



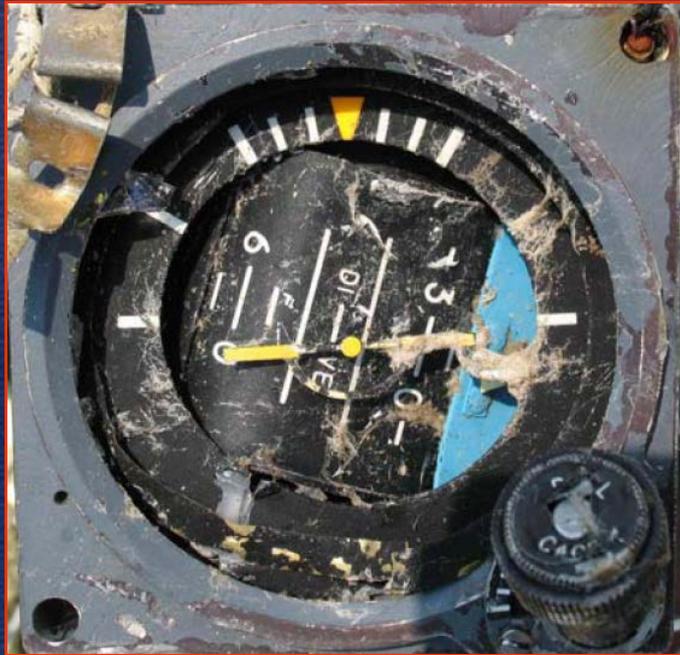
**NTSB** National Transportation Safety Board

---

# A Practical Look at the Road to Safety Culture

Robert Sumwalt  
April 15, 2013

# Safety Culture

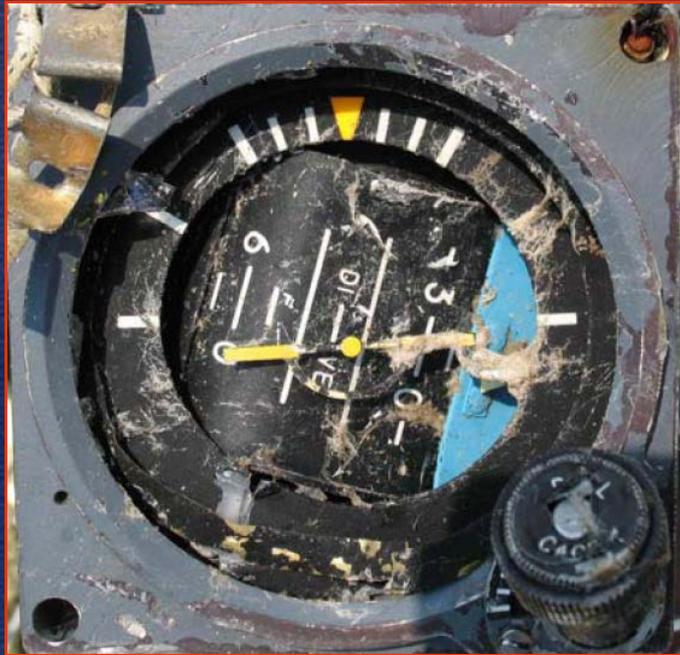


Do you have  
the right attitude?

NTSB



# June 4, 2007





NTSB





# What the investigation found

## Captain/chief pilot/check airman

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

## Marlin Air

- had financial difficulties
- did not ensure those who operated their aircraft were properly trained.

# NTSB Finding

- “Marlin Air’s selection of the accident captain (who routinely failed to comply with procedures and regulations) to the positions of company chief pilot and check airman, with responsibility for supervision and training of all company pilots, contributed to an inadequate company safety culture that allowed an ill-prepared first officer to fly in Part 135 operations.”

# NTSB Finding

- “Marlin Air’s selection of the accident captain (who routinely failed to comply with procedures and regulations) to the positions of company chief pilot and check airman, with responsibility for supervision and training of all company pilots, contributed to an inadequate company safety culture that allowed an ill-prepared first officer to fly in Part 135 operations.”

**Do you have a good safety culture?**

NTSB



# Do you have a good safety culture?

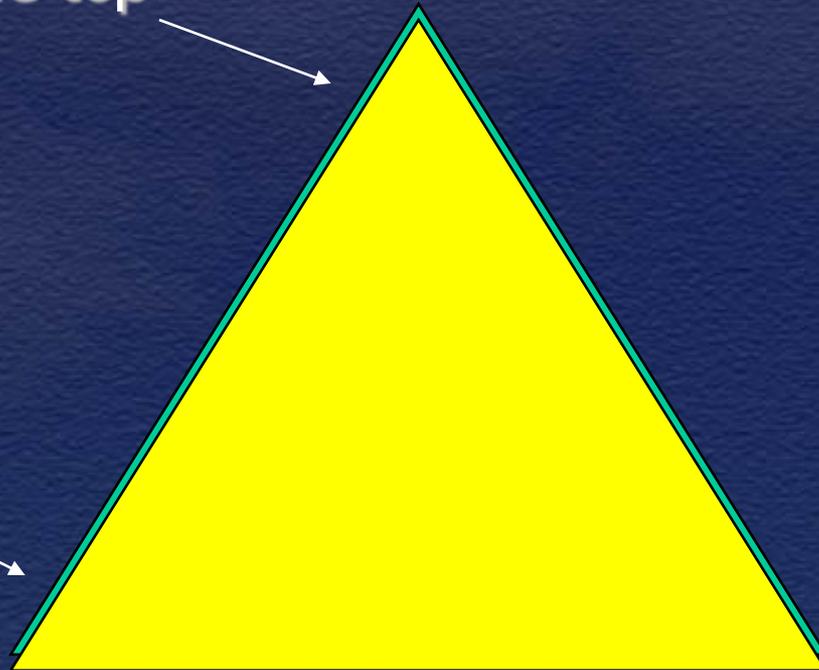
- “... it is worth pointing out that if you are convinced that your organization has a good safety culture, you are almost certainly mistaken.”
  - “... a safety culture is something that is striven for but rarely attained...”
  - “...the process is more important than the product.”
- James Reason, “Managing the Risks of Organizational Accidents.”

# Safety Culture is:

Triggered at the top



Measured at the  
bottom



Safety culture starts at the top of the organization and permeates the entire organization.

# Safety Culture



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

# Safety culture

“Safety culture is the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.”

Source: U.S. Nuclear Regulatory Commission

# Roadmap to Safety Culture

- 
1. Management Commitment and Emphasis
  2. Personal Accountability and Empowerment
  3. Culture of Compliance
  4. Continuous Learning and Risk Awareness
  5. Just Culture
  6. Questioning Attitude

# Roadmap to Safety Culture

## Management commitment and emphasis on safety

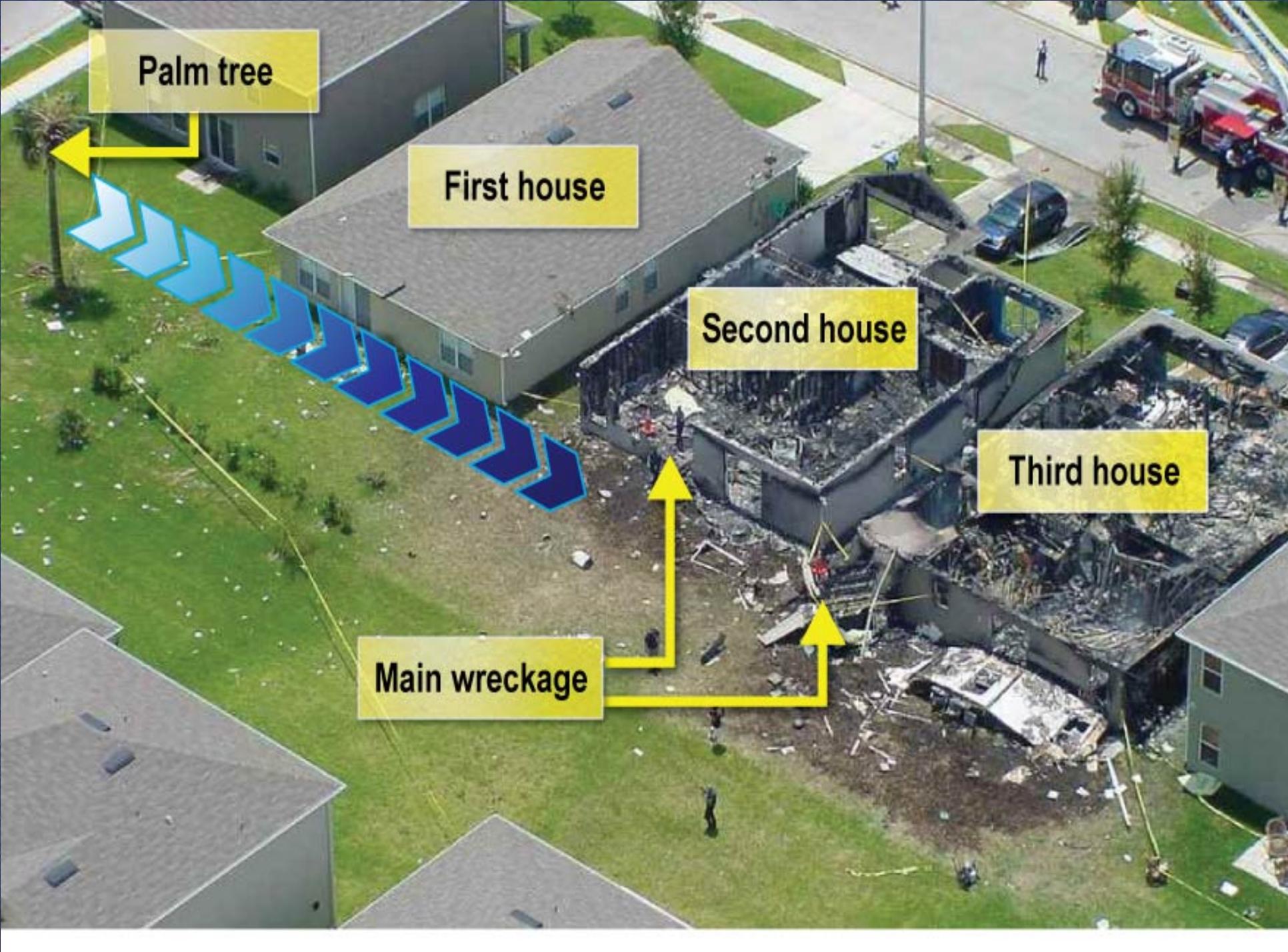
- Safety begins at top of organization
- Safety permeates the entire operation

# July 10, 2007, Sanford, FL



- Cessna 310 owned by NASCAR
- 5 fatalities





Palm tree

First house

Second house

Third house

Main wreckage



Declared Emergency

“Smoke in the cockpit.”

“Shutting off radios, elec.”





# Maintenance Discrepancy Entry

AIRCRAFT: N501N	DATE: 07-09-07	-ACTT	
		-ACTL	
MAINTENANCE WRITE-UP		MAINTENANCE CLEARING ACTION	
Entered By: ACT	Location: DAB	<input type="checkbox"/> Repaired	<input type="checkbox"/> Replaced
		<input type="checkbox"/> Released- Could Not Duplicate	<input type="checkbox"/> Loaner Installed
RADAR WENT BLANK DURING CRUISE FLIGHT. RECYCLED - NO RESPONSE... SMELL OF ELECTRICAL COMPONENTS BURNING		Corrective Action:	
TURNED OFF UNIT - PULLED RADAR C.B. - SMELL WENT AWAY. -			
RADAR INOP			

**“SMELL OF ELECTRICAL COMPONENTS BURNING”**



# Probable Cause

- “...actions and decisions by NASCAR’s corporate aviation division’s management and maintenance personnel to allow the accident airplane to be released for flight with a known and unresolved discrepancy, and;
- “The accident pilots’ decision to operate the airplane with that known discrepancy, a discrepancy that likely resulted in an in-flight fire.”

# Roadmap to Safety Culture

1. Management Commitment and Emphasis
-  2. Personal Accountability and Empowerment
3. Culture of Compliance
4. Continuous Learning and Risk Awareness
5. Just Culture
6. Questioning Attitude

# Personal accountability

- Employees recognize their role in safety promotion and actions, and hold themselves and others accountable.
- Employees have a substantial voice in safety decisions, and have the leverage to initiate and achieve safety improvements.

# Roadmap to Safety Culture

1. Management Commitment and Emphasis
2. Personal Accountability and Empowerment
-  3. Culture of Compliance
4. Continuous Learning and Risk Awareness
5. Just Culture
6. Questioning Attitude

# July 10, 2007, Sanford, FL



- Cessna 310 owned by NASCAR
- Flight planned Daytona Beach to Lakeland
- 5 fatalities

# Culture of Non-Compliance

- Aviation director could not readily locate SOP manual
- SOP manual viewed as a “training tool”
- Aircraft to only be used for company business
  - Accident flight was a personal flight
- PIC must possess ATP
  - PIC did not possess ATP
- Last 3 maintenance discrepancies had not been addressed

# East Coast Jets



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

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

Owatonna, MN  
July 31, 2008  
8 fatalities

NTSB



# Accident sequence

- 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









# Finding related to SOPs

- “If, as a Part 135 operator, East Coast Jets had been required to develop standard operating procedures and its pilots had been required to adhere to them, many of the deficiencies demonstrated by the pilots during the accident flight might have been corrected by the resultant stricter cockpit discipline.”

LNAV, LOC, or LOC B/CRS APPROACH -- ACTIONS and CALLOUTS

Callouts: in "BOLD TEXT" -- Actions: with bullets (•) in plain text		PM
Initial Approach	<p><b>"FLAPS 1 REF 60"</b></p> <p><b>"FLAPS 5, REF 40"</b></p>	<ul style="list-style-type: none"> <li>• Select flaps 1</li> <li>• Set command airspeed cursor to V<sub>REF</sub> 30 + 60, if requested</li> <li>• Select flaps 5</li> <li>• Set command airspeed cursor to V<sub>REF</sub> 30 + 40, if requested</li> </ul>
2-1/2 miles from FAF	<p><b>"GEAR DOWN, FLAPS 20, REF 20, LANDING CHECKLIST"</b></p>	<ul style="list-style-type: none"> <li>• Position gear lever DOWN</li> <li>• Select flaps 20</li> <li>• Set command airspeed cursor to V<sub>REF</sub> 30 + 20, if requested</li> <li>• Initiate Landing Checklist</li> </ul>
1/2 mile prior to FAF	<p><b>"FLAPS 30, REF 5"</b></p> <ul style="list-style-type: none"> <li>• Set/Request MDA or MDA Buffer Altitude</li> </ul>	<ul style="list-style-type: none"> <li>• Select flaps 30</li> <li>• Set command airspeed cursor to V<sub>REF</sub> 30 + 5, if requested</li> <li>• Set altitude, if requested</li> </ul>

Designates which crewmember performs action or callout

Triggering event

Callout

Action

“When asked about the flight department's standard operating procedures (SOPs), the chief pilot advised that they did not have any...”



“... the flight department had started out as just one pilot and one airplane, and that they now had five pilots and two airplanes...”

09 14 2007

# A Culture of Compliance

- Internal company policies, procedures, rules
- Ethical principles
- Company code of conduct
- Federal, state, and local laws and ordinances
- Industry best practices
- Financial guidelines and principles
- Etc.

A commitment to doing things right.  
Always.

# Lautman-Gallimore Study

- Found that having a strong commitment to standardization and discipline were among the “key elements of safe operations” observed in a Boeing study.
- “Cockpit procedural language is tightly controlled to maintain consistency and to avoid confusion from non-standard callouts .... Callouts and responses are done verbatim”

# Establishing a Culture of Compliance

- Procedures must not be developed alone
  - they must have the input of those who are expected to use them.
- It is critical that employees understand the reason for the procedures.
- Avoid selective compliance.

# Avoid Selective Compliance



- “That is a stupid rule.”
- “I don’t have to comply with that one.”

In other words...

Make sure your procedures reflect  
the way you intend to operate,  
and then operate that way.

NTSB



# Roadmap to Safety Culture

1. Management Commitment and Emphasis
2. Personal Accountability and Empowerment
3. Culture of Compliance
-  4. Continuous Learning and Risk Awareness
5. Just Culture
6. Questioning Attitude

# Continuous Learning and Risk Awareness

- Organizations with a healthy safety focus are constantly learning.
- They actively seek ways to improve safety.
- They learn from their mistakes and those of others.
- Information regarding prior incidents and accidents is shared openly and not suppressed.
- They are ever mindful of risks and are looking for ways to mitigate those risks.

# How do you stay informed?

- Internal safety audits
- External safety audits
- Confidential incident reporting systems
- Employee feedback

# Staying informed

- How do you detect and correct performance deficiencies before an accident?
- How do you know what is going on in your operations?
- Do you have multiple data sources?



# Employees



# Are employees comfortable reporting?

- Employees are open to report safety problems, if they receive assurances that:
  - The information will be acted upon
  - Data are kept confidential or de-identified
  - They will not be punished or ridiculed for reporting
    - Non-reprisal policy signed by CEO

Non Reprisal Policy  
December 2005

SCANA Aviation Department is committed to the safest flight operation possible. Therefore, it is imperative that we have uninhibited good faith reporting of any hazard, occurrence or other information that in any way could enhance the safety and efficiency of our operations. It is each employee's responsibility to communicate any information that may affect the integrity of flight safety.

We will not use this reporting system to initiate disciplinary proceedings against an employee who discloses in good faith a hazard or occurrence involving safety that is the result of conduct that is inadvertent, unintentional or not deliberate.

disciplinary proceedings against an employee who discloses in good faith a hazard or occurrence involving flight safety which is the result of conduct which is inadvertent, unintentional or not deliberate.

We urge all employees to use this program to help this Department be a leader in providing our passengers and our employees with the highest level of flight safety.

---

William B. Timmerman  
Chief Executive Officer

---

Robert L. Sunwalt, III  
Manager – Aviation



# Roadmap to Safety Culture

1. Management Commitment and Emphasis
2. Personal Accountability and Empowerment
3. Culture of Compliance
4. Continuous Learning and Risk Awareness
-  5. Just Culture
6. Questioning Attitude

# “Just” Culture

- Employees realize they will be treated fairly
  - Not all errors and unsafe acts will be punished (if the error was unintentional)
  - Those who act recklessly or take deliberate and unjustifiable risks will be punished

# Just Culture

“An atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behavior.”

- James Reason, Ph.D.

# Roadmap to Safety Culture

1. Management Commitment and Emphasis
2. Personal Accountability and Empowerment
3. Culture of Compliance
4. Continuous Learning and Risk Awareness
5. Just Culture
6. Questioning Attitude



# Questioning Attitude

- Individuals avoid complacency and continuously challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.
- Encourages employees to cultivate a questioning attitude and set up necessary open communication between line workers and middle and upper management.

Source: U. S. Nuclear Regulatory Commission

**Do you have a good safety culture?**

NTSB



# Roadmap to Safety Culture

1. Management Commitment and Emphasis
2. Personal Accountability and Empowerment
3. Culture of Compliance
4. Continuous Learning and Risk Awareness
5. Just Culture
6. Questioning Attitude





**NTSB**

NTSB

