



**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 - THERMAL)**

2011 ISSUE

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

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.

There is a section in the Handbook that gives the relevant page numbers of these sections but remember that addendum sheets to the Handbook are published in BMFA News and on the BMFA website and these may also be relevant as they contain up-to-date information.

Also be aware that you may ask questions on any local site rules that the candidate should be aware of and these may form an important part of the test questions you ask.

The Model

The test can be performed with virtually any Thermal Soaring Glider model and launch may be by Hand Tow, Bungee, Winch, Hand Launch or Aero-Tow. The test will not be taken with electric powered gliders, however, as the Silent Flight Electric 'A' Certificate would be more appropriate to that type of model.

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 brought by the candidate, it must be suitable to fly the manoeuvres required by the test they are taking. You do not have the authority to alter the required manoeuvres to suit a model and if, in your opinion, the model is unsuitable for the test then you should explain this to the candidate and tell them that they cannot use that model.

Buddy Box Leads

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

Launch Height, Flight Time and Weather

The 'A' certificate candidate should be a reasonably confident pilot, even though they may only have been flying for a few months.

The test states that "If insufficient height is achieved at launch or very bad sink is encountered that will not allow the completion of the entire test schedule the Examiner may allow an additional flight. If in the opinion of the Examiner a poor launch height is due to pilot ability the test is failed.". Note that this applies to Hand Launched Gliders too and they are not allowed multiple attempts to obtain good launches.

Possible factors that can lead to low launch height must be separated into two categories.

The first category are things the Pilot should be aware of and has control over i.e. too small or weak a Bungee for the model size or the incorrect model. The second category is of things the Pilot does not directly control i.e. a crossed line, the hand tower having a problem, or the winch snagging.

The first category events are normally test failures, the second need to be considered on a case by case basis. If you are happy the Pilot could not have foreseen the problem and was behaving in a reasonable and safe manner then they should not be penalised. Any emergency should of course be safely dealt with and a failure to do so will result in a failed test. A special mention should be made of "Pop-Offs" on launch as these can fall in either category and so you will have to use your judgement on any such occurrence.

As thermal gliders are far more affected by the conditions than most models even full launch height may not give sufficient flight time for the full test. If conditions are difficult the Examiner should discuss whether the model is suitable in "these conditions" and thus whether the test should be attempted. Remember the use of a "suitable model" is the candidate's responsibility and so it is their decision whether to attempt the test. For example a fast flying F3B style may easily cope with a day which would be impossible with a simple lightweight Rudder/Elevator design.

However, the test is not about performance, it is about aircraft handling and a well flown model in conditions not really suitable for it does deserve credit.

Consistency

The combination of reasonable launch height and good speed control should mean that the model will be flying at a gently decreasing height throughout most of the test and you should note if height is lost unnecessarily.

It is a requirement that "All manoeuvres must be carried out in airspace pre-determined by the Examiner and Candidate prior to the commencement of the test flights". Thus any "no fly zones" need to be identified and discussed prior to the flight. This conversation is also the examiners chance to clearly identify the landing target and agree with the candidate the required landing pattern that is being looked for.

Somewhat inconsistent flight paths are not necessarily reasons to fail the candidate but they do give you a good indication of the pilot's general level of competence and could influence your final decision. Very poor positioning is a sure sign that the pilot has not practised the test and is a legitimate reason to fail them.

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 (assuming that a suitable plane is available to you and that you are happy to do so) for them 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, release it for the launch 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 and towing signals 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

(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, tow hook, control linkages and surfaces.

Points to look for are that the candidate has a steady and regular ground routine, which should include inspecting the launch apparatus. 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, Tx on, Rx 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 releasing it at the start of the launch 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) Check that any launching equipment is laid out correctly, securely and safely with respect to the field layout.

Depending on the launch method, ensure that;

- * **The towline is in good condition**
- * **That the bungee is securely anchored to the ground**
- * **That winches and turnaround pulleys are secure and a master on/off switch is fitted to the winch. If using a winch the candidate should be aware of the cut-off facilities to stop the winch and should brief any helper accordingly**
- * **If aerotow is to be used, the tug pilot is aware of the model he will be towing, that a launch plan is agreed and that the release mechanisms on both the Tug and the Glider are functioning correctly.**

Generally an aerotow line will be approximately 50 to 75 metres in length and will have an identification pennant attached. The candidate should check the suitability and condition of the line and make sure that any pennant is attached directly to the line itself and not to any of the line fixings.

(c) Check that the launch area and landing area are clear both on the ground and in the air and, after complying with the site frequency control system, prepare the model for launch. If a helper is used to launch the model they should be fully briefed as to what is required

If using a winch the candidate should be aware of the cut off facilities available to stop the winch and they should brief any helper accordingly. Many pilots prefer a helper to "drive" the Winch and this is acceptable. This helper may also release the glider for launch. The normal helper rules apply and the candidate must clearly be in charge.

(d) Clearly announce "launching" and launch the model under full control, any deviation from the expected launch path must be corrected smoothly and quickly. Complete the launch by releasing the model from the launch line cleanly, if applicable, and level the model into wind without stalling.

The Launch should be clearly under control and any deviations smoothly and swiftly corrected. The launch should appear competent and whilst you are not looking for the highest launch possible a reasonable height should be achieved.

(e) Fly the model straight and level for at least 15 seconds while pilot and Examiner clear the launch area. This does not apply to Hand Launched Gliders.

This manoeuvre should place the model upwind of any tow/launch area and in a position where the following manoeuvres can safely be performed (i.e. the thermal circles drifting with the wind should not cause the model to enter any no-fly area. Discuss this with the candidate before the test. The shorter flight times of hand launched gliders means that Candidate and Examiner should stay together near the launch point and there will be no need to fly for the 15 seconds to allow the launch point to be cleared.

(f) At the Examiners call the model should be stalled into wind and recovered smoothly with minimum loss of height, heading into wind.

The examiner should call this manoeuvre clearly (and calmly) and the candidate then slows the model to a stall and recovers with a minimal loss of height. A severe pitch up at initiation is NOT wanted and should be avoided as it demonstrates that the candidate is not familiar with stall procedures.

Some gliders will drop a wing no matter how straight and level the stall itself is. So long as the candidate recovers to their original heading in a smooth, controlled and timely manner this should not be penalised.

(g) Perform 3 consecutive 360 degree thermal turns to the right or left with minimum loss of height, ending on the same heading as the entry. The model must show no tendency to stall or enter a spiral dive.

The turns should be of a consistent rate and the model should be allowed to drift with whatever wind is present. We are not looking for nice circles from the ground but for a steady rate of turn as would be needed to stay with thermal lift.

If the pilot is lucky enough to find lift this is a bonus but it certainly is not required. Any turbulence caused by the lift should be allowed for when judging the turns. If the air is extremely turbulent it may be easier for all concerned to ask the candidate to fly away from it and demonstrate the turns in more stable air.

Make sure you note the direction of the turn and watch for any excessive height loss or erratic movements that cannot be attributed to turbulent air.

(h) Perform 3 consecutive 360 degree thermal turns in the opposite direction to above with minimum loss of height, ending on the same heading as the entry. The model must show no tendency to stall or enter a spiral dive.

It may be necessary to fly the model back up wind to a safe position before this section is started. Allow the candidate to nominate when he is ready and in position to start. As with the first set of turns a drift with the prevailing wind at a steady rate of turn is required. Of course we are looking for the opposite direction turns with the rest of the requirements as outlined in (g).

(i) Fly the model up wind to prepare the model for the landing phase. The model should be flown with no tendency to stall and with minimum loss of height.

A reference point should have been agreed before the flight for a suitable upwind position. Reaching the point exactly is not critical but you are looking for the pilot to fly smoothly into the agreed area and then position themselves at a suitable height for landing.

Watch head movements that show the candidate is checking the landing area is clear.

(j) Call "landing" and fly a down wind leg, followed by a crosswind leg and final approach. The crosswind leg may be a continuous turn if preferred and it may be stretched past the centre line of the landing approach to allow control of height but the model must be flown back to the centre line for the final approach. The whole approach should be flown smoothly with no stalling and the turns should have reasonably large radii.

When the candidate is happy the landing area is clear they should make a clear call of landing loud enough to be audible to the other flyers. 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.

Lift or sink in the circuit can cause any pilot to be too high or too low. How the candidate adjusts circuit lines and speed will tell you a lot about their competence.

If the landing area is congested and the candidate is not sure it will clear in time, they may need to nominate an alternative area. How you view this is at your discretion. If you are happy they did the safe and sensible thing then you should not penalise them. However if you feel they were out of position or used this as an excuse then you should fail them. An important point to note is the decision should be taken and clearly stated before the landing is commenced.

(k) Land the model into wind within 20 metres of a predetermined spot.

This is probably where a weak candidate will fail the flying tests, especially if they are flying a glider without airbrakes or one where the airbrakes have a strong pitching effect.

You are looking for a smooth landing and not a 45 degree dive into the ground. The judgement of height on the landing circuit will have been critical to this phase.

Things to watch out for are the pilot who realises he is too high and then dives rather than slows down (thus covering more ground, the opposite of what he wants) and conversely the pilot who is too low and slows the model down. Both examples show a fundamental lack of understanding and whilst not enough to fail the test on their own, they are a good pointer to a weak candidate.

(l) Retrieve the model from the landing area, informing other pilots that the landing area is clear.

The candidate should NOT take their transmitter with them when retrieving their model and it should be left with a competent person. If no one else is available to hold it then you should offer. When the model has been retrieved and returned to the launching area the transmitter should be returned to the pilot. There is no requirement to turn off the model and transmitter (and then clear frequency control, etc.) if the next flight will be made immediately.

Hand Launched Gliders, by the nature of their flights and flight times, should be landed close to their launch point and launcher. In this case the candidate may retain possession of their transmitter when picking up the glider. However, if a glider lands away from the launch area and must be retrieved then the transmitter must be left with a competent person, exactly as with other types of glider.

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

What is required here will be dependant on how smooth a landing was achieved. Any abrupt stop or collision with a fixed object would warrant a full structural and control surface check. A smooth landing will only need a visual and control movements check.

As safety is the main driver the candidate may choose to perform a full check after each flight and this should not be discouraged.

(n) Repeat the above schedule (c - n) twice more, giving a total of three flights.

If the launch apparatus is available immediately there is no requirement to power off Rx then Tx and return to the pits. The three flight group can either be completed immediately in one go or with delays as launch apparatus is re-set etc. The only hard requirement is that the frequency control system of the site must be complied with and the frequency cleared if the model will not be re-flown immediately.

Once the three flights are complete return to the pits.

After schedule point (l) has been completed for the third flight the candidate and examiner should return to the pits area. The post-flight checks (m) should be completed in the pits and the frequency control system cleared.

Check that the pilot observes the correct powering off sequence and clears the frequency control system in a timely manner.

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 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 of the 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?

Administration

There are specific forms for Examiners to use during the Silent Flight Thermal 'A' 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: -
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 does for them as the test progresses (includes Tug pilot briefing if an aerotow is being used)
- 5 Agree model position after the launch and straight flight tasks (d & e) are completed
- 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.

‘A’ CERTIFICATE (SILENT FLIGHT - THERMAL)

Examiners Test Flight Check List

Candidates Name	BMFA Number	Date	Examiner	
FLIGHT TASK	COMMENTS - FLIGHT 1	COMMENTS - FLIGHT 2	COMMENTS - FLIGHT 3	
(a) Carry out pre-flight checks as required by the BMFA Safety Codes				
(b) Check the launching equipment, if applicable				
(c) Check that the launch area and landing area are clear ground and in the air, and prepare the model for launch				
(d) Call “launching” and launch the model				
(e) Fly the model straight and level for at least 15 seconds whilst clearing the launch area (not applicable to HLGs).				
(f) Stall the model into wind and recover				
(g) Perform 3 consecutive 360° thermal turns to the right or left				
(h) Perform 3 consecutive 360° thermal turns in the opposite direction to above				
(i) Fly the model up wind to prepare the model for landing				
(j) Call “landing” and fly an approach				
(k) Land the model into wind within 20 metres of a predetermined spot.				
(l) Retrieve the model from the landing area				
(m) Complete post-flight checks required by the BMFA Safety Codes				
Answer at least 5 questions on safety matters from the BMFA Safety Codes for General Flying and local flying				

1st Issue - Ratified by Areas Council, 10th June, 2006

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