

# MANDATORY SERVICE BULLETIN NO. MSB-42-070/1 SUPERSEDES MSB-42-070

# I <u>TECHNICAL DETAILS</u>

#### I.1 Category

Mandatory

### I.2 Airplanes Affected

Type:

DA 42, DA 42 M

Serial Numbers:	42.004 up to and inclusive 42.285,
	42.287 up to and inclusive 42.338,
	42.340 up to and inclusive 42.351,
	42.353 up to and inclusive 42.357,
	42.359 up to and inclusive 42.378,
	42.380, 42.382, 42.385, 42.388,
	42.394, 42.396, 42.399, 42.405,
	42.406, 42.407, 42.408, 42.416,
	42.AC001 up to and inclusive 42.AC120,
	42.AC122 up to and inclusive 42.AC131,
	42.M001, 42.M003,
	42.M005 up to and inclusive 42.M007,
	42.M009, 42.M010, 42.M017

#### I.3 Date of Effectivity

6-Apr-2009

#### I.4 <u>Time of Compliance</u>

Inspection: Within the next 100 flight hours from the date of effectivity but not later than 30-Sep-2009 and every 100 flight hours thereafter.

Replacement: A terminating action of this Service Bulletin is the replacement of the Nose Landing Gear (NLG) Tubular Pivot Assembly (P/N D60-3233-82-00) with one of the new improved designs (P/N D60-3233-82-00\_1 or D60-3233-82-00\_2).



#### I.5 Subject

This Service Bulletin addresses the inspection of the NLG Tubular Pivot Assembly (P/N D60-3233-82-00) and describes how to check gap and wear between Tubular Pivot (P/N D60-3233-82-32) and Left Hand (LH) Gudgeon (P/N D60-3233-82-31) and how to replace the assembly with one of the new improved designs (P/N D60-3233-82-00\_2) if gap exceeds certain limits.

#### I.6 <u>Reason</u>

On some aircraft it was noticed during maintenance or preflight inspection, that the NLG Tubular Pivot Assembly has developed a gap and wear between the tubular pivot and the LH gudgeon. Excessive wear may lead to a failure of NLG pivot and collapse of the NLG with sequential damage to the airplane structure.

To correct this situation, continuous inspection of the pivot is required and if necessary, replacement with an improved design.

#### I.7 Concurrent Documents

None

#### I.8 Approval

The technical information or instructions contained in this document relate to the Design Change Advisories No. MÄM-42-333 and MÄM-42-341, which have been approved under the authority of EASA Design Organization Approval No. EASA.21J.052.

The technical content of this document has been approved under the authority of DOA No. EASA.21J.052.

#### I.9 Accomplishment/Instructions

WI-MSB-42-070, latest effective issue must be complied with.

#### I.10 Mass (Weight) and CG

Mass and Center of Gravity are not affected.



## II PLANNING INFORMATION

#### II.1 Material & Availability

WI-MSB-42-070, latest effective issue is attached to this Service Bulletin. Necessary materials are available through your local Diamond Service Center.

#### II.2 Special Tools

None

#### II.3 Credit

None for inspection. For aircraft under warranty, material and labor costs on replacement.

#### II.4 Labor Effort

0.25 hours for inspection5.0 hours for replacement of NLG Tubular Pivot Assembly,7.0 hours for replacement of NLG Tubular Pivot Assembly on A/C equipped with TKS

#### II.5 <u>Reference Documents</u>

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

## III <u>REMARKS</u>

- 1. All measures must be carried out by a certified aircraft service station or a certified aircraft maintenance mechanic.
- 2. All works, 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 aircraft log book.
- 4. In case of doubt contact Diamond Aircraft Industries.
- 5. If material and 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 must be sent not later than 31-Oct-2009.



## **EXECUTION REPORT** for MSB-42-070/1

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		

Replacement of NLG Tubular Pivot Assembly by new tubular pivot

- yes replaced by P/N D60-3233-82-00\_1 yes replaced by P/N D60-3233-82-00\_2 0
- 0
- 0 no

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-MSB 42-070 "Inspection of NLG Pivot"

## I GENERAL INFORMATION

#### I.1 Subject

This Work Instruction addresses the inspection of the Nose Landing Gear Tubular Pivot Assembly (P/N D60-3233-82-00) and describes how to check gap and wear between Tubular Pivot (P/N D60-3233-82-32) and the LH Gudgeon (P/N D60-3233-82-31) and how to replace the assembly if the gap exceeds certain limits.

#### I.2 <u>Reference Documents</u>

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

#### I.3 <u>Remarks</u>

- a) The work must be carried out by a certified aircraft service station or a certified aircraft maintenance mechanic.
- b) All work, in particular that which is not specifically described in this work instruction, must be carried out in accordance with the referenced maintenance manual.
- c) In case of doubt contact Diamond Aircraft Industries.

## II DRAWINGS, SPECIAL TOOLS & MATERIALS

#### II.1 Drawings

None.

### II.2 Special Tools

None.



#### II.3 <u>Material</u>

Material, if replacement is necessary:

Quantity	Description	Part No.
1	NLG Tubular Pivot Assembly (Bolt)	D60-3233-82-00_01 or D60-3233-82-00_02
2	Bearing	GE10UK

Consumables:

A/R	Loctite 648	-
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Material is available from Diamond Aircraft Industries.

# III INSTRUCTIONS

#### III.1 Inspection

Wai Wai	ning: ning:	Do not begin any disassembly without referencing the DA 42 Series Airplane Maintenance Manual, latest effective issue. Take precautions by securing the area around the airplane before you perform maintenance on the landing gear retraction system. The landing gear retraction system can cause serious injury to persons if operated accidentally.
wai	ning:	loaded. Due to the high forces involved the elements can cause serious injury to persons.
1	Make sure that the landing gear selector lever is selected DOWN.	
2	Set the ELECT. MASTER switch to ON. Allow for hydraulic pressure pump to build up pressure.	
3	Set the ELECT. MASTER switch to OFF.	



 4
 Check the NLG Tubular Pivot Assembly for wear. If there is a gap between the LH Gudgeon and the Tubular Pivot (as shown in the picture), measure the gap with a thickness gauge. If present, the gap will be facing aft, or towards the NLG actuator. If gap is < 0.9mm (0.035 inch) proceed with step 5.</td>

 If gap is < 0.9mm (0.035 inch) replace the NLG Tubular Pivot Assembly in accordance with Section III.2</td>

 4

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 Image: Section III.2

 Image: Se



## III.2 Replacement:

War War War	ning: ning: ning:	Do not begin any disassembly without referencing the DA 42 Series Airplane Maintenance Manual, latest effective issue. Take precautions by securing the area around the airplane before you perform maintenance on the landing gear retraction system. The landing gear retraction system can cause serious injury to persons if operated accidentally. The folding stay and Nose Landing Gear Leg are spring loaded. Due to the high forces involved the elements can
		cause serious injury to persons.
1	Raise to position	the airplane on jacks and move the wing and rear fuselage trestles into n to support the airplane in accordance with AMM Section 07-10.
2	Discon AMM S <b>War</b>	nect the NLG drag brace assembly from the NLG leg in accordance with Section 32-20. ning: Use extreme caution when removing bolt (P/N LN 9037- M10x60) that connects lower drag brace (folding stay) to NLG leg.
З	Remove the drag brace assembly from the wheel well in accordance with AMM Section 32-20.	
4	Remove the LH and RH NLG brackets (P/N D60-3223-00-30) from the gudgeons (P/N D60-3233-82-31).	
5	Remove the NLG Tubular Pivot Assembly (P/N D60-3233-82-00) from the brace bearing (P/N D60-3233-12-00).	
6	<ul> <li>Inspect area where the brackets of the NLG drag brace are mounted to the wheel well for damage or delamination:</li> <li>Carry out visual inspection in accordance with AMM Section 51-10. Check for abnormal flexibility and noises when applying a small load in this area.</li> <li>Carry out a coin tap test in accordance with AMM Section 51-10.</li> </ul>	
7	In case of damage or delamination of the wheel well in the area is found, where the brackets of the NLG drag brace are mounted to the wheel well. Repair wheel well in accordance with the AMM Section 51.	



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Inspect Brace Bearing (P/N D60-3233-12-00) for cracks on the left hand outer weld seam between lever arm and tube. If cracks are visible in the powder coating replace the Brace Bearing in accordance with AMM Section 32-20. In case of doubt use die penetration methods.





Install the new NLG Tubular Pivot Assembly (P/N D60-3233-82-00 01). Use Grease 5 in accordance with AMM Section 12-20. or Install the new NLG Tubular Pivot Assembly (P/N D60-3233-82-00\_02). Check for correct mounting direction. As shown in the picture the gap between gudgeon and tube must be on the right hand side, seen in flight direction. Use Grease 5 in accordance with AMM Section 12-20. 9 10 Install the new bearings (P/N GE10UK) in the NLG brackets. Use Loctite 648. 11 Install the LH and RH NLG brackets on the NLG Tubular Pivot Assembly. Reinstall the NLG Drag Brace Assembly in accordance with AMM Section 32-20. 12 13 Carry out an operation test.



14

Measure clearance between nose gear wheel and landing gear door. Adjust if necessary to a minimum of 20 mm (0.8 inch) (see item 14).



**Caution:** The clearance between nose gear leg tube and nose gear brace has to be more than or equal to 5 mm (0.2 inch). Adjust if necessary (see item 14).



15 To carry out the adjustment with the gear retracted, release all hydraulic pressure on the actuator by pulling the circuit breaker to the hydraulic pump and selecting EMERGENCY GEAR DOWN. Catch the NLG before it reaches the down locked position.



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Remove safety wire from NLG actuator rod end. Loosen counter nut at rod end. Utilizing the flats, rotate the actuator piston rod to adjust length. After adjustment tighten the counter nut and install the lock wire. 16 Carry out a landing gear extension and retraction test and a test of the landing 17 gear emergency extension system. Refer to AMM Section 32-30. 18 Clean working area and check for foreign objects. 19 Perform functional check of all new, altered or repaired parts. 20 Test all systems in working area for function. Make necessary entries into aircraft log book. 21 Make an entry into the aircraft log book which P/N of the NLG Tubular Pivot Assembly has been installed.