

## **Chapter 57**

### **Wings**

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## 57-00-00

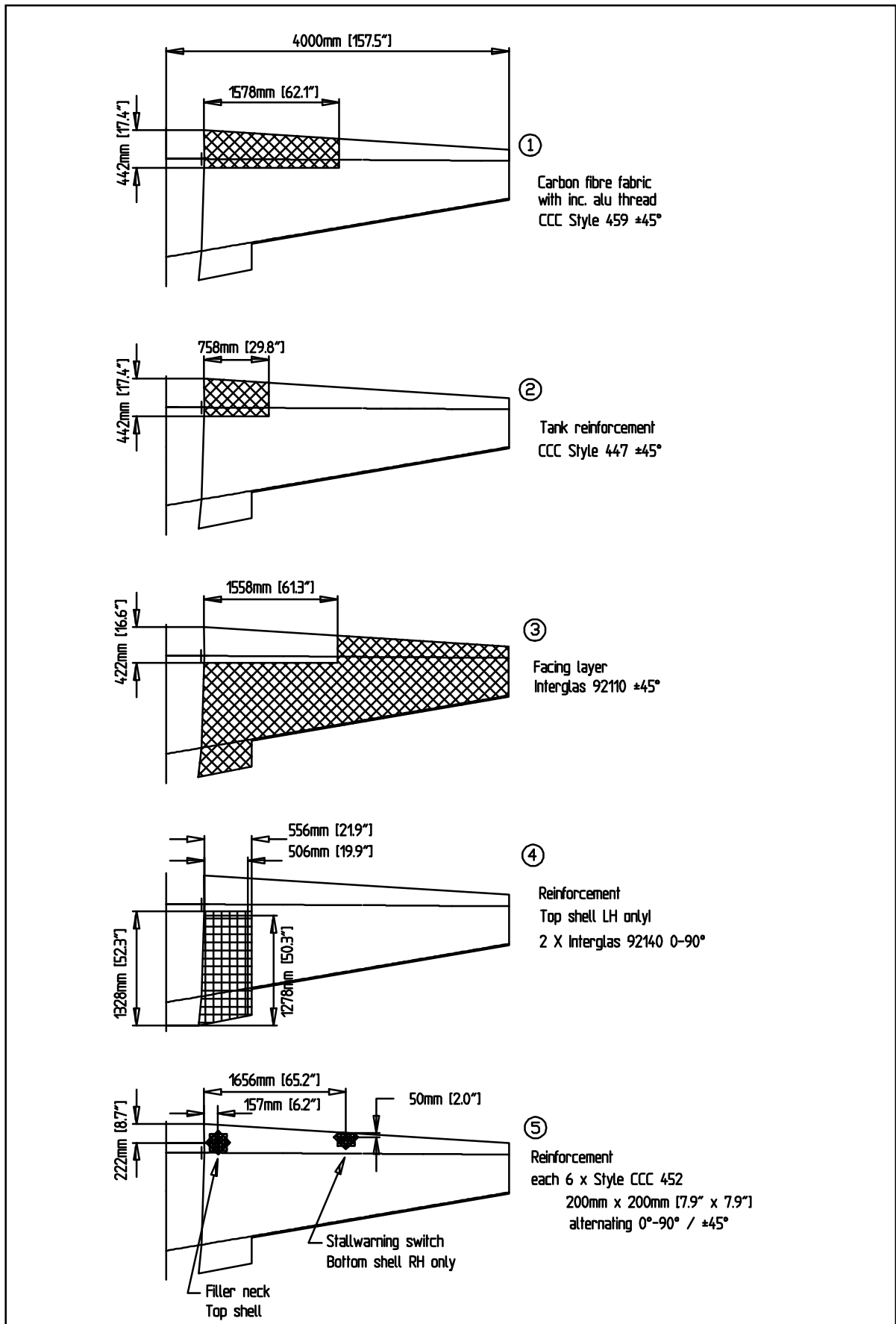
## GENERAL

The wing consists of a one-piece, dual chamber main spar with carbon fibre roving caps and carbon fibre webs. For the spar core PVC foam is used. The wing shells are a honeycomb sandwich construction with carbon fibre laminates. To prevent buckling of the shells, plywood ribs are used.

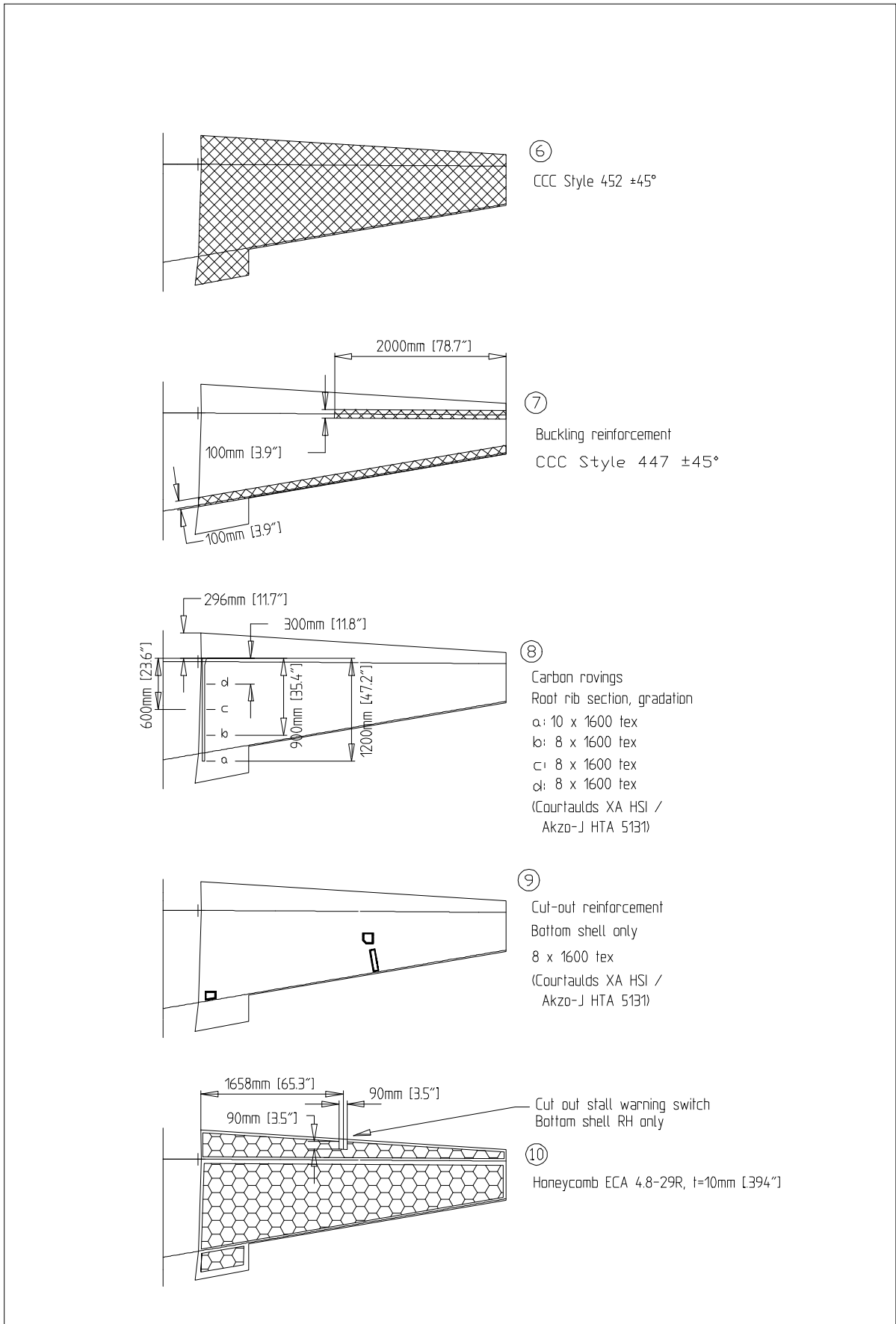
The layer sequence of the wing is shown in Figure 1.

All composite parts, as protection against moisture and UV radiation, are coated with an unsaturated polyester gel-coat, an acrylic filler and finally with an acrylic paint.

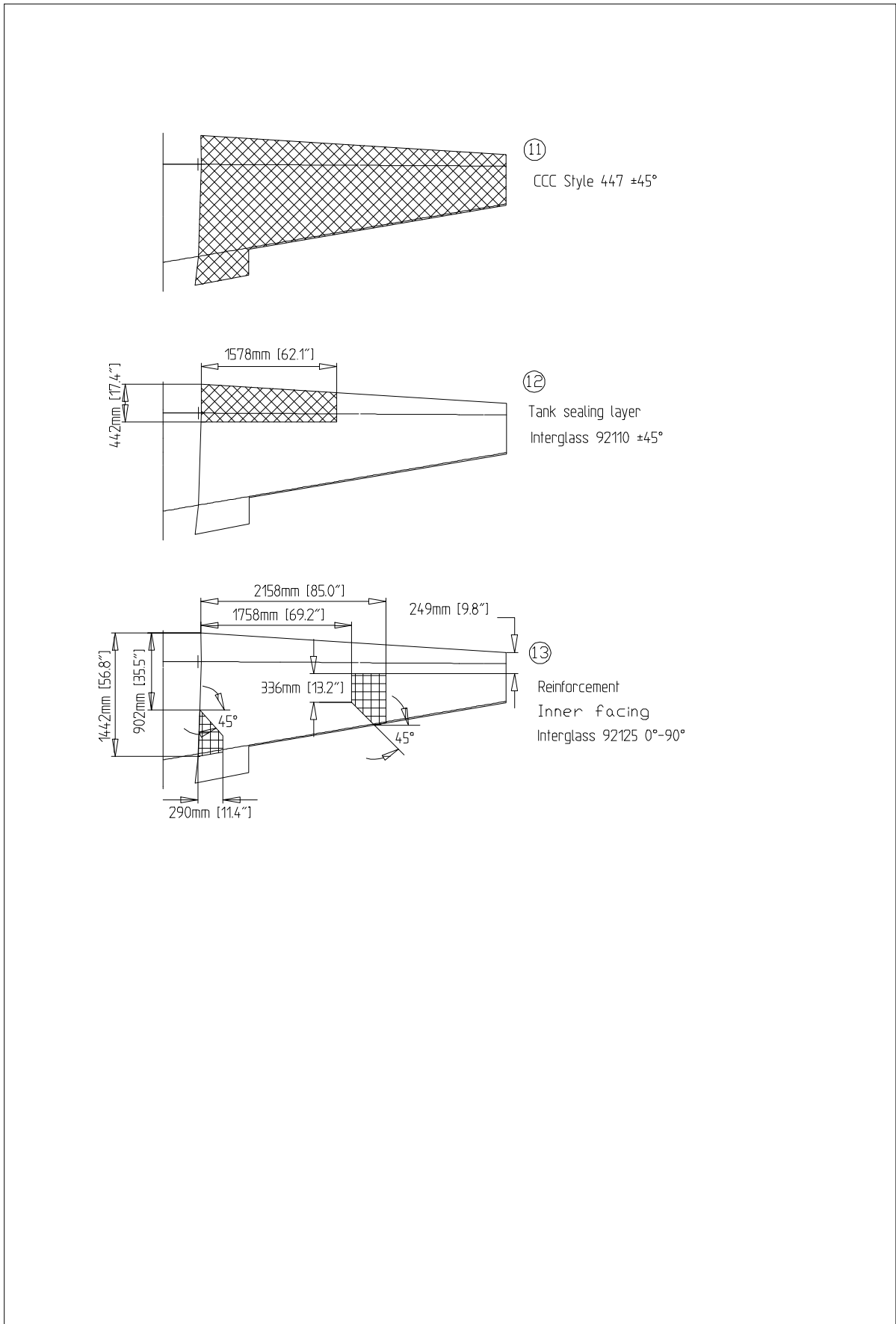
For repair of composite parts refer to Chapter 51.



Layer Sequence Wing  
 Figure 1, Sheet 1



**Layer Sequence Wing**  
**Figure 1, Sheet 2**



**Layer Sequence Wing**  
**Figure 1, Sheet 3**

## 57-05-00

## MAINTENANCE PRACTICES

### 57-05-01

### Wing

#### Removal

Reverse procedure of installation omitting step 12.

#### Installation

- 1 Remove the canopy per Chapter 53, the engine cowlings and the main fuselage cover per Chapter 51.
- 2 Remove the right front canopy hinge.
- 3 Loosen the breather line clamps located at the engine side of the firewall and in the main spar area, push the front part of the breather line some centimeters to the front until it is disconnected from the connecting hose (10, Figure 3) and remove the breather line (5) by pulling it to the rear.

#### CAUTION

**Ensure that areas in which the wing shall be slid are clear of obstructions.**

#### CAUTION

**Prevent cables and pitot/static lines for damage. Keep them at the rear of the main spar and outside of the upper longerons.**

#### CAUTION

**Attend to the left front canopy hinge, when sliding down the wing. The wing could be damaged.**

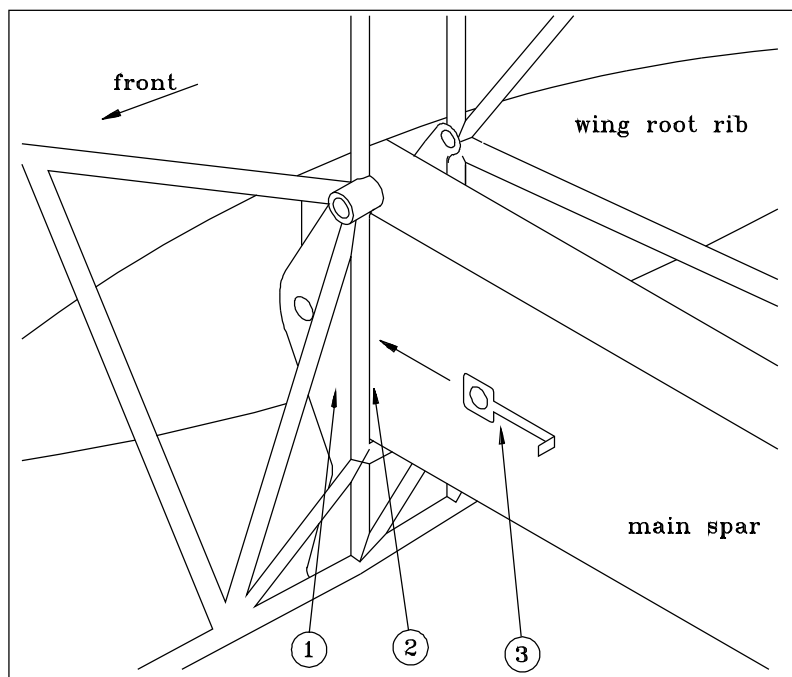
#### WARNING

**Beware not to get jammed between wing and fuselage.**

- 4 Slide wing down into fuselage attachment brackets (3).
- 5 Install LN 9037-08042 auxiliary spar attach bolts (1) from front to rear. Use two DIN 125-M8 washers and LN 9348-08 nuts at each side for fastening.

#### IMPORTANT

**If there is clearance between the main spar and the attachment brackets (1, Figure 2), use shims (3) like shown below which are to be slid in the front gaps (2).**



**Shims Installation**  
**Figure 2**

- 6 Slide in shims if necessary and install the main spar tubular bolts (4, Figure 3) from front to rear.
- 7 Secure main spar tubular bolts with LN 9038-08020K bolts (2), DIN912 M8 and aluminum 30x11x4 washers. Torque security bolts for fastening and subsequently safety wire.
- 8 Install upper longeron cutout bridges (7) using at each side 3x DIN912 M8 x 180, 3x DIN125 M8 washers and 3x LN9348-08 stop nuts at the top and 1x DIN912 M10 x 230 bolt, DIN125 M10 washer and LN9348-10 stop nut at the bottom (6). Check cutout bridges for RH and LH marking. Install the bolts from front (firewall) to rear (aircraft tail). Torque stop nuts for fastening.
- 9 Install shear bridge (8). Use two LN 9037-06066 and six LN 9037-06038 bolts (9) with DIN 125-M6 washers and LN 9348-06 stop nuts.
- 10 Reinstall the front canopy hinge.
- 11 Install short aileron push pull rods per Ch. 27-01-01.
- 12 Perform an aileron rigging per Chapter 27-11-02.
- 13 Connect fuel system (tubes and vent lines), pitot/static system, stall warner, navigation/strobe light wires,





## 57-35-00

## MAINTENANCE PRACTICES

### 57-35-01

### Wing Tip Panel

#### Removal/Installation

Refer to Figure 1 of Chapter 33.

#### WARNING

**High Voltage! Wait 5 minutes after shutting off before starting any work on the strobe light system.**

- 1 Disconnect the battery and wait 5 minutes.
- 2 Remove the DIN 933 M6x20 bolt, the metal sheet screws, the AN 526 C 1032 R8 bolts and the washers.
- 3 Tie out the wing tip panel with the lighting unit some centimetres (Consider that the panel is sealed to the wing tip with silicone).
- 4 Disconnect the electrical wiring and the ground bonding lead by loosening the central M4 nut of the lighting unit attachment.
- 5 Remove the wing tip panel.
- 6 Clean sealing surfaces mechanically and with Acetone.
- 7 Install in reverse sequence of removal after applying Silicone to the sealing surfaces.

## **57-60-00**

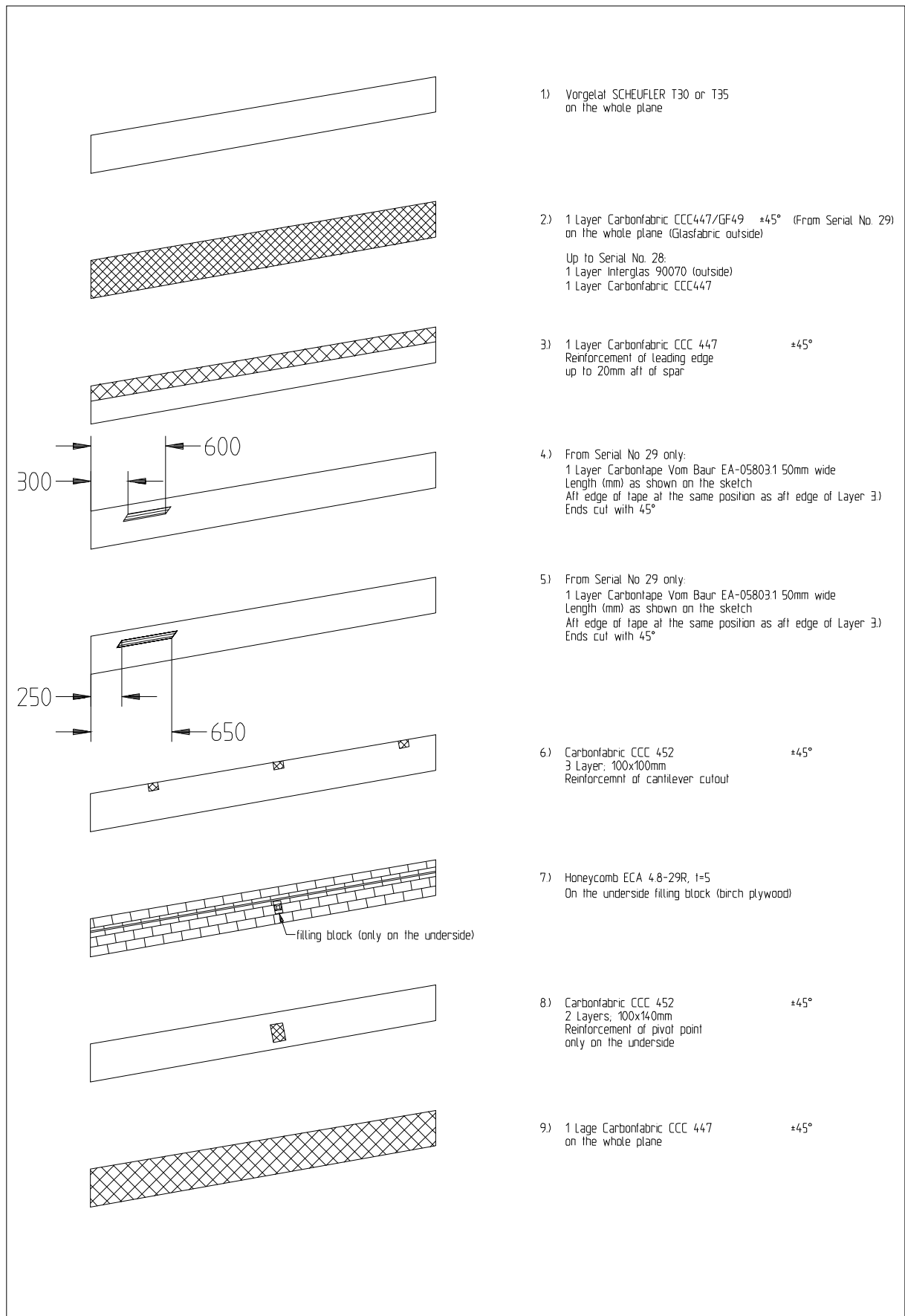
## **AILERONS**

The ailerons are constructed in the same manner as the wing but with single chamber spar. They are supported at three points in spherical bearings pressed into aluminium brackets. Furthermore the ailerons are equipped with "glass fibre laminate spades" to decrease pilots forces.

The layer sequence of the ailerons is shown in Figure 4.

All composite parts, as protection against moisture and UV radiation, are coated with an unsaturated polyester gel-coat, an acrylic filler and finally with an acrylic paint.

For repair of composite parts refer to Chapter 51.



*Layer Sequence Ailerons*  
**Figure 4**