NTSB National Transportation Safety Board

Professionalism in Aviation

Robert L. Sumwalt
NTSB Board Member

NTSB is an independent federal agency, charged by Congress to investigate transportation accidents, determine probable cause, and issue safety recommendations.

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Facilities

- Headquartered in Washington, DC
- 4 Regional Offices
- NTSB Training Center

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Our greatest virtues:

Independence

Credibility

NTSB

The Board

Mark Rosekind

Chris Hart
Vice-chairman

Debbie Hersman
Chairman

Robert Sumwalt

Earl Weener

NTSB

Our biggest strength:

Our experienced staff

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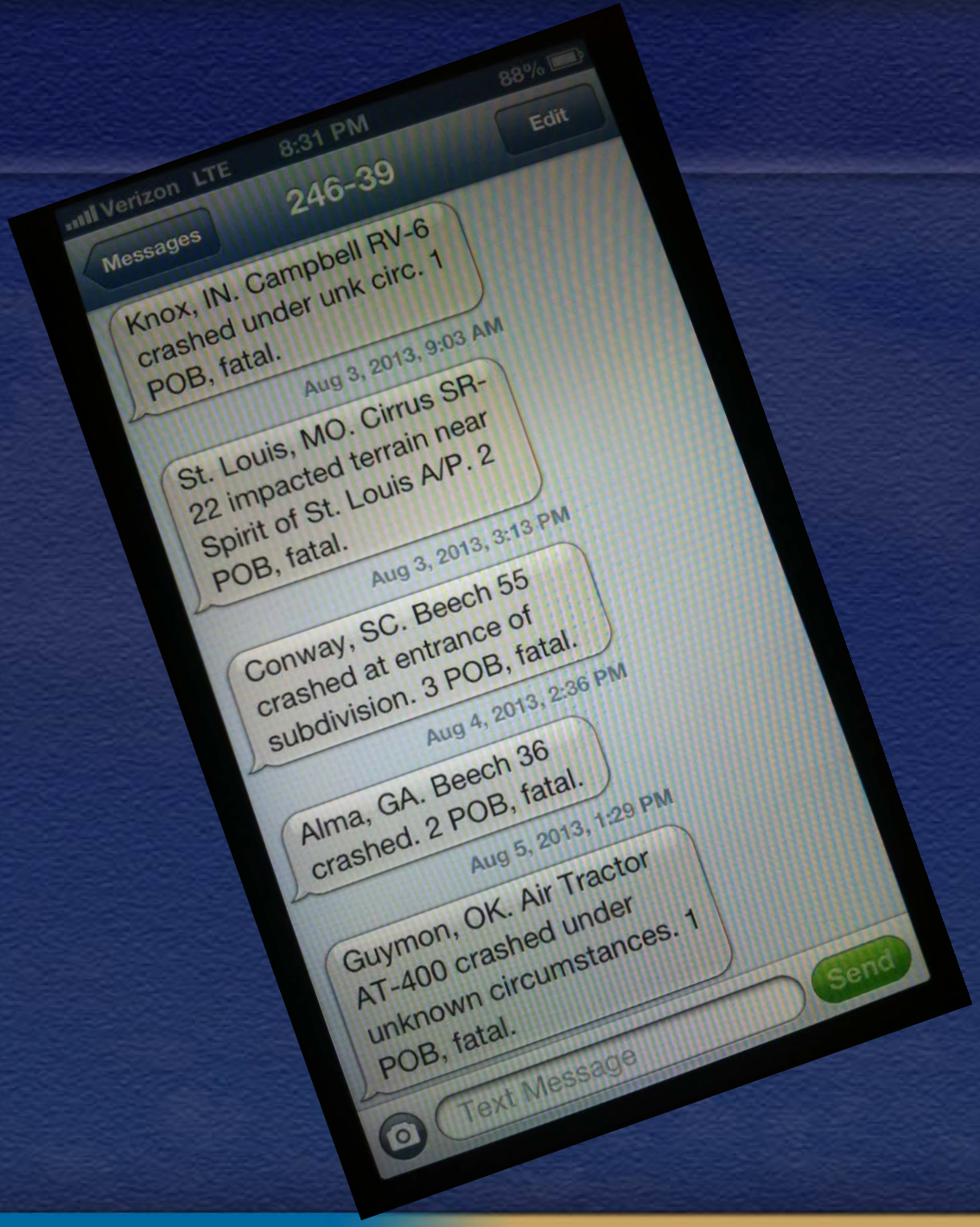
Verizon LTE
8:31 PM
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Edit
246-39
Messages
Knox, IN. Campbell RV-6 crashed under unk circ. 1 POB, fatal.
Aug 3, 2013, 9:03 AM
St. Louis, MO. Cirrus SR-22 impacted terrain near Spirit of St. Louis A/P. 2 POB, fatal.
Aug 3, 2013, 3:13 PM
Conway, SC. Beech 55 crashed at entrance of subdivision. 3 POB, fatal.
Aug 4, 2013, 2:36 PM
Alma, GA. Beech 36 crashed. 2 POB, fatal.
Aug 5, 2013, 1:29 PM
Guymon, OK. Air Tractor AT-400 crashed under unknown circumstances. 1 POB, fatal.
Text Message
Send

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Our mission:

Prevent Accidents

Reduce Injuries

Save Lives

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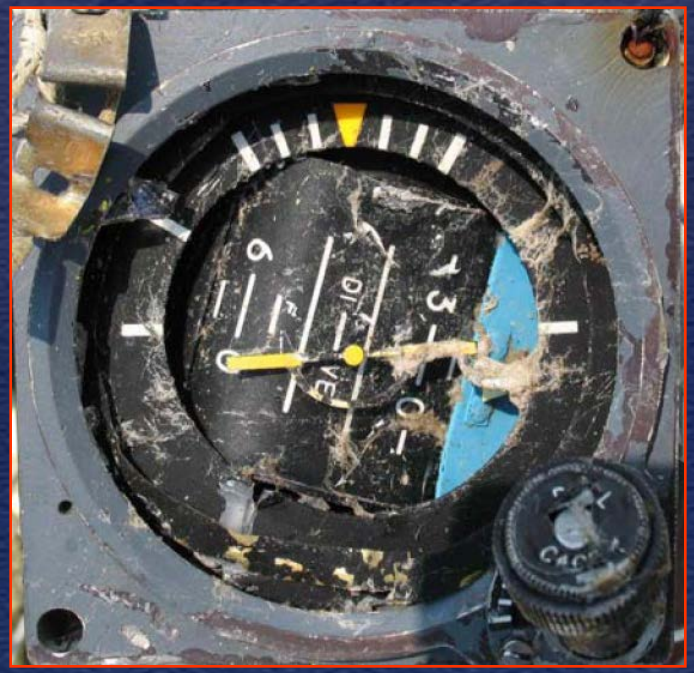

Professionalism: Maintaining the right attitude

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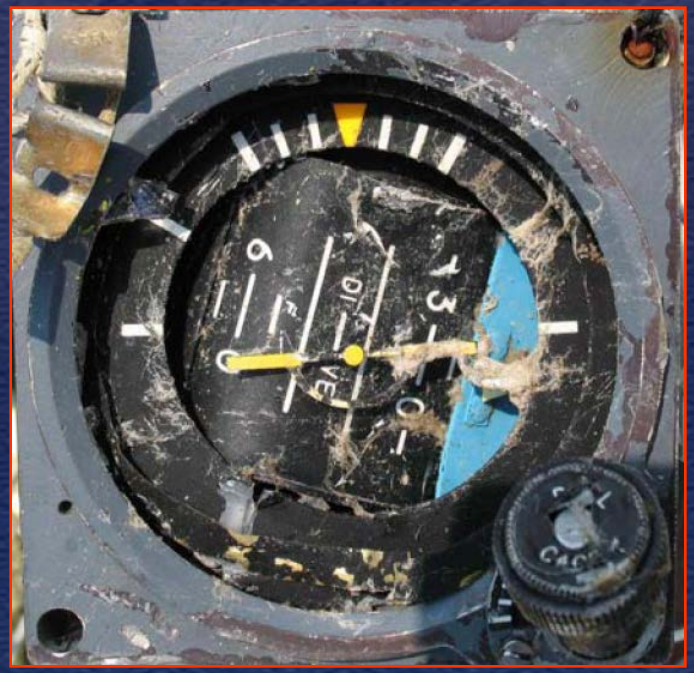
June 4, 2007



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What the investigation found

Captain/chief pilot/check airman

- had prior certificate revocation
- routinely failed to comply with procedures and regulations
- falsified training records

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NTSB Finding

- “The pilots’ lack of discipline, in-depth systems knowledge, and adherence to procedures contributed to their inability to cope with anomalies experienced during the accident flight.”

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Owatonna, MN
July 31, 2008
8 fatalities

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Accident sequence

- F/O called FBO 3 minutes before touchdown
- Wet runway, 8 knot tailwind
- After touchdown, Captain delayed 7 seconds before deploying Lift Dump
- 17 seconds after touchdown, captain initiated go-around/ takeoff attempt
  - Appx. 1200 feet from runway end
  - Appx. 75 – 80 knots
- Collided with localizer antenna

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NTSB finding

- “The captain allowed an atmosphere in the cockpit … including [lack of] sterile cockpit adherence, and this atmosphere permitted inadequate briefing of the approach and monitoring of the current weather conditions;

  … inappropriate conversation; nonstandard terminology; and a lack of checklist discipline throughout the descent and approach phases of the flight.”

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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

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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

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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

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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

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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** °

Pedal L R

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

NTSB

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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.

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Pinnacle Airlines Flight 3701
Jefferson City, Missouri

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

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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

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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…"

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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 CRM skills (specifically in the areas of leadership, workload management, communications/briefings, and crew coordination) …"

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Midair collision over Hudson River

- August 8, 2009
- 9 fatalities

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National Transportation Safety Board

Office of Research and Engineering

Flight Path Animation

Midair Collision Over Hudson River,
Piper PA-32R-300, N71MC, and
Eurocopter AS350BA, N401LH,

Near Hoboken, New Jersey
August 8, 2009

ERA09MA447AB

Corporate Airlines
dba American Connection Flight 5966
Kirksville, Missouri

- October 19,2004
- BAE J-32 (Jetstream)
- Crashed into trees on nighttime non-precision instrument approach
- 13 fatalities
- 2 serious injuries

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NTSB Finding

- “The pilots’ nonessential conversation below 10,000 feet MSL … reflected a demeanor and cockpit environment that fostered deviation from established standard procedures, crew resource management disciplines, division of duties, and professionalism, reducing the margin of safety well below acceptable limits …”

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Charleston, WV January 19, 2010

Probable cause:

- "…the flight crewmembers' unprofessional behavior, including their non-adherence to sterile cockpit procedures by engaging in non-pertinent conversation, which distracted them from their primary flight-related duties and led to their failure to correctly set and verify the flaps."

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Comair Airlines Flight 5191
Lexington, Kentucky

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

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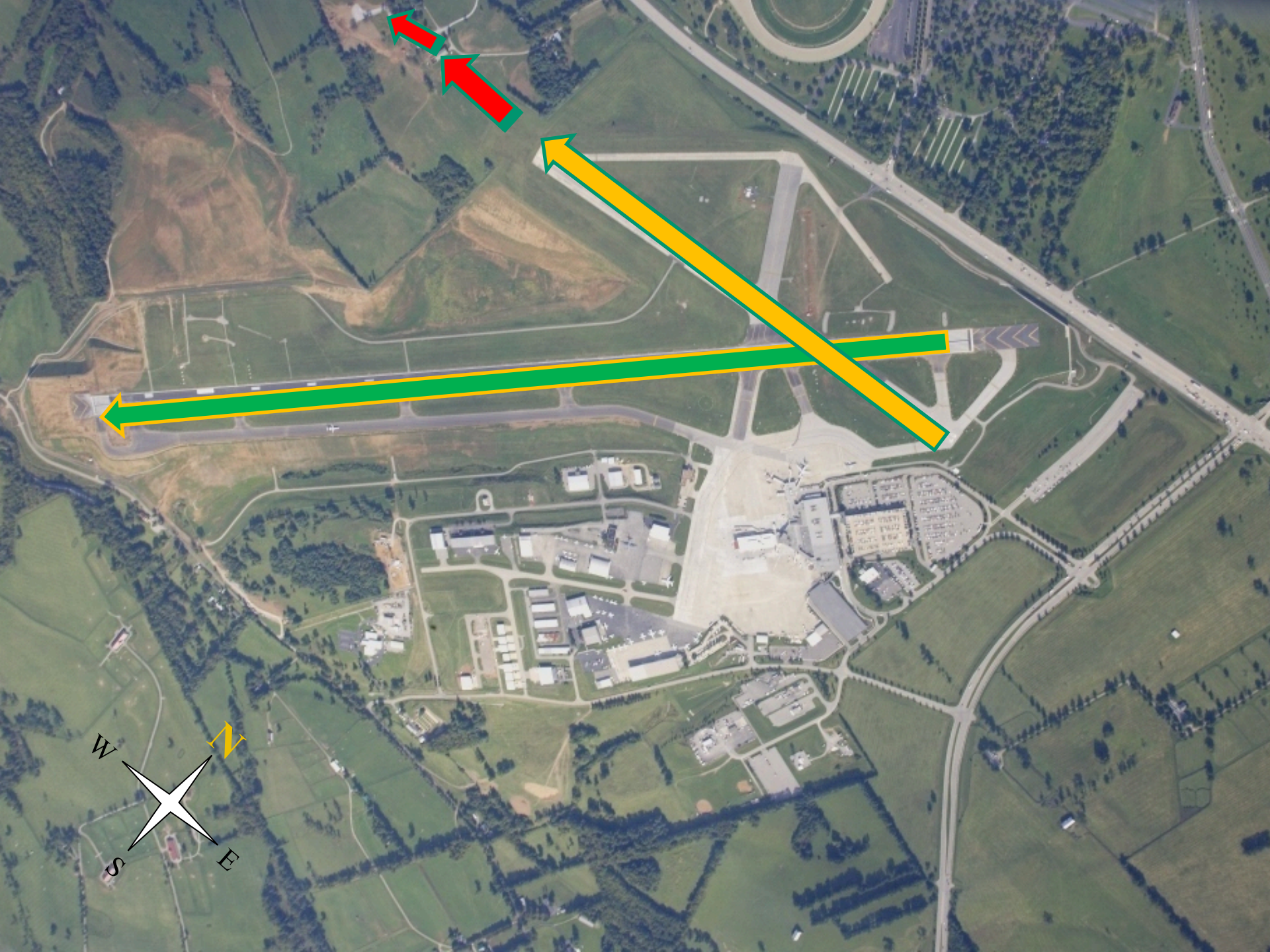
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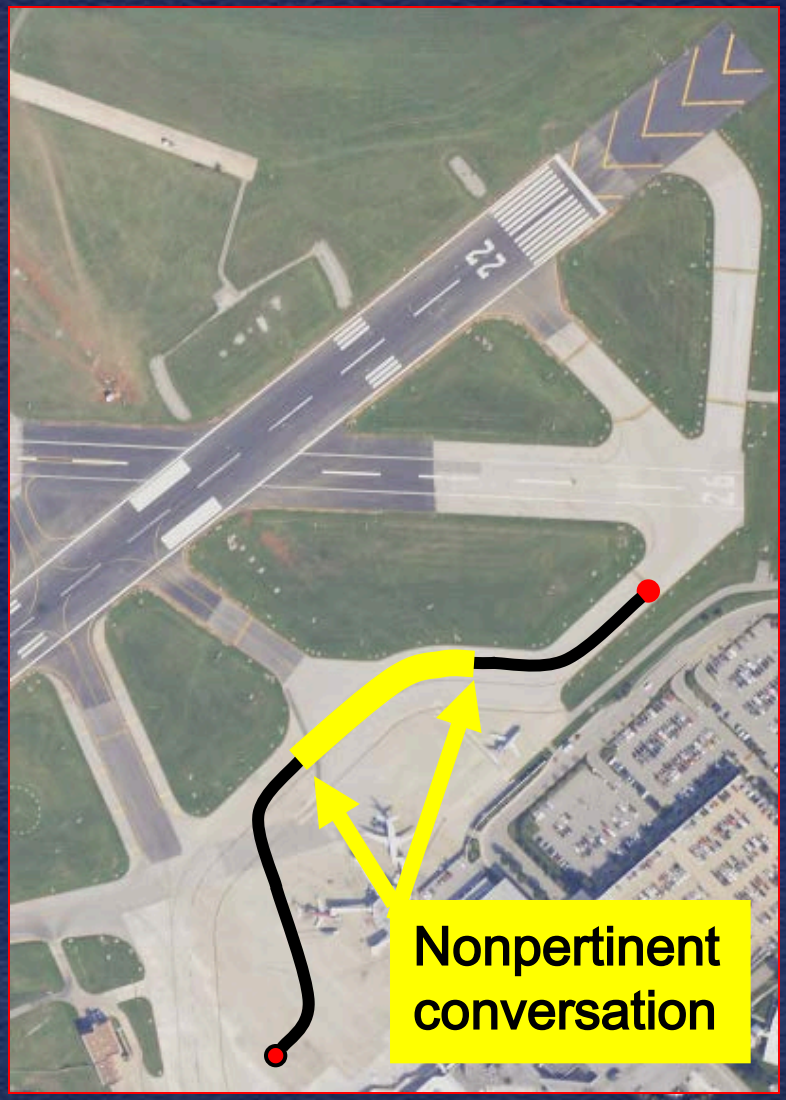
Crew Actions

- Setting tone during preflight
  - Casual and relaxed
- Noncompliance with sterile cockpit rule
  - 40 of the 150 seconds during taxi were violations of sterile cockpit rule
- Distraction likely contributed to loss of positional awareness



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.”

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A fine line

- “There is a fine line separating a relaxed and easy atmosphere in a cockpit from a lax one where distractions can result in critical failures.”
- “Professionalism may be described as knowing the difference between the two.”

  – Honorable John K. Lauber

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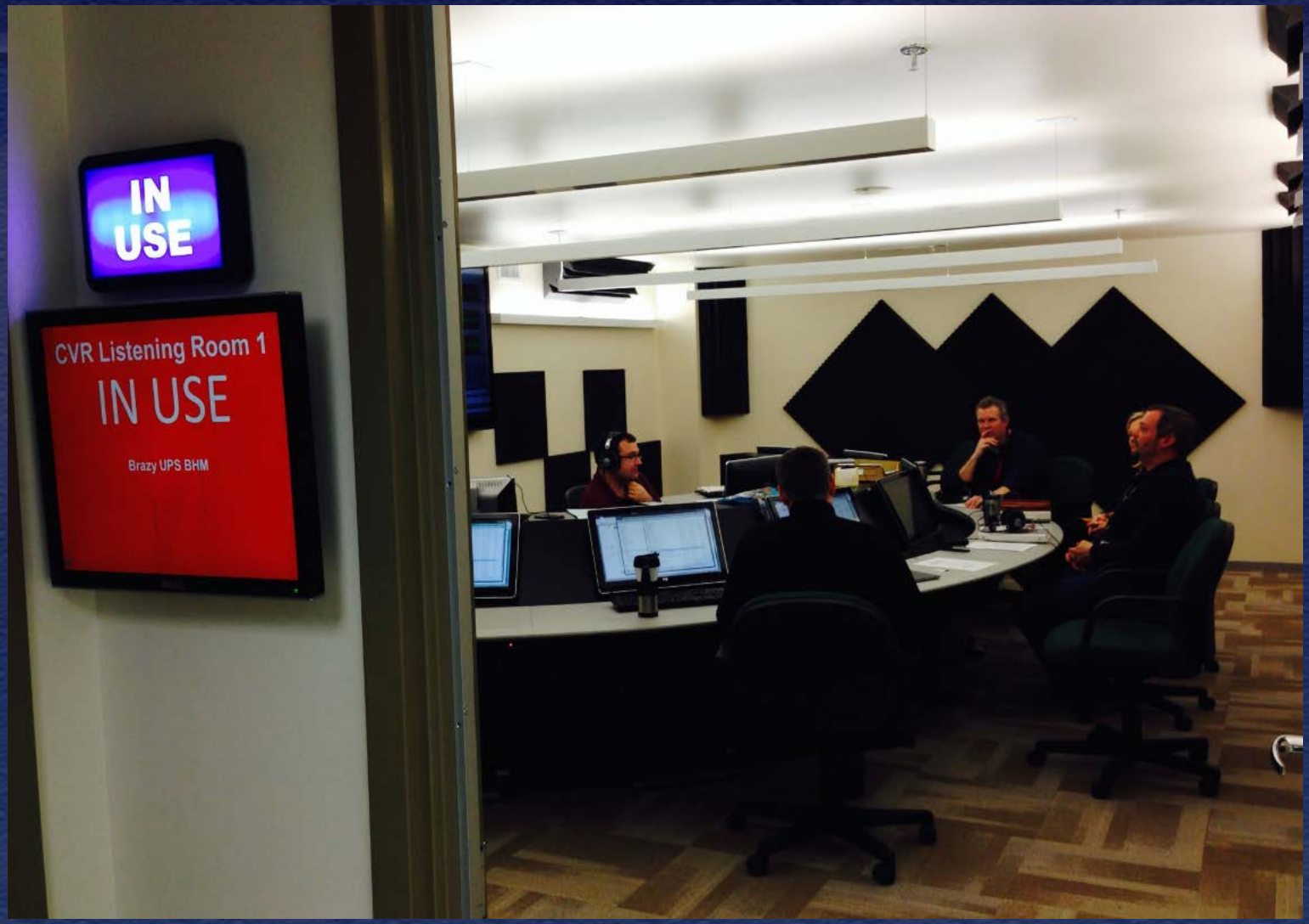

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ELT
LANDING LTS
Canadair
Jet
THIS AIRCRAFT IS CERTIFIED FOR RVSM OPERATIONS
LDG GEAR
44,000 LBS
FLAPS

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 1,10C

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

By Andrew Ilkoff

ANDRUW JONES: 25 HRs and 100 RBI, 1C

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

OUTFIELDER ANOTHER STAR IN ATLANTA CONSTELLATION, 1C

SPI

USA TODAY

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

HOME SALES HIT HIGHEST POINT IN 15 MONTHS 1B

EVEN IF SURGE FALTERS, ECONOMY WILL GET BOOST

NEW FILMS FEATURE WOMEN AND ISSUES THEY FACE TOGETHER

SISTERHOOD TO OUTSHINE SHOWGIRLS, DRAG QUEENS, 1D

WINO
Stars in

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
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By Mimi Ha
USA TODAY

Former
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UTH CAROLINA • FRIDAY, FEBRUARY 4, 2000 The Switchboard (803) 771-6161 ▪ CAPITAL FINAL

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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NATIONAL TRANSPORTATION SAFETY BOARD
Kitty Higgins
Robert L. Sumwalt
Mark V. Rosenker
Debbie Hersman
Steven R. Chealander

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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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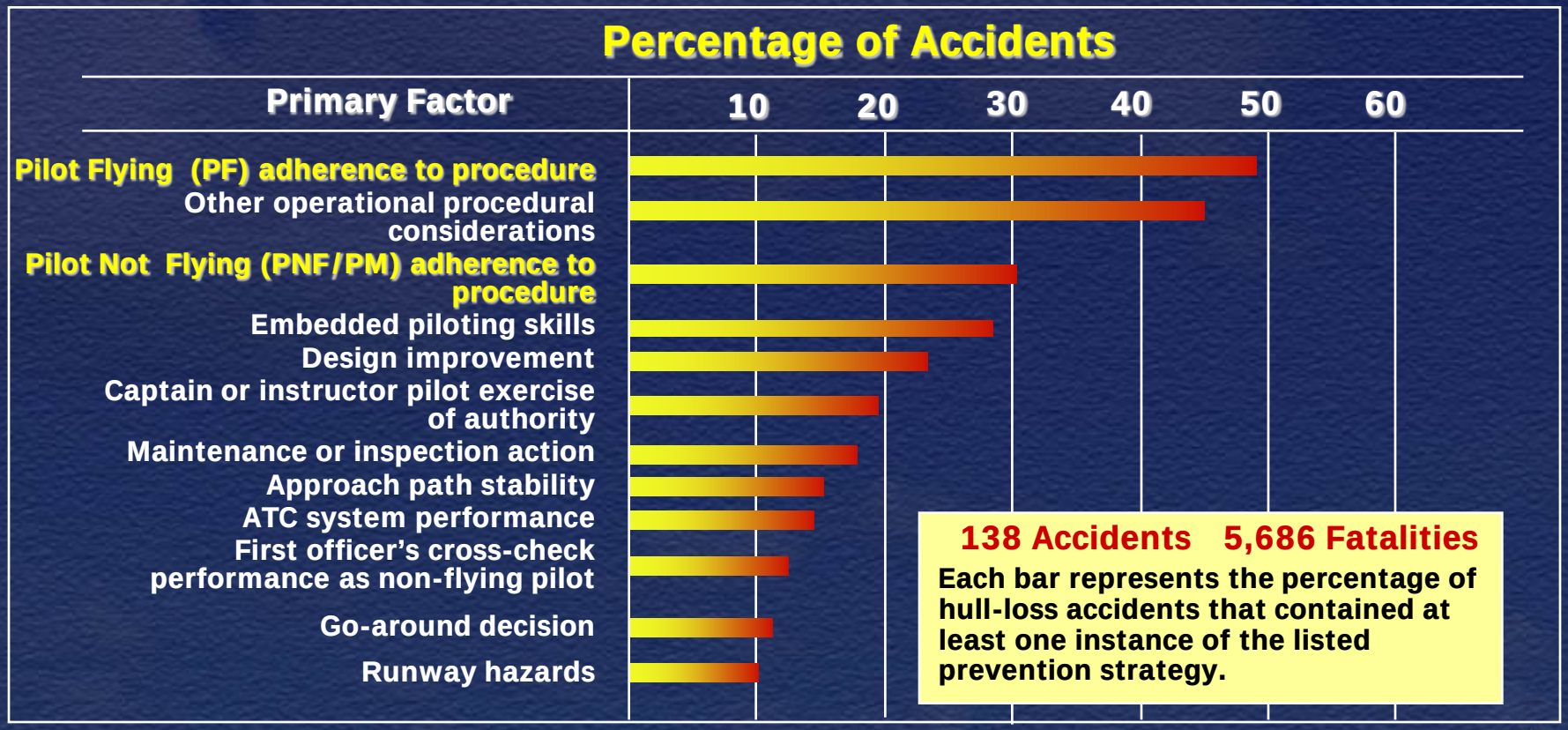
SOP Adherence

Accident Prevention Strategies

Hull-loss Accidents over 10 Year Period



Source: Boeing study of accident prevention strategies

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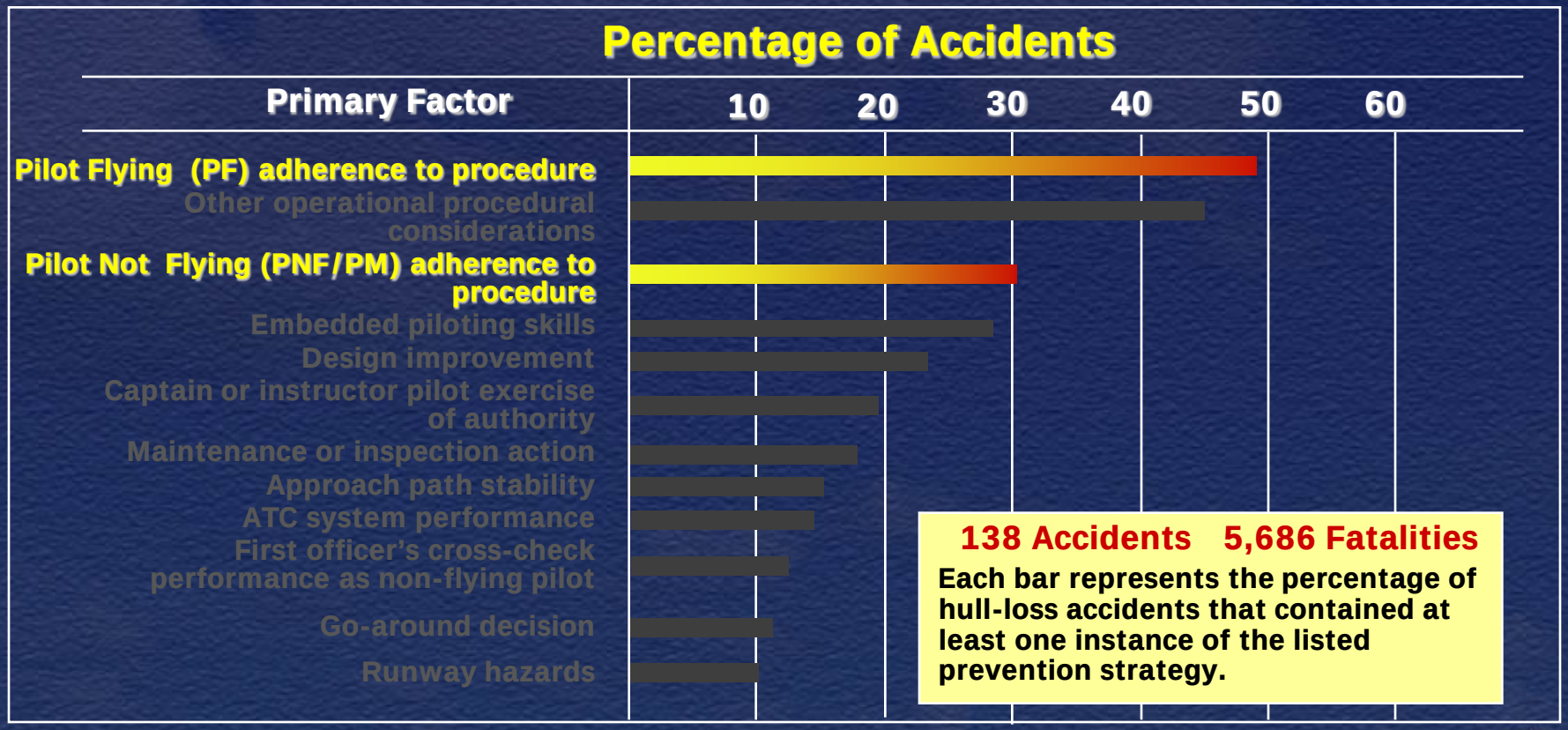
Accident Prevention Strategies

Hull-loss Accidents over 10 Year Period



Source: Boeing study of accident prevention strategies

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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”

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Professionalism

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

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