

"B"

AEROLANCE

Plate 1a

WING AND STAB

STAB TIP

DIHEDRAL SKETCH

4"

WING CENTERSECTION AND STAB END HERE

13 REQUIRED

STAB RIB

RUDDER TRIM TAB

FIN
3/32" SHEET BALS

ALL WING AND STAB RIBS ARE
1/16" HARD SHEET BALS

1/32" DIAMETER WIRE
HOOKS

SMALL
RUBBER BAND

FUSE

F-6

FUSELAGE SIDES, TOP AND
BOTTOM
1/16" SHEET BALS

F-7

1/16" x 3/8" x 1/2"
BALS

1/8" SHEET
BALS

WIDTH-3/4"

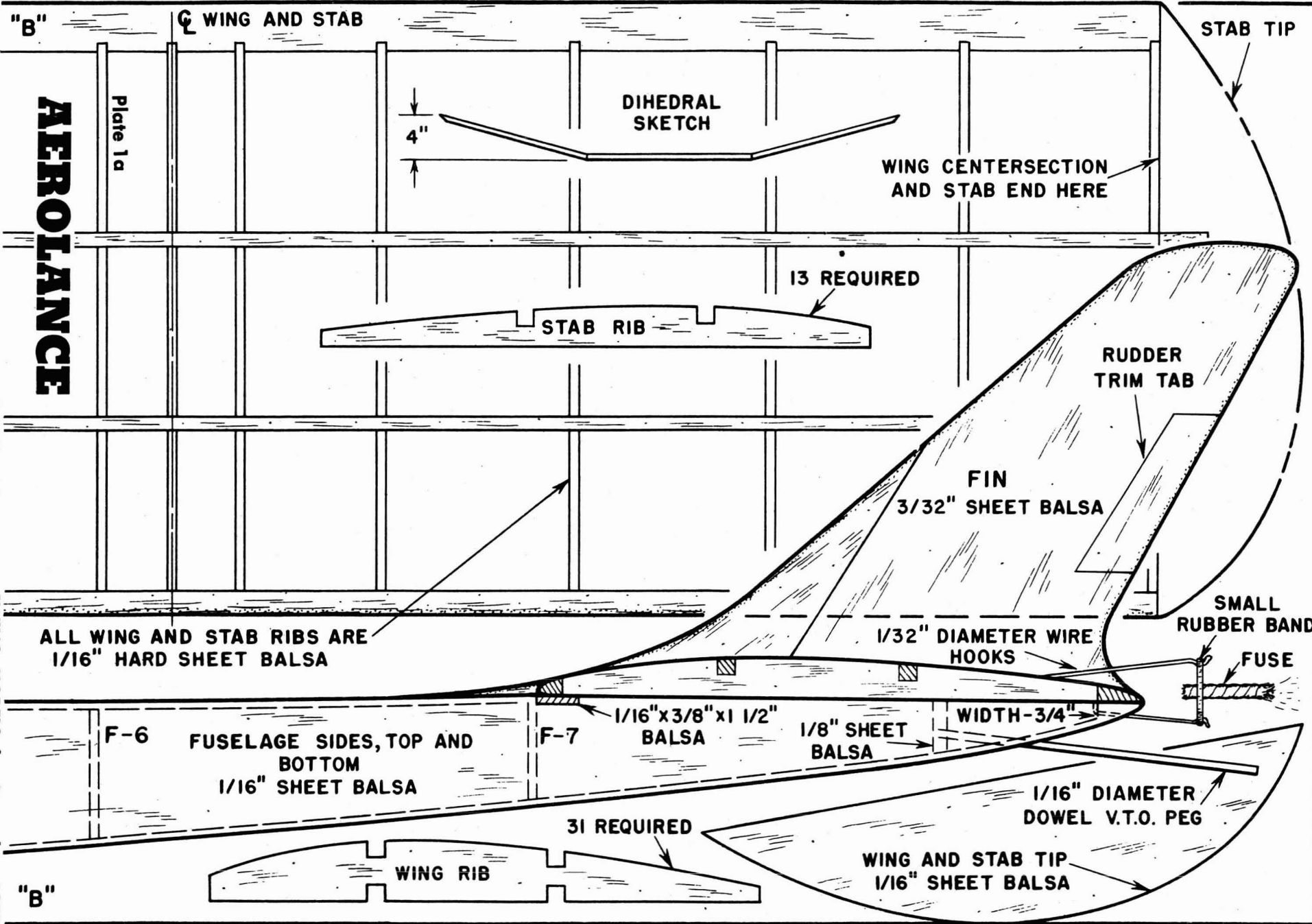
31 REQUIRED

1/16" DIAMETER
DOWEL V.T.O. PEG

WING RIB

WING AND STAB TIP
1/16" SHEET BALS

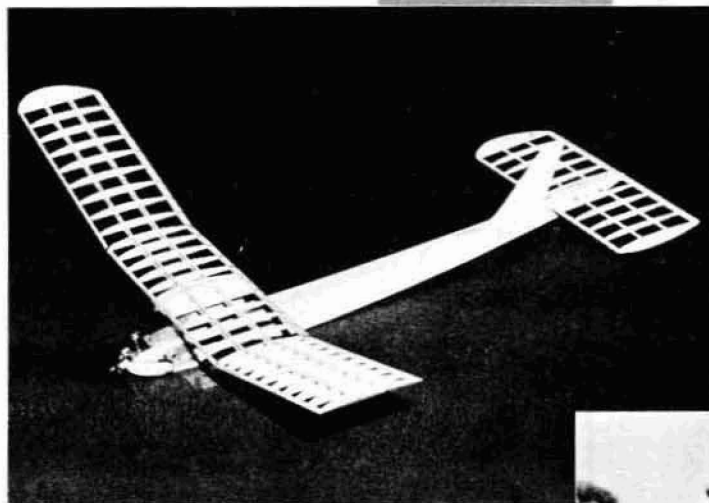
"B"



by Clarence Mather

AEROLANCE

Second in a series of high performance models for novice f.f. flyers



Left: The uncovered "Aerolance" reveals the simple layout and rugged construction of the model. It was designed for the beginner that wants to build a ship capable of a contest-winning performance. Below: Clarence Mather about to fire-up his model for a fine flight.

● This is a peppy $\frac{1}{2}$ A ship with a 200 square inch wing and excellent performance. It climbs in a very fast and steep right spiral and glides slowly in left circles. The model is also rugged enough to survive the knocking around that contest planes must take. Dethermalizers are a "must," for even the early morning dew thermals float the ship. We recommend following the prescribed flight adjustments. The ship pictured has over 150 flights and has a good flight path with some reserve stability.

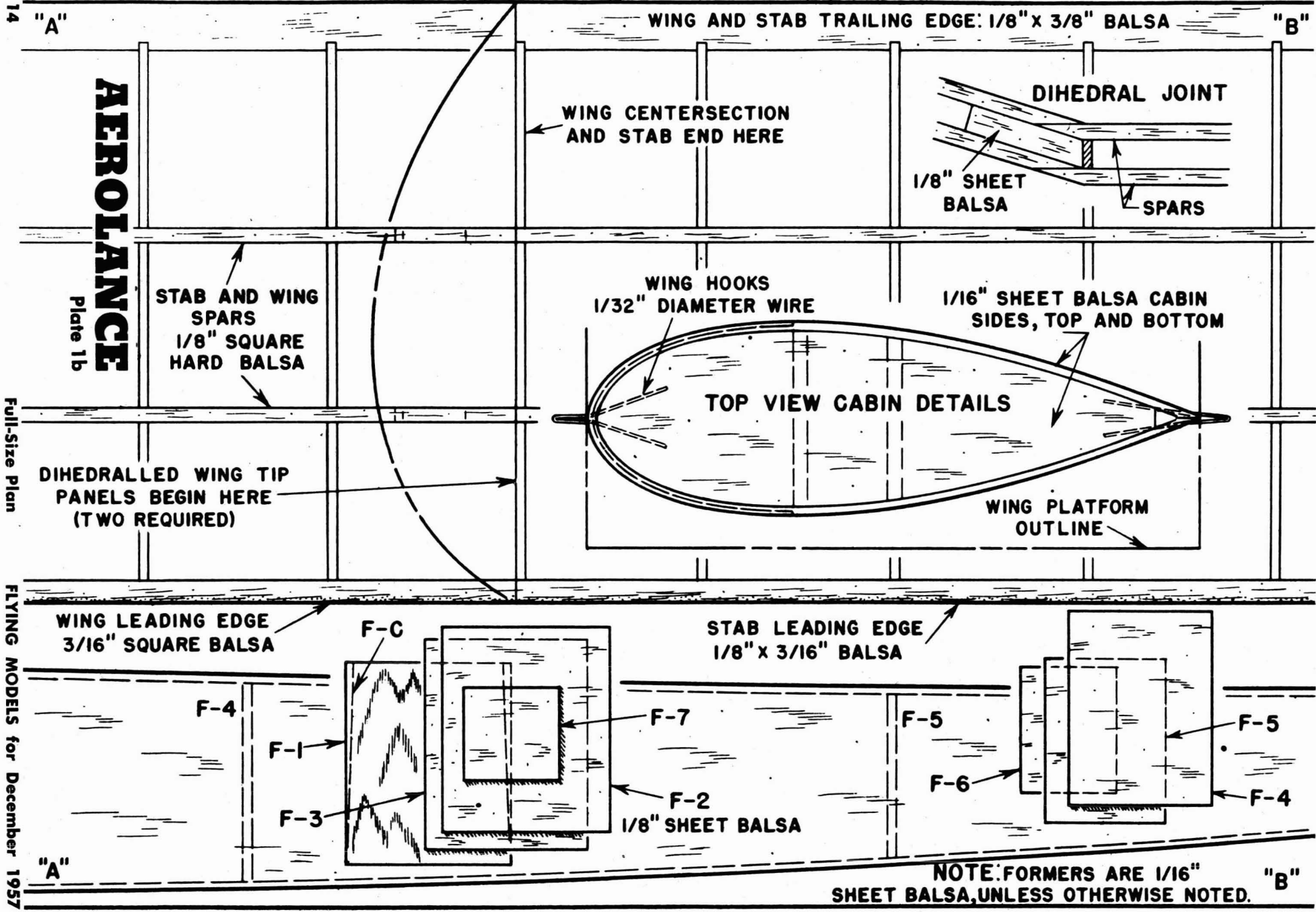
The plans are full-size so begin by removing the pages from the magazine and pasting them together. To make a warp-resistant model, cut all wooden parts so that they fit together well. Precoat each surface of a joint with cement and some minutes later apply a second thin coat. Then place the parts together. Some joints, such as the firewall and the wing spars, might well be given two or three pre-coats. Fuel-proof cements are used, of course.

Assemble the fuselage sides by cementing formers B and G in position and aligning them accurately. Set the frame upside down on a level surface to dry. Add the rest of the formers, and the firewall which is angled for downthrust. If thick plywood is not available cement thin layers together. Add the second layer of sheet to the inside of the nose to lock the firewall securely.

Drill the nose to accommodate the fuel line and the engine bolts. Cut out the areas for the timer and the needle valve. Make them all oversize so that the edges can be doped. A Darwin tank and Tick Off timer were used and are very reliable. The simpler eye dropper tank-timer is advised against unless the engine is extremely consistent. Give the inside of the nose three coats of straight fuel-proof dope. Solder the engine bolt nuts to a strip of tin and screw to the

(Please turn to Page 28)





14

"A"

"B"

AEROLANCE
Plate 1b

WING AND STAB TRAILING EDGE: 1/8" x 3/8" Balsa

WING CENTERSECTION AND STAB END HERE

DIHEDRAL JOINT

1/8" SHEET Balsa

SPARS

STAB AND WING SPARS
1/8" SQUARE HARD Balsa

WING HOOKS
1/32" DIAMETER WIRE

1/16" SHEET Balsa CABIN SIDES, TOP AND BOTTOM

TOP VIEW CABIN DETAILS

WING PLATFORM OUTLINE

DIHEDRALLED WING TIP PANELS BEGIN HERE (TWO REQUIRED)

WING LEADING EDGE
3/16" SQUARE Balsa

STAB LEADING EDGE
1/8" x 3/16" Balsa

F-4

F-1

F-3

F-C

F-7

F-2
1/8" SHEET Balsa

F-5

F-6

F-5

F-4

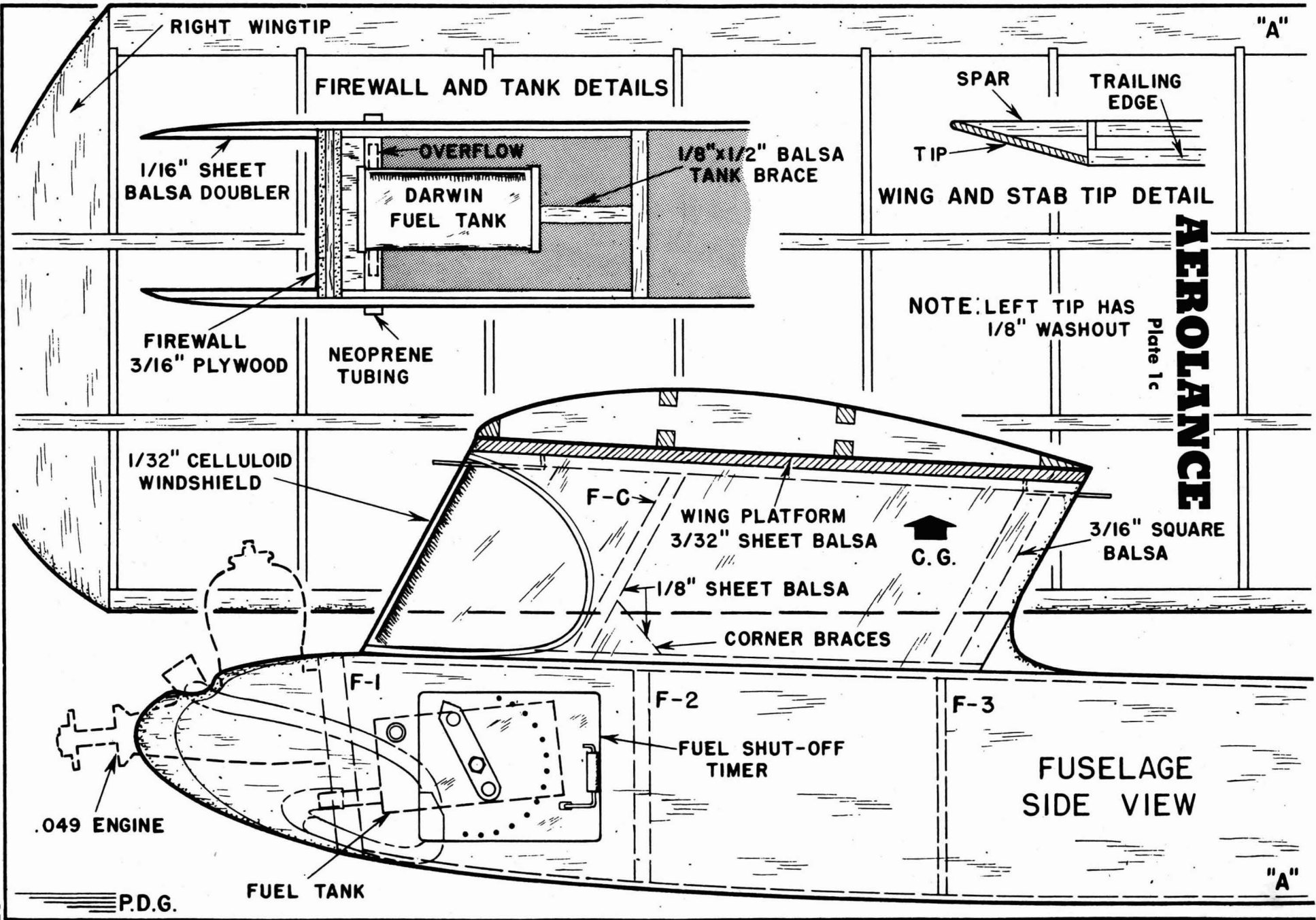
"A"

"B"

NOTE: FORMERS ARE 1/16" SHEET Balsa, UNLESS OTHERWISE NOTED.

Full-Size Plan

FLYING MODELS for December 1957



P.D.G.

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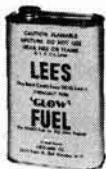
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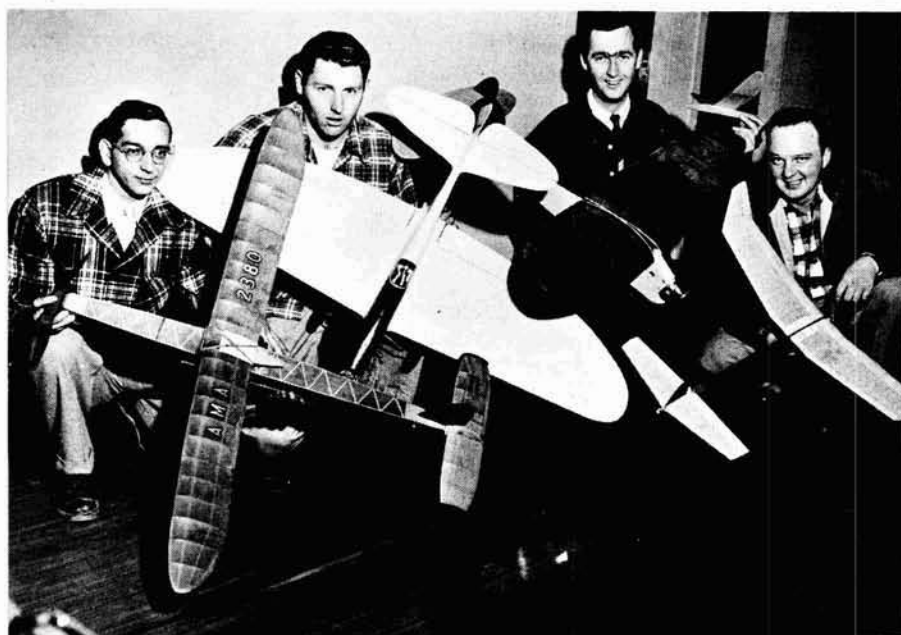
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Reggie Strout, Dave Carmichael, Manning Hobbs and John Picnick show off a fine array of models. This group is from So. Brewer, Maine and are attempting to reorganize the Bangor Hedgehoppers.

AEROLANCE

(Continued from page 15)

firewall. This will allow loosening the engine bolts for thrust adjustments.

Install the engine and tank. Place a piece of metal $\frac{1}{32}$ " x $\frac{1}{8}$ " x $\frac{1}{2}$ " between the left side of the engine and the firewall, just inside of the bolt. Cut several more pieces of thinner metal, such as tin, to be used for thrust adjustments during flight tests. Remove a $\frac{1}{32}$ " strip from the right side of the fuselage at the stab rest. This will tilt the stab about 1" for the left glide circle. Install the stab platform and sheet the top and bottom of the fuselage. Add the dowels and wire to the rear.

The cabin is built as a separate unit. Assemble the top, bottom, former H, and the trailing edge with the aid of the $\frac{1}{8}$ " triangle J. Align the top and bottom carefully. Cement the wing wing rubber wires securely in place and cover the cabin as shown. It is fastened to fuselage later.

Study the wing-stab drawing carefully and note that the wing center-section and the stab have the same outside dimensions but differ in airfoil and spars. Of course tips are added to the stab. To make the ribs cut rectangular pieces slightly larger than the rib and stack like a deck of cards. Pin together and trace the rib outline on each end. Carve to shape and notch to admit the spars. When assembling the components on the plan, extend the spars sufficiently to make the tip or dihedral joint, as the case may be. Allow the completed frames a full 24 hours on the construction board, pinned securely, until most of the cement shrinkage occurs.

Two tip panels are made from the plan with tips later added to opposite ends. Do not install the spars until after the panels are fastened to the

center-section. The left tip panel has some "wash out" built in. Prop the tip end of the trailing edge $\frac{1}{8}$ " off the plan and assemble in an otherwise normal fashion. Thus, the trailing edge is warped up at the left tip to help control the climbing bank.

Cement the tip panels to the center-section and add the spars and tips. While the spar joints are still soft, check for warps and also the built-in washout. Twist the panel to remove any.

Cover the wing and stab with lightweight Jap-type tissue. Mix 4 ounces of dope and 4 ounces of thinner together with some commercial plasticizer (TCP) and apply 4 coats to the wing and stab. Cement the fin to the stab so that it is perpendicular to the fuselage. Cover with tissue and dope. Use fuel-proof dope.

As the dope dries, after each application, watch for warps and twist the panel to remove them. If one persists, apply a coat of unthinned dope and twist the panel opposite the warp as it dries. All warps except the "wash-out" should be removed. Excessive shrinking also causes warps. Add more plasticizer to cure.

Mount the stab and set the wing in its approximate position. Locate the balance point and move the wing until the trailing edge is $1\frac{1}{4}$ " behind it. Cement the cabin so that the wing is in this position. If the cabin projects forward of the firewall add clay to the rear of the fuselage until the cabin is clear. Cover the fuselage with tissue using unthinned dope and apply 3 coats overall, including the windshield.

Key the wing and stab to the fuselage using pieces of pine $\frac{1}{16}$ " x $\frac{1}{8}$ " x $\frac{1}{4}$ " cemented to the underside of the leading and trailing edges. The keys should fit snugly against the platforms but should not bind. Side play can be taken up with strips of paper cement-

(Please turn Page)

FLYING MODELS for December 1957

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- 1st place in the 1951 Internationals winning the Air Trails Perpetual Trophy for highest point score (International Stunt Champion)

Note: Aldrich did not attend the 1955 Nationals



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ed to the keys.

When dethermalizing the stab should pop up about 40°. A piece of thread tied to the VTO peg, inside the fuselage, and looped over the top wire, can be adjusted to accomplish this.

Flight-testing should take place over a soft area such as weeds or high grass. Glide the model into any breeze in a slightly nose down attitude with just enough speed so that it floats out of the hand. The glide should be quite flat and with a left turn indication. Our model has a little left fin tab in addition to the stab tilt and this is desirable. If the circle appears too tight remove some of the stab tilt. Do not use right fin tab. A circle of 120-foot diameter is about right. If the model stalls, shim up the leading edge of the stab with pieces of sheet balsa trimmed to fit the keys. Small corrections can be made with strips cut from post-cards. Dives call for shims under the trailing edge of the stab. Final glide-tests should be made from an elevation if possible.

Now for power flights. Remember that today's lightweights pack a lot of power and move fast. Much can happen in a few seconds. Therefore, short engine runs, of 3 to 5 seconds, are recommended for testing. Start with the prop on backwards and the engine running slowly but smoothly. The model should climb away with a very slight right climb. Any needed glide corrections can be made. If the model turns sharply either way use more or less side thrust to counteract it. When low power looks good put the prop on properly and run the engine slowly but smoothly trying 3-second engine runs. The right climb should be more pronounced but not tight. If the model tries to loop, add more right thrust.

When this power gives good flights lean the engine out but again use short runs. The model will leap out of the hand and should climb nearly straight up with enough right bank to keep it

from looping. If the right bank tends to steepen too much, add a little left fin tab. By varying the tab and side thrust the desired spiral can be obtained. Then, increase the engine runs by increments of 2 or 3 seconds until the full 15 or 20 seconds is reached.

Every time a change is made on the ship, or if it has not been flown for a while, try some short tests. We have seen too many potentially good models splintered after 10 seconds of engine run when a short test-run would have saved the model. For full-power flights, point the model in its climbing attitude and let it fly out of the hand. VTO puts it in the correct position automatically. From this attitude, precession forces do not act on the model and it assumes the natural climb faster.

BILL OF MATERIALS
(Balsa unless otherwise specified)

3- $\frac{1}{16}$ " x 3" x 36"	Fuselage, ribs, tips
1- $\frac{1}{32}$ " x 3" x 12"	Fin, wing platform
1- $\frac{1}{8}$ " x 3" x 6"	Formers
7- $\frac{1}{8}$ " x $\frac{1}{8}$ " x 36"	Spars
2- $\frac{1}{8}$ " x $\frac{3}{8}$ " x 36"	Trailing edges
2- $\frac{1}{16}$ " x $\frac{1}{16}$ " x 36"	Leading edges

4 sheets Jap tissue; .030" piano wire; $\frac{1}{16}$ " birch dowel; .030" plastic sheet; fuel-proof dope, to suit; dope thinner; TCP; fuel-proof cement; plastic fuel-line; small Darwin tank; Tick-Off timer; .049 glow engine; propeller, to suit.

WEE TWO

(Continued from Page 17)

you produce one right-hand and one left-hand one.

4—Make up the saddle from $\frac{1}{32}$ " sheet. This may be built up on the actual motor stick.

5—Cement the slots of the inter-plane struts and connect them together, at the same time cementing them to the saddle. Do this on the motor stick so that the struts are at right angles. Check this with a square.

6—Carefully chamfer the tops and
(Please turn Page)

Dick Hirdes sent in this fine shot of Gaster's 'Gastove XVI,' an F.A.I. model which exemplifies fine building. Oliver Tigre 2.5 cc is driving power with narrow-bladed fibre prop. British ship.

