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**BRITISH MODEL FLYING ASSOCIATION  
THE R/C ACHIEVEMENT SCHEME**

**TEST STANDARDS for CHIEF EXAMINERS  
and CLUB EXAMINERS  
GUIDANCE for TEST CANDIDATES**

**THE 'B' CERTIFICATE  
(SILENT FLIGHT - SLOPE)**

**2019 ISSUE 2**  
(May 2019)

## Achievement Scheme Information & Communication

The BMFA Achievement Scheme provides every RC flyer the opportunity to set themselves an achievement target to aim for, and then have their progress assessed and confirmed by an examiner.

It is important that All those involved in training, examining and preparing for the tests, are well informed and up to date with all that the scheme has to offer. To this end, and to aid communication, important information regarding scheme developments, as well as details of all of the tests and their associated guidance documents, are made available to everyone via a number of sources, which include:-

- The Achievement Scheme website - <http://achievements.bmfa.org/>
- The BMFA website - <http://bmfa.org>
- The BMFA News
- The Achievement Scheme closed Facebook group

It's important to appreciate that **ALL** of the scheme documents are reviewed and updated on an annual basis. Whichever document you are using, you will know if you have the right one, simply by looking at the date on the front cover. If it's not dated with the current year, it's the wrong one!

Most BMFA Clubs have Club Instructors/Examiners who will be familiar with the scheme and what is expected of anyone thinking of participating. If your club does not have a club examiner then each BMFA Area has an Achievement Scheme Coordinator (contact details can usually be found on the BMFA Area website) who can usually help in coordinating tests, or answering queries about tests etc. All BMFA Areas have Area Chief Examiners who would normally undertake Club Examiner tests, but are also available to help out with club tests, if requested. Importantly, they are also very knowledgeable about the scheme and its requirements. Area coordinators can often find an ACE that is close to your club, if you are having difficulty arranging for a test.

All BMFA Achievement Scheme & training documents are available to download from the BMFA Achievement Scheme website <http://achievements.bmfa.org/>. You can also register your email address with the Achievement Scheme website and receive email notification of any news flashes, notification of scheme events and updates to documentation etc. as soon as they are published.

The Achievement Scheme also has a closed Facebook group (you just have to apply to be included) where comment and queries can be posted and examiners/instructors and members of the Achievement Scheme Review Committee can answer questions, or offer clarification.

If you have any query about the scheme or constructive comment on the scheme you can contact the Power/Silent Flight Scheme Controller ([RCPAS@bmfa.org](mailto:RCPAS@bmfa.org)), or the Achievement Scheme Review Committee, via the BMFA Office.

## General

The Achievement Scheme is run by the BMFA as a National Scheme and it is open to all model flyers. Where a non-member wishes to participate in the achievement scheme the examiner who will be conducting the test must inform the BMFA office via email or telephone no later than the day prior to the test being carried out of the non-member's full name, address and the date that the test will be conducted. This enables the BMFA to extend insurance at suitable levels for the day of the test. If this procedure is not followed the test will be invalid.

The 'B' Certificate is "designed to recognise the pilot's more advanced ability and a demonstrated level of safety which may be considered by an event organiser as suitable for flying at a public display."

As an Examiner, therefore, the level of competence required from a candidate should firstly be based on the question; 'has this person demonstrated their flying ability and safety to me in a satisfactory manner' and, secondly, 'how do I feel about them appearing in public, possibly at a large display, on the strength of the certificate which I may be about to award them'.

The aim of the 'B' certificate has always been to give the club flyer a personal attainment goal beyond the 'A' Certificate; a demonstrated level of competence and safety which is attainable by the average pilot with a little thought and practice.

For many years the 'B' Certificate has been seen by some as a 'display licence' but, whilst it certainly has its uses in the context of displays, it has always been much more than that. It was set up in the first place as a method of encouraging club flyers to gain further flying skills by meeting and being tested to a recognised national standard and this is still its main function.

The long term strategy behind this is that if enough club flyers qualify for their 'B' certificates then the general standard of flying both within your club and nationally cannot help but rise. Examiners should be pressing this concept positively within their clubs and discouraging the idea of the 'B' as 'just a display licence'.

### **A candidate wishing to take the 'B' must already have passed the 'A' in that discipline.**

However where a candidate presents for a 'B' test who does not already hold an 'A' certificate it is acceptable for the candidate to complete the flying portion of the 'A' test successfully and then move immediately to the flying portion of the 'B' test before attempting the test questions.

If the candidate passes the 'A' flying test but fails the 'B', then you should ask the 'A' questions. If the candidate passes both the 'A' and the 'B' flying tests, then you should ask the 'B' questions.

Note that the 'A' flying test does not finish until the model has been retrieved and the post flight checks have been completed

The candidate should have studied the BMFA Member's Handbook 2017 (sections 8 through to 24 inclusive, including any amendments), the Achievement Scheme Handbook, and any local site rules (if applicable). Besides being excellent guides to the safe flying of model aircraft, most of the questions asked at the end of the test will be from these sources.

Conducting a slope soaring test will in all probability require the examiner to exercise a considerable amount of judgement and discretion in how the test is to be conducted; not only do the variable factors such as wind direction, wind speed, turbulence, curl-over or 'rotors' but also the very nature of the slope itself and how good a lift generator it is, all affect the way the test will be performed, observed and rated by the examiner.

For this reason it would be advantageous for the examiner to have personal familiarity with the slope to be used and to be able to make these judgements so as not to adversely affect the candidate's prospects of succeeding.

A further factor lies in the difficulty of actually having the right wind and weather on the right slope at the right time when both candidate and examiner can get together; this also requires a degree of judgement and discretion from the examiner so that there are not too many wasted trips to the slope when conditions are unacceptable and to avoid the frustration of aborting the test so as to frustrate the candidate's enthusiasm to take the test.

### **The Model**

To satisfactorily complete the Slope B an aileron model is essential with preferably full-house controls. Rudder is necessary for the proper completion of the stall turns and axial rolls.

Many slope soarers are of a delta plan form, particularly the very popular 'foamie' machines, which are ideal for learning the aerobatic tasks because of their crash resistance. However these machines are often incapable of a conventional stall and spin and hence may not be suitable because this is an essential part of the test.

The use of a gyro or autopilot is not allowed during the test. If any such system is fitted to the model it must be disabled during the test and you should check that this has been done.

Whatever model is to be used by the candidate it must be capable of conducting all the required manoeuvres; if the examiner believes that the candidate's model is not fit for this purpose, the detailed rationale should be explained. The examiner does not have the discretion to alter the test to suit the limitations of the model.

### **Buddy Box Systems**

Buddy leads and other dual control training aids must not be used during any achievement scheme test.

### **Launch, Flight Pattern and Weather**

It is expected that the candidate will have a reasonable level of competence and confidence before requesting the test.

However flying on the slope introduces many variables and it is the examiner who must decide whether, in the event of the candidate having insufficient height to complete the full test on one attempt, it is because of pilot incompetence or cessation of slope lift over which the pilot has no control. The loss of slope lift offers the examiner additional opportunities to observe how safely the pilot handles the model when struggling in poor air and how the forced landing is handled. A good performance in this should be credited to the pilot.

The loss of slope lift should not be confused for the situation where the pilot puts the model into areas of poor lift or sink as a natural consequence of the slope configuration or wind direction. In these circumstances the pilot is showing an inability to 'read' the slope and the conditions.

It is expected that the pilot will launch the model (but also see section on helpers). The capability to quickly and safely put the model into a purposeful climb out from the slope launch is a key indicator to be looked for.

If the plane that is being used is large and possibly unwieldy, giving rise to problems of holding the wings level prior to launch, it will be acceptable to have the model launched by a helper. Another reason to accept a helper's launch is in very cold conditions when the pilot may choose to use a Transmitter muff to ensure that the cold does not create an unsafe condition due to frozen hands.

The pilot's use of ballast to assist the models capacity to handle heavy conditions will be an area for the examiner to consider.

Given normal conditions with the test being carried out in continual slope lift, there can be little acceptable reason for the pilot to fail to complete all the manoeuvres in the one flight.

### **Consistency**

It is required that the model should be positioned in the lift band out over the slope where all the manoeuvres, bar the landing, are to be performed. The pilot should demonstrate the confident use of down elevator to access and stay in this area; a tendency to be blown back over the slope or general poor positioning is generally a sign of inadequate preparation for the test and may be a contributing factor in failing the candidate.

Prior to the test, the examiner and pilot should clarify the positioning required, the area to be nominated for the landing and any other salient factors of that particular slope of which the pilot should be aware.

### **Continuity**

Although the manoeuvres are set out in such a way that they can be flown one after the other as a schedule, this is NOT what is expected. There will normally be additional sections of flight to position the model for the next element. You, of course, should be watching any extra sections just as carefully as the rest of the flight as they can tell you a lot about the competence of the flyer.

### **Trim**

It is expected that the candidate will start the test with a model that has been trimmed out previously but they should be able to trim the model out in the air if necessary. If you see obvious signs that the model is out of trim and the candidate does not make any attempt to rectify the matter you should seriously question their basic competence.

On the other hand, if they do need to re-trim and are making attempts to do so, you should make allowances for a short time of flight with a somewhat erratic flight path. This should not be penalised unless it puts the model in any danger or unless the model flies into any unsafe area.

### **Nerves**

Quiet competence is what you are looking for during the flight but most candidates will be nervous and you should make some allowance for this. If the flyer is very nervous you should seriously consider abandoning the test for the time being and offering the candidate a coaching flight or two to settle them down before re-taking the test. This can be done on the same day and can really help those candidates who have trouble with nerves when flying in a test situation.

## **Repeating Manoeuvres**

At 'B' certificate level the candidate should be competent to fly the manoeuvres with very few errors. If you see any major faults the test should be taken again. It may be, however, that the candidate will make a minor mistake on a manoeuvre and if you are not fully satisfied with what you have seen you should consider asking for the manoeuvre to be repeated.

Some judgement is called for on your part here. A major mistake is grounds for failing the candidate, especially if loss of control has occurred or a dangerous situation has arisen. You should definitely not let them have multiple tries at each manoeuvre until they get it right but you must give yourself the best chance of assessing the competence of the pilot you are testing.

You should consider what you have seen the model do and if you think to yourself "could be better" then a request that the manoeuvre be repeated may be considered. Be extremely careful about using this option, however, as you could very easily be degrading the worth of the test. It must not, under any circumstances, degenerate into a series of 'practice' manoeuvres. An added complication with a gliding test is the height and thus flight time available to complete the manoeuvres if repeats are requested.

## **Repeating the Test**

The rules allow two attempts at the test in a day. If the candidate fails the first of these you must consider their performance in deciding what to do next. Many failures will be reasonably good pilots or they could be borderline cases. In these circumstances it might be appropriate to offer one or two coaching flights and then a repeat of the test. Remember that many of the candidates will be unfamiliar with flying under pressure and might do very well on the second test.

On the other hand, it will probably be obvious to you on many occasions that the pilot you are testing is simply not ready for the test they are taking. In this situation it is better that you tell them so quite clearly. A little coaching at this point along with areas to practice, is far more useful to everyone than simply telling the candidate that they have failed.

## **Helpers for Disabled Candidates, Young Candidates and Others who have requested help during the Test**

When disabled or young candidates present themselves for the test it may be that they will not physically be able to perform all the actions that most candidates can. At times, other candidates may also request help with certain physical aspects during the test (they may, for instance, have an injured finger). There will be times when you, as an Examiner, will think 'how much can I relax the test requirements for this person?'

Some Examiners make the decision to make no allowances at all but this effectively bars many people from attempting the tests. If we think of the achievement scheme as a true national scheme then we must consider how we can accommodate candidates, not how we can stop them from participating.

The answer, of course, is that you, as an Examiner, must make on-the-spot decisions about what you will allow during the test and, in such cases, you are within your authority to take such decisions. The guidelines set out below may help but at all times the two items at the end of this section must take precedence. They are not negotiable and mean that, whoever the candidate is, they have to convince you that they know what they are doing or what is happening for the full duration of the test.

For instance, a disabled flyer may have difficulty handling the model and may not be able to carry it out, launch it or retrieve it after the flight. The sensible use of a helper is certainly allowable in such cases but it is essential that they only do what the candidate asks them to do. Pre-flight checks may be another problem area that can be overcome by a helper but you should expect the candidate to do as much of the work as possible themselves and they should be able to talk you through anything that the helper does for them. Be sure to discuss all this with the candidate before starting the test.

### **In all cases:**

- (1) If, at any time, the helper takes over the decision making process from the candidate then the candidate must fail.**
- (2) You can make no allowances whatsoever for anyone during the flying of the test. The candidate can either perform the flight manoeuvres as specified or they can't. If they can't then they must not be passed.**

**Make sure in your briefing that both the candidate and the helper are fully aware of both of these points.**

## The Flights

### PREAMBLE

The current test process may quite properly be carried out by any two examiners the lead one of which must be qualified in Silent Flight or any Chief examiner alone provided that he too is Silent Flight qualified.

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 slope 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 trainer or club colleagues using that slope.

Another factor to take particular care over is frequency control; observe the candidate's approach to frequency control especially as it is not uncommon for there to be no peg board at a slope, or when there is nobody else present at the slope on arrival. Question the candidate carefully on his knowledge of the frequency control adopted at any particular site, as not all use the 'peg on' system.

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.

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

The pre-flight checks are laid out clearly in the BMFA handbook. The candidate should also go through the pre-flying session checks, also laid out in the 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.

Slope sites are often areas of countryside frequented by visitors who have no concept of how un-powered model aircraft fly in slope conditions and show a complete disregard for their own safety by wandering into a designated landing area no matter how much effort is taken by the pilot to warn them; the onus for their safety thus is placed upon the pilot at all times even if it means risking the model to avoid a pedestrian; children, dogs running free, kite flyers, grazing livestock and horse riders also present real hazards. All of this requires the candidate to be alert to all or any of these factors present on the slope. Slope sites often have a limited area of lift which can be congested on good days with other slope users; the candidate must be aware of these other users and demonstrate sufficient spatial awareness to ensure the safety of the flight; the examiner may help here by informing other users of the slope that he is carrying out a test and ask for their consideration in staying clear of the immediate area if possible.

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

Pay particular attention to the way the candidate uses the local frequency control system and make sure that they fully understand it and use the correct sequence appropriate to their model. For 35 MHz, this is usually 'get the peg, Tx on, Rx on'. 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 usual Tx on, Rx on sequence. 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.

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 (and launching it if necessary) but any such actions must be performed by you directly on the instructions of the candidate. You must not prompt them or carry out any actions of your own accord. Talk this over with the candidate in your pre-flight briefing.

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

### **(b) Launch the model, gain height and complete one horizontal circuit (either left or right hand) in front of the pilot.**

Here the candidate should demonstrate quick and effective use of elevator to suppress any ballooning up from the launch and to push out from any ground turbulence into the smoother lift band.

If the pilot launches the model himself he should demonstrate a purposeful slightly nose down, wings level launch, quickly establishing control.

Safety awareness needs to be looked for; check that the pilot has looked above and behind for any over flying models and that he does not launch into any passing traffic. Look for the pilot announcing 'Launching' after checking all the above to warn any fellow flyers.

The pilot should be competent enough to push out from the slope whilst climbing in lift and then fly a horizontal circuit to finish up back in front of the launch point. In weak conditions it is acceptable for the pilot to climb in the best lift band (normally along the slope face) and then return when at height and fly the circuit.

### **(c) Fly a horizontal figure eight with the crossover point in front of the pilot.**

A competent B level pilot should be able to attempt this task such that each half of the eight is equal to the other, there is no significant height gain or loss at any time and the crossover at completion should equate to start and entry point of the figure directly in front of the pilot. Correction for drift should be clear. It is good practice to ask the pilot to state 'complete' at the cessation of the task, and all subsequent tasks, so that the examiner can properly assess the manoeuvre and its exit stages.

### **(d) Fly two consecutive loops across wind.**

The task should be completed in front of the pilot with the entry into the climb and exit from dive coinciding spatially. The loops should indeed be as circular as possible with particular attention paid to the second as the speed dies; the key to these vertical tasks is having a sufficiency of speed at the start ...failure to achieve this is a sign that the pilot has insufficient

grasp of the dynamics of the task or the capability of the model. The second loop should replicate the first in its positioning with the pilot being aware of and correcting for downwind drift.

**(e) Fly crosswind left to right and complete a stall turn away from the slope.**

Points to look for are sufficient speed on entry, a vertical climb and dive phase, and a truly stalled turn at the top with major use of the rudder. It is acceptable to initiate yaw before the vertical energy is exhausted as there is no prop wash to kick the tail over. Entry into the climb and exit from the dive should be at about the same height with the exit as crosswind as the entry.

**(f) Fly crosswind right to left and complete a stall turn away from the slope.**

Points to look for are sufficient speed on entry, a vertical climb and dive phase, and a truly stalled turn at the top with major use of the rudder. It is acceptable to initiate yaw before the vertical energy is exhausted as there is no prop wash to kick the tail over. Entry into the climb and exit from the dive should be at about the same height with the exit as crosswind as the entry.

The two stall turns do not have to be completed as two halves of a linked manoeuvre, as it may be necessary for height to be regained after the first stall turn.

**(g) Complete 10 seconds straight and level inverted flight across wind.**

This should be attempted with the model rolling to inverted at the start of the run from one end and rolling out to upright at the end of the run. Half looping into the run is also acceptable, but there is likely to be insufficient energy from this type of entry to complete a satisfactory inverted phase. Again a sufficiency of speed on entry should be looked for to maintain height and a true direction when inverted; a low energy on entry will almost always produce a meandering direction with unacceptable height variation during the run and a very poor roll out on exit. The run should be straight and true with possibly some correction for drift. If the slope is such that a ten second run is not feasible the candidate should be asked to complete two runs of shorter duration. This is to be clarified between examiner and pilot prior to the flight starting.

**(h) Perform one axial roll across wind, either from the left or right.**

Points to be looked for are again the energy going into the roll; it must be truly axial with no hint of barrelling. Some models will complete the roll without rudder but when the model does not have this characteristic the pilot should be inputting rudder to keep the nose up when fully banked. This task requires a couple of seconds to complete; it should not be flick roll and nor does it need to be a slow roll, but of sufficient time to let the examiner see that the axial attitude is maintained visibly through all phases of the roll.

**(i) Perform one axial roll across wind in the opposite direction to (h), rotating in the opposite direction to (h).**

As in (h) above.

As this second roll is likely to test the pilot's co-ordination skills more than the first roll, expect to see a slightly less polished execution but the roll still has to meet the basic expectations.

**(j) Perform a three turn spin with exit in the same direction as the entry.**

The model must enter the spin fully stalled, with possibly rudder input to initiate the spin. It must be a true spin, with no transition into a spiral dive; if the pilot complains that the model won't spin or flops into a spiral dive after an initial spin, either the trim of the model needs attention or the pilot should not be using that model for the test.

Ailerons may be used in the spin (and some models will not stay in a spin without aileron being used) but they must NOT be applied until the model has begun to fall. Note that this does not mean that the model must actually be spinning before the ailerons are applied but it must at least be falling into the spin.

A 'flick' entry, which is not allowed, will always result in one wing of the model rising as the manoeuvre is entered and part of the first rotation will take place in the horizontal plane instead of the vertical. In most cases it will then be very difficult to decide exactly when to start counting the turns of the spin, especially if the manoeuvre has been entered at too high a speed. Look carefully for all these points and insist on a correct low speed 'falling' entry to the manoeuvre.

Look for a clean recovery from the spin with sufficient build up of speed in the vertical before pulling out in the same track as on entry into straight and level flight; if the exit has been performed correctly there should be tendency to slip into an opposite spin on exit.

**(k) Fly a left hand rectangular landing approach and overshoot.**

The purpose of this task is to demonstrate the ability to judge height, speed and direction in the landing approach pattern and to do so in a left hand pattern in (k) and the opposite of that in (l) below. Additionally the pilot is expected to show a high degree of awareness of any potential hazards on the slope, whether they be caused by such things as curl-over/rotors, fixed hazards such as trees or fences or perhaps more significantly, members of the general public on the slope. The circuit should remain out in front of the pilot and thus allow them to keep the landing area in view at all times. A pilot should not fly around themselves.

The following suggestions are only appropriate where the local rules and topography allow flying in the areas mentioned.

This circuit should be consistent with a real landing approach albeit aiming for a touch down about ten feet above ground level to enable the overshoot or higher if there is some distance to go before safely regaining the slope lift band.

This manoeuvre should normally be completed with the final approach to the overshoot some way behind the slope edge.

Where landings behind the slope are not possible it is recommended that tasks (k) and (l) are performed as an approach and overshoot to a slope side landing, requiring competency in a very different skill.

The examiner will be looking for the judgement necessary in taking the model way down the slope face, turning into the slope to crab cross wind up the slope steadily losing energy and speed until at a point of just reaching the top of the slope where the model is close to but not actually stalling to enable the pilot to complete a final turn into wind with virtually no, or even negative, ground speed such that by holding the wings level the model settles to the ground on the edge of a stall.

Given that the slope side approach and overshoot is infinitely variable depending on wind speed and direction it is reasonable to expect the pilot to carry out one or two passes at the task before calling the attempt to be assessed. Another reason to allow a trial pass or two is that a miscalculation here often results in a wrecked or unflyable model, thus terminating the test without a positive outcome. A key point here is to observe how effectively the pilot adjusts the approach legs of the circuit based on the previous pass(es).

**(l) Fly a right hand rectangular landing approach and overshoot.**

As in (k) above but flown in the opposite direction. Normally the pilot will have a strong and weak turning direction, so the examiner must watch both circuit directions with equal concentration. Remember the circuit should remain out in front of the pilot and thus allow them to keep the landing area in view at all times. A pilot should not fly around themselves.

**(m) Fly a rectangular landing approach either left or right hand and land within 15 metres of a pre-determined spot**

The same discretions as in (k) and (l) above apply to the actual landing.

Under all normal circumstances the expectation that the model should land within 15 metres of the spot is quite reasonable where the conditions of weather and terrain are favourable. Even in high wind strengths this should be attainable given the absence of slope conditions giving rise to rotors or other extremes of turbulence in the available landing areas. Models fitted with brakes should be able to complete this task with a high level of accuracy.

Slope side landings will require a degree of discretion from the examiner; any safely completed such landing in approximately the area nominated beforehand with the model landing upright, wings level with little or no energy remaining in the model, resulting in a totally undamaged model, may be judged a success.

**(n) Remove model from 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 who can help here by holding in agreed deflections in windy conditions to prevent the model flipping over or even taking off again.

The candidate must explain the safety considerations behind their decision, which must be agreed with the examiner. If the candidate 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.

Also carefully observe the pilot as he retrieves his model to see that he is checking on the movements of other models, which may be over flying the area or possibly landing.

**(o) Complete post-flight checks required by the BMFA Safety Codes**

Expect to see the pilot checking for full and free control movements after a normal safe landing but a more rigorous airframe inspection if the landing has been somewhat abrupt, as can easily happen on rough terrain.

Check that the pilot frees up the used frequency in a timely manner if others are waiting to fly. When switching off verify that the Rx is switched off first before the Transmitter.

## The Questions

Having successfully completed the safety and flying elements of the test, the candidate must then answer correctly five mandatory questions based on legal compliance, as well as a **minimum** of eight further supplementary questions on safety matters, based on the BMFA Safety Codes for General Flying and local flying rules etc. Remember that on **no account** can a good performance on the questions make up for a flying test that you considered a failure. If you have failed the candidate's flying you should not even start to ask the questions. On the other hand the achievement scheme is a test of both flying ability and knowledge. It doesn't matter how well the candidate can fly, if they cannot answer the questions they should not pass.

### Mandatory Questions

From April 2016 it is a requirement of all tests that candidates must answer correctly 5 questions taken from the list of mandatory questions based on legal aspects of model aircraft flying. (See Appendix) The examiner should only ask 5 questions and if the candidate does not know the answer to any question the test must be considered as a fail.

### The examiner must indicate on the test form which questions have been asked.

It is expected that examiners will select questions that are appropriate to the test being taken, however candidates should familiarise themselves with all of the questions on the list. Candidates are not expected to be "word perfect" with their answers but they should be able to demonstrate that they are fully aware of the legal controls for model aircraft flying. For example if a candidate gives the answer to Question 4 (What does article 241 of the ANO state?) when asked Question 3 (What does article 240 of the ANO state?) it is likely they are aware of both answers and the examiner should point out they have answered the wrong question and ask for the correct answer.

### Supplementary Questions

How many supplementary questions you should actually ask will depend on the circumstances at the time. For instance, if the candidate has done a good flying test and answers the first eight questions with confidence then you need go no further. An acceptable test but with some rough edges can be offset to an extent by the candidate performing well in the first five questions.

A candidate who has done a test which you found only just acceptable and who hesitates on the questions should be asked a few more than five/eight and if you are not satisfied that they have actually read the safety codes, you should not hesitate to fail them.

As an examiner, however, you should prepare yourself thoroughly for any testing that you do and you may wish to sort out your own personal and private list of sensible questions. Don't forget that you can use any local rules which you know and which the candidate should be aware of.

Remember that the majority of questions you ask are to be BASED on the BMFA Safety Codes; you are not expected to ask them 'parrot fashion' and the candidate is not expected to answer that way either.

This opens up the possibility of asking a candidate if they can think of reasons behind specific rules. For instance, why is the club frequency control system operated as it is and what might go wrong?, why should operating transmitters not be taken out when retrieving models from an active flying area? or why should models not be taxied in or out of the pits area? There is always the possibility that the examiner may use the supplementary questions to further explore the candidates understanding of the mandatory questions.

Questions may also be posed on safety topics not necessarily covered in the Codes where special provisions apply on that slope or other slopes likely to be used by the candidate, which it would be reasonable to assume that the pilot should already be aware of them before flying there.

## Administration

There are specific forms for Examiners to use during the Silent Flight Slope 'B' test, and if you do not have one then a call to the BMFA Leicester office will have some in the post to you by return.

Completed forms should be sent to the Leicester office within seven days of the test and, whilst they must be filled in by the Examiner, they may be sent in to the office by either the Examiner or the Candidate. You should take great care that all the details are filled in correctly, especially the successful candidates **NAME** and their **BMFA number** (this can save a great deal of confusion). If the candidate is not a BMFA member then it is especially important that you get their name and address correct and in full.

This is very important as what is seen on the pass form is what will appear on the final certificate. It is embarrassing for you to have to send one back to be re-done and it gives the candidate a definite impression of sloppy work by someone.

## **Examiners and Candidates Check List**

The following is a short checklist of matters to discuss with the candidate taken from this document. This checklist can be used to ensure that all points raised above have been discussed with the pilot prior to any flights:

- 1 Has the candidate read: -  
BMFA Handbook 2017 (sections 8 through to 24 inclusive)  
Achievement Scheme Handbook  
Local site rules (if applicable)
- 2 Discuss whether the model is suitable in “these conditions”
- 3 Any “no fly zones” need to be identified and any local slope sharing rules
- 4 Remind candidate to talk you through anything that the helper does for them as the test progresses
- 5 Agree model position for the main flight tasks
- 6 Agree any Airspace requirements that need to be pre-determined by the Examiner and Candidate prior to the commencement of the test flights
- 7 Clearly identify the landing target and agree with the candidate the required landing pattern that is being looked for (This includes the upwind position from which the manoeuvre starts). Possibly agree the general area to be used in the case of a baulked landing.
- 8 Question the pilot on Frequency control in use at this site and on what he intends to do with his Transmitter whilst retrieving his model.

## ‘B’ CERTIFICATE (SILENT FLIGHT - SLOPE)

### Examiners Test Flight Check List

Candidates Name	BMFA Number	Date	Examiners
FLIGHT TASK		COMMENTS	
(a)	Carry out pre-flight checks as required by the BMFA Safety Codes		
(b)	Launch the model, gain height and complete one horizontal circuit (either left or right hand) in front of the pilot		
(c)	Fly a horizontal figure eight with the crossover point in front of the pilot		
(d)	Fly two consecutive loops across wind		
(e)	Fly crosswind left to right and complete a stall turn away from the slope		
(f)	Fly crosswind right to left and complete a stall turn away from the slope		
(g)	Complete 10 seconds straight and level inverted flight across wind		
(h)	Perform one axial roll across wind, either from the left or right		
(i)	Perform one axial roll across wind in the opposite direction to (h), rotating in the opposite direction to (h)		
(j)	Perform a three turn spin with exit in the same direction as the entry		
(k)	Fly a left hand rectangular landing approach and overshoot		
(l)	Fly a right hand rectangular landing approach and overshoot		
(m)	Fly a rectangular landing approach either left or right hand and land within 15 metres of a pre-determined spot		
(n)	Remove model from landing area		
(o)	Complete post-flight checks required by the BMFA Safety Codes		
Answer five questions from the list of mandatory questions on legal aspects of model aircraft flying.			
Answer satisfactorily a minimum of eight questions on safety matters, based on the BMFA Safety Codes for Model Flying and local flying rules			

## Mandatory Questions List

Revised 14/04/19

**Q(1) Who Regulates all civil flying activities over the United Kingdom, including model aircraft ?**

A The Civil Aviation Authority

**Q(2) How are the rules and regulations for flying established in law by Parliament (statute) ?**

A As a series of Articles contained within in the Air Navigation Order (ANO).

**Q(3) What does Article 240 of the ANO state, in relation to endangering an aircraft or any person in an aircraft?**

A 'A person must not recklessly or negligently act in a manner likely to endanger an aircraft, or any person in an aircraft.'

**Q(4) What does Article 241 of the ANO state, in relation to endangering a person or property?**

A 'A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.'

**Q(5) Who is legally responsible to ensure that a model is flown safely ?**

A The *remote pilot*.

**Q(6) Which Civil Aviation Publication (CAP) relates specifically to the use of model aircraft, and for which specific purposes only?**

A CAP 658 (as amended by CAP 1763), for sport and recreation purposes only

**Q(7) According to CAP 658 (as amended by CAP 1763), which model aircraft are required to have an operating failsafe and what is the minimum setting ?**

A

- 1) Any aircraft >7kg.
- 2) Any Gas Turbine powered aircraft.
- 3) Any powered model aircraft fitted with a receiver capable of operating in failsafe mode.

As a minimum, reduce the engine(s) speed to idle on loss or corruption of signal.

**Q(8) What does Article 94 of the ANO say about the responsibilities of the remote pilot of a small unmanned aircraft ?**

A

- 1) The *remote pilot* of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.
- 2) The *remote pilot* must not fly a small unmanned aircraft within the flight restricted zone (FRZ) of a protected aerodrome unless permission has been obtained from aerodrome Air Traffic Control (ATC).

**Q(9) What does Article 94 of the ANO say about visual contact with small unmanned aircraft ?**

A The *remote pilot* must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.

**Q(10) What is the maximum legal operating height for a small unmanned aircraft, and what is required before you can exceed it?**

A

- (a) 400 feet above the surface.
- (b) Within an FRZ, permission of the relevant ATC, or other relevant authority. Outside of an FRZ, permission is required from the CAA, either individually or via a published exemption. An agreed maximum altitude may be part of these permissions and unaided visual line of sight of the aircraft must always be maintained.

**Q(11) What does Article 94 of the ANO say about 'commercial operation' for small unmanned aircraft?**

A The *operator* of a small unmanned aircraft must not cause or permit a small unmanned aircraft to be flown for the purposes of commercial operations, and the *remote pilot* of a small unmanned aircraft must not do it for the purposes of 'commercial operation' except in accordance with a permission granted by the CAA.

**Q(12) How is a flight for the purpose of 'commercial operation' defined ?**

A Any flight for which *remuneration* or 'valuable consideration' is given or promised in respect of the flight or the purpose of the flight. Essentially any gain you may make from the flight/operation undertaken.

**Q(13) How is 'a small unmanned surveillance aircraft' defined ?**

A An aircraft which is equipped to undertake any form of surveillance or data acquisition (this includes all camera equipped aircraft) .

*NOTE: The provision of data solely for the use of monitoring the model is not considered to be applicable to the meaning of 'surveillance or data acquisition'.*

**Q(14) What are the separation requirements of Article 95 - for small unmanned surveillance aircraft - when operating over or within a congested area or organised open-air assembly of more than 1,000 persons ?**

A The aircraft must not fly over or within 150 metres of a congested area or organised open-air assembly of more than 1,000 persons

**Q(15) What are the separation requirements of Article 95 - for small unmanned surveillance aircraft - in respect of any vessel, vehicle or structure which is not under the control of the operator or remote pilot of the aircraft ?**

A The aircraft must not fly within 50 metres of any vessel, vehicle or structure not under the control of the *operator* or *remote pilot* of the aircraft.

**Q(16) Except during take-off and landing, what are the separation requirements of Article 95 - for small unmanned surveillance aircraft – in respect to persons not under the control of the operator or remote pilot?**

A The aircraft must not fly within 50 metres of any person not under the control of the operator and/or remote pilot of the aircraft.

**Q(17) What must be obtained before any flight within the 'flight restriction zone' of a protected aerodrome for any aircraft?**

A Obtain permission from the appropriate Air Traffic Control unit, or other relevant authority for the FRZ.

**Q(18) CAA General Exemption E 4457 - permits FPV flight without a buddy box, but with a competent observer. (a) How must the competent observer monitor the flight and (b) What is the maximum mass of aircraft that may be flown under this exemption?**

(a) The competent observer must maintain direct unaided visual contact with the model at all times and communicate with the *remote pilot*.

(b) The aircraft must be below 3.5kg including batteries and fuel.

**Q(19) Who has legal responsibility for the safety of an FPV flight a) conducted with a buddy box lead and b) conducted without a buddy box lead ?**

A (a) The *remote pilot* (master Tx) who must maintain direct unaided visual contact with the model at all times.

(b) The *remote pilot*, who must have a competent observer maintaining direct unaided visual contact with the model at all times.

**Q(20) According to CAP 658 (as amended by CAP 1763) what are the 8 'Only fly if' checks for an FPV flight of an aircraft over 3.5kg ?**

- A
- 1) The activity is solely for 'sport and recreation' purposes;
  - 2) Two pilots take part;
  - 3) A Buddy Box system is employed;
  - 4) The *remote pilot* operates the master transmitter;
  - 5) The *remote pilot* does not wear the headset or view a screen;
  - 6) The aircraft remains within the natural unaided visual range of the remote pilot;
  - 7) Reliable operation of the Buddy Box is established;
  - 8) A clear handover protocol is established.

**Q(21) What is a Flight Restriction Zone (FRZ) and how would you find out if you were operating in the FRZ of a Protected Aerodrome?**

- A
- (a) An FRZ is a large circular area centred on the reference point of a protected aerodrome, with the addition of rectangular extensions from the end of the runways.
  - (b) All FRZs are shown on a map on the CAA/NATS website at <https://dronesafe.uk/restrictions>

**Q(22) What is a Protected Aerodrome?**

- A
- (a) An EASA certified aerodrome i.e. what would typically be called an airport.
  - (b) A Government aerodrome i.e. a Military airfield.
  - (c) A National licenced aerodrome i.e. most smaller 'general aviation' airfields.

**Q(23) What is the definition of a model aircraft – legally a 'small unmanned aircraft'?**

- A
- A small unmanned aircraft is any unmanned aircraft, other than a balloon or a kite, having a mass of not more than 20kg without fuel, but including any articles or equipment installed or attached to the aircraft at the commencement of the flight.

**BRITISH MODEL FLYING ASSOCIATION**

**SMAE Ltd**

**Chacksfield House, 31 St Andrews Road, Leicester, LE2 8RE**

Telephone - 0116 2440028      Fax - 0116 2440645

E-Mail - [admin@bmfa.org](mailto:admin@bmfa.org)      Website - <http://www.bmfa.org>