

*St. John's R/C Flyers Inc.*

# **CLUB POLICY AND OPERATING MANUAL**

**Member's Guide to  
By Laws and Procedures**



*This Manual is issued under the authority of the*

*BY LAWS of the St. John's RC Flyers, Inc.*

Version 8.4.1

Issue date: 15 September 2011

Editor: DEW

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## ***INTRODUCTION***

This Manual has been prepared for the members of the St. John's R/C Flyers to serve as a guide and a reference manual for club operations. The information contained within these pages has been gathered from the minutes of club meetings, from documents published by the Model Aeronautics Association of Canada (MAAC), and other sources. The Club thanks known and unknown contributors.

It should provide new members with a single source for Club information. Your comments regarding changes and/or additions are welcomed. In order to keep revisions to the manual to a minimum, this document contains links to information that may change from time to time and is maintained on the Club website. For the benefit of those reading a paper copy of this guide, the links are shown with the full address.

## ***HISTORY OF THE ST. JOHN'S R/C FLYERS***

The St. John's R/C Flyers was originally formed as the Newfoundland R/C Model Association and the first meeting was held on September 24, 1975. The original Club objectives (as recorded in the minutes of the first meeting) were "to help and encourage members to build and fly model aircraft thereby enhancing enjoyment of the hobby". The purpose of the club today is basically the same as it was then, namely, to bring together those interested in model aviation so as to better enjoy the hobby, learn from each other and to secure a flying site.

In June 1976 the club changed its name to The R/C Model Association of Newfoundland (R/CMAN). The reason for the name change at this early point in the Club's history is unclear. The club minutes seem to suggest that the abbreviation R/CMAN just looked better!

The first Club field was on Kelsey's Hill on the North side of Kenmount Road. The Kelsey family owned this property and they gave permission to the Club to use their land free of charge. Although small and rather hilly, this site was enjoyed for several years until the Club grew to the point where a larger site became necessary.

In 1977 The R/C Model Association of Nfld. applied for and became a Chartered Club of the Model Aeronautics Association of Canada (MAAC). This meant that all members were required to be MAAC members and that the Club was authorized to collect dues on behalf of MAAC. The Club made this move because it felt that it was important for all members to have the liability insurance that is part of MAAC membership; and to give the Club a sense of being part of a larger national group of enthusiasts.

In 1980 the Club again changed its name to "Avalon Radio Modellers". This was done because other groups of R/C modellers were forming clubs in the province and it was felt that the word "Newfoundland" in our name implied that we were representing the Province as a whole, when in fact, this was not so. With the word "Avalon" now a part of our name, we felt we had a name that indicated the region of the province we were representing whenever we attended provincial events.

The name "Avalon Radio Modellers" lasted until 1992 when it was decided to change to "The St. John's R/C Flyers". The reasoning was that Club members attending modeling activities in other parts of Canada were being asked, "Where's Avalon"? The name was changed to let everyone know where we came from. Coincident with the name change a new Club crest was designed and printed depicting the aviation history of Newfoundland.

In 1996 Mike Whitelaw redesigned the club crest to the one we use now.

Throughout the years numerous flying sites were won and lost - Kelseys, Goulds, Crown Land on the TCH, Fowler's Road, Foxtrap and Bauline.

The Club presently uses flying sites at the Bell Island and Harbour Grace aerodromes. At the time of publication of this Manual negotiations are in progress for a new Club field.

## **MEMBERSHIP**

Membership confers the right to attend and vote at Club Meetings, and to hold Office.

Other than Honorary Members, all members must hold current membership in MAAC.

The annual fees for membership in The St. John's R/C Flyers is determined by the Executive, and approved by the membership. Dues for open membership are determined from time to time. Junior membership is available to those 18 years of age and under at one half the open membership rate.

The rights of membership terminate on December 31st of each year unless dues for the following year have been paid.

**New members** or **former members** (returning after an absence of 5 years or more) who join after September 1<sup>st</sup> shall pay 50% of the applicable dues for the remainder of the current year.

Persons joining after November 1<sup>st</sup> are credited for membership in the following year and must pay the applicable fees for that year.

Prospective members are welcome to attend up to **three** Club meetings prior to formally joining the Club. Prior to a prospective member exercising flying activities a Club instructor will check out and test-fly a prospective member's airplane at the flying field. If the test flight is successful the student/prospective member will receive one introductory flight at the field. Any test flights or flight instruction beyond the first flight will take place only after the prospective member has joined SJRCF and MAAC.

**Wings-qualified members** of other MAAC or AMA-Affiliated Clubs may join upon the payment of SJRCF dues.

## ***MEETINGS***

The St. John's R/C Flyers holds monthly meetings at a designated meeting place on the second Wednesday of each month from September through May except that the December meeting, is reserved for the Club Christmas Dinner. The Club President (<http://www.sjrcf.com/contacts.htm>) may call additional meetings at any time to deal with matters deemed by the executive to be of sufficient importance to require a vote by the general membership.

## ***MAAC AFFILIATION***

St. John's R/C Flyers requires that all flying Club members also be members of the Model Aeronautics Association of Canada (MAAC). As a Chartered Club, The St. John's R/C Flyers is authorized to act as an agent of MAAC by accepting membership fees and remitting them to MAAC headquarters. Club members are thus protected by MAAC's liability insurance coverage from the time of membership fee payment is made to the Officers of the Chartered Club. This eliminates any delay in awaiting a membership card to arrive from MAAC Headquarters

## ***ELECTION OF OFFICERS***

The election of the executive positions takes place during the Annual General Meeting in November of each year. At this meeting, the executive steps down and the Nominating Committee conducts the election from a prepared slate. A secret ballot is then held to determine the successful candidates.

Votes are counted and verified by the Nominating Committee, and one other member of the Club.

There is no limit on the number of terms a member can hold an executive position, and any Club member in good standing may run for any office.

## ***EXECUTIVE STRUCTURE***

The executive of The St. John's R/C Flyers is composed of four Club officers - President, Secretary, Treasurer, and Immediate Past President. For a list of the current executive, go to: <http://www.sjrctf.com/contacts.htm>

### ***PRESIDENT***

- Oversees all activities of the Club.
- Chairs the Club monthly meetings.
- Chairs executive meetings to plan and coordinate Club activities.

### ***TREASURER***

- Collects Club and MAAC dues.
- Keeps records of all Club financial transactions.
- Submits all collected MAAC dues to MAAC headquarters.
- Presents an interim verbal financial report at each monthly meeting.
- Prepares a year-end written report for presentation at the Club Annual General Meeting in October of each year.

### ***SECRETARY***

- Records the minutes of each meeting of the Club, and is the custodian of the non-financial records of the Club.
- Presents the prepared minutes of the last meeting and notes errors and/or omissions.
- Records other information (e.g. students receiving their wings) as required.

### ***IMMEDIATE PAST PRESIDENT***

- Chairs meetings in the absence of the President.
- Acts as representative of the Executive at the request of the President.

**The Executive may appoint members to a committee or to Executive Positions to assist in ongoing club activities such as fun-fly's, displays, acquiring a new flying site or for any other event that executive feels that extra help will be required. Committees report directly to the Club executive.**

## **TROPHIES AND AWARDS**

### ***JEFF MOLLOY MEMORIAL TROPHY***

At the general meeting on October 11, 2000 the membership voted to create a trophy in memory of Jeff Molloy, a young member who passed away too soon in September 2000. It was named the “**Jeff Molloy Memorial Trophy**”. The trophy is awarded to the “**Member of the Year**” as voted by the Club membership during the November meeting of each year. In the event of a tie vote, the Club executive will vote again to break the tie. The award is presented at the annual Christmas Dinner. The recipient is given a plaque which the recipient may keep. The Trophy will remain the property of The St John’s R/C Flyers and must be returned to the Club executive at the November meeting of the following year. The cost of the trophy and the first 5 plaques was split between the club and The Model Aeronautics Association of Canada. The member of the year award is open for all club members. It is not intended to be a popularity contest nor is it to acknowledge the best flyer or the member with the most planes. The recipient will be the person that the majority of club members feel has contributed the most to the club during the past year. For a list of Recipients, go to: <http://www.sjrpf.com/moty.htm>

### ***THE TOLAR AWARD***

This award is presented at the Christmas Dinner to the member who has achieved the greatest number of Take-offs without a corresponding number of Landings during the year. Each year’s winner is expected to make some addition to the trophy, select the new recipient, and present the trophy to the new recipient.

This is a fun award, and not intended to be a personal criticism of the recipient. It is recognized that if you fly enough, you will have your share of crashes, with some pilots being more unlucky than others. The winner receives a trophy constructed of parts of crashed models.

For a list of recipients, go to: <http://www.sjrpf.com/moty.htm>

# ***ST. JOHN'S R/C FLYERS OPERATING RULES***

The MAAC safety rules and the MAAC Guidelines for Field Operations are applicable during all club flying activities.

## ***GENERAL RULES AND GUIDELINES***

### ***FLYING SAFETY***

**Safety should always be your first priority. Accidents can ruin your flying day!**

- ✓ Follow the MAAC Safety Code. <http://www.maac.ca/getDoc.php?docid=210>
- ✓ Place a MAAC-approved Warning sign at the access point of the flying site.
- ✓ Flyers of Giant Scale Aircraft must follow MAAC Giant Scale Safety Code. [http://www.maac.ca/docs/2006/giant\\_scale\\_safetycode\\_11.06.pdf](http://www.maac.ca/docs/2006/giant_scale_safetycode_11.06.pdf)
- ✓ Do not fly over the pits at any time. If the airplane strays towards the pits because of wind aloft or temporary loss of control, shout "**HEADS UP!**" to warn others.
- ✓ If your engine quits while flying, shout "**DEAD STICK!**" and other flyers will give you landing priority.
- ✓ Abort any takeoff when the airplane veers off course by immediately closing the throttle.
- ✓ During most Club activities, no more than four aircraft are permitted in the air at the same time.
- ✓ Flying alone is a very dangerous activity. If you must fly alone for any reason read: "**COMMON SENSE**" below before going to the field.
- ✓ Be sure of ice conditions when flying on a frozen lake or river. Again, it is best not to fly alone. Try to have a friend (not necessary to be a pilot) nearby just in case of an accident or injury.
- ✓ When operating on floats provide a means of retrieving a model distant from shore. Always wear a personal flotation device when on the water.
- ✓ Be prepared to sacrifice a model rather than risk retrieval without proper equipment. Have a responsible person with you at all times.

## ***RADIO SYSTEM OPERATION***

**Avoid powering on the transmitter within 2 km of the field prior to your arrival at the field.**

**For all types of aircraft models and radios start by powering up the transmitter, and checking that the correct model has been selected, before starting the checklist below.**

When ready to begin preparations to fly, do the following:

- ✓ Check that your frequency is clear and your frequency pin is attached to the matching channel designation on the frequency board. In the absence of a frequency board, check with all other flyers at the field that your frequency is clear.
- ✓ When ready to start, first power on the transmitter, then the receiver of the model. You may then do the range check, and check the flight control operation of the model.
- ✓ Always switch off your radio transmitter, collapse the antenna (if applicable) and remove your pin from the board as soon as you complete your flight.
- ✓ Be sure to turn off the receiver first then turn off the transmitter.
- ✓ Whenever the Transmitter Impound is in operation, all transmitters are to remain in the Impound unless you have a frequency pin on the frequency board.
- ✓ Members will operate radio systems in accordance with manufacturer's recommendations and MAAC Safety Code.

## ***PIT AREA***

Pit operations are to be conducted in accordance with MAAC Safety Code (refer to link above in the [FLYING SAFETY SECTION](#)).

- ✓ Make sure that no one is standing in your propeller arc and that your plane remains mostly horizontal when the engine is running.
- ✓ Do your engine run-up at the edge of the runway and not in the pits.
- ✓ When starting your engine be sure to direct the propeller blast away from other flyers, airplanes and equipment.
- ✓ Do not taxi your airplane into or out of the pits.
- ✓ When you have finished flying, always leave the pits in a tidy condition.
- ✓ Members are responsible for their guests, children, pets, etc. Ensure they do not wander onto the runway.

## ***SITE-SPECIFIC RULES AND GUIDELINES***

The St. John's R/C Flyers is pleased to welcome guests. A **guest** is recognized as anyone who is invited to the field by a current Club member or someone who is visiting from a club outside the local area and wishes to use the field. **All guests must have either MAAC or AMA insurance.**

**Local flyers who are not club members may use the field as a guest twice per year when accompanied by a qualified SJRCF member.**

All regular users of the field must be a member of the St. John's R/C Flyers as well as MAAC.

We fly at the Bell Island and the Harbour Grace Aerodromes. The following guidelines are site specific:

### ***HARBOUR GRACE***

**The Harbour Grace airstrip is a Registered Transport Canada Aerodrome (CHG2) Elevation 325 ft. ASL. It is within the Class E (3000 ft. ASL) Airspace surrounding St. John's International Airport (CYYT).**

Always be on the lookout for full size aircraft and land your model immediately if it looks like a full size aircraft is setting up for an approach or for a low pass over the field. There is a public highway running along the south side of the runway. The pit and pilot stations are located on the south side and all flying must be done on the north side of the runway towards Lady Lake.

The Harbour Grace airstrip is a recognized **National Historic Site**, and as such is under the jurisdiction of Parks Canada in terms of site preservation. Always leave it in clean condition.

### ***BELL ISLAND***

**The Bell Island airstrip is a Registered Transport Canada Aerodrome (CCV4) Elevation 150 ft. ASL. It is just outside the Control Zone and within the Class E airspace (2000 ft ASL) surrounding St. John's International Airport (CYYT).**

It is slightly north of the approach path to Runway 11, and the Departure path of Runway 29 at CYYT.

Always be on the lookout for approaching or low-flying full size aircraft, which have priority for the use of the runway. Land your model immediately whenever full size aircraft are in the vicinity, and preparing to approach, fly over, or land.

**It is mandatory to call** the St. John's Airport Tower at **724-1055** to notify them that we will be flying at the field, prior to starting flying operations. When the Tower knows we are in the area they will advise any approaching planes to take the appropriate precautions when operating near the Bell Island airstrip.

Provide a contact telephone number for someone at the field with the Tower Controller.

All flying must be done north of the runway.

## ***INDOOR FLYING***

The St. John's R/C Flyers will follow the indoor guidelines as outlined in the MAAC Safety Code.

The Club rents the Gymnasium at the Mount Pearl Intermediate School on Monday evenings from September to May between the hours of 9:00 PM and 11:00 PM. The cost to members is \$6.00 per session.

The Club rents the Indoor Soccer facility following the regular Club meetings. The cost to members is \$10.00 per session.

## ***HELICOPTER OPERATIONS***

When helicopters are operated in conjunction with RC airplanes, the helicopters must be operated within the established circuit at the field. Extended hovering or hovering training must not be done on the active runway unless there are no other aircraft in the air.

## ***COMMON SENSE***

Aero modeling is fun as well as a test of individual skill. However, there are some dangers.

The propellers of fixed wing and rotary wing models are turning at high speed, and are being driven by powerful engines or motors. If a model goes out of control and impacts either persons or property considerable damage can be caused.

It is unwise to fly alone, and one should always try to have a companion to act as a spotter for the model, and to keep spectators, who do not realize what the risks are of approaching too near, from distracting the pilot. Be especially careful when children (particularly any who are unsupervised by an adult) are in the audience.

If we wish to enjoy our hobby without attracting criticism or adverse reaction from the public we should ensure that the safety of others is our primary responsibility.

### **ALWAYS HAVE A FIRST-AID KIT IN THE FLYING AREA.**

If people wish to watch (and that might be the first step to participation), make them welcome, but explain the possible dangers; and provide them with a safe place to observe your skill. Don't forget to thank them for their cooperation.

**Remember that wherever we fly, we are on someone else's property.**

**Show respect, and clean up afterwards.**

## ***SOCIAL MATTERS***

"All work and no play, makes Jack a dull boy".

Quite apart from the flying activities there is an active social component to membership. Members meet informally without an agenda for coffee and conversation on Saturday mornings during the winter months, and prior to (and after) the Monday evening Indoor flying. Occasionally a social event might be held at the home of a member. There is an informal breakfast meeting mid-way between monthly meetings at Donovan's Irving Restaurant, and a pre-meeting dinner prior to monthly meetings which is rotated amongst various restaurants. These are open to all members, and are announced by email. These events are an excellent opportunity to get to know one another, and to learn from the experiences of other flyers. New members are encouraged to join in. There are interesting characters amongst the membership. The Annual Christmas Dinner is the social highlight of the year for the Club, when members break bread together, enjoy a video presentation of the past year's events, and recognize contributions to the Club by the presentation of Awards.

Working together is the means to improve the environment of the Club. Outdoor flying sites need periodic maintenance for safety and efficiency. In the spring and fall we need all the volunteer help that we can get to keep our flying sites "up to snuff". Please join in the effort. You will enhance your feeling of ownership and enjoyment.

**Keep the shiny side up!**

## **WINGS PROGRAM**

This training program has been designed to provide a basic standard of flight instruction and safety. We believe that consistency in the manoeuvres being taught and attaining a high level of flying skill, while at the same time keeping interest high, are of prime importance. **This program exceeds the minimum requirements recommended by MAAC for a student to qualify for “A” level wings.** An outline of the MAAC Wings Program has been added to this manual. For the complete guide, refer to the MAAC website at <http://www.maac.ca/getDoc.php?docid=105> or the SJRCF website at <http://www.sjrcf.com/guides.htm>

The program is divided into **five flight levels** following the initial pre-flight approval.

**Level I:** Is devoted to pre-flight and post-flight procedures including airworthiness, engine starting and tuning, radio range check, and use of flight controls and first flight check by the instructor.

**Level II:** Gets the student into the air and concentrates on straight and level flight, shallow turns, racetrack patterns, and slow taxiing.

**Level III:** Sharpens the student skills of Level II manoeuvres, steepens the turns to medium-bank turns, high-speed taxiing, slow flight and stall recovery at altitude and at traffic pattern altitudes, and adds loop and roll manoeuvres.

**Level IV:** Adds the take-off, and the procedural approach with “No Touchdown”.

**Level V:** Deals with the actual landing, and discussion and practice of forced and crosswind landings.

## **PRE-FLIGHT APPROVAL**

The choice of aircraft for the beginner is most important. The most stable model is the tricycle gear high wing design trainer. The student should feel free to discuss this with a qualified member, (Instructors usually can offer good advice based on their experience teaching), preferably before buying a plane.

Prior to showing up at the field to begin flight training, the student should present his/her aircraft for the initial pre-flight check to any qualified club instructor.

This check is to include:

- ✓ CG in proper location.
- ✓ Flying surfaces warp-free.
- ✓ Radio, tank and engine properly installed.
- ✓ All control surfaces, including nose wheel, aligned and working properly.

Following completion of the pre-flight checks, the student is ready for flight instruction and should come to the field at designated times for instruction. Please do not forget to bring your 'Level' the student is currently doing.

## ***FOR GLOW POWER***

Start and tune engine. (Due to location of this pre-flight check, this may not be possible; however, this can be done at Level I.)

Manufacturer's recommendation regarding engine break-in should be followed. Any break-in period should be done prior to first training session. **You should note that glow fuel powered engines produce an oily exhaust (the engine lubricant). This residue will stain pressure treated decks and kill grass. Be careful when running up your engine at home – best to ask for help from an experienced flyer.**

## ***FOR ELECTRIC POWER***

Contributed by Stephen Crewe

Prior to first flight of a model or after major modification or repairs to an aircraft one main battery pack should be run at full power in the model until the electronic speed control (ESC) low voltage cutoff warning (pulsing) is observed.. This is to check all electrical components for ability to function at max current and to verify expected flight times. All model battery packs must be easily accessed to quickly unplug the main battery in the case of an emergency. Ideally a switch must be installed disconnecting the main battery pack from the ESC or disconnecting at least one lead from the ESC from the motor.

## ***BATTERIES***

Contributed by Stephen Crewe

All lithium-based battery packs must be balanced before each use with a balancing charger designed for lithium-based batteries to ensure proper voltage levels. All instructions for chargers, ESCs, batteries and motors must be followed at all times. Lithium polymer cells can catch fire if punctured, over-charged or over discharged.

**If a battery pack is bent, punctured, excessively expanded (puffed) or if the reliability of the pack is in question it should not be used.**

If you have not used LiPo or Lithium Ion batteries previously, please consult with a Club Instructor before flying.

## *TRAINING GUIDELINES*

Students are responsible for acquiring training equipment (trainer box & cord). These can be obtained locally or through the SJRCF Trainer Equipment Program.

**STUDENTS MUST PRESENT PROOF OF CLUB MEMBERSHIP AND MAAC MEMBERSHIP CARDS (or proof of MAAC purchase) TO BE ABLE TO FLY AND RECEIVE INSTRUCTION AT OUR FLYING FIELD.**

### SAMPLE PROGRESS CARD

Name of Student:			
Level	Date Completed	Instructor	Comments
Level I			
Level II			
Level III			
Level IV			
Level V			
Wings Test			

### *LEVEL I*

The student should present his/her approved aircraft to the instructor at the field ready for flight instruction as follows:

1. The student will learn and demonstrate correct range checking procedures and use of controls for their radio. (Per manufacture's recommendations.)
2. The student will learn and demonstrate how to start and tune their engine, following all Club's and Manufacturer's Safety Rules, for a reliable idle and to assure full power at all flight attitude
3. The instructor should flight-check the aircraft for airworthiness and be certain the student is aware of all MAAC and LOCAL CLUB RULES.
4. The student will learn and demonstrate post-flight check and cleanup.

## ***LEVEL II***

During this level the student should complete all pre-flight checks. They should start and tune the engine, range check the radio, check flight controls, and slow taxi to the end of the runway in preparation for take-off. The instructor should do all takeoffs and landings during this level and assist the student when necessary.

1. The student will learn and demonstrate the ability to slow-taxi their aircraft away from and towards themselves.
2. The student will learn and demonstrate the ability to control the aircraft in straight and level flight with minimal input from the instructor as to attitude and altitude. The ground track should be roughly parallel to the runway.
3. The student will learn and demonstrate a 15- 20 degree banked turn with minimal input from the instructor as to altitude and bank-angle.
4. The student will learn and demonstrate the ability to control the aircraft in a figure 8 pattern. This manoeuvre should be executed so that the turns are made in the direction away from the pit area.
5. The student will learn and demonstrate an Oval Race-Track flight pattern using both left and right- hand turns, with the ground track parallel to the runway.

## ***LEVEL III***

During this level the student should complete all pre-flight checks. Students start and tune the engine, range check the radio, check flight controls, and slow taxi to the end of the runway in preparation for take-off. The instructor should do all takeoffs and landings during this level and assist the student when necessary.

1. The student will learn and demonstrate the ability to control the aircraft during high-speed taxing on the runway. No weaving should be observed.
2. The student will increase the angle of bank to 30 degrees for turns, Oval Race-Track, and Figure 8 patterns. The figure 8 will be done as 2 Full Circles intersecting directly in front of the student.
3. The student will learn and demonstrate the Loop and Roll Manoeuvres.
4. The student will learn and demonstrate proficiency in slow flight, and be able to recognize the behaviour of the aircraft in a stall condition. The student will demonstrate the ability to recover from such conditions in both straight and turning stalls.

### ***LEVEL IV***

During this level the student should complete all pre-flight checks. The student will start and tune the engine, range check the radio, check flight controls, and slow taxi to the end of the runway in preparation for take-off.

1. The student will learn and demonstrate proficiency in the Take-Off, and maintain runway heading with a 20 - 40 degree climb-out.
2. The student will learn and demonstrate the Procedural Landing Approach for the current flying site. This procedure will be done initially at altitude. The aircraft should arrive over the end of the runway, on the correct heading with wings level, and continue to track above the runway.

### ***LEVEL V***

During this level the student should complete all pre-flight checks. The student should start and tune the engine, range- check the radio, check flight controls, and slow taxi to the end of the runway in preparation for take-off.

1. The student will learn and demonstrate the ability to land the aircraft and bring it to a full stop on the runway. If the engine is still running the student is to taxi to the end of the runway and prepare for take-off.
2. The student will then demonstrate the ability to execute a touch-and-go landing with particular emphasis on a smooth transition from landing to take-off.
3. The student should be briefed on the procedure to follow in case of a Dead-stick landing and how to handle a Crosswind Landing. Practice of these procedures is recommended only at altitude and at a flying site with a larger margin of error available because of the high probability of damage to the aircraft.

## ***WINGS TEST***

Wings test must be conducted by two SJRCF instructors. The student will complete all pre-flight checks start and tune his/her engine, range check the radio, check flight controls, and slow-taxi to the end of the runway for take-off.

The student will then take-off, using proper take-off and climb-out procedures, and perform the following manoeuvres on two successive attempts:

1. Maintain straight and level flight parallel to the runway.
2. Figure "8"
3. Loop
4. Roll
5. Slow flight indicating to instructor when aircraft is about to stall.
6. Demonstrate recovery from stall in straight flight.
7. Demonstrate Procedural Approach with 'No Touchdown'.
8. Land the Aircraft under power.
9. After the 2nd successful landing the student is to taxi the plane back to the pit entrance and shut off the engine.

**If conditions permit the Instructor may have the student do the 2nd landing "Dead Stick".**

**The Solo flight will be carried out with no assistance from the instructor as to aircraft control. The instructor will stand by the student in case of an emergency and to "Call" the manoeuvres.**

## ***CLUB INSTRUCTORS***

New Instructors are appointed by a committee consisting of the current active Instructors. For a list of instructors, go to:

<http://www.sjrcf.com/contacts.htm>

## ***ADVANCED TRAINING***

The SJRCF has declared that instructors will be deemed to be qualified examiners. All advanced training will be carried out as outlined in the MAAC wings program at:

<http://www.maac.ca/getDoc.php?docid=105>

## ***HELICOPTER TRAINING***

Members are encouraged to follow the Blades Program (included in this manual). We Recommend that new helicopter pilots seek assistance of skilled heli pilots within the Club.

# ***R/C MODEL HELICOPTER BLADES PROGRAM***

Author: Dean Parsons 2003 (Edited 2011)

## ***BASIC PROFICIENCY AND TRAINING PROGRAM***

### ***PURPOSE OF THE PROGRAM***

1. To provide a solid foundation in learning to fly RC model helicopters.
2. To minimize safety hazards and accidents by encouraging model helicopter pilots to build strong and proficient flying habits.
3. To make radio control model helicopter flying a more meaningful and satisfying experience.

### ***PRE-FLIGHT CHECK***

- ✓ Ensure nuts, bolts and screws are tightly secured.
- ✓ Head Assembly - Check all links are able to rotate freely without play.
- ✓ Tail Assembly - Check for and remove any play in bell crank(s) and pushrods.
- ✓ Engine Assembly - Check for engine alignment, engine mounting, tight muffler bolts.
- ✓ Ensure servo travel direction.
- ✓ Check that all control components are traveling in the correct direction for operation. Make sure the gyro compensates the correct direction; check that it is mounted securely in a low vibration area on the model ensuring no contact with any moving parts.
- ✓ Do a range-check to ensure proper signal reception.

### ***STARTING THE MODEL***

#### ***GLOW MODELS***

- ✓ Fuel the model.
- ✓ Check for frequency clearance.
- ✓ Be sure you're using the correct model memory.
- ✓ Set the throttle to idle or starting position. Assuming your throttle linkage geometry is setup correctly you will have your throttle stick at full low end and throttle trim at mid point.
- ✓ Turn on transmitter, then turn on receiver.
- ✓ Attach glow igniter.
- ✓ With one hand, hold a main blade grip firmly. Start the model with the appropriate starting tools with the opposite hand. Note you should keep the transmitter close by for easy access of control over the model while starting. Having an assistant is a great advantage.

## ***ELECTRIC MODELS***

Follow the instructions received with the model, and refer to the section re: handling of batteries.

### ***POST-FLIGHT CHECK***

- ✓ Clean the model with cloth and at the same time look over all the control components for damage or wear. Tighten any loose nuts/bolts and add oil to appropriate parts (i.e.: main and tail rotor shafts).
- ✓ Burn the fuel out of the engine. Disconnect or clamp the fuel line going to the carburetor. Start the model in the usual way described above until the engine stops then refuses to start.
- ✓ Store model, tools and equipment in safe place until the next flying day.

### ***FLYING PROFICIENCY LEVELS***

There are four flying proficiency levels as indicated below. After successful examination at each level, beginning at Level "A", a candidate will advance to the next proficiency level. Upon completion of Level "D" the pilot would be labelled as a proficient remote control model helicopter pilot.

- "A" - Basic Control
- "B" - Hovering Tail in
- "C" - Hovering Nose in
- "D" - Forward Flight
- "E" - Putting It All Together

### ***LEVEL A - BASIC CONTROL***

This LEVEL allows the pilot to get a feel of the model's controls and how it reacts to transmitter inputs. Experiment and interact with the model's controls to become comfortable with its movements. Use the fore/aft, rudder and cyclic controls in turn, and watch the model as you give inputs. It is important to use slow and small inputs at first.

In this LEVEL try to keep the tail pointed at you at all times. The moment the model's tail is not pointed towards you, adjust with the rudder controls or reduce pitch and power to return the model to the ground and initial position. It's also important to point the tail of the helicopter into the wind when you place the model in the "initial position". This may allow the wind to blow the model away from you rather than towards you if you lose control of the model.

## ***LIGHT ON THE SKIDS***

Increase pitch and power so that the helicopter is "light on its skids". This is the situation wherein the model is floating just above the ground, almost taking off and almost landing. The altitude of the model in this stage is approx. 1 inch, just enough so the model is off the ground, and that the controls are fully functional.

The helicopter will feel like it's "floating". At an altitude of about 1 inch means that the model is still in "ground-effect". The ground-effect condition is when the model is so close to the ground that winds flowing down through the main rotor disk creates a sort of cushion of air around the model. This allows the model to hover with a little less pitch and power at these low altitudes. As a pilot progresses through later stages the student will find that it will take a little more pitch and power to hover out of the ground-effect condition.

## ***SHORT HOPS***

When you have a good foundation of the controls you should try to lift the helicopter a little higher off the ground, but for only very short duration. These "short hops" will get you working towards an environment that is out of "ground-effect". Again, keep the same tail-in pattern when doing short hops. When you increase altitude of the hops you should also increase the duration of the hops.

**When the pilot is able to sustain a hover in the tail-in pattern over the initial position for roughly a tank of fuel they should start practicing the LEVEL B components.**

## ***LEVEL B - TAIL-IN HOVERING***

### ***45 LEFT AND 45 RIGHT***

While sustaining a hover in the tail-in position, yaw the model by using left or right rudder inputs. Yaw the model to one side so that you're hovering at a 45 degree angle to yourself. Hold this position for a period of time; then return to the tail-in hovering pattern. Next, repeat by giving the opposite yaw input and hovering at a 45 degree angle to you in the opposite direction.

### ***90 LEFT AND 90 RIGHT***

**the initial position for roughly a tank of fuel they should start practicing the LEVEL C** While sustaining a hover in the tail-in position, yaw the model by using left or right rudder inputs. Yaw the model to one side so that you are hovering at a 90 degree angle to yourself. Hold this position for a period of time, and then return to the tail-in hovering pattern. Next, repeat by giving the opposite yaw input and hovering at a 90 degree angle to you in the opposite direction.

Note that it's important to practice the transition between the tail-in, 45 left and 45 the 90 left and right patterns.

**When the pilot is able to sustain a hover in the tail-in 45 and 90 left and right patterns, over the initial position for roughly a tank of fuel students should be practicing the LEVEL C components.**

## ***LEVEL C - NOSE IN HOVERING***

### ***45 LEFT AND 45 RIGHT***

While sustaining a hover in the nose-in position, yaw the model by using left or right rudder inputs. Yaw the model to one side so that you are hovering at a 45 degree angle to yourself. Hold this position for a period of time, and then return to the nose-in hovering pattern. Next, repeat by giving the opposite yaw input and hovering at a 45 degree angle to you in the opposite direction.

### ***90 LEFT AND 90 RIGHT***

While sustaining a hover in the nose-in position, yaw the model by using left or right rudder inputs. Yaw the model to one side so that you are hovering at a 90-degree angle to yourself. Hold this position for a period of time, and then return to the nose-in hovering pattern. Next, repeat by giving the opposite yaw input and hovering at a 90degree angle to you in the opposite direction.

Note that it's important to practice the transition between the nose-in, 45 left and 45 right patterns.

**When the pilot is able to sustain a hover in the nose-in, 45 and 90 left and right patterns over the initial position for roughly a tank of fuel they should start practicing the LEVEL D components.**

## ***LEVEL D - FORWARD FLIGHT***

The goal of this LEVEL is to take off from the initial position, enter forward flight and then return and land safely in the initial position.

### ***HOVERING LATERALLY***

From the tail-in pattern, hover over the initial position, input small and slow forward cyclic control to move the model forward 15 feet, stop in a hover. Travel back to the initial position and come to a hover. Next travel 15 feet left of the home position, stop into a hover, and then back to the initial point. Repeat this for the right side.

### ***TURNING***

From the tail-in pattern yaw the model left or right 90 degrees and sustain a hover as practiced from the previous levels. Proceed to travel in a straight line approx. 15 feet.

Turn the model 180 degrees and travel back to the initial position, turn 90 away from the pilot (bring the model back to the tail-in position and repeat for the opposite side.

Similarly, travel from the initial position in the tail-in pattern straight out approx. 15 feet and sustain a hover. Turn the model 180 and travel back to the initial position, return to the tail-in position by yawing 180 degrees and landing in the initial position. Complete for both left and right sides of travel.

Similarly, travel from the initial position in the tail-in pattern out on a 45 degree angle approx. 15 feet and sustain a hover. Turn the model 180 and travel back to the initial position, return to the tail-in position and land in the initial position. Complete for both left and right sides of travel.

It's important to maintain a constant altitude and travel in a straight line.

When the pilot is able to do lateral flying as described above the student should practice the components of LEVEL E.

## ***LEVEL E***

### ***PUTTING IT ALL TOGETHER***

A pilot who has successfully completed the previous LEVELs should work to complete LEVEL E. This LEVEL brings all the previous LEVELs together to complete a pilot proficiency test.

To complete this LEVEL the pilot must use their current foundation to achieve the following:

1. Perform pre-flight checks.
2. Start the model.
3. From the initial position (from any orientation) lift into and sustain a hover for a period of time.
4. Take off into the wind, complete a full circuit, returning to the initial position and landing in the initial position (in any orientation).
5. From the initial position (from any orientation) lift into and sustain a hover for a period of time.
6. Complete two figure eights, one from a left handed turn and one from a right handed turn.
7. Perform post-flight checks.

## ***MISCELLANEOUS***

### ***DIRECTIONS OF CONTROLS***

***Note: Orientation should be considered to be from the pilot seat.***

**Mode 3:**

**Left stick**

**up:** increase throttle/collective

**down:** decrease throttle/collective

**left:** left rudder ( nose turns left )

**right:** right rudder ( nose turns right )

**Right stick:**

**up:** forward cyclic ( forward elevator )

**down:** back cyclic ( backward elevator )

**left:** left cyclic ( left aileron )

**right:** right cyclic (right aileron )

## ***GLOSSARY OF TERMS FOR HELICOPTER TRAINING***

**Altitude** - Distance of the model above the ground.

**Ascending** - Increasing altitude.

**Descending** - Decreasing altitude.

**Ground-effect** - The ground-effect condition is when the model is so close to the ground that the disturbance flowing down through the main rotor disk creates a cushion of air under the model.

**Initial Position** - The position and location of the model before take off. Usually when training the initial position is with the model tail into the wind and tail pointed towards the pilot. The distance from the pilot and the initial position should be approx. 20feet.

**Nose in** – This refers to the orientation of the model when the nose of the model is pointing toward the pilot.

**Pitch** - The angle at which main or tail rotor blades are set. The pitch on the main and tail blades change on collective pitch models. The change in pitch on the main blades allows the helicopter to ascend or descend, in addition the pitch on the tail blades allows the helicopter to yaw left or right.

**Tail-in** – This refers to the orientation of the model relative to the pilot when the tail of the model is pointing toward the pilot.

**Range-Check** - A method of testing the range of the transmitter and receiver relationship. This is done by turning both receiver and transmitter on, then walking away from the receiver with the transmitter in hand with the antenna is collapsed, or the Transmitter in Range check mode in 2.4 GHz models. The paces taken from the receiver until the communication is broken are usually noted each range-check. If the paces differ by a large amount from one range check to the next, there may be a problem with the radio – either at the transmitter or receiver end.

**Short Hops** - When the model ascends for a short period of time then descends and lands. This technique allows a beginner pilot to get used to pitch and throttle inputs of the model.

**Yaw** - The rotation of the model around the main rotor shaft, (the vertical axis of the helicopter).