

MODEL FLYING NEW ZEALAND



EXPOSITION

CAR Part 102 Unmanned Aircraft Operators Certificate

Version 2

November 2017

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Appendix 2 NZANR – Part 71 Danger Areas

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Abbreviations

The following abbreviations are used in this document:

| | |
|-------|---|
| AGL | Above Ground Level |
| CAA | Civil Aviation Authority |
| CAR | Civil Aviation Rule |
| LM | Large model as defined in the LMCOP |
| LMCOP | Large Model Code of Practice |
| MFNZ | Model Flying New Zealand |
| MAUW | Maximum All Up Weight |
| SIG | Special Interest Group (MFNZ) |
| UA | Unmanned Aircraft |
| UAOC | Unmanned Aircraft Operators Certificate |

Revisions

| Version | Effective Date | Description |
|---------|----------------|----------------------------------|
| 1 | November 2015 | Initial Issue |
| 2 | November 2017 | General update for reapplication |
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Distribution

Copies of this exposition are held by the following:

| Copy No | Title of Holder | Name |
|---------|------------------------|------------|
| 1 | President | JM Shorer |
| 2 | Secretary | D Richards |
| 3 | Large Model Controller | R Redmond |
| 4 | CAA | M Houston |
| 5 | | |
| 6 | | |

Signature Sheet

All personnel employed or contracted by this organisation, as well as owners and pilots of Category 2 large models, must sign this sheet as evidence of having read, understood and agreed to apply the procedures and data contained in this exposition.

If this manual is reissued or revised they must resign, acknowledging review of the revision.

| Amendment No | Printed Name | Signature | Date |
|---------------------|---------------------|------------------|-------------|
| Initial Issue | | | |
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1.0 BACKGROUND

1.1 Purpose

The Purpose of this exposition is to demonstrate to the Director of the Civil Aviation Authority (CAA) that Model Flying New Zealand (MFNZ) has conducted an adequate assessment of the risks when operating unmanned aircraft (UA). The procedures that have been developed and utilised by MFNZ to adequately manage the risks and thereby ensure that UA are operated safely are also detailed, and are provided to support the Directors assessment of MFNZ's suitability to be granted an Unmanned Aircraft Operators Certificate (UAOC).

1.2 Compliance

The instructions, procedures and information contained in this document have been devised to ensure safety and standardisation in the conduct of operations. They are to be observed by all operating personnel. Personnel are also reminded of their obligation to comply with the Civil Aviation Act and CAA Rules, aeronautical information and notices that CAA and Airways New Zealand publish.

Nothing in this manual takes precedence over a CAA rules or permits unsafe operation

Where, in the light of operating experience, errors are found in the exposition or deficiencies in the manner in which operations are conducted, recommendations for correction or amendment shall be submitted to the President MFNZ.

1.3 Amending this document

This is a living document and as such is to be continuously reviewed and updated as necessary. All organisation personnel are encouraged to make constructive submissions on the content as operational and technical requirements change. All suggested amendments are to be submitted in writing to the President of MFNZ complete with supportive evidence to help maximise safety and efficiency of UA operations managed by MFNZ. The organisation office holds amendment forms and the procedures for submitting amendments to this and other publications. This document will be reviewed annually in compliance with CAA rule Part 102

Note: Prior CAA acceptance is required for certain amendments:

In accordance with Part 102.23(b) if the holder of an UAOC proposes to change any of the following, the certificate holder must notify the Director prior to the change and receive notification of acceptance from the Director before being incorporated into the certificate holder's exposition:

- The person identified as the prime person;
- The title or name of any other person with control over the exercise of any privileges under the certificate; and
- The locations referred to in rule 102.15(b)(4)(ii) from which the certificate holder conducts unmanned aircraft operations.

2.0 GENERAL

2.1 Organisation Operations

MFNZ is a community based organisation whose objective is to manage the recreational flying of model aircraft. Under CAA rules models aircraft are defined as being constructed in two weight categories; under 25kg MAUW and 25kg to 100 kg MAUW. The heavier category, known as Category 2 aircraft under MFNZ rules, is managed under specific rules defined in the Large Model Code of Practice (LMCOP). Model aircraft of lower weight, but heavier than 15kg, designated Category 1, and model aircraft of any weight with high powered engines, designated Category 3, are managed by MFNZ under the same rules as an added safety measure. While not a legal requirement, more than 20 years of experience operating these types has shown it to be a prudent safety precaution. References to Category 1 and Category 3 Model aircraft in this exposition are included for completeness. MFNZ treats Category 1, 2 and 3 model aircraft as Large Models (LM's) under its LMCOP.

2.2 Business Address

The Secretary
Model Flying New Zealand
78 Tararua Road
Levin 5510

2.3 Geographic Area of Operation

New Zealand Domestic flight information region.

2.4 Part 102 Operator Certificate – Privileges

All operations must be carried out within the privileges and conditions specified in the Operation Specifications attached to the UAOC.

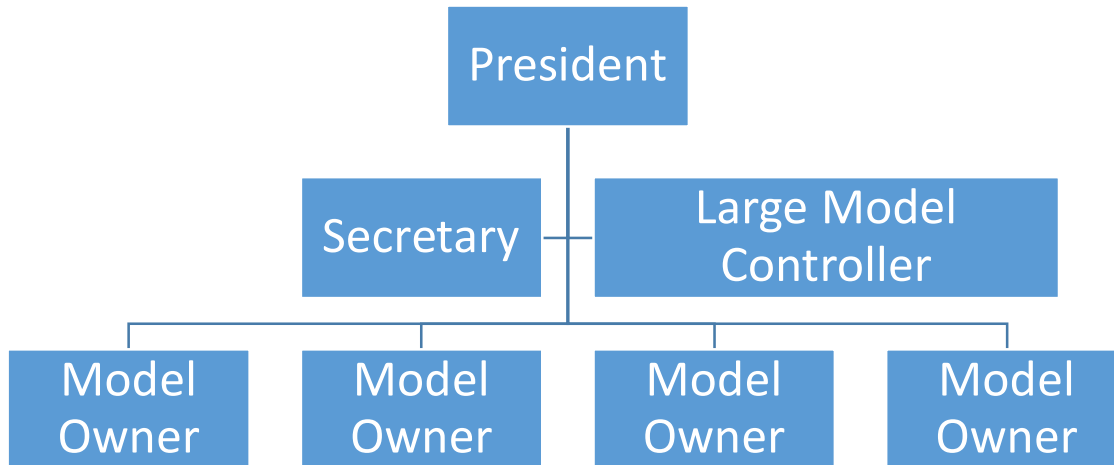
Model Flying New Zealand:

- At night; and
- With unmanned aircraft over 25kg up to 100kg MAUW

The operations permitted under these privileges:

- Recreational;
- Competition; and
- Education.

2.5 MFNZ Organisation Structure



2.6 Responsibilities of Organisation Personnel

2.6.1 President

The President has the overall responsibility for the organisations' performance, rule compliance and safety management. The nominated person will provide the necessary resources so that all operations and maintenance can be conducted to meet organisation obligations, goals and objectives whilst maintaining rule compliance and safe operations.

The President is also responsible for amending this exposition to ensure it accurately reflects the operation of the organisation and that all changes are tracked and controlled.

2.6.2 Large Model Controller

The Large Model Controller is responsible for:

- a) Ensuring that the inspection and certification of LM's are conducted in accordance with the Civil Aviation Act, by compliance with the MFNZ exposition.
- b) Being the point of contact between the organisation and CAA regarding large model certification.

2.6.3 Secretary MFNZ

The Secretary MFNZ is responsible for:

- a) Ensuring that all LM pilots are trained to the standards required by this exposition.
- b) Ensuring competency assessments are carried out in accordance with this exposition,
- c) Maintaining a record of LM qualified pilots.

2.6.4 Large model owner

Individual aircraft owners are responsible for maintenance in accordance with the standards in the LMCOP.

2.6.5 Large Model Pilot

The Pilot of the LM is responsible for:

Oversight of the operation

- a) Conduct of flight – start to end; and
- b) Safe operation of the UA equipment

2.6.6 Support Crew

The support crew are responsible for:

- a) Maintaining line of sight of the UA.
- b) Maintain direct contact with the LM Pilot
- c) Ensuring LM Pilot is advised if an intruder enters the operating space.

3.0 RISK & HAZARD MANAGEMENT

3.1 Introduction

The Hazard is the operation of UA. At the point at which control is lost the potential exists for undesired outcomes. This point is called the top event and the undesired outcomes are consequences, in this case damage to people or property. Anything that can lead to the top event is a threat to the hazard. Eliminating/minimising the threats and/or mitigating the consequences is achieved by implementing and maintaining controls/barriers. The overall likelihood of the consequences materialising is risk.

The management of the risks associated with this hazard, operation of UA, is documented on the bowtie diagram enclosed (See 3.2 below). This also details the barriers incorporated in MFNZ's operating procedures designed to prevent the top event occurring as well as those barriers designed to mitigate the consequences should the top event occur. The roles and responsibilities around the maintenance of those barriers are also detailed and references are made to the specific MFNZ policies, procedures, codes of practice, etc. that apply.

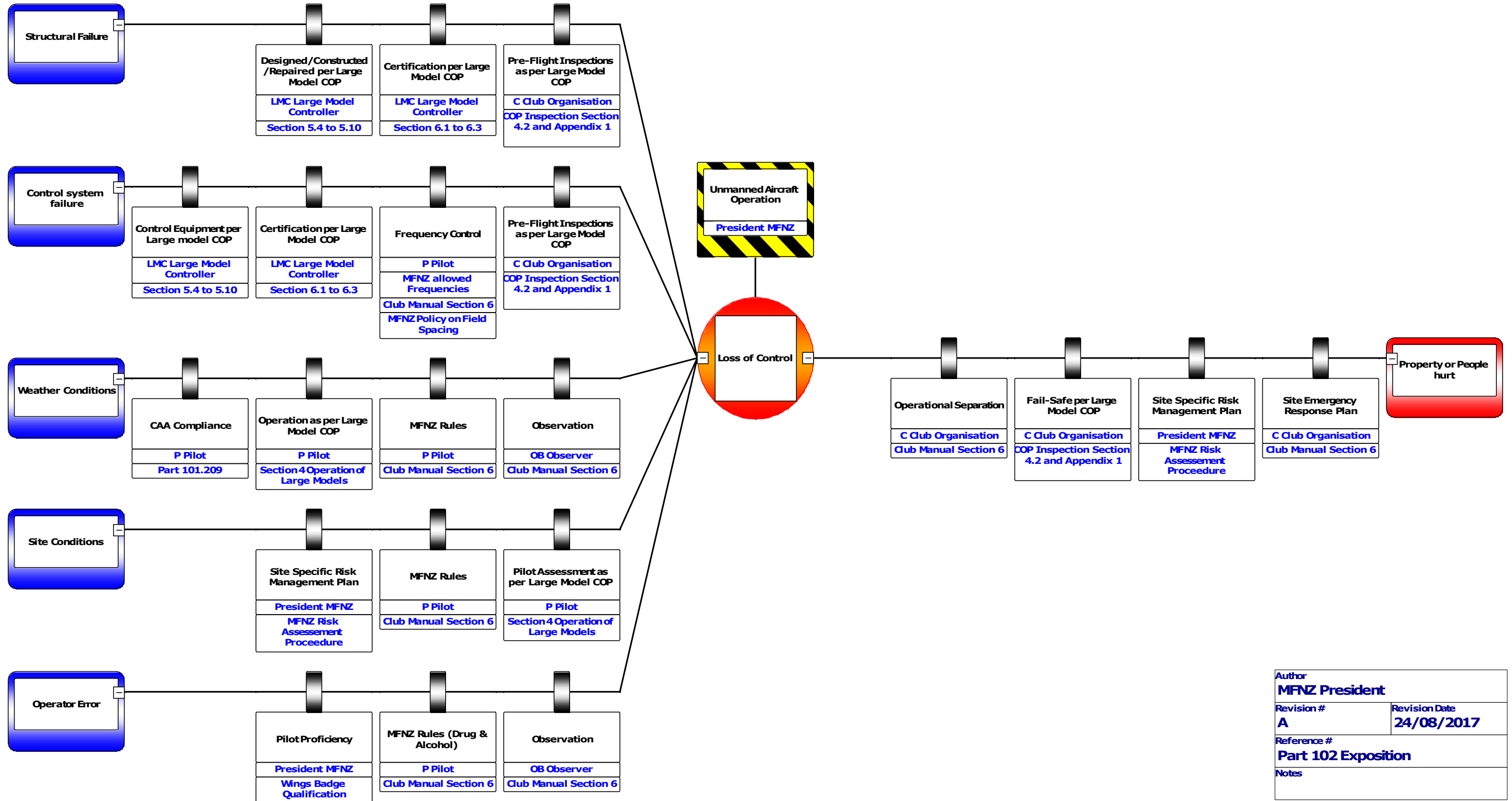
Note: As LM's are flown at sites that meet MFNZ specifications for the operation of model aircraft, CAA 101 categorises their operation as low risk.

3.2 The Bow Tie diagram

This diagram gets its name from the overall form that it generally takes. It is developed by looking at the top event that poses the hazard from the activity being undertaken, listing the threats that could initiate the top event on the LHS and the potential consequences if the top event were to occur on the RHS. The various controls/barriers that prevent the threats leading to the top event as well as the controls/barriers that act to mitigate the consequences of the top event occurring are also detailed.

Bow Tie Diagram

Hazard Assessment for Large Unmanned Aircraft Operations



Appendices

- Appendix 1 MFNZ Reference Documents (Available at www.modelflyingnz.org)
- Appendix 2 NZANR – Part 71 Danger Areas
- Appendix 3 Register of Category 2 Large Models
- Appendix 4 Specific Flying Site Agreements

APPENDIX 1

MFNZ Reference Documents (Available at www.modelflyingnz.org)

1. Large Model Code of Practice
2. Turbine Code of practice
3. Members Manual
4. Wings Proficiency Scheme
5. MFNZ Policy on Field spacing
6. Allowed Frequencies
7. Model Flying Sites - Risk assessment Procedure

APPENDIX 2

NZANR – Part 71 Danger Areas See CAR Part 71. Extract of Model Flying Danger areas to be published on MFNZ Website.

APPENDIX 3

Register of Category 2 Large Models As supplied by LM Controller.

APPENDIX 4

Specific Flying Site Agreements, as listed on MFNZ Website.