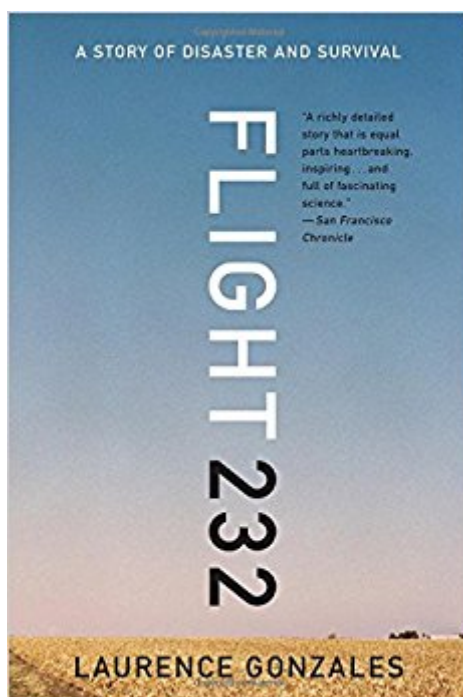


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# Flight 232: A Story Of Disaster And Survival



## Synopsis

“A richly detailed story that is equal parts heartbreaking, inspiring . . . and full of fascinating science . . . masterful.” —San Francisco Chronicle

As hundreds of rescue workers waited on the ground, United Airlines Flight 232 wallowed drunkenly over the bluffs northwest of Sioux City. The plane slammed onto the runway and burst into a vast fireball. The rescuers didn't move at first: nobody could possibly survive that crash. And then people began emerging from the summer corn that lined the runways. Miraculously, 184 of 296 passengers lived. No one has ever attempted the complete reconstruction of a crash of this magnitude. Drawing on interviews with hundreds of survivors, crew, and airport and rescue personnel, Laurence Gonzales, a commercial pilot himself, captures, minute by minute, the harrowing journey of pilots flying a plane with no controls and flight attendants keeping their calm in the face of certain death. He plumbs the hearts and minds of passengers as they pray, bargain with God, plot their strategies for survival, and sacrifice themselves to save others. Ultimately he takes us, step by step, through the gripping scientific detective work in super-secret labs to dive into the heart of a flaw smaller than a grain of rice that shows what brought the aircraft down. An unforgettable drama of the triumph of heroism over tragedy and human ingenuity over technological breakdown, Flight 232 is a masterpiece in the tradition of the greatest aviation stories ever told. 8 pages of illustrations

## Book Information

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## Customer Reviews

Flight 232 is an extremely well researched, compelling, and especially harrowing story of the ill fated United Airlines Flight 232 in 1989. The reason that flight merits an entire book has to do with the

sheer amount of survivors on what should have been a non survivable catastrophic engine failure situation. As well, it was a watershed event leading to the development of many modern safety practices as well as crash response procedures and investigation. It's also notable for laws that did not (and perhaps should have) been changed about airline safety. Author Gonzales, a commercial pilot, uses meticulous research to give a very complete story of the crash. From passengers to crew, hospital workers to ground support, manufacturer reps, radar operators to crash investigators, all provide a very large picture of the airline industry at the end of the 1980s. Inside these 400 packed pages, Gonzales will give us the scope of the issues the plane encountered, the harrowing tales of escape and death, survivor remorse, PTSD not only from the survivors but also the workers and volunteers who had to handle the morgues and hospitals, to those who were near the airport when the plane crashed and ran to help. The stories are tragic, uplifting, horrifying, intriguing, daunting, and most especially emotive. I don't think anyone reading this book could be left unaffected. Most will likely read for the human aspect of the crash. But very detailed descriptions of the metal fatigue issue (from how the metal is made, manufactured, etc.) as well as complex flying technical and physics are also included. Readers can really read in detail about all aspects of the crash (technical, personal) or choose to hone in on the detective aspects of finding the cause or the experiences of those inside the plane when it went down. For me, I skimmed through the very detailed technical aspects while reading the first time and then went back and spent my time on the physics descriptions at leisure. The people story was far too compelling to stop and suddenly get a physics manual in the middle of their tales. The only detractor for me was that the book started to switch up very emotional and harrowing scenes with hard science around the middle and through to the end. I would have liked to see the book broken down into three distinct sections: personal experiences of those involved, the detective work and changes in the industry, and then the hard physics. It was truly frustrating and annoying to read about a mother going through the crash watching her 2 year old fly through the air - then changing abruptly to 20-30 pages of metallurgy and titanium anomaly detection techniques before we find out what happened to the 2 year old and if he survived. Those who are faint of heart with blood and gore descriptions would probably want to avoid this book and stick to Air Craft Investigation/Mayday episodes instead. The book is very thorough and descriptions of injuries/deaths and how the morgue worked right after the crash are especially horrifying. As well, keep in mind that the plane was full of young children due to a promotion from the airline - most with no seats to be belted into. I have seen a lot of crash documentaries/tv shows and nothing compares to what I read in this book. It wasn't just the terrifying crash itself that was harrowing - it was the account of everyone who had to deal with what happened or what they saw

that day. Most people never realize that someone has to work with horribly disfigured bodies strewn across an airport and find ways to quickly identify, process, and preserve those bodies for relatives - all while others are saving the injured, placating shocked relatives and media, keeping the airport facilities running, or trying to find out exactly what happened to the plane - so it doesn't happen again. The nature of the Flight 232 crash allows author Gonzales to really give all aspects of what happens when a plane makes an 'unscheduled landing.' Thorough, well documented with resources listed, and with interviews of nearly everyone still alive connected in any way to the crash, whether in Japan or San Diego, the author has done an impressive job. The book contains 16 color images but I recommend also checking sites or videos online to see the people/crash. Reviewed from an ARC.

Flying on a commercial aircraft is statistically pretty safe. But when incidents occur they tend to get ugly in a hurry. On July 19, 1989 Flight 232 was flying from Denver to Chicago which was the 15,503rd flight for the massive titanium fan hub in engine #2, located in the tail of the DC-10. Despite inspections a manufacturing defect was undiscovered and grew approx 1/300,000th of an inch on each flight. Cruising at 37,000 feet the hub gave way and the massive fan sheared the shaft which held it in place. The passengers heard a loud noise and the engine exploded, sending shrapnel and flying debris throughout the tail structure of the aircraft. What happened after this explosion was incredible and unprecedented. Modern aircraft all have hydraulically operated controls, and the required backup system is also required to have a backup. In the event of failure of one hydraulic system the other takes over to allow control of the aircraft. In the event the back up fails a third system will allow control of the aircraft. On this aircraft the exploding engine severed the lines of all three hydraulic systems and drained all the hydraulic operating fluid, rendering the aircraft controls inoperable and frozen in position. That the aircraft stayed in the air at all was due to quick action by the pilot, who can't explain why he manipulated the throttles in the manner he did to stabilize the aircraft. Calling a Mayday the pilot was repeatedly asked, even twenty minutes into the emergency if he was sure there was no hydraulic pressure. Engineers and mechanics knew that flight 232 was doomed and could not believe that it was still in the air. That it was in the air was the result of a herculean effort by the flight crew and an off duty instructor on DC10s. The aircraft was wandering all over airspace and could only be turned in one direction, and not very well. There was no control over elevators or ailerons. Against all odds they were able to approach Sioux city airport via a corkscrew flight path and had one chance at putting the plane down. Approaching the runway the plane was flying twice as fast as a normal landing approach and descending 3 times as fast as

the landing gear was designed to endure. The flight crew applied power to slow descent and the engines responded, with one responding faster than another which tipped the aircraft and a wingtip struck the runway. The aircraft cartwheeled and burst into flames. Those who witnessed the crash felt that nobody could survive. And once again, death was cheated when 184 passengers out of the 296 souls on board survived. This is their story- lives ended, interrupted and torn asunder. It is an incredible story that impacted lives not just during the incident, but for decades afterwards. The book details the impact of Faith, seemingly random seat changes that had profound impact on whether a person survived or not, the technical aspects of the forensics necessary to determine the cause and hopefully prevent recurrence of such an incident in the future. One of the most heart breaking aspects was the fact many children and infants were on board and were being held by their parents. Since they were without seats there was no way to restrain them when the aircraft hit, and many died when they were wrenched from their parents arms by the impact. If you fly, make sure you buy a seat for your little one, and use a car seat or approved restraint. One of the most riveting books I have read in some time.

As one of the nurses that was called upon to assist in the emergency of flight 232 I worked in ER on the day of the crash. Reading this book brought back so many memories and helped fill out parts I didn't know about. I was very proud of how my hospital, and the entire community came together and remember being so upset over the terrible events these people went through and how terrible for their families. The book did get a little too technical for me in the middle, I was more interested in the human aspect of it, but it is still a good read, especially if you lived through it like I did by being one of the emergency responders.

I'm from Iowa. At the time of the disaster, we lived less than 80 miles from the crash site. The incident is quite literally seared into my memory. The author, Laurence Gonzales, writes with such clarity, his words are so vivid, I relive that day with every page-- but from the perspective of a passenger on the plane. The sensation is incredibly disturbing, yet the book is impossible to put down. The author's knowledge, understanding, respect and compassion for everyone involved in this event, which is both a tragedy and a miracle, are evident in every single word he writes. Be warned. Not for bedtime reading.

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