Huronia RC Club Flight Training Guide

Aka Wings Test

Introduction

The Huronia Radio Control Club is a group of people whose goal is to provide a safe place to fly R/C planes and helicopters and promote the hobby. As part of promotion and safety, we provide flight instruction to new members free of charge. This training will develop the skills of a new pilot to where they can safely fly at the club's field without supervision. Flight training for helicopters is also provided by the club. A separate document is used for the "Heli Wings" program.

New members that already have wings from another club must still take the wings test to demonstrate that they know the clubs rules and are able to fly safely at our club site.

Purpose of the Wings Program

- To give students a successful start into R/C airplane sport/hobby.
- To ensure knowledge of MAAC and club safety rules.
- To learn to fly safely to protect club members, the flying field and the student's airplane.
- To pass on general knowledge needed to advance in the hobby.
- To develop a core of flight trainers to assist new members.
- To meet MAAC's requirement that chartered clubs have a wings program.

What the program will not do

The whole point of R/C training is to get the beginner to the point where they no longer need the constant help of an instructor. You must understand, however, that this training will not transform you into an expert pilot. The practice you receive in training is done with close supervision. In the real world, there will be no instructor there to take control when things go wrong. You can quickly and unexpectedly get your plane into rather precarious situations from which you may not recover. This knowledge should inspire you to be cautious for a while. This does not mean that you cannot continue to learn from more experienced members as new situations arise, it only means that the formal training is over. This hobby is one that will have you learning new things for decades to come.

Documents

The following documents will be used during training.

- HRRC Wings Training Program. - this document
- Club rules
- Club membership
- MAAC membership

- MAAC safety code
- MAAC Flight Training Course
- **Instructor waiver – Must be signed by all students (attached)**

(MAAC documents available at www.maac.ca under the "Library" then "Forms/Documents" section)

Training times

The official training times are Tuesday morning, Wednesday evenings and Sunday mornings 9:30 – noon. The season starts after the spring clean up day. (Usually the first Saturday of May) Training may take place on any day or time, but we setting these times aside due to a limited number of instructors. It is possible to arrange other days and times with an instructor that work for both of you to maximize the number of opportunities to fly if they are available.

What to expect

Flight training will be done using a buddy box. The club has several training boxes and cables that may work with your make and model of transmitter. If your transmitter is a JR, then it would be advisable to bring a 9v battery with you. The JR buddy box requires one. If you bring your own, then you will not miss a flight if the clubs battery is dead.

Although you will probably do most of your training with one instructor, you may seek instruction from any club instructor that is available.

A list of training steps is provided as a framework for your training. In each step there is a space for a club instructor to mark that the material has been successfully completed and add notes. It is important that you keep your training guide 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. This checklist will also ensure that no steps are missed. The instructor will frequently be going back over previous step to review and re-enforce those skills.

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 progress 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. On completion of these lessons you will be ready to take your "Wings Test". This test is designed so 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. Where you go from here is up to you.

The stages that you can expect to encounter during your training are basically as follows. The pre-flight checkout of your plane by the instructor must be done before your aircraft

is flown for the first time to ensure is it ready to be flown safely. A radio range check will also be done.
The engine is tested to ensure that it is running satisfactorily. The instructor will taxi test that the aircraft is steering properly on the ground. At this point the instructor will fly your aircraft. He will adjust the radio trim levers to make minor flight adjustments and attempt to achieve straight and level flight. After the test flight, adjustments may need to be made to your plane. This process may go on for several test flights in extreme cases where the instructor will make mechanical adjustments necessary to get everything right. The instructor will demonstrate various manoeuvres and show you exactly how the aircraft responds to control from the transmitter. Left and right hand turns are your first manoeuvres. Though these are the simplest to do, they require most of the basic concepts. Then the horizontal figure eight. This practices both left and right turns and has the aircraft approaching you after completion of each half.
When you have gained enough control of the aircraft that you can handle a flight where the intention is simply to fly the aircraft at a safe altitude, then the next step is the takeoff. Next is landing approaches. With practice you gradually get closer and closer to the ground while lining up with the runway. Once landing approaches are mastered then the actual landing will be added.

List of instructors

John Allan
Larry Downing
Mike Foster
Peter Foster
Ed Leclere
Calum Murray
Eric Rominger
Robert Simpson

Wings Training Check List

Understanding of the MAAC and club safety rules _____

_____

Frequency control procedures _____

_____

Preflight inspection on aircraft _____

_____

Radio range check _____

_____

Engine start and tune _____

_____

Straight and level flight _____

_____

Left and right turns while maintaining altitude _____

_____

Turning to a specific heading _____

_____

Flying a rectangular pattern maintaining constant altitude and compensating for drift

_____

Trim for level flight various speeds _____

_____

Horizontal figure 8s – must do figures with rounded 8s and ones with square 90 degree corners (2 linked squares) _____

M□aintaining symmetrical circles _____

_____

Climbing and descending in straight flight and in turns while controlling airspeed

_____

Use of rudder for coordinated turns _____

_____

Taxiing in calm and windy conditions _____

_____

Take-off _____

_____

Steep turns and high Gs (bank angle greater than 50 degrees) _____

_____

Slow Flying _____

_____

Stalls and recovery – power on and off – straight ahead and in turns _____

_____

Tracking over runway _____

_____

_

Flying the landing pattern at altitude _____

_____

Missed approaches and overshoots with transition to cruise flight _____

_____

Full stop landing within a reasonable predetermined touch down zone _____

_____

Maintaining centerline heading during landing roll-out _____

_____

Touch and goes w□ hile transitioning smoothly to take-off _____

_____

Simulated dead-stick glide and landing _____

_____

Crosswind take-offs and landings _____

_____

High wind flying with figure 8s, taxiing, take-off and landing _____

_____

Unusual attitudes – disorientation and recovery _____

_____

Wings test

The student's instructor will decide when the student is ready to take the "Wings Test". The student is ready to take the test when they have successfully and consistently performed all of the tasks on the checklist. Whether the student passes the test or not will be judged by the student's instructor and two experienced club members.

Skills to perform in the "Wings Test".

- Taxi from pit entrance and take-off.
- Rectangular circuit around the field parallel to the runway with turns to the left.
- Rectangular circuit around the field parallel to the runway with turns to the right.
- Two horizontal figure eights. - one with rounded 8s and one with square 90 degree corners (2 linked squares) .
- Landing pattern to land downwind, abort landing at 5 feet if too windy.
- Simulated dead-stick landing starting from across from the pilot stations.
- Landing pattern to full stop landing into the wind.
- Taxi back to the pit entrance.
- Always stay within the designated flying zone and not too far away.

In addition, the candidate must have demonstrated a full knowledge of MAAC and club rules as well as the frequency control system. While these capabilities are not suitable to be demonstrated in a "test" situation they are viewed as mandatory capabilities for competent pilots. Once the student has passed, contact the person who maintains the membership list so that the new status can be updated.

Instructor waiver

No students shall fly on their own without the aid of an instructor (**EVEN IF THEY ARE BY THEMSELVES**), until such point that the student is tested for their wings, passed and has earned their “Wings”.

You must first understand that our instructors are volunteers. It is important to realize that there are limits to everyone's ability. Given a reasonable situation, the instructor will be able to pre-flight, test, take off, fly and land your aircraft under control ensuring that there is no damage to the aircraft. An aircraft that is out of balance, unstable due to construction faults, engine malfunctions or radio problems add a great deal of uncertainty to any flight. Most problems with an aircraft are experienced within the first few flights. Under these circumstances there is little that any pilot can do, but usually if anything can be done, it will be done by the instructor. This may not prevent a crash but it will lessen any damage caused. This is especially true during the take-off and landing phase of training. The plane will be flying very close to the ground and at slow airspeeds. In the event that you get the plane into trouble, there may be very little that the instructor can do to save the plane, even on the buddy box. The experience of the instructor is your best chance at success.

The students must understand that the instructors are volunteers and are not in any way responsible for any crashes or mishaps during the course of their instruction. Anything can happen at any time to these aircraft (ie: radio glitch, mechanical failure, pilot error etc...) and the students shall bear all responsibility for their own equipment.

All students must sign and date the attached waiver.

WAIVER

I the undersigned (Print) _____ hereby state that I have been informed and am fully aware of the risks involved in the sport of flying model aircraft and assume all responsibility for any damage caused by my aircraft while under the control of, either myself or my instructor, outside of the liability coverage of Model Aeronautics Association of Canada (MAAC).

I therefore agree to hold my instructor free and harmless from any claims or liability whatsoever whether with regard to damage to my own model aircraft or to damage caused by my model aircraft to persons or property.

Dated at Huronia Radio Control Club. _____

SIGNED ----------

Indemnity

I hereby request that the Huronia Radio Control 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 Huronia Radio Control 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: _____

Requirements for becoming an Instructor

If you enjoy teaching and are an accomplished pilot why not become an instructor. We can always use more instructors and teaching others to fly can be a rewarding part of the hobby. Someone took the time to train you.

Instructors do not need to be super skilled pilots. Remember you will be teaching basic manoeuvres with trainer type airplanes, not advanced aerobatics with 3D planes. The best pilot can be the worst instructor if he doesn't have good people skills.

Qualifications to be an instructor:

- Must have had wings for at least two years.
- Capable of recovering trainer aircraft from unusual attitudes.
- Must have thorough knowledge of MAAC and club safety rules.
- Good landing skills and dead stick landings.
- Must have good knowledge of radio control issues, batteries and proper maintenance of RC aircraft systems.
- Must have good general knowledge of aeronautics.
- Be recommended by at least two other instructors.

Advice for Instructors

This wings program provides a guideline, which takes the student from a complete novice, to a competent flyer. If you follow these steps, then no required items will be overlooked. The steps shown in this document are similar to the steps found in MAAC's "Flight Training Course" document. The MAAC document points out elements of each step that should be included in the lessons. The student should have copies of both. MAAC also has a document called "Wings Program". It contains descriptions of various aerobatic maneuvers. It is flying achievement program divided into A, B, C and D levels from basic to advanced that is designed to encourage flyers to improve their overall flying ability. This is not the "wings" program that we use for student pilots. Once students get their wings they can be encouraged to follow that program on their own to continue progressing.

Progress Check List
A checklist of training steps is provided as a framework for the training. The instructor should discuss what the upcoming flight will cover and any new info the student needs. In each step there is a space for a club instructor to mark that the material has been successfully completed. The instructor should initial each step on the checklist only when you feel that the student has consistently achieved the skill. This will give the student and other instructors a sense as to how they are progressing. This checklist will also ensure that no steps are missed.

Buddy Box
All flight training **must** be done using a buddy box. Training without one puts the student's plane at too much risk, especially during take-off and landing. If the club boxes will not work with the student's transmitter, then they should get one. Do not forget to check for proper operation of flight controls since they may have been changed on the buddy box for other student planes.

A good instructor will:
- Review and have complete understanding of the steps and the importance of the step-by-step method of this program.
- Utilize the MAAC lesson teaching points.
- Familiarize yourself fully with all the HRRC club, MAAC safety, and etiquette rules. It's imperative that beginners are exposed to the correct principles of safety from the very outset, and they are practiced on a regular basis.

- Insure students are given a goal to work toward, on each flying session. All lessons in this are directly related to the MAAC flight training, and seem to work well.

Keep their left thumb on the stick. Through the first lessons of learning to fly, students will be predominantly using only their right hand. Urge them to keep both thumbs on the sticks. As they begin landing and taking off, their left hand will be needed, and it will be easier if they are comfortable with their left thumb on the stick.

Span of attention or saturation point: We all have a limit to how much new information we can absorb in a given period of time. Keep in mind that your student will be concentrating very hard during practice sessions (especially on their first few flights). One common symptom of this will be that the student has been doing just fine for about eight to ten minutes of flying. Suddenly, the student starts making mistakes (usually silly mistakes) not normally made. The student may not even understand why they are doing so poorly and begin to get frustrated. As the instructor, you must be able to recognize when the student has had enough. Tell the student they need a break and land the plane.

Teach one thing at a time
When starting to teach turns, it is not important if the student looses a reasonable amount of altitude or comes out on a wrong heading. Concentrate on the angle of bank only. Do not overload the student with too many new skills. As the student becomes successful with the skill then add new ones like maintaining altitude during the turns.

Overconfidence:
As the beginner starts to gain familiarity with his setup, he may begin to feel that this is pretty easy stuff. He has not yet experienced getting his airplane into serious trouble and solving the problem in time to save the day. Occasionally the student will begin to disregard your instructions while flying, preferring to try aerobatics. The student should always be reminded that flying with out an instructor is forbidden.

Two steps forward, one step back. You must remember that your students will have problems along the way to learning how to fly. At times, things you thought your students understood will seem to be difficult again (especially after long non-flying periods). One way to minimize the problem is to do a review of what the student currently knows at the beginning of each flying session. You can review on the ground, as well as begin the flight by having the student do simple maneuvers they already know.

How do you handle the left/right problem? Beginners have a common problem when it comes to mastering turning. After entering a turn, they tend to forget which way they are turning and give the wrong aileron to exit the turn (sending the plane deeper into the turn). There are several ways you can help the beginner with this problem. A useful rule of thumb for beginners is to instruct them to push the aileron stick in the direction of the low wing when the plane is flying toward them. One teaching aid is to ask the student to turn his body to face the plane's heading. Another method is to have the student keep repeating (out loud) from the beginning of the turn which way he is moving the stick. With any of these methods, the beginner will eventually become comfortable turning and not need the crutch.

How much control surface motion do you want? - Since students have a natural tendency to over control, many instructors like to set up trainers to be very docile, minimizing control surface motion (possibly with dual rates). This means the beginner must move the sticks quite a bit to cause a reaction from the plane. However, the preferred setup is to keep the plane rather responsive for three reasons. First, the student must eventually learn the precise control motions needed with sensitive control surfaces (on this airplane or their next one). Second, on windy days minimal control may not be enough to cause sufficient response from the airplane in certain attitudes. Third, as the instructor, you need the plane to be responsive enough to get out of precarious attitudes. Make sure that the student does not get in the habit of over banking the plane in turns.

When do you teach rudder-coordinated turns? It is generally best to start by teaching people to fly without manipulating the rudder stick (except for steering on the ground). While rudder coordinated turns make for nicer looking turns, and rudder is helpful when landing in a crosswind, try to keep turning as simple for beginners to master as possible. The addition of rudder coordinated turns should be added after the student is comfortable with all type of turns. Do not wait too long in the training process to introduce the use of rudder.

What is the wind limitation? Students can learn more on calm days. There comes a point then the wind is blowing so hard that the wind will be controlling the plane and the student will not be learning anything, only frustration. As the student progresses, let them fly on windier days. Remember that your student has not truly mastered flying until they can fly with winds around 10-12 mph. The student's first attempts at landings and takeoffs should be restricted to days where the winds are primarily parallel to the runway. Teaching crosswind handling should be reserved for advanced students only. If you do not feel comfortable flying under these conditions, by all means, ask your students to wait for a better day. On days that are too windy to teach take-off and landings, but not so windy that the wind is totally controlling the plane, then use the day to go back a few steps and teach flying figure 8s in windy conditions.

Practice, practice, practice. Although a beginner's first successful landing is a great confidence builder, do not let him think he has mastered landing just because he has done it once. As with taking off, every landing will be different so be sure to practice landings over and over again – in several directions and in different wind conditions.

What about dead sticks? - Sooner or later, we all have to land without power. One obvious way to practice this to simply cut throttle and pretend the engine is no longer running. At first, have the plane in a nice approach position so the beginner can land with relative ease. As you continue practicing, get the plane into more precarious conditions when you cut throttle. Even if you just have the student tell you what they would do if the engine quits in a given position may be good enough. In any case, be sure the student is prepared.

Misc

Other than possibly for their first few take-offs, the student must stand at the designated pilot stations for all training.

The instructor will be responsible for the inspection and flight-testing the student's model prior to the start of training. Only safe aircraft are to be used.