

The Niagara Region Model Flying Club Inc. New Member Instruction Guide

(Rev. April 19th, 2018)

It is our goal that the number of takeoffs and landings are equal!



THIS DOCUMENT INCLUDES THE FOLLOWING INFORMATION:

GENERAL CLUB INFORMATION

WHERE TO FIND CURRENT CLUB AND M.A.A.C. RULES

FLIGHT TRAINING OUTLINE

PREFLIGHT RECOMMENDATIONS

M.A.A.C. WINGS PROGRAMME (MODIFIED FOR THE N.R.M.F.C. USE)

LIST OF REQUIREMENTS FOR OBTAINING "WINGS"

OUTLINE OF SPECIAL WINGS CLASSES – F, P, H, M

(MORE INFORMATION FOUND ON THE CLUB WEB SITE AT WWW.NRMFC.CA)

**IN THE EVENT A CHIEF FLYING INSTRUCTOR IS NOT APOINTED ALL
SUCH REFERENCES THEN DEFER TO THE NRMFC EXECUTIVE**

(See contact us link at www.nrmfc.ca)

IT WILL BE RESPONSIBILITY OF THE STUDENT TO KEEP THIS
GUIDE UP TO DATE

The Niagara Region Model Flying Club Inc.

General Club Information

The Niagara Region Model Flying Club Inc. is a non-profit organization whose main interest is to encourage and support the safe flying and instruction of radio controlled model airplanes in the Niagara Region.

As a club, we maintain and operate two flying sites in the St. Catharines and Niagara area. The two sites are referred to as the Brock Field and Walkers Field. Brock Field is located on Merrittville Road south of Brock University in St Catharines and Walkers Field is located on Uppers Lane at Thorold Town line Rd in Niagara Falls.

Our club has been in existence for almost 50 years and our membership has grown to about 80 members. Our organization is affiliated with the Model Aeronautics Association of Canada, (M.A.A.C.). – The official governing body for model aviation in Canada which provides us a guideline in which to run our club safely. M.A.A.C. has developed the "wings" program that we utilize for the instruction of student pilots.

Our meetings are held the second Monday of each month (September through June) 567 Glenridge Ave, St. Catharines, at 7:30 p.m. flying at the field can take place anytime throughout the year but can almost always be seen on Saturdays and Sundays from 10:00 am to about 3:00 p.m. during the summer months.

Our club boasts members interested in all facets of the hobby. From small indoor electric powered aircraft to giant scale gas models and turbine powered jets - from small multi-rotor aircraft to large scale helicopters.

There are no age barriers to this hobby. The club member's ages usually range from under 10 years to well into the 70's.

Our flying instructors are appointed by our club. They are all volunteers and have demonstrated a level of flying proficiency and a willingness to help others learn to fly. If you are thinking of joining, or are a new member, give one of our instructors a call and we will arrange to meet with you at one of the flying fields or at one of our meetings to check out your airplane and get it flying. Experienced fliers need only to show our instructors their ability to fly in a safe manner and "wings" will be awarded at that time. Beginners upon joining the club will get this new member packet which includes a training manual for R/C flying, club rules, contact info and other pertinent information regarding the hobby. Then instruction can begin. It is also a good idea to join the club before your airplane is finished or even started to obtain the most from the club's experience and knowledge. The instruction schedule will be posted on the club's web site in the "Learning to Fly" section.

To become a member of the Niagara Region Model Flying Club Inc., contact one of our executives or any of our members and they will assist you in getting started. Even before that, come out to the field and watch us in action. We are sure you will be amazed at what goes on.

For Current Executive Officers' and Chief flying instructor's names

RULES AND SAFETY **And Requirements**

- For all club official Information, Schedules, News, Application Forms and Rules, see our web site at: www.nrmfc.ca
- The website in general and the member's area should be visited regularly to review meeting minutes and current official news. (member area password provided to members in good standing)
- Membership in the Model Aeronautic Association of Canada is mandatory to be a member of The Niagara Region Model Flying Club Inc.
- All members are responsible to visit www.maac.ca , view and become familiar with and comply with the MAAC Safety Code.
- All members are responsible to read page 2 of their club application form each season, and become familiar with our club field rules. The NRMFC field rules are also posted at our registered flying sites.

[and contact information please visit www.nrmfc.ca](http://www.nrmfc.ca)

Important note:

The members of the Niagara Region Model Flying Club have voted to adopt Special "Wings Class" designations shown below. This is unique to this club. The purpose of these classes being adopted is to allow the club to embrace new members who may only wish to fly various consumer grade aircraft which may not readily lend themselves to traditional training. Many of these aircraft have auto stabilization systems and other design features which have unconventional training needs.

Classes:

- **F Class**(fixed wing over 1800 grams),
- **H Class**(single Rotor conventional Heli),
- **P Class**(park flyers and 'foamies' under 1800 grams,
- **M Class**(multi rotors, quads, and similar)

The following training program applies to the “F” and “P” classes primarily. The “H” and “M” classes will be dealt with on a case by case basis. Training for the latter will primarily consist of solo hovering in the designated hover circle on active training nights only.

STUDENT FLIGHT TRAINING (Wings) PROGRAM

The Niagara Region Model Flying Club has developed this training program based on the M.A.A.C. wings program to assist new members with learning the skills necessary to safely enjoy flying radio controlled model aircraft.

This training program has been designed to provide a basic standard of flight instruction and safety. We believe that consistency in the maneuvers being taught is important in attaining a high level of flying skill, while at the same time keeping interest high is of prime importance.

The training program runs for eighteen weeks from the first the first week of May through the last week of August. The club will try to provide a minimum of 2 instructors on each training night.

Instruction takes place on **Tuesday and Thursday** evenings, weather conditions permitting. (Reasonable winds & no rain) * Normally instruction will not take place if winds and gusts exceed 20 km/h.

Instructors are *volunteers* appointed by the executive. In order to become an instructor, a candidate must exhibit safe and competent skills in flying a trainer type R/C aircraft. The candidate must be capable of performing "dead stick landings" regularly, show reasonable skill in flying aerobatics and have a compatible personality. Then 2 club instructors may recommend the candidate to the executive whereby the candidate will then be asked to perform the instructor's flight test. If he or she successfully completes all the requirements, instructor's wings will be awarded.

Prior to the start of the training season, the Chief Flying Instructor will arrange for a "Check out day". The purpose of this day will be to allow the new students to meet the club instructors and to have experienced instructors inspect the student's airplanes to ensure that the airplane is ready to fly so that the time spent on training nights can be focused on developing flying skills.

Instructors are asked to commit to two training weeks (four evenings) per season. A schedule calendar will be posted on the NRMFC web page in the “Learn to Fly” section.

An instructor who cannot make his evening due to unforeseen circumstances is responsible to, attempt to arrange a replacement instructor.

Instructors who have fulfilled their two week instruction are not obligated for any further training that season.

If an instructor wishes to instruct after his/her two week commitment, he/she may book extra weeks on the instruction schedule where we are short on instructors.

In previous years this club adopted a mandatory “Buddy Box” system for the instruction of all new students. When possible, the club will try to help students obtain a buddy box for use during the duration of their training.

In the event of an accident where a liability claim may occur, the instructor will retain the responsibility but the club would be responsible for the member’s deductible needed for an insurance claim as long as the instructor or student was not negligent according to club and M.A.A.C. rules and the incident occurred during a training flight under the NRMFC training program.

An instructor will take the responsibility if he/she agrees to test fly an aircraft that belongs to someone who is "not" a member of M.A.A.C. under the NRMFC training program

Instructors are recommended to use the Training Guide, thereby ensuring that all the important topics in the program are taught or at least demonstrated to the student. It is necessary for the student and instructor to follow the guide exactly.

An instructor may if required, designate on a temporary basis, someone else who they know is competent to help instruct another student, only with approval of the CFI. It should be recognized that the instructor may still be responsible for both the helper and student in the eyes of M.A.A.C.

New members claiming to be pilots should be given a Training Guide and register with the CFI. They may be required to show their flying ability to an instructor (requirements for students to obtain their pilot wings, outlined later in this guide) before he/she may be allowed to fly. – This is a club responsibility listed in the M.A.A.C. Policy and Procedures Document.

The program is run from the first the first week of May through the last week of August weather permitting. Training will end the week preceding Labour Day weekend, regardless of when a new member may have joined. Training for members who joined late in the season will recommence the following May. Students are free to engage the assistance of willing instructor past this time. Instructors are not expected to train students past Labour Day.

Training Nights

Students are strongly advised to have their aircraft in good flying condition on instruction nights. An instructor does not have the extra time to set up and/or work on a student's plane due to the limited time available at the field. It is also not fair to the other students waiting for instruction in the air.

Training nights will be cancelled if the weather is unfavorable, such as rain or winds and wind gusts exceeding 20 km/h. If the weather looks questionable students should call the scheduled instructor, or check the NRMFC Club website for a notice of cancellation.

Flying time will be up to 15 minutes per student, in order of arrival or preparedness, as many times as conditions allow.

Student flying may take place on non-training nights and weekends if an instructor is available and willing to be "on duty". During these times, the field will remain open to all other activities which will take priority over instruction. The instructor should take this into consideration and tailor the instruction appropriately.

*****Please understand the instructor is a volunteer and will not be responsible for damages if an accident should occur to your aircraft.**

Levels of Instruction and Training

As with the learning process for any new skill, learning to fly R/C models is a process which is perfected over time and with practice and mentorship. Learning a new motor skill usually begins at Level Zero, and proceeds through various levels of competence. When a student has attained the highest level of competence, he/she is able to take off, fly solo and land with consistency, safety and complete confidence. Attaining the final skill level is not a single, unique, giant leap which can be taught in isolation, but rather it is the fitting together of an associated series of intermediate attainable skill levels, each of increasing difficulty.

This program is divided into 5 flight levels of competency

Level 1 (red): is devoted to pre-flight and post-flight procedures including airworthiness checks, engine starting and tuning, radio, range checking, use of the controls and first flight check by the instructor. NOTE: the student will be an observer during the first test flight by the instructor, or until the aircraft is satisfactorily trimmed for flight.

Level 2 (red): gets the student into the air and concentrates on straight and level flight, shallow turns and racetrack patterns. The goal at this level is for the student to learn

proper Aileron & Elevator usage while performing consistent L & R turns Straight Line flight and maintaining orientation.

Level 3 (yellow): sharpens the student skills of Level 2 maneuver's, steepens the medium-bank turns. More focus should be placed on throttle and rudder management. The student should be taxiing the aircraft to and from the runway.

The goal at this level is for the student to learn proper aircraft positioning. Altitude should be maintained consistently throughout a circuit. Circuits should be flown repeatedly overlaying the runway.

Level 4 (yellow): adds the take-off, stall recovery at altitude and a traffic pattern and approach no touch-down. The goal at this level is for the student to gain confidence while building on the skills previously learned. The student should be making controlled approaches, low passes, and go arounds (aborted landings). Before proceeding to the next level the student should be completing landings.

Level 5 (green): deals with the practice of crosswind and forced landing patterns. The goal at this level is to get the student flying on their own. Before disconnecting the buddy box, the student should be able to take off and land and perform a simulated forced landing. They should also be able to complete simple loops and rolls and constantly recover orientation.

Instructor Guidelines for LEVEL 1:

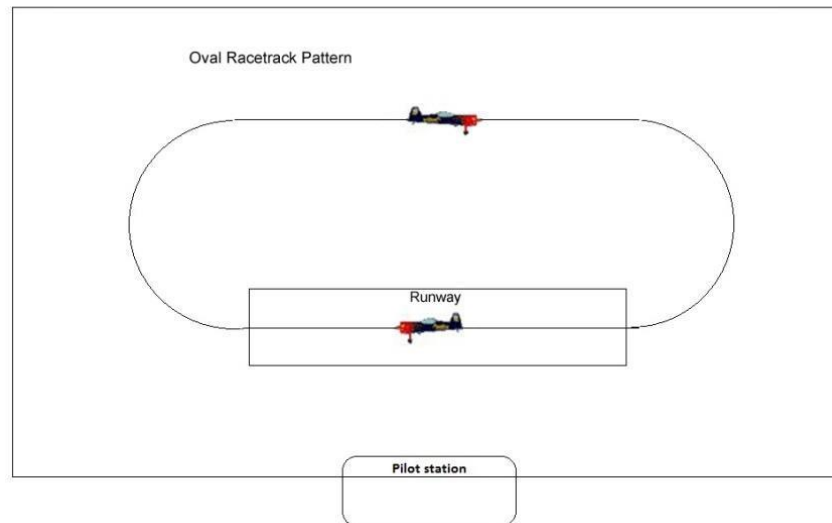
Although the student does not fly at this level, it is probably the most important level. It is at this level the student will learn and understand club and M.A.A.C. rules, review club etiquette, learn how to properly pre-flight and post-flight check his/her aircraft and radio. The student will watch the instructor test fly and trim the aircraft for stable flight. If the situation allows, the instructor may transfer control to the student for a short orientation flight. The aircraft then should be landed, checked out and re-trimmed ready for flight. Good habits start at this level!

Instructor Guidelines for LEVEL 2:

This is the first level in which the student will fly and it is important that the student feels some real success. For this reason, the demands of the Level 2 skills are reasonable.

There are really only two maneuvers required in Level 2 - straight flight and level shallow turns. These two maneuvers are combined to form an oval racetrack pattern. The emphasis from the instructor in the early phases of Level II should not stress the accuracy of the maneuver, but rather the stress should be on recognizing changes in aircraft attitude and initiating early corrections. Smoothness and deliberate change is the key.

The student should be kept from just "flying around". Instead, the instructor should direct the student's flight path and begin to speak of ground-track control in preparation for take-off and landing. As skill in straight and level flight and turns increases, the two should be joined to create the oval race track flight pattern. Accuracy may now be stressed and the initial introduction made of ground track with these maneuvers. The oval racetrack is the early beginnings of a landing pattern and this emphasis on ground track will pay off later. There are usually local landmarks and checkpoints which the instructor can point out and which are of significant benefit in establishing a consistent pattern



Instructor Guidelines for LEVEL 3:

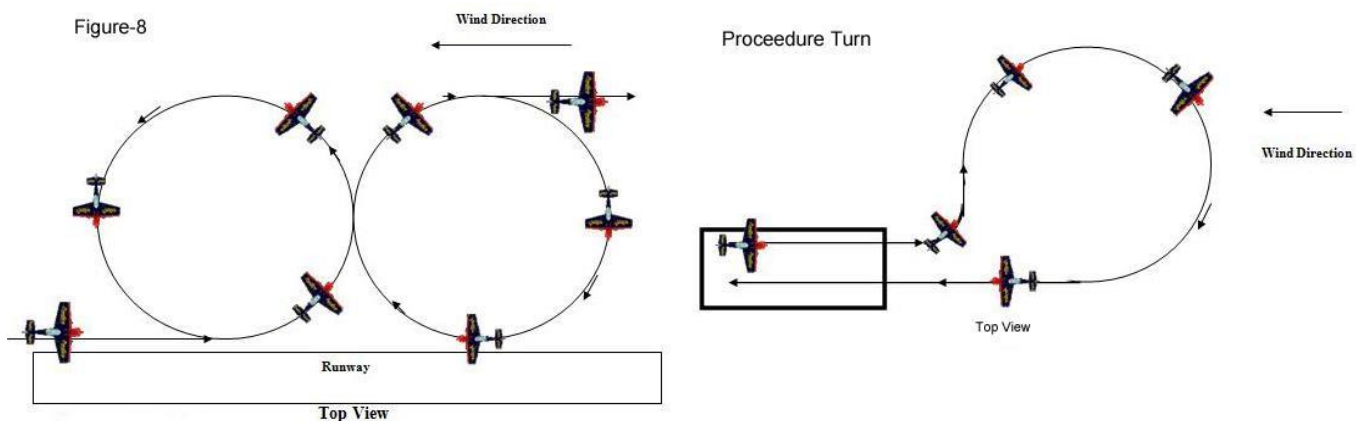
Level 3 is meant primarily as a growing experience. Previous maneuvers are practiced and the difficulty is increased by moving to a 30-degree bank in the turns. The instructor should concentrate on building the student's self-confidence and allow the student to recover from difficult situations without interference. The classic "hairy situation" can easily result, requiring judgment on the part of the instructor as to when to "take over" control.

At this level, the student should be introduced to procedure turn and figure 8 maneuvers. The student will learn to perform this combination of maneuvers requiring straight flight, level turns and turn reversals. This maneuver should be executed in such a manner so that the turns are made away from the pit area.

When practicing maneuvers at 30 degree bank and with the procedure turn, special emphasis should now begin on ground track as affected by wind drift. Just "flying around" doing these maneuvers doesn't do the job. Flying is a sport of self-discipline and that discipline developed now will pay off in the landing pattern.

At this level the student should also begin to practice high speed taxiing. The high-speed taxi can easily be overlooked as a minor effort; just the opposite is true.

There are really two identifiable parts to an aircraft take-off; the take-off roll and the rotation/climb-out. If the take-off roll is not executed cleanly, the rotation will be affected in a negative manner. Building proficiency in the take-off roll will permit the student to concentrate on the rotation in Level 4.



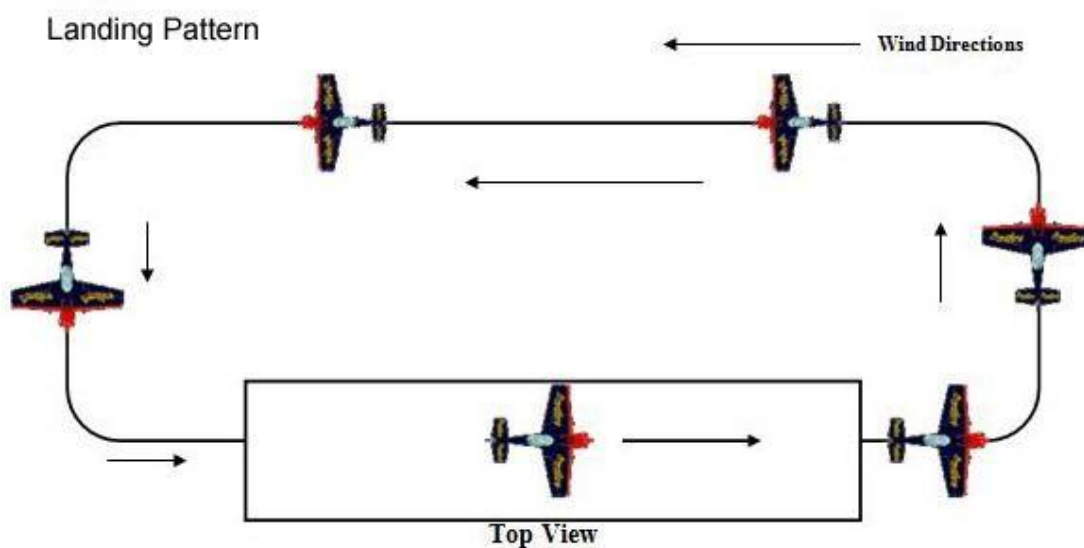
Instructor Guidelines for LEVEL 4:

In Level 4, we finally use the aircraft control gained in earlier levels to zero-in on the real issue of flying, take-off and landing. During this level, significant energy should be directed towards developing precise flying both in ground track and attitude correction. Good take-offs are the result of precise control during the take-off ground roll and transition to flight. Good landings are the result of good ground track and aircraft attitude control whether a beginner or a "hot dog".

If Level 3 instruction was successful in the high-speed taxi and previous work on pitch control was well learned, then adding a little up elevator at the right point during high-speed (full throttle) taxi, results in a take-off. The instructor should emphasize the straight-ahead shallow climb with about 15 to 30 degree climb-out angle. Allow the student to gain good aircraft control prior to starting a turnout. It is recommended that a review of procedure turns and Figure 8's following the take-off should be accomplished during each training session.

The final piece at this level is the landing pattern. Learning is optimized by practicing a standard maneuver. Therefore, the landing pattern or circuit used is a rectangular one that allows the student to see the same picture each time. It may not look like your pattern, but it works. It is time consuming, but worth it. Entering on initial approach, power is reduced on the turn to the down-wind leg so as to be in slow-flight on down-wind. A power-off glide is started during the descending base leg and continues in the turn to final approach. Power is added on final approach to maintain flying speed. A "go-around" is to be executed after arriving with wings level at the end of the runway ready to touch down. Ground track should then proceed back to initial approach for another go at it. ***(No touchdown should be attempted until approach is perfect!)***

The instructor should emphasize smooth control, ground track, and consistency. A friendly reminder of the stall-recovery procedure will also instill caution during slow flight and turns. There are usually local landmarks and checkpoints, which the instructor can point out, and which are of significant benefit in establishing a consistent pattern.



Instructor Guidelines for LEVEL 5:

Well, this is it. All the marbles are on the line - or rather the runway. The quality of the previous four levels of training should really pay off now if the effort was sincerely devoted to smooth control, ground track accuracy and self-discipline. From being wings level over the end of the runway, it should be relatively easy to assume a slightly nose-high attitude and settle to the runway. No, it is not. Because there is still pitch, roll, and heading to care for, and the student still needs practice, those first few landings are going to be traumatic, so let's take them easy.

Start the first few lessons by just reviewing Level 4 landing patterns and then land once to a complete stop. Turn around, take off, and do it again. As skill increases you can begin touch-and-go landings with complete traffic patterns and then, when skill allows, proceed from take-off directly onto the down-wind leg.

At this level, the student will learn the loop, roll and split-S maneuvers. The student will learn proficiency in executing and recovering from straight ahead and turning stalls in slow flight. In the case of stalls, our miniature aircraft are not designed for their stall characteristics like the full-size machines are, but they do stall, often with disastrous results - especially when landing. One can discuss stalls and recoveries forever, but for our purposes, there are two situations, which should be discussed:

1. Straight-ahead stalls
2. Accelerated turning stall.

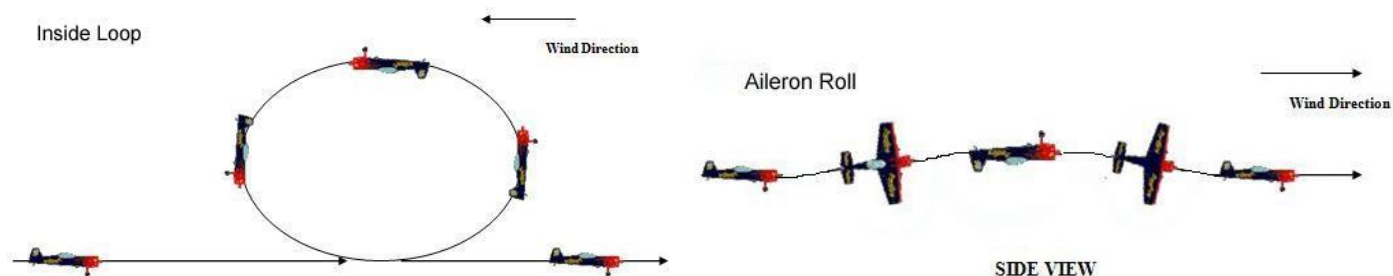
Both of these occur in the landing pattern and can destroy an aircraft and a new (or experienced) pilot.

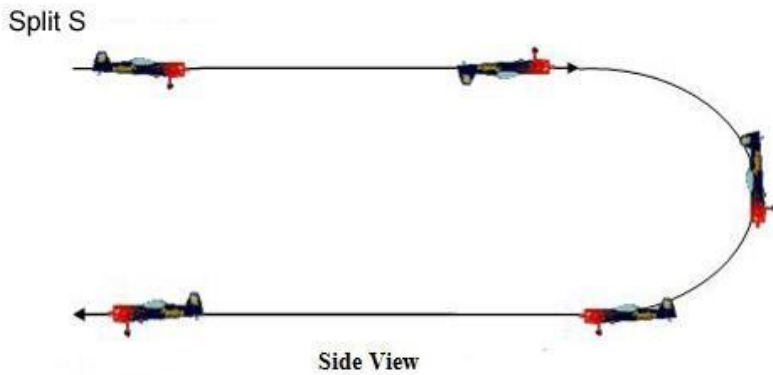
In the first stall, the condition usually occurs while trying to stretch a final approach. Typically the nose will drop or the aircraft will roll off or snap. At very low altitudes, the recovery of lowering the nose, rolling level, and applying power will not work, so the trick is to avoid the nose-up, power-back situation. But elsewhere in the landing pattern, the corrective action is foolproof.

The second stall, the accelerated turning stall, is the killer during the final turn and usually is seen as a snap- roll into the ground. Low air speed is again the culprit, but the stall is aggravated by two factors

1. An angle of bank which requires more lift on the wings to support the aircraft.
2. An attempt to tighten up the turn due to overshooting final approach - just like stretching final, too much up-elevator for the airspeed.

Recovery is executed by simultaneously rolling wings level, lowering the nose, and adding power. Since during landings you are near the ground, it is better not to get into a stall than to rely on low-altitude loss recoveries. Practicing stalls at altitude will make the student aware of the conditions causing the stall, the reaction of their particular aircraft, and the use of the recovery methods to minimize altitude loss. Next we are going to slow the aircraft down and practice a little slow-flight. This maneuver should be done at less than 1/2 throttle, and level flight should be maintained. The student should be shown the high rate of turn possible at low airspeed and shallow banks. Steep turns are a "no-no" in slow flight. Remember the stalls. Also notice the sloppiness of the controls at lower airspeeds. All these characteristics relate directly to the landing pattern and good slow-flight skills will be of significant value





GOOD LUCK
FROM THE NIAGARA REGION MODEL FLYING CLUB INC.
INSTRUCTORS

Trainer Aircraft

The choice of aircraft for the beginner is one of the most important factors in successfully learning to fly RC. Almost every new pilot has a favorite airplane that they dream of flying. Whether it is a classic antique heavy metal warbird or high performance jet, they all have one thing in common, they all make very poor trainers.

The ideal trainer is inherently stable, relatively slow flying, easy to maintain and usually less expensive.

There are an abundance of airplanes marketed as trainers available as unassembled kits, Almost Ready to Fly (ARF) and Ready to Fly (RTF). Although they are sold as trainers, not all of them really live up to the name for various reasons.

Most instructors and experienced pilots will agree that the ideal trainer will have these things in common.

- High flat bottom wing design
- 55"-60" wing span
- Significant wing dihedral
- Tricycle landing gear
- Long tail moment (long fuselage)

- Large tail surfaces
- Four channel control. (Aileron, Elevator, Rudder & Throttle)
- .40-.46 size nitro engine or electric equivalent

Some of the popular airplanes that have proven to be successful trainers are the Hanger 9 Alpha 40, Sig Kadet LT40, Great Planes Avistar and Hobbico NexStar. This list by no way means that other airplanes are not suitable trainers.

There are other suitable aircraft for training purposes and, before purchasing an airplane, the student should feel free to discuss this with any qualified member.

Prior to showing up at the field to begin flight training, the student should present their aircraft for the initial pre-flight check to any qualified club member or instructor for an airworthiness check.

Pre-flight Recommendations

Batteries:

Transmitter, buddy box, receiver, glow driver and starter batteries should be fully charged before any flying session.

Due to the numerous types of batteries and chargers in use today, it is extremely important to fully read and understand the manufacture's recommendations for charging and maintaining all of your batteries.

If you only fly once or twice and are able to fly again the next day, the equipment should be put back onto charge and "peaked" – meaning put back onto charge until the batteries read the highest voltage before starting to drop back down. (this may be only a few hours). There are several good chargers available that will monitor the battery voltage and automatically shut off when the battery is at full capacity.

Frequency Control:

The N.R.M.F.C. uses a frequency board and pin method of controlling radio frequencies.

BEFORE ANY 72 MHz TRANSMITTER IS TURNED ON, A PIN SHOWING THE FREQUENCY OR CHANNEL NUMBERS AND NAME OF THE OWNER IS PLACED ONTO THE BOARD AT THE APPROPRIATE SPOT. NO OVERLAPPING OF PINS!

Failure to do this can cause someone else on the same channel to lose control of their aircraft, possibly destroying the aircraft and causing other personal damage or injuries.

Unofficially, if such an accident should occur, it is up to the person who turned on their transmitter causing the accident to be responsible for replacing the damaged aircraft.

The frequency pins should be neat, readable, weather proof and have the channel number and name of the owner on it. The required size is 5/8" high and 3" wide.

Normal procedures for flying would be to have your aircraft fueled with all equipment ready to start, then go to the frequency board with your pin and if your channel spot is clear, place your pin onto the board. Good practice is to glance at the flight line double checking that no one is on your frequency, (looking at channel number flags on their antennas), turn on your transmitter and then watch for any aircraft which seems to be out of control. Once everything appears OK, turn on your receiver and perform your range check. When you are finished flying and the aircraft is back, turn off the receiver, then the transmitter and **GO AND REMOVE YOUR PIN FROM THE FREQUENCY BOARD** so someone else can fly!

If there are any questions regarding the Training guide please contact the N.R.M.F.C. Inc. Chief Flying Instructor or the executive.