MFNZ '*Wings*' Proficiency Scheme

Glider, Basic and Advanced

1. Aim

1.1. To provide certification of a basic proficiency level for Radio Control model pilots enabling them to operate unsupervised. Pilots achieving the required level are entitled to hold the MFNZ '*Wings*' qualification, endorsed to one or more of 10 disciplines, plus 3 specialist qualifications.

1.2. To meet the requirements of Civil Aviation Rule 101.205 for flying within 4km of aerodromes.

1.3. To provide a way of demonstrating a higher level of skill by completing an advanced test, with 'advanced' certification.

2. Method

2.1. MFNZ encourages all clubs to ensure that members follow this proficiency scheme and to ensure that all Radio Control pilots to obtain their '*Wings*'.

2.2. Many club flying sites, rallies and contests are on or near aerodromes and this qualification is mandatory to fly at those sites. The qualification provides ready proof of the holder's skill level.

2.3. Within 4km of an aerodrome all pilots must either hold a '*Wings*' qualification or operate under direct supervision of a '*Wings*' qualification holder or an approved Instructor. Away from aerodromes trainees should not be considered safe to fly on their own until they have reached the '*Wings*' standard.

2.4. The '*Wing's* Qualification is compulsory for:

(a) all new flying members joining MFNZ.

(b) all members who fly at sites within 4km of an aerodrome.

Members are encouraged to gain '*Wings*' qualifications at the earliest time.

2.5. Clubs should keep records of all the members holding '*Wings*' qualification certification and forward to the MFNZ membership administrator the name(s) of members attaining the certification in the various disciplines.

3. Examiners and Instructors

3.1. Instructors

Instructors will be proficient *'Wings'* certified holders with the same discipline qualification that is being instructed. Instructors will be appointed by the club(s). Clubs will assess their membership and select their instructors to meet the above criteria. Clubs will forward the name and MFNZ number of each appointed instructor to the MFNZ membership administrator for recording in the Association's database and the issue of a Instructors endorsement to the instructors membership card.

Instructors should be:

(a) Experienced proficient flyers that exhibit well-disciplined flying and operate in a safety conscious manner and are committed to training students to '*Wings*' standard.

(b) Be willing to spend considerable time training without letting their own skills suffer.

(c) Have empathy with the student and be able to guide the student through the learning process.

The MFNZ Members Manual for students is available on the MFNZ web site. This manual is structured to guide students through training to '*Wing*s 'standard and also acts as a prompt to instructors and has a check list for the student to keep as a record of training progress.

3.2. Examiners

Examiners will be Basic '*Wings'* qualification holders. It is not required for the Examiner to be proficient in the skill being tested but they should be familiar with the requirements of the qualification being tested and may conduct 'dummy tests' with a qualification holder to understand the manoeuvres fully. Clubs will assess their membership and select their examiners to meet the above criteria. Clubs should keep a register of 'Approved' examiners and forward to MFNZ on an annual basis. To ensure a common standard among Examiners, Area Representatives will conduct Examiner workshops whereby methods and ideas can be exchanged. The membership secretary will issue an Examiner's endorsement to the examiners membership card.

4. Qualification

There are 10 disciplines of Qualification:

Basic fixed wing Powered (**BP**)
Glider (**GD**)
Helicopter (**HP**)
Multirotor (**MR**)

Advanced Power (**AP**)
Advanced Glider (**AG**)
Advanced Helicopter (**AH**)
Advanced Multirotor (**AM**)

Basic Jet Turbine (**BT**) Advanced Jet Turbine (**AT**)

There are additional specialist qualifications for the following categories:

Large fixed wing powered (**LM**)
First Person View (**FP**)
High Speed (**HS**)

5. Certification

5.1. The proficiency qualification gained will be issued by MFNZ in the form of an endorsement on the membership card. Applications should be made through Club Secretaries on the official form, signed by the examiner. Annual membership cards will show the details of all qualifications held, including 'Instructor' and 'Examiner'. Members attaining a new qualification within the membership year may request the issue of a replacement membership card.

5.2. A pilot must be a current financial member of MFNZ to be the holder of a '*Wings'* qualification and issue / retention of a '*Wings*' qualification is at the discretion of the MFNZ Council.

5.3. Any qualification may be withdrawn by a club if the pilot is considered to be no longer able to satisfactorily meet the required standard. The *'Wings'* qualification will be reissued upon the satisfactory passing of a full wings test. You can have your 'Wings' certification taken away if you become incapable of flying safely due to an ongoing medical condition such as failing eyesight.

If you do not renew your MFNZ membership for 3 consecutive years you will be required to retake your qualification upon re-joining.

Holders of qualifications from overseas organisations must take the MFNZ '*Wings*' qualification in order to comply with CAA regulations to be familiar with NZ airspace law.

6. Testing Procedure

6.1. There are four parts to each basic proficiency '*Wing*s' test:

(a) The oral test
(b) Pre flight inspection of the model
(c) Pre flight procedures test
(d) The 'flight test'

It is suggested that the 'oral' testing be done first.

6.2. Each part is marked on a competent/not yet competent basis and <u>total mastery</u> is required to qualify.

6.3. Retesting is permitted. The examiner may decide if a retest can be carried out on the

same day or if there needs to be some retraining or consolidation before the retest.

6.4. A full guide to each test as well as test sheets and oral questions are included elsewhere in this manual

7. General test guidance

7.1. The *Wings* Proficiency Scheme is run by MFNZ as a National Scheme and it is open to all financial MFNZ model flyers.

7.2. 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. The level of competence expected of a candidate should be based on the criterion; 'is this person fit to be allowed to fly unsupervised'.

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

7.4. The candidate should have studied the MFNZ Members Manual; any local site rules (if applicable) and be familiar with the MFNZ Safety Code. 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 MFNZ Members Manual.

7.5. Also, Examiners 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.

8. Buddy Box Systems

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

9. Trim

9.1. It is expected that the candidate will start the test with a model that has been trimmed out previously but they should be able to trim the model out in the air if necessary. If there are obvious signs that the model is out of trim and the candidate does not make any attempt to rectify the matter the examiner should seriously question their basic competence.

9.2. On the other hand, if they do need to re-trim and are making attempts to do so, allowances should be made for a short time of flight with a somewhat erratic flight path. This should not be penalized unless it puts the model in any danger or unless the model flies behind the pilot or in any other unsafe area.

10. Nerves

Quiet competence is what is required during the flight but most candidates will be nervous and allowance should be made for this. If the flyer is very nervous the examiner should seriously consider abandoning the test for the time being and offering the candidate a coaching flight or two to settle them down before re-taking the test. This can be done on the same day and can really help those candidates who have trouble with nerves when flying in a test situation.

11. Repeating Manoeuvres

11.1. At 'Basic' certificate level the manoeuvres are simple and the candidate should be competent to fly them with very few errors. If there are any major faults the test should be taken again. It may be, however, that the candidate will make a minor mistake on a manoeuvre and if the examiner is not fully satisfied, he may consider asking for the manoeuvres to be repeated.

11.2. Some judgment is called for here. A major mistake is grounds for failing the candidate, especially if loss of control has occurred or a dangerous situation has arisen. The examiner should definitely not let them have multiple attempts at each manoeuvre until they get it right but must give themselves the best chance of assessing the competence of the pilot being tested. Examiners should be extremely careful about using this option, however, as it could very easily be degrading the worth of the test. It must not, under any circumstances, degenerate into a series of 'practice' manoeuvres.

12. Repeating the Test

There maybe two attempts at the test in a day. If the candidate fails the first of these the examiner must consider their performance in deciding what to do next. Many failures will be reasonably good pilots or they could be borderline cases. In these circumstances it might be appropriate to offer one or two coaching flights and then a repeat of the test. Remember that many of the candidates will be unfamiliar with flying under pressure and might do very well on the second test.

On the other hand, it will probably be obvious that on many occasions that the pilot being tested is simply not ready for the test they are taking. In this situation it is better that to tell them so quite clearly. It could then be extremely useful to offer to fly a demonstration test for them so that they can gain an idea of the standard of flying required, especially if they have shown a lack of understanding of the manoeuvres and positioning. This, possibly along with a little coaching, is far more useful to everyone than simply telling the candidate that they have failed.

13. Helpers for Disabled Candidates, Young Candidates and Others who have requested help During the Test

13.1. When disabled or young candidates present themselves for the test it may be that they will not physically be able to perform all the actions that most candidates can. At times, other candidates may also request help with certain physical aspects during the test (they may, for instance, have an injured finger). There will be times when the Examiner, will think ‘how much can the test requirements be relaxed for this person’.

13.2. Some Examiners make the decision to make no allowances at all but this effectively bars many people from attempting the tests. If we think of the Proficiency scheme as a true national scheme then we must consider how we can accommodate candidates, not how we can stop them from participating.

13.3. The answer, of course, is that the Examiner, must make on-the-spot decisions about what will be allowed during the test and, in such cases, the examiner is within their

authority to take such decisions. The guidelines set out below may help but at all times the two items at the end of this section must take precedence. They are not negotiable and mean that, whoever the candidate is, they have to convince the examiner that they know what they are doing or what is happening for the full duration of the test.

13.4. For instance, a disabled flyer may have difficulty handling the model and may not be able to carry it out to the strip, release it for launch or retrieve it after the flight. The sensible use of a helper is certainly allowable in such cases but it is essential that they only do what the candidate asks them to do. Pre-flight checks may be a problem area that can be overcome by a helper but the candidate should be expected to do as much of the work as possible themselves and they should be able to talk through anything that the helper does for them. Examiners should be sure to discuss all this with the candidate before starting the test.

13.5. All of these comments can apply to younger flyers too, and is a situation where a helper can be used. If this situation does occur with younger candidates however, the examiner should insist that they do all the pre-flight and preparation work themselves, If they cannot do this then they should not pass.

In all cases:

(1) If, at any time, the helper takes over the decision making process from the candidate then the candidate must fail.

(2) The Examiner can make no allowances whatsoever for anyone during the flying of the test. The candidate can either perform the flight manoeuvres as specified or they can't. If they can't then they must not be passed.

Make sure in the briefing that both the candidate and the helper are fully aware of both of these points.

14. Administration notes for Examiners

There are specific forms for Examiners to use during the tests (included in this document); further copies can be downloaded from the MFNZ website. Completed forms should be sent to the local Club Secretary within seven days of the test and, whilst they must be filled in by the Examiner, they may be sent in to the local Club Secretary by either the Examiner or the Candidate. You should take great care that all the details are filled in correctly, especially the successful candidates **Name** and their **MFNZ number** (this can save a great deal of confusion).

This is very important as what is seen on the pass form is what will appear on the final certificate. It is embarrassing for you to have to send one back to be re-done and it gives the candidate a definite impression of sloppy work by someone.

Club secretary's should collate the information and pass on the original or copied forms to the MFNZ membership administrator promptly for the issue of an updated membership card showing the qualification(s) achieved.

Basic Glider (GD) and Advanced Glider (AG)

Basic Glider (GD)

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.

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, eg. a too small or weak 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 thrower 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 penalized. 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 judgment 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 judgment 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 aero tow 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 aero-tow 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. If using a helper, 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 (Basic GD)

The candidate must answer correctly a minimum of **five** of the **Mandatory Questions** (**Annex I**, **questions 1-15**; attached to this document) on safety matters, based on the MFNZ Safety Code for general flying and local flying rules.

The candidate must **also** answer correctly a minimum of **five** questions from the **General** and **Specific Discipline Questions** (**Annex I, questions 16-29 and 57-63**; attached to this document) on safety matters, based on the MFNZ Safety Code for general flying and local flying rules.

It is suggested that the 'questions' are asked before the flying test.

Prior to the 'flying test' the examiner should ask questions of up to three 'Local site/club Rules'.

Such questions should query the maximum altitude models can fly over the flying site as well as the boundaries of the site together with site 'etiquette' and pilot safety.
Remember, 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.

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 Code; 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 operating transmitters should not be taken out when retrieving models from an active flying area?

Examiners and Candidates Checklist

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. ☐

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 aero tow 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
Examiners Name	MFNZ Number	Date	Signature

	FLIGHT TASK	Comments Flight 1	Flight 2	Flight 3
(a)	Carry out pre-flight checks as required by the MFNZ Safety Codes			
(b)	Check the launching equipment, if applicable			
(c)	Check that the launch area and landing area are clear ground and in the air, and prepare the model for launch			
(d)	Call "launching" and launch the model			
(e)	Fly the model straight and level for at least 15 seconds whilst clearing the launch area (not applicable to HLGs).			
(f)	Stall the model into wind and recover			
(g)	Perform 3 consecutive 360^{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 **five** questions on safety matters from the MFNZ Safety Codes for General Flying and local flying				

Advanced Glider (AG)

General

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.

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’ Gliding Test.

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 'MFNZ Safety Code. Most of the ‘test’ questions 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 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 aero tow 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 aero-tow 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. If using a helper, 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.

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 (f-l) must be performed at least <u>once</u> 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 manoeuvre 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 downwind.

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 to be 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/she 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.

(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.

(q) Repeat the above test (d-q) 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 (q) 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 12minutes.

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 (Advanced Glider AG)

The candidate must answer correctly a minimum of **five** of the **Mandatory Questions** (**Annex I**, **questions 1-15**; attached to this document) on safety matters, based on the MFNZ Safety Code for general flying and local flying rules.

The candidate must **also** answer correctly a minimum of **five** questions from the **General** and **Specific Discipline Questions** (**Annex I, questions 16-29 and 57-63**; attached to this document) on safety matters, based on the MFNZ Safety Code for general flying and local flying rules.

It is suggested that the 'questions' are asked before the flying test.

Prior to the 'flying test' the examiner should ask questions of up to three 'Local site/club Rules'.

Such questions should query the maximum altitude models can fly over the flying site as well as the boundaries of the site together with site 'etiquette' and pilot safety.
Remember, 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.

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 Code; 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 operating transmitters should not be taken out when retrieving models from an active flying area?

Examiners and Candidates Checklist

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. ☐

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 aero tow 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
Examiners Name	MFNZ Number	Date	Signature

	FLIGHTTASK	Comments		
		Flight 1	Flight 2	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 15seconds			
(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			

Answer **five** questions from the list of mandatory questions on legal aspects of model aircraft flying.	
Answer **five** questions on safety matters from the MFNZ Safety Codes for General Flying and local flying	

Annex I Oral questions

Mandatory Questions for all Disciplines (1-15)

1. Describe the airspace class you are currently flying in?

2. Where would you find information about the airspace class?

3. What are the requirements and limitations of the airspace?

4. What is the altitude limit for the current site?

5. Explain the requirement of consent from the property owner prior to flying

6. What are the requirements for flying with 4km of an aerodrome?

7. What are local flying field rules? Noise Requirements?

8. What would you do if a person walked into the flying area?

9. What frequency control, including for FPV, is currently in place?

10. What are the requirements for an observer? What is their role?

11. Describe “Line of Sight” operation

12. What is required for flying in controlled airspace?

13. Describe the legal requirement s for aircraft between 15-25kg? 25kg+?

14. Can you fly at night?

15. How would you respond to a manned aircraft entering the airspace you are operating in?

General Questions (16-29)

16. What is the purpose of a transmitter range check before flying?

17. Describe the pre-flight checks that should be done on an airframe before flying

18. Why do we not fly behind the flight line or over the pits?

19. Describe the importance of the correct centre of gravity on an aircraft

20. Why is it good practice to balance propellers/blades/fans?

21. What do you look for when checking the condition of propellers/blades/fans?

22. Explain the precautions associated with charging batteries

23. Describe the power on/power off sequence of your model

24. How do you check the centre of gravity of a model whilst on the ground?

25. What is meant by dual rates on a transmitter and how does this affect the control surfaces?

26. What is meant by exponential function on a transmitter?

27. Describe the failsafe function of your radio/flight controller

28. What are the hazards associated with carbon fibre used in construction?

29. Describe Pitch / Roll / Yaw of an aircraft

Pilot Specific Questions (30-44)

30. Why models should be restrained whilst starting?

31. How should the receiver battery status be checked before flying?

32. Describe safe tools that can be used to start an IC engine

33. Why do we check the control surface integrity and direction before flying?

34. Why is it good practice to disconnect the motor pack on an electric model whilst in the pits?

35. Why is it good practice to test a receiver battery using a load tester?

36. Why it is good practice to cycle NiCad or NiMh receiver battery packs?

37. Describe flight line etiquette

38. What happens when a model stalls and the best way to attempt to correct a stall?

39. What is the best action to take when experiencing an engine failure on take-off?

40. What is the best action to take when an engine stops in mid-flight?

41. When starting an engine (IC or electric) where should you insist bystanders position themselves in relation to the model?

42. How do you find out if a receiver battery pack has reduced capacity?

43. What is aileron differential?

44. What is the effect of low airspeed on control surfaces?

Multirotor Specific Questions (45-56)

45. Why is calibrating accelerometers and gyros important?

46. Why do we use lock nuts, or reverse threaded shafts, to secure blades?

47. How do controller gain settings affect the model?

48. Describe various flight modes

49. Describe the failsafe settings currently in use

50. How is flight pack voltage monitored?

51. What is HDOP and how can it affect GPS based flight?

52. Describe how your aircrafts configuration would respond to a motor/esc/propeller failure

53. What would cause your multirotor develop oscillations in a specific axis?

54. Why should you not take off and land in non-GPS modes?

55. Why should you not use exponential on the flight controller and your radio?

56. What is compass calibration and why is it important?

Glider Specific Questions (57-63)

57. Describe some ways to get your glider down safely from a thermal when it is getting carried away?

58. What is wash in and wash out. What are the advantages and disadvantages of each?

59. What might happen if you over speed your glider and describe some ways you could avoid it if you are up high and getting carried away?

60. Where should a tow-hook be situated in reference to the centre of gravity? What are the problems with having it too far forward and too far back?

61. The elevator compensation required for flaps down is elevator up/down?

62. Why do you wind down the line after a winch launch?

63. What other dangers are associated with winches? (Line breaks, chutes through turnarounds, locking pins)

Heli Specific Questions (64-72)

64. How do you check tail compensation direction?

65. What ESC startup setting should be enabled and why?

66. How and why do you check CG?

67. How tight should main blades be?

68. Why is heli blade tracking important?

69. Explain the purpose of throttle hold and 2 occasions you use it

70. How do you check the state of flight packs and/or RX packs in flight and before/after?

71. Give 5 examples of pre-flight checks required before any flight?

72. What is the recommended distance to fly away from the pilot when throwing down?

Large Model Specific Questions (74-83)

74. State the purpose of the Large Model certification scheme

75. Define Category 1, 2 and 3 aircraft.

76. Which Wings badge/s must be held when operating large models?

77. Are redundant Receivers and batteries mandatory for all categories?

78. Describe the two methods of choosing suitable servos for certified aircraft.

79. Define the 3 sequential parts of the certification process and give brief description of each process.

80. Where must test flights be performed, who may be present during the test flights and how many aircraft are allowed in the air during test flights.

81. How long is a Category 1, 2 & 3 permit valid for and which Category aircraft require a flight log book be kept?

82. When must checks of a certified aircraft be carried out and to what level?

83. Explain what validates a Permit to Fly at Public sites.

FPV Specific Questions (84-92)

84. What VTx frequencies and power levels are legal to use in New Zealand?

85. What are the requirements of FPV flying in New Zealand in regards to observers?

86. Can you mix and match right hand and left hand polarization antennas between VTx and VRx?

87. What tests should be performed before flying an FPV model each day?

88. Can you show me how to change your VTx to another frequency?

89. Briefly describe the difference between direction and non-directional antennas and how they would be used

90. What does a diversity VRx provide?

91. If you are using RTH or similar technologies what important steps should be done each day you go flying?

92. What happens with most VTx's during power on or channel change and how might you deal with this?

High Speed Specific Questions (93-101)

93. What is the extent of the flying area?

94. What is flutter, what causes it, and how is it avoided

95. What noise regulations exist at the flying area

96. What is the ceiling of the flying area?

97. Why is a throttle lock a good idea on a high performance electric model?

98. Why is an independent control & power system required?

99. What is 2.4Ghz carbon shielding and how is it avoided

100. What failsafe exist on the model, and why?

101. Why is a separate battery pack powering the Rx desired on the high-performance electric?

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