

# A Favorable Trend Continues

**U.S. FARs Part 121 accident rates decreased in 2007 for the second year in a row.**

BY RICK DARBY

Despite recent concerns in the U.S. Congress over the safety of U.S. airlines, and a flurry of Federal Aviation Administration audits to assuage those concerns, the preliminary accident statistics for 2007 from the National Transportation Safety Board suggest that air travel in the United States is no less safe than in recent years, and in most respects, the long-term trend improved.<sup>1</sup>

U.S. air carriers operating under Federal Aviation Regulations (FARs) Part 121, *Operating Requirements: Domestic, Flag, and Supplemental Operations*, were involved in 0.009 fatal accidents per 100,000 departures in 2007, counting both scheduled and nonscheduled service. In a statistical oddity, that was exactly half the 2006 rate, 0.018, and exactly one-third the 2005 rate, 0.027.

All accidents, fatal and nonfatal, in that operational category occurred at a rate of

0.239 per 100,000 departures, a 22 percent decline from 0.305 in 2006 and the lowest rate in the 1998–2007 period. The one 2007 fatal accident and its one fatality — a maintenance technician — compared with annual averages of 1.8 and 21.6, respectively, in the previous five years.<sup>2</sup>

U.S. air carriers operating under FARs Part 135, *Operating Requirements: Commuter and On Demand Operations*, showed little change in commuter accident rates, while on-demand operation accident rates increased. For both, the rates were below the average for the previous nine years.

The overall statistics (Table 1) show a familiar pattern. Scheduled air carriers operating under Part 121 (aircraft with more than 10 passenger seats) had a rate of 0.224 accidents per 100,000 departures, 57 percent less than the 0.526 for commuter operators under Part 135. There were no fatal accidents in Part 121

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### Accidents, Fatalities and Rates, U.S. Air Carriers, 2007

	Accidents		Fatalities		Flight hours	Departures	Accidents per 100,000 Flight Hours		Accidents per 100,000 Departures	
	All	Fatal	Total	Aboard			All	Fatal	All	Fatal
U.S. air carriers operating under FARs Part 121										
Scheduled	24	0	0	0	18,700,000	10,720,000	0.128	—	0.224	—
Nonscheduled	2	1	1	1	605,000	180,000	0.331	0.165	1.111	—
U.S. air carriers operating under FARs Part 135										
Commuter	3	0	0	0	302,000	570,000	0.993	—	0.526	—
On-demand	62	14	43	43	3,668,000	—	1.69	0.38	—	—
U.S. general aviation	1,631	284	491	486	23,835,000	—	6.84	1.19	—	—
Other accidents in the U.S.										
Non-U.S.-registered	11	1	3	3						
Unregistered aircraft	14	6	7	7						

FARs = U.S. Federal Aviation Regulations

Notes: All data are preliminary.

Departure information for Part 135 on-demand operations is not available. U.S. air carriers operating under Part 135 previously called scheduled and nonscheduled are now identified as commuter and on-demand, respectively.

Source: U.S. National Transportation Safety Board

Table 1

### Accidents, Fatalities and Rates, U.S. Air Carriers, FARs Part 121, Scheduled Operations, 1998–2007

Year	Accidents		Fatalities		Flight Hours	Miles Flown	Departures	Accidents per 100,000 Flight Hours		Accidents per 1,000,000 Miles Flown		Accidents per 100,000 Departures	
	All	Fatal	Total	Aboard				All	Fatal	All	Fatal	All	Fatal
1998	41	1	1	0	15,921,447	6,343,690,000	10,535,196	0.258	0.006	0.0065	0.0002	0.389	0.009
1999	40	2	12	11	16,693,365	6,689,327,000	10,860,692	0.24	0.012	0.006	0.0003	0.368	0.018
2000	49	2	89	89	17,478,519	7,152,260,000	11,053,826	0.28	0.011	0.0069	0.0003	0.443	0.018
2001	41	6	531	525	17,157,858	6,994,939,000	10,632,880	0.216	0.012	0.0053	0.0003	0.348	0.019
2002	34	0	0	0	16,718,781	6,927,954,000	10,276,107	0.203	—	0.0049	—	0.331	—
2003	51	2	22	21	16,887,756	7,015,935,000	10,227,924	0.302	0.012	0.0073	0.0003	0.499	0.02
2004	23	1	13	13	18,184,016	7,604,248,000	10,782,989	0.126	0.005	0.003	0.0001	0.213	0.009
2005	33	3	22	20	18,712,191	7,843,717,000	10,910,460	0.176	0.016	0.0042	0.0004	0.302	0.027
2006	26	2	50	49	18,647,896	7,851,864,000	10,627,481	0.139	0.011	0.0033	0.0003	0.245	0.019
2007	24	0	0	0	18,700,000	7,860,000,000	10,720,000	0.128	—	0.0031	—	0.224	—

FARs = U.S. Federal Aviation Regulations

Notes: The 2007 data are preliminary.

For 2001, the totals for accidents and fatalities include those resulting from the terrorist attacks of Sept. 11. Only on-board fatalities are counted. The accident rate computations do not include the Sept. 11 attacks.

Source: U.S. National Transportation Safety Board

Table 2

**Passenger Injuries and Injury Rates, U.S. Air Carriers, FARs Part 121, 1998–2007**

Year	Passenger Fatalities	Passenger Serious Injuries	Total Passenger Enplanements (millions)	Million Passenger Enplanements per Passenger Fatality
1998	0	12	650	No fatalities
1999	10	46	676	67.6
2000	83	11	701	8.4
2001	483	7	629	1.3
2002	0	11	619	No fatalities
2003	19	10	654	34.4
2004	11	3	711	64.6
2005	18	2	743	41.3
2006	47	4	747	15.9
2007	0	3	766	No fatalities

FARs = U.S. Federal Aviation Regulations

Notes: The 2007 data are preliminary.

For 2001, the total for passenger fatalities includes those resulting from the terrorist attacks of Sept. 11.

Aircraft with 10 or more seats in scheduled passenger service are operated under Part 121.

Source: U.S. National Transportation Safety Board

**Table 3**

scheduled operations. In Part 121 nonscheduled operations, the one fatal accident involved a maintenance technician ingested into an engine while working on a Boeing 737.

Table 2 (p. 49) shows accidents, fatalities and rates for Part 121 scheduled operations from 1998 through 2007.<sup>3</sup> Accidents per 100,000 departures declined 9 percent, from 0.245 to 0.224, the second lowest rate in the 10-year period. Compared with 2003, which had the highest rate during the period at 0.499, the decrease was 55 percent. Only 2004 had a lower rate, 0.213. The 2007 rate was 36 percent lower than the average for the previous nine years.

The number of accidents, 24, was also the second lowest in the period. Last year was one of two in the past 10 years with no fatal accidents.

Nonscheduled operations comprise a small portion of Part 121 flights — less than 2 percent in 2007. Their accident rate was 1.111 per 100,000 departures, about five times the rate

**Accidents, Fatalities and Rates, U.S. Air Carriers, FARs Part 135, Commuter Operations, 1998–2007**

Year	Accidents		Fatalities		Flight Hours	Miles Flown	Departures	Accidents per 100,000 Flight Hours		Accidents per 1,000,000 Miles Flown		Accidents per 100,000 Departures	
	All	Fatal	Total	Aboard				All	Fatal	All	Fatal	All	Fatal
1998	8	0	0	0	353,670	50,773,000	707,071	2.262	—	0.1576	—	1.131	—
1999	13	5	12	12	342,731	52,403,000	672,278	3.793	1.459	0.2481	0.0954	1.934	0.744
2000	12	1	5	5	369,535	44,943,000	603,659	3.247	0.271	0.2670	0.0223	1.988	0.166
2001	7	2	13	13	300,432	43,099,000	558,052	2.330	0.666	0.1624	0.0464	1.254	0.358
2002	7	0	0	0	273,559	41,633,000	513,452	2.559	—	0.1681	—	1.363	—
2003	2	1	2	2	319,206	47,404,000	572,260	0.627	0.313	0.0422	0.0211	0.349	0.175
2004	4	0	0	0	302,218	46,809,000	538,077	1.324	—	0.0855	—	0.743	—
2005	6	0	0	0	299,775	45,721,000	527,267	2.002	—	0.1312	—	1.138	—
2006	3	1	2	2	301,495	46,503,000	568,464	0.995	0.332	0.0645	0.0215	0.528	0.176
2007	3	0	0	0	302,000	46,600,000	570,000	0.993	—	0.0644	—	0.526	—

FARs = U.S. Federal Aviation Regulations

Notes: The 2007 data are preliminary.

Based on a February 2002 U.S. Federal Aviation Administration legal interpretation provided to the National Transportation Safety Board, any FARs Part 135 operation conducted with no revenue passengers aboard is considered a nonscheduled flight operation. This interpretation has been applied to accidents beginning in the year 2002. It has not been retroactively applied to accidents during the period 1998–2001.

U.S. air carriers operating under Part 135 previously called scheduled and nonscheduled are now identified as commuter and on-demand, respectively.

Source: U.S. National Transportation Safety Board

**Table 4**

for scheduled operations. The nonscheduled operations included the one fatal accident, the first since 2004 and one of five in the 10-year period.

There were three serious passenger injuries for all Part 121 operations in 2007, compared with an annual average of 11.8 in the 1998–2006 period (Table 3).

Commuter operations had roughly the same accident rate in 2007 as in 2006 (Table 4). The rate of 0.526 per 100,000 departures was 2.3 times that for Part 121 scheduled operations. There were no fatal accidents in the Part 135 commuter category.

Part 135 on-demand operations (Table 5) resulted in 1.69 accidents per 100,000 flight hours, up from 1.42 in 2006.<sup>4</sup> The 2007 rate was, however, lower than the average of 2.05 for 1998 through 2006. There were 43 on-board fatalities, compared with 16 in each of the two previous years. The fatal accident rate also rose in 2007 to 0.38 from 0.27 the previous year; that, too, was lower than the average of 0.50 for the previous nine years.

The NTSB classifies accidents as major, serious, injury and damage.<sup>5</sup> In 2007, there were no major accidents for the first time since 1998. There were two serious accidents, the same number as in 2006; 14 injury accidents, double the number in 2006; and 10 damage accidents, compared with 22 in 2006. ●

**Notes**

1. The data are available on the NTSB Web site at <www.nts.gov/aviation/Stats.htm>.
2. Although most data in this article are concerned with the 1998–2007 period, ASW has calculated the average of fatalities beginning in 2002 because the NTSB includes the Sept. 11, 2001, terrorist acts in the accident and fatality totals for that year.
3. The 2006 preliminary data (ASW, 7/07, p. 50) have since been slightly adjusted. Those for 2007 are also subject to possible revision.

**Accidents, Fatalities and Rates, U.S. Air Carriers, FARs Part 135, On-Demand Operations, 1998–2007**

Year	Accidents		Fatalities		Flight Hours	Accidents per 100,000 Flight Hours	
	All	Fatal	Total	Aboard		All	Fatal
1998	77	17	45	41	3,802,000	2.03	0.45
1999	74	12	38	38	3,204,000	2.31	0.37
2000	80	22	71	68	3,930,000	2.04	0.56
2001	72	18	60	59	2,997,000	2.40	0.60
2002	60	18	35	35	2,911,000	2.06	0.62
2003	73	18	42	40	2,927,000	2.49	0.61
2004	66	23	64	63	3,238,000	2.04	0.71
2005	65	11	18	16	3,815,000	1.70	0.29
2006	53	10	16	16	3,742,000	1.42	0.27
2007	62	14	43	43	3,668,000	1.69	0.38

FARs = U.S. Federal Aviation Regulations

Notes: The 2007 data are preliminary.

In 2002, the U.S. Federal Aviation Administration (FAA) changed its estimate of on-demand activity. The revision was retroactively applied to the years 1992 to present. In 2003, the FAA again revised flight activity estimates for 1999–2002.

U.S. air carriers operating under Part 135 previously called scheduled and nonscheduled are now identified as commuter and on-demand, respectively. Part 135 on-demand operations encompass charters, air taxis, air tours and medical service when a patient is aboard.

Source: U.S. National Transportation Safety Board

**Table 5**

4. Numbers of departures for Part 135 on-demand operations are not available.
5. A *major* accident is one in which any of three conditions is met: (1) a Part 121 aircraft was destroyed, or (2) there were multiple fatalities or (3) there was one fatality and a Part 121 aircraft was substantially damaged.

A *serious* accident is one in which at least one of two conditions is met: (1) there was one fatality without substantial damage to a Part 121 aircraft, or (2) there was at least one serious injury and a Part 121 aircraft was substantially damaged.

An *injury* accident is a nonfatal accident with at least one serious injury and without substantial damage to a Part 121 aircraft.

A *damage* accident is one in which no one was killed or seriously injured, but in which any aircraft was substantially damaged.