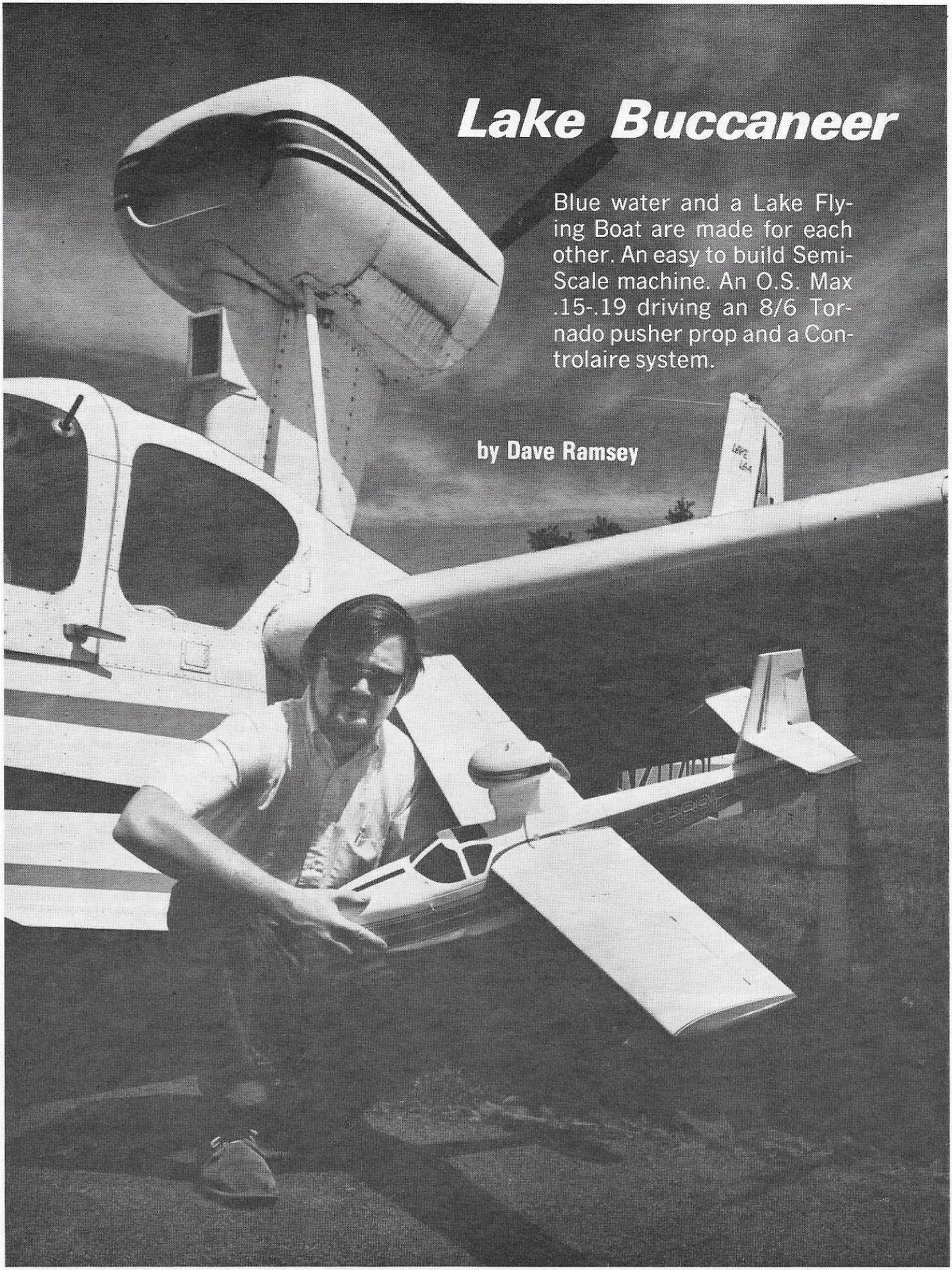
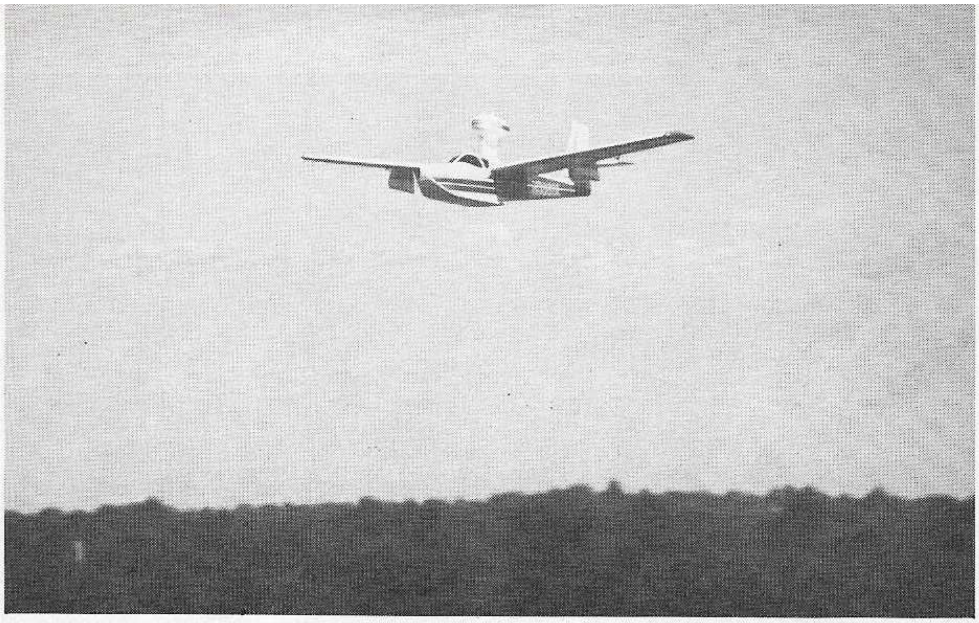
Lake Buccaneer

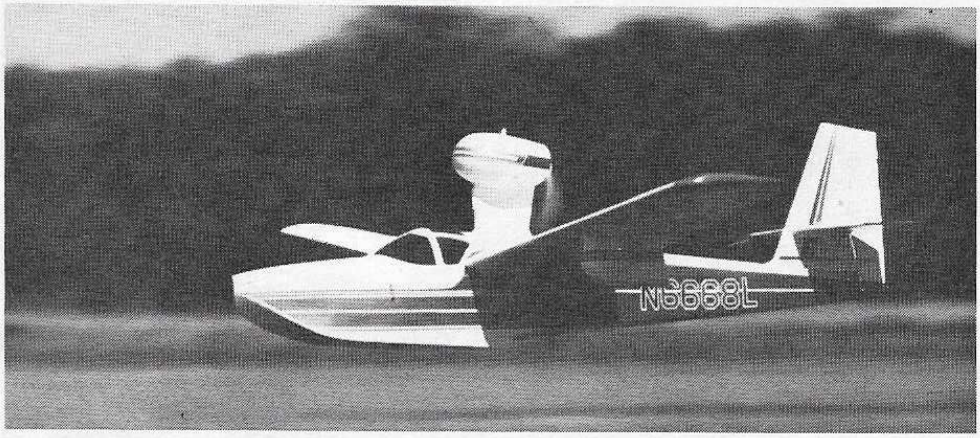
Blue water and a Lake Flying Boat are made for each other. An easy to build Semi-Scale machine. An O.S. Max .15-.19 driving an 8/6 Tornado pusher prop and a Controlaire system.

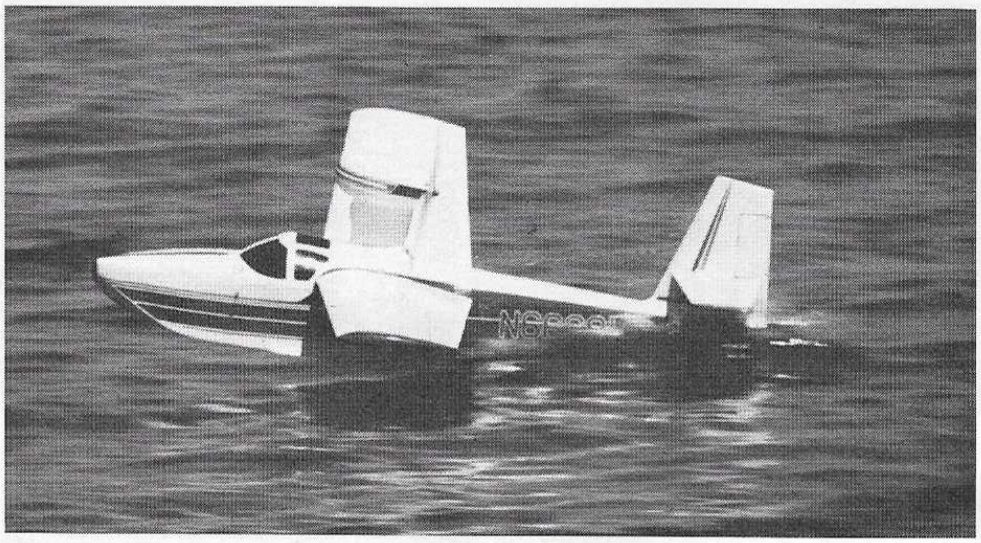
by Dave Ramsey



Dave poses his Lake R/C in the shadow of the full scale Lake amphibian, an aircraft popular in regions where lakes and rivers abound. The Lake LA-4 is a four passenger seaplane with a 185 horse engine. It responds well to rudder, as does the R/C model. The model is simplified in some respects, builds up easily and delivers a full measure of performance. It has been flown at the 1971 Brimfield seaplane meets. Stable, smooth in the air. Fun to fly!







Ever since I saw the *Lake* Aircraft ad on the back cover of Private Pilot Magazine, I began to imagine how a radio controlled version would work. Using the scale information from the factory, I began scaling down the original to a size that I liked. The most pleasing feature of the *Lake*, as far as water handling, is that it has a very broad step. This pays off as the *Lake* model when given full power will plane in ten to fifteen feet. On dead calm water the *Lake* handles like a dream; however in windy weather the waves cause excessive drag and water handling becomes a problem. I found I had to add the water rudder to improve this tendency.

One word to you people who say that a .19 will never be enough power. If you keep the weight to between 3 lbs. 12 oz. and 4 lbs., you will have no problem. After you take off under full power, you will cruise at 1/3 power.

The *Lake* as I designed it, is a floater, both in the air and on the water, it is a good penetrator, extremely maneuverable, has a good glide and it does not show any bad stall characteristics. Because of the small amount of elevator throw on my *Lake*, it has not stalled yet.

This is a fine water plane and it can be built in three ways; as the *Lake Buccaneer*, the *Lake LA-4*, and the *Lake Pirep*. The difference is mostly in the way the different models are painted, as far as your model will be concerned.

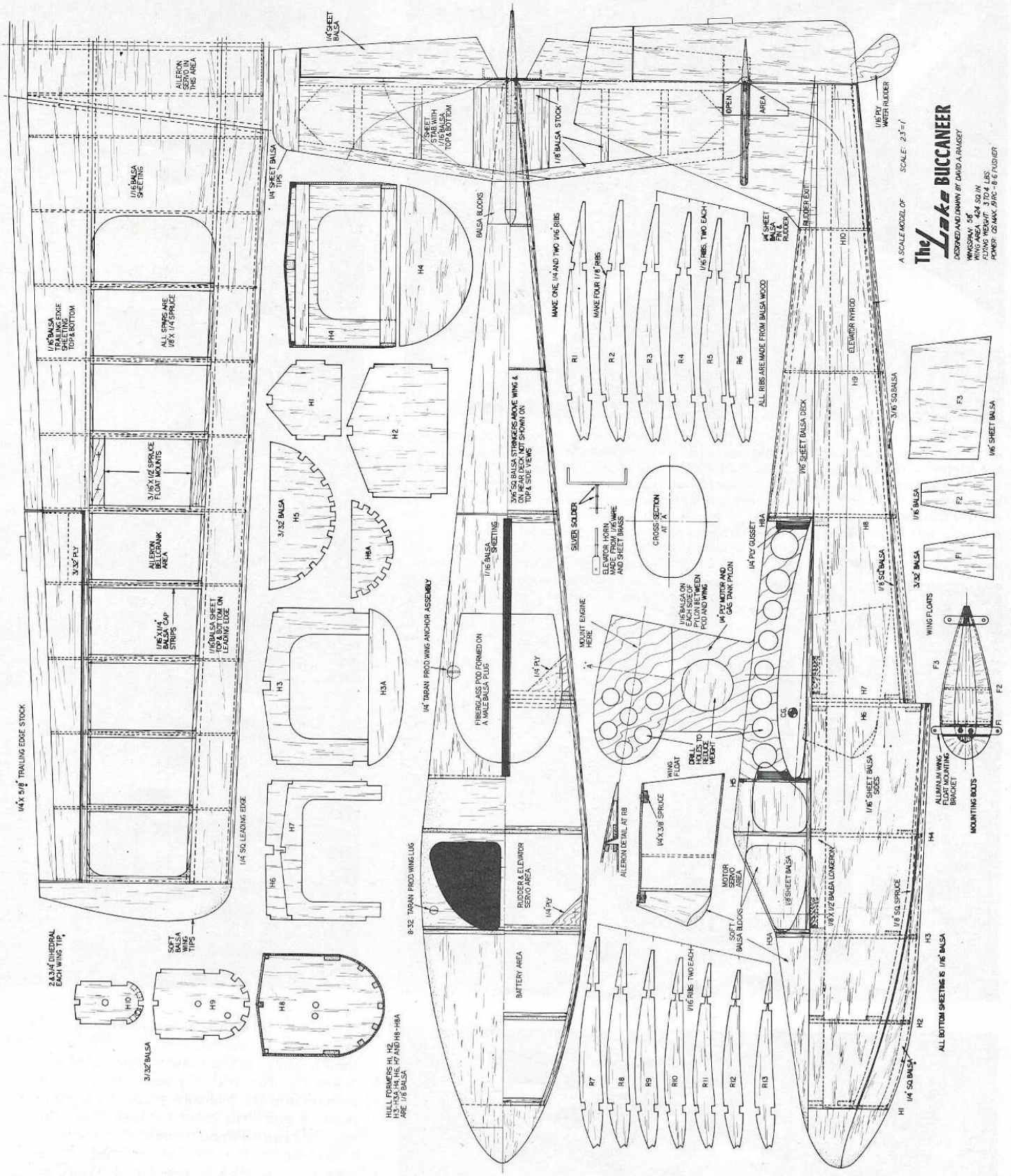
Construction

Begin by cutting out all wing ribs. The wing is constructed in three pieces, the two outer panels and the center-section. Trace the left half of the wing and turn it over so that you have a complete wing plan. Pin the bottom front spars to the plan. Glue all the ribs to that spar. Tilt the root ribs of each outer wing panel to allow for the proper dihedral. Cut a 1/16" thick by 1/4" wide strip of balsa to shim the ribs where they butt up to the trailing edge strip. Glue the trailing edge to the ribs, remove the shim before the glue dries. Glue the leading edge and the remaining top spars to the wing ribs.

After this step is taken care of, glue on the top sheeting and the top capstrips. When this is dry, remove the three sections from the plan and turn them over. Glue the bottom rear spar to the ribs and sheet and capstrip the bottom of the wings. Leave an open area in the bottom of the wing center-section for the aileron servo. Cement the tip blocks to the outer wing sections. Make holes in the ribs for your aileron linkage before joining the wing sections together. Add spruce float mounts to the wing. Cut ailerons from the wing and complete the ailerons as per plan detail.

Join the three sections of the wing together, putting in the proper dihedral. Reinforce this joint with 1/2" fiberglass tape. Use Sig lightweight fiberglass over the

Photos calculated to drive you off your gourd. At left, Dave's Lake tears across the water, the wings striving for lift. Photos above capture the moments to remember as it climbs away in flight, makes a close in fly-by for photos and finally homes in reluctantly as the tank gets thirsty. Slightly enlarged tip floats would help in the stiffer crosswinds. A ship to build for spring.



whole center-section, overlap the dihedral joint by at least one inch. Use thinned epoxy as a binder for the fiberglass as this will provide a strong joint and a good base for the motor pylon.

Fuselage

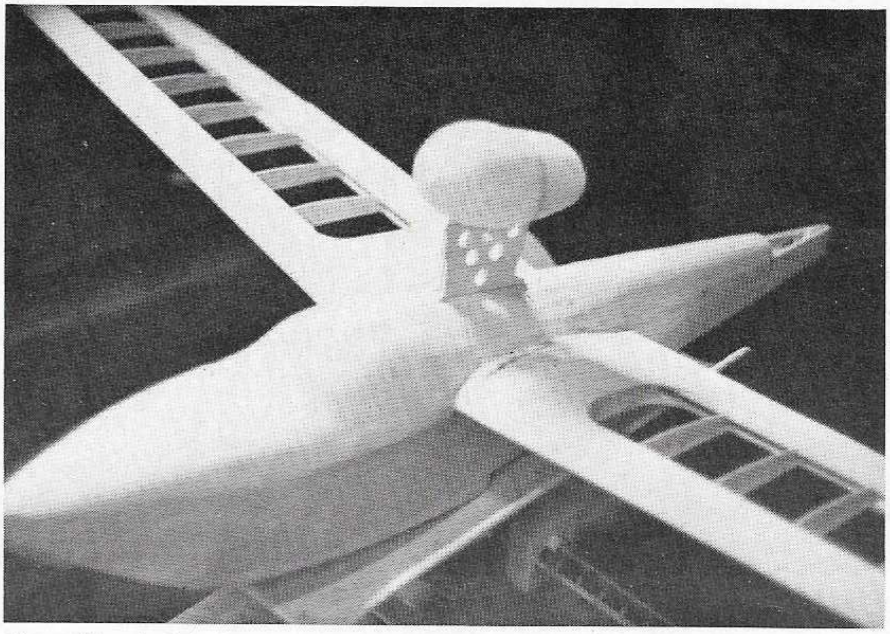
Cut out all the fuselage formers and reinforce them as shown on the plan. Cut out the fuselage sides and add the longerons. Mark the position of the formers on the fuselage sides. Glue formers H4 through H10 between the fuselage sides, square up and let dry. Use Ambroid for the fuselage construction. Wet down the front of the fuselage sides and glue the front fuselage formers in position. Use rubber bands and pins to hold the sides in position. Let this dry. Double glue all joints before removing rubber bands and pins. Add the bottom fuselage sheeting and the nose blocks. Add the stringers to the rear deck of the fuselage. Next run your Nyrods through the fuselage for the rudder and elevator and sheet the rear deck of the fuselage.

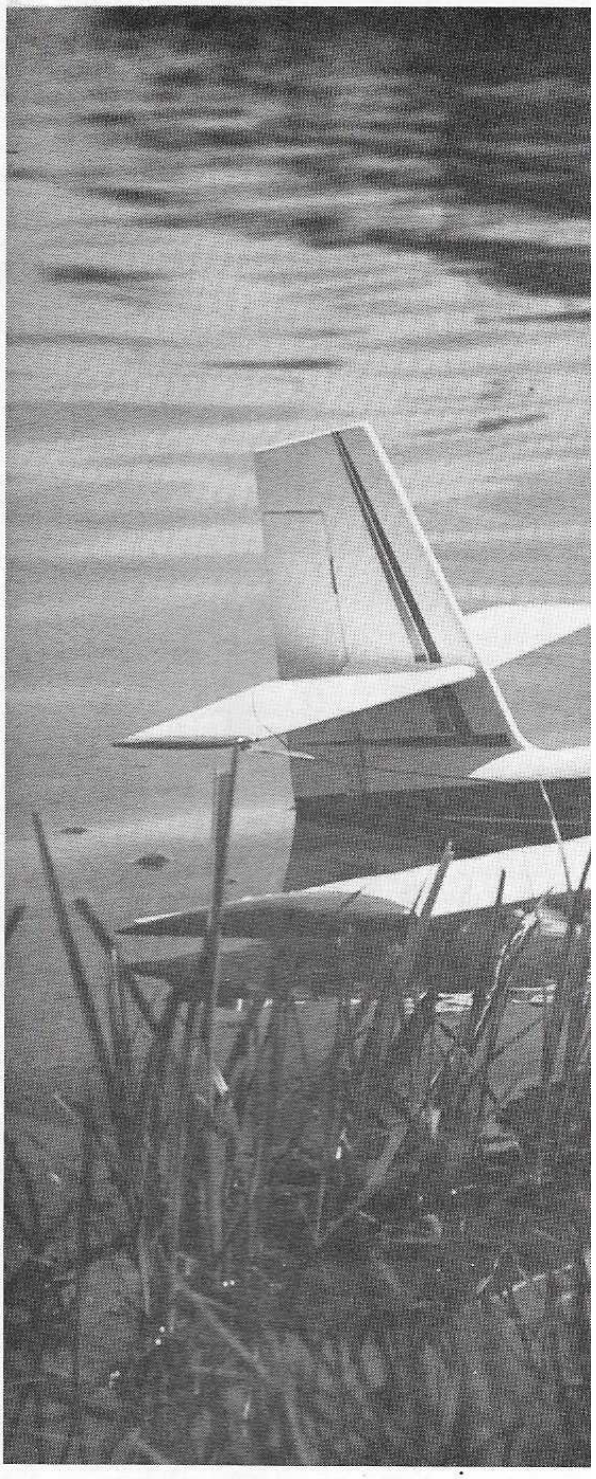
Fin and Rudder

The fin and rudder are cut from 1/4" sheet balsa. Make the cut-out in the fin for the stabilizer and elevator horn.

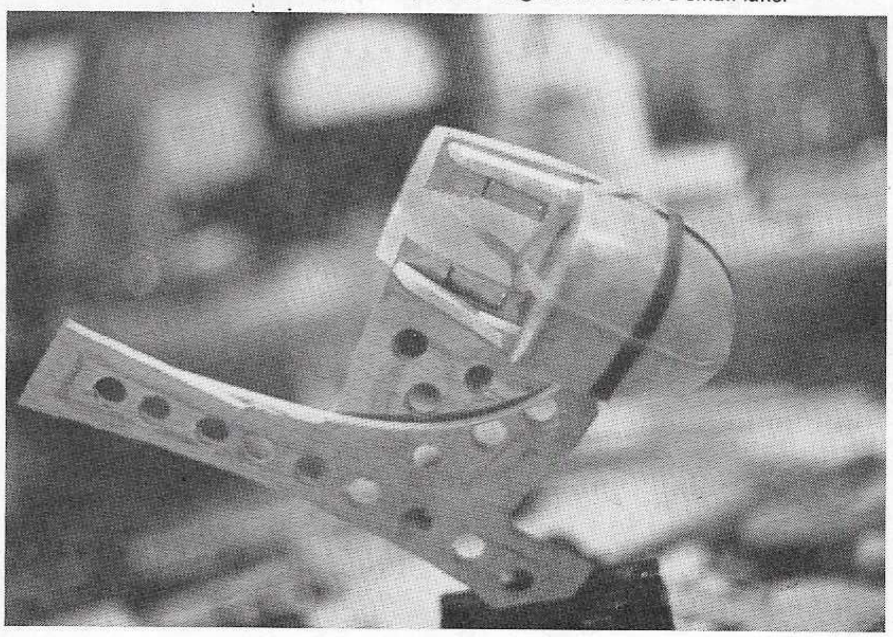
Stabilizer and Elevators

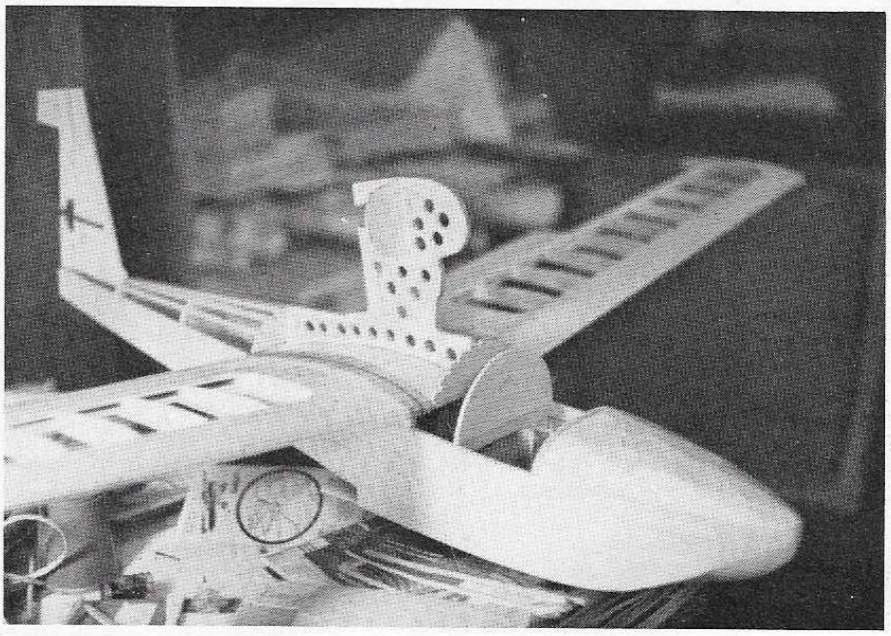
The stabilizer is built over the plan and then sheeted with 1/16" balsa top and bottom. Add the stabilizer tip blocks using 1/4" sheet balsa stock. The elevators are cut from 1/4" balsa and sanded to an even taper. The elevators are connected with 1/16" dia. wire. See the detail on the plan for making this piece. The servo to elevator hook-up can be made in two ways; the first is using a Nyrod. The Kavan type might be the best. The second is by using 1/16" dia. wire and bellcranks. I used the second method and I think the first might be easier.





Above: The wing fairs into the fuselage with scale-like precision, engine mounts in the sturdy nacelle. Wing structure is light, adequate in all respects. At right: Dave's Lake rests upon the shoreline. Note the pusher prop, available from Grish Bros. Try to improve upon the cooling if you can. Engines so mounted tend to run hot, so launch soon after starting to improve the air circulation. Below: A close look at the engine nacelle and fuel tank arrangement within. Bottom photo: The basic airframe structure, nacelle mount in place. Wide bow performs well on the water. Design offers easy radio access, a practical, inexpensive R/C to build. The wing floats function well in calm to moderate conditions. The full scale Lake can run in circles until on the step, then fly off on tangent to rise off a small lake.





Glue the fin on the fuselage and add the tail blocks, square up and let it dry. When the fin is dry, do the same for the stabilizer.

Cement the 1/4" plywood wing screw mounts into the fuselage, place the wing in position and drill holes through the wing into the rear plywood mounts. For the wing attachments I used Taran Prod. Wing Screws. Glue H3A in position (front H3A) on the fuselage, and add the top front nose block. Place the wing in position and glue the second H3A, H4 and H5 in position on the 1/8" hatch. Glue in the blocks that make up the cabin.

Engine Pylon

The pylon is cut from 1/4" plywood with holes drilled through it to lighten the weight. The pylon serves as a motor mount and a gas tank. My gas tank was built into the pod, but a commercial tank might be fitted.

The cowl pod was made from a male

Photos by Bob Humbert

balsa plug and covered with three layers of fiberglass (Sig lightweight cloth) and polyester resin. The pod was cut in half, separated from the plug and fitted to the plywood pylon using epoxy. Also coat the surface of the plywood with epoxy to fuel proof it. Part of the cowl was made so that I could remove it in order to get at the engine.

Epoxy the pylon to the wing center-section and reinforce the joint with fiberglass tape and epoxy. Add the stringers to each side of the pylon and sheet with 1/16" balsa.

Wing Floats

The floats are made from balsa. The aluminum mounting brackets are attached to the spruce mounts that are built into the wing using 4-40 nylon screws.

Finishing

Before the *Lake* is covered, both sides of the fuselage should be fiberglassed with Sig lightweight cloth and polyester resin. The bottom of the fuselage back to the step should also be fiberglassed. The bottom rear should be coated with polyester resin. The fiberglassing makes the *Lake* strong and durable.

After all the sanding was completed I finished the *Lake* with silk and dope. Mono-Kote can be used but the trimming could present a problem.

Waterproofing

"Plasti-Putty" available from most hardware stores, was used to seal the joint between the wing and the fuselage. It makes a good seal and is easy to remove after a day's flying. The rudder Nyrod should be coated with Vaseline where it exits from the rear of the fuselage; water has a way of getting into the Nyrod if you don't do this.

Flying

Make sure the *Lake* is sealed and the radio is working, get the engine running and place the model into the water. Taxi the *Lake* around for awhile to get some idea of how it feels. When you're ready, head the ship into the wind and give it full power. Hold a slight amount of up elevator and it should break off on its own. The rudder and elevator are very effective, so be careful. The ailerons on the other hand are not so sensitive. The *Lake* will only roll with the help of the rudder. The *Lake* does not like to be landed fast, the approaches should be long and a full stall landing is the best. When landed fast, the *Lake* is like a stone skipping across the water.

Scale Information

Scale information is available from Lake Aircraft, David Hooks Memorial Airport, Tomball, Texas 77375.

If you plan to use the front half of the engine pod for a gas tank, you will have to wash it out after every day's flying, because the fuel will soften the polyester resin. Mine is still holding up well even under these conditions.