



A Mahindra Aerospace Company

SB-GA8-2015-127

Issue 1

OPTIONAL

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Service Bulletin

Subject:

Flap and Aileron Arm Corrosion Rework

Applicability:

All GA8 and GA8-TC 320 aircraft.

Aircraft that have had rework performed in accordance with SB-GA8-2012-67, Issue 1, Flap and Aileron Hinge Wear Repair can also have this Service Bulletin's instructions incorporated.

Amendments:

Issue 1: Initial issue.

Background:

Operators and maintenance providers have reported corrosion around holes in Flap and Aileron Arms (P/Ns GA8-571021-163 and -165) where Bonding Straps are fastened. In the event that corrosion is found on these parts, this Service Bulletin provides rework instructions for the removal of corrosion and reapplication of corrosion preventative coatings.

Compliance:

The accomplishment instructions contained within this Service Bulletin are optional and may be incorporated at the Operator's, Owner's or Maintenance Provider's discretion.

Weight and Balance:

There is a negligible change to the aircraft's weight and balance as a result of this Service Bulletin.

Approval:

This Service Bulletin has been approved pursuant to Regulation 21.095 of CASR (1998).

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23-3-15

Parts:

The following parts are required to accomplish this Service Bulletin and vary depending upon how many Aileron/Flap Arms are affected. The quantities shown are for one Arm only.

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	AN526-632R8	Screw, Machine, Truss Head	1 per Aileron Arm	Carbon Steel, Cadmium Plated, Recessed Head
2	AN526-632R10	Screw, Machine, Truss Head	1 per Flap Arm	Carbon Steel, Cadmium Plated, Recessed Head
3	AN960-JD6L	Washer, Flat	2	#6 Diameter, Aluminium, Chemical Conversion Coating
4	AN960-6L	Washer, Flat	1	#6 Diameter, Steel, Cadmium Plated
5	MS21044N06	Nut, Self-Locking	1	
6	(Nil)	Chemical Conversion Coating	A/R	A product meeting MIL-DTL-81706 and listed on QPL-81706
7	2024-T3 per SAE-AMS-QQ-A-250/5	Aluminium, Clad, 0.125" thick	1" by 3.5"	For fabrication of Arm Packers if required
8	Primer	Epoxy, High Solids	A/R	A product meeting MIL-PRF-23377K (or later approved revision) Type 1, Class C2
9	Primer	Alkyd Base, One Component	A/R	A product meeting FED-SPEC-TT-P-1757B (or later approved revision) Class C, Colour T
10	Topcoat	Polyurethane	A/R	A product meeting MIL-PRF-85285E (or later approved revision) Type 1, Class H
11	Topcoat	Urethane Enamel	A/R	Aviation Urethane Enamel (example: Tempo Products Company)
12	Aluminium Bronze per AMS 4631	Aluminium Bronze Bar, 0.625" diameter	1" long minimum	For bush fabrication
13	MS20426AD4-10	Rivet, Solid, 100° Countersunk Head	2	For Arm Packer installation

Parts Availability:

New parts can be obtained directly from GippsAero.

Tel: +61 (0)3 5172 1200

Fax: +61 (0)3 5172 1201

Email: spares@gippsaero.com

Labour:

8 man hours should be allocated for completing the work detailed in this Service Bulletin for one Arm only.

Warranty:

Aircraft under warranty may claim the direct cost of carrying out the requirements of this Service Bulletin via GippsAero Customer Service.

Tel: +61 (0)3 5172 1200

Fax: +61 (0)3 5172 1201

Email: warranty@gippsaero.com

Accomplishment Instructions:

If a visual inspection of the attachment location on either the Flap or Aileron Arm (P/Ns GA8-571021-163 and -165) for any P/N GA8-552011-011, Bonding Strap, reveals the presence of corrosion, perform the following:

NOTE:

Ensure the aircraft is prepared for maintenance and that appropriate safety precautions are taken when performing work outlined in this Service Bulletin.

Unless otherwise specified, reference to the GA8/GA8-TC 320 Service Manual as well as FAA AC43.13-1B & FAA AC43.13-2B should be made when carrying out the procedures prescribed in this Service Bulletin. In case of discrepancy between the Service Manual and the AC, the Service Manual takes precedence.

1. Remove the screw, washers and nut securing the Bonding Strap to the affected Arm and discard.
2. Remove all paint and primer from the affected area at least 0.375" either side of the fastener hole as shown in Figure 1.

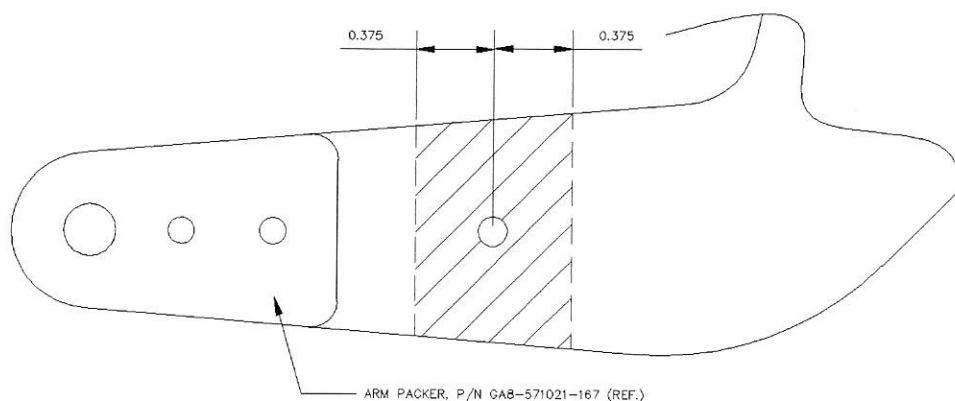


Figure 1- Area of Paint Removal for typical Arm

3. Measure the thickness of the Arm in the affected region to at least 0.001" and record for future use.
4. Perform a detailed visual inspection of the affected area, using at least a 10x magnifying glass and strong light source, for general condition, to determine the extent of corrosion and specifically any cracks starting from any corrosion pit. If any cracks are found, the Arm is considered unserviceable and you may either elect to replace the Arm in accordance with SB-GA8-2009-57, Drop Arm Replacement, at latest issue, or contact GippsAero for further advice.
5. If inspection reveals that corrosion extends aft underneath the Arm Packers (P/N GA8-571021-167) and the Arm fastener hole does not feature a bush installed by SB-GA8-2012-67:
 - 5.1. Remove the associated Flap or Aileron in accordance with Chapter 27 of the applicable aircraft Service Manual;
 - 5.2. Carefully remove the 1/8" diameter MS20426AD4 rivets attaching the Arm Packers to the Arm; and
 - 5.3. Perform a detailed visual inspection of the Arm and Packer faying surfaces, using at least a 10x magnifying glass and strong light source, for general condition and specifically any cracks starting from any corrosion pit. If any cracks are found, the Arm is considered unserviceable and you may either elect to replace the Arm in accordance with SB-GA8-2009-57, Drop Arm Replacement, at latest issue, or contact GippsAero for further advice.

If the Arm fastener hole does feature a bush installed by SB-GA8-2012-67:

- 5.4. Remove the associated control surface (Flap or Aileron) in accordance with Chapter 27 of the applicable aircraft Service Manual;
- 5.5. Carefully remove the press-fit bush from the Arm fastener hole and retain for inspection;
- 5.6. Carefully remove the 1/8" diameter MS20426AD4 rivets attaching the Arm Packers to the Arm; and
- 5.7. Perform a detailed visual inspection of the Arm and Packer faying surfaces, using at least a 10x magnifying glass and strong light source, for general condition and specifically any cracks starting from any corrosion pit. If any cracks are found, the Arm is considered unserviceable and

you may either elect to replace the Arm in accordance with SB-GA8-2009-57, Drop Arm Replacement, at latest issue, or contact GippsAero for further advice.

- 5.8. Perform a detailed visual inspection of the Arm fastener hole bore from which the bush was removed, using at least a 10x magnifying glass and strong light source for signs of axial scoring, galling or damage introduced by bush removal. If light scoring is evident, it is permissible to lightly abrade the bush bore using at least a 220 or 320 grit emery paper or ScotchBrite® pad to restore a minimum surface roughness of 63 µin. Ra.
 - 5.9. Measure the inside diameter of the bore to the nearest 0.01mm (0.0004"). If the hole bore diameter exceeds 9.54mm (0.3755"), the Arm is considered unserviceable and you may either elect to replace the Arm in accordance with SB-GA8-2009-57, Drop Arm Replacement, at latest issue, or contact GippsAero for further advice. If the hole bore diameter is less than 9.54mm (0.3755"), proceed.
6. Perform rework to the affected Arms in accordance with the following:

NOTE:

Instructions provided here may be applied to one side only or both sides of an affected Arm. Pictorial references show reworked performed on both sides for information and are not indicative of the requirements of the following Steps. Ensure that in any case the Arm maximum rework limits and minimum thickness requirements are maintained

- 6.1. Perform rework to the Arm by blending. Remove a minimum amount of material and remove the corrosion found whilst not exceeding a maximum depth of 0.030" in the region around the Bonding Strap attachment hole. Ensure a blend ratio of at least 7:1 is achieved as described in Figure 2 and Figure 3, and that the resulting surface finish of the blended area is at least 63 µin. Ra;

CAUTION:

THE ARM MUST MAINTAIN A MINIMUM THICKNESS OF 0.190" AT THE BONDING STRAP ATTACHMENT HOLE

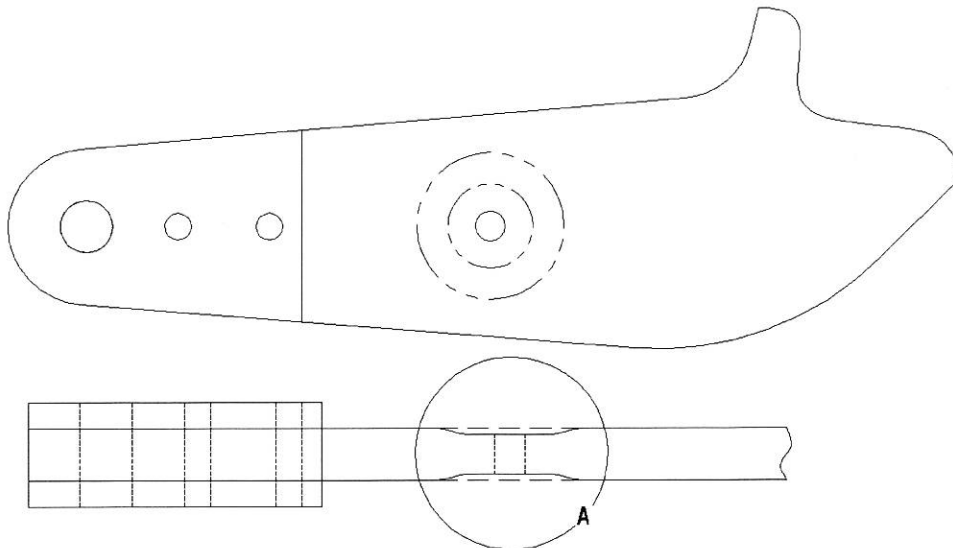


Figure 2 – Arm Rework at Bonding Strap Fastener Hole only

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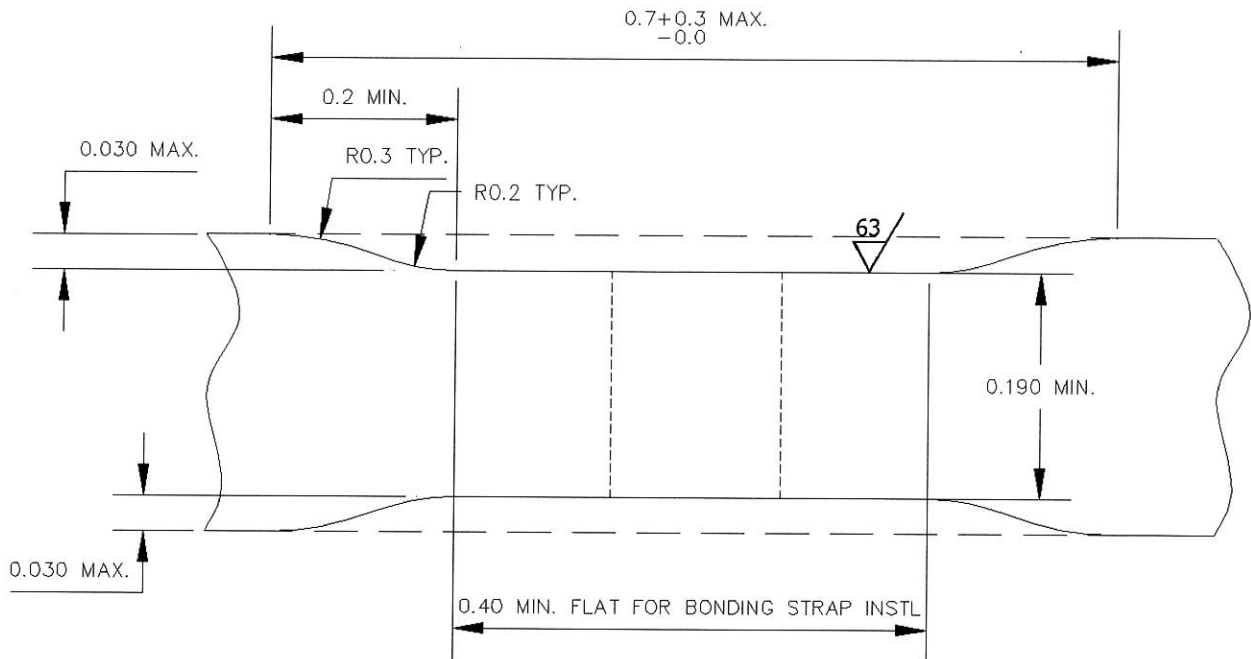


Figure 3 – Detail A: Rework at Bonding Strap Fastener Hole

- 6.2. If the Packers are removed in Step 5, perform rework to the Arm by blending. Remove a minimum amount of material and satisfactorily eradicate the corrosion on the Arm's faying surface whilst not exceeding a maximum depth of 0.005". Ensure the reworked surfaces remain parallel as shown in Figure 4 and Figure 5 and that the resulting surface finish of the blended area is at least 63 μ m. Ra.

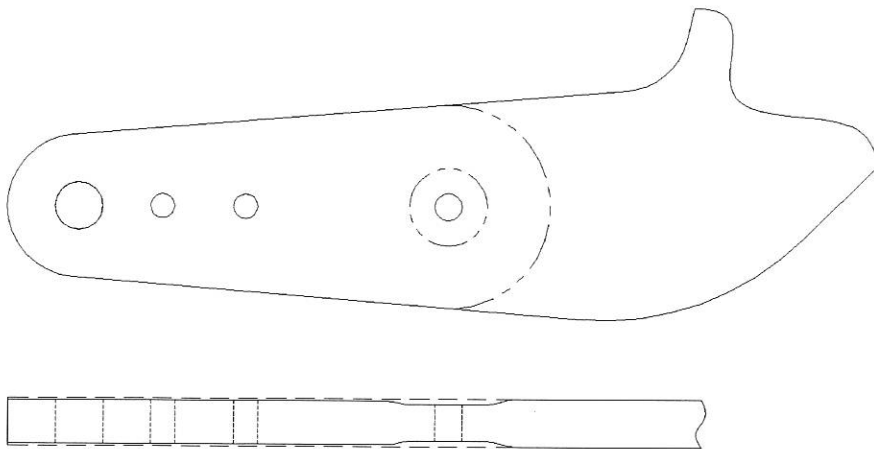


Figure 4 – Arm Rework at Bonding Strap Fastener Hole and under Packers

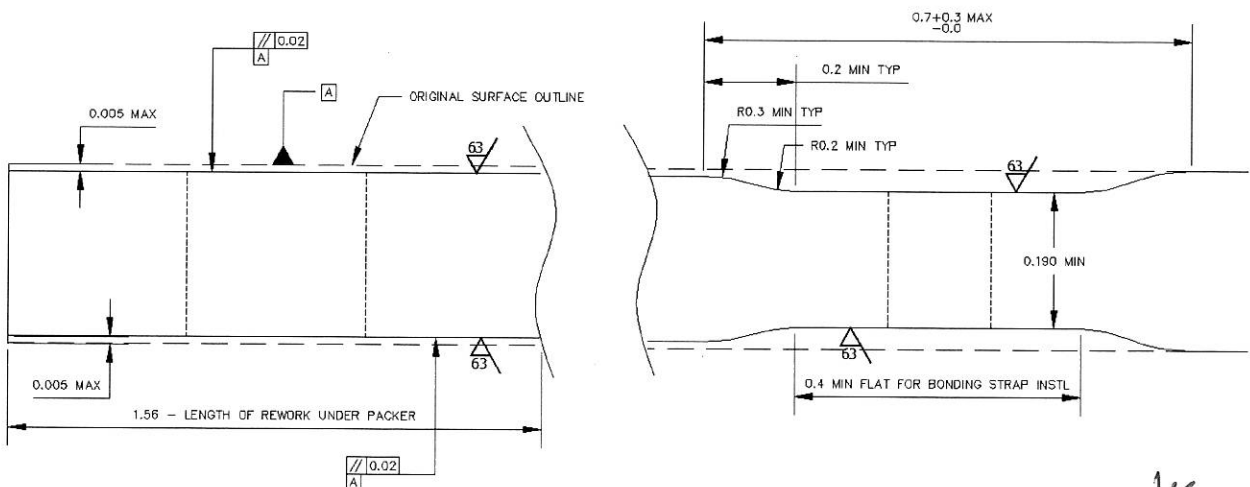


Figure 5 – Arm Rework at Bonding Strap Fastener Hole and under Packers

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7. Perform a detailed visual inspection of the reworked area(s), using at least a 10x magnifying glass and strong light source, to confirm the removal of all corrosion and that the Arm is free from cracks. If damage remains, repeat Step 6.1 or 6.2 until the maximum rework depth limit has been met. If corrosion or damage cannot be fully removed at the maximum rework limit, you may either elect to replace the Arm in accordance with SB-GA8-2009-57, Drop Arm Replacement, at latest issue, or contact GippsAero for further advice.
8. If required, locally fabricate two Arm Packers from 0.125" thick 2024-T3 clad aluminium per SAE-AMS-QQ-A-250/5 to the dimensions in Figure 6. Apply a chemical conversion coating to the reworked area(s) of the Arm in accordance with MIL-DTL-5541F (or later approved revision), Type I, Class 1A. Apply at least one coat of Item 8 or Item 9 primer to the Packers.

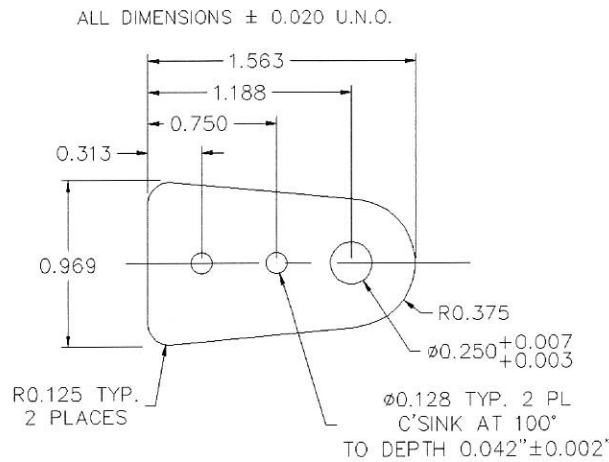


Figure 6 – Arm Packer, P/N GA8-571021-167

9. If a bush was removed from the Arm fastener hole during Step 5:
 - 9.1. Perform a detailed visual inspection of the bush outside diameter (OD) using at least a 10x magnifying glass and strong light source for signs of axial scoring, galling or damage introduced by bush removal. If light scoring is evident, it is permissible to lightly abrade the bush OD using at least a 220 or 320 grit emery paper or a ScotchBrite® pad to restore a minimum surface roughness of 63Ra.
 - 9.2. Measure the OD of the bush to the nearest 0.01mm (0.0004"). If the OD is less than 9.53mm (0.3751"), or more than 9.55mm (0.3761") the bush is considered unserviceable and a new bush must be manufactured in accordance with Figure 2 of SB-GA8-2012-67. Otherwise, proceed.
10. Prepare the reworked surface(s) of the Arm for electrical bonding by cleaning to remove any non-conductive material or contaminants from the surface without damaging the base material. The cleaning may be achieved using 180-220 grit emery paper or a ScotchBrite® pad followed by a solvent cleaner and lint-free cloth. The bonding point is to be abraded in two directions at 90 degrees then wiped repeatedly until the clean, lint-free cloth lifts no discolorations. After cleaning the surface must be dried of any residual moisture with a clean lint-free cloth. Latex gloves must be worn to prevent finger contamination.
11. Apply a chemical conversion coating (such as Alodine® 1201) to the reworked area(s) of the Arm in accordance with MIL-DTL-5541F (or later approved revision), Type I, Class 3 to ensure adequate electrical bonding.

NOTE:

*Any Primer must be applied within 24 hours to
any component treated with a Chemical Conversion Coating*

12. If Packers were removed and refabricated, fasten the Packers to the Arm using MS20426AD4-10 rivets. Drive the tail of each fastener into the countersunk region and mill flush with surrounding surface $+0.005"/-0.000"$. Reinstall a serviceable bush as described in Steps 5 and 9 as shown in SB-GA8-2012-67, and mill the ends of the bush flush with the surrounding Packer surfaces $+0.001"/0.000"$.
13. Mask an area of diameter 0.4" around the Bonding Strap attachment hole and the control surface attachment fastener hole bore to prevent overspray. Apply at least one coat of Item 8 or Item 9 Primer to the reworked Arm.

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14. Apply a topcoat of Item 10 or Item 11 paint to the Arm and Packers (if removed), in a colour conforming to the surrounding area. Remove all maskings after paint has cured.

NOTE:

Tempo Aviation A-1109 Gloss White is similar to GippsAero colour Factory White.

15. Reinstall any removed Flap or Aileron in accordance with Chapter 27 of the applicable aircraft Service Manual and perform the appropriate rigging checks.
16. Reattach the Bonding Strap using new hardware Items 1 through 5 as shown in the applicable aircraft Illustrated Parts Catalogue and perform an electrical bonding check between the control surface and wing in a suitable location in accordance with Chapter 20 of CASA AC 21-99 (at latest issue) or Chapter 11 of FAA AC 43.13-1B (at latest issue). The measured resistance should be less than or equal to 3 mΩ.

Documentation:

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

Continuing Airworthiness:

Future issues of the Service Manual will contain clarified information as contained in this Service Bulletin.

Compliance Notice:

Complete the Document Compliance Notice and return to GippsAero by mail, fax or email.



DOCUMENT COMPLIANCE NOTICE



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Document:

SB-GA8-2015-127

Issue 1

Aircraft Serial Number: GA8-_____

Service Bulletin SB-GA8-2015-127 Issue 1 has been incorporated in the above aircraft.

Date of Incorporation: _____

Signed

Print Name: _____

Please post, fax or email this compliance notice to:

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