PREAMBLE

Some sites have very specific rules about sharing with other users e.g. airspace sharing with hang gliders, para gliders, or other full-size aircraft, and ground based activities like walkers or riding. The examiner must ensure that he, as well as the candidate, is fully aware of these requirements before commencing the test.

Any failure by the candidate to observe these rules during the flight should result in a failure.

For all these reasons, it is good practice for the examiner to ask the candidate for his assessment of the risks observed at the site before preparing to fly and to be clear how the candidate will conduct the flight so as to minimise any such risks. An insufficient grasp of these factors will normally be grounds to postpone the test, assisted by some mentoring from the examiner and further work with the candidate's instructor or club colleagues using that site.

Alignment and/or track of the manoeuvres should be discussed and agreed before commencement of the test, taking into account the existing/forecast wind direction, position of the Sun on bright days and any site restrictions and/or no fly areas. Where the test includes reference to wind direction (e.g. “into wind”) this will form an important part of the discussion.

The ‘BPC’ and ‘A’ Test

(a) Carry out pre-flight checks as required by the BMFA safety codes.

The pre-flight checks are laid out clearly in the BMFA Member’s Handbook. The candidate should also go through the pre-flying session checks, also laid out in the Member’s Handbook. Ask the candidate to go through their checks as if the test flight was their first flight of the day. Particular attention should be given to airframe, control linkages and surfaces.

Points to look for are that the candidate has a steady and regular ground routine, especially when starting and tuning the engine. Nerves may play a part in the pits but you should satisfy yourself that the candidate is actually in control of what they are doing when preparing their aircraft for flight.

A neat ground layout makes a good impression but bear in mind that many 'A' certificate candidates will not have been flying for too long and you should be prepared to make allowances. A poor performance in this area is not grounds for failing the candidate, however, it is inevitable that you will be making mental notes of all aspects of the candidate’s competence and this is one that might have an effect on a real ‘borderline’ case.

For 2.4 GHz, the candidate should be aware of any local transmitter usage limitations and if a flight peg is required, it must be obtained before the Tx is turned on. Some radio equipment and, occasionally, a specific model requirement requires that the Rx be switched on first and, if this is the case, the candidate should explain this clearly to you.

With electric powered models, take note that the candidate is aware that the model is ‘live’ as soon as the flight battery is plugged in and that they take appropriate safety precautions. If a separate receiver battery is fitted, the candidate should have the opportunity to check the operation of the radio equipment before the flight battery is plugged in.

Watch carefully and take note that the transmitter controls, trims and switches are checked by the pilot.

All candidates are required to be aware of the local the frequency control system and anyone who is required to use it but switches their radio on before doing so should be failed on the spot. If there is no one else available then there is nothing to stop you aiding the candidate by holding the model for the power check, carrying it out for take-off etc. but any such actions must be performed by you directly on the instructions of the candidate.

If the test is being taken with an electric powered model then the candidate should show that they are familiar with the safe handling of such models.

In particular they must demonstrate to you the ‘arming’ sequence for their model. For safety reasons many speed controllers have a pre-programmed sequence of actions that have to be followed before the motor will respond to throttle stick movements. For instance, after switching on Tx and Rx and then plugging in the main flight battery, one type of controller requires that you move the throttle stick from low to full throttle and then back to low before the motor is ‘armed’ and ready for flight.

The candidate must be fully familiar with the system fitted to the model and should brief you on the system and demonstrate it working at some time during the pre-flight checks.

Generally, they must show that they are paying particular attention to the transmitter and receiver switch on sequence and they must make you aware that they are treating the model as ‘live’ as soon as the flight battery is plugged in, no matter what arming sequence they may then have to go through. The pilot must demonstrate the correct function of the failsafe, where appropriate, before committing to the flight.

The model may be carried out to the take off position by the candidate or a helper or it may be taxied out from a safe position in front of the pits/pilots area**.** Taxiing out of the pits is an instant fail. Prior to carrying or taxiing out, the pilot should inform other pilots flying that his model is going out onto the active area.

The pilot must stand in the designated pilot area for the entirety of the flying part of the

test.

Take off must be performed with the model a safe distance from the pilot box area and on a line which does not take the model towards the pits, other people or any other danger/no fly area.

(b) Take off and complete a left (or right) hand circuit and overfly the take-off area.

Take off should be reasonably straight with the model not being pulled off the ground too soon. It can be a point in the flyer's favour if, in the case of the take-off going wrong, they abandon it in a safe manner. It's far better that they think about what they are doing rather than try to coax a model with a sick engine into the air. If a take-off is aborted in a safe manner you should immediately reassure the candidate that they will not be penalised for taking correct actions, even though these may conflict with what the test requires.

Climb out should be at a steady angle and straight until operational height is reached when the model should be levelled, the throttle brought back to cruise power and the model established in the circuit.

The type of circuit is not stated so either racetrack, rectangular or circular is acceptable. This choice of circuit type applies to the rest of the flight as well except when a certain type of circuit is specified for a manoeuvre.

On completion of the circuit, the model will be flying into wind past the front of the pilot and, for safety reasons, just over the far edge of the take off area. Tell the candidate prior to the flight the line that you want them to be following.

You must make sure that the candidate is clear on this, the line will be set by the model flying across in front of them on a heading which should be agreed before the flight (usually, but not always, into wind) and passing over a set point. This first pass in front of the pilot is extremely important as it sets the standard height and line for the rest of the test and this standard height and line will be referred to often in these notes.

(c) Fly a "figure of eight" course with the cross-over in front of the pilot, height to be constant. The candidate should be aiming to fly the manoeuvre as shown in the diagrams above.

Before commencing this manoeuvre, the pilot must check that the airspace is clear and announce his intentions to the other pilots as part of the manoeuvre will produce a flight path opposing the normal circuit direction.

The model is flown on the standard line and height into wind across the landing area, a 1⁄4 circle away from the pilot is flown so the model is directly in front of the pilot and briefly flying

directly away from the pilot, a full circle in the opposite direction is flown bringing the model back to in front of and heading away from the pilot, a 3⁄4 circle is then flown in the opposite direction to the full circle. The manoeuvre finishes, with the model flying into wind across the front of the pilot at standard line and height, not with another turn away.

The difficult part of the manoeuvre is the first full circle and it catches many people out. Most inexperienced flyers will try to fly this circle with a constant angle of bank but if they do this in anything above a flat calm the crossover point will drift downwind from the pilot. The pilot should fly this turn with varying angles of bank (less at the start of the turn, gradually adding more bank as the model turns downwind) so that the crossover is in front of them and heading away.

If they do not get this right they will either finish up with the crossover way downwind, fly too near the pilots line or panic as the model accelerates towards them as it begins to come downwind and pull far too much bank (vertical!) to get the crossover point correct. This is not a sign that they have thought about the manoeuvre or practised it.

The manoeuvre finishes, as in the diagrams, with the model flying into wind across the front of the pilot at standard line and height, not with another turn away.

(d) Fly a rectangular circuit and approach with appropriate use of the throttle and perform a landing on the designated landing area.

The pilot should call this manoeuvre out loudly as a **landing** during the standard line and height initial into-wind pass across the landing area and you should take note that they have visually checked the active area before and during the manoeuvre (watch for head movements). The ability to glance away from the model to re-check that the landing area is clear is important and is a skill that a ‘solo standard’ pilot should posses

If a landing is called when there is anyone out on the landing area (for instance taking off or retrieving models) who may not be in a position to hear the call then you may consider that the candidate has not given due consideration to field safety.

Watch out for the downwind leg not being flown parallel to the upwind leg and the turns being flown either too tight or too wide (most will try to fly them too tight and almost try to put a ninety degree 'snap' turn in which is **NOT** required). Throttle should be reduced either just before or just after the last crosswind turn with the crosswind leg descending into the turn on to final approach.

Once established on final approach, on line and descending, the candidate should make appropriate use of the throttle to set up and control the final descent rate. The aim of all this is to have the model at a speed, position and rate of descent which will guarantee a reasonably accurate touchdown on the landing area.

If the candidate opens the throttle and climbs away during the approach then they should have a very good reason, such as people walking out on to the runway. Any reasons offered by the candidate for an unscheduled overshoot **cannot** include not being lined up correctly or anything similar. However, if they do have good reason to perform an unscheduled overshoot and they handle the situation well then it would be fair for you to take this into consideration when summing up their flight.

If the test is taken with an electric powered model then you should be aware that 'appropriate use of the throttle' allows for different patterns of throttle use during the approach and landing and this will very much depend on the type of motor speed controller fitted to the model. With some controllers it is quite likely that the prop will be stopped at some points in the approach and also during the actual landing.

This is quite allowable but you must bear in mind that you are testing a rectangular circuit and power on landing so it is expected that the pattern flown by the model will equate closely with that which would be flown by an i/c powered aircraft. If the engine stops during the landing the model may be retrieved and the engine restarted to enable the remaining parts of the test to be completed.

Unless otherwise agreed the candidate should NOT take their transmitter with them when retrieving their model and it should be left with a competent person. The transmitter should not be laid on the ground and if no one is available to hold it then you should offer. When the model has been retrieved and returned to the pits area the transmitter should be returned to the pilot.

If the landing was good, the candidate should give the model a quick visual check prior to restarting the engine and all the normal engine starting safety procedures should be followed, exactly as for the initial engine start.

Anything other than a good landing should mean that the candidate makes a more thorough check of the aircraft, possibly up to a full pre-flight check of the model if, for instance, it has turned over at the end of the landing run (which can happen even on the best landings).

(e) Take off and complete a left (or right) hand circuit and overfly the take-off area

If the engine remains running after the landing in (d), and the candidate is confident of their ability to do so, the model may be taxied back to the take-off point although this is not a requirement. If the engine stops during this manoeuvre the candidate should not be penalised and the normal retrieval and restart procedure should be followed.

If the model with its engine running is retrieved and replaced for take-off by a helper then it should be done with due regard for field safety. If no helper is available then you should offer

to do this for the candidate.

(f) Fly a rectangular circuit at a constant height in the opposite direction to the landing circuit in (d) above.

Before commencing this manoeuvre, the pilot must check that the airspace is clear and announce his intentions to the other pilots, as the manoeuvre produces a flight path opposing the normal circuit direction. Any initial turn to position for this manoeuvre shall be away from the pilot box area.

Watch once again for parallel legs with reasonable turns and level flight. A common mistake is to turn on to the final crosswind leg (the upwind one) too soon. The result of this will almost inevitably be that the final turn of the manoeuvre will be too close to the pilot and may finish up as a 'panic' turn. Make sure that candidates give themselves plenty of room upwind, especially if the wind is at all strong.

(g) Perform a simulated deadstick landing with the engine at idle, beginning at a safe height (approx. 200 feet) over the take-off area, the landing to be made in a safe manner on the designated landing area.

The manoeuvre does not specify any particular type of circuit so the main thing to watch out for here is sensible circuit management with the model not being dived steeply or held off in too flat a glide. The pilot should do as many circuits as they feel comfortable with although this will very seldom be more than two. If there is any wind at all then they may be in trouble if they plan more than one. If they have not practised this manoeuvre it will be very obvious and if a safe controlled into wind landing is not achieved then the candidate should fail.

The pilot must call **‘deadstick’** when the examiner initiates the manoeuvre but watch carefully that they have visually checked the landing area before calling (look for head movements). They should be capable of taking their eyes off the model for a second or so in safety.

Pilots flying electric powered models are able to stop and start their motor at will and they have the ability to re-start their motor and climb away from a baulked motor-off landing if necessary. They are therefore able to safely perform a ‘genuine’ deadstick landing and this is what you should expect to see. They must, of course, call **‘deadstick’** immediately prior to starting the manoeuvre.

Be aware that many electric models will have propellers that sometimes ‘windmill’ on the glide. This is normal and acceptable and it should be obvious to you that no power is being applied to the propeller at the time.

(h) Remove model and equipment from the take-off/landing area.

The candidate should agree with the examiner beforehand whether they intend to take the transmitter with them when retrieving their model or choose to leave it with a competent person. The candidate must explain the safety considerations behind their decision, which must be agreed with the examiner. If the candidates elects not to take the transmitter and no one else is available to hold it then you should offer. Whatever process is agreed, it must also be in accordance with any relevant club rules, as appropriate. Generally, for 2.4GHz operations and with suitable consideration, candidates should be able to give a robust safety based argument for taking their Tx with them to recover the model, if it has landed on the normal landing/take- off area. Conversely, it is difficult to see how any such argument could be made for candidates using 35MHz or 27MHz equipment.

Remember that electric models must be assumed to be ‘live’ until the flight battery has been disconnected and the handling of the aircraft by the candidate must reflect this during retrieval and in the pits area.

(i) Complete post-flight checks as required by the BMFA Safety Codes.

These are set out clearly in the Member’s Handbook, but you should watch particularly that the Rx off, Tx off, frequency system cleared sequence is followed correctly.