The National FAA Safety Team Presents

Topic of the Month—February

Expand Your Horizons and Comfort Zone

Presented to: WAFC and Friends

By: Stephen Bateman, CFI

Date: February 14th, 2022

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

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 or two…**
- **Probably no time for questions, but send email: steve.bateman@aopa.org**

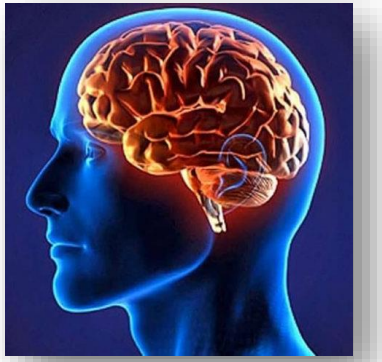
Check NOTAMS!

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)))

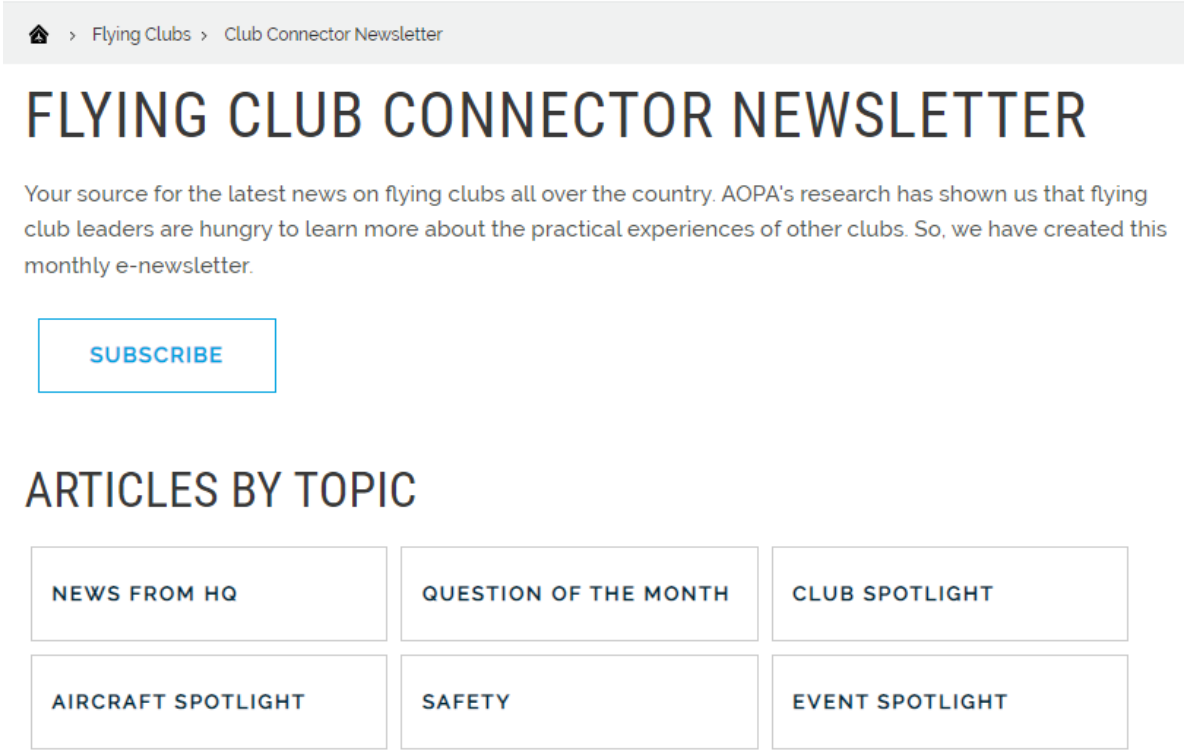
Reminder from last month: The Startle Response

- **Surprise: Disparity between expectations and what is *perceived***
- **Startle: First involuntary response to a sudden stimulus**
- **Evolved responses (saves us on the ground):**
  - Flight or fight
  - Freeze in place
- **Neither is good when in the air**
- **Freeze can last up to 30 secs…oh, dear…**
- **Can only "revert to training" if we've actually trained for "it"**
- **Training gives us a bigger "experience repertoire" to call upon**
- **It is only useful if we can get at it when needed…that is…have practiced recently**



Overview

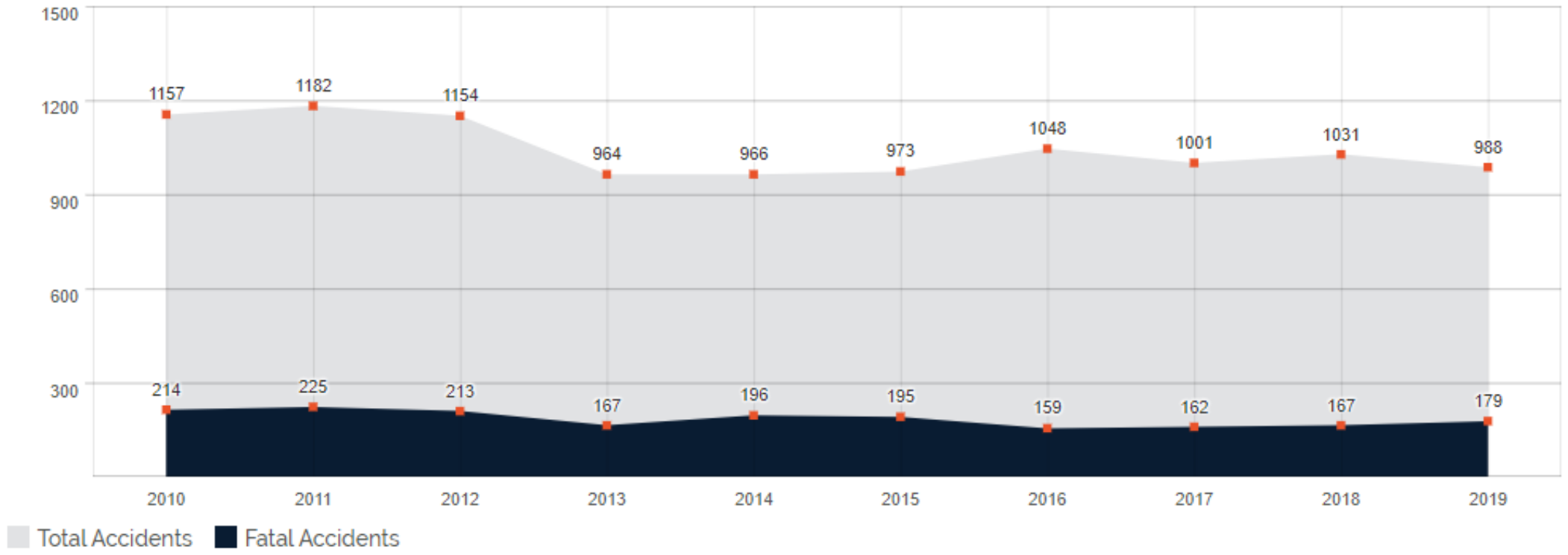
- **Note-1: These slides have been greatly modified from the originals**
- **Note-2: These slides will be available in the Safety Section of the February AOPA *Club Connector* Newsletter**
- **Expand your horizons**
  - Take control of your training and flight review
  - Do something different
  - Understand and do stalls, steep turns…
  - LOC prevention & upset maneuver training
  - Aerobatic training
- **Grow your comfort zone**
  - Not a one-time bucket list item
  - Train and practice
  - Get comfortable beyond the ACS
- **Pilots with a broad range of experience**
  - Are better equipped to handle new situations
  - Are comfortable, confident and safe
  - Have more fun!



Non-Commercial Fixed-Wing Numbers: 2010 - 2019

Figure 1.2: General Aviation Accident Trends 2010-2019

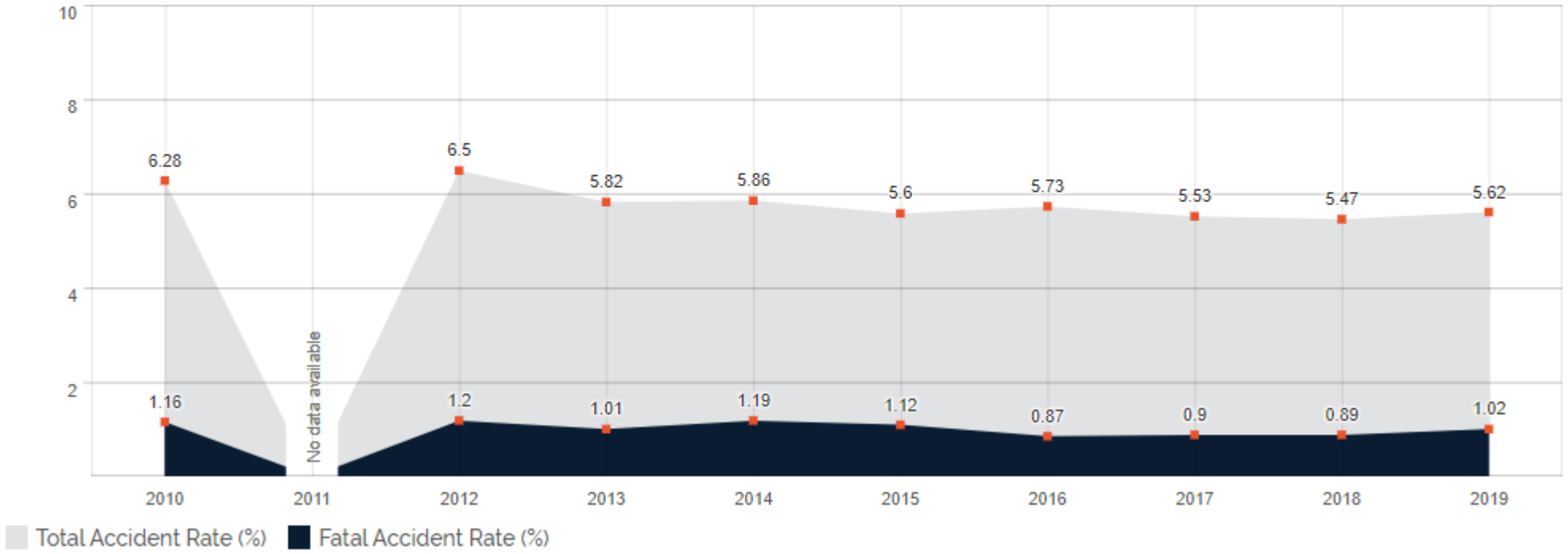
2019 Non-commercial fixed-wing



Non-Commercial Fixed Wing Rates: 2010 – 2019 (Per 100,000 flight hours)

Figure 1.3: General Aviation Accident Rates 2010-2019

2019 Non-commercial fixed-wing



Who and When…

Figure 1.4: General Aviation Accidents in 2019

2019 Non-commercial fixed-wing

	Accidents		Fatal Accidents	
Pilot-Related	**614**	62.1%	**88**	49.2%
Mechanical	**194**	19.6%	**15**	8.4%
Other / Unknown	**180**	18.2%	**76**	42.5%

Figure 1.7: Flight Conditions

2019 Non-commercial fixed-wing

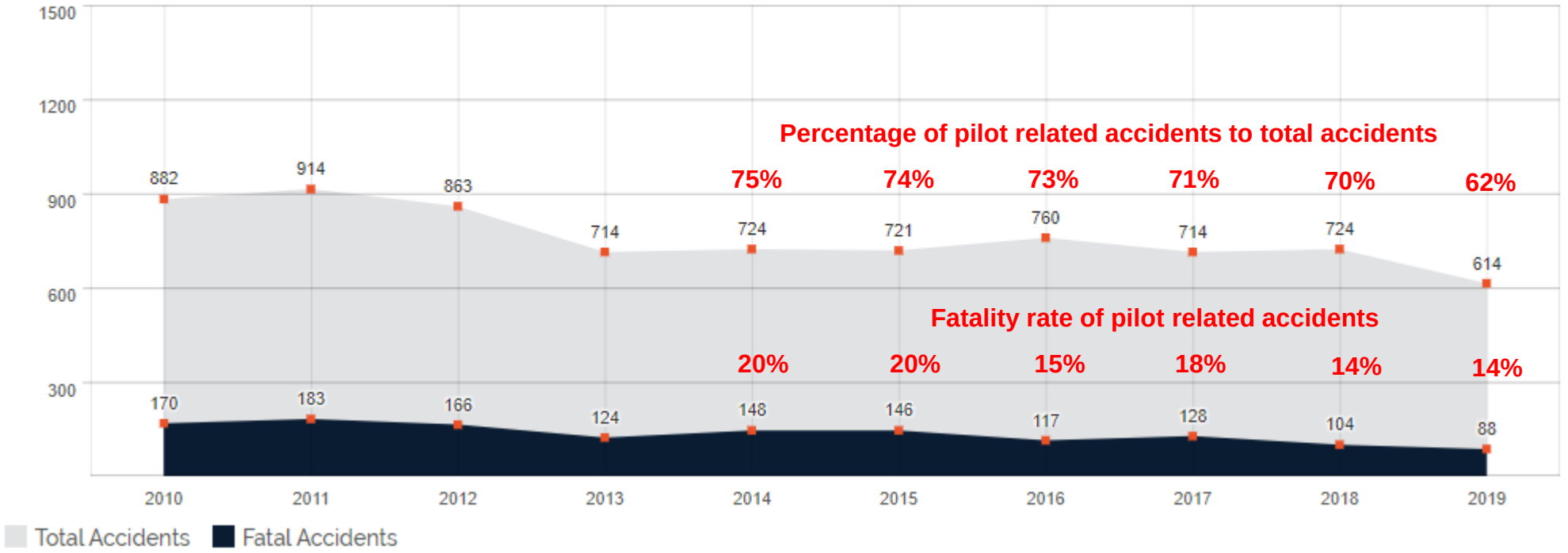
	Accidents		Fatal Accidents		Fatalities	
Day VMC	**817**	82.7%	**109**	60.9%	**169**	55.4%
Night VMC	**65**	6.6%	**22**	12.3%	**39**	12.8%
Day IMC	**33**	3.3%	**24**	13.4%	**61**	20%
Night IMC	**7**	0.7%	**5**	2.8%	**8**	2.6%
Unknown	**66**	6.7%	**19**	10.6%	**28**	9.2%

**Night fields include dusk.*

Pilot Related Trend

Figure 1.9: Pilot-related Accident trend

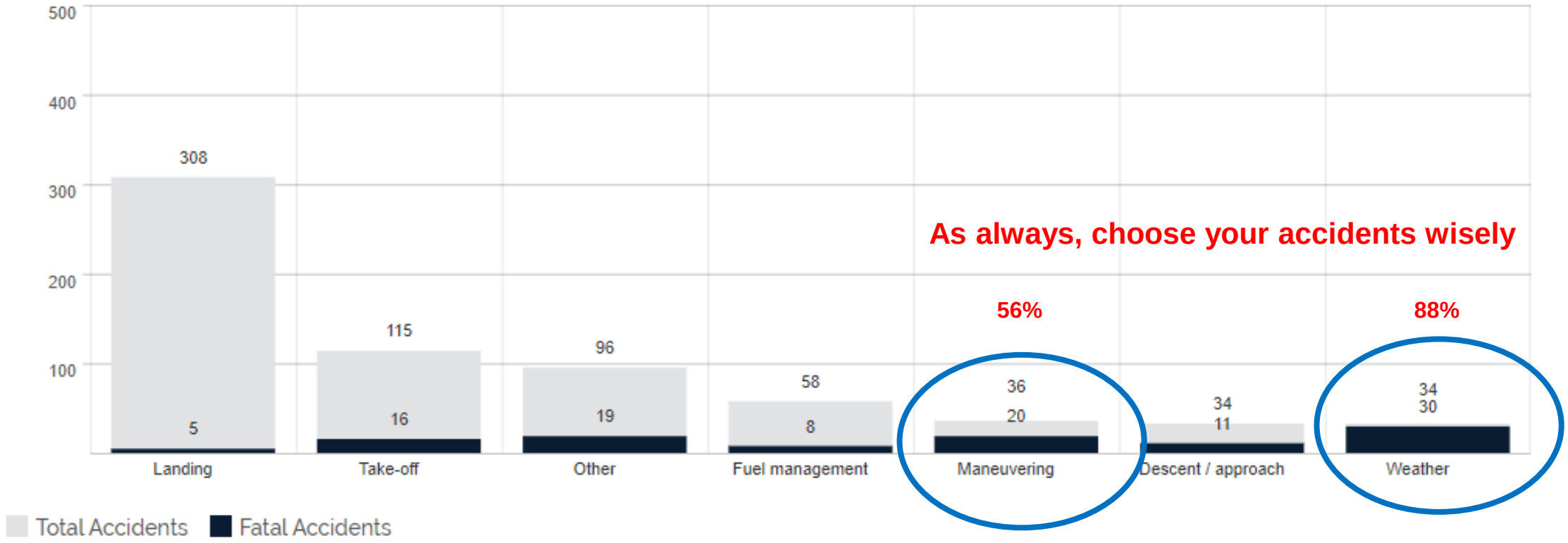
2019 Non-commercial fixed-wing



Types of Accidents

Figure 1.11: Major types of accidents

2019 Non-commercial fixed-wing



As always, choose your accidents wisely

56%

88%

What must we do about it?

- **We can—and should—do something about this!**
- **The ACS is great—love it for check ride standards, but not for survival…**
  - Check rides rarely include startle-type events!
- **Brief and verbalize to get potential events in the front of your head…**
- **Easy and free—always do it:**
  - *Brief and verbalize* the take-off including actions on power failure
    - Runway, abort point and procedure, no turn until…
  - *Brief and verbalize* the approach, go-around and landing
    - Runway, planned exit taxiway, flap settings, things to watch for (that a/c at the hold line…)
    - Go-around procedure
- **Constantly strive for situational awareness**
  - More than "where are we"…?
  - More than wondering "what's it doing, now"..?
  - More than just monitoring…cross-check status of automation, systems, navigation, environment…

What must we do about it?

- **We must train further…**
- **We must increase our knowledge and widen our experience base**
  - We can only correctly respond if we have some idea what to do!
  - We must train to recognize “more” then that which is perceived to be normal
    - First flight with an autopilot that blares at 1,000’ vs. second flight when you know what it is
  - Train to “feel” what is happening, rather than solely rely on automation
    - Yes, yes…trust your instruments, but cross-check with experience
  - Train for a “push” reaction, not “pull”

What must we do about it?

- **We must train further…**
- **Simulator exercises—practice the unpracticable**
  - All systems—engine, fuel, gear, hydraulics, avionics,
  - Even desktop simulations have “random failure” modes
  - Gives us more—and sharper— tools in our experience toolbox
- **Armchair exercises…what would I do if…?**
  - Cats and dog like to help with this

What must we do about it?

- **We must train further…and beyond the ACS…**

- **Even familiar maneuvers needed for the check ride become stale if we don't practice…**
- **…and if we do practice them, we are only as good as we were back then!**

- **Don’t put up with a boring flight review—take back control beyond “one hour of ground and one hour of flight…” (yawn)!**
  - Once every 24-months doing the same ACS maneuvers is not going to make us better
  - Get value (for money) from the flight review!

- ***WINGS* flight activities gives an opportunity—fly three times a year with a CFI…and do something different!!!**

What must we do about it?

- **We must train further…**

- **Expanded envelope exercises**
  - Accidents can happen when pilots are outside of comfort zones…so expand them!
- **Which gets us to…**
- **Aerobatics and upset recovery training**

Definitions:

- **Loss of control (LOC)**
  - Uh…we lost control (were we ever in control?)
  - A “significant deviation from the intended flight path”
- **Airplane upset—**Includes unusual attitudes
  - Pitch attitude >25º nose up, or >10º nose down
  - Bank angle >45º
  - Within above parameters but flying at inappropriate airspeeds for conditions
- **Aerobatic flight**
  - Intentional maneuvers involving abrupt changes in attitude, abnormal attitudes, or abnormal acceleration…

But wait…hang on a minute…

Are we really going to suggest doing training that freaks people out…even just thinking about it?

Can’t we do something that “normal” pilots will benefit from and even enjoy?

But wait…hang on a minute…

Are we really going to suggest doing training that freaks people out…even just thinking about it?

Can’t we do something that “normal” pilots will benefit from and even enjoy?

Do we *have* to do spins…?

- From experience with flight reviews, many pilots still "do not like" steep turns and fairly mundane power-off stalls and recoveries…so we think they'll retain anything from "doing" aerobatics?

- Rather than launch into aerobatics and upset training, can't we—shouldn't we—start with something milder?
- Why, yes!
- The original FAA ToM was entitled: "Stall, Spin and Aircraft Upset Training"
- I changed it to: Expand Your Horizons and Comfort Zone
- Doing familiar things, differently, gets us a long way…
- Reaction time in the air is limited…we must train for appropriate reactions and overpower evolution!

Expand Your Horizons and Comfort Zone

- **The point is to train differently…doesn't have to be extreme!**
  - In fact, ***mustn't*** be too extreme…
  - This will just frighten people away from this type of training
  - Pulling 5G's for an hour will not do anything long term!
  - Training should be incremental…learn, build, practice, learn, build, practice…
- **Here is where we talk about training to fly and survive, not training to fly aerobatic competitions…**
- **Even doing slow flight and stall recoveries—*especially* doing slow flight and stall recovery exercises—differently and with thought and aplomb—will expand your envelope and comfort zone**
- **Let's look at some ways to do this…and then, later, revisit aerobatics!**

FAMILIAR MANEUVERS—DIFFERENTLY

Familiar Maneuvers—Differently

Let's look at a few familiar maneuvers that we can do better…

- **Level flight at different airspeeds (yes—really—there is much to learn here)**
- **Level slow flight**
- **Maneuvering during slow flight "inadvertent slow flight and LOC"**
- **Descending slow flight (makes sense…every approach and landing)**
- **Level steep turns – at least 30° and 45°**
  - Overbanking and feel the effects of wings loading!
- **Stall recovery exercises**
- **Engine failure – best glide exercises including spirals to a landing**
- **Low passes…progressively lower. Nail drift control and alignment**
  - Good prep for go-around. PUSH!!!!!!!!
- **Short field landings - power as a flight control**
- **Soft field take-off**
  - PUSH!!!!!!!!
- **Sim work…take-off engine failure, etc.**

Familiar Maneuvers—Differently

- **Straight and level flight at different settings**
- **Often need to fly level at different airspeeds**
  - On “normal” downwind
  - Extended downwind (slower to stay close to airport)
  - Just out for a fun flight!

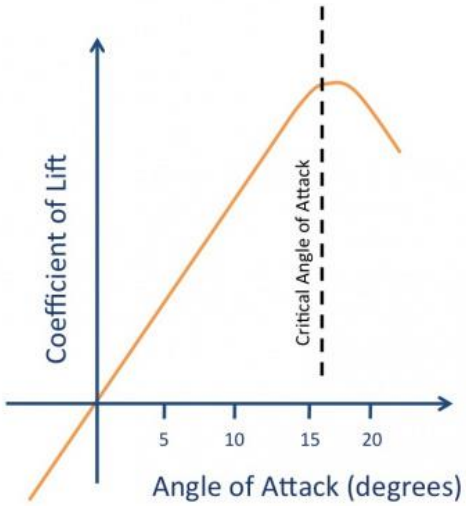
- **There is great value to understanding level flight at different airspeeds**

- **So, let’s calibrate our airplane…Pitch, Power, Performance**
- **NOTE: Example tables in the “handouts”**

Straight and level flight

- **Calibrate your airplane:**
  - From cruise
  - Reduce power (carb heat as appropriate)
  - Complete the table
- **This is the lift equation in action**
  - Lift = C_L * ½ V^2 * ρ * A
  - For given plane and time: Lift α C_L and V^2
  - If V reduces, C_L must increase to stay level (L = W = 1G)

Level Flight No Flaps		
RPM	Pitch Angle	IAS
2500		
2400		
2300		
2200		
2100		
2000		
1900		
1800		
1700		
1600		
1500		



Straight and level flight

- **Practice using the table:**
  - From cruise
  - Get to a target airspeed in 15 seconds:
  - You now know:
    - What it feels like
    - What the power and pitch settings are that give you the required airspeed
- **Pitch + Power = Performance**
- **Two others to try:**
  - Full throttle V_Y climb ~ +10^o pitch
  - Full throttle V_X climb ~ +12^o pitch

Level Flight No Flaps		
RPM	Pitch Angle	IAS
2500	0	128
2400	+1	120
2300	+1	112
2200	+1.5	110
2100	+3	103
2000	+3.5	92
1900	+4	83
1800	+5	81
1700	+6	75
1600	+6.5	72
1500	+7	70

Example only
Not for navigation

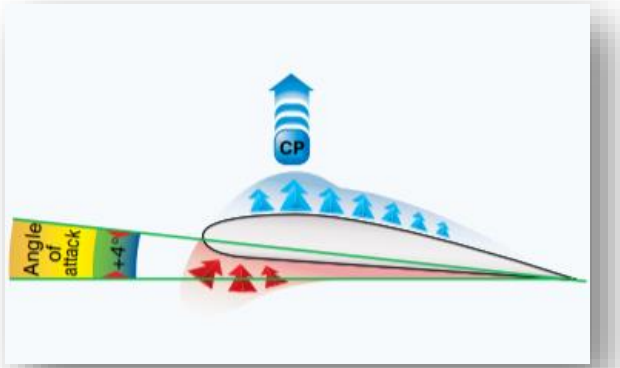
More on stalls…recovery

Stall related accidents:

- **In the traffic pattern**
  - Takeoff 28 %
  - Approach 18 %
  - Go Around 6 %
- **Maneuvering** 41%
  - 1 Fatal Accident ~every 3 days
- **So, let's start with meaningful slow flight and stall recovery exercises**
- **We must emphasize stall recovery as the goal, not the stall entry, itself**

Review and understand the basic stall recovery

- ***Autopilot….Override and disconnect (press the “level” button?)**
- **Pitch ……Nose down until no stall indication**
- **Power …….As required**
- **Bank ……Wings level**
- **Trim …… As required**



- ***Autopilot could be the thing that caused the condition**
  - Especially if no auto throttle
  - It is a machine…it wants to kill you
  - Monitor it and the flight conditions like your life depends on it…uhh…

Review and understand the basic spin recovery

- PARE
- P…….Power idle
- A…….Ailerons neutral
- R…….Rudder, full opposite
- E…….Brisk forward to lower the AOA, recover

Get it in your head…chant it, before every practice session

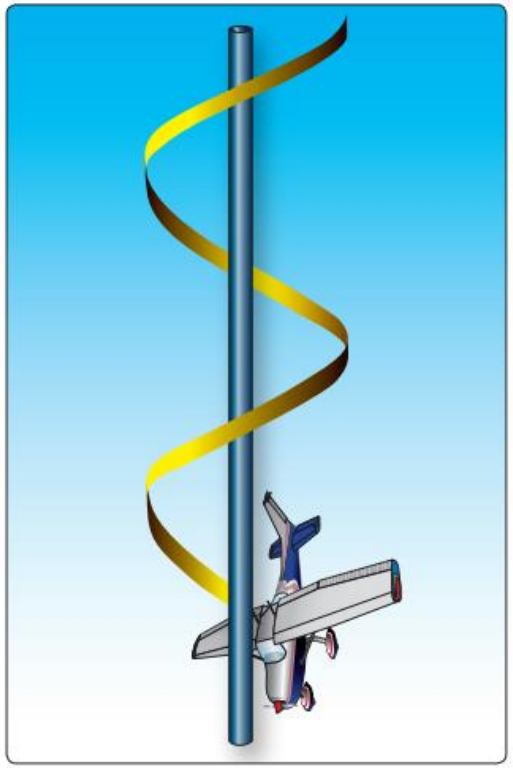


Figure 4-11. *Spin—an aggravated stall and autorotation.*

Review and understand the basic spin recovery

- PARENT
- P…….Power idle
- A…….Ailerons neutral
- R…….Rudder, full opposite
- E…….Brisk forward elevator—lower the AOA
- N…….Neutralize rudder
- T…….elevaTor to recover—gently—beware the accelerated stall

Get it in your head…chant it, before every practice session

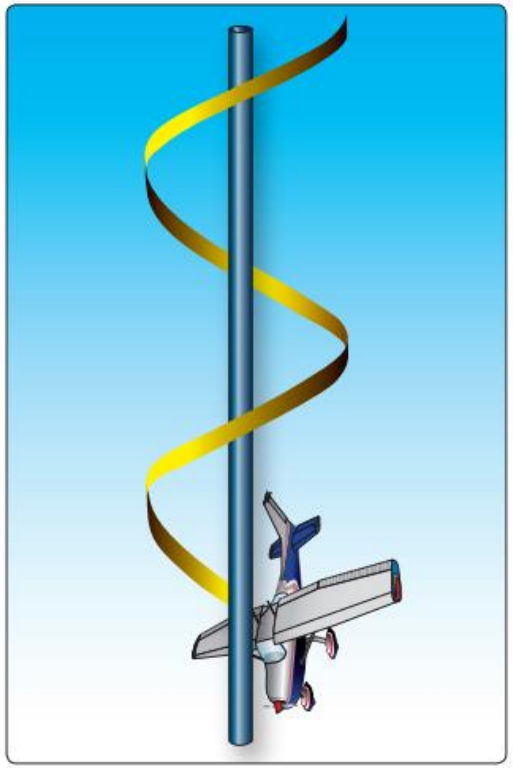


Figure 4-11. *Spin—an aggravated stall and autorotation.*

Familiar Maneuvers—Differently

- **Slow flight**
- **When do we “normally” do level slow flight?**
  - Perhaps on extended downwind to stay closer to the airport?
  - Perhaps when requested by ATC to slow down. (In a Cessna 152…really?)
  - Both above are not with flaps, yet we “train” with full flaps!

- **Anyway, there is some value to understanding level flight at different airspeeds**
- **So, let’s again calibrate our airplane…Pitch, Power, Performance…in slow level flight**

Straight and level slow flight

- **Calibrate your aircraft:**
  - From cruise
  - Reduce power (carb heat as appropriate)
  - White arc? Deploy flaps
  - Do it for all flap settings
  - Complete the tables
- **Repeat for different flap settings**
  - Be aware of V_{SO} and V_S

Slow Flight. Level Full Flaps		
RPM	**Pitch Angle**	**IAS**
		70
		65
		60
		55
		50
		45

Straight and level slow flight

- **Practice:**
  - From cruise
  - Power to idle (carb heat as appropriate)
  - White arc? Deploy flaps
  - As speed approaches target
  - Set RPM then pitch from the table
  - Repeat
  - Get into level slow flight in 20 seconds
  - Now know:
    - What it feels like
    - What the power and pitch setting are that get you there

Slow Flight. Level Full Flaps		
RPM	**Pitch Angle**	**IAS**
1800	+1	70
1700	+1.5	65
2000	+3	60
2100	+3.5	55
2150	+4	50
2200	+5	45

Example only
Not for navigation

Maneuvering during slow flight

- **Configure for flight just above stall indication**
  - Use the tables
  - Both with and without flaps

- **Slow flight—straight and level, turns, climbs, descents**
  - In slow flight, maneuver s..l..o..w..l..y
  - Bank angle no more than 10º
  - (Initiate turn with rudder)
  - Altitude ± 100 Feet
  - Heading, ± 10º
  - Airspeed ± 10 Knots

Familiar Maneuvers—Differently

- **Steep turns (level flight according to the ACS):**
  - Standard rate at our speed does not need a steep turn!
  - Know your bank angles for standard rate turn at different airspeeds (knots)
  - (Approx: IAS/10 + 5)
  - 30^{o} bank is not really a steep turn!

- **When do we "normally" do level, steep turns?**
  - Umm…

- **When do we do steep climbing turns?**
  - Perhaps getting away from a traffic threat?
  - Ultra dangerous situation…temptation to keep pulling to "climb faster"

- **When do we do steep descending turns?**
  - Overshot base-to-final and too proud to go-around?
  - Perhaps getting away from a traffic threat?
  - Emergency descent

Bank Angle at Different ISA for Standard Rate Turn	
IAS	**Bank**
50	10
60	11
70	12
80	13
90	14
100	15
110	16
120	17

Familiar Maneuvers—Differently

Steep turn expanded envelope exercises:

1. **Target 45^{o} : Level:**
   - Feel the overbanking tendency and the affect and effect (influence and result) of load factor
   - What is stall speed? (A surrogate for angle of attack in level flight)
   - What is load factor…? (Hint, it is due to pulling, not pushing)
   - What does load factor do to “stall speed”?

Familiar Maneuvers—Differently

Steep turn expanded envelope exercises:

2. Target 45° : Descending:

- From trimmed, level flight
- Roll into 45° banked turn
- Do NOT pull or trim up…let the nose drop
- What happens to load factor?
- You will descend at 1G, as no need to increase vertical lift.
- No change in “stall speed”
- Research and practice the “canyon turn”

Familiar Maneuvers—Differently

Steep turn expanded envelope exercises:

3. Target 45^{o}: Ascending:

- Climbing steep turn…treat this as a stall exercise…next…

Familiar Maneuvers—Differently

Stall exercises: S&L flight, with and without flaps

- **Start with the slow flight tables**
- **Get into slow flight at, say, 50 IAS**
  - Can now do it in 20 seconds or less…right?
- **Trim, maintain power setting. Stable.**
- **Pitch up**
- **At first indication of stall, release back pressure**
- **Repeat until muscle memory is to release (push)**
- **Repeat with "deeper" stall indications**
- **Note that you only need to reduce the AOA to avoid the stall**
  - Power constant throughout
  - "Seek out the horizon"…don't have to dive!

Slow Flight. Level Full Flaps		
RPM	**Pitch Angle**	**IAS**
1800	+1	70
1700	+1.5	65
2000	+3	60
2100	+3.5	55
2150	+4	50
2200	+5	45

Example only
Not for navigation

Familiar Maneuvers—Differently

Stall exercises: Power off stall and recovery

- **Start with the slow flight tables**
- **Get into slow flight at, say, 50 IAS**
  - Can now do it in 20 seconds or less…right?
- **Power to idle – maintain level flight**
- **Pitch up to maintain level flight**
- **Get beyond the buffet, to the "break"**
  - Recover by reducing AOA (not yet adding power)
  - Repeat, repeat, repeat…
  - Then repeat with adding power during the recovery – PUSH!!
  - "Seek out the horizon"…don't have to dive!

Slow Flight. Level Full Flaps		
RPM	Pitch Angle	IAS
1800	+1	70
1700	+1.5	65
2000	+3	60
2100	+3.5	55
2150	+4	50
2200	+5	45

Example only
Not for navigation

Familiar Maneuvers—Differently

Stall exercises: Level turning flight, with and without flaps

- **Use the slow flight tables**
- **Get into slow flight at, say, 60 IAS**
  - Can now do it is 20 seconds or less
- **Trim, maintain power setting.**
- **Enter a 30° banked turn**
- **Pitch and trim for level turn (inducing load factor)**
- **Coordinated, stable.**
- **Pitch up.**
- **At first indication of stall, note the IAS**
- **Release back pressure**
- **Repeat until muscle memory is to release (push)**
- **Repeat with "deeper" stall indications**

Slow Flight. Level Full Flaps		
RPM	**Pitch Angle**	**IAS**
1800	+1	70
1700	+1.5	65
2000	+3	60
2100	+3.5	55
2150	+4	50
2200	+5	45

Example only
Not for navigation

Familiar Maneuvers—Differently

Stall exercises: Level turning flight, with and without flaps

- **Repeat for 45° banked turn**
- **Note:**
  - You only need to reduce the AOA to avoid the stall
  - Power constant throughout…don't have to "firewall it"
  - Seek out the horizon…don't have to dive into the ground
  - At steeper bank, will get to the stall at a higher speed ("stall speed has increased due to load factor")
  - This is the so-called accelerated stall
- **Practice with left and right turns**

Familiar Maneuvers—Differently

Many others:

- **Calibrate descent at 500FPM**
- **Then descending stall exercises**
  - Descending power off stall (approach stall)
- **Stall exercises: Climbing flight, w/wo partial flaps (Departure stall)**
- **Descending flight with go-around (PUSH!!)**
- **Calibrate power off descending spirals**
  - Practice spiral descent to a landing at best glide, no flaps, standard rate:
- **Power off 180^{o} approach and landing**
  - Energy management—trading kinetic and potential
  - Tools—prop control, gear, forward slip, side slip, flaps when field is made
- **Low passes for cross wind control**
- **Chandelles, lazy-eights**
- **Sim work…take-off engine failure, calibrate the "impossible turn"…**

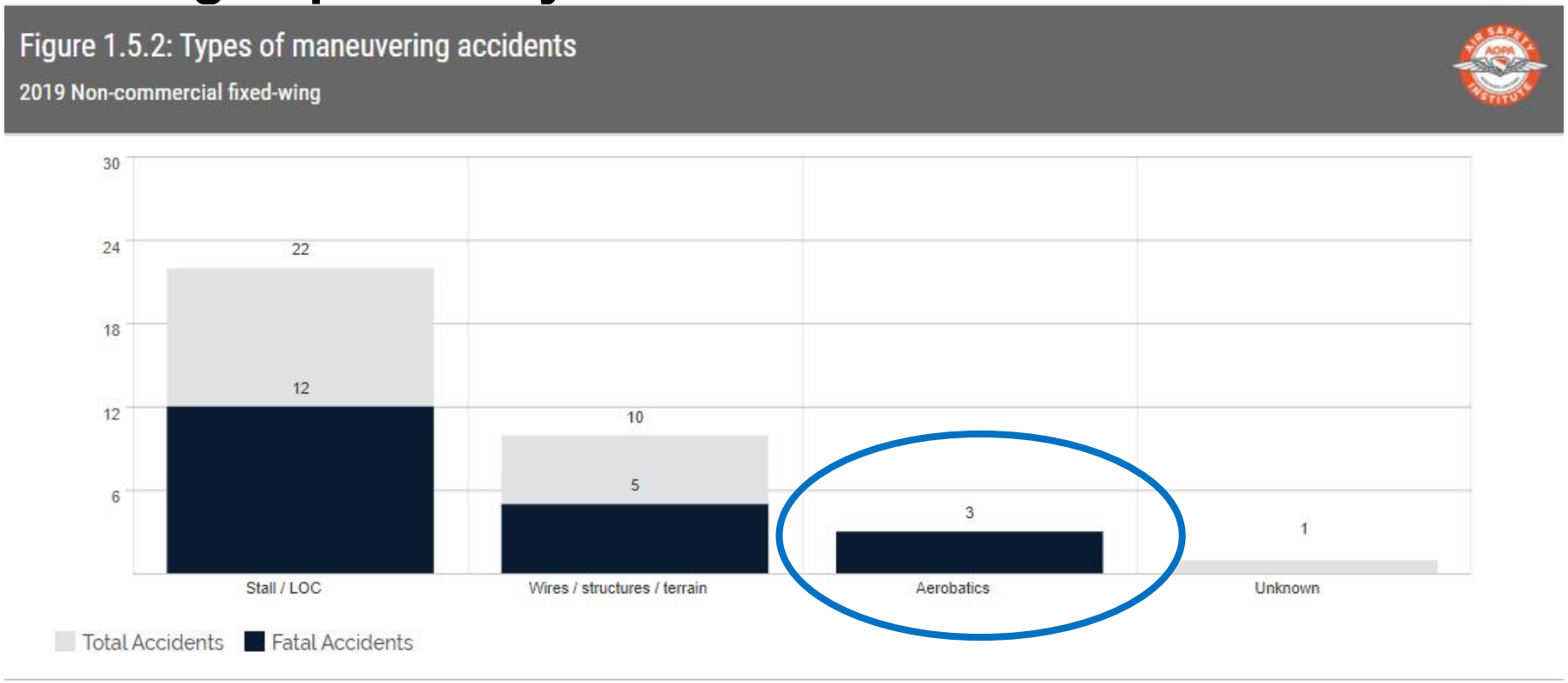
500FPM Descent No Flaps		
RPM	Pitch Angle	IAS
		80
		70
		65
		60

500FPM Descent Full Flaps		
RPM	Pitch Angle	IAS
		80
		70
		65
		60
		55

Altiude Loss Per Turn Standard Rate Best Glide =		
Turn #	Altitude	Alt Lost
0	6500	
1	5300	1200
2	4150	1150
3	3000	1150
4	1800	1200

Okay—*now* we are ready to consider more extreme training

- **Don’t just think you can go up and “try” aerobatics**



- **If you are involved in an accident involving aerobatics, someone will die**

Stall/Spin/Unusual/Upset Definitions

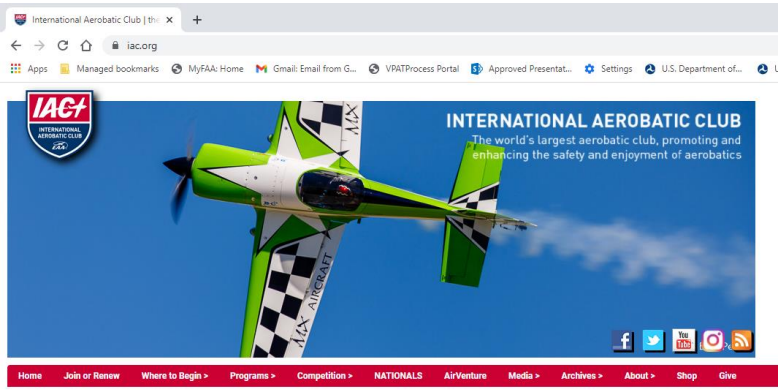
- **Stall: AOA has reached critical angle (any airspeed and attitude)**
- **Spin: An aggravated stall that typically occurs from a full stall occurring with the airplane in a yawed state and results in the airplane following a downward corkscrew path**
- **Unusual attitudes: Commonly referenced as an unintended or unexpected attitude in instrument flight**
- **Upset: A condition in aircraft operations which may result in the loss of control (LOC) of the aircraft, unless rectified**

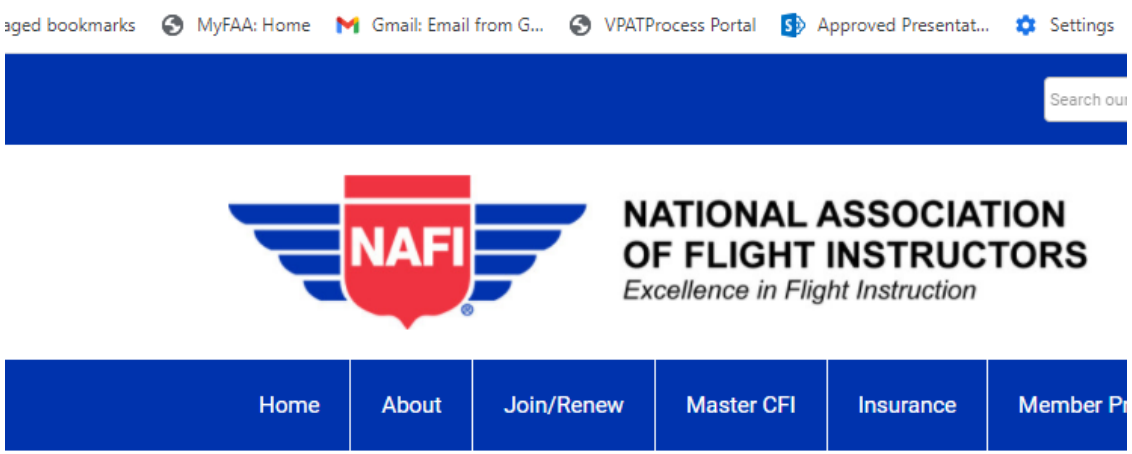
Unusual flight conditions:

- Pitch attitude greater than 25^{o} nose up
- Pitch attitude greater than 10^{o} nose down
- Bank angle greater than 45^{o}
- Inappropriate airspeed

OK – I'm interested. Where do I start?

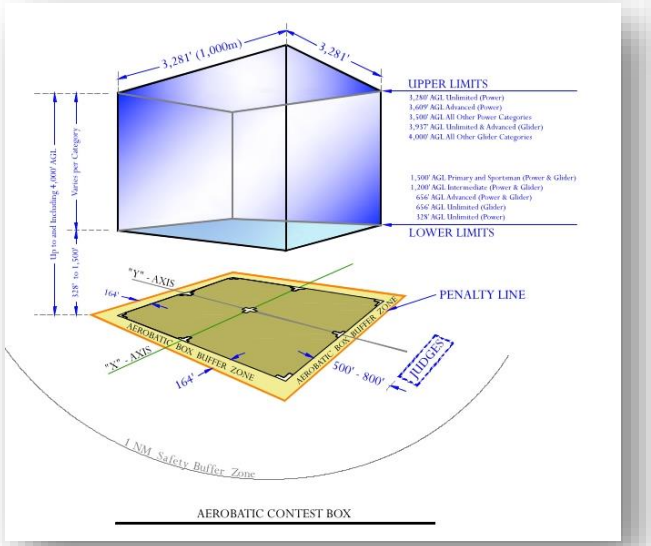
- **Specialty flight schools**
- **International Aerobatic Club (IAC) iac.org**
- **NAFI nafinet.org**
- **SAFE safepilots.org**





Stall/Spin/Upset training essentials

- **Qualified & current CFI**
- **Airplane certified for aerobatics**
  - Spin certification at a minimum
- **Parachutes**
- **Aerobatic practice area**



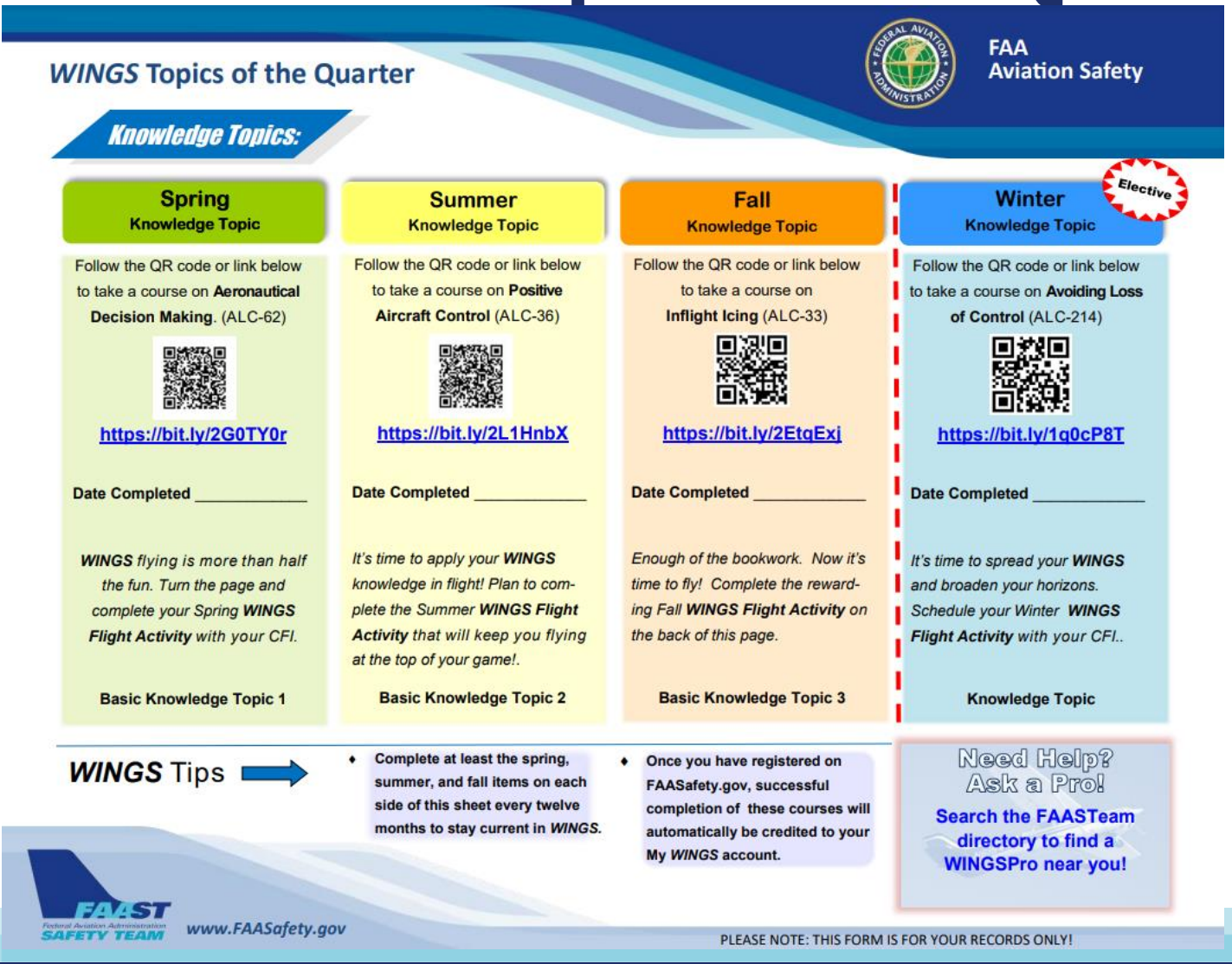
Unusual attitude recovery

- **Interpret the pitch attitude**

- **Nose high – airspeed decreasing, vertical speed decreasing**
  - **Simultaneously – Full power, nose to horizon (PUSH), level wings**

- **Nose low – airspeed increasing, vertical speed increasing**
  - **Idle power**
  - **Level wings**
  - **Nose to horizon**

WINGS Topic of the Quarter



WINGS Topics of the Quarter

FAA Aviation Safety

Knowledge Topics:

Spring Knowledge Topic	Summer Knowledge Topic	Fall Knowledge Topic	Winter Knowledge Topic (Elective)
Follow the QR code or link below to take a course on **Aeronautical Decision Making**. (ALC-62)	Follow the QR code or link below to take a course on **Positive Aircraft Control** (ALC-36)	Follow the QR code or link below to take a course on **Inflight Icing** (ALC-33)	Follow the QR code or link below to take a course on **Avoiding Loss of Control** (ALC-214)
https://bit.ly/2G0TY0r	https://bit.ly/2L1HnbX	https://bit.ly/2EtqExj	https://bit.ly/1q0cP8T
Date Completed _____	**Date Completed** _____	**Date Completed** _____	**Date Completed** _____
WINGS *flying is more than half the fun. Turn the page and complete your Spring* ***WINGS Flight Activity*** *with your CFI.*	*It's time to apply your* ***WINGS*** *knowledge in flight! Plan to complete the Summer* ***WINGS Flight Activity*** *that will keep you flying at the top of your game!.*	*Enough of the bookwork. Now it's time to fly! Complete the rewarding Fall* ***WINGS Flight Activity*** *on the back of this page.*	*It's time to spread your* ***WINGS*** *and broaden your horizons. Schedule your Winter* ***WINGS Flight Activity*** *with your CFI..*
Basic Knowledge Topic 1	**Basic Knowledge Topic 2**	**Basic Knowledge Topic 3**	**Knowledge Topic**

WINGS Tips

- Complete at least the spring, summer, and fall items on each side of this sheet every twelve months to stay current in *WINGS*.
- Once you have registered on FAASafety.gov, successful completion of these courses will automatically be credited to your My *WINGS* account.

Need Help? Ask a Pro!

Search the FAASTeam directory to find a WINGSPro near you!

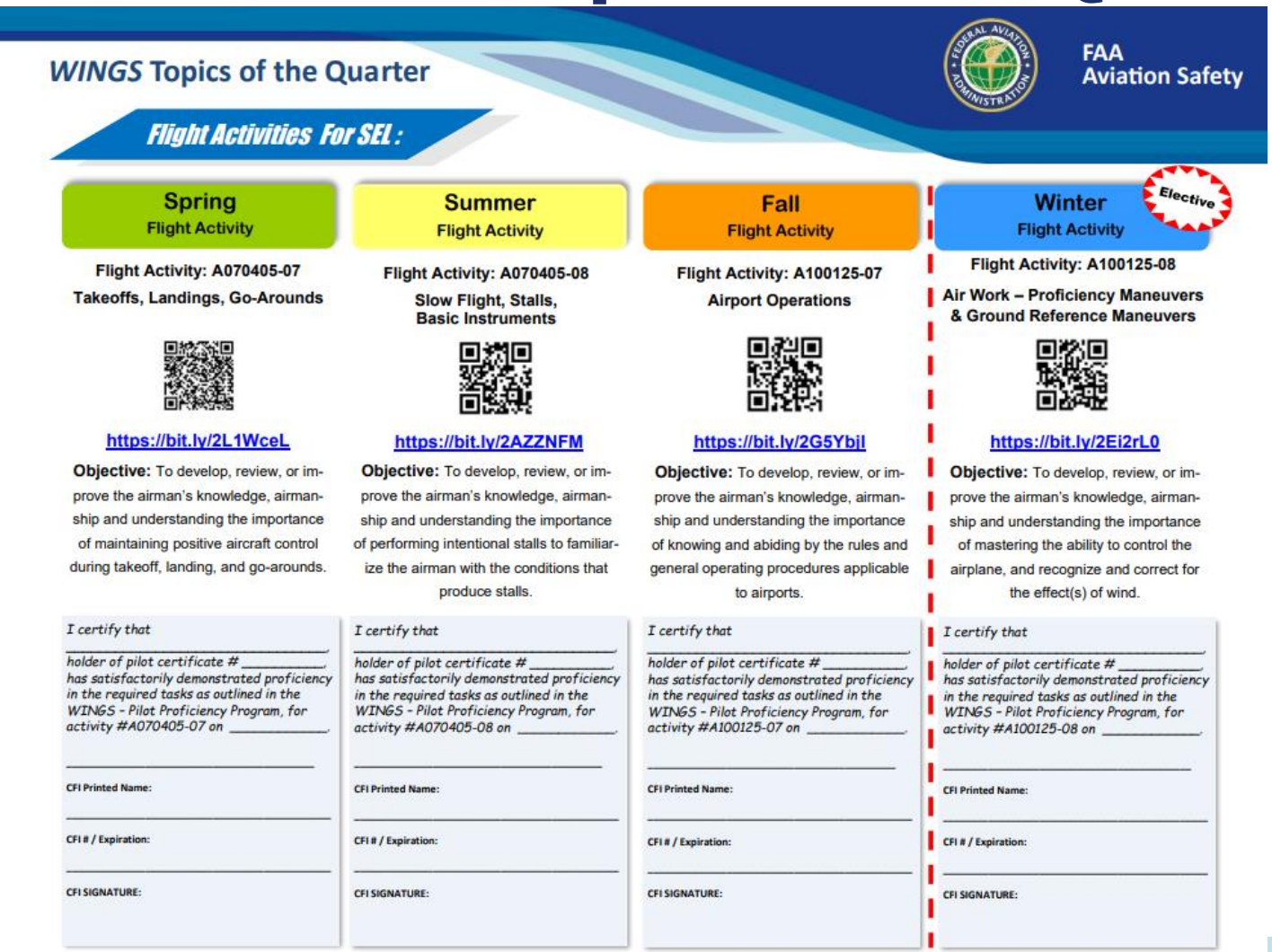
FAAST Federal Aviation Administration SAFETY TEAM www.FAASafety.gov

PLEASE NOTE: THIS FORM IS FOR YOUR RECORDS ONLY!

- **Online proficiency courses**
  - Self-paced
  - Do it at home
  - *WINGS* credit

FAAST FAA SAFETY TEAM

WINGS Topic of the Quarter



WINGS Topics of the Quarter

FAA Aviation Safety

Flight Activities For SEL :

Spring	Summer	Fall	Winter
Flight Activity	Flight Activity	Flight Activity	Flight Activity (Elective)
Flight Activity: A070405-07	**Flight Activity: A070405-08**	**Flight Activity: A100125-07**	**Flight Activity: A100125-08**
Takeoffs, Landings, Go-Arounds	**Slow Flight, Stalls, Basic Instruments**	**Airport Operations**	**Air Work – Proficiency Maneuvers & Ground Reference Maneuvers**
https://bit.ly/2L1WceL	https://bit.ly/2AZZNFM	https://bit.ly/2G5YbjI	https://bit.ly/2Ei2rL0
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.	**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.	**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.	**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 #A070405-07 on* _____.	*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* _____.	*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* _____.	*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 Printed Name:	CFI Printed Name:	CFI Printed Name:
CFI # / Expiration:	CFI # / Expiration:	CFI # / Expiration:	CFI # / Expiration:
CFI SIGNATURE:	CFI SIGNATURE:	CFI SIGNATURE:	CFI SIGNATURE:

- **Rewarding Flight Activities**
  - Fly with your CFI
  - Do meaningful exercises
  - Go beyond the ACS
  - Get flight credit
  - Earn *WINGS* phases

FAAST FAA SAFETY TEAM

Why *WINGS*?

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

Proficiency and Peace of Mind

- **Practice makes you better and might save your life!**
- **Fly often with a CFI**
- **Training is documented and credited**
- ***WINGS* participation can save you money**
  - Insurance discounts
  - Less bent metal!

Thank you for attending!

You are vital members of our GA safety community!

Handout:

Level Flight No Flaps		
RPM	Pitch Angle	IAS
2500		
2400		
2300		
2200		
2100		
2000		
1900		
1800		
1700		
1600		
1500		

500FPM Descent No Flaps		
RPM	Pitch Angle	IAS
		80
		70
		65
		60

Altiude Loss Per Turn Standard Rate Best Glide =		
Turn #	Altitude	Alt Lost
0		
1		
2		
3		
4		

Pattern Numbers				
	DW	Abeam	Base	Final
RPM				
IAS	80	70	70	65
FPM	0	-500	-500	-500
Flaps	0	1	2	3
Pitch				

500FPM Descent First Flap		
RPM	Pitch Ang	IAS
		80
		70
		65
		60

Altiude Lost in "Impossible" Turn At Best Glide =		
Turn to:	Altitude	Alt Lost
90^{O}		
180^{O}		
270^{O}		
180^{O}		

Slow Flight. Level Full Flaps		
RPM	Pitch Angle	IAS
		70
		65
		60
		55
		50
		45

500FPM Descent Full Flaps		
RPM	Pitch Angle	IAS
		80
		70
		65
		60
		55
		50

Power Idle Best Glide =	
Flaps	Descent FPM
0	
1	
2	
3	

Resources

- **Airplane Flying Handbook (FAA)**
- **The Basic Aerobatics Manual (Kershner)**
- **Basic Aerobatics (Szurovy and Goulian)**
- **Emergency Maneuver Training (Stowell)**

  Controlling your Airplane in a Crisis

- **FAA Airplane Upset Recovery, Part 1**
  - https://www.faa.gov/tv/?mediaid=489
- **FAA Airplane Upset Recovery, Part 2**
  - https://www.faa.gov/tv/?mediaId=488

Next Month's ToM:

The National FAA Safety Team Presents

Federal Aviation Administration

Topic of the Month – March

Pilot Proficiency and *WINGS*

Presented to: WAFC and Friends

By: Stephen Bateman, CFI

Date: March 14th, 2022

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

FAAST
FAA SAFETY TEAM