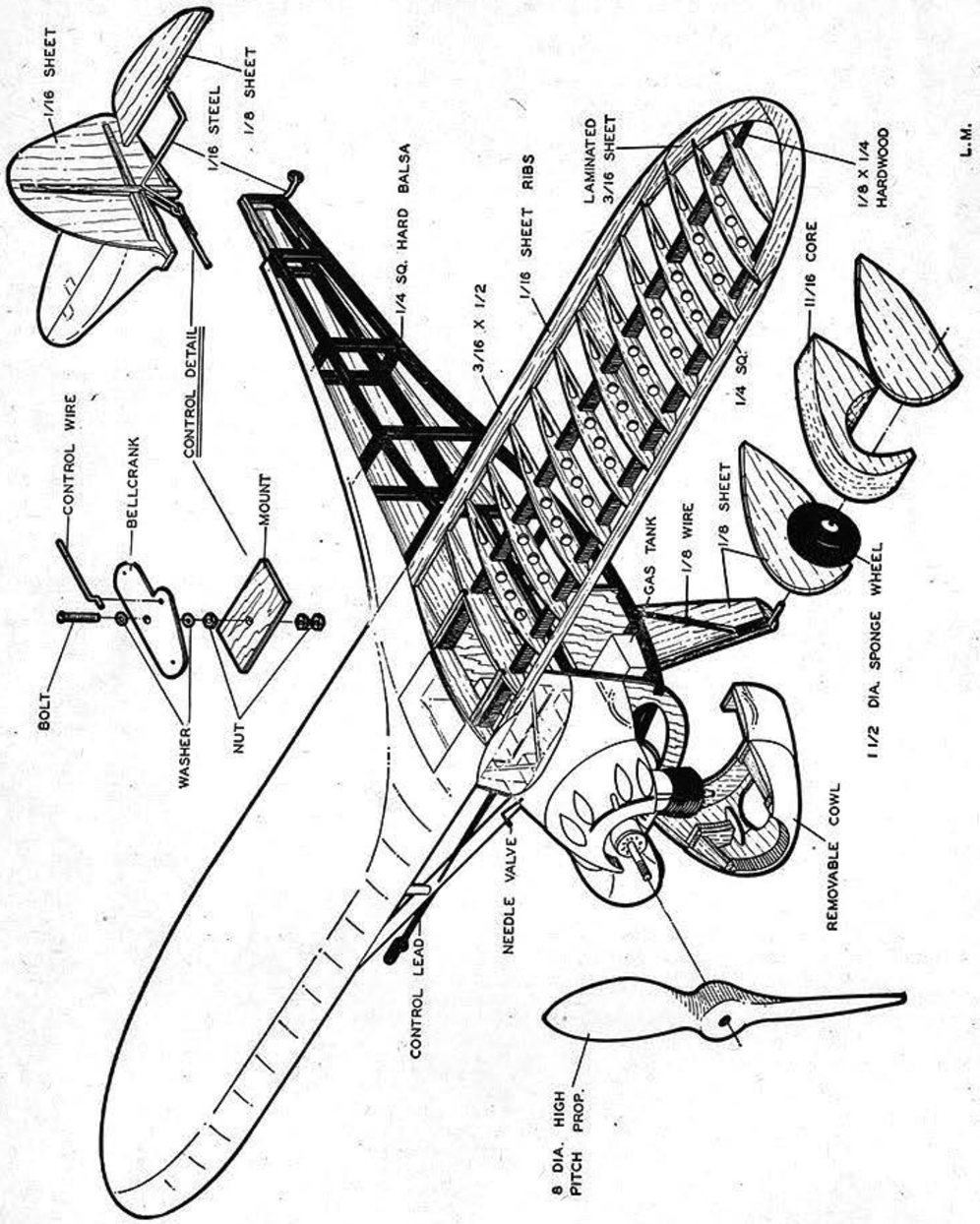


This cutaway drawing shows in detail the construction of the entire model. Note particularly how the mechanism to actuate the elevator is installed, and also the wire bracing within the landing gear housing.

by ***LEN MARLOW***

Model Monocoupe

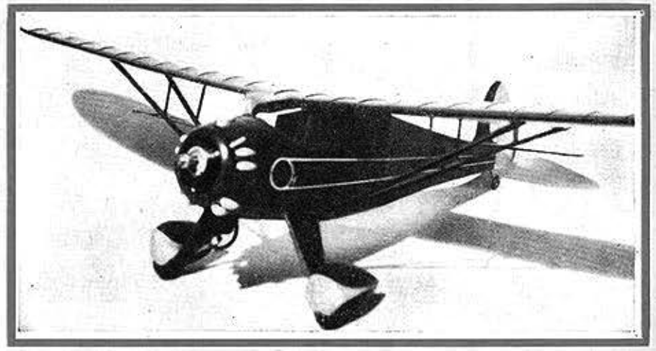
ONE of the most attractive sport planes ever built, and one of the fastest for its horsepower, is the *Monocoupe 90-A*. Powered with a Lambert 90 hp engine, the *Monocoupe* has a maximum speed of 130 and a cruising speed of 110. It was popular in a clipped-wing racing version, which may be incorporated in the model by removing 2 inches from each wing.

In virtually all respects the model outlined here is an accurate one inch to the foot scale copy of the actual plane, the most notable deviation from this scale being a slight lengthening of the landing gear and raising of the thrust line to provide ample clearance for the prop. The landing gear has also been moved farther forward, placing it ahead of the C.G.

In addition to being a good performer, the model is also outstanding in appearance—a fact for which we claim no credit, leaving that honor to the designers of the real thing. The color scheme of the model is orange and cream, set off by black pin stripes, separation lines and numerals. The builder may of course follow his own preference in decorating the model, but we decided that a fairly close adherence to the actual scheme used on the full scale plane produced a more realistic copy.

To begin construction, lay out two side frames of 1/4" sq. hard balsa directly over the side plan view (heavy black lines). To form the curve of the lower longeron it will probably be found best to soak the balsa in water. Pin the longeron in place and allow it to dry thoroughly before cementing the uprights. When the two side frames are completed, cement them to the 1/16" plywood F3 and F4 formers. Add the 1/4" sq. cross-braces, 1/4" x 3/8" hardwood landing gear mounts, 3/8" x 1/2" motor mounts, and the 1/16" plywood bellcrank mount. As the longerons must be cut or cracked directly behind the cabin, they are reinforced with 1/4" sheet gussets and plenty of cement. The landing gear is formed from 1/8" steel wire, wrapped and soldered, and attached to the mounts. On the landing gear especially, go over all joints several times with cement.

It will be easier to install the controls and ignition system at this point. Use a good grade of heavily lacquered wire and solder all joints carefully. Be sure the coil and battery box are mounted solidly. No provision was made on the original for any access except to the motor and batteries; however, a hatch may be easily constructed in the side or bottom of the fuselage in order to reach the bellcrank and coil. The battery hatch, as indicated on the plans, is made of 1/8" sheet, hinged with crenoline, and secured with a large dress snap or other suitable means.



The upper half of F1 is cemented to the motor mounts; F2 and the lower half of F1 are lightly held in place by using pins or small dabs of cement. Plank the fuselage back to the rear of the wing with 1/8" sheet. The front cowling ring is composed of two crossgrain rings of 1/8" sheet, and is cemented together with formers C2 and C3, planked with 1/8" sheet and sanded to shape. After being cemented to the nose, the lower half of the cowling and that portion of the fuselage between F1 and F2 are separated from the rest of the plane as a unit, forming a removable cowl which is cut out to accommodate the engine installed. Landing gear is covered with two pieces of 1/8" sheet, recessed to fit over the struts, and sanded to streamline shape. Pants are built up and sanded to shape from an 11/16" core and 1/8" sheet sides. A mixture of balsa dust, clear dope and cement is used for fillets. Before going any further, spray or brush a heavy coat of shellac over the inside of the cowling and the fuselage back to F4.

An *Ohlsson 23* mounting is shown on the plans, along with the modified needle valve and gas tank it requires. The filler line for the tank may be extended through the fuselage as desired and a small hole cut in the side of the fuselage for choking the motor. The installation of a motor equipped with a rotary valve is simpler, but in all cases remember to keep the neoprene tubing used as a gas line as short as possible and free of kinks.

Rudder construction is similar to that used in many controline jobs with balsa covered wings, consisting of two 1/16" outline sheets and inner formers. A portion of R1 is cut out, as are the two rear fuselage uprights, to allow movement of the control horn. Stabilizer and elevators are cut to outline shape from 1/8" sheet balsa and sanded to an airfoil section. The combination control horn and elevator connecting piece is formed from 1/16" steel wire as outlined on plans, and the

(*Turn to page* 50)

Model Monocoupe

(*Continued from page* 11)

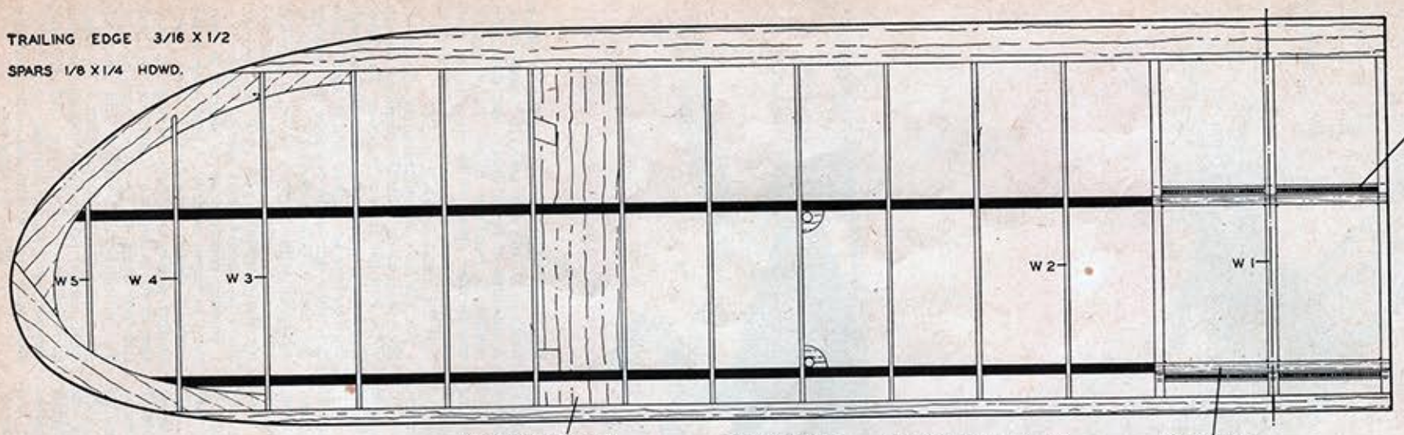
assembled control surfaces joined to the stabilizer with the conventional crenoline hinges. The control wire is formed and joined to the control horn as shown on plans. Check for any binding that might occur.

Wing ribs are cut from 1/8" and 1/16" sheet as specified, and lightening holes cut by means of a bow pencil or compasses into which a small piece broken from a razor blade is inserted. Pin the 1/8" x 1/4" hardwood spars in place over the plan and add the ribs, leading and trailing edges, and tips. Two halves are built and joined together by 1/8" plywood reinforcements. Fill in on the wing underside as indicated for struts and braces, and cement the wing securely in place. The 1/8" x 1/4" hardwood wing struts, sanded to streamlined shape, are cemented into the wing and landing gear struts, and the 1/8" dowel braces added. Holes are drilled horizontally through the wing struts at the braces for passage of the control leads.

Install all windows and the windshield, of heavy celluloid, and cover the entire model, both wood and built-up parts, with two crossgrain layers of heavy grade Silkspan. Dope with four coats of clear and color as desired, sanding lightly with 400 finishing paper between coats. If sufficient color dope is applied the model may be rubbed and waxed to a "new car" finish, which will add to both appearance and performance.

TRAILING EDGE 3/16 X 1/2

SPARS 1/8 X 1/4 HDWD.



1/8 PLYWOOD SPAR REINF.

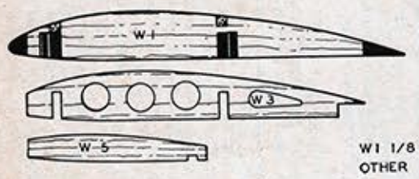
WING TIPS TWO CROSSGRAIN LAYERS OF 3/32 SHEET

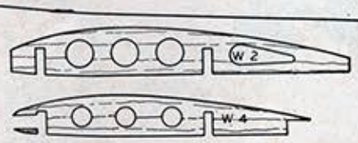
1/16 SHEET FILL IN

WING HALF

LEADING EDGE 1/4 SQ.

1/8 SQUARE





W1 1/8 SHEET BALSA, ALL OTHER RIBS 1/16 SHEET

1/8 DOWEL

1/32 STEEL WIRE CONTROL LEADS SHAPE BOTH ENDS AS SHOWN

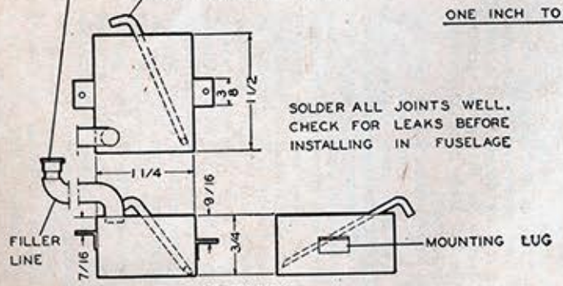
WING STRUTS 1/8 X 1/4 HARDWOOD

SPRING CAP

SMALL DIA. BRASS TUBING

MONOCOUPE 90-A

ONE INCH TO ONE FOOT SCALE



SOLDER ALL JOINTS WELL. CHECK FOR LEAKS BEFORE INSTALLING IN FUSELAGE

FILLER LINE

MOUNTING LUG

GAS TANK

SHAPE FROM LIGHT GAUGE SHEET BRASS AS SHOWN

REAR STRUT

LANDING GEAR

FRONT STRUT

BEND HERE

BIND TO MOUNTS WITH FISH LINE & CEMENT WELL

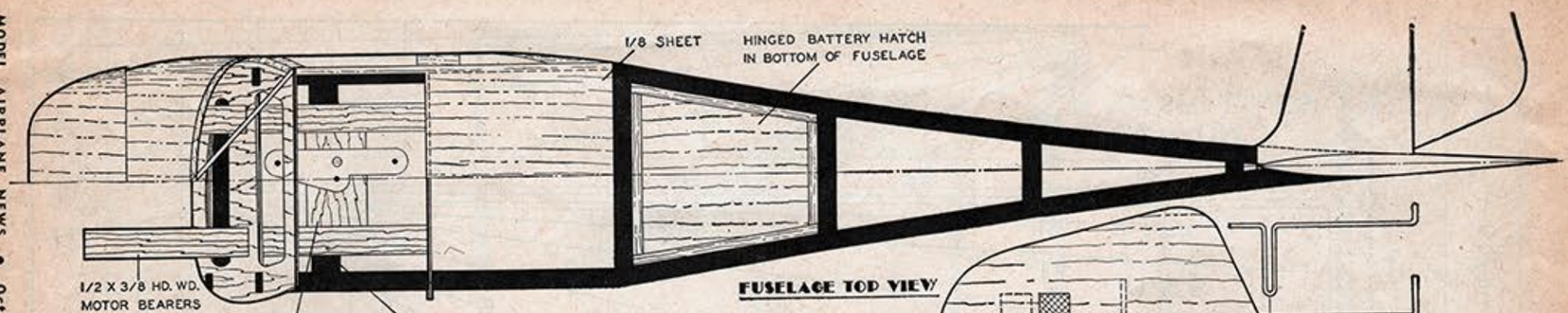
BIND & SOLDER

WHEEL PANTS CORE 11/16 THICKNESS. 1/8 SHEET SIDES

FRONT VIEW

1/8 SHEET

HINGED BATTERY HATCH IN BOTTOM OF FUSELAGE



1/2 X 3/8 HD. WD. MOTOR BEARERS

1/16 PLYWOOD BELLCRANK MT.

1/4 X 3/8 HARDWOOD LANDING GEAR MTS.

FUSELAGE TOP VIEW

CRENOLINE HINGES

1/8 MED. HARD SHEET

1/16 STEEL WIRE JOINS ELEVATOR HALVES & FORMS CONTROL HORN

.040 SHEET METAL BELLCRANK

PLANS 1/2 SIZE

MAY BE PHOTOSTATICALLY ENLGD.

STABILIZER HALF

RUDDER OUTLINES 1/16 SHEET, FORMERS 1/4 SQ.

1/16 DOWEL ROD

"REMOTE CONTROL" NEEDLE VALVE

BASIC FUSELAGE FRAMEWORK (HEAVY BLACK LINES) 1/4 SQ.

1/16 STEEL WIRE

CLASS B MOTOR

FUSELAGE SIDE VIEW

FUSELAGE PLANKED TO REAR OF WING WITH 1/8 MEDIUM SOFT SHEET BALSA

BIND & SOLDER

1/16 PLYWOOD

1 1/2 WHEELS

LEN MARLOW