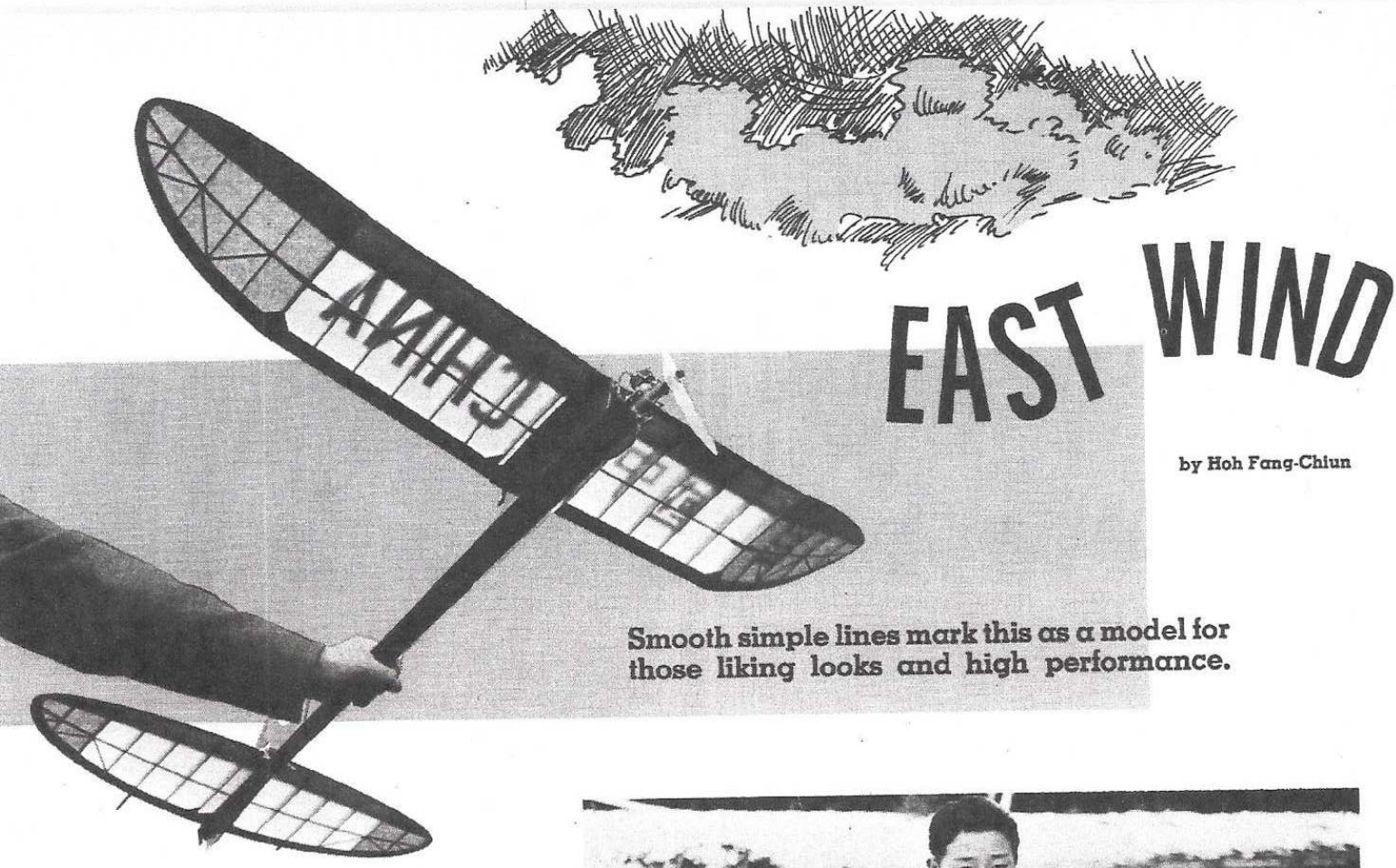

# EAST WIND

by Hoh Fang-Chiun

**Smooth simple lines mark this as a model for those liking looks and high performance.**


Though the wing marking says "China," Hoh is from Sweden where he now resides. His excellent models have been noted for some considerable time. The model shown here is the latest of a long experimental series. Interested modellers can have the plans photostatted to full-size. Local shops can do this.

● Of the many branches of aeromodelling, the fast-climbing free-flight Gas model is of particular interest to us. Starting with a pylon design, we first built several models from both kits and plans and experimented with satisfactory results. The many successful flights led us to think of designing a model of our own. Like all technical things, successful results, in this case a free-flight with constant contest-winning performance, can only be achieved through the right application of theory and steady practical experiments.

The Eastwind was designed in 1954 and has since undergone steady flight tests. During the past few years, eight Eastwinds have been built, of which six were for .09 (two lost on trim flights), one for .049 and one for .15 engines. Based on experience acquired during building and testing, changes in the design have successively been introduced to improve its performance.

With the ever increasing power which modern high-speed engines deliver, good free-flight designs must be able to utilize all the power which these mighty powerplants develop. A steep, rocket-climb followed by a slow-sinking floating glide is the prerequisite in order to have any chance in gaining a top place in today's hot free-flight competitions. The wing airfoil is one of the keynotes in today's free-flight. A low-drag, high-lifting airfoil is most desirable. Of all the airfoils known, a thin, sharp leading-edged, flat-bottomed Clark Y type probably offers the least drag. This is important in order to gain as high an altitude as possible during the limited power flight. But, practical experiences show that an undercambered airfoil, although offering a higher drag during the climb, would permit a slower floating glide and a greater ability of catching a thermal.

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In designing the Eastwind, a compromise was therefore made in choosing the wing airfoil. As can be seen on the plan, the airfoil is slightly undercambered, having a fairly sharp leading edge.

Although the Eastwind was originally designed for .09 engines, it can be built in any desirable size. Just as a clue, I can mention that my .049 version, using a British Allbon Super Merlin for power, has a wing span of 36½"—our Webra Winner .15 version, 54".

The .09 Eastwind has a wingspan of 45", about 300 square inches in wing area and an approximately 40% stabilizer. It weighs totally about 11½ ounces, at 18 ounces it will fit nicely into the American AMA class A free-flight Gas event. The Mk 8 Eastwind, which is presented here, has a radially mounted Webra Rekord .09 diesel, but any similar .09 engine, preferably with radial mount, can be readily substituted. Among the American engines we would recommend either the K&B .09 glow or the McCoy .09 diesel engine.

Modern light-weight, high-powered free-flights respond very sensitively to adjustments. Although the Eastwind is by no means tricky to trim, in fact our Mk 8 flew right off the working bench without any adjustments at all, initial flight tests should be made with care. Trim the model for a steep, narrow right spiral climb following by a wide left-hand glide. The glide is adjusted by tilting the stabilizer and the approximate position is shown on the plan at section Y-Y. This may vary slightly from model to model. The climb is adjusted with either the trim-tab or the engine down-thrust, or both. The engine should have 4° down-thrust. No side-thrust was found necessary in my models. Also, this may vary from model to model. The trim tab should be set at the neutral position to start with.

Choice of the right propeller is important. A 8"x 4" has been found to be the best for a diesel, while a 7" x 4" or 7½" x 4" is about right for a glow engine. Having obtained a satisfactory glide by hand-launch tests, initial power flights should be made with the engine running at half power for not less than 7-8 seconds. My model has a German Autoknips camera timer mounted permanently in the pylon, but a Tatone Tick-Off is suitable. Try to obtain a good steep climb by adjusting the trim tab and engine down-thrust simultaneously, if necessary. Once a satisfactory flight pattern is obtained, never neglect using a de-thermalizer at every flight. Our Mk 8 has an average glide of around 220 seconds in still air on a 13-15 second engine run.

Being not a citizen of Sweden, we have not been permitted to participate in the national contests, which were mostly held in military fields. However, in four provincial contests, which the Eastwind had entered, it topped three times and came in third once.

The design of the model utilizes straightforward construction. Use medium balsa for the entire building except for the stabilizer trailing edge and pylon keels. Although the fuselage differs from the conventional box-type in construction, it is fairly easy to build and is very strong. The wing and stabilizer are of orthodox construction, having sheeted leading edges for flexibility and added strength. Start the wing by cutting out all the necessary parts from the indicated material. As the wing has an under-cambered airfoil, we prefer to assemble the wing "in air" rather than build it on bench. Make the four panels separately, leaving the leading edges unsheeted.

Then, join the center sections first with the 1/16" plywood dihedral braces and be sure that the correct dihedral amount is received. When thoroughly dry, carefully join the outer elliptical panels, which have built-in wash-out in the tips, with the indicated dihedral. The leading edge sheetings can now be cemented in place and sand the

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leading edge to the appropriate section. A good idea is to cover all the dihedral break joints with a piece of gauze for increased strength.

The stabilizer can be built next. Start by pinning down the leading, trailing edges and rear spar. Add all the ribs and front spar. Before moving the construction from the working bench, add the leading edge sheet. Sand the entire stabilizer smooth and complete it by cementing the hold-down wires, v.t.o. hardwood dowels, etc. in place. The wing and stabilizer can now be covered. In order to keep the weight down, thin tissue should be used exclusively. When covering the wing underside, be sure that the tissue follows the concave shape of the ribs. After water shrinking, give the surfaces at least three coats of clear dope containing a few drops of castor oil for flexibility. Use color dope as little as possible to keep the weight down.

The fuselage is the heaviest component of the model, so selection of light wood is important. Use medium to medium-soft balsa exclusively except for the pylon keels, which should be of hard balsa. Start by making the keel which consists of three parts. Don't forget to cut a hole in front for the tank. Add all the formers. Note that the 3/32" plywood former FB is in one piece, on the back of which the engine mounting bolts or screws are firmly fixed before the former is cemented to the keel. Next, cement the two 1/8" x 1/8" longeron crutches in place. Buy a small metal tank and fit it in place before planking the fuselage. Use medium-soft 1/16" balsa sheet for the planking and don't neglect planking running the wood grain diagonally as shown on the plan. This gives a far greater stability than with the grain horizontally.

Cement the pylon ribs PA in place and be sure that the incidence corresponds with that shown on the plan. Cut two small slots on the upper part of the pylon keels for the wing fix dowels before covering the pylon sides with 1/16" sheet. If you intend using a flat, clock-work type timer, the pylon is a good place for it. If you desire a permanent mounting, as is the case with our timer, it should be built-in in place before the pylon sides are covered. Now add the 1/8" sheet wing mount, hardwood dowels, etc.

The stabilizer mount should be cemented with the port-side slightly tilted up so that the model will turn to the left during glide. The approximate position is shown on the plan at section Y.Y. Cut the fin and sub-rudder from 1/8" sheet and cement them in place. Finally, add all the rest of the details.

It is advantageous to dope the bare fuselage balsa surfaces with a thin coat of clear dope before covering it with colored tissue. No sanding-sealer is necessary for models of this type. Clear dope the fuselage several times until a slight shining finish is obtained to avoid it from soaking up fuel, etc., from the engine exhaust gases.

Before you go out to fly, check the center of gravity position, warps in the lifting surfaces and dethermalizer details. The stabilizer should tip up about 30°-35° for a slow, stall-free descent. For the first attempts, choose a fairly calm day.

HOH FANG-CHIUN