

MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA



LARGE MODEL AIRCRAFT INSPECTION AND OPERATION PROCEDURE

MOP015

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This Policy and/or Procedure forms part of the M.A.A.A. Manual of Procedures. This entire document is for the use of all classes of members of the M.A.A.A. in the conduct of activities associated with the M.A.A.A. and is not be used for any other purpose, in whole or in part, without the written approval of the M.A.A.A. Executive.

Shading of text identifies changes to the previous version.

LARGE MODEL AIRCRAFT INSPECTION AND OPERATION PROCEDURE

1. INTRODUCTION

- 1.1 M.A.A.A. requires that Large and Gas Turbine powered Model Aircraft be operated in conformance to the CASA regulations the M.A.A.A. Manual of Procedures, and M.A.A.A. safety requirements.
- 1.2 A Model Aircraft operated by an Affiliate Member of the M.A.A.A. is subject to the requirements of the M.A.A.A. Manual of Procedures as well as CAR (1998) Part 101.
- 1.3 The regulations and requirements contained in this document are not applicable to Unmanned Aerial Vehicles (UAVs) as they are not considered Model Aircraft. UAVs are subject to specific sections of CAR (1998) Part 101.
- 1.4 The M.A.A.A., on the recommendation of the M.A.A.A. Large Model Technical Subcommittee, requires that all aircraft with a dry mass greater than 7kgs have a valid Permit to Fly.
- 1.5 An M.A.A.A. Heavy Model Inspector is authorised to issue Permits to Fly for Heavy Models to any Affiliate Member of the M.A.A.A. irrespective of State of affiliation of the Inspector or aircraft owner or pilot.
- 1.6 An M.A.A.A. Giant Model Inspector is authorised to issue Permits to Fly for Giant Models to any Affiliate Member of the M.A.A.A. irrespective of State of affiliation of the Inspector or aircraft owner or pilot.
- 1.7 An M.A.A.A. Heavy Model Inspector may inspect a model he owns, or has built, ONLY when it is impractical due to distance or availability to have another Heavy Model Inspector perform the inspection. In this case the inspection and test flight of his/her own model must be done in the presence of a member of the Inspector's Club Executive who shall countersign the Permit to Fly.
- 1.8 An M.A.A.A. Giant Model Inspector shall not inspect or issue permits for a model he owns, or has built.
- 1.9 The requirements of this procedure shall apply to all Gas Turbine powered Model Aircraft. Gas Turbine powered Model Aircraft require the completion of a "Turbine Powered Model- Permit To Fly" form in accordance with MOP030. This is in addition to complying with the relevant requirements of this procedure

2. PURPOSE

The purpose of this publication is to provide all Affiliate Members of the M.A.A.A. a ready reference to their obligations and regulations as required under Commonwealth law, and M.A.A.A. rules and procedures for the operation of Heavy and Giant Model Aircraft.

3. DEFINITIONS

If there is any inconsistency between CAR (1998) Part 101 and this Procedure then the provisions of CAR (1998) Part 101 apply. All definitions given in the CAR (1998) Part 101 apply equally throughout this manual.

In this document the term Model Aircraft is taken to mean both radio controlled Fixed Wing and Rotary Wing model aircraft.

AAAO	Approved Aviation Administration Organisation An organisation approved by C.A.S.A. to administer a particular aspect of sport aviation.
Affiliate Member	A person properly affiliated with a Club that is properly affiliated to an M.A.A.A. Ordinary Member.
ARF	Almost Ready to Fly. A Model Aircraft primarily manufactured by commercial business and assembled by the modeller.
C.A.S.A.	Civil Aviation Safety Authority.
Endorsed Pilot	A pilot who, having flown a test flight unaided to a safe standard while observed by the relevant M.A.A.A. Heavy or Giant Model Inspector, has his/her name endorsed on the "Permit to Fly" by the Inspector.
Failsafe	A system which sets a control/s to a predetermined setting when loss of signal is detected.
Fixed Wing Model Aircraft	A Model Aircraft where the lift is provided solely by fixed surfaces.
Giant Model Aircraft	Any Model Aircraft with a dry mass, (excluding fuel, but including all batteries if electric powered) of more than 25Kg but less than 50 Kgs.
Heavy Model Aircraft	Any Model Aircraft with a dry mass (excluding fuel, but including all batteries if electric powered) of 7Kgs or more, to a maximum of 25Kgs.
Inspector	A financial Affiliate Member of the M.A.A.A. who has met the requirements for his/her appointment and has been given written authority to carry out inspections on behalf of the M.A.A.A. in connection with the issue of a Permit to Fly.
Inspector Checklist	The Checklist for Inspection of a Model Aircraft as required for the issue of a Permit to Fly.
Large Model	A Model Aircraft with a dry mass, (excluding fuel, but including all batteries if electric powered), of greater than 7Kgs. but less than 50Kgs.

M.A.A.A.	Model Aeronautical Association of Australia Inc.
M.A.A.A. Ordinary Member	A State Association properly affiliated with the M.A.A.A. Inc.
Model Aircraft	The generic term cover both Fixed and Rotary Wing Model Aircraft.
Model Aircraft 3 Yr Permit to Fly	See Permit to Fly
Ordinary Member	See M.A.A.A. Ordinary Member
Permit to Fly	A document, valid for 3 years from date of issue, issued by an M.A.A.A. Inspector following inspection carried out in accordance to M.A.A.A. guidelines.
Radio Controlled Model Aircraft	See M.A.A.A. Internal and Stabilisation Policy, MOP044
Rotary Wing Model Aircraft	Otherwise known as a helicopter
State Association	See M.A.A.A. Ordinary Member
UAV	Unmanned Aerial Vehicle. A Model Aircraft used, or intended, for commercial purposes/activity or capable of autonomous control.

4. RESPONSIBILITIES

4.1 Owner/Operator

- 4.1.1 The individual operator of a Model Aircraft is responsible for his/her compliance, and his/her model's compliance, with CAR (1998) Part 101 and also with all M.A.A.A. rules and the requirements of the M.A.A.A. Manual of Procedures.
- 4.1.2 The owner is responsible to ensure that all paperwork, including inspection documentation, is kept so that it is available for re-certification processes.

4.2 Inspector

- 4.2.1 The Inspector is responsible to be aware of the requirements of the M.A.A.A. Manual of Procedures with respect to inspecting and flying of Model Aircraft.

5. M.A.A.A. REQUIREMENTS FOR LARGE MODELS

5.1 General

- 5.1.1 M.A.A.A. rules require that any Model Aircraft that weighs between 7Kg and 50Kg, Dry Weight, (without fuel but with all batteries) requires a valid Model Aircraft 3 year Permit to Fly, hereafter called the Permit To Fly, before it is allowed to take off and be flown.
- 5.1.2 A Model Aircraft 3 Year Permit to Fly, (See Appendix B), is issued by an

M.A.A.A. Heavy or Giant Model Inspector, depending on the aircraft classification, on behalf of an M.A.A.A. Ordinary Member when the requirements detailed in this document have been met.

- 5.1.3 A Permit to Fly remains valid until any of the circumstances requiring suspension or cancellation occurs (see 7.3 & 7.4)
- 5.1.4 A suspended Permit to Fly may be revalidated by a relevant Model Inspector as described in 8.2 below.
- 5.1.5 An M.A.A.A. Inspector, for the relevant aircraft, shall issue a temporary Permit to Fly, valid only on the day of issue, to allow test flights as described below to take place.
- 5.1.7 On satisfactory completion of test flights required under this Procedure, the Inspector shall endorse the temporary Permit accordingly, which then becomes a Permit to Fly.

6. REQUIREMENTS FOR THE ISSUE OF A PERMIT TO FLY

6.1 Prior To Inspection Process

6.1.1 All Large Models

6.1.1.1 The owner of a model aircraft that requires a Permit to Fly shall obtain the Model Aircraft 3Yr Permit to Fly form from their Ordinary Member. They shall not use photocopies of the forms shown in Appendix B. Originals must be obtained from the Ordinary Member. Other forms required are available from the M.A.A.A. web site or the Ordinary Member.

Please note that although the “Model Aircraft 3 Yr Permit to Fly” form notes “For Aircraft Weighing Between 7kg and 25kg” this form is applicable for Giant Models as well. The form will be revised when current stock is depleted.

6.1.1.2 The Ordinary Member shall on receipt of a request for forms for the inspection of a Heavy or Giant Model:

- (a) Send the Model Aircraft 3 Yr. Permit to Fly form – See Appendix B.
- (b) If requested, send the Checklist for Inspection of Fixed Wing Model Aircraft – M.A.A.A. Form MAAA014 – See Appendix A.
or send the Checklist for Inspection of Rotary Wing Model Aircraft – M.A.A.A. Form 033 – See Appendix D.
- (c) If advised of a Giant Model and requested, send the Giant Model Supplementary form M.A.A.A. Form MAAA030 – See Appendix C
- (d) If requested, send instruction on subsequent procedure including a copy of this document.
- (e) If requested, send a list of M.A.A.A. Heavy and/or Giant Model Inspectors affiliated with the Ordinary Member authorised to issue Permits to Fly.

Please note that the form “Checklist for Inspection of Fixed Wing Model Aircraft” referred to in 6.1.1.2 (b) is termed “Checklist for Inspection of a Model Aircraft” in Appendix A. The form will be

revised when current stocks are depleted.

- 6.1.1.3 The owner of the aircraft shall:
- (a) Complete the "Ownership Details" section of the Model Aircraft 3 Yr. Permit to Fly Form.
 - (b) Complete the "Model Details" section of the Model Aircraft 3 Yr. Permit to Fly Form.
 - (c) Sign the "Owner's Declaration" section of the Model Aircraft 3 Yr. Permit to Fly Form.
 - (d) Identify on the Model Aircraft 3 Year Permit to Fly Form the proposed Flight Envelope of the model. The Flight Envelope shall be selected from:
 - (i) level manoeuvres, flat turns, gentle climbs and dives
 - (ii) tail rotor/stall turns
 - (iii) looping manoeuvres
 - (iv) rolling manoeuvres
 - (v) inverted flight
 - (vi) spins
 - (vii) snap manoeuvres
 - (viii) unrestricted aerobatics
- 6.1.1.4 The owner shall, using the "Check List for Inspection of a Fixed Wing Model Aircraft" (Appendix A), or the "Check List for Inspection of a Rotary Wing Model Aircraft" (Appendix D) as a guide, check the aircraft and rectify any details that require attention.
- 6.1.1.5 Once satisfied that the aircraft is ready to be assessed for the issue of a Permit to Fly, the owner shall contact the appropriate M.A.A.A. Model Inspector to arrange a date and time for the inspection and Permit process.

6.1.2 Giant Models - Additional requirements

- 6.1.2.1 Prior to the commencement of work on a Giant Model the builder/owner shall contact an M.A.A.A. Giant Model Inspector. The Giant Model Inspector shall assess the building drawings, ARF kit or pre-built model, to determine when the inspection schedule required should commence, taking into account the degree of complexity of the project. Multiple inspections may be made during construction as required by the Giant Model Inspector.
- 6.1.2.2 The Giant Model Inspector shall determine the construction inspection program based on the experience of the modeller, if it is a proven design, the plans the aircraft is being constructed to and any other relevant information. An enlarged commercially available plan shall be treated as an "own design".
- 6.1.2.3 The Giant Model Inspector shall note on the Giant Model Aircraft Pre and During Construction/Assembly Inspection Assessment form, MAAA030, the number of and details of "during construction" inspections that shall be made and the stage/s of construction that these inspections are to be made.

- 6.1.2.4 For new ARF models, the Giant Model Inspector shall closely examine the model's construction method to the maximum extent possible, and ensure that adequate test flying is carried out to confirm the structural airworthiness of the model.
- 6.1.2.5 In the case of already constructed models being inspected after change of ownership or revalidation, except ARF models as above, proof of previous inspections during construction (eg a previous valid Giant Model Permit) must be supplied.
- 6.1.2.6 If the proof of previous inspections and/or the previous Permit to Fly is not available then the Inspector shall conduct a detailed inspection of the model taking into account the condition and type of model, previous knowledge of the model and other such factors.

6.2 Inspection Process – All Large Models

- 6.2.1 The M.A.A.A. Inspector shall check the "Model Aircraft 3 Yr Permit to Fly" form to ensure that the Ownership and Model Details are completed and that the Owner's Declaration is signed and dated.
- 6.2.2 The M.A.A.A. Inspector shall satisfy him/herself that the model details on the permit document are correct.
- 6.2.3 Prior to assembly of the aircraft to verify general airworthiness, "as distinct from structural integrity", the M.A.A.A. Inspector shall, using the "Check List For Inspection of a Fixed Wing Model Aircraft" or "Check List for Inspection of a Rotary Wing Model Aircraft", inspect the aircraft, marking on the Checklist "Not applicable" or indicating "Satisfactory" with a tick as appropriate. Any unsatisfactory items must be rectified, re-examined and marked/indicated "satisfactory" before test flights commence.
- 6.2.4 After assembly of the Model Aircraft, the M.A.A.A. Inspector shall examine the Model Aircraft. Any unsatisfactory items must be rectified, re-examined and marked satisfactory before test flights commence.
- 6.2.5 If the M.A.A.A. Inspector is satisfied that the aircraft is suitable for a test flight he/she shall issue a Temporary Permit to Fly for the day by filling in the "Date Of Issue" section of the Permit to Fly form.
- 6.2.6 If the M.A.A.A. Inspector is not satisfied that the aircraft is suitable for a test flight he/she shall inform the owner of the problem/s that require attention to bring the aircraft to a state that would allow a Temporary Permit to be issued to allow a test flight to be undertaken.
- 6.2.7 If the problems identified by the Inspector are of a minor nature and can be repaired immediately, the owner can make repairs and submit the model for re-inspection.

6.3 Additional Inspection Requirements and Recommendations for Giant Models

6.3.1 Control Systems

The following minimum requirements for control systems shall apply. A Giant Model Inspector may recommend upgrading the requirements

depending on the size and performance of the Giant Model under examination. However final responsibility for the selection of a suitable system remains with the builder.

6.3.1.1 Radio Systems.

The transmitter and receivers used for the control of Giant Models be tested and subject to ongoing checks strictly in accordance with the M.A.A.A. Frequency Directive. This means that both the transmitter and the receivers have to be certified. 10 kHz operation is not allowed for Giant Models.

6.3.1.2 Receiver.

To give some form of redundancy, it is recommended twin receivers, each with separate power supply and wiring, share each of the primary controls of the aircraft wherever possible. For example one receiver would drive the port aileron and the second would drive the starboard aileron. It is recommended that Failsafe be used on at least the throttle channel. For most PPM systems, an add-on Failsafe would be needed.

6.3.1.3 Battery.

Battery redundancy is required. This may be provided by use of separate batteries for each receiver or a common supply using a battery backer system from a power board or otherwise.

The total battery capacity shall take into account the number and power of the servos, the required control throws, the size and speed of the model together with the expected number of commands to be exercised in flight.

It is unlikely that a total battery capacity of less than 2000 mAH would be adequate for a Giant Model.

6.3.1.4 Servos – General

The following paragraphs specify the minimum servo torque required to power the primary control surfaces. Where servo torque is suggested for a control surface this can be provided by one or more servos working together. The minimum may not be sufficient of fast flying models or those with large control surfaces or throws. It is suggested that if the builder does not have experience with the size and class of model being built that he take into account the recommendations of the designer, those of other models of similar weight and performance which are published in magazines or on the internet, the experience of other modellers or information published to calculate required servo performance. The Inspector is entitled to require the builder to justify his choice of servo.

Mechanical or other means of boosting torque supplied to a control surface may be taken into account when considering servo torque requirements on a control surface. This may be in the form a boost tabs or similar systems that assist control surface movements.

Servos must be visible for inspection i.e. with the wing off, or

through an access panel.

6.3.1.4.1 Elevators

In the case of separate elevators, the minimum servo torque for each elevator half shall be 6Kg.cm. In the case of a single elevator the minimum servo torque to the elevator shall be 8Kg.cm.

6.3.1.4.2 Ailerons

The minimum servo torque per aileron shall be 6Kg.cm.

6.3.1.4.3 Elevons

The minimum servo torque per elevon shall be 8Kg.cm.

6.3.1.4.4 Other combined function control surfaces:

As for Elevons.

6.3.1.5 Control linkages

The control linkages, clevises and horns shall be able to withstand the maximum torque output of the servo.

Where commercial clevises are used for primary control surfaces, they must be a minimum of 4-40 type. Pull/Pull systems are recommended where appropriate. Heavy-duty linkages that are available for large aerobatic models, and heavy-duty servo arms, are recommended.

6.3.1.6 Engine(s)

In the case of ignition engine powered aircraft they shall be capable of being shut down from the transmitter by an alternate means to the throttle control (for example a separate servo operated kill switch). In the case of a dual receiver system this shall not be controlled by the receiver operating the throttle control

6.3.1.7 Gas Turbine Powered

If the Giant Model is gas turbine powered the installation and operation of the turbine/s shall be inspected and approved by a Gas Turbine Inspector. The Gas Turbine Inspector shall prepare a Gas Turbine Permit form for the model and shall be present during the test flying of the model. The Gas Turbine Permit duly approved by a Gas Turbine Inspector shall be part of the gas turbine powered Giant Model Aircraft's Permit to Fly.

The Giant Model Inspector is responsible for the issue of the Permit to Fly for a Giant Model that is gas turbine powered.

6.4 Test Flights - General

6.4.1 Test flights can only take place after the relevant M.A.A.A. Inspector has issued a Temporary Permit to Fly by the dating of the Model Aircraft 3 Year Permit to Fly form.

- 6.4.2 All test flights shall take place;
- (a) at a site suitable for the purpose so that any failures do not endanger people or property, and
 - (b) in the presence of a relevant M.A.A.A. Inspector and
 - (c) while a temporary Permit to Fly is in force for the model.

6.4.3 The relevant M.A.A.A. Inspector shall observe the proposed pilot test fly the aircraft. The model shall then be flown to demonstrate its ability to perform safely all the manoeuvres contained in the nominated flight envelope.

6.4.4 The pilot of the aircraft being flown for a test flight shall demonstrate that he is able to maintain control of the model while performing safely the nominated manoeuvres. The manoeuvres must be recognisable and be performed without any disorientation or loss of control.

Specific Requirements for Fixed Wing Model Aircraft are:

- (a) no control surface flutter is apparent
- (b) the deflection of each control surface during level flight at full throttle produces the correct response
- (c) take-off and landing must be flown by the above pilot so that:
 - (i) during take-off, the aircraft must not deviate from its initial selected heading in excess of 30 degrees until it achieves a safe height to manoeuvre.
 - (ii) landing must be achieved in the same general area as used for take-off and should not result in any major airframe damage to the aircraft under test. (For example, a nose-over resulting in a broken propeller would not be grounds for a rejection but a smashed landing gear from a heavy landing may require a re-test)

Specific Requirements for Rotary Wing Model Aircraft are:

- (a) no vibration or flutter is apparent
- (b) the deflection of each control during hover produces sufficient and correct response to enable stable control within close proximity of the take off point
- (c) the deflection of each control during forward flight produces sufficient and correct response to enable stable control
- (d) take off, hover, flight and landing must be flown by the above pilot so that:
 - (i) during forward flight the aircraft must not deviate from its initial selected heading in excess of 30 degrees until it achieves a safe height to manoeuvre
 - (ii) landing must be achieved in the same general area as used for take off and should not result in any major airframe damage to the aircraft under test. (For example, a minor ground strike by the tail rotor would not be grounds for a rejection but a damaged main rotor blade or landing gear from a heavy landing may require a re-test)

6.4.5 Any number of test flights may be made on the day; provide that changes other than adjustment of trimming devices and control throws are approved by the Model Inspector.

6.4.6 The M.A.A.A. Model Inspector shall, if considered necessary, ask the pilot to demonstrate manoeuvres within the models stated flight envelope to satisfy him/herself of the aircraft's airworthiness and/or suitability of the manoeuvre.

- 6.4.7 The M.A.A.A. Model Inspector shall sign the Permit to Fly Form adjacent to each manoeuvre that he/she considers to be demonstrated successfully and are within the capabilities of the aircraft and pilot. The signed off manoeuvres are then considered the flight envelope of the aircraft for the endorsed pilot.
- 6.4.8 All pilots listed on the Permit to Fly must have their flight envelope tested, approved and endorsed on the Permit to Fly by an M.A.A.A. Model Inspector. The endorsing of pilots on the form can be done at any time.
- 6.4.9 If faults are identified by the M.A.A.A. Heavy Model Inspector during the test flight/s and he/she considers it appropriate, the Inspector shall allow further test flights to be conducted in his/her presence after rectification and inspection of the faults identified.
- 6.4.10 If for any reason the M.A.A.A. Model Inspector is not satisfied with the airworthiness of the model as demonstrated in the test flight/s, the temporary Permit to Fly shall be cancelled.

6.5 Additional Test Flight Requirements for Giant Models

- 6.5.1 A minimum of three flights or more as required by the Giant Model Inspector.
- 6.5.2 Each flight is to be logged, and at least the last two test flights to be made without any retrim, repair, or major adjustment to the airframe or radio, before final certification.
- 6.5.3 All pilots of Giant Models shall have Gold Wings endorsement for the aircraft type being flown.
- 6.5.4 All pilots undergoing training for endorsement of a Giant Model must have Gold Wings endorsement for the aircraft type being flown.

6.6 Issue of a Permit to Fly

- 6.6.1 When the M.A.A.A. Model Inspector is satisfied that the model meets with requirements of this manual, he/she shall endorse the temporary Permit with the flight envelope tested, date of demonstration and signature. The endorsed temporary Permit then becomes a Permit to Fly.
- 6.6.2 In the case of Giant Models, the form MAAA030 "Giant Aircraft Pre and During Construction/Assembly Inspection Assessment" shall also be signed by the M.A.A.A. Model Inspector.
- 6.6.3 The M.A.A.A. Model Inspector of the model is responsible to ensure that a copy of the completed Permit to Fly and in the case of a Giant Model also a copy of form MAAA030 "Giant Aircraft Pre and During Construction/Assembly Inspection Assessment" is sent to the Ordinary Member.
- 6.6.4 The owner shall retain original/s of the relevant form/s applicable to the particular model and be able to produce it on demand when operating the aircraft.

7. OPERATION UNDER A PERMIT TO FLY

7.1 Pilot of Large Models

A valid Permit to Fly allows flights of the subject aircraft under the control of any pilot whose name appears on the Permit to Fly as an "Endorsed Pilot". The Permit also allows flights of the subject aircraft under the direct supervision of any pilot whose name appears on the Permit to Fly as an "Endorsed Pilot" except at Displays that require a Display Permit, see Manual of Procedures MOP019 Display Procedure.

7.2 Pre-Flight Inspection

The pilot of a model aircraft requiring a Permit to Fly shall verify all items in the relevant Inspection Checklist, Appendix A or Appendix D, before the first flight on any one day. Items marked "P" must also be verified before each flight.

7.3 Suspension of Permit

A Permit to Fly shall be considered suspended whenever the model for which it is issued;

- (a) suffers damage to its primary structure or any control surface
- (b) suffers any control malfunction during flight
- (c) is structurally or aerodynamically modified including radical changes to the control throws.
- (d) is fitted with a different type or size of engine or engine mount
- (e) is fitted with a different type or size of servo operating a control surface
- (f) is fitted with a different type of battery with lower capacity.
- (g) is fitted with a different radio receiver from that originally approved
- (h) undergoes a change of ownership

A suspended Permit may be re-validated as described in 8.2 below.

7.4 Cancellation of Permit

A Permit to Fly shall be cancelled and returned to the issuing body whenever the model for which it is issued;

- (a) is damaged beyond repair
- (b) is modified such that it is no longer accurately described in the Permit.
- (c) is over three (3) years old from the date of issue of Permit to Fly and has not been issued with a new Permit to Fly.

7.5 Flying at Displays

Flying of any Large Model aircraft at Displays, as defined in MOP019, shall only be done in accordance to the requirements of MOP019.

Only those pilots listed on the Permit to Fly shall pilot an aircraft requiring a Permit to Fly at displays that require the issue of a Display Permit under MOP019. The training of pilots of models requiring a Permit to Fly is not permitted at displays.

7.6 Flying Sites for Giant Models

Giant Models cannot be flown at a Club Field unless this has been approved by the club.

It is the responsibility of the pilot of a Giant Model to be satisfied that the proposed flying area is suitable for the particular model under the conditions present on the day.

When considering the suitability of any particular site the Giant Model pilot should pay particular attention to, but not be limited, to; the following items:

- The size speed and number of any other aircraft that may be flying at the same time,
- The maximum airspeed of the model,
- The area required for the model to carry out normal planned manoeuvres.
- Safety margins needed to cover any unforeseen incidents such as engine failure or control anomaly,
- Wind speed and direction,
- Length and surface of runway,
- Take off clearance of obstacles,
- Landing glide path clearance of obstacles,
- Consideration of possible engine failure on takeoff or landing,
- Obstacles in general flight path,
- Possible alternate emergency landing areas,
- Overshoot considerations,
- Noise considerations,
- Location and clearance of other personnel, buildings and car parks, relative to the planned flight path and that which might be required in an emergency.

8. INSPECTION PROCEDURES

8.1 Inspection Before Test Flights

See Section 6.2 and 6.3

8.2 Revalidation of a Suspended Permit to Fly

An inspector may revalidate a suspended permit provided that;

- (a) the modification or repairs causing suspension have been examined and found to meet the appropriate standards, and
- (b) the model in its modified state has been inspected and test flown as in 6.2, 6.3, 6.4, 6.5 and 6.6 as applicable.

8.3 Appeals

In the event of unresolved disputes, the applicant for a Permit to Fly may appeal to the Ordinary Member to which application was first made. That Ordinary Member shall be the final arbiter in all disputes.

8.4 Three Year Validation Inspection

- (a) This inspection is to revalidate a permit that is more than three years old since the date of issue. A permit can be revalidated prior to the end of the three year period.
- (b) The M.A.A.A. Model Inspector shall cancel any Permit to Fly if the permit has been found to be in breach of clause 7.3.
- (c) The M.A.A.A. Model Inspector shall, after approving a three year inspection of an aircraft and obtaining the Permit to Fly form from the operator, issue a new Permit to Fly and in the case of a Giant Model other documents as required by this procedure to the owner with all appropriate details stated on the form/s and validated by signing and dating where required. The Inspector shall destroy the old Permit to Fly. The inspection documents for Giant Models shall be retained by the owner.

8.5 Documentation

The Permit documentation shall be handled as detailed in clause 6.6

9. AUTHORISED INSPECTORS

9.1 Appointment

9.1.1 Inspectors shall be appointed and reappointed in accordance with the M.A.A.A. Appointment and Re-appointment of Inspectors Procedure, MOP006.

9.1.2 The M.A.A.A. may define any requirements deemed necessary for appointments as an Inspector, and shall issue a statement of authority in the form of an endorsement printed on the M.A.A.A. membership card of the candidates who meet these requirements. See M.A.A.A. Appointment and Re-appointment of Inspectors Procedure, MOP006.

9.2 Register of Inspectors

9.2.1 The M.A.A.A. Secretary shall maintain the register of M.A.A.A. Inspectors.

9.2.2 The Ordinary Members shall maintain registers of M.A.A.A. Inspectors affiliated to them.

9.2.3 The M.A.A.A. Secretary shall supply the Ordinary Members at least annually a list of M.A.A.A. Inspectors affiliated to them.

9.3 Obligations of an Inspector

9.3.1 In accepting nomination as a M.A.A.A. Inspector, an Affiliate Member accepts the responsibility implicit in the appointment and undertakes:

- (a) to be, generally and reasonably, available with adequate notice to attend and observe test flights when requested, and
- (b) to carry out all duties in accordance with this document

9.3.2 An M.A.A.A. Inspector carries no responsibility for a failure of an aircraft and any subsequent damage however caused during a test flight.

9.3.3 There is no liability for subsequent flights under any circumstances as the conditions of operation are outside the inspector's control.

10. OTHER PROCEDURES

10.1 General

The operation of model aircraft shall be in conformance to C.A.S.A. regulations and other M.A.A.A. Procedures.

11. FORMS

Appendix A – Checklist for Inspection of a Fixed Wing Model Aircraft
(2 Pages) Form MAAA014

Appendix B – Model Aircraft 3 Yr Permit to Fly

Appendix C – Giant Aircraft

Pre and During Construction/Assembly Inspection Assessment (2 pages)
Form MAAA030

Appendix D – Checklist For Inspection of a Rotary Wing Model Aircraft

(2 pages) Form MAAA033



CHECK LIST FOR INSPECTION OF A MODEL AIRCRAFT

The following checklist is to be completed by an authorized Inspector prior to Test Flights. The check boxes are to be marked "N/A" if not applicable, ticked if satisfactory, or left blank pending re-inspection if unsatisfactory.

The checklist is subsequently used by the operator of the aircraft;
(a) at the beginning of a flying session (all items)
(b) Before every flight (items marked "P" only)

The checklist is arranged in a systematic fashion assuming a standard tractor-type aircraft. Variations will be necessary for different types of aircraft.

1. UNASSEMBLED INSPECTION

	Tick
--	------

1.1 WING GROUP

Fuselage attachment points		
Strut attachment points		
Rigging wire attachment points		
Servo mounting		
Pushrods/cables and actuating links		
Control horns		
Clevis/actuating link attachment points		
Control surface hinges and gaps (see note 1)		
Undercarriage integrity and attachment points		
Structure (see note 2)		
Covering integrity		

1.2 FUSELAGE GROUP

Wing attachment points		
Undercarriage integrity and attachment points		
Servo mounting		
Pushrods/cables and actuating links		
Control horns		
Clevis/actuating link attachment points		
Control surface hinges and gaps (see note 1)		
Fin and rudder		
Tailplane		
Bracing/strut attachment points		
Structure (see note 2)		
Covering integrity		
Fuel tank compartment – adequate ventilation of vapours to exterior		
Receiver compartment – adequate insulation from exhaust and/or engine heat		

1.3 POWER PLANT

Propellor secure and undamaged	P	
Spinner secure and clear of propellor blades	P	
Engine mounting and accessories secure	P	
Cowling attachment	P	
Magneto switch functioning and Off	P	
External servicing points (fuel, plug etc)		

1.4 RADIO EQUIPMENT

Receiver installation		
Battery installation		
Aerial installation		
Switch installation		
Wiring and plugs clean, undamaged and secure		

Note 1; Check for cracking near hinges, control horn and mass balance attachment points. Pull on control surface to verify integrity of hinges. Move surface to determine if any free play is present.

Note 2; Check for damage, distortion and cracking

Appendix "A" (Page 1 of 2)

Note; This form can be obtained from the State Association or the M.A.A.A. web site



CHECK LIST FOR INSPECTION OF A MODEL AIRCRAFT

2. ASSEMBLED INSPECTION

	Tick
--	------

2.1 GENERAL

First ensure that all components fit together correctly, and that no undue strain is needed to achieve proper alignment.			
--	--	--	--

2.2 RIGHT WING

No non-design twists or warps		
Wingtips true		
Wing leading edge		
Struts and rigging secure		
Attachment to fuselage		
Undercarriage attachment		
Alignment of control surfaces.		

2.3 FUSELAGE and TAILPLANE

Horizontal Stabilizer Attachment	P	
Fin and rudder attachment	P	
Struts and bracing secure	P	
Alignment of empennage with respect to wing	P	
Alignment of control surfaces	P	
Tailwheel assembly		
Canopy		

2.4 LEFT WING

No non-design twists or warps		
Wingtips true		
Wing leading edge		
Struts and rigging secure		
Attachment to fuselage		
Undercarriage attachment		
Alignment of control surfaces.		

2.5 MISCELLANEOUS

Centre of gravity		
Sense and throw of control surfaces	P	
Engine off radio check		
Fuel, air pressure and battery charge sufficient	P	

2.6 CHECKS WITH ENGINE(S) ON

Aircraft secure before start (tied down and/or held)	P	
Engine performance and reliability	P	
Propeller and spinner balance	P	
No airframe vibration	P	
Radio reliability	P	
Radio range	P	

Sample

Appendix "A" (Page 2 of 2)

Please note that the form "Checklist for Inspection of Fixed Wing Model Aircraft" refers to the above form "Checklist for Inspection of a Model Aircraft". The form will be revised when current stocks are depleted.



GIANT AIRCRAFT PRE AND DURING CONSTRUCTION/ASSEMBLY INSPECTION ASSESSMENT

The following document is to be completed by an M.A.A.A. Giant Model Inspector prior to construction of a Giant Model Aircraft.

This form does not replace form MAAA014, Check List For Inspection of a Model Aircraft, but is supplementary to it. This document must be retained for the aircraft that it is applicable as it forms part of the Permit to Fly.

In the case where the model changes hands or is sold this documents shall be handed to and retained by the new owner and will be required by a Giant Model Inspector to verify during construction inspection of the aircraft when issuing a Permit to Fly for the model.

OWNERSHIP DETAILS:

NAME: FAI No
 ADDRESS:
 P/CODE:

MODEL DETAILS:

NAME OF AIRCRAFT:
 Wing Span: mm Projected
 Planned Power Plants: Capacity: c.c.
 If Electric Powered Proposed by No. of Cells: Total Volts:

CONSTRUCTION DETAILS:

PUBLISHED BY:
 OWN DESIGN: (Insert Yes of No)
 ARF: (Insert Yes of No) If YES; Name of Maker:

PRE-CONSTRUCTION/ASSEMBLY REQUIREMENTS.

	Inspections required at the following stages; See Page 2 for details: (To be listed by Inspector)	Inspection OK - Date	Inspector Initials
1			
2			
3			
4			
5			
6			

Inspector to complete the "Notes on inspections" on Page 2 of this form.

During Construction Inspection/Assembly Completed to my satisfaction;

Inspector; AUS Number;

Signature; Date;

Appendix "C"
Form MAAA030 - GIANT MODEL PRE AND DURING CONSTRUCTION/ASSEMBLY
INSPECTION ASSESSMENT
(Page 1 of 2)

Note; This Form is available from the M.A.A.A. Web Site or the State Association.



GIANT AIRCRAFT
PRE AND DURING CONSTRUCTION/ASSEMBLY
INSPECTION ASSESSMENT

Inspection Number	Details/Description of Inspections required by Inspector (Details to be inserted by Inspector)	Inspector Initial & Date
1		
2		
3		
4		
5		
6		

Sample

Appendix "C"
Form MAAA030 - GIANT MODEL PRE AND DURING CONSTRUCTION/ASSEMBLY
INSPECTION ASSESSMENT
(Page 2 of 2)

Note; Do not use photocopies of this form. This Form is available from the M.A.A.A. Web Site or the State Association.



CHECK LIST FOR INSPECTION OF A ROTARY WING MODEL AIRCRAFT

The following checklist is to be completed by an authorized Inspector prior to Test Flights. The check boxes are to be marked "N/A" if not applicable, ticked if satisfactory, or left blank pending re-inspection if unsatisfactory.

The checklist is subsequently used by the operator of the helicopter:

- (a) at the beginning of a flying session (all items)
- (b) before every flight (items marked "P" only)

The checklist is arranged in a systematic fashion assuming a standard single rotor helicopter.

			Tick
1. Rotor Head Group			
	Rotor blade grips and blades mounted correctly and secure		
	Rotor blade direction correct and blade balance checked		
	Rotor blades undamaged	P	
	Blade tracking checked – static		
	Control direction correct	P	
	Flybar centred and paddles mounted correctly and secured		
	Paddle direction correct		
	Ball links undamaged	P	
	Swash plate movement free and phasing correct	P	
2. Tail Rotor Group			
	Drive shaft gearing mesh correct		
	Drive belt tension correct	P	
	Rotation direction correct		
	Tail blade grips and blades secured		
	Tail blade direction correct and blade balance checked		
	Tail blade pitch range adequate		
3. Chassis			
	Skid set strong enough		
	Skid set secure		
	Fasteners adequate and locked where required		
4. Fuselage Group			
	Mounting to chassis secure		
	Braced for rigidity if required		
	Canopy/Windows secure		
5. Power Plant and Fuel Systems			
	Fuel tubing appropriate		
	Tank mounting cushioned		
	Clunk and feed connected correctly		
	Tank height correct or fuel pumped		
	Pressure systems connected correctly		
	Engine, transmission aligned and movement free		
	Ignition kill switch operation if petrol motor fitted		
	Electric motor speed control has electrical filter fitted in feed to receiver		
	Electric motor power system and wiring physically separated from radio system		

APPENDIX D CHECKLIST FOR INSPECTION OF A ROTARY WING MODEL AIRCRAFT

Note: Do not use photocopies of this form. This Form is available from the M.A.A.A. Web Site or the State Association.



CHECK LIST FOR INSPECTION OF A ROTARY WING MODEL AIRCRAFT

			Tick
6.	Radio Equipment		
	All transmitter functions set up correctly	P	
	Receiver vibration proofed		
	Giro soft mounted, control sense correct and neutral set		
	All leads secured and protected		
	Battery vibration proof and secure		
	Connectors and wiring heavy enough for power loads and length		
	Switch mounted, accessible and adequate for power loads		
	Servos rubber mounted or vibration proofed		
	Servo arms robust and secure		
	Servo arm ball joints secure, servo arms not stressed (predrilled) and locknuts fitted and <i>Locktited</i>		
	Servo power/torque adequate		
	Antenna routed appropriately		
7.	Control Systems		
	Ball links large enough		
	Ball joints locked and centred		
	Arms free and not fouling		
	Push rods large enough and not bent		
	Controls free with sufficient travel and no binding	P	
8.	Miscellaneous		
	Fasteners locked where required		
	No stripped threads		
	Metal to metal contact minimised		
	<i>Nyloc</i> nuts or lock nuts used		
	Ball races smooth		
	Fastener size appropriate		
	Centre of Gravity correct		
9.	Checks with engine running and/or rotors spinning		
	Vibration levels low	P	
	Blade tracking – low speed	P	
	Engine tuning and cut off	P	
	Clutch operation	P	
10.	Flight Checks		
	Vibration minimised	P	
	Head speed not too high or too slow	P	
	Blade tracking – flight speed	P	
	Engine tuning correct	P	
	Muffler quiet enough	P	
	Giro gain and centring correct	P	
	Pitch range matched to engine power	P	
	Governor operation correct	P	

Page 2 of 2

APPENDIX D CHECKLIST FOR INSPECTION OF A ROTARY WING MODEL AIRCRAFT

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