

Sheet 1

No. of sheets: 5

ASW 19, L-308
ASW 20, L-314
Maintenance Instruction
H

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Type: Instructions regarding maintenance and adjustment.

Subject: Adjusting the towhook after an unintentional release.

Accomplishment: Immediate, when a malfunction occurs.

Affected gliders: All ASW 19, ASW 19 B, ASW 20 and ASW 20 L.

Reason: On winch and aero-tow the towhook releases under severe load - usually during a jerky start to the tow.

Causes:

1. Towhook does not lock correctly.
2. Towhook installation not correct for modified ring pair.

Action:

Cause 1:

- a) Clean the towhook from top to bottom, using compressed air if necessary. Remove the seat pan and the cockpit rear wall for this.
- b) The operating cable is too short. Check that the plastic tube on the ball-handle does not strike the guide on the instrument panel. If necessary, shorten this tube. Check also whether the cable is too short between the bellcrank on the pedal and the towhook, or whether friction is too high. If necessary, the cable should be oiled or even replaced. When the towhook is locked closed, then the upper bellcrank must not strike the pedal stand. If this should occur, or the crank has less than 5 mm (0,2 in) clearance to the pedal stand, then the bowden cable between the forward fuselage bulkhead and the forward towhook bulkhead should be shortened which then involves adjusting the brass cable ends.
Check whether the bowden cable mentioned above is long enough to avoid the seatpan and the pilot seated in it pressing down on the cable and putting it under tension.
- c) The automatic towhook ring is stiff to move, and hence the towhook cannot lock. If cleaning does not improve this, then the towhook must be removed, replaced and overhauled.
- d) The latching action of the towhook itself is set up too critically; consult the towhook manufacturer.

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Cause 2:

- a) The modification to the double ring pair (large ring oval) makes it possible for the second ring (which is now larger) to touch the structure surrounding the tow-hook end and, if the cable is twisted, it can then cause the automatic mechanism to unlatch.
The solution here is to relieve the structure which surrounds the towhook; this material is only a mudguard. The seam which supports the landing gear doors can also be shortened to about 5 mm (0,2 in) in front of the towhook.
- b) If the measures described in a) do not help, the forward towhook fitting can be modified. To do this it is usually necessary to make up a new fitting which is designed to suit the particular installation. In this case you must contact the manufacturer so that a new fitting can be manufactured.
Good results have been achieved with the new ring pair, if the towhook is sunk into the forward fitting far enough for the automatic towhook ring to run almost parallel to the outside contour (see accompanying sketch).
- c) After a belly landing and/or if water has been allowed to stand in the cockpit for a long period, the glued joint between the rear towhook bulkhead and the fuselage shell may fail. This weakens the towhook installation to the point where the towhook may twist under a severe load (such as occurs during cable snatches); this movement may be enough to cause a stiff and/or too critically adjusted towhook cable to open the latch of the towhook (see pages 3 and 5 for more information). In this case the glued joint between towhook and bulkhead must be repaired. Clean up the glueing surface and fill the slot (e.g. made with a piercing saw blade) with a filler paste consisting of:
- | | |
|-----------------------|-------------|
| 100 parts by weight | Epikote 162 |
| 38 parts by weight | Epikure 113 |
| 10-15 parts by weight | Aerosil. |
- Filler powders other than Aerosil must not be used, as they produce a weaker joint (micro-balloons) or swell when damp (cotton flock). If necessary, reinforce the repaired areas with an additional layer of glass cloth.
- Drill a \emptyset 6mm (0,24 in) hole through the towhook bulkhead to allow water to drain away. Seal the hole thoroughly, using resin/hardener or paint !

Sheet 3

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Mass and
C.G. position:

No detectable effect.

Notes:

The eventualities listed above have only occurred to date in a small number of cases. If you discover a further source of trouble, please inform us so that this Maintenance Instruction can be improved.

Drawings:

Accompanying sketch on Page 4 of this Maintenance Instruction.

Poppenhausen, August 30, 1981

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Gerhard Waibel
(Gerhard Waibel)

Supplement to 2.c):

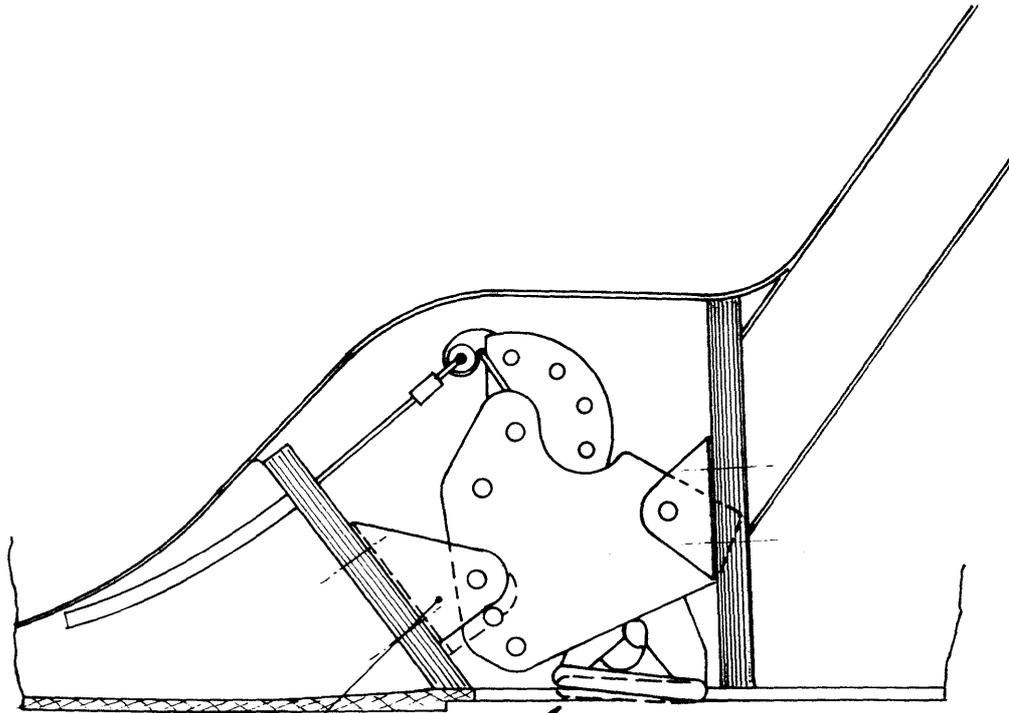
A successful reinforcement to the forward towhook bulkhead of the C.G. towhook has proved to be two wedge-shaped plywood blocks (see sketch on Page 5). Two layers of glass cloth 92140 are laid over the joint surfaces of the blocks, with random fiber orientation, and resined together. Do not forget to preserve the water drainage holes.

Poppenhausen, June 15, 1982

G. Waibel
(Gerhard Waibel)

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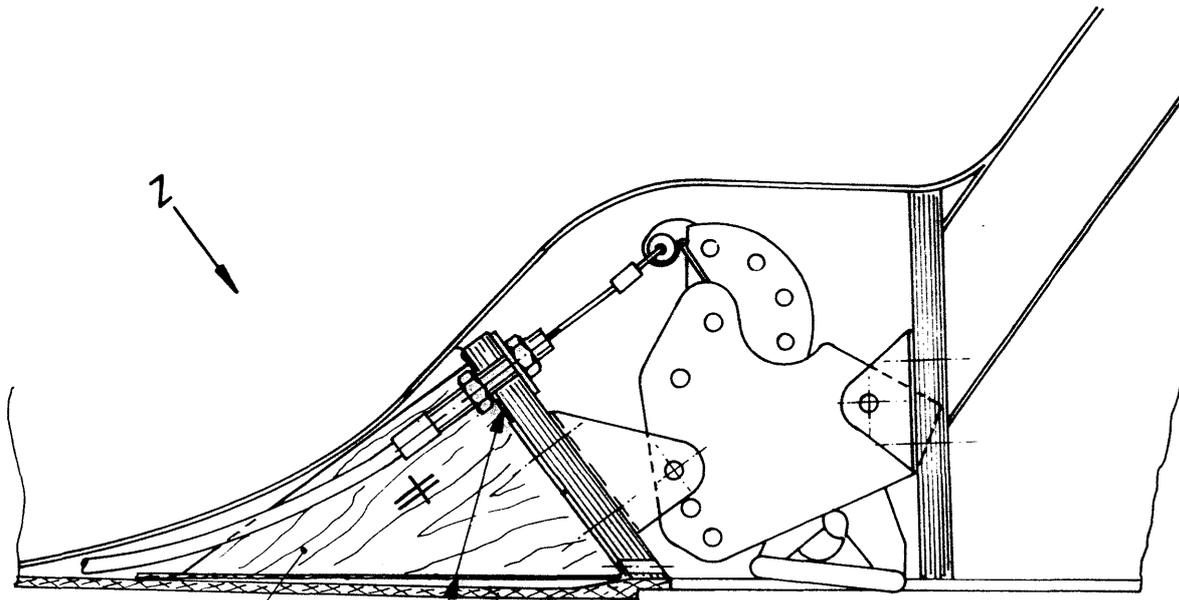


Automatic ring almost parallel to outside contour.

New, modified towhook fitting.

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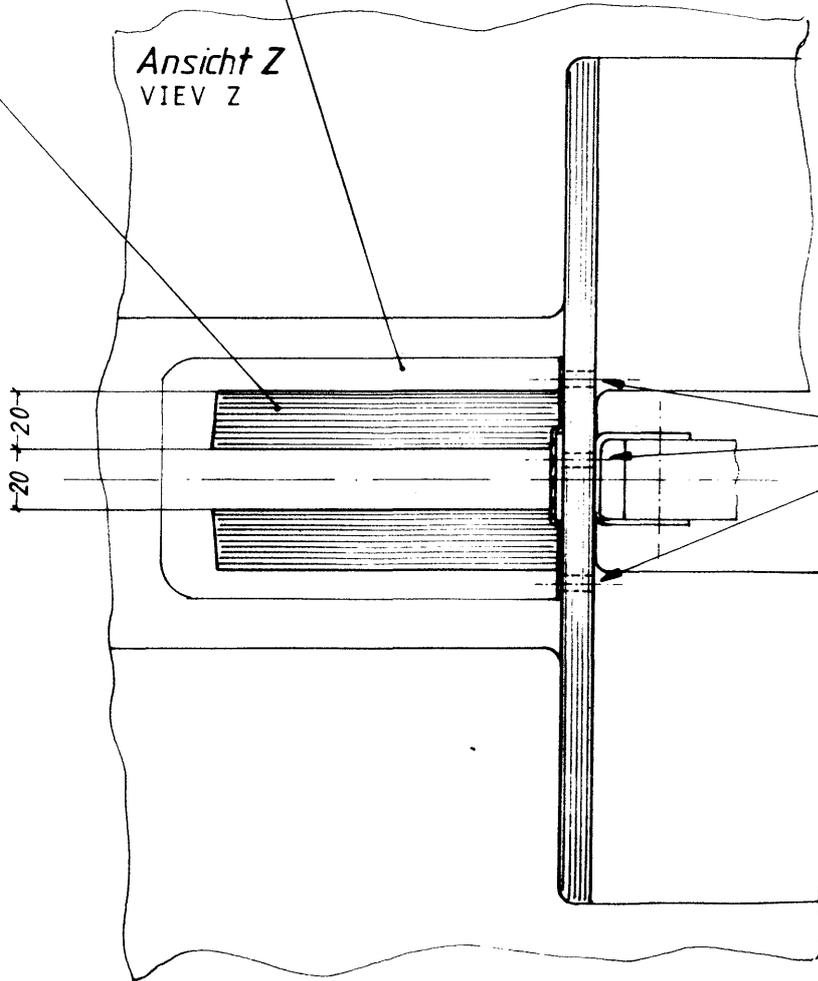
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Reinforcement
Verstärkung
Sph. 6.1013. Plywood

2 Lagen 92140, beliebig
2 layers 92 140, any weave direction

Ansicht Z
VIEV Z



Drainage holes ϕ 6 mm

Entwässerungs-
löcher ϕ 6

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