

# Flight Training Program



## Student Packet

March 20, 2005

Student: \_\_\_\_\_

AMA #: \_\_\_\_\_

Primary Instructor: \_\_\_\_\_

Contact Information: \_\_\_\_\_

# MCRCF Flight Training Program (Student Packet)

## Acknowledgement

This update to the Flight Training Program is based on the original version written by ....

This latest revision of the document contains new material as well as references to additional resources that are available to Student Pilots. The new material has been put together by Ray Capobianco, John Parisi and Jim Orsborn and is based on the current Flight Instruction Program.

The MCRCF Flight Instruction Program operates under the general guidelines of the Flight Verification Committee which oversees the certification and all Instructor Pilots and administers the Flight Verification Exam for Solo Pilots.

## Summary of Changes

Feb 20, 2005 – Original, revised edition. Clarified the wording of the 12 Objectives included in the Initial Flight Instruction program. Added the Waiver of Liability and Solo Flight Examination forms.

Mar 5, 2005 – Version 2. Added a new description of the revised flight qualification standards as approved by the MCRCF Board in 2004. Clarified the point that this basic Flight Instruction program provides initial training suitable to approve a new pilot for “Trainer Pilot” (Unsupervised) flight in a High Wing, Flat-bottom Trainer style aircraft. At this point, the pilot will be issued an “Unstamped” frequency pin. Subsequent training and a second Flight Qualification test is required before the pilot will be issued a “Stamped” frequency pin that permits unrestricted flight permissions to include semi-symmetrical and low wing aircraft.

March 20, 2005 – Version 3. Added a new version of the Waiver of Liability statement.

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## Waiver of Liability

Student's Name \_\_\_\_\_

AMA Number \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Phone Number ( \_\_\_\_ ) \_\_\_\_\_

The above named individual hereby understands that the Middlesex County R/C Flyers (MCRCF) assumes no liability or responsibility in regards to the material herein, or any resulting action thereof. All information was compiled in good faith from printed materials, past experience and general knowledge of the model aviation hobby.

Safety, safe practices and procedures, have been emphasized throughout this manual. Participants are expected to comply with these guidelines at all times as a member of the Middlesex County R/C Flyers.

The Middlesex County R/C Flyers flight training program is provided free of charge, by experienced model aircraft pilots who volunteer their time. There are no guarantees as to results. Participants must exercise their own good judgment and common sense in determining their abilities and limitations. The Middlesex County R/C Flyers assumes no liability or responsibility for any action taken, past, present, or future, by any participant in this program.

Participants further attest they are members in good standing with the Academy of Model Aeronautics. Should the possibility of conflict exist with club procedures, guidelines, etc. and A.M.A rules, A.M.A. rules will take precedence.

If you do not find these terms agreeable to your situation, please do not ask to participate in the program.

Previous model aircraft flying experience:

- I have never flown a model aircraft before
- I have a few flights before with an experienced instructor
- I have flown several times before, but have not soloed
- I am an experienced flyer

\_\_\_\_\_  
(Student's Signature)

\_\_\_\_\_  
(Date)

**This form needs to be signed and turned into your instructor at the first lesson.**



# MCRCF Flight Training Program (Student Packet)

## 1. WHY DOES THE MCRCF HAVE A FLIGHT TRAINING PROGRAM?

The sport of flying radio controlled model aircraft is one that is enjoyed by literally millions of people around the world. It is a hobby that continues to provide challenges and enjoyment regardless of how long a person pursues it. However, unlike so many of today's prepackaged diversions, learning to fly radio-controlled models takes perseverance, patience, and the help of experienced flyers. Middlesex County R/C Fliers have developed a training program that is designed both to provide the novice pilot with experienced help and to make the learning process successful and enjoyable.

## 2. KEYSTONES OF THE PROGRAM.

The Middlesex County R/C Fliers Flight Training Program is built on four basic principles:

- A. **SAFETY.** Properly built and flown radio controlled aircraft present no great risk to anyone. However, the potential damage a radio-controlled aircraft can cause, particularly in the hands of an inexperienced pilot, must be a prime consideration in any flight-training program. This flight-training program is based first and foremost on safety.
- B. **SUCCESS.** Learning to fly RC aircraft is a challenge, but one that can be met by almost everyone. However, it is nearly impossible to learn RC flying on your own. The most likely result will be a series of disheartening crashes that would discourage even the most determined enthusiast. While there are no guarantees, the MCRCF Flight Training Program is designed to guide the student through the learning process on his first aircraft and minimize the risk of a catastrophic crash.
- C. **ORDERLY PROGRESS.** This program covers an orderly series of twelve objectives that start with the basics and ends with a solo flight evaluation. The twelve objectives are organized into four lesson plans that build flight skills in a sequential manner. The four lesson plans typically introduce basic flight skills in the following sequence:
  - a. **Teaching How to Turn and Maintain Level Flight**
  - b. **Teaching How to Set and Hold Headings**
  - c. **Teaching How to Takeoff**
  - d. **Teaching How to Land**
- D. **FUN.** Most experienced pilots recall their training days as one of the most enjoyable periods of their modeling career. The sense of excitement and accomplishment one feels as each new skill is mastered is one of the greatest payoffs of this hobby. This training program maximizes the “fun factor.”

## 3. HOW IT WORKS:

Simply stated, the Middlesex County R/C Fliers Flight Training Program consists of three equally important elements:

- A. **AN INSTRUCTOR PILOT.** The MCRCF Flight Instruction Program uses Certified Flight Instructors. These individuals are experienced pilots who have expressed willingness, even a desire, to help introduce newcomers to RC models. He has passed a rigorous flight test of his skills before other instructor pilots. His principle job is to guide

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the student through the flight training program, certify his progress in the student pilot's log, and then help conduct the solo flight evaluation.

- B. **THE TRAINING PROGRAM.** The training program consists of twelve initial objectives that culminate with a “Trainer Pilot” flight evaluation. (Three additional objectives address the follow-on period leading up to the final “Solo Pilot” flight examination. The twelve objectives can be easily organized into four lesson plans as discussed in the previous section. Each subsequent training objective builds on skills developed in previous lessons. Early objectives are simple and might take only an hour or two to complete the lesson that covers these objectives. Later lessons may require more than one weekend before the skill is mastered. In any case, progress through the program is recorded on a progress log maintained by the instructor.
- C. **THE STUDENT.** Perhaps this is the most important element of this Training Program. A few notes to the student appear below.

## 4. REQUIREMENTS FOR THE STUDENT

While both your flight instructor and the Middlesex County R/C Fliers club are ready to help you learn, there are two basic requirements that must be met before you can participate in the Flight Training Program.

- A. **MEMBERSHIP IN THE ACADEMY OF MODEL AERONAUTICS (AMA).** The AMA is the national governing body for model aviation in the United States. Membership in the Academy provides liability insurance, a monthly magazine covering the whole range of modeling activities, and other important benefits. Middlesex County R/C Fliers is an AMA chartered club and requires membership in the Academy for all of its members. Annual dues are \$58 and substantial discounts apply to student-aged members.
- B. **MEMBERSHIP IN MIDDLESEX COUNTY R/C FLIERS.** Middlesex County R/C Fliers, (a state of Massachusetts nonprofit organization), operates at Veteran’s Park, across from the Middlesex County Correction Facility on Treble Cove Road in Billerica, MA. The club has invested significant money and effort into improving this facility. Annual maintenance and liability insurance expenses are considerable. Consequently, Middlesex County R/C Fliers and our Insurance coverage require membership both to fly at this facility and to participate in the training program. Annual dues are \$42 per person (\$28 for members under the age of nineteen) and a one time \$25 initiation fee.

## 5. TIPS FOR THE STUDENT PILOT

In an effort to insure your rapid success in this training program, the following suggestions are offered to potential student pilots:

- A. **GET ADVICE EARLY.** The choice of the right first plane is important. Some beautiful models don’t make good trainers. Before you purchase anything, contact the club for advice.  
The club has produced a one page flyer that covers the basics of how to select your first model as well as the radio and engine – ask your instructor for a copy if you have not seen it already. You’ll save money when you visit your local hobby shop and a lot of

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heartbreak later on. During the building process, periodically check with the club on areas you're not clear on. Club members are glad to help.

- B. **STAY WITH IT.** Once you begin flight training, try to come to the field often. It is strongly recommended that you attempt to schedule a flight lesson at least once a week if possible, even if you start flying in the winter months. Your progress will be much faster, and you instructor will not need to spend as much time reviewing material from previous lessons.
- C. **COORDINATE WITH YOUR INSTRUCTOR.** Chances are you'll be "married" to a single instructor pilot who will guide you through the whole Flight Training Program. Make specific appointments to meet him at the field for flight training. Weekday evenings after work are usually a good time to get in 5 or 6 flights. The field is not crowded and your instructor can devote all his attention to you. You can, of course, also train on weekends. Your instructor, however, will probably want to fly his own plane occasionally, so fewer flights are likely. In any case, check with him to avoid coming to the field and being disappointed when you find him not there. Other instructors may help you if your instructor is absent but he may be concentrating on his assigned students.
- D. **BE PERSISTENT.** At the flying field, actively seek out your instructor and let him know when you are ready to fly. Once you are familiar with the basic tasks, you should be able to get your aircraft completely ready to fly with little or no assistance from your instructor. Once your aircraft is ready, don't wait until he thinks to ask you if it is ready. He may have other things to do or even another student going at once. Don't be bashful!

## 6. INFORMATION FOR THE BEGINNER

The following contains a summary of what your instructor will be teaching you in each lesson. If your progress and time permits, several objectives may be combined in one flying session. By the time you finish the course, you will be armed with the basic knowledge and skills to become a responsible and safe flyer that we will be proud of and enjoy as a fellow club member.

**[One quick note:** While everything possible will be done to avoid a crash while flying your plane, occasionally accidents do happen. However, your instructor and the Middlesex County R/C Fliers assume no responsibility for any damage that may occur. You should understand this limited liability before agreeing to participate in the MCRCF Flight Training Program.]

At the conclusion of this training program, you will have an opportunity to take a Flight Qualification Exam to demonstrate your skills and proficiency. Based on this exam, you will be given a "Trainer Pilot" certificate and granted permission to conduct solo (unsupervised) flight operations at the MCRCF field.

<p>Please note that this <b>Initial "Trainer Pilot" Certificate</b> covers solo flight with a <b>Trainer style aircraft only</b> and <b>DOES NOT</b> include advanced, low wing aircraft.</p>
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Most trainer style aircraft (including the MCRCF recommended LT-40) are actually quite capable flying machines. They are not limited to initial flight training, and they will continue to be an excellent learning platform well beyond the initial flight training period.

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## OBJECTIVE 1 – GROUND SAFETY CHECK and AIRCRAFT FAMILIARIZATION

The objective is to how to inspect your model before each flight, looking for problems that could cause an in flight failure that might result in a crash. Your instructor will show you how to pre-flight your model and identify any deficiencies that could cause a malfunction (crash) or safety hazard. He will also teach you how to start and adjust your engine.

## OBJECTIVE 2 - RADIO AND FIELD PROCEDURES

The objective is to acquaint you with your radio (both normal and abnormal operation), interference, and conducting a range check. Your instructor will explain the facilities that are available at the field for restraining your model while starting the engine. Your instructor will also discuss the importance of proper frequency control, flight operating procedures and field rules for safe operation.

## OBJECTIVE 3 – INITIAL FLIGHT FAMILIARIZATION

Initial flight familiarization will include the purpose of each control surface and how they work together to control the model in flight. Instruction will also include how each channel in the radio system is linked to each control surface. After a quick flight to confirm the airworthiness of your model, your instructor will let you have the radio and show you how to control your model in flight. At this point, all of your flying will be done at a safe altitude where the instructor can take over control if you get into trouble or there is an in-flight emergency. Don't worry about losing control during any of this flight. That's what the instructor is there for. He will keep you out of trouble by taking control of the aircraft. Just relax and get the feel of the controls. If you get nervous, which happens occasionally, tell your instructor and he will take the controls. Remember, all you want to do during this lesson is to get the feel of the model.

## OBJECTIVE 4 – BASIC FLIGHT MANEUVERS

At the beginning of each flight session, your instructor will perform a safety check looking for any potential airworthiness problems. If your instructor finds anything that needs to be corrected, he may perform an initial flight test to verify its airworthiness and safe handling qualities. Most Flight Instruction lessons will be performed with a "buddy box" attached to your transmitter. With the Buddy Box attached, your instructor will perform most take-offs and landings, but will have you take the controls after the model is at a safe altitude.

Once you have obtained the feel of flying your model, your instructor will teach you the five basic maneuvers required to get around in the sky. They are:

1. Level Flight
2. Banked Turns
3. Straight Climbs
4. Climbing Turns
5. Gliding

Your instructor will also explain disorientation. This is a problem that everyone experiences sooner or later in flying models. Basically, disorientation occurs when the model does something your senses don't anticipate. For example, when the model is coming toward you and you start to turn left, the model will turn to the left. But, it will move to your right. Your hands have told your brain "Left," but your eyes are telling your brain "Right." Experience will teach you how to cope with this situation. It's like learning to balance when you ride a bicycle. Your instructor will help you and, once you learn, you'll never forget.

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## OBJECTIVE 5 - ACCURACY MANEUVERS

Your skill and proficiency with the five basic maneuvers needs to be improved to the point where you can accurately position the model. Your instructor will work with you until you can demonstrate a higher level of skill and accuracy at the following maneuvers.

1. Level flight, maintaining heading and altitude.
2. Level flight at reduced power. Maintaining heading, altitude, and trim.
3. Both left and right turns to specific headings.
4. Climbing turns to specific headings.
5. Power off (idle) glides that include maneuvering the model to a specific area and approximate altitude.

## OBJECTIVE 6 - STALLS

“If you pull back on the stick, the airplane goes up. Pull back some more and the airplane goes down.” That’s a stall. But there’s a little more to it than that. Before you solo, you need to learn how to recognize and recover from stalls. More importantly, you should also learn how to avoid unintentional stalls.

## OBJECTIVE 7 – INITIAL EMERGENCY PROCEDURES

Now that you can fly around and do the basic maneuvers, it’s time to start learning to handle in-flight emergencies. Sooner or later every pilot will experience an engine failure or an unexpected attitude change. Your instructor will discuss how to deal with these situations.

## OBJECTIVE 8 - TAKE-OFFS

Most models crash during take-off and landing. That’s not said to scare you. It’s a fact because the model is near the ground and, if it’s not properly controlled, there’s very little time to correct the situation. So, your instructor will explain the forces that affect your model during take-off and will assist you in making your first take-off.

## OBJECTIVE 9 - ORIENTATION MANEUVERS

Your instructor will help you fly both a Figure 8 pattern (with alternating left and right turns) and a rectangular pattern (often called a landing pattern). The purpose of these maneuvers is to discipline your reflexes and judgment. They also help build skills that will be needed as you prepare for both take-offs and landings.

## OBJECTIVE 10 – APPROACHES TO LANDING

Your instructor will discuss how to land your model. You will fly a rectangular pattern again, but this time you will learn how to make a gradual descent for landing. You will get to practice this maneuver up high and as you become comfortable with it, the altitude will get lower. When both you and your instructor are satisfied with your progress, you will make your first landing.

## OBJECTIVE 11 – SUPERVISED SOLO FLIGHT

As you get towards the end of your Flight Instruction Program, your instructor will begin to prepare you for a solo proficiency flight. You will finally make a couple of flights without having the Buddy Box as a safety net. You will start a flight beginning with obtaining the frequency pin and ending with returning the pin to the board. The object is to complete the solo flight checklist and earn, at last your solo wings. All you have to do is demonstrate good judgment and control, observe the field rules, and conduct your flight in a safe manner.

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## OBJECTIVE 12 – FURTHER EMERGENCY PROCEDURES

Although you are technically ready to take your Solo Exam, your instructor still has a few more skills to explain. These additional procedures will help you to cope with the unexpected as well as introduce you to a couple of basic aerobatic maneuvers.

Even after you have completed your Solo Qualification Exam, you should continue to look at your Flight Instructor as a valuable resource. He is available to help you make an informed choice on your next airplane. He can also be called upon to “look over your shoulder” when you attempt to try something new.

### AT THIS POINT, YOU SHOULD BE PREPARED TO TAKE THE INITIAL “TRAINER PILOT” FLIGHT VERIFICATION EXAM.

After passing this initial exam, you will be granted limited Solo Flight Permissions.

## OBJECTIVE 13 – **Experience and Proficiency**

Gain experience and proficiency. Students are expected to take a period of time after obtaining their initial “Trainer Pilot” certificate to gain experience and become more proficient at basic flight operations. Safety practices should become second nature, and the student should gain confidence.

## OBJECTIVE 14 – **Introductory Aerobatics**

This Training Objective is intended to show the student that Trainer style aircraft are actually capable of many basic aerobatic maneuvers. While Slow Roll, Pilot Rolls, and Knife Edge maneuvers are not included in the list, they are certainly a sight to behold when flown by an experienced pilot.

## OBJECTIVE 15 – **Emergency Procedures**

This Training Objective is intended to help the pilot develop flight skills needed to recover from in-flight emergencies while still flying their trainer aircraft. A solid foundation should be established in this area before proceeding on to other aircraft where recovery is much more difficult.

### AT THIS POINT, YOU WILL BE PREPARED TO TAKE THE FINAL “SOLO PILOT” FLIGHT VERIFICATION EXAM.

After passing this final exam, you will be granted unlimited Solo Flight Permissions.

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## PRE-FLIGHT CHECKLIST

### A. ENGINE AREA

1. Check engine mount, engine, muffler, carb, prop nut and/or spinner for security and throttle connections for proper adjustment.
2. Check prop for nicks, cracks, etc.
3. Check nose wheel steering for security (if equipped).
4. Check cowl for security (if equipped).

### B. TANK AREA

1. Fuel tank and fuel tubing for leaks and/or damage.
2. Fuel tank for security.
3. Battery for security and protection (if located in tank compartment).
4. Battery connections for security and damage.

### C. RADIO COMPARTMENT

1. Check to insure fuel has not leaked into radio compartment.
2. Check servo mount, servos, and servo arms for security and proper operation.
3. Check push rods and kwik links for security and adjustment.
4. Check wiring for fouling in servo arms or pushrods.
5. Check receiver, switch, and connectors for security and protection.
6. Check receiver antenna for exit clear of obstructions.

### D. TAIL AREA

1. Check vertical fin, hinges, rudder and rudder clevis for operation, security and proper adjustment.
2. Check tail wheel for security and proper adjustment (if equipped).
3. Check horizontal stabilizer, hinges, elevator, and elevator clevis for security and proper adjustment.

### E. WING

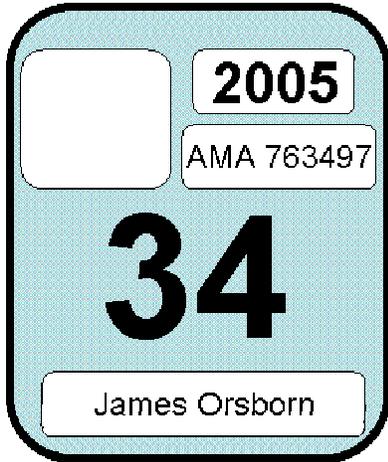
1. Check wing for breaks, warps, cracks, hinges, and ailerons for security.
2. Check aileron servo, pushrods, linkages, and clevis for operation, security, and proper adjustment.
3. Check landing gear for security of attachment (if equipped).
4. Check wing attachment points for possible damage. If rubber bands are used, make sure there are enough.
5. With wing attached, check center of balance of model.
6. Check wing to fuselage mating.

### F. RADIO

1. **GOT THE PIN?**
2. Check for proper operation and control directions.
3. Insure no interference.
4. Range check (25-75 feet) or per manufacturer's instructions.

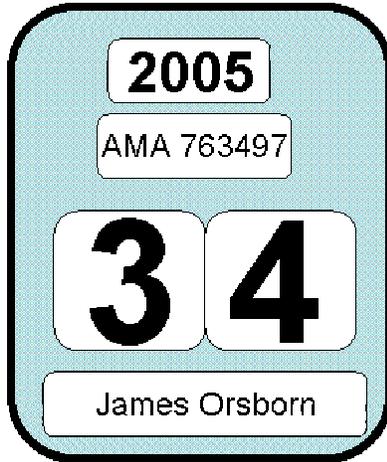
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## Sample Frequency Pins



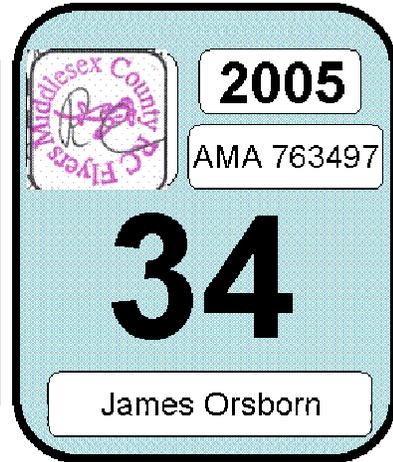
### Student Pilot

This pilot is not permitted to fly at the Club field unless accompanied by a Certified Flight Instructor.



### Trainer Pilot

This pilot is allowed to fly alone at the Club field without a Flight Instructor, but is restricted to High Wing, Trainer style aircraft.



### Solo Pilot

This pilot has been granted unrestricted flight privileges.



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