

FOKKER E-III

This Fokker E-III "Eindecker" comes from the drawing board of well known German model designer Berni Huber. Just the thing for WW I contests or general sport flying for those who enjoy realism.

Antiques have always fascinated us, for this purpose, a damaged type H was rebuilt at Schwerin. However, the details, see reference Profile Publication No. 38, "Fokker Monoplanes".

Therefore, it is no wonder that the Fokker E-III caught our eyes. This ship had a clean and simple construction for its time, which makes it easy to model. A monoplane further, as the name implies (ein, or one decker) has only one wing, which keeps the building expense down to the minimum.

From the somewhat primitive Fokker Spider of 1910, a whole series of monoplanes followed, which all had basically similar construction characteristics. Later planes (1912-13) were marked with M1 and M2 (the M stands for military): these were followed by the M.3, M.3A and M.4. These models proved unpopular with their pilots. By the end of 1913, the M.4 was declared a failure, whereupon Fokker abandoned the construction of this aircraft and took on his former assistant Martin Kreutzer.

Fokker had to produce a successful new design if his firm was to survive. In 1913 he had seen a Morane-Saulnier type H monoplane at John nisthal, which impressed him. This plane had achieved a number of successes that year so Fokker was determined to copy it.

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The French types, as only the principal shapes were copied ... the structure was completely new and considerably stronger than the Morane-Saulnier. This new Fokker monoplane was given the number M.5, and after the 80 HP Gnome engine was available, it was successfully flown. Two variations, one with a shorter and one with a longer wing span were tested, whereby the type M.5L (longer) proved somewhat slower, but in return was better handling.

Mounted with a LMG 08 (light machine-gun), these planes were given the military marking E-I. Later the E-II was built, whereby the wing area was reduced, to give a hoped for increase in the aircraft's speed. Unfortunately however the E-II proved more difficult to fly. The wing area was enlarged again and received the name Fokker E-III, (type number Fokker M.14), which proved very successful. A total of 600 Fokker monoplanes were built and were used successfully on all fronts.

There were considerable variations

The model is a free supported middle design, whereby the cabling has a more decorative character. The fuselage has a simple solid box construction. The engine is bolted to an aluminum plate hanging on the first fuselage former. The top part of the revolving (scale) motor is covered with balsa. The wheels and related parts have been directly copied and are equipped with guide rods and telescopic legs. The all flying stabilizer and rudder are true to the original.

The wings are laid out in two parts whereby they are fastened with two music wires in typical soaring glider fashion. This method is relatively simple and clean, but has the disadvantage that it cannot stand on scale maneuvering. Without a doubt, however, it is strong enough for stunt flying when flown "softly". The cabling is only symbolic and made of rubber band. Those wishing to go all out should use stranded wire rigging similar to Lou Proctor's Antic.

Flight behaviour of the E III has proven good, though it is not quite what you would



Here we have the "up, up, and away" routine as the Eindecker climbs out after takeoff. The big engine is nice for getting off the ground, but after that 1/4 power is plenty for most flying.

call a trainer. It is controlled by elevator, rudder and throttle; we decided against the ailerons. We chose a relatively powerful engine that turns a large propeller slowly. A level flight is achieved with 1/4 power, which gives a realistic sound in contrast to the howling noise of a model engine at 13,000 revolutions. A muffler totally enhances the scale flight and sound of the model.

In the air, it is a real joy to maneuver the Fokker E-III. One must get used to handling the model as a full scale aircraft. The flight altitude is controlled by the power of the engine: to climb, one must give a bit more power, the elevator is only used a little.

Landing is not critical, and thanks to the give of the soft landing gear, it's even possible on rough ground. Tall grass is not advisable as it would catch in the excess of wire landing struts.

The plan of the Fokker E-III gives the basic concept of the model. With our "true to life" model we have emphasized that it represents the original, although, in favor of less building expense and weight, we have

not carried it to the last detail. However, the plan incorporates the basics for a scale-model. If you wish to superdetail the model, refer to the Profile Publication.

BUILDING INSTRUCTIONS

Editor's Note:

Burni Huber lives in Germany and his model designs are based on materials commonly available there. Some of these materials are not so common here in the USA. A particular example is the 5/32 inch balsa plywood used for the bulk heads and outer shell of the Eindecker fuselage.

A modeler who is capable of scratch building from plans will have no problem making the substitutions and alterations necessary to achieve the end result, so we'll not attempt to make more than a few suggestions here and there.

Incidentally, we've seen that balsa plywood in Germany, and it's a GREAT building material.

Some of our manufacturers should look

into the possibility of producing it. The strength-to-weight ratio is phenomenal.

FUSELAGE

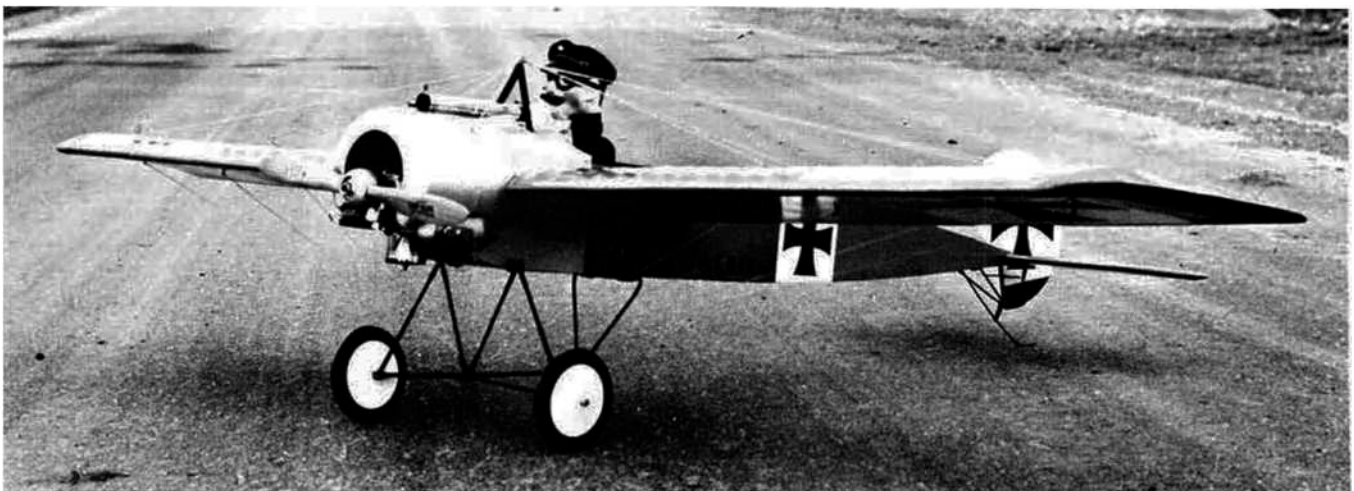
The fuselage is started upside down on a building surface for alignment. The side sheets F-16, the top F-18 and the formers are prepared (do not forget the blind nuts for engine mounting in former F-4); fix the parts on a flat building surface in such a way that F-4 hangs over the edge. The fuselage outline is formed by balsa blocks at the rear portion. The fuselage bottom can now be glued in place. Be sure not to forget the reinforcements.

That's all for the rough building of the fuselage. Glue the connection-ribs F-23 according to the dihedral and sand and glue fillers F-22 and F-9. You now can build up the engine cowl, based on former F-1.

The cover F-12 is now sanded until it fits into the fuselage and the stops F-13 and F-14 are glued. Now drill the holes for the brass tubes F-24 and epoxy in place. The struts F-10 and F-11 are prepared, glued and epoxied to the fuselage sides at the same time. The bracing pylon is built up by profiled Limba-strips. (Beats me. I'd use brass tubing). The MG (Williams "Spandau" or "Parabellum" machine gun) is mounted after finishing. The engine is bolted, with the back cover screws, to a rigid aluminum plate which, in turn, is bolted to the former F-4. Another possibility is to use commercially available engine mounts. If a smaller engine than specified is used, be sure to reduce down thrust by approximately 2 degrees.

LANDING GEAR

The landing gear is a problem and we advise not to begin with building before it has been thoroughly studied from the photos and the drawings.



Ship is 3 surprising combination of construction simplicity with excellent scale effect. Pilot looks a little oversize. Williams wheels, Veco .61

PARTS LIST

No.	Description	Material	Size
F 1	Engine cowl former	balsa	3/8"x6"x6"
F 2	Engine cowl planking	balsa	1/8"x2-3/8"x 20"
F 3	Engine cowl former	ply	1/8"x6"x6"
F 4	Former	ply	3/16"x6"x6"
F 5	Filler	balsa	3/8"x4-5/16x4-3/4"
F 6	Floor reinforcement	ply	5/32"x4-1/116"x6-1/2"
F 7	Auxiliary former	ply	5/32"x4-1/16"x1"
F 8	Former	ply	5/32"x4-1/16"x5"
F 9	Former	balsa	1-3/8"x4-5/16"x5-3/4"
F 10	Strut	limba	5/16"x1"x4-1/16"
F 11	Strut	limba	5/16"x1"x4-1/8"
F 12	Cover	balsa	5/32"x4-1/16"x7-11/1"
F 13	Stop	balsa	5/32"x5/32"x5"
F 14	Support	ply	5/32"x3/16"x4-1/16"
F 15	Former	ply	5/32"x4-1/16"x4-5/8"
F 16	Fuselage sides	balsa ply	5/32"x5-1/8"x40"
F 17	Fuselage bottom	balsa	5/32"x4-1/16"x30"
F 18	Fuselage top	balsa	5/32"x4-1/16"x28"
F 19	Reinforcement	ply	5/32"x3"x3"
F 20	Doublers	ply	5/32"x7/8"x1"
F 21	Cover	balsa	5/32"x3/16"x2-3/16"
F 22	Engine cowl imitations	balsa	1-1/8"x3"x4-1/8"
F 23	Ribs	limba	5/16"x1-5/8"x12"
F 24	Tubes	brass	3/16" I.D. tubing x5"
F 25	Pylon	limba	5/32"x5/16"x4"
F 27	Alum. Knee		see drawing
F 28	Wind screen	celluloid	see drawing
F 29	Instrument board	balsa	sec drawing
WING:			
W 1	Ribs	1/8" ply	see drawing
W 2	Ribs	3/32" balsa	see drawing
W 3	Auxiliary ribs	3/32" balsa	see drawing
W 4	Boom	spruce	5/32"x5/32"x27-1/2"
W 5	Spar Web	balsa	5/32"x3/4"x30"
W 6	Leading edges	balsa	3/8"x3/8"x27*1/2"

The E HI banks in for a deadstick landing. Ship is controlled with elevator, rudder, & throttle.

We first bend the rear triangle shaped stirrup, which is a unit together with the two guiding links. The guiding links are cut to length and the brass tubes, which we flatten after fitting, are soldered to the music wire. Then prepare the center horizontal guiding link which is soldered to the stirrup in the rear portion. Then build the two supporting struts and the telescopic legs. For the latter it is very important to find a compression spring with a smaller diam. than the wire, so the compressed spring can not be jammed in the tube. The plastic tube is used as a friction dampener. The bent axle is then made. Solder a collar to the two supporting struts for fixing the axle to prevent turning. The tail skid is made from 3/32 inch piano wire, bound and glued to the reinforcement plate F-19, and supported on the rudder bearing by the means of a brass collar. The bearings for both elevator and rudder are made up of 1/4"- 3/16" brass lubes, soldered according to drawing. Solder two fixing plates (inch brass sheet) to the horizontal tube, this allows the whole thing to be screwed to the fuselage. A 3/32" piano wire, lead through the lower brass collar, stiffens the bearings against F-19.

RUDDER

The rudder is cut out of a sheet, made up of three 3/32" balsa sheets, glued under a 60° angle. The 3/16 inch piano wire axle is epoxied in place after completely finishing the rudder. (There MUST be a better way.)

WINGS

The wings are built up in two separate halves. The main spar consists of the spar web W-5 and the two cap spars W-4. A 15/64 inch strip below the main spar and a 3/32 inch strip below the front edge of the trailing edge are



Pilot certainly couldn't complain about the view, though it might get a little breezy at times! Ship is a natural for WW I events that are so popular now.

used as a jig.

The fitting in of the brass tubes W-1 1 and W-1 2 into the ply ribs is a very important operation, because this position sets dihedral. The holes are exactly drilled after the section A-A in the plan, the brass tubes are epoxied to place and stiffened against the spar with balsa fillers.

Editor's Note:

To ensure equal and proper dihedral (2" under each tip), drill tubing holes in W-1 ribs slightly oversize. Block up wings on bench with tubes in place, joined to each other by pieces of wire dowel. When everything is in alignment, LIGHTLY epoxy tubes in place. After epoxy is set, dismantle wings from each other and install reinforcing balsa filler blocks. The brass loops (use small cup hooks) are used to strain a rubber band across the fuselage, which holds the two wing halves together. The smaller brass loops are used to fix the bracing imitation (made up of thin rubber bands.)

ELEVATOR

The elevator is also built up in two halves, epoxied to 3/16 inch piano wire. (I would use brass tubing and key it to stab with 1/16 wire through holes in tubing). Be sure to remove all grease from the wire by sanding it and clean it with Join the National Miniature Pylon Racing Association - - - send \$6.00, your name, address and AMA number to Gil Horstman, 613 Donner, Las Vegas, Nevada 89107.

