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his model was inspired by the Dart Kitten pull-out plan in the December 1993 issue of Radio Control Scale Aircraft. My son, Nicholas wanted to build a similar size scale model for his Cox Dragonfly and we began to look for other suitable prototypes. We chose the Fournier RF4, which we had seen perform nice slow aerobics at airshows, and which we had also inspected first hand at the Cranfield PFA Rally.

I used to fly free flight power in the sixties and felt I could follow up the design of Nicholas' first radio model, an own design motor glider, with the Fournier plans. A check on the outline of Nexus plan CL1379 showed a very similar layout to the Dart Kitten. The structural design and aerodynamics would, of course, need to be entirely different. The long wings would give good performance, both when under power and when gliding; full size Fourniers are known for their efficiency.

The aim was to produce a model able to withstand a few knocks but, as an ex free-flyer, I believe in adding performance by adding lightness. The original came out at 20 oz. with a 270 mAh battery and standard Futaba 27 MHz buggy radio.

Anybody with a spare Cox and some two channel radio can build one.

Fuselage

This is basically a $\frac{1}{16}$ " box with $\frac{1}{64}$ " ply doublers to give strength at the front.

Glue the ply doublers and longerons to the medium $\frac{1}{16}$ " sides. Glue and pin F1, F2, F3 and F4 to each side. When dry, join at the back and insert F5 and F6. The turtle deck is from soft $\frac{1}{16}$ " sheet, bent over dry. Cut roughly to size and mark through with pins to get the exact outline.

Install the elevator push rod and add the rear bottom sheeting. The $\frac{1}{16}$ " cockpit floor supports the elevator servo mounts. Bind and epoxy the undercarriage wire to F2 and epoxy blind nuts for the motor onto F1 (if using a radial mount Cox). Glue on the $\frac{3}{8}$ " lower nose.

Glue the cowl top, bottom and sides together and add the ply nose ring. Lightly glue to F1 and glue the cheeks to the cowl sides.

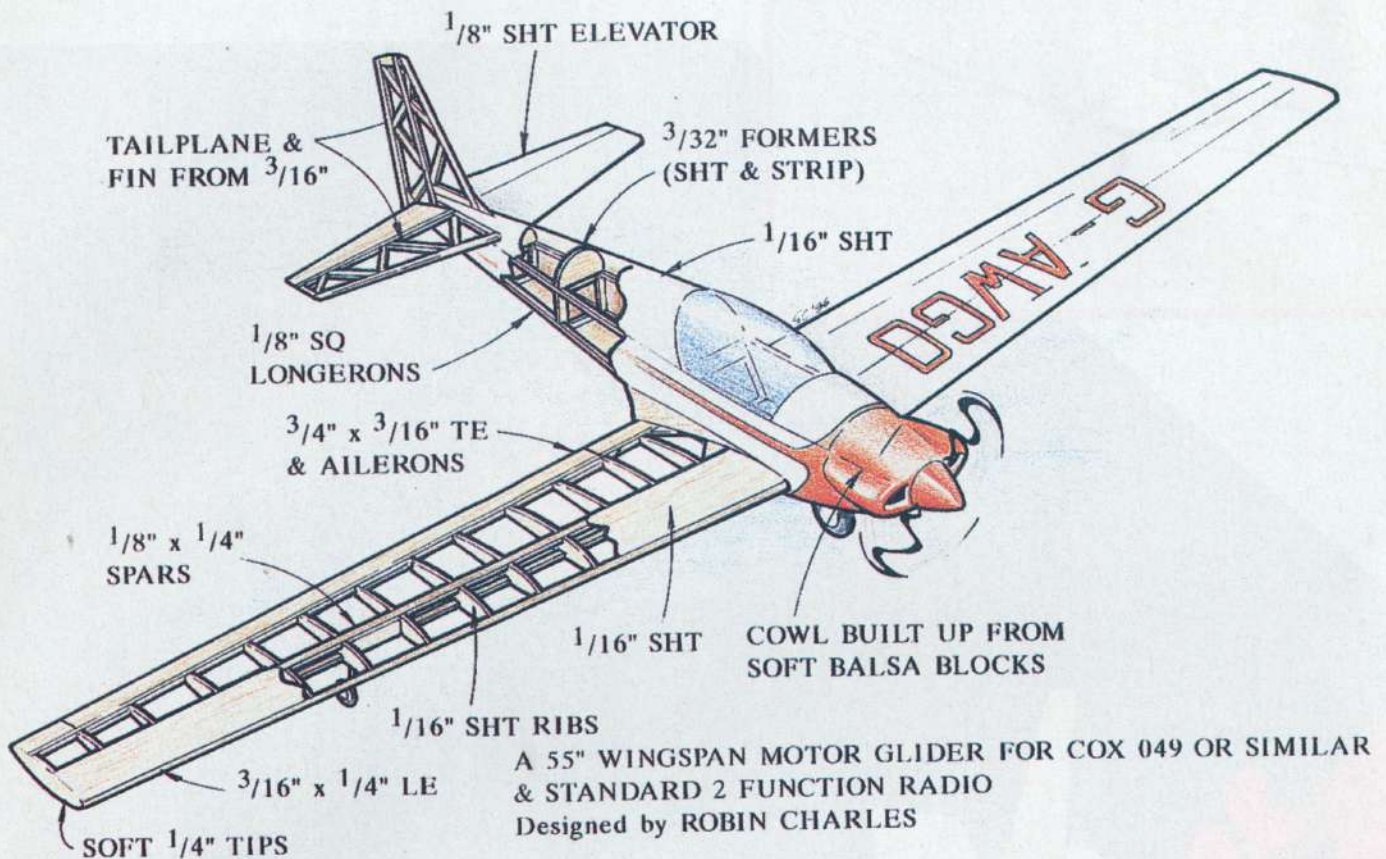


Robin Charles introduces his charming 55" wingspan motor glider for a Cox 049 or similar and standard radio

Fournier RF4



The Fourtler has a lovely slow glide and will get back to the landing site from well away, so you don't have to loiter around just upwind.



Carve to shape. Cut down the centre line and remove from F1. Carve out the inside to clear the engine cylinder and give good cooling. Make sure that the hot air can get out as well as letting the cold air in. Fuel proof the inside and epoxy the left side in place after mounting the motor. A tip we found is to feed air in from the left side to the carburettor as the exhaust seems to get sucked in otherwise, which can cause a loss of power when the cowl is attached.

Attach the tail to the fuselage top and glue the fin in position, taking care to keep everything straight. Add the fairings over the tail.

Wings

The wings have $\frac{1}{8}$ " washout to prevent tip stalling. The ailerons need to be steamed to match the washout, so that the downward going one does not dangle too much and cause a wing drop at the stall. The other special feature is the mounting of the aileron servo on the left hand side, in front of the spar, so that both servos fit side by side in front of the C.G.

The wings have L.E. sheeting to stiffen them and strip ailerons for simplicity. I 'cheat' when cutting ribs for the tapered wing: Cut a ply template for R1 and cut round the length needed for each rib, working outwards from the spar position. Cut the slots for the spars afterwards. We did have to trim the last couple of ribs a bit to give a semi-symmetrical tip, helping the washout.

Pin the L.E. on $\frac{3}{32}$ " scrap spacers and also pin the $\frac{3}{16}$ " x $\frac{1}{4}$ " false T.E. down on the plan. Glue the ribs in position, then remove from the plan and add the spars. Now join the two

wings and set the 1" dihedral under each tip. Set the $\frac{1}{8}$ " washout. Add the L.E. sheeting and infill under the centre section. Complete with alloy tube torque rod tubes, offset to the left as shown on the plans, and attach the trailing edge fixed sections between the ailerons.

Covering

Cover the wings and tail in Litespan, and the fuselage in Solarfilm as it goes around the double curves of the cowl easily. We trimmed the model in Solarfilm and Solartrim. One

person asked if the fuselage is fibreglass, so the finish cannot have been too bad! With a light wing structure such as this, you need to be careful not to warp the wing. I had to re-shrink one wing after the first flight ended in a gorse bush, having ignored this basic check. Check that you still have the washout built into the wing.

Flying

After this lucky escape, further flights were successful. My older son, who flies a Chill Breeze, found it a real pussy cat, with enough stability in both pitch and roll to fly more or less hands off when correctly trimmed. Control with ailerons only is excellent, though hand launching is obviously essential with the undercarriage arrangement and no rudder.

Start with $\frac{1}{8}$ " down, $\frac{3}{16}$ " up aileron. The torque rods as shown on the plan will give this differential.

The Fournier has a lovely slow glide and will get back to the landing site from well away, so you don't have to stooge around just upwind. The Dragonfly lifts the 20 ounces easily, giving



The Cox Dragonfly lifts the 20 ounces easily, giving plenty of climb and more than adequate power for scale type aeros.

Datafile

plenty of climb and more than adequate power for scale type aerobics. Anyone who has seen the full size RF4 perform will know what I mean.

Mini or micro radio would be nice, but we have found that this is not necessary and the model has been thoroughly successful. Any experienced model pilot would find it delightful. ●

Kit Specifications

Designer	Robin Charles
Type	Sport scale
Span	54.1/2"
Wing Area	280 sq. in.
Length	29.1/2"
Engine	.049 glow or diesel
Weight	20 oz.
Radio	2-3 channel
Functions	Aileron, elevator (optional rudder)
C.G. (from L.E.)	1.3/4" - 2"
Aileron Throw	3/16" up, 1/8" down
Elevator Throw	1/4" each way



Fuel proof the inside of the cowl and epoxy the left side in place after mounting the motor.



A syringe full of fuel will keep a Cox buzzing happily for several minutes.

