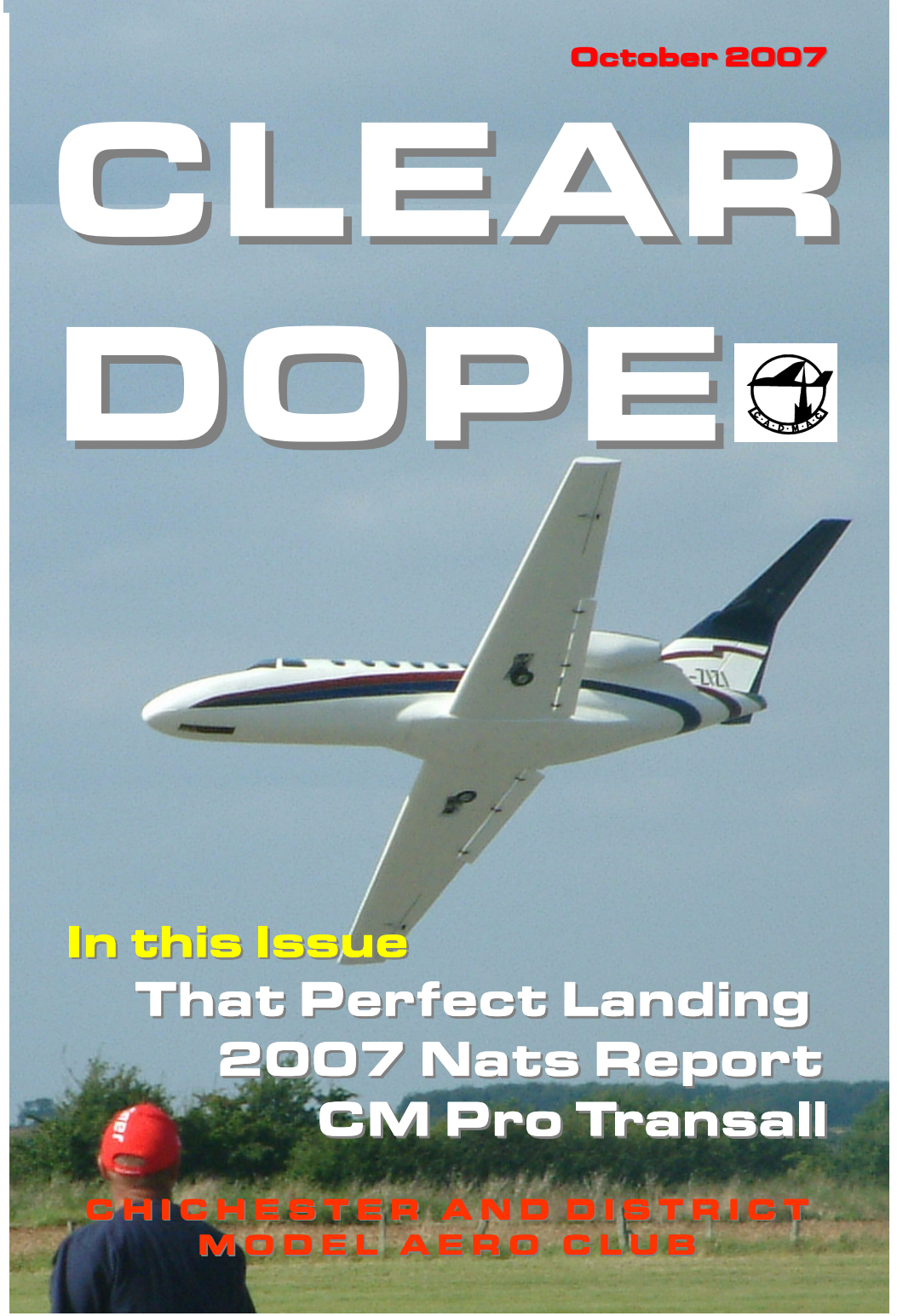
The articles and views expressed by our members, are not necessarily the views of the editor or committee and therefore we reserve the right to modify and or refuse an article if it is considered in the best interest of the club.

October 2007

CLEAR DOPE



In this Issue

That Perfect Landing

2007 Nats Report

CM Pro Transall

CHICHESTER AND DISTRICT MODEL AERO CLUB

Chichester and District Model Aero Club

website - cadmac.co.uk

Committee 2007

Chairman	Tony Chant	01243 262816
		Mobile: 07766 078977
	Email:	tony@tonychant.freeserve.co.uk
Secretary &	Toni Reynaud	01243 370422
Social Sec.	email address:	tonibr@onetel.com
Treasurer &	Keith Wood	01903 732595
Membership Sec.	4 Buttermere Way, Littlehampton. BN17 6SX	
	email address:	keithwood@supanet.com
Safety Officer	Morris Campbell	02392 464364
Competition Sec.	Ray Beadle	01243 670163
Thorney Rep.	Harry Walton	01243 375156
Porthole Farm Rep.	Mick Blundell	01243-670791
Slope Rep.	Ray Andrews	01243 604119
BMFA Rep.	Ken Knox	02392-593104
Webmaster	Lee Hackett	01243-820689
	email address	lee@cadmac.co.uk
Junior Rep	Gavin Bidwell	01243-861293
	email address	bidwg002@wsqfl.org.uk
Indoor Rep	Allen Miller	01243 261839
CD Editor	Bruce Smith	01243-531602
The Aylings, Queens Avenue, Chichester, West Sussex. PO19 8QB		
	email address:	aerobruce@aol.com

Committee appointed positions

Snr. Training Offr.	John Riall	01243-782922
Junior Members Protection Co-ordinator:		
	Bruce Smith	01243 531602

Cover Photo:
Ali's beautiful Cessna Citation woos the crowds on the Show Flight Line at this years BMFA Power Nationals.

TROPHIES

Will all last year's winners of CADMAC Trophies please make sure that they return them to Ray Beadle or any member of the committee A.S.A.P and by the November meeting at the very latest. Thank you.

DIARY OF COMING EVENTS

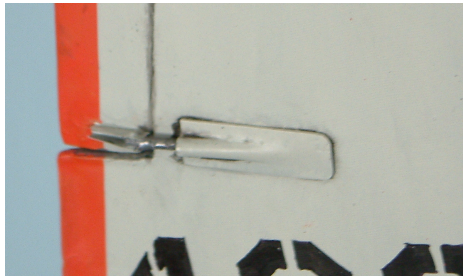
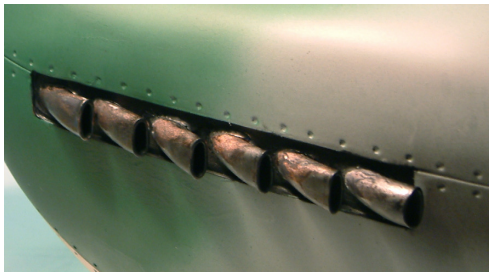
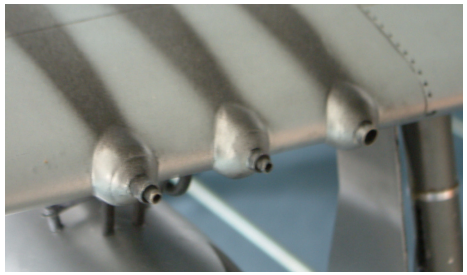
The following is a list of proposed CADMAC Club events for your information.

KEY: Club-Night Competition Indoor Flying

Oct	11	Members Forum		
Oct	13	Loops, Rolls, Spins	Thorney	12 noon
Oct	27	Indoor Flying	Seaford Col. 2 - 5pm	
Nov	08	Presentation	Producing Scale Detail	
Nov	24	Indoor Flying	Seaford Col. 2 - 5pm	
Dec	13	AGM / Buffet	Fishbourne	8.00 pm
Dec	15	Indoor Flying	Seaford Col. 2 - 5pm	

TeX & ReX by Cobbo

NEXT CLUB MEETING

Techniques for Producing Scale Detail



A presentation, demonstration and club members 'have a go' session.

Editorial

WEB-WISE?

How's you HTT Protocol? CADMAC Webmaster Lee Hackett has been finding it increasingly difficult in recent months with a growing family to find the time necessary to constantly up-grade our website.

Lee took over the job in May 2003 and was responsible for building the current web structure and acquiring the appellation 'CADMAC .co.uk' for us.
Now he's prepared to hand over the reins to someone with the know-how, time and inclination.
So, if that's YOU, give Tony Chant, or Lee or any member of the committee a call - and take it from there.
Meanwhile our deepest thanks and appreciation go to Lee for all he's done for the club. ***(Maybe he'll have time to do some flying, now? Ed.)***

FUNJET MEETS FLY-CAM 1

CADMAC member Kevin Porter seems to have been out of the picture for the best part of two years but now he's back with a vengeance! His very interesting article on the Transall can be found pp 17/18 of this months CD - but even more dramatic is the video footage of his flight over Porthole Farm earlier in September with a Fly Cam mounted in his fun-jet.

See the sewage works as never before by logging onto:

http://www.youtube.com/watch?v=0Zj2WE8UA58

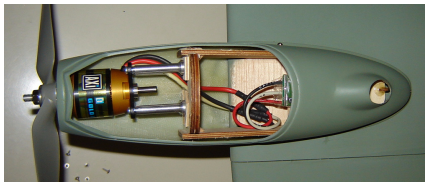
You'll need broadband to spool the seven minute flight and even then mine took about twenty minutes the first time BUT it was well worth it. Kevin does a great job pointing his electric tripod at subjects of interest - though I must admit to feeling a bit yucky when he flew inverted through the latter part of the video!

Minutes of the Committee Meeting

4th September 2007

from Toni Reynaud - Hon Secretary

Members Present Tony Chant, Harry Walton, Morris Campbell, Toni Reynaud, Ray Beadle, Keith Wood, Bruce Smith, Allen Miller, Mick Blundell, Ken Knox.
Members Observing John Riall, Ron Breach
Apologies for absence. Ray Andrews.
Matters arising from previous minutes. Bruce S requested that the comments from Morris C reference the change of wording on the Safety Notices at Thorney Island be struck from the minutes. After discussion involving Bruce, Morris and Tony C, this was agreed. (Tony C asked that these minutes show that the closure of Thorney Island for a paragliding event on the Bank Holiday Monday was mentioned at the meeting of 7th August, but not minuted then.
Correspondence. Toni R presented notification from the BMFA of the next General meeting. Harry W had received an email from someone wanting to join – forwarded to Keith W. Tony C had a letter notifying us of a flypast of the Battle Of Britain flight on September 15th – no flying at any of our sites between 18.00 and 20.00 on that day. Tangmere correspondence. An ex-member who works at Tangmere has asked that the club consider a possible request to fly scale warbirds at events there. Bruce S gave a small presentation on the flying area available. Ray B stated that other modellers fly at a farm site very close to the proposed flying area, and that a very real interference problem would exist. It was stressed that this request is only hypothetical at present.
Treasurer and Membership Secretaries finance and membership report.
There has been one request for membership and two enquiries this month. These are being progressed as usual. Membership stands at 142. KW circulated a brief statement on the current amount of Club funds. The Club had cash assets of approximately £6,000.
Social Secretaries report. The Plane game was won by Ray Andrews – the £20 was passed to Keith W. Even though there was no minute of the closure of Thorney Island to Model Flying, there was also no notification round the membership in general or on the website. Toni R suggested that a mass emailing would at least start the notification ball rolling in these circumstances. He has prepared an easily useable string of all email addresses available to the club, to be used in the BCC field of emails.
Hop Farm minibus trip – there are only six names on the list – trip to be cancelled and deposits to be refunded. The Committee will not organise any further minibus trip unless specifically requested by the membership.
Thorney Island representative report. Harry W visited Thorney Island on the day of the paragliding comp – the area from which we normally fly was used as a campsite, so

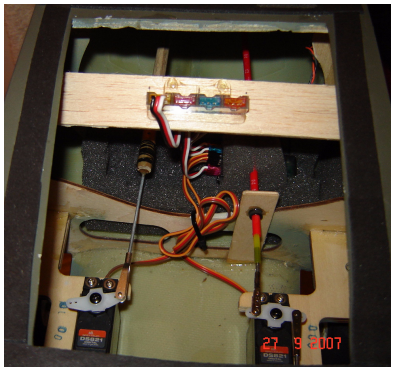


Using 10x7 props max current draw was just under 35 amps per motor giving a power rating of over 700 watts for a model weighing just over 6lbs – so no anticipated problems with power or overheating - the nacelles provide excellent cooling for the motors and ESCs as shown in the photo (service hatch removed).

At this point I have to say a big thanks to my father for turning 2 beautiful sets of aluminium motor standoffs and shortening the main undercarriage to give much better scale appearance.

A year later at Thorney whilst assembling wing and fuselage ready for her maiden flight it suddenly dawns on me that I don't really have a practical idea how she will behave in the air…. So it was with some trepidation the throttles were smoothly opened to full…..after probably 50 yards still no sign of rotation so with heart pounding feed in more and more up elevator until she final becomes airborne. With full up elevator trim she just about flies level – the internet threads were right - the quoted C of G is way too forward – I had decided to stick with the instructions for the first flight as I didn't want to be flying with C of G 20mm too far to the rear!! Needless to say I'm now in the process of moving the C of G backwards every flight by 5mm to find optimum point. A little aileron/ rudder mixing helps the turns look far more realistic.

I have to admit to not fully investigating the stall yet – although according to Motocalc it is around 17mph that seems about right, as it isn't a slow model! Wing loading 24oz/sqft approx at 72" span.



Having 35 amps running through each ESC I elected to use the Spektrum radio that so far has worked perfectly with no interference after 3 flights although the failsafe has activated once – so will be looking to improve the receiver positioning if possible.

As with some ARTF's a number of essential mods (in my view anyway!) were carried out including; reinforcing the main gear bearers and main wing fixings together with improving the control surface linkages and hinges.

To summarise a very nice model to fly – very different to what I normally fly especially with that huge fuselage – very stable and sedate handling qualities with nearly half the weight of the model in the wings alone! Now I know she flies I'll spend some time on finishing off the painting and some detailing to make her look like the real deal. The only bad news is that now addicted to multi-engined models I have recently read about a 100" version of the Hercules is now available from the US….

TRANSALL C160

from Kevin Porter

I never thought I would fall in love in a model shop - but that's exactly what happened about a year ago when I first saw a partially constructed ARTF C160 Transall (smaller twin engine brother of C130 Hercules) by CMPro hanging from the ceiling in Sussex Models Centre. With a GRP fuselage the model is detailed to a high level given the size – particularly striking are the main gear housings. Designed for 2 x IC 25's – which would require cutting away the majority of the narrow GRP nacelles, I thought it would be perfect for converting to electric thus saving the good looks of the model. Without thinking of the costs involved I duly bought the model at just under half the original price and returned home to start my research on the model…

I have to say at this stage that without the various RC forums on the Internet this model would probably never have flown. They provided a wealth of experience in converting the model to electric and also highlighted a number of errors in the instruction manual (eg C of G 20mm off the mark!) and also wing/ tail incidence problems. So after some initial research (and a few sharp breaths upon realising the costs involved) I started in earnest putting it all together…. After some basic calculations with the help of "Motocalc" – a free download off the Internet that can indicate what power equipment is needed to give required duration/ performance - I decided upon the following equipment to power the model:

2 x AXI 2820/10 motors – 42 amps max continuous each
2 x Castle Creation 45 amp ESC – programmed with the timing retarded to reduce current to acceptable level and also soft cut-off to avoid induced spin at low voltage.
2 x Flightpower 3700 11.1v – in parallel (at a total estimated average current draw of 45 amps should get flights of around 7 mins with plenty to spare.)

we couldn't have flown anyway. The event is unlikely to be repeated for several years. Thorney non member application forms. Tony C stated that it appears that non-members have been flying at Thorney Island without filling in the Visiting Pilot Forms. These are held in the equipment box, and members bringing visitors should be aware that they are responsible for getting the form filled in, explaining the rules (flying areas, forbidden areas, etc) and handing it to a Committee Member. BMFA Members must show their card as insurance proof, while non BMFA pilots are allowed two days flying with insurance cover if the form is filled in.

Thorney Island general use. (update section). This section will be used at all future meeting as the point for possible changes to be introduced and discussed.

The first point raised was to formalise ALL club evening meeting in future – there should be a ten to fifteen minute slot at the beginning of each evening for the chairman to communicate to the members any new information, and to receive feedback. The possibility of a rolling PowerPoint presentation on the newly-acquired AV equipment would be useful for reinforcing the information.

BMFA representative report. Ken K said that there was not much information coming in, and therefore not much in the newsletter. There is the possibility that the Southern area Chairman's post might not be filled at the next meeting.

Safety Officer's General report and site accident report Morris C said that there is not much to report. People are still flying in forbidden areas, but quiet words were being spoken to those seen doing so.

Porthole Farm representative report. Mick B stated that use of Porthole Farm is going smoothly. The mower was used again this week with no problems. The filling of the road is ongoing. Tony C said that he would like to see everyone using the mown path to the pits and seating area from the parking area, not the main track. Near misses have occurred between people walking along the track and aircraft on landing/ overshoots when the wind is from the west. Porthole non member application forms. As for Thorney Island the Visiting Pilot Forms are held in the equipment box in the barn, and BMFA pilots are allowed two days flying with insurance cover if the form is filled in.

Porthole general use. (update section). This section will be used at all future meeting as the point for possible changes to be introduced and discussed. This month it is suggested that the pilot's boxes be made bigger to allow for safer flying in different wind directions. Plans are to be drawn up to show possible positions. Mick B, Ray B and Bruce S to co-operate on this. Plans to be presented at the next Committee meeting.

Editor's progress on production of Septembers Clear Dope. No problems. The first black toner cartridge has been replaced, bur this is generally a small one provided with the printer to get it up and running. Bruce confirmed that the full cash-back amount from the manufacturer has been received.

Trundle hill representative report. Apologies from Ray Andrews. Ray B reported that because of other moveable commitments during the year there is not a spare date for the Slope soaring competition, so it has been dropped from this year's calendar. Ray A has agreed.

Indoor Flying representative report, finance and member lists.
Allen M reported that at the Indoor Meet on the 18th September there were 18 pilots turned up, and one visitor. Income was £97, with £30 being passed to Keith W (treasurer) A report and photos have gone to Bruce for inclusion in Clear Dope. There were excellent Free Flight and R/C models present. Allen suggested the possibility of an indoor comp on 15th December. Details to come later after working them out and general discussion. There should possibly be a buffet on this occasion.

Competitions Program. The Slope Soaring competition was double-booked with the Hop Farm date, so has been cancelled.. The Scale date is now 29th September, and the Three Spins comp in October.

Monthly Meetings/Social Events Programme.

September Keith Wood's five point proposals for the auction procedures were unanimously accepted. It was proposed that the auctioneer should start bidding at £10 below reserve to speed procedures but it was generally felt that in most cases he should exercise discretion according to his knowledge and experience.

October The members forum, led by TC would go ahead. The Safety Officer had mentioned that he would like to make an input also.

November Bruce is prepared and happy to give an on-screen and practical presentation of techniques for producing scale detail. Tony has acquired a remote pointer/PC operating device to use in conjunction with the LCD Projector.

December AGM - Toni R to ensure hall is booked. Buffet to be organised by club members.

Junior Members representative report. Gavin reported that he had been having difficulties, due to his changing job situation, in keeping up with what had been happening on the flying fields related specifically to junior members. However as far as he was aware there had been no problems to date.

Web Site Update - Progress report. It was mentioned that it wasn't possible for other committee members to update the website since Lee alone was in possession of the access codes.

AOB.
Harry Walton mentioned that it appeared that there was civilian security training taking place at the Thorney Island Gate House last weekend.
Allen Miller enquired about the possibility of further A Test dates being planned. Tony Chant and John Riall both commented that they were always available to examine and only needed to be given fair notice.
John Riall confirmed that he had passed Steve Skinner as a Club Examiner F/W.

Date of Next Meeting 02/10/07.

couldn't decide whether to enter the Spitfire or the Stearman - until the latter made the decision for me (or at least its propeller did.) Dick Stepney did us all proud though, although he was officially competing as a member of the 'Three Kings' Control-line Club with Trevor Bowry, our ex Club Secretary as his pit man. All the CAD-MAC crowd turned up along with Helen, Dick's Wife, to support them in the Control-line Classic Aerobatics (Pre 1969), where Dick flew his Stalker 35 powered Oriental into a very creditable Fourth Place.

What made this years Nats so special was the incredibly untypical Nationals weather - it was warm and sunny all weekend. Over the period we all saw some wonderful flying and had some memorable experiences. At one point, a full sized Spitfire, programmed for a fly-past, came over us so low that it had to knife edge between the trees on the edge of the campsite - the draught, in its wake actually took someone's cap off!

My most enduring moment, though was the Battle of Britain Memorial Flight's Dakota which made repeated passes up and down the main flight line at what seemed an unbelievably low speed. Amongst the scale modellers around me you could feel there was a real depth of affection for this grand old bird which with two Spitfires, a Hurricane and the Lancaster make up the five strong team.

Ali Machinsky drove his Cessna Citation from the Show-Line pit area to the flight line some 100m away!

I hope you'll be able to make it next year.

Bruce

While most craft generally describe lazy circles up and back down in the evening sky, some do make a break for freedom and modellers can be seen disappearing into the distance through all points of the compass in pursuit of their craft. My mate Fred Lee from Notts brought his own FF model for the first time this year and after a few trimming flight decided to slacken of his rudder trim a few degrees - seconds later his diesel powered 200% Eaglet was heading out of the county and it took some BMFA Officials on quad bikes to finally retrieve it from a restricted compound situated miles over the other side of the airfield. As darkness finally closes in, most people retire to the bar hangar before turning in, exhausted, after a full day in the open air.

Flying, both competitive and recreational, begins quite early in the mornings but even so its difficult, though camping from Friday till Monday to get round and fully appreciate all the disciplines. You will spend quite a lot of time plying your way round the trade stands though, and the 'trade village' as you'd expect, is by far the largest at any model aero show in the UK. Plane Nutz were very active over the weekend and managed to get themselves a 'good spot' as usual.

Arkwright surveys his domain whilst Grenville toils away indoors.

CADMAC members were very much in evidence this year with a dozen or more members camping, caravanning or (the rich ones) swanning in daily from their luxury hostelries. Sadly we weren't able to fly the competition flag though - I'd been wavering about entering the RC Scale event but with such a poor summer there'd only been a couple of week-ends of favourable winds to practice. Then I

That Perfect Landing from Colin Stevens

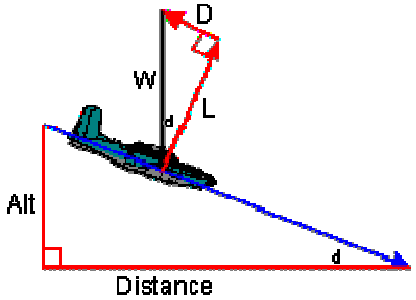
"Just how does he do that?" You've seen it - the club expert pilot brings his model in beautifully under control, to settle on its undercarriage without a trace of a bounce. He ought to be writing this, but he is usually a "do-er" rather than a scribe, so perhaps it falls to lesser mortals to try to see how he does it.

Most of our members will be content with the quality of their landings. They have been doing it for years, and to many it has become instinctive. This note is not by way of teaching grandmothers to suck eggs therefore, but to try to understand the physical forces that distinguish a good landing from a bad one.

First, an aside: There is a very important relationship between Drag and Lift which defines Glide Angle, and at the risk of sending readers glassy-eyed, since all to do with landing revolves around it, it's very well worth a look at a pictorial representation below.

Some definitions first -

D = Nett drag of the aircraft, measured in arbitrary units along the Glide Path.
L = Lift produced by the aircraft, in the same units, always operating perpendicular to the Glide Path.
W = Aircraft weight, in the same units, perpendicular to the ground as it arises from gravity.



Acknowledgement to Selkirk College, British Columbia, Canada

The figure demonstrates from the equivalence of the two triangles, that the gradient of the Glide Path is equal to Drag divided by Lift. It's not immediately obvious to most of us, but a few moments study of the figure will show that if you change the values of "L" or "D" and maintain their right-angular relationship, it changes the "Alt/Distance" triangle in exact proportion.

Another way of looking at the relationship is to dive the aircraft vertically, and the vector "L" reduces to zero. Fly it level, and the vector "D" reduces to zero. Magic, eh?

Note that Drag is the Nett value of total airframe drag and incorporates any engine thrust (= negative drag). So, if the engine thrust equals the airframe drag, then there is no drag, and the aircraft is sustained in level flight. If thrust exceeds drag, then the triangle is effectively flipped upside-down, and the aircraft climbs.

This is a fundamental relationship for all winged aircraft. Thus it is fundamental to

To fully appreciate the Nationals you need time - you can't just 'do it' in a day and to that end the BMFA organise a huge campsite for tents, caravans and motor homes. There are a plentiful supply of power, water and sani-points coupled with w/c blocks and even hot showers. If you don't want to camp and cook there are food vendors operating from dawn 'till very late and the bar opens early in the main hangar. Of course if you're past 'ruffing it' there's a plentiful supply of small hotels, guest houses and Travel Lodges in the vicinity.

You won't get bored of an evening either. If you can avoid the temptation to sit and drink yourself paralytic in the bar there's a great deal going on in the evening. Barbecues, of course, are very popular and you're bound to bump into old friends or acquaintances from all over the country and there's a good chance you'll get 'invited back.' Then there's more than just drinking and socialising taking place in the bar hangar. A good two thirds of it are netted off into two flying arenas with free flight and 'toy' RC in one while the other is devoted to electric heli and serious shockie flying in rotation. Anyone can go and fly so it's a nice way to keep your hand in if you're likely to pine. Outdoors, of course, there's all kinds on non-radio flying taking from early evening and hundreds take the opportunity to make use of the control-line circuits or indeed any bit of spare grass. The 'Classic' evening event is, without doubt, the all comers free flight bonanza. Picture an area the size of a football field filled with intrepid free-flight modellers all starting and launching their, elastic, electric, CO_2, Jetex, glow, diesel and rocket powered models over the heads of the crowd - it's manic. It's a sport worthy of the Roman Arena as the crowds whoop and cheer, duck and dive and have close shaves (and often full on impacts) with a whole plethora of weird and wonderful airborne craft. There's Pterodactyls flapping about, whizzing hockey sticks, rocket powered foamy gliders and even some conventional free flight models blackening the gold-red evening sky. A mischievous shout of 'heads' will have all about you dropping to the floor without question.

The evening Free Flight extravaganza goes on until its dark - or until modellers and spectators lose the will to survive - whichever comes first!

The BMFA British National Championships

NATS 07

Once again the Power National Championships were held at RAF Barkstone Heath just north of Grantham in Lincolnshire over the August Bank Holiday weekend. Here each year you can see the finest our hobby has to offer in radio and control-line, along with the Scale F/F Championships which take place on the Saturday/ Sunday after the R/C Scale has finished for the day. *(And the wind has had chance to drop some.)*

If you've never been to the Nats, it's time you did. The spectacle is awe inspiring with literally the whole of the airfield taken up with specialised areas for the various disciplines. For control-line there are all the different classes of scale, stunt/ aerobatics, team racing, speed and carrier deck landing. The speed, team-racing and pulse jet events have to be run in specially caged areas for obvious reasons. Radio stages the F3A Aerobatics, Scale Aerobatics, Scale, Fun-fly and Round the Pole Racing along with a separate 'Show Line' where trade teams, display teams and individuals strut their stuff to commentary and music and here you get, amongst many others – the jet and war bird displays and of course the wild 3D aerobatics.

British team member, Richard Crapp, chats with an official against his magnificent Fairy Swordfish on the scale flight-line.

the understanding of much of our hobby, too. We can now see exactly why Drag is such a performance-sapping parameter. This figure ought to be printed on the back of the Club Card!

Back to our landings: Lift and Drag shape our thoughts when we ponder our landing options, since we can adjust Lift by means of trim via the elevator, and Nett Drag by throttle setting. There seem to be three techniques to consider –

1/ Glide Approach, Minimum Speed

Here, the engine is at Idle, and the model is descending steadily at minimum speed, and at a gradient determined by the Total Drag and Lift relationship in the picture. All is balanced and well until we get to the round-out, when we suddenly need to flatten our descent if we are not to plough a furrow. Instinct causes us to pull back on the stick. "Boing!" Oops! - we got it wrong somewhere. Too right we did – we were using maximum lift in the glide and at round-out there was no more to be had, and pulling back on the stick merely increased the drag. We can see what that did from the pic.

What should we have done then? Perhaps we can get a clue from our magic triangles, and so we can – reduce the drag! Open the throttle a little to add thrust equal to the airframe drag and the aeroplane levels-out. Now, land it promptly by control of the throttle, with absolutely minimum elevator assistance, whilst we are winning - And Be Glad.

Note: Engine at Idle refers to an engine speed which is slower than that required to produce prop pitch speed equal to the power-off glide speed. In this situation, the propeller is producing drag, because its blade angle of attack has become reversed, helping to steepen the approach. If the engine is stopped, then drag will be reduced and the glide extended.

2/ Glide-Approach, Under-Elevated

With the engine at Idle, we can hold a little excess speed by a slight forward pressure on the stick or, if you have leanings toward genius, by the Trim lever. You now have a little extra kinetic energy that can be traded for lift-increase in the round-out. It's probably second-nature to glider fliers, but you get only one chance to get it right using this technique. More often than not, we create a little too much kinetic energy and finish-up with an undulating landing, punctuated by numerous bounces, all made much worse by the use of the elevator. What is it they say about practice?

The approach speed is higher by this method, and this gives rise to a steeper glide slope as a result of increased drag. Some pilots add extra power in the descent phase. This flattens the approach again, but this can sometimes be un-welcome. However, it does provide better protection against wind gusts, and it helps to keep the engine alive.

3/ Can There be a Third Method?

Best to consult our expert, so what's he doing now? Oh look! He's coming-in slowly with the nose very high, plenty of power feeding the drag and helping with the lift, and he will stop with a very short landing run. Well - I'll go to the foot of the stairs! Just when I thought I'd got the hang of it.

This is a clever method I've witnessed, not for the faint-hearted, or for models with wicked stall characteristics. The idea is to get the nose well up so that the wing is producing lots of drag, and lift is actually reducing – a very critical attitude for the model. The angle of descent can then be steep, and is again controlled by engine power. Wing-generated lift is getting unreliable at this attitude, so high power from the engine helps out, and with sufficient power saves the day if the wing goes into full stall.

So, which is the best method for you? Aerodynamics experts say that the rate of decent (or climb) should be set by the adjustment of engine power alone, but I think most of us have come by the route of Method 2. I now find more leeway in my erratic attempts by the added-power technique of Method 1. However, faced with a sudden Dead-Stick in the approach, I draw on my glider experience and make a hasty transition to Method 2 if height permits. Much the best to go and talk to the experts, and see how they do it.

Well, that's the theory, as I see it. The practice is something else, so please look away when I'm doing my landings.

If you have found this useful, then you can read a much more coherent account of landing techniques at http://www.masportaviator.com/pdfs/prifly_landing.pdf and http://www.masportaviator.com/ah.asp?CatID=8&ID=32.
For those who would like to dig deeper, there is an excellent treatment of all topics aerodynamic http://selair.selkirk.bc.ca/aerodynamics1/. As a further illustration of the workings of the figure above, be sure to run the applet at http://selair.selkirk.bc.ca/aerodynamics1/Performance/Tx_demo.htm. You can operate the aircraft's throttle from Glide to Climb, and watch the change in the vectors.
On the other hand, if all this has made your head hurt, I'm sorry.

Colin

GET YOU ENGINE TUNING RIGHT

Sent in from the net by Fred Minay

This chart indicates the direction in which you should adjust the fuel mixture when faced with changing weather and other conditions. It assumes the engine is currently well tuned. You could face any combination of conditions listed in the chart; knowing which way to go with the mixture adjustments is half the battle.

Higher air temperature	Lean	
Lower air temperature	Rich	
Higher humidity	Lean	
Lower humidity	Rich	
Higher barometric pressure	Rich	
Lower barometric pressure	Lean	
Higher altitude	Lean	
Lower altitude	Rich	
Higher nitro content	Rich	
Lower nitro content	Lean	
Higher oil content	Lean	
Lower oil content	Rich	
Hotter glow plug	Rich	
Colder glow plug	Lean	