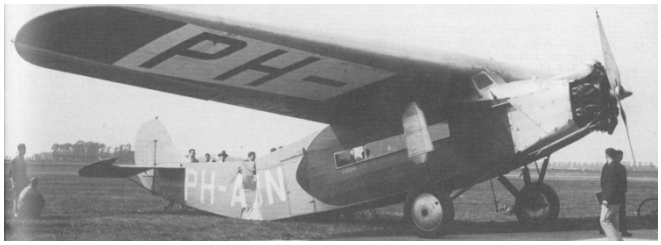
Fokker F.VIIa AZ Models injection kit[1]

Monoplane passenger

Scale 1:144

The Fokker F.VIIa was the temporary culmination of Fokker's initial passenger plane development. The aircraft, which appeared in March 1925, accommodated two pilots and eight passengers. It was an improved version of the F.VII (main modifications were a new wing and a completely revised undercarriage) and set, together with its derivatives the three-engined F.VIIa/3m and the F.VIIb/3m, the standard for passenger transport in the 1920's. The aircraft was also marketed in the USA, where it received the designation Model 6.



The PH-EHE was an aircraft with a particular history. It started life as the H-NADN, and later PH-ADN with KLM, and served there between 1926 and 1936. In that period it survived a hard landing, which buckled the fuselage. It illustrates the potential for repair of the Fokker mixed construction method that the aircraft could continue operations, and did not have to be scrapped.

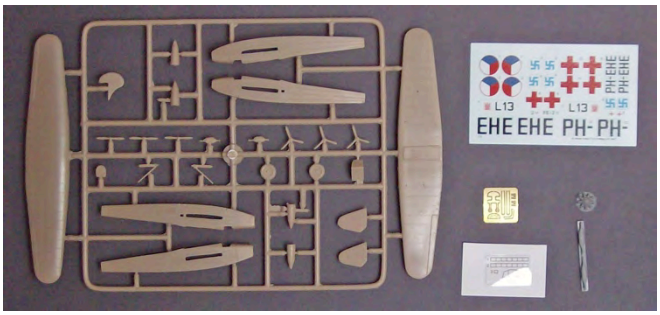
In 1936 the aircraft was sold to the English NGO League of Nations Union, which had the objective to perform humanitarian flights in Ethiopia, which was at that time at war with Italy. It was supposed to carry the registration G-AEHE, but never carried it; finally it was registered as PH-EHE. The aircraft was painted white with red crosses for this purpose by KLM and was made available to the Red Cross in May 1936. The aircraft departed for Ethiopia on June 11th and made several flights there, mainly in attempts to evacuate humanitarian aid personnel. August 21st the aircraft was back at Schiphol.

After that the PH-EHE was made available to the Spanish Republic again for humanitarian missions and flew in March 1937 to France, probably on its way to Spain. At Toulon in southern France it had to make a precaution landing, got damaged and was taken into custody, as the flight was illegal. The aircraft was set afire to prevent use for other purposes.

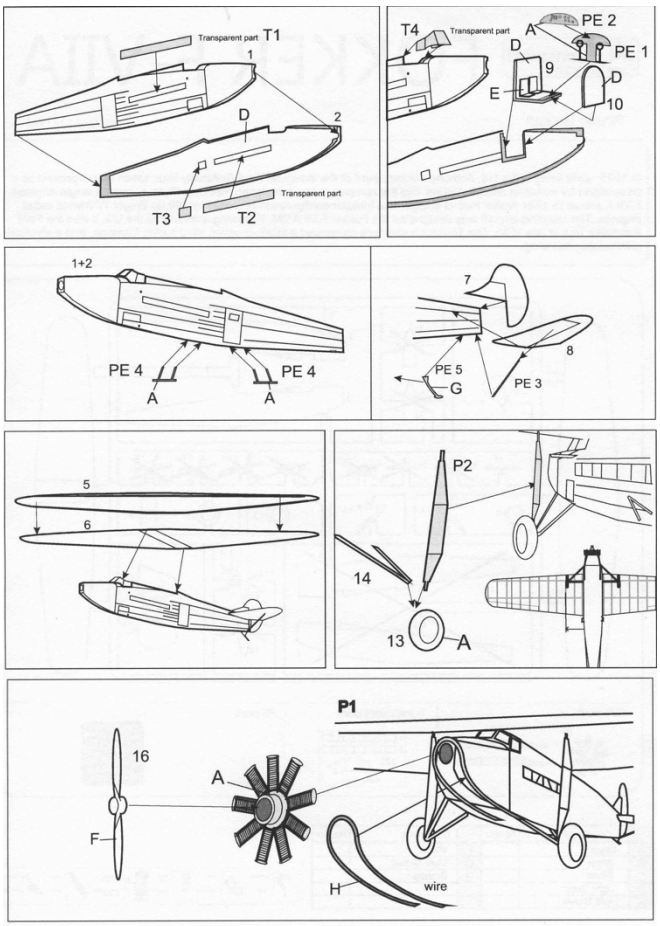
The AZ models kit comes in a carton box of the " envelope" type and it is the only kit of an F.VIIa with a radial engine, which was the reason why I bought it[2]. A second reason for adding this model to my collection was to have a scale reference for the "large" 1:144 models (F.32, F.27 Friendship, F.28 Fellowship, Fokker 50, Fokker 100, Fokker 70, Fokker 60). The kit allows building three different versions and although it is presented as a "military" version, it basically is a standard F.VIIa transport aircraft.

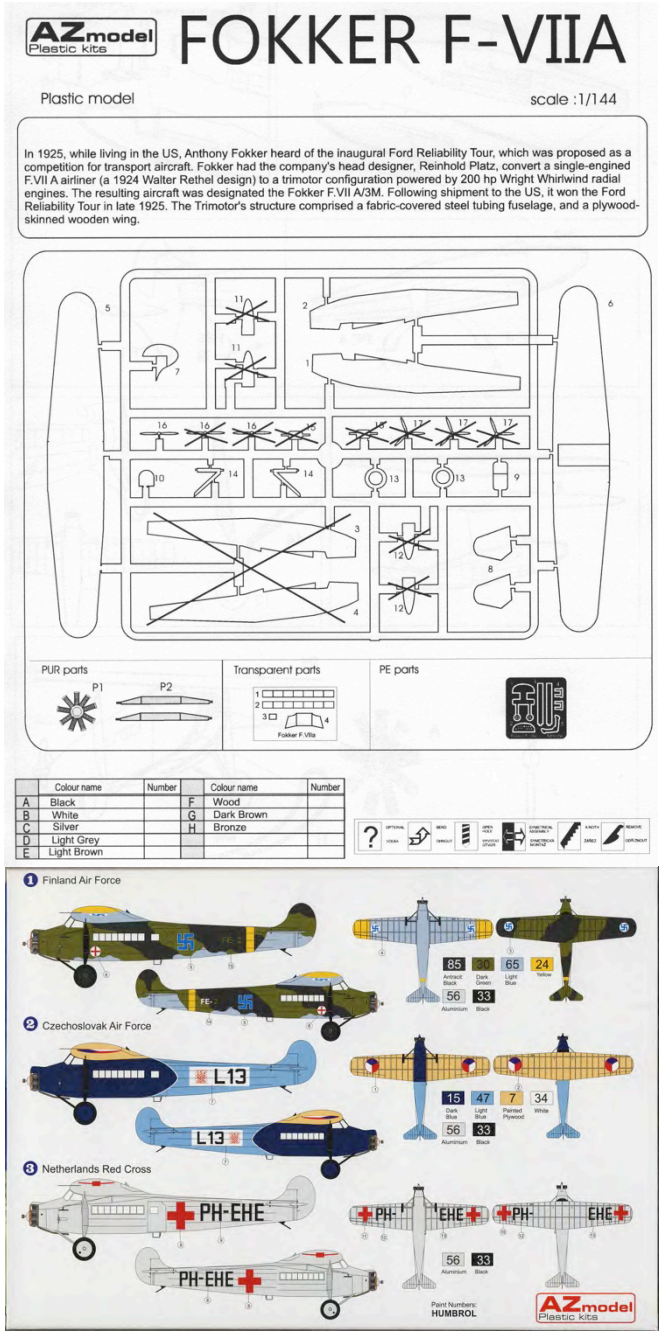
The kit contains the injection plastic parts, resin parts for the landing gear legs and the engine, a transparent plastic sheet with the windows imprinted on it, PE for

cockpit details and cabin stairs and a decal sheet for the three versions, a Finnish and a Czech military transport version and the Red Cross humanitarian transport, the one I have built.



The instruction sheet is simple; it shows the content of the kit, indicating the parts and paint colours to be used and a second sheet giving the assembly instructions. The backside of the box shows colour printed views of the model of all three versions.





References 1 through 9 report the dimensions of the F.VIIa. There is some variation in the length quoted, which may be explained by the different engines built in. Franquinet (ref. 3), Hegener (ref. 4), Postma (ref. 10) and Vredeling (ref. 11) give a three-view drawing of the aircraft. Many details on the history of the particular F.VIIa PH-EFE can be found in the books of Hooftman (ref. 15) and Wesselink (ref. 23) and in the two websites ref. 25 and 26.

	Ref.	*1:144*	*model*
Span	19.30 m	134.0 mm	134.0 mm
Length	14.60 m	101.4 mm	104.5 mm (103 %)
Height	3.90 m	25.7 mm	28.1 mm (109 %)
Engine	Bristol Jupiter VI, 450 hp; Bristol Jupiter IX, 480 hp		
Crew/passengers	2/8		

The model is slightly too long and quite a bit too high; only a small part may be attributed to the larger wheels (0.25 mm); apparently the main landing gear struts are too long. The span is correct of course, as I have reduced the span of the model to the correct value.

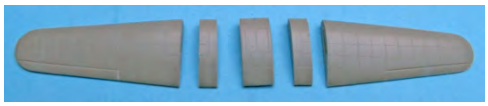
Building the model

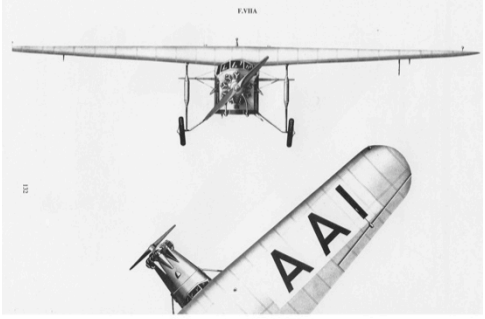
First examination of the kit showed an error, which is unfortunately often made with Fokker F.VIIa models. The wing span it taken to be the same as for the F.VIIb/3m, while the wing for that aircraft was produced by inserting a straight section of three meters in the middle part of the F.VIIa/3m wing, which was basically the same as the F.VIIa wing. So a section of 8.3 mm had to be removed at both sides of the central part of the wing.

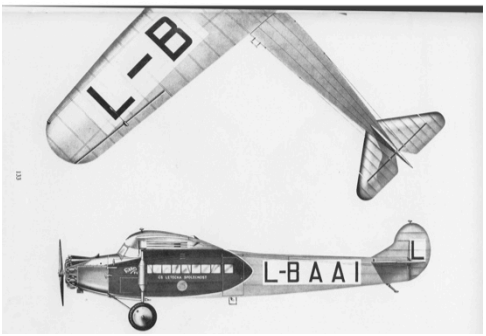
The second shortcoming is rather a point of missing detail: the characteristic streamline bodies on the nose section behind the engine cylinders have not been modelled.

Wing and control surfaces

The first job is then to remove the two 8.3 mm sections. I have marked them on the wing upper surface and noted that the engraving of the panel lines was not completely symmetrical. I made the four saw cuts, trying to saw normal to the wing top surface.



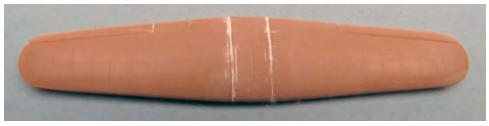




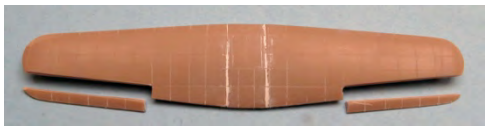
To align the wing parts well I have use a scaled version of the 1/72 F.VIIa drawing in Hegener (ref. 4). The drawing in the book is unfortunately malformed by the binding of the pages, but by moving the scans around in Photoshop I have managed to get a correct composition.

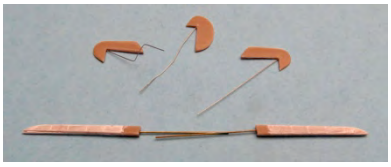
A print on carton served to align the pieces of the wing and gluing it upside down over it achieved the correct dihedral.

I have filled the gaps between the components with thick cyanoacrylate glue and have finished the joints with putty. On the wing underside I have also removed the four mounting positions for the undercarriage struts (and engine nacelles, left over from the F.VIIb/3m kit) and made two new positions 8.3 mm further outward.



I have engraved the panel lines anew and have separated the ailerons from the wings.

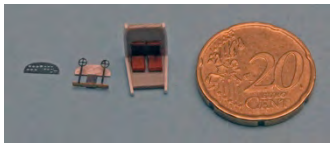




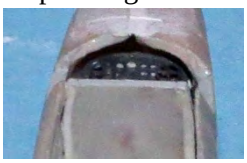
To improve handling during painting I have glued the wing to a plastic rod and ailerons, rudder and elevator halves to a piece of metal wire.

Wing and aileron trailing edges have been “sharpened” by gluing pieces of 0.2 mm brass wire to them, a method I have copied from a fellow modeller. Wing and control surfaces have been painted white before assembly. I have mounted control horns made from 0.2 mm brass wire.

Cockpit

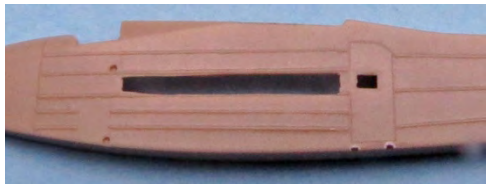



The cockpit has been built up from three parts: a PE part with the control columns and the instrument panel support, the PE instrument panel and a plastic part consisting of the floor, rear cockpit wall and both crew seats. This last part was a bout a millimetre less wide than the room between the fuselage walls, so I have glued 0.5 x 1.0 mm strips along the sides. I have painted the backing part of the instrument panel white and the remainder of the PE parts dark grey, not black as advised in the instructions, as pictures showed clearly a lighter shade. The cockpit walls and floor have been painted light grey, the seats leather.

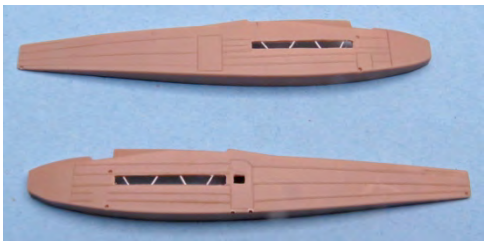


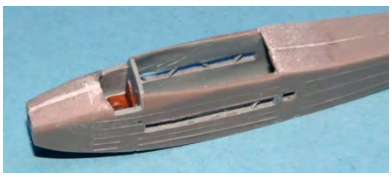
I have glued the cockpit assembly in the fuselage and have finished the painting before closing the fuselage.

Fuselage

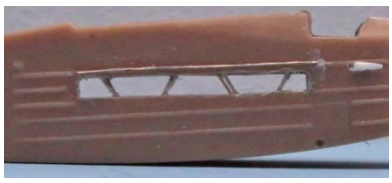


The cabin windows are not correctly shaped; they taper off behind the cockpit. I have corrected that and have also applied pieces of 0.25 x 0.5 mm strip to model the fuselage framework, which is always very well visible on the pre-war Fokker planes. The strips are slightly recessed relative to the outer surface of the fuselage wall and allows that way to mount the windows from the outside after painting, in stead of gluing them to the inside of the wall as indicated in the instruction sheet.

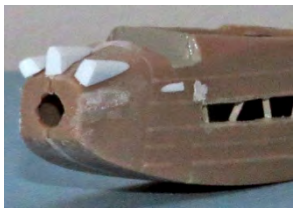




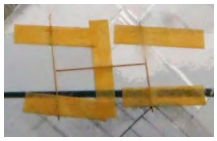
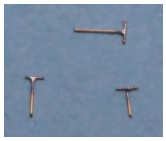
The cabin walls have been painted light grey and the fuselage has been closed. Quite some effort was required to close the nose section, possibly because the cockpit floor was still a bit too wide. I had to use quite a bit of putty to close the gap, both on the top and the bottom side. Also, the aft part of top and bottom side was quite unequal; again quite some putty was required to equalize this.



At the left side of the fuselage two stringers were moulded above the cabin windows, which were missing at the right side. I have modelled these with 0.2 mm metal wire glued with thin cyanoacrylate glue.

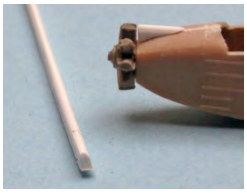


I have also added a sliver of 0.5 mm plastic rod to model the fairing at the place where the rudder control cable leaves the fuselage. At the same time I have closed the hole, where an undercarriage strut would be attached for the three-engine F.VIIb/3m model, which kit uses apparently the same parts. The fuselage has been painted white before assembly, except for the nose section, which has been painted aluminium.

I have made the actuation mechanism for the elevator from soldered 0.2 mm brass wire.

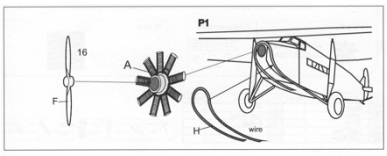
Engine and propeller



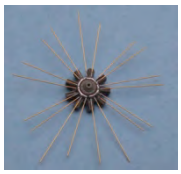
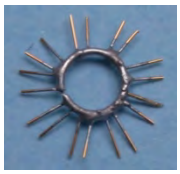
AZ Models did not represent the streamlined nose cylinder fairings, which were characteristic for the Jupiter engine KLM F.VIIa's. I have modelled these by sanding the edge of a 1.5 mm thick plastic sheet half round and cutting wedge shaped pieces from it, fitting the engine, which I had temporarily attached to the firewall with Kristal Klear. The PH-EHE had only the three top cylinders faired.

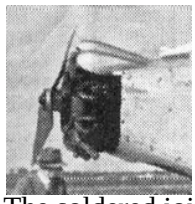
I have attempted to form the part of the fairing over the cylinder heads from aluminium kitchen foil, shaped over a template, but this was not successful. It was very difficult to handle the fairing after production and it was very easily damaged.

A second attempt to make it from thicker aluminium ashtray material did not work either, because it was not possible to form it over the small curvatures. Also attempts to make the fairing from thin plastic sheet, warm formed over a template did fail, so I have decided not to model them.



The modelling of the exhaust, as proposed in the instruction sheet, does not reflect the actual configuration as shown on the pictures of the PH-EHE. I have modelled an exhaust with 0.5 and 0.2 mm soldered brass wire[3] analogous to the Aeroclub exhaust I have used on my 1/72 model of the F.VIIa.

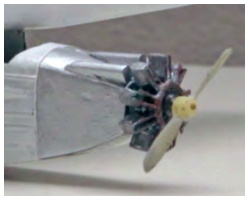




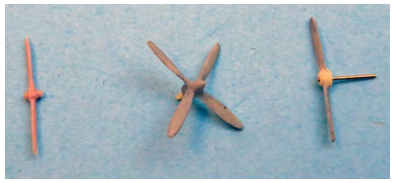



I have used a sellotape-covered copy of the front view of the F.VIIa in Hegener (ref. 4) as a template. The branches have been cut to size while fitting the exhaust on the engine and have been bent slightly backwards. The soldered joints, however, are not very solid, so this had to be done very carefully. After painting the exhaust rust and dry-brushing it with gunmetal three small exhaust stubs were missing.



I have painted the engine aluminium, dry-brushing it with gunmetal, “refreshing” the valve rods again with aluminium, have painted the engine crank case dark grey and have glued it to the fuselage. Next I have glued the exhaust ring in place. I have added the missing exhaust stubs, freshly cut from a piece of pre-painted 0.2 mm wire.

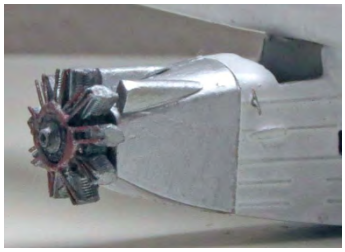




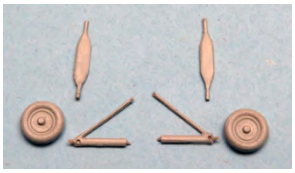
The two bladed propellers delivered with the kit are sized for the 250 hp engines of the three engine F.VIIb/3m, and not for the 450 hp F.VIIa engine, and are consequently too small. I have replaced it by a modified version of a 1/200 scale Fokker F.27 propeller, which has a 2.5 mm greater diameter. I have painted the propeller natural wood and finished it with burnt sienna oil paint.

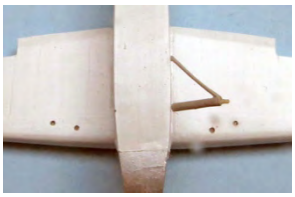
I have made the relatively short main exhaust tubes from pieces of 0.5 mm brass wire, painted them rust and dry brushed them gun metal and have glued them in place. Fitting the propeller on the engine finishes the job.

Final assembly



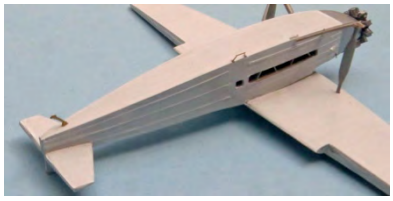
I have glued wing and fuselage together and have carefully finished the joint. Next the engine has been attached to the nose. I have drilled two 0.3 mm holes for the elevator actuation mechanism at both sides of the nose and have inserted the T-shaped brass parts in them, gluing these in a position corresponding to down elevator.





The undercarriage is composed of the wheels and V-struts of the standard three engine F.VIIb kit and resin main struts. When mounting the first struts, I noticed that the holes in the wing where far too much outwards, so the vertical struts were standing under a rather incorrect angle, although I had moved them from their original position with exactly the width of the wing section removed. To correct this the holes had to be moved 4 mm inward and 2 mm forward. The old holes I have closed with Vallejo putty. When mounting the struts now they had the cor-

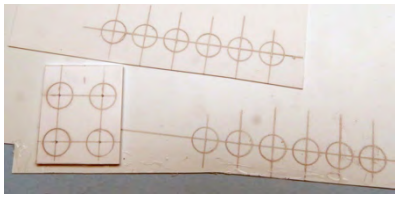
rect appearance. The wing was not completely horizontal, but that has been corrected by mounting one of the wheels 0.4 mm lower than the other one.

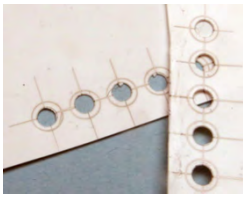


I have also mounted the PE cabin steps, after bending the supports outwards, because the PE part did not fit the holes moulded in the fuselage.

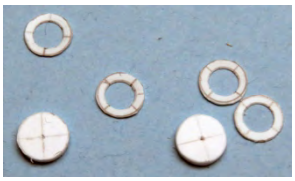
I have made the holes for the axles in the wheels slightly oval, and have glued the wheel to the undercarriage off centre to get the wings horizontal. This worked quite well.

However, the general appearance of the model was not quite right: The wheels looked too big and heavy. A check on the three-view drawing in Hegener (ref. 4) made that very clear. The wheel in the kit had a diameter of 9 mm and the tires were 2.4 mm thick and high. The drawing gives a diameter of 7.5 mm and the tire a thickness/height of 1.3 mm. The one more or less clear photograph seems to indicate, that a diameter of 8.0 mm and a thickness/height of 1,65 mm is more correct. I have settled for 8.0 mm and 1.5 mm, composed from a “core” of 1 mm plastic and one “tire side” of 0.25 mm and one of 0.4 mm.





I have drawn 8 mm on the sheets and have punched out 5 mm holes in the two thinner sheets, using a piece of Perspex under the plastic. This worked far better than the hard wood I have used before; the plastic sheet hardly deforms. Core and faces have been glued together and with Tamiya very thin cement and have been sanded in shape. The tires have been painted tank grey, the hubs aluminium, as shown in the original photographs.



Removing the wheels from the axles did not work well: the axles broke off. I have glued new stub axles to the main landing gear legs made from 0.5 mm plastic rod. I have painted the tires tank grey and the hubs aluminium. In mounting the wheels I have adjusted their vertical position such that the wings were horizontal.

Next I have cut the cabin windows to the correct size. First I have cut them just on the outer black line, then making them bit by bit smaller until the fell in the recessed window frame. I have fixed them with sparingly applied thinned Kristal Klear. I have not used the very small window for the door; instead I have made that with Kristal Klear. I have also replaced the PE stabilizer struts by 0.3 x 0.6 mm plastic strip; the PE items would have scaled up to struts with a width of more than 20 centimetres.

I have carefully cut out the windshield and have bent it with a set of pliers on the printed vertical frame lines until it fitted well on the fuselage and the wing. I also had to bent the tips at the side a bit extra to prevent them sticking out next to the fuselage. I have glued the windshield in place with Kristal clear.

The decals are sharp and clearly printed and very thin. They separate easily from the backing paper and attach very firmly to the surface, if insufficient water is applied, Then it is almost impossible to move them without damage. Luckily I could limit the damage by as-

sembling the pieces of the broken decal correctly. The photographs show different size registrations on the fuselage, but the one in the kit is definitely too big[4]. I have, however used the original decals.

I have decided to model the control cables, which are mounted on the external surface of the fuselage, as was the case with all Fokker passenger planes until the appearance of the F.XVIII. Although they have six guidance points on the fuselage, I have limited the number of points to three (one just before the cabin windows, one before the door and one above the dash of PH-EHE) plus the attachments to the mechanism at the cockpit and the control surfaces. More would be difficult on this scale.

I have experimented with small brackets cut from 0.25 mm plastic, but they were too small and easily damaged in handling. So I have decided to fix three lengths of 0.06 mm black painted fishing line with a piece of tape and to apply a drop of thin cyanoacrylate glue just before the tape, working from front to rear. The picture shows the middle point being glued.

The control cables have been attached also at the other side of the fuselage and the "guidance" points have been painted white. I have glued the fishing line to the actuation mechanisms under the cockpit and have cut the excess line off. I have also glued the rudder in place and have set the ailerons in a slightly off-centre position. The cables at the port side needed some correction; they were too slack. I did not dare to give them a heat treatment, so I have only shifted them a bit to give a better appearance.

I have drilled slanted holes in the wing opposite each of the aileron control horns and have cut pieces of 0.06 mm black painted fishing line to the correct size. One end has been dipped in thin cyanoacrylate glue and inserted in the hole in the wing, the other end glued to the control horn.

Next I have glued the lowest wire of the control cables along the cabin wall to the control horns of the rudder, keeping them in position until the glue had dried, finishing them by cutting off the excess line.

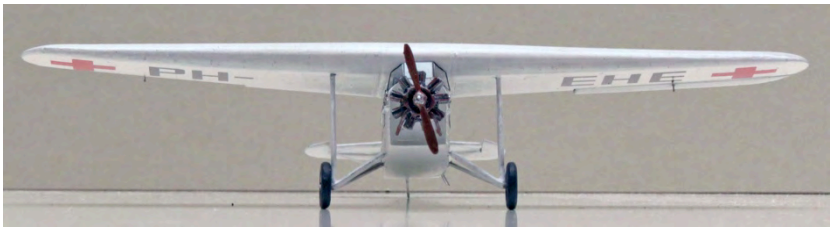
The elevator halves have been glued in place in a downward deflection, keeping them in position by pieces of tape. I have tensioned the elevator control cables over the control horns with pieces of tape on the top side, applied a drop of thin cyanoacrylate glue on the joint and have cut off the excess fishing line when the glue was dry. The process has been repeated on the bottom side. Finally I have sealed the decals with a fresh layer of clear varnish. During the application of the control cable at the starboard side the cable for the upper and lower side of the elevator became crossed. I only remarked that after cutting off the excess fishing line, so it could not be repaired any more.

Summary

The AZ Models kit of the Fokker F.VIIa contains quite some inaccuracies and errors, the major ones being the too large span and the wheel that are too big, but with some effort these can be corrected. With moderate addi-

tional work some detailing of cabin, engine, control surfaces and cables is possible, even on this small scale. The model serves well to illustrate the development in civil aviation between the 1920s and the current airliners.

Below some pictures of the completed model are shown.

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Appendix Model modifications and corrections; paint scheme; pictures, drawings and other documentation of the Fokker F.VIIa

Modifications & corrections

M = modification, C = correction

Change	*Location/part*	*Modification or correction*
C00	Decals	Size of fuselage registration too big (***not corrected***)
C01	Engine	Streamline bodies behind top three engine cylinders
C02	Engine	Larger two blade propeller
C03	Engine	Front mounted engine exhaust
C04	Fuselage	Rectangular cabin window shape
C05	Fuselage	Top two stringers at right side
C06	Fuselage	Removal of undercarriage strut attachment point at side walls
M01	Fuselage	Tube frame behind windows
M02	Fuselage	Elevator and rudder control cables and actuation devices
C07	Fuselage	Width of PE cabin steps
M03	Fuselage	Door window Kristal Klear
M04	Tail	Rudder and elevator halves separated from tail surfaces
C08	Tail	Narrowed stabilizer struts
C09	Undercarriage	Wheels with smaller diameter and thickness
C10	Wing	Span decreased by 16.6 mm
M05	Wing	Ailerons separated from wing
M06	Wing	Trailing edge “sharpened” with 0.2 brass wire
C11	Wing	Moved position of hole for vertical landing gear strut inward and forward

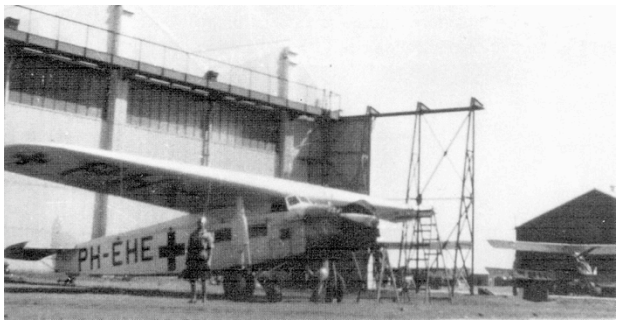
Paint table

H = Humbrol, V = Vallejo, R = Revell

Code	*Colour*	*Where*
H52	Gun metal	Exhausts, engine cylinders (dry brush)
H62	Leather	Cockpit seats
H110	Natural wood	Propeller
H113	Rust	Exhausts
H123	US dark grey	Engine cranckcase
H130	White	Instrument panel dials
H166	Light aircraft	Cabin and cockpit walls, control
	grey	horns
V70.842	White	Overall aircraft
V71.062	Aluminium	Nose section plating, engine details
R36178	Tank grey	Wheels
Oil paint	Burnt sienna	Propeller finish

Documents, photographs and drawings

If no source is mentioned, the documents have been taken from the Internet.



[Source: www.dutchavia.nl]

[Source: www.crezan.net]

[Source: Hooftman, ref. 15]

[1] www.azmodel.cz

[2] I have previously constructed a model of the Fokker F,VIIa with a radial engine as a modification of the FROG/Novoexport 1:72 Fokker F.VIIb/3m kit

[3] It was rather difficult to solder the 0.2 mm branches to the 0.5 mm ring; any “new” soldered joint tended to melt the previous ones.

[4] The fuselage decal has probably been copied from the side view drawing on *www.crezan.net.*