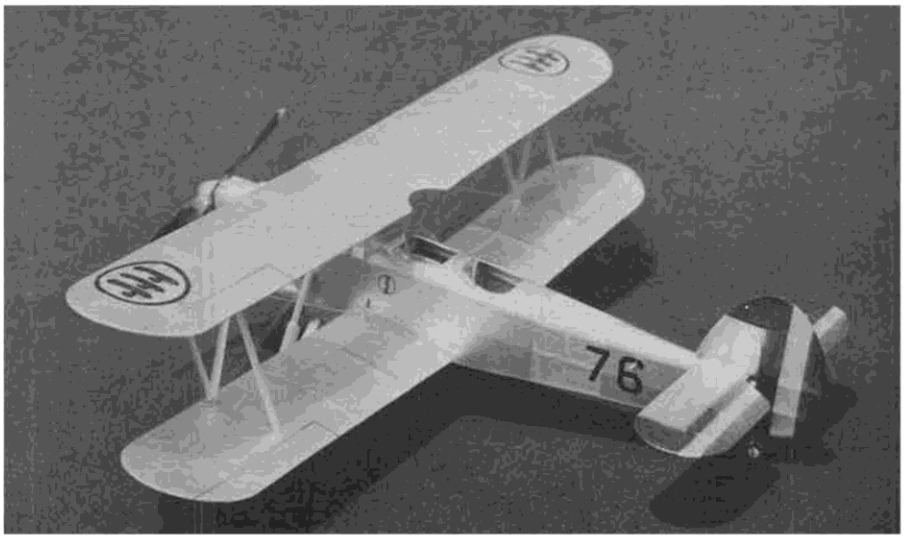
2-IN-1

SAIMAN 200



By WALT MOONEY . . . Two-in-one means that you have a choice of power; rubber or CO_2, for this slick little biplane. By the way, it sure would make a nice R/C scale project, and there's enough info to enlarge the plans . . .

• This is a Peanut Scale model of one of the prettiest biplane trainers of the World War II era. It was designed and built in Italy in some numbers, with the first flight of the prototype occuring in 1938. The design is excellent for a Peanut Scale and this model was built without any intentional departures from exact scale except for the flying propellers. In fact, it was built and flown with both a CO-2 and a rubber band powerplant. It is designed to be almost instantly convertible from one power system to the other, and has proven to be a very good flyer with either propulsion system. It was flown in both the rubber and power scale events at the May 16, 1982 Scale contest and while it did not win, it did take 3rd place in the power event. Its best flight under CO-2 power was for 73 seconds from a completely unassisted R.O.G.

Flown in the rubber event, its best time was only 35 seconds, which was not competitive with several of the Jumbo scale competitors. Interestingly, it flew in wide smooth left turning circles when powered by the CO-2 engine, and in right circles when operated with rubber power.

A slight amount of right rudder was required to open up a rather tight left circle with the CO-2 engine, as the only required flight adjustment other than the engine power adjustment. When converted to rubber power, a loop of 5/32nd rubber twice as long as the motor base was used, and some clay ballast (actually a piece of clay the size of the spinner) was required to put the center of gravity where it was with the CO-2 engine installation.

The CO-2 powered version weighs 22 grams, of which exactly half is the QC (quick change, to use airline jargon) engine package. At an outside temperature of 68 degrees and a power setting that gives realistic takeoffs and climbs, the Campus A-23 installed will run for more than a minute on each of the first three fillings from a standard CO-2 cartridge. During a session of about a dozen flights, all were at least 40 seconds, and the best three exceeded a minute.

The model has generally followed

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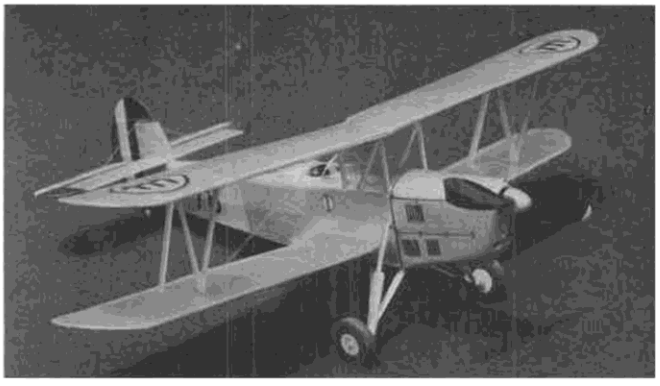
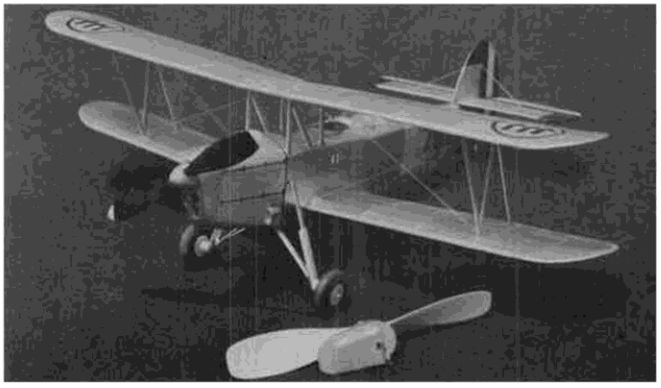
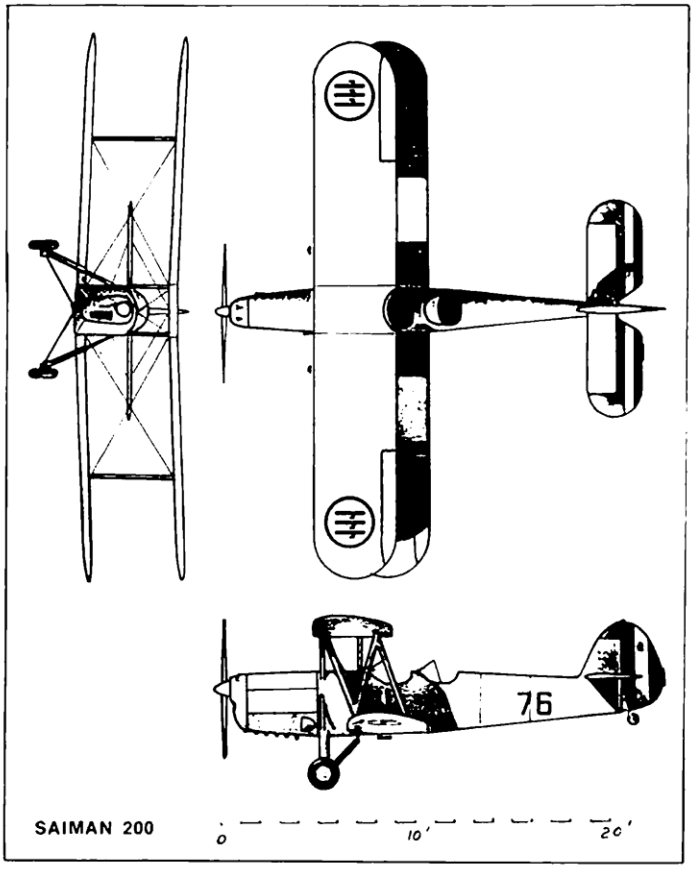




Nice lines on this aircraft. Should make a real sharp R/C scale project. Note prop and block for rubber powered version.



standard practices with respect to Peanut Scale constructional techniques. All basic structure is conventional, so this article will be limited to things that are a little different from ordinary, i.e. the propulsion system installations, the landing gear wire structure, and some of the cowl details.

First, obviously, both the CO-2 powerplant and the rubber powered nose block must fit into the front of the engine cowling. The rubber powered noseblock and propeller assembly is quite conventional, but it is suggested that a plastic propeller be used and no attempt to lighten the block be made if the model is to be truly convertible, because some ballast will probably be required to match the C.G. location that will be obtained with the CO-2 engine.

The CO-2 Q.C. package, besides being made to fit, was also designed to hold the filler nozzle securely . . . to eliminate tubing vibration as much as possible and to provide a flow of air over the engine and the tank. The scale nose cowl inlets are used to provide a flow of air past the top of the cylinder. The tank and filler box is open at the top and bottom back to the middle bulkhead so air can flow through and back along inside the fuselage. The bottom is closed aft of the bulkhead but the top is open and holes are cut in each of the sides. These holes allow air to pass out of the box around the tank, and also are required to accommodate the tank with a minimum box width. The air then can pass out of the fuselage through both of the cockpit openings.

The resulting Q.C. package is neat and strong. The filler is supported by a solid block. The Q.C. package is removed for filling and held with the nose uppermost while transferring the CO-2, for the best loading. On the model in the photographs, the Q.C. package is held in only by friction, and in over 40 flights, the nose has shown no sign of moving forward in flight although the friction measures less than 1-1/2 ounce. Of course, the thrust necessary to fly this model is only on the order of 5 or 6 grams, which is only about a seventh of the friction. If the lack of a positive retainer worries you, create one, but it does not appear necessary on the original model.

The propeller used is the one that is presently being provided with the Campus A-23 engine. Make sure it is properly balanced, otherwise no modifications are suggested. The spinner on the model was molded over a balsa pattern on a Mattel Vacu Form, trimmed to fit the propeller and cemented to the propeller using one of the instant adhesives and a little baking soda in the joints, after the propeller is securely on the engine. Be very careful not to get any adhesive on the engine, it would lock up instantly and there is certainly no warranty against that.

Engine power adjustments have been made through the nose cowl air inlets using a small screwdriver to push on the tiny notches around the top of the cylinder. This has been satisfactory, but you may find cutting a door in the nose cowl advantageous.

Because the landing gear is composed of two separate tripods, the landing gear wire is designed to be made in three separate pieces: the central "V" including the wheel axles, and the two upright shock absorber legs. The front view shows the true pattern for the wires. Solder the wires together just inboard of the wheels. Slot the fuselage uprights and cross piece to install the wires. The struts go just aft of the wires except for the thicker lower portion of the shock absorber, which is made in two pieces and sandwiches the wire. At the bottom surrounding the solder joint is a stubby cylinder which on the real airplane probably contained the wheel brakes.

All struts, landing gear, cabane, and wing "N" struts have a streamlined cross-section.

Cowling details can do much to enhance the model. There are six exhaust stacks on the bottom, and four significant scoops which should not be omitted. In addition, there are a series of louvres on the right side of the cowl.

The model was built to simulate an airplane that was flown in "Scuola 1 periodo di Siena, Siena-Ampugnano, primavera 1941 . . . at least that is what the three-view in "Dimensione Cielo #10 Scuola Collegamento" says. I found the color scheme delightful and tried to simulate it as lightly as possible. The model was covered with white lightweight Japanese tissue and given two coats of very thin clear dope. Then the white areas and the insignia circles and the tail stripes were masked off with plastic frisket paper and one very light coat of silver sprayed on. After demasking, all the color details were added using Staedtler Lumocolor permanent felt pens which are designed for use on acetate sheet transparencies and which work just great on nitrate dope finished tissue paper.

This model has given me a great deal of fun and I can be sure that if you build it it will do the same for you. •