MACCHI C. 202

For practicing the pattern here's a sort-of-scale profile job for 15 to 25 size engines. It is also popular in the West Coast Class A Stunt event.

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In our search for the all-around airplane, we find that it must meet the requirements of being inexpensive and easy to build, and its flying capabilities must be in the full stunt range. The low-cost factor can be obtained by designing the model around a 19 engine. But after testing several present kits, it was found that this size of airplane flies more like a brick. The kits seem to lack sufficient wing area to achieve a flyable wing loading. We therefore designed the aircraft with double the area of kit planes, yet almost the same weight. Now we had only to achieve the right configuration, as scaled-down full stunt ships' moments were not usable.

After having designed several models to meet these requirements, all with only limited success, a member of our club, Dick Oglesbee, brought out a new aircraft for the W.A.M. "A" Stunt event. This plane came close to what we wanted. Using it as a starting point, we enlarged and generally redesigned it into the plane presented here—the Macchi C. 202.

The Macchi has been so successful that the fuselage and wing tips have been changed by various club members to produce such variations as an Me 109, a P-47, a Boultan-Paul Defiant, and more. We use ours for sport flying and practicing the stunt pattern. It is also a real crowd pleaser when used in Slow Combat. The Macchi is an excellent plane with which to learn the A.M.A. stunt pattern. If you are ready to begin stunting, try one!

The Macchi has flown competitively on engines from a 15 up to a 23. I would recommend an O.S. 19, or, for a really hot ship, a Supertigre 23. The new Fox 25 is also good. The advantages of using an "A" size engine are many. It costs about two thirds of an equivalent 35 to buy and run, and the cost of the aircraft is also less. The main reason that such a small engine can effectively power an aircraft as big as a Ringmaster is the plane's light weight. Therefore, wood selection is important. All wood should be firm, light "C" grain balsa (the balsa that is speckled), except for the planking, which should be "A" grain (the wood with long grain marks that bends easily). The airplane can be modified to suit individual tastes. Do not change the moments or airfoil, but try your own original fuselage outline drawn over the plans. This is a good way to begin learning how to design your own. Besides, it's fun to take your original design out to the flying field.

Construction

The piece of wood used for the fuselage is the most important single piece in the entire plane. It must be firm, very light "C" grain. If you cannot find a good piece of 1/2" balsa, then use a 3/8" piece. Trace the fuselage outline onto it, and cut it out. Do the same for the 1/8" ply fuselage doublers and the 3/8 x 1/2" hardwood engine mounts. Epoxy the engine mounts in place; then epoxy on the doublers. When they are dry, use a block plane to plane the fuselage to an *oval* cross section. This step will lighten the aircraft considerably, and is a must for optimum performance.

Trace the rib outline of the wing on a piece of 1/8" plywood, and cut it out. Now cut 19 8 x 1 1/2" rib blanks out of 1/16" "C" balsa. Take a few of these at a time, stack them behind the plywood pattern in a vise, and file them to shape. Split a piece of 3 x 36 x 1/16" "C" balsa for the trailing edge. Place a sheet of plastic over the plans and pin the trailing edge down in place. *Do not* use wax paper, as this weakens the glue joint.

Mark the place where each rib will go on the 1/8 x 3/4 x 36" "C" main spar, and place the ribs on it. Glue the ribs in place on the trailing edge. Glue on the top of the trailing edge, the cap spar, and the leading edge. Glue the ribs to the main spar.

Rig up the bellcrank with leadouts and pushrod. Bolt the assembly to the 1/8" plywood bellcrank platform.

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MACCHI C. 202

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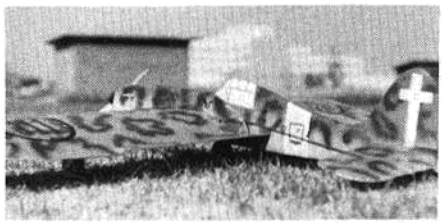

You can easily use an RC-type nylon control horn on the flaps and elevator. Use an adjustable clevis for flight trimming at the elevator.

Then epoxy the bellcrank platform in place.

Taking the wing of the building board, plank the top and bottom at the center section. Cut out the slots in the appropriate ribs for the hardwood landing gear mounts, and install the landing gear mounts. (Most hobby shops have these pre-cut for RC.) Install the 1/4 x 1/4" landing gear mount braces. These are essential, otherwise, the landing gear platform may go "crunch" through the wing upon landing.

Cut out and glue on the wing tips and wing tip braces. Install the 1/8" brass tubing leadout guides.

Cut out the 1/8" "C" differential and fixed flaps. Sand the wing and flaps, and glue on the fixed outboard flaps. Hinge and install the differential flaps, and epoxy on the 3/32" wire connector.

Bolt the flaphorn onto the flap, and bend the pushrod to length and install it in the horn. Solder a washer over the end.

Cut the fin, rudder, stabilizer, and elevators out of 1/8" "C". Glue the rudder to the fin with 1/4" rudder offset. Sand the surfaces; epoxy the 3/32" wire connectors to the elevators; hinge and install the elevators to the stabilizer.

Epoxy the wing into its slot in the fuselage. Use a square to make certain the alignment is correct, both horizontally and vertically. When the wing joint epoxy has cured, epoxy the stabilizer in its slot, and epoxy the filler piece on top of it. Then epoxy on the fin. Glue strips of nylon along all joints (I used Carl Goldberg Nylon Reinforcing Tape). This not only produces a good-looking fillet, but improves the strength of the joints.

Brush two coats of wood filler on the plane, except for the wings, and sand them smooth. Put a coat of clear dope on the wing, and sand off the fuzz. Paper the wing with medium weight Silkspan, doing the wing tips separately.

Now give the entire plane four coats of clear dope, sanding lightly after the first two. Paint the plane in the colors you desire. The original was finished in light and dark greys, with black and white trim.

Epoxy in the tail-wheel skid, and attach the 3/4" tail-wheel. Bend the 1/8" landing gear, and install the landing gear mounts with screws and washers, as shown in the photograph. Put on the two-in wheels, and solder washers over the ends.

Drill the holes for the bolts and install your engine. Solder lugs onto the gas tank (Perfect No. 10), and bolt them on, making certain the feed line is in line with the center.

Cut and crimp the leadouts; put on the fuel line, and it's ready for its maiden flight.

Flying

Begin flying the plane on .015 52-ft. lines. When you become accustomed to the Macchi's characteristics, try flying it on .012 60-ft. lines. We fly the stunt pattern on the 60s, but usually fly combat on the 52s for the extra "feel" of the plane.

I am always happy to hear what other modelers think of my designs. If you have any questions or comments, send them to me at 4337 Miranda, Palo Alto, Calif. 94306.

Once again, do not be afraid to change the outlines to those of a plane that *you* like. This is the best way that I know to get started designing your own. Have fun!