

Exuding feline charm; Cat's Paw may be small but be careful – she bites!

Cat's Paw is a direct descendant of my Street Cat

(RM August '92) and offers the builder a small model which is capable of equalling the normal aerobatic qualities of the average 40 sport model, but fits into the boot of most cars assembled. However, there are penalties – you do need mini/midi equipment; but these days this type of equipment is now very competitively priced.

The prototype used a mixture of equipment operating from my old faithful Futaba Gold 7 Tx. Airborne gear is controlled by a Hitec mini 4/5 channel receiver driving from a 500 nicad, Acom As10 semi midi servos on the ailerons, and Hitec 101 midi servos for other functions. Pulling power is provided by a new Super Custom 12 ABC R/C driving a 7x6 Graupner grey prop.

Staying with variations of gear/motor, if a smaller, ie .10, motor is used I suggest using a 280 type pack under a smaller tank – all in the tank bay and move the throttle servo forward to behind F2. The Cat's Paw will provide plenty of fun and enjoyment just using three channels – aileron, elevator, throttle – but will of course limit the

manoeuvres range. If you have a soft grass landing area delete the undercarriage and hand launch. My full house model – as described – weighs in at 31ozs (879 grams) and using the SC12 (which is proving very powerful and easy to handle with a very reliable throttle range) the vertical performance is excellent and loops are very big and smooth. If you go for a .10 powered (OS/Magnum 10) with the small tank/nicad arrangement and three or four channels, all up weight should be around 25ozs (710 grams) without undercarriage, and should prove equally sprightly.

A couple of final remarks before we get down to building; the Paw uses the usual family structure of access through the detachable top deck/cockpit cover, and as with all my prototypes, and 1/8sq core. Regarding the latter, both foam and conventional structures are shown on the plan. So OK, let's finish the sales spiel and get down to building!

Basic fuselage

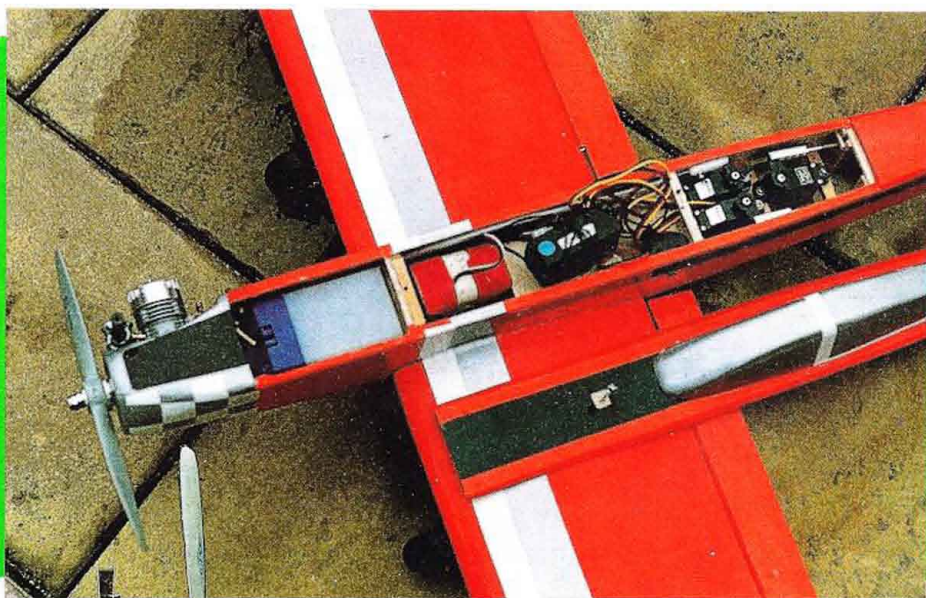
This is a simple box, made from 3/32in (2mm) sides with outside ply doublers of 1/64in (0.4mm) at the front and 1/16in (1.5mm) balsa tail doublers, the rest of the side assemblies being cut from 1/8in (3mm) square spruce (top longeron) and 1/8sq balsa or scrap sheet. After assembling the right hand and left hand side assemblies, join together, upside down with F1, F2 and F3 and, when dry, pull together the rear end and add 3/32in balsa cross pieces, etc., and cross grain sheet and underside with 1/16in and 1/8in sheet as per plan. Don't forget to add the 3/16in (5mm) tail platform.

Top deck/cockpit cover

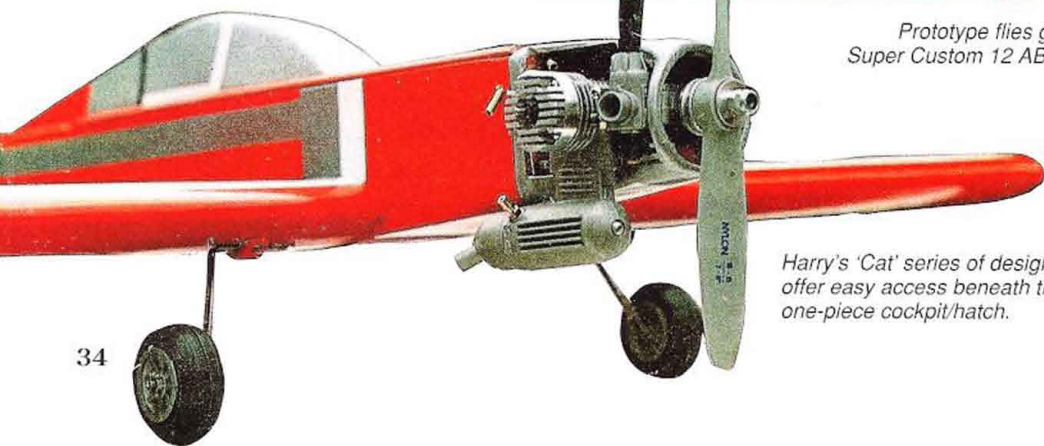
This is a straightforward assembly – the deck is 3/16in (5mm) sheet with 1.64in x

Remember Harry Gilkes' 'Street Cat'? Well here comes her equally agile 32.5" span kitten for .10 to .15 engines and mini/midi R/C gear!

CAT'S PAW



Prototype flies great with a Super Custom 12 ABC driving a 7 x 6 prop.



Harry's 'Cat' series of designs all offer easy access beneath the one-piece cockpit/hatch.

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3/8in stiffeners along the bottom outer edges and the cockpit cover is entirely made from 3/32in sheet, built on its own base.

Note the cross-grained forward laminations to get the smooth curve. The top deck and cockpit cover are joined after covering and then the clearance opening for the Rx is cut out. Now on to the flying surfaces...

Wing

As mentioned, the prototype used a foam core with the sheeting/cappings fitted with thinned Copydex, using a thin bead of white glue along the edges and for the cappings. Also white glue is used for the centre section sheeting, undercarriage blocks and centre bandage reinforcement. The built up wing may be made in one piece, cut and sanded at the centre to join for dihedral.

Build the wing by pinning down the lower TE sheet, fit the ribs (note position of ply faced ones if using an undercart) with white glue onto the laminated balsa/ply main spar, then fit the ribs/spar sub assembly to the TE, with packing under the main spar. Now add 1/16in sub leading edge and 3/16in LE followed by the top TE sheeting and the LE sheeting. Make sure this stage is true and well pinned down and fit capping on ribs and gussets. Let dry thoroughly. Remove from board, turn over and re-pin down as before with packing under spar position and make sure everything is still nice & accurate.

Now repeat the first stage, not forgetting the undercarriage blocks, if required, and the front sub spar. At this stage also fit the lower centre section sheeting. Remove when dry from board - cut through centre if in one piece and complete centre section sheeting tips and sanding.

Next join the panels, and then cut away centre front and trim to fit fuselage. Offer up the wing to fuselage and mark offset dowel position through from P2 and drill. Final stage of wing structure is to white glue the cotton bandage around the centre section - including sub spar.

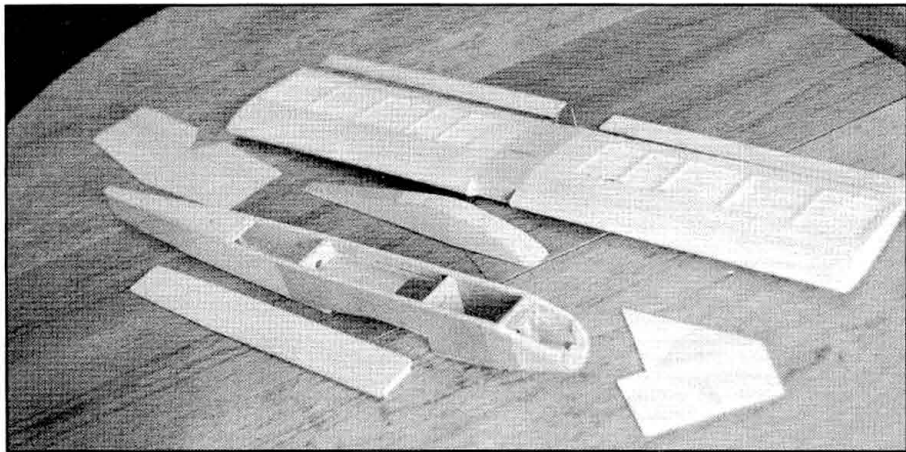
Apply the first coat of adhesive to the wood and then rub at least one extra application well through the weave. Now add small commercial horn set and ply wing bolt plate. Complete wing by fitting 3/16in or 1/4in dowel through sub spar right through to main spar. The aileron area is fabricated from V 1/4sq in and 1in x 1/4in TE stock.

There just remains the tail feathers which are straightforward vertical 1/8 mid hard balsa - don't leave out the 1/8sq in stiffeners. The horizontal tail surfaces material is 3/16in thick and must be chosen with care to keep the tail end weight down - use softish wood - sand to section - no flat plates please and add sub spar if required (as plan). If you use harder material cut lightening holes - I use an Xacto round cutter in a low speed drill. By the way, that's all the balsa butchery except, as those who have been paying attention will have noted...

Cowling

Now this is of semi radial engine appearance for two reasons; A) I like it! and enables various types of engines to be used without the mismatch of spinners, etc., cause several of the current .10 to .15 engines will fit the same mounting - except for crankshaft length. If you should wish to have a normal streamline nose just change the nose ring to a true circle to suit the spinner selected and build as shown on plan/sketch.

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Kit of bits for the prototype; picture shows the foam wing but plan also details a built-up version for those who must get cutting balsa right away!

Finish

The original was covered with Solarspan after my usual treatment with Balsaloc at the front end of fuselage for an initial covering of Solartex back to the TE of the wing. The whole model is covered with Solarspan and decorated with Solarfilm and Solartrim. After hinging with small pinned hinges, the relevant bays and bottom cockpit cover assembly were well fuelproofed as were the hinge areas, etc., and the area around the fixings for wing and top deck.

Installation and setting up

Fit engines as shown with 0 degrees down thrust and 1 degree right approx. Tank connections are shown on plan - the prototype using a 4oz SLEC mounted with local foam pads. Radio installation - as plan or variations mentioned earlier. Don't forget the ply plate to support Rx (just above aileron servo links. (Keep servo well down in wings). I leave the rest to you, linkages, etc., I assume that if you are tackling this type of model you will have quite a few models under your belt! Oh, re-check that wing angle...

Throws recommended (on low rates):

Aileron: up 3/16in (5mm), down 1/8in (3mm).

Elevator: up 5/16in (7.8mm), down 3/8in-7/16in (10-11mm).

Rudder: 3/4in each way.

Balance no further aft than shown. So now let's get up to the field!

Flying

The Cat's Paw has not, to date, shown any bad habits; the stall is straight ahead, and provided you don't try and hover on landing, recovery is quick. The prototype was flown with a new engine (I know you shouldn't) and from a rough strip - the local horses had been having a party on our strip - and to add to the formula it was gusty! Oh well, in for a penny, in for a pound.

The Futaba Rx/Hitec combination was range

checked (Futaba Xtals), the engine set rich and checked out - no problem, so no more excuses, fill the tank, engine on rich side, point into wind and let go. First few feet no problem, until one of the horses' party hoof prints jumped up in front of it and the Cat's Paw promptly left *terra ferma*. A quick bet flashed through my mind as to which way it was going to roll in, but no, a touch of right aileron - I assume against torque - and Cat's Paw was up and accelerating away at about 20 degrees. Now a warning here - don't be tempted to go for big aileron throws it doesn't need it - a ten minute fool around soon proved the Cat's Paw was rather like its pa - the Street Cat - only smaller and disappeared quicker!

With the throws recommended the rolls are still fairly quick, four points easy and snaps quite tight and the model will spin upright or inverted. Tumble rolls are quite sedate. Move onto max throws and the claws really come out! Rolls are delta rapid - with instant stop if you are good on the sticks at the right place! Snaps, tumbles, spins rather frightening. If you like flying control line type manoeuvres ie, squares, verticals, etc., don't do it on max elevator throws because you can slow things down a bit too quickly, and along comes all that induced drag. You could finish up with an unwanted or unexpected snap roll - especially when the tank's low. (This of course applies to most acrobatic models, not just the Paw).

Well that's the Cat's Paw; if you build it have fun - it's quite cheap to feed! Let's hear how you get on, and some happy snaps through the editor - he loves getting letters and pictures. Safe flying, don't forget those regular radio/airframe checks, even small models can be pretty lethal weapons.

Happy landings.

