

# FAI Man 7



The FAI Man series began 7 years ago as an attempt to design a model that would be non-critical, simple to build, and easy to fly . . . but yet would be competitive in the FAI power battles of the day. Additionally, the model would have constant chord wing and stab, and box fuselage with wood sizes standardized to minimize unused materials. Geodetic surfaces were utilized to maintain airfoil integrity. Bob Cherny's 9% Orbit-eer airfoil would give a high speed climb, and a high aspect ratio wing (9.5 to 1) would provide a better-than-average glide.

These parameters were built into FAI Man I and II. The original model is still flying (albeit with some rebuilt parts), and it is still winning. It won first place in the Northwest Semi-Finals in September, 1971 by scoring 7 maxes and a 127 second flight. It flew at the Caddo Mills FAI Finals in July of 1972 and was lost 6 miles downwind of the launching site during the 8th round. It wasn't located until that evening, so its claim to a high placing in Texas was not to be.

At this point in time, the series has come full circle from this early FAI Man detailed above. Following this simple no-nonsense model came FAI Man III, which had a 10 to 1 aspect ratio wing, auto-rudder and tapered wing and stab; then the ill-fated FAI Man IV, which never flew; FAI Man V, which was equipped with auto-everything, tapered wing plan-form, Rossi engine, etc.; FAI Man VI, which was just completed this spring, and has a completely sheeted wing and auto-everything.

Now comes FAI Man 7. Its purpose is to satisfy the enthusiasm of my junior age-group son, Ted, who has had some good contest experiences with 1/2 A and

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feels he is ready to move to something bigger. Having a good Cox .09 for motive power was the basis for constructing number 7. It is a simple ship for the modeler with limited experience. The only difficult parts are the metal work around the firewall and the fibreglass cloth application. Because a model this size (it would be an average sized 1/2 A) could be very hot to handle, the airfoil thickness was increased to 10% and the stab area upped to 37%. The result is a reasonably "goof-proof" model that can perform respectably in the hands of an FAI neophyte. Especially important for a beginner is its reasonably low-cost (in comparison to the all-out super FAI competition models.)

The plans are self-explanatory, with a few exceptions. Taking these in order, they are:

### WING

The wing is completed, including covering, before building anything else. Notice the leading edge shape . . . this is important. Also don't leave out the plywood gussets or the stated wash-ins and wash-outs. All construction uses epoxy or Titebond. Cover with silk put on damp. Apply one thin coat of clear dope over the entire covering, then brush on a coat of Knox Unflavored Gelatin and water (follow directions in the Knox package). This one process will save you four to five coats of dope and around an ounce in wing weight. After the gelatin has dried thoroughly, finish doping as usual.

### STABILIZER

It is conventional in construction and should be covered with tissue.

### FUSELAGE

It is a balsa box, rounded at the front to fit the Tatone .09 mount. Since the bottom of the fuselage is flat, there is a building sequence that should be followed for ease of construction. The bottom is cut to shape and pinned to the plan. The sides, complete with plywood doublers and longerons, are glued in place to the fuselage bottom. Then comes the firewall, formers, fuel tank, pylon, and fuselage top. The fin is added last and the whole model is shaped and sanded.

A Perfect brand wedge tank of 1/2 ounce capacity was used on the original. Although set up for suction feed, it could be converted to pressure for less critical launching speeds.

A metal firewall face is a must for good thrust adjustments. The landing gear mount is hacksawed and filed from a piece of 3/16 aluminum, drilled to take the 3/32 inch coiled landing gear,

drilled and tapped with a 4-40 tap so that a grub screw can be installed to hold the music wire gear in place. This unit is held to the firewall by the bolts fastening the Tatone mount to the fuselage.

The wing mount, though it doesn't show on the plans, is reinforced to the pylon top by using two strips (one on either side) of 1/8 x 1/2 inch trailing edge stock epoxied at the joint of these two pieces.

The SHOC mount is the most effective D.T. stab mount I've ever used. It's installed next. A short length of Nyrod (small diameter) or plastic tubing is inserted through the fuselage bottom just below the stab trailing edge as a D.T. line guide. It is epoxied into place.

The entire fuselage is given a coat of Hobby epoxy Quick-Prep resin and sanded. Cover the fuselage with lightweight fibreglass cloth from the firewall to just behind the pylon. Two or three coats of resin are applied over this and the remainder of the fuselage. Finish with epoxy paint.

### FLYING

The whole model should now be assembled. The wing should be keyed, prop installed, etc. Weigh the model and check the center of gravity. The original model was 2 1/2 ounces underweight. Add lead through the timer opening so that the model balances at 80% to 85% of the chord. It should balance not more forward than 80%. The closer to 85% the better. Do not test fly until the C/G is correct.

Now, hand-glide the model. If it dives, which it will probably do, block up the stab trailing edge no more than 1/16 inch. If it still dives, move the C/G back until it glides smoothly (The above comments assume that the wing and stab angles of attack were built according to the plan). Shim the stab for right glide.

The power pattern is a right power circle of about 1 1/2 to 2 turns in 10 seconds. This is obtained by using little or no left thrust and some right rudder tab if needed. The glide pattern is to the right using stab tilt.

The original is flying with a 7/4 Tornado prop, but after some more experience with the model, the plan is to change to a Cox grey 7/3 1/2 to zip up the climb a bit more.

The plane is not an all-out super competition machine. It was designed to provide experience for the beginner and as a first step in to FAI power flying. It is a competent no-nonsense model. To the ends to which it was designed and built, it has been pleasantly successful. ●