

Court

Spring 2004

Circular

Three Kings Aeromodellers Newsletter



London United Kingdom

Affiliated to the BMFA

Cockpit Comment

Back with some more aeronautical ramblings, from our usual contributors and your favourite barely flying Editor.

(If you fancy some adrenaline rushing, heart attack inducing racing nonsense that included pitting an F2C model and anything else that I have that can be raced, do let me know, and as I still don't have transport, a car and a licence would help!! Come on there must be someone in the club whose life is lacking in a bit of action!! – Answers on a postcard to the usual address please!)

I hope that you have enjoyed the winter layoff and are looking forward to getting some air time in.

Cheers to this month's contributors.

Enjoy **your** Court Circular. – And don't forget Let me know what you are up to. It's your newsletter. Remember help in the form of pictures, stories and even dare I say it gossip is always gratefully received.

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The Court Circular

The Court Circular is the Newsletter of the Three Kings Aeromodellers, and is produced by the Club for the members and selected affiliates and aeromodelling contacts, the views and opinions expressed are those of the correspondents only and do not necessarily represent the official view of the Three King Aeromodellers. Any comments or questions should be addressed to the specific author.

The Editor accepts no responsibility or liability for any loss or damage incurred or suffered by anyone as a result of this publication or in reliance upon or as a result of acting upon anything contained in this publication.

Copy is welcomed by the Editor from members and readers. But please don't forget that it is your newsletter, so remember that I am always on the lookout for interesting items for the newsletter, so don't be shy.

*If you want your name in print remember it is **your** club and **your** newsletter.*

I am particularly interested in photos of people's models, Engine and Product Reviews, Comp Reports, etc anything is very welcome.

Copy Deadline

As the CC has now become a Bi Monthly newsletter, primarily due to the fact that my current employer, yes for those of you that are sad enough to have followed my

employment history I have changed jobs again, no more English Heritage, so James Parry you can now replace those windows in your listed house with UPVC replacements without fear of me 'dobbing' you in!! Ha ha!! But seriously I now have a big grown up job as Communications Manager for a US architectural firm, who take a rather dim view of people who do work that isn't actually for the good of the firm on firm time! Spoil sports!!

So if you can send any contributions, photos, ideas, letters, etc, send them when you have written, built, flown, crashed the article or model to me at the address above, by fax or by email, duncan@east-two.co.uk as an attachment in Word for PC, or send it on disc with a hard copy or as a paper copy if you have no computer.

News and Views

Indoor

If anyone is interested please let me know. We now have access to a sports hall in the school where we hold the club meetings in Stanley Park Road, Carshalton. A trial indoor meeting is being organised for June possibly the first Tuesday, depending on exams.

If successful further meetings will be arranged, possibly for a Saturday night, although there would be additional costs incurred, as the caretaker would have to be in attendance. The meeting would be a trial to see what is practical so all indoor models would be welcome, F/F, RTP, R/C.

The hall is 90' x 55' with a minimum height of 22' 6". The trial meeting would be from 18.30 to 21.15 with the hall having to be cleared by 21.30. So please let me know if you will attend.

It is not confined to club members only but any "outsiders" must have BMFA insurance and be able to prove it. There may be a small charge for this trial but no more than £2 and possibly nothing at all.

Club membership list

Several members have asked if we can send out the current club membership lists, as we have done in past years. The short answer at present is no.

The reason being the *Data Protection Act*. However we will be asking members to write to me or fill in an authorisation form at events/club meetings if they don't mind their name and details being included on a list, which would be circulated to club members only.

The list would show BMFA number, name, address, phone number and email address. It seems that there are new laws to regulate/protect etc many aspects of life and our club is affected e.g. Mike Waller is compiling a risk assessment for the patch, Duncan is looking into Child Protection commitments/policy and we cannot ignore disabled policy, equal opportunity policy, racial policy etc.

I can find no guidelines at present from the BMFA although that may be because I've not looked in the right place but these issues will have to be addressed in the near future and will be discussed at the next club meeting.

If anyone can assist or has experience in these matters please let me or one of the committee members know.

James Parry 020 8647 6021
james-i.parry@tiscali.co.uk

T and sweatshirts

These will again be available in the next week or two as follows: -

T Shirt

M	L	XL	XXL
£3.76	£3.76	£3.76	£4.00

Sweatshirt

£8.82	£8.82	£8.82	£9.23
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I'll bring along to the next club meeting which will be held on Tuesday 4 May 2004 and events at the patch.

Monthly Flying Days at Croydon in 2004

If you look at the members list you will quickly realise that our club membership is spread far and wide.

However the common denominator is the fact that we all like to fly and the added bonus of belonging to a club that still has a very good flying site.

Any queries please to James Parry
020 8647 6021
Email: - james.i.parry@tinyonline.co.uk

Let's get out and use it.

Competitions

THREE KINGS AEROMODELLERS PRESENT

F2B COMPETITION

Purley Way, Croydon,

Sunday 23 May 2004 starting at approx. 10.15 hours, access to site from 09.30 hours.

The competition will be limited to 15 competitors and flown over two rounds. More rounds may be flown if numbers of competitors is less than 10. Due to this restriction please contact me should you wish to attend.

All flights will be over tarmac. There will be no entrance fee. The number restriction is due to there being only two circles, both tarmac, for flying an F2B model as the grass is not short enough and is very rough.

Sport Flying: -

Bring along any C/L model and fly over the tarmac or grass but subject to the competition taking precedent.

In the past this has not been a problem with at least one tarmac and one grass circle being available for sport flyers at any time.

All are welcome, the more the merrier.

Any queries please to James Parry 020 8647 6021 or email: - james-i.parry@tiscali.co.uk

Club Meeting dates for 2004

It was decided to continue the re-established evening meeting but on a bi monthly basis, therefore dates were set at the 1st Tuesday in the month;

DON'T FORGET NEXT MEETING

4 May 2004

Stanley Park High School
Stanley Park Road
Carshalton, Surrey

8.00 p.m in the Canteen at the school.

Follow 3ks sign in grounds.

Please contact Brian Cordwell on 020 8669 3021 for directions.

Barton Bash 2004 **15th and 16th May 2004.**

Dates have been confirmed for this years big Barton Bash at the Barton Centre of Excellence, Barton Airport, nr Manchester, it is to be held on the 15th and 16th May 2004.

This year events include Vintage A, ½ A and B TR, Mini Goodyear, Phantom, F4B, Vintage Peacemaker and Beginners Stunt, Club Speed 1.5cc, Carrier Workshop and the new Barton B TR for the Dave Campbell Memorial Trophy.

Contact Malcolm Ross 01925 766610, Mike Broadbent 0151 4750246 for pre entries and camping info etc.

Barton Bonds

The Barton facilities are among the best in the UK and have come at a rather considerable cost as you can imagine.

Tarmac circles do not come cheap, so to offset the cost and help establish and maintain the Barton site, the Barton Club have come up with the novel idea of Barton Bonds.

These are effectively interest free loans to the Barton Club in £50 units, so if you have a bit of spare cash and feel like investing in the future of our sport, dig deep.

Call Mike Broadbent 0151 4750246 and send him a cheque.

Go on you know it is a worthwhile investment, just the cost of a good night spent down the pub, without the hangover!!

The Secretary's Report

Duncan Bainbridge

A cold night in February saw a good turn out of some twenty members for the 2004 AGM, as you will see from the minutes that are attached with this latest CC, we managed to get a lot done in a well chaired meeting.

There were, as befits a good meeting some lively discussions, which have been noted, if there is anything that you feel that hasn't been correctly represented here, do let me know and I will do my best to rectify the situation.

I have been in touch with the BMFA regarding the new child welfare policy and I know Mike has been working hard on a 3 Ks Risk Assessment, more of that later and when I have had further conversations with the BMFA I will of course let the members know.

Happy flying

Duncan

The Comp Sec's Bit

Mike Waller

I would like to take this opportunity to thank all the hard work that the committee members have put in 2003.

I would also like to thank the members electing me Comp Sec for 2004;

I hope to be unofficially known as an events organiser.

My aims for this post are to:

- ▶ Organise and coordinate competitions
- ▶ Organise and coordinate events

- ▶ Promote control line flying in the London area (connected with PRO)
- ▶ Produce a RISK assessment for different competitions and control line model flying at the patch (see below).

2003 was a difficult year for model flying with the death of the young girl on Dartford Heath, matters were not helped in that 3 months prior to this happening there was a young boy had near fatal miss on Dartford Heath.

When my father attended the inquest Dartford Council received most of the blame for incident.

As a result we have lost all of our flying sites for control line flying in the area, the only ones left being Norman Park, and the Croydon patch.

The thinking now (from the BMFA and local borough councils) is that model flying will slowly be stopped from all public land, pushing it on to private land.

The BMFA will produce a RISK assessment for local councils, but in their eyes control line just is not worth thinking about (apparently there was no control line activity that they knew of in Bexley or Dartford).

In Bexley the BMFA's risk assessment (produced late 1990's) ruled that any one flying model aircraft had to have an 'A' Certificate, which stopped us flying on the sites, as there is not an 'A' Certificate for control line we can't use these sites.

I hope to complete a draft RISK assessment in the coming months for control line flying at the patch. A RISK assessment would help in the unfortunate event of an accident or in future help to keep our patch. If any one has any information or would like to be involved please get in touch.

I do not want Croydon Council involved, certainly at this stage, it would be our document and would demonstrate our commitment to safety of both 3K members and the public using the Croydon site.

As you can see from the AGM minutes that electric control line was discussed, I hope to

complete an electric model (this may take some time as I am making 20 combat models) for the club meetings to test out.

However if anyone is interested Buzz Flight currently produce 4 electric control line models, which can be flown inside or out. I know that they make a trainer, combat, stunt and profile model at present.

Who knows there might be room for even some team race with the profile version?

If we get enough people interested we could try to order a batch of them for the club? Check out www.buzzflight.co.uk.

Thanks for now; I'll be back to bore you more!!

Behind the Handle

Wal Cordwell

As you may have guessed (at your peril) the last effort at the dreaded computer had a measure of success, hence the second effort, Bernard has been along and with some magic passes transferred the "worms" onto a sloppy disc and who knows what the outcome will be.

Any way this is the second "go" and I may as well tell you that I am still blundering in the dark or "upside down, with nothing on the clock and even that is in Czechoslovakian"!!!!.

Last week we had a nice day and I paid a visit to Ripe airfield with a friend and we had a look at the Jodel that I modelled my last model on.

It is a pleasant little airfield that grew up from an Advanced Landing Field established just before D day and reopened by a group of enthusiasts. It was one of a few that managed to get permission to operate.

A number of squadrons used it during the war and some casualties were sustained. It was also a lot larger then and a number of bombers managed to limp there and to "arrive".

If you are interested there is more information in the publication wartime airfields in Sussex.

No more reports on the SR/1 the weather has been so foul that even the sea gulls are on foot with their wings over their heads.



When I moved down here five years ago I joined the local model flying club {Horam} who are as you may guess mainly radio flyers but some of the older members used to fly control line and indeed knew the name of the Three Kings, likewise in the model boat club, which is run on the same lines as our club used to be and we have just moved to a venue that is even more like the past { a pub with an adjoining hall, remember the White Hart at Mitcham!!!!} and this month we are having an annual dinner and meeting there including a static display of boats should be a good evening, but I still miss my old mates at the Three Kings but at least its not a million miles away.

I was sitting in our lean-to the other day watching the birds { No not that sort} and I took to thinking about the Battle of Britain when this part of the world was in the heart of it, I suppose that it was triggered of by a book that I have been reading, { no not the B of B, the thoughts!!} being a rough day a whole "Staffel" of seagulls came in from the direction of Eastbourne bent on the destruction of the local birds feeding areas and a take-over bid.

And as if all the local bird inhabitants had heard a "SCRAMBLE" alarm they took off and set about the invaders just like the Spitfires and Hurricanes of fifty years ago and drove them away of course they didn't sound a bit like Merlin's more like Banshees but it all helped to pass an hour away while my glue dried

I went to the clubs AGM on Tuesday and was very heartened by the turn out; it looks as if we have turned a corner.

Present where the Chairman, Hon Sec. Treasurer and we even made the Hon PROs official, I say pros because they seem to work as a team together Mike and Steve Waller and have played a big part in putting us back on the map much was discussed in the short time available because being a working school there has to be a finishing time of 9.30, caretakers do not like working overtime for nothing, and who can blame them.

So when you are coming to a meeting, do try to get there on time.

So in all we had about eighteen people present. Several resolutions were passed which will become apparent as time goes by.

I am not going into detail about the meeting, our Secretary was writing furiously into his notebook so I am sure that he will have plenty to tell you in the next newsletter but I'm sure it all bodes well for the old Three Kings Aeromodellers, when you consider that a couple of years ago at the AGM at the tennis pavilion in Lloyds Park the Chairman then more or less advised us to shut up shop.

So a big thanks to all of you who stood by us in those "Dark days, so I say again we will fight them on the beaches, on the landing fields we will never surrender"!!

Sorry got carried away for a minute {who said, so you should?}.

I hope that you will give the Secretary maximum support with his work on the newsletter because I am sure that this is the only way to keep a club like ours which is in the main scattered over the country, let him know what is going on in your part of the world.

This will keep us all in touch through the marvels of the computer {what am I saying!}, but for those "mortals" that don't have such facilities

Duncan has said he will send out hard copies. It seems that the tarmac "patch" at Croydon is well used by all types of people at all times but don't forget that our official terms of use are Sats, Suns and B hols. But we pay for this privilege no other user does and the Croydon Security are well aware of this and a call to them will usually bring assistance from them.

At the meeting somebody told us that some quad-bike users complained to the security people about the model flyers being there and got themselves moved off.

We are having some "identity" cards produced with the Security phone number printed on so that should help.

Many of you will remember Derek Bird who was Comp Sec for many years, and remembered with great affection for He died in 1992 {can it be so long ago!!}. Well a couple of years ago his Brother who lived then in Bexhill and who now lives even nearer in Eastbourne asked me to restore a model that he kept as a memory to his brother being one of the last that he built.

The model was one many of you know, the Pitts "Little Stinker" a 22" W/Span bi-plane I think from Aeromodeller plans. But he had a lot of carefully drawn detail on the model, which I didn't want to cover up, for reproduction would have been impossible.

Luckily the main breakdown of the structure was in the paper and dope covering on the wings which had become brittle and torn and the detail work was intact on the wooden fuselage, so a good clean down on that part was all that it needed.

The torn covering on the wings, I covered over with white Solartex which matched well with the original white dope [and kept the old covering intact,] also of course gave the Solartex a firmer "feel". The trim I finished with Solartrim, and although I say it myself it looked OK, and should grace his table for a few years to come

This is a good tip for those of you who like covering in pre-coloured plastic, or also before painting it does prevent "sag" between ribs and formers [the starved horse look], ie cover and dope first with H/W tissue then use your Solartex colour or paint, but don't forget if you paint you will probably need to fuel-proof afterwards. You can use L/W tissue but you stand more chance of it tearing when you heat shrink the plastic.

See you soon,
Happy Landings

C/L Scale

Bernard Seale.

The words below (apart from a few which have been changed to bring things up to date) were part of an article I sent to AMI/Aeromodeller for the 'In Scale Circles' column, but they got the chop in the editing process.

Basically, they give an account of a couple of meetings I attended during 2003, which in the end became a very busy year for me. In order not to waste them, and hoping that they may be of some interest; I now offer them to the readers of 'Court Circular'.

The end of June and the first three weeks of July became rather hectic for various reasons. To tell the truth, I had been suffering from a certain amount of lack of interest (in model flying, that is) and I decided I should do something about it, other than sell up my modelling gear (model aircraft gear, that is – I want to hang on to the leather!).

So I decided to take the bull by the horns and put myself about a bit (in the model flying sense, of course).

I had been invited, some months previously, to attend the Carrier Deck and C/L Scale competitions at Herentals, east of Antwerp in Belgium. I was not sure whether I would be able to attend, so left my entry rather late.

By this time the Scale event had been deleted because of a lack of entries, but I told Paul van Dort that I would take a scale model over anyway to fly in one of the practice circles.

He was very keen for me to do this. Carrier Deck was not the only competition taking place – others on the agenda were the F2B Aerobatics Eurocup (counting towards the World Cup), Beginner and Advanced Stunt and 1.5cc Diesel Combat. This meeting has really grown over the years and attracts competitors (and their families) from all over Western Europe.

The Herentals club has the use of a large field, just outside the town, and they have a permanent clubroom, complete with power, cooking facilities and a well stocked (with bottled beer) chest fridge. They also have a decent flush indoor toilet to complement the old 'Thunder box' – previous attendees will know what I mean! The hospitality is second to none. I drove from Calais, having taken the midnight Euro tunnel train, through the very early morning hours of Saturday 28th June, arriving at the site at approximately 6.30 am, continental time. I simply parked up in an available space and fell asleep for a short while, to supplement the nap that I had taken earlier in the morning in one of the continental service station parking areas. After waking, I wandered down to the clubhouse and was greeted with the question, "English breakfast?" Paul van Dort, Jan Odeyn and others were very busy satisfying the hunger pangs of several nationalities. The club also provided a very good Saturday evening barbeque with properly cooked meat and a wide range of salad dishes, Sunday continental breakfast and lunch, all at very moderate cost.

A little later in the morning another group of Brits arrived, namely the family Phillipps, Bob and Heather, with offspring Yvette and John. Mike Welch, Peter Tribe and Roy Green (I hope I've got the name right) were also present.

Fellow Three Kings Aeromodellers member Roy Cherry was competing in the Eurocup Aerobatic competition, as was fellow Scale flyer and AMI columnist, Dave Kenny.

No doubt Dave will report on the Eurocup in due course. On the 'Brit' table at the Saturday barbeque, he tried to tempt me to sit next to him, saying that 'us scaleys' ought to stick together – there's nothing wrong with my skin, mate!

Anyway, I was sitting between Yvette and Heather Phillipps.

Sorry Dave, no contest!

There was so much to see and do that I can only report on part of it. The weather over the whole weekend was very hot, with wall to wall sunshine, without the humidity that was apparently present in the UK. Strong thermals gave rise to some gusty conditions, but overall the weather was very flyable.

Round 1 in Basic Carrier took place on the Saturday and I had a reasonable flight and an 80 point landing, the Guardian ending up on its nose, putting me in 8th position. In the 2nd round on Sunday I failed to land on the deck and so dropped to 14th position, about halfway down the field.

The top positions were taken by the Brits, 1st Peter Tribe, 2nd Bob Phillipps and 3rd Yvette Phillipps. It is an understatement to say that Heather Phillipps was pleased to make a perfect hook-up, placing her in the top half of the field.

On the scale side, although there was no formal competition, some scale models were present. I had taken my OS 20FS powered Martin Baker MB5 and my second Gamecock, and flew both at least a couple of times.

Mike Welch turned up with a Hawker Hurricane, converted from a PSS glider to power and C/L. It also flew well. I was very pleased to renew my acquaintance with Karl-Gorg Krafft, regular German F4B team member, who was also competing in Carrier Deck.

He, together with Alfred Funk, represented Germany at the Scale Eurochamps in Austria during August, 2003. Karl-Gorg had brought along a scale model that I had not seen before, a Boeing 100 Sport. It's about the same size and weight (4.5 Kg) as my Gamecock, and is powered by an OS 90FS. It flies rock steady and really sounds the part, and to see the sprung undercarriage working during taxiing and touch-and-go's is a joy to behold. I hope Karl-Gorg does well in Austria.

His final flight turned out to be rather longer than he anticipated – one of his insulated line connections had detached and he had to fly out a nearly full tank on full throttle! Half an hour later the engine cut and he

glided in to a perfect landing. I'm sure that he didn't let the same thing happen in Austria!

I was also pleased to meet up with Bruno Clark who has been mentioned in the column before. Bruno lives and works in Belgium, and usually attends this meeting. Hopefully this year he will bring along a model or two to fly.

The flying of the scale models generated a lot of interest, as did the electronic controls 'down the lines'. One of the local club members and event organisers, Geert Peeters, who is at present building a C/L scale Focke Wulf 190 in fact ordered a full set of equipment from me by e-mail as soon as I had arrived home.

After the prize-giving, late Sunday afternoon, it was a case of pack up, and get back on the road to Calais and Eurotunnel. I eventually arrived home at 10.30pm, ready for some supper and a hot, well, warm bath.

It was a thoroughly enjoyable weekend, and my thanks go to all at the Model Aircraft Club, Herentals (MACH) who worked so hard to make it happen.

The following weekend, the first in July, the Boss and I had booked in for a long weekend break at a hotel just north of Harrogate. The bonus was, having planned to go so far north, I managed to get permission from the Boss to travel even further north to South Shields on the Sunday, to attend the Carrier and Scale event at Boldon.

The welcome I received from the club members makes me feel very humble. I knew Doug Miller and Frank Scullion from previous meetings when they had ventured very far southwest to Marlborough. On this occasion (and I gather in past years), Mike Welch (from Marlborough) had reciprocated, and Andy Housden had also traveled up from Surrey to CD (and enter) the Carrier Deck competition.

It was also very pleasurable to meet up again with Stuart Oddy, well-known Yorkshire C/L scale modeller, and Noel Stephenson from Northumbria, who has designed and published plans of several Sport Scale C/L models.

My time at this meeting was rather limited because I had to get back to Harrogate (and the Boss) in order to freshen up for the hotel evening meal, so the number of photographs I had time to take was rather limited. I initially entered the Scale competition with my Gloster Gamecock.

I was confident it would fly well after its good showing at Herentals the weekend before, and I was shocked when soon after take-off it went into a shallow dive, hit the ground and sustained a fair amount of damage.

To my mind there were three possible reasons for this. Perhaps on the downwind leg of the circuit it did not have the airspeed to sustain flight. Or perhaps I still had a small amount of up elevator fed in, trying to gain height, and the tailwind got under it and pushed the tail up and therefore the model down. The third reason may have been some sort of mechanical failure, but I have not since had the time to investigate this.

So it looks as though I am in for another Gamecock refurbishment – if I can be bothered!

Stuart Oddy had brought along his Morane Saulnier (sorry, I didn't note the model or mark) and his Cessna Bird Dog. I saw the latter model undertake several rather spirited flights, including loops. Noel, in addition to CD-ing and judging the Scale comp, entered his Miles M20 (which was judged by someone else) and Mike Welch entered his DHC Buffalo. I had also taken along one of my little Martin Baker MB5's, with the original OS 20FS replaced by an OS 26FS.

The extra power improved the flight performance if not the duration. Noel had designed the model, but never built one, so he persuaded me to enter the scale competition with it, and this I duly did.

The reduced duration meant that I completed all of the options but had to land dead-stick and lose the points for the compulsory taxi under the Sport Scale rules. Final results for the event were:

- 1st Noel Stephenson – Miles M20
- 2nd Stuart Oddy – Cessna Bird Dog
- 3rd Bernard Seale – Martin Baker MB5.

I also entered the Carrier Deck competition, and managed to finish in a very close second place to the winner, our very own Andy Housden! I hope to be able to return to this event next year.

The following day (Monday) saw the long drive back to the depths of East Sussex to unpack and put the remains of the Gamecock into the shed.

On Tuesday it was off to the Isle of Wight for the remainder of the week for the Army Cadet Camp – although retired from teaching, I have continued to help out with the CCF at the school.

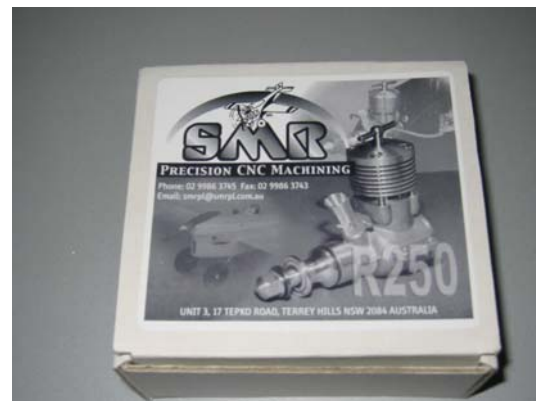
Returning from that little exercise on the Saturday then saw me preparing to go to the Marlborough Club Carrier and Scale competition on the following day.

However, my reports on this event and the Scale weekend at Old Warden will have to wait until the next issue of Court Circular.

Round & Round

Duncan Bainbridge

Possibly the Best Oliver in the World! – The R 250



A brand new motor from down under is the redesigned and built R 250, Oliver Tiger replica.

This is no ordinary replica, it has been manufactured with the V TR enthusiast in mind built by Aussie engine machining maestro; *Steve Rothwell*.

Steve Rothwell is one of the most experienced 'engine men' in the Southern hemisphere.

He has over thirty years of aeromodelling experience that includes CL racing in Goodyear, Rat Racing and VTR, as well as being one of the best and most experienced combat pilots in Australia.

Added to this are several years spent at the forefront of F3D and ¼ Midget RC Pylon Racing.

The R 250 is an Oliver Tiger for the 21st Century;

It is the result of many years experience of racing and refining the John Oliver original series of motors and the later Tim Gillot modified CS copies.



It looks and smells like an original Oliver, but by using his engineering and aeromodelling skill; Steve has produced a motor that has the refinement of any modern day TR motor,

If you like it is a Nelson for the VTR brigade.



The R 250 is specifically a 2.5cc twin ball bearing diesel for use in Vintage A class Team Racing.

Built using the developments from our successful Mk3 and CS Oliver's, the R 250 features a Hard Chrome Cylinder Bore.

The two examples that I have are both fantastically well made and are a world away from even the latest versions of the CS Oliver.



The case displays a smooth finish and the webbing supports are more refined, the most notable change is the venture, which has a bell end and a Cox style needle position with a significantly finer needle.

Other visible differences include a slightly longer shaft boss and a male hex head in the back plate to facilitate easy removal.

Although I haven't weighed it, the R 250 feels significantly lighter than my CS version; always a useful attribute in a racing motor,

Whilst the old adage goes – *20 grams can be lost not by saving 20 grams somewhere but by losing 1 gram in 20 places*, if the R 250 is lighter than the CS that can only be a good thing.

The motor also comes with Steve's own comprehensive running notes and necessary advice on cooling parameters for mounting in the VTR model of your choice.

Now that the weather is a little more welcoming for us Aussies to spend time outside, I intend to put my R 250 in the test stand and give it a run and I will put the tacho on it and give you a running report, although as with all racing motors the proof of the pudding is to be found in the silverware that they collect, I will endeavour to run it in a model.

Tony can I borrow the VTR model please!??

But it may be sometime before I can give you a race report, as I said earlier, any volunteers for pitting duties gratefully accepted! I am more than happy to fly

As can be expected for a top line TR engine the R 250 is little more expensive than the standard CS version and costs Aus\$350.00 plus \$10.00 p & p.

But that means that for £150.00 you can have one of the fastest motors ever produced for VTR.

The R 250 can be obtained from Steve Rothwell at:

SMR Pty Ltd

Unit 3/17 Tepko Road

Terrey Hills

NSW 2084

Australia

Tel 00 612 9986 3745

Email smrpl@ozemail.com.au

Following on from some previous pieces on cooling here is the latest from *go fast guru*, Marlon Gofast.

Comments on Engine Cooling

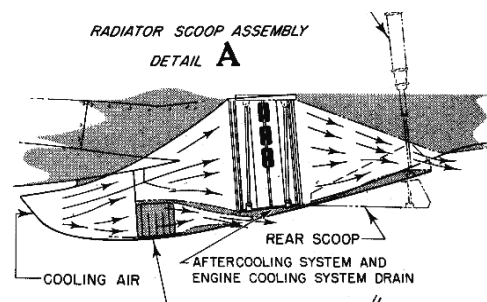
By Marlon Gofast

The article "Ducted Cooling for Model Airplane Engines" in the winter 03-04 Court Circular raised a number of important points about a subject that has received little attention.

There are a number of personal observations I have that are mixed between the big aircraft aerodynamics and our micro aircraft. I'll try to explain some of them here.



First, note that the P-51 cooling air scoop was unusual for the time; it stood proud of the boundary layer to make sure no low energy boundary layer air got in the intake.



The cooling was accomplished by a coolant (ethylene-glycol) being circulated around the engine to transfer the engine heat to the fluid.

Then the fluid was passed through a heat exchanger – the radiator – in which the heat was transferred from the fluid to the air. This process is not the air cooling 'model' aircraft normally use. One must remark that Pietro Fontana, F2C and later F2A world championship podium habitué, used an 'oil cooling' system in TR.

In the conventional micro aircraft we use an air cooling system in which some of the heat of combustion is transferred from the combustion chamber to the metal in the engine and then by forced convection to the atmosphere.

This last mechanism we have to pay attention to. There are radical differences between air cooling at the large Reynolds numbers of big aircraft and micro aircraft.

Reynolds number indicates the ratio of inertial forces to viscous forces in the airflow.

A ball bearing dropped in a can of motor oil has a low Reynolds number when it sinks to the bottom of the can. The flow around a 747 wing after takeoff is larger by many factors of ten.

At low Reynolds numbers (**Rn**), such as in the flow of air through cooling fins in micro aircraft, the boundary layer (the flow touching and very close to the fins) is called laminar.

It slides in layers over the fin, as a deck of cards with little interchange of air between layers.

At high **Rn** the boundary layer is turbulent with chaotic interchange of fluid among layers. This helps heat transfer but increased skin friction, and because of this we are faced with the fact that increased skin friction drag means increased heat transfer.

This huge difference has led to a newer type of heat exchanger for low flow velocities and small areas.

Typically these heat exchangers use tubes, not the surfaces similar to an automobile radiator, and these tubes are fluted or fitted with other devices to separate the boundary layer.

These high performance heat exchangers have dominated the small aerospace heat exchanger market.

An air cooled engine development borrowing from this is the cylinder with steel rods all over it not fins.

This has been used by some Italian motorcycles and a funded by a US Defense Advanced Research Program (DARPA) program.

www.dstarengineering.com/newsite/downloads/MAV_deisel_engine_1.3.pdf

The link above has a picture of an engine with the head cooled by wire cylinders.

The cooling fins on our engines may be more effective if they were modified with a series of vertical cuts to make the fins many separate little tabs.

Because the heat transfer to the case is poor at best in most engines the head made to look like the picture in the link above should make for significant improvements in cooling.

That's not all, of course. The drag created by the cooling system is important, too.

More on cooling real airplane engines

Graham White
Speed flyer USA

With thanks to SuperCool Racing Propellers

Significant gains are achievable through a carefully designed cooling system. Starting out with the basic premise that heat is energy and if this energy can be recovered in some fashion, it's equivalent to increasing the power of the engine which finally equates to a faster model.



Dago Red P 51

North American Aviation spent countless hours in the Cal. Tech wind tunnel tweaking the shape of the P-51 "Dog House" in order to maximize the Meredith effect. There must be dozens of books written on the P-51 but the one I'd recommend is the one written by Robert Gruenhagen; *Mustang. The Story of the P51* (Genesis Press).

Most airplane books tend to be what I call "units and markings books", i.e., not much in the way of technical detail, engineering aspects or development but lots of details on what 1/2" stencil markings went where. In Gruenagens' book, numerous photos are shown depicting the various shapes and designs NAA engineers developed for the dog house.

The point of the forgoing is to stress the fact that just because a huge amount of heat energy is dissipated to the atmosphere it does not necessarily imply that it's easy to capture. A good example of this is the Hawker Hurricane.

Similar placement of the cooling system as the P-51 but absolutely no Meredith effect. With an air cooled radial, things get a little trickier due to the confines of the cowl.

However, a carefully designed cowl can, at the minimum, reduce cooling drag. To pull this off, as you correctly stated, take a look at a top unlimited Reno Racer such as Furias, a modified Sea fury powered by a Pratt & Whitney R-4360-63A or Rare Bear a modified F8F Bearcat powered by a "bitsa" Wright R-3350.

In the case of Furias, an annular gap of 2" is used and this has to take care of the cooling requirements of a huge twenty-eight cylinder, four row radial. So how's this pulled off?

Fortunately, these ultimate hot rods have the expertise of the world's best aerodynamicists at their disposal.

The late Bruce Boland, designer of the late lamented Tsunami, was one of these experts who gave freely of his time and expertise to assist the racers.

Pete Law, another Lockheed Martin thermo dynamics expert also assists with these projects.



Furias

Furias powered by an R-4360-63A with a -59 nose case. Runs 68in. Hg. at 3,100rpm. Quite conservative for a racer. Laps around 420.

Getting back to Furias, the trick, is to slow down the incoming air.

This is achieved via a classic convergent/divergent duct. In other words, a larger diameter spinner directs the air through the aforementioned 2" annular gap and from there, an aft fairing that covers the nose case and magnetos terminates at the base of the first row of cylinders.

The aft faring also tapers down as it extends to the cylinders.



Critical Mass

Note the after body. Highly modified Sea Fury powered by a 3350 made up from the best components.

The inside of the cowl receives similar treatment, everything being flowed for ideal expansion and pressure increase.

Even these measures are not sufficient to cool an R-4360 so seven spray nozzles are built into the leading edge of the cowl nose bowl.

At race powers, water is injected into each of the seven cooling plenums that make up the 4360 cooling system.



Hi-Tech Fosters

Note the beer cans!!

This is race #38 Precious Metal powered by a Griffon 58 with a 74 blower and Bendix PR-100 carb.

In other words, raw water is squirted on to the hot (500 degree head temps) cylinders. Additionally, copious amounts of ADI (anti detonation injection) fluid is injected directly into the engine. ADI fluid is made up of a 50/50 mix of water and methanol.

Yet another source of heat rejection, obviously not applicable to a two-stroke is oil cooling.

A number of "boiler" systems have been designed whereby the oil cooler, typically a bundle of copper tubes which allows air to flow through the tubes and oil to flow around the exterior of the tubes.

By immersing the oil cooler in a bath of water and allowing the hot oil to boil off the water, cooling the hot oil to boil is eliminated.

Another Pete Law innovation is the use of spray bars. In other words, the oil cooler, which is located in a duct and exposed to the air stream, has water sprayed on it from a spray bar system. Typically, the spray bars are made from aircraft fire extinguisher tubing.

Spray bars are also used on coolant radiators for P-51s. It's a little known fact that between ADI fluid, spray bar fluid and fuel, Dago Red, the worlds' fastest P-51, will consume over 1,000 pounds of fluid in a 15 minute race.

That's right, 1/2 ton of fluid in 15minutes. Of course, a 4360 powered racer such as Furias will consume considerably more.

Lets take a look at engine design.

Air cooled radials were hampered by inadequate cooling in the early years until luminaries such as Sam Heron figured out the best way to manufacture an air cooled cylinder.

His method was surprisingly similar to that employed by Cox. Screw the entire cylinder head onto the cylinder. The only difference being the fact Cox reversed the gender of the treads, i.e., they used a male thread on the head and a female thread on the cylinder – other than that they were identical in concept.

I have often wondered if Cox got the idea when they first designed the Thimble Drome in the late '40s from full size practice.

After Heron established the basic concept of how to design an air cooled cylinder, the next hurdle was to increase the number and depth of cooling fins.

By the early 1940s it was apparent that the limitations of casting technology had been reached, but horsepower was now restricted because heat could not be rejected fast enough.

The answer was actually developed in the late '20s, early '30s by Roy Fedden who was responsible for all the mighty Bristol radials.

The solution was to forge the cylinder head out of a solid aluminum billet and then cooling fins could be machined in as closely and deep as necessary.

By the end of the big high horsepower radial era, cylinders on engines such as the R-4360 were absolute jewels. Finning was so close and deep, they actually looked fragile, which in fact they were.



Michael Brown's ram scoop

Michael Brown picked up an additional 10in.Hg. manifold pressure or about 400 – 500 horsepower with this new (for 2002) ram scoop on his 3350 powered Sea Fury. Note the bead of weld as the scoop transitions through 90 degrees. This is the flow splitter inside the scoop. He finished 2nd. in the final Gold Race.

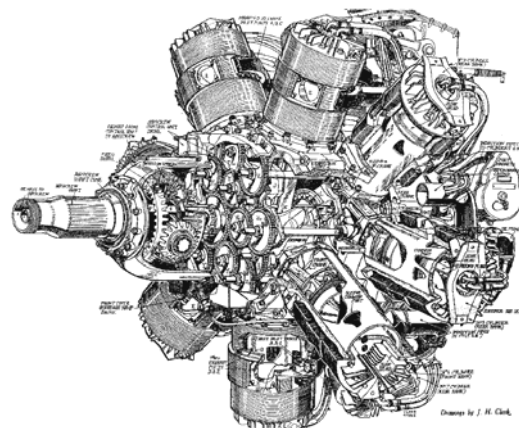
However, it was the only way to get the maximum surface area exposed to the cooling air stream which is a nice segway into the next aspect of cooling air cooled engines.

When cooling air enters a cowl, it's important to ensure that every ounce of that air is put to good use by cooling something. No use in just having a cylinder stuck in the breeze and hope that some air will do its job.

To this end, Pratt & Whitney, Bristol and all the other manufacturers of large air cooled radials spent hundreds of design hours perfecting baffles that would capture cooling air as it entered the cowl and ensured that it was forced around the cylinder and through the fins.

Bristol, in particular, had a significant challenge ensuring that its sleeve valve engines received sufficient cooling air down into the depths of the junk head. Once the air had passed through the cylinder it had to be dumped over board.

But even here, careful design of the outlet directed cooling air through a fairing colloquially known as a dish pan. Mass air flow through the cowl was controlled via a ring of flaps called cowl flaps.



Bristol Hercules engine cut-away drawing

The greater the mass air flow through the cowl, the greater the drag. So it was

incumbent upon the flight engineer to ensure that the ideal cylinder head temperature was maintained; too high and the engine would be cooked, too low and excessive drag was created.

Exhaust is another good source of energy. There are several ways to utilize exhaust energy, most of which would be inapplicable to a model but worth looking at just the same: (i) turbosupercharging, (ii) jet stacks, in other words utilize the thrust which is typically 400 pounds for a Merlin, (iii) augments system and (iv) turbo compounding whereby the exhaust energy is used to drive a gas turbine which feeds power back to the engine.

Much of the foregoing has absolutely no application or use in model applications with one or two exceptions.

First off, the interior shape of the cowl is just as important, if not more so, than the exterior. So it would be a good idea to design a convergent/divergent shape into the front half of the cowl.

Next, cooling air that enters the cowl should all be put to good use doing what it's supposed to do; carry away heat rejected through the cooling fins.

And once the air has picked up the rejected heat, the exit duct should, again, be given a lot of thought. This includes the shape and the exit area. It may be possible to design an augments system whereby the exhaust pulses are used to "pump" cooling air through the cowl.

Convair designed a twin engine commuter aircraft powered by a pair of Pratt & Whitney R-2800s in the late 1940s. The eighteen exhaust stacks were utilized to pump cooling air through the cowl. Exhaust and cooling air were mixed and dumped overboard over the trailing edge of the wing. It was claimed that 500 pounds of thrust and 20mph resulted from this innovation.

Cast cooling fins are not the optimal design. Machining them in from solid billets offers a

lot more flexibility to the extent more and deeper cooling fins can be used and thus reduce cooling drag. Remember, the less air that enters the cowl, the less drag results.

Another aspect that hasn't been touched upon is that of induction ram recovery. With a front induction engine, a carefully designed ram duct for the induction system could gain 1 to 2 in.Hg. at 150mph. This is a significant amount.

Again, look at a high performance WWII fighter for good ram air induction systems. The opening, which should be normal to the air flow, must be sized correctly; too large and air spills out of the ram air duct and creates drag. Too little and full ram recovery is not possible. If, for arguments sake, the induction venturi is at 45 degrees, a duct that "bends" the air from horizontal to 45 degrees is required. And it may even need a flow splitter within the duct to further assist the ram effect. For a rear induction engine a similar duct can be used and again, the duct should discharge into the venturi, preferably well sealed. Only with this system the air needs to bend through 180 degrees.

For now, we won't go into reduction gearing but it does not have to be difficult or bulky. The Farmen epicyclic system offers the most compact system that would easily fit within the confines of a speed pan.

Authors' background. Recently joined NASS.

In the late 50s and early 60s I did all classes of tam racing. Currently I collect full size engines and restore them to running condition.

Presently have (2) P&W R-4360s. R-R Merlin, R-R Griffon, P&W R-2800 and Continental IV-1430. Authored two books on aircraft engines: "Allied Aircraft Piston Engines of World War II" and R-2800, Pratt & Whitney's Dependable Masterpiece".

Minutes of the Annual General Meeting of the Three Kings Aeromodellers 3 February 2004

AGM Agenda

1. *Apologies for absence*
2. *Minutes 2003 AGM*
3. *Matters arising*
4. *Committee reports*
5. *Elections*
 - a. *Chairman*
 - b. *Secretary*
 - c. *Treasurer*
 - d. *Comp Sec*
 - e. *PRO*
6. *Confirm dates of meetings in 2004*
7. *Any other business*
Newsletter
Website

End of AGM

Minutes of the Annual General Meeting

1. The Annual general meeting of Three Kings Aeromodellers was held on 3 February 2004 at the Stanley Park School, Stanley Park Road, Carshalton SM13 3HP at 8.00 PM.

Present were the President, Treasurer, Secretary and other members.

Brian Cordwell, Duncan Bainbridge, James Parry, Brian Glithero, Matthew Cordwell, Wal Cordwell, Ted Horne, John Perry, Keith Hynds, Marshall Bernard, Bernard Seale, Danny Hoare, John Bashford, Colin Johnson, Steve Waller, Mike Waller, Alan Fritz, Peter Last, Andy Housden.

The meeting was opened by the Chairman, who called for apologies these were received from Alan Jupp and Tony Saunders.

2. **Minutes 2003 AGM**
The Chair asked the Secretary to read the minutes of the last AGM. Do to reasons beyond the Secretaries control these were unavailable at this date, therefore their approval was held over till the next meeting.
3. **Matters Arising**
Due to the lack of minutes there were no matters arising
4. **Committee Reports**

The various members of the club committee reported on the preceding years activities.

Chairman's Report

The Chair (BC) reported that he had upheld his requisite duties for the club throughout the year without any significant problems and he had kept in touch on the clubs behalf with the BMFA Scale Tech Committee and was to attend a Judges Coaching weekend later in the year.

Secretaries Report

Due to personal job and house moves the Secretary (DB) apologised for the intermittent publication of the Court Circular throughout the year. DB asked the meeting for their assistance with copy, noting that it was for the benefit of the club as a whole that the newsletter contained information relevant to all members. *Further discussion of the newsletter and the club website was held over until AOB.*

Treasurers Report

The Treasurer (JP) reported the clubs finances were as follows: current a/c £ 347.81, cash in hand £???, dep. a/c £311.42 giving a total of £659.23 JP then recommended that in view of the healthy state of the clubs cash flow the club fee should be set at £7.00. He reported that there had been very little movement in the club account over the year and that the most significant upcoming cost was to be the cost of the flying field (The Patch) hire which would be around £270.00 for the year. John Perry advised that the Treasurer should always indorse the back of the payment cheque with "Payment for use of Croydon Airport for model flying" to prevent confusion in the parks dept.

This was unanimously approved by the meeting.

Discussion then continued in relation to use of The Patch

Member John Bashford questioned the Treasurer on the cost of The Patch re the number of times that it is used.

JP advised that there was no cost per use, merely a blanket fee per year and that the London Borough of Croydon were advised via the Council Security Team who were contacted to facilitate access to the field each time The Patch was used

JP also advised of some recent noise complaints against the flying of CL models, these were not supported by the LBC Security and were supposed to be the result of the Croydon RC Club, JP also spoke favourably of the Security who on one occasion had removed quad bikers from The Patch who were preventing members from using the tarmac flying area.

JP advised the meeting that LBC Security were quite happy to attend and open up when the field was being used for large meetings, but that it was not best practice to call them to open the field if just being used for normal use, members were advised that there was adequate on street parking next to the field. Member Danny Hoare queried this as a member who travels some distance to fly and in times of inclement weather the ability to have a vehicle nearby was useful, however whilst understanding the benefits of being able to bring vehicles onto the site when flying, it was concurred by the meeting that the club should not abuse the goodwill of the LBC Security by asking them to open the field for only a small number of flyers.

JP advised the meeting that the LBC Security telephone number was available from him and that it would be available to all members in future on the soon to be issued Membership Cards. *Further discussion of the Membership Cards was held over until AOB.*

Member John Perry suggested to the meeting in view of previous illegal occupancy of the site by Travelers, members should be extra vigilant when using the site with full access, ensuring that the gate was locked by LBC Security before leaving the site. JP stated that the LBC Security was well aware of the problem and that regular use was also beneficial in that it keeps the site clear of excess vegetation.

5. Election of Officers

The Chairman, Brian Cordwell advised the meeting that if they were happy with his current tenure as Chair he was willing to continue in the role. There being no other candidates he was the proposed to the meeting as Chair by Brian Glitthero and seconded by Wal Cordwell and was unanimously elected.

The Secretary, Duncan Bainbridge then stated to the meeting that he was happy to continue in the role. He was then proposed by James Parry for the position of Secretary; this was seconded by Colin Johnson. There being no other candidates Duncan Bainbridge was unanimously elected.

The Treasurer, James Parry also stated that there being no other candidates he agreed to stay pro-tem in the role of treasurer, but in the coming year (2005) he would not be prepared to continue and that a replacement would have to be found.

The Chair then called for nominations to fill the vacant posts of P.R.O and Comp Sec.

Member Ted Horne questioned if these positions needed to be filled, the Chair replied that in view of the apparent resurgence interest in the club as a result of the efforts put in by Mike and Steve Waller, these positions were quite necessary.

He proposed that Steve Waller be nominated for P.R.O and in view of Mike Waller's interest in running the Combat Comp Series he take up the role of Comp Sec, Brian Cordwell proposed both members for the relevant roles and these nominations were seconded by Duncan Bainbridge, there being no other candidates they were unanimously elected.

Club Officials for 2004

Chairman – Brian Cordwell 53503

Secretary – Duncan Bainbridge 27286

Treasurer – James Parry 52202

PRO - Steve Waller 88941

Comp Secretary – Mike Waller 12095

6. Confirm dates for meetings in 2004

The Secretary proposed that the monthly informal meetings should continue at the present venue, when practical, BC said that it was only possible during school time, this was carried unanimously.

The Chair advised that the use of the meeting venue at Stanley Park School was free and that he was negotiating for the use of the hall for use for Indoor Flying, it was raised that if allowed 3Ks indoor nights should be open to all and that the club should charge a nominal fee, BC said that he would confirm with the school of this was a viable option and on hall accessibility.

It was agreed that meetings would be held on the first Tuesday of each month or as close to as practical, the next meeting being 2 March 2004.

7. AOB Newsletter

Secretary DB stated to the meeting that due to the lack of copy being offered by members, other than a select few, the newsletter would now be produced on a bimonthly basis wherever practical, asked for members understanding that the constraints of work may sometimes prevent this. DB said that he would be writing to all members asking for email contacts which would make distribution costs almost negligible. Members not on

email will continue to receive the newsletter by mail. The possibility of putting the current newsletter and past copies on the web site as downloadable pdf documents will be investigated.

Action – DB, SW

Website and email contact

KH suggested that in view of recent virus problems all members contacting each other and newsletter mail outs always contain Three Kings in the message subject to prevent confusion.

JPe asked that any members who did not wish their email and address details to be made available to all club members inform the Secretary asap.

Action – All

Vote of Thanks

The Chair proposed a vote of thanks to the Waller's for their dedicated hard work in promoting the club through the series of combat comps and practice days and hoped that the members would continue to support them throughout the year.

Meeting Form

Member John Perry (JPe) asked the meeting what form the monthly meetings would take, it was decided that they would be essentially informal and would include a variety of events that would include a table sale, Model of the month – starting in March, electric CL, and in the summer outdoor chuck glider, the general feeling was that the meetings be used a vehicle for members to stay in touch with one another when not able to attend The Patch.

F2B Competition

JP asked the meeting to help him run a F2B competition to be held in April, date TBC

Action - JP

Competition Dates

Mike Waller (MW) asked that proposed competition dates be formulated as soon as possible so that they may be advertised to a wide audience. It was decided that these would be discussed at the next meeting in greater detail.

Action - All

Recent 3k Comp day attendance

MW stated that approximately 20 people had attended the last fun fly day and that they had several calls asking for more information and also calls from people who expressed an interest in returning to CL flying.

Site Use

Member John Perry asked the meeting if the club actually had council permission to use the grass section next to the tarmac at The Patch. JP said that 3K's were allowed to use the grass and BC suggested that the grass on the downhill side of the tar be used to prevent the possibility of any noise complaints.

Members were advised that due care and sensibility be utilised when flying at The Patch re noise and that racing models over 2.5 cc should not be flown, ie Class B TR

A lively discussion then ensued regarding noise complaints and noise made by F2D models, MW advised that new rule changes due to be ratified by CIAM will make major changes to the noise made by F2D models due to constricting exhaust size and making strict constraints on mufflers. MW also advised that great leaps in technology have been made recently and electric control line is now a viable alternative, he is conducting his own investigation and hopes to be able to report back later in the year with his findings.

Membership Cards

Steve Waller SW informed the meeting that he was intending to produce membership cards for all members that will have details listing contact numbers including LBC Security and a map showing all flying areas on The Patch.

Action - SW

Club T shirts and Jumpers

Member John Bashford asked if there were any remaining yellow jumpers in stock, JP said that there were no more in stock, member Keith Hynds (KH) offered to investigate costs for getting a qty of 20 + printed with the club logo. MW suggested that SECA had used iron transfers and that they were a possible solution, KH said that he would also investigate the costs of getting a silk screen made that could provide multiple use. MW volunteered to produce a new version of the club logo in Illustrator for KH to use in his investigation; he will bring this to the next meeting.

Action – KH, MW

Club Trainer

SW informed the meeting that as a result of the recent publicity surrounding club events a member of the public had provided a Phantom Trainer to the club. In return he was paid a nominal amount by SW, club to recompense SW if wished.

Action – JP, SW

10. The meeting closed at 9.10 pm

That this be a true record of the meeting:

Proposed

Seconded