



Wall RC Helicopter Club

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Help For New Pilots - The Basics of RC Helicopters

The purpose of this information is to assist persons who are interested in RC Helicopters and do not have experience flying or RC building helicopters (also called RC Helis). In this informational packet, we will describe specific brands of helicopters and electronics that are among the most popular. We do not, in any way, endorse any specific brands. Analogous to the world of automobiles where various people prefer specific makes and models of cars, the same diversity of brand offerings exists with RC Helicopters. All of the products discussed within this document are readily available for purchase from stores both on the Internet and locally. If you would like further assistance, we would be more than happy to try to answer your questions. Our email address for this purpose is help@wallrchelis.org.



Simulators

[Pictured Left: RealFlight G5]

Before you spend any money or time purchasing an RC heli, you should first spend the money to purchase a quality simulator. The simulator will allow you to practice flight on a personal computer. The newest simulators are so true to life that you can literally learn all of the basics and advanced aspects of piloting from the comfort of your home (or office :). We would never recommend attempting to pilot an RC helicopter without learning how to fly on a simulator first.

Simulators can be somewhat pricy, however, the money spent on a simulator will be far less than the money spent on spare parts to repair a heli that is repeatedly crashed.

The most popular simulator among our club members is the RealFlight series. Their newest offering, G5, is packed with tutorials that will help you learn how to fly. If you are more budget conscious, RealFlight also offers a "Basic" version for a reduced price. Both editions come standard with a controller that connects to your computer via USB. Though RealFlight will allow you to use your own controller (see RealFlight website for limitations), most members use the controller that comes with their simulator as it is equivalent to a real controller.



Purchasing a RC Helicopter

Toy Helicopters vs. "Sport" Helicopters

[Pictured Left: E-flight CX2, Align T-REX 450 Pro]

The first thing to understand about RC Helicopters is that, due to their explosion in popularity, the offerings from manufacturers have become extensive. You can purchase "micro" sized helis intended to be toys for children which are very small and very inexpensive. The downside to such offerings is that they tend not to be very stable in flight and therefore difficult to control. Additionally, these helis are meant for indoor use and would not be practical to fly outside as they are dramatically affected by wind.

Generally speaking, the smallest size of helicopters that our members will fly at the field are the "450" size of helicopter. The naming conventions for helicopters can be very confusing as, with some models, their name refers to the size of the airframe. With other helicopters, the model name refers to the size of their main blades in millimeters, or the displacement of their engines in cubic centimeters. For example, the 450 size electric-powered helis have main rotors that are around 325 millimeters

(measured from the center of the head to the edge of the tip). The "600" model nitro-powered helis are also referred to as a "50 size" because, while using 600mm main blades, they use a class of engine that is between .50 and .57 cubic centimeters.

Among the helicopters that our club members fly, you will see sizes that range from the 450 class to the "90" or "700" class. Again, the "90 Size" helicopters generally use an engine that is .90cc and turn main blades approximately 700mm in length.



"What Should I Buy?" Micro Sized Helicopters

[Pictured Left: E-flight mCX and E-flight CX2]

If it is the dead of winter and you want something to play around with and still learn about the fundamentals of flight, you can purchase a decent quality micro sized heli to fly inside of your home. Among the most popular are the E-flight helicopters. The easiest to fly are the co-axial helicopters which have counter-rotating main blades for great stability and ease of use. The E-flite mCX RTF and CX2 RTF are very popular. Of the two models, the CX2 is larger. Don't be tempted by the "Intermediate" and "Advanced" helicopters if you have never flown before. The "Beginner" models will be more than adequate to provide hours of enjoyment and learning.

These helicopters are sold by many different vendors on the internet and usually also by local hobby shops. Again, a word to the wise, these helicopters are meant exclusively for indoor flight. If you are outside and a breeze kicks up, you will not be able to fight the air current with these helicopters as they are too small and light. If you are lucky enough to have a truly windless day, you may be successful with outdoor flying but watch out for wind!



Jumping Into "Sport" Helicopters

[Pictured Left: Hirobo SDX .50]

If you aren't interested in the expense of a micro-sized heli or have the bravado to jump directly into a sport model aircraft, please read on for the fundamentals of sport RC helicopters.



Purchasing a Radio (Transmitter) System

The foundation of everything you will eventually fly in the world of RC helicopters is a good radio system. Radio systems are offered in two variants, the older "FM" analog class and the newer and more popular "2.4ghz" digital class. Our members all fly with digital radios. The reason is that the digital radios "bind" to the receivers on your helicopter and are almost completely insusceptible to interference. In contrast, the FM transmitters and receivers do not have any type of "binding" technology and can experience a loss of control (or radio contact) if there is a source of interference. While losing control of a remote control car or truck can be annoying, losing control of an RC aircraft can be expensive and dangerous. As a result, we all use digital radio systems.

There are many different brands and models of digital radio systems available on the market. Among the most popular with our club members are the Futaba models. Prices vary from a few hundred dollars to several thousand dollars for a radio system (transmitter and receiver), so what should you get?

Ultimately, what you purchase will likely be a result of the amount of money that you have to spend on a radio system. The reason for spending more money as opposed to less would be based on the

number of channels that the radio system provides and the ease of use of the screen and menus. Among the newer radio systems, several members have been purchasing the Futaba 10CG.



The 10CG [pictured left] offers some great features for the money and can control up to 10 channels. That said, most helicopters can be controlled with a minimum of seven channels, however, if you ultimately intend to fly the larger nitro or gas powered helis, 8 or more channels will become preferable to you. Additionally, the 10CG offers some nice features such as extended mapping points for pitch and throttle curves and a backlit LCD screen. The 10CG can control up to 15 different models (helicopters) in its default configuration and additional memory can be added if needed.

At the time that this document was created, the Futaba 10CG 2.4ghz radio system had a street price of approximately \$600.00. That may seem like a lot of money, and it is, however, the radio system is the foundation of your helicopter fleet. Many of our members initially opted for less expensive radio systems only to later purchase a model that could accommodate their needs. If you are looking for less expensive alternatives, compare the features of the 2.4ghz models and find one that will work for you. A last note about radio systems, it is always a good idea to purchase a model that is popular with the members of the club where you will be flying. This will facilitate you getting help with setup or programming options as you progress.

A Great Starter Helicopter



[Pictured Left: Align T-REX 500 ESP]

It is very difficult to recommend a first helicopter. The reason is that there are many different types and styles available and all are good for various reasons. All that said, the easiest way to start out is to purchase a "kit combo." A "kit" is generally the sum of the helicopter parts that require assembly. "RTF" or Ready to Fly helicopters are also available, however, these are generally not recommended. The reason is that its important for you to learn how to build the kit and set up the helicopter so that you will be able to correct problems that may occur. If you purchase a helicopter that is already built, you fail to gain this important knowledge. Additionally, the higher-end and better performing helicopters do not come as RTFs so, if you end up enjoying the hobby, you will eventually be forced to learn how to build.

As helicopters go, the smaller you get, the less expensive and more difficult the helicopters are to fly (except for co-axial micro helis). The larger you get, helicopters become more expensive however easier to fly. As a result, it is generally preferable to get a first-time heli that is somewhere in the middle of that "bang for the buck" curve.

Nitro or gas powered helis have an additional level of difficulty in building and setting-up because they require engine tuning and calibration and require an additional servo. Electric models do not have this hurdle to overcome as their motors come ready to run.

"Combo Kits" come with almost everything that you will need to fly a helicopter, save the battery and the radio system. As a result, you might not have to make purchasing decisions for things such as servos, gyros, tail servos, speed controllers, etc. All of these various components have many variables of manufacturers, models, speeds, etc., which can make purchasing a new heli a daunting task.

Because people will inevitably ask for a specific model as a recommendation, I will offer one suggestion. The Align T-Rex 500 ESP Superior Combo (pictured above, left) is a great way to go. This kit combo only requires the purchase of a few additional items to complete for flight. Also, the 500 is a very stable electric-powered helicopter for its size and will facilitate ease of new use. The street price

for this kit at the time of this writing is approximately \$560.00. The items that are required to complete are a radio system (which usually includes a receiver), a gyro, blades, a tail servo, battery, and a battery charger.



If you are slightly more adventurous or have less money to spend, the Align T-Rex 450 Super Sport Combo (pictured left) is a great bargain and includes almost everything in the kit. The 450 class electric helicopters will be slightly more difficult to fly than the 500's, however, require less investment to get up in the air. The street price for this combo at the time of this writing is approximately \$450.00. Most of the guys in the club have at least one 450 helicopter and most started out in this class. The 450's are inexpensive to build and inexpensive to fix. If you spend adequate time on a simulator, piloting one shouldn't be too difficult for you.

“What Else Do I Need?”

If you decide on an electric-powered helicopter, there are a few more components that you will need to purchase. You will need a charging system and batteries. Again, there is a whole spectrum of offerings for these two components, from inexpensive to costly, what you ultimately decide upon depends on your personal financial capability and preference.

Several members own the Hyperion brand of chargers and batteries because they are among the highest quality available and offer the advantage of fast charging rates that are up to one-fifth of the time of competitive models. A 3S 11.1v 2200mah LiPo battery for a T-Rex 450 can be charged in as little as 13 minutes with the Hyperion system! This equates to more time spent in the air rather than waiting for your batteries to charge while your heli sits on the ground.

Why Join A Club?

Though there are many reasons for joining a club, the most important include liability insurance coverage, learning opportunities, “expert” advice and assistance, and offer a knowledgeable group to collaborate with.

The Wall RC Helicopter Club has been founded as an organization based on the purpose of education for remote controlled helicopter flight. We offer private club online forums where you can get assistance with questions from home and purchase and sell used equipment. We would love to meet you and would always recommend stopping by the field on a weekend afternoon during mild weather to share in our hobby with us.

Online Resources

There are various forums online that cater to remote control helicopter enthusiasts. The most popular with club members is Helifreak.com. Helifreak has an enormous amount of information to assist you with questions that you may have and offers a large number of “build threads.” Build threads include videos of the process to build a specific helicopter kit. These are the best way to build a helicopter for the first time.

More Questions?

If you have any other questions, please feel free to shoot an email to us at help@wallrchelis.org and we will do our best to assist you!