



## Mid-Missouri Radio Control Association

*Invites you to join us in the  
wonderful  
Hobby of Flying Radio Control  
Airplanes*

Academy of Model Aeronautics  
Charter Club #812, since 1971  
Columbia Missouri  
[www.mmrca.org](http://www.mmrca.org)

*Several times a year our club schedules a fun-fly in which many of the club members and several flyers from other clubs come out and enjoy a day of flying, comparing planes, and good food.*

The Mid-Missouri Radio Control Association is a group of about 45 radio control airplane enthusiasts. They have a wide range of interests in this challenging and enjoyable hobby. All are extremely friendly and like to encourage newcomers to the hobby.

Flying radio control airplanes is a hobby that you can participate in for a lifetime and never fully master all the aspects of the hobby. Yet under the guidance of experienced club members you can master the basics of learning to fly with a minimum of mishaps.

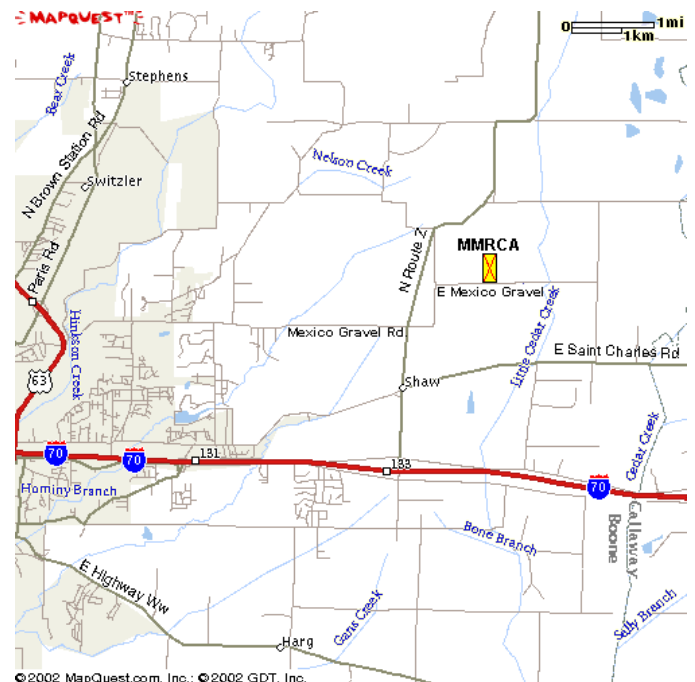
Club members regularly help new club members learn to fly through a series of lessons teaching each of the basic items of operating an RC airplane. This is just one of the benefits of membership in MMRCA.

Flying RC airplanes can be quite dangerous if not done in a control environment with a set of good safety rules. You might imagine the effect of a 10-pound airplane flying through the air at between 20-120 miles per hour. This is not to be taken lightly. MMRCA members abide by a set of safety rules that insure your safety and the safety of others while enjoying this fun sport.

Our club is a chartered club of the national organization *Academy of Model Aeronautics* (AMA) ([modelaircraft.org](http://modelaircraft.org)). All members of MMRCA are required to be members of AMA as well. This membership is also required when you go to other flying events around the country. AMA has several benefits. They provide a liability insurance policy for you. They publish a monthly magazine *Model Aviation*. They sponsor and sanction contests and fun-fly events around the country as well as here in our club.

### How do I get started?

Visit the club flying field, the MMRCA website ([www.mmrca.org](http://www.mmrca.org)), your local Hobby shop and ask questions.



*The club field is on Mexico Gravel Road 1.3 miles east of Route Z, east of Columbia.*

You will have to make a number of decisions and invest in some equipment to get started radio controlled flying. This equipment is available in

many places from the Internet, local hobby shops or used equipment from other flyers. Each has advantages and disadvantages. It pays to talk to lots of experienced RC pilots to learn what equipment is commonly used in the local club. What equipment have instructors had success with while training other pilots. And what are their personal preferences.

### Start with a trainer aircraft

To start you will want a “trainer” type aircraft. These aircraft have characteristics that make them very suitable for learning the basics of flying. They generally more stable than other types of aircraft and a bit slower so that you have more time to react.

Trainer aircraft usually have flat bottom wings. They can be large or small. Many pilots have a saying that larger planes fly better. They are less affected by mild winds and can often fly fewer attitude adjustments.

### You will need power

All airplanes need some source of power. The options are greater today with the growth of electric motors and battery systems that can compete in terms of flight time and power, with internal combustion engines. Most people in our club fly internal combustion engines fueled either by glow fuel a mixture of alcohol and nitro or gasoline usually used on larger models. Even if you decide to take up flying sailplanes, which usually do not have on board power, you will need a winch or catapult to launch the sailplane into the air. Usually the trainer will come with instructions recommending an engine or motor size.



Typical of a “trainer” aircraft. This is a Sig LT-40.

### You will need a radio control system

Radio control systems have improved greatly in the last 10-15 years and they are likely to improve greatly in the next 10 years. A system is made up of a transmitter, which the pilot holds, a receiver that is installed in the aircraft, servos that convert the radio signals into mechanical force to move the aircraft control surfaces and other switches.

One consideration for a new pilot is to buy a radio system that is compatible with your instructor’s radio system. In our club we usually train using a system called a “buddy box”. This is where the student and the instructor connect two transmitters together with a “buddy cable”. This allows the instructor to hand control of the aircraft to the student and take it back immediately if the student gets into trouble. This system has saved many airplanes to allow them to fly another day. MMRCA instructors use mainly Futaba brand radio systems. JR brands are probably the second most common.

Another consideration in purchasing a radio is choosing a frequency. A radio system must operate on one of the radio frequencies in the 72 MHz band by the Federal Communications Commission (FCC). These frequencies are identified by channel numbers, 11 through 60. If you are a Ham radio operator there are 18 additional channels available in the 50 MHz and 53 MHz portions of the 6 meter band. The frequencies are crystal controlled because we do not want interference between flyers on neighboring frequencies. You must choose the frequency when you buy your radio system. To change your frequency you will have to send it back to the manufacturer to change the crystals. You want to pick a frequency with the fewest other pilots using it to reduce the likelihood of conflict in use.

We maintain a frequency control board at the flying field. Only one pilot may use each frequency at a time. This reduces accidents where a pilot is flying and another person turns on a radio on the same frequency causing the loss of control of the flying aircraft. Each frequency has a clothes pin with the channel number written on it. You can only turn on your transmitter once you have the pin. If another person is using the pin you will just have to wait until they are done. Pilots are very good about sharing the frequency pins but if you can

get on a less used frequency you will have to wait less.

### You will need field equipment

You will need a set of equipment to support you aircraft. The typically include:

- A fuel **pump** to move fuel from you storage container into the aircraft.
- A supply of **rubber bands**. Most trainers used rubber band to attach the wing to the fuselage. For safety these are usually used only one or two days.
- A **glow heater**. If you are flying a glow fuel engine, which is the most common on trainers, you will need a way to heat up the glow plug. This is a battery in a special container.
- An **engine starter**. This can be a stick used to flip the propeller or an electric motor to turn the motor.
- Supply of **propellers**. They do break and it is nice to have spares so that you can continue to fly after breaking one.
- **Volt meter**. The radio receiver has a battery and must be checked through the day.
- **Battery charger**. This usually comes with your radio system for charging your receiver battery and transmitter battery at home.
- **Window cleaner** and **paper towels**. Model aircraft fuel is typically 18 % oil to protect the engine. This oil comes out in the exhaust and some get attached to the surfaces of the aircraft. You will need these to clean up at the end of the day.
- **Assorted tools**.
- **Box** to carry all this equipment.

If you opt for electric power the equipment changes a little. You will not need the fuel pump, glow heater or engine starter. You will need the other equipment. Additionally, you will need:

- A **Field charger**. A fast battery charger that runs off a 12 volt battery.
- A **12-volt battery**. Some people run this off their car or other have separate batteries.
- **Extra power batteries**. Fast charging usually takes about 30 minutes and electric flight times are from 5 to 15 minutes. You will need a set to be charging while you are flying the other set.

### You will need an instructor

Learning to fly RC aircraft is a complicated process. In many ways it is more difficult than learning to fly a full-scale aircraft. This is because in a full-scale aircraft you are inside the aircraft and oriented with the plane. In RC flying you are outside the aircraft. The intuitive response of the aircraft is different as the plane is coming toward you or going away from you. This takes practice. An Instructor can help you through this process and make the process of learning to fly RC aircraft more fun and less expensive.

MMRCA has a regular program where experienced pilots volunteer to train new pilots. The only cost to the student is the required memberships and the student's own equipment.

### What will you learn in flight training?

Your instructor will check your aircraft for:

- Safe construction and installation of the equipment.
- Help you "run in" a new engine.
- Check for proper working of the control surfaces.
- Adjustment of the engine.
- Range check of your radio system.
- Instruct you on proper preflight procedures.
- You will learn flying straight and level
- Flying the racetrack pattern.
- Altitude control.
- Slow flying.
- Taxiing.
- Take off.
- Runway alignment.
- Landing glide path.
- Landing.
- Post-flight procedures.

You will practice all these with your instructor. Your instructor will perform the steps you have not learned yet. Take off and landings are the most difficult parts. If you make a mistake in the air you have some time to correct your mistake. On take offs and landings you have little or no time to correct mistakes.

Once you have demonstrated the ability to perform these steps you will attempt a solo flight in which you will perform all these on your



own. This is the step of having "soloed". At that point you are mostly on your own to develop your pilot skills. Where you go from here depended on you skills and interest.

You have just started on a hobby-sport that you can participate for many years and can challenge you to learn new things all the time. Participate in the club and find out what this wonderful hobby of Flying Radio Controlled Aircraft is all about.



*A typical day at our field in this picture you can see a WW I high wing model, a fun-fly type low winged plane and a F-15 Jet.*

MMRCA Meets are every third Tuesday of the month at Trinity Presbyterian Church on Rollins Blvd. One block east of Russell Elementary School. The Meeting room is on the lower level and we usually park behind the church. See our website for more details.  
[www.mmrca.org](http://www.mmrca.org)

*This brochure was prepared by the Mid-Missouri Radio Control Association to inform people about the hobby of flying and building radio control airplanes.  
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