



Wow, what a summer! Long hot days spent at the likes of Calder Park, Kerloch, Barmekin and the Cairn O' Mount, comfortable conditions for both models and the modellers, with some memorable flying to reflect upon. Even the club BBQ on Sunday 17th August was blessed with sunshine, **BUT** (and there's always a "but" when it comes to club events), a strong south-west wind put a spanner in the works. I believe that some flying was to be had in the morning, but by mid-day models and hairstyles were

being blown all over the shop. The healthy contingent of modellers and their wives retreated to the club tent and fired up the BBQ. It was at this point that Graham Irvine and Mike Pirie decided to throw all caution to the wind. With steely resolve and a determination to make the most of the day, they picked up their planes, deposited them back in the cars and proceeded to eat far more than their fair share of the hot food! Late comers, such as my good lady and I, arrived to find the BBQ had suddenly gone vegetarian! I must admit that those two bowls of salad looked terribly inviting, but there was no way it would go with the jar of 'Uncle Ben's Hot Texas BBQ Sauce' we'd brought along. Graham & Mike were found under a pile of stripped kebab skewers some time later. Thanks go to Brian Allen's wife, Carol, for preparing the salads, John McConville for providing the gas BBQ, and everyone who came along to support the event.

A number of new members have swollen the club ranks over the course of the summer. Seasoned IC flyers John Donald, Doug Paterson and John Masson are now enjoying the occasional dabble with electric models, whilst newcomers Jim Wright and Terry Shields have both appeared armed with electric gliders.



*A relaxed Jim Wright with his Montana after an early training session. Instructor Mike couldn't fault his flying, but reckons he ought to have studied the operating manual for his washing machine more carefully.... looks like those trousers went through the wrong wash programme! (photo Mike Pirie)*

Jim's ARTF Montana was purchased on our chairman's recommendation and has already completed several training sorties under Mike's watchful eye (not to mention his well filled stomach!). However, Terry drew the short straw when he turned up at Calder Park one evening to discover that I was the only one available to help with his maiden flight.

In an attempt to do a passable impression of "the responsible modeller", I first gave the model a thorough preflight check over. Ailerons and elevator were centered and checked for correct movement, reducing the throws for gentler handling. The recommended CG was spot on, and no problems appeared during the range check. Having completed all of the above, we'd become aware that the elevator pushrod was "catching" on the fuz side, so, erring on the cautious side the wing was removed. The rod was indeed fouling against a moulded vent just aft of the wing, so the servo arm and pushrod were repositioned to run down the centre of the fuz, leaving just sufficient clearance between it and the aileron servo when both were operated together. Wing back on, elevator still centered ... good! We're ready to commit to aviation!

With a confident swagger, we walked to the launch point. Hey, this is an ARTF. We've checked the set-up, what could possibly go wrong? (I dare say the designers at Harland & Wolff asked the same question when they heard that the Titanic had gone down). Terry would launch and I would waggle the sticks, which I duly did, before firing up the motor and requesting a hearty chuck. Unfortunately the smile was quickly wiped off my face a fraction of a second after the model nose-dived into the ground. Bad enough when it's your own plane,

**Cover Pic:**

*The 2003 Scottish Soaring Nationals at Maybole was blessed with calm (but very challenging) weather, great flying, endless banter and a monster prize list.*

but much, much worse when you nearly re-kit someone else's! Fortunately there was no structural damage, but the prop didn't survive, so the evening ended with the maiden launch.

I still couldn't figure out what had gone wrong, but it was Terry who later suggested that maybe we should have used the servo reverse switch on the Tx when relocating the elevator pushrod... which is exactly what the problem was! Pulling back on the stick in actual fact applied down elevator now. Sorry Terry, I'll try to get it right next time! (...still can't believe I didn't spot that prior to launch?).

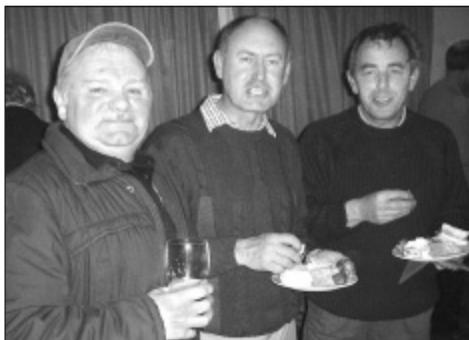
So, I guess, like the Titanic, the technology was fine, it all came down to the dummy in the driving seat!

Mike Pirie's article 'ADS is 25 years old' which featured in the previous edition of the newsletter should have been accompanied by the four photos that appear at the end of this section. Our apologies for this omission (JB going blind) and also to those of you who were present at the anniversary bash, but still not featured in any of the pictures. Unfortunately the large group shot taken on the night was un-useable.

Right, just a couple of brief reminders before I sign off. The club AGM will take place at the Cove Bay Hotel on Tuesday, 11th November, at 19:30. Anyone not attending will automatically be voted onto the committee!

And finally, I've so far received only ONE entry for the "Oldies Photo Competition". Come on chaps, it ain't that difficult and you don't even need to get off your seat to enter. Just e-mail me at my **new** address, shown on the back page of this newsletter. **DR**

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*More 25th anniversary mayhem!*



Maybe it's my age, or a yearning for the simple days - the days of high-rise trousers, braces and felt hats - the days of my youth when I went through my awakening of all things curvy ... elliptical wings and monocoque fuselages, etc. SAD!!



*An apprehensive Alan just prior the Southerner's anti-climatic maiden flight. We can only assume that he was trying to create the correct 'mood' for the occasion by wearing clothes that pre-dated the original design!*

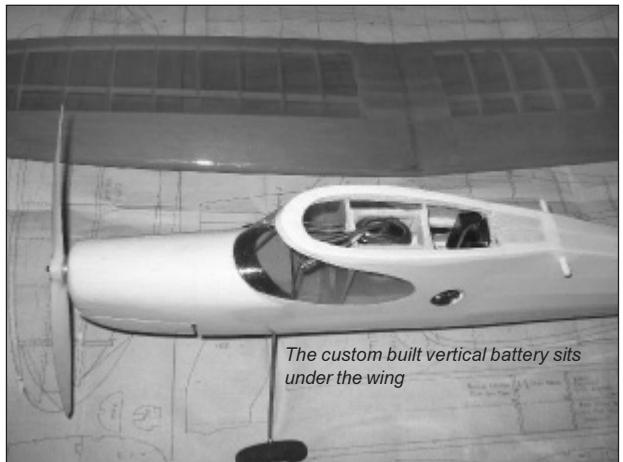
And so it happened. I was perusing the Ben Buckle Web Site one night, as one does, when my eyes fell upon Bill Deans' Southerner 60, circa 1948 - perfect I thought. I phoned Ben Buckle (yes he actually does exist!) to have a chat about an electric conversion. He explained that they originally used a Mills 2.4 and if I built it light enough, I should have no problems. As the polyhedral wings might make steering tricky, he suggested I use a straight dihedral of about 10 degrees.

So the plans arrived. The wing and tailplane appeared to be common with another Bill Deans classic, the "Super Slicker", and the drawings showed both the poly and straight dihedral versions of the wing, so the flying surfaces were built as standard. The most time-consuming part was cutting out all the ribs, each one being different because of the elliptical planform on both surfaces.

The fuselage is of the crutch type, which can be built either vertically on a central keel, or in two halves (flat on the plan), brought together then stringered. This method saves ending up with a banana shaped fuselage! However, I should have taken more care when tracing out the formers and bulkheads from the plan, as the sizes varied considerably from the elevation

drawing ..... which I later discovered to my cost. A very time consuming dismantling job resulted, followed by a rebuild! The standard engine bearers were kept to mount the motor/gear box combination, and so that access could be gained to the motor, the bottom nose was made removable - all too easily as I discovered on a subsequent flight when it went straight through the prop! Apart from this and the 'former' problems, all very straightforward with no changes to the plan so far and just as per the IC version.

However, the mounting for the batteries was a different matter. As there was no room to lay the cell pack flat in the usual manner, a bit of head scratching was called for. I decided to build a vertical box over the C of G area which was fixed to the keel, with cooling holes in the front of box, and hot air exiting by way of the rear cabin windows. There was no way I could

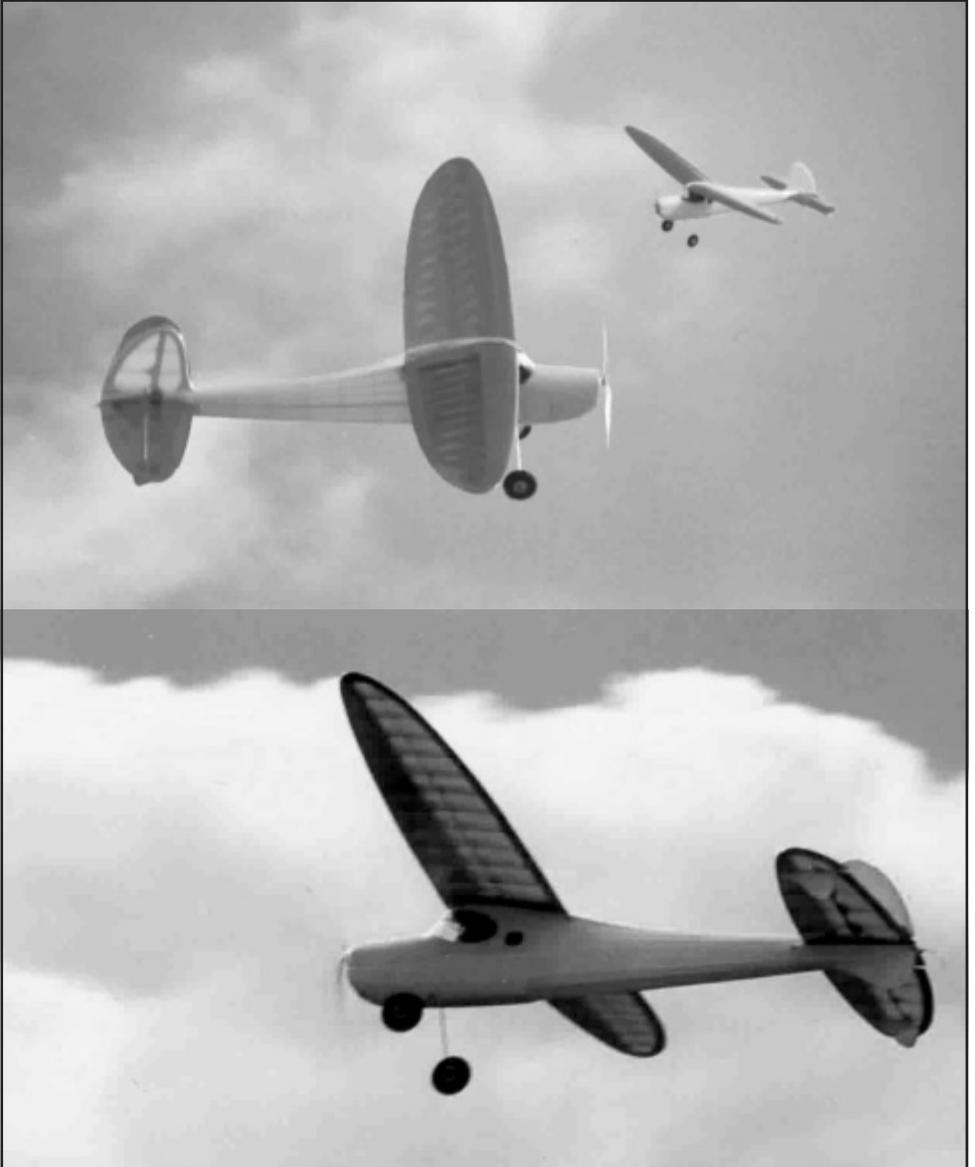


*The custom built vertical battery sits under the wing*

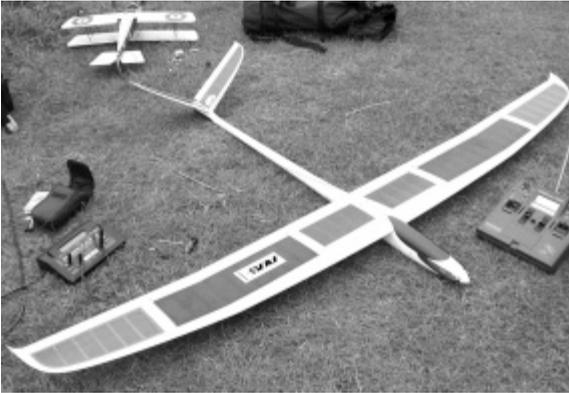
adjust the position of the battery box later so it had to work first time (it did, phew!!). This method gives easy access to the battery and leads.

The drive train consists of an old Kyosho Buggy Type 540 Race motor, turning an 11 x 6 ASP prop through a 3.1 gearbox, and she flew straight off the board as they say, with ROG's on half throttle and flight times on 2400 nicads of around 20 minutes.

The construction of a vintage model of this type is not difficult [*neither is brain surgery after a few attempts. JB*], but perhaps more suited to the traditional modeller - THE OLD BOYS! I found it difficult to keep light, so if you're tempted, take care... and yes, yes, I know they don't look like real aeroplanes but they are so **SEXY! AS**



I've always found the first flight of a new model a voyage of discovery. Kits, built to plans, all-moulded, it doesn't make the slightest difference. Early-years experience of a very respected kit manufacturer's power model which was virtually unflyable when balanced as per plan taught me to take nothing for granted. But to this day, first flights have remained a thrill, particularly as some great models these days are devoid of information of any kind. Like the Highlight 2m....



*The Highlight relaxes at Calder Park recently after another seek and destroy practice sortie on Mike's beautiful scale Hercules which had the misfortune to be airborne at the same time!*

Armageddon. Thick, low, dark purple clouds almost from horizon to horizon, a turbulent strong wind and light drizzle. Vehicle headlights on. Hard to remember that this is August in Scotland. It's 4pm. 8 miles away at the house the weather had been bright and almost windless, perfect for the first flight of Soarhigh's Highlight 2m span electric soarer.

The pilot is alone, gripping the fuselage in one hand at shoulder height while the Highlight tries to tear itself free. The model has a very strong fuselage, but now the pilot's grip is so tight to retain possession it feels like an eggshell. In the shop the model's 52oz mass had seemed substantive. Now it's an anorexic feather. These are less than ideal conditions for an exploratory first flight, balance and throws at a best guess setting. The small site is surrounded by tall trees, so the turbulence at ground level is significant.

"Go home, young Luke, it's too risky. There'll be other days". Wise words, Obi Wan, but would the world not be a greyer place without the odd spot of rash and impetuous behaviour to test the boundaries? "Yes, but it would have more models!"

Throttle on and heave, an eternity for the launch hand to return to the aileron stick. But no rush is required. The Highlight pulls away strongly, wings banging left and right but the model's path on rails. The climb angle steepens progressively as speed builds up. A little down elevator is fed in to limit the steepness of climb and maintain the model at flying speed, aileron corrections constantly required to keep the wings approximately level as an irritated Mr Turbulence continues the fight for possession. With this wind speed the model rises almost vertically, as if in an invisible lift.

Above 300ft Mr T. is left behind. Now visibility is becoming a problem against the spitting, angry, purple/grey background. For a few seconds the pilot stares at the point where the model – edge-on from behind now – was last visible, then cuts the throttle and dabs in down elevator to hopefully level out. And there she is, about line height – c. 500ft for non thermal comp pilots - wings silhouetted against Armageddon's screen saver. About 25-odd seconds have elapsed. Remarkable how tightly focussed concentration overrides the body's instinctive desire to breathe. Pheeeeeeeewwwww.....!

The Highlight hovers, then dips and eases forward into another hover, another dip. A little down elevator trim is teased in to correct the stalling. Moving forward slowly now, she's banked left into her first turn. The nose drops, picked up with a little up elevator, and she rockets downwind. Another turn towards the pilot, nose dropping again. CG needs moving back. More climb-outs, a high speed pass over the field at tree top height, a few loops, try coupled aileron/rudder for effect in the turns but lower down it's too blustery to be able to meaningfully check anything. 22 minutes after launch the model is landed, less than smoothly

because the initial best-guess setup for landing aid – both ailerons cranked up and flaps at 45 degrees, with a little down elevator compensation mixed in – is a complete mess!

Initial thoughts. Aileron and elevator control response is crisp, authoritative. Very little aileron stick movement used with the travels set, about 2/3 elevator stick for the fairly tight loops. A shrieking whistle from the high speed passes (surface gaps need shrouding?). The Highlight handled the conditions with ease. Solo launching an act of faith though.

The wind strengthens, full-size wind sock at the field maintaining an increasingly agitated horizontal pose. The receiver battery in the nose area is moved back 2 inches while the main pack is recharged. The landing mode settings are adjusted, flap deflection reduced and down elevator compensation increased.

The second flight is better, the change of CG making turns smoother, easier to fly. Penetration appears improved. The ship is still very stable though. An early landing as the sprinkle develops into darkening drizzle. Back at the house it's still much brighter and windless...

That was yesterday. Today, August 21<sup>st</sup>, the tall trees around the house are bent in subservience to ever mightier winds. The forecast for the next week is that it will not improve. Soarhigh has been clamouring for customer setup information for the Highlight. Well, the fine-tuning will have to wait, but perhaps enough was gleaned from the two flights yesterday to at least get the ball rolling. CG positions a matter of personal taste anyhow, the general rule for soarers being to simply balance it as far back as you're comfortable with. The balance setting used for the second flight yesterday is considered a good starting point.

For reference, this HighlightE 2m has a root chord of 218mm – one panel is 219 but we'll ignore that – and a span of 1995mm. The motor is installed with the same downthrust as the fuselage profile but a whisker of right sidethrust, the shaft line running about 15mm to the right of the tail centreline.

The control throws below are what were used yesterday. They are not optimised, perfect, spot on or anything else. Full stick travel was not

reached for any control despite the corrections required for the turbulent conditions. Mr V. Average pilot was able to fly it smoothly though. A great start to the relationship. Exponential was used on Aileron and elevator controls, 100% and 80% respectively (Mpx 4000 Tx). What this equates to in real money is that for aileron, 50% stick movement = 5mm down aileron and for elevator, 50% stick travel = c. 3.5mm up and down. For transmitters without an exponential facility, it might be prudent to use a little less control surface travel. How much less is not known yet.

### HighlightE 2m settings – August 20<sup>th</sup>

CG	85mm back from LE at root.	
Aileron (100% expo)	10mm down	15mm up
Elevator (80% expo)	8mm down	9mm up
Rudder (no expo)	8mm down	9mm up

### Landing mode (still far from perfect!):

Ailerons	15mm up
Flaps	10mm down
Elevator	3mm down
Motor	Jeti Phasor 30/3 – direct drive
Prop	Graupner Cam 12x6 folder
ESC	Kontroniks Beat 40-6-18 (non BEC unit)
Rx	GWS 8ch – Futaba crystal
Rx pack	720mAh NiMh
Flt.pack	8x1200mAh 2/3 subC nicads
Servos	6xRipmax SD150's
Weight	3lbs 4oz

Initial impressions? All positive. The Highlight looks like it'll make a cracking fun-fly model, with soaring performance potential to make it a very useful tool in BEFA and BARCS Electroslot competitions, particularly on breezier days. As George Whelan has already discovered, the Jeti Phasor direct drive motors are very effective, quiet too without a gearbox. Current draw with the 12x6 prop is a very modest 24A average, both motor and pack barely warm by the end of a flight, so the pack can be recharged immediately.

Final tip: Don't leave the wing bolts at the field! **JB**



*The last of several trips up Barmekin Hill this year and the going was tough for Mike, Bill & myself, with the ferns reaching record heights. Bill had to extent his Tx aerial so that we could plot his progress!*

*At last! Clear of those bloody ferns and almost at the flying site. (photos: Mike Pirie)*





*A sizeable turnout during a club visit to the superb Kerloch site. (photo: Mike Pirie)*



*Kerloch host Sandy Tough gives his newly acquired Twin Star a bit of elbow, with the only real obstacle at the site, an old dry stane dyke, in the background ... apart from the sheep, cows, cars and thistles that is!*



*After completing a successful flight and landing with his ARTF Nebula, Neil Davidson enjoys a quieter moment in the hot July afternoon sun, oblivious to the fact that a passing jogger is now in possession of his credit cards, mobile phone and false teeth!*

My search for a winter project during the autumn of 2002 led me to the designs of Canadian modeller, Ivan Pettigrew. Originally from New Zealand, Ivan has developed a number of large scale, multi-motored models usually using inexpensive ferrites (buggy motors), highly geared and with more cells than you would normally use with this type of motor. The gearing is carefully chosen so that the motors run at maximum efficiency. What this means in practice is that they are running at high RPM's while drawing relatively modest currents. This in turn leads to cool motor running and extended motor life.



One of the first things you notice about his models is the amount of open framework, sheeting only being used where necessary, e.g. turtle decks and 'D' box sections. Balsa is used extensively, hardwoods being utilised for main spars, motor mounts etc. Other features include own-design lightweight retracts manufactured from 10 or 8 swg piano wire (more on this later) and lightweight covering (usually Micafilm). Due to the low currents involved and the use of parallel circuits, battery weights are also kept to a minimum. Not surprisingly, his models usually boast very low wing loadings, which in turn leads to more scale-like speeds and longer flight times. This design philosophy appealed very much to me, and I was convinced that this was my way forward. I contacted Ivan by e-mail and soon was receiving all sorts of information, including a very comprehensive and informative list of his models to date. I was also pleased to learn that his plans were available on request.

### Which model to build?

The decision to build the Lancaster came quite easily as it had been near the top of my 'must build some day' list for a long time, so I quickly sent off the requested amount of Canadian dollars, and soon plans for a 1/12 scale Lancaster were winging their way back across the Atlantic to me. Ivan advised me that his Lanc had been built in 1995 and as such, would benefit from several modifications. First of all, the 27-turn buggy motors could be upgraded to Magnetic Mayhems, secondly, for better prop efficiency, the 13 x 8 props (3-bladed) could be replaced by 13 x 10's, and lastly, he felt that his retract mechanism was a bit cumbersome (his first attempt at DIY retracts) and he suggested I had a go at re-designing them.

### Making a start

The retracts were definitely my biggest worry, so I immediately set about the task of drawing up a new layout. This proved to be no mean feat, as although comfortable with geometry and technical drawing, I was totally unfamiliar with the workings of DIY retractable undercarriages. However, after a lot of head scratching, and with Ivan's help, I finally came up with something that seemed to work (at least on paper). With the drawings completed, my next big worry was actually bending the 8 swg (4 mm) wire to its required shape, one of the bends being an incredible 180°, this form-



ing the slot for the actuating crank. I needn't have worried – with Graham Donaldson's workshop to the rescue, a combination of brute

strength (not to mention skill) and a heavy duty vice did the trick (see photograph). All bends were done cold. [*Typical Aberdeen summer!*]

#### Purchase of main hardware

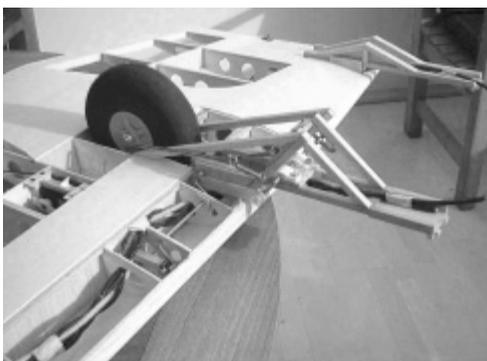
For some reason, I was unable to purchase 'reverse rotation' Magnetic Mayhems in the UK, so these were purchased along with 'Dave Brown' 5" lightweight wheels (150 grams the pair) from Tower Hobbies. Four Superboxes (5:1) were purchased directly from MEC (saving £60 over UK prices) and finally, six Master Airscrew 13 x 10 wooden propellers (to make up the four 3-bladers) were purchased from John Swain of Fanfare.

#### Choice of version

Around three years ago, 'Electric Flight International' had reviewed a 1:12.5 scale Lancaster by John Ranson and Trevor Stannard. This model was based on the B Mk1 'Special', developed in the mid-war years in order to carry Sir Barnes Wallis' 'bouncing bomb' and later on, his 22,000 lb 'grand slam' bomb. The model was all-sheeted, had a wing loading of around 28 oz/ft<sup>2</sup> and used 30 sub-C cells (compare with Ivan's 20 oz/ft<sup>2</sup> and 18 cells). I remembered that along with the plan, a vacuum-formed mouldings pack comprising canopy, bomb-aimer's turret, rear turret, spinners and nacelles was also on offer at that time. Now this appealed to me, as besides speeding up construction time, it would be an appropriate model to build in the 60<sup>th</sup> anniversary year of the Dambuster's raid. I contacted Traplet to check on the availability and ordered the pack straight away. Ivan's Lanc was to be a B1 'Special'.

#### Construction

Except for the modifications required for the conversion to the B1 'Special' and the fact that I was building a one-piece fuselage (as opposed to Ivan's two), the fuselage construction was quite straightforward. The wings required more thought! You'll see from the photographs that the wheel box is in a most unfortunate position – straight through the wing main-spar! Ivan had explained previously, he'd had to do this because of the way he had designed the retracts, but not to worry, extra spars fore and aft of the wheel box had been designed to transfer the loads round the now redundant main spar.



Now as an ex-structural engineer, I must admit that the idea of slicing through a main spar at one of its most critical points didn't fill me with confidence, and I became doubtful about the whole project. On studying the plans, however, I could see that the spar which Ivan had placed to the front of the wheel box was a fairly hefty one and ran the whole length of the main wing. This was re-assuring, but in the end, I felt I had to add some 'beefing up' of my own in the area surrounding the wheel boxes. This was achieved by forming an arrangement of rigid boxes, using extra ribs and sheeting top and bottom, around the area in question, the theory being that bending moments would be transferred around each side of the wheel box position. I'm confident now that the wings will be strong enough.

#### Flaps and retracts

The flaps shown on the plan, besides involving some intricate construction, looked thin and fragile. Ivan reckoned that, because of the low wing loadings and flying speed of the finished

model, the flaps would not be strictly necessary. I took his advice and dispensed with the flaps.

The retracts on Ivan's model were operated from a central sailing winch servo via a drum – a rather clumsy arrangement he now admits himself. In view of the complicated nature of the retract mechanisms and the potential difficulty in synchronising the two wheels, I opted to go for separate wing mounted retract servos.

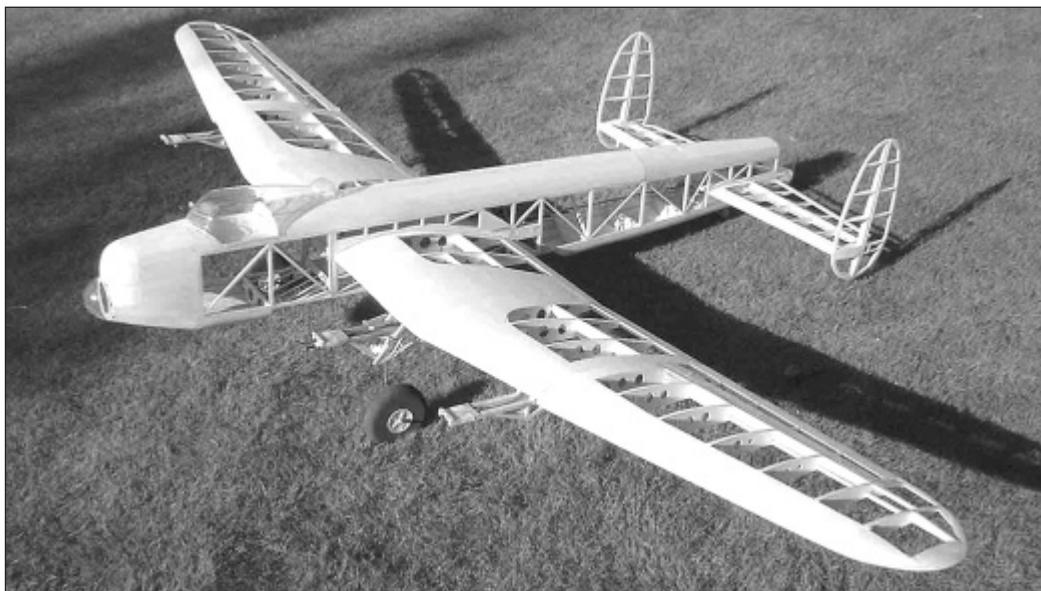
These were quite a challenge to install and connect up, but are now operating satisfactorily.

#### The finished airframe

The airframe weight (as shown in the photo) has come out at a very promising 2.2 Kg, giving me an estimated finished weight of 5.1 Kg.

which would correspond to a wing loading of 20 oz/ft<sup>2</sup>. This weight is well below my target weight (makes a change) and gives me scope to consider the use of Sanyo 'C' cells, which although about 25 grams heavier, would give me slightly longer flight times. Elevator control is by a Sullivan 'Gold-n-rod' while both tail wheel and rudders are controlled by closed loops.

You can read about Ivan and his models in the July 2001 issue of EFI and you can contact him at [ivanp@dowco.com](mailto:ivanp@dowco.com). In 'Ivan's Lanc-Part 2', I will describe how I made up the 3-bladed propellers and the bomb. I will also report on the covering, the painting and hopefully its first flight. **MP**



*Bill Stark, this time without tea-cosy but sporting his latest creation, a scale rubber powered Consolidated PT1 biplane built from an ancient Model Airplane News plan. I asked if I could photograph these two "old-timers" together, to which Bill agreed, volunteering the following information ..... "In the wake of WW1, this carrier based aircraft was conceived, planned and built in the USA in the early 1920's, whereas I was conceived in Carmouste in 1935 but not planned!"  
Nice one Bill!*



*No prizes for guessing the identity of Brian Ord's latest acquisition. Whilst most of us tend to swear at our models, Brian swears by the Zagi, which seems capable of handling any conditions the slopes can throw at it ... warm and light on this occasion down at the "Cairn". Popular ship this. South Africa is a ZAGI nation based on the latest report from SA correspondent Dave Greer. Here's 48 flown at a recent event....!*



# Scot Nats 2003

John Barnes

I watch, fascinated. Fifty feet up a new HLG – my first – is being tossed around unmercifully, wings snapping left and right, pitching up and down like it's being hit with a hammer. What's fascinating is that where we're standing it's calm, not a breath of wind, not a hint of air movement.

Early evening at the new Nats site on the west coast, Simon and Phil Jackson having offered to check the setup on my aileroned, discus launch 'Garnet' which I'd been struggling to control despite what I thought were fairly generous control throws on what I thought was a perfectly calm evening. "Ho, ho", said Phil, when he checked the movements I'd set, then promptly quadrupled them! While they took turns launching and flying the model, I was updated on why such extreme looking throws were necessary, the treacherously deceptive evening air providing the perfect blackboard. Jings, I had no idea

that the air could be so turbulent so close to the ground when cigar smoke was simply coiling vertically away. Priceless. Thanks guys.

For this years Nats I'd arrived laden with models because, for the first time, I'd entered every class – 100S, Open, HLG, Electroslot and ScotSlot (30 min electro) – to (a), maximise flying time and (b), try and collect some of the fabulous prizes on offer, this years event once again enjoying generous support from Soarhigh Models.

I'd been careful with the preparation of the models to ensure maximum reliability, one aspect of this being the use of new receivers to replace my ancient Futaba and less ancient Jeti units. Oh, and not long before the Nats I'd had a GWS 8ch rx which had proved faulty straight out of the wrapper, so another incentive to try something different. The models now sported the latest

Schulze 8 channel rx's, a batch of which had arrived just before Nats departure time. Full-range units designed specifically for interference-free operation of electric models, so perfect for everything else of course. Untried in flight before the event but, hey, this is Schulze, the Rolls Royce of electronic model wizardry. I looked forward to a glitch-free Nats. The God of Soaring just smirked...



*A delightful conclusion to this years Nats when Pope James 1 arrived to bless everything in sight. Blessed are those who were there to enjoy it!*

The site for this years Nats is the Walled Garden Caravan and Camping Park, just south of Maybole in Ayrshire, the Nats using the Camping Park bit, a site just large enough to fly from but bounded by tall trees very close to one edge, the opposite edges disappearing into a gloriously huge and picturesque valley. A couple of trees sat innocently on top of a small rise about a quarter of a mile away on our side of the valley, very effective model magnets as things transpired!

The weather for the three day event was good, at least in terms of wind direction and general placidity, and

yet... This mag has previously carried a story about a calm, perfect looking yet unflyable day. This years F3B World Champs in Germany enjoyed similar treachery with its weather, some of the best pilots in the world really struggling to launch, let alone fly the event.

And so it was with the Scot Nats, particularly on the Saturday for the 100S, ScotSlot and HLG events. The Sunday and Monday weather was better but still very tricky to read. But back to Saturday and the first event...

## 100S

100" span rudder/elevator controlled soarers and an 8 minute slot time, an easy target for a well-flown 100S model. Normally...

A portent of things to come when Colin Sparrow wins the first round slot with a 4.36 flight, Chris Bishop struggling to make 3.04 as slot tail



100S FO group. From L to R, Ron Russell, Robin Sleight (Trackers), Brian Johnson (?), Dave Hunter (Tracker), John Walters (trying to hide his Algebra 2.5m) and Colin Sparrow (Sagitta 900).

gunner. I'm in the second slot. It's won by Robin Sleight with 4.24. Harry Merrick struggles to make 1.52. I don't struggle at all to make zero! I launch, turn out over the valley and watch as the Aquila steps into a hotel lift and plummets to the ground floor like its wings are absent. A long walk up an adjacent hill to collect it, unmarked but looking bemused. I'm not the only one to collect a zero in the first round. No-one gets close to a max, many flights in the sub-3 minute zone. Andy Lewis tells me that for his flight he's managed to get enough height in a small patch of lift after about 4½ minutes to comfortably manage another 8 minutes. Big grin. His Montana is back on the ground in 6 minutes and he just makes the field. It's that tricky.

Round 2 is no better, the first slot being won with 3.43. Remember, this is on a day where the weather looks perfect for long, lazy flights! I try the valley again, a big mistake as the Aquila finds the same hotel lift and plummets to ground level in less than a minute. No-one gets close to a max.

Round 3 ditto. Slot-winning scores are in the 3 and 4 minute bracket. In my slot I wait until the last pilot has landed before

collecting the Aquila, walking across to the landing zone with a Very Good Pilot. I make a comment about the tricky weather but am chided by VGP with a 'Bollocks. It's simply piloting skill. Ho hum'.

Mark Easey makes the only max of the 100S competition in the last slot of the final round, small compensation for his zero in the first slot when his model discovers the magnetic trees on the small rise.

Man of the comp for me is John Walters. John has been out of competitive soaring for a long time. He decided to pop along to spectate, then remembered his ancient, trusty 2.5m Algebra housing spiders in the loft so brought it along for a laugh. Against the mighty moulded modern ships and hugely experienced pilots, John tops

the score sheet after the 4 qualifying rounds. Brilliant. (Mr VGP doesn't make the fly-off, even more brilliant!).

Six pilots go into the two 12 minute fly-off slots, the first of which is won with a 7.14 and the second an 8.10. Dave Hunter is a worthy winner, with Brian Johnson and Colin Sparrow a distant 2nd and 3rd respectively. John Walters finishes 5th, a cracking result 'for a laugh'!



Dave Hunter with his moulded Tracker 100S ship. Flew it well to take 100S honours, which mainly involved staying away from the valley!

## ScotSlot

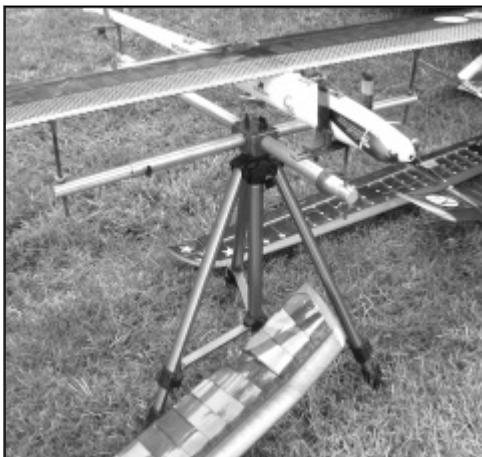
This year I was determined to give Bruce Flockhart a run for his money in this event. Bruce, a dedicated electric flight specialist at world class level, always tries to support the electric events at the Scot Nats, normally cleaning up in the process!

I'd brought the Highlight 1.8m which was reviewed in the last club mag. A delightful flyer, all I'd changed to prepare it for this event was to install a higher capacity battery pack (1900NiMh) and a bigger prop. Oh, and a new Schulze 8ch receiver to try and get rid of the occasional glitch I'd been getting with the original Jeti 7ch unit. Still on BEC, the model had test run perfectly in the workshop, the motor pulling c. 65A as the BEC cut-off activated after 1.50 of strong motor run time (eleven 10 second bursts). In a sub 1kg model the performance should be sprightly enough to worry Bruce. How true that turned out to be...!

The entry level was up this year so the event was run in two slots. No problem. What was a problem was that the flight times from both were simply combined into one bigger slot to determine the results, an approach which is unfair and simply doesn't work. What should have happened is that, for example, (a) the top 3/4 from each slot would go into a fly-off situation or, (b) the event would be counted as two events, with a winner from each. I'm sure it'll be sorted for next year, but meantime I'll report the results here as (b) above. The air in the 2nd slot was much better than the air in the first anyhow, so combining the results of the two slots doesn't give a fair picture of what happened.

Six pilots lined up for the 1st slot, Bruce flying, me launching for him. The air was poor, even Bruce not managing to make the full 30 minutes with the allowed 2 minute total motor run time.

<i>ScotSlot Event 1</i>	min.sec
1. Bruce Flockhart	28.00
2. John Meredith	19.58
3. Alan Lipscombe	18.11
4. Chris Bishop	12.33
5. Steve Holmes	10.27
6. Colin Sparrow	9.42



*A very neat adjustable stand used by the Midland Mafia to lovingly hold their electric ships and just about anything else. Note the wing supports to keep a ship level.*

I lined up for the 2nd slot, Bruce launching for me this time. Neither of us are aware that this'll be my last flight of the 2003 Nats.

The hooter goes, Bruce heaves as I switch on the motor. The Highlight's climb rate is ballistic as it dwindles vertically, leaving the opposition far behind...

...and I have no control over it whatsoever.

The ship starts to arc over onto its back a couple of hundred metres up as Bruce implores me to "Get the nose DOWN". If only I could. I've switched off the motor but the model continues at full chat. The arc turns into a giant loop as the model screams vertically down towards us before heading skywards again. And then the motor shuts down. The Highlight is at considerable altitude when this happens but I immediately get control back. Roll it around the sky a bit, drop it back close to us, perfect control now. Bruce suggests a landing while I have control, a smart suggestion, but I'm curious as to what the hell is going on here. At low level to one side of the field I switch the motor on again and pull the ship vertical. And lose control again. More high altitude aerobatics before the motor shuts down of its own accord and control is immediately regained, a carbon copy of the first climb-out. I do this three more times before Bruce threatens me with a blunt instrument and I land.



*The ever-helpful Midlands Mafia in repose. From L to R, Steve Holmes, Pete Hubbard, John Meredith and the very amiable Jess. The lads beset with some problems not of their making this year but Jess almost made the Open fly-offs.*

Remarkably, the airframe has withstood the unplanned flight stresses without a murmur. The autopsy begins. Bruce holds the model while I switch on the motor and waggle everything. Perfect. I move away from Bruce and within 20m the controls are playing up. Bruce doesn't use BEC at anything over 20A so is very suspicious about the controller. Before today the Highlight has been perfectly mannered on BEC pulling about 35A, just the odd glitch at my local field on the old Jeti receiver. It had performed perfectly in the shop when tested at higher power. At this stage I'm baffled, but with doubts over the Schulze receiver as well I elect to scratch from the rest of the Nats, the same receiver in use in my other models now, until I discover what's happening with the Highlight.

Andy Lewis is using the same Schulze rx in his Open model and later goes home and brings back the instruction sheet for the unit. My receivers had arrived just in time to get them installed in the aircraft and had performed flawlessly in the shop, so I hadn't read the instruction sheet. All I understood was that the Schulze was a PPM rx with some tricky bits to enhance its interference rejection. Very true, but as usual the devil is in the detail. In the case of the Schulze, the tricky bits are very tricky, and as I carefully scrutinised the instruction sheet a possible reason for the suddenly uncontrollable behaviour of the Highlight became apparent.

The Schulze 8ch rx might simply be doing what it's programmed to do.

If my interpretation of the instructions is correct, when the Schulze rx detects interference it suppresses it and replaces the invalid signals with previously received valid signals. Schulze then states, **"If interference persists, the receiver switches off the servo signals completely. Under certain circumstances the servos may then be moved back towards neutral by aerodynamic pressure"**.

The four investigative climbouts I managed showed that the problem was a consistent, repeatable one. Whenever the motor shut off I immediately regained flawless control of the Highlight, even at great distance ("Can you see it, Bruce?"), so the interference was being generated onboard by running the motor. It didn't affect the aircraft when I was close to it – the shop tests had been fine – but started to become apparent when the rx and tranny moved away from each other. A ground range check may have shown this up before the model was flown but I hadn't carried one out.



*Phil (dad) and Simon Jackson, who along with Bob Dickenson were outstandingly helpful in aiding my introduction to the nuances of HLG setups. The Jackson's a formidable team in UK thermal comps. I got to see why.*

It appears that the interference generated by running the motor quickly caused the rx to suppress it and replace its output with 'previously received valid signals' soon after launch. With the last valid signal for the motor being 'ON', this rx output position was held while the rx tried to deal with the interference, an impossible objective given that the source of the interference was the motor/esc combo! After a pre-determined time, the interference persisting, the rx shut itself off. This removed all signals to the servos/esc and the motor stopped, immediately removing the source of the interference. With the interference source removed, the rx immediately switched back on. Because the throttle switch was by this time in the 'OFF' position, the motor remained off, allowing the model to be controlled as normal.

Post the Nats weekend, other matters have prevented me carrying out further tests with the Highlight equipment to try and establish the cause of the interference – and get this mag out, now more than a month overdue! The Highlight has flown normally again though, the Schulze rx replaced with the Jeti 7 unit and current back to 35A. There are other complications to hinder an easy conclusion to the Nats situation with this model. Bruce believes the esc I'm using is incorrectly labelled and not suited for the higher currents used at the Nats (the esc company doesn't agree). Schulze states that their rx is only guaranteed to work with Schulze crystals. I was on 84 for the Nats, Schulze crystals stop at 80 – the limit in Germany – so I used a Futaba crystal. It worked fine when the motor wasn't running.

What I do believe is that the Schulze rx was performing as it's programmed to. It responds to interference like a PCM rx with 'failsafe' (FS) enabled. Unlike a PCM rx though, the FS mode cannot be inhibited. I've seen numerous models fitted with PCM rx's with FS enabled crash unexpectedly, a problem often attributed to 'PCM lockout'. I don't use PCM rx's, never having had a problem with inexpensive single conversion PPM rx's in any type of model, electric included. Meantime, I'm not blaming the Schulze rx. The fault is mine for using a piece of equipment without fully understanding the stringency of its setup requirements.

Meantime, ScotSlot Event 2 was continuing! As mentioned, the air in this slot was much better. The winner used an electric version of the 100S Tracker to good effect. One odd problem in this slot. Pete Hubbard was lined up for landing when his Organic suddenly reacted as if someone else had switched on a tranny on his frequency. The model was badly damaged. Despite enquiries, no-one could offer an explanation, so the matter remains unresolved.

#### *ScotSlot Event 2*

1. Jon Stanswood	29.53
2. Mark Easey	28.55
3. Dave Hunter	21.47
4. John Barnes	10.32 (!)
5. Robin Sleight	9.12
6. Rick Lloyd	6.39

Rats. Another year will have to pass before I can frighten Bruce again! It is good to see the event gaining in popularity though. Hopefully next year there'll be time available to schedule in a fly-off. This event really does showcase electric thermal soaring at its best, no restrictions on anything other than the motor battery weight, presently 450g.

As mentioned, I didn't fly again. I missed most of the HLG action, the event which followed ScotSlot. Brian Johnson later told me that the air was so poor in one of his slots that his Viltis, the model he used to win this event last year, was back on the ground in 13 seconds, something he didn't believe was possible! I timed for Robin Sleight in Electroslot, Robin expertly flying out his first slot before expertly landing high in a tree on his landing approach. I timed for Phil Jackson in the Open fly-offs, watching Phil in the 2nd FO as he flew a vast circuit underneath every model which was going up, his model never detecting a hint of the lift above it. Nice adaptation of English for this endeavour, Phil!

1st prize for Comic Relief to Dave Hunter. In one of the Open slots, Dave anticipated the buzzer, stomped on the winch pedal, then had to run down the field clinging onto the model as the buzzer failed to buzz. When it did, he released the model and ran back up the field to the winch to continue the launch. Priceless, Dave!



Brian Nicholas with the superb Pike Superior. The ship suffered a flap servo failure on landing in one of the Open qualifying slots. Servo bonded in and hardwired into the extension lead, so no chance of a field fix. No worries. I had some heavy duty Duck tape which anchored the flap in place on one side and Brian flew the next slot without flaps, not a handicap for the flight part but landing the Superior without crow brakes (flaps down and ailerons up) an unknown quantity. He made it look easy. An experienced heli and power flyer, new to thermal soaring, Brian handled the Superior with authority and looks set to become a key player in thermal competitions if he sticks with it.

Ex SAA chairman and newsletter ed, Dougal McIntyre and the South African 'Eish', an inexpensive but strong glass fuz/foam wing model. Just two test launches before the Nats, Dougal also new to computer trannies and full-house ships to boot, but still managed a slot win in Open! Dougal says the 'Eish' proved to be a docile and forgiving model with a strong competitive performance. A delight to fly. He's tickled pink with it.



Brian Johnson relaxes with his Eraser Xtreme while Andy Lewis prepares to spear him with ye olde Montana Open model. Both made the Open fly-offs, Andy finishing 2nd and Brian 5th. The calm weather on the Sunday and Monday didn't favour the lightweight Montana, just made it usable. Had it been windier Andy would have used his backup Pike +. As this reporter has mentioned many times, a modern all-moulded glider is NOT a pre-requisite to achieving a competitive performance in thermal competitions. Remaining aloft longer than one's opposition has absolutely nothing to do with the model used, which is one of the great strengths of the thermal competition format and the reason why it's so popular. Pilots win contests, not models.



The Open fly-off group relaxing before battle, all blessed with good fortune by Pope Jim! Andy's Montana outgunned all but one of the exotic soarers used. A good indication of how tricky the air was to read in both fly-off slots proved by Bob Dickenson with his Montana derivative, the Graphite. Composite built-up wings and tail, bigger, stronger, lighter than Andy's old rust bucket, Bob's model ended up in bad sink zones in both slots and literally fell out of the sky in the 2nd (a fate which befell many in the qualifying rounds). Normally one would simply speed up and punch out of poor air, but it didn't work that way this weekend. Bob in 2nd place a whisker behind Simon Jackson after the 6 qualifying rounds. A tough test for all, the 2003 Nats. Great stuff!



At last, the secret of Andy Lewis' considerable success in thermal competition revealed. He flies with his eyes closed! Andy later admitted that he discovered early on that his models remained aloft for longer with a 'Do Not Disturb' approach. Wife Dot tells him when to land.



Jack Fisher watches the opposition in HLG. Majority of pilots make use of the organiser-supplied bungees. I didn't notice if anyone was discus launching but DL gives superior launches to bungee when done properly. Hugely popular event.



Soarhigh Models supremo Guy Taylor is ecstatic about brother Gary outscoring him in the Open event! Guy very generously sponsored the event again this year with a mammoth prize list for all classes flown, including moulded F3J soarers for the top scorers in the Open competition. Kept busy throughout 2003 by flying in most of the UK F3J and F3B competitions to gain experience in each class and check out what works well and what doesn't on the model and equipment front at the sharp end. His small, packed model shop in Banff has recently branched out into fishing tackle as well, although just how he's managed to cram anything else into the shop remains to be seen. The shop carries mainstream model products only, the huge range of moulded models Guy deals in mail-ordered out of other premises.



**FAI Sporting Codes: Sec. 42.7 - Dress code.**

As the public face and front-line ambassadors for the sport, team managers, competitors and helpers are expected to attire themselves appropriately for this vital PR role. Clothing chosen should clearly represent the great importance and *gravitas* which underlines our sporting conduct....

*(Chris Bishop lining up for another swing at the ADS paparazzi while Mark Easey waits for his soup to cool)*



A tiny part of the prizegiving ceremony for the 2003 Soaring Nats, an event in its own right given the high quality banter. My favourite was Colin Sparrow (L) trying to refuse a box of booze with, "I don't drink alcohol", a comment instantly followed by a loud call from the crowd, "But your wife does", from wife Anne! Above, Mr Lewis wins a Pike + (Andy would've preferred a new Montana). Left above, Phil Jackson collects the Budweiser trophy. Bottom L, Robin Sleight wins the chance to celebrate recovery of his electric ship – virtually undamaged – from a very tall tree, a terrific job by Jim McCosh and crew. Below, Jon Stanswood posing (there's a surprise) while Pope James phones in an order for the same cool RayBans. Great job, Guy.



Recent Scot Nats have finished with a flourish of some description. Last year it was the winner of the Open event being showered with champagne. The icing on the cake for this year's event appeared just before the Open fly-offs.

Owner of the Walled Garden Caravan Park, Jim McCosh, suitably attired, arrived in his Popemobile and proceeded to bless the flight-line, contestants and anyone else close enough to get showered from his holy water carrier! Pope James I then stayed to aid the prize-giving ceremony. Absolutely hilarious, a perfect ending to a good-natured weekend's competitive flying.

Special thanks go to Rick Lloyd, dad Dave and Dave Bradbury, Harry Merrick for finding the site and Soarhigh Models for sponsorship. Rick, the primary mover and shaker for this year's event, did a cracking job of keeping things running smoothly but informally. If folk suffered a wee problem on the flightline, they got time to see if it could be sorted. No rush, yet everything ran to schedule. It never seems this way from the organiser's perspective of course, but at one point Phil Jackson, who flies exten-

sively in UK comps, commented that it was the best organised event he'd flown in since he was in short trousers and the old King was alive. A Grand Finale for the lads to go out on then, because at the time of writing I hear they've decided to throw in the towel, at least with regards to SAA soaring event organisational involvement. It appears one straw too many may have been one SAA response to soaring Nats event funding for this year, a request I'm told which was answered with a demand for a Business Plan.

Whatever happens for future Nats, if Rick and the team are running it, I'll be supporting it. They've done a cracking job of continuing the addictively light-hearted, humourous and supportive approach to comp running which Andy and Dot Lewis generated for so many years.

To finish on a positive note, take note all campers. The Walled Garden and Caravan Park is an absolutely delightful venue for campers wishing to escape to scenic tranquility on Scotlands majestic west coast. Check out [www.walledgardencp.clara.co.uk](http://www.walledgardencp.clara.co.uk) for details. Jim McCosh, thanks a million. A star turn! **JB**



George Thomson with two great performers. The Aerovan in the foreground sports a pair of Sp 400 motors, with long flights from either of the 2250 NiMH or 2100 Nicad 8 cell packs used. The little Less 'n' Extra sport model next to it runs with a Sp 400 mated to a mini Olympus gearbox hooked up to an 8 cell 1300 NiMH pack. Both were built from free plans. (photo Mike Pirie)

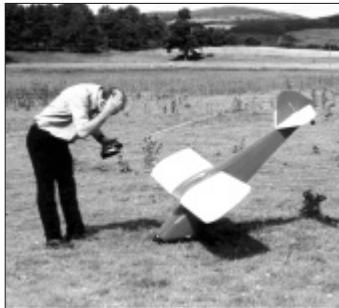


A long time in the making, Graham Irvine poses with his much modified Balsacabin Capri. The overall dihedral was reduced so that outboard ailerons could be fitted on this rudder/elevator electric glider. Much fun was had as various club members "helped" Graham with trimming flights (er, sorry, flights!), but all seems to be sorted out now and model flies well. Up front is a Hurricane motor, 2.8 : 1 gearbox, with a 7 cell 2400 Nicad pack providing the go.



Alan Stewart's recently refurbished Taylorcraft, now finished in a red and white livery, lining up for a landing approach on its first outing this century.

A perfect flight ruined by the local fauna! Touching down a little short of the strip, the Taylorcraft is ambushed by a large thistle, whereupon Alan was heard to quip, "Thistle be the last time I fly outa here!"



## ADS CALENDAR FOR 2003

Fun Fly & task days will start at 11:00. Venue notification by e-mail. These will generally be held on the third Sunday of the month, this will allow for attendance at the National Competitions which usually take place over the Bank Holiday weekends. Cove Bay Hotel meetings start 7:30pm.

Task flying strictly voluntary – have as many attempts as you like.

Launch by winch, HLG, bungee or electric motor – 60 secs for can type motors, 45 secs for rare earth or brushless motors.

<b>14<sup>th</sup> January</b>	Cove Bay Hotel.	Electric models—demo's—motor testing—running in—battery packs—bring your model and equipment.
<b>11<sup>th</sup> February</b>	Cove Bay Hotel.	Video Evening—bring your fave video (flying!)
<b>11<sup>th</sup> March</b>	Cove Bay Hotel.	<b>ADS 25<sup>th</sup> Anniversary buffet.</b>
<b>20<sup>th</sup> April</b>	Venue by e-mail.	Fun fly & task day.
<b>3<sup>rd</sup> – 4<sup>th</sup> May</b>	Montrose	Model Air 100 festival – take a model, FF,C/L,RC.
<b>18<sup>th</sup> May</b>	Venue by e-mail.	Fun fly & task day.
<b>24<sup>th</sup>-26<sup>th</sup> May</b>	Venue TBA	Radioglide
<b>7<sup>th</sup> &amp; 8<sup>th</sup> June</b>	Hazlehead Park.	Saturday 100S and 30 min electro. Sunday BARCS Open rules. Entry closing Date 26 <sup>th</sup> May. £3.00 entry for 100s & £3.00 for Open
<b>22<sup>nd</sup> June</b>	Venue by e-mail.	Fun fly & task day.
<b>20<sup>th</sup> July</b>	Venue by e-mail.	Electric Fun fly & task day.
<b>2<sup>nd</sup>-4<sup>th</sup> August</b>	Maybole	Scottish Soaring Championships
<b>17<sup>th</sup> August</b>	Calder Park.	Club BBQ, Fun fly & task day.
<b>23<sup>rd</sup>-25<sup>th</sup> August</b>	Barkston Heath	BMFA Nationals
<b>21<sup>st</sup> September</b>	Venue by e-mail.	Fun fly & task day.
<b>19<sup>th</sup> October</b>	Venue by e-mail.	Fun fly & task day.
<b>11<sup>TH</sup> November</b>	Cove Bay Hotel.	AGM

### ***Movers & Shakers***

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**ADS** welcomes any material of modelling interest for publication, so a few words (& photos please) about one's latest aeronautical creation/experiences/hints'n'tips will be warmly welcomed.