**Subject:** Fixing for the first time or replacing the plastic fairing tape (elastic lipseal) at the control surface gaps of aileron, and horizontal and vertical tail.

**Affecting:** All ASK 21, Data Sheet no. L-339, as of serial no.21001, optional.

**Reason:** Performance measurements with various gliders have shown that drag can be considerably reduced by a continuous transition between wing and aileron and between stabilizer and elevator respectively.

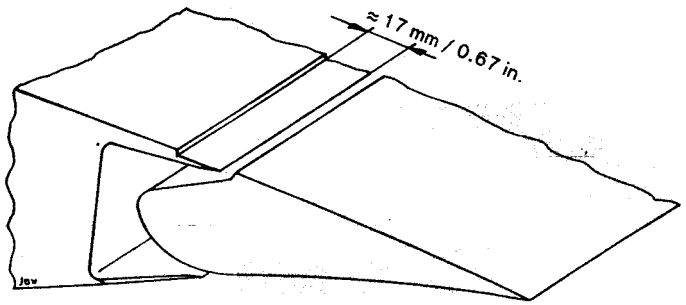
This continuous transition is achieved by means of an elastic lipseal which is applied to the wing, the stabilizer and the fin respectively in order to bridge the actual gap between wing & aileron, stabilizer & elevator, and fin & rudder, due to its curvature into which it is pre-formed to ensure tight seating on the control surfaces.
It is important to ensure that the seal underneath this bridging lipseal is 100 % airtight. The control surface gaps are sealed in addition by means of a Teflon sealing/slip tape, which at the same time serves to reduce the friction of the elastic lipseal on the aileron and elevator surfaces.
Should the elastic lipseal come off or be damaged, this may lead to flutter!

The additional aileron, elevator & rudder control friction generated is minimal and acceptable.

**Action:**

1. If the elastic lipseal was not fitted before to your glider, a step must first be rebated in the upper wing surface as illustrated in Fig.1.
   **NOTE:**
   Only the finish layer is carefully removed down as far as the outer FRP lamination without damaging the glass layer.

Fig.1 Upper Wing Surface



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2. If the elastic lipseal needs to be removed only for maintenance or repair purposes, please observe the following:

   For disassembly of elevator or aileron:
   The elastic lipseal and the sealing/slip tape need to be removed only on the upper surface (where the control surface hinges are located).

   For disassembly of the rudder:
   Here it is not necessary to remove the elastic lipseal at the fin.

2.1 The elastic lipseal must be removed very carefully so as to avoid any delaminations of the layers in this area. Remove any adhesive residue by means of synthetic resin thinners.

2.2 Accomplish any required inspection, maintenance or repair work at the control surfaces themselves and / or their hinges.

3. Fixing for the first time or replacing the plastic fairing tape (elastic lipseal)

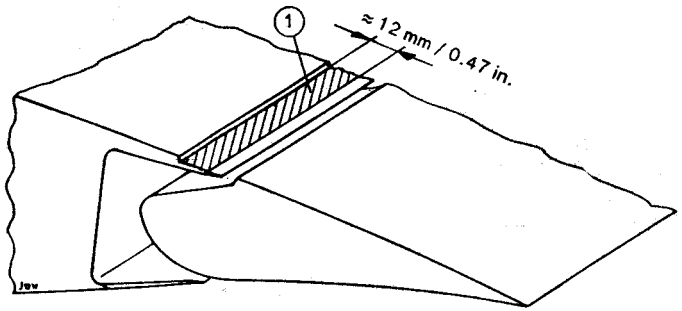
   **Notes:**
   All surfaces must be completely clean, dry and free from dust and grease!
   This can best be tested by sticking a self adhesive tape to the cleaned surface and then pulling it off again to check that no further dust particles adhere to it.

   Cut the new elastic plastic fairing tape and the sealing/slip tape into appropriate lengths (refer to the table under point "Material").

3.1 Upper Wing Surface

   Apply a 12 mm wide temporary positioning tape (1) [e.g: 12 mm Tesafilm 104] abutting the front edge of the approx. 17 mm wide recessed step [Fig. 2].

Fig.2 Upper Wing Surface



Now apply the sealing/slip tape (2) [3M Scotch Teflon Tape 30 mm wide] abutting the rear edge of the temporary positioning tape (1) . Be careful that the sealing/slip tape lies slack over the gap.
Set the aileron to maximum positive deflection, so that later the Teflon sealing/slip tape is not stretched during normal full control deflections!
Apply full aileron several times so that the sealing/slip tape fits well into the gap.
Then the Teflon sealing/slip tape (2) must be firmly rubbed down on to the surface.

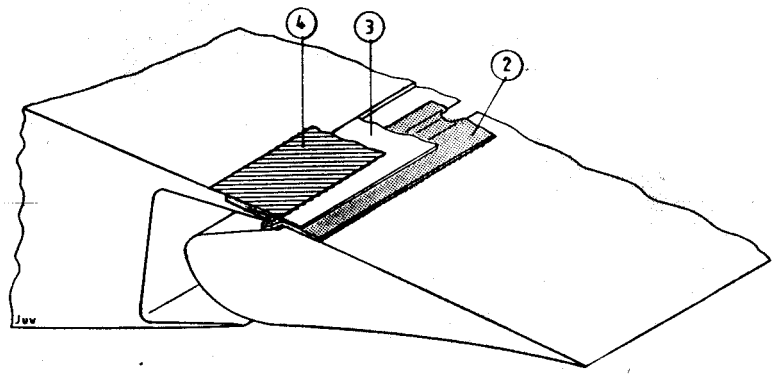
Then remove the temporary positioning tape (1) first applied.

Peel the protective backing from the plastic fairing strip (3) [Mylar foil, 30-15mm wide] and firmly stick it on abutting the front edge of the recessed step in the wing by means of its adhesive film layer [Fig.3].

Press the adhesive zones of the plastic fairing strip firmly down on the surface using a soft wooden block (e.g: Balsa) or a hard rubber roller.

Finally, a protective adhesive tape (4) is applied over the abutment of the front edge of the plastic fairing strip (3) and the step in the wing [Fig.3]. This tape should be as thin and moisture-proof as possible; an example of a suitable tape would be white Tesa film No.104, 25 mm wide.
This protective tape serves to prevent the detachment of the front edge of the plastic fairing strip (elastic lipseal) which might result in dangerous flight characteristics.

Fig.3 Upper Wing Surface



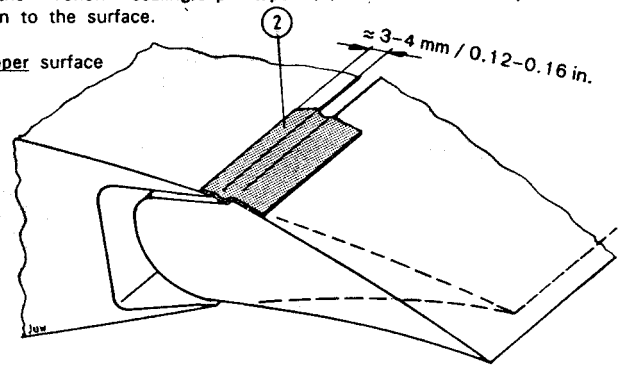





3.2 Horizont tail upper surface:

There is no recessed step at the stabilizer. As shown in Fig.4 the sealing/slip tape (2) [3M Scotch Teflon Tape 30 mm wide] is stuck on over the stabilizer-to-elevator gap. At the same time the elevator must be set to maximum positive deflection, so that later the Teflon sealing/slip tape is not stretched during normal full control deflections!
Be careful that the sealing/slip tape lies slack over the gap.
Apply full elevator several times so that the sealing/slip tape fits well into the gap.
Then the Teflon sealing/slip tape (2) must be firmly rubbed down on to the surface.

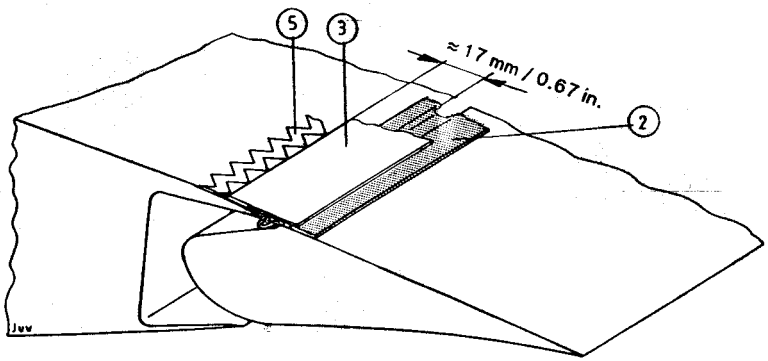
Fig.4 Horizont tail upper surface




Peel the protective backing from the plastic fairing strip (3) [Mylar foil, 30-15mm wide] and firmly stick it on to the stabilizer by means of its adhesive film layer [Fig.5].
Press the adhesive zones of the plastic fairing strip firmly down on the surface using a soft wooden block (e.g: Balsa) or a hard rubber roller.

The zig-zag-tape (5) is stuck on abutting the edge of the plastic fairing strip (3).
**NOTE:** The front teeth (in the direction of the flight) must not be flattened by pressing them too far down into the glue film, otherwise their turbulator effect will be reduced!

Fig.5 Horizont tail upper surface



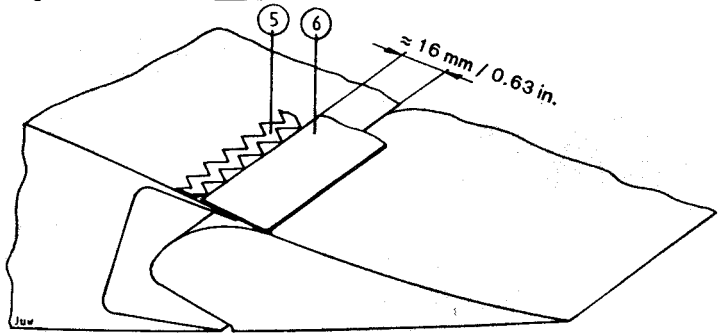
3.3 Wing and horizont tail lower surface:

Remove protective backing from plastic fairing strip (6) [Mylar foil 22-15 mm wide] and stick it on to the wing and horizontal tail lower surfaces, by means of its adhesive film layer [Fig.6].

Press the adhesive zones of the plastic fairing strip firmly down on the surface using a soft wooden block (e.g: Balsa), or a hard rubber roller!

Then the zig-zag-tape (5) is stuck on abutting the edge of the plastic fairing strip (6). [See the NOTE under point 3.2].

Fig.6 Wing and horizont tail lower surface

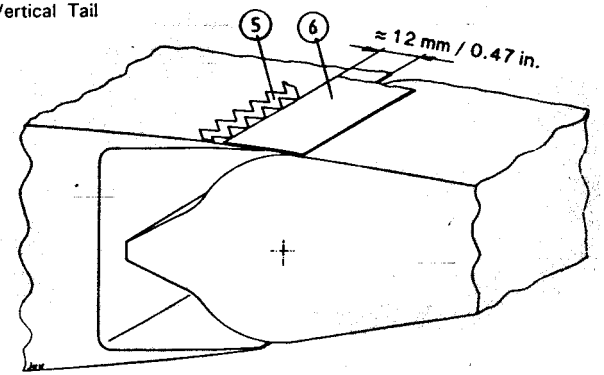



3.4 Vertical tail:

There are no recessed steps at the fin. As shown in Fig.7 the plastic fairing strip (6) [Mylar foil, 22-15 mm wide] is stuck on over the rudder-fin transition at the left and right side (with its adhesive film layer on the fin), then pressed firmly down on the surface.

Then the zig-zag-tape (5) is stuck on abutting the edge of the plastic fairing strip.

Fig.7 Vertical Tail



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Material:

| | Wing Surfaces Upper | Wing Surfaces Lower | Horizontal Tail Sfce.s Upper | Horizontal Tail Sfce.s Lower | Vertical Tail Sfce.s L & R * |
|---|---|---|---|---|---|
| (1)Temporary positioning tape Tesafilm No. 104, 12 mm wide | 2x 2.85 m | | | | |
| (2)Sealing/slip tape 3M Scotch Teflon Tape, 30 mm wide | 2x 2.85 m | | 1x 3.10 m | | |
| (3)Plastic fairing tape Mylar foil, 30-15 mm wide | 2x 2.85 m | | 1x 3.10 m | | |
| (4)Protective adhesive tape Tesafilm No.104, white, 25 mm wide | 2x 2.85 m | | | | |
| (5)Zig-zag tape Mylar foil, 0.5mm thick;12 mm wide | | 2x 2.85 m | 1x 3.10 m | 2x 1.50 m | 2x 1.25 m |
| (6)Plastic fairing tape Mylar foil, 22-15 mm wide | | 2x 2.85 m | | 2x 1.50 m | 2x 1.25 m |

Optional in the place of (5) and (6):

| | | | | | |
|---|---|---|---|---|---|
| (7)Combi-Zig-zag/plastic fairing tape Mylar foil, 38-20 mm wide | | 2x 2.85 m | | 2x 1.50 m | 2x 1.25 m |

* = left and right

The materials required can be obtained from Messrs. Schleicher.

Notes:

1. This action can be accomplished by a competent person.
2. In the place of the plastic fairing tape (6) and the zig-zag-tape (5) optionally a combi-Zig-zag/plastic fairing tape (7) may be glued on.
3. Ensure that the elastic lipseal is in tight contact with the surfaces of the controls even when they are fully deflected.
   The secure and firm adhesion of the elastic lip must be checked.

Poppenhausen, May 7, 1992

ALEXANDER SCHLEICHER GmbH & Co.

(Lutz-W. Jumtow)

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