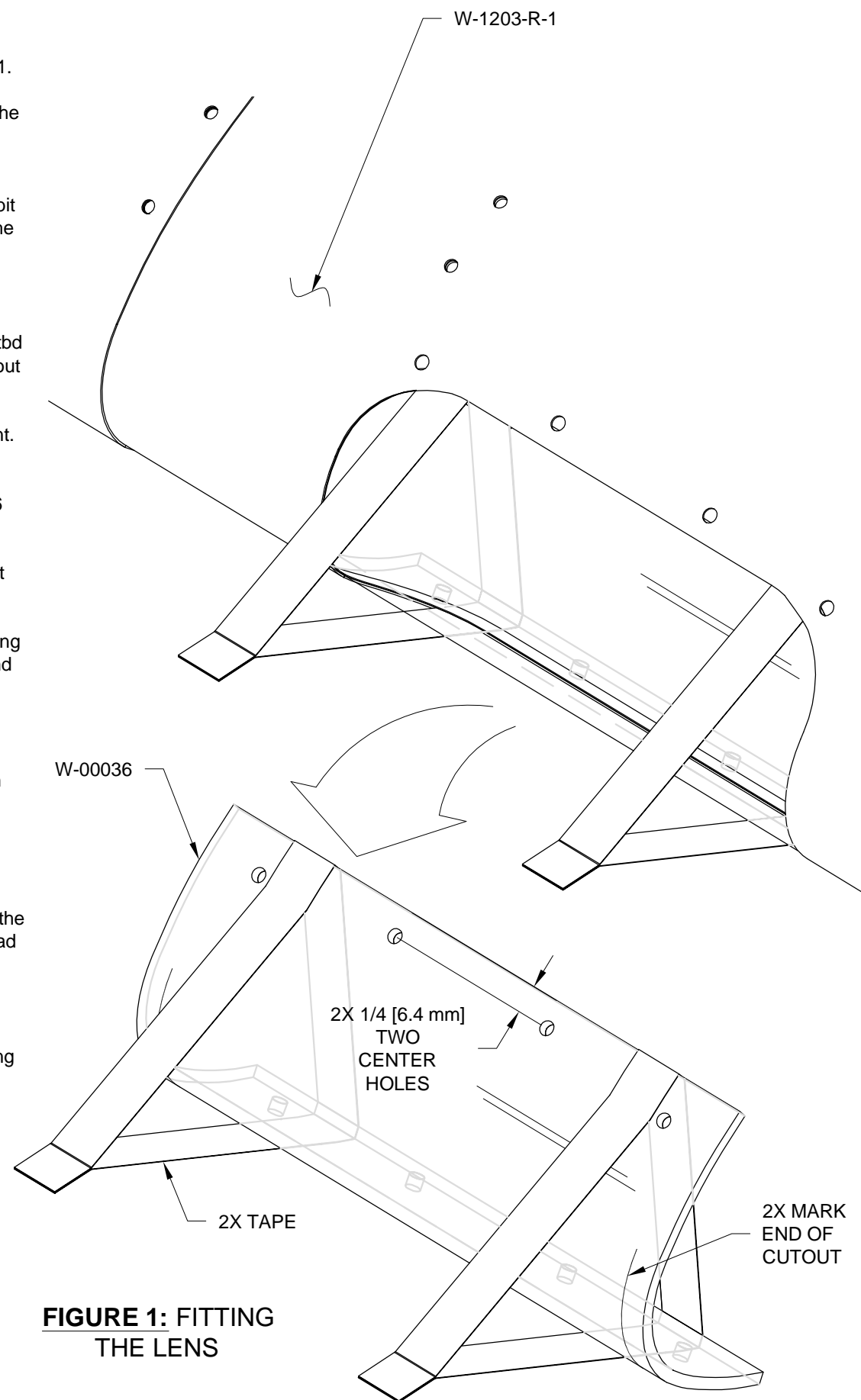


FIGURE 1: FITTING THE LENS

Step 8: Machine countersink the rivet holes in both W-1223E Lens Backing Strips at all nutplate attach locations.

Rivet nutplates to both of the W-1223E as shown in Figure 2.

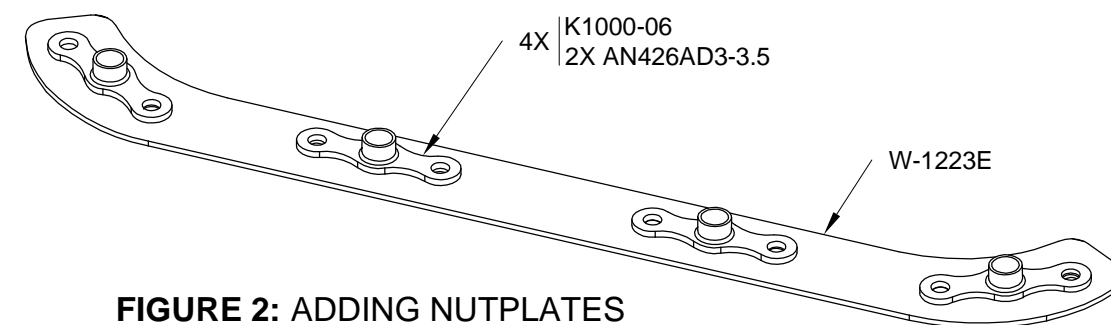


FIGURE 2: ADDING NUTPLATES TO THE LENS BACKING STRIPS

Step 9: Temporarily position the W-1223E on the W-00036 as shown in Figure 3.

Use the edge of the W-1223E to mark the W-00036 for trimming.

Step 10: Trim back the corners of the W-00036 to match the edges of the W-1223E as shown in Figure 3.

Step 11: Radius the edges of the W-00036.

Smooth all trimmed edges with 220 grit sandpaper.

Deburr the interior sides of the screw holes.

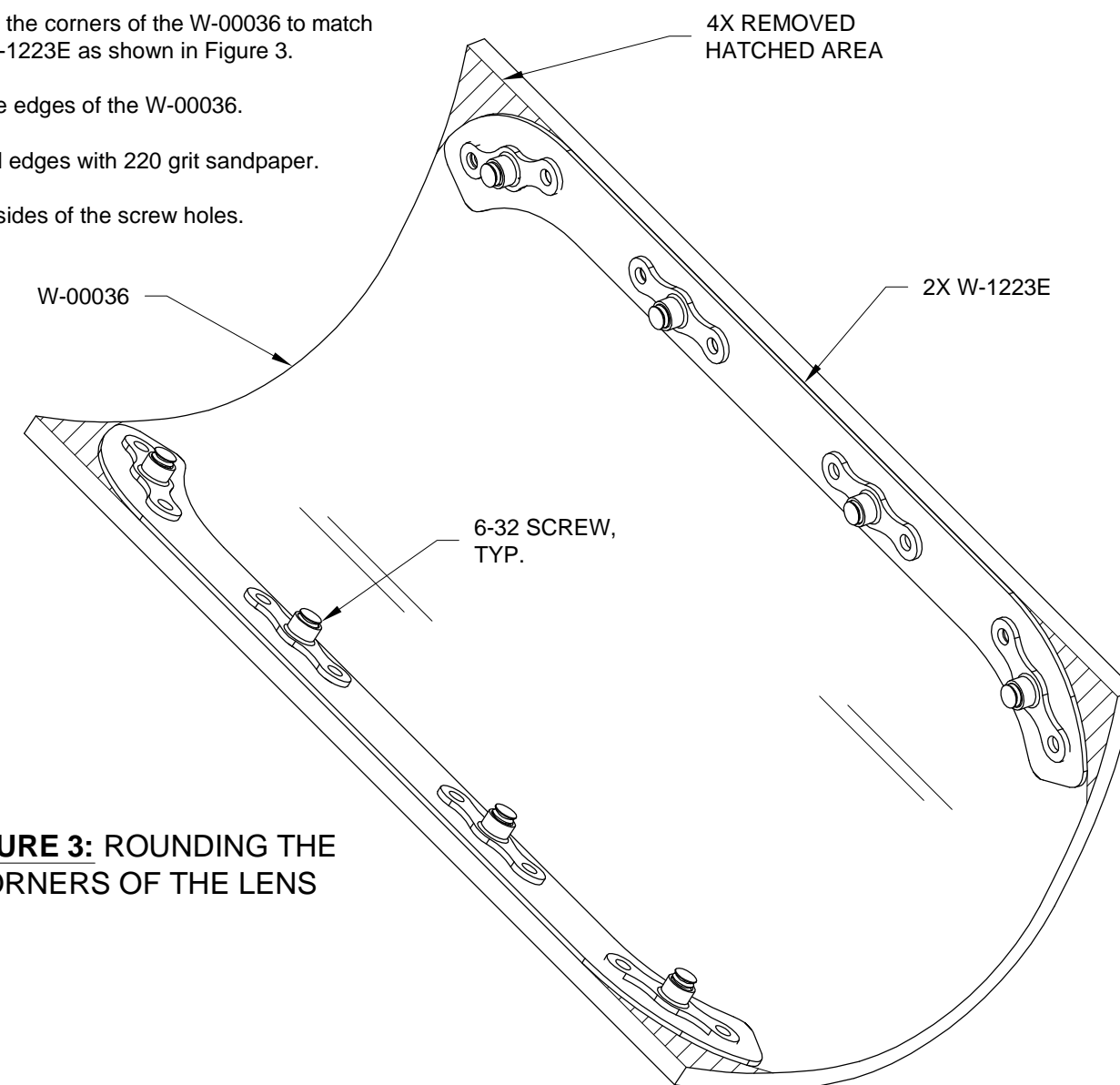
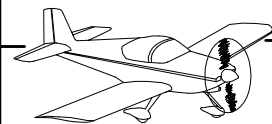


FIGURE 3: ROUNDING THE CORNERS OF THE LENS



Step 1: Use a step drill to enlarge the two tooling holes in the W-1223B Landing Light Rib to 3/8. See Figure 1.

Step 2: Remove the hatched area on the W-1223B to separate the part into the W-1223B-L & -R Landing Light Ribs.

Step 3: Deburr the slots and edges of both the W-1223B-L & -R.

Flute the W-1223B-L & -R between the holes if necessary, so that the flange rivet holes align with the holes in the wing skin.

Check that an AN3 bolt will easily slide in the slot.

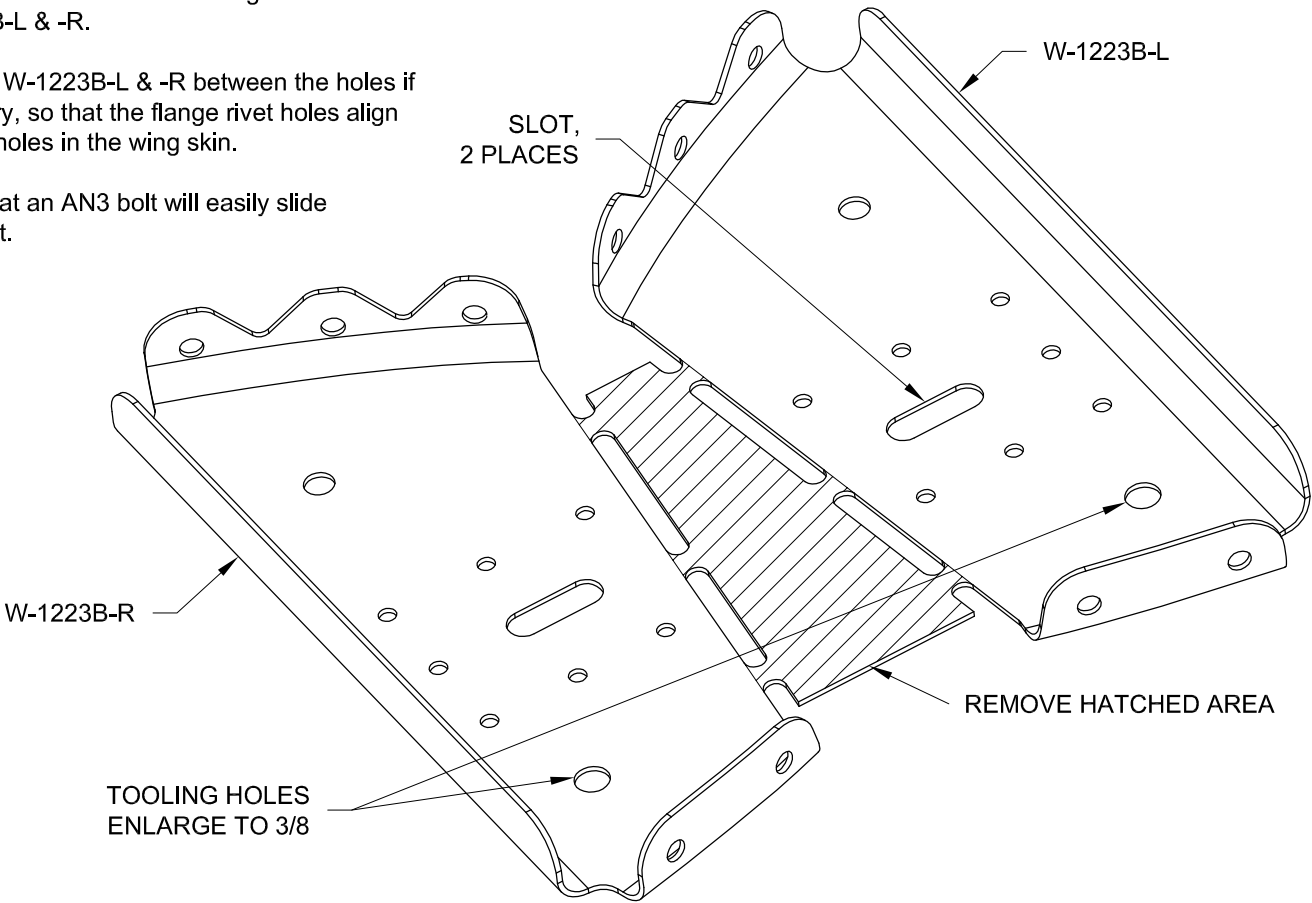


FIGURE 1: SEPARATING THE LANDING LIGHT RIBS

Step 4: Machine countersink both W-1223C Rib Doublers for the rivets called out in Figure 2.

Step 5: Deburr the slot in each W-1223C.

Check that an AN3 bolt will easily slide in the slot.

Step 6: Rivet the W-1223C to the W-1223B-L as shown in Figure 2. Repeat this step for the remaining W-1223C and W-1223B-R.

Step 7: Add a snap bushing to the W-1223B-L & -R. **Orient the snap bushing as shown in Figure 2!**

Step 8: Locate the L215 (BLK) landing light ground wire (included with the WH-00140 RV12iS Wing Grounds).

Insert the female Molex socket of the L215 (BLK) into the male Molex connector housing as shown in Figure 2, and in accordance with the wiring schematic on Page 40iS/U-05.

Step 9: Attach the ring terminal of the L215 (BLK) to the W-1223B-R using the hardware called out in Figure 2.

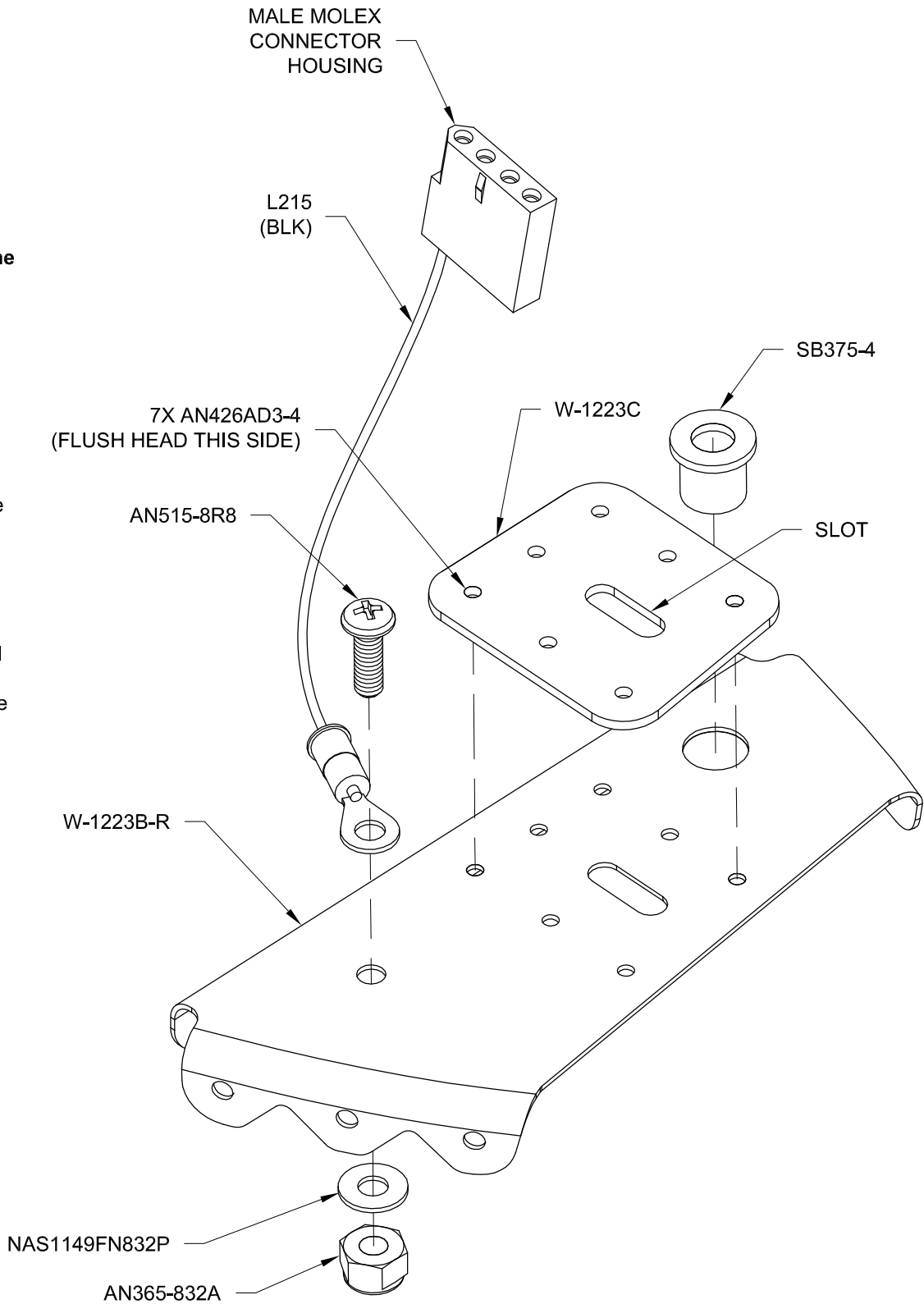
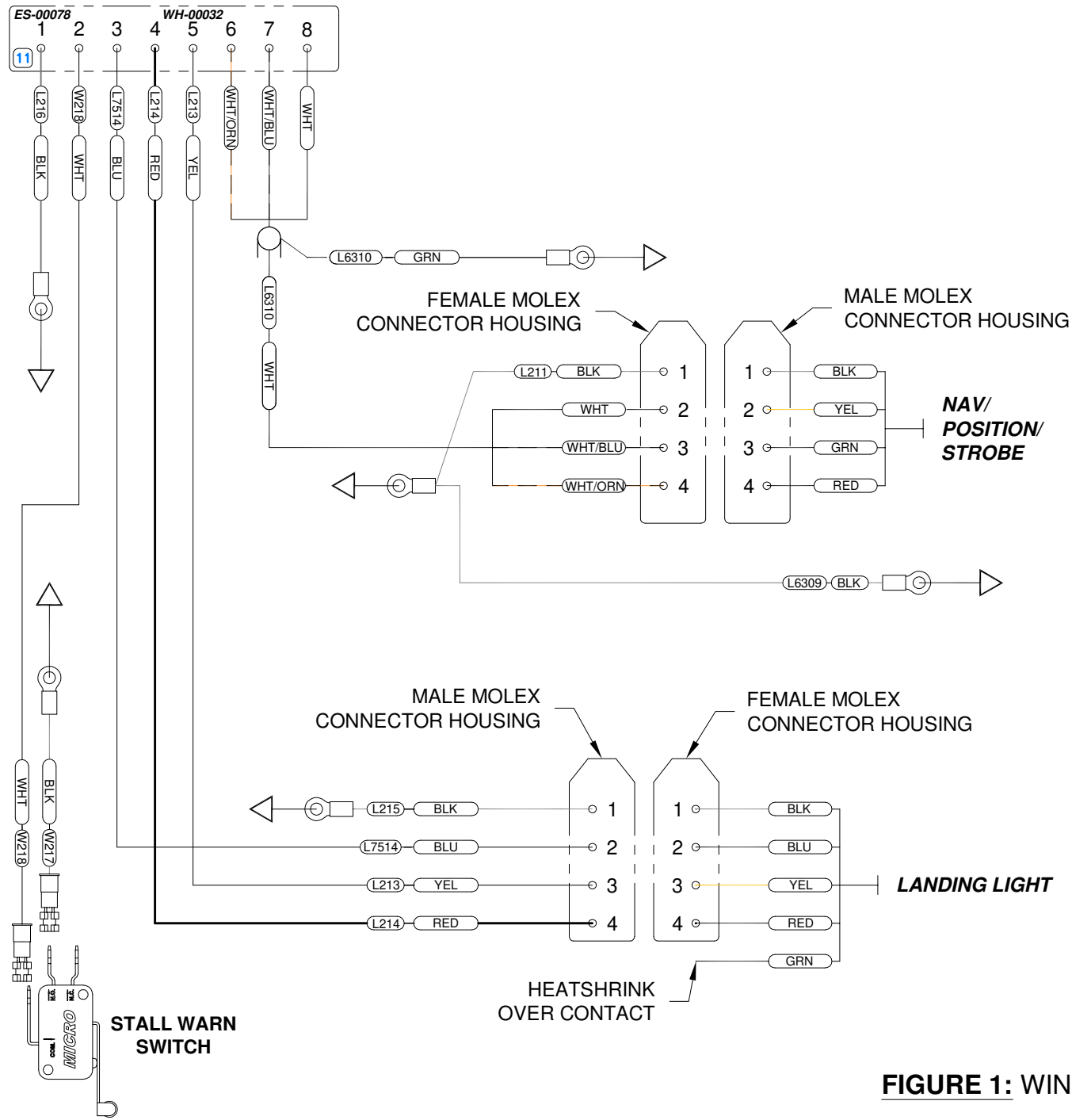


FIGURE 2: LANDING LIGHT RIB PREP
(RIGHT RIB SHOWN)

NOTE: See section 5.21 for more information on aircraft electrical systems.

LEFT WINGROOT CONNECTOR



RIGHT WINGROOT CONNECTOR

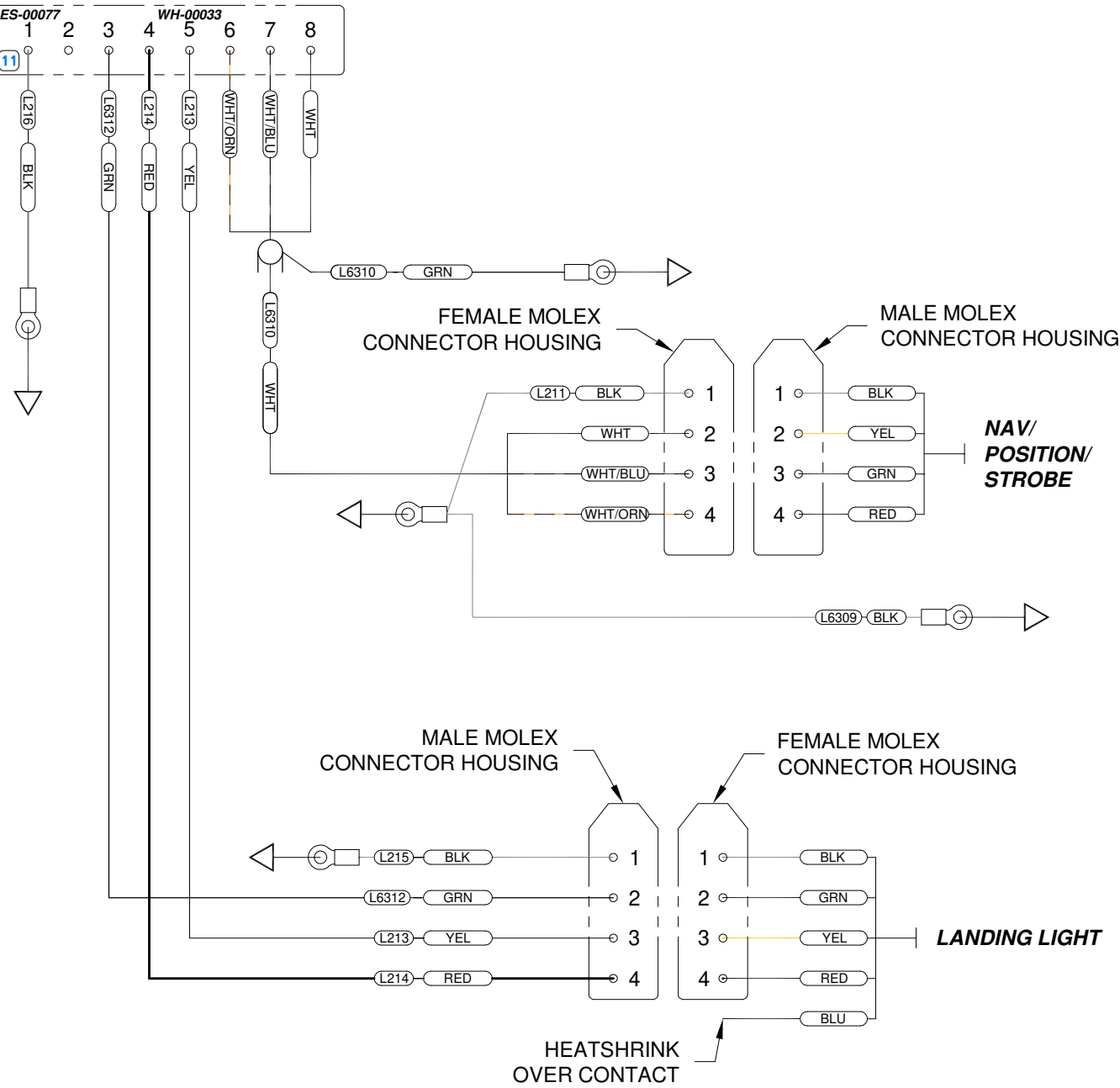
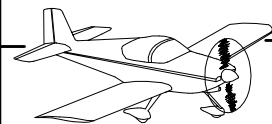


FIGURE 1: WING WIRING SCHEMATICS



NOTE: Any protective heatshrink put over the Molex contacts will need to be removed before inserting the contacts into the connector housings.

Step 1: Rivet the W-1223B-L & -R to the W-1203-R-1 as shown in Figure 1.

Step 2: Route the L6310 (WHT) nav/position/strobe cable outboard through the snap bushings in the W-1223B-L & -R and through the snap bushing in the outboard most W-1208 Nose Rib out to the wing tip. See Figure 1.

Step 3: Route the L213 (YEL), L214 (RED), and L6312 (GRN) (right wing) or L7514 (BLU) (left wing) through the snap bushing in the inboard W-1223B only. See Figure 1.

Step 4: Snap the female Molex sockets on these wires into the male Molex connector housing on the end of the L215 (BLK) as shown in Figure 1, and in accordance with the wiring schematic on Page 40iS/U-05.

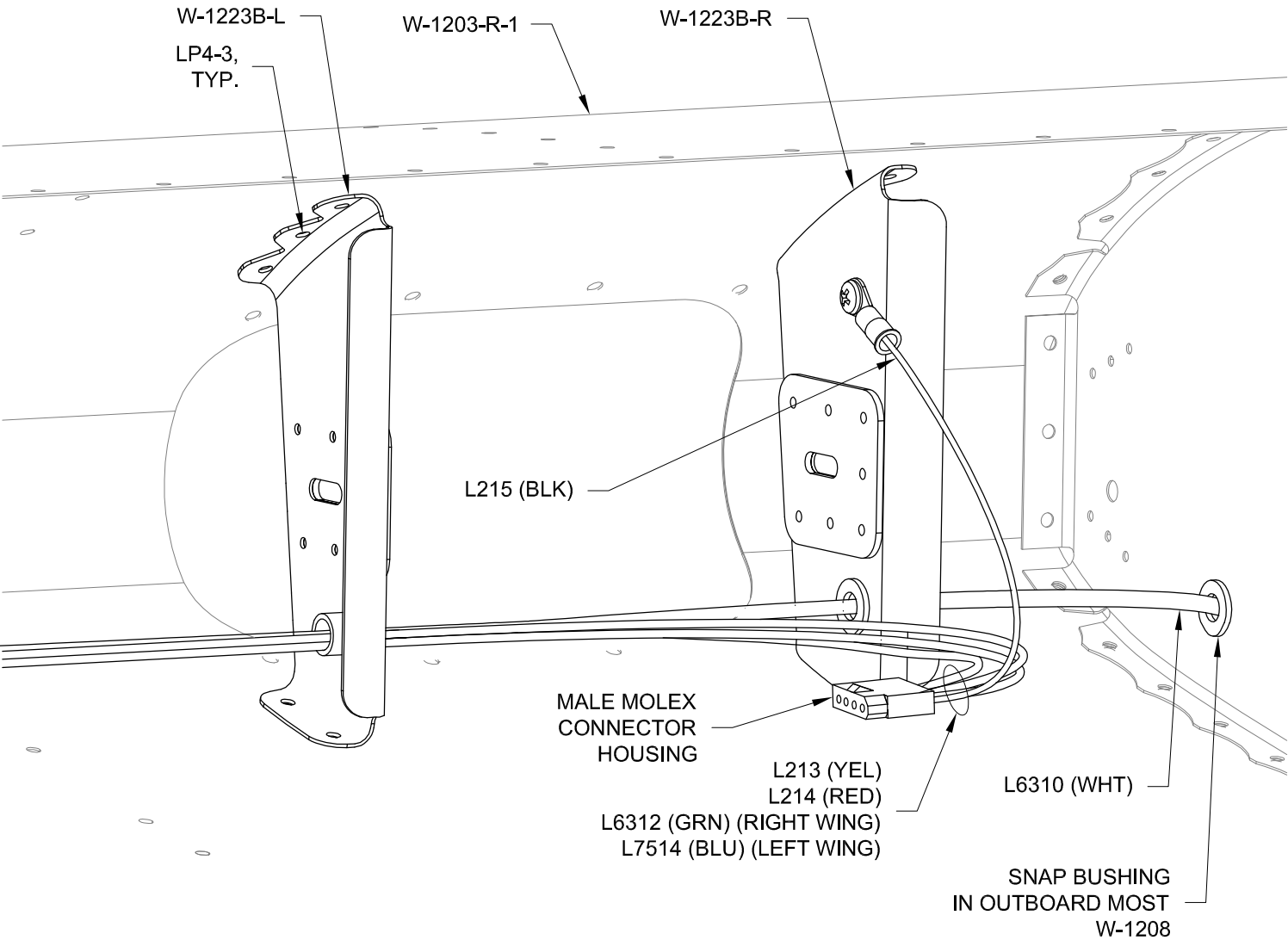


FIGURE 1: ADDING THE LANDING LIGHT RIBS
(VIEW FROM INSIDE THE RIGHT WING)

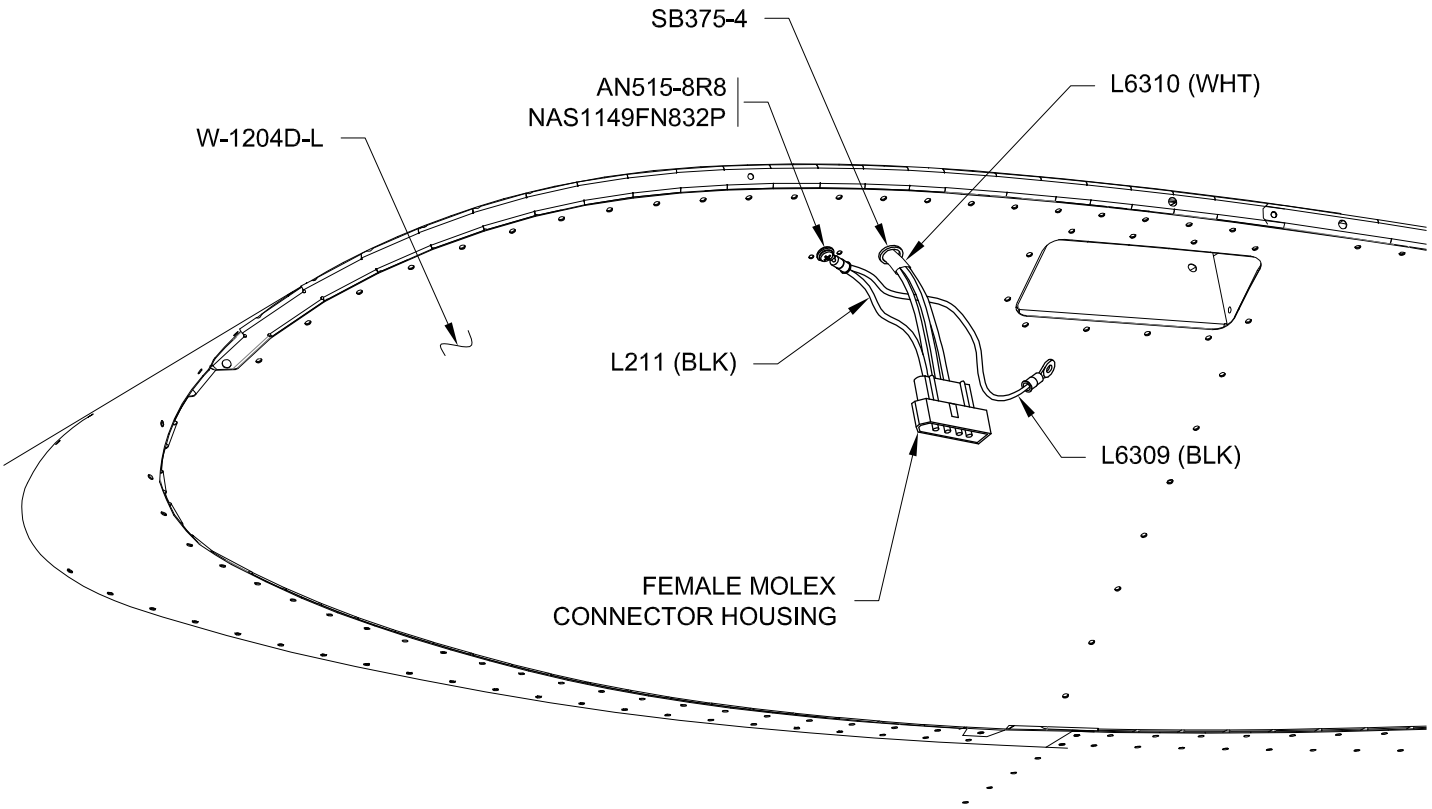


FIGURE 2: NAV/POSITION/STROBE WIRING
(LEFT WING SHOWN)

Step 5: Locate the L211 (BLK) and L6309 (BLK) nav/position/strobe ground wires (part of the WH-00140 RV-12iS Wing Grounds) and secure the shared ring terminal to the nutplate in the W-1204D-L & -R as shown in Figure 2.

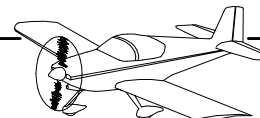
Step 6: Snap the male Molex pin on the end of the L211 (BLK) into a female Molex connector housing as shown in Figure 2, and in accordance with the wiring schematic on Page 40iS/U-05.

Step 7: Reaching in through the landing light cutout and most outboard W-1208 nose rib, feed the L6310 (WHT) through the 3/8 [9.5 mm] hole in the W-1204D-L & -R. See Figure 2.

If necessary, safety wire can be passed through the 3/8 [9.5 mm] hole in the W-1204D-L from the outside, then taped to the L6310 (WHT) in an area with easier access (such as the landing light bay). The safety wire can then be pulled back through the hole, pulling the L6310 (WHT) out through the 3/8 [9.5 mm] hole. The L6310 (WHT) must still pass through the snap bushing of the outboard W-1208 (as shown in Figure 1).

Step 8: Pass a snap bushing over the L6310 (WHT), then snap the bushing into the hole in the W-1204D-L & -R as shown in Figure 2.

Step 9: Snap the male Molex pins on each conductor of the L6310 (WHT) into the female Molex connector housing. See Figure 2 and Page 40iS/U-05.



Step 1: Strip the ends of the wires coming from the back of the LL-200 Landing Light.

Crimp on male Molex pins to the end of each wire.

Step 2: Shrink a piece of heatshrink over the Molex pin on the blue wire of the first LL-200, designating this LL-200 the right landing light.

Step 3: If installing dual landing lights, shrink a piece of heatshrink over the Molex pin on the green wire of the second LL-200, designating this LL-200 the left landing light.

Step 4: Snap the Molex pins on the LL-200 wires into the female Molex connector housing in accordance with the wiring schematic on Page 40iS/U-05.

Step 5: Connect the male and female Molex connector housings for the LL-200. Secure the wires with tie-wraps as necessary to prevent chafing. See Figure 1.

Step 6: Install the LL-200 onto the W-1223B-L & -R using the hardware called out in Figure 1. First align the attach holes in the LL-200 with the aft end of the slot in the W-1223B-L & -R, start the bolt with washers by hand then slide the LL-200 forward to the front of the slots.

Aim the light slightly downward so that the front face of the LL-200 is parallel to the front edge of the W-1223B-L & -R.

Finish tightening the bolts using a box end wrench while continuing to hold the front face of the LL-200 parallel to the front edge of the W-1223B-L & -R. See Figure 1.

Step 7: Use two pieces of double backed tape to hold the W-1223E to the inside face of the W-00036. See Figure 2.

Step 8: Slip the W-00036 through the landing light cutout in the W-1203-R-1 and screw it in place as shown in Figure 2.

Use tape to make temporary pull tabs to hold the W-00036 against the W-1203-R-1 and help start the screws.

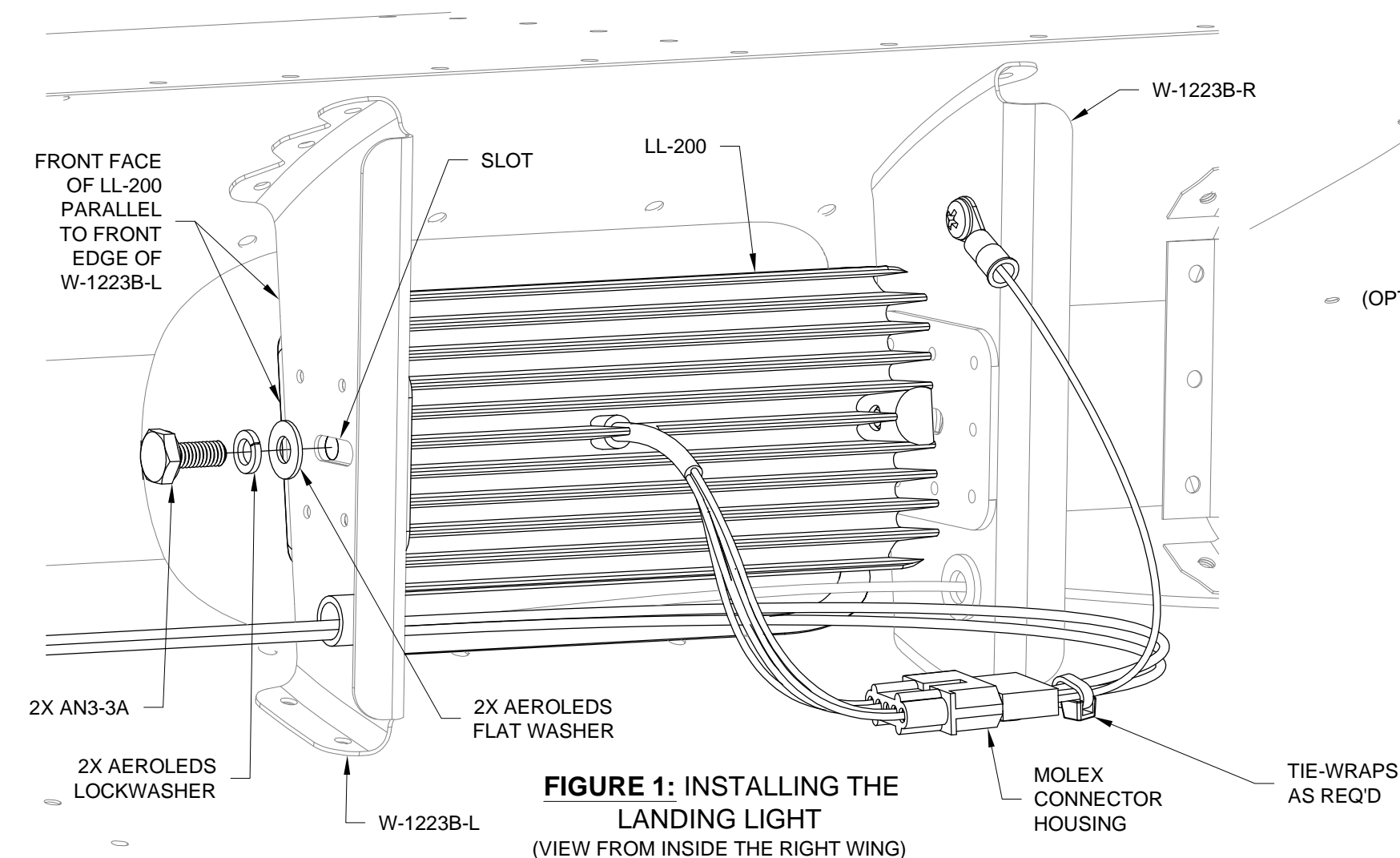


FIGURE 1: INSTALLING THE LANDING LIGHT
(VIEW FROM INSIDE THE RIGHT WING)

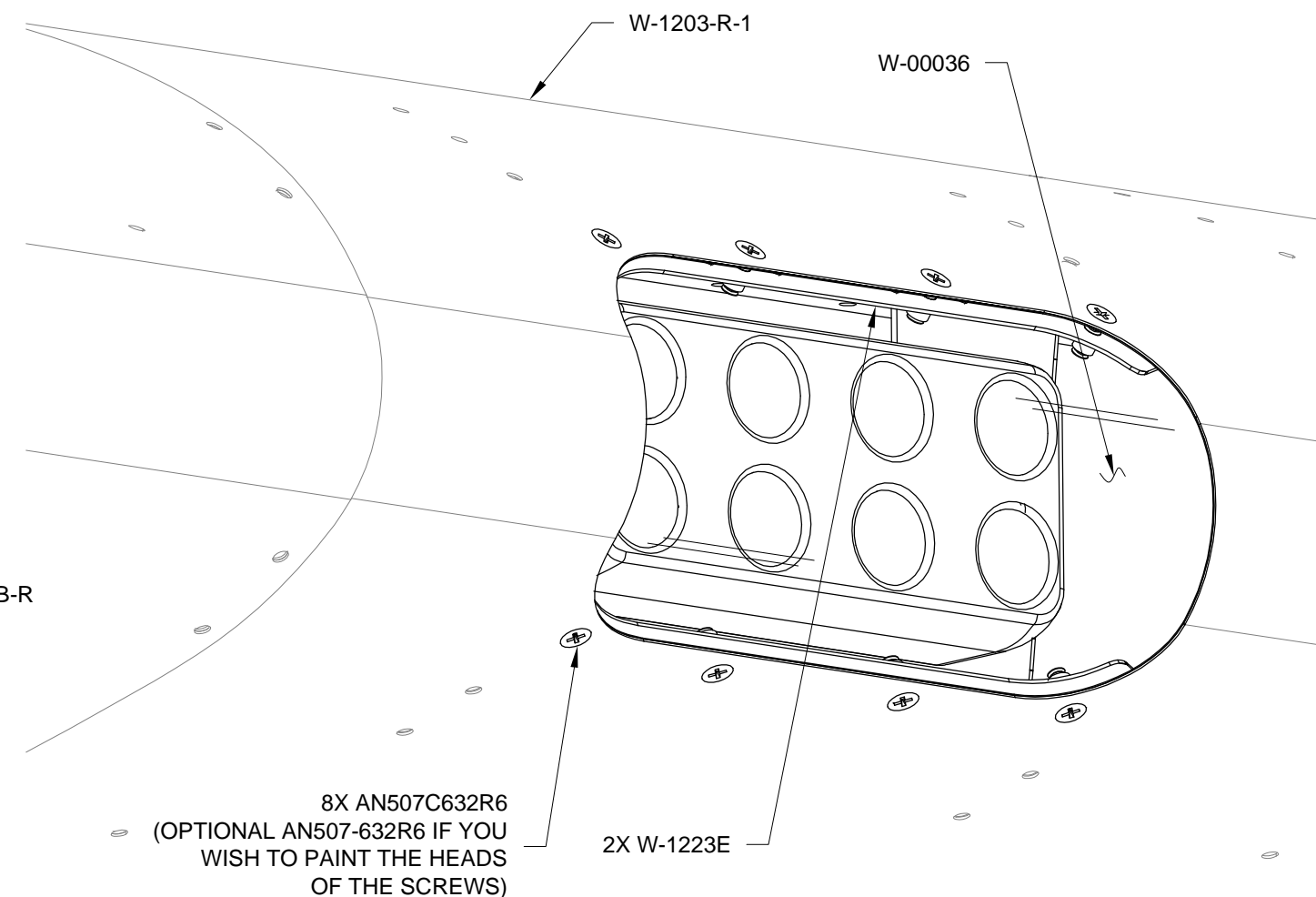


FIGURE 2: INSTALLING THE LENS



Step 1: Use a hand shear to trim the W-1222-L & -R to within 1/16 in. [1.6 mm] of the scribe lines defining the part perimeter, then sand to the scribe line.

Step 2: Fit the W-1222-L & -R to each wing tip then drill #30 the forward two and aft two holes into the upper flange and the W-1204E-L & -R Fwd Wing Tip Ribs. See Figure 1.

Remove the extensions and clear any drill chips then cleco back in place.

Match-Drill #30 the three holes already in the wingtip (a bright light may help in revealing the hole locations underneath the fiberglass). See Figure 1 and section 5.18 for more information on match-drilling opaque fiberglass parts.

Drill #30 all the remaining dimples in the lower flange of the W-1222-L & -R into the W-1204D-L & -R Wing Tip Close-Outs.

Step 3: Cover each wing tip in the area around where the floc on the W-1222-L & -R will touch with a release agent such as car wax. See Figure 1 and Figure 2.

Add a glob of modeling clay or wax to the area where the nut will be placed, covering the recess. See Figure 2 and 3.

Step 4: Turn both wings upside down.

Step 5: Prepare approximately 2-3 fluid oz. of floc/epoxy resin mixture. Mix in floc until the concoction is just thick enough to not pour from the cup.

NOTE: Applying a release agent to the clecos prior to insertion in Step 6 will aid in removal of the clecos after the epoxy has set.

Step 6: Fill any cavities in the upper flange of the W-1222-L & -R that will abut the W-1204E-L & -R with floc/epoxy resin mixture, then cleco the W-1222-L & -R to the W-1204D-L & -R. See Figure 2.

Immediately clean any floc/epoxy resin mixture that may have squeezed out.

Step 7: When the floc has set up, drill #30 the top center two holes into the W-1204E-L & -R.

Step 8: Remove the W-1222-L & -R from each wing tip.

Sand away any of the floc that may have squeezed out around the perimeter of the part. Remove the modeling clay plug from the recess.

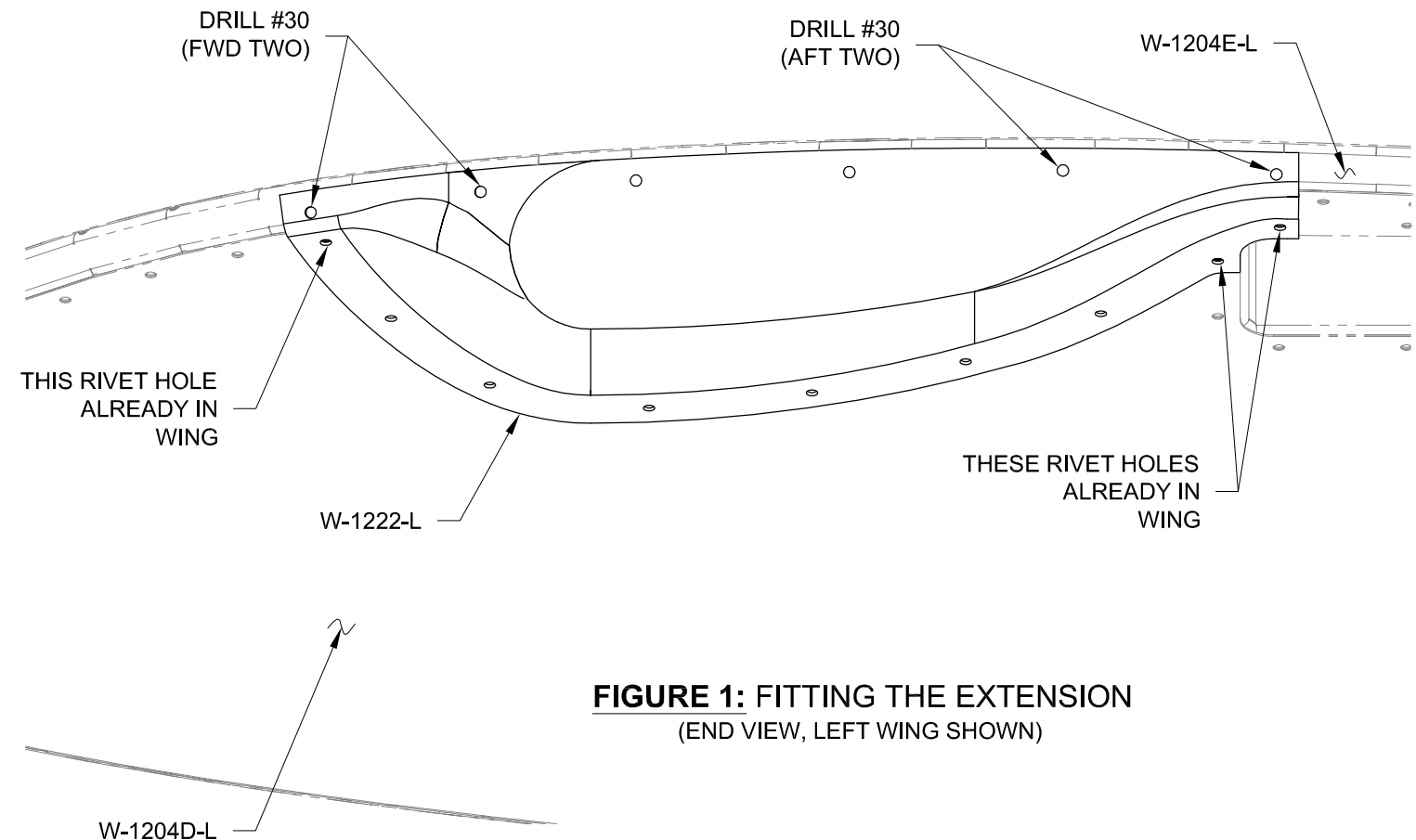


FIGURE 1: FITTING THE EXTENSION
(END VIEW, LEFT WING SHOWN)

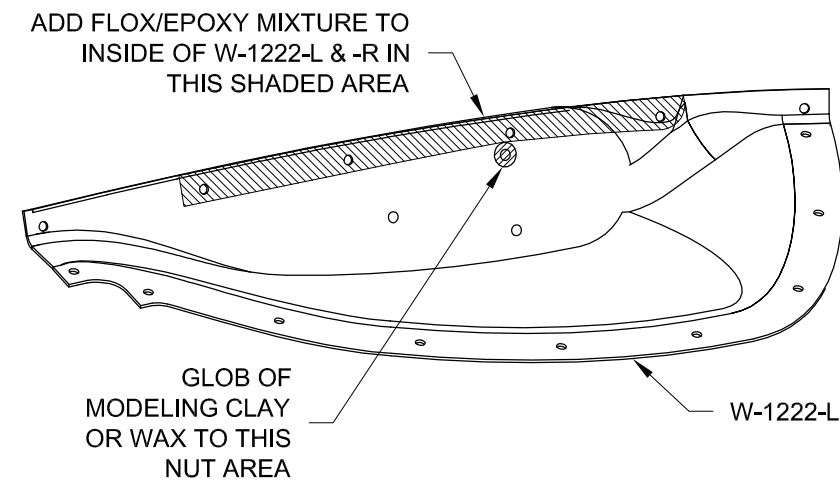


FIGURE 2: ADDING FLOC AND EPOXY

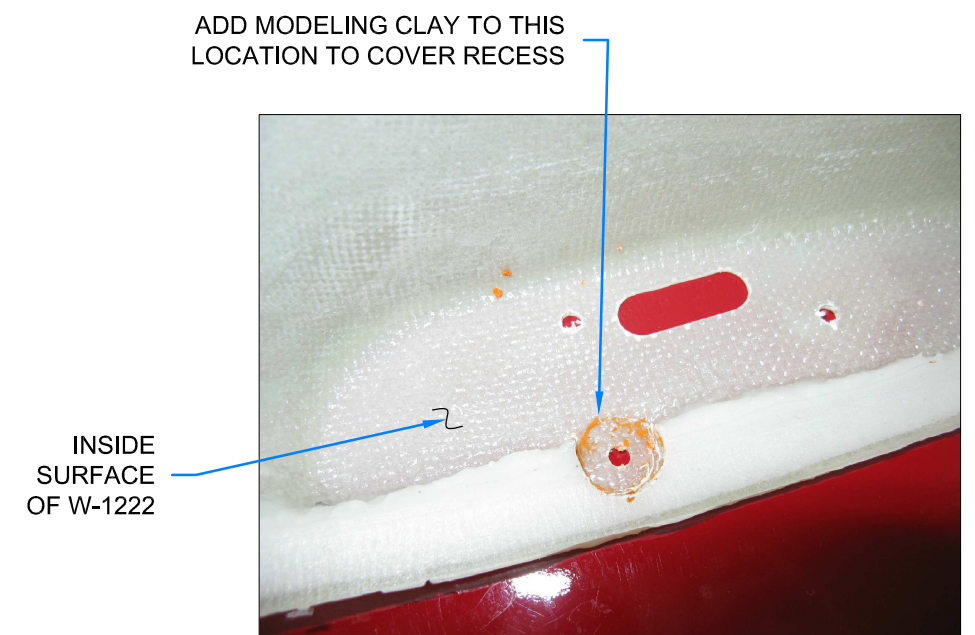
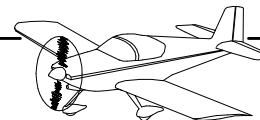


FIGURE 3: DETAIL OF NUT RECESS



Step 1: Use the dimples molded in the flat face of the W-1222-L & -R to align the LN-200-1 wing tip nav/position/strobe light mount brackets.

Clamp the mount bracket in place on each W-1222, then match-drill #27 the holes in the mount bracket into the W-1222-L & -R. See Figure 1.

Step 2: Pilot drill #30, then use a step-drill to enlarge the access hole called out in Figure 1.

Step 3: Machine countersink 120° all the attach holes in the upper flange of the W-1222-L & -R for the head of a CS4 rivet as shown in Figure 1.

Finish sand the edges of the W-1222-L & -R. If your wing tip is already painted this is a good time to paint the W-1222-L & -R.

Step 4: Attach the LN-200-1 mount brackets to the W-1222-L & -R using the hardware shown in Figure 1. The bottom fastener should capture the ring terminal of the B6309 (BLK).

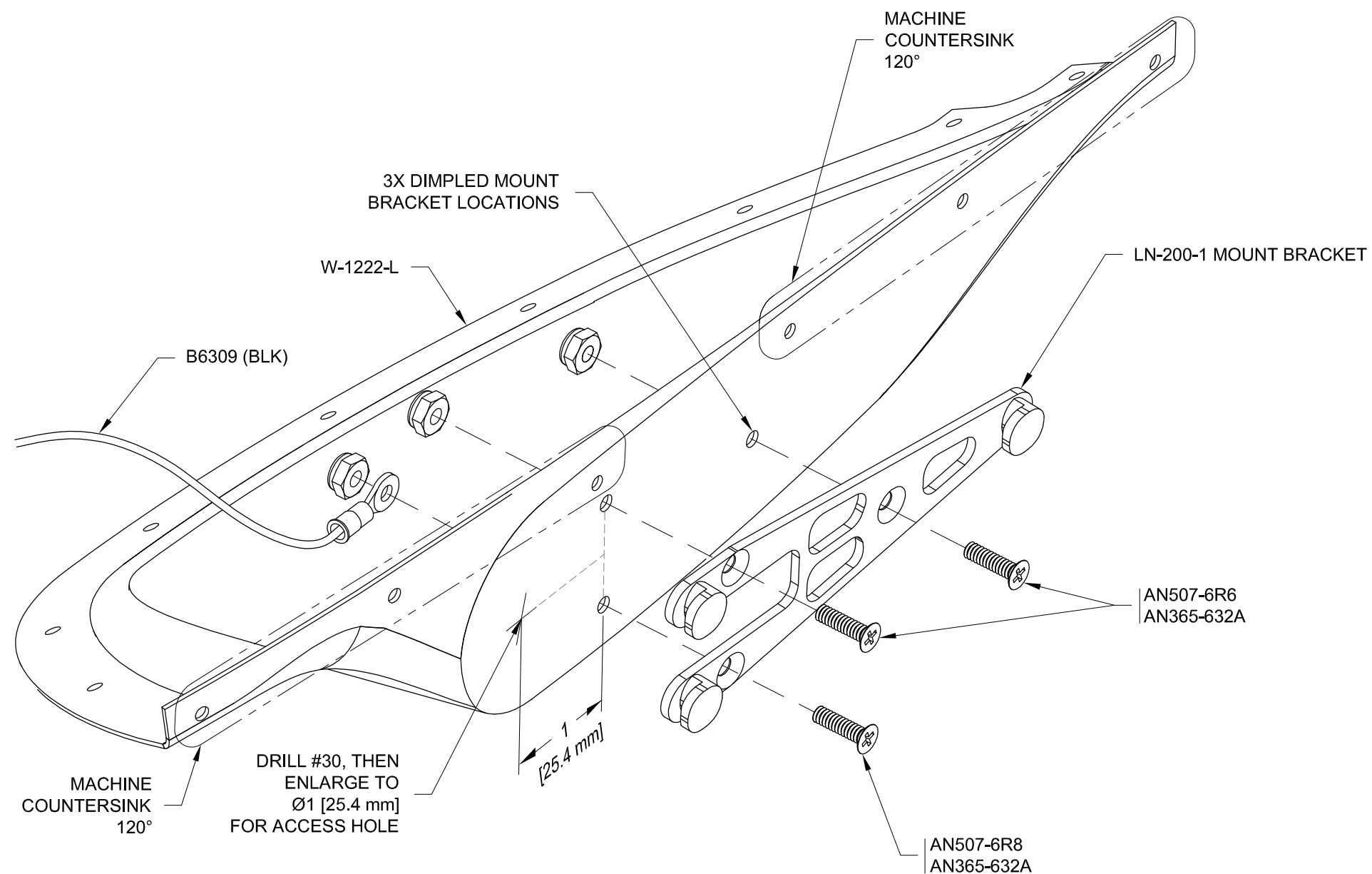


FIGURE 1: FINISHING THE EXTENSIONS

- Step 1:

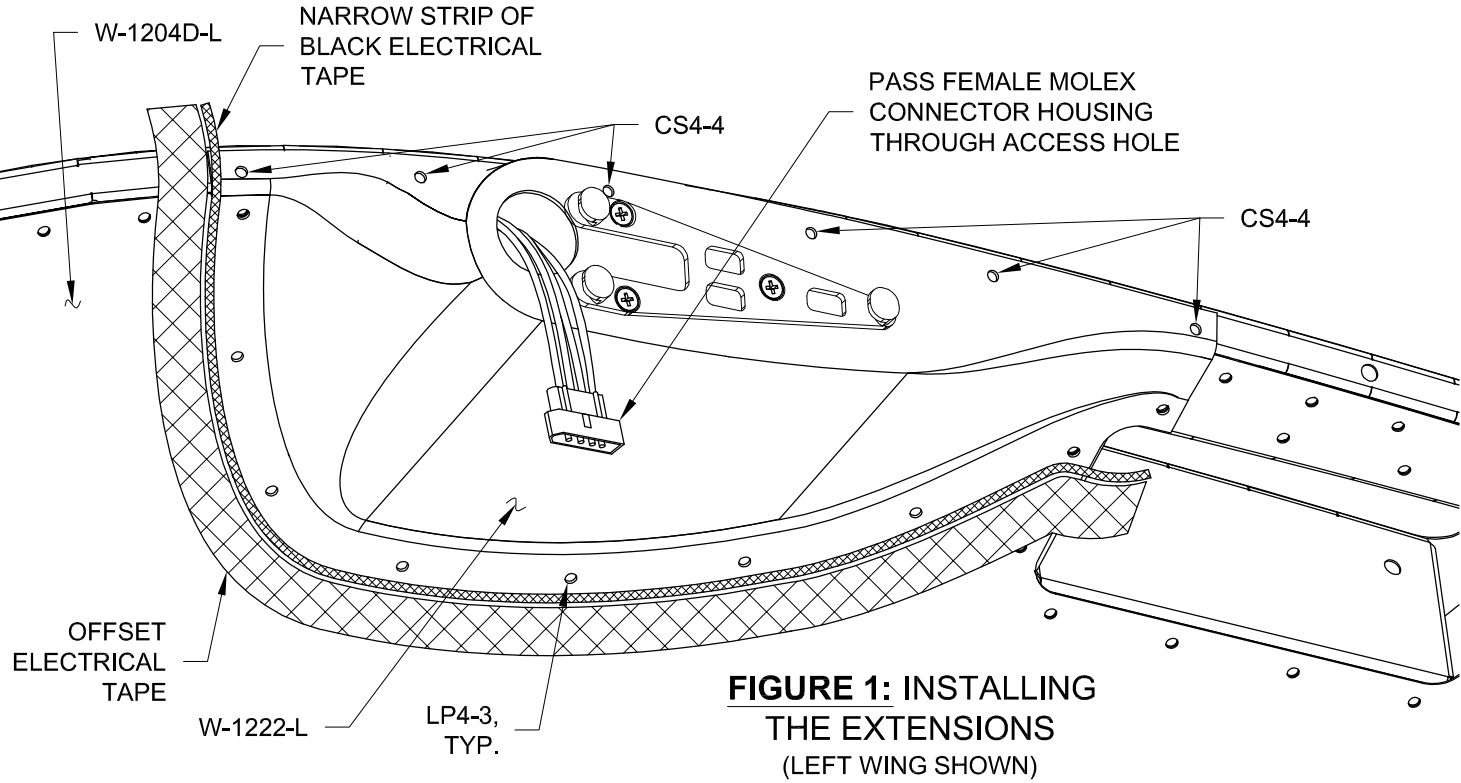
Cleco the W-1222-L & -R to the wing tips.
- Step 2:

Add a layer of electrical tape onto the W-1204D-L & -R offset from the lower flange of the W-1222-L & -R by 1/32 in. [0.8 mm]. See the coarsely hatched area in Figure 1.
- Step 3:

Cut a narrow strip of electrical tape then add it along the edge of the W-1222-L & -R. See the finely hatched area in Figure 1.
- Step 4:

Create a popsicle stick tool as shown in Figure 2.
- Step 5:

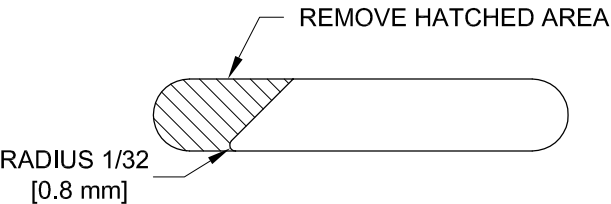
Remove the W-1222-L & -R from the wing tips and add a thin layer of fuel tank sealant to the inside surface of the lower flange that interfaces with the W-1204D-L & -R.



- Step 6:

Pull the female Molex connector housings through the access hole in the W-1222-L & -R, then cleco and rivet the W-1222-L & -R to the wing tips. See Figure 1.
- Step 7:

Use the radiused corner of the popsicle stick tool to fillet the fuel tank sealant that extrudes out around the lower flange of the W-1222-L & -R. When satisfied with the appearance, remove the tape as soon as possible before the sealant sets up to leave a crisp edge.

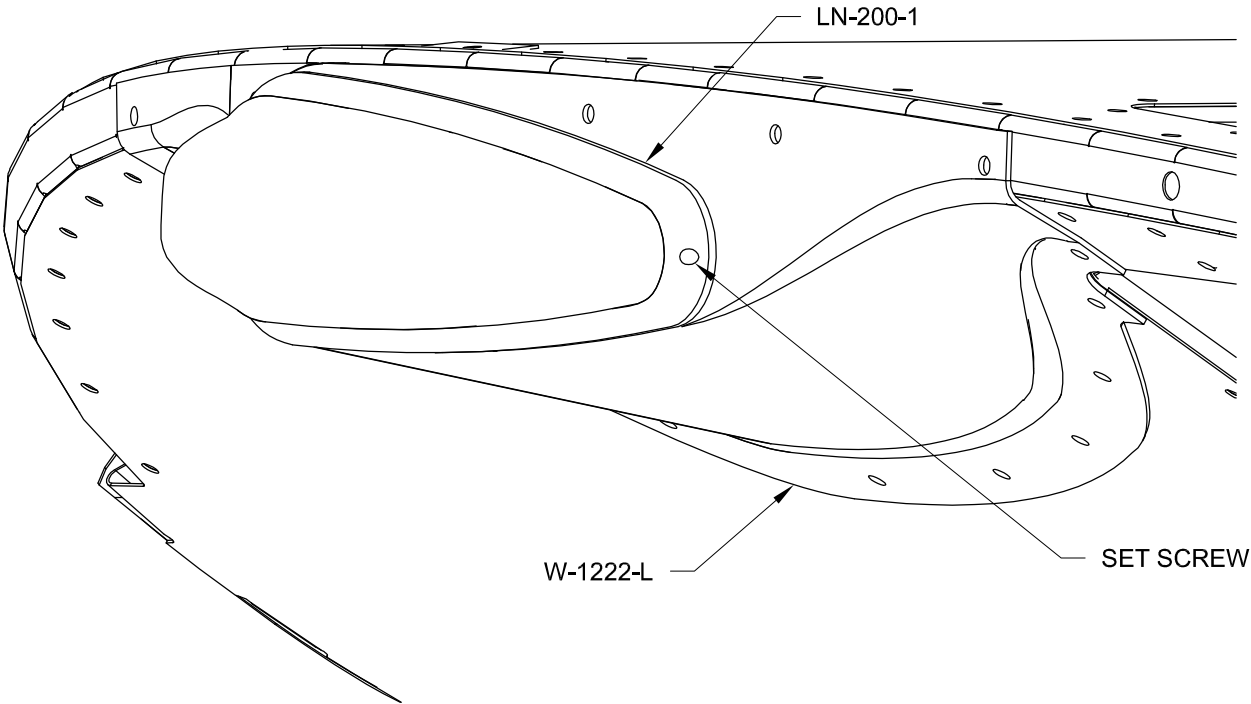


- NOTE:

The red light, labeled "Pulsar, Red" on the bottom, goes on the left wing tip.
- Step 8:

Crimp female Molex pins on the ends of all the wires coming from the LN-200-1 Wing Tip Nav/Position/Strobe Lights. Snap the female Molex pins into a male Molex connector housing in accordance with Page 40iS/U-05.
- Step 9:

Connect the Molex connector housings together for the LN-200-1.
- Slide the wires and connector housings back into the wing tip through the access hole in the W-1222-L & -R then slide the lights onto the mount brackets and tighten them in place with the set screw at the aft edge. See Figure 3.





NOTE: If the cockpit light wires were bundled and secured under the baggage floor while completing Section 42MiS/U (in anticipation of not installing the lighting kit), return to Section 42MiS/U and route the cockpit light wires throughout the roll bar as instructed before completing the steps on this page.

Step 1: Remove the two lower right rivets that hold the F-1231A-FR Roll Bar Frame and F-1231E Roll Bar Splice Plate together using a #30 bit. See Figure 1.

Step 2: Cleco the F-12124 to the two holes created in Step 1.

Step 3: Match-Drill #30 the right two holes in the F-12124 into the web of the F-1231A-FR.

Step 4: Machine countersink the three holes in the F-12124 Light Bracket for attaching the Cockpit Light and Dimmer Assembly. Final-Drill #30 the 3 holes in the LC ECL-02 Red Eyeball Cockpit Light.

Step 5: Prep and paint the F-12124.

Step 6: Rivet the F-12124 to the web of the F-1231A-FR as shown in Figure 1.

Step 7: Crimp an ES-00141 butt splice to the black wire from the LC ECL-02 Red Eyeball Cockpit Light. Crimp an ES-00141 butt splice to the red wire from the ES-00338 Potentiometer, as shown in Figure 2.

Step 8: Install the ES-00338 Potentiometer into the ES-00337 Dimmer Housing using the hardware shown in Figure 2, orient the wires facing up. Install the ES-00339 Knob.

Step 9: Install the LC ECL-02 Red Eyeball Cockpit Light into the ES-00337 Dimmer Housing with the mounting holes aligned. A couple small pieces of double backed tape may be necessary to hold the LC ECL-02 to the inside of the housing while riveting. This is now the Cockpit Light and Dimmer Assembly.

Step 10: Crimp the L6028 (YEL/PRP) cockpit light wire (part of the Main Wiring Harness) to the butt splice on the red wire from the ES-00338 Potentiometer.

Step 11: Crimp the cockpit light ground wire (part of the Canopy Switch Ground Harness) to the butt splice on the black wire from the LC ECL-02. Secure the F6035 Ring Terminal to the ground screw in the F-1232A, as per Section 42MiS/U-10.

Step 12: Capture the butt splices and any extra wire inside the Dimmer Housing Assembly and rivet the Cockpit Light and Dimmer Housing Assembly to the F-12124 as shown in Figure 1. The cockpit light ground wire will exit the Dimmer Housing in the channel between the F-1231A-FR and the F-1231A-AR.

NOTE: For all installations, the nav/strobe switch must be in the NAV or NAV/STROBE position for the cockpit lighting to be active.

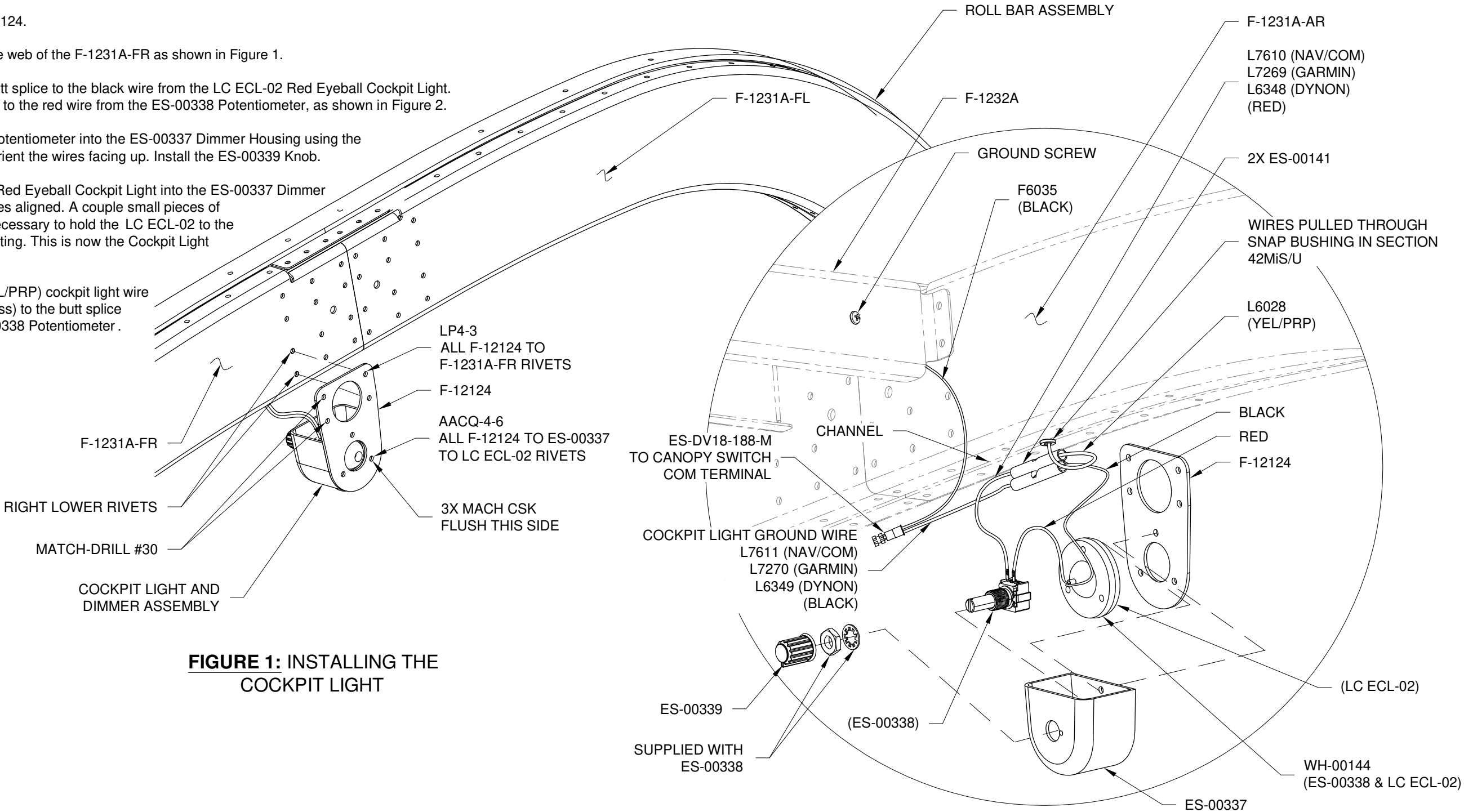


FIGURE 1: INSTALLING THE COCKPIT LIGHT

FIGURE 2: WIRE CONNECTIONS



NOTE: Any weight and balance information recorded for the aircraft must be updated. Depending on the state of your kit some steps may not be applicable.

NOTE: Steps 1-5 are for installation of the standard lighting kit including the right landing light and nav/strobe lights.

Step 1: In the RV-12iS Maintenance Manual (MM) "INSTALLED EQUIPMENT LIST" table, add "WING TIP LIGHT & LANDING LIGHT" to the "ITEM" column. On the same line add a checkmark to the "INSTALLED" column.

Enter 2.37 lb for "Weight", 72.66 in for "Location/Arm" and 172.2 in-lb "Moment" onto the same line as "WING TIP LIGHT & LANDING LIGHT".

NOTE: Steps 2-4 on this page are only applicable if a final weight and balance as specified in the PAP has been completed.

Step 2: In the RV-12iS Pilot Operating Handbook (POH) "YOUR AIRPLANE" table, enter the new total values for the arm, weight, and moment of the installed equipment.

Step 3: In the RV-12iS POH "YOUR AIRPLANE" table, recalculate and enter new values for the Empty Weight, Empty Moment, and Empty Arm.

Step 4: Make an entry, as calculated in the previous step, on the WEIGHT AND BALANCE RECORD page of the RV-12iS Maintenance Manual as follows:

As of this date: ____/____/____ the following values represent current Weight and Balance calculations resulting from the installation of the Wing Tip Light & Landing Light Optional Kit.

Revised Empty Weight: _____ lbs
Revised Empty Moment: _____ in-lbs
Revised Empty Arm: _____ in

Signed: _____

NOTE: Step 5 is only applicable for aircraft which have passed a final airworthiness inspection.

Step 5 (ELSA): Make an appropriate entry in the airframe logbook. See example below:

Installed the WING TIP LIGHT & LANDING LIGHT option in accordance with Van's Aircraft KAI Section 40iS/U and confirmed proper operation.

Signature _____ Certificate # _____

Step 5 (SLSA): Complete the notification N 16-10-10 (available from the Van's Aircraft web site) corresponding to the WING TIP LIGHT & LANDING LIGHT installation.

NOTE: The remaining steps on this page are for the addition of a left landing light.

Step 6: In the RV-12iS Maintenance Manual (MM) "INSTALLED EQUIPMENT LIST" table, add "LEFT LANDING LIGHT" to the "ITEM" column. On the same line add a checkmark to the "INSTALLED" column.

Enter .87 lb for "Weight", 71.48 in for "Location/Arm" and 62.19 in-lb "Moment" onto the same line as "LEFT LANDING LIGHT".

NOTE: Steps 7-9 on this page are only applicable if a final weight and balance as specified in the PAP has been completed.

Step 7: In the RV-12iS Pilot Operating Handbook (POH) "YOUR AIRPLANE" table, enter the new total values for the arm, weight, and moment of the installed equipment.

Step 8: In the RV-12iS POH "YOUR AIRPLANE" table, recalculate and enter new values for the Empty Weight, Empty Moment, and Empty Arm.

Step 9: Make an entry, as calculated in the previous step, on the WEIGHT AND BALANCE RECORD page of the RV-12iS Maintenance Manual as follows:

As of this date: ____/____/____ the following values represent current Weight and Balance calculations resulting from the installation of the Left Landing Light Optional Kit.

Revised Empty Weight: _____ lbs
Revised Empty Moment: _____ in-lbs
Revised Empty Arm: _____ in

Signed: _____

NOTE: The remaining steps on this page are only applicable for aircraft which have passed a final airworthiness inspection.

Step 10 (ELSA): Make an appropriate entry in the airframe logbook. See example below:

Installed the LEFT LANDING LIGHT option in accordance with Van's Aircraft KAI Section 40 and confirmed proper operation.

Signature _____ Certificate # _____

Step 10 (SLSA): Complete the notification N 16-10-10 (available from the Van's Aircraft web site) corresponding to the LEFT LANDING LIGHT installation.

END OF SECTION.