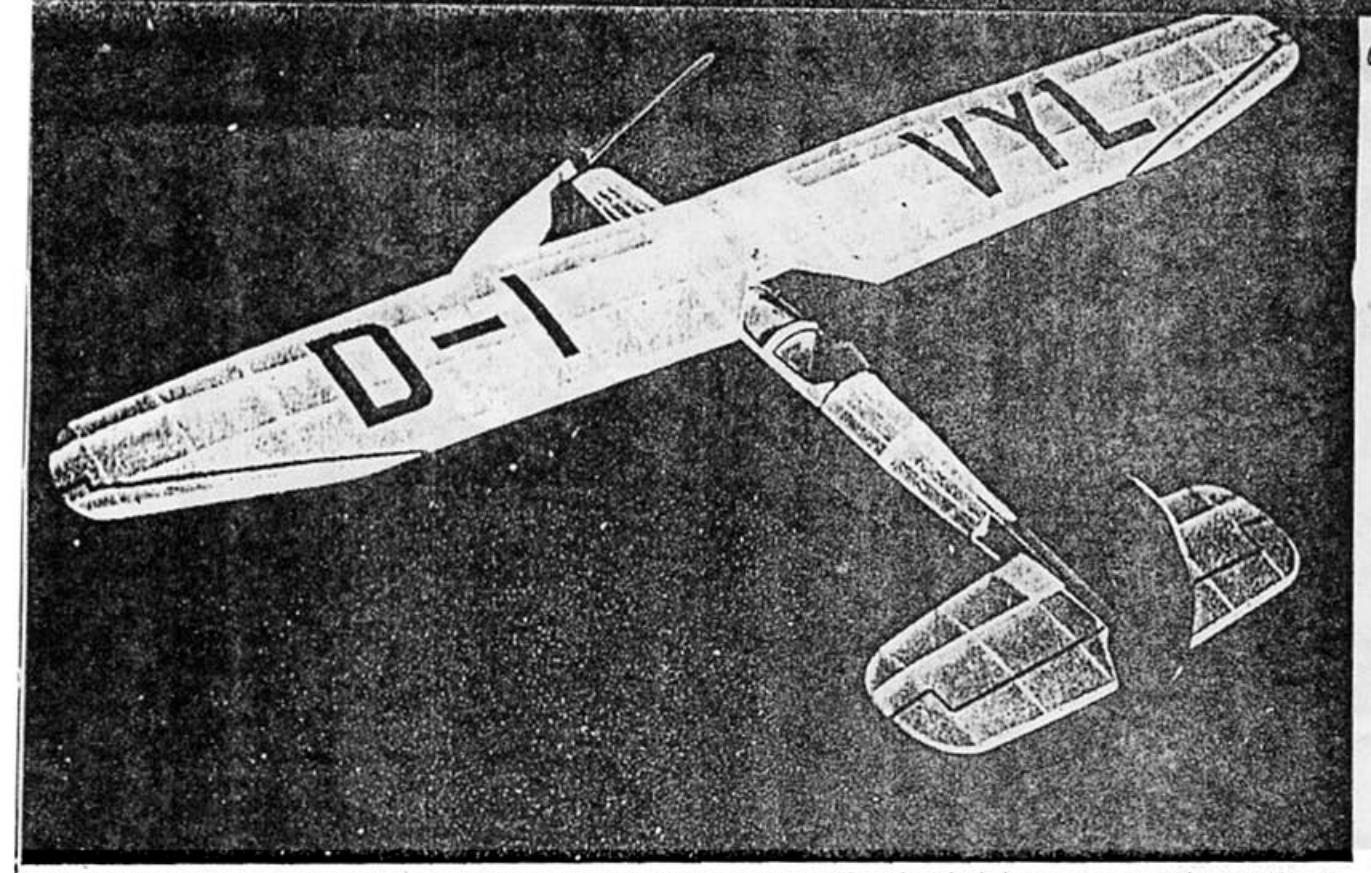



...he of Japanese tissue adds strength and lightweight for those long flights. Use your preferred method of preparing control lines and letters.

# FOCKE WULF FW·47D

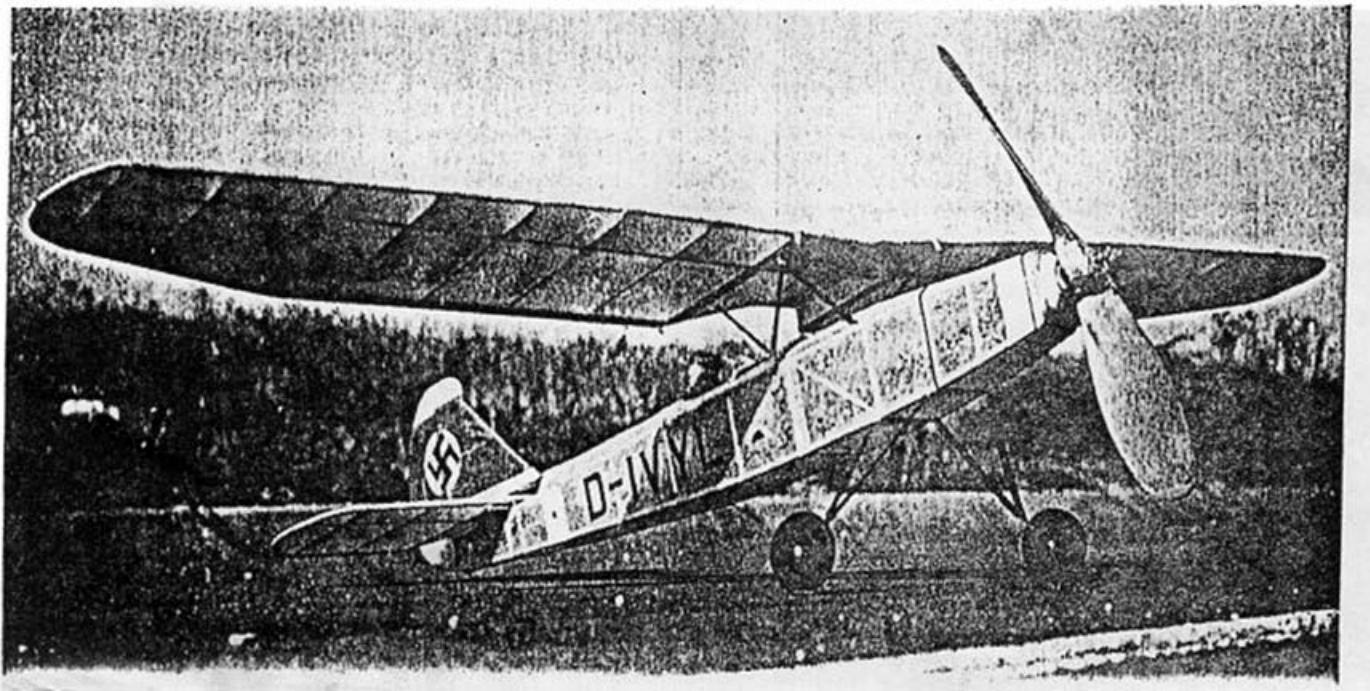
BY JACK HEADLEY . . . rubber powered Jumbo Scale of a famous German observation plane. Designed for contest work, it's a winner either way—contest or fun flying, and should be a real building challenge.

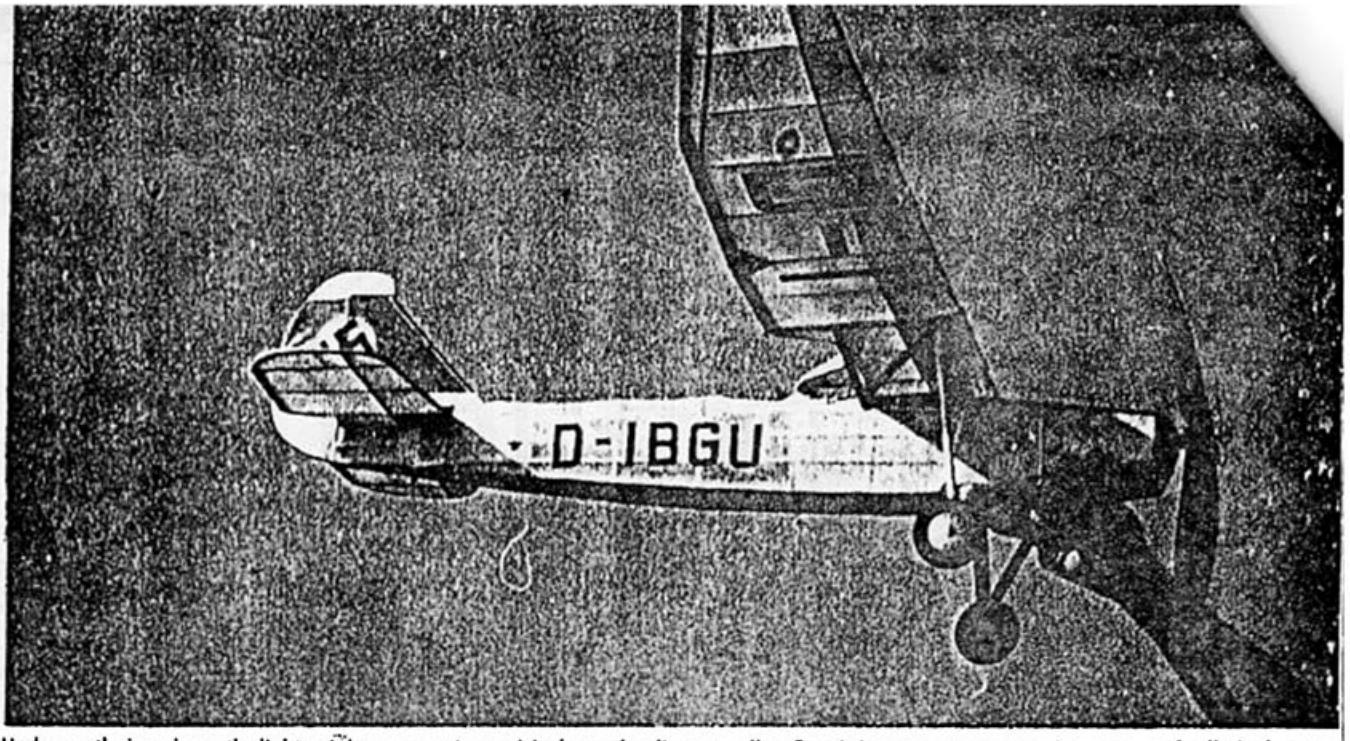
There was a time, I must confess, when I wouldn't have been caught dead with a Scale Rubber model. Scale was the lowest of the low, and the only true rubber model was a frail boxy structure, consisting mainly of lightly doped tissue, enclosing a monstrous rubber motor, dark and shiny. A flight of one of these models was a joy to behold. First came the winding, which needed muscles akin to the village blacksmith to put on that penultimate turn. Then the launch, and anything could happen. The propeller would flail around at a tremendous RPM as it tried vainly to absorb the colossal torque, and the model would jump skyward, shaking mightily. Then the whole contraption either vibrated its way into a thermal never to be seen again, or some part would fail, and the model would plunge to earth in an equally dramatic manner. Well, one way or another it generated a lot of excitement.

But times change, and contests for this type of model seemed to disappear,

*(Continued on next page)*

Lightweight hardwood wheels add to looks as well as durability of our Jumbo Scale plane. Be sure to use lubricant for your rubber strands.






Underneath view shows the lightweight construction and the free-wheeling propeller. Care is important to get maximum power for flight duration.

## FOCKE-WULF . . . CONTINUED

probably forever, along with our limitless flying fields and smog-free skies. Still, the true contest flyer never gives up, and if he can't find a contest for one model, there's always a contest for another type, and this is how I began my Scale modeling career.

Our local Scale club, the well known Flightmasters, runs numerous Scale contests during the year, and in 1969, added one more, for large rubber models. The main rules were wing span greater than 48", no folding propellers, and the models were to be based on aircraft built prior to 1943. I decided to enter, and when looking about for that ideal aircraft (square fuselage, high wing, long nose, tall undercarriage) I came across the FW-47.

It had almost all of the features mentioned above so I quickly made a working drawing and built up my first model. This was completed, in my usual style, the day before the contest and the first test flights showed that I'd not put in enough wing dihedral. So back to the building board, where the wings were taken apart, then put back together correctly.

Came the dawn, and the contest, calm and clear, a perfect day, and the model responded by behaving perfectly and taking second place in the First Annual Jumbo Scale Event.

For the next year's contest, I built another version of the FW-47 with much more scale detail. This also flew in a very satisfactory manner, but not quite as well as the first model, due to increased weight and drag of the additional scale features. (It disgraced itself in the contest by breaking its propeller before the contest first flight.)

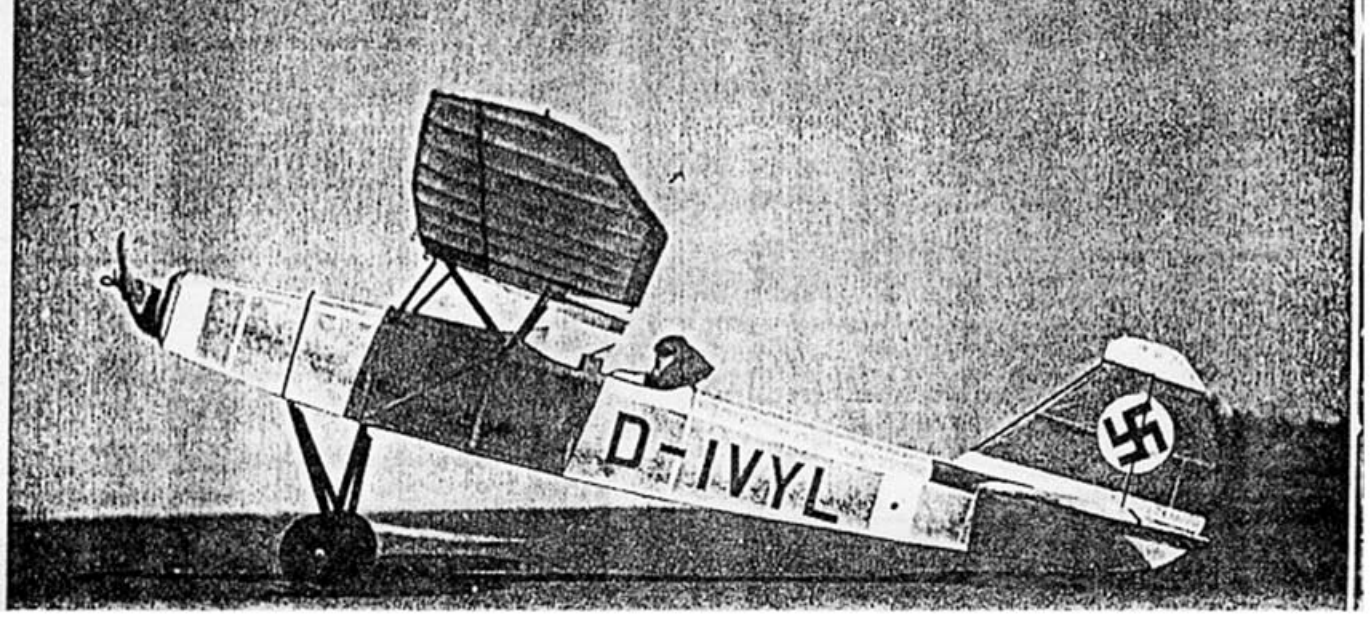
The plans show the more detailed version, but my own preference is for the simpler model, as I'm still more for flying than Scale. However, the building notes that follow discuss the construction of both versions, so take your pick, whichever way your interests lie.

CONSTRUCTION

*Wing:* The wing is constructed in three pieces, a flat parallel center section with tapered and dihedralled outer panels, the only deviation from scale being the amount of dihedral used. So let's start with the counter-section, and the first task, which is to cut out seven R1 ribs. These should be sanded together in a block after cutting, then notched for the spars and the leading edge. After notching, one rib should be

*(Continued on page 80)*

Side-view of the Focke-Wulf at rest on the tarmac shows attention to finishing details that catch the eye of judges and beholders alike.



## Focke-Wulf FW-47D

*(Continued from page 12)*

cut off aft of the rear spar, and this becomes the center rib. Back to the plan, to pin down the trailing edges and the lower main spar. Cement all the ribs to these two items; add the upper spars and leading edge. Next item is the 1/16" sheet web behind the aft spar in the center, followed by the slant ribs and the block fairing. The final pieces are the 1/32" webs behind the main spars; the center section is complete for now.

The outer panels are built in a similar manner – the only point to watch is to set the root ribs at the correct angle.

Now to assemble the complete wing. Sand the end ribs lightly so that a good butt joint can be made; pin the center-section flat on the building board, prop up the outer panels to the correct tip dihedral using suitable blocks, and cement these panels into place. After the joints have dried carefully cut away the double ribs for the dihedral braces, and cement the braces into place. It's easiest to do these one set at a time – put in the rear set first, let dry, then cut the ribs in front and install the front braces. All that now remains is to add the center section sheeting. Sand all over, and the wing is ready for covering.

*Fuselage:* The only differances between the "simple" and the "detailed" models is in the fuselage construction; both however begin in the same way, by first building the basic box from 1/8" square. Make two fuselage sides using very good quality 1/8" square, then join these sides with 1/8" sq. spacers, and you have the basic fuselage box. While you're waiting for all this cement work to dry, it's a good time to make up the undercarriage and the wing support wires, which can then be attached to the fuselage. Bind the items with thread to their respective spacers, then cover the thread with a coat of cement. The next step is to make and attach the frames on the fuselage top, followed by the 3/32" and 1/16" square stringers and the sheeting around the cockpit. Except for some small 1/16" sheet fairings around the various wires, this is all for the simple model.

So if this is as far as you care to go, read no further and skip to the next heading. However, if you're interested in more scale details, read on. Some additional frames are required in the nose region; these should be made up now and attached, after first cementing on the 1/16" sheeting. Note also that the fuselage top in front of the cockpit is sheeted over. The 3/32" side stringers come next, and these run from the end of the nose sheeting to the tail. The last step is to fair over all the undercarriage and wing wires, then make and attach the remaining struts. Sand all over, then cover, except for the tailplane slot, which we'll discuss next.

We did something on this mod[el] don't normally care to do, and th[at] make the tailplane semi-permanently a[t]tached to the fuselage. At the time we couldn't see any other way to do it (we still can't, but maybe it was the right thing to do). Anyhow, for better or worse, although the tail is held in place with rubber bands, it can't be removed for storage. The installation is really quite simple. Completely finish and dope the tailplane and fuselage except for the pieces marked XX. Slide the tailplane through the slot provided, then push aft to the correct location. Install XX, and then cover the bay between XX and the frame in front with tissue. You can now make the shimming adjustments to the horizontal for the glide trim as usual.

You'll have noticed on the plans that we've made use of laminated strips for some of the curved pieces on the tail unit. This is one of the best ways of producing tip shapes for lightweight models, and in addition it looks much better than pieces of sheet stuck together. We suggest that you use this system – it may take a little longer, but the results are well worthwhile.

Begin by cutting out the required number of strips from 1/32" sheet making these about four inches longer than actually required. From corrugated cardboard, make a template of the "inside" of the curve to be made, and pin this down to the plan. Soak the strips in hot water now to make them more pliable, then dry and cement together. With the cement still wet, carefully bend the strips around the cardboard and pin into place. It all looks a bit of a sticky soggy mess at this stage, but don't worry: it all comes out right in the end! Be careful now to see that the pins used to hold the curve in place don't damage the wood. Once it's all pinned down leave overnight to dry, then separate carefully from the template, trim to the correct size and install on the model. Sand to the final contour after assembly.

*Tailplane:* Cut out the seven ribs required, and notch these for the spars. Pin down onto the plan the trailing edge pieces, also the lower spar, and cement all the ribs into place. Add the upper spars, the slant ribs at the center-section, the leading edge, then the tip laminations which we've already discussed in a previous paragraph. The assembly can now be removed from the building board, sanded all over; then the center-section sheeting can be added. A final sanding, the tailplane is ready for covering.

*Fin and Rudder:* This is one of those awkward items that has no flat surfaces and has to be built in mid air. Our own particular technique was to build it up on the fuselage, as follows. First make the outline shape of the fin and rudder, which consists of the trailing edge lamination cemented to the tip piece and the leading edge. This much at least can be done on the building board. Next cut out the fin spar, and mark lightly on both these items the locations of the ribs. Now cement the spar to the fuselage, followed by the outline shape. Make the ribs, which are all straight edged, to fit the marked spaces between the spar and the outline. A small trim tab space is provided between two of these ribs, but this should only be used if flight tests show that it's necessary.

The prototype circled quite well without any trim tab, due no doubt to my patent system of unconsciously building in the necessary warps. (At least that's the way I like to think of it!).

*Propeller:* On the various previous rubber models we've tried various styles of propellers – props cut from sheet, single bladed folders, laminated types and even props bought from the model shop, but the most satisfactory ones still seem to be those whittled from a huge block of balsa. The propeller for the FW-47 is made this way, and the plans show the block dimensions required. Don't cut the blades too thin, however – the prop will last a little longer, and we need some nose weight, anyway.

A freewheel is fitted, then epoxied into a slot cut into the prop. Thread binding is used to reinforce the epoxy. After this is installed the initial balancing is done, followed by several coats of clear dope, and the final balance.

FINISHING

The originals were covered with white Jap tissue, then clear doped except for the sheeted areas in the nose, which were sprayed very lightly with silver dope. All control surfaces were outlined using strips of black tissue around 3/32" wide. The registration letters were also cut from black tissue then doped into place. Note that the wing letters are placed both on top and underneath the wing. The tail markings are a black swastika within a red band. In addition to the registration letters shown, D-IXLU and D-ITPO can be used, or, if you want to keep the weight to a minimum, omit all letters and insignia, and you have a model of the prototype A 47.

FLYING

Flight characteristics are very satisfying. It's probably due to the model's size and the freewheeling prop, but the flights seem to be much smoother than the normal rubber model. However, before we actually set off for the flying field, let's have a quick look at the size of rubber motor we should install. This will, of course, depend on the actual flight characteristics required, and also on the weight of the finished model, but if you're looking for scale-like flight then we suggest a 10-12 strand 1/4" motor, 30" long, suitably tensioned. This worked well in our models, and gave a good take-off followed by a realistic climb. If you want a little more performance, or have a heavy model, add a couple more strands.

The prototypes required little in the way of trimming before good flights were obtained, and these were mainly thrust line corrections, slight down and right thrust being typical. With the motor size, flights around 1-1/2 - 2 minutes are normal, using almost full turns.

If you fly from a short grass field (a field with short grass), you'll also see a rare occurrence, one we hadn't observed for quite a while. Instead of the usual touchdown, and flip up onto the nose, the model will make a truly dignified wheel landing, then just sit with the prop ticking over! It's true, but if you're still skeptical, why not find out for yourself? Just go back to the beginning and start cutting balsa! ■




Focke Wulf A 47 (Prototyp)

Nach der Zulassung, Juli 1932, Kennzeichen D - 2295

VFW Negativ Nr. 299/638

Bild unten zeigt das in der Bierzeitung erwähnte "Ankerschleppgerät" für die A 47.

VFW Negativ Nr. 572/652

