



HELICOPTER 'A' CERTIFICATE RULES AND GUIDANCE NOTES FOR BOTH CANDIDATES AND EXAMINERS

The ultimate aim of the exercise is to lead to an understanding of what is required to fly your model under your full control and in a safe manner. After which it is practice, practice, and practice.

Happy Landings!

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2 Certification Rules

2.1 The Model

The test can be performed with virtually any model helicopter, fixed pitch or collective. The helicopter may be internal combustion engine powered or electric powered. The only exception to this is that helicopters with contra-rotating main rotors are not permitted for the 'A' test, the reasoning being that these models are generally too stable to provide an adequate test of a candidate's abilities.

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. The selection of the model to do the test is the responsibility of the pilot and it is their ability you are testing, not the model.

2.2 Buddy Box Systems

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

2.3 Gyros, Electronic Stabilisation and GPS

Where a fly bar is fitted, it is acceptable to use an electro-mechanical or solid state gyro in a helicopter being used to take the test although electronic stabilisation is restricted to a single sensor acting in rotation around the yaw axis only. This allows a range of gyros to be fitted, from simple yaw dampers to solid state heading lock units but only acting on the tail rotor.

If the helicopter does not have a fly bar fitted it is acceptable to use extra electronic stabilisation, however the extra electronic stabilisation must only be acting as a fly bar replacement system and must not take over control from the pilot or achieve automated flight.

The use of any autopilot and/or artificial stability features which are (or may be) designed into such units beyond definition above is not acceptable during the test for the 'A' certificate and is not permitted.

Candidates should be prepared to explain the capabilities of the system they are using and show that it does not take over control from the pilot and that automated flight will not be achieved during the test.

GPS must not be used during any test.

2.4 Height and Speed

The 'A' certificate candidate should be a reasonably confident pilot, even though they may have been flying helicopters for only a few months. Flying too high or too low is not the mark of a confident pilot. The test should be flown at the heights specified in the individual elements with little deviation.

The two manoeuvres in the 'A' certificate test require slightly different speeds as will be explained on the manoeuvre descriptions.

2.5 Wind Direction

There is no requirement for the fixed positioning of manoeuvres relative to the wind direction in the Helicopter tests and you will find no reference to the wind in the text of either the test or this Standards Document.

This makes it absolutely ESSENTIAL that you discuss this with the candidate at length so that you are both aware of exactly how you want the manoeuvres to be presented and what limitations will be accepted if the wind direction is not favourable.

2.6 Consistency

Good use of the controls should ensure that the model stays at a constant height, and moves at a steady speeds suitable to each of the separate elements of the test. All deviations from these constants should be noted, and will form part of the judgment of the test.

Unnecessary varying of height and inconsistent lines are valid reasons to fail a candidate at this level as they give a good indication of the flyer's general level of competence and they must strongly influence your final decision. Poorly flown height or lines are a sure sign that the flyer has either not practiced the test or has not reached the required standard of flying and are legitimate reasons to fail them.

2.7 Continuity

For the 'A' test the manoeuvres are set out in such a way that they are flown one after the other as a short sequence. You should discuss with the candidate before the flight

the way in which you would like the various elements flown and the candidate should have a good knowledge of the test before the event. If the candidate is very hesitant during the test and is not capable of following the set sequence then you might conclude that they have either not had enough practice or that their basic flying skills are not yet well enough developed.

2.8 Trim

It is expected that the candidate will start the test with a model that has been trimmed out previously but, if necessary, they should be able to trim the model out relatively quickly. If you see obvious signs that the model is out of trim and the candidate makes no attempt to rectify the matter, you may well 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 path. This should not be penalised unless it puts the model in any dangerous situations or unless the model flies behind the pilot or into any other unsafe area. If the pilot does use the first part of the flight as a trimming exercise, they should be required to land as soon as they are satisfied with the trim and the test should then commence at manoeuvre (b). If a flight is abandoned prior to starting manoeuvre (b) because of trim problems it will not count as a test flight attempt.

2.9 Nerves

Quiet competence is what you are looking for during the flight, but most candidates may well 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 arranging a coaching flight or two to settle the candidate 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.

2.10 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.

You should consider what you have seen the model do and if you think to yourself "could be better" than 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.

2.11 Repeating the Test

Depending on the time availability, the rules allow two attempts at the test in one day and 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 or borderline cases and in these circumstances it may be appropriate to arrange one or two coaching flights before repeating the test. Remember that many of the candidates will be unfamiliar with flying under pressure and might do very well on the second test.

However, 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 arrange a demonstration test for them so that they can gain an understanding of the standard of flying that is required, especially if they are not clear about the manoeuvres and the positioning for them. This, possibly with a little coaching, is far more useful to everyone than simply telling the candidate that they have failed.

2.12 Interruptions to the Test

A possibility that may occur during a test is a motor failure part way through, which with helicopters could very well lead to a damaged model. If this is the case then the test obviously cannot continue and you should invoke the rule that the test should be performed in one flight and count the flight as one of the two attempts allowed during the day.

Genuine motor/engine trouble or even motor/engine-out situations during the test may be dealt with in one of three ways:

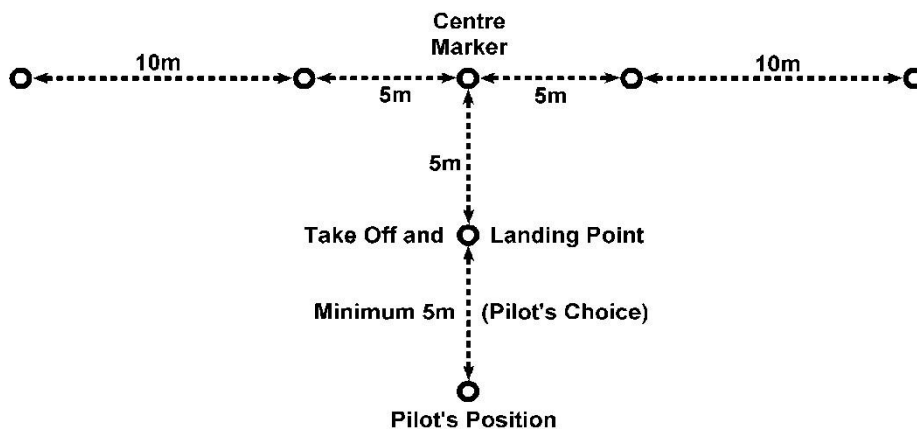
1. If the test was being generally flown in a satisfactory manner and the problem can be rectified quickly then the candidate may be allowed to continue the test from the start of the manoeuvre in which the problem occurred.
2. If the problem cannot be rectified quickly but you consider that it was a genuine unforeseen occurrence, you may annul the test and not count it as one of the two attempts.
3. If the test up to the point of failure was not satisfactory, you have the option to cancel the rest of the test and count the flight as one of the two attempts allowed during the day.

Obviously, you will have to use your judgment on this matter as there will rarely be black and white situations but how they handled the emergency should be of great interest to you when you come to review the candidate's overall standard of flying.

2.13 Ground Positioning

When taking a helicopter test, it is your responsibility as the Examiner to lay out a series of ground markers to assist both the candidate and yourself to assess the manoeuvres being flown. Small cones or any other similar marker may be used as long as they don't interfere with the flying of the model. However, it is vital that the marker used for the take off/landing point (TOLP) does not affect the model at all and probably the best marker in this case would be something like the fluorescent discs that lay flat on the ground.

The layout of markers required is shown below and it must be emphasised that absolute accuracy of distance is not required when setting them out. Pacing will be quite accurate enough. It is essential, though, that the centre marker, the TOLP and the pilot's position are in line.



GROUND POSITIONING MARKERS

It is not a requirement that the markers in the cross bar are used by the pilot but they are there to help. However, the centre marker, the takeoff/landing point and the pilot's position must be used with some accuracy.

Landings should generally be no more than a metre from the takeoff/landing point and the pilot is expected to stay close to the selected pilot's position mark although it is not required that they 'plant' their feet. If you feel that the pilot is starting to wander, you should stop them and insist that they stand near the pre-selected mark.

Remember that it is a requirement that ‘all manoeuvres are carried out in front of the pilot’ so the use of the pilot’s position point will be important.

2.14 General Manoeuvres and Hovering

All take-offs and landings should be smooth, without undue oscillations, and lifts and descents should be straight and controlled with the model a comfortable and safe distance in front of the pilot. In any stationary hovering the model should remain steady and should not oscillate unduly.

The standard ‘brief’ hover time is about five seconds. You should discuss this with the candidate before the test so that they know that you will want to see a positive stop with the hover long enough to show that the model is well controlled and steady with little wandering or oscillation. Stopwatch accuracy is not required.

The candidate should also be aware that the decision to move on is theirs and that you will not be asking them to commence with the next manoeuvre. However, during your pre-flight briefing, they may ask that you indicate when you are satisfied that they have completed their ‘brief’ hover times to help them decide when to move on. This is quite permissible if requested by the candidate.

Circuit and other ‘flying’ manoeuvres should be performed at the heights mentioned in ‘Height and Speed’ above. Movement of the model from one point to another whilst in the hover should be done at a steady walking pace.

Care should be taken in the flying manoeuvres that the line of approach and height each time is consistent and you should take particular note of performance in this area.

2.15 Intermediate Landing

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

Full pre and post flight checks are not normally required during an intermediate landing and takeoff unless the model suffered a hard landing. However, the candidate should give the model at least a quick visual examination whilst on the ground.

2.16 Helpers for Disabled Candidates, Young Candidates

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'.

For instance, a disabled flyer may have difficulty handling the model and may not be able to carry it out to the strip, release it for 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 engine starting 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.

All of these comments can apply to younger flyers too but there is an added complication with engine starting. Many parents are very unhappy about letting their children near a running engine and will not allow them to start their own engines. This is a perfectly valid view and, again, is a case where a helper can be used. If this situation does occur with the younger candidates, however, you should insist that they do all the pre-flight and preparation work themselves, up to applying the starter to the engine. If they cannot do this then they should not pass.

After engine start, the helper can adjust engine controls and carry the model but only on the instructions of the candidate.

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.

3 Flying Test Part-1

3.1 Carry out pre-flight checks as required by the MMAFA

The pre-flight checks are laid out clearly in the MMAFA Standing Safety Regulations. Ask the candidate to go through their checks as if the test was their first flight of the day. Particular attention should be given to airframe, control linkages and rotors.

Points to look for are that the candidate has a steady and regular ground routine, especially when starting and tuning the engine. Nerves should not play a part in the pits, and you should satisfy yourself that the candidate is in full control of what they are doing whilst preparing the helicopter 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. Some radio equipment and, occasionally, a specific model requirement requires that the Rx be switched on first and, if this is the case, the candidate should explain this clearly to you.

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

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

With internal combustion powered models, it is important that the candidate is seen to hold the rotor head securely during the starting procedure and until the model is past the flight line.

Electric powered models must be carried out from the pits area to a safe point before the flight battery is connected and they **MUST** be considered live as soon as the flight battery is plugged in. Great care should be taken at this point and any help available to the candidate should be used in the interests of safety.

If there is no one else available then there is nothing to stop you aiding the candidate by, for instance, carrying the model to the test area etc. 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.

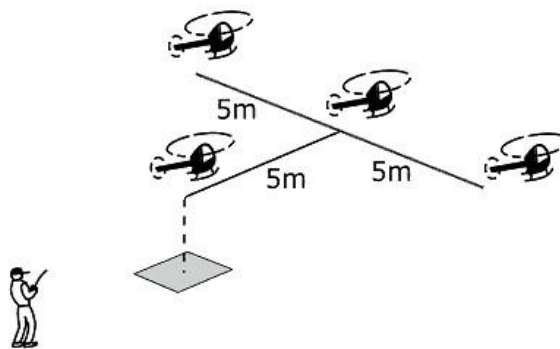
It is important that you talk these points over with the candidate in you pre-flight briefing.

Manoeuvres (b), (c), (d), (e), (f) and (g) together form a horizontal ‘T’.

During the course of manoeuvres (b), (c), (d), (e), (f) and (g) the model should not have deviated significantly from a straight line drawn between the end points. Slight drifting may be permissible in adverse wind conditions, but should be rapidly corrected and put back on the correct course. If the deviation is severe, or the model does not follow the line at all, the candidate should not pass. The hovering speed between the end points is at the discretion of the candidate but must be no faster than a slow walk.

Each stop should be a controlled hover, with any movement being quickly checked, without signs of large over-corrections. The pauses at each hovering point should be about five seconds, other than in (b).

The height of the helicopter should be consistent throughout these manoeuvres with no major deviations.



3.2 Take-Off and hover tail in over the take-off point, with the helicopter skids at approximately 10 feet, for about twenty seconds and land

Take off should be smooth and the lift to 10 feet should be vertical, straight and controlled with the model a comfortable and safe distance in front of the pilot. Once at 10 feet the model should remain stationary, and the tail should not oscillate unduly. You should notify the candidate when the hover time of about twenty seconds has passed and ask him to commence with the next part of the manoeuvre. The descent and landing should be smooth and steady with little oscillation of the tail on touchdown caused by poor tail control.

3.3 Take-Off and hover for about five seconds, then hover the helicopter slowly forwards for approximately five metres, stop, and hover for about five seconds

After the take off and five seconds hover time and, on your command, the pilot now hovers the model forward, at a slow hovering pace, for a distance of about five metres then stopping and hovering for about five seconds. All the previous comments about line, height at 10 feet, speed and steadiness apply and the orientation of the model should still be facing in the same direction as this initial forward hover, as for all the rest of the first set of manoeuvres.

3.4 Hover the helicopter slowly sideways for approximately five metres, stop, and hover for about five seconds

The pilot may choose to perform the initial sideways hover in either direction (to his left or right) and, once you have been told the direction, the candidate should, without turning the model, commence a sideways hover at 10 feet for a distance of approximately five metres. Having travelled about five metres the pilot will stop the model and hold it in a steady hover at 10 feet and, with the tail pointing in the same direction as it was when it took off, for about five seconds

3.5 Hover the helicopter slowly sideways in the opposite direction for approximately ten metres (five metres past original position in front of the pilot), stop, and hover for about five seconds

At the end of the hover time the pilot, without turning the model, will hover it sideways in the opposite direction, passing in front of them and stopping 5 metres past the centre line. At this point the pilot will once again stop and hover the model with it still facing in the same direction as it was at take-off.

3.6 Hover the helicopter slowly sideways in the first direction to bring it back to its original position in front of the pilot, stop, and hover for about five seconds

The candidate should, without turning the model, commence a sideways hover at 10 feet for a distance of approximately five metres back to the centre marker. Having travelled to the centre marker the pilot will stop the model and hold it in a steady hover for about five seconds at 10 feet and, with the tail pointing in the same direction as it was when it took off.

3.7 Fly slowly backwards, bringing the helicopter back to its original position over the take off point, stop, hover for about five seconds and land

After hovering for about five seconds, the model is hovered backwards (without turning it) to the start position, stopped and hovered for about five seconds above the TOLP with skids at 10 feet. After the hover time has been completed the model should descend and land close to the original take off point. During this last section, you will be observing the same criteria as previously and the model should have performed as before in relation to the course and at a similar speed. The descent and landing should be smooth and steady with little oscillation of the tail on touchdown caused by poor tail control.

4 Flying Test Part-2

- 4.1 Take off and fly slowly forward for approximately 5 metres, stop, and hover for about five seconds. Turn 90 degrees either left or right and fly forward to perform two 'lazy eights', each at least 30 metres in length. Each time the helicopter passes in front of the pilot it must be sideways on to the pilot and throughout the manoeuvre the model must be flying forward, not sideways**

The pilot should make a quick visual check that the area he intends to overfly is clear and that no other models are flying in the near vicinity; you should be watching for definite head movements as they scan the area.

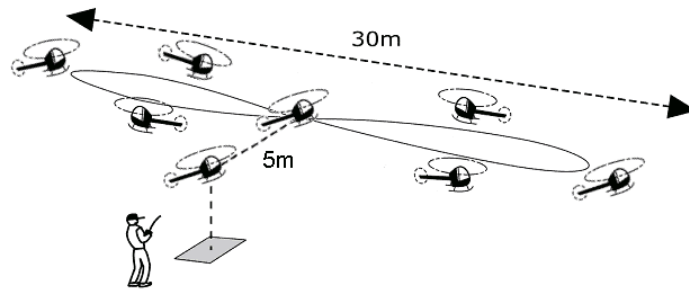
The pilot should fly this manoeuvre at a safe height above 10 feet, but should not fly at such a height that the model cannot be clearly seen by both the pilot and yourself. Between 10 feet and five metres is the correct height band for this part of the test and the model **must** hover through the lazy eights, not fly through them. The pilot must be clear about the height at which they wish to fly before they take-off and you should discuss this with them in the pre-flight briefing.

Having ensured that it is safe to start the manoeuvre, the pilot then takes the model off, rises smoothly to the flight level previously selected and hovers forwards for approximately 5 metres, stopping over the centre marker and hovering for about five seconds.

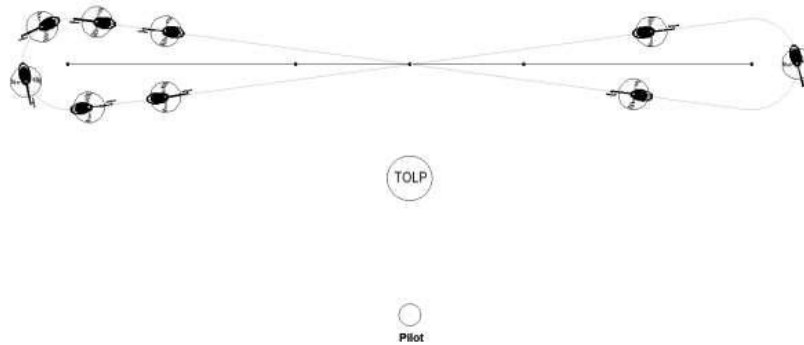
The pilot then turns the model 90°, either left or right and, at the same time, slowly moves off forward at about a **walking pace** (but still in the hover). It is not required that the 90° turn is completed before the model accelerates; the turn and acceleration may be one smooth manoeuvre although the pilot may treat them as separate manoeuvres if they wish.

The pilot moves away at his chosen height for a distance of about fifteen metres where they begin a turn the model smoothly through 180°, flying forward in the hover all the time, and bringing the model back across in front of them. Without hesitation the model continues at the same speed in the new direction until it has flown past the pilot for a further fifteen metres to his opposite side. At this point he smoothly executes another 180° turn, causing the model to be now moving in the same direction as the first leg, again hovering across in front of the pilot.

The model does not stop at this point but it then repeats the events of the first lazy eight until two full eights have almost been completed and the model is near or over the centre ground marker.



During the lazy eights, you will be looking for a safe controlled flight throughout. The candidate should not lose or gain height significantly on the turns and should hover in a straight line between the turns with only sufficient drift on the model to prevent it from moving either further away or, more dangerously, closer to himself during each leg of the manoeuvre. The **overall** length of each eight should be at least thirty metres and the model must be sideways on to the pilot each time it passes across their front. Some allowance can be made for a strong or gusty wind but the basic points of the manoeuvre must still be demonstrated.



At no time during the manoeuvre should the model be flying sideways. Throughout all the turns and straight flight, it must be flying forward in the hover and not ‘crabbing’ sideways.

The turns should be made by use of cyclic and rudder co-ordinated correctly, and must **not** be half pirouettes at the end of each leg. The flight pattern should be as the diagram and not deviate significantly from it. The pilot should be equally competent to the left and to the right when flying this manoeuvre. If any significant difference in their flying skills shows up here then you should seriously consider whether they show the degree of competence necessary. It should be borne in mind that the manoeuvres in the test have been made reasonably simple, so that a fairly high degree of control can be demanded.

4.2 At the conclusion of the two 'lazy eights', bring the helicopter to a halt sideways-on over the centre marker. Turn the model tail in to the pilot and hover for about five seconds. From this point fly the model to a landing on the original take off point

At this point the model should be approaching the area of the centre marker, still at the chosen manoeuvre height, and the pilot should aim to smoothly decelerate the model to a stop in front of and sideways on to himself. The model is then turned to the heading it had before the lazy eights were started and hovered for about five seconds. At this point it should be over the centre marker, about five metres in front of the TOLP and hovering at the standard height.

The model is now flown to a landing at the original take-off point. The path taken is entirely at the discretion of the pilot and you should take the opportunity to watch carefully for a smooth well-thought-out and safe manoeuvre.

After landing, the candidate should shut down the engine and allow the rotor blades to stop turning before collecting the model to return to the pits.

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

5 Test Part-3 Questions

The candidate then "must answer correctly a minimum of five questions on safety matters, based on the MMAFA Safety Codes and Local Standing Regulations for General Flying".

NOTE: Since a good score on the questions section cannot **on any account** make up for a bad flight score the examiner need not continue the questions section of the test if the flight score proved negative. On the other hand the 'A' Certificate scheme is a test of **both** flying ability and basic flight safety knowledge. It doesn't matter how well the candidate can fly - if they cannot answer the safety questions satisfactorily they should not pass. Examiners should not hesitate to ask a candidate to retake the certification test for any /all of the above reasons in the candidate's own interest **as this could actually be helping to avoid an accident just waiting to happen.**
