

The National FAA Safety Team Presents

Topic of the Month – June After Market Safety Equipment

Presented to: WAFC and Friends

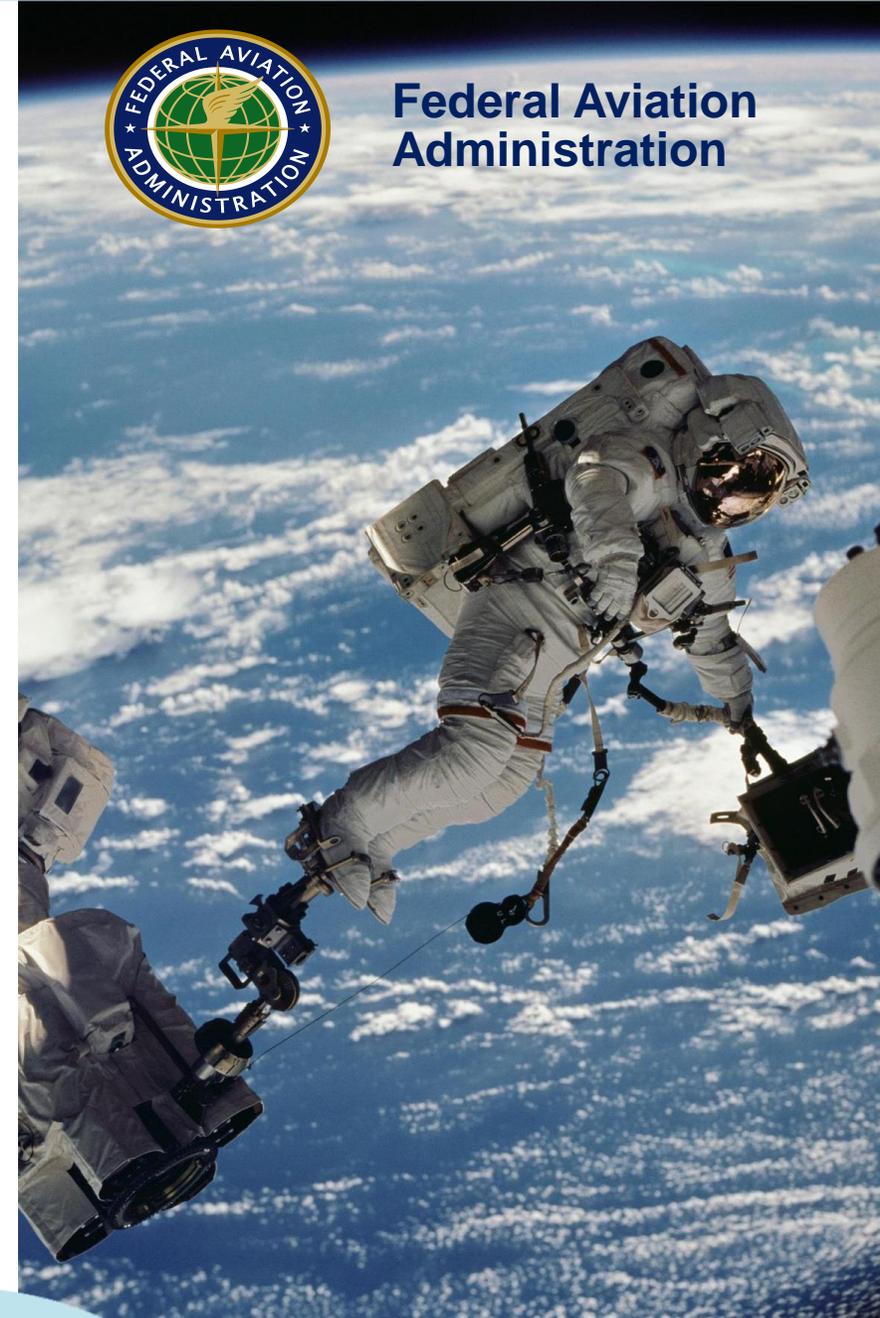
By: Stephen Bateman, CFI

Date: June 13th, 2022

**Produced by AFS-850
The FAA Safety Team (FAASTeam)**



Federal Aviation
Administration



Welcome

- **Steve Bateman, CFI, AOPA Director of Flying Clubs**
 - Safety and Maintenance Officer, Westminster Aerobats Flying Club
 - FAASTeam lead representative, Baltimore FSDO
- **Our monthly in-and-out safety meeting using the FAASTeam Topic of the Month**
- **Sponsor Acknowledgment – WAFC, AOPA, FAASTeam, Baltimore FSDO**
- **WINGS Credit: Yes...but give me a day...**
- **Probably no time for questions, but send email:
steve.bateman@aopa.org**

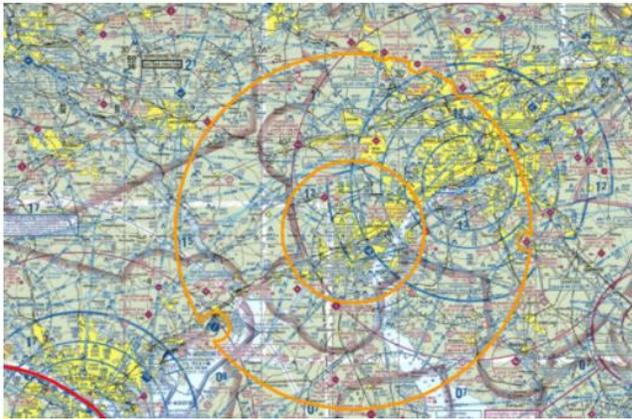


Check NOTAMS!

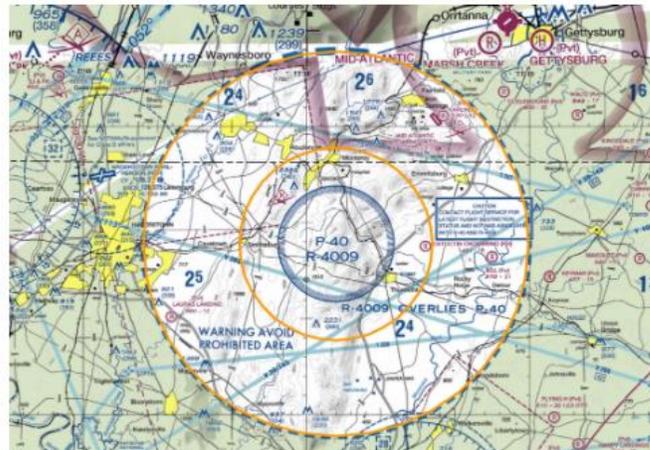
Probably not the flight following you had in mind...



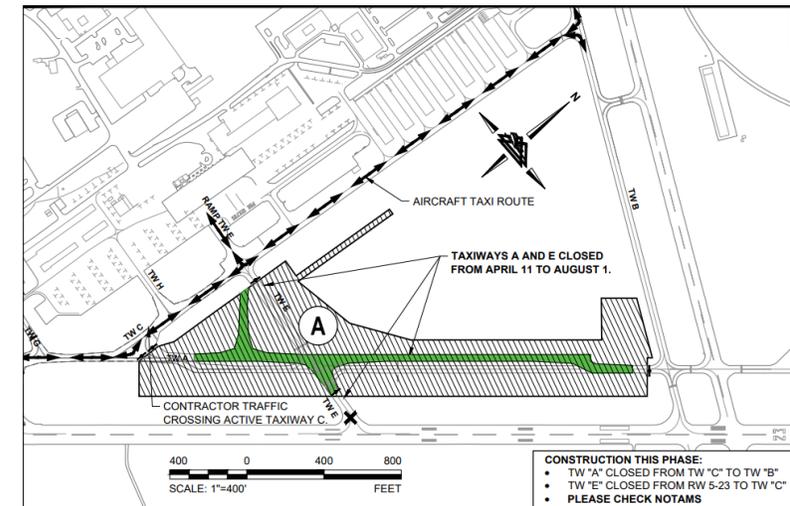
VIP TFR OVER WILIMINGTON, DE BEGINNING TODAY SATURDAY, MARCH 6, 2021



VIP TFR OVER HAGERSTOWN/THURMONT, MD BEGINNING FRIDAY, APRIL 2, 2021
(((CHANGE IN DEPARTURE TIME)))



Heads-up: Taxiway A work at Frederick for the next 2 months.



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Overview

- **Available safety equipment**
- **Restraint systems**
 - Quick egress tips
- **Other tech goodies...**



The future is here

- Electrically propelled aircraft
 - Space tourism
 - Drone delivery
 - Autonomous aircraft passenger operations
-
- All of this brings innovation and...
 - Improved safety technology
 - In the meantime...



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Save 60%!



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Multi-point restraint systems



Multi-point anti-submarine restraint systems

• **Submarining** is an undesired phenomenon during a frontal crash scenario and is dependent on design features of the seat pan and seatbelt system. The lack of adequate **anti-submarining** features at any seating position with three-point restraint can cause abdominal solid and hollow organ injuries.



Airbag seat belts



Airframe & Powerplant

Continental IO-550-N 310 HP Engine

Cirrus Airframe Parachute System® (CAPS®)

Airbag Seatbelts (Front Seats)

The screenshot shows a web browser window with the URL <https://www.amsafe.com/airbag-systems/retrofit-aircraft-seatbelt-airbag/>. The page features a navigation menu with links for PRODUCTS, SERVICES, ENGINEERING, ABOUT, DOWNLOADS, NEWS, and CONTACT. The AmSafe logo is in the top right corner. Below the navigation, there is a breadcrumb trail: [Back to Airbag Systems](#). The main heading reads "RETROFIT YOUR GENERAL AVIATION OR AGRICULTURAL AIRCRAFT". A sub-heading states: "Retrofit your general aviation or agricultural aircraft with an AmSafe Seatbelt Airbag System." The main text describes the system: "The AmSafe's Seatbelt Airbag System can be easily retrofit into existing aircraft seats for operators looking to modify or upgrade their interiors. The seatbelt airbag system may not require any modifications to existing seat structure for installation." To the right of the text is a large image of a Cirrus aircraft with the tail number N2KVR. Below this image are two buttons: "MAKE AN ENQUIRY" and "PRODUCT SHEET" with a dropdown arrow.

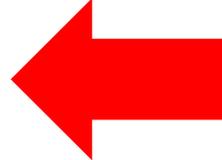
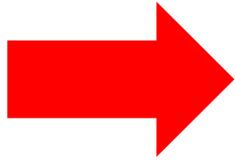


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Question:

Which way do airline seat belts unbuckle?

Left to Right or Right to Left



Answer:

There is no standard. It could be either way.



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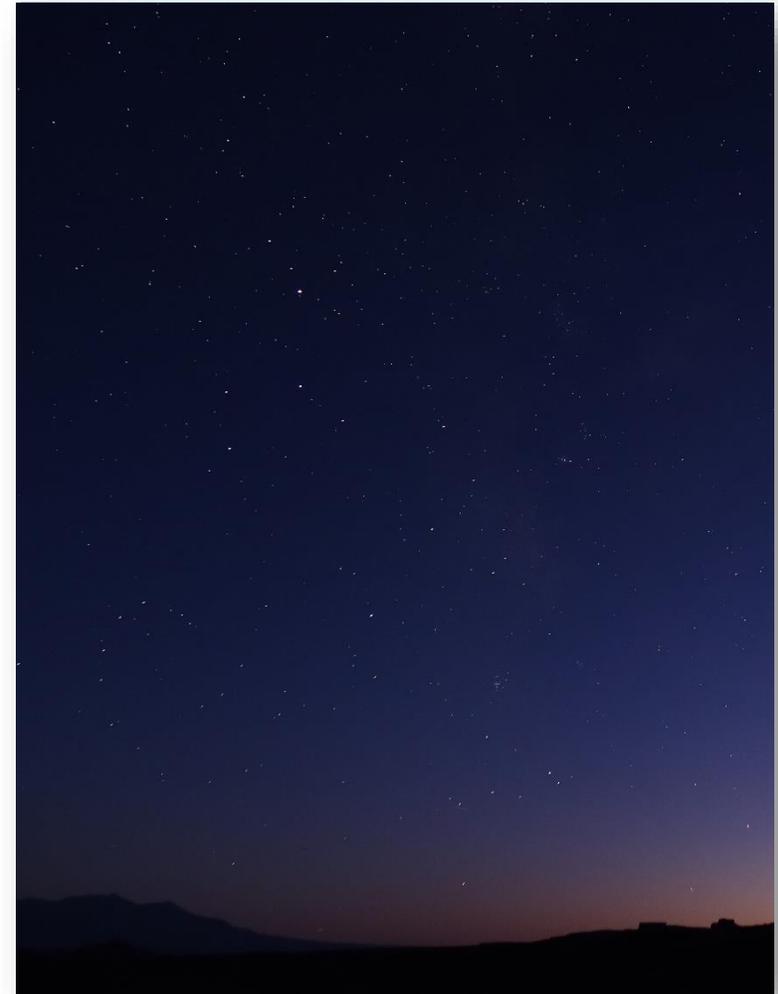
Question:

Why is it important to know which way my seatbelt unbuckles?

Answer:

You may have to exit the aircraft quickly during a high-stress event -----

and you may have to do it in the dark.



Exercise:

- **Sit in your usual seat in the plane**
- **Buckle up**
- **Close your eyes – keep them closed**
- **Get out...**
 - Unbuckle
 - Open the door
 - Exit
- **Wear a parachute?**
 - Do it again without also unbuckling your para...!



Buckle Placement:



Flight Data Monitoring



- Cockpit Voice Recorder (CVR)
- Flight Data Recorder (FDR)



Flight Data Monitoring for GA



Flight Data



Flight Data + Visual



Enhanced Vision



Synthetic Vision



Angle of Attack Indicators



AOA For GA



Streamlined Certification Process

The screenshot shows the FAA website's navigation bar with the logo and links for Home, Jobs, News, About FAA, A-Z Index, and FAA for You... Below the navigation bar is a search bar. A secondary menu includes Aircraft, Airports, Air Traffic, Data & Research, Licenses & Certificates, Regulations & Policies, and Training & Testing. The main content area features a breadcrumb trail: FAA Home > News > Press Releases. On the left is a sidebar with links to Press Releases, Fact Sheets, Speeches, Testimony, News & Updates, Media Advisories, Conferences & Events, FAA Safety Briefing, Public Affairs Contacts, and Stay Connected. The main article is titled "Press Release – FAA Clears Path for Installation of Angle of Attack Indicators in Small Aircraft" and is marked "For Immediate Release". It is dated February 5, 2014, and lists contact information for Les Dorr and Elizabeth Isham Cory. The article's sub-headline is "Measure Could Improve Safety in Thousands of Aircraft". The text begins with "WASHINGTON – The Federal Aviation Administration (FAA) today took an important step to help improve safety in small aircraft by simplifying design approval requirements for a cockpit instrument called an angle of attack (AOA) indicator. AOA devices, common on military and large civil aircraft, can be added to small planes to supplement airspeed indicators and stall warning systems, alerting pilots of a low airspeed condition before a dangerous aerodynamic stall occurs, especially during takeoff and landing." To the right of the article are "Print" and "Share" buttons. Below the article is a "FAANews on Twitter" section with a tweet from @Pawswithacause about assistance dogs at a conference. The tweet includes a link to the press release.



• http://www.faa.gov/news/press_releases/news_story.cfm?newsid=15714



Electronic Ignition for aircraft

- **Fewer Mechanical Parts**
 - More reliable than magnetos
- **Reduced maintenance expense**
- **Increased fuel efficiency**
- **Requires (separate) electrical power source**



And the list goes on

Flight Management Systems

Autopilots

Survival Gear

Engine Analyzers

Ballistic Parachutes



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Think before you add...

- **STC or PMA?**
- **W&B considerations**
- **C177-RG oxygen story...**

- **See Mike Busch's (EAA) webinar "Is it legal to install?"**
 - May 2020

What if you want to install something in your certified aircraft—e.g., an automotive seat heater—but the thing you want to install isn't STC's, PMA'd, TSO'd, or otherwise FAA-approved? Is it legal to do that? Do you need a field approval?



References:

- Supplemental Checklists for Aftermarket Safety Equipment in 57 Seconds
 - Adding to the basic checklist

Aftermarket Safety Equipment

The installation and use of aftermarket safety equipment like shoulder harnesses, engine monitoring equipment, enhanced and synthetic vision systems, and angle of attack indicators, can significantly reduce the likelihood or severity of some general aviation (GA) accidents.

Fasten Your Seatbelt

Many GA aircraft are limited to single-belt restraint systems, but adding shoulder belts can give you the best chance of sustaining minimal or no injury in many accident scenarios. Some of these systems also integrate inertia reels and rotary buckles with quick-disconnect release mechanisms. It's fairly common to have this kind of equipment installed via a Supplemental Type Certificate (STC) for many older GA aircraft with single-belt restraints.

Airbag seatbelts are another safety-enhancing option worthy of consideration. Several aircraft manufacturers now provide them as standard equipment, and there's a growing aftermarket

installation business for airbag seatbelts. These systems are designed to deploy once a certain amount of consistent longitudinal deceleration is detected and to protect occupants from striking the glare shield, instrument panel, and control yoke.

It's also a good idea to be familiar with your seat belt system, especially if you install something new, as the latches could open left to right, or right to left. It may not seem like a big deal, but during an emergency, your ability to release a seat belt and exit the aircraft may be compromised by darkness, smoke, or injury. You may also find that some buckles are difficult or impossible to open under load. Using one hand on or under the seat can help take the strain off the buckle before releasing the latch.



AmSafe's Seatbelt Airbag System (SOARS) is an example of an aftermarket lapbelt airbag restraint system, which is designed to mitigate head and torso injury in aircraft crash conditions. Photo courtesy AmSafe, Inc.

Content disclaimer: Products and services mentioned in this article, and/or external, non-FAA links within, do not constitute official endorsement on behalf of the FAA.

Recording in Progress

Additional safety features suitable for GA airplanes are flight data monitoring and recording systems.

Continued on Next Page

Why *WINGS*?

- **Proficient Pilots are:**
 - Confident
 - Capable
 - Safe
- ***WINGS*** will keep you on top of your game



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Proficiency Training Works

- Increases confidence
- Increases comfort
- Expands horizons
- Keeps us safe



Earning any WINGS phase qualifies for a Flight Review!



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WINGS Topic of the Quarter

- **Easiest way to work with WINGS**
- **Three knowledge activities and three flight activities chosen for you**
- **Do one per quarter – gets you a phase of WINGS with all the rewards**
- **CFIs: Give WINGS credit after every instructional flight**
- **NEW for 2022! Two ToQ plans to choose from: Alpha and Bravo**



WINGS Topic of the Quarter – Alpha Flights

WINGS Topics of the Quarter



FAA
Aviation Safety

Flight Activities For ASEL

Plan Alpha

Spring Flight Activity

Flight Activity: A070405-07
Takeoffs, Landings, Go-Around



<https://bit.ly/2L1WceL>

Objective: To develop, review, or improve the airman's knowledge, airmanship and understanding the importance of maintaining positive aircraft control during takeoff, landing, and go-arounds.

I certify that
holder of pilot certificate # _____
has satisfactorily demonstrated proficiency in the required tasks as outlined in the WINGS - Pilot Proficiency Program, for activity #A070405-07 on _____

CFI Printed Name: _____

CFI # / Expiration: _____

CFI SIGNATURE: _____

Summer Flight Activity

Flight Activity: A070405-08
Slow Flight, Stalls, Basic Instruments



<https://bit.ly/2AZZNFM>

Objective: To develop, review, or improve the airman's knowledge, airmanship and understanding the importance of performing intentional stalls to familiarize the airman with the conditions that produce stalls.

I certify that
holder of pilot certificate # _____
has satisfactorily demonstrated proficiency in the required tasks as outlined in the WINGS - Pilot Proficiency Program, for activity #A070405-08 on _____

CFI Printed Name: _____

CFI # / Expiration: _____

CFI SIGNATURE: _____

Fall Flight Activity

Flight Activity: A100125-07
Airport Operations



<https://bit.ly/2G5Ybjl>

Objective: To develop, review, or improve the airman's knowledge, airmanship and understanding the importance of knowing and abiding by the rules and general operating procedures applicable to airports.

I certify that
holder of pilot certificate # _____
has satisfactorily demonstrated proficiency in the required tasks as outlined in the WINGS - Pilot Proficiency Program, for activity #A100125-07 on _____

CFI Printed Name: _____

CFI # / Expiration: _____

CFI SIGNATURE: _____

Winter Flight Activity



Flight Activity: A100125-08
Air Work – Proficiency Maneuvers & Ground Reference Maneuvers



<https://bit.ly/2Ei2rL0>

Objective: To develop, review, or improve the airman's knowledge, airmanship and understanding the importance of mastering the ability to control the airplane, and recognize and correct for the effect(s) of wind.

I certify that
holder of pilot certificate # _____
has satisfactorily demonstrated proficiency in the required tasks as outlined in the WINGS - Pilot Proficiency Program, for activity #A100125-08 on _____

CFI Printed Name: _____

CFI # / Expiration: _____

CFI SIGNATURE: _____

- Easy to do these rewarding light activities
 - With your CFI
 - At least 3 times a year!
 - Go on...do the bonus 4th!



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Summer Training (Flights)

Summer
Flight Activity

Flight Activity: A070405-08

Slow Flight, Stalls,
Basic Instruments



<https://bit.ly/2AZZNFM>

Objective: To develop, review, or improve the airman's knowledge, airmanship and understanding the importance of performing intentional stalls to familiarize the airman with the conditions that produce stalls.

I certify that

holder of pilot certificate # _____
has satisfactorily demonstrated proficiency in the required tasks as outlined in the WINGS - Pilot Proficiency Program, for activity #A070405-08 on _____

CFI Printed Name: _____

CFI # / Expiration: _____

CFI SIGNATURE: _____



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Activities, Courses, Seminars &

[Activities](#) | [Courses](#) | [Seminars & Webinars](#) | [Topic](#)

Accredited Activity Info

Name: ASEL-Slow Flight friendly)

Credits: _____

1 Credit for B

Activity Number: A070405-08

Syllabus: [S-BF2-W1.00-0801](#)
Slow Flight, Stalls,

Request Credit

Name: ASEL – Slow Flight, Stalls, Basic
– (Pvt, Comm'l, ATP)

Activity Number: A070405-08

Credits: 1 Credit for Basic Flight Topic 2

Revision: June 2019

Syllabus: S-BF1-W1.00-080124-02-01

1. BACKGROUND – Loss of control, particularly Aviation fatal accidents. This and other WINGS airmanship, proficiency, flight discipline and r

In this WINGS Flight Activity the airman a recommended procedures for the safe op

Slow Flight and Stalls. It is essential that its aerodynamic buffet or stall-warning, an airplane feels and looks. It is important to develop proficiency in stall recognition an

WINGS Flight Activity # A070405-08 Worksheet ASEL – Slow Flight, Stalls, Basic Instruments

DATE: _____

LOCATION: _____

AIRMAN:	AIRMAN CERTIFICATE #:	AIRMAN EMAIL:	TYPE AIRCRAFT/SIMULATOR USED	BLOCK TIME
CFI:	CFI CERTIFICATE #:	CFI EMAIL:	WINGS Flight Activity Completed: <input type="checkbox"/> YES <input type="checkbox"/> NO	

NOTE: The Flight Instructor will ensure the airman possesses the knowledge, ability to manage risks, and skills consistent in the performance of flight maneuvers specifically listed in the Areas of Operation for Takeoffs, Landings and Go-Arounds; Emergency Operations, and Night Operations (as applicable) to the ACS completion standards. While this WINGS Flight Activity targets specifically the Takeoff, Landing, and Go-Around Area of Operation, Airmen should satisfactorily demonstrate all pertinent parts of the ACS in their Preflight, Flight, and Post Flight activities consistent with their certificate or rating. For WINGS credit, the airman will satisfactorily demonstrate the maneuvers and procedures listed in bold text below, using both outside visual references and cross checked with the flight instruments, for the privileges of the certificate or rating being exercised in order to act as Pilot-in-Command (PIC).

Principal ACS Areas of Operations for this WINGS Flight Activity (Bold Items Required):

AREA OF OPERATION	GRADE		AREA OF OPERATION	GRADE	
	FM	SRM		FM	SRM
I. PREFLIGHT PREPARATION			VIII. BASIC INSTRUMENT MANEUVERS		
II. PREFLIGHT PROCEDURES			• STRAIGHT-AND-LEVEL FLIGHT		
			• CONSTANT AIRSPEED CLIMBS		
			• CONSTANT AIRSPEED DESCENTS		
			• TURNS TO HEADINGS		
			• RECOVERY FROM UNUSUAL FLIGHT ATTITUDES		
			• RADIO COMMUNICATIONS, NAVIGATION SYSTEMS/FACILITIES, AND RADAR SERVICES		
III. AIRPORT AND SEAPLANE BASE OPERATIONS					
IV. TAKEOFFS, LANDINGS, AND GO-AROUNDS					
V. PERFORMANCE AND GROUND REFERENCE			IX. EMERGENCY OPERATIONS		
VI. NAVIGATION					
			X. MULTIENGINE OPERATIONS		
VII. SLOW FLIGHT AND STALLS					
1. MANEUVERING DURING SLOW FLIGHT			XI. NIGHT OPERATIONS (AS APPLICABLE)		
2. POWER-OFF STALLS			1. NIGHT PREPARATION		
3. POWER-ON STALLS					
4. SPIN AWARENESS			XII. POSTFLIGHT PROCEDURES		
5. MANEUVERING DURING SLOW FLIGHT					

COMMENTS: (Use back for additional notes)

WINGS for Flying Clubs

- Work with your (and other) flying clubs to promote *WINGS*
- Include all *WINGS* transcripts with insurance renewal
- My club saved 27% over previous year's premium...
- Info on AOPA Flying Clubs Radio and *Club Connector* newsletter
- **We provide links to these ToM presentations in the *Club Connector* safety article**
 - Search for AOPA Club Connector and sign-up



• Homework

- Look carefully at your seat belts and ask a few questions...
- Do some research on:
 - Synthetic vision
 - Angle of attack indicators
 - Engine and flight data monitors
 - Predictive maintenance
- Don't just “wing it”, fly with a CFI doing *WINGS* activities



Next Month's ToM:

The National FAA Safety Team Presents



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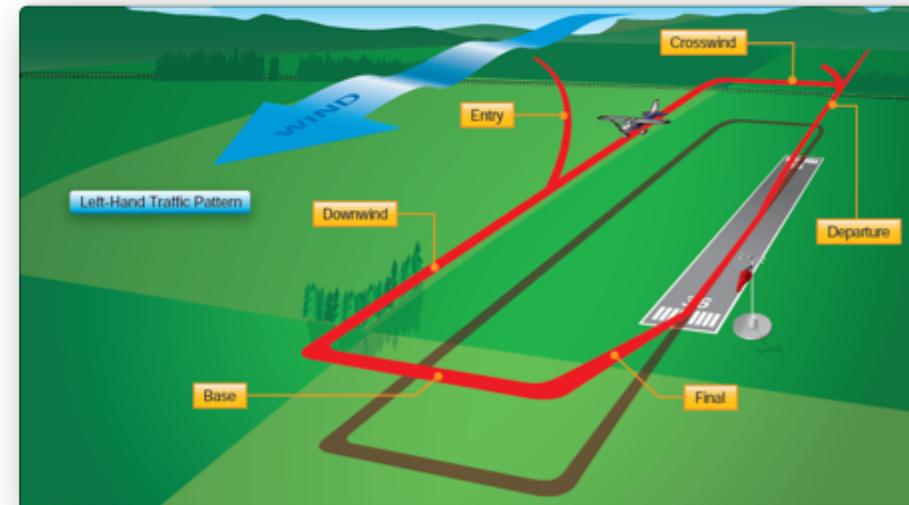
Topic of the Month – July Takeoffs & Landings

Presented to: W AFC and Friends

By: Stephen Bateman, CFI

Date: July 11th, 2022

Produced by AFS-850
The FAA Safety Team (FAAS Team)



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Thank you for attending!

You are vital members of our GA safety community!

