

Auckland Soar

Radio Control Soaring Club

Issue Number 162

May - June 2011



IN THIS ISSUE :

- **COMING EVENTS CALENDAR - (Page 3)**
- **CLUB NOTICES - Club and Field Information Notices - (Page 4)**
- **COMMITTEE REPORTS - Recording Officer / Newsletter / Web Editor's Reports - (Page 5)**
- **THERMAL NEWS - Soarchamps 2011 Results - (Page 6)**
- **THERMAL NEWS - Finding Winter Thermals - (Page 7)**
- **AMBURY NEWS - Seen on the field recently - (Page 8)**
- **SLOPE NEWS - Seen on the 'hill' recently - (Page 9)**
- **ELECTRIC NEWZ - LiPo batteries - Facts and Fiction - (Pages 10 & 11)**
- **KIT REVIEW - The Airsail Tomahawk - (Pages 12-15)**
- **FROM THE WEB - One very special gun - (Pages 16 & 17)**
- **FROM LENS—Waterspouts in Auckland! / FROM THE WEB - Wisdom from training manuals- (Page 18)**
- **FINAL 2011 CLUB POINTS UPDATE - (Page 19)**

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Editor's Notes

On the Cover : Laurie Jackson's Supra coasts overhead at Ambury.

Hi everyone,

Well another flying year has been and gone....

The competition side of the club also seems to be struggling too, at the present time.

Soarfest was a success again this year, although entrant numbers were down on those in past years.

One of the items both I and some other club members feel needs to be discussed at the next AGM is the direction that AucklandSoar wants to head.

The club at present just doesn't seem to have any long term goals or any direction and we seem to have drifted away from what we were all once good at, i.e. Gliders and Thermal flying.

Only last week, we (the club) were approached by the Auckland Gliding Club to assist with a display at their 80th Anniversary on 30th April at Drury.

I put an e-mail out asking for any interested parties to let me know.... and got only One reply!

My own view is the club must try and promote itself more and if nobody wants to... how are we going to be able to keep the club going and our club fees down, if no new members are then joining us?

How about your thoughts perhaps?

Or maybe make sure you attend the AGM and really have your say on the direction you want Your club heading!

And speaking of new members, we welcome Colin Rothery to the club as an associate member.

Colin flies park-flyers and vintage and has 'popped down' to Ambury for a fly and a chat several times before and he's now decided to join us. Welcome aboard.

I've made some changes and updated parts of the web site, which I hope you'll like.

I was looking at some web site stats recently and we are certainly getting 'hits' from all over the world in addition to our those from own club membership.

Thanks again to those that supplied copy for this issue. Like I say, it makes my job that much easier!

One last thing, the club has recently received an letter from the new Auckland Council, simply advising that All Regional Parks in Auckland are to be smoke free from now on!

What happens when you let the smoke out of the wires on an electric model? Do you then get fined?

Brett






Coming Events

AS - AucklandSoar championship points

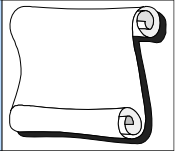
April 2011

3rd	Electric Event		Ambury
10th	Fly for Fun		Ambury
17th	Thermal D		Ambury
24th	Fly for Fun		Ambury

May 2011

1st	Thermal B		Ambury
8th	Thermal I (HLG)		T.B.A.
15th	Fly for Fun		Ambury
22nd	Thermal A		Ambury
29th	Electric Event		Ambury

Club Notices



Reminder- Club fees are now due!

If you haven't paid yet, why not send our Treasurer Ted Bealing a cheque or pay him on the field.

You are only covered by the NZMAA insurance for another month or so if you haven't paid !

FLYING AT AMBURY



As we don't want to get on the wrong side of the Rangers or the new
If we do get that perfect day and you feel the need to have a fly; you get to Ambury and there are no people flying or sheep on our usual field **Do NOT** just wander in and fly.

Please, take the time to find one of the Rangers and seek their permission to fly on the field.

Also do Not just drive onto the field without seeking permission to do so first.

(The park staff can get a bit annoyed if you just drive on in - as the field can be quite soft underfoot - especially over the winter months - and cars do cut it up a fair bit.

We have a good relationship with the Park Rangers - let's not ruin it.

Also Note - Ambury is now a non-smoking park!

Ambury Lambing dates for 2011

The farm staff have advised us that Ambury will be unavailable to us due to lambing from :

14th July to 14th August 2011

Field Safety

Just remember to get another person to check that model over Before you fly, even if you have flown it last week.

Also, don't just walk a couple of paces into the field or away from the cars and just throw the model off.

Most Sunday's there are quite large numbers of people in the park including children - so you need to ensure if anything were to go wrong that you are a sufficient distance away from them for safety.

Our tenure of the site depends on our good safety record - lets not put it at risk!

To quote from an old TV program "Let's be careful out there!"

Pegboard and Spots

Yes, we know most people have now converted to 2.4 GHz gear, but there are still a few around that haven't. So if you are still using 27, 35 or 40 MHz gear - why not just get the pegboard out before you fly, just in case!

If you are First to arrive at the field - why not also just wander over to the shed and get the pegboard out.

There have been several occasions lately when several members have been flying and no pegboard was in use!

Please make an effort - for safety sake, if nothing else!

Same deal at the end of the day - how about putting the pegboard / landing spots or other equipment used during the day Back in the shed.



Let's all help with this and not just leave it to the same people all the time!

Recording Officer's Report



Another year rolls by and basically, the same people compete and the same people finish up in (more or less) the same positions on the Annual Points sheet. (See page 19 for the full results sheets.)

As with previous year's, no slope or electric competitions were flown.

Again, as per last year only five thermal comps flown.

One more person, in terms of numbers, flew comps this year (11 last year and 12 this year.)

Overall, if you look at just the activity on the field, there has been a quite significant shift away from any sort of competition flying!

Several times this year, a competition has been scheduled, people have turned up, it's been a nice day and nobody wants to fly the scheduled competition!

The shift seems to be to just fun, sport electric flying.

Only time a thermal model and a winch seem to appear on the field is when a major event (Soarfest or the Soarchamps) is coming up and people want to do a bit of practice.

The question now needs to be asked, does the club wish to continue with any sort of competition calendar for the 2011 / 2012 flying year?

Anyway, congratulations to this years winners!

2010/2011 THERMAL CHAMPIONSHIP		2010/2011 OVERALL CHAMPIONSHIP	
Aneil Patel	20	Aneil Patel	20
Tony Gribble	14	Tony Gribble	14
Ted Bealing	14	Ted Bealing	14
Chris Kaiser	10	Chris Kaiser	10

Newsletter / Web Editor's Report



A typical year, it has to be said, for both the Newsletter and the website.

A highlight was, however, obtaining more space (100 mb) from the website ISP - and for no price increase either! This enabled more content to be added to the site such as movies and more photo's.

Hits on the web site showed an increase in the last 12 months of:

2010 - 1477

2011 - 1643

Seems to be, from the web stats our ISP provides, that we are also getting 'hits' from all over the world!

This is mainly due to my newsletter 'mailing list' including the Soaring Group list, which also includes a number of people overseas.

Sure, a big chunk of the hits are from the membership downloading the bi-monthly newsletter, but we have had quite a number of people then going on to look at the other pages as well. The Links page leads the pack here followed by the Photo Gallery page. There was a huge 'spike' in hits to the Soarfest 2011 page as well, just after I posted it to the site. I assume the main reason was that Les supplied me with a good number of detailed results files, which were duly added to the page itself.

On the Newsletter front, there has also been an increase on copy received from the membership this year!

This certainly makes my job easier and, hopefully, makes the newsletter more readable too.

Having a couple of digital camera's at my disposal, is, as I've said before, also a huge help as you can then make the newsletter more of a visual rather than a text based publication.

Thanks again to those that helped out with copy for the newsletter over the past year.... may this long continue!

One last thing, as I've said many, many times before....

It's Your Newsletter, not mine - so whatever goes in it must be what You, the membership, want!

Brett Robinson
Recording Officer / Newsletter Editor / Web Editor.





Soarchamps 2011 Results

F3B Results:

1	Peter Williams	5841.2
2	Kevin Botherway	5695.3
3	Chris Kaiser	5661.3
4	Aneil Patel	5292.8
5	Ken Duffell	5201.3
6	John Shaw	5123.3
7	Richard Thompson	5076.9
8	Dave Griffin	4775.8
9	Sharn Davies	4137.0
10	Rod Hale	3985.9
11	Joe Wurts	3000.0
12	Allan Knox	2602.6
13	Peter France	2373.5

Champagne Fly-Off Results:

1 st Group A	1 st Group B
Kevin Botherway	Richard Thompson

F3K Handlaunch Results:

1	Kevin Botherway	4000
2	Joe Wurts	3902
3	Peter Williams	3847
4	John Shaw	3843
5	Chris Kaiser	3720
6	Carl Sheppard	3424
7	Sharn Davies	3362
8	Ken Duffell	2380
9	Kelvin Maffery	2257
10	Allan Knox	2075
11	Peter France	1411
12	Ian Harvey	1269
13	Allan Baker	0

Premier Duration Rresults:

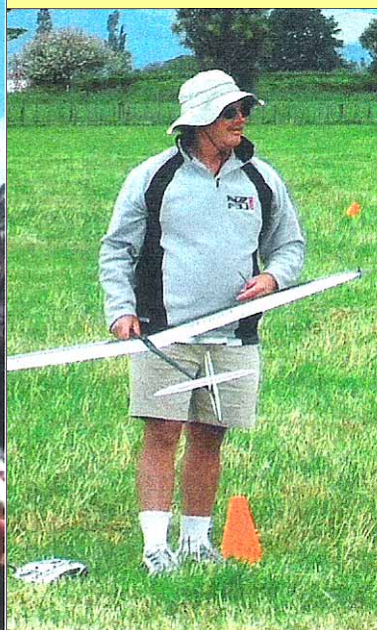
1	Joe Wurts	5000.0
2	Allan Knox	4955.4
3	Richard Thompson	4940.9
4	Kevin Botherway	4876.3
5	John Shaw	4873.7
6	Aneil Patel	4716.8
7	Sharn Davies	4650.3
8	Peter Williams	4608.1
9	Ken Duffell	4555.5
10	Ian Harvey	4474.1
11	Kelvin Maffery	4462.0
12	Rod Hale	4209.2
13	Dave Griffin	3881.3

Soaring Champion :

1 st	Kevin Botherway
2 nd	Joe Wurts



Peter Williams



Joe Wurts



Kevin Botherway

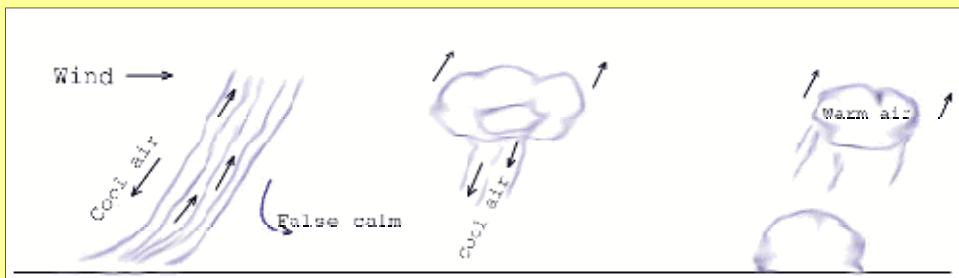


Finding Winter Thermals

Well, how do you find something that's invisible? You look very closely.

Searching for thermals actually begins before you launch the airplane.

- Observe the layout of the field
- Observe what's over the field
- Observe the wind
- Pay attention to the changes in the wind
- Find a thermal in a hurry



First, observe the layout of the field.

Do you see dark areas (trees, asphalt) and light areas (dirt, light coloured buildings)? These different coloured areas tend to absorb heat at different rates, creating thermals.

NOTE: thermals can be created during the winter.

It's the difference between heated areas that matters. The thermals do tend to be stronger in the summer-time.

Now, observe what's over the field.

Do you see hunting birds circling? That's a dead giveaway, but not always present.

How about swarms of bugs? Another sure sign.

Next, observe the wind. Look at any flags, and remembering the wind will push the thermals downwind, so you will need to adjust your circling pattern to stay centred in any thermals.

As be aware of changes in the wind speed and direction.

Check the direction by throwing a few blades of grass into the air and watching what happens.

Now face into the wind. Say the wind is smoothly from the North at about 8 mph, then suddenly there is no wind for a few seconds, then it starts back from North at about 8 mph.

What just happened? A thermal just passed over your location, heading South!

Remember that the thermal sucks air into its centre; this causes the prevailing (dominant) wind to change for a little while. By paying attention to the changes in the wind, you can get to the point where you launch into a thermal, or very nearly so.

Then turn downwind and keep circling to stay in the thermal. Your skills will also develop to the level where you can sense the changes even while paying attention to your aircraft in the air.

Now assuming you are in the air, and need to find a thermal in a hurry. The airplane is descending as gliders do, but you want to keep flying.

First of all don't panic!

These things are designed as thermal gliders, remember? If it starts coming down fairly close to the ground, steer it towards you and prepare for landing.

But say you're fairly high up after launch, and there are no birds or obvious wind changes, what now?

Well, you need to fly to areas where you think there might be thermals. Fly to the boundaries of warm/cold areas, eg where dark asphalt meets light baseball field. If the plane starts going up, begin to circle in the thermal.

If not, fly to another area. If you're out of "obvious" thermal generating areas, try flying long paths back and forth across the field.

If you fly through a thermal, the glider will react to it. In general, one wing will suddenly rise without any input to the transmitter, if that happens, turn back and try to circle and centre in the thermal.

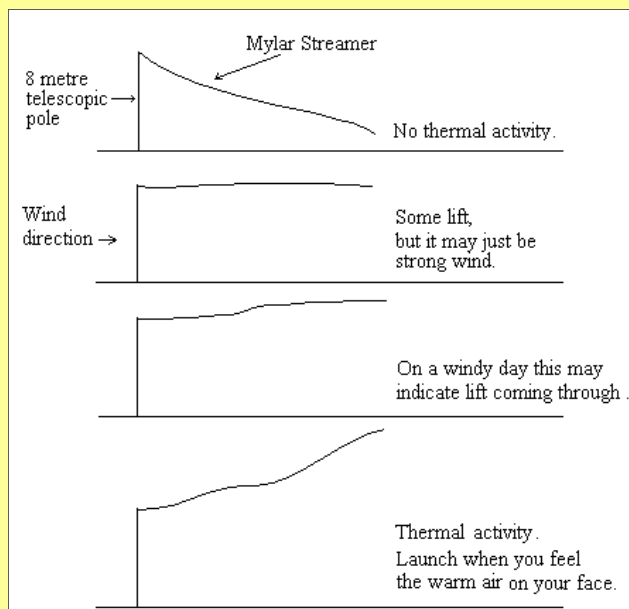
It's a good idea before you launch to have a "decision height" in mind.

This is the point at which you set-up for a landing and bring the plane in, eg: when the glider gets below 50 ft.

As you get more experienced, this height might decrease.

The height will also depend on how far away the thermal glider is from you. For example, you might not worry about 50ft directly overhead, but 50 ft of altitude a half-mile away could be asking for trouble.

The idea is, try to respect your current skill level and limitations, and land a little sooner rather than a little too late..



Ambury News



Seen at Ambury recently.....



(Above) Laurie Jackson return to the cars after test flying his new 2 metre glider.

(Top right) Tony Gribble engrossed in preparing his electric Debutante for flight.

(At right) Laurie Jackson practicing landings with his Supra.

(Below left) A gaggle of fliers on the field!

(Below right) Chris Kaiser's Supra cruises overhead.



To view even more Ambury Images go to:
www.aucklandsoar.org.nz/ambury_antics.html

Slope News



Seen on the slope at Mangere Mountain in the last weeks.

A couple of weeks ago, Tony, Laurie and Brett headed up the 'hill for a fly.

A couple of guys were already there doing some D-Essing in the crater.

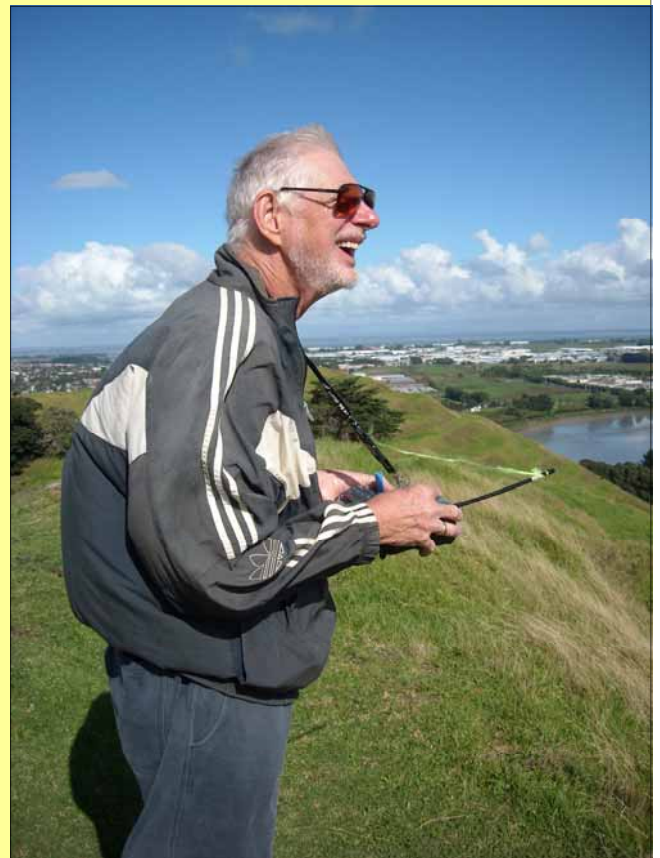
There was a nice steady and all three Weasel Evo's got flying time.

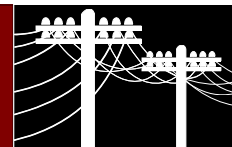
The landings, well... that's another story.

Later on we were joined by Dave Crook and No.3 son Logan. Dave had his Weasel Evo to fly and it tried to do just that. After a few false starts, with the model looping behind us on launch it was discovered that part of the top covering had come away, one servo was loose and one elevon was becoming unhinged.

So a spell in the workshop was called for no doubt it will be ready for action again soon!

Laurie enjoyed that 'session' it being his first on the 'hill', since his hip replacement.





LiPo batteries - facts and fiction.

Here are a few MANDATORY guidelines for charging/using LiPo's (Lithium Polymer Batteries).

1. **Use only a charger approved for lithium batteries.** The charger may be designed for Li-Ion or Li-Poly. Both batteries are charged in exactly the same. Some older cell phone chargers may charge the batteries .1 volt to low (4.1 vs 4.2), but that will not harm the battery. However, inexpensive lithium chargers are widely available and the use of cellphone chargers is highly discouraged.

2. **Make certain that the correct cell count is set on your charger.** Watch the charger very closely for the first few minutes to ensure that the correct cell count continues to be displayed. If you don't know how to do that, get a charger that you do know how or don't charge the batteries.

3. **Use the Taps.** Before you charge a new Lithium pack, check the voltage of each cell individually. Then do this after every tenth cycle there after. This is absolutely critical in that an unbalanced pack can explode while charging even if the correct cell count is chosen. If the cells are not within 0.1 volts of each other then charge each cell individually to 4.2 volts so that they are all equal. If after every discharge the pack is unbalanced you have a faulty cell and that pack must be replaced.

Taps are provided on most new lithium packs. Taps give you the ability to check individual cell voltages and charge one cell at a time. Make sure and get the appropriate connector to go into your taps. Don't try to stick you volt meter probes in the taps to measure voltage. They could slip and short your cells. Don't try to charge more than one cell at a time from the taps. Unless you have an isolated ground charging system, you'll short your batteries out. Refer to your individual cell maker for tap pin-outs.

4. **NEVER charge the batteries unattended.** This is the number one reason for houses and cars being burned to a crisp by lithium fires.

5. **Use a safe surface to charge your batteries** on so that if they burst into flame no damage will occur. Vented fire safes, pyrex dishes with sand in the bottom, fireplaces, plant pots, are all good options.

6. **DO NOT CHARGE AT MORE THAN 1C unless specifically authorized by the pack vendor.** I have personally had a fire in my home because of violating this rule. Today's highest discharge batteries can supposedly be safely charged at greater than 1C, however so far in all cases doing so shortens the life of the pack. Better to buy 3 packs than to try to charge 1 pack 3 times quickly. This may change in the future but as of Winter 2005 1C is still the recommended charge rate.

7. **DO NOT puncture the cell, ever.** If a cell balloons quickly place it in a fire safe place, especially if you were charging it when it ballooned. After you have let the cell sit in the fire safe place for at least 2 hours. Discharge the cell/pack slowly. This can be done by wiring a flashlight bulb of appropriate voltage (higher is voltage is ok, lower voltage is no) up to your batteries connector type and attaching the bulb to the battery. Wait until the light is completely off, then throw the battery away.

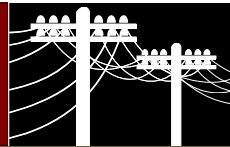
8. **If you crash with your lithium cells they may be damaged** such that they are shorted inside. The cells may look just fine. If you crash in ANY way carefully remove the battery pack from the aircraft and watch it carefully for at least the next 20 min. Several fires have been caused by damaged cells being thrown in the car and then the cells catch fire later and destroys the car completely.

9. **Charge your batteries in an open ventilated area.** If a battery does rupture or explode hazardous fumes and material will spew from the battery.

10. **Keep a bucket of sand nearby** when you are flying or charging batteries. This is a cost effective way to extinguish fires. This is very cheap and absolutely necessary.

11. **It can happen to you,** do not think to yourself that "it won't happen to me" as soon as you do that it you'll be trying to rescue your kids from your burning house or car.





LiPo batteries - facts and fiction.

Lithium What?

Lithium Polymer batteries are used in many electronic devices. Cell Phone, Laptops, PDA's, Hearing Aids just to name a few. Most, if not all, lithium polymer batteries are not designed for RC use, we use them in different applications than they were designed for. They are similar to Lithium Ion batteries in that they each have a nominal voltage of 3.6 volts, but dissimilar in that they do not have a hard metal casing but rather a flexible material encloses the chemicals inside. The "normal" lithium polymer batteries are thin rectangle shapes with two tabs on the top one positive one negative. The reason we use Lithium cells is that they are significantly lighter than comparable NiCad or NiMH batteries, which makes our planes fly longer and better.

Voltage and Cell Count:

LiPolys act differently than NiCad or NiMH batteries do when charging and discharging. Lithium batteries are fully charged when each cell has a voltage of 4.2 volts. They are fully discharged when each cell has a voltage of 3.0 volts. It is important not to exceed both the high voltage of 4.2 volts and the low voltage of 3.0 volts. Exceeding these limits can harm the battery.

The way to ensure that you do not go below 3.0 volts while flying is to set the low voltage cut-off (LVC) of your electronic speed control (ESC). It important to use a programmable ESC since the correct voltage cut-off is critical to the life of your batteries. Use the ESC's programming mode to set the LVC to 3.0 volts per cell with a hard cut-off, or 3.3 volts per cell with a soft cut-off. If your ESC does not have hard or soft cut-off, use 3.0 volts per cell. You will know when flying that it is time to land when you experience a sudden drop in power caused by the LVC.

If your ESC has an automatic lithium mode. Use it, it will correctly sense the number of cells and set the auto cut-off appropriately.

If you have previously been flying with NiCad or NiMH batteries, switching over to lithium polymer will result in a different number of cells being used. If you had 6 to 7 round cells then 2 lithium polymer cells will correctly duplicate the voltage of those cells. If you had 10-11 cells then 3 lithium polymer cells would be right for you. There are a lot of 8 cell flyer's out there that are stuck between 2 and 3 cells. In my experience the best option is to determine how many watts you were using before and duplicate that with your LiPos, Motor, and Prop. For example. If you were running 8 cells (9.6volts) at 10 amps on a speed 400 airplane, then you have $9.6 \times 10 = 96$ watts. So if you went with 2 lithium polymer cells (7.2 volts nominal) then you'd need to change your prop such that you used 13 amps. If you went to 3 LiPoly's (10.8 volts nominal) then you'd need to reduce the amperage to 8.9 amps. These estimates are approximate, and some experimentation is required for best results but conserving Watts is a good way to start.

10C from 3S4P? Naming conventions explained.

How fast a battery can discharge is it's maximum current capacity. Current is generally rated in C's for the battery. C is how long it takes to discharge the battery in fractions of an hour. For instance 1 C discharges the battery in 1/1 hours or 1 hour. 2 C discharges the battery in $\frac{1}{2}$ or half an hour. All RC batteries are rated in milli Amp hours. If a battery is rated at 2000 mAh and you discharge it at 2000mA (or 2 amps, 1 amp = 1000mA) it will be completely discharged in one hour. The C rating of the battery is thus based on its capacity. A 2000mAh cell discharged a 2 amps is being discharged at 1C ($2000\text{mA} \times 1$), a 2000mAh cell discharged at 6 amps is being discharged at 3C ($2000\text{mA} \times 3$).

All batteries have limitations on how fast they can discharge. Because of this many LiPoly batteries are put in parallel to increase the current capacity of the battery pack. When 2 batteries are wired positive to positive and negative to negative they become like one battery with double the capacity. If you have 2 2000mAh cells and you wire them in parallel then the result is the same as 1 4000mAh cell. This 4000mAh cell has the same C rating as the original 2000mAh cells did. Thus if the 2000mAh cells could discharge at a maximum of 5C, or 10 amps then the new 4000mAh cell can also discharge at 5C or ($4000\text{mA} \times 5$) 20 amps. This method of battery pack building allows us to use LiPoly batteries at higher currents than single cells could produce.

The naming convention that allows you to decipher how many cells are in parallel and how many are in series is the XSP method. The number in front of the S represents the number of series cells in the pack so 3S means it's a 3 cell pack. The number in front of P means the number of cells in parallel. So a 3S4P pack of 2100mAh cells has a total of 12 cells inside. It will have the voltage of any other 3S pack since the number of cells in series determines the voltage. It will have the current handling of 4 times the maximum C rating of the 12 individual cells. So say our 3S4P pack had a maximum discharge of 6C. That means that it has a nominal voltage of 10.8 volts (3×3.6) and a maximum discharge rate of 50.4 amps ($2100\text{mAh} \times 6\text{C} \times 4\text{P}$).

Dealing with temperature.

Lithium batteries like heat, but not too much. In the winter time, try to keep your batteries from the cold as much as possible. Leave them in the car while your flying, or keep them in your cargo pants... etc. At the same time don't let them heat up too much. Try to keep your batteries from reaching 160F after use. This will prolong the life of the cells. A good way to measure temperature is a handheld IR meter, they can be found for around \$50.00 at most hobby shops.

Kit Review



The Airsail Tomahawk

Well, where to start....

This project has (on and off) taken up some two years of my time.

The kitset was purchased from Airsail in May 2009.

I got it mainly as a building project, although I did have doubts about being able to fly it at Ambury.... but more of that later.

The other reason was that a few years ago I did a bit of my full-size flying training on Piper Tomahawks.

As the aircraft were quite new (at the time) my instructor's comments were: "If you have strong arm muscles and can pedal a bicycle.... you can fly one of these!"

The plane soon took on the nickname of 'ratchet hatchet'!

So, what do you get for the \$200.00 price tag?

Pretty well everything to make the model bar wheels, glue, covering and power train.

It was also my intention to make the model electric powered and I did ask Brian Borland about this when I purchased it. His comment was that a modeller in South Australia had flown an electric powered one, but he had no details on what the power train was or if any modifications had been made to the stock kit.

Anyway, a start was made not long after getting the very large box of bits home.

Two large CAD drawn plans are supplied one for the wing and one for the fuselage and tail, as is a detailed construction manual, together with an A4 size, three page parts list.

I decided to start on fuselage first and began construction of the fuselage sides.

This where I struck the first of many 'issues' with the kit.... most parts are not labelled and it took some time looking at the parts list and measuring up wood before all the correct (I hoped) parts for one fuselage side were laid out ready for use.

The method of construction is to build each fuselage side separately and then join them together later. However, the plan only shows one side elevation - the manual suggesting you coat the back of the plan lines through and build the other side over that.

I opted to trace the fuselage side out onto greaseproof paper and build on that.

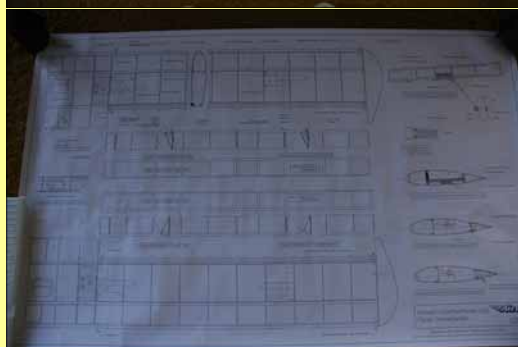
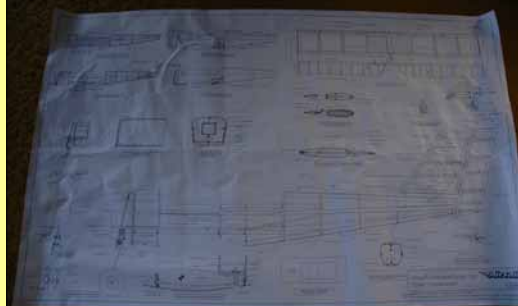
At this point, I discovered a sheet of formers was missing, requiring a special trip to Airsail!

Brian apologised for the oversight and promptly supplied another sheet, but I have to say this is the first time I've built any sort of kitset, plastic or otherwise, where bits were 'missing'!

The next 'issue' encountered was after the two fuselage sides were glued together, several sheets of the fuselage decking simply didn't fit the fuselage. this required replacements to be made from spare balsa sheeting I had and also using a couple of the sheets earmarked for wing sheeting!

The other thing I did differently with the fuselage build was to end construction at the cockpit former and not add the two forward fuselage formers or the firewall. (At this stage no real decision had been made on power plant as I was really wanting to find out what the almost complete airframe weight would come out at before looking at electric motor options.)

At this point, fuselage construction got put on hold for about eight months or so for a variety of reasons, but mostly because of the increasing 'issues' I was having with putting the fuselage together!



To next page.....

Kit Review



The Airsail Tomahawk

Around mid 2010 a start was again made on getting the fuselage completed. Based on the fact the model was to be electric powered, and it was a T-Tail configuration (making it very likely to be tail heavy) it was decided to use the 'snake' control rods supplied and mount the rudder and elevator servos as far forward in the fuselage as possible.

The fuselage was then planked and the plastic moulded lower fuselage fairing added and faired in.

Next stage in the build.... the tail surfaces.

I started on the elevator first, this like the fuselage, was constructed in two halves.

Joining them up proved a challenge as the elevator is semi-symmetrical. But we got there! The basic construction seemed overly complex and resulted in a very strong, but heavy elevator. (For a T-tail this was probably no real disadvantage though!)

The rudder on the other hand (again, built in two halves) seemed to be of somewhat 'light' construction relying on the stern post and sheeting for its strength. I decided to 'beef up' the rudder construction and added extra ribs and also added some carbon fibre to both sides of the stern post.

It was at this stage that a decision to deviate from the original construction method was made.

Both the tail surface 'moving bits' (elevators and rudder) were to be 'covered' using the moulded plastic sheet supplied. While scale-like, this resulted in surfaces that were both difficult to construct and came out quite heavy.

Again, working on the fact that the model was to be electric powered and that overall weight was to be kept as low as possible, a decision was made to dispense with the moulded plastic and cover the surfaces with balsa instead.

This also included the flaps and aileron construction later on too. (It also required a complete rebuild of all the surfaces!)

So... we now had one three-quarter completed fuselage and completed tail surfaces more progress!

Onto the wing construction....

By the fuselage standards, the wings went together reasonably easily, but were not without their 'issues' either!

The actual die-cut ribs were not labelled and almost impossible to sort out which was which! I made a couple of mistakes requiring, in some cases, a fair bit of additional work to then rectify the problem.

There was also differences between the plan and the building manual, which didn't help much either.

I finished up laminating some of the supplied spar stick together and only found out much later that this was not needed. (This required the purchase of another four lengths of spruce!!)

Finally, the wing frame was together and after installing the four servos and wiring, the wing could then be sheeted.

I used two servo's in each wing for both flaps and ailerons, which was different to the plan as they used only two servos total - both flaps and ailerons being driven by supplied lengths of wire and using bell cranks)

Ah, the sheeting.... at this stage I discovered (due to the earlier fuselage 'issues' I'd encountered) that I didn't have enough sheeting to do the job. So I had to beg some five sheets of 1/16th balsa from a local 'source'!

This all helping to increase my blood pressure, if nothing else!

Next up.... joining the two wing halves. This was also not as easy as looked.

The supplied plywood joiners looked very light for the job of holding a 1.8 metre sheeted wing together.... so I opted to add some heavier ply joiners as well. (yet more additional work!)

The flaps and ailerons were then constructed and sheeted (as decided above) and the plastic moulded wing tips added. Wow - a wing a fuselage now almost done yet more progress!



Kit Review



The Airsail Tomahawk

At this stage, I'm now feeling like I can see the end to this whole saga and just made a point of really getting 'stuck into' the balance of the construction.

Next up.... seating the wing onto the fuselage. Either my building was bad or the plan was, as having epoxied the plywood wing seats into the fuselage, the nylon bolts going through holes in the trailing edge of the wing would not tighten up! I spent a lot of time sorting this out and had to make three sets of wing seats (with holes for the bolts) before I was happy with the result.

Mounted and hinged the wing control surfaces at this point, there being a major 'issue' with the flap hinge location, but I'll let that one go as we found a solution.... eventually!

Test fitted and located the rudder and elevator and at this point the model appeared to be very tail heavy.

Next step.... lots and lots of sanding, filling and sanding again. The workshop looking like it was under four feet of balsa dust after this process!

Mounted and epoxied in the rudder, fitted the cockpit doublers and started fitting, joining and spraying the cowl and other plastic fuselage mouldings.

One little 'highlight' that needs mentioning is the nose wheel assembly. Getting this right proved a real challenge and involved replacing a grub screw (or two) and modifying the linkages due to the different (further forward) rudder servo location. The elevator servo was also mounted and the controls checked.

Getting the rudder and the nose wheel working right involved lots of adjustments which, I have to say, really tried my patience somewhat!

A couple of rolls of white covering film from Hobby King were used to then cover the 'beast' and it was looking to be almost there!

Time to sort out a power train. I originally did a troll through Hobby King looking at (electric) motors, speed controllers etc. and finally stuck an order in for:

- Turnigy 4260-600 (650 watt) motor
- Hobby King 100 amp speed controller
- Two 12 x 8 and two 11 x 8 wooden props
- Three lightweight 2.5" wheels
- One 20C 3 Cell 3000 mAh Lipo battery.

Once I received this gear, a plywood engine mount/battery box was the constructed and fitted to the model.

(For obvious reasons it was a lot longer than the original supplied as the model was really designed for an IC power train with tank etc.)

The front firewall was also epoxied in place and the motor attached to the plywood engine mount.

A test motor run was then done with an amp-meter added to the circuit. This run yielded 250 watts of power and a current draw of some 20 amps. I was a bit worried that this was not really enough to get an almost 6.5-7.0 lb model into the air from a rough field in Ambury, so I asked a few people on the field for their thoughts.

Chris Kaiser was a huge help here (thanks again Chris) and suggested that the battery was too small for the job.

So another Hobby King order was placed for two 20C 5 cell 5000 mAh Lipo packs.

(After having first checked I could get the bigger pack into the already mounted battery box!)

Time to sit back and do nothing while the order was on its way to me.....



To next page.....

Kit Review



The Airsail Tomahawk

Two consequences of the bigger battery were:

1. I had to re-mount the rudder/elevator servos horizontally, rather than vertically to allow more room within the battery box itself. And... of course then go through the whole control throw, nose wheel set-up ... again!
2. As the bigger battery could not be loaded into the battery box from the underside of the fuselage, (the 3000 mAh one was slim enough to) both the cockpit detail and the canopy had to then be made removable (using velcro.)
Yep, you guessed it.... more additional work!

Having said that, I was now at least as the Yanks say, 'on the home stretch' with the canopy to be masked and sprayed, landing gear to be fitted, battery velcro mounted and some trim added.

Almost done.... just a final check of controls, getting the CG in the right place (which took 4 oz of lead and it was good to go - all 7 lb of it! (Although the IC prototype came out at nearly 7.5 lbs according to Brian!)

And finally - The flying.....

On a calm day at Ambury, the model was assembled and checked over by test pilot Chris Kaiser. (After all the work building it, I certainly was not going risk flying it and possibly re-kitting it myself!)

A few adjustments later and it was time to get it in the air (finally).

As we were down the bottom of the field that day and as the grass was a bit long there, this proved to be impossible. Also the nose gear bottom linkage also 'twisted' in the long grass requiring an allen key to tighten it up again. (Thanks to Ted)

Up to the top part of the field we all then went, looking for a suitable area of grass that was a little less high. Once found, the model was placed on the ground and test pilot Chris applied full throttle. The nose gear again started turning, but by this stage the model was at flying speed and it got away okay!

It was flying.....!!!!

Apart from some elevator 'up' trim (too nose heavy) some right aileron and rudder trim, not to mention one main wheel falling off; it flew well according to Chris. Less elevator trim when the flaps were deployed was another small adjustment needed later on and Chris then pulled off a masterful landing in longer grass with both a nose wheel bent over and one main wheel missing, without any damage!

So I'm now making the above adjustments and fixing the nose gear issue together with adding larger wheels (3.25" balloon tyres) which should make Ambury takeoffs a bit easier.

Also noted in the photos was that the canopy need to be held down more securely on the sides too.

Overall, I'd have to say it was a really difficult project that could have been made a lot easier..... but we got there.... in the end!



From the Web

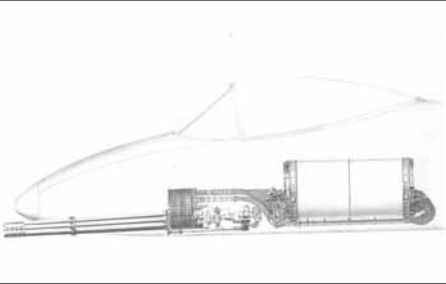


One very Special Gun

It was developed by General Electric, the "We bring good things to life" people. It's one of the modern-day Gatling guns. It shoots very big bullets. It also shoots them very quickly.

Someone said, "Let's put it in an airplane."

Someone else said, "Better still, let's build an airplane around it."

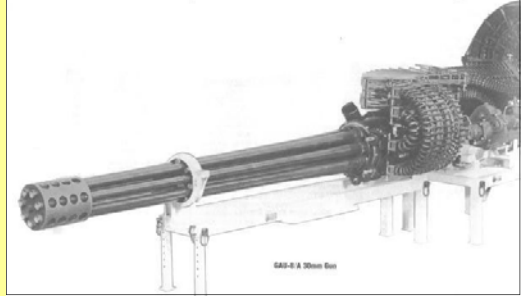


So they did. And "they" were the Fairchild-Republic airplane people. And they had done such a good job with an airplane they developed back in WWII ...called the P-47 Thunderbolt, they decided to call it the A10 Thunderbolt.

They made it so it was very good at flying low and slow and shooting things with that fabulous gun.

But since it did fly low and slow, they made it bullet-proof, or almost so. A lot of bad guys have found you can shoot an A10 with anything from a pistol to a 23mm

Soviet cannon and it just keeps on flying and shooting. When they got through, it looked like this . (below right)



It's not sleek and sexy like an F18 or the stealthy Raptors and such, but I think it's such a great airplane because it does what it does better than any other plane in the world.

It kills tanks.

Not only tanks, as Saddam Hussein's boys found out to their horror, but armoured personnel carriers, radar stations, locomotives, bunkers, fuel depots ... just about anything the bad guys thought was bullet-proof turned out to be easy pickings for this beast.

See those engines. One of them alone will fly this puppy. The pilot sits in a very thick titanium alloy "bathtub."

That's typical of the design.

They were smart enough to make every part the same whether mounted on the left side or right side of the plane, like landing gear, for instance.

Because the engines are mounted so high (away from ground debris) and the landing gear uses such low pressure tires, it can operate from a damaged airport, interstate highway, ploughed field, or dirt road..

Everything is redundant. They have two of almost everything. Sometimes they have three of something. Like flight controls. There's triple redundancy of those, and even if there is a total failure of the double hydraulic system, there is a set of manual flying controls.

But, back to that gun ...

It's so hard to grasp just how powerful it is. This is the closest I could find to showing you just what this cartridge is all about. What the guy is holding is NOT the 30mm round, but a "little" .50 Browning machinegun round and the 20mm cannon round which has been around for a long time.

The 30mm is MUCH bigger.



From the Web



Down at the bottom are the .50 BMG and 20x102 Vulcan the fellow was holding. At the bottom right is the bad boy we're discussing. Let's get some perspective here: The .223 Rem (M16 rifle round) is fast. It shoots a 55 or so grain bullet at about 3300 feet/sec, give or take.. It's the fastest of all those rounds shown (except one).. When you move up to the .30 calibre rounds, the bullets jump up in 2600 to 3000 fps or so.

The .338 Lapua is the king of the sniper rifles these days and shoots a 350 grain bullet at 2800 fps or so. They kill bad guys at over a mile with that one.

The .50 BMG is really big. Mike Beasley has one on his desk. Everyone who picks it up thinks it's some sort of fake, unless they know big ammo. It's really huge with a bullet that weighs 750 grains I don't have data on the Vulcan, but hang on to your hat.....

The bullet for the 30x173 Avenger has an aluminium jacket around a spent uranium core and weighs 6560 grains (yes, over 100 times as heavy as the M16 bullet, and flies through the air at 3500 fps (which is faster than the M16 as well).

The gun shoots at a rate of 4200 rounds per minute. Yes, four *thousand*. Pilots typically shoot either one-or two-second burst which set loose 70 to 150 rounds. The system is optimised for shooting at 4,000 feet.

OK, the best for last.

You've got a pretty good idea of how big that cartridge is, but I'll bet you're like me and you don't fully appreciate how big the GAU-8 Avenger really is.

Take a look ...

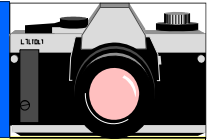
Each of those seven barrels is 112" long. That's almost ten feet. The entire gun is 19-1/2 feet long.

Think how impressive it would look set up in your living room. Oh, by the way, it doesn't eject the empty shells but runs them back into the storage drum. There's just so dang many flying out, they felt it might damage the aircraft.

Oh yeah, I forgot, they can hang those bomb and rocket things on 'em too, just in case. After all, it is an airplane! Like I said, this is a beautiful design.



From the Lens



Spotted by member Chris Kaiser on his way home from work a few weeks back. (He works out at the airport and just happened to have his camera with him too!)



From the Web



WISDOM FROM TRAINING MANUALS

'If the enemy is in range, so are you.' -Infantry Journal-

'It is generally inadvisable to eject directly over the area you just bombed.' - US.Air Force Manual -

'If you see a bomb technician running, try to keep up with him.' - Infantry Journal-

'You've never been lost until you've been lost at Mach 3.' - Paul F. Crickmore (SR71 test pilot)-

'Without ammunition, the Air Force is just an expensive flying club.' -Unknown Author-

**'What is the similarity between air traffic controllers and pilots?
If a pilot screws up, the pilot dies; but If ATC screws up, the pilot dies.'**
-Sign over Control Tower Door-

The three most common expressions (or famous last words) in military aviation are:

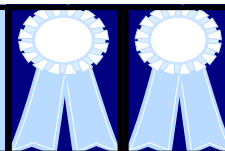
'Did you feel that?' 'What's that noise?' and 'Oh S...!'
-Authors Unknown-

'You know that your landing gear is up and locked when it takes full power to taxi to the terminal.'
- Lead-in Fighter Training Manual -

'Airspeed, altitude and brains. Two are always needed to successfully complete the flight.'
- Basic Flight Training Manual -

As the test pilot climbs out of the experimental aircraft, having torn off the wings and tail in the crash landing, the crash truck arrives. The rescuer sees the bloodied pilot and asks, 'What happened?'
The pilot's reply: 'I don't know, I just got here myself!'

FINAL CLUB POINTS UPDATE



2010/2011 THERMAL CHAMPIONSHIP

	Thermal Thaw	Thermal J	Thermal A	Thermal A	Soarfest	S'Fest Sportsman	
NAME	13/06/2010	7/11/2010	5/12/2010	13/02/2011	26&27/02/2011	27/02/2011	TOTAL
Aneil Patel		6	4	6	4		20
Tony Gribble		3	5	4	2		14
Ted Bealing	1	4	3	3	3		14
Chris Kaiser				5	5		10
Les Stockley	2				7		9
Brett Robinson		5	1	2			8
Andrew Reid		2	2			3	7
Dave Larsen					6		6
Laurie Jackson				1	1		2
Cai-Uwe Jurasik						2	2
Denis Horner						1	1
Robert Moody		1					1

2010/2011 OVERALL CHAMPIONSHIP

	Thermal	Electric	Slope	TOTAL
NAME				POINTS
Aneil Patel	20			20
Tony Gribble	14			14
Ted Bealing	14			14
Chris Kaiser	10			10
Les Stockley	9			9
Brett Robinson	8			8
Andrew Reid	7			7
Dave Larsen	6			6
Laurie Jackson	2			2
Cai-Uwe Jurasik	2			2
Denis Horner	1			1
Robert Moody	1			1