

Firebirds Model Club

Newsletter June 2015

Welcome to the firebirds club newsletter see below for a clickable table of content headings.

In this issue...

- 1.....[Committee News](#)
- 2.....[Down at the Field](#)
- 3.....[Safety Matters](#)
- 4.....[Fly Past](#)
- 5.....[External Events](#)
- 6.....[Club Information](#)

Poplars Flying Times

Summer (BST):

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
13:00-18:00 QF	13:00-18:00 All		13:00-18:00 All	13:00-21:00 QF	10:00-14:00 All	10:00-13:00 All
18:00-21:00 All						

Winter (GMT):

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12:00-18:00 QF	12:00-18:00 All		12:00-18:00 All	12:00-21:00 QF	10:00-14:00 All	10:00-13:00 All
18:00-21:00 All						

[Note 1: 'QF' means Quiet Flight. That is gliders and electric models.]

[Note 2: Finish times are either as stated above or at sundown - whichever comes first. No night flying is permitted.]

Bank Holidays

For all days except bank holiday Mondays, flying times are the same as normal (see above tables). On bank holiday Mondays, Saturday hours apply i.e. 10am to 2pm. The reasoning behind this is to avoid annoying our "neighbours" when they may be relaxing in their gardens. These times were also declared to Winchester Council when we were granted our Lawful Development Certificate, which is effectively planning permission for our model flying. The only other bank holiday anomaly is Christmas Day when no flying is allowed, whichever day of the week it falls on.

Firebirds Model Club

Newsletter June 2015

Committee News

Here's the latest from the committee room.

Club Fuel/Prop/Glue Etc.

Terry Jacobson is likely to be away on many weekends during the summer, so if you need club fuel, props or fuel etc. but don't fly regularly during the week, it would be wise to call him on the number given at the end of the newsletter.

Scout Visit Saturday June 13th

The club is hosting a visit of about a dozen scouts to the flying site during normal flying hours on Saturday 13th June. This will not prevent members from flying even if they are not involved with the visit. For those able to help out, the visit will start with a safety briefing to the scouts before showing them how to operate a transmitter to control a model. A short simulator session will follow and finally the scouts will all have a buddy box flight. There will also be static and flying displays to show them what our sport is all about.

Hedge End Carnival

On Saturday 4th July, the club will be providing a static display at the Hedge End Carnival. This will be on Greta Park during the afternoon. Anyone able to help man the stand, or provide suitable models (or a gazebo) should contact Russell Lewis.

Take-Off Assistance

For those who have models with small wheels or ducted fan jets etc, the club now has a ramp and bungee launch system in the container. There are also some Corex panels that can be used to make a smooth runway about 48ft x 4ft.

Future Club Nights

June, July, August - Barbeques. It is hoped to hold barbeques during these three months, with at least one at Roughay Farm where Mike Watts runs his full-size light aircraft business. Please keep your eyes open for email updates and further details.

To allow flying to take place, these will be scheduled on the Monday of the week in which the third Thursday falls. If rain is forecast, they will take place on the Friday of the same week, but only electric flight will be allowed. If the Friday weather forecast is also doubtful, the meeting will take place in the Hamble Club, where limited indoor flying can take place and new models can be shown off! Members will be kept informed by email.

17th September - Talk on gliding and Slope Soaring

15th October - Bring and Buy sale

November 20th - BMFA Southern Area Balsa Brain Competition (one day later than

Firebirds Model Club

Newsletter June 2015

our normal meeting night).

December 10th - Christmas Party/Raffle/Trophy presentation evening. Please note this is a week earlier than our normal club night.

Down at the Field

First of all I want to say thanks to Paul M. for taking and sending me some pictures taken at the field over the past month. The quality is so much better than my phone can manage so we are able to see some nice flying shots.

First up we have another lovely model from Alan, a Fieseler Storch. I think this was a recently completed build.

I've only just notice the leading edge slats (or whatever they are). Neat.



And here's a flying shot of it.



Clearly this next plane is a Hobby king glider. I thought it was a Phoenix at first but the livery doesn't match and I couldn't find one that did.



Firebirds Model Club

Newsletter June 2015

See, now that's a Phoenix. Looks like it's Paul's, our photographer.



Remember that scratch built plane from last month? Well it came back with a completely new wing, featuring more area, larger ailerons, different wing section and dihedral. Owner/builder Terry is clearly quick with the glue and balsa.

I flew this again and the new wing was a huge improvement. It flew well but was quite sporty, not a slow-flying trainer.



Firebirds Model Club

Newsletter June 2015

Oh gosh, now I forgot who brought this to the field – apologies. It was built from magazine plans and I think it was loosely based around an ME 108. It flew well.



Pete was sporting a Hawker Hunter...

.. and his DH Vampire



Firebirds Model Club

Newsletter June 2015

Safety Matters

I've got no safety article for you this month.

Firebirds Model Club

Newsletter June 2015

Fly Past

I had a go at converting a 4 stroke glow engine to run on petrol so I thought I'd write about my experience here. The first and obvious question is: "why do it at all?" Pete actually asked me this when I was trying to start the engine at the field.

To be honest I was more interested in the technical challenge than actually thinking about the benefits. Here's what I've read, for and against, on the subject:

For	Against
<ol style="list-style-type: none">1) Petrol is about 1/3rd the price of glow fuel.2) The engine actually consumes about 1/2 as much petrol per minute as glow fuel. Meaning that the fuel is in effect about 1/6th the price.3) A low and reliable tick over can be achieved.4) It doesn't splurge a load of oil residue all over your plane.5) The added weight of the CDI + battery can be offset by using a much smaller fuel tank e.g. a 120 glow engine needs about an 18oz tank. With petrol you can go down to an 8-10oz tank – more than covering the CDI+batt weight.	<ol style="list-style-type: none">1) Petrol stinks2) The conversion takes time and money (about £60).3) The CDI unit+leads weighs 104g, and it has the power consumption of about 4-5 std. servos when they are operated in flight. Most people fit a separate battery so that's another 100g.4) The converted motor will make less power.5) It adds complexity.6) If you already run glow engines too, then you need separate fuel containers and pumps etc.7) You need to pre-mix the fuel and oil yourself.

If you're willing to put up with the smell, and the complication fuss (e.g. mixing your fuel and oil), then the main drawback is the lower power output. The main plus is the economics, especially for 120 and above engines.

The lower power output is a similar issue to the difference between two and four stroke glow engines e.g. A .46 two stroke is roughly equivalent (power-wise) to a .70 four stroke. The .70 weighs more so the plane's aerodynamic performance drops slightly.

The difference between petrol verses glow power is not quite so large. From what I've read, a petrol engine will be 80% as powerful as the same size glow engine.

Firebirds Model Club

Newsletter June 2015

Given this, a petrol setup favours larger planes (say 120 and above) where the fuel savings are significant. It's worth noting that there seems to be very few petrol four strokes out there. There are a couple of large Chinese 38cc motors at a good price and the almost fantastically expensive Saito petrol engines.

My Conversion Experience

The motor I was planning to convert is an ASP 120 four stroke. It was well used but still felt smooth and had good compression.

I started by calling Just engines who sold all the necessary bits. My main concern was finding out whether the standard carburettor could be used. I was unsure as to whether a pumped carb might be required (as fitted to all the petrol engines I've seen so far). I was also worried that setting the needle valve might be difficult as mentioned in some posts I've read on the subject.

After asking a few questions about my motor, the man at Just Engines said that he expected the standard carb to work fine and advised at least trying it before buying a pumped carb and then having to make/buy an adapter to allow it to be fitted to my engine.

The parts needing to be purchased for the conversion were:

- 1) An ignition (CDI) system for glow plug motor (has a smaller plug cap)
- 2) A spark plug designed to fit the glow plug thread size.
- 3) A pair of shims to lower the engine compression. Not absolutely essential but recommended.

The only tricky part of the conversion is mounting the sensor that signals the CDI when to fire. The sensor supplied has a plastic housing with elongated mounting holes, which allow its position to be adjusted by a few degrees.

The picture shows this setup screwed to a ring that is on the outside of the engine's front bearing housing.

I guess that because of the huge variation in crankcase design/sizes, a mounting ring isn't supplied or available anywhere as far as I could tell. I'm not sure how this is secured to the engine either.

One quick method suggested in the instructions was to use a hose clamp (or jubilee clip), which I guess would work OK and doesn't require special tools.



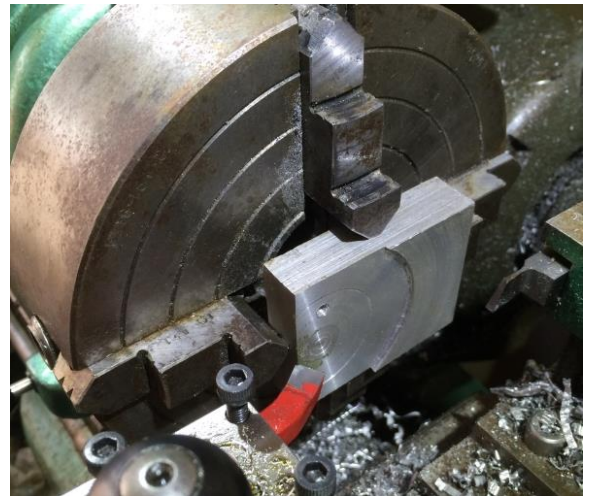
Firebirds Model Club

Newsletter June 2015

As I have machine tools, I decided to have a go at making my own clamping ring with a single screw to loosen/tighten for adjustment.

I started with a bit of scrap aluminium in my lathe chuck, which I cleaned up so I had a flat face to work with.

I then prepared to machine out a 32mm hole, which was the size needed to fit over the front bearing housing.



I turned a lot of solid aluminium into little curly bits of swarf to make that hole.

By the way, that is a DeWalt Extreme drill bit and they are just brilliant at making holes in metal. No pilot hole required for a 13mm bit, just plunge it straight in.

After drilling to 13mm, I used some larger bits to take it gradually out to 20mm and then a boring tool to open out to 32mm. It takes a while.

With the 32mm hole done, I then sketched the clamp shape onto the metal (just a rough free-hand sketch) and cut away most of what I didn't need with a saw and file. This is way quicker than machining it.

I cut the split with a slitting saw on my mill but this could have been done with a standard hack saw. The chunk of metal left on to house the sensor was drilled to 7mm as close to the 32mm hole as possible (this should have been done before the 32mm hole was bored – oops! bad planning). I actually got it close enough to break into the 32mm hole, which was what I wanted.



The outside was then machined on my mill using a rotary table. Again this was unnecessary and could have just been filed to a reasonable finish. Finally, I drilled and tapped the hole to clamp the ring and another hole to fit the grub screw that secures the sensor.

Firebirds Model Club

Newsletter June 2015

The final result looks like this:

OK I've used tools that not everyone has but bear in mind that apart from the 32mm hole, everything else could have been done with a hand held power drill, a hack saw and a file.

A nut and bolt could be used for the clamp and the sensor could be just glued in (the sensor is slightly tapered so once pushed in it gets to be a real tight fit in the 7mm hole).



All this machining took ages on my lathe and mill (I'm no engineer) and at times I wish I'd just used a hose clamp!

Still, now it's finished I'm glad I did it. Here it is, trial fitted to the motor.

The next job was to fit the magnet to the engine's prop driver. The magnet is a 4mm cylindrical neodymium thing that will ferociously latch on to any nearby ironmongery. A 3.9mm drill bit is supplied with the kit. As I had a fully adjustable sensor position, I only had to concern myself with how far forward (i.e. towards the prop – away from the front bearing) the magnet needed to be.

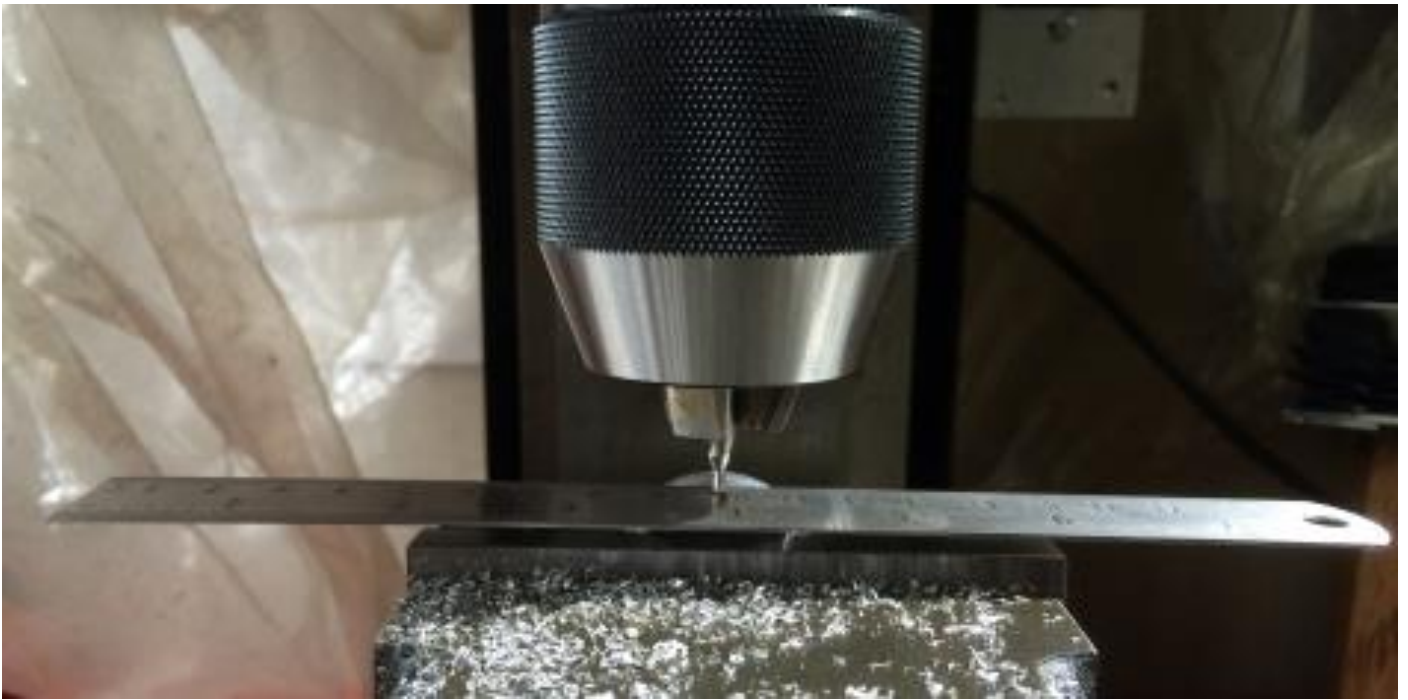
As it happened, I needed to drill right at the point where there is a small step change in the prop driver's diameter. This is easily dealt with however using a centre drill. This type of drill bit is very useful anyway if you are drilling into a circular item. An ordinary drill bit will have a tendency to wander off to one side. The centre drill stays true because it is very short and has a relatively large diameter shank except for the last few mm leading to the tip.

Firebirds Model Club

Newsletter June 2015

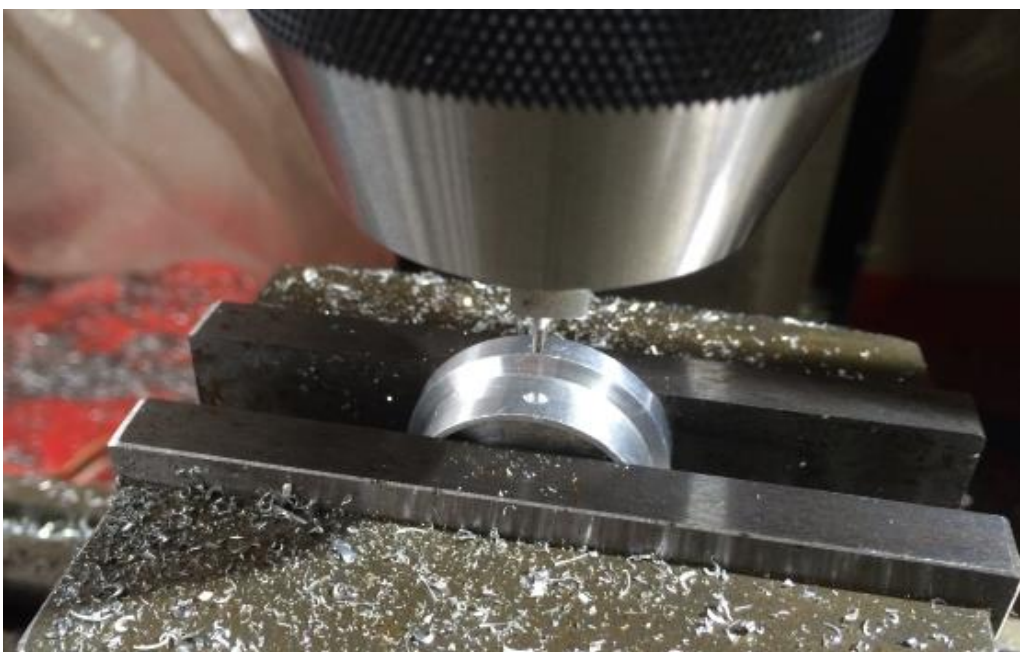
If you have access to a pillar drill and a vice

Getting the drill located centrally on a circular item is easily done with something like a short steel rule. Just lightly pinch the rule with the drill bit, if you're bang on centre, the rule will be parallel to the vice jaws. If you're a bit off to the right (as in the photo), then it will be angled down towards the vice jaws on that side.



If you don't have access to a pillar drill and a vice

I'm pretty sure nothing is super critical here and you can just do it by eye. If the magnet passes close to the sensor, it will fire the ignition. Having the magnet at a slight angle isn't going to make much difference as far as I can see.



Here's the pilot hole drilled ready for the 3.9mm bit to follow.

I think the magnet was a bit over 4mm long so I drilled the 3.9mm hole to a depth of 5mm.

Again, not critical just make sure it's deeper than the magnet. There's loads of metal to play with.

Firebirds Model Club

Newsletter June 2015

After drilling, the next step is to press the magnet into the hole. Actually, before that happens, you must ensure that the magnet is the right way round. To do this, fit the spark plug into the cap and plug the battery into the CDI. Then holding the magnet in your fingers, just move it over the sensor. You will only get a spark when the correct end of the magnet is facing the sensor. Mark this end with a felt tip or something, then you're good to press it in.

On the right, you can see I'm pressing the magnet in with my vice. I'm protecting the prop driver by using a soft jaw on that side of the vice.

It required a considerable (and alarming) amount of force to press the magnet in but even a small vice would do the job.



[Note: The rare-earth metals that these magnets are made of are very brittle. It cannot be hammered in because it will just shatter.]

Next up, the head shims had to be fitted. Six screws hold the head on *[Note: One screw is between the valve rockers]* so that came off in a jiffy.

The shims just sit between the head and the barrel. You actually need to fit them in the head first, it was just easier to get a photo of them sat on top of the barrel.

Getting the head back on was fairly easy but the push rods wouldn't line up with the rockers for me so I ended up taking the rockers off (only one screw) and aligning everything carefully. None of this was difficult and took not many minutes at all.



None of this was difficult and took not many minutes at all.

Firebirds Model Club

Newsletter June 2015

Having shimmed up the head, the valve clearances were now huge, so they had to be brought back within tolerance (0.04mm-0.1mm). This is a simple matter of loosening the little lock nuts on the top of the rockers and then adjusting the screws down until the gaps are within tolerance. I checked the gap with a pair of feeler gauges (a 0.05mm and a 0.1mm). I managed to achieve a loose sliding fit on the thinner gauge and a tight fit on the thicker gauge. Again this only takes a short while.



The glow plug needs to be replaced with a spark plug. That was just the easiest job on this project.

The next job is to set the timing. The instruction pages that came with the CDI kit had an angle gauge printed on them so you just have to cut it out and stick it to some cardboard.

Just set the engine to Top Dead Centre and clamp the gauge up with the prop nut to read zero against some kind of fixed pointer.



The instructions said to set the timing between 28 and 30 degrees before TDC, so I set the angle to 29 degrees as my starting point. The prop driver and crankcase were

marked at TDC and 29 degrees before TDC.



Firebirds Model Club

Newsletter June 2015



The sensor holder was then rotated so that it lined up with the magnet when the engine was at 29 degrees before TDC.

Finally here's everything fitted together ready to run.



Firebirds Model Club

Newsletter June 2015

Down at the field the only trouble I had starting the thing was due to the fact that I mounted the tank way lower than the engine centre line. Once the fuel was drawn up she fired up fairly quickly.

After a short while I discovered that the back-pressure pipe to the tank needed a little clamp on it. The heat from the exhaust pipe made the Tygon tubing go very floppy.

The engine ran at its best with the main needle $\frac{3}{4}$ of a turn out. The idle needle wasn't altered from its glow setting.

The idle was good and throttle response was fine. At full throttle, she revved up to 8400 rpm on a 15x7 prop.



This engine should turn a 15x8 but I didn't have one handy. I will try that soon and see whether it turns it OK. A 16x6 might be worth a try too.

I tried a degree of advance and retard on the timing but couldn't improve on my first attempt.

I have read that petrol conversions run hotter than glow motors because the methanol really cools the engine a lot. It certainly seemed hotter and I didn't run it for that long so I shall have to ensure that there is extra cooling available when mounted in the plane.

The engine is destined for a Seagull Hawker Sea Fury I recently acquired.

One final note. The receiver, servos and associated leads must be kept as far away as possible from the ignition gear. It is advised that the throttle linkage is of the plastic snake variety to stop the RF noise finding its way in via a metal linkage. It's not such a big issue with spread spectrum radio (e.g. Futaba FFAST or Spektrum DSMX) but 35MHz gear and lower spec. 2.4Ghz gear could suffer with interference from the ignition system unless care is taken. Apparently it was a particular problem with 72MHz radio but that doesn't really affect UK fliers.

Firebirds Model Club

Newsletter June 2015

External Events

This section details events in Hampshire (or further afield if they are significant events) that might be of interest to club members.

Wings & Wheels Model Spectacular - 27th & 28th June

The longest running RC Model Show in the UK - 29th year. All flying disciplines, boats, hovercraft, tanks Trade, Bring&Buy etc.

Starts: 27/06/2015 at 09:30

Ends: 28/06/2015 at 17:00

Venue: North Weald Airfield, North Weald, Nr Epping CM16 6AR

All enquiries to Jane Stephenson on 01242 604126 or email at:

admin@wingsnwheels.net

Website: www.wingsnwheels.net

Bournemouth Air Festival - 20th-23rd August

OK it's not a model show but we don't have many local air shows so I thought it worth a mention. Find out more on their website: <http://bournemouthair.co.uk/>

Firebirds Model Club

Newsletter June 2015

Club Information

This section gives a summary of club services and contact details. Apart from the "Future Club Night Programme" most of the info here is fairly static.

Future Club Night Programme

16th April 2015

Our spring Bring & Buy sale.

21st May 2015

Talk by John Hoddinot on electric flight power systems

Cheap Glow Fuel

Fuel is available through the club and supplies are held by the club. All grades of fuel are available to order. Terry holds many other useful items: glo-plugs, propellers, glue, fuel tubing, wing bolts etc.

Contact: Terry Jacobson on 023 8040 2080 or see him at the field.

Club Clothing

A number of items of club branded clothing are available from a local supplier. The current prices are:

Sweatshirts £14.25

Polo shirts £12.50

T shirt £ 8.50

Caps £ 7.95

All shirts are Fruit of the Loom and available in all sizes up to XXL & most colours. There is also a huge range of quality outdoor wear that can be embroidered with the club logo.

Contact Justin on 07572 613190, email windgyber@hotmail.com or see him at the field.

Our meeting venue is the Hamble Club at this address:

Beaulieu Road
Hamble
Southampton
Hampshire, SO31 4JL

The Club requires each member to sign in at every arrival using the book usually kept at the bar. There is a way round this and that is to join the club. This is not expensive,

Firebirds Model Club

Newsletter June 2015

particularly for OAPs who pay £8.00 for the first year, and if you live locally it provides a cheap night out! The entrance to the club is on Hamble Lane and the club looks like this:



Firebirds Model Club

Newsletter June 2015

Firebirds Club Committee

The following are the contact details for the Committee. Each has given permission for their phone number and email addresses to be included in this Newsletter.

Chairman	Pat Parsons	023 8056 2611	patrickparsons.parsons3@googlemail.com
Vice Chair	Russell Lewis	023 8056 1397	russell@pilot1.co.uk
Treasurer	Paul Adams	023 8069 2729	paul.adams10@tiscali.co.uk
Secretary	Roger Stanton	01489 784152	roger-stanton@sky.com
PRO	Peter Clark	01489 692881	psclark911@hotmail.com
Flying Site Rep.	Dave Hoppe	07704 826343	davehoppehome@gmail.com
Safety Officer	Geoff Griffiths	023 9265 5931	gcgriffiths@hotmail.com
Membership Sec.	Roger Stanton	01489 784152	roger-stanton@sky.com



Remember...
Safe flying is no accident.