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Airspeed Systems Leave Planes Flying Blind

Mid-Air Sensor Malfunctions Are Much More Common Than Previously Thought, Federal Investigators Find



In this June 9, 2009 file photo released by Brazil's Air Force, Brazil's Navy sailors recover debris of the missing Air France Flight 447 from the Atlantic Ocean. (AP Photo/Brazil Air Force)

(CBS/AP) On at least a dozen recent flights by U.S. jetliners, malfunctioning equipment made it impossible for pilots to know how fast they were flying, federal investigators have discovered. A similar breakdown is believed to have played a role in the Air France crash into the Atlantic that killed all 228 people aboard in June.

The discovery suggests the equipment problems are more widespread than previously believed. And it gives new urgency to airlines already scrambling to replace air sensors and figure out how the errors went undetected despite safety systems.

The equipment failures, all involving Northwest Airlines Airbus A330s, were brief and were noticed only after safety officials began investigating the Air France crash - on a Rio de Janeiro to Paris flight - and two other recent in-flight malfunctions. The failures were described by people familiar with the investigation who spoke only on condition of anonymity because they were not authorized to comment publicly.

An FAA official tells **CBS News** that it is currently working on and may issue an airworthiness directive or "AD" as soon as next week directing airlines to replace airspeed indicator probes, the so-called "pitot tubes," on Airbus A330s.

The FAA official says it will be along the lines of a proposed directive announced on July 31 by the FAA's European counterpart, the European Aviation Safety Agency (EASA), directing that at least two of the three probes on every A330 and A340 be replaced by new probes. (The old probes were manufactured by Thales and the new ones are manufactured by Goodrich.)

This is in reaction to the investigation into the Air France crash in which the pitot tubes on the A330 are known to have malfunctioned and may have been a contributing factor to the accident.

While a car's speedometer uses tire rotation to calculate speed, an airplane relies on pitot tubes to measure changing air pressure. Computers interpret that information as speed. And while a car with a broken speedometer might be little more than an inconvenience, many airplane control systems rely on accurate speed information to work properly.

Like the fatal Air France flight, the newly discovered Northwest incidents and the two other malfunctions under investigation all involved planes with sensors made by the European electronics giant Thales Corp. The Air France crash called into question the reliability of the sensors and touched off a rush to replace them.

Many companies, however, simply replaced them with another Thales model. As it became clear the problem was more widespread, Airbus and European regulators told companies to replace at least two of the three sensors on each plane with models made by North Carolina-based Goodrich Corp. The planes are allowed to continue flying while the switch is made.

Thales officials declined to comment. The company has previously said its sensors were made to Airbus specifications.

The Northwest incidents were discovered when Delta Air Lines, which merged with Northwest last year, reviewed archived flight data for its fleet of 32 Airbus A330s, the people close to the inquiry said. All the planes involved landed safely.

Aviation experts said the discovery could provide clues to what caused Air France Flight 447 to crash into the Atlantic en route from Brazil to France on June 1, and what might be done to prevent future tragedies.

French investigators have focused on the possibility that Flight 447's sensors iced over and sent false speed information to the computers as the plane ran into a thunderstorm at about 35,000 feet.

An important part of the investigation focuses on 24 automatic messages the plane sent during its final minutes. They show the autopilot was not working, but it is unclear whether the pilots shut it off or whether it shut down because of the conflicting airspeed readings.

Three weeks after the Air France crash, the U.S. National Transportation Safety Board announced it was investigating two other A330 flights that experienced a loss of airspeed data.

The most recent was on June 23, when a Northwest flight hit rain and turbulence while on autopilot outside of Kagoshima, Japan. According to an NTSB report, speed data began to fluctuate. The plane

alerted pilots it was going too fast. Autopilot and other systems began shutting down, putting nearly all the plane's control in the hands of the pilot, something that usually happens only in emergencies.

In May, a plane belonging to Brazilian company TAM Airlines lost airspeed and altitude data while flying from Miami to Sao Paulo, Brazil. Autopilot and automatic power also shut down and the pilot took over, according to an NTSB report. The computer systems came back about five minutes later.

"These two cases we know were dealt with effectively by the crew, and we think this happened in Air France and maybe wasn't dealt with effectively," said Bill Voss, president of the Flight Safety Foundation in Alexandria, Va., an aviation safety think tank.

Morgan Durrant, a spokesman for the only other U.S. airline that operates A330s, US Airways, said it had not seen similar problems in its 11-plane fleet of the jetliners.

Delta/Northwest and US Airways recently completed replacing older Thales tubes with new Thales tubes. The companies say they are now replacing them with Goodrich tubes.

In June, the Air France pilots' unions urged its members to refuse to fly Airbus A330s and A340s unless their Thales sensors had been replaced.

The Federal Aviation Administration hasn't issued a safety directive, but spokeswoman Laura Brown said the agency hopes to have one soon.

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