

Safety on Demand

U.S. Part 135 on-demand operations in 2006 had fewer accidents and fatalities, and lower accident rates, than in any previous year going back to 1997.

BY RICK DARBY

In 2006, U.S. air carriers and other companies operating under Federal Aviation Regulations (FARs) Part 135, *Operating Requirements: Commuter and On Demand Operations*, had, as usual, higher accident rates than those operating scheduled service under Part 121, *Operating Requirements: Domestic, Flag, and Supplemental Operations*. However, the on-demand (air taxi) segment

— based on accidents per 100,000 flight hours — showed its lowest rate in the 1997–2006 period. The data, preliminary for 2006, were published by the U.S. National Transportation Safety Board.¹

Scheduled air carriers operating under FARs Part 121 had an accident rate of 0.223 per 100,000 departures, compared with 0.599 for scheduled (commuter) air carriers operating under FARs Part 135

(Table 1). There was a similar difference in fatal accident rates, 0.018 versus 0.200 respectively. Departure information was not available for on-demand Part 135 operations, but in accidents per 100,000 flight hours, rates were higher than for scheduled Part 121 operations for all accidents and fatal accidents.

The Part 121 measure of million enplanements per passenger fatality was

Accidents, Fatalities and Rates, U.S. Air Carriers, 2006

	Accidents		Fatalities		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	25	2	50	49	0.132	0.011	0.223	0.018
Nonscheduled	6	0	0	0	0.909	—	2.857	—
U.S. Air Carriers Operating Under FARs Part 135								
Commuter	3	1	2	2	1.071	0.357	0.599	0.200
On-Demand	54	10	16	16	1.500	0.280	—	—
Other Accidents in the United States								
Non-U.S.-Registered Aircraft	9	3	5	5				
U.S.-Registered Aircraft Operated by Non-U.S. Air Carriers	—	—	—	—				
U.S.-Registered Aircraft Operated Abroad by Non-U.S. Air Carriers	1	0	0	0				

FARs = U.S. Federal Aviation Regulations

Notes: All data are preliminary.

Departure information for on-demand Part 135 operations is not available.

U.S. air carriers operating under FARs Part 135 were previously called scheduled and nonscheduled services. The table identifies them as commuter operations and on-demand operations, respectively, to be consistent with definitions in FARs Part 119.3 and terminology in Part 135.1. On-demand Part 135 operations encompass charters, air taxis, air tours or medical service when a patient is aboard.

Source: U.S. National Transportation Safety Board

Table 1

16.0 million in 2006, compared with 41.3 million in 2005 (Table 2; the lower the number, the worse the rate). Passenger fatalities more than doubled, and passenger serious injuries doubled, between 2005 and 2006.

Nevertheless, the rate of Part 121 accidents defined by the NTSB as major² decreased in terms of accidents per million flight hours, to 0.051, versus 0.103 in 2005. The major accident rate was the lowest since 1998. Serious,³ injury⁴ and damage⁵ accident rates also improved year-over-year.

Scheduled operations, which include a large majority of flights conducted under Part 121, resulted in fewer accidents but more fatalities in 2006 (Table 3). The rates for all accidents and fatal accidents, whether measured by accidents per 100,000 flight hours, per million miles flown or per 100,000 departures, all registered improvement in 2006. The fatal accident rate, 0.018 per 100,000 departures, was virtually the same as the 1997–2005 average of 0.017. The rate for all accidents per 100,000 departures, 0.223, was tied with 2004 as the best in any year of the period and was lower than the 1997–2005 average of 0.374.

The fatal accident rate of 0.200 per 100,000 departures for commuter operations under Part 135 (Table 4, p. 52) matched the 1997–2005 average, although the average included a large degree of variation. The rate for all accidents, 0.599 per 100,000 departures, was lower than any year of the period except 2003.

Part 135 on-demand operations involved 0.28 fatal accidents per 100,000 flight hours (Table 5, p. 52; departure information was not available). That compared with 0.29 in 2005 and was the lowest rate

Passenger Injuries and Injury Rates, U.S. Air Carriers Operating Under FARs Part 121, 1997–2006

Year	Passenger Fatalities	Passenger Serious Injuries	Million Passenger Enplanements per Passenger Fatality
1997	2	21	324.0
1998	0	12	No Fatalities
1999	10	46	67.6
2000	83	11	8.4
2001	483	7	1.3
2002	0	11	No Fatalities
2003	19	10	34.4
2004	11	3	64.6
2005	18	2	41.3
2006	47	4	16.0

FARs = U.S. Federal Aviation Regulations

Notes: The 2006 data are preliminary.

Injuries exclude flight crew and cabin crew.

Since March 20, 1997, aircraft with 10 or more seats used in scheduled passenger service have been operated under FARs Part 121.

Source: U.S. National Transportation Safety Board

Table 2

Accidents, Fatalities and Rates, U.S. Air Carriers Operating Under FARs Part 121, Scheduled Operations, 1997–2006

Year	Accidents		Fatalities		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
1997	43	3	3	2	0.285	0.020	0.0068	0.0005	0.433	0.030
1998	42	1	1	0	0.264	0.006	0.0066	0.0002	0.399	0.009
1999	40	2	12	11	0.240	0.012	0.0060	0.0003	0.368	0.018
2000	49	2	89	89	0.280	0.011	0.0069	0.0003	0.443	0.018
2001*	41	6	531	525	0.216	0.012	0.0053	0.0003	0.348	0.019
2002	35	0	0	0	0.209	—	0.0051	—	0.341	—
2003	51	2	22	21	0.302	0.012	0.0073	0.0003	0.499	0.020
2004	24	1	13	13	0.132	0.005	0.0032	0.0001	0.223	0.009
2005	34	3	22	20	0.182	0.016	0.0043	0.0004	0.312	0.027
2006	25	2	50	49	0.132	0.011	0.0031	0.0003	0.223	0.018

FARS = U.S. Federal Aviation Regulations

Notes: The 2006 data are preliminary.

Since March 20, 1997, aircraft with 10 or more seats used in scheduled passenger service have been operated under FARs Part 121.

In years marked with an asterisk (*), an illegal act was responsible for an occurrence in this category. These acts, such as suicide and sabotage, are included in the totals for accidents and fatalities but are excluded for accident rate computation. Other than the people aboard aircraft who were killed, fatalities resulting from the Sept. 11, 2001, terrorist acts are excluded.

Source: U.S. National Transportation Safety Board

Table 3

Accidents, Fatalities and Rates, U.S. Air Carriers Operating Under FARs Part 135, Commuter Operations, 1997–2006

Year	Accidents		Fatalities		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
1997	16	5	46	46	1.628	0.509	0.0650	0.0203	1.148	0.359
1998	8	0	0	0	2.262	—	0.1576	—	1.131	—
1999	13	5	12	12	3.793	1.459	0.2481	0.0954	1.934	0.744
2000	12	1	5	5	3.247	0.271	0.2670	0.0223	1.988	0.166
2001	7	2	13	13	2.330	0.666	0.1624	0.0464	1.254	0.358
2002	7	0	0	0	2.559	—	0.1681	—	1.363	—
2003	2	1	2	2	0.627	0.313	0.0422	0.0211	0.349	0.175
2004	4	0	0	0	1.324	—	0.0855	—	0.743	—
2005	6	0	0	0	2.034	—	0.1312	—	1.138	—
2006	3	1	2	2	1.071	0.357	0.0668	0.0223	0.599	0.200

FARs = U.S. Federal Aviation Regulations

Notes: The 2006 data are preliminary.

Since March 20, 1997, aircraft with 10 or more seats used in scheduled passenger service have been operated under FARs Part 121.

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 1997–2001.

U.S. air carriers operating under FARs Part 135 were previously called scheduled and nonscheduled services. Table 4 and Table 5 identify them as commuter operations and on-demand operations, respectively, to be consistent with definitions in FARs Part 119.3 and terminology in Part 135.1.

Source: U.S. National Transportation Safety Board

Table 4

Accidents, Fatalities and Rates, U.S. Air Carriers Operating Under FARs Part 135, On-Demand Operations, 1997–2006

Year	Accidents		Fatalities		Accidents per 100,000 Flight Hours	
	All	Fatal	Total	Aboard	All	Fatal
1997	82	15	39	39	2.65	0.48
1998	77	17	45	41	2.03	0.45
1999	74	12	38	38	2.31	0.37
2000	80	22	71	68	2.04	0.56
2001	72	18	60	59	2.40	0.60
2002	60	18	35	35	2.06	0.62
2003	73	18	42	40	2.49	0.61
2004	66	23	64	63	2.04	0.71
2005	66	11	18	16	1.73	0.29
2006	54	10	16	16	1.50	0.28

FARs = U.S. Federal Aviation Regulations

Notes: The 2006 data are preliminary.

Miles flown and departure information for Part 135 on-demand operations are not available.

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 FARs Part 135 were previously called scheduled and nonscheduled services. Table 4 and Table 5 identify them as commuter operations and on-demand operations, respectively, to be consistent with definitions in FARs Part 119.3 and terminology in Part 135.1. On-demand Part 135 operations encompass charters, air taxis, air tours or medical service when a patient is aboard.

Source: U.S. National Transportation Safety Board

Table 5

in the 1997–2005 period, in which the average was 0.52 per 100,000 flight hours. The rate for all accidents, 1.50 per 100,000 flight hours, was also lower than the 1997–2005 average of 2.19. ●

Notes

1. The data can be accessed via the Internet at <www.ntsb.gov/aviation/Stats.htm>.
2. According to U.S. National Transportation Safety Board (NTSB) classifications, a *major* accident is one meeting any of three conditions: A Part 121 aircraft was destroyed, or there were multiple fatalities, or there was one fatality and a Part 121 aircraft was substantially damaged.
3. A *serious* accident is one meeting at least one of two conditions: There was one fatality without substantial damage to a Part 121 aircraft, or there was at least one serious injury and a Part 121 aircraft was substantially damaged.
4. An *injury* accident is a nonfatal accident with at least one serious injury and without substantial damage to a Part 121 aircraft.
5. A *damage* accident is one in which no one was killed or seriously injured, but in which any aircraft was substantially damaged.