

Boeing's Woes May Have Been Caused By Faulty Riveting

David Koenig and Joan Lowy, Associated Press

WASHINGTON (AP) — Investigators trying to determine why the roof of a Southwest Airlines jet cracked open in flight have issued preliminary findings suggesting there may have been flaws in the riveting work when Boeing built the plane 15 years ago.

The National Transportation Safety Board said Monday that some of the rivets used to bind the Boeing 737's aluminum panels together were sunk in holes larger than the rivet shafts. The holes weren't lined up correctly and were misshapen, not round, the board said.

It didn't offer any conclusions and said the investigation is continuing.

Southwest Flight 812 was about 34,000 feet over Arizona with 117 passengers on board on April 1 when a 5-foot-long hole opened in zipper-like fashion along a row of rivets in the roof. The pilot guided the plane to a safe emergency landing, and there were no injuries.

Some experts speculated that metal fatigue due to frequent takeoffs and landings over 15 years caused tiny subsurface cracks in the aluminum skin. But the latest evidence points to a likely flaw in the plane's manufacturing and inspections of the process, said John Goglia, a former NTSB board member and expert on aircraft maintenance.

If rivet holes are even slightly too large, over time the flaw puts too much stress on the surface between holes and causes metal to fatigue or weaken, said Charles Eastlake, a former professor of aeronautical engineering at Embry-Riddle Aeronautical University in Daytona Beach, Fla.

If the holes were too big, it would indicate a failure of the inspection process too, Eastlake said.

After the Southwest incident, Boeing told airlines that own about 190 other 737s built in the 1990s to immediately conduct electromagnetic inspections of an area of the roof called the lap joint, where overlapping panels of skin are riveted together. The safety board said at least 136 of the planes, including all those registered in the U.S., had been inspected.

Boeing said small cracks were found in five other Southwest jets out of 79 that the airline grounded in early April, but not in planes operated by any other airline. All the planes with cracks were built within a 2-year period in the mid-1990s at the same Boeing plant.

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Boeing spokesman Marc Birtel said the company "will not speculate" on what the investigators' early findings might say about the cause of the hole on Flight 812 or cracks found in the other Southwest jets. He said Boeing was analyzing portions of panels from those planes "to validate the initial inspection findings," but added no conclusions have been drawn.

The Flight 812 plane had made about 39,000 flights. A senior Boeing engineer said this month that the company didn't expect that airlines would need to inspect the lap joints for metal fatigue until about 60,000 flights.

Southwest defended its maintenance work, which came under heightened scrutiny because Flight 812 was the second Southwest jet to develop a hole in the roof in the past three years.

Spokesman Brad Hawkins said Monday that safety was the airline's top priority and that Southwest was "confident that our aircraft are fully compliant" with a new Federal Aviation Administration safety order requiring detailed inspections of older 737s.

Last week, Southwest Airlines Co. CEO Gary Kelly said he saw no evidence that bookings had been hurt by the incident. Kelly, whose airline flies only 737s and is one of Boeing's biggest customers, went out of his way to praise the aircraft maker's speedy response to this month's incident, including designing repair jobs.

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Koenig reported from Dallas.

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