



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

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

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

ISSUE 1

JUNE 2006

General

The 'A' Certificate is a measure of flying ability and safety which "may be equated to a safe solo standard of flying" and an increasing number of clubs use it as their 'solo' test. As an Examiner, the level of competence you should expect of a candidate should be based on that criterion; that is 'is this person, in your opinion, fit to be allowed to fly unsupervised'.

A pilot capable of flying to 'B' certificate standards and wishing to go straight to the 'B' test without taking the 'A' test may do so but candidates should on no account be forced along this path. A flyer, known within a club to be a good pilot, going through the 'A' before taking the 'B' can be an excellent example to the rest of the club members and this should be pointed out to any candidate wishing to go direct to the 'B'.

The candidate should have studied the BMFA handbook, any local site rules (if applicable) and be familiar with the 'Safety Code for General Flying' and the 'Operational Guide, All Models and Radio Control'. Besides being an excellent guide to the safe flying of model aircraft, most of the questions asked at the end of the test will be from these sections of the handbook.

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 effect the way the test will be performed, observed and rated by the examiner.

For this reason it would be good practice 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

Although slope soaring has brought about its own purpose designed type of model, usually aileron equipped with a quite high degree of manoeuvrability, the A test can be taken effectively with a rudder/ elevator basic trainer type of slope soarer or even a thermal soarer. Because of their slower flying speed and more stable behaviour a thermal soarer will be a more predictable model to use for the 'A' with the only drawback being possibly in the landing manoeuvre where its rudder control will make for a more difficult final approach; such models are usually incapable of handling the higher wind speeds encountered on the slope and thus the examiner may have to advise that if the candidate is using a r/e thermal type model the test may only be conducted in lighter conditions.

Many slope soarers are of a delta planform, particularly the very popular foamie machines, which are ideal for learning on 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.

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.

Launch Height, Flight Time 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; this latter difficulty 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.

This latter problem 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.

As the 'A' test is often used as an indicator of the pilots ability to fly safely when alone and so it would be desirable (but not mandatory) that the pilot launches the model. No matter who launches the glider 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.

It would be sensible to use a launcher if the machine being used is large and possibly unwieldy giving rise to problems of holding the wings level prior to launch or 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.

Although unlikely, the pilot's use of ballast to assist the models capacity to handle heavy conditions will be an area for the examiner to consider. This is a factor more likely to crop up in the B test rather than the A.

Given that the test will normally be carried out in conditions of continued 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 'A' certificate level the manoeuvres are simple and the candidate should be competent to fly them 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. Also be aware of the height of the model and the remaining manoeuvres required.

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. It could then be extremely useful for you to offer to fly a demonstration test for them (assuming that a suitable plane is available to you and that you are happy to do so) so that they can gain an idea of the standard of flying required, especially if they have shown a lack of understanding of the manoeuvres and positioning. This, possibly along with a little coaching, 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 be carried out by any examiner registered in Silent Flight, Helicopter or Fixed Wing.

Some sites have very specific rules about airspace sharing with hang gliders or para gliders and 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.

(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.

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

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 understand it and use the correct sequence of 'get the peg, Transmitter on, Receiver on'. Also watch carefully and take note that the transmitter controls, trims and switches are checked by the pilot.

Any candidate who switches their radio on before checking the frequency control system 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.

Generally, they must show that they are paying particular attention to the 'transmitter on - receiver on' sequence.

(b) Launch the model and gain height.

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 level or 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.

(c) Fly for ten seconds straight and level across wind.

This should be completed with the model clearly pointing in the crosswind direction, which may not be parallel with the slope face if the wind is slightly off the slope; crabbing sideways is not acceptable. Any wing drop should be quickly corrected, with effective use of elevator to maintain a steady sustained height with no significant height gain or loss.

Some slopes may not be long enough to complete a ten second pass, in which case it is acceptable to ask the candidate to repeat this task so as to satisfy the examiner of sufficient competency.

(d) Fly for ten seconds straight and level across wind in the opposite direction to (c).

Comments in (c) apply.

(e) Perform one 360 degree left hand turn.

Starting from an into wind position this should be completed smoothly with a steady angle of bank such that the turn is steady and progressive; it may describe an ellipse rather than a circle as the model flies downwind. Again control of any tendency to balloon up when returning into wind should be expected. Given the constant state of slope lift there should be no appreciable height loss or gain.

(f) Perform one 360 degree right hand turn.

Comments as in (e) above

(g) Perform two consecutive 360 degree 'thermal' turns, either left or right.

If the model drifts back over the slope completing this task in a strong wind you should watch for positive actions to regain the main lift band (and of course any drift should not be allowed to take the model into a no-fly zone). Direction of exit should be the same as entry. Any tendency to stall or spiral dive should be marked down. Again smoothly flown elliptical 'circles' are perfectly acceptable as a function of the model following the 'thermal' downwind.

(h) Fly into wind and perform a straight stall and recovery.

When calling this task, expect the pilot to slow the model sufficiently to initiate a stall and then recover smoothly with the same heading into wind after the stall recovery. In anything

other than rather light wind conditions, it is possible that the wind speed may exceed the stalling speed of the model if the model is held stationary into the wind such that a stall is never precipitated; in these conditions it is acceptable to have the pilot induce a marked nose-up attitude to initiate the manoeuvre.

This increases the likelihood of the model dropping a wing and entering the early stages of a spin, so look for an immediate correction and a smooth return to flying speed.

(i) Fly a rectangular circuit in front of the slope in the opposite direction to that chosen for the landing approach.

This is to test the candidate's ability to control all aspects of a landing approach when that landing is not the pilot's favourite approach; most right handed pilots prefer a left hand circuit and approach and initially can struggle when asked to perform this, failing to co-ordinate the turns correctly, misjudging the need for down elevator on the downwind leg to avoid an apparent 'high speed' stall and crucially pulling too hard on the final turn to correct earlier misjudgements and dropping a wing into a stall or spin into the ground. Failing to orientate the model correctly as it travels downwind towards the pilot is also to be watched for.

(j) Fly a rectangular landing circuit opposite to that flown in (i) and land within 20 metres of a pre-designated spot.

Landing a slope model is always an interesting experience as there are so many more variables to be accommodated than a flat field thermal or powered model.

Before the flight commences the examiner and pilot should discuss the landing reference to the ease or difficulty presented by the slope. Such features may include curl-over or a 'rotor', obstructed approach because of trees or topography, or possibly risky because of members of the public in the landing area. Resulting from this, a landing area/spot should be identified which minimises or removes these risks; the pilot's awareness of these problems should be recorded and used in the overall assessment.

On some slopes the only way to get a model down is a 'slope-side' landing which requires a high degree of practice and experience to achieve satisfactorily.

The examiner should be looking for all the features described in (i) above, with a greater attention being paid to checking that the chosen landing area is clear at several stages in the approach and circuit. There is nothing wrong with the pilot wanting to do an approach and over fly to enable a proper judgement of distances and conditions on the circuit before committing to a final landing.

The objective of the task is to achieve a safe reasonably flat wings level landing at a speed comfortably above the stall, looking out for how the pilot adjusts the remainder of the approach if at any stage too high or too low and a comfortably high flying speed is maintained on the downwind leg, avoiding the novice's mistake of pulling up stick because the model's ground speed appears too high. This mistake can often lead to a too low a crosswind base leg with the pilot being tempted into a too early and sharp final turn resulting in the model landing too far downwind or stalling in.

If slope side landings are required, the examiner's discretion is called upon to judge whether the landing was safely and reasonably completed even if the 20 metres is not achieved. Again practice attempts are to be encouraged.

(k) Remove model from landing area.

It is best practice to leave the transmitter behind when retrieving the model. The Examiner can help here by holding in agreed deflections in windy conditions to prevent the model flipping over or even taking off again.

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.

(l) 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 Receiver is switched off first before the Transmitter.

The Questions

The candidate then "must answer correctly a minimum of five questions on safety matters, based on the BMFA Safety Codes for General Flying and local site flying rules."

Remember that on no account can good performances 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 safety questions they should not pass.

How many 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 five 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 and if you are not satisfied that they have actually read the safety codes, you should not hesitate to fail them.

There is some debate as to whether a list of 'approved' questions should be published for examiners to use. Current opinion is that if such a list is published then candidates will also be able to study the list and will not need to study the BMFA handbook and this is probably not a good idea.

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 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? or why should operating transmitters not be taken out when retrieving models from an active flying area?

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: -
The BMFA handbook
Local site rules (if applicable)
'Safety Code for General Flying'
and 'Operational Guide, All Models and Radio Control'.
- 2 Discuss whether the model is suitable in "these conditions"
- 3 Any "no fly zones" need to be identified
- 4 Remind candidate to talk you through anything that the helper may do for them as the test progresses
- 5 Agree model position for general manoeuvres
- 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.

‘A’ 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 and gain height		
(c)	Fly for ten seconds straight and level across wind		
(d)	Fly for ten seconds straight and level across wind in the opposite direction to (c)		
(e)	Perform one 360 degree left hand turn		
(f)	Perform one 360 degree right hand turn		
(g)	Perform two consecutive 360 degree 'thermal' turns, either left or right		
(h)	Fly into wind and perform a straight stall and recovery		
(i)	Fly a rectangular circuit in front of the slope in the opposite direction to that chosen for the landing approach		
(j)	Fly a rectangular landing circuit opposite to that flown in (i) and land within 20 metres of a pre-designated spot		
(k)	Remove model from landing area		
(l)	Complete post-flight checks required by the BMFA Safety Codes		
Answer correctly a minimum of five questions on safety matters from the BMFA Safety Codes and local flying rules.			

Issue 1 Ratified by Areas Council, 10th June 2006

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