Higher Living

Welcome back for the final quarter of 2024. I personally feel like time passes more quickly the older I get. I would be happy for it to just slow down a bit and let me catch up.

The last quarter has been tough on flying due to so much rain and wind and low clouds. My schedule has been disrupted many times and I know my students and all the other instructors are feeling it too. Maybe the next three months will give us a break in the weather with not too many below freezing mornings that force us to remove frost. One of my least favorite pastimes.

I'd like to invite those of you who haven't tried it yet to give the flight simulator, located upstairs, a try. It provides an alternative to staying home when the weather sets in and even though it doesn't feel exactly like an actual flight it is great for teaching the use of checklists and even better for maintaining instrument currency. Consider trying it out. It's also a lot less expensive than actual flying. In this edition of Higher Living my first article is about what a BATD flight simulator is and what you can accomplish with it.

Speaking of instrument currency, is it time for you to consider adding an instrument rating to your certificate? It is great for extending the utility of your flying by having you worry less about clouds blocking your next cross-country flight.

This month I will be attending the NAFI 2024 Flight Instructor conference in Daytona Beach. I plan to write about some of what I learn there in the next quarter newsletter.

Come fly with us.

- David Williams, Editor

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What Is a BATD?

A BATD, or Basic Aviation Training Device, is an aircraft simulator designed to provide basic flight training to student pilots as well as instrument currency for the instrument rated. The Red Bird simulator, located upstairs in the FBO at Sanford is a BATD. They are part of a category of flight training devices used to simulate the experience of flying an actual aircraft, allowing pilots to practice and develop their skills in a controlled and cost-effective environment. Here are some key features and characteristics of BATD aircraft simulators:

BATDs are designed for basic flight training tasks, allowing student pilots to practice fundamental skills such as aircraft control, navigation, and instrument procedures.

BATDs often include simulated instrument panels, allowing pilots to practice flying solely by reference to instruments. This is particularly valuable for instrument flight training and developing proficiency in using cockpit instruments.

BATDs are equipped with realistic cockpit controls, including yokes, pedals, and instrument panels. The goal is to replicate the look and feel of an actual aircraft cockpit as closely as possible.

While BATDs may not have the advanced visual systems found in higher-level flight simulators, they typically include a basic visual display to simulate the outside environment. This helps with navigation and situational awareness.

BATDs allow instructors to introduce and reinforce concepts in a controlled environment before students transition to actual flight.

Using BATDs can be more cost-effective than training in an actual aircraft, especially for repetitive tasks and procedural training. It allows students to gain proficiency in certain maneuvers without consuming aircraft fuel and resources.

Some training hours logged in BATDs can count toward the total required hours for certain pilot certificates and ratings.

BATDs must meet specific regulatory criteria to be approved for flight training. This approval ensures that the devices accurately simulate the performance and handling characteristics of the aircraft they represent.

BATDs can represent various types of aircraft, making them versatile for training purposes. They can simulate different single-engine and multi-engine aircraft, allowing students to practice in the type of aircraft they plan to fly. The Red Bird simulator can work with either traditional round gauges or a G1000 display. It can also simulate a complex airplane.

It's important to note that while BATDs are valuable tools for basic flight training, they do not replace the need for actual flight time in an aircraft, especially for tasks that require the physical skills and sensations of real flight. BATDs are part of a broader range of flight simulation devices used in aviation training, each serving specific training objectives and requirements.

What Maintenance Can an Airplane Owner Do Without a Mechanic?

Owners of airplanes, especially in the context of general aviation, can perform a variety of maintenance tasks on their aircraft. These tasks are generally placed into two main categories: preventive maintenance and minor

repairs. Here are some examples:

Preventive maintenance would include some of the following:

Replacing bulbs, fuses, and reflectors. Owners can replace these items without requiring an A&P (Airframe and Powerplant) mechanic's certification.

Tire inspection and replacement. Owners can inspect and replace tires.

Replacing safety wire or cotter pins. These are small safety components that owners can replace. But have a mechanic show you how to do it properly.

Replacing and servicing batteries. Owners can replace the aircraft battery and perform routine maintenance on batteries.

Servicing landing gear shock struts. Routine servicing and lubrication can often be performed by owners. This is untrue if any disassembly is required.

Replacing seats or safety belts. Owners can replace interior items like seats and safety belts.

The next set of items falls in the category of Minor Repairs.

Replacing panels and fairings. Owners can replace non-structural panels and fairings.

Owners can repair or replace upholstery in the cabin.

Small cosmetic repairs can often be handled by owners.

Owners can repair minor fuel and oil leaks.

Owners can replace communication and navigation antennas. After doing so an avionics repair shop needs to confirm continued proper operation.

It's important to note that while owners can perform these tasks, they must do so in accordance with the regulations specified in the aircraft's maintenance manual and under the supervision of an A&P mechanic when required.

For more complex maintenance tasks or inspections, especially those involving the airframe, engine, or avionics systems, the involvement of a certified A&P mechanic or an FAA-certified repair station is required. These professionals have the training, tools, and certification to perform more extensive maintenance and repairs on aircraft. All the rules are laid out in CFR Part 43.

How To Get a Glider Certificate?

Earning a glider certification involves a combination of ground instruction, flight training, and successfully passing practical exams. Here is a general guide based on FAA regulations.

To pursue glider certification, you must be at least 16 years old.

Locate a certified glider flight instructor who can provide you with the necessary training. Ensure that the instructor holds the appropriate ratings and certificates to provide glider instruction.

Complete the required ground school instruction, which covers aeronautical knowledge related to gliders. This knowledge is essential for understanding the principles of flight, navigation, regulations, and safety.

Pass the FAA Glider Knowledge Test, which is a written exam that assesses your understanding of glider-related topics.

Undergo flight training with a certified glider flight instructor. The flight training includes a combination of dual instruction

(with an instructor) and solo flights.

Develop proficiency in various flight maneuvers, including takeoffs, landings, turns, climbs, descents, and emergency procedures.

Once you have demonstrated the necessary skills and knowledge, your instructor will endorse you to fly solo in a glider. Solo flight is a significant milestone in the training process.

Gain experience in cross-country flying, which involves planning and executing flights that take you beyond the airport environment. This phase of training enhances your navigation and decision-making skills.

After completing the required training and flight hours, you will be eligible to take the practical test, commonly known as the checkride.

The checkride consists of an oral exam and a flight test conducted by an FAA-designated pilot examiner. The examiner evaluates your aeronautical knowledge, flight proficiency, and decision-making skills.
Upon successful completion of the checkride, you will be issued a Glider Pilot Certificate. This certifies that you are qualified to operate gliders as pilot-in-command.

Once you have obtained your Glider Pilot Certificate, you may choose to pursue additional ratings, such as the Commercial Glider or Certified Flight Instructor (Glider) ratings, which allow you to provide instruction to other aspiring glider pilots.

The specific hour requirements at each step can be found at FAR 61.109(f). It's important to note that the process described here is a general guideline based on FAA regulations.

Sterile Cockpits

The sterile cockpit concept is an aviation safety procedure designed to minimize distractions during critical phases of flight. The term "sterile" in this context means free from unnecessary or unrelated activities and conversations that could distract flight crew members from their duties.

Here's a breakdown of how the sterile cockpit concept works:

The “Critical Phases of Flight” are typically defined as the periods of flight where full attention to the task at hand is crucial for safety. They include taxiing, takeoff, landing, and any other maneuvers below a certain altitude (usually 10,000 feet).

During these critical phases, pilots are expected to refrain from non-essential activities and conversations that are not directly related to the operation of the aircraft.

The sterile cockpit rule ensures that pilots and crew members maintain a high level of concentration on tasks such as navigation, communication with air traffic control, monitoring instruments, and other essential duties. Distractions during these critical times can potentially lead to errors or oversights that compromise flight safety.

There are exceptions to the sterile cockpit rule, such as necessary communication related to flight safety or emergency situations. Crew members are encouraged to communicate important information concisely and clearly during these phases.

Sterile cockpit procedures are mandated by aviation authorities like the Federal Aviation Administration (FAA). Airlines and operators are required to implement and enforce these procedures to enhance flight safety.

We should include this in our own flying.

No conversations during landing and takeoff that aren't related to the flight. Don't be reading a checklist or setting radios or GPS routes while taxing.

How to File, Open and Close an IFR Flight Plan?

Filing, opening, and closing an IFR (Instrument Flight Rules) flight plan involves several steps to ensure proper communication with air traffic control (ATC) and flight services. Here's a detailed guide on how to do each of these:

Ensure you have all necessary information ready, including your aircraft details, departure and destination airports, proposed route, estimated time enroute, alternate airport (if required), and any other relevant details.

There are several options regarding how to file your flight plan:

If you're at an airport with ATC services, you can file your flight plan directly with the clearance delivery or ground controller.

However it is preferred that you handle filing a flight plan well before the flight, usually online or with Flight Service.

You can call Flight Service at 1-800-WX-BRIEF or contact them via radio on a published frequency or through a phone number provided for flight plan filing.

Flight plans can also be filed through a variety of online services such as the Flight Service web site or through an application such as ForeFlight.

When filing your flight plan, be ready to provide:

Your aircraft registration or identifier.

Type of flight (IFR).

Aircraft type and equipment suffix (e.g., /G for GPS-equipped). There are too many options to get into them all here.

Departure airport, proposed departure time (or proposed departure window), and altitude.

Destination airport and any alternate airports.

Route of flight (airways, fixes, and waypoints).

Estimated time enroute (ETE) and fuel on board.

After filing, you will receive an acknowledgment from ATC or Flight Service confirming receipt of your flight plan. They may also provide you with a proposed departure time (if applicable).

To open your flight plan Contact Clearance Delivery or Ground Control or Approach Control via radio. Which one will depend on where you are. When you're ready to depart and are prepared to begin your IFR flight, contact clearance delivery or ground control (depending on the airport procedures) and request your IFR clearance by providing your aircraft identifier and indicate that you are ready to receive your IFR clearance to your destination airport.

ATC will provide you with your IFR clearance, which includes your assigned squawk code, departure instructions (if any), initial altitude, and sometimes the departure frequency. Read back your clearance to confirm understanding and compliance.

During your flight, ATC will typically provide updates and may advise you to close your flight plan with them upon arrival at your destination.

Once you land at a towered airport and are clear of the

runway, ATC will automatically close your flight plan.

If you are not at a towered airport, then inform ATC or FSS that you would like to close your IFR flight plan while you have them on the radio. Provide your aircraft identifier and confirm your arrival at the airport.

ATC or FSS will confirm closure of your flight plan and may provide any additional instructions or information.

By following these steps and maintaining clear communication with ATC or FSS, you can effectively file, open, and close your IFR flight plan, ensuring a safe and efficient flight under Instrument Flight Rules. Once you do it a few times the actual mechanics of the process will become quite easy.

What Is Accelerate-Stop Distance and How to Calculate It?

Accelerate-Stop Distance is a performance parameter used in aviation that represents the total distance required for an aircraft to accelerate to a specified speed and then come to a complete stop in the event of an aborted takeoff. This distance is measured from the start of the takeoff roll until the aircraft can brake and come to a full stop on the runway.

Usually, the accelerate stop distance is only referenced by large aircraft but it can be a very important number for you to know should you want to take off from a rather short runway. Think of BQ1.

The Accelerate-Stop Distance is typically determined under specific conditions and factors, including:

V1 is the critical takeoff decision speed. It is the maximum speed at which the takeoff can be safely continued, and beyond which the takeoff should not be aborted. V1 speed is established during pre-flight planning and is based on a variety of factors, including the length of the runway, aircraft weight, and environmental conditions.

The decision to abort the takeoff is made at or before the V1 speed. After reaching V1, the takeoff should proceed.

The Accelerate-Stop Distance considers the time and distance required for the pilot to recognize the need to abort the takeoff, apply maximum braking, and bring the aircraft to a stop.

For our small aircraft you can reference the POH to find the ground roll distance required for a normal takeoff. Add that length to the landing ground roll distance. The total is how long the runway needs to be in order for you to accelerate just to the point of leaving the ground and then pull throttle to idle and brake hard, but not skid, to a full stop.

Question of the Quarter

Who was the first woman to break the sound barrier?

Answer:
Jacqueline Cochran. On May 18, 1953, at Rogers Dry Lake, California, Cochran flew a Sabre 3 at an average speed of 652.337 mph. During this run the Sabre went supersonic, and Cochran became the first woman to break the sound barrier.

You just learned something new.

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