

Exchange of the mountings of the airbrake control hook-up

Designations of the control system parts see Maintenance manual DG-1000 diagram 4, further parts see drawings 10F4 und 10F5

1. Derig the glider and place the wing on a trestle, lower side up.
2. Remove the protection caps from the access holes in the rear root ribs.
3. Determine the position of the spar cap in the wing and mark on the lower wing surface.
4. Cut out the area shown in sketch 1 from the lower wing shell. Grind all material above the wing root rib down to the rib.
Warning: Don't damage the root rib or any other parts!
5. Disassemble aileron control pushrods 10St 37/1 (right wing) resp.. 10St.37/2 (left wing) from bellcrank 10St.38.
6. Disassemble airbrake control push rod 10St43 from bellcrank 10St42.
7. Remove bellcrank 10St42 from the control hook-up.
8. Grind the mountings of the airbrake control hook-up 10 FE18/19 (right wing) resp. 10FE20/21 (left wing) down to the tube of the airbrake control hook-up 10St34, see photo 1.
9. Heat tube 10St34 with a hot air gun and remove the tube from the root rib.
10. Grind the remainder of the mountings down to the root rib shear wall.
Warning: Don't damage root rib shear wall and upper wing shell!
11. Execute all work of this item together in one working step: Glue the airbrake control hook-up into the root rib shear wall. The end of the tube 10St 34 must be flush with the outside of the root rib shear wall. Apply a thin coat of resin/hardener mixed with cotton flocks (BW-resin) to the tube. Reinstall the GFRP tube (part of the root rib, removed during work of item 10) by applying 4 layers of glasfibre fabric 92 140 $\pm 45^\circ$ 20 mm wide (in spanwise direction) on the tube and overlapping 40mm around the tube on the root rib shear wall.. Install mountings 10 FE 18/19 resp. 10 FE 20/21 with BW-resin and press to root rib. Let cure at room temperature.
12. Reinstall the control system parts, use new selflocking nuts.
13. Prepare replacement pieces for the wing shell. Scarf a piece of H60 8mm thick foam core according to the piece you cut out before. Laminate 1 layer of Carbonfibre fabric 205g/m² $\pm 45^\circ$ as inner layer onto the foam. Let cure at room temperature.
14. Prepare the wing shell for the repair according to repair manual DG-1000 section 5.4 (overlap length 20mm).
15. Glue in the repair pieces with BW-resin, let cure at room temperature.
16. Grind down the foam as far as necessary, scarf the root rib spar caps (Carbonfibre UD tapes in chord-wise direction, scarf length 100mm),
17. Laminate the root rib spar caps, 4 layers of 25mm wide Carbonfibre UD tapes. 1. layer; 50 mm wide (2x25mm), layers 2-4 75mm wide (3x25mm).
18. Grind the repaired area if necessary and scarf the outer lay-up of the wing shell (overlap length 45mm)
19. Mix resin/hardener with Microballoons and fill all holes of the foam. Apply the outer lay-up 2 layers of Carbonfibre fabric 205g/m² $\pm 45^\circ$ and 1x 90070 0, 90° over the complete repaired area. Let cure at room temperature.
20. Install a temperature sensor via the access hole inside the wing close to the repaired area. Postcure the repaired area at 60°C for min 18 hours.
21. Adjust the overcentre locking moment and locking travel according to sect. 4.4.2 MM. Reinstall the protection cap to the access hole
22. Rig the glider and check airbrake control. Apply filler to the repaired to restore the wing/fuselage junction.
23. Degrig the glider.
24. Grind and paint the repaired area.

necessary material:

drawings 10F4, 10F5

Epoxy resin with hardener according to the list in the repair manual DG-1000

Cottonflocks FB1

Microballoons BJ0-09301

Paint according to the list in the repair manual DG-1000

Polyester filler

Foam core H 60 8mm thick

Carbonfibre fabric weight 205g/m² types according to the list in the repair manual DG-1000

Glassfibre fabric Interglas 92140 and 90070

Carbonfibre UD-tapes UD CST 290 / 256 II 25mm wide,

alternatively KDU 1009 (approx. 300g/m² carbonfibre in longitudinal direction) 25mm wide

Selflocking nut M6 DIN985-8zn or M6 LN9348

right wing:

10FE18 front airbrake hook-up mounting

10FE19 rear airbrake hook-up mounting

left wing:

10FE20 front airbrake hook-up mounting

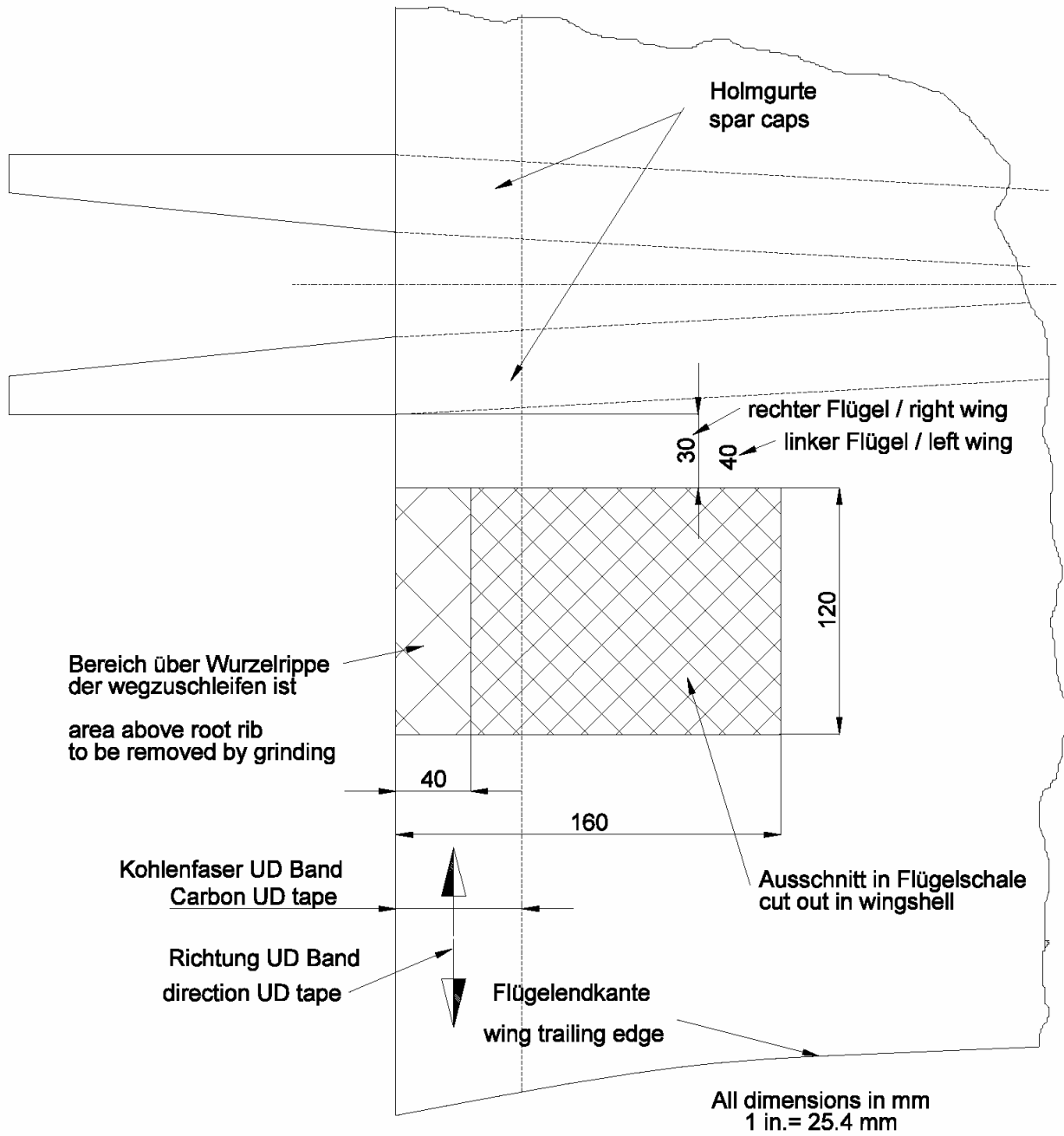
10FE21 rear airbrake hook-up mounting



Photo 1: repair area, airbrake control hook-up mountings removed

Issued: 5.12.2007

Author: Dipl. Ing. Wilhelm Dirks



Sketch 1: parts of the wing shell to be cut out