



**NTSB** National Transportation Safety Board

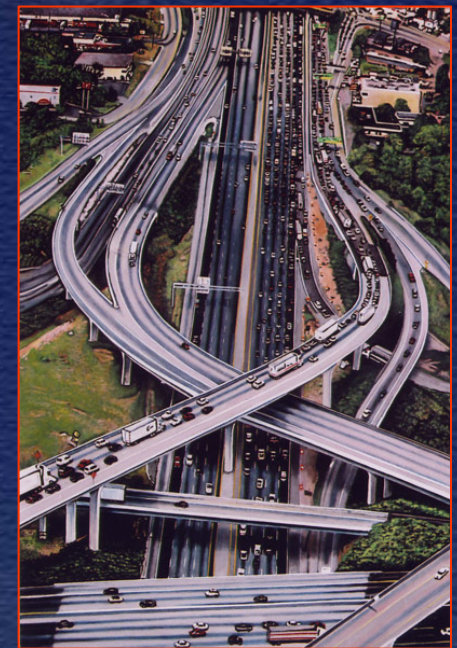
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# The Role of the NTSB: Improving Safety through Accident Investigation

Robert L. Sumwalt, III  
Board Member  
December 10, 2009

# NTSB's Mission

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



# Since 1967 ...

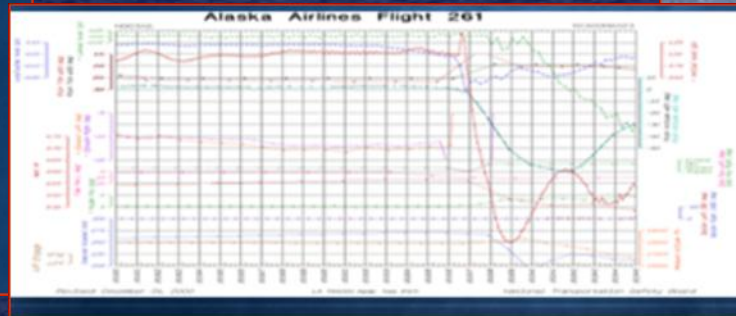
- 142,000 accident investigations
  - 133,0000 aviation accidents
- 13,084 safety recommendations
  - 82 percent overall acceptance

**Our independence is crucial to our mission.**

# Facilities

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





# The Best Places to Work

IN THE FEDERAL GOVERNMENT 2009



NTSB



# The Board

- 5 Members, appointed by the President, with advice and consent of the Senate









# GA Accidents - 2008



- 1559 accidents
- 275 fatal
- 495 fatalities





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# Propellers



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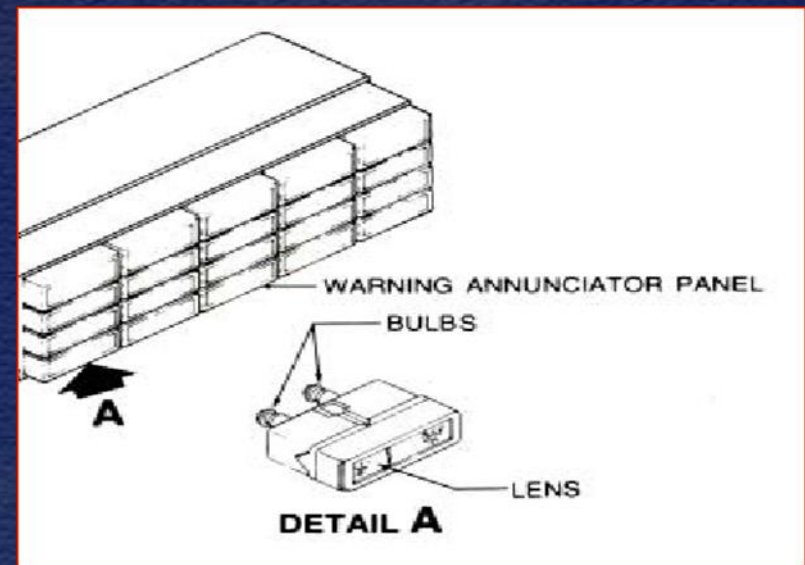
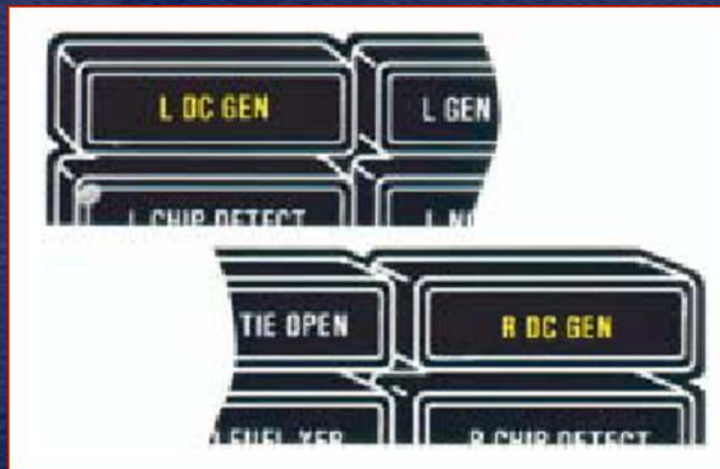


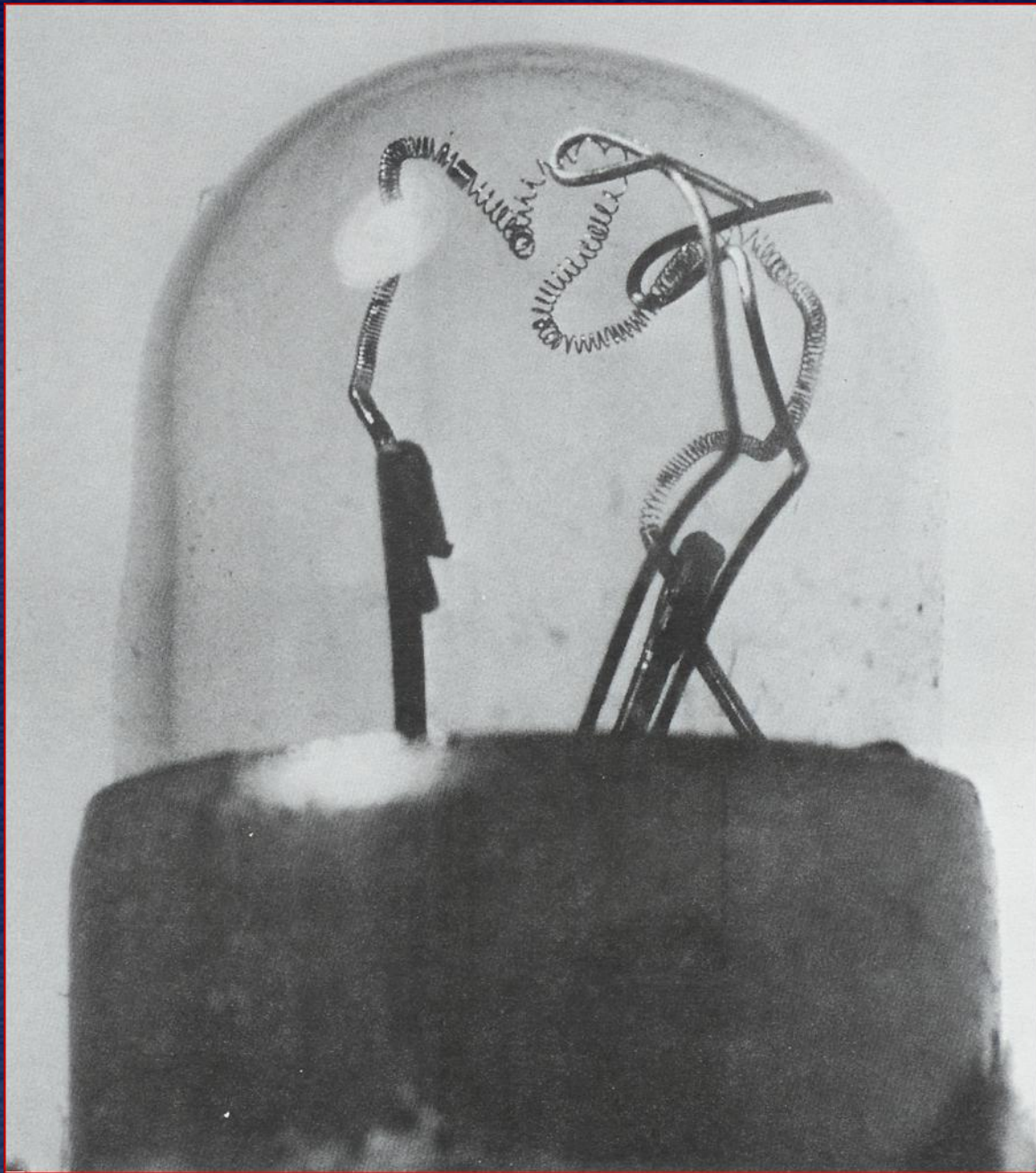
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# Light Bulb Analysis

# Light Bulb Filaments





- Was this light illuminated or extinguished at impact?

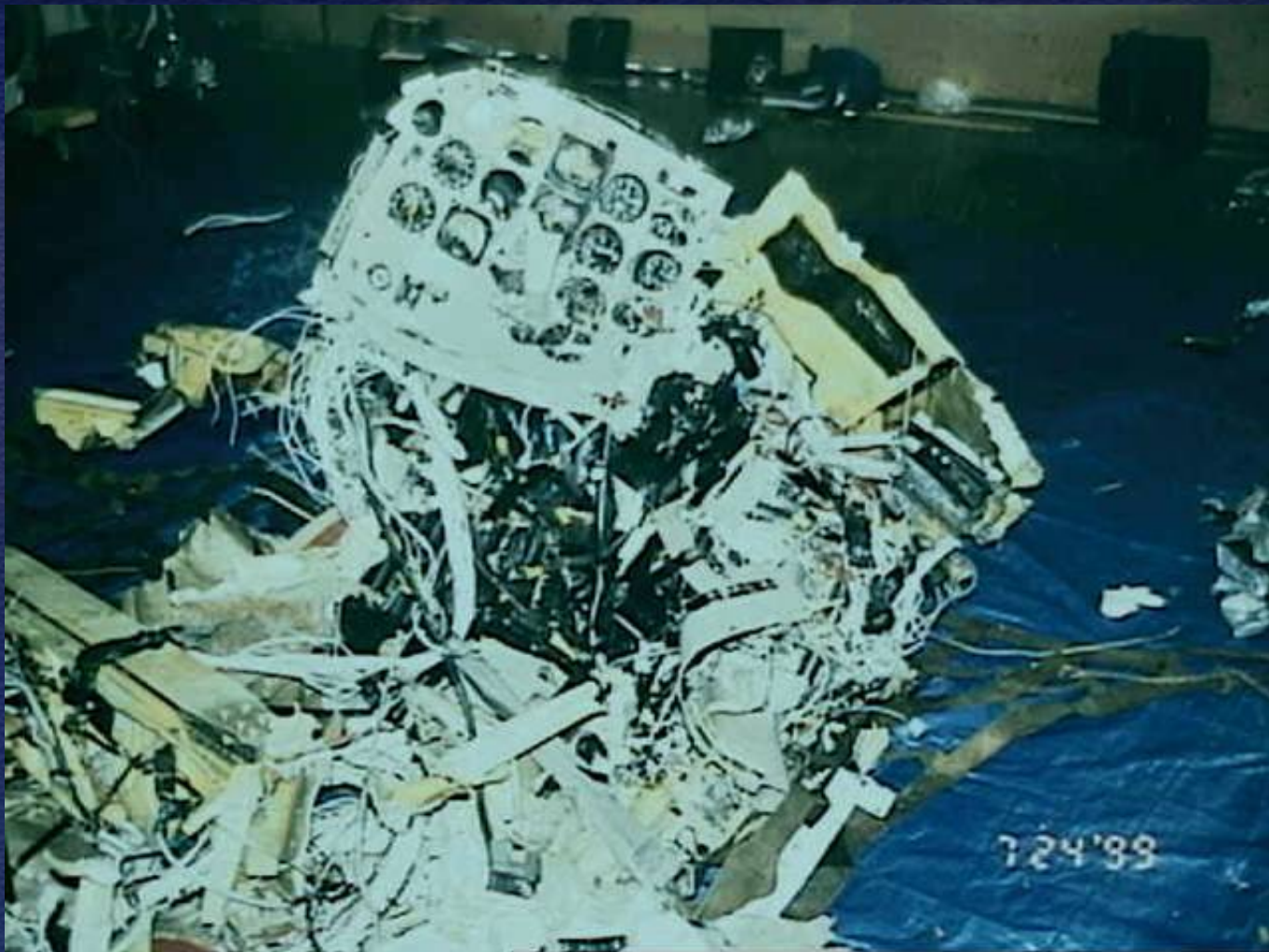


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# Cockpit Instruments

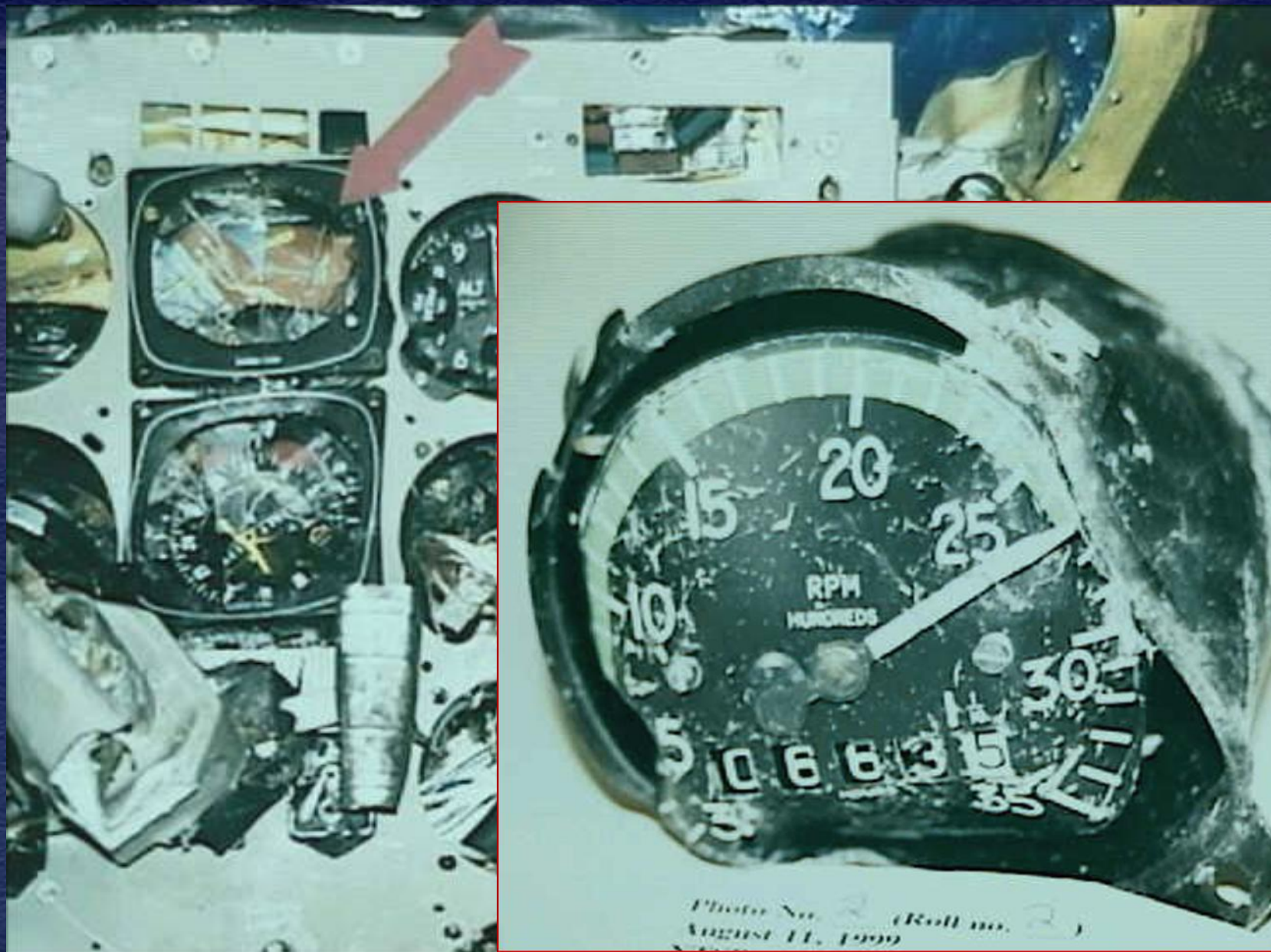
# Cockpit – Instruments (JFK Jr)



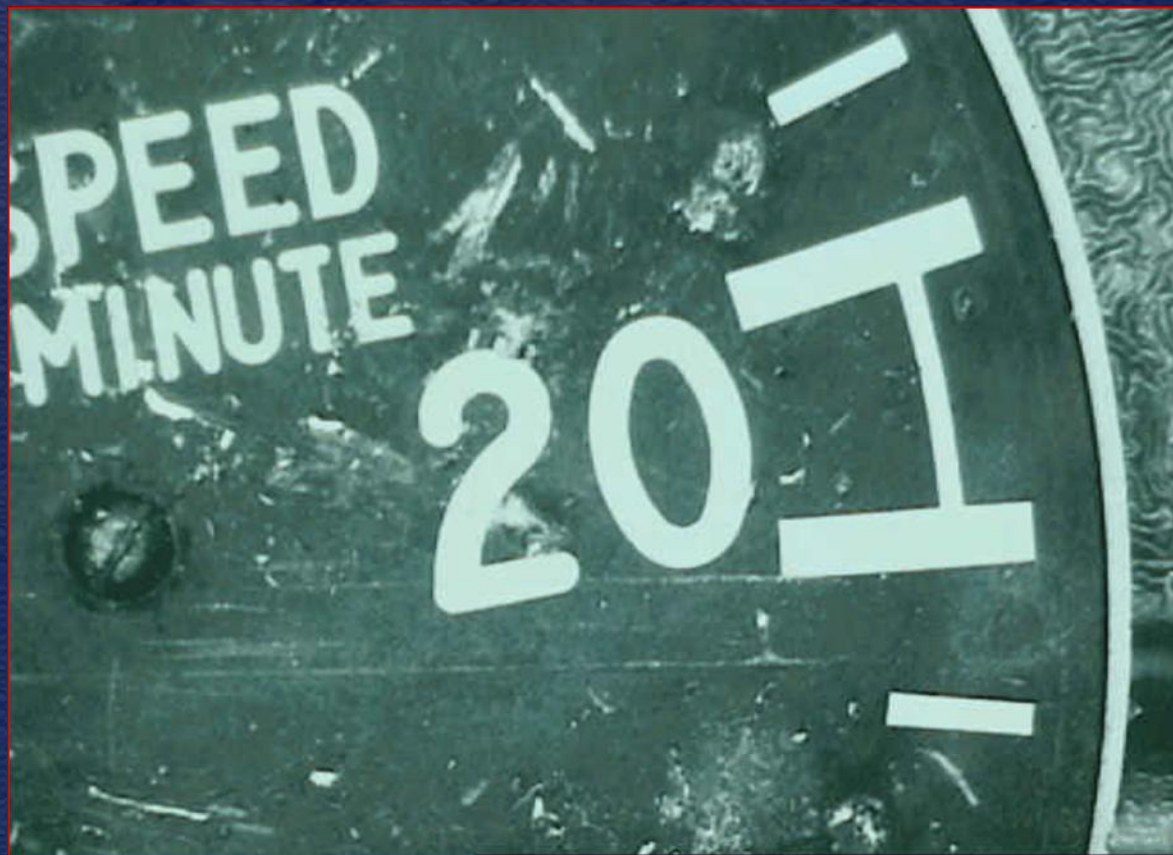
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# JFK Jr. Attitude Indicator



# Cockpit Instruments (JFK Jr)



# Airspeed Indicator Witness Marks







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# US Airways Express

January 25, 2007



January 25, 2007

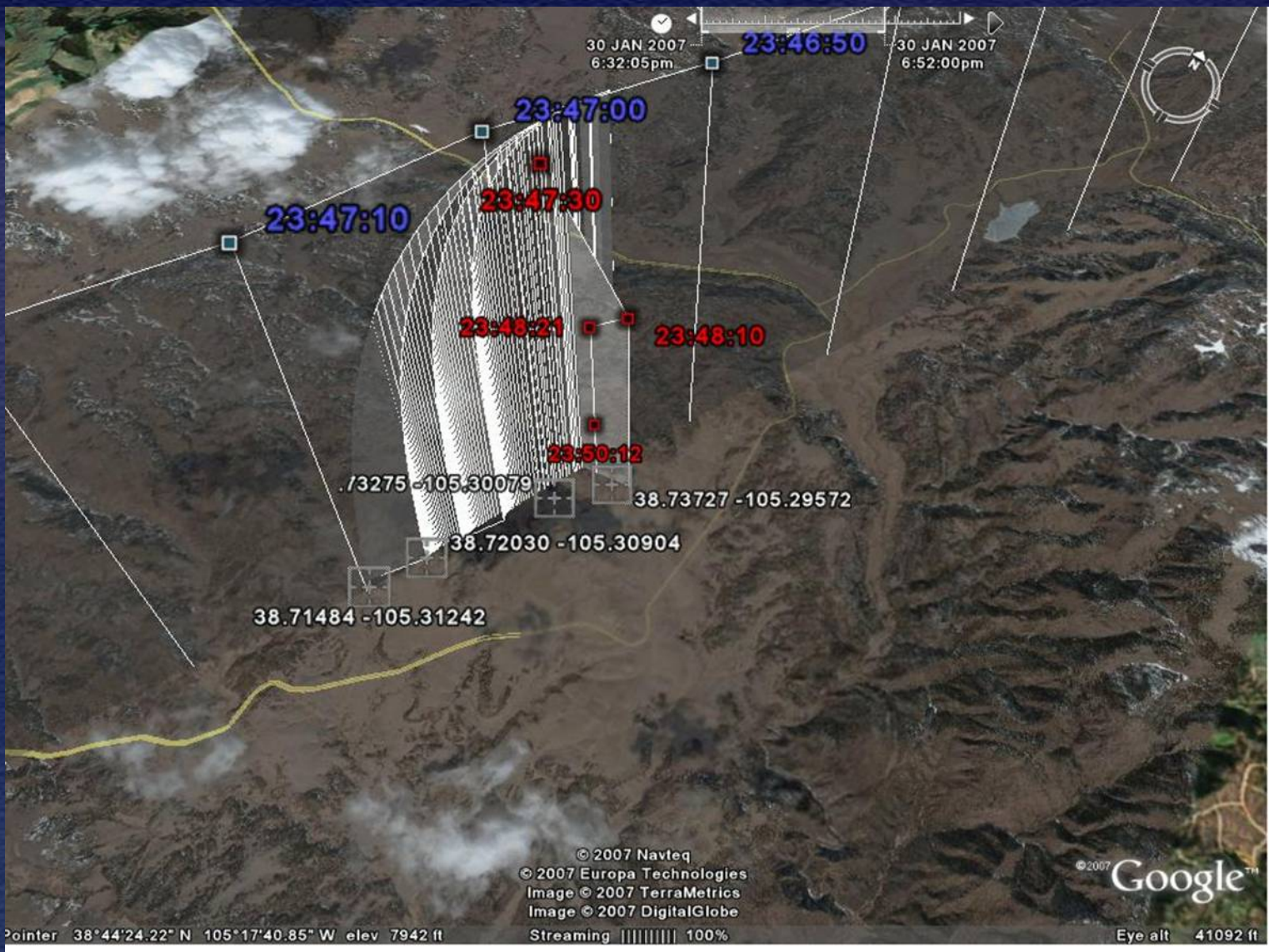


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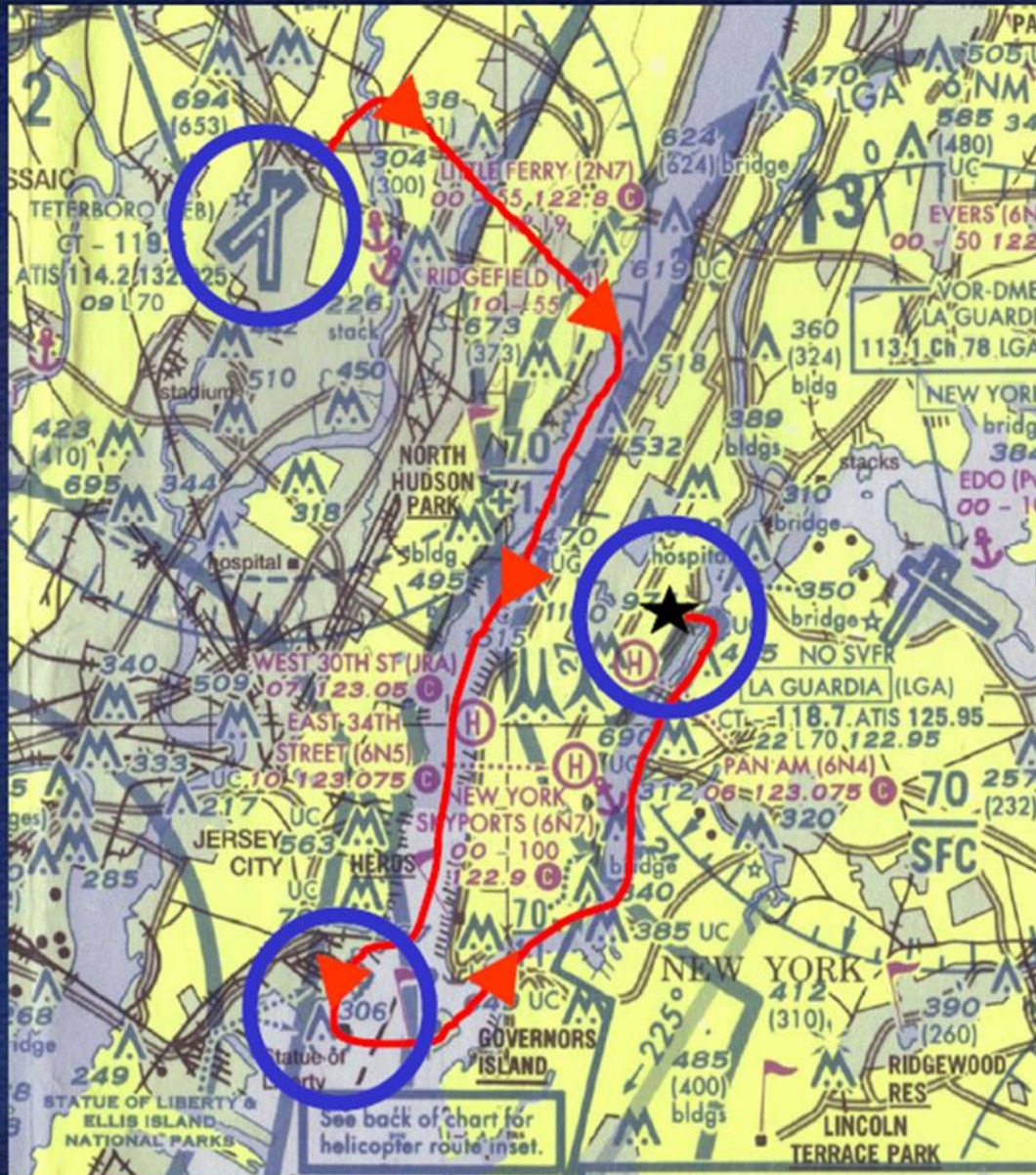
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# **Cirrus SR20 Accident N929CD**

Manhattan, New York

October 11, 2006

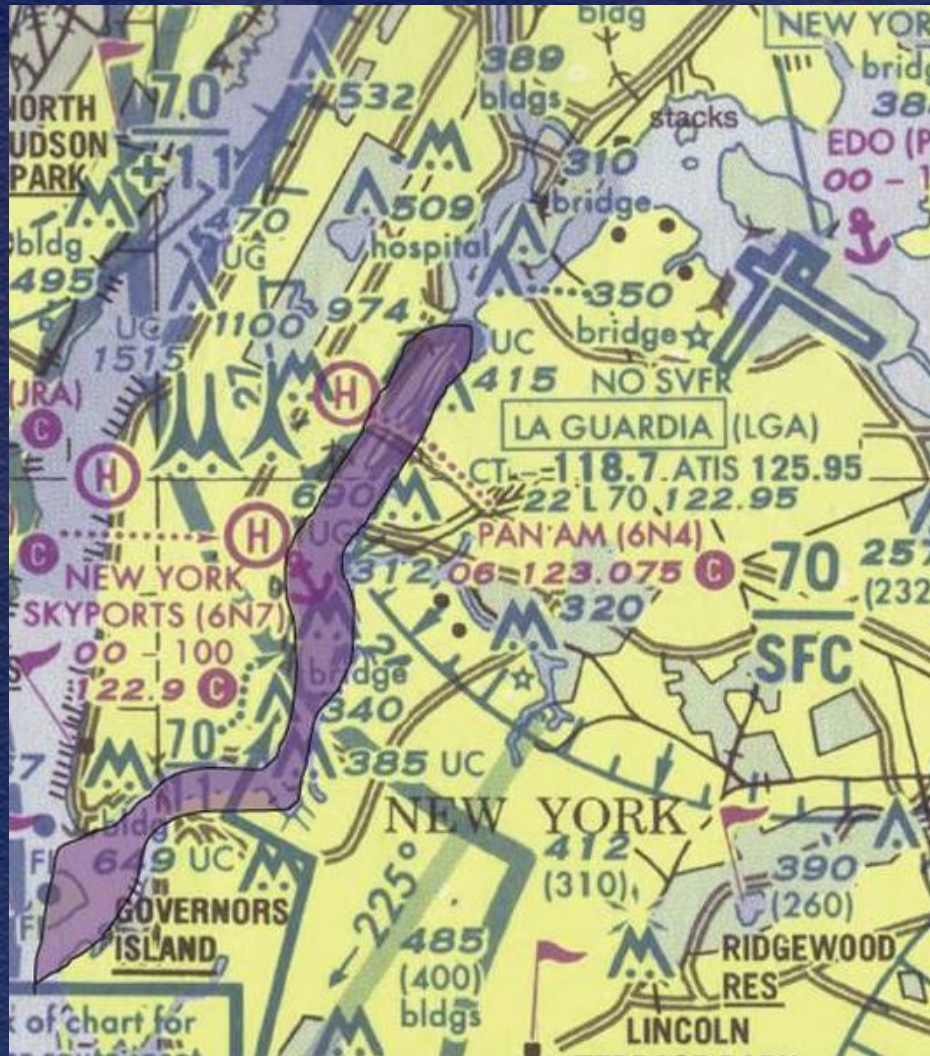
# Flight Track



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# East River Class B Exclusion







# Impact Site



# Ground Wreckage



# Personnel Information

- Pilot/Owner
  - Private Pilot
  - Purchased airplane on June 9, 2006
  - 87.8 hours of flight time
  - 12.5 in Cirrus aircraft
  - 13.7 hours flown in the last 90 days
  - 0 hours flown in the last 30 days



North



Roosevelt Island

Wind



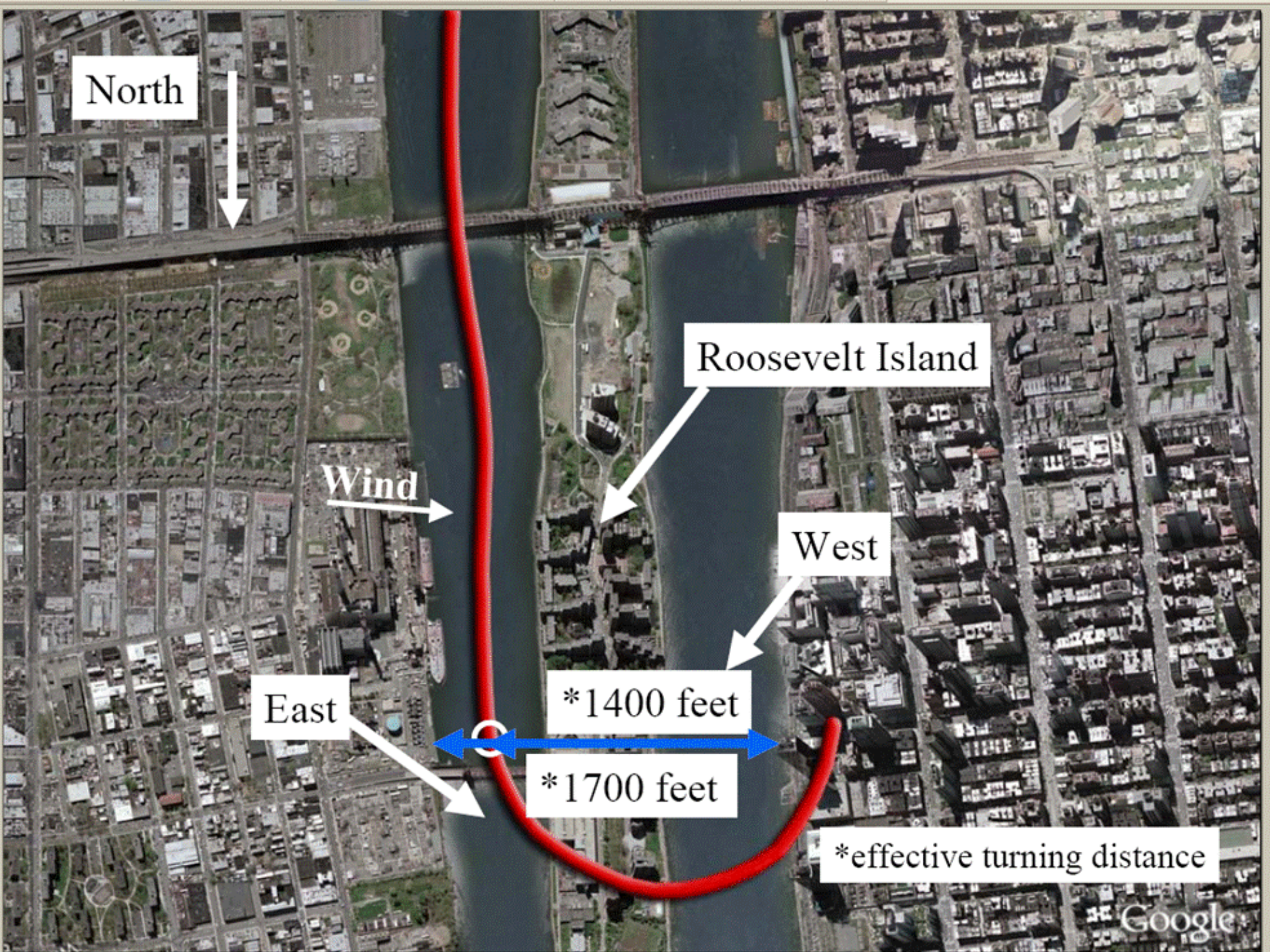
West

East

\*1400 feet

\*1700 feet

\*effective turning distance



Start of turn



↑  
Looking south

Building height:  
520 feet

Impact



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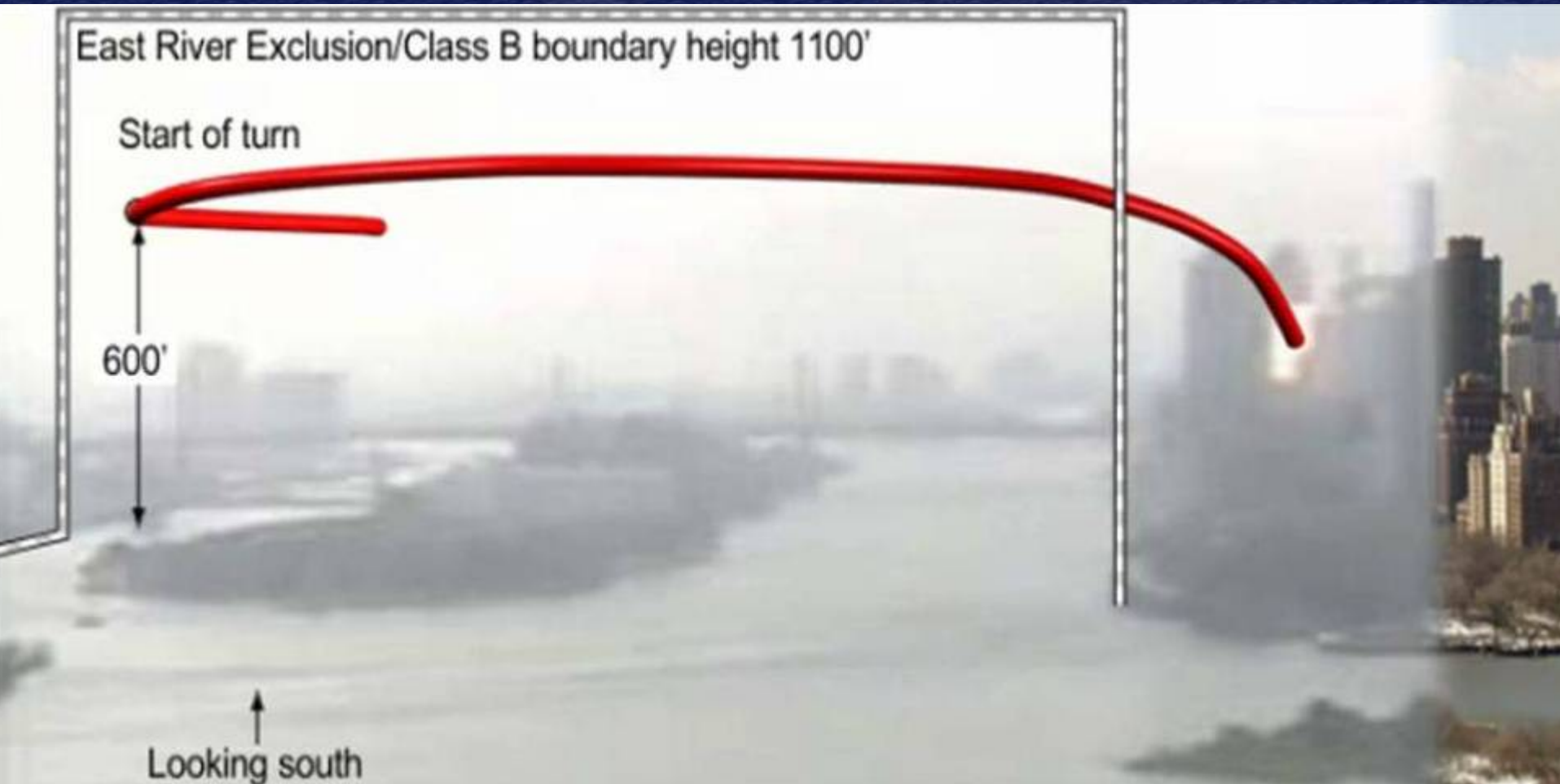


East River Exclusion/Class B boundary height 1100'

Start of turn

600'

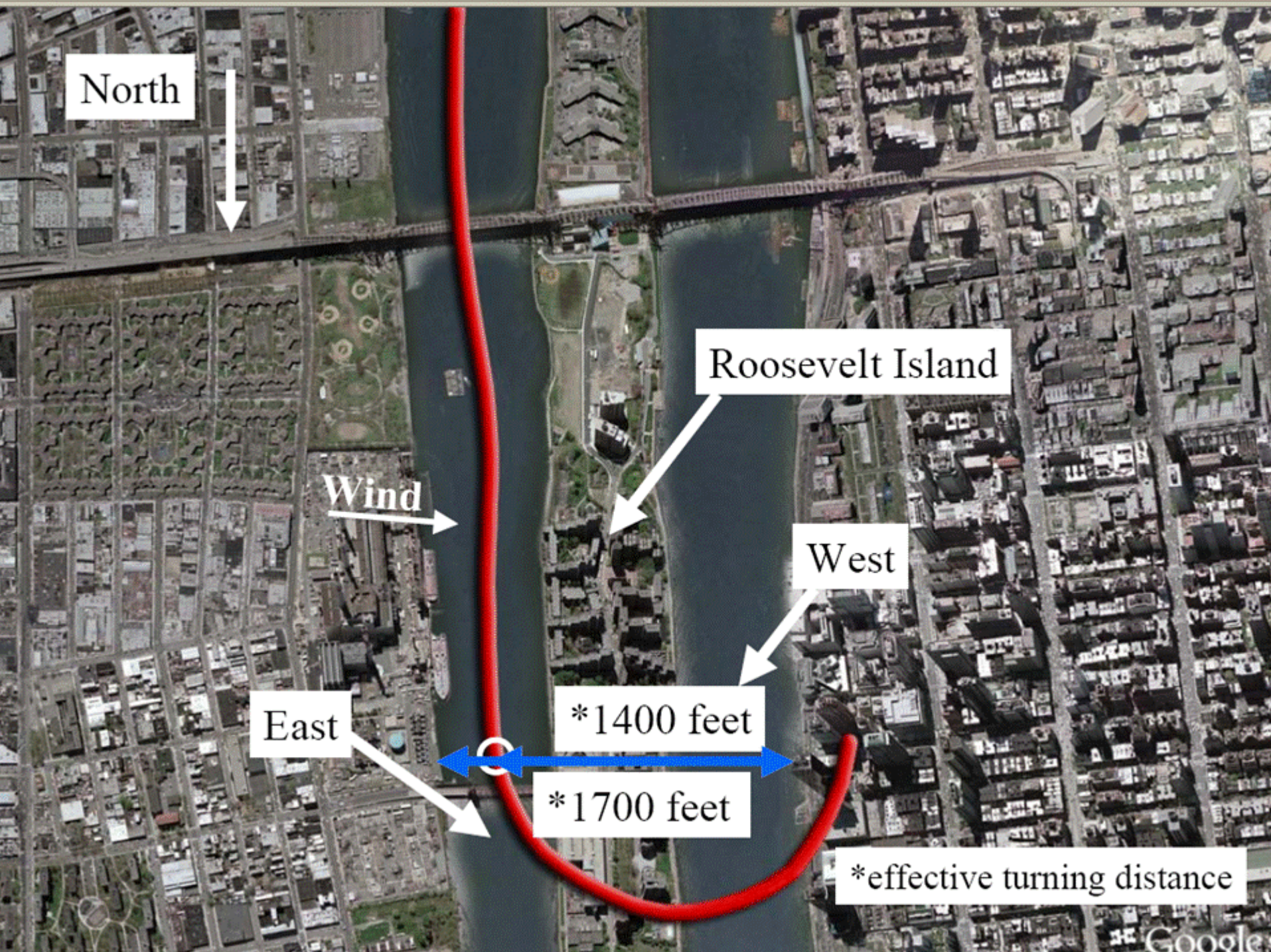
Looking south



NTSB







North



Wind



Roosevelt Island



West



East



\*1400 feet

\*1700 feet



\*effective turning distance

# NTSB's Probable Cause

“... the pilots' inadequate planning, judgment, and airmanship in the performance of a 180° turn maneuver inside of a limited turning space.”

**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

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

OUTFIELDER ANOTHER STAR IN ATLANTA CONSTELLATION, 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



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

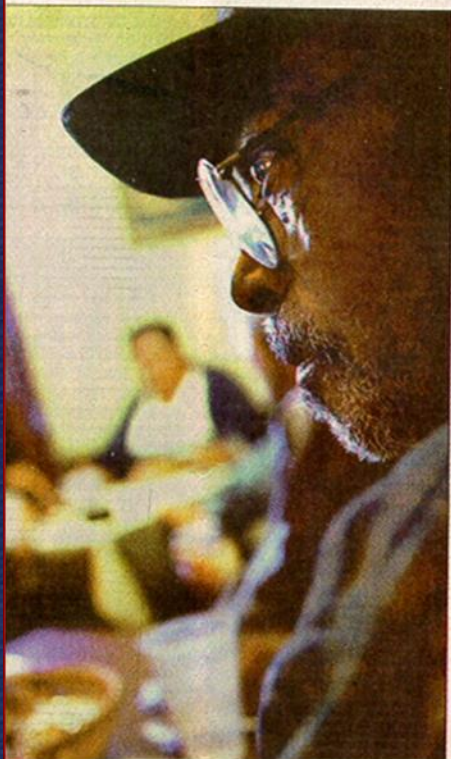
How regional airlines failed to heed warning signals about pilots who didn't belong in the cockpit

## Dead Calif mont

By Mimi Ha USA TODAY

Former dental can said Monday 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 n special inte who got 19 he ran in owned by ( He told K economy, " that have to Perot did

VETERANS



# 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?



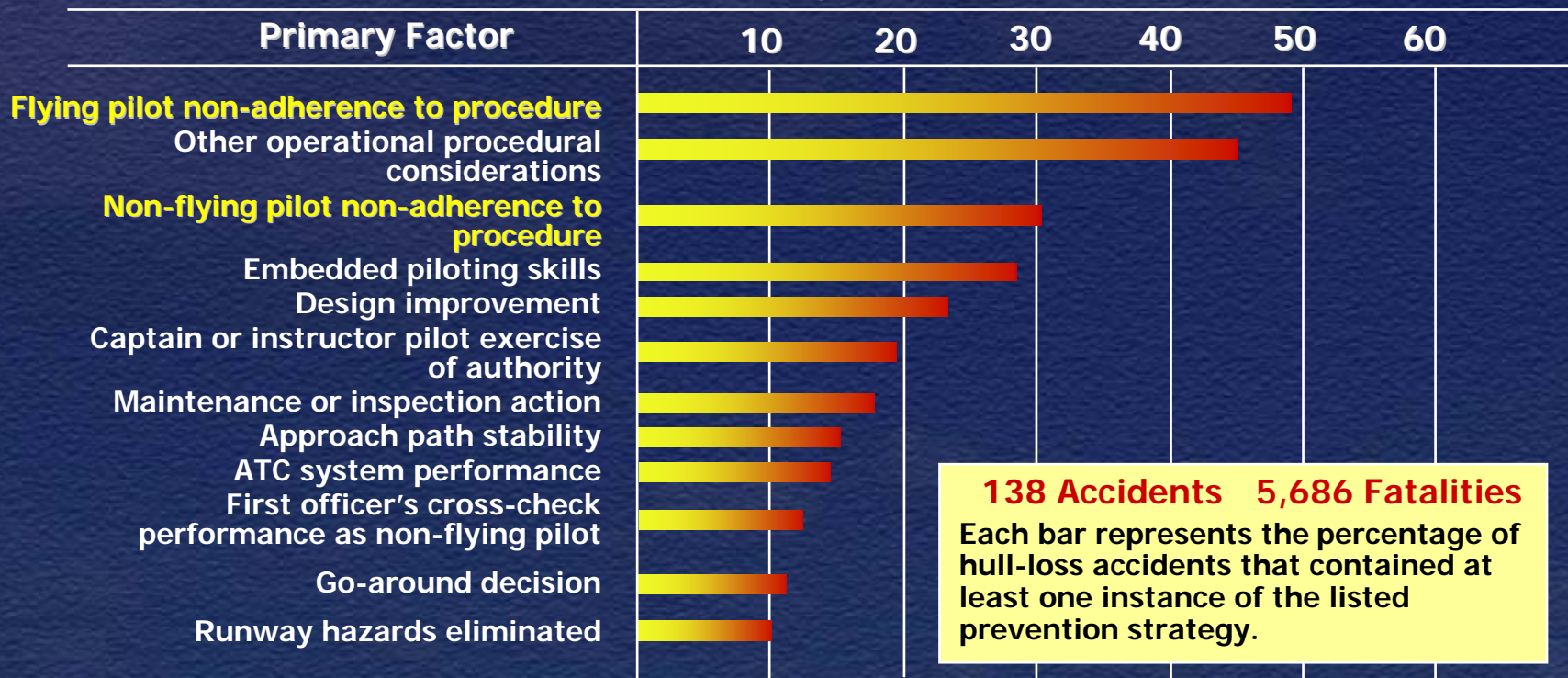
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**SOP Adherence**

# Accident Causal Factors

## Hull-loss Accidents over 10 Year Period

### Percentage of Accidents



Source: Boeing



# How SOPs relate to error

- Studies reveal that 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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In summary, the NTSB, through effective investigations, seeks to prevent accidents by finding out what happened, and therefore, make recommendations to prevent future accidents.

- “Public service is one of the highest callings in the land. You have the opportunity to make a positive impact on families, communities, states and sometimes the world.”



**NTSB**