



# Tale Feathers

September 2014

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## Hi Club Members

Welcome to another issue of Tale Feathers.

### ***The usual Disclaimer:***

*Articles and comments by the Editor and contributors may not necessarily reflect the views of the Club Committee, often won't be Politically Correct, but will be published anyway.*

This newsletter is an information exchange and open forum for anybody to have their say.

With the move to bi-monthly meetings, the CLUB CORNER section will contain information on Committee plans & the actions they are taking on behalf of members, to make sure everyone is kept up-to-date.

### **CLUB CORNER-from the Committee Bi-monthly meetings**

At the last meeting, most members endorsed the Committee's proposal to hold meetings every second month. Those who are concerned that they will not be informed about Club activities are assured that all significant Club activities in between meetings will be reported either via this newsletter or by direct email. Why not do something radical and send in a news item?

**Next meeting, Sunday 12 October at the Clubhouse at 0930**

### **Power system**

The charge bench is functioning well and handled the drain of several large helicopter batteries on a recent weekend. Supply voltage stayed high despite the high drain.

Once again, we ask members not to attempt to adjust or interfere with the power system in any way.

The solar charge regulator is set to achieve the best charge rate for the battery type in use and ANY fiddling could destroy the batteries or cause a fire.

**Please do not attempt to take power directly off the battery terminals for any reason. This will unbalance the bank and lead to expensive, premature failure.**

### **Lighting**

To take advantage of the new power system, quotes are being sourced to fit an LED lighting system within the Clubhouse rooms and under the veranda roof.

### **Club Operations Manual & Rules**

As noted in the last meeting minutes, the Club rules are being revised. Only one gutsy member volunteered to help with the process and the sub-committee has now prepared a new list of operating procedures and rules for presentation to the members. Despite the request for suggestions, very few other members offered good suggestions for changes and these have been incorporated in the

new document.

A great deal of time and effort has gone into revising the document to accurately reflect and direct the way the Club goes about the business of safely enjoying flying models and they will be circulated for consideration next week. Comments and helpful suggestions will still be considered for a few more days, but to allow time for any last-minute changes to be made, the cut-off will be one week before the meeting so there's time to get the final version out to everyone.

The Committee wants to save everyone a lot of time at the meeting by allowing time to consider the new rule proposal well in advance.

To those few members who have had input into this document, a very big 'Thank you'.

It is the Committee's intention to make a proposal to adopt the new rules at the next meeting.

### Toilet upgrade

Trying not to get bogged down on the job, this sub-committee has also been busy and will have a preliminary report to present at the next meeting.

### Electric fence

The fence seems to be functioning well and lowering/raising the end bits is now a quick & easy task. Thanks Dave.

### Mains water leak

The corroded pipe that caused the leak has been professionally repaired, along with the sprinkler system, so all is ready for summer.

### Flying field upgrade

Although promised for September, the weather and Contractor availability have conspired against these plans.

Although too late to prevent seeding of the pretty yellow Capeweed crop, spraying has at least rid the field of this year's production. Next season's spray will be in time to prevent seeding.

It is still hoped to complete at least some of the upgrades before summer kicks in.

### The public face of the Club

The Club brings together persons having a common interest in flying model aircraft, from an incredibly wide range of backgrounds, experiences and talent.

It is no surprise, therefore, that opinions on various subjects will differ at times, sometimes strongly.

It should be kept in mind that no one; either current members or those considering joining, want to be involved in or witness an argument turning violent.

Such an event turns a convivial atmosphere into an ugly, unpleasant one that turns people away and that is not what we need or want for our Club. Please resolve major differences of opinion in private.

### HOUSEKEEPING

Last one out each day checks; GAS OFF, FENCE UP & ON, CAT OUT, MICE IN, CLUBHOUSE DOWN & LOCKED, PIT GATES CLOSED & MAIN GATE LOCKED.

### Annual membership

Most regular members have renewed, but there are a few who have not. If you know of any who may have just forgotten, please ask if they intend re-joining.

### \$200 for Seniors, \$45 for Juniors, \$100 for Associates.

As was mentioned in the meeting minutes, the Club component (\$100) of the fee for new Senior members (not those just re-joining) is now waived for the first year. Junior members (under 18) do not pay Club fees either.

Both, however, must pay the MAS/MAAA component of \$100 and \$45 respectively.

### Direct Deposit available to:

Beyond Australia Bank, Wagga Wagga  
Wagga Model Aero Club, Inc.

**BSB:** 805022

**Account:** 38700257

(Please include your name and the word "renewal" with your deposit)

### Canteen Manager

As we still have no one to take this on, we make a final plea for a volunteer for this very important position. To make it easier, Tony McAtamney has a very comprehensive list of food quantities and types to order, including the best suppliers.

Should a suitable person not come forward, the Committee will have to adopt Plan B, which is to cut back and simplify the variety of food and drink to be offered at the main events when the Canteen is normally operated.

A reduced menu like pre-made sandwiches and rolls, hot pies and sausage rolls and the usual variety of cold drinks would mean only 2 or 3 persons would be needed to run the Canteen, instead of the usual 8 or 9.

Ice-creams would be dispensed by the Mr Whippy man and tea/coffee by the tea/coffee girls as at the IMAC weekend.

Obviously, the Canteen income would be reduced,

but so would expenses and the number of staff to run it.

Many thanks to all those Canteen workers who have stoved over a hot stove so diligently in the past, to provide the service and generate some income for the Club.

### WWII event

With the general decline in the number of Club members who are willing to devote some time to help out at these events, some changes may have to be made to allow this very labour-intensive event to continue. As usual, the same bodies seem to do all the work, while the same whingers and knockers stand back and criticise without offering to help.

Those who are willing to do a bit are asked to contact our very able co-ordinator, Peter Goff at [war\\_birds00@hotmail.com](mailto:war_birds00@hotmail.com)

[Any assistance you can provide to keep this premier event healthy and viable will be greatly appreciated.](#)

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### Another Air show link

[https://www.youtube.com/watch?feature=player\\_embedded&v=opxgHFIVYjY](https://www.youtube.com/watch?feature=player_embedded&v=opxgHFIVYjY)

This time it's brief highlights of the spectacular Red Bull Air show held right in the middle of Budapest, the capital of Hungary. There appears to be few, if any restrictions on who does what and how low they can go while they're doing it!

It seems that if an aircraft can fit, it can go there! It also proves that some full-scale helicopters with rigid-rotor systems can fly upside down!

Can you imagine the reaction if Australia's aviation regulator, CASA, was asked to issue approvals for something like this to happen over, along, under and around the Sydney harbour bridge.

The river through the Budapest city centre isn't very wide.

Stunning stuff, so watch in Hi-res.

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## TECH TALK

### More electric stuff

Following on from last month's ramble about EDF's or Electric Ducted Fans, I'd like to touch on the

subject of Volts and Amps that applies equally to everybody who has an electric-powered anything.

This topic was prompted by recent discussions with Club members and the information is based on an excellent article by Greg Gimlick in Model Airplane News.

### Volts...Amps...Watts

Trying to keep things as simple as possible so I can understand them, the first item of consequence is that Volts x Amps = Watts.

Therefore a 12v motor drawing 5 Amps is producing 60 Watts. (12 x 5=60)

Watts represent the power produced by the motor, and to increase the power, by reference to the simple equation above, one must increase either Volts or Amps.

The purpose of this article is to show that increasing Volts is considerably more efficient than increasing the Amp draw by changing the motor for a different KV rating or changing the prop to draw more power.

### Joule's Law

Just one more equation, promise.

This law states that, 'voltage losses increase with the square of the current'.

That's really important stuff because the losses are due to the increased resistance to current flow in the system.

Particularly, excess waste heat is an indication that the system is operating inefficiently. Anything more than warm to touch indicates efficiency loss. (It can also indicate that you should exercise a little more throttle control!)

Simplified, Joule's Law says that waste power equals resistance times the square of the current.

Because these losses increase with the square of the current, the more current that flows the power losses mount up very quickly.

### Resistance (is futile?)

In all installations, resistance comes from a combination of wire size, length, connector type, size and number.

It's a bit like wondering why the garden hose only has a trickle of water coming out the end when there's a dirty great kink halfway along. That kink is providing a heap of resistance to the water flow with obvious results.

Current flow in a wire is no different. Ask a large current to flow along a very small wire and you'll find

that there is a sizeable reduction in the voltage out the other end.

*(No. Having a kink in the wire doesn't matter unless you've broken a bunch of wire strands by yanking on it too much)*

We can reduce resistance in our systems by using larger, better and fewer connectors, larger wire sizes with shorter lengths, and better quality motors and speed controllers.

However, the object of this discussion centres on making an existing setup go faster. We could change the prop/fan for a higher pitch one, but this will increase the Amp draw, and as explained above, if the Amps increase, resistance (power losses) increase by the square of the current. (Amps)

Volts are our friends **(unless you try to step over the electric fence before turning it off...)**

The less obvious, but better path to performance increase is to increase the Voltage by increasing the pack size. E.g. increase the pack from a 3-cell to 4-cell or even bigger.

This will, of course, depend upon the motor/speed controller combo and whether it can handle the higher voltage, but if we read the instructions, we will usually find that the motor will handle quite a range of voltages.

To save you working it out:

2S=7.4v

3S=11.1v

4S=14.8v

5S=18.5v

6S=22.2v

7S=25.9v

8S=29.6v

9S=33.3v

10S=37.0v

Provided the motor and speed controller (ESC) we have can handle a higher battery voltage, we are good to go with the upgrade.

### Avoiding more equations

In the interests of staying awake, we'll avoid any more excursions into the bowels of Ohm's law and quote an example test setup by Greg Gimlick.

He used a Shoestring racer and ran two tests with a 3-cell pack and a 6-cell pack.

Although a rather radical increase in pack voltage, (3S to 6S) the tests highlight the sort of efficiency gain available by increasing Voltage instead of just whacking on a bigger prop and increasing Amp draw. Remember; same model, different battery voltage.

ITEM	3S SETUP	6S SETUP
Prop KRPM	6.32	10.89
Prop Watts	557	717
Motor Watts	606	786
Amps	81.5	41.1
Battery mAh	5,000	3,000
Run time	3.5mins.	4.2mins.
% throttle	100%	100%
System efficiency %	62	78
Prop size	14x12	11x8
Pitch MPH	71	80
Watts/lb	78	100
Climb ft/min	1,257	1,485
Climb angle	43°	47°
Cruise time	8.5min	10min
Max speed...mph	76	82
Thrust...oz.	93	101

This is just one example where a racing model experienced a big increase in performance and all components ran cool. The model weight stayed the same since the original 3S pack was 5000 mAh weighing 15.6oz, while the new 6S pack (same weight) only needed to be 3000mAh since the current draw with the higher voltage pack was effectively half that of the original one!

If this sounds like black magic, it's really just the application of standard electrical theory and can be verified (or explained far better) by anyone more conversant with the weird and mysterious ways that volts and amps wander their wilful ways around wires.

*On another subject entirely.....*







*Pearls of Aviation Wisdom from that venerable Asian aviator, Confuze-us.*

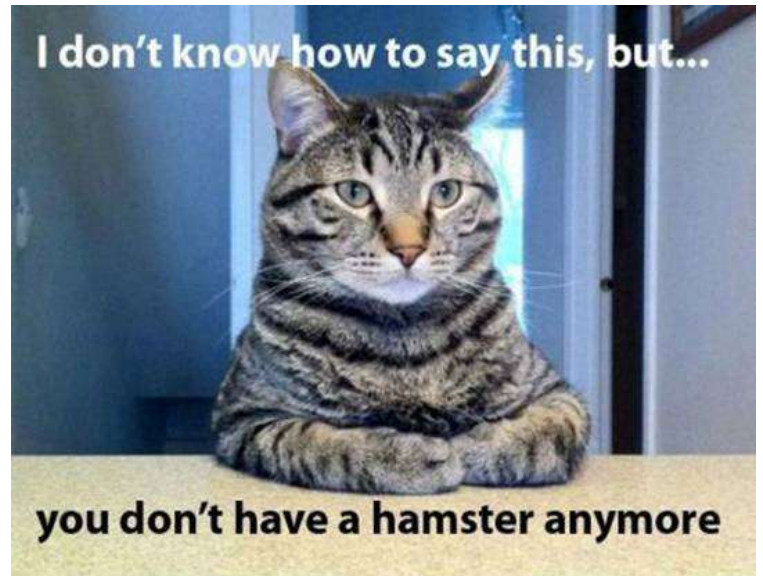
*#...Roger: A really cool aviation-type word used when you're not sure what else to say.*

*#... Ignorance will let you crash in innocence, but awareness will at least let you know what the mistake was.*

*#... Light travels faster than sound. This is why some people appear bright until you hear them speak.*



***"Don't just stand there laughing...do something!"***



**TALE PIECE FROM THE CAT.**

*Straight Take-offs, Soft Landings and stay away from the tyres.*

**ENGINE AUCTION:** Here are photos of the engines so very generously donated to the Club by Bruce Dicker. All engines are new & unused. The stuff showing on the top of the Super-Tigre is preservative.

All are glow-plug & methanol fuelled.

So far, the only fair suggestion has been to hold an auction. To be fair to all members, some of whom cannot attend the field, perhaps an on-line silent one would be the best way. Please consider before Jordan confiscates the whole lot.



**Super-Tigre G3250**



Moki M180



OS 108F SR (BX-1)



Saito FA-182Td