



Boeing, NASA and U.S. Army personnel work around the Boeing Starliner spacecraft after it landed Dec. 22 in White Sands, N.M. BILL INGALLS/NASA VIA AP

Software could have doomed Boeing test

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CAPE CANAVERAL, Fla. — Defective software could have doomed Boeing's crew capsule during its first test flight, a botched trip that was cut short and never made it to the International Space Station, NASA and company officials said Friday.

The Starliner capsule launched without astronauts in December, but its automatic timer was off by 11 hours, preventing the capsule from flying to the space station as planned. This software trouble — which left the capsule in the wrong orbit just after liftoff — set off a scramble to find more possible coding errors, Boeing officials said.

Hours before the Starliner's scheduled touchdown, a second software mistake was discovered, this time involving the Starliner's service module. Flight controllers rushed to fix the problem, which could have caused the cylinder to slam into the capsule once jettisoned during reentry.

Such an impact could have sent the Starliner into a tumble, said Jim Chilton, a senior vice president for Boeing. In addition, damage to

the Starliner's heat shield could have caused the capsule to burn up on reentry, he noted.

He also conceded they wouldn't have found the second problem without the first. "Nobody is more disappointed in the issues that we uncovered ... than the Starliner team," said Boeing program manager John Mulholland.

These latest findings stem from a joint investigation team formed by NASA and Boeing in the wake of the aborted test flight. The capsule returned to Earth on Dec. 22 after just two days, parachuting down to a landing in New Mexico.

The mission was supposed to be the company's last major hurdle before launching the first Starliner crew.

NASA has yet to decide whether Boeing should conduct another test flight without a crew, before putting astronauts on board. Just in case, Boeing reported last week that it took a \$410 million charge in its fourth-quarter earnings, to cover a possible mission repeat.

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