CAPE CORAL R/SEA HAWKS'
FIXED WING STUDENT
TRAINING MANUAL

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LEARNING TO FLY

Almost anyone can learn to fly radio-controlled (RC) model aircraft. The Cape Coral R/Sea Hawks Club offers an instructional fixed wing flight training program.

This guide helps students understand the necessary steps to master flying an RC airplane and introduces our training program. Our curriculum helps you achieve all the necessary skills and understanding to be able to safely fly an RC aircraft at our club's airfield.

FLYING BEFORE YOU JOIN

Many people who have admired RC flying have also wondered if they could master it. They would like some personal experience with flying before joining the AMA and the Cape Coral R/Sea Hawks Club – in case RC flying isn't as much fun as they expect or they foresee personal difficulties with it. The R/Sea Hawks Club offers programs to address these concerns with you.

Periodically during the year the club will offer a "training day" where the club provides all the equipment needed for training and our instructors volunteer their time for that day. Since there is no regular schedule for these, the best way to stay informed about an upcoming scheduled public training event is to monitor the R/Sea Hawks' website: www.rseahawks.org.

The Cape Coral R/Sea Hawks' also have a somewhat more formal "get acquainted program" that is put on by a club instructor. It is called the "Pilot Introductory Program (PIP)". You set up a meeting time at our airfield and bring your equipment (a plane and a transmitter that controls the aircraft remotely.

The radio sends out signals that control the engine speed, as well as the movable positions of the model plane's "control surfaces" -- called the aileron, rudder and elevator.) (See Figure 1.) (Rather than use the term control box (which isn't clear to everyone), this manual will simply call this a transmitter or radio hereafter.)

Learning how to move the RC plane's control surfaces remotely with a transmitter is the key to RC flying . If you lack that equipment (or someone with a "loaner" for you to use), the club may be able to arrange a trial plane.

(We sometimes have a used plane or transmitter that was donated to the Club.) We also highly recommend that novices read the discussions in this manual about the types of trainer planes they are considering buying and solicit advice from an instructor or member first.

For extra safety while you practice, your instructor may be able to "electronically connect" what we call a "buddy box transmitter" to the plane you will be flying. (It lets the instructor assume command of your plane if needed.)

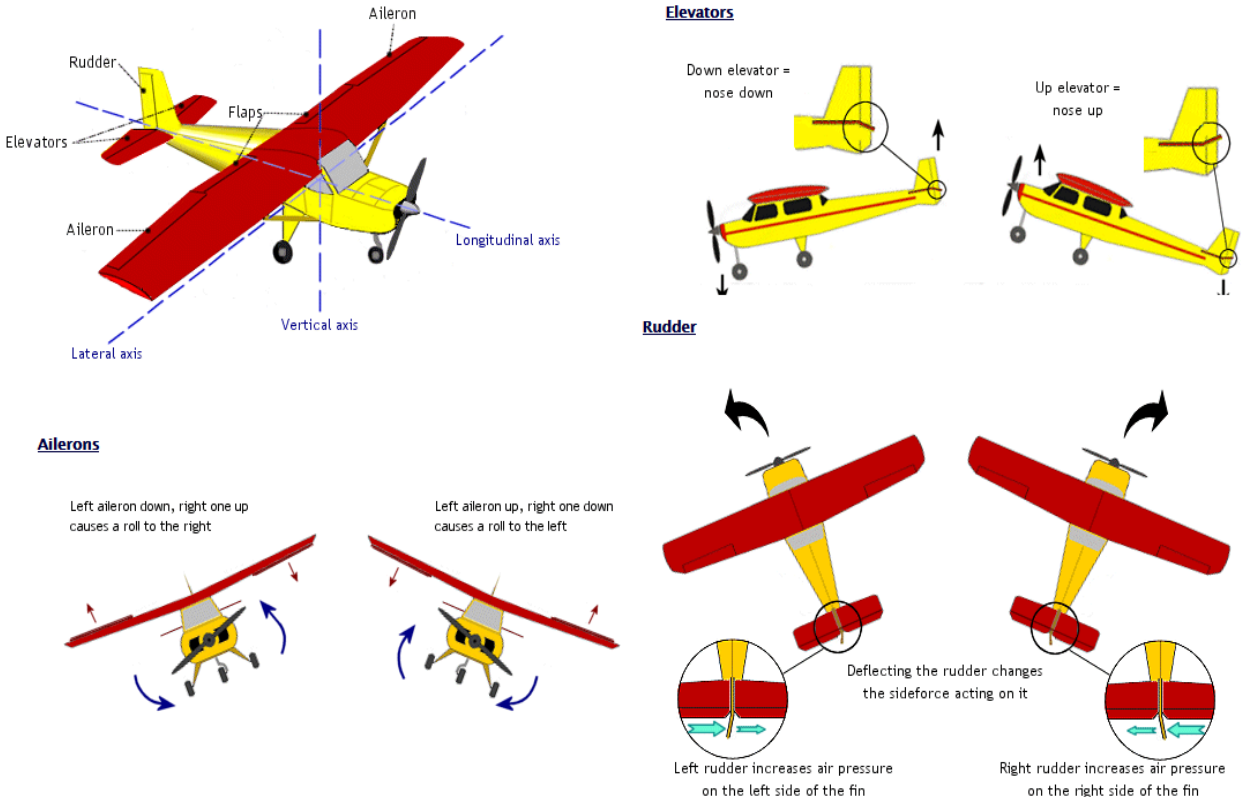

Figure 1. Generic Airplane and Its Control Surfaces

You start by learning how to control flight from your transmitter – which is the hand-held box (with the toggle switches) that translate the motions you make on those switches into electronic commands. (See Figure 2 in the Ground School discussions later in the manual.) The transmitter sends an electronic signal (radio waves) to the "receiver" device installed in the model plane -- which interprets those signals and issues electronic signals that make the plane's control surfaces and engine speed change as directed).

Any time your instructor sees that you are sending the improper commands to your plane (for a particular desired action), your instructor can quickly

take over total control of your plane with the instructor's own transmitter (thus taking your plane out of danger). This minimizes chances of flying mishaps and discouragement, while still letting you develop the all-important associations between your brain, hands, transmitter, the plane's control surfaces and its speed – the vital connections all required for RC flight. You get a chance to assess whether you think you can master it at the most basic level, and if it is as much fun as it appears to be when others do it. This opportunity is afforded through our "Pilot Introductory Program" (or PIP for short), which is described next.

Pilot Introductory Program (PIP)

The Cape Coral R/Sea Hawks operates under the rules of both the Cape Coral R/Sea Hawks and the guidelines of the Academy of Model Aeronautics (AMA). Any individual who is not a member of the Cape Coral R/Sea Hawks and/or the Academy of Model Aeronautics may fly *with an instructor* (under PIP — the Pilot Intro Program), prior to becoming a member of the AMA and the Cape Coral R/Sea Hawks. (This provides just a sample flight or two with supervised instruction.)

Once your instructor decides you are ready (and you know you also really like flying), you are almost ready to advance past these introductory sessions into formal flight instruction (which leads to a solo flight exam).

However, each future pilot must first become a member of the AMA and the R/Sea Hawks Club -- before starting the club's formal training program. You are also required to bring your own model airplane (generally called a "trainer") and an RC transmitter.

The AMA (Academy of Model Aeronautics) is the national parent organization for all model aircraft flyers. It extends leadership for the hobby, hires lobbyists to protect it, shares major hobby news, provides informative publications, sponsors conventions, and sanctions many other events. It also maintains the National Aviation Museum in Muncie, Indiana. Most importantly, it provides liability insurance for all its members – which is a Cape Coral city requirement. Without this organization, this hobby might not exist at the professional level that it does today. You will find much more information about the AMA at their website: www.modelaircraft.com

AFTER YOU JOIN THE R/SEA HAWKS

Trainer Planes

There are wide variety of planes on the market advertised as "trainers". Your first decision may involve which type of engine or motor you want: electric powered or powered by liquid fuels (such as gasoline or nitro).

Electric Power is convenient to transport in your vehicle and to store at home, but it usually gives you less flying time before you need to replace batteries between flights. It has gained so much popularity in recent years, that you will likely find the largest variety of trainer planes exists within this market segment.

Electric powered planes are quiet compared to fuel powered planes. The disadvantage to flying with electric power is generally shorter flight times. (Most pilots adjust for this by having extra charged batteries – or by charging batteries at the field. (You should be aware that the club provides a solar-powered charging system at the field.) Batteries must be handled and charged properly at all times, and your instructor will discuss this.

Nevertheless, even with ample quantities of charged batteries, you still have to understand how long you can fly before your flight batteries reach the end of their safe discharge point. This will vary with different aircraft, different battery sizes, as well as different flying styles. In practice it is not that complicated, and your instructor will help you with this.

This section introduces the process. You need to cautiously determine the typical flight time you can get with each electric plane – factoring in your personal flying style (for example: slow and steady or pushing the speed envelope, etc.). (For a margin of safety while mastering this process, take only short flights at moderate speed and always begin with fully charged batteries.)

Before you take your plane off, record your departure time, the weather, and your plane's model or other identifier. When you return, immediately record the duration of the flight and the relative speed travelled. Then use a battery voltage capacity checker to measure how much battery capacity remains -- so that you can estimate the percentage of current your plane consumed over how many minutes and at what speed.

Record this information each time for each flight for a while and then with trial and error you will develop a pretty good idea of how long you can safely be out with that plane. (You'll find that windy weather affects it, too, so be sure to note those weather conditions.) Then, as you acquire new planes, perform this data collection process again for each one.

Your instructor will cover this extensively and it is a skill you will develop with practice. Having a timer (or watch) that you set at every take-off (using a conservative flight time) provides a helpful early warning to begin your flight's return. (Clearly, devices with audible alarms are best.)

Liquid Fuel is the other main choice for trainer planes, (more discussion on those specific liquid fuel choices is coming up in a few sections). With liquid fuels, your airplanes can be larger, more powerful and will fly longer before needing to land and to refuel.

The main disadvantage to using liquid fuels is: liquid fueled planes all require more maintenance over their lifetimes. You'll also find yourself carting around a lot more equipment every time you go flying. For example, you need extra spark plugs if you are using a gasoline and oil mix or extra glow plugs if you are using a nitro mix. In addition, you'll need a pump, some typical spare parts, and tools to help install those parts. Disposable paper towels (or rags) are handy to clean off oil residue that typically sprays onto the plane during operation. You will also have to pump the residual fuel out of the plane before packing to leave. (It's a fairly extensive list.)

However, if you crave more power, larger planes, noise, the aroma of exhaust fumes, and enjoy doing your own mechanical repairs, this is a good match for you (and you'll meet many other like-minded pilots, too).

Electric Trainer Plane Choices

Among the electric trainer plane choices, many are labelled "RTF" (ready-to-fly) which means you typically get a plane, a transmitter, a receiver, a battery, and a battery charger specific to that plane only.

(Sometimes there is an "*a la carte option*" for a few of these models (described in the third paragraph below). In this case, the manufacturer does not engineer the plane to be restricted to specific products (or package

those items with the plane). In other words, you can separately purchase what you want for a battery, charger, transmitter and receiver, or select from your own inventory (if you have suitable choices available). However, this particular option is best for someone who has been a flyer, possibly has been absent from the hobby for a while, yet knows a lot about batteries, chargers and transmitters. This particular student flyer should already feel able to make the right choices, or should be someone who plans to become seriously educated to personally select those necessary items.

Other trainer planes are labelled "BnF" (bind and fly) to designate most come with everything <u>except</u> the transmitter, charger, and batteries. However, you now have the freedom to select and purchase this basic operating equipment with a view to making choices that are most likely to be compatible with other plane types you already have or may want to fly in the future.

A third option is "PnP" (plug and play), which (like the BnF option above) also requires you to provide a transmitter, charger and batteries -- but with this choice, you'll also need a receiver.

Most times, a new hobbyist finds it is sensible to purchase an RTF as their first electric trainer plane. If you find you love flying and want more variety in planes (especially as you add new skills) and you already expect to <u>prefer</u> electric planes, you may want to consider the "*<u>a la carte option</u>*" for future RTF purchases. (This is a different electric trainer plane *<u>packaging</u>* option where the transmitter, batteries and charger are <u>not</u> prepackaged. Instead, you separately acquire an all-purpose transmitter and a receiver, plus some compatible batteries and an appropriate charger for those batteries – generally from a fairly wide possible selection.

Choosing a single programmable transmitter that will control all of your aircraft is highly recommended. The benefits are many: it offers significantly more functions and capabilities over simple RTF transmitters. (As your skills grow, you will discover the RTF transmitters are limiting you.) Among the advantages of programmable transmitters: you can standardize on one common format with interchangeable components across multiple aircraft. This simplifies the learning process and avoids the confusion between different RTF formats and transmitters.

You will find our instructors and club members friendly, helpful and willing to give you their best advice to guide you in selecting your ideal transmitters, chargers, and batteries plus they can share their experiences with the many RC plane manufacturers, if that is a concern for you. They have almost all (at

one time or another) made rookie mistakes while selecting equipment and know how costly that can be.
(However, do not expect that all the members will have the same opinions about the same products.)

Flight Stabilization Systems

Fairly recently a new market in electric RC planes has opened up. Some airplanes now feature flight stabilization systems that control your flight and can possibly prevent a crash. Although these are great systems, you should be aware that if you have one, you will only be allowed to solo with it for the Cape R/Sea Hawks -- in the "advanced mode".

You will see them marketed under names like SAFE (Sensor Assisted Flight Envelope by EFLITE), WISE-3 axis flight stabilization system by Tactic RC, AS3X, a non-programmable gyro system by EFLITE (which is usually paired with SAFE), and the AURA8 (manufactured by Flex Innovations).

The club's position on training students with flight stabilization systems is: it is up to each instructor's discretion to start a student and progress them thru to "advanced" mode while under that instructor's guidance.

Liquid Fueled Trainer Plane Choices

Other trainer planes that are on the market are liquid fueled. As mentioned in the discussion about electric planes, the disadvantage with liquid fueled planes is that they typically require more frequent maintenance. However, many RC flyers prefer the power, physical size, plus longer flight durations that they offer. It becomes strictly a personal choice. If you decide you prefer to fly planes powered with liquid fuels, you will still need batteries and a charger (for your transmitter and receiver/s).

Estimating Flight Times for Liquid Fueled Planes

Even though liquid fueled planes achieve longer average flight times for each "fueling" than electric planes can, it is equally critical to establish (and respect) your plane's limits for its safe flying time per tank of fuel – just as it is for an electric planes' battery time. (Your instructor will cover this.)

Gasoline Fueled Planes

Gasoline powered engines run on regular fuel from your local service station. However, consult your owner's manual for the specifications of what octane range and what lubricating oil you will need to add to it. Be aware that gasoline can go "bad" over time (and then cause mechanical problems).

Nitro Fueled Planes

There is yet another group of liquid fueled planes known as "nitro" planes. They run on a variety of stabilized fuel made of methanol, nitro-methane and oil, usually just referred to as "nitro". (You can usually find it at your RC Hobby store, but be sure to check your owner's manual for recommendations for your specific plane.) Nitro planes require special spark plugs known as glow plugs, so you may hear this plane category referred to as "glow planes".

The general technique you will use to establish your safe flight range for nitro fueled planes will also be covered by your instructor.

You should store your nitro fuel in metal or hard plastic containers in a cool, dry environment (which in South Florida would typically mean an air conditioned area). The reason: this fuel aggressively absorbs moisture from its surrounding environment – particularly air or even concrete or dirt flooring. Once you have pumped out the nitro fuel, you can store your planes just about any way that you would store electric planes.

The liquid fueled planes come in various sizes and configurations, but normally are much larger and heavier compared to electric model versions of the same plane. All have their own advantages and restrictions. Best advice: before you make your choice, contact your instructor, a safety officer, or other club members to get opinions and reviews about planes, transmitters, even manufacturer's reputations.

Flight Instruction Sign Up

You are now ready for instruction. To get an instructor assigned, please contact the current V. P. and Head Trainer (identified in the section "Contact Us" of the Club's website www.rseahawks.org.) After this pairing is made, you and your instructor are free to exchange telephone numbers and to schedule your training appointments between yourselves.

Field Operating Hours: **Open sunrise to sunset 7 days a week. (Electric flying has no restrictions during these open hours.) However, fueled planes cannot fly before 8:00 AM Monday thru Friday or before 9:00 AM on Saturday and Sunday. The hours for Night-time flying (described next) are from dusk until 9:00 PM, but only on, Wednesday, Thursday, and Friday.**

Night Flying

The city permits night-time flying at our field -- in total darkness! The special planes for this provide their own illumination. Special skill levels are required, too, but as you advance, you may want to try it with help from others who enjoy it. At this time no formal training is provided. (Flying hours are limited: see the specifics above.)

TRAINING SCHOOL

When the club Vice President assigns a new student to an instructor, the student will contact the instructor at their earliest opportunity to make arrangements for flight school. The Cape Coral R/Sea Hawks instructors are volunteers who donate their flying time to assist student pilots. It's best to have an agreed upon time, so be sure to arrange this, too. The club recommends the student be on a buddy box (supplied by the club), but because there are many incompatible systems, this cannot always be accomplished. For students who choose airplanes with a flight stabilization system (SAFE, WISE, AS3X, or AURA8), it is up to the instructor to start a student and to progress them thru to "advanced" or "expert" mode (under that instructor's guidance).

TRAINING SESSION PREPARATION - AFTER COMPLETING PIP

FIRST SESSION PREPARATIONS

Having a safe and enjoyable instructional period is paramount to successful student pilot programs. For your part, you should have the following items completed and/or prepared prior to your first training session.

A. **Acquire your AMA membership (www.modelaircraft.org). You will need this membership card first -- before joining the Cape Coral R/Sea Hawks club.**

B. Join the Cape Coral R/Sea Hawks club (www.rseahawks.org) and get your R/Sea Hawks membership card.

C. Obey the rule that requires you to display your R/Sea Hawks membership card at the field whenever you are flying.

D. Student pilots must have a good working knowledge of the safety rules and the code of conduct. You will find these at the club web site: www.rseahawks.org. (The safety rules are also posted in the center shed for ready reference.)

E. Have your aircraft and all your radio equipment inspected at your first training session -- just prior to beginning instruction.

F. For all planes, there is a required pre-flight "final check" process your instructor will walk you through the first time. The only differences: for electric planes you check that all batteries are charged (for the transmitter, receiver, and engine), whereas for liquid fueled planes you check that the batteries for your transmitter and receiver are fully charged and you ensure you are starting off with adequate (to generous) amounts of liquid fuel for your flights.

G. After that, for either type plane you perform a group of 5 vital checks: 1.) the plane's Center of Gravity, 2.) your aircraft's controls (i.e. ailerons, etc., 3.) the RC system's range, 4.) the throttle kill switch, and 5.) a failsafe check.

(Your instructor will cover all five of these detailed checks.)

H. The post-flight activities also differ based on the plane's power source, as follows:

Electric plane pilots first use the kill switch to kill the engine, then unplug the battery and as the last step, turn the transmitter off.

Liquid fueled plane pilots also first kill the engine. Since the rest of the procedure can vary from one fueled plane to another one, the instructor will teach you the appropriate method for your trainer and then observe you executing those steps.

I. Most RC flyers find it helpful to set up a small traveling bag (to collect things they expect to need to transport to the field fairly frequently). One possible list follows:

RC Field Packing List:

1.) AMA and Cape R/Sea Hawks Membership Cards
2.) Head and Sunburn Protection (including a Hat with a Visor)

3.) Very High Quality Sunglasses
4.) Cleaning Rags and/or Paper Towels
5.) Spare Parts (e.g. Batteries, Receivers)
6.) A Timer (to monitor safe flight duration)
7.) General Tools (such as screwdrivers, wrenches, etc.)
8.) Cool Drinks and a Snack (depending on time of day)
9.) Model Airplanes to match (or challenge) your current skills
10.) Transmitter (PRECHARGED)
11.) If Flying Electrics: Extra Pre-Charged Batteries for your planes, transmitter and receivers (and possibly a Battery Capacity Checker)
12.) If Flying Liquid Fueled Planes:
    a) Extra Fuel and Plugs (spark or glow depending on fuel)
    b) Charged batteries for the transmitter and receiver(s)
    c) Pump
13.) Small Notebook -- bring questions to your sessions and list all action items for the time between sessions (you could also use this after you solo: to record flights, fuel use, notes to self, etc.)

FUTURE SESSIONS

Select all items that apply to you (from the suggested RC Field Packing List that was introduced as entry "I" in the last section) and bring them to your training sessions. Item 13 on that checklist suggests you carry a notebook back and forth to sessions, since it is a great way to note your after-class assignments and to note questions encountered between training sessions. Questions always help: even if they repeat something already covered, instructors learn it was not made clear, and frequently your question is one another pilot had (or will run into later).

GROUND SCHOOL

SAFETY PROCEDURES

Instructors ensure each student is aware of all safety procedures prior to starting their aircraft. Also, your instructors will instruct you in proper terminology to use while handling your aircraft. (For example, if your engine dies while it's airborne, you shout out "DEAD STICK" so fellow flyers are alerted and you receive landing priority.) You will be learning rules for safe-

ly taking off and landing -- plus other factors and skills needed for flying straight, level and safely. Finally, you will also learn to land your aircraft in a safe manner.

Another important safety concern your instructor will teach: what a "kill switch" is on your transmitter and how to enable it (arm it) or disable it (disarm it). (This might be a toggle switch or a button.) Not every transmitter features one. The basic concept is it provides a way to "starve" an RC engine so that it stops very quickly , either by cutting the current or the liquid fuel supply. This is very important to be able to do very fast in certain situations, such as when you have landed your plane and you want to bring it back off the field. You don't want to pick it up while the propeller is still spinning, so you "kill" the engine.

Generally, *if you have one,* you "arm" it so that your engine operates normally, but in an emergency you "disarm" it to "kill" the engine. (Unfortunately, not every transmitter has one, so instructors will tailor this part of the training to each student's own equipment or possibly to subgroups of students whose transmitters work similarly.

Electric and gasoline motors are easiest to master, while glow engines are the hardest. However, for your safety (and the safety of all your fellow flyers), everyone must learn this and always use it. Instructors are very skilled with this, so they will both set your equipment up initially and show you how to use it (but be prepared: they'll INSIST you use it, too).

PREPARING TO FLY

Key safety points will be emphasized. You will be taught how to properly "pre-flight" (turn on) your aircraft, including where to do it and how to ensure your aircraft is ready for flight prior to approaching the flight line. Typical actions include performing a balance check, a range check for your radio, verifying the control direction, and activating and starting the plane. You will also learn the protocol for announcing your take-off intentions and in-flight actions. Finally, you learn how to complete your post flight actions (such as turning off your aircraft after your flight, etc.)

FLIGHT SCHOOL

Flight School provides an introduction to how different actions taken with

your transmitter's LEFT and RIGHT sticks cause the control surfaces of your model airplane to move. The goal is to learn all the ways the plane responds. This description can only offer it in words, but it becomes much clearer as your instructor physically points to components (both on the plane and on the transmitter). You will see how stick movements make various airplane control surfaces respond. Then, as you practice operating the controls yourself, the whole concept of RC flight comes together for you.

Figure 2 shows one of many possible transmitters you may encounter. It identifies the key components fairly common on all the units on the market today. Your instructor will familiarize you with these and their purposes throughout your training program.

Figure 2. Transmitter Illustration (also sometimes called radio or control box)

The "sticks" are called "RIGHT" or "LEFT" to reflect their position on the transmitter and you will usually operate each with the hand that matches the name of the stick. (As you will discover in the training ahead, many times you will also be using two hands at once: to move both the sticks at the same time.

You can push or pull sticks in many directions, essentially as if around a clock face (and some of the descriptions ahead refer to positions with their numbers on a clock face). (Technically: control sticks are gimbals.)

The <u>LEFT stick</u> has two functions: right and left movement steers the model <u>on the ground</u> and also controls the plane's speed, by acting as a throttle.

The RIGHT stick controls the plane's elevator and when the plane lifts off, it takes over control of the directions the plane can move -- much like the way the LEFT stick does when the plane is on the ground.

It may help you to predict what happens on the plane when you make certain stick movements, if you form this mental picture. Imagine that the positions around a control stick relate to a big fat inner tube sitting on a pond. Also imagine that 4 places on the inner tube are marked 12 o'clock, 3 o'clock, 6 o'clock and 9 o'clock and that each corresponds exactly to 4 sections on a plane that is "attached and submerged" directly below the inner tube. For example, the plane's nose is at 12, the tip of the right wing is at 3, the, plane's tail is at 6, and the tip of the left wing is at 9.

Now, imagine what happens if you plunk yourself down separately on each of those points on the inner tube and what happens to the corresponding imaginary plane parts below. If you sit at 12 o'clock, you are pushing hardest on the nose and it will go down (we think of that as starting the descent). If you sit at 3 o'clock, you are pushing down hardest on the right wing tip and the plane is going to lower that wing tip and turn right. And so on. If you sit on one of the in-between areas, you can get a result that combines both effects (for example, a banked turn).

1. **Flying Straight and Level: This is where the instructor will take your plane into the air and teach you how to move the plane in a "pattern". (If your plane were a skywriter, you would typically see the outline of a rectangle evolve in the air as the "flight pattern' occurs and smoke is left behind.**

   Note: you will discover that very little stick movement is needed to accomplish this part. Also: if you are on a buddy box system, which is typical at this stage, your instructor can rapidly take control of your aircraft to prevent a mishap – whenever the instructor feels you are in trouble (or even about to be.)

2. **Taxi and Lift Off (LEFT STICK): It may look easy at first but there are several key parts to practice repeatedly to make your take-offs successful. The LEFT STICK serves two functions: it steers the model on the ground, but it also controls the engine speed, (which must increase to gain lift off). That is where the LEFT STICK basically becomes a throttle.**

   a. **While steering your aircraft straight down the runway (LEFT STICK), you must also begin to use it to accelerate (to reach sufficient speed for lift off).**

b. **Move the engine throttle (LEFT STICK) *forward*. *Pushing* the stick to the forward position increases the speed as desired. (The closer the stick is to 12 o'clock, the higher the speed. When the LEFT STICK is at 12 o'clock, the plane reaches maximum speed.)**

c. **Lifting off also requires you to take hold of the RIGHT STICK and gently *pull* it toward the 6 o'clock positon (to *pull* the nose up) to ascend. (This is where the internal electronics control the elevators – which make the plane ascend or descend.)**

d. **After lift-off, the LEFT STICK continues to control your speed, but the RIGHT STICK now takes over control of the plane's direction (right or left or up or down). If you *ease* the RIGHT STICK to the left (9 o'clock), the plane begins to roll to the left. Now, if you pull the RIGHT STICK back slightly, the plane will begin a slow turn to the left. If you *ease* the RIGHT STICK toward the right (3 o'clock), the plane begins to turn to the right. Now if you pull the RIGHT STICK back slightly, the plane will begin a slow turn to the right.**

e. **If you pull the RIGHT STICK to the 6 o'clock position, the nose starts to point up and the plane will ascend. If you push the RIGHT STICK to the 12 o'clock position, the plane will begin to descend.**

f. **Co-ordinating with BOTH sticks at once is what makes flying happen. (Your instructor will explain and demonstrate this in greater detail.) When you are in the air, the way you accomplish aerobatic maneuvers is by mastering the use of both the right and the left controls (sometimes working them separately and sometimes together). Landing also uses both sticks.**

3.) Landing: Several maneuvers are required to successfully land on the asphalt. Slowing in the air (so you don't hit the pavement too hard when you reach it) requires throttling back (LEFT STICK). Line the aircraft up above the runway by steering (RIGHT STICK). When you are several feet above the runway, level out and reduce the speed (LEFT STICK) to allow your plane to lose lift and gently touch down. Finally, once on the ground, slow the aircraft (throttle back with the LEFT STICK) as you also steer with the LEFT STICK (which has taken back steering control since you are now on the ground again) – and taxi your plane back to where you and your instructor are waiting.

4.) Aborting a Landing. If you're ever unhappy with your landing position (or speed) and want to ABORT the landing, check that it is safe to ascend, and if so, gently coordinate the LEFT STICK (throttle for speed) while pulling the RIGHT STICK toward the 6 o'clock position to ascend, calling out to other pilots: "GOING AROUND". When you are positioned well, repeat the steps given in item 3 above to land. Properly power down your aircraft by following the procedure and sequence given below.

5.) Flight Conclusion Procedures (Electric vs. Liquid Fueled Craft)

a.) If flying an electric plane, use the arming switch to kill the power (thus turning off the transmitter) and then unplug its battery.

b.) If flying a liquid fueled plane, also kill the engine. Then follow your instructor's lead, because the procedure can vary depending on the model.

Reading this may leave your head spinning the first time or two. Did you notice not a word described just how many total degrees up or down you need to direct the airplane's nose (using the elevator)? Also, specifications are not given for correct take-off or landing speeds. With a good instructor and practice, these are things you develop a "feel" for, much like automobile drivers, downhill skiers, and others do. (The jubilation you will feel when you "get it" -- will be as great as theirs, too!)

"*Thought consolidation"* is a psychological term referring to how the brain processes a new sequence of related steps that must be performed tightly together in an exact sequence, so that those actions are routinely performed automatically and rapidly. (Babies do this as they learn to walk.) Your goal is to master it for use when you take off or land your plane. Professional athletes often train using techniques like the ones described next.

In between your live training sessions, read and re-read steps 2-4 in the previous section (the parts of this guide describing take-offs and landings), to promote "thought consolidation". However, in addition to reading and studying, take the time to practice mental step-by-step imagery of what you must do. Mentally conjure up images where your own hand motions direct imaginary controls while you also imagine a plane's responses. In your imaginary three-dimensional world IMAGINE how your STICK actions and the plane's movements match the written words. Furthermore, you will enhance thought consolidation if you physically move your hands (in the air) as if they were on sticks as you perform the mental drills. (Better yet, you can even use your powered-off transmitter for practice. This will help you get to know

not just the position for your hands, but the relative spacing of your controls in 3 dimensions.)

The focus is not on how much or how long you work the controls, it is on getting the sequence down pat. Essentially, you want your brain to respond to the thought "take off" so that you reach for the correct stick and aim it for the right position and automatically know the procedure to follow. (Be sure you include and practice how to abort a landing because that's going to become a needed skill, too.)

This type of practice allows you to ingrain the sequences of actions necessary for certain desired actions (take off, landing, etc.) -- without the pressure and urgency that surrounds you in a live-action training session.

(It may all sound whacko but this technique gives *thought consolidation* a power boost! And better yet, it's an indoor activity with no risk of messy plane crashes!) Try it! It really will improve your future real-life training sessions. (Getting really comfortable with your transmitter's controls and their locations is a worthwhile bonus.)

Once those basic procedures become fairly automatic, you'll find your real-life training sessions won't be so totally preoccupied with the raw mechanics of getting the plane in the air or bringing it down. Your focus can switch over to getting the answers to those "how much" questions raised earlier – and the only way to do it is with real physical experience.

As you adjust speed or angles of ascent and descent, your brain associates how well (or how badly) the plane position works out with the degree of stick adjustment you applied. As you work on this, don't forget you've learned how to abort a landing, so don't hesitate to physically do that as needed.) You practice take-offs and landings over and over with your instructor until you develop the "feel" for when to apply adjustments with the control sticks and how much is needed. Fairly soon (and typically when you are not expecting it), you will realize you are succeeding at the first or second try for each maneuver (and on a fairly consistent basis). This is a good sign that all your trial-and-error worked. You're getting that vital element: the "feel" of flying!

Using a computer-based flight simulator as a practice tool will further re-inforce your skills. It is highly recommended.

The Day of Your Solo Flight

Your objective has arrived! It's simple. You must be able to fly on your own as your instructor observes. You must take off, fly the pattern and land (3 times in succession – in one flight). [If you're using a flight stabilization system (SAFE, AURA8, etc.), remember: you must complete your solo requirements while operating in the advanced mode only. You're here to prove your knowledge and skills to fly your aircraft on your own.]

When you successfully complete these objectives, your R/SEA HAWKS card is signed: showing you've completed the instructional program and you are now officially a model aircraft PILOT!!! CONGRATULATIONS!! You'll be awarded your solo certificate at the next R/SEA HAWKS' general membership meeting.

After You Successfully Solo

We (the instructors, pilots, and members) will always be around to help you if you have any questions or issues about flying. Just ask. We are available to make your hobby safe and enjoyable. We also learn from new pilot's questions what areas are weak in this manual and will better know how to improve our next revision. The sharing and camaraderie we get from bringing new flyers into the community are among our biggest rewards.

Our Park and The Use of Argosy Lake

When you have been to the field, you have probably spotted that nearby body of water called Argosy Lake. This is available to our club members for "float flying" (flying RC "sea" planes off the water). Because this lake is part of the park we share, there are special rules for using it. There are frequently full size boats, swimmers, and occasionally also RC boats there. The rules for float flying can be covered by your instructor or club safety officers -- if you become interested. Please just ask!

Disobeying the city's rules for using Argosy Lake could be physically dangerous and could also destroy our relationship with the city and shut off this aspect of our hobby. Also, please always remember that rule violations during the use of our field, McCormack Field, could not only be dangerous -- but they, too, could also destroy our relationship with the city. (An awful lot of your predecessors worked very hard to cultivate our special relationship with the city and to protect it so that we have continued to have the use of the field since 1990.) It would break a lot of hearts if we were to lose this amazing field for some dumb, preventable infraction.