

United airlines flight 232 crash

[Environment](#), [Air](#)



The united airlines flight 232 was a planned flight to Chicago-O'Hare international airport from Denver, Stapleton international airport. This flight took place in July 19th year 1989 and it involved plane Douglas DC-10, registration N1819U.

After the commencement of the flight, the plane suffered what was referred to as an uncontaminated failure involving its engine number 2. Failure of this engine destroyed the three hydraulic systems of the airplane leaving the airplane with no control working. The thrust levers of the remaining two engines were the only working controls.

The aircraft finally broke up while undertaking an emergency landing on runaway at Iowa, Sioux City and it killed 110 of its 285 passengers who were on board and one of the eleven crew members. This is one of the most famous disasters in the aviation community as it shows a model of victorious crew resource management owing to the effectual use all available resources aboard the plane for helping during this emergency which helped reduced its magnitude Absolute(Astronomy. com, 2009).

A brief history of the crash of United Airlines Flight 232

The flight took off as scheduled form Denver, Colorado Stapleton International Airport and it was bound for Chicago, Illinois, O'Hare International Airport and has an ongoing service in Philadelphia Pennsylvania at Philadelphia International Airport.

At a shallow right turn of about 37, 000 feet, the aircrafts fan disk of its rear or tail-mounted the CF6-6 general electric engine failed and further

disintegrated. Some of the pieces of the disintegrated structure penetrated the tail section of the aircraft into different various places which included the horizontal stabilizers.

Some of the shrapnel pieces which passed to the stabilizer in the right horizontal affected the lines of the aircrafts three hydraulic systems which in turn caused the draining away of the fluid. The captain and his crew members felt a jolt which was going right through the aircraft and the aircrafts warning lights were already showing that there was a disengagement of the autopilot and also engine number tow was also malfunctioning.

The aircraft went off course and an immediate response was necessary. The control column was unable to correct this defect and the pressure gauges of the three hydraulic systems were already registering zero.

This meant that the control surfaces had been rendered immovable by the first failure of the engine number one. Despite the fact that the three hydraulic systems of the aircraft were separate to ensure that a single event involving one system could not lead to disability of the other systems, the fact that the lines of these three systems were sharing the same 10 inch wide route passing through the tail and the penetration of the debris made the remaining systems to be affected.

Also, there was no system in place for backup which only served to worsen the situation (Haynes, 1991).

The aircraft continued to turn right and maintaining its stable course became difficult. It began to oscillate vertically though slowly in a kind of phugoid cycle which usually signifies loss of control surface command of a plane. Following each cycle, the plane was losing an altitude of about 1500 feet.

A passenger by the name Fitch who was in the plane and a flight instructor for DC-10 offered his assistance. Once on the cockpit he realized that the only remaining method though which the plane could be controlled was by adjusting the two remaining engines' throttles. This involved running one engine at a faster rate than the other one so as to turn the plane a situation referred to as differential thrust. This was also meant to help accelerate or decelerate the aircraft so as to gain or lose altitude.

Using this method, Fitch was able to mitigate the cycle and also to make some rough steering adjustments. Fitch also tried lowering the landing gear of the flight manually in the hope that this could force out the trapped hydraulic fluid to go back to the lines which could have allowed some kind of movement of the control surfaces.

However, although he managed to lower the gear successfully, no improvement was recorded in the control response because most of the hydraulic fluid had been lost via the punctured lines (Astronomy. com, 2009).

Following the complete failure of the control response, the crew members contacted the ATC or the air traffic control prompting an arrangement for emergency landing at Sioux Gateway Airport which was nearby. On board, Haynes who was the captain is remembered for being positive about the

whole disaster and continued being humorous despite the situation which had got all crew members confused and worried.

The landing was at first planned of runway 31 on 9000 foot. However difficulties in controlling the plane made it impossible to line up. The plane was dumping most of its fuel by executing a number of right hand turns which was easier for the plane.

This was also intended to make the plane go to the end lined up with the runway 31. However, runway 22 was shorter for the plane at 6, 000 feet. This runway also had little capacity for maneuvering. It was also having fire trucks which had been kept in this runway since the landing was expected to be on runway 31. These trucks had to be quickly removed before the plane touched the ground.

On board, Fitch was still trying to control the plane's descent which he did by constantly adjusting the engine thrust. All the hydraulics had been lost and it became impossible for the crew members to continue controlling the airspeed free from sink rate.

The plane started to go at 240 knots and it was sinking at a speed of 1850 feet per minute. A safe landing requires 140 knots and a landing speed of 300 per feet meaning the aircraft was headed for a crash. On final approach, the aircraft was sinking faster and was veering to the right. The right wing tip was the first to hit the runway spilling the fuel which in turn ignited immediately. This was followed by the breaking of the tail section leaving the rest of the airplane to bounce severally.

The engine nacelles and landing gears were shed off and the fuselage broke into various main pieces. The right wing was sheared off finally leaving the main part of the plane to skid sideways. It rolled on its back over and over and finally came to a stop although upside down at the runway 22 right side.

Although witnesses had said that the plane had cartwheeled, investigations refuted this arguing that this was a misinterpretation of a video showing the crash which revealed the right wing flaming and tumbling from one end to the other end (Haynes, 1991).

The aircraft had 296 passengers on board including 11 crew members and out of these people, 111 died following the crash. Cause of the accident was attributed to failure by the united airlines to maintain processes aimed at detecting any fatigue crack which could have existed in the aircraft which were revealed during the investigation.

The cracks are believed to have caused the fracture of the aircrafts fan disk. However, the low fatality of the crash in relation to its magnitude was attributed to the emergencies response towards this crash in Sioux City in the year 1989 (Astronomy. com, 2009).