



NTSB National Transportation Safety Board

Operational Discipline and Professionalism

Robert L. Sumwalt
March 26, 2011

The NTSB

- Independent Federal Agency, charged by Congress to:
 - Investigate transportation accidents
 - Determine their probable cause
 - Issue safety recommendations to prevent similar accidents
 - Conduct safety studies

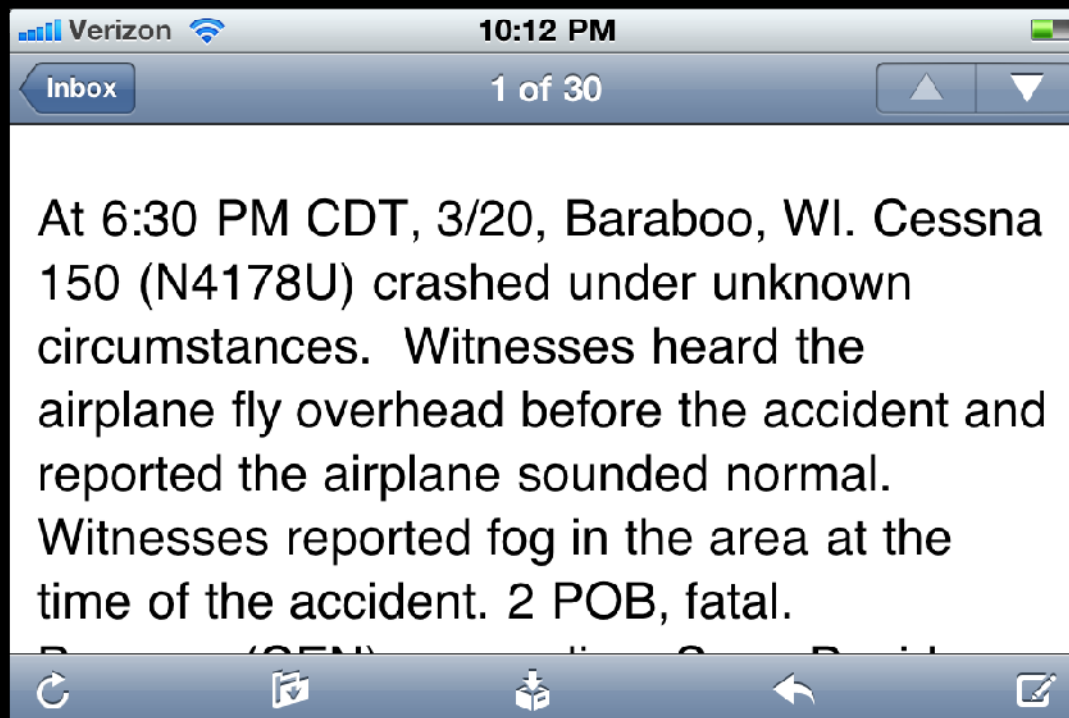


GA Accident Stats

	Accidents	Fatal accidents	Fatalities
2006	1515	303	698
2007	1652	288	496
2008	1566	275	494
2009	1474	272	474
2010	1329	249	417

Six days, six fatalities

Sunday

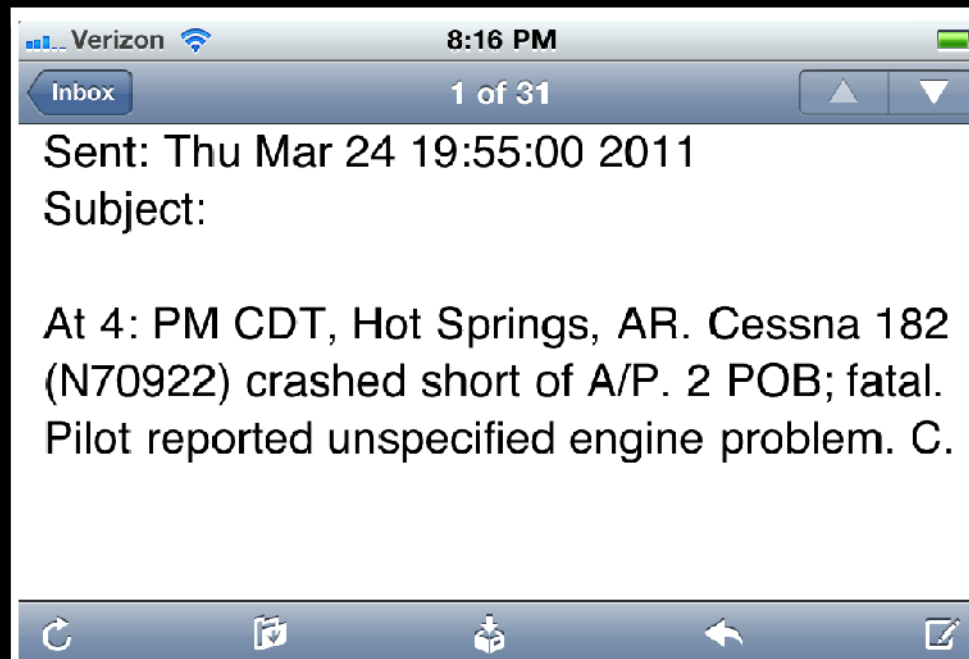


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Six days, six fatalities

Thursday

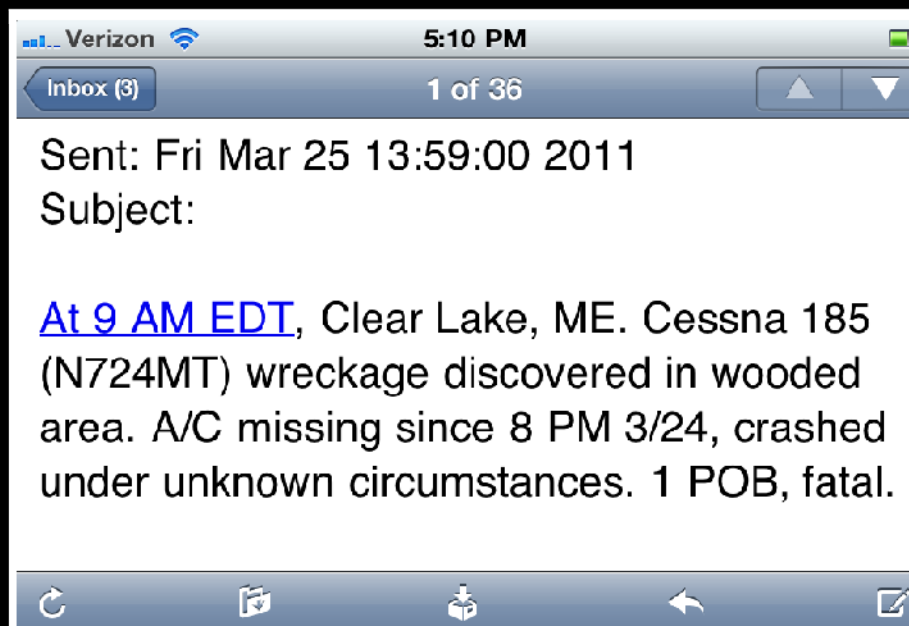


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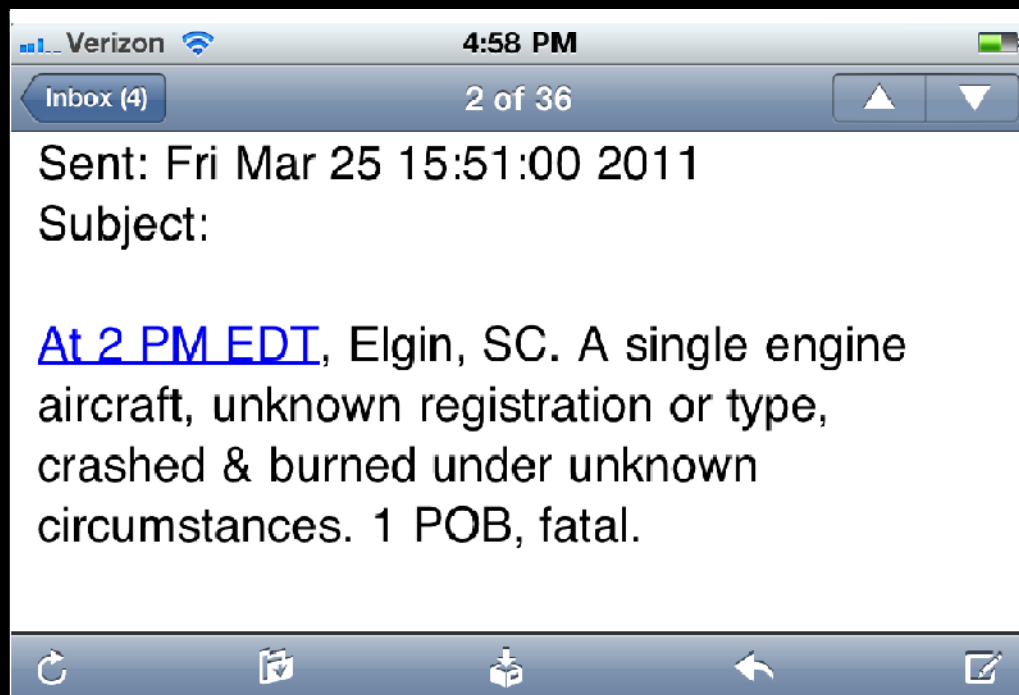
Six days, six fatalities

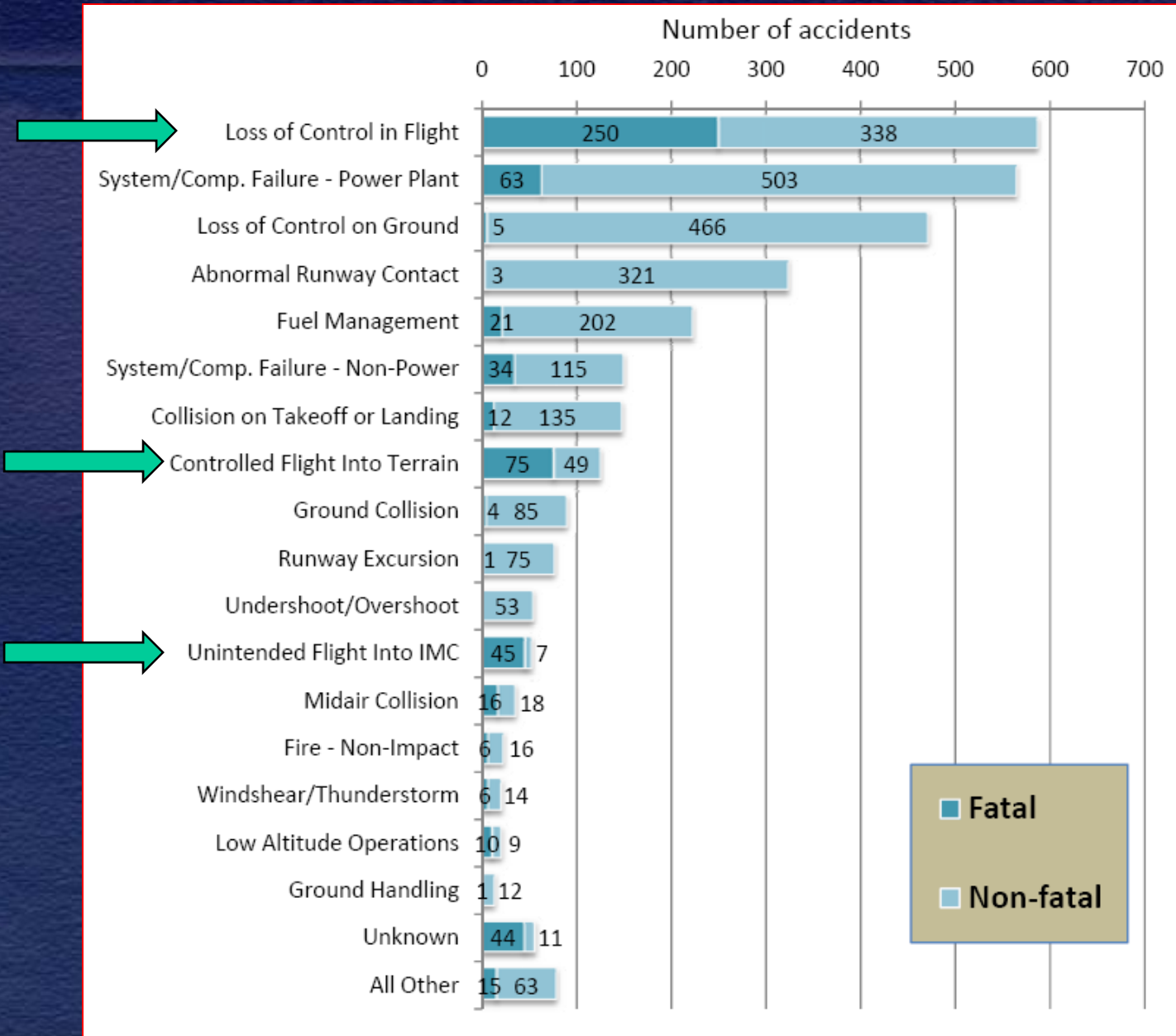
Friday



Six days, six fatalities

Friday





Accident type in personal flying accidents, 2007-2009.

Rans S-10, October 19, 2003



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Rans S-10, October 19, 2003

According to a witness:

- The 314-hour pilot made a pass over his front yard approximately 200 feet agl. While passing over the field, the pilot leaned out the right side of the cockpit and waved at his neighbors
- The airplane then pitched nose up, rolled to the right, and flew “straight into the ground” in a nose-down attitude

What was missing?

- Operational discipline
- Professionalism



Aviation-safety.net © Paul Kanagie / PHLAIRLINE.COM

Owatonna, MN
July 31, 2008
8 fatalities



NTSB finding

- “The captain allowed an atmosphere in the cockpit that did not comply with well-designed procedures intended to minimize operational errors, including sterile cockpit adherence, and this atmosphere permitted ... inappropriate conversation; nonstandard terminology; and a lack of checklist discipline throughout the descent and approach phases of the flight.”

What was missing?

- Operational discipline
- Professionalism

Colgan Air flight 3407

- February 12, 2009
- 10:17 pm Eastern Standard Time
- Colgan Air, Inc.
 - Operated as Continental Connection
- Bombardier DHC-8-400
- On approach to Buffalo, New York
- 50 fatalities
 - 2 pilots
 - 2 flight attendants
 - 45 passengers
 - 1 home resident killed

History of flight

- Crew engaged in almost continuous conversation throughout flight
 - Conversation mostly extraneous to flight operations
- Conversation preempted timely performance of flight-related duties
 - Approach briefing, descent checklist, approach checklist



History of flight

- Approximately 3 miles from outer marker:
 - power was reduced to slow for approach
 - gear extended
 - props to max RPM
- Airspeed decreased 50 kts in 21 seconds

Stall, Upset, Loss of Control

- Stick shaker (stall warning) activated at 131 knots
- Autopilot disconnected
- Captain reacted with “startle and confusion”
- Captain pulled nose to 19 degrees nose up pitch
- Stall, extreme roll
- Stick pusher activated 3 times
 - countered by captain’s actions of pulling
- Loss of control

HOT-2: gear's down.

HOT-1: flaps fifteen before landing checklist.

HOT-2: uhhh.



National Transportation Safety Board *Board Meeting*

22:16:27

130 knots **2280** feet **Shaker ON** Pusher **OFF** Power Condition Flap



Heading **247**°



L R
Pedal 



Auto Pilot **OFF** Gear **DOWN**



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National Transportation Safety Board

Office of Research and Engineering

Flightpath

Loss of Control on Approach
Colgan Air, Inc., Operating as
Continental Connection Flight 3407
Bombardier DHC-8-400, N200WQ

Clarence Center, New York

February 12, 2009

DCA09MA027

Board Meeting





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Major Areas of Focus



Airspeed
Selection

Cockpit
Discipline

Crew Reaction
to Stall Warning
and Stall



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NTSB Finding

- The captain's failure to effectively manage the flight
 - enabled conversation that delayed checklist completion and conflicted with sterile cockpit procedures, and
 - created an environment that impeded timely error detection

What was missing?

- Operational discipline
- Professionalism

Pinnacle Airlines Flight 3701

Jefferson City, Missouri



- October 14, 2004
- Bombardier CL-600-2B19
- Repositioning flight
- Both flight crewmembers killed

What the investigation discovered

- Intentional activation of stall warning
- Swapping crew seats
- Rudder mishandling
- Climb to FL 410
 - “have a little fun”
- Automation mismanagement
- Airspeed loss, stall, loss of control, double engine failure
- Did not fully disclose real problem with ATC

NTSB's Probable Cause

- “the pilots’ unprofessional behavior, deviation from standard operating procedures, and poor airmanship, which resulted in an in-flight emergency from which they were unable to recover...”



What was missing?

- Operational discipline
- Professionalism

Teterboro, NJ

Feb 2, 2005



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NTSB finding

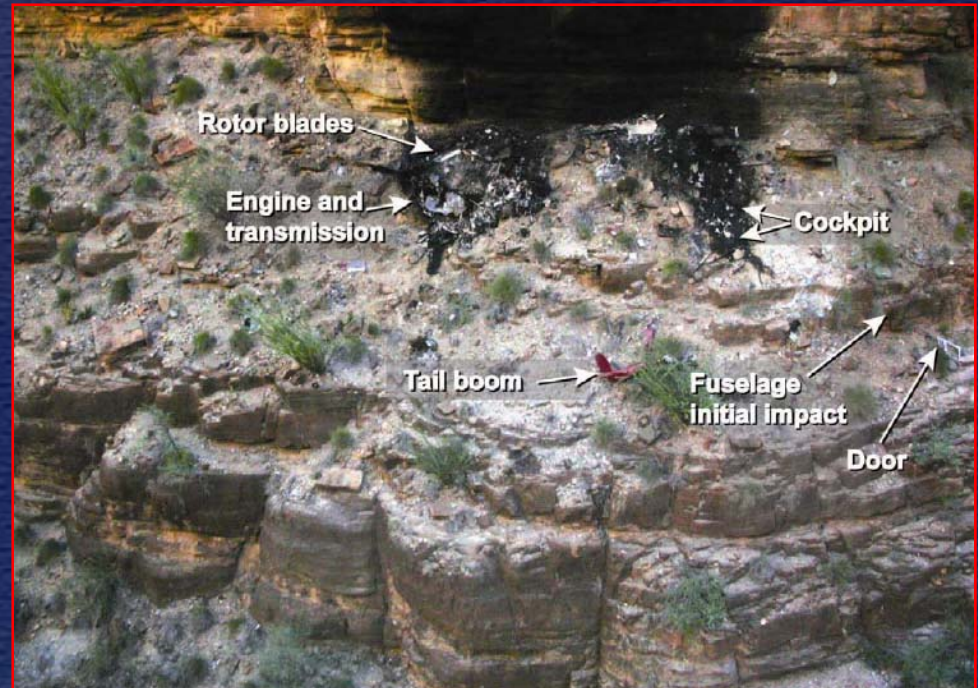
- “The pilots’ failure to ensure that the airplane’s weight and center of gravity were within approved takeoff limits was symptomatic of poor airmanship and a broader pattern of deficiencies in their crew resource management skills (specifically in the areas of leadership, workload management, communications/briefings, and crew coordination) that were exhibited on the day of the accident.”

What was missing?

- Operational discipline
- Professionalism

Part 135 Operator

- Sundance Helicopters
- Air tour operator
- September 20, 2003
- Grand Canyon
- Aerospatiale AS350BA
- CFIT, 7 Fatalities



Accident Flight



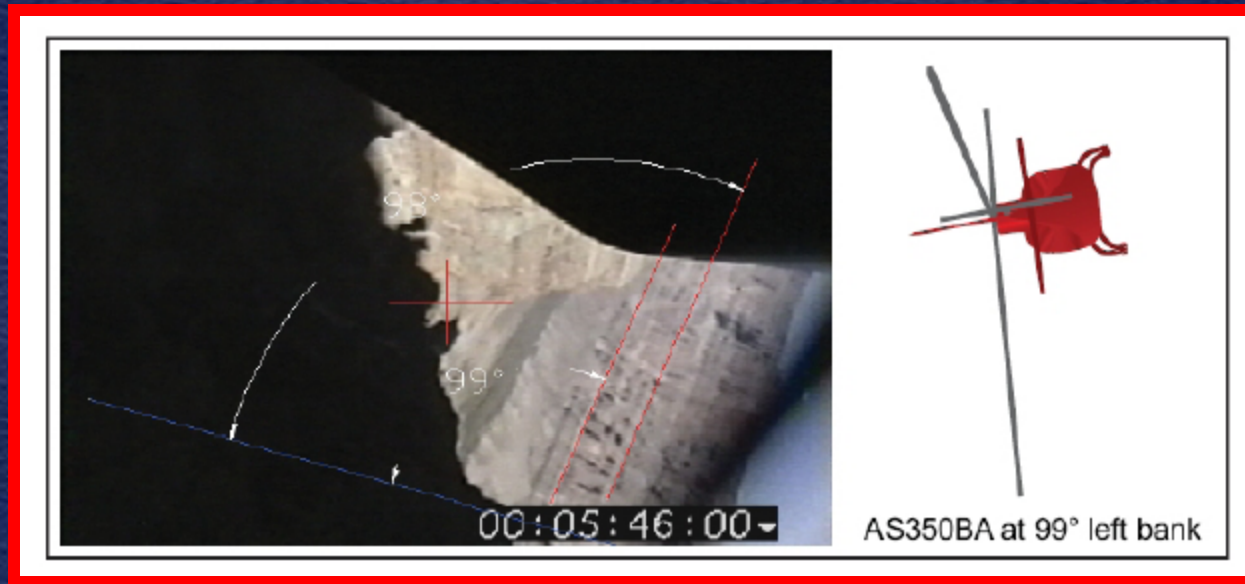
AS350BA at 69° left bank

Accident Flight



AS350BA at 55° nose-low pitch

Previous flight



What was missing?

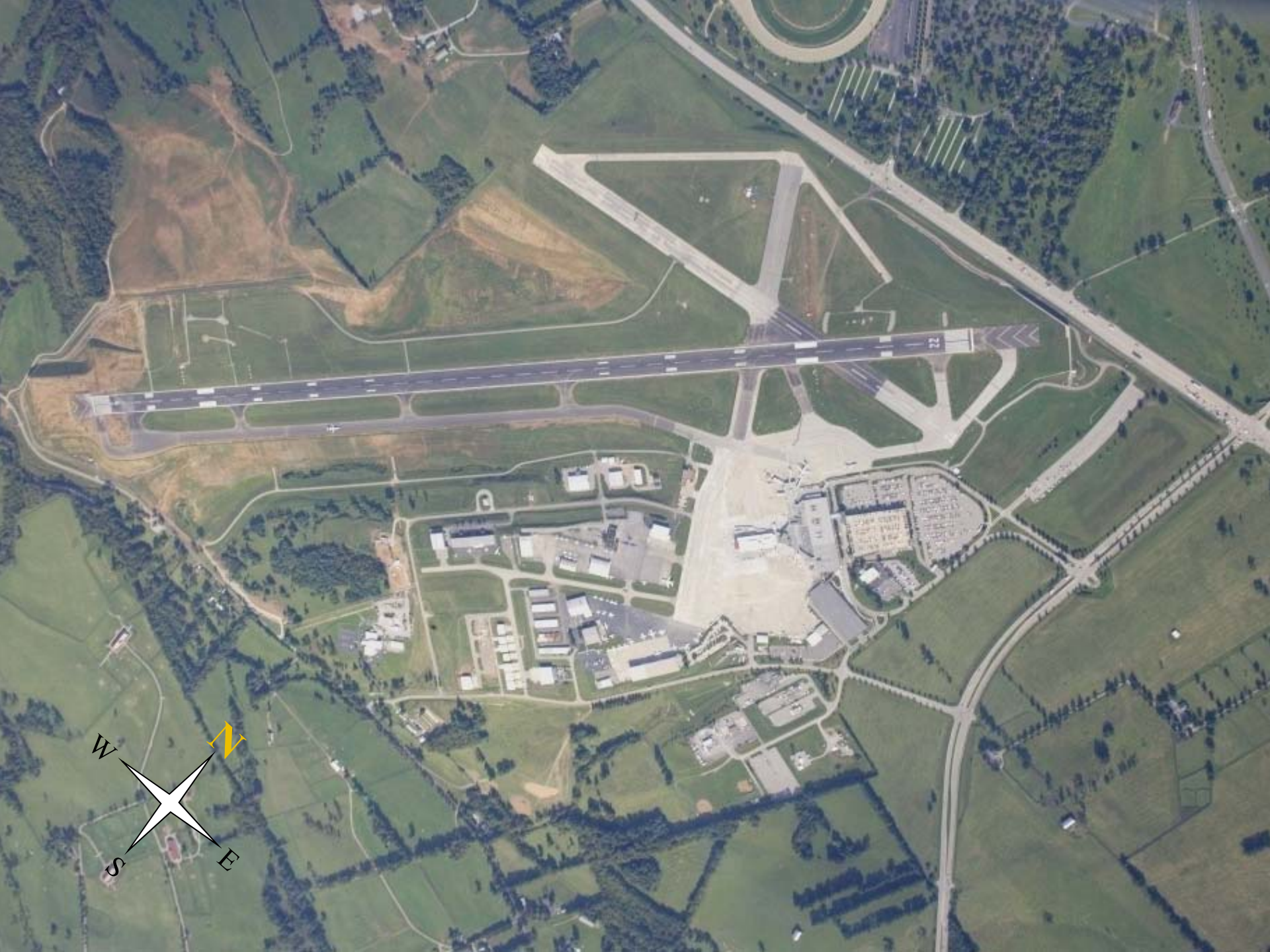
- Operational discipline
- Professionalism

Comair Airlines Flight 5191

Lexington, Kentucky

- Bombardier CRJ
- 49 Fatalities
- First officer severely injured
- Wrong runway takeoff





NTSB Finding

- “The flight crew’s noncompliance with standard operating procedures, including the captain’s abbreviated taxi briefing and both pilots’ nonpertinent conversation, most likely created an atmosphere in the cockpit that enabled the crew’s errors.”

What was missing?

- Operational discipline
- Professionalism

A Few Tips

to Avoid This





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Negative Publicity Avoidance

“You never know on which flight your career will be judged.”



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SPORTS FINAL

DETROIT STUNS 49ERS 27-24

LIONS WERE WINLESS
▶ REFS UNDER REVIEW, 1C
▶ NFL REPORT, 1,10,13C



ANDRUW JONES IS USA TODAY'S MINOR LEAGUE PLAYER OF THE YEAR

OUTFIELDER ANOTHER STAR IN ATLANTA CONSTELLATION, 1C

By Andrew Ross
ANDRUW JONES: 25 HRs and 100 RBI, 1C

NO. 1 IN THE USA . . . FIRST IN DAILY READERS

HOME SALES HIT HIGHEST POINT IN 15 MONTHS

EVEN IF SURGE FALTERS, ECONOMY WILL GET BOOST

NEW FILMS FEATURE WOMEN AND ISSUES THEY FACE TOGETHER

SISTERHOOD TO OUTSHINE SHOWGIRLS, DRAG QUEENS, 1D

TUESDAY, SEPTEMBER 26, 1995

NEWSLINE

A QUICK READ ON THE NEWS

WALL STREET: Dow Jones industrial average rises 5.78 points to 4769.93; Nasdaq index falls 7.24 to 1046.15; 30-year Treasury bond yield remains at 6.58%. 1,3B.

CHILD BURIED: Stephanie Kuhen, 3, is buried; she died when the car she was in was hit by gunfire on Los Angeles dead-end street. Fourth suspect arrested. 4A.

BALANCING ACT: Clinton administration walks fine line to balance human rights commitment with pledge to make job protection heart of foreign relations. 9A.

NEW AIRLINE: British entrepreneur Sir Freddie Laker and a Texas oilman plan to launch U.S.-based trans-Atlantic airline with flights from Florida to Britain. 1B.

CHESS BATTLE: Challenger Viswanathan Anand, left, beats reigning champ Garry Kasparov in the ninth game, breaking series of draws and recording the first win in Professional Chess Association world championship in New York. 13C.



DELANY DIES: Bessie Delany, second black female dentist in New York, subject of

Your name here (?)

FIRST IN A 3-PART SERIES

WARNING: PILOT ERROR

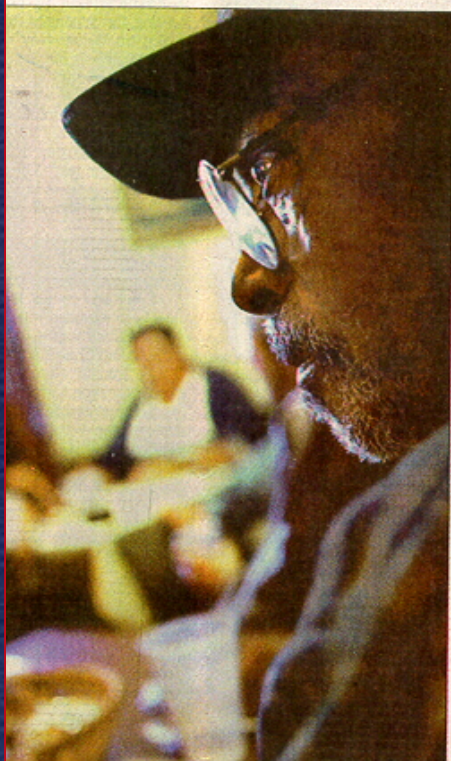
How regional airlines failed to heed warning signals about pilots who didn't belong in the cockpit

Dead Calif mont

By Mimi Ha
USA TODAY

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ETERANS



Pilots' acts might have led to crash

■ Tail section of
doomed jet found on
ocean floor

By ERIC MALNIC, MATT SURMAN
and MITCHELL LANDSBERG
Los Angeles Times

PORT HUENEME, Calif. — Investigators are considering whether the pilots of Alaska Airlines Flight 261 unwittingly triggered their violent plunge into the Pacific Ocean by following prescribed procedures for an emergency landing, air safety officials said Thursday.

Late Thursday searchers found the tail of the jet after recovering the flight data recorder earlier in the day.

Underwater robots exploring the ocean floor found where the wreckage came to rest after the MD-83

ies, some of which are believed trapped under the debris.

National Transportation Safety Board officials raised the question about the pilots' actions after listening to a recording of the final 30 minutes that was contained in a cockpit voice recorder retrieved late Wednesday.

One NTSB official, speaking on condition of anonymity, said the investigation into the crash is increasingly focusing on the pilots' actions during their preparation for an emergency landing at Los Angeles International Airport.

In hindsight, investigators say, it appears possible that a by-the-book response to the mechanical problem reported by the pilots — a "horizontal stabilizer jam" — could have sent the plane into its wild, corkscrewing descent into the sea.





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Take the Most Conservative Approach

What to do?

Take the most conservative approach



De-ice?

Divert?

Add more fuel?

Don't de-ice

Continue?

Risk min fuel
landing?



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SOP Adherence

How SOPs relate to error

- LOSA data: crews that intentionally deviate from SOPs are approximately three times more likely to commit additional errors with consequential results
- “Normalization of Deviance”



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Be Professional

What is a professional?

- A mindset
 - Precise checklist usage
 - Precise callouts
 - Precise compliance with SOPs and regulations
 - Staying abreast and current with knowledge and skills
 - The ability and willingness to say “I don’t know” or “I am wrong”

Professionalism

Doing the right things,
even when no one is watching.



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