Fokker T.IX Croco Models resin kit

Monoplane bomber

Scale 1:72

Fokker developed the T.IX as bomber under the direction of chief engineer mr. Beeling at the end of the 1930's. It was intended for use in the Netherlands East Indies and was based on requirements of the Department of Colonies for a replacement of the Martin 139 with the ML-KNIL. It had to be capable to fly long distances in the Netherlands Indies and provide sufficient comport for the crew. In the Netherlands the LVA followed the project with interest. The maximum speed of the 11,200 kg heavy aircraft was 440



km/hr and it carried a bomb load of 200 kg. Armament was a machine gun in the nose and two aft firing machine guns.

The T.IX was Fokker's first aircraft completely constructed in metal. It had a sleek appearance with a long fuse-lage accommodating five crew. It had double vertical tailplanes, a retractable main undercarriage and a fixed tail wheel.



The prototype was constructed in the Fokker factory in Amsterdam Noord and was as usual transported in big assemblies per ship end July 1939 to Schiphol, where was assembled. The first flight took place from Schiphol on September 10 1939. It carried Dutch roundels and the LVA number 970. Later that month the roundels were replaced by orange triangles. The aircraft flew well and many dozens of test flight were made. Beginning March 1940 the undercarriage collapsed during the landing and the damage had to be repaired.

The one and only T.IX fell into the hands of the Germans in May 1940.

Characteristics of the T.IX are:

	references	1:72	model
Span	24,70 m	343.1 mm	341.0 mm (99.4%)
Length	16,50 m	229.2 mm	
Height	5,10 m	70.8 mm	
Engines	Two Bristol Hercules, 1375 HP		
Craw	5	7	

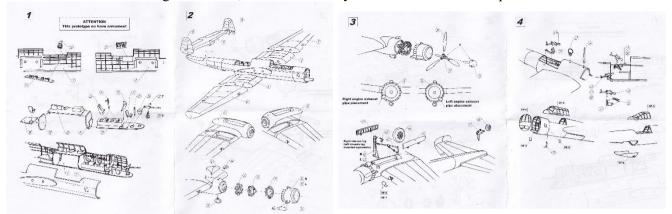
The model is

The kit

The kit comes in a sturdy brown carton box carrying a photograph of the T.IX and contains XX resin parts, separately packed vacuum formed glass cockpit, nose, aft fuselage canopies and fuselage windows and landing light covers, a two-side printed instruction sheet with drawings showing the location of the parts and the assembly order and a decal sheet. No painting instructions are included, but probably the aircraft was painted the KNIL-ML olive drab all over.



The instruction sheet is rather limited, but the parts in the drawings are well indicated and recognizable, and their location in the model is in general clear, often indicated by "marks" casted with the part.



Parts

The resin parts are of good quantity with only rare air bubbles. There is not too much flash to be removed. The landing gear legs, also the one for the tail wheel, have a metal core, which is essential to carry the weight of a model of this size.







My kit contained two sets of vacuum formed transparent parts (on of them even triple present) for the four canopies, the two windows in the nose and the covers of the landing lights. They are of good quality and not too flimsy.

I have removed the flash of the resin parts and have cleaned them well. Only one part, a propeller blade, was damaged, but that was easily repaired with a piece of sty-

rene rod. The fuselage halves have small ridges cast in them to accommodate the glass parts. I noted, however, that the right fuselage half was two millimeters longer than the left one.

Next I have fitted the two fuselage halves together, aligning them best at the location of the three canopies to profit of the casted ridges. The difference in length can be corrected then by shortening the nose and tail of the right fuselage half.

I have removed the excess material from the glass parts bit by bit and have very carefully fitted them trial and error on the fuselage. Once that is done they fall very well in place.





The panel lines on wings, fuselage, tail planes and engine cowlings are very finely engraved, even so fine, that probably they will not be visible any more after painting, even with an airbrush. So I have reworked all panel lines with a panel line scriber.

I noticed also that I had removed the throttles from the shelve the were casted with, thinking it was a casting beam. So I have mounted them again on a piece of 0.5 mm styrene of 30 x 3 mm.

Decals



The decal sheet allows to build two versions of the aircraft, one with roundels and one with orange triangles, but both with the "970" registration. It does not contain the registration "T IX 701" as shown

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on the wing leading edge and the aft fuselage on an earlier photograph of the aircraft. There are however some questions to the accuracy of the orange markings.

Building the model

Fuselage



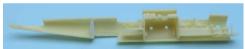
I have glued the rectangular instrument panel to starboard fuselage half. I have glued the seats to the forward and aft floors and the navigator table and the machine gun support he forward floor.





As the forward and middle floor were bend a little bit, I have given them a warm bath and straightened them.

The kit does not contain a bulkhead behind the rear gunner position. To prevent a possible view into the tail cone I have cut a bulkhead from styrene and glued it in place.

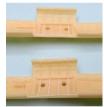


Next I have glued the aft, middle and forward floor together and have dry fitted them in the port fuselage. Some minor adjustment of the stringers casted with the fuselage halves was needed to make it fit



well.

However, also the lower fuselage forward of the lower machine gun position was open and from the rear you could look quite well in the open space. So again I produced a bulkhead from 0.5 mm styrene.



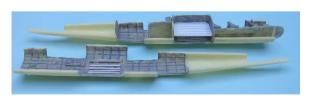
I had decided to build the T.IX with open bomb bay. I have removed the bomb bay doors from the fuselage halves with razor saw and panel line scriber. I will not use the pieces removed, but construct new bomb bay doors from styrene. I have glued pieces of 0.4 x 0.5 mm strip as stingers to the inner side of the bomb bay walls.





I have formed the skin of the new bomb bay doors from two layers of 0.25 mm styrene, rolled and glued together around a solder removal tool. I have cut the sheet of the doors to the correct size have glued stringers made of 0.4×0.5 mm strip to it.

In my Fokker T.IX documentation there is little information on the interior of the bomb bay, but it was probably much like the arrangement of the Glenn Martin serving with the KNIL ML it was intended to replace. In the appendix some supporting data are included. I have modeled the interior from 0.25 mm sheet and 0.4×1.0 mm strip as shown on the picture at the right.



The connection between the cockpit and the aft compartment is by a (crawling) gangway over the bomb bay. I have modeled from styrene strip and 0.25 mm metal wire two stairways to give access.



Next I have painted the floors dark brown, the walls light grey, the electrical boxes, wiring and rudder pedals black and the



seats and other equipment dark grey. I have glued the control columns in place. The bomb bay interior has been painted light grey also.

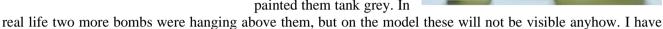
I have made seat belts cut from XXX painted Tamiya tape with aluminium painted fittings and have mounted these to the seats.

Next I have painted all instrument panels attached to the inner walls black. I have also painted the shelf on which the gas handles and other controls are attached and have glued them to the port wall.

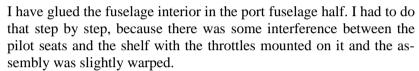




To fill the bomb bay a bit I have collected two 500 kg (German) bombs from the spare box and have painted them tank grey. In



glued the bombs in the lower positions against the bomb bay inner walls.



Next the fuselage could be closed. I have initially aligned the section where the cockpit and gunner position canopies are located. I have clamped the two fuselage halves together with ample pieces of tape in an attempt to minimize the gaps between the two parts. Where that was not successful, I have filled the gaps with thick cyanoacrylate glue.

In doing so the difference in length of the two fuselage halves showed up clearly. Negligible at the front, but clearly visible at the rear. The white circles in the picture at the right show this quite well; especially the misalignment of the panel lines and the interface to the tail in the left circle is notable.

I have sanded the unequal parts of the fuselage and have applied putty on the joints. When dry I have sanded the joints, scribed the new panel lines and have redone the old ones.



Tail

cost me however much trial and error fitting and a couple of hours. This completed the work on the fuselage

from the fins. I have tried to keep the triangular part, which is in



The extension has been sanded to match the profile of the stabilizer and the rudder and the elevator halves have been removed from the stabilizer with razor saw and panel line scriber.

It seemed also a good moment to glue the two fins to the stabilizer,.







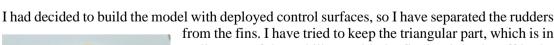


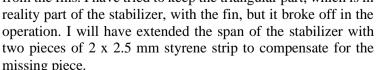


















Wing

I have separated the ailerons from the outer wings with razor saw and panel line scriber. Beforehand I had already cut through the actuator fairings on the wing upper side.



Engines and nacelles

The propellers have to be assembled from the hub with three blades, and there is the choice between a hub with and without spinner. I have chosen the hub without spinner. I have first worked the blade mounting holes with a 0.7 mm drill and have sanded the fitting part of the blades to the same dimension. The hub had some air bubbles near the mounting holes, so two holes failed when fitting the blades in. I have repaired that by mounting the blades with



a 0.5 mm pin.

I have glued the two rows of engine cylinders together. The correct position is indicated by notches on the parts. The engines have been painted black and the cylinders have been dry brushed with aluminium, The crank case has been painted dark grey.

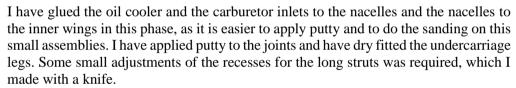


It seemed convenient to glue the exhausts to the NACA cowlings and I have closed the joints with some thick



cyanoacrylate glue. According to the contract for the T.IX the exhausts were made of stainless steel, including the front part of the cowlings. According to the photographs of the aircraft the flaps of the cowlings had also a metallic finish. I have given the assembly a coat of primer and I have masked the part that has to stay steel and have painted the body LVA brown.

I have also painted the small exhaust pipes between the cylinders and the exhaust collector ring with Vallejo steel and have glued them to the engines. A dry fit in the NACA cowlings showed the desired result.









When the model had been painted, I have glued the engine-exhaust assemblies in place. The cowlings fitted well over the engine-exhaust assembly and I have fixed the cowlings with s small drop of cyanoacrylate glue.

Final assembly and decal application

I have fitted the tail section to the fuselage with tape, have put the model upside down on the table top and have measured the height of the trailing edge of the wing stubs above the table surface. This showed that a small adjustment of the aft fuselage was needed to get that equal at both sides, which is required to get a good alignment between tail and wings. This has been achieved by sanding and the addition of strips of 0.13 mm thick styrene sheet. Next I have glued the tail to the fuselage.





I have glued the inner wings to the fuselage, keeping them well parallel to the horizontal tail plane. The resulting gaps between wing and fuselage at the wing upper side I have filled up with slices of 0.25 mm styrene sheet and thick cyanoacrylate glue.



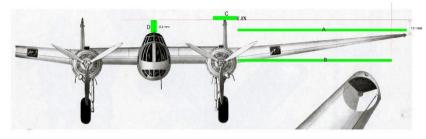
However, when checking the front view, I noticed wing and tailplane were not well aligned to each other, which was confirmed by a measurement on the table top. Inserting a knife in the cap between fuselage and wing separated the two parts easily, so after some sanding the error was fast corrected.



The wings of the T.IX have quite some dihedral and the mounting surfaces to the mid wing section cannot ensure that correctly, so I had to devise a way to assemble them. It seemed convenient to do that with the model lying on its back and resting on the top of the fins and to support the wings. Also, the fuselage had to be horizontal, which would require to support the fuselage to achieve that.

So I have started to make a drawing to derive the height of both supports. I used for this a copy of the drawing in the book of Hegener (ref. 3). First I have checked the span of the outer wing of the model and the drawing (A).

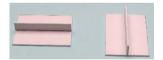
They coincided almost perfectly. Next I have measured the height of the fins of the model and have projected that on the sideview (the red rectangle). It appears that the fins of the model, as well as the rudder (the blue rectangle), were larger than those of the drawing. The red horizontal line starting from the top of the red triangle is the reference line representing the assembly surface on the table top. The green rectangle C has the height that has to be deducted from the top of the vertical tail plane on the front view. The green rectangle D' represents the required height (7.7 mm) of the fuselage support.





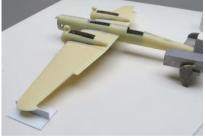
In the front view the red horizontal line is again the reference plane. The red vertical line is the location (B) of the support of the wing tip at the outer wing rib. The distance between the reference plane and the top of the wing is the required height of the wing support (10.1 mm). According to this view a fuselage support of 8.5 mm high would be required.

I have produced two simple rigs from 1 mm thick styrene 8.5 and 10.1 mm high. Fitting the support under the fuselage of the upside down model and checking with a water level showed only a small slope, which has been corrected with some strokes of the sanding plank.



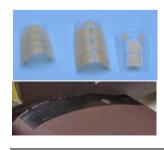
After dry fitting the port wing to check the alignment by means of the casted pins and holes I have glued the wing and filled the resulting gap with thick cyanoacrylate glue. For this operation the model had to be balanced by means of a weight on the horizontal tail plane. I have repeated this procedure with the starboard wing.





When resting the model on the cowlings the wing tips were at the same height above the table top. The model was now ready to finish the joints and to start painting it.





I have masked the three canopies and provided the window frames with a coat of clear varnish as a preparation for the light grey underlayer and the dark brown finish. The wings, fuselage and tail surfaces have been painted dark brown as specified in the T.IX procurement contract. On the wing root on



both sides a walkway was present, which I have painted black. As one of the fuel tank lids was under it, I have left a small circle around it dark brown.

I have painted the frame of the three canopies first with a layer of light grey and then with two layers of dark brown. They came out rather well; only some minor details had to be retouched. Before I could mount the canopies in place I had to mount the aft machine guns, although there is no direct evidence that they have been mounted on the prototype. There is however a report stating aerodynamic effects limited the opening



angle of the top machine gun canopy and restricted the coverage of the gun severely. There is also some evidence





that Fokker has been working on a dorsal turret to overcome this problem. The picture at the left shows the supports for the machine guns, while in the right picture they have been mounted.





Now the canopies can be mounted. I gave glued them with Microscale Kristal Klear, applying it thinly on the recessed edges round the opening, and have kept the transparent part in place with pieces of tape. After removing the tape I have filled the gaps at the edges with Vallejo putty. I have done the same with the remnants of gaps at the joints between parts.





The canopy over the cockpit has been treated the same way, but I had to glue one side with



cyanoacrylate glue; the Kristal Klear did not hold there. I have repainted all areas where I had applied Vallejo putty with the last bits of White Ensign Models paints, leaving just enough to paint the frames of the nose turret. To make glued of that part easier I have glued a piece of 0.5 x 0.4 mm strip against the lower edge of the nose.



I have painted the nose turret the same way as the canopies and have glued it on the fuselage, keeping the lower and lower side edges equal to the fuselage outside surface. This way the turret part got a bit narrower, as it should be to be able to rotate around its vertical axis. Note that on the picture at the right the cowling of the port engine got loose,



a defect I have corrected after seeing the photograph. Another thing to note is the lower windows in the nose. Those of the model are clearly different from those of the real aircraft. However, even the original Fokker drawings show again a differ-







ent configuration. By this time my dark brown paint was really finished, so I could not complete the rework of the joints between the glass parts and the fuselage.

I have painted the propellers. As can be seen on one of the photographs of the airplane after the undercarriage accident, the front was aluminium, the back black to prevent sunlight reflections to the pilot.



Undercarriage

Next job was to mount the undercarriage. All landing gear legs have a metallic core, which is really needed for this relatively heavy model. The main landing



gear leg is resting in two fittings in the nacelle and the support rod to the back is fitting in a groove in the



rear of the nacelle. This groove had to be corrected to give it the right width. With these preparations mounting the landing gear was easy.

The tail landing gear has also a metal core. Its mounting hole in the fuselage had to be made a bit larger to fit it correctly.

I have painted the wheel hubs mid grey and the tires tank grey and have mounted them to the landing gear legs. The tail wheel just snapped in the (metal core) landing gear leg and did not have to be glued. It even can rotate still.



Decals



The set of orange decals coming with the kit contains a number of inaccuracies. The large triangles to go on the wings are far

too small compared to the regulations and the (scarce) photographs of the T.IX, where they had only a slightly less height as the wing chord. The same applied to a lesser extent to the small triangle on the fuselage.

The orange decals for the rudders were slightly too large and did not follow the rules for the markings, which stated that they had to cover the complete



rudder. So I have traced a scan of the black painted rudder in Corel Draw, manipulated it several times until I obtained an orange decal, leaving a black edge of the required width around the rudder.

However, examining a picture of the rudder taken during the test flight after repair of the T.IX it appeared that the balance surface was not painted orange. A midification of the darwing resulted in a new decal sheet.

As I will let the decal sheet print, as usual, by Arctic Decals which can print white, I have also included the first pseudo-KNIL ML registration as carried by the T.IX during its maiden flight.

The decals arrived after a couple of weeks and looked very good. I have given them a coat of Liquid Decal Film, cut them out the next day as close as possible to the black lines of orange parts and have applied the triangles to the model at the reglementary locations. I have also applied the registration of the original decal sheet. The decals for the rudders have been dry fitted first and the top had to be cut off a bit more to make enough of the black rudder edge visible. I have given the whole model a coat of Microscale satin varnish to seal the decals.











The last bits

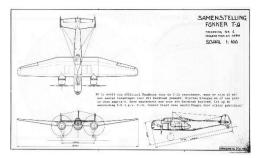
After having spent some time filling and painting the joints between the glass work and the fuselage I have glued the ailerons in deflected position, this way leaving open the choice between Dutch roundels and the orange triangles, as the decals for the roundels are partially applied over the ailerons. However I have selected the orange trian-

gles, which are mounted halfway the distance between wing root and tip.





I have filled the small square windows in the nose with Microscale Kristal Klear, which was easier than mounting the vacuum formed windows. From 0.4 mm brass wire I have formed a pitot tube, which is visible on almost all T.IX photographs, and have mounted it in a hole drilled at the top of the horizontal brown section of the nose.



I have drilled 0.3 mm holes in the fin leading edges, in the aft fuselage and behind the cockpit on the attachment points of the antenna as shown on one of the drawings and on the picture of the tail.



I have made the antenna of black lacquered 0.05 mm fishing line. I

have first glued two ends of line in each hole in the fin, next attached two lines to the top of the antenna



mast and tensioned them. The other two lines I have inserted in the holes in the aft fuselage. These last lines I have tensioned by carefully heating them up. A short line has been run from the top of the mast to the roof of the fuselage.

I have painted the navigation lines red and green. The antenna isolators have been modeled by tiny drops of white paint. Finally I have mounted the rudders and elevators to the tail in deflected position.

Summary

Below some pictures of the completed model are shown.







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- 16. J. Grisnich, Personal communication.

Appendix Fokker T.IX documentation

Modifications & corrections

M = modification, C = correction

Change	Location/part	Modification or correction
C01	Fuselage	Removal of interference between
		floors and casted fuselage string-
		ers.
M01	Fuselage	Removal of bomb bay doors and
		construction of new doors; add
		bombs
C02	Fuselage	Remove difference in fuselage
		half length, scribe new panel lines
M02	Fuselage	Replace resin antenna by a brass
	-	copy
M03	Fuselage	Add ladder to aft cockpit wall
M04	Fuselage	Add seat belts
M05	Tail	Rudder and elevator deflection
M06	Wing	Aileron deflection

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 002	Green	Navigation lights
HE 019	Red	Navigation lights
HE 021	Gloss black	Rudders
HE 085	Satin black	Bombs, walkways, equipment cables, rudder pedals, throttle handles, instrument panels, equipment boxes, landing gear segment above wheels, engines
HE 094	Brown yel- low	Seat belts
HE 113	Rust	External exhausts (dry brushed)
HE 128	Mid grey	Landing gear legs, wheel hubs, control columns, seats
HE 129	Light grey	Interior walls and stringers, wheel bays, inside of glass work frames
HE 186	Brown	Floors, machine gun butts
RA36108	Matt black	Rear side of propellers
RA36178	Tank grey	Tires
VMA 71.062	Aluminium	Front side of propellers, seat belt buckles, engines (dry brushed)
VMA 71.065	Steel	Exhausts, front part of cowlings, landing gear cylinders
VMA 71.072	Gun metal	Machine guns
WEMCC ACD 02	LVA cam- ouflage bruin	All outside surfaces

Photographs and drawings

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



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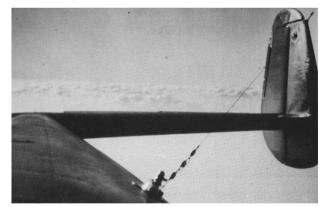
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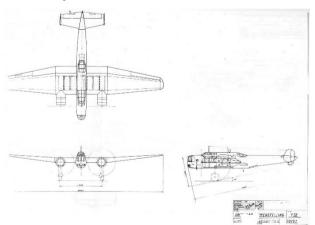
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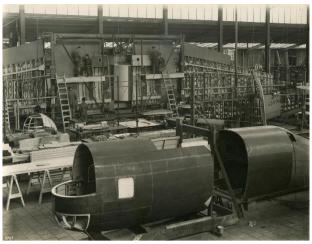
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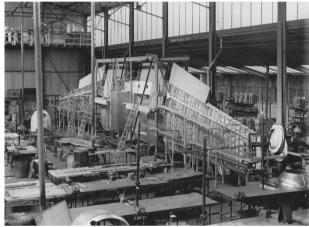
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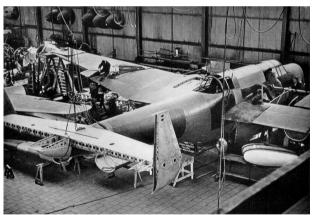
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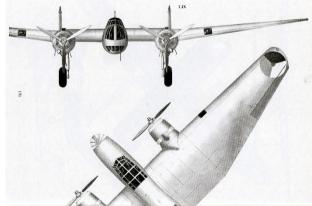


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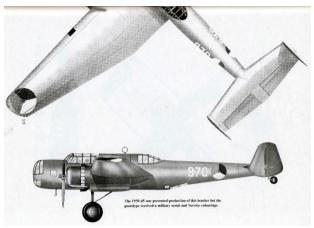


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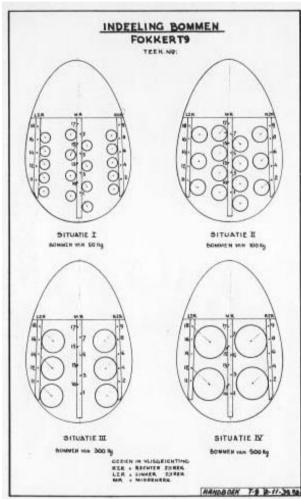
[Source: ref 3]



[Source: ref 3]

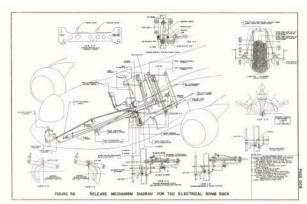
Bomb bay

In my Fokker T.IX documentation I have only found one picture related to the accommodation of the bombs in the bomb bay.



[Source: ref. 5]

According to information I have received [ref. 16] the bomb bay arrangement was probably like the one of the Glenn Martin 139 B-10, as served with the KNIL-ML. The following illustrations are taken from the handbook of that aircraft.



[Source: ref. 16]



[Source: ref. 16]

Main difference is that the T.IX had also a bomb rack in the center of the bomb bay.

From the internet I found some more information of the arrangement of bombs in the bomb bay.





Based on these data I have conceived the modelling of the bomb bay interior.