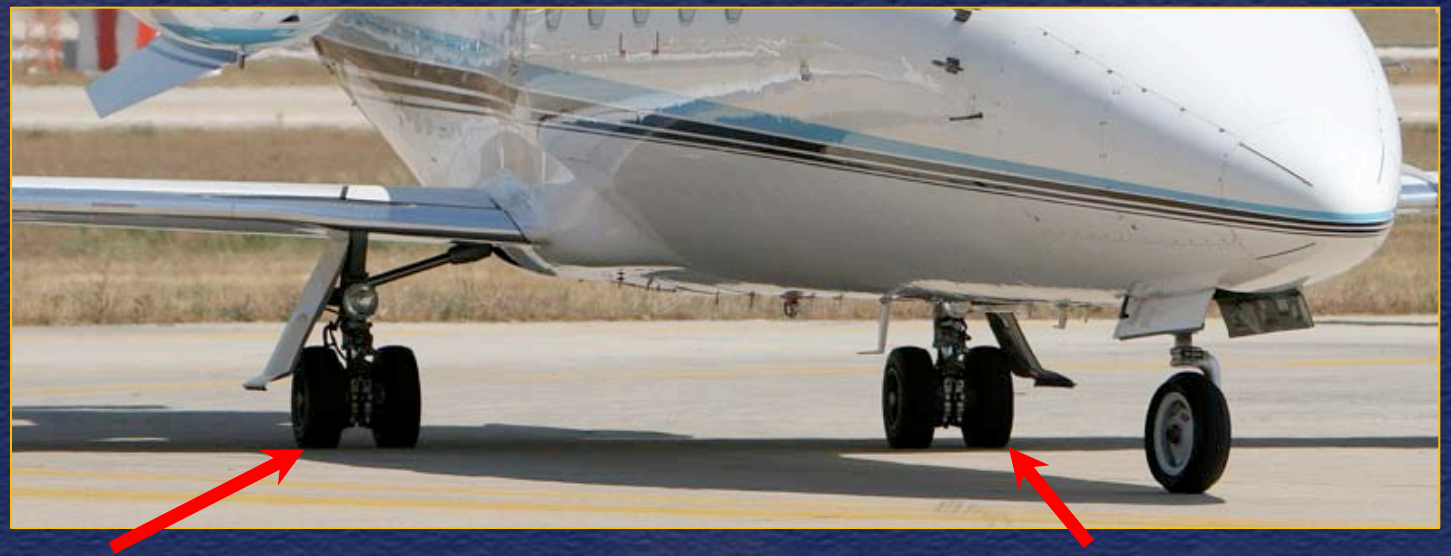
NTSB National Transportation Safety Board

Office of Aviation Safety

Tires and Maintenance

Tire Bursts and Damage

- Tires burst from outboard right to left
- Loud noises and physical motions

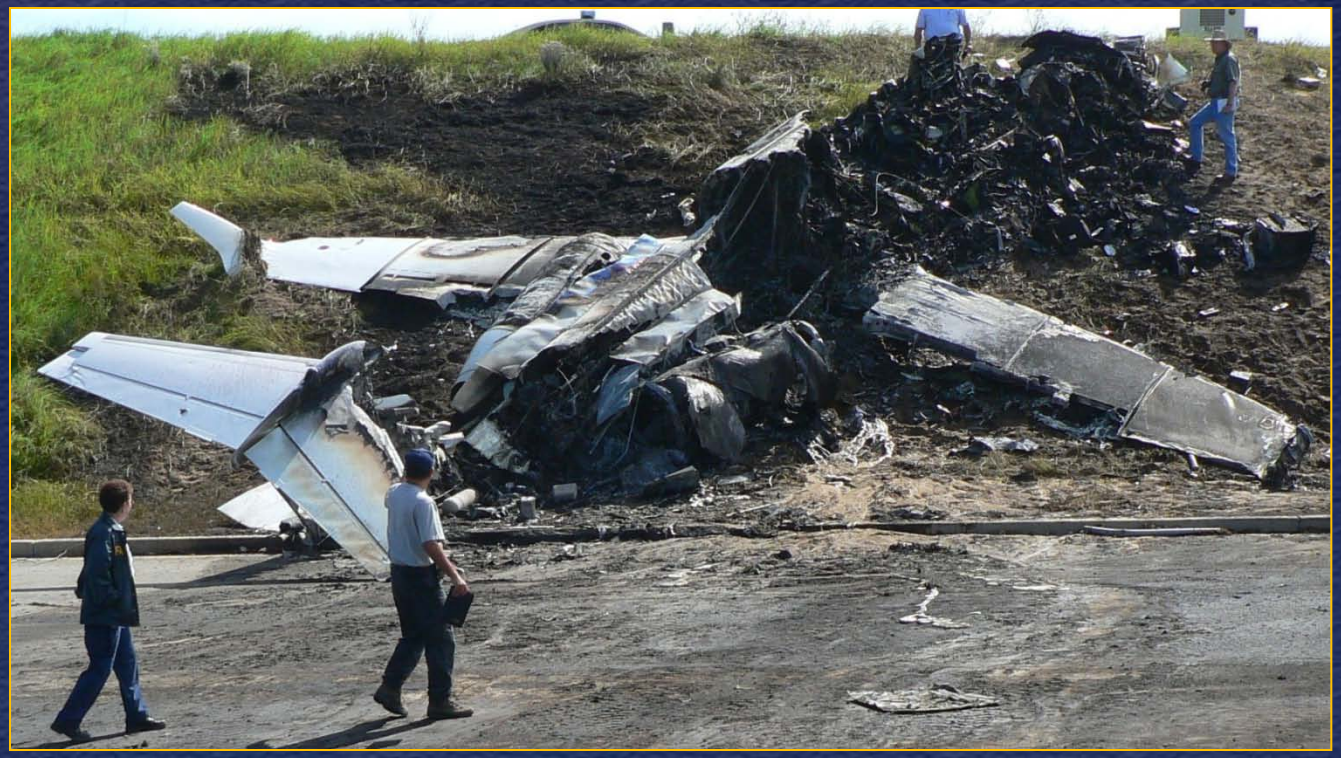


First to burst at 137+ knots

Last to burst

Damage and Brake Loss

- Tire fragments struck airplane
- Brakes lost early in sequence



Tire Construction and Heat

- Heavy loads, high speed, high pressure
- Pressure loss about 2% per day (Learjet 60)
- Flex creates heat
  - Nylon fibers found melted
  - Low pressure increases flex

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Loss of Inflation Pressure

- **Full inflation: 219 psi**
- At 2% inflation loss per day for this tire
- **After 8 days: 185 psi (requires replacement)**
  - Low inflation not visually detectable
- **After 3 weeks: 140 psi (accident airplane)**
- Interview matched damaged inner liner
- Inconsistencies in maintenance manuals

Checking Inflation Pressure

- Technically simple
- FAA inconsistent about pilots checking
- Tire Pressure Monitoring Systems (TPMS)

Requirements: 14 CFR 25.733

- Major change in 1979
- Missing actual conditions include
  - No tests with camber
  - No tests with maximum allowable wear
    - Brake regulations changed
  - No tests at minimum permissible inflation
    - Test failures at 7 takeoff cycles (test conditions) of 10% underinflation and maximum rated load

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