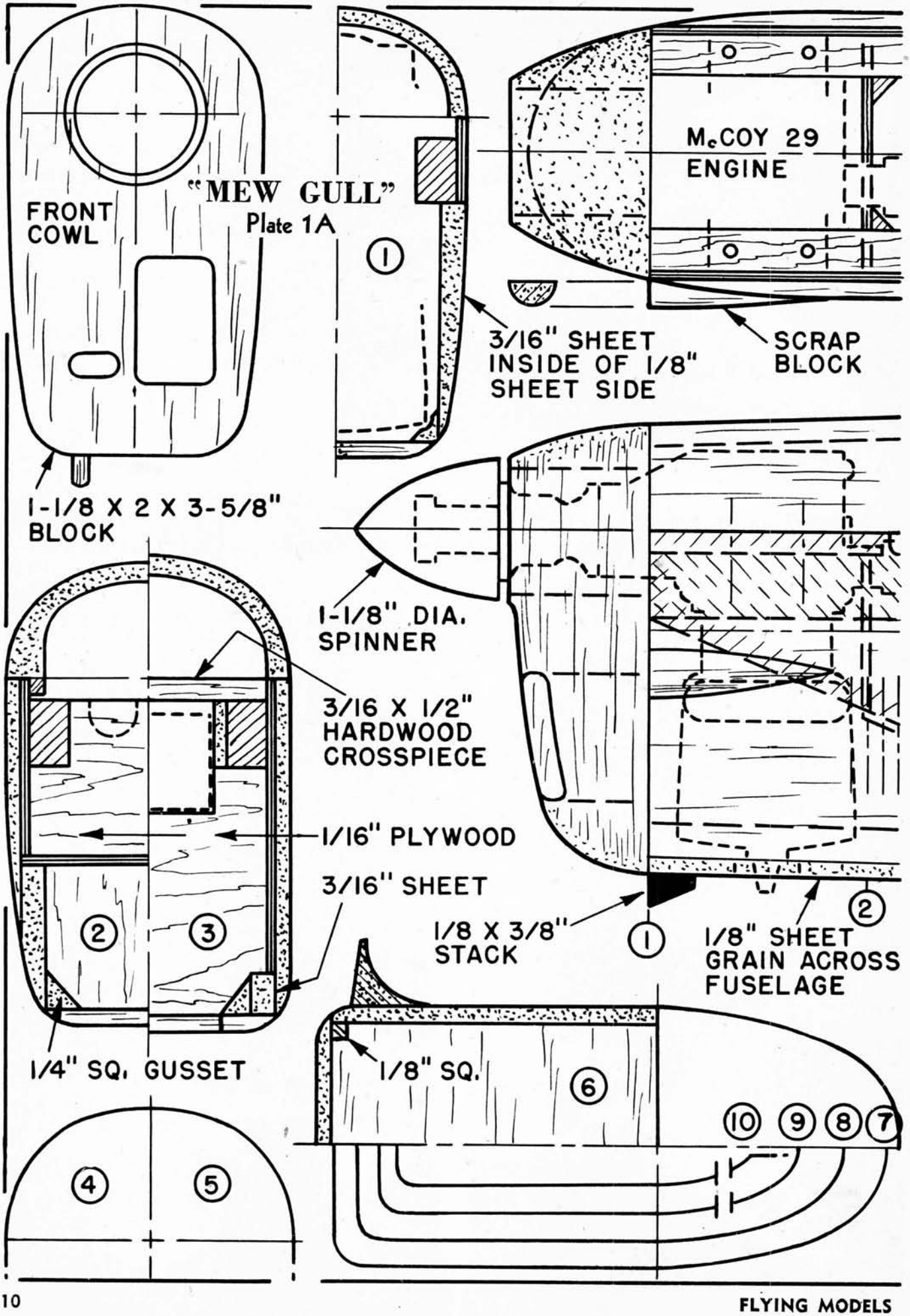

"MEW GULL"
Plate 1A
FRONT COWL
1-1/8 X 2 X 3-5/8" BLOCK
McCOY 29 ENGINE
3/16" SHEET INSIDE OF 1/8" SHEET SIDE
SCRAP BLOCK
1-1/8" DIA. SPINNER
3/16 X 1/2" HARDWOOD CROSSPIECE
1/16" PLYWOOD
3/16" SHEET
1/8 X 3/8" STACK
1/8" SHEET GRAIN ACROSS FUSELAGE
1/4" SQ. GUSSET
1/8" SQ.
1
2
3
4
5
6
7
8
9
10


**For a team or proto racer, it's hard to beat this famous plane of yesteryear. Full-size plans make it easy to build**

***by S. Calhoun Smith***

# PERCIVAL "Mew Gull" RACER

● The rapid growth of interest in team racing and its many variations, such as proto, prompted the construction of our "Mew Gull". The West Coast's F.A.S.T. boys have set the pace with their rules of minimum wing area, engine size, etc., but much is yet to be done on behalf of the pure scale fans.

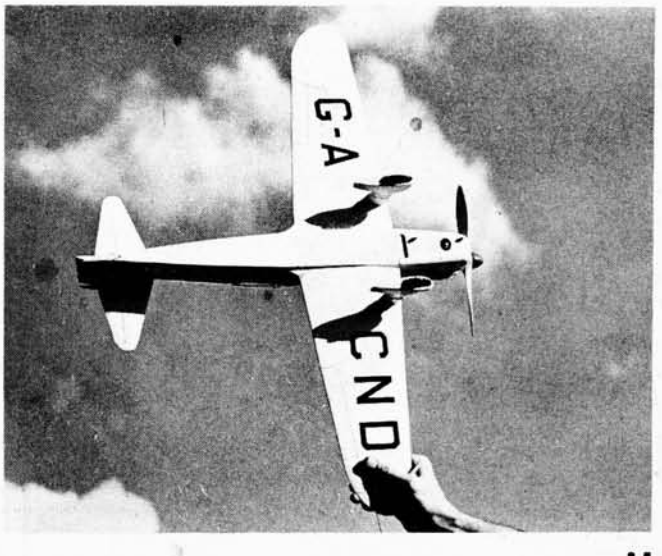
Since none of the proposed rules are official nationally as yet, we have tried to design a model that is very close to scale and yet legal under the proposed F.A.S.T. rules. Naturally we would like to see a line-up of scale Petes, Mikes, Wedell-Williams and Folkerts in the team-race circle, so maybe this scale model will help the movement along.

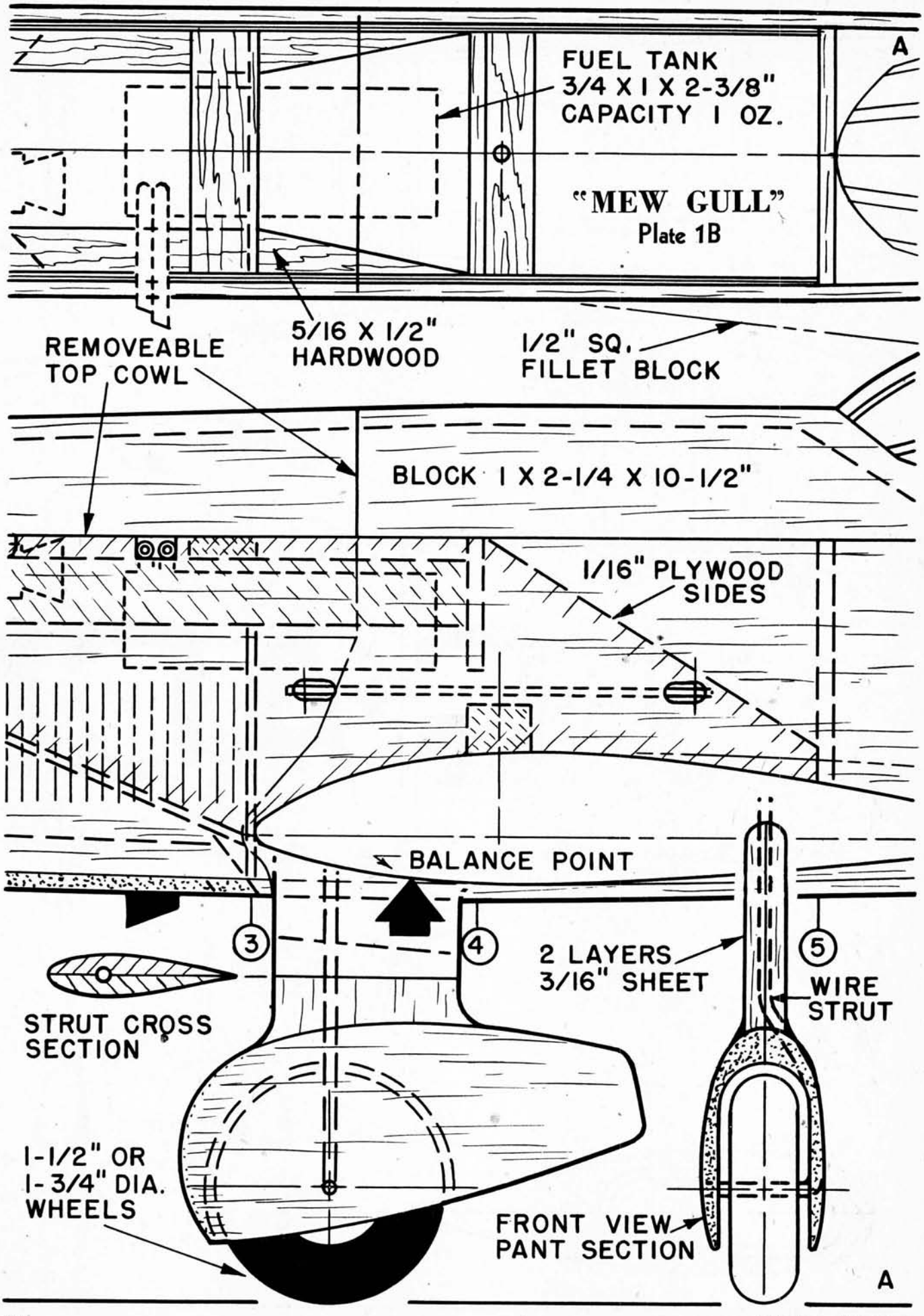
The possibilities for scale racers are endless, and some of the trimmest looking airplanes ever built came out of the pre-war racing era. Way back in the files we uncovered the "Mew Gull", a natural for racing and appearance if ever there was one.

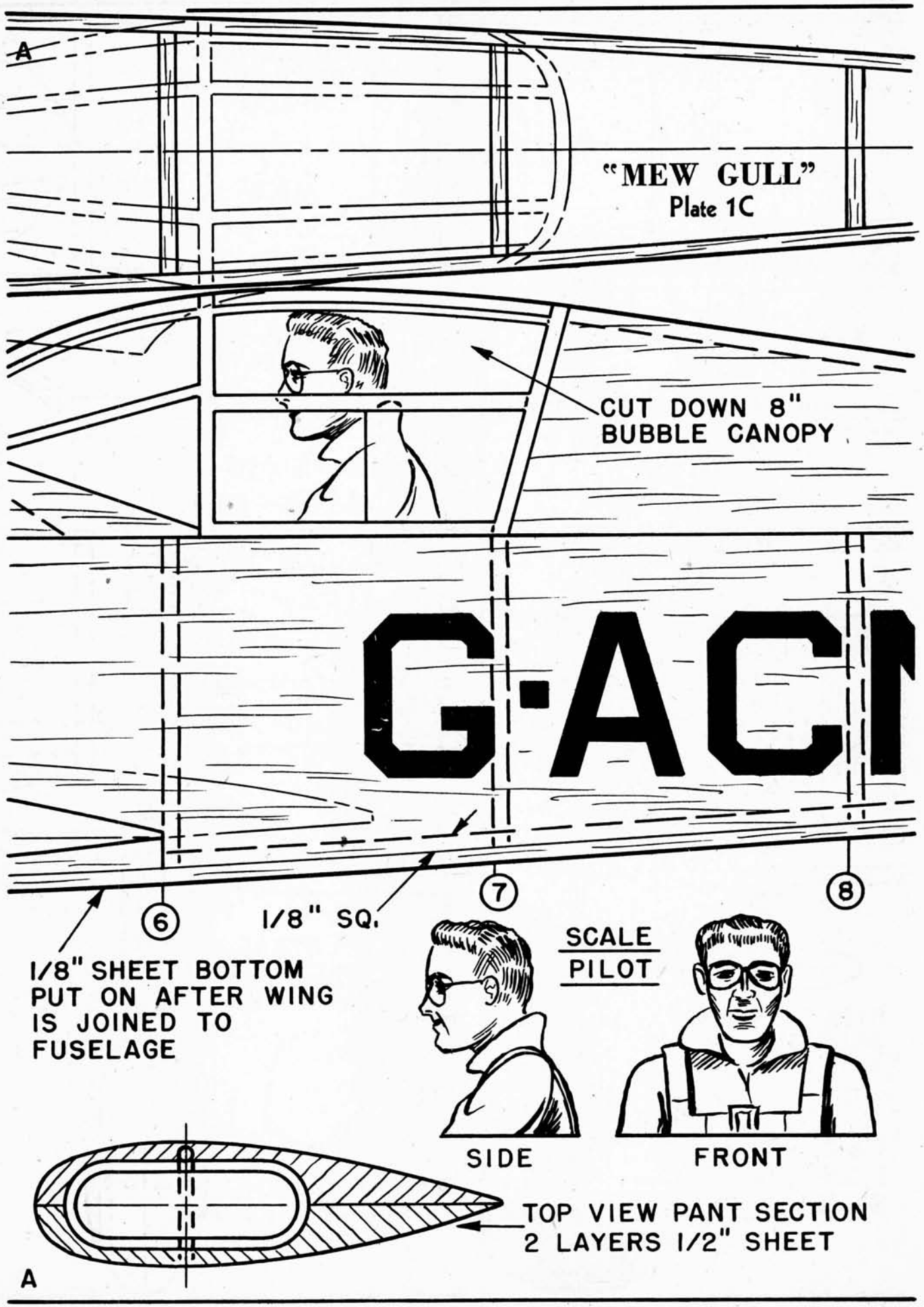
The full-scale "Mew Gull" made its appearance in 1935-36, in England, and proceeded to hang up a long list of wins, both there and on the continent. It was designed and flown by Capt. E. W. Percival. Its 200 h.p. Gypsy-Six engine gave it a top speed of 225 m.p.h. and it cruised at 190 m.p.h. The airplane's *(Turn to Page 52)*

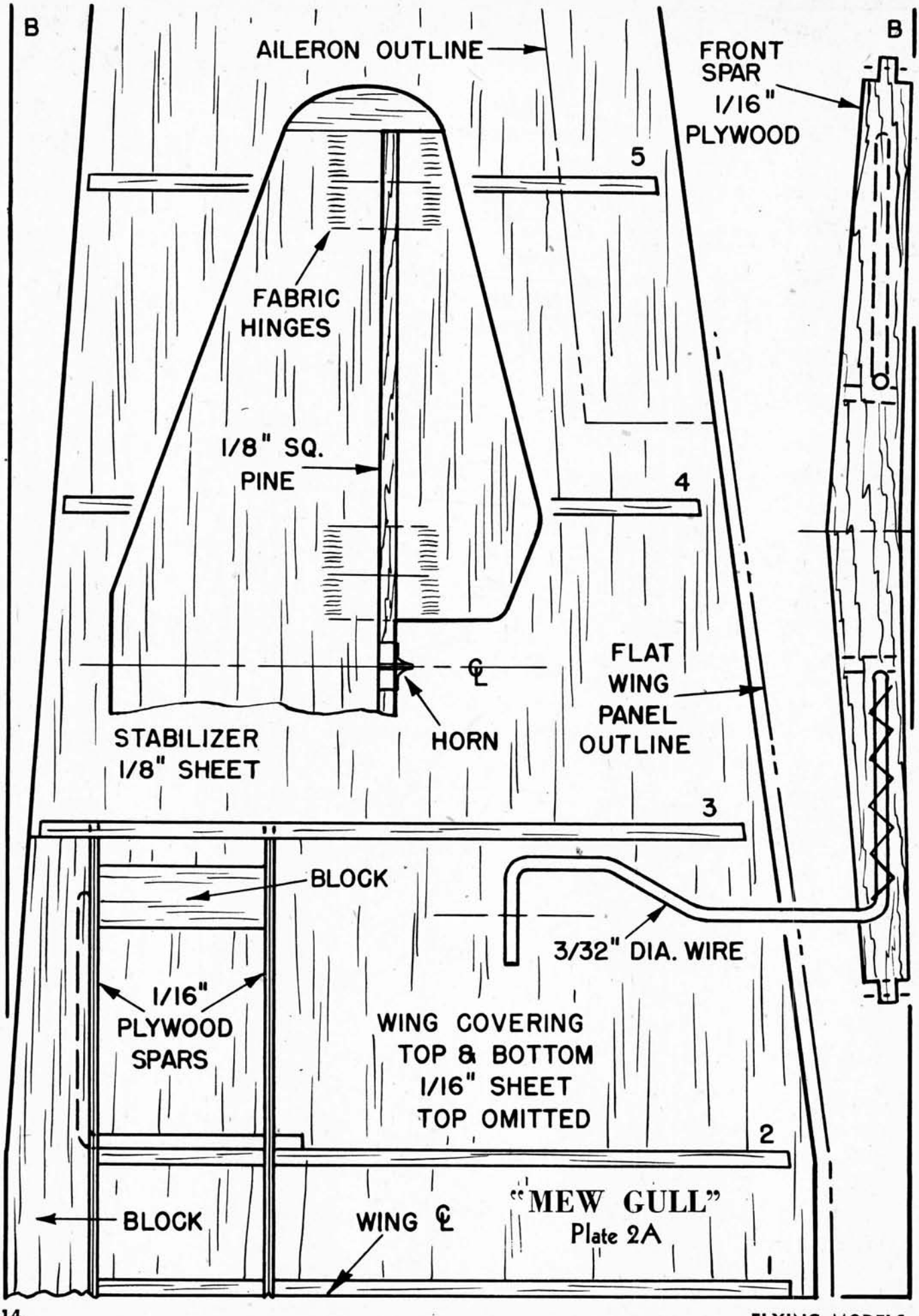
Wondering about field servicing problems? The top front fuselage section of the "Mew Gull" comes off quickly for refueling or motor removal.

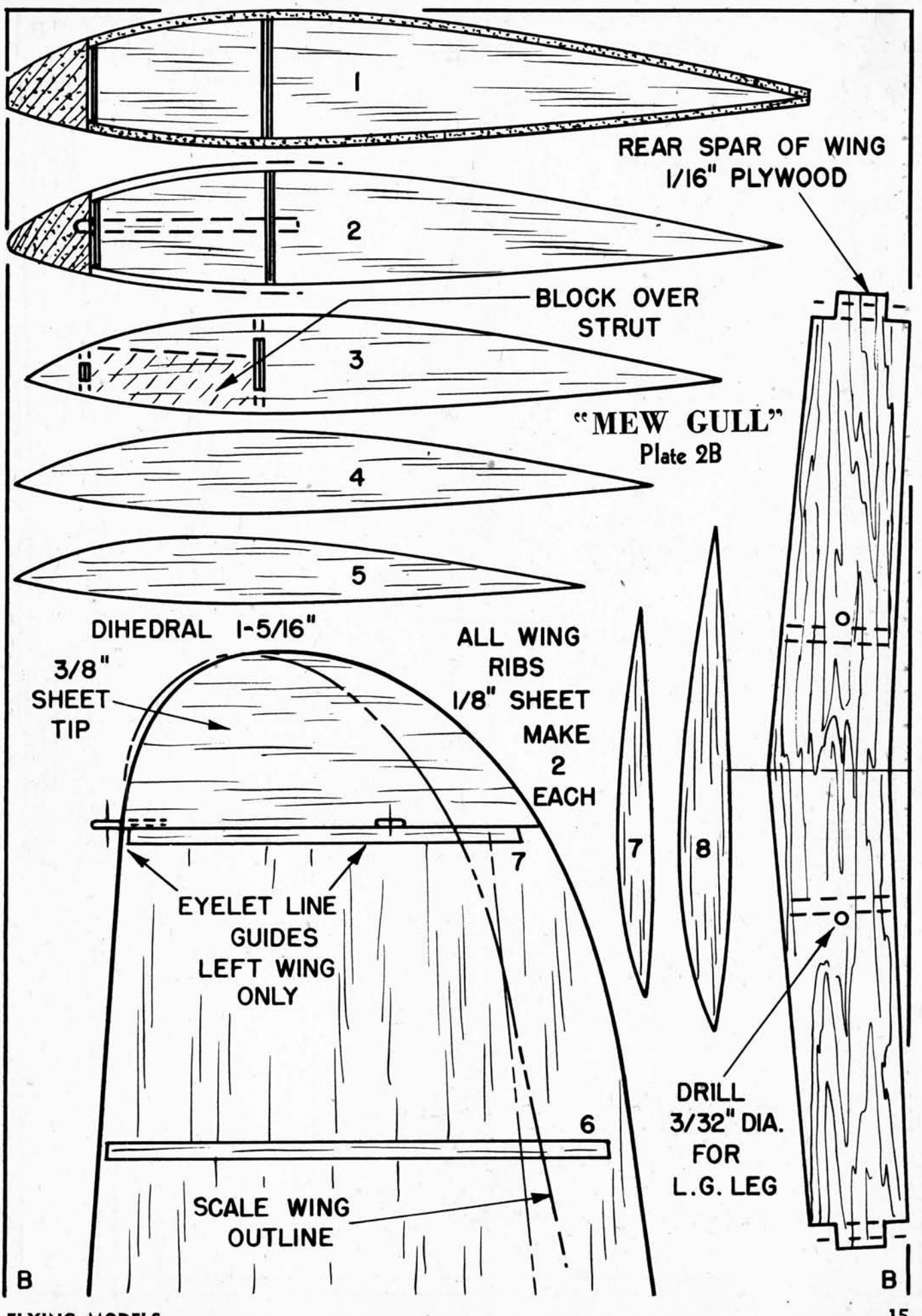

Bottoms up! Remember, a proto racer is supposed to be a thing of beauty —so do a good lettering and paint job on the bottom as well as on top.

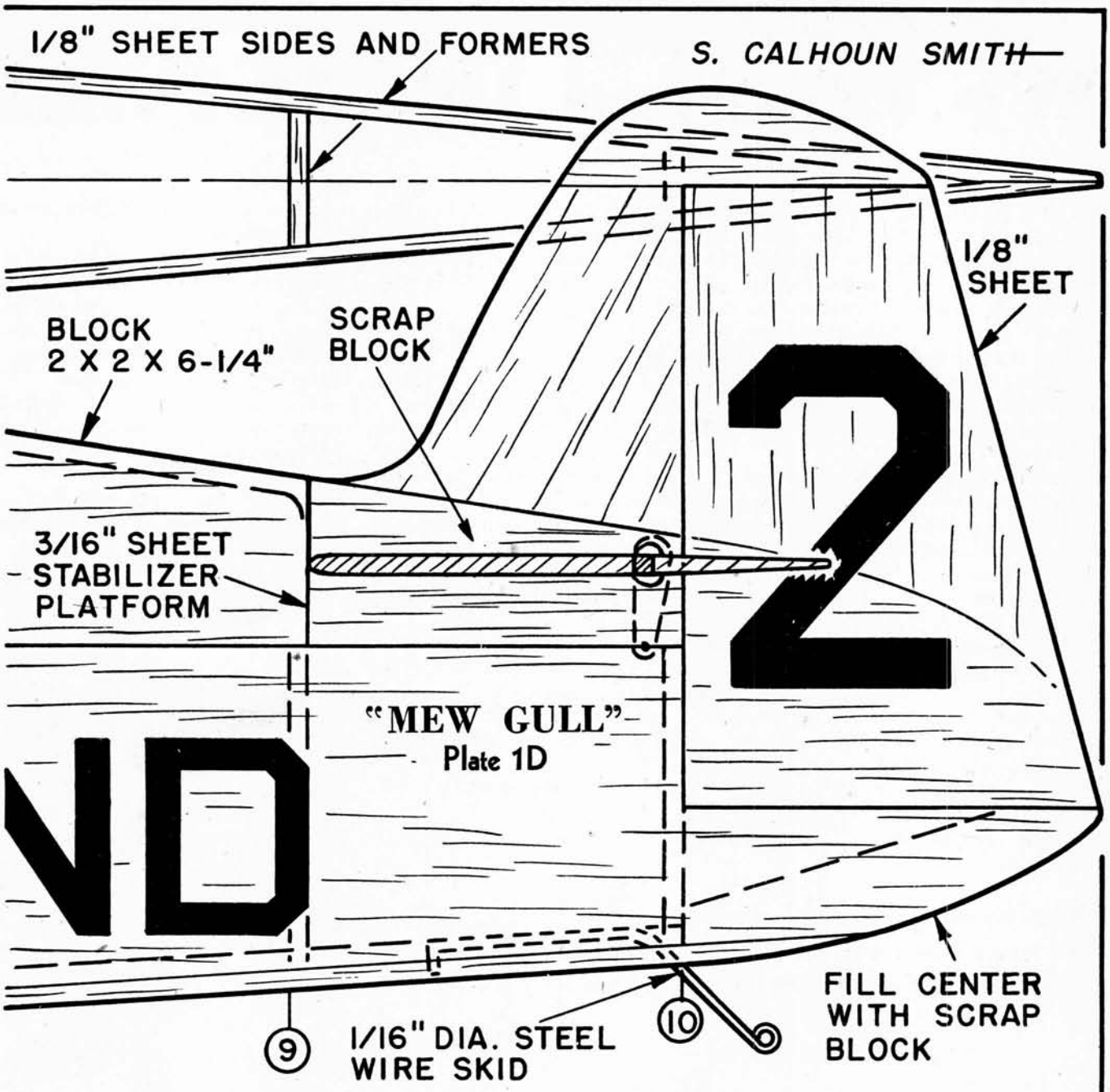



FUEL TANK
3/4 X 1 X 2-3/8"
CAPACITY 1 OZ.
A
"MEW GULL"
Plate 1B
5/16 X 1/2"
HARDWOOD
1/2" SQ.
FILLET BLOCK
REMOVEABLE
TOP COWL
BLOCK 1 X 2-1/4 X 10-1/2"
1/16" PLYWOOD
SIDES
BALANCE POINT
3
4
5
2 LAYERS
3/16" SHEET
WIRE
STRUT
STRUT CROSS
SECTION
1-1/2" OR
1-3/4" DIA.
WHEELS
FRONT VIEW
PANT SECTION
A


A
"MEW GULL"
Plate 1C
CUT DOWN 8"
BUBBLE CANOPY
6
1/8" SQ.
7
8
1/8" SHEET BOTTOM
PUT ON AFTER WING
IS JOINED TO
FUSELAGE
SCALE
PILOT
SIDE
FRONT
TOP VIEW PANT SECTION
2 LAYERS 1/2" SHEET
A

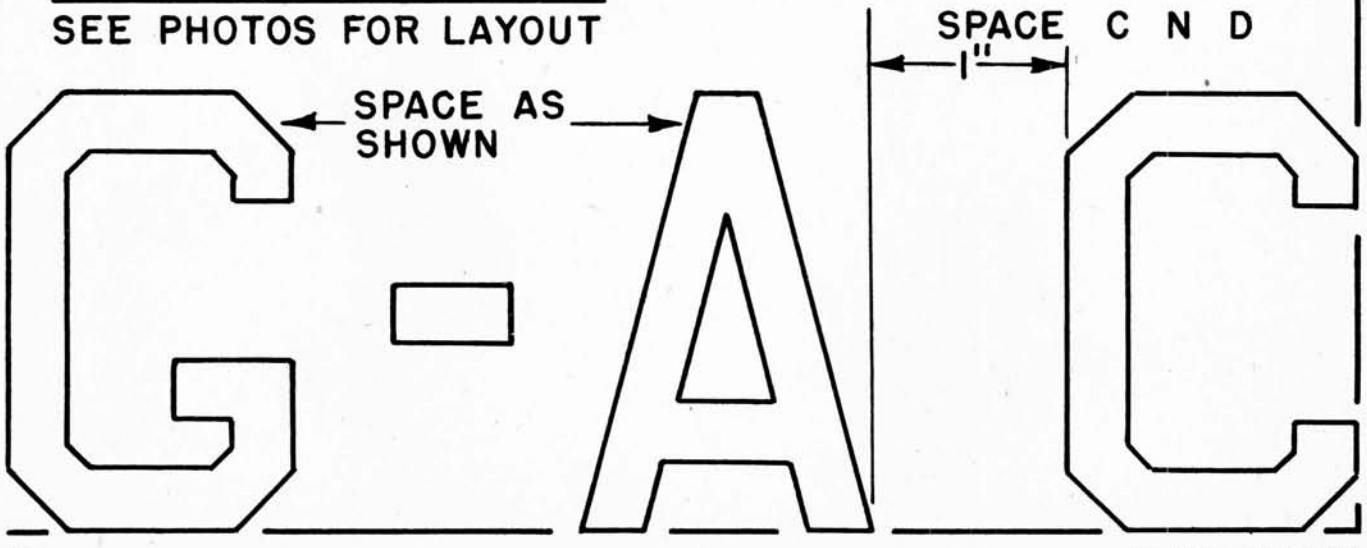

B
B
AILERON OUTLINE
FRONT SPAR 1/16" PLYWOOD
5
FABRIC HINGES
1/8" SQ. PINE
4
FLAT WING PANEL OUTLINE
STABILIZER 1/8" SHEET
HORN
3
BLOCK
3/32" DIA. WIRE
1/16" PLYWOOD SPARS
WING COVERING TOP & BOTTOM 1/16" SHEET TOP OMITTED
2
BLOCK
WING
"MEW GULL"
Plate 2A


1
REAR SPAR OF WING
1/16" PLYWOOD
2
BLOCK OVER
STRUT
3
"MEW GULL"
Plate 2B
4
5
DIHEDRAL 1-5/16"
3/8"
SHEET
TIP
ALL WING
RIBS
1/8" SHEET
MAKE
2
EACH
7
8
7
EYELET LINE
GUIDES
LEFT WING
ONLY
6
SCALE WING
OUTLINE
DRILL
3/32" DIA.
FOR
L.G. LEG
B
B




WING LETTERING TO SIZE

SEE PHOTOS FOR LAYOUT



# MEW GULL RACER

*(Continued from Page 16)*

clean lines resulted from the use of the inverted in-line engine.

The similarity to the French Caudron racer and our own Menasco-powered Greve and Thompson racers is readily apparent. Most noteworthy of the Mew Gull's wins was the time record of 208.9 m.p.h. in the 1936 King's Cup Race, over a 350 mile triangular course. This race can be generally compared with our Thompson trophy (200 miles over a quadrangular course) won by Detroyat in the French Caudron in 1936 at 264 m.p.h.

Our model is scaled at 1¼" = 1'. This may seem like an odd figure, but this scale enabled us to completely cowl the McCoy 29, and brought the wing area up close to the 125 square inch minimum. The only deviations from scale are in the wing outline and nose section. The wing-tip chord was lengthened to bring the wing area up to 126 square inches and the nose section was thickened a bit to accommodate the McCoy 29.

Model span is 30", length 25", and weight 21 ounces (which helps the speed along considerably). Best time so far is 75 m.p.h. on 60 foot lines (.012" dia.) using a 9" diameter 8" pitch prop. We leave the final top speed up to you prop and hot fuel experts—more speed *can* be accomplished by the individual who knows his own engine and what he can get out of it.

The full-size plans herewith take the hard work out of building our model, since scaling-up will not be necessary. The wing and stabilizer should be built first so that, when they are completed, the fuselage plan pages can be joined together and the work on the fuselage done without having to hunt for drawings on the back of the plans.

BUILDING THE WING AND STABILIZER: Join the two pages of wing plans (Plates 2A & 2B) at B. Wing construction is of the Fireball type, which contributes to the lightness of the model. If you do not wish to stick strictly to the scale wing thickness, you can make the wing out of solid ⅜" or ½" sheet, with a small increase in total weight.

Make up four 1/16" wing sheets of 3" wide balsa or use 6" wide sheets if available. Maximum width should be 6⅝" at the center section. To allow for the camber of the rib, be sure to cut the sheets to the phantom outline shown on the plans. Sand the outside surfaces of the four wing panels on a flat board so that only a light sanding will be necessary when the wing structure is completed.

Next, lay out the rib stations on the inside of the lower wing panels, with pencil lines. Then proceed to cut out the wing ribs and the 1/16" plywood spar joiners. Drill the spar joiners for the landing gear wire.

Starting at the wing tip, cement ribs 7, 6, 5, 4, 3 (in that order) onto both lower wing panels, omitting ribs 1 and 2. Add both plywood spar joiners to one wing panel and then add rib 2 only to this panel.

Now the two lower panels are joined together. Check the fit of the center seam—it should be a smooth butt-joint. Slide the spar joiners into their holes in rib 3 and add rib 2 to the second wing panel. Now add rib 1 (two each) over the center seam.

At this point, bend the landing gear struts from 3/32" diameter steel wire and insert into the plywood spar joiners. Stitch to the front spar with fish line or copper wire. Cover liberally with cement. Add the block leading edge, notching it out to fit over the wire. Use plenty of cement.

The top wing skin is now added to both wing panels. Bevel the leading and trailing edge of the lower sheet so that the top sheet will come down snug over the rib curve. Spread cement over the top edge of each rib to within ¾" of the leading and trailing edges, on one panel only. Then lay the top sheet down in position. Pin down to ribs 1 and 7 at the point of highest camber. Next pin at 2 and 6, 3 and 5 and 4 along this line.

Then, working outward toward the leading and trailing edges, pin the sheet


This three-quarter rear view of the Percival "Mew Gull" Racer shows the control wire installation on the top of the left wing. Note aileron markings, and Cal's close attention to detail.

Scale deviates slightly on this model in order to bring the wing area up to 125 square inches. The McCoy .29 engine is completely cowled, with only the glow plug protruding, for easy access.

down over all ribs where cement covers. Work quickly and pin diagonally to hold the curve in the sheet. Check as the work progresses, viewing the wing from the tip for any warping. Warps should be twisted out now, before the cement dries thoroughly.

Next, lift up the leading edge slightly and squirt cement onto the rib ends and along the leading edge bevel. Squeeze down the top sheet and pin or wrap it chordwise with Scotch tape, to hold the edge together. Repeat this operation for the trailing edge of this panel. The top skin for the other panel is applied in the same manner. Be careful to have a good snug butt-joint over ribs 1, and spread cement over the whole seam on both sides of the wing.

To complete the wing, add 3/8" block tips and carve and sand to shape.

Wheels and pants can be added now or later. The procedure is as follows: Cut out pant halves and hollow them to clear the wheel, using medium soft balsa. Cement wood for struts to each half and cut a groove in the inside half for the landing gear wire. Then drill the outside half for the axle. Be sure to make right and left halves for right and left wheels.

Fit the strut and pant halves together over the wire strut, with the wheel in place. Check to see that the wheel turns freely and that the pant halves match up properly. Now either carve the pants roughly in your hand or cement them permanently in place over the strut and wheel, carving and sanding them into shape after the cement has hardened.

If you want to give the wire strut room to move, leave at least 3/8" between the bottom surface of wing and the top of the wood strut.

Cement a 1/8" sheet strut outline to the underside of wing and wrap heavy paper around this outline, extending it down over the lower part of the wood strut. Cement the paper to the underside of wing. This will allow a lower portion of the strut to move inside the paper shell, to help take up landing shocks. If the gear is bent in a hard landing, the paper can be easily replaced.

The stabilizer and elevators are made of hard 1/8" sheet. Cement a 1/8" square pine strip to the elevators and install the control horn. The elevators can be joined to the stabilizer with cloth hinges or any hinge system you desire. The wing and horizontal tail should now be laid aside, while the fuselage construction is undertaken.

BUILDING THE FUSELAGE: Construction is of the simple box type, with plywood facing for the engine mounts on the front end. This construction has proven itself to be about the lightest yet strongest possible. We have used it successfully in the construction of many models (see "Funster"—April 1949 FLYING MODELS).

Join the fuselage plans together (Plates 1A, 1B, 1C, 1D). The fuselage width is a snug fit for the McCoy 29. If you use any other .29 engine, allowances will have to be made before any work starts. *(Turn to Page 56)*

# MEW GULL

*(Continued from Page 53)*

Begin by cutting out the 1/16" plywood side facings. Cut out the hardwood engine bearers and cement to the plywood with Weldwood (or similar glue). Make one right and one left side and bearer. Put two small wood screws through each plywood side into the engine mounts, to make a strong joint and help clamp the wood together while the glue is drying.

Next cut out the hard ⅛" sheet fuselage sides and cement the plywood sides to each one, making right and left sides. Clamp thoroughly and let dry, at least overnight. This particular portion of the fuselage is the heart of the whole model—it carries the biggest loads and stresses—so we emphasize: strong cemented joints are important. Otherwise, fuels and oil will creep between the surfaces and weaken the joints and—blooey!

Next, cut out the plywood and balsa formers. Pin the sides upside down over the plan top view and proceed to cement the formers in place. Use gussets and Weldwood on the plywood formers in the nose section. Here again, clamp well and allow ample time to dry.

Add the 1/32" (or 1/16") plywood baffle across the fuselage front between the two plywood formers. This serves to complete the box nose structure and to deflect the exhaust air from around the engine down through the fuselage bottom. Add ⅛" square strips along the inside lower edge of fuselage sides behind the wing. These serve as a platform for the ⅛" sheet bottom, which is added after the wing is joined to the fuselage.

Fit the ⅜" square hardwood bellcrank mount into position. Run two small wood screws or brads through the fuselage sides into the ends of the mount for good firm anchoring.

When the fuselage structure has dried *thoroughly*—not before—remove it from the board and proceed to finish off the top portion. Add the stabilizer platform and install the stabilizer and control system. Check for freedom of action before any top structure is cemented permanently in place. Cut out the blocks for the top contours, carve the outside, and hollow to about ⅛" to 3/16" wall thickness.

Add the fin and rudder of ⅛" sheet. You may prefer to use 1/16" plywood instead, for turn-over insurance. Build up gussets and 3/16" sheet inside the ⅛" sheet sides in the nose section, then drill the nose block for the engine crankshaft and air intakes.

Fit the engine into position on the bearers and check alignment and clearances. Spot mounting screw holes. Make up nut plates by soldering the nuts to a small strip of brass and cement this to the underside of the engine bearers.

The bottom of the front cowling can now be put on. Cut a hole for access to the glow plug. The nose block can be made removable by running two wood screws through it into the front of the engine bearers.

FINAL ASSEMBLY: The wing is now cemented into the bottom of the fuselage. Check alignment and incidence (0°), and add the bottom of ⅛" sheet, running from the tail to former 3 over the wing bottom. Round off the lower corners of the fuselage sides according to the cross-sections given on the plans. Add soft wood wing fillets and gouge to shape.

Install the 1-ounce fuel tank and add the hardwood strip over the tank to tie up the fuselage inside. Cement the fuselage top down permanently and complete sanding to proper contour. The canopy is a cut-down portion of an 8" commercial bubble. The canopy braces are painted on or narrow strips of Scotch tape can be laid on. The drawing of the pilot's head is to scale, if you want to carve your own.

FINISH: A layer of light tissue, doped onto all wood surfaces, will increase the strength considerably. If you don't mind adding a bit of weight this is recommended, however it is not necessary. Give the model two coats of wood filler, sanding between each coat, then two coats of any good hot-fuel resistant dope, or regular dope and fuel proofer.

Trim-Film, produced by Hobby Decal Specialists, provides excellent decal material for the letters and numerals shown as scale decoration on the model. The real "Mew Gull" was finished in several different styles. One was all white with blue lettering (6-ACND) and a red racing number 2 on rudder, a red spinner, and black exhaust stacks.

Another later version was orange with a white spinner, arrow and lettering (6-AEKL) and a white bull's-eye with a black number 4 on the rudder.

A scale spinner of the size shown is not readily obtainable commercially so if you have access to machine tools one of the proper diameter can be made. However, a Model Industries solid spinner is close in size and can be used.

Because of the relatively long nose moment arm, the model may balance too nose heavy. If so, add lead weight to the tail to balance the model at the position shown.

Since the wheels are located close under the C.G., the model has a slight tendency to nose up on take-off and when landing on rough ground or high grass. So pick your flying spot accordingly—a smooth area will save lots of wear and tear on the prop and rudder. A little assistance in the form of whipping will help considerably.

Although the scale elevator area gives adequate control in the air, a small increase in area would help take-off and landing characteristics. We suggest that about ⅜" be added to the elevator chord. So, fire up that McCoy . . . . Get Ready . . . . On your mark . . . . Go!!

### BILL OF MATERIALS

(Balsa unless otherwise specified)

| | |
|---|---|
| 4—⅛" x 3" x 36" (medium) | Fuselage formers, rudder, stabilizer, ribs, etc. |
| 1—3/16" x 2" x 36" (medium) | Fuselage planking, wheel pants |
| 10—1/16" x 3" x 36" (medium) | Fuselage planking, wing planking |
| 1—1" x 2¼" x 10½" (soft) | Fuselage superstructure |
| 2—⅛" x ⅛" x 36" (medium) | Fuselage longerons |
| 1—⅜" x 2" x 18" (soft) | Wing tips |
| 1—⅛" x ⅛" x 18" (pine) | Stabilizer crosspiece |
| 1—¾" x ¾" x 12" (medium) | Wing leading edge |
| 1—½" x 2" x 18" (medium) | Wheel pants |
| 1—½" x ½" x 2" (hardwood) | Bellcrank support |

Scrap balsa for fillets; 1 oz. fuel tank; Celluloid bubble canopy; Block balsa for pilot; Sheet aluminum bellcrank and elevator horn; 3/32" piano wire for gear; 1⅛" x 2" x 3½" balsa for nose block; 1/16" wire for tailskid; 1½" wheels; 1/16" plywood for wing spars, fuselage bulkheads; 1⅛" diameter spinner; 12" length ⅜" x ½" hardwood motor mounts; Silkspan covering; Cement; Weldwood; Dope; Washers, nuts and bolts; Crinoline for hinges; McCoy or other .29 glow engine.

# GYPSY 48

*(Continued from Page 40)*

cut two of the fuselage panels from each sheet. Now cement three of the panels together and cement the three formers in place. Positions are shown in dash lines (You will notice that former No. 1 is of ⅛" birch plywood, while the remaining formers are of ⅛" balsa). Next the final fuselage panel may be added, completing the initial "box" assembly.

The upper half of the fuselage is slotted to receive the ⅛" sheet balsa cabin former, which is now cemented in place. Place the small balsa gusset in place at the same time, to assure correct alignment. While this is drying, assemble the "V" strut and trailing edge over the plan. Notice how the lower end of the "V" strut is notched into the fuselage. When dry, remove from plan and cement in place.

At the same time, add the ⅛" plywood wing mount platform. Finally, add the ⅛" by ¼" balsa framing, as shown on the plan. This is to provide a surface for attaching the covering. The section of this "framing" which is cemented to the fuselage must be beveled to fit. The cabin assembly takes considerable strain, so apply cement generously, in several coats, to all joints and at the points of contact on the fuselage.

Before sanding the fuselage, assemble the three sections of the firewall, including the landing gear, bent from 3/32" piano wire, and the ignition track, which is of ⅛" by ½" birch plywood. Then place the 3/32" diameter bolts in place through the two holes in former No. 1 and cement the nuts in place on the back of the former. When the cement is thoroughly dry, remove the bolts and insert them in the firewall, making a smooth connection.

With the addition of the sub-rudder and the tail platform the fuselage is complete, except for the ignition. Mount the coil, condenser and batteries on the ignition tract. Attach a string to the timer knob, and run through a slot in the fuselage. *(Turn to Page 63)*