

SERVICE BULLETIN

No. 400-2-04

Compliance mandatory

Subject: EA 400: Main hydraulic retraction actuator of the nose landing gear

Affected Aircraft: EA 400, S/N 03 up to S/N 026 & S/N 028

Purpose: Cracks have been reported at the V-strut of the nose landing gear radius strut, where the retraction actuator is connected to. It is suspected that the actuator displacement did not match the angular travel of the attachment bracket at the V-strut.

Approval: The technical information contained in this document has been approved under the authority of JAA Design Organisation Approval No. LBA.NJA.010.

Compliance time: Initial Inspection as described in Part I required within 25 Hours.
Modifications as described in Part II at regular 50 Hour Inspection or next Annual Inspection whichever occurs first.

PART I:

Part I of this Service Bulletin provides initial instructions.

Instructions:

Visual check bracket at V-strut of the nose landing gear radius strut (where the main hydraulic actuator connects) for cracks, especially the root area of bracket, ref. to fig. 1.

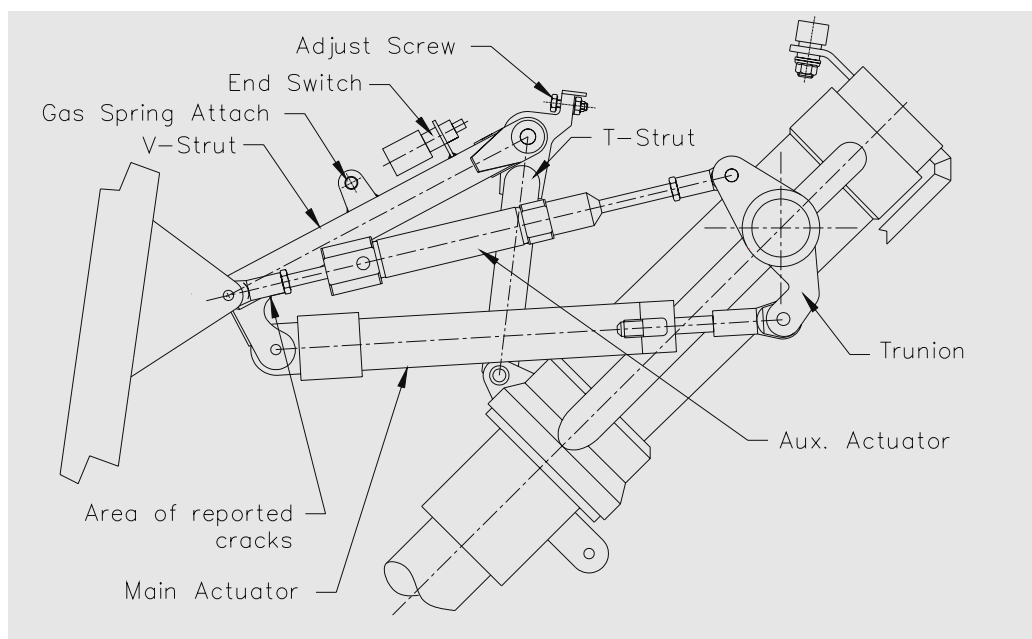


Fig. 1: Overview NLG retraction devices

If cracks are suspected, a further detailed inspection is necessary. Disconnect both retraction actuators as well as the gas spring from the V-strut (refer to the provisions of Maintenance Manual Chapter 32-30-24 and 32-30-25) for that purpose. Disassemble the V-strut, remove paint at suspected area and perform a dye-check.

If no structural cracks are found, replace surface treatment in accordance with chapter 51-70-07 of Maintenance Manual EA-400 and reinstall strut, connect retraction actuators and gas springs.

Make an airframe logbook entry indicating compliance with the initial visual inspection requirements of this SB. Indicate in the entry the Part II of this SB to be accomplished at regular 50 Hour Inspection or next Annual Inspection, whichever occurs first.

If structural cracks are found, replace or repair V-strut (refer Maintenance Manual Chapter 51-70-05 & Chapter 51-70-07) and continue with provisions of Part II.3

Report structural damage found to:

EXTRA Flugzeugproduktions- und Vertriebs-GmbH

using the form at the appendix of this Service Bulletin.

PART II:

Part II of this Service Bulletin provides instructions for technical modifications to the main nose landing gear retraction hydraulic actuator.

Modifications:

Spacer bushing installation in the main hydraulic actuator of NLG limiting the stroke of piston rod in extended gear position in accordance to the instructions.

Material:

Spacer bushing P/N: 40553415 (oversize bushing)
O-Ring MS 28775-111,
O-Ring MS 28775-117
Packing MS 28774-111
Quantity: 1 each

A kit is available, please contact:

EXTRA Flugzeugproduktions- und Vertriebs-GmbH
Schwarze Heide 21
46569 Hünxe (Germany)
Fax. N°: (+49)-2858-9137-30

Instructions:

Part II of this Service Bulletin has to be performed at Extra facilities or by licensed personal at maintenance stations.

The installation of the spacer bushing in the nose landing gear hydraulic actuator has to be done in accordance to the following steps:

1. Aircraft is jacked up in the shop, landing gear extended, hydraulic pressure off (refer MM Chap. 32-30-24 above Step 2)
2. Disconnect both retraction actuators as well as the gas springs from the V-strut (refer to the provisions of Maintenance Manual Chapter 32-30-24 and 32-30-25) for that purpose. Remove end switch for extended position. Disassemble radius strut (V-strut and T-strut)
3. Check overcenter adjust of radius strut. If deviate from 1mm (see fig. 2&3) adjust by screw.

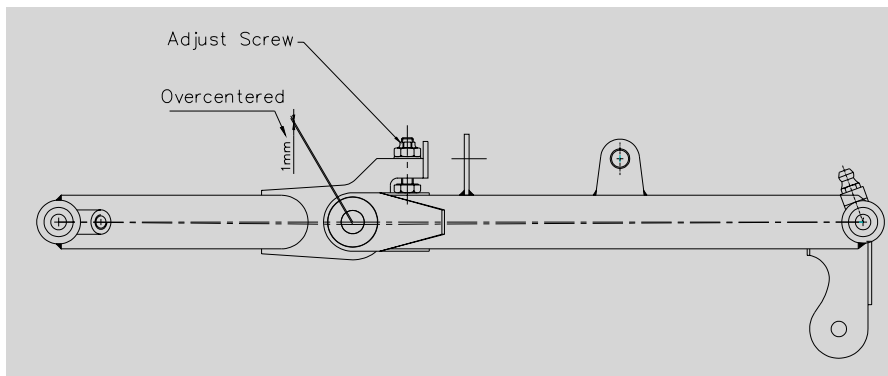


Fig. 2: Radius strut adjustment



Fig. 3: Testing of radius strut adjusting (for example)

4. Reinstall radius strut and both hydraulic actuators. Reinstall end switch; verify the switch is activated if the radius strut has overcentered (check acoustically or by observing the green indicator light).
5. Install marking device (metallic block or angle, fixed by means of a clamp), at piston rod of main hydraulic actuator, similar to fig. 4., fixed without gap between cylinder housing and marking device.

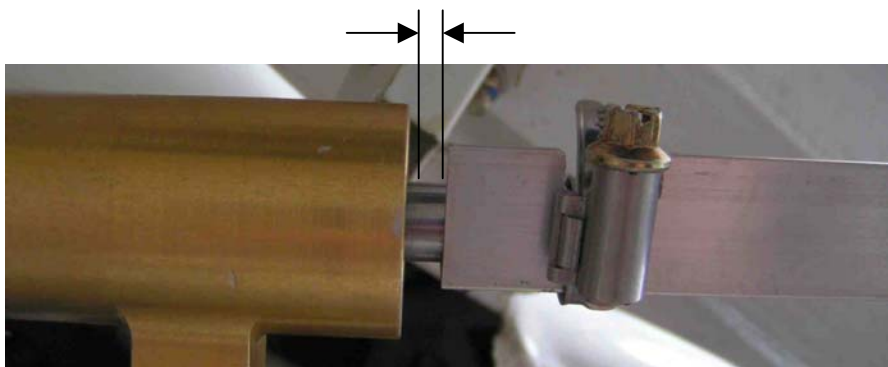


Fig. 4: Marking device

6. Disengage connection between main hydraulic actuator and trunion.
7. **Caution:** Make sure that the landing gear control handle is still in the “down” position. Activate hydraulic pressure, nose gear main hydraulic actuator piston rod will move to the max. position.
8. Measure the additional travel of the piston rod (gap X between cylinder housing and marking). This is the needed length for the spacer bushing.
9. Remove marking device. Deactivate hydraulic pressure by loosening the hydraulic line connections. Remove main hydraulic actuator. **Note:** Catch spilling hydraulic fluid with suitable vessel.
10. Shorten the delivered bushing in accordance to the drawing to the measured length X +/- 0.1 mm.
11. Note the relative position of the rod end vs. piston rod before you disassemble the actuator.

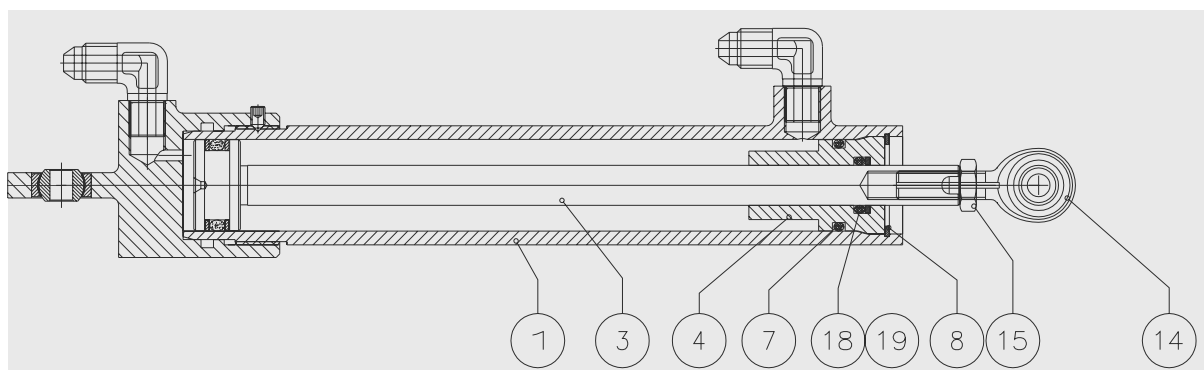


Fig. 5: Main hydraulic actuator

12. Disassemble the counter nut and rod end from piston rod (14&15).
13. Disassemble the Seegerring (8)
14. Pull the guidance (4) with the piston rod (3) out of the hydraulic actuator bore. The piston should remain within the actuator bore. **Note:** Catch spilling hydraulic fluid with suitable vessel.
15. Pull the guidance (4) from piston rod (3).
16. Push the spacer bushing onto the piston rod (3)



Fig. 6: Installed spacer bushing

17. Replace the O-ring & packing of the guidance (7&18).
18. Reassemble the guidance to the cylinder bore.
19. Secure the guidance with the Seegerring to the cylinder.
20. Screw the rod end into the piston rod until the original measurement is reached. Secure with counter nut.
21. Reinstall actuator, connect to V-strut bracket.
22. Connect and tighten the hydraulic line connection.
23. Activate hydraulic pressure; the connecting bolt should be easy placed into position on trunion. Reassemble connection between cylinder and trunion.
24. Install gas springs in reverse sequence of removal.
25. Perform landing gear test, bleed introduced air from hydraulic system by several retraction cycles. Check oil level at hydraulic power pack.
26. Check overcenter adjustment: when landing gear is extended, there must be no gap between adjust screw of the radius strut and its related overcentering stop. Check by a sheet of paper.
27. Certify compliance with this SB in airframe logbook and maintenance manual. Make a log book entry indicating compliance with the inspection and retrofit requirements of this SB.

Appendix:

Aircraft Type and model: EA-400

Serial Number:

Owner:

Registration:

Total Time:

Total landings (if known):

The aircraft mentioned above has been inspected according the provisions of this Service Bulletin SB 400-2-04

Damage has been found: Yes No

If yes, description of damage found (if possible attach supporting sketch):

Comments:

Company: _____

Aircraft inspector: _____

Date: _____

Please return a copy of this page by facsimile or airmail to:

EXTRA Flugzeugproduktions- und Vertriebs-GmbH
Engineering Department / Office of Airworthiness / Quality Assurance
Schwarze Heide 21

46569 Hünxe (Germany)

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