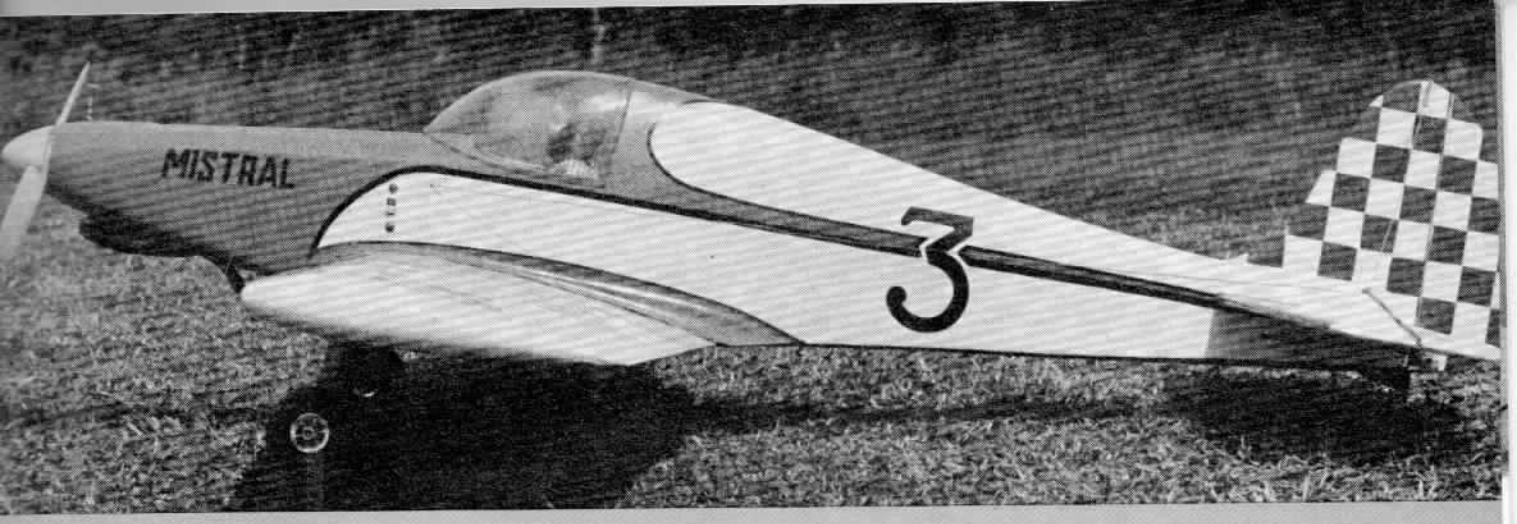

MISTRAL

Realistic looking, home-built-type sport model is quite maneuverable on 40-size engine.

J. SWIFT

I like building originals — I get a charge having the only one of its kind at the field. Kit-building is not for me. I just don't have the patience looking for those little pieces. "Mistral" is the result.

I was looking for a low-wing tail-dragger that would resemble a home-built. After the original was built, modifications made another model desirable — hence No. 2. No. 1 model was powered by a 30-sized motor and flew off the board. Stunts were easily done with this ship. However, I wanted to clean up the lines and reduce drag; the result was No. 2 Mistral. A 40-motor with a muffler was chosen. Streamlining paid off and I had a fast maneuverable ship that would not run me into debt with fuel bills.

I get depressed when I see repetitive construction articles. Nevertheless, there are certain parts that will be easier to build with a little explanation.

Fuselage: I used $^1/_{32}$" ply but balsa can be used. Cut out sides and doublers and glue together using a good contact glue. The longerons and triangular stock are glued next. Longeron is not flush with the top of the side (see plan).

Formers are prepared next. F is $^3/_8$" ply drilled for fuel lines and Tatone motor mount. F1 and F2 are epoxied to fuselage sides. While glue is curing, the stabilizer can be built. This is straightforward, and requires no comment.

Draw the rear ends of this fuselage together and trim triangle stock to allow a piece of $^3/_{16}$" balsa to be used as a tailpost. Glue together and add the remaining formers. The two formers for the radio equipment are not glued in yet.

The motor mount is fastened with blind nuts. A little epoxy on the mount plate prevents loosening due to vibration. Temporarily mount the motor and drill holes for throttle linkage. (A long piece of sharp music wire helps.) The tank also can be mounted at this time. I don't use hatches. Use neoprene fuel tube, with a heavy "clunk" in the tank. Bind the tubing with thin copper wire to prevent its working off the feed and clunk.

Now the motor is mounted. Place $^1/_8$" ply ring on crankcase, fit a prop and spinner, get some bits of scrap $^3/_{32}$" balsa sheet and place them between spinner and ply ring. Tape ring to spinner using masking tape. Fit bottom balsa nose fairing between ply ring and F2 (see plan). A piece of $^1/_2$" sheet balsa is epoxied between F1 and ply ring on crankcase side of the nose. When glue has cured remove spinner, prop, and motor, then plank top of fuselage in front of cockpit wall.

Two stringers are glued to top of turtleback and two pieces of $^1/_{32}$" ply, rough-trimmed to shape, and glued to the longerons only. When dry, clamp top edges of ply to the stringers then cut a vee-notch as shown. Trim notch until the sides contact all the edges of the cabin wall. When satisfied with the fit, glue the sides to formers and stringers. Reinforce the back of the notch with a bit of scrap wood.

After it has dried, sand top edges straight, then glue top block in place. A piece of $^1/_4$" sheet balsa is glued between fuselage sides to give a seating for the tailplane which is glued on next.

Cut and shape fin; glue in place with a fairing block on each side. Decide where pushrods are going to exit, cut out slots, and then glue on fuselage bottom. Carve and sand blocks, radius corners, then sand fuselage smooth.

Wing: Construction is straightforward. Plans are clear. The ailerons are cut out after wing is built. The leading edge of the ailerons is beveled and a piece of $^1/_{16}$" ply glued inside where the control horn locates. The bevel is now sheeted over, giving a light-weight box-type aileron.

The aileron housings are trimmed back farther (two layers of sheet). This is to accommodate the new sheeting that is glued on the aileron and on the housing. Glue sheeting in place and this will form the hinge post.

The dowel hold-down peg is glued in the L.E. of the wing and holes drilled for the nylon screws (reinforce the holes with thin ply). Bellcrank mounts are installed with hardware; pushrods from 16 SWG wire are made up and installed. Tips are shaped and glued; then the wing is ready for covering.

A small piece of maple $^1/_4 \times 2 \times 3^1/_2$" is

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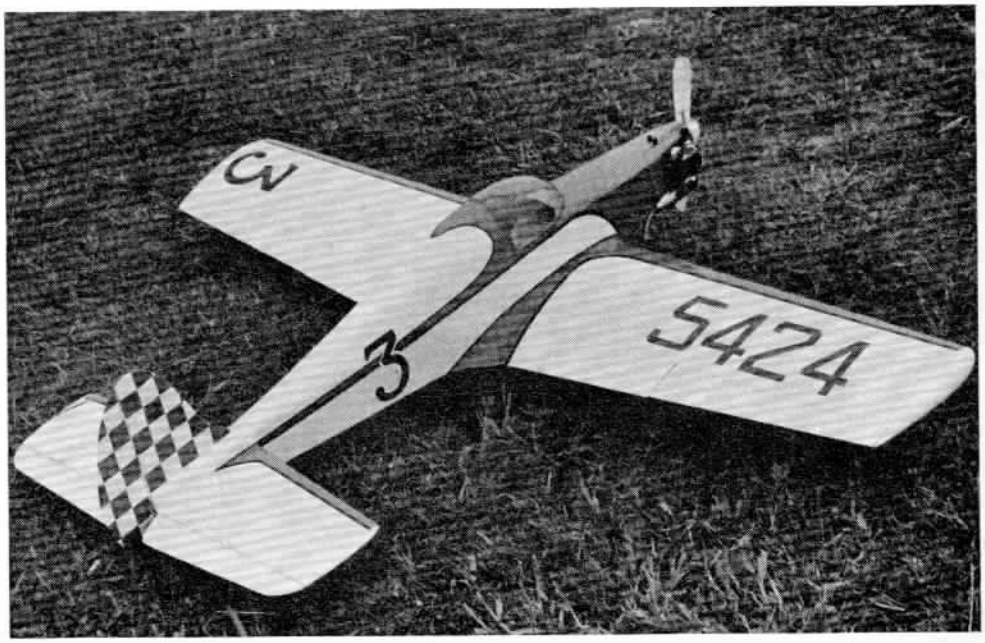

Forty-powered R/C planes have many advantages. For example: they are light, compact, easy to carry, use less fuel per flight, and cost less to build than 60-powered types. Yet they have all the flyability of the big ones. Note muffler extension to keep exhaust away.

and add a double layer of fiberglass and epoxy to the area around the trailing edge of the wing and the leading edge of the stab. Carve and epoxy the cowling and attach the canopy with strips of Celastic.

Finishing: Give the entire airplane two coats of clear nitrate (commercial) dope, sand lightly and cover with Jap tissue. Add two more coats of clear, two coats of nitrate-talc sanding sealer and sand with 320 wet paper. Now give it one more coat of nitrate-talc and sand with dry 320. Now apply the finish of your choice. I used Hobbypoxy and did not rub it out. The nitrate is cheap, has low shrinkage, is high in solids and both Hobbypoxy and butyrate dope stick to it well.

Good luck with your Bearcat.

Mistral

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glued inside the fuselage at the wing saddle at the nylon screw location. A hole is drilled in F2 to receive the dowel hold-down peg. Place wing on fuselage and mark nylon screw holes on the maple block. Remove wing, drill and tap maple with ¼ x 20 N.S.C. thread.

Wrap center section of wing with Saranwrap. Cut and glue the 1/32" ply fillet planforms to the wing saddle and fasten wing in position before glue dries. Cut two pieces of Celastic to approximate fillet shape. Activate adhesive with thinner. Place at wing root and mold to shape before drying. From L.E. of wing to front end of fillet a small bead of epoxolite is blended in to complete fillet. Allow to dry, then remove wing and sand fillet.

Canopy: I made a vacuum forming (.030" thick) from butyrate plastic sheet. My method was to carve a block of white cedar to shape and size. This gives a good finish that does not need primer. The mold is supported on something solid that will allow the edges to overhang (I used an Aerosol can with the cap on). Any good support that will allow you to work near a source of heat (the stove).

Cut a piece of butyrate approximately 15 x 12". Most of this will be waste, but it gives a good grip. Hold butyrate over the hot ring and move in a circular motion to spread the heat. The butyrate will sag and smoke (don't overheat). As quick as you can, drape over mold and pull down around the wood shape. You may have to reheat the plastic until you hit it right. Hold about a minute until it cools off, then trim off excess around mold with a scissors. The finished canopy is ready to be epoxied in place. Put a floor in the cabin before locating canopy.

Determine how much padding will be needed around battery and receiver, then glue in the two formers that will support the padding. These formers are simple rectangles of ply trimmed to fit snug in the fuselage. The servo rails are glued in to suit your equipment.

Finish is up to the builder. I used Super MonoKote.

The control surfaces are hinged and epoxied, horns and tail-wheel bracket fastened on. I used Du-Bro hinges and clevises, Midwest horns and bellcranks.

The landing gear is bent for two degrees toe-in. Fasten undercarriage blocks in wing. Install motor, make and fit pushrods. Check to see if everything works before going to the field.

Start up the motor and taxi out. If flying off grass, hold full-up elevator as you give power. When the model gets up speed, ease off the elevator; the tail will come up and the ship will roll straight ahead. Give full power, let her roll, ease in a little up elevator, and it will become airborne. Trim the ship out and get the flying feel.

When it's time to land, go far out, giving yourself lots of room to lose airspeed; otherwise when you flare out, you'll think you've taken off again. Once you've mastered the approach, you will enjoy doing real three-point landings. Don't worry about dropping a wing — the plane is docile at low speeds.

That's all there is to it. As you get used to the flying, you can move in the clevises for more action, but I don't think you'll need to.