BRMFC

New Member

Starter Pack

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Introduction

What's in your Starter Pack

In your starter pack you should have the following items:

1. Frequency key
2. Club badge
3. Key to gate/shed

If any item is missing please contact the Secretary

What is Aeromodelling?

Aeromodelling encapsulates the design, construction and flying of miniature aircraft (Although some are not so miniature these days). They are either based upon full size aircraft or unique model designs and fall into three broad categories, which are Free Flight, Control Line and Radio Control.

Free Flight – The oldest form of model flying. It offers fun and exercise in the open. The models range from gliders to diesel or glo-plug engine powered types. Gliders are launched by towline, and a pair of fast feet. After release, they are free to soar in the rising air currents until brought to earth by auto timer devices or lack of lift. Rubber powered models use selected strip rubber and can be given more than one thousand winds which take the model to great heights before gliding back to earth. Engine powered models are filled with a specific amount of fuel or use a timer to cut off the fuel supply.

Control Line – This is the simplest form of control where the pilot is directly connected to the aircraft by at least two wires, which may be anywhere between ten and thirty metres long. The diesel or glo-plug powered aircraft travels around the pilot who has control over the climb and dive attitude of the model.

Radio Control – For many, Radio Control is the ultimate category. It requires an investment in the control system, which consists of a transmitter, receiver and several servo motors to operate the control surfaces and engine throttle. Many transmitters these days have microprocessors built in to enable servo control characteristics to be set and saved with a model name. Only certain radio frequencies are available by law for this activity. The skill involved in flying this sort of model has to be learnt and is as challenging as flying a full sized aircraft. Radio control offers the possibility of flying gliders in the air currents or scale models of full size aircraft. However you should start with a simple trainer built from a kit or an ARF (Almost Ready to Fly) model. Seek help in its latter stages of construction and above all have an experienced pilot test fly it. Don't be tempted to fly it yourself if you have not been trained. Once you have mastered the technical skills of building and the art of flying you can think about scale models, aerobatics or racing models. To be successful in Radio Control it is essential to join a club.

Who are We?

The ***B**ALLARAT **R**ADIO **M**ODEL **F**LYING **C**LUB* (BRMFC) is an incorporated body that has been active at various locations around Ballarat since the mid 1960's. The club established its current field at Spreadeagle Road Yendon in 2000 on land leased from the Lal Lal Estate and has steadily been making improvements there since then. From 1981 to 2000 we were flying from leased private land in Bowes Road Ross Creek. Some people might remember us from the Bowes Road field.

BRMFC is affiliated with the VMAA (*Victorian Model Aeronautical Association*) which in turn is a member of the MAAA (*Model Aeronautical Association of Australia*). These state and national bodies give aeromodellers a collective voice and a channel to the Civil Aviation Safety Authority.

Visitors are always welcome at our flying field particularly on a Saturday afternoon or Sunday morning where the models will range from trainers for beginner pilots to scale and aerobatic aircraft for the more experienced.

Anyone interested in radio controlled models is invited to visit the club at the field and arrange to have a trial flight for themselves. Your local model shop will give you good advice and provide a contact name and phone number of a club member who will be able to provide assistance.

What do we do?

The main aim of the club is to create interest in aviation in general and radio controlled models in particular, and to promote friendship and fellowship between the members. It is an excellent activity for the young and not so young.

The Club holds meetings at the flying field on the 4th Wednesday of each month commencing at 7:30PM where members discuss models, building techniques etc, and of course deal with the usual business that confronts all clubs. In addition the club hosts annual flying days with other clubs and visits other clubs on a regular basis. We hold an annual display on the first Sunday in April of each year, which is open to the public.

Club members are able to provide an abundance of information about the hobby and we welcome all new members. Importantly, learning to fly costs nothing but time and patience, once the modeler is equipped with an aircraft and radio gear. Being a member of a club provides the modeler with a place to fly, companionship and insurance cover should the model inadvertently get out of control and cause property damage or personal injury.

Frequency Key Usage

All radio control transmitters operate on a specific frequency. This frequency is found marked on the back of the transmitter or on the crystals in the transmitter and receiver. There are only three legal frequency bands used in Australia for the control of model aircraft, they are 29 MHz, 36 MHz, and 40 MHz. 27 MHz is not recommended but some frequencies can be used to control small electric powered models. These frequencies are divided into many channels, which can be seen on the frequency list below. For example 36.250 MHz & Ch 625. If your frequency is not on this list it is not legal and must **NOT** to be used. **36MHz** is the preferred frequency band because it is dedicated to model aircraft and boats. 2.4 GHz sets are now becoming popular. See the MAAA web site http://www.maaa.asn.au/mop.html (MOP 058).for more info regarding their use.

In your joining starter pack you will find a plastic key which you must use at all times at the flying field. Prior to using your equipment you will need to write or dyno label your name and frequency on it. At any VMAA registered flying field there will be a frequency board for you to use before turning on your transmitter. It is necessary for you to find out if there are any other people using your frequency on the day of your flying. One important thing to remember is, if two transmitters on the same frequency are on at the same time it is possible for the flying model to be shot down out of control.

REMEMBER: place your frequency key in the correct slot in the frequency board prior to turning on your transmitter (even for testing your equipment) THE KEY SYSTEM MUST BE USED AT ALL TIMES. You will be fully instructed on this system by your flight instructor.

Your flight instructor will discuss care and maintenance, and battery charging of your system. Our radio control systems are all electrical components, which require regular servicing. Transmitters must be certified at least once, by an agent registered with the VMAA. Your club members will know who they are. For safety reasons it is also recommended sets be serviced annually or earlier if the model is crashed or equipment is dropped. This equipment is very complex, and under no circumstances should any repairs or modifications, be carried out by unqualified persons. Ask your local hobby shop or fellow club member for the names of qualified service technicians. If you fly at other club fields you may need to have your transmitter checked on a regular basis depending on their club rules.

These are the frequencies approved by the Department of Communications for the radio control of model aircraft. Radio control equipment on other frequencies should be converted to one of the frequencies listed below.

National and state associations, and many clubs, require that radio equipment to be used in competition, for displays and at club flying fields should be checked and certified at regular intervals.

BRMFC requires that transmitters be certified once only in accordance with the current MAAA recommendation. See Safety Rule 12. For authoritive reference, check the MAAA web site http://www.maaa.asn.au/mop.html - frequency directive.

29MHz

Channel No	Tx	No.	Tx
10 [FM only]	29.725	24	29.865
11 *	29.735	25	29.875
12 *	29.745	26	29.885
13 *	29.755	27	29.895
14 *	29.765	28	29.905
15 *	29.775	29	29.915
16 *	29.785	30	29.925
17 *	29.795	31	29.935
18 *	29.805	32	29.945
19	29.815	33	29.955
20	29.825	34	29.965
21	29.835	35	29.975
22	29.845	36	29.985
23	29.855		

37 to 49 reserved

[*Recommend FM only]

36MHz

Channel	Freq.	Channel	Freq.
601	36.010	629	36.290
603	36.030	631	36.310
605	36.050	633	36.330
607	36.070	635	36.350
609	36.090	637	36.370
611	36.110	639	36.390
613	36.130	641	36.410
615	36.150	643	36.430
617	36.170	645	36.450
619	36.190	647	36.470
621	36.210	649	36.490
623	36.230	651	36.510
625	36.250	653	36.530
627	36.270	655	36.550

Importers and manufacturers choose to make equipment on these frequencies available first.

27MHz

Channel	Frequency
1	26.995
2	27.045
3	27.095
4	27.145
5	27.195

MAAA approval on 27MHz is for these frequencies only and is for electric powered model aircraft weighing no more than 500g and having a power source of no more than 9volts. High powered CB radios operated in close proximity may still affect these frequencies.

40MHz

Channel	Frequency
50	40.665
51 [not recommended]	40.675
52 [not recommended]	40.685
53	40.695

Channels 51 and 52 are subject to interference from paging systems and from children's toys and walkie-talkies on 40.680 MHz.

House Keeping

To help maintain our excellent facilities it would be appreciated if the following guidelines are observed. It must be remembered that we lease the land off the landowners and as such we are required to keep it neat and tidy. We do not have exclusive use of the paddock so we have to share with grazing sheep. The only draw back in that respect is the sheep droppings on the runway – something we have to live with.

1. Entrance gate is to be kept closed at all times after entry/exit. The last person to leave the flying field is to ensure that the gate is padlocked – you will need your key.
2. Also on leaving, the last person is to:
   a. Take down windsock pole and store in shed. Do same for keyboard.
   b. Lock garage shed and place roller door key in kitchen in a prominent place.
   c. Make sure stove burners are turned off and gas isolation valve beneath stove top is also turned off (handle is vertical when off)
   d. Make sure windows are closed securely.
   e. Make sure lids on coffee, sugar etc otherwise brings ants.
   f. Lock the kitchen door with padlock – you will need your key.
   g. Make sure the three (3) gates to the compound are closed and chained (where chains are fitted). This is to keep the sheep out. Toilet door should also be kept closed.
3. Keep kitchen area tidy, wash cups and hang up on hooks
4. No food or food scraps to be left in kitchen or shed – Only brings mice and ants.
5. Drinks are for sale to members at $1 per can. Honour system is in place so put money in tin located on bench in kitchen.
6. Smokers are to use area under bus shelter and place butts in sand bucket. Cigarette butts **must not** be littered around property – owners are very strict about this. All smokers should pick up butts (cigarette butts that is!!!) if they see them lying on the ground.
7. Make sure rubbish bin lids are in place so rubbish can not blow around the property. Members are also encouraged to take their rubbish home with them where practicable. (Bins only have to be emptied by someone and it costs money.)

Working bee held on 4th February 2006

Field Maintenance

We have a field maintenance officer position on the committee. The incumbent is responsible for the general maintenance of the field and equipment. He delegates members as required to perform such tasks as mowing the field and also organizes working bees to assist with specific projects. If you have skills that can be used please have a word with the field maintenance officer.

Bronze/Gold Wings

The MAAA/VMAA have a bronze/gold wings rating system which is primarily to encourage members to reach a safe standard of flying: Raising the standard of pilot proficiency means less incidents, which in turn leads to lower insurance and a better overall modelling experience.

The club supports and encourages members to attain their bronze then gold wing ratings. The forms (PDF files) which describe what you must do to achieve the ratings can be found on the MAAA web page http://www.maaa.asn.au/mop.html

Flight Instructors

The club has several instructors who are able to teach new members to fly. Instructors take all due care to ensure that flight tuition is undertaken in a safe manner. That includes the personal safety of all people at the field (and outside the field for that matter), property such as motor vehicles and of course the model itself.

As you undoubtedly can appreciate, with all things created by humans and under human control there is the possibility of something going wrong. We must all be aware that if there is an incident/accident that results in a claim on the MAAA insurance policy then the member is responsible for the first $250 (2005/6). The club decided at the general meeting held on February 22nd 2006 that it would cover certified instructors for the $250 whilst training a student. The following scenario was in the MAAA newsletter No. 1/2006 and the MAAA advised that clubs adopt a policy to cover this situation.

Possible Scenario: Student is under instruction and gets into difficulties and hands transmitter to the instructor who struggles to regain control but fails to. The model crashes into the side of a vehicle in the car park and causes significant damage.

A claim will be made on the MAAA insurance policy. There is a $250 (2005/6) excess payable by the modeler but who pays? The student claims the instructor was in control of the model therefore he should pay. The instructor claims that he was just helping out and should not be responsible for the $250 as it was not his model. The MAAA covers the next $4750, from then on the insurance company pays.

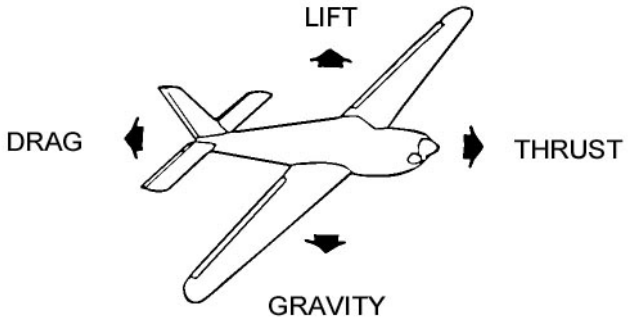
This scenario was discussed at some length during the February 2006 meeting and it was decided that in the event of a claim while a student is under instruction by a club certified instructor (normally MAAA instructor) that the club will cover the $250 excess. It was felt that it would be difficult to get members to teach if they are going to be liable for this type of situation. This does not mean that the club is indemnifying the instructor or student because a serious claim involving personal injury would be decided by a court of law.

An Introduction to Aerodynamics

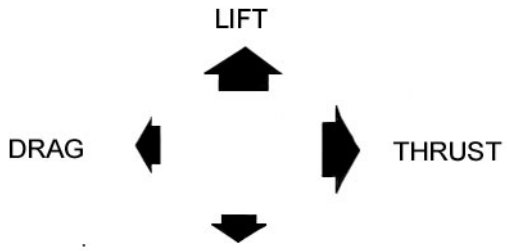
Flight is impossible without the use of some form of energy. For example, a hot-air balloon needs energy to heat the air trapped inside it. Some form of energy supply is also needed to enable fixed wing aircraft to gain height. This can be an energy supply to an engine or the sun's energy working directly on the air surrounding us giving wind movements and thermal activity (rising hot air currents).

Model aeroplanes and full-size aircraft use the same scientific principles to achieve and maintain flight. Before we can understand how any of them can fly we must first understand the FOUR FORCES that work on every aeroplane. In the following discussion we will refer to a standard type of single engine propeller driven aeroplane such as can be seen anywhere in the country.

The Four Forces

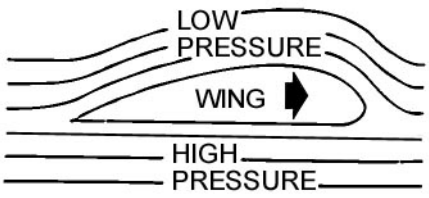


Lift	The energy of the air flowing over the top and bottom surfaces of the wing creates LIFT which keeps the aeroplane UP.
Thrust	The power of the engine and the (pulling power) of the propeller create THRUST, which propels the aeroplane FORWARD.
Gravity	The mass of the aeroplane is acted upon by GRAVITY which pulls the aeroplane DOWN towards the earth's surface, We call this the WEIGHT of the aeroplane.
Drag	The displacement of air by the aeroplane's wings and body plus the friction of the air as it flows over those surfaces causes DRAG which holds the aeroplane BACK.



It is relatively easy to see how most of these forces work and interact. For example, the more streamlined an aeroplane is the less DRAG it will have and the less THRUST it will need for the same speed. The lighter the WEIGHT of the aeroplane the less LIFT will be needed to keep it flying.

We can see how the engine and propeller THRUST can overcome the force of DRAG but how can the force of LIFT overcome the force of GRAVITY?

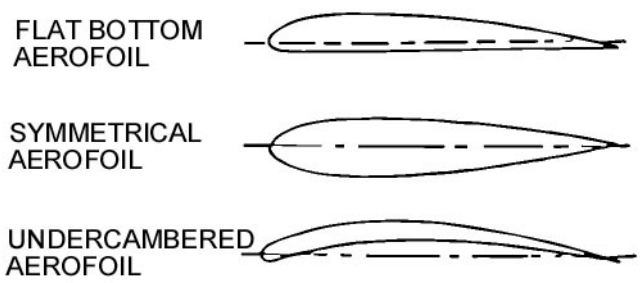


CROSS-SECTION OF WING WITH FLAT BOTTOM AEROFOIL

When the wings of an aeroplane are propelled through air (by the thrust of the engine and propeller), they create LIFT. This **LIFT** is caused by a ***bulge*** in the flow of air which occurs when the air is forced, by the shape of the wing to flow faster over the top surface of the wing than it does over the bottom surface.

This creates a PRESSURE DIFFERENCE between the top and bottom surfaces of the wing with the low pressure above and the high pressure below

Bernoulli's Principle tells us that the air pressure will decrease as the speed of the air increases.



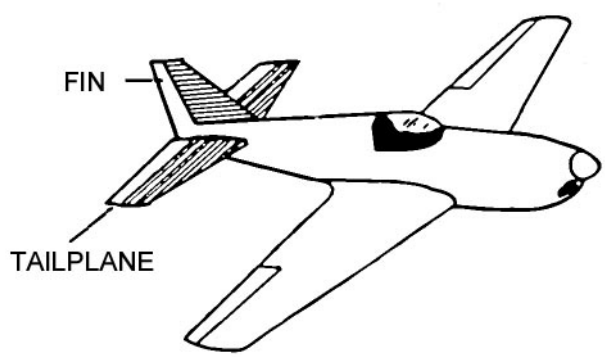
The special shape of a wing is called an **AEROFOIL**. There are many different aerofoils which create LIFT, but the shape of the aerofoil will also affect the DRAG.

Thick curved aerofoils usually give the best lift but they can also give high drag and an aircraft designer must pay great attention to the choice of aerofoil for his creation; model or full-size.

The Importance of Control

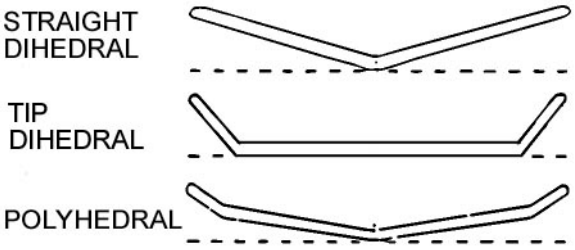
So far we have discussed the forces which keep an aeroplane UP in the air and moving FORWARD. We will now consider how to control the aircraft so that it is STABLE in its forward flight and capable of making controlled banks, turns and circles. The control surfaces of an aircraft allow these types of controlled movements.

Stability



VERTICAL and HORIZONTAL CONTROL SURFACES are important to the STABILITY of the aircraft. These surfaces at the tail of the aircraft act like the feathers on an arrow to keep the nose pointed in the direction of travel. They also keep the wing at the correct angle to the air stream so that it develops enough LIFT to support the weight of the aircraft .in flight. (See angle of attack in Glossary).

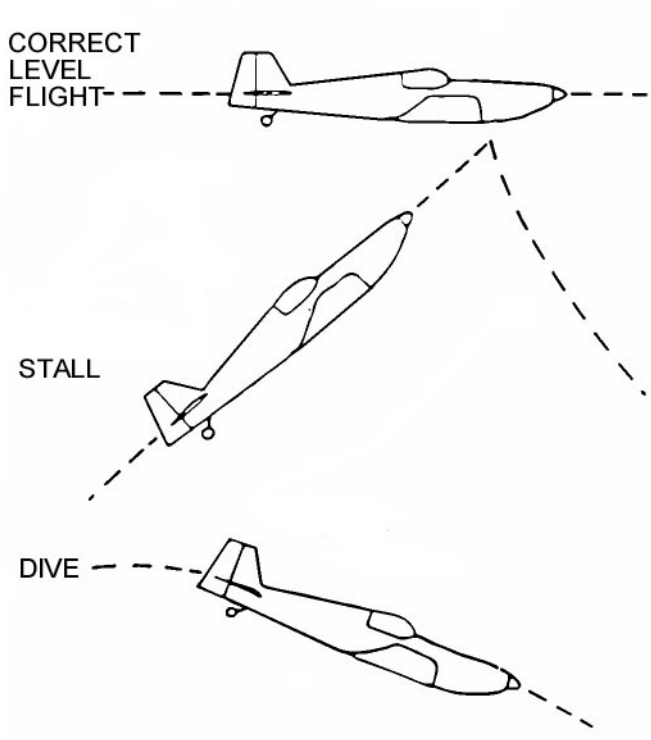
Both the **FIN** and the **TAILPLANE** on an aircraft help to make it stable in flight.



Another factor that increases the stability of an aeroplane is the **DIHEDRAL** of the wings. Dihedral is the angle at which the wings are inclined upwards when the aeroplane is viewed head on.

A horizontal line (shown dashed) is included in these illustrations so that the variations in dihedral in these examples may be clearly seen.

Centre of Gravity



The **CENTRE OF GRAVITY**, usually written as **CG**, is the point at which the aircraft balances and it is also the point about which the aircraft naturally PITCHES, ROLLS and YAWS (see next page).

The position of the CG is very important for the stability of the aeroplane. For good flight stability, most aircraft need it to be about half way between the centre and the front of the wing (the leading edge) and the designer of full-size aircraft will make sure of this by careful placing of such heavy items as the engine, passengers and fuel tanks.

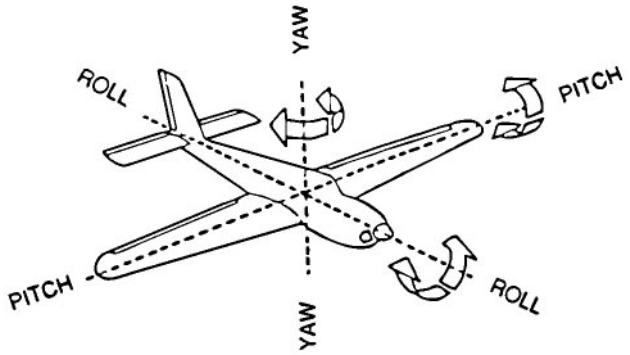
The model aeroplane designer must also be aware of the importance of the CG to his model's stability but as shown below, most model aeroplanes may be trimmed for correct level flight by small adjustments to the CG

If the CG is too far to the rear, the aeroplane will STALL in flight.

To correct this, add a little weight to the nose.

If the CG is too far forward, the aeroplane will DIVE.

To correct this, add a little weight to the tail.



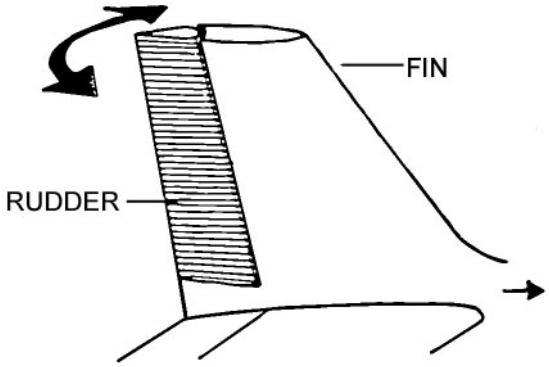
Because aeroplanes are often in a position where ***up*** and ***down*** are meaningless words, there are three special terms used to describe an aircraft's movements; YAW, PITCH and ROLL.

YAW movements to the left or right.

PITCH movements up or down.

ROLL bank (lean) to the left or right.

The illustration shows the axis round which each of these three movements takes place.

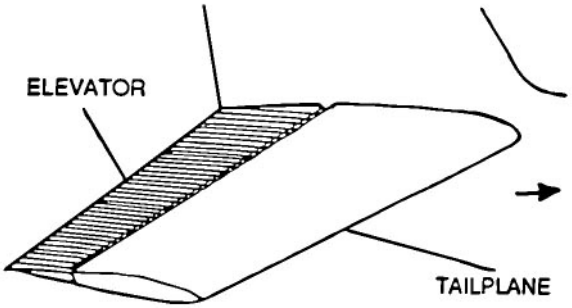


A closer look at the FIN

The RUDDER is the moveable part of the vertical stabilising surface or FIN. It can be pivoted left or right to move the nose of the aircraft left or right on the YAW axis.

When the rudder moves to the left, the tail moves to the right and the nose moves to the left.

When the rudder moves to the right, the tail moves to the left and the nose moves to the right

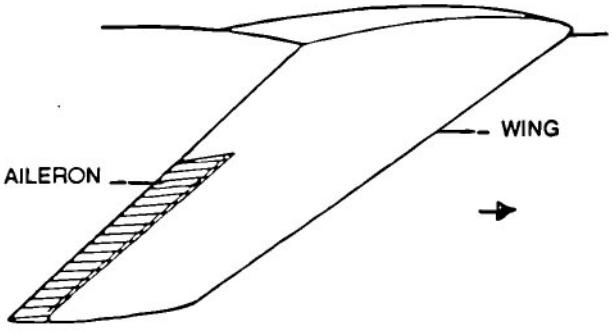


A closer look at the TAILPLANE

The ELEVATOR is the moveable part on the TAILPLANE. The elevator can be pivoted up or down to move the nose of the aeroplane up or down on the PITCH axis.

When the elevator moves up, the tail of the aircraft moves down and the nose moves up.

When the elevator moves down, the tail of the aircraft moves up and the nose moves down.



A closer look at the WING

The AILERON is the moveable part towards the tip of the wing on each WING of an aircraft. It can be pivoted up or down to control the BANK of the aeroplane on the ROLL axis.

There is an aileron on each wing and they work together, moving in opposite directions, to achieve banks or rolls.

Looking from the rear, when the left aileron goes up the right one goes down, giving anti-clockwise bank or roll and vice versa.

Looking from the rear, when the left aileron goes down the right one goes up, giving clockwise bank or roll.

M.A.A.A. Insurance Policies.

Being an affiliate member of the M.A.A.A. you are covered by four different insurance policies. These being;

1. Third Party Public Liability
2. Personal Accident
3. Directors and Officers Holders Policy
4. Professional Indemnity

The policies as noted above, are taken out in the name of the M.A.A.A. and are part of your V.M.A.A./M.A.A.A. fee.

It should be noted that when you join a Club, which is affiliated to the V.M.A.A., as soon as the Club accepts your money, you are covered by the insurance policies.

Third Party Public Liability

There is no age limitation to this policy. It has a cover of **$20,000,000*** with an excess of **$1000*** for property claims. There is no excess in the case of claims involving personal injury. The M.A.A.A. Council has decided that the person making the claim is responsible for the first **$250*** of the excess and the M.A.A.A. will pay the remaining **$750***. This means, if you are unfortunate enough to make a claim you will have to pay up **$250***. The M.A.A.A. and the insurance company will then pay the remainder of the claim.

In general, this policy covers all third party aspects. These can best be described as damage caused to any person or property as a result of the operation of a model aircraft This includes damage to another person's vehicle, buildings etc. It should be noted that the policy does not cover damage by your model to your own property.

The policy also provides third party liability cover for the Club.

This includes claims for damage against the club by persons visiting the club facilities. It also includes cover for catering provided all State catering regulations are abided by. Claims resulting from injury caused by playground equipment on the club grounds is also covered, however the equipment should comply with the State requirements and be properly maintained.

If a Club organizes a public display the policy will cover the third party aspects of this function. In the case of Radio Control Clubs a public display permit would be required to ensure the policy is applicable.

The policy also covers the member's equipment and covers damage caused by the work being done whilst working on the club facilities. This could include damage to a members lawn mower or other equipment whilst attending a working bee.

Personal Accident.

This provides personal accident coverage for affiliate members under the age of 80 years;

1. Competing in competitions and championships and other activities organised and under the control of the insured.
2. Acting as an official at competitions and championships organised and under the control of the insured.
3. Acting as an elected official of the insured.
4. Engaged in volunteer activities organised and under the control of the insured including direct travel to and from such activities.
5. Travelling directly to or from activities described in 1 to 4 above.

Officially organised would mean the M.A.A.A. and associated clubs having sanctioned the events. This would include training, testing and activities at the club / fields. It should be noted that the coverage does not cover your activities with model aircraft at home.

The policy also provides for salary maintenance for salary earners. It provides 80% of net wages up to a maximum of $500 per week for a maximum of two years. It also pays 80% of the non-Medicare medical expenses to a maximum of $4,000 for each claim. There are also stipulated maximum amounts for loss of sight, hearing, limbs etc.

The policy has an excess of $50 and Seven days in the case of salary maintenance.

It should be noted that the policy does not cover the medical fee "gap". That is the difference between the Medicare rebate and the fee charged by a medical practitioner. It is illegal to have insurance to cover this.

Directors & Office Holders Policy.

This policy covers the legal expenses of the Club or Association and its officials in the event of them being subjected to legal action as a result of their position. It should be noted that the club officials should exercise due care and with regard to State and Federal laws in carrying out their duties as directors.

As in all other cases if the Club Executive believes that there is a possibility that they will be involved in legal action they should contact the M.A.A.A. Secretary as soon as possible.

The excess on each and every claim is Nil for directors and Officers Liability and $2,000 for Corporate Reimbursement.

Officers Liability and $2,000 for Corporate Reimbursement.

Professional Indemnity

This policy covers Inspectors, Club Officials, Instructors for advice that they may give in regards to model aviation. It is also possible that Professional Instructors, who are members of the M.A.A.A. to be listed on the policy for their activities as a profession instructor of model aviation. For a member to be listed as a Professional/Paid instructor they must hold the M.A.A.A. Instructor Rating, have the recommendation of their State Association and permission from their club/s to conduct paid instruction at their field/s.

The excess on each and every claim is $2,000.

What to do in the Event of a Claim

The M.A.A.A. Manual of Procedures includes a procedure "Accident / Incident Reporting and Actions Procedure" which details the process that should be followed in the event of an injury and/or possible insurance claim. A copy of the procedure is available on the M.A.A.A. web site or from the M.A.A.A. or State Association Secretary.

It is important that all possible claims are reported as soon as possible. Please ensure that witnesses are recorded and statements taken. It is hard to chase up everyone after the event.

Please note that every incident/accident should be thoroughly investigated and "closed out" in accordance to the requirements of the procedure. The importance of reducing accidents is vital to our organization. We do not like to see fellow members injured and it also adds greatly to our costs. Please do your bit and be very vigilant with the aim of no accidents.

As I (MAAA President) have noted many times, the meeting of prop and fingers still seems to be a favourite trick for many of us. Although it sounds a bit of lark the injuries sustained by some are very severe. Some members have lost fingers and others the full use of them. Please be careful around props and use effective aircraft restraints when starting. Most important of all, do not reach over a turning prop, go behind to release the glow plug and make adjustments. Safety is a continuing thought process.

Re-printed from MAAA newsletter 5/2003
The figures and conditions may change as insurance is renegotiated each year.
Figures as at May 2003.

To get up to date MAAA policies, forms etc go to web page http://www.maaa.asn.au/mop.html

CIVIL AVIATION AUTHORITY – Rules Governing Model Aircraft

COMMONWEALTH OF AUSTRALIA

CIVIL AVIATION AUTHORITY AIR NAVIGATION ORDERS – SECTION 95.21

1. APPLICABILITY

This section of Air Navigation Orders applies to untethered model aircraft,

2. DEFINITIONS

'Association' means the Model Aeronautical Association of Australia (MAAA) or an affiliated club, society or association.

'Director' means a Director of a Region of the Department of Aviation.

'Manual of Procedures' means a manual approved by the Secretary which contains the inspection and certification procedures to be used for the issue of Permits to Fly, check- lists for pre-flight inspections of model aircraft and such other information as the Secretary directs.

'Model aircraft' means an aircraft not designed or capable of accommodating a person, the flight of which may be either uncontrolled or remotely controlled.

'Model aircraft flying area' means an area approved by a Director in which model aircraft may be flown to heights in excess of 300 feet above terrain.

'Model aircraft flying display' means any organised display of flying by model aircraft performed before a public gathering which has been invited by the organiser to assemble to witness the organised flying by model aircraft.

'Permit to Fly' means the permit, issued by the Association in accordance with the conditions specified in a Manual of Procedures, authorising flights by a particular model aircraft.

'Secretary' means Secretary of the Department of Aviation.

3. EXEMPTIONS

In pursuance of the powers vested in the Secretary by regulation 329A of the Air Navigation Regulations, and subject to the conditions specified in this Section of Air Navigation Orders, model aircraft are exempt from compliance with the provisions of Parts III, IV, V, VII, IX, XI, XII, XIII and XV1 of the Regulations.

4. CONDITIONS

4.1. A model aircraft shall not be flown
   (a) unless visibility permits continuous visual contact by the operator with the aircraft; or
   (b) in cloud.

4.2. A model aircraft shall not, without the written approval of the appropriate Director be flown:
   (a) within four kilometres of the boundary of an aerodrome established or licensed under the Air Navigation Regulations, or a military aerodrome;
   (b) within an area that has been designated by the Secretary as a restricted or prohibited area;
   (c) within thirty metres horizontally or at any height over any group of people or occupied building; and
   (d) at a height exceeding 300 feet above terrain unless the flight takes place within the confines of a model aircraft flying area.

4.3. In addition to the conditions specified in sub-paragraph 4.1 above, a model aircraft having a maximum weight in excess of **seven kilograms**, but not exceeding **twenty five kilograms**, shall not be flown unless the operator is the holder of a valid Permit to Fly for that particular model aircraft, issued by the Association in accordance with the Manual of Procedures.

4.4. A model aircraft having a maximum weight in excess of **twenty five kilograms** shall not be flown unless the operator is the holder of a valid Permit to Fly for that particular aircraft, and obtains written permission from the appropriate Director, and such flights, as authorised, are conducted in accordance with such conditions as the Director may specify.

5. MODEL AIRCRAFT FLYING DISPLAYS

5.1. A flying display of model aircraft shall be conducted in accordance with requirements of this Part of Air Navigation Orders and such other conditions as may be specified by the appropriate Director.

5.2. A model aircraft flying display shall not be conducted unless a person has nominated to the appropriate Director as its organiser.

5.3. A model aircraft flying display shall not be conducted unless its organiser notified the appropriate Director of proposals for same in writing at least twenty-eight days prior to the date of commencement of the display, and the notification shall contain a detailed description of the proposed flying events, location and dimensions of the proposed flying display area and disposition of spectators.

5.4. The organiser of a model aircraft flying display shall ensure that:
   (a) having regard to the nature of events during the display, adequate protection is provided for the safety of members of the public; and
   (b) all participating pilots are competent to safely carry out the flying manoeuvres required of them.

Note: Attention is directed to the fact that the exemptions granted by this Section do not confer an operator of a model aircraft to which this Section applies any rights against the owner or occupier of any land on or over which the operations are conducted or prejudice in any way the rights and remedies which a person may have in respect to any injury to persons or damage to property caused directly or indirectly by the model aircraft.

Learning to fly

If you have not yet mastered the art of flying a radio controlled model aircraft you will need to be taught. Once you have your aircraft ready to fly, contact one of the flight instructors and organize a time to bring it out to the field. The instructor will check the aircraft for airworthiness and run through the Frequency Keyboard procedure.

How long will it take to learn?

The truth for the beginner is this:

A model aircraft is a difficult contraption to learn to fly. The main problem lies in something called orientation. With a full sized aircraft, a pilot's left and right always remains in the same direction as the aircraft's left and right. The same is true of a model when it is flying away from the pilot.

However, when the model completes a 180-degree turn and flies back towards the pilot, some of the controls are reversed. If a pilot pushes the stick to his left, the model will turn towards his right! There is no fast or easy way to learn how to fly, it is a skill that cannot be begged, borrowed, or stolen, only practice will make perfect. No set time can be allowed for learning to fly. Everyone learns at a different rate. Children generally learn to fly much faster than adults. As a general guide from the experience of many people who have learned in the past, if you practice for say four flights on one day of each week, allow no less than six weeks to fly solo. Or in case of those who cannot devote the time, as much as twelve months or more.

Glossary of Terms

AERODYNAMICS The science or study of the forces acting on an aircraft in motion.

AEROFOIL The cross-section shape of a wing taken at right angles to the wing span: also known as the wing section or rib section.

ANGLE OF ATTACK The angle at which a wing strikes the air stream.

ANGLE OF INCIDENCE Angle of the wing in relation to an arbitrary line fore and aft in the fuselage.

ASPECT RATIO The relationship of the wing span to the wing chord, expressed numerically by the number of times the span can be divided by the chord.

AUTOGIRO An aeroplane that flies by virtue of freewheeling rotating wings set in *windmill* fashion above the fuselage.

BALSA WOOD Very light wood with excellent strength-to-weight ratio. Grown mainly in South America and used extensively in model aeroplane construction. Strangely, balsa is a hard wood.

BANK A turn made in flight with one wing tip lower than the other.

BOOM A wood tube or strip that extends rearward from the wings or from a short fuselage to support the tail surfaces.

BULKHEAD A former within the fuselage used as an internal support for longerons, sheet sides, Stringers and so on.

CAMBER The curvature of the wing or horizontal tail from the leading edge to the trailing edge.

CANARD An aeroplane designed to fly with its tailplane in front of the wing.

CENTRE OF GRAVITY (CG) Or WEIGHT -The Spot where the mass or weight of an aeroplane may be said to centre.

CENTRE OF LIFT (CL) The spot where the lift of a wing (or wings) is said to centre.

CENTRE OF PRESSURE (CP) The point on the upper surface of a wing, relative to the chord, where the lift can be said to centre.

CHORD The width of a wing or tailplane from front (leading edge) to back (trailing edge).

CONSTANT CHORD WING One that has parallel, leading and trailing edges. i.e. has no taper.

CONTROL-LINE FLYING A method of flying a model aircraft by means of two thin wires connecting the model to a control handle held by the pilot, the model flying in a circular path

COWLING A specially shaped nose to enclose an engine.

DECALAGE The difference between the angles of incidence of the wing and tailplane.

DIHEDRAL The up tilt of wing panels toward the tips, for purposes of stability.

DOUBLER A second sheet of material fixed inside the main fuselage side sheets on each side, for added strength.

DOUBLE-SURFACE WING A wing which is covered on both top and bottom with paper, Cloth, or other material.

DOWNTHRUST The slight tilting down of the engine or propeller, thrust line, to exert a slight downward pull under pressure.

DRAG A force acting on an aeroplane resisting its movement through the air.

ELEVATOR The hinged control section of the horizontal tailplane.

FF Free Flight.

FILLET A rounded contour used at the junction of vertical and horizontal surfaces on an aeroplane, to reduce wind resistance.

FIN The fixed forward portion of the vertical tail surfaces.

FIREWALL A strong bulkhead immediately behind the engine on a powered aeroplane.

FLAPS Hinged surfaces attached to the trailing edge of a wing, either to increase manoeuvrability (as on a control line aerobatic model) or to increase lift at the expense of drag (as on most full size aircraft and some radio control aeroplanes).

FLYING BOAT An aeroplane with a fuselage shaped like a boat. for operation off water.

FLYING SCALE MODEL A flyable miniature of a manned aeroplane.

FORMER See Bulkhead.

FUSELAGE The body of an aeroplane.

GEODETIC A latticework or basket-weave construction.

GLIDER A highly efficient engineless aeroplane, capable of flying for long periods in gently rising air currents (thermals).

GUSSET Small strengtheners fixed at points of high stress in an aircraft's structure.

HAND-LAUNCH (HL) To start a model in flight by releasing it or throwing it from the hand.

HELICOPTER An aircraft that can rise or descend vertically by means of large overhead power-driven rotor or rotors.

INDUCED DRAG Resistance of a wing to forward movement due to disturbance of the surrounding air and related to the lift produced by the wing.

JIG A fixture or form for holding parts together for assembly.

LANDING GEAR See Undercarriage.
LEADING EDGE The front or entering edge of a wing or tail.
LIFT COEFFICIENT An indication of the relative lift of an aerofoil.
LIFT-DRAG RATIO The relation of total lift to total drag of an aerofoil, expressed as a mathematical proportion. EG 6 to 1, 15 to 1 and so on.
LONGERONS The main fore and aft load bearing members in a fuselage structure

MOMENT ARM The distance from the centre of gravity at which a force is applied. EG. Distance between the CG and nose or CG and tail.
MONOCOQUE A form of fuselage construction with rounded exterior and very little Internal structure in which the skin carries virtually all stresses.
MOTOR BEARER Hardwood strip mount for model aeroplane engines.
MOTOR STICK A strong strip used to support the rubber motor; the body of stick-type models
NOSE PLUG A shaped wooden block used to support the propeller bearing in many rubber powered models.

ORNITHOPTER An aeroplane that flies by flapping its wings like a bird.

PARASITIC DRAG Resistance to forward aeroplane movement caused by any non-lifting components of the aeroplane.
PARASOL An aeroplane in which the wing is mounted above the fuselage on struts.
PITCH The theoretical distance travelled forward by a propeller in one revolution.
PITCH-DIAMETER RATIO The relation between the propeller pitch and diameter, expressed as a mathematical proportion. EG. as 1.5 to 1, and so on.
PITCH STABILITY Stability of an aeroplane in climb and dive.
PLANFORM The outline of wing or tail plane when viewed from above.
PLYWOOD Sheet wood made by glueing together two or more very thin layers of wood with the grain of adjacent layers at right angles.
POD A short streamlined fuselage fitted with a boom to support the tail surfaces.
POLYHEDRAL A modification of dihedral, wherein the different panels of a wing are tilted upward at varying angles.
PROPELLER An airscrew that pushes air backwards as it rotates, thus pulling the aeroplane forwards.

R/C Radio Control.
RESISTANCE Air drag, or the opposition of the air to being displaced by the forward movement of an aeroplane.
RIB SECTION The cross-section shape of a wing, from leading to trailing edge.
RISE-OFF-GROUND (ROG) A model that will take off under its own power.
RUDDER The moving part of the vertical tail surface of an aeroplane.

SAILPLANE See glider.
SERVO A motor-driven device for moving controls of a radio controlled aeroplane.
SIDE THRUST Offsetting the propeller thrust line, so there is a slight sideways pull.
SINGLE-SURFACE WING A wing formed from a single sheet of balsa, or one that has a framework covered only on the top.
SLIPSTREAM The column of air pushed rearward by a rotating propeller; it always moves faster than the aeroplane itself.
SOLID MODEL A non-flying model formed from solid pieces of wood or plastic.
SPARS Spanwise load-carrying members of a wing or tail.
SPIRAL DIVE An ever-tightening downward corkscrew flying path.
SPIRAL STABILITY The characteristic of an aeroplane that permits high-speed banked turns without diving to the ground.
STABILITY The tendency of an aeroplane to return to level flight, after having been disturbed by an upsetting force.
STALL The complete loss of lift resulting from too steep an angle of attack.
STALLING ANGLE The particular angle at which a wing abruptly loses lift; usually expressed in degrees.
STREAMLINED The shape of the exposed contours of an aeroplane for the least possible air drag; usually rounded in front, pointed at the rear.

STRINGER Light, lengthwise fuselage members intended more to give the desired shape than to add strength.

SWEEPBACK The angling back of the wings from the centre, to increase directional stability or reduce drag at high speed.

TAB A small adjustable surface on wing or tail surfaces, used to make small trim changes.

TAIL The surfaces at the rear of a conventional aeroplane fuselage.

TAILPLANE The fixed horizontal tail surface.

TEMPLATE A stiff pattern, for marking the outlines of pieces to be cut from sheet wood or metal.

THERMAL A rising column of relatively warm air.

THRUST The propulsive force developed by a driven propeller or jet engine.

THRUST LINE An imaginary line drawn along the propeller shaft and extending rearward through the aeroplane.

TIP LOSS Reduction in lift near the tips of wings, due to the leakage of the high-pressure air from beneath, to the low-pressure area above.

TORQUE The reactive force generated by a revolving propeller that tends to rotate the aeroplane in a direction opposite to the direction of the propeller rotation.

TOWLINE The launching cord used for pulling aloft a glider or sail plane.

TRAILING EDGE The rear edge of a wing or tail surface.

UNDERCAMBER The concave curve on the underside of some aerofoils.

UNDERCARRIAGE The wheel and strut assembly that supports an aeroplane at rest on the ground and during take-off and landing.

VORTICES Twisting air disturbances resulting from the movement of a wing through the air.

WASHIN Twist incorporated in wing tips to raise the leading edge.

WASHOUT Twist incorporated in wing tips to raise the trailing edge.

WING The principal supporting surface of an aeroplane.

WING SECTION AIRFOIL, RIB SECTION. The chord wise cross section of a wing.

ZOOM An abrupt and steep climb.

BALLARAT RADIO MODEL FLYING CLUB Inc.

Inc. No. A0001288M

Model Aircraft Airworthiness Check

Name: ……. *Date:* / /
Address: …….
…….

Model Type: Trainer ❑ Sport ❑ Pattern ❑ Scale ❑ Glider ❑
Engine Size: ……..
Radio Used: …….. Certification Date: / / Frequency: ……..
Mode: 1 ❑ 2 ❑

	Pass	Fail
Covering – General		
No loose edges	❑	❑
Taut all over	❑	❑
Splits or tears	❑	❑
Engine & Mount		
Screws tight	❑	❑
Propeller		
Nut tight	❑	❑
No nicks/sharp edges	❑	❑
Spinner runs true	❑	❑
Undercarriage		
Fixing tight	❑	❑
Wheel retainers secure	❑	❑
Steering adequate	❑	❑
Airframe Structure		
Wings straight & true	❑	❑
Tail surfaces straight & true	❑	❑
Fin & rudder straight & true	❑	❑
Wing fastening adequate	❑	❑
Balance point (CG)	❑	❑
Receiver & Battery		
Packed in foam	❑	❑
Firmly located	❑	❑
Plugs correctly & fully inserted	❑	❑
Leads clear of all linkages	❑	❑
All batteries fully charged	❑	❑
Aerial not coiled in fuselage	❑	❑
Welded Nicads in flight pack	❑	❑
Servos		
Rails or tray firmly mounted		
Servos securely mounted	❑	❑
Servo wheels/arms secure	❑	❑
Servos do not stall (no binding)	❑	❑
Linkages		
All quick links firmly closed	❑	❑
Soldered joints adequate	❑	❑
Fuel Tank		
Adequate capacity for engine	❑	❑
Located in correct position	❑	❑
Does not leak	❑	❑
Clunk & breather lines correct	❑	❑
Rudder & Steerable Nose/Tail wheel		
Operates in correct direction	❑	❑
Adequate throw	❑	❑
Does not bind	❑	❑
No excess slack	❑	❑
Elevator		
Operates in correct direction	❑	❑
Adequate throw	❑	❑
Does not bind	❑	❑
No excess slack	❑	❑
Ailerons		
Operates in correct direction	❑	❑
Adequate throw	❑	❑
Does not bind	❑	❑
No excess slack	❑	❑
Throttle		
Operates in correct direction	❑	❑
Adequate throw	❑	❑
Does not bind	❑	❑
No excess slack	❑	❑

Safety Rules

1. All flyers are expected to use common sense at all times.

2. No flying is to be done over the pit area, car park, roads and buildings. Flying is to be done in the out-field at all times.

3. All flyers are responsible for the proper use and understanding of the frequency key system. The key board is to be used at all times including operators of 2.4GHz radios.

4. All transmitters, when not in use, shall be switched off.

5. Models and associated equipment are to be kept in the **pit** area when not in use.

6. Motor running in the pit area is to be kept to an absolute minimum.

7. All motors designed to take mufflers are to be fitted with a suitable muffler.

8. All pilots must use the predetermined flight line when flying.

9. No more than **six** models are to be in the air at any one time.

10. No flying is to take place whilst there is maintenance being done to the flying field.

11. No flying to be done on days of Total Fire Ban.

12. All transmitters (Excluding 2.4GHz radios) must be certified at least once with each crystal or synthesized frequency. (Was every two years prior to 19th April 2000).

13. All persons responsible for the operation of a model aircraft must be a financial member of a club affiliated with the MAAA to ensure that they are covered by the MAAA public liability insurance policy.

14. All MAAA policies governing the operation of model aircraft must be adhered to at all times. (ie. heavy model rules.)

BRMFC Committee

The committee is elected at the AGM held in July each year.
To find out the current committee go to http://www.startek.com.au/brmfc/Committee.aspx

BRMFC Flight Instructors

The club has 6 certified flight Instructors. MAAA certified instructor means that the holder has passed the MAAA Gold Wings flight proficiency. These are the members who will teach you to fly and take you to the Bronze Wing standard.
The following club members are MAAA certified Instructors.

Roger Carrigg	(Mode 1)
Glenn White	(Mode 1)
Ken Wilkins	(Mode 1)
Peter Evans	(Mode 1)

The following club members are VMAA certified Instructors.

Max Rowan	(Mode 2)
Murri Anstis	(Mode 1)

Flying Field Location

BRMFC's flying field is located in Spreadeagle Road near the Yendon to Egerton Road intersection. The entrance gate is approximately 400m up Spreadeagle Road from the Yendon to Egerton Road intersection. If the gate is closed, close it after you enter. If there are livestock in the paddock the gate must be kept closed at all times.