Annex A

Basic Fixed Wing Power (BP) and Advanced Fixed Wing Power (AP)

The Basic Test

The Model

The test can be performed with virtually any powered fixed wing model, i/c or electric. It is not expected that the test will be taken with an electric powered glider

The minimum weight of a model used to take the test is 1 kg (2.2 lbs.) without fuel but with batteries

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.

Electric Powered Models must be treated as LIVE as soon as the main flight battery is connected, irrespective of radio state and great care must be demonstrated by the candidate. The arming sequence should be clearly understood and discussed/demonstrated to you by the candidate.

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.

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

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

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

A neat ground layout makes a good impression but bear in mind that many 'A' certificate candidates will not have been flying for too long and you should be prepared to make allowances. A poor performance in this area is not grounds for failing the candidate, however, but it is inevitable that you will be making mental notes of all aspects of the candidates competence and this is one that might have an effect on a real ‘borderline’case.

Pay particular attention to the way the candidate uses the local frequency control system and make sure that they fully understand it and use the correct sequence appropriate to their model. For 35 MHz, this is usually 'get the peg, Tx on, Rx on'. For 2.4 GHz, the candidate should be aware of any local transmitter usage limitations and if a flight peg is required, it must be obtained before the usual Tx on, Rx on sequence. Some radio equipment and, occasionally, a specific model requirement requires that the Rx be switched on first and, if this is the case, the candidate should explain this clearly to you.

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.

All candidates are required to be aware of the local the frequency control system and anyone who is required to use it but switches their radio on before doing so should be failed on the spot.

If there is no one else available then there is nothing to stop you aiding the candidate by holding the model for the power check, carrying it out for take-off 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. Talk this over with the candidate in your pre-flight briefing.

If the test is being taken with an electric powered model then the candidate should show that they are familiar with the safe handling of such models.

In particular they must demonstrate to you the 'arming' sequence for their model. For safety reasons many speed controllers have a pre-programmed sequence of actions that have to be followed before the motor will respond to throttle stick movements. For instance, after switching on Tx and Rx and then plugging in the main flight battery, one type of controller requires that you move the throttle stick from low to full throttle and then back to low before the motor is 'armed' and ready for flight.

The candidate must be fully familiar with the 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 and receiver switch on sequence and they must make you aware that they are treating the model

as ‘live’ as soon as the flight battery is plugged in, no matter what arming sequence they may then have to go through.

The pilot must stand in the designated pilot area for the entirety of the flying part of the test.

(b) Take off and complete a left (or right) hand circuit and overfly the take-off area.

The model may be carried out by the candidate or a helper or it may be taxied out from a safe position in front of the pits/pilots area**. Taxying out of the pits is an instant fail**. Prior to carrying or taxying out, the pilot should inform other pilots flying that his model is going out onto the active area.

Take off must be done with the model a safe distance from the pits area and on a line which does not take the model towards the pits, other people or any other dangerarea.

Take off should be reasonably straight with the model not being pulled off the ground too soon. It can be a point in the flyer's favour if, in the case of the take-off going wrong, they abandon it in a safe manner. It's far better that they think about what they are doing rather than try to coax a model with a sick engine into the air. If a take-off is aborted in a safe manner you should immediately reassure the candidate that they will not be penalised for taking correct actions, even though these may conflict with what the testrequires.

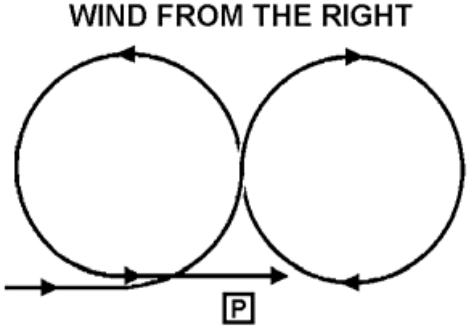
Climb out should be at a steady angle and straight until operational height is reached when the throttle should be brought back to cruise power, the model levelled out and the first turn of the circuit started.

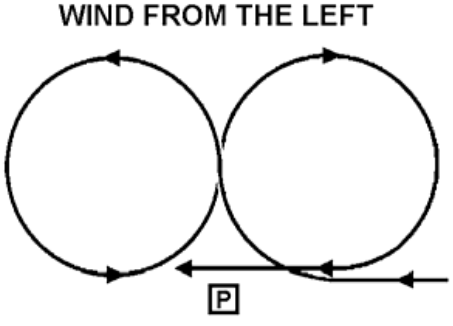
The type of circuit is not stated so either racetrack, rectangular or circular is acceptable. This choice of circuit type applies to the rest of the flight as well except when a certain type of circuit is specified for a manoeuvre.

On completion of the circuit, the model will be flying into wind past the front of the pilot and, for safety reasons, just over the far edge of the take off area. Tell the candidate prior to the flight the line that you want them to be following.

You must make sure that the candidate is clear on this, the line will be set by the model flying across in front of them on a heading which should be agreed before the flight (usually, but not always, into wind) and passing over a set point. This first pass in front of the pilot is extremely important as it sets the standard height and line for the rest of the test and this standard height and line will be referred to often in thesenotes.

(c) Fly a "figure of eight" course with the cross-over in front of the pilot, height to be constant.





The candidate should be aiming to fly the manoeuvre as shown in the diagramsabove.

The model is flown on the standard line and height into wind across the landing area, a ¼ circle away from the pilot is flown so the model is directly in front of the pilot and briefly flying directly away from the pilot, a full circle in the opposite direction is flown bringing the model back to in front of and heading away from the pilot, a ¾ circle is then flown in the opposite direction to the full circle. The manoeuvre finishes, with the model flying into wind across the front of the pilot at standard line and height, not with another turn away.

The difficult part of the manoeuvre is the first full circle and it catches many people out. Most inexperienced flyers will try to fly this circle with a constant angle of bank but if they do this in anything above a flat calm the crossover point will drift downwind from the pilot. The pilot should fly this turn with varying angles of bank (less at the start of the turn, gradually adding more bank as the model turns downwind) so that the crossover is in front of them and heading away.

If they do not get this right they will either finish up with the crossover way downwind, fly too near the pilots line or panic as the model accelerates towards them as it begins to come downwind and pull far too much bank (vertical!) to get the crossover point correct. This is not a sign that they have thought about the manoeuvre or practised it.

The manoeuvre finishes, as in the diagrams, with the model flying into wind across the front of the pilot at standard line and height, not with another turn away.

(d) Fly a rectangular circuit and approach with appropriate use of the throttle and perform a landing on the designated landing area.

The pilot should call this manoeuvre out loudly as a **LANDING** during the standard line and height initial into-wind pass across the landing area and you should take note that they have visually checked the active area before and during the manoeuvre (watch for head movements). The ability to glance away from the model to re-check that the landing area is clear is important and is a skill that a 'solo standard' pilot should posses

If a landing is called when there is anyone out on the landing area (for instance taking off or retrieving models) who may not be in a position to hear the call then you may consider that the candidate has not given due consideration to field safety.

Watch out for the downwind leg not being flown parallel to the upwind leg and the turns being flown either too tight or too wide (most will try to fly them too tight and almost try to put a ninety degree 'snap' turn in which is **NOT** required). Throttle should be reduced either just before or just after the last crosswind turn with the crosswind leg descending into the turn on to final approach.

Once established on final approach, on line and descending, the candidate should make appropriate use of the throttle to set up and control the final descent rate. The aim of all this is to have the model at a speed, position and rate of descent which will guarantee a reasonably accurate touchdown on the landing area.

If the candidate opens the throttle and climbs away during the approach then they should have a very good reason, such as people walking out on to the runway. Any reasons offered by the candidate for an unscheduled overshoot **cannot** include not being lined up correctly or anything similar. However, if they do have good reason to perform an unscheduled overshoot and they handle the situation well then it would be fair for you to take this into consideration when summing up their flight.

If the test is taken with an electric powered model then you should be aware that 'appropriate use of the throttle' allows for different patterns of throttle use during the approach and landing and this will very much depend on the type of motor speed controller fitted to the model. With some controllers it is quite likely that the prop will be stopped at some points in the approach and also during the actual landing.

This is quite allowable but you must bear in mind that you are testing a rectangular circuit and power on landing so it is expected that the pattern flown by the model will equate closely with that which

would be flown by an i/c powered aircraft.

If the engine stops during the landing the model may be retrieved and the engine restarted to enable the remaining parts of the test to be completed.

The candidate should NOT take their transmitter with them when retrieving their model and it should be left with a competent person. The transmitter should not be laid on the ground and if no one is available to hold it then you should offer. When the model has been retrieved and returned to the pits area the transmitter should be returned to the pilot.

If the landing was good, the candidate should give the model a quick visual check prior to restarting the engine and all the normal engine starting safety procedures should be followed, exactly as for the initial engine start.

Anything other than a good landing should mean that the candidate makes a more thorough check of the aircraft, possibly up to a full pre-flight check of the model if, for instance, it has turned over at the end of the landing run (which can happen even on the best landings).

(e) Take off and complete a left (or right) hand circuit and overfly the take-off area

If the engine remains running after the landing in (d), and the candidate is confident of their ability to do so, the model may be taxied back to the take-off point although this is not a requirement. If the engine stops during this manoeuvre the candidate should not be penalised and the normal retrieval and restart procedure should be followed.

If the model with its engine running is retrieved and replaced for take-off by a helper then it should be done with due regard for field safety. If no helper is available then you should offer to do this for the candidate.

(f) Fly a rectangular circuit at a constant height in the opposite direction to the landing circuit in (d) above.

Watch once again for parallel legs with reasonable turns and level flight. A common mistake is to turn on to the final crosswind leg (the upwind one) too soon. The result of this will almost inevitably be that the final turn of the manoeuvre will be too close to the pilot and may finish up as a 'panic' turn. Make sure that candidates give themselves plenty of room upwind, especially if the wind is at all strong.

(g) Perform a stall and recovery

The model should decelerate whilst flying straight and level. At the point of stalling the nose should drop. The model should accelerate with the application of power and recover to straight and level flight, maintaining the original heading.

(g) Perform a simulated deadstick landing with the engine at idle, beginning at a safe height (approx. 200 feet) heading into wind over the take-off area, the landing to be made in a safe manner on the designated landing area.

The manoeuvre does not specify any particular type of circuit so main thing to watch out for here is sensible circuit management with the model not being dived steeply or held off in too flat a glide. The pilot should do as many circuits as they feel comfortable with although this will very seldom be more than two. If there is any wind at all then they may be in trouble if they plan more than one. If they have not practised this manoeuvre it will be very obvious and if a safe controlled into wind landing is not achieved then the candidate should fail.

The pilot must call LANDING before they start the manoeuvre but watch carefully that they have visually checked the landing area before calling (look for head movements). They should be capable of taking their eyes off the model for a second or so in safety.

If the engine stops during the manoeuvre then the pilot should call DEADSTICK so that everyone will be aware that a genuine forced landing is taking place.

Pilots flying electric powered models are able to stop and start their motor at will and they have the ability to re-start their motor and climb away from a baulked motor-off landing if necessary. They are therefore able to safely perform a 'genuine' deadstick landing and this is what you should expect to see. They must, of course, call DEADSTICK immediately prior to starting the manoeuvre.

Be aware that many electric models will have propellers that sometimes 'windmill' on the glide. This is normal and acceptable and it should be obvious to you that no power is being applied to the propeller at the time.

(h) Remove model and equipment from the take-off/landing area.

The candidate should ensure that it is safe to go onto the runway before leaving the pilot box. The model should be rendered safe as soon as possible by activating failsafe or shutting down combustion engines.

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.

(i) Complete post-flight checks as required by the MFNZ Safety Codes.

These are set out clearly in the members manual but you should watch particularly that the Rx off, Tx off, frequency system cleared sequence is followed correctly.

The Questions

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

Remember that on **no account** can a good performance on the questions make up for a flying test that you considered a failure. If you have failed the candidate's flying you should not even start to ask the questions. On the other hand the Proficiency 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 MFNZ members manual 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 MFNZ Safety Codes; you are not expected to ask them 'parrot fashion' and the candidate is not expected to answer that way either.

This opens up the possibility of asking a candidate if they can think of reasons behind specific rules. For instance, why is the club frequency control system operated as it is and what might go wrong? why should operating transmitters not be taken out when retrieving models from an active flying area? or why should models not be taxied in or out of the pits area?

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 MFNZ members

manual
Local site rules (if applicable) ☐

Discuss whether the model is
suitable in "these conditions" ☐

2 Any "no fly zones" need to be identified ☐

3 Remind candidate to talk you through anything that the helper may do for them as the test progresses ☐

4 Agree any Airspace requirements that need to be pre-determined by the Examiner and Candidate prior to the commencement of the test flights ☐

5 Clearly identify the landing area and agree with the candidate the required landing pattern that he will be flying and you will being looking for. ☐

Examiners Check List. Basic Fixed Wing Power (BP)

Candidates Name	MFNZ Number	Date	Signature
Examiner's Name	**MFNZ Number**	**Date**	**Signature**

	FLIGHT TASK	COMMENTS
(a)	Carry out pre-flight checks as required by the MFNZ Safety Codes.	
(b)	Take off and complete a left (or right) hand circuit and overfly the take-off area.	
(c)	Fly a 'figure of eight' course with the cross-over point in front of the pilot, height to be constant.	
(d)	Fly a rectangular circuit and approach with appropriate use of the throttle and perform a landing on the designated landing area (wheels to touch within a pre-designated 30 metre boundary).	
(e)	Take off and complete a left (or right) hand circuit and overfly the take-off area	
(f)	Fly a rectangular circuit at a constant height in the opposite direction to the landing circuit flown in (d).	
(g)	Perform a stall and recovery.	
(h)	Perform a simulated deadstick landing with the engine at idle, beginning at a safe height (approx. 200 ft) over the take-off area, the landing to be made in a safe manner on the designated landing area.	
(i)	Remove model and equipment from take- off/landing area.	
(j)	Complete post-flight checks required by the MFNZ Safety Codes.	
Answer five questions from the list of mandatory questions on legal aspects of model aircraft flying.		
Answer a minimum of five questions on safety matters from the MFNZ Safety Codes and local flying rules.		

Fixed Wing Power Advanced (AP)

General

The Proficiency Scheme is run by the MFNZ as a National Scheme and it is open to all members.

The aim of the Advanced certificate is to give the club flyer a personal attainment goal beyond the Basic Certificate; a demonstrated level of competence and safety which is attainable by the average pilot with a little thought and practice. The Advanced Certificate is designed to recognize the pilot's more advanced ability and a demonstrated level of safety which may be considered by an event organiser as suitable for flying at a public display.

The long term strategy behind this is that if enough club flyers qualify for their Advanced certificates then the general standard of flying both within your club and nationally cannot help but rise.

A candidate wishing to take the Advanced test must already have passed the Basic test in that discipline.

The candidate for the Advanced test should have studied the MFNZ Member manual. Most of the questions asked at the end of the test will be from the members manual.

The Advanced Test

The Model

It is a common misconception that the candidate for the Advanced Certificate needs to fly an 'aerobatic model'. In fact the test can be performed with most powered fixed wing models. The options allowed in the test mean that even a three channel trainer can cope if well-trimmed and flown.

Having said this, on no account may the candidate use the performance of the model as an excuse for a poor performance on their part. For instance, a candidate flying a three channel model through the rolling manoeuvres accurately deserves the credit but one who makes a mess of the rolls with the same type of model cannot say that it is the fault of the model. You should make no allowances on this point.

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 they you are testing, not the model.

Similarly, the type of model presented cannot be used as an excuse for not completing certain manoeuvres. A pilot cannot turn up with a twin, for instance, and then say that the spin is too dangerous because the model would not pull out of it.

Another important point to remember is that the candidate is not expected to build or even own the model they use. There is no reason why a flyer who does not own a suitable model could not borrow one from a friend or clubmate.

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.

Electric Powered Models must be treated as LIVE as soon as the main flight battery is connected, irrespective of radio state and great care must be demonstrated by the candidate. The arming sequence should be clearly understood and discussed/demonstrated to you by the candidate.

The minimum weight of a model used to take the test is 1 kg (2.2 lbs.) without fuel but with batteries.

(a) Carry out pre-flight checks as required by the MFNZ Safety Codes.

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

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 fully in control of what they are doing when preparing their aircraft for flight.

A neat ground layout makes a good impression and is to be expected from Advanced certificate candidates.

A poor performance in this area is not grounds for failing the candidate, however, but it is inevitable that you will be making mental notes of all aspects of the candidates competence and this is one that might have an effect on a real 'borderline' case.

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 "long wire" frequencies, this is usually 'get the peg, Tx on, Rx on'. For 2.4 GHz, the candidate should be aware of any local transmitter usage limitations and if a flight peg is required, it must be obtained before the usual Tx on, Rx on sequence. Some radio equipment and, occasionally, a specific model requirement requires that the Rx be switched on first and, if this is the case, the candidate should explain this clearly to you.

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.

All candidates are required to be aware of the local the frequency control system and anyone who is required to use it but switches their radio on before doing so should be failed on the spot.

If there is no one else available then there is nothing to stop you aiding the candidate by holding the model for the power check, carrying it out for take-off 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.

The pilot must stand in the designated pilot area for the entirety of the flying part of the test.

(b) Take off and complete a left (or right) hand circuit and overfly the take-off area.

Take off must be done with the model a safe distance from the pits area and on a line which does not take the model towards the pits, other people or any other danger area.

The model may be carried out by the candidate or a helper or it may be taxied out from a safe position in front of the pits/pilots area**. Taxying out of the pits is an instant fail**. Prior to carrying or taxying out, the pilot should inform other pilots flying that his model is going out onto the active area.

Take off should be straight with the model not being pulled off the ground too soon. Abandoning the take-off for genuine reasons should not be penalised. It's far better that the candidate shows that they are thinking about what they are doing rather than trying to coax a model with a sick engine into the air. If a take-off is aborted in a safe manner you should immediately reassure the candidate that they will not be penalised for taking correct actions, even though these may conflict with what the test requires.

Climb out should be at a steady angle and straight until operational height is reached when the throttle should be brought back to cruise power, the model levelled out and the first turn of the circuit started.

The type of circuit is not stated so either racetrack, rectangular or circular is acceptable. This choice of circuit type applies to the rest of the flight as well except when a type of circuit is

specified for a manoeuvre.

On completion of the circuit, the model will be flying into wind past the front of the pilot and, for safety reasons, just over the far edge of the take off area. Tell the candidate prior to the flight the line that you want them to be following.

You must make sure that the candidate is clear on this, the line will be set by the model flying across in front of them on a heading which should be agreed before the flight (usually, but not always, into wind) and passing over a set point. This first pass in front of the pilot is extremely important as it sets the standard height and line for the rest of the test and this standard height and line will be referred to often in these notes.

(c) Fly a "figure of eight" course with the cross-over in front of the pilot, height to be constant. The examiners will expect this manoeuvre to be flown more accurately than the similar manoeuvre in the Basic Certificate test.

The manoeuvre should be flown slightly better than as shown in the Basic Certificate diagrams in the members manual. The crossover point must always be in front of the pilot and, after a run in at standard height and line, the model MUST be turned through ninety degrees in the first turn so that it is flying exactly away from the pilot.

The first circle must also end with the model flying exactly away from the pilot, through the crossover point before it is turned into the second circle. Both circles should be of the same diameter as seen from the ground and this implies that they will be flown at varying bank angles.

The main problems with this manoeuvre nearly always happen on the first circle and if they do not get it right they will either finish up with the crossover way downwind, fly too near the pilots line or panic as the model accelerates towards them as it begins to come downwind and pull far too much bank (vertical!) to get the crossover point correct. This is not a sign that they have thought about the manoeuvre or practised it.

The second circle (3/4 circle actually) is rarely a problem. The manoeuvre finishes, as in the Basic certificate diagrams, with the model flying at standard height and line across the front of the pilot, not with another turn away.

(d) Fly into wind and complete one inside loop,

Run in height and line in should be standard and the manoeuvre should be performed exactly in front of the pilot. A perfect loop is not required but the exit height and line should be very close to the original.

Skewing out is a sign that the model has not been trimmed correctly or that the wings were not level at the start of the manoeuvre. The pilot should not get into this situation to start with but if they do then they must be able to compensate; if they cannot then you have to draw your own conclusions. Watch that the throttle is used during the manoeuvre and penalise the pilot if they fly the manoeuvre at a constant high throttle setting.

(e) Fly downwind and complete one outside loop downwards from the top i.e. a bunt.

The climb to an appropriate height for the manoeuvre should be executed neatly and, after tracking in on the standard line, the bunt should be executed directly in front of the pilot. A

perfect bunt is not required but the exit height and line should be very close to the original.

Skewing out is a sign that the model has not been trimmed correctly or that the wings were not level at the start of the manoeuvre. The pilot should not get into this situation to start with but if they do then they must be able to compensate; if they cannot then you have to draw your own conclusions.

The throttle should be closed for the first part of the manoeuvre but don't expect it to stay off for too long. Many models will not complete this manoeuvre if throttle opening is delayed to the bottom of the bunt.

(f) Complete two consecutive rolls into wind.

These should be performed from standard height and line and must be continuous rolls with no straight flight between them. The model should be half way through the two rolls when it passes in front of the pilot although you may allow a little leeway here.

There should be no serious loss of height or direction during the manoeuvre although slight barrelling of the rolls is permissible. The speed of the rolls should be such that the pilot has to make noticeable elevator inputs to maintain the model's height.

'Twinkle rolls' that are so fast that no visible elevator input is required are **NOT** acceptable, you have to be sure that the pilot is using the elevator. Slow rolls which require elevator and rudder input are acceptable if the pilot can perform them but are **NOT** a requirement.

Don't forget to note which way the model rolls.

(g) Complete two consecutive rolls downwind using the opposite direction of roll rotation to that use in (f).

All the comments in (f) above apply but you can allow a little more leeway on the centring of the manoeuvre as the model will be travelling faster over the ground. You should, however, be satisfied that the pilot is making a reasonable effort to centre the manoeuvre. Make sure that the model rolls in the opposite direction to (f).

(h) Complete a stall turn either left or right.

This should be flown from standard height and line but not directly in front of the pilot. The model should be flown past the pilot for about 100 yards before the manoeuvre is performed, returning past the pilot at standard height and line when the manoeuvre is complete.

The direction of the stall turn should be nominated by you and it should be performed away from the flight line, i.e. if the wind is from the right, the model is flown past the pilot from left to right, pulled up and stall turned to the LEFT.

Although you should not expect a perfect manoeuvre, it should be a recognisable stall turn, not a chandelle or a wing over. The 'vertical climb and dive' should be near vertical, the throttle should be used in the appropriate manner and the model should not 'fly' over the top in a semi-circle.

(i)) "Gain height and perform a three turn spin, the initial heading and the recovery heading must be into wind and the model must fall into the spin (no 'flick' spin entry)."

The spin should be performed in front of the pilot but a little further out than the other manoeuvres. The height should be appropriate to the type of model being flown and the pilot should gain that height in a smooth and neat manner.

There is only one way to perform the spin.

The model must be flown into wind and before it reaches a point in front of the pilot the throttle must be closed. As the model slows down, level flight must be maintained by steadily increasing amounts of up elevator until, at a point approximately in front of the pilot, full up elevator is reached **(the model should be slow and nose up at this point but not climbing).**

Full rudder must then be applied and the model allowed to fall into the spin. The model should not stall and then spin but it should be flying close enough to the stall so that applying full rudder will cause one of the wings to stall and initiate the spin

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

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

After an appropriate time (depending on the model) controls must be centralised, any anti-spin actions taken (sometimes necessary) and the model recovered onto the same heading it had when the manoeuvre was started. An 'aerobatics' spin which finishes in a vertical dive is not required but is acceptable.

Allowances should be made for the heading of the model to be slightly off line (no more than ten or fifteen degrees) as the spin finishes but this should be corrected during the pull out. Do not accept a manoeuvre which requires more correction than this during the pull out.

If the pilot cannot take the model at least through the beginning of the spin in a competent fashion it is a sure sign that they have not practised the manoeuvre. If they make a good job of the entry but are not accurate enough on the exit, you might consider allowing another attempt at the manoeuvre as the spin can, on some occasions, be a difficult manoeuvre to predict, depending sometimes on the model as much as the pilot.

If the model shows a genuine inability to spin you should fail the candidate on the basis of attempting the test with an inappropriate model.

Do not accept any excuses from the pilot that his model is too fragile to spin; the section on the suitability of models applies.

(j) Fly a rectangular landing approach and overshoot from below 10 ft. Note that this manoeuvre is a baulked landing, not a low pass.

Watch out for the downwind leg not being flown parallel to the upwind leg and the turns being flown either too tight or too wide (most will try to fly them too tight and almost try to put a ninety degree 'snap' turn in, which is not a requirement). Throttle should be reduced either just before or just after the last crosswind turn with the crosswind leg descending into

the turn on to final approach.

Once established on final approach, on line and descending, the throttle should be closed to idle to set up the final descent rate. The aim of all this is to have the model at a speed, position and rate of descent which will guarantee an accurate touchdown on the landing area. Only when this is **QUITE CLEAR** and the model is below 10 feet should the throttle be opened and the model climbed straight ahead back up to circuit height. Watch out for correct throttle control.

The pilot should call this manoeuvre out loudly as an **OVERSHOOT** and you should take note that he has visually checked the active area before and during the manoeuvre (watch for head movements).

Anything less than this is not satisfactory. Discuss this with the candidate before the flight as, if the overshoot is simply flown as a low pass, the candidate should fail.

Note that electric models are expected to follow typical 'i/c' flight patterns and that they can sometimes quite easily do that with propellers stopped. Don't be surprised if this happens, just take note that the flight path the model takes is what you would expect of an i/c model. These comments apply to the landing too.

(k) Fly a rectangular circuit in the opposite direction to that in (j) at a constant height of not more than 40 feet.

The comments above about parallel upwind and downwind legs and the type of turns required all apply. Height control should be good with no wavering and 40 feet is just over one house high.

(l) Fly a rectangular landing approach and land (wheels to touch within a pre-designated 20 metre boundary).

All the comments in (j) above apply accept that the pilot should call **LANDING.** The visual checks of the active area are very important and as in (j) you should watch for head movement.

If the candidate opens the throttle and climbs away then they should have a very good reason, such as people on the runway. Any reasons offered by the candidate for an unscheduled overshoot cannot include not being lined up correctly or anything similar. At this stage they should be capable of getting it right.

(m) Complete the post flight checks as required by the MFNZ safety Codes.

The candidate should ensure that it is safe to go onto the runway before leaving the pilot box. The model should be rendered safe as soon as possible by activating failsafe or shutting down combustion engines.

The post flight checks are set out clearly in the members manual but you should watch particularly that the 'Rx off, Tx off, frequency system cleared' sequence is followed correctly.

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.

Note should also be taken of the intermediate landing Test Section below and the recommended actions.

Exceptionally, at a pre-determined point in the flight an intermediate landing may be permitted for the sole purpose of either re-fuelling or 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 take off unless the model suffered a hard landing. However, the candidate should give the model at least a quick visual examination whilst on the ground.

The Questions.

The candidate then "must answer satisfactorily a minimum of eight questions on safety matters, based on the MFNZ Safety Codes for General Flying, Model Flying Displays and local flying rules."

Remember that on **no account** can a good performance on the questions make up for a flying test that you considered a failure. If you have failed the candidate's flying you should not even start to ask the questions. On the other hand the Proficiency 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 eight questions with confidence then you need go no further. An acceptable test but with some rough edges can be offset to an extent by the candidate performing well in the first eight 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 eight 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 MFNZ members manual 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 MFNZ 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 could go wrong?, why should operating transmitters not be taken out when retrieving models from an active flying area? or why should models not be taxied in or out of the pits area?

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
MFNZ Members Manual
Local site rules (if applicable) ☐

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 ☐

5 Agree any Airspace requirements that need to be pre-determined by the Examiner and Candidate prior to the commencement of the test flights ☐

6 Discuss the various manoeuvres and any options that may be available so that there can be no misunderstanding during the test ☐

7 Clearly identify the landing area and agree with the candidate the required landing pattern that he will be flying and you will being looking for. ☐

Examiners Check List. Advanced Fixed Wing Power (AP)

Candidates Name	**MFNZ Number**	**Date**	**Signature**
Examiner's Name	**MFNZ Number**	**Date**	**Signature**

	FLIGHT TASK	**COMMENTS**
(a)	Carry out pre-flight checks as required by the MFNZ Safety Codes	
(b)	Take off and complete a left (or right) hand circuit and overfly the take-off area.	
(c)	Fly a 'figure of eight' course with the crossover point in front of the pilot, height to be constant	
(d)	Fly into wind and complete one inside loop	
(e)	Fly downwind and complete one outside loop downwards from the top (a bunt).	
(f)	Complete two consecutive rolls into wind	
(g)	Complete two consecutive rolls downwind using the opposite direction of roll rotation to that used in (f) above	
(h)	Complete a stall turn either left or right	
(i)	Gain height and perform a three turn spin	
(j)	Fly a rectangular landing approach and overshoot from below 10 ft	
(k)	Fly a rectangular circuit in the opposite direction to that in (j) at a constant height of not more than 40 feet	
(l)	Fly a rectangular landing approach and land (wheels to touch within a pre-designated 20 metre boundary)	
(m)	Complete post-flight checks as required by the MFNZ Safety Codes.	
Answer five questions from the list of mandatory questions on legal aspects of model aircraft flying.		
Answer satisfactorily a minimum of eight questions on safety matters based on the MFNZ Safety Codes for General Flying and Model Flying Displays and local flying rules.		