13. The emergency canopy jettisoning system must be operated, and examined for corrosion and burrs etc. If necessary, correct faults and in all cases regrease!

14. The water bags and valves are to be checked for watertightness and correct operation (see III.13.4).

15. The wing bending frequency is to be measured and compared with the stated value in the latest inspection report. For this test the fuselage must be rigidly supported on two supports, in order to obtain comparable values; for the position of the supports see Fig. 3.4-1!

16. Check that the equipment and instrumentation are in accordance with the Equipment inventory.

17. After repairs or alterations to the equipment the new empty weight and the C.G. position are to be found by calculation or weighing, and are to be recorded in a summary of weights.

18. Prevention against flutter by checking the sealing of the wing control surface gaps and the blow turbulators.
   a) Sealing with a plastic-treated fabric tape (TESA-BAND): the plastic coat on the fabric must not be damaged, discolored or even weather-worn. The tape must not tighten with full control surface deflections (negative).
   b) Sealing with an elastic lip (steel or plastic respectively):
      Check that there is a Teflon sealing tape underneath and that it is not damaged. Even with full control surface deflections (negative) a 100% airtight fit of the steel (or plastic) lip must be guaranteed.
   c) The blow turbulators must be checked for proper operation: blow with slight pressure, e.g. with a vacuum cleaner, (do not use compressed air!) into the Pitot tubes and feel at the blow holes that they are free; they can be cleaned with a thin steel wire, 0.5 mm (0.02 in).

IV. ACCESSORIES

IV.1. MANUALS

a) On-board logbook;


d) Glider's service record map;


IV.2. TOOLS

Special Allen key for the assembly of the horizontal tailplane.

DATE: June 2, 1984

AUTHOR: Heide

CORRECTION: TN no. 11 of 24.06.87
V.8. MAINTENANCE INSTRUCTIONS

The following Maintenance Instructions have been written over the long period of service of the ASW 20 to meet the problems which have arisen. In dealing with the maintenance of the ASW 20 CL, we can in many cases fall back on the experience gained with the ASW 20. Results of this experience have naturally been incorporated in the ASW 20 CL as standard; e.g. Maintenance Instruction A no longer applies, as a very effective disc brake system has been fitted to the ASW 20 CL. Similarly, the Tesa-moll tape strips, the installation of which is covered in Maintenance Instruction B, are now fitted as standard; a check needs to be made from time to time that the strips still fit closely against the control surfaces; for this reason Maintenance Instruction B is now presented as the instructions for renewing the Tesa-moll seal. It should be noted that the installation procedures in Maintenance Instruction H (tow release rake and wedge-shaped plywood blocks) have also been incorporated as standard in the ASW 20 CL. Maintenance Instruction F concerns repair workshops abroad (Repair instructions for replacing a wing).

Maintenance Instruction B        dated 02.10.78
Maintenance Instruction C        dated 15.02.79
Maintenance Instruction D        dated 25.06.79
Maintenance Instruction E        dated 28.06.79
Maintenance Instruction F        dated 15.07.80
Maintenance Instruction G        dated 13.01.81
Maintenance Instruction H        dated 30.08.81
Maintenance Instruction I        dated 09.09.82
Maintenance Instruction J        dated 24.04.87

This series of Maintenance Instructions will be extended and supplemented as and when required.
Aerodynamic Improvement.

Subject:
Covering the control surfaces gap on the wing under side by an elastic lip seal.

Types affected:
All AW 20 model variants, as of serial no. 26001.

Compliance:
None: optional.

Reason:
Performance test measurements with an AW 20 C have shown that a continuous transition from wing to camber-changing flap/ailerons can cause some considerable drag in high speed flight. It is important in this connection that the sealing underneath this transition lip must be 100% airtight.

The problem of producing a continuous transition is solved by fixing an elastic lip seal to the wing, the curvature of which bridges over the gap between wing and control surfaces and which rests with its pre-tightened fit against the control surfaces.

Also the control surfaces gap on the wing under side must first be sealed by applying Teflon tape which at the same time serves to reduce the friction of the elastic lip on the flaps or ailerons.

The additional friction involved in the aileron control circuit is low and intolerable. Also the additional force received for the flap actuation is low.

Action:
1. Covering the control surfaces gap on the wing under side:
   1.1 The adhesive fabric tape (TESA-RAP) is removed from the wing under side control surfaces. Close reference - Close in the recess - must be completely removed by using synthetic resin thinner. To begin with and as an auxiliary measure, a 12 mm wide adhesive tape (e.g. TESA-RAP, 12 mm) is applied flush with the front edge of the recess (see fig. 11).  

Note:
All glue areas must be completely clean, dry, and free from dust and grease.  
The complete cleanliness is best checked by applying a Teflon strip to the cleaned area, removing it again, and checking that no dust particles are sticking to the Teflon.
1.2 Now the sealing & friction reducing tape ② (3M Double Teflon tape) is applied - again flush - along the rear edge of the alignment tape ①. Please keep the drawn-off backing film of this sealing tape for later use with the steel strip.

1.3 When applying the above Teflon tape push the /tape allover to the maximum negative setting to ensure that the tapes will not be under tension afterwards with normal negative control surface deflections and do not hinder such negative deflections!

The sealing & friction-reducing tape ② must be strongly rubbed into contact.

1.4 If the steel tape ③ is used, it first must be thoroughly degreased using acetone or Tri etc. Then position the strip - insert - on the ; i.e. in front of the recess where it must be held so are by several short tape strips. Using pinwheels the steel tape strip is easily cut into the five pieces as shown in Fig.3a.

Fig. 1
- Fig. 2a
- Fig. 2b
As the alignment tape ① with was applied at first as an auxiliary measure, it is removed, and this is done using a knife for each steel strip. In its place the Felt Special plus is pressed on this area and also brushed on the entire width of the respective peel strip which is positioned in front of this area. The Felt plus has to be left on for about 30 minutes.

For the following application of the steel strips it is best to get into the draw-off backing film of the adhesive friction-reducing Velcro tape, which we keep for the purpose, onto the ringside metal strip, whereas it is impossible to align each metal strip with the necessary precision. It is an advantage to have the use of two pairs of hands for the giving up of the steel strips; one person starting to remove the backing film at one wall while the other person holds the steel strip at the other end so prevent it from rolling up. Then hit by hit the backing film is removed, the steel strip aligned and pressed into contact.

1.5 In the application of the self-adhesive plastic tape ② if necessary, the auxiliary alignment tape ① can be removed at once entirely, then the backing film is removed off the plastic strip and the latter then placed - onto the frame in the way, along the whole span lengthwise Fig.3.

The steel strip of the plastic strip respectively being applied, a soft cloth black (e.g., bellows) on a hard rubber roller is used and the strips - in the glue area - pressed strongly into contact.

1.6 Then the butt joints of the four steel strips respectively are also covered with the adhesive and friction-reducing Scotch Velcro tape ③.

1.7 As last the wing control surface ④ were moved (two magnetic lockers) so as to be kept in this position for 24 hours; during this period the rope or self-adhesive film respectively will even and reach its ultimate adhesion force.
1.8 At last a protective tape (5) is still applied over the butt joint of plastic/felt lip and wing. This tape is to be used for this purpose should be as thin as possible and moisture-resistant: e.g. Teafilm no.104, white, 25 mm wide is suitable (see Fig.3). This tape is applied for safety reasons and prevents a peeling-off of the lip seal from the front that could possibly lead to dangerous flight characteristics.  

2. Covering the control surfaces gap on the wing upper side:  

2.2 To enable the application of an elastic lip seal to the wing upper side, at first a recess (as shown in Fig.4) must be cut into carefully marking the paint coat up to the outer FEP-layer (0.7 mm depth).  

2.2 The recess area must be carefully cleaned (see note under point 1.1). Then the backing film is removed off the self-adhesive MYLAN plastic strip (6) and the strip with its self-adhesive film then glued flush - onto the recess in the wing, along the whole flap / aileron span length (see Fig.4). Then a soft wood block (e.g. balsa) or a hard rubber roller is used to press the strip strongly into contact in the glue areas.  

2.3 The butt joints and the ends of the plastic strip (6) are covered with the sealing and friction-reducing Scotch Tefilm tape (4) .  

2.4 Finally the protective tape (5) (Teafilm no.104, white, 25 mm wide) is applied over the butt joint of plastic lip and wing; this tape is applied for safety reasons and prevents a peeling-off of the lip seal from the front that could possibly lead to dangerous flight characteristics.
### Notes:

1. It is strongly recommended to check the elastic lip at the flaps and slats for 100% airtight fit.

2. Also check the elastic lip at the wing for a safe and tight attachment.

3. The material required for this optional and can be ordered from SCHLEICHEN or from the SCHLEICHEN-representative in your country.

### Material:

**For Wing**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 m</td>
<td>Teflon tape no.104, 12 mm</td>
</tr>
<tr>
<td>15 m</td>
<td>Teflon tape no.104, 25 mm</td>
</tr>
<tr>
<td>15 m</td>
<td>Teflon tape no.104, 30 mm</td>
</tr>
<tr>
<td>2 tubes</td>
<td>Teflon Special glue for steel</td>
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<tr>
<td>3 m</td>
<td>Teflon tape, 33 mm, pre-cured by 5 mm</td>
</tr>
<tr>
<td>3 m</td>
<td>Steel tape, 33 mm, pre-cured by 5 mm</td>
</tr>
<tr>
<td>3 m</td>
<td>Mylar tape, 37.5 mm, pre-cured by 6 mm</td>
</tr>
<tr>
<td>3 m</td>
<td>Mylar tape, 37.5 mm, pre-cured by 9 mm</td>
</tr>
<tr>
<td>3 m</td>
<td>Mylar tape, 37.5 mm, pre-cured by 12 mm</td>
</tr>
</tbody>
</table>

### Mass and C.G.: It is not necessary to redistribute the mass and C.G. data.

Pepingenhausen, April 24, 1987

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The translation into English has been done by best knowledge and judgment; in any case of doubt the German original is controlling.