

# OPTIONAL SERVICE BULLETIN

## OSB 50-009

### I TECHNICAL DETAILS

#### I.1 Category

Optional

#### I.1 Airplanes affected

Type: DA 50 C  
Serial numbers: 50.C.A.A.007 through 50.C.A.A.066,  
50.C.A.A.070 through 50.C.A.A.074,  
50.C.Q.A.001 through 50.C.Q.A.003

#### I.2 Date of effectivity

20-Dec-2024

#### I.3 Time of Compliance

At owner's discretion.

#### I.4 Subject

Installation of plastic NLG bushings, NLG fork with reduced castor length and new shape NLG doors.

ATA-Code 32-20

#### I.5 Reason

Diamond Aircraft has improved the Nose Landing Gear with plastic bushings and a Nose Wheel fork with reduced castor length. Modifying the Nose Landing Gear will increase the service life of the bushings and reduce thus maintenance effort. This modification also reduces the tendency for nose wheel shimmy.

This Service Bulletin describes the retrofit installation of these improvements for aircraft already in service.

#### I.6 Concurrent Documents

None

### **I.7 Approval**

The technical information or instruction contained in this document relate to the Design Change Advisories No. MÄM 50-429 and MÄM 50-464, which have been approved under the authority of the DOA ref. EASA.21J.052.

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

### **I.8 Accomplishments / Instructions**

See WI-OSB 50-009, latest effective issue.

### **I.9 Mass (Weight) and CG**

None.

## **II PLANNING INFORMATION**

### **I.10 Material and Availability**

See WI-OSB 50-009, latest effective issue.

### **I.11 Special Tools**

See WI-OSB 50-009, latest effective issue.

### **I.12 Labour Effort**

Approx. 12 hours.

### **I.13 Credit**

None.

### **I.14 Reference Documents**

DA 50 C Airplane Maintenance Manual, Doc. No. 9.02.02, 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, in particular which is 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. In case of doubt contact Diamond Aircraft Industries GmbH.

## EXECUTION REPORT TO SERVICE BULLETIN OSB 50-009

### AIRPLANE INFORMATION

Airplane Serial Number \_\_\_\_\_

Airplane Registration \_\_\_\_\_

Airplane Operator \_\_\_\_\_

Hours of operation of airplane \_\_\_\_\_

Number of landings \_\_\_\_\_

Hours of operation – engine \_\_\_\_\_

Typical operation of airplane private, club, training, other \_\_\_\_\_

\_\_\_\_\_  
Date, Name, Sign

Please send the completed form  
to [executionreports@diamondaircraft.com](mailto:executionreports@diamondaircraft.com)

# WORK INSTRUCTION

## WI-OSB 50-009

### **I GENERAL INFORMATION**

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

Installation of plastic NLG bushings, NLG fork with reduced castor length and new shape NLG doors.

#### **I.2 Reference Documents**

DA 50 C Series Airplane Maintenance Manual, Doc. No. 9.02.01, 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, in particular if not described in this work instruction, must be done in accordance with the referenced maintenance manual.
- c) For conversion factors between SI units and US/Imperial units refer to AMM, Chapter 02.
- d) In case of doubt, contact Diamond Aircraft Industries GmbH.

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

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

None

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

NLG Bushing Press Tool Assy D54-3220-10-00\_SO

Fork – Damper Eject Tool D54-3220-21-00\_SO

Valve core removal tool

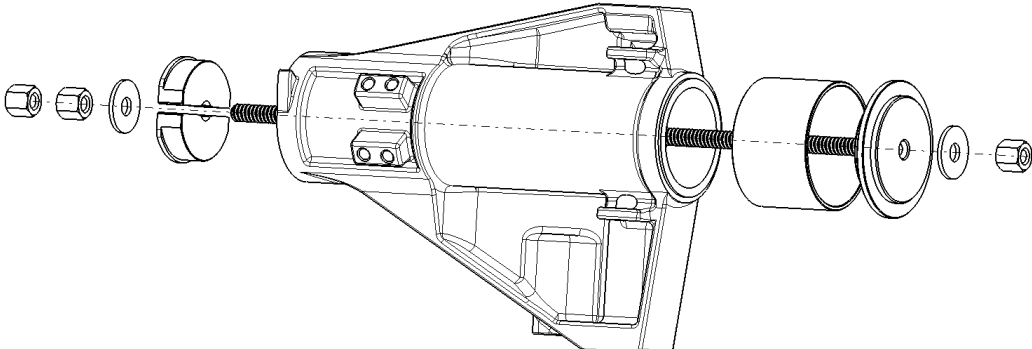
Nitrogen charging equipment

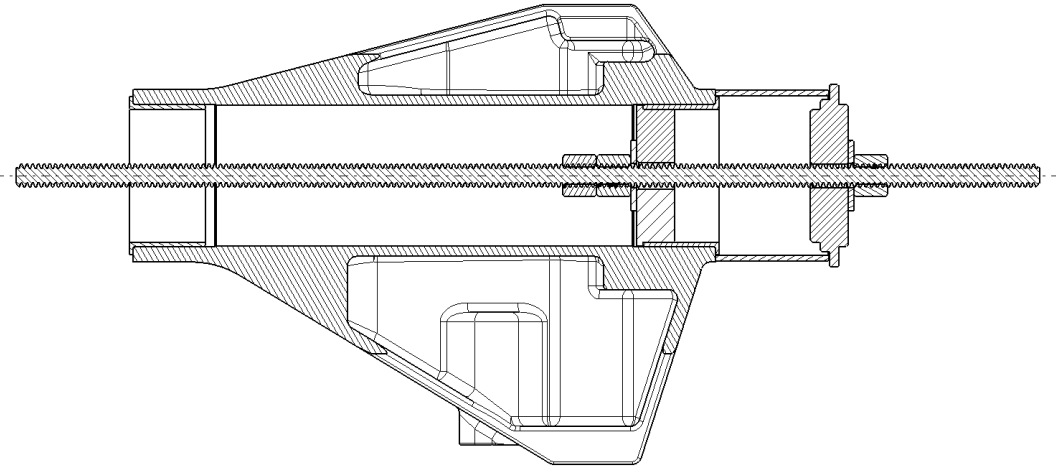
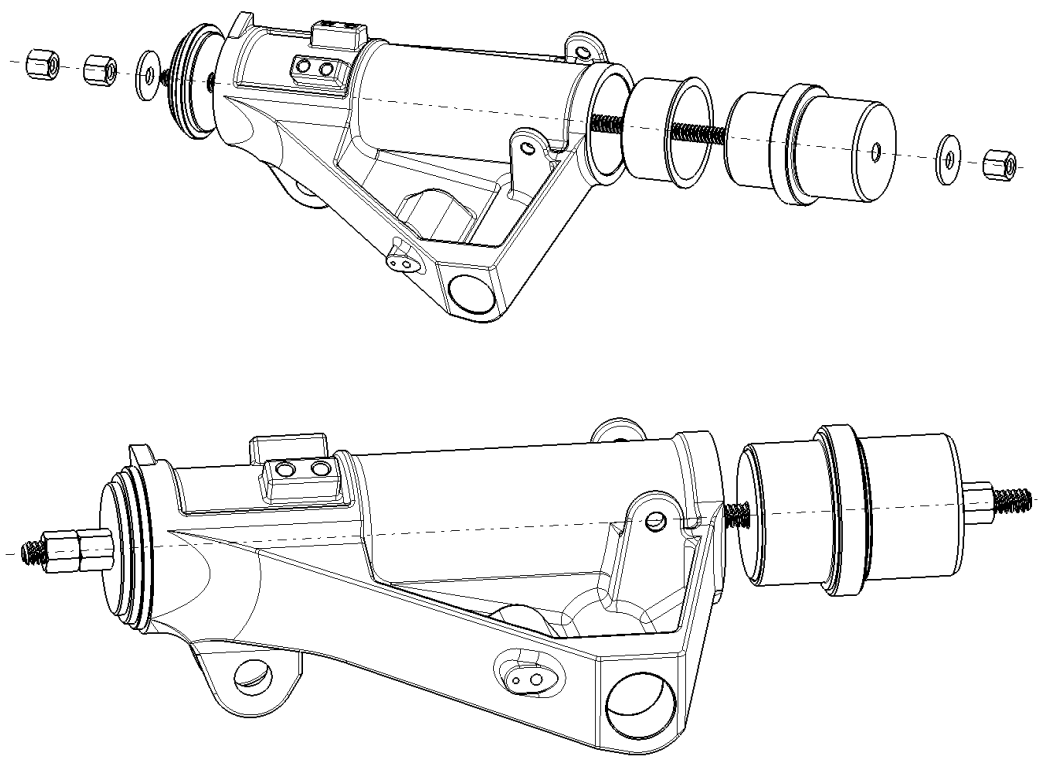
### II.3 Material

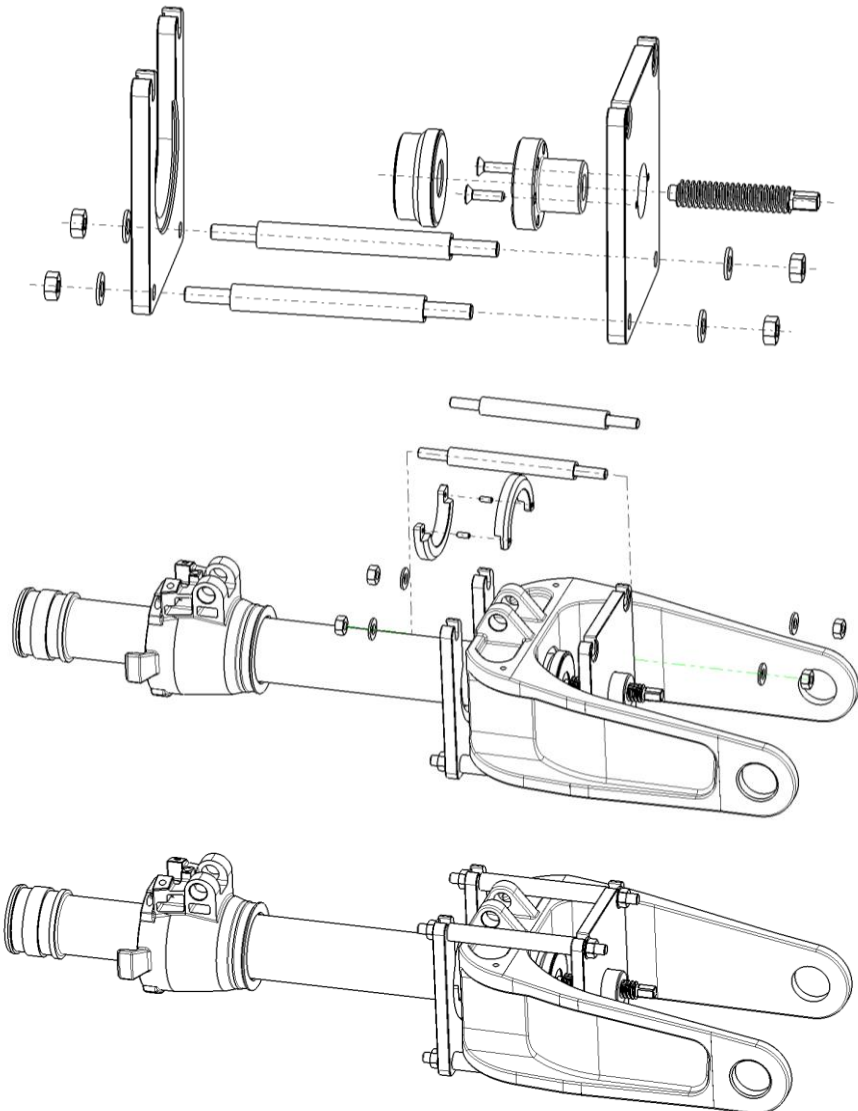
Quantity	Part Number	Description
2	XFM-7075-40	Plain Bearing with flange, form F
1	D54-3220-21-00_02	Nose Wheel fork
1	RJUM-12-12	Linear plain bearing
1	D54-5283-51-00_02_MOD	NLG Door LH without front hinge and with painting acc. to aircraft colour code
1	D54-5283-52-00_02_MOD	NLG Door RH without front hing and with painting acc. to aircraft colour code
A/R	D54-3220-01-00_01	Curve sheet

Material is available from Diamond Aircraft Industries.

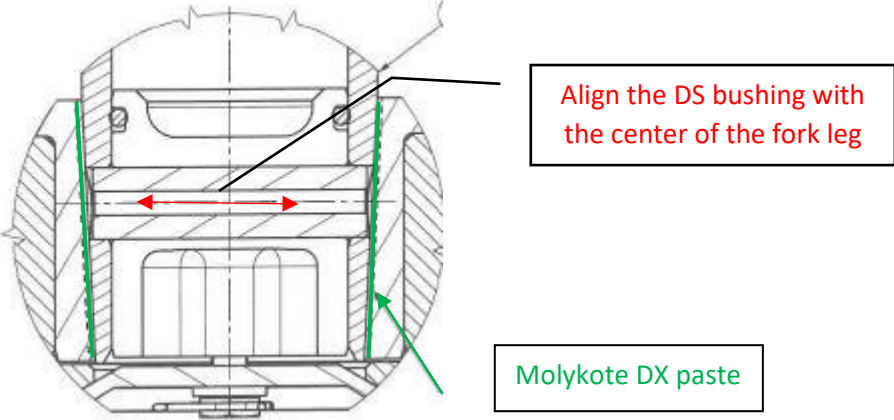
## III INSTRUCTIONS

1	Remove the NLG Leg according to AMM Section 32-20.
2	Remove NLG Doors according to AMM Section 32-20. - Remove the front main door hinges from the NLG Doors.
3	Remove the NLG Damper according to AMM Section 32-20.
4	Remove the bronze sliding bushings (damper bearings) from NLG Leg Strut with the NLG Bushing Press Tool D54-3220-10-00_SO.  

	
5	<p>Clean the NLG Leg Strut.</p>
6	<p>Install the new plastic bushings XFM-7075-40 with the NLG Bushing Press Tool D54-3220-10-00_SO:</p> <ul style="list-style-type: none"> <li>- Make sure that the chamfer on the NLG Leg Strut where the bushing engages is smooth.</li> <li>- Apply a thin layer of CA1000 on the outer surface of the bushing.</li> <li>- Press in the new bushings according to the sketch, one at a time:</li> </ul> 
7	<p>Clean the edges at the flange of the bushing and remove the remainings of CA1000.</p>
8	<p>Apply the fillet seal PR-1782 Class B at the edge of the flange of the new bushings.</p>

<p>9</p>	<p style="text-align: center;"><b>WARNING</b></p> <p style="text-align: center;"><b>WEAR SAFETY GLASSES WHEN RELEASING PRESSURE FROM DAMPER.</b></p> <p>Release the nitrogen pressure from the NLG Damper before you remove the Nose Wheel Fork.</p> <ul style="list-style-type: none"> <li>• Remove the dust cap from the charging valve.</li> <li>• Hold the NLG Damper Assy upright. The valve must be at the highest position of the assembly.</li> <li>• Push slowly and hold down the pin inside the valve until all pressure is released.</li> </ul>
<p>10</p>	<p>Remove the Nose Wheel Fork from the NLG Damper with the Fork – Damper Eject Tool D54-3220-21-00_SO.</p> <ul style="list-style-type: none"> <li>• Remove the lock wire from the three screws that secure the Nose Wheel Fork to the Fork Washer.</li> <li>• Remove the screws that secure the Nose Wheel Fork to the Fork Washer.</li> <li>• Remove the Fork Washer.</li> <li>• Remove the Nose Wheel Fork from the NLG Damper assembly with the Fork – Damper Eject Tool.</li> </ul> 



11	Clean the tapered end of the NLG Damper which engages into the Nose Wheel Fork.
12	Examine the tapered end of the NLG Damper for defects. <ul style="list-style-type: none"> <li>• If there is a damage, contact DAI.</li> </ul>
13	Clean the NLG Damper cylinder D60-3223-12-00.
14	Examine the sliding surface, where the NLG Damper cylinder engages with the bushings, signs of fretting and scores. <ul style="list-style-type: none"> <li>• If there is a damage on the sliding surface of the NLG Damper cylinder, check depth of grooves.</li> <li>• If the depth of the grooves is more than 0.2 mm, contact DAI.</li> <li>• If the depth of the grooves are below 0.2 mm, make the sliding surface smooth either by polishing or by sanding and polishing. It is not necessary to remove radial grooves.           <ul style="list-style-type: none"> <li>○ Start with grit 400 sandpaper or finer and proceed to finer grit and polishing to achieve smooth surface.</li> <li>○ Make sure that the sliding surface is smooth after rework.</li> </ul> </li> </ul>
15	<p>Install the new Nose Wheel Fork D54-3220-21-00_02 on the NLG Damper:</p> <ul style="list-style-type: none"> <li>• Apply Molykote DX paste on the tapered end of the NLG Damper sliding tube.</li> </ul>  <ul style="list-style-type: none"> <li>• Install the NLG Damper sliding tube in Nose Wheel Fork.           <ul style="list-style-type: none"> <li>○ Align the DSbushing parallel to the wheel rotation axis.</li> <li>○ Make sure that bushing aligns with the center of the NLG Damper sliding tube.</li> </ul> </li> <li>• Align the Nose Wheel Fork with the attachment of the Steering Brace on the same side as the attachment of the Steering Brace on the NLG Damper.</li> <li>• Install the Fork Washer with a small quantity of Molykote DX paste on the mating surface to the Nose Wheel Fork and install the three bolts with CA1000.</li> <li>• Tighten the bolts equally to make sure that the Nose Wheel Fork is fully engaged onto the NLG Damper.           <ul style="list-style-type: none"> <li>○ When the Nose Wheel Fork is in position and the tightening torque starts to increase, loosen the bolts, and torque them again to 8 Nm.</li> </ul> </li> <li>• Lock the screws with lockwire.</li> </ul>
16	Pressurize the NLG Damper according to AMM Section 32-20.

17	Examine the Curve Sheet D54-3220-01-16_01 for defects or wear. <ul style="list-style-type: none"> <li>If there is a damage or wear, replace the Curve Sheet.</li> </ul>
18	Remove the Centering Unit Assy from the NLG Leg Strut.
19	Remove the Pressing Unit D54-3220-68-00 from the Centering Unit.
20	Examine the lower end of the rod of the Pressing Unit D54-3220-68-00 for abrasion.
21	Remove the remaining of abrasion of the bronze bushing with Scotch Brite. Then polish the rod until it is very shiny.
22	<p style="text-align: center;"><b>WARNING</b></p> <p style="text-align: center;"><b>THE ASSEMBLY IS SPRING LOADED! YOU CAN BE INJURED WHEN PARTS ARE NOT KEPT SAFE.</b></p> <p>Disassemble the Casing Mount of the Centering Unit.</p>
23	Remove the bronze bushing from the Casing Mount. If the bronze bushing does not get loose, heat up the bronze bushing to max. 150°C.
24	Clean the inside of the Casing Mount from the remaining of Loctite.
25	Install the new Linear Plain Bearing RJUM-12-12 with CA1000 between bearing and Casing Mount.
26	Assemble the Casing Mount Assy again in reverse sequence and secure NLG casing thread with Loctite 262.
27	Install the Centering Unit to the NLG Leg Strut.
28	Install the NLG Damper to the NLG Leg Strut according to AMM Section 32-20.
29	<p>Install the new NLG Doors according to AMM Section 32-20.</p> <ul style="list-style-type: none"> <li>Install the front main NLG Door Hinges from the old NLG Door to the new NLG Door</li> <li>Clean the spherical bearing in the front NLG Door Hinge</li> <li>Apply grease to the spherical bearing in the front NLG Door Hinge</li> <li>Install the NLG Doors</li> </ul>
30	<p>Install the NLG Leg according to AMM Section 32-20.</p> <p style="text-align: center;">Note</p> <p style="text-align: center;">Do not grind the most forward 15 cm of the doors.</p> <ul style="list-style-type: none"> <li>If necessary, grind inner edge of NLG doors to achieve equal gap between the two NLG doors of 1-5mm, when LG is retracted.</li> <li>If doors were grinded, seal grinded edge with lacquer.</li> </ul>
31	Do a check of the NLG Door pre-load with 4 to 6 kg (MÄM 50-429) according to AMM Section 32-20.
32	Do a test of the retraction/extension system according to AMM Section 32-30.
33	Clean working areas, make sure that there are no foreign objects.
34	Make sure that all altered, replaced, repaired parts operate correctly.
35	Do a functional test of all systems in the working area.

36	Make all necessary entries in the airplane logs.
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