SERVICE BULLETIN

No. 300-3-04

Compliance optional

Subject: **Change Long Range Tanks- to Standard Tanks Configuration**

Affected Aircraft:

EA-300	S/N 64 through 67
EA-300/S	S/N 29 through 31
EA-300/L	S/N 6 through 167, 168 (or converted to 1168), 169 (or converted to 1169), 170 (or converted to 1170), 172 and 173 (or converted to 1173)

Purpose: When desired, the airplane wing fuel system configuration can be changed from the long range tanks configuration to the standard tanks configuration. A detailed description is given.

Approval: The technical information contained in this document has been approved under the authority of JAA Design Organisation Approval no. LBA.NJA.010.

Repair Kit: The following sets:

- Closing patches (P/N: EA-83901.22)
- Backing plate frames (P/N: EA-83901.23)
- Standard wing fuel placards for fuel gauge and fuel selector valve (P/N: EA-06106.1)

should be ordered from:

Extra Flugzeugproduktions- und Vertriebs-GmbH
Schwarze Heide 21
D46569 Hünxe
Germany
Fax. N°: (+49)-2858-9137-30

LJF (Le Joint Francais) PR 1422 B two-part polysulfide liquid polymer paste should be ordered via the manufacturer: www.ljfm.com

The leading edge D-section of each wing half (forward of the main spar) from root rib to half-span rib serve as fuel tanks. A second fuel system is installed in the fuselage for use with acrobatic maneuvres. The EA-300 (and the series -/S and -/L) can also be built with long range tanks, which give an extra 17 liters (or 4.5 Gallons) of fuel each. These integral tanks are located in the D-sections as well, outboard of the standard wing tanks, between the half span rib and the ¾ span rib, see Figure 1. In this case the half span rib is replaced by a so called slosh rib and a feeder channel is installed. This channel allows for filling the tanks from the wing root area of the normal wing tank, while preventing the fuel from flowing uncontrollably between the two tanks. The feeder channel ends at the slosh rib, which is equipped with 4 vent holes to equalize the pressure between the two tanks.

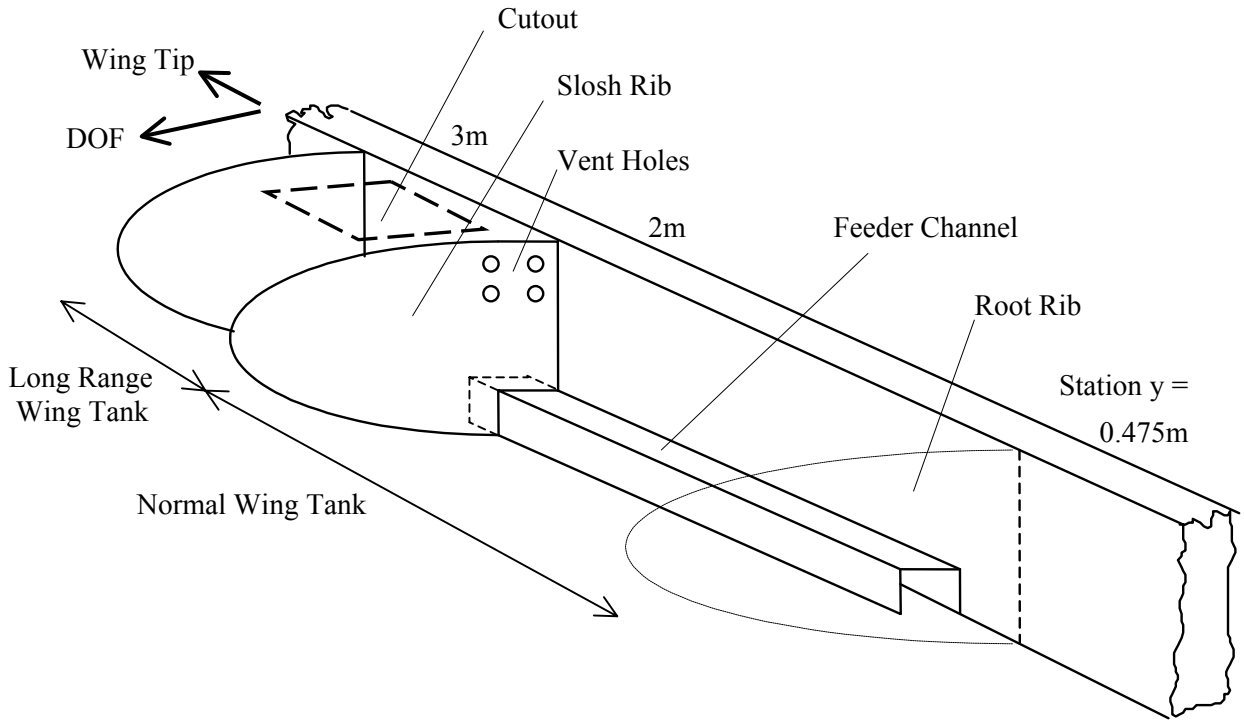
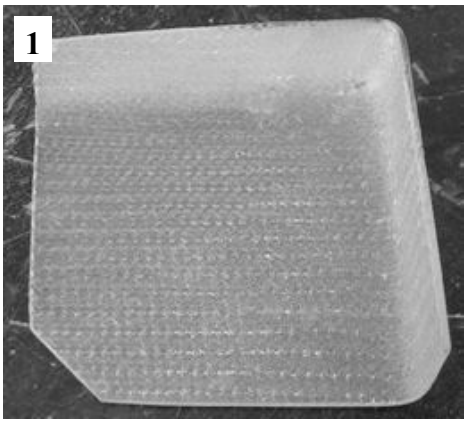


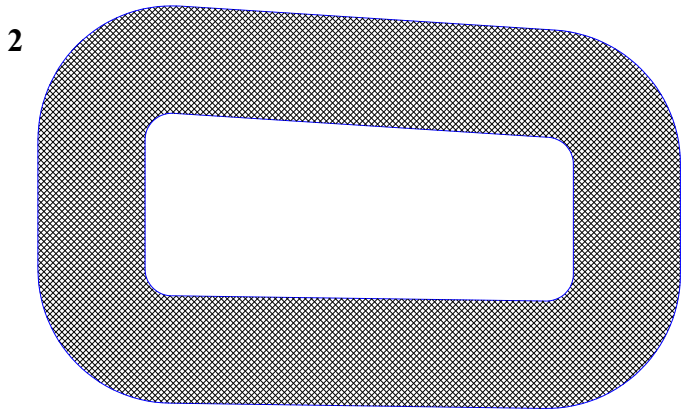
Figure 1: Normal- and Long Range Wing Tanks

To change the fuel tanks from the long range tank to the standard tank configuration the long range tanks need to be closed. This is done by closing the feeder channel exit and the vent holes. Because there is no inspection opening in these tanks, an opening has to be introduced and subsequently closed again in the D-section skin. This must be done in the top side of the wing, just outboard of the slosh rib.

Instructions:

1. The repair as described in the following must be carried out by a facility that is able to fulfill the requirements for the repair of carbon fibre and fiberglass reinforced resin as described in the Service Manual, Chapter 51. It must be ensured to apply the correct weight ratio of the resin/hardener, to apply vacuum for the repaired areas and to cure the repaired area at 80°C. The personnel must be trained in application of these standard procedures.





2. Compliance with this procedure will establish compliance with the manufacturer's requirements, which are normally accepted by national authorities.

3. The repair must be observed and signed off by a person holding a FAA Inspection Authorisation License covering carbon fibre and fiberglass repairs for damage classes 1 to 4 (or comparable according to Service Manual Chapter 51).

4. Repair description: Read all before starting the repair procedure!

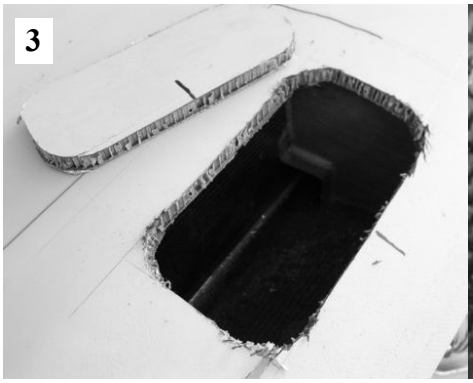
5. For the repair use only materials and procedures as described in the Service Manual. Refer to the procedures in the Service Manual Chapter 51 in all cases concerning the handling of resin, carbon fibres, glass fibres, etc.!

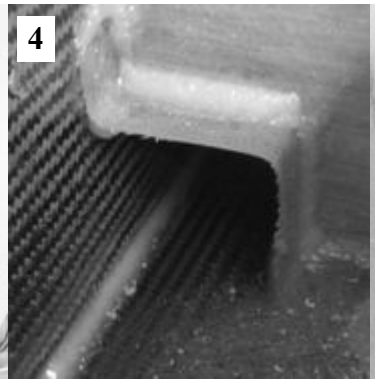
6. Order the repair kit from Extra Fluzeugproduktions- und Vertriebs-GmbH containing the closing patches (picture 1), the backing plate frame (picture 2) and the fuel placards.

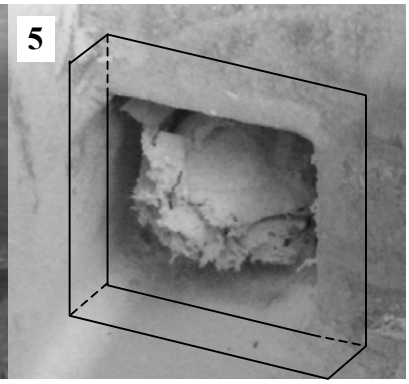
7. Defuel, clean and dry the wing tanks according to the Service Manual Chapter 28-01-02.

8. Mark out the cutout area on the top side of the wing. A drawing with dimensions is given in figure 2 and a proposed measuring procedure is given in figure 3.

9. Drill a hole in a corner big enough to fit a saw blade. Subsequently, carefully cut out the marked shape by hand. Preferably, use a sabre/jig saw with a diamond cutting edge. Alternatively use an oscilating disc cutter. Care has to be taken that the cutting process does not lead to delamination of the adjacent structure (in particular the honeycomb/carbon







bond). The cutout patch will later be used to close the cutout again (picture 3). Take care not to scratch or destroy the outer layers of the spar in any way!

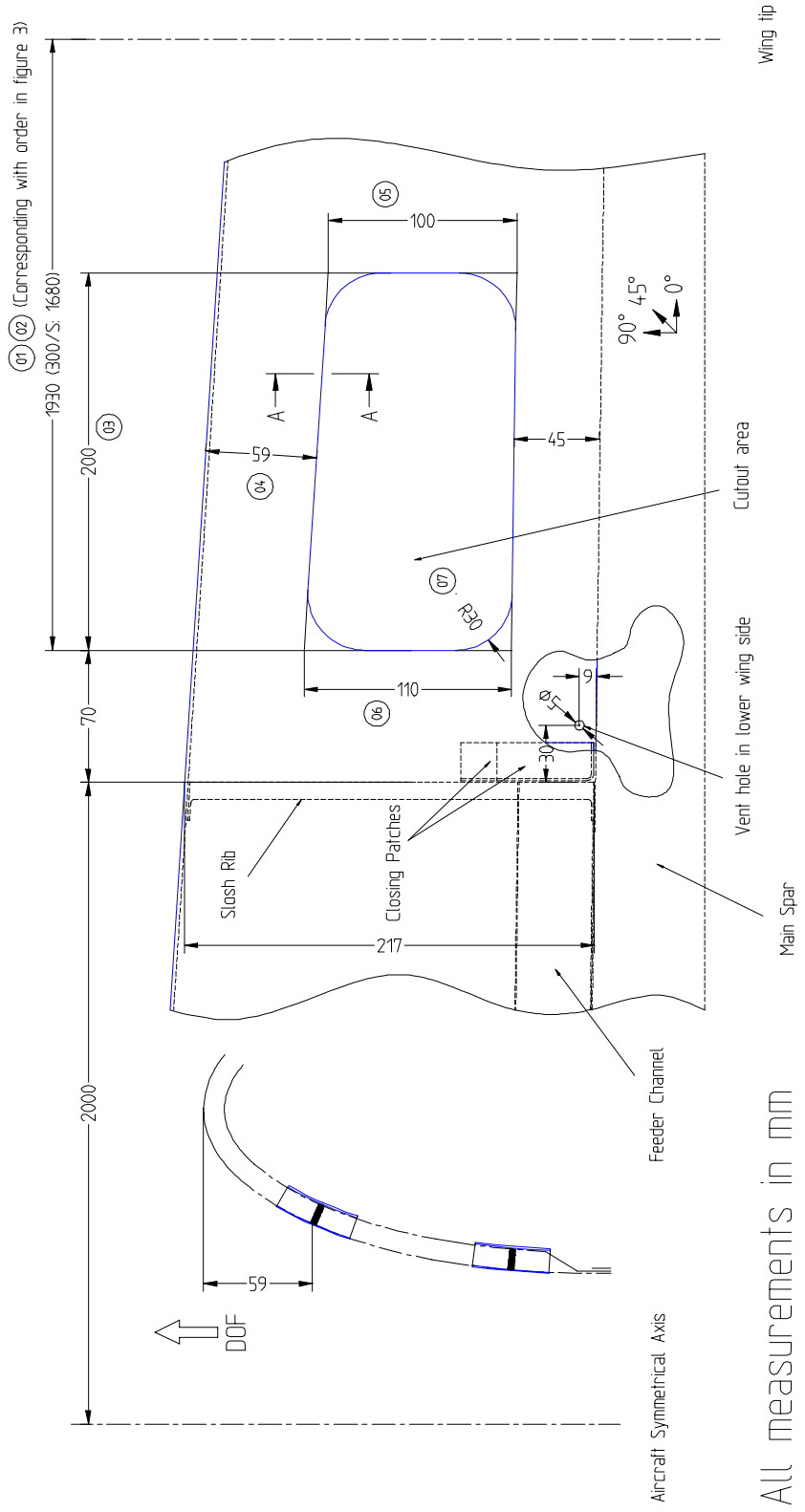


Figure 2: Long range tank repair cutout.

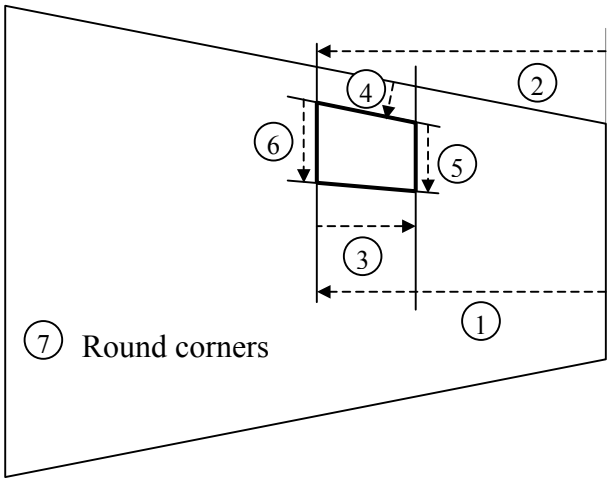


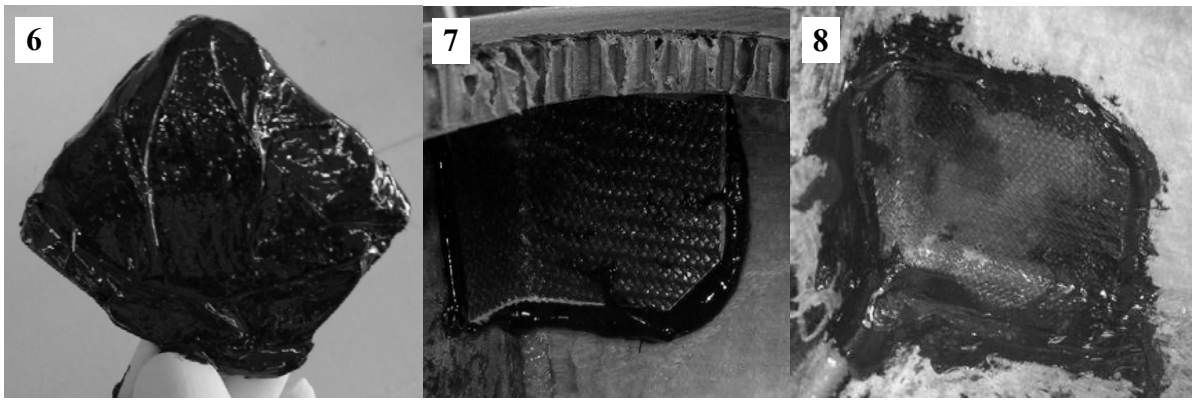
Figure 3: Proposed cutout measurement order (dimensions from figure 2)

10. On some models the feeder channel penetrates the long range tank (picture 4). In this case remove the penetrating end of the channel to get a flat surface on the slosh rib (picture 5, note the paper plug to prevent debris from entering the channel). Remove the resin mixture protruding in the corners of the rib-skin connection and the spar-skin connection in the vent holes closing patch area.

11. Remove the scotch clad (note: removing scotch clad is difficult but essential for obtaining a correct bonding plane) and sand the slosh rib on the inside of the tank approx. 25 mm or 1 inch around the vent holes area and the feeder channel exit. Do this on the slosh rib, on the spar and on the wing skin. See drawn lines in picture 5.

12. Remove peel ply from the two closing patches and apply ample LJF (Le Joint Francais) PR 1422 B (NA) two-part polysulfide liquid polymer paste on the flanges and on the complete backside of both patches (picture 6).

13. Use the smaller patch to close the vent holes (picture 7) and use the bigger patch to close the feeder channel exit (picture 8). As mentioned in point 9, the shelf is much thinner in the spar area because the honeycomb core stops here. Make sure to use enough paste in this area in order to leave no gaps.



14. Apply and hold pressure to hold the patches in place and let the bonding cure for 18 hours at room temperature (20°C). Perform a wing tank pressure test to check for leaks (1h @ 100mbar (1.45psi). Check for leaks with leak finder fluid.

15. Drill a vent hole (∅5mm) at the location as depicted in Figure 2 (the hole is best drilled from inside the tank). In case the hole went through part of the honeycomb core, fill the hole with a mixture of resin and cotton flocks (weight ratio 100:25) to close off the core and drill the hole again later.

16. Remove the scotch clad and sand the inside area around the cutout, area A in figure 4. Clean the area thoroughly. Remove the sanding dust with a pneumatic vacuum cleaner. Clean with carbon-tetrachloride or acetone in case dirt or grease was introduced during the preparation.

17. Remove the peel ply from the backing plate frame. Apply pure resin with a brush on the backing plate bonding area. Also apply some resin on the sanded areas around the closing patches (area A in figure 4). The backing plate frame can be put in the hole diagonally and then turned to the same orientation as the hole itself. Bond the backing plate frame to the inside using a mixture of resin and cotton flocks (weight ratio 100:25), and adapt to the contour. See picture 9. Place small wooden spacers in the bonding area (see figure 4) to ensure the right bonding distance. Use clamps in the areas of the spacers to hold the backing plate frame in place. Remove the spacers after 3 hours and fill the resulting holes with remaining mixture of resin and cotton flocks. Cure the bonding at elevated room temperature (≥20°C) overnight and at 60°C for at least 6 hours.

18. Subsequently, scarf the outside edges (approx. 20mm or 3/4inch) of the cutout with sandpaper (Area B in figure 4). Following the scarf procedure, clean the repair area thoroughly. Remove the sanding dust with a pneumatic vacuum cleaner. Clean the scarfed area with carbon-tetrachloride or acetone in case dirt or grease was introduced during the preparation.

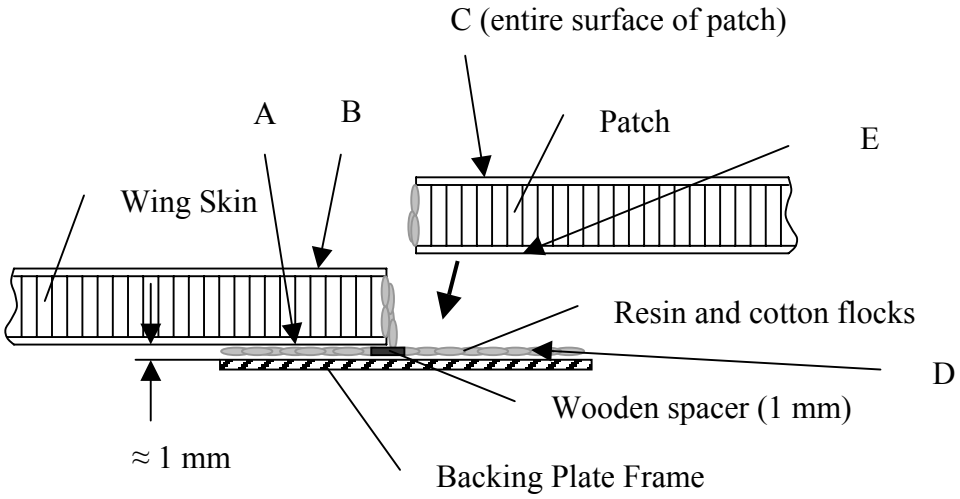
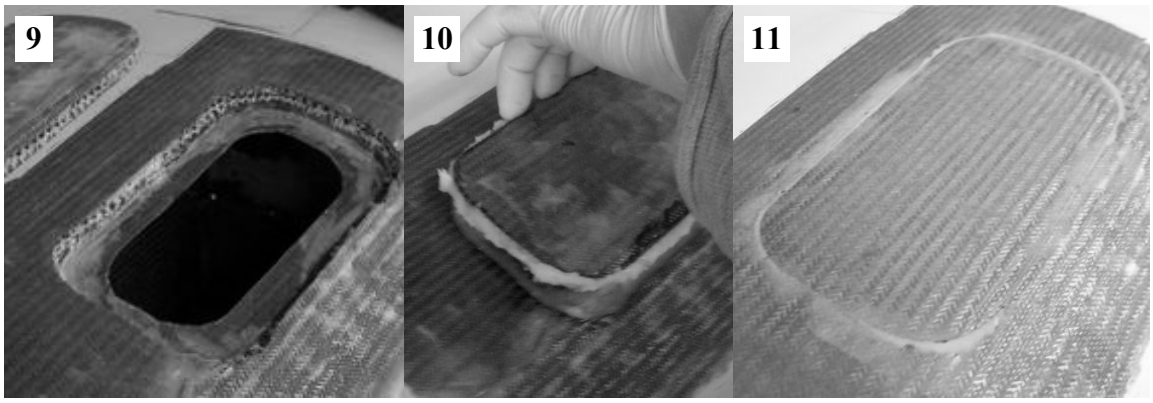


Figure 4: View A-A from Figure 2



19. Remove the scotch clad in area E and remove paint and filler from patch in area C. Subsequently, sand areas C and E in figure 4.

20. Wet the surface of the backing plate frame and the sanded area on the patch (Areas D and E in figure 4) with pure resin first and later with resin and cotton flocks mixture.

21. Install the patch. See picture 10.

22. Ensure that patch surface is aligned or deeper than surrounding wing surface, see figure 5.

23. Fill the gap between the honeycomb cores of the patch and the cutout with resin and cotton flocks (weight ratio 100:25), see picture 11.

24. Cure the bonding at elevated room temperature (≥20°C) overnight.

25. Prepare the necessary layer for laminating, 240 x 150 mm with rounded corners (R=40 mm):

    1x Lightning protection layer, CCC 459, ±45°

26. Laminate the outer layer, covering the patch and overlap completely, see picture 13 .

27. Apply vacuum (picture 12) and temper the wing repair area complying with Figure 6 in

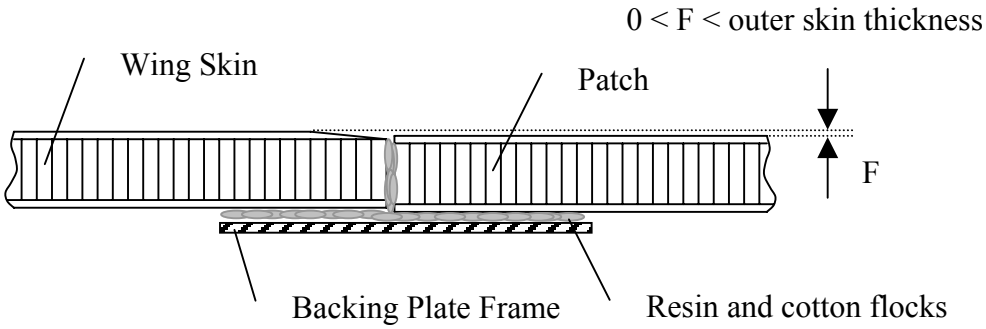
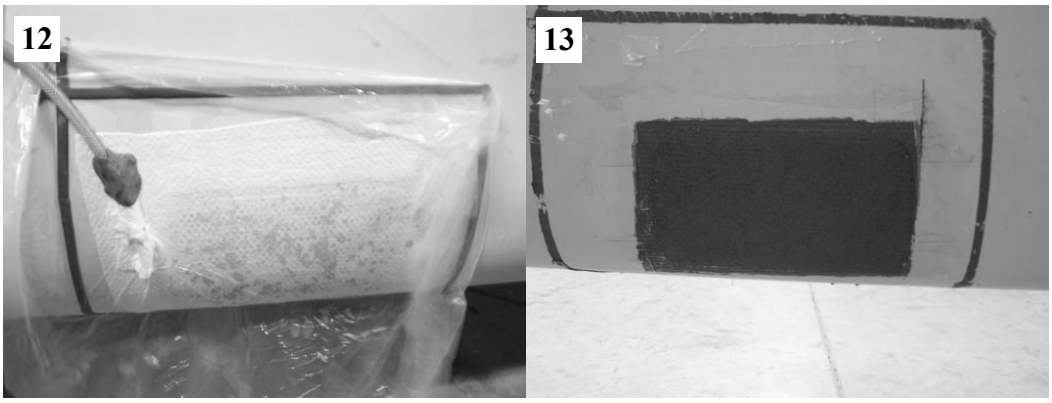


Figure 5: View A-A from Figure 2 after patch installation



Chapter 51-70-02 in the Service Manual.

28. Sand and fill the outer layers until the repaired area fits to the wing profile.

29. Repeat process for other wing half from point 8.

30. For painting of the repair areas proceed as mentioned in Chapter 51-70-06 from the Service Manual. Do not fill the (new) vent holes!

31. Reinstall the tank covers.

32. Replace placards for the wing fuel gauge and the fuel selector valve in the cockpit to reflect the correct wing fuel quantity.

33. Remove the long range tanks supplement from the Pilot Operating Handbook.

34. Make appropriate entry of compliance with this service bulletin in the aircraft logbook.