San Gabriel Valley Airport Association
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Preventing Loss of Control (LoC)

In Flight Accidents in GA

The NTSB's ***Most Wanted List***
for 2016

- **FAA Safety Briefing Magazine March/April 2016**
- **Cover story + several articles**

- **Between 2008 - 2014, about 47% of the fatal fixed wing GA accidents in the US involved LoC, resulting in more than 1,200 fatalities.**

- **GA pilot proficiency requirements are much less stringent than those of professional pilots.**
- **Typically there is a longer interval between training flights (2 years for those still doing Flight Reviews) as well as regular flights.**

- **The national participation in the FAA's Wings Pilot Proficiency Program is *very low*.**

- **What can be done?**

- **In October 2015, the NTSB held a forum on "Humans and Hardware: Preventing General Aviation Inflight Loss of Control."**

- **Four discussion panels focused on LoC**
  - **Panel 1 - Industry and Government Perspectives and Actions**
    - **Discussed going from a *reactive stance* on dealing with mishaps to more of a *proactive stance.***
    - **This includes establishing ‘cross-talk’ and sharing information**

- **Panel 2 - Human Performance and Medical Issues**
  - **Key issues discussed included man-machine interface & risk based decision making. This includes ‘automation surprise’ - ‘what’s it doing now’?**

- **Panel 3 - Pilot Training Solutions**
  - **Rep's from ABS, AOPA, Mindstar Aviation and Rich Stowell discussed how the industry can come together to produce long term results by starting the safety risk management process early…**

- **Panel 4 - Equipment and Technology Solutions**
  - **Discussed innovations in automation and upset recovery devices…**

- **Common causes of LoC -**
  - **Pilot *inattention* due to workload**
  - **Distractions or complacency**
  - **Lack of *understanding* of stall's and AOA.**

- **Do you know how these factors affect your airplane's stall and stall recovery characteristics?**
  - **Weight & Balance; C.G. location forward or aft?**
  - **Turbulence - what is your maneuvering speed? Does it change?**
  - **Maneuvering Loads; what is the wing loading?**
  - **How do flaps affect stall speed?**

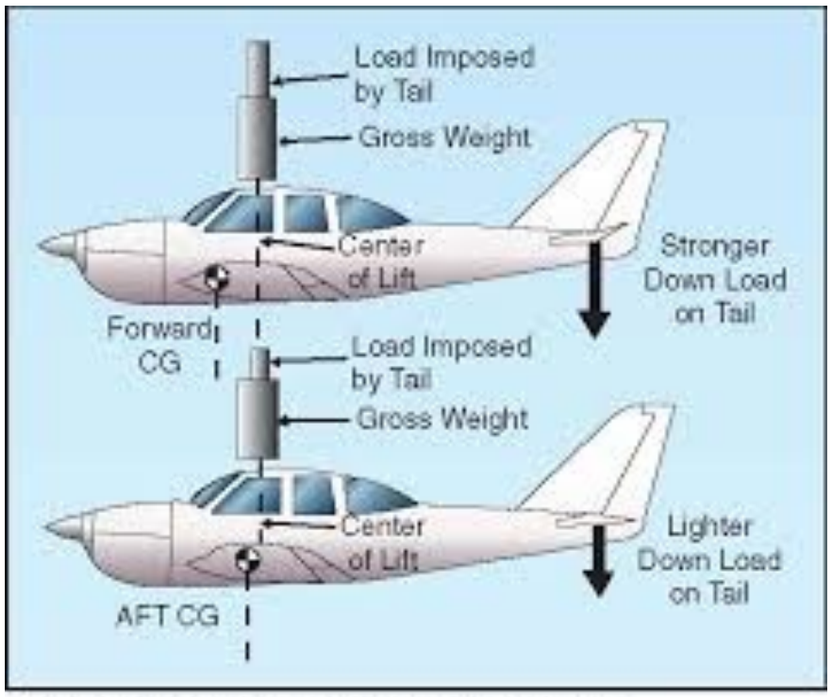


Figure 3-39. Load distribution affects balance.

- **Did you know…**

- **There is a fatal accident involving LoC almost every 4 days!!**

- **LoC claims almost 450 lives each year.**

- **How well are pilots managing the four forces of flight; Lift, weight, thrust, drag?**

- **LoC can occur in every phase of flight.**

- **It is critically important to manage AOA.**
- **But airspeed is not the *only* consideration for AOA.**
- **What else affects AOA?**
  - **Gross Weight**
    - **Load factor (level vs. turning flight)**
      - **C.G. Loading**
        - **Configuration (flaps/gear)**

- **Takeoffs are easy, right? What can go wrong? Plenty!**

- **Reality check - there were about 150 takeoff and departure accidents *per year* between 2003 and 2012.**

- **A common factor is LoC.**

- **One reason; if something goes wrong after takeoff, you don’t have enough altitude to recover.**

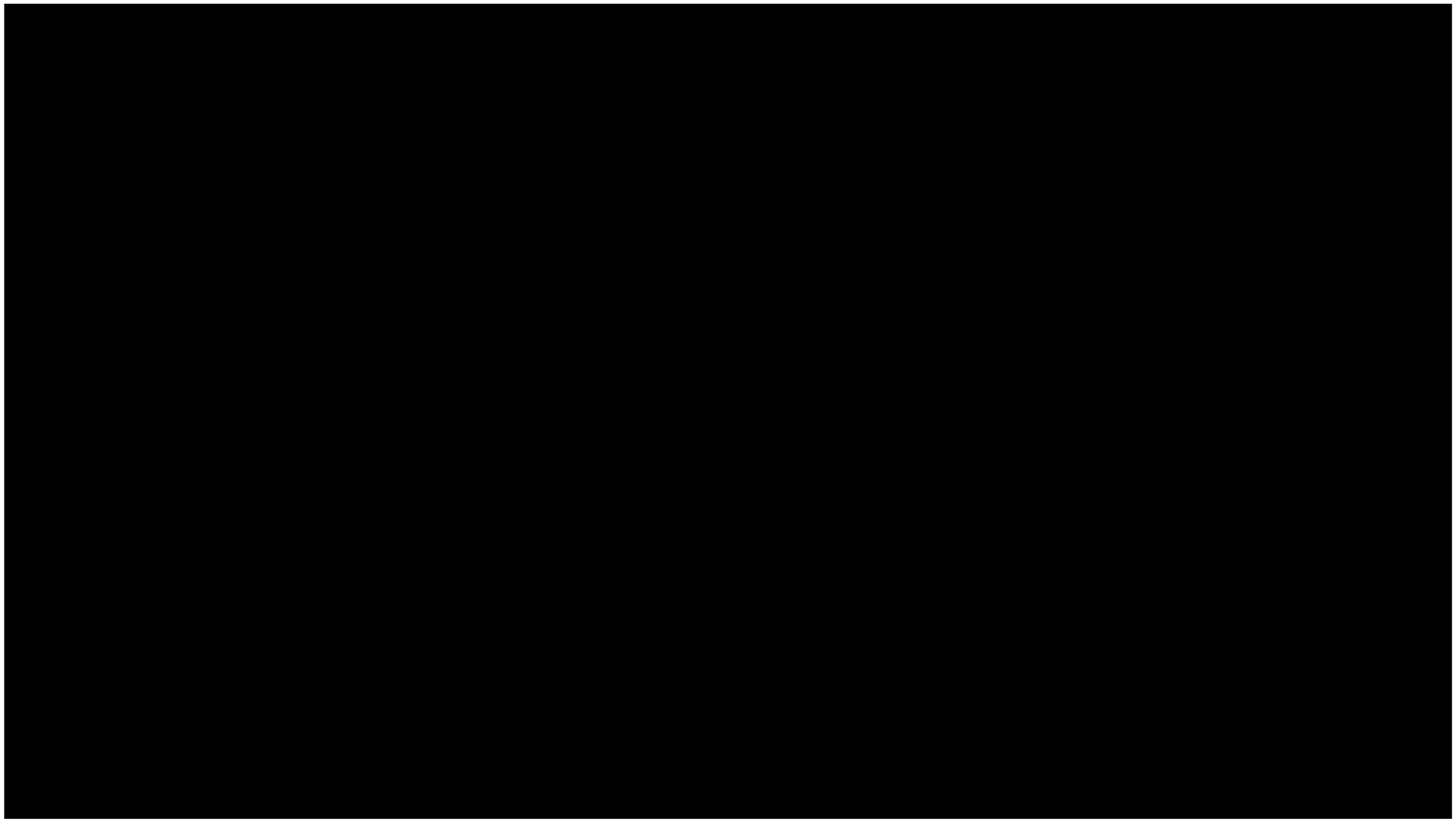
- **Do you ‘brief’ your takeoff? Are you ready if something goes wrong? What is your abort point?**

- **Ten common takeoff errors**
  - **Failure to adequately clear the area prior to taxiing into position on the active runway.**
  - **Abrupt use of the throttle.**
  - **Failure to check engine gauges for signs of malfunction after applying takeoff power.**
  - **Failure to anticipate and/or properly correct the aircraft's left turning tendency (torque).**
  - **Relying solely on the airspeed indicator rather than developed *feel* for the indications or speed and controllability during acceleration and lift-off.**

- **Ten Commons Errors on Takeoff Continued…**
  - **Failure to maintain proper lift-off attitude**
  - **Inadequate compensation for torque/P-factor during initial climb resulting in a sideslip**
  - **Over-control of elevators during initial climb- out**
  - **Limiting scan to areas directly ahead of the airplane, resulting in allowing a wing (usually left) to drop immediately after takeoff.**
  - **Failure to attain/maintain best rate-of-climb airspeed (Vy).**

- **NTSB Recommendations**
  - **Recognize stall characteristics for the airplane YOU fly**
  - **Able to apply appropriate stall recovery techniques**
  - **Pilots should be realistic about their knowledge and understanding of stalls, and their ability to recognize and recover from stalls**
  - **Better manage distractions - remember the ‘3 second’ rule for iPads**
  - **Understand, properly train, and maintain currency in the airplane(s) *you* fly**
  - **If applicable to you, take advantage of type club and transition training opportunities**
  - **Realize and understand that stall characteristics can vary with aircraft loading and are generally worse at aft C.G.**

- **Consider installing an AOA indicator, to enhance situation awareness during critical or high-workload phases of flight.**



- **IFR Magazine; February 2016 “Loss of Control”**
  - **“IFR pilots are markedly susceptible to to spatial disorientation and attention overload. Regaining control once it is lost is especially challenging when mired in the soup.”**
  - **NASA grouped LOC-I accidents into “…pilot, environmental, or systems induced; the majority are pilot caused…”**
  - **Contributing factors; disorientation, loss of situational awareness, automation problems and improper procedures.**

- **Aircraft upset; conditions leading to LOC-I**
- **A strategy to mitigate aircraft upset**
  - **FRAT (flight risk assessment tool)**

- **Flight Risk Assessment Tool (FRAT)**

- **SMS led to the Flight Risk Assessment Tool (FRAT)**
- **Every flight has some level of risk**
- **This is a tool for pilots to differentiate, in advance, between a low and a high risk flight, depending on their experience level, risk, currency, the weather and other factors.**
- **Establish a review process…to develop risk mitigation strategies**
- **Flight Risk Analysis Tool enables *proactive hazard identification,* is easy to use, and can *visually depict risk*. It is an invaluable tool in *helping pilots make better go/no-go decisions* and should be a part of *every flight*.**

- **www.faasafety.gov**
  - **FAASTeam Library**
    - **Library Categories**
      - **Flight Risk Assessment Tool (FRAT)**
        - **FAAST FRAT for…Apple…Windows…**

- **UAR - unusual attitude recovery**

- **What is the proper recovery from this…**


N1021L

- **1st reduce power**
- **2nd roll wings level**
- **3rd apply back pressure, pull the nose up to the horizon**

- **Or this?**


ALERTS

- **1st add full power**
- **2nd pitch and roll to the horizon**
- **3rd level the wings**

- **Lessons learned…avoid LoC…watch the AoA!**

- **In Summary -**

- **Know your airplane and its' stall characteristics. How does this change with loading and C.G.?**

- **Keep and maintain good situation awareness.**

- **Minimize and manage distractions better, especially during critical phases of flight.**

- **Train regularly. Don't put it off. Maintain proficiency.**

Fly Safely

- **Thanks to Rich Stowell**

- **Thank you for attending**

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