

Subject: Continued airworthiness; precautions against elevator flutter.

Affected gliders: All ASW 19 and ASW 19 B; serial numbers 19001 thru 19402 with the exception of 19019 and 19210.

Compliance: Action 1 immediately,
Action 2 by June 1, 1984, at the latest.

Reason: Following a flutter case in New Zealand (crossing a competition start line at high speed) preventive measures against symmetric horizontal tailplane flutter are recommended, as the inspection procedures after belly, wingtip or crop landings according to Technical Note no.16 appear not to be sufficiently effective.

A flutter analysis for the horizontal tailplane of the ASW 19, using latest measuring and computer equipment, shows that flutter cases are possible, if a low elevator control circuit frequency (caused by hidden damages and/or high additional masses on the control stick and/or play in the control circuit) combined with an unfavorable spanwise mass distribution of the elevator matches with the horizontal tailplane bending frequency.

A further flutter calculation showed that a trimming of the elevator trailing edge mainly in the tip region (see sketch on sheet 4 and also corrected drawing 190.35.S1) removes the possibility of above flutter cases within the approved speed limits, even if the elevator control circuit is weakened or partially damaged.

Action:

1. The maximum permissible speed immediately has to be limited to 200 km/h (108 kts). This speed limit is valid until action 2 is accomplished.
The temporary speed limit has to be marked by a red radial line on the dial of the airspeed indicator and must be indicated by a placard "Maximum speed 200 km/h (108 kts)" next to the airspeed indicator.

2. According to the sketch on sheet 4 of this TN, the elevator trailing edge is cut or ground off and reshaped on the lower surface.

If you find when doing this job that the trailing edge glue joint between upper and lower surface of the elevator is no more sufficient, both surfaces have to be sanded and re-glued with the following glue mixture:

- 100 parts in weight of Epikote 162
- 38 parts in weight of Epikure 113 (= Laromin 260)

and the following filler mixture:

- 10 parts Aerosil
- 5 parts cotton flocks FL 1f
- 15 parts microballoons, white.

The glue joint must be at least 7 mm wide, but no more than 12 mm.

The width of the glue joint can be checked by means of a strong light in a dark room as well as by testing it by knocking with a metal piece of about 50 g (e.g. bolt M 8, ~ 80 mm long) on the trailing edge.

The mass reduction by trimming and reshaping the trailing edge has the same effect as a much heavier mass balance in front of the elevator hingeline. Therefore, it is important to remove as much weight as possible from the trailing edge and to reduce a necessary glue joint to a minimum.

For the same reason the reshaped lower surface should be smoothed by using only a minimum of filler. For preserving use white paint (original Lesonal 03-69469 with 10 % of hardener) or acrylic paint out of a spray can.

Also here it is important to use as little material as possible.

After the modification of the trailing edge has been accomplished, the airspeed indicator marking at 200 km/h (108 kts) must be removed and so also the speed limit has to be cancelled.

Material:

Glue mixture and paint; see above chapter "Action 2."

Weight & balance:

By the modification of the elevator its mass is reduced altogether by about 110 g. This change in mass is uncritical despite its long distance from the C.G. of the glider.

On the other hand, the tailheavy moment of the elevator is reduced by about 1,2 cmkg. As however the factory inspection records show that there is no elevator with a tailheavy moment of less than 7,2 cmkg, the minimum permissible tolerance can be exceeded in no case. (tolerance range for the tailheavy elevator moment: min. 6,0 cmkg; max. 9,0 cmkg). Therefore, a re-weighing of the tailheavy moment is not necessary.

Notes:

1. The modification according to this TN is included into the series production as of serial number 19403.
2. Action 1 according to this TN can be accomplished by the owner of the glider himself.
3. Action 2 (modification of the elevator) must be accomplished by a licensed aviation repair station and must be documented in the glider log book and in the inspection papers.

Drawings:

For this TN no.17 the drawing 190.35.S1 dated Oct.9, 1978, has been corrected and provided with the correction note "TM 17".

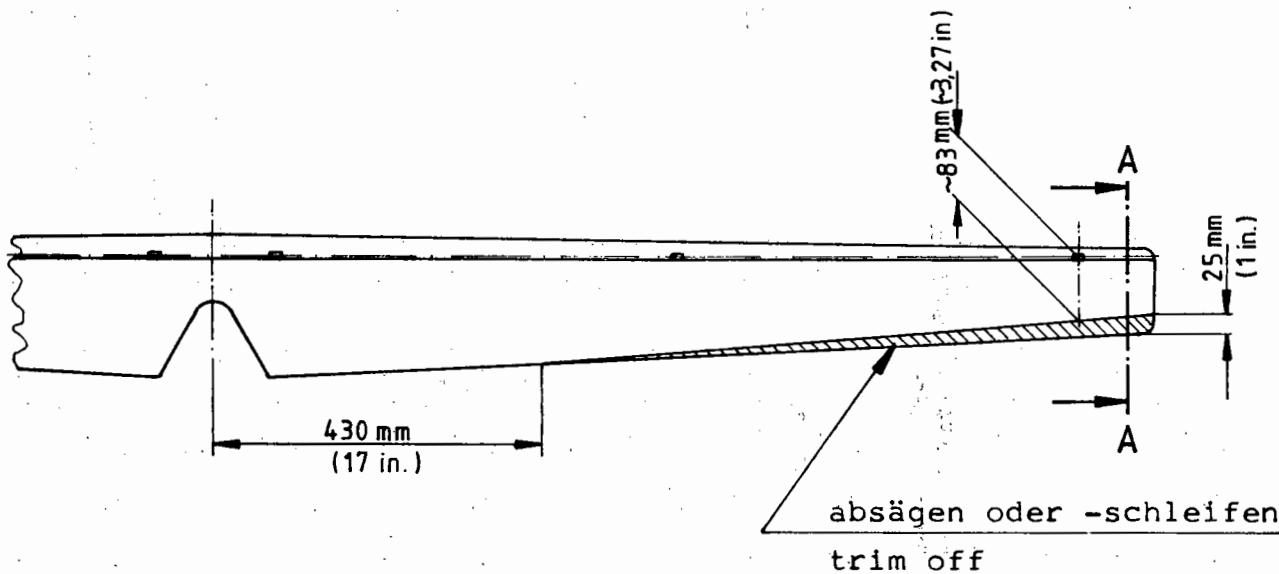
Poppenhausen, March 27, 1984

ALEXANDER SCHLEICHER
GmbH & Co.



(Gerhard Waibel.)

The German original of this TN has been approved by the LBA under the date of April 16, 1984, and is signed by Mr.SCHMALJOHANN. The translation into English has been done by best knowledge and judgement. In any case of doubt the German original is authoritative.



A - A

Verleimung, glue joint

min. 7 mm (0,28 in.)
max. 12 mm (0,47 in.)

Hinterkante verjüngen
reshape trailing edge

alte Kontour
old contour

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