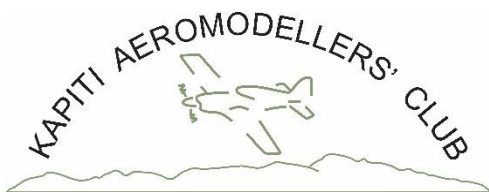
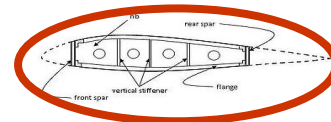


The Spare Rib News



The monthly newsletter of the
Kapiti Aeromodellers Club

August 2023

www.kapitiaeromodellersclub.org.nz



Kapiti Aeromodellers Club group

Notes from the Scribler



The great flying weather isn't so great at the moment. Some 6 degs. today and a cold wind. The upside is hangar time. The downside is staying warm in the hangar and having enough warmth for glues etc. I think this cold snap is reminding us of what winter is really like, but I still can't get over some of the flying weather we've had. The forecast for Sunday 23rd wasn't that great wind wise. I made a call with a few to go flying anyway, and the weather was fantastic all day. The forecast wind just never arrived. I've noticed a few times lately that the forecasts have

been awry. We know that if there's a South Easterly, we rarely will get to fly as forecasts just don't represent the way that wind hammers down the hills and across to the strip. I usually find that the MetService forecast will give an indication of what the wind MIGHT do, that Wind Finder Paekākāriki will have a better representation and if you can get Predict Wind to align some of its predictions, all can be good. Sometimes of late, though, they've all been just plain wrong.

I'm enjoying the trailer I bought from Jim. Its more or less ready to go at any time. If I'm just popping down for a quick fly, I don't bother and just throw a model in the back of the station wagon. If a full day's flying is planned, then its so quick to just hitch on and go. I'm still sorting a couple of things out in it and I guess will be for some time as I get more used to it or have some different ideas.

The Silver Fox this last month was another great success. A couple of us managed a fly as well, although the forecast was wrong, and rain was present when it wasn't meant to be. Packing away wet gear is never pleasant.

I am getting some hangar time. I don't know when the Harvard will grace the skies again. Every time I work on it I seem to be changing something. Alistair Haussmann has 3d printed a radial engine for me. I've made up a dummy exhaust. Changed the cockpit a bit. Tried to refinish some damaged areas. Have had all sorts of problems with sealers and paints and temperatures. Brendan Whitaker has been a great help. And every time I look across the garage, the Pitts looks forlornly at me wanting some more time.

One day, one day.

There has been some comment and discussion following the complaint that was outlined in last month's newsletter.

As an exercise, Andrew and I spent some time standing on the walking path one day whilst James put the Extra through its paces.

It's a very different perspective and I think everybody should take an opportunity to wander down there and see for themselves what it can be like.

Have a great month.

Steve

TMAC newsletter

There's a lot of good stuff in the TMAC newsletter this month so I've attached a copy.

Steve

August club night

Aviation fuels.

Brian McClare. Member Brian McClare worked for BP and worked in their Aviation Fuels division.

He has some interesting stories to tell.

Rally 2024

The rally date for 2024 has now been confirmed.

We are going back to a 2-day rally as in previous years, and the date is the weekend of 16/17 March, 2024.

This is the 3rd weekend of March.

Traditionally we have used the 2nd weekend and in later years worked to avoiding a clash with New Plymouth.

Last year we clashed with a Jet meeting at Tokoroa and missed a couple of our members who went there.

So next year, we will avoid a clash with New Plymouth, 2/3 March, and a jet meeting at Tokoroa on the 9/10 March

Put it in your diaries now.

Steve

Presidential thoughts

We had a good turnout at the July club night with 25 or so turning up to hear Pete Brown, Brent Douglas and Ryan Groves talk about their respective jets. See the newsletter for details.

I've been down 3 times in July flying, the latest was today the 25th when a number of us turned out in moderate wind to display a variety of planes to 6 children being home schooled. They seemed pretty engaged and John Miller has a buddy box and let them each have a go on his trainer.

This coming month the Club Night presentation is from Brian McClare who will talk to us on aviation fuels.

The heart defibrillator in the club house has been given an upgrade. We hope it never has to be used, but members should at least know where it is and how to gain entry to the club house if can an emergency arises.

Note that Firebrand RC in Taupo has a special on Seagull models until 31 July. So do Hangar One in Whangarei. I guess they place an order with Hot RC who are the NZ agent. I mention this because Seagull have a whole bunch of new ARF kits on offer, all at a 20% discount. I might have ordered one...

I'll be away in September and October on holiday. Wayne Elley will have the keys to the hall for club nights and will open up. The Committee are arranging the speakers. Steve Hutchison will also be away in September.

See you club night.

Fly safe!

John Pfahlert
0211509763

Aviators of the future

Todd Chaplin is a schoolteacher who home schools some 6 students aged 9-12.

Todd had in his programme to teach the kids about aerofoils and approached the club to see if they could visit us and observe models in flight, using different aerofoils.

I was asked to co-ordinate.

On Tuesday 25th, Todd and his 6 students turned up at the strip on their bikes. (they obviously didn't feel the cold as much as older fellas, given the attire). A bit of a chat as to why they were there, and we took them around the models present to describe the different aerofoils present and a little bit on how they worked.

Including myself, we had Ian Crosland, John Miller, Jesse Lindsay, Noel Fisher, Paul Buckrell, John Pfahlert present to fly a few models.

Pete brought down his big helicopter which also provided something quite different.

The wind had got up, but we were able to fly.

John miller brought his trainer along with buddy box and after the demonstrations were over, John, assisted by Noel, was able to give those students who wanted to, a go.

That went well except John stayed aloft a bit too long and ran out of fuel on landing approach.

A perfect dead stick was executed. After the flying was over, Todd, the kids, John, Ian and I had a question-and-answer session in the clubhouse.

They have, of course, been invited to return anytime.

Turns out that Todd's Dad is a keen aeromodeller who has a garage full of models, down in Christchurch.



Pete Brown explains how a model helicopter works. Paul and John P having a chat in the background.

All attention as the helicopter does its thing. Many photos taken.



How cool is this. All eyes on the sky as John gives them a feel for flight.

Mosquito time

We haven't seen Neil Schrader out at the club for a wee while, but he tells me he is busy beavering away on yet another project that was started some years ago.

This time a mosquito.

There is a thread on RC Scale Builder which is well worth a look at.

https://www.rcscalebuilder.com/forum/forum_posts.asp?TID=32808&PN=1

As with all Neils builds, attention to detail is a must and I was stunned to see that, when building the fuse, he wanted to form it as per the original.

So, all formers and things were cut from 3mm MDF.

Then the fuse moulded.

Have a read.

Here are a couple of photos Neil has sent in to wet the appetite.



I believe the model will be powered by a couple of Laser 150s.



I intend to spend some time on the build thread and do a more in-depth article in the future.

July club night - more jets

The presentation Paul made the other month of his F22 generated some discussion on other jet models within the club. The upshot was that Pete Brown, Ryan Groves and Brent Douglas brought jets alone to talk to them.

Pete Brown began with a very interesting talk on the development of the model jet engine. This work happened in the 80's. Initial development included using a Garrett supercharger impeller for the compressor. Pete's been involved on these engines since those early times. The development of these model turbines since those early days has been nothing short of spectacular. Performance has more than doubled. Restart systems now if there's a flameout.

Quite fascinating. The development of ceramic bearing has also played a big part in development, with such bearings able to spin at some 200,000 rpm.

Unlike our petrol and glo motors, these turbines need proper factory servicing every 25 hours. Doesn't sound like a long interval, but if a flight is 10 minutes, then that's 180 flights.

Brent hasn't been into jets all that long and recently wrote off his small-scale jet at Tokoroa. Running out of air speed I believe. He had, some time ago, purchased an A10 Warthog from Firebrand. Steve Wilson, wanting it gone. Brent now has that model setup and configured and ready for inspection. It's a pretty impressive beast, running twin turbines. Unfortunately, it is too big to be flown at our strip. (On Sunday 23rd July, we had a couple of visitors to the strip who knew Brent and had turned up in the hope of seeing it. They were pretty disappointed when told our strip would be too small for it).



A modern model turbine, ceramic bearings, Garrett impeller and electronic bits.



Its big. Its brutal in its look. Should look magnificent in the air.



Pete Brown presents his Airworld F 5 Tiger 1/5 scale.

This model was originally purchased by Craig Abbott. The kit comes as just a simple white fibreglass fus and composite wings. Craig did all the detailing, weathering and colour scheme.

It's been finished to a very high standard. The scheme is an exact match to a particular aircraft of the Swiss aerobatic team. Pete purchased the model from Craig who has moved onto something much bigger, and he is yet to fly it. The model was maiden at Tokoroa last season. One of those early flights was filmed by Bruce Simpson. Have a look. <https://www.youtube.com/watch?v=-X2fvAHgxYU>



It's certainly an impressive machine. Note the turbine powered helicopter in the foreground that Pete also brought along.

Ryan brought along his Aermacchi. The story behind this model is a compelling one. The model was built and owned by New Plymouth modeller Tony Withy. Tony is well known to our club, attending many of our Rally's. Tony campaigned this model for many years, but a few years ago, when flying at Warbirds over Awatoto, had a flame-out and finished up in the water. It was pretty badly damaged. Ryan followed up with Tony sometime later asking to purchase it so he could restore it. The deal was eventually done, and Ryan has spent a few years getting it back together. This restoration has been covered in this newsletter in the past.

Suffice to say the restoration is to a very high standard. According to Ryan, it is the only such model flying in New Zealand.

Ryan flew it at Warbirds this year and although flying well on the Friday, had a flame out on the Saturday. Fortunately, the engine restarted, and he was able to get it on the ground.



Problems were found with the fuel system. Further problems were found later after a knock to the rudder. Always with such rebuild, little things can crop up unexpectedly. Its back together and ready to go again. A lovely machine.

Thanks guys, it was another enthralling evening.

Tokoroa jet meetings next season

Following the presentation on jets, there was quite a lot of interest by some to look at visiting one of the jet meetings at Tokoroa. I've tried a couple of times, but weather has prevented it. Here is a list of the jet meeting dates for next season.

If you want to follow on anything Jet, then check out the NZ Jet Modellers assn. website.

[NZ Jet Modellers Association \(nzjma.com\)](http://nzjma.com)

NZJMA calendar next season.

2023

September 29/30 Oct 01

October 27/28/29

November 24/25/26

December 15/16/17

2024

January 13-14-15

February 16-17-18

March 08-09-10

April 12-13-14

May 10-11-12

June 07-08-09

September 27-28-29

October 18-19-20

November 22-23-24

December 13-14-15

Membership Cards

If you haven't got it yet, I have it.

Will be posted/delivered in the next week.

Steve

Club competitions:

You will recall at the AGM that Andrew Farrow asked if members were interested in having some competition weekends during the summer.

There was overall agreement.

The committee has put the following dates together.

21-23 October - Aerobatic day "The Kapiti extreme unlimited aerobatic slam down". Labour Weekend.

25-26 November - Kapiti Scale Fun Day "From a distance it definitely looks like a Cessna".

9-10 December - Vintage Rally Day "Pre 1970 models – for reasons".

20-22 January - Warbirds Day "Thunder over Kapiti" WTN Anniversary.

17-18 February - Tomboy Day "Top Gun action spectacular".

The idea is fun competition and some learning along the way.

Obviously, the strip will not be closed to normal fun flying if a member isn't interested in competing.

So... start practicing.

The first competition

Introduction to Aerobatics.

Saturday 21st October/ rain day. Sunday 22nd October.

Open to any MFNZ member but focused on Kapiti members.

Pilots must hold a wings badge.

If you can loop and roll your model you have qualified. In this introduction to basic aerobatics. Any type of aeroplane will do but we recommend an aerobatic type. James Farrow will direct the action and happily tutor those who want any help. Celebrity guest judge will be watching and there will be prizes.



The schedule will be based on NZ Pattern Clubman class and will comprise of the following manoeuvres: -

- Take-off
- Half Reverse Cuban eight
- Two-point roll (two half rolls)
- Stall Turn
- Loop
- Full Roll
- Landing

Field will not be closed to general club flying but event flying will be prioritised.

Andrew and James.

Dual flight batteries

Last month, we reported on Brent's model loss when the power distribution board he was using with dual battery input, failed.

Co-incidentally, Dave Marriott talked about using dual flight batteries in the Tauranga newsletter. Dave's article included a circuit diagram and uses blocking diodes to stop one battery feeding back to another.

This recalled an experience I had when commissioning the Smith mini plane.

The first thing I have to admit to here, is that I know absolutely nothing about electronics. I read stuff, I take advice, I hope I get things right. So don't quote me on anything.

With the Smith, I was using dual LIFE flight batteries. I built circuits using blocking diodes. I can't remember where I got the info from as to what diodes to use.

The one thing to remember with blocking diodes, is that you will drop some voltage. How much, I believe, depends on the diodes used.

Anyway, I had done all the testing on the Smith over several trips to the field and on this particular day, taxied out for the maiden flight. Turned into the wind, opened the throttle and everything died. Thankfully. Still on the ground.

Turns out I blew both diodes.

So, I spent some money and purchased a Dualsky battery backer from Firebrand. I wired that in and haven't looked back.

I did a lot of reading around this time on using dual flight batteries and one thing that kept occurring, was that, in many people's opinion, it was unnecessary to do anything. Providing both batteries were identical.

I know that Paul Buckrell and other jet guys use PowerBox systems in their larger models and jets.

So with Dave's article in hand, I asked for Roger Balfour's opinion. Roger, unlike me, knows his electronics. I sent Dave's article for comment.

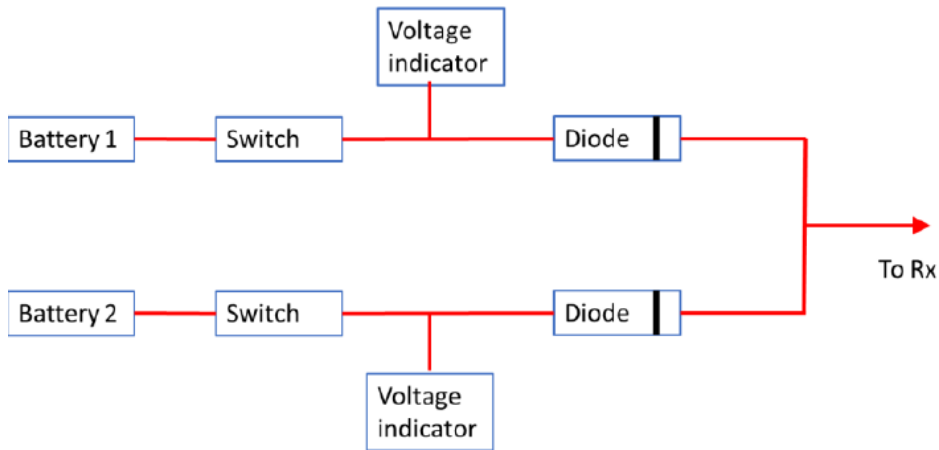
Dave's article – reprinted with permission.

Use of dual batteries

One of our members recently enquired about using a commercial dual battery controller to provide a safeguard in case one of the batteries developed a fault in flight. Many of these units are designed to be supplied by two batteries of different voltages and are consequently complex and expensive. They typically have dual UBECs to bring the two supplies to a common voltage (e.g. 6V for a receiver) and then a diode bridge to ensure that if one supply fails, the other can take over. This is appropriate for large models where the batteries may be 11V lipos, driving into a 6V Rx/servo system. All of this adds complexity and introduce their own failure modes in addition to those inherent in batteries.

These days batteries are generally reliable and rarely fail in flight. For smaller models using twin 6V batteries of the same voltage, there is a simpler solution. This is shown in the circuit below. All you need to buy are two Schottky (low resistance) diodes and install one in each of the battery supply lines. A typical diode is MBR735, rated at 7A and available from Jaycar for \$3 each. I always use a battery voltmeter in each battery line – this will indicate a low voltage battery immediately on switch on.

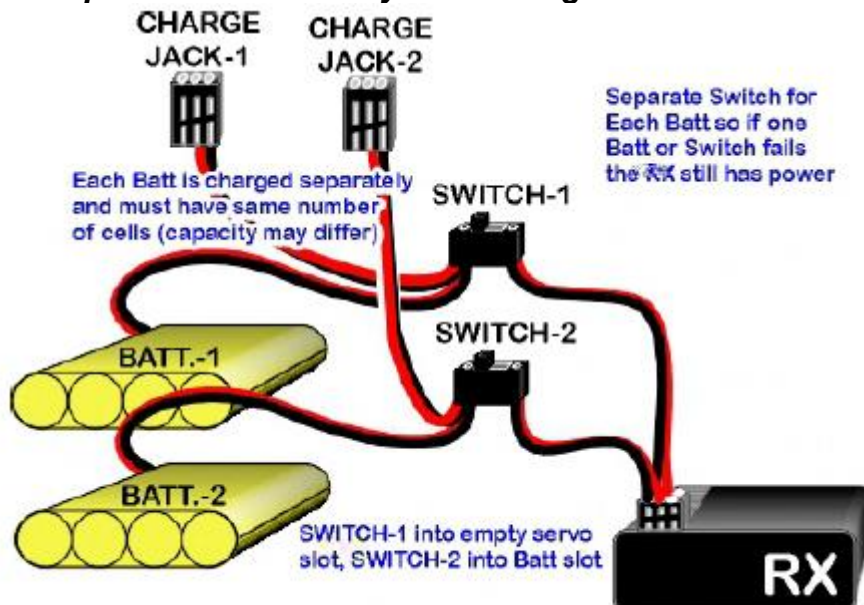
Note that this is a single line diagram only, showing the +ve (red) supply line. The -ve (black) lead is common.



Your choice of whether to use individual (SPST) switches, or a single (DPST) switch.

Roger came back with some comments including some options on diodes to be used. He also sent through an article, which I believe I had read at some point, written by an expert from General Electric. - The author worked for General Electric in the States and was an expert in NiCd batteries and thoughts are that his findings would support the use of NiMh batteries as well.

Parallel Operation = Reliability & More Flight Time



The use of redundant parallel flight packs (packs may be of different capacity but MUST be of an equal number of cells) is an excellent way to increase the available flight time and significantly improve the reliability of the on-power system. The simplest means is to run two complete wiring harness, switches and charge jacks from each pack and plug one into the normal battery port and the other into an extra channel on the receiver. No diodes or isolation is required (see below). This is simpler and more reliable than some of the complex battery backup systems being offered on the market. Whether you are using 4 or 5 cells is your option, remembering that a 5-cell pack will provide more power to the servos but at the same time discharge faster giving you less flight time. Parallel charging of Ni-Cds is not recommended due to the tendency of the cells to have the voltage drop off after they reach full charge. Should one pack have a slightly different capacity than the other then it will reach full charge sooner and the voltage will start to drop off allowing more current to flow into this pack. The other pack may not then reach a full state of charge. Repeated charge/discharge cycles under this parallel arrangement causes additional charge unbalance. While you may experiment and find that you get what appears to be both packs charged you will eventually run into problems with this arrangement. As an extreme, take the case of two packs, one having 250 mAh capacity and one having 600. The smaller capacity pack will reach full charge much sooner assuming that there is at least an equal "sharing" of charge current. As it peaks and the voltage declines slightly due to the heating of the battery as the oxygen is recombined it will begin to take more and more current to maintain a voltage equal to the as yet uncharged pack and the voltage tries to drop further and demands even more current to keep it up. This pack will then be taking nearly all the charge current leaving the larger pack woefully short during what would be perceived as a normal charge time like 16 hours. Many pseudo battery "experts" put forth the argument that plugging two battery packs into the same receiver without blocking diodes is NOT a good thing, claiming that this creates a host of problems and the two packs will end up fighting each other or "cross charging". These concerns show a lack in the understanding of the charge and discharge potentials involved in Ni-Cd cells. One pack cannot charge the another (equal number of cells) as the discharge voltage of a pack can never be as high as the voltage required to charge the other pack. For the doubters here is an experiment: completely discharged one pack to 4.0 volts and then connected to a fully charged pack having an equal number of cells. There will be less than a 10% transfer of charge in a 24 hour period. Since shorts rarely occur in fully charged packs the risk of one pack "dumping" into one with a shorted cell are insignificant. A simple ESE preflight test would detect a pack with a shorted cell. While it is a fact that the typical failure mode of a battery is for a cell to fail shorted there are some subtleties here that escape many people. First, one of the major causes of "battery" failure has nothing to do with the batteries themselves but rather with a switch or connector in the battery circuit. The dual redundancy concept is to protect against the failure having the highest probability – that being the circuit path from the battery to the power buss in the receiver. Adding more components to this path, like regulators and/or diodes isn't going to help the matter but rather adds to the probability of failure. Perhaps the following discussion on the nature of shorts will better help the modeler understand.

While it is agreed that shorts are the failure mode in Ni-Cad batteries one has to look further into the "when" of the failure. A short develops in a Ni-Cad when conductive particulate bridge the separator or the separator itself deteriorates to the point where it allows the positive and negative plates to touch. Rarely does the short occur all at once but rather building up a very small conductance path termed "soft shorts". In a charged cell the energy in the cell will blow away any short as it tries to develop. You've heard about "zapping" cells. The cell actually zaps itself before the short can develop. Only in cases of severe overcharge at high rates can the separator melt down to the point where the plates contact each other (hard short). In this case the energy in the cell then dumps and we have what is referred to as a hot steamer, the electrolyte boils, nylon in the separator melts down and is forced by the steam through the vent. On some occasions the vent is clogged by the molten nylon separator and becomes inoperative causing the cell to rapidly disassemble. So under normal circumstances a cell maintained at some state of charge is much less likely to short than a cell that is completely discharged. It should be noted however that the self-discharge increases rapidly in cells where there is a short building (high resistance -soft

short) due to separator deterioration and/or cadmium migration. One other shorting mechanism is a manufacturing defect where the positive or negative collector tab bridges the opposite plate. These usually fall out before the cells are shipped or assembled into batteries.

Preflight procedure should involve checking each battery separately. First check each with ESV through charge jack. You should get nearly identical readings, then switch one on, check controls, switch off and then switch on the other battery, check controls again, then turn both systems on and fly with confidence.

Summary: Diodes are not required. Packs must be of the same number of cells. Packs may be of different capacities. Individual charge jacks must be provided for each pack (and not interconnected). Total capacity available will be the sum of the individual capacities. Specialized chargers are not required since standard packs (600-800 mAh AA packs) can be charged employing regular system wall chargers (1200 to 1600 mAh should cover most giant size projects).

cls 5/97

So armed with having read this really interesting article, I did more searching and reading and found many opinions that battery chemistry used doesn't prevent using matched batteries without blocking diodes.

I then asked Andrew Farrow, our Club Captain and owner of several large models using dual batteries, as to what he and James used. Andrew is also an electronics man and commented on FB re the loss of Brents plane and the power distribution system that he felt many of these systems had too many possible points of failure.

I know Andrew build a wiring harness in his models, but what does he do with batteries? He runs high voltage everything.

Jim's extra and my Tempest run these simple little things.

<https://www.boomarc.com/en/multi-switch>

They are digital switches that are effectively MOSFET gates that also work to prevent reverse current and stop one battery charging the other.

Advanced Radio/Boomarc in Australia also make some far more complex gadgets too. We used one for aileron servo matching on Jim's Yak54.

I'm still not keen on unnecessary complexity but these AR multi switches are cheap enough and simple enough that I am happy to use them when appropriate.

They use lipos throughout and one thing I had noticed, was that they have gone away from running a separate ignition battery.

For ignition, the use a Tech Aero ultra ubec.

These also operate as the ignition kill switch as well as being able to control voltage.

Frazer Briggs has them in stock.

[Ignition Kill \(pbgrc.co.nz\)](http://pbgrc.co.nz)

Paul Buckrell has now started using these as well.

So, I've found putting this little discussion paper together interesting. And just for the record, I know of models running 2 flight batteries without any electronics at all.

Cheers,
Steve



Tech Aero Ultra IBEC - Ignition Kill

We have been using these Tech Aero ignition kills for 10 years now, and they are awesome !!!Elimina...

Availability: **In Stock**
\$100.00

For Sale

John von Hartitzsch is clearing out his hangar.
He has the following for sale.

Pin wheel. 60" span. Powered by an ASP 60 4 stroke.



Top Flite Elder. No engine. Great flyer. 40 size.



Corsair. Not quite completed.
Has un-run ASP 91 4 stroke.

Trainer – 40 size.

Q500 – no motor

Tomboy

Glider – only 4 flights.



Club Jacket – size M



If interested in any of
these, contact John for pricing and
dickering,
0274417592

And that's it from me.
As Don would say 'Fly hard, land soft'.

Steve

