

Accidents in On-Demand Operations Cloud

2008 U.S. Safety Data

The accident rate for scheduled Part 121 flights continued to improve.

BY RICK DARBY

For the second year in succession, U.S. air carriers operating under Federal Aviation Regulations (FARs) Part 121 had no fatal accidents in 2008, and their accident rate decreased from 2007. But U.S. carriers operating under FARs Part 135 as on-demand — air taxi — flights had more fatal accidents and a higher fatal accident rate in 2008 compared with 2007, according to preliminary statistics from the U.S. National Transportation Safety Board (NTSB).¹

The accident rate for scheduled Part 121 carriers was 0.189 per 100,000 departures for 2008, with a total of 20 accidents (Table 1). That compared with a rate of 1.205 per 100,000 departures for Part 135 scheduled service — commuter operations — which was 6.4 times higher.

In all Part 121 operations, there were three accidents in 2008 classified

as “major” by the NTSB, following a year with none (Table 2).² For

the previous nine years, the average number of major accidents was 2.3.

Accidents, Fatalities and Rates, U.S. Civil Aviation, 2008

	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	20	0	0	0	0.107	—	0.189	—
Nonscheduled	8	2	3	1	1.288	0.322	4.211	1.053
U.S. air carriers operating under FARs Part 135								
Commuter	7	0	0	0	2.410	—	1.205	—
On-demand	56	19	66	66	1.52	0.52	—	—
U.S. civil aviation								
Non-U.S.-registered aircraft	6	4	7	7	—	—	—	—

FARs = U.S. Federal Aviation Regulations

Notes: All data are preliminary. Departure information for on-demand Part 135 operations is not available. Air carriers operating under Part 135 were formerly called scheduled and nonscheduled services. They are currently called commuter operations and on-demand operations, respectively. On-demand Part 135 operations encompass charters, air taxis, air tours or medical services when a patient is aboard.

Source: U.S. National Transportation Safety Board

Table 1

The 2008 rate of major accidents per million flight hours, 0.155, compared with an average of 0.122 for the previous nine years. The number of Part 121 “injury” accidents declined to eight from 14 in 2007, lower than the 1999–2007 average of 16 and one-third of the highest number recorded in the previous nine years.³

Part 121 operations resulted in five passenger serious injuries in 2008, compared with an average of 10.8 in the previous nine years.

The accident rate for Part 121 carriers in scheduled service was lower in 2008 than in 2007, whether considered in terms of accidents per 100,000 departures, per 100,000 flight hours or per million miles flown (Table 3). The rate based on departures, 0.189, compared with an average of 0.335 for the previous nine years and was lower than in any of those years. The highest rates by these

measures occurred in 2003 — at 0.499, 0.302 and 0.0073, respectively.

In nonscheduled Part 121 operations, the 2008 accident rate rose to 4.211 per 100,000 departures (Table 4), the highest of the 10-year period. There were eight accidents, two of them involving a combined total of three fatalities.

Part 135 carriers operating scheduled service had no fatal accidents in 2008 for the second year in a row, although the rate of accidents per 100,000 departures rose year-over-year from 0.506 to 1.205 (Table 5, p. 52). The 2008 rate compared with an average of 1.089 for the previous nine years.

It was not the best of times for Part 135 on-demand operations in 2008 (Table 6, page 52), which include air charters, air tours and helicopter emergency medical services. The number of fatal accidents rose from 14 in 2007 to 19, compared with an average of 16.2 for the

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Accidents and Accident Rates, by NTSB Classification, FARs Part 121, 1999–2008

Year	Accidents				Accidents per Million Flight Hours			
	Major	Serious	Injury	Damage	Major	Serious	Injury	Damage
1999	2	2	20	27	0.114	0.114	1.139	1.538
2000	3	3	20	20	0.109	0.109	1.093	1.475
2001	5	1	19	21	0.281	0.056	1.067	1.179
2002	1	1	14	25	0.058	0.058	0.810	1.446
2003	2	3	24	25	0.114	0.172	1.374	1.431
2004	4	0	15	11	0.212	0.000	0.794	0.583
2005	2	3	11	24	0.103	0.155	0.567	1.238
2006	2	2	7	22	0.104	0.104	0.363	1.142
2007	0	2	14	12	0.000	0.103	0.720	0.617
2008	3	1	8	16	0.155	0.052	0.413	0.827

FARs = U.S. Federal Aviation Regulations; NTSB = U.S. National Transportation Safety Board

Notes: NTSB classifications are as follows:

Major — An accident in which any of three conditions is met: A Part 121 aircraft was destroyed, or there were multiple fatalities, or there was one fatality and a Part 121 aircraft was substantially damaged. Serious — An accident in which at least one of two conditions is met: 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. Injury — A nonfatal accident with at least one serious injury and without substantial damage to a Part 121 aircraft. Damage — An accident in which no person was killed or seriously injured, but in which any aircraft was substantially damaged.

Source: U.S. National Transportation Safety Board

Table 2

Accidents, Fatalities and Rates, FARs Part 121, Scheduled Service, 1999–2008

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
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	34	0	0	0	0.203	—	0.0049	—	0.331	—
2003	51	2	22	21	0.302	0.012	0.0073	0.0003	0.499	0.020
2004	23	1	13	13	0.126	0.005	0.0030	0.0001	0.213	0.009
2005	34	3	22	20	0.182	0.016	0.0043	0.0004	0.312	0.027
2006	27	2	50	49	0.145	0.011	0.0034	0.0003	0.254	0.019
2007	26	0	0	0	0.138	—	0.0033	—	0.245	—
2008	20	0	0	0	0.107	—	0.0025	—	0.189	—

FARs = U.S. Federal Aviation Regulations

Notes: 2008 data are preliminary. Aircraft with 10 or more seats used in scheduled passenger service are operated under Part 121. Other than the persons aboard aircraft who were killed, fatalities resulting from the Sept. 11, 2001, terrorist act are excluded.

Source: U.S. National Transportation Safety Board

Table 3

Accidents, Fatalities and Rates, FARs Part 121, Nonscheduled Service, 1999–2008

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
1999	11	0	0	0	1.276	—	0.0267	—	2.435	—
2000	7	1	3	3	0.853	0.122	0.0188	0.0027	1.689	0.241
2001	5	0	0	0	0.762	—	0.0167	—	1.553	—
2002	7	0	0	0	1.225	—	0.0265	—	3.012	—
2003	3	0	0	0	0.517	—	0.0113	—	1.462	—
2004	7	1	1	1	1.002	0.143	0.0215	0.0031	2.915	0.416
2005	6	0	0	0	0.885	—	0.0186	—	2.728	—
2006	6	0	0	0	0.975	—	0.0209	—	3.102	—
2007	2	1	1	1	0.321	0.161	0.0069	0.0034	1.030	0.515
2008	8	2	3	1	1.288	0.322	0.0275	0.0069	4.211	1.053

Notes: 2008 data are preliminary.

Source: U.S. National Transportation Safety Board

Table 4

Accidents, Fatalities and Rates, FARs Part 135, Commuter Operations, 1999–2008

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
1999	13	5	12	12	3.793	1.459	0.2481	0.0954	1.934	0.744
2000	12	1	5	5	3.247	0.217	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	2.002	—	0.1312	—	1.138	—
2006	3	1	2	2	0.995	0.332	0.0645	0.0215	0.528	0.176
2007	3	0	0	0	1.028	—	0.0651	—	0.506	—
2008	7	0	0	0	2.410	—	0.1525	—	1.205	—

Notes: 2008 data are preliminary. Air carriers operating under Part 135 were formerly called scheduled and nonscheduled services. They are currently called commuter operations and on-demand operations, respectively.

Source: U.S. National Transportation Safety Board

Table 5

Accidents, Fatalities and Rates, FARs Part 135, On-Demand Operations, 1999–2008

Year	Accidents		Fatalities		Accidents per 100,000 Flight Hours	
	All	Fatal	Total	Aboard	All	Fatal
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	65	11	18	16	1.70	0.29
2006	52	10	16	16	1.39	0.27
2007	62	14	43	43	1.54	0.35
2008	56	19	66	66	1.52	0.52

Notes: 2008 data are preliminary. Air carriers operating under Part 135 were formerly called scheduled and nonscheduled services. They are currently called commuter operations and on-demand operations, respectively. On-demand Part 135 operations encompass charters, air taxis, air tours or medical services when a patient is aboard.

Source: U.S. National Transportation Safety Board

Table 6

1999–2007 period. There was little change in the accident rate, but the fatal accident rate of 0.52 per 100,000 flight hours in 2008 was a 48.57

percent increase over the 0.35 in 2007, compared with an average of 0.49 for the nine years before 2008.

Unlike Part 135 commuter operations, the Part 135 on-demand operations rates are based on flight hours estimated by the U.S. Federal Aviation Administration, less precise and which safety professionals regard as perhaps less meaningful than the Part 121 rates based on numbers of departures. On-demand flights are usually of short duration, so accidents have a relatively large effect on rates. But year-to-year comparisons of accidents against flight hours are valid. 🌀

Notes

1. The NTSB accident statistics are available via the Internet at <www.nts.gov/aviation/Stats.htm>.
2. A major accident is one in which 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. An injury accident is a nonfatal accident with at least one serious injury and without substantial damage to a Part 121 aircraft.