

Aerobat



December/January 2014/15

Issue Number 6 Volume 5

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Cover Picture

Model is Wayne Drinkwater's

Eagle EPP Slow Flyer 1430mm
w/Motor (KIT) from HK

You also need
4CH Transmitter and receiver w/ V-tail mixing
2x9g servos
3S 11.1V 2200mAh Lipoly Battery
20A Brushless Speed Controller

Not bad for \$99 AUD

Wayne's advice use two more
servos and install the ailerons.

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From the Editors Desk



Hi Hi and Hi again.

As you may have heard at the last club meeting, I am taking over as editor for this edition of the Aerobat.

This leaves the position as editor open for someone with a knowledge of our club and how it works to apply. There are a lot of people in the club who have better prose and are more artistic than me so come on and have a go

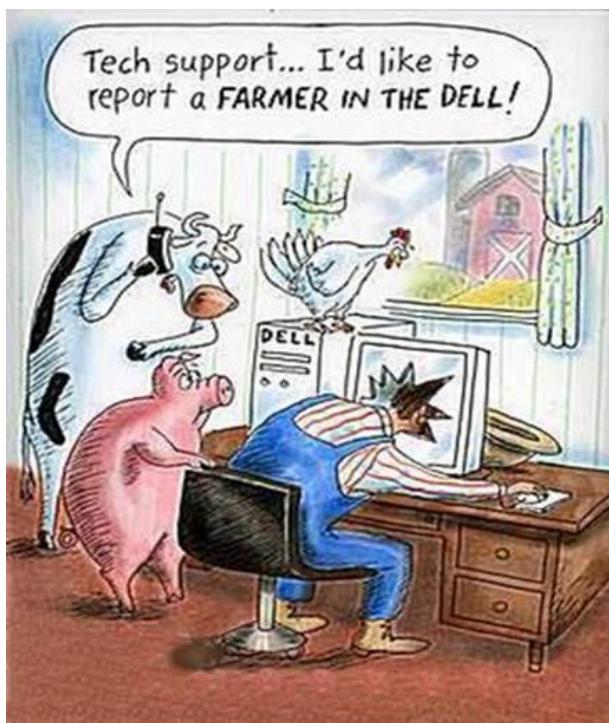
A thank you to our previous editor Scott for producing those great mags.

Hope you have your Christmas plans all set and everything goes well.

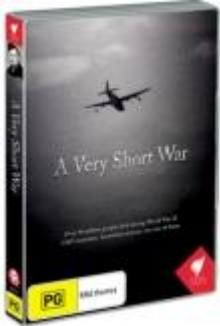
Merry Christmas and a happy new year to you and yours

Ross McDonnell

Editor (Temporary)



A Very Short War



It follows the life of early Australian aviator Cliff Carpenter who built his first aeroplane in a garage on Military Road, Cremorne, Sydney and lost his life when the RAF Sunderland Flying Boat L2167 from 210 Squadron was shot down over Norway on the day of the German invasion of that country. Susan Young (writer) and Bill Young (co-director) are the niece and nephew of Cliff Carpenter.

Very good original footage of 1930s aircraft.

This Video can be seen “Free Loan” from your local library.

HOW TO PICK AN ELECTRIC POWER SYSTEM IN FOUR EASY STEPS

1: MOTOR SELECTION

Everything starts with your motor selection.

You start with the motor because it's where all the performance comes from, and it dictates which power setup you'll need. In this article, I refer only to brushless outrunner motors. You have to determine your model's power requirements. Some manufacturers, e.g., now make this easy because they have online programs to help you select the right motor. Just follow the steps to input information about your aircraft, and you'll see three motor setups for your plane. But with a little knowledge you will be able to select the correct motor for your model without a program or help from somebody else.



2: KNOW WHAT YOU WANT

Next, how much performance do you want? A trainer needs less power than a 3D aerobatic flyer. You can start with the standard “input watts per pound” guidelines that have been around for quite a while (see the sidebar “Watts per pound/ounce”). When you have some idea of how many watts per pound (or per ounce) you need, the next step is to check your model's weight with batteries. This can just be an educated guess; it doesn't have to be an exact weight. Now start looking at brushless motors to check the range of watts output.

The instructions with many motors don't show how much power in watts you can expect from them, so you have to do a little math. Most motor stat sheets (they're often online) give the motor's battery-cell count-voltage. It's also important to know the continuous and maximum current, in amps, a motor can safely draw. Multiplying the amps by the voltage gives you the motor's wattage.

Example: let's say that your motor will run on a 2- or 3-cell LiPo-a voltage of 7.4 or 11.1 volts, respectively. The motor specifications suggest a continuous current of 10 amps. Multiply the volts by the amps and you get 74 and 111 watts, depending on the voltage used. If you power a 10-ounce model with this motor and a 2-cell battery, it would have enough power to do advanced aerobatics. With a 3-cell pack, that same motor would be powerful enough for unlimited 3D performance. That's all there is to selecting the best motor for your aircraft; now you have to match the ESC and battery to the motor's current draw.

WATTS PER POUND/OUNCE

Use these standards to determine the type of performance you can expect from a new power system. For light park flyers, use the watts/oz. column.

Watts/lb.	Watts/oz.	Type of aircraft
50 – 70	4.35 – 5.65	Trainer& slow-flying scale models
50 – 70	3.125 – 4.35	Minimum power level for decent performance; good for lightly loaded park flyers
70 – 90	4.35 – 5.65	Trainer& slow flying scale models
90 – 110	5.65 – 6.87	Sport aerobatic & fast scale flyers
110 – 130	6.87 – 8.15	Advanced aerobatic & high-speed models
130 – 150	8.15 – 9.35	Lightly loaded 3D models & ducted fans
150-200+	9.35 – 12.5+	Unlimited performance 3D models

3: BATTERY SELECTION

Now that you've chosen a motor, selecting the battery and ESC is a snap. First, consider the battery. From my example, we know that the motor needs to pull at least 10 amps continuously from the battery and that it can run on a 2- or 3-cell pack. The performance you want will determine how many cells you should use. But you have to pick a pack that can supply the amps, or current, you want. You do this by checking the pack's "C" rating. Multiply this rating by the pack's capacity in mAh to determine how many amps can safely be pulled from the pack.

An 800mAh pack with a 10C rating can provide only 8 amps continually ($10 \times 0.800 = 8$ amps). If your motor draws 10 amps, the pack will get hot and most likely become bloated and unusable. But if you use an 800mAh battery that has a 20C rating ($20 \times 0.800 = 16$ amps), it will safely provide 16 amps continually and is safe to use. You can also use a pack with a larger capacity of, for example, 1500mAh with the same 10C rating. It will safely provide 15 amps of continuous power and will also work well with a 10A motor setup. The advantage of a pack with a higher C rating is that it's lighter and smaller, but there's a downside-shorter flight times.

4: CHOOSE AN ESC

Once you know the motor's requirements, deciding which ESC to use is easy. For the ESC to work with your motor, it must be rated for voltage of your LiPo pack, and it must be able to handle the motor's amp draw. Using my example, the correct ESC for your motor would have to be able to handle at least 10 amps continuously and work with 7.4 to 11.1 volts (2- or 3-cell LiPos). It is always better to have an ESC that is rated slightly higher than the amps you really need. But don't exceed three times the required amperage, and remember that larger ESCs weigh more.

Keep in mind that these are guidelines, and when you have your motor system in place, you'll be able to measure the current going through it. Variables such as prop size can push a motor's amp draw above the recommend limit, and that subjects the entire power system to unnecessary stress and wear. The only precise way to test your system is with a watt meter.

USE A WATT METER

To know how your motor's operation meets its manufacturer's specifications, you must know several important numbers: current (amps), voltage (volts) and power (watts). One of the best ways to do this is with a Super Watt-Meter from AstroFlight. Plug this meter between the battery and the ESC, and you'll be able to monitor what your power system is doing.

Continued next page.



This is important for two reasons: first, every motor, ESC and battery operates at a specific maximum allowable current measured in amps. Exceeding their limits could soon burn out the motor, the ESC, or the battery. Even running the system at slightly above the maximum specified current could cause any or all three of your electrical components to fail prematurely. Prop size is among the variables that affect the flow of current through a system. A larger prop will pull a higher current from the battery through the ESC and make the motor run hot. Second, use the meter on your flight system to determine the best prop size to obtain the maximum recommended motor wattage without overworking all of the electrical components. It allows you to maximize your plane's power, at least, with that electrical system. The Watt-Meter is a worthwhile investment

Please mark your calendars for this fantastic event



MODEL AIRCRAFT PUBLIC FUN DAY

Sponsored by
Hobby City 

**Sunday
22 March
10am - 3pm**

**Wainui Pony Club Field
Wainui Road
Silverdale**

Contact Nigel 09 420-3182 or Peter 09 426-2455

**Free admission
Plenty of parking
BBQ sausage sizzle
Hot & cold drinks
Bonus Vintage Cars**

Please note - No dogs allowed

Can any one tell me what this is?

It was seen at the flying field.

Surely it must be off a bigger flying aircraft.

See following pages for detail.



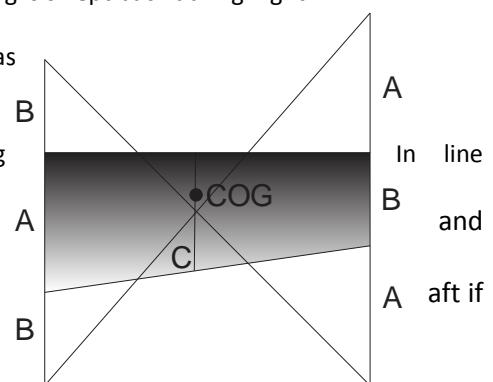
C.O.G PROBLEMS ON VARIABLE-SWEEP WING MODELS

Had a curly question about what happens to the COG (Centre Of Gravity) when a wing is swept back during flight.

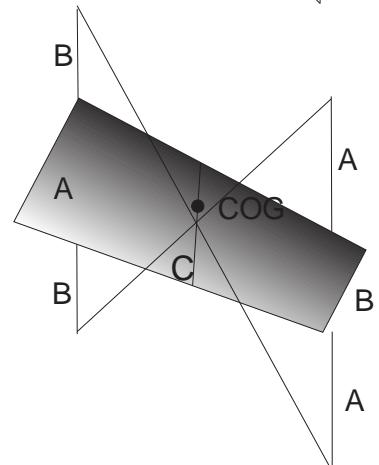
You may have come across the simple way of finding a good starting point for COG as demonstrated in the first drawing.

The way to do this is make the following marks in line with the direction of travel. (eg with the fuselage.)

1. Take the root cord measurements and mark this distance forward and aft of the tip cord. (A)
2. Take the tip cord measurement and mark this distance forward and aft of the root cord. (B)
3. Draw lines two from the forward of each to the rearward on the opposite.
4. Where these two cross draw a line from Leading edge to Trailing edge. (C)
5. A third of the way down this line is a good starting point for COG on most sport models.



How what happens when the wing is swept back keeping the LE Root in the same place?
As can be seen in the second drawing, a third of the way down line(C) is now very far back.



Well that's my opinion anyway
Ross McDonnell

Bird of Time almost finished

The last time you saw my Bird of Time was in the December / January Aerobat destroyed after the wing broke in flight. This plane started out life as a Dynaflyte ARF with fibreglass fuselage.

The fuselage was beyond repair so a new one was constructed in balsa then covered in 2 oz glass cloth and painted in white enamel.



The only part that could be used from the original plane was the wing that was stripped repaired and strengthened then recovered with World Models Toughlon .

The fake carbon fibre on the canopy is a 3M product used for covering cars see www.instagram.com/thewrapshop its self-adhesive so no heat is required to make it stick but will go around corners quite easily when heated, will bring some samples next club night.

All that is needed is some fine weather for a test flight.

Nigel Grace

FROM THE PRESIDENTIAL SUITE

Greeting all.

Christmas is almost upon us once more, so hopefully with a bit of luck this wet windy weather will leave us alone for a few months.

Having been away on holiday for 3 weeks I missed out on the Christmas lunch but no doubt, you all had a lovely time enjoying each other's company, after all that's a big part of what our club is all about.

We have another twilight on the 3rd December hopefully the weather will be as nice as our last one with the added bonus of the longer evenings as summer approaches. I can just smell the aroma those lovely sausages with onions, hash browns, fried eggs all that gorgeous grub that's good for us. Oh yes sorry I forgot we probably have that lovely green stuff as well , mix that with the company of our fellow members what more can one ask for , well yes we do have flying as well 'fantastic'.

Jim has started taking notes of the Decibel noise levels of various models we have flying, it will be interesting to see how it works out.

Scott's resigned from the editor's job. I guess having to work full time plus learning to be a pilot part time then squeeze in a bit of fun, producing the mag (not surprisingly) was a step too far. So a big thank you Scott we really appreciate the work and effort you put into it over the months.

Ross McDonnell has kindly agreed to step in for this one issue only, so we are looking for a new editor to take over in the New Year, if you're interested please have a chat (or email) with Ross or anyone on the committee and welcome aboard.

I must admit to getting frustrated. I really must try and finish my Windrifter glider before Christmas seem to have been working on it forever. The problem being of course if I could just stop bending the ones I have I wouldn't have to spend half my life re building them thus enabling me to get on with finishing this one. Plus being relatively new to our great sport I tend to take things for granted, for instance my borrowed drawings for the Windrifter, I didn't want to damage them so had a new set printed off. So pinned the inner left and right wing sections down on the plan, all glued up ok and looking good, placed them back to back to each other expecting a perfect match only to find them 10mm out of square to each other . So checked the rest of the drawings, the fuselage had a slight banana bend in it and the outer wing sections took off in different directions by 12 mm over their 700 mm length with a slight curve, so had to check all the drawings and correct where necessary.

But all is well now and a lot wiser for it. I had a chat to the chap who printed them off he was totally unaware of the problem, he said probably a little expansion, contraction in the paper as it goes through the machine. I assume this is the first set of aircraft plans he has printed as all his other work is architectural and artist stuff so no one's noticed especially the artists, the more twist and turns the better. It's so easy to be complacent isn't it.

It has been an interesting year for me as a new President trying to find my feet, quite an experience so far, but feel that I am starting to settle into the role mainly due of course to my fellow committee team members, and others, who work so hard in the background mowing the strip, fixing the gutters, organising fun events, banking, paper work, etc etc

So, on the behalf of us all in the team wish you all a Very Merry Christmas and Great New Year.
Happy Landings.
Pete Denison



Photos around the club



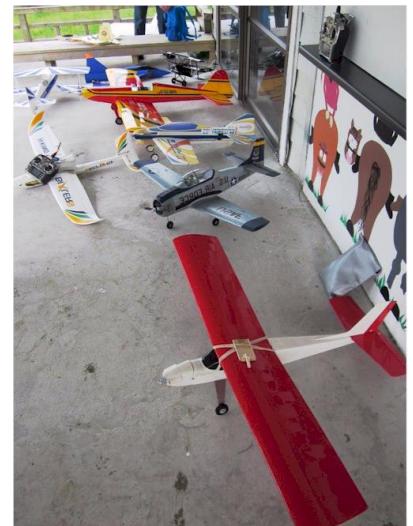
Leigh's very nice Mustang. All the gear including retracts, lights etc.



Baz's little biplane. Flies as good as it looks



Wayne's cute "Black Baroness" tri-plane.



What a Line up, and not a Bee in sight



Dave Kilsby's clean looking Cub



John's "Sig Kadet" helped him to pass his wings

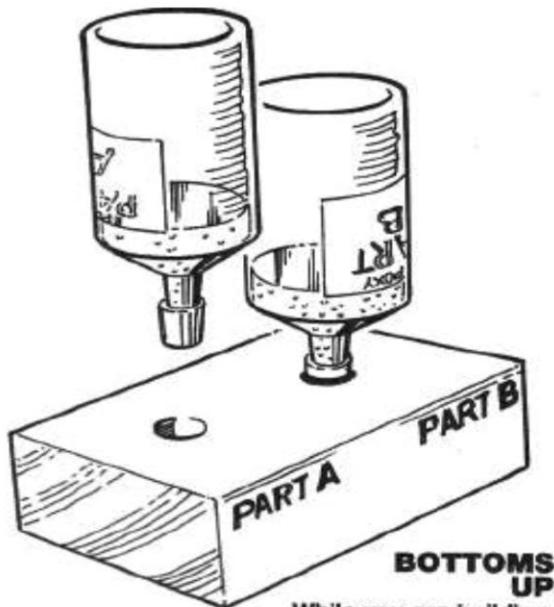


Ever stopped to think how the strip gets cut?



Look how long the grass is after 1 week.

Hints and tricks for better modelling.



While you are building, set your epoxy bottles in a drilled wood block so that the epoxy is in the top of the container, ready to use. This avoids that agonizing wait while the epoxy flows to the nozzle each time you need it and is especially useful when the bottle is partly empty.

Glenn Bolick, Mechanicsville, VA



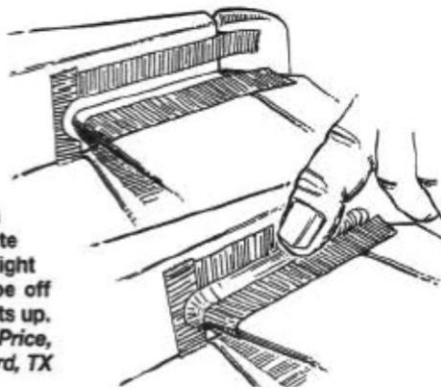
BLIND FLYING
An easy way to insert nuts into a dark, concealed place is to glue them to your fingertip with PFM or GOO. After the nut has been tightened, your finger will easily peel away from the nut.

Ron Fritz, Kent City, MI

SLICK JOINT

Mask off a strip approximately $\frac{1}{8}$ inch (3mm) wide, then apply a fine bead of RTV tub seal. Smooth this into the corner with a wet finger to create a neat, clean, oil-tight fillet. Peel the tape off before the RTV sets up.

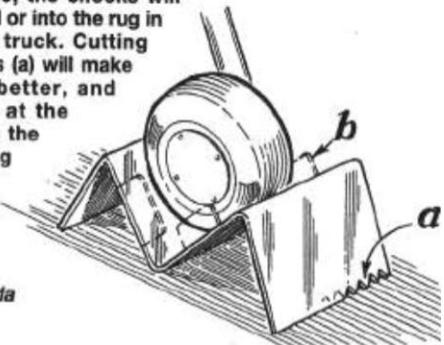
Clay Price,
Weatherford, TX



TIN BASHED CHOCKS

These simple chocks are made of aluminum strips. With the model in place, the chocks will dig into the ground or into the rug in the back of your truck. Cutting teeth into the ends (a) will make them grip even better, and bending tabs up at the sides (b) will stop the model from sliding sideways out of the chocks when it's in your truck.

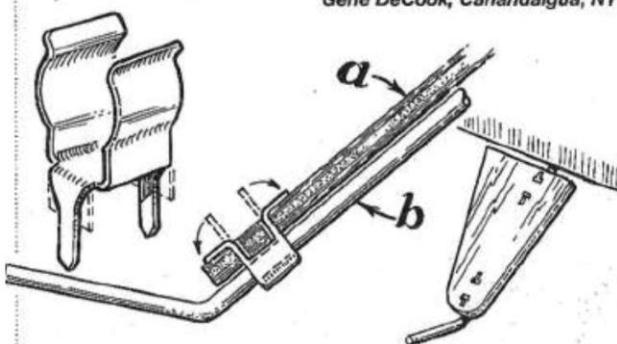
Patrick Young,
Barrie, Ontario,
Canada



CLIP JOINT

Clip plywood landing-gear fairings to the gear leg using RadioShack circuit board fuse holders. Clip the holder around the wire leg (b), push the tangs through small holes in the plywood (a), then bend the tangs over.

Gene DeCook, Canandaigua, NY



H.C.R.F.Calendar 2014/15

NB ones with Pony in the date (and in yellow for those in colour,) are Pony Club. **THEY MAY NOT AFFECT US.**

1 December 2014	Mon	Club Night	Whangaparaoa Guide Hall 7.30 pm
3 December 2014	Wed	Twilight 2	Wainui 5.00 pm
7 December 2014	Sun Pony	X-Country & SJ practice	Wainui 10am-1pm
10 December 2014	Wed	Twilight 2 Rain Date	Wainui 5.00 pm
28 January 2015	Wed Pony	X-Country Practice	Wainui 5-8pm
2 February 2015	Mon	Club Night	Whangaparaoa Guide Hall 7-30 pm
4 February 2015	Wed	Twilight 3	Wainui 5.00 pm
11 February 2015	Wed	Twilight 3 Rain Date	Wainui 5-00 pm
15 February 2015	Sun Pony	Wainui Intro Open ODE	Wainui all day
2 March 2015	Mon	Club Night	Whangaparaoa Guide Hall 7.30 pm
4 March 2015	Wed Pony	X-Country practice night	Wainui 5-8pm
22 March 2015	Sun	Open day	Wainui 8.00 am

The answer to "What is this?"

Wayne Drinkwater's converted ammo box now serving as a very very safe battery box.



Merry Christmas to you and yours

Once again we had an enjoyable Valentines Christmas luncheon. It was great to see new members, partners and families present giving people a chance to meet and relax together.

Please remember Wednesday 3rd December is twilight Bar-B-Q again.
See you all there

*Ngaire (Weather Witch) Ladd
Social Secretary*



FLASH FLASH FLASH

This is a news flash for all members

The field has now been closed up for hay!!!

Please DO NOT

- Widen or lengthen the runway or pits.
- Drive on the grass.