

Leek & Moorland Model Gliding Association

Web Sites: - <http://lmmga.org>
<http://www.lmmga.co.uk/>



September 2011



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RICHARD CAMPBELL

Most of the models and equipment Richard Campbell bequeathed to the club have now been sold, only a boat, a couple of chargers and small models have yet to go (see LMMGA web site)

The total so far raised is £705.00.

The Cross Country Event that we had organised on 19th June in memory of Richard had to be cancelled due to poor weather conditions. This will be rescheduled at a later date

**Many thanks to all those who sent material in for this edition
Keep it up!!**

**Your pictures, anecdotes, tips, advice and comments
are always welcome ~~~~ Send them to either**

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Front Cover

This photo is out of my collection ~ Not sure what it is or who took it ~ Looks a bit like a Calypso to me???

The Ramblings of an Old Codger

According to the BMFA the average age of their membership is in the mid 50's. This means that there is an ever diminishing number of us oldies who can still remember when there was more than a tinge of magic about anything to do with flying machines and even fewer of us who can still remember when only the rich and famous could afford to walk up those steps to board a plane.

In those days only full size gliders could be seen soaring on our slopes, after all, it seemed pointless chasing a free flying model over the rough terrain of moorland slopes when you could tow a glider up to a good height on the flat.

Over the intervening years there have been some incredible developments in models and radio design. Unfortunately it's not been all jam and honey for modellers. Then we could fly our models on any suitable piece of land without so much as causing a raised eyebrow.

With the advent of radio, faster, bigger and noisier planes we've seen many of these flying sites lost and new ones difficult to come by. On top of this there has been an ever growing list of restrictions put on many existing sites.

I can't hazard a guess at what types of models or what advances will be made in radio control equipment my grandchildren will be flying.

What I am sure of is that both models and radio gear will continue to develop at a pace.

What I'm not so sure about however, is, will my grandchildren and their children still have the pleasure of flying on the same wonderful slopes I've flown on over the years?

We've been flying on our moorland and coastal sites so long now that some of us tend to take them for granted, some even think we have a God given right to use them. Those who think this should remember that every square yard of this country belongs to someone and if that someone isn't you, you have not got any God given rights; only privileges. It's only the naive who think these privileges can't be taken

away; remember Teggs Nose? (for new members ~ Teggs Nose is a slope site in our area that had been flown on as long as I can remember and never had a reported accident. A couple of years ago Cheshire County Council, in their wisdom, decided that model flying at Teggs was too dangerous and banned model flying.)

Many of our moorland sites and most coastal sites have footpaths that run close to the flying slope. If we take one such site that most of us are familiar with, Rushup Edge. (Rushup has a footpath along the ridge)

In my time I've seen the maximum speeds of RC model at Rushup go from somewhere in the mid 30's, to dynamic soaring models travelling at well over 200 mph. At these speeds both model and pilot are being pushed to the limits. I can't help wondering what the consequences will be to our "God Given Rights?" if one of these lead laden high speed planes has a reported near miss with a member of the general public or heaven forbid hits one.

Rushup, if I'm not mistaken, comes under the jurisdiction of the National Trust. In fact, most of our moorland and coastal sites in this country are controlled by just a small number of national organizations such as, Natural England, National Trust, and Peak Parks.

If an incident does happen on one of their sites, (say Rushup) the knock-on effect not only for Rushup but for other well used slope soaring sites that come under the jurisdiction of the N T could be grave.

Our continual use of these sites will not depend on how safe and responsible modellers think they are. It will ultimately depend on how safe the site owners/managers perceive model flying to be. If we fail to convince them that model fliers are a responsible group of people who pose no danger to the general public, we have problems.

I have no doubt in my mind that most aero modellers do not pose the slightest risk to the general public. Unfortunately I'm not the arbitrator. My worry is ~ It will only takes a few bad apples in the barrel to get us all tarred with the same brush.

If you've a 2.4 Transmitter You might find this interesting

I received a phone call followed by an email from Keith Rathbone a few weeks ago. It was about a problem he was having with his Graupner 2.4 GHz receiver. It appears that after less than half an hour's flying, the yellow warning light on the receiver would come on indicating low voltage. On checking the battery out when he got home, he found that the voltage was well up even when under load. After several tests he came to the conclusion that there was nothing wrong with the battery so he queried this with Graupner suspecting that there was a problem with the receiver.

Below are the emails Keith sent to Graupner and their replies::

Keith to Graupner

Further to my earlier email and your replies: Today I flew my model with a battery that had been discharged and recharged fresh. My total flying time was one hour 10 mins. After each landing I got the orange warning light.

When I returned home I removed the receiver and checked the battery voltage and the current drawn. The standing current when locked onto the transmitter is 82 Ma, this rises to 190 Ma whilst operating the servo's. The voltage was monitored during the test and remained at 6.06 V. After about ten minutes whilst intermittently operating the servo's, the receiver indicator flashes rapidly red/green and reverts to orange then green. When the controls are left alone, during the flashing the battery remains at a constant 6.06v. The power pack comprised of 5 Sanyo Eneloop 1100 Ma rechargeables.

Graupners reply

The red/green flash means that the voltage to the receiver is dropping so low (below 3.2v) that the receiver is actually rebooting! This is not uncommon with the Eneloop batteries. They cannot supply immediate current inrush that occurs when a servo is moved. The inrush only needs to be severe for just a few milliseconds in order for

a computer based receiver to reboot. This problem is compounded by using a switch. *Get rid of these batteries!*

Unless you have a digital storage scope, you would not be able to capture the voltage dip and peaks. As stated, it only takes a few milliseconds of power dropping below the reboot voltage threshold before reboot occurs. If the voltage drops below 4.4v, the orange "low voltage warning" indicator comes on. A standard meter is too slow to catch these dips

Keith to Graupner

Thank you for your prompt reply. I had wondered if it was battery because checking during the first half hour of flying the indicator remains green,

I had thought making a two pack A123 to try. Its quite a small model, a Half Pipe, you may be familiar, not much space for batteries.

Graupner to Keith

A single 1100mAh A123 would be far superior to what you were using!! The small A123 pack will handle 30A continuous (60A burst) This is well beyond your power needs for this model.



A chip off the old block. Josh Furnival giving a bit of sound advice to his dad

I've not seen Simon Faulkner on the slopes for ages now! Isn't it about time you gave your thumbs some exercise Simon ??

An In-Flight Breakup of a SR-71 BLACKBIRD at Mach 3.18

Ever wondered what it would be like to fly at over Mach 3 and have the aircraft break up around you? No! Then read on...

Phil Clarke sent me this fascinating report by Bill Weaver of his incredible escape from a catastrophic breakup of an SR-71 Blackbird.

By Bill Weaver, Chief Test Pilot, Lockheed

Among professional aviators, there's a well-worn saying: Flying is simply hours of boredom punctuated by moments of stark terror. But I don't recall too many periods of boredom during my 30-year career with Lockheed, most of which was spent as a test pilot. By far, the most memorable flight occurred on Jan. 25, 1966.

Jim Zwayer, a Lockheed flight-test specialist, and I were evaluating systems on an SR-71 Blackbird test from Edwards. We also were investigating procedures designed to reduce trim drag and improve high-Mach cruise performance. The latter involved flying with the center-of-gravity (CG) located further aft than normal, reducing the Blackbird's longitudinal stability.

We took off from Edwards at 11:20 a.m. and completed the mission's first leg without incident. After refueling from a KC-135 tanker, we turned eastbound, accelerated to a Mach 3.2 cruise speed and climbed to 78,000 ft., our initial cruise-climb altitude.

Several minutes into cruise, the right engine inlet's automatic control system malfunctioned, requiring a switch to manual control. The SR-71's inlet configuration was automatically adjusted during supersonic flight to decelerate airflow in the duct, slowing it to subsonic speed before reaching the engine's face. This was accomplished by the inlet's center-body spike translating aft, and by modulating the inlet's forward bypass doors.



Bill Weaver

His aircraft disintegrated on 25 January 1966 during a high-speed, high-altitude test flight when it developed a severe case of engine un-start.

Normally, these actions were scheduled automatically as a function of Mach number, positioning the normal shock wave (where air flow becomes subsonic) inside the inlet to ensure optimum engine performance. Without proper scheduling, disturbances inside the inlet could result in the shock wave being expelled forward - a phenomenon known as an "inlet unstart."

That causes an instantaneous loss of engine thrust, explosive banging noises and violent yawing of the aircraft, like being in a train wreck. Unstarts were not uncommon at that time in the SR-71's development, but a properly functioning system would recapture the shock wave and restore normal operation.

On the planned test profile, we entered a programmed 35-deg. bank turn to the right. An immediate unstart occurred on the right engine, forcing the aircraft to roll further right and start to pitch up. I jammed the control stick as far left and forward as it would go. No response. I instantly knew we were in for a wild ride. I attempted to tell Jim what was happening and to stay with the airplane until we reached a lower speed and altitude. I didn't think the chances of surviving an ejection at Mach 3.18 and 78,800 ft. were very good. However, g-forces built up so rapidly that my words came out garbled and unintelligible, as confirmed later by the cockpit voice recorder.



**Blackbirds were in service for 25 years.
A total of 10 were lost but none on active service**

The cumulative effects of system malfunctions, reduced longitudinal stability, increased angle-of-attack in the turn, supersonic speed, high altitude and other factors imposed forces on the airframe that exceeded flight control authority and the stability augmentation system's ability to restore control. Everything seemed to unfold in slow motion. I learned later the time from event onset to catastrophic departure from controlled flight was only 2-3 seconds. Still trying to communicate with Jim, I blacked out, succumbing to extremely high g-forces.

Then the SR-71 literally disintegrated around us. From that point, I was just along for the ride. And my next recollection was a hazy thought that I was having

a bad dream. "DMaybe I'll wake up and get out of this mess;-, I mused. Gradually regaining consciousness, I realized this was no dream; it had really happened. That also was disturbing, because I COULD NOT HAVE SURVIVED what had just happened.

I must be dead. Since I didn't feel bad,- just a detached sense of euphoria- I decided being dead wasn't so bad after all. As full awareness took hold, I realized I was not dead. But somehow I had separated from the airplane. I had no idea how this could have happened; I hadn't initiated an ejection. The sound of rushing air and what sounded like straps flapping in the wind confirmed I was falling, but I couldn't see anything. My pressure suit's face plate had frozen over and I was staring at a layer of ice.

The pressure suit was inflated, so I knew an emergency oxygen cylinder in the seat kit attached to my parachute harness was functioning. It not only supplied breathing oxygen, but also pressurized the suit, preventing my blood from boiling at extremely high altitudes. I didn't appreciate it at the time, but the suit's pressurization had also provided physical protection from intense buffeting and g-forces. That inflated suit had become my own escape capsule.



The array of instruments in the Blackbird's cockpit

My next concern was about stability and tumbling. Air density at high altitude is insufficient to resist a body's tumbling motions, and centrifugal forces high enough to cause physical injury could develop quickly. For that reason, the SR-71's parachute system was designed to automatically deploy a small-diameter stabilizing chute shortly after ejection and seat separation. Since I had not intentionally activated the ejection system--and assuming all automatic functions depended on a proper ejection sequence, it occurred to me the stabilizing chute may not have deployed.

However, I quickly determined I was falling vertically and not tumbling. The little chute must have deployed and was doing its job. Next concern: the main parachute, which was designed to open automatically at 15,000 ft. Again I had no assurance the automatic-opening function would work.

I couldn't ascertain my altitude because I still couldn't see through the iced-up faceplate. There was no way to know how long I had been blacked-out or how far I had fallen. I felt for the manual-activation D-ring on my chute harness, but with the suit inflated and my hands numbed by cold, I couldn't locate it. I decided I'd better open the faceplate, try to estimate my height above the ground, and then locate that "D" ring. Just as I reached for the faceplate, I felt the reassuring sudden deceleration of main-chute deployment.

I raised the frozen faceplate and discovered its uplatch was broken. Using one hand to hold that plate up, I saw I was descending through a clear, winter sky with unlimited visibility. I was greatly relieved to see Jim's parachute coming down about a quarter of a mile away. I didn't think either of us could have survived the aircraft's breakup, so seeing Jim had also escaped lifted my spirits incredibly.

I could also see burning wreckage on the ground a few miles from where we would land. The terrain didn't look at all inviting, a desolate, high plateau dotted with patches of snow and no signs of habitation.

I tried to rotate the parachute and look in other directions. But with one hand devoted to keeping the face plate up and both hands numb from high-altitude, sub-freezing temperatures, I couldn't manipulate the risers enough to turn. Before the breakup, we'd started a turn in the New Mexico-Colorado-Oklahoma-Texas border region. The SR-71 had a turning radius of about 100 miles at that speed and altitude, so I wasn't even sure what state we were going to land in. But, because it was about 3:00 p.m. , I was certain we would be spending the night out here.

At about 300 ft. above the ground, I yanked the seat kit's release handle and made sure it was still tied to me by a long lanyard. Releasing the heavy kit ensured I wouldn't land with it attached to my derriere, which could break a leg or cause other injuries. I then tried to recall what survival items were in that kit, as well as techniques I had been taught in survival training.

Looking down, I was startled to see a fairly large animal perhaps



The blackbird cruised at Mach 3.2 and at that speed the outer skin would reach temperatures of around 500 deg F

an antelope directly under me. Evidently, it was just as startled as I was because it literally took off in a cloud of dust.

My first-ever parachute landing was pretty smooth. I landed on fairly soft ground, managing to avoid rocks, cacti and antelopes. My chute was still billowing in the wind, though. I struggled to collapse it with one hand, holding the still-frozen faceplate up with the other. "Can I help you?" a voice said. Was I hearing things? I must be hallucinating. Then I looked up and saw a guy walking toward me, wearing a cowboy hat. A helicopter was idling a short distance behind him. If I had been at Edwards and told the search-and-rescue unit that I was going to bail out over the Rogers Dry Lake at a particular time of day, a crew couldn't have gotten to me as fast as that cowboy-pilot had.



The defence against a missile attack was to accelerate and out run it

The gentleman was Albert Mitchell, Jr., owner of a huge cattle ranch in northeastern New Mexico and I had landed about 1.5 mi. from his ranch house and from a hangar for his two-place Hughes helicopter. Amazed to see him, I replied I was having a little trouble with my chute. He walked over and collapsed the canopy, anchoring it with several rocks. He had seen Jim and me floating down and had radioed the New Mexico Highway Patrol, the Air Force and the nearest hospital.

Extracting myself from the parachute harness, I discovered the source of those flapping-strap noises heard on the way down. My seat belt and shoulder harness were still draped around me, attached and latched.

The lap belt had been shredded on each side of my hips, where the straps had fed through knurled adjustment rollers. The shoulder harness had shredded in a similar manner across my back. The ejection seat had never left the airplane. I had been ripped out of it by the extreme forces, with the seat belt and shoulder harness still fastened.

I also noted that one of the two lines that supplied oxygen to my pressure suit had come loose, and the other was barely hanging on. If that second line had become detached at high altitude, the deflated pressure suit wouldn't have provided any

protection. I knew an oxygen supply was critical for breathing and suit pressurization, but didn't appreciate how much physical protection an inflated pressure suit could provide.

That the suit could withstand forces sufficient to disintegrate an airplane and shred heavy nylon seat belts, yet leave me with only a few bruises and minor whiplash was impressive. I truly appreciated having my own little escape capsule.

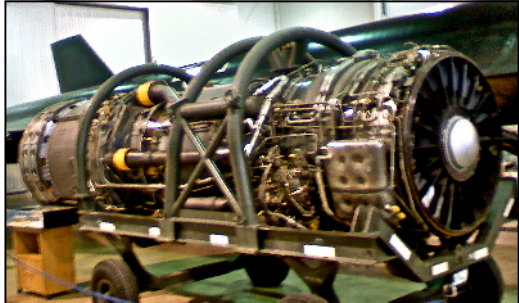
After helping me with the chute, Mitchell said he'd check on Jim. He climbed into his helicopter, flew a short distance away and returned about 10 minutes later with devastating news: Jim was dead. Apparently, he had suffered a broken neck during the aircraft's disintegration and was killed instantly.

Mitchell said his ranch foreman would soon arrive to watch over Jim's body until the authorities arrived. I asked to see Jim and, after verifying there was nothing more that could be done, agreed to let Mitchell fly me to the Tucumcari hospital, about 60 mi. to the south.

I have vivid memories of that helicopter flight, as well. I didn't know much about rotorcraft, but I knew a lot about "red lines," and Mitchell kept the airspeed at or above red line all the way. The little helicopter vibrated and shook a lot more than I thought it should have. I tried to reassure the cowboy-pilot I was feeling OK; there was no need to rush. But since he'd notified the hospital staff that we were inbound, he insisted we get there as soon as possible. I couldn't help but think how ironic it would be to have survived one disaster only to be done in by the helicopter that had come to my rescue.

However, we made it to the hospital safely--and quickly. Soon, I was able to contact Lockheed's flight test office at Edwards. The test team there had been notified initially about the loss of radio and radar contact, then been told the aircraft had been lost. They also knew what our flight conditions had been at the time, and assumed no one could have survived. I explained what had happened, describing in fairly accurate detail the flight conditions prior to breakup.

The next day, our flight profile was duplicated on the SR-71 flight simulator at Beale AFB, Calif. The outcome was identical. Steps were immediately taken to



SR-71 Blackbird engine on display at the Battleship Memorial Park.

prevent a recurrence of our accident. Testing at a CG aft of normal limits was discontinued, and trim-drag issues were subsequently resolved via aerodynamic means. The inlet control system was continuously improved and, with subsequent development of the Digital Automatic Flight and Inlet Control System, inlet unstarts became rare.

Investigation of our accident revealed that the nose section of the aircraft had broken off aft of the rear cockpit and crashed about 10 miles from the main wreckage. Parts were scattered over an area approximately 15 miles long and 10 miles wide. Extremely high air loads and g-forces, both positive and negative, had literally ripped Jim and me from the airplane. Unbelievably good luck is the only explanation for my escaping relatively unscathed from that disintegrating aircraft.

Two weeks after the accident, I was back in an SR-71, flying the first sortie on a brand-new bird at Lockheed's Palmdale, Calif. assembly and test facility. It was my first flight since the accident, so a flight test engineer in the back seat was probably a little apprehensive about my state of mind and confidence.

As we roared down the runway and lifted off, I heard an anxious voice over the intercom. "Bill! Bill! Are you there?"

"Yeah, George. What's the matter?"

"Thank God! I thought you might have left. The rear cockpit of the SR-71 has no forward visibility--only a small window on each side--and George couldn't see me. A big red light on the master-warning panel in the rear cockpit had illuminated just as we rotated, stating: "Pilot Ejected". Fortunately, the cause was a misadjusted microswitch, not my departure.



The HTV-2

Very Interesting!!

The HTV-2 is designed by engineers to travel at 13,000mph (21,000km/h)
US military scientists lost contact with an unmanned hypersonic experimental aircraft on its second test flight, officials said.

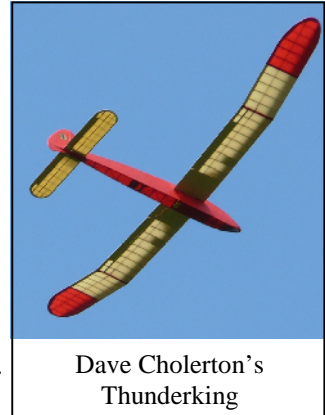
**Report by the BBC news 11th
Aug 2011**

Thunderking

As a result of putting the picture of Ray Sutton with his Thunderking in June's newsletter, Phil Clarke and Dave Cholerton have sent me the following::

Ivan,

Thought our members might be interested in these pictures of another version of a golden oldie 12' wingspan - 'Thunderking'. This one is by Dave Cholerton, another of the 'Derby Mob', though not currently a member of the LMMGA. (I'm sure Ray Sutton will be interested in this).



Dave Cholerton's
Thunderking

Dave is very much into electric flight and has produced this electrified version which is now ready to go. He is anxiously waiting for the right weather conditions for its maiden flight - like you do!

Dave has provided a list of the gear he has installed and also included the minor design changes he has made compared to the original. He has also included an account by Laurie Barr (sadly recently deceased) of Laurie's early escapades with this design in the late forties - yes, this design is that old.

Reading the article reminded me of a very similar story told to us by our own Ray Sutton, one afternoon at the gate, not so long ago, who, at about the same period in time, travelled many miles on both trains and buses to fly his own Thunderking at one of the national comps. (How the hell do you get a Thunderking on a bus?) Such was the enthusiasm and dedication of modellers of that period. You may recognise one of our older but very keen members in the accompanying pictures.



Dave's model before covering

Phil

Laurie Barr's Reminisces (the Thunderkink's designer)

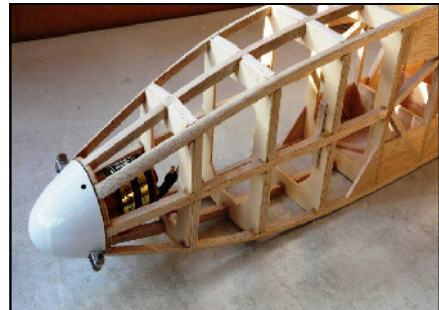
The "Golden Days" of Aeromodelling for me, was that period around 1947 to 1950. I was 19 years old, and had recently been heavily infected by the model aircraft virus.

I had helped to form the *Greenfor MFC*, and I was also a member of the 'Pharos' club. On fine summer evenings, we would congregate in Perivale Park, to fly and trim our various models. At the time, Perivale Park seemed quite large, but now, I do not know how we got away with flying our 12ft Thunderking's there! At week-ends, there would be about a dozen of us, and we would all meet up at the Central Line Station at Perivale, and we would occupy one end of the carriage, hanging our large gliders, from the straps hanging down above the seats. We would travel the 29 stops right across London, and arrive on the elevated embankment, while passing Hainault Station, to arrive at our destination, at Fairlop . While traversing this last section, we could look down on all the activity going on, and we had a splendid view, every time, of Roy Yeabsley's huge bright red glider, circling away in lift! The copy I built in the last 8 years never flew anywhere near as good, and neither did my new Thunderking!

Fairlop was our "Mecca", as it was a large flat area, kept maintained as an emergency landing site, for our fighters during the Battle of Britain. It was always "open" and free of cost, and when the Aeromodellers lost its use, after some lunatic



Laurie Barr with Thunderking picture taken around 1948



A modified nose on Dave's model to facilitate the electric motor

Motor Cycle idiots, had killed or badly injured someone, while travelling at high speed, down these populated runways. We all had to transfer to Chobham Common!

We all found it hard going, with all the Gorse and Heather, impeding any running after models to retrieve them. Chobham Common sits on what is known as the "Bagshot Spit", which consists

of a very sandy soil, which is 19. Very acidic, and perfect for growing lime hating plants, such as Rhododendrons & Azaleas, and the famous grower "Waterers" had there nurseries close by, because of this soil. There were many gardeners who cherished this soil, and you would find many trenches 2ft deep, where a gardener had scooped out some of this precious soil, to take home for his garden. During my first few visits to Chobham, I managed to fall right into a rain-filled trench while I was gazing skyward, at my disappearing model! It was a great culture shock.

There was one day at Fairlop, when I was flying my 12ft Thunderking, that had recently won the Thurston Cup and the National Championship, and as it was in a contest, I had set my D.T fuse to burn through the rubber band, to make the Parachute D.T deploy, which it did at 5 minutes. It was a superb summer day, with not much wind, and very strong Thermals. As I lay on my back, I could do nothing, but watch the model climb to a great height, and out of sight upwards! Also at the same time, there was a full size Glider, that had been circling away to my left, looking for lift, and it looked as though he had spotted my model in very good air, because he altered course to position his machine, directly under my flight-path. It was of no help, because I think my Glider was in a detached bubble, and he was below the bubble.



Another mod. ~ Dave's method of making the six foot long fuselage easier to transport

When I became a professional Model Maker in later years, I was having a meeting with a client of Westways Models (My then employer), who was an engineer/salesman, for an aircraft manufacturer (I cannot remember which Company?) He wanted some small desk models, and as the deal looked promising, I took him to lunch, down the pub. We got to talk about our interests in life, and he said he was a keen sail-plane pilot, and when I told him that I was a keen Model Aircraft flier, using Fairlop Airfield, he said he recalled the Summer Day, when he tried to "Piggy Back" some lift, from a large model glider!!! The odds of us meeting must be very high, but a great memory to share with you all.

A Letter from Dave Cholerton

Hi Ivan,

After waiting for weeks for some calm weather I managed to give the Thunderking its maiden flight last Thursday. Warm and virtually wind free (I mean the weather but certainly not me) it all turned out well. I had no idea of where the CG should be as it wasn't mentioned on the plan so we started out with it at about 36% of the chord. This was too far forward as it turned out, and it was flying too fast for its own good. I saw a bit of wing flutter, fortunately when it was close by, so quickly slowed it down before there was a disaster.

I removed some nose weight, eventually finishing up with the CG at about 42%. It now flew a fair bit slower and seemed much happier in the air. Landing was a slight problem though as the direction of the slight breeze meant landing downhill. Our field has a slight gradient, not much, but just enough and only slightly less than the



Ken Buckley attempting to pick up Dave Cholerton's finished Thunderking

glide angle of the model, necessitating a few 'go rounds' Its a good job it had a motor!

Before I fly it again I am going to add some diagonal bracing to the wings as I have to stop any chance of the wings fluttering again.

That's all to tell you for now Ivan. More anon.

I have included a few photos of the model in the air.

Dave Cholerton

Dave's Thunderking modifications - *from Freeflight to electric powered R/C glider. Wings.*

1/ Inboard panel length increased from 33in to 36in - why cut 3 inches of wood off the spars, leading and trailing edges and the leading edge sheeting when the rib spacing is already, conveniently, 3 inches?

2/ Trailing edge flaps fitted to hopefully assist in loosing height and landing.

3/ Cap strips added to top and bottom of wing ribs - this was an alternative method of construction detailed on the plan.

Fuselage.

1/ Fuselage, (originally 6ft long and built in one piece), is now made in two pieces with a joint at the halfway point - to make transportation easier. The rudder and elevators are connected by balsa pushrods to their respective servos which are mounted at the very front of the rear fuselage half.

2/ The front of the fuselage is modified to change from the original square section to 60mm diameter round, to match the spinner. This entailed adding extra bulkheads and stringers.

3/ Extra strengthening added around the wing area where the model will be gripped for launching.

4/ Wing moved back by about $1\frac{1}{2}$ inches from the original position to increase the nose length to make balancing the model easier and also for aesthetic reasons - the model looks better with a longer nose.

Fin and rudder.

1/ Fin height increased by $1\frac{1}{2}$ inches without changing the basic overall shape too much, and a rudder added. The original model only had a tiny trim tab, enclosed within the outline of the fin.

Tailplane.

1/ Tailplane size reduced by about 12%, both in span and chord and elevators added

MOTOR - AXI 2826/10 + AXI cooling fan (HET inrunner + g/box available if the AXI is not powerful enough)

PROP. - Aeronaut 14x6 (perhaps too big for motor due to yoke length of 60mm spinner)

SPINNER - HM 60mm dia.

ESC - Hobbywing Pentium 80Amp.

BATTERY - Long Max 5000mAh 3S 20C Lipo. (400grams)

RECEIVER - Multiplex 7Ch IPD DS Synth.

SERVOS - Hitec HS81 (Rudder & Elevator)

New Power XL-17HMB (Flaps)



LMMGA Scale Day : These were the winners ~ from left
 Greg Dakin best landing Paul Dudd best flight Robbie Bridson best model
A full report will be in the next newsletter

L&MMGA Annual General Meeting

Date...**Sunday 13th November**

(Remembrance Sunday)

Venue...**The Winking Man**

Time.....**2 pm**

Agenda

Minutes 2010 AGM

Officers Report

Election of Officers

Money from the sale of R. Campbell's models

Safety

AOB



Directions to The Winking

Meals are available from 12 noon

Please come along and have your say in
how the club is run ~ See you there



Some of our X Members
who turned up at the scale event

Neil Harrison and wife Katie

John Watkins and Eric Burke

Chris Lord who was our competition
Secretary during the late 80's early 90's