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SB-GA8-2009-38
Issue 1
OPTIONAL

Service Bulletin

Subject:

Door Seals Upgrade

Applicability:

GA8 serial numbers GA8-00-004 through GA8-06-098.

Amendments:

Nil (initial issue).

Background:

Gippsland Aeronautics has incorporated improved cockpit and rear cabin door seals into currently manufactured GA8 aircraft to improve door sealing in cold weather operating environments. This Service Bulletin provides the option of upgrading existing door seals with the improved type.

Compliance:

This optional Service Bulletin may be incorporated at the owner's discretion.

Weight and Balance:

Negligible effect.

Approval:

The technical aspects of this Service Bulletin have been approved under a CASA authorisation.

Parts:

Item	Part Number	Description	Qty
1	GA8-251019-11	OPENING SEAL ASSEMBLY (Cockpit Door, LH)	1
2	GA8-251019-12	OPENING SEAL ASSEMBLY (Cockpit Door, RH)	1
3	GA8-251029-25	LOWER SEAL (Cockpit Door, LH)	1
4	GA8-251029-26	LOWER SEAL (Cockpit Door, RH)	1
5	GA8-251029-27	DOOR SEAL (Cockpit Door, LH)	1
6	GA8-251029-28	DOOR SEAL (Cockpit Door, RH)	1
7	GA8-252043-11	OPENING SEAL ASSEMBLY (Rear Cabin Door)	1
8	GA8-252025-81	CARGO DOOR FWD TRIM	1
9	GA8-252053-25	DOOR FORWARD SEAL (Rear Cabin Door)	1
10	GA8-252053-27	DOOR AFT SEAL (Rear Cabin Door)	1
11	GA8-252053-29	DOOR UPPER SEAL (Rear Cabin Door)	1
12	GA8-252053-31	DOOR LOWER SEAL (Rear Cabin Door)	1
13	GA8-521022-145	DOOR RAMP	1
14	GA8-521022-191	SEAL RETAINER	1
15	GA8-521022-193	PIVOT ARM SEAL	1
16	GA8-521022-195	ARM SEAL BLOCK	1
17	GA8-521022-203	INTERIOR PANEL AFT RETAINER	1
18	MS20426AD3-3.5	COUNTERSUNK RIVET	8
19	Cherry CCR264CS3-4	NUTPLATE ("PULL THROUGH") RIVET	2
20	6x1/2 PTAG	SELF-TAPPING SCREW (Painted Grey Head)	4
21	Dow Corning Silastic 747 Silicone RTV	SEALANT/ADHESIVE	A/R
22	A3236-012-935	COUNTERSUNK WASHER (Painted Grey)	4
23	A6195-6Z1D	TINNERMAN NUTPLATE	4
24	S1022Z6-8	COUNTERSUNK SCREW (Painted Grey Head)	4
25	TLPD321	POP RIVET	7

Parts Availability:

Gippsland Aeronautics participation is limited to the supply of parts, including freight, at the owner's expense.

Parts may be sourced locally or a kit can be obtained directly from Gippsland Aeronautics (Part Number SB-GA8-2009-38-1).

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Labour:

Approximately 8 hours should be allocated for completing the work detailed in this Service Bulletin. This does not include curing times of sealants/adhesives or primers and topcoats, for which manufacturer instructions should be consulted.

Instructions:

NOTES

Prior to installation of new seals, ensure all traces of any previous sealant/adhesive compound are removed from attachment surfaces on the aircraft using a plastic spatula and Prepsol (or equivalent) on a cloth. Prepare attachment surfaces of both the aircraft and the new seals by lightly abrading with a scouring pad (such as Scotch-Brite) and cleaning with acetone (or equivalent).

If removal or damage to corrosion protection or paint occurs during removal of old seals, treat in accordance with the following procedure prior to installation of new seals:

1. *Lightly abrade surface using scouring pads (such as Scotch-Brite) or fine sandpaper where necessary. Abrasion by hand is to be in a crosshatch pattern. This light etching improves the adherence of primer to the surface of the material. Thoroughly clean surface using Prepsol (or equivalent) after abrasion.*

2. *Prepare and apply zinc chromate (or equivalent) primer to aluminium alloy surfaces, or Durepon P14 epoxy zinc phosphate (or equivalent) primer to steel surfaces, in accordance with manufacturer instructions.*

3. *Prepare and apply two to three coats of polyurethane two pack topcoat of the appropriate colour to primed aluminium alloy or steel surfaces, in accordance with manufacturer instructions.*

4. *Allow curing in accordance with topcoat manufacturer instructions.*

When installing new seals, ensure seals are retained in their correct positions until cured using masking tape or clips.

Manufacturer recommendations should be referred to for cure times and surface preparation procedure for Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant.

Cockpit Doors

Complete the following procedure for both the left and right cockpit doors:

1. Remove the pinchweld seal from around the cockpit door opening, retaining the windscreen pillar trim angle in its original location on the cockpit frame using masking tape.

2. Fasten the windscreen pillar trim angle into its original location onto the cockpit frame using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent.

NOTE

Prior to installation of new seals, ensure all traces of any previous sealant/adhesive compound are removed from attachment surfaces on the aircraft using a plastic spatula and Prepsol (or equivalent) on a cloth. Prepare attachment surfaces of both the aircraft and the new seals by lightly abrading with a scouring pad (such as Scotch-Brite) and cleaning with acetone (or equivalent).

3. Locate and install the opening seal assembly (left hand side P/N GA8-251019-11, right hand side P/N GA8-251019-12) over the door seal angles from the lower forward to lower aft corners of the door opening, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent injected into the channel between the attach flange and D section of the seal, similar to the installation shown in Figures 1, 2 and 5. Locate and bond the seal assembly join into the upper aft corner of the door opening and the trimmed end sections flush against the outboard face of the door sill, and ensure there is a 1/8" gap between the seal ends and the bottom of the door sill. Locate the trimmed section of seal attach flange along the aft side of the door opening to clear the door striker plate, and ensure that the striker plate door locking surface is free of adhesive and there is no fouling of the door latch or locking ability. Trim the edge of the seal around the striker plate as required. Smooth the seal attach flange to remove wrinkles.

4. Locate and install the lower seal (left hand side P/N GA8-251029-25, right hand side P/N GA8-251029-26) 1/4" from the top of the door sill between the door opening seal assembly, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent, similar to the installation shown in Figure 1.

5. Carefully remove the P section seal from the bottom of the cockpit door and remove any adhesive remnants using a plastic spatula and Prepsol (or equivalent) on a cloth.

6. Locate and install the door seal (left hand side P/N GA8-251029-27, right hand side P/N GA8-251029-28) approximately 3/8” from the bottom edge of the door, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent, ensuring that the door seal mates with the lower seal when the door is closed, similar to the installation shown in Figure 3.

7. Figures 1 to 5 show various aspects of the installation of the new cockpit door seals (right hand side shown).

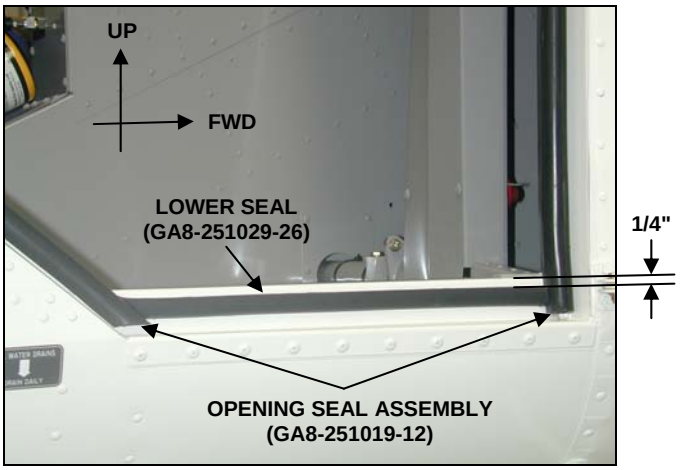

Figure 1: New seals installed in the lower section of the door opening (right hand side shown).

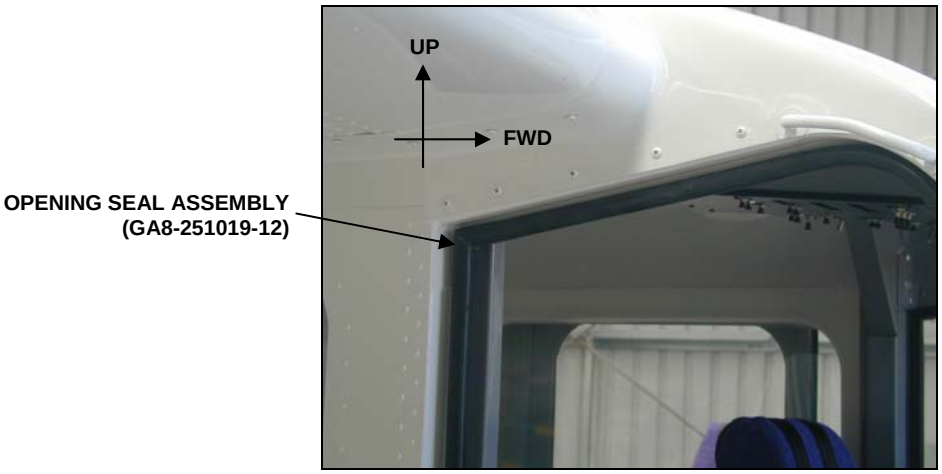

Figure 2: New seals installed in the upper section of the door opening (right hand side shown).

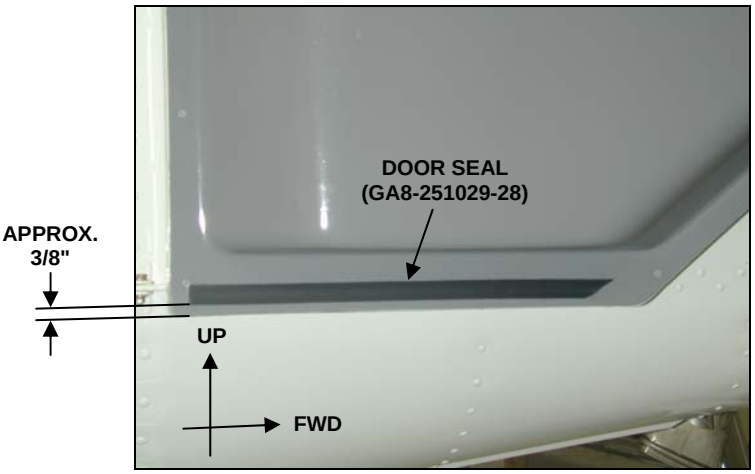

Figure 3: New seal installed on the inside of the door to mate with the seal installed on the outboard face of the sill in the door opening (right hand side shown).

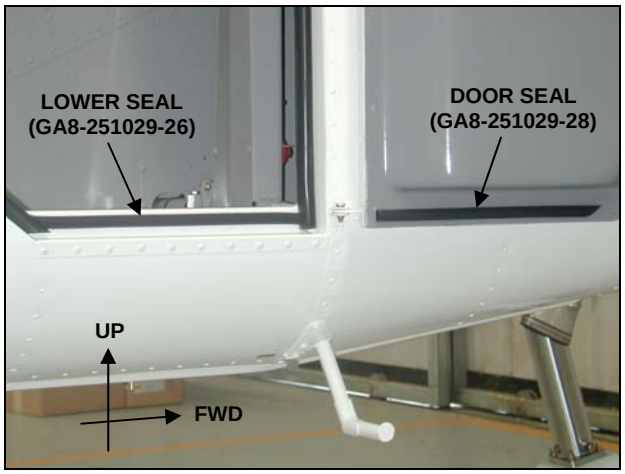

Figure 4: New seals installed in the lower door opening and on the inside of the door (right hand side shown). Note the alignment of the seal on the door with the seal along the outboard face of the sill in the door opening.

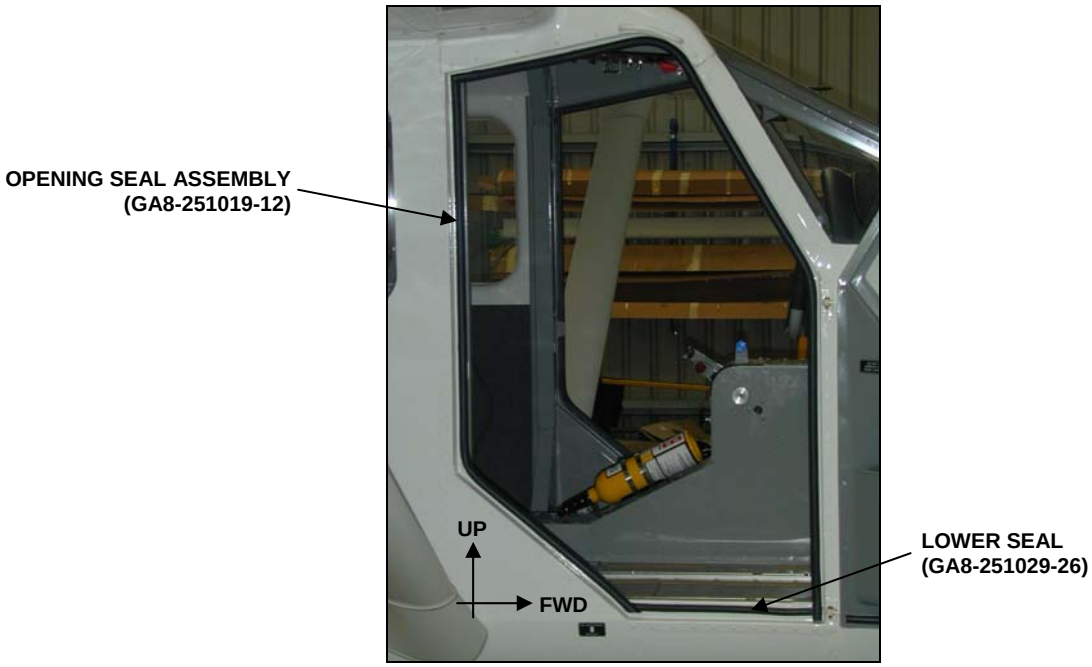

Figure 5: New seals installed in the door opening (right hand side shown).

Rear Cabin Door

1. Unscrew and remove the three screws securing the forward door mount fairing. Carefully cut through the sealant around the fairing and remove the fairing.

2. Carefully remove the rear cargo door from the aircraft by unscrewing and removing the three bolts on each of the bottom and top door slide mounts, and if required unscrewing and removing the bolt attaching the forward door mount to the slider.

3. Remove the adhesive plugs at the bottom and top aft corners of the door (refer to Figure 6).

4. Unscrew and remove the two screws securing the inside door latch cover, and the two screws securing the latch support. If necessary (refer to note following Step 5), remove the adhesive securing the cover to the support at the top aft corner, and remove the cover and the support.

NOTE

The door latch is spring loaded and held in place by the latch support.

5. Drill out and remove the five pop rivets securing the upper aft trim angle and remove the trim angle. Drill out and remove the five pop rivets securing the lower aft trim angle and remove the trim angle. Figure 6 shows the lower two rivets securing the lower trim angle.

NOTE

Removal of the cover and support, including the adhesive securing the top aft corner of the cover, is not required if the trim angle can be removed from underneath the lower leg of the support.

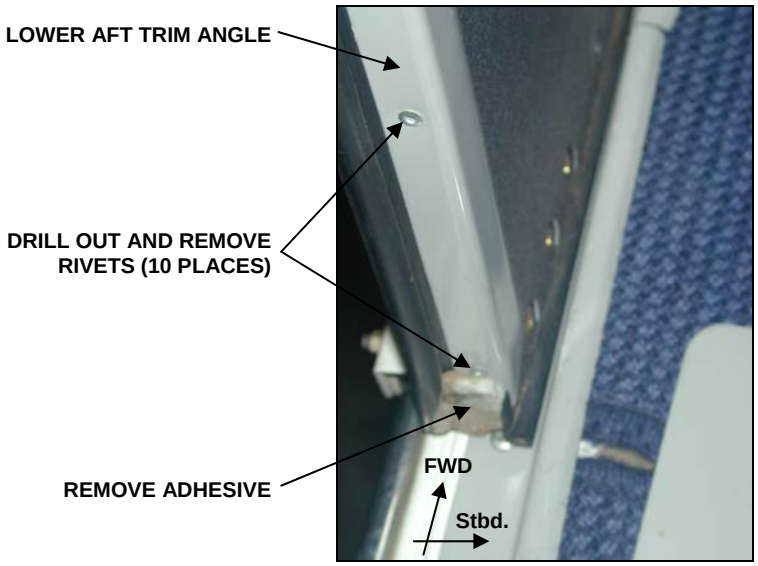

Figure 6: Rear cabin door (prior to upgrading).

6. Carefully remove the aft door seal and remove any adhesive remnants using a plastic spatula and Prepsol (or equivalent) on a cloth.

7. Drill out and remove the seven pop rivets securing the horizontal interior panel retaining angle below the windows. Remove the horizontal interior panel retaining angle.

8. Unscrew and remove the nine countersunk screws along the lower edge and the four screws along the forward edge of the door interior panel.

9. Carefully remove the interior panel.

NOTE

A silicone sealant was used during production to assist in securing the interior panel to the door structure.

10. If the installed pivot arm seal is not manufactured from the currently used VSR3 silicone baffle seal material (coloured orange per Figure 7), complete Steps 11 and 12. If there is no pivot arm seal installed, continue from Step 12. Otherwise continue from Step 13.

11. If a pivot arm seal is installed, drill out the blind rivets securing the pivot arm seal retainer and remove the retainer. Then remove the existing pivot arm seal around the forward pivot arm assembly, and remove any adhesive remnants using a plastic spatula and Prepsol (or equivalent) on a cloth.

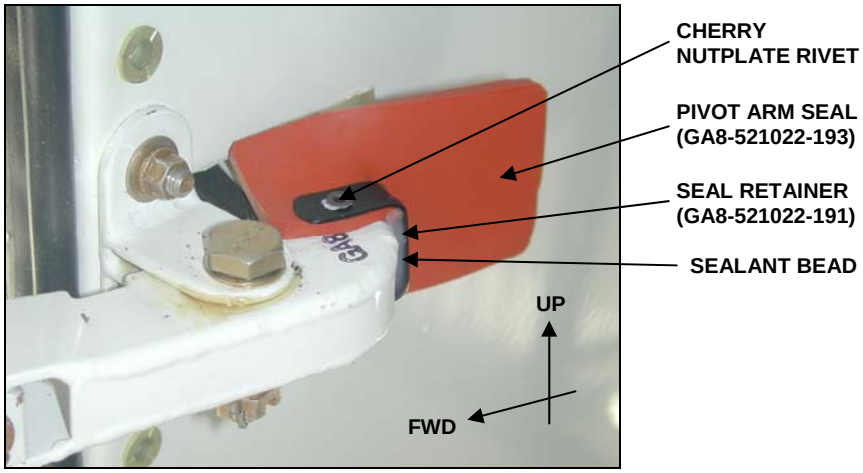

Figure 7: Installation of new pivot arm seal.

12. Ensure the door handle is in the closed position and locate new pivot arm seal (GA8-521022-193) for best sealing. Reinstall the seal retainer (P/N GA8-521022-191) using two CCR264CS3-4 blind rivets. If required, locate the seal retainer over the pivot arm seal and drill a 3/32" diameter (#40) hole through the retainer holes, the seal and the pivot arm before installing the nutplate rivets. Apply a bead of Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant along the outer middle edge of the seal retainer. Figure 7 shows the completed installation of the new seal around the pivot arm.

13. If the installed arm seal block has deteriorated and requires replacement, complete Step 14. Otherwise continue from Step 15.

14. Remove the arm seal block inside the forward pivot arm assembly, and remove any adhesive remnants using a plastic spatula and Prepsol (or equivalent) on a cloth. Install new arm seal block (GA8-521022-195) using grease or sealant/adhesive as required. Figure 8 shows the installation of the new arm seal block.

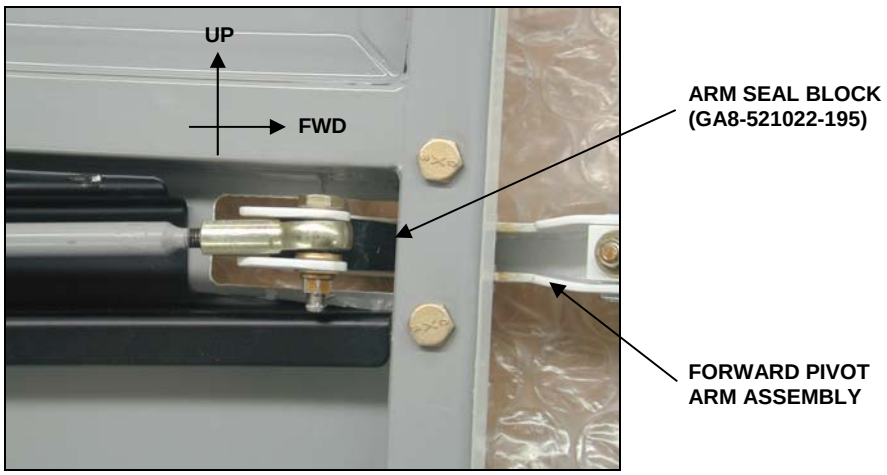

Figure 8: Installation of the new arm seal block.

15. Carefully remove the existing lower door seal and remove any adhesive remnants using a plastic spatula and Prepsol (or equivalent) on a cloth.

NOTE

Prior to installation of new seals, ensure all traces of any previous sealant/adhesive compound are removed from attachment surfaces on the aircraft using a plastic spatula and Prepsol (or equivalent) on a cloth. Prepare attachment surfaces of both the aircraft and the new seals by lightly abrading with a scouring pad (such as Scotch-Brite) and cleaning with acetone (or equivalent).

16. Locate and install the lower door seal (P/N GA8-252053-31) along the lower edge of the door starting at 1/4" forward past the forward vertical post to 5/16" past the aft vertical post, with the bent leg portion of the seal facing outboard and the bulb part of the seal facing inboard, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent, similar to the installation shown in Figure 12. Cut 1/4" diameter holes through the leg of the seal corresponding to the door frame drain holes, and 1/2" diameter holes in the leg of the seal around the holes in the door frame for installing the lower door slide mount, similar to the installation shown in Figure 9.

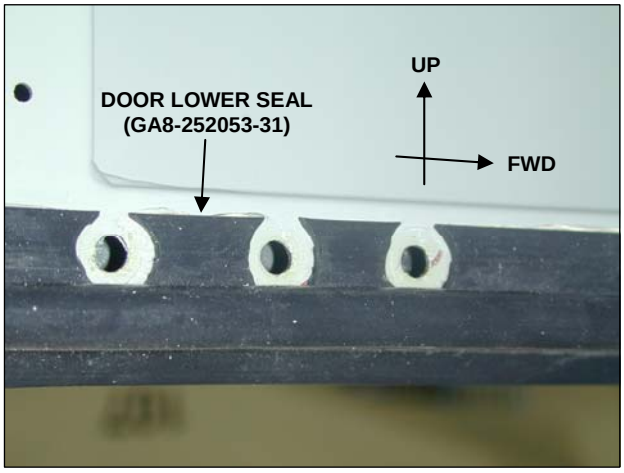

Figure 9: Holes in the leg of the seal around the holes in the door frame for installing the lower door slide mount.

17. Locate and install the aft door seal (P/N GA8-252053-27) along the aft edge of the door, ensuring the D section is flush against the outboard face of the door and the 3/32" diameter holes near the ends of the seal face inboard, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent, similar to the installation shown in Figure 11.

18. Locate and install the forward door seal (P/N GA8-252053-25) along the forward edge of the door, ensuring the bulb part of the P section is flush against the outboard face of the door and the 3/32" diameter holes near the ends of the seal face inboard, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent, similar to the installation shown in Figure 12.

19. Locate and install the upper door seal (P/N GA8-252053-29) along the upper edge of the door starting at 1/4" forward past the forward vertical post to 5/16" past the aft vertical post, with the bulb part of the seal facing inboard and overhanging flush against the inboard edge of the top of the door and the 3/32" diameter holes near the ends of the seal facing down, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent, similar to the installation shown in Figure 11.

20. Trim the lower edge of the interior panel as necessary to conform to the edge of the new lower door seal when the panel is installed.

21. Temporarily secure the interior panel onto the door frame and locate the new interior panel aft retainer (GA8-521022-203) onto the interior panel orientated with the chamfered corner of the retainer at the lower aft corner of the panel (Figure 10 shows the location and orientation of the new interior panel aft retainer). Mark the four 5/16" diameter holes from the retainer onto the interior panel. Drill 3/32" diameter (#40) holes through the interior panel and door frame at the centre of the four marked holes.

22. Ensuring the retainer is correctly positioned, locate and mark the hole corresponding to the lower aft corner of the door latch cover onto the retainer. Remove the retainer from the door and drill a 1/4" diameter hole through the retainer at the marked location.

23. Remove the interior panel from the door and drill out the four 3/32" diameter holes in the interior panel to 5/16" diameter.

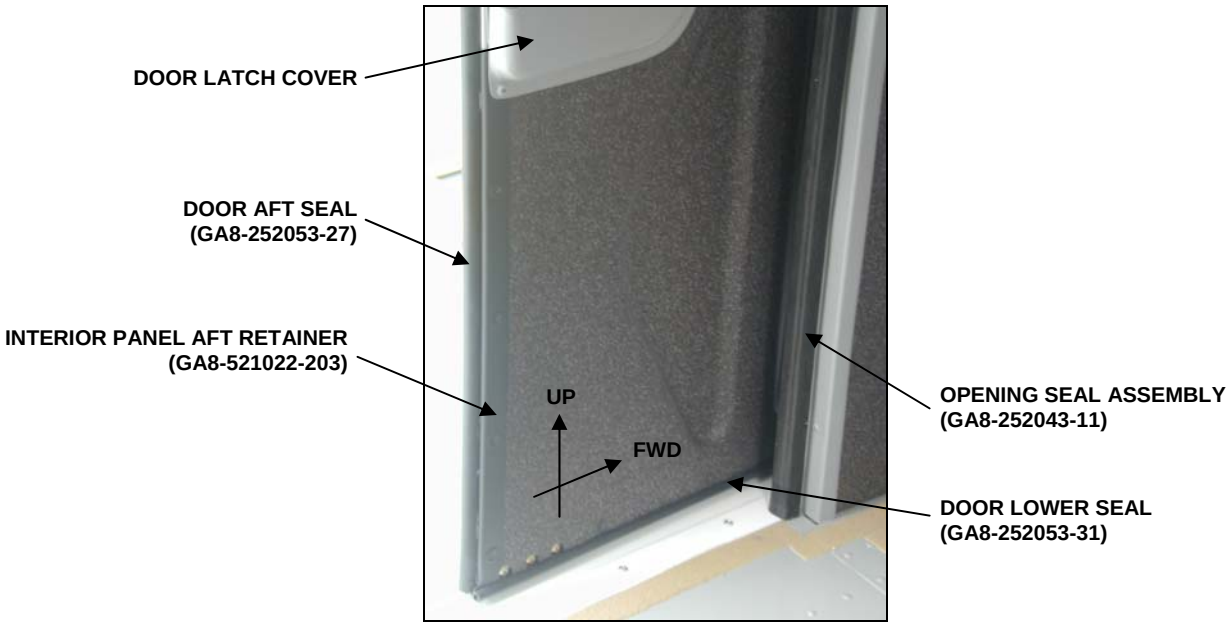

Figure 10: Installation of new rear cabin door seals and interior panel aft retainer.

24. Using a neutral cure, non-corrosive silicone sealant/adhesive as the bonding agent, bond the interior panel to the door structure at all metallic contact points around the frame and on internal structure.

25. Secure the interior panel to the lower and forward side cargo door frame using original hardware.

26. Reinstall the horizontal interior panel retaining angle and install the new interior panel aft retainer over the panel using four A3236-012-935 countersunk washers and S1022Z6-8 countersunk screws in the lower holes.

27. Reinstall the door latch support and cover (over the new interior panel retainer) using original hardware, ensuring the latch is restored to its original location in the latch support, and using (preferably grey colour) neutral cure, non-corrosive silicone sealant/adhesive to bond the cover to the support at the aft upper corner. Ensure all remnants of previously used sealant are removed.

28. Remove the pinchweld seals from the upper and forward edges of the rear cabin door opening. Remove the trim angle held in place by the pinchweld seal along the forward edge of the door opening.

29. Unscrew and remove the left hand side wall interior panels as required to access inside the forward cabin door opening pillar.

30. Locate the new cargo door forward trim angle (P/N GA8-252025-81) with the line of holes in the trim angle aligned with the line of rivets securing the door seal angle to the pillar.

31. Back drill the four 5/32 inch diameter holes from the trim angle through the door seal angle and pillar.

32. Install an A6195-6Z1D Tinnerman nutplate on the inside of the pillar for each 5/32 inch diameter hole using MS20426AD3-3.5 countersunk rivets.

33. Reinstall the left hand side wall interior panels and install the trim angle over the edges of the interior panels using four 6x1/2 PTAG self-tapping screws.

34. Locate and install the opening seal assembly (P/N GA8-252043-11) over the door seal angles from the forward lower to aft upper corners of the door opening, using Dow Corning Silastic 747 Silicone RTV Adhesive/Sealant as the bonding agent injected into the channel between the attach flange and D section of the seal, similar to the installation shown in Figure 13. Locate and bond the seal assembly join into the upper forward corner of the door opening, and ensure there is a 1/8" gap between the forward lower end of the seal and the floor. Trim minimal amounts from the seal attach flange to allow ease of installation of the seal around the grab handle fasteners, similar to the installation shown in Figure 14. Smooth the seal attach flange as necessary to remove wrinkles.

35. Reinstall cargo door using existing hardware, replacing hardware as necessary with the same type as originally used.

36. Reinstall forward door mount fairing using original hardware and applying a bead of Dinitrol 410 UV sealant/adhesive around the base of the fairing except for the last two inches from the lower forward edge to allow for water drainage.

37. Unscrew and remove the existing door ramp and install new door ramp (P/N GA8-521022-145) using existing hardware. Figure 15 shows the correct installation of the new door ramp.

38. Figures 10 to 15 show various aspects of the installation of the new cabin door seals.

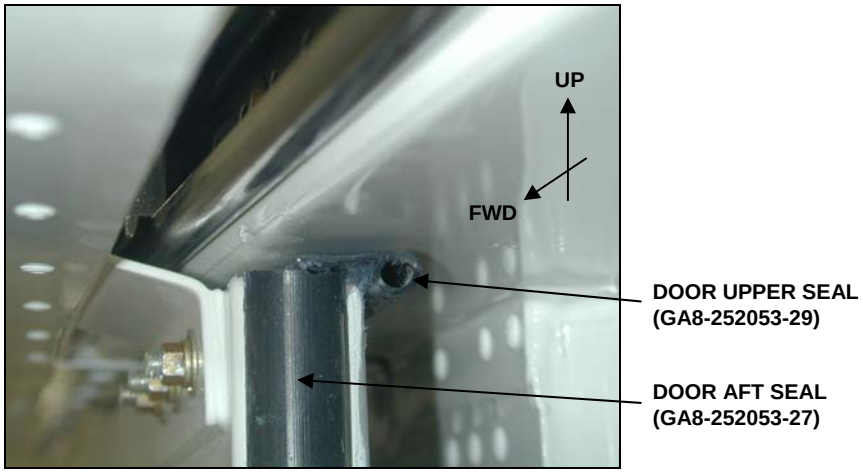

Figure 11: Installation of the new upper and aft rear cabin door seals.

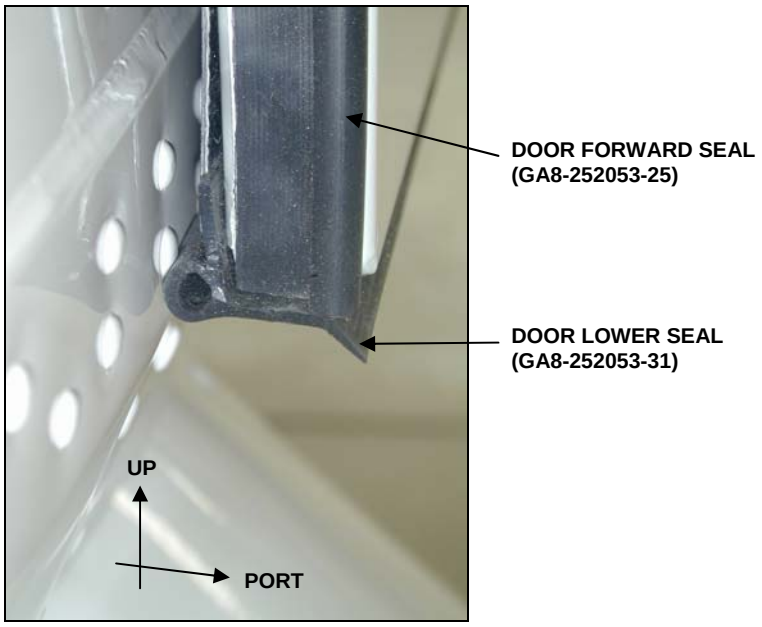

Figure 12: Installation of the new lower and forward cabin door seals.

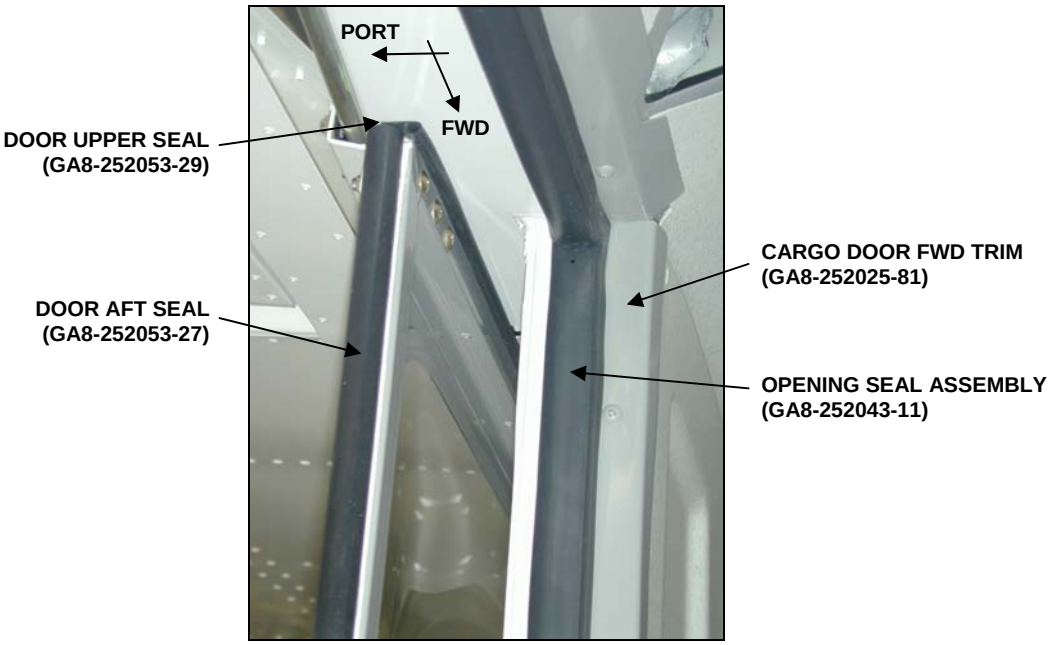

Figure 13: Installation of the new upper and aft cabin door seals and cabin door opening seal assembly.

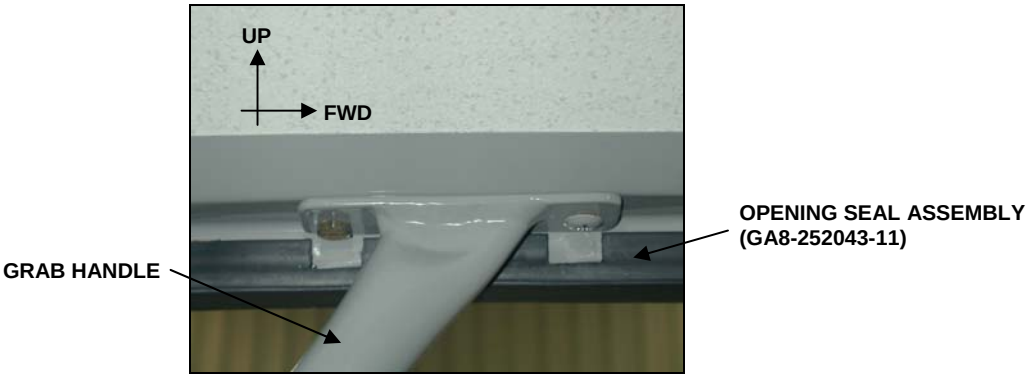

Figure 14: Trimming of the opening seal attach flange around the grab handle fasteners.

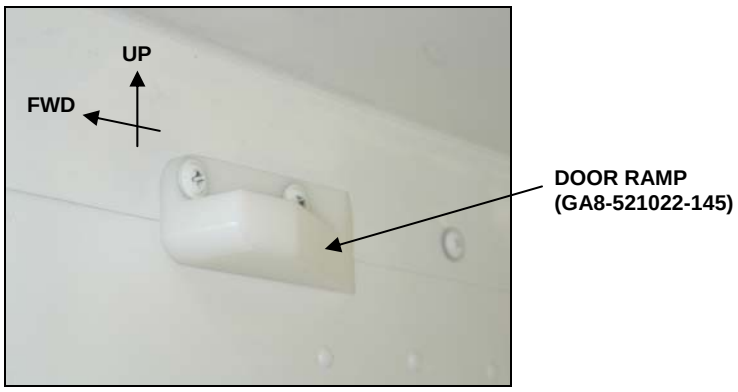

Figure 15: Installation of the new door ramp.

Documentation:

Update aircraft log book to reflect incorporation of this Service Bulletin.

Compliance Notice:

Complete the Document Compliance Notice and return to Gippsland Aeronautics by fax or mail.

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