

R/C Flight Training with the Skymasters for Instructors and Students alike.  
By Gary Weeks

## **Introduction and Purpose of a Training Program**

It's right there on our web site and in our club advertising, "We'll Teach You to Fly". These are not empty words. One of the things that the Skymasters have a great reputation for is flight training. With Wednesday student nights, a host of instructors, and even club-owned training equipment available to all, the effort put into training is a defining element of our organization.

Why invest so much in training? Even small models have the potential risk for damage and injury and therefore deserve the respect that comes from understanding how to operate them safely, both in the air and on the ground. This is the most compelling argument for a successful and regulated training program within the club. It is difficult to count the airplanes that did not crash, the fingers that did not get cut by a propeller, and all the other mishaps that did not happen as a result of a training program. However, we know that it is well worth the effort.

I also suspect that not many hobby careers would survive without flight instruction of some type. Young and old are lured to this great hobby by seeing accomplished pilots enjoying flying and making it look easy. I was attracted to it as a youngster by watching the neighbor kids fly control line models. Today there are so many choices. Models come in a variety of sizes and power options. Gone are the days when you had to build a standard trainer. Building is now just one of the choices we have. Power options alone are mind-boggling. Some students have already made a purchase while others seek some advice prior to a purchase commitment. Either way, the Skymasters training program is there to ensure a safe and successful hobby experience.

Finally there is an ambassador role to training. As a club we share and demonstrate the hobby to the public at events such as Orion's Barn Daze and when visitors often to stop by the Scripps Road Field. Can you imagine just walking up to any gun club, golf course, or windsurfing club and be invited to "give it a try" like we do with our airplanes? We truly have something unique and important to offer the hobby.

## **Thoughts for the Instructor**

Back in the day... anyone, only one step ahead of where you were in flying skills, defined an instructor. Thankfully, most clubs, including the Skymasters, have designated instructors who have demonstrated not only outstanding flying skills, but also the ability to fly and teach flying in a variety of R/C aircraft. The Chief Flight Instructor (CFI) has the responsibility of maintaining a solid slate of instructors for our students.

When you are helping a new student, don't forget the basics and that includes things like frequency control and safety. Remind the students that these are actual aircraft that happen to be small and remotely piloted. As such, they are bound by the same laws of physics and control. I like to include a comparison of turning a car or boat where the "wheel" or "stick" is held throughout the turn, but with an airplane the "stick" is only deflected to initiate a turn and holding it that way will produce an unwanted roll.

Be proactive with students and visitors. If they look like they need help, they probably do. Introduce yourself as an instructor and find out if they need assistance. However, some training sessions, especially on Wednesdays and Kids Day, can be exhausting. Take a break when you need to. Sometimes, I find sometimes that I just need to blow off a little steam and fly my own plane for a short flight and then I can get back to the business of teaching.

One of the most common questions I get from people outside of (or new to) the hobby is "Do they ever crash?" My standard answer... "It's not a perfect world." As such, accidents do happen. However, this seems quite unfair when it occurs at the hands of an instructor, however infrequent. Some reasons are structural, other are not recognizing a bad situation in time to save the plane. Of course the most common words heard before an airplane crashes are "Watch this!" Yes, flying outside our ability is also a cause of crashes. I hate to see a mishap spell the end of a training season for a student. However, it must be understood that, although highly skilled, instructors are not infallible. The risk of loss does reside with the owner of the airplane. If it did not, we would never get anyone to volunteer as an instructor. In the past, I have offered to assist in making repairs for my students and have even used my own equipment in order to keep them flying. But, that was my choice to do so.

Find out what stage the student is at and plan what the student will be learning or practicing before you start the engine. Don't just watch the student fly the whole flight. Unless you are giving an advanced student a chance to recognize and react to flight situations on their own, there should be a continuous dialog. Coach, praise, instruct. This is also a good way to measure how comfortable the student is getting. If they can carry on a light conversation while flying, I find that is a good indicator that they are becoming confident. If they are concentrating so hard that they cannot complete a sentence, then they are not ready to go on the next step, whatever that may be. One of the habits that I find myself using is to move the sticks on the master box even while holding the trainer switch on. This way, if I have to intervene quickly, I'm instantaneously giving the corrective input as the trainer switch is released.

As an instructor, we don't always get a choice of what a student brings to the field. Although most students will be equipped with the standard 40 sized trainer (see my section on "The Trainer Airplane"), some will bring much less capable training equipment. These can even include small electrics better suited for indoors to older planes that have been stored for decades in the attic and now are making a reemergence to the flight line. Don't fly anything that you are not comfortable with. It is better to get help from another instructor than to "learn" yourself on a student's plane.

And then there is the maiden flight. This role should be performed by instructors with enough experience with that type of aircraft. For instance, I have maidenized many 40 sized glow-powered trainers, but I would not feel comfortable putting the first flight on an electric plane simply because I have not flown enough of them.

### **Thoughts for the Student**

Unless we're talking about birds, no-one was born with flying skills. These have to be taught and learned. That means that each instructor, jet-jockey, and scale R/C pilot started at the same spot you are at now. So don't be intimidated. We are all attracted by the same desire to fly. Instructors don't always wear the instructor hats. Don't be shy. Ask for an available instructor. No one will be offended if you ask them for help. In fact, they will be flattered. If they are not an instructor or do not have time they will politely tell you so. Myself, I get as much excitement and enjoyment from helping a budding student improve their skills as I do flying for myself.

You "gotta wanna". In other words, desire is one of the requirements. I have always believed that mastering basic R/C flying is within most everyone's capability. However, it is a skill, and like riding a unicycle, success only comes with determination and practice. I have never ridden a unicycle, but I'm sure that without proper instruction, those first few attempts might would be quite daunting, not to mention painful.

Come prepared. That goes for the student as well as the airplane. I always encourage sunglasses and hats. My eyes are particularly sensitive to bright light. So, throwing fashion sense to the wind, I wear the darkest, wrap-around sunglass available. It makes the viewing much better and I bring them to every flying session. Even if it is cloudy, the sky might be bright enough to need sunglasses or at least a hat.

On busy days there will likely be more students than instructors. Do yourself and the instructors a favor by being ready to fly. Have your plane fueled and ready to fly. Know who has your frequency pin if you are not the only one on that frequency at the field. Know which buddy box your equipment needs and have it ready to go, or at least know who's using it.

What age to start? This is a common question. Going back to my own experience, I started successfully flying control-line models around 9 years old. As an instructor now, I find the challenges are tough for youngsters less than 9. First, there is the issue of their hands being too small to properly hold the box and move the sticks. Second, we are getting the young students who have logged hundreds of video game hours, which typically don't teach the proportional movement that our models are controlled with. Of course there are exceptions in both directions and I am often amazed at how quickly some youngsters grasp the basics on their first flight.

Retraining those that have been away from the hobby for many years is also quite common. However, I find that most of these people are very quick to pick it up again. A few sessions and they are usually flying on their own.

## **The Trainer Airplane**

Aircraft and power opinions vary widely and today there are more choices than ever. Some trainers, resembling jets or war birds, don't even look like trainers anymore. You can't always believe the advertising on the box lid, however. They all say things like "easy to fly". Call me traditional, but I still find that the best trainer airplanes have a few common features; these include a high-mounted wing with dihedral and a flat bottom airfoil, tricycle landing gear, and a highly visible color scheme. These features add up to a stable, slower flying airplane that gives the student time to think. That's not to say that airplanes having these features are boring or lack capability. On the contrary, anyone who knows me also knows how much fun I have with my Goldberg™ Eagle II, dubbed Minute Maid. The last time I counted it had 350 flights recorded.

Electric or wet fuel? Advances in batteries and motors have put electric performance on par with glow fuel powered aircraft and that progress is continuing at a rapid pace. Both methods are reliable and cost effective. This is more of a personal choice these days. However, not all instructors are equally versed in both power methods. Ask around and explore both options before making a purchase decision.

Is bigger better? Perhaps yes, to a point. It seems that our hobby has settled on the 0.40 cubic inch sized airplane as the standard training craft. As a kit or ARF, the selection is huge in this size. With enough weight and size to handle most wind conditions, yet small enough to transport in any car, it is hard to argue with this convention. Most trainers in this size can also carry enough fuel for a 10-15 minute flight time which is also very helpful. Once you have an instructor, pin and flight station, you want to get the most "stick time" that you can out of the session. Models get precipitously harder to fly as the size goes down from the typical 40-size trainer. In fact, I have made a very small electric version of my Goldberg™ Eagle II trainer. I find it fun to fly, but it lacks the stability and forgiveness of the 40-sized bird. Lastly, don't skimp on the engine. Having a reliable engine is vital for a trainer because it will spend a lot of time doing approaches and go-arounds, not the time to have a questionable engine. Power reliability is certainly one area where electric motors have a clear advantage.

A mistake that I find many students make is that they set up their ARF or kit built plane to have way too much deflection in the nose gear steering. If the plane has a ground turning radius of less than five feet, it will be nearly impossible for the student to keep it going straight on the runway during the fast take-off role.

During the course of most training, the discussion of what makes a good second plane inevitably comes up. This is up to the individual. It might not be the best time to get that war bird that you've longed for, but certainly a move towards more aerobatic capability

seems to be the norm. I have seen success with many different directions. My recommendation would be something with a low or mid-wing for better performance and quicker response.

## **The Training Session**

Learn something new on each flight or improve upon a skill, don't just burn up fuel (or electrons). I believe that each training session should have a pre-determined goal for that flight. Afterwards, have a quick post-flight discussion. It doesn't have to be lengthy, just point out what worked and what needs more practice. My preference is to divide the training progress into segments and take them in this order: Flying the pattern (Both left and right), changing and holding altitude using throttle management, simple aerobatics and attitude recovery, approaches, landings, and lastly taxi and take-offs. I teach take-offs last because the high speed and low altitude offer precious little time for the instructor to intervene if necessary.

After the student has mastered the ability to stay in the pattern and adjust and hold altitude, I like to give them a little time off the buddy box. This develops confidence and they appreciate the ability to control the airplane with their own equipment. Of course, I re-employ the buddy box for learning the next maneuvers, whether they are approaches of simple aerobatics. If the buddy box that you need is in use, consider that as a chance to get a little time "off of the box".

Making the landing approach too long is a tendency that I have discovered with many students. There must be some comfort in lengthening the pattern for the landing (or perhaps, it's a hesitation to make the base turn). Either way, it places the airplane dangerously close to the power lines to the east of the field or the tree line on the west side of the field. I have seen enough planes sifted through these to know that the obstructions are closer than they appear. Maintaining a close pattern for landing is actually easier and safer.

One R/C challenge that you might not realize is also common with full scale flying is loss of orientation. This happens often to the new students who are not used to seeing their model in the air, so far away. Even in good light and visibility conditions, a quickly maneuvering model can confuse the observer and they will lose orientation. An often heard comment from students is "Gee, I thought it was going the other way".

Accomplished model pilots have trained their minds to pay as much attention to how the model is behaving as to what direction it appears to be heading. The first few times with this will cause anxious moments for the new student. After enough experience, the student will learn how to anticipate and correct the situation. A suggestion that I often share with my students is to avoid a prolonged profile view of the airplane. Rather, I suggest making lazy "S" turns (while staying in the pattern, of course) so that the wings never disappear from view.

During the summer months, Wednesday student nights offer the best chance to find and an instructor. However, you will have to share time and likely equipment with many other students. To make these sessions run more smoothly, be conscience of your time with the frequency pin. Try not to tie it up too long at a time if there are other students on the same frequency. Other days of the week are available for training as well. Although, you might have to make prior arrangements to be sure to find an instructor at the field.

Teaching the younger students offers very unique challenges. But don't be too quick to associate age with ability. You might just be surprised to find how quickly some of the younger students learn. Smaller hands sometimes have difficulty holding the transmitter and accurately moving the sticks at the same time. Something that works for me is to have the youngster rest the buddy box on the barricade fence rail in the pilot station. It is the ideal height for this and it allows the younger student to keep two fingers on the right-hand transmitter stick. You might also see me kneeling while flying with a younger child. This offers much easier communication while being less intimidating, especially for the first-timers.

### **Flight Testing & Follow Up**

I find most students will know when they are ready for the transition to pilot status. The confidence and skills will be obvious. The official transition from student to pilot status requires the signatures of two instructors. Typically, this is done while both are watching the student perform without assistance a flight that includes a take-off, loop, roll, touch-and-go, and a landing. I don't look for perfection, but I do look for safety and control. This includes safe ground handling and keeping the plane in front of the flight line in the air. After a successful sign-off flight, our newest "pilot" is announced to the club!

This certainly does not end the training, but it does allow the new pilot to fly without an instructor. Additional training can include more advanced aerobatics, familiarization with a newer plane, or a maiden flight on a new plane. This could also mean helping the new pilot fly in more challenging wind conditions.

This article certainly does not include all aspects of our successful training program in the Skymasters. Many, highly skilled instructors make up the training core and their approaches, while just as successful, might be different. I just wanted to share some of the things that have worked for me and to encourage the continuous improvement of the program as our hobby grows. I would also like to encourage all of our members to share the fun. Not everyone needs to be an instructor, but the wonderful hospitality that I have found in the club is certainly something to be proud of.

Happy Landings,  
Gary Weeks