



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

## **the voice of UKRA**

volume 5 issue 1

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Composites Kit by Pete Davy

### **Cuts, burns & Twisted Ankles**

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Latest UKRA News



# Editorial

*by Pete & Angela Waddington*

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Welcome to the latest issue of 10..9..8. Spring is now upon us - however, as we're sure you are aware, there is no real prospect of flying for the near future - unless you know different. If there's anyone out there still flying, please send us a report! If you're not flying, you must be building - again, send us details of your current projects.

We do make light of it, but for some, it is no laughing matter. Many of the flying sites in the UK are on farmland, and therefore require the goodwill of the farming community. Please, make sure you follow the current guidelines if you're thinking of flying.

We recently gave a talk at a local aeromodelling club, and they have a similar dilemma. However, they pay the farmer for the use of the land, so not only do they have to deal with a lack of flying, they also have to decide on the delicate matter of whether to keep up the payments for a facility they can't use! On a lighter note, the local sports centre has offered them use of one of the large halls for indoor flying. Maybe we should follow their example and get out the Micro Maxx?....

We'd like to take this opportunity to welcome any new members to UKRA, and wish you happy flying - if we get to do any this year! As we always say in this column, this is your voice, so if you have something you'd like to share, drop us a line.

If you have anything for inclusion in 10..9..8, please send it either to the usual UKRA PO box, or the email address below:

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## Cover Photo

Pete Waddington's Mirage at Copper Knobs

## Contents Photo

Dave Thompson's Iris at UKRA 2000

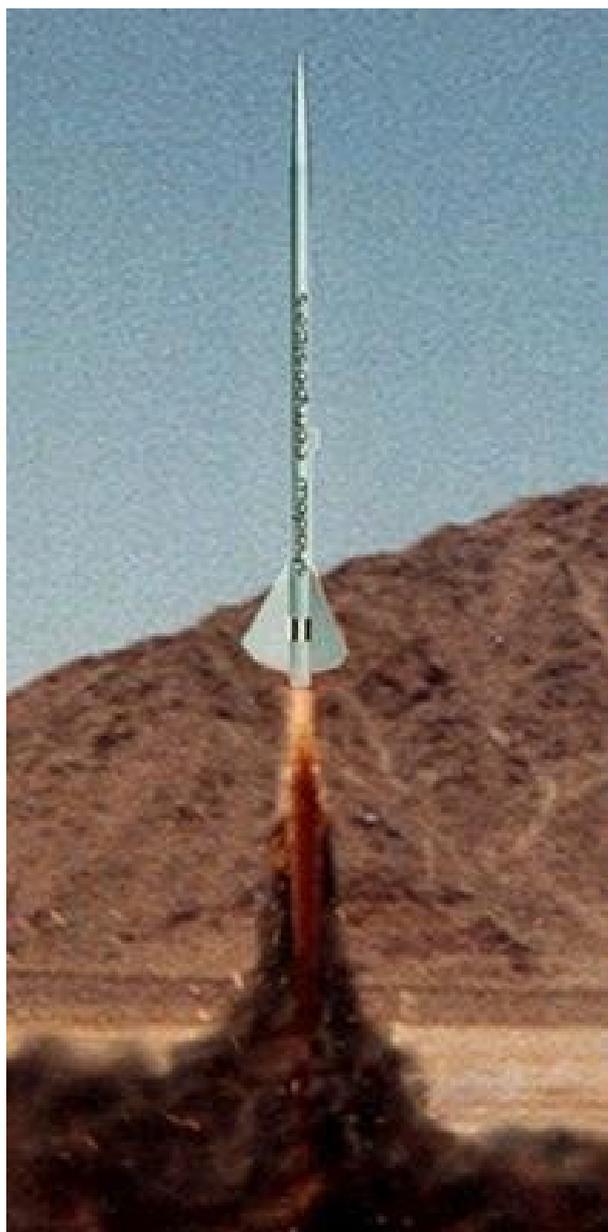
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# Building the Shadow Composites "Raven"

by *Pete Davy*



Raven #26 Run #2 Custom made exclusively for Pete Davy, are the words on the instructions for the Shadow Composites Raven.

This kit had long held my fascination after seeing it on Shadow Composites web site, All carbon airframe and fins. High temp epoxy, ceramic shock cords and heat insulation. This is a kit at the cutting edge. Just one small problem, it was originally a limited run kit and they were all sold. However if enough interest was generated then they may do a second production run, I e-mailed Dave Triano and told him that I was interested, Some time later he e-mailed me and asked if I was still interested, he just required a small non refundable deposit. The run was being limited to just 50. My payment went of and was confirmed as number 26 in the production run, Dave also kept me informed of progress. When it was ready he asked how I wanted it shipping, I told him and also ordered a couple of the Sprint ABM kits that he also does.

A few days later, the kits turn up. All beautifully packed. The Sprints were indeed novel and are worthy of a future article. Upon opening the Raven box, Christmas had come early, lots of bags with everything beautifully packaged and some very lightweight but immensely strong carbon fibre tubes.

I eagerly read through the instructions, and then re-read them a couple of times more so that I could identify all the parts and how they were all going to interact with each other. After all this is not your average run of the mill high performance kit. To quote from the instructions 'The Raven has been engineered as a total structural system to produce the highest performance possible. Every aspect of this system has been extensively tested by computer simulation and real world testing.'

Safety issues were also quickly addressed, this being important before handling some of the materials such as the 2300 Degree heat insulation and glue. Working with the carbon fibre components in the kit is also addressed.

Having got through the safety bit, I then proceeded to lay out all the kit parts and familiarise myself with them, some items were very expensive and I wanted to be sure that I understood exactly what part they all played and the sequence of construction.

The instructions provided by Shadow Composites are very thorough and easy to follow. They were certainly going to introduce me to new construction techniques and new materials. The builder is also required to provide a number of other items in order to build this kit, this is where I was presented with a small problem, we don't have some of these items available over here!

After a few e-mails and a couple of 'phone calls I had some UK sourced alternatives. I was ready to begin. First though I had to glue the supplied fin alignment templates onto some foam core board, following the instructions to the letter I found this new method very easy to use, and yes the fins are on straight.

As this kit is a minimum diameter kit the fins are simply bonded onto the surface of the airframe! This is done with JB Weld and some 500-degree High temp epoxy adhesive and pulped Kevlar fibres. Wooden mixing sticks and fin filleting tools were included in the kit. The next step is to lay-up 3 layers of carbon tissue and resin to reinforce the fin fillet joints.

It was at this stage that I decided to modify the kit slightly...!! More to follow in the next edition of 10..9..8...

## Contact Shadow Composites

Email: [dave@shadowaero.com](mailto:dave@shadowaero.com)

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

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# Cuts, burns and twisted ankles:

## A quick overview to rocket field first aid

*by Mark Turner*

### Warning

Firstly, I must stress the importance of seeking professional medical advice if you suffer from an injury that requires first aid treatment. Even if it is a simple cut, it is important that the correct steps are taken to prevent infection and secondary injury.

Secondly, I strongly urge as many of you as possible to take a course in basic first aid. Courses are run across the country by both the St. Johns Ambulance Service and by the British Red Cross. Ask at your local library, or see local newspapers for further information about courses in your area. One day, the advice taught on a basic course could mean the difference between life and death of a friend or loved one.

Finally, this is to be considered as a brief overview to best practices when dealing with common first aid situations. It should not be referred to as a comprehensive guide and is in no way endorsed by any professional medical body. All individuals taking first aid action do so at their own risk, and in doing so may expose themselves to potential harm. It is in your own interest to seek professional instruction in first aid. The author cannot be held responsible for actions or inactions arising from this article.

### Introduction

Over the past few years of rocket flying, I have heard, and been party too, a number of

minor incidents that have required first aid assistance. The majority of these incidents have fallen into three main categories:

- Cuts, mainly to fingers during the making of models. Other cuts have arisen as a result of climbing fences and bushes during retrieval.
- Burns, usually as a result of handling used igniters or motor casings. Also seen during soldering operations on electrics or from hot ground support equipment. The majority of burns, however, come from exposure to the sun!
- Twisted ankles, always attributed to rocket retrieval over rough ground.

It is in everybody's best interest to prevent the above accidents happening, and by simple forethought, the majority of injuries can be, and should be avoided. The use of correct equipment such as safety knives and cutting boards goes a long way in preventing cuts. Beginners, especially the young, should always seek professional instruction in the use of equipment. Rocket flying is a great outdoor pastime. Protection from the sun is strongly recommended, even on overcast days. Hats and full-length sleeves, in conjunction with a high factor sun block are essential when standing in a field for many hours in the summer. When retrieving rockets, the use of gates and stiles to cross fences will prevent nasty 'barbed wire rash'. Burns can be avoided by leaving all ground support equipment enough time to cool down after launch. People retrieving rockets should also be aware that one end is usually hotter than the other. Finally, good walking boots are important in the prevention of ankle injury.

## First Aid Kits

Despite having attempted to avoid injury, it is inevitable that accidents will occasionally happen. As such, it is a good idea to have at hand a first aid kit. The content of every personal first aid kit differs, depending upon the experiences of its keeper. The Health and Safety Executive details the contents of work place first aid kits, and as such I shall

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refer to this as a guide to personal kits. However it is up to individuals to assess their needs and make the necessary choices.

When engaged in first aid, the most important person in the whole operation is the first aider themselves. As a first aider, you are of no use if you succumb to the same fate as the victim. Similarly, you must protect yourself from possible infection from the injured party, and vice versa. Thus one of the main items in your first aid kit should be at least one pair of disposable gloves.

Next should be a ready supply of bandages. These should come in assorted sizes from small finger dressings to full size pads and slings. Although it is unlikely that military field dressing will be required, it is a fair bet that a small cut to the scalp would soak through as many bandages that you may possess. It should be noted that plasters are not advisable, as some people are allergic to the adhesive used to stick them down. If you decide to carry plasters, ensure that anybody using them is not sensitive. The use of safety pins to secure bandages is also not encouraged since they can lead to pin pricks. When securing a bandage, a simple knot should be employed.

A sterile wrapping should be carried in the event of a burn. One of the best suggestions that I have heard of is cling film. Since the plastic does not contain fibres, it will reduce the potential of infection, and due to its airtight nature, it will prevent the loss of vital fluids from the injury site; whilst at the same time prevent germs from getting in. Fresh clean water should be available to deal with burns, but it is not recommended to carry it in the first aid kit. It is not recommended to carry any type of burn cream, painkillers or other medicines due to the adverse reaction they may have on some people.

Scissors are often useful, as is a pair of tweezers for splinter removal. Finally, all first aid kits should come with some visual instruction in emergency procedures.

## Dealing with a cut

When dealing with any situation involving blood, always put on your disposable gloves. Bleeding from a cut should be stopped by the quickest possible method. Check to see if there is anything in the cut, such as glass or other foreign objects. If there is, do not attempt to pull it out as this may be stopping up the hole. Simply apply pressure around the injury with a clean dressing and seek professional medical help as soon as possible. If the cut is small, place something clean over it such as a fresh handkerchief or a clean towel, and apply firm pressure until the blood flow has stopped. Dress with a clean bandage. For larger cuts, it is advisable to get the patient to sit/lay down, and elevate the injured limb so that the blood must flow 'up hill'. Apply firm pressure to the area with a clean dressing, towel or bandage. Wherever possible, get the patient to hold the dressing themselves. Do not check the injury as this may open up the wound. Seek professional medical help as soon as possible so that the wound can be stitched as necessary. Unless trained to do so, never apply a tourniquet or use pressure points to stop bleeding as this can lead to severe complications if carried out incorrectly.

## Coping with a burn

Burns are probably one of the most painful injuries anyone can suffer. As such it is vital that the first aider deals with the shock as much as the visible injury. Be supportive and take charge of the situation so that the patient feels confident in your ability. The priority when dealing with a burn is to cool the burn site. Where possible immerse the injury in cold clean running water. This should last up to five minutes depending on the depth of the burn. Even when the patient feels uncomfortable with the cold water, it is advisable to explain that it is better to suffer the cold now, than the effects of the burn in the future. After cooling the area, wrap the injury in a sterile, non-fibrous dressing. Cling

film or a clean plastic bag is ideal. As soon as possible, seek medical help. Do not attempt to put cream or oil onto the injury as this can lead to complications.

## Aid with a twisted ankle

A twisted ankle is crippling in its immediate effects, and can have consequences that last for many months. As such, the quicker medical help is sort, the better the chances are that a fast recovery will be made. As soon as the ankle is twisted, avoid placing any weight on it. Most people are tempted to see how much weight they can take. This only makes things worse, especially if there are complications such as broken bones. Leave boots or shoes on to help support the injured area for as long as possible. If the shoe has been removed, apply ice to the swelling. Obviously most rocket flying fields do not have ice to hand, so anything cold such as a wet towel will have to suffice. Strap the foot up using bandages to prevent any unnecessary movement (do not replace the shoe). Either carry, or prop up the patient until they can be taken to the nearest medical facility for X-rays and treatment.

## Conclusion

I do not suppose for one minute that I have taught you anything that you did not already know about cuts, burns and twisted ankles. That was only half the aim of this article. I hope that I have also raised your awareness to potential dangers that lurk in the model room and on the flying field. Avoidance of accidents is always better than coping with them. However being prepared to face an incident at any time only requires a few hours attendance at a suitable first aid course. It will not turn you into a doctor or paramedic, but will give you the necessary training and confidence to face uncertain situations with the knowledge that your actions may well make some bodies accident easier to cope with. At the end of the day, wouldn't you rather have some one who knows what they are doing helping you?

# Competition Results

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There were two competitions in the last issue, the regular UKRA competition and an extra competition sponsored by Black Knights.

## Black Knight

The winner of the Black Knights' competition was Steve Randall, who correctly identified that the Black Knight launch vehicle used kerosene and high test hydrogen peroxide, and was launched from Woomera in Australia. He wins a poster and mission stickers donated by Bristol Aerospace of Canada (Manufacturers of the Black Brant).

## Odd one out

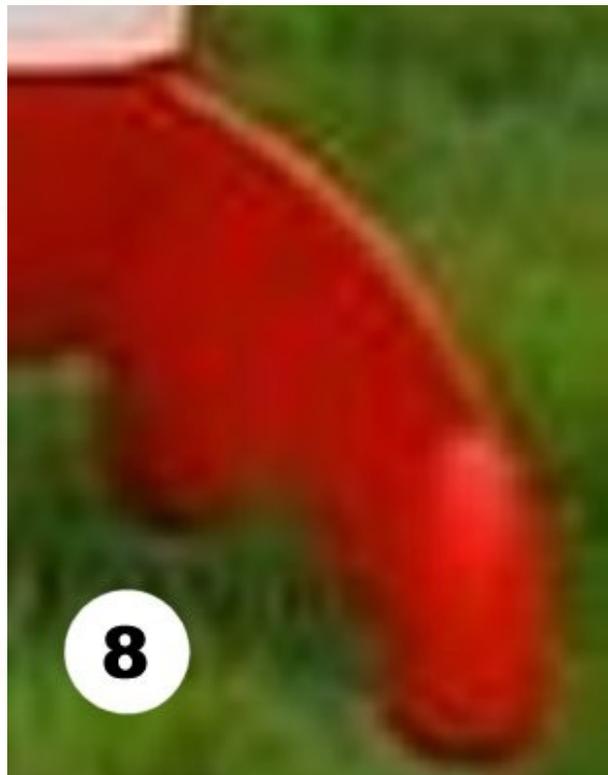
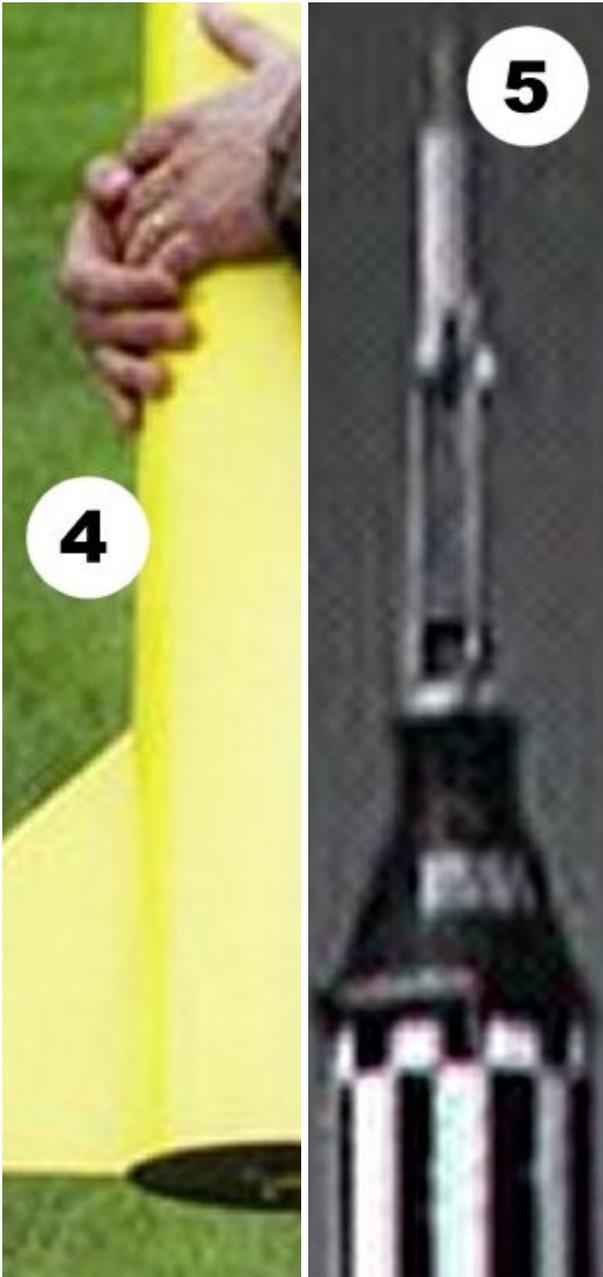
The UKRA competition was won by Mike Crewe who correctly spotted that the odd one out was Enterprise, because although they are all notionally manned craft, it was the only one to actually fly with a crew. He wins a Quest Apollo kit.

## UKRA Competition

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This issue's competition is straightforward, simply identify the following eight rockets. Send your entries either to the UKRA PO Box, or by email to [competition@ukra.org.uk](mailto:competition@ukra.org.uk) In the event of more than one correct answer, the winner will be drawn from a hat. The winner will receive a Quest Model Rocket Kit.





# An article on the demise of rockets

by Zigi Kklynoskki

It was a cold crisp morning in January when I arrived at Pete's farm to fly rockets. With the usual congenial greetings from all, I began to unload the van. My rockets are usually received with interest, admiration and sometimes the odd sideways glance. This was Brass Balls 2000 and attending were the usual suspects. Mars of course and many wheather hardened rocketeers from far and wide.

## Gasp

Richard Osborne gasped the first time he saw RAPTOR others noted it's unusual format, some politely laughed. Raptor was [for she is now extinct] A battle dressed 5 foot missile in grey splinter camouflage, 3 inches dia with a 54 mm motor mount and forward swept fins. It was this radical format that intrigued onlookers most. Some said that won't fly others kept their opinions to themselves.

## Fast as flip

Richard was ecstatic ! Well with a J460 Blue thunder loaded, off to the launch site, arm the G wiz on the rail and 5,4,3,2,1? Awesome, the motor sparked up and she was gone. Well up on mach, dead straight and as fast as Flip. Some 7 seconds latter pop and deployment, chute opened up and she floated down in the dying twilight of the day. Now the light was fading fast.

Then our first dilemma [ raptors and I's ] I couldn't find her the rocket had disappeared. We had all placed it about a mile or so from the launch pad at the top of the track.

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## Darkness Descends

Well needless to say it got darker and darker and then pitch bloody black and as cold as it could get. People started to leave, I was gutted ,not only had I lost my first 54 mm rocket the G wis on board was borrowed from Pete.

## Well I couldn't go home!

Pete and I drove around later to see if we could hear the bleeper and locate the thing, not a hope. Pete made me up a bed in the office of at Petes rockets and told me reassuringly, We'll find it in the morning. I awoke from my dreams into another dream, as warm as toast surrounded by rocket paraphernalia . Pete's mums full English on the table. Wonderful !

## Fresh

The morning was fresh 6% of frost on with my wellies and away up the track to look for my unusual friend At the top of the track , and not so far from where we had searched the previous night there she was, black and white chute covered in frost. Then came the But! which enevitably comes in such tales. there was only the booster section attached to it. The shock cord connected to the payload and nose cone had failed.... I returned to the farm a little dejected .On the way back I gestimated where apogee had taken place ,and to where the missing parts would balisticly fall ,if detachment occurred at this event. Luck of the devil or what an hour later I found it. Nose cone sticking out of the ground with a shattered payload section next to it and what there in payload bay with its door hanging open was the G wis blinking out an altitude of 4'? 33 feet, I cant remember the ( hundreds) 4'733 or 4'633 ,RICHARD Knows! I WAS DELIRIOUS. Not only had I found all of my lost rocket the G wis was in perfect working order. This little board / a few silicone chips had fallen 4 and a half thousands feet lain out

in 6 or more % of frost all night and it still worked. A bloody good indorsement of any product. THANKS MR Pratt.. So with all the pieces I headed back to the farm. When I got home and made a good inspection , the damage was extensive the only part of the top section that was reusable was the nose cone apart from the G wis that is.

## Second flight

This was uneventful; apart from being awesome, It was at Trust's autumn event at Garlands which turned out to be the last one to be held there. The motor was a I 195 Black jack . [ a little under powered ,maybe ] Lots of smoke , dense Black smoke straight as a dye if slightly unstable at apogee. The short delay proving to be too long , deployment and a good decent into the crop field. Which goes to prove the maths on my unusual design of fin configuration, that it only works if the mach speed is well up. She recovered late but was undamaged, Perfection.

Well now I come to the demise of the strange machine.

## 3rd Dec EARS, Cambridgeshire

Cath , Marcus and myself had travelled up to make cert flights, Cath's level 1 with KRY and I was going to attempt my level 2 with 'Raptor'. Marcus had something up his sleeve. And we all were anticipating Chris' Three stage Quantum Leap ! The first High Power Three stage rocket to be flown in this country. Well the best lain plans of men and mice sometimes go foul.

I chose a lower impulse motor , a J190 T. prepped the motor under the guidance of pete for cert purpose. And put it in raptor ,to await my turn to try for my level 2 cert. We were waiting for Chris to fly his 15 foot [est] high Quantum leap three stage flight

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There were a few quiet moments leading up to this event, Peter took charge as senior RSO and every one moved back to where the vehicles were parked. The range was clear, and pete counted down 5 4 3 2 1 launch : the K 1100 sparked up and leaped into the sky. The rocket wheather cocked on lift-off although the flight was strait as a dye. 2 seconds later it staged , the second stage raced upwards and out of site , we all waited for the third stage to kick in . There was no indication this event ,and several seconds later the whistle of an inbound ballistic return. Followed by a dull thud from the distance. I think we all felt a little sad . The first stage booster was recovered, and a search was started for the remains of the rocket. I walked to the pads with raptor ready to go after the usual igniter failures , continuity was established a short count , Ian hit the button and she was gone. Blue thunder in the evening light 'Magic'. Flying straight as an arrow arching over to deployment. At first it appeared that everything was all right. Then it became apparent that the rocket was not connected to the chute and was descending rapidly. It spacked into the ground about 20 meters from the pads, the chute drifted off into the twilight retrieved the pieces and it was time for the last flights of the day. A drag race between Ben's honest bob and Steve's new blue rocket, Honest bob leaped of the rail; Steve's lingered on the pad and then joined bob's smoke trail too disappeared from site. bob deployed and drifted down to the field, just out of sight, Steve is still locking for his rocket. Now for a happy ending. Cath's level 1 flight. the second attempt. This went without a hitch. The rocket KRY worked perfectly so Cath is now level 1.

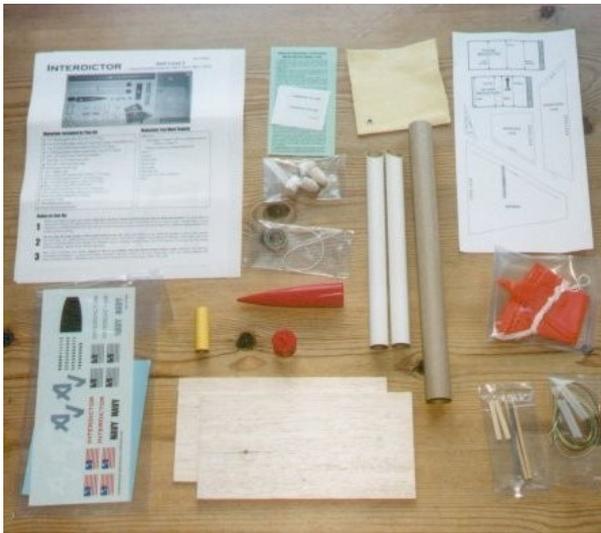
## Broken

We picked up the pieces of our broken rockets and made our way to go back to London. To date there is no sign of Steve or Chris's rockets. Raptor lies in bits upstairs in my room. Awaiting the decision rebuild or recycle , I still have to make a successful level 2 flight.

# Rogue Aerospace - Interdictor

By *Darren J Longhorn*

Described as a 'futuristic fighter craft' the Interdictor is not your typical 3fnc kit. With six fins/wings two 'air intakes', under wing pods and wing tip laser cannon, this is a cool looking model. The finished kit is approximately 20" long, with a wingspan of approximately 10". The kit has an 18mm engine mount and the recommended engines include A8-3, B4-4, B6-4 & C6-5.



- KC-1 kevlar tether
- ESC-1 Elastic shock cord
- PP-30 12" pre-made nylon parachute
- PW -25 4" square of perma-wadding
- 3/32" balsa fin stock
- 2 x rectangular balsa sticks (underwing pod mounts)
- 2 x hardwood dowels (laser cannon)
- Decal sheet



The kit contains the following parts:

- T-25 24mm dia body tube
- 2 x T-19 18mm dia body tubes with pre-cut slanted ends
- 2 x T-14E 13.5mm dia tubes (for the underwing pods)
- T-19E 18mm dia motor mount
- PNC-25P plastic nose cone and shoulder
- 4 x BNC-11A balsa nose cones (for the underwing pods)
- 2 x CR-1925 centering rings
- TR\_18 Thrust ring
- EC-7 Engine clip
- 4 x launch lugs
- KC-4 kevlar tether

The main body tubes are good quality with little trace of a spiral groove. With a couple of layers of primer they will likely be undetectable. The nose cone is free of mould lines. I can't comment on the shoulder as I lost it while writing this review! The parts for the motor mount are reminiscent of pre-RTF Estes parts. The 8" of elastic provided is very short, and in my kit it isn't even 8". The parachute is very nice, not something you often see on a small kit such as this. The parachute may optionally be rigged such that the rocket is horizontal during descent, a nice touch for a rocket such as this. Another nice touch is the perma-wadding. It looks like a coarse woven felt material, and even has a metal eyelet in the corner to attach the kevlar

tether. The balsa fin stock is pretty coarse grained, and will require a fair amount of sanding sealer to obtain a smooth finish. The balsa stock is not premarked, and a template is provided. The fins are all simple polygons and should be simple to cut out. The template also include tube marking guides.

The instructions are good. Descriptions of each assembly step are clear, and good use is made of . Painting details are skimpy, with only a textual description. There is a computer generated picture of the kit on the back of the fin template, but by the time you need it, you will have cut it up! The paint scheme depicted is pretty basic, but for a fantasy rocket such as this, you may well want to invent your own colour sheme. The waterslide decals are excellent, providing two styles, colorful 'normal' and grey 'stealth'. There there is little information as to suggested placement however, and they are not depicted in the illustration.

## Parachute Sizing Charts

*by Steve Randall*

We all know the value of choosing the right size of parachute - too small may result in landing damage - too big can mean a long walk! These charts allow you to choose the best size parachute or streamer for your rocket, or to gauge what effect using a smaller or bigger chute will make. They are just a graphical representation of standard parachute drag formula. It's the first time I have seen this data put in the form of a graph - so I would be interested in any feedback.

Two charts are provided - one for people who work using metric units (Kg and meters) the other for imperial units (oz and inches). There are two sets of data on each chart - the dotted diagonal line at the top is for

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sizing Streamers and the group of four diagonal lines in the centre are for sizing parachutes. Both axis of the chart have a log scale - this takes a bit of getting used to but allows the data for a large range of parachute sizes and rockets weights to be held on a single graph. To use the chart simply find the weight of your rocket along the bottom. Locate the point this weight intersects with the diagonal lines in the centre and read off the parachute or streamer size on the left. Use the loaded weight of the rocket less the propellant weight (i.e. the weight of the empty rocket plus the motor casing).

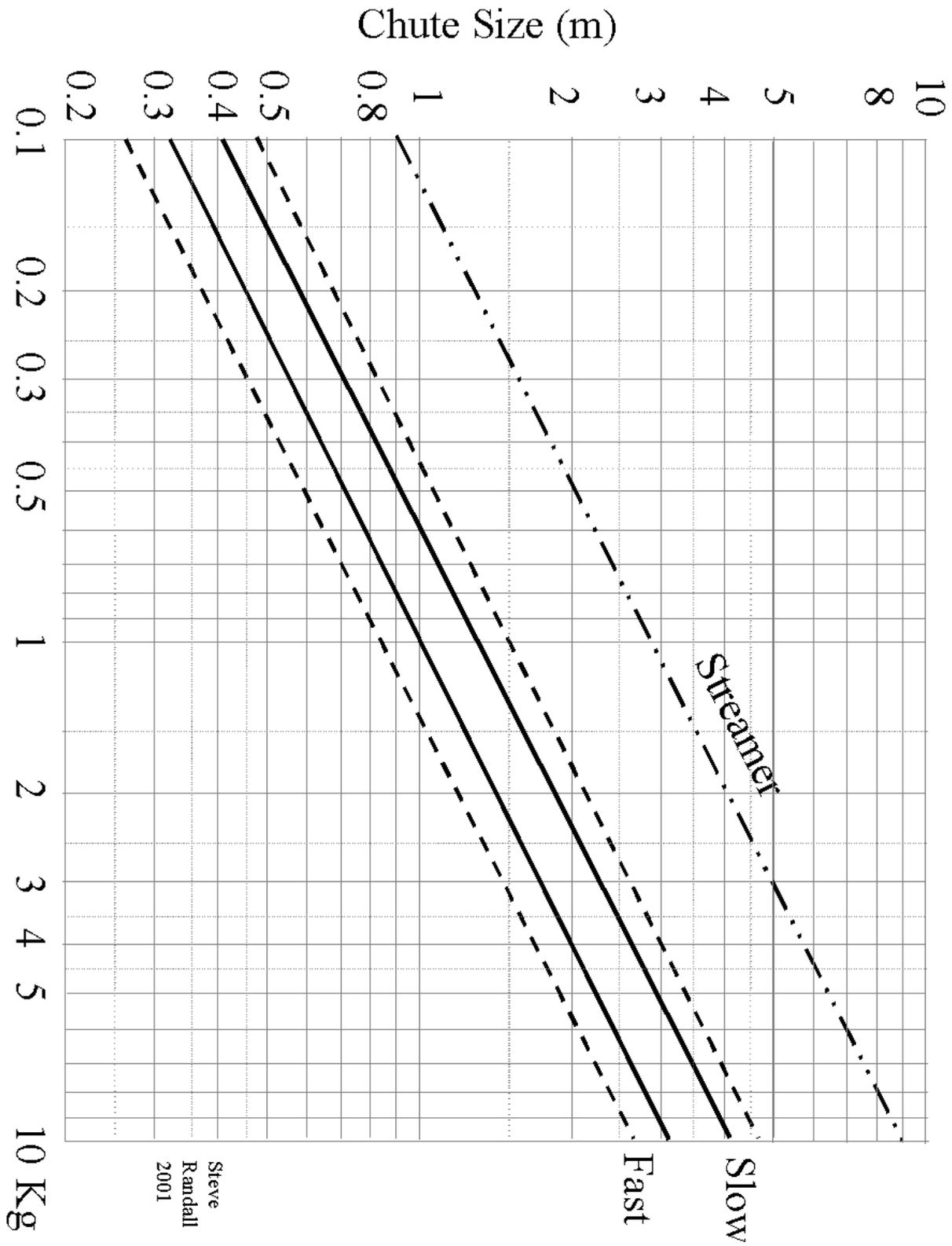
For streamers the value on the left represents the streamer length - the data assumes that the streamers will have the usual 10:1 length to width ratio (i.e. the width will be a 1/10th of this value).

For parachutes the value represents the parachute diameter. Of the group of four lines the two inner solid lines represent what is considered the normal range of decent speeds for an average parachute (a parachute with a Cd value of about 1). The upper of these represents a decent speed of 3.5m/sec (approx. 11.5ft/sec), the lower a decent speed of 4.5m/sec (approx. 15ft/sec). These two rates are normally considered to be the upper and lower bound of desirable decent speed - your experience may vary.

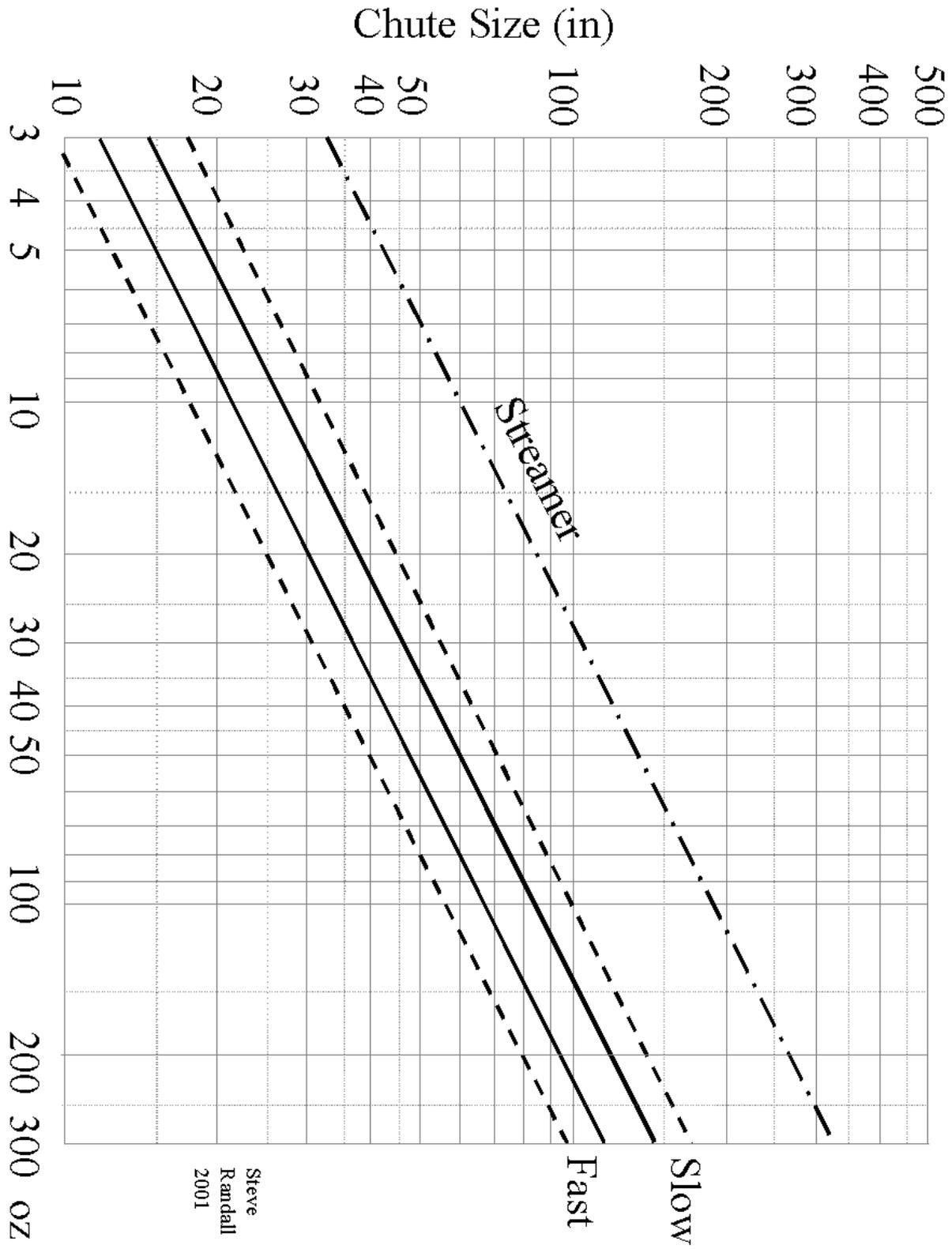
The upper dashed line in this group represents the slower decent rate for parachutes with a low coefficient of drag (a Cd of 0.75). An example of this type of chutes are those made from a single sheet of material (so called para-sheets) and are thus less efficient. The lower dashed line represents the faster decent rate for parachutes with a high coefficient of drag (a Cd of 1.5). An example of this type of chute are those made from many specially shaped segments of material sewn together. The PML "DuraChute" sizes fall approximately in this area of the chart.

Note: If the rocket is likely to land on a hard surface then increase the chute size by 25%.

# Metric descent rate chart



# Imperial descent rate chart



# UKRA 2001



**Maximum altitude is 10,000ft**

**One of the best  
Rocketry events  
of the year at:**

**South View Farm,  
Heckington,  
Lincolnshire  
On the 15th, 16th  
& 17th Of June  
For more information  
see [www.ukra.org.uk](http://www.ukra.org.uk)**

## Prices

### **!CAUTION!**

Due to the recent out break of foot and mouth we would ask people to take the following precautions ;

- Use the disinfectant mats and foot-baths provided
- Wash vehicle's wheel wells before attending
- Wear Freshly laundered clothes
- Try Limit vehicle movements

£10 a day fliers fee  
£15 for the weekend fliers fee if booked in advance  
- NO Refunds-  
£2.50 for the non-fliers  
Under 5s free  
£5 per table in the Marquee (no chairs – bring your own)  
£35 for rocket vendor fees  
No food vendor fees  
No camping fee

# UKRA 2001

# Merlin Kit Review

by *Pete Waddington*

Having built a large number of Estes & Quest models over the years, and generally been happy with the finished results, I am always on the lookout for something a bit different, and always look forward to trying other manufacturers' products just to "see how they do it". I am pleased to say that I found an exciting range of model kits from a company called True Modellers Rocket Kits.



This company has tried to put back the building element of models. I read a review of their NASA Scout, well over a year ago, in a copy of Sport Rocketry, and was eager to get hold of one of their kits. At last, these models are now available in the UK, thanks to Andy Little at Deepsky Rocket Supplies. Andy is the sole European distributor for TMRK, and I am now the proud owner of the aforementioned NASA Scout. However, for

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the purposes of this review, we'll deal with an original design from their range called the Merlin.

The kit is simply packaged in a sealed poly bag with a full colour header card. Included in the bag are the various high quality BT60, BT50 and BT20 body tubes, along with a fine balsa nosecone, quality cut centring rings, basswood for the fins, templates, cardboard shrouds and the recovery system.

The step by step instructions are first class, with illustrations at each and every stage. The assembly is broken down into several stages. A card transition is supplied to make the change from the BT60 to the BT50. A nice touch on behalf of TMRK is that two templates for fins and also the card shrouds are supplied, just in case you mess one up (according to the instructions!).



The kit goes together extremely well. I used a combination of glues, though I tend to favour epoxy for fin attachment and the motor assembly. White glue and cyanoacrylate suffice for the paper shrouds & launch lug



This kit was a joy to build. As the manufacturers say, it is a step back to the "good old days" when building a kit involved more than just snapping bits of plastic into place. The Merlin is suitable for a range of 18mm motors from A8-3 to C6-5, and costs a mere £13.00. Bargain!

After last issue's kit review of the Blackhawk Mini Missiles Astrobee D, I was contacted by a few people who wanted to know where they could get hold of one of these models. I forgot to mention that the full range of Blackhawk's Mini Missiles are available either from Andy at Deepsky or Tony at Rockets and Things.

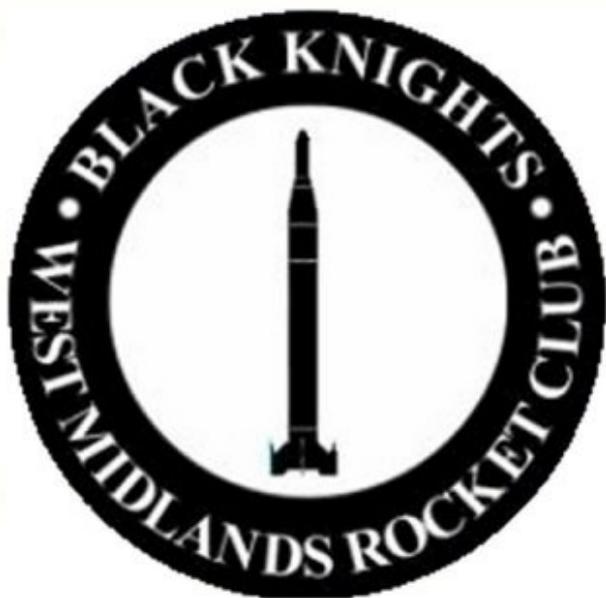
- Andy - Tel: 01524 730981  
<http://www.modelrockets.co.uk>
- Tony - Tel: 01227 700808  
<http://www.rockets-things.co.uk>

attachment. Due to the high quality of the components, base coat and fin preparation is a breeze. Two coats of sanding sealer on the fins did the trick. I gave the whole model two coats of "Jeff Banks' Ports of Call" grey base coat. This is originally designed for creating a weathered verdigris look, although these paints are not that cheap for aerosol (approx £6 per can). The paint is quick drying and heavily pigmented, again, especially for an aerosol based paint. The areas in between the fins, and the main fuselage, were then decorated using chrome solartrim. Anyone who has seen some of our fleet will know that I'm rather fond of using this material. The manufacturers claim it is as thin as a coat of paint, and it is very easy to apply. It is self adhesive, comes in a vast range of colours, and is usually available from model aeroplane dealers. A couple of red pinstripes and a coat of red paint to the nosecone adds to the retro look.

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

## Level 3 Certification

The word on the grapevine is that there are several people planning level three certifications this year. Recently Safety & Technical undertook work to clarify the process for level three certifications, and there are now several forms and checklists on the UKRA website. Click on certifications from the front page.



## BAE Systems Rocket Challenge

*by Mark Perman*

On Sunday 29th April 2001 the Black Knights will be hosting the first ever BAE SYSTEMS Rocket Challenge. The Rocket Challenge is a competition for schools and youth groups. There are three classes:

- Egg lofting for 11-14 year olds. Max engine size "C", Single motor only.
- Egg lofting for 15-18 year olds. Max engine size "D", Single motor only.
- Pollen Survey above 300m. Max engine size "D", Two motors allowed.

The main idea behind the competitions is to help create an interest in technology and engineering in the young. A further aim of the challenge is to support the Rocket workshops and the National Science Week activities run by BAE SYSTEMS RO Defence, Rocket Motors at Summerfield. The rocket challenge should also help to promote rocket flying as a hobby. The event is being run as part of the BAE SYSTEMS Charity Challenge, where money raised by

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

individuals on each site is matched by the company and proceeds donated to the designated charity, which this year is 'Help the Hospices'.

The Black Knights, the rocket club closest to the Rocket Motors site at Summerfield, as hosts will be providing the range management as part of one of our normal days flying. This makes excellent sense from both sides point of view as the company gets the use of the Black Knights range with Range Safety Officers and Launch Control Officers on duty to ensure that the flying takes place safely. This leaves the company people free to organise and judge the competition. The club and the hobby of course should get some very nice publicity.

For 2001 the Rocket Challenge is being run on a trial basis. If successful it is planned to run the competition again in 2002 as part of the Rocket Motors, Summerfield National Science Week activities. However the planning and calls for competitors will start much earlier, probably in autumn 2001. For results of the competition keep an eye on the Black Knights Web site at:

<http://ourworld.compuserve.co.uk/blackknights>



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## Council Meeting 03/03/01

### Present

Bob Arnott, Michael Williams, Mark Turner, Malcolm Ingram, Richard Osborne, Steve Randall (minutes), Mike Crewe, Charles Simpson, Pete Davy.

### Apologies

Darren Longhorn, Ben Jarvis, Jim MacFarlane, Hugh Gemmell, Ziggy Kklynoski, John Bonsor.

### Agenda

1. Minutes of previous meeting
2. UKRA 2001
3. Junior Achievement Scheme
4. Notification of meetings
5. Media
6. Renewals
7. 10,9,8

### Minutes of previous meeting

The list of outstanding action points was updated. Matters arising included:

- It was unanimously agreed that the AGM would be held at Cherry Willingham School, Lincolnshire.
- It was agreed to publish council meeting attendance in 10...9...8.
- BMFA awards. The key points were:- A tight set of rules were needed. A trophy (make or buy). It must not be tacky Two award maximum. It was agreed to operate two awards under the BMFA scheme:- Individual H altitude, Individual Open altitude. Both would operate under rules of a single constructor/flier (no teams) and the flight must be in the UK.

- The method of distributing the constitution as well as if the vote needed to be secret was discussed. Email distribution (with postal distribution where not possible) was voted on: 7 votes for, 1 against, 1 abstention It was agreed that the contents on the pack distributed for the EGM would be:- A covering letter, the new constitution, the voting form. (email recipients would print and return via post). The remaining new documents would be put up on the web site with a URL reference to them in the covering letter.

### UKRA 2001

**It was reported that the Marque had been booked, lighting was available, and the costs of tables, portaloos established. Based on this the fees were agreed and set. Based on this the break even point should be approx. 60 fliers. The altitude limit would be set at 10,000ft. There would be two published slots for people wanting to certify, plus other times by mutual arrangement with the RSO.**

### Junior Achievement Scheme

**It was proposed that the number of achievements within the scheme be extended. This is being investigated.**

### Notification of meetings

**It was reported that a council member without email had failed to receive the minutes of the last meeting, or an invite to this meeting. No further action was necessary because the council member now has email.**

### Media

**A report was received regarding a number of recent and upcoming programs with model and amateur rocket content. It was reported that the Discovery channel were looking to follow the activities of 5 individuals culminating in flights at the IRW/Klob. People interested should contact the media representative.**

## Renewals

It was agreed that it would be better to distribute the renewal notices earlier – as soon as practical after the BMFA AGM (where next years prices were set). It was pointed out that that there was an automatic 1 month extension to the insurance into January – to allow application to filter through the post.

## 10...9...8

It was agreed that all council members should try to come up with items for 10...9...8

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## SGM 07/04/01

### Agenda

- Introduction from the Chairman
- Call for comments
- Vote (including postal ballots)
- Closing remarks from the Chairman

### Introduction from the Chairman

Charles Simpson started the meeting by describing the background to the constitutional changes. He said that the introduction of the changes had been fraught with problems from the start and that it had been a very contentious subject. He said he thought this had been through a passion to "get things right" from the individuals point of view.

### Call for comments

Malcolm Ingram – said that although he was fully supportive for changing the constitution – but felt the way in which the introduction of the changes had been handled could have been improved.

Ziggy Kklynoski made the comment that he thought that the new constitution was simpler to read for average members – more intelligible than the previous version.

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

Charles Simpson - agreed with Malcolm's point and said that the introduction of the changes was not as smoothly run as it could have been. Charles went on to say that the subject of the introduction of the changes and SGM would be discussed fully in the council meeting directly following the SGM.

Mark Perman started to outline his position on the introduction of the changes. He said that he felt he would have agreed to the changes had the document explaining the reasoning behind them been made available at the same time.

Mark said UKRA was a national organisation and should behave so. It should act in accordance with constitution and be seen to be fair to its members. He felt that this had not happened in this case. His basic point was that more information should have been given to members at the time the revised constitution was distributed. Mark outlined a number of points where the SGM had not been run in exact accordance with the UKRA constitution or might not be seen as fair :-

- Although a date and place were given no time was stated on the SGM invite
- The wording of the invite might be interpreted as an attempt to dissuade members from attending
- Not enough information had been sent within the allotted time-scales to allow the members to make an informed decision
- Addendum to the constitution were issued during the voting period
- Votes were accepted up to the 6th April - one week later than allowable
- The ability for people to change votes leading up to the deadline is not in the constitution
- There was no audit trail over votes cast
- The version of the constitution distributed to members had not been agreed by council

Malcolm Ingram read out a prepared statement and asked for statement to be included with the minutes. (attached).

Hugh Gemmel agreed we should really have sent out an additional information but felt the

council went out of its way to address this and other points in the period leading up to the SGM.

Charles said UKRA had to work on the basis of a certain amount of trust. It was as yet a small organisation and could not afford a huge bureaucracy. The proposed changes to the constitution were an attempt at reducing that bureaucracy.

Mark Perman – made the point that it was a matter of being seen to be fair. UKRA had had a good reception with the CAA and BMFA acting as a national body and acting professionally.

Mark raised a point of order as to whether the current vote for the revised constitution was valid based on the points he had raised. He said that if council members believed any of his previous points could be held true then they should vote against continuing with the proposed changes. A vote was called to continue with the SGM and the proposed constitutional changes. The vote was: 1 for. 6 abstain. 6 against. The SGM was halted on this basis.

## Council Meeting 07/04/01

### Attendees

Charles Simpson, Pete Davy, Hugh Gemmel, Bob Arnott, Mike Crewe, Michael Williams, Mark Turner Malcolm Ingram, Steve Randall (minutes), Ziggy Kklynoski, Darren Longhorn, Ben Jarvis, Jim MacFarlane, Mark Perman (Invited member).

### Apologies

John Bonsor, Richard Osborne.

### Agenda

1. Apologies
2. Minutes of the last Council Meeting
3. Foot and mouth and UKRA 2001

1. SGM - the correct procedure for completion of
2. Regulation of rockets - new CAA policy
3. Bank Signatories
4. Launch Tower and PA
5. Amateur Radio licence update
6. DVNM
7. A.O.B.

It was agreed to take the agenda Items out of order and cover item 4 first.

### SGM - the correct procedure for completion of

There was some discussion as to why it had appeared two weeks before the SGM that the matters relating to the constitution changes had been resolved – when apparently from the meeting they had not. There was no consensus on this issue. After some discussion it was unanimously agreed (by a show of hands) that the following procedure would be used for changing the constitution.

1. Fix any known errors in the revised constitution
2. Publish it on web and call for comments by email
3. allow 1 month for members to comment
4. decide at the next council meeting what changes are made or not
5. revise taking in members comments
6. publish with explanations both paper and web
7. hold another SGM (technically flawless) with postal ballot

The meeting discussed the possibility of members attending the next council meeting to make their point about the constitutional changes. It was proposed to allow a 1 hour period prior to council meeting for members to put their views. A vote was taken and carried on this point :- 9 in favour, 3 abstain

### Minutes of the last Council Meeting

The outstanding action points were addressed, and updated. The subject of whether non council members could attend council meetings was raised. It was agreed

members should make a request and then they normally would be invited attend. It was pointed out that members may be asked to leave sections of the meeting (e.g. disciplinary hearings).

## **Membership**

Hugh reported membership stood at 108 and that this time last year membership only stood at about 40. Bank Balance £1415 but that UKRA owed £350 for the UKRA 2001 marquee and that accounting for 4 issues of 10,9,8 of 100 copies each and allowing for SGM cost a surplus of £500 was projected.

## **Foot and mouth and UKRA 2001**

**It was reported that two local farmers who have livestock and that they were in agreement for UKRA 2001 to go ahead providing reasonable precautions were made:**

- **The use of disinfectant mats and foot-baths for vehicles and people**
- **Ask people to wash vehicles especially the underside of wheel well**
- **For people to take and wear freshly laundered clothes**
- **Limit vehicle movements**

## **Regulation of rockets - new CAA policy**

**It was reported that the CAA have produced a letter of intent – over 20 replies received to their original proposal – accepted by 20 bodies interested – the letter of intent would go toward parliament to be converted into law to be included in air navigation act. Under the proposal a small rocket was defined as not exceed 10,240Ns and a large rocket was defined as more than 10,240Ns. The regulation will not apply to small rockets up to & including 160Ns (G). For Rockets above 160Ns and below 10,240 UKRA would become the self regulatory body. Rockets above 10,240Ns will need permission form CAA – who will be looking to outside specialist bodies like DERA to make an assessment. It is likely that UKRA**

can be the specialist body for UKRA members.

## **Bank Signatories**

**The relative signitures were obtained.**

## **Launch Tower and PA**

**Ziggy Kklynoski, reported UKRA now had a Tannoy PA 60W stereo amp and mixer + mike. Including Batteries (the unit can be battery powered). Ziggy also reported he was making a launch tower available – capable of launching all classes of rockets. The tower included 4 black sky rails and was approximately 15ft long. The council thanked Ziggy for his efforts in obtaining these.**

## **Amateur Radio licence update**

**Steve reported that he was about to attend a meeting with the UK Radiocommunications Agency on the 23rd of April. The meeting would discuss the possibilities for radio amateurs to use amateur radio transmitters for unmanned airborne operation including rocketry. Steve said he would be speaking on behalf of the approximately 10% of UKRA members who were also radio amateurs.**

## **DVNM**

**Set as Sunday 13th May at Pete Davy's farm – so that an assessment can be made for UKRA 2001.**

## **AOB**

**Science Museum The SM have been lobbied to get involved with UKRA. Anyone that has a rocket that is a record holder can approach the SM to have them displayed.**

**Voting Rights There was discussion as to why some members had not received voting forms for the SGM. In some cases this was due to a person renewing late – but in other cases its was not clear why they had not received a form.**

# Rocketry Groups and Contacts

Perhaps the most common question asked by relative newcomers to rocketry is "Where is my nearest club?". Here is a list of all rocketry clubs known to UKRA, both UKRA affiliated and others. Also there is a list of regional UKRA contacts who are happy to be contacted with questions.

If you would like to be listed here, or have your details modified, please let us know.

## Groups

### AspireSpace

AspireSpace run the NRC (National Rocketry Challenge) a national competition for University teams.

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: [loggi.interspace@lodge28.freemove.co.uk](mailto:loggi.interspace@lodge28.freemove.co.uk)

### Black Knights

Black Knights are based in the West Midlands. They fly model and HPR rockets and have regular flying events. Details are available on their web site.

Email: [blackknights@cs.com](mailto:blackknights@cs.com)

Web site: [ourworld.compuserve.co.uk/blackknights/](http://ourworld.compuserve.co.uk/blackknights/)

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### 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/>

### DSC

The Discovery Space Club are primarily a "space watch" group though they do carry out occasional model rocket flying activities, sometimes in association with STAAR.

Contact: Robert Law

Tel: 01505 815100

### EARS

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

Contact: Steve Randall

Address: 47 Western Ave. Felixstowe, Suffolk, IP11 9SL

Tel: 01394 274579

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/)

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## MARS

Over its 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)

## 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 aquajet 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.

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

## SERFS

Southern England Rocket Fliers.

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:

- Public and educational rocketry workshops.
- Scale flight research, particularly the Waverider aerospaceplane concept.
- 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: 15 Smith Avenue, Longbar, Glengarnock, Ayrshire, KA14 3BN, Scotland, UK

Tel:

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/)

## Thrust

Contact: Mike Williams  
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.

Address: PO Box 1561, Sheffield, S11 7XA.

Email: *Membership enquiries:*  
[membership@ukra.org.uk](mailto:membership@ukra.org.uk)  
*General enquiries:*  
[enquiries@ukra.org.uk](mailto:enquiries@ukra.org.uk)

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

## 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)

## 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)

## 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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- *RATT-Works hybrid rocket motors*
- *MENTAL 29mm minimum diameter fibreglass rocket kits*
- *G-Wizz accelerometer / altimeters*



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e-mail us: [davy@btinternet.com](mailto:davy@btinternet.com)*

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High Power rocketry merchandise  
at our shop and showroom!*

*The shop is situated in Heckington,  
near Sleaford, Lincolnshire just off  
the A1*

