Holdfast Model Aero Club Inc.

Volume 6, Issue 4
April 2015

HOLDFAST BUZZ

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MAY GENERAL MEETING

Please note that the 2015-16 Budget will be presented for approval at the May 1st General Meeting. This includes the setting of Membership fees. To have your say, be there at 8:00 pm.

Creature Comfort

New shelter gives weather protection to pilots and models

The new shelter is proving to be the preferred spot for members to assemble their models and offers a good view of the flying area from within. The solid structure will provide welcome protection on cold and drizzly winter days and on those blistering hot summer days.

The HMAC newsletter is your vehicle for sharing information, experiences, building projects, etc with your fellow members. If you have photos of your latest model, a construction in progress or handy tip you'd like to share, please send it to Geoff at buzz@itapps.com.au for inclusion in a future edition of BUZZ.

Our President, Kingsley Neumann, has taken some well-earned leave this month, so look forward to resumption of his column in the May issue

Care and Feeding of LiPo Batteries - Geoff Haynes

After hearing of a recent experience by one of our members where a LiPo battery ignited during charging, I thought it would be worthwhile to reiterate the need for careful handling and use of these batteries.

The Lithium Polymer (LiPo) battery has had a dramatic effect on the growth and popularity of electric powered model aircraft. While LiPo technology has many advantages over other forms of battery chemistry, such as energy density and high discharge rates, it does suffer one major disadvantage – risk of fire. For this reason LiPo batteries must be treated with care to avoid overcharging, over-discharging and physical damage.

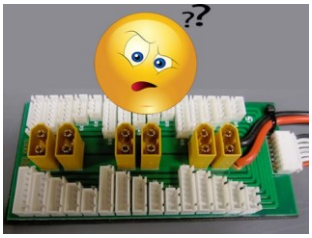
It is important to realise that the factors leading to battery ignition can be quite easily avoided. Almost every LiPo fire is the result of misuse of the battery. By misuse I mean placing the pack in any situation which is outside of the specified/recommended conditions. It may be an accidental error on the part of the user, it is almost certainly an avoidable error, but it is most probably an error resulting from lack of understanding, lack of attention, or lack of care. We all make mistakes, but few of them have the possibly disastrous consequences of a LiPo fire.

The most common likely cause of ignition is over-charging. If the voltage of a cell is allowed to creep above 4.2V the process of releasing oxygen can begin. It can start at values as low as 4.25V. This also causes the cell to heat further and progress towards a critical runaway point. The damaged state of such a cell then means that subsequent discharging and re-charging exacerbates the problem, the cell begins to swell, and the risk of ignition is getting progressively higher. It is for this reason that any pack showing swelling of one or more cells should be disposed of. To ensure safety in the use of LiPo batteries, the following guidelines should be observed.

1. Always arrange a model so that the flight battery can be easily removed, and always remove the battery to re-charge it.
2. Never leave a battery unobserved during re-charge. Always stay in or around the charging location so that you can periodically check for any signs of battery or charger distress.
3. For series packs (2S and above) always balance charge to prevent individual cells being overcharged.
4. Use an effective and reliable charger with occasional checks on output levels and balancing effectiveness.
5. Periodically check the temperature of a pack on charge and stop the process if it becomes hotter than expected.
6. Never charge a pack which is already hot. Allow it to cool to ambient temperature first.
7. Always double check that the charger is set to the correct voltage, i.e. that the cell count of the pack matches the charger voltage limit. A good quality charger will perform this check for you.
8. Always place the pack in a fireproof container before commencing the charging cycle.
9. Unless the battery technology specifically allows for high charge rates (e.g. NanoTech), never charge a pack at more than the 1C rate.

".. The "LiPo Charge" option typically does not balance the individual cells while charging and could result in a fire if one of the cells in the pack is faulty. ..."

NOTE: Many modern chargers provide 2 options for charging LiPo packs – "LiPo Charge" and "LiPo Balance". With these chargers, if the pack being charged has a balance connector, make sure you select "LiPo Balance", not "LiPo Charge". The "LiPo Charge" option typically does not balance the individual cells while charging and could result in a fire if one of the cells in the pack is faulty. This charging option is reserved for LiPo packs that do not have a balance connector, or have their own internal balancing circuitry.



I'm not a big fan of parallel charging adapter boards that allow charging multiple LiPo packs in parallel. The idea behind these is that you can increase the charging current, which is split across the packs, thus reducing the charge time for all packs to the same time it normally takes to charge just one pack. This is all fine and dandy while all packs are in perfect condition and all cells have identical electrical characteristics. However, should one pack have a faulty cell, the charging current is no longer split equally across

Care and Feeding of LiPo Batteries - cont.

all packs and may subject the remaining packs to charging currents higher than the recommended maximum. If you want to charge multiple packs at the same time, invest in a charger with multiple ports.

It is good practice to mount the LiPo pack in your model with some form of shock absorption to minimise physical damage in the event of a crash. High impact forces can cause battery ignition which usually results in the total destruction of the model.

By using the correct charging procedures and taking the proper precautions with your LiPo packs, you can minimise the risk of fire and enjoy trouble-free, no-mess flying of electric models.

Operation of Self-Guided Model Aircraft (SGMA) - MOP067

"... Anyone who operates or intends to operate a model that falls within this category needs to be fully conversant with this document..."

As an affiliate of the MAAA, HMAC is obliged to abide by and enforce this policy. This will mean that unless we can establish the necessary inspection and operating regime at HMAC we will not be able to allow members to fly SGMA models at our field.

Models that are equipped with devices that enable them to fly without input from a pilot are classified by the MAAA as Self-Guided Model Aircraft (SGMA) and their operation at Model Club fields is defined in MOP067 http://www.maaa.asn.au/images/pdfs/mops/MOP067-Policy-SGMA.pdf

Our sport has always relied on advanced technology to help us create and control models that more closely mimic the characteristics of their full size counterparts so having models equipped with what are effectively 'autopilots' should not be unexpected. Anyone who operates or intends to operate a model that falls within this category needs to be fully conversant with this document, in particular the need for inspection, testing and certifying of pilots to fly them.

HMAC would like to ensure that if our members wish to operate SGMAs we have the necessary rules and provisions in place to allow their safe use. Over the next few weeks the committee would like to hear from members who may be affected by this ruling. In particular we will need suitably qualified Gold Wing pilots who may act as inspectors and trainers. The committee will draft some new by-laws in relation to safety provisions for operating SGMAs. It is expected this will relate to arming and initiating the GPS systems to ensure that Return to Home locations are well away from other operators and the public.

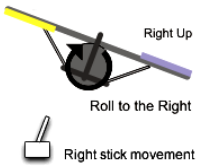
Please remember, the easy option for the committee would be to do nothing and simply say that members cannot operate SGMAs at HMAC. So, if you are interested in this emerging and exciting extension to our sport please get in touch with a committee member who will then invite you to assist in the framing of our by-laws and procedures so that anyone who wishes can be qualified to operate SGMAs at HMAC.

Check Those Control Surfaces Before You Take Off

There have been 2 recent incidents at the flying field where models met their demise as a result of reversed aileron control, even after ground checking!

Here's a simple rule to help you remember the correct response of ailerons to control stick movement - the **3 R's Rule**:

Right stick **R**aises **R**ight aileron



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Newcomers to R/C modelling are catered for by setting aside every Sunday morning from 10 am when qualified instructors will teach all aspects required for the safe operation of the model. During the training period no other models are allowed to fly, ensuring the least possible distractions to the student.

Pylon & Combat Competition Results - April 2015

Due to the Easter Holiday weekend, no Pylon or Combat competition was scheduled

SCHEDULE OF EVENTS

- Fri May 1 - General Meeting - setting of fees & budget approval
- Sun May 3 - Pylon & Combat
- Wed May 6 - MASA Meeting
- Thu May 14 - Building Night
- Wed May 20 - Committee Meeting

Flying Achievements

Solo **Greg Peake** Instructors - Graham Paterson, Max Thomas

Advertise What you Want to Buy or Sell on our Web Site
Send details & photos to Geoff Haynes — buzz@holdfastmac.asn.au

Welcome to New Members

The Club extends a warm welcome to the following recent new members. We hope you enjoy many hours of enjoyment in this exhilarating (and sometimes challenging) sport:

Chris Brooker, Boris Sopotsko, Greg Hutt, Robert Fisher, Russell O'Brien, Graham Skannel and **Henry Tomczyk.**

Welcome also to **David Underhill** who returns to the Club as a Social member.

Instructor Roster (May-June)

Date	Instructor	Instructor	Assistant
APR 26	Graham Paterson	Ross Lloyd	Ted Carter
MAY 3	Peter Robertson	Kingsley Neumann	Trevor Baudinette
MAY 10	John Jefferson	(Open)	Max Thomas
MAY 17	Graham Paterson	Ross Lloyd	Ted Carter
MAY 24	Peter Robertson	Kingsley Neumann	Trevor Baudinette
MAY 31	John Jefferson	(Open)	Max Thomas
JUN 7	Ross Lloyd	Graham Paterson	Ted Carter
JUN 14	Kingsley Neumann	(Open)	Trevor Baudinette
JUN 21	Peter Robertson	John Jefferson	Max Thomas

Our thanks go to those keen instructors who offer their assistance to train new pilots. Some even turn up even when they are not rostered on. Advanced Flying Training is available on request, so if you want to brush up your flying for a Wings test, please arrange a session with one of the Instructors. There are still a number of "Solo Only" flyers out there who could easily qualify for the Bronze Wings.