

# **TOTAL PERFORMANCE VAN'S AIRCRAFT**

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## **REVISION DESCRIPTION:**

**Page: 21-01 REV 4:** WD-1233-L call-out should be WD-1233-L-1

**Page: 21-03 REV 2:** Figure 4 depicts Bracket Assembly dimples on the wrong side of the assemblies.

**Page: 21-10 MEMO:** Figure 1 corrected missing arrow.

**Page: 21-16 REV 2:** Figure 1 add missing holes to F-1276 Bottom Skin on outboard edges adjacent to bottom stiffeners.

**Page 21-17 REV 3:** Step 7, 8, and 9 WD-1233-L should be WD-1233-L-1. Re-wrote Step 9 to "Seal the gap... after final installation."

Step 10 WD-1233-R should be WD-1233-R-1

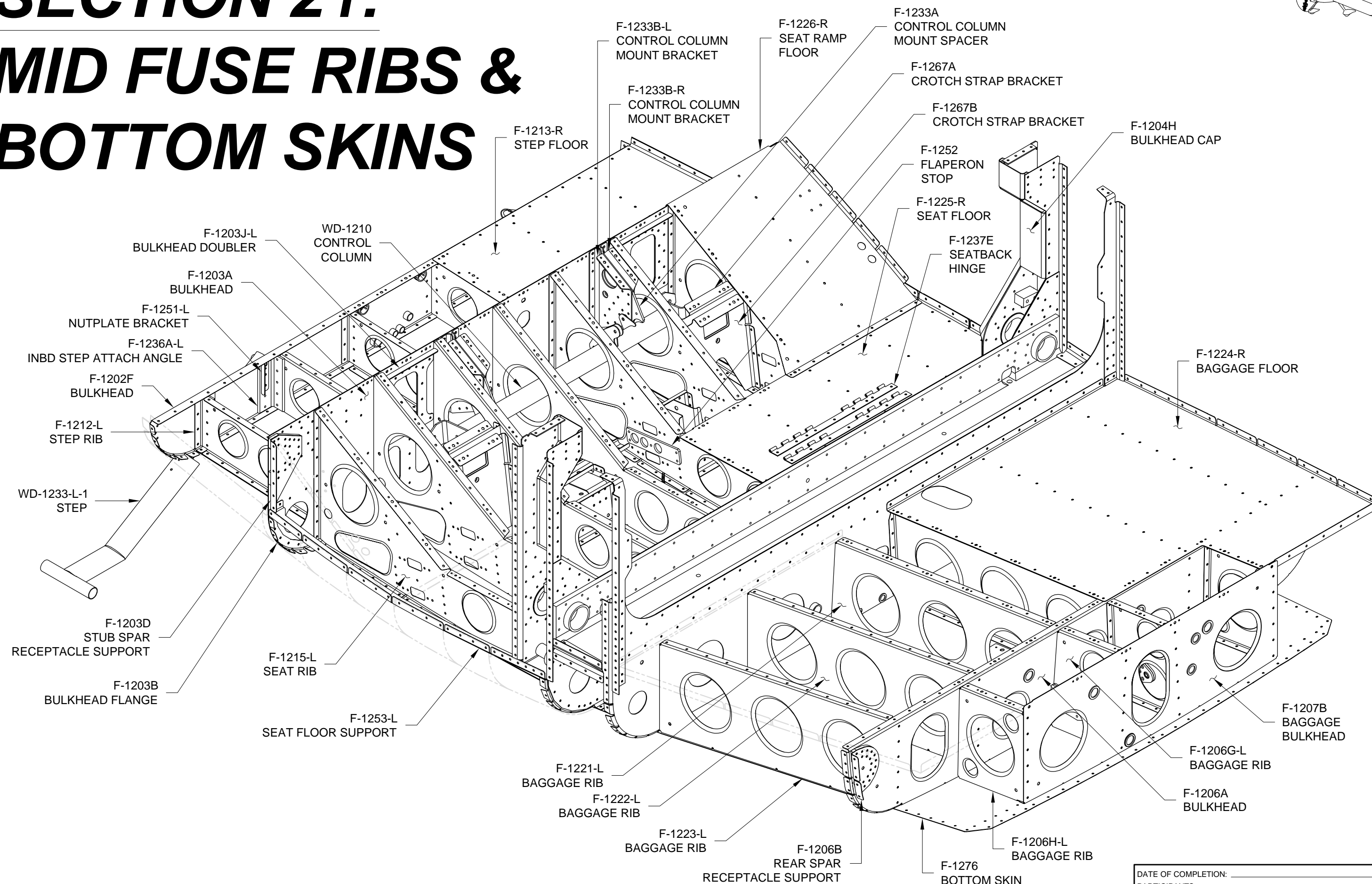
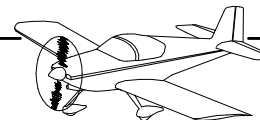
Figure 5 replace WD-1233-L with WD-1233-L-1 and TEMPORARY AN4-14A should be AN4-11A. Update call-outs.

**Page 21-18 REV 2:** Step 10 WD-1233-L & -R should be WD-1233-L-1 & -R-1. Figure 4 replace WD-1233-L illustration and call-out with WD-1233-L-1. Figure 4 AN4-14A should be AN4-11A. Update call-out for AN960-416 to NAS1149F0463P.

**Page 21-19 REV 4:** Figure 2 WD-1233-L should be WD-1233-L-1.

# SECTION 21: MID FUSE RIBS & BOTTOM SKINS

VAN'S AIRCRAFT, INC.

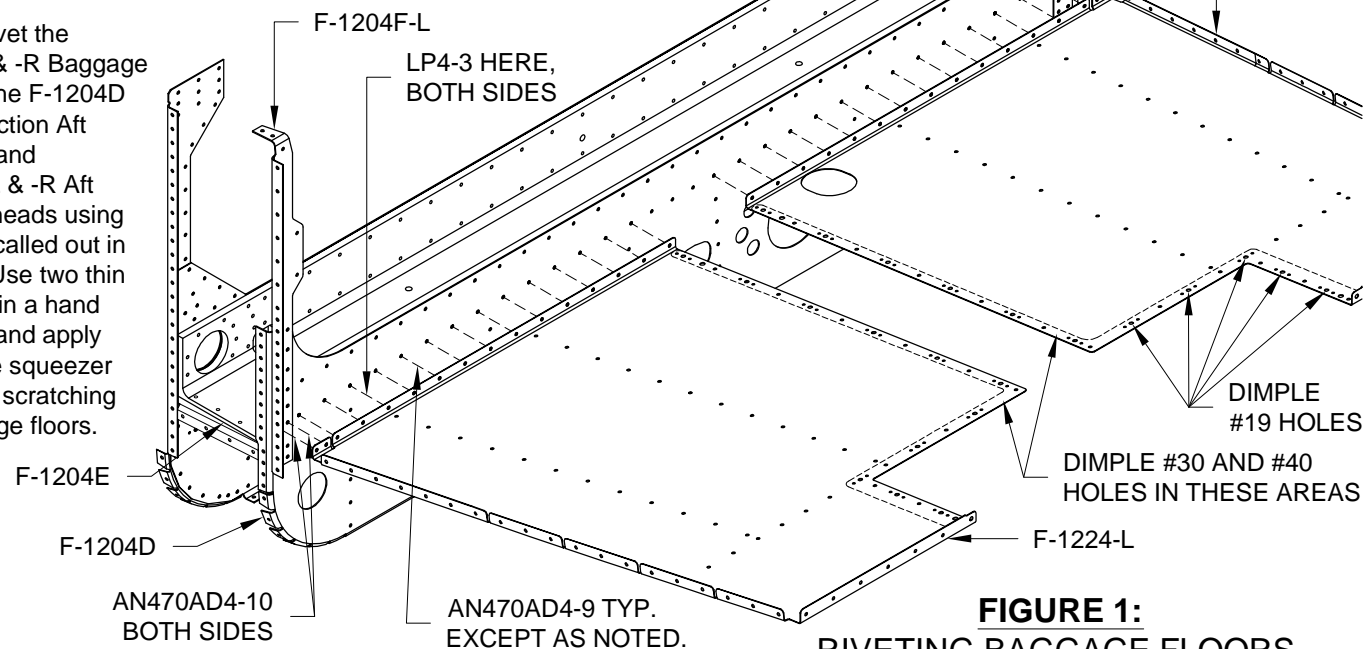




## VAN'S AIRCRAFT, INC.

**Step 1:** Dimple (flush on top surface) the five indicated #19 holes in the F-1224-R Baggage Floor. See Figure 1. In both the F-1224-L & -R Baggage Floors, dimple all of the #30 and #40 holes along the edges bordered by the dashed lines.

**Step 2:** Rivet the F-1224-L & -R Baggage Floors to the F-1204D Center Section Aft Bulkhead and F-1204F-L & -R Aft Side Bulkheads using the rivets called out in Figure 1. Use two thin flush sets in a hand squeezer and apply tape to the squeezer to prevent scratching the baggage floors.

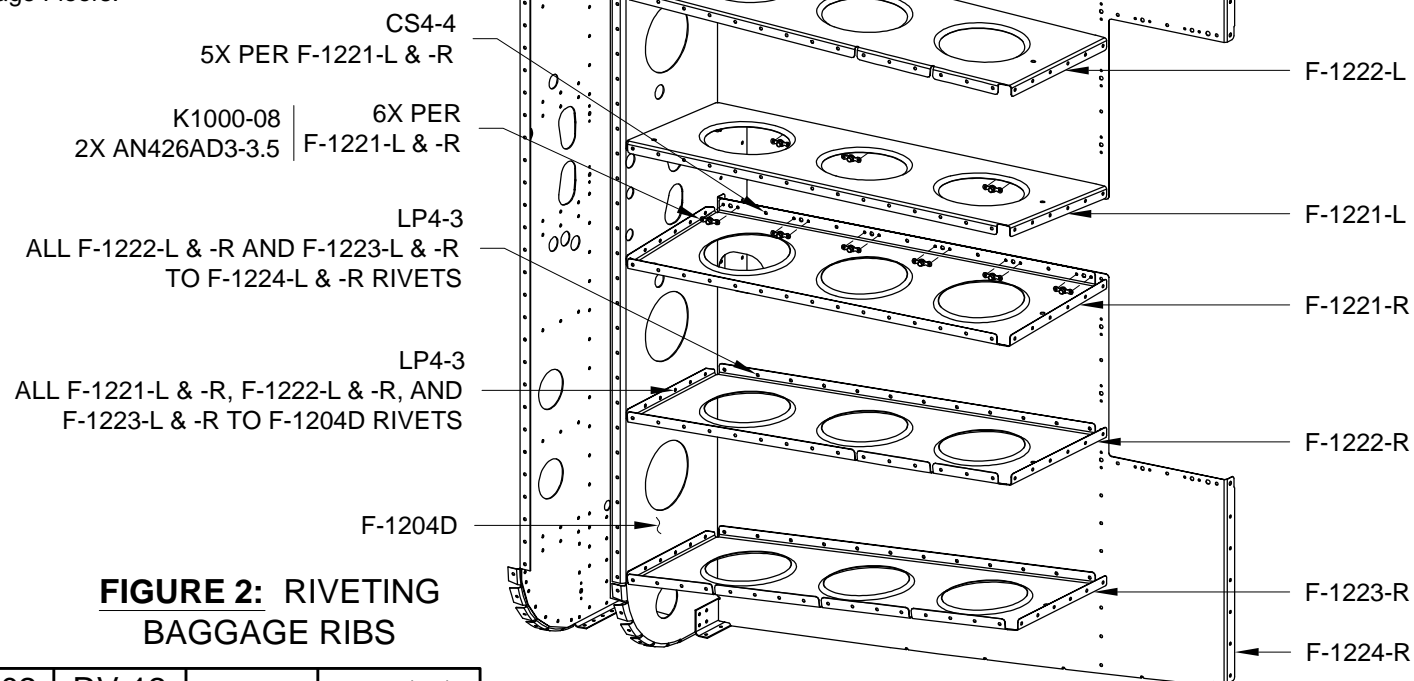


**FIGURE 1: RIVETING BAGGAGE FLOORS**

**Step 3:** Dimple the holes in the F-1221-L & -R Baggage Ribs that correspond to the dimpled holes in the F-1224-L & R Baggage Floors.

**Step 4:** Rivet the F-1221-L & -R, F-1222-L & -R, and F-1223-L & R Baggage Ribs to the F-1204D Center Section Aft Bulkhead and F-1224-L & -R Baggage Floors using the rivets called out in Figure 2. Install all the rivets so that the manufactured heads are on the bulkhead.

**Step 5:** Dimple the nutplates depicted in Figure 2, then rivet them to the F-1221-L & -R Baggage Ribs and F-1224-L & -R Baggage Floors.



**FIGURE 2: RIVETING BAGGAGE RIBS**

**Step 6:** Separate the F-1206B Rear Spar Receptacle Support by removing the hatched areas shown in Figure 3.

**Step 7:** File the curved recess of both F-1206C Rear Spar Receptacles to closely fit the rounded mating ends of the Rear Spar Assemblies of both wings. The small flat on both rear spar receptacles locates the top of the parts. Once filed, mark the parts so that they will be assembled on the side they were fitted to.

**Step 8:** Rivet the F-1206B-L & -R Rear Spar Receptacle Supports and the F-1206C Rear Spar Receptacles to the F-1206A Bulkhead using the rivets called out in Figure 4. Insert the rivets in all the holes before setting any of them.

**Step 9:** Dimple the #19, #30, and #40 holes in the top flange of the F-1206A Baggage Bulkhead that correspond to the dimpled holes in the F-1224-L & -R Baggage Floors (see Page 21-3, Figure for the orientation of the bulkhead on the baggage floors).

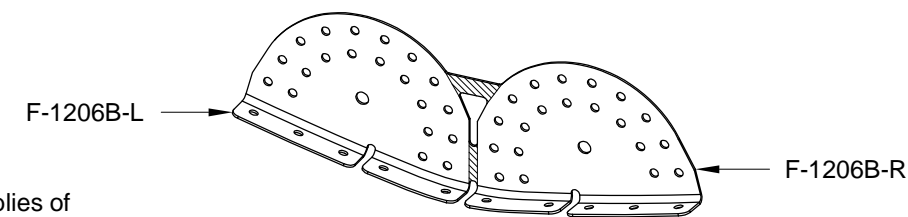
**Step 10:** Dimple the nutplate attach rivet holes in the top flange of the F-1206A Bulkhead for the two nutplates depicted in Figure 4.

**Step 11:** Dimple the two nutplates depicted in Figure 4, then rivet them to the top flange of the F-1206A Bulkhead.

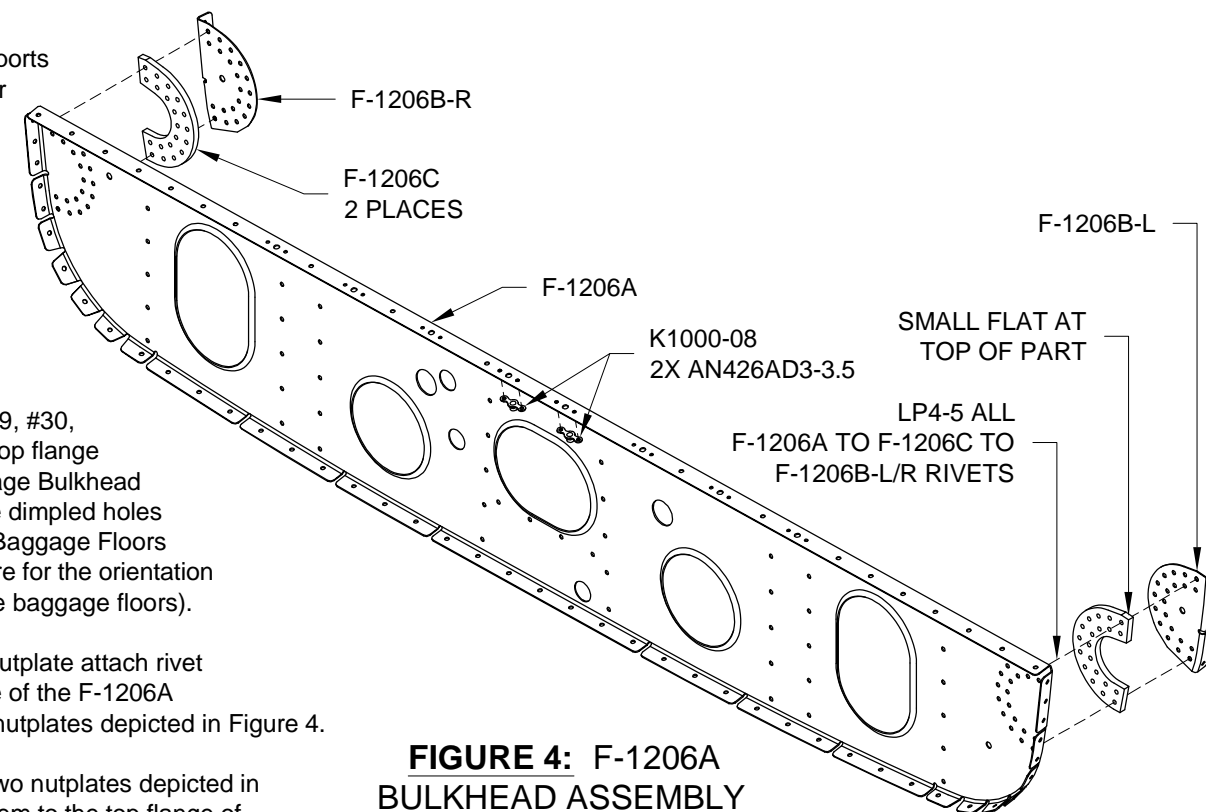
**Step 12:** Dimple the nutplates called out in Figure 5 and the corresponding holes in the top flange of the F-1206G-L & -R Baggage Ribs.

**Step 13:** Rivet the nutplates called out in Figure 5 to the F-1206G-L & -R Baggage Ribs.

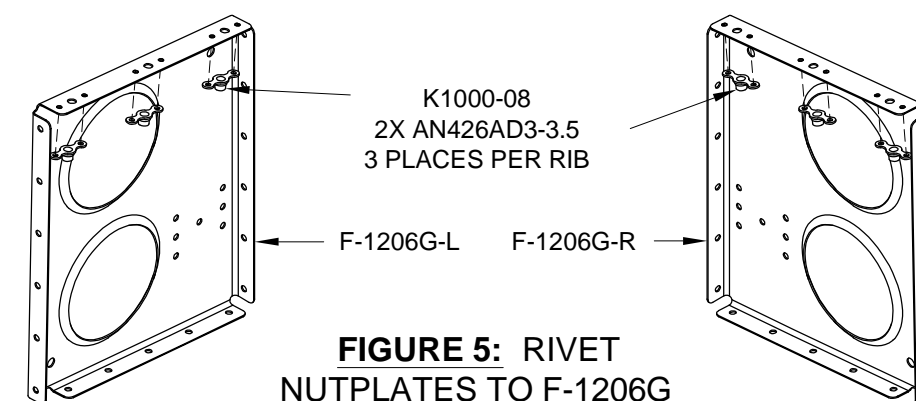
**Step 14:** Rivet together two Bearing Bracket Assemblies using F-1206D Bearing Brackets and the hardware called out in Figure 6. Machine countersink one side of both Bearing Bracket Assemblies for the flush rivets shown.



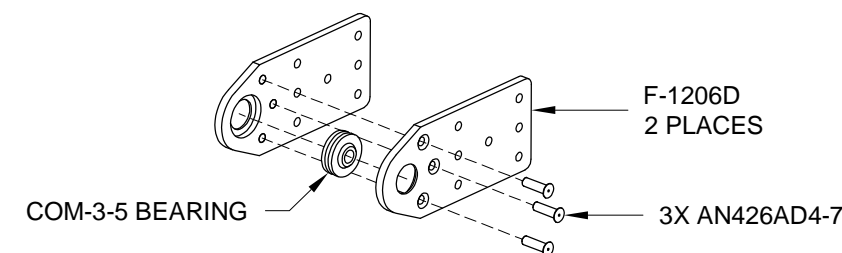
**FIGURE 3: SEPARATE F-1206B**



**FIGURE 4: F-1206A BULKHEAD ASSEMBLY**



**FIGURE 5: RIVET NUTPLATES TO F-1206G**



**FIGURE 6: BEARING BRACKET ASSEMBLY**

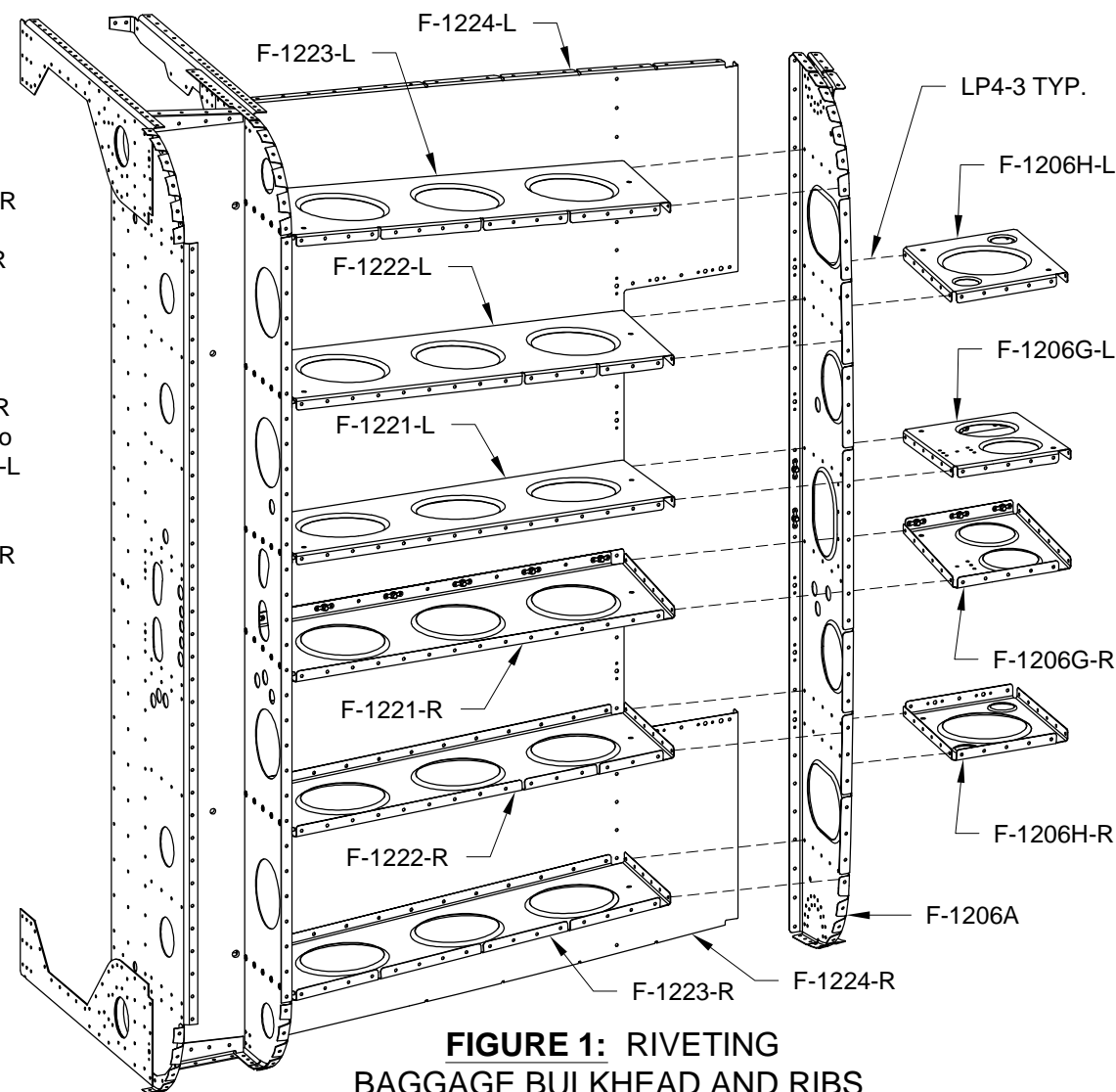


Step 1: Rivet the F-1206A Bulkhead to the F-1222-L & -R and F-1223-L & -R Baggage Ribs using the rivets called out in Figure 1.

Step 2: Rivet the F-1206G-L & -R Baggage Ribs to the F-1206A Bulkhead and the F-1221-L & -R Baggage Ribs using the rivets called out in Figure 1.

Step 3: Dimple the holes in the top flange of the F-1206H-L & -R Baggage Ribs that correspond to the dimpled holes in the F-1224-L & -R Baggage Floors.

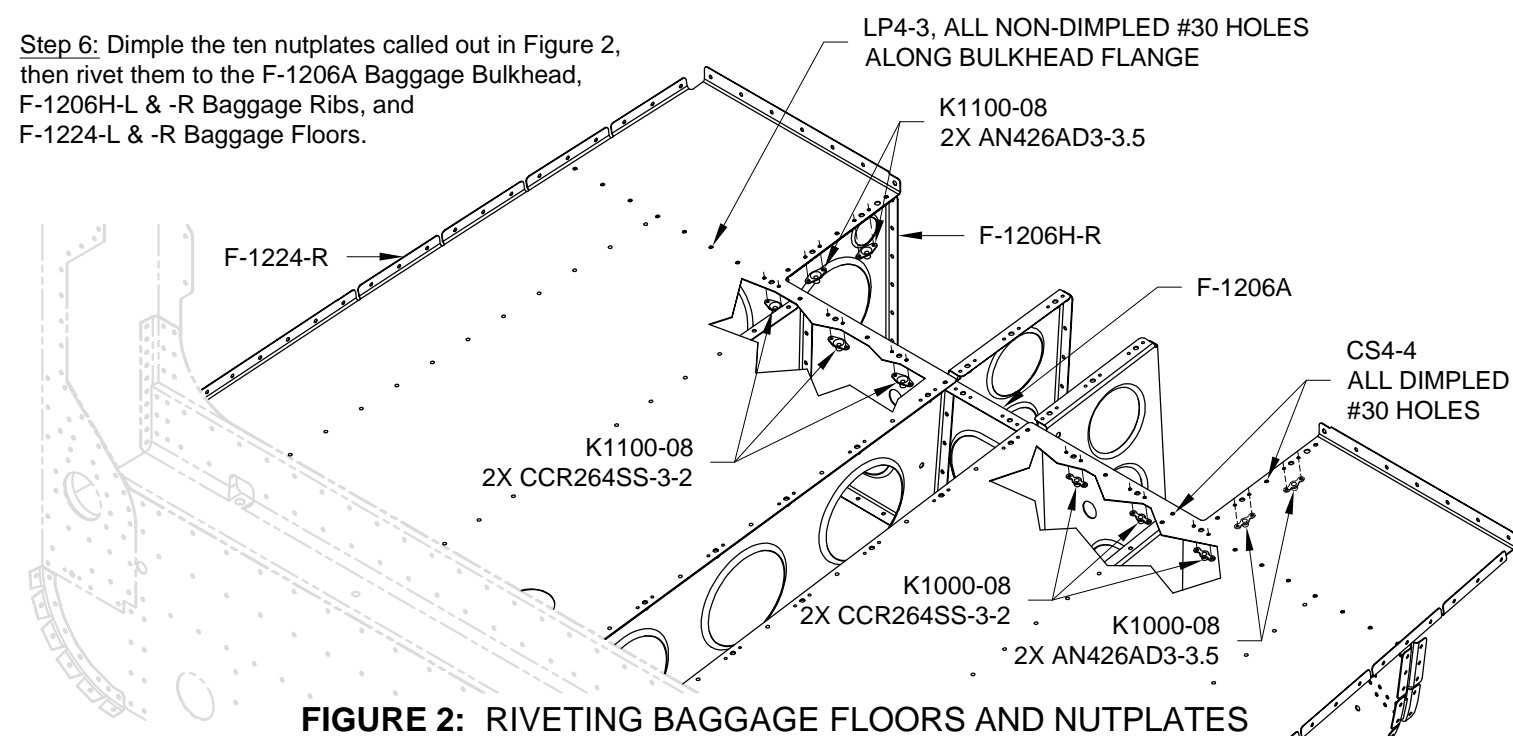
Step 4: Rivet the F-1206H-L & -R Baggage Ribs to the F-1206A Bulkhead using the rivets called out in Figure 1.



**FIGURE 1: RIVETING BAGGAGE BULKHEAD AND RIBS**

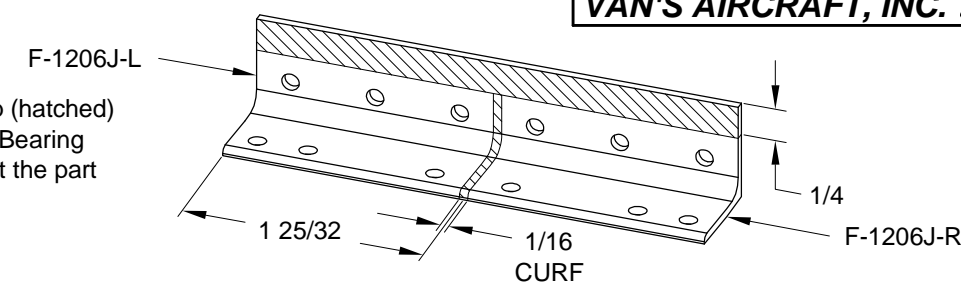
Step 5: Rivet the F-1224-L & -R Baggage Floors to the F-1206A Baggage Bulkhead and F-1206H-L & -R Baggage Ribs using the rivets called out in Figure 2.

Step 6: Dimple the ten nutplates called out in Figure 2, then rivet them to the F-1206A Baggage Bulkhead, F-1206H-L & -R Baggage Ribs, and F-1224-L & -R Baggage Floors.



**FIGURE 2: RIVETING BAGGAGE FLOORS AND NUTPLATES**

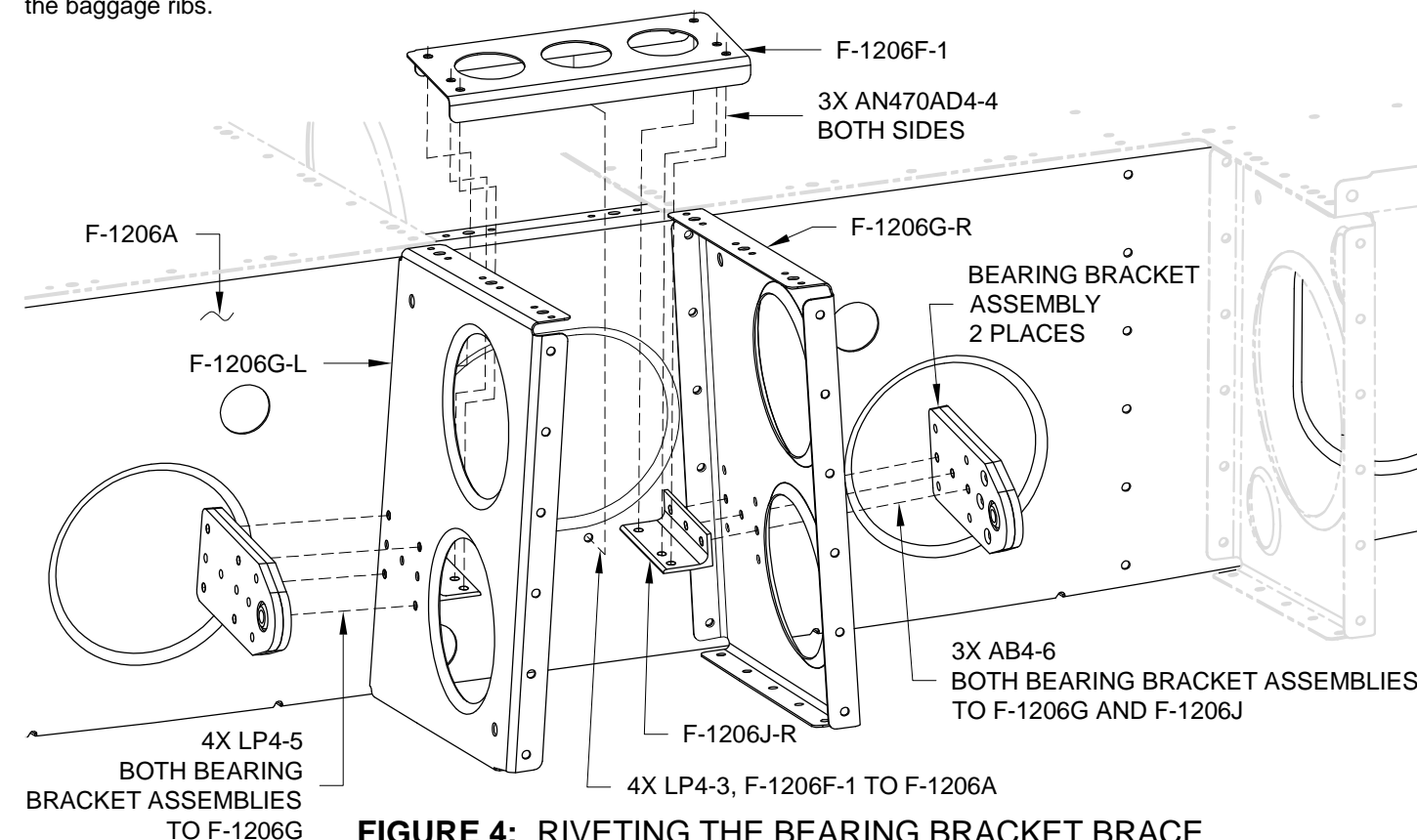
Step 7: Trim off the top (hatched) portion of the F-1206J Bearing Bracket Angle, then cut the part in half. See Figure 3.



**FIGURE 3: TRIMMING THE BEARING BRACKET ANGLE**

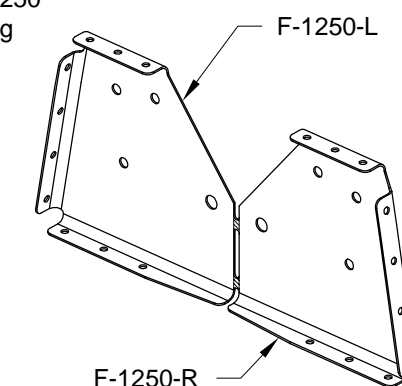
Step 8: Rivet the F-1206F-1 Bearing Bracket Brace to the F-1206J Angles and then to the F-1206A Bulkhead using the rivets called out in Figure 4.

Step 9: Rivet the Bearing Bracket Assemblies to the F-1206G Baggage Ribs and to the F-1206J Angles using the rivets called out in Figure 4. The flush, manufactured heads of the rivets in the Bearing Bracket Assemblies are placed against the web of the baggage ribs.



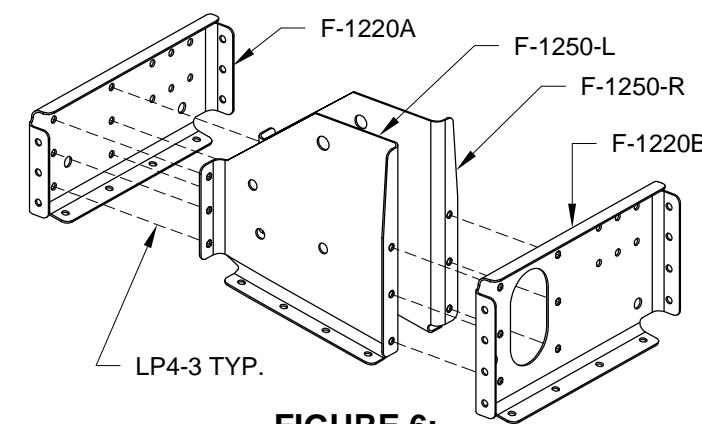
**FIGURE 4: RIVETING THE BEARING BRACKET BRACE**

Step 10: Separate the F-1250 Pulley Bracket by removing the hatched areas shown in Figure 5.



**FIGURE 5: SEPARATING THE PULLEY BRACKETS**

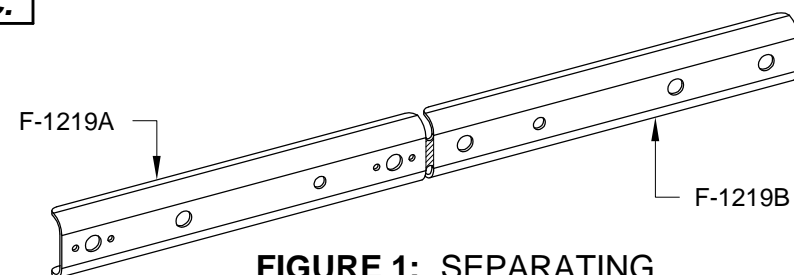
Step 11: Rivet the F-1250-L & -R Pulley Brackets to the F-1220A Forward Intercostal and F-1220B Aft Intercostal using the rivets called out in Figure 6.



**FIGURE 6: RIVETING THE PULLEY BRACKETS**



Step 1: Separate the F-1219 Flaperon Mixer Arm by removing the hatched area shown in Figure 1.



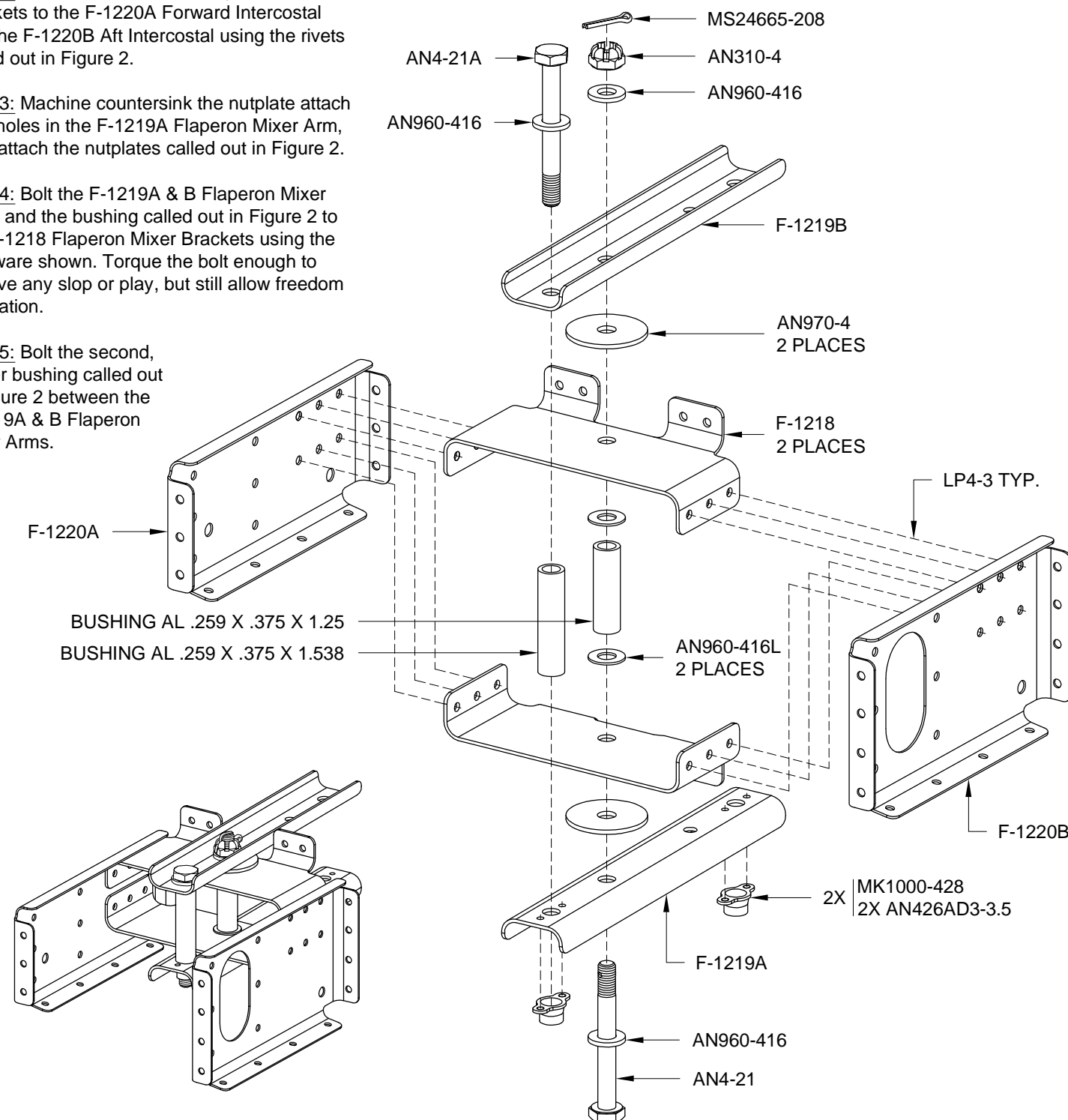
**FIGURE 1: SEPARATING THE F-1219 FLAPERON MIXER ARM**

Step 2: Rivet the two F-1218 Flaperon Mixer Brackets to the F-1220A Forward Intercostal and the F-1220B Aft Intercostal using the rivets called out in Figure 2.

Step 3: Machine countersink the nutplate attach rivet holes in the F-1219A Flaperon Mixer Arm, then attach the nutplates called out in Figure 2.

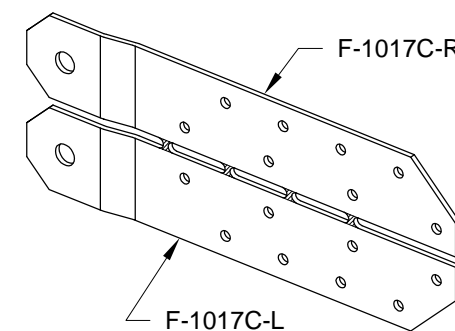
Step 4: Bolt the F-1219A & B Flaperon Mixer Arms and the bushing called out in Figure 2 to the F-1218 Flaperon Mixer Brackets using the hardware shown. Torque the bolt enough to remove any slop or play, but still allow freedom of rotation.

Step 5: Bolt the second, longer bushing called out in Figure 2 between the F-1219A & B Flaperon Mixer Arms.

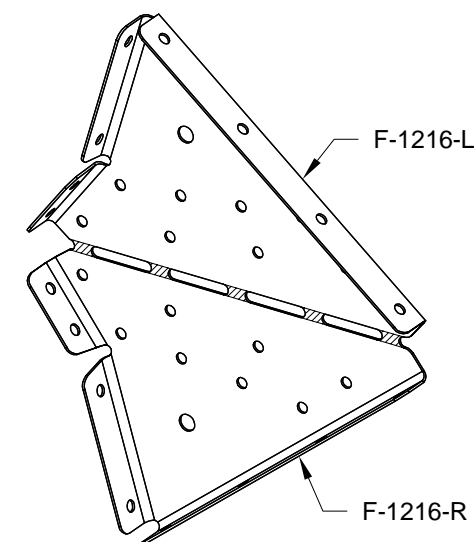


**FIGURE 2: FLAPERON MIXER ARM ASSEMBLY**

Step 6: Separate the four F-1017C Seat Belt Attach Lugs, shown in Figure 3, and the two F-1216 Seat Belt Attach Lug Supports, shown in Figure 4, by removing the hatched areas shown.



**FIGURE 3: SEPARATE F-1017C SEAT BELT ATTACH LUG**

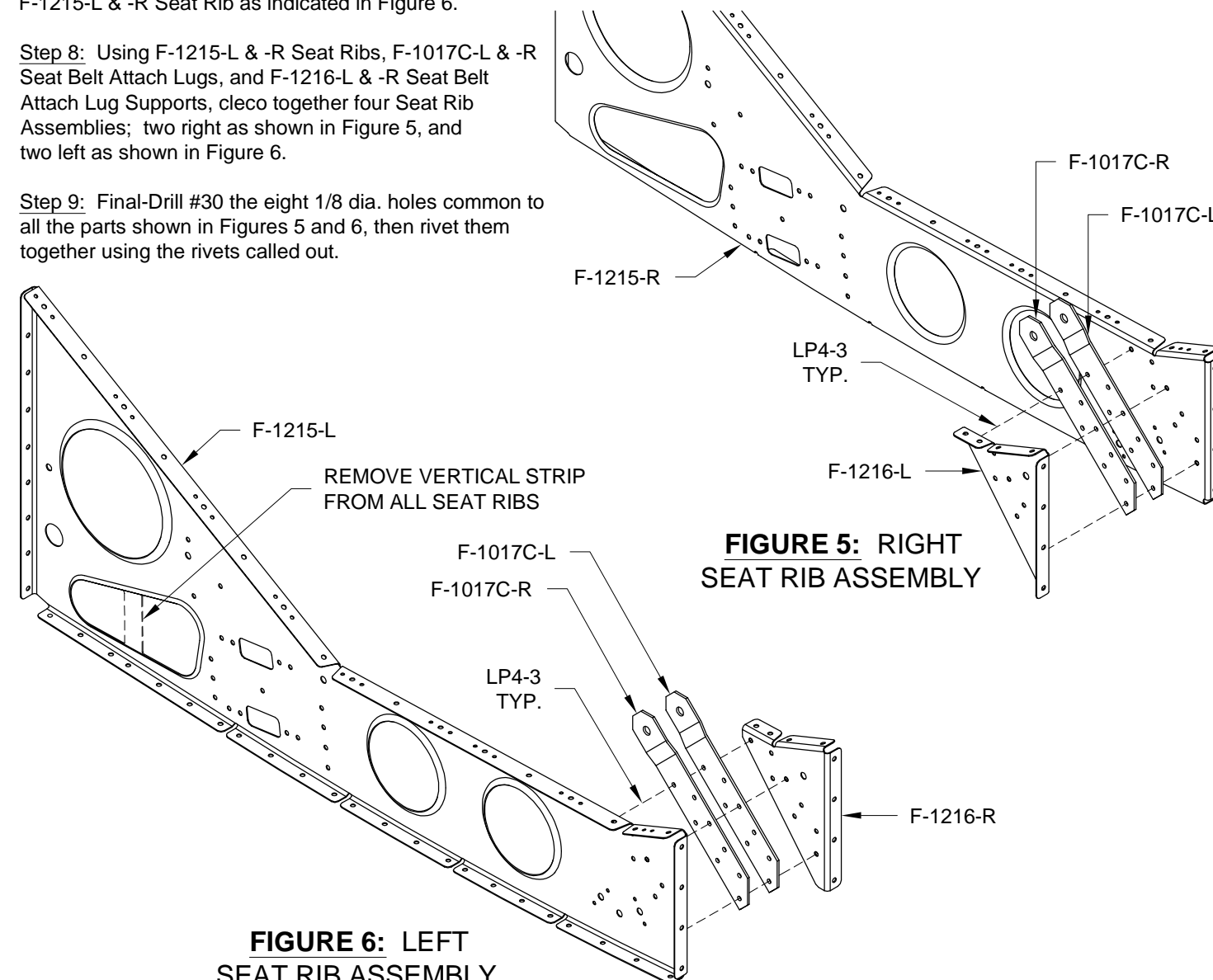


**FIGURE 4: SEPARATE F-1216 SEAT BELT ATTACH LUG SUPPORT**

Step 7: Remove the vertical strip of material from the lightening hole of each F-1215-L & -R Seat Rib as indicated in Figure 6.

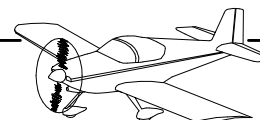
Step 8: Using F-1215-L & -R Seat Ribs, F-1017C-L & -R Seat Belt Attach Lugs, and F-1216-L & -R Seat Belt Attach Lug Supports, cleco together four Seat Rib Assemblies; two right as shown in Figure 5, and two left as shown in Figure 6.

Step 9: Final-Drill #30 the eight 1/8 dia. holes common to all the parts shown in Figures 5 and 6, then rivet them together using the rivets called out.



**FIGURE 5: RIGHT SEAT RIB ASSEMBLY**

**FIGURE 6: LEFT SEAT RIB ASSEMBLY**



**Step 1:** Set aside two Seat Rib Assemblies (one left and one right). In the remaining two Seat Rib Assemblies (one left and one right), final-drill #19 the screw holes for the nine nutplates depicted in Figure 1. Note that in the case of the MS21051-L08 nutplate, the screw hole is NOT the center hole.

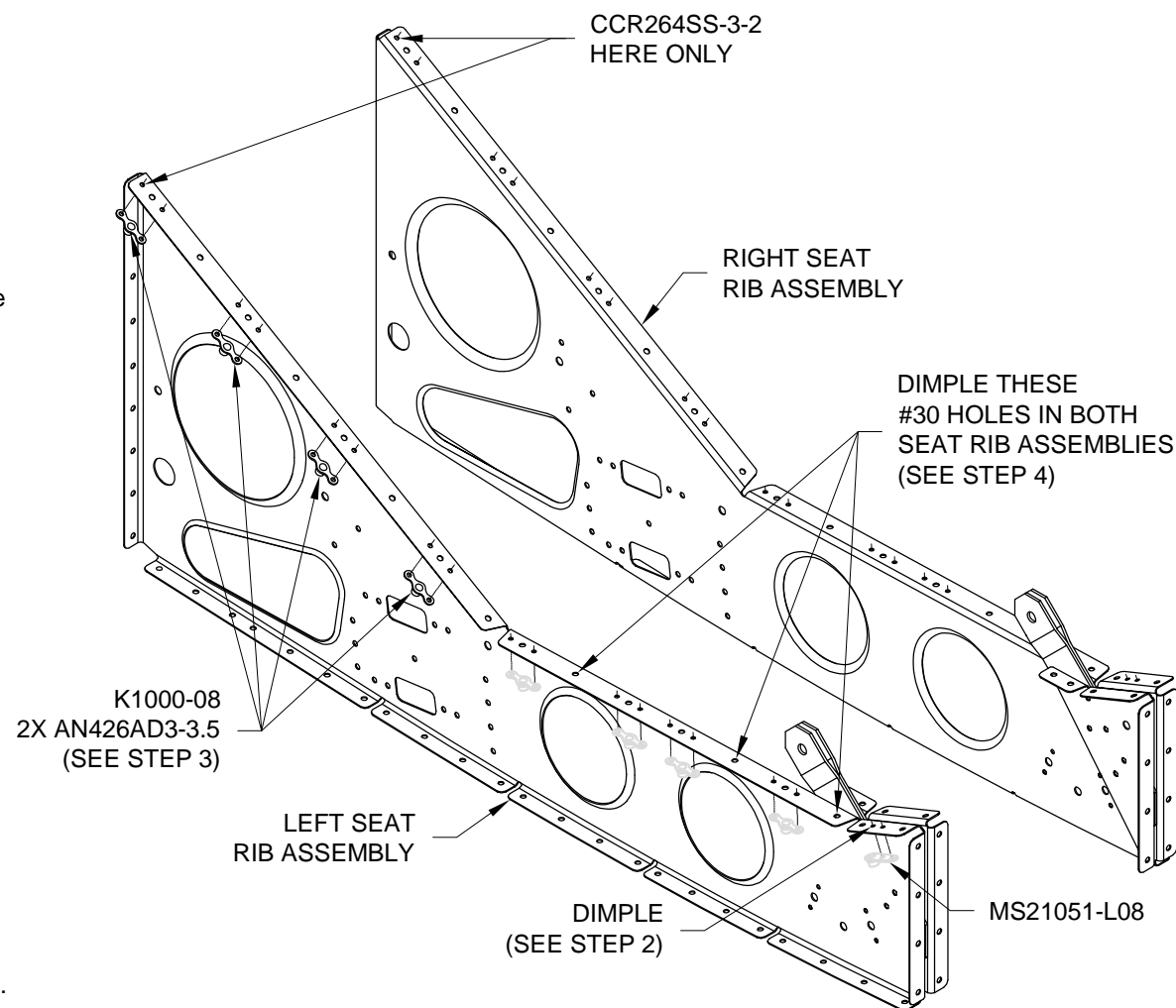
**Step 2:** Dimple the indicated attach hole for the MS21051-L08 nutplate in the aft, sloped flange of the two Seat Rib Assemblies. (The second attach hole has been factory dimpled.) See Figure 1.

**Step 3:** Dimple the four K1000-08 nutplates called out in Figure 1, then rivet them to both Seat Rib Assemblies. The five remaining nutplates are installed on Pages 21-7 and 21-8.

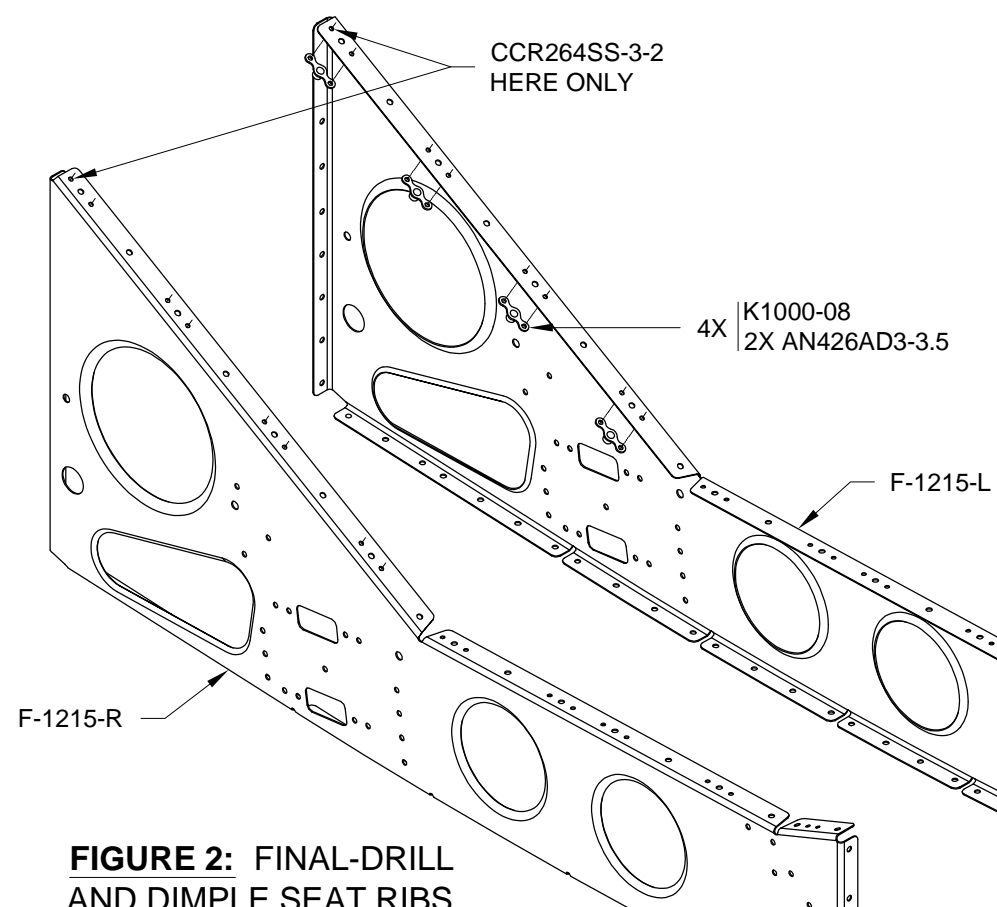
**Step 4:** In both Seat Rib Assemblies, dimple (flush on top surface) the three #30 holes indicated in Figure 1.

**Step 5:** Locate the four remaining F-1215-L & -R Seat Ribs (two left and two right, without seat belt attach lugs). In all four seat ribs, final-drill #19 the screw holes for the nutplates depicted in Figure 2.

**Step 6:** Set aside one pair of F-1215-L & -R Seat Ribs (one left and one right). Dimple the nutplates shown in Figure 2, then rivet them to the remaining two F-1215-L & -R Seat Ribs (one left and one right) using the rivets called out.



**FIGURE 1: PREPARING SEAT RIB ASSEMBLIES**



**FIGURE 2: FINAL-DRILL AND DIMPLE SEAT RIBS**

**Step 7:** Dimple the nutplates shown in Figure 3 and the corresponding holes in the Left Seat Rib Assembly (the left seat rib assembly from Figure 1), then rivet the nutplates in place using the rivets called out.

**Step 8:** Machine countersink the two holes, indicated in Figure 3, in both F-1252 Flaperon Stops.

**Step 9:** Rivet one of the F-1252 Flaperon Stops and the Pulley Bracket Assembly to the Left Seat Rib Assembly using the rivets called out in Figure 3.

**Step 10:** Rivet the F-1215-L Seat Rib that has the nutplates installed from Step 5, to the Pulley Bracket Assembly as shown in Figure 3.

F-1252  
MACHINE  
COUNTERSINK 120° FOR  
CS4-4 RIVETS

**FIGURE 3: PULLEY BRACKET / SEAT RIB ASSEMBLY**

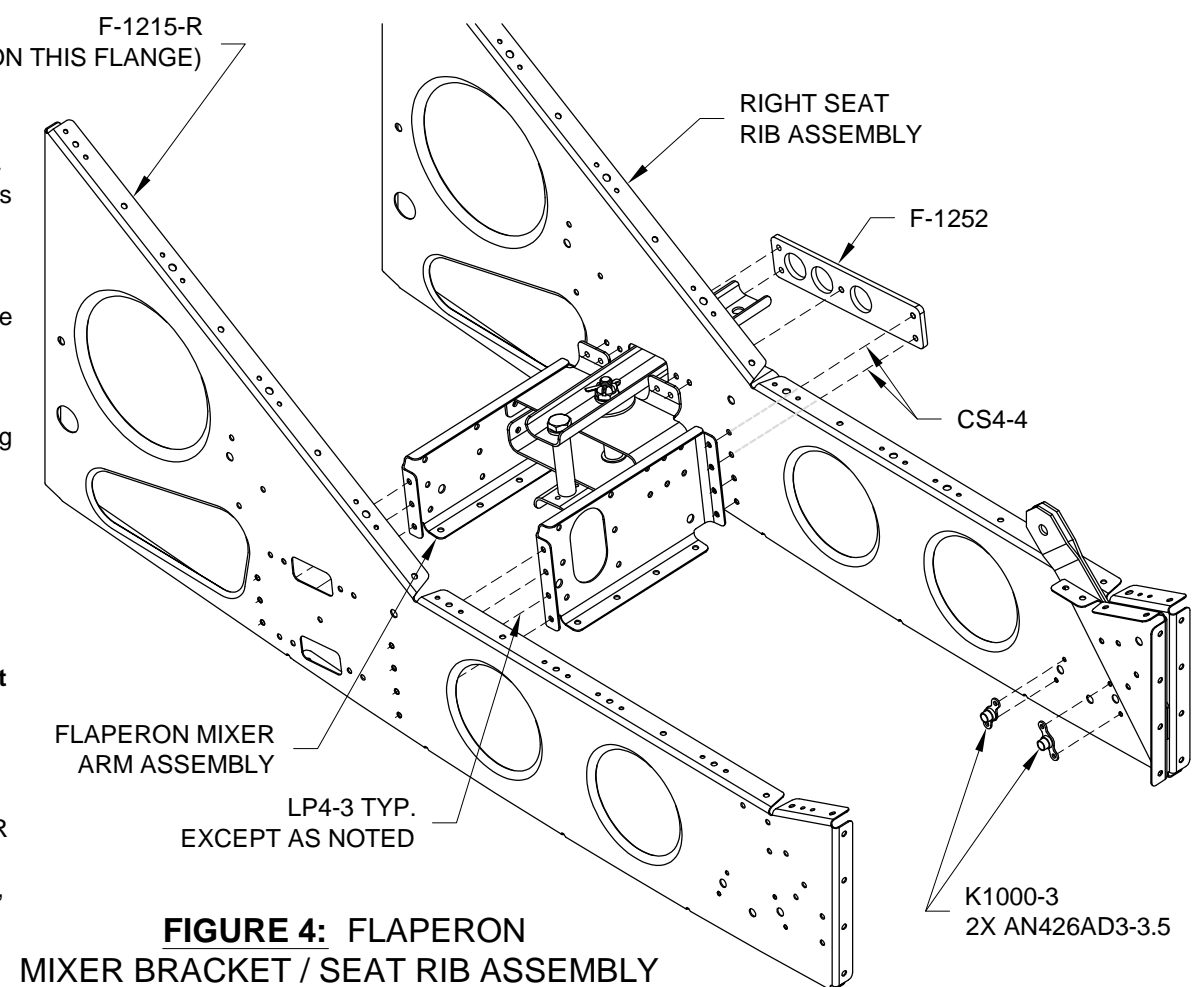
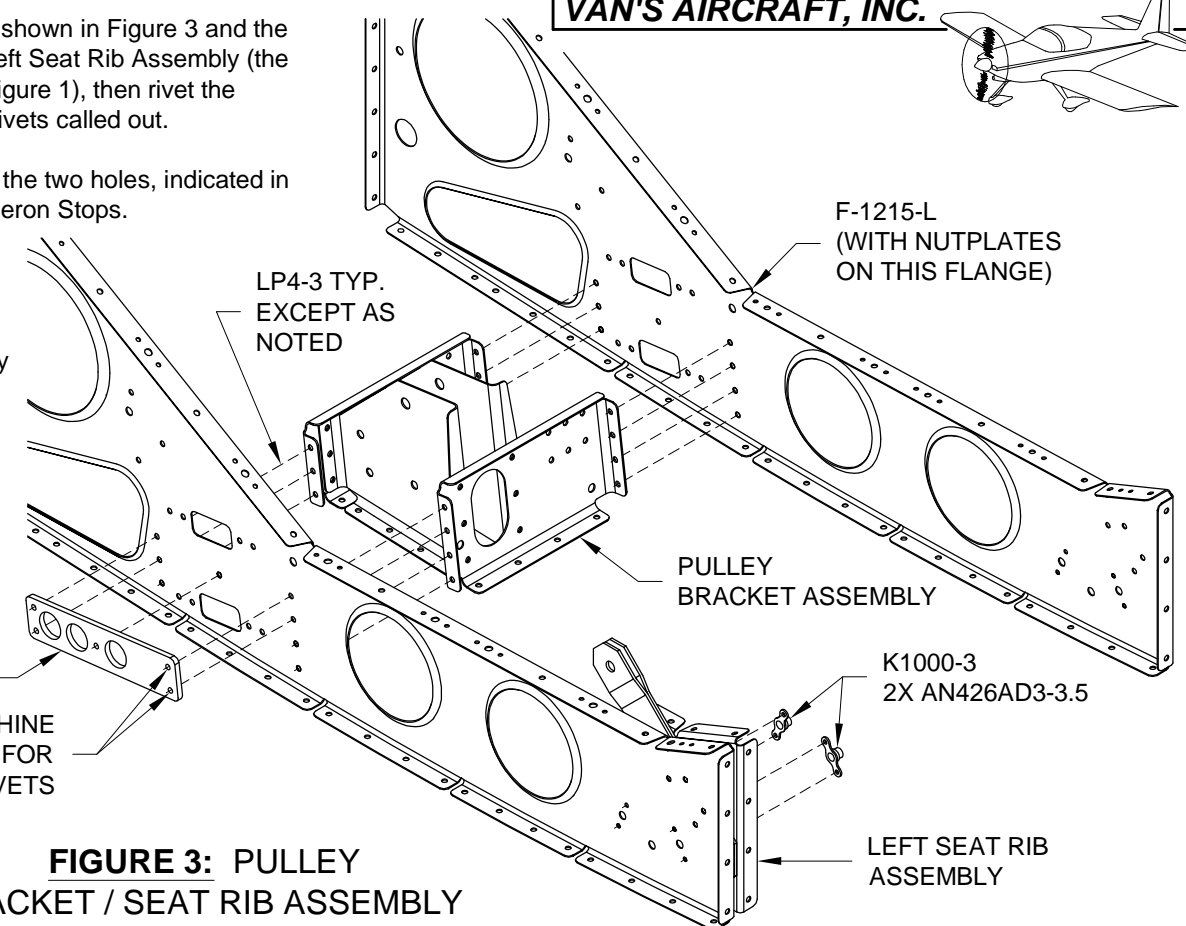
F-1215-R  
(WITH NUTPLATES ON THIS FLANGE)

**Step 11:** Dimple the nutplates shown in Figure 4 and the corresponding holes in the Right Seat Rib Assembly (the right seat rib assembly from Figure 1), then rivet the nutplates in place using the rivets called out.

**Step 12:** Rivet the remaining F-1252 Flaperon Stop and the Flaperon Mixer Arm Assembly to the Right Seat Rib Assembly using the rivets called out in Figure 4.

**NOTE: Complete autopilot bracket installation Section 39 before proceeding.**

**Step 13:** Rivet the F-1215-R Seat Rib that has the nutplates installed from Step 5, to the Flaperon Mixer Arm Assembly as shown in Figure 4.



**FIGURE 4: FLAPERON MIXER BRACKET / SEAT RIB ASSEMBLY**

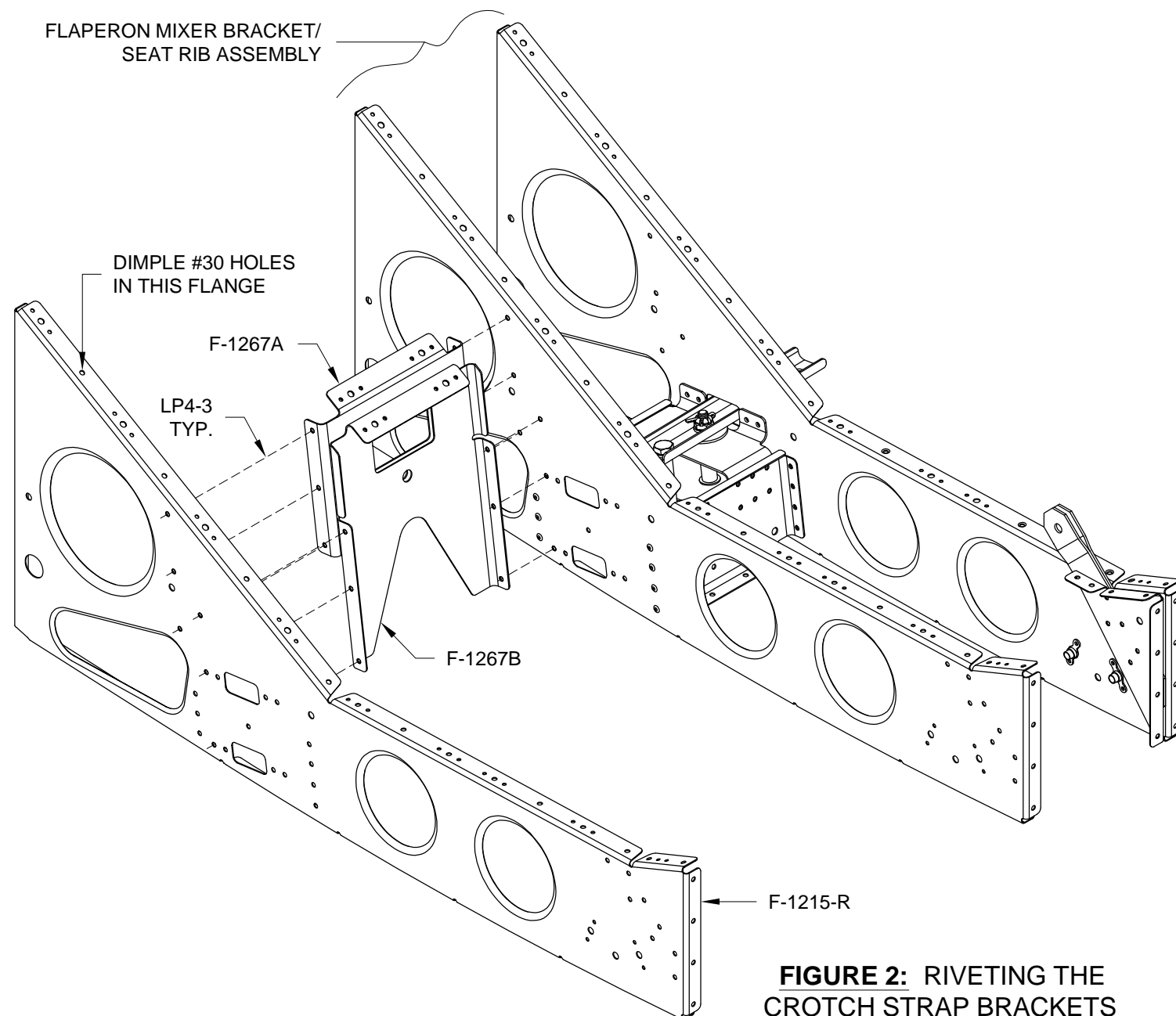


**Step 1:** Dimple the nutplate attachment rivet holes in the two F-1267A Crotch Strap Brackets and machine countersink the nutplate attachment rivet holes in the two F-1267B Crotch Strap Brackets.

**Step 2:** Dimple the nutplates for the F-1267A Crotch Strap Brackets then, using the rivets called out in Figure 1, rivet the nutplates to the F-1267A & B Crotch Strap Brackets.

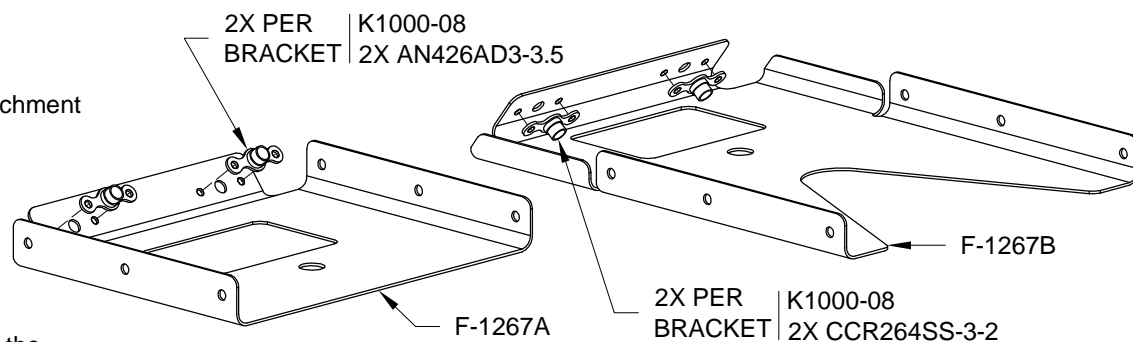
**Step 3:** Dimple the four #30 holes in the sloped flange of the one remaining F-1215-R Seat Rib as indicated in Figure 2.

**Step 4:** Rivet one each of the F-1267A & B Crotch Strap Brackets to the Flaperon Mixer Bracket/ Seat Rib Assembly and to the remaining F-1215-R Seat Rib (from step 3) using the rivets called out in Figure 2.



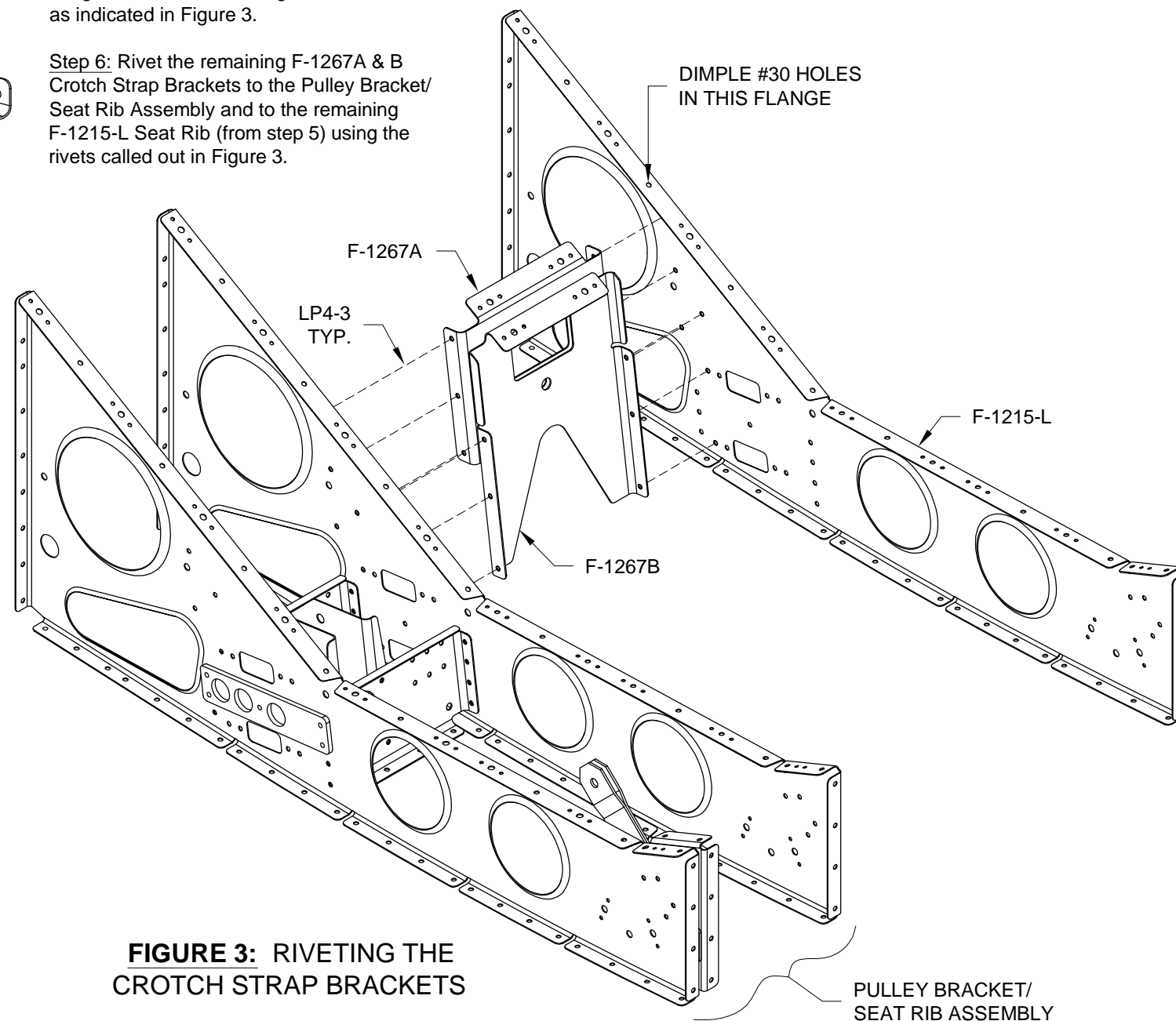
**FIGURE 2: RIVETING THE CROTCH STRAP BRACKETS**

**FIGURE 1: CROTCH STRAP BRACKET NUTPLATES**



**Step 5:** Dimple the four #30 holes in the sloped flange of the one remaining F-1215-L Seat Rib as indicated in Figure 3.

**Step 6:** Rivet the remaining F-1267A & B Crotch Strap Brackets to the Pulley Bracket/ Seat Rib Assembly and to the remaining F-1215-L Seat Rib (from step 5) using the rivets called out in Figure 3.

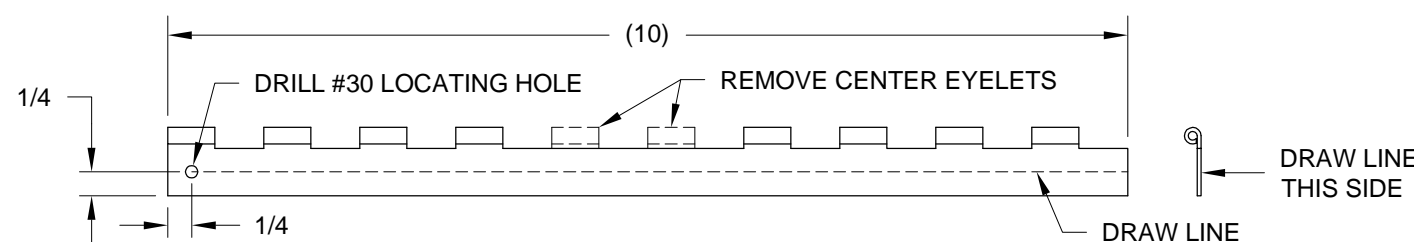


**FIGURE 3: RIVETING THE CROTCH STRAP BRACKETS**

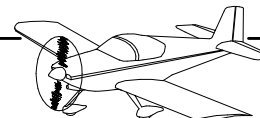
**CAUTION:** When cutting lengths of AN257-P3 hinge, be sure enough remains to account for the length requirements of the parts given on Pages 23-08, 26-02, and 29-02.

**Step 7:** Cut a 20 inch length of AN257-P3 hinge and remove the hinge pin. From these two hinge halves, make four F-1237E Seatback Hinges using the dimensions given in Figure 4.

**Step 8:** As shown in Figure 4, draw a line on the flush side of the F-1237E Seatback Hinges centered on the locating hole drilled in the previous step.



**FIGURE 4: F-1237E SEATBACK HINGE**

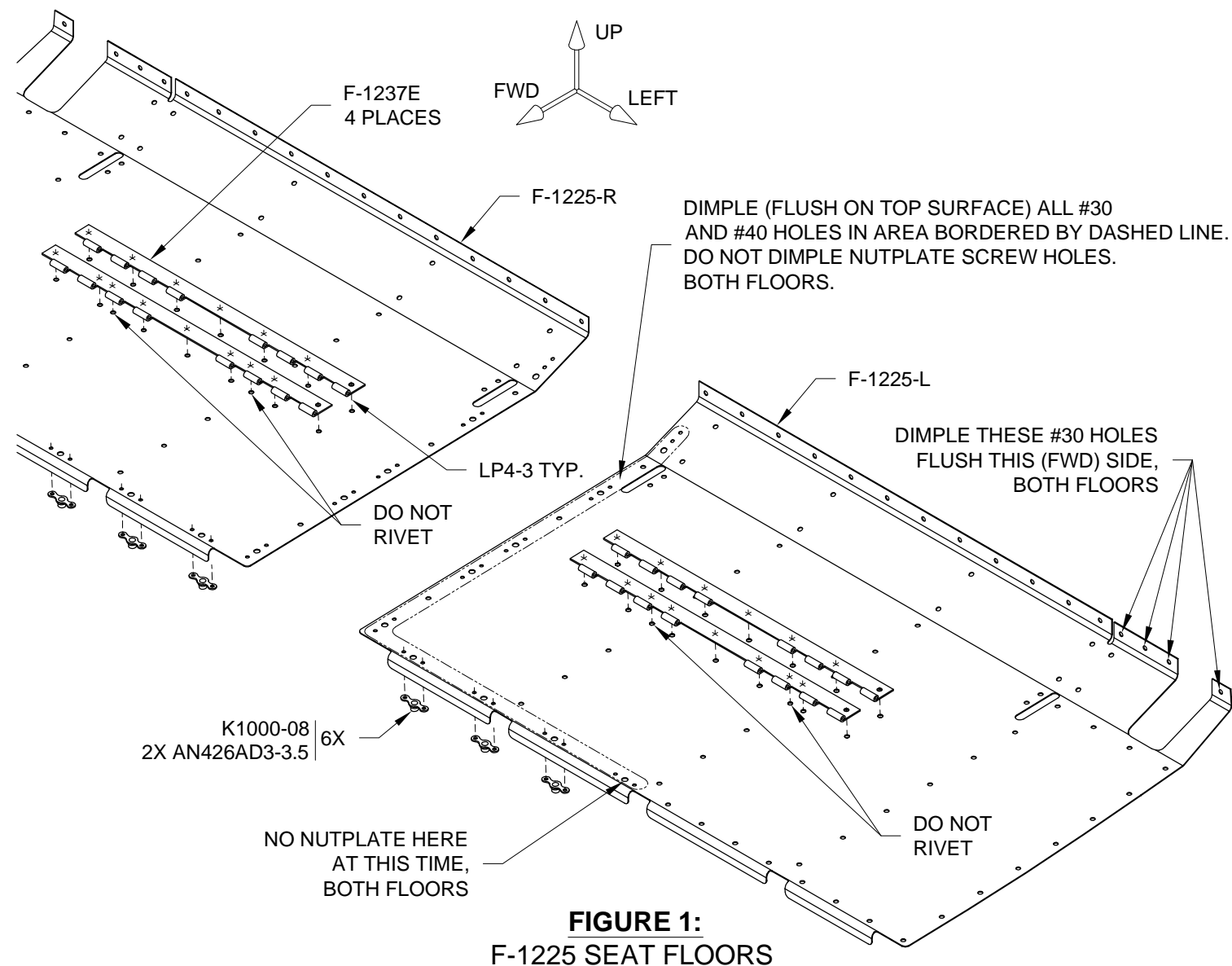


**Step 1:** Using the locating holes drilled on Page 21-6 Step 7, cleco the F-1237E Seatback Hinges to the F-1225-L & -R Seat Floors as shown in Figure 1. Center the lines drawn on Page 21-6 Step 8 on the holes in the seat floors, then match-drill #30 the holes into the seatback hinges. Remove and deburr the holes.

**Step 2:** Except for the holes that will be used to attach the seat floor ribs (indicated in Figure 1), rivet the F-1237E Seatback Hinges to the F-1225-L & -R Seat Floors using the rivets called out.

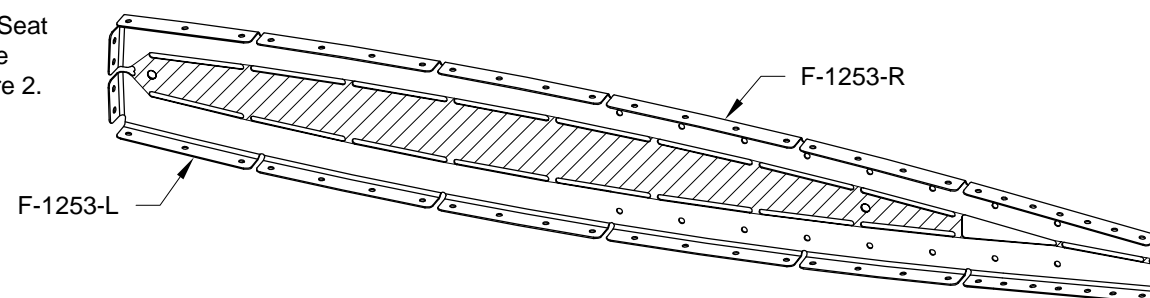
**Step 3:** In both F-1225-L & -R Seat Floors, dimple the four holes in the aft flanges and the holes along the forward and inboard edges as indicated in Figure 1.

**Step 4:** Dimple the six nutplates, shown in Figure 1, along the forward edge of the F-1225-L & -R Seat Floors, then rivet them to the seat floors using the rivets called out.



**FIGURE 1:**  
F-1225 SEAT FLOORS

**Step 5:** Separate the F-1253 Seat Floor Support by removing the hatched areas shown in Figure 2.



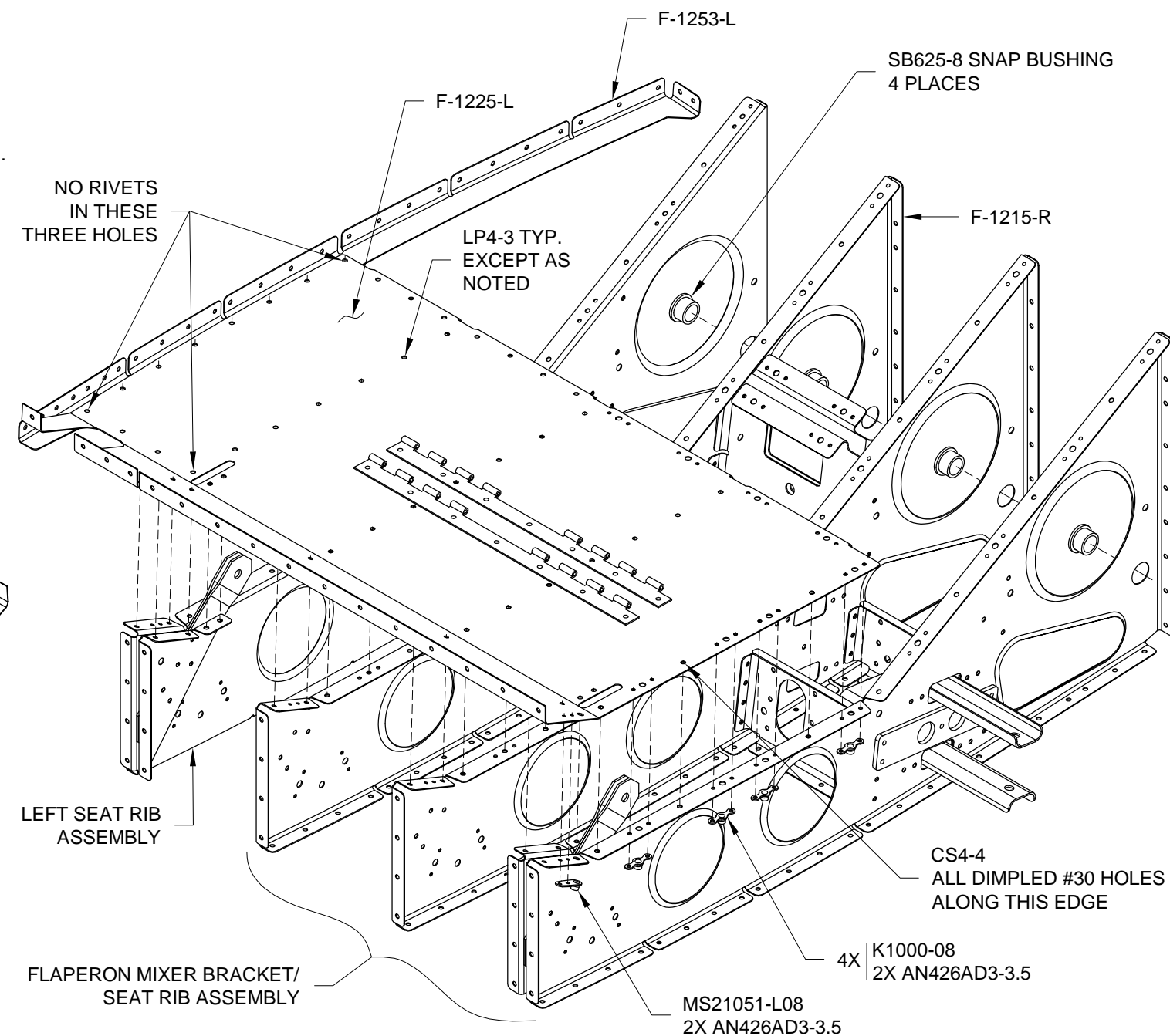
**FIGURE 2:** SEPARATE F-1253 SEAT FLOOR SUPPORT

**Step 6:** Rivet the F-1225-L Seat Floor to the remaining Left Seat Rib Assembly (except for the hole indicated) and the Flaperon Mixer Bracket / Seat Rib Assembly using the rivets called out in Figure 3.

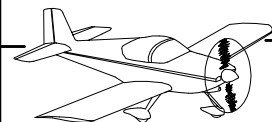
**Step 7:** Dimple the nutplates shown in Figure 3, then rivet them to the Flaperon Mixer Bracket / Seat Rib Assembly and to the F-1225-L Seat Floor using the rivets called out. Temporarily install an 8-32 screw in the MS21051-L08 nutplate to prevent misalignment while riveting.

**Step 8:** Using the rivets called out in Figure 3, rivet the F-1253-L Seat Floor Support to the bottom of the F-1225-L Seat Floor as shown. Do not install a rivet in the aft most and forward most hole as indicated.

**Step 9:** Install the snap bushings called out in Figure 3.



**FIGURE 3:** LEFT SEAT FLOOR ASSEMBLY

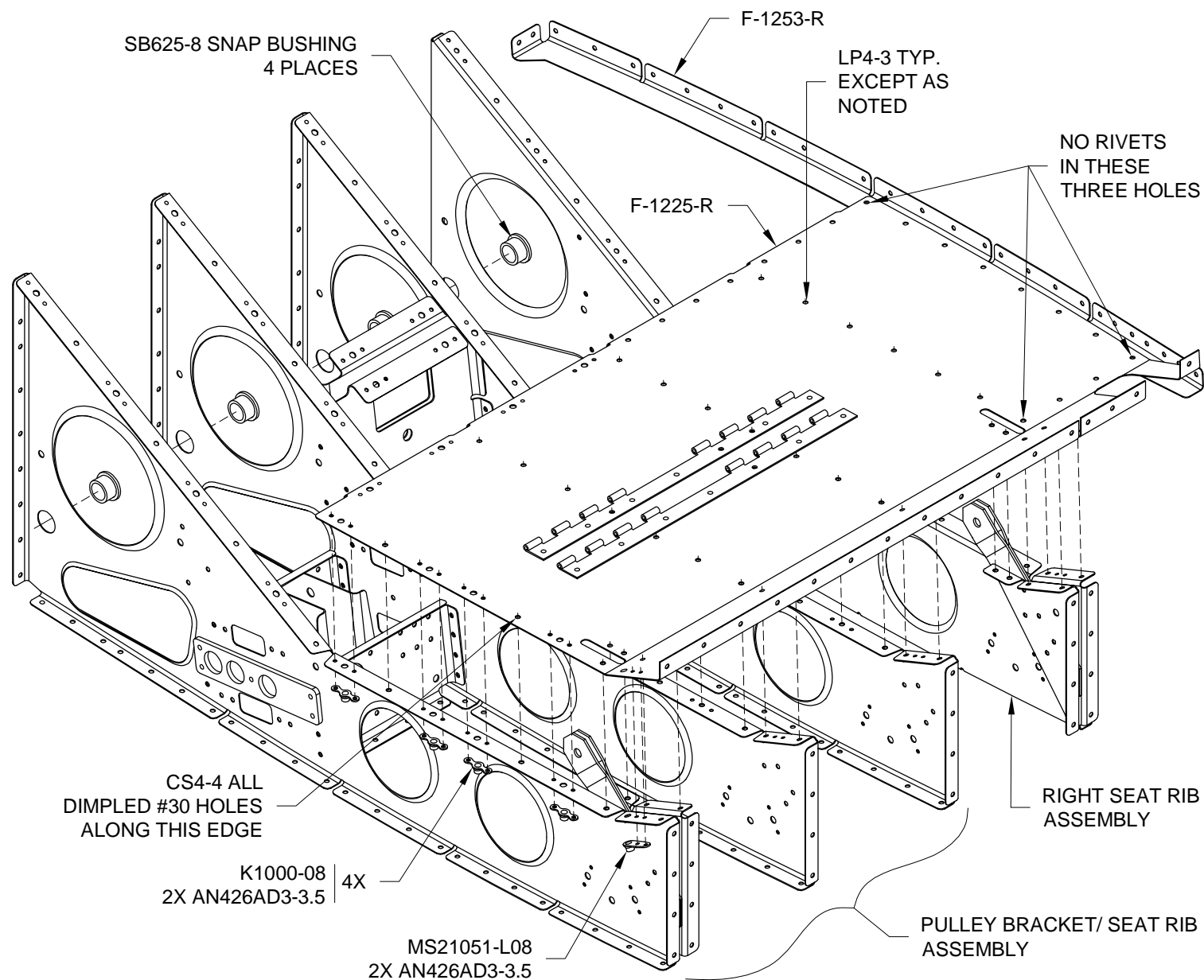


Step 1: Rivet the F-1225-R Seat Floor to the remaining Right Seat Rib Assembly (except the hole indicated) and the Pulley Bracket / Seat Rib Assembly using the rivets called out in Figure 1.

Step 2: Dimple the nutplates shown in Figure 1, then rivet them to the Pulley Bracket / Seat Rib Assembly and to the F-1225-R Seat Floor using the rivets called out. Again, temporarily install an 8-32 screw in the MS21051-L08 nutplate to prevent misalignment while riveting.

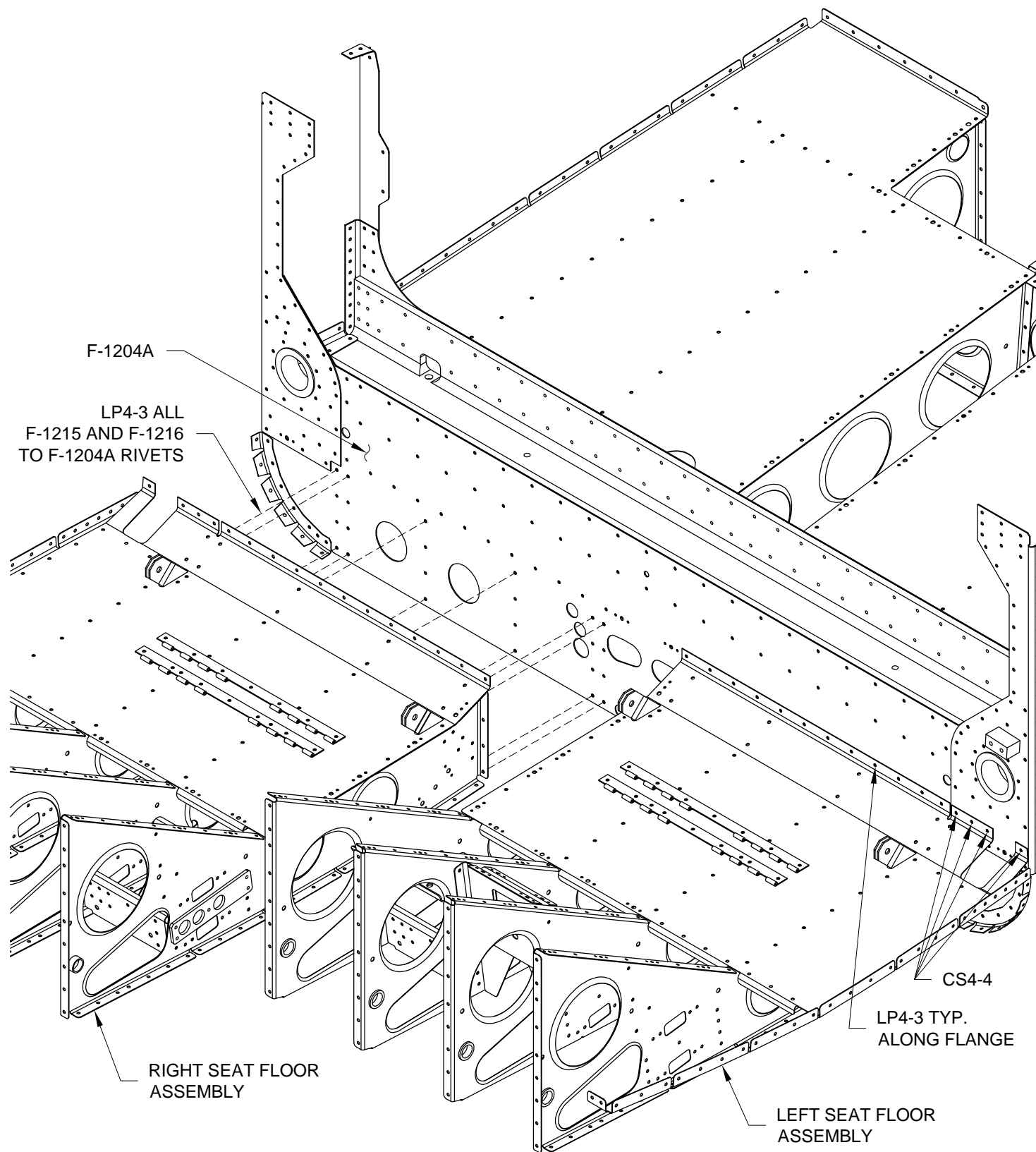
Step 3: Using the rivets called out in Figure 1, rivet the F-1253-R Seat Floor Support to the bottom of the F-1225-R Seat Floor as shown. Do not install a rivet in the aft most and forward most hole as indicated.

Step 4: Install the snap bushings called out in Figure 1.



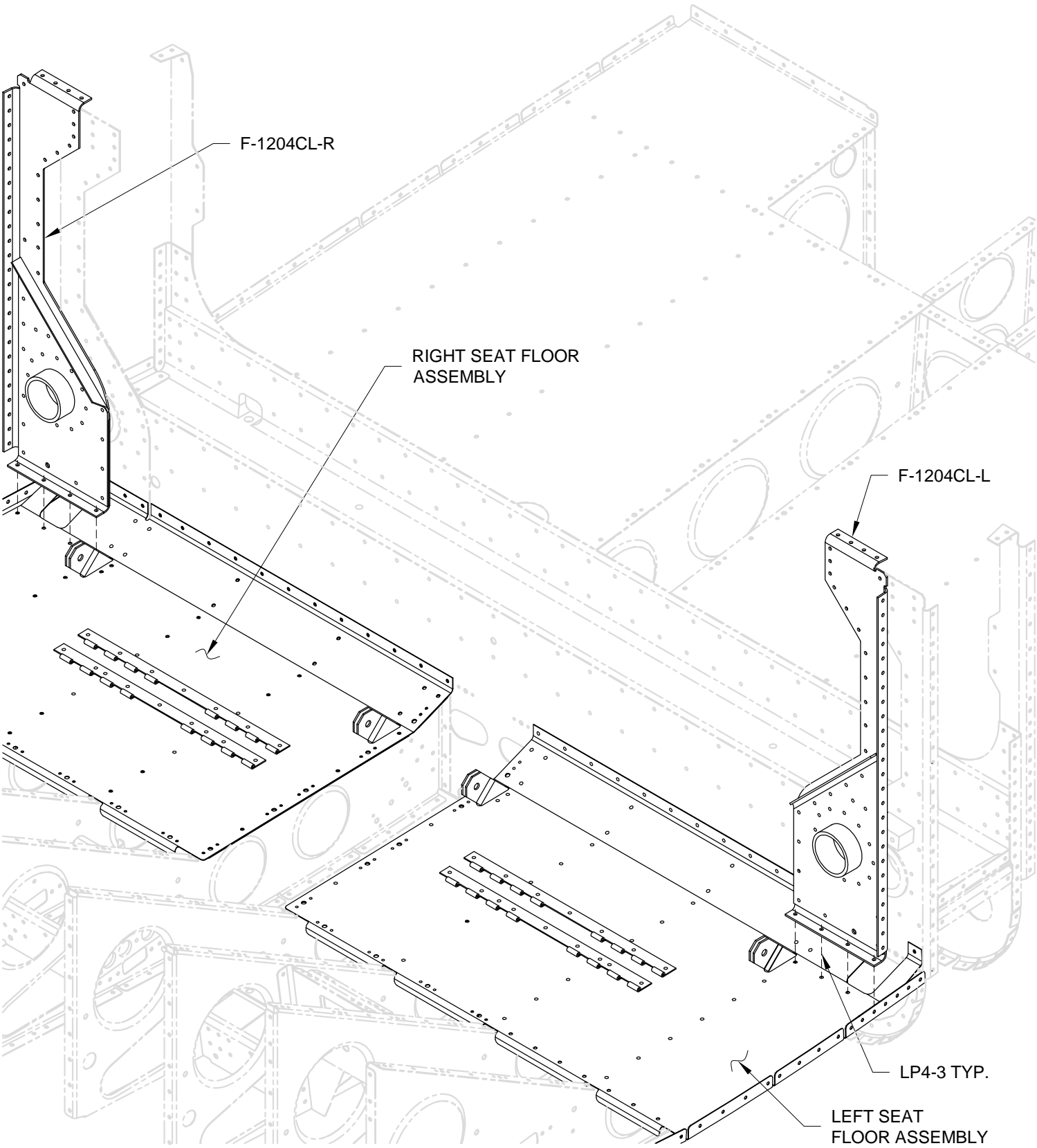
**FIGURE 1: RIGHT SEAT FLOOR ASSEMBLY**

Step 5: Rivet the Left and Right Seat Floor Assemblies to the F-1204A Center Section Bulkhead using the rivets called out in Figure 2. Rivet call-outs apply to both sides of the fuselage.



**FIGURE 2: RIVET SEAT FLOOR ASSEMBLIES**

Step 1: Rivet the F-1204CL-L & -R Fwd Bulkhead Side Assemblies to the Left and Right Seat Floor Assemblies using the rivets called out in Figure 1.



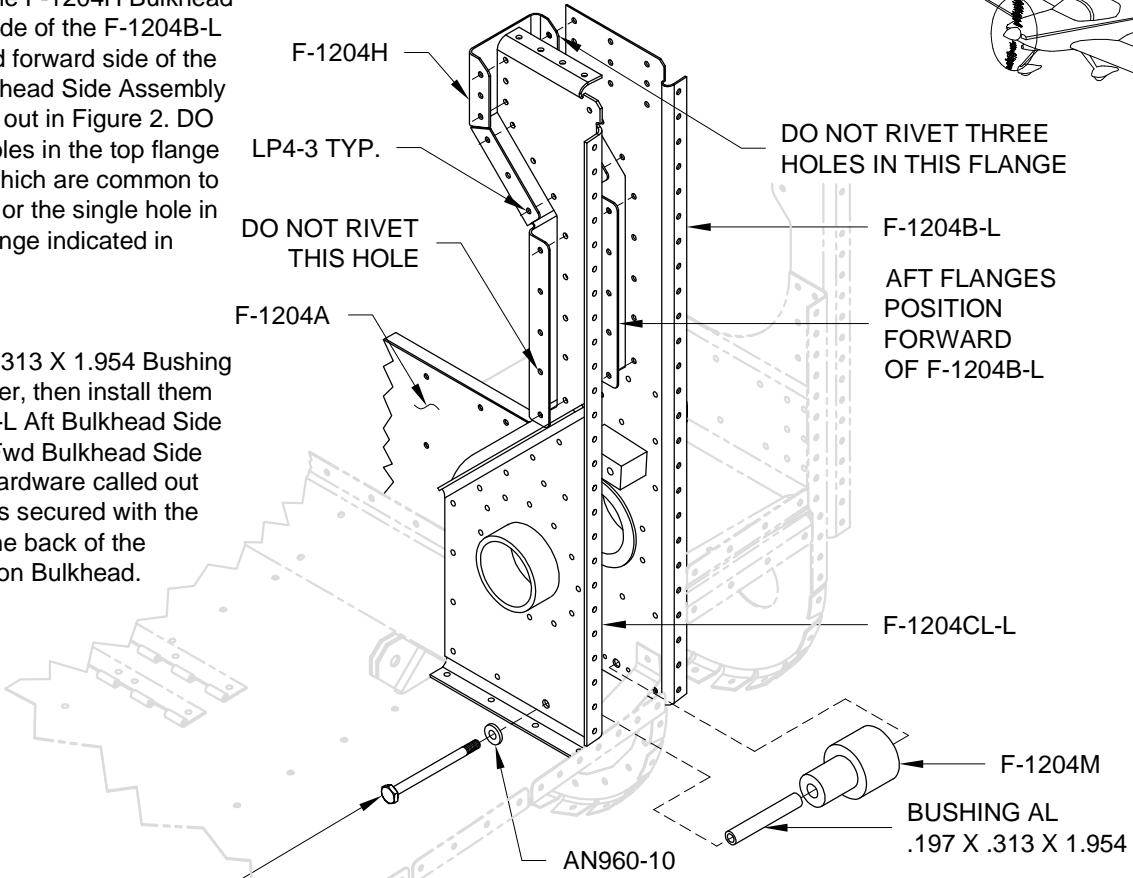
**FIGURE 1: RIVETING THE FORWARD UPRIGHT ASSEMBLIES**

Step 2: Rivet one of the F-1204H Bulkhead Caps to the forward side of the F-1204B-L Aft Bulkhead Side and forward side of the F-1204CL-L Fwd Bulkhead Side Assembly using the rivets called out in Figure 2. DO NOT rivet the three holes in the top flange of the bulkhead cap which are common to the aft bulkhead side, or the single hole in the bottom forward flange indicated in the figure.

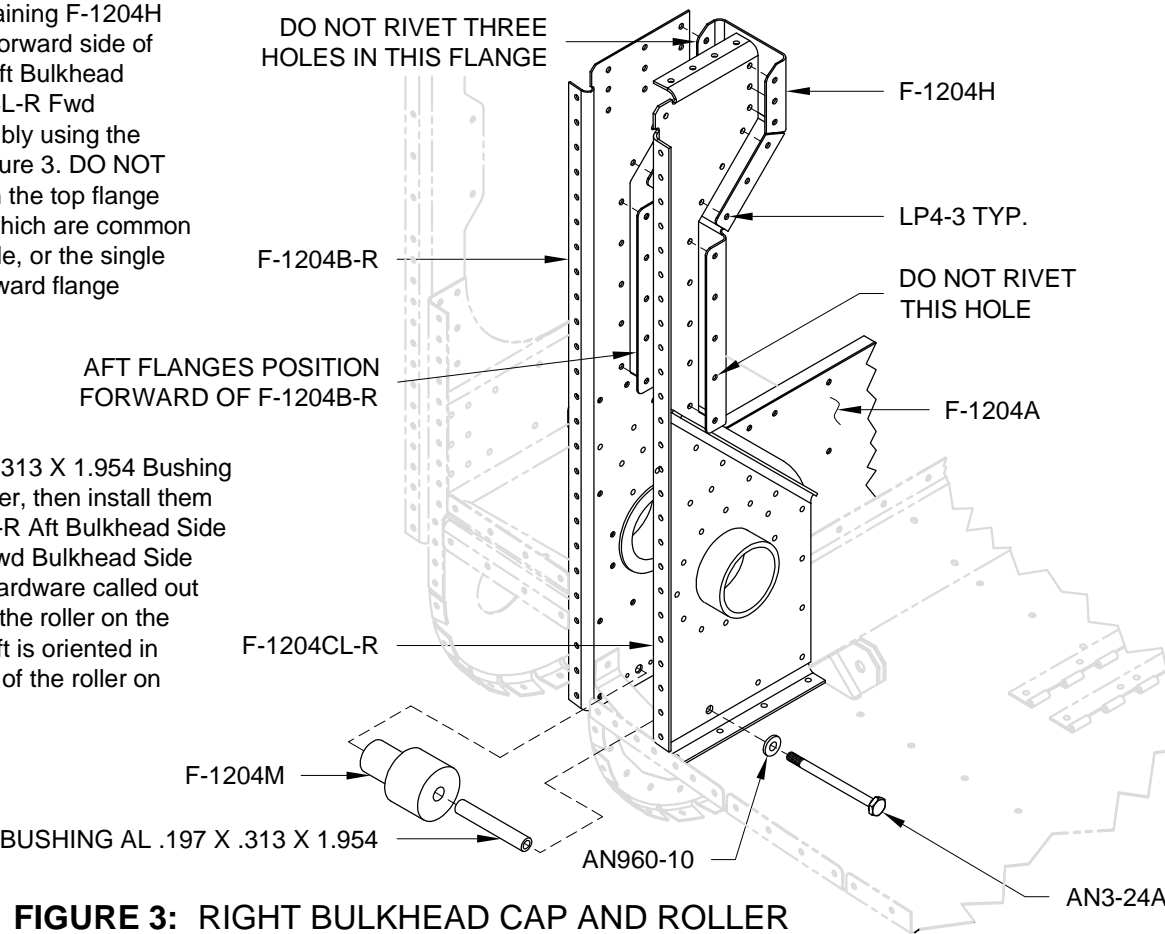
Step 3: Slide the BUSHING AL .197 X .313 X 1.954 Bushing into the F-1204M Roller, then install them between the F-1204B-L Aft Bulkhead Side and the F-1204CL-L Fwd Bulkhead Side Assembly using the hardware called out in Figure 2. The bolt is secured with the nutplate attached to the back of the F-1204A Center Section Bulkhead.

Step 4: Rivet the remaining F-1204H Bulkhead Cap to the forward side of both the F-1204B-R Aft Bulkhead Side and the F-1204CL-R Fwd Bulkhead Side Assembly using the rivets called out in Figure 3. DO NOT rivet the three holes in the top flange of the bulkhead cap which are common to the aft bulkhead side, or the single hole in the bottom forward flange indicated in the figure.

Step 5: Slide the BUSHING AL .197 X .313 X 1.954 Bushing into the F-1204M Roller, then install them between the F-1204B-R Aft Bulkhead Side and the F-1204C-R Fwd Bulkhead Side Assembly using the hardware called out in Figure 3. Note that the roller on the right side of the aircraft is oriented in the opposite direction of the roller on the left side.



**FIGURE 2: LEFT BULKHEAD CAP AND ROLLER**



**FIGURE 3: RIGHT BULKHEAD CAP AND ROLLER**



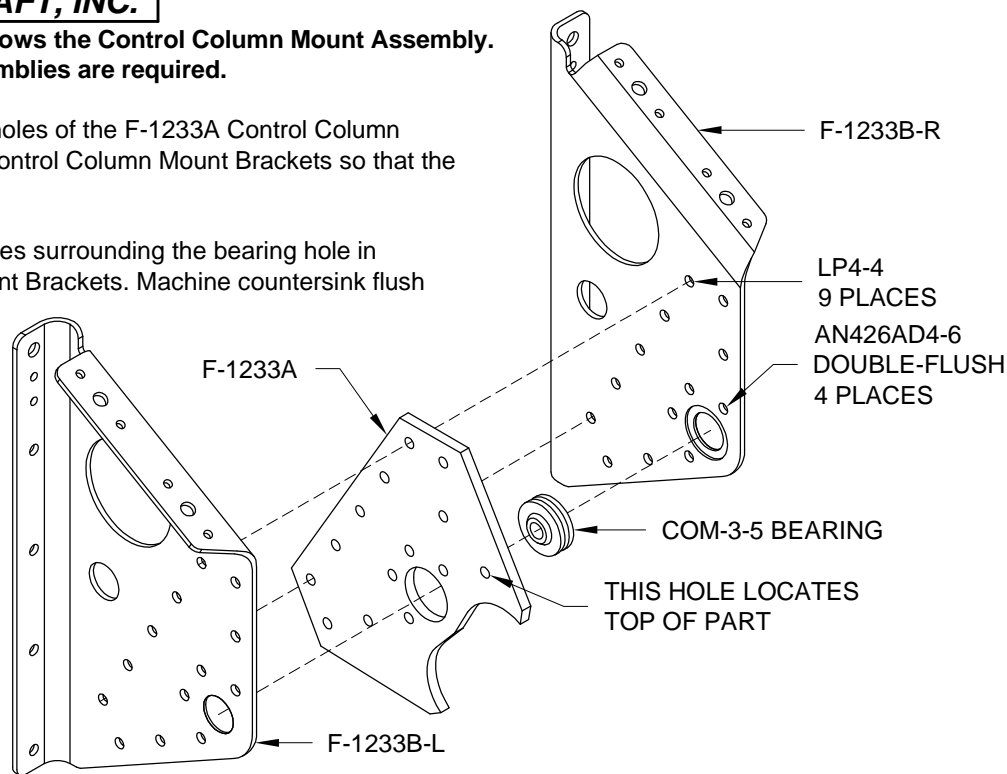
# VAN'S AIRCRAFT, INC.

**NOTE: Figure 1 shows the Control Column Mount Assembly. Two of these assemblies are required.**

**Step 1:** Carefully deburr the edges and holes of the F-1233A Control Column Mount Spacer and the F-1233B-L & -R Control Column Mount Brackets so that the parts will fit together tightly.

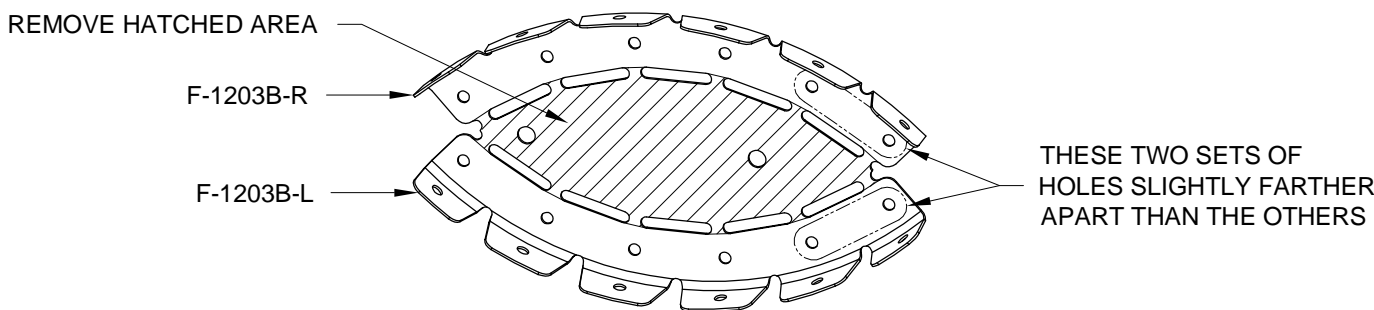
**Step 2:** Machine countersink the four holes surrounding the bearing hole in the F-1233B-L & -R Control Column Mount Brackets. Machine countersink flush on the outboard sides of both brackets for double-flush rivets. Machine countersink the two sets of nutplate attach rivet holes in the sloped flanges (flush on top).

**Step 3:** As shown in Figure 1, sandwich the bearing and the F-1233A Control Column Mount Spacer between the F-1233B-L & -R Control Column Mount Brackets, then rivet the parts together using the rivets called-out. The hole indicated in the control column mount spacer locates the top of the part.



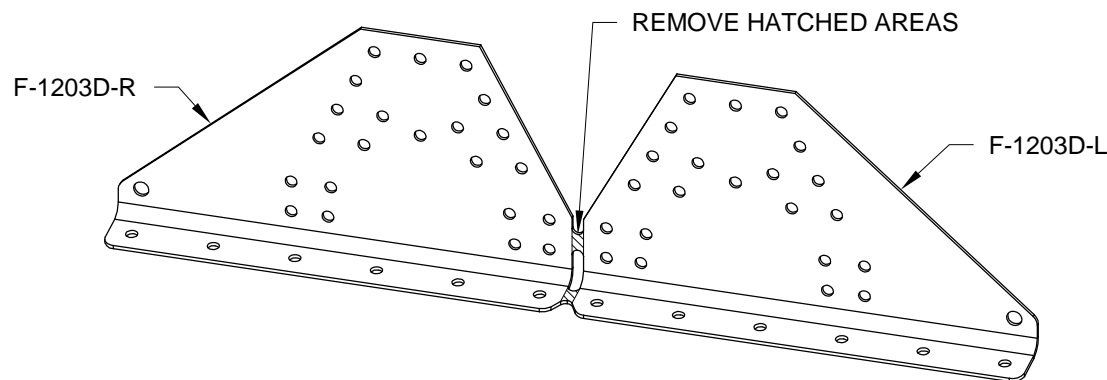
**FIGURE 1: CONTROL COLUMN MOUNT ASSEMBLY**  
TWO ASSEMBLIES REQUIRED

**Step 4:** Separate the F-1203B Bulkhead Flange by removing the hatched area shown in Figure 2.



**FIGURE 2: F-1203B BULKHEAD FLANGE**

**Step 5:** Separate the F-1203D Stub Spar Receptacle Support by removing the material shown in Figure 3.

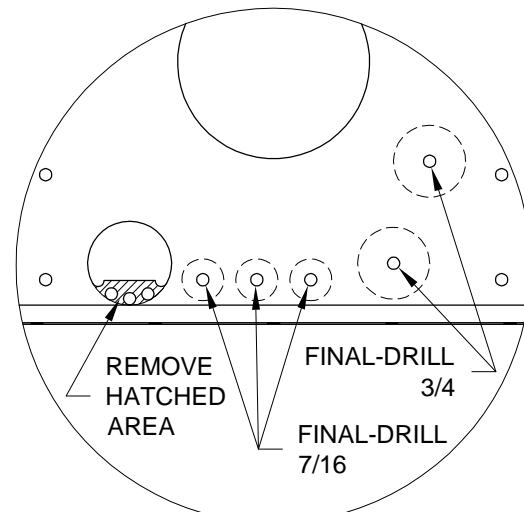


**FIGURE 3: F-1203D STUB SPAR RECEPTACLE SUPPORT**

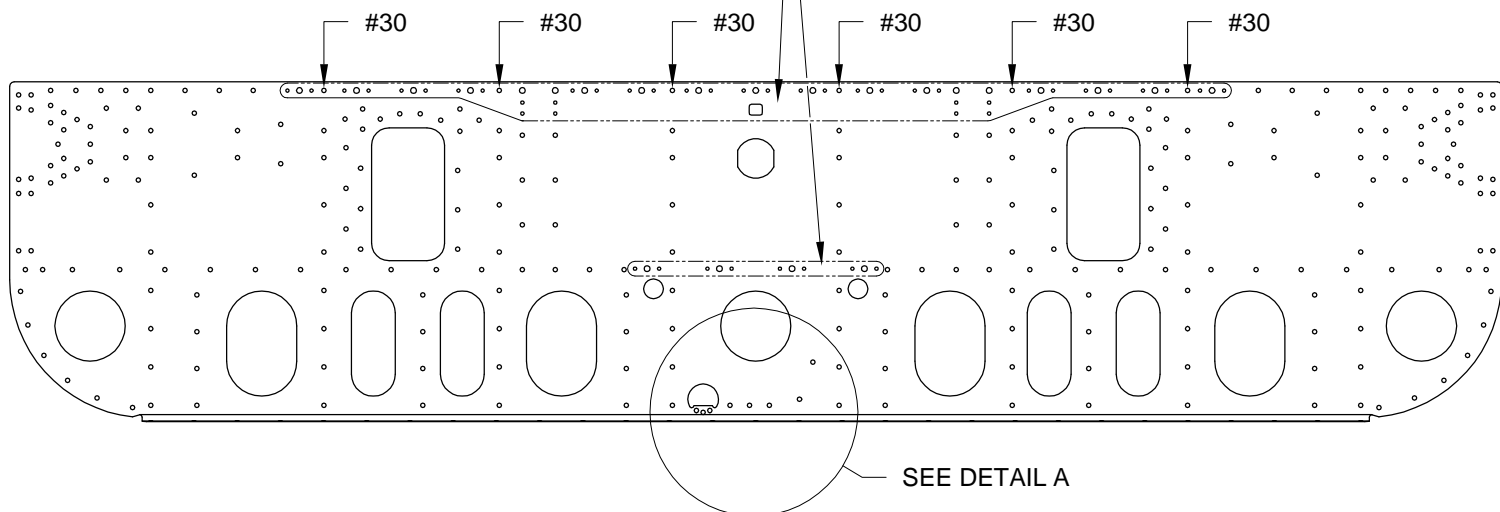
**Step 6:** Figure 4 depicts the forward face of the F-1203A Bulkhead. The bottom flange is bent back, into the page. Machine countersink all of the #40 nutplate attach rivet holes and the six #30 holes in the areas indicated. Machine countersink the #30 holes 120°.

**Step 7:** As shown in Detail A, drill the five 1/8 inch holes to the sizes indicated and remove the hatched area from the 7/8 inch hole to make it completely circular. The hatched area can be removed by snipping between the small holes using dikes / wire cutters, then finishing with a round file.

MACHINE COUNTERSINK, FLUSH ON THIS (FWD) SIDE, ALL #30 AND #40 HOLES IN THESE AREAS. DO NOT MACHINE COUNTERSINK THE #19 NUTPLATE SCREW HOLES



**DETAIL A**



**FIGURE 4: F-1203A BULKHEAD**

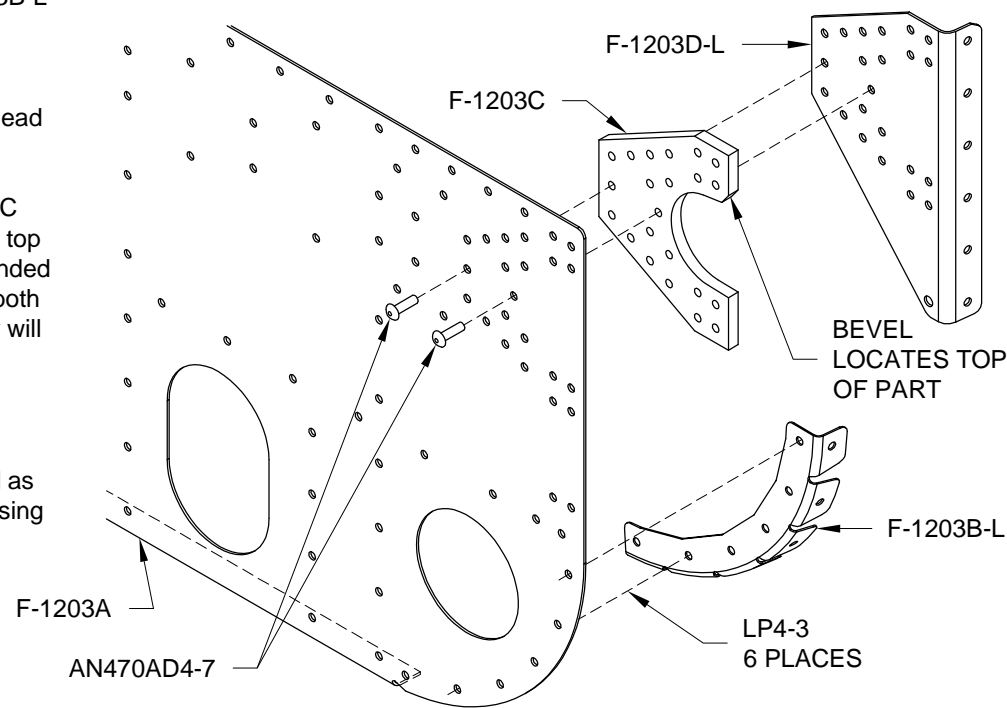
**Step 8:** As shown in Figure 5, rivet the F-1203B-L Bulkhead Flange to the left, aft side of the F-1203A Bulkhead using the rivets called out.

Repeat this step for the right side of the bulkhead using the F-1203B-R Bulkhead Flange.

**Step 9:** File the curved recess of both F-1203C Stub Spar Receptacles (the bevel locates the top of the part, see Figure 5) to closely fit the rounded mating ends of the Stub Spar Assemblies of both wings. Once filed, mark the parts so that they will be assembled on the side they were fitted to.

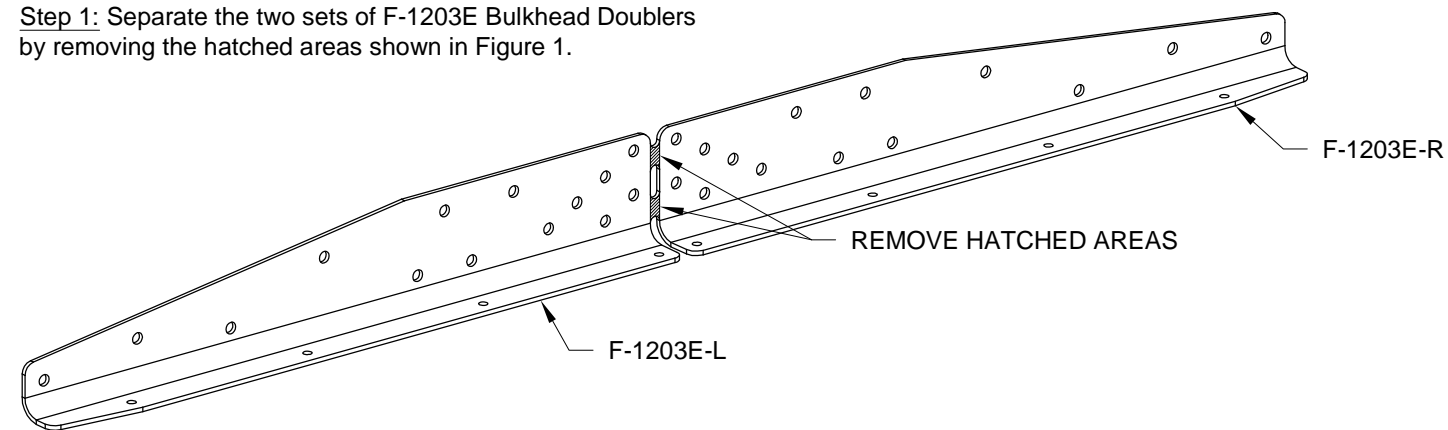
**Step 10:** Cleco the F-1203C Stub Spar Receptacle and the F-1203D-L Stub Spar Receptacle Support to the F-1203A Bulkhead as shown in Figure 5. Rivet the parts together using the two rivets called-out. Final-Drill #30 any holes too tight to accept a rivet.

Repeat this step for the right side of the bulkhead using the remaining F-1203C Stub Spar Receptacle and the F-1203D-R Stub Spar Receptacle Support.



**FIGURE 5: RIVETING THE F-1203A BULKHEAD**

Step 1: Separate the two sets of F-1203E Bulkhead Doublers by removing the hatched areas shown in Figure 1.



**FIGURE 1: F-1203E BULKHEAD DOUBLER**

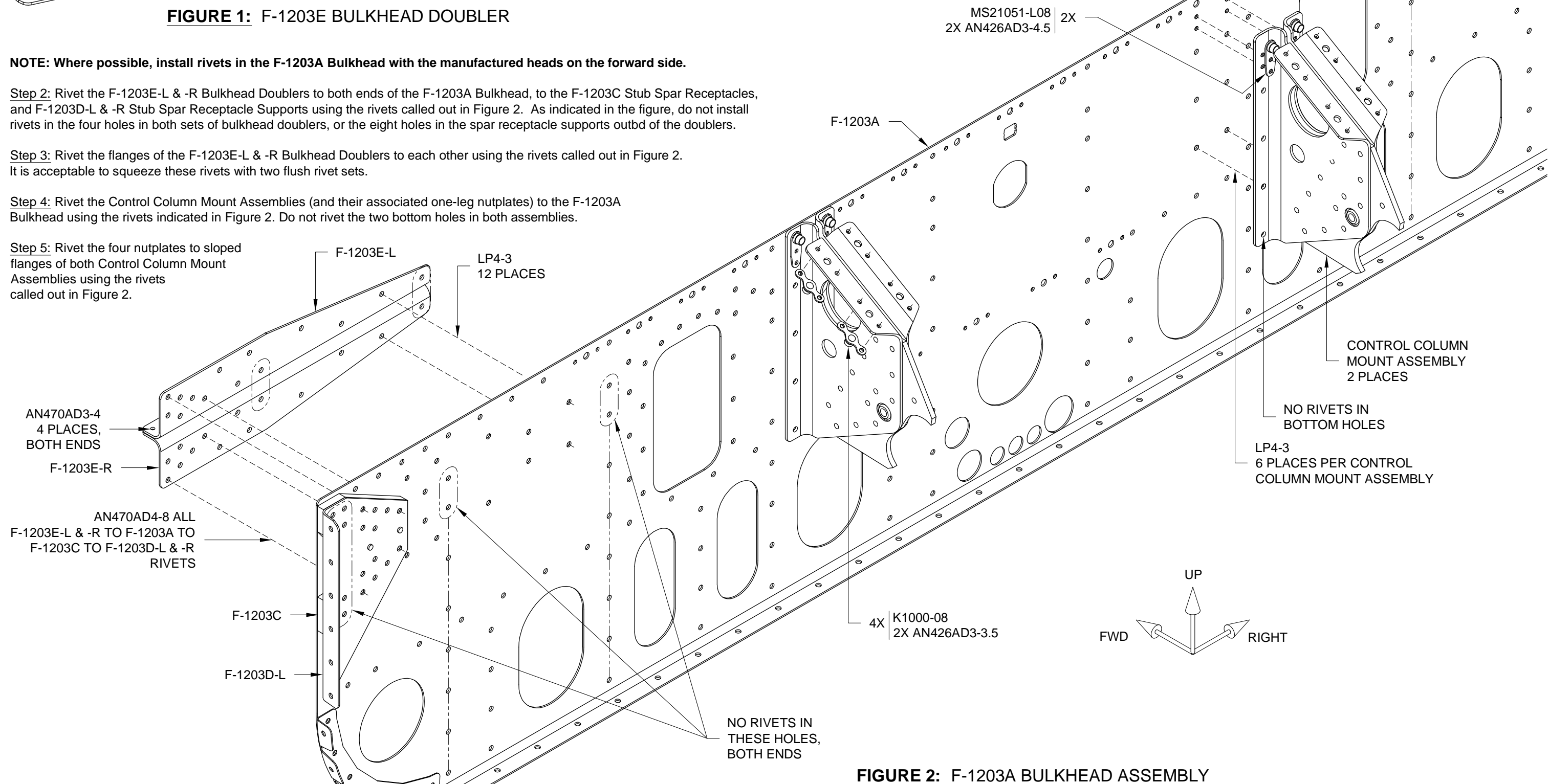
**NOTE:** Where possible, install rivets in the F-1203A Bulkhead with the manufactured heads on the forward side.

Step 2: Rivet the F-1203E-L & -R Bulkhead Doublers to both ends of the F-1203A Bulkhead, to the F-1203C Stub Spar Receptacles, and F-1203D-L & -R Stub Spar Receptacle Supports using the rivets called out in Figure 2. As indicated in the figure, do not install rivets in the four holes in both sets of bulkhead doublers, or the eight holes in the spar receptacle supports outbd of the doublers.

Step 3: Rivet the flanges of the F-1203E-L & -R Bulkhead Doublers to each other using the rivets called out in Figure 2. It is acceptable to squeeze these rivets with two flush rivet sets.

Step 4: Rivet the Control Column Mount Assemblies (and their associated one-leg nutplates) to the F-1203A Bulkhead using the rivets indicated in Figure 2. Do not rivet the two bottom holes in both assemblies.

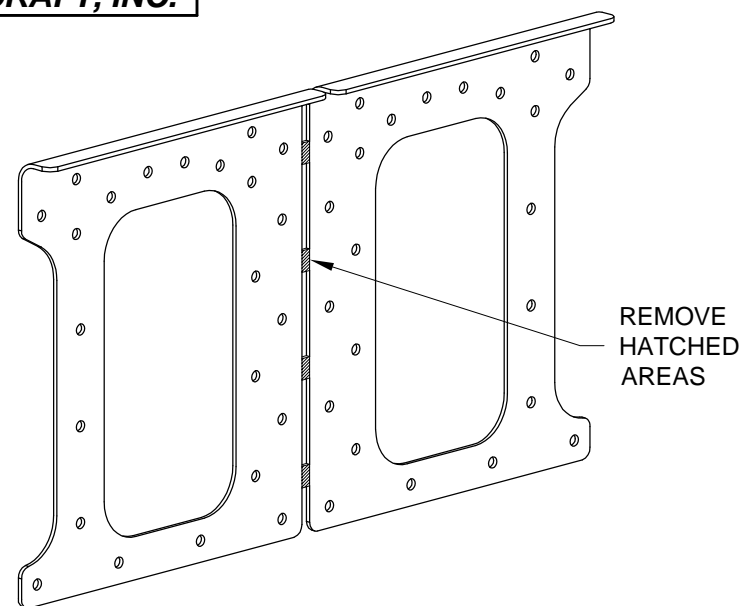
Step 5: Rivet the four nutplates to sloped flanges of both Control Column Mount Assemblies using the rivets called out in Figure 2.



**FIGURE 2: F-1203A BULKHEAD ASSEMBLY**



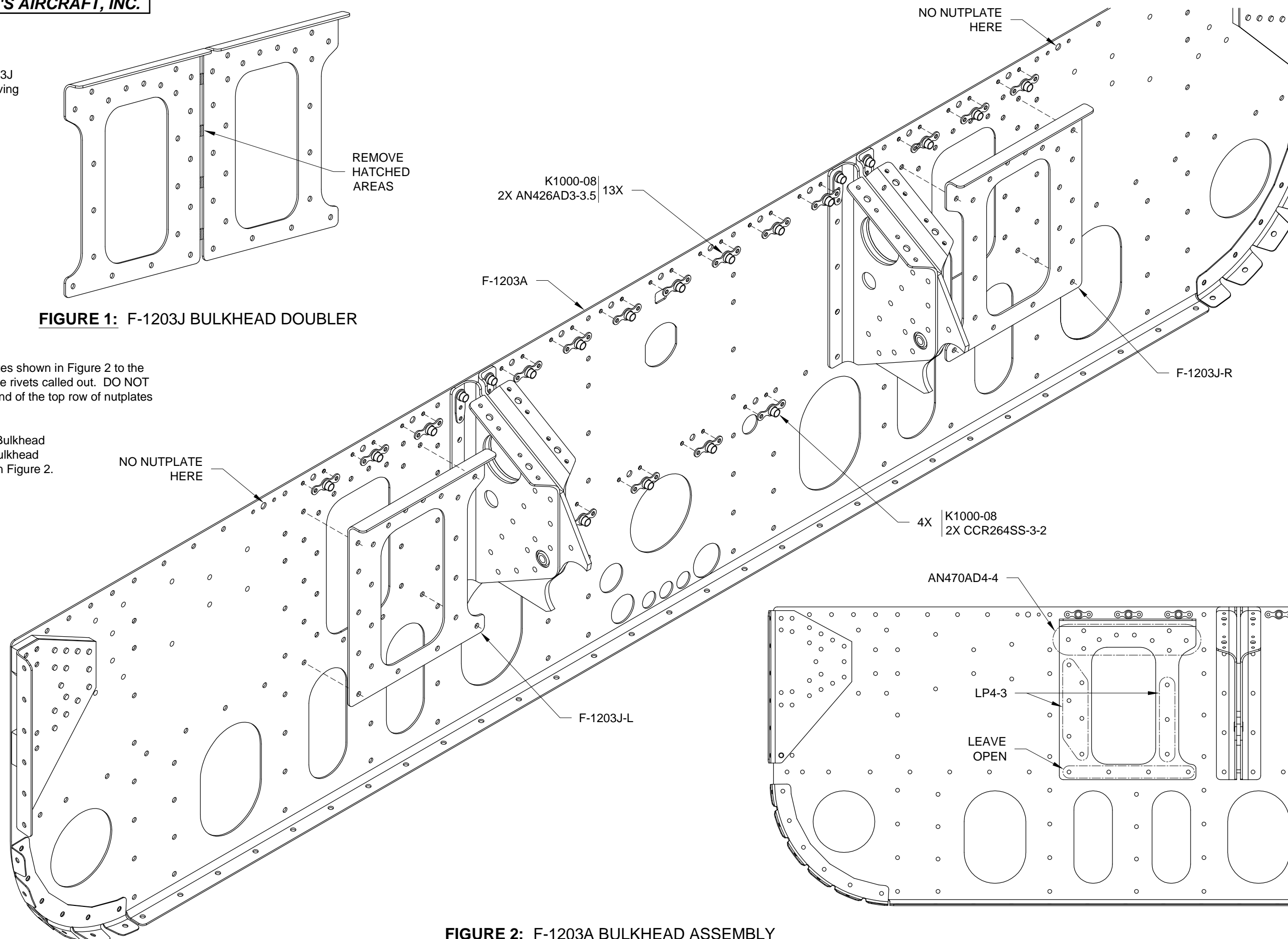
Step 1: Separate the F-1203J Bulkhead Doubler by removing the hatched areas shown in Figure 1.



**FIGURE 1: F-1203J BULKHEAD DOUBLER**

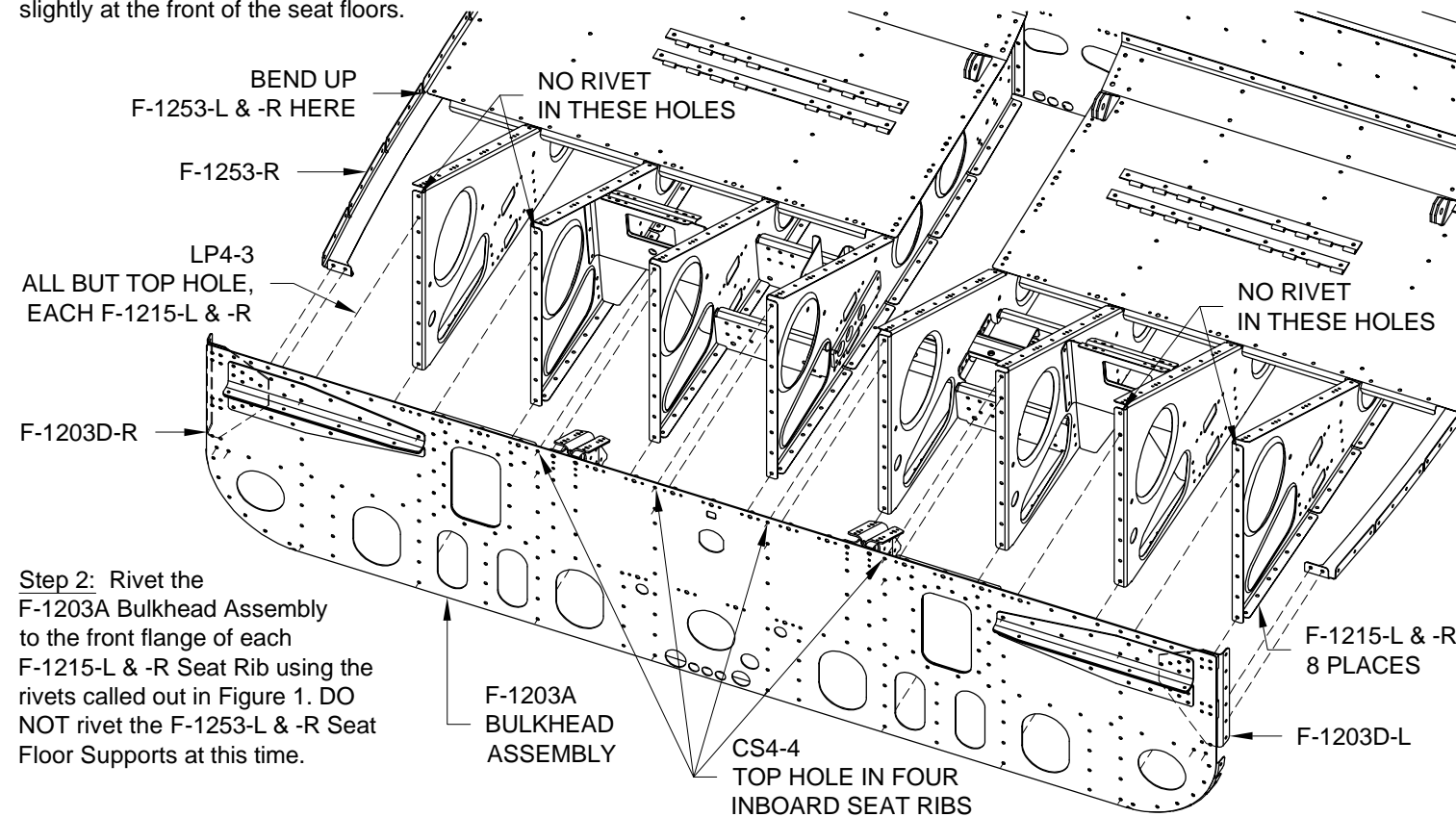
Step 2: Rivet the 17 nutplates shown in Figure 2 to the F-1203A Bulkhead using the rivets called out. DO NOT install a nutplate at either end of the top row of nutplates as indicated in the figure.

Step 3: Rivet the F-1203J Bulkhead Doublers to the F-1203A Bulkhead using the rivets called out in Figure 2.



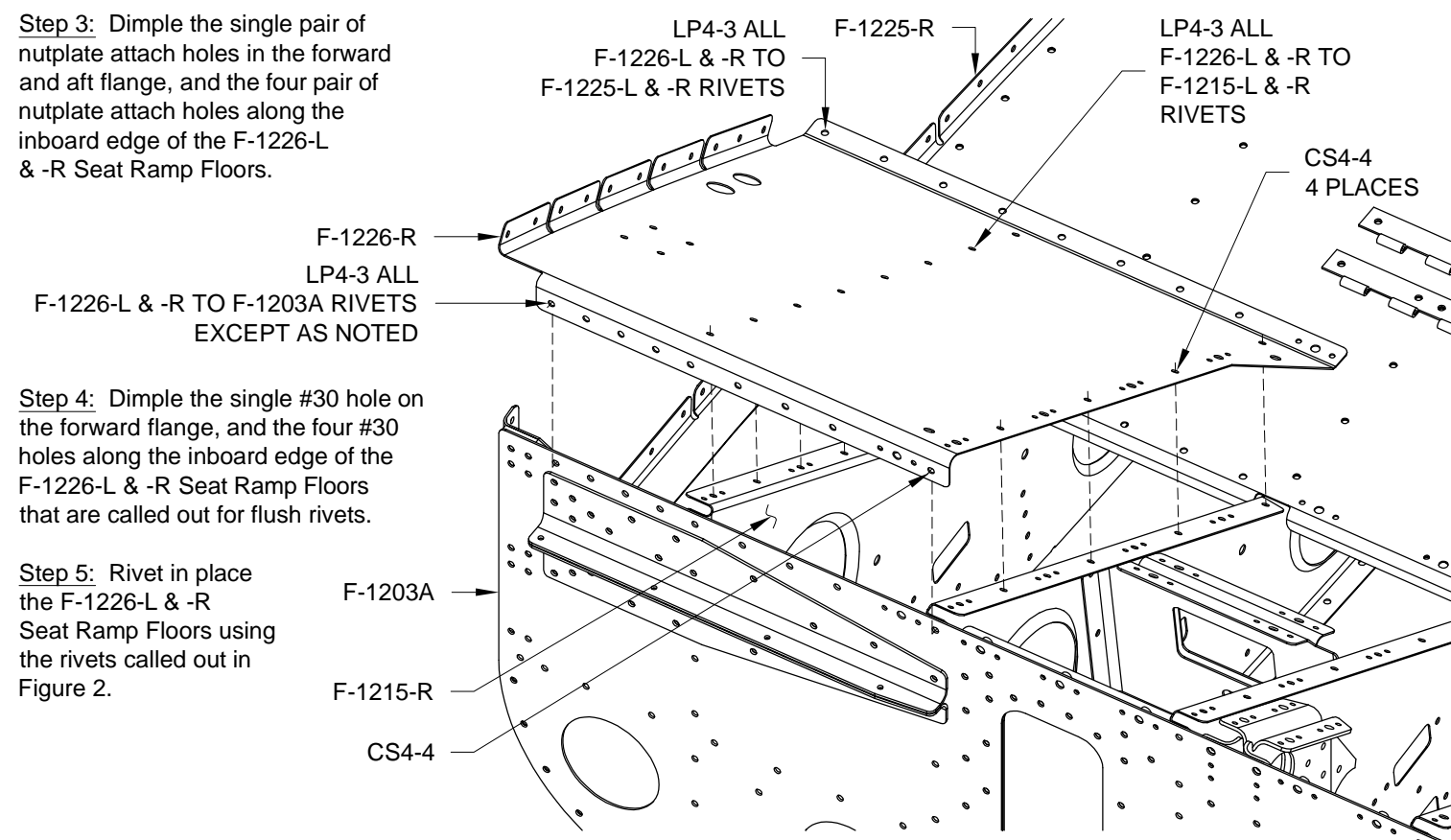
**FIGURE 2: F-1203A BULKHEAD ASSEMBLY**

Step 1: Cleco the F-1203A Bulkhead Assembly to the front flange of the F-1215-L & -R Seat Ribs and to the front flange of the F-1253-L & -R Seat Floor Supports. In order to align the holes in the seat floor supports with their corresponding holes in the F-1203A Bulkhead Assembly (the holes just below the F-1203D-L & -R Stub Spar Supports), the seat floor supports need to be bent up slightly at the front of the seat floors.



**FIGURE 1: RIVETING THE F-1203A BULKHEAD ASSEMBLY**

Step 3: Dimple the single pair of nutplate attach holes in the forward and aft flange, and the four pair of nutplate attach holes along the inboard edge of the F-1226-L & -R Seat Ramp Floors.



**FIGURE 2: ATTACHING THE SEAT RAMP FLOORS**

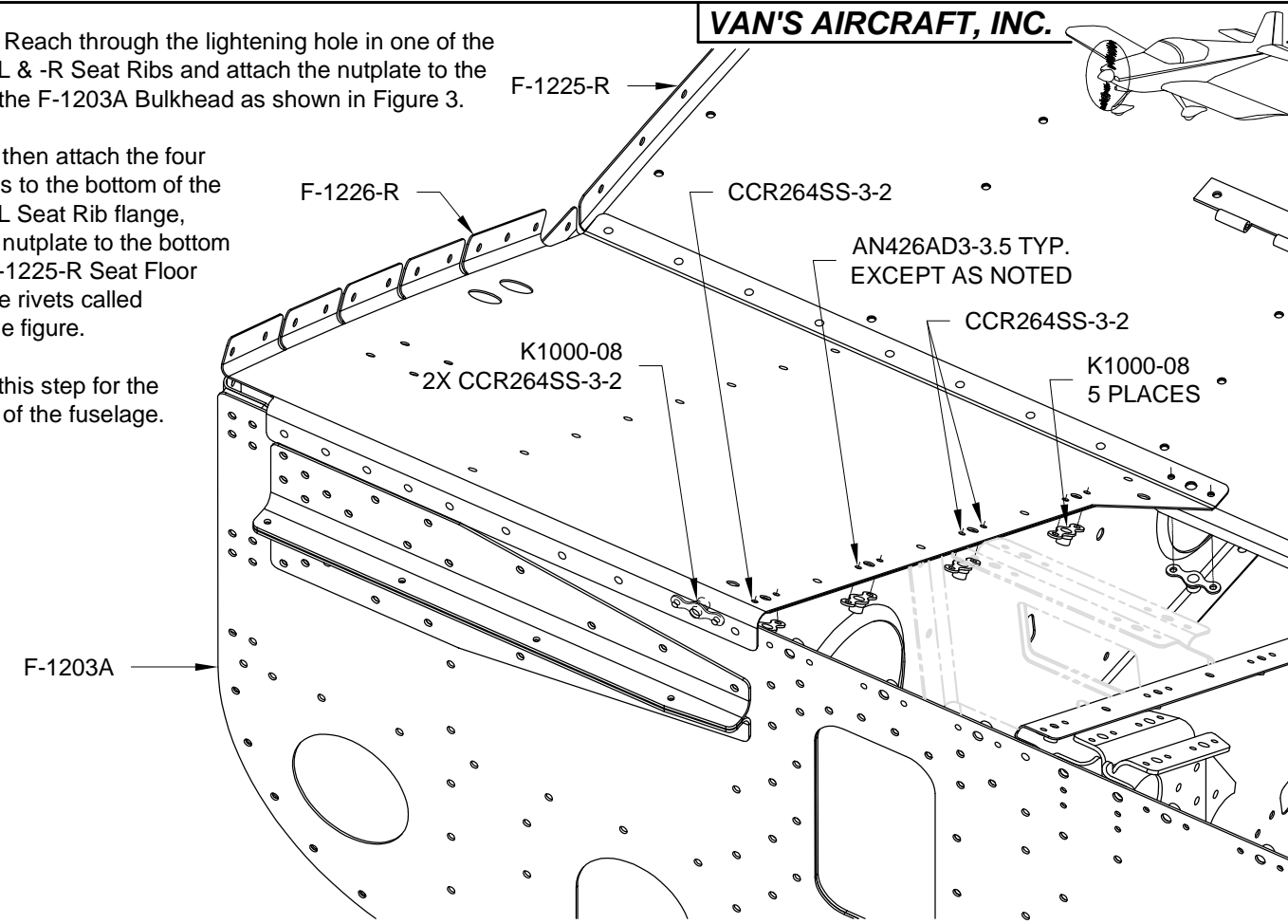
Step 4: Dimple the single #30 hole on the forward flange, and the four #30 holes along the inboard edge of the F-1226-L & -R Seat Ramp Floors that are called out for flush rivets.

Step 5: Rivet in place the F-1226-L & -R Seat Ramp Floors using the rivets called out in Figure 2.

Step 6: Reach through the lightening hole in one of the F-1215-L & -R Seat Ribs and attach the nutplate to the back of the F-1203A Bulkhead as shown in Figure 3.

Dimple, then attach the four nutplates to the bottom of the F-1215-L Seat Rib flange, and the nutplate to the bottom of the F-1225-R Seat Floor using the rivets called out in the figure.

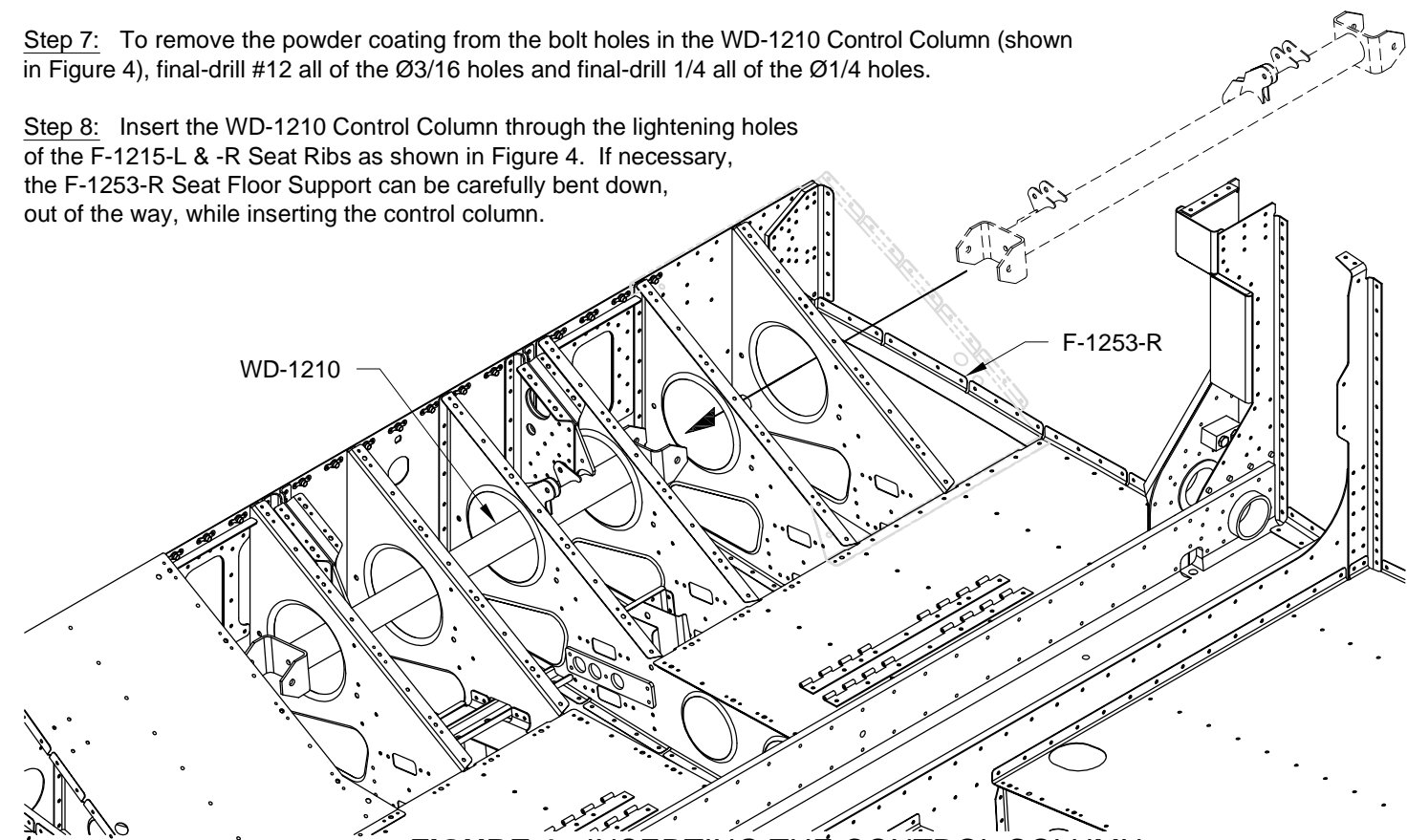
Repeat this step for the left side of the fuselage.



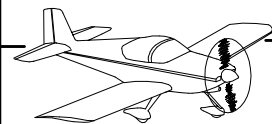
**FIGURE 3: ATTACHING NUTPLATES**

Step 7: To remove the powder coating from the bolt holes in the WD-1210 Control Column (shown in Figure 4), final-drill #12 all of the Ø3/16 holes and final-drill 1/4 all of the Ø1/4 holes.

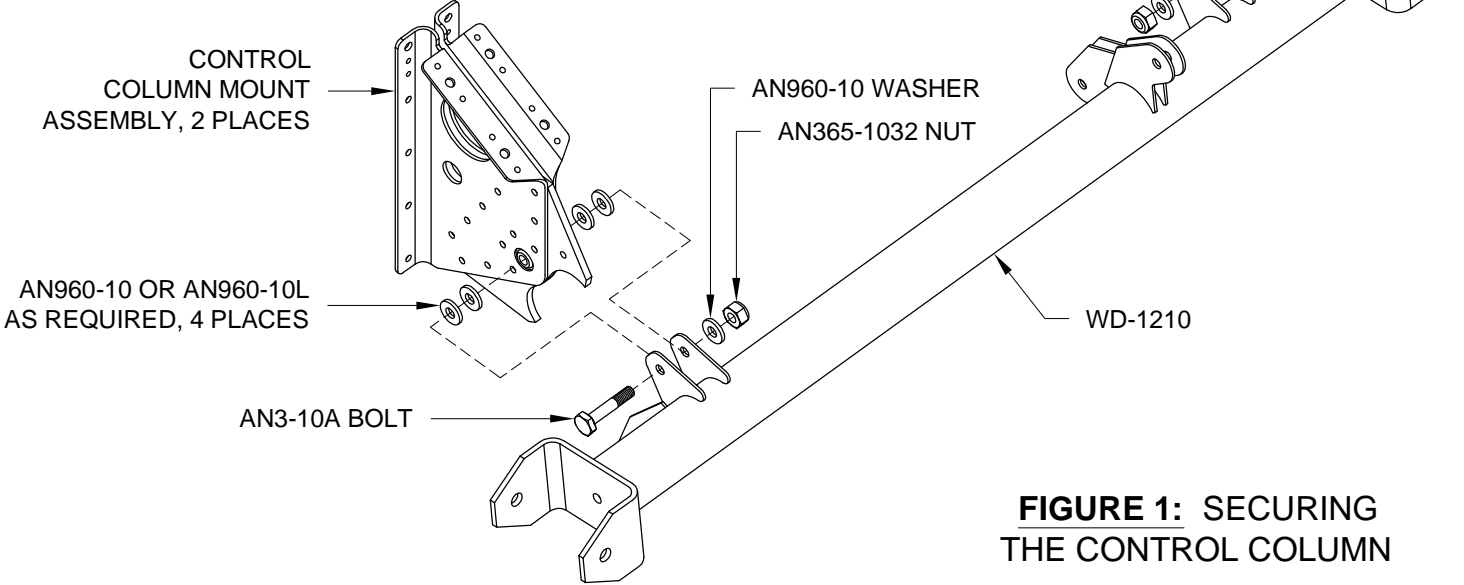
Step 8: Insert the WD-1210 Control Column through the lightening holes of the F-1215-L & -R Seat Ribs as shown in Figure 4. If necessary, the F-1253-R Seat Floor Support can be carefully bent down, out of the way, while inserting the control column.



**FIGURE 4: INSERTING THE CONTROL COLUMN**  
CROTCH STRAP BRACKETS NOT SHOWN FOR CLARITY



**Step 1:** Secure the WD-1210 Control Column to the two Control Column Mount Assemblies using the hardware called out in Figure 1. Hardware call-outs are symmetrical about the fuselage centerline. Small tabs of tape can be used to hold the pairs of washers during installation.

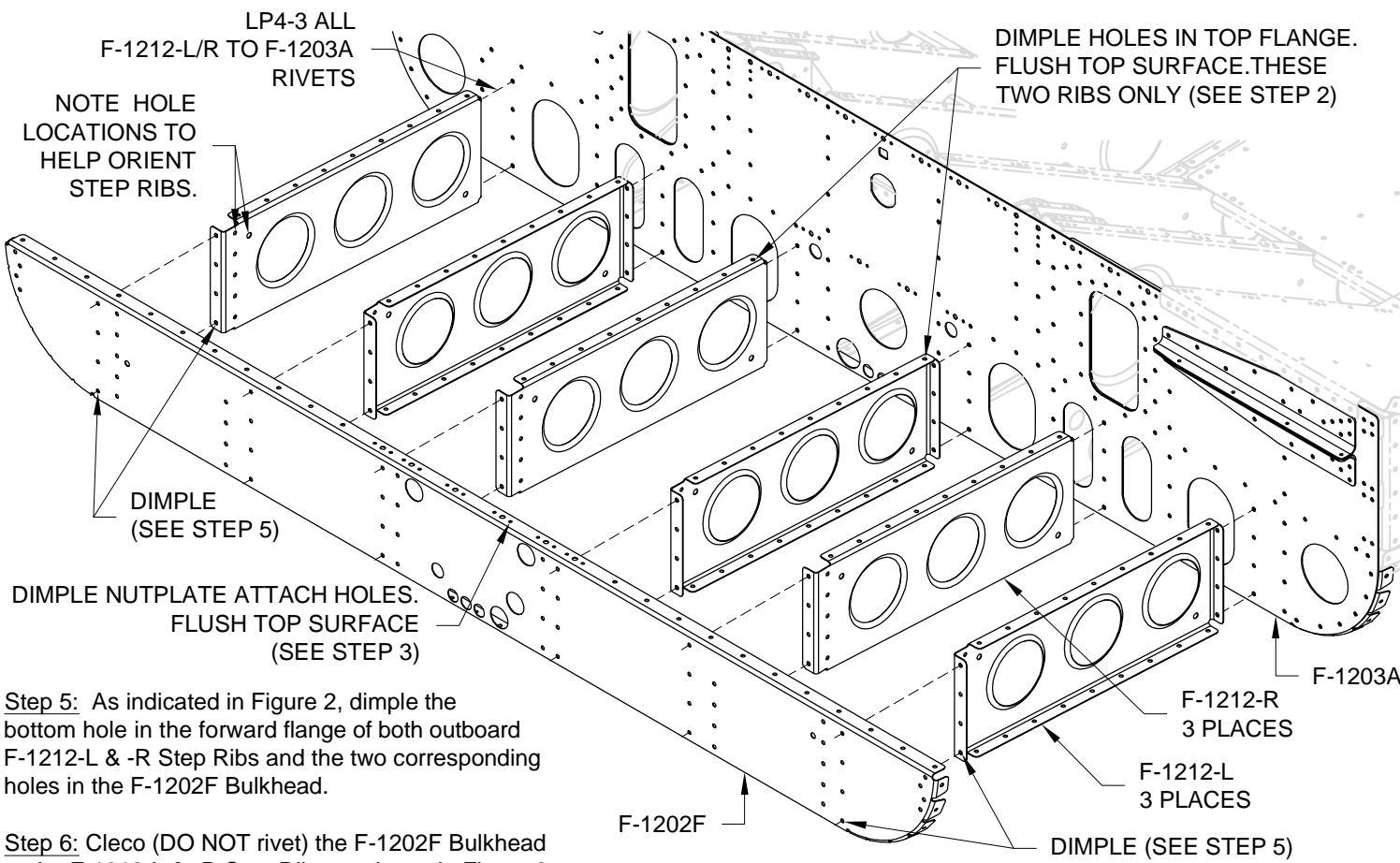


**FIGURE 1: SECURING THE CONTROL COLUMN**

**Step 2:** Dimple the holes in the top flange of both inboard F-1212-L & -R Step Ribs indicated in Figure 2.

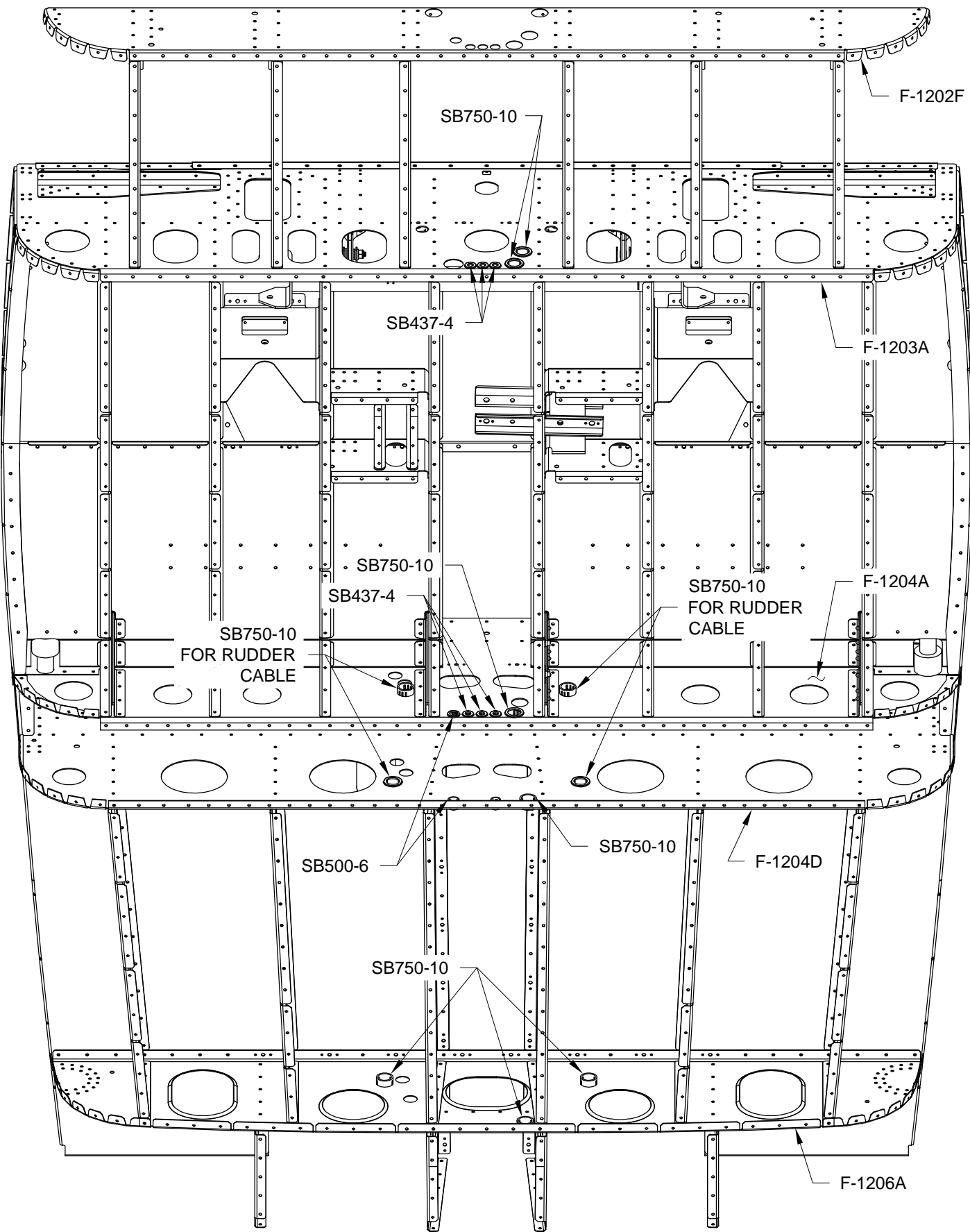
**Step 3:** Dimple the six sets of nutplate attach rivet holes in the top flange of the F-1202F Bulkhead.

**Step 4:** Rivet the F-1212-L & -R Step Ribs to the F-1203A Bulkhead using the rivets called out in Figure 2.



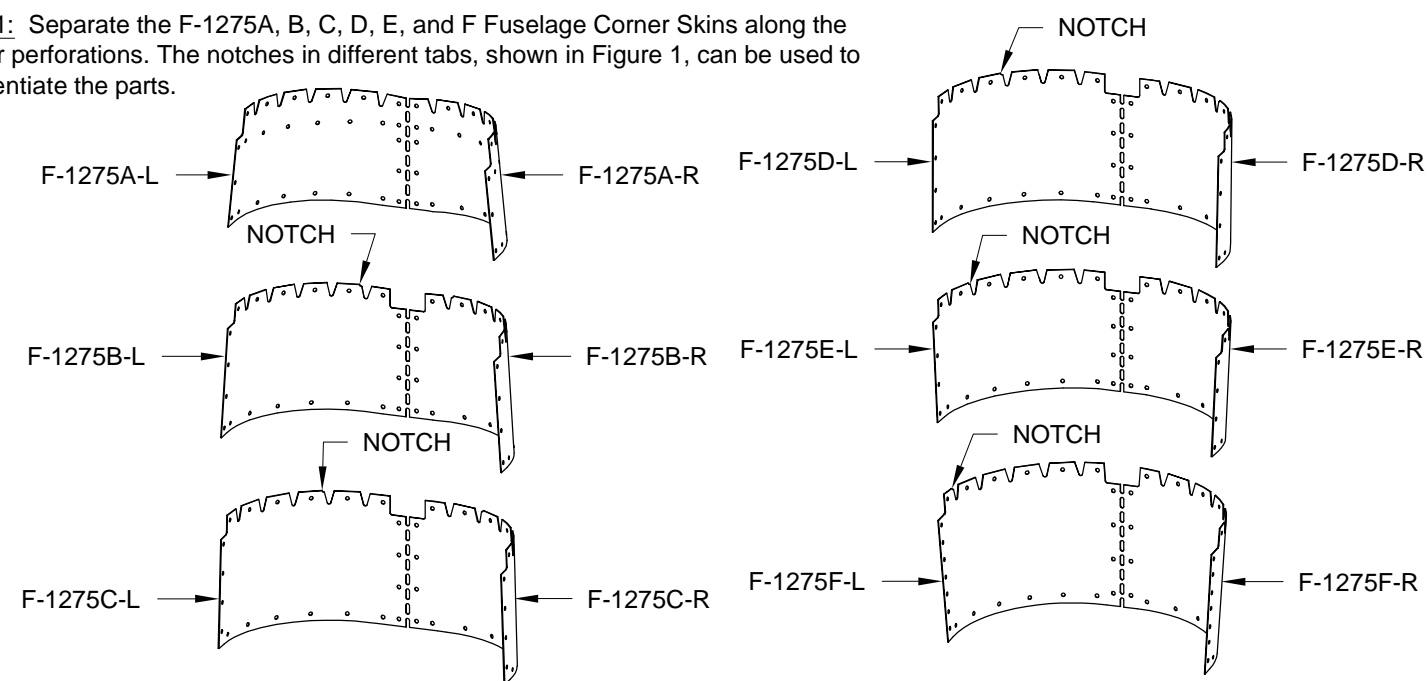
**FIGURE 2: RIVETING THE STEP RIBS**

**Step 7:** Figure 3 shows a bottom view of the fuselage. Install the snap bushings that are called out into the holes of the bulkheads as shown.



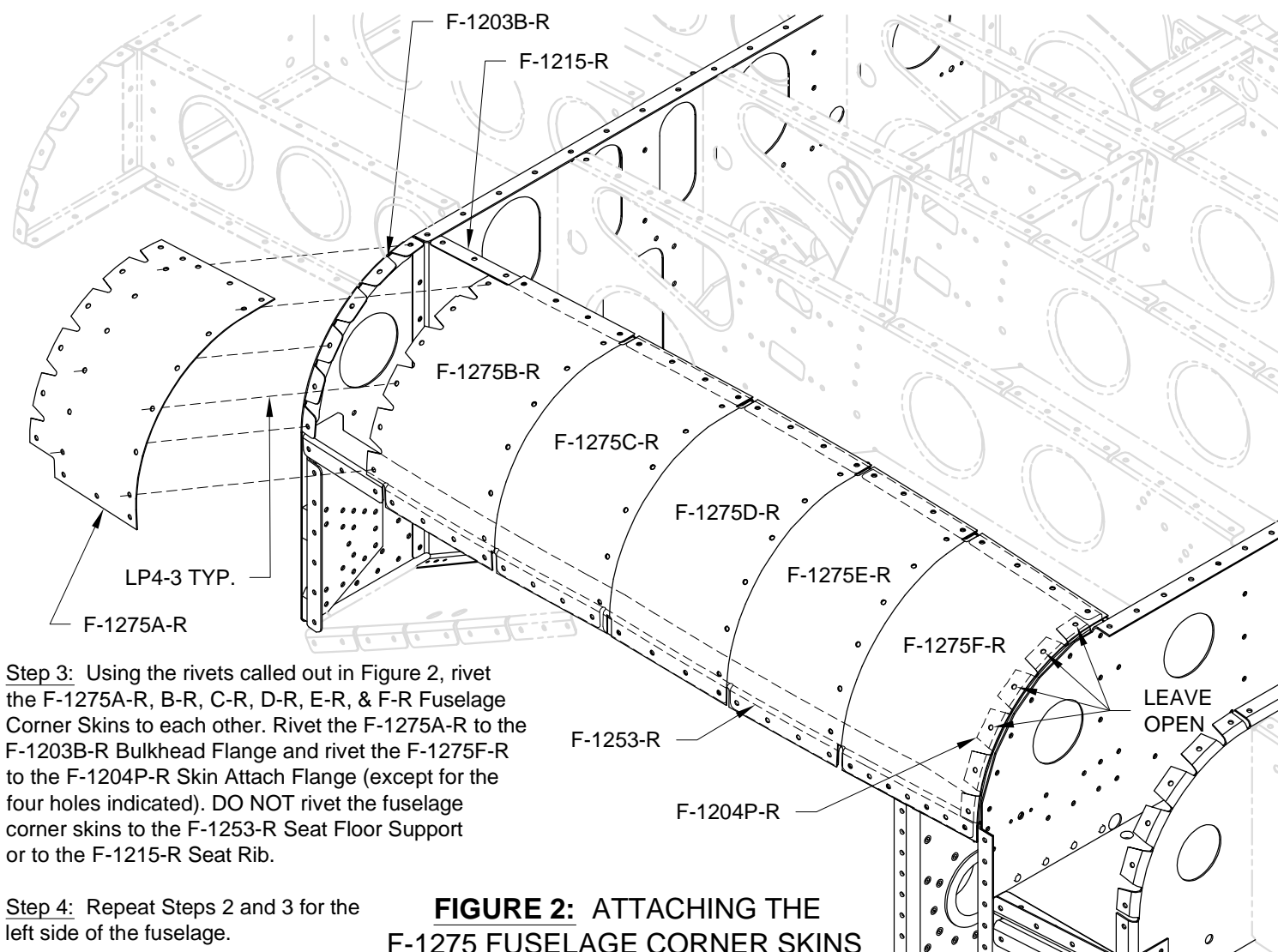
**FIGURE 3: INSTALLING SNAP BUSHINGS**

**Step 1:** Separate the F-1275A, B, C, D, E, and F Fuselage Corner Skins along the center perforations. The notches in different tabs, shown in Figure 1, can be used to differentiate the parts.



**FIGURE 1: SEPARATING THE F-1275 FUSELAGE CORNER SKINS**

**Step 2:** Turn the fuselage upside-down on a pair of saw horses. As shown in Figure 2, cleco the F-1275F-R Fuselage Corner Skin to the F-1253-R Seat Floor Support, the F-1215-R Seat Rib, and the F-1204P-R Skin Attach Flange. Then, one after the other, cleco in place the F-1275E-R, D-R, C-R, B-R, & A-R Fuselage Corner Skins as shown.



**Step 3:** Using the rivets called out in Figure 2, rivet the F-1275A-R, B-R, C-R, D-R, E-R, & F-R Fuselage Corner Skins to each other. Rivet the F-1275A-R to the F-1203B-R Bulkhead Flange and rivet the F-1275F-R to the F-1204P-R Skin Attach Flange (except for the four holes indicated). DO NOT rivet the fuselage corner skins to the F-1253-R Seat Floor Support or to the F-1215-R Seat Rib.

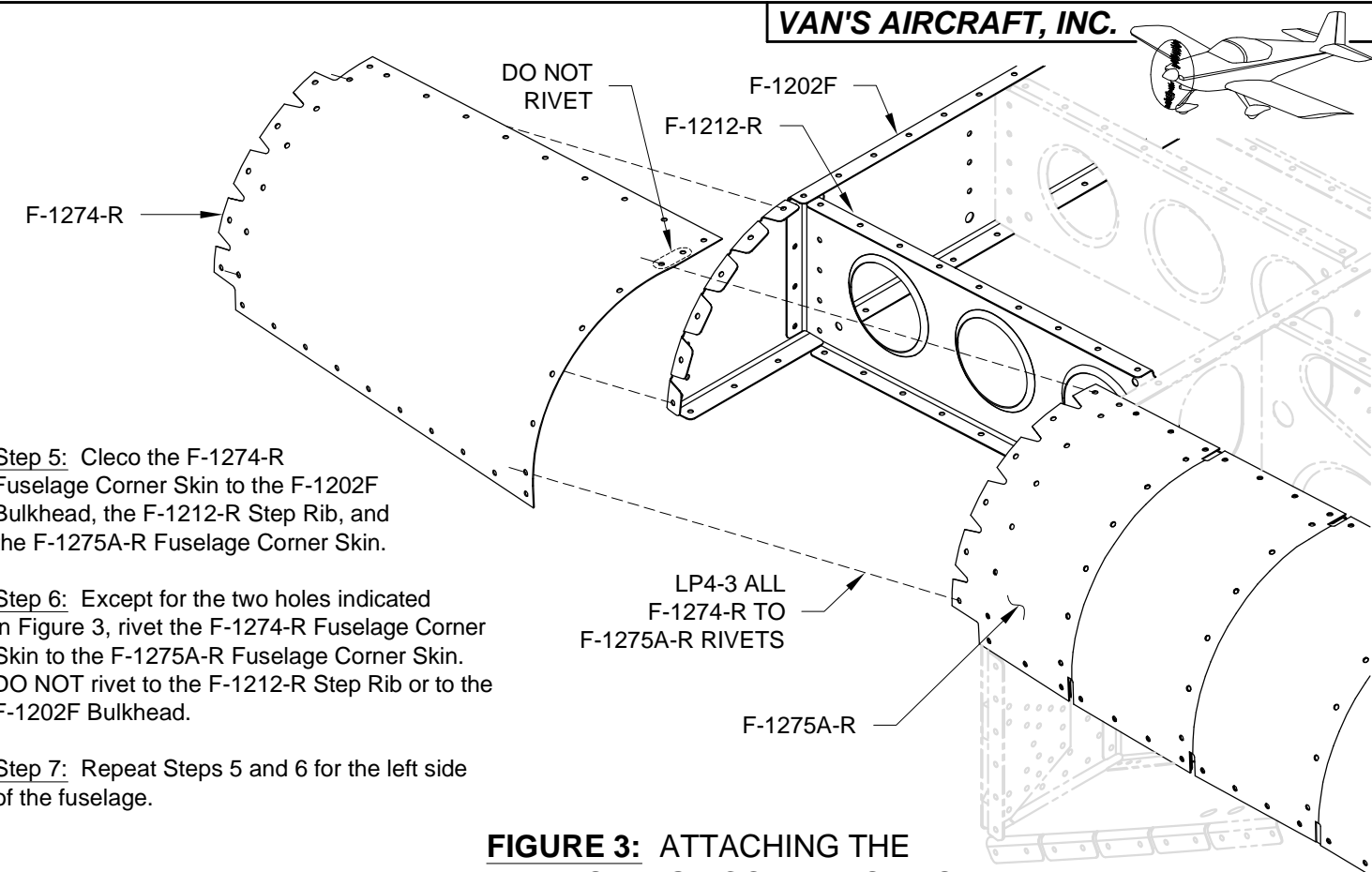
**Step 4:** Repeat Steps 2 and 3 for the left side of the fuselage.

**FIGURE 2: ATTACHING THE F-1275 FUSELAGE CORNER SKINS**

**Step 5:** Cleco the F-1274-R Fuselage Corner Skin to the F-1202F Bulkhead, the F-1212-R Step Rib, and the F-1275A-R Fuselage Corner Skin.

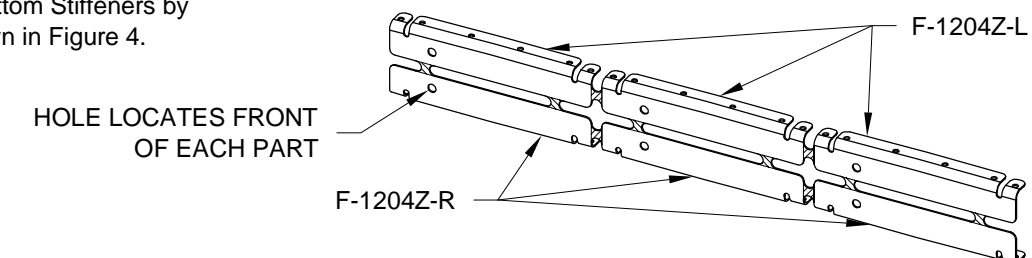
**Step 6:** Except for the two holes indicated in Figure 3, rivet the F-1274-R Fuselage Corner Skin to the F-1275A-R Fuselage Corner Skin. DO NOT rivet to the F-1212-R Step Rib or to the F-1202F Bulkhead.

**Step 7:** Repeat Steps 5 and 6 for the left side of the fuselage.



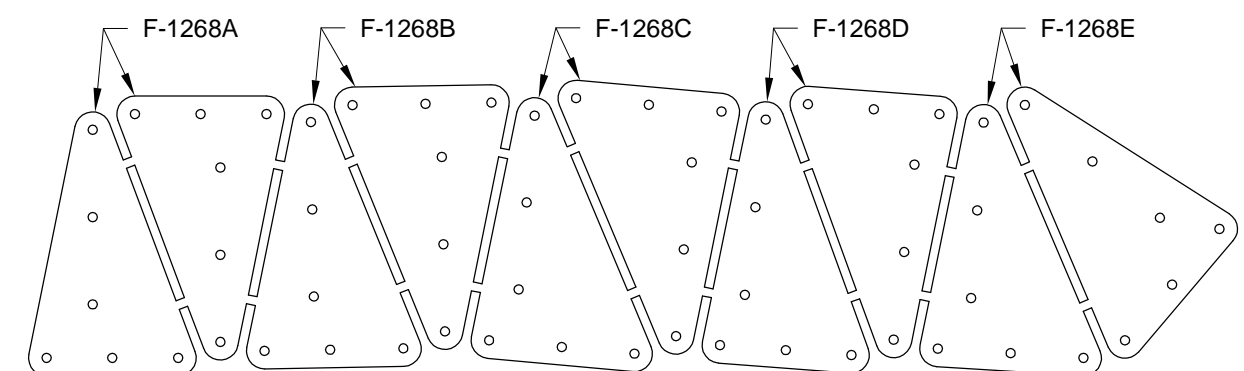
**FIGURE 3: ATTACHING THE F-1274 FUSELAGE CORNER SKINS**

**Step 8:** Separate the F-1204Z Bottom Stiffeners by removing the hatched areas shown in Figure 4.

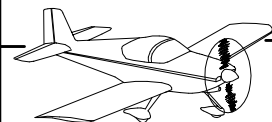


**FIGURE 4: SEPARATING THE F-1204Z BOTTOM STIFFENERS**

**Step 9:** Mark each part, then separate the F-1268A,B,C,D, & E Doublers shown in Figure 5.



**FIGURE 5: SEPARATING THE F-1268 DOUBLERS**



Step 1: Dimple the four sets of nutplate attach rivet holes around each access hole in the F-1276 Bottom Skin depicted in Figure 1.

CLECO BUT DO NOT RIVET HOLES IN THIS AREA

F-1276

LP4-3 TYP.

FWD

DOWN

LEFT

F-1268A

F-1268B

F-1268C

F-1204Z-L

K1000-08  
2X AN426AD3-3.5  
4 PLACES PER ACCESS HOLE

F-1268B

F-1268A

F-1268D

F-1268E

F-1268D

F-1204A

F-1204Z-R

Step 2: Dimple the twenty nutplates called out in Figure 1, then rivet them around each access hole in the F-1276 Bottom Skin.

Step 3: Break the edges along both sides of the F-1276 Bottom Skin.

Step 4: Cleco the F-1276 Bottom Skin to the fuselage.

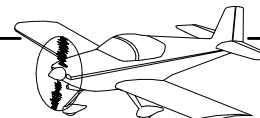
Step 5: Reach through the openings in the sides of the fuselage or through the access holes in the F-1276 Bottom Skin, then cleco the F-1204Z-L & -R Bottom Stiffeners to the bottom skin as shown in Figure 1. The hole in the vertical flange of the bottom stiffeners locates the front of the part.

Step 6: Cleco the F-1268A,B,C,D, & E Doublers to the F-1276 Bottom Skin, to the F-1204Z-L & -R Bottom Stiffeners, and to the F-1204A & D Center Section Bulkhead flanges.

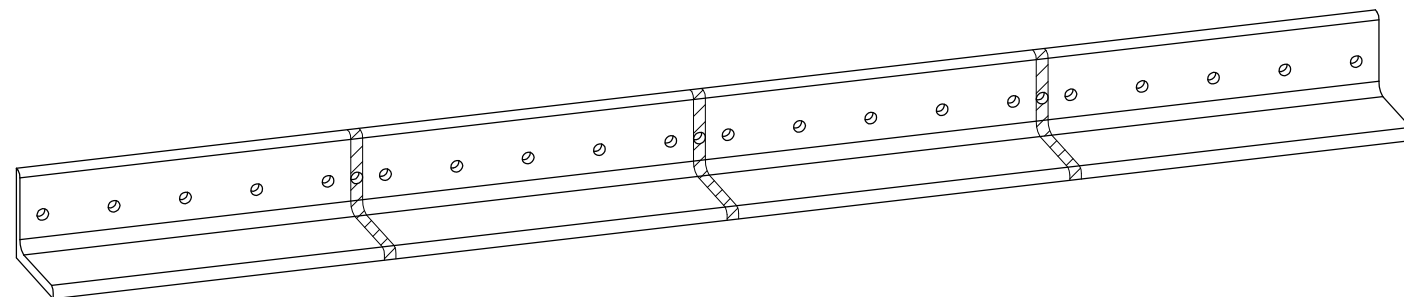
Step 7: Except for the holes indicated in Figure 1, rivet in place the F-1268A,B,C,D, & E Doublers, the F-1204Z-L & -R Bottom Stiffeners, and the F-1276 Bottom Skin using the rivets called out in the figure.

CLECO BUT DO NOT RIVET HOLES IN THESE AREAS

**FIGURE 1: RIVETING  
THE BOTTOM SKIN**



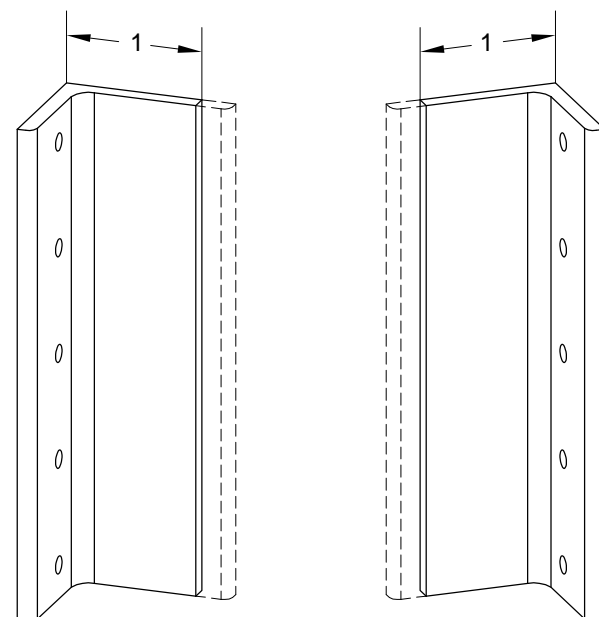
Step 1: Separate the F-1236 Step Attach Angles by removing the hatched areas shown in Figure 1.



**FIGURE 1: SEPARATE THE F-1236 STEP ATTACH ANGLES**

Step 2: As shown in Figure 2, make the F-1236B-L & -R Outbd Step Attach Angles by trimming the flanges of two of the angles separated in Step 1. (At this point these two parts are identical, but will become left and right once they are drilled in a later step.)

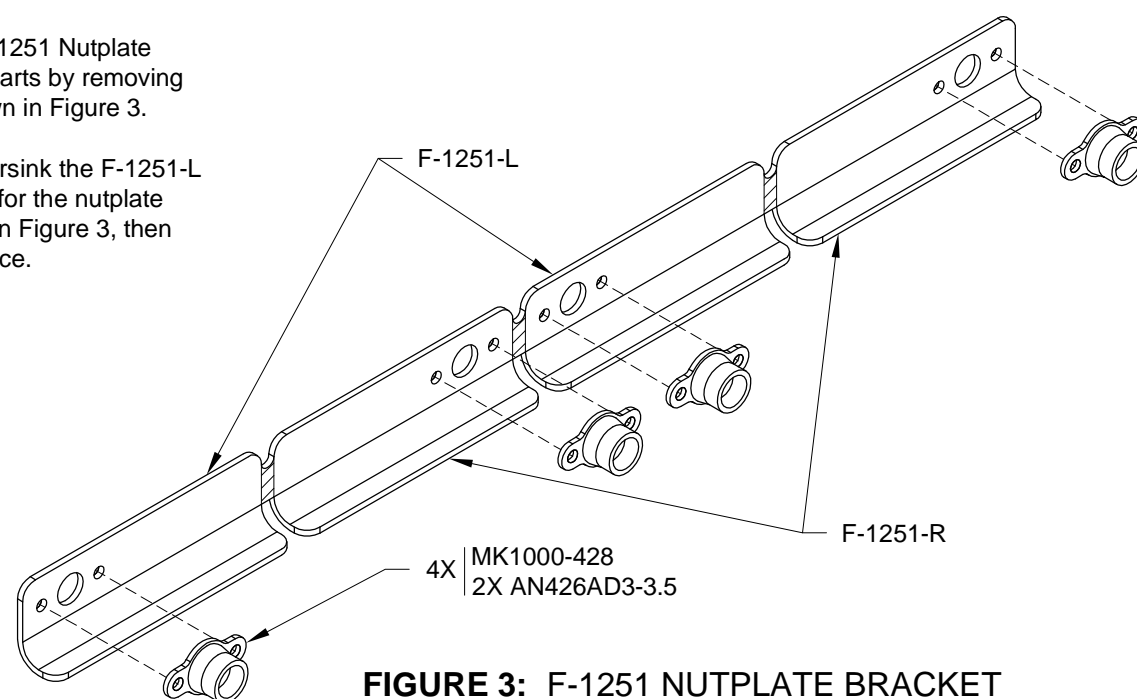
The two, remaining, untrimmed angles separated in Step 1 are designated F-1236A-L & -R Inbd Step Attach Angles.



**FIGURE 2: F-1236B OUTBD STEP ATTACH ANGLES**

Step 3: Separate the F-1251 Nutplate Bracket into individual parts by removing the hatched areas shown in Figure 3.

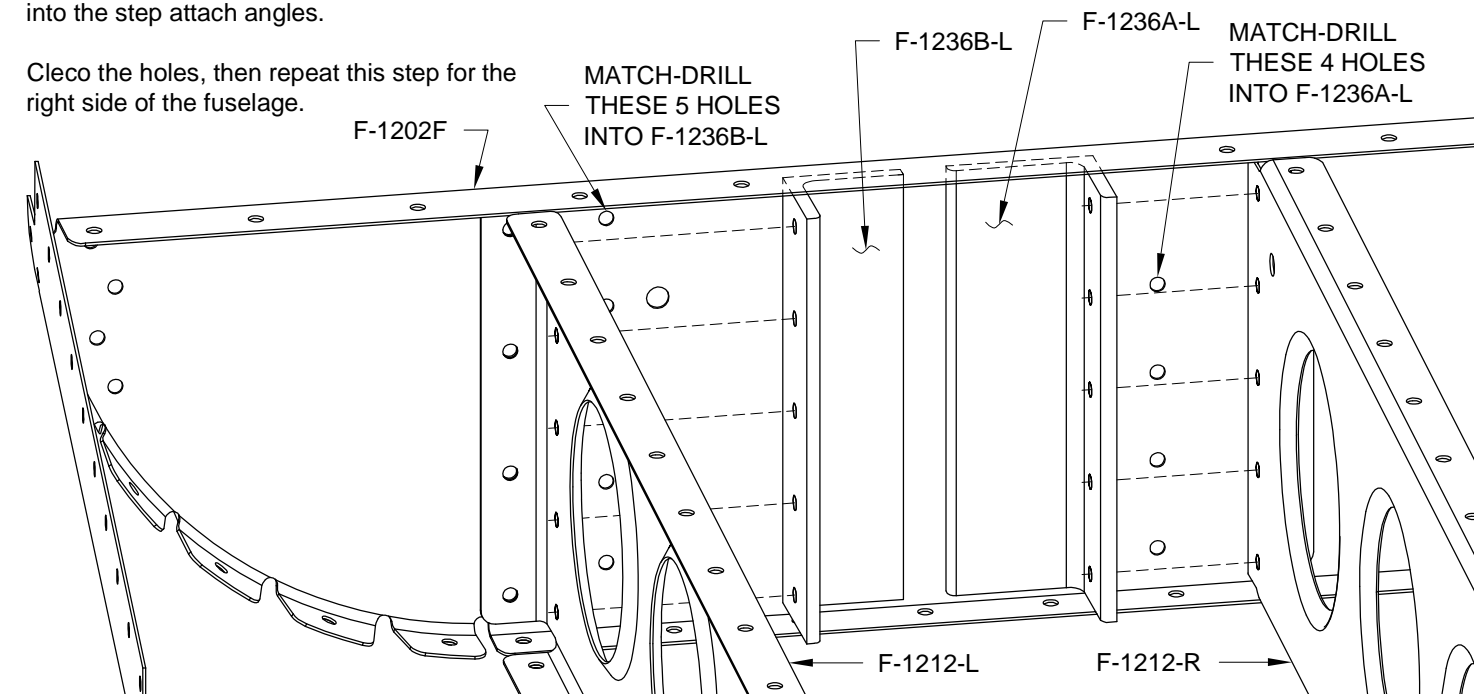
Step 4: Machine countersink the F-1251-L & -R Nutplate Brackets for the nutplate attach rivets called out in Figure 3, then rivet the nutplates in place.



**FIGURE 3: F-1251 NUTPLATE BRACKET**

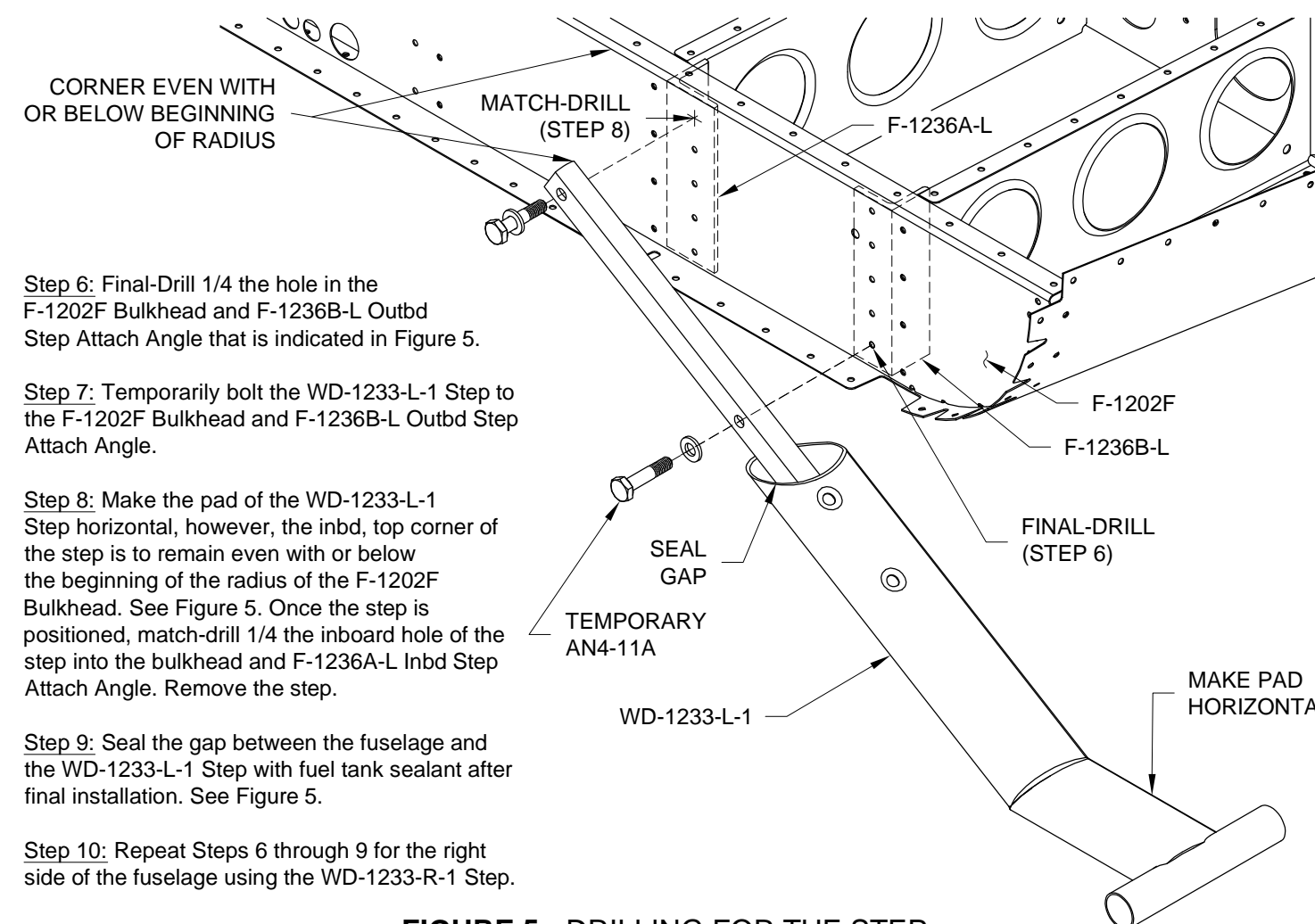
Step 5: Cleco the F-1236A-L Inbd Step Attach Angle to the F-1212-R Step Rib and the F-1236B-L Outbd Step Attach Angle to the F-1212-L Step Rib as shown in Figure 4, then match drill #30 the indicated holes of the F-1202F Bulkhead into the step attach angles.

Cleco the holes, then repeat this step for the right side of the fuselage.



**FIGURE 4: DRILLING THE STEP ATTACH ANGLES**

CORNER EVEN WITH OR BELOW BEGINNING OF RADIUS



Step 6: Final-Drill 1/4 the hole in the F-1202F Bulkhead and F-1236B-L Outbd Step Attach Angle that is indicated in Figure 5.

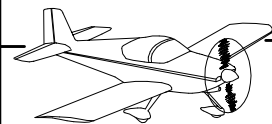
Step 7: Temporarily bolt the WD-1233-L-1 Step to the F-1202F Bulkhead and F-1236B-L Outbd Step Attach Angle.

Step 8: Make the pad of the WD-1233-L-1 Step horizontal, however, the inbd, top corner of the step is to remain even with or below the beginning of the radius of the F-1202F Bulkhead. See Figure 5. Once the step is positioned, match-drill 1/4 the inboard hole of the step into the bulkhead and F-1236A-L Inbd Step Attach Angle. Remove the step.

Step 9: Seal the gap between the fuselage and the WD-1233-L-1 Step with fuel tank sealant after final installation. See Figure 5.

Step 10: Repeat Steps 6 through 9 for the right side of the fuselage using the WD-1233-R-1 Step.

**FIGURE 5: DRILLING FOR THE STEP**



Step 1: Remove the F-1202F Bulkhead and the F-1236A-L & B-L Step Attach Angles from the fuselage. (Keep the step attach angles clecoed to the bulkhead.) Use the bolts shown in Figure 1 to secure the F-1251-L Nutplate Brackets to the step attach angles and bulkhead.

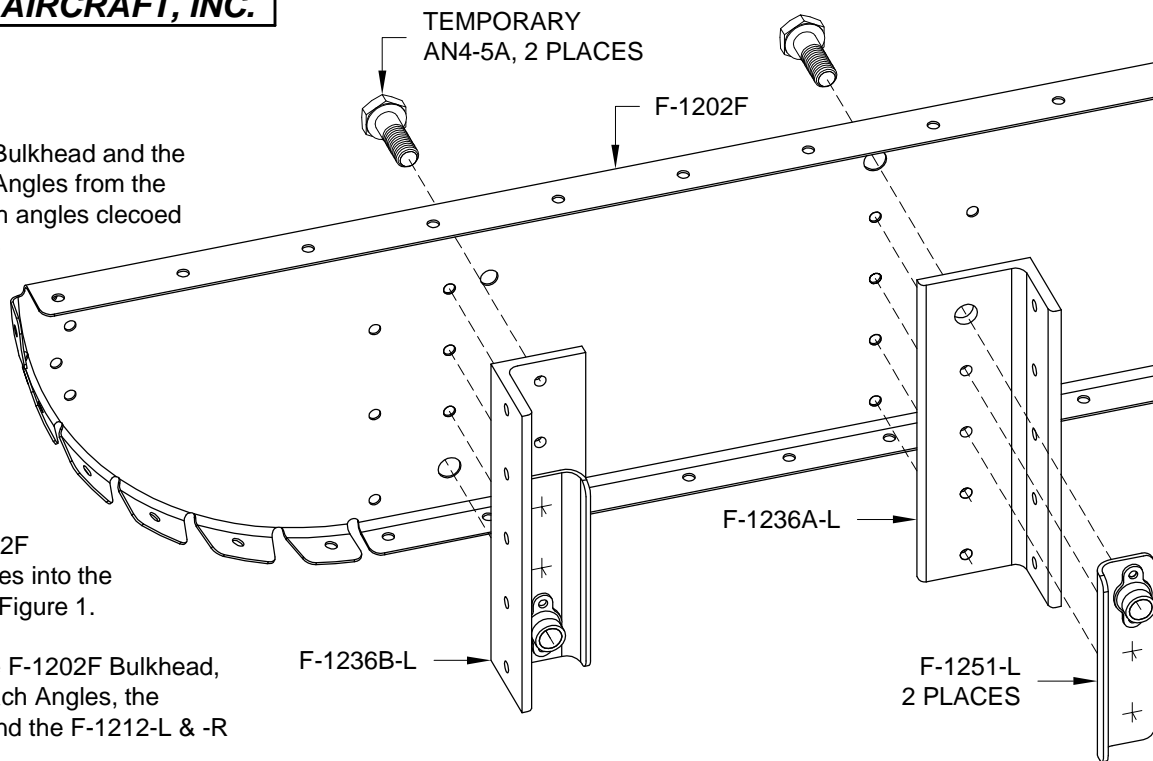
Step 2: Align the F-1251 Nutplate Brackets vertically on the F-1236A-L & B-L Step Attach Angles, then match-drill #30 the two holes of the F-1202F Bulkhead and step attach angles into the nutplate brackets as shown in Figure 1.

Step 3: Deburr the holes in the F-1202F Bulkhead, the F-1236A-L & B-L Step Attach Angles, the F-1251-L Nutplate Brackets, and the F-1212-L & -R Step Ribs.

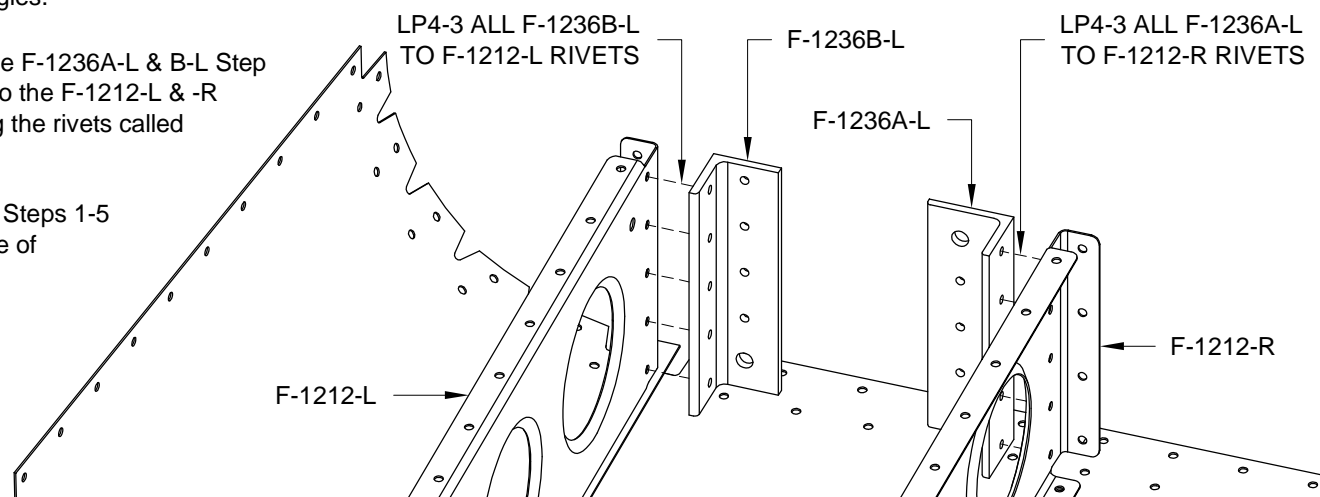
Step 4: Prime the F-1236A-L & B-L Step Attach Angles.

Step 5: Rivet the F-1236A-L & B-L Step Attach Angles to the F-1212-L & -R Step Ribs using the rivets called out in Figure 2.

Step 6: Repeat Steps 1-5 for the right side of the fuselage.

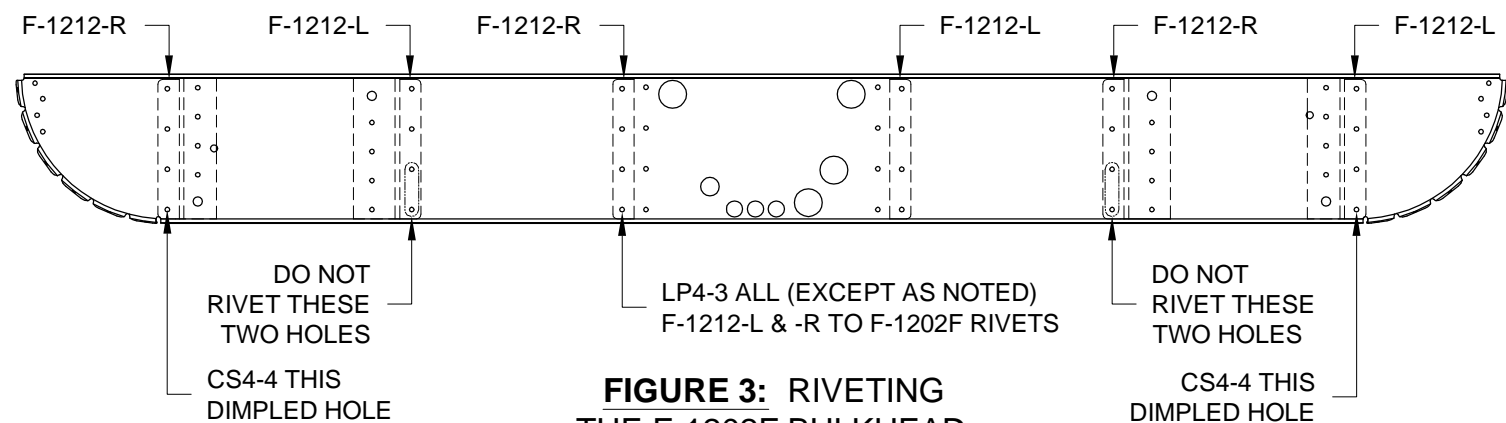


**FIGURE 1: RIVETING THE STEP ATTACH ANGLES**



**FIGURE 2: RIVETING THE STEP ATTACH ANGLES**

Step 7: Cleco the F-1202F Bulkhead back in place, then rivet it to the F-1212-L & -R Step Ribs using the rivets called out in Figure 3.

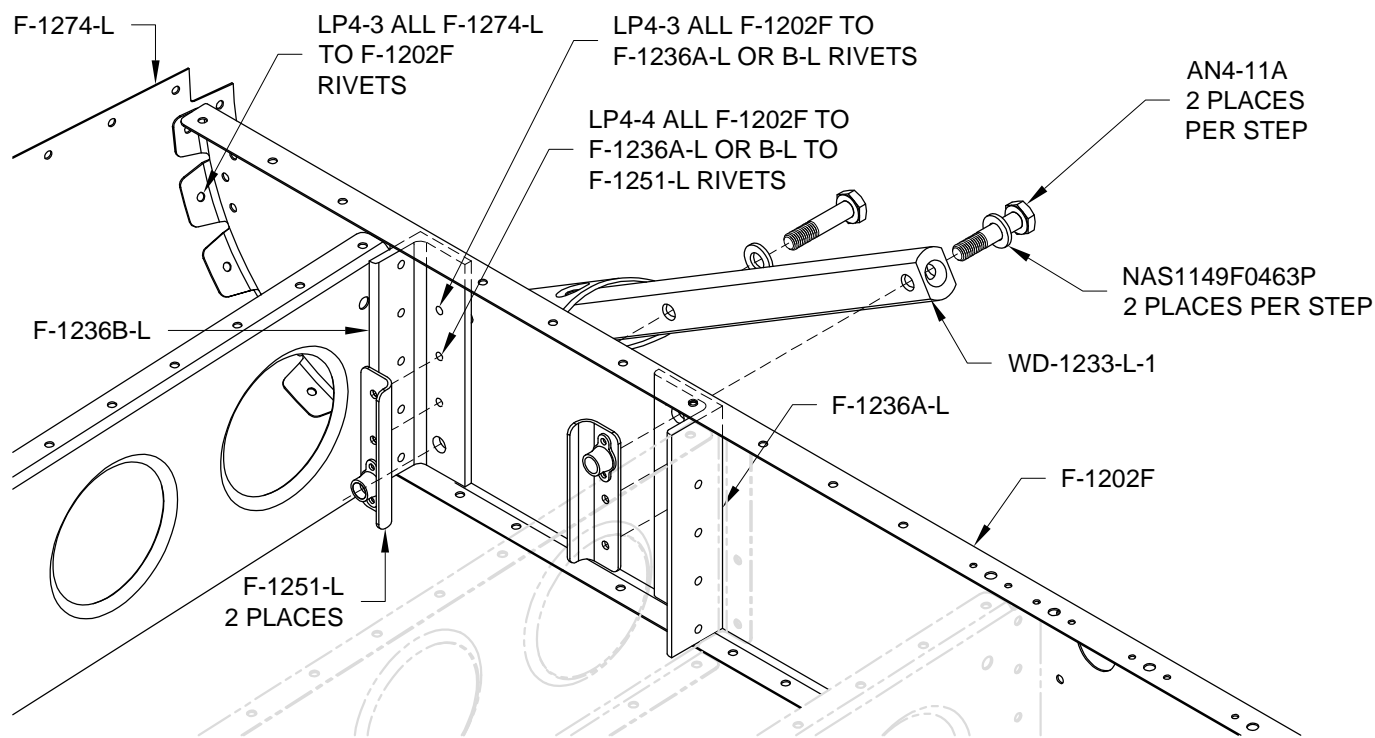


**FIGURE 3: RIVETING THE F-1202F BULKHEAD**

Step 8: Rivet the F-1251-L Nutplate Brackets and the F-1236A-L & B-L Step Attach Angles to the F-1202F Bulkhead using the rivets called out in Figure 4. Repeat for the right side of the fuselage.

Step 9: Rivet the F-1202F Bulkhead to the F-1274-L Fuselage Corner Skin using the rivets called out in Figure 4. DO NOT rivet the bulkhead to the F-1276 Bottom Skin. Repeat for the right side of the fuselage.

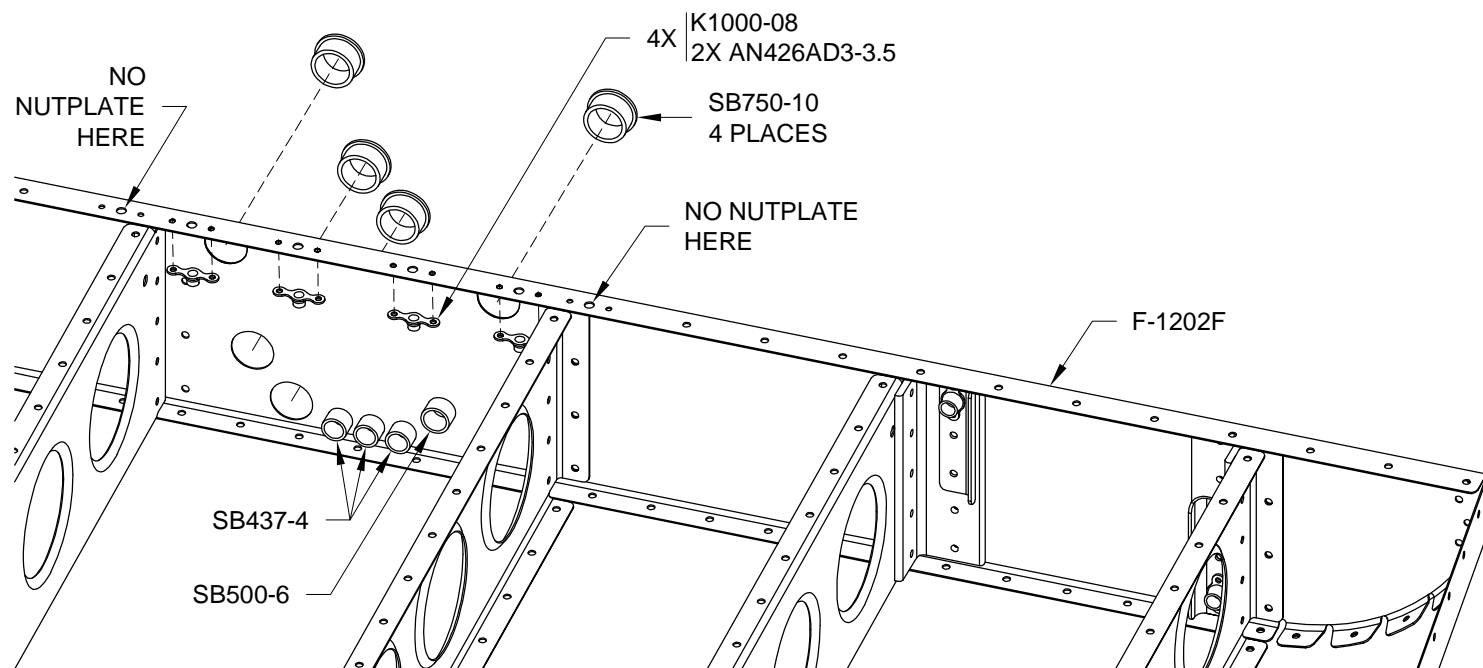
Step 10: The WD-1233-L-1 & -R-1 Steps can be installed at any time during the building process using the hardware called out in Figure 4.



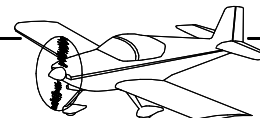
**FIGURE 4: RIVETING THE STEP ATTACH ANGLES AND FUSELAGE CORNER SKINS**

Step 11: Dimple the nutplates shown in Figure 5, then rivet them to the top flange of the F-1202F Bulkhead using the rivets called out. DO NOT attach nutplates at the indicated hole locations.

Step 12: Install the snap bushings called out in Figure 5 into the holes indicated.

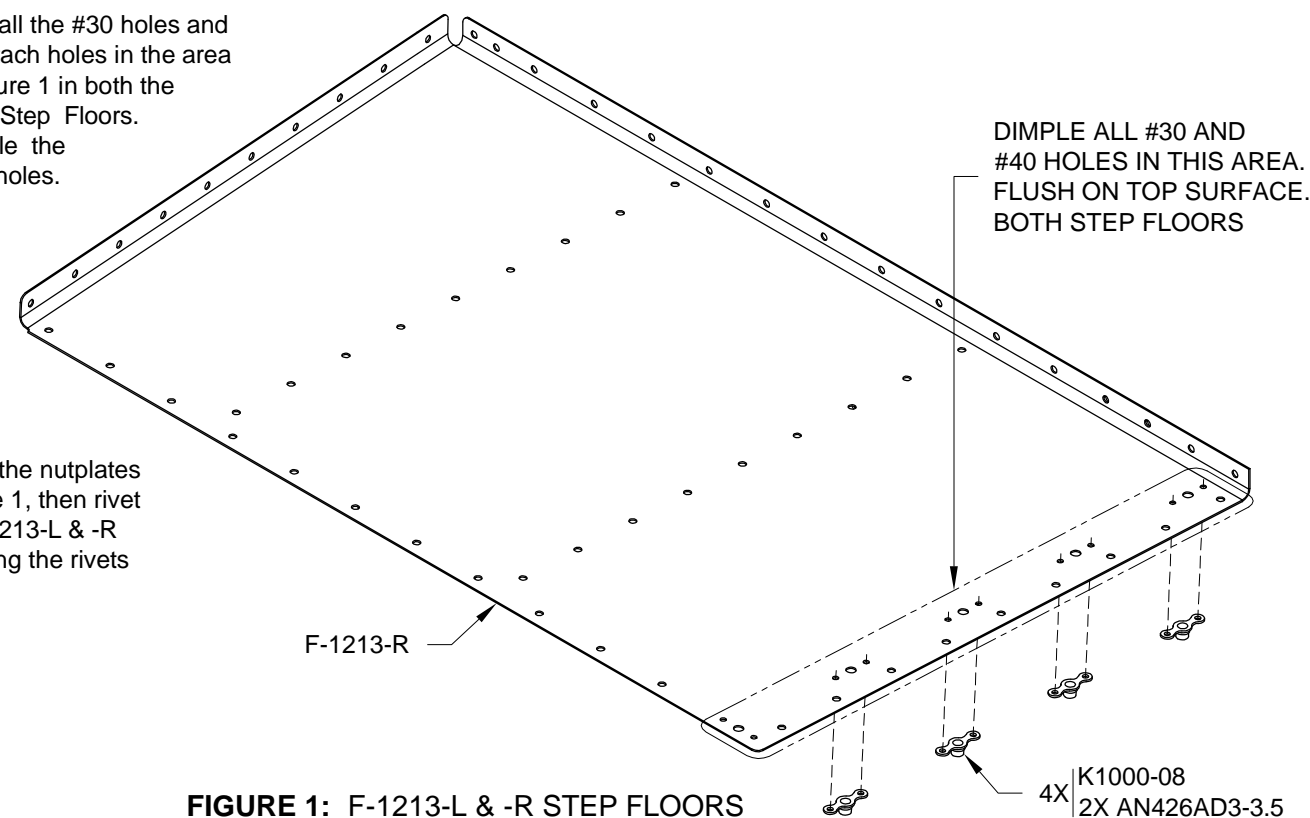


**FIGURE 5: INSTALLING NUTPLATES AND SNAP BUSHINGS**



Step 1: Dimple all the #30 holes and #40 nutplate attach holes in the area indicated in Figure 1 in both the F-1213-L & -R Step Floors. DO NOT dimple the nutplate screw holes.

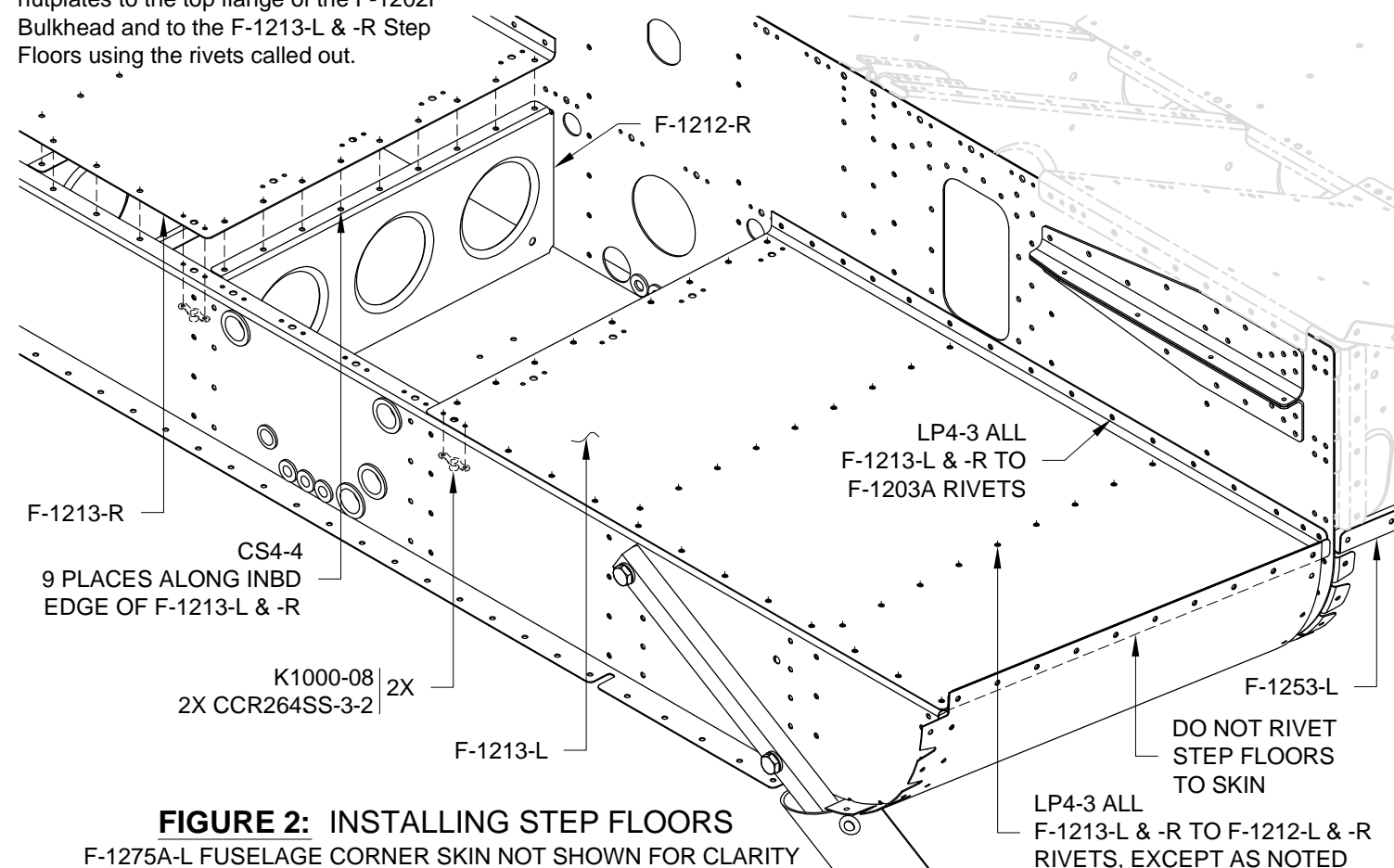
Step 2: Dimple the nutplates shown in Figure 1, then rivet them to the F-1213-L & -R Seat Floors using the rivets called out.



**FIGURE 1: F-1213-L & -R STEP FLOORS**

Step 3: Rivet the F-1213-L & -R Step Floors to the F-1202F Bulkhead, the F-1212-L & -R Step Ribs, and the F-1203A Bulkhead using the rivets called out in Figure 2. Be sure to capture the two holes in the front flange of the F-1253-L & -R Seat Floor Supports when riveting the two outbd holes of the step floors to the bulkhead.

Step 4: Dimple the nutplates shown in Figure 2, then reach through the lightening holes in the F-1212-L & -R Step Ribs and rivet the nutplates to the top flange of the F-1202F Bulkhead and to the F-1213-L & -R Step Floors using the rivets called out.



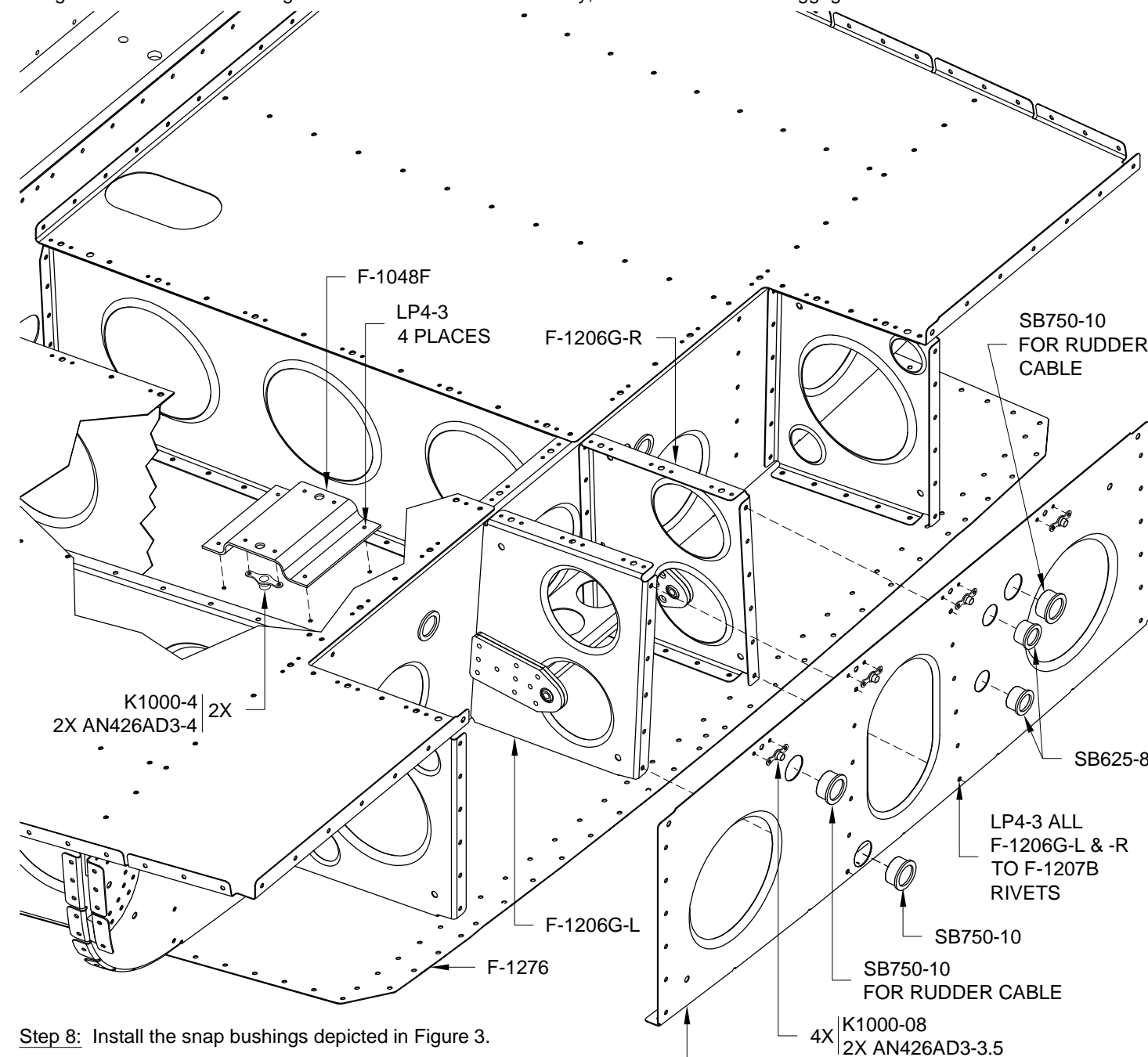
**FIGURE 2: INSTALLING STEP FLOORS**  
F-1275A-L FUSELAGE CORNER SKIN NOT SHOWN FOR CLARITY

Step 5: Dimple the four sets of nutplate attach rivet holes in the F-1207B Baggage Bulkhead for the nutplates shown in Figure 3.

Step 6: Dimple the nutplates, then rivet them to the F-1207B Baggage Bulkhead using the rivets called out in Figure 3.

**NOTE: For autopilot bracket installation refer to Section 39.**

Step 7: Cleco the F-1207B Baggage Bulkhead in place, then rivet the baggage bulkhead to the F-1206G-L & -R Baggage Ribs using the rivets called out in Figure 3. Rivet to these two ribs only, leave the rest of the baggage bulkhead clecoed.



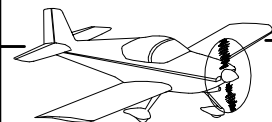
Step 8: Install the snap bushings depicted in Figure 3.

Step 9: Cleco the F-1048 Facet Pump Bracket to the F-1276 Bottom Skin as shown in Figure 3, then final-drill #30 the four holes common to both parts.

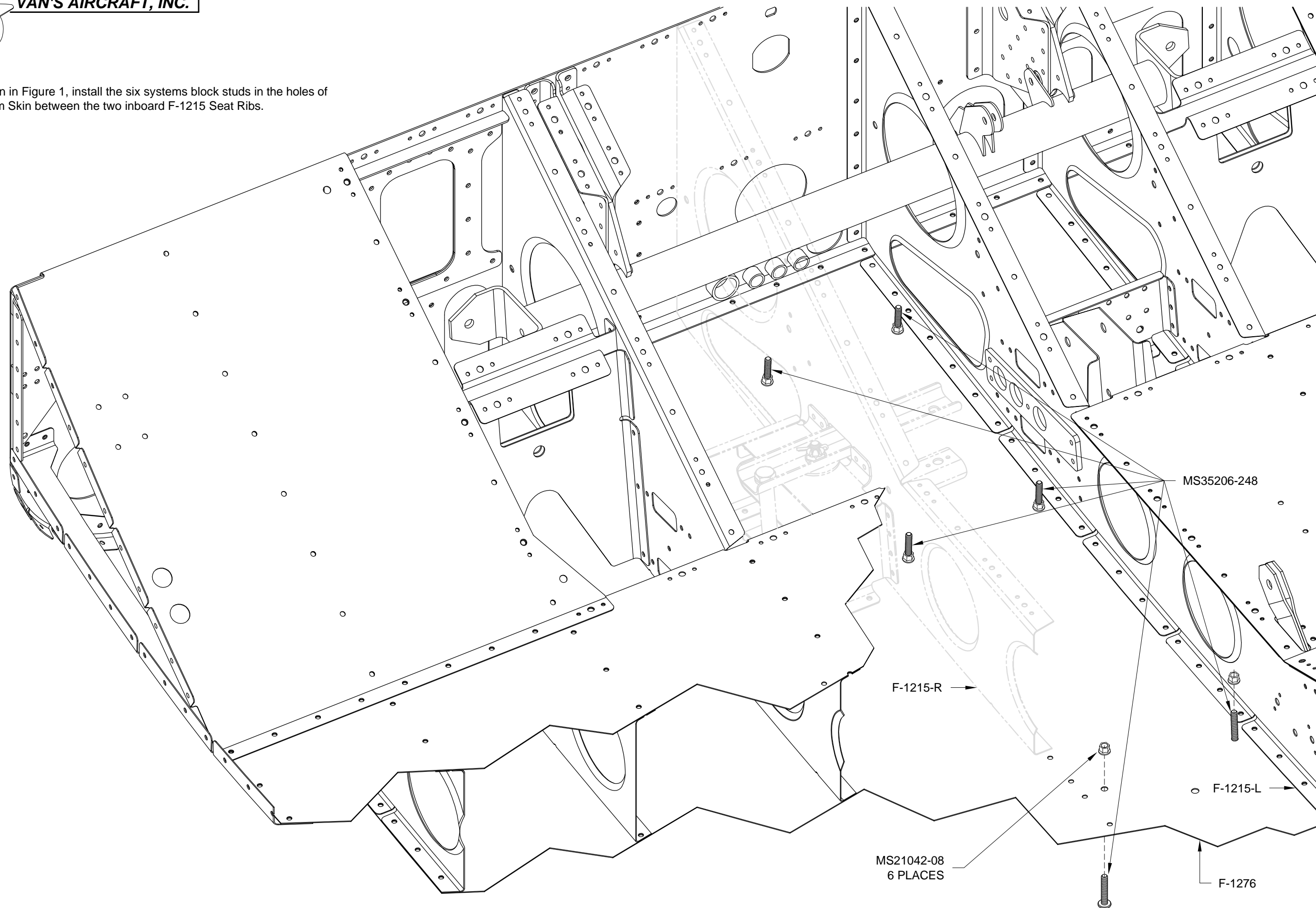
Step 10: Remove the F-1048 Facet Pump Bracket, final-drill #40 and machine countersink the nutplate attach rivet holes, then attach the nutplates shown in Figure 3 with the rivets called out.

Step 11: Rivet the F-1048 Facet Pump Bracket to the F-1276 Bottom Skin using the rivets called out in Figure 3.

**FIGURE 3: ATTACHING THE F-1207B BULKHEAD**



Step 1: As shown in Figure 1, install the six systems block studs in the holes of the F-1276 Bottom Skin between the two inboard F-1215 Seat Ribs.



**FIGURE 1: INSTALLING SYSTEMS BLOCK STUDS**