



**NTSB** National Transportation Safety Board

*Office of Aviation Safety*

# Fire Investigation



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# Origin and Cause of Fire



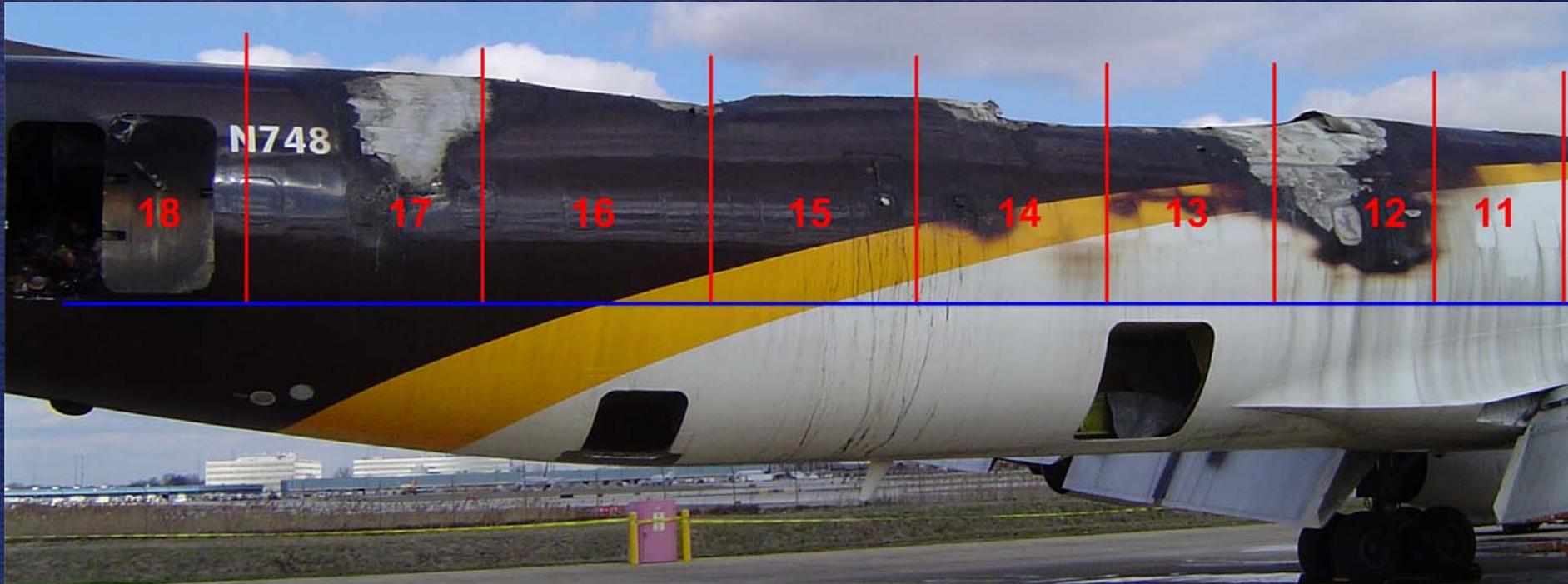
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# Origin and Cause of Fire

- Aircraft structure and systems eliminated
- Cargo in containers 1-11, 15-18, and lower compartments eliminated
- Recovered hazardous materials other than batteries undamaged
- No evidence of high-temperature fire or explosion

# Origin and Cause of Fire



# Container Contents

- Large variety of items
- Electronic devices and components
- Severe thermal damage
- Unclear if damage causal or collateral

# Fire/Smoke Detection on Aircraft

- Acceptable time frame for detection
- Testing conditions

# Fire/Smoke Detection on Aircraft

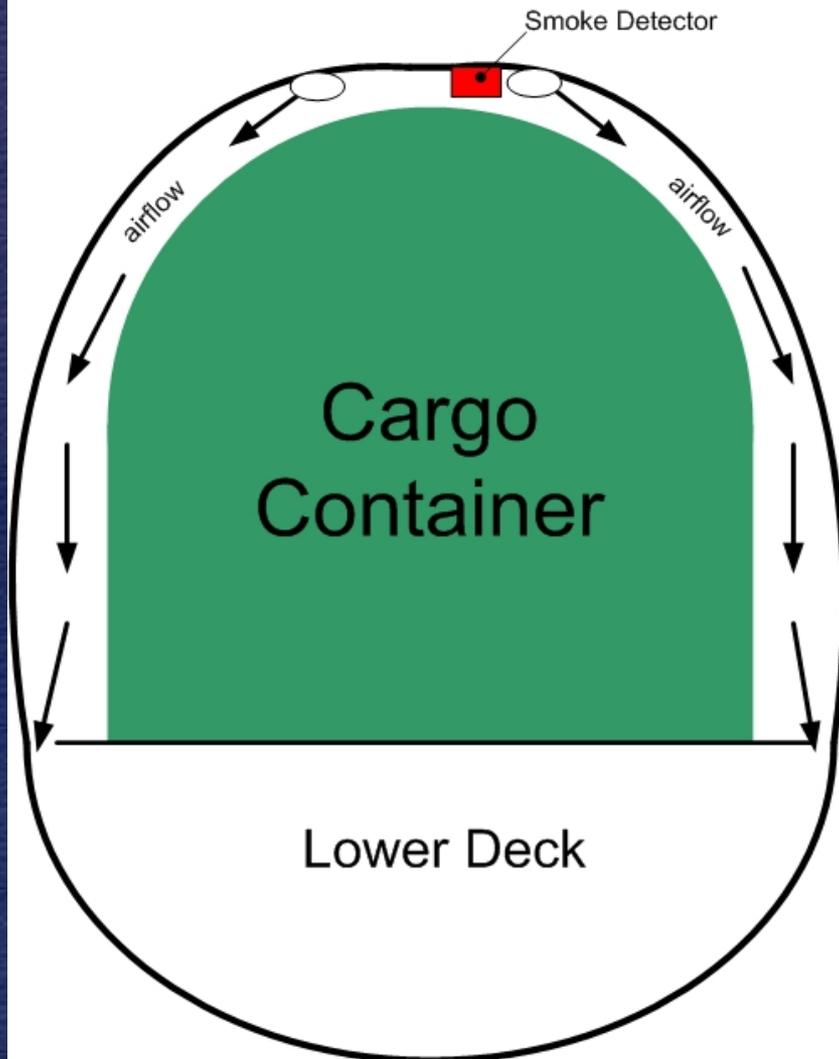
- Smoke detection testing
  - Initially 5-minute detection time
  - New regulations reduced detection time to 1 minute
  - Effectiveness of system must be shown for all operating configurations and conditions

# Fire/Smoke Detection on Aircraft

- Detection system on accident aircraft did not activate within required time frame
- Cargo compartment empty during original testing

# Fire/Smoke Detection on Aircraft

Cross section of airplane fuselage



- Current certification test methods do not account for all operating conditions

# Fire Suppression on Aircraft

- Class E (cargo only) compartments require detection but not suppression systems
- Rulemaking for new classification



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