

CIRRUS AIRFRAME PARACHUTE SYSTEM

The Cirrus Airframe Parachute System, or CAPS, represents the ultimate manifestation of a cultural top-down commitment to general aviation safety. It provides Cirrus pilots and their families, with peace of mind. With CAPS, they know there's always one last reliable option in that incredibly rare instance that all other options have been exhausted.

The following presentation is meant to guide a discussion about CAPS with a certified Cirrus training partner.



Operation

Deployment

Decision Making



Operation

Preflight Inspection



Passenger Briefing: Activation

- ▶ Remove cover
- ▶ Pull handle down using a chin-up motion
- ▶ Pull mixture to cut-off
- ▶ Assume emergency landing position



Passenger Briefing: Landing Position

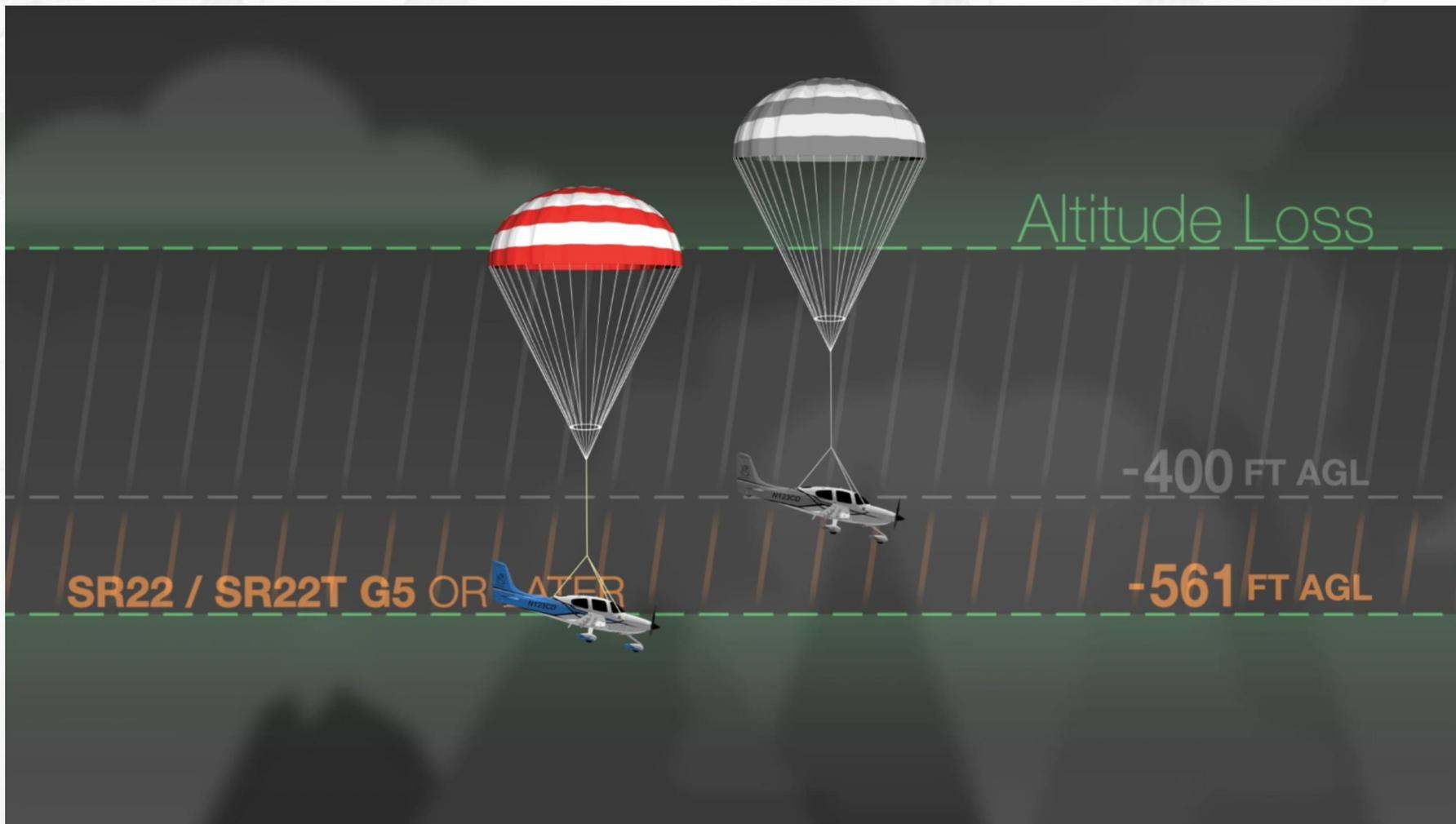
- ▶ Seatbelt low and tight around your waist
- ▶ Torso flat against the seatback
- ▶ Hands clasped together on your lap, one hand over the other wrist



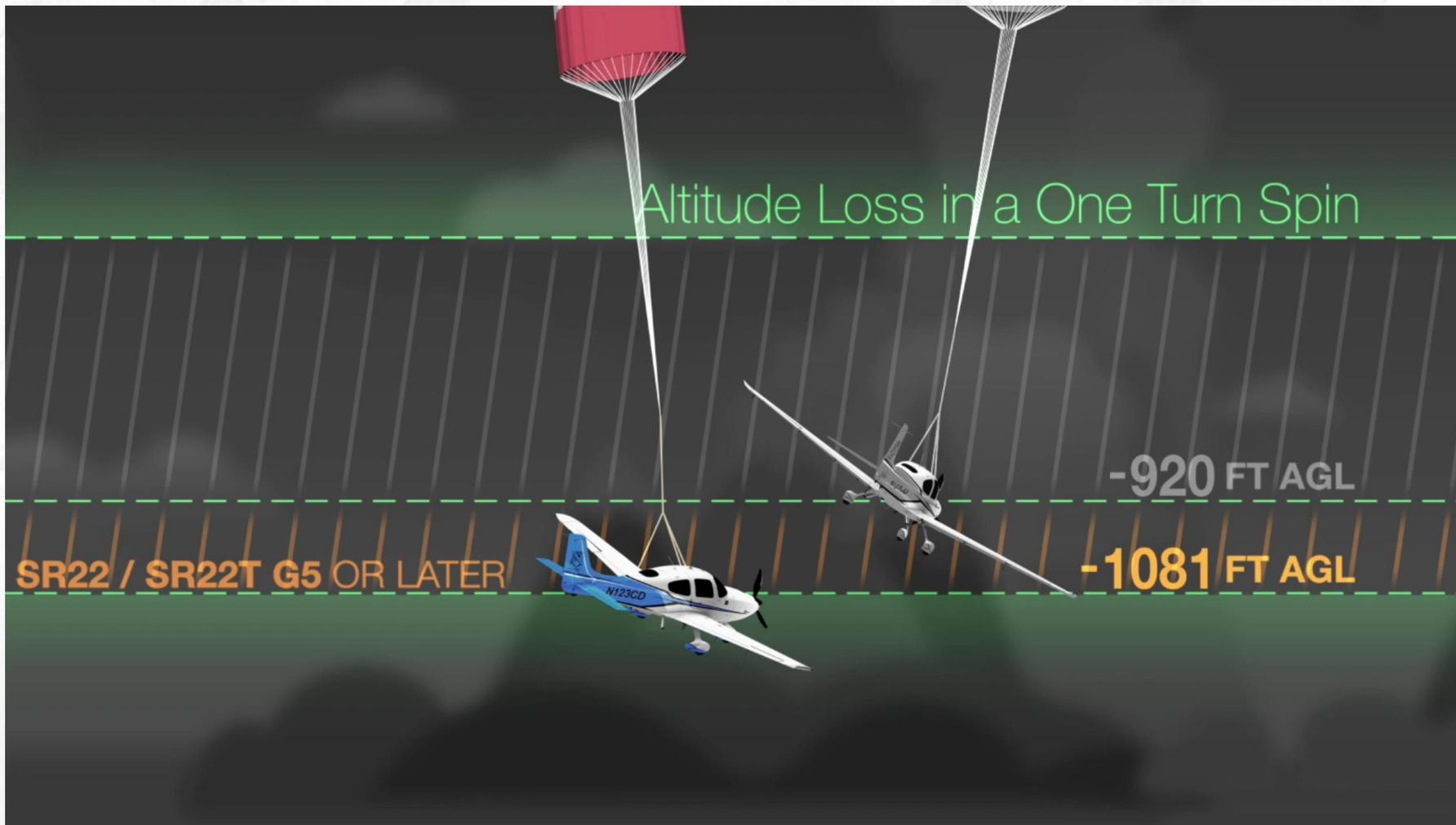
Takeoff Briefing



Demonstrated Altitude Loss



Demonstrated Altitude Loss



Max Demonstrated Deployment Airspeeds

 **CAPS DEPLOYMENT SPEEDS (V_{PD})**

SR20: G1 / G2 **135** KIAS
 G3 / G6 **133** KIAS

SR22: G3 **133** KIAS
 G5 / G6 **140** KIAS

SR22T: G3 **133** KIAS
 G5 / G6 **140** KIAS

SR22TN: **133** KIAS

Max Demonstrated Deployment Airspeeds

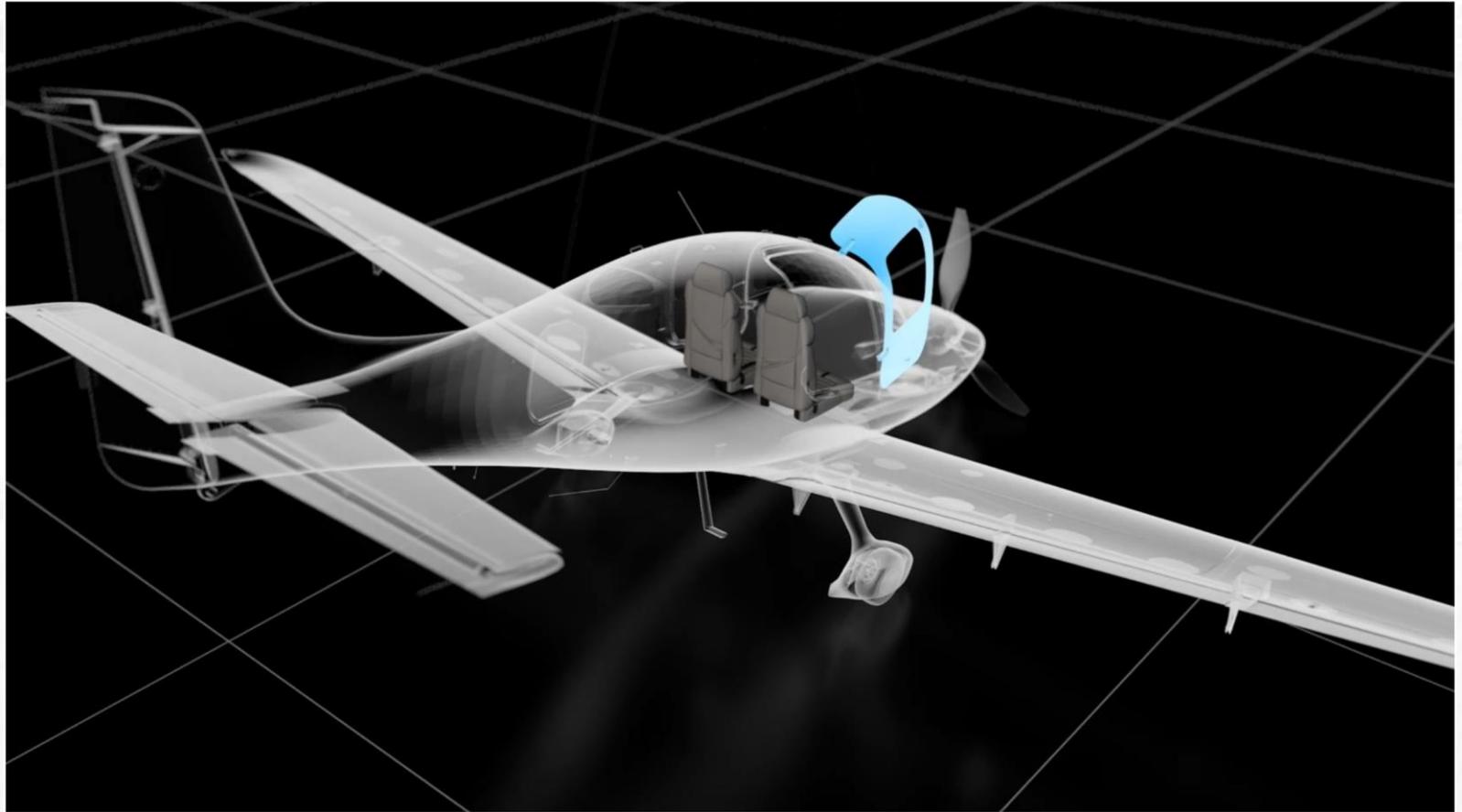
- ▶ Successful CAPS deployments have occurred at airspeed faster than V_{pd} .
 - 187 KIAS: VMC flight into IMC
 - 171 KIAS: Loss of control while in IMC
 - 187 KIAS: Pilot disorientation during night VMC flight



187 KIAS: Pilot Disorientation

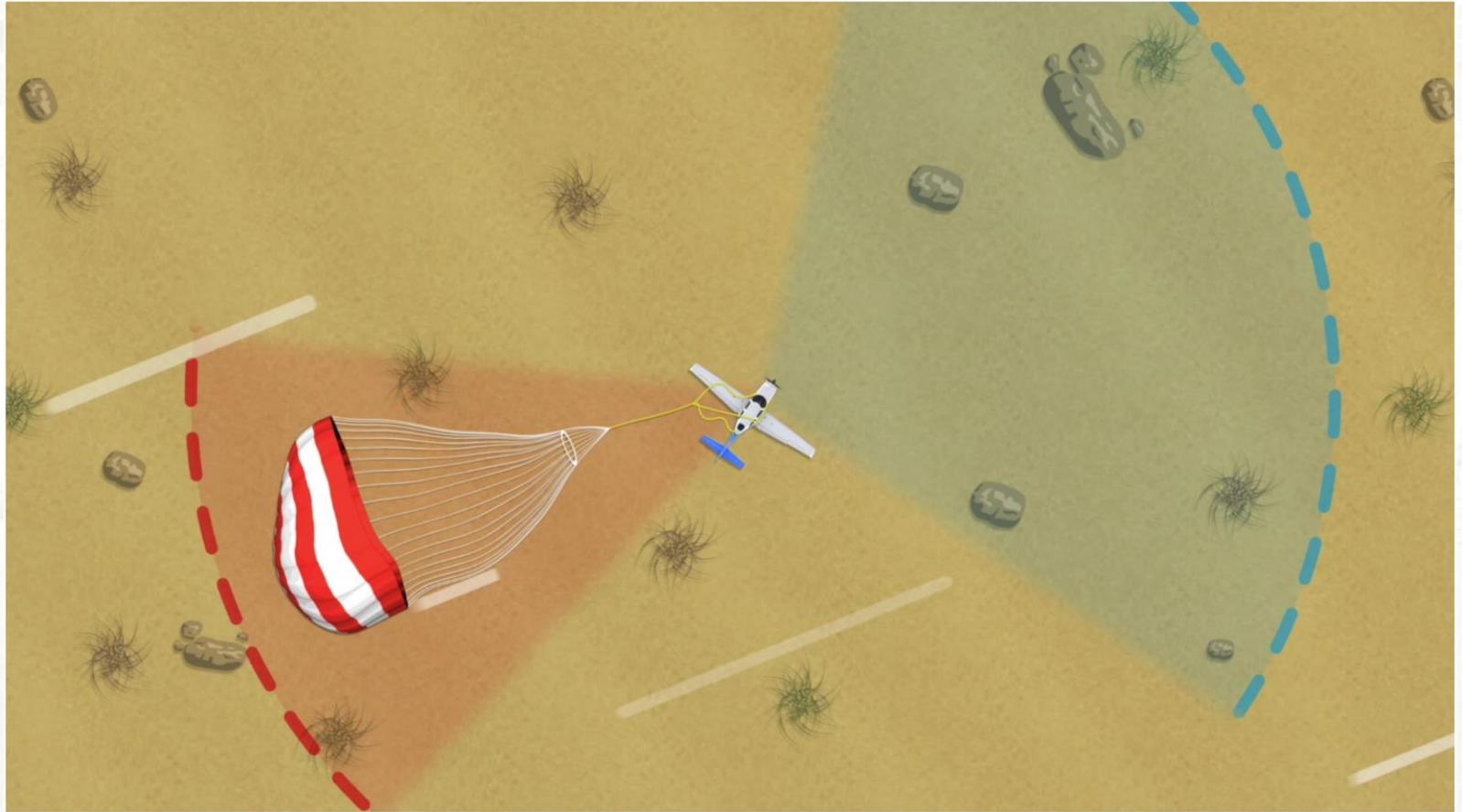
Door Position

- ▶ It is best to leave the doors latched for most situations.
- ▶ If it is decided to unlatch a door, unlatch one door only.



Evacuation

- ▶ When the airplane comes to rest, exit the airplane and immediately move upwind, away from the parachute canopy.
- ▶ Wind gusts can drag the airplane downwind.



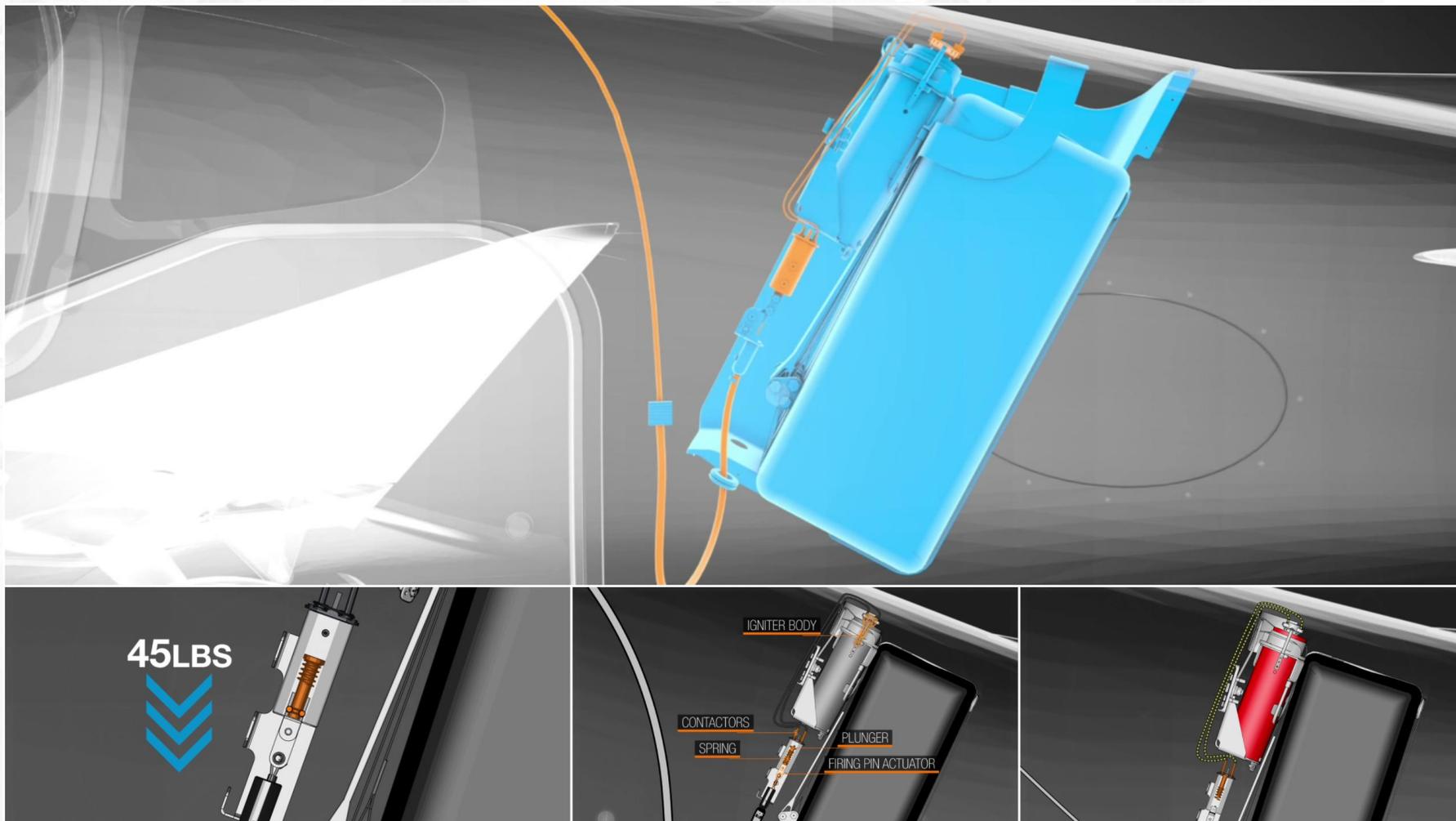


Deployment

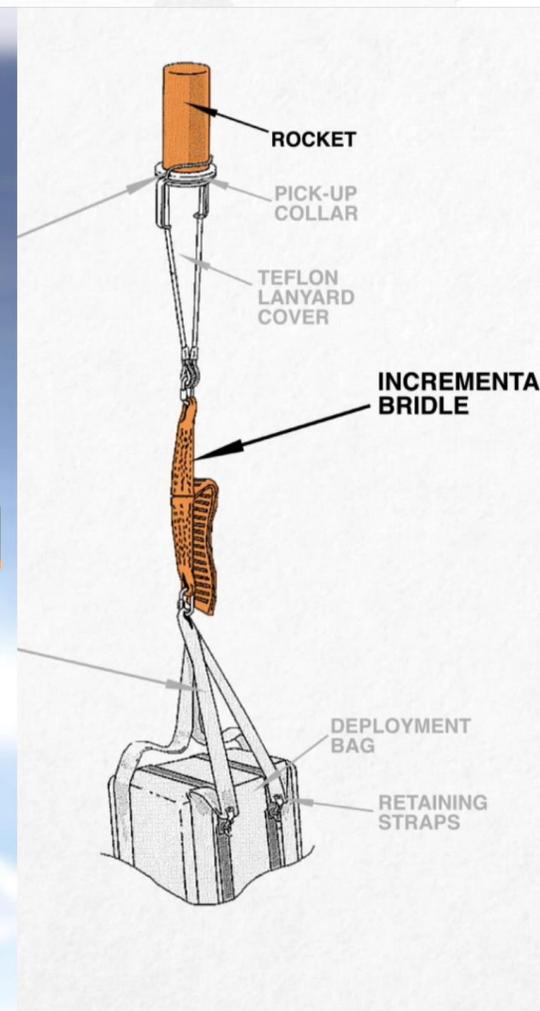
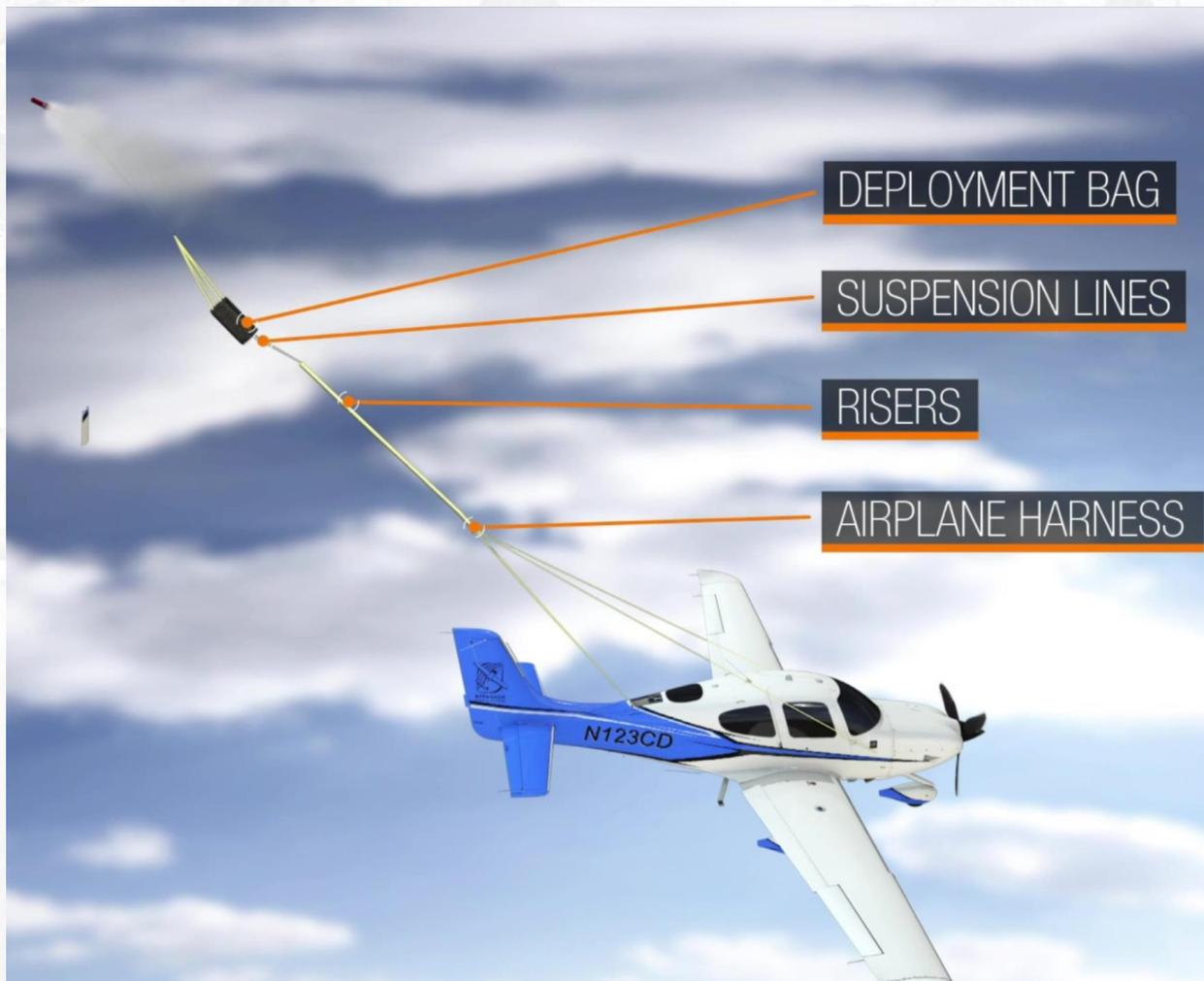
Deployment Stage: Activation



Deployment Stage: Activation



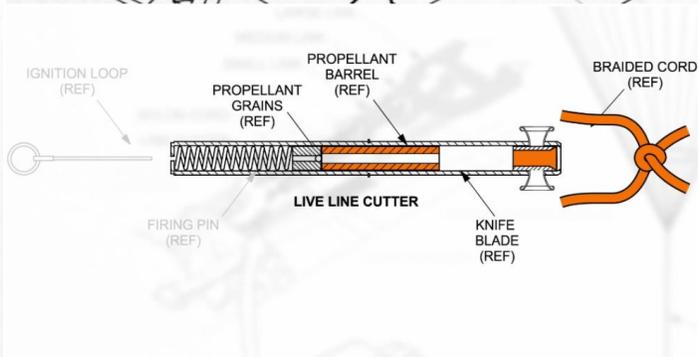
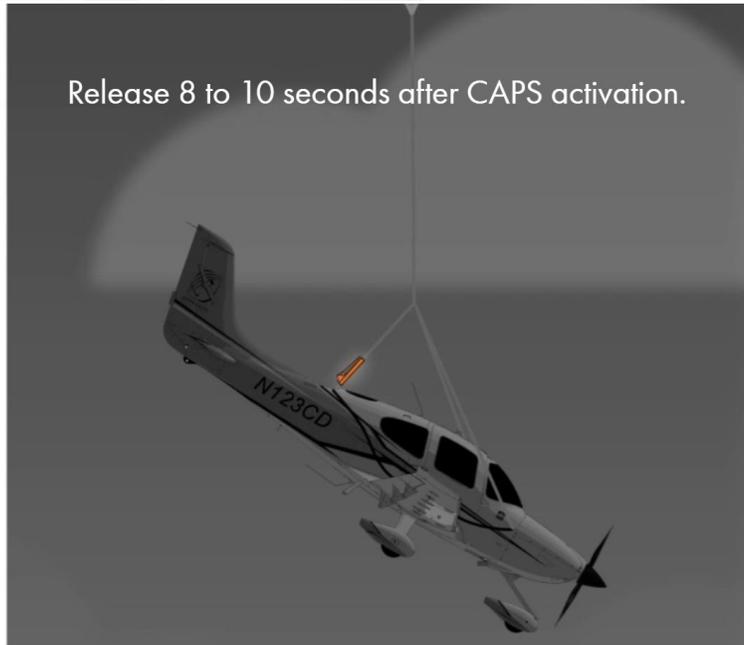
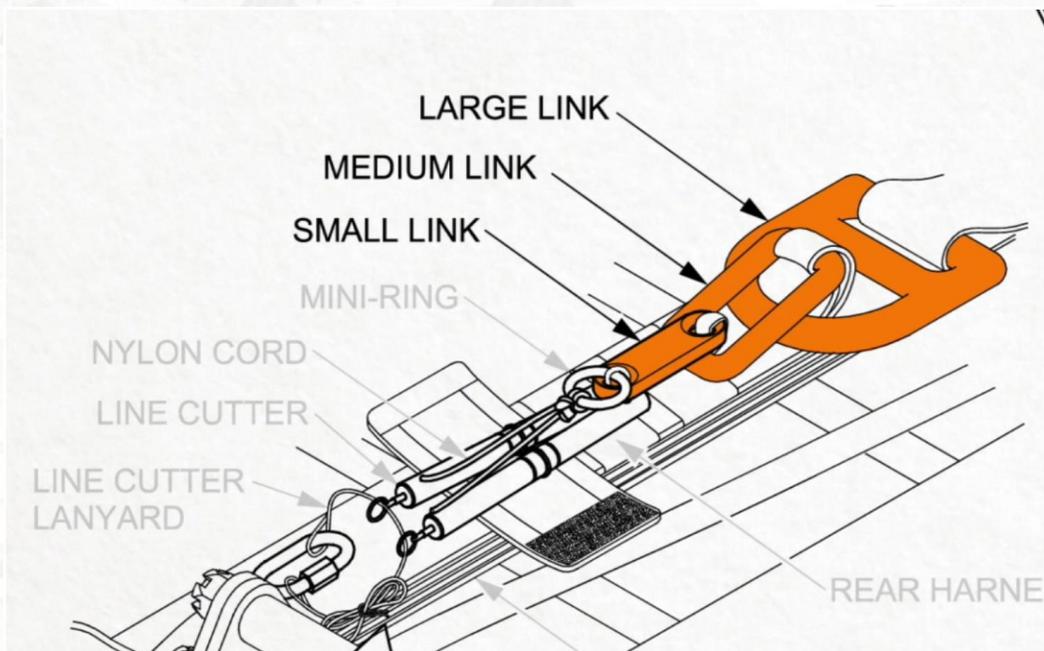
Deployment Stage: Extraction



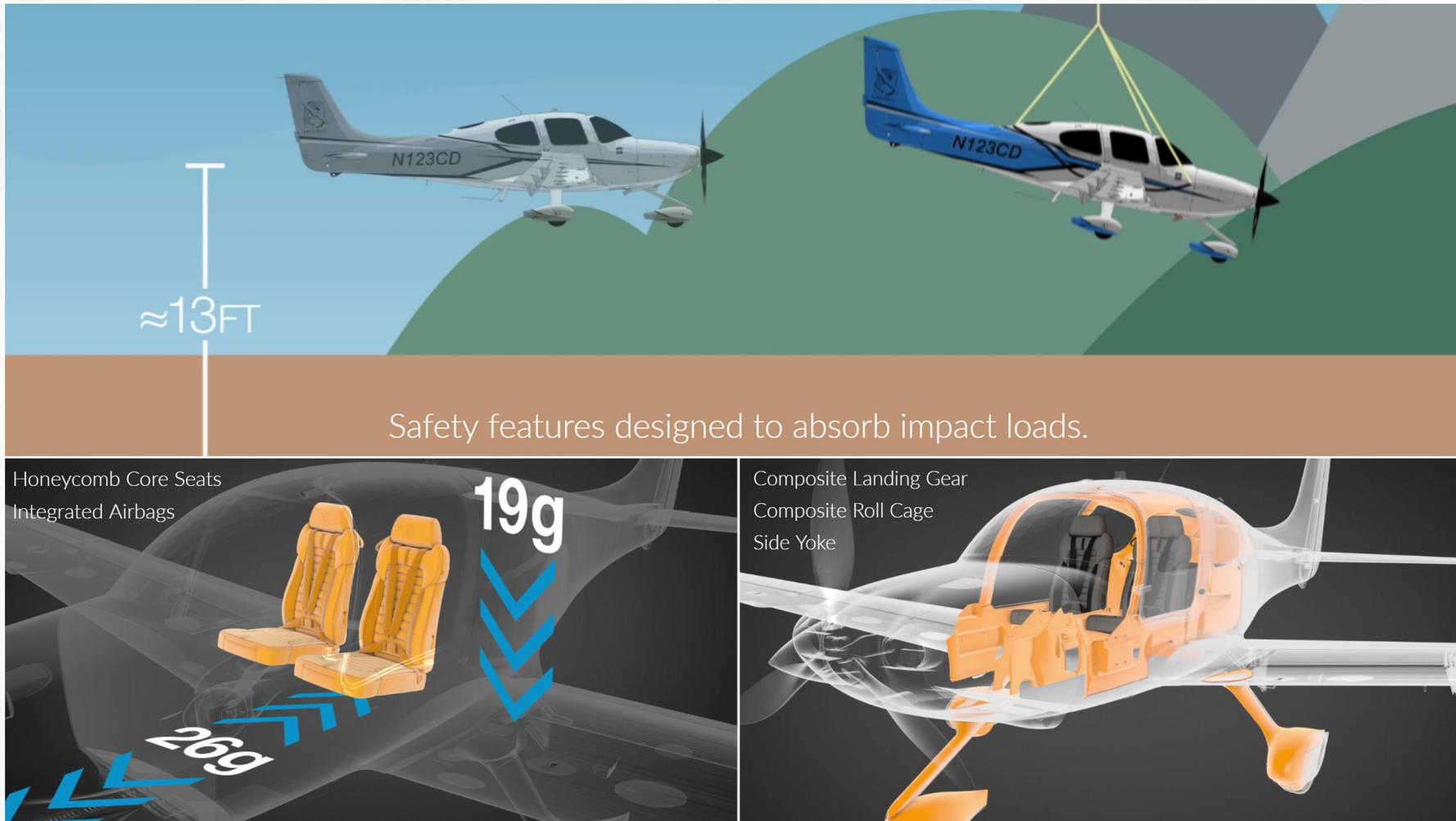
Deployment Stage: Disreef



Deployment Stage: Snubline Release



Deployment Stage: Touchdown





Decision Making

Will You Pull CAPS?



YOU'RE 13 TIMES **MORE LIKELY**
TO SURVIVE AN ACCIDENT IN A CIRRUS AIRPLANE
WHEN **CAPS** IS USED

WRIGHT STATE UNIVERSITY



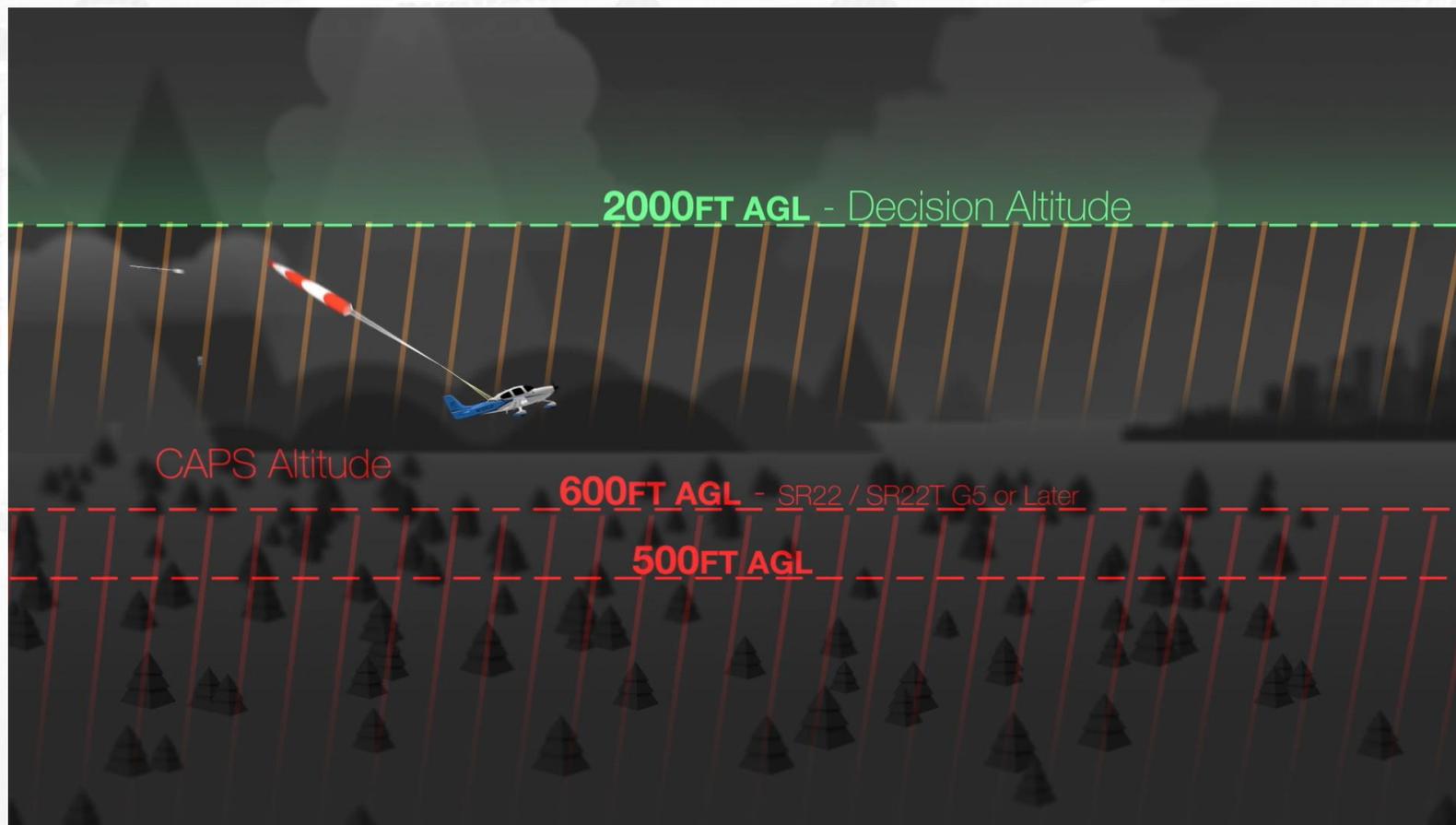
Would You Pull?: Engine Failure

▶ Pull CAPS Immediately

- Engine failure
 - 600 to 2000 ft AGL (G5 & G6)
 - 500 to 2000 ft AGL (G3 & SR20 G6)
- No survivable alternative exists

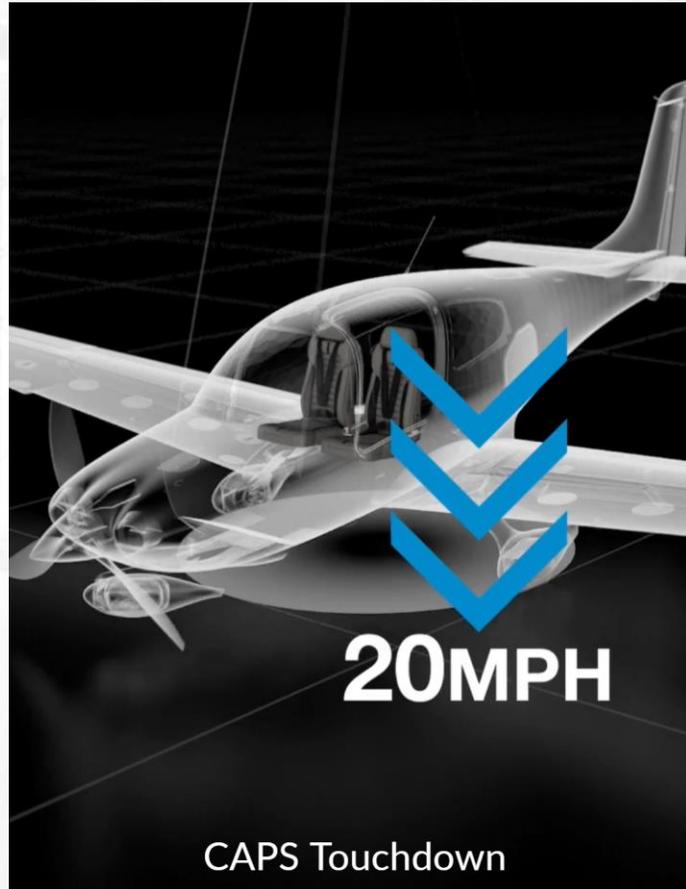
▶ Consider CAPS

- Engine failure above 2000 ft AGL



Engine Failure: Off-Airport Landing

- ▶ Activate CAPS in a forced landing emergency on an unprepared surface.
 - There must be a high likelihood of a safe landing to forego CAPS.
- ▶ Likelihood of a safe landing?
 - Forced landing touchdown is approximately 65 MPH. Fatal hazards may not be recognized until on final approach.
 - CAPS touchdown is approximately 20 MPH.



Would You Pull?: Loss of Control

- ▶ An unintended and unrecoverable departure from your desired flight path.
- ▶ You have lost control if your corrective control inputs don't cause the flight instruments to respond as you anticipated, that is, to return to your desired flight path.



Loss of Control

- ▶ The majority of fatal loss of control accidents COULD have been avoided if the pilot had activated CAPS. So why didn't they?
- ▶ What we need to do.
 - Define what a loss of control looks like.
 - Think about or identify what our response is going to be.

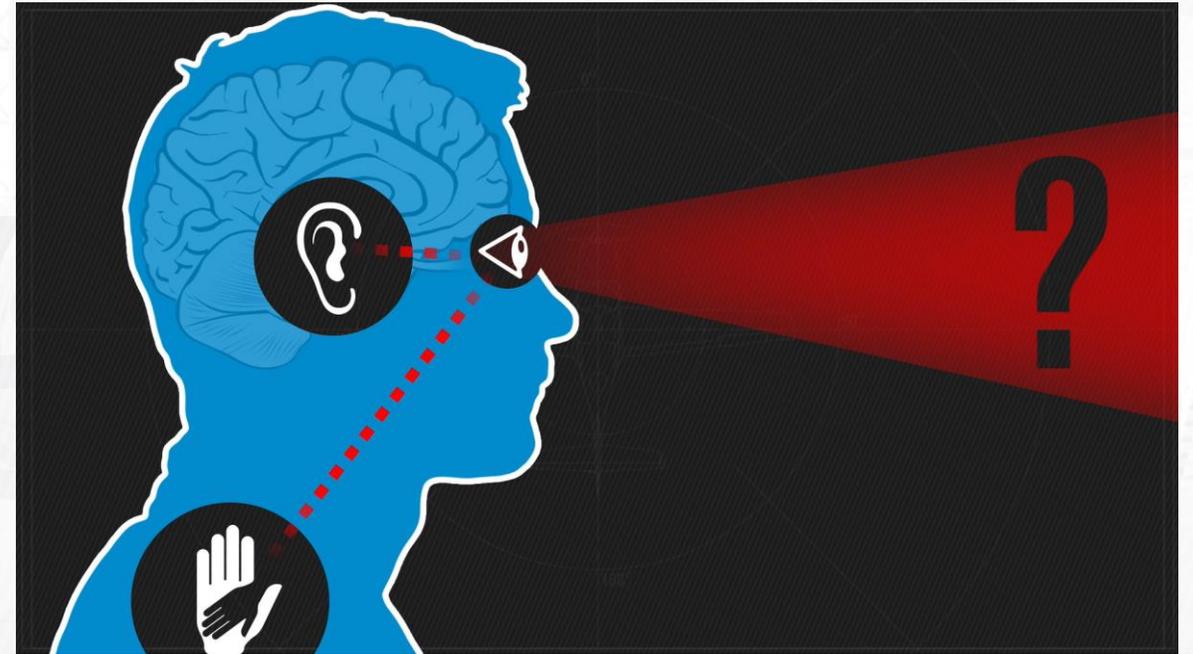
LOSS OF CONTROL:

- Structural Failure
- Pilot Disorientation
- Pilot Incapacitation
- Mechanical Failure
- Environmental (Weather)
- Outside Flight Envelope

Loss of Control: Spatial Disorientation

▶ What it Looks Like

- That feeling where you find yourself inclined to disagree with the flight instruments because of what your body is telling you.
- It is responsible for a high percentage of fatal accidents.
 - VFR flight in IMC
 - Night VFR in VMC
 - Instrument flight in IMC



Loss of Control: Spatial Disorientation

▶ Your Response

- Engage the Autopilot
 - Press the blue LVL button, or
 - Engage the autopilot's HDG mode, center the heading bug, and then press ALT for "altitude hold" mode.
- Activate CAPS
 - If use of the autopilot doesn't cause you to regain control and you've lost confidence that any further control inputs will lead you to prompt correction.



Loss of Control: Spin

▶ What it Looks Like

- A wing drops aggressively, and the view through the windscreen becomes a nose-low, rapid, almost-blurred rotation.
- In all cases, if the aircraft enters an unusual attitude following or in connection with a stall, a spin condition should be assumed.



Loss of Control: Spin

- ▶ Activate CAPS IMMEDIATELY
 - Your reaction needs to be immediate, without hesitation.
 - Under no circumstances should a spin recovery other than CAPS deployment be attempted.
- ▶ Life-threatening Emergency
 - A spin is abrupt, unexpected, and jarring.
 - Most pilots have conducted very little spin recovery training.
 - Recovery attempts take time and an appreciable amount of altitude.
 - Most inadvertent spins occur during takeoffs or landings.



Activation Decision Points

- ▶ Pull CAPS Immediately
 - Mid-air collision
 - Spin
 - Loss of control
 - Engine failure
 - 600 to 2000 ft AGL (G5 & G6)
 - 500 to 2000 ft AGL (G3 & SR20 G6)
 - No survivable alternative exists
- ▶ Consider CAPS
 - Engine failure above 2000 ft AGL

IMMEDIATE

-VS-

CONSIDER