

**Subject:**

- Fixing for the first time or replacing the plastic fairing tape (elastic lip seal) at the control surface gaps at the wing (upper and lower surfaces), at the horizontal tailplane (upper surface), and vertical tailplane (left & right).
- Positions of Zig -Zag tapes and blow turbulators.

**Serial number applicability:** ASW 22 and ASW 22 M, 22 m- und 24 m-span versions

**Reason:** Performance measurements carried out with an ASW 22 have shown that drag can be considerably reduced by obtaining a continuous transition between wing and flap or aileron respectively.

This continuous transition is achieved by means of an elastic lip seal which is applied to the wing, horizontal & vertical tailplane respectively in order to bridge the normal gap between wing and aileron or flap, between horizontal stabilizer and elevator, and between fin and rudder. Due to its curvature into which it is pre-formed it ensures tight seating on the control surfaces or flaps.

It is important to ensure that the sealing tape underneath this lip seal transition is 100 % airtight. The control surface gaps are sealed in addition by means of a sealing/slip tape, which at the same time serves to reduce the friction of the elastic lip seal on the flap, aileron, elevator and rudder surfaces. Should the elastic lip seal come off or be damaged, this may lead to flutter!

The additional aileron, elevator or rudder control friction generated is minimal and acceptable. Likewise, the additional control force required for operating the flaps is negligible.

**Action:** If the elastic lip seal needs to be removed only to allow access for maintenance or repair purposes at the control surfaces or flaps, please observe the following: For disassembly of **elevator, aileron, rudder, or flap** the elastic lip seal and the sealing/slip tape need to be removed **only on that side** where the control surface hinges are located.

1. The old elastic lip seal must be removed very carefully so as to avoid any delaminations of the layers in this area. When the tapes are warmed up the glue film usually separates easier from the structure.

**WARNING:** Too high temperature damages gel coat and the skins of the structures!

Remove any adhesive residue from the recessed step by means of synthetic resin thinners.

2. Accomplish any required inspection, maintenance or repair work at the control surfaces themselves and / or their hinges.
3. Cut the new elastic plastic fairing tape and the sealing / slip tape into appropriate lengths [refer to the table under point "Material"].

**Note:** All surfaces must be completely clean, dry and free from dust and grease!

For cleaning of the glue areas pure "Nitro" thinner proved to be best [i.e. Fuldazell Spann- und Klebelack-Verdünnung 9600-01 from Rhodius]. Then sand down protruding fibres which have been pulled out of the laminate by removing the old tapes. Use 220 grid sandpaper.

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.

#### 4. Fairing of the gaps at the Lower Wing Surface

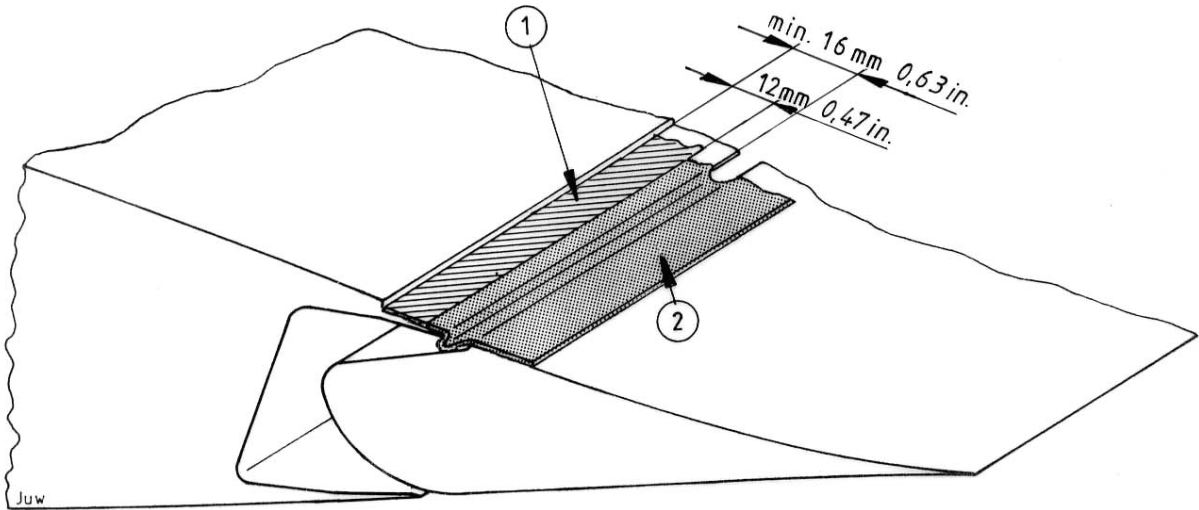


FIG. 1 Lower Wing Surface

- 4.1 If not yet provided, a step must first be rebated in the upper wing surface as illustrated in Fig. 1 by carefully removing the finish layer down as far as the outer FRP lamination [approx. 0.5 mm deep] without damaging the layers.
- 4.2 Into the recessed step apply a 12 mm wide temporary positioning tape (1) [e.g.: 12 mm Tesa film 104] abutting the front edge of the step (Fig. 1)
- 4.3 Now apply the sealing / slip tape (2) [3M Scotch Teflon Tape 30 mm wide] abutting the rear edge of the temporary positioning tape (1).  
Press the aileron and flap into maximum negative deflection, so that the Teflon sealing/slip tape will not be stressed later during normal negative control surface deflections, so as to prevent full negative deflections.  
Then the Teflon sealing/slip tape (2) must be firmly rubbed down on to the surface.
- 4.4 Now cut the plastic fairing strip (3) for flaps [Mylar foil, 38-15 mm wide] and the plastic fairing strip (4) for ailerons [Mylar foil, 30-12 mm wide] into appropriate lengths in accordance with Fig. 2 .

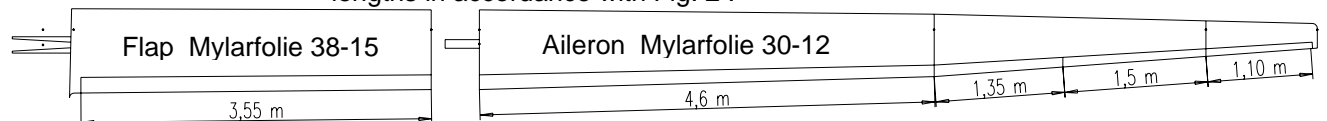


FIG. 2 Lower Wing Surface

Then remove the temporary positioning tape (1) first applied, peel the protective backing from the plastic fairing strip (3) and (4) and stick it on flush into the recessed step of the wing along the whole of its span by means of its adhesive film layer (Fig. 3). For sticking the fairing tape in position, keep it under spanwise tension of about 10 kp (20 lb).  
Press the adhesive zones of the plastic fairing strips (3) and (4) firmly down on the surface using a soft wooden block [e.g.: Balsa] or a hard rubber roller.

- 4.5 Finally, a protective adhesive tape (6) is applied over the abutment of the front edge of the plastic fairing strip (3) and (4) 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, approx. 25 mm wide. This protective tape serves to prevent the detachment of the front edge of the plastic fairing strip [elastic lip seal] which might result in dangerous flight characteristics.

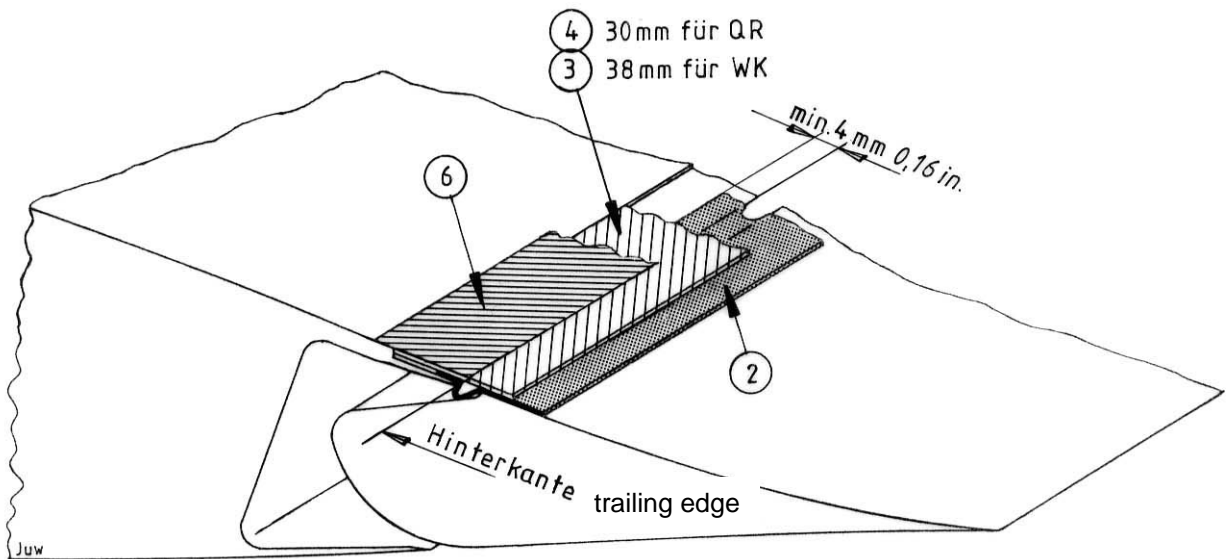


FIG. 3 Lower Wing Surface

### 5. Fairing of the gaps at the Upper Wing Surface

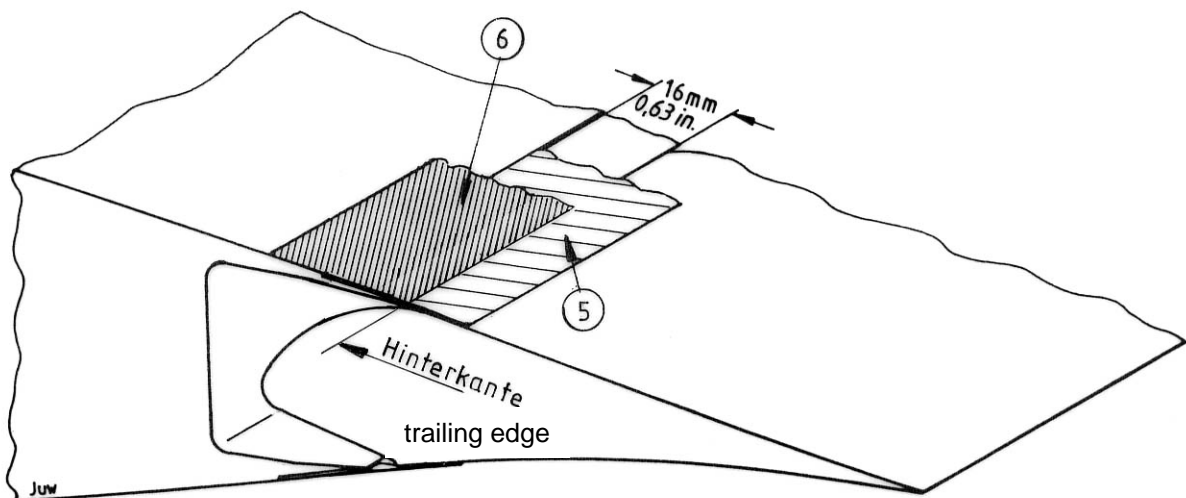


FIG. 4 Upper Wing Surface

5.1 If not yet provided, a step must first be rebated in the upper wing surface as illustrated in Fig. 1 by carefully removing the finish layer down as far as the outer FRP lamination [approx. 0.5 mm deep] without damaging the layers.

5.2 Now cut the plastic fairing strip (5) for flaps and ailerons [Mylar foil, 22-15 mm wide] into appropriate lengths in accordance with Fig. 5 .

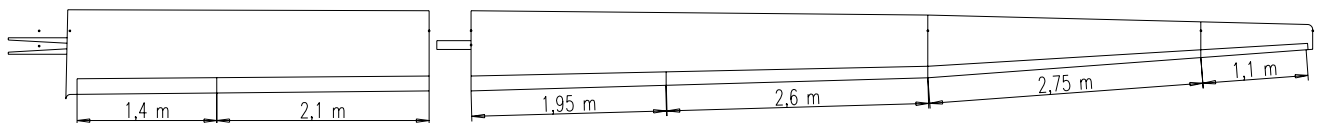


FIG. 5 Upper Wing Surface

5.3 After cleaning the surface of this step [see relevant Note under Para. 3.] remove protective backing from plastic fairing strip (5) and stick the strip over the whole span of the aileron or flap flush into the rebated step by means of its adhesive film layer (Fig. 4). For sticking the fairing tape in position, keep it under spanwise tension of about 10 kp (20 lb).

Finally, press the adhesive zones of the plastic fairing strips (5) firmly down on the surface by means of a soft wooden block [e.g.: Balsa], or a hard rubber roller.

5.4 Tape the protective adhesive tape (6) [Tesa film No. 104, white, 25 mm wide] over the abutment of the front edge of the plastic fairing strip (5) and the step in the wing (Fig. 4).

## 6. Fairing of the gap at horizontal tail upper surface

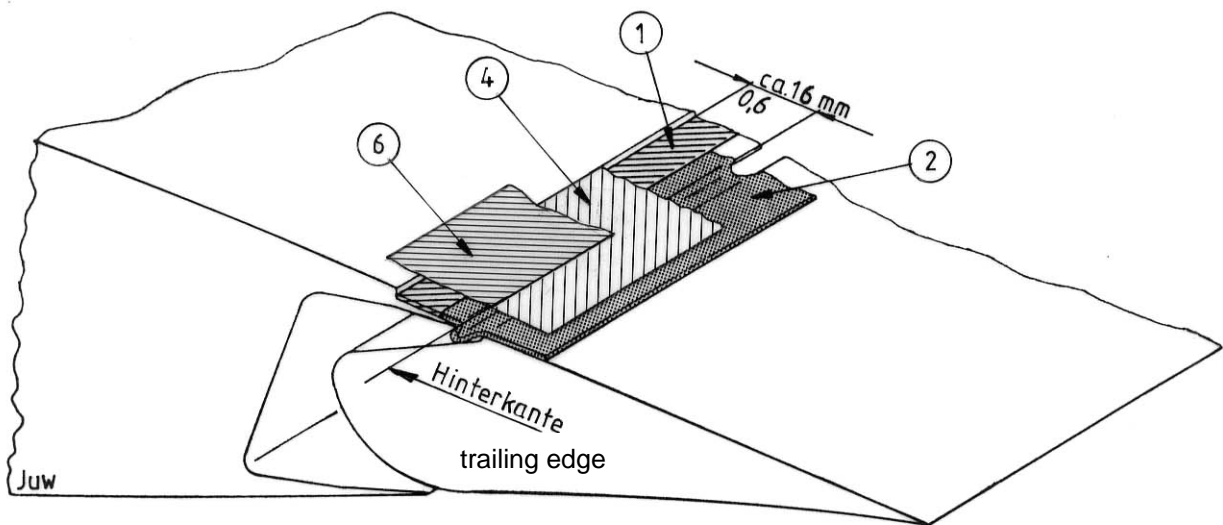


FIG. 6 Horizontal tail upper surface

6.1 If not yet provided, a step must be rebated in the stabilizer as illustrated in Fig. 6 by carefully removing the finish layer down to the outer FRP lamination [approx. 0.5 mm] without damaging the layers.

Slightly file down the rivet heads of the elevator hinge pins so that the elastic lip seal may seat smoothly against the elevator surface in the area of the hinges.

6.2 Following the instructions under points 4.1 through 4.4 the sealing / slip tape (2) and the plastic fairing strip (4) [Mylar foil, 30-12 mm wide] are applied onto the horizontal tail (Fig. 6).

**Note:**

At the same time the elevator must be pressed to maximum positive deflection!

The sealing / slip tape (2) is cut out in the area of the elevator actuator, whereas the fairing strip (4) is applied all over the span in one unbroken length of the horizontal tail.

6.3 Tape the protective adhesive tape (6) [Tesa film No. 104, white, 25 mm wide] over the abutment of the front edge of the plastic fairing strip (4) and the step in the stabilizer (Fig. 6).

## 7. Fairing of the gap at horizontal tail lower surface

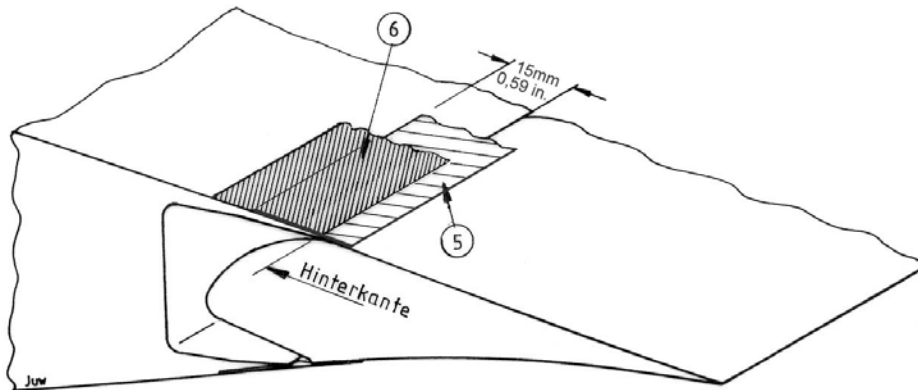
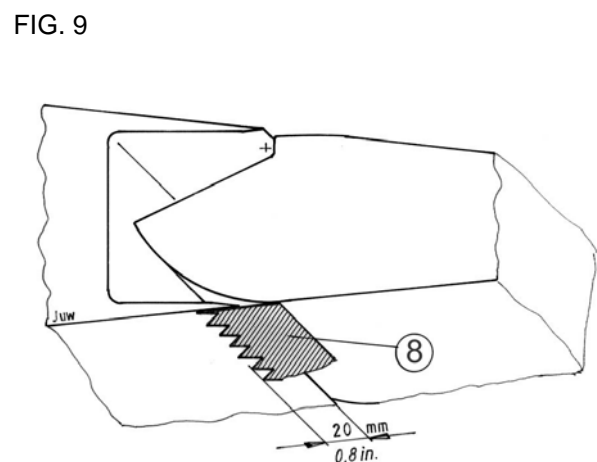
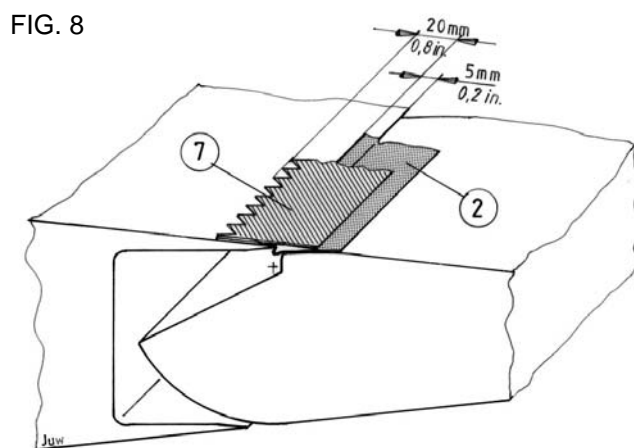


FIG. 7 Horizontal tail lower surface

- 7.1 At the lower surface of the horizontal tail no rebated step is needed. The plastic fairing strips (5), [Mylar foil, 22-15 mm wide] are directly glued to the stabilizer.
- 7.2 After cleaning the surface remove protective backing from the plastic fairing strips (5) and apply left and right halves. Hereby the front seam of the fairing strips must be placed 15 mm in front of the trailing edge of the stabilizer. The glue film is also 15 mm wide. So the fairing tape extends 7 mm to the elevator, see Fig. 7. Finally, press the adhesive zones of the plastic fairing strips (5) firmly down on the surface by means of a soft wooden block [e.g.: Balsa], or a hard rubber roller.
- 7.3 Tape the protective adhesive tape (6) [Tesa film No. 104, white, 25 mm wide] over the abutment of the front edge of the plastic fairing strip (5) and the step in the stabilizer (Fig. 7).

## 8. Fairing of the control surface gaps at the vertical tail, left and right



Here a plastic fairing strip is applied which serves at the same time as a turbulator; therefore it is a type with a zig-zag leading edge.

- 8.1 There are no recessed steps at the fin! First apply the sealing / slip tape (2) to the right side as shown in Fig. 8; make sure that it is not too tight over the rudder-fin gap. The rudder must be fully deflected to the left for this purpose!
- 8.2 Remove protective backing from plastic fairing strip (7) and stick the strip with the rear edge of its adhesive film layer abutting the front edge of the sealing / slip tape (2) (see Fig. 8).

8.3 On the left side stick the plastic fairing strip (8) with the rear edge of its adhesive film layer parallel with the trailing edge of the fin (see Fig. 9).

**Material:**

	Wing Surfaces		Horizontal Tail Surface		Vertical Tail Surfaces	
	upper	lower	upper	lower	right	left
1 Temporary positioning tape Tesa film No. 104, 12 mm wide		2 x 12,0 m	1 x 3,2 m			
2 Sealing/slip tape 3M Scotch Teflon Tape, 30 mm wide		2 x 12,0 m	1 x 3,2 m			1 x 1,5 m
3 Plastic fairing tape Mylar foil, 38-15 mm wide		2 x 3,55 m				
4 Plastic fairing tape Mylar foil, 30-12 mm wide		2 x 8,55 m	1 x 3,3 m			
5 Plastic fairing tape Mylar foil, 22-15 mm wide	2 x 12,0 m			1 x 3,0 m		
6 Protective adhesive tape Tesafilm No. 104, white, 25 mm wide	2 x 12,0 m	2 x 12,0 m	1 x 3,3 m	1 x 3,0 m		
7 Zig-zag tape Mylar foil, 38-20 mm wide, bended					1 x 1,5 m	
8 Zig-zag tape Mylar foil, 38-20 mm wide, straight						1 x 1,5 m

The materials required can be obtained from Messrs. Schleicher.

**Notes:**

1. The actions according to point 1., and points 3. through 8. can be accomplished by a competent person.
2. Ensure that the elastic lip seal is in tight contact with the surfaces of the controls & flaps even when they are fully deflected as otherwise considerable drag can be caused. This is not 100 % achieved at the ailerons when they are in full negative deflection.  
The secure and firm adhesion of the elastic lip seal must be checked!
3. This Maintenance Instruction supersedes the previous Maintenance Instruction "A", Issue I, dated Dec. 20, 1984, for the ASW 22 with 22 m- und 24 m-span versions.

Poppenhausen, January 15, 2002

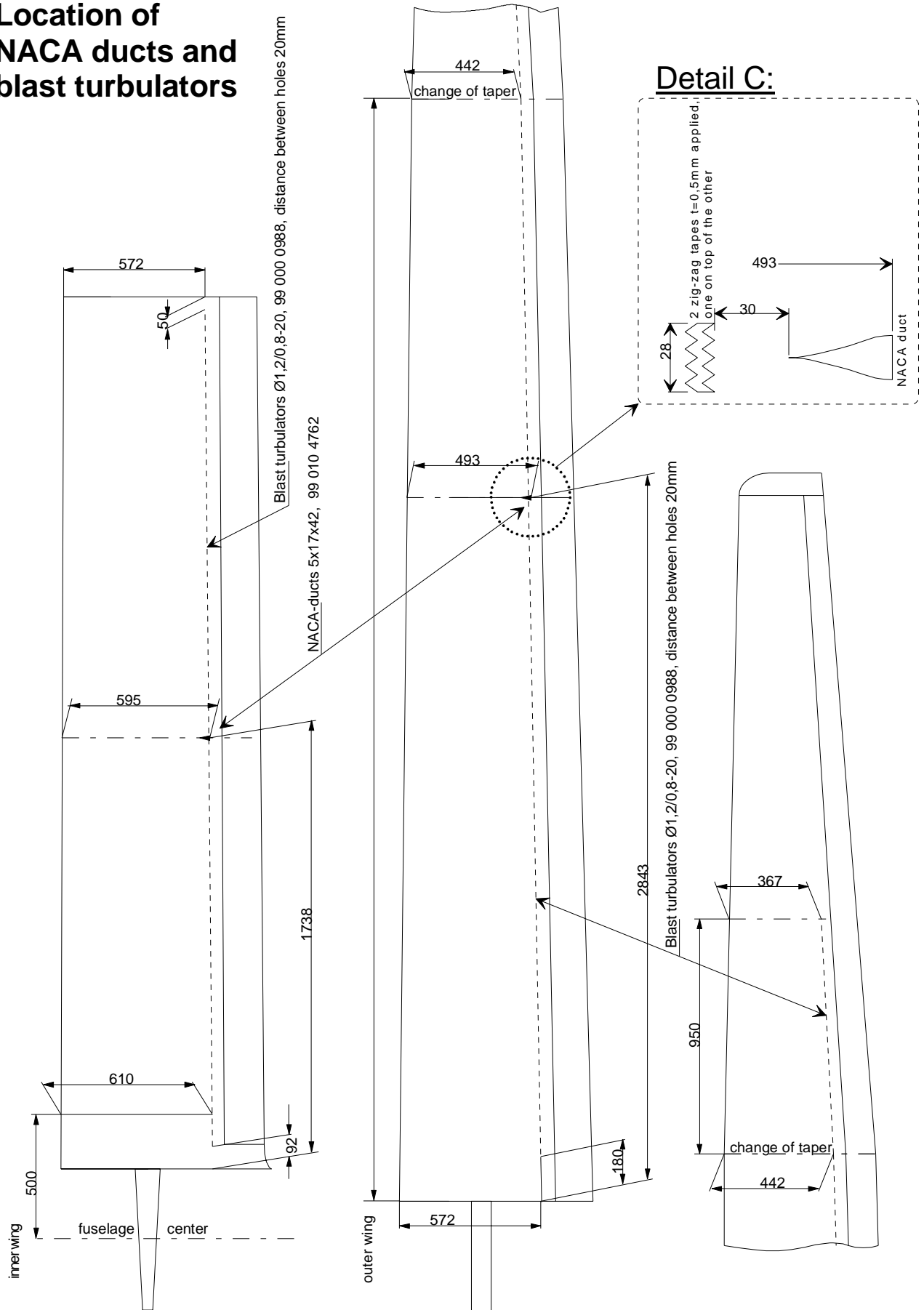
ALEXANDER SCHLEICHER  
GmbH & Co.

By order

Lutz-Werner Juntow

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

### Location of NACA ducts and blast turbulators



**horizontal tail**  
zig-zag tape positions

zig-zag tape  $t = 0.5$  mm

