NTSB National Transportation Safety Board

Office of Research and Engineering

GA Airbag Systems and Study Methodology

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General Aviation Airbags

- First certificated in 2003
- Installed in more than 7,000 airplanes
- Integrated in seatbelt/shoulder harness
- AmSafe is the sole manufacturer

Airbag Sled Test - Left Side View

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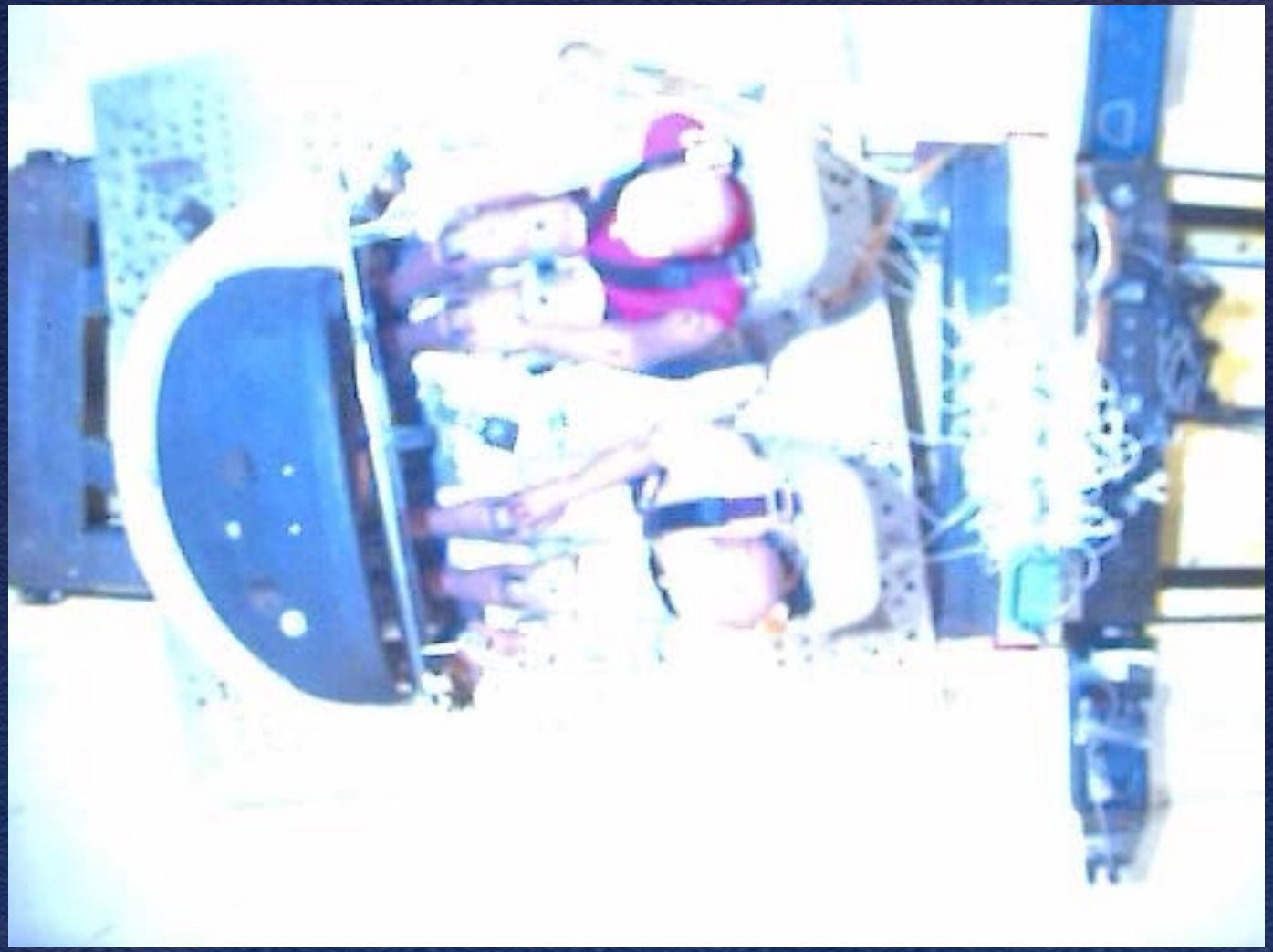
Airbag Sled Test - Left Side View

Airbag Sled Tests (Overhead)



Study Goals

- Examine the effectiveness of airbags in mitigating injury
- Identify any unintended consequences of airbag deployments
- Develop methods for the investigation of airbag accidents

Methodology

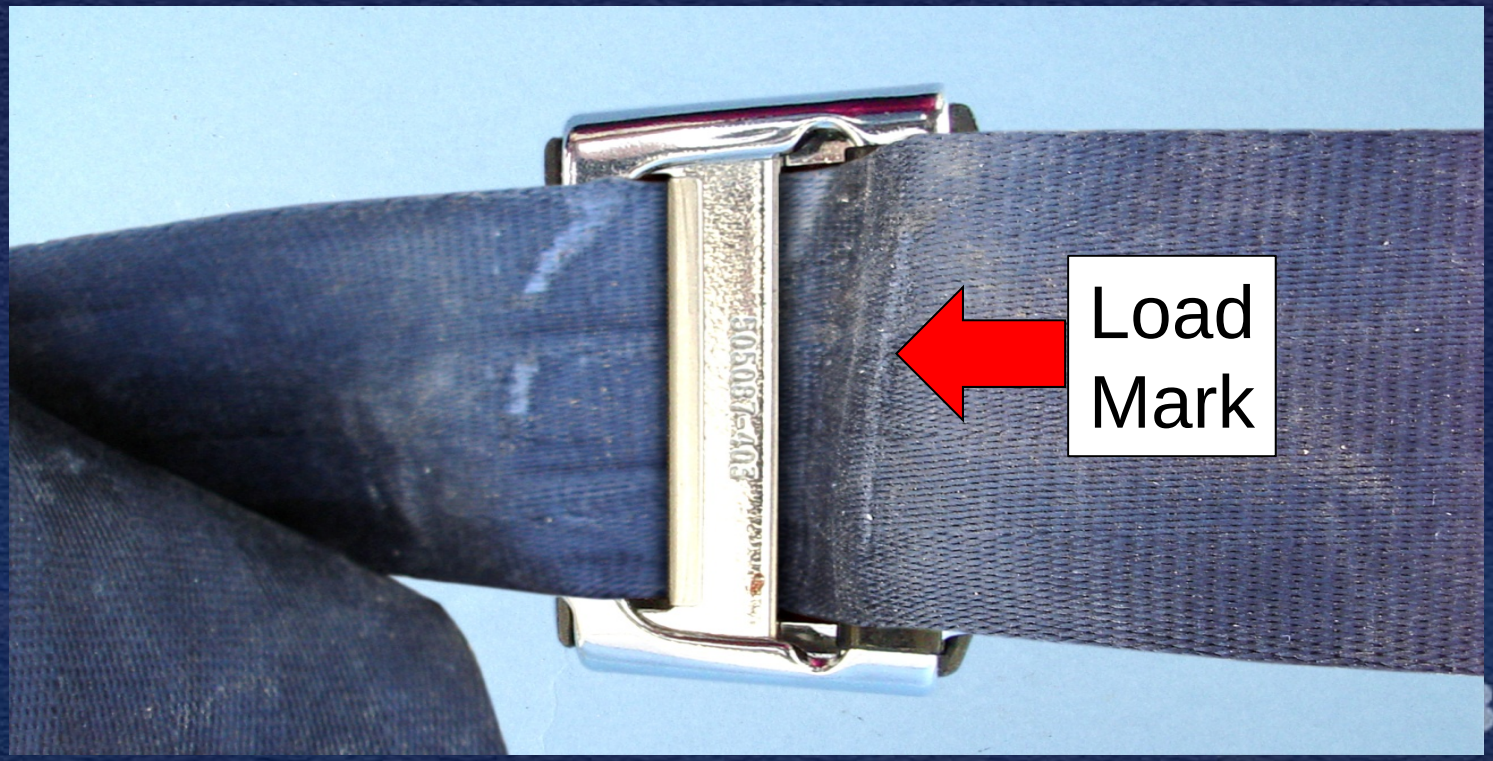
- Prospective case series
  - Detailed examinations of individual cases
  - Well suited for rare events
  - Monitor accidents and incidents for those that meet study criteria
  - Launch team of specialists to collect data

Study Selection Criteria

- Survivable accident in which airbag deployed
- Accident or incident with occupant injuries but no airbag deployment
- Any event involving an inadvertent airbag deployment

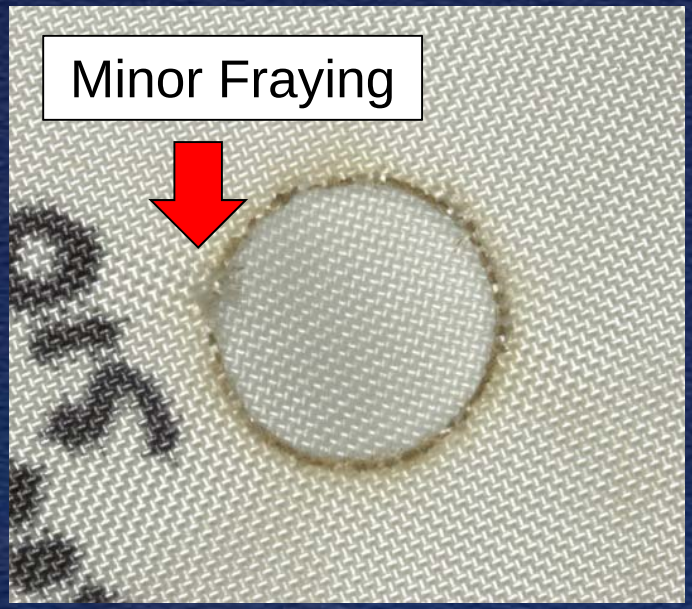
Evidence: Scene and Airplane

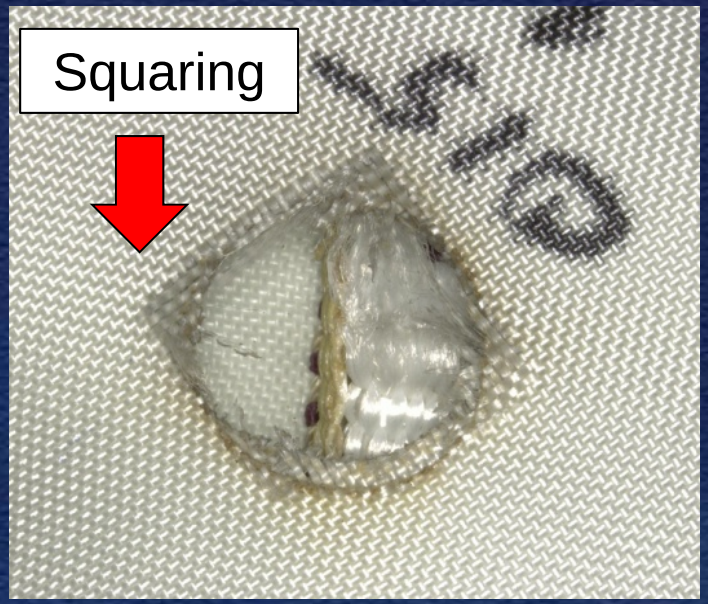
- Accident scene
- Airplane damage
- Restraint systems and airbags



Evidence: Airbag System

- Diagnostic tests on non-deployed airbags
- Deployed airbags documented
  - Tearing, scuffing, stretching
  - Vent hole squaring

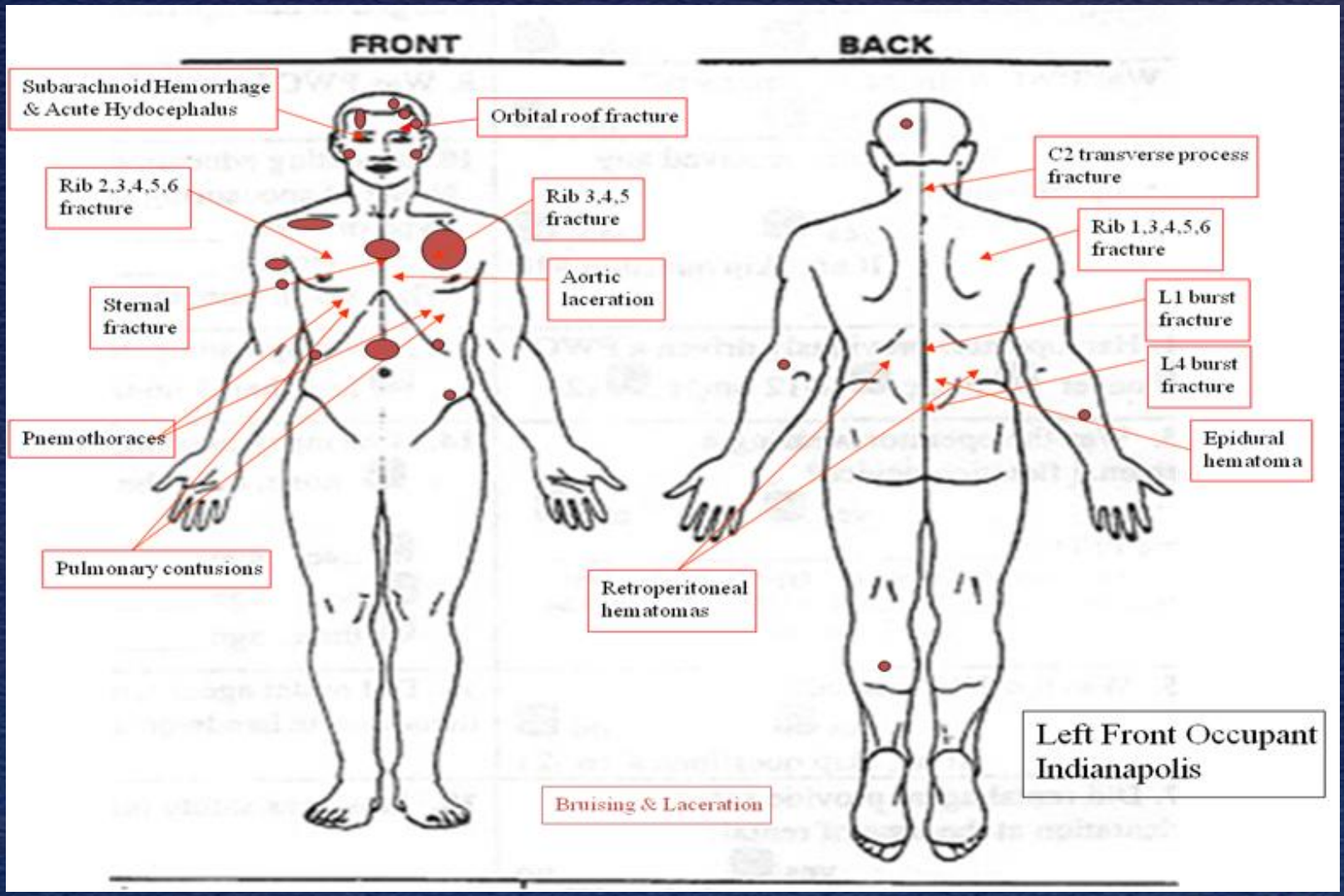




Evidence: Stored Data

- Glass cockpit display unit data

Evidence: Injury Documentation



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Case Reviews

- Airplane crash forces
- Airplane damage
- Cabin damage
- Occupant injuries
- Injury causation
- Airbag effectiveness

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