

Leek & Moorland Model Gliding Association

<http://www.lmmga.co.uk/>

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For Sale

Spektrum DX6i Transmitter. (purchased new for £139.99) loaded with some models, but in the mean time Spektrum repaired my transmitter and sent it back. So this one never got used.

6 Channel. — 10 Model Memory. — Full Range DSM2. 2.4GHz.

For Planes and Helicopters. £70.00 only

Contact :- mick.bussey@talktalk.net

Front Cover This is Phil Clarke's Rhönsperber

A German design, the full-size one made it's first flight in January 1936.

My version made it's first flight 2nd July 2014 - I'm a slow builder! Model - 1/4 Scale. Wingspan - 144" (3.6 meters).

Weight - 15 Lbs (6.8 Kgs).

Radio. - FrSky 2.4 GHz. with Telemetry (Altitude only).

An Eagle Called Eddie

12 months or so ago, one of our members fancied making one of these bird looking planes. He finally decided on a 2.3m model called 'Eddie the Eagle' a Jack Edwards design. The problem was it had rather a complicated wind shape made from blue foam. Not being an expert at foam cutting he commissioned a guy to make the wing for him. When he got the wing back he asked me for some advice on the best way to go forward. The one piece foam wing was over 2m in span with an almost parallel cord that averaged 350mm. (it would be 2.3m when the tip feathers were glued on) It had no main spar or any other structural supports let into the foam; this despite a full length main spar being shown on the plan. When I placed the wing inverted onto a flat surface it flexed alarmingly under its own weight ~ it was obvious in need of some serious strengthening. . I realised that it was going to be impossible to put a balsa/plywood spar in the now completed wing as shown on the plan because of its complicated shape and fragility. It would also need some sort of cradle/support before any work could be done on it. The following pictures and notes show how I tackled the job.



I decided to cut a groove on the underside of the wing and make a main-spare up from carbon tows capped off with a balsa strip. This would be extremely strong and wouldn't involve a deal of hacking at the foam. This picture shows the first batch of dry tows cut to length. I put a few dry

tows in the groove at a time and dribbled epoxy resin onto them. I then spread the resin out with a purpose made spatula making sure they were thoroughly wetted out before repeating the proses.



This is a marking gauge I've adapted to cut strips of all widths (Filed the pin to a knife like blade)

By running the gauge down on both sides of the wood it will cut up to a thickness of 12mm. This shows me cutting a capping strip from a 6mm thick sheet of balsa

The capping strips were forced into the grooves compressing the tows and squeezing the surplus resin up and around the edges of the strips. When the resin had hardened I planed and sanded the strips flush with the foam



There was quite a bit of hanger rash on the wing when I received it . I filled it with light weight filler and sanded it all down with fine sandpaper. You can just about see the wing retaining bolt hole through the foam . I thought this would be a weak point ~ I'll put a wood block in later to strengthen it up a bit



I marked the ailerons out and cut them out with a steel straight edge and scalpel

The ailerons only go up (not down) because there's a drag-plate screwed to the underside of the leading edge of the ailerons ~ This is the first time I've come across 'Drag Plates. I'll show details later

This picture shows the wing supports I made. Without them any downward pressure on the wing, while working on it, would have either snapped a joint or broken a wing tip - Much stronger now there's a mainspar ~ With the wing having such a wide cord I put a shorter second spare in



Corner of the Aileron

This shows both the balsa strengthening frame round the T.E. of the wing and the L.E. of the aileron. Note the wider strip on the leading edge of the aileron I thought it best to use a wider strip here because it has to support the bolted on 'Drag Plate'. I also used the hardest piece of balsa I could find. for this



This is a template I made out of a scrap of balsa so that I could use my hot wire cutter to make the feather shapes on the trailing edge of the wing. It made the job much easier and quicker to do. I also used the same hot wire cutter to cut the main spar grooves

on the underside of the wing . I have several shaped pieces of Nickel Chrome wire that I can plug into the cutter. It makes cutting the hole for wing servos and the like a doddle

A 25mm strip of special hinge tape
Something like this is used on all moulded models to make a continuous hinge . I applied the resin to the hinge with a piece of sponge taped to a stick ~ saves cleaning a brush.



Here I'm applying a coat of water based varnish (Instead of resin) onto a light weight fibreglass cloth I've used this method many times ~ it dries in quick time which means the complete wing can be covered in a a couple of hours





When the varnish has dried, trimming the surplus glass off with a Scalpel or Stanley knife is a doddle. Don't be impatient; it must be thoroughly dry

Water based varnish is completely waterproof when dry and I've never had any problem with separation

This is the drag-plate. It is bolted to the underside of the aileron so that when the aileron goes up the drag-plate pivots down (see picture)

This means that the aileron will only go up;

When it is in neutral position, the plate fits flush to the underside of the wing.

I've never seen a drag-plate in action but from what smidgen of info I've gleaned, it is

supposed to reduce the chance of tip-stalling when the model turns . It does this by slowing the wing down instead of banking the model in a rolling action as ailerons would do. A bit like a tank turns. Lets hope it works OK

All that remains to be done now is to install the radio gear. I'll give you an up-date on its flying performance in the December 's newsletter ~ After I did a preliminary check on the CG; it looks as though Eddie will need well over half a pound of lead stuffing up its nose or should I say beak



Hot Wire Foam Cutters Part 2 By Peter Garsden

Transformers



I found a really good site called Jacobs Online which is American - <http://jacob-online.biz/>

They have articles which explain the best bits to buy – http://jacobsonline.biz/understanding_transformers.htm – the transformer is the key and wiring diagrams for your transformer - http://jacob-online.biz/power_supply_design.htm

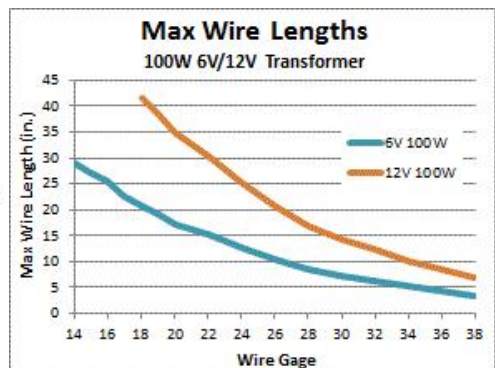
. I imported mine from the States at a huge importation cost. I am sure one could buy the same thing cheaper in the UK. It is quite technical, but you basically have to vary the voltage from about 12 to 24 volts – you could use a train set transformer, but mine was disposed of when I was about 14 – many years ago!!!

The following diagram is an extract from the site which shows the various transformers that are available



Recommendation:: This Transformer can handle longer lengths of heavier gauge wires 29" of 14 gauge, 41" of 18 gauge

This is a graph to show the relative wire sizes and lengths which you can use.

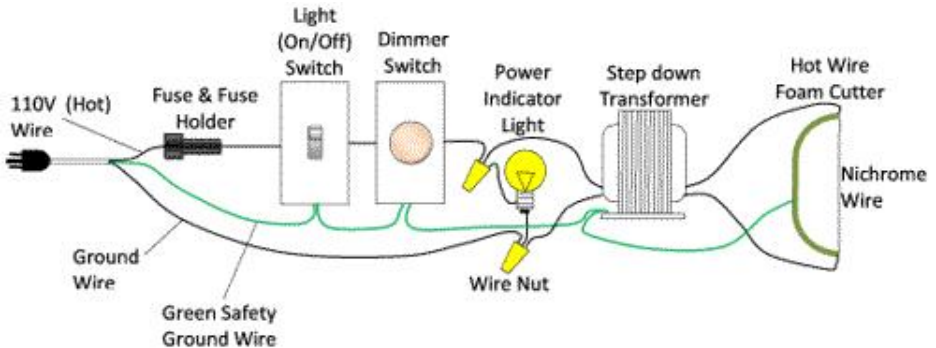




You need variable voltage because for a 0.5 metre wire you probably need about 12volts whereas about 24 volts is needed for a 1.5 metre wire. You basically use a conventional light dimmer, a small pygmy light, a mains switch, a box to put the bits in, and three lengths of wire with plugs and sockets. I bolted

the transformer to the base of the box, to keep it steady and in position.

Below is the diagram from the Jacobs online site speaks for itself:-



It is American, so for 110v read 240v. Don't buy a dimmer from Jacobs as it is 110v and will not work on our 240V system. I decided to put all my bits in a nice metal project box. I used standard audio wire, and some thin earth wire.



I had a quite a task sourcing things but these were my bits. Most were found on Ebay

Transformer – I chose the one suggested by Jacobs Online which would produce a variable current of between 12 and 24 volts

Switch – standard



Dimmer – don't order the type that does not activate until it is generating 40watts – most home light dimmers do this. There is a type that activates immediately – you want the type which is used to power overhead ceiling fans. Detach the small cartridge to put into your component box

Project Box – 20 x 20 x 8cm metal box to house all the bits – see photo above

UK Stock



Boosbits

Banana Jacks, Crocodile Clips, & and Sockets eg

Mains Lead & Socket (I got 5 metre as you can never have too much cable)



Inline fuse holder and fuse



Pygmy Light and Light Holder

I had trouble finding something suitable but found a light on the Toolstation website which is ideal. The one I bought had a sprung on/off push switch, which I removed.

The idea is that the light shows you at a glance if the dimmer push on/off switch is activated, and how many volts are being pushed through the transformer. I have tried it, and it seems to work well.

Hot Wire Foam Cutter.

Again there were a multitude of U Tube Videos to wade through. There seemed to be three distinct types

1 . Plastic Pipe Construction using the tension of the plastic to keep up the tension of the nichrome wire (you can see the lack of tension in the wire



2. A wooden/metal construction using either all wood, or a combination of wood and wire, which is free standing and requires manual guidance over the templates.

3. A Cutter made as per types 1 or 2 above but which is guided over the template using a pulley system with weights.



After a lot of umming and aaaing, I plumped not to bother with a pulley system, principally because I hope I will have someone to help me if I needed it, and also because the wings I will have to make for the Alpha Jet are small and easy to manage.

The most helpful video I saw was by a lively elderly Australian modeller called “Bruce”. This is the video. The URL is <http://youtu.be/beUvirvUUOw> He also explains how he built his transformer.



I thought Bruce’s idea of using elastic to keep the tension up in the wire was a good one.

I was worried about him using aluminium to harness electric current. As my wife’s grandmother once said, “Washing Machines are dangerous because you are mixing electricity and water!” So I substituted the aluminium for wood. I have seen others made out of wood. I just hope I can crank up the tension enough without it breaking.

What type of wire should I use?

I read that I should use .6mm welding wire – at least Aussie Bruce said so in the video, so I went on the internet and found a length of Wire for a Cutter on Ebay, which travelled all the way from Germany, and came with its very own end pieces to crimp to the wire and aid tension.

I had decided, however, to make 2 foam cutters, so needed 2 pieces of wire. I went into Macclesfield, but it was Bank Holiday, and Kenyons were closed, so I ended up at Tool Station, where I bought a length of 0.6mm welding wire, which I thought would do, until I realised that it was mild steel, and not nichrome, ie made of nickel & chromium (what you need is the same type of wire that's used on the old electric bar fires. So I went back to Ebay and for £1.75 bought a length of the correct type. As it was rated as 30swg I went onto a site which converts millimetres to swg – here - <http://www.clag.org.uk/swg.html>



So then I set about putting together a frame for the small and large cutters.

For the smaller foam cutter I went to B&Q where there were only bendy plastic pipes, so I bought some wooden dowel to push down the middle and add strength. It all fitted together very quickly. You can see the smaller cutter. Whilst it works, because plastic water pipe is now bendy, the joints move and it does not keep the cutting wire under enough tension, so I have



decided to simply make a smaller wooden version of my big cutter using bungee cord to tighten the wire. I think that will work better. You can see that I simply used a piece of metal bracket and bolts (4mm) to joint the cutter, and a length of bungee tied up with black cord to create the tension you definitely need for the wire. The wood was about 1" x 3/8". May be go for something a bit stronger to take the tension. I was thinking of weight and manoeuvrability.

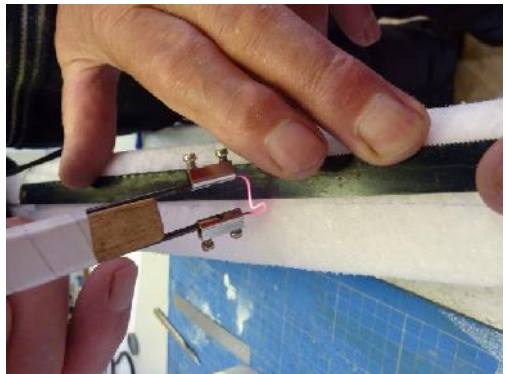
For the smaller cutter to work you need the "volume" control on about 4 to 5



and for the big one maximum of As it shows in the diagram, you simply use the small crocodile clips to attach the wires from the box to the end of the wires on the cutter. I think I will use some Velcro battery straps to tie the wires out of the way from the hot wire.

If you want more heat, and you were cutting something narrow, you could simply place the wires closer together, which is the same as using a smaller cutter. Then only the wire between the clips is being heated up, and the voltage can be lower for the same heat.

Finally, I thought I would pinch Ivan's photo of his hot wire cutter pen which he uses for cutting servo holes in wings, or groves for carbon wing spars. You could instead, of course, use a gun type of soldering iron. The beauty of Ivan's device is that one can make several different length nibs for different depths of cut So wish me luck. Next time I will let you know my experiences when I cut my first fuselage.





Andy Gough sent me this picture of a sunset taken at the Gate by his son David. Andy's model (Falcon) can be seen just above the skyline on the left of the picture. He said they were also treated to an extremely low flypast by two Hercules C 130's

A great night's flying

Complacency Costs By Derek Illsley

We will all do a range check for a new model but then, apart from checking the state of the batteries I suspect too many of us just check that the servos work before each flying session.

A couple of years ago my 35 MHz transmitter was left outside overnight and rain showers passed through. A week later it had dried out and, until recently, worked perfectly well. Starting last autumn I noticed that the PCM/PPM occasionally and momentarily flickered between the two transmitting modes before settling into the usual PCM transition and flying continued.

Came the day when a much flown 12foot electric glider made a perfect take off from its dolly and climbed to a couple of hundred feet or so before I closed down the motor. A couple of seconds of normal flight before the nose suddenly dropped and with no control the model dived steeply into the ground with everything being written off.

Luckily the onset of winter with its wild weather prevented flying and I played about remaking a four and half meter glider. Giving aileron instead of rudder to correct a veer on take-off had led to a cartwheel and clouds of smoke as the motor dived into

the ground. That's another story but it was impossible to set the servos as all behaved erratically.

The blue light on the transmitter then went out quickly followed by the screen illumination. None of my club mates had heard of similar trouble and neither had the owner of the local model shop. I can only assume that slow erosion had followed the early soaking but my little used Aurora transmitter that had only a couple of models on it and I decided to change the half dozen models from 35 MHz to 2.4 GHz. ~~~ So what lessons have I relearned the hard way?

- 1 Always have fail-safe in operation.**
 - 2 Do a range check before every session**
 - 3 If everything is not exactly as it should be don't fly**
 - 4 Mentally go through a take-off check for control inputs in case of trouble**
 - 5 Remember that complacency can cost.**
-



Malcolm Carter rigging his model while sleeping beauty enjoying a nap.

It looks as though it was a good day's flying at the gate.

Any guesses who sleeping beauty is??

Two Day Scale Event



Saturday::

It was just coming up to 11am when I arrived at the Mermaid. I was a little surprised by the turnout. Saturday usually gets off to a slow start but before I'd even got out of the car I counted at least 7 models in the air and I could also see a good sprinkling of models on the ground.

There was a fair old blow, quite a bit stronger than the Beeb's forecast for Leek . It looked as though it was going to be a tad challenging for the launchers.

One of the things I like about our scale event is that I get a chance to chat with some of the non-members who've been coming to our scale do for years. It's great to see them again and it wasn't long before the banter got into top gear.



Andy Shaw with a Pilatus B4

There was also more than the usual amount of new faces which is always nice to see. It's a pointer that our scale weekends are getting more recognition.

Around dinnertime, Ant Jervis (event organiser) came up to me and asked if I'd seen the weather forecast for Sunday. I had

and it wasn't good news; it had forecast showers and strong to Gale-force winds. After going into a huddle with the other judges, it was decided to cancel Sunday's flying and give the prizes for best static and best landing based on Saturday's flying. Ant Jervis also thought it was too windy to award a prize for the most realistic flight of the day (the strong wind meant that most of the vintage models were never got out of the car) so the realistic flight prize was given to the second-best landing.



Martin Lawrence with his DG 300.

A great spot landing Martin!



Ant Jervis launching Stephen Wilson's Red Bull Fox. Stephen came from Tyne & Wear.



Paul Jubbs Lunak

Don't know the launcher



Sue Lee presenting Brian Sharp with a prize for the best static? This was for his beautiful scratch built BG 135. ~ Brian had come all the way from Perth Scotland



Cameras at the ready
Where's ya camera Buckers?

Ground handling the big models was a bit of a handful in the strong wind



This shows a few more pilots and their planes They all flew so well in the windy conditions and as far as I know all the models went home in one piece
Great day's flying !!



Brian Sharp, Paul Jubb
and John Vaughan

Must have been windy
it's the first time I've
seen Paul wearing a hat

Sue congratulating
Andy Shaw for the
best landing of the
day.

John Vaughan , in
the background,
was awarded
second best
landing .



John Vaughan's
model coming
into land to take
second place in
the best landing
section