



# MFNZ 'Wings' Proficiency Scheme

## LM (Large Model) Endorsement

The LM test can be performed with any large fixed wing, helicopter or multirotor unmanned aircraft that qualifies for Certification as a Cat 1, 2 or 3 aircraft as described in the Large Model Code of Practice.

It is a MFNZ requirement that anyone flying a model in these categories must hold the Large Model endorsement. The Endorsements are BP (LM), GD (LM), HP (LM), BT (LM), and MR (LM).

The Large Model Endorsement rating comprises the following two (2) test components: 1/ Oral Questions  
2/ Test Flight

These two tests must be carried out with a MFNZ registered club appointed examiner or a combination Inspector/Examiner detailed in Item 2, below, Test Flight.

### 1.0 ORAL QUESTIONS

Successfully answer the ten (10) LM oral theory questions as follows:

Note: All answers are defined in the relevant section of the Large Model Code of Practise (LMCOP) highlighted in red.

Q1. State the purpose of the Large Model certification scheme **Answer: see section 2.3 of the LMCOP.**

Q2. Define Category 1, 2 and 3 aircraft.

**Answer: see section 3.2 sub para a/b/c of the LMCOP**

Q3. Which Wings badge/s must be held when operating large models? **Answer: see section 4.4 of the LMCOP**

Q4. Are redundant Receivers and batteries mandatory for all categories? **Answer: see section 5.4/5.5 of the LMCOP**

Q5. Describe the two methods of choosing suitable servos for certified aircraft. **Answer: see section 5.7 sub para a/b of the LMCOP**

Q6. Define the 3 sequential parts of the certification process and give brief description of each process. **Answer: see section 6.2/6.3/6.4 of the LMCOP**

Q7. 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.

**Answer: see section 6.5 of the LMCOP**

Q8. How long is a Category 1, 2 & 3 permit valid for and which Category aircraft require a flight log book be kept?

**Answer: see section 6.9 (a) and 6.12 of the LMCOP**

Q9. When must checks of a certified aircraft be carried out and to what level? **Answer: see section 4.2 and appendix 1 of the LMCOP.**

Q10. Explain what validates a Permit. **Answer: see section 6.14 of the LMCOP.**

# Large Model (LM) Endorsement Examiners Guide.

## The Model

The test will be performed with any large fixed or rotary wing model that qualifies for Certification as a Cat 1,2 or 3 aircraft as described in the Large Model Code of Practice.

It is an MFNZ requirement that anyone flying a model in these categories must hold the Large Model Endorsement qualification.

The use of a gyro is permitted, the use of an 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.

### Pre-flight Checks and Test flight.

The pre-flight inspection checks are laid out in the Large Model Code of Practice appendix 1.

Ask the candidate to go through their checks as if the test flight was their first flight of the day. Particular attention should be given to airframe, control linkages, surfaces and radio fail-safe.

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

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. Switching their radio on before doing so should be failed on the spot.

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

Pilots must perform the LM endorsement using a schedule of manoeuvres decided by the pilot and approved by the Inspector IAW Section 6.8 of the Large Model Code of Practise. The manoeuvres approved by the Inspector should be listed in the comments box on Form C.

The pilot is to provide a copy of the Form C or list of approved manoeuvres to the examiner for the aircraft that is being flown prior to the test flight. These manoeuvres are to be recorded on the examiners check list.

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

### Large Model questions

The candidate should answer correctly up to ten questions based on the MFNZ Large Model Code of Practice. These oral questions are listed in the LM endorsement test and on the MFNZ website under oral questions in the Wings proficiency scheme.

Remember that on **no account** can a good performance on the questions make up for a flying test that you considered a failure. If you have failed the candidate's flying you should not even start to ask the questions. On the other hand the Proficiency scheme is a test of both flying ability and knowledge. It doesn't matter how well the candidate can fly, if they cannot answer the LMCOP questions they should not pass.

How many questions you should actually ask will depend on the circumstances at the time. For instance, if the candidate has done a good flying test and answers the first five questions with confidence then you need go no further. An acceptable test but with some rough edges can be offset to an extent by the candidate performing well in the first five questions.

A candidate who has done a test which you found only just acceptable and who hesitates on the questions should be asked a few more than five and if you are not satisfied that they have actually read the LMCOP, you should not hesitate to fail the candidate.

As an examiner however you should prepare yourself thoroughly for any testing that you do and have read and have ready access to the Large Model Code of Practice for reference.

Don't forget that you can use any local rules which you know and which the candidate should be aware of.

**Examiners and Candidates Check List**

The following is a short checklist of matters to discuss with the candidate taken from this document. This checklist can be used to ensure that all points raised above have been discussed with the pilot prior to any flights:

- 1 Has the candidate read: -  
The LMCOP and  
Local site rules (if applicable)
  
- Discuss whether the model is  
suitable in "these conditions"
  
- 2 Any "no fly zones" need to be identified
  
- 3 Remind candidate to talk you through anything that the helper may do for  
them as the test progresses
  
- 4 Agree any Airspace requirements that need to be pre-determined by the  
Examiner and Candidate prior to the commencement of the test flights
  
- 5 Clearly identify the landing area and agree with the candidate the required  
landing pattern that he will be flying and you will be looking for.
  
- 6 Manoeuvres performed to be written into boxes provided on examiners  
check list.

**Examiners Check List.**

Large Model (LM) Endorsement for Wings rating type;

Select by ticking one of the following: **BP[ ] HP[ ] GD[ ] BT[ ] MR[ ]**

Once completed and signed off please forward to the Membership secretary MFNZ for issue of relevant endorsement.

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

FLIGHT TASK		COMMENTS
(a)	Carry out pre-flight checks as required by the MFNZ LMCOP.	
(b)	Take off and complete a left (or right) hand circuit and overfly the take-off area.	
(c)	Pilots must perform the LM endorsement using a schedule of manoeuvres decided by the pilot and approved by the Inspector IAW Section 6.8 of the Large Model Code of Practise. The manoeuvres approved by the Inspector should be listed in the comments box on Form C.	
(d)	Perform rectangular landing approach and landing within 30m of A pre-takeoff agreed position on the runway.	
(e)	Complete post-flight checks required by the MFNZ Safety Codes.	
Answer up to ten questions from the list of LM operating questions.		

MANOEUVRES  
PERFORMED

1/	2/	3/	4/
5/	6/	7/	8/
9/	10/	11/	12/

## 2.0 TEST FLIGHT

Pilots must perform the LM endorsement using a schedule of manoeuvres decided by the pilot and approved by the Inspector IAW Section 6.8 of the Large Model Code of Practise. The manoeuvres approved by the Inspector should be listed in the comments box on Form C.

Note:

A pilot wishing to undertake their LM endorsement with a Cat 1, 2 or 3 registered aircraft that is undergoing its' five (5) certification test flights may do so provided:

- (a) Both the inspector/witness AND examiner are present during the flights. Any one of the 5 test flights may be called as the LM endorsement check flight so long as the examiner is advised before the flight commences. This allows the pilot to become familiar with the aircraft before the endorsement check flight.
- (b) The examiner must confirm that the test manoeuvres flown for the endorsement check flight are those approved by the Inspector on Form C.

A list of suggested manoeuvres to assist pilots that choose LMCOP Section 6.8 can be found here: <http://www.modelflyingnz.org/sigs/largemodel.html> under LM manoeuvre Library.

This list is by no means comprehensive and is to be used as a guide only. The pilot may choose whichever manoeuvres suit their style and aircraft. It should be considered that those chosen during the testing phase are also the only manoeuvres permitted to be flown once the Permit to Fly is issued.

**Important Note.**

Existing owners of Cat 1, 2 or 3 models will be granted the LM endorsement as a “grand-parented right” on the Large Model types they have completed certification flights on and hold a permit to fly as of 30 November 2017.