# R/C Proficiency Programme

*The "Wings" Programme for basic R/C Flight qualification.*

**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 wear the MFNZ 'Wings' badge.
1.2. To meet the requirements of Civil Aviation Rule 101 for flying within 4km of aerodromes.

**2.** ***Method***

2.1. MFNZ encourages all clubs to adopt this proficiency scheme and encourage 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 essential to fly at those sites. The badge provides ready proof of the minimum qualification.
2.3. Within 4km of an aerodrome all pilots must operate under direct supervision (of a wings badge 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 Wings Badge is compulsory for :

a) all new members joining MFNZ after 30 June 2009 who are obliged to attain the qualification.
b) all members who fly at sites within 4km of an aerodrome. This is to ensure compliance with CAA rule 101.
c) ALL members as of 1 January 2012

Members are to be encouraged to gain wings badges (if not already holding a wings badge) at the earliest time, and the attainment of the Wings badge qualification is compulsory for ALL members as of 1st January 2012

**Note:** To ensure compliance with CAA rule 101 any **trainee** pilot flying within 4km of an aerodrome should be directly supervised by a **Wings badge holder.**
**Note:** To ensure compliance with CAA rule 101 **all** pilots must fly with an **observer** when flying within 4km of an aerodrome.
2.5 Clubs should keep records of the members holding wings badge certification and forward to the MFNZ secretary the name of members attaining the certification.

## 3. *Examiners and Instructors*

### 3.1 Instructors

Instructors will be proficient Wings badge holders as appointed by the club. Clubs shall forward the name and MFNZ number of each appointed instructor to the MFNZ secretary for recording in the Associations database and issue of an instructor's certificate.
Instructors should be.

- Experienced proficient flyers who exhibit well disciplined flying and operate in a safety conscious manner and are committed to training students to Wings standard.
- Be willing to spend considerable time training without letting their own skills suffer.
- Have empathy with the student and be able to guide the student through the learning process.

Further information on instructing is available in the Instructors guide available from the secretary or on the MFNZ web site.

A Fixed Wing Training Manual for the student is available from the secretary or on the MFNZ web site. This manual is structured to guide students through training to Wings 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. All students should be issued with one.

### 3.2 Examiners

Examiners will be proficient Wings badge holders and may also be instructors. Examiners may also be members with competition judging experience familiar with the requirements of the Wings badge test. Examiners shall be proficient in the category they are testing.
Clubs shall assess their membership and select their examiners and instructors to meet the above criteria

***4. Qualification***

4.1 There are 7 categories of Qualification

Basic Fixed wing powered (BP)
Large fixed wing powered, (LP)
Aerobatics (AB)
Turbine / Jet (TJ)
Pylon (PN)
Glider (GD)
Helicopter (HP)

4.2 Any additional breakdown to cover specific competencies (e.g. Aerobatics, Turbine, Large models, Vintage, Pylon, Soaring) will be developed and administered by the SIG responsible and detailed in their Code of Practice.

***5 Certification***

5.1 The Wings badge and /or a Certificate of Proficiency, listing the type(s) of qualification, will be issued by MFNZ. Applications must be made through Club Secretaries on the official form, signed by the examiner. There is a charge for the badge and certificate or any alterations to the certificate.

5.2 The badge may have the club name at the top, the MFNZ wings in between, with the letters R/C in the centre, and the name of the pilot at the bottom. If specifically requested, the club name may remain blank.

5.3 All wings badge issue applications must be made to MFNZ secretary through the club secretary / SIG secretary on the official form. MFNZ will maintain a register of all certificate holders.

5.4 Certificates (and Badges) may be withdrawn by a club if the pilot is considered to be no longer able to satisfactorily meet the required standard.
The certificate (Badge) will be reissued upon the satisfactory passing of a full wings test.
**Clubs may refer such issues arising from such actions arising to MFNZ area councillors for assistance**

## *Testing Procedure*

5.5 There are four parts to each basic proficiency wings test:

a) Pre-flight inspection of model.
b) Oral Test.
c) Pre-flight procedures test.
d) Flight Test.

5.6 Each part is marked on a pass/fail basis and total mastery is required to qualify.

5.7 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.

Test sheets and Oral questions are included elsewhere in this Annex C / Manual.

## *6 Pre Flight inspection of model*

6.1 Checks include:

a) All radio equipment is secured in the model and protected against engine vibration.
b) Pushrods, ball links clevises and other fittings are secure.
c) All controls are effective, check especially for binding links or slowing of servos.
d) Engine is mounted securely and propeller has no cracks or damage.
e) Wings are firmly mounted and any bracing wires secure.
f) There are no loose or missing nuts and bolts.
g) Receiver battery pack is suitable (single replaceable cells are allowable but definitely not recommended).
h) All hinged flying surfaces secure.
i) CG is in right position.
j) Critical structure is of adequate strength with no cracks or significant warps.
k) The radio and switch free of fuel and oil.

And for *Helicopters only* checks include that:

l) The gyro is correct and secure.
m) Wiring is clear of mechanics.
n) The receiver aerial is in good condition with no chafing or damage and aerial cannot become entangled with any moving or rotating part.
o) All main and tail rotor blades are not damaged, checking root at blade pivot hole and the tip weight installation.

6.2 Additional pre flight inspection requirements for Large Fixed Wing powered models are outlined in the Large model SIG code of practice on the Large model SIG/MANZ website www.manz.org.nz (accessible from the MFNZ website also)

6.3 Any additional checks to cover specific disciplines (e.g. Aerobatics, Turbine, Large models, Vintage, Pylon, Soaring) will be developed and administered by the SIG responsible and detailed in their Code of Practice.

***Oral Test***

The candidate must display a good knowledge of:

a) Local flying and field rules, for example flying times.
b) Local no-flying zones.
c) Emergency landing areas.
d) Maximum altitude.
e) Local maximum noise levels.
f) The frequency control system in use.
g) The importance of charged batteries.

In addition the pupil should be asked approx 15 (on a random choice basis) of the questions below prior to a wings badge test. Pass rate is 80 % of the number of questions asked.

1. Explain why models should be restrained whilst starting
2. How should the receiver battery status be checked before flying
3. What is the purpose of a transmitter "range " check before flying
4. Describe the frequency control system in common use
5. Describe two safe tools that can be used to start an IC engine
6. Describe the pre flight checks that should be done on an airframe before flying
7. Why do we check the control surface integrity and direction before flying
8. Why is it good practice to disconnect the motor battery on an electric model whilst in the pits.
9. Why is it good practice to test a receiver battery using a load tester
10. Explain why it is good practice to cycle Nicad or Nimh receiver battery packs
11. Describe black wire rot
12. Why do modellers "pin" the control surface hinges
13. When checking a model prior to flying describe the aspects you would be looking for or checking
14. Why do we not fly behind the flight line or over the pits
15. Describe two types of control clevis retainers
16. Describe flight line etiquette
17. Describe Pitch and Yaw of an aircraft
18. What happens when a model stalls and the best way to attempt to correct a stall
19. Describe the role of an observer
20. What is the best action to take when experiencing an engine failure on take off
21. Describe the importance of the correct centre of gravity on an aircraft
22. How do you check the centre of gravity of a model whilst on the ground
23. What is the best action to take when an engine stops in mid flight
24. Describe the function of a glow plug in a glow engine
25. When starting an engine (IC or electric) where should you insist bystanders position themselves in relation to the model
26. What is the function of after run oil
27. Why is it good practice to balance propellers
28. What do you look for when checking the condition of a propeller
29. How do you find out if a receiver battery pack has reduced capacity
30. What is the likely consequence of too steep a climb out during takeoff
31. What happens to the speed of a model if it is commanded to "nose down" ( e.g. using elevator)
32. What is aileron differential
33 Explain what is meant by dual rates on a transmitter and how does this affect the control surfaces
34 Explain what is meant by exponential function on a transmitter
35 What is the effect of low airspeed on rudder and aileron control.
36 Explain the precautions associated with charging Lithium Polymer Batteries

### *7 Pre-flight Procedures check*

The following checks must be made:

a) Correct frequency peg attached to transmitter.
b) Radio switches on, battery OK.
c) Basic Radio Range check (Tx aerial collapsed)
d) Check controls for full and free travel, and in the right sense.

***And for Helicopters only***:

e) Start engine, one hand holding rotor head.
f) Run engine up at least 10m from pits. Check blade tracking and vibration.

### *8 Flight Test*

**The Wings proficiency flight checklists for each of the categories of wings badges are included elsewhere in this Manual**

#### 8.1 Basic Fixed Wing Powered (BP) and Large Fixed Wing Aircraft (LP)

The general flight test manoeuvres include :

a) Take off
b) Level flight
c) Procedure turn
d) Horizontal figure of eight
e) Left hand circuit landing approach
f) Overshoot
g) Right hand circuit landing approach
h) Landing, power on
i) Takeoff
j) Left hand circuit
k) Landing, power off

**The flight test check list is included elsewhere in this Manual**

#### 8.2 Pylon (PN)

The basic Fixed wing powered test applies as a prerequisite to attaining this classification. Further requirements are outlined in the Pylon flight test checklist included elsewhere in this Manual

#### 8.3 Turbine /Jet (TJ)

The basic Fixed wing powered test applies as a prerequisite to attaining this classification. Further requirements are as required by the Turbine / Jet SIG and /or as reflected in any code of practice of this SIG

#### 8.4 Gliders (GD)

The general flight test manoeuvres include:

a) Launch (bungee, winch or hand tow)
b) Straight flight for 30 seconds, stall then recover to level flight
c) Procedure turn
d) Horizontal figure of eight
e) Right hand circuit landing approach
f) Landing within 10 metres of a spot

The flight test check list is included elsewhere in this manual.

### 8.5 Helicopters(HP)

The general flight test manoeuvres include:

a) 10 Second Hover
b) Hovering M
c) Tail in Circle
a) Take off, circuit and landing

The flight test check list is included elsewhere in this manual.

### 8.6 Aerobatics (AB)

The basic Fixed wing powered test applies as a prerequisite to attaining this classification. Further requirements are as required by the Aerobatic SIG and /or as reflected in any code of practice of this SIG

*9.0 R/C Proficiency Test Manoeuvres*

***It is important the pilot under test show complete control of the model throughout the test and that if at any time safe flying is compromised, the test is terminated.***

**9.1 Basic Fixed Wing Powered (BFWP) and Large Fixed Wing Aircraft (LFWP)**

The pilot should safely start the model and deliver it to the take off point.

**a) Take off**

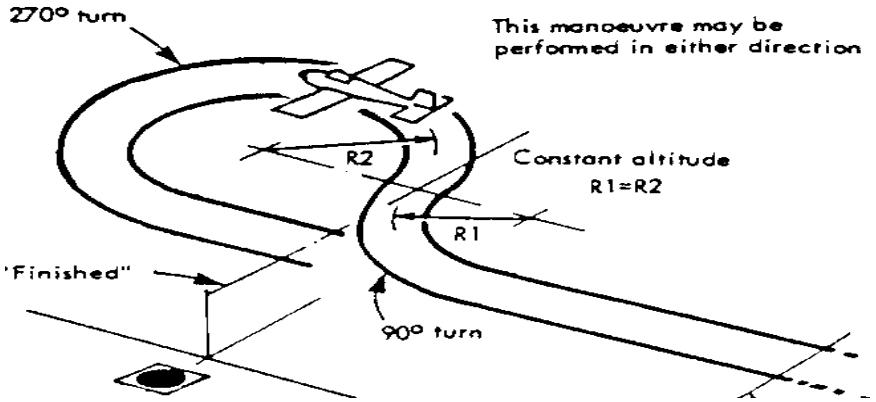
The model should stand still on the ground, with the engine running. The takeoff should be straight and into wind and conclude with a 90° turn away from the pits. Some swing is acceptable as long as it is clear that the pilot has control over the model.

**b) Level flight**

The model should make a straight and level flight upwind of 100 metres or 10 seconds whichever is of least duration. The model should pass over the landing area or as directed.

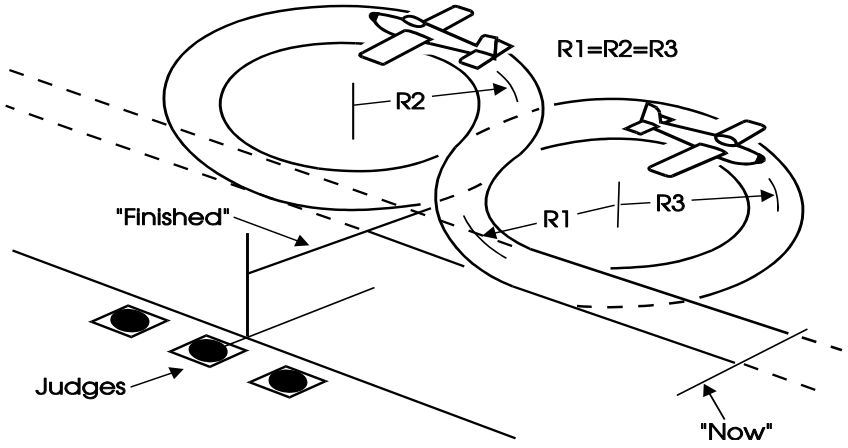
**c) Procedure turn**

Commencing from straight and level flight the model is turned 90° away from the pits, and then through 270° in the opposite direction resuming straight and level flight on the opposite heading to that of the entry. The manoeuvre must be commenced in order to place the point where the model changes from the 90° turn to the 270° turn on a line which passes through the centre of the landing area or as directed, at right angles to the direction of entry.



**c) Horizontal figure of eight**

Commencing from straight and level flight the model must turn 90° away from the pits, followed by a 360° turn in the opposite direction, followed by a 270° turn in the first direction completing the manoeuvre on the original approach line. The intersection (mid point) of the manoeuvre shall be on a line that is at right angles to the direction of entry and passes through the centre of the landing area.




**d) Left hand circuit landing approach** The rectangular approach is commenced with the model flying from left to right above the landing area followed by a 90° left turn, a crosswind leg, a second 90° left turn, a downwind leg, a third 90° left turn, final cross wind leg, a final 90° left turn, then a final descent towards a final touch down point. The model should commence descent no earlier than the downwind leg.

**e) Over-shoot**

The model approaches as for a normal landing, and over the landing area at a height of approximately 3 metres, power is applied and the model climbs straight ahead.

**f) Right hand circuit landing approach**

Same as the left-hand approach except that all turns are 90° to the right.

**g) Landing, power on**

The model approaches with power reduced to idle then rounds out smoothly, adopting the three point attitude applicable to the specific type and touches down with a minimum of bouncing and roll to a stop.

**h) Takeoff** (within 15 minutes of landing)

As **a)** above

**i) Left hand circuit; and**

**j) Landing, power off**

Power is cut to a low idle or complete stop when the model is overhead the landing area. A landing follows a rectangular approach with steady descent on each leg. Power should not be applied during the approach or landing.

## 9.2 Gliders (GD)

**a) Launch**

Using bungee, hand tow or winch, the pilot must control the climb of the model without excessive weaving or stalling on the line then release smoothly into gliding flight.

**b) Straight Flight & Stall**

The model is flown straight and level in a prescribed direction for 30 seconds then stalled and recovered smoothly on the same heading as the straight flight.

**c) Procedure Turn** Same as in **11.1. c).**

**d) Horizontal Eight** Same as **11.1. d)**

**e) Right Hand Approach; and**

**f) Landing**

The rectangular approach is commenced with the model into wind above the landing area followed by a 90° right turn, a crosswind leg, a second 90° right turn, a downwind leg, a

third 90° right turn, final cross wind leg, a final 90° right turn, then a final descent towards a final touch down point. The model must come to rest upright, complete and within 10 metres of a pre-determined spot.

### 9.3 Helicopter (HP)

The flight test should be completed on a standard F3C competition square which is a 10 metre square with a flag at each corner and two central flags. The two central flags may be omitted for this flight test.

In the following sections, hovering the model at eye level means that the model's landing skids must be at the same altitude as the pilot's eyes.

For the first three hovering manoeuvres, the pilot must stand within a radius of 0.6 metres of one of the centre flags. The pilot must then stand in any position outside the square to complete the Take Off and Landing manoeuvre. The pilot may move between these two manoeuvres but not during them.

**a) 10 Second hover**

Model takes off from central helipad, climbs to eye level and hovers for 10 seconds. Model then descends to a landing on the central helipad.

**b) Figure M**

Model takes off vertically from central pad and stops at eye level. While maintaining a heading parallel to the examiner's line and a constant altitude, the model moves along a diagonal line to the left or right near corner flag and stops. The model then moves forward to the second corner, stops, then moves sideways to the third corner and stops. The model then moves backwards to the fourth corner, stops again, then proceeds to move along a diagonal line back to the central helipad where it stops again. The model then descends to land on the central helipad.

**c) Tail In Circle**

The model ascends vertically to eye level and stops. The model then flies in a circular path to the left or right while maintaining a constant altitude and distance from the pilot finishing back over the central helipad. The tail must always point towards the pilot. The model then descends to land on the central helipad. (Pilot then moves to a nominated pilot position outside the square)

**d) Take off, circuit and landing**

The model lifts off from the central helipad, rises, and accelerates to forward flight. The model then flies a circuit around two of the corner flags, descends, and decelerates to land on the central helipad. The model may fly around the pilot.

## 10.0 International Visitors

MFNZ has a "TEMPORARY OVERSEAS VISITOR MEMBERSHIP" category.
Visiting modellers and/or their NZ model flying hosts should contact the MFNZ Secretary, or an MFNZ affiliated Club to arrange membership in this category.
Visitors must be members of their own national model flying organisation in their country of Origin.
Evidential confirmation of competency (e.g. produce evidence of wings badge type competency from their home base and details of the proficiency scheme prevailing in their home base) will be required.
This temporary category is for one calendar month, unless an extension is specifically applied for.

## WINGS FLIGHT TEST CHECK LIST

## Basic Fixed Wing powered

**(BP) (LP)**

**Name**

**MFNZ No**

| | | Pass | Fail |
|---|---|---|---|
| **1.Pre start checks** | Understanding of Frequency control measures | | |
| | Can describe the functions of a flight line observer | | |
| | Check of control surface integrity - Hinges / pushrods etc.. | | |
| | Check of control surface direction when operating Transmitter | | |
| | Check of correct model on Transmitter | | |
| | Student able to talk about the importantance of Centre of Gravity | | |
| | Student able to discuss disorientation and correction | | |
| | Student able to talk about flying etiquette | | |
| | Range check undertaken | | |
| | Battery charged check and student able to describe battery care / cycling / testing | | |
| | Describe the isolation/starting precautions if an electric model ( battery disconnect , throttle back, battery safety) | | |
| **2. Starting** | Model restrained | | |
| | Priming of engine / enabling of battery(electric model) | | |
| | Application of Glow source | | |
| | Awareness of propeller arc whilst running ( observe the level of caution) | | |
| **3. Take off** | Student able to describe the procedure for "Flame out" on take off | | |
| | Model maintains straight path down runway | | |
| | Model gained plenty of speed for takeoff | | |
| | Climb out not be too steep. Straight directional heading maintained. | | |
| | Constant rate of climb maintained and then gentle turn into circuit | | |
| **4. Level flight** | Model must pass up centre of runway maintaining constant heading | | |
| | Constant speed and height maintained | | |
| **5. Figure 8** | Model approaches straight and level | | |
| | Cross over point is in front of TX | | |
| | Turns are of approx equal radius | | |
| | Manoeuvre does not move down wind | | |
| | Exit is at same height and opposite heading as entry | | |
| **6 .Stall** | Angle of attack is increased until model stalls | | |
| | Nose is dropped and speed increased before returning to level flight | | |
| | Any loss of heading is corrected | | |
| **7. Left or Right Hand Circuit and Landing approach with overshoot Down wind** | Model approaches straight and level | | |
| | All turns are 90 degree | | |
| | All sides are straight | | |
| | Descent doesn't start before final cross wind leg | | |
| | Model maintains constant rate of descent and constant heading | | |
| | Model is lined up on strip at exit of final circuit turn | | |
| | At approx 3m above ground power is applied and climb commenced | | |
| | Heading remains constant through out decent power change and climb out | | |
| | Climb out is at constant rate of climb | | |
| **8. Procedure Turn** | Model approaches straight and level | | |
| | Turns are of approx equal radius | | |
| | Manoeuvre does not move down wind | | |
| | Exit is at same height and opposite heading as entry | | |

| | | PASS | FAIL |
|---|---|---|---|
| **9. Right or Left Hand Circuit and** | All turns are 90 degrees | | |
| | All sides are straight | | |
| **Landing** | Descent doesn't start before final crosswind leg | | |
| **Into Wind** | Model exits final turn lined up with runway | | |
| | Rate of descent and heading remain constant | | |
| | Model is gently flared and touches down with a minimum of bounce. | | |
| | Model maintains heading while rolling to a stop. | | |
| **10. Take off** | Model maintains straight path down runway and gains plenty of speed before takeoff | | |
| **Within 15min** | Model gained plenty of speed for takeoff | | |
| **of landing** | Climb out not be too steep. Straight directional heading maintained. | | |
| | Constant rate of climb maintained and then gentle turn into circuit | | |
| **11. Left o r Right Hand Circuit and** | Throttle pulled back to idle | | |
| | Model turned into wind | | |
| **dead stick Landing** | Rate of descent and heading remain constant | | |
| **Into Wind** | Model is gently flared and touches down with a minimum of bounce. | | |
| | Model maintains heading while rolling to a stop. | | |

**Note : Large fixed wing powered(LP) proficiency is similar to Basic Fixed Wing Power (BP) with the additional criteria below**

1. The student is able to discuss: the contents in general terms of the Large Model SIG Code of Practice including such aspects as:
control linkages , weight categories , certification requirements ,dual control systems , scrutineering requirements, engine disabling
2. Demonstrate the (BP) flight test routine on a model with a wingspan of at least 2 metres.

## WINGS TEST CHECK LIST AEROBATICS

Before an Aerobatic Wings is approved the candidate shall already have passed a powered model wings test in any category

To then obtain an Aerobatic Wings a potential wings badge candidate is to complete:

A schedule of manoeuvres as defined by the Aerobatic Special Interest Group

## WINGS TEST CHECK LIST PYLON

Before a Pylon Wings is approved the candidate shall already have passed a powered model wings test in any category.

To then obtain a Pylon Wings a potential wings badge candidate is watched during a Pylon SIG approved race meeting:

The wings badge for pylon is given in two categories. i.e. A rating and B Rating, this will differentiate between fast and very fast pylon planes, or sport and expert races.

That the wings badge be re-sat in the pylon category every two years

## WINGS TEST CHECK LIST Turbine/Jet

Before a Turbine/Jet Wings is approved the candidate shall already have passed a (in any category) powered model wings test.

To then obtain a Turbine/Jet Wings a potential wings badge candidate is to complete:

A schedule of manoeuvres as defined by the Jet Special Interest Group.

# WINGS TEST CHECK LIST
## Helicopters (HP)

The flight test should be completed on a standard F3C competition square which is a 10 metre square with a flag at each corner and two central flags. The two central flags may be omitted for this flight test

| | | Pass | Fail |
|---|---|---|---|
| **1 - 10 Second hover** | Model climbs smoothly to where skids are at eye level | | |
| | Hover is maintained for 10 secs | | |
| | Model descends smoothly to touch down | | |
| | Heading is maintained throughout | | |
| **2 - Hovering M** | Take off vertical | | |
| | Heading parallel to examiners line is maintained | | |
| | Height maintained with skids at eye level | | |
| | Model stops at each corner | | |
| | Decent smooth | | |
| **3 - Tail in circle** | Take off vertical to eye height | | |
| | Constant height maintained | | |
| | Tail always points to pilot | | |
| **4 - Take Off Circuit And Land** | Model lifts off and accelerates in forward flight | | |
| | Circuit flown smoothly round two corner flags | | |
| | Model slows and descends landing on central helipad | | |

# WINGS FLIGHT TEST CHECK LIST
## Gliders (GD)

| | | Pass | Fail |
|---|---|---|---|
| **1.Pre Launch Checks** | Understanding of Frequency control measures | | |
| | Check of control surface integrity - Hinges / pushrods etc. | | |
| | Check of control surface direction when operating Transmitter | | |
| | Check of correct model on Transmitter | | |
| | Range check undertaken | | |
| | Battery charged check and student able to describe battery care / cycling / testing | | |
| **2. Launch** | Climb is smooth without stalls | | |
| | Climb straight without excessive weaving | | |
| | Release from line and transition into glide is smooth | | |
| **3. Level flight and Stall** | Model is flown straight and level for 30secs | | |
| | Model stalls and recovers smoothly on same heading | | |
| **4. Procedure Turn** | Model approaches straight and level | | |
| | Turns are of approx equal radius | | |
| | Manoeuvre does not move down wind | | |
| | Exit is at similar height and same heading as entry | | |
| **5. Right Hand Circuit and Landing Approach** | Model approaches straight and level | | |
| | All turns are 90° | | |
| | All sides are straight | | |
| | Model comes to rest upright, complete and within 10m of pre determined spot. | | |

# *Model Flying NZ*

## Wings Oral Question Checklist

The pupil should be asked approx 15 (on a random choice basis) of the questions below prior to a wings badge test. Pass rate is 80 % of the number of questions asked.

1. Explain why models should be restrained whilst starting
2. How should the receiver battery status be checked before flying
3. What is the purpose of a transmitter "range " check before flying
4. Describe the pre flight checks that should be done on an airframe before flying
5. Why do we check the control surface integrity and direction before flying
6. Describe the frequency control system in common use
7. Describe two safe tools that can be used to start an IC engine
8. Why is it good practice to disconnect the motor battery on an electric model whilst in the pits.
9. Why is it good practice to test a receiver battery using a load tester
10. Explain why it is good practice to cycle NiCad or NiMh receiver battery packs
11. Describe black wire rot
12. Why do modellers "pin" the control surface hinges
13. When checking a model prior to flying describe the aspects you would be looking for or checking
14. Why do we not fly behind the flight line or over the pits
15. Describe two types of control clevis retainers
16. Describe flight line etiquette
17. Describe Pitch and Yaw of an aircraft
18. What happens when a model stalls and the best way to attempt to correct a stall
19. Describe the role of an observer
20. What is the best action to take when experiencing an engine failure on take off
21. Describe the importance of the correct centre of gravity on an aircraft
22. How do you check the centre of gravity of a model whilst on the ground
23. What is the best action to take when an engine stops in mid flight
24. Describe the function of a glow plug in a glow engine
25. When starting an engine (IC or electric) where should you insist bystanders position themselves in relation to the model
26. What is the function of after run oil
27. Why is it good practice to balance propellers
28. What do you look for when checking the condition of a propeller
29. How do you find out if a receiver battery pack has reduced capacity
30. What is the likely consequence of too steep a climb out during takeoff
31. What happens to the speed of a model if it is commanded to "nose down" ( e.g. using elevator)
32. What is aileron differential
33. Explain what is meant by dual rates on a transmitter and how does this affect the control surfaces
34. Explain what is meant by exponential function on a transmitter
35. What is the effect of low airspeed on rudder and aileron control.
36. Explain the precautions associated with charging Lithium Polymer Batteries.

TO: Secretary, MFNZ,
P.O. Box 60404
Titirangi, Auckland 0642

# WINGS BADGE and/or TYPE CERTIFICATE ORDER FORM

CLUB NAME: _____
(***As you want it to appear on badge***)
ADDRESS TO SEND ORDER TO: _____

_____

CONTACT NAME: _____ PHONE NO: _____/_____

**"The following financial members of our club have passed the MFNZ RC Flight Proficiency Programme and have been certified as being proficient by a club approved examiner."**

**(Signed)……..(Date)……..**

| **MEMBER CODE** | **MEMBER'S NAME** (Print) (***As you want it to appear on badge***) | Badge Required? ***Yes/No*** If cert only required enter "cert only" | CROSS if you ***don't*** want Club name on the badge | *MODEL TYPE(S)* 'BP' 'LP' 'GD' 'TJ' 'PN' 'AB' 'HP' |
|---|---|---|---|---|
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**NUMBER OF WINGS BADGES REQUIRED (INCLD CERT)** _____ x **$12.00** = $ _____

**PAYMENT MUST ACCOMPANY ORDER**

Please allow approximately 14 days for badge orders to be completed.

**OFFICE USE ONLY**

RECD: _____
DATE SENT: _____
PAYMENT RECD: $ _____