

PHOTOS BY AUTHOR

J.C. YATES "MADMAN" in .020 R/C

By FLOYD CARTER . . . Control Line, Radio Control, and Old Timer, all rolled into one! Most famous of the early post-war C/L Stunters was this design by "J.C." Yates . . . both a legend in their time.

• The peacetime economy of 1946 brought a sudden increase in the availability of consumer goods, after a decade of economic depression, which was followed by another four years of severe rationing and wartime priorities. Many small companies found their government contracts ended, so they were eager to switch their production lines from military hardware to candy bars, washing machines, and model supplies. Engines, balsa wood, and other materials once again appeared on the shelves of hobby shops. Former modelers found their way back into the hobby, along with countless others whose aviation interests were triggered by the recent air warfare.

Control line flying had been introduced only shortly before the war, and little development had since taken place. Without much of a background for guidance, modelers invented, developed and refined the control line stunt pattern while striving to design the optimum stunt machine. Planes of all shapes and sizes appeared at flying fields and in kits, only to become obsolete and outclassed within a very short time.

Along with the mainstream of design philosophy which gradually took shape, my own models of the time imitated the large "barn door" designs powered by the magnificent new Orwick 64 engines. Size and lots of wing area were considered necessary to carry the heavy engine and its ignition system.

In the midst of this trend, one can imagine the skepticism that greeted the Madman. Here was a very handsome model which resembled, but did not imitate, the sleek fighter planes

of the time. On the other hand, it seemed almost too small to be competitive with the big, lightly-loaded planes that were popular.

The designer of this new model was a young man named J.C. Yates. And he quietly began to show the rest of us what a winning combination could do. When the smoke finally cleared, he had earned 37 trophies to prove that the Madman was indeed a capable machine. This performance was not lost on the competition. The Madman kit was soon introduced and became the standard stunt machine for serious contest flying. It wasn't long after this that glo plug engines were introduced. These permitted smaller, lighter planes with wing flaps. The Orwick engine faded from the stunt scene, and the Madman became another casualty of progress.

During his practice sessions with the Madman, J.C. (yes, that is his full, given name) developed what became known as the "Yates Takeoff". With full up elevator at takeoff, the Madman could roll a few inches and then half-loop to inverted flight. Modern control line combat machines will do this, but J.C. was the first to do it (but not in contests). That kind of flying was possible because of the brute power of that big Orwick, which would swing a 12-6 prop without any thought of slowing down, regardless of the attitude of the airplane. That kind of flying also earned J.C. the nickname "Madman Yates", which was coined by Johnny Davis in the model press.

After his Nats win in 1948, J.C. retired from control line stunt competition. He is now an R/C enthusiast and regularly flies at his home field

in Southern California. J.C. still has a Madman or two that he takes out occasionally to brush up on his U/C pattern technique. Except for the wires attached to the wing, it could easily pass muster side by side with modern R/C models on the flight line. Such is the nature of a classic design. It never seems to look dated or out of place.

To get the Madman down to 1/2A size, it was necessary to reduce the plans only 18%. The same basic method of construction is retained, but the fuselage had to be widened a bit to make room for the 2-channel radio (The original model had a straight taper from the firewall to the tail post.). If you use one of the small radios now available, the fuselage can be straightened out as on the original Madman. Other than this, the Madman is an exact reduction and was scaled photographically. Ordinary materials are used throughout, as in the kit version. So you don't have to send away for fiberglass or foam parts in order to get started.

CONSTRUCTION

Since the wing is tapered in every possible direction, a wing jig is necessary to insure alignment. A simple temporary jig can be put together as shown in the photo. The spars are assembled over the plan to obtain the proper dihedral and thickness taper.

The spar assembly is then lashed to the upright blocks on the jig, using rubber bands. The ribs and trailing edges are aligned, and the entire wing is glued up at one time. Zap, or equivalent, is good for this, since the adhesive is applied to the outside of each joint without disturbing the alignment. After adding the leading

edge, remove the wing from the jig and install the planking. Tack glue the wing tip blocks in place. After carving and sanding, they are removed and hollowed.

The tail group on the original Madman was carved from thick balsa sheet and the same procedure is used here, except that the center portions are cut out and sheet balsa ribs are substituted to save weight. After tapering the blanks linearly to 1/8 at the tips, sand to a symmetrical airfoil shape. Then cut out the centers where shown.

The fuselage structure is a simple box, with embellishments added here and there to give it a pleasing shape.

Begin by cutting the fuselage sides from medium 3/32 sheet. Epoxy or contact-cement the ply doublers to the sides and assemble the fuselage upside down on a true surface by using the firewall, F1 and former F3 for alignment. The T-nuts for the engine mount should be installed on the firewall before assembly. The firewall is set so there is no engine offset. Add the braces to the fuselage sides aft of the cockpit area and bring the rear together at the tail post. Next, add former F2, the servo rails and the stabilizer platform. The engine should be trial fit at this time. Glue in the blocks for the cowling and the ply spinner ring, after adjusting the length of the cowling blocks to provide about 1 mm clearance between the spinner backplate and the spinner ring. Save the carving on the cowling until after the wing and fuselage bottom pieces have been added.

The completed wing should be installed after the stabilizer and fin. It is likely that the wing cutouts in the fuselage will not be exactly true, so the stabilizer provides a good reference for alignment of the wing. After the wing is installed, some of the leading edge planking will have to be cut away for installation of the landing

gear bulkhead. Sew the gear wire to the bulkhead with carpet thread or copper wire and epoxy this into the slot in Rib No. 1. The ply faces on Rib No. 1 carry the landing gear loads back to the spars. Some additional reinforcing may be added in the form of glass cloth or blocks, if desired. The gear wire is lighter than normal to act as a spring shock absorber.

The radio and pushrods should be added while the fuselage is still open. The 2-channel brick radio is mounted to the hardwood rails that have been epoxied across the fuselage and to former F2. You may choose to install Nyrods, but 3/16 square hard balsa wrapped with tissue and doped would serve, since the pushrods are straight. When the controls have been checked for clearance and freedom from binding, add the fuselage bottom planking and the built-up turtledeck.

Leather fillets were supplied in the Madman kit. These are again available in hobby shops, and are superior to the usual putty fillets because they are not messy, require no sanding, and will not crack out.

The Tee Dee 049 should be set up for pressure operation. With previous models, I have found that a non-pressure system using a 2 oz. tank is unreliable. In order to clear the cowling, a 90° elbow made from brass tubing should be epoxied to the crankshaft pressure fitting. Note that the TD does not have the pressure line drilled clear through the crankcase. Follow the manufacturer's instructions when drilling the crankcase.

The wing structure is quite strong, and does not depend on silk or silkspan tissue covering for strength. Plastic films may be used, but I chose the classic silkspan and dope finish to be authentic with the period. The wings and tail surfaces are tissue covered and the finish is built up with talc mixed with Aero Gloss clear. The paint scheme matches the original

Yates Madman and is overall light blue with dark blue trim and black striping. The AMA numbers on Yates' Madman are gold decals outlined in black. These are no longer available, so I had to settle for the pressure-sensitive type. FLYING

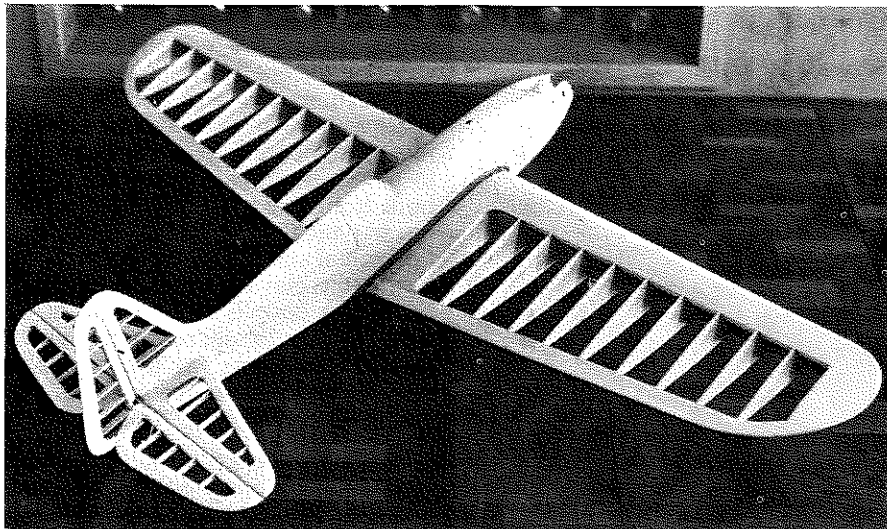
The newcomer to 1/2A ships of this type will require some psychological orientation. Although not faster than larger pattern planes, the apparent speed is greater because of the smaller size. Depth perception is also affected, especially if you regularly fly larger models. These difficulties will disappear after a little practice, but first flights should be high and cautious. The hand launch is the only practical method of taking off, since this model is a tail-dragger with poor directional control on the ground. Needless to say, ground looping is a problem with this configuration. Launch smoothly straight ahead and avoid massive control inputs until altitude and speed are reached.

With a 225 MAH battery pack, my model weighed in at 21 oz. No ballast was required to trim to the CG shown on the plans. Initial flights could carry a slightly more forward CG, for safety. As flight experience is gained, the CG can be moved back until the model is able to snap roll smartly with full rudder and elevator.

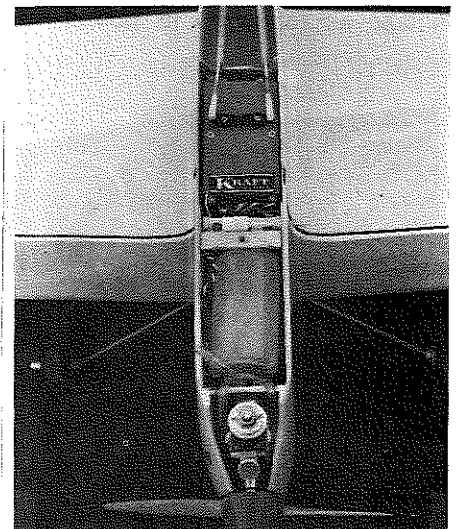
For better roll performance, you might consider substitution of strip ailerons for the rudder. However, this is a scale model, in a sense. So ailerons just would not be authentic. My object was to exactly duplicate the classic Madman in the 1/2A format. What resulted is a fine looking model that is fast, responsive, and great fun to fly.

ACKNOWLEDGEMENTS

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The 1/2A R/C "Madman" ready for covering. Conventional structure is very clean. Note leather pattern-maker's fillet between wing and fuselage.



Equipment installation arrangement. Battery pack is below 2 oz. fuel tank.