



# National Transportation Safety Board



## Loss of Control Alaska

Brice Banning  
NTSB Alaska Region

- Alfred Sheinwold - “Learn all you can from the mistakes of others. You won’t have time to make them all yourself.”
- NTSB – From tragedy we draw knowledge to improve aviation safety.

# Anyone Can Have a Bad Day!



# Goals and Objectives

- Learn one thing that will alter your behavior, procedures or processes that will have a positive impact on your safety.



# DEN84FA308 Tabernash Co, CO

- Cessna L-19E
- August 10, 1984
- Found Aug 23, 1987
- 2 fatal
- PC: None Stated (But narrative discussed stall warning horn, 60-degree angle of bank and DA of 13,000 feet)

# LOC as viewed from cockpit.



# LOC as viewed from ground.



# The Scene

ANC13FA027 – 3 Fatal





## ANC13FA054 – 1 Fatal





## DCA13MA121 – 10 Fatal



# Accident Scene – ANC13FA093

- September 5, 2013
- 1 Fatal
- Near  
Eureka Lodge



# Three Primary Categories

- The man (Woman)
  - The machine
  - The environment
- 
- Or, with LOC, what did the man do with the machine to end up where it did?

# The Environment

- Eureka Lodge – 38 southeast
- Wind – 230 at 8 knots
- Visibility – 10 sm
- Sky condition – clear



# The Machine

- 1952 Cessna 170B
- TT – 3,307.3 flight hours
- Annual Inspection – July 12, 2013
- Engine – 395.3 SMOH



# The Man

- Medical – 3<sup>rd</sup> Class June 13, 2011
- TT – 186 hours
- 12 hours – last 6 months

# Witness Statement

- After the airplane departed from the mountain ridgeline he watched the airplane do a series of low altitude maneuvers as the pilot began his search. The witness said that he observed the airplane fly by his location at approximately 80 to 100 feet above the ground, traveling at an estimated 45 mph. He said that after it passed by it then began a left turn, and then the nose of the airplane pitched down abruptly and it began to spin.

# Accident Scene





# Propeller/Spinner

- Torsional Bending/S-Bending
- Blade Curling
- Chordwise Scratching
- Leading Edge Burnishing
- Rotational Scoring
- Broken Blade Tips
- 45-Degree Tree Cuts



# Spinning Airplane Wreckage Diagram

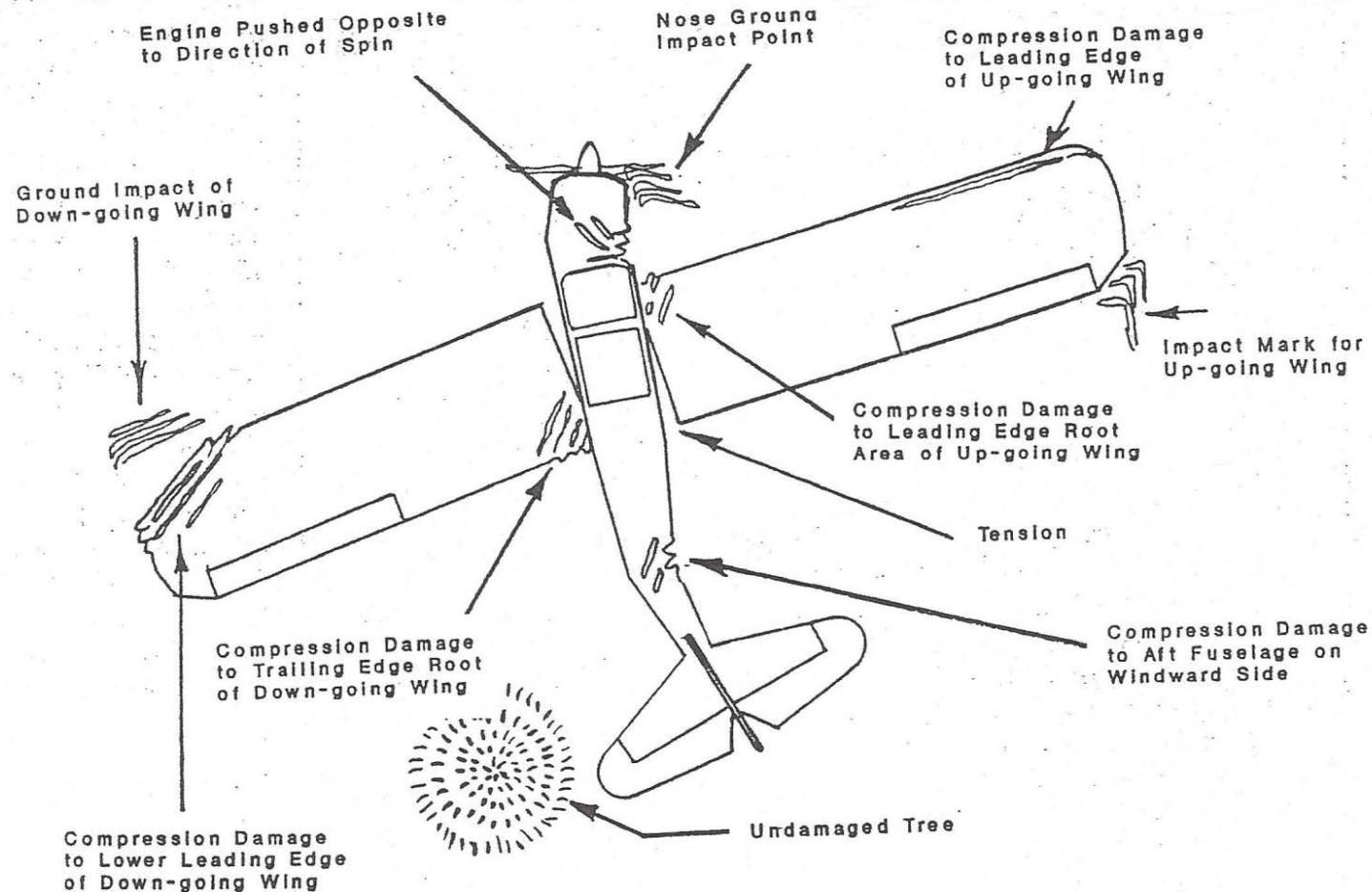


Figure 27-17. Wreckage Pattern of a Spinning Airplane



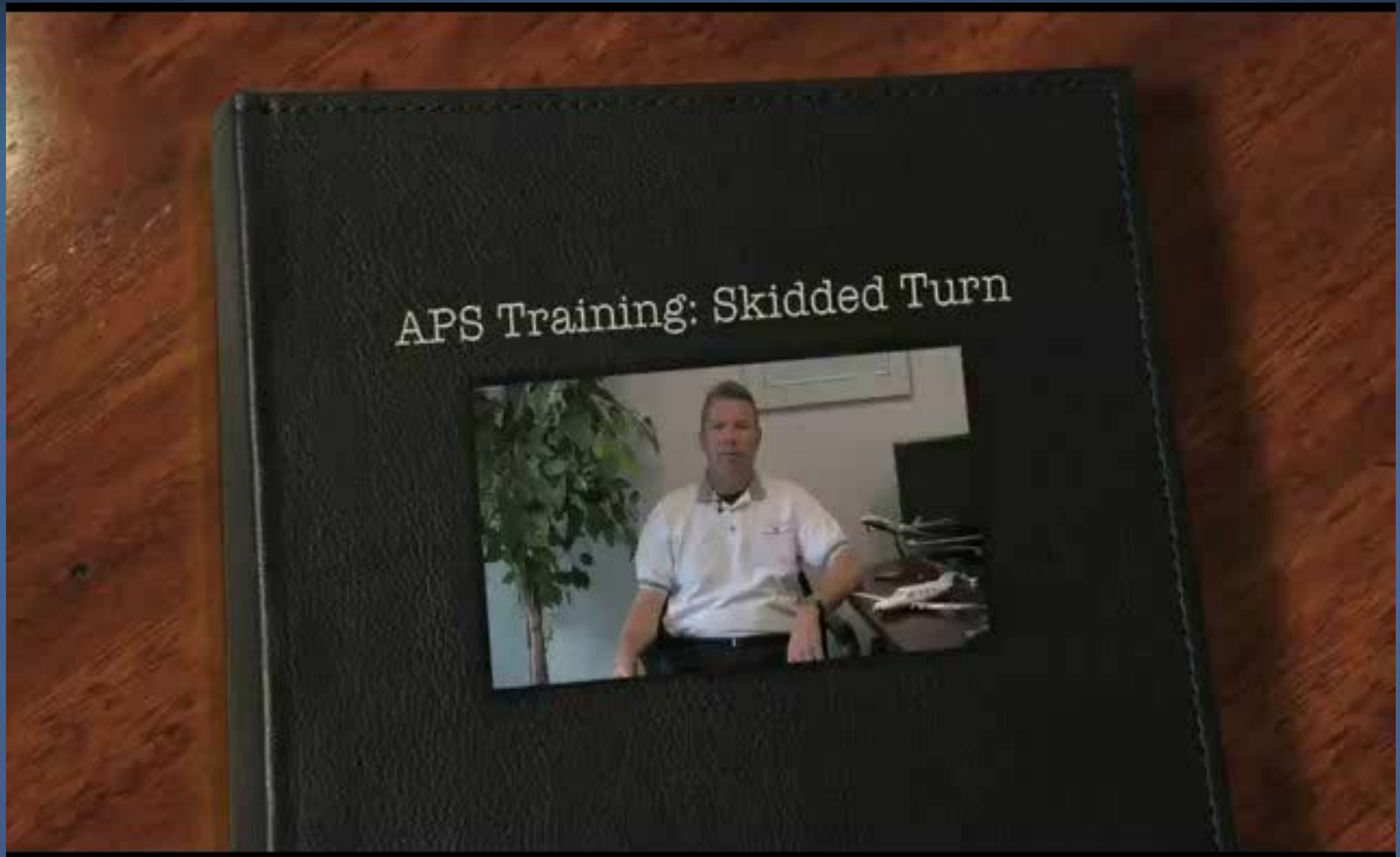




Engine displace to the left –  
opposite direction of rotation.



# APS Training – Skidded Turn



# FCI – Skidded Turn Stall



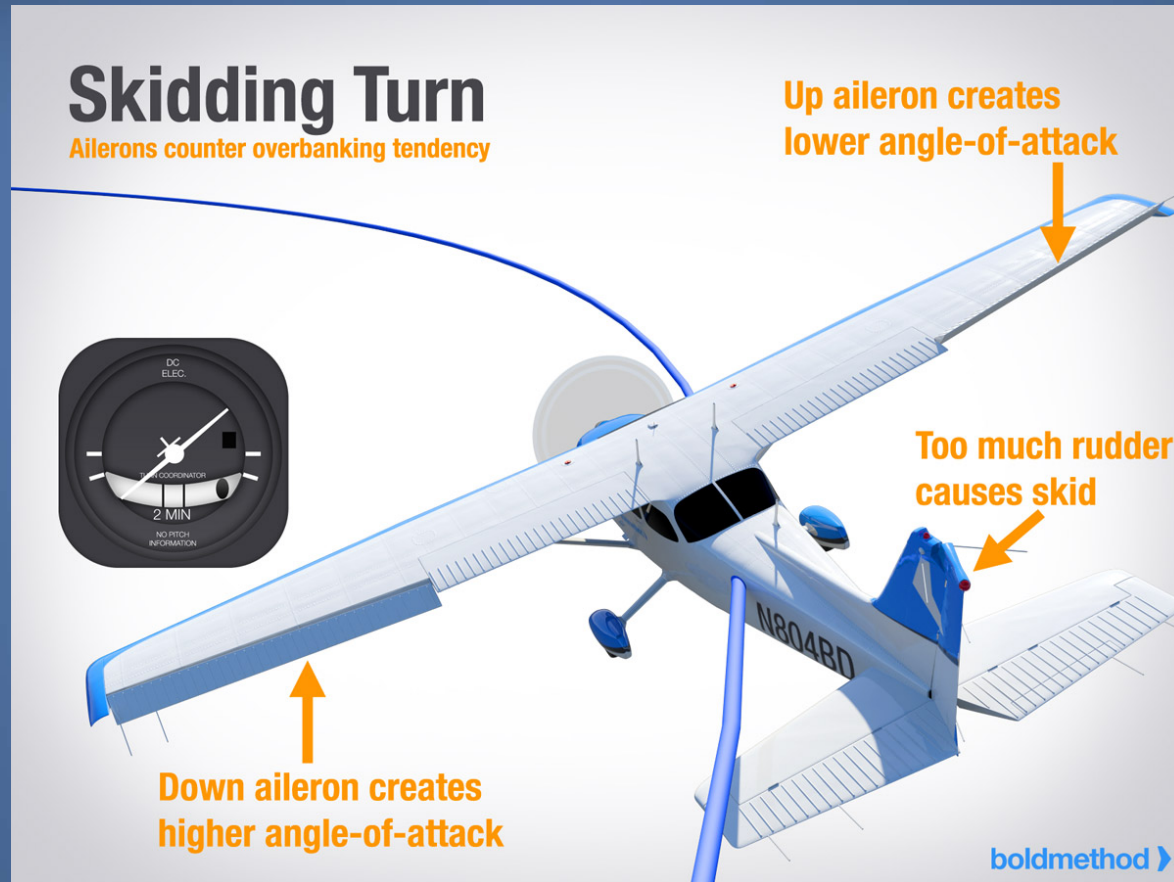


# Bruce Air – Skidded and Slipping Turn Stall

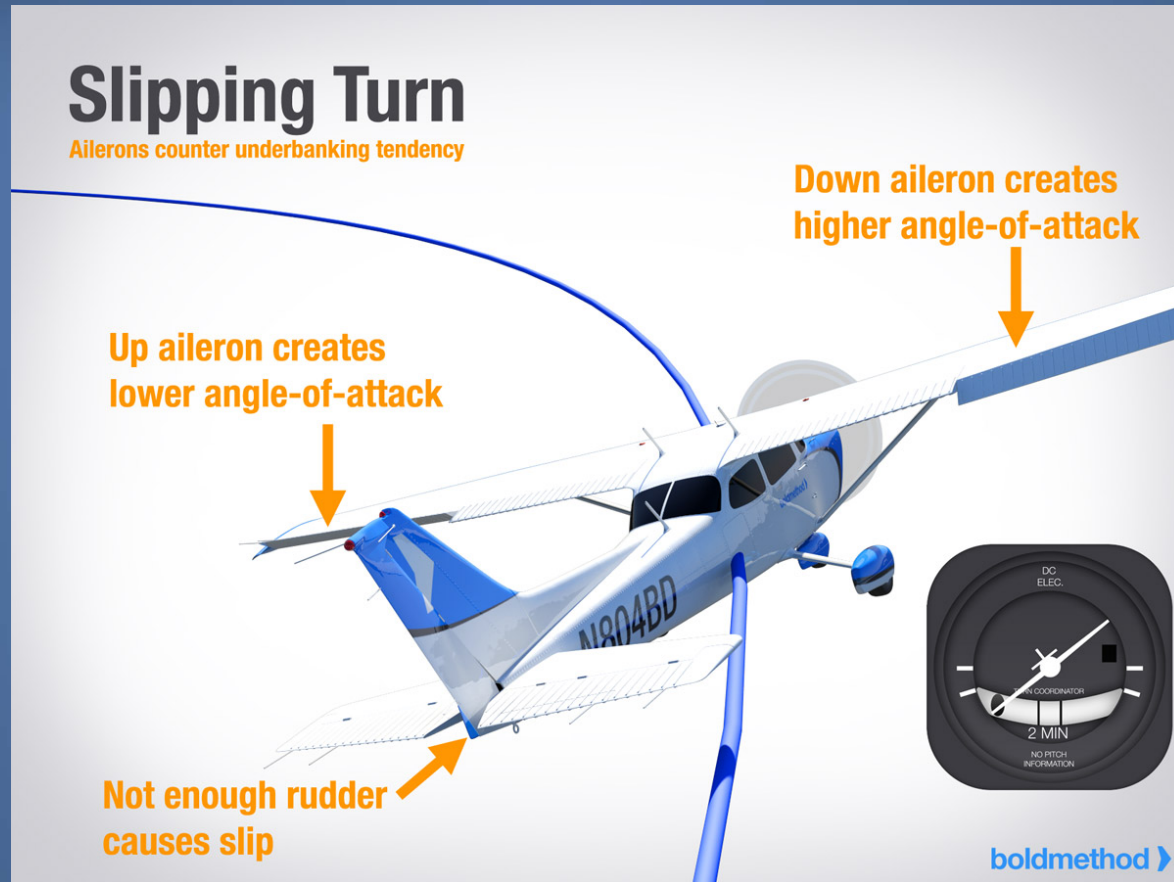




# Skidded Turn



# Slipping Turn



# Slipped or Skidded Turn Stall?



# Probable Cause

- The pilot's failure to maintain adequate airspeed while maneuvering, which resulted in an aerodynamic stall/spin and impact with the ground.



# ANC13FA091

- Piper PA-18 Super Cub
- Loss of Control initial climb after takeoff from Tatitna Airport
- Post crash fire
- Pilot fatally injured
- Passenger Seriously injured

# Tatitna Airport (Rohn)



# Tatitna (Rohn) Airport

- Class G airspace
- Elevation 1490 feet
- One gravel surface runway 6/24  
1200 feet x 12 feet



# Accident Site





# The Pilot

- Age 58
- Private Pilot
- 3<sup>rd</sup> Class Medical May 10, 2011
- Flight Time
  - About 2,000 hours TT

# The Machine

- 1954 Piper PA-18
- Lycoming O-320; 150HP



# What do you see?





# On-Scene





# On-Scene



# On-Scene



# On-Scene Investigation Reveals:

- All of the airplanes major components at accident scene
- Flight control continuity established to cockpit
- Numerous cut branches
- Unspecified amount of incinerated meat and hunting gear found in baggage compartment.



# On-Scene continued

- Caribou antlers on left lift strut
- Hunting rifle on right lift strut
- No evidence of mechanical malfunction or failure.

# The Environment

- Farewell Lake Seaplane Base
- 1853 wind calm; visibility 15 miles; overcast at 4,000 feet; temperature 57 degrees; dew point 46 degrees; altimeter 30.02

# Weather Camera

Sat 31 Aug 2013 04:27:06 UTC  
Fri 30 Aug 2013 20:27:06 AKDT

See <http://avcams.faa.gov> for more information Rohn - East



FAA supplementary weather product.



# Witness Statements – Witness 1

- Observed the aircraft depart multiple times to the east with a tailwind.

## Witness 2

- Reported good visibility, but said it was “a little windy”.
- Observed the aircraft depart the 1200' runway and begin shallow climb and gradual left turn before descending into trees.

## Witness 3 - Passenger

- Refueled main wing tanks.
- Loading airplane with two butchered Caribou and hunting gear.
- Departed to east.
- Pilot said “I should have taken off the other way”.



# Weight and Balance

- Basic Empty Weight 1,188.25 (computed by NTSB)
- Pilot - 250 pounds
- Passenger – 200 pounds
- Caribou meat – 500 pounds
- Caribou antlers -15 pounds
- Rifle – 8 pounds
- Fuel 36 gallons – 216 pounds
- Oil (8 quarts) – 15 pounds

# Weight and Balance

- Gross weight estimated to be 2392.25 or 642.25 pounds over max gross takeoff weight.

# External Load

- FAA policy within the State of Alaska – restricted category.
- No person may be carried on board.
- FAA list of suggestions – “It has been reported that on some aircraft, antlers secured to the wing struts can cause significant air flow disturbance to the tail surface”.



# Probable Cause?

- The pilot's improper decision to load the airplane beyond its allowable takeoff limits and center of gravity limits, which resulted in a loss of control during the initial climb. Contributing to the accident was the external load and the downwind takeoff.

# Lessons Learned

- Know what's on your airplane – carry a scale.
- Do an accurate weight and balance calculation.
- Be cognizant of the wind direction and weather conditions – don't take shortcuts.
- Don't get in a hurry spend another night if necessary.

# DO....

- Do remember that since the majority of fatal stall/spin accidents occur at low altitudes, from which recovery is unlikely, *prevention* essential.
- Do practice stalls or approaches to stalls at an appropriate and safe altitude and only when you are competent. If it's been awhile, take an experienced CFI with you.
- Do practice spins only with an instructor who is current and only in a properly maintained *and* approved aircraft. In some cases a parachute may be required.
- Do fly at a safe altitude above the ground so that you won't be surprised by terrain, wires, or towers that would require a quick pull up and a probable stall.
- Do remember that turns, vertical (pull ups) or horizontal, load the wings and will increase the stall speed, sometimes dramatically.
- Practice go-arounds regularly



# DON'T

- Don't explore the corners of the flight envelope close to the ground.
- Don't exceed 30 degrees of bank in the traffic pattern.
- Don't follow another aircraft in the pattern too closely. If you cannot maintain a safe airspeed (safe AOA) - go around.
- Don't buzz or otherwise show off with any aircraft. You don't need to - as a pilot you belong to a special group - less than one third of one percent of the U.S. adult population is certificated to fly.

# Where to Find These...

- NTSB accident files are on-line
- Many recent accident Dockets are on-line
  - Factual reports
  - Interviews
  - Photographs
- [www.nts.gov](http://www.nts.gov)



# Douglass Adams

- “Human beings, who are almost unique in having ability to learn from the mistakes of others, are also remarkable in their apparent disinclination to do so.”



# Questions?





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