

# Safety of Flight

Vineet Awasthy- June 2026

# Safety

- Our #1 priority
- True for:
  - Your CFI
  - You
  - All pilots around you
- If you feel your CFI is not safe:
  - Have a discussion
  - Approach authority figure
  - Change CFIs if need be



# “See and Avoid” – other traffic

- When should you “see and avoid”?
- 10/20/30 rule
- Traffic monitoring systems
- Right of way

# “See and Avoid” – other traffic

- **When should you “see and avoid”?**
- **FAR 91.113 (b)**  
*When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by 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.*

# “See and Avoid” – other traffic

- **When should you “see and avoid”?**
  - Be careful of dead spots (wings, instrument panel, plane fuselage)
  - Emphasis on initiating turns
  - Clearing turns before maneuver
  - On the ground:
    - Taxiway intersection
    - Runways (air + ground)
    - Final
  - Beware the NORDO
  - Do not look for relative movement

# “See and Avoid” – other traffic

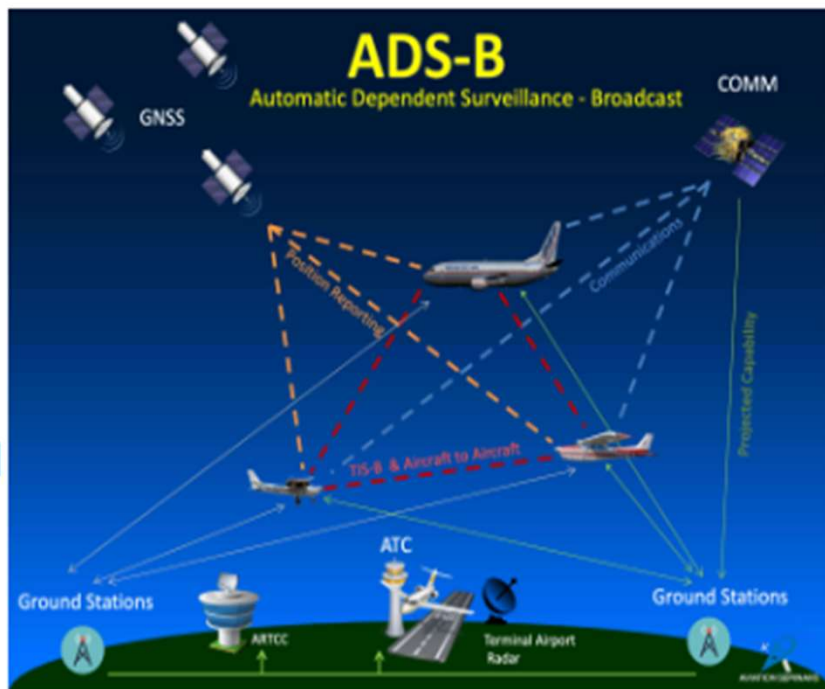
- **10/20/30 rule**

Out of every minute:

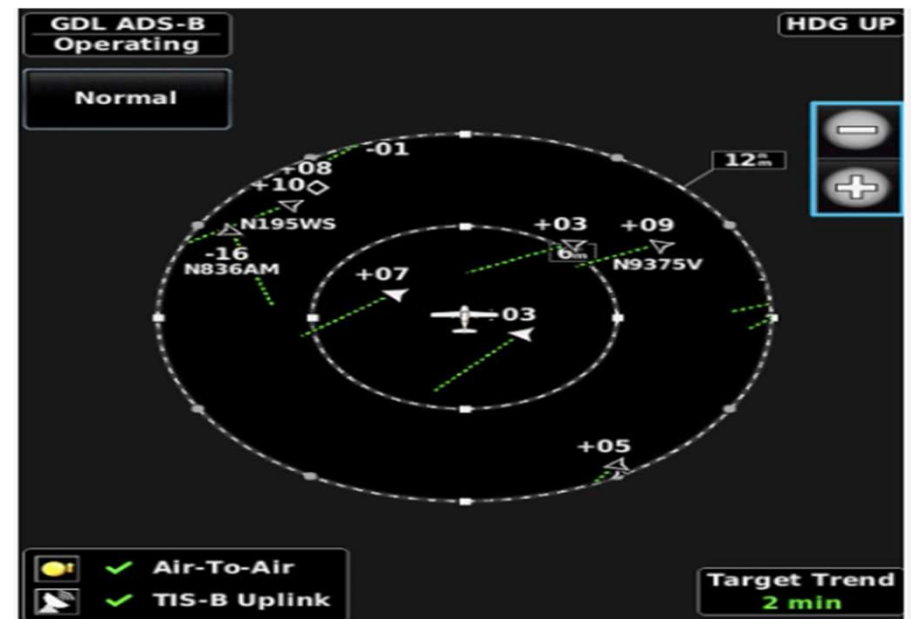
- 10 seconds inside the cockpit
- 20 seconds on ground reference
- 30 seconds looking for traffic

# “See and Avoid” – other traffic

- Traffic monitoring systems



ADS-B – not a substitute for see-and-avoid

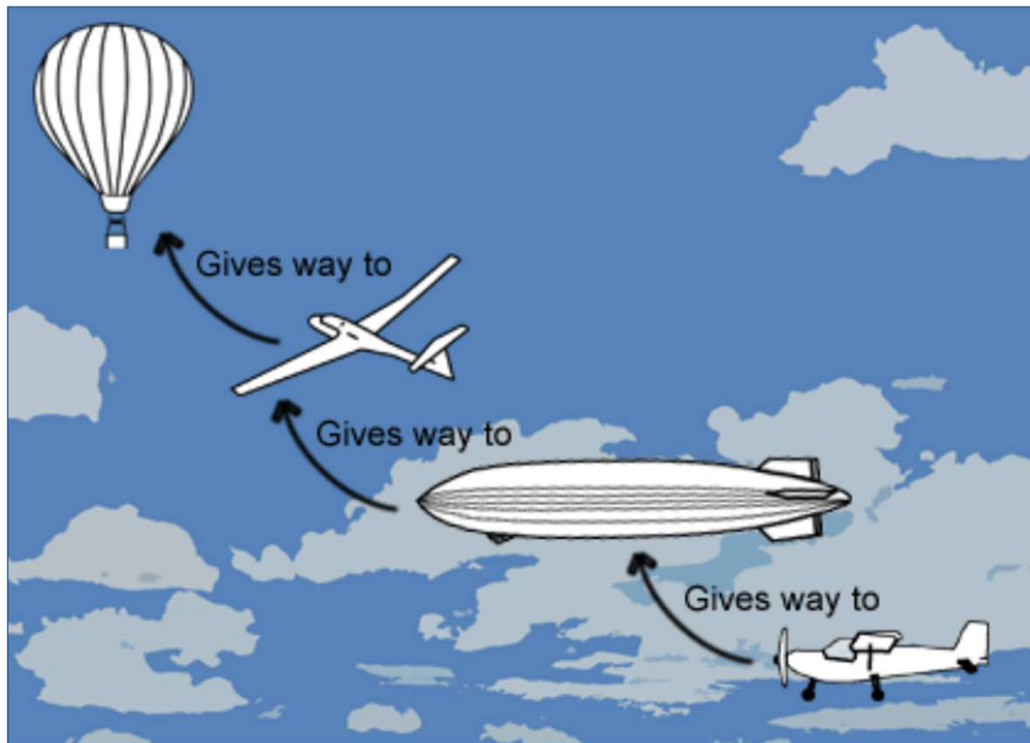


# Since we mentioned ADS-B - transponders

- Mode A
- Mode C
- ADS-B out 978MHz or 1090MHz
- ADS-B in
  - Traffic (TIS-B) 978MHz or 1090MHz
  - Aeronautical data (FIS-B) 978 MHz only

# “See and Avoid” – other traffic

- **Right of way**



- **By category**

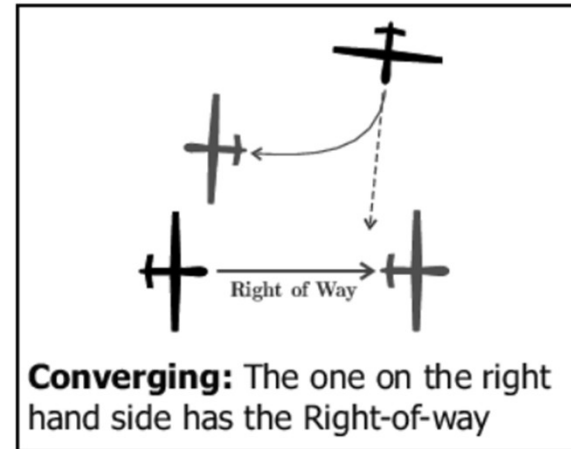
- Balloon
- Glider
- Aerial refueling
- Airship
- Airplane/Helicopter

# “See and Avoid” – other traffic

- Right of way



- Within category

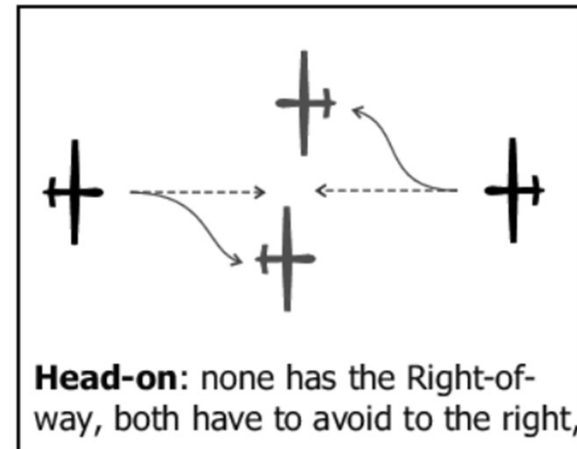


# “See and Avoid” – other traffic

- Right of way



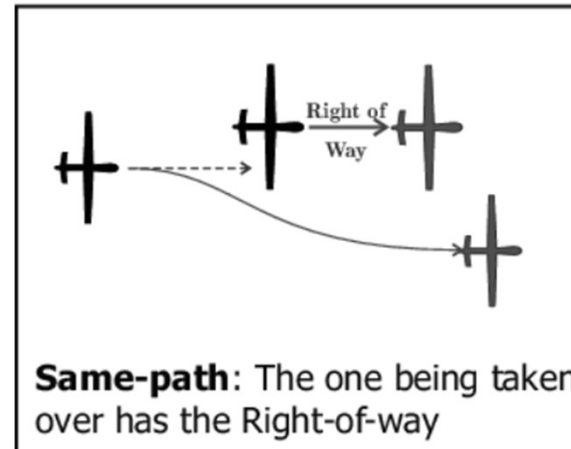
- Within category



# “See and Avoid” – other traffic

- **Right of way**

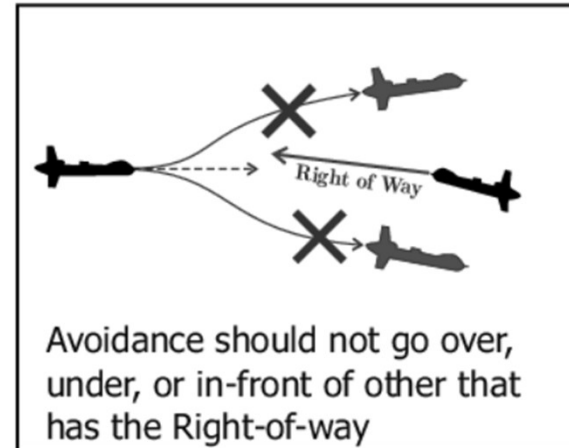
- Within category



# “See and Avoid” – other traffic

- **Right of way**

- Within category



# “See and Avoid” – other traffic

- **Right of way**
- Highest right of way:  
aircraft in distress



# Minimum Safe Altitudes

**“Be careful, kids - fly low and slow”**

*- Susan Wright*

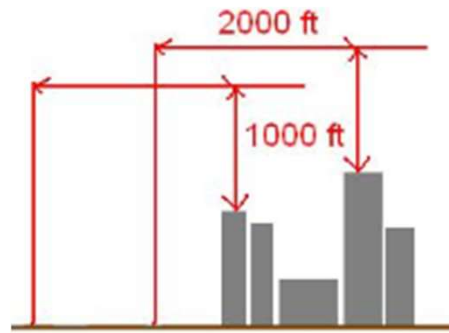
# Minimum Safe Altitudes

Except when necessary for take-off or landing...

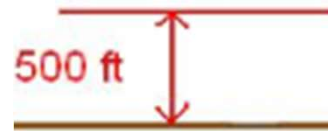
## Anywhere

An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

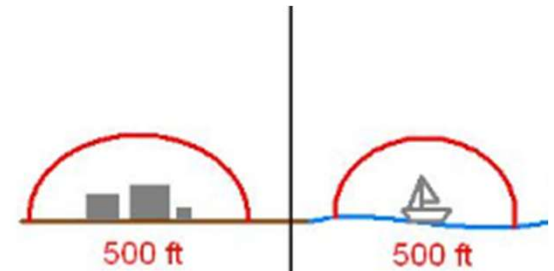
## Congested areas or over people



## Other than Congested areas



## Sparsely populated or over water



# Positive exchange of flight controls

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- Three-way exchange:
  - “You have the controls”
  - “I have the controls”
  - “Your controls”
- Prevents both types of embarrassing mistakes
  - Both fight for the controls
  - No one has the controls

## **3 STEPS**

1. “You have the flight controls.”
2. “I have the flight controls.”
3. “You have the flight controls.”

- Air France Flight 447, A330, 6/1/2009
  - Inadvertent stall in IMC
  - First officer was expected to release controls, but kept holding the yoke all the way back
  - Flight crashed into the Atlantic, killing 228 people



- Vans RV6 accident, 8/27/2020
  - Two pilots – owner + installer of new glass cockpit. Calibration flight.
  - After a calibration task, installer thought pilot re-took control (and kept calibrating), while pilot thought installer was flying (and was looking inside at new glass).
  - Plane flew very low and both pilots felt the other one was flying unsafely.
  - Plane hit terrain, sustained significant damage, both occupants sustained minor injuries.



# Taxiing with crosswind

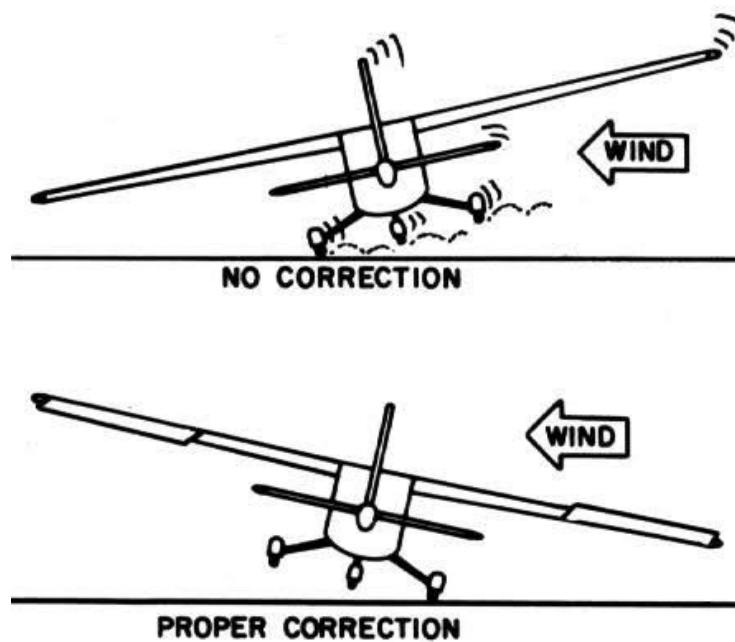


Figure 8-3 Skipping Results with no Correction

# Taxiing with crosswind

- Quartering headwind
  - Raise aileron toward the wind (yoke into the wind)
  - Neutral elevator
- Quartering tailwind
  - Raise aileron away from the wind (yoke away from the wind)
  - Elevator forward/down, especially with high wing plane with tricycle. Prevents tipping forward over the wing and nose wheel.

# Wake turbulence

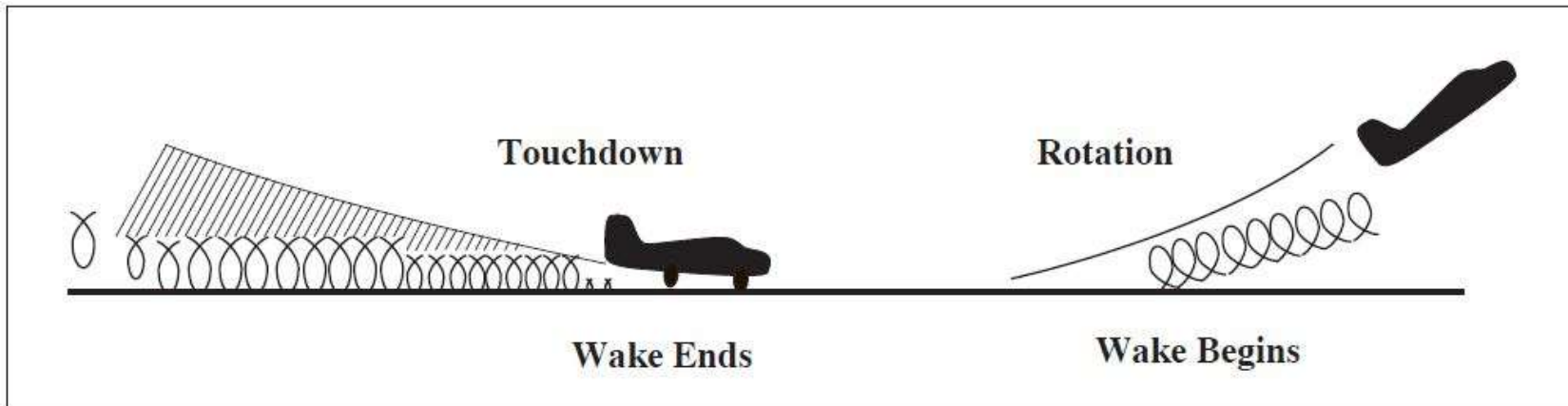
- Every lift-generating wing also creates wake turbulence.
- Around the tip of the wing from the bottom to the top.
- Most significant factor – weight of the plane.
- Worst with slow & clean configuration.
- Wake turbulence can remain for a few minutes.
- Moves down and outward.
- Might stay put if the right winds prevail – light quartering wind, upwind wake stays.



# Wake turbulence

- Landing aircraft ahead
  - Remain above its path
  - Land after its landing point
  - If not sure: wait

- Taking off aircraft ahead
  - Remain above its path
  - Take off before its rotation point
  - If not sure: wait



# Runway incursions and wrong surface events

- Wrong runway/taxiway.  
Sometimes wrong airport.
- Entering the runway unintentionally.
- Taxiing is a critical time of flight.

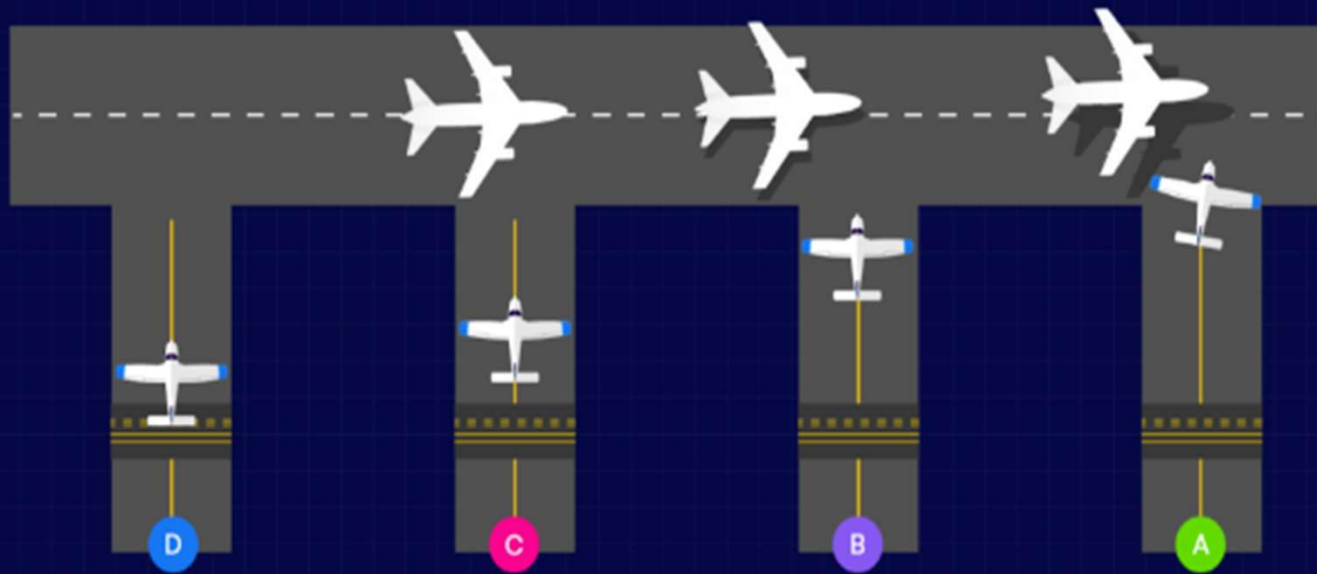


Double check  
runway  
alignment:  
before take off,  
turning final

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## Runway Incursion Categories



Little or no risk

Ample time/distance  
to avoid collision

Significant potential  
for collision

Barely avoid collision

 **pilotinstitute**

1,024 x 569

# Marshalling

