



*Let Mike Conrad tempt you with his 47 inch triplane*

# Troika

*Troika was designed to take the mid range four strokes, Mike used a Saito .50 in the prototype. View below also shows the simple sprung undercarriage.*

**I** think that the most annoying part of producing a new design is thinking of a name for it. One puts so much effort into the design and construction of a new model that just giving it any old name really isn't good enough.

The name Troika, which means a combined effort from three different sources, emerged after sounding out club members, family and other disinterested parties, as the only suitable name which had sufficient class and came off the tongue easily.

Now, why build a sports Triplane; haven't I got enough troubles? Well, this is my 90th radio model, so it had to be something special. I've built and flown biplanes of all shapes and sizes so a tripe it had to be.

The trouble is that when one thinks of constructing a three winged model, one feels it might be silly not to go the whole hog and build a Fokker or a Sopwith. Well, I have not got the patience for the fine detail required of a scale model, and I also wanted to start with a clean sheet without the constraints of having to make it resemble a known shape.

The other factor which would put me off a scale Tripe is the difficulty of making it easy to assemble on the flying field. This is important to me, as when I get to our patch I like to fly, not spend hours putting models together.

## Concise construction

This is a model which could be built by anyone who has a couple of biplanes under his belt, but it is not a beginner's model.

It will be seen from the plan that the wirework allows for fore and aft, and up and down movement of the centre wing. Bend the elongated U pieces to shape and bind piece 'A' to the cabane uprights loosely enough to allow up and down movement. Bind piece 'B', which plugs into the wing, to piece 'A', again loosely enough to allow fore and aft movement.

After building the top and bottom wings, attach them to the fuz and make up the struts. Run the completed struts through the centre wing as shown, and attach clothes pegs to the strut, under



and over the wing. This will give temporary outer support to the wing.

Now, place a steel rule vertically along the top and bottom wing leading edges, and ensure that all three wings line up. Also, ensure that centre wing is equidistant between top and bottom wings. The loosely bound wirework will facilitate movement of the centre wing root to achieve this. Incidentally, the gap between the centre of the LE's on all wings is near enough 7".

You will, of course, have to move the pegs up and down when lining up the wing, but having found the final position, solder up pieces 'A' and 'B'. Cut out piece 'C' from 1/16" ply and tape it to the inside of the strut, then make up a balsa block which goes

between piece 'C' and rib 7. Make sure this block is also in contact with the spruce spars. Piece 'C' is eventually glued to the block after covering and screwed to the strut. This gives very firm support to the outer section of the wing.

The strut is obviously removable for transportation but I have found that I never seem to remove mine, so you might chose to glue the strut straight to the centre wing as I have done.

Now I know that some modellers will take one look at the bottom wing attachment, with its cupboard clips at the TE, and consider it a recipe for disaster. Please believe me, it's quite safe; the aerodynamic pressure exerted at the TE of the wing is quite small, the

big pressures are at the front half of the wing, and this is very securely located. This is the third model I have made using this system. Other club members have used the idea and nobody has had a wing come off yet.

The fuselage and tailplane are quite conventional, but a word about the engine mount might be of interest. I use Rawlplug rubber Rawlnuts, which are nuts embedded in a rubber sleeve, to anchor the plastic engine mount to



## DATA FILE

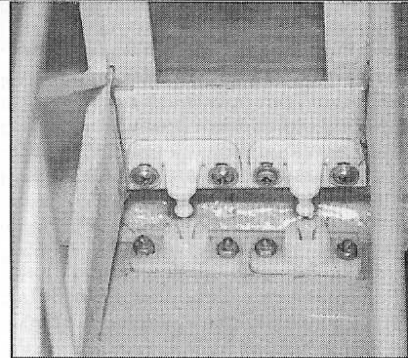
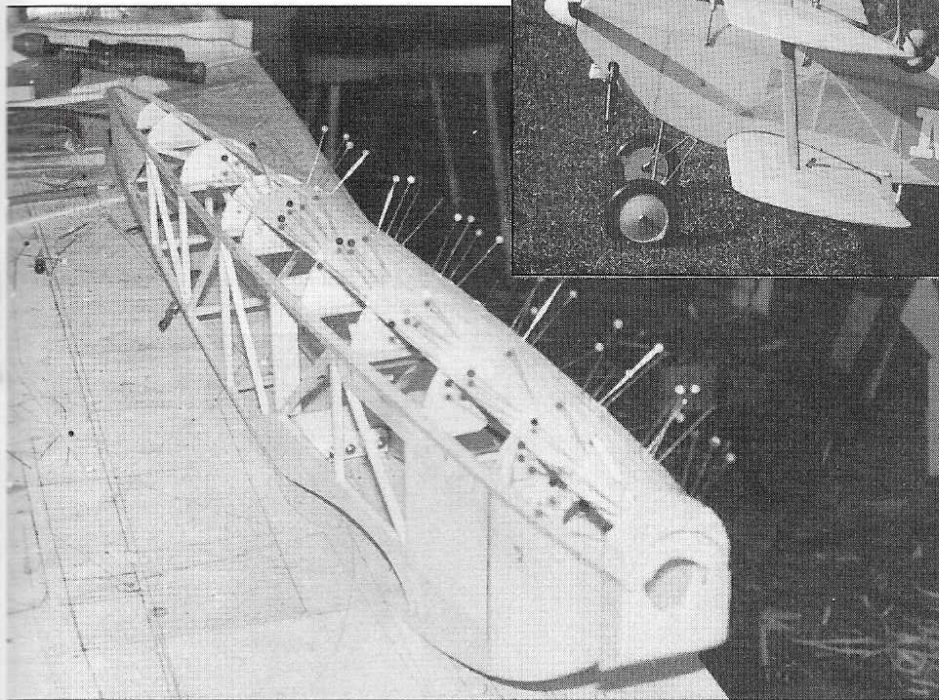
### TROIKA

#### Plan Specifications

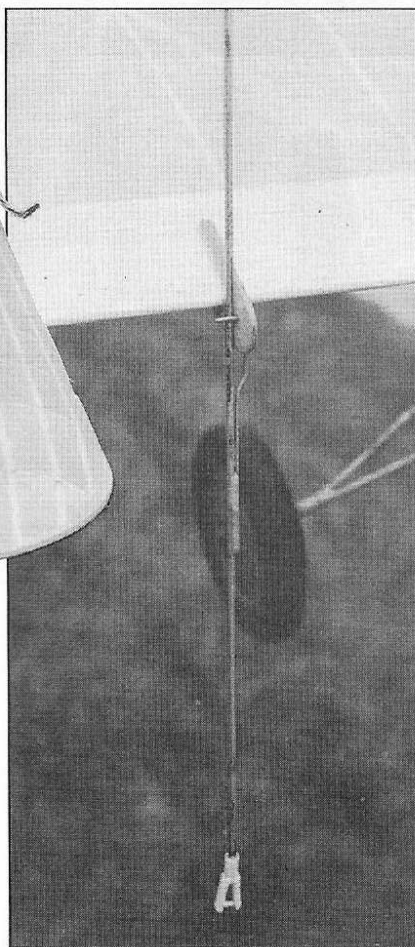
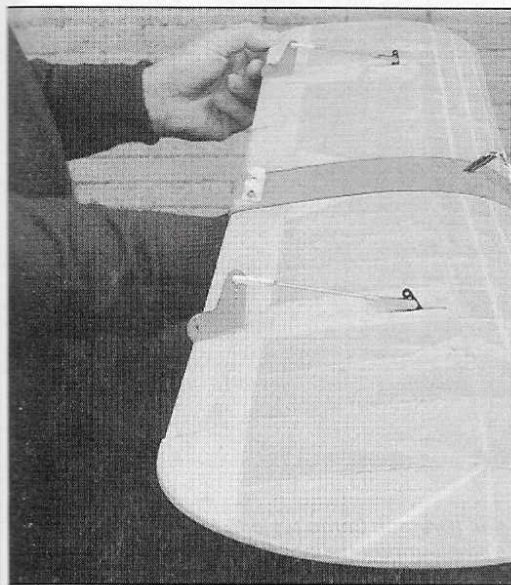
Designed By .....	Mike Conrad
Type of Aircraft .....	Sports Triplane
Wingspan .....	46.5in
Total Wing Area .....	1030sq. ins
Aerofoil .....	o/d flat bottom
Dihedral at each tip .....	1.25in
Fuselage Length .....	35in
Tailplane Span .....	21in
Tailplane Area .....	214sq. ins
Tailplane Section .....	Flat bottom lifting
Fin Height .....	7.5in
Rec. Engine Range .....	.40 two stroke, .46-.50 four stroke
Fuel Tank Size .....	6oz
REC No of Channels .....	4
Control Functions .....	Elevator, aileron, rudder, throttle

#### Materials used in Construction

Fuselage .....	Balsa/ply
Wing .....	Hardwood/balsa
Tail Surfaces .....	Hardwood/balsa
Weight Ready to Fly .....	6lbs
Wing Loading .....	13.4oz/sq. ft



good 5 or 6ozs in weight be saved if you covered the wings in Fibafilm. This stuff is very light, you don't have to fuelproof it, and it is quite strong enough.



the front ply former. There is a lip on the end of this sleeve which separates the mount from the former by about 1/16" which means that the two components have only a rubber connection between them, thus giving a flexible engine mount with very little actual movement.

These mounts are available at DIY stores along with the plastic cupboard clips.

## On finals

My model is powered with a Saito 50 and you will need this sort of power if you want the model to be reasonably aerobatic. Troika's wing loading works out at about 13oz/sq ft, although it is probably nearer 16, if you take the inefficiency of the triplane layout into consideration.

Surprisingly though, despite the inbuilt drag of this machine, it has an extremely good glide, so I must have got it all at least partly right.

I have covered the whole model in Solartex, making the hinges for the ailerons as part of the wing covering as shown on the plan, but I reckon that a

## Troika takes off

Flying Troika is a sheer delight. Take off is the same as any multiwinged tail dragger. It has no tendency to ground loop and just lifts off and climbs away into the blue (or grey!). With control movements shown on the plan, it is very responsive, so for smooth flying only use full throttle for loops and rolls.

This model will fit, fully assembled, into the back of a Ford Escort, but a word about assembly with glued up struts might be in order. First, fit the top wing. Incidentally, do make sure that the cabane wires plug in and out of the saddle clips smoothly but firmly. Then plug in centre wings which will hang down slightly until the struts are plugged in to the top wing. Slide the bottom wing into its notch in the fuselage and plug in the struts before clipping up the TE. Attach the aileron push rods. It all takes about two minutes.

This model went together quite easily, with no major snags cropping up, in about 5 weeks, although after 90 models I must be getting the hang of what not to do by now.

When I stood back, knee deep in 'balsa shavings and surveyed the finished article, I was delighted to see that at least it looked right. So often, having spent a great deal of time getting pleasing shapes drawn on a plan, I have found that, as far as looks go, the finished article just didn't have 'it'.

But this one has got 'it' and since the reason I design model aeroplanes is to produce something that has character both on the ground and in the air, Troika at least has given me the satisfaction I am always aiming for.

*Troika uses classic built up construction. New technology, in the form of plastic cupboard clips, provides a secure fixing for the lower wing. Wing mounted servos provide a stop free link to the ailerons, essential when driving six, coupled control surfaces. Centre shot shows the construction of the aileron coupling rods.*