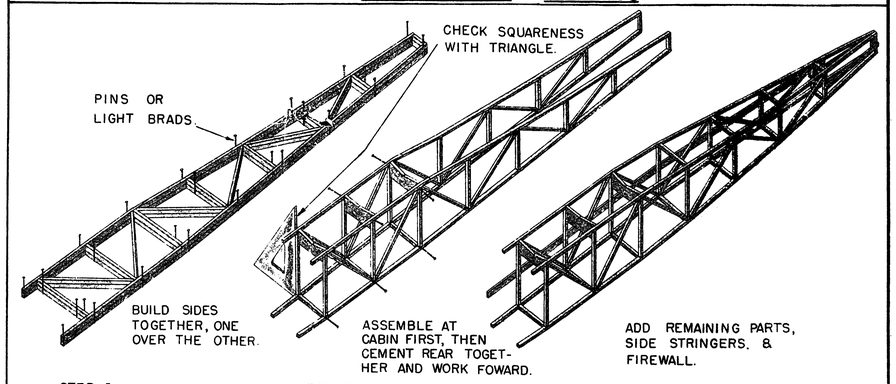
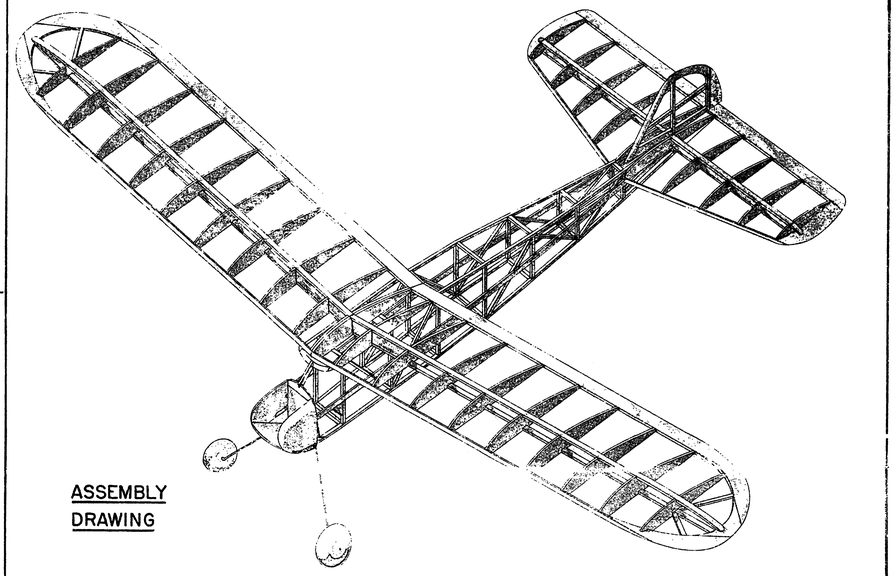
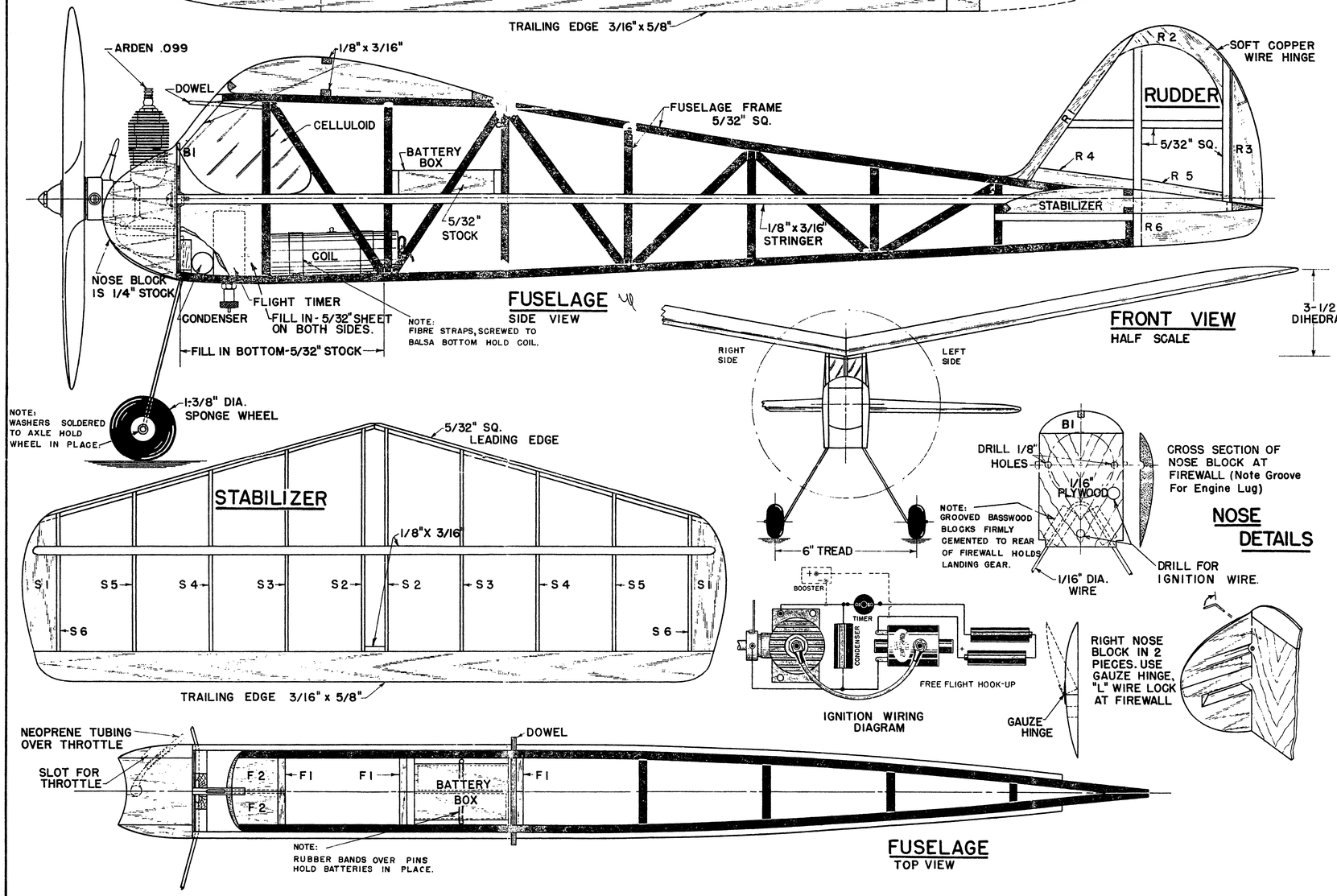
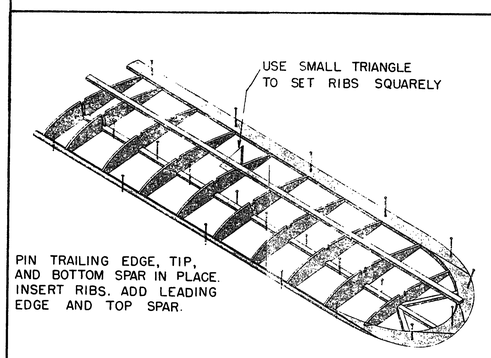
"PHANTOM" CONSTRUCTION DRAWINGS

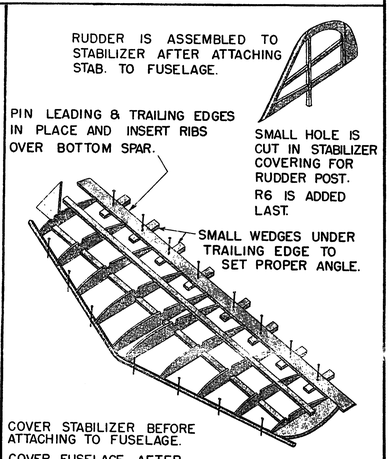


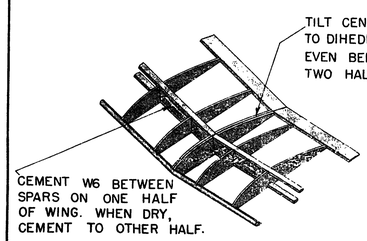
FUSELAGE DETAILS











INSTRUCTIONS FOR BUILDING & FLYING

The Brigidier "38" is simple in structure and anyone who has had some experience building models will have no difficulty in constructing it.

Before beginning the actual work, study the plans to obtain a general idea of the construction. Any difficulties that might appear, will most probably clear themselves as work progresses.

Few and simple tools are necessary for building the model. A flat board approximately 2 feet long and 6 inches wide will substitute very nicely for a work bench. The tools you will need are a small coping saw, tack hammer, hand drill, soldering iron, model knife and sandpaper.

FUSELAGE

The fuselage is built of 5/32" square balsa. Build both sides at the same time, one atop the other, to assure their being alike. When the sides have been removed from the plan, cut the bulkheads from the printed sheets and glue in the proper positions. Assemble the fuselage at the cabin first, making sure that the fuselage is square. When these joints are dry, cement the rear end of the fuselage together. Next, install all the remaining crosspieces. Attach the side stringers. Add the plywood bulkhead. Before cementing the bulkhead in place, drill the necessary holes for the ignition wiring and motor mount. The entire structure must be firmly re-cemented with several coats of cement. Cement firmly in place the pegs for attaching the wing. The formed landing gear is attached to plywood bulkhead by means of the grooved basswood strips. Apply several coats of cement over these strips to assure a firm landing gear installation. Fill in 5/32" sheet balsa on sides and bottom at nose. The wheels are held in place by soldering washers on the landing gear.

MOTOR INSTALLATION

The motor installed is a radially-mounted Arden .099. The motor is bolted directly to the firewall, the mounting nuts being cemented on the rear of the wall. The nose blocks are cut out from the 1/4" printed stock and built up as shown in the detail drawings.

For beam-mounted engines like the Atom and Elf, it will be necessary to purchase metal motor mounts that can be bolted directly to the firewall. The shape of the nose blocks may have to be altered slightly to provide for accessibility to the engines timer gas tank and throttle. Therefore, do not make the cutouts shown on the printed sheets if using an engine other than the Arden.

The ignition layout as shown should balance the model properly. Follow the ignition wiring diagram in wiring your model. Do all the ignition wiring before covering the model. The batteries used in the model are two pen-cell style, soldered together in series and provided with leads. The bared ends of the leads are then wrapped together with lead wires coming from the timer and coil and covered with "Scotch" Tape. This method gives you a fool-proof wiring system. Keep all ignition wires as short as possible and always use booster batteries when starting.

WING AND TAIL

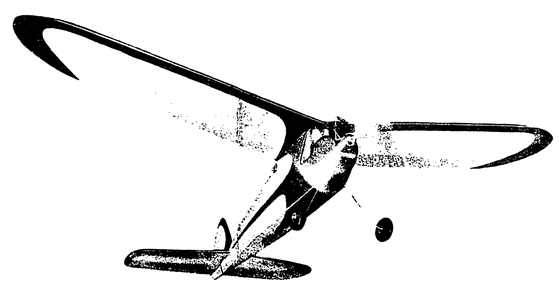
As the wing and tail are constructed in a similar manner, they are described together. Cement the curved tip sections together and shape to a triangular cross section using a knife and sandpaper. Pin the trailing and leading edges down and put in the ribs. When dry, glue the wing panels together at the correct dihedral angle. Carefully check your wing for warps. The wing should be perfectly level on both sides for consistent flights. After the model has been flown a few times, better performance can be obtained by warping both tips down slightly. To remove warp from the wing, apply a light coat of thinner and apply opposite warp with your hands as the thinner dries.

COVERING

Attach the covering material to the model with cement. If the cement is too thick because of oiliness condition, thin it out about 1/3 with clear dope. The wing is covered with one piece, from rib to rib, working from the center out. Slit the covering along spar when covering the tip of the wing, in order to get a smooth job. The bottom is covered first, the paper being doped to each rib. The top is then covered and the entire wing sprayed with water. The Stabilizer is covered before attaching it to the fuselage. Do not cover the fuselage until the Stabilizer is cemented in position. Round the edges of the fuselage with sandpaper before applying covering. Cover with separate sheets for the four sides. Side windows of cabin are outlined with covering material. Give the body, wing and tail several coats of dope to protect it from the exhaust gas and oil.

ADJUSTMENT AND FLYING

Attach the wing to the body with two heavy rubber bands. The model now should balance at the wing spar. Glide the ship several times and adjust the rudder for a medium right circle. A low pitch 6" diameter propeller is recommended. Never open the motor full throttle the first few flights. Set the timer for 10 seconds on the first flight. Balance model to the correct point by moving the location of the batteries. If model shows poor glide characteristics, this may be improved by increasing the incidence angle of the wing. Add a 3/16 to 1/4" wedge under the leading edge. The model when fully adjusted, spirals upward in right circles and when the motor stops, without losing any altitude and continuing to the right, it goes into its slow and extraordinarily flat glide. With a 20 second motor run, you can expect consistent flights of well over two minutes without the help of the thermals, but when there are thermals lurking about and you aren't in the mood to watch your ship fly away - by careful!



BRIGADIER "38"

CONTEST OR SPORT FREE FLIGHT
CLASS A GAS MODEL

DESIGNED & ENGINEERED BY "EFF"
DRAWN BY STEPHEN J. GRAFFEO

PLATE NO. 1 OF 1

BERKELEY MODELS, Inc.
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