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TOTAL PERFORMANCE
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Service Letters and Bulletins: www.vansaircraft.com/public/service.htm

SERVICE BULLETIN 18-02-02

Date Released: February 2, 2018 (Initial Release)
March 26, 2018 (Revised hours required, added "(note spacing…installed)" to Step 4)
April 25, 2018 (Added a reference photo for Step 29 text)

Date Effective: February 2nd, 2018

Subject: Potential cracking in the horizontal stabilator front spar

Affected Models: RV-12

Required Action: Inspect stabilator front spar for cracks. If cracks are not present the aircraft may be returned to service until the next 100 hour or annual inspection, when this service bulletin should be performed before further flight. If cracks are found, complete this SB immediately. Kits under construction should perform this SB prior to stabilator attachment or first flight.

Time of Compliance: Before further flight

Supercedes Notice: None

Labor Required / SLSA Warranty Allowance: 9.0 Hours (professional installation)

Level of Certification: (Owner, LSA Repairman Inspection - *not applicable to SLSA*), LSA Repairman Maintenance, A&P

Synopsis:
Some aircraft may develop fatigue cracks in the front spar of the horizontal stabilator.

Method of Compliance:

Step 1: Remove the F-1294A and F-1294B Upper and Lower Tailcone Fairings. See KAI Section 12.

Step 2: Disconnect the F-1287E Pushrod from the Anti Servo Tab Assembly as shown in KAI Page 11-08.

Step 3: Mark the upper F-1247B Aft Stabilator Cable with a segment of tape. Disconnect both cables from the WD-1207 and WD-1208 Stabilator Horns as shown on KAI Page 32-13. Temporarily connect both cables together with a piece of wire to prevent them from falling back into the tailcone.

NOTE: The following Step is more easily accomplished with more than one person.

Step 4: Taking note of the washers used between the Hinge Brackets and pivot Bearings for reuse later (note spacing may change with new hinge brackets installed), disconnect the Stabilator Assembly from the Tailcone Assembly as shown in KAI Page 10-05 and KAI Page 11-03. Pull the stabilator aft then unbolt and slide the WD-1223 Counterbalance Arm from the Stabilator Assembly. See KAI Page 9-10.

NOTE: Become familiar with deburring aluminum parts and removing rivets by reading KAI section 5.2 and 5.4 prior to performing the tasks in this Service Bulletin. Deburr holes drilled in this service bulletin where possible. In places where deburring is not possible use a sharp drill bit and light pressure while drilling.

Step 5: Using the dimensions in Figure 8 mark then center punch the six AN426 rivet locations shown into the WD-1207 Stabilator Horn.

Step 6: Loosen the aft two bolts attaching the WD-1207 Stabilator Horn to the Stabilator Assembly.
Center the HS-01232 Stabilator Horn Doubler beneath WD-1207. See Figure 8.

Step 7: Match-Drill #30 and cleco the HS-01232 Stabilator Horn Doubler shown in Figure 8 to the HS-1211 Spar Cap.

Step 8: Drill #40 the six locations marked on the WD-1207 Stabilator Horn into the HS-01232 Stabilator Horn Doubler and HS-1211 Spar Cap.

Mark the top face and orientation of the HS-01232. Remove WD-1207 and HS-01232. Clean any drill shavings from between the parts.

Machine countersink the six #40 hole locations on the bottom face of the HS-01232 for the rivets called out in Figure 8.

Step 9: Rivet the HS-01232 to the WD-1207 and set aside.

Step 10: Repeat Steps 5-9 for the WD-1208 Stabilator Horn and remaining HS-01232.

Step 11: Remove the HS-1213A and HS-1213B Hinge Brackets, and HS-1210 Hinge Stops from the Stabilator Assembly (see KAI Page 09-07).

Step 12: Discard the HS-1213A and HS-1213B Hinge Brackets.

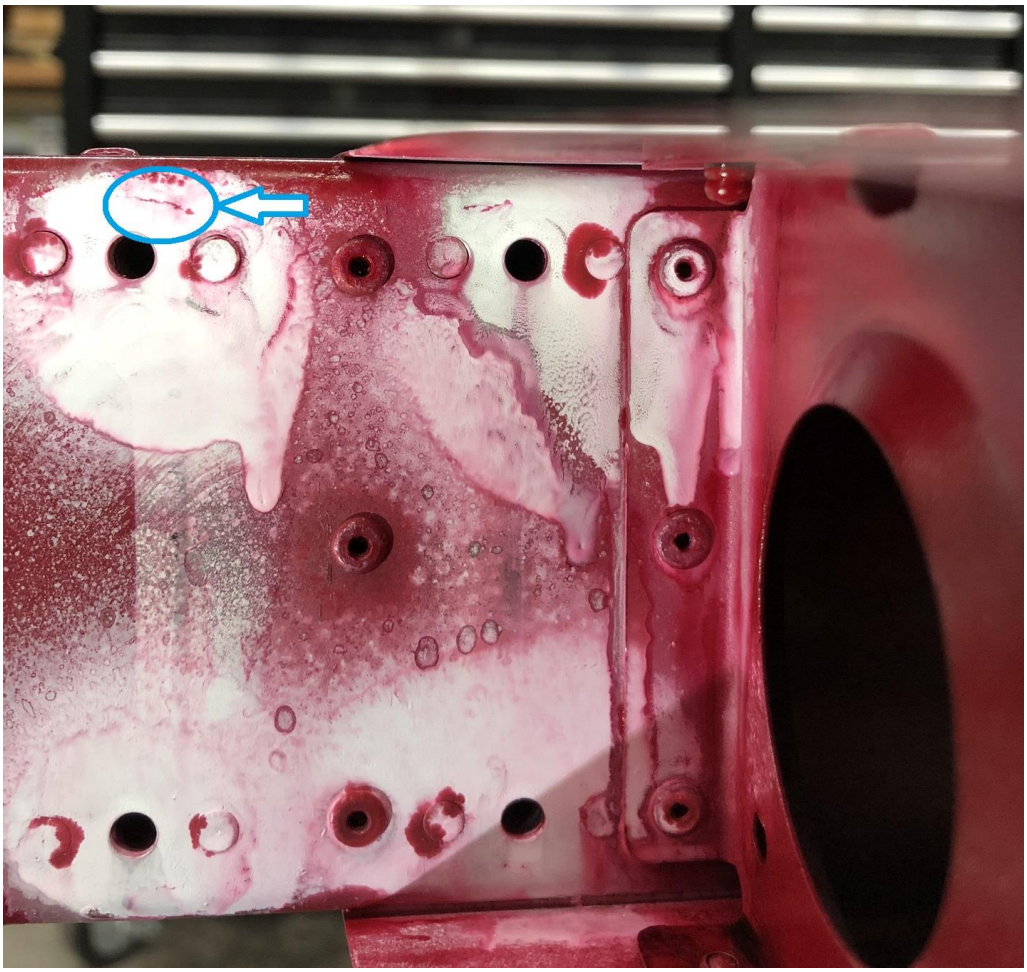

FIGURE 1: DYE PENETRANT TEST CRACK DETECTION

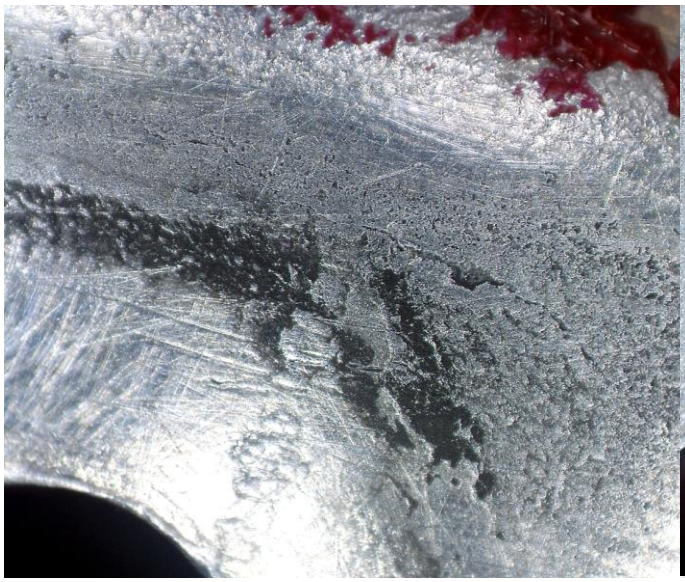

FIGURE 2: CRACK AFTER REMOVAL OF DYE PENETRANT

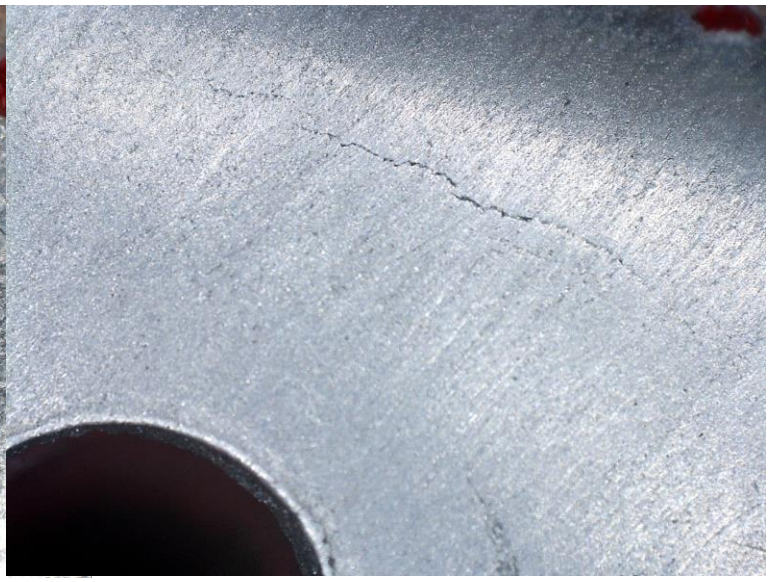

FIGURE 3: CRACK AFTER LIGHT SANDING WITH FINE GRIT PAPER

Step 13: For all the bolts removed in the previous two steps carefully check for cracks around all bolt holes, nutplate attach holes and the area in between the fastener holes and the top/bottom edge of the spar. Cracks may be extremely difficult to see. Use of an aircraft dye penetrant kit may be required. The crack in Figure 1 and Figure 2 was only found using dye penetrant or magnification. A bright light shining at the correct angle to the surface is also required.

Step 14: Stop-Drill #40 the ends of any cracks found.

Step 15: Punch out the mandrels, then drill out #30 the three rivets common to the HS-1202 Fwd Spar and each of the HS-1212 Inspar Ribs (hidden from view). See Figure 4.

Step 16: Cleco each HS-01231D Stabilator Hinge Doubler to HS-1202 Fwd Spar using the three rivet locations just drilled out in the previous step so that the bolt holes align (the part is not symmetrical). Match-Drill #30 the remaining #40 holes in HS-01231D into HS-1202.

Disassemble the parts and clean out any drill shavings.

Step 17: Rivet both HS-01231D Stabilator Hinge Doublers to the HS-1202 Fwd Spar as shown in Figure 4.

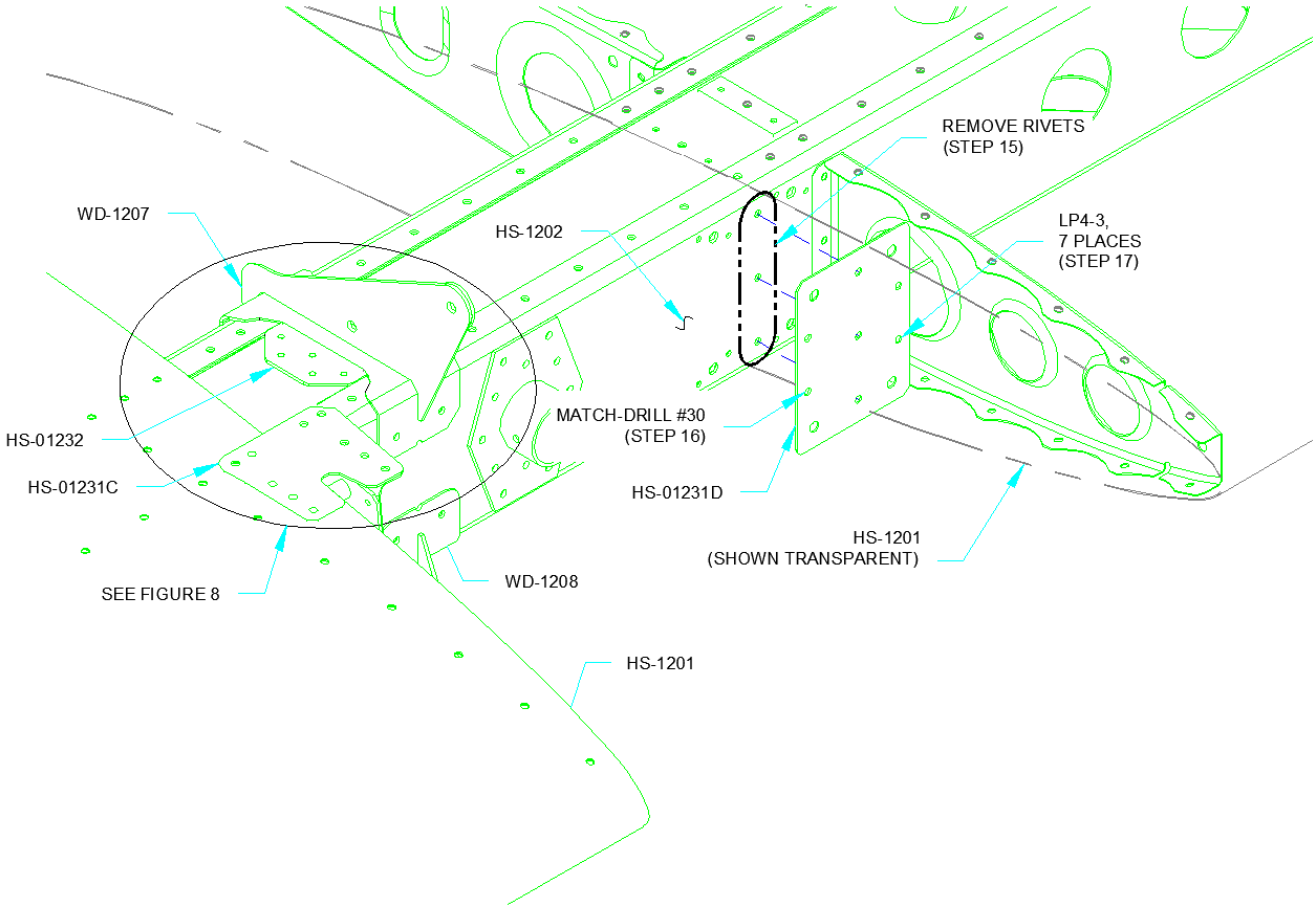

FIGURE 4: ADDING THE STABILATOR HINGE DOUBLERS

Step 18: Separate HS-01231A Stabilator Hinge Angle into four parts. See Figure 5.

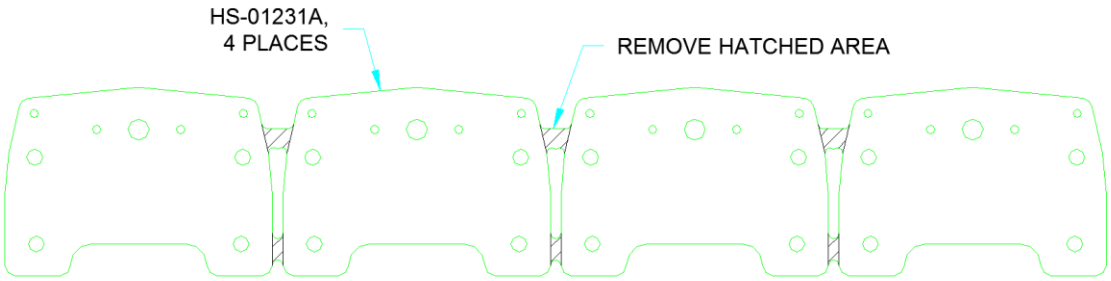

FIGURE 5: SEPARATING THE STABILATOR HINGE ANGLE
(SHOWN FLAT)

Step 19: Rivet HS-01231A to HS-01231B to make an Inboard Hinge Bracket Assembly. Make a second Inboard Hinge Bracket Assembly. See Figure 6.

Rivet HS-01231A, HS-01231B and a nutplate together to make an Outboard Hinge Bracket Assembly. Make a second Outboard Hinge Bracket Assembly. See Figure 6.

Scuff around the pivot bolt hole in each Hinge Bracket Assembly and bond the Spacer Washers into place to match Step 4 placement. See KAI 10-05.

Step 20: Temporarily bolt the Outboard Hinge Bracket Assemblies to the Stabilator Assembly. Temporarily attach the HS-1210 Hinge Stops, bolts and the Inboard Hinge Bracket Assemblies. See Figures 6 and 7.

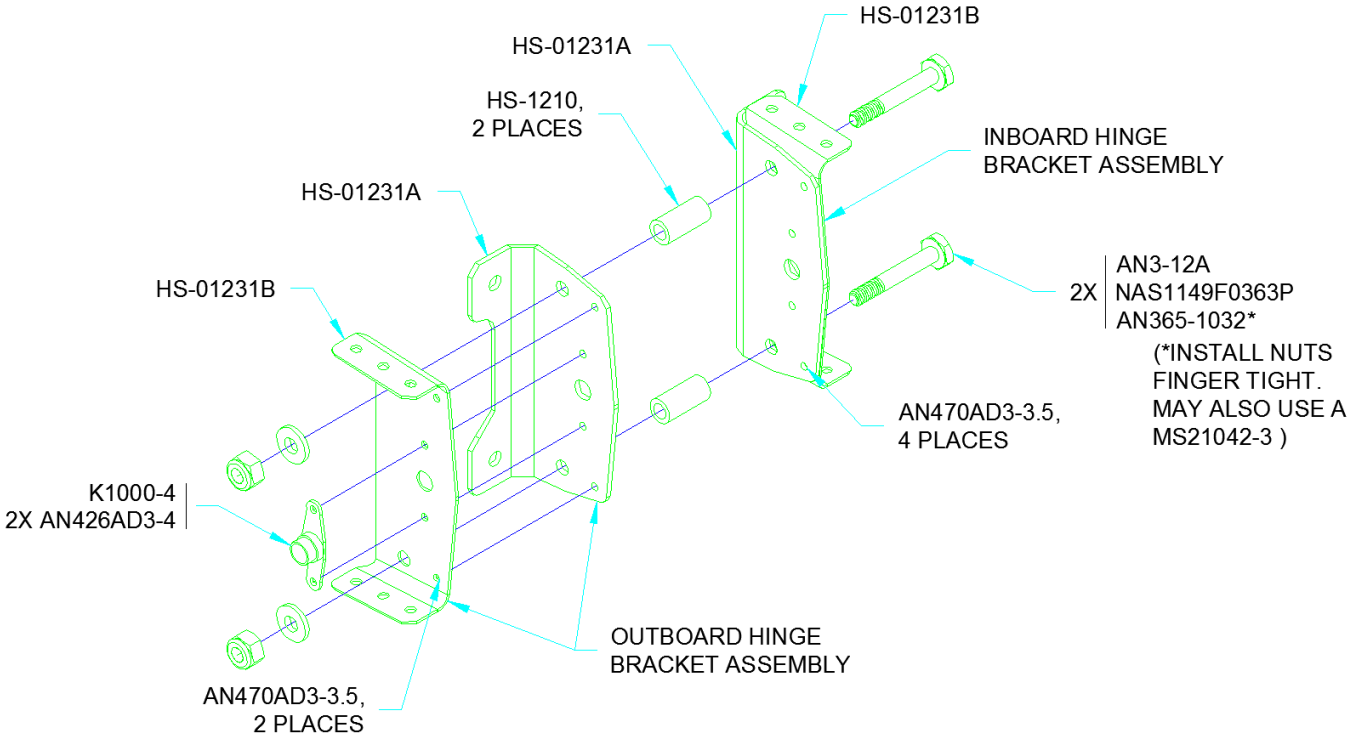

FIGURE 6: ASSEMBLING THE INBOARD AND OUTBOARD HINGE BRACKET ASSEMBLIES

Step 21: Bolt the Inboard Hinge Bracket Assemblies to the Stabilator Assembly. See Figure 7.

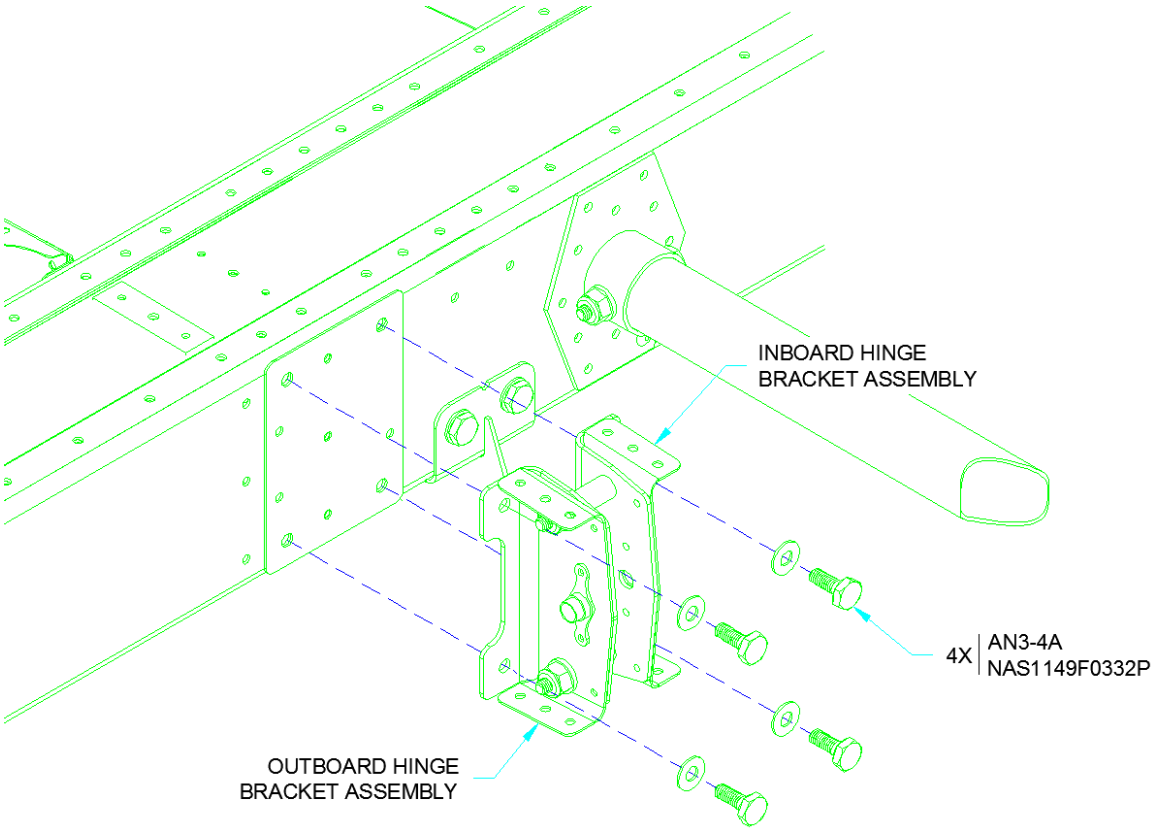

FIGURE 7: ATTACHING THE HINGE BRACKET ASSEMBLIES TO THE MAIN SPAR

Step 22: Remove the two rivets indicated in Figure 8 (using a #30 drill bit) that coincide with the aft inboard and outboard attach holes for each HS-01231C Stabilator Hinge Gusset. Using these two locations, cleco all gussets to the Stabilator Assembly.

Step 23: Final-drill the #40 holes in the Inboard Hinge Bracket Assemblies. See Figure 8

Match-Drill #30 and cleco the remaining #40 holes in the HS-01231C Stabilator Hinge Gussets into the Stabilator Assembly and the Outboard Hinge Bracket Assembly.

Final-Drill #30 the single hole indicated in Figure 8 common to the gussets and the Inboard Hinge Bracket Assembly.

Step 24: Remove the two clecos used in Step 22. Final-Drill #30 both locations. See Figure 8.

Step 25: Remove the HS-01231C Stabilator Hinge Gussets (see Figure 8) and the bolts shown in Figure 6.

Step 26: Remove Outboard Hinge Bracket Assemblies, deburr holes where possible and clean away any drill shavings. Reinstall the Outboard Hinge Bracket Assemblies.

Step 27: Cleco then rivet the HS-01231C Stabilator Hinge Gussets to the Stabilator Assembly and Inboard and Outboard Hinge Bracket Assemblies. No spacer is required underneath the two aft inboard rivets. See Figure 8.

Final-install the hardware shown in Figure 6.

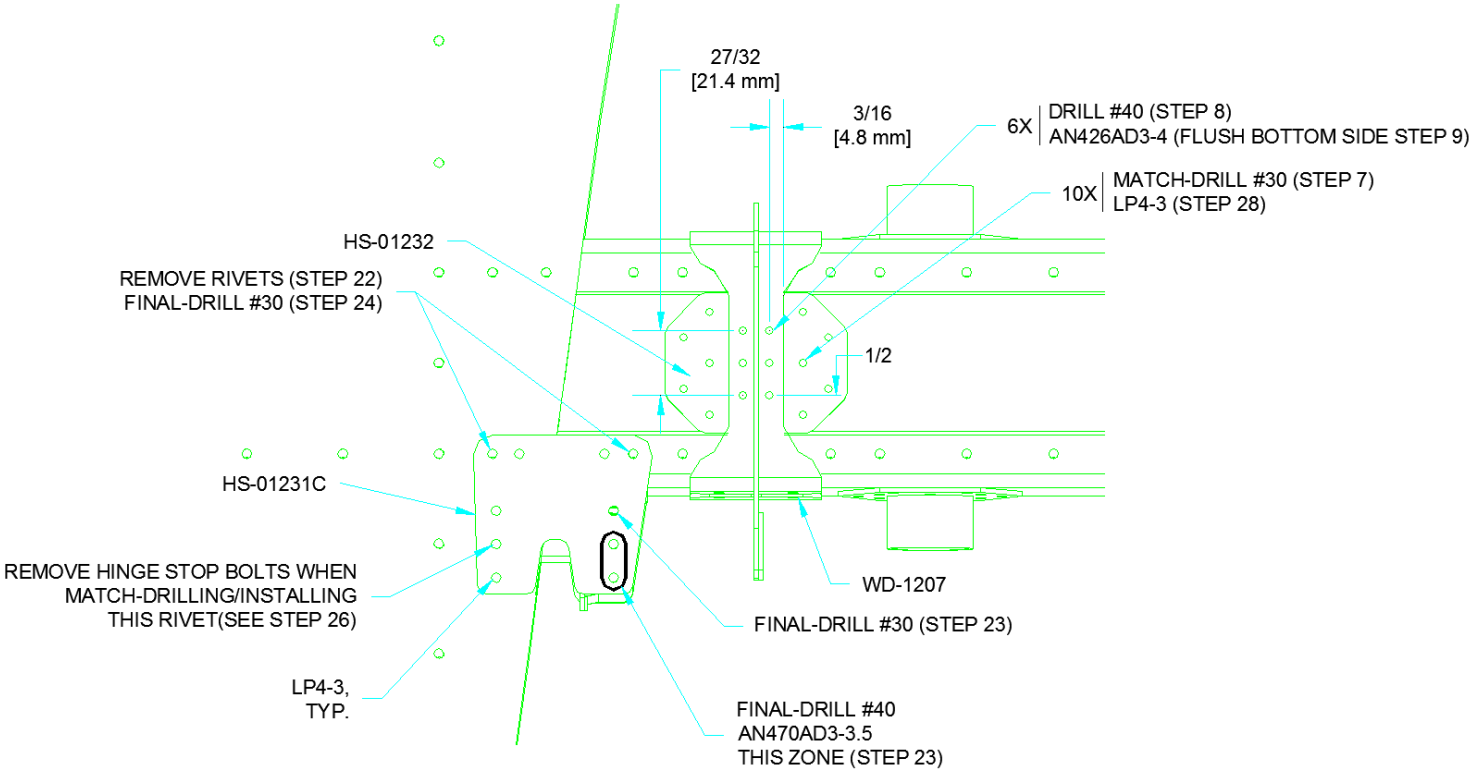

FIGURE 8: INSTALLING THE STABILATOR HINGE GUSSETS

Step 28: Bolt then Rivet the WD-1207/HS-01232 and WD-1208/HS-01232 Assemblies to the Stabilator assembly as shown in Figure 8 and KAI Page 9-10.

Step 29: Attach the WD-1223 Counterbalance Arm to the Stabilator Assembly. See KAI Page 9-10.

Attach the Stabilator Assembly to the Tailcone Assembly. See KAI Page 11-03.

Reconnect the F-1247B Aft Stabilator Cables to the WD-1027 and WD-1208 Stabilator Horns (remember the tape marking the upper cable). KAI Page 32-13.

CAUTION: If the cables happen to have fallen into the tailcone during any part of this process check carefully to ensure that they are not twisted around anything in the tailcone.

Connect the F-1287E Pushrod to the Anti Servo Tab Assembly. KAI Page 11-08.

Check for proper movement of the Stabilator Assembly and Anti Servo Tab with control stick inputs. Check for proper cable tension, See KAI Page 32-14.

Install the F-1294A and F-1294B Upper and Lower Tailcone Fairings and check for clearance at extremes of travel. See KAI Section 12. Most fairings will need to be trimmed in the area above/below HS-01231C noted by the arrow in Figure 9.

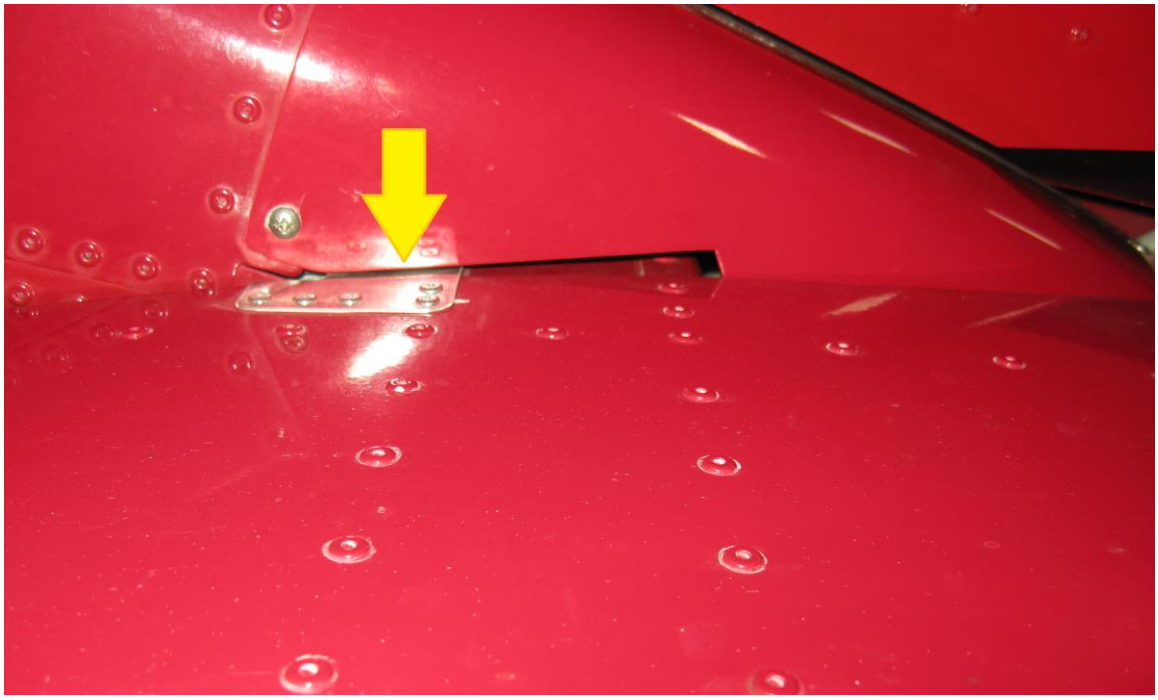

FIGURE 9: TAILCONE FARING TRIM

Step 30: Make a logbook entry indicating compliance with SB 18-02-02.

Place a copy of this notification in the back of the maintenance manual for your aircraft. Note the addition of this notification to the bottom of the Maintenance Manual table of contents.

PART NUMBER

Purchase from Van's Aircraft: SB 18-02-02