The National FAA Safety Team Presents

Federal Aviation Administration

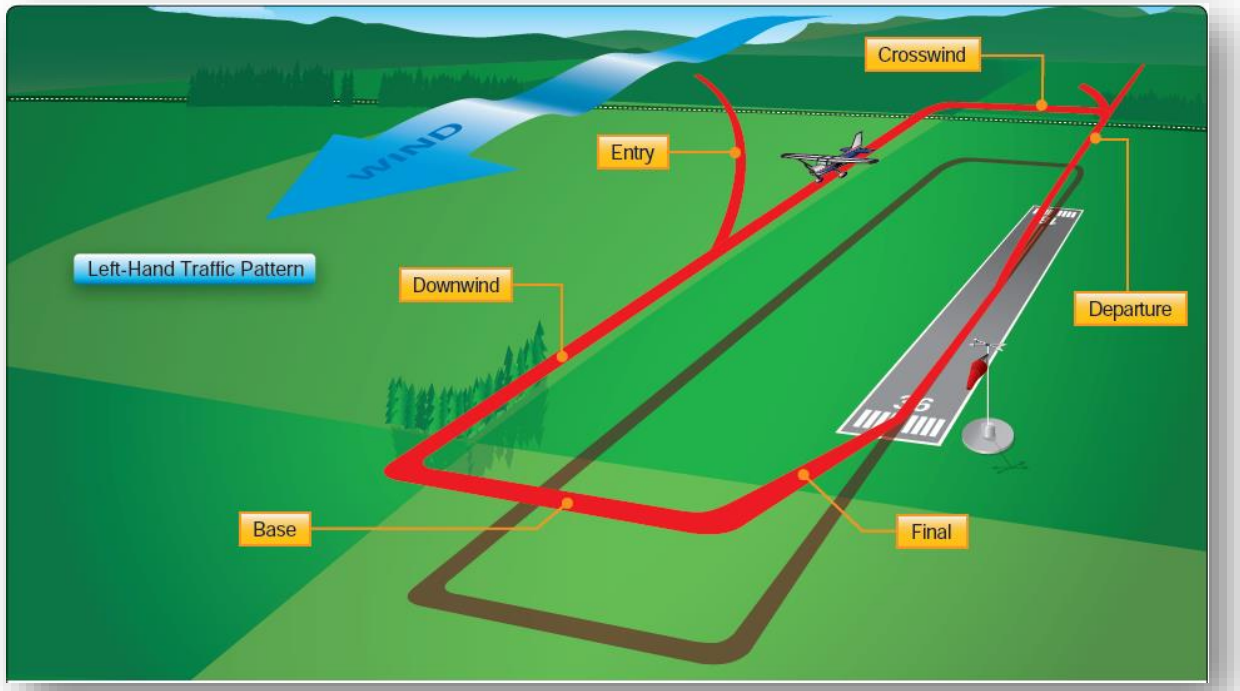
Topic of the Month – July

Take Offs & Landings

Presented to: WAFC and Friends

By: Stephen Bateman, CFI

Date: July 11th, 2022



Produced by: The 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**

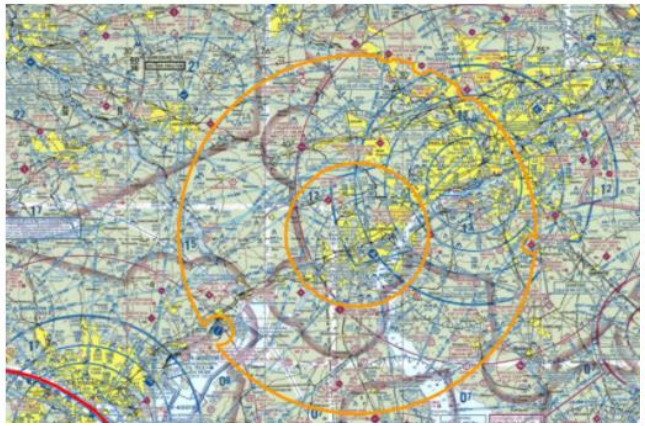
- **Sponsor Acknowledgment – WAFC, AOPA, FAASTeam, Baltimore FSDO**

- **WINGS Credit: Yes…but give me a day…**

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

Check NOTAMS!

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



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

President Evacuated After Plane Flew Too Close To Delaware Beach Home

The aircraft entered restricted airspace around the President's beach house resulting in a Secret Service contingency plan being put into action.

BY STETSON PAYNE JUN 4, 2022 4:12 PM

WINGS for Flying Clubs

- **Work with your (and other) flying clubs to promote *WINGS***
- **Include all *WINGS* transcripts with insurance renewals**
- **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

Overview

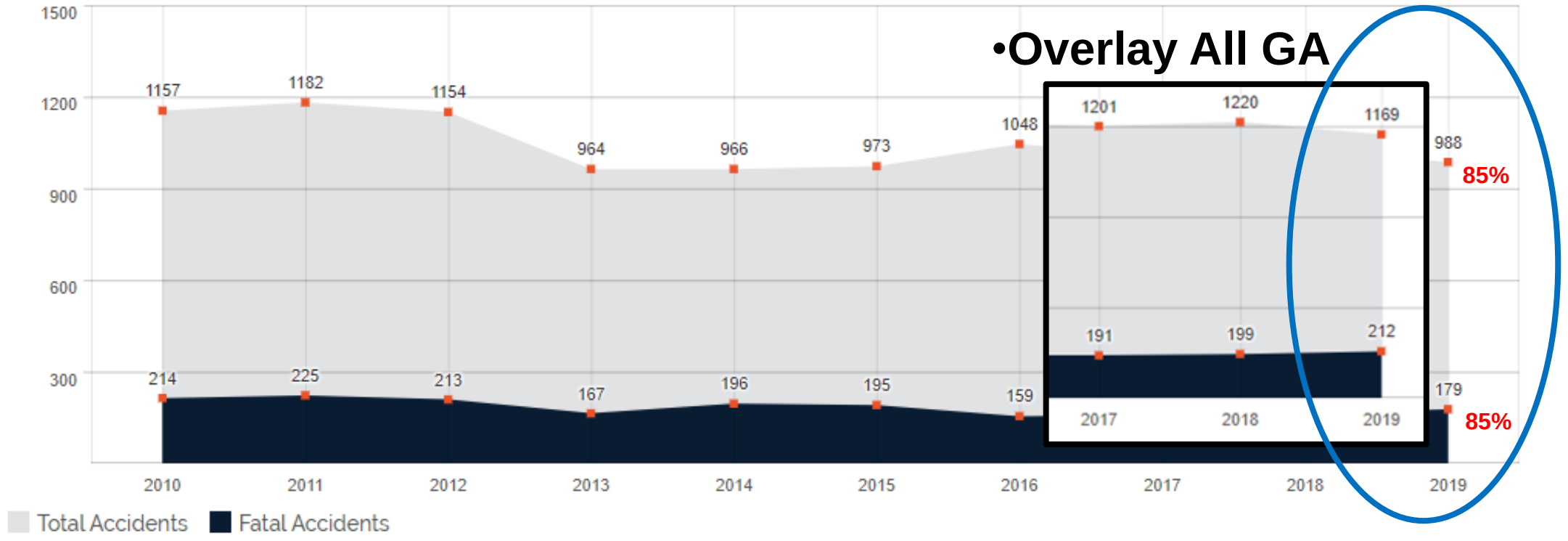
- **Review of GA accidents statistics**
  - Tells us where we should be training
- **Take off and landing performance determination**
  - Timely. The 4-H club.
- **Collision avoidance near airports**
- **Non-towered airport traffic pattern operations**
- **Using the FAASTeam *WINGS* program for GA proficiency**

Non-Commercial Fixed-Wing Trend: 2010 – 2019
31st Nall Report

Figure 1.2: General Aviation Accident Trends 2010-2019

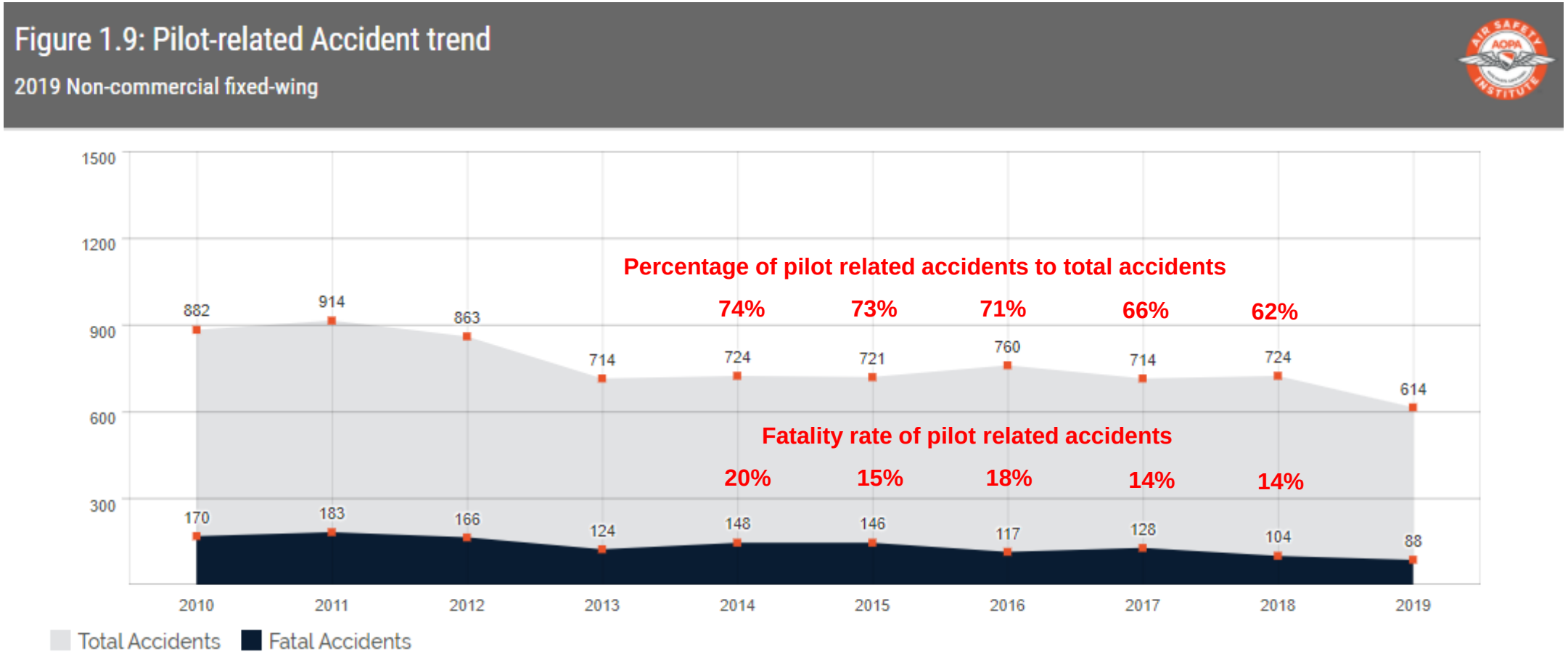
2019 Non-commercial fixed-wing

It's Mostly Us…

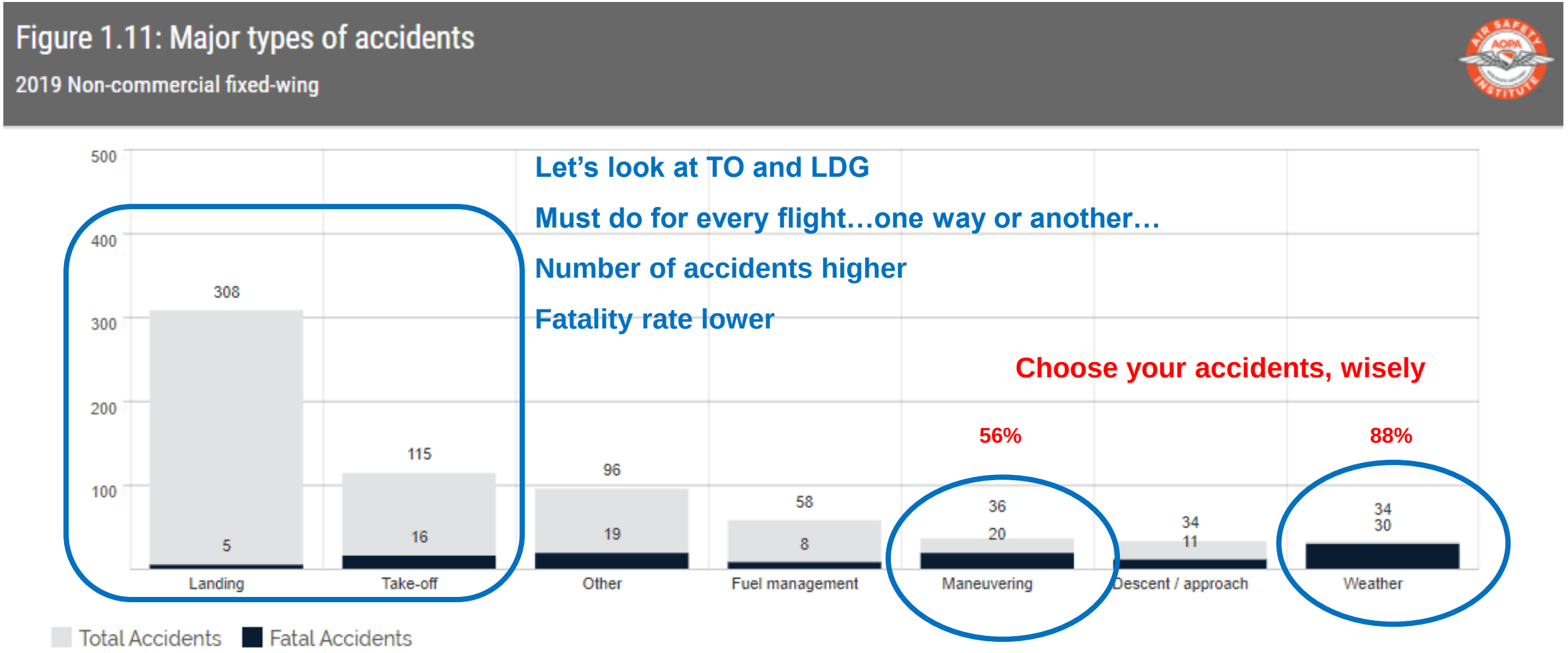


Federal Aviation Administration

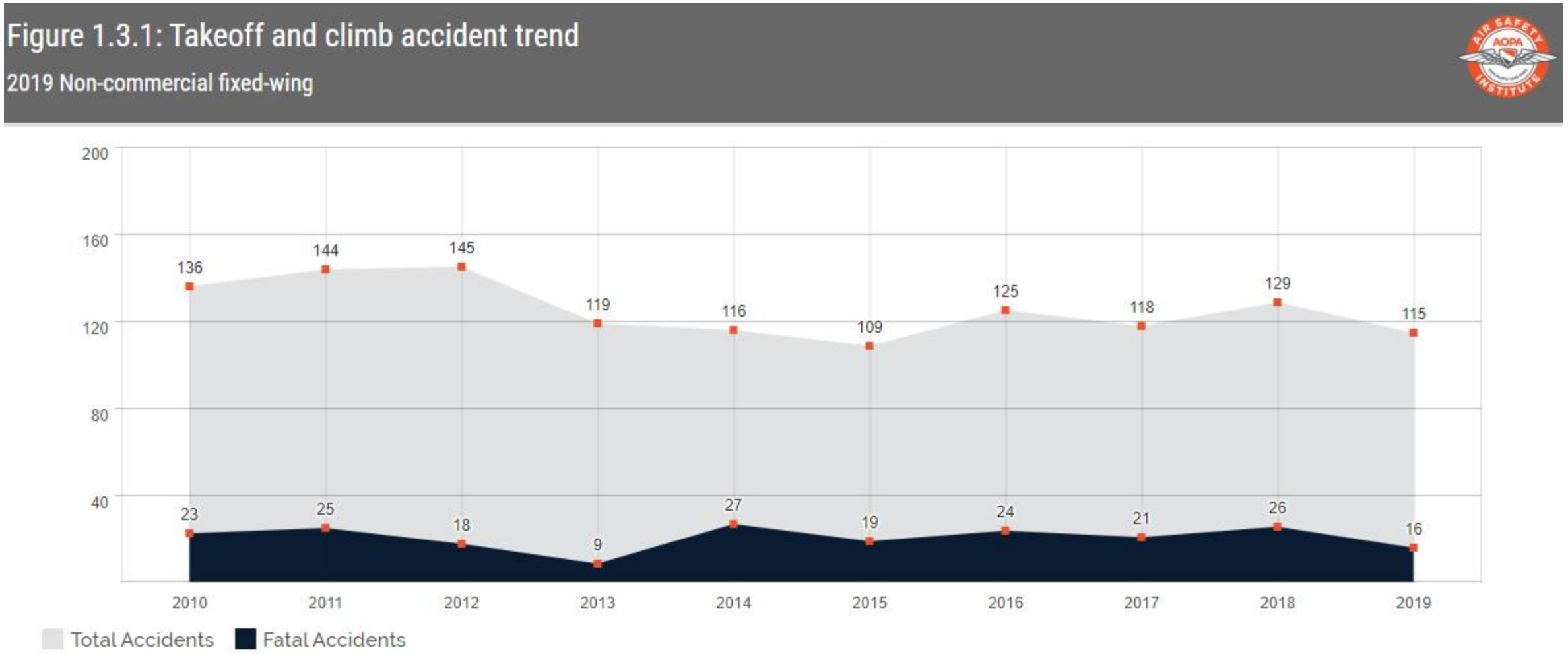
Pilot Related Trend



Types of Accidents



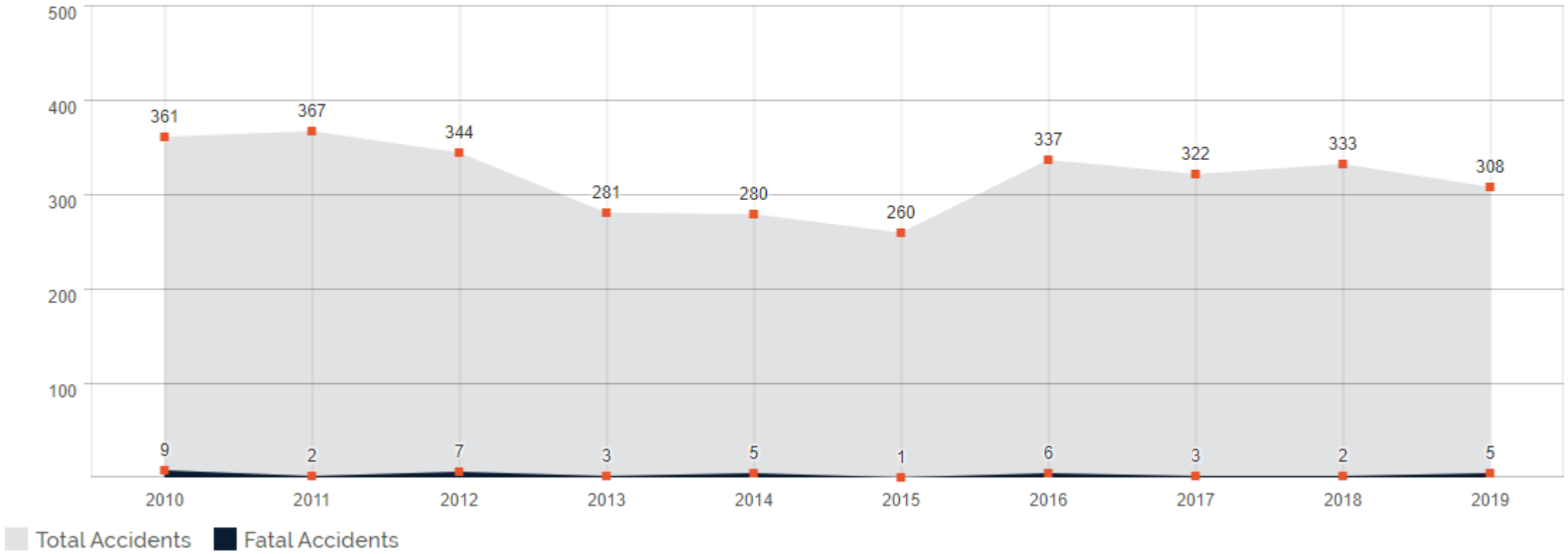
Take Off Accidents Year over Year Trend



Landing Accidents Year over Year Trend

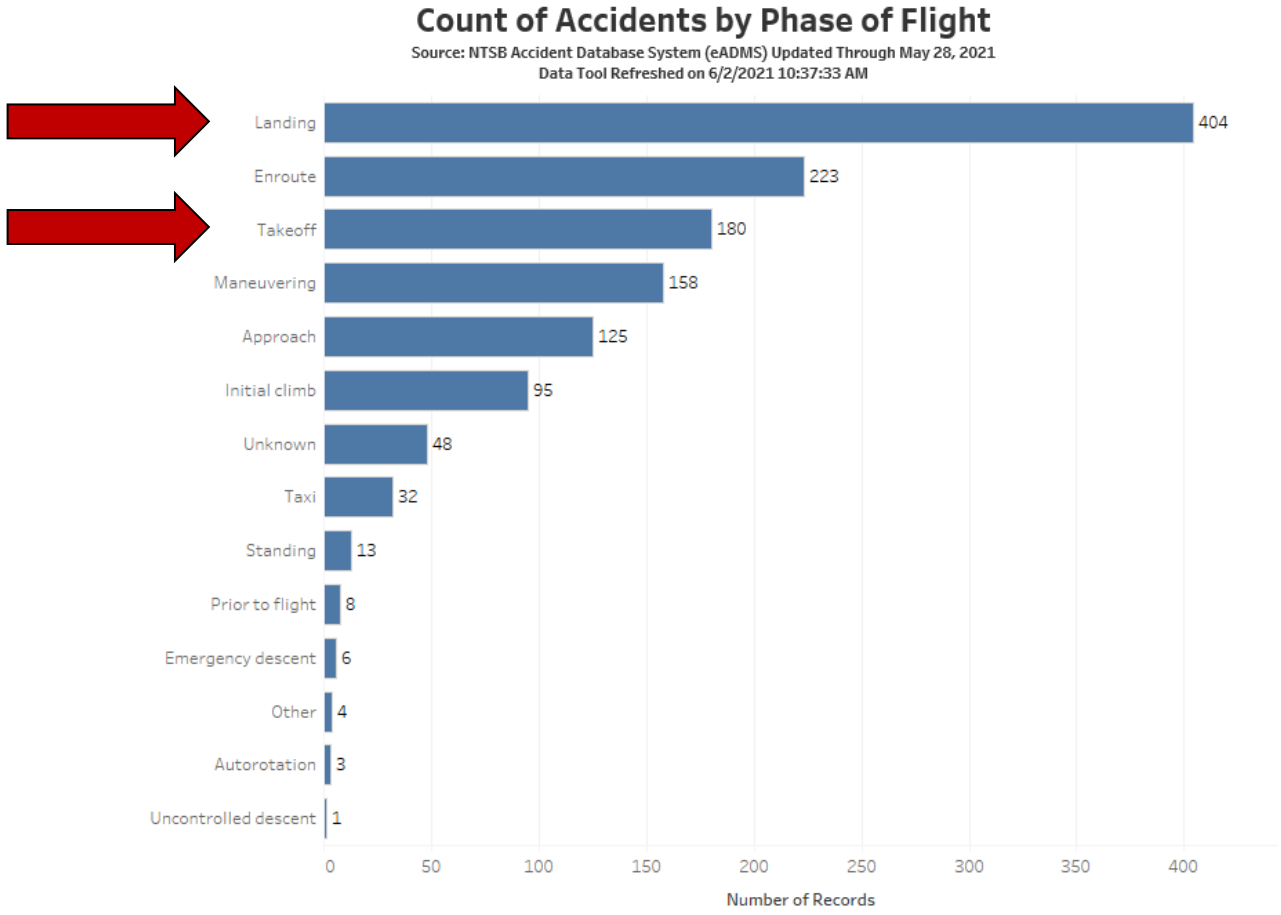
Figure 1.1.1: Landing Accident Trend

2019 Non-commercial fixed-wing



There’s one of each on every flight (1,300 accident study)

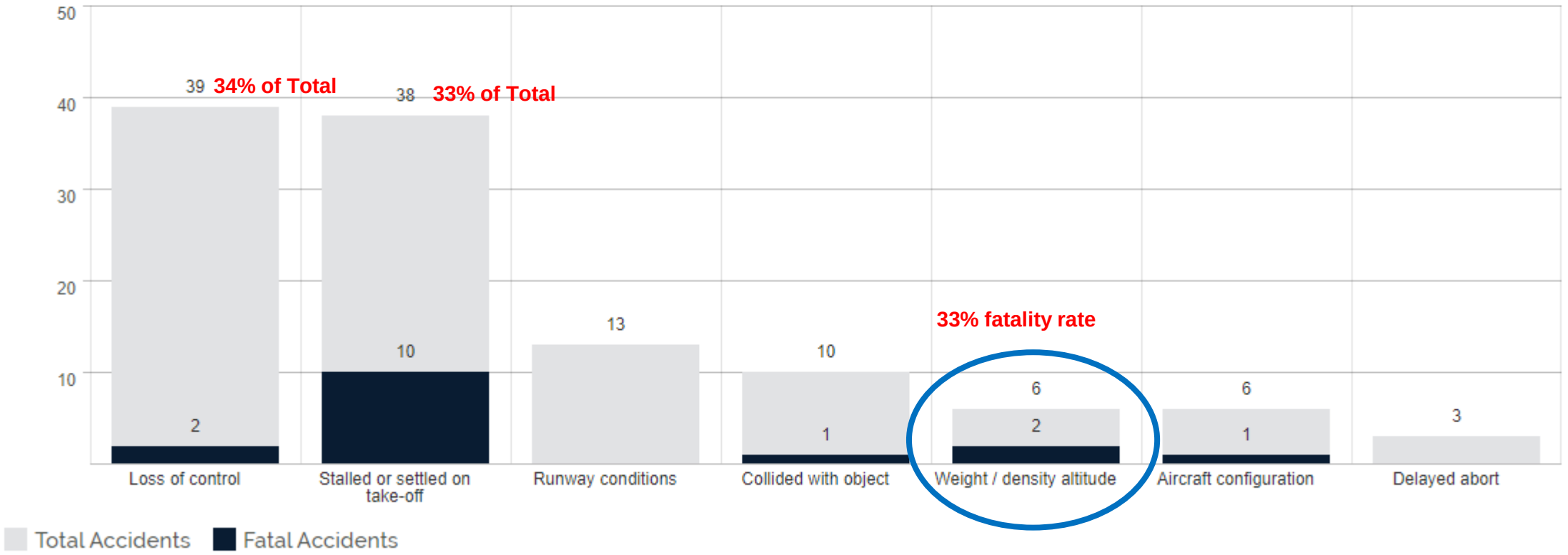
- **Take off = 14%**
- **Landing = 31%**
- **Total = 45%**



Types of Take Off Accidents

Figure 1.3.2: Types of takeoff and climb accidents

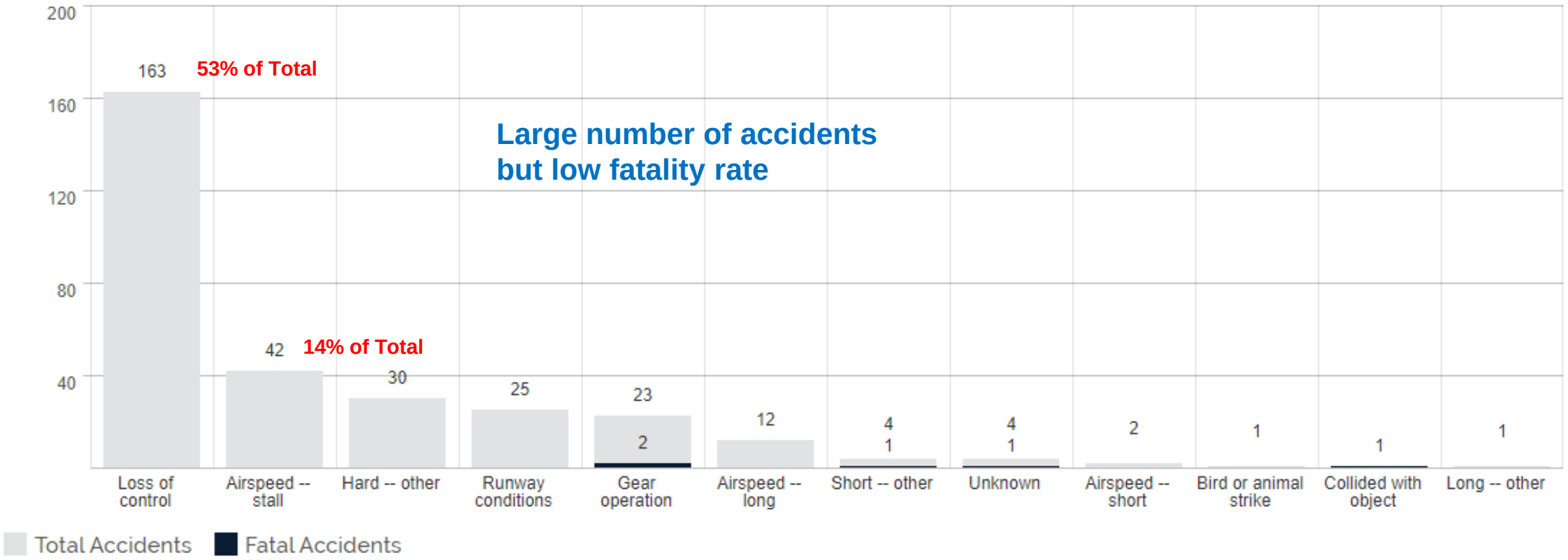
2019 Non-commercial fixed-wing



Types of Landing Accidents

Figure 1.1.2: Types of Landing Accidents

2019 Non-commercial fixed-wing



WK RAFT (91.103) know all there is to know…

- **W** Weather (including density altitude)
- **K** Known issues: NOTAMs, TFRs

- **R** Runways of intended use
- **A** Alternatives
- **F** Fuel management
- **T** Take-off and landing performance

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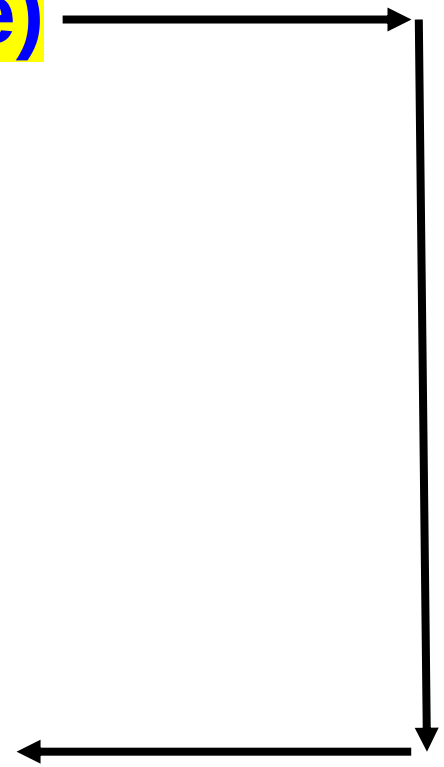


T = Take off and landing performance ~ Density Altitude

- **DA is…?**
  - Pressure altitude corrected for non-standard temperature
  - Equivalent altitude in the ISA based on the combination of actual pressure, actual temperature (and actual humidity)
  - Is a high DA *good or bad*?

  - High DA = Bad
  - Caused by:
    - Lower pressure than standard (atmospheric and elevation/altitude)
    - Higher temp than standard
    - Higher humidity than standard

Take off and landing performance = Density Altitude

- **Know how to calculate DA**
  - Use the chart!
  - How do you determine PA?
  - Set “the knob” to 29.92 and read-off PA
    - Don’t forget to set it back to QNH
  - OR:
  - Use QNH (altimeter setting)
  - Determine the PA fiddle factor
  - Add the fiddle factor to elevation or altitude

  - Knowing PA and Temp, find DA

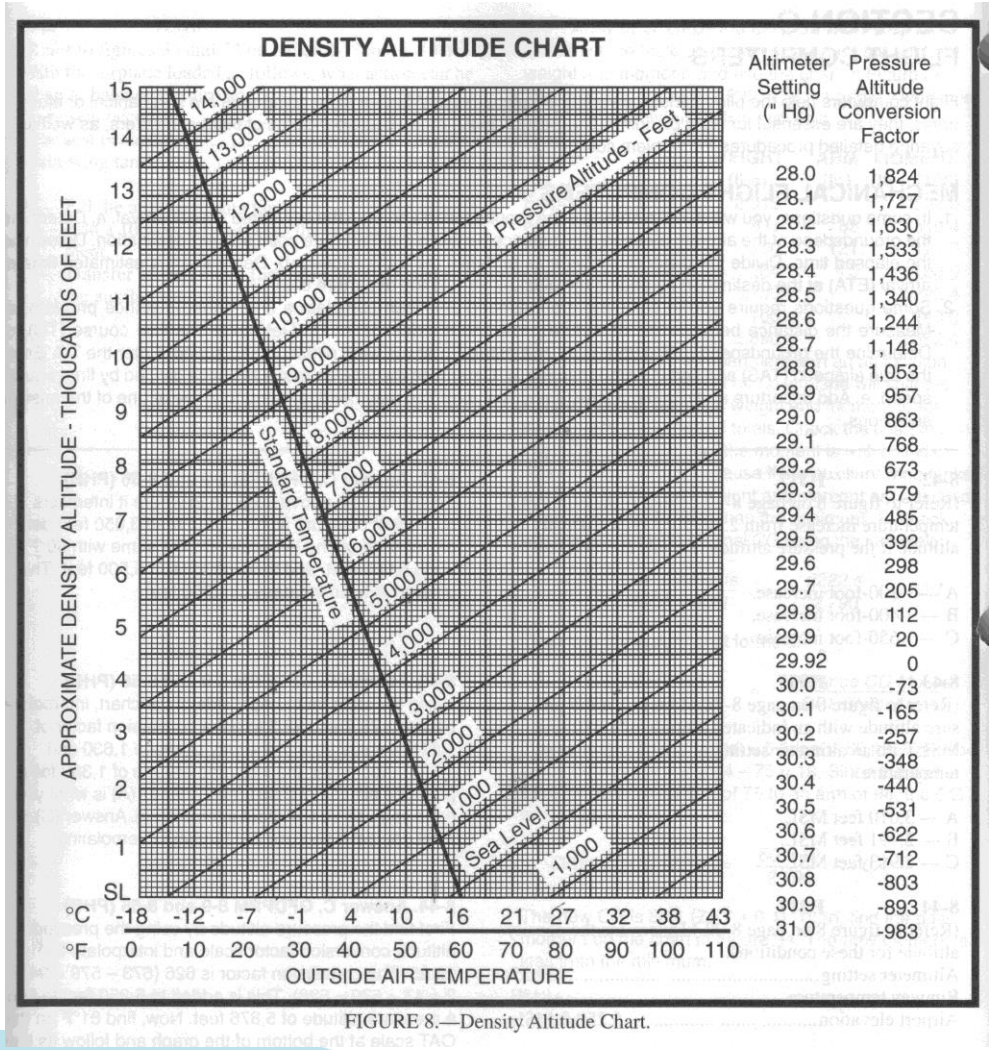


FIGURE 8.—Density Altitude Chart.

Take off and landing performance = Density Altitude

- **Know how to calculate DA**
  - Use the chart!
  - Example:
    - At FDK, elevation = 320’
    - If QNH = 29.00; fiddle factor is +893
    - PA = 320 + 893 = 1,313’
    - If T = 32°C
    - DA = approx. 3,300’

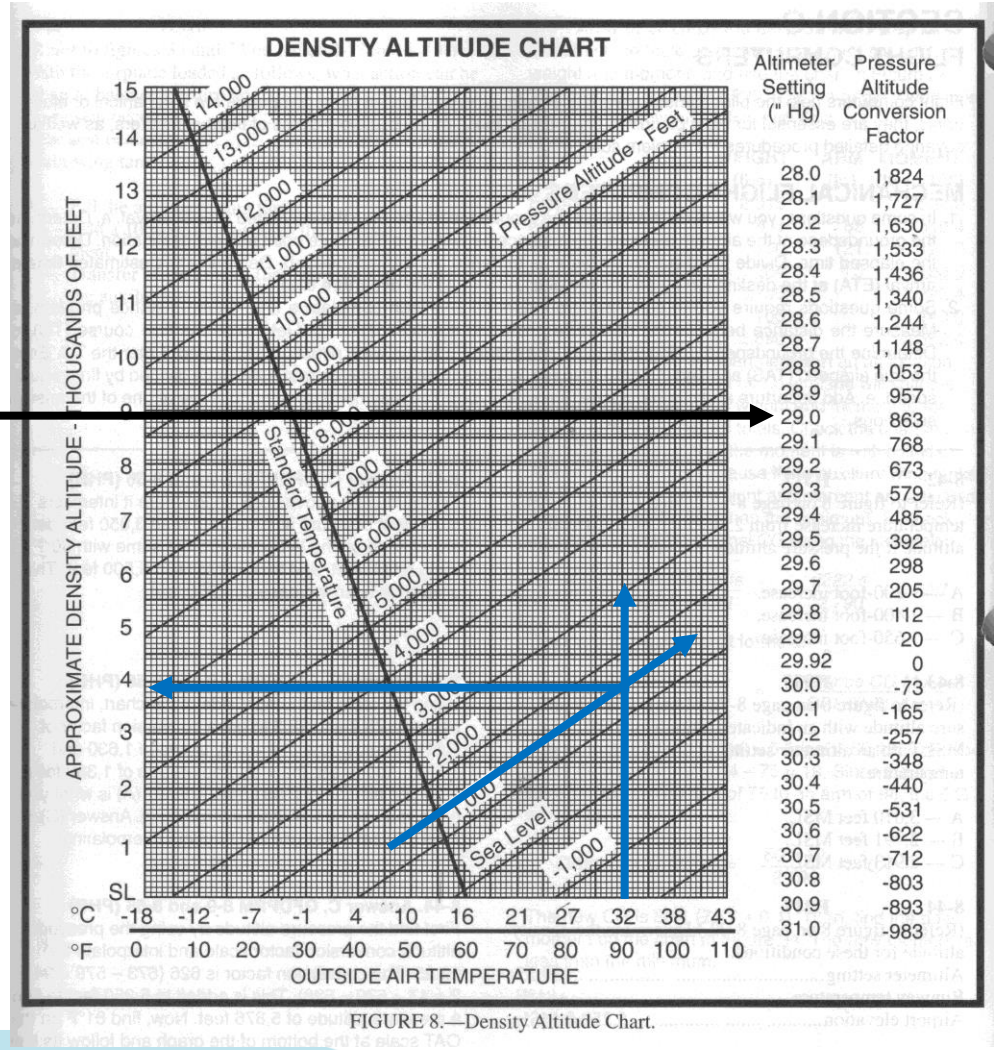


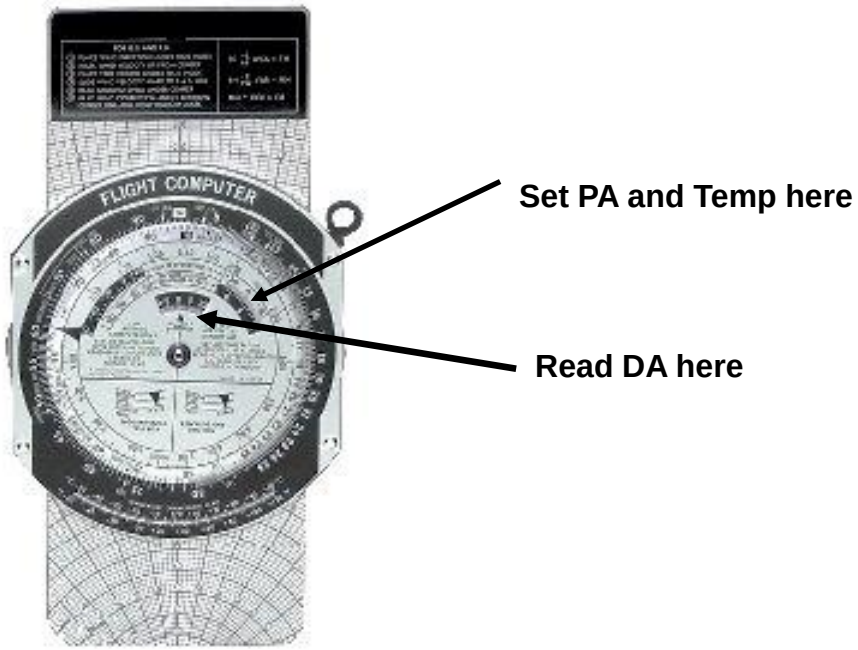
FIGURE 8.—Density Altitude Chart.

Take off and landing performance = Density Altitude

- **Know how to calculate DA**
  - E6B

•Get PA by setting 29.92 in the Kollsman window of the altimeter (set it back after!)

•Get temperature, Temp.
•Set PA and Temp on the small right-hand scale. Watch "sense" of Temp scale – pos and neg directions.
•Read DA on small center scale



•Know how to calculate DA

•Listen to the AWOS…!

Impact of High DA

- **High DA means lower air density**
- **Impacts:**
  - Lift equation: ½ V^2 C_L A ρ
  - Engine performance
  - Climb performance
  - TAS higher than IAS
  - For given conditions, means GS is higher
  - Fly by the IAS, not what it "looks" like

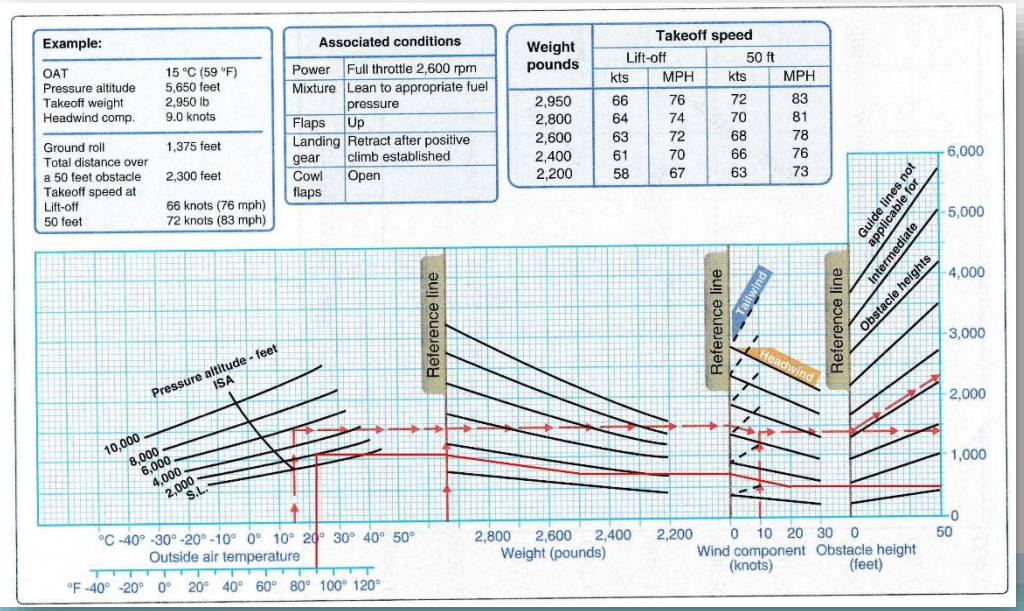
TAS From CAS
At Various Density Altitudes

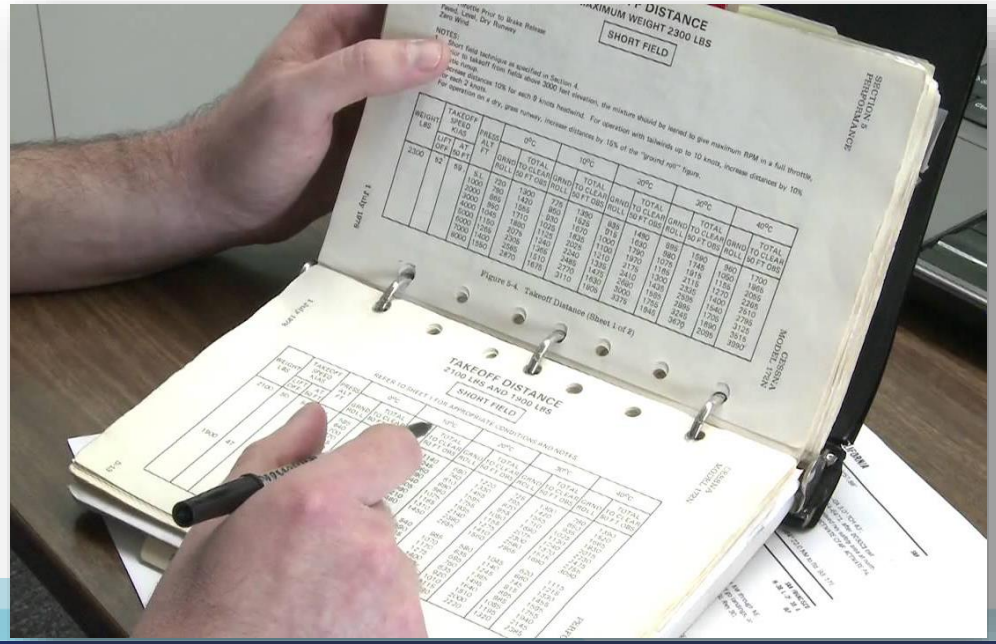
TAS from CAS at Various Density Altitudes (TAS = CAS*(1+0.2*DA/1000)												
CAS	40	50	60	70	80	90	100	110	120	130	140	150
DA (Feet)												
-5000	36	45	54	63	72	81	90	99	108	117	126	135
-4000	37	46	56	65	74	83	92	102	111	120	129	138
-3000	38	47	57	66	76	85	94	104	113	123	132	141
-2000	39	48	58	68	77	87	96	106	116	125	135	144
-1000	40	49	59	69	79	89	98	108	118	128	138	147
0	40	50	60	70	80	90	100	110	120	130	140	150
1000	41	51	62	72	82	92	102	113	123	133	143	153
2000	42	52	63	73	84	94	104	115	125	136	146	156
3000	43	53	64	75	85	96	106	117	128	138	149	159
4000	44	54	65	76	87	98	108	119	130	141	152	162
5000	44	55	66	77	88	99	110	121	132	143	154	165
6000	45	56	68	79	90	101	112	124	135	146	157	168
7000	46	57	69	80	92	103	114	126	137	149	160	171
8000	47	58	70	82	93	105	116	128	140	151	163	174
9000	48	59	71	83	95	107	118	130	142	154	166	177
10000	48	60	72	84	96	108	120	132	144	156	168	180
11000	49	61	74	86	98	110	122	135	147	159	171	183
12000	50	62	75	87	100	112	124	137	149	162	174	186

First things first

- **Hit the books**
  - Take-off & landing performance
    - ***At mission weight***
    - ***Read the small print. Grass? Hard? Head/tail wind?***
    - ***Add ~50% to all numbers…***

- **The 4-H Club:**
  - Hot
  - High
  - Humid
  - Heavy





TO and LND Card

Take-Off & Landing Planning Card - (See DA Graph)

Airplane Type: **Tail Number:** **Date:**

ATIS/WX Data:	Value:	Comments:
Date:		
Time:		
Airport:		
Info ID:		
Mag. Wind (from true):		Headwind comp = WV*Cos(α)
Viz:		
Sky:		
Temp:		
Dew point:		
Altimeter:		
Expected runway:		
Runway length:		
Remarks:		

Calculated Data:	Value:	Comments:
Pressure Altitude.		
Density Altitude:		See DA table.
Take-off distances:		See PoH page: Take-off conditions:
a. Ground roll:		
b. To clear 50ft:		
c. TO speed IAS (V_R):		
d. V_X speed IAS (V_X):		
e. TO speed @ 50ft:		
f. Accel. stop distance: (2.5 x TO roll):		
Climb rate:		See PoH page:
a. Rate of Climb (FPM):		
b. Climb IAS (V_Y):		
Landing distances:		Conditions: See PoH page:
a. Ground roll:		
b. To clear 50ft:		
c. Landing speed @ 50ft:		
Hydroplane speed: SQRT(PSI)*9	50 40	At 30PSI. At 20PSI.

Take Off Tips

Takeoff Tip No. 5—Know your airport

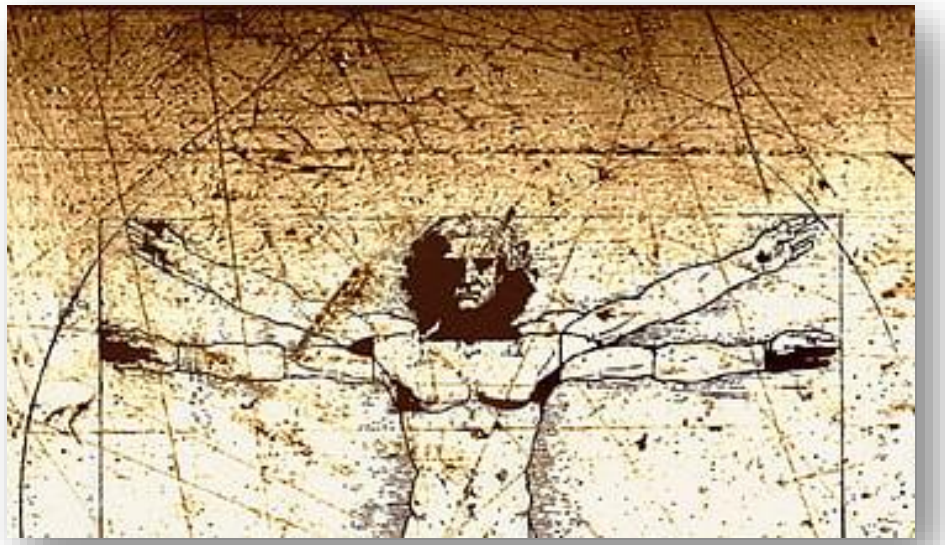
- **Field Elevation**
- **Temperature & humidity**
- **Wind speed & direction**
- **Runway length (usable)**
  - Runway composition
  - Runway slope
  - Runway contamination
- **Departure obstacles**
- **Forced landing areas**

Takeoff Tip No. 4—Know your airplane

- **Weight & balance**
  - Gross weight & C.G. at take off
- **V speeds**
  - Best angle of climb speed—Vx
  - Best rate of climb speed—Vy
  - Single-engine minimum control speed - Vmc
  - Best single-engine climb speed – Vyse
- **Expected takeoff performance**
  - Rotation point
  - Lift off speed

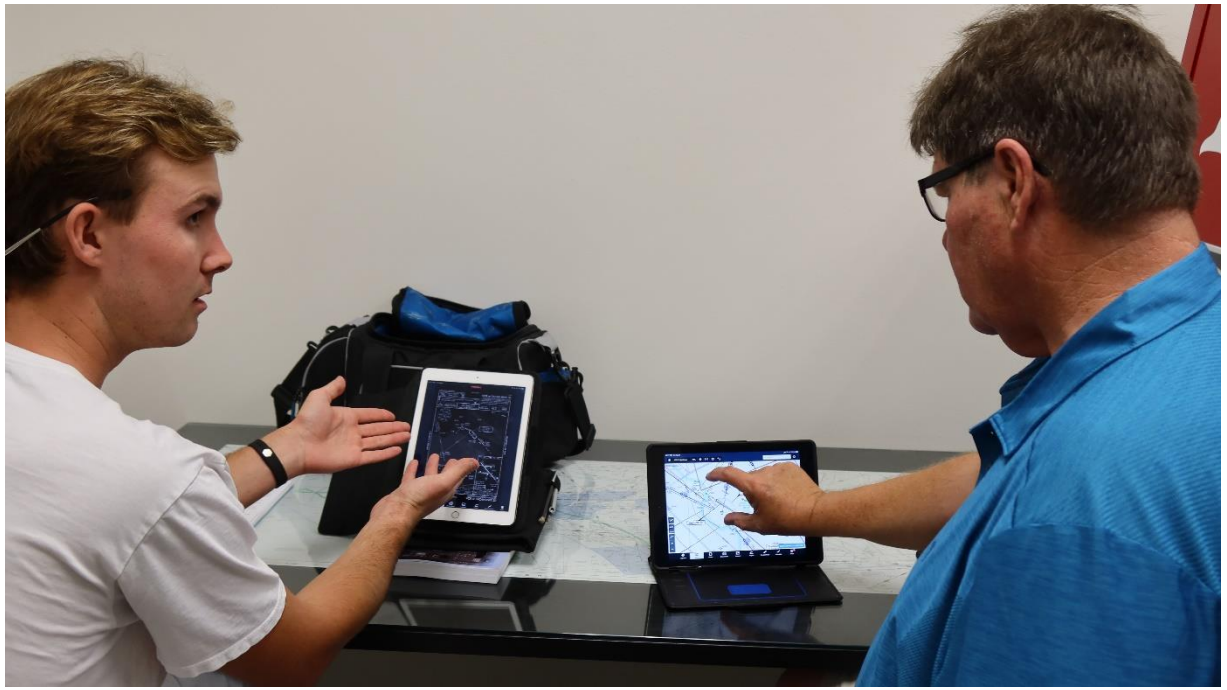
Takeoff Tip No. 3—Know yourself

- **Health, rest, state of mind**
  - Medication(s)
  - Fatigue
  - Mission Imperative
  - External pressure(s)
    - Plan B
- **Recent experience**
  - In this environment
  - In this aircraft



Takeoff Tip No. 2—Plan your takeoff

- **Go/No-Go criteria**
  - Initial instrument & power check
  - Departure path or procedure
  - Power loss before rotation
  - Power loss during climb
- **Ground roll**
  - Distance
  - Rotation speed
  - 50/70 check
  - Rotation point



Take off Tip No. 1—Brief your plan

- **Runway & aircraft configuration**
- **Go/No go criteria**
  - Initial instrument & power check
  - 50/70 check point & speed
  - Departure path or procedure
  - Power loss before rotation
  - Ground roll
    - Rotation and V speeds
- **Emergency procedures**
  - Power loss in climb
  - Off airport landing

Landing Tips

Landing Tips No. 5—Know your airport(s)

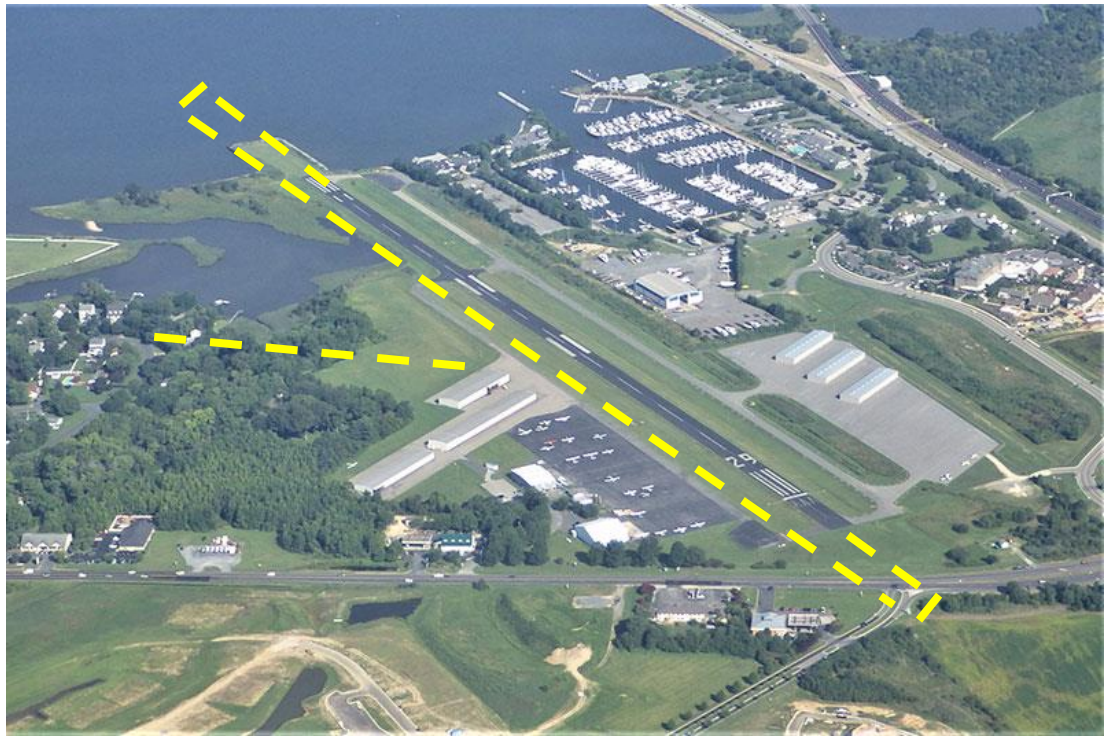
- **Field Elevation**
- **Temperature, pressure & humidity (Density Altitude)**
- **Wind speed & direction**
- **Runway length**
  - Runway composition
  - Runway slope
  - Runway contamination
- **Approach obstacles**
- **Departure obstacles**

Landing Tip No. 4—Know your airplane

- **Initial & final approach & best glide speeds**
- **Flap and gear speeds**
- **Expected landing performance**
  - Add 50%

Landing Tip No. 3—Fly the pattern

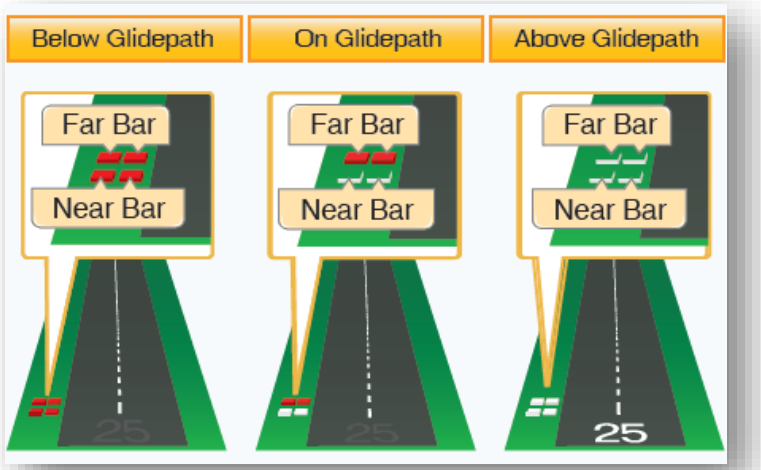
- **Pattern altitude**
  - May be different for airplanes and helicopters
- **Left or right-hand turns?**
- **Look and listen for**
  - Aircraft in the pattern
  - Aircraft on final
    - Instrument approaches



Landing Tip No. 2—Fly a stabilized approach

- **Brief your plan**
- **Landing configuration**
- **On speed**
- **On course**
- **On glide path**

Get the sight picture



Stabilized Approach Parameters - IFR

- **Stabilized by 1,000 feet above touchdown elevation.**
  - On correct flight path
    - Small corrections to maintain
  - On speed
    - Recommended approach speed
      - +10/-5 knots or MPH
  - Descent
    - On Glide Slope/VASI
    - 500 fpm or less (depends on ground speed)
  - In landing configuration
  - Landing checklist complete

Stabilized Approach Parameters—VFR

- **Stabilized by 500 feet above touchdown elevation.**
  - On correct flight path
    - Small corrections to maintain
  - On speed
    - Recommended approach speed
      - +10/-5 Knots or MPH
  - Descent
    - On Glide Slope/VASI
    - 500 fpm or less
  - In landing configuration
  - Landing checklist complete

Crosswind Landing

- **Stabilized approach**
  - On speed
  - On glideslope
- **Aligned with runway**
  - Crab…may be…
  - Touch down with side slip

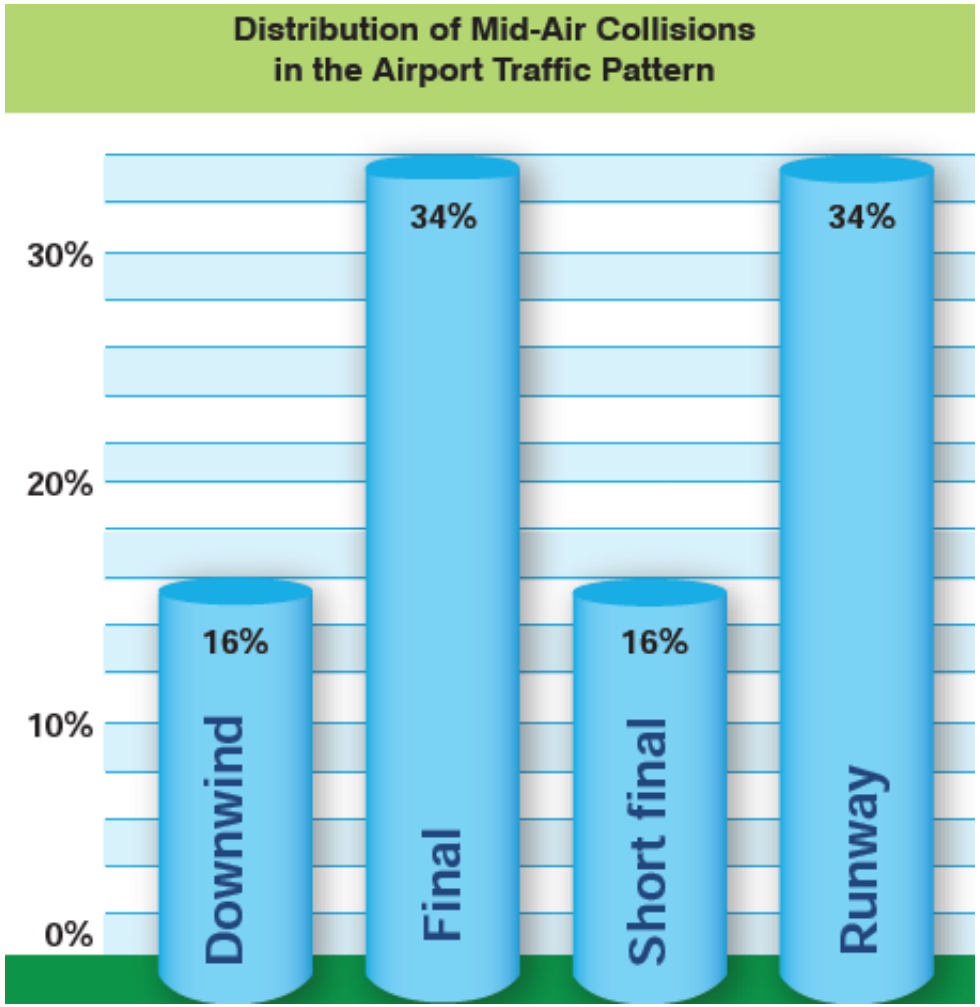
Landing Tip No 1—Be prepared to go around

- **Brief your plan**
  - Including approach, go-around and missed approach intentions

Collision Avoidance

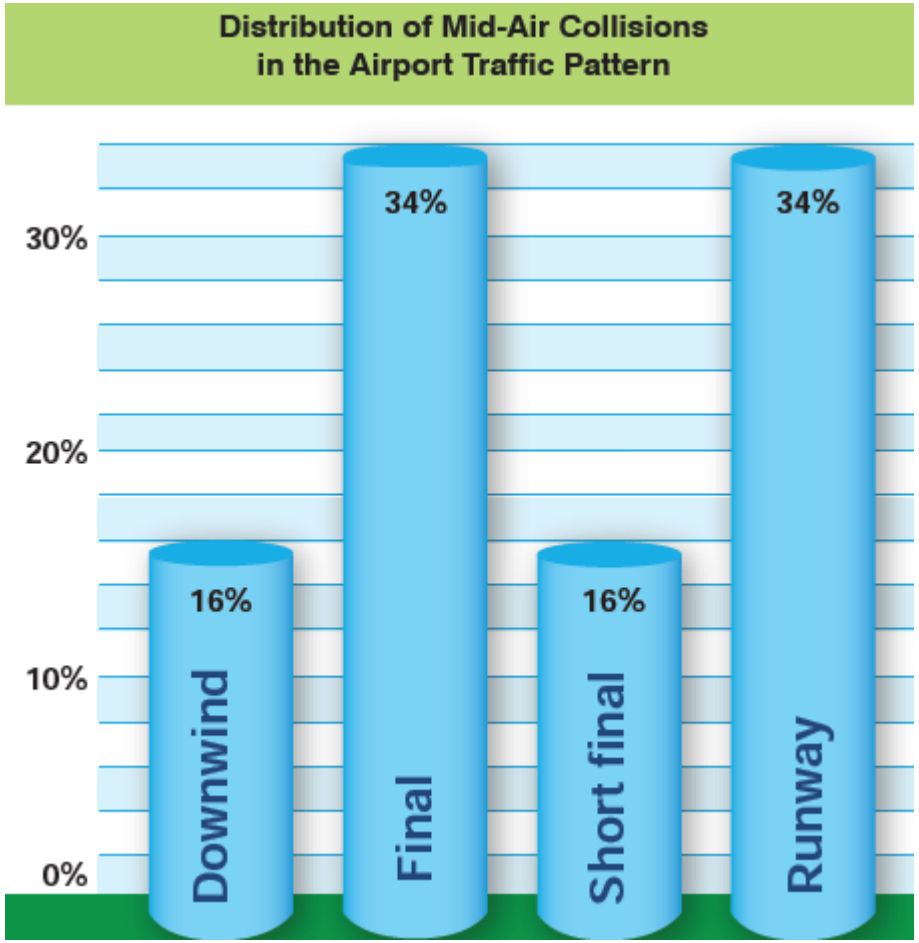
- At or near to non-towered airports
- Daylight
- Good visibility
- Below 1,000 ft AGL
- Aircraft traveling same direction

- Three things…



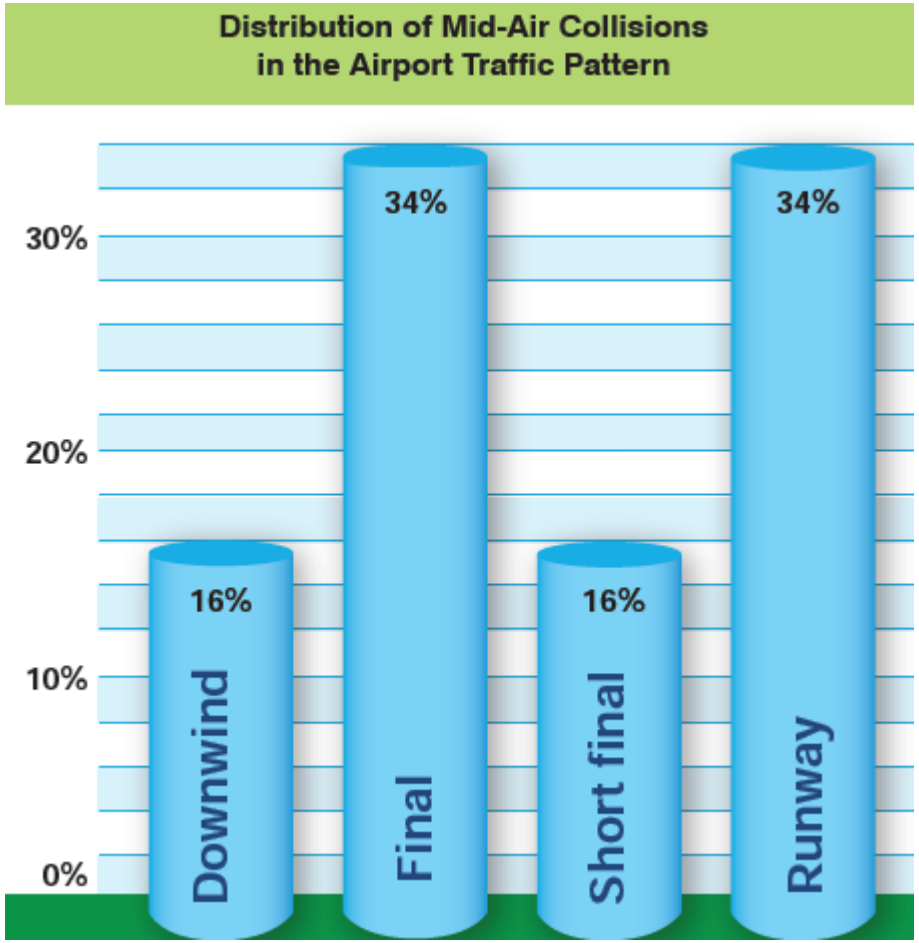
Collision Avoidance

1. **Be predictable**
   - Fly published patterns
   - Use standard entry/exit procedures
2. **Be aware**
   - Look and listen for traffic
3. **Be preemptive**
   - Announce your position and intentions – in moderation
   - Please, don't use IFR fixes…



More Collision Avoidance

- **Not all aircraft are equipped with ADS-B Out**
  - Fewer aircraft are equipped with ADS-B In
- **We still need to look and listen for traffic**
- **All lights ON!**
- Collision Avoidance: See, Sense, Separate



Radio Calls

- **Common Traffic Advisory Frequency (CTAF)**
  - Departing from active runway
    - Leaving Pattern
    - Remaining in Pattern (closed traffic)
  - Turning Crosswind
  - Turning Downwind
  - Turning Base
  - Turning Final
    - Full stop, Touch & Go, Stop & Go
  - Entering Pattern

- **Yeah – try this at Carroll County on a busy Saturday…**
  - Be flexible and sensible

Approach, Pattern and Landing: *Eight* Phases

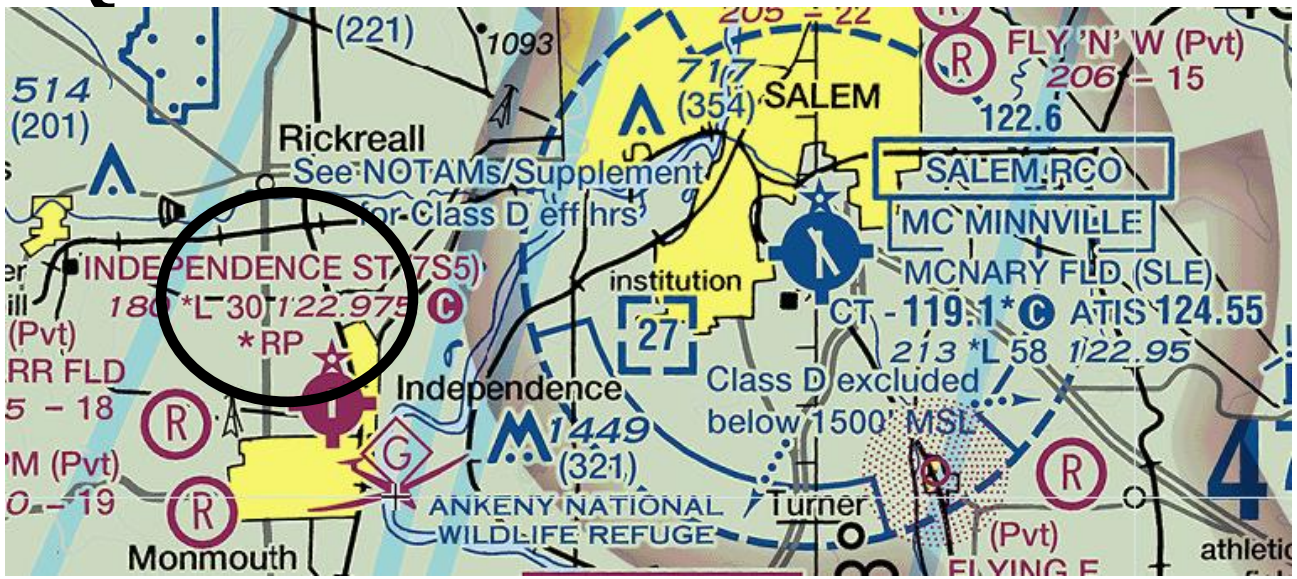
1. ***The entry***
2. ***The downwind leg***
3. **The base leg**
4. **The final approach**
5. ***The level off in ground effect – dissipate energy***
6. **The round out (flare)**
7. **The touchdown**
8. **The after-landing roll**

Approach Pattern and Landing: Eight Phases

- **Put the training together…**
- **Landing is the *ultimate ground reference maneuver***
  - Why do pilots forget everything about GRMs when landing?
  - Practice GRMs – especially rectangular course – drift control, etc.
- **Approach is draggy descending slow flight**
  - Power for altitude, pitch for airspeed
  - When did you last practice *descending* slow flight?
- **Level off is level slow flight, with reducing speed**
  - Power for altitude, pitch for airspeed
  - Power is a flight control!

Entry

- **Quiz: What does *RP mean on a chart?**



- **Answer: Refer to the Chart Supplement**

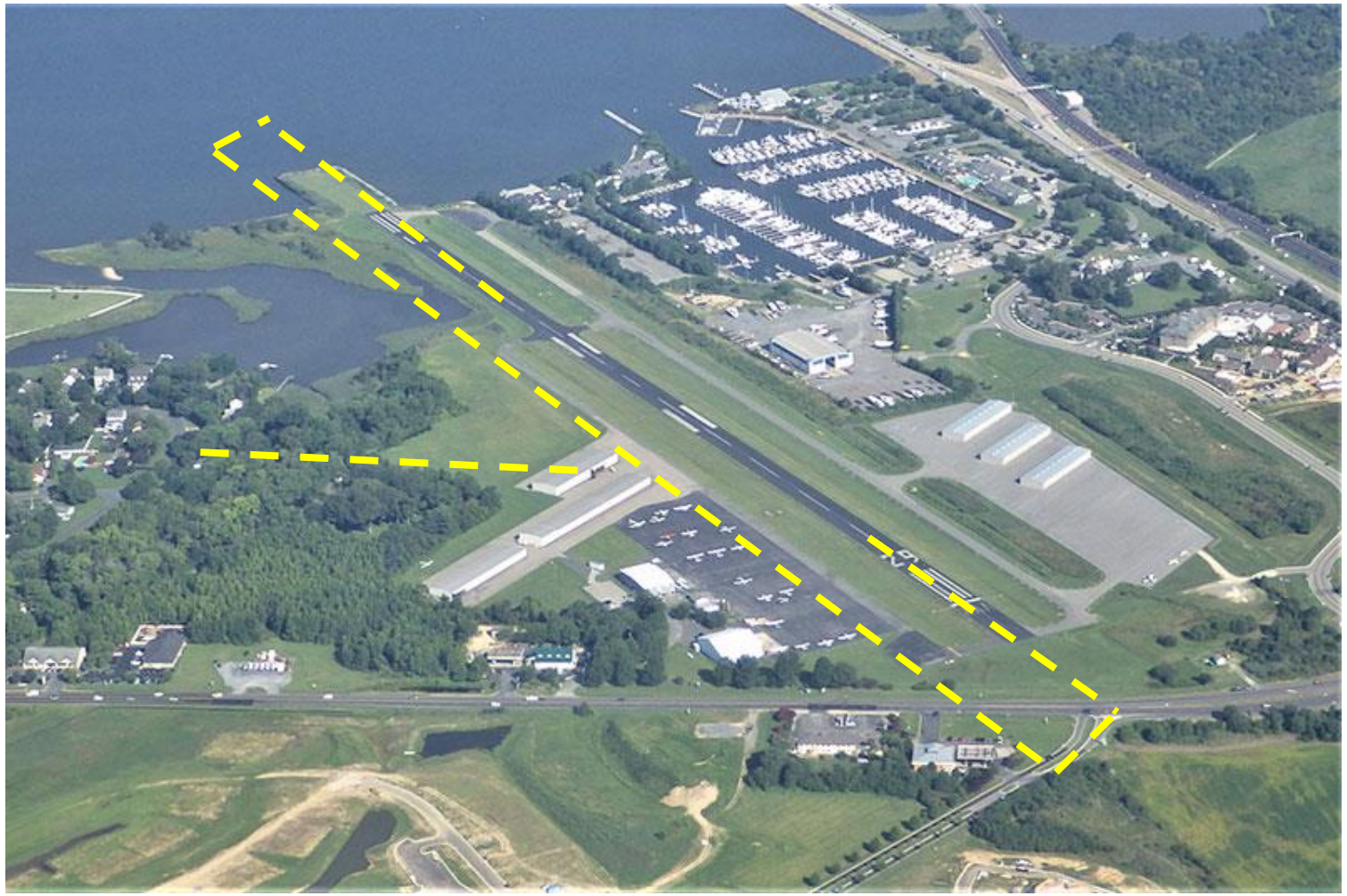
AIRPORT REMARKS: Attended dalgt hrs. Ultralight acft on and invof arpt. Migratory flocks of waterfowl on and invof arpt. Glider and ultralights use rgt tfc for Rwy 16–34. Calm wind use Rwy 34. Seasonal standing water on twys.

Entry

- **Why is this so difficult?**
  - *Always* – enter on the 45 to downwind
- **Cessna 1234,15-mile final, runway 37**
- **Carroll traffic, Cessna 123WW, 3-mile cross wind entry to left pattern, runway 34…uh…what…?**
- **Heard the other day…"Saratoga is on a 9-mile final RWY 34" Everyone else was using RWY 16…**
- **VFR day…"I'm on the practice RNAV RWY 16…would you mind doing a 360…? Yes, I mind…but I'll do it to get out of your way!**
- **The idea is to make it easy for you and others…**

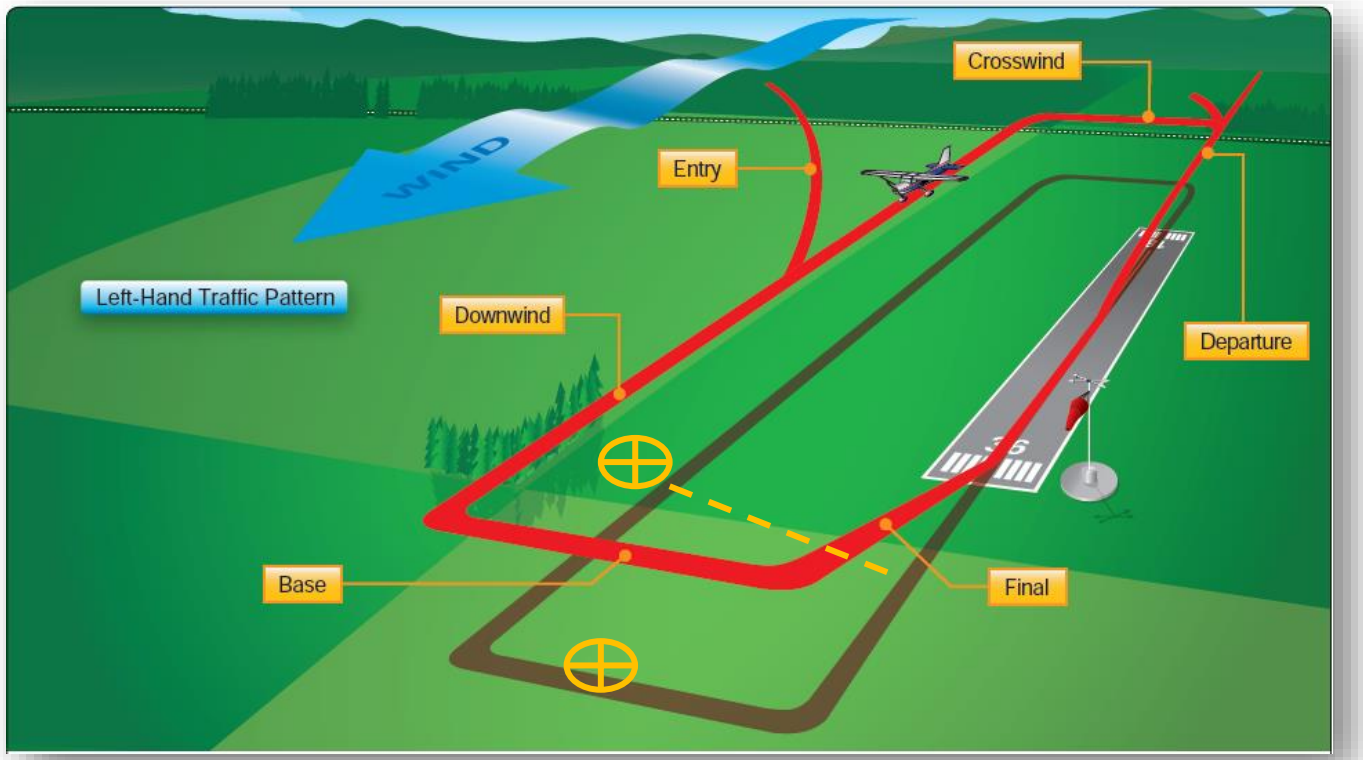
Pattern Precision

- **Unusable portions of runway**
- **Forced landings**
- **Precise flying breeds confidence**
- **Primary factor?**
  - Airspeed – which one?
  - IAS…!
- **Short runway, hot, high-elevation, humid & heavy**

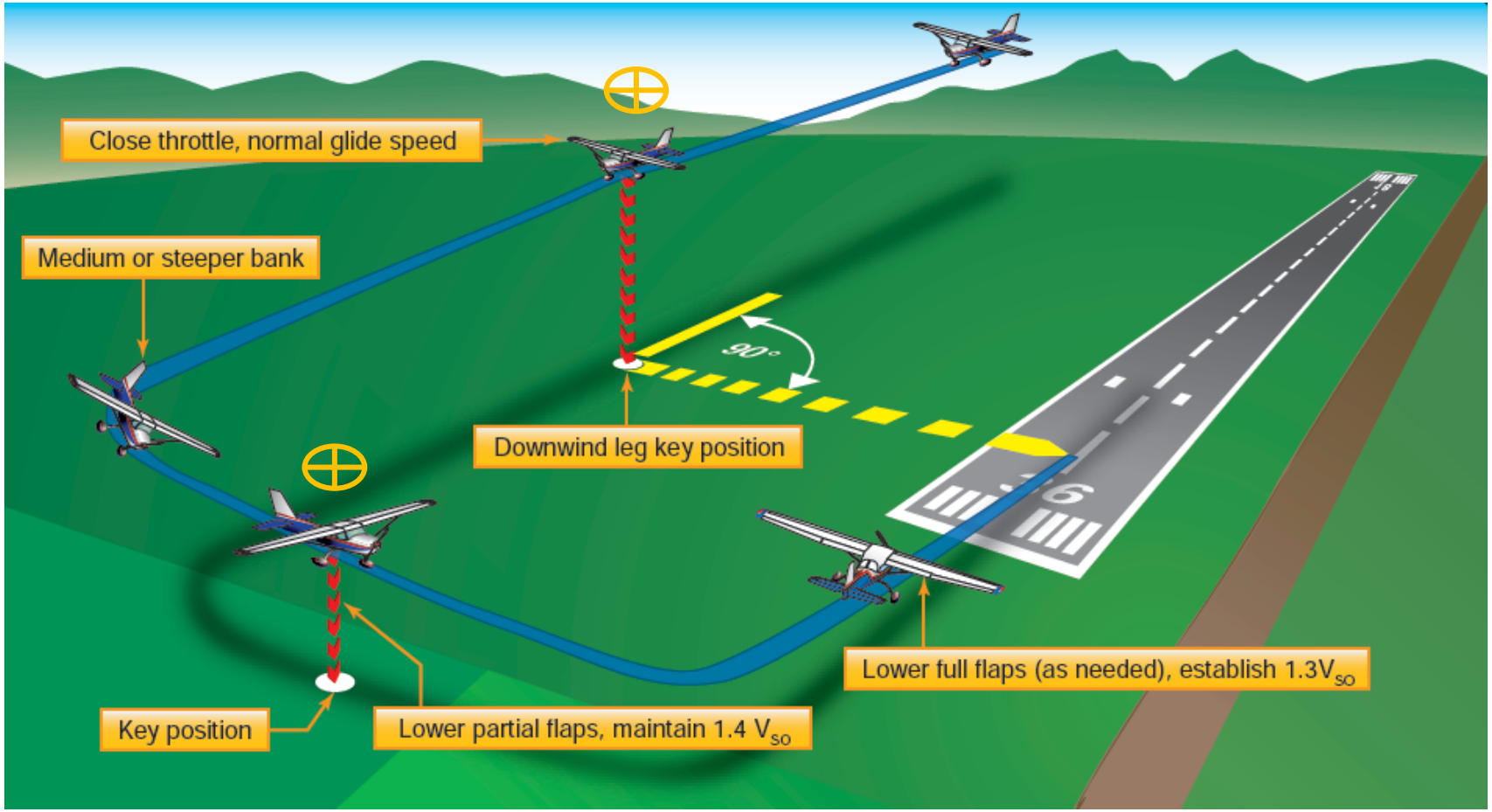


Establish Key Positions

- **Maintain pattern altitude until abeam touchdown point**
- **Adjust power, flaps, and flight path to achieve stable final leg to touchdown**
- **Know your pitch-power-performance numbers**

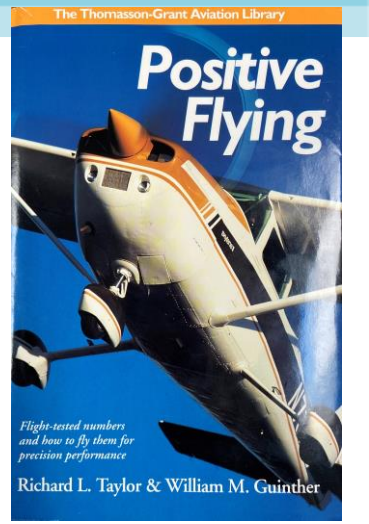


Power off approach



Know your Airplane's Numbers

- **Power, Pitch, Performance**
  - Power + pitch = attitude
- **Predictable Behavior = Predictable Outcome**



Level Flight		
RPM	Pitch Angle	IAS
2000		
1900		
1800		
1700		

500FPM Descent First Flap, Carb Heat On		
RPM	Pitch Angle	IAS
		80
		70
		65

500FPM Descent Full Flaps, Carb Heat On		
RPM	Pitch Angle	IAS
		70
		65
		60

Opportunity to Practice

❑ *WINGS* Flight Topic 1 ASEL – A070405-07

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Library Contents

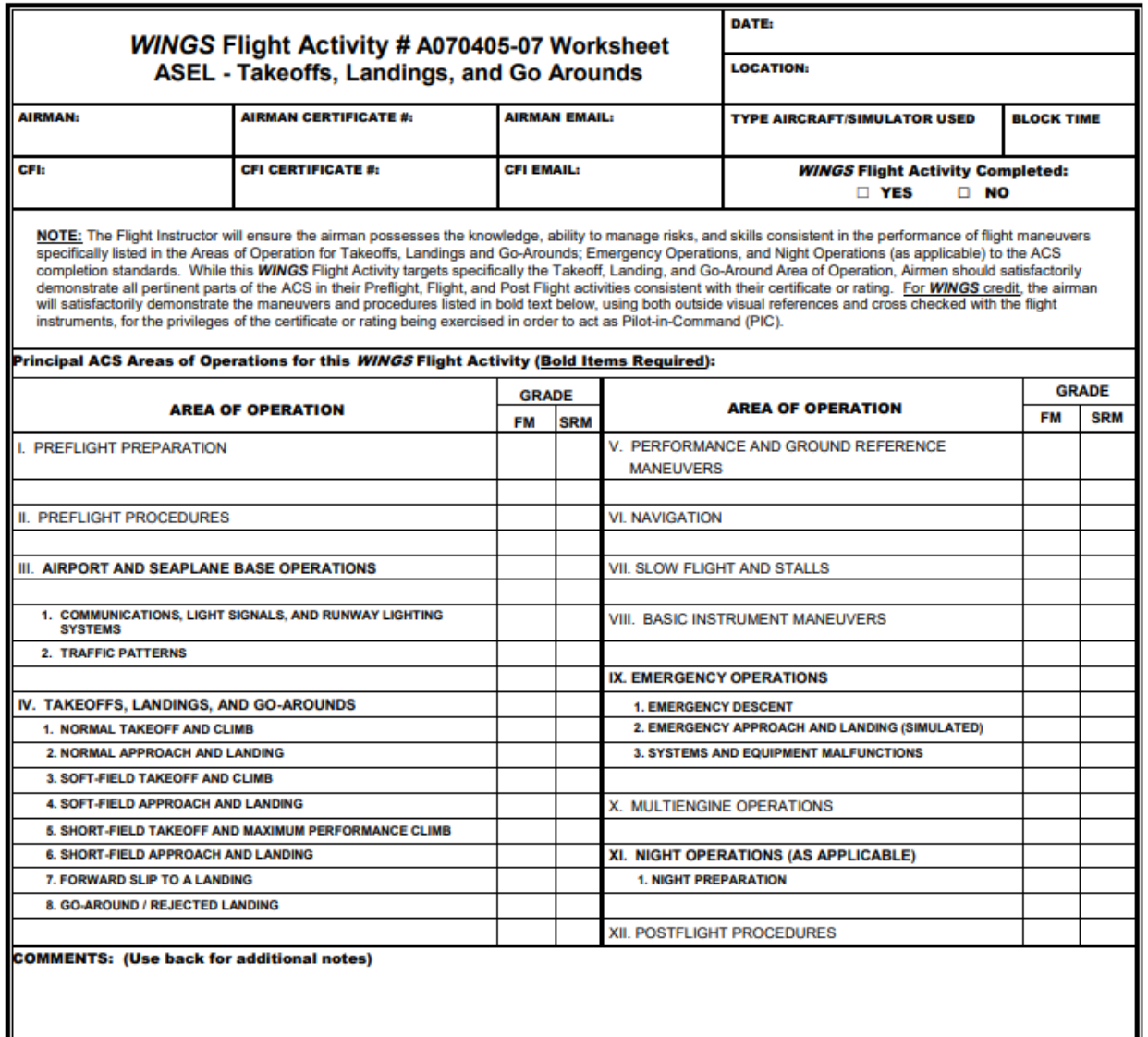
ASEL - Takeoffs, Landings, and Go Arounds - A070405-07

Author: *Fred Kaiser* ***Date:*** *06/12/2019*

Viewing Options: Normal

In this Activity the airman and instructor will discuss, and the airman will demonstrate takeoffs and departure climbs; tra descents and landings, emergency operations and go-arounds under normal conditions, and under conditions which requ

This document contains the following attachment.
Click the link below or the icon to the left to view.
▸ A070405-07 ASEL-Takeoffs_Landings_Go-Arounds.pdf (198 k)



WINGS **Flight Activity # A070405-07 Worksheet**
ASEL - Takeoffs, Landings, and Go Arounds

DATE:

LOCATION:

AIRMAN:	**AIRMAN CERTIFICATE #:**	**AIRMAN EMAIL:**	**TYPE AIRCRAFT/SIMULATOR USED**	**BLOCK TIME**
CFI:	**CFI CERTIFICATE #:**	**CFI EMAIL:**	***WINGS*** **Flight Activity Completed:** ☐ **YES** ☐ **NO**	

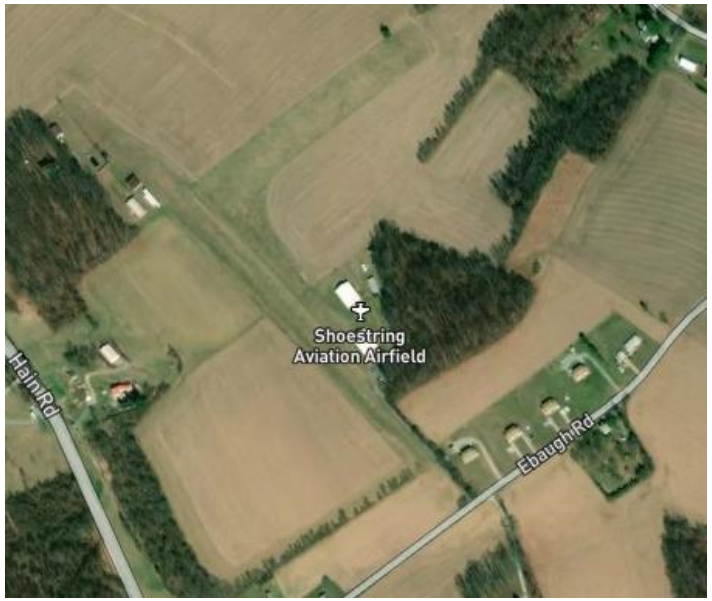
NOTE: The Flight Instructor will ensure the airman possesses the knowledge, ability to manage risks, and skills consistent in the performance of flight maneuvers specifically listed in the Areas of Operation for Takeoffs, Landings and Go-Arounds; Emergency Operations, and Night Operations (as applicable) 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			V. PERFORMANCE AND GROUND REFERENCE MANEUVERS		
II. PREFLIGHT PROCEDURES			VI. NAVIGATION		
III. **AIRPORT AND SEAPLANE BASE OPERATIONS**			VII. SLOW FLIGHT AND STALLS		
1. COMMUNICATIONS, LIGHT SIGNALS, AND RUNWAY LIGHTING SYSTEMS			VIII. BASIC INSTRUMENT MANEUVERS		
2. TRAFFIC PATTERNS					
			IX. EMERGENCY OPERATIONS		
IV. TAKEOFFS, LANDINGS, AND GO-AROUNDS			**1. EMERGENCY DESCENT**		
1. NORMAL TAKEOFF AND CLIMB			**2. EMERGENCY APPROACH AND LANDING (SIMULATED)**		
2. NORMAL APPROACH AND LANDING			**3. SYSTEMS AND EQUIPMENT MALFUNCTIONS**		
3. SOFT-FIELD TAKEOFF AND CLIMB					
4. SOFT-FIELD APPROACH AND LANDING			X. MULTIENGINE OPERATIONS		
5. SHORT-FIELD TAKEOFF AND MAXIMUM PERFORMANCE CLIMB					
6. SHORT-FIELD APPROACH AND LANDING			**XI. NIGHT OPERATIONS (AS APPLICABLE)**		
7. FORWARD SLIP TO A LANDING			**1. NIGHT PREPARATION**		
8. GO-AROUND / REJECTED LANDING					
			XII. POSTFLIGHT PROCEDURES		

COMMENTS: (Use back for additional notes)

Expand your horizons



Proficiency Training Works

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

Earning any WINGS phase qualifies for a Flight Review!

Proficiency and Peace of Mind

- **Fly regularly with your CFI**
- **“Revert to training”…only works if…?**
- **Practice, practice…**
  - Get in your head
  - …and keep it there…
- **Document in *WINGS***

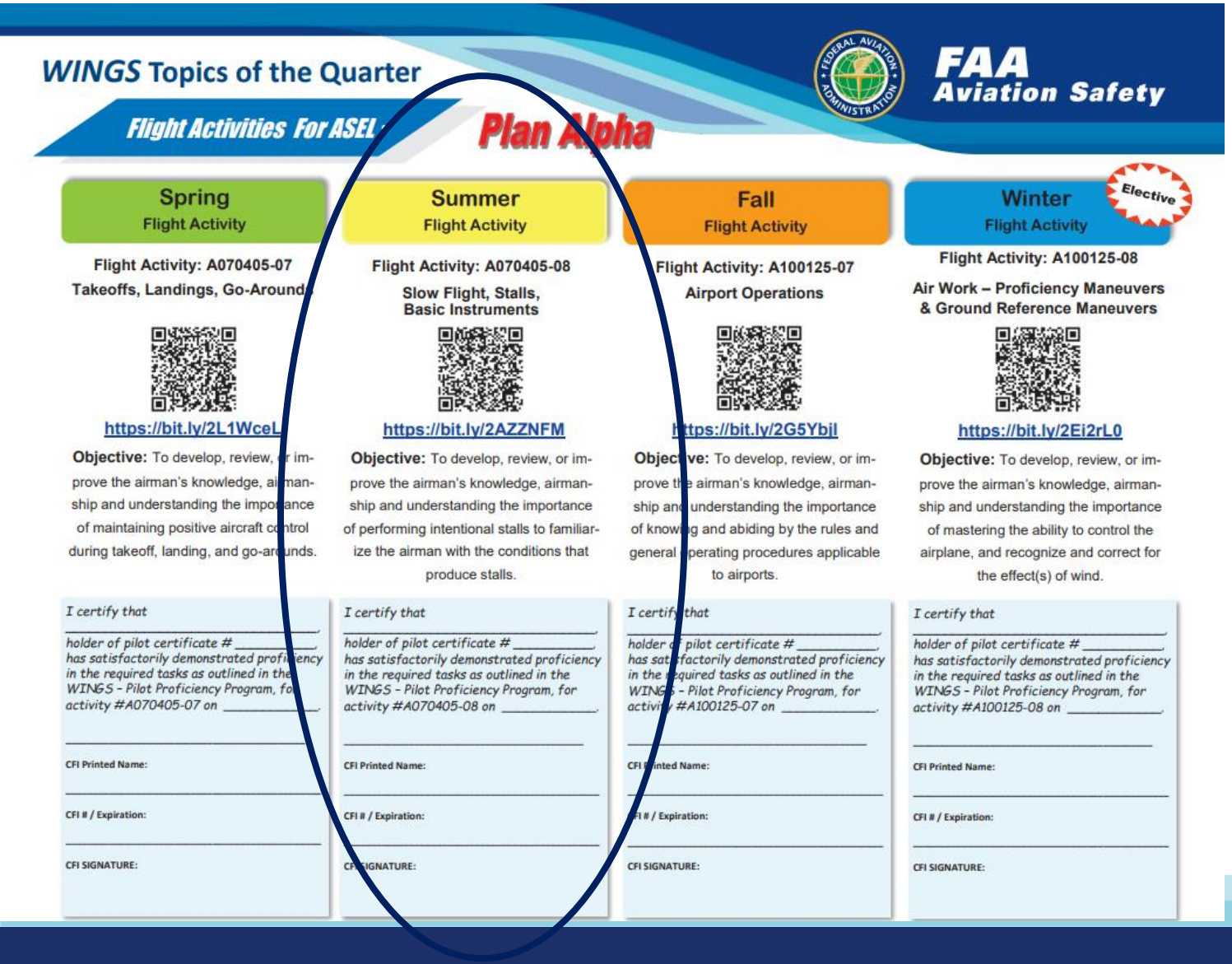
WINGS Topic of the Quarter

- **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



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

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:

Federal Aviation Administration

Activities, Courses, Seminars &

Activities | Courses | Seminars & Webinars | Topic

Accredited Activity Infor

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, particul
Aviation fatal accidents. This and other ***WING***
airmanship, proficiency, flight discipline and ri

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, ar
airplane feels and looks. It is important to
develop proficiency in stall recognition and recovery

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

COMMENTS: (Use back for additional notes)

Need help with *WINGS*?

Talk with your local *WINGSPro*

•Homework

- **Research and understand density altitude**
  - https://www.aopa.org/training-and-safety/air-safety-institute/safety-publications/density-altitude
  - https://www.youtube.com/watch?v=5yFIRHvoy4k
- **Do some performance examples**
  - **TO and LDG distances**
  - **Cruise performance**
- **Practice pattern precision**
  - **Short field TO and LND**

Practice until you don't get them wrong!

References

- **FAASafety.gov**
  - Information and enrollment for ***WINGS*** Pilot Proficiency Program
- **FAA-H-8083-3B *Airplane Flying Handbook***
  - Chapter 7 – Airport Traffic Patterns
- **FAA-H-8083-25B *Pilot's Handbook of Aeronautical Knowledge***
  - Chapter 14, pp 20 – Traffic Patterns
- **AC 90-66B – Non-Towered Airport Operations**

Next Month's ToM:

The National FAA Safety Team Presents

Federal Aviation Administration

Topic of the Month – August

Pre-flight & In-flight Weather Resources

Presented to:	WAFC and Friends
By:	Stephen Bateman, CFI
Date:	August 8th, 2022

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

Thank you for attending!

You are vital members of our GA safety community!