PROP TORQUE

Official Newsletter of the
LAUNCESTON MODEL AERO CLUB Inc.
www.lmacrc.com

IN THIS ISSUE:

Chris Klimeck's lovely "Waco" YMF-3/5 biplane from a Pica kit. Flown very realistically by Chris. Photo courtesy LMAC website

Volume 21 AUGUST 2006

EDITORIAL:

Welcome to the August edition of Prop Torque.

We are very pleased that Prop Torque seems to be becoming more appreciated by club members, if peoples' comments are anything to go by. We enjoy putting it all together, but please remember that the magazine is only as good as the contributions we receive.

This month's edition contains a sequel to Jacques Wakae's interesting article about the Low Cell Detect Circuit for lithium polymer (Li-poly) batteries. Jacques' previous article on this subject created a lot of interest amongst electric flyers. If anyone else has any electric tips, hints or other information they wish to contribute or share, please let the editors know.

Last month's light-hearted look at the role of the aeromodeller's wife submitted by Dave Jacobs stirred up something of a storm. To show that Prop Torque is totally impartial in this issue, we have included a contrary view, written by Kerry Carnie.

The editors would like to thank Max Wiggins for his continuing photographic contributions to Prop Torque. Max's photos and snippets have always been very welcome (as are everyone's contributions).

Please enjoy this issue of Prop Torque!

Gerry and Virginia de Groot.

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CAPTAIN'S REPORT

Gerry de Groot

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Hello Everyone

Well, another month has passed and we have had a fair number of good flying days, perhaps with more dry, cold days than the farmers would have liked. However, that's life; no doubt we will have our share of wet and windy days to come.

First up, some news about our application to change the orientation of the flying field. The good news is that our submission was accepted by the MAAA, for which we are grateful. The Committee has since formally agreed to put into effect the changes we put forward: to construct a new safety fence and gate, to alter the direction of the strip so it is parallel to the access road, and to modify arrangements in the pits and at the flight line, with tyres being removed, etc. As most of you will already have seen, work on making these changes is well under way.

The committee is presently looking at how best to combine helicopter operations with those of fixed wing aircraft. More on this as developments occur.

I look forward to seeing you all at the flying field.

Gerry

A REMINDER about the Free Flight and Old Timer competition:

The Free Flight and Old Timer Competition will be held on Saturday 16 September, to start at 9:00am. Some flyers have asked what models are eligible for the Old Timer category. Old Timer should not be confused with the rather strict requirements of SAM (Society of Antique Modellers) Antique events, where the design must predate 1938 and only use certain engines.

LMAC wishes to keep the Old Timer category flexible in order to ensure as many as possible can take part. It's designed to be a fun event, so that a Junior 60, a Red Zephyr or anything else that predates the 50's would be OK to fly. (If you are in any doubt about the eligibility of your model, give the CD a call.)

SECRETARY'S REPORT

Geoff Hays

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Note:

As you all know Geoff Hays has been away from the state for a time and I have been standing in for him in matters secretarial.

Geoff will resume his normal column in the next issue of Prop Torque.

In the meantime, we welcome back to the fold the following members:

- Terry Pearson
- Steve Cashion

We also welcome PFL member, Ian Campbell, as an Associate.

Incidentally, it is worth bearing in mind that Ian operates an approved MAAA testing station and is keen to provide this service at a considerable discount to LMAC members, provided that sufficient numbers put their hand up to participate.

Remember that while transmitter testing is not mandatory (unless you are going to attend MAAA competitions), it is however strongly recommended, so you can be sure that you are putting out a signal on the frequency you think you are, and within the appropriate bandwidth as permitted under the terms of the ACA Class Licence for Radio Control.

Gerry (a/g Secretary/Public Officer).

Club building project - Update

Update on the Club building project:

We now know of two Pink Ravens that have been completed at the time of writing.

David Jacobs and by Greg Robertson have completed their models. Dave has done some trial flights off the bungee at the field. The model reportedly flew well.

CONTEST DIRECTOR'S REPORT

Andrew McEntyre
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Note:

There is no CD report this month.

Don't forget the Free Flight and Old Timer (FFOT) Competition on Saturday 16 September.

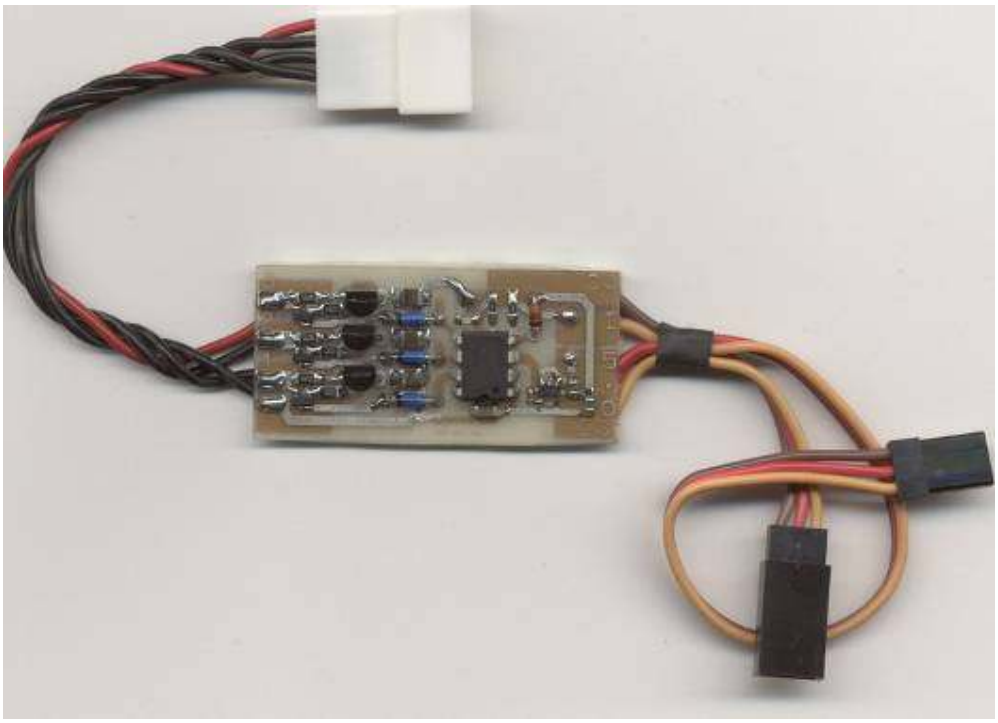
Photo Corner

Photo: 2: Good to see Terry Pearson back after a long absence from membership. Large thermos in foreground clearly shows where Terry's priorities lie!

(Photo courtesy of Max Wiggins)

More on the Li-Po Low Cell Detect Circuit (LCDC)

By Jacques Wakae



What is it?

This device monitors the Voltage of each individual cell in your Lipo battery pack. When the Voltage level of any cell goes below 3Volt, the LCDC acts like a tap on the signal from your receiver to the speed controller, ie. It reduces the flow (signal) to a point where the Voltage of the cell in question bounces back to above the 3Volt trip level. If the Voltage , for any reason, stays below 3Volt, the tap signal) will be reduced to a point that is effectively 'motor off'. Each time that the signal level is reduced to a certain point, that throttle level can not be exceeded again for that flight.

Why 3 Volts?

Literature and manufacturers recommendations stipulate that ANY incursion below 3Volts is detrimental to the life of a Lipo battery, be it under high or low loads. Also, under low load connditions, 3V is virtually a flat Lipo with hardly any capacity left.

What shuts it down?

Virtually everything abnormal. No battery, no signal, no sensor input, low Voltage

on sensor.

What can go wrong?

Nothing, the LCDC only interacts with the receiver to controller signal by toning it down. Apart from that, it has no decision-making or controlling attributes. The worst that can happen is that the motor will slow down and stop in flight. This takes approximately 9-10 seconds.

What extra safety does an LCDC gives me?

- ❖ It may detect a 'forgot to charge it!' battery before you take off.
- ❖ By protecting a cell from Under-voltage, any charging problems inherent to lipos are virtually eliminated.
- ❖ The on-board LED will give you warning of a cell that is below capacity, if you see that it is always the same cell that goes into 'low Volt' first.

Will it give me extra flying time?

Hardly! Up to now you have most probably used and abused your lipo battery. If you fly with inadequate capacity batteries (high C discharge) then expect motor slow down/shut-down a lot sooner.

What the LCDC <u>will</u> give you is longer battery life.

What type of controller will it work with?

- ❖ Limiting factors are;
  - batteries must be Lipos
  - 3 cells, no more no less
  - must be BEC-type controller
  - batteries must have Voltage taps
  - throttle signal must decrease to decrease throttle (Futaba users beware!)
- ❖ works with either brushed or brushless controllers
- ❖ works with controllers that have or have no low-Voltage cut-off facilities.

Note: Some controllers allow you to set a cut-off level. Ensure that the cut-off level is below 3Volts or that the cut-off facility is disabled.

Is there is required connection sequence?

The LCDC expects to receive supply from the BEC, followed by the throttle signal from the receiver followed by adequate Voltage levels on all 3 of its sensor inputs.

Since it is an MAAA requirement that your transmitter is switched on first, and since most installations have no on/off switch on the controller, the LCDC power supply and signal requirements are satisfied as soon as you plug-in the main battery leads. The sensor inputs if unconnected would force the LCDC in the motor off position.
Therefore it is imperative to connect the sensor plug to the battery pack as step one, followed by the power leads to the controller.

How do I use it?

1. Plug the LCDC into the throttle channel of the receiver.
2. Plug the controller into the LCDC.
3. The cells are numbered 1-3 from zero volts upwards.
4. Ensure the wires/plug match the battery negative, first tap point, second tap point and battery positive.
5. Turn-on transmitter.
6. Connect sensor plug to battery pack.
7. Connect power to the controller.
8. Go fly.

How do I monitor parallel packs?

Each pack needs it's own LCDC. Connect LCDC-1 to RX, LCDC-1 to LCDC-2, LCDC-2 to speed controller. Connect one LCDC to each pack. Pack selection is unimportant.
You can have more than two packs.
Packs can be of unequal capacity
Since each LCDC acts as a line driver/buffer, the signal wire length is unlimited. The limiting factor is the Voltage drop on the supply lines from the controller to the receiver.

JLW

Late news from Jacques on his LCDC project (24 August):

Hi Guys,

Tried the LCDC in a twin pack parallel configuration on two 3s lipos that have not been charged in months. The sensor on pack2 /cell2 tripped the system, reduced (signal) and shut down the motor (Hacker brushless). I then checked the voltages no-load and here are the results;

pack1;
cell1 3.25V

cell2 3.38V
cell3 3.46V
pack2;
cell1 3.63V
==> cell2 3.20V
cell3 3.28V

Your Honour, I rest my case.

Note that the sum Voltages of pack 1 and the sum Voltages of pack 2 should have been equal during the load test, since they were paralleled. The unloaded sum Voltages are quite different and indicate quite a variation in pack capacity/internal resistance!

The Good Husbands Guide

By Kerry Carnie

(This article is a contrary view to that expressed by David Jacobs in his article last month, "The Good Wife's Guide to Dealing with a Worn Out Modeller After a Hard Day at the Flying Field" The opinions expressed in the following item are those of the author. Further correspondence may be submitted as letters to the Editor!)

- Always arrive home refreshed and happy - put your bad day or your latest crash aside and try to arrive home as cheery and light-hearted as you possibly can. Your wife has been struggling with the children and the housework all day; she does not need to hear how bad your day was.
- Be prepared to help with household chores when you get home - let your wife relax or talk on the phone since she has been dealing with these problems all day. Make supper for her often, and offer to clean up afterwards so that she may rest and feel appreciated.
- Do not bore your wife with stories of the troubles you faced at the field today. Remember that you are lucky to have a hobby and that many other men would be happy to trade places with you. A good husband knows that he is lucky to have a wife at all, and that a woman wants a strong, silent man she can depend on.
- Never expect your wife to have contributed to the smooth operation of the household. She has had a busy day and cannot be expected to provide meals or clean clothes for you. Never insult her by asking her to do such things while you're out playing with your toys.
- Do not grumble or gripe about handing over your pay cheque to her - she is

in control of your finances and knows better than you how to spend or invest your money and it's not on model planes.

- Listen avidly to your wife's complaints. She leads a hectic life and needs to feel listened to and appreciated. Never suggest ways in which she might solve whatever problem is vexing her. You need only listen; your suggestions are most likely insensitive and unfeeling anyway. And do not counter with complaints of your own. She would love to have the chance to leave the house and play with her friends; she does not need to hear about how difficult your hobby is.
- Be prepared to give up your weeknights or weekends to whatever projects or socializing your wife has in mind. If she has determined that cleaning out the garage or painting the upstairs bathroom would be the best use of your time, never complain that you would like to pursue your hobbies instead. She has every right to expect that you will make repairs to the house or help her redecorate during your spare time.
- Always be prepared to take over in caring for the children when you get home from your hobby. Your wife has been busy all day and deserves some quiet time. Allow her to watch television or chat with her friends on the phone, go shopping or simply relax. They are your children too, and it is unfair of you to expect to come home from a long day at the field and simply put your feet up.

(As a wise man once said, "hell hath no fury like a woman scorned" -Ed.)

News from the NSW Free Flight Society

(Barry Lee, Registrar)

(Previously we received this news:
At the Muswellbrook Veterans Gathering next year there will be a combined F/F R/C fun event with a single model. The model will be the Vic Smeed "Tomboy" and may be flown either Free Flight or Radio Assisted. The model may be built as either version as shown on the plan, 36" or 44" span. The model should preferably be single channel. There will be no restrictions on choice of power source.
If you are interested in participating in the event or you have any suggestions please let me know your ideas at
<mailto:info@nswffs.com.au>info@nswffs.com.au
Barry Lee)
We have reproduced this information for two reasons: first, your Editors explored the idea of running a parallel event, along postal lines, so LMAC could participate. However NSWFFS was not able to agree to this; participation would have to be in person (anyone going to Muswellbrook?). Second, we were intrigued with the idea of a combined FF and R/C event using a very simple and cheap model and thought

the concept could be an idea for a fun event at LMAC some time. The following is a general update from Barry Lee. - Ed.)

Hi,
I recently emailed you about the "Tomboys at Muswellbrook" event planned for next year. After some communication with modellers Tomboys can be flown with 1 or 2 channels or Free Flight. It is hoped there can be a mass launch on the Sunday morning if the weather is favourable.
The control line model for next year will be Gordon Burford's "Wombat".

Dave Brown has partial kits available for both models.

Wombat Kit with plans/Instructions posted in Australia $30 includes post & handling.
44" Tomboy Kit with plans/Instructions posted in Australia $20 includes post & handling. International $20 post & handling, (Paypal only).

These prices are sponsored on behalf of the Muswellbrook Veterans Gathering for May 2007; this discounted price offer will expire on 1/1/07, when

Wombat Kit with plans/Instructions $55 includes post,
Tomboy Kit with plans/Instructions $42 includes post.

Please contact Dave direct at
Dave Brown
19 Tweed Road
Lithgow NSW 2790
Tel (02) 6353 1529
e-mail: daveb@ix.net.au

Regards

Barry Lee

(You will not a cheaper Tomboy kit anywhere! – Ed.)

Club Bungee

The club's bungee, which is a 40m length of highly elastic surgical rubber tubing, needs to be replaced as the existing rubber has deteriorated badly and keeps breaking. Different grades are available, so if you are a glider pilot and have any ideas on size, type and length for the replacement, please contact a member of the committee and pass on your ideas. A bungee is a necessity for launching smaller

gliders such as the club project, the “Pink Raven”; larger gliders can be launched using an electric winch (it is understood LMAC has four such winches.)

LMAC Contest Calendar 2006 - 2007				
Date	**Event**	**Club**	**Location**	**Time**
Sat 17June	All Models Day	LMAC	Symmons Plains	9.30am
Sat 22 July	Free Flight & Old Timer Day 1	LMAC	Symmons Plains	9.00am
Sat 19 Aug	Scale Day 1	LMAC	Symmons Plains	9.30am
Sat 16 Sept	Free Flight & Old Timer Day 2	LMAC	Symmons Plains	9.00am
Sat 21 Oct	7 Cell Electric Glider 1	LMAC	Symmons Plains	9.30am
Sat 11 Nov	Pattern Day 1	LMAC	Symmons Plains	9.30am
Sat 20 Jan	Pattern Day 2	LMAC	Symmons Plains	9.30am
Sat 17Feb	7 Cell Electric Glider 2	LMAC	Symmons Plains	9.30am
Sat 24 Mar	Event TBA	LMAC	Symmons Plains	9.30am
Sat 21 April	Scale Day 2	LMAC	Symmons Plains	9.30am
Sat 19 May	Event TBA	LMAC	Symmons Plains	9.30am
Sat 23 June	Fun Fly Event	LMAC	Symmons Plains	9.30am

Note LMAC Contests to be on the day specified, if the weather is not suitable then the next day Sunday. If that too is not suitable then it is cancelled and moved to the next event scheduled.
N.B. The committee may re-schedule the event for another time to be advised.

LMAC Club Day is held on the first Saturday of each month
(HMAC first Sunday of each month)

"Café Symmons" Operates each Contest Day and Club Day

LMAC invites flyers from affiliated clubs to come along and participate

*Does not apply during winter months: June, July and August

COMING EVENTS for your Diary!

Sat 16 Sept (9:00am)	**Free Flight & Old Timer Day 2**	**Symmons Plains**