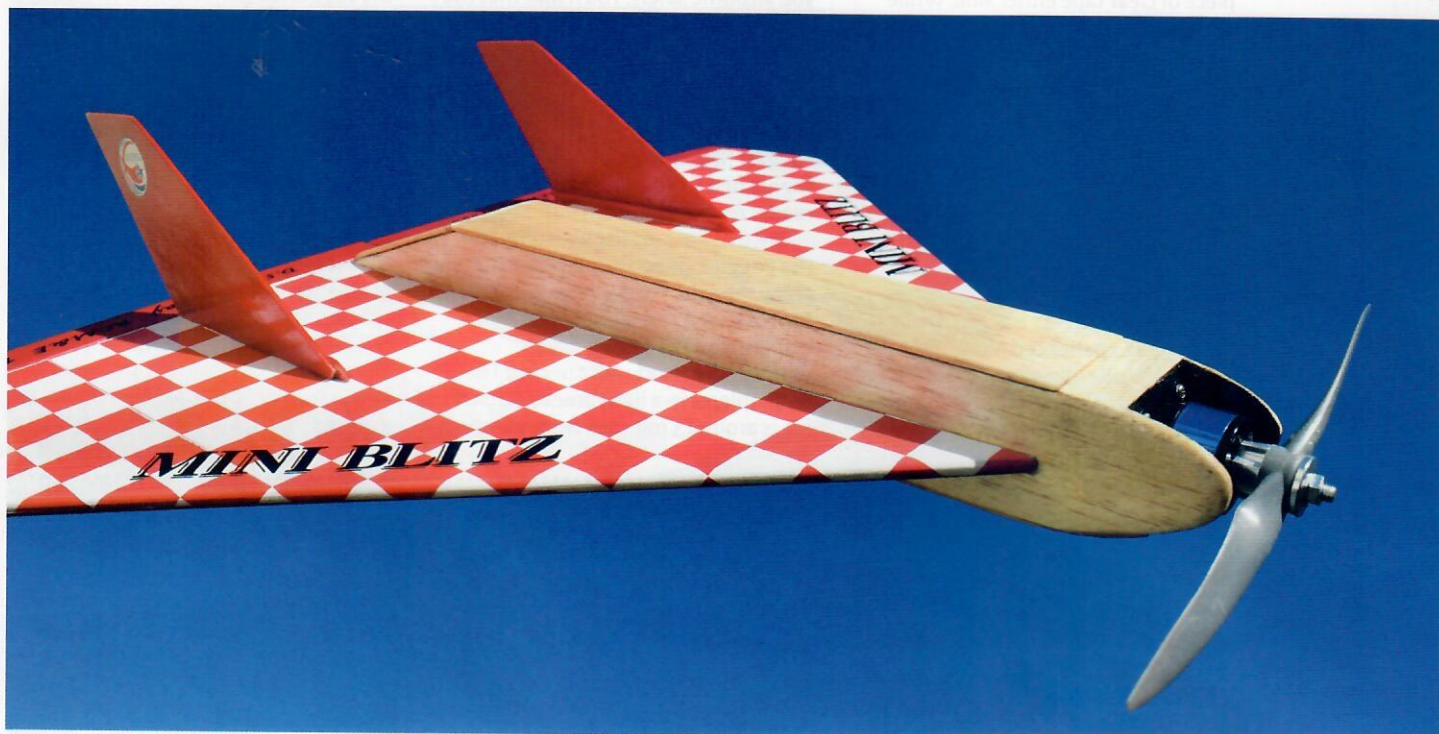


MINI & MICRO BLITZ

No time to build? Shaun Garrity begs to differ...

words » Shaun Garrity | photos » Shaun Garrity



I've always liked deltas and flying wings having built many different examples of the types over the years; that was one of the main reasons I revisited Pete Russell's 362 Delta earlier in this series. Deltas have a lot going for them; just one wing to build so you can quickly have a finished airframe. Another bonus is the amount of space available in which to locate the radio gear, especially on larger examples. Now, the only problem with a 40" span delta such as the 362 is that it's essentially an equilateral triangle so a big piece of wood to carry around in an average car, which could be a limiting factor for your three-sided flying fix.

At this year's Pontefract Retro Fly-in, Tobe from Sweden (who makes the re-imagined 3D-printed Rand Galloping Ghost and Adams Pulse styled actuators) was staying with me to attend the event as it was a tad too far to commute. On the Saturday, after overhearing a modeller saying he didn't

have enough time to build anything for the event (and never one to shy away from a challenge) he promptly professed that he could build from a plan at least one model if not two overnight ready for Sunday.

From past experience I know this man can turn out models quickly as he used to do it professionally, but two models in a night, that's going some. Arriving back at Chez Garrity around 6pm, we went straight into the workshop and dug out a stack of suitable plans.

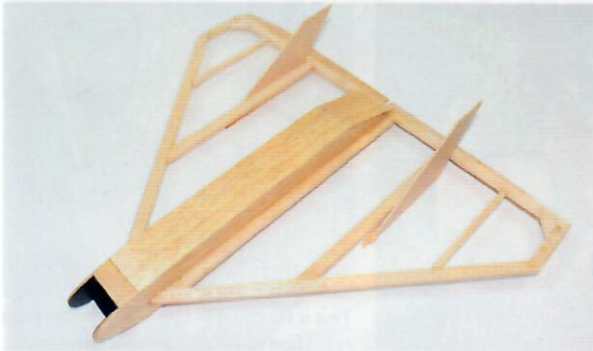
Having a good stock of the basics - balsa, covering, hardware - meant we were good to go as soon as Tobe made a choice. Thumbing through the plans we both picked out the Mini & Micro Blitz deltas as probably the only models that could possibly be finished in time, were appropriate for the event (we always have unorthodox models turning up) and still allow some sleep.

Wood was being cut, sanded and glued at a furious rate and a Micro Blitz

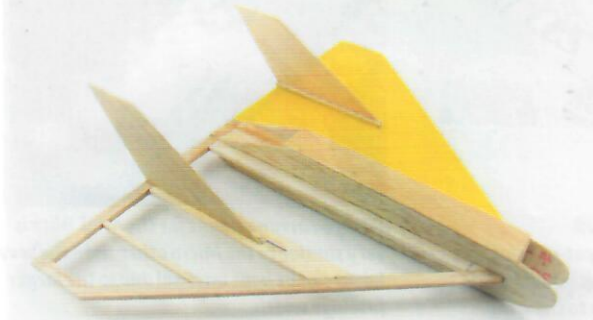
airframe was completed in just over one hour; you've just got to love super glue eh? I tackled the covering and radio / motor installation as Tobe then cracked on with the Mini Blitz. Long story short Team Tobe achieved one finished Micro Blitz ready to fly and an airframe for the Mini Blitz in the evening.

Designed by Dave Ridgeway, this quick-build pair originally appeared as a free plan in the November 1995 *RCM&E*. I appreciate these aren't models from the 60s or 70s but they're 22 years old, unorthodox and, considering the level of interest generated on the Sunday - why not?

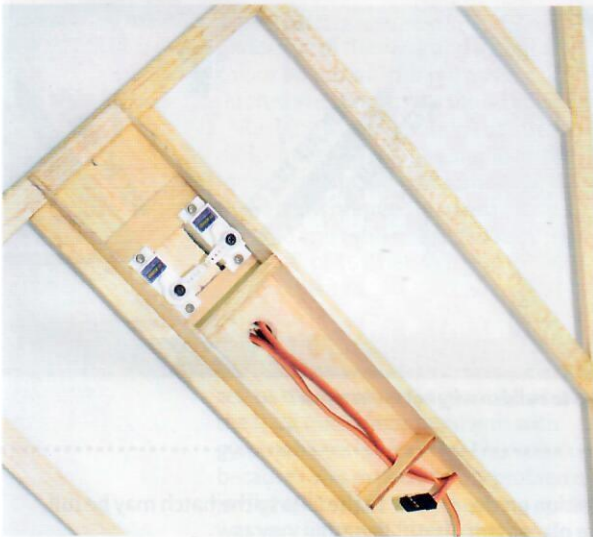
"GET THOSE EYES TESTED...
...before you fly"...is a line from the original article and gives an indication of what these pocket-size models could be capable of. They evolved from a series of various designs and the reasoning behind the Delta planform was its ability to perform well in our



No excuses not to build the Blitz twins. Nothing complicated here just a few bits of balsa and very little time required.



I would glue the fins in place after covering as it makes the job a little simpler.



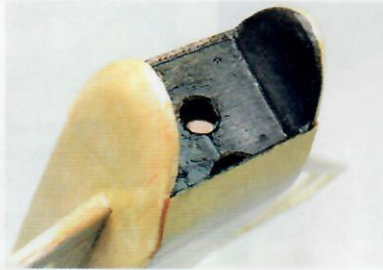
In the Mini Blitz 9g servos work well and can be located as shown to get the balance correct.



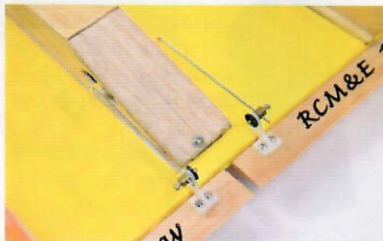
A simple hatch lock was fashioned from a piece of glassfibre sheet.



From digging out the plan to this in one hour. Tobe is a building machine. It's rumoured he's just bought 200 sheets of balsa for his next few projects.



For electric power you will need to make this additional former to get the prop driver positioned correctly.



Pushrods don't come much simpler. The piano wire needs to be rigid enough not to flex under load, but don't overdo it.



5g servos are more than adequate for the Micro Blitz. Two small pieces of thin fiberglass sheet glued to the balsa provided an anchor point for the screws.



I modified the fin attachment with this additional piece of balsa.

generally less-than-ideal flying weather. Being small one-piece models makes them quick and easy to build, cover and transport. Originally intended to be powered by a Cox TD 0.20 for the Micro or a Cox Black Widow 0.49 / PAW .80 for the Mini, they are truly rapid. In fact the prototype Mini Blitz would happily fly in conditions that grounded many 40-sized trainer models.

THE BUILD

There really isn't a lot to do but take the time to select your balsa correctly. We used straight grained medium/hard for the leading edge and medium for the rest of the wing and infill pieces. Start by building the wing over the plan on a

flat surface; using discarded Solarfilm backing sheet will protect it and save you peeling bits of paper from the airframe. For small models, a piece of plaster board makes a good, cheap building board (as long as it is placed on a flat surface). Medium cyano and activator was used because we were on the clock but normally I would recommend aliphatic.

While the wing is drying, cut out the fuselage sides, fins etc. in readiness. When dry, round off the leading edge, tips and flatten any inconsistencies in the wing joints using a large sanding block so the covering will be smooth when applied. One bonus of modern gear is you don't need to build the mechanical mixer system detailed on





Suggested engines (L-R) - PAW 80, Cox TD, Cox Babe Bee (extended tank) for the Mini and Cox TD 020, Cox PeeWee 020 for the Micro.



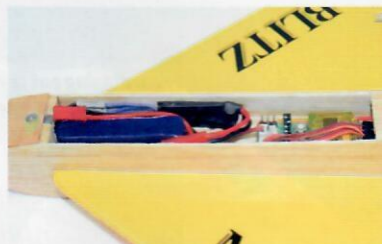
Adding the ply here reinforces the nose for less-than-perfect landings.



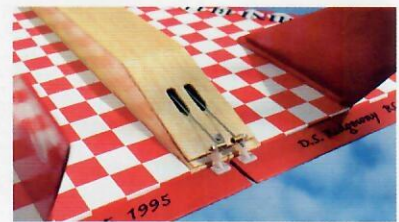
This is the most suitable method of prop retention when using small outrunners as it prevents bending the shaft when 'arriving' instead of landing.



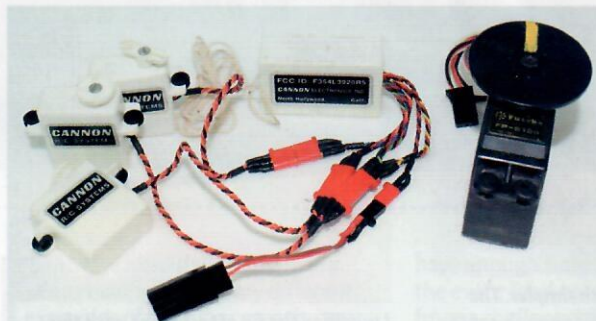
Fus, fin and elevons were all finished with sanding sealer. Colour was an additional coat of red then sealed with spray varnish.



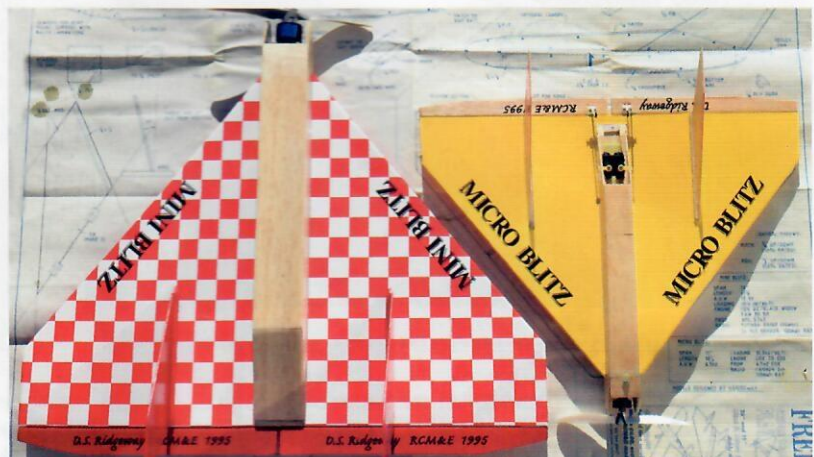
The LiPo sits end-on in a cut-out slot. The ESC is fixed to the side with double-side servo tape as is the Rx on to the wing.



Pushrod arrangement for the Mini Blitz is very similar to the Micro other than the servo horns can be kept internal due to the larger fuselage width.



In its day Cannon gear was about as small as it got but expensive.



They're so quick and cheap to build so why not make a pair?

the plan, just one servo per control surface and elevon mixing at your transmitter will sort it, so make the necessary cut-outs for them before adding the fuselage structure to the wing. If going electric then additionally cut out a suitable space for the LiPo and ESC. Have a look at the accompanying photos to see how I did it.

Start the fuselage by gluing the sides to F1 making sure everything is square. For beam-mounted i.c. engines you'll need to additionally bond the bearers in place at this point; for radially mounted Cox engines that include a tank this isn't necessary and the same applies for electric outrunners.

Before gluing the fuselage in place I

would first mark its position on the wing to ensure accurate placement. As always, check it's square and true, leave to set and you are nearly done. Add any cross pieces required then cross grain sheet the bottom.

When dry it only needs a light rub of sandpaper but don't be tempted to round off the corners. If you intend to Solarfilm the fuselage do it now before covering the wing. To make life easy I just applied a couple of coats of sanding sealer on my electric-powered versions. You will need to make a hatch (or hatches) for the top of the fuselage but this is really down to what you prefer. For i.c., just access to the radio is sufficient, for electric you need to get

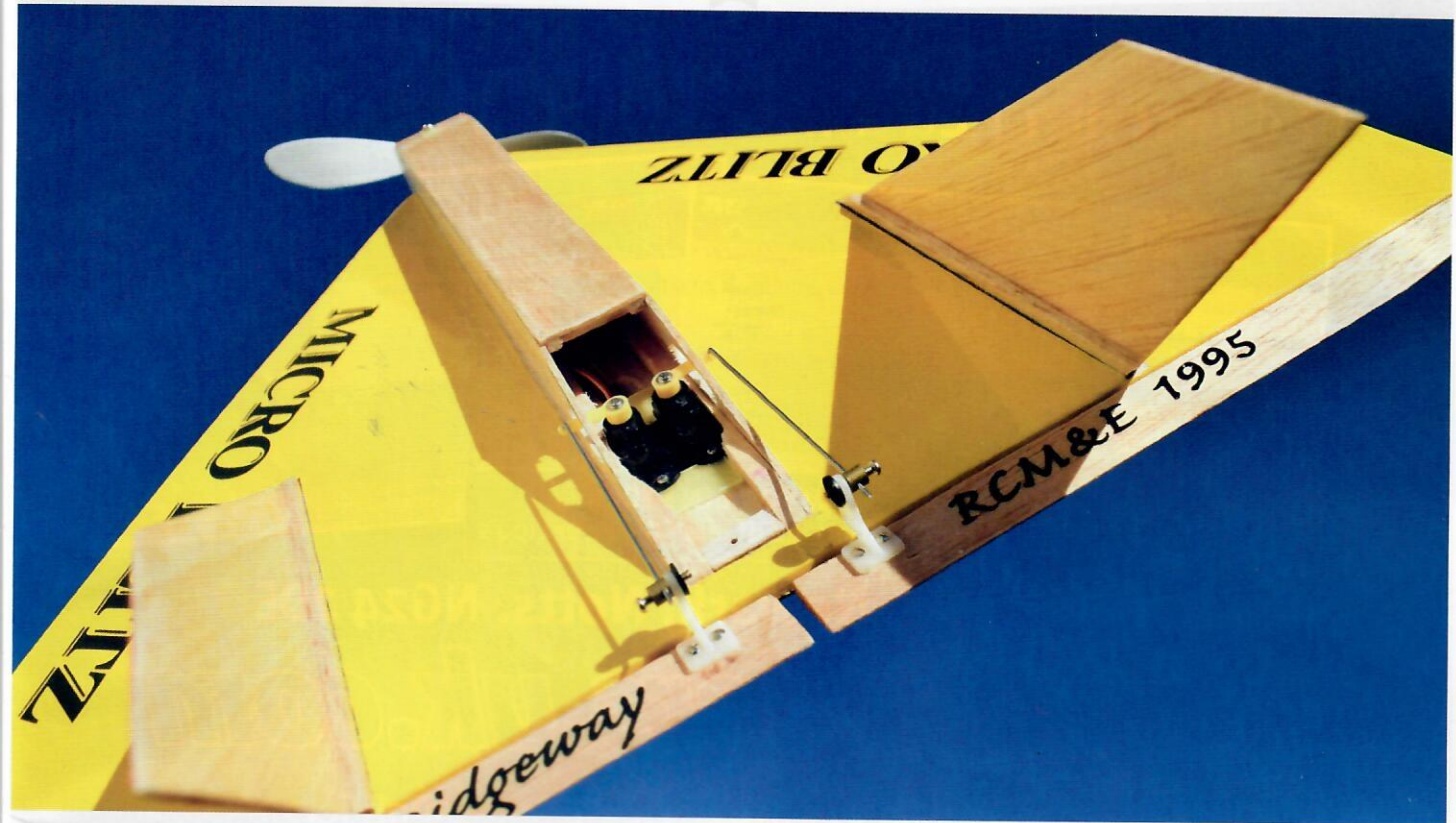
to the LiPo so the hatch may be full length.

I've built tailplane half sections far bigger than the Mini Blitz in the past so you really have no excuses claiming you don't have the time for this one.

COVERING IT UP

Solarfilm or one of the many derivatives is really the only practical choice for the wings, but remember that Solarfilm can be affected by diesel fuel to some degree. Tissue over Mylar could work but tissue on its own would most likely need puncture repairs. I covered the Micro Blitz in less than 30 minutes!

As Dave stressed in his original article "do use a dark colour for the



underside of the wing and a bright colour on top with liberal doses of fluorescent trim", that's sound advice.

Rushing to finish, I didn't use the dark underside colour scheme on the Micro Blitz but did add some fluorescent orange Solartrim – it was a mistake and I still needed to keep my eye on it 100% when flying so not to get disoriented.

RADIO INSTALLATION

For the Micro Blitz I used a couple of 5g servos that were kicking around and for the Rx, a micro integrated unit with gyro stabilisation built in. This wasn't because I was expecting any problems in flight; simply it was just going spare, was very light and fitted into the fuselage. If you've not used this type of Rx before and intend to give one a go then make sure it's oriented correctly or you'll have fun trying to sort it out so the surfaces move as it should.

Fix the Rx in place with double-sided foam tape to shield from vibration. On the Mini Blitz, 9g servos and a standard Rx were used. I contemplated adding rudders to the Mini but, because of the time restriction, didn't, although so doing would open up the aerobatic potential of the model.

Stitch, apply magic tape or use Mylar hinges for the elevons, simple piano wire pushrods work fine but ensure

they are bind-, flex- and slop-free. Set up control throws as shown on the plan; the original article suggested using 50% rates for launching but I prefer some expo' to tame things so just use whatever works for you.

POWER CHOICES

If you go old-school i.e. follow the suggestions on the plan for motor sizes and don't forget to fuel proof around the nose. With modern mini radio and servos you could easily add throttle but, wanting to update them, for the Micro Blitz, I used a 1811-size 2900kV brushless motor, a 4 x 2.5" prop (don't be tempted to over-prop these little motors as to get the max power out they are quite critical), a 6A ESC and a 3S 380mAh LiPo (giving about 40W, roughly equivalent to a standard 0.8cc Cox Babe Bee).

The Mini Blitz had a brushless motor that I dug out of the scrap box and, on a 7 x 3" prop, 30A ESC and 3S 1000mAh LiPo it gave around 150W. Mount the motors using the same thrust lines as per plan as a starting point. My all-up weight for the Micro Blitz was 4.5oz, the original came in at 6.5oz. The Mini Blitz is just under 11oz, the original was 13oz so, as is usually the case with modern recreations of older models, they are far lighter. If it's the other way around then you're in trouble!

FLYING

Check the elevon reflex is correctly set, no warps have crept into the wing, the C of G is as indicated on the plan and you'll be good to go.

Deltas don't fly well when underpowered or overweight so make every effort to keep things in check when building your models. Launching should be a fairly fast push, level-to-slightly-elevated and don't be tempted to over-control until flying speed is attained. A couple of circuits should have any trimming issues resolved then open the taps and get ready for some low cost, high speed fun.

If you've not flown deltas before then remember to keep loops large and rolls fast. Landings are easy; just keep flaring to slow down as they are virtually impossible to stall. The Blitz twins are a fairly robust pair so unless you pile them into the ground the worst damage you should experience is a broken fin.

DELTA IN A DAY?

As the designer said in his original article "I'm sure you will get a tremendous amount of fun flying these spectacular models. For money to fun ratio they are unbeatable"; I have to agree 100% with this sentiment and my only regret is I didn't build them years ago. But can you build one, or even both, in a day? ✈