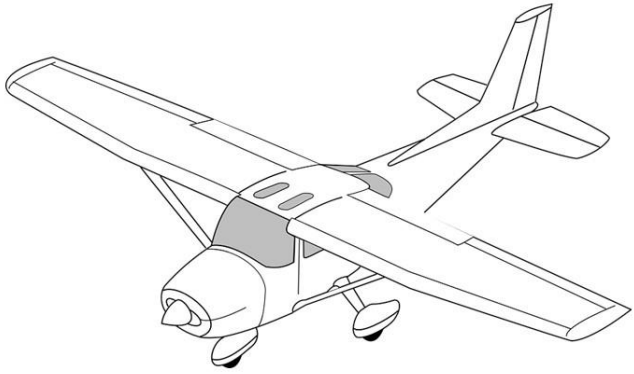


7 FREE

PILOT TOOLS

EMERALD SQUADRON
AVIATION LLC

NORMAN MONTES DE OCA

7 FREE PILOT TOOLS

Emerald Squadron Aviation LLC

Norman Montes De Oca

TABLE CONTENTS

Introduction

I have wanted to fly as long as I can remember, but the barriers to flight training always seemed insurmountable. One of the biggest obstacles most people encounter is the price tag. Back of the envelope calculations put the cost of earning a pilot certificate at around ten to twelve thousand dollars. This is typically the cost of renting the aircraft, hiring a flight instructor, and all of the peripheral purchase you end up making to get quality training.

With that in mind, I wanted to provide some resources that would ease the cost of flight training while maintaining the same level of education. I started out by making my YouTube channel, publishing free ground school content, and that evolved into Emerald Squadron Aviation. The website now hosts free and paid courses where you can learn new skills and keep your talons sharp as an aviator. Whether you are a learning to fly as a

hobby, you want to become a captain at a major airline, or you aim to serve your country as a military aviator, I know these tools will help you get there, and the best part is that they are free!

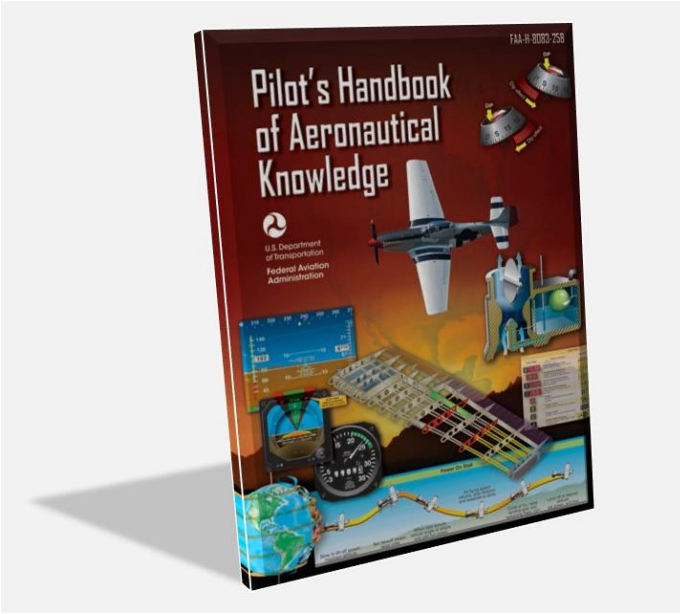
Be sure to check out all of the resources, practice with them to get the best use, and when you are ready, come join the squadron and let's get you up in the air!

Free FAA Books

Let me know if you've experienced this. You go to your first day of class and the professor says the 10th edition of the textbook is required. Last year's edition is now obsolete, and you have to spend $500 dollars to get the same information, now in a different order, or with slightly different practice problems. The great deal you found at the local used bookstore truly was too good to be true. Ugh, seriously, one of the biggest scams in education.

Well, good news everyone! When you come to your first day of ground school at the squadron, you can rest assured that your textbooks are free. The FAA actually provides all the books you need in PDF form from their website: www.FAA.gov. Specifically, the FAA maintains a list of free eBooks at the link below: https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/

My favorites are the Airplane Flying Handbook, the Pilot's Handbook of Aeronautical Knowledge, and the Aviation Instructor's Handbook. With just these three books you have access to a plethora of knowledge that will set you up for success in your aviation career. When you're ready to move onto the dark side, be sure to check out the Instrument Flying Handbook and the Instrument Procedures Handbook.



And for you chopacopter pilots out there, the FAA offers the Helicopter Flying Handbook and the Helicopter Instructor's Handbook as well.

In addition to these, I also recommend checking out the Advisory Circulars regarding Aviation Weather and weather Services. While the handbooks touch on weather, the ACs are a deep dive into everything you could possible want to

know about weather and how it affects us as pilots. Don't be a fair-weather pilot! Study hard and know your stuff!

I like to keep copies of each of these on my iPad and my phone so I can study just about anywhere I go, and I always recommend anyone who trains with the squadron do the same.

You can use this checklist to ensure your aviation library starts off on the right foot:

Private Pilot

☐ Airplane Flying Handbook

☐ Pilot's Handbook of Aeronautical Knowledge

☐ Aeronautical Information Manual

Instrument Rating

☐ Instrument Procedures Handbook

☐ Instrument Flying Handbook

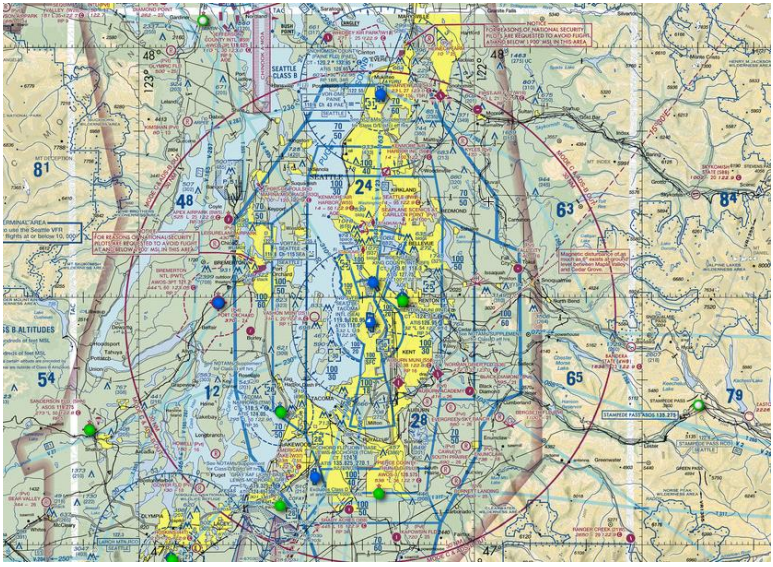
Additional Recommended Resources

☐ Aviation Weather – Advisory Circular 00-6B

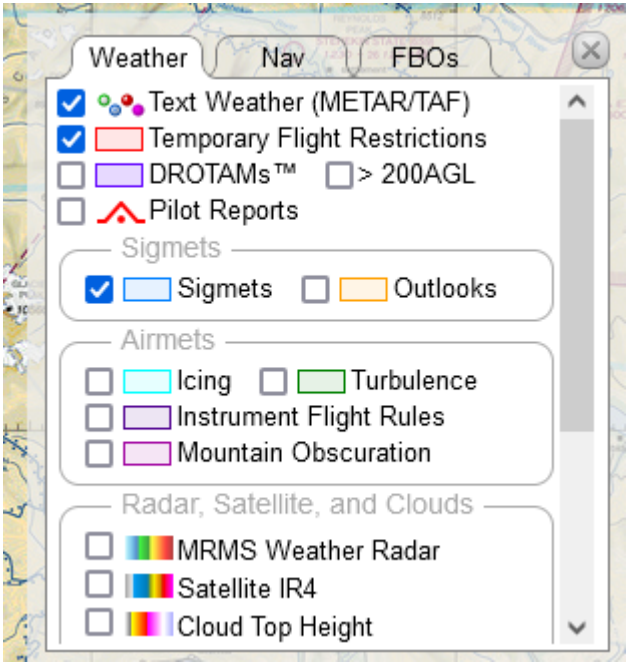
☐ Aviation Weather Services – Advisory Circular 00-45H

Charts

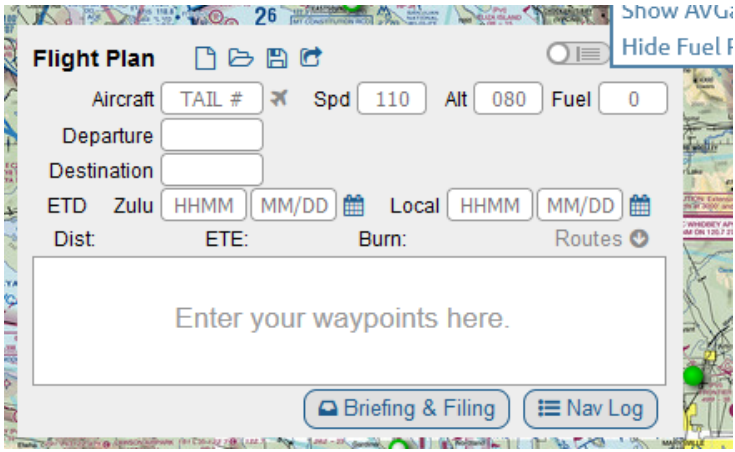
An excellent resource for studying up to date charts without ritualistically slaughtering a tree every 56 days is www.SkyVector.com. You can decide to create an account with them or not, but either way the charts are invaluable for practicing creating flight plans, finding TFRs, and understanding the National Airspace System. We cover airspace and flight planning a lot during our ground school at the squadron, so get comfortable studying these charts!



In addition to displaying sectionals, terminal area charts, and low enroute charts, you can use the menu at the top of the screen to toggle things like graphical displays of NOTAMS, AIRMETS and PIREPS.



You can even build a flight plan, obtain your weather brief, and file it with the FAA right from the website. When you're ready to go, you can activate it from your phone or call up an FSS like you normally would.



Study the charts, know your airspaces, and practice good flight planning procedures! If you're ever unsure about your route, don't hesitate to ask your flight or ground instructor! Remember, we have a chat function on the Squadron site that allows you to talk directly to a ground instructor!

Sky Vector Homework:

☐ Locate your home airport

☐ Create a flight plan to another airport 50 miles away

☐ Use the Layers button to toggle AIRMETS and SIGMETS

☐ In the FBO tab, show fuel prices for 100LLin your area

☐ Use the World Lo button to switch to IFR charts

Radios

If you were to go to a different country without studying the local language, it would be difficult and uncomfortable to communicate with the locals. A wise traveler would spend some time in the weeks leading up to the trip to learn basic phrases and get comfortable translating to their native language.

Pilot-speak is its own language and it can be hard for new pilots to get comfortable on the radios. To get some practice, check out https://www.liveatc.net/ and just listen to how pilots and ATC communicate. If you can swing it, go to your local airport and listen in on the chatter while you watch airplanes in the pattern.

Try tracking the same tail number for as long as you can and imagine what the pilot is doing based on their radio calls. At small training airports, you will likely hear pilots calling out the legs of the traffic pattern, departing the field, approaching from 10 miles away, and the occasional joke or banter between friends.

Note, also, how pilots often repeat clearances from air traffic controllers to confirm they got the message and will perform the correct action. Pay attention to the call and response and try to repeat what ATC says like a pilot would.

LiveATC Homework

☐ Search for KSEA in the Airport/ARTCC Code bar

☐ Jot down what the controller says

☐ Notice how often, pilots will repeat what the controller says to confirm what they heard before complying.

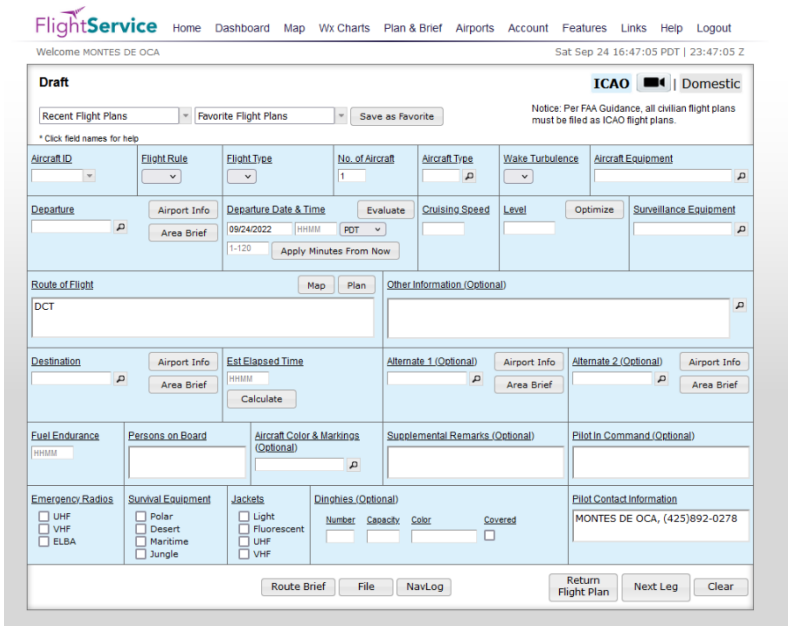
☐ Search for your local airport and do the same

Weather

Too many VFR pilots are intimidated by anything other than blue skies and limitless visibility. I'll admit that for the longest time, I was super reluctant to fly when there was a hint of moisture, freezing temperatures, or clouds. It comes down to truly understanding what the weather is doing, what it will likely evolve into, and how it might impact our flight so we can make safe and smart decisions.

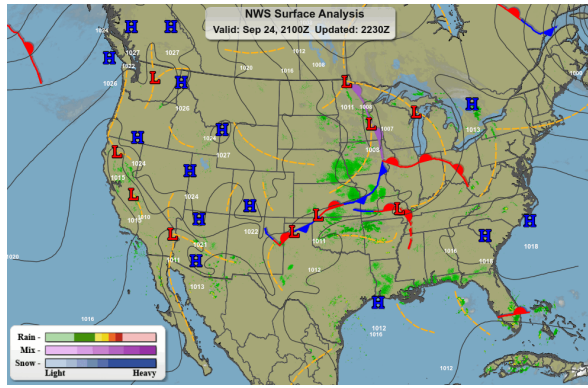
www.1800WXbrief.com is one of the best ways to obtain your required weather briefs before you fly. You can get your METARs and TAFs, prognostic charts, and Winds aloft data to truly develop a good understanding aviation weather. When coupled with the aviation weather advisory circular and the AC regarding weather services, this is one of the best tools you can use to make safe choices. Learn how to effectively interpret weather and you get up in

the air safely when most fair-weather pilots decide to stay in.

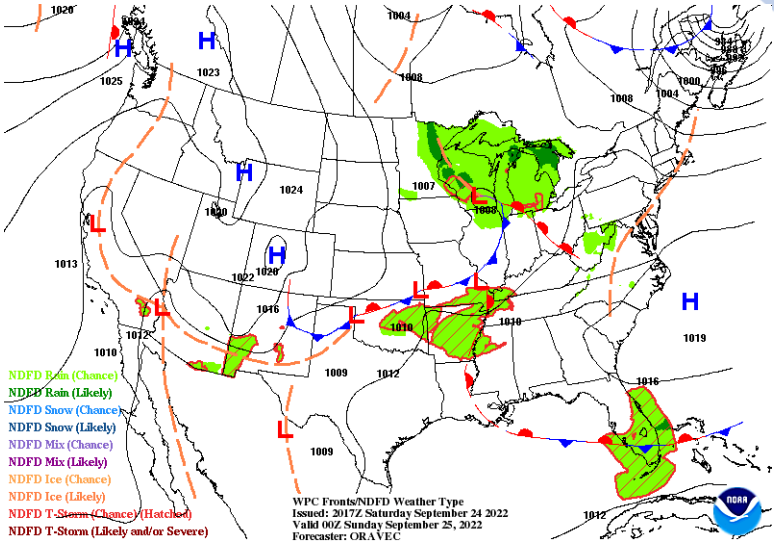


If you decide to make a free account with the website, (which you should absolutely do!) you can build flight plans, receive weather briefings

specific to your route, as well as study all weather charts in the country.



If you're ever unsure about a symbol or abbreviation, go back to those free books from the first chapter and figure out what they mean. It can be the difference between a safe flight, and a rough night.



Weather Homework:

☐ Click on the WX charts tab and find surface analysis charts

☐ Compare this with the severe weather outlook chart

☐ Using the Plan and Brief tab, create a flight plan to a local airport and see what the weather brief comes up with

Practice Tests

Have you ever gone into an exam, opened the test booklet and have the first question look nothing like the homework assignments? Oh man, that sinking feeling in your stomach when you realize just how unprepared you are is one of the worst things ever. If you use King Schools free tests correctly, you can go into the exam feeling great, and knock it out of the park.

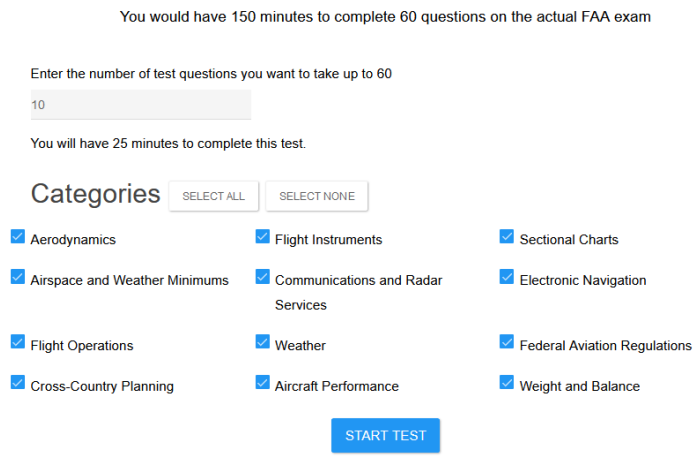
https://free-faa-exam.kingschools.com/

From this page, you can select the exam you want to practice, specify the number of questions you want to do, and narrow it down to the exact topics you need to drill. When you first start, go with 10 questions and select all topics. Run through the quiz, and when you get your score, identify the topics you got wrong and go back to your free textbooks and review. You can also check out Emerald Squadron's website to watch a video about the topic you might be struggling with! Don't forget, you can always chat with one of our ground

instructors to ask questions or request a video to clarify a topic!

Something to keep in mind when preparing for the exam: it is not about memorizing the answers. Memorization is a good place to start when you are first learning a topic, but we are striving to *understand* the knowledge so we can solve new problems and apply our skills to unexpected situations. It is imperative that when you identify a topic you struggle with, that you don't just memorize and then brain dump after the exam.

When you get to the stage of your career when you are looking at becoming a ground or flight instructor, you will need to study the Aviation Instructor's Handbook. Like the Airplane Flying



Handbook and the Instrument procedures handbook, the AIH is available for free from the FAA's website. The handbook defines learning as a change in behavior as a result of newly acquired knowledge. So, while memorization is useful, it is the *change of behavior* that we are after, not simple mnemonic devices. Be disciplined, hit the books, and check out the squadron website and you'll be in great shape.

Quiz Homework:

☐ Resolve to quiz yourself with at least 10 questions per day

☐ Identify what you get wrong, go back and study that chapter in the appropriate handbook

☐ Return to the quiz site and select only the topics you got wrong and complete a quiz on those alone.

Electronic Flight Bag

If you're like me, and are a giant aviation nerd, you probably like using old paper charts, flight plans, and the old E6B. When I go back pencil and paper flight planning, I feel connected to my aviation roots. I think of the pioneers of aviation who fought world wars without electronic flight bags, GPS, or ADSB.

But this is the 21st Century. (Unless you're looking back at this from the 22nd or future centuries, in which case, greetings! I hope you are well, and I wish I could see how far we have come since my time!) Garmin Pilot or Foreflight are really the standard as far as electronic flight bags.

They do everything from track your position, display a moving map, allow you to fly flight plans, and get weather briefings, and much more.

But they're expensive for a new pilot! So, here's a free alternative you can try out while you begin your journey: www.fltplan.com.

From the app, you can get the weather for your route of flight, select what type of map you want to use (satellite, sectional, etc), and even create flight plans!

It is a little quirky, and takes some getting used to, but for a free service, it really does a great job.

Emerald Squadron Aviation

Last but not least, we arrive at the Squadron. I started my YouTube Channel with the intention of providing a free resource for new pilots to learn as much as the could and not have to break the bank. It was so difficult for my family to pay for my flight training, that I wanted to help anyone in a similar situation. The website is always evolving, and we are constantly working to provide free content for any young aviator looking to start their career off right.

Our YouTube channel updates frequently with ground school content, and our free and paid courses provide a place for you to learn new skills and test them out to make sure they stick.

As of the date of publication, we have a 100% Success rate for students who run through our ground course and get an endorsement for the knowledge exam, so if you want to go in with the utmost confidence of passing, come join the

squadron and we'll get you in the air!

https://www.emeraldsquadronaviation.com/

Conclusion

Thanks for reading through to the end! I am excited to help you start out on your journey! Remember that as long as you are training, studying, and improving in the field of aviation, you are an aviator do aviator things. Never quit! Stick with it! There is always something you can do! Don't let people get you down about your goals and remember that you always have a team of people here willing to help you out.

Here are the resources we discussed so you don't have to go fishing for them throughout the book.

Books:

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/

Charts:

https://skyvector.com/

Radios:

https://www.liveatc.net/

Weather:

https://www.1800wxbrief.com

Practice tests:

https://free-faa-exam.kingschools.com/

E-Flight Bag:

https://www.fltplan.com/

Emerald Squadron:

https://www.emeraldsquadronaviation.com/

Thanks again for joining the squadron! I am looking forward to flying with you on my wing!

Seeya!

Sneak Peek

SKYHAWK PILOT: LEARNING TO FLY THE ULTIMATE BUG SMASHER

Slip the Surly Bonds

"Oh! I have slipped the surly bonds of Earth
And danced the skies on laughter-silvered wings;
Sunward I've climbed, and joined the tumbling mirth
of sun-split clouds, — and done a hundred things
You have not dreamed of – wheeled and soared and swung
High in the sunlit silence. Hov'ring there,
I've chased the shouting wind along, and flung
My eager craft through footless halls of air....

Up, up the long, delirious, burning blue
I've topped the wind-swept heights with easy grace.
Where never lark, or even eagle flew —
And, while with silent, lifting mind I've trod
The high untrespassed sanctity of space,
– Put out my hand, and touched the face of God."

High Flight, John Gillespie Magee Jr.

The lawnmower that served as our engine hummed steadily while I thumbed through the notepad on my kneeboard. We were sitting in a 2-seat, high-wing, tricycle-gear, Cessna 152 general aviation trainer aircraft. The six-pack of instruments situated in front of the control yoke consisted of an airspeed indicator, attitude indicator, altimeter, turn-slip coordinator, heading indicator, and vertical speed

indicator. Everything looked like it was functioning correctly. Located to the right of the six-pack of was the radio stack. I located the radio frequencies I needed on my kneeboard and reached up to the left dial and tuned to the first one listed. Standing for Automated Terminal Information System, the ATIS is the first frequency you listened to before talking to ground control and departing the airfield. With cerulean ceilings overhead, and a gentle June breeze caressing the backs of our necks, we could not have asked for a better day to give gravity the finger.

With our take off clearance granted and our nose to the wind, we accelerated to rotate speed and allowed the aircraft to fly itself off the runway. With years of flight experience between my instructor and myself, it is nevertheless an exhilarating experience to climb away from the planet and soar into the wild blue.

My current objective is to follow in his footsteps and become a flight instructor. Eventually, I hope to accrue enough flight experience to apply to one of the dedicated firefighter flight programs and serve as a single engine air tanker pilot. But first things first. In addition to an extensive list of ground and flight training required to obtain my next rating, I need experience recovering from spins to keep my

passengers, students, and myself safe from spiraling into the ground. My instructor was a retired F-18 fighter pilot from the Navy, and he was making sure this logbook entry would be a memorable one.

Strapped into the flying go-kart, hands and feet on the yoke, throttle, and rudder pedals, I was confident of my abilities and relaxed as we climbed over South Whidbey Island.

Clearing the Class Delta airspace, I flipped my kneeboard cheat sheet to find Whidbey Approach's radio frequency, dialed it up on standby, and flipped the switch to activate it. I pulled the squelch knob to make sure I was receiving a good signal from their station and scanned my instruments. Airspeed 90, slightly nose high, climbing through three thousand feet, coordinated, heading northwest, and positive rate of climb. Groovy.

Satisfied with the aircraft's state, I triple checked the radio frequency and keyed the mic.

"Whidbey Approach, Cessna niner-niner-two, request VFR flight following for maneuvering in the area."

We requested a block altitude to avoid conflicting with other aircraft in the airspace and chose a position directly over a non-towered airport that

would give us plenty of time to recover. We wanted to be within gliding distance in the event of a real-world emergency.

We started with slow flight to get a feel for how the aircraft responded near its critical angle of attack. My right hand reduced power and dropped full flaps while my left compensated with a touch of back pressure to bring the nose up. The engine quieted. The wind flowing over the aircraft calmed, and the roar of the propeller died down to a low purr. I let the plane settle into a nose-high attitude and rolled back on trim wheel for hands-off flight. Once we had reached our target airspeed and configuration, I used power to maintain altitude and pitch to control my airspeed. Because of the reduced air gripping the control surfaces, the yoke and rudder pedals felt mushy and unresponsive.

Most people imagine landing airplanes the way the space shuttle or a Boeing 747 land. If you google "airplanes landing," you will likely find some behemoth mid-flare with its nose somewhere in the stratosphere. Small aircraft like the one we train in don't flare so much as transition into slow flight a few feet off the runway and settle down onto the surface. Because of its importance to every flight my first flight instructor and I had drilled slow

flight countless times. Although I admit, I am not a professional, I am perfectly comfortable near stall speed. I relaxed into the seat and waited for my new instructor's heading and altitude commands.

Maintaining positive control, I demonstrated straight and level flight. Leaned back, nose to the sky, we aimed at Mt Rainier on the horizon. With the sun to our back my instructor vectored me around with shallow turns and altitude changes and after proving that I could handle slow flight without incident, we moved on to stalls. If you are unfamiliar with aircraft stalls, this is when you exceed the critical angle of attack until the wing stops generating lift. The end result is a sensation of plummeting toward the ground with your stomach rising into your throat, and that rollercoaster feeling of free fall. They are rather uncomfortable for unsuspecting passengers, but as the pilot in command, stalls are a fairly benign maneuver when performed with sufficient altitude.

From the slow flight attitude, I pulled the yoke full aft, felt the aircraft buffet, and the nose dropped. The planet filled the windscreen. What had once been a light blue sky turned into the dark royal blue of the Puget sound and the lush green of the Pacific Northwest. With our plane racing toward the

surface I applied full power, nosed down and recovered. Too easy.

With the engine rumbling and the prop roaring once again, we drilled power on and power off stalls. Used to simulate landing and takeoff configurations, these exercises are essential in teaching a pilot how to react when he is low to the ground and in danger of making a fatal mistake.

After a few rounds, my CFI instructed me to add full rudder deflection at the top of the stall to induce a spin. The stall warning horn blared at the peak of the maneuver and I booted the rudder, sending us spiraling to the ground. Like Maverick and Goose, we watched the world tumble around us. We allowed the spin to develop to get the full experience of running our stomachs through a blender, then I applied the PARE recovery technique. Power Idle, Ailerons neutral, Rudder opposite, Elevator forward. While it was a wild ride, the recovery technique worked like a charm, and I had no issues running the drill.

Let's go again.

Pitch, power, trim. Nose to the sky with the horn blasting away, we entered a spin to the left. I don't know when it happened, but all of a sudden, we

were inverted with the planet above us and the skies at our feet. With power idle and wings level once again, I pulled through the dive, flexing my legs and stomach as the G-forces pressed me into the seat. It was amazing.

Smiling, and willing to keep hitting it as long as we had fuel and daylight, we shifted gears.

The final stage of the training was to recover from the spin as though I was the instructor. I would have my hands off the controls, allowing my instructor, now pretending to be the student, to take over. He would pretend to get distracted, get slow, and cross control, and I would have to calmly recover so as not to make him uncomfortable. A good CFI should avoid spooking his students if he wants them to come back for another lesson. It was an excellent exercise in maintaining situational awareness, and keeping a calm, cool demeanor.

Back on the ground, debrief complete, plane tied down. Time for a cream soda.

People have often commented on how difficult it seems to get into aviation, and on more than one occasion I have been saddened by friends and family who were so discouraged that they quit or

never even tried to fly. I am not a writer, but I decided that it might be nice to share my experiences and help anyone interested learn how to get their dreams off the ground.

One of the first things I recommend is finding the right flight school. Most people don't realize just how many airports there are around the country, and if you were to look at a sectional chart right now you could probably find two or three within driving distance.

Pick an airport that is close enough. There are likely multiple schools and instructors at your airport, so take time to find reviews. If you can, talk to students, private pilots, and instructors. Find a school that is up front about costs, has a good vibe, and fits what you are looking for.

Do your best to shop around for an instructor, and don't be afraid to get picky. A good instructor can make flight training exciting, memorable, and safe, but a bad instructor can make even the best flight miserable. I would recommend watching out for the following types of instructors.

Some instructors only teach to build enough hours to get to the regional airlines. I am not knocking this exactly, but I would caution against flying with

someone who is not invested in actually taking time to work with you. It can be disheartening when the instructor you have been training with suddenly moves 3000 miles away with no notice and no transition plan (not that I have ever been hurt before… twice). A student pilot's heart can only take so much.

Another type of instructor that I would be cautious to work with is the one who only sees you as a walking credit card. Pilot's gotta eat, but it should be a red flag when they have sold you 10 lessons, a ground school course, a kneeboard, a headset, and a new jacket before you've seen the inside of an airplane. Be patient when buying your gear. A good instructor will respect you and your wallet.

Some instructors will have your entire path mapped out with each flight planned in a logical order from start to finish. Others will show up at the airfield and ask you what you want to work on that day. Whether they are laid back and laissez faire, or hands on, in-your face drill instructors, it really comes down to how you want to learn.

It took me flying with five instructors before settling on the one who would complete my training. Amy was actually the first pilot I flew

with, but she was adamant about having me test a few others out to make sure we would gel. She was great about planning the path to earning my wings but was flexible about letting me get there my own way. Of all the pilots I have ever flown with, she is the one I would pick, hands down. We made a great flight crew.

My first flight was in a C172. I had left the Army to focus on my family, and I suddenly felt like I had no intellectual or professional purpose. For the longest time, my choices were governed by the singular goal of being the best Airborne Ranger I could possibly be. After drifting through civilian life for a few months, I was about to be thrust into a new path.

After strapping myself into the left seat of this single-engine bug smasher, and feeling the roar of the propeller, I was suddenly in an entirely new world. We truly are 2-dimensional beings on the surface of the planet, but this was a 3-dimensional world. The controls felt custom molded for my hands and feet, and the wings and tail an extension of my body. Amy guided me through some basic maneuvers, teaching me from day one to love and respect this masterpiece of engineering before

taking us back to the airfield. It was love at first sight.

I had found my calling. I decided that day to dedicate myself to the science of flight and to share my passion with anyone willing to listen.

How do I start flying?

Action steps:

1 Find 3 local airports in your area.

2 Look at flight school websites and reviews; talk to students and renters.

3 Meet with various instructors to find the best fit.

More books by Norman "Monty" Montes De Oca

Skyhawk Pilot: Learning to Fly the Ultimate Bug Smasher Buy Now

Staying Grounded: A Guide for Aviation Ground Instructors Buy Now

7 Free Pilot Tools

Ranger Pilot (Coming Soon!)