



Subject: Exchange of elevator hinge bolts

Effectivity: Glider ASTIR CS
all serial-no. 1001 to 1536

Accomplishment: Exchange of the spheric locking bolt at the elevator leading edge according to instruction 1 and exchange of the two retaining pins attached to the vertical stabilizer spar according to instruction 2 not later than September 30, 1981.

Reason: At the above mentioned aircraft cracks have been found at the locking bolt in the area of the cutted thread and at the retaining pins in the hardened surface. Only a small number of ASTIR CS are affected which serial numbers cannot be definitely determined. During longer operation of the aircraft those cracks may aggravate and we advise to replace all elevator hinge bolts. The new bolts are inspected in a special crack test.

Instructions: 1. Replacement of the spheric locking bolt at the elevator leading edge (see detail 1 and 2)

When ordering the spare bolt, please state the exact diameter of the ball of the installed bolt by $+ 0,1 \text{ mm}$ ($+ 0.004 \text{ in.}$). The new bolt may not have smaller diameter due to play in the locking mechanism of the fin. If already some play exists order a bolt with a 0.2 mm (0.008 in.) larger diameter.

To exchange the spheric locking bolt you need a screwdriver (appr. 10 mm; 3/8 in. wide) and an open-ended wrench 14 mm.

- Remove the tail unit from the vertical stabilizer.
- Note the installation depth (A) of the used bolt to insure the correct installation of the replacement bolt in order not to change the elevator angle of incidence.
- Loosen the M10 - nut with the 14 mm wrench.
- Place the screwdriver into the slot of the ball and turn out the bolt.
- The new locking bolt (102- 3500.21) has rolled thread and requires a special nut (102-3510.21).



Note:

If your ASTIR CS has been repaired lately the bolt might have been replaced by a modified one which can be determined by the installation of the special nut (102-3510.21). In this case the exchange is not required.

- Mount the modified locking bolt (102-3500.21) with a toothed washer 10,5 (DIN 6797 phr) and the nut (102-3510.21) according to detail no. 1. Adjust the bolt to the correct installation depth (A) and lock it by holding the ball with the screwdriver and tightening the nut with the wrench. Afterwards apply a small line of red color from the shaft of the bolt across the nut to the elevator surface to indicate unintentional rotation.
 - In case of doubt determine the elevator angle of incidence according to Flight Manual and inspection report.
 - Please inspect the interior attachment-spar of the fin for tightness with bolt installed. This can be checked visually from the rear through the opening of the spar. If the attachment spar moves contact the manufacturer.
 - Mount the tail unit properly and couple the control-rods. Check for safe installation. If the lockingplate in front of the fin moves less than 3 mm (0.12 in.) from the "unlock" to the "locked" position the diameter of the ball is too small and not allowable play can be expected (see detail no. 2). A larger locking bolt must be installed.
 - Please send the used bolt back to GROB TFE, D-8939 Mattsies, Am Flugplatz, and inform us about the aircraft's total time and landings. We will inspect the bolt and prevent a new installation.
2. Replacement of the two retaining pins of the elevator hinge plate in the fin (see detail no. 3)

The replacement of these two retaining pins is easier than that of the locking bolt and can be accomplished as follows. You need a screwdriver 6 mm (1/4 in.), an open ended wrench 13 mm and, if possible, a torque wrench.



Technical information

ASTIR CS

TM 306-17

- Remove the tail unit (stabilizer and elevator) from the vertical stabilizer.
- Unscrew the 8 mm self-locking unit on the rear ends of the bolts with the 13 mm wrench. If the bolts turn with the nut, hold it in place with the screwdriver.
- Remove the loosened bolts and be sure that both washers remain on the hinge plate.
- Install the new bolts (102-2142.46) and make sure they are properly positioned at the washers according to detail no. 2. Use a new 8 mm self-locking nut so that the bolt is installed securely.

Caution: Do not tighten too far. If possible use a torque wrench and torque with 13 Nm (32"/lb)

- Mount the tail unit on to the fin and couple the control-rods. Check for safe installation. A small amount of play is acceptable.
- Please send the used bolts back to GROB TFE, D-8939 Mattsies, Am Flugplatz, and state the total time and landings. We will inspect the bolts and prevent a new installation.

Material: 1 spheric locking bolt 102-3500.21
(when ordering advise us about the exact diameter + 0.1 mm/ 0.004 in.)
1 special nut 102-3510.21
1 Toothed washer 10.5 DIN 6797 phr
2 Retaining pins 102-2142.46
2 Self-locking nuts M8, LN 9348

All parts can be ordered from the manufacturer by using the attached form.

Weight and balance: No change.

Remarks: The proper execution of this technical information by an authorized personal must be certified by a competent authority in the aircraft logbook. When repairs are executed in the area of the tail unit due to overstress the locking bolt and the retaining pins must be replaced in all cases.

Mattsies, June 10, 1981

LBA-certified: June 15, 1981

gez. i.A. Dipl. Ing. H. Wilser

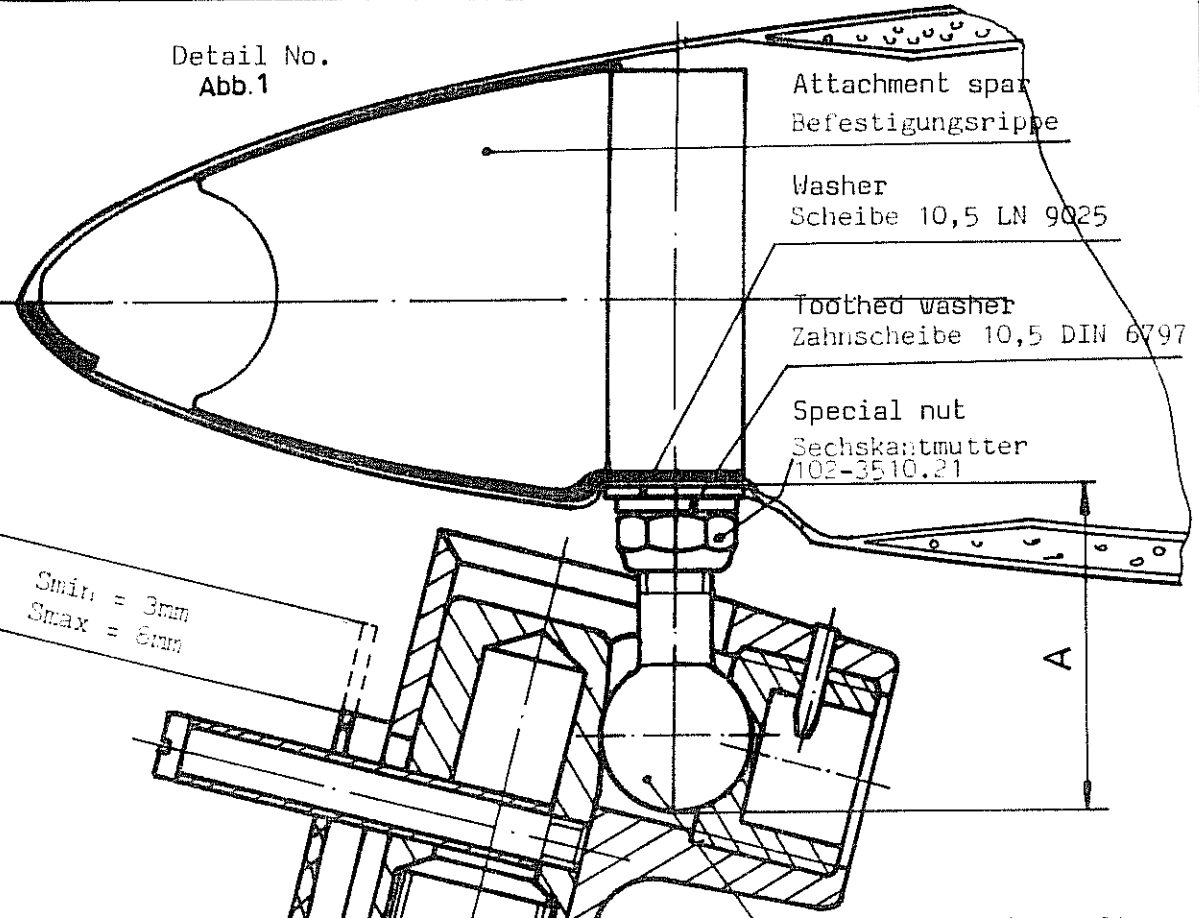
P.S. If you have already sold your ASTIR please inform us about the new owner and send this technical information to the owner's adress.



Unlocked position without bolt
 Stellung ohne Kugel

Locked position with bolt
 Stellung mit Kugel

Detail No.
 Abb.1



Attachment spar
 Befestigungsrippe

Washer
 Scheibe 10,5 LN 9025

Toothed washer
 Zahnscheibe 10,5 DIN 6797

Special nut
 Sechskantmutter
 102-3510.21

$S_{min} = 3mm$
 $S_{max} = 8mm$

A

Spheric locking bolt
 Detail No. Kugelbolzen 102-3500.21
 Abb.2

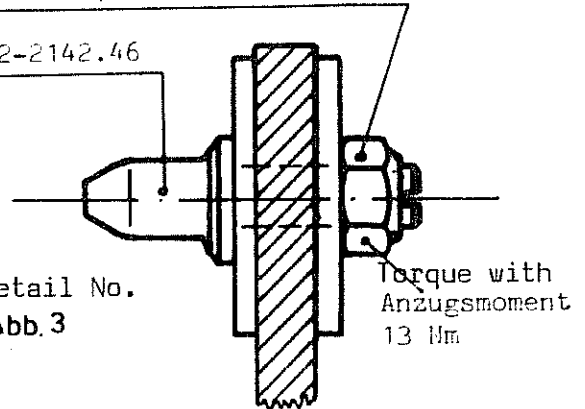
Locking mechanism in the vertical stabilizer:
 Beschlag in der Seitenflosse

Flying direction
 FLUGRICHTUNG

Self locking nut
 Sechskantmutter M 8, LN9348

Retaining pin
 Bundbolzen 102-2142.46

Detail No.
 Abb.3



Torque with
 Anzugsmoment
 13 Nm

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