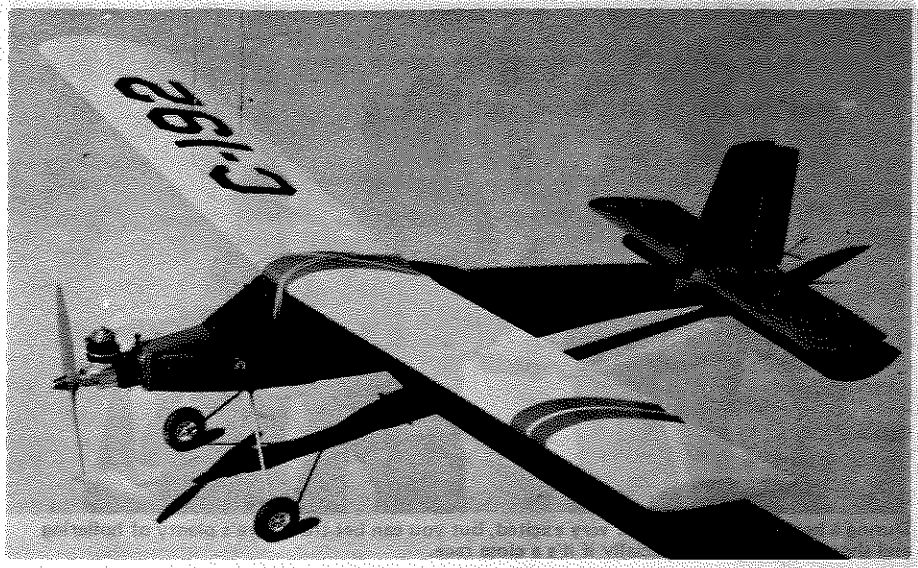


PHOTOS BY AUTHOR

CRICKET

By JACK HEADLEY . . . A good-looking 1/2A sport model by a well-known designer. Uses Ace foam wings and a minimum of your time.

• The Cricket represents a very simple approach to a sport model, and requires little expense for the building materials and little time to construct, both of these items being important factors these days. The power required for the model is provided by a Cox .049 or its equivalent, and the radio is an Ace single-channel pulse system. As an alternate, Bill N. suggested that one of the smaller Cannon radios could also be used, and this would give an additional channel, as well as being proportional control. Although I haven't tried this out myself, it sounds very practical, and further along in this discussion I've included a short section on my ideas of converting the Cricket into a two-channel version.

In keeping with the simple features of the model, I'll keep the construction notes on the same simple level and not bore you with details of every step in the construction (there aren't many anyway!). There is also a quite detailed set of construction photos to go along with these notes, so building the Cricket should be virtually trouble-free.

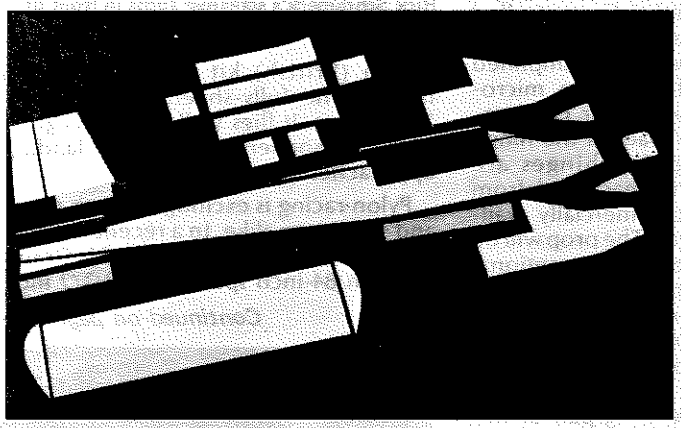
WING

The wing used is the Ace Mini Foam Wing, the one with the constant chord (No. 13L192). The wing area is 192 square inches, hence the numbers you can see on the model photos. The Ace kit, in addition to including the two wing panels, comes with voluminous instructions on how to put it together, so rather than repeat all of these here I'll just let you read the Ace data, and this will tell you all you need to know on assembling the wings.

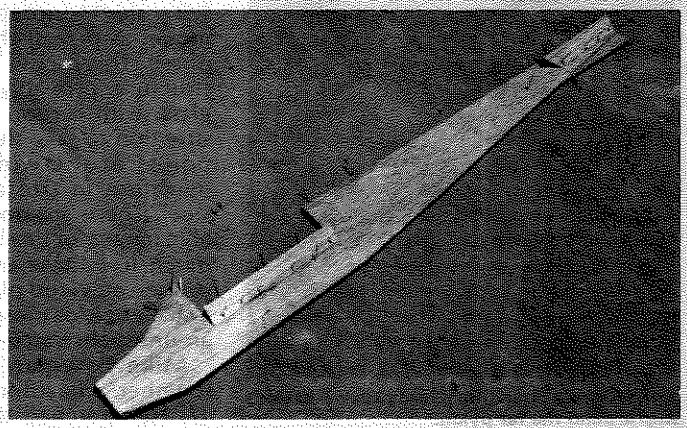
For the Cricket a total dihedral of 3 inches is required; that is, 1-1/2 inches under each wing tip. The only thing I added to the foam panels was a couple of scraps of 1/16 ply at the trailing edge of the centersection, to prevent the wing bands from cutting into the foam.

FUSELAGE

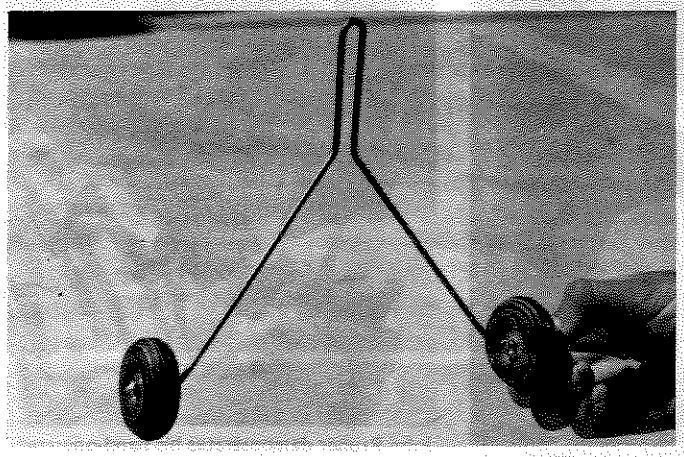
Construction begins with the profile



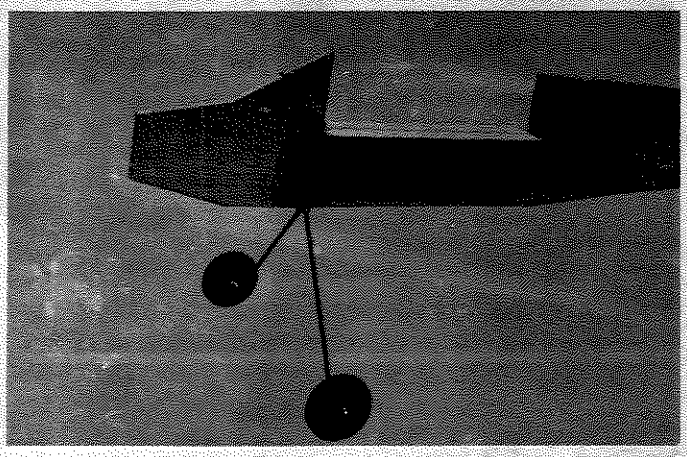
All the wood parts cut out and ready for assembly. Taking time to cut out all the parts in advance makes assembly go faster.



Basic fuselage assembly. Triangle stock glued to each side acts as support for the radio box and stabilizer.



Landing gear is bent from 3/32 music wire, wheels are retained by soldered washers.



The landing gear assembly straddles the profile fuselage. Thin coat of epoxy holds gear until side doublers are added.

fuselage, which is cut from a strong piece of 1/4-inch sheet. The profile outline is shown on the plans by the small triangles, and if you use a 4-inch wide sheet of wood the fuselage can be made in a single piece. Otherwise, a 3-inch sheet can be used, with a couple of extra pieces tacked on in the cabin area. Don't bother to round off any corners at this stage, this will all be taken care of later.

Make the radio box support and the tailplane support from a strip of 1/2-inch triangular stock, and glue onto the body, together with the tailskid.

LANDING GEAR

The landing gear consists of a length of 3/32 wire and a pair of 1-1/2 inch diameter wheels. Bend the wire to the shape shown on the plans, then test fit on the fuselage. If the wire doesn't fit the 1/4-inch sheet tightly, make the gap at the top end of the wire a little smaller. Keep test fitting the assembly until the wire clamps onto the body, but not so tightly as to crush the wood. The top end of the wire loop fits into a small notch cut in the body.

With the wire correctly located, bind the two legs together with soft wire, then solder. A coat of epoxy smeared over the wire and the body will help keep this assembly in place until the fuselage doublers are attached.

RADIO BOX

The radio box, or cabin, is entirely made from 1/8 sheet and consists of a floor, two sides, and four frames. The plans show details of all these pieces. When this item is constructed it can be sanded lightly all over, and then cemented into place on the fuselage.

Make the nose fuselage doublers from 1/4-inch sheet, noting that both a left and right handed piece are needed. Trim and chamfer as shown to fit over the landing gear wire and the triangular support for the radio box. Glue these items into place, then make and attach the nose fairings. This latter item should be sanded to an elliptical cross section before being finally attached. Roughly carve to shape, then glue the block balsa pieces which represent the cabin windscreen in place. The block fairings at the aft end of the cabin can also be made now, but only the left-hand side should be glued into place at this time.

ENGINE MOUNT

The firewall is made from a scrap of 3/16 ply, then drilled to accept the 2-56 blind nuts for the engine bolts. Epoxy these nuts into place, taking care not to get epoxy into the threads. Sand the front of the body to the correct downthrust angle, then epoxy the firewall into place.

TAILPIECES

The stabilizer is made from a piece of lightweight 3/16 sheet, and consists of a parallel chord centersection and two tips. Glue these three items together, then sand to the section shown on the plans. The fin and rudder are both made from 1/8 sheet, sanded only on the edges to a full radius. Attach the fin to the stabilizer, and reinforce with a scrap of 3/8-inch triangular stock, which is only on the left side. When dry, this assembly can be attached to the fuselage.

RADIO INSTALLATION

The battery is installed in the forward compartment in the radio box; check the fit, then cut a space for the ON/OFF switch. The central compartment is for the receiver, and the actuator is fitted in the rear space. The plans show how the actuator is bolted onto a scrap of 1/16 plywood, which is glued to the side of the radio box. A nut epoxied outside the radio box anchors the actuator.

Before installing the actuator in place, make the torque rod from 1/16 wire and tape the forward end to the actuator arm. Now slide this complete assembly into the rear compartment, with the torque wire trailing aft and on top of the stabilizer. Epoxy a scrap of inner Nyrod on top of the stab for the rear bearing for the torque wire, then carve a slot in the right rear cabin fairing block and glue this into place. During all of these operations, keep checking to see that the torque wire can operate freely. Now remove all the radio equipment, and the torque wire, and sand the fuselage to its final contours.

PAINTING

The fuselage can now be painted as required. On my first prototype I used K&B Superpoxy (blue), but a later model was sprayed all white, then dressed up to look like a Fieseler Storch. After the painting is complete, the rudder can be sewn onto the fin with carpet thread, and the small wire loop can be made and bolted to the rudder.

Reinstall the radio, then solder the rudder arm to the end of the torque wire.

BALANCING

On my prototype it was necessary to add a little nose weight to correctly balance the model. This was mainly due to a rather short nose moment on the first model, and so I corrected this on the plans by making the nose a little longer. However, a small amount of nose weight may still be required, and so with the model assembled and the radio installed, check the center of gravity location, than add lead as required. Be sure to attach this weight securely (I bolted a fishing sinker inside one of the nose fairings). The addition of the nose weight on my prototype made little difference to the flight performance, and the model will still climb almost out of sight on a full tank of 12% nitro fuel. The all-up weight of the model, in flying trim, should be around 16 oz.

FLYING

Now that the model is correctly balanced, flight checks can be made. Make sure that the rudder is pulsing correctly, then try a flight. Hand or ground launch are both satisfactory, and I've used both methods.

Using the Sepulveda Basin runway showed that the takeoff was quite smooth, the tail lifting quickly, with no tendency to ground loop. If left to its own devices the model will climb until the fuel runs out, at a ceiling which I guess is around 400 ft. The return glide is not too steep and is easily controlable, and landings can be made back onto the tarmac with no difficulty.

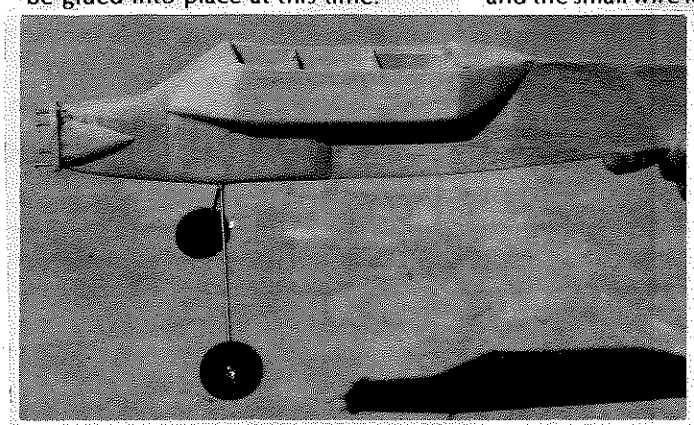
A quick clean-up with a rag, and the model should be ready to fly again. One thing to keep in mind is to make certain the battery is charged, and to "top it up" with a quick charger during the day, if one is available. Otherwise there's no reason why you shouldn't fly from dawn to dusk with the Cricket. Happy flying!

TWO-CHANNEL VERSION

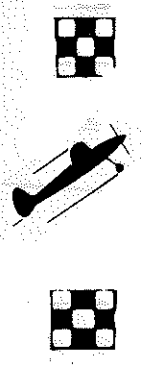
As a final word, here are a few suggestions about using a small two-channel radio in the Cricket. The first comment is possibly to increase the wing area a small amount by adding a balsa trailing edge to the Ace foam wing. The instructions in the Ace kit show how this is done. The reinforcing tape under the wing should also be incorporated.

With the increased wing chord, the radio box can now be elongated, and this provides a lot more room for the radio components.

Rather than using a torque wire, small pushrods will be needed, and Nyrods or their equivalent are suggested. The rudder size should be about the same as the single-channel version, and for the elevator I would suggest cutting a strip 1-inch wide from the back of the stabilizer. Control deflections on the order plus or minus 30° should be used. Balance the model at about the quarter chord of the wing. •



Fuselage with the nose doublers, firewall, firewall fairings, and front and rear radio box fairing blocks added.



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