

# HEINKEL H.E. 18

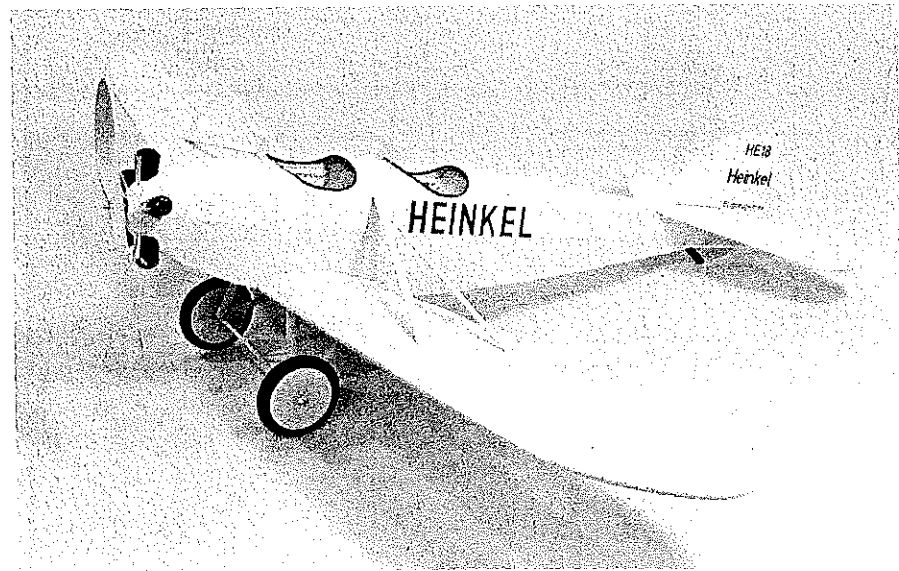
Designed for the HiLine Mini-6 geared electric motor running on three 100-mAh batteries, this clean-lined, all-wood Scale rendition of the between-the-wars Heinkel H.E. 18 is simple enough to tempt the moderately experienced builder, yet so stable in the air that seasoned fliers may want one, too. ■Hurst Bowers

IN 1924, only six years after the "war to end all wars," there were rumblings within Germany to circumvent the sanctions imposed by the allies. These sanctions precluded the re-creation of an aircraft industry.

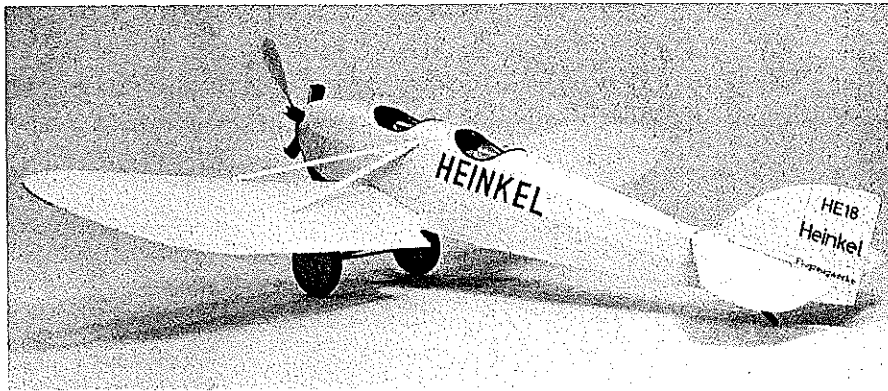
One of the prime players in the rebirth of German aviation was Dr. Ernst Heinkel, a brilliant professor and engineer. Heinkel developed a light, instructional plane which showed much promise by winning the Gothenburg competition in 1923. This was the basis for development of a much improved version, which emerged in 1924 as the Heinkel Model H.E. 18.

The innovations that were incorporated into the new model were truly awesome. They included full-span ailerons which could be deflected downward equally to serve as flaps while still maintaining full lateral control. The engine mount was hinged so as to pivot 90° to the left, fully exposing the accessory section for ease of maintenance.

The wings and tail folded, reducing the width to only six feet, for easy storage and



Big picture: When it comes to flight stability, this model leaves nothing to be desired. Note the tail-skid-and-strut assembly. The small, dark indentation in the bottom of the wing center section is the switch and charging jack housing. Above: Black markings on Cloud Gray Aero-gloss flat dope provide excellent contrast. The author used three coats of thinned clear dope and a spray coat of colored dope over Ply-Span tissue covering.



Though the plan shows the fin and rudder built individually and then assembled, with the stabilizer and elevator joined by soft wire hinges, the author built the tail plane members as a single unit. Either method works well. Note the two-place open cockpits, nicely done wing struts.



The H.E. 18's starkly clean lines had spoken to the author for years before he miniaturized them as an Electric. You can see he's happy with the result.

transportability. The wings were fabric-covered spruce and the fuselage was of welded steel tubing, also fabric covered. An all-wood fuselage was available as an option if the customer desired it.

The 36-ft. 5-in. span, low-wing airplane was powered by a 75-hp Siemens engine which enabled it to cruise for three hours at 84 mph. The plane was capable of climbing to approximately 3,100 ft. in six minutes. This was most satisfactory performance for a light, two-place, open-cockpit monoplane of the period. It was also capable of very efficient operations off water as a twin float airplane.

The very simple, yet clean lines of the H.E. 18 have held my attention for many years as a possible modeling subject. After having considerable success with several other small scale models using electric power, I decided to build it for the fine little HiLine Models' Mini-6 geared motor powered by three 100 mAh batteries. I had developed the drawings for rubber power, so it was a simple matter to convert the model to electric.

It flew right off the board, as they say, and it flew very well, indeed, demonstrating phenomenal stability. With a good one-minute charge, I consistently got flights of about 30 seconds. On one daring flight over a beautiful North Carolina sod farm, with a three-minute charge, the model climbed to well over 150 feet, hung a thermal and remained airborne for approximately 4½ minutes. It was recovered intact and is currently still flying—though it needs new batteries and a bit of cosmetic attention.

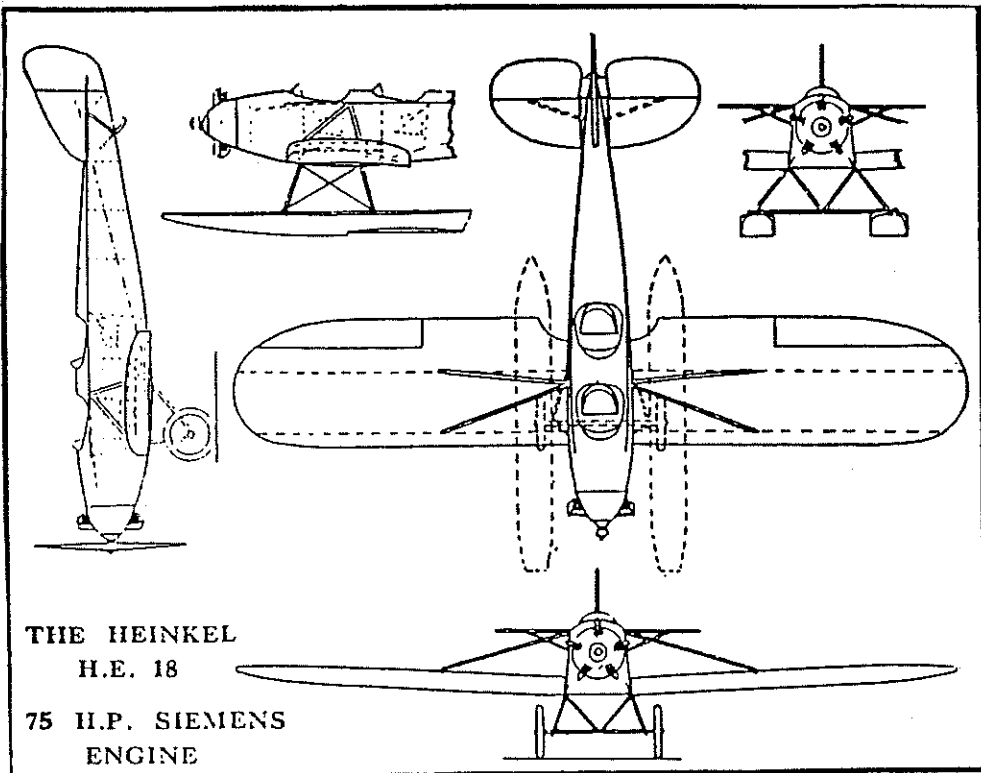
**Construction Highlights.** Construction of the H.E. 18 is straightforward, entirely conventional, and very simple, so I will address construction highlights only.

The fuselage consists of two basic sides constructed of balsa strips. Notice that when the sides are joined, the top longerons are spaced closer together and there is a side stringer as well as the rounded turtle deck. I covered the forward top section with ¼-in. balsa because it is easy to work with, and sanded it to approximately ½-in. thick before cutting the cockpit openings.

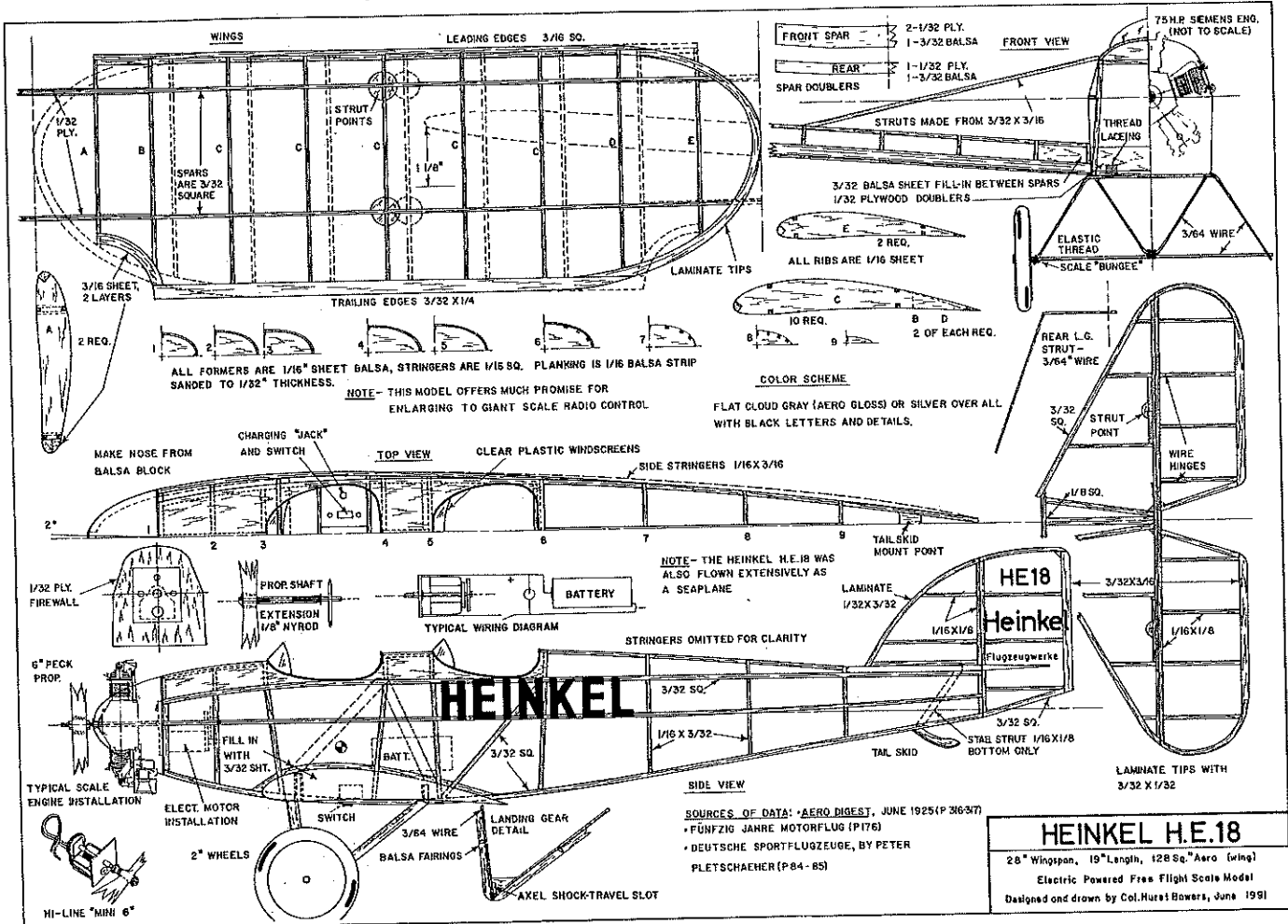
I built the tailplane members on my model as one piece, though the plan shows separation of fin and rudder, stabilizer and elevator joined by soft wire hinges. Floral wire is excellent for this, and it can simplify trimming the model. Each method is merely an option open to the builder.

The wings are built as two panels, joined at the roots by the balsa- and ply-spar doublers. These also serve as mounting points where the landing gear wire will be laced. The 1½-in. dihedral shown on the plan proved entirely adequate.

Although I show mounting for the HiLine motor, this may be modified by the builder. I would recommend locating a box for the batteries under the center of gravity. This will allow minor adjustments



THE HEINKEL  
H.E. 18  
75 H.P. SIEMENS  
ENGINE



to achieve the desired balance without having to resort to ballast.

Although any light 2-in. scale wheels may be used, I made mine up from two discs of soft 1/8-in.-sheet balsa, cross-grained, with outer discs of 1/32-in. plywood and a 3/32-in. aluminum-tube hub. These seem to capture the scale effect of the period.

I used 3/4-in. small Williams Brothers cylinders with balsa heads and aluminum wire pushrods to achieve the likeness of the five-cylinder Siemens engine.

The extension shaft is a piece of 1/8-in. Nyrod, 1 1/4-in. long which has been threaded onto the prop shaft. The propeller is retained by a 2-56 machine screw with two washers threaded into the front of the Nyrod.

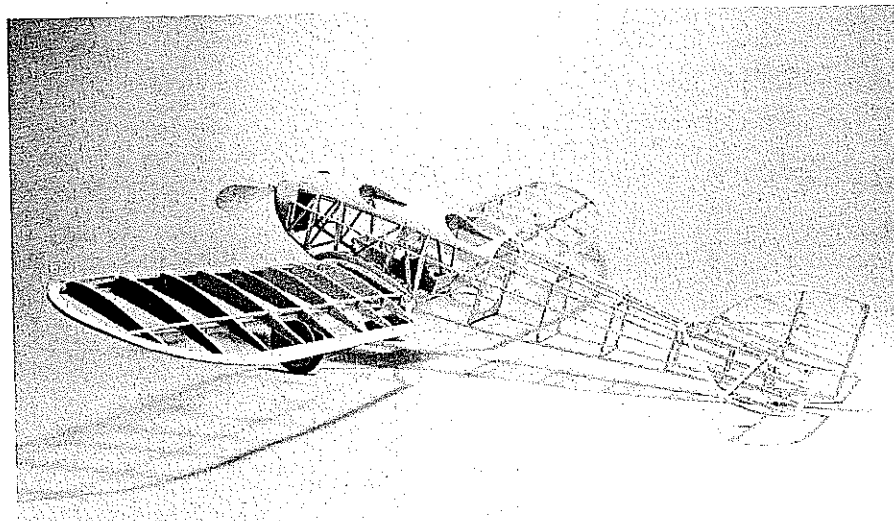
**Covering.** Cover the model with Ply-Span tissue or very light silkspan. I used the tissue, water shrunk, with three light coats of thinned clear dope and a coat of color dope (Cloud Gray) sprayed on. The lettering may be done by hand and/or with a lettering guide on the rudder before assembly. Cut a stencil and spray the Heinkel name on each side of the fuselage in black. Add windshields and other details, then assemble the model.

My model, fully ready to fly, weighed 121 grams and the balance was good, having been achieved through minor battery location adjustments.

**Flying.** Test flights should be conducted over grass using short charges of 20 to 30 seconds. My model had a very gentle left turn under power and retained it in the low power/glide stage. Trim and adjustments were very simple on the model, however. Later, I added 1° to 2° downthrust, but I could detect only a very minor attitude change, so I doubt that it was worthwhile. Each model must be trimmed to achieve its own best performance, and much of this can be done with small specks of clay on

the wingtips, etc. My Heinkel has been a real delight this flying season and should be good for many more.

This model may be increased by 150%, giving a wingspan of 42 inches and an area of 290 square inches. As such, it should make a fascinating 1/2A Texaco RC Scale subject. Further enlargements for Electric or four-cycle engine power should also result in a stable scale vehicle capable of providing many hours of flying enjoyment. □



All that remains is covering and finishing. Construction, all-wood except for the 3/32 aluminum wheel hubs, is entirely conventional and straightforward. Photos by Thomas J. Schmitt.