



Model Aeronautics Association of Canada RC Flight Training Course



Cecil Marshall 11945L on the left training Terry Bariciak 88290J at the Soo Modellers field in Sault Ste Marie On

Photo credit; Mark Primavera

MAAC Flight Training Course

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MAAC Flight Training Course

Introduction

Welcome to the Model Aeronautics Association of Canada training program. This program will teach you the basics of flying radio controlled model aircraft and is MAAC's best effort to assist you in the process.

The main focus of the training is on 'Fixed Wing' aircraft which is recommended as a basis for flying other aircraft. The basic "manoeuvres" in this course apply for flying Multi-Rotor aircraft or helicopters.

The Safety Guidelines presented in this Training guide also apply to water based aircraft (i.e. floatplanes, seaplanes, etc.).

There is nothing in this program that guarantees that you will become a successful R/C pilot. Nor, are there any expectations on how long it will take to complete this program. Like everything else, your success will all depend on your willingness to spend the time and practice.

This program is a series of lessons designed to build upon previous lessons to develop the skill and confidence, which will allow you to thoroughly enjoy your new hobby.

Upon completion of these lessons, you will be ready to take your "A Wings" test. This test is designed such that you can demonstrate to the club's satisfaction that you are able to control your plane safely. After passing this test, you will be allowed to fly without an instructor present.

Hopefully, the completion of your "A Wings" is only the beginning of your learning and will serve as an incentive to get out and fly. Where you go from here is up to you. Good Luck and enjoy!

Reminder

You must learn to crawl before walking and walk before running. For this reason, MAAC strongly recommends that you start your flight instruction on a trainer and then evolve to more advanced planes.

A trainer will enable you to learn easier and it will simplify your instructor's roles. Your plane will last you longer with less chance of a serious crash.

Remember, even the jet fighter pilots learn to fly in trainers before advancing to jets; - leave the scale planes until after you have learned to fly.

SAFETY FIRST, FUN SECOND

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Thank you to the Victoria Radio Control Modellers Society for letting MAAC use their Flight Training Course which will become the national standard. Thank you to the Soo Modellers of Sault Ste Marie, Ontario for material in the 2017 version of the course.

PROGRESS CHECK LISTS

Student to present 'progress' check list to Instructor prior to each days training. The instructor will initial each item when covered.

FLIGHT PROFICIENCY

INSTRUCTORS NOTE: You are to demonstrate each step of the particular lesson to be learned.

Field Layout (Please review with student to ensure understanding)

	Inst. Initial	Date
<input type="checkbox"/> Parking	_____	_____
<input type="checkbox"/> Gate (rules, keys, lock compo)	_____	_____
<input type="checkbox"/> Transmitter Impound	_____	_____
<input type="checkbox"/> "Discuss frequency control method contained in Club Field Rule"	_____	_____
<input type="checkbox"/> Flying Boundaries explained	_____	_____
<input type="checkbox"/> Flying site property	_____	_____
<input type="checkbox"/> Flying restrictions	_____	_____
<input type="checkbox"/> Runway (Pilot positions)	_____	_____
<input type="checkbox"/> Windsock	_____	_____
<input type="checkbox"/> Pit Area Rules - Safety - control method contained in Club Field Rules	_____	_____
<input type="checkbox"/> Flying restrictions for Members without "A" Wings	_____	_____
<input type="checkbox"/> Club Information Test completed	_____	_____

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FLIGHT PROFICIENCY PROGRESS

INSTRUCTORS NOTE: You are to demonstrate each step of the particular lesson to be learned.

Show the student what it looks like. When the student understands the control input sequences and reasons for them, then give the student control. You are to initial and date each sequence when the student has shown they have mastered it.

	Initial	Date
1. Taxiing out - right and left turns	_____	_____
2. Taxiing in - right and left turns	_____	_____
3. Taxi down center of runway at medium speed	_____	_____
4. Straight and Level Flight	_____	_____
5. Left Turns maintaining height	_____	_____
6. Right Turns maintaining height	_____	_____
7. Trim for level flight various power settings	_____	_____
8. Horizontal 8s	_____	_____
9. Tracking over runway at 150 ft.-75 ft.-25 ft.	_____	_____
10. Slow Flying	_____	_____
11. Trimming for slow flying	_____	_____
12. Stalls and recovery	_____	_____
13. Take off, Climb, Level off - reduce power and trim	_____	_____
14. Landings (Discuss why take off and land into wind)	_____	_____
15. Take off; trim for level, slow flight, and land.	_____	_____
16. Overshoots	_____	_____
17. Touch and Goes	_____	_____
18. Dead Stick Demo - by instructor only, S turns etc.	_____	_____
19. "A" Wings practice	_____	_____
20. Recommended for "A" Wings test Date	_____	_____

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Airfield Layout

Your club Air Field layout should be attached

Lesson 1: Instructor - Student Responsibilities

You are about to embark upon the Primary Flight Training Course of Model Aeronautics Association of Canada.

Although you may seek instruction from any club instructor your primary instructor is: Name: _____ Phone: _____

The instructor will work with you and monitor your progress.

Your instructor has met the qualifications of MAAC. In doing so has accepted the responsibility to teach you to become a responsible and safe pilot who can be proud of their flying abilities and an enjoyable fellow club member. If the instructor ignores their responsibility, you may be a pilot who is a hazard to yourself and other persons wherever you fly. You may seek training assistance from any other club instructor. However you should look to your designated instructor as your primary source of assistance.

You may not take your "A" Wings test until your instructor, or the Chief Instructor has signed below indicating that you have completed the elements of your primary training program and you are ready for your "A" Level Wings test.. You must pass your "A" Wings test before you are allowed to fly at the club field without supervision.

As a student, you have shown interest to acquire your first trainer aircraft; seek out the Local Club and join this training program. It is your responsibility to apply yourself diligently to learn and apply the material presented in this course. By doing so, you will learn the minimum amount of information and skills to allow you to safely enjoy radio controlled flight.

Each section of this course deals with a different aspect of flying a radio controlled model aircraft.

Your instructor will explain and demonstrate each element of each lesson. Where applicable the element will be demonstrated in the air "*using your aircraft*". You will have opportunities to perform each element and receive an evaluation from your instructor. In each lesson there is a space for a club instructor to "initial" that the material has been reviewed with you. It is important that you keep your training program with you at all times and ensure that instructors initial elements after they have been covered. Other club instructors will use the initials and notes to assist you when your instructor is absent.

I recommend that _____ take the MAAC "A" Wings test/quiz.

Instructor: _____

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Lesson 2: Aircraft Familiarization

Purpose: To teach the student how to properly pre-flight their model.

Objective:

At the completion of the lesson the student should be able to inspect their model and identify any deficiencies that could cause a malfunction or safety hazard. They will be able to start and adjust the engine properly and/or electric power system.

Elements:

- Inspection of aircraft structure, center of gravity and longitudinal balance.
- Inspection of radio installation.
- Inspection of all linkages and control surfaces including controls for proper throw, direction and freedom of movement
- Engine, fuel system installation and security (including propellers).
- Instructor's demonstration of safe engine starting procedure and starting of engine or safely arms electric motor.
- Student starts and adjusts engine or safe battery connection and sequence of arming for electric motor.
- Instructor teaches student how to identify rich and lean Internal Combustion engine settings.
- Instructor teaches student how to adjust the idle mixture to get optimum performance from that type of I.C. engine.
- Electric Motor power system safety; see [MAP.06 - Tips for Operating Electric Powered Models](#)

Evaluation:

Student should be able to perform lesson objectives.

THIS LESSON SHOULD BE REVIEWED AS NECESSARY AT THE START OF ALL LESSONS IN THE PRIMARY TRAINING COURSE.

Student/Instructor Notes:

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Lesson 3: Field Procedures

Purpose:

To familiarize the student with all safety aspects associated with model aircraft both on the ground and in the air. Also to ensure good flying habits per MAAC Guidelines which are used at all MAAC/AMA (Academy of Model Aeronautics - United States) events.

Objective:

At the completion of the lesson the student will be aware of all MAAC and Club safety rules and field procedures. The student shall also be able to perform a pre-flying session and pre-flight check list.

Elements:

MAAC SAFETY AND FIELD RULES

- Student to be given a copy of your clubs Flying Site Rules.
- Review club frequency control procedure. MAAC insurance is mandatory to fly.
- "A" Wings qualification before solo flying.
- No taxiing in the pit area - Turn Engines off when clear of runway after landing.
- There will be absolutely **NO FLYING:**
 1. Over any general area where people or equipment/vehicles are active.
 2. Behind the flight line no matter how far away from the runway. No flying over the pits, car parking.

Note: The presence of people or equipment/vehicles in 'the overfly area' could easily require that no flying take place at all!

- Maximum aircraft flying at a time per club rules.
- MAAC noise limits apply measured at 3 meters (10 feet) with full throttle. As of April 1999, MAAC noise guide lines are:
 - 98 dba @ 3 meters on hard surface
 - 96 dba @ 3 meters on soft surface
 - Review club field rules regarding noise control.
- When flight line is busy; Flight Station possession time is limited to 15 minutes (recommended) per flight.
- All aircraft shall be flown in a safe manner with consideration to others at the field.
- Aircraft shall be flown in a fashion so as to minimize the noise footprint as perceived in adjacent areas.

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Lesson 3: Field Procedures cont;

- Unaccompanied spectators (any observer who is not a club member unless invited) and animals must stay out of the pit area.
- No "engine break in" the pit area while other members are flying.
- Follow club procedures for Transmitter control.
- No flying before club posted times.
- Pilots shall announce their intention to take off or land.
- Landing aircraft shall have the "right of way".
- Fly a "wagon wheel" (Oval or Race Track) circuit when two or more aircraft are present in the air spotters are Strongly advised (a must at some clubs).
- It is advisable that when in the pit area, aircraft shall be placed between the pilot and the runway to promote an unobstructed view of other persons, pilots, parked and flying models to promote the timely awareness of a potential hazard.
- Importance of MAAC and MAAC safety rules.
 - Link to MAAC Safety Document link page: [MSD 06 - General Category R/C Model Aircraft](#):
- has been reviewed by the student.
- Enforcement of MAAC safety rules

Note: If you are flying in another flying field or country it is up to **YOU** to find out what the club rules are **before** you fly. (The program wants you to be a good guest.)

Notes:

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Lesson 4: Radio & Pre-Flight Checks-Student should be able to perform lesson objectives before each flying session:

- Range Check - correct model on radio must be done on each model before the first flight of the day.
 - Consult Radio manual for Transmitter to Receiver range check procedure.
- Overfly area is clear of people & vehicles before each flight.

Pre-Start

- Frequency/Identification Board - Peg in Place
- Receiver Battery - Voltage Check
- Radio Antenna - set o.k.
- Radio Transmitter - On, Radio Receiver - On and Checked for Interference (All control surfaces stable.)
- Transmitter Operation Check - Aircraft Control surfaces checked for correct direction.
- Throttle set

Start

- Aircraft Secure
- All Clear - Ahead (prop) and Behind
- Run Up - Mixture Set (engine testing to take place in testing area)
- Idle - Reliable
- Fail Safe Check completed - engine running - secure aircraft - Turn transmitter off - engine should go to minimum or shut off.

Pre-Takeoff

- Fly over area clear of people & vehicles - Checked
- Engine check - Full Power - Performance O.K.
- Controls - Free and Correct
- Rate Switches - Set
- Trims - Set for Take-off
- Timer - On
- Wind Sock - Checked
- Runway - Clear
- "Announce" - intention to take off to other pilots on flight line.

Evaluation: THIS LESSON SHOULD BE REVIEWED AS NECESSARY AT THE START OF ALL LESSONS IN THE PRIMARY TRAINING COURSE.

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Lesson 5: Flight Familiarization

Purpose:

To introduce the student to what controls the model in flight - "Directional Control".

Objective:

To ensure that the student learns the model's control surfaces and how they affect the model in flight.

Elements:

On the ground; instructor to familiarize the student with controls (pitch, yaw and power) and what kind of affect they will have on the aircraft in flight.

The procedures used by the instructor to give the transmitter to the student and taking over during the flight will be explained.

Note: As each instructor has different preferences concerning the process of exchanging the transmitter the student should ensure they have reviewed and understands this procedure with new instructors.

Instructor flies and lands the student's model to evaluate its performance and air worthiness.

This flight determines any changes necessary for control throws and trims. If the instructor can trim the aircraft without landing the aircraft, the transmitter will be passed to the student or **the use of a buddy box is strongly recommended.**

With the assistance and direction of the instructor, the student will start the process of becoming familiar with the controls.

The student will strive to keep the model in level flight and follow turning instructions given by the instructor.

When the student becomes tired or disoriented, pass the transmitter back to the instructor or ask the instructor to take control from the buddy box.

Note: It is the student's responsibility to pass the transmitter back to the instructor in time for the instructor to take corrective action to prevent a crash. Concentrate on flying within your ability. If you become disoriented or confused, pass the transmitter back to the instructor.

Evaluation:

The lesson is complete when the instructor has determined that the student is able to determine and execute proper control inputs to achieve a desired change in the model's attitude.

Proficiency and accurate control are not critical at this point.

Notes:

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Lesson 11: Approaches to Landing

Purpose:

To prepare the student for their first landing.

Objective:

To develop the student's ability to visualize and perform a stable controlled approach followed by landing if approach is satisfactory - otherwise go around.

Elements:

- Review of Lesson 6. (Slow Flight and Gliding)
- Discussion of proper landing techniques.
- Student flies a rectangular pattern as in Lesson 6, but reduces power and establishes an appropriate glide on the base leg and continues the approach until over the end of the runway, at which point add power and go around. The minimum altitude at the end of the maneuver should be no less than 20 ft.
- As the student becomes comfortable with the maneuver; the altitude should be lowered until the instructor is confident that the model can glide to the runway at reduced power.
- Landing; At this point the instructor will tell the student to continue the approach and land.

NOTE: The chances of a successful landing will be increased if the instructor reminds the student to reduce the power. It may be necessary to talk the student through the flare and touchdown.

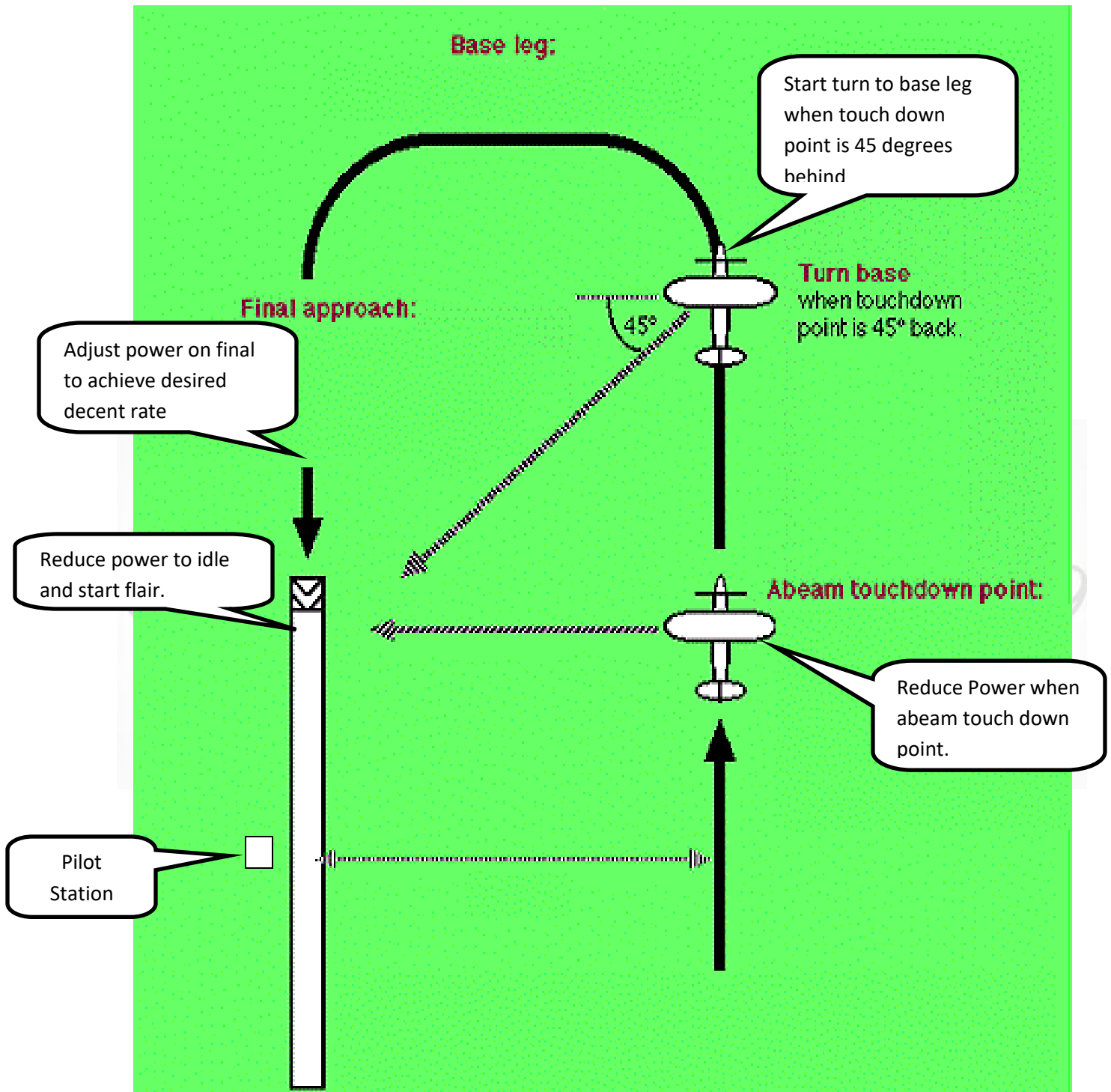
Evaluation:

The lesson is complete and the student can advance to supervised solo flight after the student has successfully landed the model several times and is comfortable with the maneuver.

Notes:

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Standardized Landing Approach



From "Soo" Club Training Manual

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Wings Quizzes - Check off the correct answer to the following True or False questions.

Club Procedures	T	F
1. The Frequency Board, at the Club Field, may not be used when 5 or less flyers are present.	<input type="checkbox"/>	<input type="checkbox"/>
2. During normal flying times 3 transmitters may be in use providing only 2 aircraft are actually flying.	<input type="checkbox"/>	<input type="checkbox"/>
3. Club's method of frequency control must be complied with.	<input type="checkbox"/>	<input type="checkbox"/>
4. No Flying before or after the times specified in the clubs field rules.	<input type="checkbox"/>	<input type="checkbox"/>
5. Vehicles must park by the road unless unloading or loading by the Pits. The one exception is if less than 4 vehicles are present and one of the flyers is an instructor.	<input type="checkbox"/>	<input type="checkbox"/>
6. Guest pilots must comply with the club's field rules and be in the company of a sponsoring member who is responsible for their safety.	<input type="checkbox"/>	<input type="checkbox"/>
7. Flying is not permitted over the pits except on final landing approach.	<input type="checkbox"/>	<input type="checkbox"/>
8. Pilots shall announce their intent to land or take off.	<input type="checkbox"/>	<input type="checkbox"/>
9. Full throttle engine noise level is to be in compliance with the club's field rules.	<input type="checkbox"/>	<input type="checkbox"/>
10. Aircraft are not to fly at altitudes less than 50 ft. when above people in 'fly over' area.	<input type="checkbox"/>	<input type="checkbox"/>
11. The only time aircraft that are allowed to be flown over the pits is during fun flies.	<input type="checkbox"/>	<input type="checkbox"/>
12. Only instructors may start an engine on the runway.	<input type="checkbox"/>	<input type="checkbox"/>
13. Taxing in the pits is not permitted.	<input type="checkbox"/>	<input type="checkbox"/>
14. Every member must have an " A " Wings rating to fly alone at the field.	<input type="checkbox"/>	<input type="checkbox"/>
15. Ways to reduce engine noise are:		
1. Use a larger propeller.	<input type="checkbox"/>	<input type="checkbox"/>
2. Use less Nitro.	<input type="checkbox"/>	<input type="checkbox"/>
3. Stuff muffler with brass scrubbing material.	<input type="checkbox"/>	<input type="checkbox"/>
4. Richen the high speed mixture.	<input type="checkbox"/>	<input type="checkbox"/>
Quiz answers are on page 25		

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Safety	T F
1. At medium speeds, it is safe to adjust the High Speed Needle from directly in front of the airplane.	<input type="checkbox"/> <input type="checkbox"/>
2. Care must be taken to keep spectators away from, in front of, or in line with the propeller arc when running up a motor.	<input type="checkbox"/> <input type="checkbox"/>
3. Chicken sticks are for sissies.	<input type="checkbox"/> <input type="checkbox"/>
4. Taxing is not permitted within 20 ft. of the Pits.	<input type="checkbox"/> <input type="checkbox"/>
5. It is safest to set Dual Rates so that low rate produces.	<input type="checkbox"/> <input type="checkbox"/>
1. Only a little control throws.	<input type="checkbox"/> <input type="checkbox"/>
2. About half throw.	<input type="checkbox"/> <input type="checkbox"/>
3. About 80 to 90% of full throw.	<input type="checkbox"/> <input type="checkbox"/>
6. Always charge your batteries the night before flying.	<input type="checkbox"/> <input type="checkbox"/>
7. It is wise to check your airborne battery before every flight.	<input type="checkbox"/> <input type="checkbox"/>
8. Sometimes it is OK to turn on your 72mhz radio without checking the frequency board.	<input type="checkbox"/> <input type="checkbox"/>
9. If a transmitter is left on in a car:	
1. It won't bother anyone's airplane because it is shielded by The metal car body.	<input type="checkbox"/> <input type="checkbox"/>
2. It might cause someone's airplane to "glitch".	<input type="checkbox"/> <input type="checkbox"/>
3. It could cause someone's airplane to crash.	<input checked="" type="checkbox"/> <input type="checkbox"/>
4. Because the transmitters secured against accidental use is not in the Compound the owner is not responsible	<input type="checkbox"/> <input type="checkbox"/>
10. If one person without MAAC insurance flies at the field it will void the MAAC Field (Land Owners) Policy.	<input type="checkbox"/> <input type="checkbox"/>
11. MAAC Insurance "will not" cover loss of personal/club property and personal injury.	<input type="checkbox"/> <input type="checkbox"/>
12. 1The "Flight Line" is: 1. Something attached to gliders.	<input type="checkbox"/> <input type="checkbox"/>
2. Divides the Pits from the Runway.	<input type="checkbox"/> <input type="checkbox"/>
3. Is an extension of the "Pit" edge of the runway that goes horizon to horizon.	<input type="checkbox"/> <input type="checkbox"/>
13. Proof of MAAC Insurance is absolutely necessary when flying at any MAAC Field.	<input type="checkbox"/> <input type="checkbox"/>
14. MAAC insurance is VOID if you <u>intentionally</u> fly behind the Flight Line.	<input type="checkbox"/> <input type="checkbox"/>
15. It is the pilots responsibility to know the MAAC safety requirements for "Special Interest Groups" . Otherwise MAAC insurance could be null and void.	<input type="checkbox"/> <input type="checkbox"/>

Quiz Answers are on page 25

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Check off the correct answer to the following True or False questions.

Aerodynamics:	T	F
1. An aircraft will balloon when coming out on a turn if:		
a. It is turning into wind.	<input type="checkbox"/>	<input type="checkbox"/>
b. The back pressure on the stick controlling the elevator is not released coming out of the turn.	<input type="checkbox"/>	<input type="checkbox"/>
c. If the aircraft is allowed to dive in the turn due to a lack of "up" elevator.	<input type="checkbox"/>	<input type="checkbox"/>
2. The stalling speed of an aircraft is the same when traveling upwind as downwind.	<input type="checkbox"/>	<input type="checkbox"/>
3. Attitude controls airspeed and throttle controls height.	<input type="checkbox"/>	<input type="checkbox"/>
4. A spin is when one wing is stalled and auto rotation sets in.	<input type="checkbox"/>	<input type="checkbox"/>
5. An aircraft rolls about its centre of gravity.	<input type="checkbox"/>	<input type="checkbox"/>
6. An aircraft Yaws about its vertical axis.	<input type="checkbox"/>	<input type="checkbox"/>
7. Rudder controls or prevents Yaw.	<input type="checkbox"/>	<input type="checkbox"/>
8. Ailerons can produce yaw.	<input type="checkbox"/>	<input type="checkbox"/>
9. Most aircraft will recover from a spin by just letting the sticks return to neutral.	<input type="checkbox"/>	<input type="checkbox"/>
10. During take-off most aircraft Yaw to the left and require rightrudder.	<input type="checkbox"/>	<input type="checkbox"/>
11. In other than calm conditions, the take off run must always be into the wind.	<input type="checkbox"/>	<input type="checkbox"/>
12. Taking off into wind gives the aircraft maximum airspeed and minimum ground speed.	<input type="checkbox"/>	<input type="checkbox"/>
13. The airspeed of an aircraft will remain the same when flying upwind Or downwind.	<input type="checkbox"/>	<input type="checkbox"/>
14. The ground speed of an aircraft will change when turning upwind or downwind.	<input type="checkbox"/>	<input type="checkbox"/>

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<i>Club</i>		<i>Safety</i>		<i>Aerodynamics</i>	
1	F	1	F	1.a	F
2	T	2	T	1.b	T
3	T	3	F	1.c	T
4	T	4	T	2	T
5	F	5.1	F	3	T
6	T	5.2	F	4	T
7	F	5.3	T	5	T
8	T	6	T	6	T
9	T	7	T	7	T
10	F	8	F	8	T
11	F	9.1	F	9	T
12	F	9.2	T	10	T
13	T	9.3	T	11	T
14	T	9.4	F	12	T
15.1	T	10	T	13	T
13.2	F	11	T	14	T
13.3	T	12.1	F		
13.4	T	12.2	F		
		12.3	T		
		13	T		
		14	T		
		15	T		

Revision History

Date	Revision	Reason
2001 Victoria RCMS	© 2001 Model Aeronautics Association of Canada	Victoria RC Aeromodellers original Document
2003	Adopted as the MAAC Flight Training Program	Well done and applies MAAC guidelines
2017 R.Worsfold 50286	Updated Document to current modern practises	Some Material out of date
2017 R.Worsfold 50286	Put a photo on the cover page	Add a little colour to the doc.
2017 R.Worsfold 50286	Put Hyperlinks on the table of contents	Ease of moving through the doc.
2017 R.Worsfold	Page 25 Question 11 - "It is best to have a "Rider" on your house As Well As	Original wording did not apply to actual Insurance Coverage.

