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NTSB issues report on Southwest Airlines sunroof incident

The National Transportation Safety Board can now tell us what happened to that Southwest Airlines airplane that developed a hole in its ceiling last year:

"Fuselage skin failure due to preexisting fatigue at a chemically milled step."

The NTSB rarely issues a report without blaming someone. In this one, it just says the hole happened because of fatigue cracks.

Boeing called for more inspections of that area of Boeing 737s last September. In January, the Federal Aviation Administration made such inspections mandatory in an airworthiness directive.

The hole had developed shortly after the Southwest flight took off July 13, 2009, from Nashville on its way to Baltimore, in a 15-year-old Boeing 737-300. The airplane made an emergency landing in Charleston, W.Va.

Here's the synopsis from NTSB, released Wednesday:

Flight data recorder data revealed that the airplane took off and climbed for about 25 minutes to an altitude of approximately 35,000 feet, at which point the cabin altitude warning activated, and the captain disengaged the autopilot. Postincident examination of the airplane revealed fatigue cracking of the fuselage skin near the leading edge of the vertical stabilizer adjacent to the rupture. The fatigue cracking penetrated the fuselage skin and created an approximate 18-inch by 12-inch flap in the skin that depressurized the airplane.

The fuselage skin assembly near the leading edge of the vertical stabilizer was manufactured by bonding two full aluminum sheets together, then selectively chemically milling away pockets (bays) of the inner sheet. Continuous fatigue cracks initiated from multiple origins on the inner surface of the skin adjacent to the step formed at the edge of the chemically milled area and propagated outward.

Following the Southwest Airlines (SWA) flight 2294 event, on September 3, 2009, Boeing issued Service Bulletin (SB) 737-53A1301, calling for repetitive external inspections to detect cracks in the fuselage skin along the chemically milled step at stringers S-1 and S-2 right and between BS 827 and BS 847. (The hole from the SWA event was within those boundaries.) If cracks are detected, operators are to contact Boeing for repair instructions. On January 12, 2010, the Federal Aviation Administration issued Airworthiness Directive 2010-01-09, which mandated the inspection requirements in SB 737-53A1301.

Southwest quickly issued this response:

"We are in full compliance with all new Safety regulations developed by Boeing and the FAA and we thank the NTSB for its thorough investigation. We worked closely with investigators throughout this process and we concur with their conclusions.

"We've taken aggressive measures to incorporate additional maintenance inspections, additive to existing programs, in response to what was learned from flight 2294. Immediately after the accident, we increased our ongoing maintenance inspections in the impacted area to include recurring detailed visual inspections and non-destructive tests (NDT) - with a goal to not only meet but exceed known Safety standards.

"At Southwest Airlines, everything is secondary to Safety, which is the core of our operation. Southwest continues to improve its maintenance program for the continued Safety of U.S. air travel and our own excellent Safety record."

We've reprinted the full NTSB report below.

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