Annex B

Basic Glider (GD) and Advanced Glider (AG)

The Basic Test
General

The Achievement Scheme is run by the MFNZ as a National Scheme and it is open to all model flyers. Where a non-member wishes to participate in the achievement scheme the examiner who will be conducting the test must inform the MFNZ office via email or telephone no later than the day prior to the test being carried out of the non-member's full name, address and the date that the test will be conducted. This enables the MFNZ to extend insurance at suitable levels for the day of the test. If this procedure is not followed the test will be invalid.

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

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

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

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

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

Please note that Basic Proficiency Certificates are not applicable to silent flight tests.

The Model

The test can be performed with virtually any Thermal Soaring Glider model and launch may be by Hand Tow, Bungee, Winch, Hand Launch, Electric powered gliders or Aero-Tow.

The use of a gyro or autopilot is not allowed during the test. If any such system is fitted to the model it must be disabled during the test and you should check that this has been done.

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

Launch Height, Flight Time and Weather

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

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

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

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

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

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

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

Some judgement is called for on your part here. A major mistake is grounds for failing the candidate, especially if loss of control has occurred or a dangerous situation has arisen. You should definitely not let them have multiple tries at each manoeuvre until they get it right but you must give yourself the best chance of assessing the competence of the pilot you are testing.

You should consider what you have seen the model do and if you think to yourself "could be better" then a request that the manoeuvre be repeated may be considered. Be extremely careful about using this option, however, as you could very easily be degrading the worth of the test. It must not, under any circumstances, degenerate into a series of 'practice' manoeuvres. Also be aware of the height of the model and the remaining manoeuvres required.

The Flights

(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, tow hook, control linkages and surfaces.

Points to look for are that the candidate has a steady and regular ground routine, which should include inspecting the launch apparatus. Nerves may play a part but you should satisfy yourself that the candidate is actually in control of what they are doing when preparing their aircraft for flight.

Pay particular attention to the way the candidate uses the local frequency control system and make sure that they 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.

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 and releasing it at the start of the launch but any such actions must be performed by you directly on the instructions of the candidate. You must not prompt them or carry out any actions of your own accord. Talk this over with the candidate in your pre-flight briefing.

The candidate must be fully familiar with any failsafe system fitted to the model and should brief you on the system and demonstrate it working at some time during the pre-flight checks.

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

(b) Check that any launching equipment is laid out correctly, securely and safely with respect to the field layout.

Depending on the launch method, ensure that;

*** The towline is in good condition**

*** That the bungee is securely anchored to the ground**

*** That winches and turnaround pulleys are secure and a master on/off switch is fitted to the winch. If using a winch the candidate should be aware of the cut-off facilities to stop the winch and should brief any helper accordingly**

*** If aerotow is to be used, the tug pilot is aware of the model he will be towing, that a launch plan is agreed and that the release mechanisms on both the Tug and the Glider are functioning correctly.**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

When the candidate is happy the landing area is clear they should make a clear call of landing loud enough to be audible to the other flyers. The circuit should remain out in front of the pilot and thus allow them to keep the landing area in view at all times. A pilot should not fly around themselves.

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

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

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

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

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

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

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

The candidate should ensure that it is safe to go onto the runway before leaving the pilot box.

There is no requirement to turn off the model and transmitter (and then clear frequency control, etc.) if the next flight will be made immediately.

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

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

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

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

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

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

Once the three flights are complete return to the pits.

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

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

The Questions

Having successfully completed the safety and flying elements of the test, the candidate must then answer correctly five mandatory questions based on legal compliance, as well as a **minimum** of five further supplementary questions on safety matters, based on the MFNZ Safety Codes for General Flying and local flying rules etc. 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 achievement scheme is a test of both flying ability and knowledge. It doesn't matter how well the candidate can fly, if they cannot answer the questions they should not pass.

Mandatory Questions

From August 2015 it is a requirement of all tests that candidates must answer correctly 5 questions taken from the list of mandatory questions based on legal aspects of model aircraft flying. (See Appendix) The examiner should only ask 5 questions and if the candidate does not know the answer to any question the test must be considered as a fail.

The examiner should indicate on the test form which questions have been asked.

It is expected that examiners will select questions that are appropriate to the test being taken, however candidates should familiarise themselves with all of the questions on the list. Candidates are not expected to be "word perfect" with their answers but they should be able to demonstrate that they are fully aware of the legal controls for model aircraft flying. For example if a candidate gives the answer to Question 4 (What does article 138 of the ANO state?) when asked Question 3 (What does article 137 of the ANO state?) it is likely they are aware of both answers and the examiner should point out they have answered the wrong question and ask for the correct answer.

Supplementary Questions

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

As an examiner, however, you should prepare yourself thoroughly for any testing that you do and you may wish to sort out your own personal and private list of sensible questions. Don't forget that you can use any local rules which you know and which the candidate should be aware of.

Remember that the majority of 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? There is always the possibility that the examiner may use the supplementary questions to further explore the candidates understanding of the mandatory questions.

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)
'Safety Code for General Flying'
and 'Operational Guide, All Models and Radio Control'. ☐

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

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

4 Remind candidate to talk you through anything that the helper does for them as the test progresses (includes Tug pilot briefing if an aerotow is being used) ☐

5 Agree model position after the launch and straight flight tasks (d & e) are completed ☐

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

7 Clearly identify the landing target and agree with the candidate the required landing pattern that is being looked for (This includes the upwind position from which the manoeuvre starts). Possibly agree the general area to be used in the case of a baulked landing. ☐

Examiners Check List. Basic Glider (GD)

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

	FLIGHT TASK	COMMENTS - FLIGHT 1	COMMENTS - FLIGHT 2	COMMENTS - FLIGHT 3
(a)	Carry out pre-flight checks as required by the MFNZ Safety			
(b)	Check the launching equipment, if applicable			
(c)	Check that the launch area and landing area are clear ground and in the air, and prepare the model for launch			
(d)	Call "launching" and launch the model			
(e)	Fly the model straight and level for at least 15 seconds whilst clearing the launch area (not applicable to HLGs).			
(f)	Stall the model into wind and recover			
(g)	Perform 3 consecutive 360^{O} thermal turns to the right or left			
(h)	Perform 3 consecutive 360^{O} thermal turns in the opposite direction to above			
(i)	Fly the model up wind to prepare the model for landing			
(j)	Call "landing" and fly an approach			
(k)	Land the model into wind within 20 metres of a predetermined spot.			

(l)	Retrieve the model from the landing area			
(m)	Complete post-flight checks required by the MFNZ Safety Codes			
Answer five questions from the list of mandatory questions on legal aspects of model aircraft flying.				
Answer at least 5 questions on safety matters from the MFNZ Safety Codes for General Flying and local flying				

The Advanced Glider Test (AG)

General

The Achievement Scheme is run by the MFNZ as a National Scheme and it is open to all model flyers. Where a non-member wishes to participate in the achievement scheme the examiner who will be conducting the test must inform the MFNZ office via email or telephone no later than the day prior to the test being carried out of the non-member's full name, address and the date that the test will be conducted. This enables the MFNZ to extend insurance at suitable levels for the day of the test. If this procedure is not followed the test will be invalid.

The Advanced Certificate is "designed to recognise 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."

As an Examiner, therefore, the level of competence required from a candidate should firstly be based on the question; 'has this person demonstrated their flying ability and safety to me in a satisfactory manner' and, secondly, 'how do I feel about them appearing in public, possibly at a large display, on the strength of the certificate which I may be about to award them'.

The aim of the Advanced certificate has always been 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 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 must already have passed the Basic in that discipline.

However where a candidate presents for a Advanced test who does not already hold an Basic certificate it is acceptable for the candidate to complete the flying portion of the Basic test successfully and then move immediately to the flying portion of the Advanced test before attempting the test questions.

If the candidate passes the Basic flying test but fails the Advanced then you should ask the Basic questions. If the candidate passes both the Basic and the Advanced flying tests, then you should ask the Advanced questions.

Note that the flying test does not finish until the model has been retrieved and the post flight checks have been completed

The candidate for the Advanced should have studied the MFNZ members manual, any local site rules (if applicable) and be familiar with the 'Safety Code for General Flying', the 'Operational Guide, All Models and Radio Control' and the 'Safety Code for Model Flying Displays'. Most of the questions asked at the end of the test will be from these sections of the members manual.

The Model

The test can be performed with virtually any Thermal Soaring Glider model and launch may be by Hand Tow, Bungee, Winch or Aero-Tow. However the landing requirement may be difficult using a glider without some form of airbrakes fitted.

The use of a gyro or autopilot is not allowed during the test. If any such system is fitted to the model it must be disabled during the test and you should check that this has been done.

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

Launch Height, Flight Time and Weather

The Advanced certificate candidate should be a confident pilot.

The test states that "If insufficient height is achieved at launch or very bad sink is encountered that will not allow the completion of the entire required test manoeuvres, the Examiner may allow an additional flight. If in the opinion of the Examiner a poor launch height is due to pilot ability the test is failed."

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

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

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

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

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

The Flights

(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, tow hook, control linkages and surfaces.

Points to look for are that the candidate has a steady and regular ground routine, which should include inspecting the launch apparatus. Nerves may play a part but you should satisfy yourself that the candidate is actually in control of what they are doing when preparing their aircraft for flight.

Pay particular attention to the way the candidate uses the local frequency control system and make sure that they 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.

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 and releasing it at the start of the launch but any such actions must be performed by you directly on the instructions of the candidate. You must not prompt them or carry out any actions of your own accord. Talk this over with the candidate in your pre-flight briefing.

The candidate must be fully familiar with any failsafe system fitted to the model and should brief you on the system and demonstrate it working at some time during the pre-flight checks.

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

(b) Check the launching equipment is laid out correctly, securely and safely with respect to the field layout.

Depending on the launch method, ensure that;

*** The towline is in good condition**

*** That the bungee is securely anchored to the ground**

*** That winches and turnaround pulleys are secure and a master on/off switch is fitted to the winch. If using a winch the candidate should be aware of the cut-off facilities to stop the winch and should brief any helper accordingly**

*** If aerotow is to be used, the tug pilot is aware of the model he will be towing, that a launch plan is agreed and that the release mechanisms on both the Tug and the Glider are functioning correctly.**

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

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

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

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

The Launch should be clearly under control and any deviations smoothly and swiftly corrected. The launch should appear competent and whilst you are not looking for the highest launch possible a reasonable height should be achieved. A "Ping" (dive under tension to convert line tension into kinetic energy) at the top of the launch is common amongst more experienced pilots but is not required in this Test. If a Ping is used then you should watch carefully for a stall at the top of any climb out. As the requirement states "without stalling" any stall must be taken as a fail.

(e) Fly the model straight and level for at least 15 seconds while pilot and Examiner clear the launch area.

This manoeuvre should place the model upwind of any tow/launch area and in a position where the following manoeuvres can safely be performed (i.e. the thermal circles drifting with the wind should not cause the model to enter any no-fly area. Discuss this with the candidate before the test.

The following steps are optional but must be performed at least once in the group of three flights.

(f) Fly the model through either a half loop or half roll to inverted, hold straight, controlled inverted flight for a minimum of five seconds and then half loop or half roll back to level flight.

This manoeuvre should be as smooth as possible. A thermal soaring glider with a large amount of dihedral will not track straight when inverted and this should be allowed for. As long as the flight path whilst inverted is corrected back to the starting heading after any deviation then that is OK. The Examiner should probably agree to count the five seconds or at least indicate that they feel the five seconds is complete to avoid any confusion with the candidate.

(g) Fly the model on a thermal search pattern. The model is to pass over three points, agreed with the Examiner prior to the start of the flight (e.g. corners of the field).

This manoeuvre should be flown above the minimum flight speed of the model and as stated pass over three pre agreed points. If lift is found during the search then a smooth transition into the next task is allowed but this is not mandatory. If the lift is found early in the task then the search phase can be re-flown between steps (h) and (i) on the way upwind.

(h) Fly the model through consecutive 360 degree thermal turns to a position a minimum of 100m down wind of the pilot. The model should gain height if in lift or be flown with minimum loss of height if no lift is found.

This manoeuvre should focus on a smooth rate of turn. The model will appear to speed up (downwind) and slow down (upwind) if there is a breeze. This is to be expected and is the correct result.

A weak pilot may try to slow the model whilst it flies downwind and speed it up into wind rather than allowing it to fly smoothly. If this results in an erratic motion or stalling of the plane then the examiner should mark the pilot down.

If this manoeuvres is flown in rising air it will rarely be smooth and so the examiner should make allowance for turbulence affecting the model. The gaining of height is desirable and shows the strength of the pilot, however it is not a mandatory requirement and smooth descending circles are allowed (a pilot who avoids lift to fly in smooth air must be suspect).

(i) Fly the model a minimum of 150m up wind of the pilot with minimum loss of height.

This manoeuvre should be a smooth flight (normally above the minimum flying speed of the aircraft) forwards to an agreed position approximately 150m upwind. Verbal agreement between the examiner and candidate during the flight is allowed as distance judgement at height is very subjective.

The statement "Minimum loss of height" may cause some confusion as it can be argued the best speed to penetrate is quite fast (especially if it is windy). The examiner should look for a positive move upwind. The choice of actual speed is the candidate's decision but any excessive dive or conversely any very slow flight should be penalised.

(j) Gain speed and perform a stall turn into wind.

This manoeuvre should include gaining speed in a gentle dive, followed by a flat entry (to establish the starting height) and then a pull up into a vertical climb. A degree of yaw will need to be achieved before the speed decays too much (as there is no Prop Wash, the glider must be yawed over before it stalls). The model should then rotate to the down vertical (there may be a tendency for gliders with high dihedral to roll as well at this point, which is acceptable if smoothly corrected) and then accelerate and pull out at the entry height.

(k) Fly the model across wind and stall, recover with minimum loss of height, still heading across wind.

This manoeuvre should be a gentle reduction of speed until the stall occurs and then a straight dive and recovery with minimal height loss. A lot of gliders (due to the high Aspect ratio wing) will drop a wing in the stall and this should be smoothly corrected. The dropping of a wing should not

be an issue if the correct heading is maintained as much as possible.

(l) Turn the model down wind and stall, recovering with minimum loss of height on the same heading down wind.

This manoeuvre should be a gentle reduction of speed until the stall occurs and then a straight dive and recovery with minimal height loss. A lot of gliders (due to the high Aspect ratio wing) will drop a wing in the stall and this should be smoothly corrected. The dropping of a wing should not be a issue if the correct heading is maintained as much as possible.

The following steps are included in every flight.

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

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

Watch head movements that show the candidate is checking the landing area is clear. When the candidate is happy the landing area is clear they should make a clear call of landing loud enough to be audible to the other flyers. The circuit should remain out in front of the pilot and thus allow them to keep the landing area in view at all times. A pilot should not fly around themselves.

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

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

(n) Land the model into wind within 10 metres of a predetermined spot.

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

You are looking for a smooth landing and not a 45 degree dive into the ground. The judgement of height on the landing circuit will have been critical to this phase. A step approach with strong brakes deployed is allowed, but a smooth round out and landing is expected.

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

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

The candidate should ensure that it is safe to go onto the runway before leaving the pilot box.

When the model has been retrieved and returned to the launching area the transmitter should be returned to the pilot. There is no requirement to turn off the model and transmitter (and then clear frequency control, etc.) if the next flight will be made immediately.

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

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

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

Repeat the above test (d-p) twice more, giving a total of three flights.

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

Once the three flights are complete return to the pits.

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

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

IMPORTANT NOTES

Number of Flights, Manoeuvres to be completed and Total Flight Time

The test specification lays out the following conditions

The pilot must perform three flights and all sections (f) to (l) must be completed sometime during those three flights, nominating before each launch which parts will be attempted. Sections (a) to (e) and (m) to (o) apply to each individual flight.

If the pilot has completed all tasks in 1 or 2 flights they must still perform the total of three flights. In this case the Examiner may ask for any of tasks (f) to (l) to be repeated in the third flight. The cumulative flight time for three flights is to be more than 12 minutes.

You must discuss these requirements carefully with the candidate and be prepared to modify your expectations depending on the manoeuvres executed on the first and second flights.

Although the candidate should nominate the manoeuvres to be attempted on a flight, this can quite easily change depending on the quality of the air encountered so you must remain flexible in your requirements. If the candidate encounters 'good' or 'bad' air, they should be informing you of the fact so that you both have a good idea of how the flight is going. You may find that you will have to reduce expectations if bad air is encountered but good air and an extended flight time may enable more manoeuvres than planned to be completed.

Don't forget, however, that the test is not a thermal catching exercise, it is a test of aircraft handling.

If insufficient height is achieved at launch or very bad sink is encountered that will not allow the completion of the test manoeuvres the Examiner may allow an additional official flight. If in the opinion of the Examiner a poor launch height is due to pilot ability the test is failed.

This gives you even more leeway to allow for bad air or poor launches that are not the candidates fault but you should only use this option in fairly exceptional circumstances and the candidate should not rely on the 'fourth flight option' in any way.

In addition, the decision to offer a fourth flight is yours alone, the candidate cannot be allowed to influence your decision. If you consider that the three flights taken should have led to all the manoeuvres being completed but they haven't then the candidate should fail.

The Questions

Having successfully completed the safety and flying elements of the test, the candidate must then answer correctly five mandatory questions based on legal compliance, as well as a **minimum** of eight further supplementary questions on safety matters, based on the MFNZ Safety Codes for General Flying and local flying rules etc. 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 achievement scheme is a test of both flying ability and knowledge. It doesn't matter how well the candidate can fly, if they cannot answer the questions they should not pass.

Mandatory Questions

From August 2015 it is a requirement of all tests that candidates must answer correctly 5 questions taken from the list of mandatory questions based on legal aspects of model aircraft flying. (See Appendix) The examiner should only ask 5 questions and if the candidate does not know the answer to any question the test must be considered as a fail.

The examiner should indicate on the test form which questions have been asked.

It is expected that examiners will select questions that are appropriate to the test being taken, however candidates should familiarise themselves with all of the questions on the list. Candidates are not expected to be “word perfect” with their answers but they should be able to demonstrate that they are fully aware of the legal controls for model aircraft flying. For example if a candidate gives the answer to Question 4 (What does article 138 of the ANO state?) when asked Question 3 (What does article 137 of the ANO state?) it is likely they are aware of both answers and the examiner should point out they have answered the wrong question and ask for the correct answer.

Supplementary Questions

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

As an examiner, however, you should prepare yourself thoroughly for any testing that you do and you may wish to sort out your own personal and private list of sensible questions. Don't forget that you can use any local rules which you know and which the candidate should be aware of.

Remember that the majority of 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? There is always the possibility that the examiner may use the supplementary questions to further explore the candidates understanding of the mandatory questions.

.

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) 'Safety Code for General Flying'
'Operational Guide, All Models and Radio Control' And the Display Safety Code. ☐

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

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

4 Remind candidate to talk you through anything that the helper does for them as the test progresses (includes Tug pilot briefing if an aerotow is being used) ☐

5 Agree model position after the launch and straight flight tasks (d & e) are completed ☐

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

7 Clearly identify the landing target and agree with the candidate the required landing pattern that is being looked for (This includes the upwind position from which the manoeuvre starts). Possibly agree the general area to be used in the case of a baulked landing. ☐

Examiners Check List. Advanced Thermal Glider (AG)

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

	FLIGHT TASK	**COMMENTS FLIGHT 1**	**COMMENTS FLIGHT 2**	**COMMENTS FLIGHT 3**
(a)	Carry out all pre-flight checks as required by the MFNZ Safety Codes			
(b)	Check that the launching equipment is laid out correctly			
(c)	Check that the launch area and landing area are clear, ground and air			
(d)	Call "launching" and launch the model			
(e)	Fly straight and level for at least 15 seconds			
(f)	Half loop or half roll to inverted, hold straight, controlled inverted flight for a minimum of five seconds, half loop or half roll back to level flight			
(g)	Fly a thermal search pattern, the model to pass over three points			
(h)	Fly consecutive 360^{o} thermal turns to a minimum of 100m down wind			
(i)	Fly the model a minimum of 150m up wind			
(j)	Perform a stall turn into wind.			
(k)	Fly a cross wind stall			

(l)	Fly a down wind stall			
(m)	Call “landing” and fly an approach			
(n)	Land the model into wind within 10 metres of a predetermined spot			
(o)	Retrieve the model from the landing area			