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## Mystery still unsolved two years after Malaysia Airlines Flight 370 vanished

*Bart Jansen, USA TODAY*

The discovery this week of the tail piece of a plane reignited worldwide interest into the mysterious disappearance of Malaysia Airlines Flight 370, but for distraught relatives of the 239 people who vanished March 8, 2014, the piece may not be enough to solve the puzzle.

The \$133 million underwater search that has stretched for two years over an area the size of Pennsylvania is expected to end around July if the plane's wreckage – particularly the voice and data recorders – cannot be located on the ocean floor, leaving families with an eternity of unanswered questions.

The recorders – known as black boxes – hold the best chance for unraveling what happened to the missing Boeing 777-200ER that diverted from its flight path hours before it was due in Beijing and hours after the pilot uttered his final words at 1:19 a.m. to air-traffic controllers: “Good night Malaysia, three seven zero.”

The data recorder chronicles measurements from the hundreds of instruments to describe how a plane is behaving for the duration of a flight. The voice recorder captures the pilots' voices and any other cockpit sounds for two hours.

The tail piece discovered along the African coast of Mozambique last weekend was sent to Australia, where government and industry officials will see if it matches the missing Boeing 777-200ER. It, too, may hold clues to the flight's disappearance.

Investigators are trying to piece together whether a mechanical problem or a pilot error caused the accident, giving a measure of closure to the families of the victims while also helping to avert future crashes. The 777 is a popular workhorse of long-distance flight, with 1,200 flying worldwide.

“It’s absolutely vital to find this wreckage,” said Al Diehl, a former investigator for the U.S. National Transportation Safety Board.

Based on ocean currents, the discovery on Reunion confirmed the search focused on the right part of the Indian Ocean, according to Daniel O’Malley, spokesman for the Australian Transport Safety Bureau (ATSB), which is leading the operation. “We remain optimistic that we will find the aircraft,” he said.

So far, searches have scanned 33,000 square miles, or about the equivalent of South Carolina, finding two shipwrecks, but no sign of the fuselage. Searchers expect to complete the remaining area about the size of Maryland in a few months. The search will ultimately cover 46,000 square miles of ocean floor. Then they plan to stop.



“In the absence of credible new information that leads to the identification of a specific location of the aircraft, governments have agreed that there will be no further expansion of the search area,” the search group says with its weekly updates.

Dave Gallo, who helped find Air France Flight 447 at the bottom of the Atlantic Ocean in 2011 after a two-year search, said searchers deserve “our confidence and not sniping.” Gallo recalled the “horrible position” of doubting whether he was searching the right haystack or if the equipment would spot the missing needle.

“It’s not like looking for your car keys,” said Gallo, who is now at the Lamont Doherty Earth Observatory at Columbia University. “You are essentially exploring a completely unfamiliar world. There is nothing routine. You don’t know what you’re up against.”

Gallo said the search should continue, perhaps with private groups taking up the challenge if the governments of Australia, Malaysia and China quit.

“You can’t let this go unsettled, not in this day and age when there are thousands of planes criss-crossing the oceans with hundreds of thousands of passengers every single day,” Gallo said. “We need to know what happened.”

“They want to know what happened to their loved ones,” said Justin Green, a lawyer with the New York firm Kreindler & Kreindler who represents 20 families. “They haven’t had funerals. They haven’t cleaned out rooms of people who were on that airplane. They want answers, and the last thing they want is for this to happen to someone else.”

Some families, without certainty about the fate of the plane, cling to hope that the passengers may still be alive somewhere, said Steven Marks, a Miami lawyer at Podhurst Orseck who represents 40 families.

“I think that will continue until the wreckage is found and the answers are revealed,” Marks said.

The mystery also complicates the legal recourse for the families. Under international conventions, a two-year deadline looms for filing lawsuits against Malaysia Airlines, Green said. Families will likely file cases next, even without knowing who or what is to blame.

Marks said the victims' families could bring product defect cases against Boeing if all other causes for a crash could be ruled out. Other explanations include pilot error, a rogue passenger acting nefariously, a maintenance problem, air-traffic control or weather, he said.

The flight, which left Kuala Lumpur at 12:42 a.m. local time, sent its last automated transmission, from a maintenance system, at 1:07 a.m. The plane’s transponder, which transmits its location, shut down at 1:21 a.m.



A fire or depressurization may have incapacitated the crew, but the silence from the maintenance system and transponder raised the specter that somebody turned off the equipment intentionally.

Either way, the plane continued flying for hours, according to hourly satellite clues that led like a string of bread crumbs to a remote patch of the Indian Ocean where the search is concentrated. A ground station for Inmarsat satellite communications initiated hourly attempts to reach the aircraft, the last at 8:10 a.m. The so-called handshakes are comparable to a cell phone searching for a tower to relay a potential call.

The plane made at least three turns to get to that point, according to radar and satellite tracking, so the presumption is that someone was flying the plane until at least the third turn.

The first turn was a fishhook to the west from its original northeast flight path over the Gulf of Thailand. The second was a bank to the right or northwest after crossing over Malaysian peninsula. And the last, which wasn't captured by radar, required a turn left or south, if the satellite signals are accurate.

A December report from ATSB described the theoretical end of the flight. The aircraft tried to log on to a satellite at 8:19 a.m., which suggested power had been interrupted temporarily. By then, both engine had likely shut down and the fuel was spent. Finally, the plane fell into the ocean.

"This evidence is therefore inconsistent with a controlled ditching scenario," the report said.

That is where the mystery remains. The report did not determine whether anyone was still alive at the controls — or what mechanical problems or human choices led to that spot at least 7 hours and 38 minutes after taking off.

The disappearance of MH370 prompted international calls to track planes more closely over water, which would narrow the search area after a disaster. The International Civil Aviation Organization, a branch of the United Nations that sets policies, is considering monitoring airliners every 15 minutes over oceans.

But an ICAO committee postponed the requirement for at least two years, to November 2018, because reporting a plane's position by latitude, longitude, altitude and time posed an "unrealistic operational burden" on airlines.

"This is going to be expensive," said Capt. Tim Canoll, president of the Air Line Pilots Association, a union representing 52,000 pilots. "But it's something we need to do."