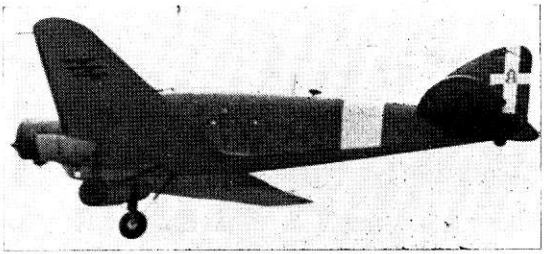
A 'single' engi

SAVOIA — MARCHETTI SM81

Free flight scale model for 1.5 c.c., adaptable for control line or radio control. Designed by Flight Lieutenant T. C. Potesta, R.A.F.

elty for sports flying



Away on a cruise around the field, the S.M.81 'Pipistrello' looks extremely realistic when dummy engines are distant. The 48½ inch wingspan model is a gay deceiver in more ways than one for it refutes all the ancient arguments over low wing instability.

WHAT'S *THAT! A three engined free-flight scale model?* Yes – we too were easily deceived when we saw Terry Potesta's S.M.81 fly past at the 1969 R.A.F. champs – the answer was, of course, a single A.M.15 turning a 7 in. x 4 in. propeller, housed within the central nacelle! For complete realism and an unusual choice, this model should be hard to beat. It would seem an ideal model for conversion to single-channel R/C and the more adventurous control-line enthusiast could, by strengthening here and there, produce a two- or even three-engined version.

The Savoia Marchetti S.M.81 was introduced to the Italian Air Force in 1934, and saw continual service until the end of World War II, in operational theatres ranging from Ethiopia to Russia, and in roles varying from bomber, transport and reconnaissance to air ambulance! The model depicted is of an example using Alfa Romeo engines, as used by the Italians on the Russian Front in 1943.

Construction

Although construction of this model is straightforward, it should not be regarded as a beginner's project. After familiarising yourself with the plan, cut out all the fuselage parts. Laminate formers F3, 4 and 8 as indicated, then bend the undercarriage to shape, binding and cementing to the formers. Make sure that the holes for the bearers are spaced to suit your engine. Mark the former positions on the fuselage side, and add the $\frac{1}{8}$ in. sheet doublers between F2 and 5. Next, lay one fuselage side flat on the bench, and add formers F2, F2A and F5 – checking with a set square that they are vertical. Add the opposite side and allow to dry thoroughly. When dry, add formers F3A, F3 and F4. Chamfer fuselage ends, add sponge rubber, and draw together, checking for alignment – then add the remaining formers. Epoxy engine bearers in place.

Plank top and bottom of fuselage with 3/32 in. med. soft balsa strip. Install fuel tank, then add soft $\frac{1}{2}$ in. sheet between formers F1 and 2. Cut out ribs W1–3 and cement in position – followed by leading and trailing edges.

The wings may be built directly over the plan. Pin the $\frac{1}{4}$ in. sq. hard spars in position, taper the L.E. as indicated, then pin it too in position packing up 1/16 in. to suit the camber. Notch the T.E. pin down, then add ribs W4–10, followed by the $\frac{1}{8}$ in. steel gussets. Finally, sheet the upper surface of the L.E., remove from board, and add the 1/16 in. ply facing rib W3. When quite dry, laminate the wing tongues and construct the wing boxes – making sure that they are a tight fit. Cement the tongues to the centre section. Next place the boxes in position in the tips, add to the tongues then adjust to give a dihedral of $3\frac{1}{4}$ in. under each tip. Leave to dry for at least 24 hours. Sheet the top surface of the wing with 1/16 in. sheet, and let in 1/16 in. sheet on the underside, back to F.4.

The tail and fin are of conventional construction, but care should be taken to avoid warps. The rudder and elevator should be hinged for adjustment and trimming – and should not be permanently cemented until an ideal flight pattern has been achieved. Cement the fin into the slot between the tailplane halves, and fill in with block, sanding to the profile of the fuselage. Finally, cement entire unit to the tail platform on the fuselage.

Cowlings

Make three engine cowlings of the type required – fitting the outboard cowlings with peg fittings to ensure that they will 'knock-off' in the event of a hard landing. The fuselage engine cowling is shaped to fit around the engine chosen, and is retained by a small woodscrew as shown. If dummy engines are to be installed, make and fit them before completing the cowling rings. Add the wheels and complete the u/c detail. Mould cockpit, turrets and observer's panel from acetate. Complete construction by adding tail struts and aerials.

Sand the whole model and give all sheeted areas two coats of sanding scaler – sanding lightly between each coat. The entire model should then be covered with lightweight tissue and given two coats of clear dope. At this point the portholes should be cut out (ensuring that none fall inside the fuselage!) and acetate discs fitted, to give a smooth external finish. The model should then be painted or sprayed in the colours required and the insignia details added. Finally, give the whole model one coat of matt fuel proofer.

Flying

The S.M.81 is a rugged model, but like all models requires a certain amount of trimming. Make sure that *really* long grass is available for gliding tests, remembering that the flying speed for a model of this size is fairly high. The original model weighed 29 ounces, and was powered by an A.M.15 driving a 7 in. x 4 in. nylon propeller. A small trim tab was added to the port wing. Adjust the elevator until a smooth glide results, then start powered flights with a reduced engine speed until the model is finally trimmed.

The S.M.81 is an unusual model and a sure crowd puller at the local field.