

**The 2007 BMFA Member's Handbook
Corrections and Additions (Issue 3)
July 2009**

**Page 9, Column 1, Indemnity Limits for the
Third Party Public and Products Liability.**

Change to

~~£5,000,000~~ **£10,000,000** for any one accident,
unlimited for the period of insurance, and subject
to a £50 property damage excess.

**Page 11, Column 2, The Air Navigation
Order, Paragraph 2(b). Add word**

(b) in Class A, C, D or E airspace (effectively
any **controlled** airspace down to ground level -
Ed)

**Page 12, Column 1, Add New Section (3)
and re-number following sections**

(3) Mandatory Model Flying Insurance

It is a legal requirement in the UK that all models
over 20 kg maximum take off mass (MOTM) must
carry at least £750,000 third party public liability
insurance.

This obviously applies to all models over 20kg dry,
which are covered by CAA exemption certificates.
However, it also applies to those models under
20kg which do not need an exemption but which
are taken over 20kg when fuelled for flight.

**Page 20, Column 1, Batteries, Paragraph
(g). Delete**

~~.....More information will be found
in the Electroflight section later in this Handbook.~~

**Page 20, Column 1, Batteries, Add New
Paragraph (i) and renumber following
Paragraphs (h) to (t)**

(i) More information about the various types of
battery available and information on their handling
can be found in the Electroflight section later in this
handbook

Page 20, Column 2, Batteries

Modify Para (e)

(e) It is **strongly** recommendedThey
must never be used **in the airborne pack** if you
have four **or more** servos operating.

**Add new para (g) and renumber following
paras.**

(g) There are, however, exceptions to this
advice. Some modern transmitters have very low
current drain and are supplied as dry battery sets
with battery boxes that are not removable. In these
cases dry cells give an acceptably long operational
life and may be used safely. If you do use re-
chargeable cells in these transmitters, make sure
that the cells are removed and replaced at least
monthly to keep the battery contacts clean. If not,
your transmitter might suffer from the same
symptom as many TV remotes when they stop
working until you have disturbed the batteries.

**Page 23, Column 2, Frequency Control at
Club Sites, Paragraph (c). Delete**

~~For 2.4 GHz, a black ribbon.~~

**Page 27, Column 2, Hazardous Materials.
Add new section (d) and re-number
following paras.**

(d) If any model aircraft is built or repaired using
composite materials or parts then it is essential to
be particularly diligent in picking up any debris after
a crash or mid-air collision. Composite shards do
not degrade quickly and can be a dangerous
hazard in and on the ground for many years

**Page 29, Column 1, Checks Before Each
Flight,**

**Delete Paragraph (8). Renumber
Paragraph (9) to (8). Add new Paragraph**

(9) Finally, with the aircraft held securely (usually
on the ground for i/c models), open up to full power
and re-check all flying controls again for full and
free movement, also noting any glitches,
hesitations or odd vibrations. If **ANYTHING** seems
odd, **DO NOT FLY**

Page 30, Column 2, HELICOPTERS

Add new 3rd paragraph:

Electric Helicopters should be carried out from the
pits area with the flight battery disconnected and it
should be only be connected in a safe area. the
model **MUST** be considered to be live as soon as
this is done and great care is needed during this
procedure.

Page 33, Column 1, Nickel Cadmium (Ni-Cd) or Nickel Metal Hydride (Ni-Mh) Batteries

Delete the entire section and replace with;

Batteries

Ni-Cd or Ni-Mh fast charge cells and larger Li-Po packs can be discharged at very high currents (up to 100 amps and more). Short circuits, faulty wire insulation or loose contacts can result in very considerable heat generation and may cause fires.

Nickel Cadmium (Ni-Cd) Batteries

(a) Ni-Cd cells will self discharge at a rate of around 20% of their capacity each month and if a stored pack discharges below approximately 1 volt per cell, there is a danger that one of the cells in the pack may be irreversibly damaged. The lower the voltage reached the more risk there is that this will happen. It is therefore recommended that all Ni-Cd packs be charged regularly, at least every few months, and that any pack not in regular use be initially stored fully charged.

(b) Ni-Cd cells are very resilient when trickle charged at around 1/10C (i.e. 50mA for a 500mA battery). Most chargers supplied with radio equipment are designed to work in this range and there is little risk involved if packs are inadvertently left on charge when using them. Even if you regularly fast charge your cells, it is good practice to trickle charge them occasionally.

(c) Overcharging Ni-Cds at high currents (fast charging) can ruin your cells and has been known to cause battery packs to explode violently. Most fast chargers have a 'delta peak' voltage controlled cut-off and are generally very reliable. If you don't have such a charger and wish to fast charge your cells then, as a minimum, you should use a charger with a timer or temperature controlled cut-off.

(d) If you have a charger capable of both discharging and charging your battery packs then you should fairly regularly cycle the packs as this will help to keep them in optimum condition. However, it is also good practice to occasionally trickle charge any packs that are regularly fast charged whether they have been cycled or not. Just make sure that the pack has been well used or discharged before you start (no lower than 1 volt per cell though).

Nickel Metal Hydride (Ni-Mh) Batteries

(a) Ni-Mh cells can self discharge at a rate of up to 40% of their capacity each month and the danger of a stored pack discharging below 1 volt per cell and possibly causing irreversible cell damage is therefore considerably greater than with Ni-Cd cells simply because it will occur sooner. It is therefore recommended that all Ni-Mh packs be charged more regularly than Ni-Cds, at least every

two or three months, and that any pack not in regular use be initially stored fully charged.

(b) Ni-Mh cells may be trickle charged at around 1/10C (i.e. 50mA for a 500mA battery) and most chargers supplied with radio equipment are designed to work in this range.

However, Ni-Mh cells are more fragile than Ni-Cds and are susceptible to damage by overcharging even at normal trickle charge rates and should never be left connected to the charger longer than is necessary. The 'safe' constant trickle charge rate is very much less than that provided by the standard type of charger supplied with most radio equipment so the possibility of overcharge damage when using these trickle chargers must always be borne in mind.

(c) Ni-Mh packs can be charged at high currents (fast charging) but overcharging can quickly ruin the cells. Most fast chargers have a 'delta peak' voltage controlled cut-off and are generally very reliable but you must ensure that the one you are using is specifically designed for Ni-Mh batteries.

(d) Ni-Mh packs may be cycled, as with Ni-Cds, and you should consider doing this fairly regularly. However, it is also good practice to occasionally trickle charge any packs that are regularly fast charged whether they have been cycled or not. Just make sure that the pack has been well used or discharged before you start (no lower than 1 volt per cell though) and note the advice in (b) above.

Page 33, Column 2, Before Li-Po Basics, Add new section

Other Lithium Based Batteries

Battery technology moves rapidly and there are several types of lithium based batteries now available to model flyers, including Lithium Phosphate and Lithium Manganese. These are only two of a growing selection and you can expect many more developments in the near future that will give you more capable and safer on-board power sources.

The cells now available generally have a slightly lower energy density than Li-Pos but they are not susceptible to the potential thermal runaway problems that Li-Pos may experience.

In very general terms these packs are treated in much the same fashion as Li-Pos but it must be stressed that you should follow the manufacturers/suppliers guidelines carefully.

For more information on these newer cell technologies, keep watching the commercial magazine electric flight columns and you should also be prepared to surf the net as there is a great deal of information out there.

Page 45, Column 1, The Radio Control Achievement Schemes, General.

Delete (b) and replace with:

(b) The 'B' Certificate which is designed to recognise a more advanced pilot's increased ability and knowledge and a demonstrated high level of safety.

Page 47, Column 1, Club Examiners, Add Two New Paragraphs.

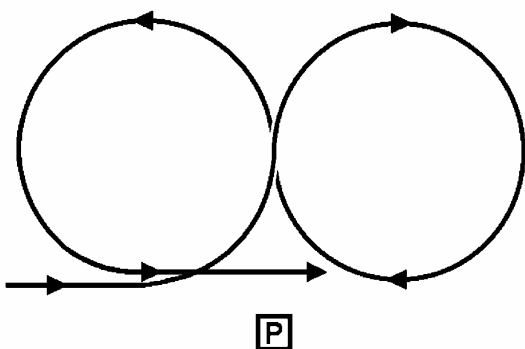
A Club has the sole right to specify which Examiners may test their members on their own flying fields. The Examiners may be those ratified annually by the Club or they may be Examiners who are invited by the Club Committee to visit the Club to test members.

This does not restrict the right of model flyers to be tested at a venue and with an Examiner of their choice but it should be noted that any Club may insist on satisfying themselves regarding the flying proficiency of any member or visitor who has been tested away from the Club and not by their own Examiners.

Page 48 column 2, 'A', 'B' and 'E' Certificate Re-Tests, paragraph 2, be modified as follows:

(2) The ASC a Chief Examiner (CE) from a **different** adjoining Area to conduct the re-test by arrangement with the candidate.

Page 50, Column 1, The 'A' Certificate (Fixed Wing), Drawing of Figure 8. Replace with,



Page 51, Column 1, The 'B' Certificate (Fixed Wing), Para (m). Modify as Follows.

(m) Exceptionally, at a pre-determined point in the flight an intermediate landing may be permitted for the sole purpose of **either** refuelling or the fitting of a freshly charged flight battery. This landing may only be made with the prior consent of the

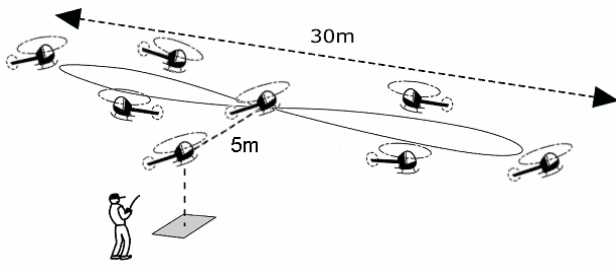
Examiners. **The pre-determined point may be either after a specific manoeuvre or at a specific time of flight, whichever is requested by the candidate and agreed by the Examiners.** Two attempts per examination will be allowed in any one day.

Page 52, Column 1, The 'C' Certificate (Aerobatics), Para (m). Modify as Follows.

(m) Exceptionally, at a pre-determined point in the flight an intermediate landing may be permitted for the sole purpose of **either re-fuelling or** the fitting of a freshly charged flight battery. This landing may only be made with the prior consent of the Examiners. **The pre-determined point may be either after a specific manoeuvre or at a specific time of flight, whichever is requested by the candidate and agreed by the Examiners.**

Page 52, Column 2, The 'A' Certificate (Helicopter), Replace Paras (b) to (i) with the following.

- (b) Take off and hover tail in over the take off point, with the helicopter skids at eye level, for **about twenty** seconds.
- (c) Hover the helicopter slowly forwards for approximately five metres, stop, and hover for **about five seconds**.
- (d) Hover the helicopter slowly sideways for approximately five metres, stop, and hover **for about five seconds**.
- (e) Hover the helicopter slowly sideways in the opposite direction for approximately ten metres (five metres past its original position in front of the pilot), stop, and hover **for about five seconds**.
- (f) Hover the helicopter slowly sideways in the first direction to bring it back to its original position in front of the pilot, stop, and hover for **about five seconds**.
- (g) Fly slowly backwards, bringing the helicopter back to its original position over the take off point, stop, hover for **about five seconds** and land.
- (h) Take off and **fly forward for approximately 5 metres to a point over the centre marker, stop and hover for about five seconds**. Turn 90 degrees either left or right and fly forward
- (i) At the conclusion of the two 'lazy eights', bring the helicopter to a halt sideways-on over the centre marker, turn the model tail-on to the pilot and hover for about five seconds. From this point fly the model to a landing on the original take off point.**



Page 53, Column 1, The 'B' Certificate (Helicopter), Para (b). Delete and replace with.

(b) Perform one four point pirouette with landings

Page 53, Column 1, The 'B' Certificate (Helicopter), Paras (e) and (f). Modify as follows.

(e) Fly a left hand **rectangular** circuit.

(f) Fly a right hand **rectangular** circuit.

Page 53, Column 1, The 'B' Certificate (Helicopter), Para (k). Modify as Follows.

(k) Exceptionally, at a pre-determined point in the flight an intermediate landing may be permitted for the sole purpose of **either** refuelling or the fitting of a freshly charged flight battery. This landing may only be made with the prior consent of the Examiners. **The pre-determined point may be either after a specific manoeuvre or at a specific time of flight, whichever is requested by the candidate and agreed by the Examiners.** Two attempts per examination will be allowed in any one day.

Page 53, Column 2, The 'A' Certificate (Silent Flight – Thermal), Replace Paras (a), (b), (d) and (i) with the following.

- (a) Carry out pre-flight checksairframe, tow hook, **launching aids**, control linkages and surfaces.
- (b) Check ~~the~~ **that any** launching equipment is laid out
- (d) the model from the launch line cleanly, **if applicable**, and level the model into wind without stalling.
- (e) Fly the model launch area. **This does not apply to Hand Launched Gliders.** If insufficient height is achieved a poor launch height is due to pilot ability the test is failed. **Note that this applies to Hand Launched**

Gliders too and they are not allowed multiple attempts to obtain good launches.

Page 57 column 2, Silent Flight Personal Achievement Schemes, paragraph 1, be modified as follows:

The Thermal Soaring levels of **proficiency** ~~competence~~-beyond the 'A' and 'B' Certificates

Page 60, Column 1, BMFA Qualified Instructors. Modify Section as Shown

Ratification as a Qualified Instructor (QI) is automatic and there is no test to take but you must comply with two conditions:

(1) You must ~~have held~~ **hold** an Approved Instructor rating **and have held it** for a minimum of one year,

And

(2) You must ~~have held~~ **hold** the relevant 'B' certificate **and have held it** for at least six months.

You will get the new rating automatically if you already meet or if you attain these criteria.

Note that the QI rating depends on your retaining both the AI rating and the 'B' Certificate. If either of these is lost, in the AI case for instance, by not renewing your membership or by not being re-ratified by a club as and when required, the QI ratification will also be lost.

Page 68, Column 1, The 2.4 GHz band, Delete First Sentence.

~~Identification will be by a single black ribbon.~~

Page 74, Column 2, Add

1.2.7 Safety

(a) Composite Materials

If any model aircraft is built or repaired using composite materials or parts then it is essential to be particularly diligent in picking up any debris after a crash or mid-air collision.

Composite shards do not degrade quickly and can be a dangerous hazard in and on the ground for many years

**Chris Bromley, FSMAE
BMFA Technical Secretary
3rd July, 2009**