



# National Transportation Safety Board



## Loss of Control

Brice Banning  
NTSB Alaska Region

- The Board
  - Chairman
  - Vice Chairman
  - 3 Members
- Multi Mode
  - Aviation
  - Railroad
  - Highway
  - Marine
  - Pipeline and Hazardous Materials



# Our Mission

The NTSB is an independent Federal agency charged with investigating transportation accidents **(Not part of FAA, DOT, or any other agency).**

The NTSB is responsible for the organization, conduct, and control of all civil (and most public use) aviation accident and incident investigations in the United States, U.S. territories and possessions.

The NTSB is also provided the opportunity to investigate U.S. designated/manufactured aircraft and engines that are involved in accidents in foreign countries.



# Nationwide NTSB Staffing

About 400 Employees  
(All modes)

100 Employees (Aviation)

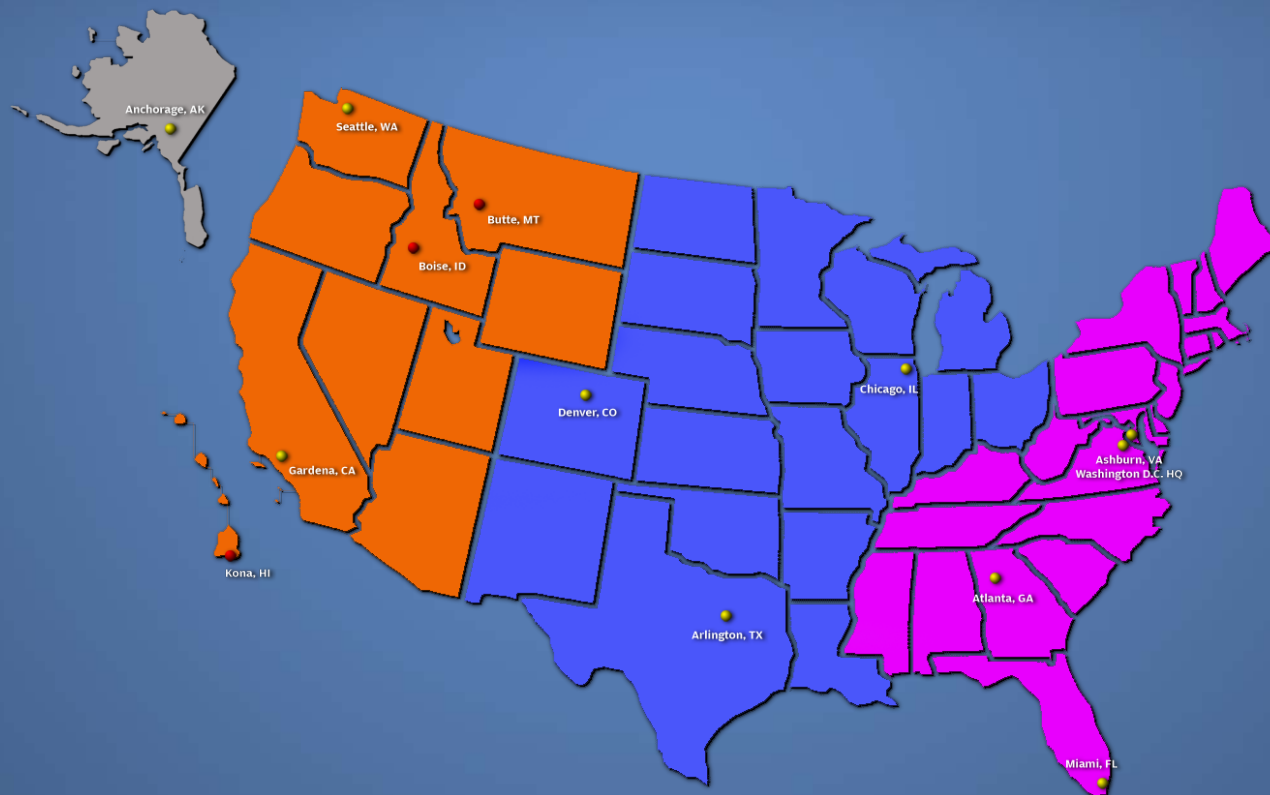
4 Regional Aviation  
Offices

54 Regional Aviation  
Investigators

6 (AS-10) Majors  
Investigators



# NTSB Aviation Regions



# ALASKA NTSB

- 4 Alaska Based Investigators
- About 80 Accidents Per Year
- Piper PA-18's to Boeing 747's
- Work in Remote, Arctic Environment





# Unique Challenges for Investigators in Alaska



# CICTT LOC definition:

- CAST/ICAO Common Taxonomy Team (CICTT)

“...an extreme manifestation of a deviation from intended flight path.”



# In Simpler Terms

- The airplane won't go where the pilot wants it to go.
- The airplane does go where the pilot doesn't want it to go.
- It's a surprise when it happens!!!

# NTSB (data) common conventions

- LOCI is known as a “defining event” and best describes the accident scenario.
- LOCI (as a defining event) generally involves an aerodynamically sound airplane; it may not be mechanically sound but is still controllable.

# NTSB Data 2008-2014 (In-flight)

- **Total All Accidents: 9,751**
- **Total Fixed Wing Accidents: 8,730**
- **LOCI Fixed Wing Accidents: 1,518**  
**(17.4% of all FW)**

**(LOC/stall is the “defining event.”)**



# GA Fatal Flights

- Total fatal: 1,553
- LOCI fatal: 721  
(46.4% of FW Fatal Accidents)

# Number of Fatalities

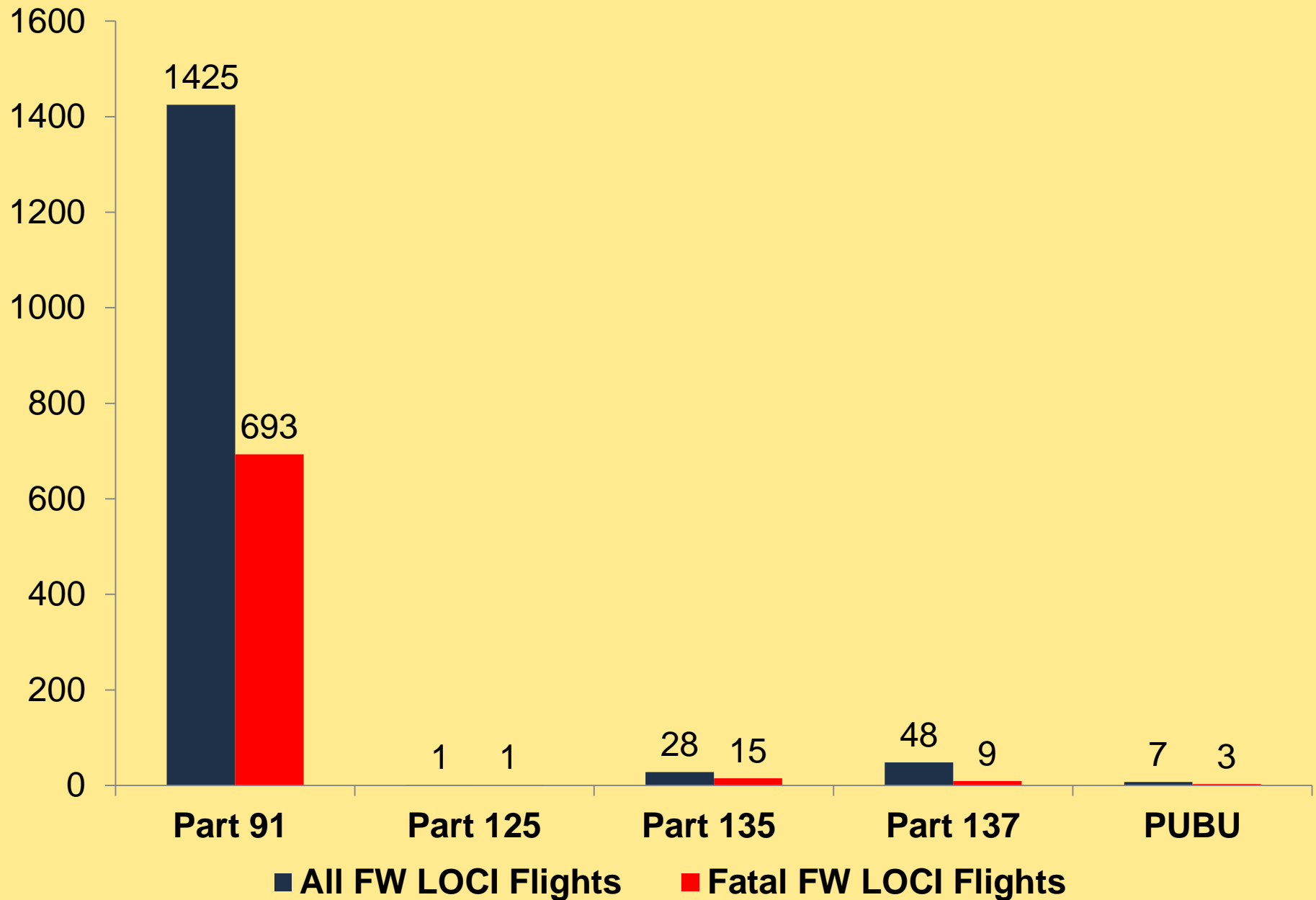
- **Total FW fatalities: 2,698**
- **LOCI FW fatalities: 1,237**  
**(45.8% of FW Fatalities)**

# Alaska Numbers – 2013-2015

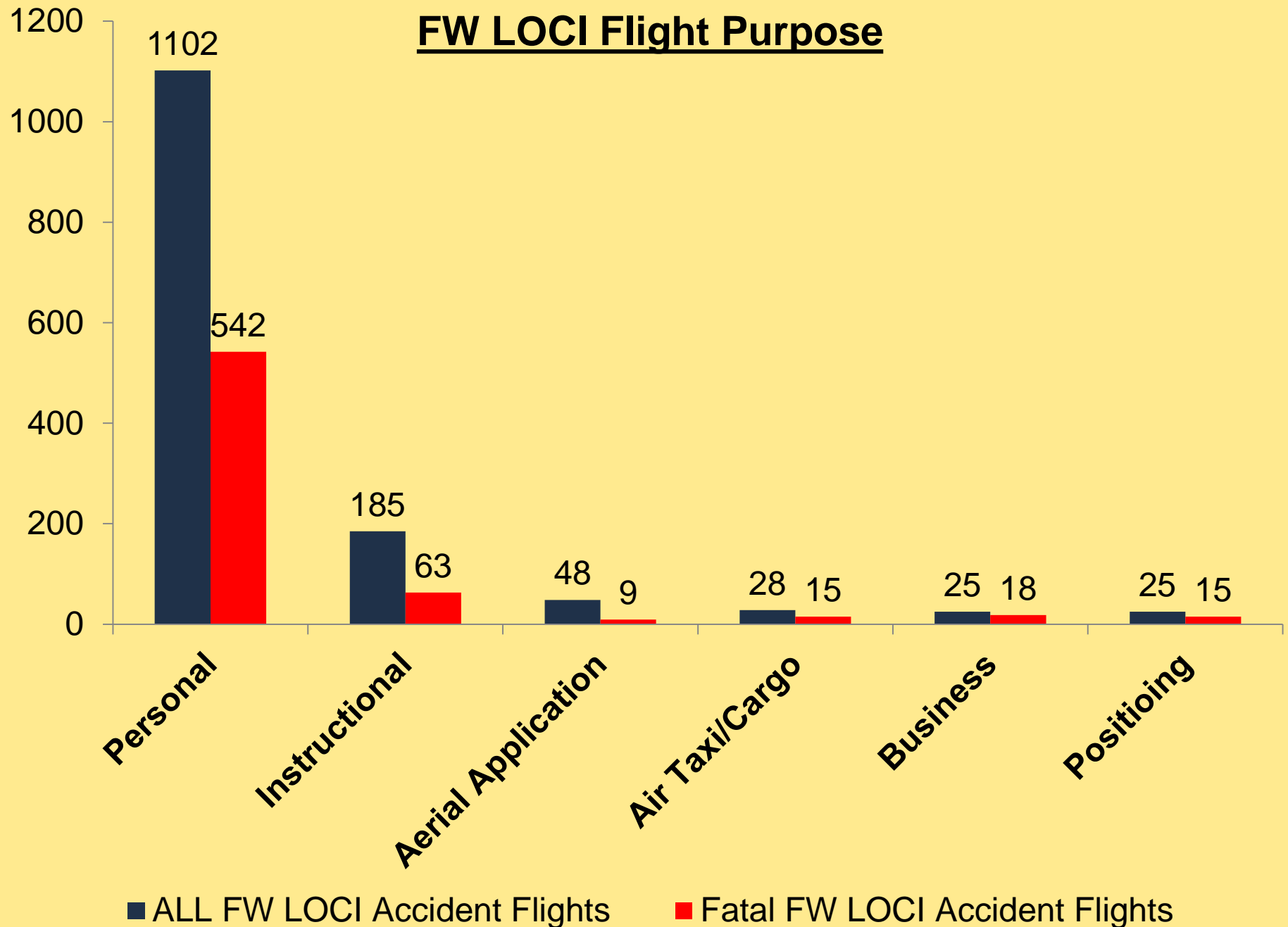
- LOC Fixed Wing Accidents – 45
- LOC Fixed Wing Fatal Accidents – 9
- Fatalities - 23



## FW LOCI by FAR

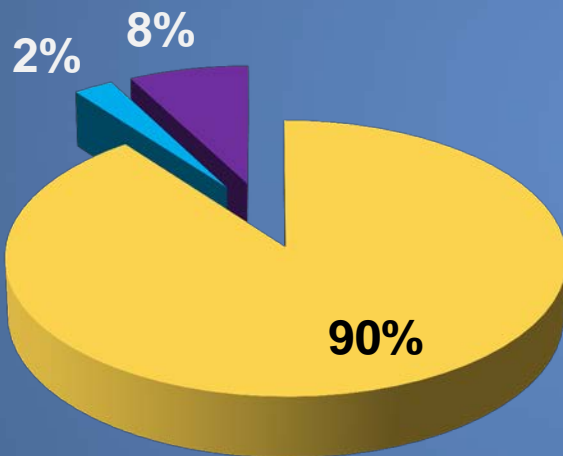


## FW LOCI Flight Purpose

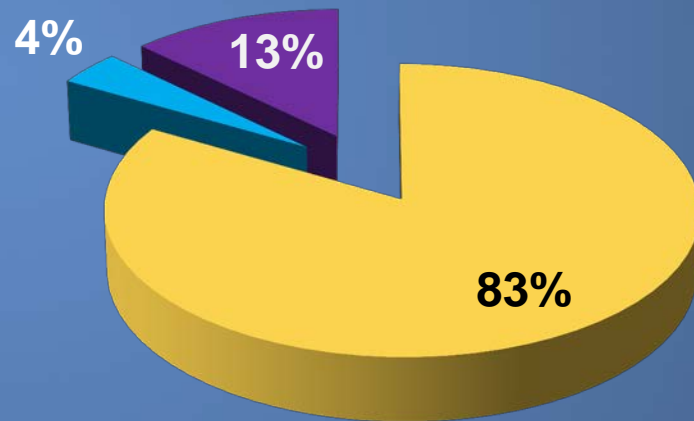


# GA FW LOCI Light Conditions

All Accidents



Fatal Accidents

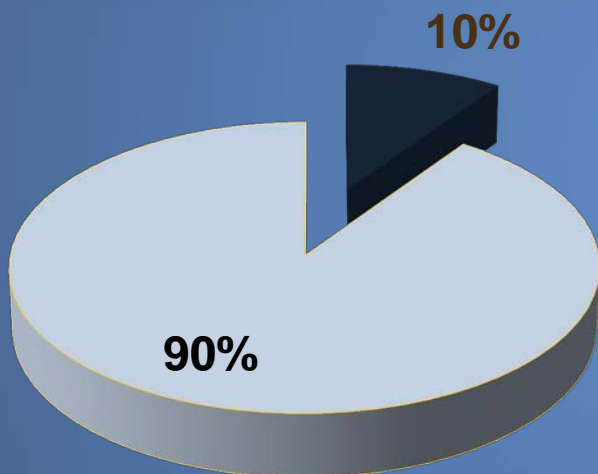


■ Daylight ■ Dawn/Dusk ■ Night

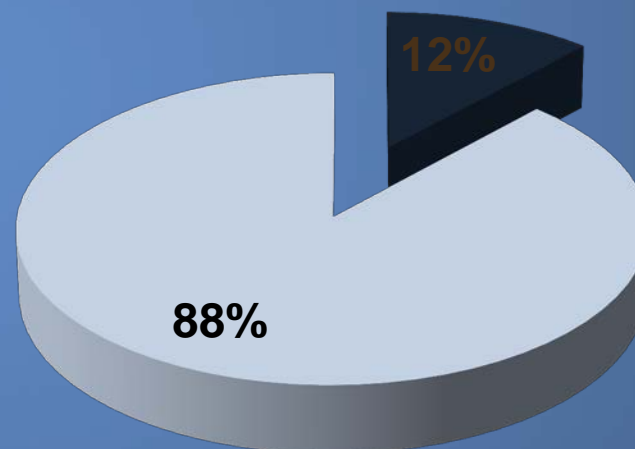


# GA FW LOCI Weather Conditions

All Accidents

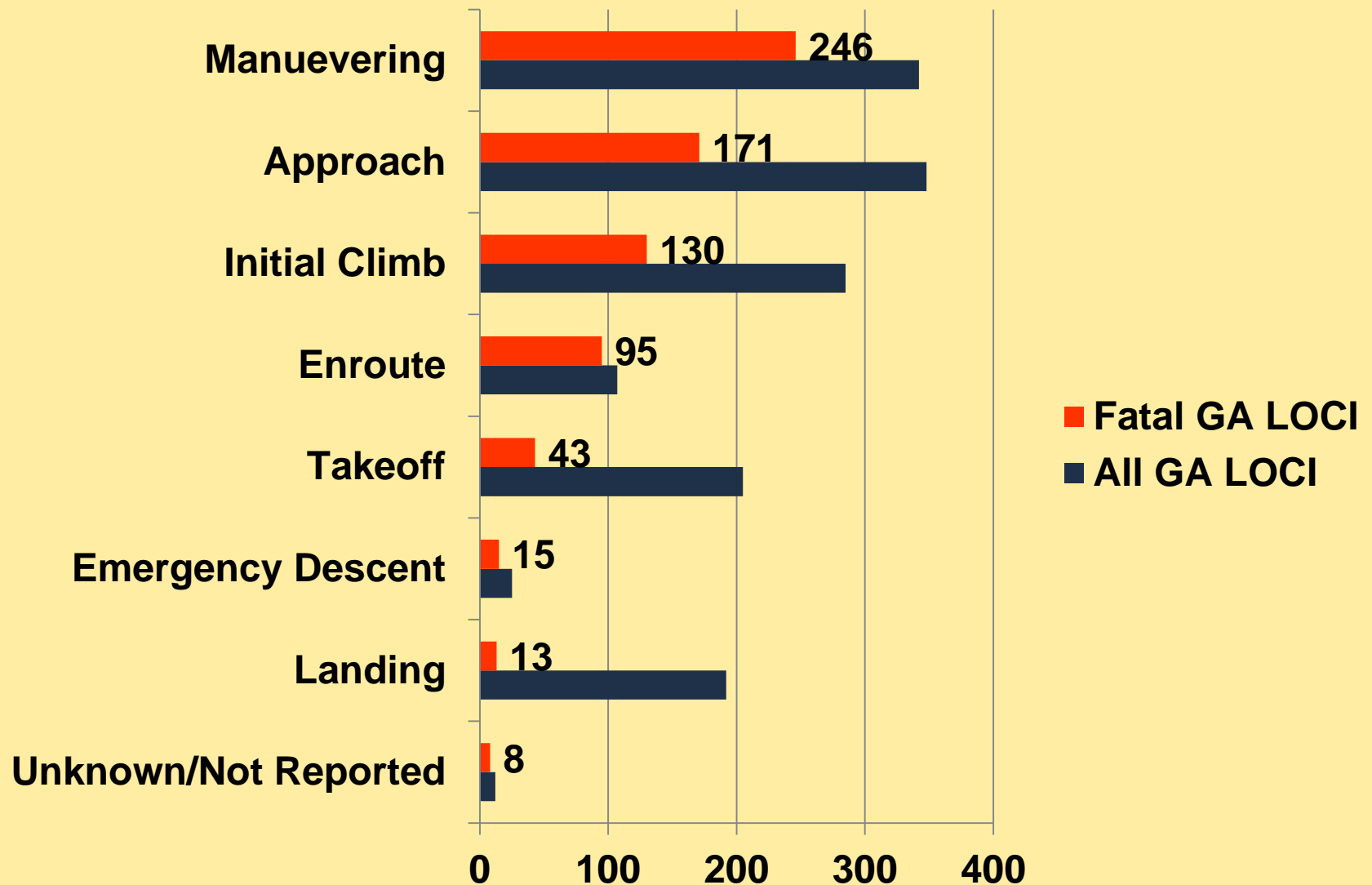


Fatal Accidents



■ IMC ■ VMC

## LOCI by Flight Phase 2008-2014



# LOC accident investigations

- Typically involve some type of stall
  - Straight Stall
  - Accelerated Stall
  - Takeoff/Climb Stall
    - Back Side of the Power Curve
  - Yawing Stall (Spin)
  - Skidded Turn/Cross-Controlled Stall
- For multi-engines: Vmc roll



# Accelerated Stalls

- Occur when an airplane stalls at a higher indicated airspeed due to higher maneuvering loads.
- Airplane stall speed increases as angle of bank increases. (In proportion to the square root of the load factor.)

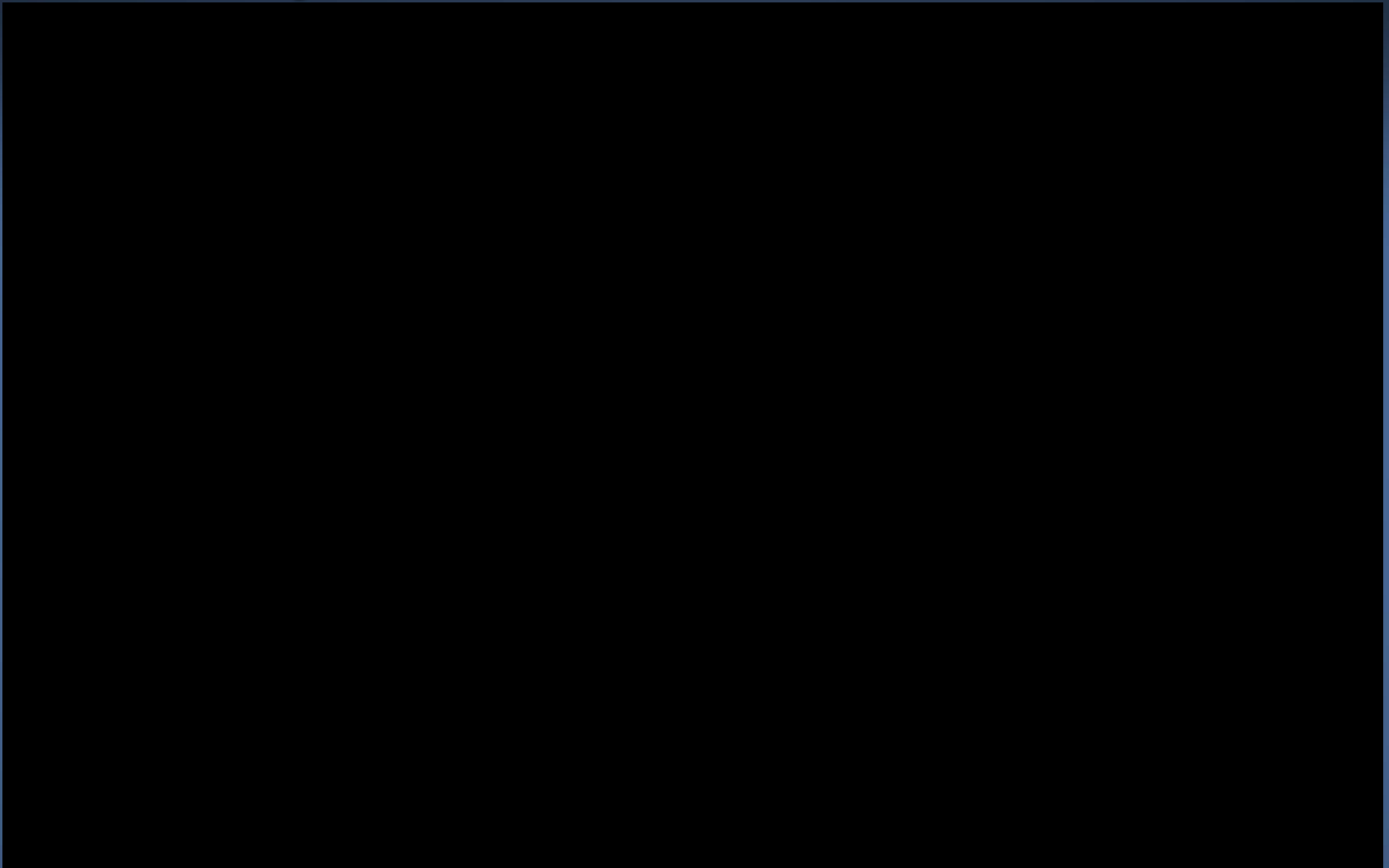
# Spins

- Critical AOA exceeded, with yaw.
- One wing “more stalled” than the other.

# Cross-Controlled Stalls

- Typically, rudder moves the airplane in one direction and ailerons in another.
- Results in rotation in the direction of rudder being applied, regardless of which wingtip is raised.

# Safety Alert – Loss of Control





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