



## SERVICE LETTER 00092

<b>Date Released:</b>	June 17, 2024
<b>Date Effective:</b>	June 17, 2024
<b>Subject:</b>	RV-14 Wing Root Laser Cut Component Replacement
<b>Affected Models:</b>	RV-14, RV-14A wings containing the following laser cut parts: W-1010-L/R or W-1010-L/R-1, W-1025B-L/R, W-1029A-L/R, W-1029B-L/R, W-1029C, and the particular W-1011-L/R that is riveted to the inboard flap bracket
<b>Required Action:</b>	Inspect the area surrounding fastener holes in the laser cut parts for fatigue cracks—cracks propagated beyond the dimple of a flush rivet, or past the head of a universal head rivet. If fatigue cracks are present, replace the affected laser cut parts with punched parts, as outlined in this Service Letter.
<b>Time of Compliance:</b>	<p>I Inspect within 200 flight hours or at the next annual inspection, whichever is earlier.</p> <p>If fatigue cracking is not present, you may continue to comply with this Service Letter via ongoing inspection no less than every 12 months or 200 flight hours, whichever is first.</p> <p>Upon or before reaching 1000 flight hours, the alternate fix must be conducted as outlined in this Service Letter, at which point compliance has been met without need for ongoing inspection.</p> <p>If fatigue cracking is present, the modifications required by this Service Letter must be completed before further flight.</p>
<b>Supersedes Notice:</b>	None
<b>Labor Required:</b>	6 Hours (Time given for remediation of QuickBuild Wings, as delivered. Wings progressed past this point may require additional time).
<b>Level of Certification:</b>	Check the rules of the local controlling agency and the operating limitations for your aircraft.

## **Synopsis:**

Following reports from the field of irregular holes and cracked dimples in laser-cut sheet metal parts, an investigation was conducted to review the prevalence of these defects and the effect they have on the structure of aircraft parts and assemblies. The service-life of laser-cut structures has been evaluated through conservative analysis, computer simulations and mechanical testing of representative structural joints, sub-assembly details, and full assemblies. Based on the results of analysis and testing, Van's Aircraft has classified each part that was manufactured via the laser-cutting process into two categories: Parts that are Recommended for Replacement and parts that are Acceptable for Use. These classifications have been made out of an abundance of caution, and all parts classified as Acceptable for Use are functionally equivalent to punched parts. For more information about the use of laser cut parts in RV Kit Aircraft, please see <https://www.vansaircraft.com/lasercutpartsreference>.

The W-1010-L/R (or W-1010-L/R-1) Inbd Wing Rib, W-1025B-L/R Flap Hinge Rib, W-1029A-L/R, W-1029B-L/R, and W-1029C Torque Tube Support Brackets have been classified as Recommended for Replacement. Additionally, the particular instance of the W-1011-L/R Inbd Wing Rib that supports the inboard-most flap bracket has been classified as Recommended for Replacement. These components are of a critical nature and/or experience occasional high load events that make them more susceptible to fatigue damage.

The listed components are to be replaced with a CNC punched component of the same part number, or the modified components included in this Service Letter. Affected wing assemblies may be at various stages of completion and contain some or all affected components. The following service information is representative of a wing assembly that has been completed and contains laser cut instances of all the components listed above. Where applicable, in-process steps may be omitted to represent the level of completion found in each individual case.

## **Materials Required:**

The following materials are required to achieve compliance with this Service Bulletin/Safety Directive/Service Letter.

Purchase: SL-00092 KIT

## **Method of Compliance:**

Step 1: Inspect the wings and confirm the parts recommended for replacement are laser cut.

**NOTE:** See “Parts Identification Guide” at <https://www.vansaircraft.com/lasercutpartsreference> to aid in identification of laser-cut parts.

Step 2: Remove the flaps from the wings. Reference Section 21 and 41 of the KAI (Kit Assembly Instructions).

Step 3: Remove the wings from the fuselage. Reference Section 41 of the KAI.

Step 4: Remove the left and right CS-00009 Forward Torque Tube Subassemblies and WD-1014 Aft Torque Tube Subassemblies. Reference Section 23 of the KAI.

Step 5: Remove the fuel tank from each wing. Reference Section 18 of the KAI.

**NOTE: Except where noted, the following steps are shown for the left wing, and should be mirrored for the right wing.**

Step 6: Remove the inboard rivets attaching the W-00010-L Flap Gap Fairing to the Rear Spar Assembly and W-00002 Top Inbd Wing Skin as called out in Figure 1.

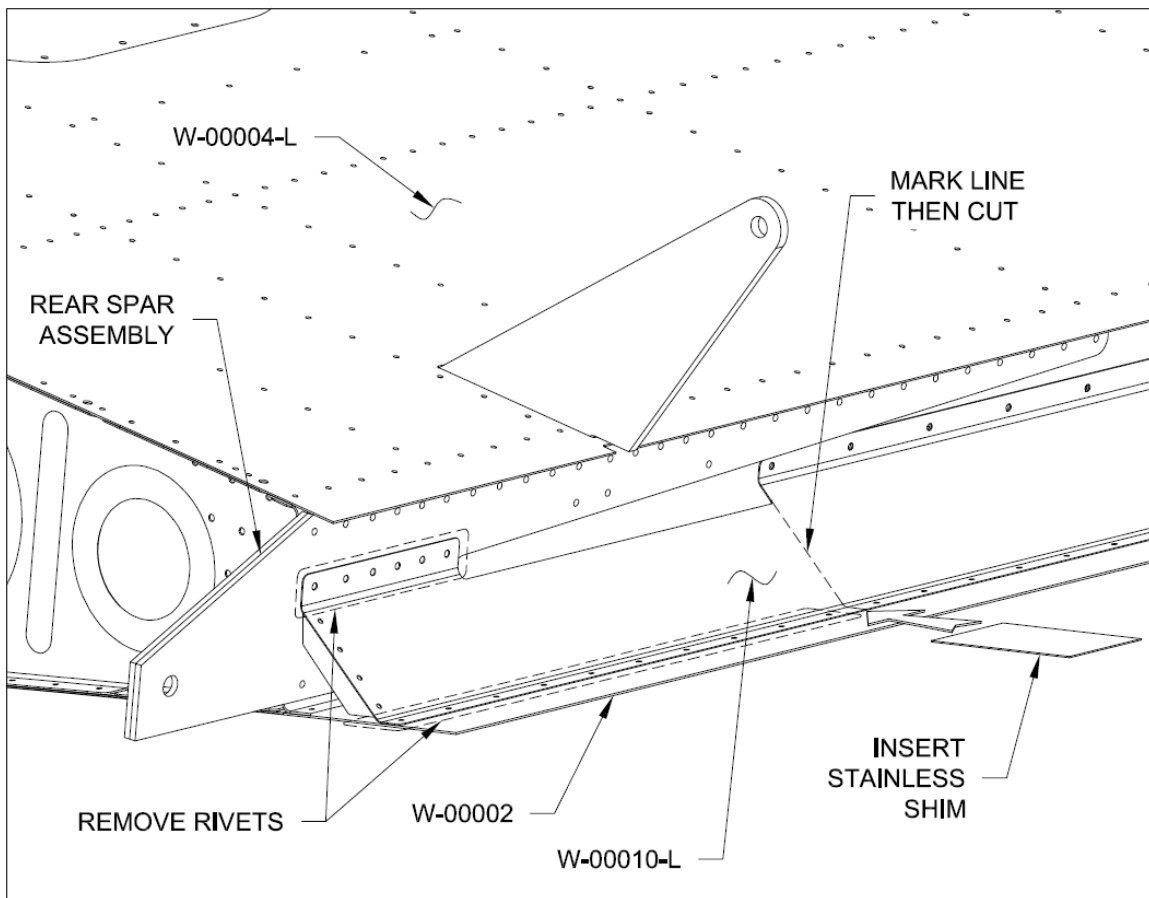
Step 7: Mark a line on the W-00010-L collinear with the outboard edge of the relief cut as shown in Figure 1.

**NOTE:** The protective shim (SS304-18GA-2X4) installed in the following step should be considered a backup to careful cutting, not relied on for protection of the skin.

Step 8: Deburr and smooth any sharp edges on the SS304-18GAX2X4 stainless shim.

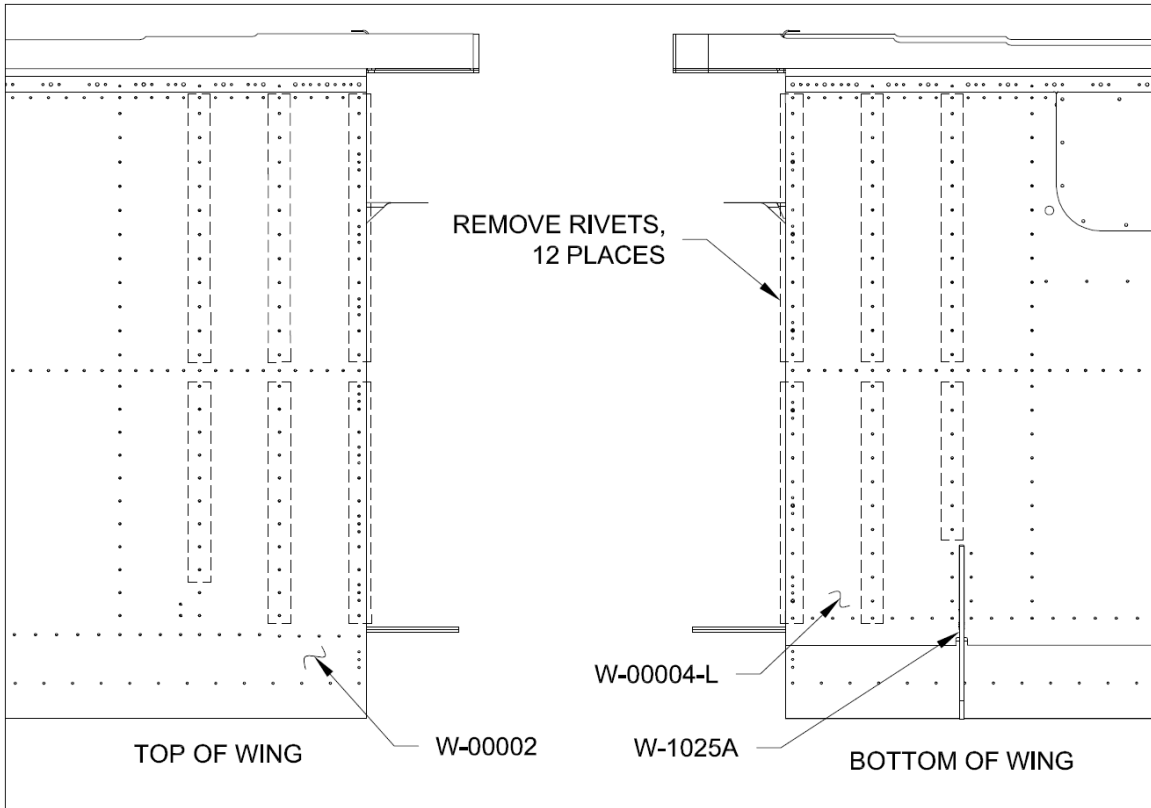
Insert the stainless shim between the W-00010-L and the W-00002 to protect the skin while cutting. If necessary, the stainless shim can be secured with double-sided tape.

Step 9: Use an abrasive cutoff wheel to cut the W-00010-L along the line previously marked to separate the inboard section of the W-00010-L from the wing. Reference Figure 1.



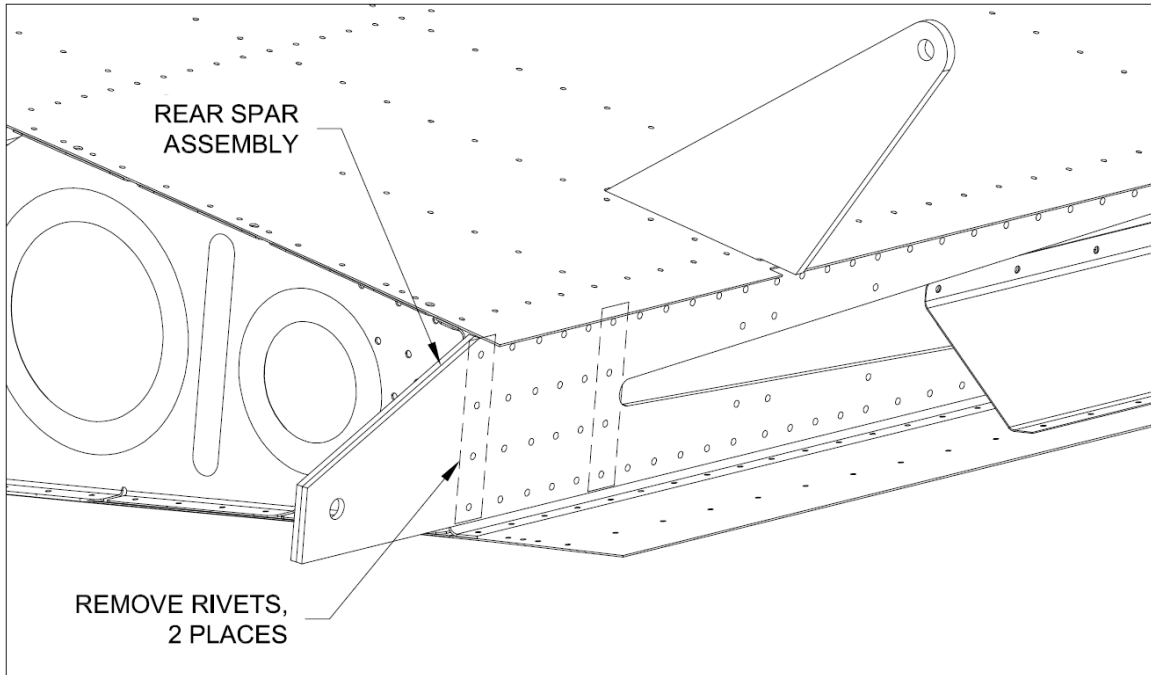
**FIGURE 1:** MODIFICATION OF FLAP GAP FAIRING  
(LEFT WING UPSIDE DOWN)

**Step 10:** Remove the rivets from the W-00002 and W-00004-L wing skins within the boundaries shown in Figure 2.



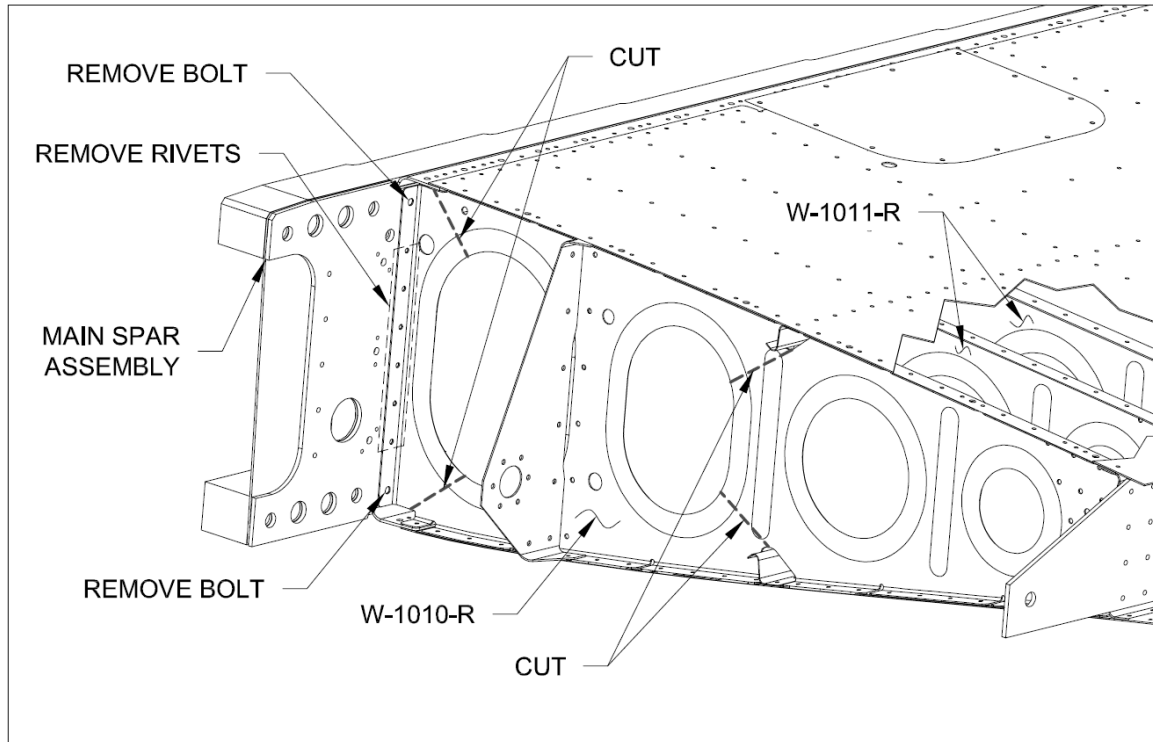
**FIGURE 2:** REMOVAL OF WING SKIN RIVETS

**Step 11:** Remove the rivets common with the Rear Spar Assembly and the two inboard wing ribs as called out in Figure 3.



**FIGURE 3:** REAR SPAR RIVET REMOVAL  
(LEFT WING UPSIDE DOWN)

Step 12: Remove the rivets and bolts fastening the forward flange of the W-1010-R to the Main Spar Assembly as called out in Figure 4.



**FIGURE 4: INBOARD RIB REMOVAL  
(LEFT WING UPSIDE DOWN)**

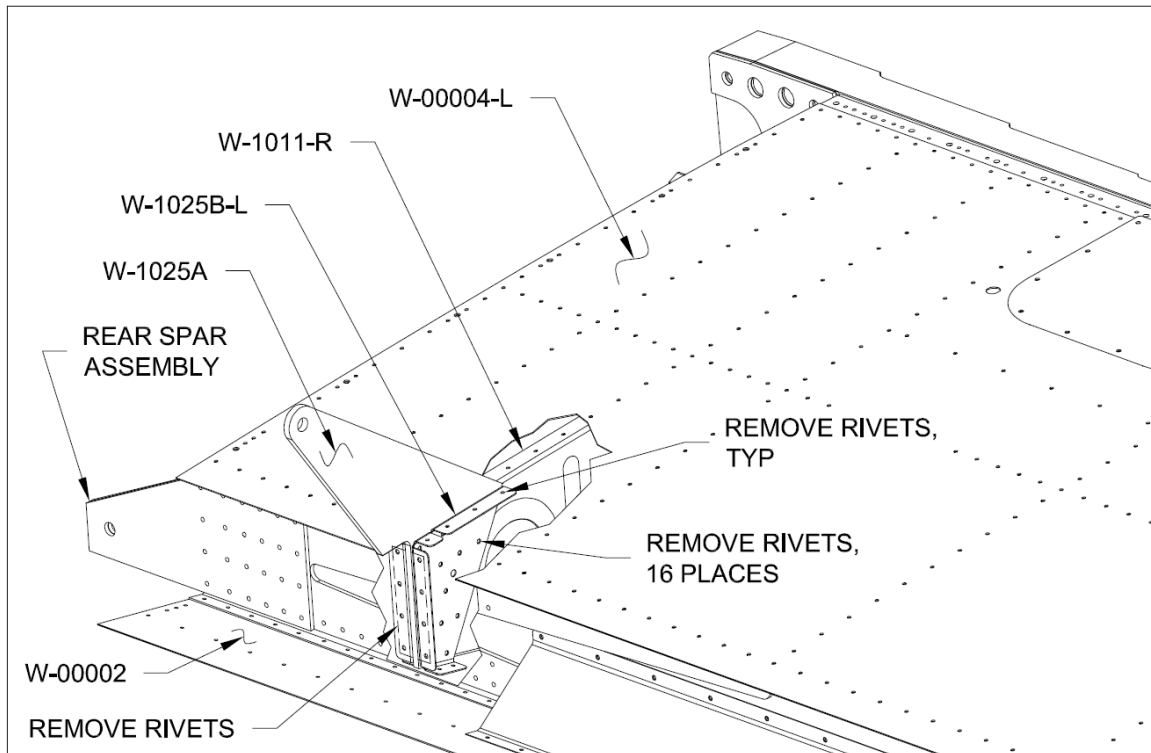
Step 13: To ease removal of the W-1010-R, use a pair of metal snips to cut the W-1010-R from the lightening hole to the relief notches in the locations shown in Figure 4.

Step 14: Remove the segmented W-1010-R from the wing.

Remove the snap bushings from the W-1010-R and save for reuse.

Step 15: Repeat Step 12, Step 13, and Step 14 to remove the next (W-1011-R) rib. Reference Figure 4.

Step 16: Repeat Step 12 for the next (W-1011) rib. Reference Figure 4.



**FIGURE 5: REMOVING W-1025A  
(LEFT WING UPSIDE DOWN)**

Step 17: Remove the 16 rivets common to the inboard W-1025A Flap Hinge Bracket, the W-1025B-L, and the W-1011-R. See Figure 5.

Remove the W-1025A and save for reuse.

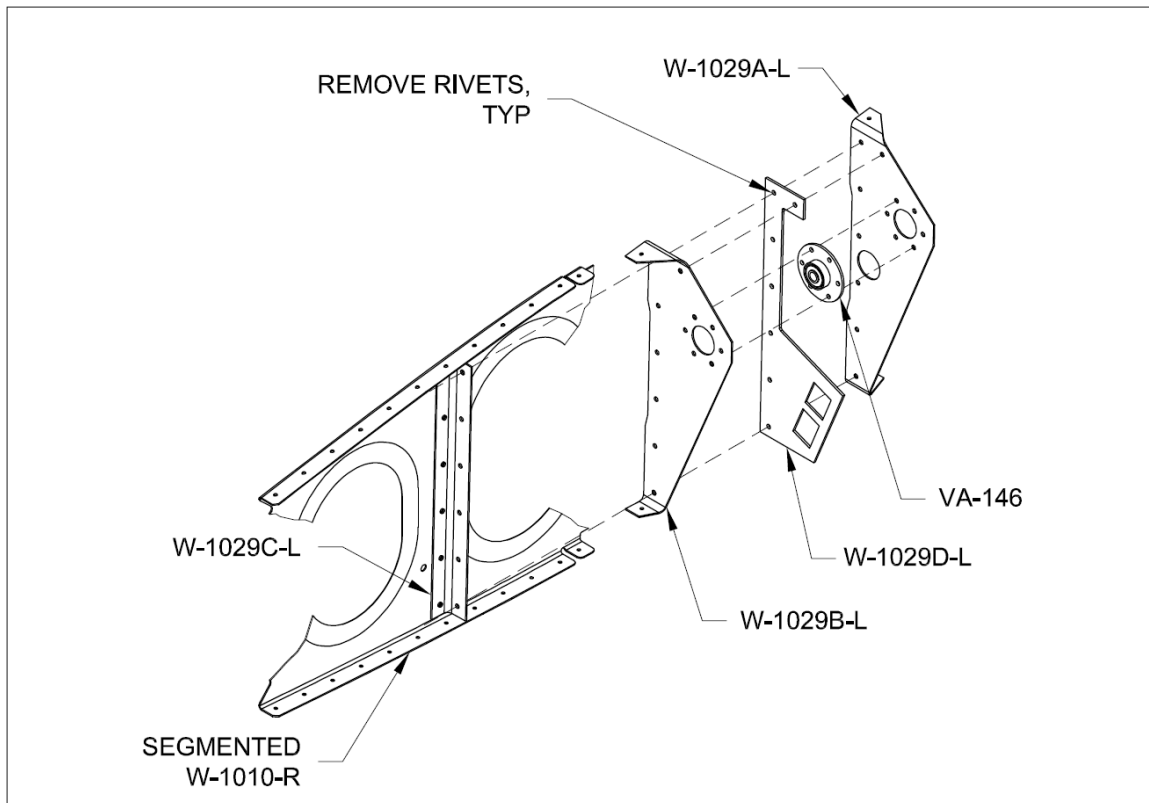
Step 18: Remove the remaining rivets attaching the W-1011-R and W-1025B to the W-00002, W-00004-L, and Rear Spar Assembly as called out in Figure 5.

Step 19: Cut the W-1011-R as done with the previously removed ribs, from the lightening holes to the relief notches, to ease removal. Reference Figure 4.

Remove W-1011-R and W-1025B ribs from the wing.

Remove the snap bushings from the W-1011-R and save for reuse.



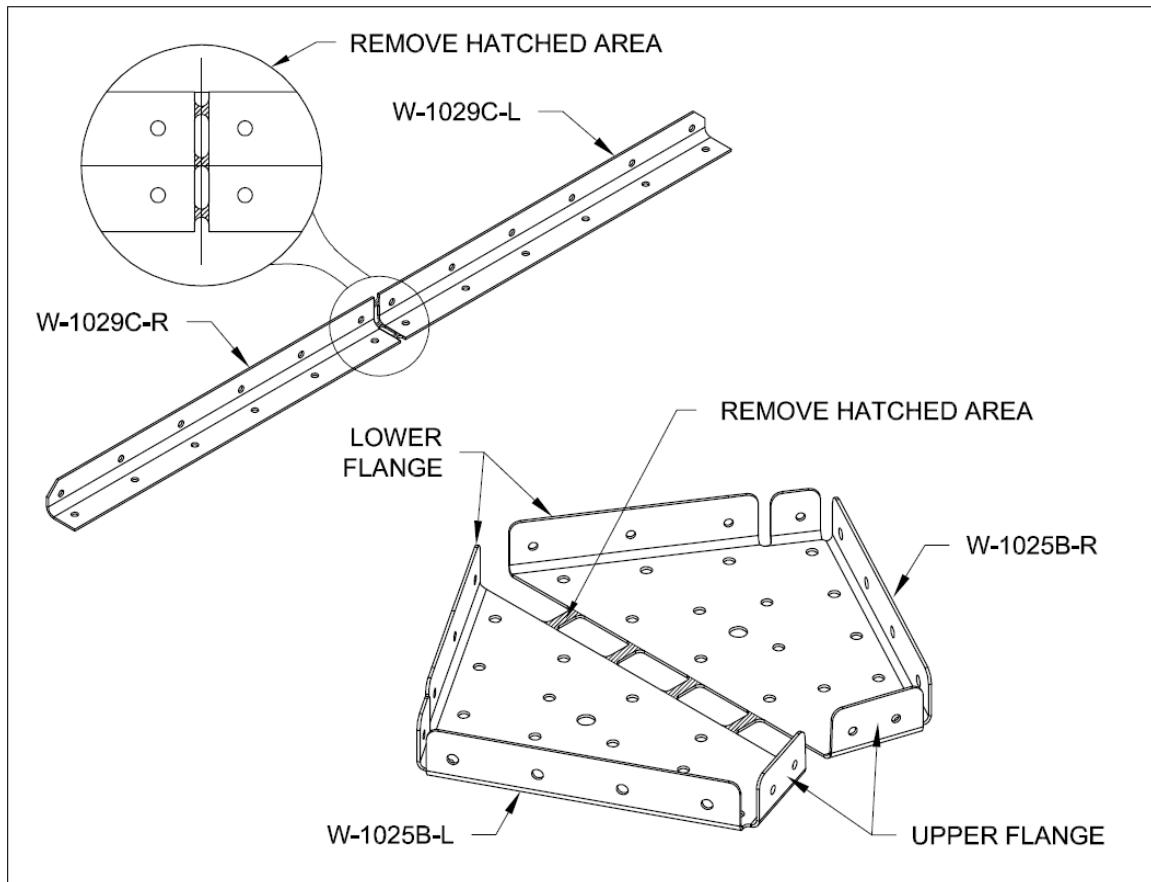


**FIGURE 6:** TORQUE TUBE SUPPORT BRACKET ASSEMBLY REMOVAL

**NOTE:** Before separating the Torque Tube Support Bracket Assembly, label the left and right W-1029D which will be reused.

Step 20: Remove the rivets to separate the Torque Tube Support Bracket Assembly as called out in Figure 6.

Save the W-1029D-L and VA-146 for reuse.



**FIGURE 7:** SEPERATION OF PARTS

**NOTE:** Label the replacement left and right W-1025B Flap Hinge Ribs and W-1029C Angles as called out in Figure 7 before separating the parts.

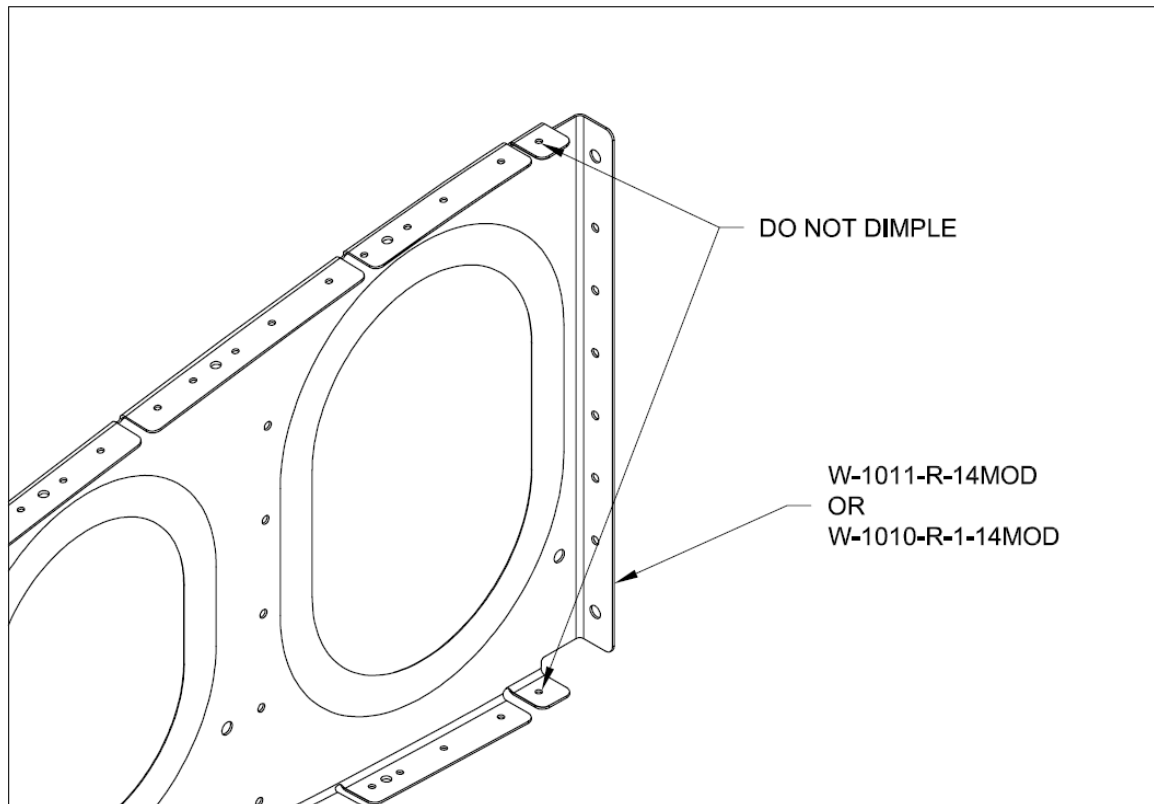
Step 21: Separate the replacement W-1025B into the W-1025B-L/-R Flap Hinge Rib as shown in Figure 7.

Step 22: Separate the replacement W-1029C into the W-1029C-L/R Angle as shown in Figure 7.

**NOTE:** Due to variation in wing construction (in particular with dimpled or machine-countersunk Wing Walk Doublers), replacement Wing Ribs will need to be dimpled to match the parts being replaced. The inside of the wing can also be referenced to determine the required dimple locations.

Step 23: Using the removed W-1025B-L as a reference, dimple the #40 holes in the upper and lower flanges of the replacement W-1025B-L.

**NOTE: Do not dimple the holes on the forward upper and forward lower tabs of W-1010-R-1-14MOD and W-1011-R-14MOD Ribs as shown in Figure 8.**



**FIGURE 8: WING RIB FORWARD DETAIL**

**Step 24:** Using both of the removed W-1011-R as a reference, dimple the #40 holes at the appropriate locations in the upper and lower flanges of both replacement W-1011-R-14MOD.

**Step 25:** Using the removed W-1010-R as a reference, dimple the #40 holes at the appropriate locations in the upper and lower flanges of the replacement W-1010-R-1-14MOD.

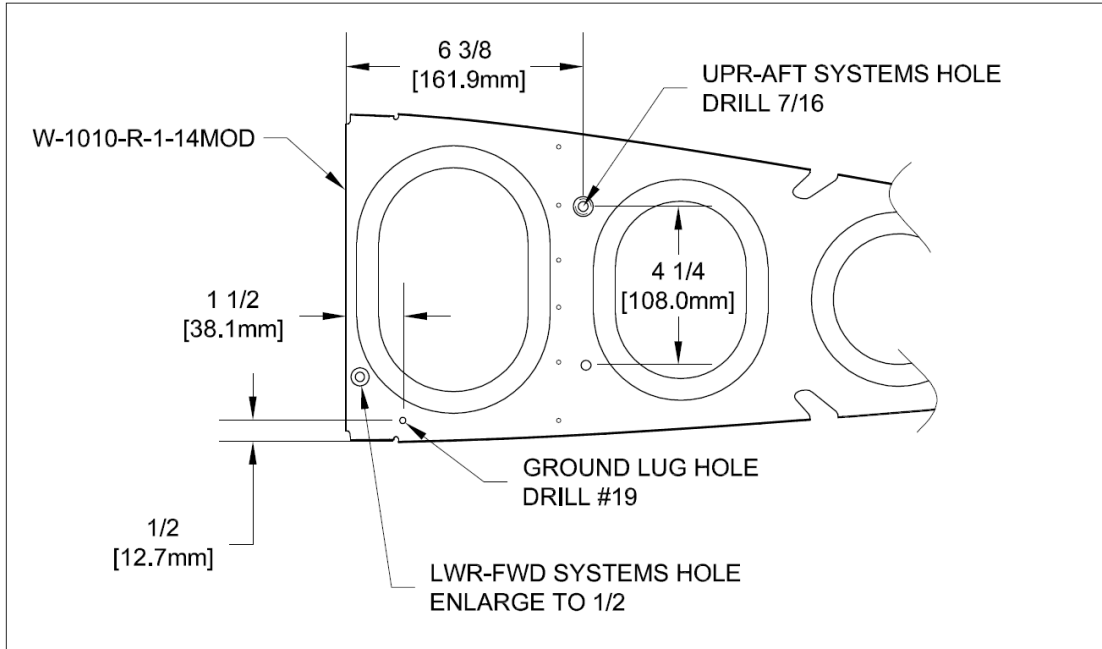
**Step 26:** Using the removed W-1010-R as a reference, dimple the #19 holes for a #8 Screw at the appropriate locations in the upper and lower flanges of the replacement W-1010-R-1-14MOD.

**NOTE: In the following steps, there are many instances of -L parts being used in the right wing, and -R parts being used in the left wing.**

**NOTE: The following steps apply to the left wing only.**

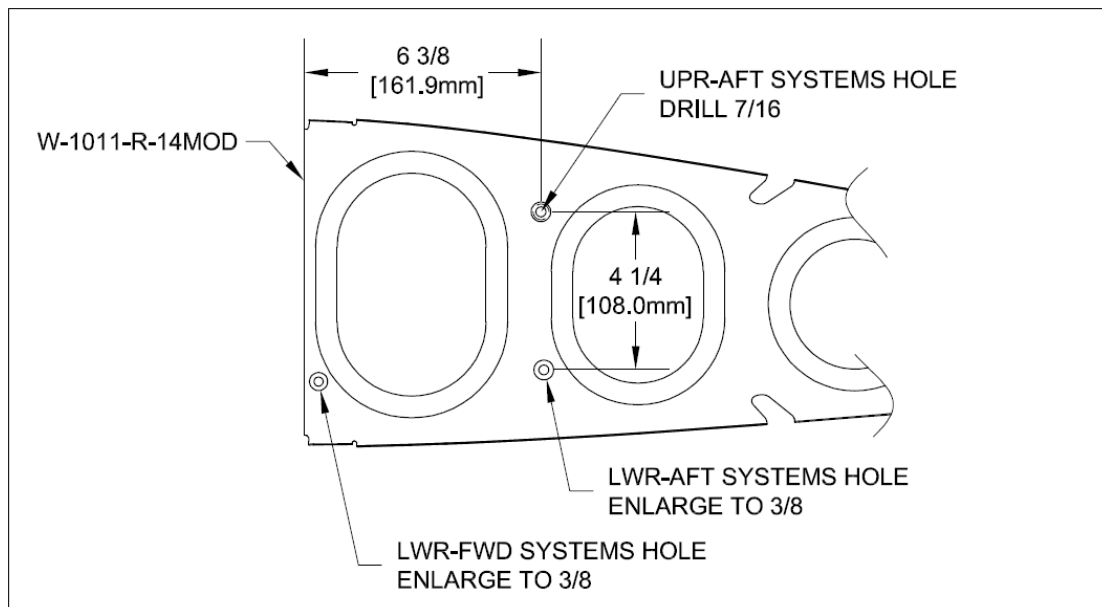
**Step 27:** Use a step drill to enlarge and deburr the systems holes in the W-1010-R-1-14MOD as called out in Figure 9.

Drill the hole for the ground lug.



**FIGURE 9:** LEFT WING W-1010-R-1-14MOD PREP

**Step 28:** Use a step drill to enlarge and deburr the systems holes in both of the W-1011-R-14MOD as called out in Figure 10.

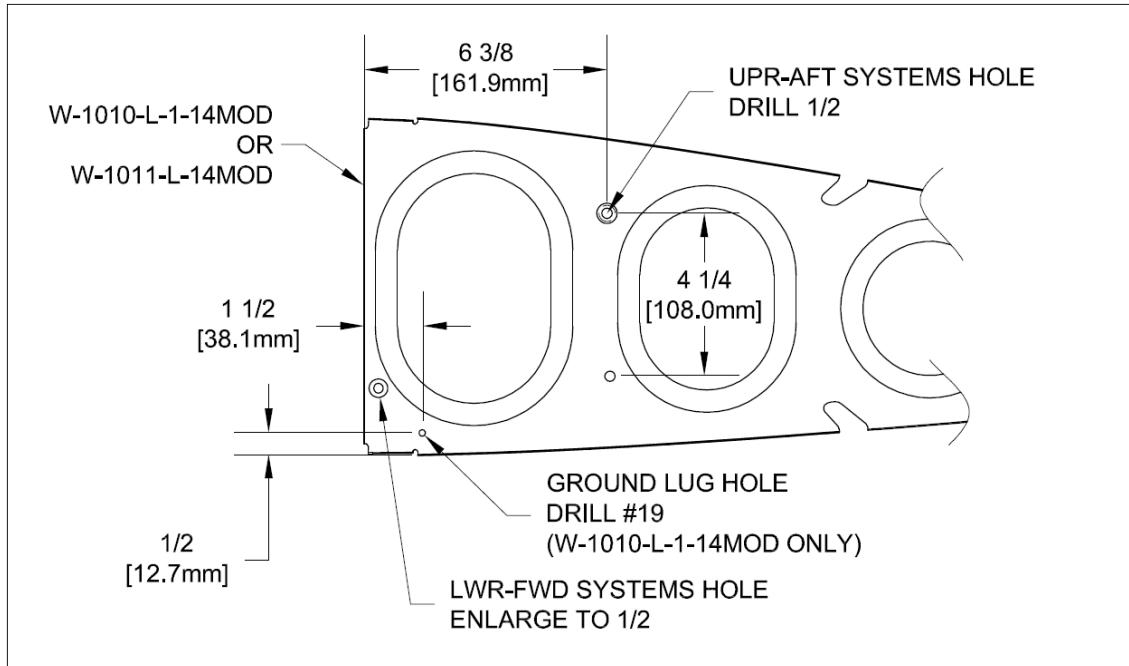


**FIGURE 10:** LEFT WING W-1011-R-14MOD PREP

**NOTE: The following step applies to the right wing only.**

Step 29: Use a step drill to enlarge and deburr the systems holes in the W-1010-L-1-14MOD and W-1011-L-14MOD ribs as shown in Figure 11.

Drill the hole for the ground lug.



**FIGURE 11:** RIGHT WING W-1010-L-1-14MOD AND W-1011-L-14MOD PREP

**NOTE: The following steps and figures outline reinstallation of the ribs and brackets into the inboard wing bay. There are locations where the original fasteners may be substituted with an upsized, blind rivet as called out in the figures. Use of the upsized, blind rivets is required where holes were either enlarged or oblongated during rivet removal. The upsized, blind rivets can also be used to ease installation in locations that would have limited access for bucking solid rivets. The rivet substitutions called out have an equivalent or greater strength and durability.**

**NOTE: When installing the Cherrymax pulled rivets included in this service letter, please refer to [KAI Section 5](#) and the Van's Aircraft YouTube [video about preparing the rivets](#) for installation.**

**NOTE: The correct size to drill for a 5/32 Cherrymax Rivet is #20.**

Step 30: Inspect the W-1025A to determine which/if any of the #30 holes will be upsized to #20 for the upsized rivets.

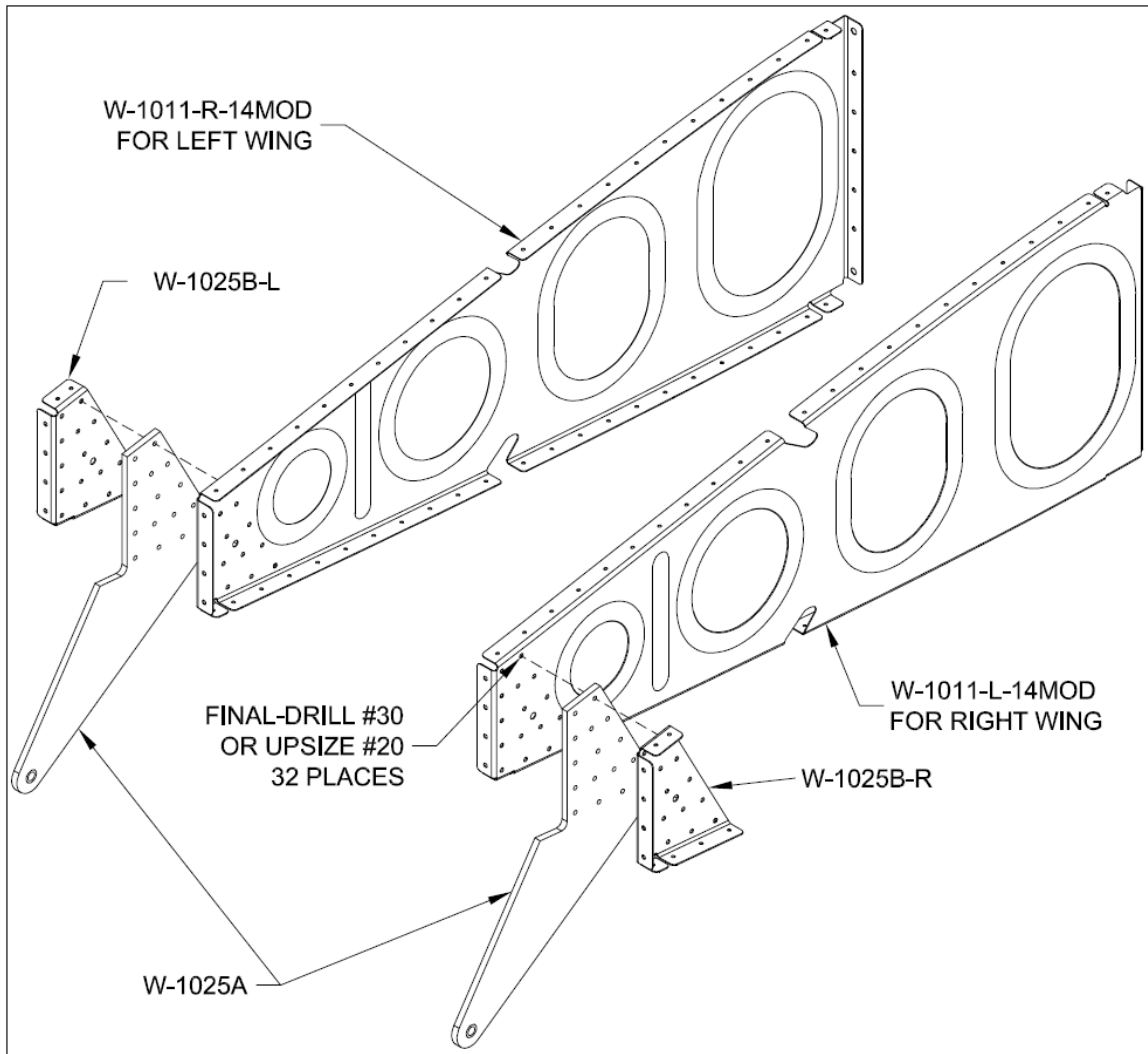
If upsizing all holes due to elongation or for ease of reconstruction, proceed to the next step.

If only some of the holes will be upsized, note the specific locations on the replacement W-1011-R-14MOD (which will be visible when assembled).

**Step 31:** Cleco the replacement W-1025B-L and the W-1025A to one of the W-1011-R-14MOD. See Figure 12.

Final-Drill the holes common to the W-1011-R-14MOD, W-1025B-L, and W-1025A in accordance with the previously marked locations.

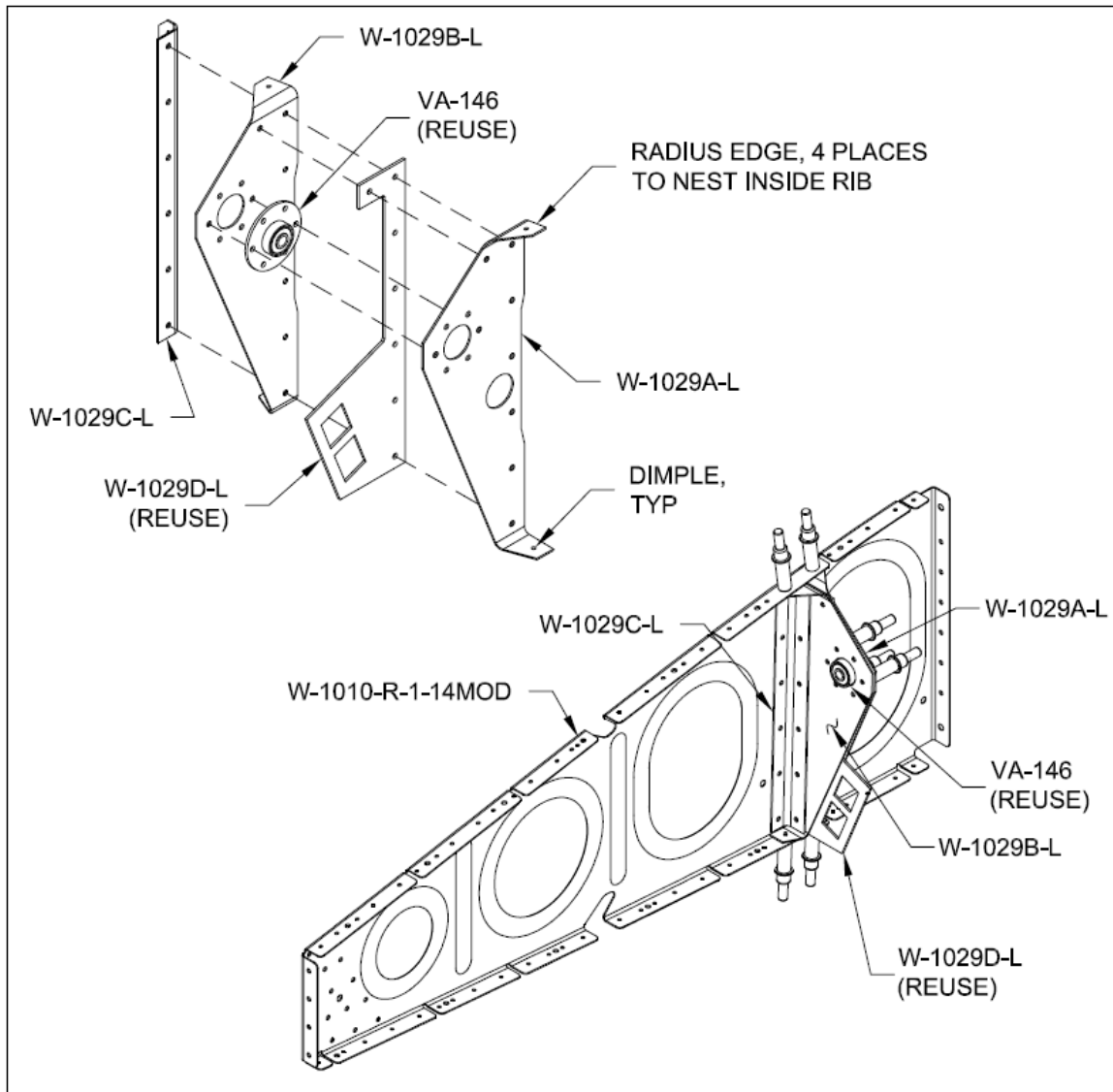
Disassemble, label, and deburr these components.



**FIGURE 12:** Flap Bracket Assembly

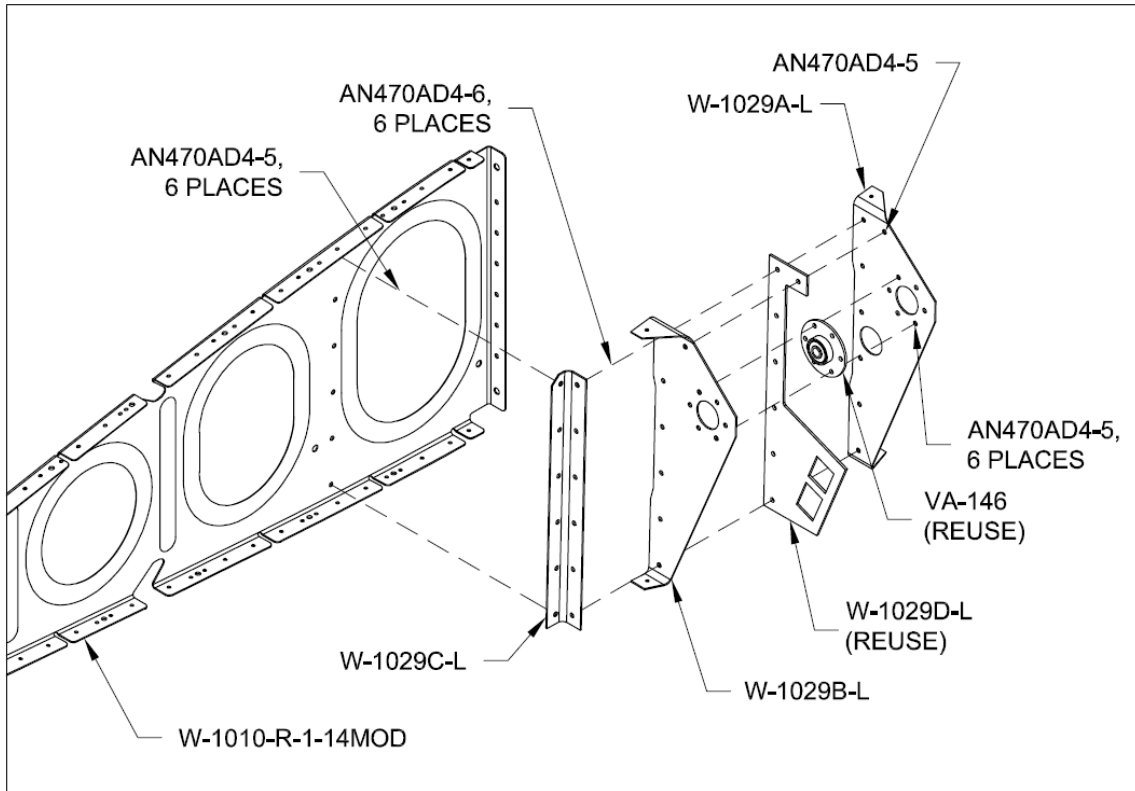
Step 32: Dimple the #40 holes as required in the tab of each W-1029A-L and W-1029B-L Torque Tube Support Brackets. Reference the W-1010-R-1-14MOD and Figure 13 for dimple locations.

Step 33: File a radius on the upper and lower edges of the W-1029A-L and W-1029B-L. This will allow them to "nest" inside the flanges of the W-1010-R-1-14MOD. Reference Figure 13.



**FIGURE 13:** TORQUE TUBE SUPPORT BRACKET ASSEMBLY PREP

Step 34: Rivet the Torque Tube Support Bracket Assembly to the W-1010-R-1-14MOD as shown in Figure 14.



**FIGURE 14:** TORQUE TUBE SUPPORT BRACKET ASSEMBLY RIVETING



Step 35: Set a filler rivet in the top and bottom of the Main Spar Assembly as called out in Figure 15. The replacement W-1011-R-14MOD will not attach at these locations.

Step 36: Cleco the W-1025B-L into the wing. Reference Figure 15.

**NOTE: Patience will be required for the following steps as the existing fasteners, dimples, and structure will make the rib installation slow. It can be helpful to push the rib from the center (next to the J stiffeners), allowing the rib to flex on both ends. Rotating and angling the rib slightly will also help ease installation.**

Step 37: Slide the outboard-most W-1011-R-14MOD into position and cleco in place. Reference Figure 15.

Slide the W-1025A into position and cleco in place.

Step 38: Match-Drill #30 the four holes from the Rear Spar Assembly into the aft flanges of the W-1025B-L and W-1011-R-14MOD as called out in the detail view of Figure 15.

Remove the W-1025A and deburr the holes drilled in the W-1025B-L and W-1011-R-14MOD.

Step 39: Rivet the W-1025B-L to the W-00002, W-00004-L, and Rear Spar Assembly as called out in Figure 15. Note the single instance of a longer rivet required in the aft-most hole in the bottom flange of the W-1025B-L.

Step 40: Cleco the W-1025A into position, then rivet to the W-1025B-L and W-1011-R-14MOD as called out in Figure 15.

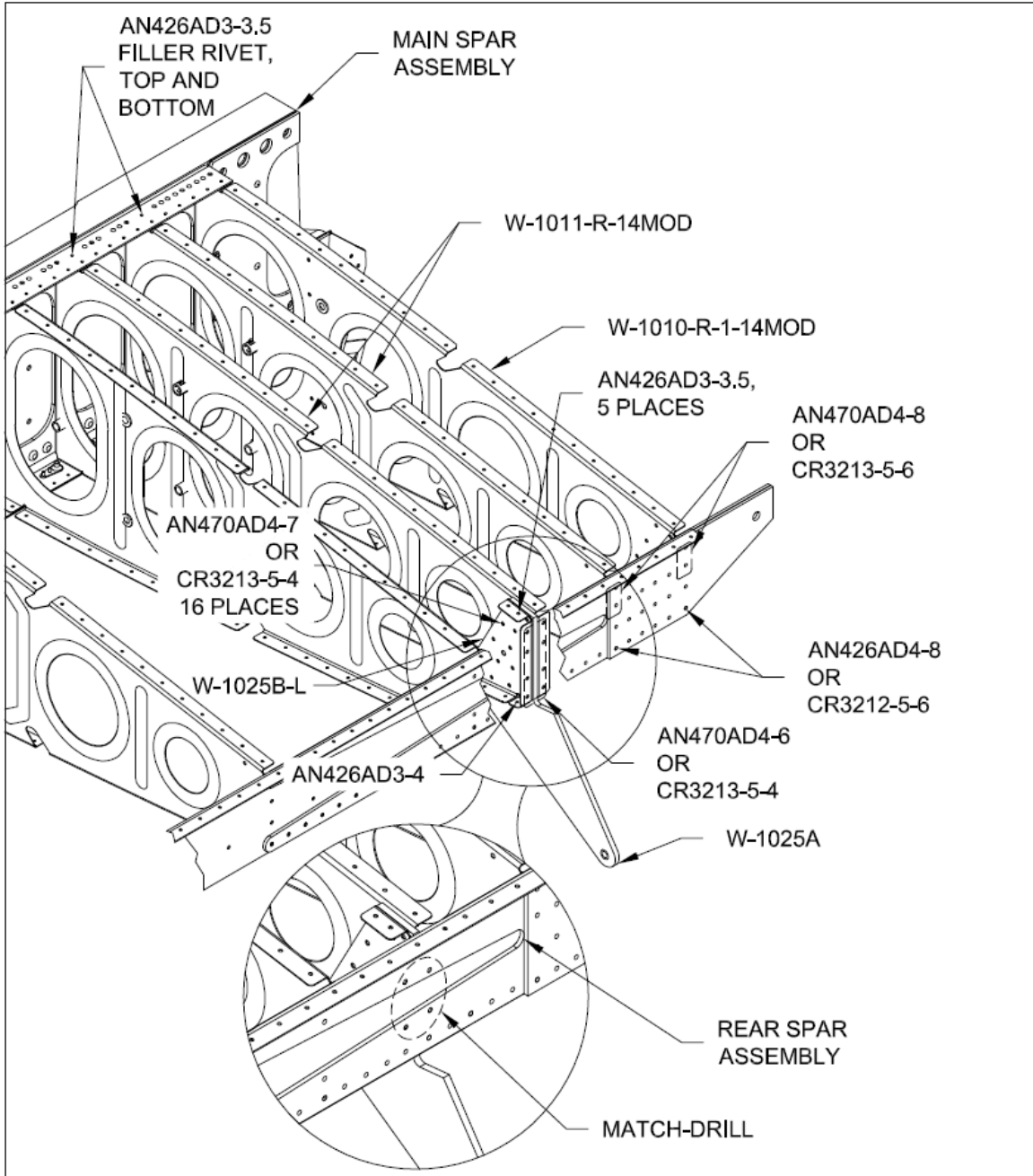
Step 41: Rivet the aft flange of the W-1011-R-14MOD to the Rear Spar Assembly as called out in Figure 15.

Step 42: Fasten the forward flange of the W-1011-R-14MOD to the Main Spar Assembly in accordance with Section 14 of the KAI. The solid rivets here may be substituted with CR3213-5-4.

Step 43: Rivet the top and bottom flanges of the W-1011-R-14MOD to the Main Spar Assembly, W-00002, and W-00004-L in accordance with Section 16 and Section 20.

Step 44: Slide in the next W-1011-R-14MOD inboard and repeat Steps 41 through 43. Reference Figure 15.

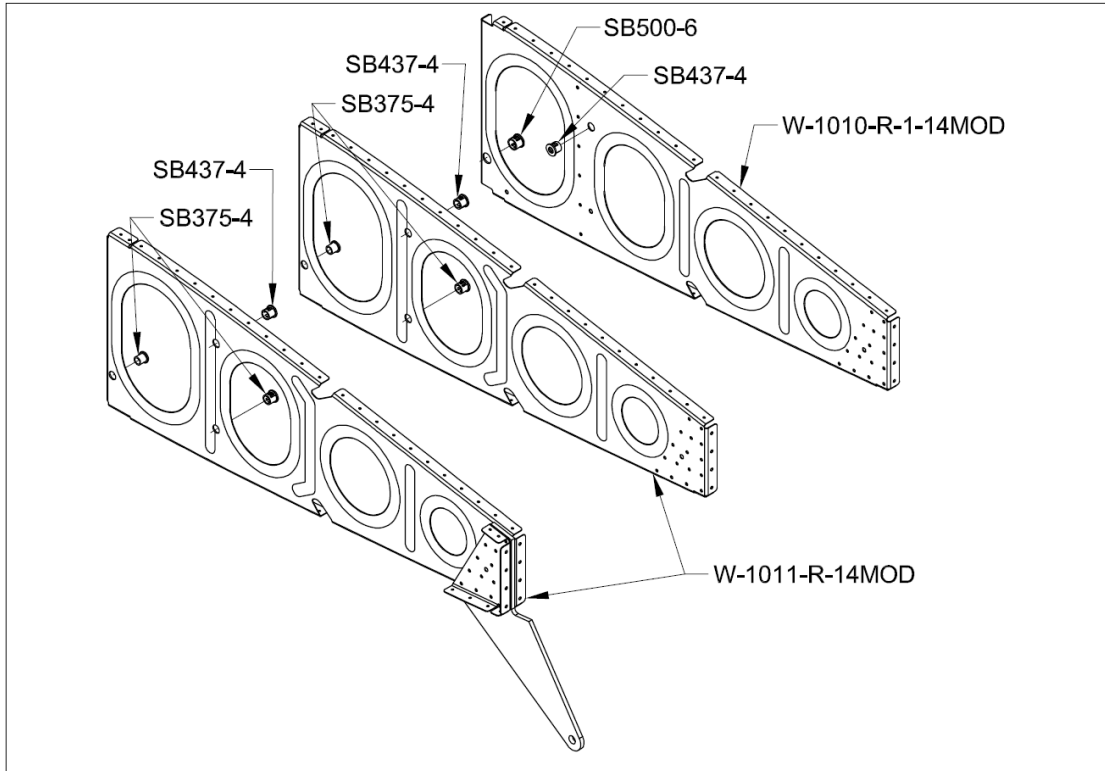
Step 45: Slide in the W-1010-R-1-14MOD and repeat Steps 41 through 43. Reference Figure 15.



**FIGURE 15: WING RIB INSTALLATION**  
(W-00002 AND W-00004-L HIDDEN FOR CLARITY)

**NOTE: The following step applies to the left wing only.**

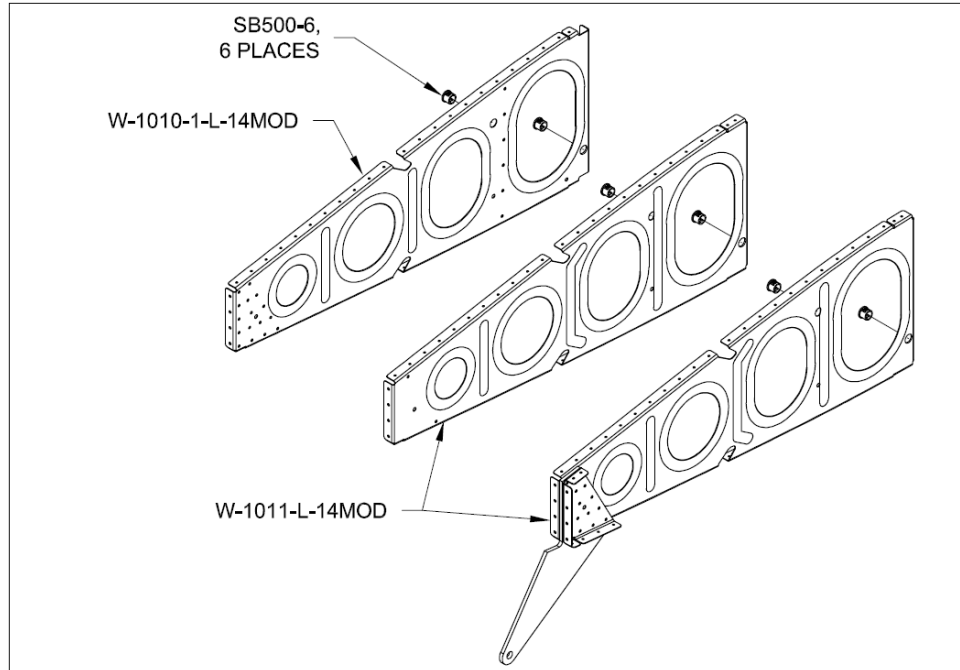
**Step 46:** Install the snap bushings into the systems holes of the W-1010-R-1-14MOD and W-1011-R-14MOD in the orientation shown in Figure 16.



**FIGURE 16:** LEFT WING SNAP BUSHING INSTALLATION

**NOTE: The following step applies to the right wing only.**

Step 47: Install the snap bushings into the systems holes of the W-1010-L-1-14MOD and W-1011-L-14MOD in the orientation shown in Figure 17.



**FIGURE 17: RIGHT WING SNAP BUSHING INSTALLATION**

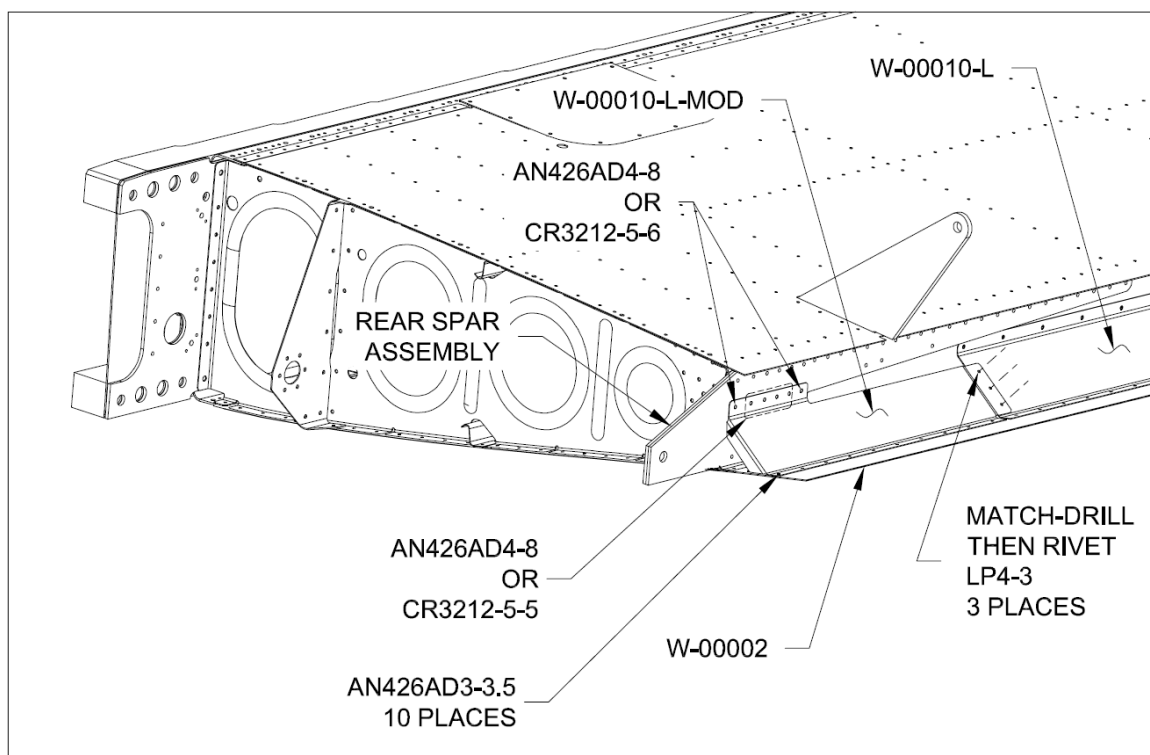
Step 48: Dimple the #30 and #40 holes in the forward and top flange of the W-00010-L-MOD Flap Gap Fairing.

Cleco the W-00010-L-MOD into the position shown in Figure 18.

Step 49: Match-Drill the #30 holes in the joggled flange of the W-00010-L-MOD into the web of the W-00010-L. See Figure 18.

Step 50: Remove the W-00010-L-MOD and deburr the W-00010-L.

Step 51: Rivet the W-00010-L-MOD to the W-00002, W-00010-L, and Rear Spar Assembly as called out in Figure 18.



**FIGURE 18:** W-00010-L INSTALLATION

Step 52: Reinstall the fuel tank. See Section 18 of the KAI.

Step 53: Reinstall the CS-00009 and WD-1014 Torque Tube Subassemblies. See Section 23 of the KAI.

Step 54: Reinstall the wings to the fuselage. Reference Section 41 of the KAI.

Step 55: Reinstall the flaps to the wings. Reference Section 21 and 41 of the KAI.

Step 56: Make a logbook entry indicating compliance with this service document, method of compliance (inspection or parts replacement), and what parts were installed (if any) per the requirements of the controlling authority/agency.

Place a copy of this notification in the back of the maintenance manual for your aircraft. Add the name and date of the service information to the Addendum Documents List at the front of the Maintenance Manual.

If you are no longer in possession of this aircraft, please forward this information to the present owner/operator and immediately notify Van's Aircraft, Inc. via email at [registrations@vansaircraft.com](mailto:registrations@vansaircraft.com).

Information regarding establishing/transferring aircraft ownership, registration and licensing is available at: <https://www.vansaircraft.com/qr/transfer-of-ownership/>