

# MANDATORY SERVICE BULLETIN

## MSB 42-099/1

## MSB 42NG-035/1

supersedes MSB 42-099 & MSB 42NG-035

## **I TECHNICAL DETAILS**

### **I.1 Category**

Mandatory.

### **I.2 Airplanes affected**

Type: DA 42, DA 42 M, DA 42 NG, DA 42 M-NG

Serial numbers: all

### **I.3 Date of effectivity**

1-May-2013

### **I.4 Time of Compliance**

Within 100 flight hours from the date of effectivity, but not later than 31-Dez-2013.

### **I.5 Subject**

Inspection / replacement of spherical rod end bearing and safety washer of nose landing gear (NLG) actuator, P/N X11-0006/2 with S/N 0155 and below.

ATA-Code: 32-30

### **I.6 Reason**

The safety washer at the NLG actuator's spherical rod end bearing originally installed on actuators up to S/N 0155 might cause interference between safety washer and actuator attachment lever at the NLG leg when the landing gear is retracted which bent the rod end and in one case led to failure of the rod end due to cyclic loading. Two more rod ends with an initiating crack at the threaded part were found. Due to the nearby steering linkage, a failed rod end bearing with the LDG-switch in retracted position may cause interference with the rudder control.

This Service Bulletin describes the work necessary to replace the spherical rod end bearing and to replace the safety washer with one of the new design with reduced diameter in case a safety washer of the old design was installed to the NLG actuator.

### **I.7 Concurrent Documents**

None.

**I.8 Approval**

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

**I.9 Accomplishments / Instructions**

Identify and if required modify the NLG-actuator by complying with WI-MSB 42-099 / WI-MSB 42NG-035, latest effective issue.

Do not install a NLG-actuator, P/N X11-0006/2 with S/N 0155 or below as a replacement part unless modified in accordance with WI-MSB 42-099 / WI-MSB 42NG-035, latest effective issue.

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

The change in mass and CG is negligible.

**II PLANNING INFORMATION****II.1 Material and Availability**

See WI-MSB 42-099 / WI-MSB 42NG-035, latest effective issue.

Materials are available from Diamond Aircraft Industries.

**II.2 Special Tools**

None.

**II.3 Labour Effort**

Inspection only: 0.5 hours

Replacement: approx. 2.5 hours

**II.4 Credit**

After performing the work and if replacement of safety washer or rod end bearing was necessary:

Required material according to WI-MSB 42-099 / WI-MSB 42NG-035, latest effective issue.

**II.5 Reference Documents**

DA 42 Series Airplane Maintenance Manual, Doc. No. 7.01.01, latest effective issue.

DA 42 NG Airplane Maintenance Manual, Doc. No. 7.01.15, latest effective issue.

### **III REMARKS**

1. All work must be done by a certified aircraft service station or a certified aircraft maintenance mechanic.
2. All work, particular those that are not especially described in this Service Bulletin, must be done in accordance with the referenced Maintenance Manual.
3. Completion of all work must be recorded 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 performed by an authorized Diamond Service Center within the time of compliance. The Warranty Application incl. Work Report must be sent no later than 30 days after the performance of this Service Bulletin.
5. In case of doubt contact Diamond Aircraft Industries GmbH.

**EXECUTION REPORT TO  
SERVICE BULLETIN  
MSB 42-099/1  
MSB 42NG-035/1**

## 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 \_\_\_\_\_

Last maintenance: date &amp; airplane TSN \_\_\_\_\_

NLG-Actuator S/N installed: \_\_\_\_\_

\_\_\_\_\_  
Date, Name, SignPlease fax the completed form to Fax No. +43-2622-26700-1369 or e-mail to  
airworthiness@diamond-air.at

## WORK INSTRUCTION

WI-MSB 42-099

WI-MSB 42NG-035

### **I GENERAL INFORMATION**

#### **I.1 Subject**

Inspection / replacement of spherical rod end bearing and safety washer of nose landing gear (NLG) actuator.

#### **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) All work must be done by a certified aircraft service station or a certified aircraft maintenance mechanic.
- b) All work, particular those that are not especially described in this work instruction, must be done 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) In case of doubt, contact Diamond Aircraft Industries GmbH.

### **II DRAWINGS, SPECIAL TOOLS & MATERIALS**

#### **II.1 Drawings**

None.

#### **II.2 Special Tools**

None.

### II.3 Material

Quantity	Part No.	Description
1	X11-0006-SMRCD10IRMR.7403 or X11-0006-GARSW-10RR (hls/fluro)	spherical rod end bearing
a. r.	X11-0006-00-00.02, Rev B	safety washer (diameter 24 mm)
1	X11-0006-00-00.98	modification sticker & protection foil

Materials are available from Diamond Aircraft Industries.

### II.4 Consumables

Quantity	Part No.	Description
a. r.	-	Stainless steel safety wire - Ø 0,032 inch
a. r.	-	zinc chromate primer
a. r.	-	lacquer
a. r.	i.a.w. AMM, section 12-30	anti corrosion coating

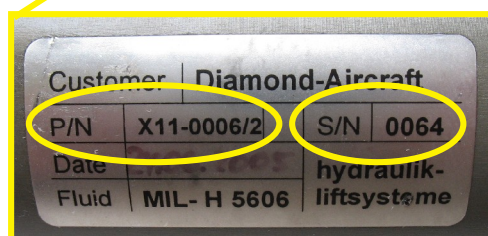
Consumables may be procured locally or from Diamond Aircraft Industries

## III INSTRUCTIONS

Identify part number (P/N) and serial number (S/N) of nose landing gear (NLG) actuator (use inspection mirror).



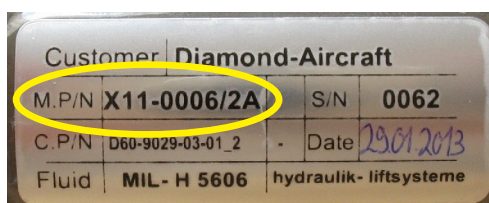
1

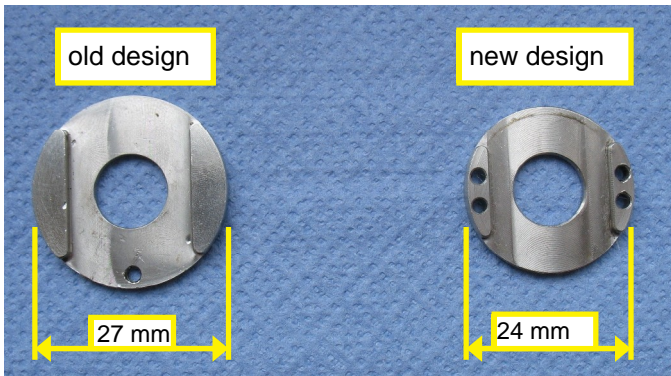


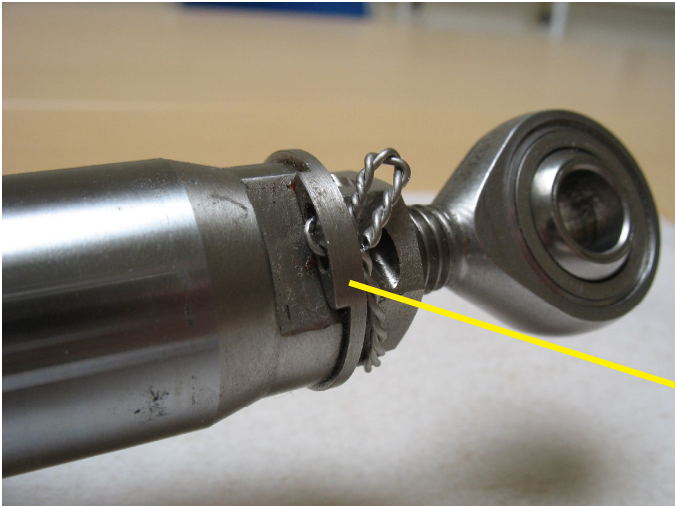
safety washer

rod end bearing


NOTE: NLG actuators with P/N X11-0006/2A are not affected by this Service Bulletin.



2	If NLG actuator has P/N X11-0006/2 and S/N is 0156 or higher, proceed with item 12.
3	<p>If NLG actuator has P/N X11-0006/2 and S/N is 0155 or lower remove NLG actuator from the aircraft in accordance with AMM, section 32-20.</p> <p>NOTE: It is not necessary to remove the actuator completely from the aircraft. The following work can be done with the actuator remaining connected to the NLG brace assembly and to the hydraulic system.</p>
4	Remove spherical rod end bearing from the NLG actuator piston in accordance with AMM, section 32-30. Discard spherical rod end bearing.
5	<p>Measure diameter of safety washer.</p> <p>Possible diameters are:</p> <ul style="list-style-type: none"> <li>- 27 mm (old design, picture on the left)</li> <li>- 24 mm (P/N X11-0006-00-00.02, Rev B, new design, picture on the right).</li> </ul> 
6	If diameter of safety washer is 27 mm replace it with one of the new design with 4 holes for lock wire and with reduced diameter of 24 mm, P/N X11-0006-00-00.02, Rev B.
7	Re-assemble NLG actuator with a new spherical rod end bearing, in accordance with AMM, section 32-30.

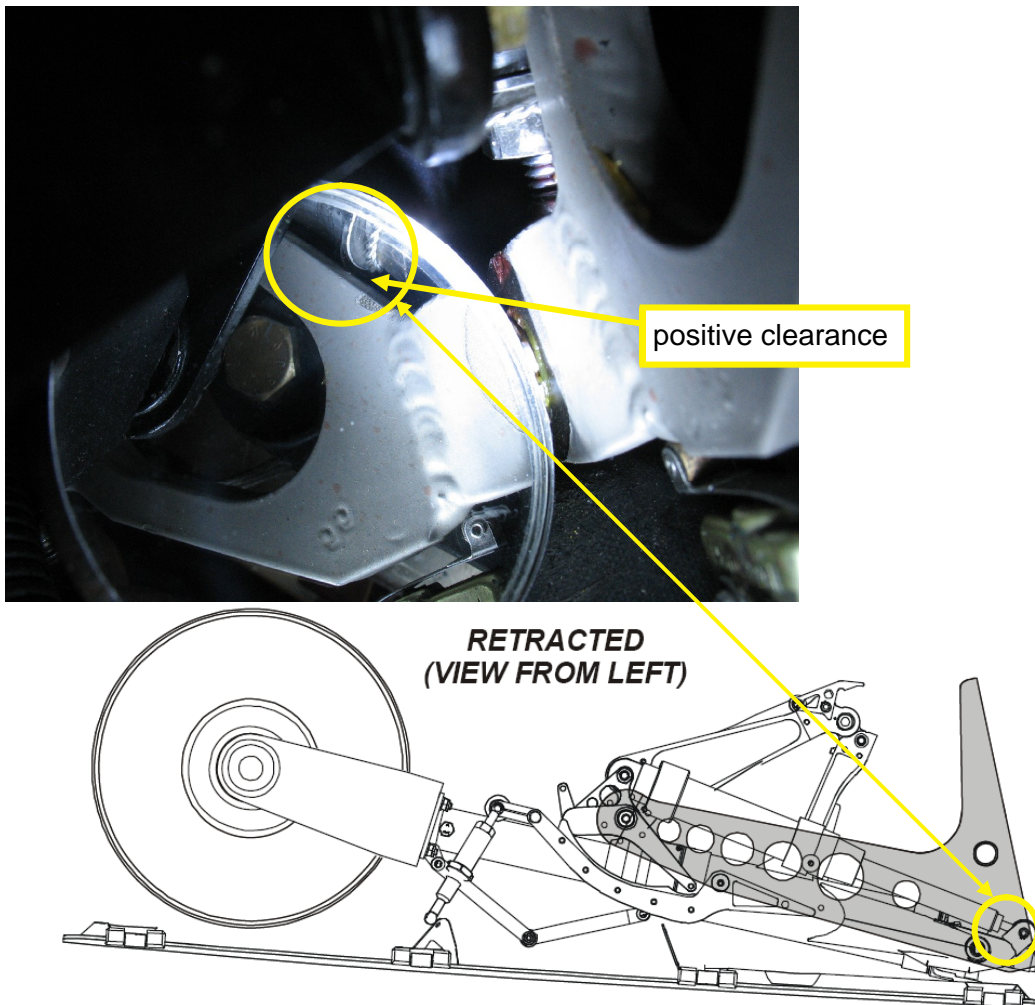
8	<p>Secure the counter nut with lock wire. Route the lock wire through both holes on one side of the safety washer, as shown in the picture. Lock wire must not be routed over the circumferential edges of the safety washer as lock wire might reduce clearance between safety washer and actuator attachment lever at the NLG leg.</p>  <p>safety washer</p>
9	<p>Complete information on sticker with date and name of maintenance organization. Clean area of the sticker's size on the NLG actuator with clean and fresh acetone and apply it to the NLG actuator. Cover sticker with transparent protection foil.</p> <div data-bbox="598 1162 1074 1408" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>modified acc. to <b>MSB 42-099 / MSB 42NG-035</b> Safety Washer replaced by P/N X11-0006-00-00.02, Rev B Date: _____ Name: _____</p> </div>
10	Reinstall NLG actuator in accordance with AMM, section 32-30.
11	Apply anti-corrosion coating on actuator connections in accordance with AMM, section 12-30.



12	<p>Examine actuator attachment lever at the NLG leg. In case marks originating from interference with the safety washer are found, apply zinc chromate primer to the interference marks and seal with appropriate lacquer, refer to manufacturer's specifications.</p> 
13	<p>Clean working area and check for foreign objects.</p>

14

Carry out a landing gear extension and retraction test in accordance with AMM, section 32-30 and check for positive clearance between NLG actuator safety washer and actuator attachment lever at the NLG leg when the landing gear is retracted (use inspection mirror).



If there is no positive clearance between NLG actuator safety washer and actuator attachment lever at the NLG leg, check adjustment of NLG actuator length according to AMM, section 32-20. In case no positive clearance can be adjusted, contact Diamond Aircraft Industries GmbH.

15

Perform functional check of altered, repaired and new parts.

16

Test all systems in working area for function.

17

Make necessary entries into aircraft logs.

18

Fill in execution report and send it to Diamond Aircraft Industries via Fax to +43-2622-26700-1369 or email to [airworthiness@diamond-air.at](mailto:airworthiness@diamond-air.at).