



# 10...9...8...

*the voice of UKRA*

Autumn 2002

volume 6 issue 3

## Project VB King Blobbo

by Steve Gibbings

## Javelin Blasts Back

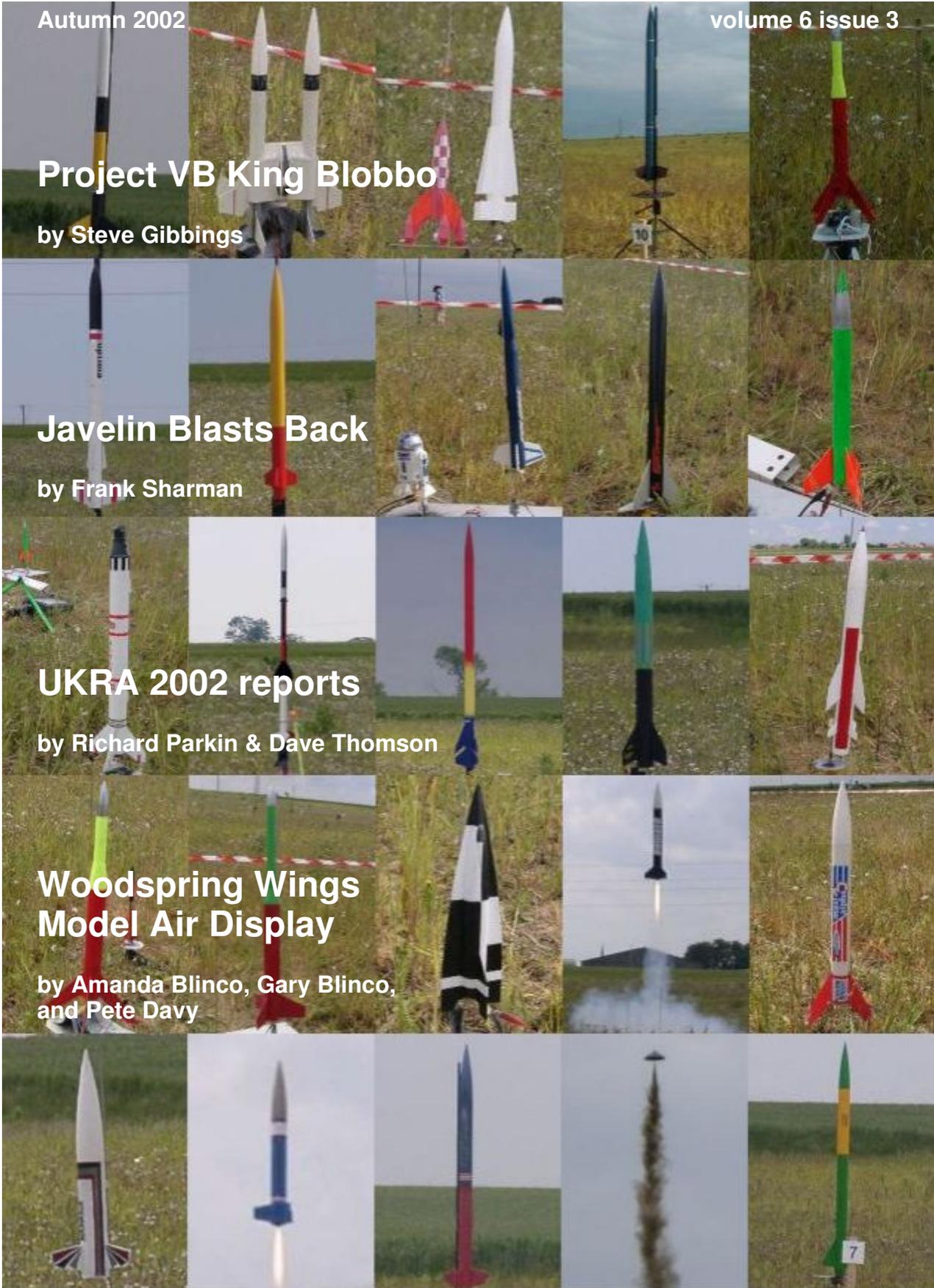
by Frank Sharman

## UKRA 2002 reports

by Richard Parkin & Dave Thomson

## Woodspring Wings Model Air Display

by Amanda Blinco, Gary Blinco,  
and Pete Davy



# Editorial

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## Are we having fun yet?

Here we are again in the heart of the flying season. A successful Big EARS & UKRA event behind us and the Canterbury Cup, IRW and K-Lob to look forwards to. The number of excellent rocket flights I've seen, flown by new faces, bears witness to the growth of the hobby in the UK. Especially when you consider the shortage of Aerotech motors this year. The growth in Hybrids and the arrival of Pro38 has helped of course, but I can't help feeling that next year the skies will be full of rockets.

Speaking of new faces, It's also encouraging to see new clubs being formed. SWARM, in the south west, have been particularly active this year with many launches, building sessions and fund raising events. It's also great to see the wide range of ages represented by their club. Let's hope that they and all of our clubs continue to grow.

## Experimenting with hybrids

Since the manufacturer's recommended method of pyrotechnic ignition of RATT works, micro hybrid and other, experimental, hybrids was prohibited, some have been tempted to experiment with alternative methods of ignition. While this is an exciting area, showing much promise, we must remind everyone that all experimental flights **must** be approved by the UKRA Safety & Technical committee. A request for approval must be submitted 30 days prior to the flight. If you are in any doubt as to whether a flight is experimental, please consult the UKRA safety code. Also remember that, even if S&T approval has been received, the RSO on the day may refuse permission to fly if they are in any way unhappy with the proposed flight.

The Editor

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**Cover Photo:**A collection of rockets from UKRA 2002. (*Photos mainly courtesy of Adrian Hurt, but also Dave Thomson, Mike Crewe and Paul Britton*)

**Contents Scan:**A Javelin takes to the air. (*Photo courtesy of Frank Sharman*)

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# Project VB King Blobbo (part I)

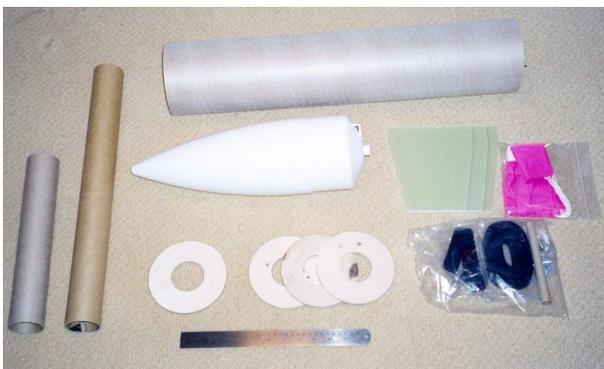
**By Steve Gibbings**

## An illogical conclusion...

I quite like "stocky" rockets (that's PC for fat, stubby, horizontally challenged etc) and I had considered a VB King Blobbo for a while. What had put me off was the cost! In the end though I bit the bullet and purchased a kit from Pete Davy. It came in the most substantial box I've seen for a rocket kit. Not your normal plastic bag here, oh no. I read through the instructions the day it arrived and puzzled over the recommended motors (insert list of motors). I thought it should be able to fly on higher impulse motors given a few simple and appropriate enhancements. Oh dear, along the way I seem to have forgotten the words "simple" and "appropriate", Read on.....

## The kit

The components are very good quality. There were very few moulding marks on the nose cone and the centring rings were well finished and required no sanding on the outer edges to get a good fit in the supplied body tube. I have only built one other VB kit and I would say pretty much the same for that.



**The components**

In Figure 1 you can see all the components laid out. I intended to fly on a K550 but I wanted the option of a K700. I replaced the now extremely short looking supplied motor mount with a 21" section of 54mm PML tubing. In addition I needed an extra centring ring and a bulk plate for the nose cone. After estimating the weight of the rocket, nearly 10lbs with motor, I decided to up the size of chute to 54". A piece of G10 was purchased as a mounting plate for the electronics. I also needed a 15ft length of tubular nylon as the underwear elastic that came with the kit was not going to be used.

## The changes

My requirements were -

- λ Space for a 54/2560 casing (to allow a K700 motor to be used)
- λ Facility for dual deployment recovery
- λ Reinforced airframe and fin joints
- λ Secure electronics section

After thinking about this I paid Gary Sinclair a visit. He had bought the same kit and was following the same approach. I drew inspiration from Gary's design and incorporated them in mine. This added another dimension to the project as I fully intended to goad Gary into a K550 drag race!

As the motor mount would extend all the way through the airframe I had to add an extra centring ring. This was to be removable, as it would double as a cover for the electronics section. The bottom end of the nose cone would have fouled with the motor mount so it would have to be cut off and a bulk plate secured further inside the nose. This is attached over a M6 threaded rod that is fixed with epoxy to the inside tip of the nose cone. This provides a space for adjustable counter weight and a radio tracker. I had decided that the airframe required reinforcing and chose carbon fibre but really glass fibre would have been more than acceptable. I just fancied trying out carbon fibre! This is the reason any radio tracker would be fitted in the nose space as carbon fibre inhibits radio waves.

To secure the centring ring lid on the electronics section I used three lengths of M6 threaded rod secured through all of the centring rings and held by nuts either side. The top ring is held in place by wing nuts. Carbon tubing is used over the threaded rod that runs through the electronics section. This plays two roles, firstly to hold the top centring ring in place but also as a mounting platform for the G10 plate that holds the electronics. The threaded rod provides immense strength to the motor mount. I was able to stand with my feet on the top centring ring without any damage.

As mentioned earlier the motor mount extends right through the stubby airframe. This means there is no room for separate sections for dual deployment recovery. The solution presented itself when Pete mentioned he had a BlackSky ARRD (Advanced Retention & Release Device) which is basically the next generation of the PRM system. It wasn't going to be cheap but it looked just the ticket. OK, I thought it would be cool too! With this device I could use a single compartment for both drogue and main chutes which are also attached to a single shock cord. The drogue is released when the nose is pushed off by an ejection charge at apogee but the main cannot exit as it is held inside the compartment by the ARRD. At low altitude the second channel is fired which is connected to the ARRD. This releases the main, which is pulled out by the drag on the drogue. This is nothing new in itself and I had seen this used on other rockets with success so I was happy to give it a try.

## Construction

I started by dry assembling the motor mount and rings. As the rings for the kit were meant for VB motor mount, with a smaller outside diameter, I needed to sand the inside of the rings to get a good fit. I then marked out the holes I needed for the threaded rod and drilled them right through the whole set of rings. The rings were then fixed with 30-minute epoxy and left to dry. The next day I inserted the threaded rods and fixed them in place with nuts and washers. These had epoxy applied to lock the threads.

I vacuum bagged the tube with 200g carbon fibre cloth with a 50g fibreglass veil layer. Thanks to Gary for helping me with this process! I used West Systems epoxy, which I can heartily recommend.



*The wrapped tube just before bagging*

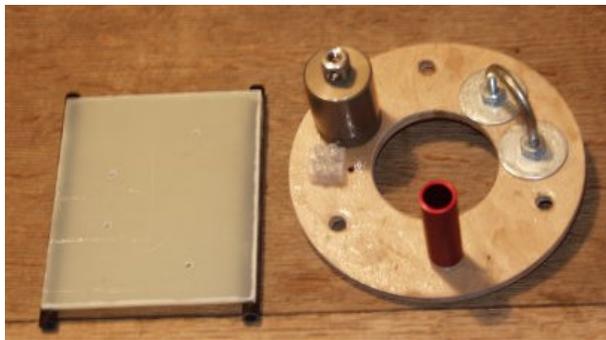
Once the tubes were cured I gave them to Pete to cut the fin slots. Whilst the body was away I got on with mounting the fins. First the leading edges were rounded and a "V" profile put on the trailing edges. The entire flat surface of each fin was roughened up with 80 grit. I used 30-minute epoxy to fix the fins between the lower two centring rings. The instructions called for the fins only to be in contact with the lower ring. I ignored this and moved the second ring down so the fins were in contact with a ring at both top and bottom. I felt this would give more strength.

Once that was cured, and I had recovered from the New Year celebrations, I applied some 2" carbon fibre tape along the fin root to motor mount joints. Again West Systems epoxy was used.



*The completed motor mount*

I turned my attention to another rocket for a short while in February as the HyperTEK motors I had ordered had arrived, but I managed to look at the ejection charge holder and ARRD mounting points on the upper ring. I placed each equally between the threaded rod. Previously I have used a terminal block for the ejection charge connections that meant additional holes to bring the wiring through. I decided to try having the igniter wire itself pass through a hole aligned with the ejection charge holders. This looks neater and there is less attached that can get clogged up with black powder residue. A gas proof seal will partly be made by the igniter wires being a tight fit through the hole but backed up by Blu Tack. Only time will tell how successful this turns out to be.



***The recovery system***

The next step was to fix the motor retention. I used one of Pete' s trusty motor retention rings. These are easily attached with a heat resistant epoxy, but recently I' ve been using JB Weld. To ensure I get the fit right I applied the epoxy then slid in a motor casing with an aft closure. Don't get any epoxy on the inside of the motor mount through of course! I pushed and twisted the motor retention, with the lower section already screwed in, down onto the motor mount. When the lower section is flush with the aft closure I know I have the perfect fit. I then unscrewed the lower section and pulled out the casing.

The next stage was to bond the motor mount into the body tube. As the rings are fairly close together and the body tube is quite short I couldn' t use my usual technique of apply epoxy to the inside of the tube and pushing the ring through it. I applied a ring of

epoxy just below where the top fixed ring would go then pushed the motor mount up to the middle ring into the tube. I then applied some epoxy to the middle ring edge and the outside of the top surface. This was then pushed in too. I then applied a ring of epoxy to the inside of the body tube where the bottom ring would go and shoved the rest in until the fins were against the top of the fin slots. When that lot was set I applied a decent fillet to the top and bottom rings. I applied a thin coat of epoxy on the bottom of the bottom ring to protect it against moisture and exhaust residue. I did the same for the top surface of the top ring.

I cut a piece of M6 threaded rod and screwed a couple of t-nuts to the last inch. This was to be set into epoxy at the tip of the nose cone and I thought the t-nuts would give a better purchase in the epoxy to just the rod. This was inverted into a vase of water to ensure the heat during curing didn' t deform the nose.

Normal sized fillets of 30-minute epoxy were applied to the fins. Most of the strength will come from the reinforced fin root joints.

I was now left with an airframe ready for filling. I had been recommended SuperFil and UV smoothprime that are used in hobby light aircraft construction. They are supposed to be very, very light and therefore ideal for rocket purposes. The SuperFil is used first to fill the weave and even-out any high or low points. If you don' t enjoy filling and sanding the spirals in phenolic tubing then you're going to hate this believe me! It is applied using a plastic squeegee to force the filler into the weave. You can use a hair dryer to soften the SuperFil if it is hard to spread. I mixed up 90g (30g hardener and 60g filler) and I used about two thirds of that. On the tubing I found it very hard not to create waves of filler, you just have to do the best you can. Once cured over night I got rid of any really rough areas with 80 grit then went for a flexible medium-grit sanding pad. I think this was around 240 grit. The finished tube looks awful but it does feel very even. I' m not convincing myself that it' s perfect by any means but I' m happy with it for a first attempt.



*The airframe ready for priming at last!*

The next instalment will show the final finishing stage and the maiden flight. Assuming I get a motor in time!

## Contacts

- λ CFS Partnership [www.cfsnet.co.uk](http://www.cfsnet.co.uk) for West Systems Epoxy and glass fibre products
- λ Amber Composites [www.ambercomposites.co.uk](http://www.ambercomposites.co.uk) for glass fibre, carbon fibre and hollow carbon rods
- λ Pete' s Rockets [www.petesrockets.co.uk](http://www.petesrockets.co.uk) for everything else!

10...9...8...



## United Kingdom Rocketry Association Annual General Meeting 2002

The details for this year's AGM are:

**Date:** Saturday December 7th  
(subject to confirmation)

**Time:** 12:30

**Place:** UKRA Building, Southview  
Farm, Heckington, Lincs

Any items that you would like to be included on the agenda, and any nominations for Council positions should be sent to the Secretary by November 2nd at the latest.

**Mike Crewe** (Chairman)

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We pride ourselves on our customer service... email and telephone enquiries are always answered on the same day. If we don't have what you are looking for, we can probably help you to find it!

# Javelin Blasts Back

*by Frank Sharman*

The ghost of the Yellow Peril and the worst launch in history had to be endured all through the autumn of 2002 and through the winter and early months of 2002. A lot of confidence I had with long-flown models had gone and I approached the first test launches of 2002 holding my breath for another CATO, but it didn't happen. Then some enquiries were made for Javelin to make an appearance at two events, the first of which was to be on the twelfth of May very near to my new home.



***Francesca and Dad***

Originally booked as a small static display at the Morevan Park Carnival, the organiser who had asked to see some of the models got the chance to look at three new soft

foam display Javelins I was on my way to test-launch with our photographer, Brian Mellors.

Seeing how light the rockets were, yet similar in size and design to a conventional laminated paper model, the organiser of the Carnival wondered if it might not be possible to launch something after all, if their rather no-nonsense health and safety officer could be swayed by this very soft bodied type of missile. On the phone, he said he would consider what he saw on the Sunday. So, not getting my hopes up too high, I put as much effort as possible into getting a static exhibition ready to roll.

Effort here was on a layout of a Javelin rocket base, as dreamt of, if one ever won the big one. Scaled down models of all the past and present equipment glued down onto a board and wired up so that the quick-match powered micro models could blast off to the heady heights of ten feet.

The second effort went into making the old cradle, now launcher since 2000, into a legal road-towable trailer to carry one of the still surviving 1998 show rockets of TV fame and disaster, to a last public appearance as part of the Carnival parade.

If the rocket was going to be retired, better a grand parade with marching ground crew than destruction as airframe materials perished from one too many clusters of Estes' D motors. Or perhaps that's the best way for an old rocket to go out?

The big day came at last and a full red Nissan Micra set off down the road, pulling one big rocket on a launch trailer. People along the way just could not believe what they were seeing, especially the local kids who just gaped.

Red flashing light in top of the car going strong, the police waved car and road-bound rocket onwards to join all manner of floats and vintage vehicles getting ready for the off.

Robert Hunter, my number two on the day, and my youngest daughter, Francesca, quickly donned their white Javelin suits in the council car park.



***New launcher for easy loading***



***Launch position***

It was all very much a first for all three of us and great fun, though tricky. At one point, the horse-drawn carriage in front dropped a smelly load for the following steam roller to flatten out into an eight foot wide pat.

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However, after a bit of moon jumping on the part of the launch crew, we at last entered the field and arena to the well-timed tune of Thunderbirds on my karaoke machine.

That over, it was time to fight for a space on the field and the get the promised, but not delivered, barriers. Next it was time to build up the model space base and crank up the big rocket into a near vertical position.

All day people were asking what time the rockets would be going off, and for ages we had to say it was not yet clear if or when that might be. At last the man on the PA preempted the HSE man' s decision by announcing a launch, and he came to look at what I had got. The arrangement was to launch from inside the arena at 1550 hours, and we had just fifteen minutes to set up and launch after the stunt riders had finished. No time for a miss-fire then!

As the stunt riders came off, Robert and I went to work, setting up a mini launcher, wires and re-siting the double function set model with back screen, perspex window and launch box battery shelf. As we did that the PA announcer had an attempt at being funny with a crack about Robert' s shaven head, saying he lost his hair at the last launch. However, quicker than we have ever been before, we were ready to go and the countdown began with a two foot starter rocket on the pad.

Please God, no miss-fires. But we were now on 12 volts and we were using two igniters for redundant ignition in the single Estes A8-3. Whoosh! The rocket was away on its first launch, and my, did it climb, straight and fast. It must have been three, perhaps four hundred feet. Return to earth was without a ' chute. Just a simple, slow tumble, and just ten feet away from the barriers. The HSE man nodded for another rocket, and so a slightly fatter and longer model with a B4-4 followed. This rocket, flown before, should have deployed a black parachute for a slow drift down to the ground. The ' chute ejected clear, but failed to open up. The rocket fell back, but tumbled slowly, and was the first to land in the in the dead centre of the arena. The last rocket was given the nod.



***Micro Javelins***

This model was four feet in length and powered again by a simple B4-4. Again another faultless ignition and straight climb. About 300 feet was achieved. This rocket was a real floater, and spiralled down in circles, rotating as it descended, finally coming in to land at the launch station. Robert stepped forward and caught the rocket in mid air. The crowd on the

surrounding barriers clapped at this boomerang of a performance. I wondered what the HSE man thought of it.



***New Javelin launch***



***Robert and Frank with old Javelin***

Then it was time to start packing up. We were tired and hungry, but felt happy with the day. The new soft foam display rockets had given us a blast back, it was time to get something bigger ready for the summer.

The next day it just belted it down with rain, but it didn' t matter, the gear was safely packed away and dry. Then while stripping down the launch trailer, a Parcel Force van arrived with a package. It was a full set of replacements for all the faulty and suspected engines still in my store. I carried the box of Estes D motors into the house grinning from ear to ear, as I realised that the ghost of last year had been laid to rest and a new corner had at last been turned...

# UKRA 2002

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*by Richard Parkin*

Myself and my friend Dave arrived at Pete's Farm at about 10 o'clock on Saturday morning. I had never been there before so was mightily impressed by the huge area in which I might potentially lose my rockets...

Shortly thereafter Hugh Gemmell was kind enough to relieve me of a chunk of my weekend budget for UKRA membership, flying fees etc. I then headed into Pete's shop (hereafter referred to as "Mecca") to see if he had anything of interest. He did, and so considerably poorer I went off to help Dave put the tent up next to some of the EARS mob.

After much frustration and swearing at the tent we listened to the briefing and made our way up to the range to observe what was going on. There seemed to be a good mix of model and higher power rockets being prepped, so we settled down confident of good display - we weren't disappointed!

The model flights were great fun, with the occasional 'interesting' trajectories thrown in to keep everyone alert! The excellent build quality of most of these models made me quite happy that mine were still in the tent...

My attention was primarily on the higher power rockets though, as this was more or less the point of the weekend for me. I wanted to snoop around a bit and ask stupid questions with the intention of moving into HPR, so I made a nuisance of myself and took lots of notes. Many thanks to all who answered my questions that day!

Even if I hadn't been focused on the HPR rockets, I doubt I would have missed them as the noise and smoke of these things taking off at close range is incredible! Quite a few of these rockets seemed to drift a fair distance on the wind (as I am sure the drivers on the A17 will verify), but the one that landed between two parked cars in the



**LOC Bruiser lifts off**

parking area just behind us had me chuckling for a while.

I also observed my first hybrid launches, and they were also damn impressive. I think I could quite interested in these motors, but will stick to the (relative) simplicity of solids for a while...

On the Sunday morning I took a clutch of models up to the range with the intention of burning quite a few motors, but it didn't quite go to plan. After Zigi verified that my Extreme 24 was Indeed a rocket, I stuck a D12 up it and released it into the wild - where it promptly caught a passing breeze and headed for Boston! After about an hour struggling through wet corn (was it corn?) on the line suggested by several people I was about to write it off as an offering to the rocket gods when Dave casually strolled over and picked it up!

Soaking wet and with our departure time fast approaching I prepped another rocket (Zenith II) and tried again, with broadly similar results. It didn't go quite as far downwind though, and was fairly easy to recover.

The high-point of the weekend for me must be a toss-up between observing Hugh's L3 rocket launch (most impressive thing I have ever seen) and being allowed to play with Dave Thomson's video downlink stuff (note to self - fix those CCD camera modules).

I can't actually think of any low points. True, I got soaking wet, sunburnt and am now pretty skint but that's all par for the course isn't it? My one suggestion on how to improve the event would be to hold it a bit closer to my house (maybe Stoke?) so I don't have to get up at 4 o'clock in the morning!



***George Rogzinski's first hybrid flight***

## ***by Dave Thomson***

Saturday 8th June

The weather for UKRA 2002 did not look good. The forecast was showing that Saturday was going to be the best day, with sunshine and showers. Sunday was looking like a washout! In the end we had a great day on Saturday with lots of sunshine, blue sky and Sun burn. Sunday was windy with some clear spells but with rain coming later in the afternoon.

We (My Son, David, and I) picked up Sean O' Neil at 6:30 on Saturday morning and headed off for Pete's Farm at Heckington and arrived at 1030pm. Andy Issott had arrived the night before and said that there had been some good flights late on Friday. All the usual crowd were there, including

all the Big vendors. Pete Davy had a big building set up at the farm that was being used for prepping. All tables were full, so Sean and I set up our stuff at the main field. Richard Parkin of the WRS had also arrived at his first UKRA event, and was keen to see some big HPRs go!

This year we could drive down to the launch area. This made a BIG difference. Last year we had to lug all the video equipment, launch pad, rockets, tool kit etc nearly a quarter mile down a farm track.

Sean was flying his upscale Estes Optima on a J570W with dual deployment using a G-Wiz. Andy was flying his BBX staging from an H to G. David was flying his award winning Firebolt on an I154J. I had just completed a 2 inch rocket to fly on a J570W with Video down link, but decided on the day to launch on a J350W and keep it just below Mach.

The rocket was scratch built and made from 4 inch ducting. David had designed it himself. He also had cut, glued, drilled and screwed most of the parts. The lettering had been printed off the computer and then he cut out the letters from Solar film using the printout as a template. I had done some of the work that David could not do or manage, such as motor retention design, recovery harness design, ensuring that all bolts were tight, and mounted the rail buttons etc.

The motor was a I154J short delay. The flight was great. Straight as a die with deployment just after apogee. The chute was a Sky angle drogue that was to be used in my IRIS at a later date. This worked great and brought the rocket down safe without much drift or any damage.

Andy's BBX had flown at IRW2001 in single stage format, but this would be its first two stage flight. First stage was an H, then staging to a G. Recovery was by ALTAC. The launch was great and the rocket soared into the air. The staging was quite long and the rocket did arc over slightly before staging, But the flight was great with all systems working to plan. From what I can remember, Andy was the only one to do a two-stage flight at UKRA 2002.

The booster came down and bounced off a distant power line, luckily not wrapping itself around the line. The upper stage came down quite a way off, but was recovered ok. The first stage suffered a little scorching due to staging, but would be easily repaired.

Sean had been prepping his upscale Estes Optima for a few hours. This had not flown as CPR before and he was being very careful not to get things wrong. Sean had changed the fins for Dibond. The plastic fins used previously had been seen to flex a lot during the UKRA2001 event just before it spacked. The rocket was rebuilt and then flown again a few weeks later at BIG Ears. During that flight the fins had ripped off at Max Q, hence the new Dibond fin material.



**Sean O'Neil's Optima**

The battery and arming switch had to be installed. Wiring in the ejection charges to the G-Wiz took a while and this was triple checked when completed. The recovery harness needed completing, but it all went together ok and was loaded onto the pad.

The launch was loud and spectacular. That J570W is a great motor. The G-Wiz

**10...9...8...**

deployed the drogue at apogee and the rocket descended towards the launch area. The main seemed to be very late in coming out, but the main chute did fully inflate before landing. Sean' s homemade chutes are now working great!

I had been designing and building a 2 inch rocket for a few weeks. The prime requirements for this rocket were to:-

- λ Break the sound barrier
- λ Go to a high altitude
- λ Record the flight with a 2.4Ghz video down link
- λ Be quick, simple, strong and cheap to build

The rocket used motor ejection and did not use CPR. The chute, made by Sean, was hemispherical and built VERY strong. The rocket flew with a 433Mhz tracker that Andy had made, a 2.4Ghz video down link, camera, a 6inch long helical Ariel beeper and all the batteries to power the payload. The main issue was getting all the payload equipment into the small payload area.

### Video Transmitter and Receiver Package

The upper nose cone payload contained the Video sender unit . The system used was similar to that used at the UKRA2000 meeting. except for the Transmitter being smaller and using a small helical in the nose cone and the receiver being 1m long not 500mm.

The body was 2-inch plastic drainpipe. The nose cone was home made from turned solid balsa. The fins are bolt on aluminium using our own design ' through the wall' Te section aluminium strip. The motor mount was standard PML 38mm. The body is reinforced in the appropriate places that would be subjected to stress. The recovery harness is bolted to the body. No way was the chute going to fail for this flight.

To break the sound barrier I was going to have to fly it on a J570W. This would take it to around Mach 1.2 and an altitude of nearly 10,000 feet, max velocity of 817mph at 46G. With the weather being good, but

not perfect, I decided to keep the altitude velocity down and consequently also the altitude down.

The rocket was loaded with a J350W and was simulated to just over 7000 feet, Mach 0.83, 615mph max velocity under 26.3G. The flight was fantastic. The rocket leapt off the pad and was out of site in a few seconds. The video link recorded the flight for almost the duration of the ascent, going out of range well past the cloud base. The ground just disappeared below and the fields became very small on the TV screen before it was out of range. The rocket was seen quite a while later descending under the small chute. It landed quite close to the pad, just inside the adjacent cornfield. No damage was sustained. The design worked great!!



***Dave Thomson' s son David with the video rocket***

Unfortunately the sound jack in the video had not been fully inserted and so no sound was recorded. I decided to clean out the motor and try again. This time Andy checked that the sound was recording ok and we launched again. The second flight was almost a replica of the first and it landed near the same area

**10...9...8...**

as the first flight! Amazing after nearly being 1.5miles up...

The video again on this flight was amazing. The ground just disappeared. The large fields that the event was held in became very small, very quickly! Previous in flight videos from Pete' s with my IRIS to 3300 feet show the fields MUCH larger than on this video. I am not sure, and never will be, but it may have been much higher than the simulated 6800 feet expected. I may alter the rocket to recover with the G-Wiz, but this will make it longer, heavier and more complex with more joints to fail under the G forces. Especially if ever subjected to 46+ G' s with the J570W.

Other fliers made many other good flights on Saturday. Darren' s (of NSRG) Evil Twintinique made what appeared to be a final death dive with no deployment, but amazingly appears to be repairable. George of NSRG did a great first Hybrid flight. Mike Crew had a mid air explosion which was caught on camera and one of Ziggy' s rockets went AWOL downwind, leaving the pad in a rather sorry state! Many other flights were made, but I cannot remember them all.

## Sunday 9th June

David flew his Firebolt again on an I211W. The flight was great with the rocket deploying just after apogee. There was a little more drift downwind because of higher winds than the day before. The rocket came down behind us, some 400 to 500 yards away behind us.

David and I had to walk though the fields to get to it. The beeper was working but we had to get to within 100 feet of it before we could hear it. I had to jump a big ditch to get to it over the other side of a barbed wire fence. But it was recovered ok without any damage to the rocket, or me.

UKRA2002 was a great event and well organized as usual. Many thanks go to all that organized the event and for the RSOs who gave up their time to help get others off the ground!

# US Aerospace Challenge

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*by Neal Rothwell*

A couple of years ago I was involved with a project in America to develop a deployer which would have the capabilities of retrieving and deploying a conductive tether to provide motion between two bodies in space. This has been extremely successful and during the development period I was fortunate to meet a number of people from NASA Marshall and the Naval Research Laboratories (NRL) as well as a number of people within the company we were liaising with in Michigan, The Michigan Technic Corporation. I also gave a number of presentations at the AIAA Conferences in Nevada in relation to deployer technology. Amongst all of this, I was exposed to the US Aerospace Challenge which is an event that takes place once a year whereby groups of youths launch rockets from Lake Michigan and these rockets have to carry a payload which they are judged on. The rocket design, from an aesthetic point of view, and the payload are judged by members of NASA and other aerospace industries to determine the winner of the competition. There is no monetary benefit at all for these people but the challenge is to create, from a standard kit of parts, a rocket and launch a given payload over Lake Michigan. This is then retrieved and brought to land. More information about the US Aerospace Challenge can be found on The Michigan Technic Corp. web site: <http://www.airseds.com/usac/>.

During one of my visits I decided it may be beneficial for a team of 4 - 6 people from the UK to take part in the US Aerospace Challenge and, to this end, we have teamed up with an organisation in Bury called Education and Business Partnership (EBP) who are co-ordinating various teams from schools within the Bury/Bolton area. At the present time we have six teams who will be involved in a Pre-US Challenge to determine who should represent the UK in the US Aerospace Challenge which will

take place in May, 2003. This is where I believe the support of UKRA could come in. We have chosen the six teams who were presented with their rockets on Wednesday, 10th July. They will now have to determine the decorations for their rocket and also decide on a payload to launch in the rocket. We would like for UKRA to be represented in this event by first of all having their logo on all of the rockets and we would like a member of UKRA to be part of the team that judges the Pre-US Challenge which will take place in March, 2003. Prior to this, we would appreciate some support from UKRA in assisting the various teams in the development of their rockets as well as providing information on health and safety associated with the launch which will take place in the UK and America. I realise that you will have no involvement from the American side but in the UK we would request as much support as possible for the event. We would also appreciate if sections from UKRA within the UK could be contacted to give additional technical support to the teams wherever required.

We have a number of ideas as far as fundraising is concerned as we are not a 'bottomless pit' as a company and believe there are a number of areas where we could raise funds towards the project. The rockets have already been purchased and will be distributed as above, but from now on we need to create some funds as we are going to sponsor the team to go to America. It is our intention to have a dinner either at the end of 2002 or early 2003 where we will invite Mr. Story Musgrave to the event for an after-dinner speech. It is not often we have an astronaut here in the UK, especially one with such vast experience, to give an after-dinner speech which I have witnessed and can assure you is most interesting. We will sell tickets for the event to as many people as possible to generate funds towards the cost of sponsoring the youths for this challenge.

If any individuals of groups wish to help out with this project in the first instance they should contact UKRA at [usac@ukra.org.uk](mailto:usac@ukra.org.uk). More details about the fundraisers and news about the competition will appear on the web site and subsequent issues of the newsletter.

# UKRA Rocket Display Wows at Woodspring Wings Model Air Display in the West

**by Amanda Blinco(#1204), Gary Blinco (#1203), and Pete Davy of "Pete' s Rockets"**

It all started a year ago. Gary had spoken to some guys from New Zealand Rocketry while in Auckland, who' d told him of their participation at a full size display at Wanaka. Not sure that we' d be able to do this over here, we instead contacted our local model flying club, Woodspring Wings, who hold one of the biggest model and full size displays in the south of England. After some trepidation from the committee, a few demo flights and an intense discussion of the safety procedures, (during which the UKRA safety code was minutely scrutinized) we were given the go-ahead and two slots a day to perform at the Airshow on 6 & 7th July. Pete Davy agreed to attend and oversee our efforts so we were all set.

The pressure intensified nearer to the day, as the local press heard about us taking part and a camera crew from the local HTV station appeared on press day, taking a couple of hours and a few launches in the "G" and "H" range to get the shots they wanted. This resulted in Woodspring Wings getting both an early and late evening news slot two days before the event. We were agreeably surprised that the TV people took on board, and reiterated on air, the safety aspects we took time to explain. Coupled with Evening Post newspaper coverage, we hoped this would boost attendance figures considerably.

10...9...8...



**SA-10 on a Pro-38 I**

On the Saturday, we found the Airshow subject to a visit from a Flight Standards Officer of the CAA Operations and Inspections Division. Coupled with the show being performed directly under the approach to Bristol International Airport, the pressure to get it right suddenly became yet more intense. We were quizzed as to safety distances and procedures etc, but, luckily, Gary had passed his Level 2 exam just 2 weeks previously, so had all the answers down pat! We then made doubly

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sure all the distances and safety checks were as specified, even to the point of us taking over from the Airshow Flight Director and making our own calls to Bristol Air Traffic Control (as we'd previously arranged and with whom we'd agreed had the power to postpone or cancel any launch outright to maintain aircraft safety) for permission to launch immediately prior to each rocket flight.

We held a faultless display with outstanding weather over the weekend, with morning and evening slots between the model and full size aircraft displays, showing a range of rockets and motors from 'B' to 'J' with mix of Estes, Aerotech and Pro-38s. A commentator with a roving microphone was with us, letting everyone know what we were doing and giving them details of the rockets, motors, UKRA safety procedures etc, from a script "we'd prepared earlier". We also had a raffle, for WW funds, for a kid from the audience to come out to the runway, do the countdown and (supervised) press the button to launch the largest rocket in that slot! A real crowd pleaser!!

We couldn't have done without Pete Davy of Pete's Rockets, who we'd particularly asked to attend to back us up. In gratitude, we helped with his shop between our slots and managed to sell out ALL of his Estes and Micromax starter sets - Gary doing a good imitation of "Dell Boy" down the

market! Pete was superb, not only raising the profile of the sport with his patient answering of many questions from the spectators, but helping with our preparation - even taking some ribbing from other UKRA members ("Pete Davy wants to know something from US"?) when he rang one of them to ask the correct jumper settings for a G-Wiz flight computer, after Gary forgot his manuals! We really couldn't have performed nearly so well without him! Also, Amanda's Mum and Dad, Fenella and Ray and her brother Peter and his fiancée Sue very ably assisted us all weekend by helping with the prepping and being the "recovery crew", disappearing for long periods of time as they walked the fields to recover the rockets. Thanks to them we were able to concentrate on getting everything just right.

For the first of our displays each day we wanted to show how one would usually begin and then progress through the sport of Rocketry. So we started with a "Silver Streak Starter Set" on a "B" from its Estes launcher. It did look a little dwarfed next to the other two on their pads waiting to go, but each day the crowd saw it perform it produced a little flurry of activity at Pete's stand with kids (big and small) wanting "one of those starter kits"! Next we went to an Aerotech "Warthog" on an "F", which was our own first mid power kit and looked most impressive with a long plume of black exhaust. Then onto a beautiful semi-scale



***Thunder & Lightning, just prior to 2 stage launch on Pro 38 H & I***



**Hot Plasma, level 2 rocket on a Pro-38 J**

scratch built 3" x 5" SA10 "Grumble" Surface-to-Air Missile on an "I". To "Ahhs" from the spectators, a very excited 6 year old raffle winner could hardly contain himself as he was escorted by the flight marshal to take control of the lift-off. He mixed up his numbers up a little from 10, but got the "3,2,1,Zero" right and pressed the button! This rocket we'd sim'd as having a maximum velocity of 450 mph! It performed as planned with a throaty roar - witness the comments of various photographers "I missed that - did you get it"? "Naw, too bloomin' quick!" Sorry guys...

We'd earlier asked if any of the model pilots wanted to have their F-15 or -16s up there

**10...9...8...**

to add to the realism of the SA-10 SAM launch, but there were no takers - funny that...

Then, on the Saturday afternoon, mainly because the TV news had misunderstood and promised a "Supersonic Rocket", we managed to get our own design "Hot Plasma" through the sound barrier and to 6300 feet on a ' J' . Loud "crack" and two puffs of vapour as it went through about 200 feet up! Loads of people crowded round as we recovered the airframe asking to hold something that "had gone supersonic".

The highlight of the show had to be our last launch of the weekend, where we sent up a 2 stage "Thunder & Lightning" for a 2 stage flight with an ' I' mated to an ' H' .

This big yellow bird had sat on the flight apron all day on its Quad-pod launch pad, "Remove Before Flight" safety key ribbons fluttering, adding to the anticipation of everybody wanting to see it, even causing a coach party from Cardiff to almost lynch their driver to get him to delay their departure to wait for the launch. The commentator read out the specifications as we made ready out on the runway - 2 flight computers on board, G-Wiz LC in the tail to light the second stage and deploy the first stage chute, the G-Wiz MC in the main body to detect altitude, velocity etc and deploy the drogue at apogee, then deploy the main at 400 feet (We must take a moment to voice our appreciation, those G-Wiz' s worked flawlessly, and on low power (single battery) configuration too!).

First off though, was the Warthog, just to give a contrast and whet the appetite, on an "F" in a cloud of black smoke, up to around 800 feet, good "pop" as the chute deployed at apogee and, with the location warbler sounding away, dropped almost back on to the pad to a nice round of applause.

Then out came the lucky lad who had won the last raffle, to have the honour of calling the countdown over the PA and pressing the button. Good to hear the crowd joining in the count with him too...

Big ROAR as it lifted off dead straight, together with a loud "WOW" from the crowd!

Great sight as the second motor lit at around 1000 feet and the first stage detached, peeling off trailing smoke! The main body tore through the cloud base at 4000 feet (we' d been cleared to launch through cloud by ATC radar), slight "POP" as the first stage deployed its small chute and floated down a few hundred feet away...

Then the wait for the first sighting of the airframe and drogue, dropping through the cloud... We looked around and virtually all of the crowd were pointing up - a real "Rocket Boys" moment - a cheer as it was sighted, and then a couple of minutes as it drifted down, waiting for the main to open, to great applause as it deployed to set down gently in an adjoining field!

But we weren' t done yet!

For the final touch - The pilot in a full size Bell Jet Ranger, giving pleasure flights from a field next to us, received permission, flew over and retrieved both of the high flying rockets on both days!! Our own personal helicopter recovery crew brought it right back to the centre of the runway to another round of applause!!! Only NASA gets it THIS good!

We were especially pleased with the comments of the CAA inspector, who expressed herself very impressed with our preparation, adherence to the rules and also the coordination and "obvious dedication to safety" between Bristol ATC and ourselves. Big thanks should go to these guys who were attempting to cope with their busiest weekend of the year, while allowing us to perform our display seamlessly with the rest of the aircraft and model displays

A great weekend, the Woodspring Wings people were extremely pleased with our display. What an excellent Airshow they run, superb displays and professional attention to the minutest detail, with

**10...9...8...**

meticulous adherence to rigorous safety procedures that would not disgrace any full size airfield display. Just goes to show how well some otherwise very different parts of the BMFA can get together, work well together and show the public some of the best and most exciting parts of our two sports. If they want us back again next year - WE' LL BE THERE!!



***SA-10 lifts off on a Pro-38 I***

# K-Lob 2002

29th/28th September

More Information at

<http://www.ukra.org.uk/events/kiob.shtml>



**Southview Farm, Heckington, Lincolnshire**

**Micromax to M  
Ceiling 10000ft\*  
UKRA cert' flights  
L2 & RSO exams  
Sheltered prep area  
Vendors welcome  
On-site food  
On-site camping  
Local accommodation**

\* Possibly Higher By Prior Arrangement

	<b>Weekend Pass</b>	<b>Day Pass</b>
<b>Adult Flyer</b>	<b>£15.00</b>	<b>£10.00</b>
<b>Junior Flyer</b>	<b>£10.00</b>	<b>£7.00</b>
<b>Non-Flyer</b>	<b>£5.00/£3.00</b>	<b>£2.50/£1.50</b>
<b>Temporary Membership</b>		<b>£9.00</b>
<b>Prep Benches (Subject to availability)</b>		<b>£5.00</b>
<b>Card Wallet</b>		<b>£0.50</b>
<b>Raffle Tickets</b>		<b>£1.00</b>
<b>Vendors fee</b>		<b>£35.00</b>



10...9...8...

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- λ Ignition using composite fuel grains
- λ Resignation of Charles Simpson & Pete Davy
- λ Introduction of ANO 87A
- λ Council Meeting 06/04/02
- λ Council Meeting 12/05/02
- λ Council Meeting 08/06/02

## Ignition using composite fuel grains

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It has been brought to our attention that there may be doubt about the legality of using composite fuel grains for the ignition of certain hybrids and larger composite motors.

The HSE Explosives Inspectorate were contacted and they clarified the position. The modification of any component in a Classified and Authorised product is classed as ' Manufacture' . What this means in reality is that cutting or even taking a shaving of the propellant is classed as "Manufacture".

Under the 1875 Explosives Act all places of manufacture need to be licensed. Clearly this means that the product cannot be altered in any way unless done at a Licensed premises.

UKRA is currently exploring a number of options to enable its members to continue using the affected hybrid and composite motors.

Until we have a solution we must insist that members do not attempt to use or modify composite fuel grains unless they are implicitly following the manufacturer' s written instructions.

For more information, contact the UKRA Safety & Technical committee at: [sat@ukra.org.uk](mailto:sat@ukra.org.uk)

## Resignation of Charles Simpson & Pete Davy

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*by Mike Crewe*

UKRA Members,

It is with regret, I have to announce that due to personal reasons Charles Simpson, and Pete Davy have resigned from the UKRA Council.

I would like to take this opportunity to thank them both for their hard work in the past.

Following an emergency council meeting, the following people have been elected to fill the vacant positions:

Council Chairman: Mike Crewe  
Council Vice chairman: Michael Williams  
Chair of S&T: James Macfarlane

## Introduction of ANO 87A

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The new legislation is now in place for the control of model rocket launching and flying. Thanks to the efforts of UKRA, BMFA & BSMA the new controls are far less restrictive to our activities than they could have been.

Definitions of military rocket small rocket and large rocket are introduced. A person shall not launch a small rocket unless he has reasonably satisfied himself that the flight can be safely made, that the rocket will remain clear of aircraft in flight and that the permission of any appropriate air traffic control unit has been obtained or he has obtained from any appropriate flight information service unit or air/ground radio unit information so as to enable the flight to be conducted with safety. Before a small rocket is flown for the purposes of aerial work the permission of the CAA must be obtained. Before a large rocket is flown for any purpose the permission of the CAA must be obtained (article 87A and 129(1)). Regulations of Rockets - ANO 87A and Art 129 are quoted below...

## "Regulation of Rockets

87A

1.
  - a. *Subject to sub-paragraph (b), this article shall apply to:*
    1. *small rockets of which the total impulse of the motor or combination of motors exceeds 160 Newton-seconds; and*
    2. *large rockets.*
  - b. *This article shall not apply to*
    - i. *an activity to which the Outer Space Act 1986(1) applies; or*
    - ii. *a military rocket.*
2. *No person shall launch a small rocket to which this article applies unless the condition in paragraph (3), and any of the conditions in paragraph (4) which are applicable, are satisfied.*
3. *The condition first mentioned in paragraph (2) is that he has reasonably satisfied himself that:*
  - a. *the flight can be safely made; and*
  - b. *the airspace within which the flight will take place is, and will throughout the flight, remain clear of any obstructions including any aircraft in flight.*
4. *The conditions mentioned secondly in paragraph (2) are that:*
  - a. *for a flight within controlled airspace, he has obtained the permission of the appropriate air traffic control unit for aircraft flying in that airspace;*
  - b. *for a flight within an aerodrome traffic zone at any of the times specified in Column 2 of the Table in rule 39(1) of the Rules of the Air Regulations 1996, he has obtained the permission of the air traffic control unit at the aerodrome or, where there is no air traffic control unit, he has obtained from the aerodrome flight information service unit at that aerodrome information to enable the flight within the zone to be conducted safely or, where there is no air traffic control unit nor aerodrome flight information service unit, he has obtained information from the air/ground radio station at that aerodrome to enable the flight to be conducted safely;*
  - c. *a flight for aerial work purposes is carried out under and in accordance with a permission granted by the CAA.*
5. *No person shall launch a large rocket unless he does so under and in accordance with a permission granted by the CAA.*

6. *For the purposes of this article a permission granted by the CAA shall be in writing and may be granted subject to such conditions as the CAA thinks fit."*

## "ANO Art. 129

*'Rocket' means a device which is propelled by ejecting expanding gases generated in its motor from self contained propellant and which is not dependant on the intake of outside substances. It includes any part of the device intended to become separated during operation;*

*'Military rocket' means:*

- a. *any rocket being constructed for the naval, military or air force of any country under a contract entered into by the Secretary of State; and*
- b. *any rocket in respect of which there is in force a certificate issued by the Secretary of State that the rocket is to be treated for the purposes of this Order as a military rocket;*

*'Large rocket' means a rocket of which the total impulse of the motor or combination of motors is more than 10,240 Newton-seconds;*

*'Small rocket' means a rocket of which the total impulse of the motor or combination of motors does not exceed 10,240 Newton-seconds;"*

The original text can be found on the internet at

[www.hmsso.gov.uk/si/si2002/20020264.htm](http://www.hmsso.gov.uk/si/si2002/20020264.htm)

## Council Meeting 06/04/02

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### Location

Cherry Willingham Community School,  
Lincoln

### Attendees

Cath Bashford (CB), Mike Crewe (MC), Pete Davy (PD), Hugh Gemmell (HG), Darren Longhorn (DL - Secretary), Richard Osborne (RO), Liz Perman (LP), Steve Randall (SR), Charles Simpson (CS - Chair).

## Agenda

- λ Apologies
- λ Minutes of previous meeting
- λ Minutes of previous meeting
- λ Permanent Premises
- λ Mailing list
- λ UKRA 2002
- λ BROHP 2003
- λ Insurance
- λ Newsletter
- λ Radios & Headsets
- λ Certification on Clusters
- λ T-Shirts
- λ Mailing list
- λ AOB
- λ DVNM

## Apologies

Apologies were received from: Jim MacFarlane, Mike Williams, Bob Arnott.

## Minutes of previous meeting

The minutes of the previous meeting were read and approved. The list of action points was worked through, and progress noted.

## Permanent Premises

PD reported that materials had been procured, utilities contacted and that work was about to begin.

## Mailing list

CB reported that the list was up and running. DL reported that there had been some teething troubles. DL and CB agreed that they had either been resolved, or could be easily resolved. It was agreed that CB should look at adding other mailing lists. It was agreed that an S&T list and an RSO list would be particularly useful.

## UKRA 2002

PD reported some response to the request for help, and that it was time to sort out a rota. He suggested we get two portaloos - one for each end of the site. Cost would be approximately £150. RO reported that the signs were complete and that he had begin

work on the event handbook. HG volunteered to run the raffle. It was agreed that two radio channels should be reserved for those running the event.

PD stated that he expected new supplies of Pro38 and Aerotech 38mm Blue Thunder reloads in time for the event.

## BROHP 2003

LP reported that there had not been time for UKRA to get really involved in BROHP 2002, but that we had been requested to have a greater involvement next year, probably to "sponsor" a section of the programme, and perhaps someone would speak on behalf of UKRA. All agreed that this was a good idea in principle. LP volunteered to keep in touch with the BROHP organisers and inform the council when the organising for next year's event began.

## Insurance

CB reported that she had been approached by members asking if UKRA could assist with procurement of home contents insurance when they had a registered store. Some members approaching the same insurance company, had received wildly differing responses. All were agreed that there was little UKRA could do at this time, but PD reported that he had been discussing the matter with an insurance broker for some time, and that there might be a solution in the future. He agreed to keep the council informed. HG also stated that the problem of the differing responses may be due to the way members approached the insurance company.

## Newsletter

DL asked when members could expect to receive the next issue. PD reported that it was at the printers and could be ready as early as 08/04/02. DL also requested that he receive an extra two copies of the newsletter. The extra copies were to send to non-members who had contributed articles to the newsletter. It was agreed that this should be done.

## Radios & Headsets

SR brought details of two radios that he recommended. Both had been tested at the UKRA 2002 site. BT Freeway @ £53 & Telcom @ £30. Headsets for use with the Freeway were £15. Headsets were hard to get for the Telcom and would have to be made. Both worked over the distance from one end of the site to the other, but the Freeway was clearer and had less cross talk. Both were 8 channel, but the Freeway had an additional feature to prioritize a particular channel. The Freeway looked more robust. It was agreed that we should purchase eight BT Freeway radios & four headsets.

## Certification on Clusters

This was a follow on from the previous meeting when the council had clarified the rules regarding certification on clusters. SR reported that he had communicated the clarification to the member involved. The member had subsequently requested that the rules be changed such that any combination of motors would be acceptable. (Currently at least one motor has to fall within the power bracket of the certification level being attempted). There was some discussion at the end of which a vote was taken "Should the existing rules regarding certification on clusters be modified?" For: 0, Against: 9, Abstain: 0.

## T-Shirts

CB had made an investigation into T-Shirt suppliers and had brought a recommendation. After much discussion it was agreed that UKRA should purchase 100 grey T-Shirts with the UKRA logo & text on the front. There would be a mix of sizes: 15M, 20L, 40XL, 25XXL. The total cost would be £605 including T-Shirts, printing, screen set up, delivery and VAT. Sale price was not set but will probably be around £10. At this price it was felt that costs could be recouped before the end of the year.

## AOB

**Membership database** - It was agreed that HG would regularly upload copy of

membership database to UKRA ftp site.

**BMFA membership upgrade to UKRA** - CB reported that ZK had asked if the cost of this could be clarified. It was pointed out that this membership option was already on the web site and the membership application forms.

**Sponsorship** - CS reported that MI was in the process of securing sponsorship of the UKRA event. It was agreed that CS should liaise with MI to finalise this arrangement and confirm what we would be expected to do and what we could expect in return. DL stated that anything for inclusion in the next issue of the newsletter would need to be received asap.

## DVNM

Southview Farm, Heckington, Lincolnshire, at 12:30 on Saturday 11th May.

## Council Meeting 12/05/02

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### Location

Southview Farm, Heckington

### Attendees

Charles Simpson (CS - Chair), Mike Crewe (MC), Darren Longhorn (DL - Secretary), Liz Perman (LP), Pete Davy (PD).

### Agenda

- λ Apologies
- λ Minutes of previous meeting
- λ Permanent Premises
- λ UKRA 2002
- λ Model Safety Code
- λ AOB
- λ DVNM

### Apologies

Apologies were received from: Bob Arnott, Cath Bashford, Richard Osborne, Steve Randall, Malcolm Ingram, Mike Williams, Ziggy Kklynosiki.

## Minutes of previous meeting

The minutes of the previous meeting were read and approved. The list of action points was worked through, and progress noted.

## Permanent Premises

PD reported that the windows were in, materials to enclose the ends had been supplied, and the floor will be either levelled or a ramp created, and a temporary electricity supply would be in place by UKRA 2002. PD mentioned that we should think about heating at some point.

## UKRA 2002

PD outlined range layout options, depending upon wind direction. He conformed that enough tape and stakes were available. PD advised that parking could be done on the far concrete area, but that the flying area was much closer than previously, and that only those flying for the far pads would probably want to do that. In any case it is hoped that cars may be allowed up the track, weather permitting.

It was confirmed that vendors wishing to fly would have to pay both vendors and fliers fee.

## Model Safety Code

CS reported that he and MW had had conflicting replies from the same person at the BMFA. It was agreed that while we should quietly pursue the matter, in reality the differences between the two codes was minor.

## AOB

**License requirements for certification -** MC has been asked by a member to clarify the situation regarding the requirement for a license to acquire / acquire and keep, in order to certify L1 on a Hybrid. The position is that UKRA impose no license requirements, but it is up to the flyer to comply with the law for the motor they intend to use. No license is required for Hypertek hybrids. UKRA do however require that the L2 written exam must be

passed before attempting L1 certification on any hybrid motor.

**Prepaid delivery of Newsletter -** DL reported that the BSMA newsletter was being delivered using BMFA prepaid envelopes, It was agreed that we should investigate if this would be possible for 10...9...8...

**Certification forms -** Some members had reported that their certification had never been acknowledged. There was some discussion as to how the procedure could be improved. It was agreed that it should be discussed at a future meeting.

## DVNM

Saturday 6th July, UKRA HQ. (Editor' s note - This meeting was subsequently cancelled)

## Council Meeting 08/06/02

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### Location

UKRA 2002 Southview Farm, Heckington

### Attendees

Mike Crewe (MC - Chair), Darren Longhorn (DL), Liz Perman (LP), Steve Randall (SR - Acting Secretary), Ziggy Kklynosiki (ZK), Richard Osborne (RO), Malcolm Ingram (MI), Mike Williams (MW), Cath Bashford (CB), Bob Arnott (BA) Jim Macfarlane (JM).

### Agenda

- λ Discussion of recent events
- λ Vote for:
  - γ Council Chairman (Nominations: Mike Crewe)
  - γ Council Vice Chairman (Nominations: Mike Williams)
  - γ Chair of S&T (Nominations: Ben Jarvis)
- λ AOB

### Apologies

Apologies were received from:, Ben Jarvis, Hugh Gemmel.

## Discussion of Recent Events

MC opened the meeting by asking if there were any issues that needed resolving before nominations for Chair/Vice Chair and Head of S&T took place. Mike cautioned the meeting that he only wanted to cover those topics directly relevant to the nominations and voting.

LP said that she felt there had been some confusion over recent events - confusion over the legal issues in modifying fuel gains to ignite hybrids, confusion over how micro-hybrids and RATT Works hybrids had become involved.

ZK started to outline what he thought the technical position of the use of propellant grains to start hybrids. MC stopped the discussion and said that the purpose of the meeting was not to sort of the technical issues - and that these would be sorted out as the first job of the new S&T.

It was agreed to leave the detail of both the H&SE issues and the events leading up to Pete and Chas' resignation until the council meeting on the 6th of July

LP made the statement that she had asked Mark Perman to contact the H&SE. She said that Chas and Pete had agreed to meet Mark within 1 to 2 weeks of the last council meeting - but that this had not proved to be possible.

SR made the point that without a full discussion it would be difficult to be sure that some of the individuals that may be involved in the resignation events.

BA proposed a way forward - he proposed to appoint a temporary S&T to progress matters to the council meeting on the 6th of July. This was seconded by SR and unanimous agreed with a vote.

MI said that he felt that many of the recent issues arose from events not being fully reported back to the full council. Malcolm asked for all issues to be fully reported back to the council in future. This was unanimously agreed.

It was agreed that MC would talk to Pete and Chas to get their view of the events leading up to their resignation. It was agreed that the new S&T should talk to Pete and Chas to pick up the work done so far on the legal position of using AP fuel grains to ignite hybrid motors.

CB made the point that any council member should fully consult the rest of the council before approaching external agencies such as the HSE unless this first within their official roll.

MW put a general question to the council asking if anyone knew of any other technical issues that would affect flying in the immediate future. It was agreed that none were known.

MC received an action point to ensure that HG changed the banking details to reflect the new chair.

## Voting

BA nominated JM for the temporary chair of S&T. This was seconded by LP and MI. No other nominations were received and this was unanimously agreed. JM chose ZK as the 2nd temporary member of the S&T - this was unanimously accepted by those present. DL nominated MC as chairman - this was unanimously agreed. LP/MI nominated MW as Vice Chairman - this was unanimously agreed.

## AOB

MW raised some issues about parking next to the range head. It was agreed to advise people that they park their at their own risk. It was agreed that the job of announcing should be done separately from RSO. It was agreed that LP should do the announcing the following Day. It was agreed to ask for RSO volunteers at the flight brief.

**UKRA Secretary' s note:** The date and venue of the next UKRA council meeting is to be determined.

## *by Darren J Longhorn*

As reported elsewhere in this issue, and previously on the web site, Pete Davy and Charles Simpson have resigned from their posts on the UKRA council. Both have been on the council for most of UKRA's existence, and will be sorely missed.

Charles was most recently the Chair of UKRA - a pretty thankless task, as I think most of the previous Chairs would agree. During that time he presided over some pretty tough council meetings where strong views were aired and a cool head was needed to keep the discussion on track. Charles accomplished that while always managing to keep an objective view. Previous to and during his stint as Chair, Charles was also the head of Safety & Technical bringing in a major overhaul of the safety code. He also designed the UKRA Level 3 Certification process and produced all of the associated documentation.

Whilst Pete never held one of the executive positions, largely because he was always conscious of any possible perceived conflict of interest, his influence on UKRA's development has, nevertheless, been huge. Over the years he has acted as liaison between UKRA and various official bodies including the CAA & HSE, and has also represented UKRA to the media on various occasions. Pete has also developed the K-Lob launch event from a small affair to one of the major events on the calendar. He also stepped into the breach when the annual UKRA event lost its previous site at Garlands shooting range. I think few people realise just how much effort Pete has personally put into the running of these two events.

I've only been on the council for two and a half years, so I haven't covered the whole of their contributions to UKRA. My apologies for anything I've missed out. I hope to see you both flying an increased number of rockets at future launch events!

As many of you are probably aware since UKRA 2002, UKRA now has a permanent building, based at South View Farm, home of Pete's Rockets. The reasons for acquiring the building were entirely pragmatic. South View Farm is currently the home of two of the main launch events of the year, namely the UKRA events and K-Lob. The costs for the hire of marquee for each of these events is approximately the same as the cost of renting the building for the year. Of course the building has several advantages over a marquee, it's bigger and is less vulnerable to the weather. Importantly, the cost is spread over the entire year, hire of marquees has traditionally been a large lump for UKRA to swallow, financially. The monthly payments means this burden is spread across the year. The rental period is initially for one year, but may be renewed on an annual basis. Finally, the building is available *all year around*.

It's been the case in the past that Pete Davy of Petes Rockets has been very accommodating in holding small launches at South View Farm. It's hoped that this will continue, as the building provides an ideal base of operations and should lead to less disruption of Pete's business and family. The building may also be used for other purposes such as large construction projects by members who lack the required space at home. Please be aware however, that items left in the building are done so at the owners risk.

## Arranging use of the building

A nominal charge of £5 per person, per usage will be made, so that those that use the building most contribute most towards its cost. So for example a groups of four fliers using the building for a launch day would pay £20. If you wish to arrange to use the building, you should contact Hugh Gemmell at: [membership@ukra.org.uk](mailto:membership@ukra.org.uk) to book the building and Pete, via Pete's Rockets, to arrange access. Payment should be sent to the UKRA P.O. Box number.

# Rocketry Groups

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Here is a list of all rocketry clubs known to UKRA, both UKRA affiliated and others. If you would like to have your group listed here, or have your details modified, please let us know.

## AspireSpace

AspireSpace are one of Britain' s oldest amateur rocketry groups, formed 12 years ago. We work largely with hybrid rocket engines, test regularly at our site near Stonehenge, and have recently started flying our own hybrid powered rockets. We regularly design and build engines and rockets at our Farnborough and Bristol workshops, and have members across the UK, and abroad. Our long term goal is to develop a reusable rocket capable of reaching space, and we are well on our way to that goal.

Contact: Martin Heywood

Address: 581 Rochfords Gardens,  
Slough, Berkshire, SL2 5XG

Tel: 01753 552517

Email: [m.heywood@steel-sci.com](mailto:m.heywood@steel-sci.com)

Web site: [www.aspirespace.org.uk](http://www.aspirespace.org.uk)

## BSMA

The British Space Modelling Alliance is the BMFA specialist body for space modelling.

Contact: Stuart Lodge

Email: [stuart.lodge1@ntlworld.com](mailto:stuart.lodge1@ntlworld.com)

## Black Knights

Black Knights are based in the West Midlands. They fly model and HPR rockets and have regular flying events.

Email: [info@blackknights.org.uk](mailto:info@blackknights.org.uk)

Web site: [www.blackknights.org.uk/](http://www.blackknights.org.uk/)

**10...9...8...**

## CROCK

Crock hold regular flying events. Details of events can be found on the Rockets & Things web site.

Contact: Tony Betts

Email: [y2ksoftware@btinternet.com](mailto:y2ksoftware@btinternet.com)

Web site: <http://www.rockets-things.co.uk/>

## EARS

The East Anglian Rocketry Society have a flying site near Cambridge, and regular flying event. See their website for details.

Contact: Steve Randall

Tel: 01473 649454

Email: [steve@btinternet.com](mailto:steve@btinternet.com)

Web site: [www.spackington.com/](http://www.spackington.com/)

## HART

Hornchurch Airfield Rocket Team hold regular flying events. See their website for details.

Contact: Peter Barrett

Address: 22 Grey Towers Gardens,  
Hornchurch, Essex, RM11 1JH

Tel: 01708 458463 or 07866 314371  
(mobile)

Email: [pete@hartrockets.co.uk](mailto:pete@hartrockets.co.uk)

Web site: [www.hartrockets.co.uk/](http://www.hartrockets.co.uk/)

## MARS

Over it' s 10 year history, MARS Advanced Rocketry Society has grown into a national group of rocketeers committed to pushing the limits of non-professional rocketry, developing new rocketry technologies, breaking records and above all having fun!

Contact: Ben Jarvis

Email: [info@mars.org.uk](mailto:info@mars.org.uk)

Web site: [www.mars.org.uk](http://www.mars.org.uk)

## North West Rockets

North West Rockets are a small, informal group of rocketry nuts who do it for fun! We are not out to break any records, but do like to make rockets and fly 'em.

Contact: Dave Thompson

Email: [DATSCOPE@aol.com](mailto:DATSCOPE@aol.com)

Web site: [www.angelfire.com/on/DATSCOPE/nwr.html](http://www.angelfire.com/on/DATSCOPE/nwr.html)

## NSRG

The North Star Rocketry Group are based in West Yorkshire. They hold model rocket launches locally, and attend HPR launches around the UK.

Contact: Darren J Longhorn

Email: [info@northstarrocketry.org.uk](mailto:info@northstarrocketry.org.uk)

Web site: [www.northstarrocketry.org.uk](http://www.northstarrocketry.org.uk)

## PRS

The Paisley Rocketeers' Society, founded in 1936, are the oldest continuously operating rocketry group in the world. Involved in almost every aspect of rocketry. Since 1965 the PRS has concentrated on the development of aqua jet rocketry.

Contact: John D Stewart, PRS Honorary Secretary

Address: 15 Bushes Avenue, Paisley, PA2 6JR, Scotland, UK

Tel: 0141 8842008

## SARA

Scottish Aeronautics and Rocketry Association. Based in the West of Scotland.

Contact: Paul Timoney

Email: - [SARA contact](mailto:SARA contact)  
[P.Timoney@btinternet.com](mailto:P.Timoney@btinternet.com)

Web site: [www.sarauk.btinternet.co.uk](http://www.sarauk.btinternet.co.uk)

## SERFS

Southern England Rocket Fliers.

Contact: Mr John Harvey

Address: 11 Edgehill Road, Southampton, SO18 2AH (SAE Please)

Tel: 023 8055 2517

Email: [johnharvey1@onetel.net.uk](mailto:johnharvey1@onetel.net.uk)

Web site: [www.serfs.co.uk](http://www.serfs.co.uk)

## SRA

Sheffield Rocketry Association.

Contact: Hugh Gemmell

Email: [hugh@cruiserd.demon.co.uk](mailto:hugh@cruiserd.demon.co.uk)

Web site: [www.cruiserd.demon.co.uk](http://www.cruiserd.demon.co.uk)

## STAAR Research

Space Technology Applications, Astronomy and Rocket Research have three main activities:

- λ Public and educational rocketry workshops.
- λ Scale flight research, particularly the Waverider aerospaceplane concept.
- λ Organisation and development of the annual International Rocket Week flying event, one of the main national events of the UK rocket flying calendar. See website for details.

Contact: John Bonsor

Address: 48 Longbar Avenue, Glengarnock, Beith, Ayrshire, KA14 3BW, Scotland, UK

Tel: 07733 250135

Email: c/o Bobby Wark  
[bob@scotroc.force9.co.uk](mailto:bob@scotroc.force9.co.uk)

Web site: [www.gbnet.net/orgs/staar/](http://www.gbnet.net/orgs/staar/)

## SWARM

South West Amateur Rocketry Membership.

Contact: Jim Lennie

Email: [james.lennie@freeuk.com](mailto:james.lennie@freeuk.com)

Web site: [mysite.freemove.com/swarm/](http://mysite.freemove.com/swarm/)

## Thrust

Contact: Mike Williams

Tel: Tel:01283 533848

Email: [100306.20@compuserve.com](mailto:100306.20@compuserve.com)

Web site: [ourworld.compuserve.com/homepages/thrust\\_for\\_space/](http://ourworld.compuserve.com/homepages/thrust_for_space/)

## UKRA

United Kingdom Rocketry Association.  
See [page 2](#) for contact details.

## WLRS

West Lancs Rocketry Society are based in the design and technology dept. in Edge Hill College in Ormskirk. We hold meetings roughly once a month although it really depends upon the weather.

Contact: Rob O' Brien

Email: [club@wlrs.org.uk](mailto:club@wlrs.org.uk)

Web site: [www.wlrs.org.uk](http://www.wlrs.org.uk)

## WRS

Wirral Rocketry Society operates on the Wirral, North West and North Wales. We have launch sites in Bromborough and Liverpool, suitable for low - mid power flights. Please contact us if you are in the area and see if you can come along and fly with us!

Contact: Martin Sweeney

Email: [club@rokits.org](mailto:club@rokits.org)

Web site: [www.rokits.org/](http://www.rokits.org/)

## UKRA Regional Rocketry Contacts

The following people have offered their contact details to UKRA in order to provide a more local point of contact for any rocketry related questions you may have. Feel free to contact them for advice about rocketry in their regions.

## Ayrshire

Contact: Bobby Wark

Email: [bob@scotroc.force9.co.uk](mailto:bob@scotroc.force9.co.uk)

## Cambridgeshire

Contact: Bob Arnott

Email: [bob@fatboab.org](mailto:bob@fatboab.org)

## Lincolnshire

Contact: Charles Simpson

Email: [chas@helix.ukf.net](mailto:chas@helix.ukf.net)

## London

Contact: Ben Jarvis

Email: [rocketandroll@hotmail.com](mailto:rocketandroll@hotmail.com)

## Merseyside

Contact: Dave Thompson

Email: [DATSCOPE@aol.com](mailto:DATSCOPE@aol.com)

## South Yorkshire

Contact: Hugh Gemmell

Email: [hugh@cruiserd.demon.co.uk](mailto:hugh@cruiserd.demon.co.uk)

## Southern Area

Contact: Zigi Kklynossikki

Email: [zigi@ukonline.co.uk](mailto:zigi@ukonline.co.uk)

## Staffordshire

Contact: Mike Williams

Email: [lawn\\_dart@yahoo.com](mailto:lawn_dart@yahoo.com)

## Sussex

Contact: Rick Newlands

Email: [rnewlands@aol.com](mailto:rnewlands@aol.com)

## West Yorkshire

Contact: Darren J longhorn

Email: [darrenlonghorn@yahoo.com](mailto:darrenlonghorn@yahoo.com)

## Worcestershire

Contact: Mark Perman

Email: [liz.mark@virgin.net](mailto:liz.mark@virgin.net)

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\*\*Pre-assembled  
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[www.petesrockets.co.uk](http://www.petesrockets.co.uk)  
call: -01529 460279

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