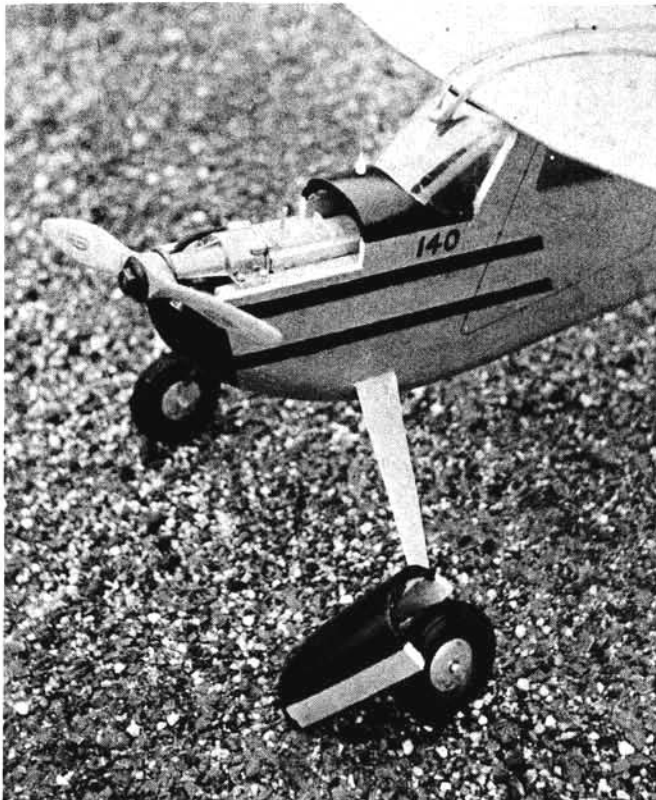


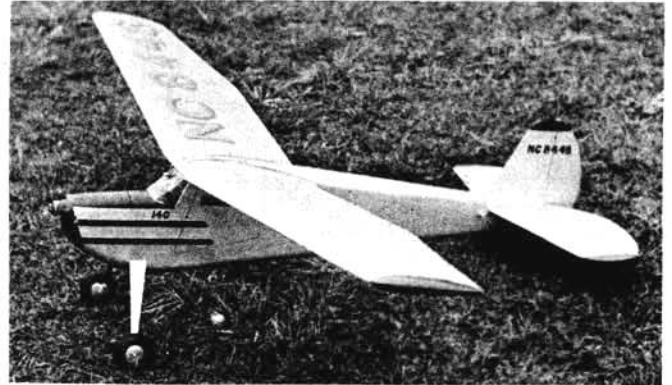
● One of the cleanest looking light planes to emerge from the American manufacturers in recent years is the Cessna 140. And, from the model builders' standpoint, the basic layout of the Cessna 140 is ideal for a free-flight gas job.

Our model is designed to be powered by .19 to .29 cubic inch glow engines. The construction is entirely of sheet balsa—rather unique for a model of this size (57" wing span). We chose this type of construction to simulate the all-metal construction of the real plane, for ease of construction, and for a high strength/weight ratio. Our model weighed in ready-to-fly, with a Torp .19 and a full gas tank, at 23½ ounces. Stop and consider that this weight is wrapped up into all sheet-balsa construction—no tissue paper covering at all—and we are sure that you will agree that there is much to be gained from this type of construction.

A first glance at the drawings may give you the impression that construction is difficult. But, if you study the plans and read the instructions carefully, you will find that this good looking gas model is quite simple to build. Wide sheets of balsa act as the basic form—all an experienced modeler needs to do is to enlarge the plans to full size on the proper sheet of balsa and build up from there. However, this method is not recommended for the beginner—if you're a novice we recommend that you have a photostat made of the plans, four times their
(Please turn to Page 30)



Airfoil section and fuselage formers appear full-size on the plans. Note the rugged construction of the wing shown in the cross section on rib 1.

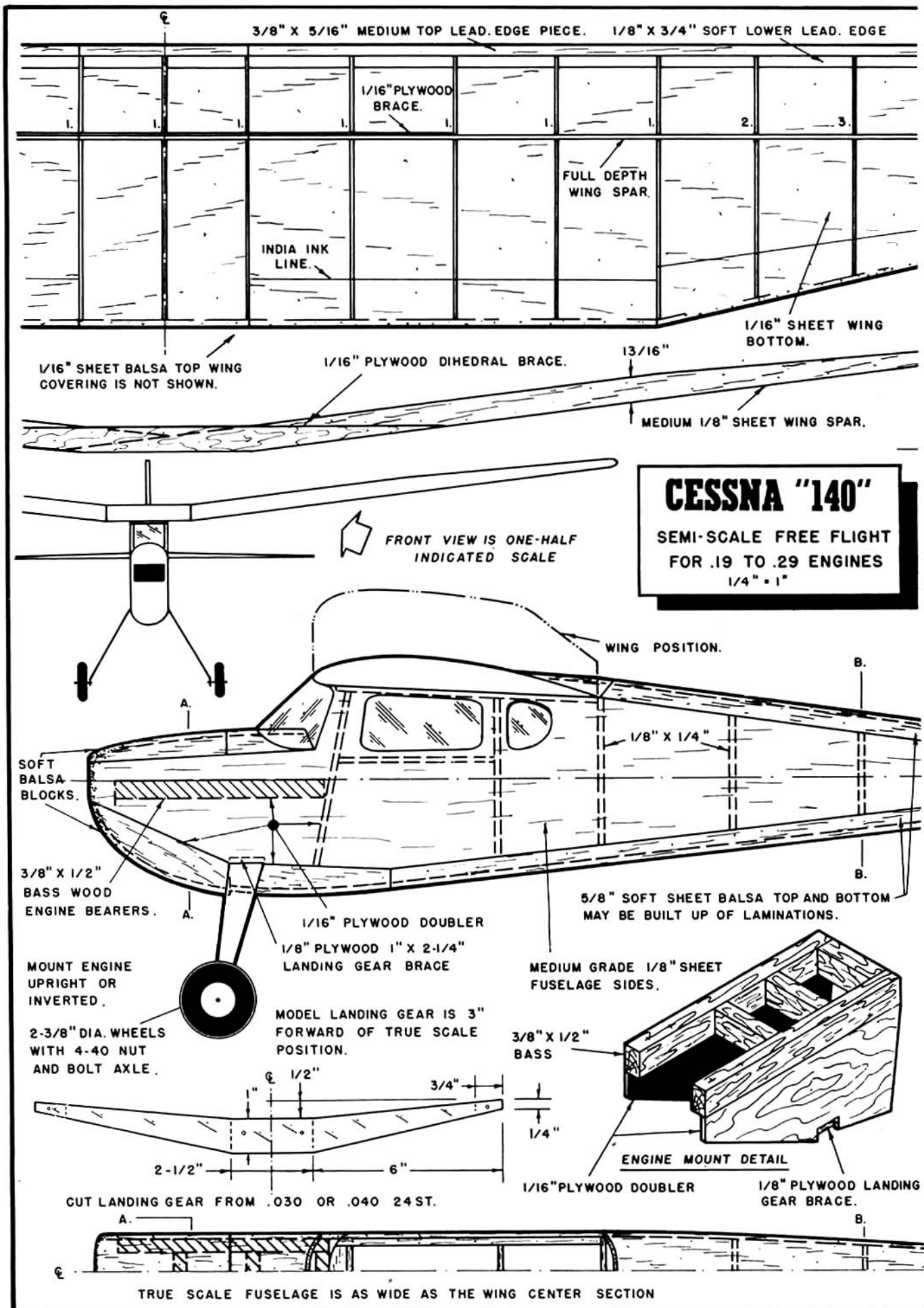


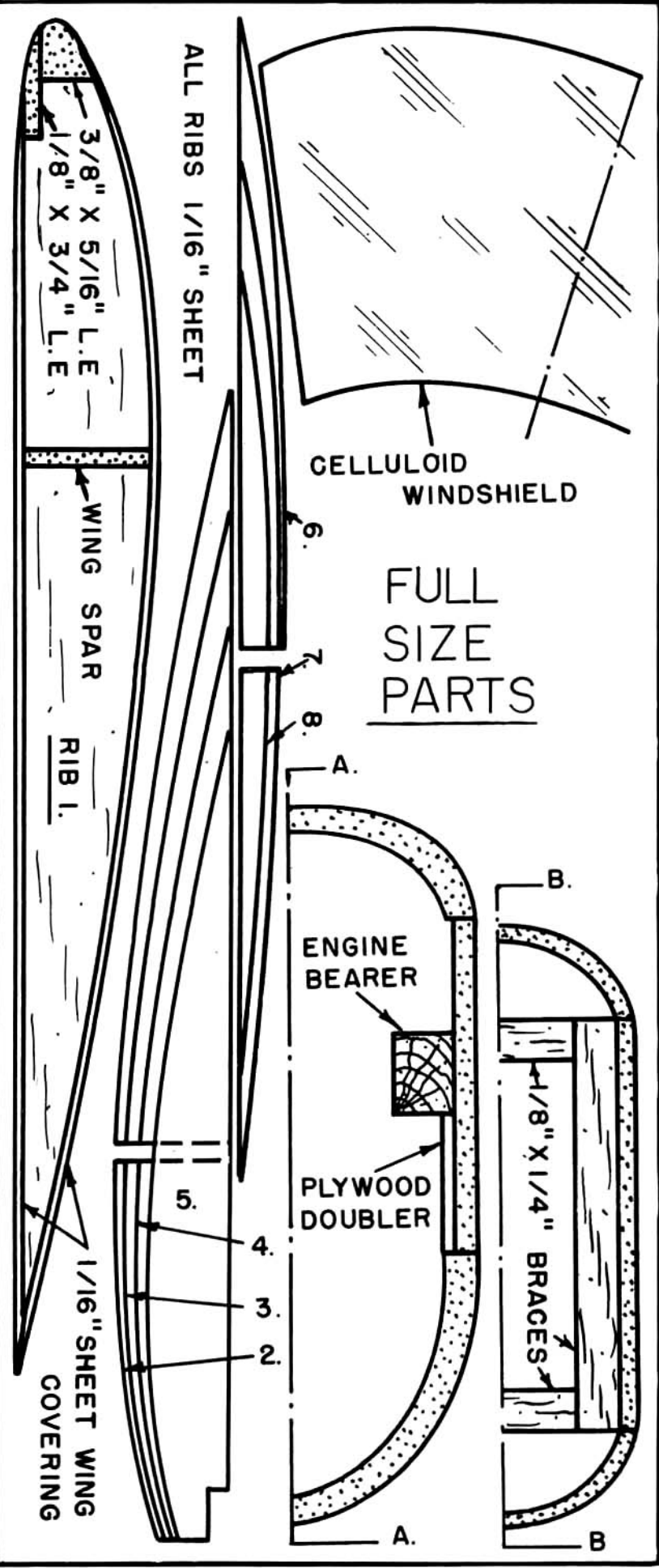
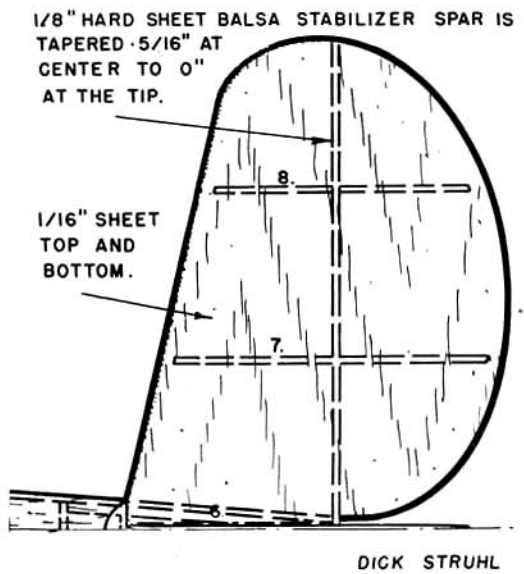
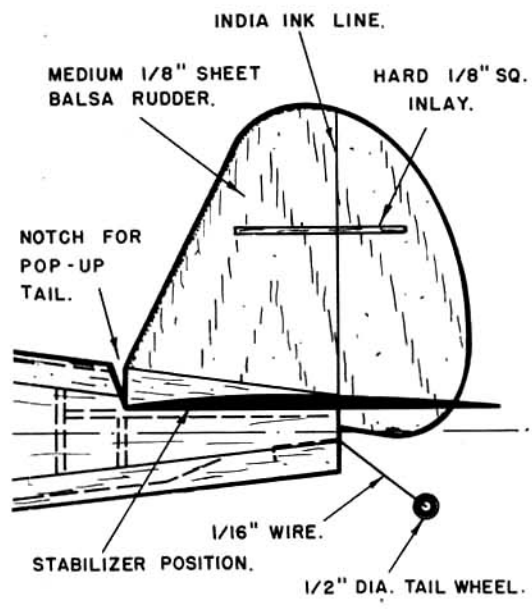
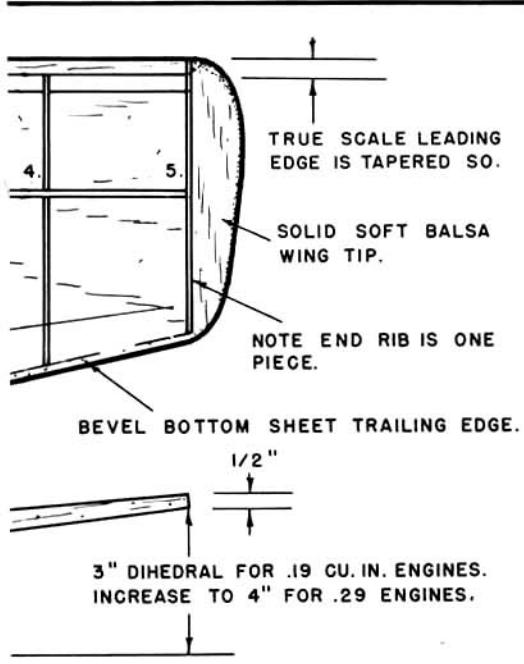
The all balsa covering allows for a super fine finish, making the model appear as though covered with metal. The original had a Torp .19 and weighed in at 23½ ounces with a full tank of gas. A 57" wing provides a good glide and plenty of stability. Simple construction is also sturdy. Plans appear ¼ scale so they will have to be enlarged four times the size they are in the magazine. A short cut method is to have photostats made.

CESSNA 140

by Dick Struhl

The Cessna 140 makes an outstanding scale free-flight. Taking any glow engine from .19 to .29, model is an excellent sport job





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CESSNA 140

(Continued from Page 17)

present size, before beginning construction.

WING: It will be necessary to butt-join three sheets of 3" wide medium grade 1/16" sheet balsa to obtain the proper width of the wing. Upon these wide sheets, draw the wing plan in light pencil. This is then used as the bottom of the wing and we merely add the necessary structures to it. Prepare additional 9" wide 1/16" sheets and set them aside—they will be used as the wing top covering.

Cut the full depth wing spar from 1/8" sheet stock and build in the dihedral as shown. The 1/16" plywood dihedral brace is all that you need at the joint.

Pin the bottom center section sheet to a flat surface and cement the wing spar in place. Add the two-piece leading edge ribs, and allow to dry. When the cement has set, remove and build either the left or right wing panel in the same manner. Then build the opposite wing panel.

Next, bevel the leading and trailing edges and apply the top wing covering. Use slow drying cement here so you will have time to apply the necessary pins and clamps to hold the top sheet in place. Add the soft balsa wing tips and sand to a smooth outline. Just a few licks with No. 1 sandpaper wrapped around a block should give the leading edge the proper shape. Finish off with finer grades of paper. Apply an extra cement skin over the dihedral joints and all other seams, especially at the leading and trailing edges.

STAB & RUDDER: The stabilizer is made in much the same manner as the wing. Draw the entire stabilizer outline on proper width 1/16" sheet. Add the hard 1/8" tapered spar and the ribs. The top covering will have to be in two halves joined at the rudder position. You will have to insert small wedges at the trailing edge where it meets the spar, as you cannot bring the top and bottom sheets together at this point. Sandpaper to smooth outline as required.

The rudder is cut from 1/8" sheet balsa and has a hard 1/8" square strip inlay across the grain as shown. Cement the rudder to the stabilizer with several coats of cement. We suggest that you keep the tail group as an entity, so that you can install your favorite pop-up dethermalizer.

FUSELAGE: The fuselage is made by drawing the two side panels on medium grade 1/8" sheet stock. Butt-join two 3" wide sheets if necessary. Mark the upright positions and cement 1/8" x 1/4" uprights in place. These are shown by dotted lines in the drawing. Connect the two sides with 1/8" x 1/4" cross pieces, as shown in the top view. Build the motor mount of 3/8" x 1/2" bass wood and install. Add the 1/16"

plywood doubler beneath the bass wood mounts as shown.

Cut the landing gear from the proper metal stock and install with two 4-40 nuts and bolts. A 1" wide cross piece of 1/8" plywood between the two doublers acts as the landing gear base. Add the nose blocks which are soft balsa, shaped and then hollowed out as shown by the dotted lines.

The fuselage top and bottom may be cut from soft 3/8" sheet or built up of laminations of soft sheet balsa. These are first shaped and then hollowed in the same manner as the nose blocks. Note that a portion of the top cowl is removable to gain access to the engine and gas tank. Hold this in place with dress snaps or rubber bands.

FINISHING: When painting the model, remember that this is a free-flight and not a control-line job, so weight is very important. The original model only had one coat of clear dope to act as the sealer, and then two coats of silver to give the color. Trim was all in black. The silver color over the sheet covering gives a very convincing metallic appearance. The silver dope was made by mixing clear hot-fuel proofer with aluminum powder.

The windshield and side windows are sheet celluloid. Be sure to spray them with a coat of clear hot fuel proofer. Before installing the engine, give the entire nose section two coats of clear hot-fuel proofer.

FLYING: Test-glide the model in the conventional manner. We had the engine off-set to the right for a right turn under power and a tight left turn in the glide. The first few flights should be made with the prop installed backwards, so that the speed will be reduced during the critical test period. The model is really a fine performer so some type dethermalizer is a must if you want to avoid losing your plane.

BILL OF MATERIALS

(Balsa unless otherwise stated)

12-1/16" x 3" x 36" (medium)	Wing and stabilizer skins and ribs
4-1/8" x 3" x 36" (medium)	Fuselage sides, rudder, wing and stabilizer spars
1-5/8" x 3" x 36" (soft)	Fuselage top and bottom
5-1/8" x 1/4" x 36" (medium)	Fuselage uprights and cross pieces
2-1/8" x 3/4" x 30"	Bottom leading edge
2-3/8" x 1/2" x 30"	Top leading edge
2-3/8" x 1/2" x 6"	Bass engine bearers
1-1/16" x 3" 18"	Plywood Dihedral brace and doublers

1-1 1/2" x 14" .040 24 ST or other similar material;
Soft balsa blocks for nose and wing tips; 1/16" steel wire, sheet celluloid; hot fuel proofer and cement; 1/16" hardwood dowels; rubber for mounting wing and tail; Torp .19 or any glo engine .19 to .29 displacement; 8 4-40 nuts and bolts; colored dope; decals; pair of 2 1/2" dia. wheels; 1 1/2" tail wheel.

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