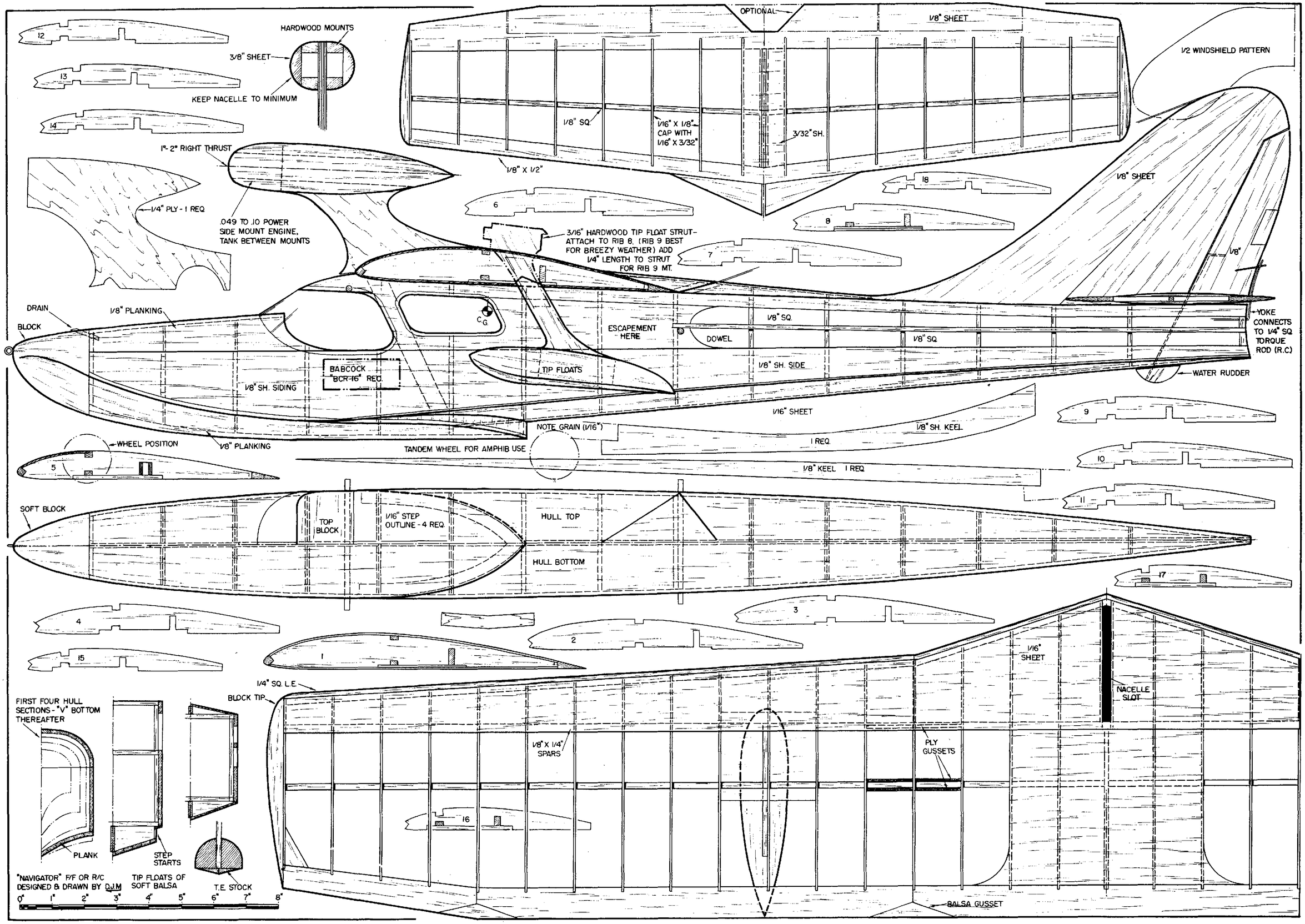
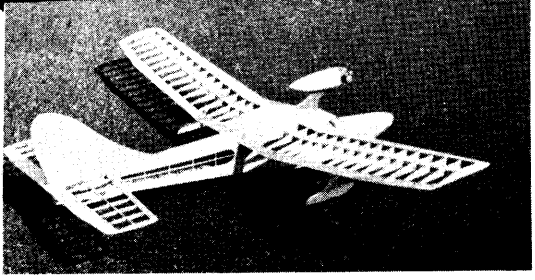

12
13
14
HARDWOOD MOUNTS
3/8" SHEET
KEEP NACELLE TO MINIMUM
1°- 2° RIGHT THRUST
1/4" PLY - 1 REQ.
.049 TO .10 POWER
SIDE MOUNT ENGINE,
TANK BETWEEN MOUNTS
OPTIONAL
1/8" SHEET
1/8" SQ.
1/16" X 1/8"
CAP WITH
1/16" X 3/32"
3/32" SH.
1/8" X 1/2"
1/2 WINDSHIELD PATTERN
18
6
8
1/8" SHEET
3/16" HARDWOOD TIP FLOAT STRUT-
ATTACH TO RIB 8. (RIB 9 BEST
FOR BREEZY WEATHER) ADD
1/4" LENGTH TO STRUT
FOR RIB 9 MT.
7
1/8"
DRAIN
BLOCK
1/8" PLANKING
C.G.
ESCAPEMENT
HERE
DOWEL
1/8" SQ.
1/8" SQ.
YOKE
CONNECTS
TO 1/4" SQ.
TORQUE
ROD (R.C.)
BABCOCK
"BCR-16" REQ.
1/8" SH. SIDE
TIP FLOATS
1/8" SH. SIDING
WATER RUDDER
1/16" SHEET
9
NOTE GRAIN (1/16")
1/8" SH. KEEL
1 REQ.
WHEEL POSITION
5
1/8" PLANKING
TANDEM WHEEL FOR AMPHIB USE
1/8" KEEL 1 REQ.
10
11
SOFT BLOCK
TOP
BLOCK
1/16" STEP
OUTLINE - 4 REQ.
HULL TOP
HULL BOTTOM
17
4
3
15
2
1
1/16"
SHEET
1/4" SQ. L.E.
BLOCK TIP
NACELLE
SLOT
1/8" X 1/4"
SPARS
PLY
GUSSETS
16
BALSA GUSSET
FIRST FOUR HULL
SECTIONS - "V" BOTTOM
THEREAFTER
PLANK
STEP
STARTS
T.E. STOCK
"NAVIGATOR" F/F OR R/C
DESIGNED & DRAWN BY D.J.M
TIP FLOATS OF
SOFT BALSA
0" 1" 2" 3" 4" 5" 6" 7" 8"



Nacelle and wing floats, designed for smallest size, minimum drag. Floats take shock well, a timer-tank is advised to limit the engine run.

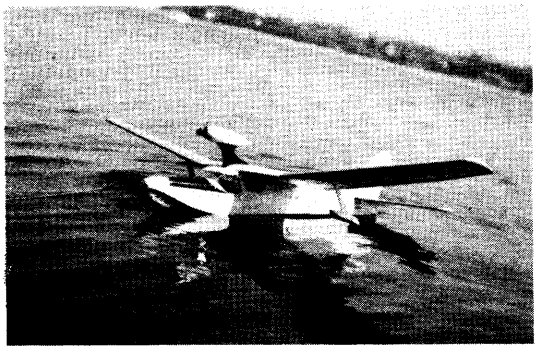
AMPHIBIOUS FLYING BOAT
Fine as a Free-Flight . . . Thrilling Sport with Radio . . .

THE "NAVIGATOR"

Take one vacation, saturate in glo-fuel, seaplanes and beach. It adds up to flying thrills to be long remembered. Start here with a simple flying boat, rugged and able, for land and sea. Summer's coming.



by Don McGovern



Use full bore for R.O.W. Water-vane can slice back r.p.m. on lift-off. Stab designed for easy elevator trim, free-flight adjustments, or may be left intact. Make your installations simple.

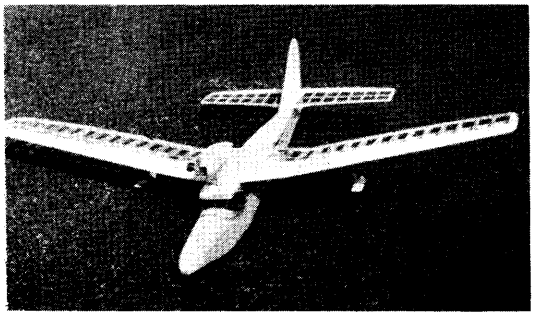
FULL SIZE "TIMELY" PLANS AVAILABLE

When your wife looks furious and your kids throw rocks at you . . . when you just don't dare suggest the usual Sunday sun-baked visitation to the local weedpatch . . . it's nice to have an alternate suggestion handy. For example — "It's going to be a scorcher — let's go to the beach." They will love you for this, you are so good to them.

Freely translated this means stick your spouse with stone-age living conditions, compounded by the problems of drowning offspring, sand encrusted sandwiches, chills, cramps, greenflies which hurt hard, and varying degrees of sun-poisoning. It is just mere coincidence that your new amphib was left like that in the trunk . . . all ready to go, fuels and tools to boot. Well, you normally wouldn't

(*Continued on Page* 39)

Light enough for easy hand-launching, from the beach or boat. Try tandem wheels for land use.

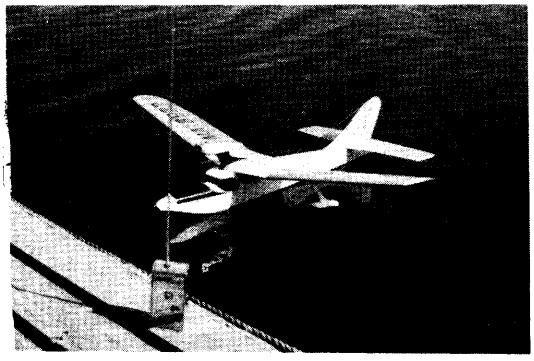


Span is 52", takes engines in the .049 through .10 range. Length is 40" overall.

Single Channel Rigs are recommended, keep weight down for R.O.W. Rudder control with optional elevator and engine speed.

Shield all equipment in plastic bags.

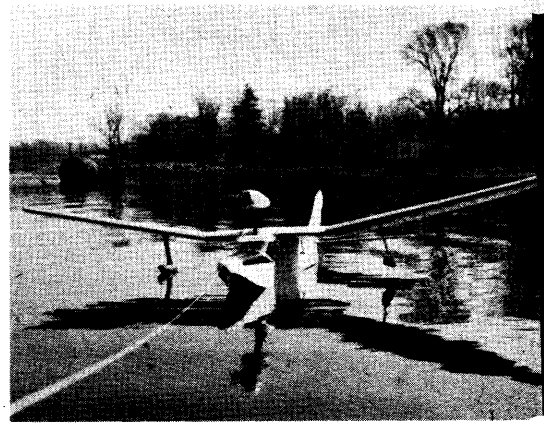
Cabin area is roomy for radio. 2½" wide, 4" in depth. Batteries stash into forward bow. Free-flighters add ballast, to maintain C.G. shown.



Design flies well as a Free-Flight, or with the minimum of radio gear. Babcock "BCR-16" used, moisture protected in clear plastic envelopes.

Standard tissue or Silkspan is suitable, silk if you prefer. Dope to high gloss and vent with pinholes. Pre-coat structure with coat of dope.





Salt or fresh water flying is suitable. Dunked engines are drained dry, flipped, blown, flushed with fuel, re-started minutes later. Same at days-end. Allow plane to dry out after use, wipe off.

follow the lead of the current champions and even improve upon it if possible. This will usually lead to a more complicated machine with much more attention to detail required, and a more complex control system. For example in todays competition it is mandatory to have wheel brakes and double action elevators, of course you can get away easily without these for sport flying. Of course today there are many different designs winning very often, hence the choice of actual design is not too critical.

In closing one point should be brought out, with proper guidance it is possible to start into multi quite far up this ladder and get away with it **providing** that the teacher is a good one and possesses much patience. However, by so doing the student is sacrificing a great deal of experience which is going to serve him well in the future. Also, believe it or not there is much to be said for the so called "lower forms" of multi, they are extremely enjoyable to fly, handle well and do provide many satisfying hours of flying. Why pass this up when it is available? ●

NAVIGATOR

(*Continued from Page 25*)

bother of course, but as long as conditions are so perfect, and the kids never saw a hydro take-off, blah etc.

You've got to be clever of course, and don't get within slinging distance of the fried chicken fat. "Just one quick flight" you assure her, as you top off the quart tank. Radio is helpful here, for as the day grows late, and the engine splutters its last, a good landing pattern will minimize the retreiving swim for your wife. She'll appreciate the gesture, and it increases her shark survival chances.

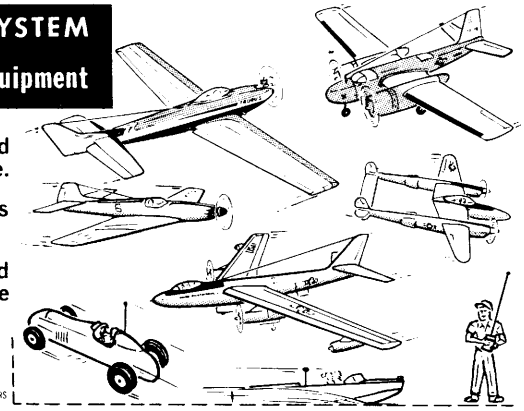
52" of wing will tuck away in almost anything but a motorcycle. The "Navigator" can be built in a week if you push, so it is a ship you can have available for a full summer season. The swimming days are arriving, so we suggest you get busy fast. The design may be flown free-flight, or via radio. It is light enough, strong enough for either. You might want to build the ship now, fly free-flight, and later install radio as your wallet permits. Torque rods etc. could be installed during assembly to simplify such later R/C installations.

To allay your fears as to water in the working parts, it is no insurmountable problem and we have long since found out about keeping the radio dry etc. The airframe itself must be very well doped, more so than a normal land ship. Pinholes in the covering between each rib position, at the trailing edge will permit any moisture accumulation to drain out, or it may be forced out by blowing into the panel section, with resulting airpressure driving a jet of water out of the pinhole. The hull itself will stay reasonably dry, but will pick up a trickle now and then. Splash water has a tendency to strike the underside of the wing, following it into the fuselage. This may be avoided by taping a hatch over the cabin area.

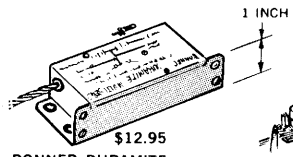
Care of the engine is very easy. First of all, a flying boat configuration tends to keep the engine dry, seldom dunks it. Should the engine soak itself, pour out excess, blow dry, crank over, souse in fuel, drain again, and re-start. First few splutters will bring forth remainder of the lake, and then steady down to the usual smearings. At days end, run the engine dry, lubricate inside and out. Flip the engine through a few times during week and prime if it feels stiff. For any slight effect the salt or fresh water might have, it is nothing compared to the grit and cinders encountered by landlocked counterparts. We do advise guarding against sand-intake. Stuff the exhaust etc. when not in use, for a few grains in the engine 'innards can score the piston in a hurry.

A soaking wet radio is ideal for ballast, and that's all. Same for servos, escapements. They must be 100% waterproofed, or forget it. Fortunately, this is easy to do. Modern receivers can be slipped ino plastic envelopes, lashed with rubber. A packet of silicagel from a camera shop

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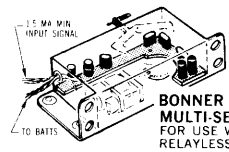


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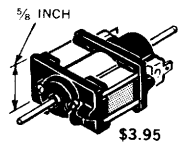


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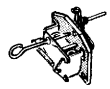
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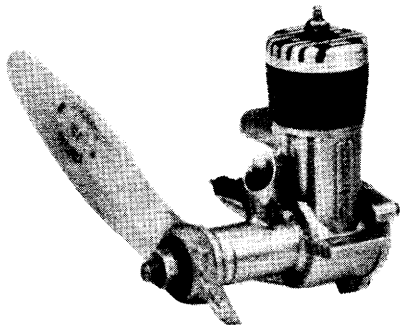
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will absorb any dampness which might enter the envelope. Batteries are also easily protected in like manner, and a little finagling will house your servo or escapement in a suitable plastic or balsa box. This is just a trifle harder, as the torque rod, rubber must enter.

We have never suffered any R/C damage at all, once these simple precautions were taken. Time spent will be well worth it in trouble-free operation. Keep all switches well within the structure, shielded from water, and activated by an insulated rod. The same goes for the transmitter. If operated from a boat, encase in plastic or box to avoid water spray, keep your feet DRY and your hands DRY. The power supply of some R/C transmitters and receivers can be close to lethal when combined with a soaking wet unwary operator.

'Nuff said on that. In building the ship, the important thing is to keep weight down, all surfaces true, thrust adjustments indicated. Power is .049 through .10's, and expect wilder flight with the larger. A great deal of power is required to R.O.W., and it will take a good .049 and a light ship to get off. The .10 will drag it off fast, but somewhat over-power it once airborne. R/C can control this, and will make a good flier out of it with engine speed control. Free-flighter's can do it another way . . . a wire drag vane in the water which shifts the engine speed control into a medium range as the hull breaks off the water. You may of course want the full power once the design is trimmed out.

Ignore all else and get to building. Study the plans, select suitable wood, and decide on any modifications etc. you might want to include, as well as to R/C or Free-flight installations.

WING ASSEMBLY: All ribs are shown, two of each required. Cut from a medium grade. The airfoil is basically flat bottomed, with recessed spars. A 1/16" x 1/8" strip caps over the bottom camber to reinforce the spar notch, and avoid the typical under-camber warp that might otherwise result when the finished wing is highly doped. Optional if you like, seat the spars flat on the plan and save a little assembly time. A 1" trailing edge is employed, notched 1/8" deep for good rib joint. Wing leading edge is sheeted for durability and stressed to withstand landing jolts on the wing floats. Gusset the trailing edge and leading edge joints to keep wing intact. It should be noted that skin-stressed surfaces are not so hot when it comes to water-based craft. Tiny wrinkles will be visible during flying sessions, and a weak structure will flex under violent maneuvers. The framework should be a little more self-supporting, without the strength gained from the covering itself. As soon as the plane returns to dry air, the covering will become drum-tight once again.

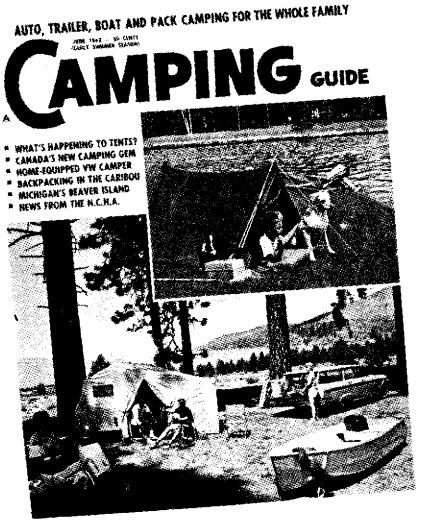
Once the panels are joined with the balsa and ply gussets, the nacelle mount may be installed. Spare no effort on this, it must be well cemented between the two center ribs, braced with scrap balsa and further reinforced with the center-section sheet planking top and bottom. Sand the entire assembly smooth, double coat all cement joints and make ready for covering.

STABILIZER: This requires no ribs to be cut out as such. Leading edge is 1/8" x 1/2", spar is 1/8" sq., trailing edge is 1/8" sheet. The sheet may be left intact, or later sliced as indicated for elevator surfaces, trim tabs etc. Bevel toward extreme edge and sand to an airfoil shape.

Pin the leading edge, trailing edge sheet stock flat on the plan. Shim bevelled rear edge as necessary to keep stab symmetrical. Position the 1/8" sq. spar on the plan, and cut lengths of 1/16" x 1/8" to form the ribs on either side of the spar. Your stab is now assembled, and 1/8" in thickness. The simple butt joint of the 1/16" x 1/8" ribs would be prone to severe warpage if left as is, and for that reason each rib is capped top and bottom with medium soft 1/16" x 3/32" strips. As these are cut to length, trim to a taper fore and aft for an airfoil effect. This will minimize trimming and sanding when in position. The top camber strips may be installed while the stab is still laid out over the plan. Once dry, remove from the bench and cement lower camber rib caps in place in like manner. Add 1/4" x 3/8" stab tips,, 3/32" sheet at center-section, leaving slot for rudder on the upper surface. Trim and sand, slice off elevator areas and hinge if desired for R/C.

(*Continued on Page* 44)

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THE MOSQUITO

(*Continued from Page* 10)

knowledge to tackle. Plans and photos show all necessary data on the gear, and we think you will get a lot of satisfaction out of its operation, for the time spent.

Those desiring to build a fixed gear may of course do so. It is not a "must", so this choice is left to the builder.

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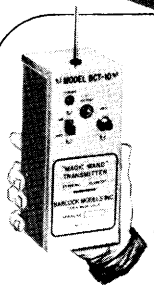
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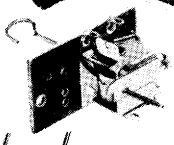
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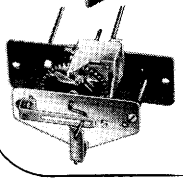
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NAVIGATOR

(*Continued from Page 40*)

RUDDER & FIN: Assemble from 1/8" sheet, sand smooth, trim and sand to an airfoil section. Those desiring to use radio should hinge rudder as shown, and note the sheet metal water rudder is attached, turning with the rudder movement. This water rudder may be set manually for Free-flight and need not be connected to the rudder itself.

A sticky point is the dethermalizer situation. Should you strongly desire a pop-up stab deal, you could re-design the basic fin shape to suit, or use as is with a dorsal dissappearing into a fuselage slot. It should be pointed out however, thermals are scarce in water areas. They do exist at times, and it is a calculated risk. Furthermore, you should consider something other than a fuse. A wet fuse is a terribly slow burning fuse at best. Timer D.T.'s should be waterproofed, so act accordingly. Wing Spoilers may also be installed to act as a dethermalizer. Radio flyers can rely on rudder to control height, and stab and rudder assembly has been designed for cementing in position. Small size, freedom from normal types of land damage make this a practical idea. Trim surfaces can make minor incidence adjustments etc., and of course the wing is free to shift position, and its incidence can be shimmed if necessary.

Hinge the rudder as indicated, making sure it can pivot at the slightest breath of air. The rudder throw yoke should be variable, and follows normal R/C procedure.

HULL ASSEMBLY: Two sides are first constructed, with 1/8" sheet running the full length as seen in the side plan view. Above this, 1/8" sheeting is butted to it, forming the cabin, window areas. 1/8" x 3/8" medium hard strip balsa forms the upper longeron, from the front windshield all the way aft. A 1/8" sq. stringer is next positioned between the 1/8" x 3/8" and the sheet, notched into the cabin sheeting. All this lies flat on the plan, 1/8" in height. 1/8" sq. uprights are now cemented in place to reinforce the sheeting and hold the correct heights. Make one right side, and one left. Each side is now 1/4" in thickness at the highest points. Once one side is assembled and removed from the plan, the opposite side may be assembled on its sheet side, and uprights lined up to match. 3/16" x 3/4" reinforcements in the cabin area are next, and once sides are dry, they may be separated and joined with 1/8" sq. cross-pieces.

Top and bottom keel strips are now installed, followed by triangular sheet wedges to create the "V" shape. Bottom aft sheeting is now installed. Use a medium grade of 1/16" stock for this, bevelling to meet at the keel, and chine edge. Sheet should run forward to and slightly past the step area.

Refer to top plan view on this. Assemble the step area, then follow with forward bottom hull planking. A little patience, pins and glue will create the necessary bow flair.

Those desiring to make an amphibian out of the ship would do well to attach necessary tubing sockets etc. to receive gear, while structure is still open and easy to reach. A two-wheel tandem type gear might suffice for most land needs, with tip floats acting as skids. Small disk type wheels could be installed, or at least a wire skid for protection.

Block balsa is shaped to form the bow, and a small eyelet is attached to serve as mooring hook. Fine for floating the plane a few feet off-shore away from beach pests.

The forward hull area has no external hatch, so the rounded upper surface in front of the windshield is planked. First however, install suggested battery compartment runners etc., should you intend to fly R/C. All access to equipment is through the cabin roof. Batteries encased in plastic film envelopes are slipped into the foam-padded tunnel-like bow compartment. All Free-flight builders should install ballast in this area, if and when needed to exactly retain indicated balance point.

While aft hull area is still accessible, install all torque rod, escapement rubber, winding hooks etc., and check for freedom of movement. Also, you might want to spray or brush a coat or two of clear dope on these inner hull surfaces, which will be exposed to moisture.

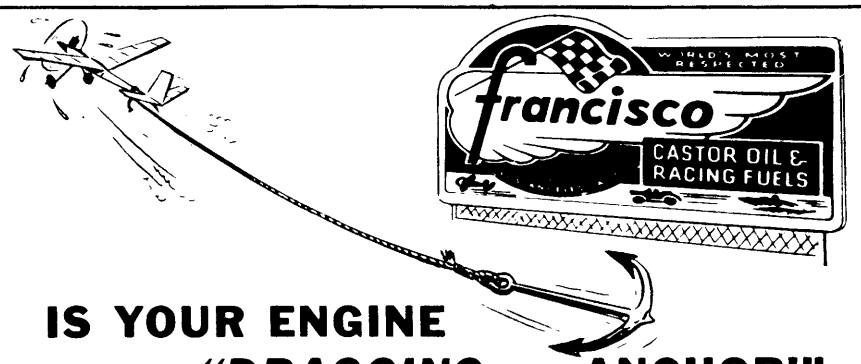
Receiver is mounted in mid-cabin, foam rubber protected, just forward of the escapement. Babcock BCR-16 Receivers and like units rattle around with plenty of room to spare in the cabin, so installation is no problem. We do suggest that you hold the design to single channel, with perhaps elevator trim and engine control. Multi installations would be a little cumbersome for this size ship, and weight is a penalty when it comes to breaking off the water.

With all dowels and such in place, stab, rudder fin attached and aligned, the fuselage or hull may be completed. Sheet the uper aft portions as indicated, install cabin windows, recessing sheeting a sliver to flush-mount the celluloid.

The entire hull should be carefully trimmed and sanded with medium through fine grits, and given several coats of clear dope to waterproof the frame prior to covering. This is most important and should not be overlooked. Leave no visible leaks in the hull, but do provide a drain tube in the nose area. By tipping the hull on end, any bilge water can be returned to the pond.

ENGINE NACELLE: 4 degrees upthrust is desirable, coupled with a two to three degrees right. Use a touch more than normal on the right

(*Continued on Page* 50)



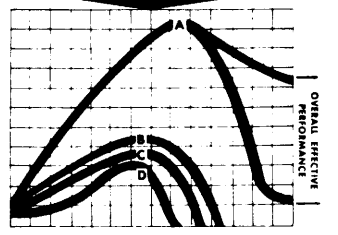
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HALF WHAT?

(*Continued from Page* 33)

on both sides and top and bottom of the fuselage. If you don't fiberglass, at least put two layers of nylon or silk around the nose and firewall and saturate with a fuelproof cement.

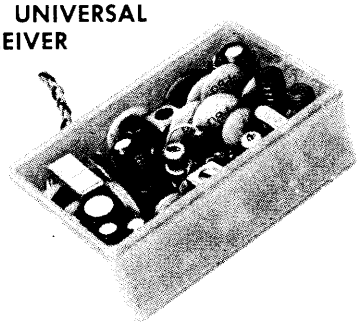
At this time, assemble the rudder on the fuselage taking care to see that it is vertical and, most important, aligned fore and aft. A line, scribed from the centerline of the firewall to the centerline of the fuselage rear is helpful.

We covered our entire model with Jap Tissue for several reasons. First it will present a glossy finish with little dope. Secondly, because it adds strength to the sheet. Thirdly, because it fills the grain without the weight of many coats of wood filler and last, but not least, because it gives us color without the use of heavy colored dopes. We do use one thin coat of sanding sealer merely to even the balsa coloration and we also did use a small amount of colored dope. The colored dope is sprayed on around the nose to cover the spots we couldn't cover with tissue. It fades out toward the rear. The windows are painted on with white dope. All other colored trim, including the black pin stripes, is done with tissue.

Dope the model with a good fuelproof dope until it is glossy. Dull finishes absorb fuel more readily. You will note that our aim is to produce a

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Ambroid Angels Airborne!

What's this — more new Ambroid kits or other products? Nope! Just the name of a year-old Hyde Park, N.Y., group which calls itself the "Ambroid Angels". When Ambroid's Arthur Laneau heard about them, he was so tickled by the name, he had artist Bob Godden design the insignia shown above, for the club's exclusive use. All twenty members use Ambroid Cement ("Regular" for building and "Extra-Fast" for field repairs) and mostly fly Ambroid ARES and SCRAPPER kit models. In addition to competing in model meets, the "Angels" have a hot exhibition team which puts on C/L flying shows for hospitals, schools and other organizations. And we bet our team can lick any rival brand team...

AMBROID "REGULAR" CEMENT
Tubes: 20 cc, 15¢ / 1-3/4 oz., 30¢
4 oz., 60¢ • Cans: Pint, $1.75
Quart, $3.35 / Gallon, $8.75

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20 cc Tube, 15¢

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Complete Unit, $2.95 / Propellent
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Cans: Pint, $1.75 / Quart, $2.75
Gallon, $8.50 / 5 Gallon, $35.00

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PLUS
AMBROID KIT LINE (22 MODELS)



IN EVERY FIELD THERE'S A LEADER – IN MODEL AVIATION IT'S AMBROID
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NAVIGATOR

(*Continued from Page 45*)

thrust, as the thrust setting is less effective with this engine mid-ship mounting position.

Aim at the smallest overall nacelle size practical for your engine choice, mount width needed etc. Follow basic nacelle structure indicated and cement together thoroughly. To eliminate the need of waterproofing a timer, we suggest limiting the tank capacity for Free-flight flying. Trim and sand the completed nacelle prior to installation.

WING FLOATS: The small size of these floats makes it practical to fabricate them from laminated sheet or small blocks. Hollow if you like to create a lighter structure. Trim and sand smooth, mount as indicated on the plan to lessen wing damage in rough landings. Floats should just clear the water for best results.

COVERING: Tissue, Silkspan or silk may be used. Apply wet or dry if using Silkspan or silk, dry if using tissue. Water shrink after tissue is attached and follow when dry with clear dope and colored trim, decals to suit.

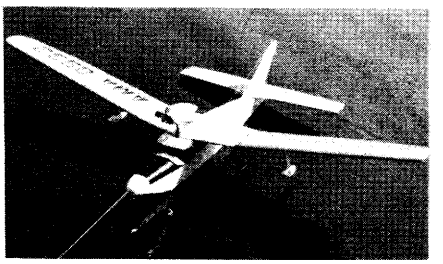
Once the airplane is finished, sight for warps and steam out as necessary. Twist affilicted panels an equal amount in the opposite direction and hold till cool. Repeat as required to adjust, then let surfaces set for a day or so before flying. Pierce through both upper and lower camber covering at the trailing edge rib joints. This small hole not only permits water to drain off, but serves as an airpressure escape valve. When the highly doped wing and tail are exposed to hot sunlight, the covering can and will bloat up severely, ruining the covering, and possibly splitting it wide open.

FLYING: Check the assembled ship for balance, thrust, engine tightness, warps, wing rubber tension etc. When all seems serene, it is time for the beach.

Test the model in the water, observe wing float settings, water rudder trim etc. Make certain the cabin roof area is sealed off to minimize water entrance. Also get in the habit of draining the hull by holding vertically at every opportunity. Seaplanes will gain weight in the aft end, throwing balance points way off.

Next, a few hand glides are in order, and save a dunked engine, it is hard to damage the ship in this stage. Water is reasonably forgiving of stalls, and low-speed founderings, but be advised a power dive from a height, or a bad pin can completely demolish a seaplane. The water seems to wrench them to pieces, probably due to the fact the model digs in rather than hitting a glancing blow.

Once the glides look good, it is time for the prop to spin. R/C'ers should pause for a range check, test out the equipment. A boat of some kind



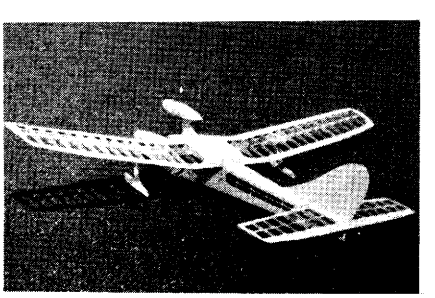
"Navigator" floats well in water, runs a dozen yards to gather speed before lift-off. Easy to trim-out in the air, seldom flips on landing.

should be handy, particularly on larger open-water bays and lakes. We suggest hand launching from beach or boat for initial lower-power tests. R.O.W. requires full r.p.m., and who wants to trim it out wide open? If you intend a boat-launch, run the boat into the wind (or row like crazy up to flying speed) and let the model lift out of your hand with a minimum of shove. This avoids a sudden thrust from a stationary boat. As most small craft are confined to say the least, one good shove and you fall in with it. Such launches are notorious for stalling the engine, and dunking it to cool it.

Gain a little height and watch the flight pattern, trimming out as you would a land ship. With R/C, often more space to maneuver can be had over the bays and lakes, and tight turns to stay near the field are less imporant. Particularly if you have a boat handy to follow along with it.

Water take-offs seem to be on everybodys list of things to do. Once the ship is in fine flying trim, give it a try. Open up the engine, aim into the wind, and let it go. Properly trimmed, it will gather speed, plane on the afterbody, and lift off. Try a touch of up-elevator to assist if necessary, and as mentioned earlier, if the power seems excessive, install a water vane to cut the engine r.p.m. to a medium speed on lifting off the surfaec.

The wheeling glide overhead, and the final smooth aproach to the touchdown will be your reward. It will make a confirmed hydro addict out of you. And for next year's vacation might we suggest taking the wife to the moutains? We'll probably print a slope-soarer for you to duck in the trunk by then. Drop us a photo. ●



Hull side is built flat, 1/8" sheet, and 1/8" x 3/8" longeron. Add uprights, join in standard fashion. Add the keel, formers, sheeting, build up step.