

Subject: Inspection of the root ribs at the wings for damages

Applicability: **ASW 15**; Type-Certificate LBA 272; model ASW 15, serial numbers 15001 up to 15183 (Unless all root ribs have been replaced by new parts from the ASW 15B according action C of the TN 29)

Reason: Several times damaged root ribs were found on sailplanes of type ASW 15. The original root ribs at the wings were made of TBU-7 plywood by milling and covered with glass-fibre reinforced plastics on one side. With this type of design, the wood is subject to significant aging, so that the overall structure is no longer able to withstand the full loads. As a result of the aging and further stress, cracks appear in the wooden structure, which further weaken the overall rib structure. Also loosening of the bonding between the rib and the spar structure or the wing shell had been found during inspection. To be sure that the wing attachment area is able to withstand all loads the root ribs must be inspected very conscientious. If damages were found, affected ribs have to be replaced according TN 29.

Action: The inspection is performed at the de-rigged aircraft. The root ribs already contain sufficiently large openings so that the inspection can be performed without any other preparation. A small mirror and a sufficiently strong light source (e.g. flashlight) are required to inspect the ribs from the inner side. All four wing root ribs have to be inspected. At each rib, attention must be paid on the following possible damages:

- a) Cracks perpendicular to the root rib plane at the wider flanges of the rib (see Fig. 1)
- b) Cracks perpendicular to the root rib plane through the reinforcement around the fit pin bushings (see Fig. 2)
- c) Cracks parallel to the root rib plane at the wider flanges of the rib (see Fig. 3)
- d) Cracks in the shear wall of the rib, especially in the area around the cut-outs (see Fig. 4)
- e) Loosening of the rib from the spar of the wing shell (see Fig. 5)
- f) Loose lift pin bushings (see Fig. 6)

The list does not claim to be complete. In any case, all ribs should be examined for any possible damage.

The following pictures shows examples for findings of possible damages.



Fig. 1: Cracks perpendicular to the root rib plane. Left: significant cracks, right: incipient cracks



Fig. 2: Cracks through the reinforcement around the fit pin bushings



Fig. 3: Cracks parallel to the root rib plane



Fig. 4: Cracks in the shear wall



Fig. 5: Loosening of the rib from the spar



Fig. 6: Loose lift pin bushings

Notes: For the exchange of damaged root ribs the repair instruction of TN 29 has to be regarded.

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