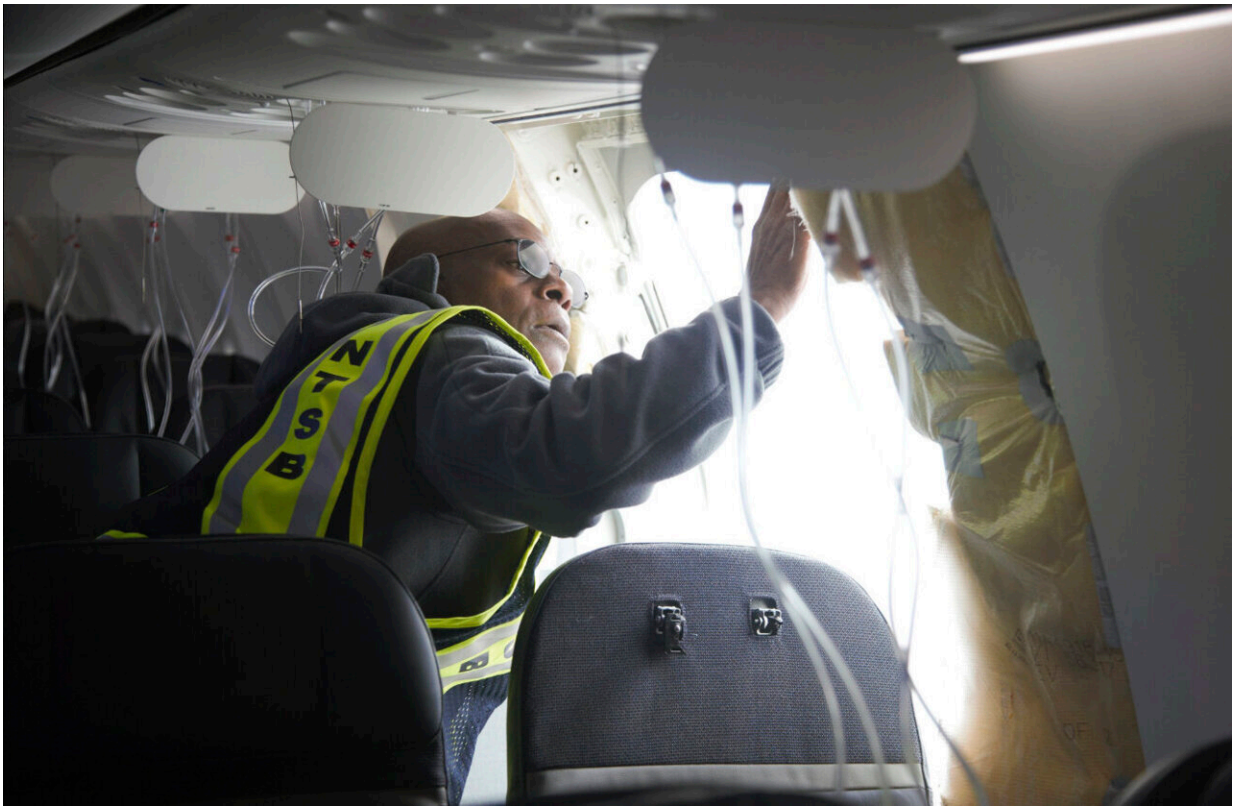
A look at recent crashes and safety problems involving Boeing planes

January 9 2024, by Gene Johnson



In this photo released by the National Transportation Safety Board, NTSB Investigator-in-Charge John Lovell examines the fuselage plug area of Alaska Airlines Flight 1282 on Sunday, Jan. 7, 2024, in Portland, Ore. A panel used to plug an area reserved for an exit door on the Boeing 737 Max 9 jetliner blew out Friday night shortly after the flight took off from Portland, forcing the plane to return to Portland International Airport. Credit: National Transportation Safety Board via AP

The blowout of part of the fuselage on a Boeing 737 Max flying over Oregon is the latest in a string of safety problems—including two devastating crashes—for the aerospace giant.

The most serious issues have involved the 737 Max, the latest version of its venerable 737, a workhorse of passenger aviation.

United Airlines said Monday that inspections of other 737 Max jets prompted by Friday's mid-air blowout on an Alaska Airlines flight turned up loose bolts and other "installation issues" on the part that failed—a door plug used to seal openings used for additional emergency exits in some configurations of the plane.

Safety and manufacturing problems have also plagued other models.

In 2018, a woman died when a piece of engine housing ripped off a Southwest Airlines 737 and shattered the window she was sitting next to. She was partially sucked out of the plane as it lost cabin pressure before other passengers pulled her back in—an example of the sort of tragedy that was avoided during Friday's incident over Oregon.

Here's a look at some of Arlington, Virginia-based Boeing's recent woes.

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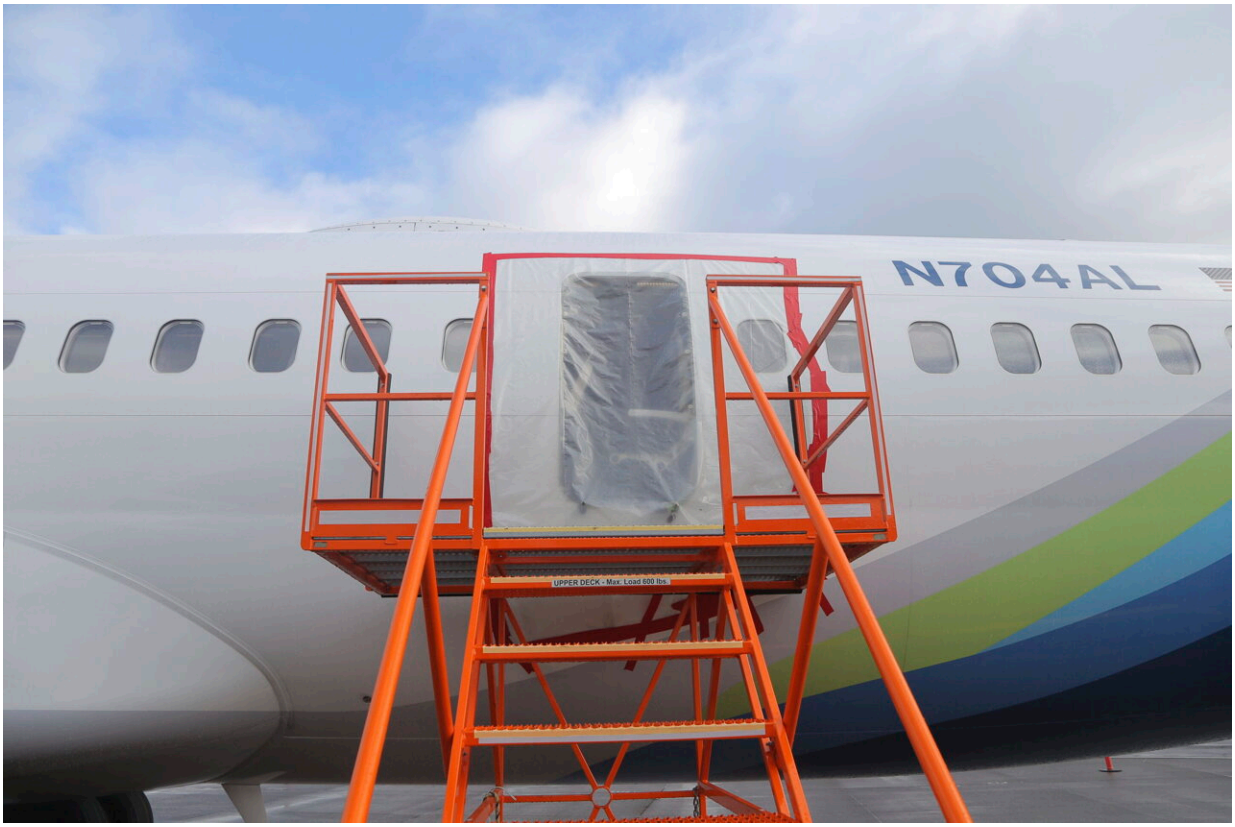
THE CRASHES

Boeing began working on the Max in 2011 as an answer to a new, more fuel-efficient model from European rival Airbus. The company billed it as an updated 737 that wouldn't require much in the way of additional pilot training—a key selling point for what has become Boeing's best-selling airplane.



This photo released by the National Transportation Safety Board shows a gaping hole where the paneled-over door had been at the fuselage plug area of Alaska Airlines Flight 1282 on Sunday, Jan. 7, 2024, in Portland, Ore. A panel used to plug an area reserved for an exit door on the Boeing 737 Max 9 jetliner blew out Jan. 5, shortly after the flight took off from Portland, forcing the plane to return to Portland International Airport. Credit: National Transportation Safety Board via AP

But the Max did include significant changes, some of which Boeing downplayed—most notably, the addition of an automated flight-control system designed to help account for the plane's larger engines. Boeing didn't mention the system, called MCAS, in airplane manuals, and most pilots didn't know about it.

That system was implicated in two crashes that killed 346 people. The first occurred when a Max 8 operated by Indonesia's Lion Air plunged into the Java Sea in October 2018, the second when a Ethiopian Airlines 737 Max 8 crashed nearly straight down into a field six minutes after takeoff from Addis Ababa.

Boeing agreed to pay $2.5 billion to settle a Justice Department investigation, admitting that employees misled regulators about the safety of the 737 Max. The amount included a $500 million fund for victims' families, though lawsuits continue.

All Max jets were grounded worldwide for nearly two years while the company made changes to the flight-control system. Investigations revealed what a congressional panel called a "horrific culmination" of failed government oversight, design flaws and inaction at Boeing.

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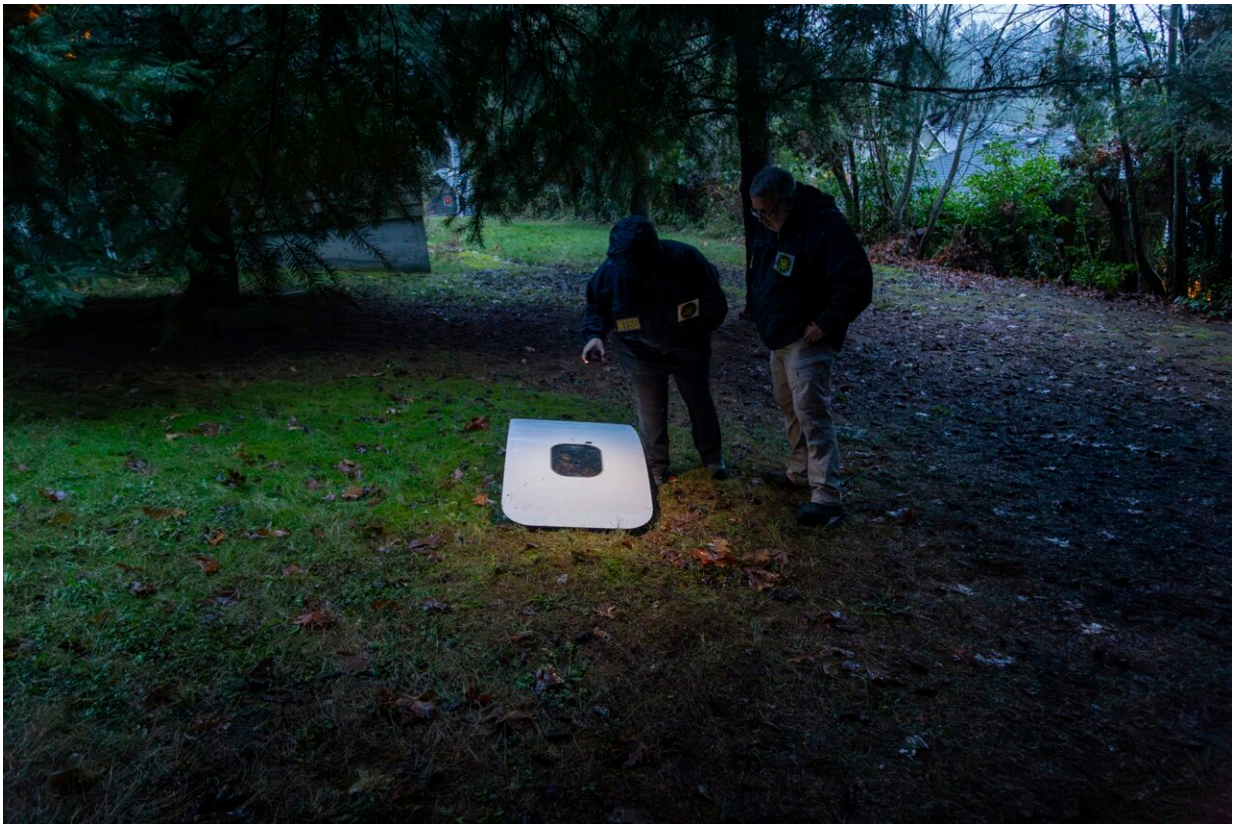
MORE MAX TROUBLES

The Max has suffered from a series of production issues. Boeing asked airlines last month to check the jets for a potential loose bolt in the rudder control system, after an international operator found a bolt with a missing nut during routine maintenance. In a separate case, Boeing found that an undelivered aircraft had a nut that was not properly tightened.

The FAA recently told pilots to limit use of an anti-ice system on the Max because the inlets around the engines could overheat and break away. Boeing last month asked the agency for a safety waiver while it develops a long-term fix. The company needs the exemption to begin delivering its new, smaller Max 7 to customers.

Last year, Boeing reported a problem with fittings on Max jets where the

fuselage meets the vertical section of the tail. Boeing said its Wichita, Kansas-based supplier, Spirit AeroSystems, used a "non-standard manufacturing process" on some of the planes.



This photo released by the National Transportation Safety Board shows the door plug from Alaska Airlines Flight 1282 on Monday, Jan. 8, 2024, in Portland, Ore. A panel used to plug an area reserved for an exit door on the Boeing 737 Max 9 jetliner blew out Jan. 5, shortly after the flight took off from Portland, forcing the plane to return to Portland International Airport. Credit: National Transportation Safety Board via AP

Boeing and Spirit also said they discovered improperly drilled fastener holes in the aft pressure bulkhead—which maintains pressure when

planes are at cruising altitude—on the fuselages of some models of the 737 Max. Boeing said the flaws could delay the deliveries of some new jets but did not pose an immediate hazard in those already flying.

Spirit also installs door plugs in the 737 Max 9, including the one that suffered the blowout Friday.

"Spirit is a committed partner with Boeing on the 737 program, and we continue to work together with them on this matter," the company said Monday.

Boeing said it is committed to safety, regrets the impact the blowout had on its customers and their passengers, and that it had supplied a technical team to assist the National Transportation Safety Board's investigation.

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ENGINE FIRES

Federal safety officials are still investigating an engine fire that was discovered on a United Airlines Boeing 737 Max after the plane landed in Newark, New Jersey, in June. The flight crew noticed a fire warning indication as the plane taxied in, shut down the engine and discharged a fire suppressant. There was no visible smoke or fire, but maintenance crews found a fuel leak as well as soot and heat damage.

Also under investigation is what prompted the emergency landing in Wichita, Kansas, of a Denver-bound United Airlines flight on Dec. 14. Passengers reported hearing a rumbling and an engine fire was discovered after it landed. No one was injured.

In 2021, a Boeing 777's right engine fan blade broke off shortly after takeoff from Denver with 239 people onboard. No one was injured. The

NTSB blamed inadequate inspection of the fan blades as well as the "insufficient frequency" of the manufacturer's recommendation for inspections.

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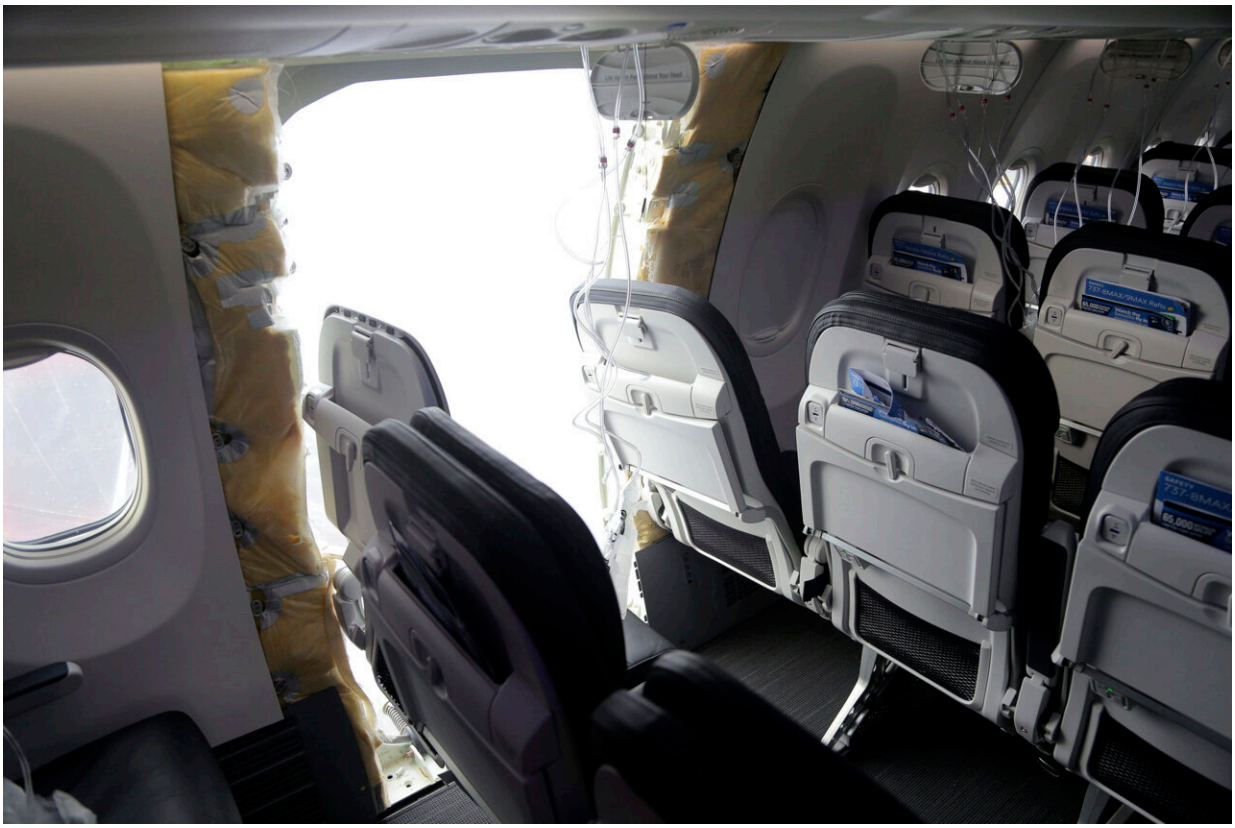

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PREVIOUS CABIN HOLE

Friday's terrifying incident was reminiscent of a Southwest Airlines flight from Phoenix to Sacramento, California, in 2011, when passengers heard an explosion as a chunk of the plane's roof opened at nearly 35,000 feet (10,700 meters).

The plane made an emergency landing and no one was seriously hurt, though two people passed out from a lack of oxygen: a flight attendant who fell and broke his nose, and a passenger who tried to help him.

The NTSB blamed "extremely poor manufacturing technique," saying many of the rivet holes on the plane's exterior skin had been badly drilled.

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787 ISSUES

Boeing's two-aisle 787 has also been plagued by manufacturing problems that have sporadically held up deliveries.

In June, the company said it was inspecting fittings on part of the tail called the horizontal stabilizer "for a nonconforming condition."

In March, 787 deliveries were halted while federal regulators looked over documentation of work that was done on new planes.

https://techxplore.com/news/2024-01-safety-problems-involving-boeing-planes.html