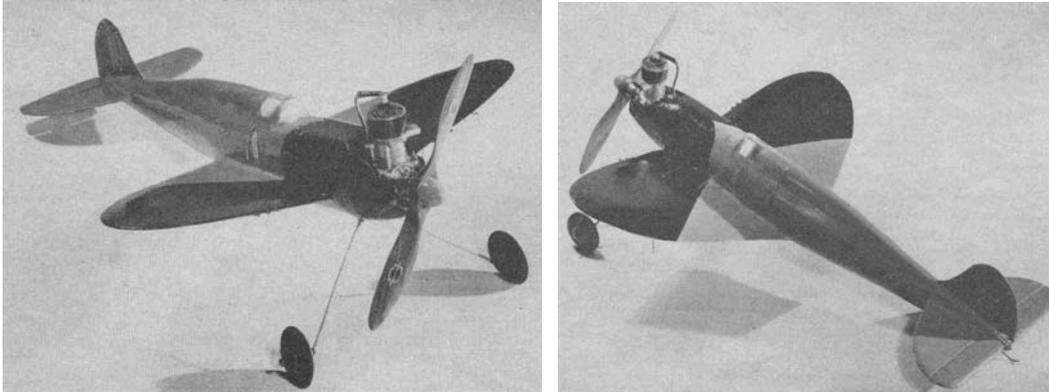


LEASHED DEMON

How you can build a speedy modern pursuit type U-Control model that is easy to fly

by **JERRY BROFMAN**



The sleek streamlined speedster ready for action

DURING past contest seasons -- when free-flight gas models were in vogue and gas and cars were plentiful -- modelers tried for long, high flights. Few modelers ventured to the field with realistic looking ships, and the contest airplane was getting to look like anything but an airplane. Some said this could not have been helped; and some said it could have been helped. "Dyed in the wool" contest builders criticized fellows who brought to the field anything that resembled a real airplane. They said that their crazy looking contest jobs would win -- and usually through luck or logic their crazy looking jobs did win!

Nowadays, with gas, cars, flying fields, motors, balsa (one could go on forever) being scarce, U-Control models are being seen much more frequently; in fact, there are very few free-flight fans left who would risk losing a motor that cannot be replaced, on a thermal flight without a car to chase. These now popular U-Control ships can be made either to exact scale or semi-scale; at least, they can be made to look like a real airplane without the loss of flight efficiency. They also can be given beautiful paint jobs with many details, such as machine guns, bombs, etc., and can be built strong and streamlined to last very long. There is fun and much knowledge of "hot" flying military jobs gained in controlling these little "speedsters."

Now, to tell you something about our

Thunderbolt. She was designed to resemble the average fast pursuit ship of today. Its internal structure reminds one of the Republic P-47 Thunderbolt; it is very compact with a place for everything and everything in its place! There is little room to spare for anything after ignition and controls are in. It also is like the P-47 in that it is slightly heavy for its area, slightly small for its power and "built like a brick" to last.

If you build the Thunderbolt you will not only have a realistic, good looking U-Control model, but one with amazing flying ability, whether you are interested in control or speed.

Start by scaling up the plans to full size. Next cut fuselage formers to shape. These are made of 1/8" balsa, 1/16" pine or both. The original ship was made entirely of 1/16" pine formers, except where noted on the plans. Cut the two side longerons of 3/16" square pine to their exact lengths, as shown on the fuselage top view. Do the same for the bottom 3/16" square pine longeron. Then steam and pin it to the side view to get the correct bend. Assemble the fuselage by marking off the places on the three longerons where the formers fit. Insert the two side longerons first and cement them to the formers. Use rubber bands to hold the rear bend in place.

The wing is made next. Cut two wing halves of 3/8" x 2" sheet balsa. If balsa is not available, pine can be used if the center is cut

out and 1/16" pine ribs inserted at 1-1/2" intervals. Cut the wing to rough airfoil shape as shown on the plans; finish off by block-sanding as you would a handlaunched glider wing. Join the wing halves with 1" dihedral in each tip-give this joint at least three coats of glue.

When the wing is dry it is cemented to the fuselage. It fits on the bottom of formers B, C, D and E and flat against former F. Cement it very firmly to these formers, as it will take much stress at high speeds and "hot" landings. Cement the bottom of formers B, C, D and E to the bottom of the wing. When dry cement the steamed and bent bottom longeron to the bottom off the fuselage formers. Steam and bend the rear top longerons as you did the bottom one. When dry cement it to the rear top formers from former E to former J.

Front top formers of the removable hood are now cut, and the removable hood is assembled. This hood, as shown on the plans, holds all the ignition, including battery box. This is very accessible. The ignition can be put in now. The battery box is made of sheet balsa and fits between hood formers E and F as shown on Plate 3. The coil is glued between the two balsa blocks, which in turn, are glued between the formers as shown on Plate 3. The batteries come out through the bottom. A switch is used in place of a timer. Cover the hood with 1/16" sheet balsa just as the rest of the body is covered. Cut two motor mounts of 3/8" and 1/2" gum or basswood and insert in the first two formers, which are made of plywood. Cement the mounts in thoroughly, using extra coats of cement to insure strength.

Bend the landing gear of 3/32" steel wire to shape, as shown on Plate 2, and bind it to the firewall with soft iron wire. Coat the firewall with at least three coats of cement to keep the gear on firmly and prevent gas seepage into the fuselage. Carve the nose block (of soft balsa) to shape and cement to the mounts and firewall as shown on plans. Sand and shape to body contour.

Cut the control pieces from 1/8" plywood as shown on Plate 2. Assemble the two control pieces with the 3/32" steel bolt as shown. Bend the control wire of 1/16" steel wire -- 15-1/2" is the length -- but it might vary on different ships. Cement the finished control unit into the bottom fuselage half right over the wing as shown on the

fuselage plans.

Cut the elevators, rudder and stabilizer all of 1/8" sheet balsa. The 1/4" x 1/8" pine strip is cemented to the elevators as shown. - Linen hinges are used to hold elevators to the stabilizer. Cut and bolt the aluminum control fitting to the 1/8" x 1/4" pine strip. Cement the stabilizer-elevator unit to the fuselage longerons as shown. Attach the control wire to the aluminum control fitting on the elevators as shown on the plans; that is, with washer and solder on each side, allowing the fitting to swing loose around the wire. See that the elevators go up and down about 1/4" in each direction when you pull the control lines. The stabilizer-elevator unit is cemented firmly to the fuselage longerons as shown. The top rear balsa block is cemented to the top of the stabilizer; the bottom block is cemented to bottom of the longerons. The rudder is cemented to the top balsa block. Remember to offset the rudder about 1/4" to the right -- against the turn of the circle being flown around.

The 1/8" x 1/4" pine strips should now be inserted from, former E to former H. When dry sand the entire fuselage. Cover the fuselage with 1/16" sheet balsa. Use a 3" sheet to cover the bottom from former F. Use 1-1/2" sheets to cover the space on top of the wing from former A to F. Use 3" sheets to cover each quadrant of the rear elliptical cross-section from former F to former J on bottom, and from former E to former J on top. Steam the sheet balsa if you find bending it to the fuselage curve is too hard. Be sure to cement the sheets to *each and every* former -- use pins liberally. When dry, remove pins and sand smooth. Start with No. 1 sandpaper, and finish with 6/0 sandpaper. Give three coats of thin cement over sheeting and fill in any cracks and seams with wood filler. Sand between each coat. Apply three coats of colored dope. The original was black in front, and orange in the rear, as shown in the pictures.

Bolt down motor with about 1/16" right thrust, against the circle flown around. The control lines are of 45 lb. for the Forster "29" or similar class B motor; 60 lb. test. should be used for larger Class C motors. The lines go through 3/16" aluminum or brass tubing, set in horizontally in the wing, shown in the top and front views of fuselage in Plate 1.

Attach the hood to the fuselage, by inserting the 1/16" dowels in their respective holes

in the fuselage. Connect the high tension lead to the plug, the point wire to the points and the ground wire to any one of the motor bolts.

Test the motor before going to the field. Be sure it runs smoothly on your inside batteries. See that the control lines work smoothly. For test flights, it is best to fly in a dead calm. Have your helper get the motor running at about half throttle for the first flight. Let the ship roll and gain speed. Give the up-line a little pull and she will hop into the air. Notice that at neutral control she

will fly by herself. She will not go into the circle at you, because of the offset rudder and thrust line. Try the controls for up and down -- do not over-control -- just a little pull is necessary because of the large "flippers" (elevators). On the next flight, run the motor more if you are sure you understand the controls.

With a little practice, exciting speed and tricks may be performed by pilots of this "Leashed Demon."

VICTORY

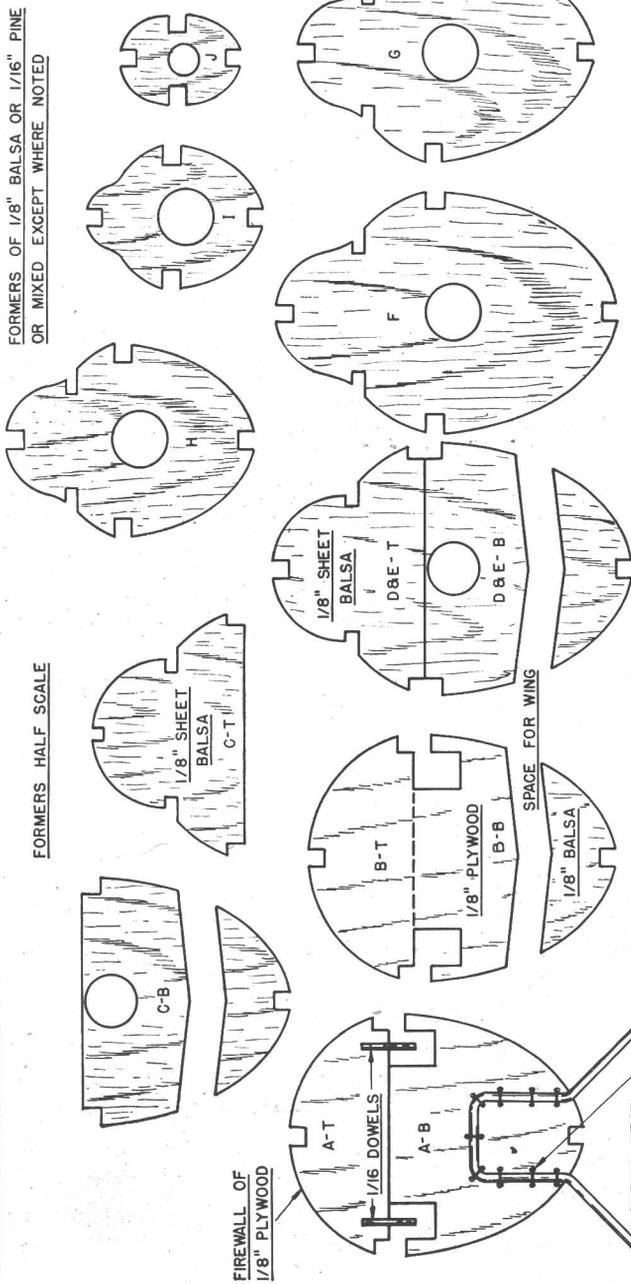
***Scanned From August, 1943
Model Airplane News***

THE THUNDERBOLT

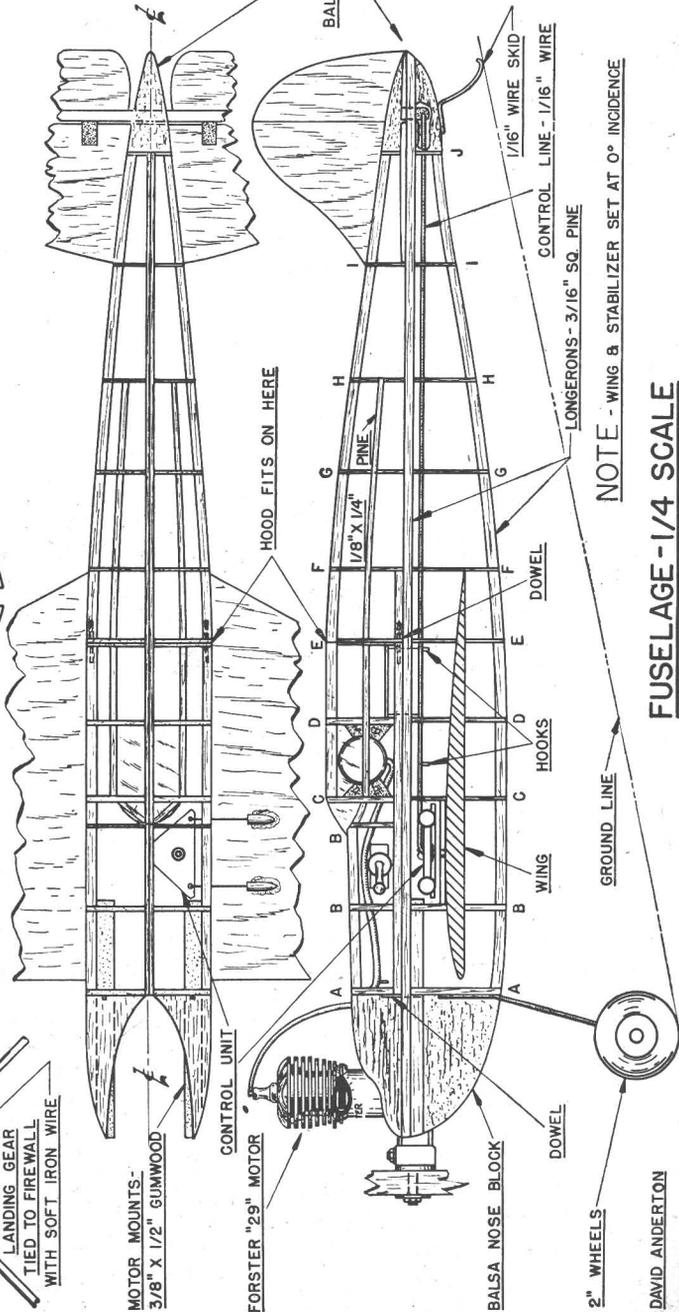
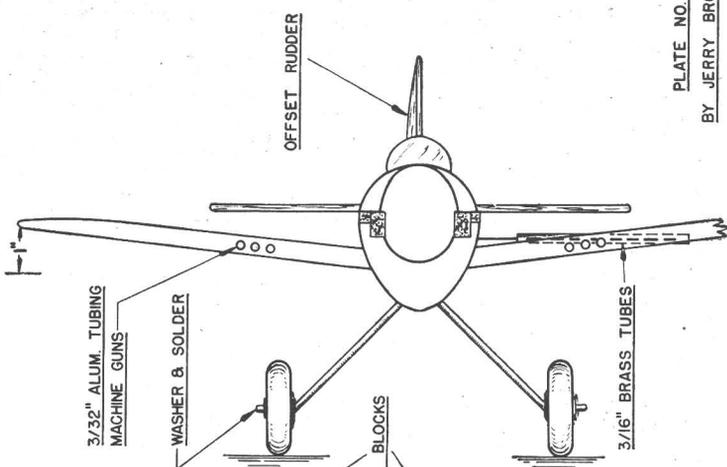
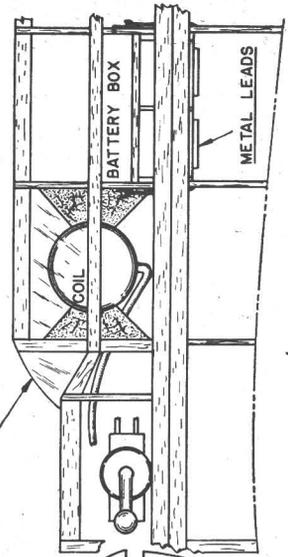
SPAN 19"
 AREA 100 SQ."
 CHORD 8-1/2"
 LENGTH 24"
 WEIGHT 22 TO 32 OZ
 SPEED 60 MPH.
 WOOD FILLER - 3 COATS PAINT - POLISHED

FORMERS OF 1/8" Balsa or 1/16" Pine
 OR MIXED EXCEPT WHERE NOTED

FORMERS HALF SCALE



CELLULOID
 REMOVABLE HOOD
 DETAIL HALF SCALE

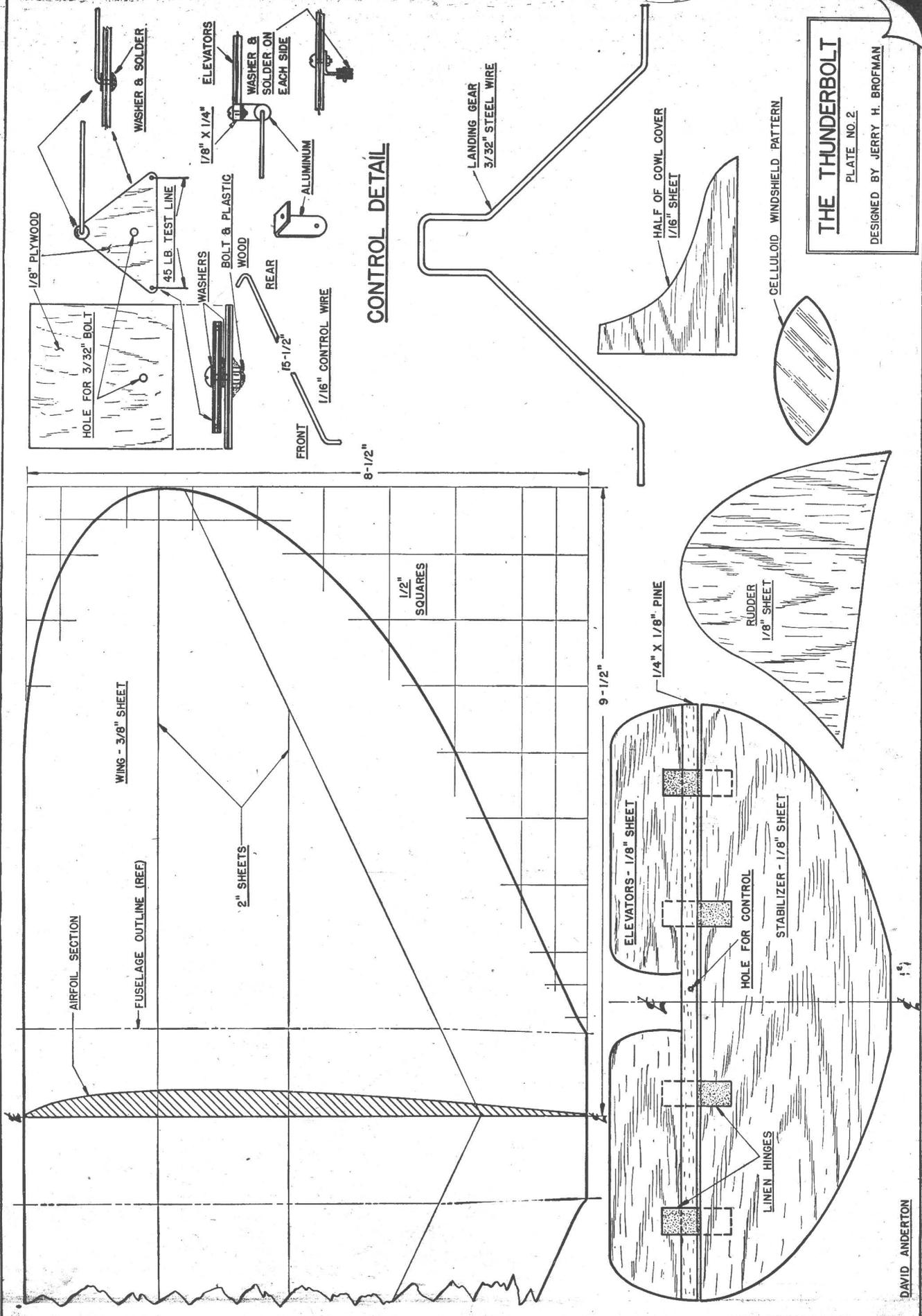


NOTE - WING & STABILIZER SET AT 0° INCIDENCE

DAVID ANDERTON

FUSELAGE - 1/4 SCALE

PLATE NO. 1
 BY JERRY BROFMAN

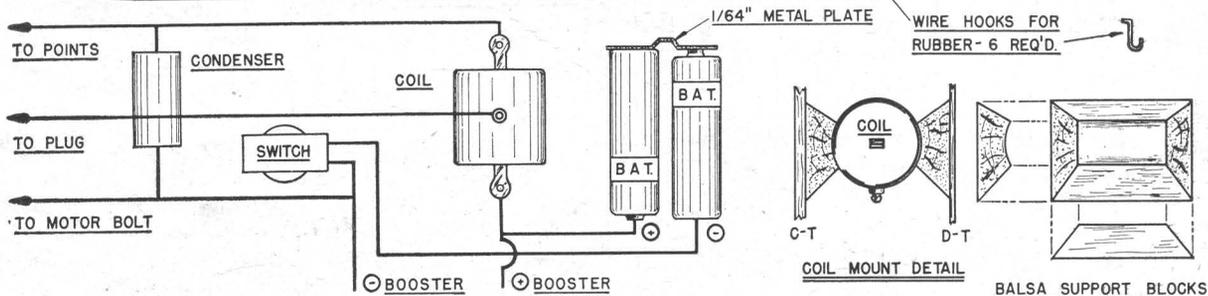
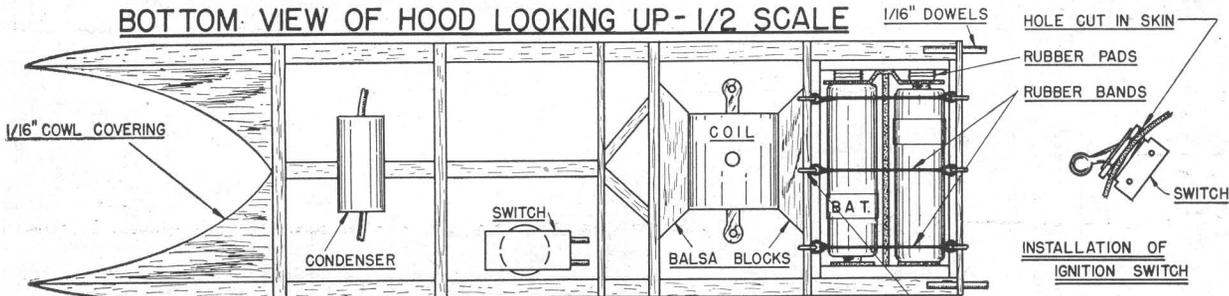


CONTROL DETAIL

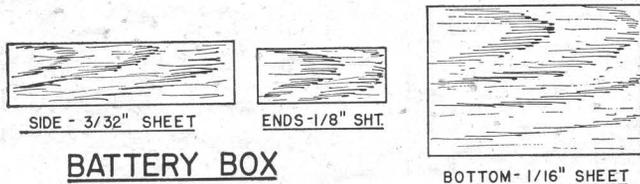
THE THUNDERBOLT
 PLATE NO. 2
 DESIGNED BY JERRY H. BROFMAN

DAVID ANDERTON

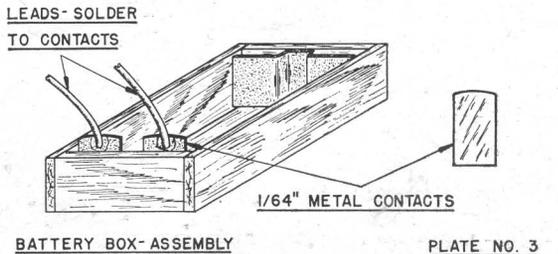
BOTTOM VIEW OF HOOD LOOKING UP - 1/2 SCALE



WIRING DIAGRAM



DETAILS - 1/2 SCALE



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