RECOMMENDED SERVICE BULLETIN

RSB 42-089/1

RSB 42NG-017/1

SUPERSEDES RSB 42-089 / RSB 42NG-017

I TECHNICAL DETAILS

I.1 Category

Recommended.

I.2 Airplanes affected

Type:	DA 42, DA 42 M, DA 42 NG, DA 42 M-NG
Serial numbers:	42.004 through 42.321, 42.324 through 42.347, 42.349, 42.351, 42.353 through 42.357, 42.359 through 42.386, 42.388, 42.389, 42.391, 42.394, 42.396, 42.399, 42.405 through 42.409, 42.412 through 42.416, 42.427, 42.AC001 through 42.AC152, 42.M001 through 42.M011, 42.M015 through 42.M019, 42.M021, 42.M022, 42.N001 through 42.N011, 42.N013, 42.N018, 42.N019, 42.N023 through 42.N028, 42MN001 through 42.MN008 provided that a damper D60-3277-10-00_01 has NOT yet been installed

I.3 Date of effectivity

06-Oct-2010

I.4 Time of Compliance

At owner's discretion.

I.5 Subject

Replacement of seals in main landing gear damper.
ATA-Code: 32-10

I.6 Reason

The new seal system for the main landing gear damper offers more durability in a greater temperature range.

Note: This Service Bulletin's instruction, material and labor effort relate to work on one MLG damper only.

I.7 Concurrent Documents

None.

I.8 Approval

The technical information or instructions contained in this document relate to the Design Change Advisory No. MÄM 42-434, which has been approved under the authority of EASA Design Organization Approval ref. EASA.21J.052.

The technical content of this document has been approved under the authority of DOA ref. EASA.21J.052.

I.9 Accomplishments / Instructions

Comply with WI-RSB 42-089 / WI-RSB 42NG-017, latest effective issue.

Note: WI-RSB 42-089 / WI-RSB 42NG-017 is attached to this document.

Note: This Service Bulletin's instruction, material and labor effort relate to work on one MLG damper only.

I.10 Mass (Weight) and CG

None.

II PLANNING INFORMATION

II.1 Material and Availability

See WI-RSB 42-089 / WI-RSB 42NG-017, latest effective issue.

Materials including drawings are available from Diamond Aircraft Industries.

Note: This Service Bulletin's instruction, material and labor effort relate to work on one MLG damper only.

II.2 Special Tools

See WI-RSB 42-089 / WI-RSB 42NG-017, latest effective issue.

II.3 Labor Effort

Approx. 1.5 hours for upgrade and installation.

Note: This Service Bulletin's instruction, material and labour effort relate to work on one MLG damper only.

II.4 Credit

For airplanes within warranty per damper:

1.5 hours of labor and material as listed in WI-RSB 42-089 / WI-RSB 42NG-017 II.3.

II.5 Reference Documents

Diamond Aircraft 42 Series Airplane Maintenance Manual, Doc. No. 7.02.01, latest effective issue.

Diamond Aircraft 42 NG Airplane Maintenance Manual, Doc. No. 7.02.15, latest effective issue.

III REMARKS

1. All measures must be carried out by a certified aircraft service station or a certified aircraft maintenance mechanic.
2. All works, in particular those that are not especially described in this Service Bulletin, must be carried out in accordance with the referenced Maintenance Manual.
3. Accomplishment of the measures must be confirmed in the log book.
4. If material and/or labor hours are subject to be credited through Diamond Aircraft Industries, the Service Bulletin must be carried out by an authorized Diamond Service Center and the Warranty Application incl. Work Report must be sent not later than 30 days after the end of time of compliance.
5. In case of doubt contact Diamond Aircraft Industries GmbH.

EXECUTION REPORT TO SERVICE BULLETIN RSB 42-089/1 RSB 42NG-017/1

AIRPLANE DATA

Airplane Serial Number: _____

Airplane Registration: _____

Airplane Operator: _____

Hours of operation of airplane: _____

No. of landings: _____

Hours of operation-engine LH _____

RH _____

Typical operation of airplane: private, club, training, other _____

Modified damper □ LH □ RH

_____
Date, Name, Sign

Please fax the completed form to Fax No. +43-2622-26700-1369 or e-mail to airworthiness@diamond-air.at

WORK INSTRUCTION
WI-RSB 42-089
WI-RSB 42NG-017

I GENERAL INFORMATION

I.1 Subject

Replacement of main landing gear damper seals to allow a greater temperature range.

I.2 Reference Documents

DA 42 Series Airplane Maintenance Manual, Doc. No. 7.02.01, latest effective issue.

DA 42 NG Airplane Maintenance Manual, Doc. No. 7.02.15, latest effective issue.

I.3 Remarks

a) The work must be carried out by a certified aircraft service station or a certified aircraft maintenance mechanic.

b) All works, in particular that which is not especially described in this work instruction, must be carried out in accordance with the referenced maintenance manual.

c) For conversion factors between SI and US/Imperial units refer to AMM Chapter 02.

d) It is recommended to print this Work Instruction in color.

e) This Work Instruction including material and labor effort, relate to work on one MLG damper only.

f) In case of doubt, contact Diamond Aircraft Industries GmbH.

II DRAWINGS, SPECIAL TOOLS & MATERIALS

II.1 Drawings

D60-3277-10-00_01

II.2 Special Tools

Centering pin	X00-W027-00-00.01 Rev."-"
Spacer	X00-W027-00-00.02 Rev."-"
Damper Drain Tool	D60-3277-10-00-ST or equivalent
Seal pick	D60-3277-10-01-ST or equivalent

II.3 Material

Quantity	Part No.	Description
1	D60-9032-77-01	Tandem Seal
1	ORAR00227-N7083	O-Ring
1	ORAR00224-N7083	O-Ring
1	MS 28775-010	O-Ring
1	LN9348 M8	Hexagon nut
1	LN9348 M6	Hexagon nut
100ml	1U-9891 or equivalent	Additiv 1U-9891 Caterpillar Inc.

Materials including special tools are available from Diamond Aircraft Industries.

Note This list includes material only for one damper.

II.4 Consumables

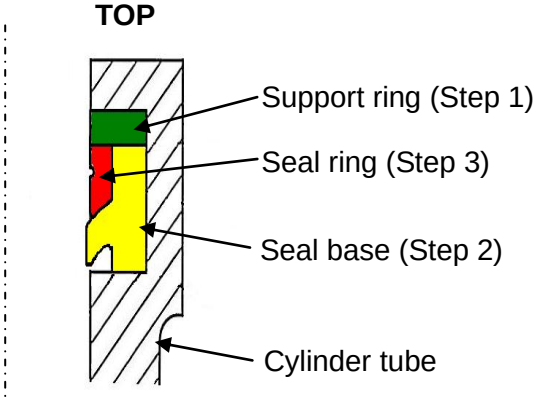
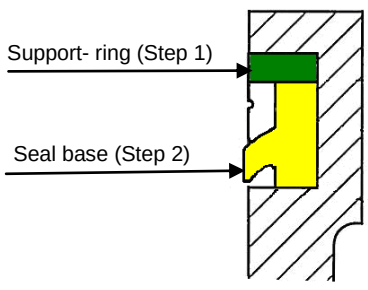
Quantity	Part No.	Description
1l	3627020L	Aero Shell Fluid 41
a. r.	Royoco 81MS	Grease Royoco 81MS
a. r.	N000 148 or equivalent	Acetone

Consumables may be procured locally or from Diamond Aircraft Industries

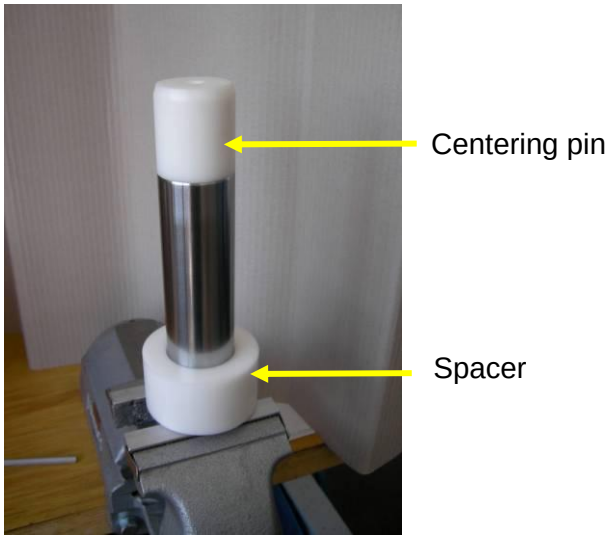
III INSTRUCTIONS

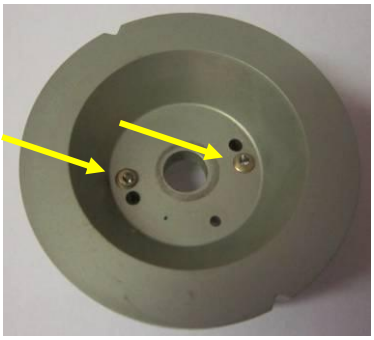
1	Ensure AMM-TR-MÄM-42-368 is incorporated into the AMM.
2	Remove the Main Landing Gear Damper acc. to AMM section 32-10.
3	Release nitrogen and oil from the damper. **WARNING: Do not spill Fluid 41 on your skin or on your clothes. Fluid 41 is harmful and can cause skin disease and damage to clothes.** **WARNING: The damper is gas loaded. Always wear safety glasses.** Install the adapter with drain hose onto the charging valve of the damper and release the pressure into the suitable container acc. to picture 1. Wait until the nitrogen is fully released. Push in the damper to minimum position to drain the oil.  Picture1
4	Remove the charging valve from damper.
5	Remove the bottom cap: • Remove the bolt holding the bottom cap. • Pull the bottom cap from the damper assembly.

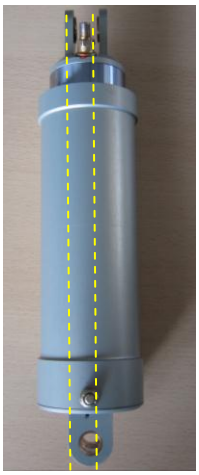
	WARNING: **Do not spill Fluid 41 on your skin or on your clothes. Fluid 41 is harmful and can cause skin disease and damage to clothes.** Note: Catch the residual oil into a suitable container. • Clean the cap with acetone. • Replace the O-Ring from the cap by new O-Ring ORAR00227-N7083 and apply a coat of Additive 1U-9891 on the new O-Ring. **Caution:** **Do not use steel tools when removing the O-Ring.** **Do not scratch the surfaces of the groove.**
6	Disassemble piston: Remove the nut on the piston and pull out the piston end plate.
7	Remove the cylinder tube from the piston.
8	Remove the upper cap from the piston. Clean the upper cap with fresh acetone. Replace the O-Ring from the upper cap by new O-Ring ORA AR 00224-N7083 and apply a coat of Additive 1U-9891 on the new O-Ring. **Caution:** **Do not use steel tools when removing the O-Ring.** **Do not scratch the surfaces of the groove.**
9	Remove the quad ring and the two backup rings from the tube: **Caution:** **Do not use steel tools when removing the quad ring.** **Do not scratch the surfaces of the groove.** Use seal pick D60-3277-10-01-ST to remove the quad ring. Clean the cylinder tube with acetone. Examine the grooves of the cylinder tube and the piston tube for scratches and wear. If scratch and wear are discernible, replace the defective part.  Picture 2

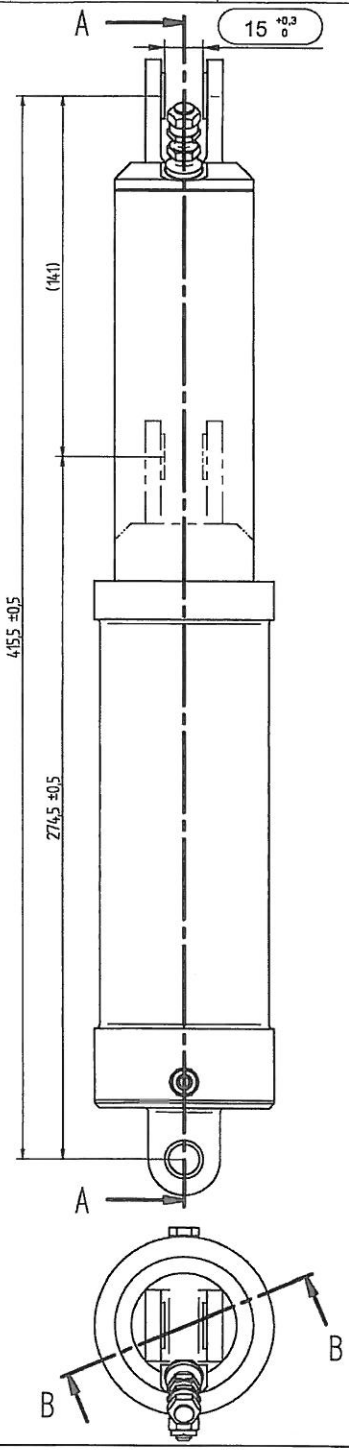
10	Description of the new tandem seal kit in the cylinder tube: Support- ring Seal ring Seal base  Picture 3 **Pay attention to mounting direction.** **TOP** 
11	Install the support ring. Deform the ring carefully acc. to picture 4. **CAUTION Avoid excessive bending of the support ring.**  Picture 4
12	Install the seal base below the support ring: Deform the seal base acc. to picture 5 and install it in the cylinder tube. Press the seal base into the groove.    Picture 5

13	Install the seal ring into the seal base. Deform the seal ring acc. to picture 6 and install it into the cylinder tube. **CAUTION: Avoid excessive bending of the seal ring.** **Do not crack the seal ring.** Press the seal ring into the seal base groove.  Picture 6
14	Apply a coat of Additive 1U-9891 on the tandem seal kit and the centering pin.
15	Carefully insert the centering pin X00-W027-00-00.01 into the cylinder tube 2 or 3 times to position the tandem seal in the cylinder groove.  Picture 7
16	Examine the connection of the thread rod and upper cap for tight fit. If necessary: Apply Loctite 262 to thread and retighten nut.
17	Install the piston tube on the piston tube end acc. to picture 8. Ensure tight fit.  Picture 8

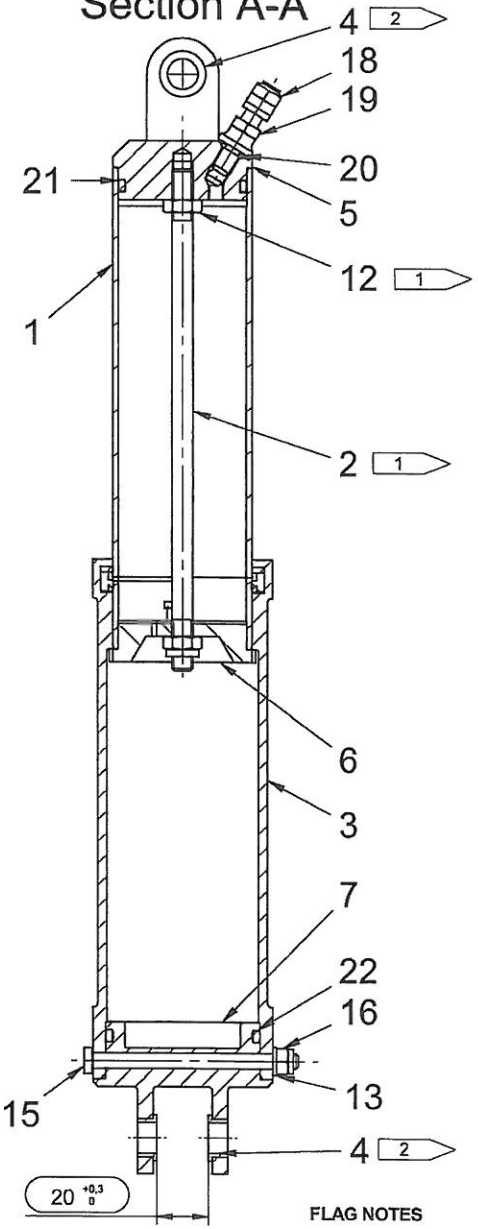
18	Mount the spacer and the centering pin acc. to picture 9.  Picture 9
19	Apply a coat of Additiv 1U-9891 on the piston tube and the centering pin.
20	Put the cylinder tube over the centering pin on the piston tube.
21	Remove the centering pin with a M12 bolt.  Picture 10
22	Examine the piston end plate: Check the thread excess length of 5 mm between bolt head and restriction washer acc. to picture 11.  Picture 11
23	If adjustment is necessary: Remove the bolt and apply a coat of Loctite 262 to the thread and adjust a thread excess length of 5 mm between bolt head and restriction washer acc. to picture 11.

24	Secure the bolt after installation with a prick-punch on the bottom side acc. to picture 12.  Picture 12
25	Install the piston end plate in the cylinder tube with a nut LN 9348 M8. Secure the connection with Loctite 262 acc. to drawing D60-3277-10-00_01.  Picture 13
26	Remove the spacer from piston tube.
27	Install the bottom cap with the bolt, washer and nut.
28	Install the charging valve with a new O-Ring MS 28775-010.

29	Adjust the direction of the piston tube to the cylinder tube acc. to picture 14. Note: The charging valve must be aligned with the nut from the bolt holding the bottom cap.  Picture 14
30	Fill and charge the Damper acc. to AMM Section 32-10.
31	Install the Damper to the MLG acc. to AMM Section 32-10.
32	Clean working area and check for foreign objects.
33	Mark damper with “reworked to D60-3277-10-00_01” using a fine permanent marker. Cover the marking with commercial clear coat. Note Mask around the marking before you apply the clear coat. Note Choose an inconspicuous location for the marking on the damper (e.g. on the side facing towards the MLG doors).
34	Perform a landing gear extension and retraction test and check clearance between MLG wheel and wheel bay acc. to AMM-TR-MÄM-42-447.
35	Apply anti-corrosion coating on damper connections acc. to AMM Section 12-30.
36	Perform functional check of altered, repaired and new parts.
37	Test all systems in working area for function.
38	Make necessary entries into aircraft logs. Note: Record which MLG damper (LH/RH) has been modified.

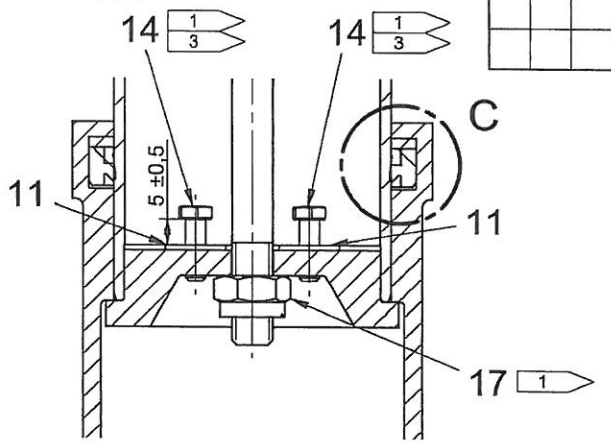


Section A-A



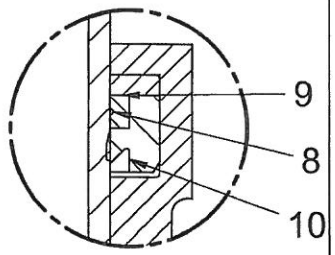
Section B-B

1:1



Detail C

2:1



REVISION					
REV	SH	ZONE	DESCRIPTION	DATE	APPROVAL
-	01	ALL	MÄM 42-434 NEW DRAWING, SUPERSEDES D60-3277-10-00	08.06.10	SEE TB

Pos.	QTY	Part Number	Description	Specification	Supplier
22	1	ORAR00227-N70	O-Ring		BusakShamban
21	1	ORAR00224-N70	O-Ring		BusakShamban
20	1	MS 28775-010	O Ring		
19	1	MS 27436	Ventil		Parker
18	1	MS 20813	Ventilkappe ZZ-V-25 (schematisch)		Parker
17	1	LN9348 M8	HEXAGON NUT		
16	1	LN9348 M6	Sechskantmutter		
15	1	LN 9037-M6x80	Sechskantschraube		
14	2	LN 9037-M4x12	Sechskantschraube		
13	1	LN 9025 - 6,4	Scheibe		
12	1	DIN 936-M8-zp	Sechskantmutter- niedrig		
11	2	DIN 9021-4,5-A2	Scheibe		
10	1	D60-9032-77-01	Dichtung	Part Nr. 410194	Fa. Mayer
9	1	D60-9032-77-01	Stützring	Part Nr. 410194	Fa. Mayer
8	1	D60-9032-77-01	Gleitring	Part Nr. 410194	Fa. Mayer
7	1	D60-3277-10-53	Deckel		
6	1	D60-3277-10-52	Drossel		
5	1	D60-3277-10-51	Deckel		
4	4	D60-3277-10-34_01	BEARING		
3	1	D60-3277-10-33	Tube		
2	1	D60-3277-10-32	Stab		
1	1	D60-3277-10-31	Rohr		

FLAG NOTES

1. SECURE WITH LOCTITE 262
   ATTENTION:
   MINIMUM CURE TIME 12h BEFORE FILLING
2. SECURE WITH LOCTITE 648
3. SECURE ITEM 14 AFTER INSTALLATION
   WITH A PRICK PUNCH ON THE BOTTOM SIDE

Approved: C. Jütte Date 15 JUNI 2010 Name

Checked: M. Volet Date 15. JUNI 2010 Name

General Tolerance: ISO 2768 medium

Scale: 1:2

Rev.	Change	Date	Name
"-"	MAM 42-434	08.06.10	M. Scheikl

Next Higher Assembly: D60-3237-21-00_01

Diamond AIRCRAFT Industries GmbH

DA42 Twin Star

Title: **MLG Damper**

Drawing Number: **D60-3277-10-00_01**

Sheet 1 from 1

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