



Model Aeronautics Association of Canada Safety Code

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CHECK THE MAAC WEB-SITE FOR THE MOST CURRENT VERSION OF THE SAFETY CODE.



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DOCUMENT REVISION LOG

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003	Add Approved Date, Correct Spelling, and Formatting Error.	Safety Chairman	SEPT. 25, 2004
004	Add Board Approved Recommendations from 2005 AGM	Safety Chairman	JUNE 5, 2005
005	Update fence definition section 4.2	Safety Chairman	SEPT. 19, 2005
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007	Revisions to "All Categories" section 4.1	Safety Chairman	SEPT. 11, 2008
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1 ALL CATEGORIES

When operating any model including, but not limited to, model aircraft, model rocket, model watercraft, model vehicle or other model of a similar nature (collectively referred to as a "Model"), MAAC members shall adhere to the following:

1. I shall not operate a Model in competition or in the presence of spectators until it has been proven airworthy and/or safely operational by a previous successful test.
2. I shall review, understand and abide by the MAAC Safety Code, the specific rules of my special interest category and the safety rules of the flying or other site I use, all as may be amended or modified from time to time. For greater certainty, I understand that where the specific rules or a specific interest category contain easements, enhancements or other like variances from the MAAC Safety Code, such easements, enhancements or other like variances form part of the MAAC Safety Code for all activities of that special interest category, and I shall review, understand and abide by the same;
3. I shall not operate a Model in a careless, reckless and/or dangerous manner or in a manner, at a place and/or in conditions that may pose an unreasonable risk of harm, damage, injury or death to a person or persons and/or property;
4. I shall not operate a Model while under the influence of alcohol or judgment impairing drugs;
5. I shall not operate a Model carrying, or with the intent to activate, Pyrotechnic and/or explosive devices;
6. I shall not launch projectiles from the ground with the intent of damaging or destroying a model aircraft or in a manner that may pose an unreasonable risk of damage or destruction to a model aircraft;
7. I shall not operate a Model over a maximum weight of 35 kilograms including fuel & all liquids;
8. I shall not operate any model aircraft including but not limited to, model rockets, model helicopters or other models of a similar nature ("Model Aircraft"), at a man-carrying piloted aircraft air show;
9. I shall not operate any Model Aircraft at any event that specifically invites the general public to attend without an approved sanction from M.A.A.C. or the appropriate governing body for the country in which the event is being flown;
10. I shall comply with any directives, policies, rules, regulations or information of any nature that may be posted by MAAC from time to time on its website.



2 FREE FLIGHT

When operating any Free Flight model aircraft MAAC members will adhere to the following:

1. I will not launch my model aircraft unless I am at least 45 metres downwind of spectators and automobile parking.
2. I will not fly my models unless the launch area is clear of all persons except my mechanic and officials.
3. I will employ the use of an adequate device in flight to extinguish any fuses on the model after it has completed its function.

3 CONTROL LINE

When operating any Control Line model aircraft MAAC members will adhere to the following:

1. I will subject my complete control line system (including mandatory safety thong) to an inspection and pull test prior to flying.
2. I will use wire sizes and terminations as specified in the MAAC Control Line Competition Rules book.
3. I will assure that my flying area is safely clear of all utility wire or poles.
4. I will assure that my flying area is safely clear of all nonessential participants and spectators before permitting my engine to be started.
5. I will use a safety thong when sport or contest flying. (The only exception being when flight training is being carried out with 1/2A models under the supervision of a qualified pilot.)

4 RADIO CONTROL

4.1 All R/C Categories

When operating any Radio Control model aircraft MAAC members shall adhere to the following:

1. I will complete a successful radio equipment ground range check before the first flight of the day.
2. I will not fly my model aircraft in the presence of spectators until I become a qualified flyer, unless assisted by an experienced R/C Pilot.
3. I will perform my initial turn after take off away from the pit, spectator and parking areas.
4. I will not perform flight of any sort, including aerobatic maneuvers, or landing approaches, over a pit, spectator or parking areas.
5. I will not fly on the pilot station side of the Flight-line (see figure 1).



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6. I will not knowingly operate an R/C system within 4km of a pre-existing R/C aircraft club flying site without a frequency sharing agreement with that club.
7. I will not deliberately fly an aircraft without visual contact. (ie. the aircraft must be kept within "line of sight" of the R/C Pilot).
8. That all powered R/C aircraft, equipped with fail-safe function have it programmed so that the throttle is set to idle. The other controls can be set as the pilot sees fit.

Flight Line – Is a line in any direction that maintains all minimum distances (see fig. 1 Minimum Field Layout Section 4.5)



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4.2 R/C Field Operations

All pilots must be current MAAC or AMA members.

1. R/C Pilot's (**shall**) yield "right of way" of their model aircraft to man carrying piloted aircraft with no exceptions. (**When man-carrying piloted aircraft are in the proximity of model flying operations, launching of models shall cease immediately, and in - flight models shall be landed if feasible or steered well away from the flight path of the full sized aircraft**).
2. Pyrotechnic and explosive devices (**shall**) not be carried or activated by model aircraft.
3. There (**shall**) be no more than five (5) aircraft airborne at any one time at a field unless, operating under rules of a specific discipline (ex. R/C Combat, **and all climb and glide categories**),
4. As a minimum, transmitter frequencies (**shall**) be controlled utilizing a MAAC Frequency Board and pilot frequency pins.
5. MAAC chartered clubs (**shall**) use a wings program to train R/C Pilots.
6. R/C Pilot Instructors :
 - a. **Shall** be highly capable individuals who can provide adequate training.
 - b. **Shall** consistently demonstrate safety by example and attitude.
7. R/C Pilots **shall** announce any intention to take-off, land or move onto the active runway.
8. 2.4 GHz and 27 MHz Radio systems are permitted when used in accordance with manufacturers recommendations and Industry Canada regulations.
9. The permitted transmitter frequencies for R/C aircraft operation are:

<u>Channel</u>	<u>Frequency</u>	<u>Channel</u>	<u>Frequency</u>	<u>Channel</u>	<u>Frequency</u>	<u>Channel</u>	<u>Frequency</u>
	<u>(MHz)</u>		<u>(MHz)</u>		<u>(MHz)</u>		<u>(MHz)</u>
B1	53.100*	11	72.010	28	72.350	45	72.690
B2	53.200*	12	72.030	29	72.370	46	72.710
B3	53.300*	13	72.050	30	72.390	47	72.730
B4	53.400*	14	72.070	31	72.410	48	72.750
B5	53.500*	15	72.090	32	72.430	49	72.770
B6	53.600*	16	72.110	33	72.450	50	72.790
B7	53.700*	17	72.130	34	72.470	51	72.810
B8	53.800*	18	72.150	35	72.490	52	72.830
0	50.800*	19	72.170	36	72.510	53	72.850
1	50.820*	20	72.190	37	72.530	54	72.870
2	50.840*	21	72.210	38	72.550	55	72.890
3	50.860*	22	72.230	39	72.570	56	72.910
4	50.880*	23	72.250	40	72.590	57	72.930
5	50.900*	24	72.270	41	72.610	58	72.950
6	50.920*	25	72.290	42	72.630	59	72.970
7	50.940*	26	72.310	43	72.650	60	72.990
8	50.960*	27	72.330	44	72.670		

*** A valid Amateur Radio Operators License is required to own and operate equipment on the 50 and 53 MHz frequencies. Transmitters shall be used in accordance with Canadian Government regulations.**



4.2 R/C Field Operations (cont'd)

10. R/C flying demonstrations (**shall**) only be done by qualified pilots (as determined by club). The MAAC Safety Code (**shall**) be followed during demonstrations.
11. Aircraft should be operated in areas of the sky where any results from an accident are minimized.
12. All non-flying activities (**shall**) be in an area 30 metres or more from the flight-line. This includes, but is not limited to, spectator and parking areas as well as supervised play areas.
13. A Flight-line will be established seven (7) metres in front of pilot stations.
14. R/C Pilots (**shall**) control their model aircraft from marked Pilot Stations. Take off and landing may be done from the runway if the intention is announced to the other R/C Pilots.
15. Spectators and visitors are permitted in the Pit and Pilot Station areas only under direct supervision of a R/C Pilot.
16. A fence or barrier (eg 1 metre high snow fence) shall be used at Club Affiliate Member registered fields for land operations of powered models where aircraft greater than 1 kilogram in weight are flown. The purpose of the fence/barrier being to protect person(s) at pilot station(s) from being struck by errant aircraft operating on or near the ground (eg. Taxiing, landing, takeoff).
17. At Club Affiliate Member registered fields for land operations of powered models where aircraft greater than 1 kilogram in weight are flown, the pit area shall be a minimum of ten (10) metres from the flight-line. A fence or barrier shall be utilized to prevent errant aircraft from entering the pit area. A single fence/barrier may be used to protect both the pilot station(s) and pit area or separate barriers may be used. Where the pits are more than thirteen (13) metres from the flight line, fence protection of the pits is not mandated.
18. **At club affiliated member registered fields where safety fences are "not" permitted eg. Sod farms, parks and float fly sites. The distance between the flight line and the pilot stations shall be increased to at least 10 metres. The distance between the flight line and the pit area shall be increased to at least 13 metres. All non-flying activities shall be 40 metres behind the flight line. This includes but is not limited to spectator and parking areas as well as supervised play areas.**
19. R/C Pilots are responsible for the airworthiness of the model aircraft they fly. R/C Pilots following a club or MAAC wings program will ask a club instructor to inspect their aircraft for airworthiness.

4.3 R/C Club Responsibilities

Club responsibilities will include but are not limited to the following:

1. A wings program is used to train R/C Pilots.
2. Discipline (if necessary) of R/C Pilots that refuse to follow MAAC Safety Code.
3. Establishing guidelines/procedures for visiting R/C Pilots.
4. Determining which club members are qualified demonstration R/C Pilots.
5. Establishing a field layout that conforms to the MAAC Safety Code.
6. Clearly marking Pilot stations (**for specific disciplines**).
7. Having clearly defined boundaries for the pit area.
8. No flying is permitted while field maintenance is going on in the Flight Zone.



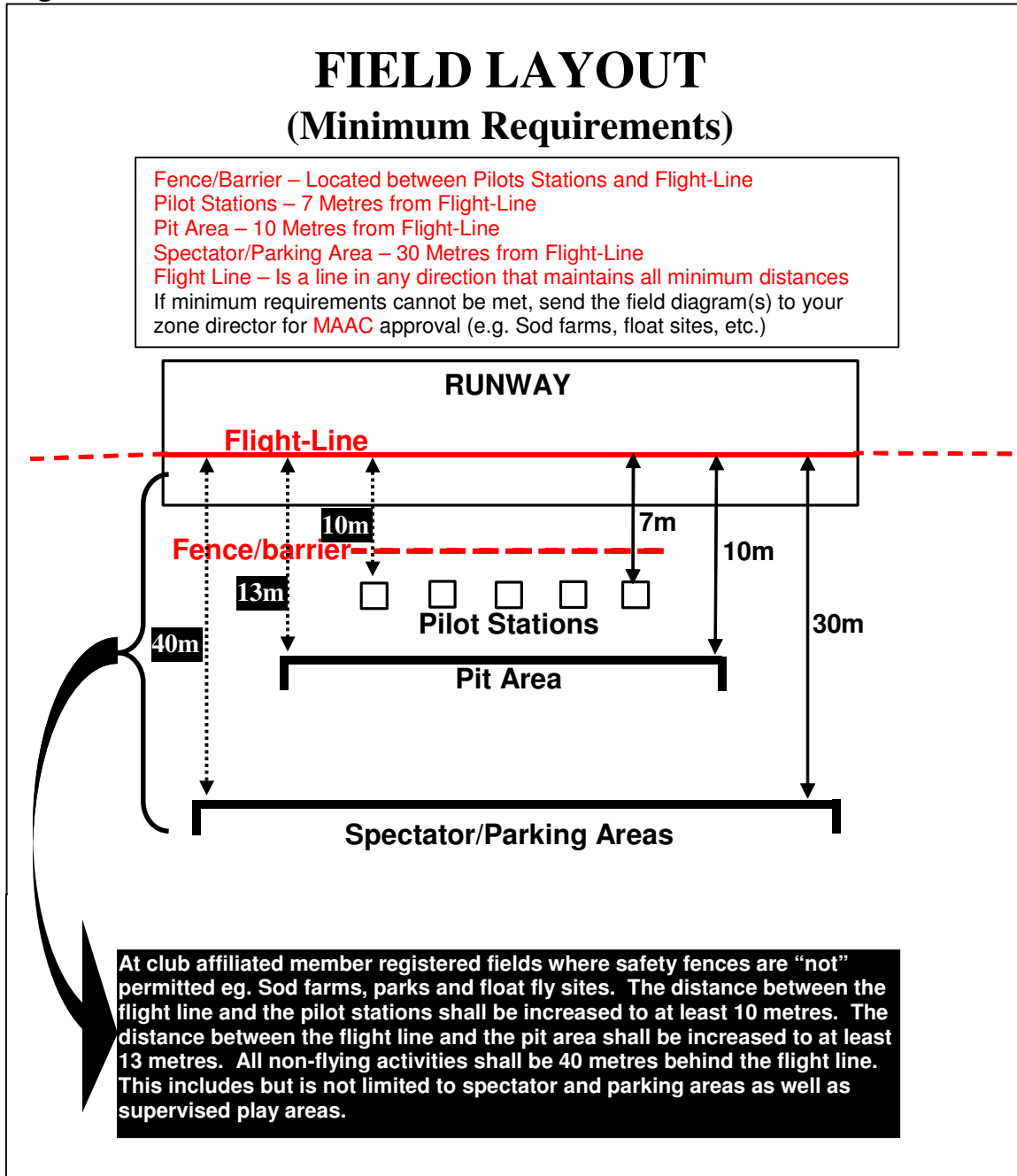
4.4 R/C Field Etiquette

The Field Etiquette is intended to outline those matters that are expected of all modellers/pilots as common courtesy and for every ones safety.

1. All R/C Pilots/modelers **shall** respect the safety codes.
2. R/C Pilots/modelers will restrict their use of the operating frequency when others are waiting.
3. R/C Pilots/modelers **shall** ensure that the operation of their model does not interfere with the enjoyment of the hobby/sport by others. These would include but are not limited to loud aircraft, unnecessary running of model engines in pit area, slipstream (propwash).
4. R/C Pilots/modelers are responsible for their guests or visitors including children and pets.
5. R/C Pilots/modelers **shall** be considerate when sharing the sky with other R/C Pilots/modelers by operating their aircraft in a way not to interfere with others.
6. If R/C Pilots/modelers fly their model aircraft within ten (10) Km of the centre of an airport, notice of operations will be given to the airport authority and/or tower. A spotter **shall** be used to avoid having models fly in the proximity of full size aircraft.
7. Safety practices are required in the pit area. MAAC members will adhere to the following:
 - (a) Metal propellers **shall** not be used. Pure nylon propellers (does not include the glass filled type) will not be used on engines of .40 cubic inch or larger. Repaired or damaged propellers will not be used.
 - (b) Pilots **shall** ensure that no one is standing in line with the propeller arc of operating engines.
 - (c) Aircraft will not be taxied in the pit area.
 - (d) When running model engines the model **shall** be placed to minimize the effects of slipstream (propwash).
 - (e) Slipstream effects from running engines can be dangerous to all affected and models should be positioned to minimize these effects.
 - (f) Smoking is prohibited in the pit area.
 - (g) Propellers will be secured in accordance with the engine and propeller manufacturer's recommendations.
 - (h) R/C Pilots are responsible for ensuring their spotter/helper is properly briefed regarding the carrying, testing, adjusting and general handling of the model aircraft.

4.5 Minimum Field Layout

Figure 1





4.6 R/C Night Flying

Night is defined as the time between 1/2 hour after sunset and 1/2 hour before sunrise. When operating any Radio Control model aircraft at night MAAC members will adhere to the following:

1. I will equip my night flying aircraft with a lighting system that clearly defines the aircraft's attitude.
2. I will test the lighting system of my night flying aircraft prior to every night flight.
3. I will limit my night flying aircraft to aircraft not capable of speeds in excess of 100 km/h.

4.7 R/C 3D AEROBATICS (airplanes)

3D Flight is defined as any deliberate maneuver where the aircraft's flying surfaces are stalled and the airplane doesn't move in a normal flight path. (Ex. Airplane hovering, blender, harrier pass). When operating any Radio Control model airplane performing 3D aerobatics MAAC members will adhere to the following:

1. I will not deliberately perform any 3D aerobatics without announcing my intentions to the other flying R/C Pilots.
2. I will not perform low level (less than 10 metres) 3D airplane aerobatics along the flight-line while other aircraft are airborne.
3. I will follow any safety rules as established by the Scale Aerobatics committee.

4.8 INDOOR R/C

1. I will fly aircraft (in size, weight, speed and other flight characteristics) that are compatible with the size of the indoor flying space.
2. I will ensure that my aircraft and radio control equipment are in good condition and fully functional, prior to the first flight at each flying session.
3. I will abide by the safety rules for the flying site I use, and will not willfully or deliberately fly my model(s) in a careless, reckless, or dangerous manner.
4. I will follow the recommendations of the manufacturer or supplier of the cells/batteries I am using in regard to their safe usage, charging, and disposal, and I will closely monitor my batteries while charging.
5. I will abide by any rules or restrictions requested by the owner or manager(s) of the building.
6. I will not leave behind any model parts, wreckage, or other materials or refuse when leaving the flying site.



5 TURBINE

When operating any Turbine Engine model aircraft MAAC members will adhere to the following:

*NOTE: These rules are designed to ensure the safety of turbine operators as well as spectators and the general public. The rules are not intended to restrict or impede engine or airframe development and as such shall be reviewed on an annual basis to accommodate the changing technological advances in turbine engine manufacture and operations.

1. I will follow the Code of Practice for the Safe Operation of Model Gas Turbines, published by the Gas Turbine Builders Association, sections 1 through 8.
2. I will have a CO₂ (Carbon Dioxide) fire extinguisher present and manned for all turbine operations.
3. I will ensure fire-fighting equipment is available prior to operating a turbine engine model aircraft at a MAAC sanctioned event.
4. I will use wheel brakes on my turbine engine model aircraft unless the aircraft can be demonstrated to remain motionless when released with engine at idle.
5. I will not use flexible plastic bags (i.e. intravenous bag) as fuel tanks in turbine engine model aircraft.
6. I will fuel and start my turbine engine model aircraft following safety procedures established by the manufacturer.
7. I will fuel propane powered turbine engine model aircraft in a remote area away from spectators, engines, start areas and ignition sources.
8. I will ensure the tailpipe (exhaust) is not pointed at any person, combustible or fragile object.
9. I will ensure all non-essential personnel remain 10 metres from the turbine engine model aircraft during the starting process.
10. I will have an electrical (i.e. solenoid) or mechanical fuel shutoff valve in the fuel delivery system capable of restricting fuel flow in the event of an emergency.
11. I will not attempt any speed record utilizing a turbine engine model aircraft in Canada until both the Jet and Safety Committee has been consulted.
12. I will have a spotter/assistant when operating a turbine engine model aircraft.
13. I will not fly turbine engine model aircraft with the turbine mounted on the outside of the airframe (i.e. below the fuselage or wing), unless the turbine is mounted in such a way that during normal flight operations (including a retract failure) the hot section of the turbine body does not come in contact with the ground.



6 ELECTRIC

6.1 Electric Aircraft Operation

When operating any Electric powered model aircraft MAAC members will adhere to the following:

1. It is recommended that all aircraft be properly fused between the motor and the first connector when using a battery eliminator circuit (BEC) system. Units that have separate power to the radio may prefer to fuse between the battery and the controller. Speed controllers that offer thermal shutdowns (TOP) may still benefit from being fused.
2. It is recommended that the models power batteries be disconnected during transportation, or disarming switch/system used and/or remove the propeller from the motor.
3. It is recommended that while working, adjusting, installing or demonstrating the model and its operation, that the modeller remain aware of power of the system and remove, if need be, the propeller. **Note: An electromechanical glitch can cause a temporary burst of power to the prop and cause bodily damage.**
4. It is recommended that modellers educate themselves about the properties and power of rechargeable batteries. Be aware of the potential for fire or explosion from shorted cells, or from the over charging of battery packs or charging hot, recently used packs.
5. It is recommended that used, useless Ni-cad batteries be disposed of by returning them to the factory or the retailer for recycling/disposal. Be aware that Nickel Cadmium is a toxic substance and direct contact must be avoided.
6. It is recommended that when using a charging system that takes its power directly from a 12v car battery, that the modeller be aware of the potential for explosion of battery gases. To be safe wear safety glasses or avert eyes and face when connecting leads. Prepare your own course of action in the case of an emergency. Always fly with a buddy for safety, never fly alone.
7. It is recommended that before turning a system on (TX) or pressing/switching an arming mechanism (ESC/RX) that the modeller double-checks that the transmitter throttle stick is in the **OFF** position.
8. When a landed model is being retrieved by a second person, it is wise to inform that person of the correct method of carrying and/or switching the model off.
9. Follow all other safety rules pertaining to the use and operation of radio control models as published in the MAAC safety code. Follow all local club safety rules. Make yourself aware of all local safety rules when visiting a new field.



6.2 Battery Safety Precautions

Because of recent technology releases in battery types, it's become necessary to address the situation of safety, charging, care and storage of your cells. Each cell type is different and must be handled in an appropriate manner. Failure to follow these guidelines could result in damage to your cells, person or property. All cells are rated in mAh or milliamperes. The capacity a cell is referred to as "C" and should be a term all electric power flight enthusiasts are familiar with. The oldest type of cells that we use is Nickel Cadmium or NiCad. The more recent Nickel Metal

Hydride or NiMH have considerably more duration/less weight at any given cell size. The newest cells that we use are Lithium Polymer/Ion. It is these cells that are the cause for the greatest concern, both in use and charging.

The below recommendations are for your safety and should be strictly adhered to by everyone. For each type of battery chemistry, insure that you ALWAYS connect the charger to the source battery first and that you disconnect the pack from the charger PRIOR to disconnecting the charger. Failure to do so could result in damage to your charger!

1. All batteries should be stored in a non-conductive container and away from all metal objects that could allow a cell to short out. A good recommendation is a "Rubbermaid" type container made of heavy duty plastic with a snap on lid.
2. It is recommended that all batteries be handled with care; all types are sources of high energy density and should be treated as such. Check all packs on a regular basis with emphasis on the connectors and cells. Packs with damaged heat shrink or connectors that look to be in poor condition should be repaired or replaced. Heat shrink or connectors are inexpensive, cheap insurance against damage. They are available from most hobby shops that deal with electric flight.
3. It is recommended when charging batteries that neither the cells nor the charger be placed directly on your vehicle, but rather on a non-conductive surface (cutting boards work well).
4. Never charge batteries in your vehicle (either passenger compartment or trunk). This is a very dangerous practice.
5. Never immerse or expose your charger to water. This could invariably damage sensitive electric components inside.
6. When removing your battery from your charger, disconnect the battery pack from the charger first, then charger from the source battery second. This stops any damage from occurring to your charger.
7. NiCad's should never be charged higher than 2 X "C", i.e. if a pack has a capacity of 2000 mAh the maximum charge rate should not exceed 4 amps.
8. NiMh's should never be charged higher than 1 X "C". i.e. if a pack has a capacity of 2000 mAh the maximum charge should not exceed 2 amps.
9. Cells damaged in a crash should be disposed of in a safe and responsible matter, once any shorts that may have occurred are remedied.



6.3 Use of Lithium Polymer/Ion Cells

Guidelines for the use of lithium polymer/ion cells. Warning: Failure to follow these guidelines could result in; Loss of property, injury, or death due to fire or explosion. A class 'C' fire extinguisher should be nearby whenever you are charging lithium polymer cells. The MAAC electric committee strongly recommends that these cells only be used by experienced modelers.

1. Only use a battery charger specifically designed for Lithium Polymer/Ion cells. These cells have different characteristics and voltage than NiCad or NiMH type batteries and can easily be damaged by improper charging with the wrong equipment. Examples of these Lithium Polymer types of charger include:
 - Schulze multi-purpose charger
 - Orbit multi-purpose charger
 - Great Planes Triton multi-purpose charger
 - Kokam 1-4 cell charger
 - Plantraco LPD-400
 - Apache 1-2 or 1-4 cell charger
 - BEL 2-3 cell Lithium-Ion/Polymer charger
 - AstroFlight Model 109
2. Insure that you know the amount of discharge that your particular brand of cell is capable of handling safely. Each manufacturer/retailer should include a set of specifications for this when you purchase your cells. This factor is referred to as "C" or the capacity of the cell. For instance the original Kokam type Lithium Polymer cell was capable of sustaining a discharge rate of 2 "C", so a 1020 mAh cell would be capable of putting out just over 2 amps of usable power.
3. Never charge at more than 1 X "C" regardless of pack size, configuration or discharge rate.
4. On chargers with choices for multiple settings, it is extremely important to ensure that the correct settings for your battery pack are chosen. These settings could include choices in cell chemistry (i.e. NiCad, NiMH or Li Poly), the number of cells and charge rate. Most expensive multiple-choice chargers should be returned to the manufacturer periodically (according to what the manufacturer recommends) for calibration and upgrades.
5. Never leave your Lithium Polymer/Ion batteries to charge UNATTENDED.
6. It is recommended to only charge Lithium Polymer/Ion cells in a fire proof container (a Pyrex bowl with lid or an ammunition box with lid are good examples) and away from any combustible materials. Make sure that you have a good Class 3 multi-purpose fire extinguisher nearby when charging Lithium Polymer/Ion cells.
7. In the event that Lithium Polymer/Ion cells are damaged in a crash, overheated or punctured, ensure that they are safely away from any combustible matter and left until any danger has passed.
8. Do not discharge at over the manufacturer's specified rate. Each cell should have its own nominal and maximum discharge ratings clearly marked on the pack, and on the individual product pages
9. Do not discharge lower than 3.0 volts per cell (2.7vdc under load).
10. Do not charge to more than 4.2 volts per cell.



6.3 Use of Lithium Polymer/Ion Cells (Cont'd)

11. Do not continue to use any cell that has increased in size (commonly referred to as “ballooning”). Cells with a bloated appearance have been damaged and pose a fire hazard. Dispose of as per disposal method below.
12. Do not assemble into packs cells of unknown capacity. Doing so will cause cell imbalance, and eventually a cell failure (and possibly a fire) could result.
13. Never use Lithium Polymer/Ion cells in any appliance they aren't designed for. This includes re-using cells from packs that have become damaged.
14. Do not store your packs where children or pets may get to them. Lithium has a sweet smell, which children or animals could think of them as candy. Lithium is toxic and death could occur if ingested.

6.4 Lithium Polymer Battery Disposal Procedure

If you are at all unsure of the correct procedure for the absolute discharge and neutralization of Lithium Polymer cell types, take them to a “Hazardous Waste Disposal” facility for disposal. Lithium Ion cells should always be taken to a “Hazardous Waste” disposal facility for disposal.

Discharge pack down to 2.5 volts per cell, regardless of pack configuration or number of cells. Find a container large enough to submerge the pack in completely. Fill the container with water and saturate with salt, that is, add enough salt until the salt can no longer dissolve.

Carefully pierce the envelope (case material) of the cells but insure that you don't short it out accidentally by doing so, to allow the salt water to saturate the cells internally.

Submerge the discharged pack for 24 hours, and then check each cell in the pack for voltage. Cell voltage should read zero volts at this point. You can safely discard the pack into the trash at this point without danger.

7 INDOOR

When operating any Non-R/C Indoor model aircraft MAAC members will adhere to the following:

1. I will not fly electric, CO² or rubber powered models in excess of one ounce (28.35gr) in an indoor site without special attention to the safety of other modelers and their aircraft.
2. I will not climb ladders or access other elevated superstructure of a building, without the permission and guidance of the custodian.
3. I will ensure that all damaged model parts containing special materials will be returned to the workshop for proper disposal of boron or carbon fibres.



8 R/C CLIMB & GLIDE CATEGORY

1. The Climb-and Glide R/C categories include such disciplines as powered sailplanes, Old Timer and Antique (SAM) aircraft, thermal duration sailplanes (winch or rubber launched, hand towed and hand launched), slope-flown sailplanes, aero-towed sailplanes, etc. Normally climb-and-glide aircraft are launched and flown immediately to high altitude, then soared with view to prolonging the flight using thermal activity in the atmosphere. The aircraft usually are incapable of taxiing to a runway area, and normally are both prepared for flight and launched into wind from one point on a field (chosen on the basis of field geometry, wind direction, etc.). The position of the pilot often changes during the course of the flight. (The usual concepts of a "runway", "flight-line", and "fixed pilot stations" are not applicable. There may or may not be a designated "pit" area.)
2. "No-fly zones" shall be established as appropriate to each specific field where the aircraft are being flown for sport or competition. No low flying shall be allowed above these zones. The no-fly zones shall always include the pit and parking areas, but can also include a launch or takeoff area, neighbouring buildings, private homes or properties, or any other sensitive areas specific to the field and its environs.
3. Designated takeoff and landing areas shall be established at least 30 metres away from parked vehicles.
4. Launch Line: Where multiple aircraft are being launched simultaneously or at close time intervals, aircraft are launched directly into wind from a launching line ("starting" line) perpendicular to the wind direction and wide enough to accommodate the number of aircraft being prepared for launch. During or immediately after climb-out, the pilot shall move back or away from the line of takeoff to continue the flight.
5. Takeoff Area: Where single sequential takeoffs and landings share the same area, common in flight operations such as aero-tow of sailplanes and in many types and situations of powered sailplanes and Old Timer (SAM) types, the pilot and helper(s) shall remain at the launching position only long enough to climb to a safe altitude, then move to a position clear of the takeoff/landing area for the remainder of the flight.
6. When using the same area for takeoffs and landing, unless specific rules for a contest or discipline dictate otherwise, the landing aircraft shall be given right-of-way
7. Aircraft must not be launched unless the area directly ahead of and to either side of the launch path is clear of people, equipment and other obstructions.
8. Engine-powered aircraft when being started must be restrained by mechanical means or by a helper until launched
9. Flight at high altitude may take place in any clear and safe area of the sky. Landing must be done in a designated landing area.



8 CLIMB & GLIDE CATEGORY (CONT'D)

10. The maximum number of aircraft in the air at any one time shall be determined, and modified as required, based on the characteristics of the Climb-and-Glide disciplines being flown, the skill of the pilots, and the prevailing atmospheric conditions.
11. When Climb-and-Glide aircraft are being flown for sport at low altitude and in conjunction with circuit-flying aircraft, they shall conform as best they can to the rules for normal circuit flying.

9 SPACE MODELLING

When operating space models MAAC members will adhere to the following:

1. **CONSTRUCTION:** I will always build my model rocket using only lightweight materials such as paper, wood, plastics or rubber without any metal airframe components. My model will include aerodynamic surfaces or a mechanism to assure a safe, stable flight.
2. **MOTORS:** I will use only commercially available model rocket motors approved by Explosives Regulatory Division Natural resources Canada for model rocketry. I will never subject these engines to excessive shock, extremes of temperature, nor will I ever attempt their refilling or alteration. I shall always employ recommended manufacturer handling and ignition procedures.
3. **IGNITION:** I will only install igniters at the launch site immediately prior to launching my model rocket. If using an onboard electrical system to ignite additional motors in a staged and or clustered model rocket, I will provide a safety system consisting of a removable pin or key that disengages the onboard electrical system of the model until such time as the key or pin is removed. I will remove this pin only after the model has been properly placed on the launch system. Upon recovery, or after an aborted launch, I will reinsert the pin or safety key until such time as any remaining motors are removed from the model and the firing systems is discharged. I will affix to the safety pin or key a length of streamer with the words "REMOVE BEFORE FLIGHT" printed legibly on the streamer.
4. **RECOVERY:** My model rocket will always use a recovery system to return it safely to the ground so that my model rocket may be re-flown. I shall prepare the recovery system with due care to assure that it will properly deploy.
5. **WEIGHT & IMPULSE LIMITS:** My model rocket will not weight more than 1500 grams at lift-off, and the model rocket engine(s) will contain no more than 125 grams of propellant and produce no more than 160 N-s combined total-impulse.
6. **FIRING SYSTEM:** I will always use a remote electrical system to ignite the model rocket engine(s). My firing system will include an ignition switch that returns to "off" when released and a safety interlock to prevent accidental ignition. I will never leave the safety interlock key in my firing system between launches.



9 SPACE MODELLING (CONT'D)

7. **LAUNCH SYSTEM:** My model rocket will always be launched from a stable platform having a device to initially guide its motion. My launcher will have a jet deflector to prevent motor exhaust from directly contacting the ground. To protect others and myself from eye injury, I will position the launch rod or rail so that the upper end is above eye level, or else I will place a large guard on the upper end between launches.
8. **LAUNCH SITE:** I will never launch my model rockets near buildings, power lines or near air traffic. Whenever possible, I will launch from locations 9 km or more from any airport. The minimum distance across the launch field in any direction shall be a minimum of $\frac{1}{4}$ of the highest altitude to be flown. A minimum distance of $\frac{1}{3}$ is recommended. The area immediately around the launch system will be cleared of any flammable materials. I will always obtain the permission of the launch site owner prior to using the launch site for my model rocket activities.
9. **LAUNCH CONDITIONS:** I will never launch model rockets in winds greater than 35 km/h. I will never launch my rockets in conditions of low visibility or clouds, which may impair the observation of the entire flight of my model rocket. I will never launch my model rockets in a direction below 30 degrees from the vertical.
10. **LAUNCH SAFETY:** I will remain at least 5 metres away from any model about to be launched. I will always announce to persons within the launch site that I am about to launch my model rocket and I shall give a loud countdown for at least 5 seconds duration. I will never launch a model rocket while any low flying aircraft are visibly approaching my launch location. I shall immediately remove the safety interlock key from my firing system after the launch of my model rocket.
11. **MISFIRES:** In the event of an ignition misfire, I shall not immediately approach my model rocket, but remove the safety interlock key and remain back for a safe period until assured that no ignition will occur.
12. **ANIMAL PAYLOADS:** I will never endanger live animals by launching them in my model rocket.
13. **TARGETS:** I will never launch my rocket so that it will fall on, or strike, ground or air targets. Nor will I include any explosive or incendiary payload.
14. **HAZARDOUS RECOVERY:** I will never attempt to recover my model rocket from a power line, high place, a tree or other dangerous location.
15. **PRE-FLIGHT TESTS:** Whenever possible, I will always test the stability, operation and reliability of my model rocket designs prior to flight. I will launch unproven designs in complete isolation from other persons.
16. **PERSONAL CONDUCT:** I will always conduct myself in a responsible manner, conscious that the maintenance of safety for others and myself rests with my ability to design and construct sound working models and to enthusiastically abide by the MAAC Model Rocket Safety Code. I will abide by the decisions and follow any instructions of any designated Range Safety Officers (RSO) and any person designated by the RSO such as a Launch Control Officer (LCO) that may be supervising a launch.