

# Koolhoven F.K.43 HA Models resin kit

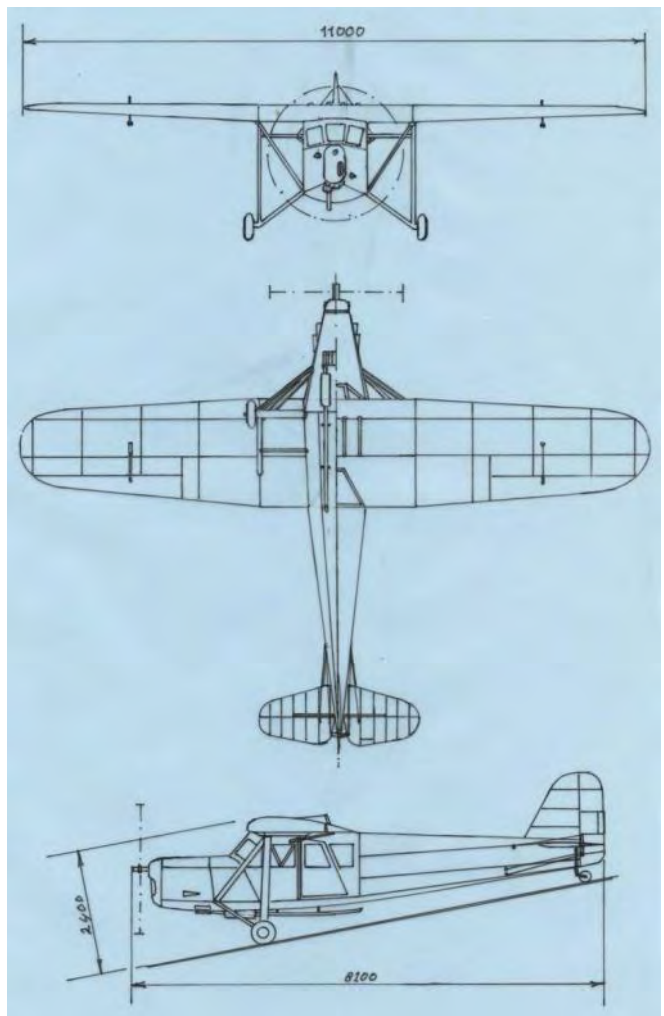
## Monoplane touring and taxi plane

Scale 1:72

The Koolhoven F.K.43 was a design of 1931, produced until 1938. The F.K.43 was of mixed construction with a wooden wing, covered with plywood, and a steel tube fuselage, the aft part covered with linen, the cabin part with ply and a metal sheet cowling. The F.K.43 has served satisfactorily with the KLM from 1932 to 1940 as a trainer and taxi plane and several private customers used it as a touring plane. The second series of the aircraft produced for the KLM was slightly improved relative to the prototype and the first series; it had a more streamlined belly and plywood covering of the cabin walls instead of linen. The two sliding/rotating doors giving access to the front seats disappeared and the cabin door moved from starboard to port. Two aircraft were delivered later as replacement for aircraft lost in accidents. They differed from the second series by their smaller cabin windows.

One aircraft of this later delivery, the PH-ASN, survived the war, as it escaped after the capitulation on May 15<sup>th</sup> 1940 to England and served with the R.A.F. as liaison aircraft. It has been returned to the KLM in the Netherlands in November 1945 and flew with the National Flying School in Rotterdam as PH-NAU until September 1952. It was also used by the Delft University of Technology for research in the field of boundary layers. This aircraft, registered as "965", was also one of the two that were requisitioned by the ML (Militaire Luchtvaart, military Air Force) prior to the war. The aircraft was scrapped in 1955.

The kit is based on a scratch build model I had built before, so this building report is an unusual one, criticizing my own product. The kit comes in a carton box and contains the resin, some plastic and brass parts,



templates, ALPS and laser printed and decals for six different versions, all packed in separate plastic bags, a twelve page booklet with building instructions and suggested painting scheme and a drawing based on a drawing (the only one left) of the aircraft, which has been made by the Delft University of Technology (DUT, at the time the drawing has been made known as Technische Hogeschool Delft, TH Delft) to document their boundary layer tests.

The decal sheet, illustrated in the figure below, includes decals for the PH-AKC Citroenvlinder of the second series KLM F.K.43s, the PH-ASN in KLM livery (Nonvlinder), the ML version "965", the RAF version FK43, the PH-NAU in NLS finish and the PH-NAU as flown in the TH Delft research project. The sheet at the left has been laser printed; the two sheets at the right have been printed with an ALPS printer. The windscreen window frames have been printed in silver. Decals for the black edged orange rudder for the ML version fit the actual rudder well. The instruction booklet of the resin kit includes a full description of the decals for each F.K.43 variant. The decal sheet does not include the orange triangles and the RAF roundels; they will have to come from commercially available decals sheets. Although many of the texts were very small, they were well printable and readable. The decals have a continuous top layer of Microscale Liquid Decal Film, hence need to be cut as close to the objects as possible.



I have built the PH-NAU in the painting scheme of the Nationale Luchtvaartschool (NLS, National Flying School).

Aircraft main characteristics are:

	<i>Ref.</i>	<i>1:72</i>	<i>model</i>
<i>Span</i>	11.00 m	152.8 mm	152.7 mm
<i>Length</i>	8.20 m	116.7 mm	115.3 mm
<i>Height</i>	2.40 m	33.3 mm	34.0mm
<i>Engine</i>	De Havilland Gipsy Major I, 130 hp		
<i>Crew/passengers</i>	1/3 <sup>1</sup>		

The model is well to scale.

## Parts

The resin parts are finely moulded and contain very few air bubbles and flash. Some parts, like the control stick and the aileron balance weights, are very small and thin, and have to be handled with care. The cabin sidewalls are on some places only 0.5 mm thick and may break when bent under force.

In a separate bag styrene and brass parts are included; styrene rod of 0.5 mm diameter to model fuselage frame parts not reproduced in resin and the tail support struts, 0.8 mm rod for the rear wing struts and a tube to model the cabin heater heat exchanger. A length of 0.5 mm brass rod serves to produce the connection between the main landing gear and the wing. A piece of brass 0.4 mm wire serves to make the connection between the heat exchanger and the fuselage underside and may be used to produce pins to attach the horizontal tail planes.

The kit includes an addendum to the building instruction booklet containing directions to correct the faulty rear spar panel line on the upper surface of the port wing. The suggested repair method, filling the faulty panel line with cyanoacrylate glue and engraving a new line on the correct position, works well.

## Fuselage

The fuselage is built up from four parts: the aft fuselage, two cabin sidewalls and the nose. I have cleaned these parts and the wing and dry fitted them carefully. The dimensions of the sidewalls have been





corrected to obtain a well-aligned fuselage and a perfectly fitting wing. The integrally moulded frame tubes have to be adjusted a bit at the top to obtain a smooth fitting wing.



I have glued the sidewalls to the rear fuselage and attached the stabilizer halves to the fuselage. These last parts are too thin to use metal pins for attachment, so I have already made the support struts to size to get a sturdy assembly. The location of the attachment points is clearly indicated in the four-view drawing.



I have painted the cabin inner walls and the floor according to the instructions (mahogany walls and dark vermilion floor with light grey tubing). Painting the fuselage tubes, which are moulded with the walls, is a bit difficult and the walls needed some rework afterwards. The throttle, moulded on the port wall, has been painted dark grey.



Next I have fitted the passenger bench in the fuselage and adjusted the width until it fitted between the walls. The bench and the seats have also been painted as suggested in the instructions and have glued them to the rectangles moulded in the cabin floor. I have made seat belts from strips of Tamiya tape glued on aluminium foil, painted these tan and silver and glued them to the seats.

I have drilled holes in the instrument panel on the moulded places of instruments and have painted the panel dark grey. I have glued a piece of black painted 0.25 mm styrene between it and the dials have been scratched in it with a sharp pin. The compass has been finished with a gold ring around the top (Humbrol enamel gold resembles brass quite well) and a light blue top.



### Cockpit and cabin

After repairing the small defects of the resin prototype seats, I have painted their lower part of dark grey and the remainder of the seats leather and have mounted them on the small squares moulded in the cabin floor. The headrests of the bench seat have been painted white. I have made seatbelts from Tamiya tape glued on aluminium foil, painted cream with aluminium buckles.



I have mounted the nose to the fuselage, adjusting it carefully with the underside of the cabin windows and the lower side of the fuselage. I have sanded the sidewalls flush with the nose and have treated the joint at the fuselage underside with Tamiya putty. I had to cut a small piece of the rudder bar to fit it into the nose. I have mounted the instrument panel to the nose; the joint needs quite some putty to obtain a smooth surface. The length of the control stick has been adjusted and has been mounted in front of the pilot seat.

The oil cooler has been mounted under the nose. The joint under the nose also required quite some putty. After sanding the surface smooth I have given the fuselage a first coat of Vallejo Model Air aluminium. This revealed many irregularities, which have been repaired with putty and sanding. I have also painted the door aluminium.



I have chosen to mount the door in a closed position. A drop of cyanoacrylate glue has simulated the hinges and the door handle has been made of a tiny bit of strip. There was quite some gap between door and doorframe, which I have closed with Tamiya putty. I have also drilled the holes in stabilizer and fin for the rigging lines.



The cabin windows have been cut to size trial and error and have been glued sparingly with Microscale Kristal clear, applied in the corners with an end of metal wire.

Next I have applied the laser printer decals to the fuselage, starting with the cheat line from the nose just under the windows, then the registration and the last bit of cheat line. The text NATIONALE LUCHTVAART-



SCHOOL has been placed under the cheat line and under the forward cabin window and the door window and the text KOOLHOVEN FK43 above the cheat line on the nose.

To produce the frame tube between the centre of the instrument panel and the top right corner of the fuselage frame I have cut a piece of light grey painted 0.5 mm diameter rod to size and glued it in place.



### Wing

I have painted the wing aluminium, except for the part that will form the cabin ceiling, which has been painted light grey, and have applied the decals on the upper side of the wing at roughly the same place as the registration on the KLM aircraft, and on the underside slightly more in board, next to the landing gear mounting points.



### Tail surfaces

I have removed some material from the inner edge of the elevator halves to give more room for rudder deflection. The elevator halves have been painted aluminium, the rudder red, white and blue. The elevator halves have been painted aluminium and the rudder red, white and blue. I have glued 2.5 mm high PE control horns to the control surfaces and painted them light grey.



### Wing-fuselage assembly

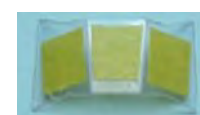
I have cleaned the gluing area on top of the cabin walls and along the cabin ceiling moulded with the wing underside by scraping the paint away with the point of a scalpel and have fixed the wing in place with thick cyanoacrylate glue, aligning it well with the fuselage.



I have glued one of the paper copies of the windshield template on a piece of transparent plastic with Kristal Klear and have cut out the windshield after lightly carving the folding lines with a knife. I have bent the windshield in the correct shape and have by trial and error cut it to fit between wing and nose. The Kristal Klear traces could be removed easily with a wet cotton stick.



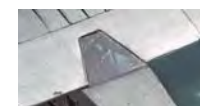
Next I have glued a paper windshield template to a piece of Tamiya tape to produce the paint masks for the windows. However, it was impossible to separate the tape from the template: the paper simply split. The same happened when I used a carton template, so in the end I have glued the template with Kristal Klear on a piece of 0.13 mm thick plastic sheet and a piece of tape on the other side of the plastic. After cutting the mask and separating them from the plastic I have positioned them on the windshield. I have painted the windshield aluminium and have removed the paint masks. The ragged edges will be retouched once the windshield has been glued in place.



Using white (wood) glue, I have first glued the side edges of the windscreen to the fuselage. Next I have filled the gaps at the top and bottom of the windshield with white glue. When dry, the edges have been painted aluminium. Inaccuracies in painting on the transparent material have been cleaned with the tip of a (fine) toothpick.



I have cut the window in the cabin ceiling/wing to size. I have glued the window with some small drops of Microscale Kristal Klear. The small gap at the forward side between window and wing I have filled with a bit of white glue.



### Undercarriage and wing struts

I have drilled a 0.5 mm hole in the top of the main landing gear struts and have glued a piece of brass rod, provided in the kit, in the hole. I have kept the length of the rod slightly more than recommended in the building instructions to get a more realistic "damping length" of the shock absorbers. The rods have been cut to their final length, ensuring that the wing was purely horizontal when the model was resting on the main landing gear legs.

The V-struts of the landing gear have been fitted and their length corrected to fit well to the fuselage underside (in this case I had to correct only one of the four struts). I have secured the legs in a slightly forward leaning position with drops of cyanoacrylate glue.



Next the rear wing struts, made from 0.7 mm styrene rod, could be mounted. I have taken care to leave the cabin door free. Lastly the forward streamline struts have been mounted. I have made them to fit well by trial and error, correcting bit by bit length and shape of the end of the struts. All struts have been painted aluminium (I have not applied primer, as the Vallejo paint covers well, when directly applied to the resin and plastic).



I have painted the tires tank grey and the wheel hubs aluminium. The wheel axels have been shortened, such that the wheels could be mounted on the correct distance from the main landing gear strut. I have glued the main wheels in place and have placed the tail wheel slightly deflected to the left. I have also temporarily placed the propeller, painted aluminium, in the hole in the nose. I have painted the tips of the propeller dark blue, as could be seen on some of the pictures of the PH-NAU.



I have cut and sanded the cabin heater heat exchanger to size as indicated in the building instructions and have mounted it to the exhaust tube, and I have made supports from small pieces of streamline profile. Now I could mount the exhaust, which I had painted steel beforehand, under the fuselage. It needed very little adjustment. I have made a curved tube leading from the heat exchanger to the cabin floor from a piece of 0.5 mm brass tube, glued it in place and painted it steel.



Next I have mounted balance weights and control horns to the ailerons and have glued them in deflected positions to the wing after having painted them aluminium. I had to sand some material from one wheel to get the wing horizontal.



I have made the fin rigging lines from 0.06 mm black lacquered fishing line, fed through 0.3 mm holes drilled through the fin and the stabilizer halves. The wires have attached with pieces of tape, have been tensioned and fixed with a drop of cyanoacrylate glue.



I have also inserted pieces of fishing line in the slanted holes in the wing, aiming them as much as possible to the place where they have to be attached to the aileron balance weight, fixing them also with superglue. I have cut them to the correct size and glued them to the weight bracket. I have repeated this process on the top side of the wing.



The elevator halves and rudder have been glued in place, the rudder deflected to the left, as the tail wheel, the elevator downwards, both corresponding to the deflection of the control stick. It appeared that the control horns were a bit big; they hardly left the stabilizer support styles free, so it is advised to limit their length to 2 mm.



I have glued grey painted PE control horns in superficially drilled holes in elevator halves and rudder. I have made the control cables also from 0.06 mm black painted fishing line, have inserted pieces of it in the slanted holes in the aft fuselage and fixed them with a drop of cyanoacrylate glue in the holes and, when that had dried, to the PE control horns of the elevator halves and rudder. The excess line has been



cut off with a sharp knife and sharp pointed scissors. This completed the model. Comparing it to the prototype model, it has a more realistic appearance thanks to the slightly longer pins in the main landing gear legs.



Below some pictures of the completed model are shown.







## References

1. T. Wesselink & T. Postma, *Koolhoven, Nederlands vliegtuigbouwer in de schaduw van Fokker*, pp. 67-70, ISBN 90 228 3890 0, 1981
2. T. Wesselink, *Koolhoven Vliegtuigen*, pp. 208-209, 211, 214, ISBN 978-90-818510-2-2, 2012
3. Anon., *Koolhoven Vliegtuigen, 1910-1940*, pp. 3, 5, 1940
4. NVM drawing 50.00.016, 1997
5. H. Van der Meer, *F.K.43 documentation, private mail exchange*, Aviodrome, 2017
6. D. Top, *Frits Koolhoven en zijn Vliegtuigproductie*, pp. 69-71, 73-74, 1996
7. TH Delft report VTH-45, 1951
8. TH Delft, Dictaat volgnummer 9, 1952
9. H. Hooftman, *Van Brik tot Starfighter, Deel I: Met stofbril en leren vliegakap*, p. 189, La Rivière & Voorhoeve, Zwolle, 1962
10. LVK (Luchtvaartkennis) archive
11. H. Hooftman, *Nederlandse Vliegtuig Encyclopedie, Burgerluchtvaart in Nederland, Deel 3; Van PH-AJA tot PH-AKZ*, pp. 5, 32-28, 56, 92-94, Cockpit-Uitgeverij, Bennekom, 1981
12. T. Wesselink & T. Postma, *De Nederlandse Vliegtuigen, Alle vliegtuigen ooit in Nederland ontworpen en gebouwd*, p. 79, Unieboek B.V., Bussum, 1982
13. T. Postma, *Vermetele vliegende Hollanders*, p. 58, ISBN 90 228 3987 7, De Haan, Bussum, 1975
14. P. van Wijngaarden, N.V. Koninklijke Maatschappij De Schelde, *Afdeling Vliegtuigbouw*, Wiel Eijdens, Eyselshoven, 2014
15. W. Schoenmaker & T. Postma, *Klu Vliegtuigen, De vliegtuigen van de Koninklijke Luchtmacht vanaf 1913*, p. 76, ISBN 90 6013 966 6, 1987
16. J. van Tuyl, *Onvergetelijke vliegtuigen, Reis door de Nederlandse luchtvaarthistorie, "1935"*, ISBN 90-5978-0300, 2006
17. T. Wesselink, *F.K.43 documentation, private mail exchange*, 2017
18. D. Top, *F.K.43 documentation, private mail exchange*, 2017
19. H. Mooren, *F.K.43 documentation, private mail exchange*, 2017
20. S. Biemans, *F.K.43 documentation, private mail exchange*, 2017
21. F. Gerdessen, K. Kalkman, C. Oostveen & W. Vredeling, *Fokker G-1, Jachtkruiser - deel 1*, ISBN 978-90-8616-110-2, 2011
22. *Vliegwereld, Jaargang 2, No. 6*, 1936



**Appendix F.K.43 documentation**

**Paint table PH-NAU**

H = Humbrol enamel, R = Revell Aqua, V = Vallejo

Code	Colour	Where
H15	Midnight blue	Forward part of engine cowling, propeller tips
H14	Blue	Rudder
H16	Gold	Top edge of compass
H19	Red	Rudder
H21	Black	Backing of instrument panel
H22	White	Bench head rests, rudder
H47	Light blue	Top of compass
H62	Leather	Seats
H103	Cream	Seatbelts
H123	Dark grey	Instrument panel, housing of throttle, floor in nose section, bottom of seats
H129	Light grey	Fuselage tubes, sides of nose section inside, ceiling of cabin, inside of windshield, control horns elevator and rudder
V70.846	Mahogany	Cabin walls inside
V70.947	Dark vermilion	Cabin floor
V71.036	Mahogany	Cabin walls inside
V71.062	Aluminium	All outer surfaces, seat belt buckles
V71.065	Steel	Exhaust
R36178	Tank grey	Tires

**Photographs**

Only photographs of the specific aircraft modelled (the third KLM series of the F.K.43 PH-ASN, the 965, the RAF FK43 and PH-NAU) have been included.



[Source: ref. 1]



[Source: ref. 12]



[Source: ref. 15]



[Source: ref. 17]



[Source: ref. 17]



[Source: ref. 17]



[Source: ref. 18]



[Source: ref. 20]



[Source: ref. 20]

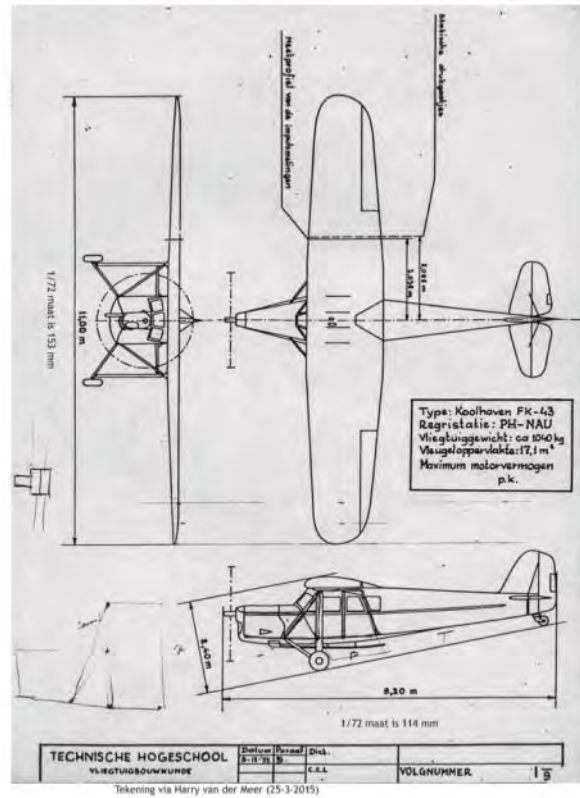


[Source: ref. 21]

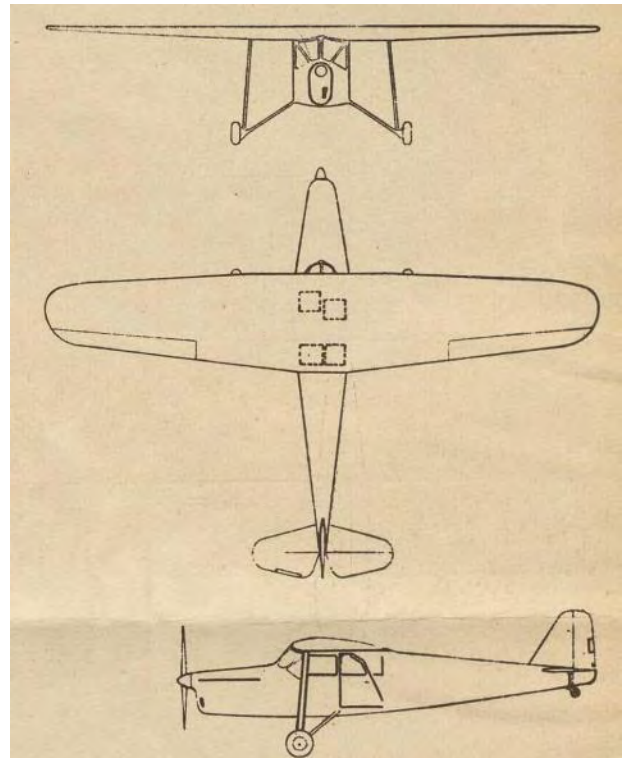


[Source: ref. 20]

Drawings



[Source: ref. 5, 7]



[Source: ref. 22]

<sup>1</sup> Two crew and two passengers in the trainer version with double controls. The references do not mention whether these double controls were always present or that they were mounted only when needed for training, neither is mentioned whether all F.K.43's could be configured as trainers. Neither is mentioned, whether the PH-NAU has been used for pilot training at the NLS.