

# How Jet Carrying Mrs. Hunt Crashed

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First of two articles

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Ever since the fatal crash last December of a United Airlines jet carrying Mrs. E. Howard Hunt Jr., rumors have been circulating throughout the country that the plane had been sabotaged.

On the surface, the crash of the nonstop flight from Washington to Chicago appears to be a striking coincidence. In the months before the crash, Mrs. Hunt, wife of the former Central Intelli-

gence Agency operative White House consultant and bugging conspirator, had expressed increased dissatisfaction with her role in an alleged cover-up of the break-in at Democratic headquarters.

That role, according to Senate testimony by those involved in the plot, was to funnel cash to the Watergate defendants in return for their silence about the involvement of higher-ups. Further, Mrs. Hunt was carrying cash believed to be connected to the cover-up at the time of the crash.

Although the purpose of Mrs. Hunt's trip might have been suspicious, a Washington Post investigation of the allegations of sabotage and of the circumstances of the crash indicates there is no foundation for the allegations.

The National Transportation Safety Board, the federal agency charged with investigating plane crashes, has not yet issued a final ruling on the cause of the disaster. However, safety board investigators who have been working on the case for the past six months

say all evidence gathered to date indicates the cause of the crash was a series of pilot errors and violations of established procedures.

United Airlines executives privately acknowledge that they also believe pilot errors caused the crash, although they stress that only the safety board can make authoritative determination.

The safety board, an independent agency housed in the Transportation Department, sent experts to the scene to comb the wreckage for clues within hours of the

See CRASH, A18, Col. 1

## CRASH, From A1

crash. Included in the initial team were a metallurgist, a meteorologist, a power plant engineer and a specialist in analyzing pilot actions.

Eventually, the parts to the plane were laid out in a nearby hangar. The engines and flight instruments were checked for defects, recordings of cockpit conversations and air-to-ground communications just prior to the crash were analyzed, and critical questions were resolved in actual flights or through exhaustive laboratory tests. Tissues from the pilot and others in the crash were examined by Federal Aviation Administration toxicologists in Oklahoma City.

Altogether, some 150 experts from the Safety Board, private industry and universities worked on some phase of the investigation. This is not unusual when a commercial plane crashes.

The results of that investigation, together with the second-by-second records of the flight and the recollections of survivors and witnesses, provide a detailed portrait of the anatomy of a plane crash on Friday, Dec. 8.

To the 55 passengers, including two infants, who boarded Flight 553 at 12:50 p.m. at National Airport, there was nothing about the plane or its takeoff to indicate the trip would end in tragedy.

Because they boarded through a coupling from the airport, the passengers could not see the outside of the twin-engine Boeing 737 jet that was to take them to Midway Airport in Chicago. If they had, it would have looked like any other commercial plane, except that it is smaller than a standard, four-engine jet.

Because of its size and stubby appearance, the 737 is known among commercial pilots as "the guppy." The term also has an endearing connotation.

The reason is that the 737 has developed a reputation for being one of the easiest and safest planes to fly. Its responsiveness and sophisticated instruments leave pilots free to concentrate on watching for other planes in the area or making a precision landing.

One example of this instrumentation is a system that completely monitors all major functions of the craft, so that the pilot does not have to constantly check his meters.

Indeed, unlike most commercial planes, the 737 requires only two men in the cockpit—a pilot and copilot. But because of United's agreement with its pilots' union, every 737 flight is accompanied by a third crew member.

The additional man, a flight engineer, has little to do except sit on a jump seat in the crowded cockpit and

look over the pilots' shoulders. In this respect, Flight 553 was no different from any other United 737 flight.

After the takeoff from a drizzly National Airport, the passengers on Flight 553 heard Captain Wendell L. Whitehouse give the standard greeting. "We'll be cruising at 28,000 feet, bucking some headwinds, and might be 10 to 15 minutes late because of a late take-off," he intoned.

The next and last comment the passengers heard from the captain was just before landing. The plane was descending to 4,000 feet, it had made the trip faster than expected, and would be on the ground in five to 10 minutes, the captain said.

"He sounded very casual," recalls Marvin E. Anderson, a commercial research executive who was one of 15 passengers, including an infant, to survive the next 10 minutes.

Inside the cockpit, the captain and his copilot, Walter O. Coble, were discussing the latest radio report beamed from Midway on landing conditions at the airport.

"Have you listened to the news lately, they didn't change there a while ago, did they?" the captain said, asking if the radio report that is placed on a continuous tape recording had been changed.

Midway, only 10 minutes away as Whitehouse spoke, is an orphan of the jet age. In 1959 it had nearly 1,000 flights a day; today it has only 50.

Nearly all planes into Chicago now land at O'Hare field, which has the long runways needed by standard jets. O'Hare also is fully equipped with precision instrument landing devices, while only one of Midway's six runways has such equipment.

The devices guide pilots onto runways by indicating electronically when to turn left or right or go up or down. All the pilot has to do is line up a needle with a line on his instrument panel.

But the runway that Flight 553 never quite reached, Runway 31 Left, does not have this equipment. Instead, it has a beam—called a localizer—that only tells the pilot when to turn left or right.

The pilots of Flight 553 could have used the full instrument gear this Friday. The weather over Midway, which is in a heavily populated area of Chicago's South Side, was overcast, with slight drizzle, fog, and icing conditions.

Clouds were 500 feet above the ground, visibility along the ground was reported at a mile, and the temperature was just below freezing at 28 degrees.



United Press International

Chicago firemen and police search smoldering wreckage of the jet after it plowed into several homes near Midway Airport.

It was now eight minutes before the crash. The plane was at 4,000 feet above sea level, or 3,400 feet above ground, and traveling at 220 knots, which is equivalent to 253 miles an hour. The site of the crash—just a mile and a half short of Runway 31L—was only 19 nautical miles, or about 22 statute miles away.

At this point, the captain noticed a warning light indicating that the plane's flight recorder had gone off. The flight recorder makes a graph of essential flight data, such as speed and altitude. It is built to withstand crashes, so that investigators can use it to help determine causes of crashes.

The Safety Board later determined that two loose screws in the recorder had caused the gears that turn the graph paper and move the writing stylus to disengage. The board's investigators also found that they could obtain the same data—although not in quite as precise form—from a tracking computer on the ground.

But for now, the broken recorder was causing considerable consternation in the cockpit. Although it has nothing to do with flying, a broken recorder would mean the plane could not take off again at Midway until a new one was found. The reason is that FAA regulations require a working recorder on every flight.

Off and on, for the next six minutes, the crew discussed the broken recorder. The conversation, preserved by a tape recorder in the cockpit, began this way:

CAPTAIN: Recorder go off?

FLIGHT ENGINEER: Pardon me?

CAPTAIN: Recorder go off?

FLIGHT ENGINEER: Yeah.

CAPTAIN: See what's wrong with it, will ya ... Sounds to me a circuit breaker, perhaps.

FLIGHT ENGINEER: Hah?

CAPTAIN: Yeah, I just meant, I thought you'd better check everything, ah.

About this time, Flight

553 was being watched on a radar screen in a darkened room at the approach center where all flights bound for Chicago airports are coordinated. The center is in a basement across the street from O'Hare Airport.

Controller John J. Baldwin, sitting at a six-sided console dotted with colored lights, saw that he would have to slow the United flight because it was crowding a private Aero Commander that also was about to land at Midway.

Speed and altitude are two of the most critical elements in bringing a plane safely through traffic in the air and landing it on the ground.

Although some variation is allowed, pilots in general are expected to adhere fairly closely to instructions from the ground, as well as to standard approach procedures published by the FAA for each airport. In the end, however, pilots bear the ultimate responsibility for the safety of their passengers.

With the Aero Commander's position in mind, Baldwin instructed the larger plane to slow from 220 knots to 180 knots. The plane was now only five and a half minutes, and 11½ nautical miles, from the crash site.

The copilot acknowledged the request, but a minute and a half later, Baldwin could see on his scope that Flight 553 was now going 230 knots.

Again Baldwin requested a lower speed, this time 160 knots, and again the command was acknowledged. Twenty-six seconds later, the plane had slowed to 210 knots, but Baldwin asked the pilot to slow further to the plane's approach speed—125 knots.

By this time, the plane was about two minutes from the outer marker, a crucial point in any landing. The marker is an electronic beam placed on the ground to tell the pilot exactly where he is in relation to the runway.

Safety Board investigators quote United's flight manual

as saying that all preparations for landing should be finished by the time the plane crosses this marker.

The preparations include a check of vital instruments, a procedure which requires the flight engineer to call off the item being checked and the copilot to respond with the appropriate answer.

Safety Board investigators say the requirement that preparations for landing should be complete at the outer marker is particularly important at Midway, that the marker there—because of the congestion—is only 3.3 miles from the runway, compared with five miles at most airports.

Despite this, the pilots of Flight 553 had not yet begun the final check. Instead, they were still discussing the broken recorder:

FLIGHT ENGINEER: Christ, I can't even find the circuit breaker for this.

COPILOT: Over here. . .

FLIGHT ENGINEER: I don't know. Don't know what to say. I get a reaction when I pull the, ah, AC.

COPILOT: No reaction when you pull the DC though.

FLIGHT ENGINEER: Want me to call maintenance?

CAPTAIN: Call it in.

A minute later, the plane passed over the outer marker. Established flight procedures call for planes to be at a particular height when they cross the marker. The purpose is to line up the craft with the electronic landing gear and create a smooth approach to the runway.

A plane can fly over the marker at slightly higher than the recommended level, but it requires extra attention on the part of the

crew to complete the landing successfully.

When Flight 553 crossed the marker, it was at 2,200 feet above sea level, or 1,600 feet above the ground. The recommended level at Midway, as published in pilot handbooks, is 1,500 feet above sea level, or 900 feet above the ground.

It was now a minute before the crash, and a mile and a half from the site. At this point, the crew began the final instrument check:

CAPTAIN: Final descent check.

FLIGHT ENGINEER: Flight and nav.

COPILOT: Cross-checked.

The command and response continued, and eventually the copilot called off the reading on the altimeter: 1,000 feet above sea level. The tracking equipment on the ground showed the plane at 1,100 feet. Safety Board investigators say the margin of error on the tracking equipment is 100 feet because the reading changes in increments of 100 feet.

Control of the plane's landing had by now switched from the darkened approach room to the airy control tower perched on top of Midway Airport.

There, controller Jack E. Margotta saw that there was not enough distance between the United plane and the smaller Aero Commander to allow a safe landing for either craft. The gap between the two had narrowed to just over two miles.

It was now 20 seconds before the crash, and a half a nautical mile from the site. The plane had slowed to 120 knots, five knots under the recommended approach speed.

Less than half a second

after the copilot read off the plane's altitude, controller Margotta, seeing the narrowing gap between the planes, issued the order to stop the landing and go around for another try:

"United 553, execute a missed approach, make a left turn to a heading of 180, climb to 2,000."

A missed approach is not uncommon. But as Margotta talked, a grave emergency was developing. The plane's stick shaker had gone off.

The stick shaker is a warning device that makes a noise like a rattlesnake on the roof of the Boeing 737's cockpit. It also vibrates the

control columns, or sticks, of both the pilot and copilot.

What it means is that the aircraft is about to stall. A stall occurs, quite simply, when a plane is going too slowly to fly. The result, unless immediate emergency procedures are initiated, is that the plane quickly falls to the ground.

The planes's speed at this time was either 105 knots or 112 knots, depending on whether its spoilers—which are used to slow a plane in flight—were extended.

Commercial pilots say the stick shaker should never be heard except during training flights, when pilots are taught how to recover from stalls. The sound of the shaker, says William L. Lamb, the Safety Board's chief investigator on the crash, should trigger an immediate alarm.

Although there were two or three indistinguishable words at low volume when the warning signal began, the copilot calmly responded six seconds later to the tower's command for a missed approach:

"Okay, left turn to 180—left turn, okay?"

A quarter of a second later, the flight engineer said, "Want more flaps?" An unidentified voice said, "Flaps 15 (degrees)." Another unidentified voice said, "I'm sorry."

It was the last intelligible comment in the cockpit. Safety Board investigators are not sure if the apology referred to the fact that the plane was about to crash, or to a mistake in responding to the emergency, or even to one pilot nudging the other

accidentally while switching controls.

As the plane settled to the ground, there were sounds of the clicks of the flaps being adjusted and the landing gear being raised, then sounds of the initial impact and a garbled voice.

The passengers noticed nothing unusual until they were almost on the ground. "The first thing I noticed was when the captain revved up the engines," says Wilbur V. Erickson, the president of the Federal Land Bank of Omaha, a

bank that lends money to farmers.

"I looked out the window and saw we were fairly close to the housetops. The nose of the plane was up. The next thing I heard was scraping of the plane on something outside. I still thought we were going up and around."

On the ground, Louis Stalec, an air conditioning and heating repairman, was walking his poodle near his home when he saw the plane break out of the clouds directly in front of him. "The nose was up and the tail was down," he said. "I ran."

The plane crashed at 2:27 p.m. and 24 seconds in a neighborhood of neat, one-story bungalows a mile and a half short of Runway 31L. It was the first fatal crash for the Boeing 737.

The plane sheared two houses from their foundations, crossed West 70th Place, and sheared off two more. Two occupants of one of the houses were killed.

Inside the plane, Erickson, the president of the bank, had blacked out. Anderson remembers praying. The four-year-old daughter of Judith B. Sherwood of Chicago was screaming, "Mommy, mommy, there's a fire!"

Flames shot up from the outside of the cabin, and heavy black smoke enveloped the plane. Anderson unfastened his seat belt and groped his way out of a rear exit. Others crawled out a break in the fuselage.

The plane's three stewardesses, sitting on jump seats at the front and rear of the plane, all survived, as did Mrs. Sherwood and her daughter.

Forty passengers, including an infant, were killed, as were the pilot, copilot, flight engineer and Mrs. Hunt.

Autopsies performed by the Chicago coroner revealed that the crew and passengers had died of burns, fractures, or inhalation of smoke, carbon monoxide, and cyanide. Medical examiners and toxicologists in other cities say cyanide is produced by burning plastic and is commonly found in the victims of plane crashes.

The coroner found no evidence of alcohol or other

commonly used drugs in the three crew members, and the finding was confirmed in the case of the pilot by the FAA's chief toxicologist.

However, the coroner reported that in addition to inhalation of smoke, carbon monoxide, and cyanide the pilot had died of a heart attack.

The FAA found no evidence of a heart attack. It said that the manufacturer of the test used by the Chicago coroner to detect a heart problem specifically warns that the test will show positive results if carbon monoxide is present in the body.

"I don't care what the manufacturer says. It isn't necessarily so," says Dr. Edward J. Shalgos, the pathologist who performed the autopsy on the pilot.

A recent article in the Forensic Science Gazette, a publication for medical examiners and coroners, criticized the Chicago coroner's office for allegedly making repeated mistakes and being "a political patchwork, most

of which has rotted through for all to see."

Both the captain and copilot had failed proficiency tests in the past three years, Whitehouse for failures of judgement and improperly landing with one engine out, and Coble for poor judgement and knowledge of emergency procedures.

Both men subsequently passed the tests after additional training, and United said Whitehouse was physically ill at the time he took the first exam. Whitehouse's supervisor testified at a Safety Board hearing, "I'd say he's about as fine a pilot as I ever saw fly an airplane."

The Airline Pilots Association has suggested that a build-up of ice on the tail of the Boeing 737 could have affected the plane during the attempt to overcome the stall. The association quoted testimony indicating other craft in the area of the crash had a quarter to a half an inch on their outer surfaces.

Lamb, the Safety Board's chief investigator, discounted the effects of the

ice. He said subsequent flight tests with simulated ice had found that a buildup of up to three inches would not cause a problem.

"Two things were wrong with the approach," he said. "It was too high and too fast." In addition, he said, the subsequent actions "were not in accordance with established procedures."

Lamb cited the captain's failure to sound an alarm when the stall began. He said the 18 seconds between the time the stick shaker went off and the time of the crash should have allowed enough time to recover from the stall.

However, he said, while the proper procedure for recovering from a stall is to apply power and put the nose of the craft down, the pilot put the nose of the craft up while applying power.

This has the effect, he said, of slowing the plane still further. It takes six to eight seconds for the jet engines to develop nearly full power, he said. The pilot, seeing the ground coming up under him, probably could not bring himself to put the nose down, Lamb said.

Lamb also said that during a stall, the flaps, which retract from the trailing edges of the wings and control lift, should be set at 15 degrees. They were found, he said, at 37 degrees.

The sharper angle would have increased lift if the plane had developed enough thrust from its engines, he said. But if it had not, the effect would be to slow the plane by increasing the air resistance or drag.

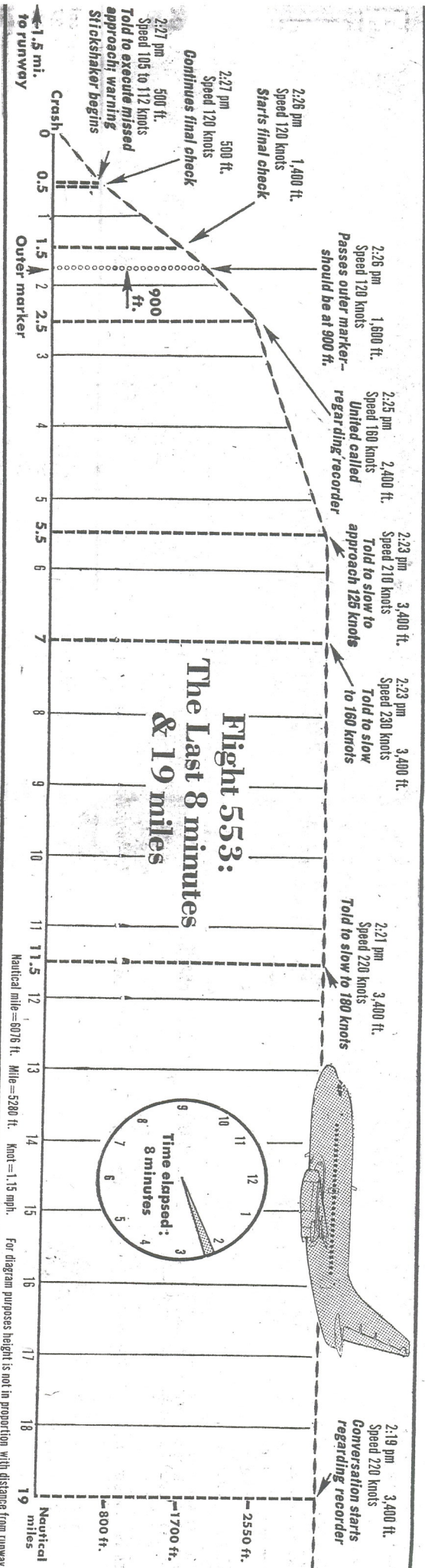
The day after the crash, Chicago police investigator Joseph P. Kelly found \$10,000 in old bills while shaking out the contents of Mrs. Hunt's purse in a police station where plastic bags containing the wreckage were being emptied and examined.

Harold C. Carlstead, a Chicago area accountant whose wife is a cousin of Mrs. Hunt, said the dead woman was traveling to visit his family. The money, he said, was to be used as the initial franchise fee for operating a Holiday Inn.

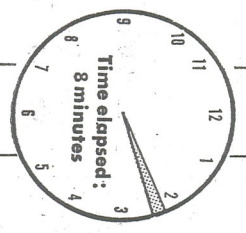
A source close to convicted Watergate burglar James W. McCord quoted McCord as saying the investment was to be a "cover" to create a legitimate source of income while Hunt was receiving money to keep quiet.

It was Mrs. Hunt's presence on the plane, and the cash that she carried, that gave rise to allegations that the plane had been sabotaged.

NEXT: The source of the rumors.



## Flight 553: The Last 8 minutes & 19 miles



This chart depicts the last eight minutes of the United Airlines jet that crashed in Chicago last Dec. 8, killing 40 of the 55 passengers. Time indicated is Chicago time; sketch is an approximation based on flight data.

By Joseph P. Masterson—The Washington Post