

Commercial Jet Hull Losses, Fatalities Rose Sharply in 2005

The year's numbers, including more than a fourfold increase in fatalities, showed why the industry's excellent record overall should not breed complacency.

BY RICK DARBY

By relative standards, 2005 was not a good year for the worldwide commercial jet fleet¹ in terms of hull-loss and fatal accidents, according to data compiled by Boeing Commercial Airplanes in its annual statistical summary.²

Last year's hull losses totaled 22, compared with 14 in 2004, and the 49 accidents last year were responsible for 805 fatalities — almost 4.5 times the 180 in 2004 (Table 1, page 52). The summary did not calculate year-over-year changes in rates, but showed 19.2 million departures in 2005, an increase of about 10 percent from the 17.5 million in 2004.

Thirty-one of the total 49 accidents, or 63 percent, occurred in either the approach or landing phase of flight. Of the 805 fatalities, accidents during approach or landing accounted for 260, or 32 percent. The Boeing report varies slightly from the Flight Safety Foundation analysis of the 2005 record, due to the inclusion of several accidents the Foundation believed were not operational hull losses (*Aviation Safety World*, July 2006, page 17). Boeing counted a taxiway collision as two accidents.

In the 10-year period 1996–2005, there were 5,957 accidents. In the 10-year period 1995–2004, the equivalent number was 5,612.

Scheduled passenger operations had lower rates of hull-loss and fatal accidents in the 1996–2005 period than other types of operations, such as unscheduled passenger, charter and cargo flights (Figure 1).

Analysis of the primary cause of accidents in the same period, as determined by the investigating authorities, shows that 55 percent of accidents with known causes were attributed to the flight crew, followed by the airplane, at 17 percent (Figure 2, page 53).

Fatal accidents from 1987 through 2005 were analyzed according to the Commercial Aviation Safety Team/International Civil Aviation Organization taxonomy (Figure 3, page 53). Of 237 total fatal accidents, those with the largest number of on-board fatalities were classified

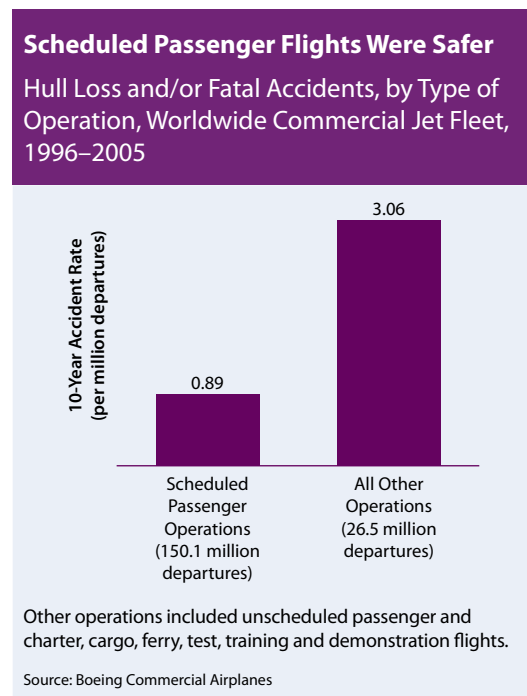


Figure 1

2005 Accidents

Airplane Accidents, Worldwide Commercial Jet Fleet, 2005

Date	Airline	Airplane Type	Accident Location	Hull Loss	Fatalities	Phase	Description
Jan. 3	Asia Airlines	737-200	Banda Aceh, Indonesia	X		Landing	Airplane struck water buffalo
Jan. 8	Aero Republica	MD-80	Cali, Colombia	X		Landing	Landing overrun
Jan. 12	Myanmar Airways	F28	Myeik, Myanmar (Burma)			Landing	Nose landing gear collapse
Jan. 18	Novair	A321	Sharm El-Sheikh, Egypt			Landing	Tail strike
Jan. 23	Spanair	MD-80	Asturias, Spain			Landing	Hard landing
Jan. 24	Atlas Air	747	Düsseldorf, Germany	X		Landing	Landing overrun in snowstorm
Jan. 25	Republic of Yugoslavia	F100	Podgorica, Yugoslavia			Landing	Veered off icy runway
Feb. 1	Air France	A319	Paris, France		1	Parked	Cabin attendant fell
Feb. 2	El Al Israel Airlines	747	Tel Aviv, Israel			Takeoff	Thrown tire tread after takeoff
Feb. 3	Kam Air	737	Kabul, Afghanistan	X	104	Approach	Crashed into mountain
Feb. 25	Syrianair	727	Kuwait City, Kuwait			Landing	Runway excursion
March 2	Continental Airlines	777	Newark, New Jersey, U.S.			Takeoff	Tail strike
March 6	Delta Air Lines	757	Boston, Massachusetts, U.S.			Taxi	Flight attendant injured during taxi
March 7	Iraq Ministry of Defense	A310	Tehran, Iran			Landing	Veered off runway
March 19	Ethiopian Airlines	707	Entebbe, Uganda	X		Landing	Landing overrun into lake
April 1	El Al Israel Airlines	737	Tel Aviv, Israel			Parked	Cabin attendant fell
April 7	ICARO	F28	Coca, Ecuador	X		Landing	Hard landing short main landing gear collapse
April 14	Merpati Nusantara Airlines	737	Ujung, Pandang, Indonesia			Landing	Veered off runway
April 20	Iranian Air Force	707	Tehran, Iran	X	3	Landing	Landed short, crashed into lake
May 5	Northwest Airlines	DC-9	Minneapolis, Minnesota, U.S.	X		Parked	Hit by fuel truck while parked
May 10	Northwest Airlines	DC-9	Minneapolis, Minnesota, U.S.	X		Taxi	Aircraft collision during taxi
May 10	Northwest Airlines	A319	Minneapolis, Minnesota, U.S.			Taxi	Aircraft collision during taxi
May 13	Delta Air Lines	MD-80	Denver, Colorado, U.S.			Climb	Air turn back — loss of pressurization
May 13	Lufthansa Cargo	747	Sharjah, United Arab Emirates			Landing	Left main gear partially retracted
May 22	Skyservice Airlines	767	Punta Cana, Dominican Republic			Landing	Hard de-rotation — skin wrinkling
May 26	Alitalia	MD-80	Prague, Czech Republic			Pushback	Failure of nose landing gear
May 31	Adam Air	737	Jakarta Soekarno, Indonesia			Landing	Right main landing gear collapsed
June 7	UPS	MD-11	Louisville, Kentucky, U.S.			Landing	Nose wheel separated
June 12	Chanchangi Airlines	727	Lagos, Nigeria			Landing	Off-runway excursion
June 19	Mahfooz Aviation	707	Addis Ababa, Ethiopia	X		Landing	Hard landing — main landing gear collapse
July 1	Biman Bangladesh Airlines	DC-10	Chittagong, Bangladesh	X		Landing	Veered off runway — main landing gear collapse
Aug. 2	Air France	A340	Toronto, Ontario, Canada	X		Landing	Runway overrun — burned
Aug. 9	Saudia	MD-90	Cairo, Egypt			Landing	Engine fire on landing
Aug. 14	Helios Airways	737	Grammatikos, Greece	X	121	Climb	Flight crew incapacitation
Aug. 16	West Caribbean Airways	MD-82	Machiques, Venezuela	X	160	Cruise	Loss of control
Aug. 19	Northwest Airlines	747	Agana, Guam	X		Landing	Nose landing gear-up landing
Aug. 23	Tans	737	Pucallpa, Peru	X	45	Landing	Crash landed in swamp
Aug. 24	SAS	A340	Shanghai, China			Takeoff	Tail strike on takeoff
Sept. 5	Mandala Airlines	737	Medan, Indonesia	X	145	Takeoff	Crashed during takeoff
Sept. 8	Saudia	747	Colombo, Sri Lanka		1	Taxi	Evacuation fatality and injuries
Sept. 18	Spirit Airlines	A321	Ft. Lauderdale, Florida, U.S.			Landing	Tail strike
Oct. 9	Sahara India Airlines	737	Mumbai, India			Landing	Runway overrun
Oct. 22	Bellview Airlines	737	Lagos, Nigeria	X	117	Climb	Crashed during climb
Oct. 31	MIBA Aviation	727	Kindu, D. R. Congo	X		Landing	Landing overrun
Nov. 14	Asian Spirit	BAe 146	Catarman, Philippines	X		Landing	Runway overrun
Dec. 8	Southwest Airlines	737	Chicago, Illinois, U.S.		1	Landing	Runway overrun
Dec. 10	Sosoliso Airlines	DC-9	Port Harcourt, Nigeria	X	107	Approach	Crashed during go-around
Dec. 14	FedEx	727	Memphis, Tennessee, U.S.			Pushback	Airplane collision with tow tractor
Dec. 23	Koda Air	707	Istanbul, Turkey	X		Parked	Aircraft fire on ground
49	Totals			22	805		

Source: Boeing Commercial Airplanes

Table 1

as controlled flight into terrain (CFIT). CFIT accidents also represented the largest number of fatal accidents, 57.

The category representing the next highest on-board fatality total was loss of control in flight, which comprised 39 accidents. Although there were slightly more fatal accidents — 40 — attributed to abnormal runway contact, the number of on-board fatalities for that category was 124, compared with 3,735 for CFIT and 2,830 for loss of control in flight.

For the second year in a row, there were no hostile events such as sabotage or terrorist acts involving aircraft. For the third consecutive year, there were no fatalities from such events.

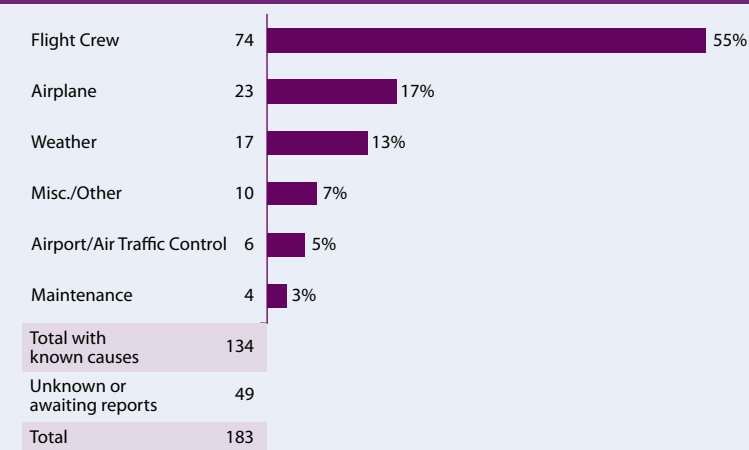
Severe turbulence caused flight attendant injuries in four events; passenger injuries in three events; and both passenger and flight attendant injuries in three events. Four other cases of severe turbulence resulted in no injuries. ●

Notes

1. The data represent commercial jet airplanes worldwide with maximum gross weights more than 60,000 lb/27,000 kg. Commercial airplanes operated in military service and airplanes manufactured in the Soviet Union or the Commonwealth of Independent States were excluded because operational data were unavailable.
2. Aviation Safety, Boeing Commercial Airplanes, P.O. Box 3707, M/S 67-TC, Seattle, WA 98124 USA. As this article was written, the document was not yet posted on the Web, but it was expected to be available at <www.boeing.com/news/techissues>.

Flight Crew Was Primary Cause of Most Accidents

Hull Loss Accidents by Primary Cause, Worldwide Commercial Jet Fleet, 1996–2005



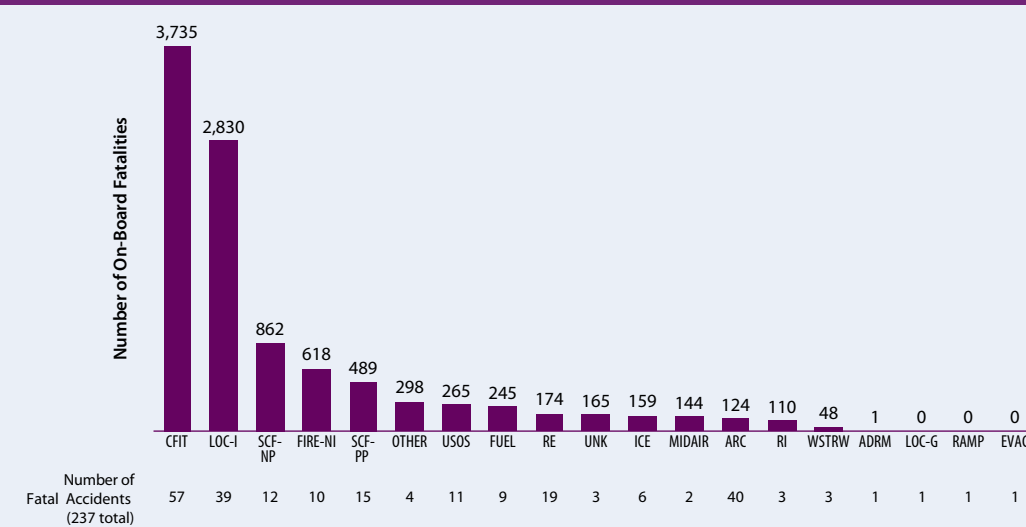
Primary cause is determined by the investigating authority as a percent of accidents with known causes.

Source: Boeing Commercial Airplanes

Figure 2

CFIT Was Deadliest Accident Category

Fatal Accidents by CAST/ICAO Taxonomy Accident Category, Worldwide Commercial Jet Fleet, 1987–2005



CAST = Commercial Aviation Safety Team ICAO = International Civil Aviation Organization

CAST/ICAO accident categories are as follows: ARC = abnormal runway contact; ADRM = aerodrome; CFIT = controlled flight into terrain or toward terrain; EVAC = evacuation; FIRE-NI = fire/smoke (non-impact); FUEL = fuel-related; ICE = icing; LOC-G = loss of control — ground; LOC-I = loss of control — in flight; MIDAIR = midair/near-midair collision; OTHER = other; RAMP = ground handling; RE = runway excursion; RI = runway incursion; SCF-NP = system/component failure or malfunction (non-powerplant); SCF-PP = system/component failure or malfunction (powerplant); USOS = undershoot/overshoot; UNK = unknown or undetermined; WSTRW = wind shear or thunderstorm.

Source: Boeing Commercial Airplanes

Figure 3