Kingston Radio Control Modellers
R/C Flight Training Course

The Students Log Book

Prepared by:

Spencer Grey

January 2004

Welcome and Introduction

The Kingston radio Control Modellers Club is a well established structured club, that is one of the oldest in Ontario; dating back to the very beginning of Radio Control Flying in Canada. This club welcomes you to the world of Radio Control hobby, and will be more than helpful to prepare you for a life long fantastic and gratifying experience of Building and Flying Model Aircraft (Beware it is very addictive and can become a life long passion).

Learning to fly model aircraft is an adventure, therefore you must approach flight training with a determined and aggressive attitude. You should be aware that it may take you some 10 to 30 hours of instruction to fly on your own; this does not seem like a long time, however, when you break it down to an average of 4 to 5 - 10 minutes flights per training day - you can see that we are talking something in the order of four (4) months but please do not let this training time discourage you in anyway from learning to fly R/C.

The time spent will go quickly and will be very enjoyable not to mention the very gratifying feeling you will have upon your successful completion of training and you stand up at a general meeting, to receive your wings and congratulations from the club members.

TABLE OF CONTENTS

Getting Started - What to Expect

1. New Student Requirements:

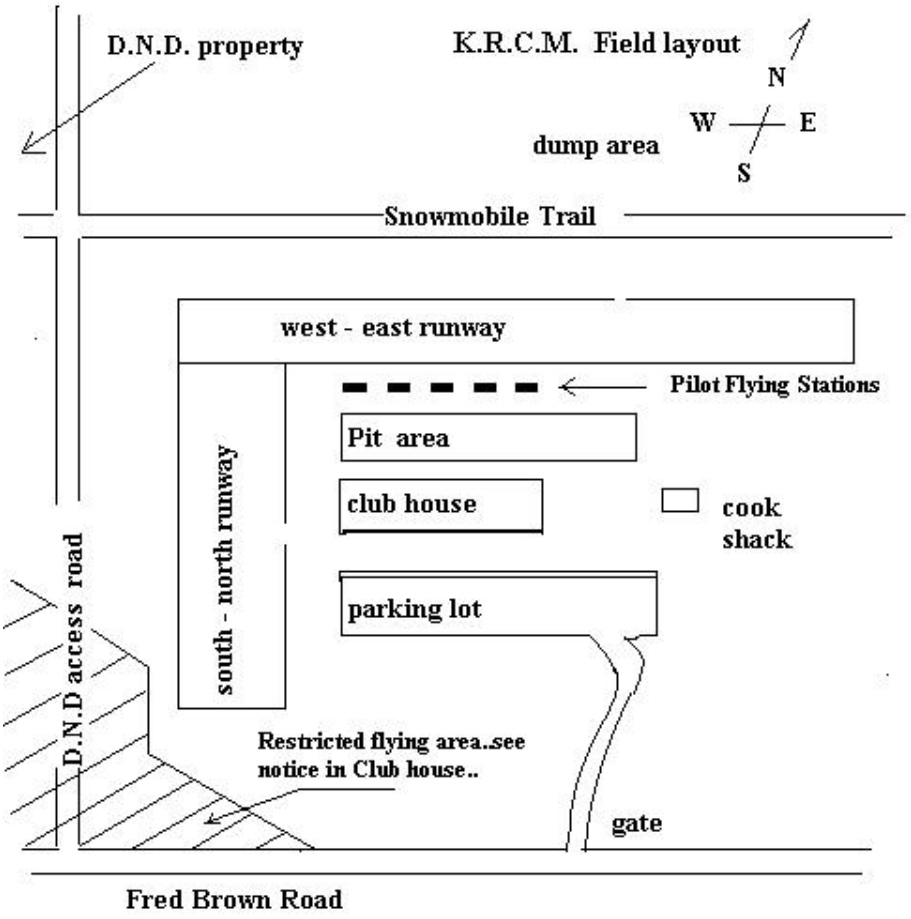
a. A serviceable model aircraft "trainer type" with the basic starting equipment and model A/C fuel;
b. An appropriate R/C radio transmitter;
c. A frequency control pin with frequency and channel displayed on it;
d. Be a member of M.A.A.C. or AMA;
e. Have membership with the Kingston Radio Control Modellers Club;
f. Be registered as a student with the club's C.F.I. "Chief Flying Instructor"

2. Your Flying Training

You must first understand that your instructor is a volunteer and this training is free, so once started with your training you will be expected to participate with training on a regular basis, in other words don't show up every month or so expecting to proceed with your training, the secret to learning R/C flying is regular dedicated training times.

All instructors are not the same, however they will follow a basic flying MAAC approved training curriculum as set forth by the Kingston Radio Control Modeller's Club (K.R.C.M.). Prior to your commencement of flying training your model will have a good pre-inspection and test flight, by an instructor. see: Lesson 1 - instructor - student responsibilities. On completion of these lessons you will be ready to take your "Wings Test"; this test is designed that you can demonstrate to the club's satisfaction that you are able to fully control the plane safely. The successful completion of this test will enable you to fly on your own. This you will find will give you the incentive to get out and Fly, Fly, Fly. Where you go from here is up to you.

GOOD LUCK!



1. Club house contains the transmitter impound,frequencey control board and first aid box.,
2. No flying or engine runup untill after 8am. Mon. to Fri . and 9am. Sat. and Sun.
3. Observe all K.R.C.M. safety and field rules.

Instructor: To ensure student has good understanding of field layout, flying restrictions and safety, pertaining to the club; this will include flying times, boundaries, transmitter compound and frequency board operation, runways, pit etiquette and general club operation and information.

Progress Check List and Flight Proficiency Record

Important:

To be presented to instructor prior to each day's flying training. The instructor will demonstrate each step of the particular lesson to be learned and reason for them. The instructor will initial each sequence only when you have shown that you have mastered it, so you can understand that this record of proficiency is very important to the progression of your training - so keep it with you at all training times and ensure that it is updated regularly.

Check List:	Initial	Date
1. Taxiing aircraft, first use of throttle and aileron control, taxiing out with right and left turns	_____	_____
2. Taxiing aircraft in "coming toward student" right and left turns, taxi aircraft with cross wind effect	_____	_____
3. Taxi down centre 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 150ft. 75ft. 25ft.	_____	_____
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/completion date.	_____	_____

Lesson 1: Instructor - Student Responsibilities

You are about to embark upon the K.R.C.M. Primary Flight Training Course approved by the Model Aeronautics Association of Canada.

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

Name: _____

Phone: _____

He will work with you and monitor your progress.

Your instructor has met the qualifications of MAAC. He has accepted the responsibility to teach you to become a responsible and safe pilot, who can be proud of his flying abilities and an enjoyable fellow club member. You should look to your designated instructor as your mentor and not hesitate to ask about any instruction that you are unsure of, this includes procedures you don't understand during your training period.
.

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 the diligence to build your first trainer, 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 he will demonstrate the element 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.*

Instructor

_____

Lesson 2: Aircraft Familiarization

Purpose:

To teach the student how to properly pre-flight his model.

Objective:

At the completion of the lesson the student should be able to inspect his model and identify any deficiencies that could cause a malfunction or safety hazard. He will be able to start and adjust the engine properly.

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.
- ☐ Student starts and adjusts engine.
- ☐ Instructor teaches student how to identify rich and lean engine settings.
- ☐ Instructor teaches student how to adjust the idle mixture to get optimum performance from that type of engine.

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.

Lesson 3: Radio and Field Procedures

Purpose:

To familiarize the student with all safety aspects associated with model aircraft both on the ground and in the air.

Objective:

At the completion of the lesson the student will be aware of all MAAC and MAAC 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

☐ Current MAAC membership and MAAC membership card (no photocopy) to be prominently displayed on frequency pin. MAAC insurance is mandatory to fly.

☐ "A" Wings qualification before solo flying.

☐ No taxiing in the pit area. Engines off when clear of runway after landing.

☐ There will be absolutely **NO FLYING:**

1. Over any general area where field workers or equipment 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 active field workers could easily require that no flying take place at all!

☐ Maximum of three aircraft flying at a time.

☐ 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

☐ Pin 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 footprints as perceived in adjacent area.

☐ Unaccompanied spectators (any observer who is not a club member unless invited) and animals must stay out of the pit area.

☐ No breaking in engines in the pit area while other members are flying.

☐ Every transmitter shall be placed in the impound upon arrival at the field.

☐ Every transmitter shall display the appropriate MAAC frequency flag at all times.

- ☐ No transmitter shall be switched on without the appropriate MAAC recommended frequency pin (with pilot name and channel number) first being attached to the frequency board. When the transmitter is turned off, the pin is to be removed from the frequency board by the pilot and the transmitter returned to the impound.

- ☐ No flying before **(Club Times if Set)** am Monday to Friday and **(Club Times if Set)** am Saturday and Sunday.

- ☐ Pilots shall announce their intention to land or take off.

- ☐ Landing aircraft shall have the "right of way".

- ☐ When in the pit area, aircraft shall be placed between the pilot and the runway to enhance awareness of the potential hazards posed by already flying aircraft.

- ☐ Importance of MAAC and MAAC safety rules.

- ☐ Enforcement of MAAC and MAAC safety rules.

CHECK LIST

Before each flying session:

- ☐ Radio range check.

- ☐ Field workers.

Before each flight:

Pre-Start

- ☐ Frequency Board - Pin on Board

- ☐ Receiver Battery - Voltage Check

- ☐ Radio Antenna - Out

- ☐ Radio Transmitter - On and Checked for Interference & battery voltage.

- ☐ Radio Receiver - On

- ☐ Aircraft Controls - Transmitter Operation Check

- ☐ Throttle

Start

☐ Aircraft Secure

☐ All Clear - Ahead (prop) and Behind

☐ Run Up - High Speed Mixture Set

☐ Idle - Reliable (Low Speed Mixture if necessary).

Pre-Takeoff

☐ Engine - Full Power Performance OK

☐ Controls - Free and Correct

☐ Rate Switches - Set

☐ Trims - Set for Take-off

☐ Timer - On

☐ Field Workers - Checked

☐ Wind Sock - Checked

☐ Runway - Clear

☐ Announce intention to take off to other pilots on flight line.

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.

Notes:

_____

_____

_____

_____

_____

_____

_____

_____

Lesson 4: Flight Familiarization

Purpose:
To introduce the student to controlling the model.

Objective:
To allow the student to become familiar with the model's controls and their use.

Elements:

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

☐ On the ground the instructor will familiarize the student on the use of throttle and aileron to control the model when taxiing left and right, both coming and going with the correct procedure used for cross wind effect maneuvering.

☐ The correct throttle use for slow and medium speed taxi maneuvers.

The procedures used by the instructor to give the transmitter to the student and take it from him during the flight will be explained.

Note: As each instructor has different preferences concerning the process of exchanging the transmitter the student should ensure that he has 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 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 the controls 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.

Lesson 5: Flight Maneuvers

Purpose:

To acquaint the student with the basic flight maneuver.

Objective:

To teach the student to properly control the model during basic maneuvering.

Elements:

☐ Level flight and trim. (Aileron and elevator)

☐ Banked turns. (30 degrees)

☐ Straight climbs. (add power and trim)

☐ Climbing turns.

☐ Gliding. (idle power and trim)

☐ Disorientation. (silhouette and R+L reversal with inbound aircraft).

NOTE: An explanation of disorientation and the use of trim should proceed this lesson. The five maneuvers should be taught in the order listed, if possible.

Evaluation:

The lesson is complete when the student can perform the maneuvers without assistance from the instructor. Each maneuver should be done with a reasonable degree of accuracy. Example: Turns should be fairly smooth and altitude maintained fairly well.

Notes:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Lesson 6: Accuracy Maneuvers

Purpose:

To teach the student to perform the five basic maneuver to a standard that will develop proficiency in their executions.

Objective:

To develop the skill and ability of the student to control the model in a specific manner.

Elements:

☐ Level flight, maintaining heading and altitude.

☐ Level flight at reduced power, maintaining heading, altitude and trim.

☐ Left and right turns to specific headings.

☐ Climbing turns to specific headings.

Use of rudder for turns and maintaining straight flight at slower speeds.

Power off (idle) glides that require the student to maneuver the model to a specific area and approximate altitude. Example: Have the student close the throttle over the south end of the field at 200 ft. and glide to the north end at an altitude of about 100 ft.

NOTE: Keep in mind that the object is to develop skill and ability, ***AND*** an awareness of the model's position relative to directions and altitude. Don't insist on mechanical precision. Review disorientation with the student if necessary.

Evaluation:

The lesson is complete when the student can maneuver the model at the instructors directions and can demonstrate an ability to control the model in an accurate manner.

Lesson 7: Orientation Maneuver

Purpose:

To develop the judgement, skill and ability necessary for the student to make his first landing.

Objective:

To teach the student to control the model regardless of its heading or direction relative to himself.

Elements:

☐ Figure 8 - the student must fly a figure 8 pattern consisting of two 360 degree turns, one left and one right. The student must place the maneuver in front of himself at a safe distance and altitude.

☐ The student must fly a rectangular pattern at a safe altitude, with the upwind leg crossing the landing area.

NOTE: The instructor will designate the size, altitude, and distance of both maneuvers.

Evaluation:

The lesson is complete when the student can fly the Figure 8 without experiencing disorientation and can fly both right and left rectangular patterns consistently and accurately.

Notes:

Lesson 8: Stalls

Purpose:

To develop the student's understanding of stalls, their cause and avoidance.

Objectives:

To teach the student to recognize and recover from stalls.

Elements:

☐ Pre-flight discussion of stalls. What causes them and how to recover.

☐ Practice of stalls by the student with power and without power.

☐ Stalls in turns. (take-off, departure stalls)

Note: Take-off and departure stalls are almost impossible to set up with most trainers, but do occur in more advanced models. Therefore, it is recommended that power be reduced to about 1/3 throttle, and a steep climbing turn entered. The stall entry will look similar to a spin entry with the model rolling towards the high wing. During this lesson it should be emphasized to the student that a stall can occur at any airspeed and is a function of angle of attack.

Evaluation:

The lesson is complete when the student understands the cause of stalls and has demonstrated the lesson elements and proper recovery.

Notes:

Lesson 9: Take-off

Purpose:

To teach the student how to make a normal take-off.

Objective:

To teach the student how to control the model during take-off.

Elements:

☐ Discussion of the effects of torque during take-off and initial climb.

☐ Use of rudder.

☐ Use of throttle.

☐ Use of elevator.

☐ Student makes a normal take-off ***Into*** wind.

Evaluation:

The lesson is complete when the student has successfully taken off and established a normal climb with adequate airspeed. He must demonstrate adequate directional control during take-off.

Notes:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Lesson 10: Approaches to Landing

Purpose:

To prepare the student for his first landing.

Objective:

To develop the student's ability to visualize and perform a stable and controlled approach and landing.

Elements:

☐ Review of Lesson 6. (Slow Flight and Gliding)

☐ Discussion of proper landing techniques.

☐ Student flies a rectangular pattern, but reduces power to establish an appropriate glide on base leg and final approach until over the end of the runway, at which point he is to 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 with the power off (idle).

☐ 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 keep the power at idle. 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.

Lesson 11: Solo Flight

Purpose:

Confidence building exercise.

Objective:

The student is to perform a solo flight demonstrating the knowledge and skill objectives of the previous nine lessons to the instructor.

Elements:

☐ Pre-flight discussion to answer questions and resolve any problems that concern the student about the lesson.

☐ Student performs a flight, under the instructor's supervision, starting with a thorough pre-flight and ending with the transmitter back in the impound.

☐ Instructor monitors student's performance, but assists only when necessary.

Evaluation:

The lesson is complete and the student signed off for solo flight ***only*** after he has demonstrated a practical knowledge of all course objectives ***and*** has observed all safety and field operating rules, and has successfully flown his model unassisted.

Notes:

Lesson 12: Emergency Procedures

Purpose:

To prepare the student for the unexpected.

Objective:

To acquaint the student with safe procedures to be used in emergencies.

Elements:

☐ Discussion of possible in-flight problems and how to deal with them.

☐ Unusual attitude training (optional): a) loops; b) rolls.

☐ Student performs dead stick landing (engine on idle).

☐ Cross wind take-off and landings.

Evaluation:

The elements of this lesson are to provide the student with insights that will assist him/her in safely dealing with the unexpected. Experience will teach the rest.

"IF THE STUDENT DOESN'T LEARN, THE INSTRUCTOR HASN'T TAUGHT"

Note:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Lesson 13: Wings Program

Purpose:

To allow the student to achieve and demonstrate flight proficiency.

Objective:

At the completion of the lessons the student will fully understand the wings program and be able to practice the "A" level wings maneuvers in preparation for the "A" level wings flight proficiency test.

Elements:

- ☐ Discussion of wings programme.
- ☐ Discussion of "A" wings maneuvers, take off, straight flight, flat figure eight, 360 degree landing circuit, loop or roll, landing under power, and maneuver downgrades ("S" turns on final to lose altitude).
- ☐ Supervised flight in which student practices and demonstrates "A" wings maneuvers.
- ☐ Review and critique.

Evaluation:

The student should understand how to perform each of the "A" wing maneuvers.

NOTE:

Test for M.A.A.C. - "A" Wings Test

The objective of this test is to demonstrate to the examiner the safe flying skill level consistent with all M.A.A.C. and K.R.C.M. club rules. The examiner at his/her discretion may allow for deviations from the test parameters described herein depending upon weather conditions.

1. Student to demonstrate a full understanding of the M.A.A.C. and K.R.C.M. club safety rules.

2. Student to demonstrate the proper procedure for frequency control and use of frequency control board.

3. Student to demonstrate an ability to prepare and inspect model for flight, start engine with particular importance assigned to the positioning of the model during run-up. (propeller and other models). Help may be solicited to hold the model.

4. The student after checking for proper function of engine, proper operation of flight controls and the position of all other models, will taxi to a take off location and hold.

5. On the command from the examiner, the student will:

   a. Take off into the wind and fly one complete circuit observing all M.A.A.C. circuit safety and etiquette code;

   b. after completion of the first circuit the student will fly the full length of the field on the centre line of the runway in use, at 100ft. in altitude .

   c. the student on the command of the examiner will perform a loop ***or*** roll, a 360 degree circle turn both left and right followed by flying one overhead horizontal eight using left ***or*** right turns;

   d. the student will then fly 2 consecutive circuits and on the second the student will perform a controlled landing with the model engine still running.

   e. A repeat of the above circuits in 5. "d" will be done in reverse direction, therefore, depending on wind conditions, the examiner will instruct the student as to the take-off position, flight plan for opposite circuits and landing direction. This can include reverse pattern from the same flight line in case of light or non existing winds, or flying from the opposite side of the field in a dog-bone pattern designed to avoid overflying the pits' area or the parking lot.

6. After landing, student to taxi back to flight line, stop engine, return transmitter to the impound and remove pin from frequency board.

M.A.A.C. "A" Wings Certification

This is to certify that (Please print)

Name:_____

M.A.A.C. #_____has successfully completed

all requirements and is awarded the M.A.A.C. "A" Wings.

Date:_____

C.F.I. or "designated examiner":

Name:_____

Signature:_____

M.A.A.C. #_____

Copy: To Kingston Radio Control Modeller Club

Appendix 1

Indemnity

I hereby request that the Kingston Radio Control Modellers Club provide me with instruction in the flying of radio controlled model aircraft.
I understand that instruction will be provided without charge, by volunteer instructors who are skilled model pilots and who have undertaken to operate my model as safely and responsibility as possible while providing me with instruction.
I agree to hold the Kingston Radio Control Modellers Club, it's officers and it's instructors blameless in the event of accidents involving damage to ***or*** loss of models ***or*** property, personal injury, or loss of life resulting from the operation of my model aircraft, regardless of whether said aircraft was under the control of myself or an instructor at the time of the accident.

Name: Please print_____

Signature: _____

Date: _____

Notes:

Ver: 1.03