FOCKE WULF - 190

by K · H · HODGSON



INTRODUCTION

AS many people desire a true-to-scale replica of a prominent fighting 'plane of this war, this flying scale model of one of Germany's latest fighters should prove very welcome. As can be seen by the photographs, it looks extremely realistic.

The model is designed with a view to reliable flying and, even more important, to be as damage-proof as possible. Construction is therefore much stronger than necessary. Tests have proved that it can take very hard crashes without suffering serious damage.

For simplicity, all unnecessary details are omitted and the complete model is covered with black tissue, even to the propeller. This was thought preferable to coloured tissue or dopes and also gives a silhouette appearance against the sky. The crosses and swastikas are in white paper glued on to double-covered tissue.

As low wings look " ugly " when flying with an under-carriage in the " down " position, it is flown without one, but the " prop." and nose are protected by two wire skids which are invisible in flight. An undercarriage is provided for whoever wishes it.

The total weight is 10½ oz., which is not unduly heavy for its strength. Flying is realistic, having a gentle climb to about 40–50 ft., circling and gently coming down to make a perfect " belly " landing, with the last few turns, duration being from 20–35 sec. This performance should easily be improved upon as all flights have been with poor motors in unfavourable weather for this type of 'plane.

To the average aero-modeller, construction is not difficult, and all parts are detailed full size on the plan. The " three-blade prop." is probably the most difficult item to make, but anyone who has carved two-bladers will find

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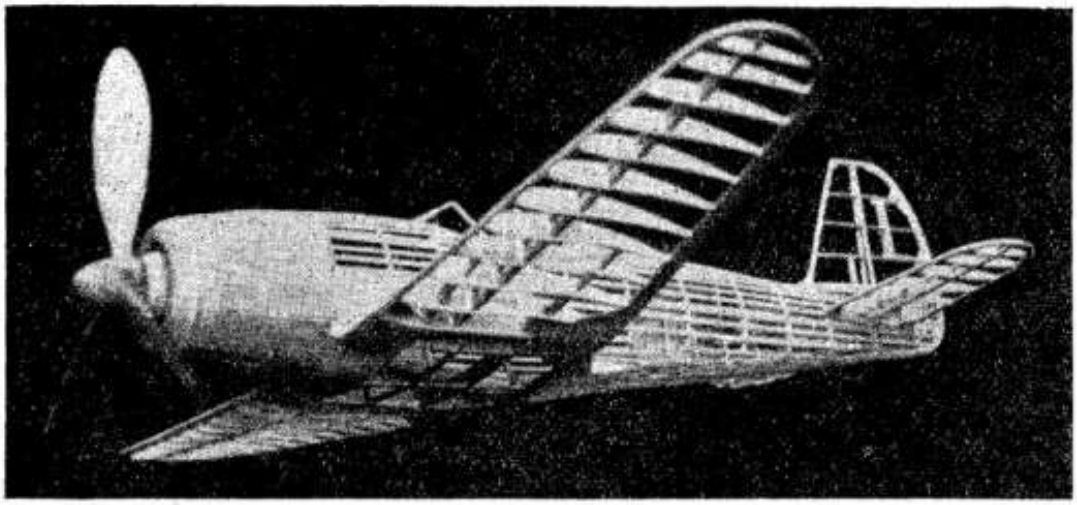
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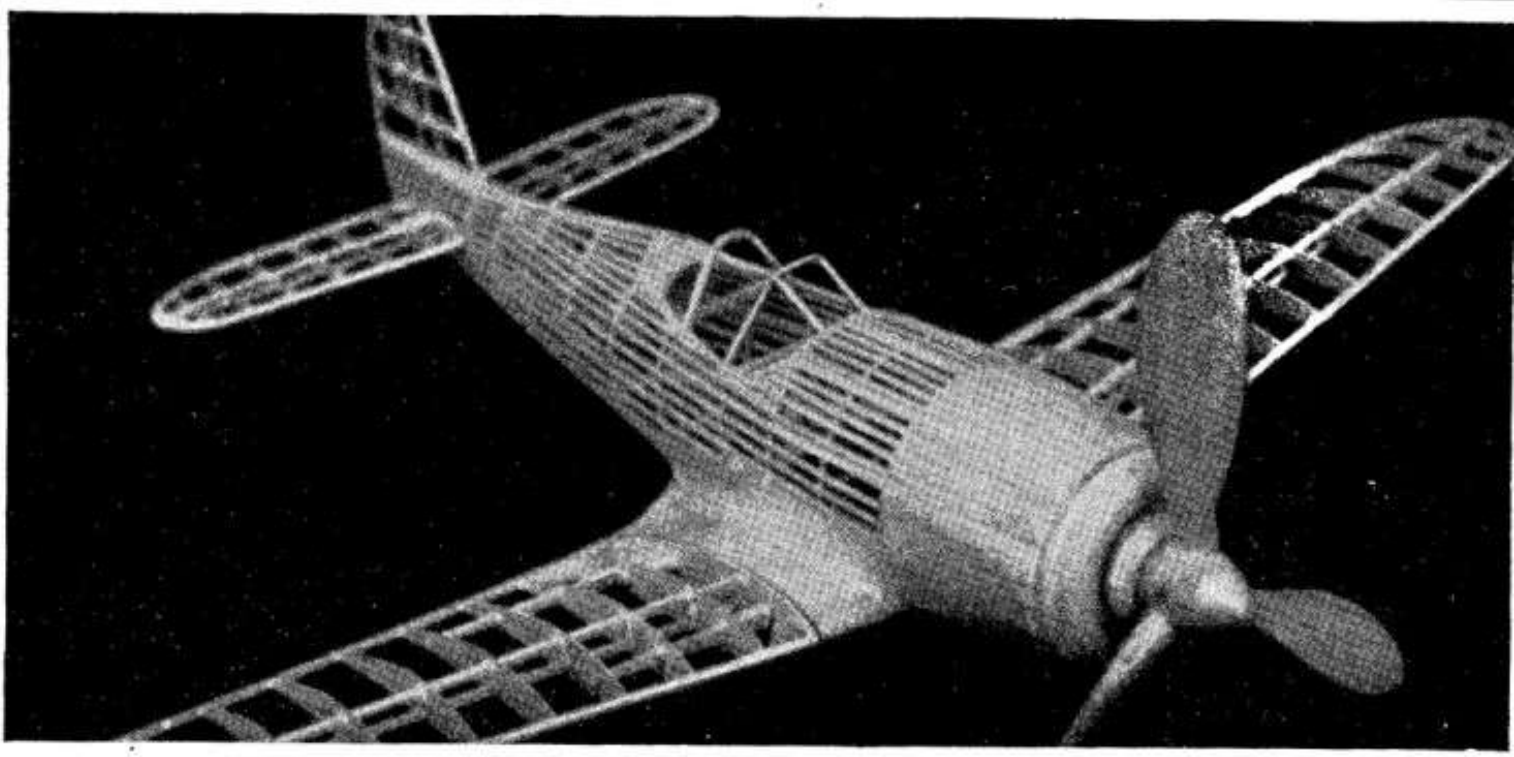
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it quite as easy. It might be added that the " prop." used was practically unbreakable, and after crashes into trees and power nose dives (before correct trimming), the only damage was one slightly split blade. A point which many builders favour is that the propeller is direct drive, no gears are used, or anything which requires soldering.

BUILDING INSTRUCTIONS.

Fuselage.

Many types of formers have been tried, and in the following, although heavier than usual, the strength compensates for extra weight. Most of them are out of 3/64 in. or thin 1/16 in. three-ply faced over with odd bits of $\frac{1}{8}$ in. balsa. The others are $\frac{1}{8}$ in. three-ply. They are all cut out with a fret-saw, and all fittings such as brass tubing, wing root spars and rear hook are fitted in position before commencing assembly of fuselage.

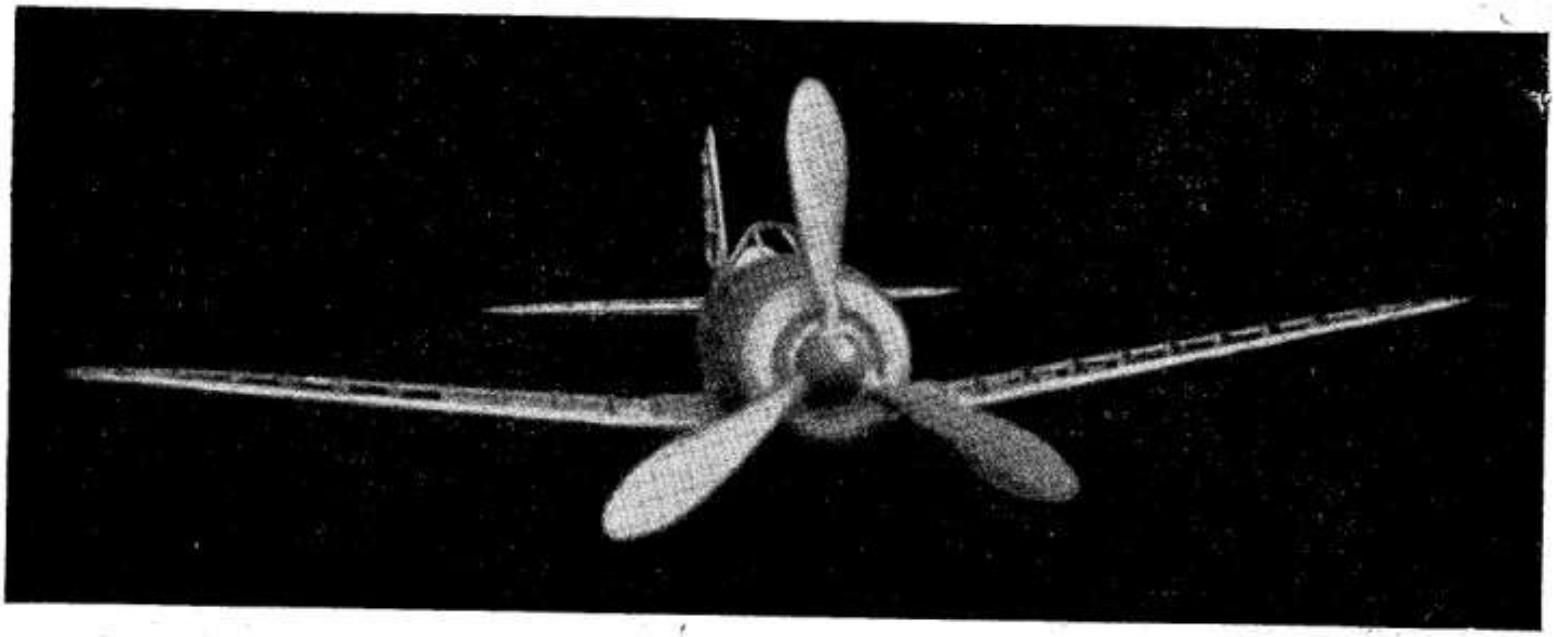
As no jig is used the ideal method is for the side and bottom full-length spars to have the " former " positions accurately marked on them from the plan. Construction is then commenced from the rear by pinning all the formers in position, also adding wing root ribs Nos. 1 and 2 and fin rib No. 1.

The framework is then viewed from the ends to check that all three spars line up straight and that there is no down or side thrust at the nose. Another check is to lay the framework on both views of the fuselage on the plan. When satisfied that it is correct all joints should be well cemented and other spars added in a suitable order.

The weight-box can now be built in, also cementing and binding the paper tubes in the wing roots. Sheet is now added where stated and finally the 1/32 in. by $\frac{1}{8}$ in. stringers, which need not necessarily be the full length provided that the joints do not all come on any one former. As balsa is short, 1/32 in. substitute can be used for both sheet-covered surfaces and stringers, but the rear half of the fuselage must be as near as possible *all balsa* as weight should be kept off the tail end. The nose-cowl is built up to shape from odd pieces of $\frac{1}{8}$ in. and 3/16 in. balsa.

Finally the cabin frame is added and the remainder of the fin. Complete job is rubbed down with fine sandpaper until all joints are smooth. For covering the cabin with celluloid it is possible that a slight error may have been made in the cabin frame, so paper patterns of the celluloid pieces are made from the drawing, checked for fit and any difference being





allowed for when cutting the celluloid (*note !*), the frame is first painted over with black ink.

Wings.

The wings follow the usual method of construction on the plan, only first of all the ribs are slotted on to the main spar, then pinned down. Leading and trailing edges are added and complete frame cemented except for rib No. 3, and paper tubes. These are cemented and bound after the wings have been fitted to the fuselage by the 5/32 in. dowels, and dihedral is checked to give 3 in. on each wing tip.

Wire hooks, brass tubing, etc., are cemented and bound in place, and cross-bracing added. When wings are complete, leading and trailing edges are shaped to agree with air-foil section. Wings are held in position by strong elastic bands, stretched from the hooks under the fuselage.

Tail.

The tail does not require much explaining, the construction is orthodox. The only point to bear in mind is that before cementing paper tubes, the tail should be fitted to the fuselage with wings fixed so that the tail lines horizontally with the fuselage. The tail is kept in position by the shaped wire which goes round the bottom of the fuselage, an elastic band looped over the fuselage holds the wire in position, the ends of which fit into the tube on each half of the tail. Incidence adjustment is carried out by moving the bottom part of the wire backwards or forwards. A pin fixes the wire in the required position.

Fin.

This is done at the same time as f selage. Except for rib No. 1 it is made separ. te and added to the fuselage.

Propeller.

This is made out of hardwood and although it requires a certain amount of skill, with patience and carefully following these instructions, its construction should not be beyond the average builder.

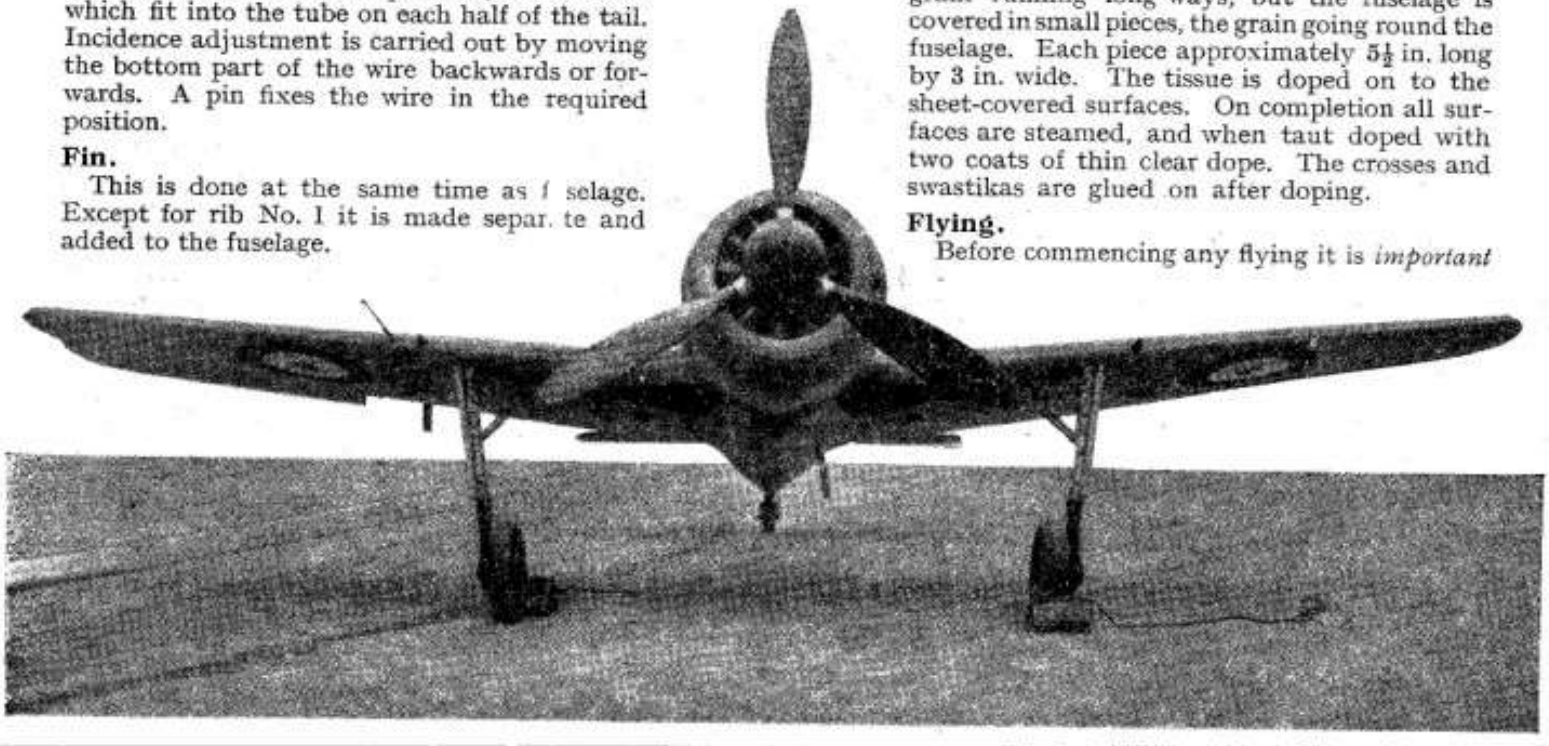
The three blanks are cut out, preferably with a fret-saw for accuracy, and the hubs are shaved down till all three are exactly $\frac{1}{2}$ in. thick. They are then glued and pinned with panel pins to the rear $\frac{1}{8}$ in. three-ply ring, which has centre hole already drilled. When dry the nose-spinner block (drilled, but unshaped) is glued on, but before quite dry the "prop." is spun on a 16 s.w.g. shaft to see that it runs true (i.e. that the spinner block is correctly centred). Finally small holes are drilled at correct angle for the screws and the screws put in. The "prop." can now be carved in the usual manner, the blades being hollowed out slightly. When balanced all blades are covered with one or two layers of black tissue, grain running across the blades. The spinner is coloured with black ink and complete "prop." with two coats of banana oil. Power is 14–16 strands of $\frac{1}{4}$ in. by 1/30 in. elastic, which is sufficient if the model does not exceed 10–11 oz. in weight.

Covering.

The wings and tail are covered in the usual way, grain running long-ways, but the fuselage is covered in small pieces, the grain going round the fuselage. Each piece approximately $5\frac{1}{2}$ in. long by 3 in. wide. The tissue is doped on to the sheet-covered surfaces. On completion all surfaces are steamed, and when taut doped with two coats of thin clear dope. The crosses and swastikas are glued on after doping.

Flying.

Before commencing any flying it is *important*



that the model, motored, etc., *balances* on the wing tips in the *position shown* on the plan or slightly forward to this position. It is unlikely that the model will be too nose-heavy but it should under no circumstances be flown tail-heavy. Lead can be added in the weight-box if required. A method which may also be used to take weight off the tail is to have an extended rear motor hook about two inches or more long which loops round the fixed hook.

The original model for reasons stated was flown without an undercarriage, but if it is desired, one fitted will greatly help stability for first test flights and can be removed later without upsetting the trim. When model is ready the tail is to be set at + 1°–2° incidence to the " prop." thrust line.

Glide by giving a fairly hard push almost level into the wind ; any further trimming is done by increasing or decreasing tail incidence, but it must be correctly trimmed for glide before power flights are attempted.

First flights can be made with about 200 turns on which the model *should* fly level and be made to fly in left-hand 60 ft.–70 ft. circles by *careful* adjustment of the trim-tab. With a greater number of turns, model will climb gently, and on full turns will reach about 50 ft. in height. No upthrust should be used unless the model does not climb. Should the " prop." torque turn the 'plane in small left-hand circles use 1/36 in.–1/16 in. sidethrust to counteract.

Finally, it is advised that the model is not flown in windy weather, but in any case should be launched at about 45° to the wind direction, the wind blowing from left to right.

1 in. to 1 ft. SCALE PLANS ARE AVAILABLE
SEE PAGE 893.

THE FOCKE WULF Fw 190 A-3

The full-size Focke Wulf 190, illustrated on these pages, is the best single-seat fighter which Germany has at present in service. It is powered by a 1,460 h.p. B.M.W. 801 D fourteen-cylinder, two-row radial motor with fan-assisted cooling.

Its maximum speed, as attained on a captured machine, is 375 m.p.h. at 18,000 ft., which is well below that of the R.A.F.'s fighters, but partial recompense is found in the exceptional powers of manœuvre it possesses. It is a good aeroplane, and has to be treated with respect.

