**HORNET**

**Designed By: Noel Roselle**

**TYPE AIRCRAFT**
1/2A Sport/Pylon

**WINGSPAN**
37 Inches

**WING CHORD**
6 Inches

**TOTAL WING AREA**
219 Square Inches

**WING LOCATION**
Shoulder Wing

**AIRFOIL**
Flat Bottom

**WING PLANFORM**
Constant Chord

**DIHEDRAL, EACH TIP**
0" — 3/4"

**O.A. FUSELAGE LENGTH**
28½ Inches

**RADIO COMPARTMENT AREA**
(L) 7½" X (W) 2" X (H) 2½"

**STABILIZER SPAN**
12 Inches

**STABILIZER CHORD (incl. elev.)**
3¼" (Avg.)

**STABILIZER AREA**
39 Square Inches

**STAB AIRFOIL SECTION**
Flat

**STABILIZER LOCATION**
Mid-Fuselage

**VERTICAL FIN HEIGHT**
3½ Inches

**VERTICAL FIN WIDTH (incl. rudder)**
4½" (Avg.)

**REC. ENGINE SIZE**
.049 — .051 cu. in.

**FUEL TANK SIZE**
1 — 2 Ounce

**LANDING GEAR**
None

**REC. NO. OF CHANNELS**
2

**CONTROL FUNCTIONS**
Aileron & Elevator

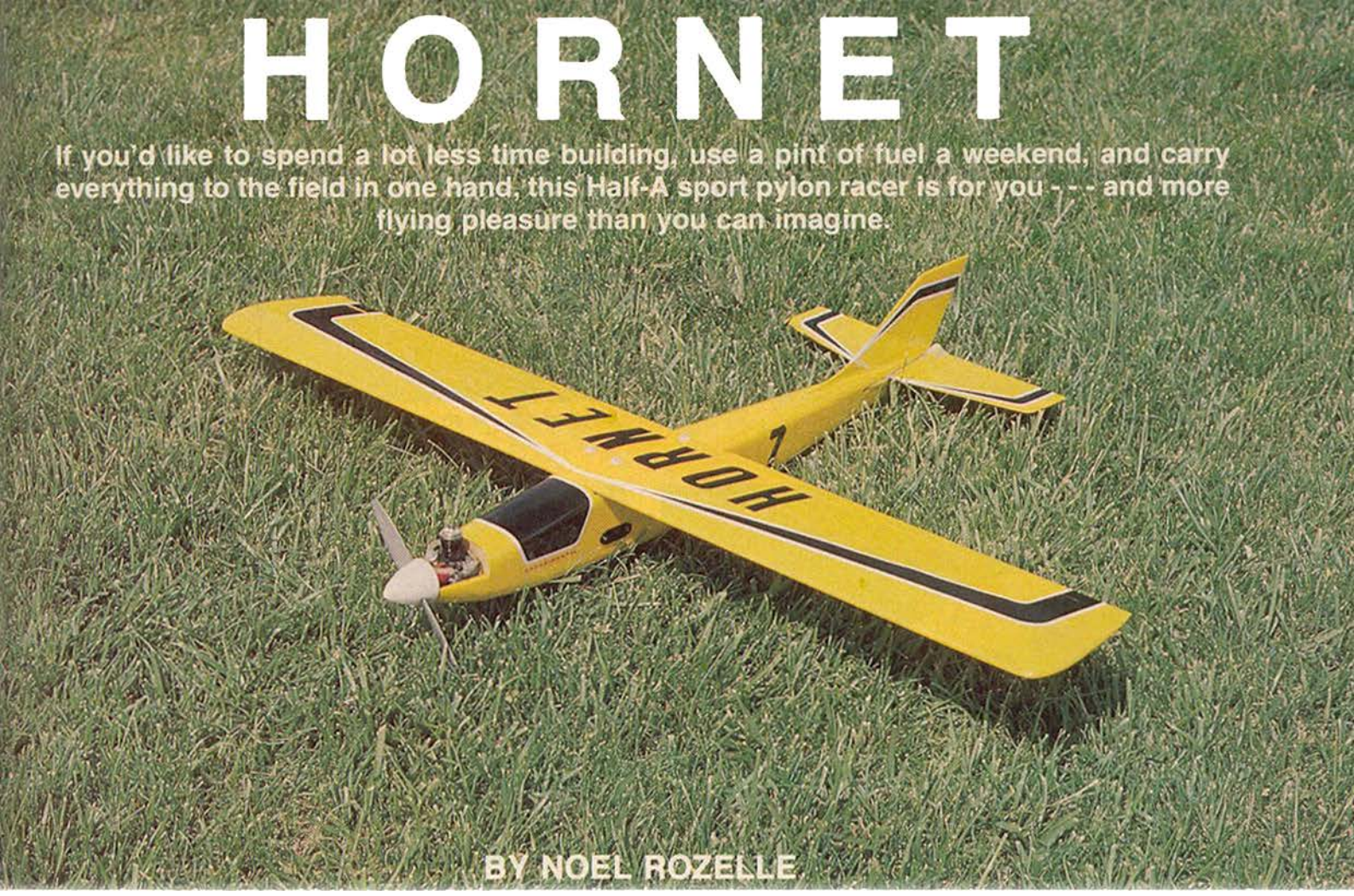
**BASIC MATERIALS USED IN CONSTRUCTION**

| | |
|---|---|
| Fuselage | Balsa & Ply |
| Wing | Balsa, Ply & Basswood |
| Empennage | Balsa |
| **Weight Ready-To-Fly** | 20 — 23 Oz. |
| **Wing Loading** | 13.1 — 15.1 Oz./Sq. Ft. |


*Cindy Mitchell – a newcomer to R/C.*

# HORNET

**If you'd like to spend a lot less time building, use a pint of fuel a weekend, and carry everything to the field in one hand, this Half-A sport pylon racer is for you - - - and more flying pleasure than you can imagine.**




BY NOEL ROZELLE

How would you like to spend a lot less time building? How would you like to use a pint of fuel on a weekend instead of a gallon? How would you like to go to your flying site and carry everything you need for a day of flying in one hand, unless you carry a six pack in the other, strictly for balance, of course? How would you like to enjoy R/C once again because you're not going to worry about how much it costs you to pursue this hobby, or have the constant threat of an expensive crash hanging over your head?

If you answered yes to the above questions, you're ready for a Hornet.

1/2A flying is really coming into its own lately and there are a lot of reasons why. The reasons above are some, but there are many more. It's really a switch to be able to have a brand new airplane with motor ready to fly for less than thirty bucks and one that finally costs you less in gas than most .60's need for priming and, how about this - - - a small airplane that actually *performs*, not just stays in the sky and struggles around. Let's go one step further — there are a lot of hot .049 planes around for racing and even some for pattern and most of these do a great job. But what about us knock-around fun-fliers who haven't got the interest in those events? What about the guy who just wants to go out and have a ball with as little fuss and expense as possible, the guy who wants a good flying, stable plane he can give his kid some stick time on without having to build the trainer that he'll probably never get around to anyway?

If you fall into one of the above categories, you're ready for a Hornet. It's a new 1/2A just for the fun of it and no special reason. It has very simple, fast and strong construction. It looks good and it's not cramped for radio space. The wing design gives it a glide you won't believe for setting up those dead stick landings everyone is so scared of on 1/2A's because a lot of small planes have a habit of just falling out of the sky when the fan quits - - - but not the Hornet.

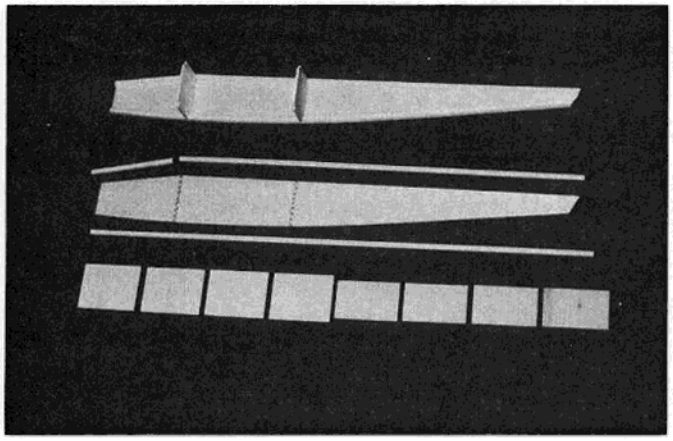
It might sound like I'm going overboard a little on this, but the Hornet has been a lot of fun for everyone who has tried one. One of my friends goes out on the dirt roads near his home after work and flies till dark several days a week. Every time three or four of us get together at a local school soccer field, we end up drifting into a very familiar left hand circle around the goal posts until we run out of gas and argue for hours about who cut the most pylons. I could go on for a long time about the Hornet, but it all boils down to one thing, the Hornet is fun and if you don't believe it, just build one.

**Fuselage Construction**

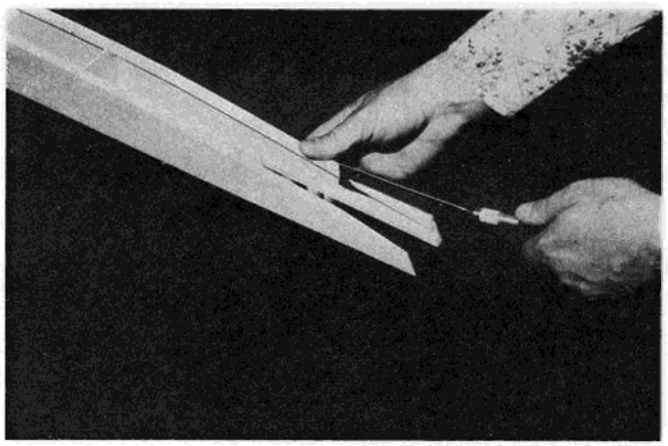
Cut the fuselage sides from 1/8" x 3" x 36" balsa sheet, saving the excess for bottom sheeting. Next mark the position of the bulkheads on the inside of the fuselage halves and drill the 3/16" wing dowel holes. From 3/16" stock, cut all longerons and glue them along the top and bottom of the fuselage halves. From a third sheet of 1/8" x 3" x 36", cut out the two bulkheads and save the left-over for empennage parts. Glue the bulkheads in place on one side of the fuselage, using a small modeling square to insure alignment. When dry, place the other fuselage side in place and cement, using a flat surface to align.

Cut the bottom sheeting from the 1/8" x 3" left over from the fuselage sides. Glue the first two or three cross-grain sheets in place. These will hold the alignment of the fuselage while the tail ends are fitted and glued together.

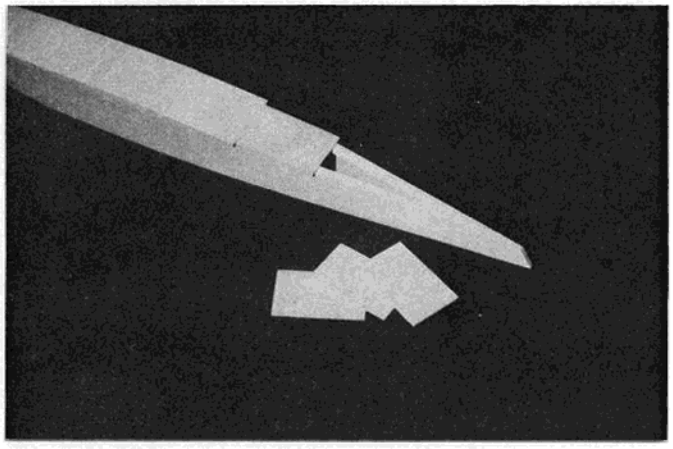
After gluing the fuselage together at the rear, finish sheeting the bottom and trim the excess. Next, from 3/32" x 3" sheet, cut out the top sheet but, before gluing in place, install the Nyrod outer housing between the bulkhead and the exit position on the fuselage side, keeping in mind the elevator servo position of your radio installation. Once glued in place, trim the excess from the top



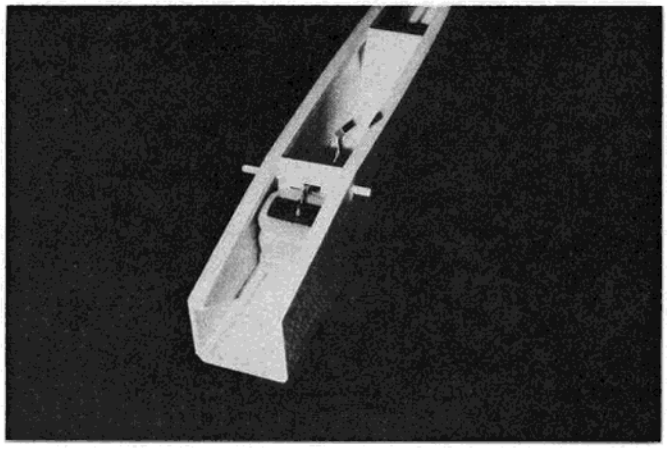
*The fuselage parts for the Hornet.*



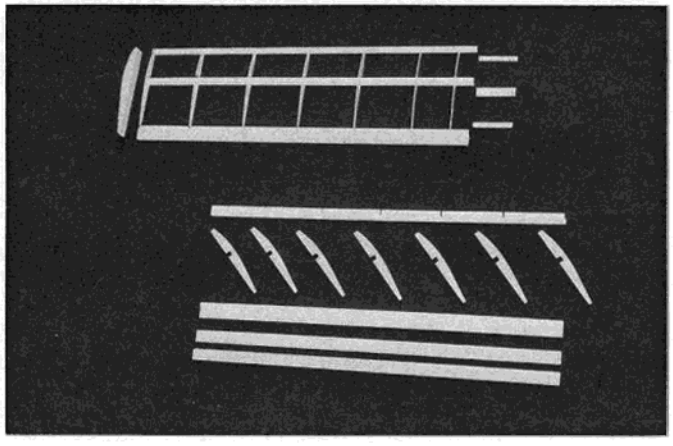
*Cutting off the stringers prior to joining the tail.*



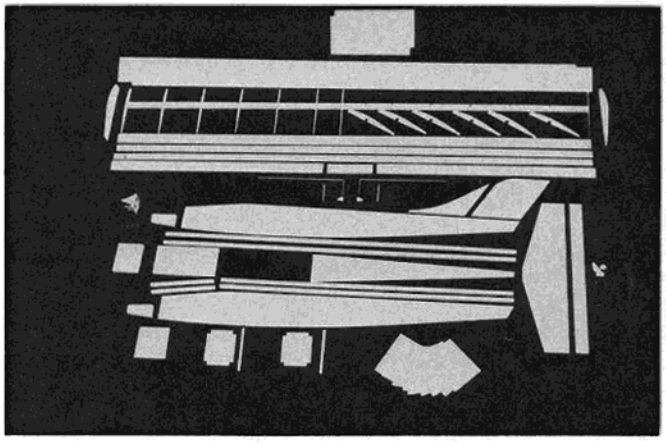
*Planking the bottom of the fuselage.*



*The battery pack mounted in place.*



*Can you imagine a simpler wing to build?*



*A view of all of the Hornet parts.*

sheet.

Cut the top nose block from a piece of 1/4" x 3" and glue in place. A large hole can be cut in the forward bulkhead for access to the tank and battery compartment. After this is done, square up the front end with a sanding block to accept the firewall.

Cut the firewall from 1/8" ply and install blind nuts for the motor mount and then epoxy in place. After the epoxy has set, cut the nose cowl pieces from 1/4" sheet and glue in place.

Temporarily install the motor mount and engine with the spinner in place. Trace around the spinner to locate the position of the 1/16" ply nose ring. Remove the mount and motor and cut out the 1/16" ply nose ring and glue it in place. This finishes the fuselage construction with the exception of the 3/16" wing dowels which should be added after the fuselage has been sanded and covered.

**Wing Construction**

The wood needed for the wing is mostly stock size and little cutting will be necessary. The leading edge sheeting is 1/16" x 2" x 36". The leading edge is 1/4" sq. x 36", the center spar is 1/4" x 1/2" x 36", the trailing edge is laminated from one 3/16" x 3/4" piece of trailing edge tapered stock and two 1/16" x 1/2" x 36", while all the ribs and center planking are cut from 1/16" sheet balsa.

The capstrips are 1/16" x 1/4", the wing tips are made from 1/2" x 3/4" block stock, and the ailerons and aileron

torque rod support are made from a good hard piece of 3/16" x 3/4" trailing edge stock.

After cutting all the ribs out and compiling the rest of the sizes you will need for the wing, locate the 1/4" x 1/2" center spar and mark the location of all the ribs. This spar must be notched, so set up a stop on your Dremel saw behind the blade that will only allow you to cut the notches 1/4" deep. You may have to make a couple of cuts on each notch to make them 1/16" wide, depending on the size of your blade. This same notching job can be done very nicely with your hand saw by simply standing the spar up between two pieces of 1/4" spruce, or some other hardwood stock, and sawing down to the hardwood.

After notching the spar, position all ribs and glue in place on a flat building surface. Now is the time to decide if you want dihedral or not. I have no preference and the prototypes that have been built in Albuquerque are about half and half, so the choice is yours. The only advantage that I can see is the flat wing is faster to construct.

If you decide on a wing with dihedral, all the building will be the same except the wing will be built in two halves and connected with 1/16" plywood braces prior to putting on the top leading edge sheeting and top center planking.

While still on the flat surface, glue the 1/4" square leading edge to the ribs and the 3/16" x 3/4" trailing edge. When these dry, remove the wing carefully from the building board and place the 1/16" x 2" bottom leading edge sheet and the 1/16" x 1/2" trailing edge cap on the building surface and place the wing structure on top of these, carefully positioning before gluing and pinning. With a sanding block, or modeling plane, shape the leading edge to follow the contour of the ribs and then glue and pin the 1/16" x 2" top leading edge sheet and the 1/16" x 1/2" trailing edge cap in place. After these are dry, the wing may be removed from the building board and the 1/16" x 1/4" capstrips and wing tips may be glued on.

At this time, if you have built the wing in 2 halves for more stability, sand the two halves until you have a good fit. Epoxy the 1/16" ply braces in place on one half, making sure you allow for clearance when the halves are joined and elevated to the desired dihedral. (Approx. 1½" total is recommended.) After joining the two halves, finish the center planking and install the 3/16" x 3/4" tapered aileron support with the torque rods and tubes glued inside. Make sure the aileron torque rods move freely and trim where necessary to assure full movement.

Glue the center planking in place and, when dry, shape the leading edge and wing tips. Fit the 3/16" x 3/4" tapered ailerons and sand the entire wing frame to desired smoothness before covering.

**Empennage**

Look around on your bench and you should have enough 1/8" balsa from the sheet you cut the bulkheads out of to cut out the entire tail assembly. Make sure when you cut out the dorsal and vertical stab, the grain is running in the direction shown on the plans. This will help in strengthening the vertical stab and help prevent warping when covered. After the parts are cut out, sand them to the desired smoothness and fit them to their location on the fuselage.

Mark the area on the fuselage where the vertical stab will be glued and strip away the covering to assure a solid bond. The vertical stab may then be covered and glued in place, paying close attention to alignment.

Next, mark the location of the horizontal stab where it intersects the fuselage when aligned and cover the entire stab with the exception of this area, top and bottom, to assure a good bond when glued in place. Hinges may be of the thin plastic type, sewn with nylon carpet thread, or made from the film covering as shown on the plans. If you decide on the film hinges, make sure they are ironed down good and not just kind of shrunk on with a heat gun. For successful covering with films, the adhesive backing must be carefully and smoothly pressed into the balsa.

**Radio Installation**

The size of your equipment will determine how much planning and fitting you will have to do so everything will clear. There is plenty of room if everything is pre-planned. I use a full size Futaba radio with a 450 MAH battery pack in mine because the smaller 225 MAH battery packs will only give me about four or five safe flights before I start worrying about them. Every weekend that I take mine out, I pass it around to so many people and put so many flights on it myself, that four or five flights is simply not enough.

**Flying**

Before flying, there are always several things to check on any plane.

(1) Check the balance point.

(2) Make sure all connections are tight and your batteries are charged.

(3) Check your control surfaces for freedom, proper direction and centering.

(4) Make sure your frequency is clear.

(5) Use common sense in choosing your flying site, keeping safety of persons and property foremost in your mind.

The Hornet is an extremely stable and groovy flying aircraft. It makes an excellent aileron trainer for the novice who has mastered his first rudder, elevator trainer and will prepare a pilot for more advanced 1/2A racing, but most of all it is a great knock-around grass field type, good times, machine that truly puts the fun back into flying because it gives you so much for such a small investment. □

**Editing By Hlsat.**
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