le POTTIER P-70-S

By EMMANUEL FILLON . . .

• Relatively unknown in the U.S., Emmanuel Fillon is a legend in his own time in France. With a good deal of rubber and power experience behind him (he won the 1937 World Wakefield title) Mr. Fillon is presently in semi-retirement in the town of St. Raphael on the French Riviera, turning out a steady stream of interesting and very flyable scale ships, all the way from electric Gossamer Condors to styrofoam peanut Spitfires. Having had incredible good luck with his Desoutter and Petit Brochet models with electric power, we decided to help him become known to **RCMB** readers via this nifty little ship which Jack McCracken generously built and flew for this purpose. First and foremost, Fillon designs, like this one, FLY!

Assuming that you have built a rubber job or two, you do not have to be reminded that light planes fly better, and this is doubly true with electric. We used the VL Hytork 48 motor/battery package, but the design could be adapted easily to other units or even .02 gas. It would make an incredibly good schoolyard R/C subject. It could be thermalled if built as a rubber model!

The weight of the VL unit is a bit less than three oz., so to have a really good flier, the rest of the ship should not add more than three more to this figure. No nose weight need be added to any electric model, as it is a simple matter to slide the battery pack forward or backward for balance.

WING CONSTRUCTION

The wings are made with a full "D" section spar, with the spar made in upper and lower pieces. Start by pinning the T.E. over the plan and assembling the ribs to it, along with the lower half of the main spar. Pin down and Titebond together. Then add the top half of the main spar and insert the 1/16 x 1/8 rear spar and glue. Add the 1/8 hardwood wing-locating dowel stub and epoxy on the 1/16 ply male wing-mounting tongue parallel to the building board while the tips are blocked up to one-inch dihedral. The 1/32 sheet balsa leading edge may now be bent around and glued on. Fillon soaks his and bakes them on a form in the oven, but the McCracken method of just bending it around the front of the ribs worked fine. Wiping a little ammonia on the outside of the bending. You may now tack on and shape the wingtips of soft balsa or low density styrofoam. Remove when shaped and hollow to save weight. Trace a left wing from the plan and build the second of your pair.

STAB AND RUDDER

The tail parts are made symmetrical and contribute in no small measure to the fine, stable performance of the model. Use a few pieces of scrap for packing up the L.E. and T.E. during construction. Note that the S-2's are cracked and then angled back to the stab T.E. Rub some glue into the cracked area. The soft balsa or styrofoam filler piece on the rudder will get shaped after the fuselage is completed so that it will fair nicely into the top of the plane. It, as with the wingtips, can then be removed and hollowed. The stab is held down with rubber bands attached to small wire hooks on the fuselage to allow for easy incidence adjustments for flying.

FUSELAGE

The fuselage sides are made in the usual manner over the plan from 1/8 square and 1/8 x 1/16 medium balsa. The lower two longerons would probably not suffer unduly if they were made of hard balsa. When the sides are dry, crack the rear half slightly inward at the F-6 bulkhead and glue in the cross-struts. Assemble the F-3 and F-5 formers to the fuselage box. Add F-6, F-7 and the soft balsa spine which extends from the canopy to the fin. It may be hollowed out to save weight.

The front end is now sheeted with 1/32 "A" grain balsa which, again, will go on easier if the outside is wiped with ammonia. If you are using Super Jet, Hot Stuff or whatever to do this, please remember to wear glasses. One should be as careful with this glue as with a hot soldering iron or a sharp Uber Skiver!

The VL Hytork motor can now be mounted to F-4 when you are done sanding. It has a radial mount and should pose no problems. For other motor units, you may want to make a balsa tube to mount the motor in. Make the nose block removable, using two hardwood dowels or dress snaps (could be tack-glued on if you are in a hurry). The spinner is turned out of a shaped balsa block or a balsa rocket nose-cone, with a hole through the center for the prop-mounting screw. Cut out the wide end to receive the prop. Spinner can be epoxied to prop. A snug-fitting hardwood plug can be made to cap off the end of the spinner and hide the hole (make one with a shoulder so it won't drive down in and be hard to get out if you have to change a prop.)

UNDERCARRIAGE

The main landing gear was bent from T-6 aluminum sheet with small machine screws bolted through to serve as axle stubs. Jack mounted the gear to a plywood piece across the bottom of the fuselage with screws. The nose gear was bent from music wire (1/32 on the original proved a bit light) with thin "tin" used to finish the job. Epoxy upper end of wire to fuselage. The wheels were turned from balsa to save weight.

EMPENNAGE

The vertical stabilizer/rudder is keyed to the fuselage with three stubby bits of 1/8 hard dowel, or tack-glued on the fuselage with the stablizer in place. After packing up the L.E. of the horizontal stab a bit so that it will rest on the fuselage at the angle shown, shims can be added fore or aft as needed to change the flight trim. Add hooks for the rubber band hold-downs after covering.

COVERING

Model may be covered with Japanese tissue for best results. Colored tissue trim will keep the weight down. Leave the area under the pilot open so that balance adjustments may be made to the batteries. A snugly-fitting 1/16 sheet "trapdoor" can be fitted later. Do not use more than two coats of thinned clear dope if you want to keep it light.

FLYING

Steam out any warps in the wings, vertical or horizontal stabilizers. Test over tall grass if you can find any. Correct any tendency to dive by adding thin shims under the rear of the horizontal stab (assuming the C.G. has been properly located per plan by moving batteries). Shim under L.E. if plane stalls. Batteries should be shifted only if it looks like you are getting a ridiculous amount of shim stock packing involved. Rudder adjustments may be made by cementing a small piece of clear acetate sheet to the T.E. of the rudder. If you have the approved VL charging unit, start out with about a one-minute charge at two amps and see how long the motor runs. You want about five seconds for the first test, gradually building up to the biggie of two minutes at two amps. If you don't have the charger, you can use a lantern battery with a car taillight bulb soldered into one of the charging wires. It should glow brightly when the batteries are down and gradually get dimmer as they fill up. It's a bit wasteful, but keeps you from overcharging. The original model required no side or downthrust adjustments, but these can be made by shimming behind the radial motor mount if necessary. Some fliers have reported better results using a slightly larger prop than that supplied with the VL unit, and if higher power is required, an extra cell can be added to the battery pack for more zip. Happy landings! •