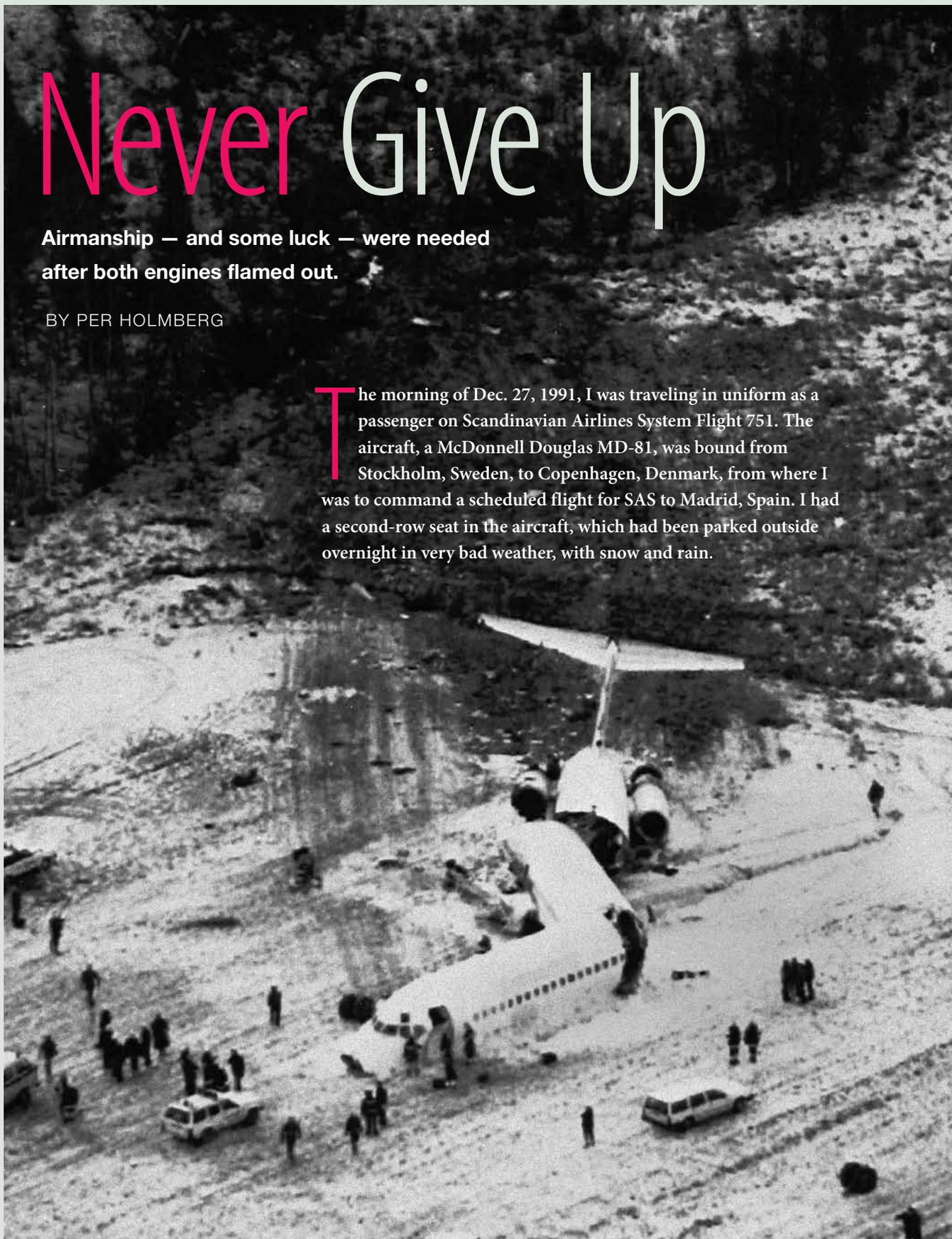


# Never Give Up

**Airmanship — and some luck — were needed after both engines flamed out.**

BY PER HOLMBERG

**T**he morning of Dec. 27, 1991, I was traveling in uniform as a passenger on Scandinavian Airlines System Flight 751. The aircraft, a McDonnell Douglas MD-81, was bound from Stockholm, Sweden, to Copenhagen, Denmark, from where I was to command a scheduled flight for SAS to Madrid, Spain. I had a second-row seat in the aircraft, which had been parked outside overnight in very bad weather, with snow and rain.



After the aircraft was deiced, the takeoff roll was started on Runway 08 at Arlanda Airport. About 25 seconds after rotation, I heard an engine surge, an appalling sound similar to a cannon firing. I counted four or five more surges and started to get worried.

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Looking through the open cockpit door, I saw a lot of warnings on the overhead annunciation panel but had the impression that nothing was happening between the two pilots — no giving of orders, no dialogue, no hands on the throttles or other arm movements. Then I got really worried, wondering if the captain had suffered a heart attack. I also had the feeling that the passengers were looking at me, wondering why I was sitting there, doing nothing.

I set aside my morning paper, unbuckled my seat belt and walked quickly to the cockpit. As I reached the cockpit door, I heard the fire bell sound and the first officer ask, “Shall I pull?” Before getting any answer from the captain, he pulled the fire handle, extinguishing the fire that was consuming titanium components in the left engine.

“Do you want help, boys?” I asked.

The captain replied, “Yes, start the APU.” After spending some time trying unsuccessfully to start the auxiliary power unit, I gave up and directed my efforts to more important things.

### No Checklist Required

The first officer had handed me the emergency checklist when I entered the cockpit. He had begun to look for the procedure for engine surge but could not readily find it because it was so far back in the book. (The procedure has since been placed in a more conspicuous place in the checklist, and the major items for dealing with engine surge are required to be memorized.)

I tossed the checklist aside because the situation we were in required no checklist. With both engines out, half of the flight instruments blacked out and the aircraft in clouds, the only things that were required were good airmanship, a hunch about what the landing configuration should be and, of course, some luck.

A “Power Out Checklist” that I had developed for myself was in my flight bag, back in the

cabin. I had to try to remember what flap and landing gear configuration we ought to have. But the most important thing to remember was: Don’t stall the aircraft.

### ‘Look Straight Ahead’

I told the captain, who was flying manually, to look straight ahead. I repeated that at least 20 times during the rest of the flight. Why? Flying a 50,000-kg aircraft is a full-time job, especially when you don’t have any engine power. I wanted the captain to do nothing else but fly the aircraft with exact control of speed and attitude.

At one point, the captain began to use the public-address system but dropped the handset on the floor. I was immediately on him again, saying, “Look straight ahead.”

Just after we reached our highest altitude, 3,318 ft, which also was the top of the first cloud layer, the captain’s two electronic flight instrument system (EFIS) displays went blank, leaving him with only a simple standby horizontal situation indicator and an analog airspeed indicator.

As we began our journey back down through the clouds, I scanned the first officer’s EFIS displays, which were working OK, and saw that our airspeed was decreasing. As I scanned all the available instruments, I also kept an eye out through the windows so I could get contact with the ground as soon as possible to find a place to land.

The captain said a few times, “Prepare for on-ground emergency.” I relayed that instruction, shouting at the top of my voice through the cabin door. The message was received, and the cabin crew began to instruct the passengers.

About 1,500 ft above the ground, I observed the flap handle in the slats-out position. Knowing that we were approaching a stall, I started to extend the flaps without saying anything. Airspeed at the time was 163 kt and decreasing. The stall speed at 54 tonnes and slats out is around 120 kt.

Descending through about 1,300 ft, we started to get visual contact with the ground. I saw two locations for a possible forced landing.

The closest was approximately 25 degrees to the right of our track, a little field surrounded by forest. I gave the captain directions to turn the aircraft toward that field.

At 1,100 ft over the ground, the captain said, “Flaps, eh ... eh.”

I responded, “Yes, we have flaps. We have flaps. Look straight ahead.” The landing configuration should have been gear down and flaps 28. As I was afraid that we would stall on the way down, I had selected flaps 40, or full landing flaps. We were holding on landing gear extension.

At 491 ft, we got the first aural warning of “too low gear.” The first officer asked, “Shall we take the gear?”

“Yes, gear down, gear down,” I said. The landing gear was down and locked five seconds before impact, and was broken off immediately when it hit the ground, probably helping to reduce the forward energy a lot.

When I saw the trees starting to hammer the aircraft, I had rushed from the cockpit and braced myself against the forward cabin wall, knowing that I did not have time to return to my seat, fasten the seat belt and brace for impact. I felt the aircraft bank right as I left the cockpit and reached the wall, which was carpeted and relatively soft, just as the aircraft hit the ground. I was knocked unconscious.

The aircraft was banked 40 degrees right, and the right engine hit the ground first, followed by the tail. The aircraft rolled wings-level, but with the nose high in the air. Then came the whiplash when the whole airframe hit the ground and broke into three pieces before coming to a stop within 110 m (361 ft).

The impact forces in the forward part of the aircraft reached +30 g (that is, 30 times standard gravitational acceleration). It is unbelievable that so many passengers survived relatively unharmed.<sup>1</sup> I was unconscious for approximately 20 minutes. My left shoulder must have taken most of the impact, because it was dislocated.

The captain dragged me to the forward cabin door, where I was taken care of by some

passengers. The slide did not inflate when the crew opened the door because the distance to the ground was too small. Later, the crew removed the slide and inflated it. I sat on that slide for a long time, maybe an hour. It was cold, my shoulder hurt, and I had only one shoe. I was told later that I was very angry that the aircraft was destroyed.

The information flow during that short flight was tremendous, exceeding many times the amount of information that even an experienced pilot can assimilate. In this special case, the only remedy was reverting to the old-fashioned way of flying, using the standby horizon, the airspeed indicator and the seat of your pants.

Especially with today’s fancy automated systems, it is crucial for pilots to be able to fly manually, to think critically and control the aircraft. Whatever happens, never forget that you are the pilot. When anything starts to go wrong, use good airmanship and never, *never* give up until you are at a standstill on the ground again. ➔

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#### Note

1. In its final report, C 1993:54, the Swedish Board of Accident Investigation (SHK) said that, of the 129 people aboard the aircraft, eight were seriously injured and 84 sustained minor injuries; there were no fatalities. The SHK concluded that the accident was caused by the airline’s inadequate “instructions and routines” for deicing, which resulted in the MD-81 departing with its wings contaminated by clear ice that dislodged and was ingested by the engines.

FirstPerson is a forum for sharing personal experiences that have yielded lessons about aviation safety. We welcome your contributions. Send them to J.A. Donoghue, director of publications, Flight Safety Foundation, 801 N Fairfax St., Suite 400, Alexandria VA 22314-1774 USA or [donoghue@flightsafety.org](mailto:donoghue@flightsafety.org).