

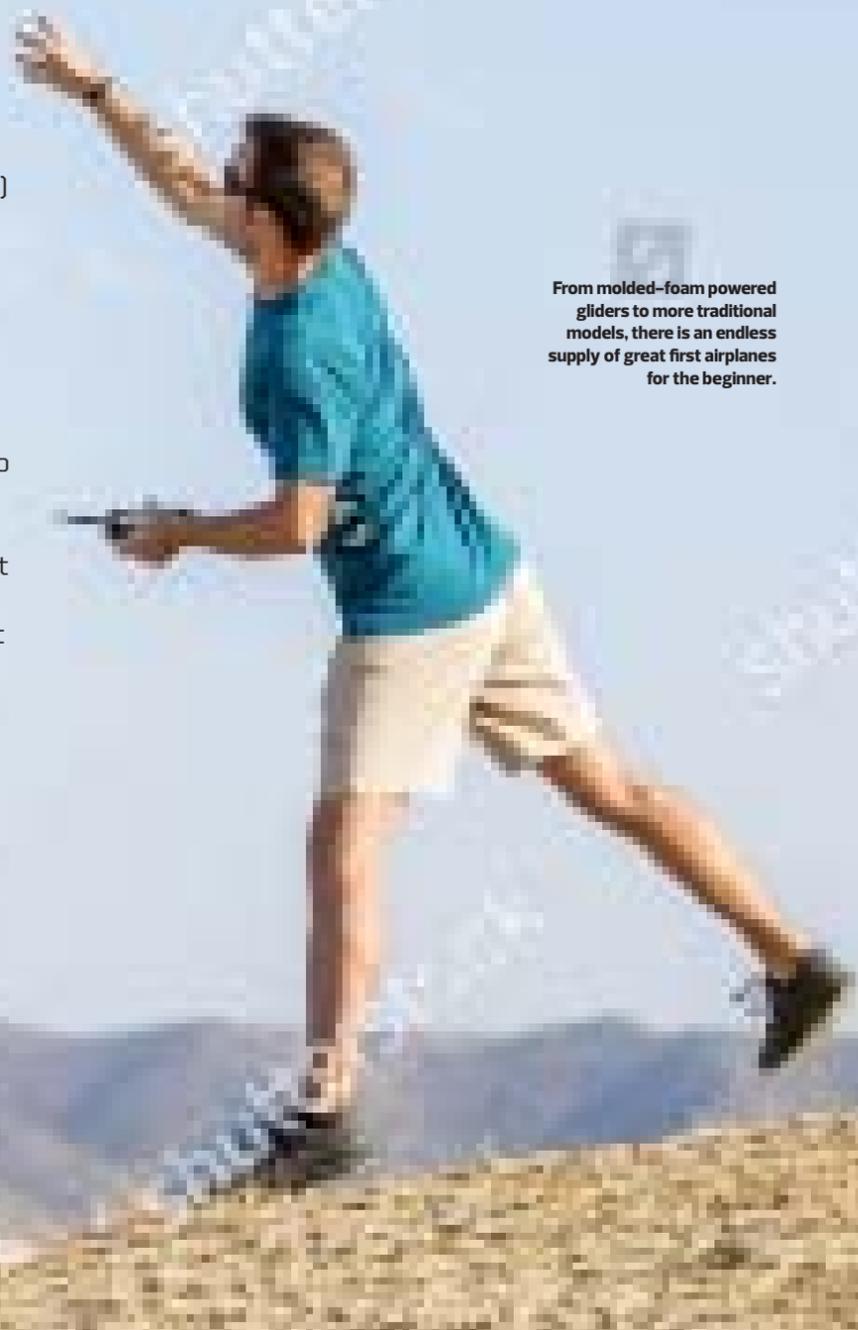
# GETTING STARTED

## EARNING YOUR RC WINGS

BY THE MODEL AIRPLANE NEWS CREW

The model airplanes available today are the easiest to build and fly, and afford a great opportunity to get into the RC hobby. With a wide variety of types, both electric and nitro (glow) powered, many of today's trainer airplanes are available as "plug-and-play" packages, so there's very little else to purchase. Instead of spending weeks or months to assemble your model airplane, you'll be able to get into the air with little or no assembly time. Every day, it seems there's a new product hitting the market, so you'll always find something to suit your tastes and needs.

Unlike years ago, it is now very easy to be successful at flying model airplanes. The cost of admission to our hobby has become very affordable, and there are many airplanes that are so stable and easy to fly that, with just a little help from an experienced RC pilot, you'll be able to solo quickly. Does this sound too good to be true? Well, you do have to learn some of the basics and be committed to acquiring some basic skills, but today, new RC pilots solo in record time. Here are some tips to help you quickly earn your RC wings.



From molded-foam powered gliders to more traditional models, there is an endless supply of great first airplanes for the beginner.



When you have learned to fly your RC airplane, the sky is literally the limit, and you'll be able to get involved with higher-performance airplanes.

## GET IN THE KNOW

The first thing to do even before you get your first RC airplane is to check out the local area for people already involved in the hobby. A local hobby shop is a great first stop. There, you can pick up contact information for any clubs and RC fliers that might be in your area. You'll find that many of these folks are all too happy to share their knowledge and help you get set up. And consider joining the club. To fly your average RC airplane safely, you'll need a flying field and RC clubs are where you gain access. You'll also want to join the Academy of Model Aeronautics; a club and your local hobby shop will have the information and paperwork to help get you started. An added benefit of getting to know the local RC club members is that you'll meet some flying buddies and make new friends,

friendships that could last a lifetime.

You can't, unfortunately, start off with that super powerful warbird or jet as your first plane. You'll have to start with an airplane that's rugged and designed to be stable and easy to fly. A plane like that will give the new pilot "think time" so that he or she can figure out how to correct and adjust the airplane's flight path. Training airplanes come in all shapes and sizes, and they're designed to take the inevitable knocks and bangs of those first few exciting flights. You can learn with lightweight 3-channel park flier airplanes, but these are easily affected by wind conditions. Larger planes and those with 4-channel systems (including aileron control) are best suited to rapid and successful flight training.



## THE BUDDY SYSTEM

By far, the best—and safest—way to learn how to fly RC is with the help of an instructor pilot and a "buddy-box" trainer system. Trainer systems will absolutely save you from a swift and exciting end of your airplane as you crash trying to learn all by yourself. A trainer system allows two radios to be used to control your trainer airplane.

Some systems are wireless, and others require a cable to connect the student's transmitter to the instructor's radio. With the flip of a switch, the instructor can give control of the model to the student or override the student in case the plane gets out of sorts. Just as with full-size aviation, learning how to fly requires teamwork and a knowledgeable instructor.

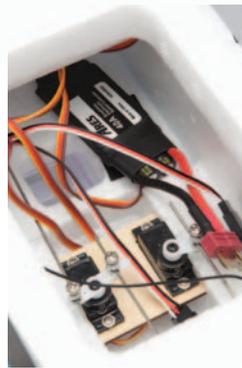
Just as with full-size aircraft, an instructor is an important part of learning how to safely fly RC.



After you learn to fly using a basic system, investing in a 6- or 7-channel radio system will pay dividends as you continue in the sport.

## Radio Roundup

For the first time out, the best action plan is with a ready-to-fly (RTF) airplane. RTFs usually come with everything you'll need, including the radio. If you're considering staying in the hobby for the long haul, then a separate 6- or 7-channel radio system will be a good investment for you. Your typical aileron-equipped plane will require a 4-channel radio. This gives control for the throttle, rudder, elevator, and the ailerons. That's all you really need for a basic trainer airplane. But if you're thinking ahead to more advanced planes in your future, then you should consider a radio with more channels, for functions such as retractable landing gear and wing flaps; 6- or 7-channel radios provide room for future development.



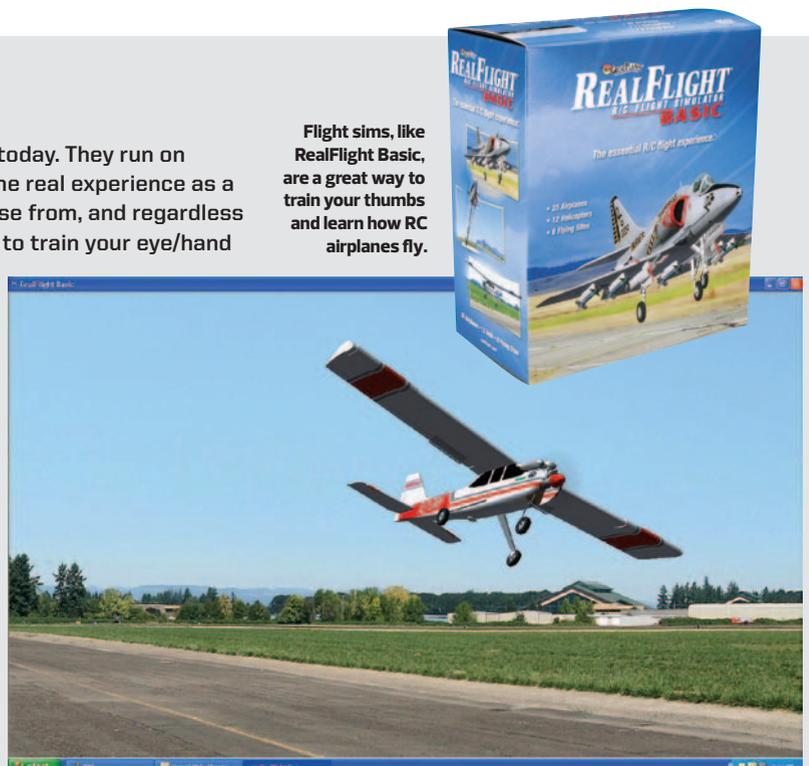
Programmable computer radios are the most popular because they provide almost limitless adjustment and mixing functions so that you can fine-tune your airplane's controls and performance. Most radio systems do not include the servos, so when you buy your radio, you'll have to purchase them separately to suit your airplane. Several brands of radio are available, so check with other modelers to see what they recommend. The basic minimal radio features you'll want are Servo Reversing, Travel Adjustment, Dual Rates, and Exponential Control. Basic mixing functions are also good but not really required for a beginner airplane.

## Simulator Time

RC flight-simulator programs are extremely popular today. They run on most modern home computers and are as close to the real experience as a program can be. There are several programs to choose from, and regardless of the one you use, they all serve the same function: to train your eye/hand coordination. Many RC clubs (and club members) will already have flight sims, so it will be easy to check out the virtual flight experience before buying your own program. For the best payoff, you should use a simulator as a learning tool so that you don't pick up any bad habits.

Flying, crashing, and just hitting the reset button, however, is not going to serve you well in the real world. Select the "Ground Position" view of your digital trainer, not the "In the Cockpit" view, which turns the sim into a flying game. Come up with a plan and then fly according to your plan. You'll want to get used to the small size of the plane as it flies away from you, and you want to learn from your mistakes. Sim time added to real-time flight training is the best of both worlds.

Flight sims, like RealFlight Basic, are a great way to train your thumbs and learn how RC airplanes fly.



## FIRST-FLIGHT SUCCESS

For the first-time RC modeler, setting up that first model airplane is fun all by itself. But the real fun and excitement begins at the flying field. With a properly assembled model and familiarity with the airplane's operation, now is a good time for a little ground school. The basics for success are a properly broken-in engine with a reliable idle, a fully charged set of radio batteries, proper ground-support equipment, and a beautiful day with a light breeze blowing straight down the runway. Here are 10 tips to help you get started.

### 1. GET AN INSTRUCTOR

Once you've got some flight sim experience, partner up with an experienced modeler who can be your instructor. Together, you both can then develop a training plan where each flight has a goal so that you can build on what you've learned on previous flights. After you understand and can accomplish a specific flight task, you can then go on to the next one. A good plan should include: learning how to taxi your model,

Many radios now have a wireless buddy-box feature, where the instructor can take control quickly should the student get into a bind.



developing takeoff procedures, flying at a constant altitude, being able to execute left and right turns, flying at lower airspeeds, and recovering from a stall. The most exciting part is when you start flying at lower altitudes and set up for your first landing. Concentrate on keeping your model under control, and adjust for various wind conditions.

### 2. GET CONNECTED

A basic buddy-box training system uses a cable to connect the student's and instructor's transmitters and gives the instructor the ability to take over control with the flip of a switch. In practice, the instructor uses his or her radio for takeoff and bringing your model up to a safe altitude. The instructor will then turn the control of the model over to your radio. If you get into trouble or lose orientation with the model, the instructor can simply release the trainer switch to regain control. A single transmitter can be shared between an instructor and student pilot, but the buddy-box setup is much easier and safer.

### 3. TAXI-TEST YOUR MODEL

After starting and adjusting your engine, a good way to get comfortable with your model is to slowly taxi it around so that you get a feel of how it reacts on the ground before you actually fly it. Taxiing downwind while steering with the rudder is a little less effective than when you taxi upwind. With a tail-dragger, apply a little up-elevator to help keep the tailwheel on the ground. With a model that has a tricycle landing gear, a slight bit of down-elevator will help keep the nosewheel down for positive steering control. Taxi training helps you learn about steering reversal. Normally, when you and the airplane are facing the same direction, you move the rudder stick to the left and the model goes to the left; however, when the model is pointing toward you, steering control seems reversed. This can be confusing at first, but with practice, you'll quickly learn to adjust automatically when the model turns around and heads back toward you.

Learn to advance the throttle slowly to minimize the engine's torque effects on the model. Advancing the throttle quickly will cause the model to swerve to the left. Correct this by applying a little right rudder while advancing the throttle. Once you are comfortable taxiing your model around and can guide it where you want, you'll be ready for takeoff.

### 4. PREPARE FOR TAKEOFF

The first few flights should be under the instructor's control. Once you show confident control, your instructor will talk you through your first few attempts to become airborne.

Takeoffs are easy. Most trainers will climb all by themselves when you advance the throttle. Concentrate on maintaining your heading (direction) and pitch control. Slowly advance the throttle, and steer with the rudder (add a little right correction to keep it going straight down the runway). Listen to

the engine to make sure it's putting out full power. As the model gets light on the wheels, pull back slightly on the elevator stick and bring the model's nose up slightly. Keep the wings level using aileron inputs, and let the model climb out at a slight angle relative to the ground. Don't panic if the model jumps off the ground and climbs at a steep angle. Maintain full power and ease off the up input, and if necessary, apply a little bit of down-elevator (push the elevator stick forward slightly) to keep the model at a shallow climb angle.

### 5. BANK AND TURN

After takeoff, the next thing to learn is turning left and right. Without these maneuvers, a lot of models would be lost over the horizon. Ailerons make the model roll, and this is the first step in making a turn. Apply a little left or right aileron to bank the model 15 to 20 degrees from level (away from the pit area) while also adding some up-elevator. Maintain a constant bank angle with coordinated aileron and elevator input.

With a full-house airplane, if the airplane's nose tends to drift or skid out of the turn, apply a little rudder in the same direction of the aileron input. This corrects for adverse yaw during the turn. Also increase the throttle slightly to compensate for the added drag caused during the turn. If you don't adjust throttle, the model will slow down and lose altitude during the turn. Once the model is on your new heading, neutralize your elevator input and apply a little opposite aileron to bring the model back to straight and level, then reduce power to your cruise setting.

### 6. KNOW YOUR LEFT FROM YOUR RIGHT

When flying in a straight line away from yourself, making a 180-degree turn will bring the model back toward you. Remember that, as when you were taxiing, turning the model around so that it is pointing at you will make the rudder and ailerons seem reversed. A simple way to keep your model's flight path level is to move the aileron stick toward the lower-wing panel. As you look at the oncoming model, if the wing on the right side is low, move the stick to your right. This technique works well when the plane is far away and approaching you. For most students, the hardest thing to learn is to react correctly to the model's attitude when it is far away; at that distance, it looks like a small, dark silhouette. Remember that the model always rolls in the direction you command whether it is coming or going. If it is moving away from you and you move the aileron stick to the left, its left wing will drop. If the reaction is the opposite (left aileron stick makes the wing on the right drop), this tells you the model is coming back toward you. When you learn to react correctly in these situations, you'll be a more proficient RC pilot. When you're comfortable performing all maneuvers, you can move on to the next step: the landing.

### 7. PREPARE FOR LANDING

Start practicing at a safe altitude (about 100 feet), and fly your model at reduced throttle settings. As



the airspeed decreases, your model will feel sluggish and less crisp in response. Trim the model to fly slowly without losing altitude. Bring the throttle back slightly, and bring the nose up a bit to maintain altitude. Since you want to land the model at slightly above stall speed, you have to learn what the stall speed is and then practice flying into and out of the stalled condition. Once you can handle a stall in the air, you can land on the ground.

### 8. SET UP FOR LANDING

The four parts of a basic landing pattern are the downwind leg, the base leg, the final approach, and the flare. You always want to land directly into the wind to keep the airspeed as high as possible in relation to the model's speed over the ground (ground speed). The turns from downwind to the base leg and from the base leg to the final approach should be 90 degrees, with the throttle reduced slightly for a consistent rate of descent.

### 9. ENTER THE FINAL APPROACH

While traveling downwind on the far side of the runway directly in front of you, pull the throttle back to about half and pull back the elevator trim (up) a little to slow down the model. As the model descends to about 50 feet, turn 90 degrees onto the base leg and then level the wings again. Control the descent rate with throttle and your airspeed with elevator. Don't stall the model by pulling way back on the elevator stick; fly just above the stall speed. Make another 90-degree turn to enter the final approach. Set up the landing by lining up on the runway's centerline. Your descent angle should bring your model into contact with the ground just as the model slows to its stall speed.

### 10. TOUCH DOWN

The flare (pulling the nose up gradually to level just before touching the ground) removes excess airspeed and keeps the model from bouncing back into the air because it is flying too fast. Allow the model to settle easily onto the runway, and use rudder to keep the model going straight ahead until it stops rolling out.

There's really nothing as satisfying as that first landing. You'll spend the rest of your hobby career perfecting your landings. Crosswinds and gusty days always challenge the modeler to improve. Keep ahead of the model mentally, and know what you're going to do next. Plan your flights, and fly your plans. Stay in control!

Properly set up, full-house trainers (with ailerons) are easy to take off with. Simply advance the throttle and keep the airplane running straight with wings level. The plane will almost lift off by itself.

## POWER SYSTEMS

One of the choices you have to make when selecting a training airplane is the power system. Do you want to go quiet and clean with an electric power system, or do you prefer something you can wrench on—a nitro/glow engine? Each has its benefits and drawbacks, but hey, this is a hobby and you get to make all the decisions. Here are some points to consider.

### ELECTRIC POWER

Electric power, or E-power, is by far the most popular way to go, and today, most RTF airplanes come with the electric power system already installed and ready to go. If, however, you want to assemble an almost-ready-to-fly (ARF) plane, you'll need to get the power system separately. The good news is most ARFs come with power recommendations, so there's no math required. A tip here is to choose a system that is at the upper range of the recommended power systems.

The basics of an electric power system include the motor (most of which are now brushless outrunners), an ESC or speed control, and a battery pack (typically a 2- or 3-cell LiPo battery). Staying with the same brand allows the parts to be simply plugged into each other so that no soldering is required. You'll also need a LiPo battery charger. These specialty chargers can be set to charge your specific-size battery pack, and they also have a second lead that plugs into the charger and serves to balance the voltage in each of the pack's cells. You'll also need a propeller adapter to connect the propeller to the motor. Again, most systems will provide information to help you select the correct-size propeller. If you are not sure, go to the hobby shop and ask questions. The shop owner will be more than happy to help you get set up.

You also might want to consider buying a couple of spare battery packs. That way, you can fly with one and then switch to the other to make another flight while you're charging the first one.

Below: LiPo battery packs are extremely popular today for electric-powered airplanes. Right: With LiPo packs, you will need a special charger that can charge and balance the cells.



Brushless outrunner motors are the standard today for electric airplanes.



Glow engines are a terrific choice for mechanically inclined newcomers.

### GLOW POWER

For many years, model-airplane engines that ran on nitro fuel were the norm. Today, glow power is sometimes considered old school, but there is a lot of appeal for those "piston heads" who like to work on and adjust their engines for peak performance. The typical glow-engine power system includes the engine, fuel tank, throttle servo and throttle linkage, engine mount, and propeller and spinner. Also required are fuel tubing, a fuel filter, and various fuel fittings for filling and emptying the tank. Glow engines have glow plugs to ignite the fuel mixture that enters through the carburetor, so you will also need a glow-plug wrench, a glow-plug driver battery, and other field tools, such as screwdrivers, to adjust the carburetor. An electric fuel pump is also handy to have to fill and empty your model's tank, and to be on the safe side and make starting the engine a bit easier, an electric starter is a good idea. If you have any questions, the folks at the hobby shop will fill you in on everything you need to have to be successful.

Right: The heart of the two-stroke glow engine is its glow plug. Unlike a spark plug, a glow plug continues to work even after the starter battery is removed. Below: To run a glow engine, you need basic field supplies, as shown here.



## TRAINERS TO CONSIDER

Today, there is an almost endless supply of great trainer airplanes to choose from. You can find them at your local hobby shop or online at the websites listed.



### Multiplex Mentor RR

This rugged trainer can take a pilot from first flight through basic aerobatics. The Mentor is constructed out of molded Elapor foam, so assembly is straightforward even for the beginning builder. The model is supplied factory assembled and almost completely ready to fly. Many of the stages of construction described in the building instructions have already been completed for you, so the model can be ready for the air in a short amount of time. Wings come fitted with two factory-installed mini HD servos, including complete aileron linkage. Also installed are the Himax C3528-1000 brushless motor; BL-54 speed controller; and Tiny S servos, including complete linkage systems. Mentor's large flight envelope makes it suitable for anyone looking for a fun Sunday flier.

#### SPECIFICATIONS

**Manufacturer:** Multiplex USA ([hitecrd.com/products/airplanes/multiplex](http://hitecrd.com/products/airplanes/multiplex))  
**Wingspan:** 64 in.  
**Power req'd:** 350-500 watt 36mm outrunner  
**Radio req'd:** 4-channel  
**Price:** \$150.00



### E-flite Apprentice S 15e RTF w/ DXe

The E-flite Apprentice S 15e airplane is an exceptional trainer, featuring groundbreaking SAFE technology for fearless flying. It's a blast to fly even for the intermediate pilot, who will love its maneuverability. The ready-to-fly version come with the Spektrum DXe transmitter, Apprentice SAFE receiver, brushless outrunner motor, 30A ESC, LiPo battery, DC-powered charger, and instruction manual.

#### SPECIFICATIONS

**Manufacturer:** E-flite ([e-flite.com](http://e-flite.com))  
**Wingspan:** 59 in.  
**Power req'd:** 15-size brushless outrunner  
**Radio req'd:** 4-channel  
**Price:** \$299.99



### Ares Crusader II RTF

This trainer not only looks right but also is designed to fly right. It's perfectly placed to take the complete beginner from first hops to basic aerobatics and beyond. It features a classic Clark Y high-lift airfoil and fully symmetrical tail section, which provides excellent stability and flight performance. With a high-ground-clearance trike undercarriage and resilient EPO foam construction, this is an airplane that puts function and form high on the list. It comes with a powerful 750Kv brushless outrunner, a 40A electronic speed controller coupled to a 3S 2200mAh LiPo pack, and a 12x8 propeller, resulting in plenty of power to tackle any training mission. A 2.4GHz Ikonnik KA-6 radio system is also included.

#### SPECIFICATIONS

**Manufacturer:** ARES (ARES-RC.COM)  
**WINGSPAN:** 54 IN.  
**POWER REQ'D:** 750KV BRUSHLESS OUTRUNNER  
**RADIO REQ'D:** 4-CHANNEL  
**PRICE:** \$399.00



### Flyzone Sensei FS RTF w/ WISE

The Sensei FS electric trainer comes with the innovative WISE 3-axis stabilization system for amazing stability, while a powerful brushless motor delivers the performance necessary for sport aerobatics as your skills improve. The Sensei features a AeroCell foam airframe with molded-in detail and a preapplied trim scheme; factory-installed motor, ESC, and servos; a steerable nose gear; and a simple, screw-together assembly, so there's no gluing required. It comes with a Tactic TTX610 6-channel 2.4GHz radio, a factory-installed receiver, a rechargeable 3S 2100mAh LiPo flight battery, an AC/DC LiPo balancing charger, and four AA batteries.

#### SPECIFICATIONS

**Manufacturer:** FLYZONE (FLYZONEPLANES.COM)  
**WINGSPAN:** 58 IN.  
**POWER REQ'D:** BRUSHLESS OUTRUNNER (INSTALLED)  
**RADIO REQ'D:** 4-CHANNEL  
**PRICE:** \$279.99

### BOTTOM LINE

As with any pastime, the hobby of building and flying RC airplanes can be rewarding if you invest the time and effort to become successful. Getting help from experienced modelers and finding an instructor will get you up and flying with little effort. Going it alone is possible but will take much longer for you to become a proficient RC pilot. There's fun in numbers, and the friendships you make along the way can often last a lifetime. Give it a try. You'll be glad you did. ✚