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Technical Note
No. 301/19

Subject : Additional tow hook for aerotow

Effectivity : Sailplanes DG-100 all models only as an option

Accomplishment : non, optional

Reason : In addition to the C.G. tow hook a tow hook only for aerotow can be installed as an option. The installation place is below the instrument panel.
Postfactory installation is possible.

Instructions :

1. Installation of the nose tow hook Tost "E85" according to installation plan EFK, drawings R83 and R84.
For postfactory installation the installed control cable is to cut so that the cable leading to the C.G. hook can be used for the new installation. Cut the nylon tubes according to plan EFK. Remove the pulley and its cover under the instrument panel. Make a cutout in the left wall under the instrument console referring to drawing R84 for installation of the GFRP part R85. Grind away the upper and lower glued joints of the wall.

   Assemble the bulkheads R81 and R82 provisionally to the tow hook. Place the assembly exactly in the middle of the fuselage and mark the position of the glued joints for the bulkheads and a cutout diameter 53 mm (2.1 in.) for the ring of the tow hook see drawing R83

   Next you have to alter the position of the pitot and static pressure lines according to installation plan ED/l. The lines should come out of the GFRP wall min. 90 mm (3.5 in.) above the fuselage bottom. If not, you have to reposition them prior to the installation of the tow hook.

   Mill a cutout 2 mm deep for the rubber cover see drawing R86 in the lower fuselage surface. The nylon line for the pitot pressure is to bend to the left by heating it. To prevent a wrinkle in the tube insert a dia. 3.2 mm (l/8 in.) control cable in the line prior to heating. The line should be bend so that there is no interfering with the tow hook. The plastic hose for the pitot pressure is to lengthen by 130 mm (5.1 in.). The length of the static hoses are 140 mm (5.5 in.) left and 120 mm (4.7 in.) right, measured from the T-tube fitting.

   To prevent from chafing at the tow hook the hoses are to be fixed with a plain loop cushioned clamp dia. 22 x 15, which is to be fixed at the left upper mounting bolt of the pedal adjustment device. The original bolt is to be exchanged against a bolt M6 x 30 DIN 912-8.8.
   Roughen the glued joint areas at the bulkheads, the fuselage and the wall R85.
   Assemble the tow hook with the lever R79/l and the bulkheads.
   Mix the resin 50 g (1.76 ounces) MGS L285 and 19 g (0.67 ounces) hardener MGS L286. Brush all glued joint areas with the resin mixture. Thicken some of the resin mixture with cotton flocks and apply on the glued joint areas. Glue in the wall R85 and the bulkheads with the towhook. Fix the nylon tubes according to plan EFK with 2 layers of glasfibre fabric 92125.
   Curing procedure: 12 h room temperature, 18 h 55°C (131°F)

   Assemble the bellcrank R80 provisionally with the clevis rod ends and the adjustment screw R79/3 to the bulkhead and the towhook. Adjust R79/3 for a distance of 75 mm (2.96 in.) of the axes. Insert the control cables with thimbles and Nicopress sleeves according to plan EFK and mark the positions. Take out the bellcrank R80 and press the sleeves with a Nicopress tool groove M.

Finally assemble the bell crank.
Adjust the adjustment screw R79/3 so that the cable leading to the C.G. tow release is just not tensioned. Lock the fork rod ends with the counter nuts. Glue in the rubber cover according to drawing R86 with Pattex contact adhesive or similar. Cover the joint with thin plastic tape.

2. Function test

Carry out a function test at the front release and at the C.G. release.
For testing use a rope with the original Tost double rings (marked LN6 5091 - Tost). Pull the rope parallel to the lower fuselage surface with min. 50 daN (110 lbs.) to the front.
Release from the cockpit Ensure for safe release with low pilot forces.

3. Manual pages

The following manual pages are to be exchanged against pages issued March 1998 marked TN 301/19. Follow the new instructions marked with a bar at the side of the pages.

Flight manual	page	subject
	2	list of amendments
	3	tow hooks
	11	aerotow

Materials : 1 tow release Tost E 85 (special version for DG-single seaters)
with bush R79/2 and bolt M 6x 85 DIN 931-8.8 zn.
1 lever R79/l
1 adjustment screw R79/3
1 bellcrank R80
1 clevis rod end G 6 x 12 DIN 71752 left hand thread
1 clevis rod end G 6 x 24 DIN 71752
1 nut DIN 439-8 M6 left hand thread
1 nut DIN 439-8 M6
2 clevis pins 6 x 18/16,5 DIN 1434 zn
2 cotter pins 1,5 x 12
600 mm (24 in.) control cable dia. 3.2 mm (l/8 in.) LN 9374
1 bolt M6 x 40 LN 9037
2 bolts M6 x 65 DIN 912-8.8 zn
5 self locking nuts M6 DIN 985-8 zn
9 washers 6.4 DIN 125 St zn
3 Nicopress sleeves 28-3-M copper-zinc plated
2 thimbles 3 mm DIN 6899 A
1 plain loop type cushioned clamp dia. 22 x 1.5
1 rubber cover R86 (rubber from car wheel tube 2 mm (.08 in.) thick)
Glasfibre 92125 appr. 100 x 100 mm (4 x 4 in.)
Epoxy-resin MGS L285 50 g (1,76 ounces)
+ hardener MGS L286 19g (.67 ounces)
cotton flocks 100 g (3,53 ounces)
one of each tow hook bulkheads R8l, R82
1 GFRP wall R85

Drawings: R83
R84
R86
Installation plans: EFK,
ED/1

Weight and balance : The weight increases by 0.9 kg (2 lbs.) at 1260 mm (49.6 in.) in front of datum.
For postfactory installation calculate the new empty weight C.G or carry out a new C.G. weighing.
Write a new C.G. weighing report.

Remarks : All instructions are to be executed by the manufacturer or by a licensed workshop and to be inspected and entered in the aircraft logs by a licensed inspector.

Bruchsal, date:
March 12. 1998

Author:
Dipl. Ing. Wilhelm Dirks

LBA – approved:

The German original of this TN has been approved by the LBA under the date of
and is signed by
Mr. Fendt. The translation into English has been done by best knowledge and judgement.

Type certification inspector:
Dipl. Ing. Swen Lehner