



**NTSB** National Transportation Safety Board

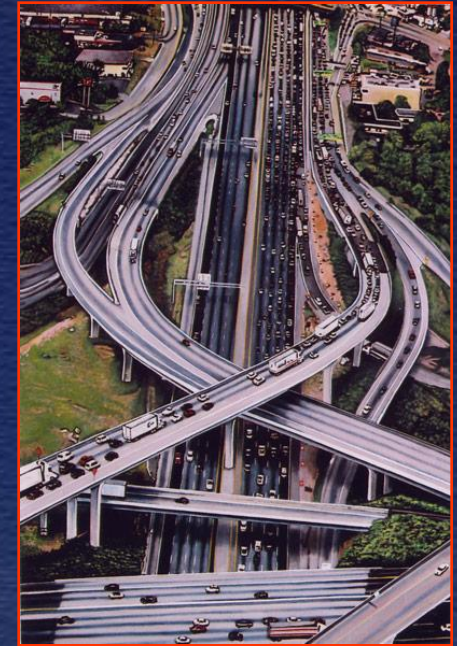
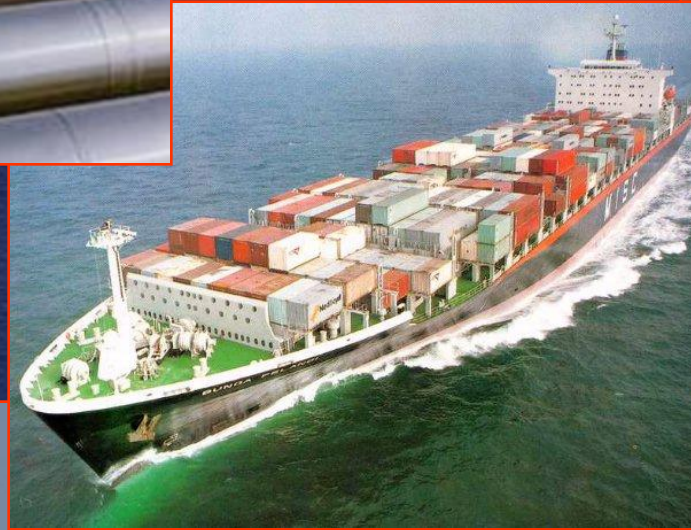
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# Professionalism in Aviation

Robert L. Sumwalt  
NTSB Board Member



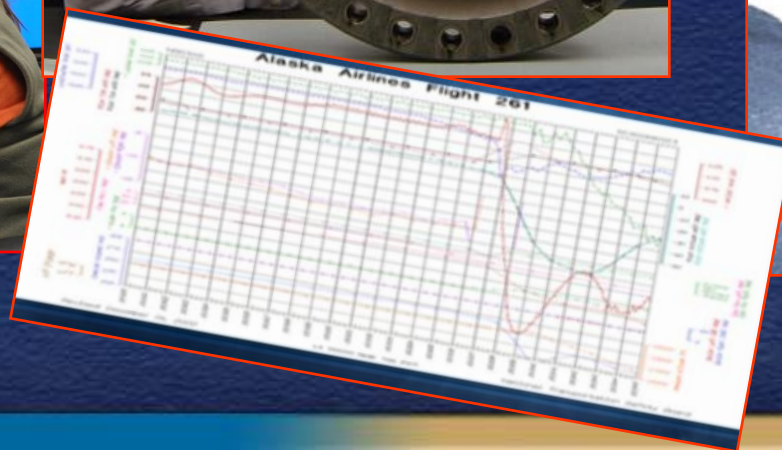
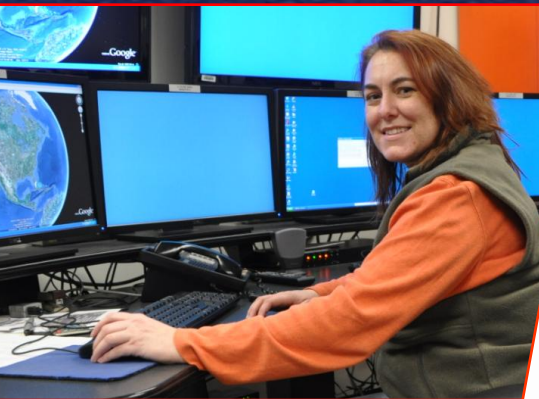
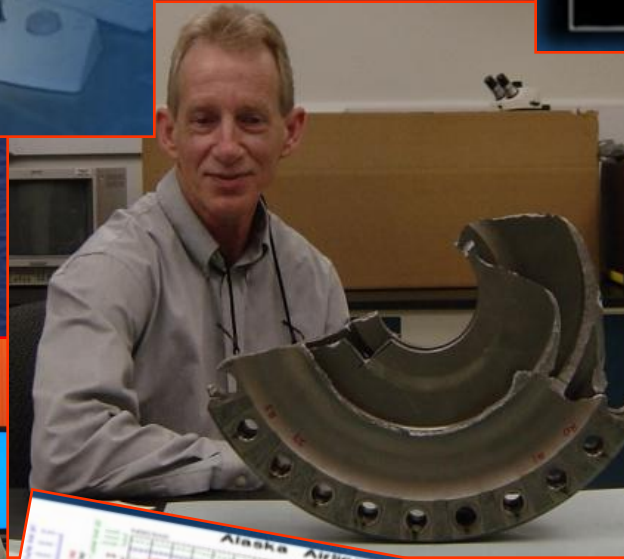
NTSB is an independent federal agency, charged by Congress to investigate transportation accidents, determine probable cause, and issue safety recommendations.



# The Board

- Five Presidentially appointed Board Members
  - Nominated by the President, confirmed by the Senate
  - Serve for five years





# Facilities

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





**NATIONAL  
TRANSPORTATION  
SAFETY BOARD**

*The Best Places to Work*  
**IN THE FEDERAL GOVERNMENT.**

★ ★ ★ ★ ★ ★ ★





PROFESSIONALISM  
IN AVIATION

SAFETY



NTSB





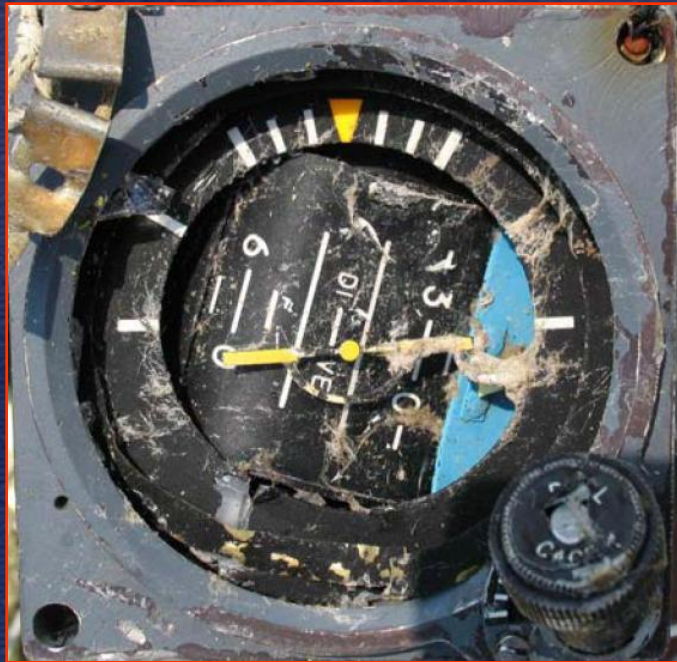


**Professionalism:  
Maintaining the  
right attitude**

NTSB



# June 4, 2007



# What the investigation found

## Captain/chief pilot/check airman

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

# 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.”



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 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.”

# 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**

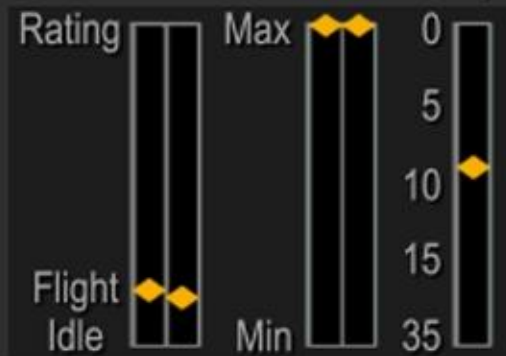
**130** knots **2280** feet **Shaker ON** Pusher **OFF** Power Condition Flap



Heading **247**°



L R  
Pedal 



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



# NTSB

National Transportation Safety Board

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*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



# 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.



# 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...”



# 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.”

# Midair collision over Hudson River

- August 8, 2009
- 9 fatalities





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## 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

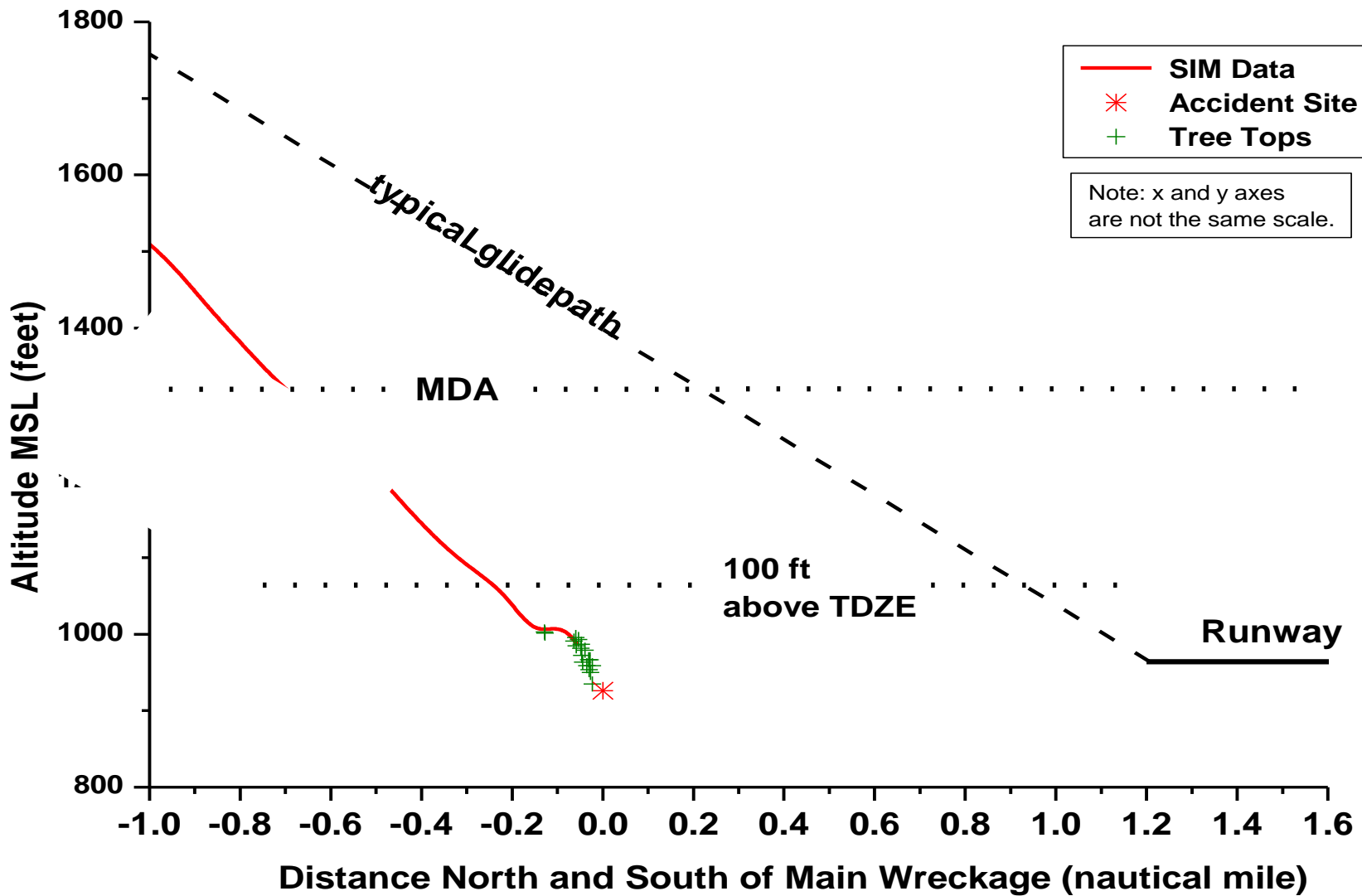


# Corporate Airlines dba American Connection Flight 5966 Kirksville, Missouri



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





# NTSB Finding

- “The pilots’ nonessential conversation below 10,000 feet MSL was contrary to established sterile cockpit regulations and 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 ...”

# Comair Airlines Flight 5191

## Lexington, Kentucky

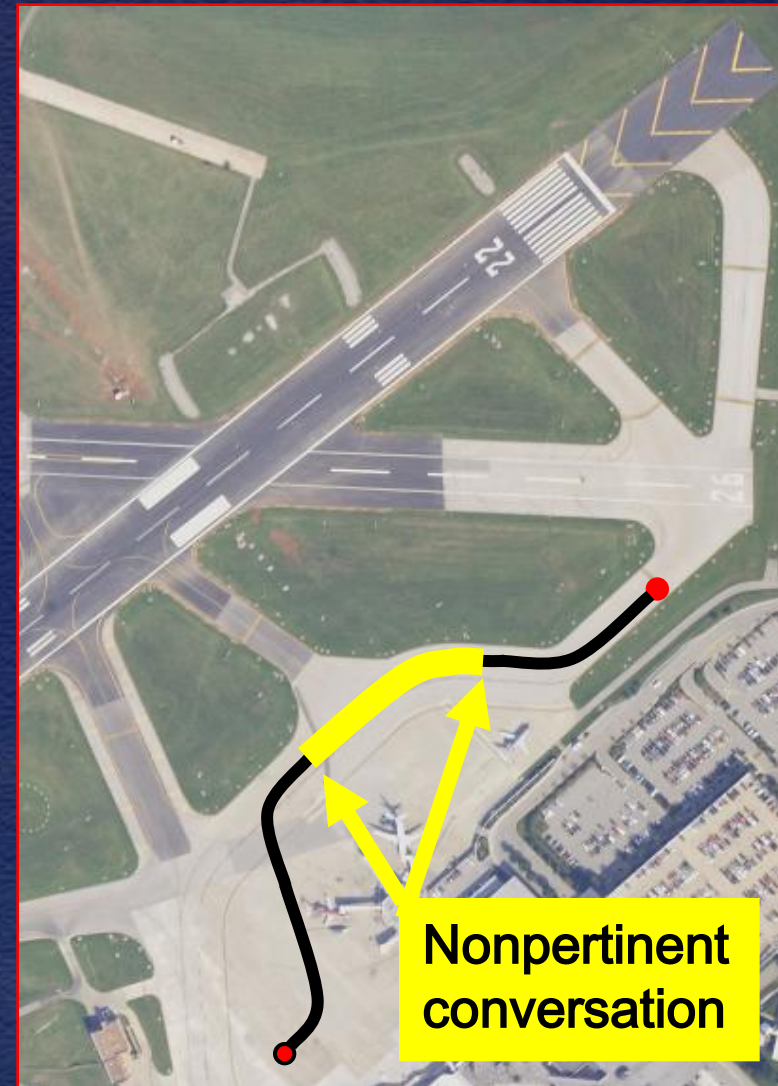
- Bombardier CRJ
- 49 Fatalities
- First officer severely injured
- Wrong runway takeoff





# Crew Actions

- Setting tone during preflight
  - Casual and relaxed
  - Abbreviated taxi briefing
- 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.”

# 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







A/C 7271  
N837AS

NAME	PILOT	COPILOT	LOAD
...	...	...	...



THIS AIRCRAFT IS CERTIFIED FOR DASH OPERATIONS

THIS AIRCRAFT IS CERTIFIED FOR DASH OPERATIONS

NET LEAD 1000  
PUSH  
HOLD  
RELEASE  
DELTA  
DASH ONLY

Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z

44,000 LBS MAXIMUM TAKEOFF WEIGHT			
FLAPS UP		FLAPS DOWN	
WIND	WIND	WIND	WIND
100	100	100	100
110	110	110	110
120	120	120	120
130	130	130	130
140	140	140	140
150	150	150	150

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

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 Izkoff  
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 Kuhlen, 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

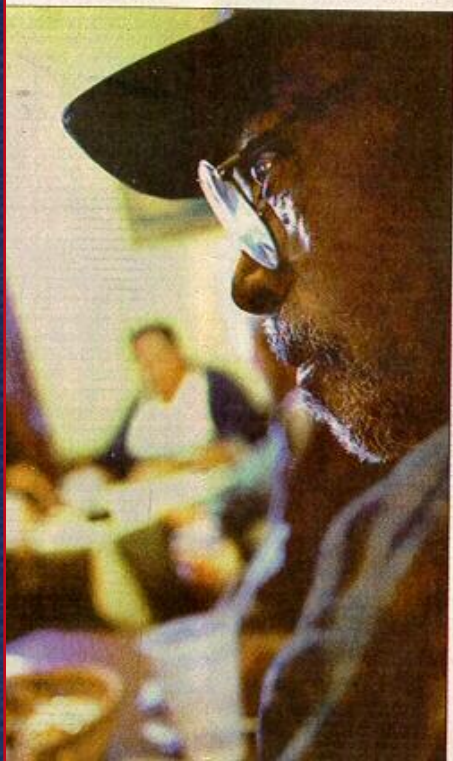
How regional airlines failed to heed warning signals about pilots who didn't belong in the cockpit

# Dead Calif mont

By Mimi Ha USA TODAY

Former dental can said Mond porters are third nation Such a p dramatic e presidential Perot, on Live, said t dence Party voters who they don't f Democrats "It will no special in who got 199 he ran in owned by ( He told K economy, " that have to

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.





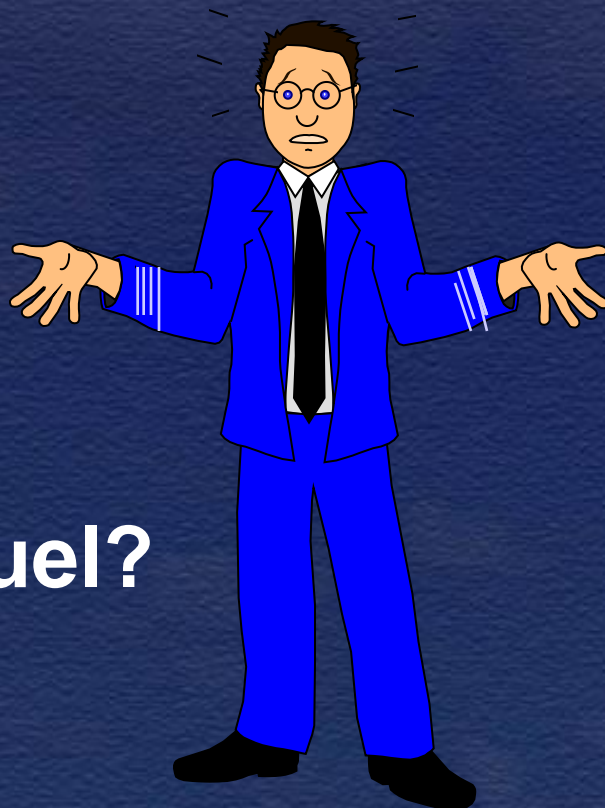


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**Take the Most Conservative Approach**

# What to do?

Take the most conservative approach



De-ice?

Divert?

Add more fuel?

Don't de-ice

Continue?

Risk min fuel  
landing?



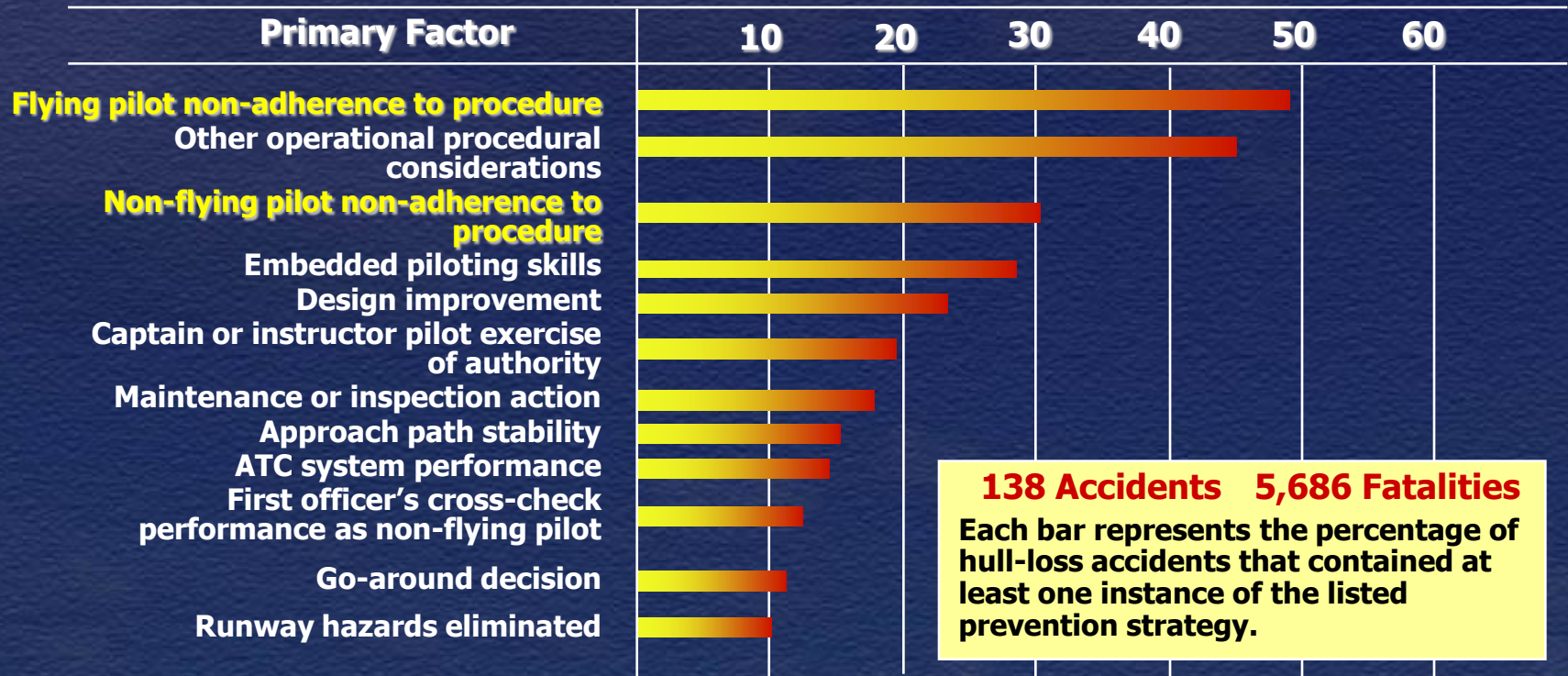
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**SOP Adherence**

# Accident Causal Factors

## Hull-loss Accidents over 10 Year Period

### Percentage of Accidents



Source: Boeing

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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”

# Professionalism

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





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