

Alaska Airlines crash: an unsound economy means unsafe skies

by Marcia Merry Baker

The Jan. 31 crash of Alaska Airlines Flight 261, an MD-83 jet (McDonnell Douglas, now owned by Boeing), into the Pacific, near Los Angeles, killing all 88 on board, brings new attention to the increasingly marginal condition of the U.S. commercial airline industry, and of U.S. transportation infrastructure generally. On Feb. 11, the Federal Aviation Administration (FAA) ordered an immediate inspection of nearly 20% of the 5,610 jet aircraft in the U.S. commercial fleet, for damage to the tail section, which was identified as a cause of the Alaska Airlines crash. The inspections found instances of defective mechanisms in use in similar planes examined (MD-80 and MD-90 series, DC-9s, and Boeing 717s).

On Feb. 22, Lufthansa Airlines grounded 26 Boeing 747-400s for inspection, after discovering cracks in copper lines which carry firefighting chemicals to the planes' engines. The aircraft will be grounded until the lines can be replaced, and Lufthansa will also inspect its six 747-200s (the longer-range version of the 747).

Whatever the results of all the studies of the crash of Flight 261, it is clear that the issue is *not* some simple tale of how the individual carrier involved, somehow had old planes or bad pilots.

The Jan. 31 accident occurred with experienced pilots, a modern plane (1992), and good weather, but it shows what can take place amid a general pattern of overloaded, under-capitalized, stressed-out, and profit-first modes of travel and freight transport of all types—rail, highways, waterways, as well as air. Moreover, this condition characterizes all of the U.S. infrastructure base—electricity, flood control, and water supply management, as well as “soft” infrastructure, such as hospitals and public health facilities.

In transportation, the toll of recent years of deregulation, “free-market” cut-throat corporate competition, and cost-cutting, shows up in deteriorating physical systems, falling morale, and slack practices. So, it doesn't take much for a tragedy to occur. From that vantage point, we report below some of the particulars regarding the crash of Flight 261, taking what we know as of mid-February.

But first, consider how the volume of U.S. passenger travel, of “journey-to-work” commuter trips, and of freight transport, has shifted in recent decades away from the most efficient, inexpensive, and safest modes into the most expen-

sive and, for related reasons, dangerous modes. Instead of a modern rail grid, with ultra-high-speed trains or magnetically levitated (maglev) lines between high-traffic points, the United States has seen its rail mileage drastically *reduced* since its peak in the 1920s. Today's passenger traffic is forced onto private vehicles or planes. Interstate bus routes are minimal.

Mass transit in cities has been likewise reduced. The congestion and costs of commuting by private auto are escalating rapidly. One of the worst areas is around the nation's capital, where roads rank as the second most congested in the nation after Los Angeles.

As a consequence of deregulation and related policies, freight hauling has likewise shifted heavily onto truck traffic, and away from rail, barge, and coastal transit. This marks a shift toward systems that are inherently more hazardous and costly. The strains are evident in delays, accidents, and breakdowns.

Each year since 1996, there have been nearly 50 airline accidents in the United States (involving at least one fatality or substantial aircraft damage), according to FAA statistics. In 1995, a U.S. Safety Summit for air travel was convened, and a White House goal was set for a reduction in the rate of accidents by major airlines by 80% by 2008. It is now mandatory for all major air carriers to have a safety official in management.

But, a former safety director of the U.S. Air Force Reserve, Tom Duke, reporting on the rate of accidents in the United States in a “Viewpoint” column in *Aviation Week & Space Technology* on Oct. 25, 1999, said, “Safer skies require a mind-set change.” He was referring to the need for a “free, rapid flow of information, ideas, and solutions for improving accident rates.” The same issue ran a 56-page special report whose contents document the air-travel side of the urgent need to revamp the entire U.S. transportation system.

Air traffic system reaches limits

The Oct. 25 *Aviation Week* cover story was titled “Air Travel in Crisis.” It comprehensively reviewed the current situation in the United States and Europe, and showed the implications of rates of air-traffic growth in different parts of the world, and the danger points. In the United States, many aspects of air travel, from pilot stress to air traffic control to runway overload, are “at the limits.”

It reported that, according to the FAA, “There will be 50.9 million take-offs or landings at towered airports in 1999, and this is projected to rise to 63.9 million by 2010.” The FAA estimates that growth in numbers of passengers over the next 10 years will rise from 643.3 million on U.S. scheduled carriers in 1998, to 931.1 million projected for 2010. But can the air system handle it?

Pilots are speaking out on how the “margin for error” is shrinking as more and more air traffic is packed into already-crowded airspace, and constraints on the ground and back-

up systems intensify. *Aviation Week* quoted Capt. Duane E. Woerth, president of the Air Line Pilots Association which represents 53,000 pilots in the United States and Canada, who warns that the U.S. system “is definitely under stress. First of all, this summer [1999, when air gridlock situations arose] demonstrated the absolute limits of the system. We have hit the wall. There will be no more growth that is efficient and any additional capacity will be inefficient. No more Band-Aids and no more rearranging things will work.” He refers specifically to the air traffic control systems, which urgently need to have resources for upgrading, but also more broadly, to address many other limiting factors.

Some U.S. airports are well beyond their “realistic capacity” for handling current traffic, including Newark, Boston Logan, and Fort Lauderdale, Florida. This is the view, for example, of Capt. Joe Ricciardi, a 737-200 pilot and check airman for a major airline, who told *Aviation Week*, “The FAA has to learn to say ‘no’ to more airplanes at a given airport. At some point departures and arrivals have to be limited.” Ricciardi described how some airports are squeezing every last bit of capacity out of the runways they have, leading to a situation where he might be cleared onto the runway for take-off with incoming traffic less than three miles out for landing. “That never used to happen,” he said.

What these pilots are describing also applies to the pressures involved all along the line, from maintenance and servicing of aircraft and airports, to the original manufacture of the aircraft, and the parts supply industry. The deregulation of airlines, the competition and “Wall Street” methods, have cut staff ratios and other essentials, including R&D and design, to the point of unreliability, low morale, and danger.

Indicative is the unprecedented “white-collar walk-out” at Boeing Aircraft, the world’s largest airplane manufacturer, on Feb. 9 in Seattle. Some 17-18,000 members of the Society of Professional Engineering Employees in Aerospace remain on strike. They are the majority of the company’s 22,000 union-represented engineers and technical workers. Among other tasks, these workers perform testing functions, oversee certain quality reviews, and re-design ill-fitting parts. They report that they cannot do their job under their present working conditions.

Alaska Air Flight 261

This is the backdrop to the Alaska Airlines Flight 261 tragedy. The probe of the crash is focussed on a defective jackscrew in the stabilizer mechanism of the tail section, which was reported by the crew to be jammed into a position that pushed the aircraft downward. The pilots tried working with the problem, and planned to make an emergency landing in Los Angeles, when the plane went into a near-vertical dive of 17,000 feet in one minute, and hit the ocean. The tail section wreckage was retrieved, and the jackscrew was clearly confirmed to be faulty. (The jackscrew is a long, grooved rod that moves the stabilizer up and down).

Subsequently, two other Alaska Airlines planes were found to have tail section flaws. On Feb. 11, the FAA ordered an immediate (visual) inspection, to be done within three days, of the tail section mechanisms of the entire national inventory of single-aisle planes built by McDonnell Douglas (MD-80s and MD-90s), DC-9s, Boeing 717s, and other similar craft—a total of 1,101 in the United States. This did not technically ground the fleet, but such an order is rare, and limited to situations in which the FAA sees a danger to safety.

The FAA order also called for mechanical tests to be done within 30 days, to measure the amount of “play” in the mechanism (motors rotate the jackscrew through a nut assembly), to see if it performed within tolerance limits. Many airlines scheduled both tests at once, to save time. (The FAA also reduced the time between “play” tests, from eight months, down to three months.)

By Feb. 14, the FAA-ordered visual inspection was complete. The FAA said that two planes, one at Delta Air Lines and one at AirTran (formerly known as ValuJet), had failed a test that measures wear in the jackscrew.

Overall results, according to Feb. 15 press reports of FAA preliminary findings, showed that while 935 inspections revealed no problems, and another 141 inspections were not yet final, 25 inspections uncovered “positive” conditions that had to be fixed. These conditions showed varying kinds of problems with the horizontal stabilizer mechanism, the jackscrew, and nut, ranging from grit, to improper lubrication, to metal shavings. (No details on potential correlated patterns of aircraft age, flight mileage, or parts-replacement records have been released to the public.)

The jackscrew mechanisms removed from the Delta and other aircraft were sent to the National Transportation Safety Board for analysis. On Feb. 15, the NTSB began on-site contact with the Santa Ana, California factory that has been the sole supplier of original and replacement jackscrews to commercial aircraft for the past five years.

Beyond this, the many apparently “open” questions on Flight 261 are still being debated by experts and non-experts alike—e.g., should the crew have tried an emergency landing sooner, or, were the maintenance practices of Alaska Airlines shoddy, or, is the jackscrew inherently faulty.

Coincidentally, court papers were released in February on a debate over similar questions in the 1994 crash of U.S. Air Flight 427. The issue is a rudder jam, and crew response; 127 people were killed in the crash, which occurred near Pittsburgh. In this case, Boeing, the maker of the twin-engine 737 jetliner, and U.S. Air are contesting responsibility, and providing lengthy counter-arguments, data, and expert testimony.

What is incontestable, is that the U.S. air system functions as safely and well as it does, in large part due only to the skill and commitment of pilots and others. But all these factors are at their limits, where it “doesn’t take much” for a tragedy to occur.