

FAI
COMBAT

TAMERLANE

By DAVE CLARKSON . . . Why not try combat FAI style? Maybe you'll like it! Here's a well-tested weapon for international duels.

For those of you wed to 250 square inch 'flying bricks', I reckon a move to 320 square inches is a big enough step to handle.

Need any more convincing? No? So here goes with the building system. I always cut out a kit of parts before starting assembly, this way you can be gluing up one of the units whilst another is setting. Also, I tend to build models in pairs . . . takes hardly any more time than building just one.

Stick to the wood grades given on the plan. I dislike soft wood in stressed locations because it is too brittle, so the design has evolved to give the right balance whilst using mostly medium and hard balsa.

The toy consists of three basic units . . . the wing, the motor pod, and the tail . . . which are assembled separately, and the whole thing comes together just before and during the finishing process. Nice really for those who get urges . . . this week a wing 'urge', the next a pod 'urge', and so on . . . anyone who flies toy planes has got to be a bit strange, so why not be constructive about it.

The wing frame comes first. Drill the lead-out ways through the inboard ribs using a worn-out 1/4 inch drill, assemble the center rib, including the bellcrank platform, and then glue all of the ribs onto the trailing edge. Now assemble the leading edge and glue the ribs into that. Wow! Got the basic frame done in no time flat.

Note that the spruce leading edge reinforcer tapers at its extremities, and only goes on the middle of the wing. Besides requiring only one length of spruce, and therefore saving a few pen-

nies, this short reinforcer ensures that, if the wing breaks, it will break well away from the middle. A wing break towards either tip is usually very easily repaired, helped by the 'U' shaped leading edge, solid trailing edge, and absence of spars. A wing break in the middle is far from easy to repair on just about any model, so it usually means the trash-can.

With the basic frame done, the controls can be added. Use a 2 inch bellcrank with a bicycle spoke push-rod. The bike spoke has a super-neat no-effort-required end for the bellcrank and is easy to bend for the horn end. Now glue on the rib gussets, tips and pacifier compartment surrounds. Note that the center-rib trailing edge gussets are chamfered where they meet the trailing edge to give a big glue joint area and also preserve the profile here. A bit of work with a razor plane will get the wing trailing edge and tips nicely sharpened.

The pod is of the standard British slide-on variety. After drilling for the mounting bolts and carving to shape, push it onto the wing, using glue as the lubricant, and leave this vital joint to set . . . with the hardwood bearers clamped to the center-rib using a small C-clamp. When the glue has fully set, drill for, and glue generously in place, two dowels to make sure the pod and bellcrank platform stay put. Now the leading edge can be shaped. It is important to get the leading edge profile right; too blunt and the model will turn out nose-heavy and slow . . . a real dog. Too sharp and you get stalling troubles in the turns. I have found the profile on the plan to be about right . . . maybe it

could be a bit sharper, but I hate shuddering around the turns.

The last act before covering is to give the whole model a gentle sanding to eliminate bumps and then to fabric cover the pod, locally overlapping the wing. I use 1 oz. glass cloth, doped on, because glass cloth follows compound curves better than any other fabric, however, the favorite pod covering here is wide gauze bandage applied with balsa cement.

TAMERLANE is designed for covering with one of the iron-on plastic films, not only because of all the advertised (and generally true) reasons, but also because it allows quick and easy de-warping, and seems to give a faster model. I have one weapon covered in "Fascal"; and whilst decidedly trickier to apply, a much stronger model resulted.

If you were bright when framing up the wing, you didn't glue in place the pacifier compartment sides. This allows the whole wing, including what will be the pacifier compartment, to be covered (no tricky trimming round the compartment, see?) So now cut away the covering over the compartment and finish this item, not forgetting to fuel-proof the walls. I like to make the compartment top and bottom from thick acetate sheet. Not only is this fuel and shatter-proof, but in a match, your pit crew can see if the pacifier is OK instantly.

An all-balsa boom and tail is used because it seems the easiest way to do it. Use pretty hard wood and it won't fall apart, especially if the boom is covered in one ounce glass cloth before adding the wing and tail. My procedure here is first to dope the glass cloth onto the boom; then locally remove the film covering from the boom glue area on the wing; then epoxy on the boom; then line-up and epoxy in place the tail; then sew on the elevator and install the horn; finally, only now, bend the push-rod end for the horn. Doing it this way means you have a good chance of getting equal up and down on the elevator.

Model is just about finished now, so slap a coat of epoxy paint over the pod, boom and tail. Again, if you were bright, you wrote your AMA number on the structure before you covered the model (plus any endearments that seemed appropriate at the time). Make up the lead-out connections, bolt in the motor and get flying. Before you do, maybe a few words on motors, props, fuel, lines etc. will be appreciated. (*Do we have a choice, Dave? wcn*)

TAMERLANE is designed for a 2.5 cc (.15 cu. in.) glow motor . . . the hotter the better. Only one diesel is competitive nowadays, the Rossi, and you need a rich daddy to mess about with those. (*Please, let's not bring THAT up again. Some QMers may be reading! wcn*).

There are only a few really good front-

induction, 2.5cc glows available, so the choice is limited. None of the ones I have handled have been perfect out of the box, all requiring some attention . . . usually a new head and needle valve assembly. Maybe the new Cox 15 will prove useable out of the box, shall have to see (*It's available now. wcn*).

I strongly recommend a nylon 7 x 4 size prop as being the only choice, and the Tornado 7 x 4 at that. Wood and glass-nylon props break too easy. A 4-1/2, 5 or 6 inch pitch kills most motors stone dead in continuous maneuvers . . . and you do spend most of a match doing this . . . you don't? Hmm! Of the nylon 7 x 4 props, the Tornado seems to work the best by quite a bit.

I use fuels with 15-25% nitro because such medium nitro grogs seem to give the least setting problems in all weather. Because FAI is a 4 minute, plus warm-up, event, and usually turns out this way, you have to fuel up for a full match. Around 2-1/2-3 oz. of fuel does the trick for me. I have flown matches using your (U.S.A.) 0.012 inch braided lines and found them more than a bit prone to being cut by evil-minded opponents. We use soldered 0.014 braided piano-wire lines here, and these seem to resist such tactics better. Maybe using your 0.015 inch braided wire would be the wise thing to do. I hate fly-aways, after all, the model might get dented on someone's head, and you are bound to lose a lot of ground time whilst your pit crew retrieves the streamer . . . nothing more annoying than treeing your model with streamer attached during a match.

I am not going to tell you how to fly this weapon. If you can trim out and fly an AMA 'Fast' toy, you will find TAMERLANE a doddle. Be careful to avoid warps though; the big wing means that any warp has a powerful effect. TAMERLANE is fast and tight, yet very amiable for precision cutting. When trimmed out, mine do full elevator inside or outside loops of around 10 foot diameter, each loop taking about 1 second, consecutively dropping a foot or two per revolution until it clips the daisies; so should yours.

A few words on match tactics. The vital thing to remember is DO NOT KILL. In FAI, a 'kill' is now just a cut . . . OK, a nice 100 points, but you cannot get any more in the match and your opponent has the rest of the match to nibble little bits off your streamer while all you can do is play 'dodge 'em'. If you 'kill' early in the match, you are sure to lose.

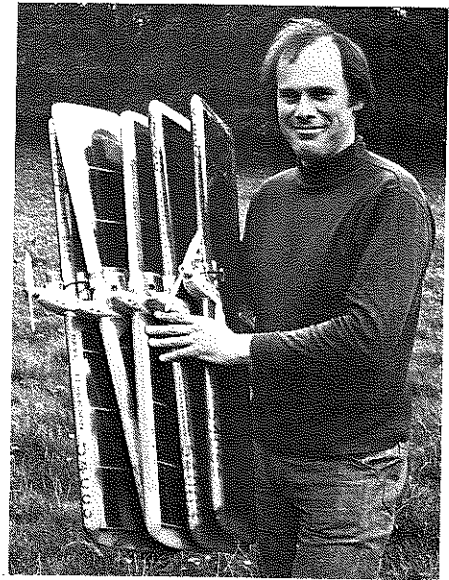
The best way of avoiding killing is to follow. Following is a skill to be learned on the club field. Practice following a friend through consecutive horizontal eights until you can do it whilst telling jokes (or what ever turns you on). Only when you have ingrained the necessary reflexes, (*or run out of jokes. wcn*)

move on to practice following in random maneuvers and then on to actual Combat. If you can stay right behind your opponent, no matter what he tries to do to shake you off, you get the cuts and he doesn't and you hit paper *before* you hit string. Our best fliers over here for many years now have been real artists at the following game . . . it is a tough tactic to beat. I believe the Burch/Wilkins match at your '75 Nats in FAI was a following classic . . . Those who saw it will know what I mean.

The other important thing to learn is organization in the pits. FAI allows a spare model, so use it. If your man's . . . er . . . woman's . . . er . . . person's (we have got it too you know) toy gets planted, don't mess about trying to clear the motor, or lines, or whatever caused it to come down. Dispatch a runner to go get the streamer and clip off the pacifier whilst your starting pair get the spare going. A quick streamer transfer and you are off again . . . in less than 15 seconds if you are organized and without panic. Whilst your pilot is working out how to get your pit crew to work again, you can keep busy by sorting out the downed model to be ready for the inevitable.

The following art has done things for our models here. You can follow a fast 'brick' simply by turning inside it, but you cannot follow a super-maneuverable model with a brick . . . all he needs to do is some tricky stuff near mother earth and you plant yet again. In the ultimate at FAI Combat, the more maneuverable model will always win. A big speed advantage may make things difficult, but will not reverse the situation, as the '75 European Champs proved. Whilst the 'kill' remains unrecognized by the FAI rules, the 'followers' will always come out on top, and to follow successfully you need more maneuverability. Thus, the slow and tricky 400 square inch 'Giants' are popular over here.

TAMERLANE is a good step along the maneuverability chase without being in

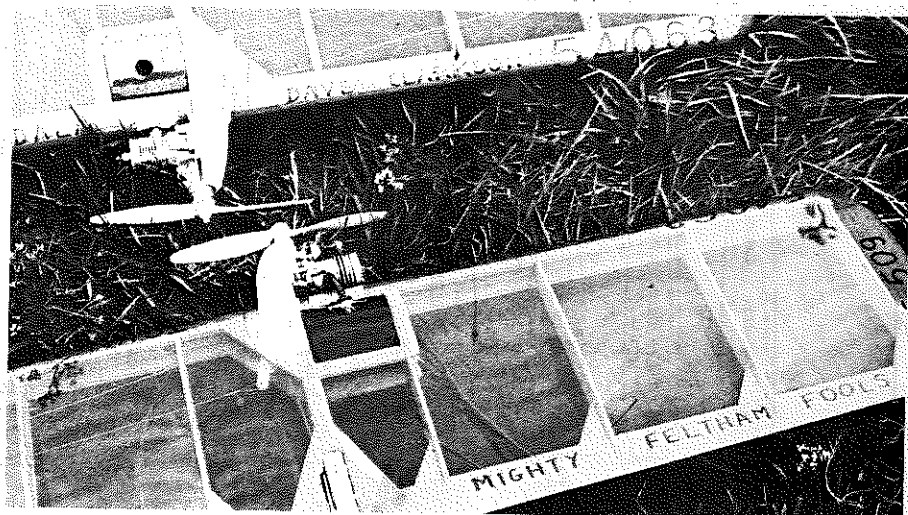


Five "Tamerlanes" at left, and above with the author/designer. Gee, enough for one contest!

any way extreme. It suits me, maybe it will suit you.

Huh! Why the name? TAMERLANE, otherwise known as 'Timur The Lame' or 'تيمور لنگ' to his followers, was a particularly nasty Mongolian chieftain who, in the late 14th/early 15th century, with the aid of his horse-mounted hoards, devastated and de-populated large areas of Asia and the Near East. They have not recovered from his exploits yet. Now I am not suggesting that this model will be quite so spectacular, but you can always dream . . .

MODEL BUILDER



Sparless wing has unusual, but well tested airfoil, gets strength from 'C' shaped leading edge. See-through covering allows easy inspection of structure following an "incident".

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