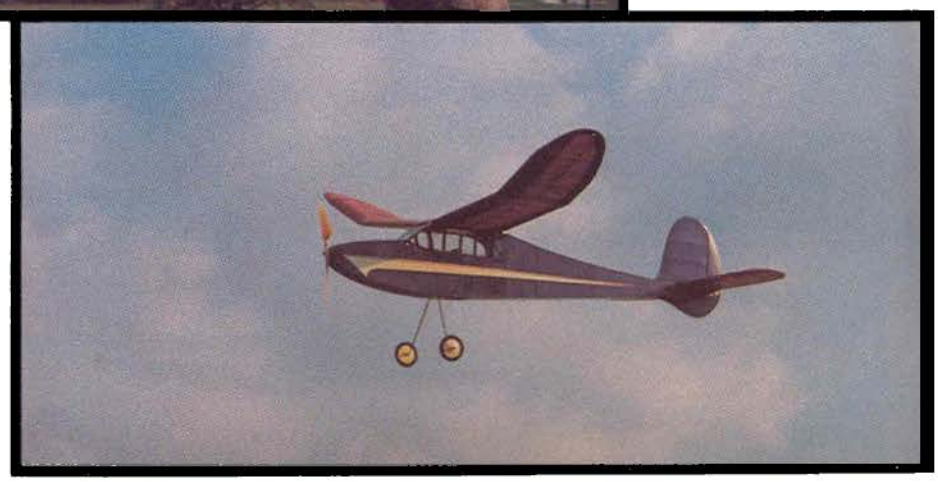
DOUBLE

Noted designer, Don Srull, has another winner in this 15 powered electric classic. A double size model of Wally Simmers award winning Jabberwock of the late 1930s.



By Don Srull
Photos by Tom Schmitt

JABBERWOCK

The original Jabberwock was one of the best flying rubber powered free flight contest models of the late 1930s through the 1950s. It was designed by Wally Simmers, an outstanding modeler and competitor of that period. The Jabberwock and another famous design of Wally's, the Gollywock, were kitted by Midwest Model Supply Company for quite a few years, and many of today's modelers (as I did) had their first real modeling success with these simple, great flying airplanes. Both of the designs are now regarded as classics, and can still occasionally be seen flying at fields that are large enough to contain super performing free flights.

Not being one of the fortunate minority with access to a good free flight field, but still longing to enjoy these old timers, R/C seems to be the answer. The quite, smooth power of the modern electric motor systems, especially when geared down and using large diameter folding propellers, is a natural choice for power. So here is the Jabberwock, doubled in size to carry an Astro 15 motor, a 12 cell battery, and three channels of mini radio gear. It is a fine performer, easy to build and easy to fly. It will deliver an honest 10 to 15 minutes in dead air; and since the Jabberwock has an excellent glide, any kind of thermal activity will keep this bird up as long as your neck and radio batteries hold out. Because of its silent powerplant, and its light wing loading (about 16 ounces per square foot), the Jabberwock can be flown from almost any schoolyard, athletic field, or large parking lot. With minor changes, the model can also be powered with a .20 to .25 cubic inch glow engine. A change in the firewall and provisions for a fuel tank is about all that is required. Although we have not tried this combination, I suspect that the beautiful little HP .21 4-stroke engine would be a perfect match for the Jabberwock. In exchange for their somewhat noiser and greasier behavior, these glow engines will provide a weight savings of about one pound. The resulting gross weight of about 50 to 55 ounces will improve the Jabberwock's glide somewhat. However, if you have not yet tried the silent beauty of electric flight, I highly recommend you give it a try.

So if you like old timers, or just want a good performing electric R/C sport flier, the Jabberwock may be your airplane.

CONSTRUCTION

The model is built in the traditional "stick and tissue" style both to be authentic and to keep the weight to a minimum. If you plan to use electric power, do not beef-up the structure. It is plenty strong enough as shown and extra weight is what you do not want. Select materials carefully. Use the lightest balsa you can find (6 to 7 pounds per cubic foot is about right), except for longerons and spars, which should be hard, straight grained strips. I used Titebond resin glue for all construction, although thick cyanoacrylate instant glues will speed the building somewhat.

Build two identical fuselage sides over the plans and sand smooth on both sides. Assemble the two line-up formers, F-3 and F-5, and use these to join the sides. Add the remaining cross pieces, making sure the fuselage remains straight and true. Cut out motor mount former F-1 and mount the motor to it prior to gluing it into the fuselage. The mount shown is for the Astro 15 Super Ferrite with a 2.5:1 belt reduction drive. If you use another motor, such as an Astro Cobalt 15, or one of the German equivalent motors, modify the size and position of F-1 accordingly. With the motor mounted to F-1, glue F-1 into place with slow setting epoxy. Position it carefully to get the correct prop shaft position and thrust offsets. This will be easy if you attach a large (12" diameter or more) wooden prop to the motor, and use it to measure the thrust line angles. If you are going to use a glow engine, cut F-1 from 3/16" ply as a full depth bulkhead. Also make provisions for a 6 ounce clunk tank immediately behind F-1.

Sheet the top and bottom of the nose and tail area with very soft, light 1/4" balsa. Laminate and carve the nose block piece, making sure the cut-outs clear the prop shaft of the motor. Bend the landing gear legs from 5/32" wire and add the hardwood gear mounting blocks to the fuselage bottom. Install the motor battery retaining bulkheads and the motor wiring harness to make sure all cables fit neatly inside and the motor system works properly. Build a hinged access hatch from 1/4" square balsa to allow access to the motor battery pack through the fuselage bottom. Leave 1" x 3" hole in the hatch for some flow of cooling air over the batteries.

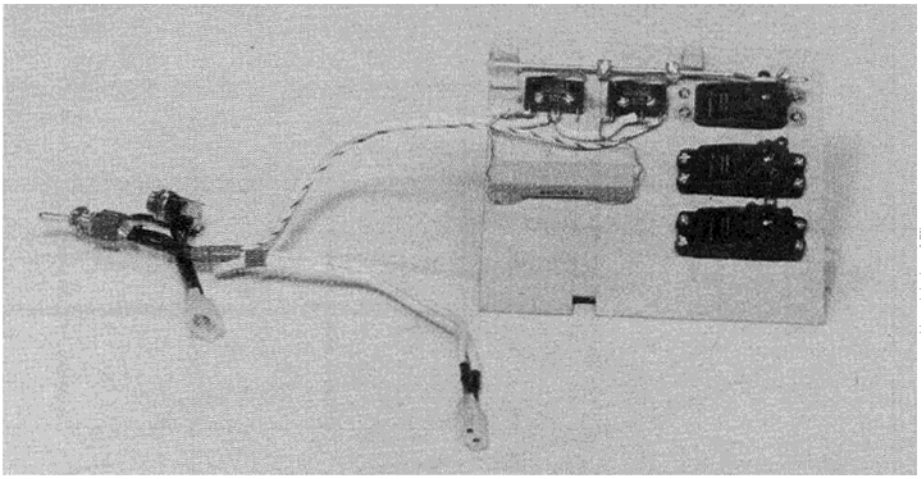
About The Author

Don Srull has been designing and writing about R/C models for the last eighteen years, his first article was published in RCM back in November 1966. His R/C modeling interests range from sport to schoolyard scale, to competition Stand-Off Scale. He is also an avid free flight scale builder and designer. Don now lives in Virginia outside of Washington D.C. and, in addition to his modeling pursuits, works as a research scientist for the Government.

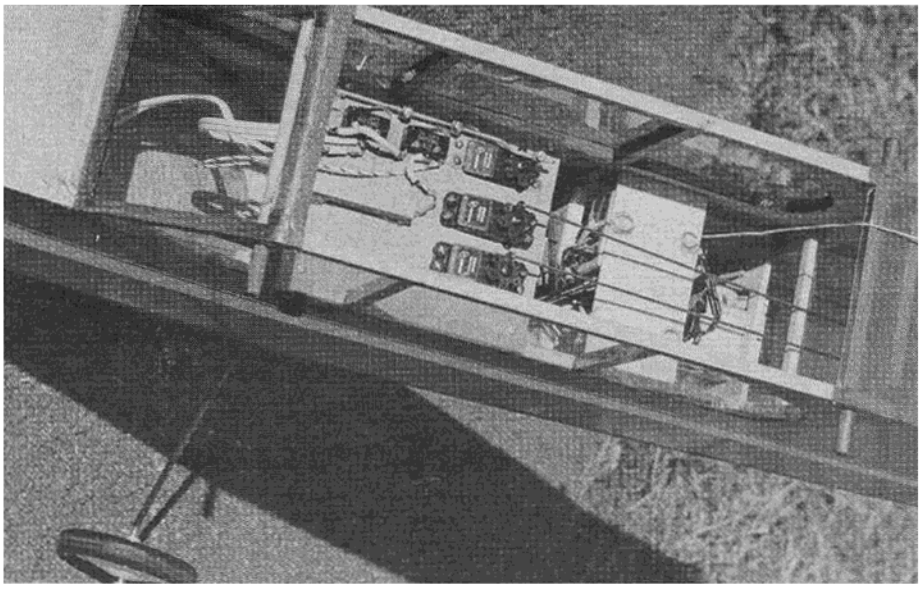
DOUBLE JABBERWOCK

Designed By:
Don Srull
TYPE AIRCRAFT
Electric/Glow Sport
WINGSPAN
67½ Inches
WING CHORD
9½ Inches
TOTAL WING AREA
600 Sq. In.
WING LOCATION
High Wing
AIRFOIL
Undercambered (12½%)
WING PLANFORM
Constant Chord
DIHEDRAL EACH TIP
7" (Polyhedral)
O.A. FUSELAGE LENGTH
55 Inches
RADIO COMPARTMENT SIZE
(L) 9" x (W) 3½" x (H) 7"
STABILIZER SPAN
38 Inches
STABILIZER CHORD (incl. elev.)
7 Inches
STABILIZER AREA
250 Sq. In.
STAB. AIRFOIL SECTION
Flat Bottom (14%)
STABILIZER LOCATION
Top Of Fuselage
VERTICAL FIN HEIGHT
8 Inches
VERTICAL FIN WIDTH (inc. rud.)
8" Avg.
REC. ENGINE SIZE
15 Elect., .20-.25 Glow
FUEL TANK SIZE
6 Oz. for Glow
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
3
CONTROL FUNCTIONS
Rud., Elev., Motor Hi-Lo-Off
BASIC MATERIALS USED IN CONSTRUCTION
Fuselage ..... Balsa and Ply
Wing ..... Balsa, and Ply
Empennage ..... Balsa
Wt. Ready To Fly ..... 65-75 Oz.
Wing Loading ..... 15.6-18 Oz./Sq. Ft.

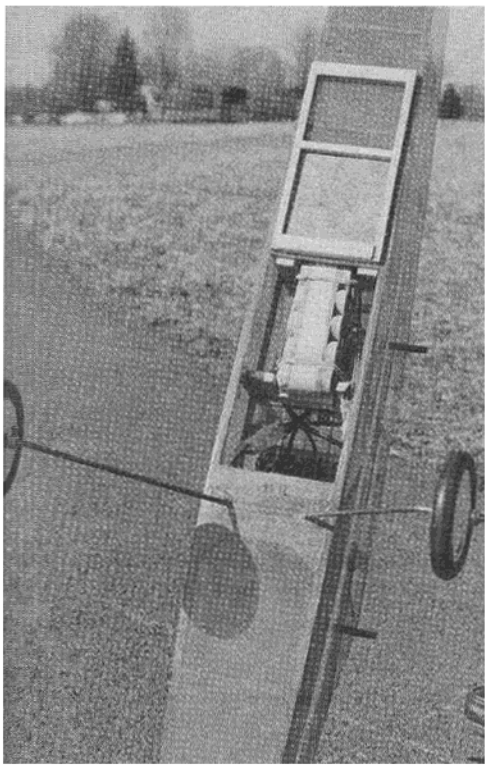
The undercambered wing airfoil requires the front of the trailing edge to be shimmed up 3/32" during construction. After cutting the notches in the trailing edge stock for the ribs, pin it in place over the plans using small scraps of 3/32" balsa as shims. Next, pin the lower 1/4" x 1/8" main spar in place and glue in all ribs. Add the leading edge and 1/4 sheet tips. Now add the tip dihedral and, when dry, put in the center section dihedral. While still in place on the board, add the top spar, dihedral braces, spar webbing and top 1/16" sheeting. When the wing is removed from the building board all that is needed is the lower rear spar.



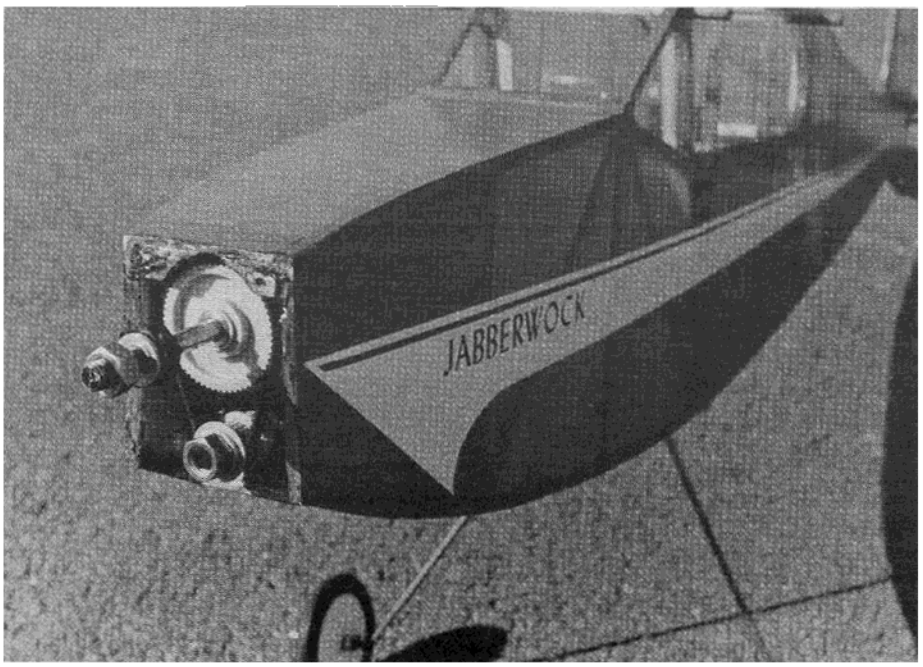
The "Off-Lo-Hi" speed control module is built onto the servo mounting tray.



Looking into the Jabberwock's radio compartment — note the room that's available.



Access to the 12 cell battery is through the bottom fuselage hatch.



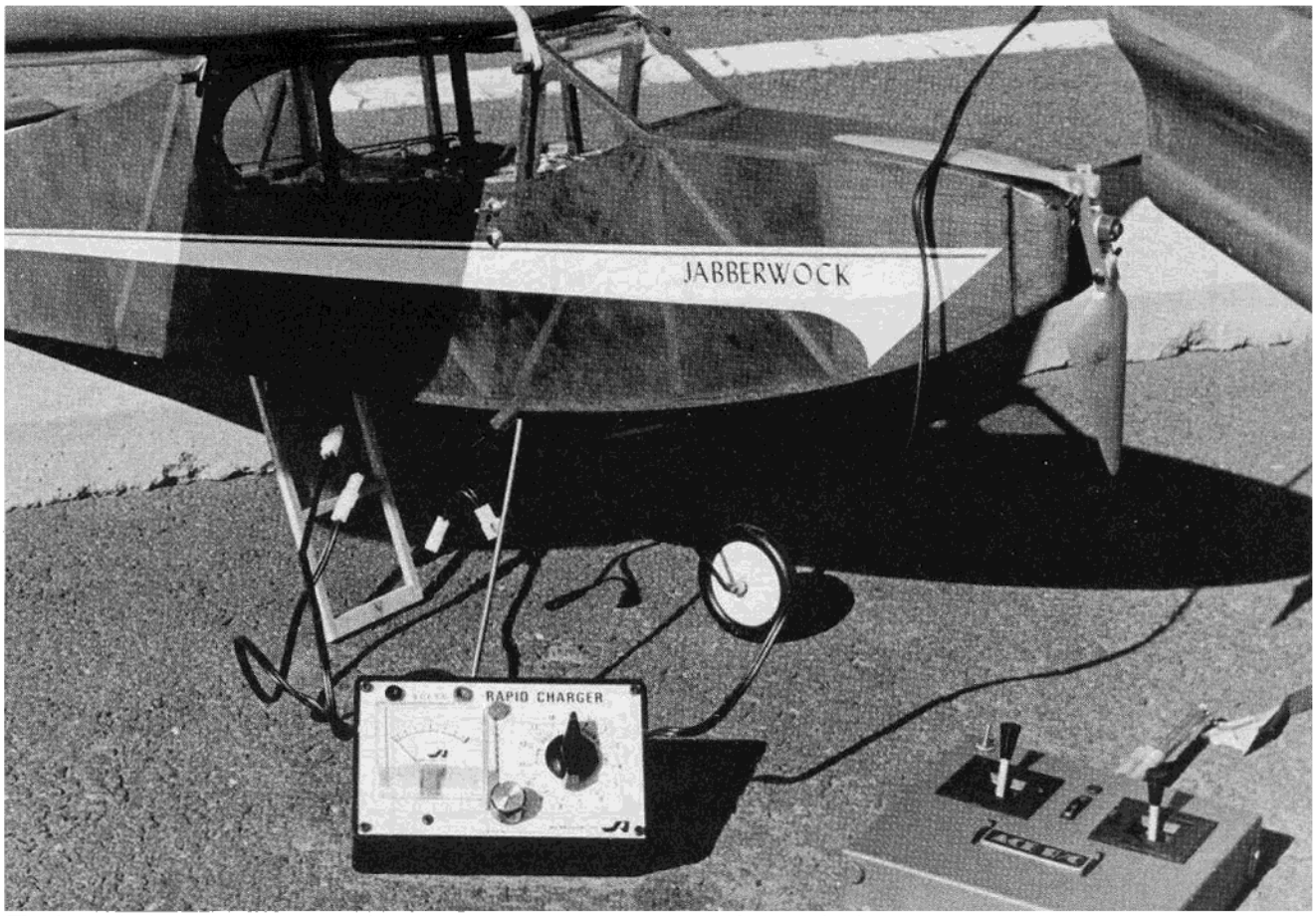
The 2.5:1 belt drive reduction gear lets the Astro 15 turn efficient 13" diameter props.

The tail surfaces are built up from very lightweight balsa.

Covering and Assembly:

After final shaping and sanding of the airframe, you are ready to cover. Before you do, install the entire motor and radio systems, including pushrods and control horns. Assemble the airplane temporarily and make sure the thrust offsets (1° to 2° down and right) are correct, and the surface throws are okay. (± 3/8" elevator, ± 3/4" rudder). Also test charge and run the motor to assure all is well.

Cover the model with any of the lightweight films or, if you prefer, lightweight silk and dope. I used



The Astro dual charger can charge the two six packs of sub-C cells simultaneously. A real convenient timesaver.

Coverite Micafilm. It's very light, very tough, and has a translucent look reminiscent of doped silk or tissue. In covering the undercambered lower surface of the wing, make sure you adhere the covering to the lower rear spar — that is what it is there for. It will help the covering stick and hold the undercambered shape.

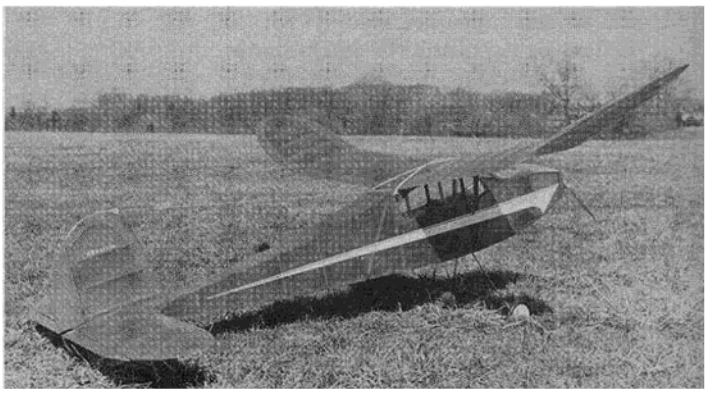
Epoxy the tail surfaces to the fuselage, using 1/2" lengths of 1/16" dowel to pin and reinforce the joints.

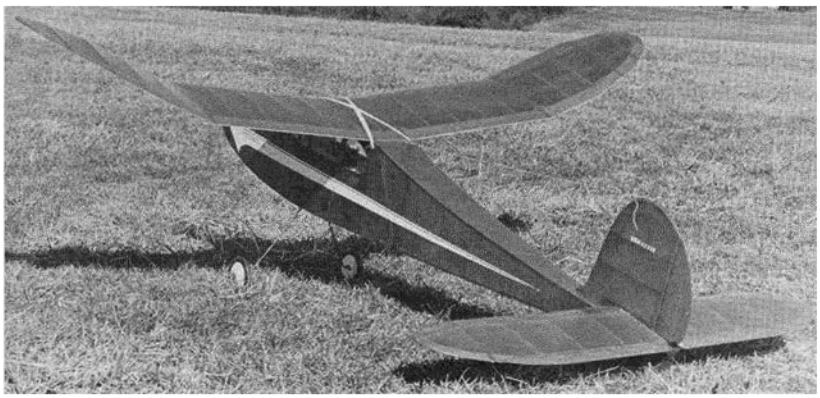
Flying:

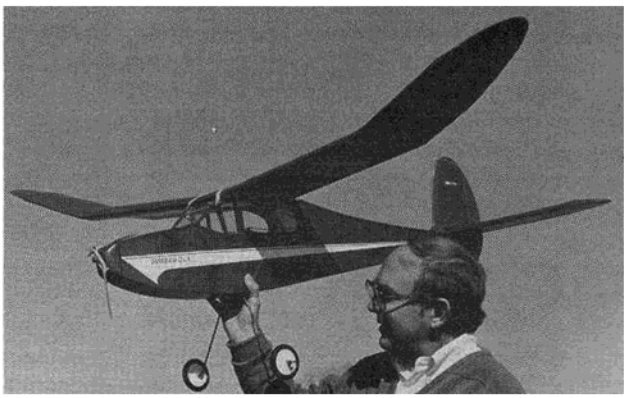
Make sure the model balances at the point shown. The huge horizontal tail surface allows the rather rearward C.G.; use it — it helps the glide, and stability is fine.

If your model's all-up weight is 65 to 70 ounces, the Astro Super Ferrite or Cobalt 15 will haul it fine, using 12 sub-C Sanyo or GE NiCds. With the 2.5:1 belt drive, the correct propeller seems to be about 13" diameter and 7" to 8" pitch. I have tried a variety of props and find the best one to be the 13"/8" fiberglass folding prop made by Geist (sold by Wilshire Hobbies). I have also used Rev-Up wooden props of 13" diameter and 7" to 8" pitch with good results. The wooden props can be converted to folders fairly easily, and

Both the folding Geist 13/8 prop shown mounted and the 13/8 Zinger have been used with success on the Astro super Ferrite.







this improves the Jabberwock's glide noticeably. It also prevents broken props on rough landings.

With the belt drive motors, it is a good idea to use a motor speed control or an "off-low speed — high speed" motor switch. With a simple on-off switch there is a considerable strain put on the motor and belt drive when you suddenly turn on full power. Several good commercial electric motor speed controllers are available, and Astro sells a simple three position switch for off-low — high control. Figure 1 and the photos detail a "soft start" switching arrangement you can make yourself from two micro switches and a 1 ohm resistor. Take your pick; I have used them all and they all work fine.

On a full charge the Jabberwock can be hand launched, or will ROG in 25 to 30 feet and quickly climb to 300 to 400 feet and sniff for thermals. Or, if you prefer, low altitude circuits of the field and the prettiest touch-and-go's you can imagine are a cinch. In any event, I am sure you will find the Jabberwock to be a graceful and fine sport flier. Good luck and good flying!

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