

MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA



RISK ASSESSMENT PROCEDURE

MOP022

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Amendments made to MOP022

Paragraph	Brief description of change	Change incorporated by
4.4	Addition to Policy. A Risk Assessment is required when making application to CASA.	MAAA Secretary July 2014
6 (b) 7.0	Addition to Policy. A Risk Assessment must assess the risk of conflict between the model aircraft and an unmanned aircraft.	

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

RISK ASSESSMENT PROCEDURE

1. INTRODUCTION

Many people who do not have practical experience of Risk Management fear that employing it will result in so many rules that, whatever the activity, it will not be able to continue in the same general way as it has up to that time. Normally, provided that there are no serious problems with the way that the activity is organised, that will not be the case. Of course there may be some changes needed, but in most cases these are easy to do and do not have a major impact. Having made the changes, the activity should be much safer.

The MAAA, like most organisations, had risk management without necessarily giving it a formal title, since it first started. Much of the contents of the Manual of Procedures (MOP) are risk management, as are some of the other rules/guidelines/recommendations. Where these are firm requirements they have to be complied with. If these are not appropriate for a particular situation then it should be identified and steps taken to get either the rule or the wording modified. Not following the requirement because it is inconvenient is not acceptable.

The MAAA also provides guidance for many situations, either in the MOPs or elsewhere. These are only guidance because it might not make sense to apply them universally without some adaptation to suit local conditions. The application has to be considered locally and a decision made on what to do. The intent of the guidance should always be considered when looking at how to do things locally and then arrive at something that makes sense. A non modelling example is crossing the road. It makes sense to look out for oncoming traffic. If a rule just said look in both directions before starting to cross this it would make sense if it is a quiet road with good visibility in each direction, low background noise and no vehicles around. Look once and cross. But suppose it was a busy multi lane highway with fast moving traffic and on a bend. If you are crossing there, you would probably be looking right and left all the time as you continually assess the risks that you were confronted with. In fact in this case you would hopefully decide not to cross there and find somewhere safer. That is the preferred risk management approach. If there is a significant risk the best option is to avoid the risk altogether by adopting a safer practice.

Even if all persons involved with the MAAA follow all the rules and guidance that there are for model aircraft, CASR 1998 Part 101, MAAA Rules and Club Rules, there are likely still be some risks around at every location that could be quite high. Often these is known, sometimes subconsciously, but they are either ignored as being too hard, the subjective view is taken that it will never happen, or that even if it does the worst case is unlikely to be the outcome.

The intention of this policy and procedure is to assist clubs to assess their own risks and guide them on how to manage them.

2. ACKNOWLEDGEMENT

- 2.1 The assistance of the British Model Flying Association (BMFA) in the preparation of this document is appreciated.

3. DEFINITIONS

- Affiliate Member** A person properly affiliated with a Club that is properly affiliated to an MAAA Ordinary Member.
- CASA** Civil Aviation Safety Authority
- CASR 1998 Part 101** Civil Aviation Safety Regulation 1998 Part 101
- Club** A Club properly affiliated with an MAAA Ordinary Member.
- Club Member** See Affiliate Member.
- MAAA** Model Aeronautical Association of Australia Inc.
- MAAA Ordinary Member**.. A State Association properly affiliated with MAAA Inc.
- MOP**.....MAAA Manual of Procedures
- Ordinary Member** See MAAA Ordinary Member.

4. POLICY

- 4.1 The MAAA advises Clubs to carry out their own Risk Management Assessment based on the Procedure documented in this MOP. This should be repeated at intervals determined as appropriate by the club. This should occur if there is a significant change in the method of operation and on a routine basis depending on factors such as the result of previous assessments, occurrence of a potential hazardous situation, level of activity, evolving operational practice or a request from Club Members. In the absence of any special factors once every 12 months might be considered appropriate. Where clubs carry out a Risk Assessment on their own initiative the results and actions are not required to be forwarded to either the relevant MAAA Ordinary Member or the MAAA unless specifically requested by either body.
- 4.2 An MAAA Ordinary Member may require a club registered with it to complete a Risk Assessment. This may be due to becoming aware of a potential situation where risk management is required or on a routine or sample basis. Such a request shall provide the timescale for the completion of the assessment and a copy of the completed documentation and the recommendations shall be provided to the MAAA Ordinary Member by the due date. After reviewing the documentation the MAAA Ordinary Member may require additional actions.
- 4.3 The MAAA may, through the MAAA Ordinary Member or directly, require a club to complete a Risk Assessment. This may be due to receiving an incident report or for any other reason. Such a request shall provide the timescale for the completion of the assessment and a copy of the completed documentation and the recommendations shall be provided to both the MAAA and the relevant MAAA Ordinary by the due date. After reviewing the documentation either the MAAA or the MAAA Ordinary Member may require additional actions.
- 4.4 When a Club or State Association makes an application to the Civil Aviation Safety Authority (CASA) for an exemption to the requirements of CASR Part 101 or for an Instrument of approval for certain Displays, the Risk Assessment documentation, Form MAAA031 and Form MAAA032, must be included with that application.

5. BASIC PROCEDURE

5.1 This is based on the Australian Risk Management Standard which is similar to that used in most countries. Risk assessments will take into account many hazards and the potential for any such accident to cause injury or significant costs. Any such assessment will take account of the following:

1. Identification of ALL the risks.
2. Evaluation of those risks.
3. Implementation of measures to control the risks.

5.2 Such a risk assessment should be:

Suitable and sufficient – not perfect - and identify all the significant risks arising from an activity.

Reviewed and revised if there is a significant change in the matters to which it relates.

The intention is to identify what risks there are, how serious the result would be and how likely they are to happen. After this, a simple arithmetic calculation shows the risks that need to be looked at. This is based on a simple qualitative and semi-quantitative method which is often used and makes use of the equation shown below. Multiplication of HAZARD x LIKELIHOOD generates a “RISK FACTOR”

RISK FACTOR	=	SEVERITY OF HAZARD	X	LIKELIHOOD OF OCCURRENCE
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However there needs to be a commonsense approach to the results but this does not mean that serious risks should be ignored just because the solution is hard or inconvenient.

Having identified the risks that are sufficiently serious to be looked at then there are a number of ways of tackling them. The preferred order for doing this is

1. Elimination.
2. Substitution.
3. Enclosure.
4. Guarding / segregation of people.
5. Safe systems of operation that reduce the risk to an acceptable level.
6. Written procedures that are known and understood by all affected.
7. Adequate supervision.
8. Identification of training needs.
9. Information and instruction including necessary signs etc.
10. Personal protective equipment.

In many cases a suitable combination of these control measures may be necessary. Individual levels of competence of those involved will also need to be considered.

6. EVALUATION OF RISK

The evaluation of risk is the process known as “Risk Assessment.”

A “competent person” should perform this assessment. For our purposes this could be:

An experienced model flyer within the club, who may or may not be on the committee, and who can demonstrate a thorough knowledge of model flying operations by experience and possibly with MAAA status as an Instructor or Inspector.

Where clubs, perhaps newly formed, have no access to such a person, in this case it should be the most experienced club member(s) in conjunction with external assistance if required.

Because the assessment has a subjective element and it is unlikely to be carried out by a risk management professional it makes sense if two or three people do the assessment on a consensus basis. It is not suggested that more than three are involved or it becomes a committee and might not reach a workable outcome.

Risk assessment for model-flying clubs must take into account all relevant information including:

a) All current legislation (with best practice adopted and no contraventions)

Civil Aviation Safety Authority	e.g. - regulations, height, airspace, airfield proximity etc.
MAAA MOPs	e.g. - frequencies, insurance requirements, weight restrictions, code of practice etc
Local by-laws and restrictions	e.g. - shared use of sites noise etc.
Agreement with the land owner.	e.g. - no conflict with safety requirements.

b) Identification of all known hazards, including risk of conflict with manned aircraft

In the Appendices there are templates that should be completed by each club in accordance with the policy. If any hazards are identified that need to be addressed then the form should also be completed after changes have been made with a revised score. The final outcome is called the residual or treated risk.

The templates have some initial standard questions. The remaining ones should be completed by the using experience of hazards in model flying. These should be guided by but not limited to the topics on the following list but it should be realised that in a particular situation some items may not be appropriate.

7. POSSIBLE HAZARDS SPECIFIC TO MODEL CLUBS

GENERAL DESCRIPTION	EXAMPLES
Geography of the site	Proximity of site to airspace used by manned aircraft Position of pits area relative to spectators, runways etc. Position of car parking Position of main and secondary runways

	<ul style="list-style-type: none">Position of transmitter & frequency controls.Position of "Pilot's box"Position of sensitive or high -risk areasPosition of roadsPosition of railwaysPosition of public rights of wayPosition of obstructions to sight / safe flying patternsPosition of buildings
Defined flying zones	<ul style="list-style-type: none">Over-flying any of the above.Over-flying public / organised games.Over-flying dwellings.Not following CASA requirements – altitude etc.
Warning signs on display	<ul style="list-style-type: none">Warning public of model aircraft operation.Hours of operation.Safe viewing areas.Prohibition of mobile phones
Club safety management	<ul style="list-style-type: none">Safety officers and safety committee in post.Provision of First aid kit on-site.Facilities to summon help in event of emergency.Named persons (if any) who may administer first aid?
Are local club rules in place to clearly establish a code of conduct?	<ul style="list-style-type: none">Prevent dangerous or inconsiderate flying.Specify transmitter & frequency control procedures and Compliant with transmitter keyboard system.
MAAA and CASA requirements and guidance	<ul style="list-style-type: none">Specify site layout relative to its geography.Specify proficiency required to fly solo.Specify proficiency required to teach novice pilots.Specify proficiency to establish new model's integritySpecify proficiency to test fly a new model.Insist on some form of model restraint in pitsInsist on correct grouping of pilots during flyingEstablish communication system to notify intent to take off, land or declare an emergency.Establish a secure transmitter pound when they are not in useRestrict model size / engine capacity for novice pilots.Control the operation of "large" models.Control the discipline of all members.
Are items of basic safety equipment needed to be available to the club members?	<ul style="list-style-type: none">Scanning Radio Frequency receivers.Crystal frequency checkers for transmitters.High visibility tape to restrict public access.Windsock, wind velocity meter etc.
Loudhailer or public address warning system.	
Are systems in place to cascade safety information to members?	<ul style="list-style-type: none">NewslettersTeaching sessionsElectronic EmailPromotion of MAAA wings schemes

This list is neither exhaustive nor prescriptive in nature; however, it is a good starting point and emphasises the scope of any risk assessment process for a model-flying club. Many of these examples will already be covered – but are they documented? Can it be made safer? Should advice be sought from an external source e.g. State Association, MAAA etc.

As a responsible club it may well be the case that a safer system of operation could be devised on your site. The headings should promote discussion within your club. This may lead to a significant reduction of risk through adoption of best practice.

9. RISK ASSESSMENT EVALUATION SCORES

For each identified risk a risk factor is calculated using the assessed severity and likely frequency of occurrence. The following “scores”/“values” are for use in the “Risk Assessment Before & After Control Measures” evaluation process which will use Form MAAA031, see Appendix “B”.

Potential severity (A)	Score	Frequency (B)	Score	Risk Factor A X B
Trivial	=1	Highly unlikely occurrence	=1	0 – 5 low
Minor injury/cost	=2	Possible occurrence	=2	
Serious injury/ Moderate cost	=3	Quite possible occurrence	=3	6 – 15 medium
Fatality/high cost	=4	Likely occurrence	=4	
Major-multiple deaths/	=5	High occurrence	=5	16 – 25 high

10. RISK FACTOR SCORES AND REMEDIAL ACTIONS

Once the assessment has identified the risk factors associated with each identified risk then the following gives an indication of how quickly the action plan to eliminate/reduce the risk should be completed. The risk is then reassessed and the Residual risk also added to the template to show the improvement achieved.

Score (A x B) = 0 – 5 NO ACTION REQUIRED

Score (A x B) = 6 – 15 MODERATE RISK – PLANNED ACTION REQUIRED
within a reasonable time scale, say 28 days

Score (A x B) = 16 – 25 HIGH RISK – IMMEDIATE ACTION REQUIRED
This must be dealt with urgently – flying should probably cease until problem(s) rectified.

11. PROCESS

The templates shown in Appendix A and B should be completed. The actual forms are available on the MAAA web site as MAAA031 and MAAA032. Every identified hazard should be listed using as many sheets as needed

Place the score for the SEVERITY and FREQUENCY in the appropriate boxes.

Calculate the “ RISK FACTOR” by multiplication of the 2 scores.

The club should then review Section 10 to assist in deciding where actions need to be taken and if needed reduce any of the “risk factors” by introducing or changing existing control measures.

Add any changed control measures and supporting comments as required – particularly where a control measure has been introduced and the risk factor has been reduced.

After introducing new control measures the Severity and the Frequency of the risk needs to be reassess and placed in the residual section of the box for that risk. The Risk Factor is then recalculated and reassessed to see if it has achieved the required reduction. If not then further control measures need to be considered and the process repeated.

12. EXAMPLE OF ASSESSMENT

A sample Risk Assessment is set out in Appendix C.

This example is for a fictitious club which is included to guide clubs on what is needed although in practice it is expected that more individual risks would be identified. It should be noted that some risks that score at the low end of the Moderate Risk Factor have been treated to lower the risk but for some it was assessed that no further action could be taken above what the club was already doing. However additional actions would always be expected for risk factors at the higher end of the Moderate Risk or for any in the High Risk category. Also in one case a control measure was introduced which did not actually change the Risk Factor but would still be worth doing. In another case a single possible event had two possible consequences which had a different risk factor, one of which needed to be treated.

13. APPENDICES

Appendix A - Risk Assessment Template for use by Model Flying Clubs

Appendix B - Risk Assessment Before and After Control Measures

Appendix C - Sample Risk Assessment.



MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA RISK ASSESSMENT TEMPLATE

For Use by Model Flying Clubs.

SECTION 1. CLUB DETAILS

Name of model club;

Location of flying site;

Site owners name;

State Association; Date of assessment;

Assessor's name 1;

Position in club; Signature

Assessor's name 2;

Position in club Signature

Risk assessment checked and authorised by club committee on /..... /.....

REVIEW OF ASSESSMENT DUE ON /..... /.....

Unless circumstances relating to operation change a period of 12 months is suggested.

Sample

SECTION 2. SUBJECT ASSESSED

The operation of radio controlled model aircraft at the site specified above.

SECTION 3.

	YES	NO
Is the club familiar with and does it comply with Part 101.	<input type="checkbox"/>	<input type="checkbox"/>
Is the club familiar with and comply with MAAA Policy as defined in the MOP's?	<input type="checkbox"/>	<input type="checkbox"/>
Is the club familiar with and comply with relevant Federal State and Local Government requirements?	<input type="checkbox"/>	<input type="checkbox"/>
Is the club familiar with MAAA Recommendations as defined in the MOP's and has it made documented decisions on how to apply relevant recommendations	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 4. THIRD PARTY RISK IDENTIFICATION

Please specify individuals, organizations, vehicles, buildings and anything else other than Club Members and bona fide visitors that could be placed at risk by the Club operations.

Specify here

.....

Appendix A

Form MAAA030 - Risk Assessment Template for use by Model Flying Clubs
Do not use photocopies of this form. The Original is available on the MAAA web site.



MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA RISK ASSESSMENT BEFORE & AFTER CONTROL MEASURES.

(Use as many sheets as needed)

Sheet ____ of ____

<u>IDENTITY OF HAZARD</u>	<u>SEVERITY</u>	<u>FREQUENCY</u>	<u>RISK FACTOR</u>
Hazard #			
COMMENTS – CONTROL MEASURES	RESIDUAL	RESIDUAL	RESIDUAL
Hazard #			
COMMENTS – CONTROL MEASURES	RESIDUAL	RESIDUAL	RESIDUAL
Hazard #			
COMMENTS – CONTROL MEASURES	RESIDUAL	RESIDUAL	RESIDUAL

Sample

Appendix B

Form MAAA031 - Risk Assessment Before and After Control Measures

Do not use photocopies of this form. The Original is available on the MAAA web site.



MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA RISK ASSESSMENT TEMPLATE

For Use by Model Flying Clubs.

SECTION 1. CLUB DETAILS

Name of model club; All Enthusiasts Model Flying Club

Location of flying site; Sports Ground Whup Whup East Australia.....

Site owners name; Whup Whup City Council.....

State Association; East Australian Sports Aviation Date of assessment; 1/01/3000

Assessor's name 1; James Bloggs

Position in club; President..... Signature; *J Bloggs*.....

Assessor's name 2; John Smith

Position in club CFI

Signature *J Smith*.....

Risk assessment checked and authorised by club committee on 4/01/3000

Review Of Assessment Due On 1/01/3001

Unless circumstances relating to operation change a period not exceeding 12 months is suggested.

SECTION 2. SUBJECT ASSESSED

The operation of radio controlled model aircraft at the site specified above.

SECTION 3.

	YES	NO
Is the club familiar with and does it comply with Part 101.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the club familiar with and comply with MAAA Policy as defined in the MOP's?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the club familiar with and comply with relevant Federal State and Local Government requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the club familiar with MAAA Recommendations as defined in the MOP's and has it made documented decisions on how to apply relevant recommendations	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SECTION 4. THIRD PARTY RISK IDENTIFICATION

Please specify individuals, organizations, vehicles, buildings and anything else other than Club Members and bona fide visitors that could be placed at risk by the Club operations.

Specify here



MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA RISK ASSESSMENT BEFORE & AFTER CONTROL MEASURES.

(Use as many sheets as needed)

Sheet 1 of 4

<u>IDENTITY OF HAZARD</u>	<u>SEVERITY</u>	<u>FREQUENCY</u>	<u>RISK FACTOR</u>
Hazard # 1 Hit members of football club and Supporters during practice or matches	3	1	3
COMMENTS – CONTROL MEASURES; No further action. Club Rule we don't fly when they are there	RESIDUAL	RESIDUAL	RESIDUAL
Hazard # 2. Model crashing in pits area ... and hitting a person	3	2	6
COMMENTS – CONTROL MEASURES Currently comply with 30 metre rule. Make note in magazine to make sure that members know to call out warning if they see potential problem happening.....	RESIDUAL 3	RESIDUAL 2	RESIDUAL 6
Hazard # 3 Fingers in props	3	3	9
COMMENTS – CONTROL MEASURES Require members to positively restrain aircraft either by someone else holding or mechanical stops	RESIDUAL 3	RESIDUAL 2	RESIDUAL 6



**MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA
RISK ASSESSMENT BEFORE & AFTER
CONTROL MEASURES.**

(Use as many sheets as needed)

Sheet 2 of 4

<u>IDENTITY OF HAZARD</u>	<u>SEVERITY</u>	<u>FREQUENCY</u>	<u>RISK FACTOR</u>
Hazard # 4. Members trapped at field by grass fire	5	1	5
COMMENTS – CONTROL MEASURES; No action alternate exits	RESIDUAL	RESIDUAL	RESIDUAL
Hazard # 5. Noise complaints..... Loose field.....	3	1	3
COMMENTS – CONTROL MEASURES No action Council DA and measurements show well within EPA requirements	RESIDUAL	RESIDUAL	RESIDUAL
Hazard # 6. Pilots have momentary loss of control	1	4	4
COMMENTS – CONTROL MEASURES	RESIDUAL	RESIDUAL	RESIDUAL



**MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA
RISK ASSESSMENT BEFORE & AFTER
CONTROL MEASURES.**

(Use as many sheets as needed)

Sheet 3 of 4

<u>IDENTITY OF HAZARD</u>	<u>SEVERITY</u>	<u>FREQUENCY</u>	<u>RISK FACTOR</u>
Hazard # 7. Hit full size aircraft	5	1	5
.....			
COMMENTS – CONTROL MEASURES; Low density of traffic and comply with 400 metre rules	RESIDUAL	RESIDUAL	RESIDUAL
No action			
.....			
Hazard # 8. Shoot other members aircraft down due to operation on same frequency	3	2	6
.....			
COMMENTS – CONTROL MEASURES Key Board in operation. Reminded	RESIDUAL	RESIDUAL	RESIDUAL
members in last newsletter. No further			
action at this stage			
.....			
Hazard # 9 Members not aware of club	3	3	9
flying rules			
.....			
COMMENTS – CONTROL MEASURES Put up list of Rules on Notice Board and	RESIDUAL	RESIDUAL	RESIDUAL
add that must be gone through with New ...	3	1	3
Members and Visitors.....			
.....			



MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA RISK ASSESSMENT BEFORE & AFTER CONTROL MEASURES.

(Use as many sheets as needed)

Sheet 4 of 4

<u>IDENTITY OF HAZARD</u>	<u>SEVERITY</u>	<u>FREQUENCY</u>	<u>RISK FACTOR</u>
Hazard # 10. Occasional slippery mud in front of transmitter pound and sharp edges on keyboard causing fall/cuts	3	3	9
COMMENTS – CONTROL MEASURES; Move transmitter pound to flat area and ... pave locally in front of keyboard and remove all sharp edges from it	RESIDUAL 1	RESIDUAL 1	RESIDUAL 1
Hazard # 11. Hitting power lines - Damage to aircraft.....	2	2	4
COMMENTS – CONTROL MEASURES Club rules prohibit flying within 100 metres of lines.....	RESIDUAL	RESIDUAL	RESIDUAL
Hazard # 12. Hitting power lines – Local power failure.	3	2	6
COMMENTS – CONTROL MEASURES Club rules prohibit flying within 100 metres of lines. Flight paths to be occasionally audited to educated members to keep the required clearance to power lines.	RESIDUAL 3	RESIDUAL 1	RESIDUAL 3