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 water-tightness 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 (TESABAND): 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, ø 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: Oct. 1, 1984
AUTHOR: Heilde
CORRECTION: TN no. 31 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 BL, 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 BL as standard; e.g., Maintenance Instruction A no longer applies, as a very effective disc brake system has been fitted to the ASW 20 BL. Similarly, the Tesamoll 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 Tesamoll 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 BL. 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.
Kind: Aerodynamic improvement.

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

Types affected: All AW 20 model variants, as of serial no. 20001.

Compliance: None; optional.

Reason: Performance test measurements with an AW 20 C have shown that a continuous transition from wing to camber-changing flap/aileron 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 providing 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 seal on the flaps or ailerons. The additional friction involved in the aileron control circuit is low and tolerable. Also the additional force required for the flap actuation is low.

Action: Covering the control surfaces gap on the wing under side:

1.1 The adhesive fabric tape (TEFLAR) is removed from the wing under side control surfaces. Care must be taken that in the recess - must be completely removed by using synthetic resins thinner. To begin with and as an auxiliary measure, a 12 mm wide alignment tape (e.g. Texline 0,5 mm) is applied flush with the front edge of the recess (see Fig. 1).

Note: All glue areas must be completely clear, dry, and free from dust and grease. The complete cleanliness is best checked by applying a Texline strip to the cleaned area, removing it again, and checking that no dust particles are sticking to the Texline.
1.2 How the sealing & friction reducing tape (3) is secured to the Teflon tape. If the tape is applied, ensure that the tape is aligned with the rear edge of the alignment tape (7). Please keep the draw-off backing film of this sealing tape for later use with the steel strips.

1.3 When applying the above Teflon tape, push the Teflon strip firmly to the maximum possible extent to ensure that the Teflon tape will not be under tension afterwards. With normal negative control surface deflections and do not hinder such negative deflections.

The sealing & friction-reducing tape (3) must be strongly rubbed into contact.

1.4 If the steel tape (4) is used, it first must be thoroughly degreased using acetone or Tri etc. Then position the strip - inverted - on the (in front of the pressure where it must be held in the are by several short tape strips. Using an arrow on the steel tape strip is ideally cut into the five pieces as shown in Fig. 3a.
How the alignment tape 1, which was applied at first as a thin, transparent, high-adhesive plastic film, is removed after the metal strip is passed through. In its place, the retention line of the respective fastener strip which is positioned in front of this area, the Plastic film has to dry for about 30 minutes.

For the following application no. 3, the metal strip is bent to fit into the draw-off backing film of the new, transiting adhesive-tape, which is kept for this purpose, on the right side. This tape strip, otherwise, is responsible for joining both metal strips with the necessary strength. It is advantageous to have one or two pairs of hands for the giving of one of the metal strips one person starting to remove the backing film at one end while the other person holds the steel strip at the other end to prevent it from rolling up. Then, by bit by bit, the backing film is removed, the strip aligned and pressed into contact.

1.5 If the application of the self-adhesive plastic tape 10 is chosen, the auxiliary alignment tape 8 can be removed at once entirely, then the backing film is removed off the plastic strip and the latter is fixed onto the transverse in the way, where the whole span length (see Fig. 7).

The metal strip of the plastic strip, respectively being applied, is stuck to the film (e.g. below) on a hard ribbon roller is used and the strip is in the glue area pressed strongly into contact.

1.6 Then the butt joints of the five metal strips 9, respectively are also covered, with the adhesive and friction-reducing Scotch Teflon tape 11.

1.7 After the wing control surfaces 6 are moved into their maximum negative setting, the new are kept in this position for 24 hours, during this period, the glue and self-adhesive film respectively will cure and reach its ultimate adhesion force.
1. As last a protective tape (3) is still applied over the butt joint of plasticized lip and wing: the tape to be used for this purpose should be as thin as possible and moisture-resistant; e.g. Tesafilm no.104, white, 25 mm wide is suitable (see Fig.4). 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:

2.1 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 milled in by carefully marking the paint coat up to the outer FPM-layer (+ 0.7 mm depth).

2.2 The recess area must be carefully cleaned (see note under point 1.1.1, then the backing film is removed off the self-adhesive MYLAR plastic strip (4) and the strip with its self-adhesive film then glued flush onto the recess (as the wing, along the whole lip / aileron span length, (see Fig.4).

Then a soft wood block (e.g. beech) 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 (5) are covered with the sealing and friction-reducing Scotch Feltam tape (2).

2.4 Finally the protective tape (3) (Tesafilm 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.

Fig. 4
Notes:
1. It is strongly recommended to check the elastic lip at the flaps and slotted for 100 % airtight fit.
2. Also check the elastic lip at the wing for safe and tight bonding.
3. This material required for this optional and can be ordered from SCHLEICHER or from the SCHLEICHER-representative in your country.

Material:

For Wing

<table>
<thead>
<tr>
<th>Width</th>
<th>Description</th>
<th>Width</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 m</td>
<td>Teefilm no.104, 12 mm</td>
<td>15 m</td>
<td>Teefilm no.104, 25 mm</td>
</tr>
<tr>
<td>15 m</td>
<td>MH Scotch Vellon tape, 10 mm</td>
<td>2 x 3</td>
<td>Futrex Special glue for steel</td>
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<tr>
<td>3 m</td>
<td>3 mm, pre-curved by 5 mm</td>
<td>3 m</td>
<td>Steel tape, 13 mm, pre-curved by 8 mm</td>
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<tr>
<td>3 m</td>
<td>3 mm, pre-curved by 8 mm</td>
<td>3 m</td>
<td>Nylar tape, 37.5 mm, pre-curved by 6 mm</td>
</tr>
<tr>
<td>3 m</td>
<td>3 mm, pre-curved by 9 mm</td>
<td>3 m</td>
<td>Nylar tape, 37.5 mm, pre-curved by 4 mm</td>
</tr>
</tbody>
</table>

Wings and C.G.: It is not necessary to redetermine the mass and C.G. data.

Papenburg, April 24, 1987

ALEXANDER SCHLEICHER
GAEB & CO.

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