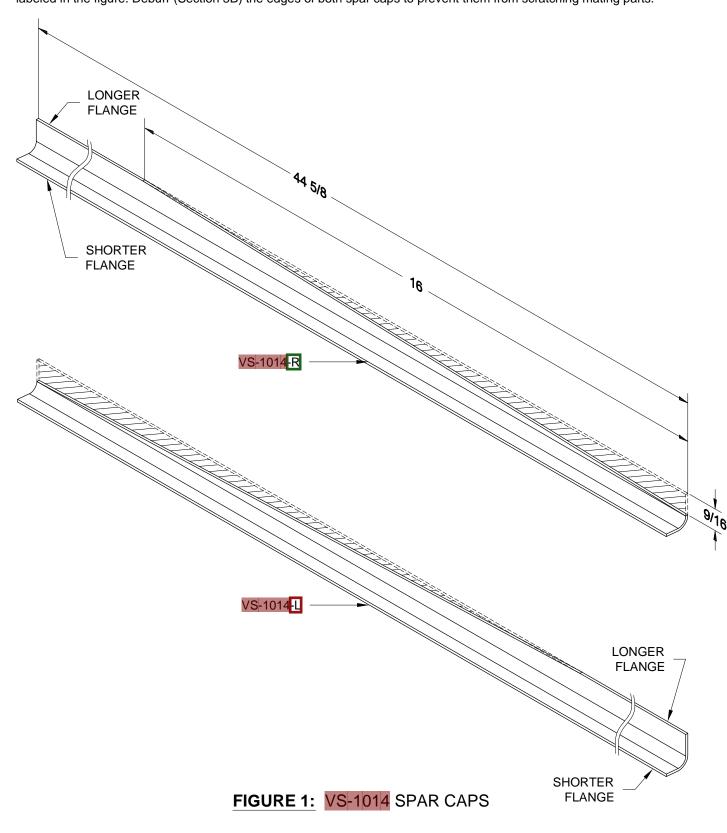


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Step 1: Trim flange material (shaded areas) from opposite ends of the two VS-1014 Rear Spar Caps using the dimensions (which apply to both spar caps) in Figure 1. Make sure to trim the material from the longer of the two flanges. (When marking the parts for trimming, clamp them to a table or back to back to remove the bow in the parts.) Once trimmed the spar caps become dedicated left and right parts (VS-1014-L and VS-1014-R respectively) as labeled in the figure. Deburr (Section 5B) the edges of both spar caps to prevent them from scratching mating parts.



Step 2: Nest the VS-1014-1 & Rear Spar Caps into the corners of the VS-1003 Rear Spar as shown in Figure 2. Note that the trimmed flange of the rear spar caps fits against the web of the rear spar. Flush the bottom of the rear spar caps with the bottom edge of the spar flanges then clamp them in place along the spar flange.

Starting from the bottom of the spar, match-drill about every fourth hole of the rear spar web into the spar caps using a 1/8" drill (ignore the 3/16" upper attach bolt holes; these holes are drilled in Step 6). Cleco each hole as you drill and be sure to drill perpendicular to the spar web, particularly any holes common to the VS-01010-1 and VS-1011 Bottom and Middle Rudder Hinge Brackets. After reaching the top of the spar caps, go back with the same drill and match-drill the remaining 1/8" holes of the rear spar web into the spar caps.

Remove the spar caps and deburr the holes. Clear away any chips, then cleco the rear spar caps back in place.

Step 3: Match-Drill the flange holes of the VS-1003 Rear Spar into the VS-1014-L and R Rear Spar Caps using a #40 drill, cleco as you go.

Once again, remove the spar caps and deburr the holes. Clear away any chips, then cleco the rear spar caps back in place.

Step 4: Deburr the edges of the VS-1008 Rear Spar Doubler. Cleco the doubler, the VS-1014-L and R Spar Caps, the VS-01010-1 Bottom Rudder Hinge Brackets, and the VS-1011 Middle Rudder Hinge Brackets to the VS-1003 Rear Spar as shown in Figure 2. Cleco the VS-1012 Top Rudder Hinge Brackets and the VS-1017 Hinge Doubler in place.

With all the parts clecoed together, final-drill #30 the holes of the top and middle rudder hinge brackets, the hinge doubler, and all the 1/8" holes of the spar doubler and spar caps.

Step 5: Final-Drill #19 the four holes common to the VS-01010-1
Bottom Rudder Hinge Bracket. Drill from the bottom hinge bracket (aft side of the spar) forward into the aluminum parts and be careful to keep the drill bit perpendicular to the spar web. To maintain part alignment, temporarily insert a #8 screw into each hole when drilled. After drilling, the bracket can be set aside.

Step 6: Match-Drill the upper attach bolt holes of the VS-1003
Rear Spar and VS-1008 Rear Spar Doubler into the VS-1014 and R Spar Caps using a 3/16" drill. Don't final-drill these holes to size (#12) yet; this is done when the vertical stabilizer is fitted to the tailcone.

UPPER ATTACH BOLT HOLES: MACH CSK ALL #30 HOLES BELOW THESE TWO HOLES FLUSH ON THIS (FORWARD) SIDE.

Step 7: Machine countersink (Section 5E) all of the #30 holes in the VS-1008 Spar Doubler below the upper attach bolt holes; machine countersink flush on the forward side for AN426AD4 rivets. Do not, however, machine countersink the two holes directly above the VS-01010-1 Bottom Rudder Hinge Bracket.

Step 8: Machine countersink the four #19 holes in the VS-1008 Spar Doubler that are common to the VS-01010-1 Bottom Rudder Hinge Bracket. Machine countersink the holes flush on the forward side for AN509 screws (see Page 6-5).

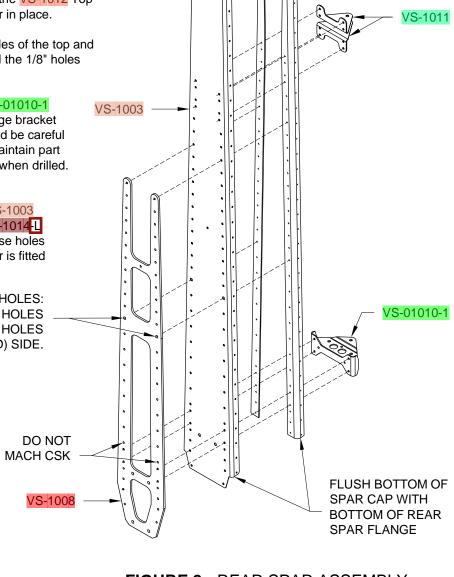
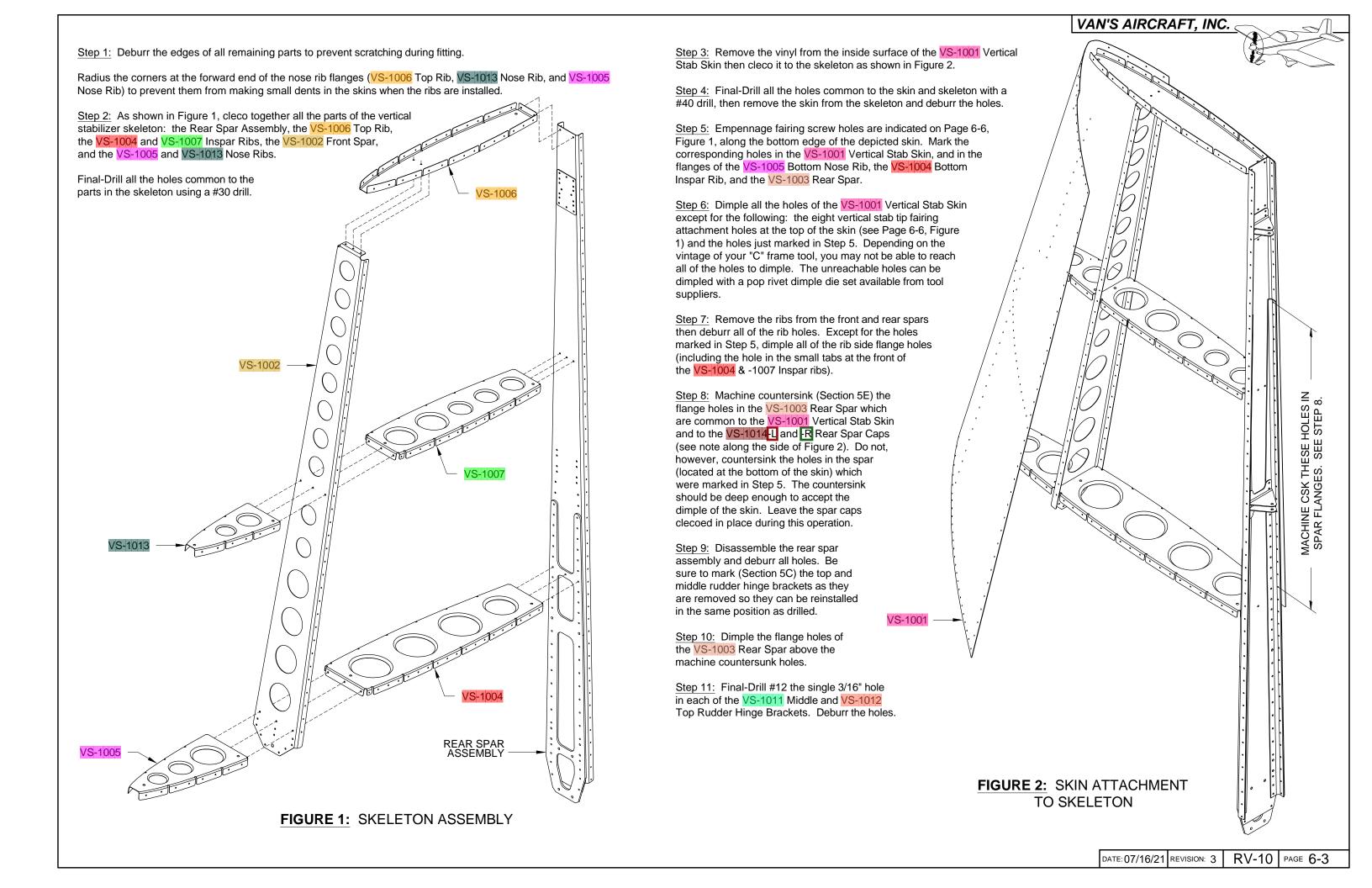


FIGURE 2: REAR SPAR ASSEMBLY



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Step 1: Cleco the VS-1015 Front Spar Doubler to the aft side of the VS-1002 Front Spar as shown in Figure 1. Final-Drill the holes of the doubler and spar using a #30 drill.

Remove the front spar doubler and deburr the holes.

Step 2: Deburr all the holes in the flanges and web of the front spar.

Dimple the four bottom holes in the front spar (see Figure 1) and machine countersink (Section 5E) the corresponding holes in the front spar doubler. Dimple the flange holes of the front spar for the skin.

Step 3: Double check that all parts are properly deburred and prime the parts, if desired, in preparation for riveting. If you plan on painting the VS-01010-1, VS-1011, and VS-1012 Rudder Hinge Brackets when the completed airplane is painted, you should first scuff the powder coat with sand paper or some other type of

Step 4: Attach the VS-1015 Front Spar Doubler to the VS-1002 Front Spar using the rivets called out in Figure 1.

FIGURE 1: FRONT SPAR **DOUBLER ATTACHMENT** 

Step 5: Attach the VS-1012 Top Rudder Hinge Brackets and the VS-1017 Hinge Doubler to the VS-1003 Rear Spar using the rivets called out in Figure 2.

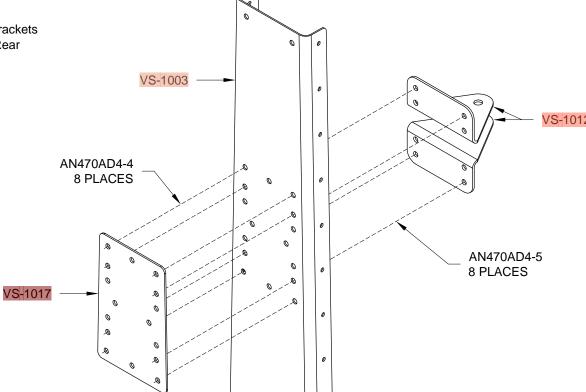
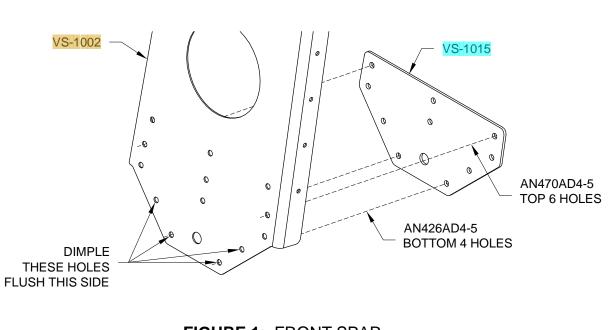
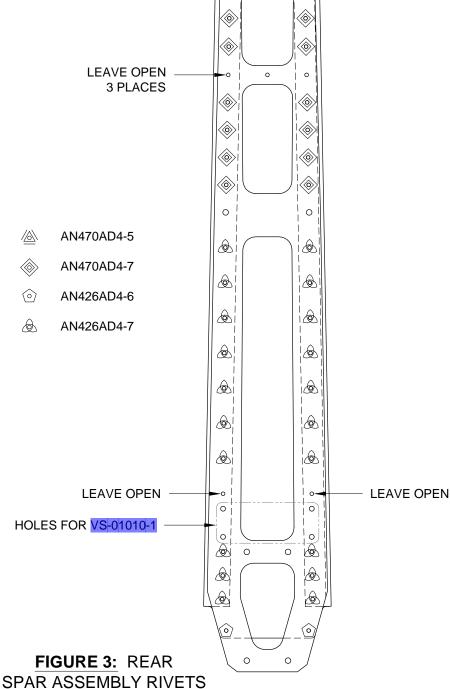


FIGURE 2: TOP RUDDER HINGE BRACKET AND HINGE DOUBLER RIVETS

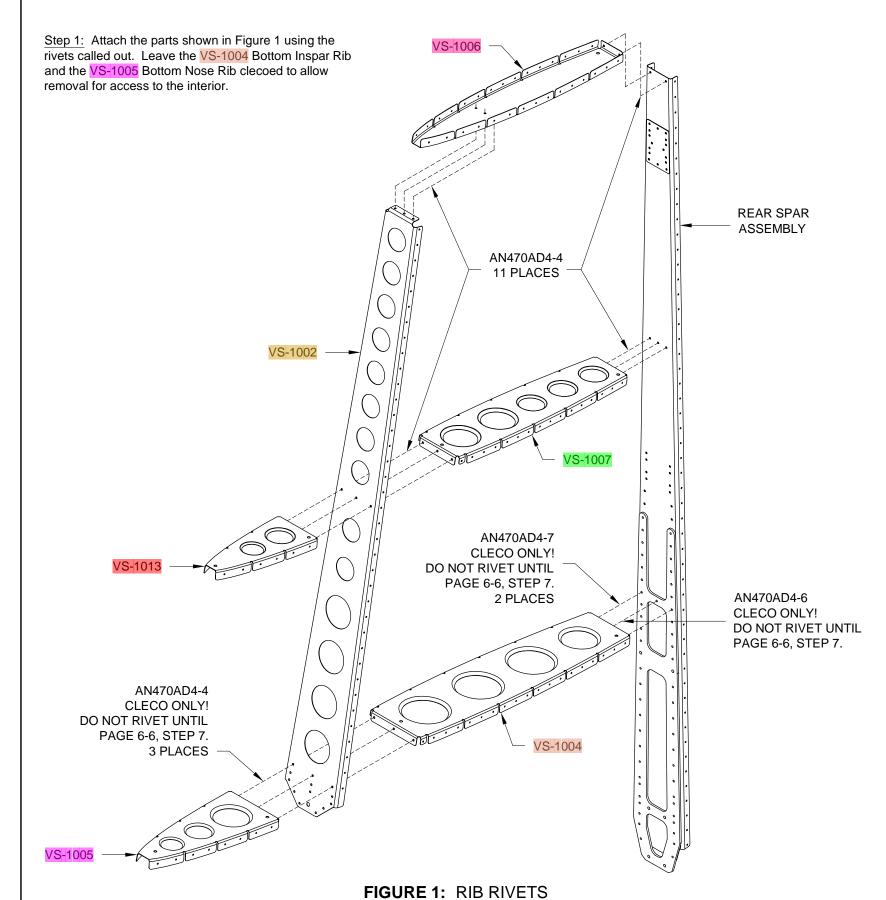


Page 6-2, Figure 2. Make sure the countersunk holes at the bottom of the VS-1008 Rear Spar Doubler are facing forward. Rivet (Section 5D) the parts shown in Figure 3 using the rivets called out. Leave open the holes for the VS-1007 Middle Inspar Rib and the two holes directly above the VS-01010-1 Bottom Rudder Hinge Bracket (these holes are final-drilled #12 when the vertical stabilizer is fitted to the tailcone).

Step 6: Reassemble the rest of the Rear Spar Assembly (except for the VS-01010-1 Bottom Rudder Hinge Bracket) as shown on







Step 2: Use a #12 drill bit to clean the powder coating from the three sets of #12 holes in the VS-01010-1 Bottom Rudder Hinge Bracket. These holes are used to bolt on the R-01007B-1 Rudder Stops and the bottom rod end bearing of the rudder. See Figure 2.

Step 3: Heavily deburr (and straighten if necessary) the two R-01007B-1 Rudder Stops, then bolt them in the VS-01010-1 Bottom Rudder Hinge Bracket as shown in Figure 2.

To maintain access for riveting the rear spar flanges, do not attach the bottom rudder hinge bracket to the rear spar until the end of the next page.

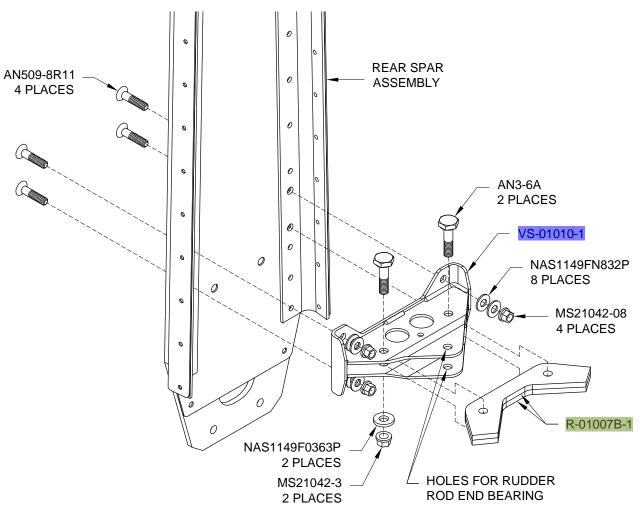


FIGURE 2: ATTACHING THE BOTTOM HINGE BRACKET AND RUDDER STOPS

