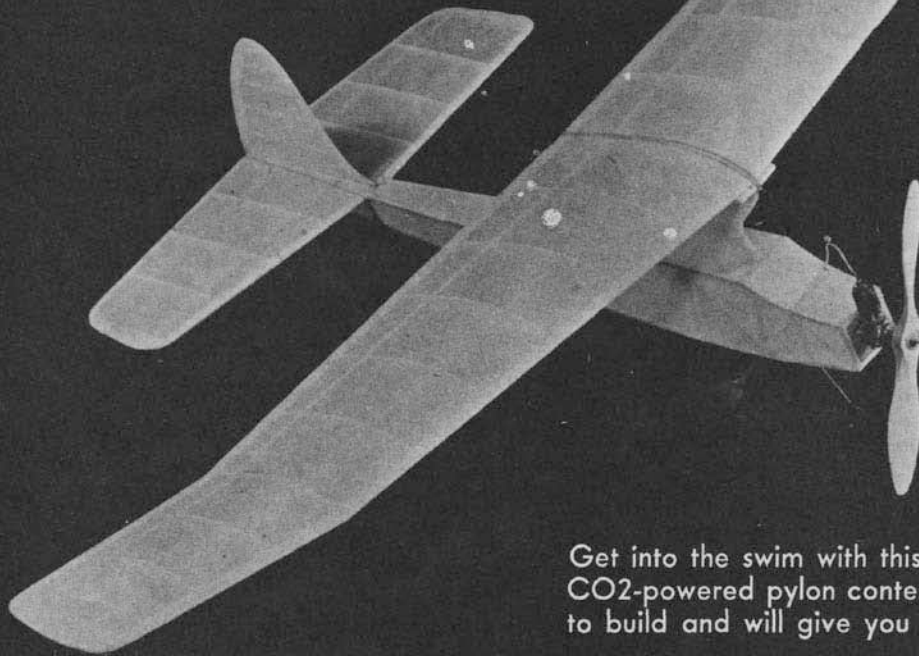


CARBONATOR I

by Walter L. Schroder



Get into the swim with this new, ultra-modern CO₂-powered pylon contest job that is simple to build and will give you hours of flying fun.

Of the many changes and advances in models, we think this period of powered Super Soarers is one of the most challenging. Take CO₂ engines with their very low-power-to-weight ratio and look into the possibilities. Notice how all the experts, Korda among them, were the first to climb on the band wagon. The conversion was so tremendous and effective that new rules had to be formulated immediately. This current contest season will show just what these little babies can really do.

Our little Carbonator I (and it isn't so little, with 190 square inches wing area), is really something. Using a forty-second run with an OK CO₂ engine; (and you *can* control the engine run), three and four minutes in dead winter air is common. Power characteristics are much the same as any high-powered Wakefield: a fast

initial climb with gradually diminishing power to a very nice glide and no critical dip. The elimination of such dip adds as much as a minute to your flight time.

To add those extra seconds, build the Carbonator I as light as possible. The construction is such that light wood in many sections of the model is permissible. Select your wood carefully and assemble with a minimum of added parts.

Every builder has individual ideas on the improvement of structural designs but, from personal experience, we know the designed strength is plenty adequate.

The square frame fuselage is quite simple and the two sides can be built directly one over the other. Many of us can use a 1/8" square for the forward and upper longeron at the nose. If in doubt, just trace out this mem-

ber and cut-it from 1/8" hard sheet balsa.

Build the cartridge hatch after the fuselage has been assembled. To construct this hatch, remove the designated cross-piece, then insert the longeron members of the hatch inside of the regular fuselage members. Now glue in the cross pieces to complete. Refer to the isometric on the plans for this construction detail.

Use the isometric drawing on the plans for the wing pylon and be sure to laminate the grain as shown. Before inserting the pylon in the fuselage, cut an angle notch in the top of the pylon to accommodate the 1/16" sheet wing cradle.

When building the wing, lay it but in this fashion: Place the front 1/8" x 3/8" hard balsa spar in place. Use straight pins to hold the spar. The 1/8 x 1/2" trailing edge is now pinned

in place. Insert all the wing ribs directly over the spar and glue in place. Cut out the wing tips and insert them at this time. When gluing the leading edge in place, use 3/16" scrap balsa to raise and hold the leading edge in the proper position while drying.

After the complete section structure has dried, cut through the leading and trailing edge at the designated point for the polyhedral. Raise the wing tip from the work bench and insert a piece of 1" scrap balsa beneath the tip to hold it while drying. When dry, the dihedral can be put in the wing. To do this, raise one center panel 2" from the work bench and insert a scrap of 2" balsa beneath rib number seven. Now glue the 1/8" sheet wing joiners to complete the wing structure.

The stabilizer and other construction are conventional and won't require any instructions other than using the isometric drawings for reference purposes. Note that a lifting section is used for the rudder. Be sure that these ribs are formed for right turn in the power and glide characteristics of the model.

Rubber model silkspan is used for covering. At least three coats of thin clear dope are required to properly fill the pores of this covering. Use a dark color tissue or colored dope, so that the model can be easily followed on those long thermal flights.

A wise precaution is the use of your favorite dethermalizer before doing any contest flying with your Carbonator I.

Flying: When all the structural parts have been completed, temporarily assemble them for alignment purposes. Proper alignment between the wing, fuselage, and the stabilizer is of the utmost importance. As far as possible try to keep both of the lighting surfaces square to the fuselage and pylon.

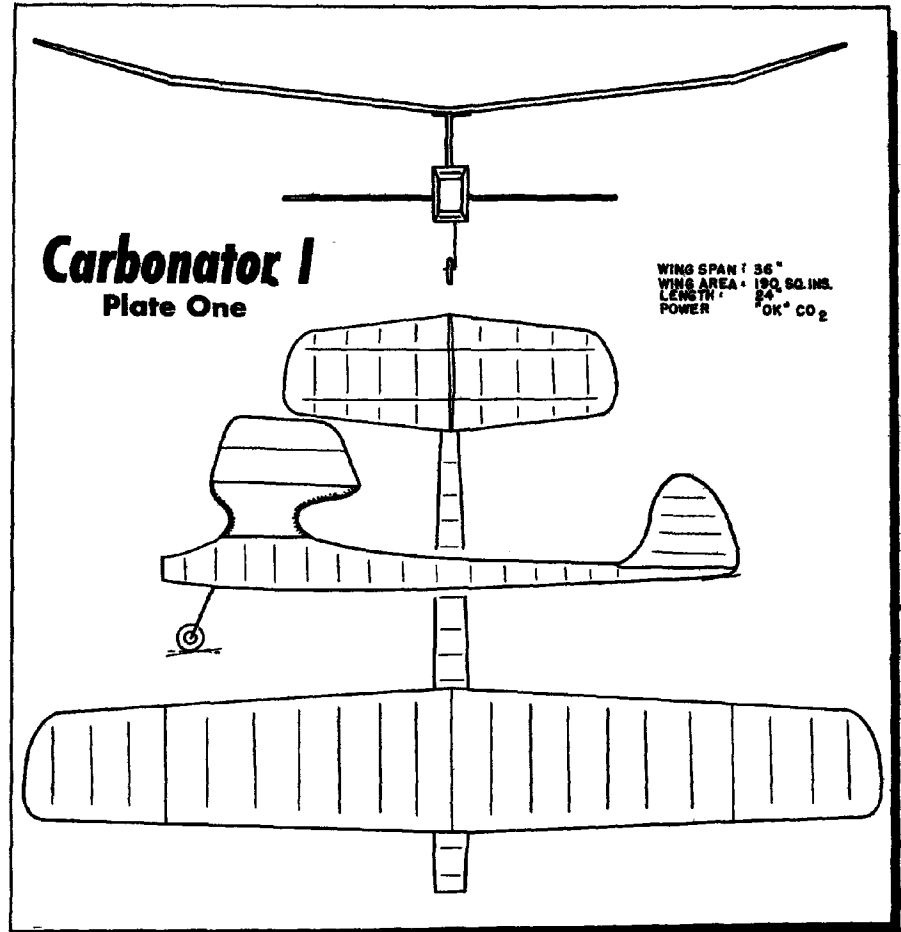
If the parts don't square up, glue balsa inserts beneath the wing or under the stabilizer. Make these inserts slightly oversize so that they may be sanded to the proper height.

Any adjustment must be of a permanent nature—too many models lose their incidence or leveling blocks while in flight, and the results are always disastrous. When the alignment is completed, hand-gliding is in order. The first hand glides should be made at knee level height into tall

grass if possible. Don't try any gliding until good calm weather is available, and late evening is about the best time. I also suggest that the first power flights be made at this time of day.

When making the first glide attempts, throw the model directly ahead; at a slight downward angle. Give the model sufficient push to ac-

quire gliding speed. This first push requires a lot of courage, but adequate speed will prevent any damage from lack of insufficient gliding speed. If the model tends to nose up or stall on the hand glides, insert small silvers of balsa beneath the leading edge of the stabilizer. Keep inserting the incidence pieces until the proper straight and level (*Turn to Page 48*)



Demountable wing and tail and single-wheel landing gear are notable features. Cartridge is under fuselage. How-to-build plans start on Page 48.



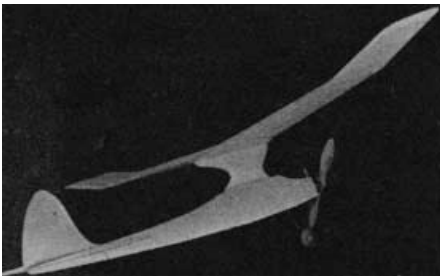
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glide has been achieved. If the model tends to nose in too fast, insert the balsa slivers beneath the trailing edge of the stabilizer.

When the proper glide angle has been achieved, remove the stabilizer and glue the incidence blocks permanently in place. None of that "it's good enough" attitude at this time. Care at this point will guarantee the life of your model.

After getting proper glide, check for turn in the model. The model should turn in approximately 100' circles to the right. Keep off-setting the rudder until this turn is an actuality. When set, use a pencil to mark the proper position of the stabilizer and rudder. Make this indication strong enough for future reference.



Now for power flights. Use hand launches for the first flights, and launch the model directly into the wind. It may be a bit costly but short, medium power flights can be gotten by bleeding the cartridge. To bleed, turn the thumb screw until the capsule has been pierced, then back off the screw and let some of the carbon-dioxide escape. Now tighten the screw again and make your first flights.

If the model tends to stall or be nose-heavy under power, adjust in the same manner as for the hand glide. Be sure to check the turn on these first flights. If too tight, back off the rudder to the proper amount.

Then, when everything is set right, turn on the full power and then use your running shoes because, brother, cross-country runs will be the regular order of business from now on!