



SWARMS Propwash

December 2005

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Presidents Report

It has been traditional to try and hold a Club meeting on the first Sunday of every month. With the best of intentions it does not always work out this way. Sometimes the weather is bad and insufficient people turn up or sometimes other commitments prevent the Club officers from attending and therefore a proper official meeting can not be held.

On Sunday 11th December we were only able to hold a general discussion, and I hope this was of some benefit to those that were present. Several issues were raised and discussed. The promised supply of pipes to fill in the drainages ditches has fallen through. Now is the time to get this long wished-for improvement under way. Can any one help with an alternative supply of suitable pipes? The matter of fire prevention and control was discussed. The large fire unit belongs to Ian Clapp and in return for this generous free loan the Club pays the annual road licence of \$40.00 in case it is needs to go on public roads. Ian confirms that the agreement was that the unit must be housed at all times in the shed, except for when it is in actual use.

The problem therefore arises as to the practicality of getting the fire unit to the scene of the fire, or mopping up after a fire. In practice the unit is housed empty, and the machine shed key is kept in the Clubhouse. So if the unit is required in a hurry a key has to be found for that, the key for the shed found, the shed opened and the fire unit drawn out. Naturally this requires a decent sized vehicle with a tow ball. The owner of the vehicle then has to be prepared to tow the unit weighing, probably over half a tonne, when filled, to the seat of the fire. In fire fighting, time is of the essence, and safety at the scene of the fire a primary consideration. How many people know how to fill it from the cattle trough which is not always full and then operate it? How many people are prepared to tow it with their own vehicle to the scene of the fire? The motorcycle is unable to pull it, even if it can be started.

Do we still need to trade on Ian's generosity and borrow the machine? It may be of more use to Ian should he have a fire at his home or on his farm! We ask members to think about this and let the committee have their views. Meanwhile the red knapsack sprayer has been made operational again and been put out next to the transmitter pound.

The good condition of the flying field surely must be the major requirement of any model aeroplane Club. It has to be acknowledged that the vast majority of flyers can not guarantee to take off and land on the strips every time, even if the winds favour a particular runway.

If the grassed areas are not properly cut and a model lands in grass that is too long more often than not it will nose over and damage to the model will result.

The ongoing maintenance and mowing of the field has been a problem for several years and is still a problem now. The plain fact is that there are only one or two people who are prepared or able to mow the field properly.

The committee is therefore looking at replacing all four machines with two new ones; a suitable ride on mower and a four stroke brush cutter (ie a whipper snipper!).

This would save us a considerable amount in fuel, be safer and quicker to operate and be far more suitable for our members to use. We feel sure that more people would then be prepared to use them thus spreading the load more fairly throughout the Club. Please remember, some one has to maintain the machines, some one has to use them and someone has to service them. We are all volunteers who basically come to the Club to fly aircraft and enjoy like minded company.

From time to time people will volunteer to cut the grass but it is plain for all to see that this is not happening on a regular and satisfactory basis. We need to do something about it. On Wednesday 7th a 48" cut John Deere ride on mower was demonstrated to the members present. It did a great job. Several members took the opportunity to try it. All found it was easy, safe and fun to use. A proposition to buy it was written in the visitor's book and to date about 12 people have signed it supporting the idea. The cost is approx \$4700. The committee is giving every one ample time to think about this and would like any one who is interested to look around their local area or dealers and if they come up with any other suitable machines contact either Larry or Roy so that it can be considered. We would like to make a firm decision on this at our first meeting in the New Year which will probably be on February, 5th, 2006.

It is hoped that we can hold regular bi-monthly social events on Sundays. We will organise the first for the 5th February, 2006. We will certainly have a decent Bar B Que, a good raffle and perhaps an auction. We will also have a proper Club meeting on this date and it is hoped that a decision can be made to sort out the machinery issue. Naturally we also hope there will be a lot of flying.

I would encourage any one who has any positive, constructive ideas for the benefit of the Club to come forward so that we can all think about them and help our great Club to prosper in to the future.

In the past the regular catering was a great part of our Club and certainly helped foster a good friendly environment. I am sure this helped us to gain many new members. It also raised round about \$1000 a year. However after doing a magnificent job for many years Dennis and Brenda can't carry on with this responsibility anymore and so we now need someone, or a number of people, to come forward and run the kitchen/catering and see if we can get the regular BBQ's or what ever going again.

That's enough for this report; I am off to Tom Price for Christmas and will be back some time in January.

I wish every one a happy and safe Christmas.

Regards
Bob Main

Dodgey's dribblings

Hello folks – sorry for the edition but I haven't had much spare time before Xmas. This past couple of months I have found it very hard to get time to come out to the field and the weather has been very windy as well. At home I have been experimenting with electrics again but with very little progress except that I have managed to burn out an expensive speed control by accidentally wiring it up backwards and also burning out a 500 can motor by running it at 11V with a new Li-Po battery I bought the other month. In the end the motor wouldn't peak out and I found that both brushed were just about shot and the commutator was badly burnt. This happened at a current of 20A at 10.5V (Power = $V \times I$ = approx 200W) which I thought would be OK but apparently not. Remembering though that the efficiency of a brush motor is only around say 50% then this means that the brushes are dissipating 100W which is a lot of heat even with some cooling air flowing through it! So the plan now is to try a brushless motor/controller set up. First of all I'm going to buy a speed 400 size brushless with gearbox – they are available quite cheaply over the eBay from companies like 'efly' or 'flyin21days' for around \$85 + \$10pp which includes the motor, gearbox and a 30A brushless controller. The company says that with a 3 cell Li-Po this set up will give up to 1 Kg of thrust with a 11"4.7 prop (supplied). Compare this to around 300g of thrust with a 400 speed /gearbox set up at the same current! I have seen these motors in Perth but for around twice the price. I plan to use this in the BAE Hawk but it may even fly the Omei glider although I may need something a little bigger.

On a more technical note then as a general rule you will need to provide an output power of 100W/kg for a sedate scale like plane, 200W/Kg for a sports plane and 300W/Kg for a ballistic missile! Then you have to allow for the efficiency of the motor which is say 80% for a brushless and 50% for a brush motor. My Omei weighs 1.3 kg and therefore using a brushless motor would need $200W \times 1.3Kg / 0.8$ of input power which equals 330W. if I use a 3 cell Li-Po then at say 10V on load I would therefore need a current of 33A (ie $I = P/V$) for a brushless motor to give a good lively rate of climb. A brush motor would need to consume $200W \times 1.3 / 0.5$ which equals 520W or 52A at 10V. Increasing the battery voltage would obviously mean a lower current for the same power ie a 13 V Ni-Mh battery pack would only need to deliver 40A. These figures also can be compared to Internal Combustion (IC) glow engines – for example a 40 size IC motor which has an output power of say 0.5 HP (=380W) will power a 2Kg plane with ease. The ratio here is $380W / 2 = 190W/Kg$ which corresponds with the guidelines above. Going back to a brushless motor then my battery would have to be able to put out 33A continuously which means I would need a pack rated at 33A/15 or 2000mAh and capable of 15C discharge (30A) and 3S or 3 cells as a minimum. The other figure usually quoted for an electric motor is the rpm/volt. For a 1050 motor then running at 10V will give a shaft speed of 10500 rpm, a 3100 motor would give 31000 rpm. Obviously for this motor a gearbox would have to be used to drop the final rpm to something realistic.

Anyway to change topics I had a nerve wrecking flight with my Swallow the other day when the throttle linkage came off and I had to fly for 20 mins flat out before landing dead stick. After it had landed on closer inspection one side of the fuselage had split under the wing and all that was holding the body together was the wing bolts and trim tape!

Well that's all this month. I would like a break from writing this newsletter as I have been doing it for 3 years now – so if anyone is interested then please let me know. It take typically 10 hours every couple of months - although it obviously depends how big you want to put in it. I will be happy to give anyone who is interested some help to do the first one if they need it.

Best wishes
Dodgey

Couple of photos from Ron Waller of his new Great Planes Ultimate Biplane fitted with Saito 65



For Sale



Modified Cobra Funfly plane – needs 60 2 stroke. Strong easy to fly (note plane only - no R/C or motor) \$75 ono

Phone Dodgey on 97252527

Wanted

40/45 4 stroke – prefer Saito or OS

Phone Dodgey on 97252527

What is a 'retract servo'? How is it different from a standard servo? Should I use it with mechanical or pneumatic retracts?

A retract servo is specifically used for mechanical retracts. It is a non-proportional servo which only moves 180 degrees. That is to say this servo is either "off" (gear up and fully locked) or "on" (gear down and fully locked). No ATV, EPA, or AST adjustments can be made on these servos because they are not proportional. The linkage must be set up properly to allow this servo to operate at its full range and do its job—securing your model's landing gear in a gear-up or gear-down position.

My new model calls for the servos to be mounted on the exterior of my aircraft (sticking out of the wing or tail.) Is this okay? Will the fuel and dirt damage my servos?

Most current-generation servos are fully sealed, so dirt, fuel, and such are not a concern unless you have reason to anticipate dead stick gear up or similar landings, in which case you might damage your servos with ground contact. Otherwise, external exposed servos are very common and easy to service/inspect, and used right up through Tournament of Champions competitors aircraft.

I have higher torque servo(s) to put in my scale, aerobatic, or 60+ sized model. Where would you recommend I install it (them).

This will depend upon your specific aircraft, however, here are some general rules of thumb. In most applications where the model will be asked to perform any type of aerobatics, the most powerful servo(s) should be applied to rudder. For non-aerobatic applications, the most powerful, best centring, most reliable servo(s) should always be put on the elevator.

When my transmitter is off, my servos act crazy. What's wrong?

In AM and FM radio systems, if the receiver is not getting clean data from a transmitter then the servos will respond relatively randomly. Only a PCM system (or a system with a failsafe unit installed) will hold the last known position.

For this reason, ALWAYS turn your transmitter on first, then receiver, And when turning off, always turn off receiver first then transmitter.

How do I break in a brushed electric motor?

Ideally you'd like to run the motor at about 1/3-1/2 it's rated voltage with no load (without prop) for an hour or two—long enough to wear the brushes down without arcing.

R/C car modellers have special transformers for optimum break-in on high performance motors. If what you're working with is a typical 05 can motor, you can make your own system that works fairly well. Start with

2 alkaline D cell batteries and some spare 12 gauge wire. Simply hook the batteries up in series so you have a 3 volt power source and hook the wires to the appropriate terminals on the motor. Let the motor run until the batteries are dead.

Model snaps, tip stalls, or loops off to one side. What can I do?

There are a variety of causes of this behaviour.

1. CG: A tail heavy model will snap on elevator input, particularly aerobatic models such as a giles, cap, or extra. Additionally, they will tend to go nose up at an idle, causing the model to stall unexpectedly. For example, the Great Planes Giles G202 .46 sized model is DESIGNED AND INTENDED to snap on elevator input alone when using the high rates, which are solely for 3D flight. Be sure you are flying on a low rate intended for normal flight performance.
2. Lateral Balance: The #1 cause of a tip stall or unexpected snap is improper lateral balance. If one wing tip is heavier, it will stall first and drop first. Be sure to lateral balance carefully, actually suspending the model off the floor and measuring the tips' distance from the floor.
3. Wing warp: Another very common cause of tip stalls is uneven washin or washout in a model. Use an incidence meter to check the incidence angles of the roots and tips of both wings, and a variety of points in between. The two wing roots should be identical when compared to the tail, and the two tips should be no more than 1 degree of difference between them. Even a model which should not have washin will perform better if the washin is even than a model which has no washin but has uneven washout.
4. Next please check that the elevator halves are perfectly straight to the stab. Next use a throw gauge to measure the actual elevator throw at neutral then at full travel. You may need to make adjustments to get these two identical.

How long can I store unopened fuel? how about opened fuel?

1. Unopened fuel which is stored out of direct sunlight is literally good for years. We have opened 10-year old containers and had the fuel be fully potent and usable. However, in general it is a good idea to use the fuel off your shelves annually, especially if exposed to sunlight.

Once fuel has been opened, it has been exposed to air which includes moisture. Both water and sunlight are your fuel's enemy, so the more frequently or the longer it is exposed the more rapidly it will deteriorate. In general we recommend customers use all open containers of fuel in a single modelling season then properly discard any remaining fuel.

New Products

LiPo batteries are quickly becoming the number one power source for airplanes. As such, the need for on-board voltage regulation is no longer a luxury, it's a necessity. Be advised, the output of a fully charged 2 cell series li-po battery is 8.4V. Currently there are no servos on the market that can operate at this high voltage. The use of these packs requires a voltage regulator. For sport models, consider the new SPORT VRLI. This unit can handle up to 2A continuous current draw. It can handle sport models running up to 5 standard to medium torque servos and includes 3 super-bright LED voltage indicators (green, yellow, and red) to help prevent deep discharge of Lithium battery packs. The SPORT VRLI goes between your switch harness and your receiver and includes a regulator which will provide a constant 5V output to your receiver/servos.



It continuously measures the battery pack voltage and provides you a clear warning of battery condition. A fully charged battery pack in good condition will show green. As the pack becomes discharged, or when the pack is under load, the yellow and red LED's may light. When the yellow LED stays on and the unit won't recover to green, it's time to recharge the battery. The SPORT VRLI is also a great tool for identifying power problems such as an under-rated or failing battery pack or sticky linkages. Simple, effective and necessary to protect your LiPo pack from deep discharge, the SPORT VRLI is the perfect match for your Li-Po powered on-board electronics in trainers and sport models. The SPORT VRLI is not recommended for aircraft installations using digital or high torque standard servos. For higher current applications, the ULTIMATE BEC is available from FMA Direct as well.

Retail: US\$21.95

The "SPORT" VRLI (voltage regulator w/ LED voltage indicator) for LiPo batteries regulates a 2 cell series, LiPo battery pack from 7.4V to 5V and provides green, yellow, and red high brightness LED indication of battery voltage level

Size: 1.30x0.75x0.23

Weight: 0.2 oz / 5 gm

Ratings: 5V LDO regulator, 2A

Outputs: Universal F/J connector

Applications: Sport/Trainer models with up to 5 standard or medium torque servos

The "Power Force" is designed specifically for powering high current flight electronics (receivers and servos) in radio controlled aircraft. It can be used in sport, giant scale, and electric planes and helicopters. It is ideal for use in aircraft with dual radio systems. Outputs are user selectable, 5V or 6V. Extremely low volts drop regulator maintains less than 0.15V drop, even if the battery voltage decreases under full load (e.g. if battery outputs 4.8V, the VRLI2 output is 4.65V minimum). The VRLI2 supplies up to 10A continuous current, sufficient for driving a plane-full of high torque and/or digital servos, as well as standard, micro, and mini servos. Status LEDs provide quick indication of battery condition. Includes on/off switch with failsafe operation and will not drain the battery when switch is off.



Retail: US\$59.95

The "Power Force" accepts inputs from 2s to 4s LiPo packs, or 5 to 12 cell NiCd/NiMH packs. Includes heavy duty F/J input connector, as well as Deans Ultra input connector for high current applications.

Size: 2.54x1.44x1.05

Weight: 64 grams

Ratings: 5V or 6V LDO, 10A max.

Power Source: Input on either Heavy Duty Universal F/J connector or Deans Ultra

Outputs: Dual, Heavy Duty Universal F/J connector, 5 or 6V selectable

Applications: Sport to Giant Scale, supports multiple high torque, high speed, and digital servos

Treasurer's reports

Nov 05			
Receipts		Expenses	
Fees	250.00	Xmas Party Supplies	135.16
Canteen	30.00	Gas	199.15
Shirts	60.00	Fuel	54.35
		Trailer Rego	44.40
Total	340.00		
Investments		Total	433.06
Debenture stock	3000.00		
Bank Balance			
Bank statement	4732.00		
Cash on hand	1.85		
Balance (credit)	4733.85		

Oct 05			
Receipts		Expenses	
Hats	40.00	AWA Fees	395.00
Vests	30.00	Kitchen Supplies	176.59
Canteen takings	20.00	Fuel	20.00
		Gas	47.30
Total	90.00		
Investments		Total	638.89
Debenture stock	3000.00		
Bank Balance			
Bank statement	4825.06		
Cash on hand	1.85		
Balance (credit)	4826.91		

Joke – 'Kevin the Kiwi'

Melbourne Zoo had acquired a female of a very rare species of Gorilla.

Within a few weeks, the gorilla became very cantankerous and difficult to handle. Upon examination, the Zoo veterinarian determined the problem. The gorilla was on heat. To make matters worse, there were no male gorillas of that species available. While reflecting on their problem, the Zoo management noticed Kevin, a big Kiwi lad who was responsible for fixing the Zoo's machinery.

Kevin, like most Kiwis, had little sense but seemed to be possessed with the ability to satisfy a female of ANY species. So, the Zoo administrators thought they might have a solution. Kevin was approached with a proposition. Would he be willing to have sex with the gorilla for \$500?

Kevin showed some interest and said he would have to think the matter over. The following day, Kevin announced that he would accept their offer but only under three conditions:

"First," he said, "I don't want to have to kuss er."

"Sicondly, you must niver tull anyone about thus."

The Zoo administration quickly agreed to these conditions and asked what was his third condition:

"Wull," said Kevin, "You gotta give me another wik to come up with the \$500!"

