

May 4-5
PHOENIX, ARIZONA

62nd annual Business Aviation Safety Summit

BASS2017

Business Aviation Overcomes LOC-I

JOHN COX – SAFEOPSYS.COM

PAUL BJ RANSBURY – APSTRAINING.COM

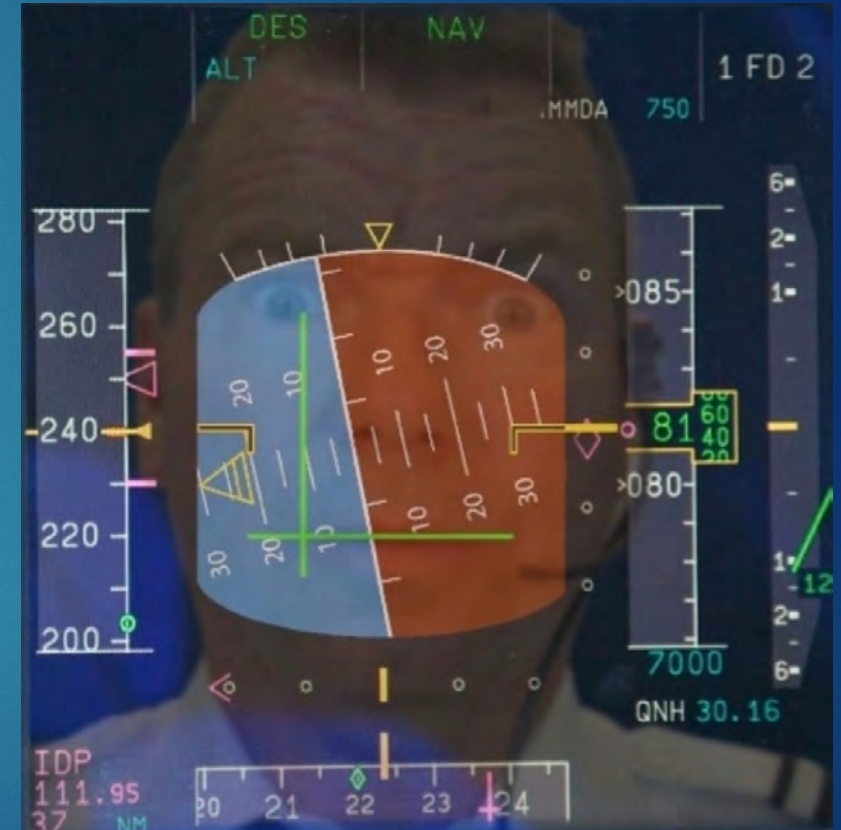


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Overview

- ▶ Example Scenarios
- ▶ Statistics
- ▶ Industry Breakthroughs
- ▶ Fundamental Concepts
- ▶ Plans to Solve LOC-I



Challenger vs. A380 Wake Upset



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LOC-I Scenario Video

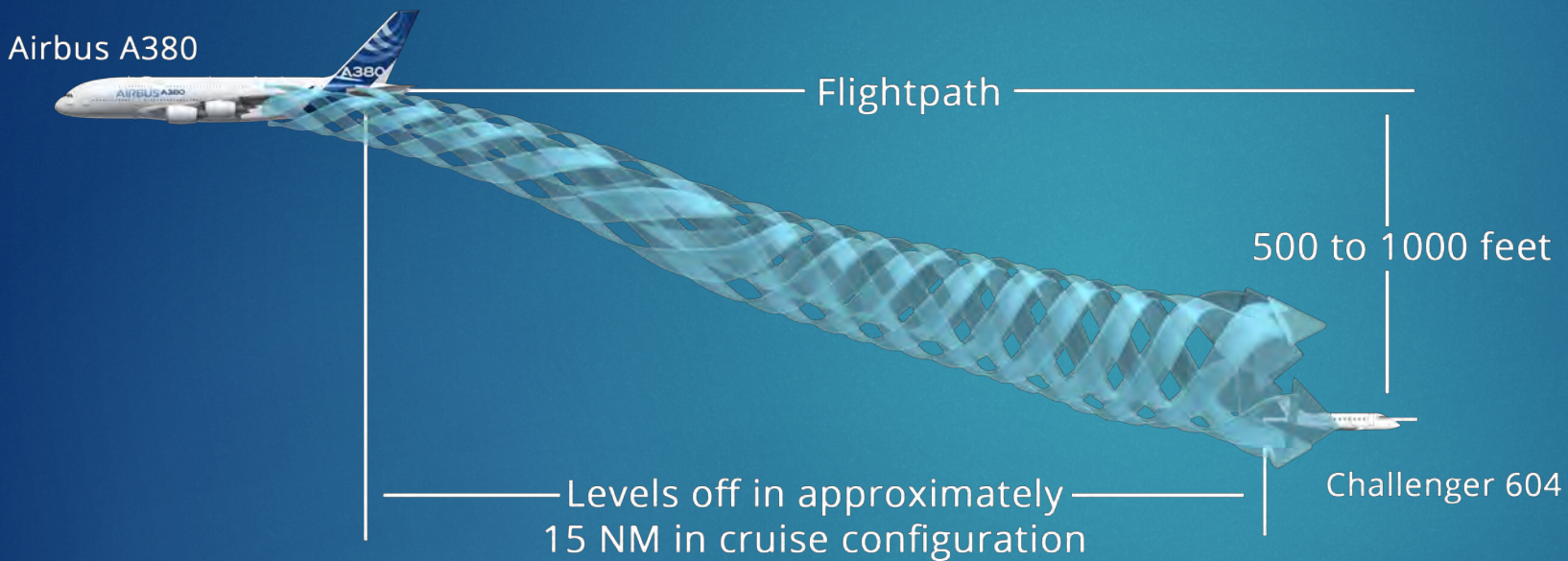
- ▶ Opposite Direction, Same Track
 - ▶ Challenger at 34,000'
 - ▶ Airbus A380 at 35,000'
- ▶ Upset Specifics
 - ▶ Rapid Pitch / Roll / Yaw at Upset
 - ▶ Lost ~10,000' of Altitude
 - ▶ Flight Data Being Analyzed
 - ▶ Numerous Full Rolls (up to 5 reported)
 - ▶ Engine Shutdown After Recovery, then Restarted
 - ▶ Challenger is Out of Service



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Wake Turbulence at High Altitude

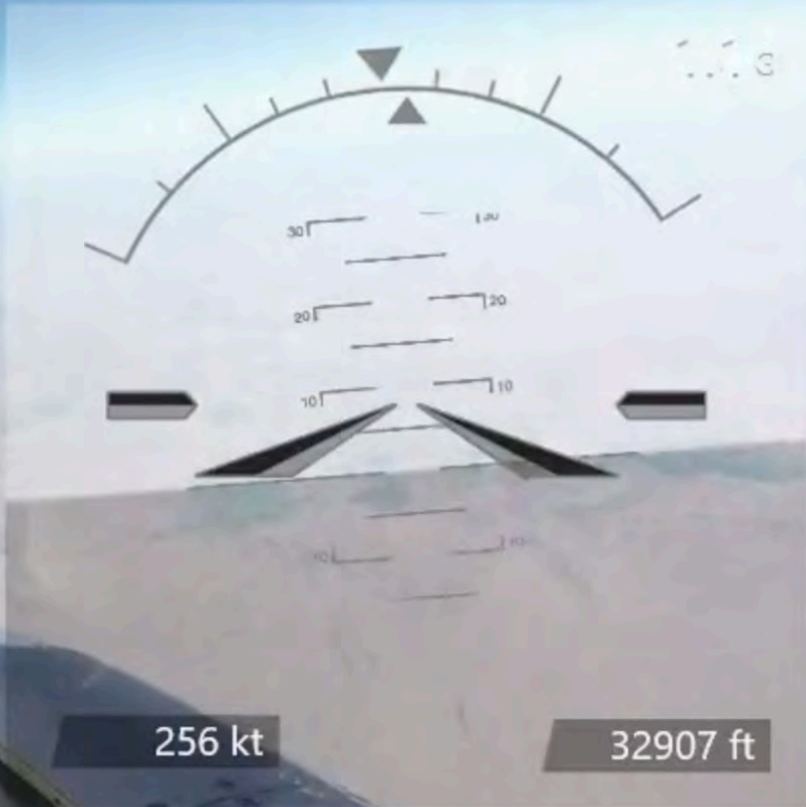




ALTITUDE: 32903 FT
COURSE(COG): 179°

APS AVIATION PERFORMANCE SOLUTIONS

High Altitude Wake Turbulence

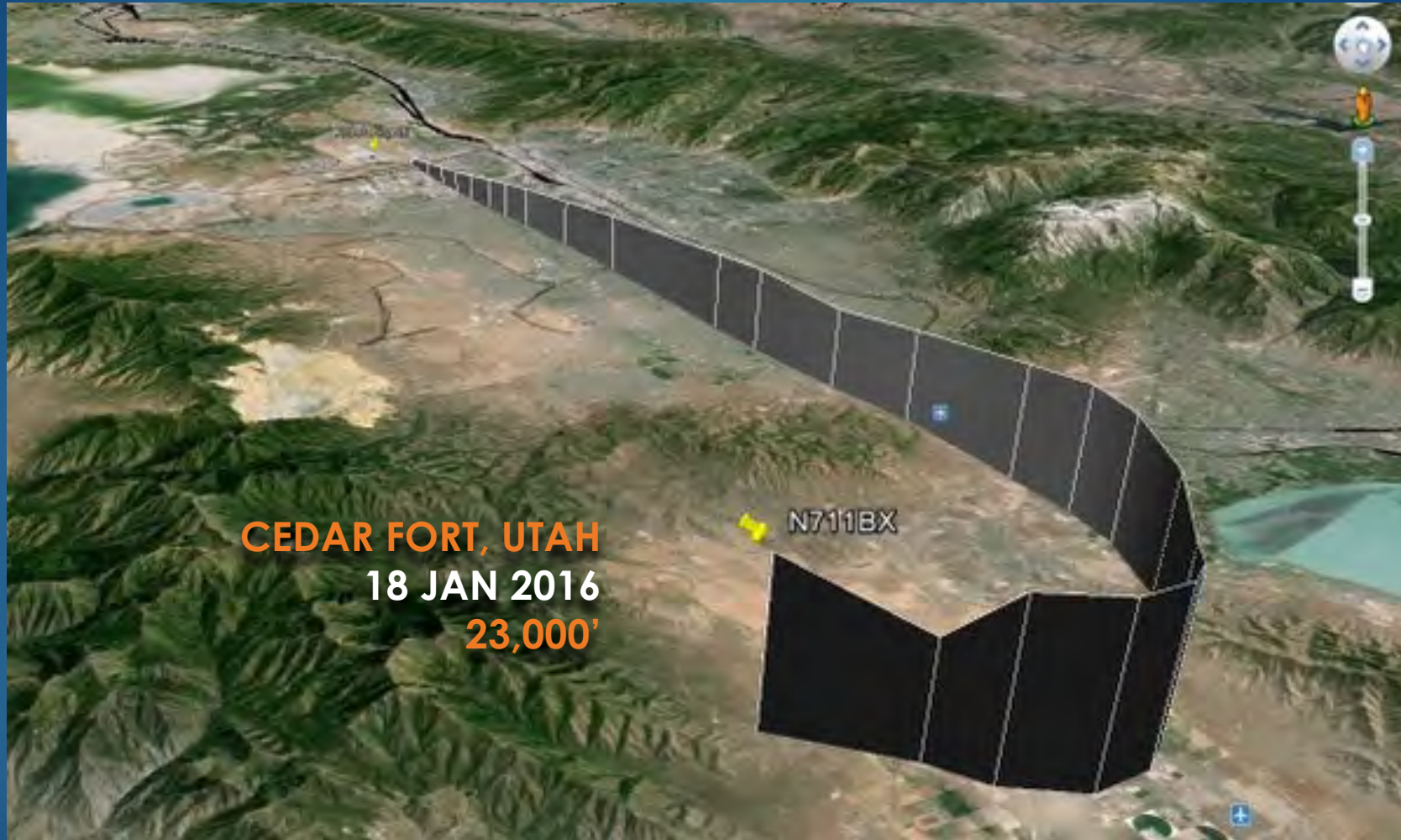


N33° 18' 19.4"
W111° 14' 06.1"

PITCH 7° ROLL 4°

5/3/2017 7:41 AM

Cessna 525 CitationJet CJ1



LOC-I Scenario Video

- ▶ Cessna 525 CitationJet CJ1
 - ▶ 18 January 2016 at ~10 am MST
 - ▶ Crash Near Cedar Fort, Utah
 - ▶ Two Fatalities (Occupants)
- ▶ Airframe In-flight Breakup While Maneuvering
- ▶ Situation
 - ▶ Flight Management System (FMS) Failure
Attempting to Program the Backup FMS While Handflying
 - ▶ Looking for a Climb and Vectors Around Precipitation
 - ▶ MAYDAY Call Followed by No Gyro Turn Issued by ATC



Citation 711BX Accident Photos





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Statistics

PART 135 ON-DEMAND | BUSINESS | CORPORATE AVIATION SEGMENTS



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Aviation Segment Refresher



Business

- Use to further a business without a paid flight crew. If the pilot works for a company who owns the aircraft and the flight is incidental to the pilot's position, the flight is a business flight. If the pilot is using a company aircraft for personal reasons, the flight would be personal.



Corporate / Executive

- Individual or group business transportation with a paid flight crew (includes fractional ownership). Specific flight can be for either business or personal use.



On-Demand Part 135

- Aircraft operations providing air transportation of persons or property for compensation or hire.

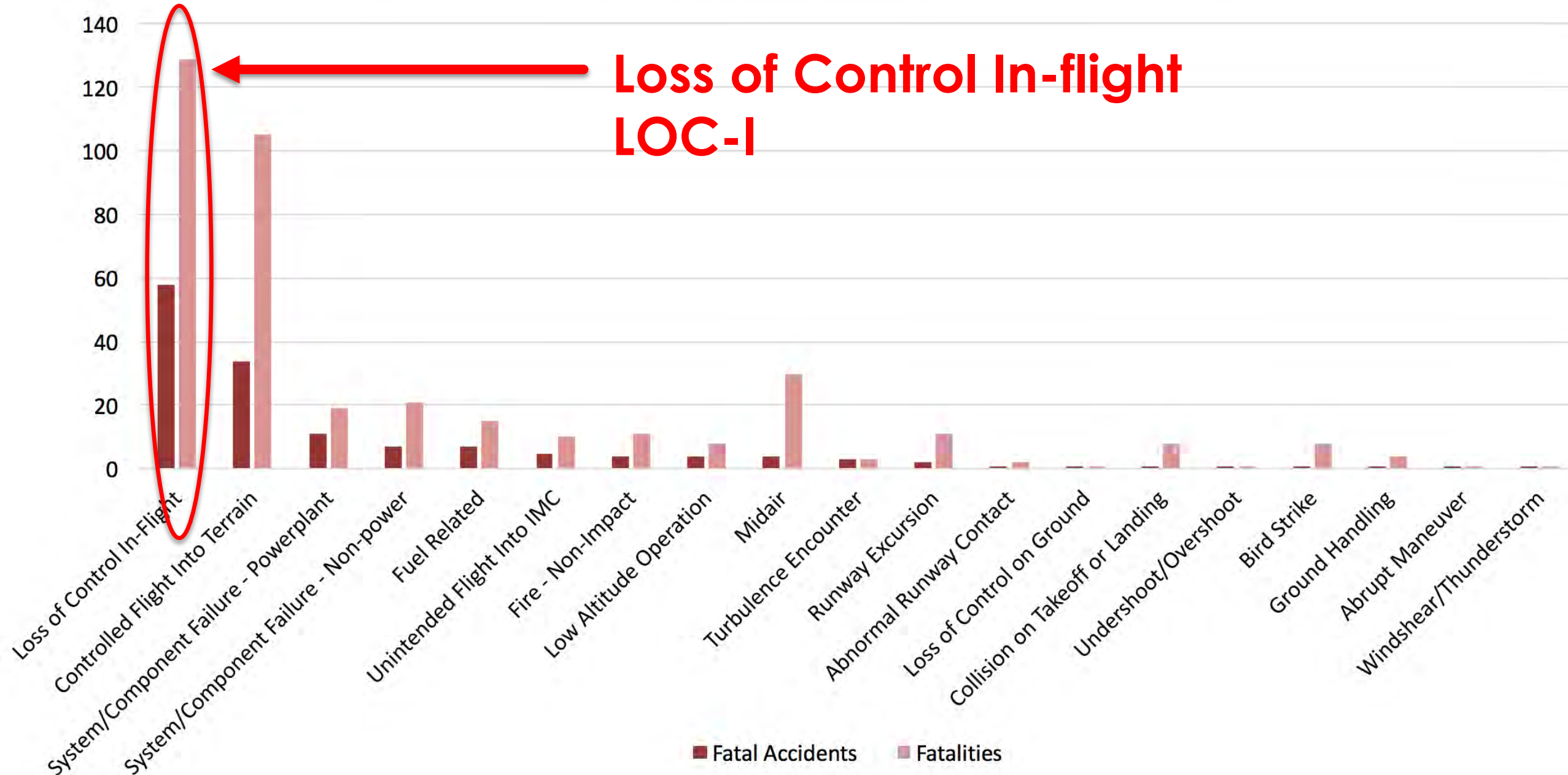
LOC-I = Loss of Control In-flight

- ▶ An extreme manifestation of a deviation from intended flight path (ICAO, CAST, EASA)
- ▶ An adverse flight condition placing an airplane outside of the normal flight envelope with an inability of the pilot to control the airplane (Media)
- ▶ Full stall is an out of control condition

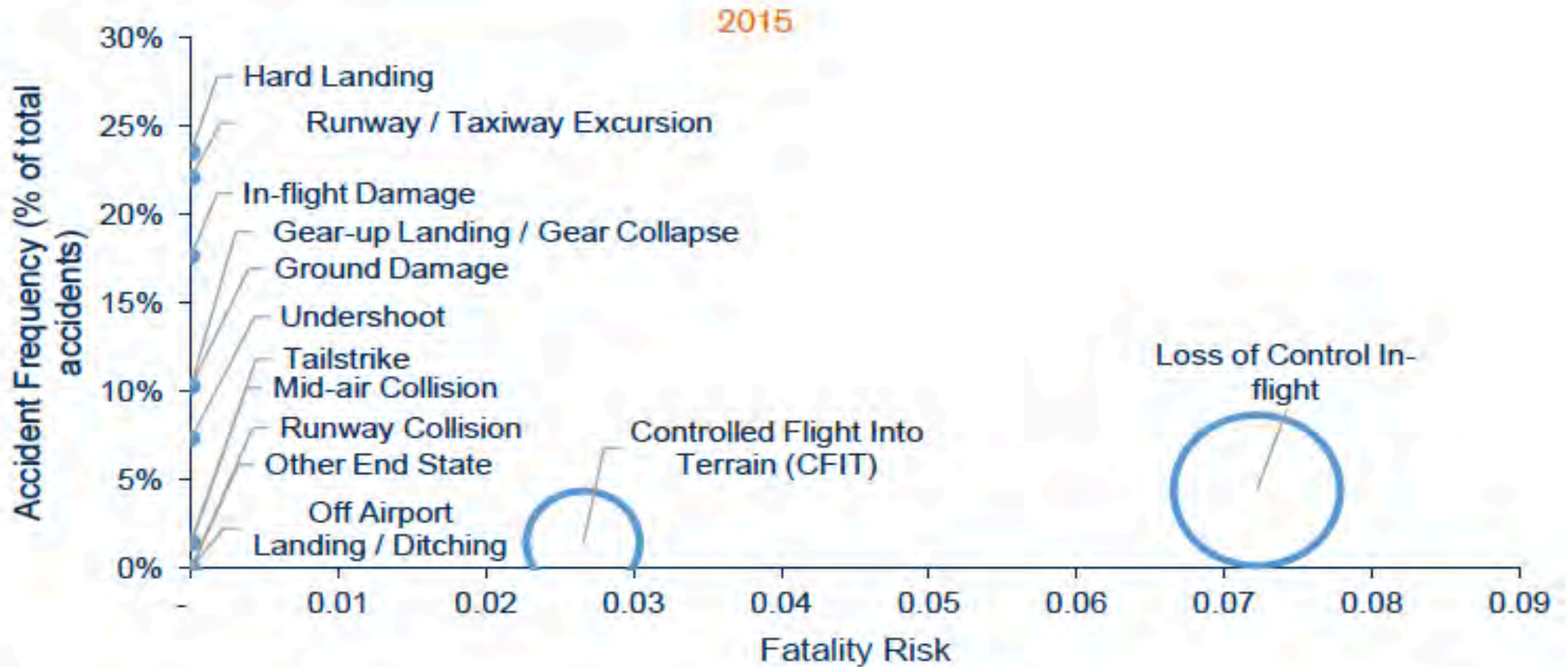


On Demand Part 135, Business, and Corporate Fatal Accidents and Fatalities by Occurrence Category 2008-2016

(excludes other, unknown, and unclassified)



International Air Transport Association (IATA)



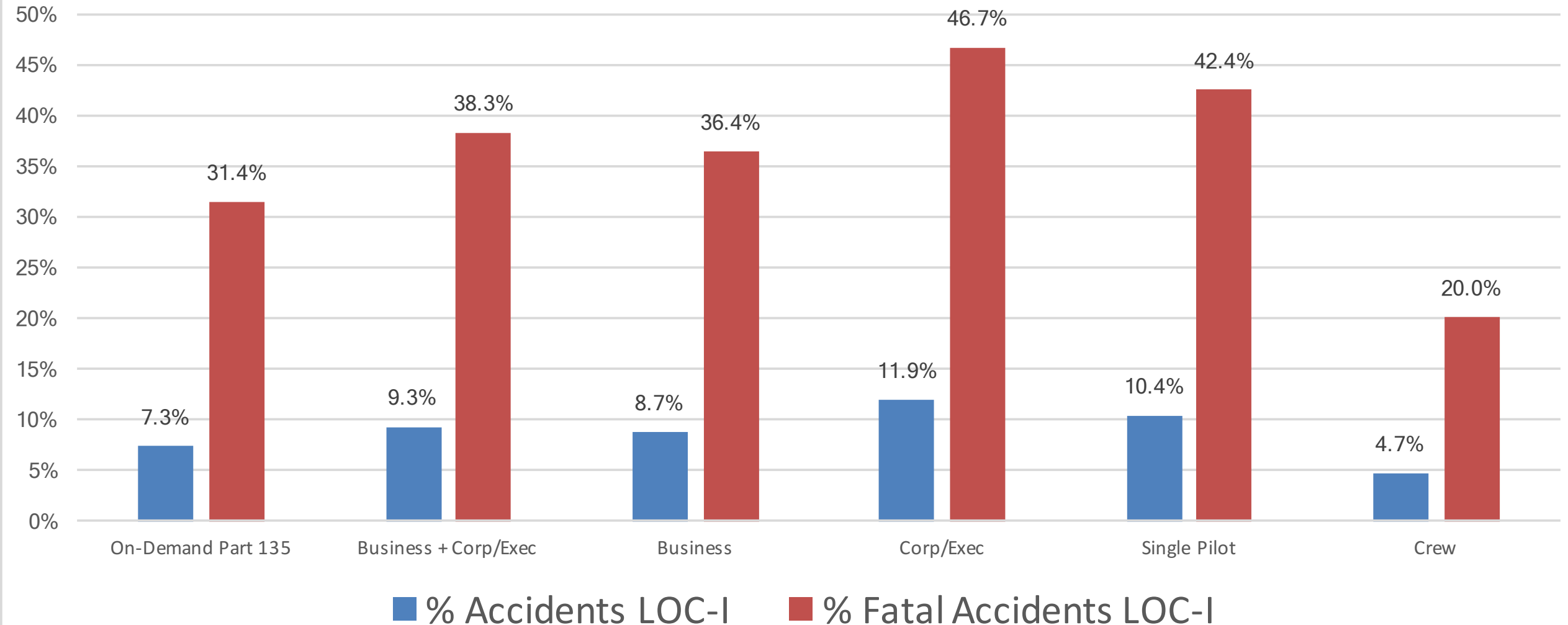
International Air Transport Association (IATA)

Accident Category Frequency and Mortality Risk (2011-2015)



NTSB Data Analysis 2017

LOC-I Contributions to Fatal Accidents and Fatalities - 2008 to 2016
(On-Demand Part 135, Business, Corporate/Executive)





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Industry Breakthroughs

TALKING THE TALK VS. WALKING THE WALK



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Industry Breakthroughs

- ▶ ICAO Manual on Aeroplane Upset Prevention and Recovery Training (UPRT)
- ▶ IATA UPRT Best Practices
- ▶ RAeS Specialist Paper
- ▶ NBAA Safety Committee





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Fundamental Concepts

THE RIGHT KIND OF BASICS MAKE ALL THE DIFFERENCE



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Missed Fundamental Concepts

- ▶ Academic Knowledge
- ▶ Angle of Attack
- ▶ Human Factors
- ▶ Integrated UPRT



We Have Been Teaching This A LONG Time



Yet It Still Happens



How Effectively Are We At Managing The Risk?



Understand Critical Facts

Recognize a Stall and Recover



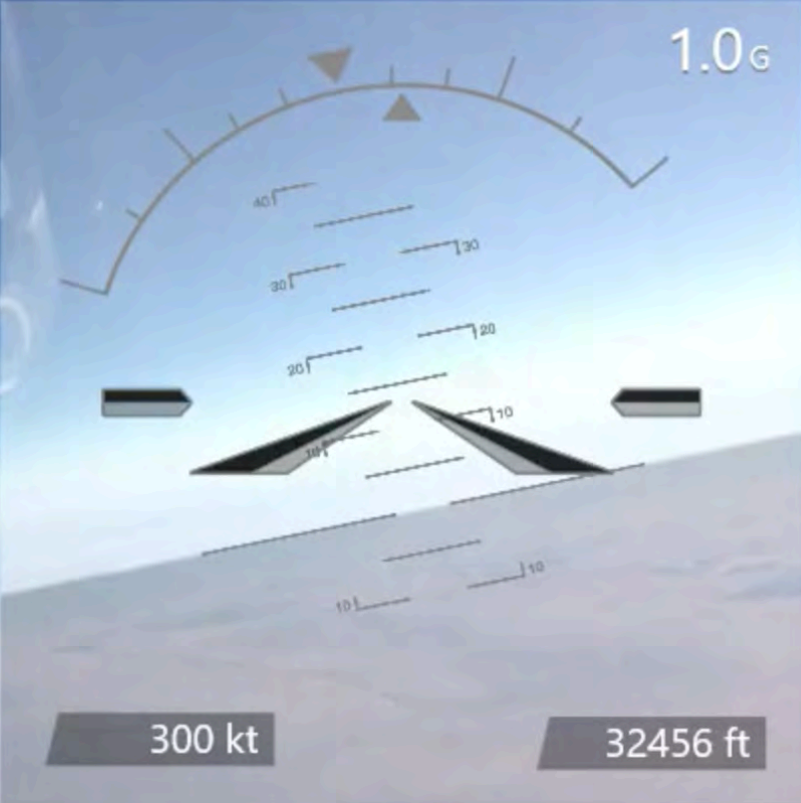
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APS AIRCRAFT PERFORMANCE SOLUTIONS

Two Scenarios: High Altitude Stalls



PITCH 12°

ROLL 11°

N33° 03' 00.8"
W111° 02' 01.7"

4/29/2017 7:41 AM

Are We Repeating The Same Mistakes?



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Training Plans to Overcome LOC-I

WHAT DOES THAT FUTURE LOOK LIKE?

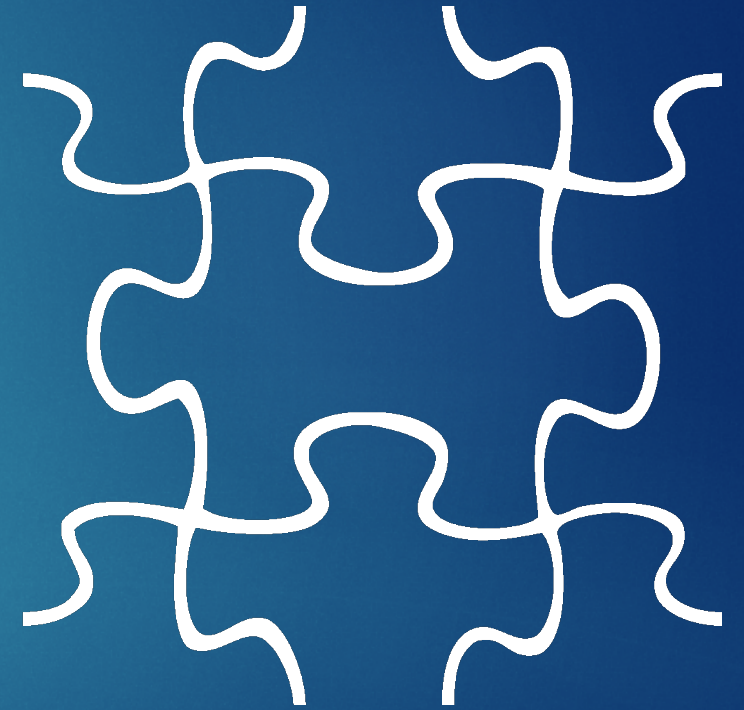


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Directives to Overcome LOC-I

- ▶ Industry-compliant to the ICAO UPRT Standard
- ▶ Prevention Alone is Insufficient
- ▶ Integrated Solutions
Academic | On-Aircraft | Simulator
- ▶ Recurrent Training Every 2 Years
- ▶ Aggressively Avert Negative Training





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Closing for Success

KEY TAKE-AWAY ITEMS



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Ongoing Focus Items For EVERY Operator

- ▶ High Altitude Stall / Upset
 - ▶ Thrust Limited
 - ▶ AOA Management
 - ▶ Descent is Happening
Your Choice?
 - ▶ Deliberate and In Control, or
 - ▶ Unexpected and Out of Control



This Should NOT Result In Losing Control



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Unload



Business Aviation Can Do Better

- ▶ Make LOC-I Training a Priority
- ▶ Vary Types of Training Mixes
 - ▶ In Airplane
 - ▶ Simulator
- ▶ Regulatory Minimum = Minimum Results
- ▶ Augment Ground Training with Experts
 - ▶ Awareness
 - ▶ Prevention
 - ▶ Recovery



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