



Mid-Missouri Radio Control Association (MMRCA)
Columbia, MO
AMA Charter Club #812, since 1971
www.mmrca.org

Mid-Missouri Radio Control Association
 Invites you to join us in the wonderful Hobby of
 Flying Radio Control Aircraft

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

Flying radio control aircraft 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 and/or helicopter. This is just one of the benefits of membership in MMRCA.

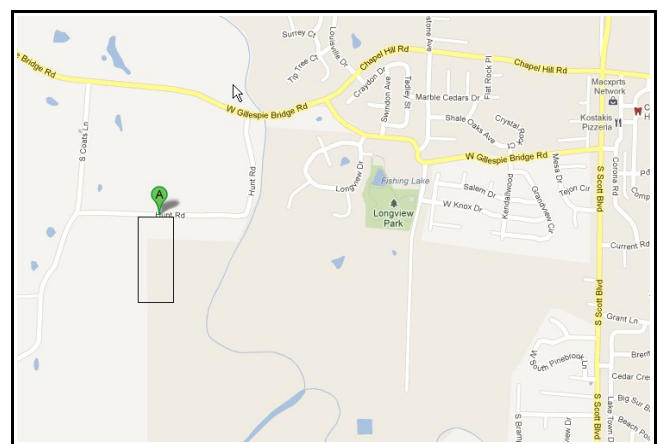
Flying RC aircraft can be quite dangerous if not done in a control environment with a set of good safety rules. You might imagine the effect of a 10-pound aircraft flying through the air at between 20-120 miles per hour. This is not to be taken lightly. MMRCA members abide by a set of safety rules that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

Our club is a chartered club of the national organization called *Academy of Model Aeronautics* or *AMA* for short. (www.modelaircraft.org). All members of MMRCA are required to be members of AMA as well. AMA membership is also required when you go to other flying events around the country. AMA has several benefits including:

- Providing liability insurance policy for you and our club while you fly.
- Publishing a monthly magazine, called Model Aviation, which is full of valuable information about this hobby.
- Sponsoring Fun-Fly's and Contests across the country.
- Providing news on any latest developments and products for our hobby.

How do I get started?

First, visit one of our meetings, or visit the club flying field. Our field is located in western Columbia. Directions to our field are on our website. Visitors are always welcome to come and watch us fly.



Map to the MMRCA Field

Information about MMRCA meetings and field locations

can be found at www.mmrca.org. Or, stop by your stop by your local Hobby shop and ask questions.

Before you start in this wonderful hobby, you will have to invest in some equipment. Radio control equipment is available in many places including the Internet, local hobby shops, or used equipment purchased from other flyers. Each brand of equipment has its own advantages and disadvantages. It pays to talk to a lot of experienced RC pilots to learn what equipment is commonly used in the local club. Many times having similar equipment to your fellow pilots allows the new pilot to tap into the knowledge already gained by other modelers.

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 are generally more stable than other types of aircraft and a bit slower so that you have more time to react when needed.



Trainer airplanes 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.



Trainer Helicopters are usually a little smaller and less

complicated than the more advanced models.

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. Many people in our club fly still internal combustion engines fueled either by glow fuel, a mixture of alcohol and nitro methane, or gasoline; but a growing number of members are switching to electric motors, at least on some of their aircraft. Even if you decide to take up flying sailplanes, which usually do not have on board motor, you will need a winch or catapult to launch the sailplane into the air. Usually the trainer aircraft will come with instructions recommending an engine or motor size.

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, and servos that convert the radio signals into mechanical force to move the aircraft control surfaces and other controls on the aircraft.

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 control back immediately if the student gets into trouble. This system has saved many airplanes to allow them to fly another day. Some of the newest radios have “wireless” buddy cabling where no cable is needed.

Another consideration in purchasing a radio is choosing a frequency. Newer radios operate on the 2.4 GHz range. This means you do not need to “reserve” a frequency when you start to fly as the 2.4 GHz radios automatically pick a clear frequency to operate on. The more popular are the Spectrum series and the Futaba “FAAST” system. It is strongly recommended that any new radio purchased be a 2.4 GHz radio.

Older radio systems 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. If you decide to purchase an older radio you must choose the frequency when you buy your radio system. To change your frequency on some older radios, you will have to send it back to the manufacturer to change the crystals. You want to pick a frequency with the fewest other pilot using it to reduce the likelihood of conflict in use.

We maintain a frequency control board at the flying field for older channeled radios. 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. When you plan to fly you attach a clothes pin with your name on it and attached it to the frequency board for your channel (blank clothes pins are available at the field). You can only turn on you transmitter once you have reserved the channel. If another person has their pin on that channel number, you will just have to wait until they are done. Pilot are very good about sharing the frequency 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 equipment needed for a fuel aircraft include:

- A fuel pump to move fuel from you storage container into the aircraft. This could be a hand-cranked or electric pump.
- A supply of rubber bands (Trainer airplanes only). Most trainer airplanes used rubber band to attach the wing to the fuselage. For safety these are usually used only one or two days. Safety note: Rubber bands are cheap, replace them frequently.
- 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 to start the engine. This is a battery in a special container for this purpose.
- An engine starter. This can be a stick used to flip

the propeller on your airplane or an electric motor to start the engine. The starter is pressed against the propeller spinner on an airplane, or attached to the start shaft on a helicopter.

- Supply of propellers (airplanes only). The 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 check through the day.
- Battery charger. This usually come with your radio system for charging your receiver battery and transmitter battery at home. Normally you do not have to charge your battery at the field.
- Window cleaner and paper towels. Model aircraft fuel is a mixture of chemicals including oil to protect and cool the engine. Some of the oil remains unburned and comes out the exhaust and covers the surfaces of the aircraft. You will need these to clean up at the end of the day.
- Assorted tools to perform required maintenance, swap out glow plugs and other mechanical repairs at the field.
- Box to carry all this equipment.



If you opt for electric power the equipment change 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 (not recommended) or other have separate batteries.
- Extra power batteries. Fast charging usually take about 30 minute and electric flight are from 5 to 15

minutes. You will need a least 2 sets so that one set to be charging while you are flying the other set.



You will need an instructor

Learning to fly RC aircraft is not 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?

Before you start to fly your new aircraft your instructor will check your aircraft for:

- Safe construction and installation of the radio, servos, and all other equipment.
- Help you “run in”, or break in a new engine (fuel engines only).
- Adjustment of the engine (fuel engines only).
- Check for proper working of the control surfaces.
- Range check of your radio system.
- Instruct you on proper preflight procedures.
- Learn to fly straight an level.
- Followed with flying the racetrack pattern.
- Learning to control your altitude.
- Slow flying. Necessary skill for landings.

- Taxiing and take off.
- Runway alignment for landing.
- Landing glide path.
- Landing.
- Post-flight procedures.

You will practice all these with your instructor. Your instructor will perform the steps on each flight for those elements 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 you 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.

How else can I learn?

One of the best tools to learning to fly RC Aircraft is a flight simulator. This is a computer program that installs on your computer and you use either the provided controller or your transmitter to control the aircraft on the screen. A student using a simulator properly to learn how to fly will spend less time learning to fly at the field as the beginner skills were already learned on that simulator. Simulators range from \$100-\$200 and are well worth the investment. The most popular simulators include Great Planes Real Flight and Horizon Hobby's Phoenix. Many experienced pilots own a simulator to practice advanced maneuvers and to keep their skills fresh during the winter months.

Welcome!

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.

MMRCA meets monthly. Guests are always welcome. See our website for more details on meeting dates, location, and directions to our field. www.mmrca.org

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