

Koolhoven F.K.43 HA Models resin kit

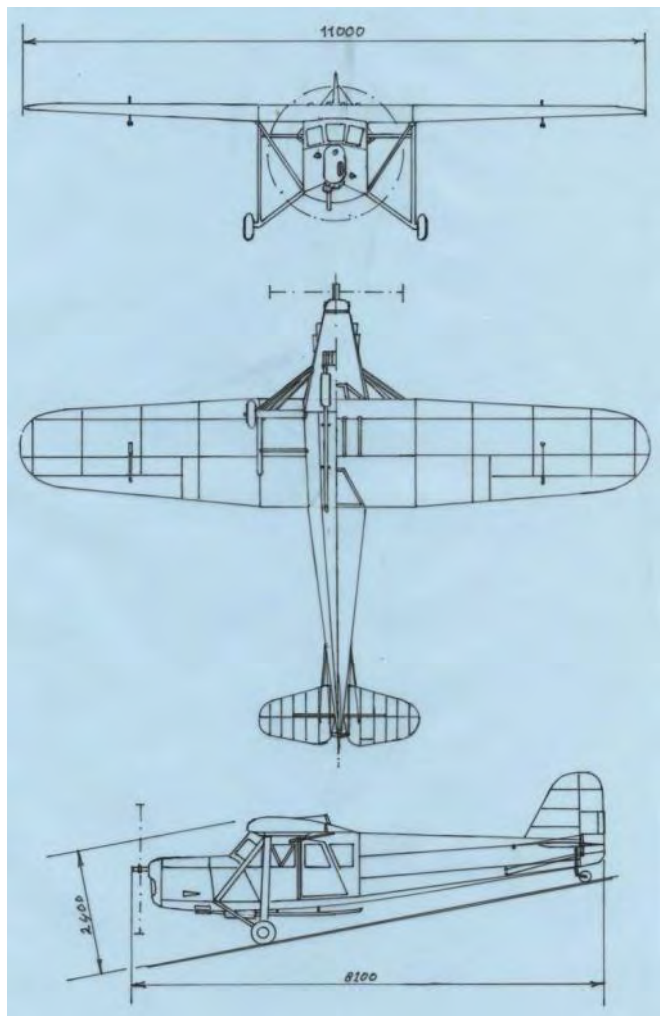
Monoplane touring and taxi plane

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.

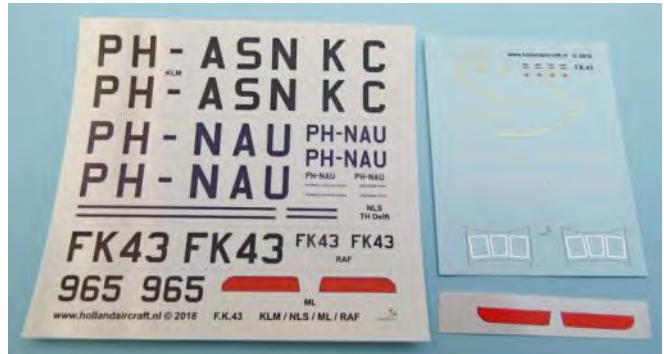
One aircraft of this later delivery, the PH-ASN, survived the war, as it escaped after the capitulation on May 15th 1940 to England and served with the R.A.F. as liaison aircraft. It has been returned to the KLM in the Netherlands in November 1945 and flew with the National Flying School in Rotterdam 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	152.4 mm
<i>Length</i>	8.20 m	116.7 mm	116.9 mm
<i>Height</i>	2.40 m	33.3 mm	32.4mm
<i>Engine</i>	De Havilland Gipsy Major I, 130 hp		
<i>Crew/passengers</i>	1/3 ¹		

The model is very 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

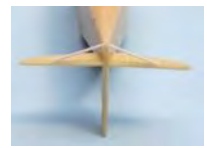
The fuselage is built up from four parts: the aft fuselage, two cabin sidewalls and the nose. I have cleaned these parts and the wing and dry fitted them carefully. The dimensions of the sidewalls have been



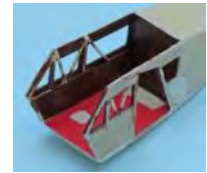
corrected to obtain a well-aligned fuselage and a perfectly fitting wing. The integrally moulded frame tubes have to be adjusted a bit at the top to obtain a smooth fitting wing.



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.



The control surfaces have been painted in advance. I have glued PE control horns to elevator halves and rudder and the balance weights and control horns cut from 0.4 mm plastic to the ailerons. To fix the PE control horns easier I have drilled superficial holes at the location of the attachment points.



Picture of elevator and rudder

Wing-fuselage assembly

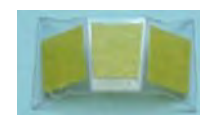
I have cleaned the gluing area on top of the cabin walls and along the cabin ceiling moulded with the wing underside by scraping the paint away with the point of a scalpel and have glued the wing in place with thick cyanoacrylate glue, aligning it well with the fuselage.



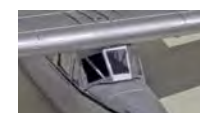
I have glued one of the paper copies of the windshield template on a piece of transparent plastic with Kristal Klear and have cut out the windshield after lightly carving the folding lines with a knife. I have bent the windshield in the correct shape and have by trial and error cut it to fit between 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).



Final assembly

I have given wing, ailerons and propellers a coat of Vallejo grey primer and have airbrushed one layer of aluminium on it, which was sufficient. As usual it showed some irregularities, which I removed with grain 1200 sandpaper and retouched with a brush. I have painted the cabin “ceiling” light grey, estimating the shape of the part under the wing leading edge with the template for the windshield. When the paint had dried well, I have given the wing a coat of Vallejo gloss varnish and have applied the decals. This can be optically corrected for by centring the decals vertically between the panel lines.

I have painted the tips of the propeller, which had been airbrushed aluminium together with the wings, white and have applied the red, white and blue decals to the tips. They attached with difficulty and I have used some diluted Kristal Klear to improve the adherence. I have also applied the decals for the Hamilton Standard logos to the propeller.



Propeller and exhaust



I have made the long exhaust from a 0.8 mm diameter brass tube, bent in the right shape. I have given the engine side a slanted cross-section and have squeezed the other end a bit, as could be seen on the photographs. For my model I have used a resin copy of the exhaust pipe. The heat exchanger



for the cabin heating I have made from an 8 mm long, 2.8 mm diameter styrene tube. The supports have been made of small bits of 0.4 mm plastic sheet, included in the kit, and the connecting tube of a piece of 0.4 mm diameter brass wire.

I have shortened the stub axles such that the main wheels could be mounted close to the landing gear struts and have glued them in place. I have provided the tail wheel with a piece of 0.4 mm brass rod and have glued it in a hole in the aft fuselage underside.



I have repainted the exhaust with Vallejo Model Air steel and have glued it under the fuselage. The small tube connecting the heat exchanger with the cabin I have made from 0.3 mm brass wire.



I have used white resin copies of the aileron balance weights, as the standard resin ones were not available yet.

I have glued the control surfaces to tail and wing with two drops of thick cyanoacrylate glue, fixing them in the right deflection angle with pieces of tape.

In the process I lost the two control horns under the elevator halves; they in-



terfered with the tail plane struts. So I have cut new control horns, less than 1.5 mm high, from a piece of 0.4 mm thick plastic and have glued them in place.



I have also made the vertical bar in the cooling aperture of the cowling, which is typical for Gipsy Major engines. I have used 0.2 mm metal wire for it.

I have drilled holes in stabilizer halves and fin to accommodate the rigging wire and have fed 0.06 mm silver painted fishing line through them, fixed the fishing line with a drop of thin cyanoacrylate glue in the



holes and cut the excess line.



In the process of handling and cleaning the model I have damaged a couple of ALPS decals. Apparently they are insufficiently protected when sealed with satin varnish only; it is better to seal them with gloss varnish before applying the final layer of satin varnish.

elevator control horns was very difficult. This was caused by the large deflection of the elevator halves and the little room available. As a result the cables were not tensioned as tight as they should have been.

Applying the control cables, made of 0.06 mm black painted fishing line, to lower



Prior to final cleaning and retouching the satin varnish I have glued the cabin door in open position in the door opening with a couple of drops of thick cyanoacrylate glue.



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 vlieglap*, 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, Eijgelshoven, 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
H	Red	Rudder
H	Blue	Rudder
H16	Gold	Top edge of compass
H21	Black	Backing of instrument panel
H22	White	Bench head rests, rudder, propeller tips
H47	Light blue	Top of compass
H62	Leather	Seats
H	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
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, of the 965, the RAF FK43 and PH-NAU, have been included.



[Source: ref. 1]



[Source: ref. 12]



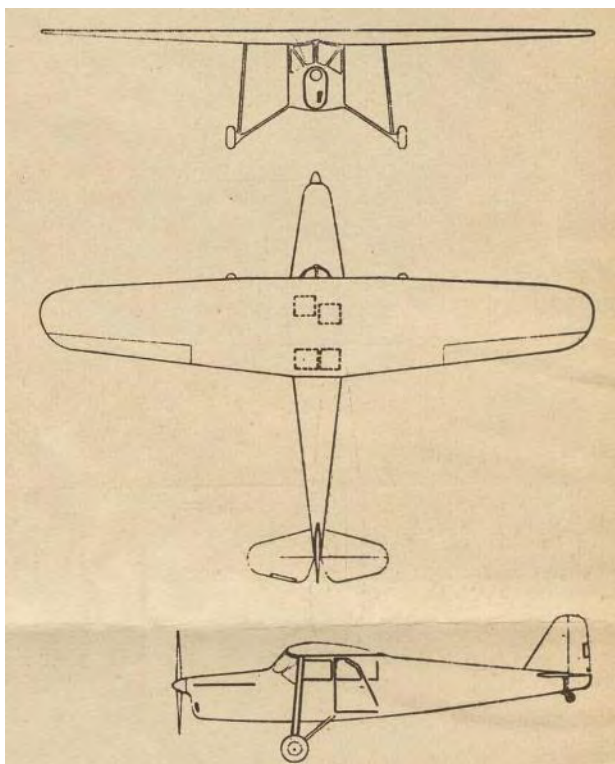
[Source: ref. 15]



[Source: ref. 17]



[Source: ref. 17]



[Source: ref. 22]

¹ 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.