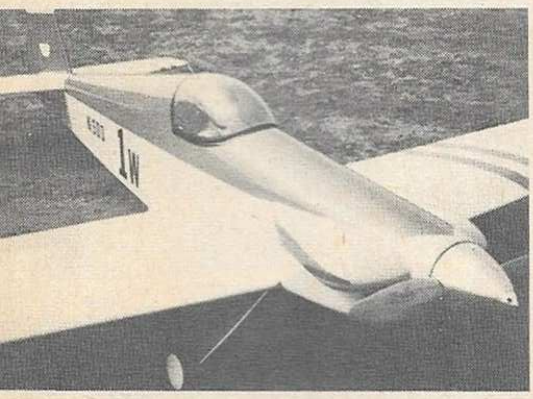
MIDGET 600

Designed primarily as a slower and easier-to-race Goodyear, the M-600 figured in the introduction of the new Prototype AMA 600-sq. in. racing class. And it is a natural for the weekend sport flyer.

By MAXEY HESTER

Goodyear racing is probably the most exciting form of RC flying to date. Anyone who has never flown in a race cannot experience the excitement a flyer feels in the fast speed and the race to catch the other planes, or to remain ahead of the plane just behind him. Goodyear pylon racing is a crowd-thriller, and the more planes in the race the bigger the thrill.

When Goodyear racing first started, everyone liked it and some built the small planes. Some planes didn't last



A snappy looking semi-scale Midget Mustang. It has a longer and narrower fuselage and a fully symmetrical wing.

long because they were fast and touchy on the controls. Some flyers I talked to, trying to get them to build a Goodyear, didn't want to put a lot of work into a plane that they thought would be short-lived. From the racing I have seen the past two years there are no more crashes in Goodyear racing than in any other RC flying.

To get more flyers interested in Goodyear pylon racing the thought was that a slightly larger ship would not be so tricky to fly, and yet would race right along with the smaller scale ones.

I designed the M-600 using the outline of the Midget Mustang. I built the M-600 early in 1966 and flew and raced it all year. I used full-house equipment: rudder, elevator, aileron, and throttle.

On the very first flight I was very surprised that it was faster than expected. Our club (Des Moines Modelaires) had a Goodyear race last May. About eight to ten planes showed up. This was my first chance to race the M-600 around the pylons against some of the smaller designs. I won all the heats I flew in and wound up winning the event! Most people couldn't see how a larger plane could out-fly the smaller ones.

Some of the smaller Goodyear racers have a wing area of 480 to 500 sq. in., so the M-600 is only about 100 sq. in. more, but being a little larger, it is much easier to fly, so it is easier to fly the pylon course. You can fly as low on the course and make the turns as tightly as you wish with the ease of flying a Class II high-wing ship.

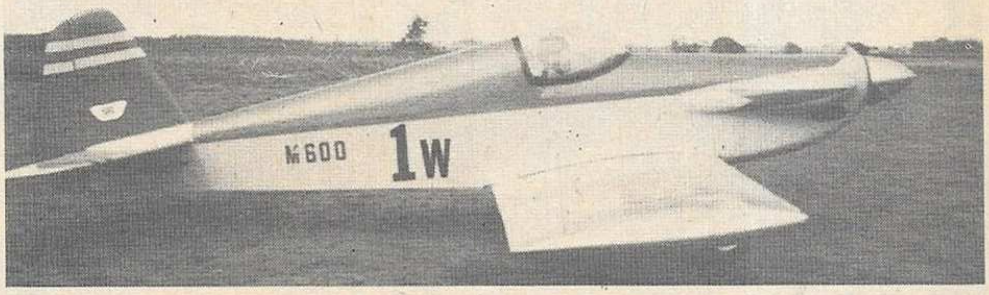
The fuselage being a little longer than the smaller planes, there is no problem of snap rolls when you pull elevator for a tight turn. Also the weight of the M-600 is about the same as the smaller planes.

I was pleased with the performance of the M-600 at the Goodyear demonstrations at the 1966 Nats. I won all the heats I flew except one when I had a rich engine.

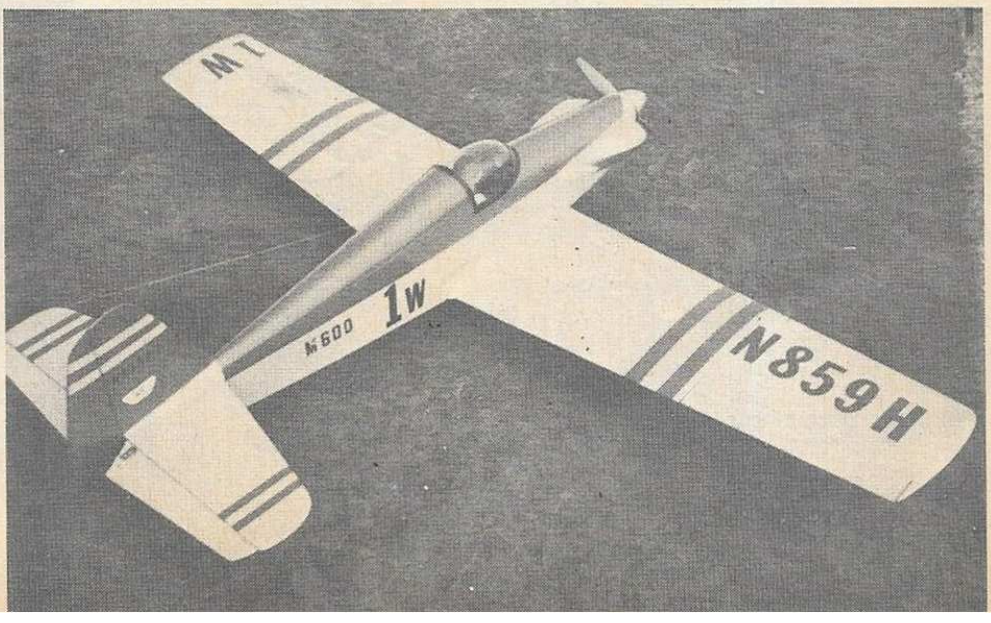
The construction of the M-600 is about the same as we have been used to in building other RC planes.

The wing is fully symmetrical with a double-taper. The main spar is 3/16 x ½. The wing, being thin and only sheeted with 1/16, needed the strength of an additional rear ⅛ x ⅜ spar. Use hard balsa for spars. The ribs are cut from medium soft sheet. The wing sheeting is light-medium. The wing was built on a jig, pinning the bottom main spar down, and blocking up the 3/16 sq. in. leading edge, and tapered trailing edge. Cement all ribs in place, then the top main spar, adding the center spar joiner. Add the bottom rear spar from underneath; also the rear spar joiner and the top rear spar. Cement in the 3/16 sq. aileron hinge spars. While the wing is still on the jig, sheet the top side of the wing. Mark or slit the outline of the aileron to be cut out later. Take the wing from the jig and shape the balsa block to back up the 3/32 plywood landing gear mount. Cement the balsa block to support the 1/16 plywood at the trailing edge of the center section for the hold-down screws.

Install the aileron bellcranks and .045 wire through the ribs to the center section to be connected to the servo. Sheet the bottom of



At the '66 Nats, this "slower" design won most of the heats it entered. Because it handles more like a stunt model, not like a touchy bomb, this K&B .40 powered ship can be flown lower, tighter around pylons.



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the wing with 1/16 medium balsa; shape the wing tip blocks and cement in place. Sand the wing with a large sanding block, making sure all joints are smooth. Cut out the ailerons, sand a slant to the wing portion enough to add a 3/32 sheet to the end of the ribs. Sand the aileron rib end section for the 3/32 sheet. Epoxy in the micarta aileron horn.

The fuselage is started by cutting out two sides from 3/32 sheet. A 3/32 sheet fuselage side doubler is used from the engine firewall to the trailing edge of the wing. The doubler is ¼ lower than the fuselage side. Cement a ¼ sq. along the top of the 3/32 side full length, and a ¼ sq. along the bottom from the wing to the tail. Epoxy the 3/32 doubler in place under the ¼ sq. Cement ¼ sq. aft of the wing cut-out up and down on the fuselage side. Drill holes and install blind nuts for mounting the engine mounts. Epoxy in the 3/16, F1, 3/32 ply bulkhead in front of the wing and the 3/32 ply bulkhead aft of the wing. Epoxy the ¾ x ¾ triangles to the fuselage side and to the 3/16 engine firewall. Pull the two fuselage sides together at the tail, after taper sanding the ¼ sq. at bottom and top of fuselage, and cement.

Cut the ¼ sq. cross pieces and cement in place at the top and bottom of the fuselage. Make the top formers from ⅛ sheet and cement into place. Pin a ¼ sq. on the formers and saw down on each side ¼". Remove the ¼ sq. and cut out with a knife. Cement in the ¼ sq. and repeat with the other ¼ sq. stringers. Pick a 3/32 sheet that will bend; if it will not bend easily, wet one side with a sponge. Place over the top of the fuselage and cut to fit. Use white glue only if you wet the 3/32 sheet. Use masking tape to hold top sheet in place while the white glue is drying. Sheet the top of the fuselage from the cockpit to the tail and from there forward to the engine firewall.

Place the wing on the fuselage and drill a hole in the 3/32 plywood bulkhead and into the leading edge of the wing for the hold-down dowel or 5/32 music wire. Epoxy in the balsa block under the tank compartment. Cut the three ⅜ sheet pieces to cowl in the engine—two side pieces and one for the top; use epoxy on these blocks. Sheet the bottom of the fuselage with 3/32 sheet with the grain cross-wise. This is stronger and stiffens the fuselage. Sand with a sanding block, making sure all joints are smooth. Carve and shape the cheek cowls from a soft balsa block and cement them neatly into place.

A good way to shape the nose to the 2½" spinner is to mount the engine with the spinner in place, marking around the spinner with a ball-point pen. Sand the nose down to this line.

The stabilizer is built-up. I find this type to be strong and light, and it won't warp. Pin the 3/16 x ½ leading and trailing edge down, cut and cement in the 3/32 x 3/16 ribs. Cut the 1/16 sheet to conform with the outline of the stab from

soft sheet. Make two—top and bottom. Cement the top sheet on and, when dry, cement on the bottom sheet. When the cement has dried, round off the leading edge. Shape the elevators and cement together with a 3/32 music wire. Cement the stab on the fuselage.

The fin is built up the same as the stab. The rudder is cut from ¼ sheet. Cement the fin to the stab and fill each side with a small fillet at the stab. Do not hinge control surfaces until they are completely doped.

A very simple but fairly good finish: Dope the entire plane with two coats of clear and sand lightly with fine sandpaper. Cover the framework with silk. Dope the silk with two coats of clear. Brush on one coat of sanding sealer and, when dry, sand smooth. Spray on just enough color to cover; usually, two thin coats is enough. Mask off for your trim. Dope the edge of the masking with clear dope to seal the edges. After the colors have dried, spray with a coat of clear dope.

Now it is ready for the hinges on the ailerons, elevators and rudder. I use toothpicks to pin in the nylon hinges. The ends of the toothpicks can be sanded down and covered up with a little dope. Be sure to use the reduced aileron bellcranks and horn as shown. Make the elevator and rudder reducers from sheet nylon, or Williams Bros. ones can be used. Use the measurements shown.

The dural landing gear was made from a cut gear (Sig), 1½ x 15. I like the 2¾" Williams Brothers racing wheels.

You can use your choice of .40 engines but I used the K&B .40 RC. I have not had any trouble with my M-600; there isn't anything that I want to change. You can slow it down and make really slow landings.