NON-TOWERED OPERATIONS AND TRAFFIC PATTERNS

And occasional

NON-TOWERED TRAFFIC PATTERNS

By Tom Rogers, CFI, CFII, MEI

Lt Colonel USAF Retired

Retired Airline Captain

NAFI Master CFI

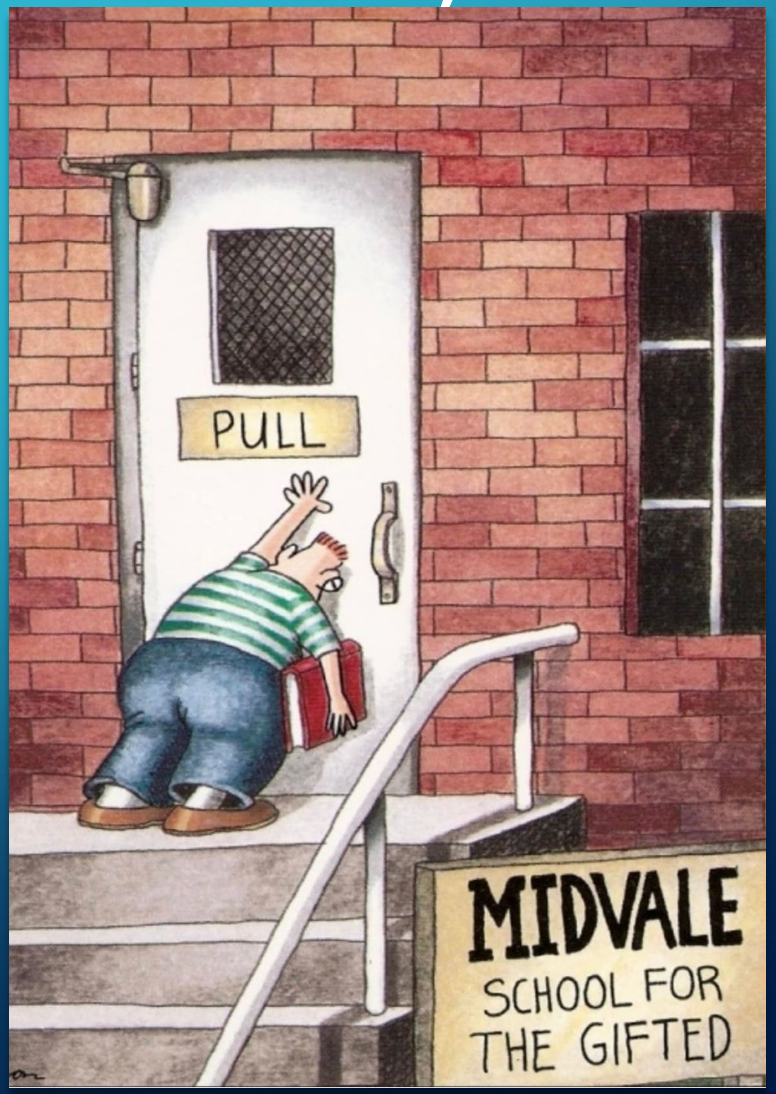
FAA Safety Team Representative FAAST

FAA Wright Brothers Master Pilot Award

OUTLINE OF SUBJECTS

- Intro with Safety Facts, Why Answers and Problem Areas
- Regulations, Rules, and Best Practices
- Traffic Pattern Defined
- Entry and Exit
- Radio Calls
- Right of Way
- Summary

WHY ARE WE HERE? THIS IS BASIC STUFF, RIGHT?



SAFETY RATES

Safety Record of U.S. Air Carriers (Part 121 Scheduled Service): 2000 to Present

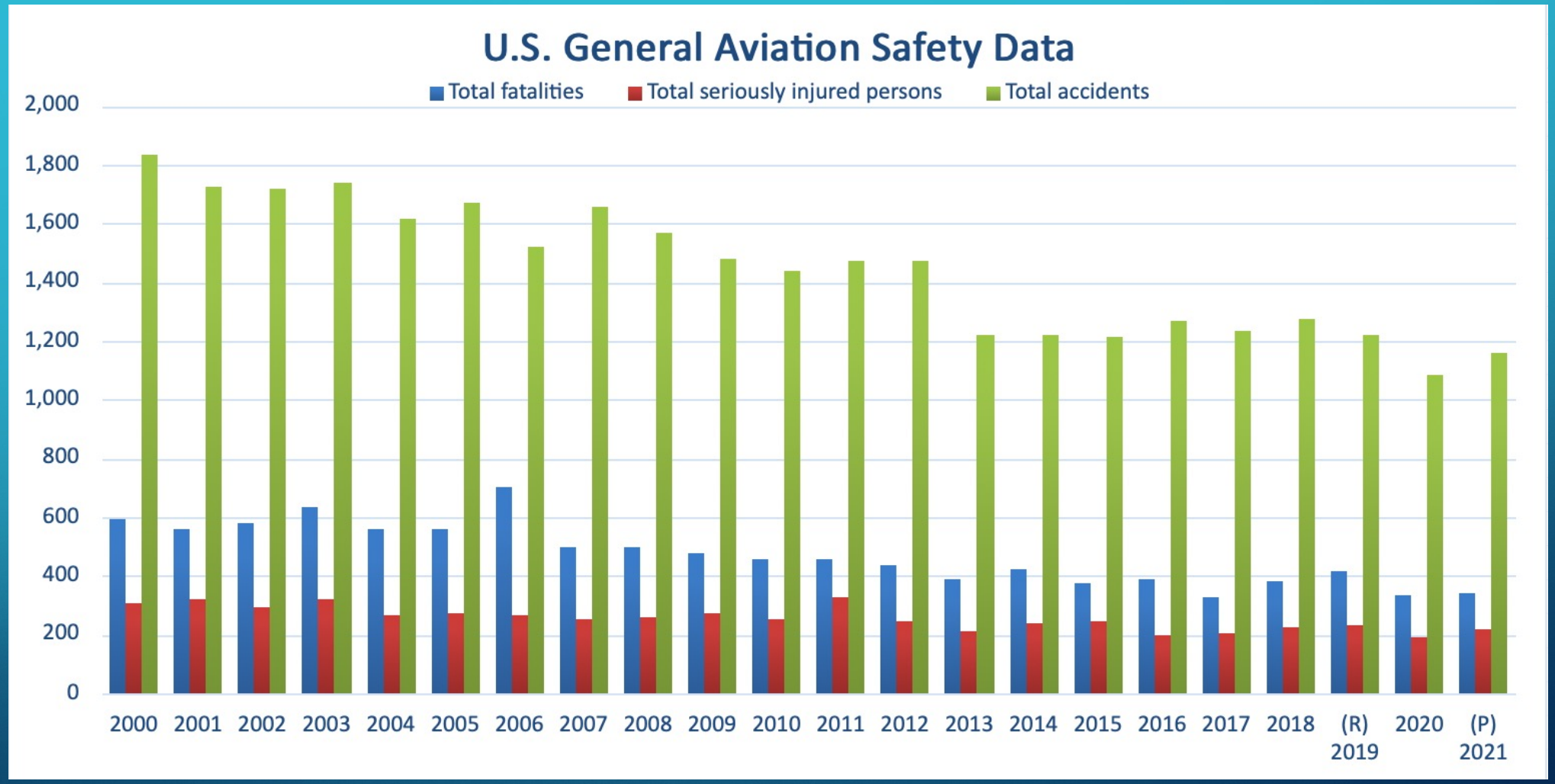
Year	Accidents: Total	Accidents: Fatal	Fatal Accidents per 100,000 Departures	Fatalities: Total	Fatalities: Onboard
2019	36	1	0.010	1	1
2020	11	0	0.000	0	0

Really great last couple years but 20-year average is about .003

Military rates

About 27 Class A mishaps have occurred on average in the past five years, the Air Force Safety Center said. That rate fell to **0.94 accidents per 100,000 flying hours** for manned aircraft in 2021, the lowest since 2014, according to AFSC data. Jan 31, 2022

Now look at General Aviation not including Part 135



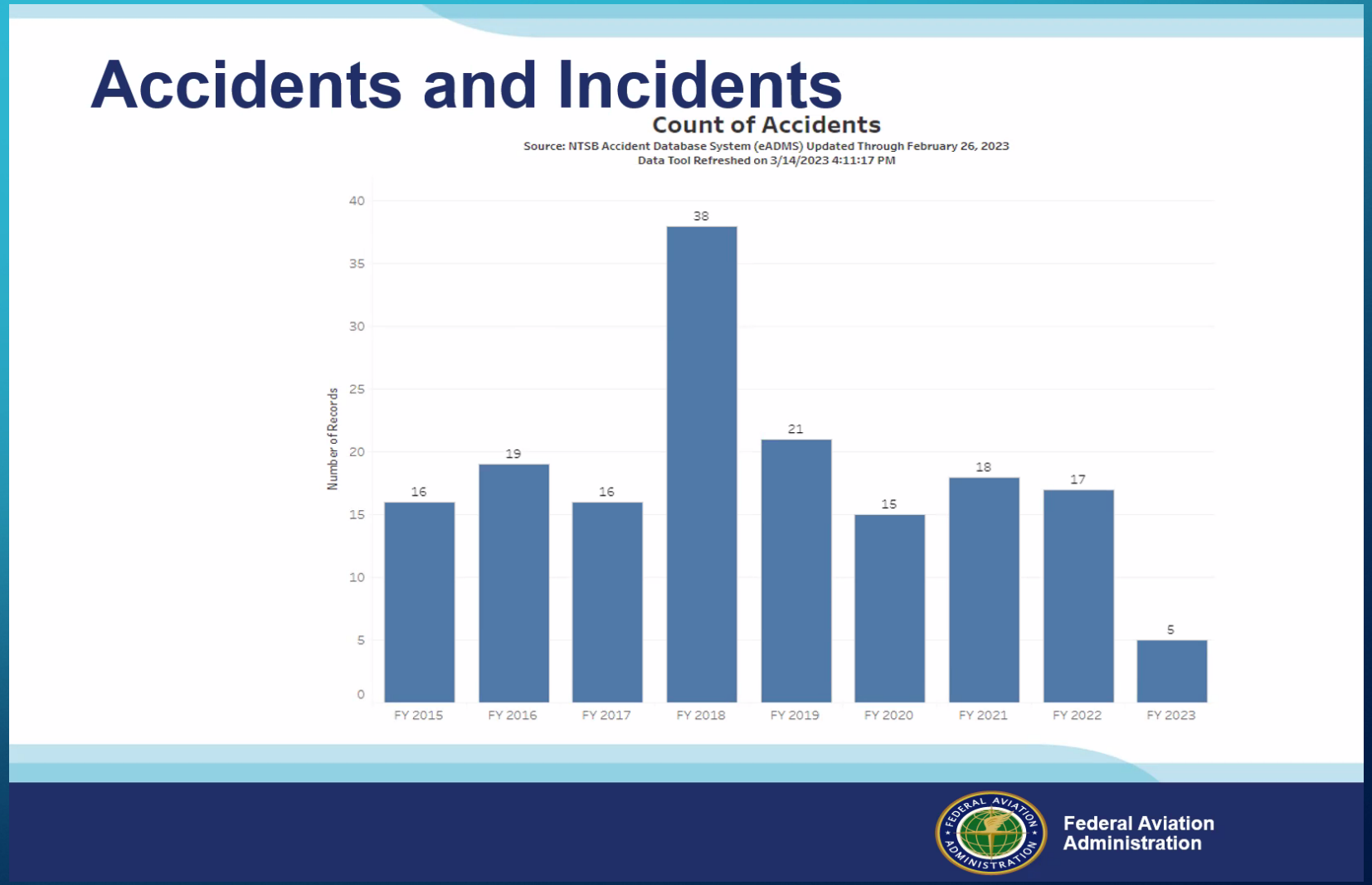
General Aviation is at 5.56 (6) per 100,000 hours, 100 per month! 17 a Month are Fatal!

NTSB DATA does not include 8 GEAR-UP Landings and 5 GROUND LOOPS/Week

MID-AIR COLLISIONS

According to the 2019 Null Report,

- **Dual Lessons account for 62% of Pattern Mid-Airs**
- **Mid-Air in Traffic patten are at 1 per month**
- **96% are at or within 5 nm of non-towered airports.**



Accident Subset: Mid-Air Collisions

Since 1978, There has been an average of 30 Midair collisions in the United States each year. These collisions resulted in an average of 75 deaths per year. There are also an average of 450 near midair collisions)NMACS) reported each year; no one can calculate the number that have gone unreported! FAASTeam Notice July 2011

AOPA
your freedom to fly

Collisions continue at a steady rate

Midair collisions have continued at a steady rate in the past 18 years, statistics show. Most ye... accidents number in the teens, but occasionally the number reaches the lower to mid-20s. There... midair collisions in 2000, and 11 of those involved fatalities.

The definition of the collision problem has expanded recently to include runway incursions, and has led to new safety efforts. ASF has placed a runway-incursion training program on AOPA Online. Among the foundation's publications is the Collision Avoidance: Strategies and Tactics Safety Advisor that can be viewed or ordered on ASF's Web site. Many of the tips in this article are taken from that ASF collision avoidance pamphlet.

Approach and landing a dangerous time

ASF data indicate that 45 percent of collisions occur in the traffic pattern, and of these, two-thirds occur during approach and landing when aircraft are on final or over the runway. Confusion about the location of aircraft and their landing order often begins earlier in the pattern. As you might expect, operations at nontowered airports offer the greatest risk. You can download ASF's Operations at Nontowered Airports Safety Advisor (PDF, 741KB).

2021 Colorado mid-air collision

Air crash

The 2021 Centennial Airport mid-air collision occurred on approach to Centennial Airport near Denver, Colorado, on 12 May 2021. Wikipedia

March 7, 2023
4 dead after two planes collide in Winter Haven, officials say

ople are dead after two planes collided in Winter Haven on Tuesday afternoon. According to the Polk County ; Office, a search and rescue mission has ended, because no other victims were aboard the two planes. In a news conference, the Chief of Staff for the Polk County Sheriff's Office, Steve Lester, said dispatchers received a 911 call around 2 p.m. informing first responders that two planes had collided in the air over Lake Hartridge in Winter Haven.

Aviation

NTSB issues safety recommendations after 2020 midair collision near Soldotna

By Mark Thiessen, Associated Press
Updated: March 5, 2022Published: March 5, 2022

Between 2005-2020, there have been 14 midair collisions in Alaska, with 12 of them in uncontrolled airspace, the report said. The collisions resulted in 35 deaths and 15 serious injuries.

UNDERSTANDING THE PROBLEM

- Most Mid-Air collisions occur on clear days, At non-towered fields, below 1000 AGL.
- Downwind conflicts are created by pilots trying to **cut short entries.**
  - Downwind/Entry Mid-Air 16%
- Most pattern mid-air collisions occur on final,

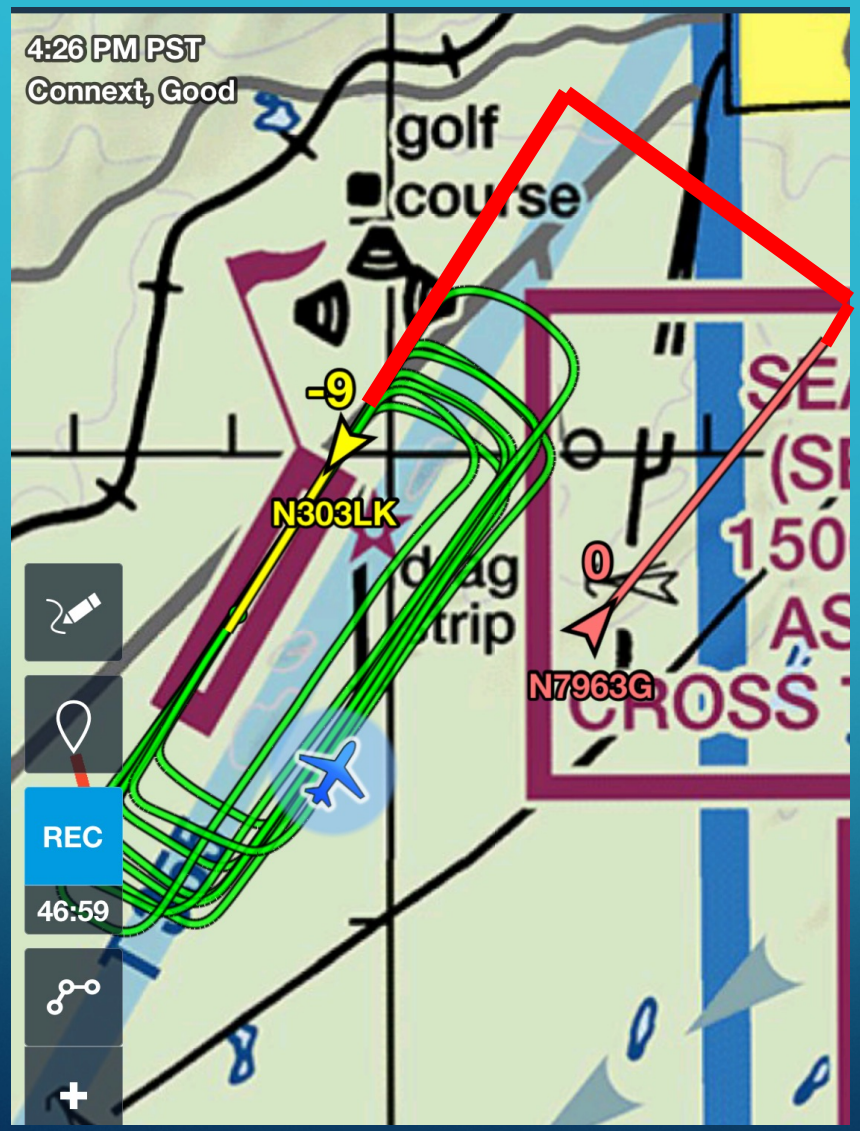
  68%….Due to

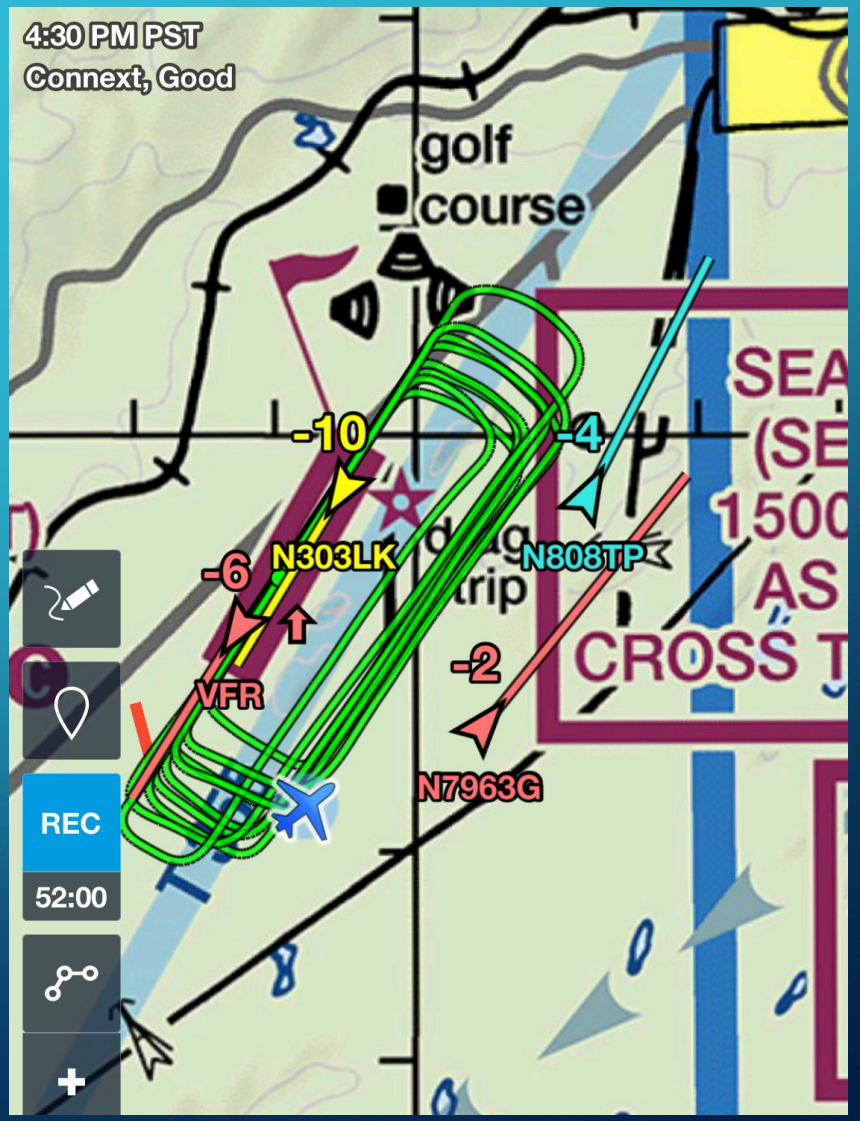
  extended downwind or wide patterns.

Why Not to Extend Patterns

- Engine Failure.
- **Dragging in Final with power.**
- MIDAIR COLLISIONS!!!

WIDE PATTERNS LEADING TO EXTENDED FINALS





- Paul Bertarelli from AVweb YouTube Channel: @AVweb

180 Degree
Descending turn
to downwind

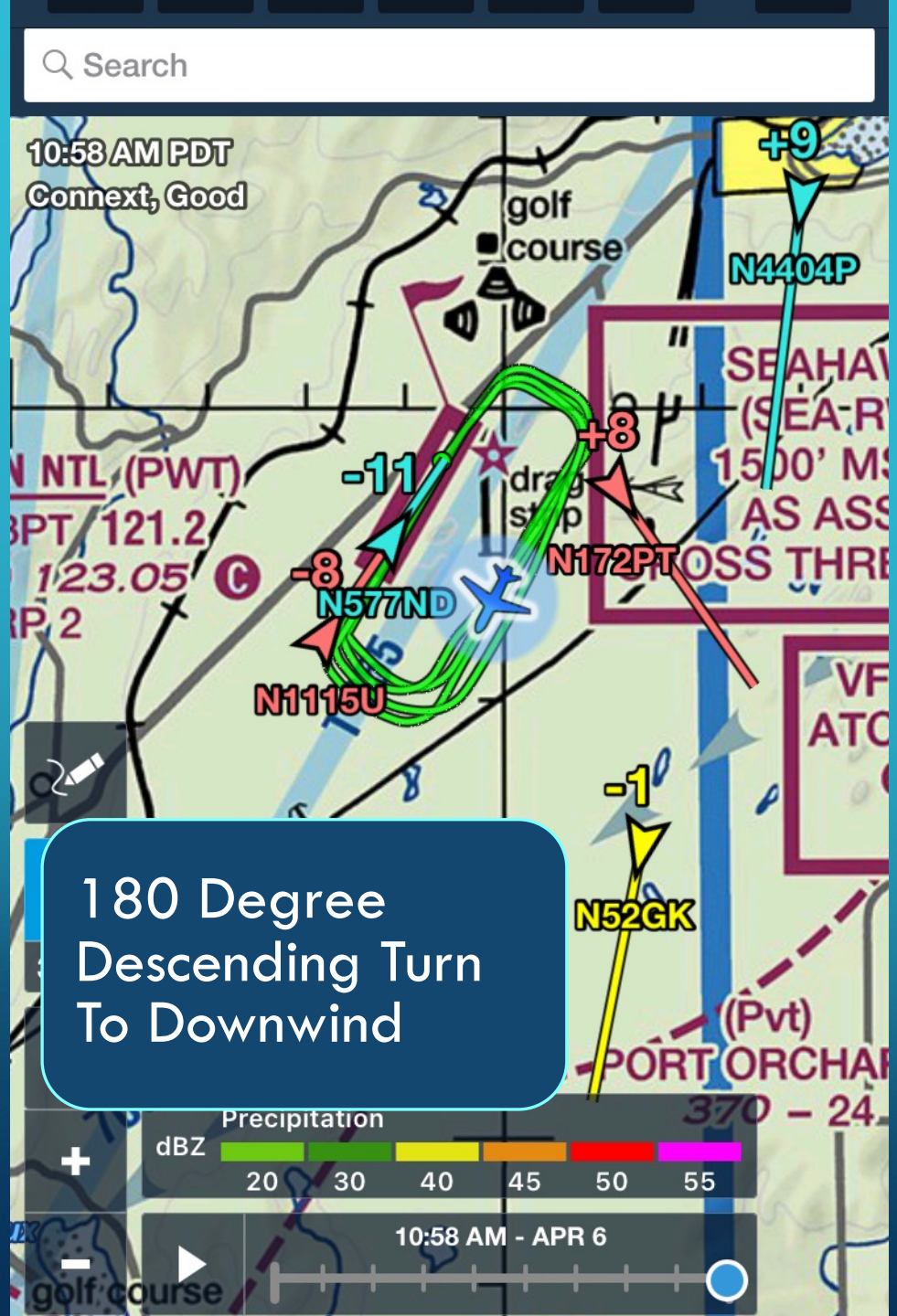
Direct Entry

Wrong Side &
Blow Through

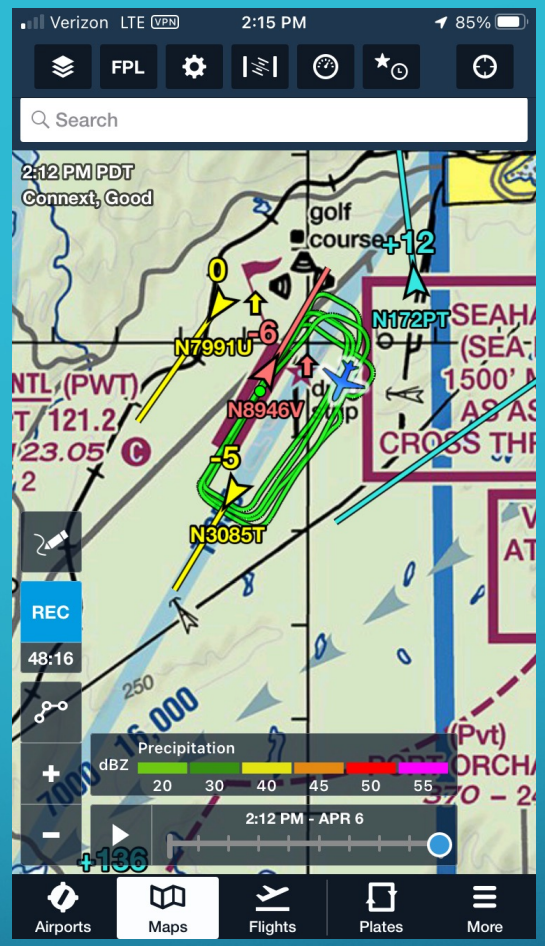
135 Degree “45” entry

Descending through
Downwind for
“teardrop”

Examples of other strange behavior in non-towered traffic patterns



180 Degree Descending Turn To Downwind



Wrong Side & Blow Through

135 Degree “45” entry

Descending through Downwind for “teardrop”

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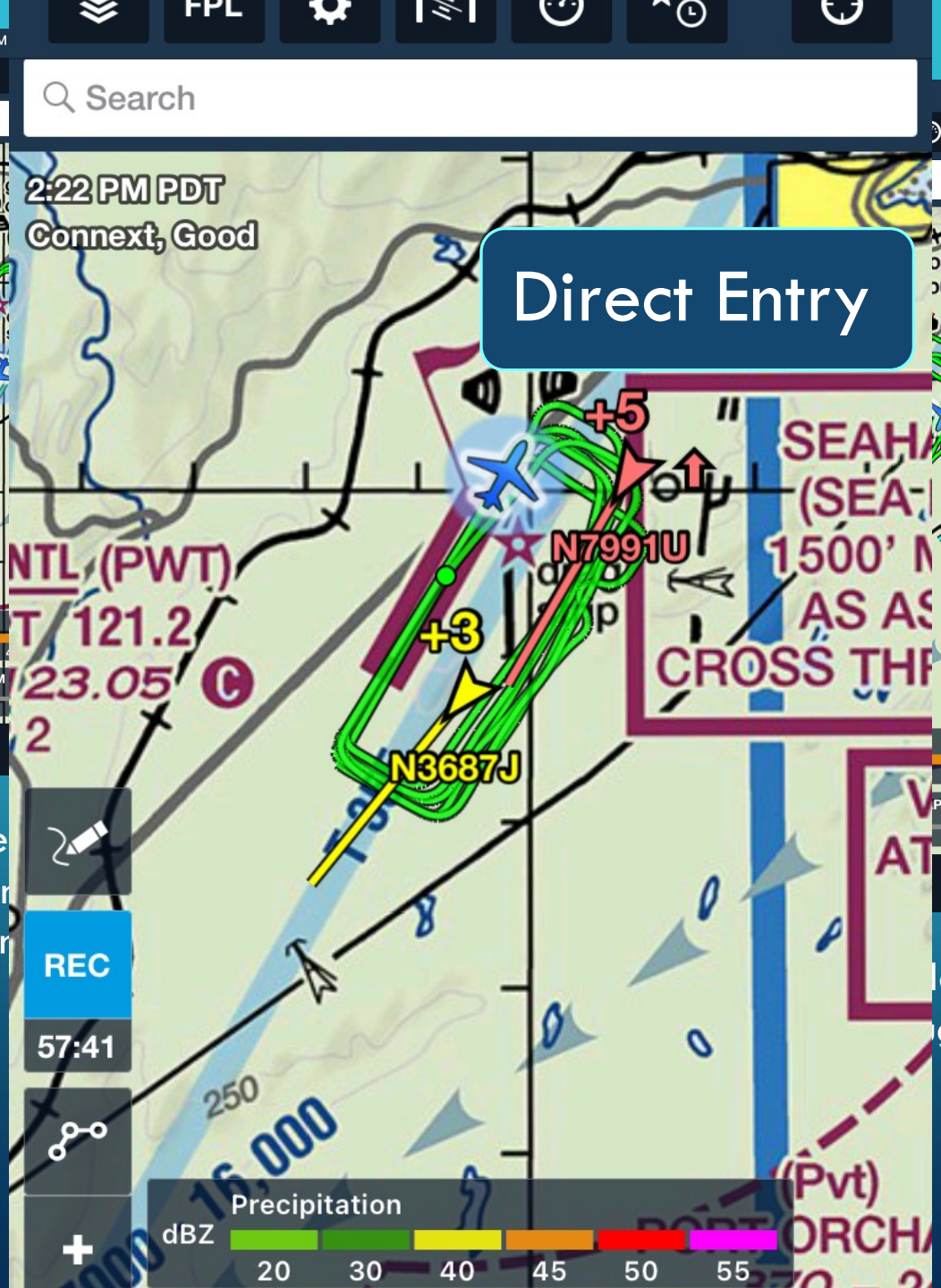

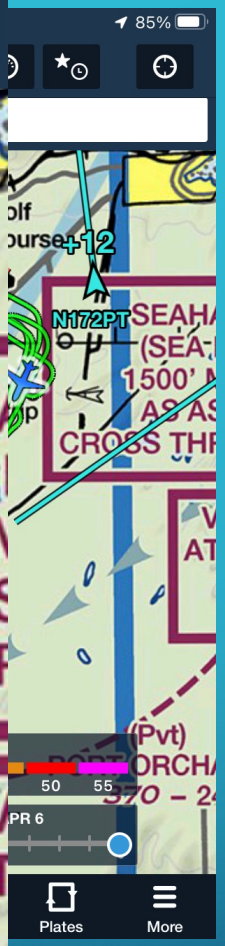

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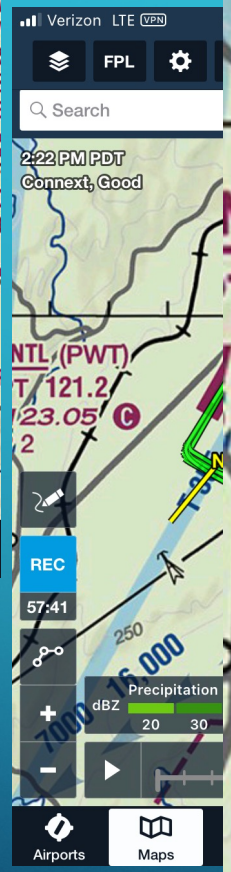
135 Degree “45” entry

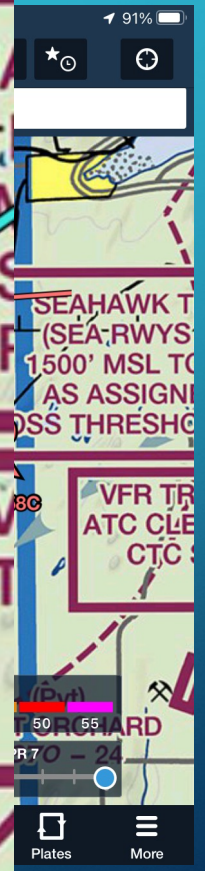
Descending through
Downwind for
“teardrop”

180 Degree
Descending turn
to downwind



Direct

Wrong Side &
Blow Through

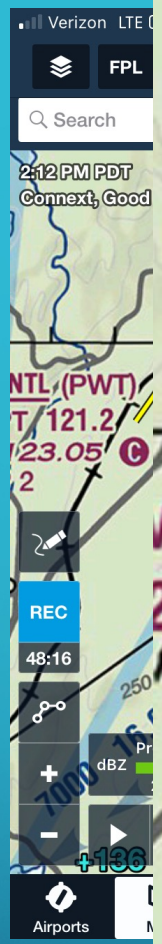


” entry

Descending through
Downwind for
“teardrop”

180 Degree
Descending turn
to downwind

Direct Entry



135 Degree “45” entry
or Turn Wrong way to
Abort

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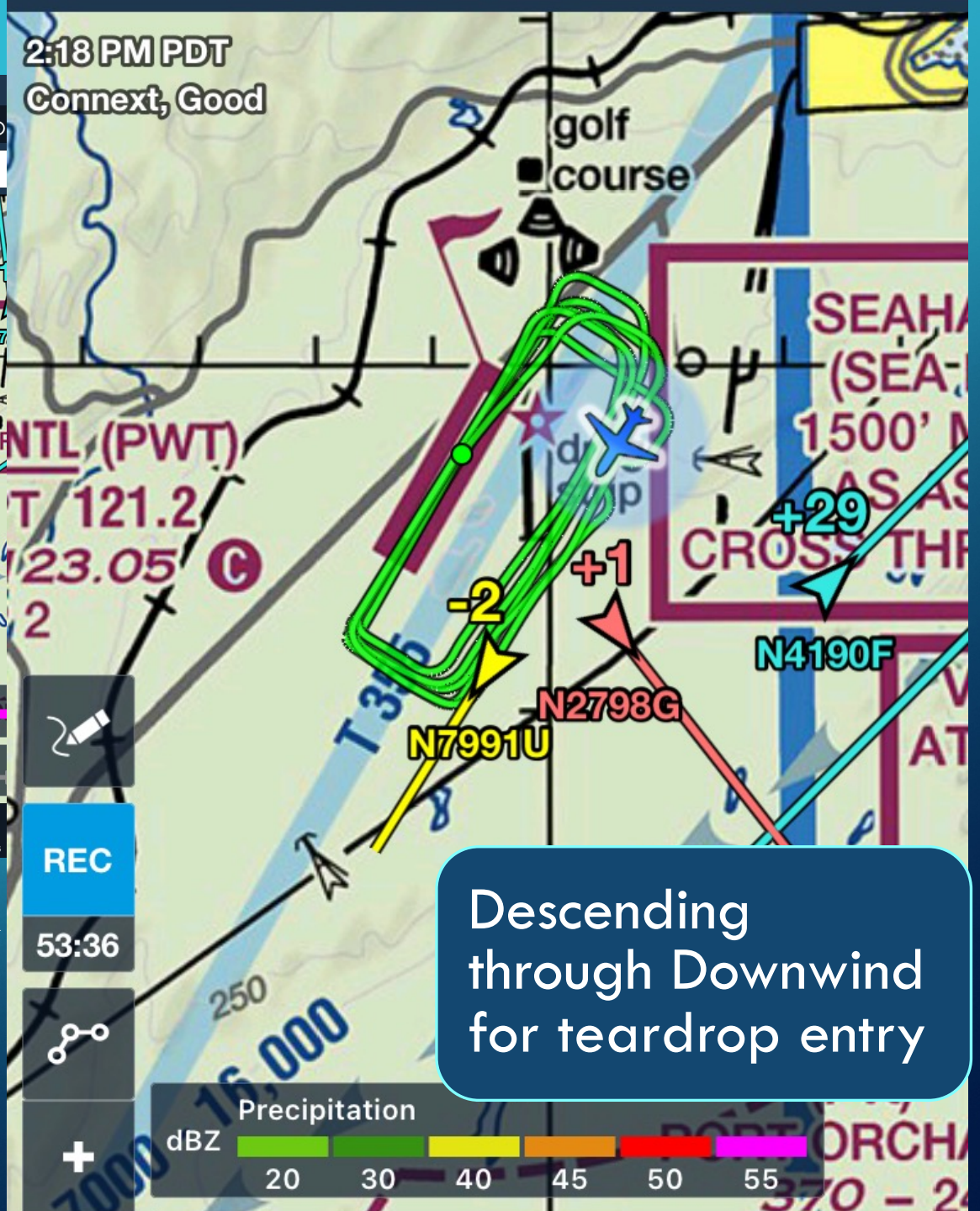
rop”

180 Degree Descending turn to downwind

Direct Entry

Wrong Side & Blow Through



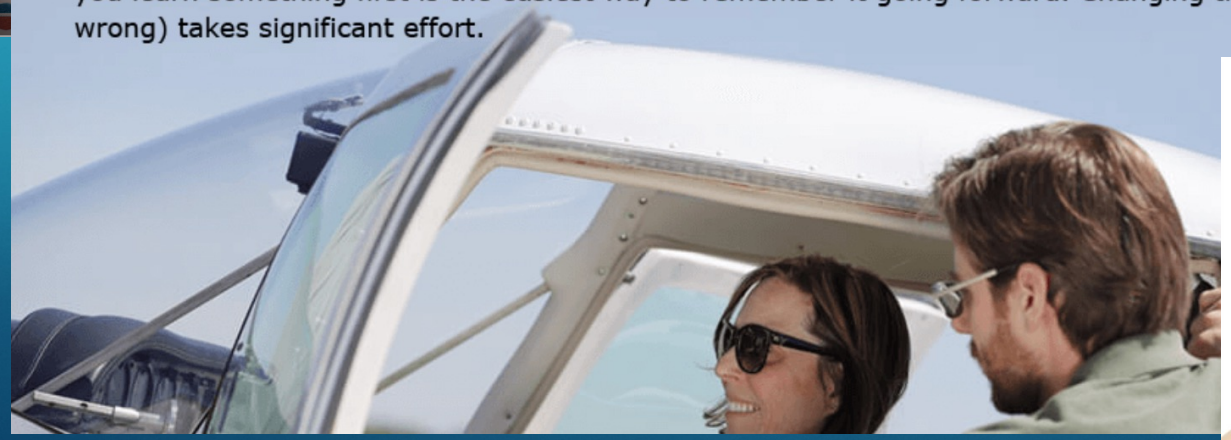
Descending through Downwind for teardrop entry

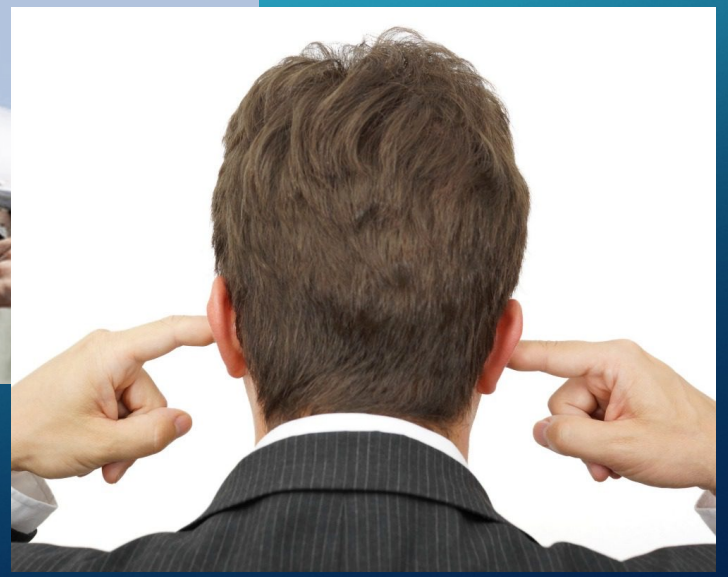
The way CFIs Teach Regulations and FAA Guidance leads directly to the idea that if it isn't a regulation "I don't have to do it".

The Law of Primacy

The Law of Primacy holds that the first exposure to knowledge often creates a strong, almost unshakable impression.

This is critical and is why an instructor must teach from a position of confidence and knowledge. How you learn something first is the easiest way to remember it going forward. Changing that (if it was wrong) takes significant effort.





= **THE ACCIDENT RATE**

LAWS, REGULATIONS, RULES, AND BEST PRACTICES

91.126 Operating on or in the vicinity of an airport in Class G airspace.

91.127 Operating on or in the vicinity of an airport in Class E airspace.

91.111 Operating near other aircraft.

91.113 Right-of-way rules: Except water operations.

Code of Federal Regulations

A point in time eCFR system

Title 14

Displaying title 14, up to date as of 1/05/2023. Title 14 was last amended 12/27/2022. view historical versions

There have been changes in the last two weeks to Title 14. view change

Go to CFR Reference ex: 1 CFR 1.1 Go

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ECFR CONTENT

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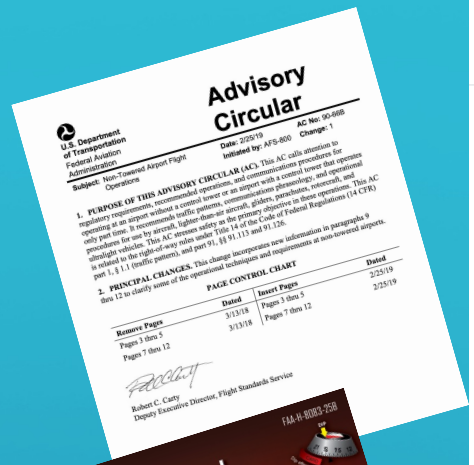
SIMPLY SAID the regulations are:

1. Make left turns unless published for right.
2. Helicopters must avoid fixed wing pattern.
3. Aircraft in traffic pattern Have ROW over aircraft not in the traffic pattern.
4. Don’t overtake aircraft in pattern or fly close.
5. BE NICE! Don’t Cut Off aircraft in front or take advantage of “Lower”, or force aircraft off runway that just landed.


Advisory Circular

U.S. Department of Transportation
Federal Aviation Administration

Subject: Non-Towered Airport Flight Operations

Date: 2/25/19 AC No: 90-66B
Initiated by: AFS-800 Change: 1

1. PURPOSE OF THIS ADVISORY CIRCULAR (AC). This AC calls attention to regulatory requirements, recommended operations, and communications procedures for operating at an airport without a control tower or an airport with a control tower that operates only part time. It recommends traffic patterns, communications phraseology, and operational procedures for use by aircraft, lighter-than-air aircraft, gliders, parachutes, rotorcraft, and powered ultralight vehicles. This AC stresses safety as the primary objective in these operations. This AC is related to the right-of-way rules under Title 14 of the Code of Federal Regulations (14 CFR) part 1, § 1.1 (traffic pattern), and part 91, §§ 91.113 and 91.126.

2. PRINCIPAL CHANGES. This change incorporates new information in paragraphs 9 thru 12 to clarify some of the operational techniques and requirements at non-towered airports.

PAGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated
Pages 3 thru 5	3/13/18	Pages 3 thru 5	2/25/19
Pages 7 thru 12	3/13/18	Pages 7 thru 12	2/25/19

Robert C. Carty
Deputy Executive Director, Flight Standards Service

Federal Aviation Administration

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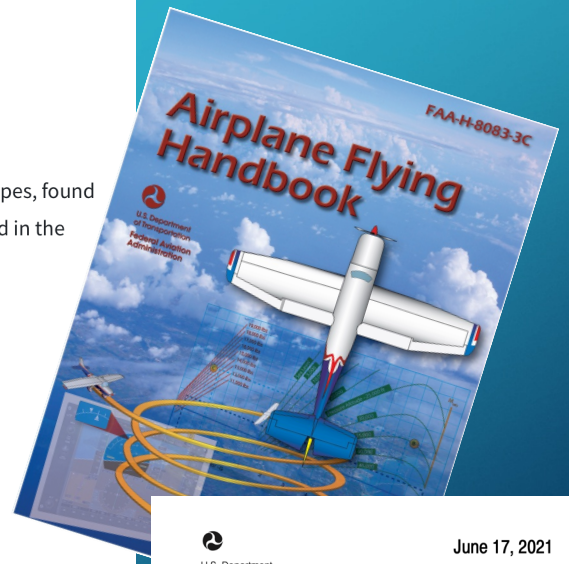
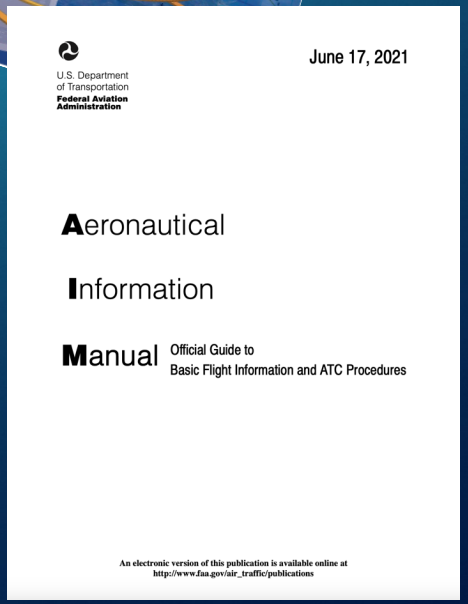



U.S. Department of Transportation
Federal Aviation Administration

June 17, 2021

Aeronautical

Information

Manual Official Guide to Basic Flight Information and ATC Procedures

An electronic version of this publication is available online at http://www.faa.gov/air_traffic/publications

Referred to as best practices, policies, and guidance, they are NOT OPTIONAL

1. During Investigation of your actions, if not following these policies, you'll be "wrong".
2. Insurance Companies will not back you up if not using Best Practice.
3. If you do not follow guidance during a check ride for a certificate or rating, you will not pass.

ACS explicitly requires compliance with non-regulatory procedures during a Practical Test:

PRIVATE PILOT ACS (FAA-S-ACS-6B)

III. Airport and Seaplane Base Operations

B. Traffic Patterns

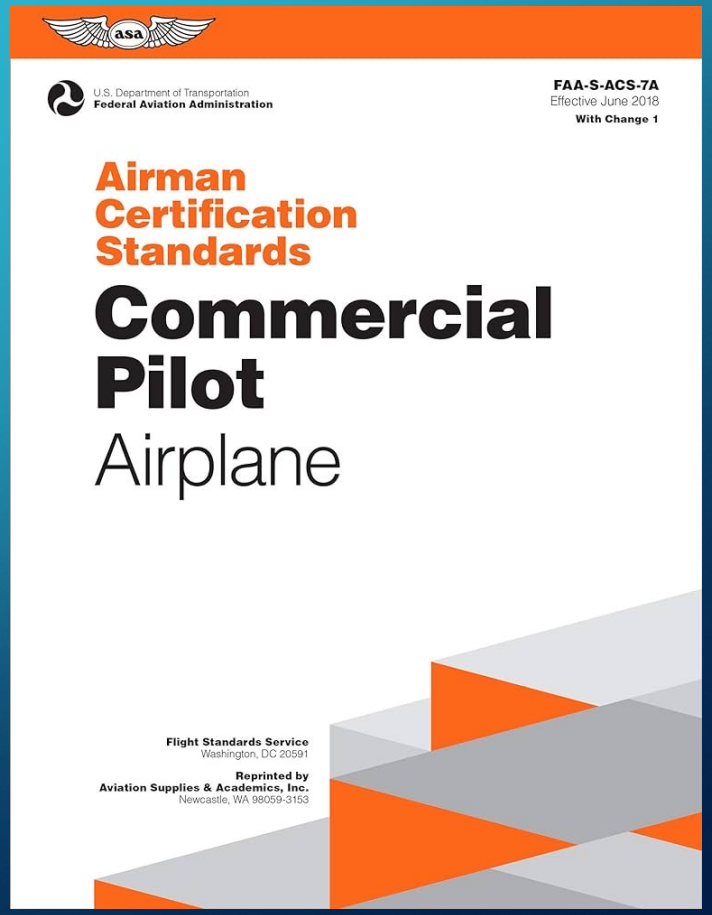
PA.III.B.S2 *Comply with recommended traffic pattern procedures*.

COMMERCIAL PILOT ACS (FAA-S-ACS-7A)

III. Airport and Seaplane Base Operations

B. Traffic Patterns

CA.III.B.S2 *Comply with recommended traffic pattern procedures*.



Why do we CFIs teach a distinction between Regulations and Guidance?

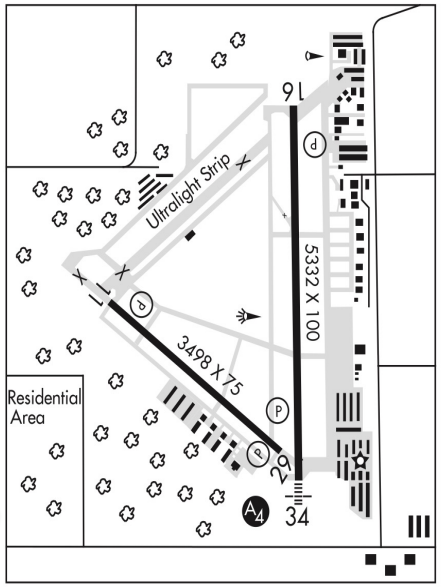
YET MORE GUIDANCE

Captain Tom is the Chart Supplement regulatory?

YES

Reviewed and published by the FAA just like a Sectional Chart. It is as mandatory as other information on a sectional Ref 14CFR 73

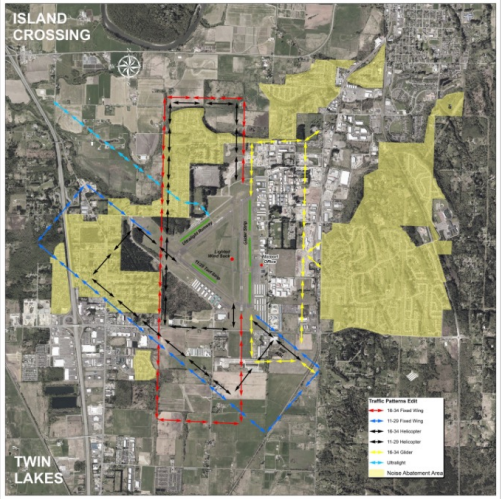
ARLINGTON MUNI (AWO)(KAWO) 3 SW UTC–8(–7DT) N48°09.65′ W122°09.54′ — **SEATTLE**
142 B TPA—See Remarks NOTAM FILE AWO — **H–1B, L–1E**
RWY 16–34: H5332X100 (ASPH) S–114, D–150, 2S–175, 2D–270 — **IAP**
MIRL
RWY 16: REIL. PAPI(P2L)—GA 3.0° TCH 40′. Tree. Rgt tfc.
RWY 34: MALS. PAPI(P2L)—GA 3.0° TCH 36′.
RWY 11–29: H3498X75 (ASPH) S–32, D–34, 2D–59
RWY 11: REIL. PAPI(P2L)—GA 3.5° TCH 42′. Rgt tfc.
RWY 29: REIL. PAPI(P2L)—GA 4.0° TCH 40′. Tree.
SERVICE: S4 **FUEL** 100LL, JET A **LGT** REIL Rwy 11 and 29 opr SS–SR; PAPI Rwy 11, 16, 29 and 34 opr consly. ACTVT MALS Rwy 34; REILS Rwy 16; Rwy 16–34 edge lights; twy lgts—CTAF.
AIRPORT REMARKS: Attended Mon–Fri 1600–0100Z‡. Fuel, phone 360–435–5700 for after hrs svc. 100LL fuel avbl 24 hr credit card svc. Alternate phone number for arpt: 360–403–3470. Winter wx ops and reporting Monday–Fri 1600–0100Z‡. Wildlife on and invof arpt. Rwy 34 calm wind rwy. Glider ops at arpt daily. Ultralight and powered parachute ops daily west of Rwy 16–34. Occasional hot air balloon activity. TPA—1200(1058). TPA for ultralights 542(400), helicopters 642(500). For additional details and rules on local procedures, visit http://www.arlingtonwa.gov/trafficpatterns.
AIRPORT MANAGER: 360-403-3474
WEATHER DATA SOURCES: AWOS–3PT 135.625 (360) 435–8045.
COMMUNICATIONS: CTAF 122.725
Ⓡ **SEATTLE APP/DEP CON** 128.5
CLNC DEL 121.725
CLEARANCE DELIVERY PHONE: For CD when ATCT is clsd ctc Seattle Apch at 206-214-4722.
RADIO AIDS TO NAVIGATION: NOTAM FILE PAE.
PAINE (L) (L) VORW/DME 110.6 PAE Chan 43 N47°55.19′ W122°16.67′ 358° 15.2 NM to fld. 669/20E.
WATON NDB (LOMW) 382 AW N48°04.57′ W122°09.23′ 342° 5.1 NM to fld. 65/16E. NOTAM FILE AWO.
LOC 111.5 I–AWO Rwy 34. LOM WATON NDB. LOC unmonitored cont.



Traffic Patterns

Disclaimer: Reference all flight operations to the current FAR/AIM.

- Avoid overflight of noise sensitive areas.
- Practice IFR approaches during visual meteorological conditions.
- Follow published missed approach procedures.
- Fly airport traffic pattern rectangle as outlined in the AIM and Arlington air traffic pattern maps.



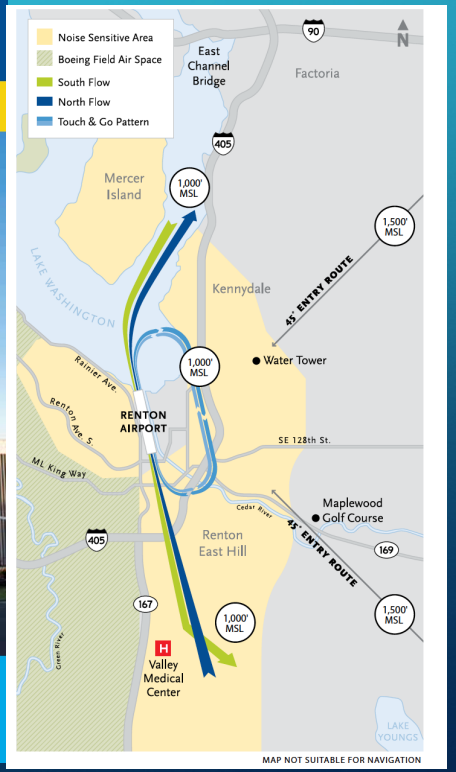
Gliders

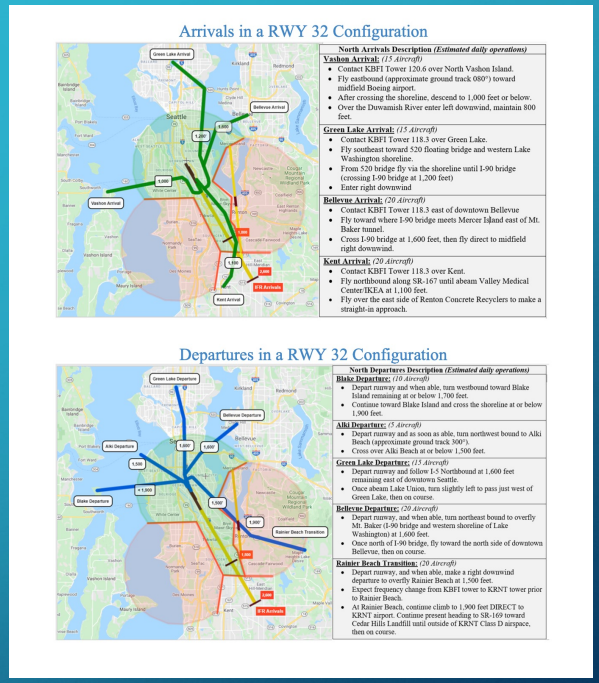
- Traffic pattern east of airport.
- Glider and tow plane designated turf runways are located parallel and adjacent to eastern taxiway for Runway 16-34 (taxiway Alpha).
- Tow planes and gliders allowed midfield takeoffs on turf glider runway.
- After glider release, tow planes should use standard traffic pattern entry.
- Tow planes land on designated asphalt or turf runways.

Ultralights

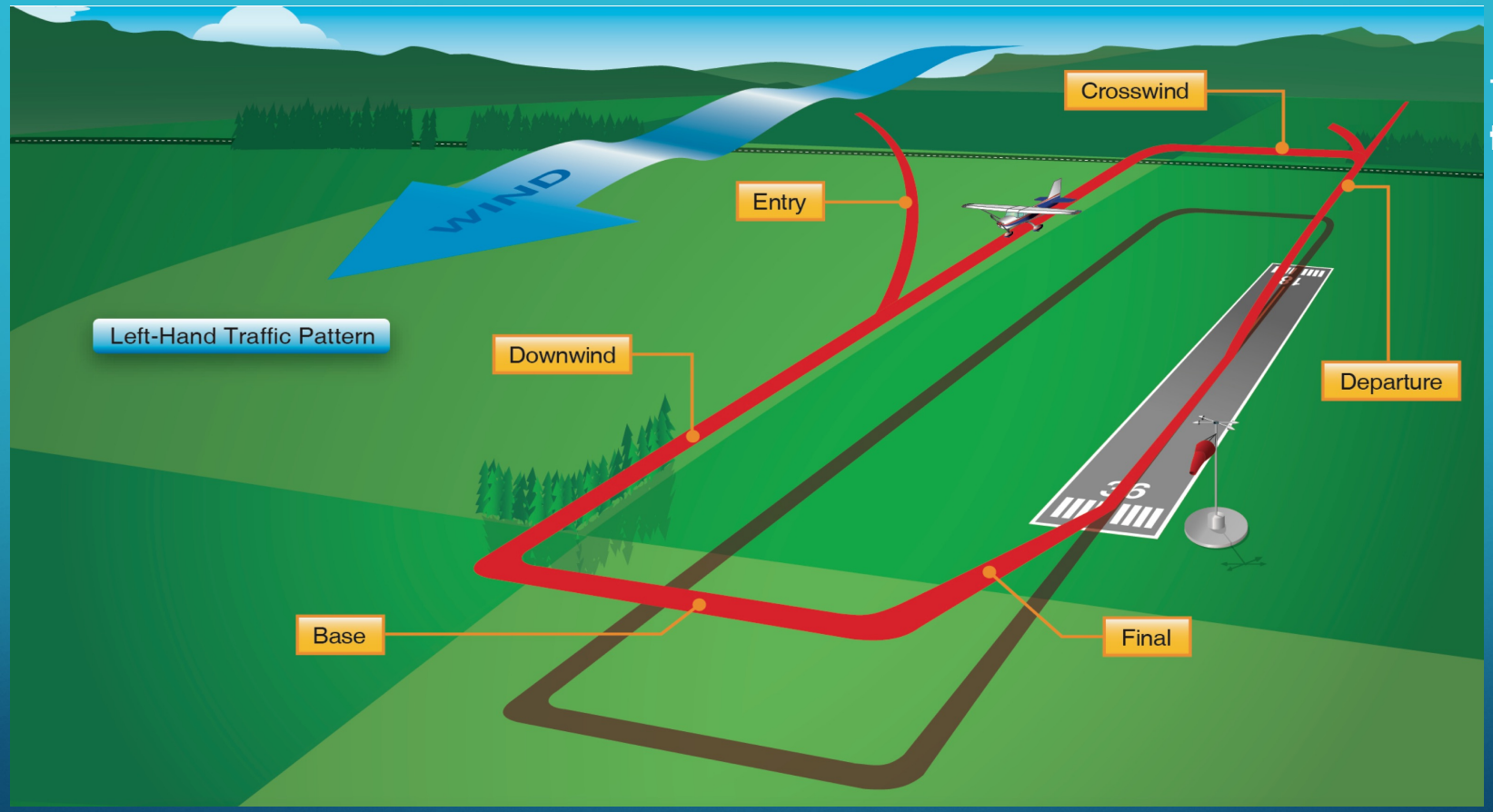
- Enter and exit traffic pattern as shown on map at or below 400 feet AGL (542 feet MSL).

Chart Supplement Graphic Depictions





TRAFFIC PATTERN DEFINED



Best Practices from PHAK and AFHB
Downwind leg is 1mile to ½ mile from landing runway.

PART 1 - DEFINITIONS AND ABBREVIATIONS

Traffic pattern means the traffic flow that is **prescribed for aircraft landing at, taxiing on, or taking off from, an airport.**

Preamble to AFHB

" Airport traffic patterns are developed to ensure that air traffic is flown into and out of an airport safely. Each airport traffic pattern is established based on the local conditions, including the direction and placement of the pattern, the altitude at which it is to be flown, and the procedures for entering and exiting the pattern…"

TRAFFIC PATTERN DEFINED

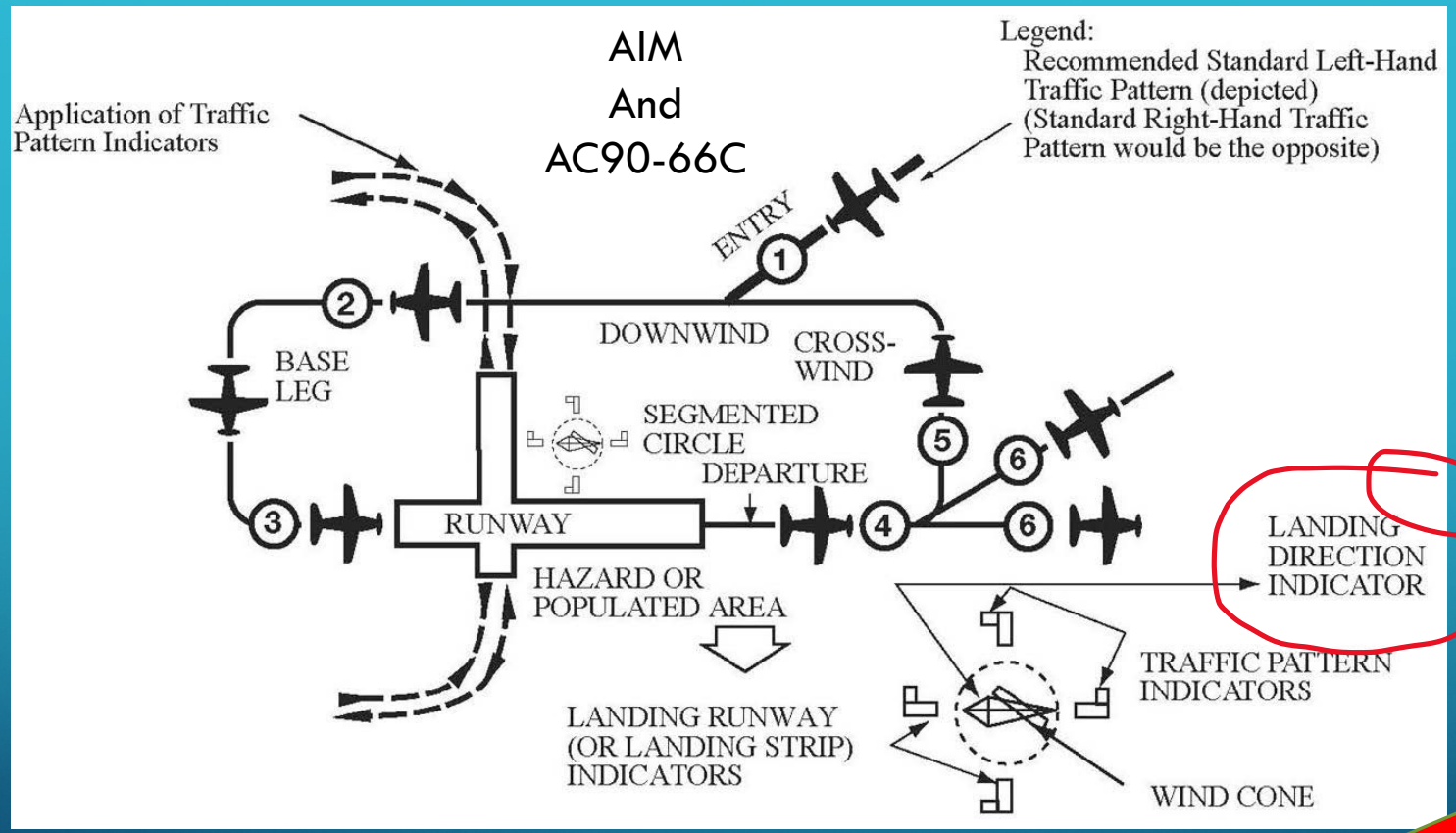
What is NOT Included in a "Traffic Pattern".

- Straight In Approaches
  - Per Interpretations, Until After Touch and Go or low Appr. with intent to enter pattern
- Instrument Approaches
  - Per Interpretations, Until After Touch and Go or low Appr. with intent to enter pattern
- Overhead Military Style Approaches Sometimes referred to as "The break"
  - Until established on Downwind.

We haven't fully developed this with references but will do so in ROW section ahead.

ENTRY AND EXIT

AIM
And
AC90-66C



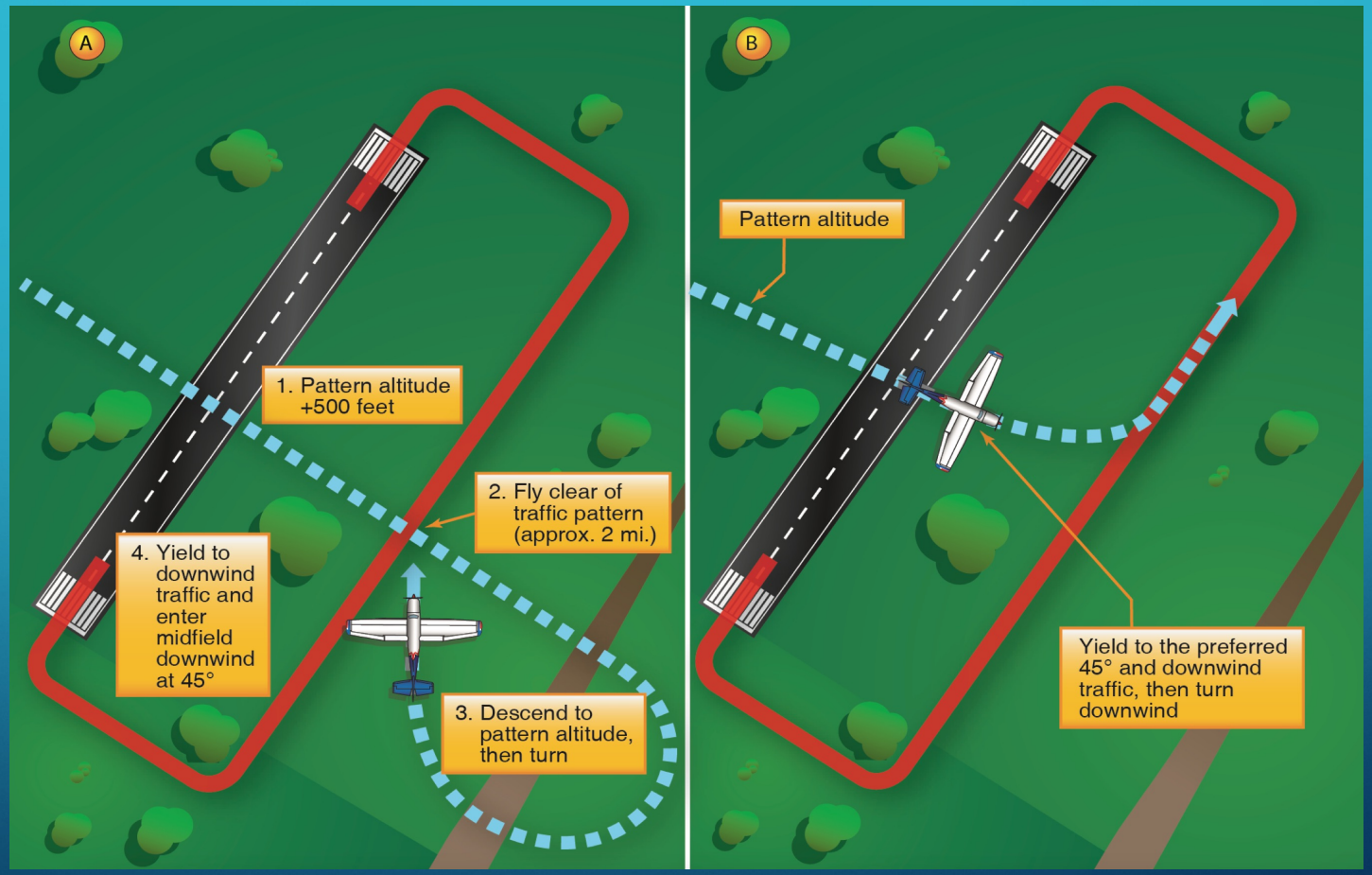
From Notes below:
Enter in level flight,
At TPA,
on a 45 degree to mid-field downwind.
WELL CLEAR of Pattern Traffic

Remember for later

NOTES tell it all

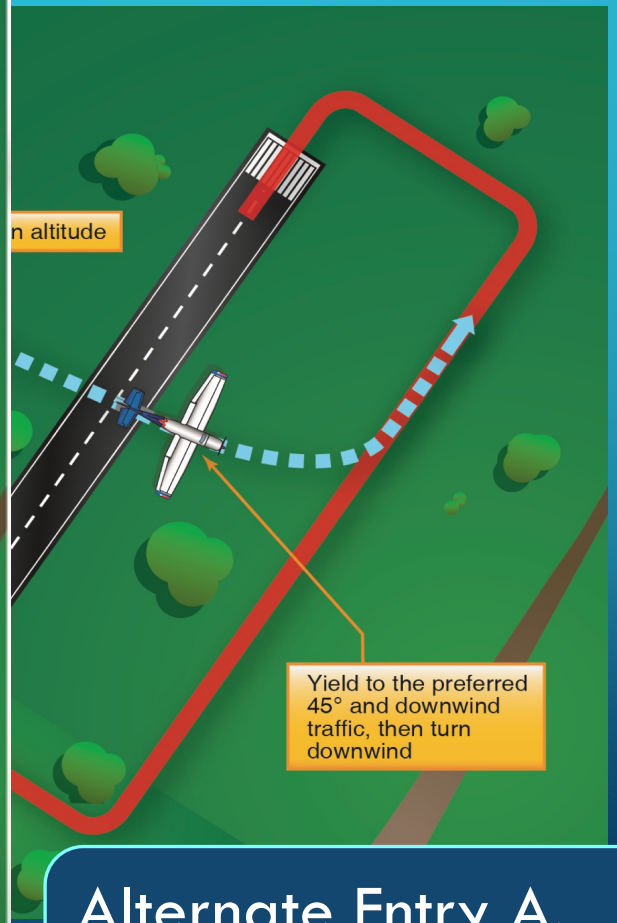
1. Enter pattern in level flight, abeam the midpoint of the runway, at pattern altitude.
2. Maintain pattern altitude until abeam approach end of the landing runway on downwind leg.
3. Complete turn to final at least $^{1}/_{4}$ mile from the runway.
4. Continue straight ahead until beyond departure end of runway.
5. If remaining in the traffic pattern, commence turn to crosswind leg beyond the departure end of the runway within 300 feet of pattern altitude.
6. If departing the traffic pattern, continue straight out, or exit with a 45 degree turn (to the left when in a left-hand traffic pattern; to the right when in a right-hand traffic pattern) beyond the departure end of the runway, after reaching pattern altitude.

ENTRY AND EXIT



"An alternate method is to enter on a midfield crosswind at pattern altitude, carefully scan for traffic, announce your intentions and then turned down downwind. *[Figure 7-4B]* **This technique should not be used if the pattern is busy. "**

Two Alternate entries Figures 7A & 7B are described in AC90-66C, APHB, and AHAK.



Alternate Entry A,
The Tear Drop Entry

"An alternate method is to enter on a midfield crosswind at pattern altitude, carefully scan for traffic, announce your intentions and then turned down downwind. *[Figure 7-4B]* **This technique should not be used if the pattern is busy. "**

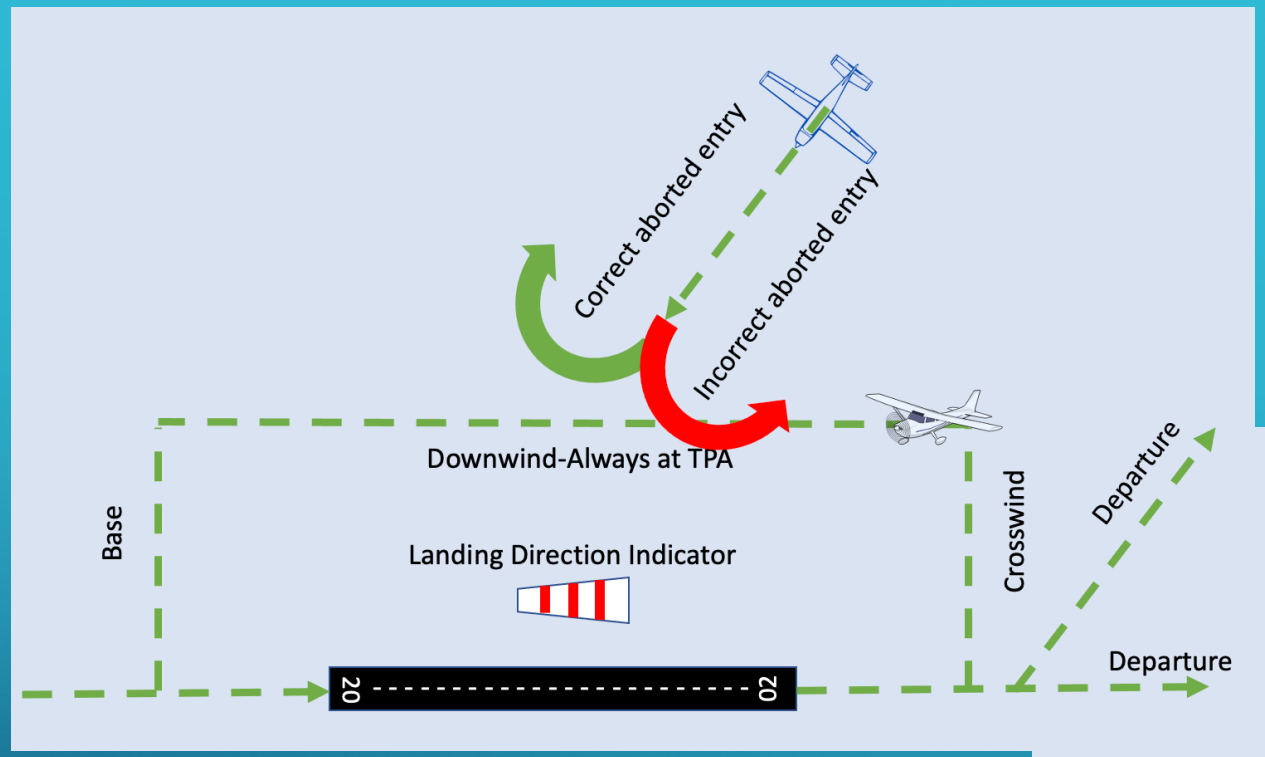
AND HERE IS HOW THAT DESCENDING 270 LOOKS

ENTRY AND EXI

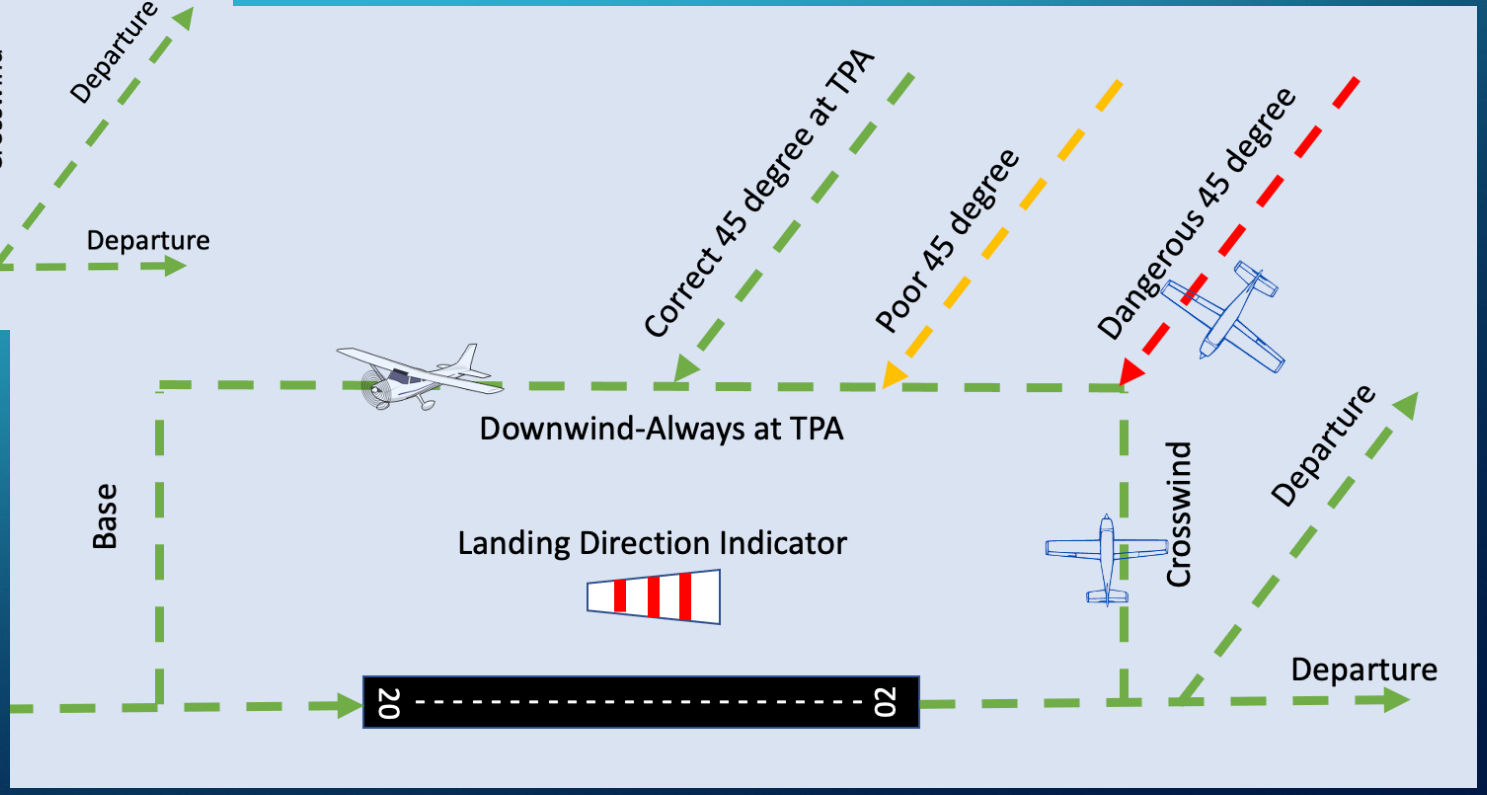
Alternate Entry B

"An alternate method is to enter on a midfield crosswind at pattern altitude, carefully scan for traffic, announce your intentions and then turned down downwind. *[Figure 7-4B]* **<u>This technique should not be used if the pattern is busy.</u>** "

ENTRY AND EXIT



Back to the 45 Entry



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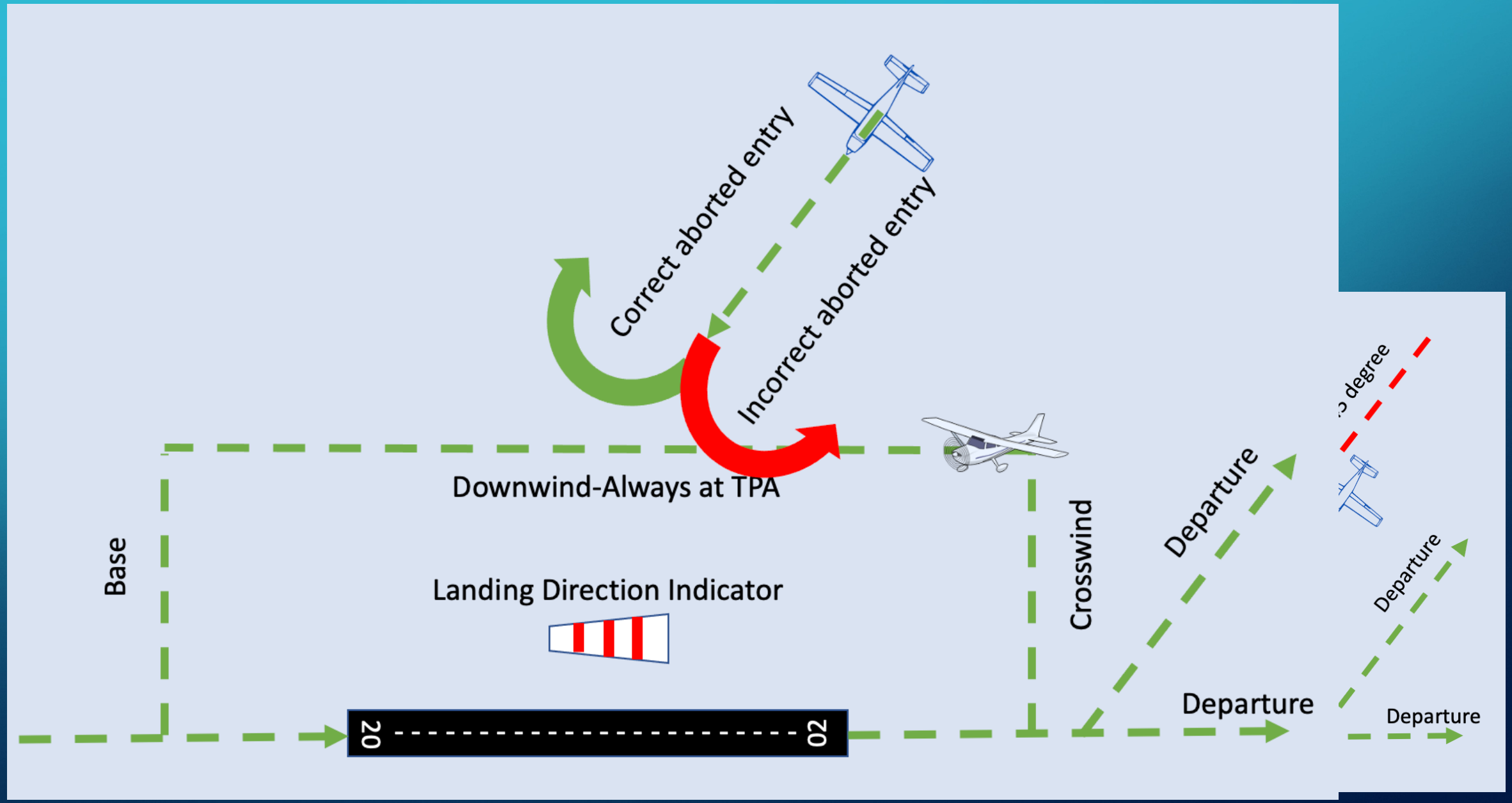
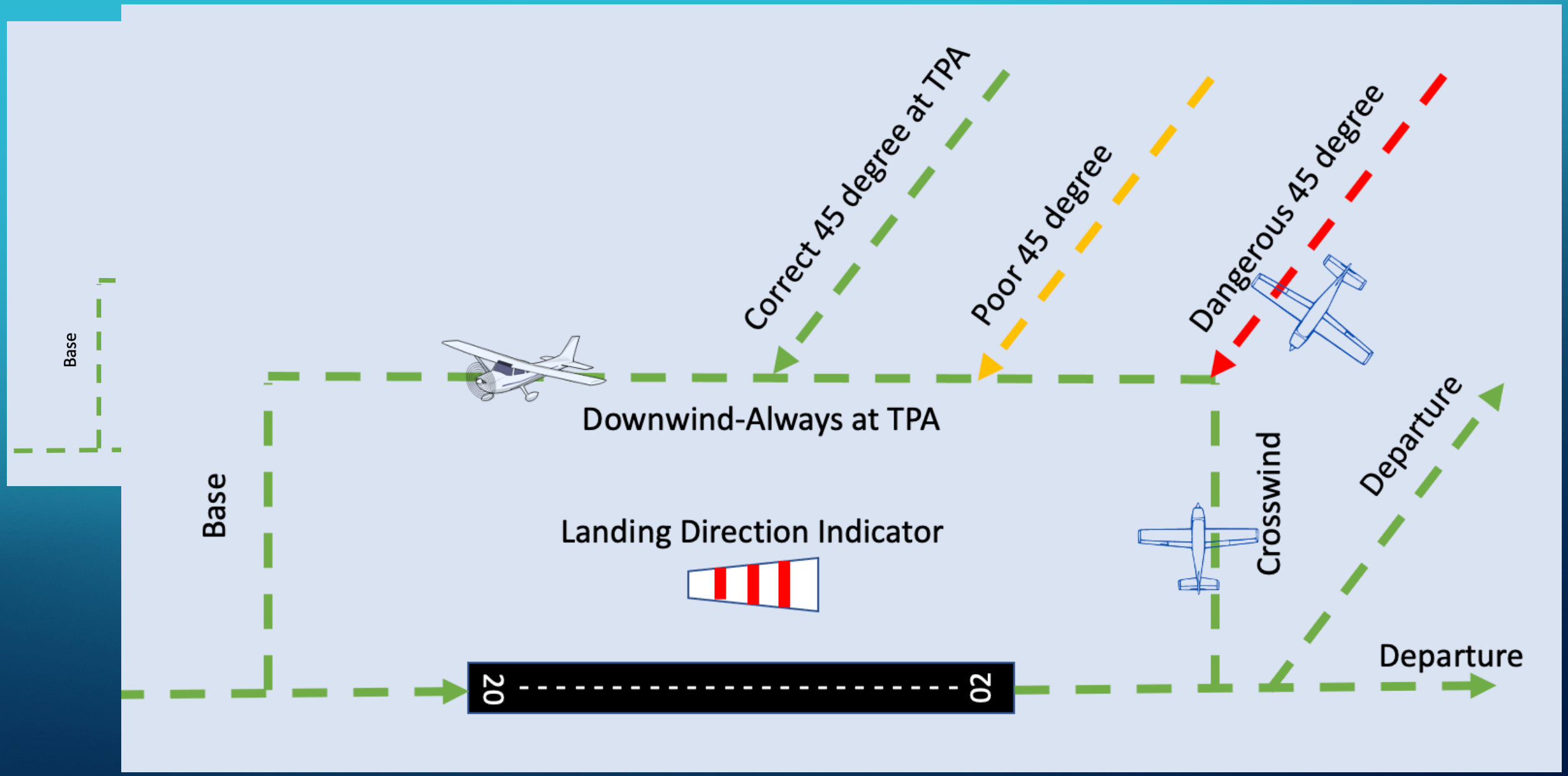
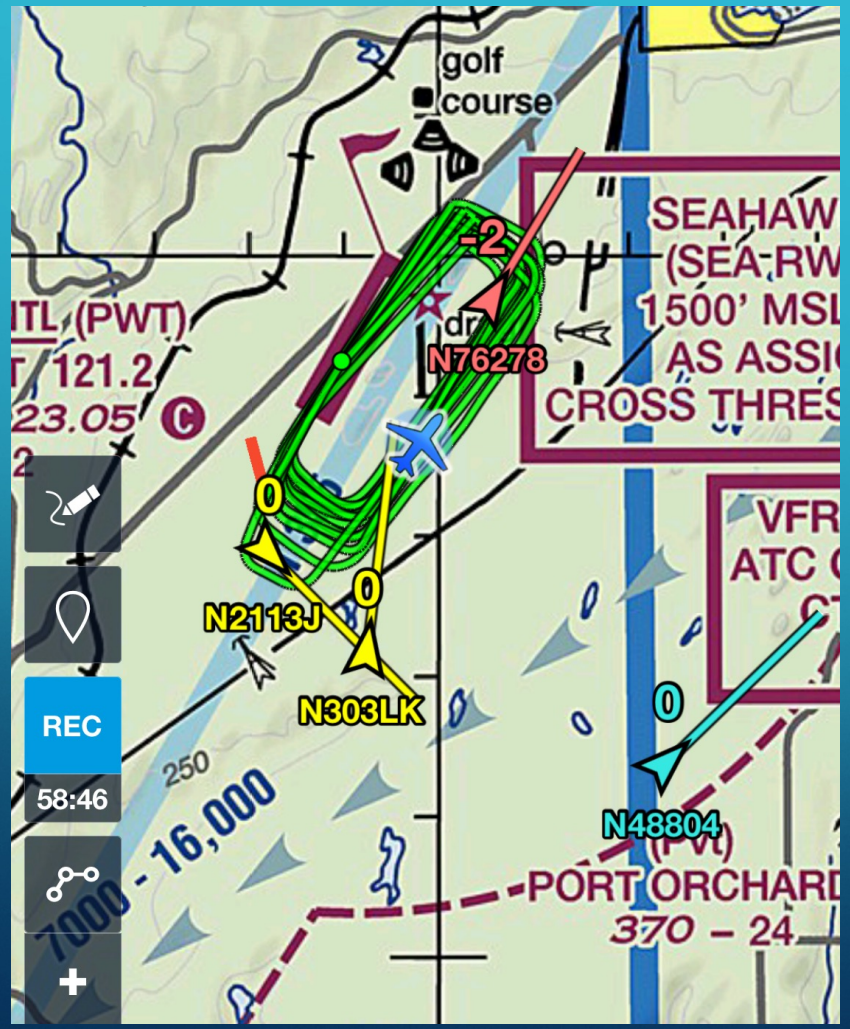


ENTRY AND EXIT

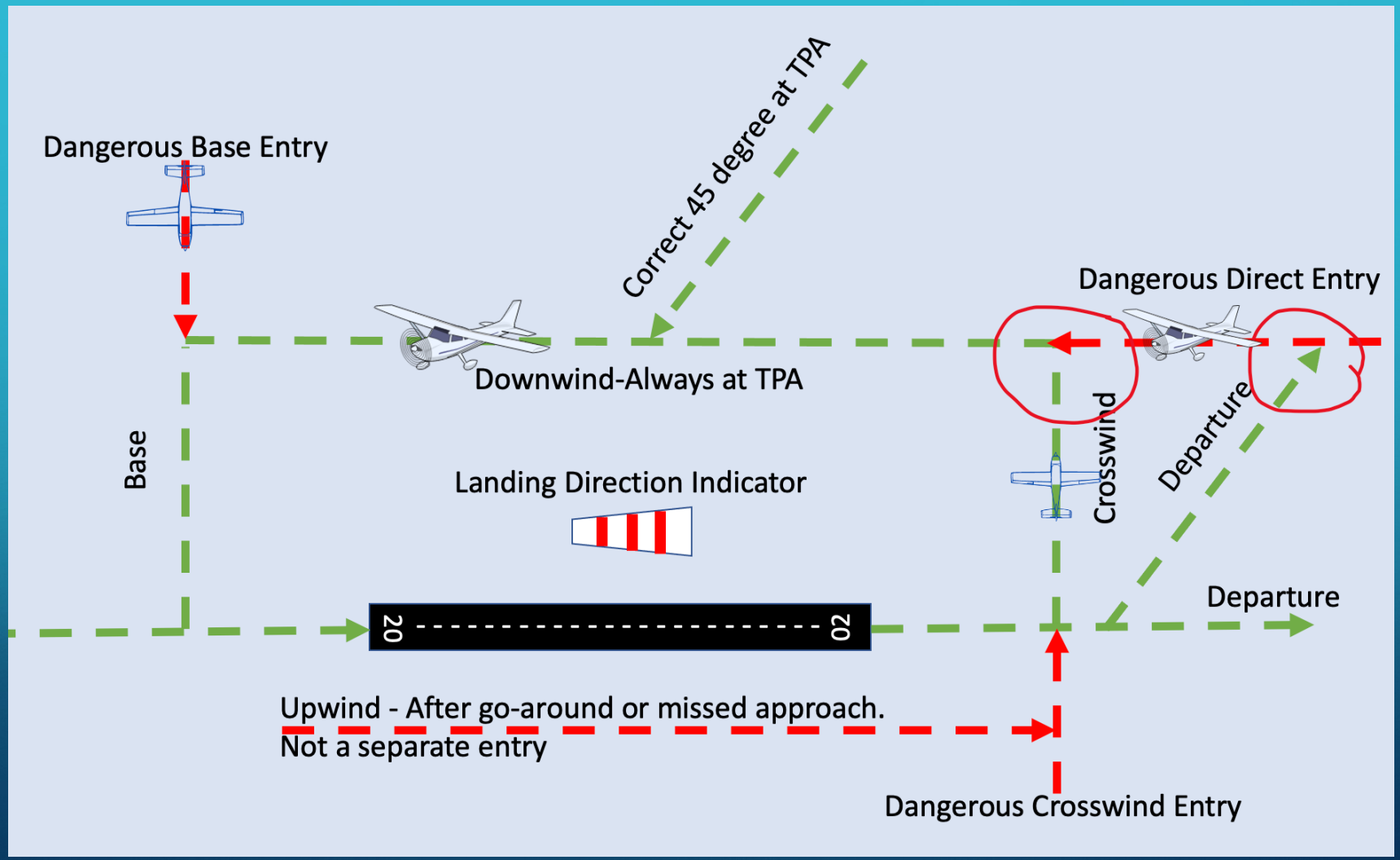


HERE IS WHAT
THE INCORRECT
45 LOOKS LIKE



THIS IS HOW IT
TURNS OUT

ENTRY AND EXIT



ONLY FIVE Entries described or mentioned in FAA Guidance

1. 45 Degree
2. Alternate A
3. Alternate B
4. Touch and Go or Low approach after straight-in
5. Military Overhead

ALL OTHER ENTRIES ARE:

- BROUGHT FROM TOWERED AIRPORTS.
- DANGERIOUS
- CAUSE MID-AIRs
- NOT AUTHORIZRD

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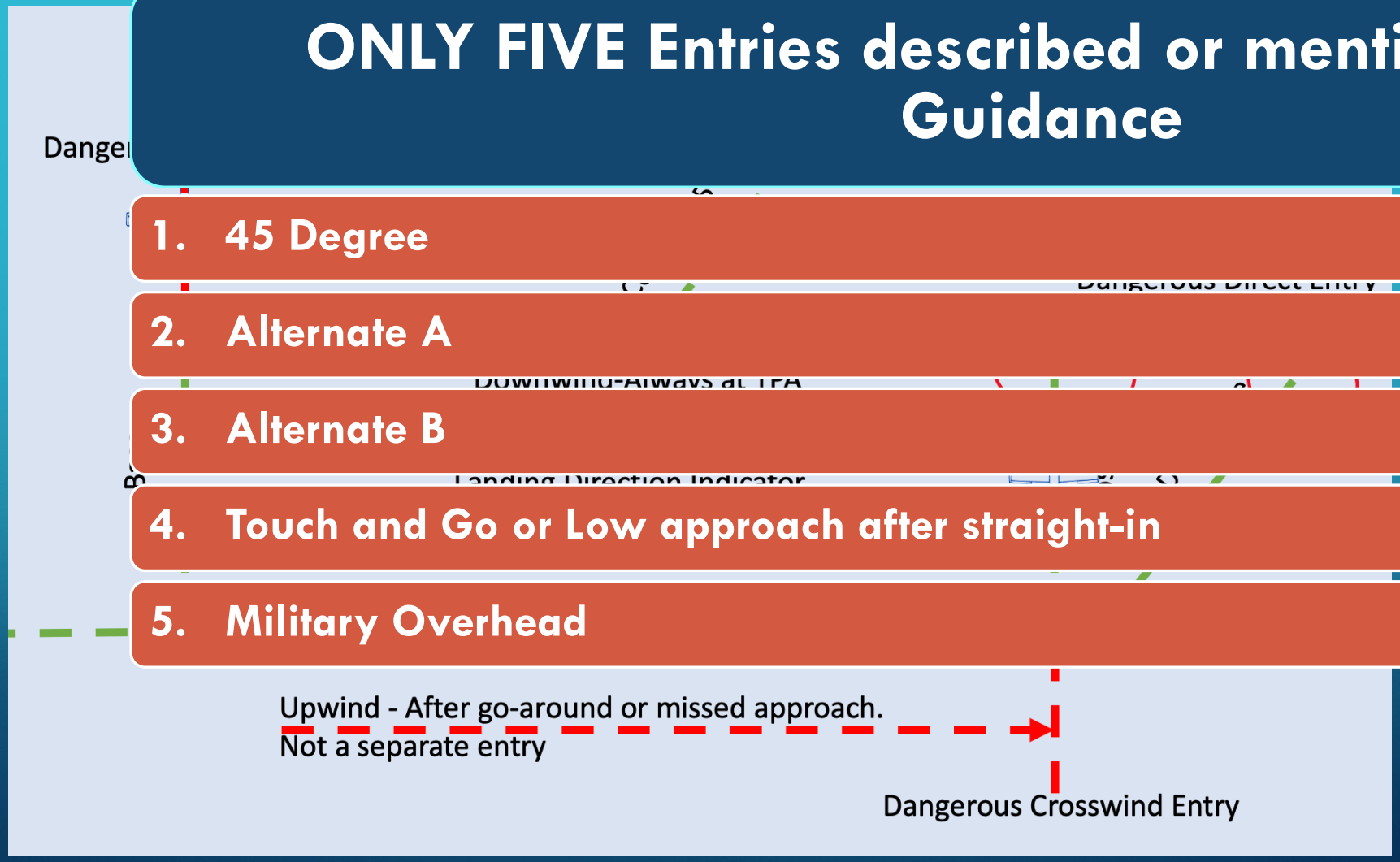

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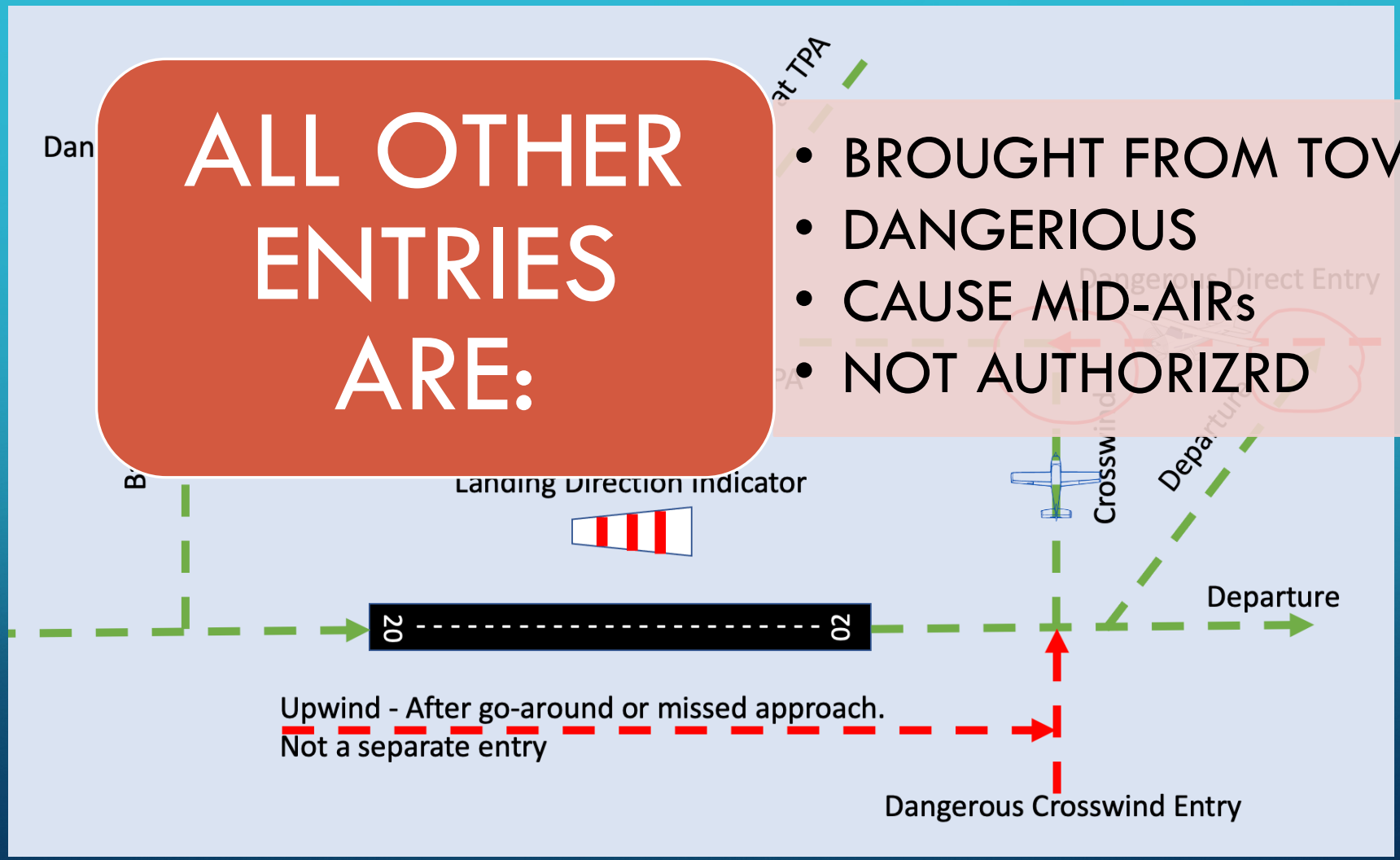

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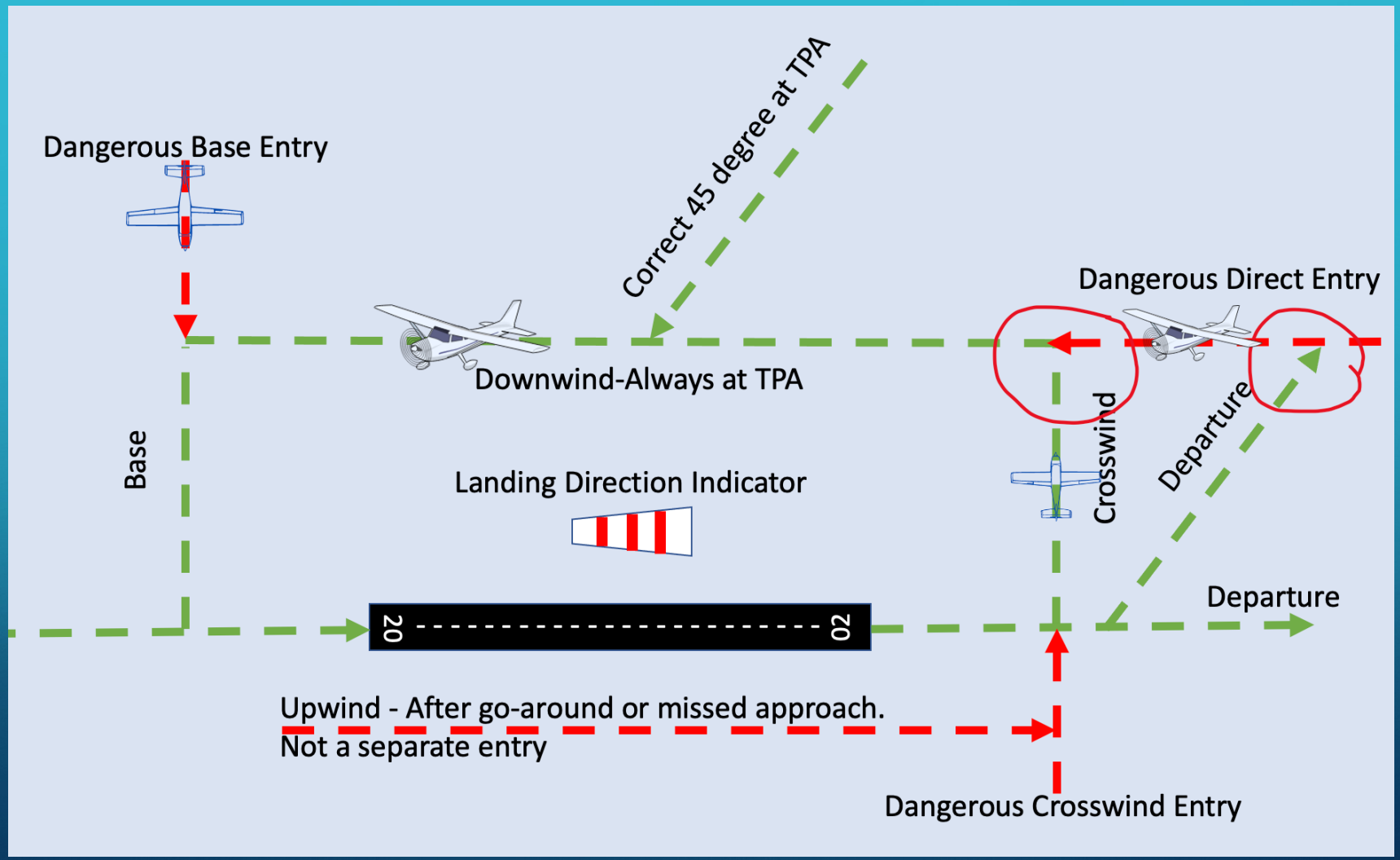
WHAT ARE SOME OF THOSE OTHER ENTRIES?



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- CAUSE MID-AIRs
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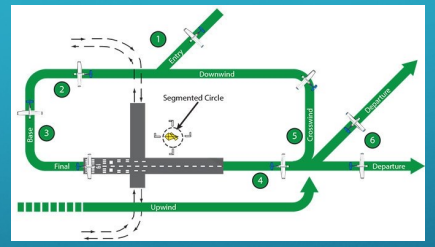
Where Did Upwind Entry Come From?

From Internet



It has NEVER appeared in an FAA Publication as an Entry.

Assigning a name to the concept of entering the traffic pattern after a straight-in.

Where Did Upwind Entry Come From?

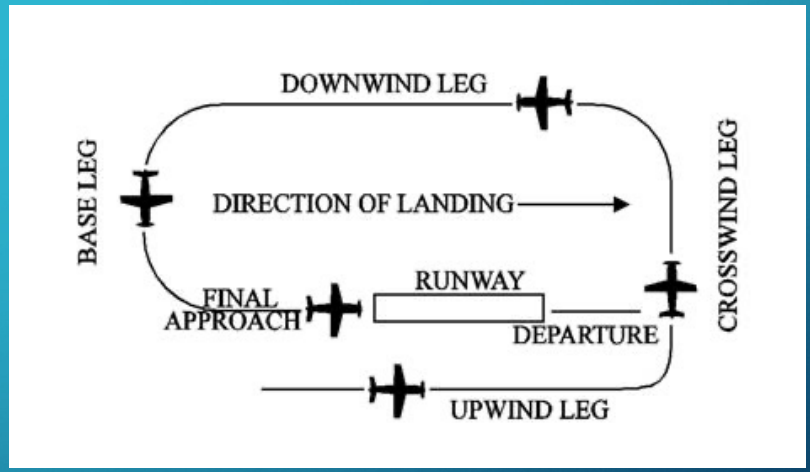
From Internet

It has NEVER appeared in an FAA Publication as an Entry.

From AIM, AFHB, & AC 90-66C

Aeronautical Information Manual (AIM) Section 3 Airport Operations
4.3.2 Airports with an Operating Control Tower

FIG 4-3-1
Components of a Traffic Pattern



Note:

1. Upwind leg. A flight path parallel to the landing runway in the direction of landing.

Airplane Flying Handbook (AFHB) Chapter 7, Airport traffic patterns.
The upwind leg is a course flown parallel to the landing runway in the same direction as landing traffic. The upwind leg is flown at controlled airports and after go-arounds. When necessary, the upwind leg is the part of the traffic pattern in which the pilot will transition from the final approach to the climb altitude to initiate a go-around. When a safe altitude is attained, the pilot should commence a shallow bank turn to the upwind side of the airport. This allows better visibility of the runway for departing aircraft.

Where Did Upwind Entry Come From?

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It has NEVER appeared i
Publication as an E

From AIM, AFHB, & AC 90-66B

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Airport Operations
4.3.2 Airports with an Operating Control Tower

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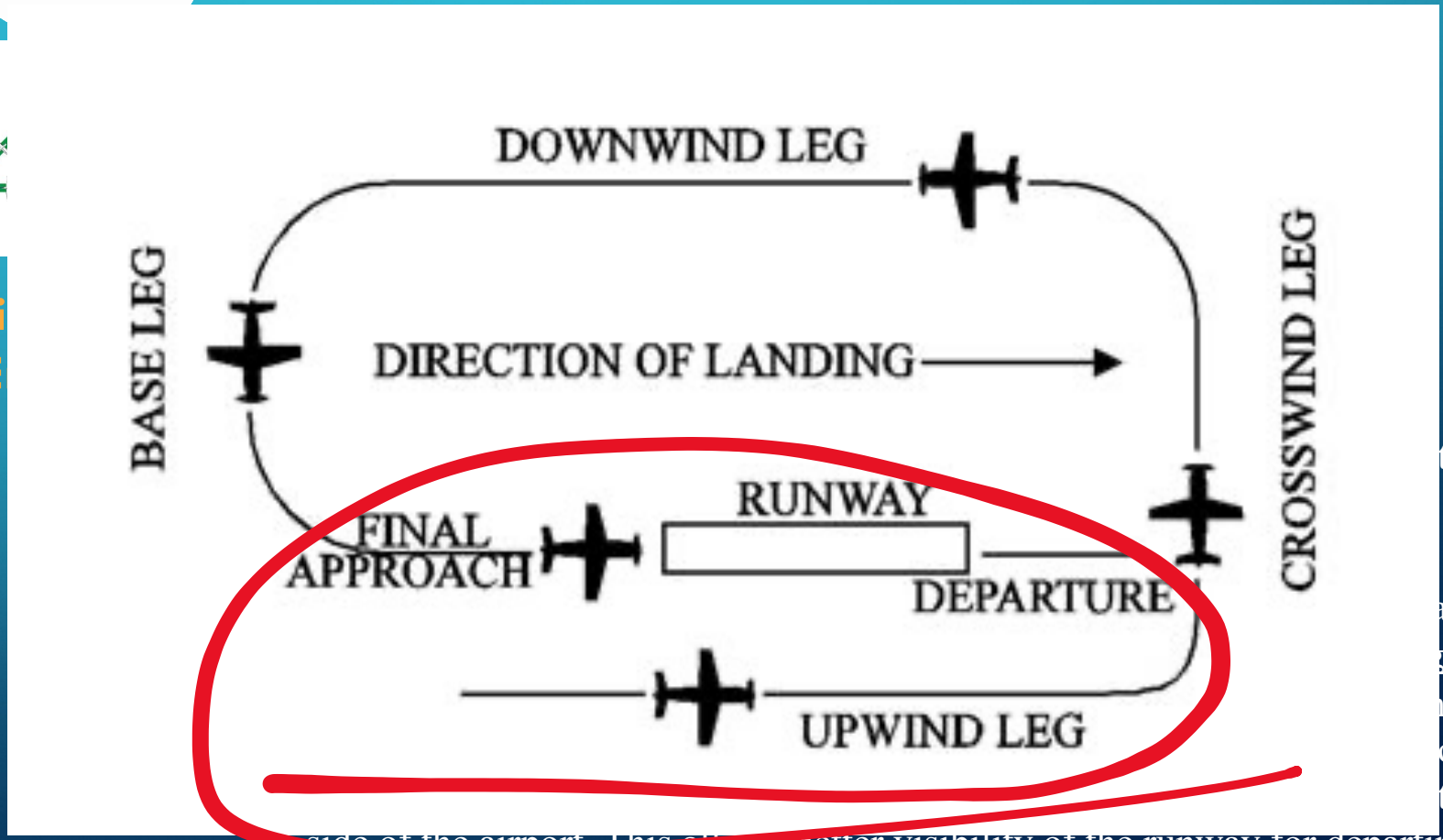

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4.3.2 Airports with an Operating Control Tower

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DOWNWIND LEG

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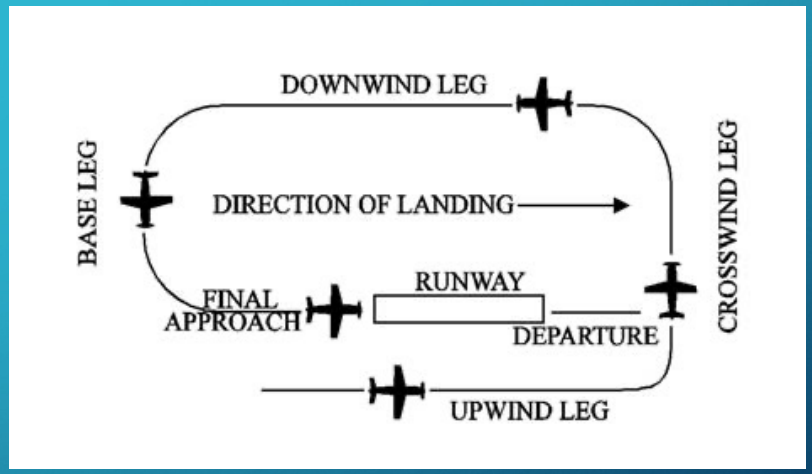

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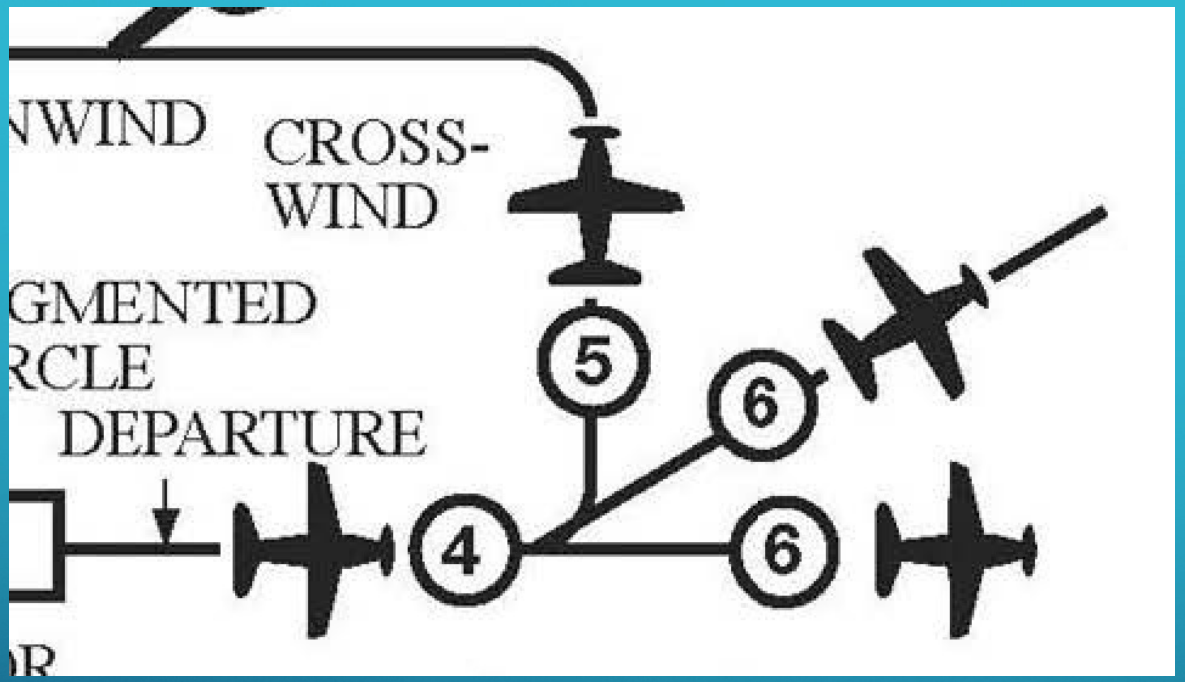
ENTRY AND EXIT

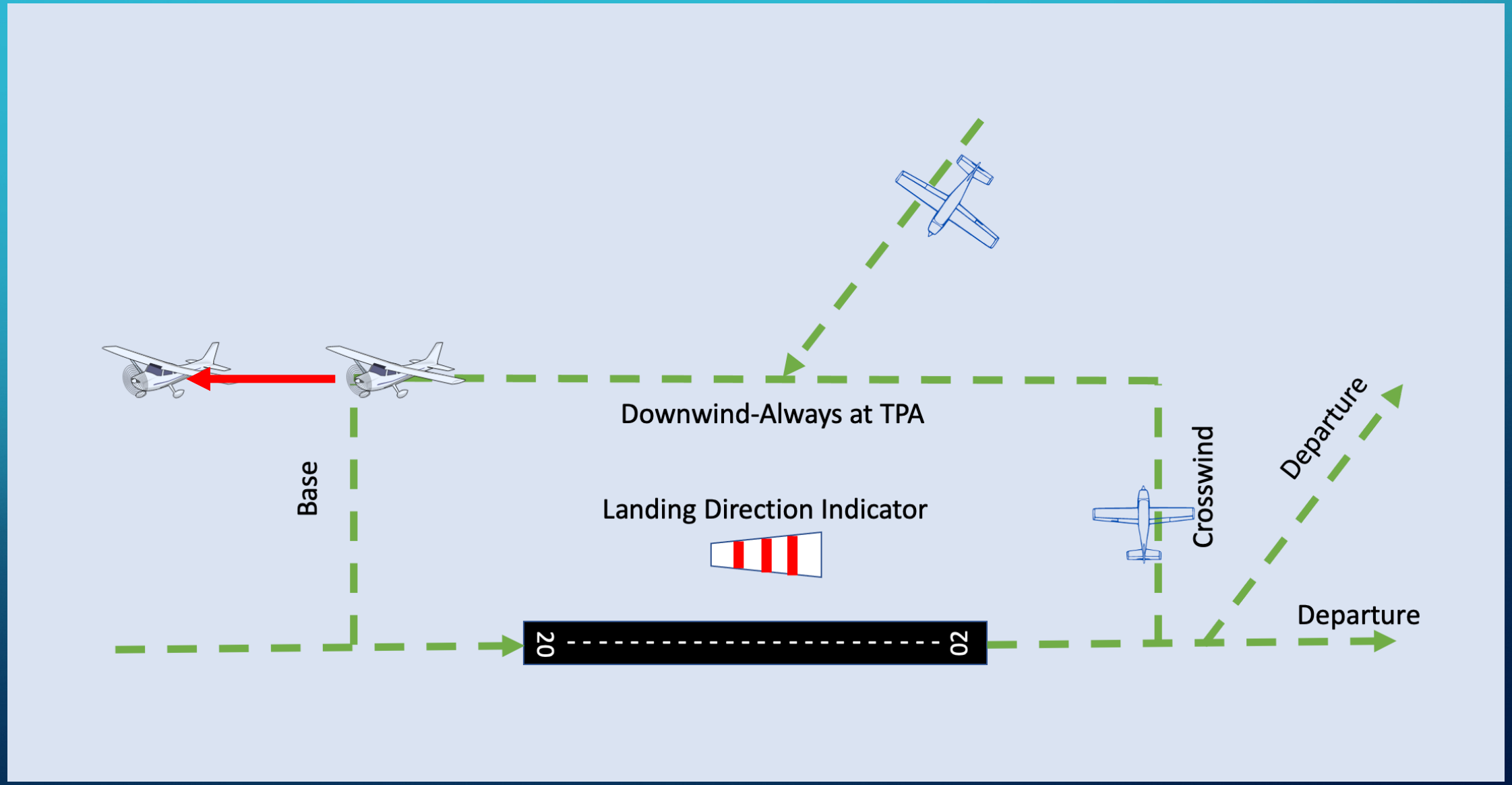


Two Departure paths
Past the end of the runway
and <u>at Pattern Altitude</u>

6. Continue Straight Out

6. Make a 45 degree turn <u>TOWARDS</u> Traffic Pattern

There is no such thing as a downwind departure at non-towered airports!



QUESTION IS THERE AN "ACTIVE" RUNWAY?

- AIM-**4—3—4. Visual Indicators at Airports Without an Operating Control Tower**
  - **3. The landing direction indicator.** A tetrahedron is installed when conditions at the airport warrant its use. It may be used to indicate the direction of landings and takeoffs.
- **Advisory Circular 90-66C Non-Towered Airport Operations, Chapter 11 RECOMMENDED STANDARD TRAFFIC PATTERN.** The following information is intended to supplement the AIM, paragraph 4-3-3, Traffic Patterns, and the PHAK, Chapter 14.
  - **11.6 Runway Preference.** Landing and takeoff should be accomplished on the **operating runway most nearly aligned into the wind.** However, if a secondary runway is used (e.g., for length limitations), pilots using the secondary runway should **avoid the flow of traffic to the runway most nearly aligned into the wind.**
- **AFHB Chapter 7**
  - When entering the traffic pattern at an airport without an operating control tower, inbound **pilots are expected to observe other aircraft already in the pattern and to conform to the traffic pattern in use**.

Back to 90-66C

10.7 Disagreements. Do not correct other pilots on frequency (unless it is safety critical), particularly if you are aware you are correcting a student pilot. If you disagree with what another pilot is doing, operate your aircraft safely, communicate as necessary, clarify their intentions and, if you feel you must discuss operations with another pilot, wait until you are on the ground to have that discussion. Keep in mind that while you are communicating, you may block transmissions from other aircraft that may be departing or landing in the opposite direction to your aircraft due to IFR operations, noise abatement, obstacle avoidance, or runway length requirements. **An aircraft might be using a runway different from the one favoring the prevailing winds. In this case, one option is to simply point out the current winds to the other pilots and indicate which runway you plan on using because of the current meteorological conditions.**

OLD AIM

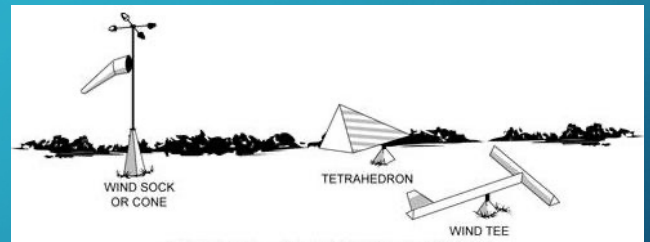
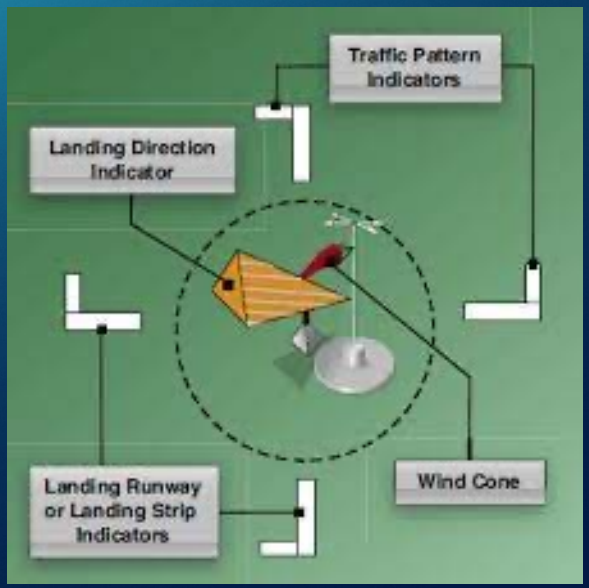


Figure 6-11.—Wind direction indicators.

NEW AIM



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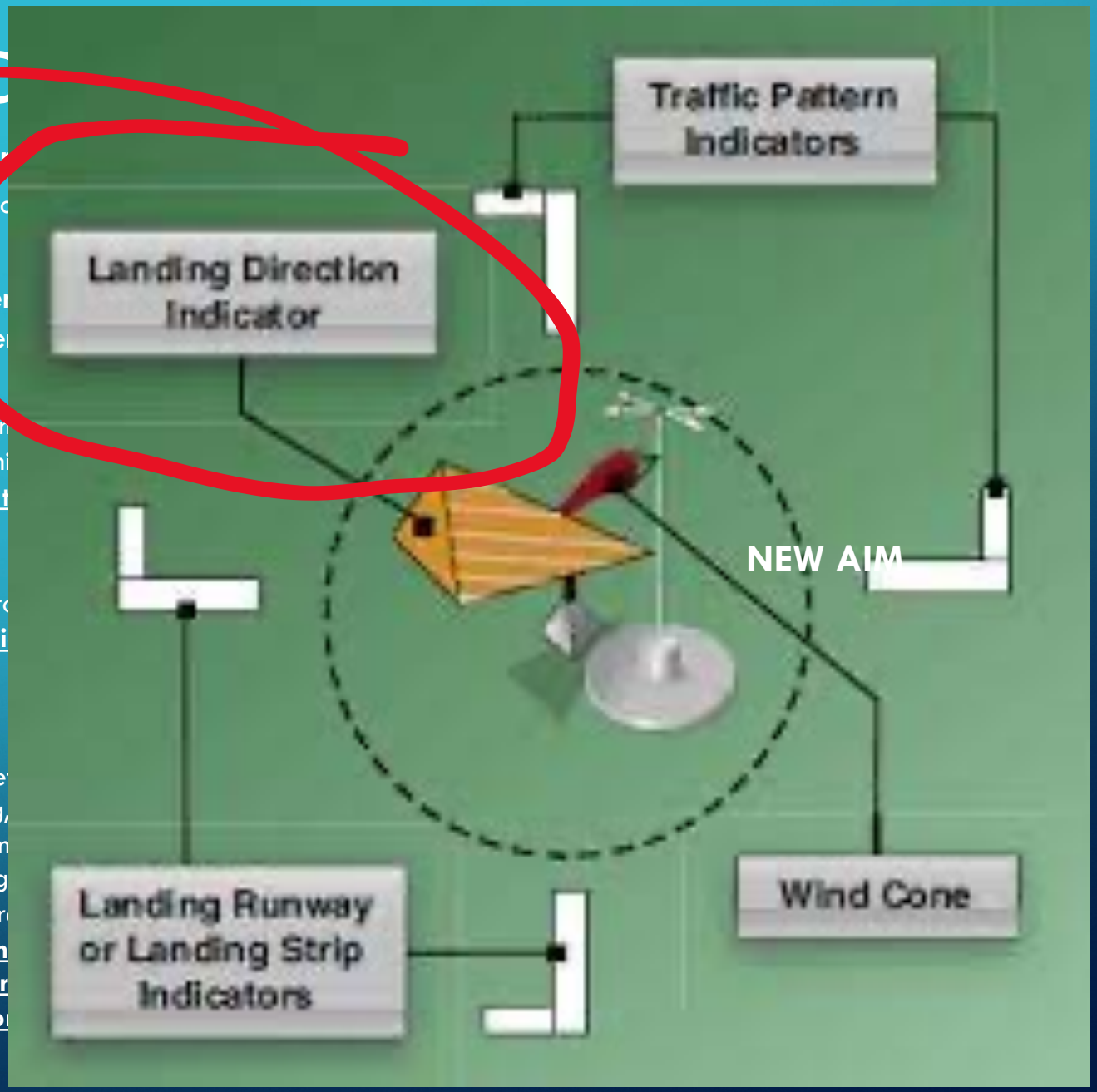

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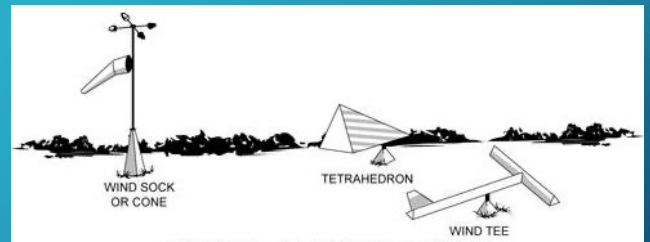

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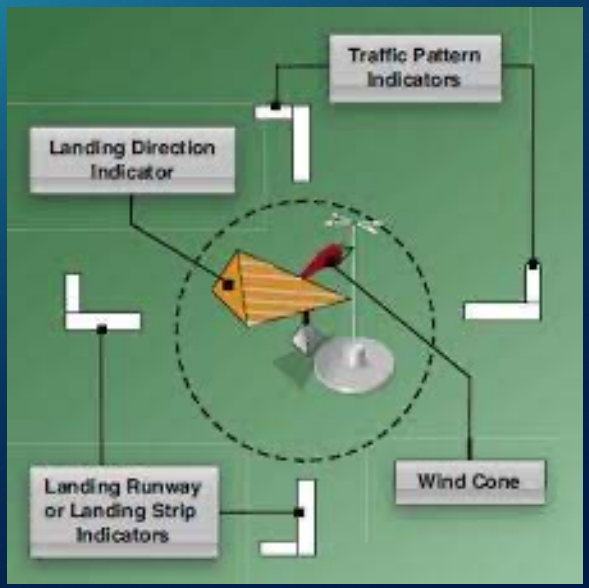

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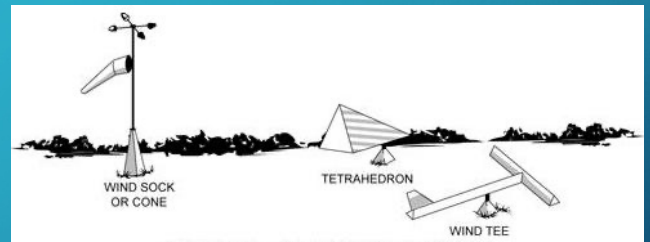

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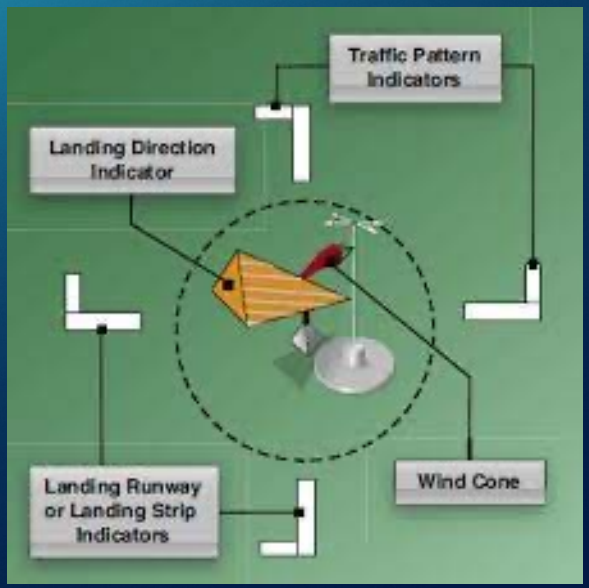
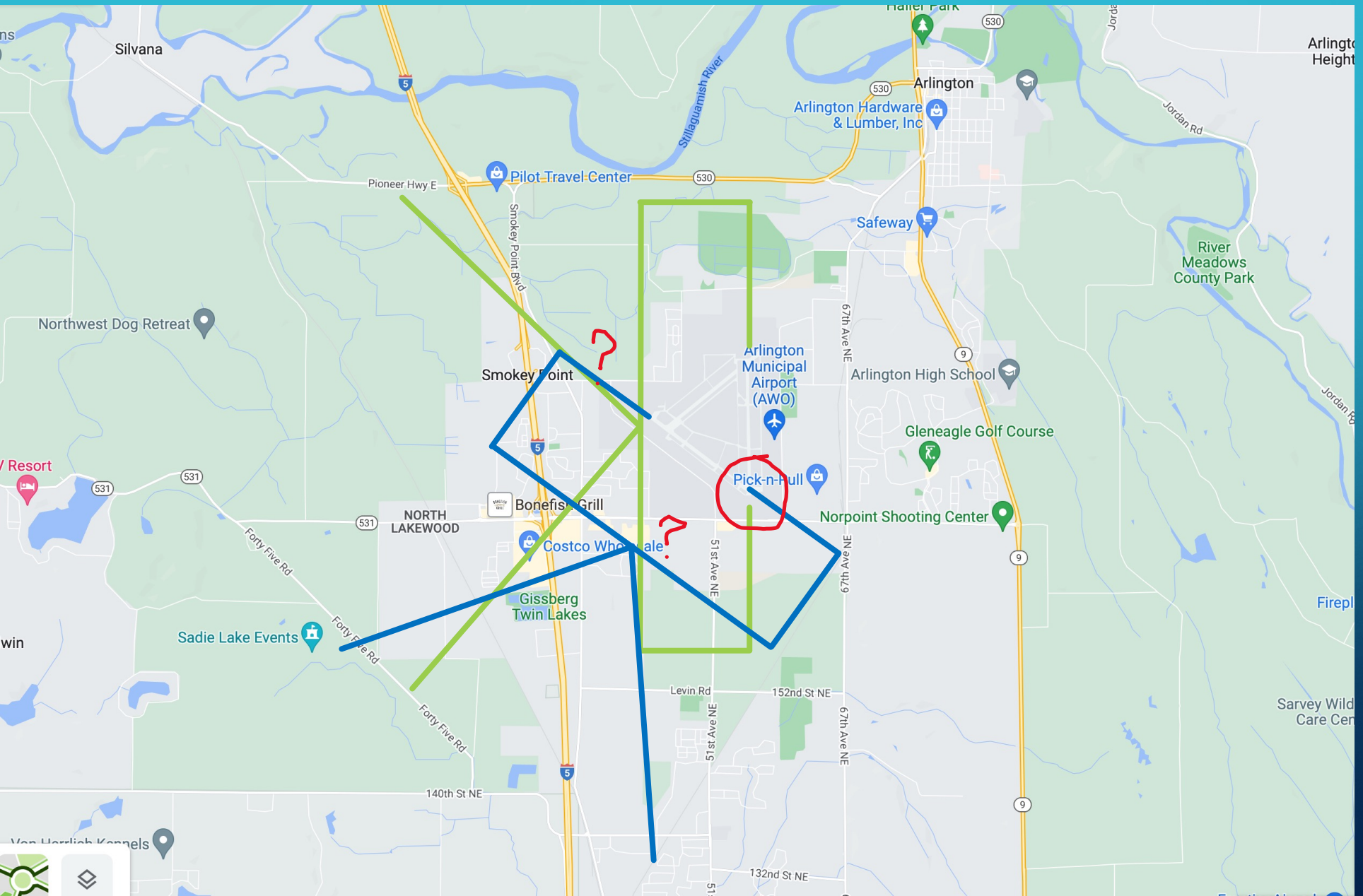


EXAMPLE - ARLINGTON KAWO



When pilots try to run ops to both runway 34 and 29 concurrently it is an accident without a date.

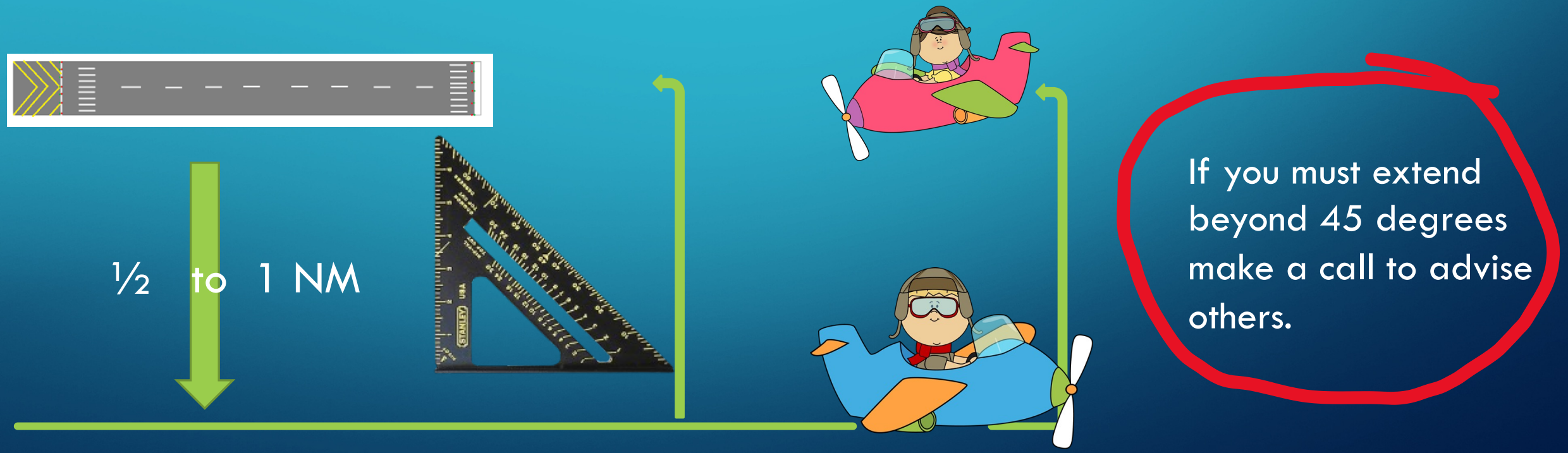
Departure 29 opposite 45 degree to runway 34.

Approach of each runway, not “well clear” and is definition of so close as to pose a hazard.

Not to mention crossing downwind.

LAST THOUGHTS ON THE PATTERN

- Turn Base 45 degrees from touchdown point when able.
- Traffic Conflicts: With Wide or Straight-in traffic
  - Similar type aircraft (70 to 90 kts) and faster turn base abeam traffic on final.



Radio Calls Non-Towered Airports

1

Who You are,
Where you are,
What you want to do!

2

Only 50% of what you say is heard

- The longer you talk, the less is heard

RADIO CALLS NON-TOWERED AIRPORTS

Approximately 10 miles out: Announce intention, direction from Airport, and Distance

- Source AC 90-66C

Entry to Traffic Pattern, 2 to 3 miles out

- Source AC 90-66C, AFHB, AIM 4-1-9

Each Position within the Traffic pattern, Downwind, Base, Final, Crosswind, Taking the Runway

- Source AFHB, AC 90-66C, AIM 4-1-9, 4-3-4

NO REQUIREMENT TO ANNOUNCE (Training as desired to build habits)

- Upwind
- Go Around, unless towered airport or a conflict exists
- Extended Taxi Operations. (One call leaving parking recommended)

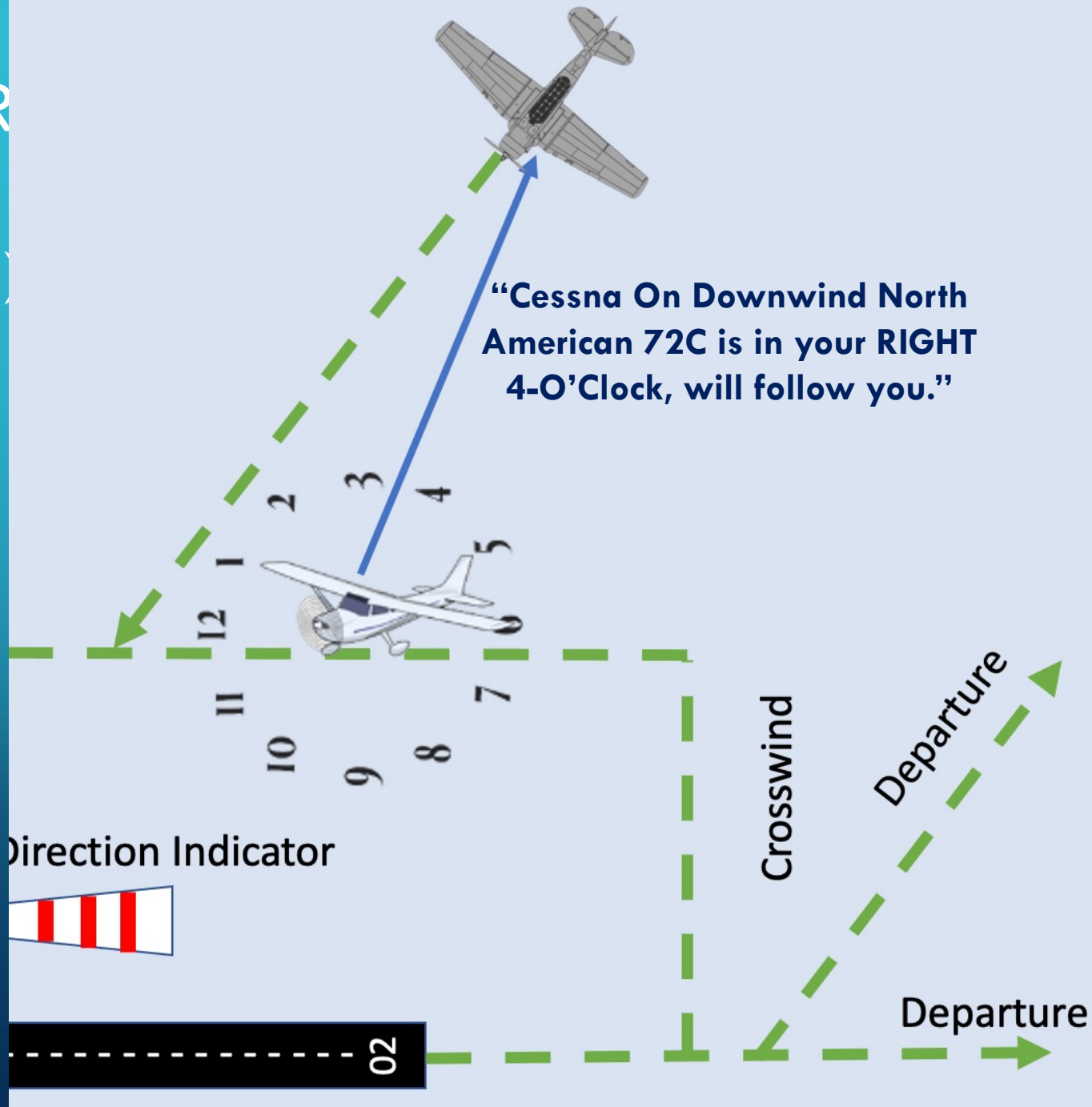
RADIO CALLS NON-TOWERED AIRPORTS

- Dos
  - Keep It Short!
  - Use only One Position in your call
  - If you forget what to say, get off the radio
  - Use your type and shortened call sign, not color (Per AC 90-66B)
  - If a Jet or you are flying faster than 70-90kts say so. Pilots do not necessarily know specific type is a jet. (AFHB)

RADIO CALLS NON-TOWERED AIRPORTS

- DO NOTs
  - Have conversations on CTAF
  - Tell other aircraft they are in
    - "your Clock Position"
    - If there is a conflict, tell them <u>you</u> are in "their Clock Position"
  - Describe in length how you are going to enter the traffic pattern, instead use standard positions.
  - Do not announce taxi intentions if the radio is busy with multiple aircraft in the traffic pattern. Use judgement.

R



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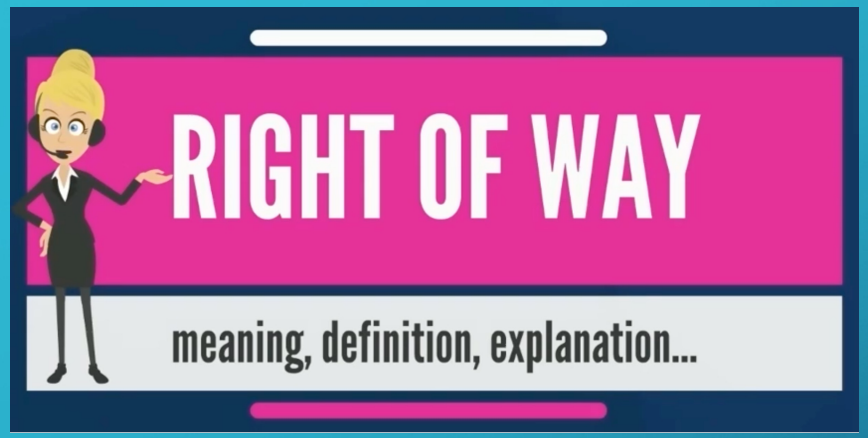
RIGHT OF WAY REGULATIONS



RIGHT OF WAY **REGULATIONS**

91.113 Right-of-way rules: Except water operations. (Excerpts)

(b) ***General.*** …each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(d) ***Converging.*** When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way.

(e) ***Approaching head-on.***

(f) ***Overtaking.*** Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(g) ***Landing.*** Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

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or to overtake that aircraft.

RIGHT OF WAY POLICIES, GUIDANCE, BEST PRACTICES

The New AIM with Change 1 & 2, Para 4—3—3. Traffic Patterns

1. *Pilots are encouraged to use the standard traffic pattern.*

those pilots who choose to execute a straight—in approach, should not disrupt the flow of arriving and departing traffic.

AC 90-66C 8.2.1 …A visual flight rules (VFR) aircraft on a long, straight-in approach for landing never enters the traffic pattern unless performing a go-around or touch and go after landing…

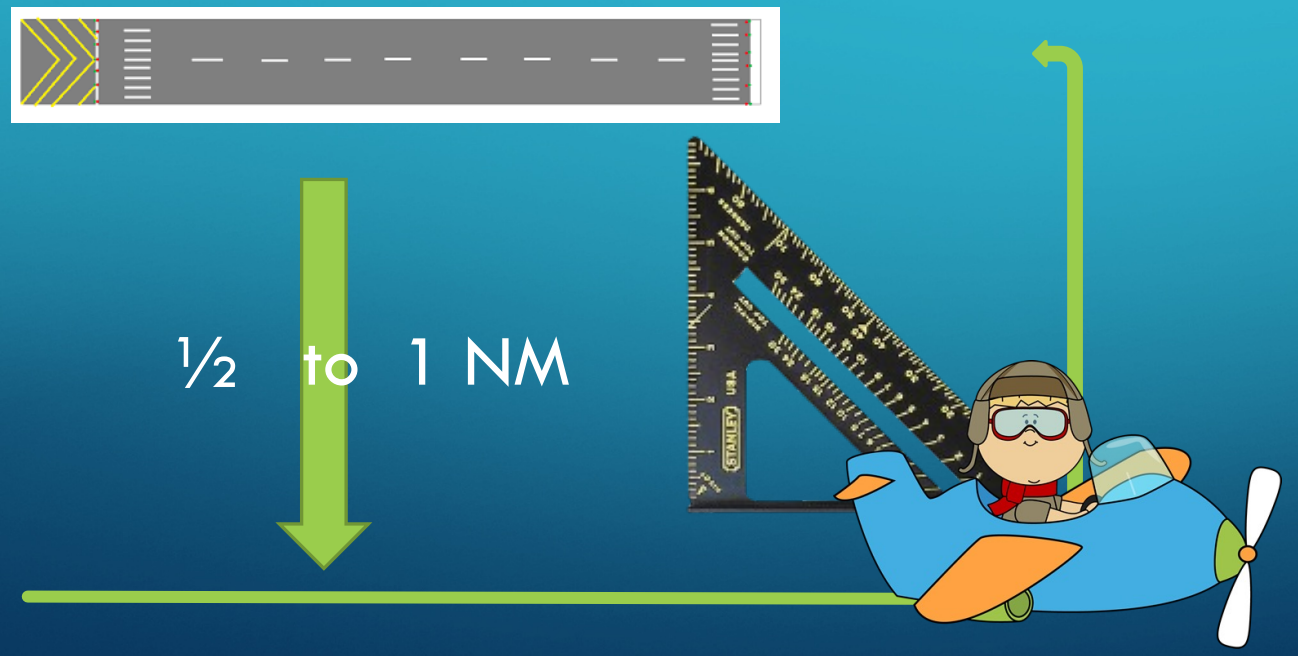
AC90-66C 9.5 Straight-In Landings. Pilots should clearly communicate on the CTAF and coordinate maneuvering for and execution of the landing with other traffic so as not to disrupt the flow of other aircraft.

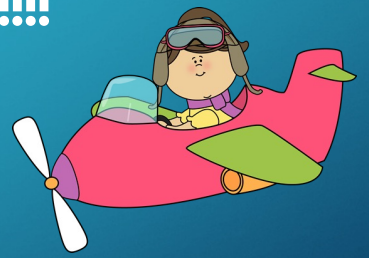
NOTE: AC90-66C: STRAIGHT-IN NOT RECOMMENDED WHEN OTHER AIRCRAFT ARE IN THE TRAFFIC PATTERN

WHEN CAN YOU TURN IN FRONT OF STRAIGHT-IN

- Similar type aircraft, 70-90Kts, When Straight-in OUTSIDE 3mi
- Faster Jet or Twin, OUTSIDE of 5mi

NOTE: Based on you flying normal ½ to 1 mi base leg!!!!





FAA v Fekete Ruling

1. **Don't fly so close as to cause collision hazard 91.111**
2. **May not turn base if would cause Straight-in to drastically change flight path or go around 91.113(g)**

RIGHT OF WAY POLICIES, GUIDANCE, BEST PRACTICES

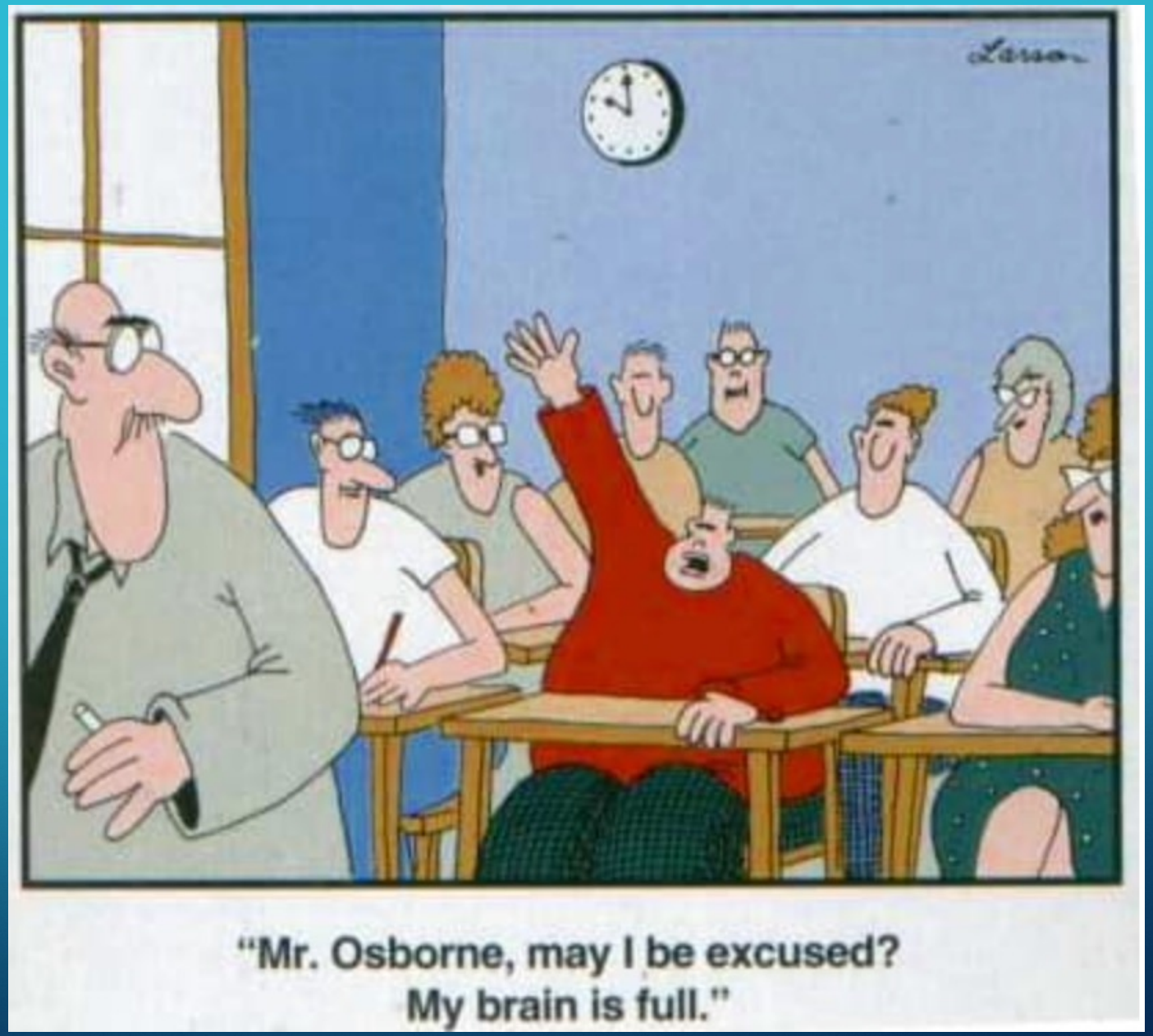
APHB, AHAK, AC90-66C State Regarding Pattern Entry: "…inbound pilots are expected to observe other aircraft already in the pattern and to conform to the traffic pattern in use. The pilot should enter the traffic pattern at a point well clear of any other observed aircraft.

Regarding the Alternate Pattern Entries "…Make course and speed adjustments that will lead to a successful pattern entry and give way to other aircraft on the preferred 45° entry or to aircraft already established on downwind.

RIGHT OF WAY

SUMMARY FROM ALL SOURCES

1. Aircraft lowest on Final except aircraft that just landed and is exiting the runway.
2. Aircraft established in the traffic pattern
3. Aircraft MAY NOT pass another aircraft on Downwind unless clear of the pattern. So, this means Aircraft in front of you in the pattern.
4. Aircraft on 45-degree entry
5. Aircraft on alternate entry
6. Aircraft not in the traffic pattern Including Straight-In arrivals and Overhead Military style arrivals.
7. While not ROW, helicopters must AVOID fixed wing pattern.


Larson
"Mr. Osborne, may I be excused?
My brain is full."

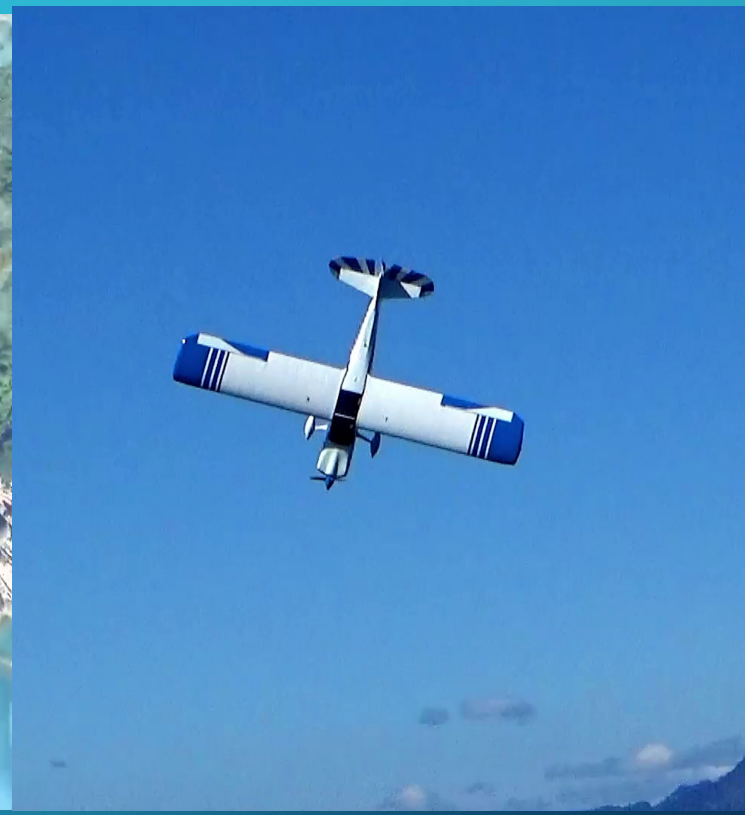
NON-TOWERED TRAFFIC PATTERNS
SUMMARY

- Traffic Pattern only works with understanding and cooperation.
  - Use standard pattern
  - Use standard entries
  - Use Standard departures
- ROW Rules must be understood and accepted.
- Radio calls need to be short, concise, and use standard phraseology.
- Keep your Traffic Pattern within 1nm using the 45% rule for base.

THANKS FOR ATTENDING!

OTHER PRESENTATIONS AND VIDEOS BY CAPTAIN TOM MAYBE FOUND AT

RogersAviationNW.Com



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