Official Newsletter of the Launceston Model Aero Club Inc.
PO Box 1204 Launceston 7250 www.lmacrc.com
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Prop Torque

From the President

Gerry de Groot: 6369 5284 / 0429 196 560 email: degroots@activ8.net.au

Hello everyone.

It's nice to be able to say that we have had some magnificent flying weather lately. However, it was not so nice on the day of the last Free Flight and Old Timer event. The blustery southerly wind made it awkward for the free flighters; a 30 second motor run got you to the far end of the field without any trouble! In spite of the weather, I think the roll-up was the best I've seen in my time at LMAC. Certainly we did not expect to see so many visitors (although they were very welcome), and the food had to be allocated rather carefully to make sure no-one missed out. (I would like to thank the canteen organisers and their helpers for their splendid work in feeding the multitude.) In the afternoon the wind had not really abated and made things a bit challenging for some of the old timer models. It didn't seem to affect the electric wings pylon races, though.

Like many others who stayed the whole day, I enjoyed seeing the jet flights in the afternoon. I loved the sound and the smell of the turbine engine. Thanks to visitor Grant Hallam for doing the demonstration flights. While watching the jet fly, I felt very grateful for the magnificent flying site we enjoy, with its unlimited airspace in all directions.

The last few times I have been at the field I've noticed our old friends the wedge-tailed eagles in the air, usually quite high up. As I've commented before in this column, these birds of prey are (at least, to me) the pinnacle of nature's work. Many times I've been searching for lift and found none, only to spot one or more eagles high up circling in lift. These are truly masters of the air and deserve our admiration and respect. Although the birds are inquisitive and can destroy a model, we need to remember that we are the intruders in their domain. As spring gets under way, expect to see more of them.

To finish off with, something that I forgot to say last month: my new job requires me to work only four days a week. This means every Wednesday is free, and I hope to be able to indulge in a bit of mid-week flying on a more or less regular basis. So if you are one of those members who flies mainly during the week, I may see you from time to time.

I look forward to seeing you all at the flying field

Gerry

From the Secretary

Geoff Hays: 6326 7967 / 0408 559 606 **email: ghays7@bigpond.com**

There was no meeting this month, so there is nothing to report this month.

Geoff.

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Contest Directors Report

Chris Klimeck : 0458 448 674 **email: cklimeck@bigpond.net.au**

The weather looked excellent as I left from home at 8.00 but unfortunately this changed as I got closer to the field. We had what was possibly the biggest roll up that I have seen at the field for some time being bolstered by quite a few of our friends from Hobart & North West clubs.

The first event, the free flight scramble lived up to its name with the stiff breeze sending models off to the far reaches of the northern end of the field, where some were stopped by the pine trees on the other side of the road and at least one made it over the top to land safely in the next paddock. Tony Gray had us ducking for cover as usual with his low circles through the crowd.

Perhaps the surprise of the day was Kevin & Merv turning up to compete for the first time with a new model that performed so well that they took out second place behind Tony Gray with John de Groot filling third place after a couple of quick fixes to repair a split wing, caused by heavy landings
on several occasions!

Before lunch we set up the pylon poles for a demo event of combat wing pylon racing, which saw a couple of models strike the pylon: one being written off and at least one mid-air collision, bouncing off one another to keep going! After lunch we had some flag marshals stationed at the far pylon for a couple of races. Being one of the marshals I can say it's extremely difficult to pick out the model you are flagging for, because they all look the same as they come head on at you at a frantic pace. Well done guys and thanks for making the trip to give us this demo.

We resumed the Old Timer event after the pylon demo, with a reduction in wind making it a bit easier to fly these lightly loaded models. Two rounds of time and glide followed by as many touch & goes possible in two minutes, saw Derrill Kay clock eight touches with his Zephyr, almost rolling onto its back in the tight turns needed as he battled with the breeze. Final results saw Kevin first with Derrill second & Jacques third.

That jet was awesome with the smell, the sound and the speed !!!! What more can I say? So with that I will sign off.

Chris Klimeck CD.

C-Tick compliance for radio control equipment.

An item in MAAA Newsletter #3/2008 regarding C-Tick compliance of 2.4GHz radios drew my attention. More so because of a query as to whether using a radio that does not have a C-Tick compliance label would void MAAA insurance in the event of an incident. As we are talking about radios (a favourite subject of mine), I thought a bit of background might be in order. Please be aware however that I am not an expert in this field and I'm merely repeating what I've read.

Back in the old days, all radios had to be individually licensed. In other words, if you wanted to operate a radio control transmitter, you had to pay a fee to the Commonwealth (then the Postmaster-General's Department) in order to use the radio. You did not need a license to own a radio, only to operate it. Well, over the years I suppose that the cost of administration of all those licences must have become too great, because the Commonwealth changed to a system of Class Licences. Under this arrangement, a general licence was "issued" for the whole group of all users of such radio equipment and not to individuals. However the problem under either system was to make sure that radios only transmitted the permitted level of radio energy, and that the energy was confined to a limited bandwidth and would not interfere with neighbouring frequency space. It is important to note that nowhere in the Class Licence system is there any provision for regulating the reliability or effectiveness of radio control equipment.

The class licence system places the burden of compliance on the manufacturer (of locally made equipment) or the importer (of equipment made overseas). At present, equipment that complies with the technical requirements of the class licence is labelled with a sticker having the "C-Tick" logo on it. All that the C-Tick sticker tells us is that this particular radio does not radiate more than the permitted energy and does not interfere with services outside its allocated band. The C-Tick does not guarantee that operation will be free from glitches, will provide reliable control or not have any function-related problems. It is therefore a very poor indicator of the overall quality or functional performance of a radio system. Moreover, your other communications devices such as cordless phones, garage door controllers and the like require C-Tick compliance to be legally operated in Australia.

While the body that controls radio use in Australia (Australian Communications and Media Authority or ACMA) is therefore only concerned with power and interference issues, the MAAA has a different objective, which is to make sure that we fly as safely as possible. Safety requires reliable and functionally appropriate radio equipment.
By insisting on C-Tick compliance for 2.4GHz radios, the MAAA is really only catering for the most basic compliance requirement. From the MAAA Newsletter item:
The MAAA requires that all equipment used under its procedures complies with Commonwealth legislation as administered by the Australian Communications and Media Authority (ACMA). The best way of assuring this, is that the equipment has a C Tick compliance mark applied by either the manufacturer or the importer,

What I am suggesting is that if you are contemplating a 2.4GHz radio system, you need to look further than whether it has a C-Tick sticker. You also need to be satisfied that on the evidence of performance under actual field conditions, it will provide safe and effective control of your model(s) at all times.

Gerry de Groot

From the Editors Desk

Richard Cooper email: richardlc@activ8.net.au

Editorial Notes

Accurate digital servo set up: how to avoid servo burn out, melting wires and receiver failure.

Jacques Wakae sent me an article, originally from Don's Hobbies, which describes accurate setting up of digital servos. The author reported several calls per week from modellers who have had crashes or malfunctions with digital servos burning out or running very hot, often with melting wires or servo extension leads. These symptoms occur with a low battery voltage, especially while moving all control surfaces at once. This may lead to receiver shutdown at any time. You also may have heard that digital servos should not be used on the throttle because of the risk of high current drain. Some have replaced or installed heavier gauge wire and large plugs and/or sockets to solve the problem, when in fact the trouble usually lies with faulty setting up of control linkages and centring of the servos.

Digital servos have 5 times the accuracy of analogue servos, therefore if the push/pull rod lengths for two servos on one control servo are not equal, one servo will be centring or ending its travel before the other. This will result in constant corrections by each servo as they literally fight for position. If a digital servo senses any resistance to movement it will rapidly ramp up output to full torque and holding power, unlike analogue servos, which move several degrees before ramping up power. With high current flow, voltage may drop significantly with digital servos. Current load for one servo should not exceed say 1 Amp when stalled for an analogue and around 2 Amp for a larger digital servo depending on servo size, motor and voltage. (Most servo manufacturers publish idle and stalled currents.) Therefore it is vital to eliminate any binding and to adjust setup travel without a stop occurring before full travel of the control surface or throttle.

The simplest way of monitoring voltage is by installing a LED voltage gauge plugged into the receiver: this will give a rough guide as to what happens under full load. However the most accurate way of detecting problems when setting up servos is to use an analogue ammeter connected in series with the servo lead to be tested, to measure current for idling and full movements of each servo. Analogue meters are more accurate than digital meters because rapid current changes are occurring. Using a digital meter is not so informative because, due to the sampling time of the analogue to digital converter and the refresh rate of the meter's LCD display, you tend not to see little current spikes that may occur as the servo moves through its travel range.

These panel (milli)ammeters are:
0-1A QP-5013 from Jaycar
0-5A QP-5014 from Jaycar
0-5A Q2031 from Dick Smith

The ammeter is wired into a 30 cm. servo extension lead: this is your test lead. Cut the positive (red) wire half way along the lead and solder the loose end closest to the receiver (male end) to the positive ammeter lead, and the other end to the negative lead of the meter. Before testing currents, all travel adjustments on the transmitter should be set to maximum in order to have

best servo-resolution (140% to 150%). The test lead is then plugged into the receiver, instead of the servo lead, which is plugged into the other end of the test lead.

In the servo neutral position the meter should read 10 to 20 milli-Amps (mA) ; the idle current this will vary according to the servo specifications. Current is then measured for sub trim, at endpoint and over midrange of servo travel.
If current increases, adjust the pushrod or cable lengths to reduce current to idle levels at the end of each movement. Make sure that the throttle linkage at the end point is not stalling the servo which will cause high currents. Current "spikes" may occur if there are hard spots on the pushrods (if using rod & tube) or binding hinges through mid-range movements: there are plenty of things to look for.

When reading the servo running current, ignore the start up spike which is effectively a stall condition. During midrange testing, increased current or current spikes mean that one servo is not moving over the same distance as the other which will cause one servo to fight the other connected to the same control surface. After equalising servo deflections, current should not jump to high readings as you go through the servo midrange.

It is also necessary to test current drain for each servo, *without* the control rods/cables connected. A good servo should show an initial current spike, followed by a steady current drain without additional spikes, then idle current at the end-of-travel. If current spikes occur when the servo is *not* connected to the pushrods, there may be a dirty feedback pot, foreign matter between the gear teeth or damaged gears: a high current without load therefore means that you have a defective servo.

The next thing to do, if confident with electronics, is to add all the maximum currents together and load your RX battery with the total current by using load resistors. This will tell you if the battery is man enough for the job! In other words if the current passing through the resistors causes a large drop in voltage the battery is no longer capable of running your circuit.

Loading the 4.8 Volt (or 6 Volt) flight pack is done by connecting a few 5 or 10 Watt low resistance resistors either in series or parallel (much cheaper than a high wattage wire wound potentiometer). The total resistance of these is calculated from the addition of the maximum currents measured during the servo testing. This resistor network is connected across the battery . A voltmeter is connected across this in order to test the capacity of the battery. If the battery can cope with this load, the receiver should not give problems during flight. A less precise method of course is to measure battery voltage with all controls held at maximum travel, but this will only tell you what is happening at full servo load and will obviously not track down individual problems in the system. The battery monitors available for in aircraft monitoring if voltages are obviously very important.

The article is well worth reading and is a link from:
http://www.xtremepowersystems.net/data/dons_hobby.pdf
originally published by:
http://www.donshobbyshop.com

Richard Cooper

Events Calendar for 2008-09

July 5th	Club Day
July 19th	F/F 9.am------- Old timer ------- 11.am
August 2nd	Club Day
August 16th	F/F 9.am------- Old Timer ------ 11.am
September 6th	Club Day
September 20th	Electric Glider ---- ---------- 1.pm
October 4th	Club Day
October 18th	Thermal Glider ---------- 1.pm
November 1st	Club day
November 15th	Club Pattern ---------- 1.pm
December 6th	Club Day
December 20th	Fun Fly Family day ---------- 10.am onwards
2009:	
January 3rd	Club Day
January17th	Scale Day ---------- 10.am till 2.30 pm
February 7th	Club Day
February 21st	Thermal Glider ---------- 1.pm
March 7th	Club Day
March 21st	Electric Glider State Championships – 10.am
April 4th	Club Day
April 18th	Club Pattern---------- 1.pm
May 2nd	Club Day
May 16th	Fun Fly Day ---------- 10.am till 2.30 pm
June 6th	Club Day
June 11th	Annual General Meeting
June 20th	Scale Day ----------10 am till 2.30 pm

Number of events by category:

Free Flight:	**2**
Old Timer:	**2**
Electric Glider:	**2**
Thermal Glider:	**2**
Pattern days:	**2**
Scale Days:	**2**
Fun Fly Days:	**2**
Club Days:	**12**