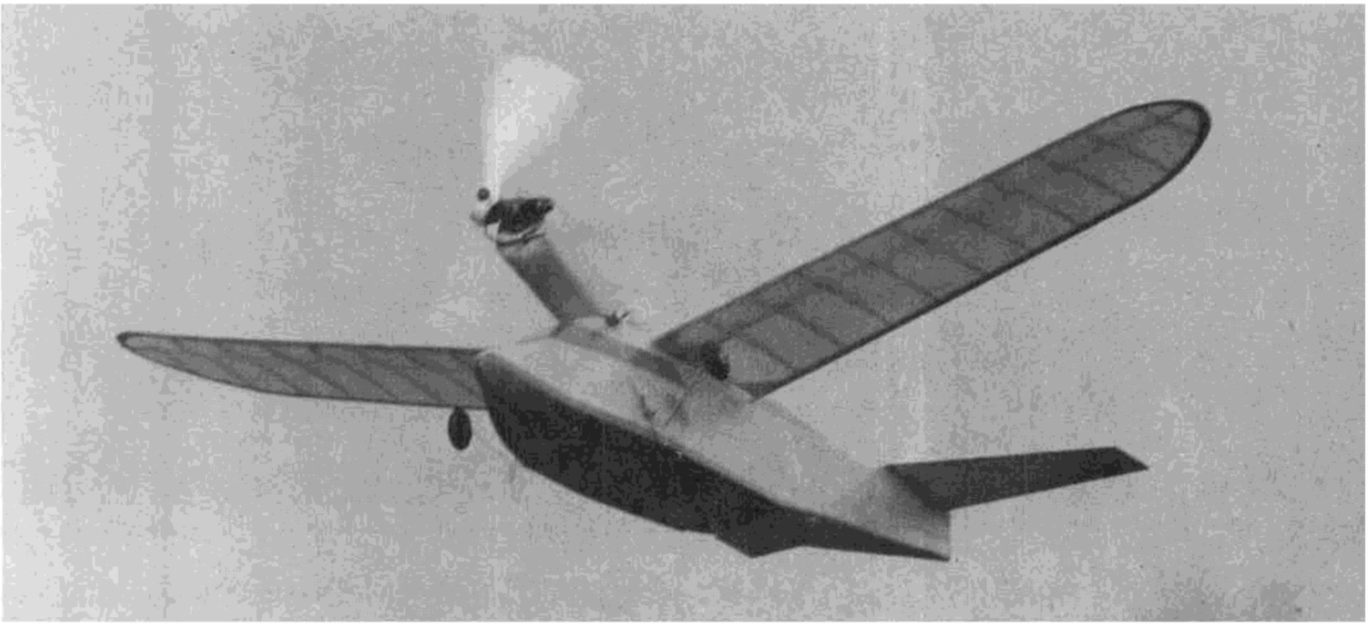


CO_2 DUCKLING

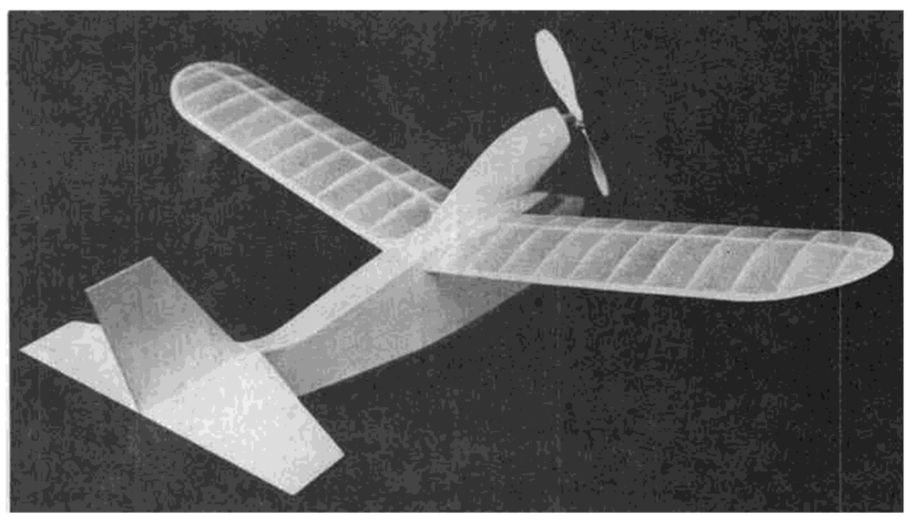
By JOHN WALKER . . . This little amphibian may be flown over water or land, and with CO_2 or rubber power. Some of you old timers may remember a Louis Garami design of similar appearance.

• Our neighbors recently repaired and improved their pond. It would have been a shame to let it go to waste, so the DUCKLING was designed and built. Since there were a number of "tame" geese using the pond, we hedged on our model and made it an amphibian. This means it can operate off of land or water.

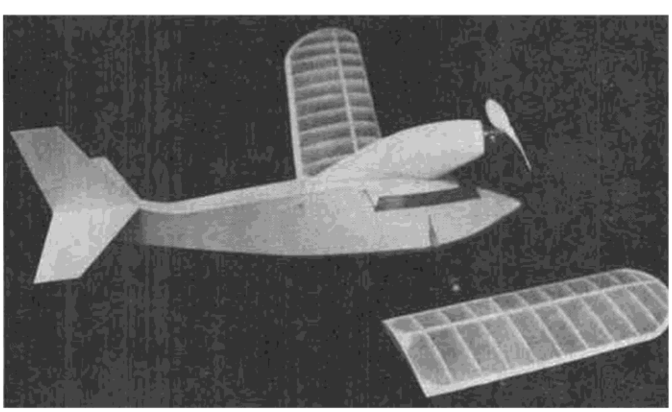
The model is also at home in the air. The Brown Twin CO_2 engine with two fuel storage units provides ample power for slow graceful flight. We had excellent flight results, even though the temperature was in the low 20's. That's cold for CO_2 power.

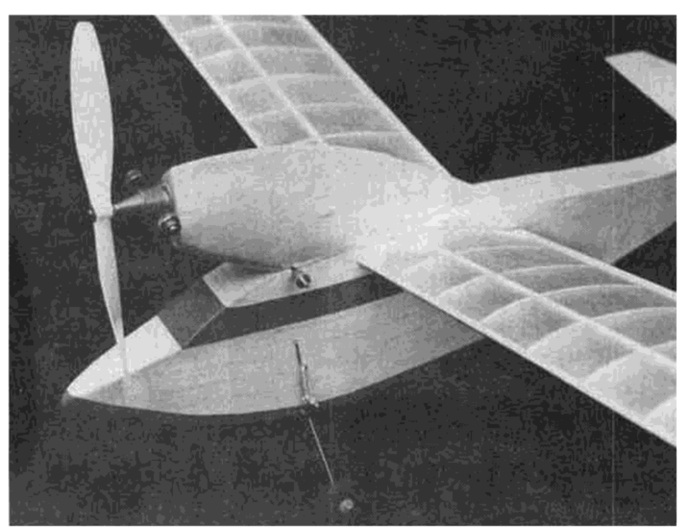
If the Brown Twin is too rich for you, the plans show how to fit the model with rubber power.

Continued on page 93



Very reminiscent of a 1930's Garami design, this cute little flying boat can go on rubber or CO_2 power. All photos by the author.





Using the Brown twin-cylinder CO_2 engine and two fuel storage units, the Duckling makes slow, graceful flights. Plans show alternate rubber power set-up. Landing gear may be manually retracted or lowered, for sea or land operation.

Duckling . . . . . *Continued from page 62*

CONSTRUCTION

For best flight results the DUCKLING must be built light. Select your balsa with care. Cyanoacrylate adhesives will provide strong joints with a minimum of weight. They also greatly reduce construction time.

Fabricate the fuselage or hull first. Cut all formers to shape. Lightening holes can be cut in each former if desired. Then cut the fuselage sides to outline. Lightly mark former locations on each of the sides. Make one right-hand side and one left-hand side.

Carefully cement formers F2, F3, and F4 to one fuselage side. Place this portion of the hull upside down and cement the other side into position. Pull the back of the fuselage together. Check for symmetry and apply adhesive. Cement formers F5 and F6 into place. Don't forget to epoxy the rear hook for the rubber to former F6 if CO_2 power is not used.

Pull the front together and attach former F1.

Epoxy the aluminum tubing for the landing gear wire to former F2 and seal the areas where the tubing exits the hull with epoxy. Epoxy the wing mounting wires into place. Be sure they are located properly.

Cover the top and bottom of the hull with 1/32 balsa. Note grain direction. Do not cover the hull top between formers F2 and F3 if CO_2 power is to be used. This area will be covered after the fuel units are in place.

Add the nose block and cut and sand it into shape.

Bend one-half the landing gear. Slide the wire through the tubing in the hull and bend the second half of the landing gear. Use 3/4 diameter balsa wheels to keep weight down. A hub of 1/32 ID aluminum tubing will keep them running true. Williams Bros. 3/4 diameter streamline wheels may also be used. Make hooks for the retraction rubber bands and cement them into place. The retraction mechanism (?) is foolproof.

Cut the tail surfaces to shape and cover them with Japanese tissue. Cement them to the hull.

Construct the engine nacelle. The nose block for rubber power must be a snug fit. Cut the opening in the top of the fuselage for the rubber power. Attach the nacelle.

If CO_2 power is used, the fuel storage units are wrapped in light foam and inserted into the hull before the nacelle is cemented to the hull.

The nacelle may be made stronger by applying a very thin coat of epoxy to its interior surfaces before attaching it to the hull.

Mount the CO_2 engine.

The entire hull was given two coats of Sig LITE-COAT and lightly sanded. The hull and nacelle is then covered with Japanese tissue. A final coat of dope was then applied.

Conventional stick-and-tissue construction techniques are used to fabricate the wings. After covering, apply two coats of thinned LITE-COAT. Sand lightly to remove any "fuzzies" that will cause drag.

Assemble the wings to the fuselage. Check for alignment and warps. Our model balanced about 1/3 back on the wing chord.

Test glide the model on a calm day and over tall grass. Add modeling clay to the nose or tail until a smooth glide is attained. We were fortunate. Our model balanced without clay having to be added. When glided from shoulder height and in a light breeze, the model would land 20-25 feet away.

Make the first test flight in the calm of the morning or evening.

Do not use a full CO_2 charge for the first power flight. This can be done by holding the model higher than the charging unit. Flight adjustments are made by changing the engine thrust line with shims cut from a 3 x 5 index card.

Use full charges for off-water flights.

Should your model be rubber powered, flight adjustments can be made by shimming the nose block. The amount of rubber power needed depends upon the weight of your model.

Our next step is to enlarge the model slightly and add a Cox .020 engine. An Ace Baby Pulse unit will be added for control. ●