I LEARNED ABOUT FLYING FROM THAT

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NIGHTMARE ON FINAL

NO. 667
BY DONALD WIDMAN

It was one of those moments of anxiety which on rare occasions punctuate the hour upon hour of fortunate boredom.

From our vantage point six miles east of the airport and 1,500 feet above the ground, the visible dust in the vicinity of the airport was blowing in opposite directions. Consequently we viewed the report of "light and variable" wind with skepticism.

Another wind check confirmed the reported wind and the controller added, "You're cleared to land, Runway 26." Due to the obviously capricious wind and its potential for mischief, we added 10 knots to our calculated no-wind approach speed.

The first officer was at the controls, the Boeing 737-200 was in landing configuration, and our indicated airspeed included the additional 10 knots as we approached the outer marker. Though the skies were clear of clouds and visibility was unlimited, we tuned in the ILS as a backup for the visual approach. As we crossed the outer marker, all was well. We were aligned with the centerline of the runway, our rate of descent normal; there was nothing to indicate what was about to happen.

At a thousand feet I began the procedural calls of altitude, airspeed and sink rate. As we left 800 feet, I noted and called attention to an increase in the indicated airspeed. From the planned plus-10 it quickly became a plus-15, then 20, and stabilized at plus-25 as we approached 500 feet. The rate of descent had increased accordingly and we were less than 30 seconds from touchdown.

At this point I was concerned but not yet alarmed; this appeared to be a classic, though a bit extreme, wind shear, from which we could expect to emerge with the excess airspeed dropping off as rapidly as it had built up.

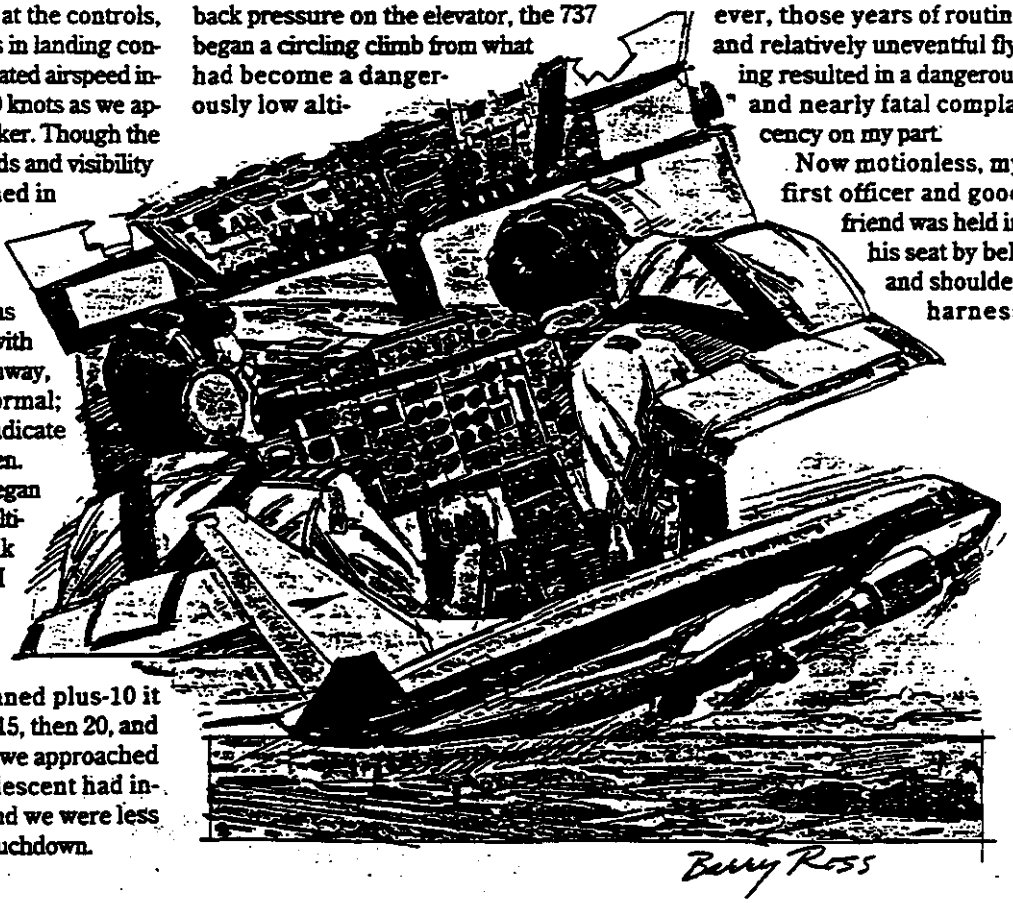
When the excess airspeed did not drop off, I expected the first officer to react by reducing power; he did nothing, and I shouted, "We're too fast!" Incredibly, the aircraft was still on the glide path and aligned with the runway. The thought that he was no longer flying the aircraft did not enter my mind.

When he did not respond to my emphatic warning, I reached for the power levers, intending to initiate a missed approach, and as I gripped them I glanced to my right, wondering why he had done nothing to correct a now-critical situation. Just as I touched the power levers, the aircraft suddenly "slewed" to the left in a wild, still descending, uncoordinated turn. As I pushed the power levers to their forward stops and applied back pressure on the elevator, the 737 began a circling climb from what had become a dangerously low altitude. Later, one of the flight attendants who was seated in the rear of the airplane where the aircraft's motion was most violent, knowing only that something was drastically wrong, described her thoughts as, "This is it, we've had it and we're going to crash."

My questioning glance at the first officer was frightening—he was obviously unconscious; that he was no longer alive appeared to be a very real possibility.

We had flown together, he as first officer and I as captain, hundred of hours and thousands upon thousands of miles. During the course of a 15-year period we frequently flew the same monthly schedules. We knew each other's likes and dislikes, moods, idiosyncrasies and jokes. We trusted each other's skill and judgment. Together we had experienced the usual mechanical problems ranging from minor to major, in short, the "normal" events an airline flight crew would experience over a period of time—up to now. However, those years of routine and relatively uneventful flying resulted in a dangerous and nearly fatal complacency on my part.

Now motionless, my first officer and good friend was held in his seat by belt and shoulder harness



in a nearly out-of-control airplane. While I stared at his contorted body, one simple question burned through my mind: "My God, what happened?"

For some unknown reason I was unable to "roll" out of the left turn; the turn could, however, be coordinated by use of the ailerons. A 45 degree angle-of-bank turn was a simulator training maneuver, not something to be done in a "real" airplane 200 feet off the ground—unless one had to.

With maximum power now set, I repositioned the flaps to a "go-around" setting and retracted the landing gear. That extra airspeed which moments before had been a liability suddenly became an asset of immeasurable value by enabling us to begin this wild and unplanned maneuver with our airspeed well above stalling speed.

Though we were continuing the steep turn, we were gaining altitude, and I had a moment to think about the plight of the first officer. I signaled for a flight attendant to come to the cockpit and the attendant seated in the forward part of the cabin responded immediately, asking, "What's wrong?" Nodding toward the first officer, I said, "Get the oxygen mask on him."

In the process of following that brief instruction, the flight attendant, who was a licensed pilot, discovered the cause of the still-uncontrollable turn when he realized—and told me—that the first officer's stiffened left leg was holding full left rudder. I didn't need to tell him to forget the oxygen and take care of the "control" problem. Supercharged as he was, he flexed the first officer's leg at the knee, thus freeing the rudder. This allowed us to recover from the turn that by now had progressed through some 270 degrees. We were level at 1,500 feet and the aircraft was once again under control.

A second flight attendant was called and she assumed the duty of making certain the first officer continued to breathe an uninterrupted flow of 100 percent oxygen.

In a matter of moments, the first officer appeared to be regaining consciousness to the extent that we needed the third flight attendant to assist by keeping the FO's hands clear of switches and controls. (Incidentally, and incredibly, five people *can* get in the cockpit of a Boeing 737—all at one time.)

Until we could fly straight and level we had not advised the tower of our predica-

ment, and no one in the tower had asked questions. Tower personnel observing our unusual missed approach were probably as perplexed, but not as alarmed, as our 72 passengers must have been. Fortunately, no other aircraft were in the pattern.

With the aircraft and my voice once again under control, I advised the tower of the onboard medical problem and requested that emergency medical assistance stand by to await our arrival. I also requested and received landing clearance. Our passengers were then advised that the copilot had suddenly become ill, thus the missed approach. They were assured (if such was possible) that he was now much improved and that we would soon be landing.

As we turned final for the second time, two of the flight attendants returned to stations in the cabin. The remaining attendant belted himself into the center jump seat. From this position he was able to assist by reading the checklists (particularly important, I believe, when operating under such unusual circumstances) and by monitoring the now-recovering first officer; we landed without further complications.

As we parked at the terminal, waiting paramedics boarded the aircraft to assist the first officer, who was soon able to walk to the waiting ambulance. In the hospital it was determined that his seizure had been triggered by a chemical imbalance. With proper treatment he regained full health.

We eventually completed our delayed trip with the help of a reserve first officer. Arriving at our layover stop for a much-needed rest I found that sleep did not come easily. During the time that I was awake that night and on many subsequent nights I reviewed the known factors which contributed to the safe outcome of a situation that was, for a brief moment in time and space, touch and go.

Without the flight attendants' skilled and calm assistance in the crowded cockpit the outcome would have been unpredictable at best. Until they could lend support, the aircraft was literally out of control.

Another factor was our skepticism about the reported wind that was in such contrast with our observations of the actual wind in the vicinity of the airport. As a consequence of this doubt, we planned a higher airspeed on the approach and allowed the airspeed to increase even further due to what was probably a "phantom" wind shear. I will always believe that because of the additional airspeed we were able to keep the aircraft from stalling, rolling over and plunging that short distance to earth when the sudden and unexpected full application of the left rudder took effect.

Following this incident, someone unknown to me sent an article entitled "Pilot Incapacitation in Flight" published in *The Cockpit* (United Airlines, May 1980). A summary of facts gleaned from that article quoting various sources follows:

During a seven-year period prior to 1980, there were 17 instances of pilot deaths in the cockpit. Five of these deaths led to accidents that resulted in 148 fatalities. Of those five, four deaths occurred during the approach phase of flight. Two-thirds of the 17 pilots who died were under the age of 50. (The first officer in this story was 40.)

When total incapacitation, ranging from unconsciousness to death, occurs, the pilot simply ceases to function. A second and more dangerous form of incapacitation is subtle or partial incapacitation, in which the pilot flying remains conscious but with reduced analytical capacity. The subtle type is more dangerous because it happens more frequently and is more difficult to detect.

Between March 30, 1983, and January 8, 1993, National Transportation Safety Board records reveal 36 instances of crew incapacitations on Part 135 and Part 121 air carrier operations.

Pilots should realize that a crew member's incapacitation is always a possibility, and as with any aircraft emergency it must be dealt with in three phases: 1) recognizing the problem, 2) maintaining or regaining control of the aircraft, and 3) solving the problem.

In the personal experience described in this article, earlier recognition would have lessened the impact of the illness by allowing me to take control of the aircraft at a higher altitude and before the seizure resulted in full application of the rudder. Several days after the incident, my first officer stated that he remembered nothing of my calls about the high airspeed; he probably suffered a partial incapacitation before the total incapacitation occurred.

And last but not least—always expect the unexpected. □

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ATTACHMENT 2

WITNESS INTERVIEW
Captain Don Widman

The Human Performance group conducted a telephone interview ptain Widman on January 16, 1996. He was the pilot of a B- assenger flight that experienced a control emergency during ding approach.

Captain Widman's experience occurred on June 11, 1980. It escribed in a company operations report on June 16, 1980, ded as Attachment 3, and in an article published in Flying ine in January, 1996, included as Attachment 4. The view elaborated some of the information in these documents.

The incident involved a B-737-200 airplane, on final ach to Cheyenne, Wyoming, in daylight, visual conditions the first officer hand flying the approach. Winds were ted as light and variable, but the pilots observed that dust lowing southbound to the north of the airport and northbound the south of the airport. Anticipating wind shear tions, they elected to fly the approach at 145 knots, 10 above the bug speed. Flap setting was probably 30 degrees.

At about 800 feet AGL, the captain observed an increase in eed. At 500-600 feet AGL, the airspeed had climbed to 160 and the captain stated that "we are too damned fast." The officer did not respond. The captain called for a go- d, reached for the throttles, and, about this time, the nose e airplane slewed left. The captain glanced at the first er and observed that the first officer was not moving and ared to be dead. There was an unnatural blue-purple color in complexion and his hands were hanging limp.

Captain Widman stated that he responded instinctively to the airplane flying, thinking that the medical pacitation of the first officer had somehow brought on the ol problem. He advanced the throttles and input right on, nearly full input. It was not sufficient to correct the but he was able to maintain a coordinated 45 degree turn establish "coordinated" flight. The resulting climbing turn nued through a 270 degree change in direction and a climb to feet AGL as the captain cleaned up the airplane iguration. Though the flight attendants were shaken by the ial, momentary wildness of the ride, the climb-out itself was th and coordinated. The aircraft was never near stalling eed.

As soon as the airplane was in a go-around configuration,

ıt 30-60 seconds into the incident, the captain summoned a ght attendant to get oxygen to the first officer. The flight ndant notified the captain that the first officer's leg was d and locked straight on the left rudder pedal. The first cer had suffered a seizure, and the rudder pedal was at full ıt. The flight attendant moved the first officer's leg off rudder, and the captain regained control of the airplane.

Captain Widman said that he was startled at the beginning of incident. He flew reflexively, and his motor responses were p and unaffected. However, his ability to analyze was hurt. said that he had two problems and his mind was overloaded: he an airplane out of control, and he had a first officer who eared to be dead or dying. It blocked out other concerns, and was surprised he did not realize that the rudder was in. tain Widman said that he did not know what was causing the plane to slew. He did not have a specific memory of trying to the rudder, but said it seemed logical that he would have ed. He had reached the limit of what he could concentrate on. did not verbalize his actions.

Captain Widman had about 25,000 flight hours at the time of incident, with 3,500 hours in the B-737. He was a captain ce 1964. He received unusual attitude training in the Air ce, which he felt helped him in the incident, and had no obatic experience since that time. He had experienced several ine failures during his career, but not at points that he sidered emergencies. The captain was an active member of the ot union. He was age 53 at the time, 6'0" tall and about 190 ınds. The first officer, age 41, was 5'9" or 5'10" tall and ıcky.

Captain Widman decided to write an article for Flying gazine after the Colorado Springs accident. The article was epted for publication in July, 1994, two months prior to the tsburgh accident.