

Fokker D.XVI Conqueror scratchbuild

Sesquiplane fighter prototype

Scale 1:72

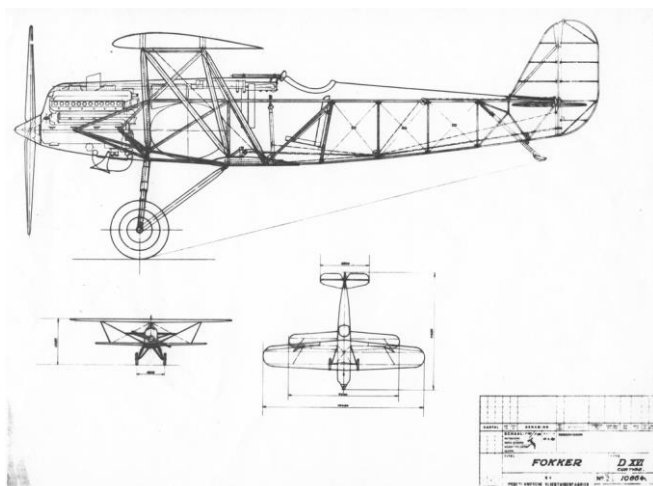
Fokker produced in 1929 three prototypes of its D.XVI fighter: One with an Armstrong Siddeley Jaguar engine, that would see service with the Dutch Army Air Department (LVA, Luchtvaart Afdeling), one with a Gnome & Rhone Jupiter engine, which was sold in small number to Italy, Hungary and China and one with a Curtiss Conqueror engine for the Air Department of the Dutch East Indies Army (LA KNIL), shown at the right in the picture.



The D.XVI with Conqueror engine made its first flight on August 20, 1930 with registration F-32. After that date many test flights have been executed due to performance problems (with different propellers) and the engine temperature (with different coolers). On March 20, 1931 the prototype was destroyed after an unrecoverable spin, killing the pilot.



In the literature not much can be found on the Con-

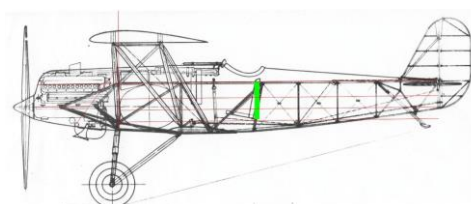


queror version, even the booklet of Frits Gerdessen (ref. ??? Nederlandse Militaire Luchtvaart 12, Fokker D.16). My collection Fokker drawings contains two drawings (drawing 10968 with a span of 9400 mm and a length of 7600 mm and drawing 10664 with a span of 10400 mm and a length of 7550 mm) and I have obtained from Edwin Hoogschagen a third drawing (drawing 17700 with a span of 10425 mm and a length of 7550 mm). Clearly this version is larger than the "standard" LVA D.XVI, which had a span of 9400 mm and a length of 7600 mm. The larger span is most likely in view of the greater weight of the water cooled Curtiss motor.

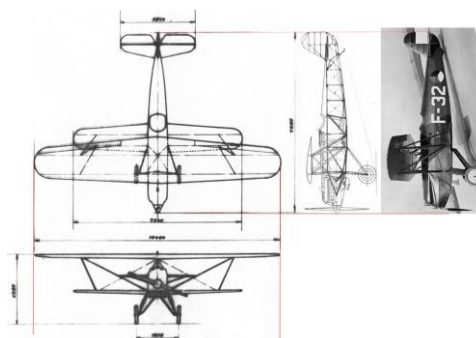
	<i>Ref.</i>	<i>1:72</i>	<i>model</i>
<i>Span (upper wing)</i>	10.42 m	130.6 mm	mm
<i>(lower wing)</i>	7.12 m	98.9 mm	
<i>Length</i>	7.30 m	101.4 mm	mm
<i>Height</i>	2.60 m	36.1 mm	mm
<i>Engine</i>	Curtiss Conqueror, 440 hp		
<i>Crew</i>	1		
<i>Armament</i>	2 machine guns Vickers M20, FN-Browning M36		

Parts

I have started to scale drawing 10664 to 1:72, as well as the side view of the aircraft.

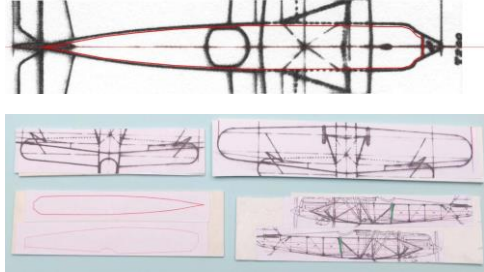


Next I have used Corel Draw to mark in copies of the drawing the parts to be reproduced in styrene in red: the two sides, the centre cross section and the bottom.



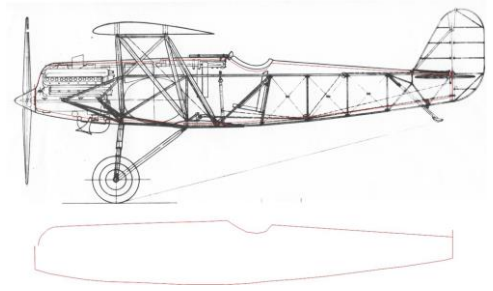
The cross section mainly serves to keep the underside of the fuselage in the correct shape and will be removed later for the largest part.

I have also indicated the places on the sides where the linen cover is tight over the fuselage tubing and have taken into account the intended thickness of the styrene parts, the sides 0.5 mm thick styrene, the bottom and central part 1 mm thick.



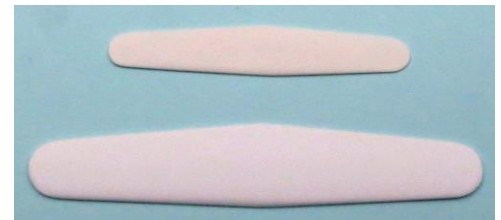
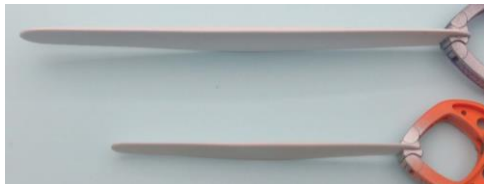
I have printed the drawings, cut them out and glued them on pieces of styrene with Microscale Kristal Klear.

The drawing of the upper wing I have glued on a sandwich of two layers of 1.5 mm styrene, the lower with on a piece of 2 mm styrene.



Wings

I have cut the rough shape of the wings from the styrene with a figure saw and finished the outline with coarse and fine sandpaper. The correct shape has also been achieved by sanding. First I have made the wing taper, keeping the upper wing surface horizontal. In sanding the profile use was made of the wing spars present in the drawings.



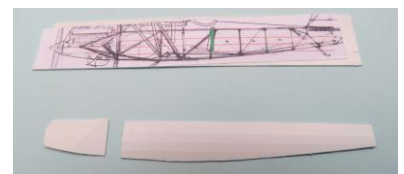
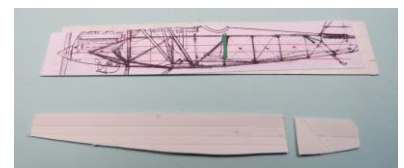
Next I have drawn the wing spars and the ribs at the location of the wing strut attachment points, aileron endings, the ailerons themselves on both sides of the upper wing and at the strut attachment points and the (hinged) wing root of the lower wing. These are locations where in any case panel lines will be present. I have marked the panel lines with a panel line scriber and have removed the ailerons



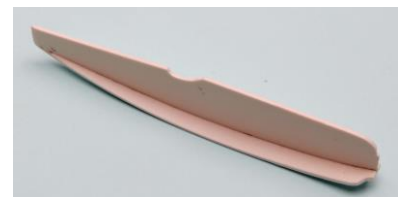
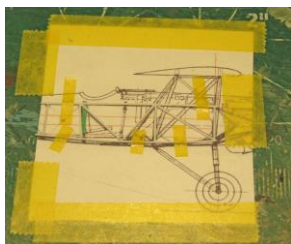
from the upper wing. I have also marked the location of the struts by drilling superficial holes.

Fuselage

I have cut out the side view from the 0.5 mm styrene sheet and have lightly carved the longitudinal stingers with a knife and have deepened them, passing a panel scribe four times. Next I have separated the nose part from it. I have bent the parts on all carved lines with a photo etch bending tool. This way the sides get the characteristic horizontal bends as shown on the photographs. I have cut in the lower part of the skewed line on the nose part. This way the part can be bent following the nose contour.



On the inner side of the side wall I want to show the fuselage tube frame. I have covered a partial copy of the side view drawing with sellotape and have built the framework on it from 0.5 mm styrene rod from the undercarriage attachment point until the first vertical tube behind the pilot seat. I have shortened the height of the framework 1 mm to allow for the thickness of the fuselage bottom part.



After giving the bottom part of the fuselage roughly the required curvature I have glued the central part to it. I have also glued pieces of 1 mm styrene from the fuselage cross section one bay behind the cockpit and behind the

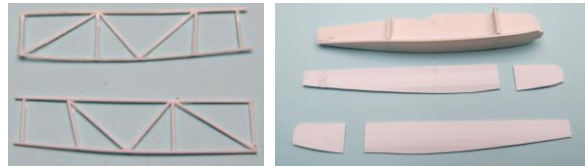


engine compartment.

The picture at the right shows the parts from which the fuselage main structure will be assembled. The top cover will be constructed thereafter.

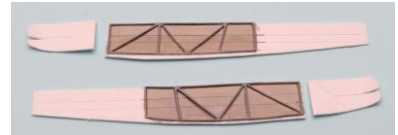


I have glued pieces of styrene on the nose section and have filled the strongly curved areas with Milliput putty. When that had set, I have sanded the nose in the required shape, comparing it continuously

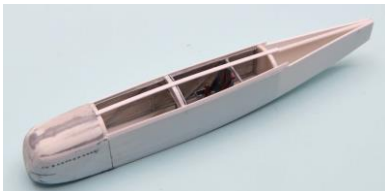


with the photographs of the D.XVI.

The tube framework has been glued on the side walls, leaving the required 1 mm space at the lower side and 0,5 mm space at the forward side. I have painted the inner side light grey, the tubing dark gray. The covers of the nose section have been bent in the correct shape and some excess material has been removed to allow bending it correctly around the nose.



I have worked the joint between the bulkheads and the central dorsal part with knife and panel scribe, so that the central part could easily be removed later on. I have glued the sidewalls to the fuselage bottom and bulkheads, keeping the lower side as well as possible equal to the fuselage bottom. The nose covers have also been glued in place. Next I have removed the central part and have sanded the nose section in its final shape.



As it is rather difficult to produce a fuselage cover, that fits well, from a single sheet of styrene I will cover it with styrene strips of 0.4 x 1.0 mm/ I have started with the central strip and the strip along the fuselage sides.



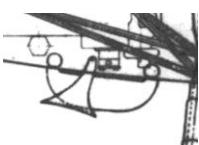
The cover of the aft part of the fuselage top has been made from with pieces of styrene, roughly cut to size and sanded in the correct shape.

Engine

On the Internet I found a couple of pictures of the Curtiss V-1570 Conqueror V 12 engine. As most of the engine is hidden in the cowling, the only point of interest is the exhausts, or better the absence of any exhausts. So I have modeled the engine just as twelve 0.5 mm diameter holes over a length of 12 mm. I miscalculated, so I have made 13 holes. This has been corrected, so now it is 12 holes over a length of 11 mm.



The other part of engine related equipment being visible is the Lamblin cooler. Several variants have been tested on the D.XVI Conqueror with 48 to 92 slats. It is not clear which version is shown in the photograph. Anyhow, the number of slats on the model will be limited by the minimum material thickness that still can be handled. As 0.13 mm styrene sheet can not very well be sanded in the required shape and damages easily when glued, the slats will be 0.25 mm thick separated by small pieces of sheet with the same thickness.



I have copied the Lamblin cooler from the side view drawing, glued it in Corel Draw and copied it many times. The width of the fuselage is a bit more than 11 mm at the place where the cooler should so I would need some 20 copies to make the cooler, as the cooler door will take at least 0.5 mm from the width available.



I have glued the copied sideviews to the styrene sheet, as usual with water thinned

Microscale Kristal Klear and have cut them out. After removal of the paper and cleaning the surface I have glued the parts with Tamiya Ultra Thin one by one together, aligning the flat side well. After 19 layers I had enough width. I have also constructed the "door" in front of the cooler from 0.25 mm styrene sheet.



Cockpit

I have cut an instrument panel base from 1 mm styrene with the same upper shape and width as the forward bulkhead and a height of xx mm. The panel fits between the two longerons of the fuselage tube frame work and keeps the fuselage at the required width.



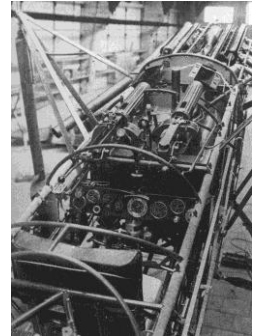
In my scrap box I found a seat that would fit the D.XVI well. I have modified it slightly to get at the required height as indicated in the Fokker drawing.



The further cockpit arrangement I have modeled from a photograph of the contemporary Fokker C.IX which served with the Dutch LVA from 1931 onwards. In a piece of 0.25 mm styrene of the same dimensions as the instrument panel base I have drilled holes of different diameters to represent the instrument dials. This part has been painted dark grey and will be glued over the black painted base. A control stick has been



made from pieces of 0.5 and 0.6 mm rod, the rudder bar from 0.5 mm rod and pieces of 0.25 mm sheet and a throttle from a piece of 0.25 mm sheet and some ends of 0.5 mm rod. This should be sufficient to suggest an equipped cockpit.



I have painted the floor of the cockpit light grey. I have glued the two pieces of the instrument panel together and have glued the assembly in the fuselage. In my scrap box I found PE seatbelts, which I have glued on the seat. The seat has been glued on the floor aligned with the skewed tube as indicated in the Fokker drawing and the throttle has been glued to the port wall. I have placed the rudder bar and control stick slightly deflected.



Cut out.

Tail surfaces

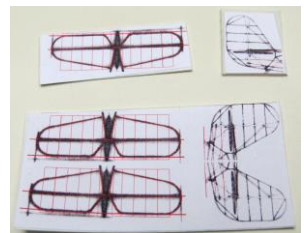
I have produced the tail surfaces the same way I have used for producing these for the D.XIII. The core for the vertical surfaces have been made of 1 mm styrene sheet, that of the horizontal ones of 0.5 mm sheet. All face sheets are 0.25 mm sheet.



The place of the ribs have been marked with pin pricks before removing the paper drawings from the styrene. I have cut out the cores and face sheets and have marked the left and right side of the stabilizer parts. I have scored the face sheets at



the place of the pin pricks with the rear side of a scalpel. The face sheets have been bent at the place of the ribs and pieces of 0.25 mm metal wire have glued there to preserve the bends after assembly of the parts of the tail.



I have glued the face sheets to the cores, using cement very sparingly. Gaps have been closed by using the Ultra Thin Tamiya glue. I have sanded the edges of the parts, rounding the forward sides and making the aft side as sharp as possible. Finally

I have glued a 0.5 mm styrene pin to the stabilizer halves and the fin to make assembly easier.

Decals

When building the Fokker D.XVI Jupiter I had already drawn decals, which have been printed by Arctic decals. Basically it is only the registration F-32. No nationality marking were visible on the photographs I have in my possession.



Undercarriage

<text>

Final assembly

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Appendix Fokker T.IX documentation**Paint table**

HE = Humbrol Enamel, MI = Microscale, RA = Revell Aqua, VMA = Vallejo Model Air, VMC = Vallejo Model Colour, WEM = White Ensign Models

Code	Colour	Where
HE	Light grey	Fuselage

HE	Mid grey	Fuselage

Photographs and drawings

If no reference is given, the pictures have been taken from the Internet/Wikipedia.



[Source: ref 21]]



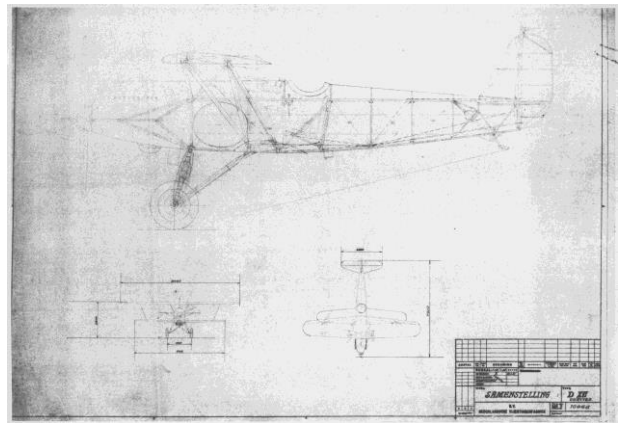
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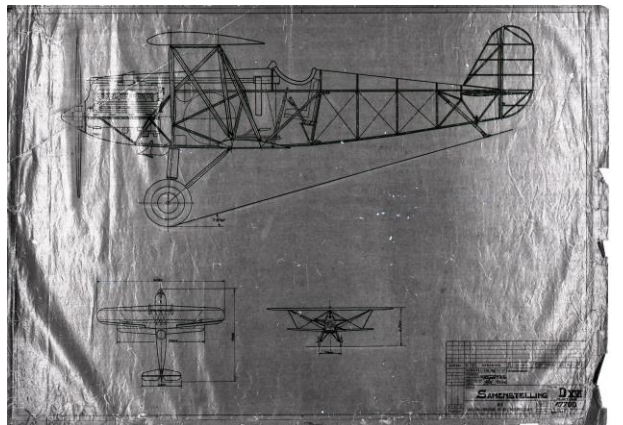
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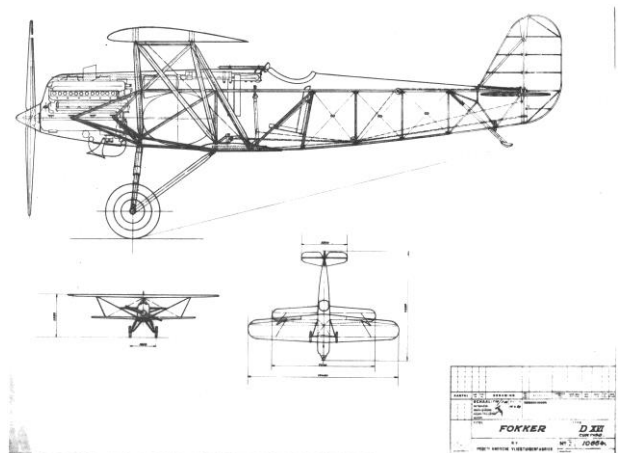
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