



A & B Achievement Levels and exams

The main aim of the A and B Achievement Schemes is to encourage model flyers to reach a minimum standard of flying ability and safety and to promote a desire for personal betterment in achieving as high a standard as possible in their flying.

Two R/C power categories are covered:

- (A) Fixed Wing Aircraft
- (H) Helicopters

M.A.C.I. will not charge any fees for any A or B certificate examination.

There shall be 2 achievement levels for R/C powered model flying –

1. The A Certificate level
2. The B Certificate level.

The A certificate shall generally be an acknowledgement of a person's capability to control an R/C model in a safe manner in normal circumstances without the assistance of a supervising instructor.

The B certificate shall generally be an acknowledgement of a person's capability to control an R/C model in such a manner that he/she is able to fly at a public display.

MACI do not guarantee any capability or the performance of any individual as a result of the issue of an achievement certificate. The certificate only states that the candidate achieved the required standard during the test.

The scheme will be administered by a MACI sub committee consisting of the relevant discipline secretaries at that time and one appointed member of the Executive Council. The sub committee shall elect from its members a Chairperson who shall oversee its activities and report back to the MACI Council. The committee shall ensure an adequate number of Examiners will be available during the year and will also arrange Examiners Courses as required. Any disputes or queries about the Achievement scheme shall be decided by the sub committee.

EXAMINERS

Two recognised MACI examiners shall give examination in either level and in all disciplines. Helicopter or Aircraft examiners are required as appropriate and at least one must be from the relevant category being tested. Examiners can be from any club including the candidates own club.

Examiners shall be appointed by MACI upon the written nomination of their primary listed MACI club and only then after attending a course or seminar as prescribed by the Council. The status of an Examiner is valid for three membership years including the year of course attendance. The membership card shall show the status of examiner.

A club may only nominate a person as an Examiner if he is a MACI member in good standing and the holder of a B Certificate on the day of attendance at the Examiners course or if a holder of an A cert on the day of attendance at the Examiners course then they must pass a "B" cert exam within 90 days of attending an Examiner's course.

SITE OF AN EXAMINATION

The A certificate examination may be taken by a candidate at his/her own MACI registered Club site.

The B certificate examination may not be taken by a candidate at any club to which the candidate is affiliated or any of the sites that the club have registered.

EXAMINATION FORMAT

The examination shall consist of 4 sections.

Satisfactory completion of Section 1 is compulsory before proceeding to the remaining sections.

All components of the Test must be completed in the one session.

As the tests are for pilot competency and not of a models capability it is incumbent on each pilot to present himself/herself with an appropriate model aircraft for the test being undertaken. This model must be capable of Rise off Ground on its own undercarriage or a dolly.

(1) GROUND CHECK OF MODEL:

By examination

Proof of MACI membership
MACI Registration number displayed on model
Conform with Local Frequency Control
Transmitter Frequency as stated
Radio installation (check servo directions)
Engine installation check
Tank / Fuel system check
Propeller /Rotors - no nicks/damage
Airframe - control surfaces/hinging
Pushrods / Linkages check
Range and failsafe check
(engine running fixed wing/off for heli)

By enquiry

Propeller – balanced?
Batteries adequately charged?
Centre of Gravity check?
Have you read the Documentation?
Large Model Permit if required

(2) The candidate shall be asked the appropriate number of questions from the “Code of Safe Practice”.

A pass rate of 8 from 10 in the A Cert. and 12 from 15 in the B Cert. to “Pass”

(3) Observation of candidate during pre-flight safety check, model preparation, engine start and range check with Engine on for Aircraft and off for Helicopters)

(4) Flying the A or B Certificate flight schedule.

There is no time limit on an examination or any flight. Only the Examiners may accompany the Pilot to the Flight line. Provision should be made where possible to take control of a model if unsafe conditions arise.

An Instructor may be in attendance but cannot communicate with the Pilot.

The Examiners will determine the flight line and pilot position allowing for wind direction and local conditions.

The Examiners may terminate the test any time and at their discretion.

The Examiners shall not look for exceptional quality or perfection in manoeuvres, but rather for the display of safe and adequate control of the model at all times. The Examiners shall take into consideration the entire flight including flying between manoeuvres. All manoeuvres must be carried out in front of the pilot.

At no time during the flying test should the aircraft be flown behind the pilot or examiners, this will constitute an automatic FAIL.

With the prior permission of the Examiners an intermediate landing may be allowed for a person flying an electric model for the purpose of refitting a fully charged flight battery.

Termination of a flight due to engine or other mechanical failure will be deemed an attempt. Because of the significance of the B test, a higher standard of control shall be looked for.

RESULT/SCORING

The result shall be either a "Pass" or a "Fail".

A candidate must pass each item in a section to pass that section and a candidate must pass all 4 sections in order to pass the examination.

For the A test in the flying section of each category, a candidate may make two attempts at each manoeuvre, excluding landing, and two attempts at the entire flight schedule.

For the B test, in the flying section of each category, a candidate may make only one attempt at each manoeuvre and only one attempt at the entire flight.

Upon completion of the test, a candidate who has passed shall be given a Receipt giving Confirmation of a Pass, completed and signed by both examiners. The Examiners will return their Checklist immediately to the Membership Secretary of MACI for processing and filing. The candidate shall keep the receipt in case of an enquiry. Upon receipt by MACI, the register of achievement tests shall be updated accordingly and the member's membership card amended to show the new achievement level when next issued.

In the event of a failure, a candidate may not repeat an A or B Cert. examination for at least two weeks.

EXPIRY OF ACHIEVEMENT CERTIFICATES

An "A certificate" shall be valid for life.

A "B certificate" shall cease to be valid should the holder cease to be a paid up MACI member for a period of 3 consecutive years.

List of questions from which the candidate will be examined

- (A) Applies to fixed wing aircraft
(H) Applies to helicopters
(A/H) Applies to both

1. What needs to be checked when inspecting a propeller? (A)
2. Are there any problems to be aware of when fitting a spinner? (A)
3. How is vibration combated with reference to the engine and silencer? (A/H)
4. For how long should a battery be charged before flight? (A/H)
5. When is there a need for a range check? (A/H)
6. Explain the procedure involved in carrying out a range check. (A/H)
7. If the C.G. is wrong how best can it be moved? (A/H)
8. What does one look for in properly set control surfaces? (A/H)
9. Explain the function of rudder/elevator/aileron. (A)
10. What does one look for in a secure linkage? (A/H)
11. Explain the function of the throttle trim. (A/H)
12. What are the rules governing the pits area. (A/H)
13. When should a transmitter not be switched on? (A/H)
14. What procedures must be followed before switching on a transmitter? (A/H)
15. Explain the pre-start up checks on a model. (A/H)
16. What safety features must be followed during an engine start up? (A/H)
17. Where should a model be started? (A/H)
18. In which direction does a model take off and land? (A)
19. List the checks necessary before a model is released. (A/H)
20. In an emergency what is the cardinal rule. (A/H)
21. What is meant by the normal flight condition? (H)
22. What is the weight restriction for unregistered models? (A/H)
23. Can you check your blade tracking in the pits area? (H)
24. What is particularly important with regard to aerial installation? (A/H)
25. What occurs when the gyro direction is reversed? (H)
26. Which is the principle function to set up on a receiver failsafe system (A/H)
27. What is the typical recharge time for a Lipo battery pack? (A/H)
28. What is the maximum allowed power output of the transmitter? (A/H)
29. What are the particular dangers associated with a heavy battery pack in a model? (A/H)
30. What is the most likely outcome if incorrectly charging a Lithium battery? (A/H)

Pass Rate is:

- A Certificate: minimum of 8 out of 10 correct.**
B Certificate: minimum of 12 out of 15 correct.

Note: Answers to the above will be found in the MACI Code of Safe practice

SCHEDULE OF MANOEUVRES FOR THE A CERT “FIXED WING” EXAM

1. Take off and climb to approx 50 metres, then complete a rectangular circuit away from the pits and ending over the Take off Area.
2. Fly the opposite hand rectangular circuit, at a similar height beginning and ending over the take off area.
3. Procedure turn (upwind) and finishing downwind.
4. Straight and level flight (upwind) followed by a downwind free pass.
5. Intentional Stall and recovery (upwind).
6. Overshoot by turning away from the pits and completing the balance of a rectangular approach with simulated landing at low speed.
7. Continue upwind and complete rectangular landing approach for landing.
8. Landing within designated landing area.

Pilots may stand behind the model on Take Off for the A Cert but must return immediately to the designated pilot position after take off and remain there for duration of test. The Pilot may be assisted to the agreed position.

SCHEDULE OF MANOEUVRES FOR THE B CERT “FIXED WING” EXAM

1. Take off and climb to approx 50 metres, then complete a rectangular circuit away from the pits and ending over the Take off Area.
2. Fly the opposite hand rectangular circuit, at a similar height beginning and ending over the take off area.
3. Fly a horizontal flat figure of eight course followed by a free downwind pass.
4. One inside loop (upwind).
5. One outside loop (downwind).
6. One split S (upwind) followed by a downwind free pass.
7. Stall turn away from pits (upwind) approx 50 metres from centreline.
8. Complete two consecutive rolls (downwind).
9. Gain height and spin three complete turns and recover upwind.
10. Enter into a rectangular landing approach into wind and overshoot with simulated landing at low speed.
11. Continue upwind and complete a rectangular landing approach and land into designated landing area.

Pilots must remain in position in the designated pilot position for the take off and the duration of the test.

The model can be carried to the take off position by an assistant if required.

SCHEDULE OF MANOEUVRES FOR THE A CERT “HELICOPTER” EXAM

1. Take off and hover “Tail in” over the centre pad Take off point for 20 Seconds.
2. Hover the helicopter slowly either left or right approx. 5 metres and stop. Hover for 10 seconds and return to start.
3. Hover the helicopter slowly to the opposite side approx. 5 metres and stop. Hover for 10 seconds and return to start.
4. Hover the helicopter slowly forwards approx. 5 metres and stop. Hover for 10 seconds and return to start. Hover for 10 secs and land on the centre Take off pad.

During the above manoeuvres the skids should be kept at eye level.

5. Take off, Hover as above for 10 seconds, turn 45 degrees either left or right and fly forward at a slow hovering pace to perform a large open “Figure 8” in front of the Pilot. This should be at least 20 metres in length. Height control should be demonstrated by maintaining skids at approx. eye level. As the Helicopter passes over the centre pad it must be clearly “sideways on” to the Pilot. The exercise finishes by stopping over centre pad, rotating 45 degrees to the tail in position and hovering for 10 seconds before landing.

Manoeuvres 1, 2, 3 and 4 must all be completed before landing. Where an attempt is called on a manoeuvre, the pilot will start that one again from the take off pad with a 10 seconds hover. The candidate should remain at the one nominated Pilot position. The examiner will define the “Pad” and flight area in advance. Where possible the 10metre square and centre should be clearly marked.

SCHEDULE OF MANOEUVRES FOR THE B CERT “HELICOPTER” EXAM

1. Perform one standard hovering triangle over an approx. 10 metre square. Take off and landing are part of the manoeuvre.
2. Perform one standard schedule hovering rectangle over an approx. 10-metre square. Take off and landing are part of the manoeuvre.
3. Take off from “landing pad” into forward flight and climb to an altitude of approx 50 metres. Continue flying forward and perform a full circuit of at least 100 metres length away from the Pits area.
4. Return once again along the previous flight line and perform a full opposite hand circuit of at least 100 metres in length.
5. Continue flight and perform one Stall Turn at least 20 metres height approx 50 metres after passing centreline.
6. Descend and return to the hovering area to perform a 10 second “Nose in Hover” within the 10 metres hovering square.
7. Resume flying on the flight line to perform a “Double Stall turn”. The horizontal part of this should be centred and may be up to 100m in length. Note that the Stall turns must be performed in opposite directions i.e. each rotation is away from the pilot line.
8. Finish flight by performing an autorotation (throttle hold) approach at 45° to the vertical and land within the 10-metre square. Model should descend directly and smoothly to touchdown.

All manoeuvres must be carried out in front of the Pilot in a similar manner to the Fixed Wing schedules.

The Pilot should remain in one position approx 10 metres from edge of box at all times.

Where possible the 10 metre square and centre should be clearly marked.

The airspace to carry out the flying manoeuvres will be defined in advance by the Examiners.

MACI Achievement Scheme Test Result

Candidate's Name		Candidate's MACI No	IRL -
A or B Examination		Fixed Wing or Heli	
Date of Test		Flying Site Location	
Examiner 1 Name		Examiner 1 MACI No	IRL -
Examiner 2 Name		Examiner 2 MACI No	IRL -
Candidate's Signature			
Section 1 - Ground Checks			
Tick each Box as examined and passed ("X" indicates Failure)			
By examination		By inquiry	
MACI no displayed on model		Check local procedures first	
MACI membership card available		Is the Propeller balanced?	
Transmitter Frequency as stated		Are the batteries adequately charged?	
Radio installation - direction check OK			
Engine installation OK		Is the Centre of Gravity correct?	
Tank/fuel system OK		Have you read the documentation?	
Propeller /Rotors - no nicks/damage		Is a large Model cert required and if so is one available and current	
Airframe, Control surfaces, pushrods, linkages and hinging OK			
Range check / failsafe tested			
Section 2 - Questions			
A Certificate - 10 Questions asked (8 Pass)		Passed =	
B Certificate - 15 Questions asked (12 Pass)		Passed =	
Section 3 - Observation			
Has candidate observed the Code of Safe Practice in Pre-flight Safety Checks?			
Has candidate observed the Code of Safe Practice in Engine starting?			
Has model passed an engine range check with engine running (engine off for heli)?			
Section 4 - Flight Tests			
Tick each Box as examined and passed ("X" indicates Failure, "A" =Attempt)			
Manoeuvre No. 1		Manoeuvre No. 7	
Manoeuvre No. 2		Manoeuvre No. 8	
Manoeuvre No. 3		Manoeuvre No. 9	
Manoeuvre No. 4		Manoeuvre No. 10	
Manoeuvre No. 5		Manoeuvre No. 11	
Manoeuvre No. 6			
Result and Certification			
Result of test (Pass/Fail)		Date	
Signed	(Examiner 1)	(Examiner 2)	

Return this form within 3 days to Finbar Constant, Beechgrove, Waterfall Road, Bishopstown, Cork

Acknowledgement of Test (to be handed to candidate after test)

Candidate's Name		Candidate's MACI No	IRL -
A or B Examination		Fixed Wing or Heli	
Date of Test		Flying Site Location	
Examiner 1 Name		Examiner 1 MACI No	IRL -
Examiner 2 Name		Examiner 2 MACI No	IRL -
Candidate's Signature		Pass/Fail	

Please retain for your records in case of query, until a new MACI card has been received with your achievement level recorded.