Temporary Maintenance Instruction
TMI109-526

Damper attachment fitting
(P/N 109-0111-07-113 / -117)
- Bushings replacement

A109E / A109S / AW109SP/SP-REGA / A109LUH / A109LUHS / A109LUHNZ / A109LUHAG / A109LUHAP / A109LUHN / A109LOH / A119 / AW119MKII Helicopters

The technical content of this document is approved under the authority of DOA nr. EASA.21J.005.

The present TMI will be evaluated for its introduction in the standard set of Technical Publication.
If no further notice is received, the present document expires on: February 05th, 2022.

2021-02-05

Introduction

The aim of this document is to give information about the replacement of the bushings on the damper attachment fittings P/N 109-0111-07-113 and -117.

The content of this TMI will be introduced within next issue of component repair and overhaul publication at the earliest favourable occasion.

Damper attachment fitting (P/N 109-0111-07-113 / -117) - Bushings replacement

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References

Table 1 References

Section / Data Module	Title
09-A-00-50-00-00A-013A-D	Material data information publication - Numeric index
OM - Section 20-10-00 ([1])	Surface treatment
OM - Section 20-20-00 ([1])	Painting
OM - Section 20-40-00 ([1])	Non-destructive inspections
OM - Section 20-80-00 ([1])	Assembling thermal fits
OM - Section 62-21-07 ([1])	Damper attachment fitting

([1]) Applicable to A109E Helicopters. For the other helicopter models refer to the applicable Section or Data Module of the Overhaul Manual.

Preliminary requirements

Required conditions

Table 2 Required conditions

Condition	Data Module/Section /Technical Publication
None	

Support equipment

Table 3 Support equipment

Nomenclature	Identification No.	Qty
1. Tool set, M/R damper attachment fitting bushings replacement	PSE/ES/2014/098 Rev 1	1
2. Heat gun	Local supply	1
3. 10-power magnifying glass	Local supply	1
4. Spatula (plastic)	Local supply	1
5. Machine tool (Computer Numerical Control is recommended)	Local supply	1
6. Foil thickness gauge	Local supply	1

Supplies

Table 4 Supplies

Nomenclature	Identification No.	Qty
1. Lint-free cloth	C011 ([2])	A.R.
2. Abrasive pad	C015 ([2])	A.R.
3. Chemical conversion coating	C206 ([2])	A.R.
4. Cleaning solvent	C287 ([2])	A.R.
5. Epoxy primer	C477 ([2])	A.R.
6. Sealing compound	C501 ([2])	A.R.
7. Epoxy primer	C515 ([2])	A.R.

([2]) Refer to 09-A-00-50-00-00A-013A-D of the Material Data Information Publication.

Spares

Table 5 Spares

Nomenclature	Identification No.	Qty
1. Bushing	109-0111-13-105A1	4
2. Bushing (oversize)	109-0111-13-109A1	A.R.

Table 5 Spares

Nomenclature	Identification No.	Qty
3. Bushing (oversize)	109-0111-13-111A1	A.R.
4. Bushing (oversize)	109-0111-13-113A1	A.R.
5. Bushing (oversize)	109-0111-13-115A1	A.R.

Safety conditions

WARNING

The materials that follow are dangerous. Before you do this procedure, make sure that you know all the safety precautions and first aid instructions for these materials:

- Chemical conversion coating (C206);

- Cleaning solvent (C287);

- Epoxy primer (C477);

- Sealing compound (C501);

- Epoxy primer (C515).

CAUTIONS

- **You must replace the bushings (1 and 4, Fig 1) of the two lugs at the same time. Do this also if only one bushing is damaged. Single bushing replacement is not permitted.**
- **If required, during replacement of bushings (1 and 4) protect the spherical bearing (2) from oil and moisture.**

Note 1

Repair of the damper attachment fitting P/N 109-0111-07-109 is not permitted.

Note 2

The replacement procedure that follows is applicable to the damper attachment fitting P/N 109-0111-07-113 and P/N 109-0111-07-117 only.

Procedure

Note 1

([1]) Applicable to A109E Helicopters. For the other helicopter models refer to the applicable Section or Data Module of the Overhaul Manual.

Note 2

When one surface roughness value only is shown (RMS), it is intended as the maximum permitted. Smoother values are permitted.

1. If present, remove the old sealant from the bushings shoulder with a Spatula (plastic) (Support equipment Ref. 4).

Note

Do not drill into the bottom bushings (4, Fig 1).

2. Carefully drill the top bushings (1) with the Tool set, M/R damper attachment fitting bushings replacement (Support equipment Ref. 1).

CAUTION

Do not heat the damper attachment fitting (3) more than the permitted temperature of 60 °C and a period of 30 minutes.

3. Locally heat the damper attachment fitting (3) around the bushing seats with the Heat gun (Support equipment Ref. 2).

4. Remove the bottom bushings (4) from the damper attachment fitting (3) with the Tool set, M/R damper attachment fitting bushings replacement (Support equipment Ref. 1).

5. Turn the damper attachment fitting (3) upside down and remove the top bushings (1) with the Tool set, M/R damper attachment fitting bushings replacement (Support equipment Ref. 1).

6. Locally strip the paint finish from the damper attachment fitting (3) with solvent type paint remover. Refer to SECTION 20-20-00 (paragraph 2-3) of the A119/A109 SERIES-OM ([1]).

7. Locally examine the damper attachment fitting (3) with fluorescent penetrant method, refer to SECTION 20-40-00 of the A119/A109 SERIES-OM ([1]). Replace the part if you find cracks.

Note

Slight scratches and galling that you can remove with Abrasive pad (C015) are permitted and do not require seat rework.

8. Examine bushing seats for scoring, seizure, corrosion and other damage with the 10-power magnifying glass (Support equipment Ref. 3).

9. If you find damage, rework with the Machine tool (Computer Numerical Control is recommended) (Support equipment Ref. 5) the bushings seat to install oversized bushings (1 and 4), refer to Fig 2 for "X" dimension and for selection of appropriate bushings. Bore and roll hole up to the seat diameter selected (refer to Fig 2).

Note

After rolling the surface of the holes must be smooth and shiny.

10. Do a dimensional check of the bushing seats, refer to Fig 2.

11. Touch-up the bushing seats with Chemical conversion coating (C206). Refer to SECTION 20-10-00 of the A119/A109 SERIES-OM ([1]).

12. Measure the height of the new Bushings (Spare Ref. 1) (or the new selected oversized bushings) and bushing seats to ensure that the minimum distance between the two bushings (1 and 4, Fig 1) after installation agrees with the dimension of Detail B, refer to Fig 3.

13. Clean the new bushings (1 and 4, Fig 1) with the soft Lint-free cloth (C011) moist with Cleaning solvent (C287).

CAUTION

Do not heat the damper attachment fitting (3) more than the permitted temperature of 60 °C and a period of 30 minutes.

14. Locally heat the damper attachment fitting (3) around the bushing seats with the Heat gun (Support equipment Ref. 2).

15. Cool the new bushings (1 and 4), refer to SECTION 20-80-00 of the A119/A109 SERIES-OM ([1]).

16. Apply a light layer of Epoxy primer (C477) or Epoxy primer (C515) to bushings and part mating surfaces to insulate different materials.

17. Apply a thin layer of Epoxy primer (C477) or Epoxy primer (C515) also to the mating surfaces of the bushing flange (1 and 4) and the damper attachment fitting (3).

Note

You must press the bushings (1 and 4) while the layer is still wet.

18. Install the new bushings (1 and 4) in the damper attachment fitting (3) with the Tool set, M/R damper attachment fitting bushings replacement (Support equipment Ref. 1).

19. Wipe off unwanted primer and clean the bushings (1 and 4) and the adjacent areas with the soft Lint-free cloth (C011) moist with Cleaning solvent (C287).

20. Use an applicable Foil thickness gauge (Support equipment Ref. 6) and make sure that that there is no clearance between the bushing flange (1 and 4) and contact surface of the damper attachment fitting (3).

21. Let the temperature stabilize one hour before you do the machine operation.

22. Ream in line the bushings (1 and 4) to get the dimensions of Section A-A (refer to Fig 3). Keep a 32 RMS surface roughness.

23. Mill the head of the bushings (1 and 4, Fig 1) to get the dimension of Section A-A (refer to Fig 3). Keep a 32 RMS surface roughness.

24. Clean the bushings (1 and 4, Fig 1) and the adjacent areas with the soft Lint-free cloth (C011) moist with Cleaning solvent (C287).

25. Do a dimensional check of the damper attachment fitting (3) as shown in Fig 3. Do again all the procedure if you do not find the correct dimensions.

26. Seal the junction between the damper attachment fitting (3) and the new bushings (1 and 4) with a bead of Sealing compound (C501). See Detail B of Fig 3.

Requirements after job completion

1. Restore the surface finish. Refer to SECTION 62-21-07 (paragraph 4) of the A119/A109 SERIES-OM ([1]).

2. Remove all the tools and the other items from the work area. Make sure that the work area is clean.

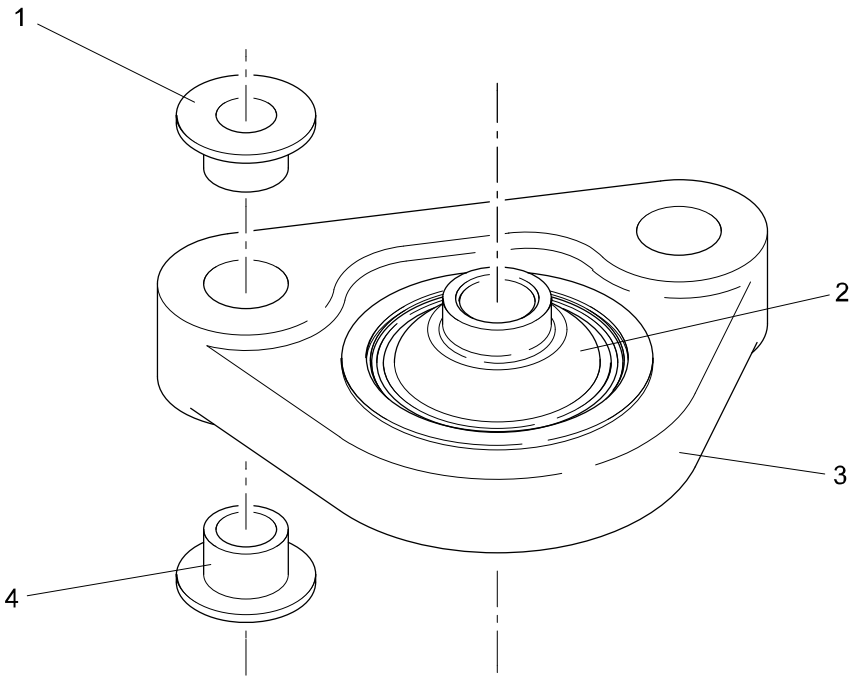

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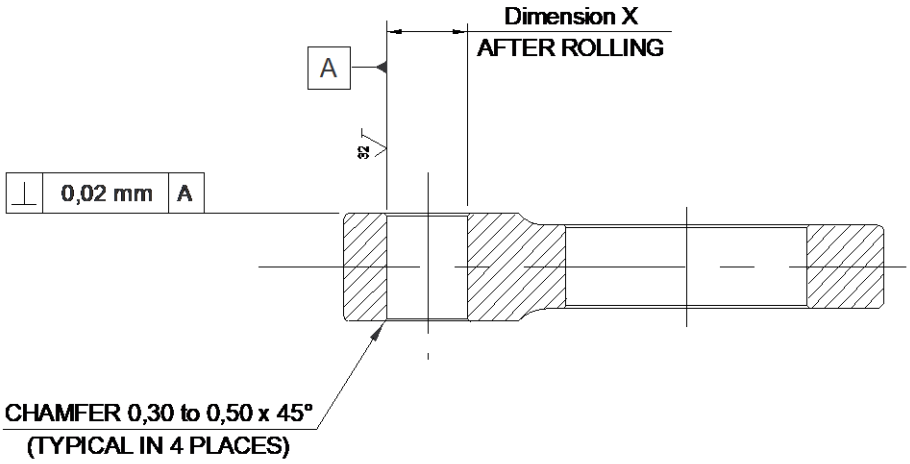
Figure 1 – Damper attachment fitting – Bushings.



DAMPER ATTACHMENT FITTING VIEWED IN SECTION
(spherical bearing omitted for clarification)

BORE DIAMETER (dimension X)	BUSHING P/N
13,500 - 13,518	109-0111-13-105A1
13,550 - 13,568	109-0111-13-109A1
13,600 - 13,618	109-0111-13-111A1
13,650 - 13,668	109-0111-13-113A1
13,700 - 13,718	109-0111-13-115A1

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Figure 2 – Damper attachment fitting – Bushings selection.

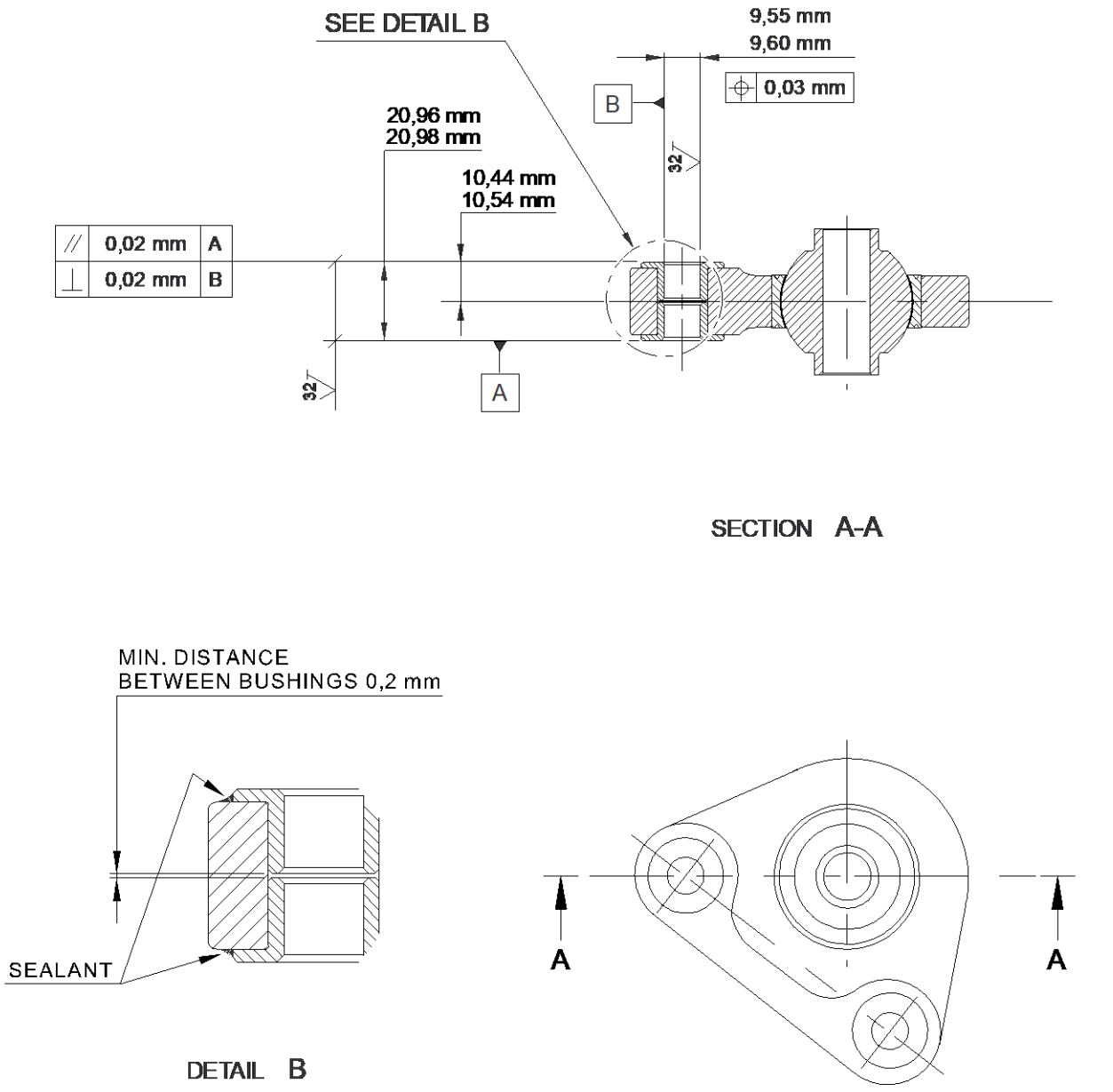

Figure 3 – Damper attachment fitting – Bushings rework.