

Fokker D.XVI Jupiter Omega Models¹ resin kit

Sesquiplane fighter prototype

Scale 1:72

Fokker produced in 1929-1930 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 Curtiss Conqueror engine for the Air Department of the Dutch East Indies Army (LA KNIL) and one with a Gnome & Rhone Jupiter VII engine.

The Jupiter engined aircraft was meant for Hungary and four aircraft have been built and delivered between July 1930 and February 1931. The prototype made its first flight in March 1930. License building was planned by the firm Manfred Weiss (WM), but has been vetoed by France based on the limitations imposed on Hungary in the Treaty of Versailles.



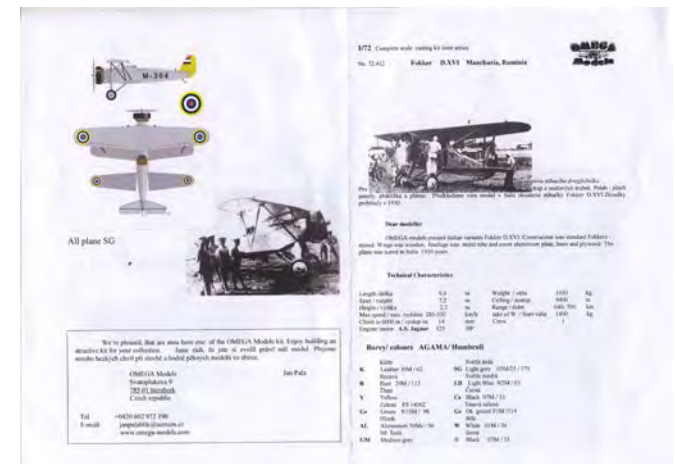
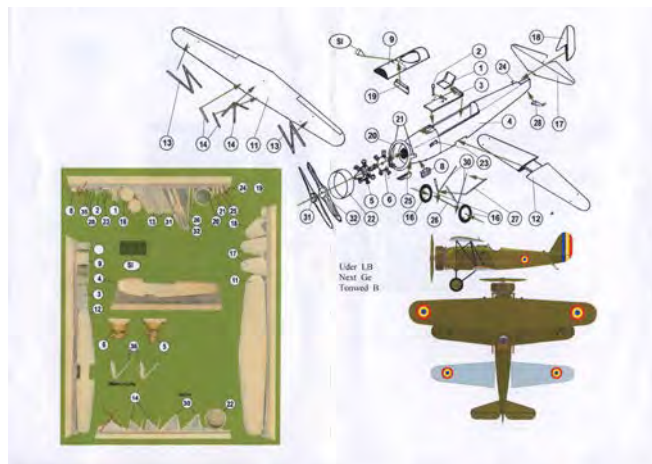
The construction of the aircraft was almost identical to the prototype of the Jaguar version except for the engine. A difference with the LVA production version was the upper wing support, which was by means of two pyramids and a long strut between the outer wing N-struts and the forward undercarriage strut, as with the LVA prototype.

Based on the delivered aircraft and specifically on the PH-AGU (H-MAGU) MW developed its own fighter, the Avis I.

Only Gerdessen (ref. 7) explicitly specifies the characteristics and performance of the Jupiter version. As this engine had slightly less power than the Jaguar engine, a larger diameter than the Jaguar and no Townend ring, the performance of this version was rather poor.

The model built is a modification of the Omega Models Fokker D.XVI Jaguar kit. The Jaguar kit comes in a sturdy box and contains a double sided instruction sheet with a picture of the resin parts, an exploded view indicating the place of the parts, two colour illustrations of the model, a summary description of the original aircraft and painting instructions.

Modifications required address mainly the engine, exhaust and forward fuselage, elimination of the machine guns (the prototype was unarmed). All other aspects are identical to those of the prototype with Jaguar engine.

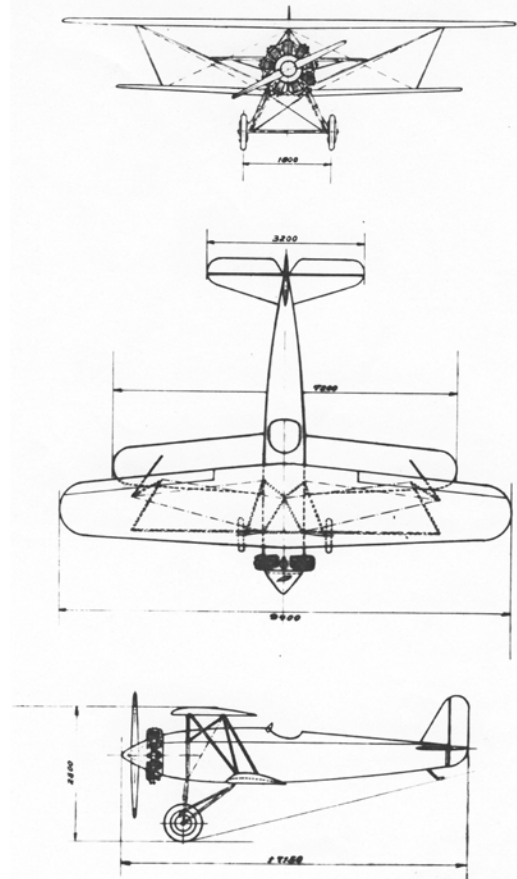


The general references on the Fokker DXVI are the following. Alting (ref. 1), Franquinet (ref. 2), Hegener (ref. 3), Hooftman (ref. 4), Schoenmaker (ref. 5), Wesselink (ref. 6), Gerdessen (ref. 7), Vliegwereld (ref. 8), Fokker Bulletin (ref. 10) and Postma (ref. 11) report the dimensions of the D.XVI. Franquinet, Hegener, Gerdessen, Vredeling (ref. 9) and Fokker Bulletin show three-view drawings.

	<i>Ref.</i>	<i>1:72</i>	<i>model</i>
<i>Span (upper wing)</i>	9.40 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>	Gnome & Rhone Jupiter VII, 440 hp		
<i>Crew</i>	1		
<i>Armament</i>	2 machine guns Vickers M20, FN-Browning M36		

General

In my collection drawing I have a Fokker drawing of the aircraft with Jupiter engine. The scaled dimensions of the fuselage and upper wing of the drawing are in excellent agreement with those of the kit. However, the shape of the nose in the drawing is quite different from that in the photograph of the PH-AGU, which shows a more rounded nose and a smaller spinner. Also, the propeller is clearly a Reed airscrew. So here some work remains to be done. The picture below shows the parts of the Omega Models kit that will be used for the model.

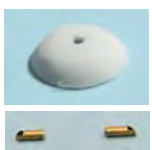


Fuselage and engine

I have bought a resin Gnome-Rhone Jupiter VII engine from Engines & Things. This engine is quite detailed at the back side and has there two small exhausts modelled, which seemed to coincide quite well with the position of the exhausts on the photograph. So initially I decided to use these features and have started to modify the forward fuselage to accommodate them by hollowing the nose and reshaping the loser part.



However, when dry fitting the engine on the modified nose, the two upper cylinders appeared to be just in front of the nose mounted machine guns, while the photograph and the drawing show a single cylinder at the top. Also, the nose of the model appeared to be rounded too much when compared to the fairing in front of the engine.



So I have got rid of the small exhausts and have shaped the fairing from a piece of styrene. I have made the engine front side fitting under the fairing and have corrected the shape of the forward fuselage with putty. I have produced short exhausts from 1.8 mm brass tube.



The photographs and the drawing show that the propeller had a spinner. To produce it I used the forward part of a resin



bomb as I had done before.

The sides of the fuselage in the kit are completely flat, while the photographs of the D.XVI clearly show the facets, created by the “stringers” under the cloth covering the tube frame.

I had to devise a way to simulate this. I have covered the fuselage with three strips of 0.25 mm thick styrene sheet, placed as well as possible against each other. Next I have covered the middle strip with a piece of tape and have sanded it until the edge of the strip was flush with the resin part of the fuselage and the edge of the tape was just touched by the sanding. The finale effect can only be judged when the fuselage will be painted. I have given the fuselage a first coat of paint and have also glued the lower wing in place.



Next I have covered the middle strip with a piece of tape and have sanded it until the edge of the strip was flush with the resin part of the fuselage and the edge of the tape was just touched by the sanding. The finale effect can only be judged when the fuselage will be painted.



I have given the fuselage a first coat of paint and have also glued the lower wing in place.

Between the engine and the front of the fuselage gaps were present between each pair of cylinders. I have filled these up with Kristal Klear. In this way it resembles better the smooth shape of the nose. When dry I have painted the Kristal Klear khaki. In hind sight it would have been better to make a nose cone in the proper shape and drill holes in it to accommodate the individual cylinders, cut off from the crank case.



Cockpit



As a rudder bar was missing in the kit, I have taken one from my spare parts box. The seat, control stick instrument panel and rudder bar have been painted dark grey, the cockpit inner walls and floor light grey. Seat belts came from my stock of PE and have been glued to the seat. After marking the position of the cockpit aperture on the fuselage I have glued the seat, stick and rudder bar in place. I have dry-brushed the instrument panel with white to make the casted



dials a bit visible and have glued it under the cockpit deck and have glued the deck to the fuselage. I have also formed a ring from 0.5 mm solder around the stem of a brush to represent the leather edge of the cockpit opening.

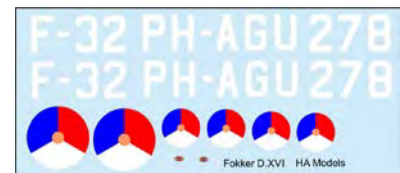


The top of the fuselage was not formed correctly; behind the cockpit opening there was a considerably dip in the shape. With an abundant use of several layers of putty this was corrected, as well as the joints between the top deck and the fuselage. The ring has been cut to size and glued in place after thoroughly working the fuselage with putty. After having painted the fuselage and the upper surface of the lower wings I have painted the “leather” ring brown.



Decals

I have drawn the PH-AGU registration decal at the same time as a registration for a D.XVI from a fellow modeller and the decals for the prototype of the D.XVI with Curtiss Conqueror engine for the ML KNIL (Dutch East Indies Army Military Air Department). The decals have been printed by Arctic Decals.



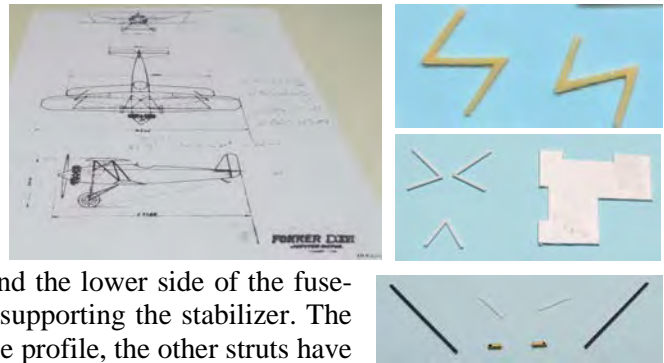
Wing and tail surfaces

As I will mount the control surfaces in deflected position, I have separated the ailerons from the wing and the elevator halves and rudder from the tail surfaces.

To enforce the connection of the horizontal stabilizer halves with the fuselage, I have provided them with 0.5 mm brass pins.



The dimensions of the two N-struts of the kit, intended to support the wing from the fuselage, did not correspond to those on the drawing, so I decided to make new ones. The dimensions I have derived from the three-view drawing. To produce the V-struts for the wing support, made from 0.75 mm styrene, I have made a simple jig, shown at the right.



Also, the long struts between the inter-wing N-struts and the lower side of the fuselage were not supplied in the kit, as well as the struts supporting the stabilizer. The last ones I have produced from 1.5 x 0.75 mm streamline profile, the other struts have been made from 0.75 mm styrene rod.

Wing assembly

I have painted the lower surface of the upper wing khaki in preparation for assembly with the painted fuselage and lower wing, of which the top surface had already been painted. For the assembly I have used the Aeroclub bi-plane assembly rig. To protect the painted wing surfaces from the sharp edges of the rig I have covered them with pieces of tape. In order not to interfere with the placement of the wing N-struts, the lower wing has to be supported by the rig at 32.5 mm from the centreline. Measured from the Fokker drawing the upper and lower wing are separated by 19.5 mm and the stagger is 16 mm, which corresponds with a stagger angle of 39.4° . I have adjusted the rig to these dimensions – the 39.4° is at the edge of the range of the rig – and have placed the model in it. After a last check on alignment of the wings from front and top view I have secured the model firmly.



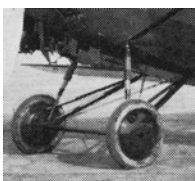
I have tried to place the forward V-strut between fuselage and upper wing, but there was not sufficient room to do that, even after shortening the legs of the V trial and error. So I have used a different approach. I have demounted the upper wing from the rig and have glued the V-strut in the hole in the upper wing, aligning it carefully. I have fitted the upper wing again in the rig before the glue had set completely, which took care of the final adjustment. I noticed that the model moved a bit in the jig, when I pushed on the upper wing; apparently the legs of the V were still too long. This would mean that the joints of the struts would be stressed, when I would proceed, and cyanoacrylate glue does not like that. So I have increased the distance between the wing with about half a millimetre, which released the stress.



I have treated the pyramid, connecting the fuselage with the aft part of the wing, the same way, shortening the legs trial and error, until all six legs rested of the top of the fuselage, when mounting the wing in the rig. Before mounting the upper wing definitively in the rig I have painted the feet khaki.



Undercarriage



The width of the undercarriage as modelled in the kit is too small compared to that given in the drawing, so I have produced a new one from 1.2 mm styrene rod and small rings cut from styrene tube. Also, the undercarriage V-struts are shaped slightly different. To cure this I have added pieces of 0.75 mm styrene rod to the V-struts.



Final assembly

<text>

References

1. P. Alting, *Fokkers in Uniform, Driekwart eeuw militaire Fokker vliegtuigen*, pp. 17, 21, 60, Rebo Producties, Sassenheim, 1988
2. E. Franquinet, *Fokker, Een leven voor de luchtvaart*, pp. 308, 347, N.V. Uitgeversmaatschappij "De Pelgrim", Eindhoven, 1946
3. H. Hegener, *Fokker, The Man and the Aircraft*, pp. 154, 186, 220, ISBN 0-8168-6370-9, 1961
4. H. Hooftman, *Van Brik tot Starfighter, Deel I: Met stofbril en leren vliegakap*, pp. 81, 119-122, 124-125, 190, La Rivière & Voorhoeve, Zwolle, 1962
5. W. Schoenmaker & T. Postma, *Klu Vliegtuigen, De vliegtuigen van de Koninklijke Luchtmacht vanaf 1913*, pp. 19, 45-47, ISBN 90 6013 966 6, 1987
6. T. Wesselink & T. Postma, *De Nederlandse Vliegtuigen, Alle vliegtuigen ooit in Nederland ontworpen en gebouwd*, p. 73, Unieboek B.V., Bussum, 1982
7. F. Gerdessen, *Nederlandse Militaire Luchtvaart, 12: Fokker D.16*, pp. 4, 6, 8, 14, 17, 24, 26, 28, 31, 33, 1991
8. Vliegwereld, *Het Dertigjarige Bestaan van de Nederlandse Fokkerfabriek 1929 – 1949*, pp. 470, 477, Jaargang 15, No. 29, 1949
9. W. Vredeling, *Collection Fokker, Copies of original Fokker drawings and documents*, pp. 10548, 10664, 10459, 10968, 16500, 18779, 2010
10. Fokker Bulletin, *Fokker, Nederlandsche Vliegtuigenfabriek 1919-1929, Vol. V, Nos. 9, 10, 11 and 12*, pp. 51-52, 142, NV Nederlandsche Vliegtuigenfabriek, Amsterdam, 1929
11. T. Postma, *De F-16 en zijn voorgangers, Luchtvaart in beeld nr. 4*, pp. 18-19, 80, ISBN 90 620 7328 x, 1978
12. B. de Groot, *Camouflage & Markings: Colours of the Dutch Air Force*, [http://ipmsstockholm.org/magazine/2005/09/stuff_eng_dutch_af_coulours_01\(02\).htm](http://ipmsstockholm.org/magazine/2005/09/stuff_eng_dutch_af_coulours_01(02).htm)
13. H. Hooftman, *Fokker, Bekende en onbekende vliegtuigtypes van A.H.G. Fokker, Neerlands grootste vliegtuigbouwer*, pp. 26-27, ARTI beeld encyclopedie 36, Alkmaar, 1959
14. H. Hooftman, *Nederlandse Vliegtuig Encyclopedie, Burgerluchtvaart in Nederland, Deel 2; Van H-NAFA tot PH-AIZ*, pp. 72-74, Cockpit-Uitgeverij, Bennekom, 1980
15. H. Hooftman, *Van Glenn Martins en Mustangs, Alle vliegtuigen die gevlogen hebben bij het K.N.I.L., de Indische Militaire Luchtvaart*, p. 214, La Rivière & Voorhoeve, Zwolle, 1967
16. T. Postma, *Fameuze Fokker Vliegtuigen*, p. 31, Luchtvaart in Beeld nr. 1, Omniboek, Kampen, 1978
17. T. Postma, *Fokker, Bouwer aan de Wereldluchtvaart*, p. 82, Fibula - Van Dishoeck, Haarlem, 1979
18. F. Gerdessen & L. Boerman, *Fokker T.V 'Luchtkruiser', History, camouflage and markings*, p. 15, ISBN 978-94-90092-01-6, 2009
19. W.C.J. Westerop, *Fokker en de twintigste eeuw: een historische relatie*, p. 18, ISBN 90-9011870-5, 1998
20. T. Postma, *Vermete vliegende Hollanders*, pp. 33-34, ISBN 90 228 3987 7, De Haan, Bussum, 1975

Appendix Model modifications and corrections; paint table; pictures, drawings and other documentation of the Fokker D.XVI Jupiter

Modifications & corrections

M = modification, C = correction

Change	Location/part	Modification or correction
C01	Cockpit	Rudder bar added
M01	Engine	Gnôme-Rhône Jupiter engine
M02	Engine	Propeller spinner
M03	Fuselage	Change to accommodate the Jupiter engine
M04	Struts	Central upper wing suspension
M05	Struts	Forward long wing strut
M06	Tail	Elevator and rudder separated
C02	Undercarriage	Wider axle
M07	Undercarriage	Additional strut in V-strut
M08	Wing	Ailerons separated

Change	Location/part	Modification or correction

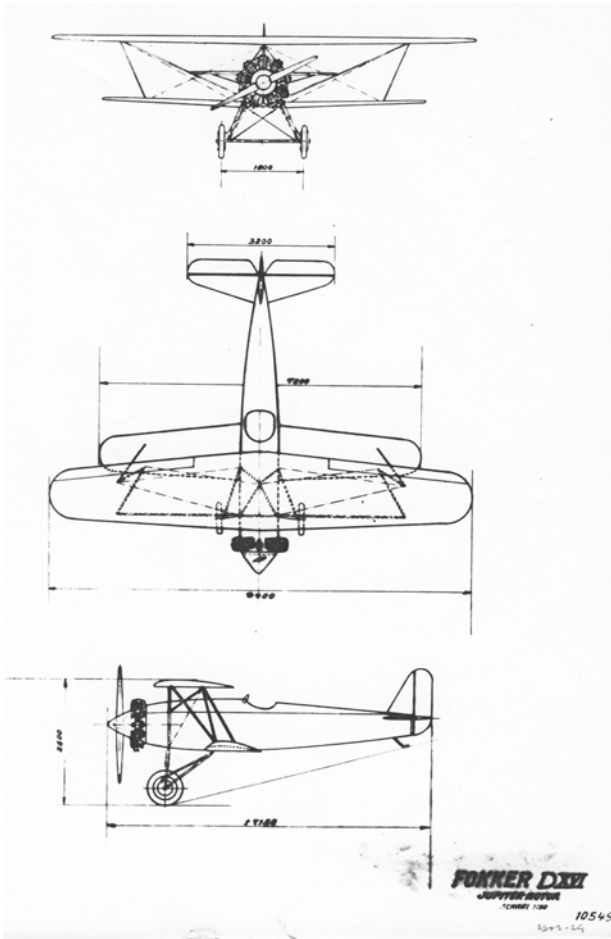
Paint table

HE = Humbrol enamel, RA = Revel Aqua, VMA = Vallejo Model Air, WEM = White Ensign Models

Code	Colour	Where
HE 21	Black	Engine cylinders
HE 22	White	Instrument panel (dry brushed)
HE 53	Gun metal	Engine cylinders (dry brushed)
HE 85	Coal black	Exhausts
HE 125	Dark grey	Seat, instrument panel, rudder bar, control stick
HE 127	Light grey	Cockpit walls and floor

Code	Colour	Where
HE	Brown	Leather edge of cockpit opening
RA	Tank grey	Tires
VMA 71.065	Steel	Propeller blades
WEM ADC04	LVA khaki	Wings, fuselage, struts, propeller spinner

Drawings



[Source: ref. 9]

Pictures



[Source:]



[Source: Omega Models (kit to be issued)]



[Source:]

ⁱ www.omega-models.com