ASW 12
Technical Note
No. 4

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Subject: Inspection and interior preservation of the wing spar.

Serial number applicability: All gliders ASW 12.

Compliance: Action as per point 1.1 through 1.4 prior to July 31, 1989. All further action before December 31, 1989, at the latest.

Reason: Following penetration of water into the spar interior it is possible that under certain conditions a wood destroying mould fungus develops in the spar inside. This mould fungus may affect and destroy the balsawood spar webs and the plywood blocks of the spar to such an extent that the supporting function of the spar webs is no longer sufficient. This may lead eventually to the premature failure of the wing.

Action:

1.1 The wing spar must be visually inspected for penetrated moisture, mould fungi and/or swelling up !
Mould fungi attack shows as discoloration of the wood into blue, brown or grey hues or as white mold fungi in lumpy shape or in cobweb-shaped, but irregular threads.

1.2 As shown in Fig.1, first a hole must be drilled into the front root rib. Then the inner side of this rib must be reinforced by GRP layers (four layers 92140, diagonal) and the edge of the hole must be preserved.

In accordance with Fig.2 now drill holes of ø 28 mm must be made, using a key hole saw (Fig.3). Through these inspection holes the spar inside must be inspected, using an endoscope or a suitable mirror with suitable lighting mechanism (e.g. pocket-lamp bulbs soldered on two stiff, approx. 1 m long wires), and checked for moisture, discoloration and wood-destroying mould fungi; (move the source of light along the spar inside).
The drill cores which you get with the use of the key-hole saw and which must be correspondingly marked for the purpose of assigning them to the drill holes, must be sent in for a microscopical examination in view of possible fungal damage to one of the institutes listed under "Notes, point 2.".

1.4 If it is found that the wood parts of the spar inside are not damaged by moisture and/or fungal infection, the drilled inspection holes must be reinforced by a GRP-

circular disk and then closed by means of a rubber stopper (see Fig. 5).
Prior to this, the spar inside must be sprayed out with a solvent-containing preservative in accordance with DIN 68 800, e.g. Aidol Fertigbau 100 made by REMMERS, D-4573 Löningen, Tel.: 05432-83-0 (see Fig. 6). When using this product "Aidol" you will need about 200 g. It has to be regarded that the edges of the drill holes are preserved again (see Fig. 5).
The bore hole remaining within the GRP-circular disk is intended as gate for later inspections and the holes in the rubber stoppers are required for ventilation.
With the accomplishment of the above action the glider is airworthy again for the time being and flight operations can be continued pending the results of the microscopical examination (refer to Points 3.1 and 3.2).

2.1 If a swelling up is clearly visible or if there is suspicion that water has penetrated into the spar fork or into the spar stub, the main pin bushing must be removed and the interior between the bushings must be inspected (see Fig. 7). Normally the main pin bushings are level with the main spar winding or lie slightly back respectively.
The plywood webs at the left and right of the bushing can be driven out to inspect the spar interior.

2.2 If discoloration or wood-destroying mould fungi attack is found on the balsawood webs and/or plywood blocks, the manufacturer or a licensed aviation repair station must be contacted for repair instructions and repair or replacement of the whole component to re-obtain airworthiness.

3.1 If the microscopical examination of the bore cores (as mentioned in Point 1.3) finds that there is **heavy wood-destroying fungal infection** of considerable extent, which calls into question the airworthiness of the glider / motorglider, on recommendation of the mycologist and by request of the LBA another systematically controlled visual inspection of the spar must be done by a mycology specialist using an endoscope. Then proceed to Point 2.2.

3.2 If this further endoscopical inspection then shows no damage to the wood parts inside the spar (caused by moisture and/or mould fungi attack), the aircraft is again **airworthy without any restrictions.**

4. In the Operations Manual the page 18a with the reference entry "TN No. 4 dated 10.05.1989" must be inserted. The insertion of this page in the Manual must be documented on the page 3 "Corrections of the Manual".

Material & drawings:

The GRP-circular disks, the rubber stopper, the Manual page and the wood preservative are available from the manufacturer and his agencies.

Notes:

1. The "Action points 1.1 thru 3.2" must only be carried out by the manufacturer or by a technical aviation service station holding an appropriate license.
   "Action point 4." can be carried out by the owner himself.
   The accomplishment of this mod must be certified by a licensed aviation inspector in the glider`s inspection documents and in the log-book.

2. Addresses of the institutes:

   Bundesamt für Materialforschung und Prüfung
   Biologische Materialprüfung
   Unter den Eichen 87
   D-1000 Berlin 45
   Tel: 030-8104-5100

   Bundesforschungsanstalt für Forst- und Holzwirtschaft
   Institut für Holzbiologie und Holzschutz
   Leuschnerstr. 91
   D-2050 Hamburg 80
   Tel.: 040-73962-280

   Fraunhofer-Institut für Holzforschung
   Bienroder Weg 54 E
   3300 Braunschweig
   Tel.: 0531-3909-336

3. The inspection according to above para "Action point 3.1" must be done by the mycology specialists at the Fraunhofer Institute at Braunschweig. It is recommended that a competent person with knowledge of the subject (e.g. aviation inspector or repair station manager) is present during the inspection in order to assist the mycology specialist.

4. Aircraft owners in foreign countries are not bound to call in the above mycology specialist stated under "Notes: point 3." The Aviation Authority of the respective country may name a suitable specialist in their country.

5. Because of the difficulties to import AIDOL 100 into several overseas countries (e.g. USA): to help our customers in those countries the use of the US-Product DAP Woodlife Clear Wood Preservative is herewith accepted as equivalent to AIDOL 100. When using this DAP product, you will however need two treatments of

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each 100 g. One application of 100 g has to be made as a first step and then the wing must well dry off. Afterwards the wing must be rotated by 180° and another 100 g have to be applied. Make sure that DAP Woodlife Clear Wood Preservative has really completely dried out before the glider is taken back into operation.

Poppenhausen, May 10, 1989

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i.A. Lutz-W. Jumtow

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The German original of this Technical Note has been approved by the LBA under the date of May 11, 1989 (signature: SCHMALJOHANN). The translation into English has been done by best knowledge and judgement; in any case of doubt the German original is controlling.