U.S. Air Carrier Operations
Calendar Year 2000

Annual Review of Aircraft Accident Data

NTSB/ARC-04/01

PB2004-106609
Notation 7502A

National Transportation Safety Board
Washington, D.C.

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Adopted June 17, 2004

National Transportation Safety Board
490 L'Enfant Plaza, S.W.
Washington, D.C. 20594

National Transportation Safety Board. 2004. *U.S. Air Carrier Operations, Calendar Year 2000*. Annual Review of Aircraft Accident Data NTSB/ARC-04/01. Washington, D.C.

Abstract: The National Transportation Safety Board's Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations is a statistical review of U.S. commercial aviation accidents that occurred in calendar year 2000. In addition to accident statistics, the review provides general economic and aviation industry indicators that may have influenced aircraft activity during the year. Accident data for the 9 years preceding calendar year 2000 provide an historical context.

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Introduction

Purpose of the *Annual Review*

The National Transportation Safety Board's *Annual Review of Aircraft Accident Data: U.S. Air Carrier Operations* is a statistical review of U.S. commercial aviation accidents that occurred in calendar year 2000. In addition to accident statistics, the review provides general economic and aviation industry indicators that may have influenced aircraft activity during the year. Accident data for the 9 years preceding calendar year 2000 provide an historical context.

Which Aircraft Are Included in this Review?

This review covers accidents involving aircraft operated by U.S. air carriers under Title 14,[1] Parts 121 and 135, of the *Code of Federal Regulations* (CFR). Air carriers are generally defined as operators that fly aircraft in revenue service. Part 121 operations must adhere to specific requirements that address routes, airports, aircraft maintenance, and crew performance. These requirements limit Part 121 operations to controlled airspace and to controlled airports that are characterized by specific weather, navigational, operational, and maintenance support. Part 135 operations must adhere to similar requirements (with some notable differences with respect to aircraft and airport characteristics and to crew training and experience). However, Part 135 operations are allowed to service routes to smaller airports that do not have the weather, communications, and navigational capabilities required of the larger airports serving Part 121 operations. This typically means that Part 121 applies to major airlines and cargo carriers that fly large transport-category aircraft while Part 135 applies to commercial air carriers flying smaller jet and turboprop aircraft commonly referred to as commuter airlines (that is, scheduled Part 135) and air taxis (that is, on-demand Part 135).

In March 1997, the regulations defining Part 121 operations changed to include scheduled aircraft with more than 10 seats. Previously, scheduled aircraft with fewer than 30 passenger seats were operated under Part 135. As a result, after 1997, most carriers that once were popularly known as "commuters" began operating as Part 121 flights.

In this review, data for scheduled and on-demand Part 135 operations are presented separately to reflect their distinctly different operating characteristics. According to 14 CFR Part 119.3, a *scheduled* operation is defined as any "passenger-carrying operation for compensation or hire conducted by an air carrier or commercial operator for which the certificate holder or its representative

[1] Title 14 is also known as the *Federal Aviation Regulations* (FAR).

offers in advance the departure location, departure time, and arrival location." Scheduled Part 135 operations represent a small segment of scheduled air carrier operations and accounted for less than 2.0% of the total air carrier flight hours in 2000.

By contrast, an *on-demand* operation is defined as any operation for compensation or hire for which the departure location, departure time, and arrival location are negotiated with the customer. Customers can arrange to charter an entire aircraft or book a single seat on an air taxi. According to the Federal Aviation Administration (FAA), about 3,000 on-demand Part 135 operators fly about 2,500 airplanes and 500 helicopters.[2] Historically, on-demand Part 135 operations represent about half of the air carrier fleet and account for about 15% of total air carrier flight hours.

Its *on-demand* nature is the important characteristic of this type of operation. On-demand Part 135 operators offer charter or air taxi flights on a flexible schedule carrying passengers or cargo (and in some cases both) to a variety of airports that are not usually serviced by scheduled airlines.[3] An on-demand operation can serve corporate customers who need a flexible schedule but who do not wish to support their own corporate flight department.

Besides the regulatory differences, scheduled and on-demand Part 135 carriers differ operationally. For example, scheduled Part 135 carriers typically fly aircraft with single/twin turbine engines or single/twin piston engines, are more likely to fly short routes, and are concentrated for the most part in Alaska. By contrast, on-demand Part 135 operations vary widely, are evenly distributed throughout the United States, and include both short and long routes that serve the specific needs of charter and air taxi customers. On-demand Part 135 aircraft range from single-engine piston aircraft to large corporate jets that are typically smaller than those used in Part 121 operations.

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[2] Accurate data for on-demand Part 135 operators and aircraft are difficult to obtain. The figures cited in the *Annual Review* are from the U.S. Department of Transportation, FAA, *Chartering an Aircraft: A Consumer Guide* (Washington, DC: FAA Office of Public Affairs). The 2000 *General Aviation and Air Taxi Activity (GAATA) Survey*, however, shows a total of 4,000 air taxi and air tour aircraft (not separated into airplanes and helicopters) in Table GA 00 1-3.

[3] FARs restrict on-demand Part 135 operations to passenger-carrying operations conducted as a public charter; scheduled passenger-carrying operations of less than five round trips per week on at least one route between two or more points according to the published flight schedules; and all-cargo operations conducted with airplanes having a payload capacity of 7,500 pounds or less, or with rotorcraft. A final rule change to the FARs effective November 17, 2003 (*Federal Register,* Vol. 68, No. 180, September 17, 2003, pp. 54520-54588), concerning fractional ownership programs (which heretofore operated under Part 91) may significantly affect on-demand Part 135 operations. The rule change may require some fractional ownership programs to operate as if they were certified as on-demand Part 135.

Unlike scheduled and on-demand Part 135 operations, the operating rules for scheduled and nonscheduled Part 121 operators are the same for the most part. In addition, although all Part 121 operations are required to report activity data on a regular basis, on-demand Part 135 operators are not, as explained in the *Historical Trends and Current Accident Data* section. Therefore, data for scheduled and nonscheduled Part 121 operations are discussed together while data for scheduled and on-demand Part 135 operations are discussed separately.

Which Aircraft Are Not Included in this Review?

This review does not discuss aircraft operations that are not covered by 14 CFR Parts 121 and 135, including the following:

- General aviation aircraft[4]
- Military aircraft
- Foreign-operated aircraft
- Certain public use aircraft
- Ultralight vehicles
- Experimental aircraft
- Commercial space launches

Organization of the *Annual Review*

The *2000 Annual Review* is organized as follows:

- an overview of the accidents in 2000 discussed within the context of previous years' accident trends and aviation activity;
- 10-year summaries for Part 121, scheduled Part 135, and on-demand Part 135 aircraft accidents addressing such factors as types of flight, levels of aircraft damage, and levels of human injury; and
- an in-depth analysis of accidents that occurred in 2000.

[4] A separate review, published annually by the Safety Board, summarizes accident statistics for these aircraft.

Much of the information in the *Annual Review* is presented in graphs and tables. Readers who prefer to view tabular data or who want to manipulate the data used in the report may access the data set online at www.ntsb.gov/aviation/Stats.htm.

The Safety Board's Investigative Process

The Safety Board investigates every civil aviation accident that occurs in the United States. It also provides investigators to serve as U.S. Accredited Representatives, as specified in international treaties and agreements, for aviation accidents that occur overseas and that involve aircraft registered in the U.S., aircraft operated by U.S. air carriers, or aircraft or major components of U.S. design or manufacture.[5] Investigations are conducted by Safety Board Headquarters staff based in Washington, D.C., or by staff based in one of the regional offices (see Appendix A).

Note that although the Safety Board investigates all civil aviation accidents that occur on U.S. soil (including those involving domestic and foreign operators), the *Annual Review* describes accidents that occur among U.S.-operated aircraft in all parts of the world.

The Safety Board's Aviation Accident/Incident Database

The Safety Board maintains the Accident/Incident Database, the government's official repository of aviation accident data and causal factors for civil aviation accidents. The database was established in 1962 by the Safety Board's predecessor agency, the Civil Aeronautics Board, and about 2,000 new event records are added each year. The record for each aviation accident contains data about the aircraft, environment, injuries, sequence of accident events, and other topics. The database is available to the public at <ftp://www.ntsb.gov/avdata/>. A database query tool is also available at www.ntsb.gov/ntsb/query.asp#query_start to search for sets of accidents using such information as date, location, and category of aircraft.

[5] For more detailed information about the criteria for Safety Board investigation of an aviation accident or incident, see 49 CFR 831.2.

The Safety Board's database is primarily composed of aircraft accidents. An "accident" is defined in 49 CFR Part 830.2 as—

> an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death[6] or serious injury,[7] or in which the aircraft receives substantial damage.[8]

The database also contains fields for documenting an aviation "incident," defined in 49 CFR Part 830.2 as "an occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations."

During an investigation, Safety Board investigators collect information from a variety of sources, including the aircraft crew, the FAA, manufacturers, and witnesses. Investigators use the Board's Accident Data Management System (ADMS) to document those data in the Accident/Incident Database. The database contains five types of data:

- factual information that documents the accident situation;
- occurrence codes to document *what* happened during the accident;
- phase-of-flight codes to designate *when* each occurrence took place;
- explanatory causes, factors, and findings to identify the cause-and-effect relationships that help explain *why* the accident happened; and
- narrative data that describes the accident in natural language and states the probable cause of the accident.

[6] "Fatal injury" means any injury that results in death within 30 days of the accident.

[7] "Serious injury" means any injury that: (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

[8] "Substantial damage" means damage or failure that adversely affects the structural strength, performance, or flight characteristics of the aircraft, and that would normally require major repair or replacement of the affected component. None of the following is considered "substantial damage": engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips.

Each type of data is briefly described below.

Factual Information. Investigators enter information into the database that describes the accident aircraft, crew and passengers, and accident environment. These data typically include aircraft type, make and model, aviation-related demography of flight and cabin crew, weather conditions, and accident site details, including wreckage information.

Occurrence Data. The circumstances of an accident are documented in the Safety Board's accident report as accident "occurrences" within a "sequence of events." As stated above, occurrence data indicate *what* happened during the accident. A total of 54 occurrence codes[9] are available to describe the events for any given accident. Because aviation accidents are rarely limited to a single event, each accident is coded as a sequence (that is, occurrence 1, occurrence 2, etc.), with as many as five different occurrence codes. For accidents that involve more than one aircraft, the list of occurrences may be unique to each aircraft.

Occurrence data do not include any information about why an accident may have happened; the first occurrence can instead be considered the first observable link in the accident chain of events. First occurrence data are used with phase-of-flight data to characterize the initiating event in an accident sequence.

Phase-of-Flight Data. Investigators use phase-of-flight codes to describe *when* an occurrence takes place in the chronology of accident events. These 50 distinct codes are classified into six major categories describing typical flight operations: takeoff or climb, approach or landing, maneuvering or hovering, cruise or descent, standing, and taxiing. Each category contains more specific detail about that phase of flight; for example, the category "standing" includes standing with engines operating, standing with engines not operating, and standing while starting engines.

Findings, Factors, and Probable Cause Data. In addition to coding accident occurrences and phase-of-flight data, the Safety Board determines probable cause. The objective of this determination is to discern the cause-and-effect relationships in the accident sequence. This could be described as *why* the accident happened. In determining probable cause, the Safety Board considers all facts, conditions, and circumstances associated with the accident. Within each accident occurrence, any information that contributes to the Board's determination of probable cause is identified as a "finding" and may be further designated as either a "cause" or "factor." The term "factor" is used to describe situations or circumstances that contribute to the accident cause. The details of probable cause are coded as the combination of all causes, factors, and findings

[9] Two of the codes, "missing aircraft" and "undetermined," do not represent operational events.

associated with the accident. Just as accidents often include a series of events, several causes and factors can contribute to the reason why an accident occurred. For this reason, a single accident report can include multiple cause and factor codes. Hundreds of unique codes are available to document probable cause information. These codes have been grouped into three broad cause/factor categories: aircraft, environment, and personnel.

Narrative Data. Natural language textual descriptions corresponding to the factual and analytical information described above are also maintained in the database and can be retrieved with other specific information about the accident. The factual information in the narrative corresponds to the factual data that are encoded in the database. Similarly, the analytical portion of the narrative corresponds to the probable cause, occurrence codes, phase-of-flight codes, and causes, factors, and findings as encoded in the database.

Narrative data are entered into the database incrementally. Shortly after completing the on-scene investigation, investigators enter a preliminary factual report into the database. This preliminary report contains limited information about the accident or incident, such as date, location, aircraft operator, and type of aircraft. Once investigators have finished gathering and compiling information, they submit a factual report. After the investigation is complete, a final report is issued, which may include an analysis of the factual information, statement of probable cause and other contributing factors, and, if appropriate, a list of recommendations. For major accident investigations, the probable cause is approved by the five Members of the Safety Board; for general aviation accident investigations, approval authority may be delegated to the Director of Aviation Safety. Information about the accident and the investigation is available to the public after approval by the Safety Board or their designees.

HISTORICAL TRENDS AND CURRENT ACCIDENT DATA

This section presents an overview of accident data for the years 1991 through 2000 as a context for considering year 2000 accident data in more detail. The discussion begins by focusing on key measures for determining aircraft flight activity and then discusses the number of accidents, accident rates, and broad causes and factors for each operational category over the 10-year period.

AIRCRAFT FLIGHT ACTIVITY

The *2000 Annual Review* presents accident data in two ways: by the number of accidents and by accident rate. For Part 121 and scheduled Part 135 operations, accident rates are calculated using three flight activity measures: flight hours, departures, and miles flown. As mentioned previously, all Part 121 and scheduled Part 135 carriers are required by regulation to report revenue flight activity[10] data to the Department of Transportation,[11] while on-demand Part 135 carriers are not. As a result, accident data in the *2000 Annual Review*—and the method used to calculate accident rates—differ depending on the type of operation.

Part 121 and scheduled Part 135 flight activity data, including flight hours, number of departures, and miles, are maintained by the Bureau of Transportation Statistics (BTS). These data are aggregated by the FAA's Systems Process Audit staff (AFS-40) to produce annual reports of flight activity. The flight activity measures are based on a full census of the active Part 121 and scheduled Part 135 fleet.

In contrast, flight activity data for Part 135 operations are estimated using the voluntary *General Aviation and Air Taxi Activity Survey* (*GAATA Survey*), which is compiled annually by the FAA. The *GAATA Survey* was established in 1978 to gather a sampling of information from owners of general aviation and on-demand Part 135 aircraft. The information includes flight hours, avionics, base location, and use, but it does not include miles flown or departures. To conduct the survey, the FAA selects registered aircraft from its Civil Aviation Registry using a stratification procedure based on aircraft type and geographic region. In 2000, on-demand Part 135 aircraft accounted for less than 2% of the fleet targeted by the *GAATA Survey*, and the overall survey response rate was only 52.5%.[12] Note that

[10] Activity data include revenue aircraft hours, revenue aircraft departures, revenue aircraft miles flown, and several others.

[11] Part 121 operators report activity monthly using Traffic Reporting System Form 41, Schedules T-100 and T-100(f), and Scheduled Part 135 Operators report quarterly using BTS Form 298-C, Schedules A-1 and T-1.

[12] There were 3,686 air taxis and 331 air tours in 2000 according to the *GAATA Survey*, Calendar Year 2000, Table 1.1, <http://api.hq.faa.gov/Gasurvey/index.htm>.

the small proportion of on-demand Part 135 aircraft in the survey, combined with low survey response rates, and the fact that the survey goes to aircraft owners rather than operators, results in an imprecise activity estimate.

Once the *GAATA* data are compiled, the FAA estimates flight hours, which the Safety Board includes in the annual reviews. Prior to 2002, the FAA estimated flight hours based strictly on survey data. In 2002, the FAA changed its estimation method and revised its flight-hour estimates for on-demand Part 135 operations for the years 1992-2000. The revised activity estimate uses calculations that are based on the number of aircraft assumed to operate on-demand operations (from the FAA's Vital Information Subsystem[13]), and the average number of flight hours reported on the *GAATA Survey*. As a result, FAA's flight-hour estimates for on-demand Part 135 flight operations are substantially higher than they would be using the previous method. For example, before the FAA changed its estimating method, the flight-hour estimate for 2000 would have been 2,430,000; using the revised method, it is 3,552,881, an estimate that is 46.2% higher. This change in estimated flight activity results in a consistently lower accident rate calculation for the years 1992-2000. The change is so dramatic that the Safety Board maintains on its Web site[14] a comparison of flight-hour estimates for each year using both estimating methods. The *Annual Review* uses the revised activity measures for on-demand Part 135 operations.

The only flight activity measure common to Part 121, scheduled Part 135, and on-demand Part 135 operations is flight hours. Although the number of departures is available for Part 121 and scheduled Part 135 operations, the flight-hour-per-departure rates for those operations differ greatly. Accordingly, the *2000 Annual Review* calculates accident rates for Part 121 and scheduled Part 135 operations using the number of flight hours and departures. The number of departures or miles flown is not available for on-demand Part 135 operations and cannot therefore be used to calculate rates for those operations.

Prior to the *1998 Annual Review*, activity rates were presented in units of hundred-thousands for flight hours and departures and in millions for miles flown. Because of an increase in activity and a decrease in accident numbers, and to facilitate interpretation of rate data, the *Annual Review* now presents aircraft activity data in units of millions for flight hours and departures and billions for miles flown; accident rates are calculated using flight hours and number of departures only.[15] Any comparisons with Safety Board data published before the *1998 Annual Review* should account for this change.

[13] The Vital Information Subsystem (VIS) is an FAA database used to track commercial and government operations certificates.

[14] See table 9a at www.ntsb.gov/aviation/Table9a.htm.

[15] From BTS, *2002 National Transportation Statistics* (BTS-02-08): Table 2-9 for Part 121 Operations, Table 2-10 for Scheduled Part 135 Operations, and Table 2-13 for On-Demand Part 135 Operations.

UNITED STATES COMMERCIAL AIRCRAFT ACCIDENTS, 1991 - 2000

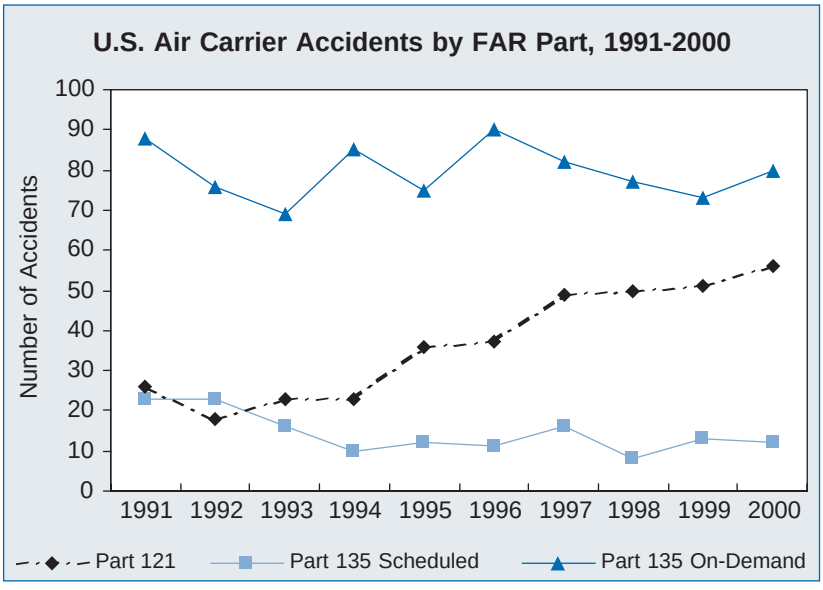
In 2000, a total of 148 accidents occurred among U.S. air carriers. Of these, Part 121 operations accounted for 56 accidents, scheduled Part 135 operations for 12, and on-demand Part 135 operations for 80 (table 1). The accident rate (per million flight hours) in 2000 for Part 121 was the lowest of the three types of air carriers, with the scheduled Part 135 rate nearly 10 times greater than the rate for Part 121.

Table 1

Accidents and Accident Rates for 2000		
	Number of Accidents	Accidents Per Million Flight Hours
Part 121	56	3.06
Scheduled Part 135	12	32.47
On-Demand Part 135	80	22.50

Historically, the number of Part 121 accidents steadily increased from 1994 through 2000 while the number of scheduled and on-demand Part 135 accidents decreased overall (figure 1). Part of the increase in Part 121 accidents in 1997 was due to the reclassification of some scheduled Part 135 operations to Part 121 in that year, as previously discussed. As a group, however, Part 135 operations accounted for consistently more accidents than did Part 121.

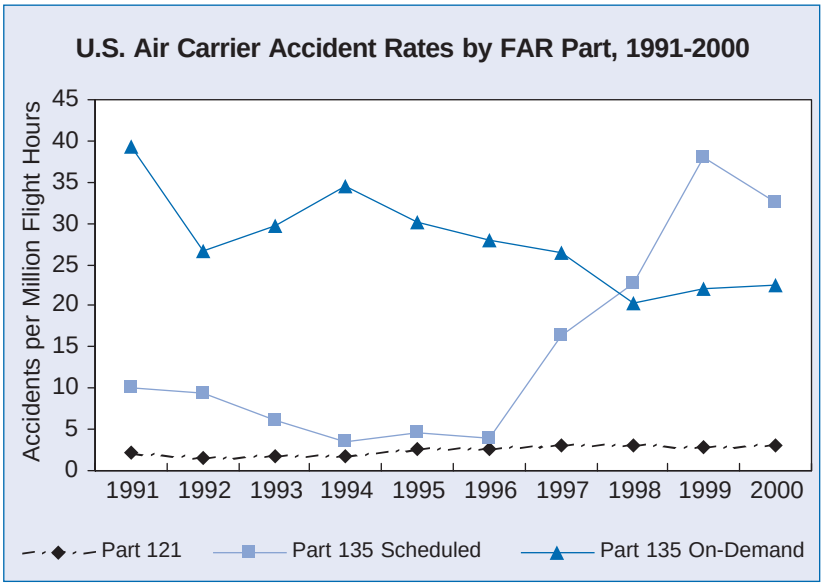
Figure 1



Although the number of accidents increased, the accident rate for Part 121 accidents remained relatively constant from 1991 through 2000 (figure 2). However, rates for scheduled Part 135 operations increased substantially between 1996 and 1997, due to the Part 121/135 reclassification. Continued increases

in the scheduled Part 135 accident rate after 1997 appear to be due to a relatively constant number of accidents per year associated with a corresponding decline in flight hours for that air carrier segment. The data show that the reclassification did not adversely affect the accident rate for Part 121 operations. On-demand Part 135 accident rates decreased overall after 1994 although the rate remained relatively constant for the years 1998, 1999, and 2000.

Figure 2



As shown in figure 3, accident rate calculations were affected by different activity measures although the pattern that emerged was generally the same regardless of which measure was used. After the Part 121/135 reclassification in 1997, the rates per million flight hours and per million departures diverged notably, with scheduled Part 135 rates increasing while Part 121 rates remained relatively constant. However, the divergence was larger when flight hours were used to calculate the rates, possibly because the aircraft remaining in Part 135 after the reclassification flew shorter trips than those that were moved to Part 121. Accident rates for the Part 121 group did not show a similar change after the reclassification.

Figure 3

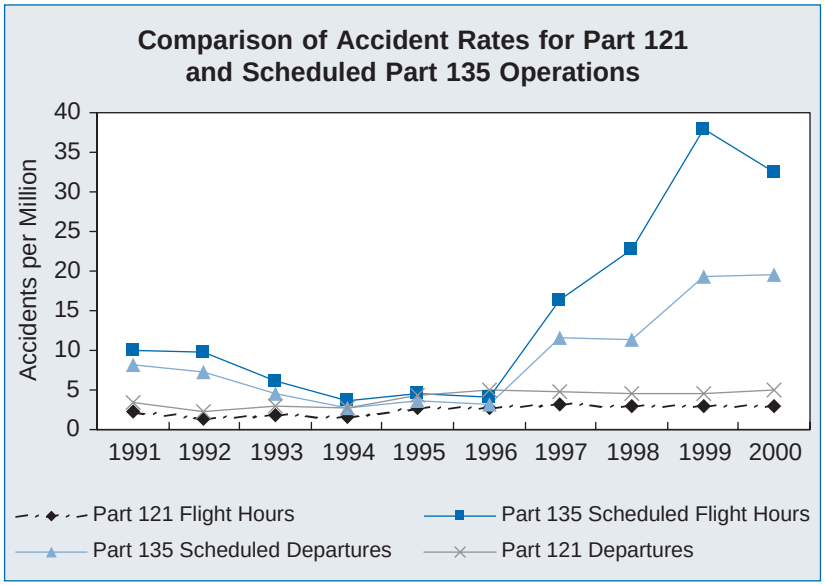
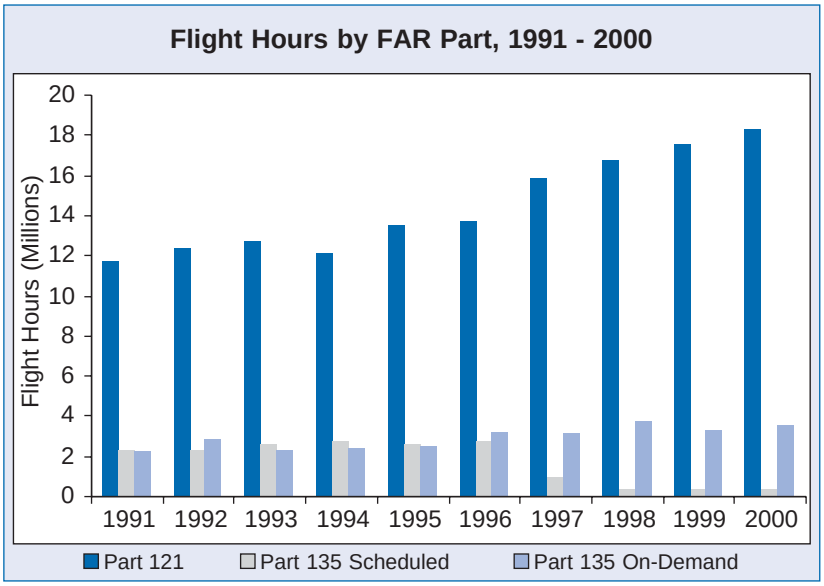


Figure 4 compares flight hours for Part 121, scheduled Part 135, and on-demand Part 135 operations; figures 5 and 6 compare data for departures and miles flown for Part 121 and scheduled Part 135 operations.[16] All Part 121 aviation activity indicators increased over the 10-year period, with a record number of flight hours, departures, and miles flown in 2000. The notable increases for Part 121 operations that began in 1997 can most likely be attributed to the Part 121/135 reclassification. Similarly, all activity indicators for scheduled Part 135 aircraft decreased substantially after 1996 and remained relatively constant from 1998 through 2000.

Figure 4



[16] As previously mentioned, estimated flight hours are the only flight activity measure available for on-demand Part 135 operations. These estimates are based on *GAATA Survey* data. Note that the FAA's 2002 change in estimating method significantly increased flight hour estimates for on-demand Part 135 operations for the years 1992 – 2000. The flight hours reported in this annual review for on-demand Part 135 operations are based on the revised estimates.

Figure 5

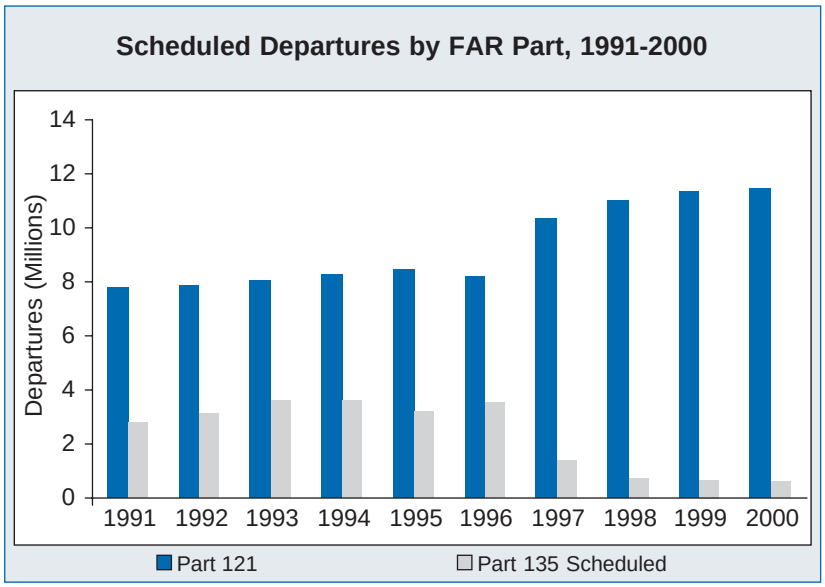
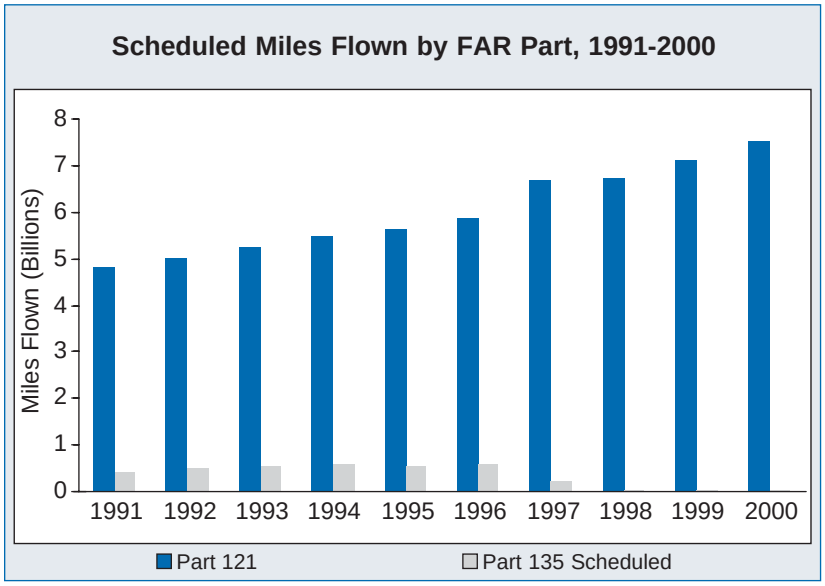


Figure 6



PART 121 OPERATIONS: 10-YEAR SUMMARY

SAFETY BOARD SEVERITY CLASSIFICATION OF PART 121 ACCIDENTS

Since 1997, the Safety Board has used a classification system for Part 121 and other air carrier accidents based on accident severity. Developed in response to a congressional requirement,[17] the system uses classifications that characterize both injury and damage.

DEFINITIONS OF SAFETY BOARD SEVERITY CLASSIFICATIONS FOR PART 121 ACCIDENTS

Major - an accident in which any of three conditions is met:

- 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.

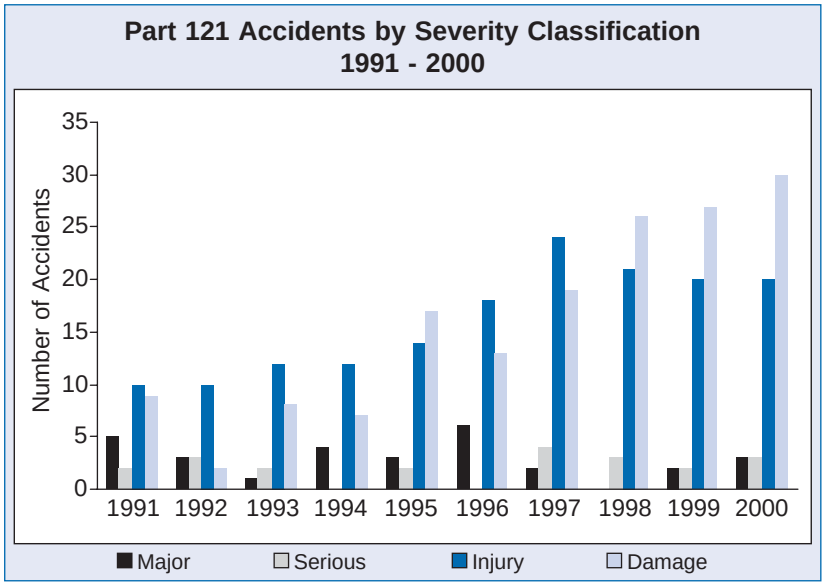
[17] The classification system was introduced in 1997 as a requirement of the FAA Reauthorization Act of 1996 (and put into effect by Public Law 104-264, Sec. 407; amendment to *United States Code* Title 49, Subtitle II, Chapter 11, Section 1119) for the Safety Board to provide "clearer descriptions of accidents associated with air transportation, including a more refined classification of accidents which involve fatalities, injuries, or substantial damage and which are only related to the operation of an aircraft." Prior to 1997, the severity of an accident was characterized either in terms of injuries (fatal, serious, minor, or none) or aircraft damage (destroyed, substantial, minor, or none).

PART 121 ACCIDENTS BY SEVERITY CLASSIFICATION

Figure 7 shows the number of Part 121 accidents by severity classification, and figures 8 and 9 show the accident rate by severity classification, calculated using flight hours (figure 8) and departures (figure 9). In 2000, 57 aircraft were involved in 56 Part 121 accidents,[18] and the accident rate was 3.06 accidents per million flight hours. From 1991 to 2000, both the number and rate of Part 121 accidents increased overall; the number of accidents about doubled, and the rates increased by about half. In addition, the number of Part 121 accidents increased markedly in 1997, in part due to the Part 121/135 reclassification that year. Since 1982, all of the aircraft involved in Part 121 accidents have been airplanes.

The number of major and serious accidents and the rates of those accidents remained relatively constant from 1997 to 2000. Much of the increase in the number of accidents and overall accident rates that did occur was caused by increases in the number of lower severity (i.e., lower injury-level and lower damage-level) accidents, as shown in figure 7.

Figure 7



[18] A collision between aircraft is counted as one accident in this review. One such collision between two Part 121 aircraft occurred in 2000.

Figure 8

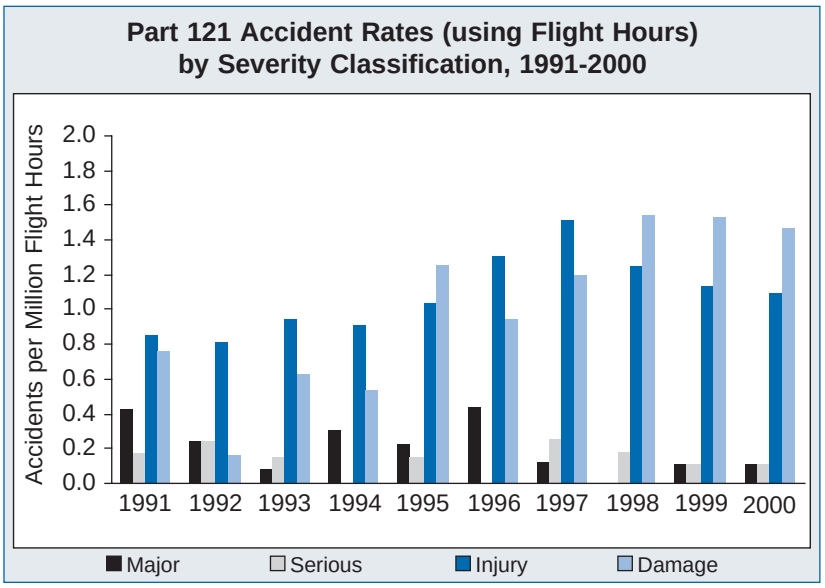
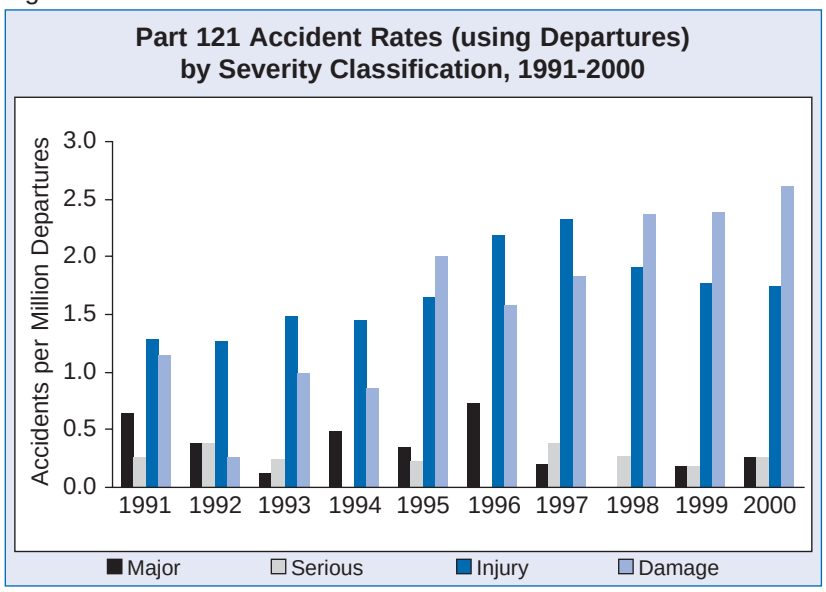


Figure 9

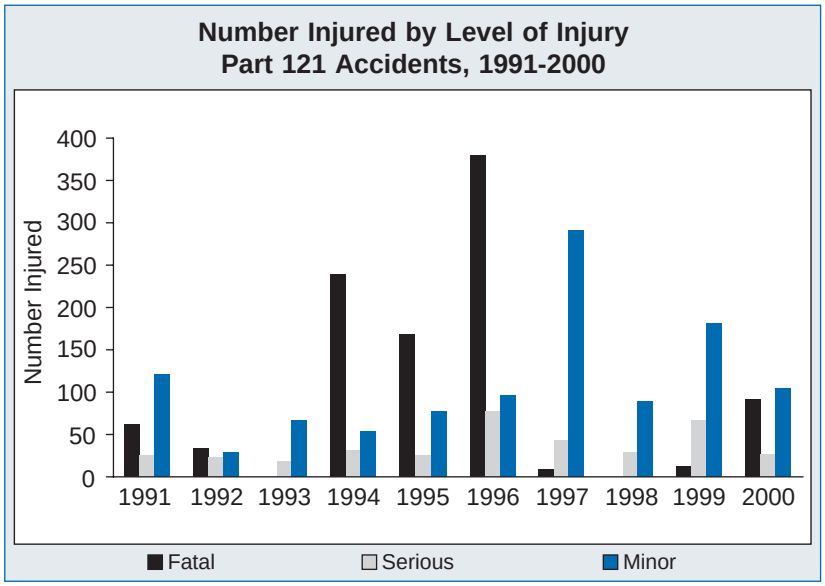


The number of people injured annually in Part 121 accidents can be dramatically affected by a few major accidents in a given year. For instance, figure 10 shows that a large number of fatalities (787 total) occurred in 1994, 1995, and 1996; almost all of these (700) can be attributed to 5 of the 96 accidents that occurred during those years.[19] In general, however, the proportion of people injured in

[19] The five accidents were USAir Flight 427 on September 8, 1994, resulting in 132 fatalities; American Eagle Flight 4184 on October 31, 1994, resulting in 68 fatalities; American Airlines Flight 965 on December 20, 1995, resulting in 160 fatalities; ValuJet Flight 592 on May 11, 1996, resulting in 110 fatalities; and TWA Flight 800 on July 17, 1996, resulting in 230 fatalities.

Part 121 accidents during the 10-year period was small.[20] Of the more than 629 million passengers who boarded Part 121 flights at United States airports in 2000, less than 1 in 133,000 passengers was involved in an accident. Of the 4,165 passengers who were aboard accident aircraft, only 169 sustained injuries; 83 of those injuries were fatal, 9 were serious, and 77 were minor.[21] Although more injuries occurred in 2000 than in 1999, the number was smaller than in preceding years.

Figure 10



As might be expected, most of the fatal accidents from 1991 through 2000 occurred when the aircraft was destroyed (table 2). Note, however, that fatalities sometimes occurred even when damage to the aircraft was minor or nonexistent. This was also the case for serious injuries, where 87% of the accidents resulting in serious injuries were accidents that caused either minor or no damage to the aircraft (table 3). However, the survivability of more serious accidents can be quite good; 83% of the accidents producing minor injuries and 93% of the accidents resulting in no injuries were associated with substantially damaged aircraft (tables 4 and 5). The number of accidents where the aircraft was substantially damaged but the accident resulted in no injuries increased after 1994.

[20] National Transportation Safety Board Safety Report NTSB/SR-0101, *Survivability of Accidents Involving Part 121 U.S. Air Carrier Operations, 1983 through 2000"* (Washington, DC: NTSB, 2001).

[21] See table 8, which also provides figures for flight crew, cabin crew, and ground personnel.

Table 2

Part 121 Fatal Accidents for Each Level of Damage, 1991-2000				
	Destroyed	Substantial	Minor	None
1991	3		1	
1992	2		1	1
1993			1	
1994	3	1		
1995	3			
1996	4	1		
1997	1		1	2
1998			1	
1999	1		1	
2000	2		1	
Total	19	2	7	3

Table 3

Part 121 Serious-Injury Accidents for Each Level of Damage, 1991-2000				
	Destroyed	Substantial	Minor	None
1991		1	1	9
1992	1	1		10
1993	1	1	1	11
1994			3	9
1995		2		14
1996			5	13
1997		1	5	19
1998		2	6	15
1999		1	2	18
2000		2	3	17
Total	2	11	26	135

Table 4

Part 121 Minor-Injury Accidents for Each Level of Damage, 1991-2000				
	Destroyed	**Substantial**	**Minor**	**None**
1991	1	1		
1992				
1993		1	1	
1994		3		
1995		1		
1996	1	5		
1997	1	6		
1998		7		
1999	1			
2000	1	6		
Total	5	30	1	0

Table 5

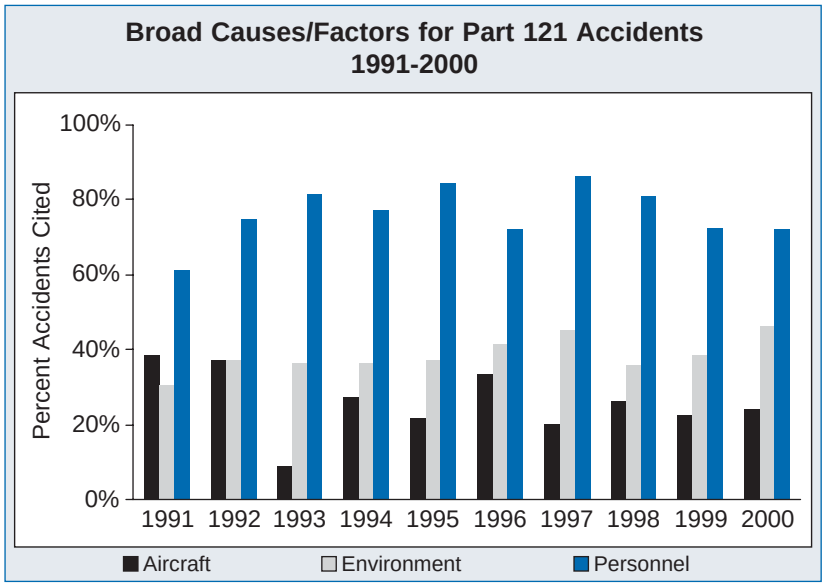
Part 121 No-Injury Accidents for Each Level of Damage, 1991-2000				
	Destroyed	**Substantial**	**Minor**	**None**
1991	1	7	1	
1992		2		
1993		6		
1994		4		
1995		15	2	
1996		8	2	
1997		13		
1998		19		
1999		27	1	
2000		23	1	1
Total	1	124	7	1

PROBABLE CAUSES, FACTORS, AND THE BROAD CAUSE/FACTOR CLASSIFICATION

Occurrence codes are used to describe what happened during an accident and the sequence in which those events occurred, and first occurrence data are used with phase-of-flight data to describe the initiating event in an accident sequence. Investigators use these occurrence codes and phase-of-flight data to establish a sequence of findings that are the basis for accident causes and factors. When two or more causes/factors are identified for an accident, no attempt is made to identify one as the primary cause. Consequently, one accident could be assigned codes representing all three cause/factor groups. For this reason, the percentages of causes/factors in a given set of accidents can amount to more than 100%, as shown in figure 11.

As discussed previously, the cause/factor classification codes that investigators assign to an accident fall into three broad groups—aircraft, environment, and personnel. Historically, the personnel category has been cited in more Part 121 accidents than either aircraft or environment. From 1991 to 2000 (as shown in figure 11), personnel causes and factors were typically cited in 60% to 80% of the accidents in a given year. Environmental causes/factors (such as an in-flight encounter with weather) were next, followed by aircraft-related causes/factors (such as total loss of aircraft power due to a mechanical failure). In 52 of the 56 Part 121 accidents that occurred in 2000 where cause/factor information was available,[22] the causes and factors were consistent with this historical trend: personnel-related causes/factors were cited in 72% of accidents, environmental causes/factors in 46%, and aircraft-related causes/factors in 24%.

Figure 11



[22] The four accidents for which cause/factor information was not available occurred outside the United States. The Safety Board did not lead these foreign investigations, and data on the causes/factors, occurrences, phases of flight, and sequence of events were not documented in these cases.

SCHEDULED PART 135 OPERATIONS: 10-YEAR SUMMARY

SAFETY BOARD SEVERITY CLASSIFICATION OF SCHEDULED PART 135 ACCIDENTS

Like Part 121 accidents, Part 135 accidents (both scheduled and on-demand) are classified by highest level of injury (fatal, serious, minor, or none) and level of aircraft damage (destroyed, substantial, minor, or none).

DEFINITIONS OF HIGHEST LEVEL OF INJURY

Fatal - Any injury that results in death within 30 days of the accident.
Serious - Any injury which: (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.
Minor - Any injury that is neither fatal nor serious.
None - No injury.

DEFINITIONS OF LEVEL OF AIRCRAFT DAMAGE

Destroyed - Damage due to impact, fire, or in-flight failures to an extent not economically repairable.
Substantial - Damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered "substantial damage" for the purpose of this part.[23]
Minor - Any damage that neither destroys the aircraft nor causes substantial damage.
None - No damage.

SCHEDULED PART 135 ACCIDENTS BY SEVERITY CLASSIFICATION

The number of scheduled Part 135 accidents remained relatively constant from 1995 through 2000, averaging about 12 accidents per year. After 1991, only four of the accidents involved helicopters. In 2000, 12 scheduled Part 135 aircraft (all airplanes) were involved in accidents.

[23] See 49 CFR 830.2.

The number of flight hours and departures for scheduled Part 135 operations (as shown in figures 4 and 5) decreased sharply in 1997 after the Part 121/135 reclassification when larger aircraft flown by more established operators were included in Part 121 operations. As a result, 1997 flight hours for scheduled Part 135 operations were less than half the 1996 totals; by 2000, flight hours and departures were less than a fifth of 1996 totals. However, as stated above, the number of accidents remained relatively constant and did not decrease as might be expected with the decline in flight activity (figure 12). Accordingly, rates for accidents with no injury, as shown in figures 13 and 14, increased between 1997 and 2000. Drawing firm conclusions about the cause of these trends is difficult given the small number of scheduled Part 135 accidents each year.

Figure 12

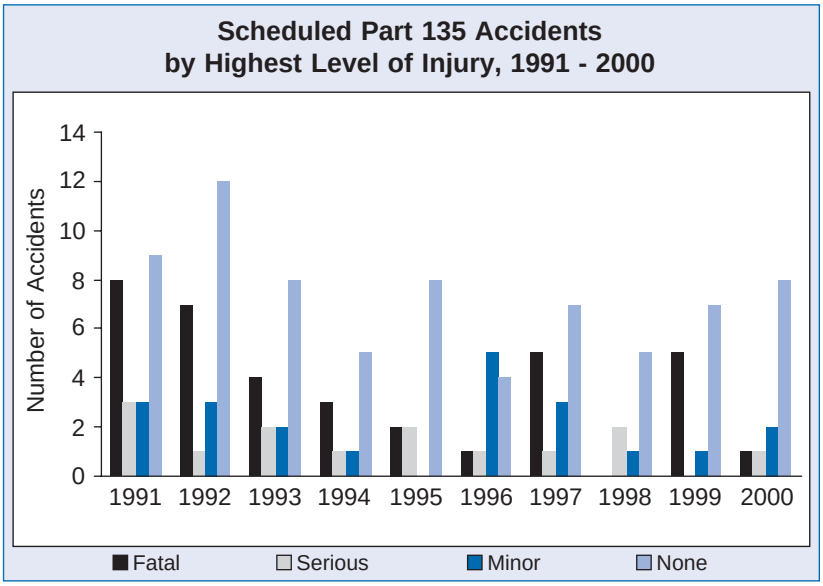


Figure 13

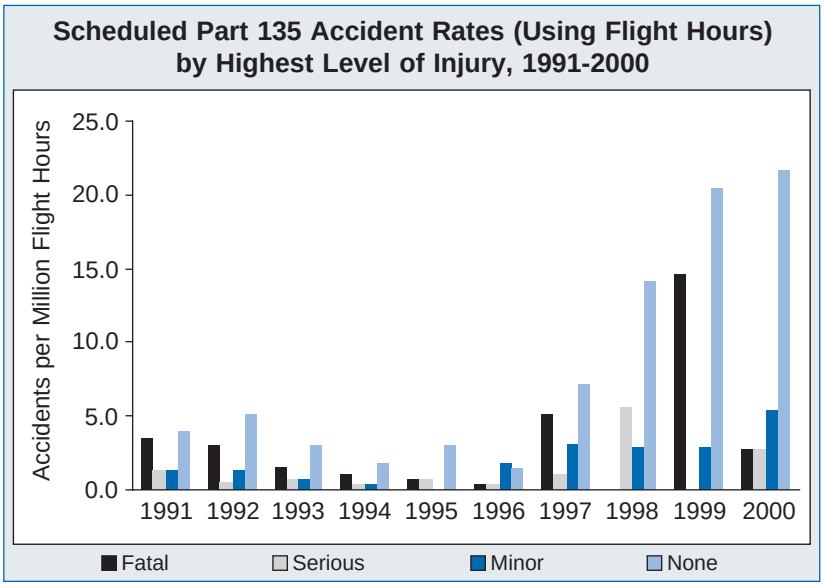
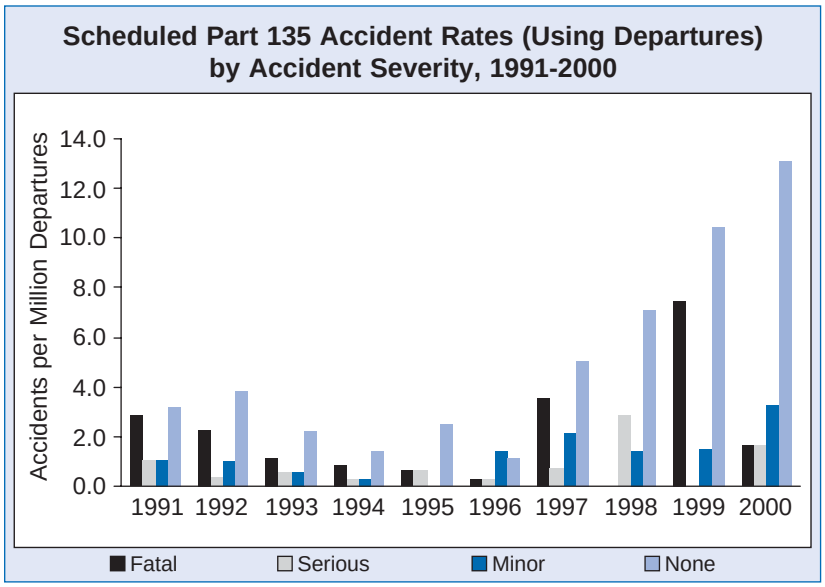
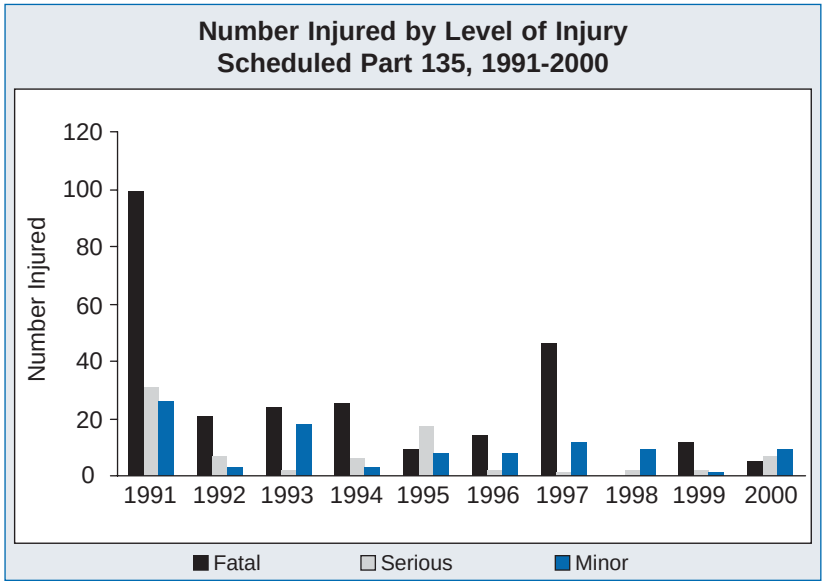


Figure 14



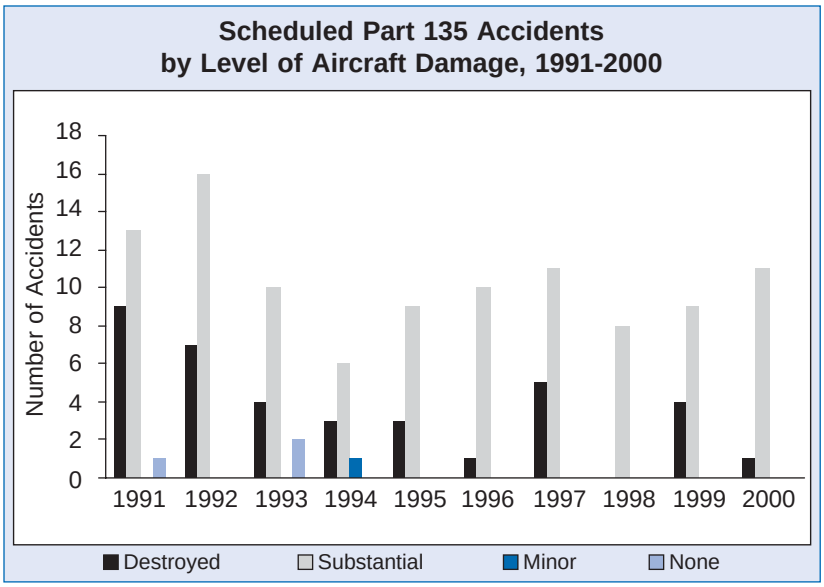
Unlike Part 121 accidents, a relatively large proportion of the people who boarded scheduled Part 135 accident flights in 2000 were injured: 21 out of 53. Of these, five injuries were fatal, seven serious, and nine minor (figure 15).

Figure 15



Most scheduled Part 135 aircraft involved in accidents from 1991 to 2000 were either substantially damaged or destroyed, as shown in figure 16. Calendar year 2000 was consistent with that trend; of the 12 aircraft involved in scheduled Part 135 accidents in 2000, 11 were substantially damaged and 1 was destroyed.

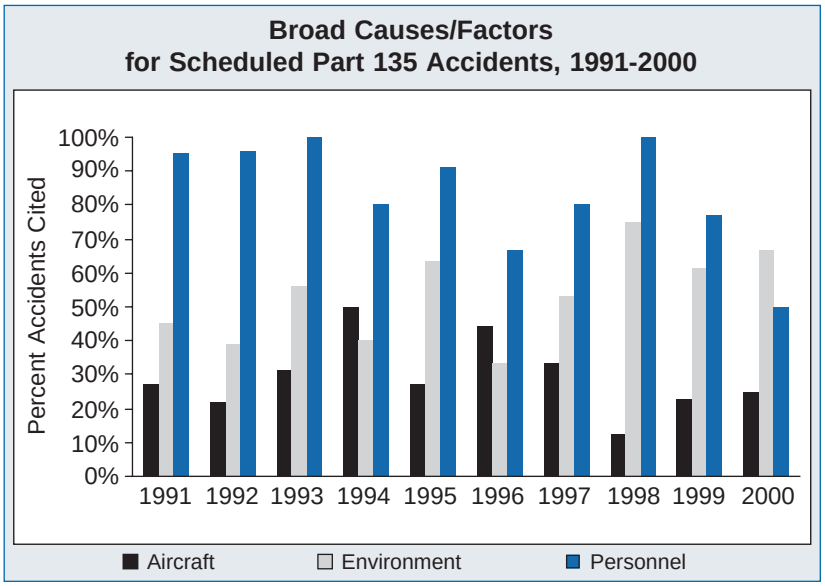
Figure 16



PROBABLE CAUSES, FACTORS, AND THE BROAD CAUSE/FACTOR CLASSIFICATION

Historically, the cause/factor category most often cited for scheduled Part 135 accidents is personnel, followed by the environment and aircraft, in that order (figure 17). This trend is consistent with Part 121 accidents. However, 2000 was a notable exception to this overall trend with the environment cited in two-thirds of the accidents, personnel in only half, and aircraft in a quarter. Note that the proportions attributed to each category can vary considerably from year to year (due most likely to the small number of scheduled Part 135 accidents that occur each year). As with Part 121 accidents, more than one broad cause/factor category can be assigned to a single scheduled Part 135 accident, and the percentages of causes and factors can total to more than 100%.

Figure 17



ON-DEMAND PART 135 OPERATIONS: 10-YEAR SUMMARY

SAFETY BOARD SEVERITY CLASSIFICATION OF ON-DEMAND PART 135 ACCIDENTS

On-demand Part 135 operations are classified using the same definitions as those used for scheduled Part 135 operations.

ON-DEMAND PART 135 ACCIDENTS BY SEVERITY CLASSIFICATION

On-demand Part 135 operations typically account for half of the air carrier fleet and about 15% of total air carrier flight activity (that is, flight hours and miles flown). The term "on-demand operations" refers to revenue-earning flights for which departure time, departure location, and arrival location are specifically negotiated with the customer or the customer's representative. Helicopters represent a significant portion of the on-demand Part 135 fleet (about 12% in 2000) and on average account for about 20% of the on-demand Part 135 accidents.[24] A total of 80 aircraft (63 airplanes and 17 helicopters) were involved in on-demand Part 135 accidents in 2000.

The number of on-demand Part 135 accidents involving airplanes declined from 1996 through 1999,[25] but rose by 9% in 2000 (as shown in figure 18). The number of fatal on-demand Part 135 accidents for airplanes reached historic lows from 1997 through 1999, but the substantial increase in the number of fatal accidents in 2000 (especially those involving airplanes) brought fatalities more in line with data from previous years (as shown in figure 19). Each year, the number of on-demand Part 135 helicopter accidents consistently ranged from 10 to 20 accidents, accounting for fewer than 5 fatalities annually.

[24] Results are shown separately for airplanes and helicopters when data are available.
[25] The definitions for level of injury and level of damage that apply to scheduled Part 135 operations also apply to on-demand Part 135 operations.

Figure 18

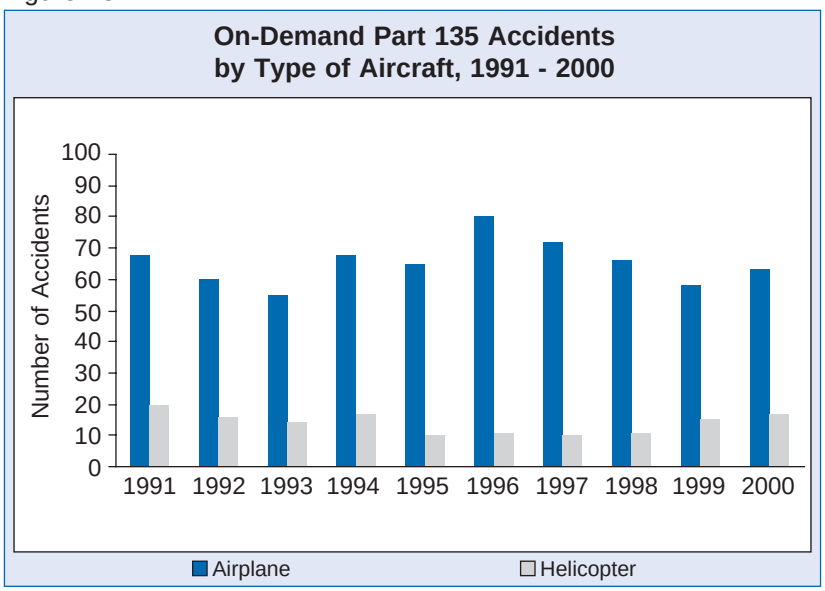
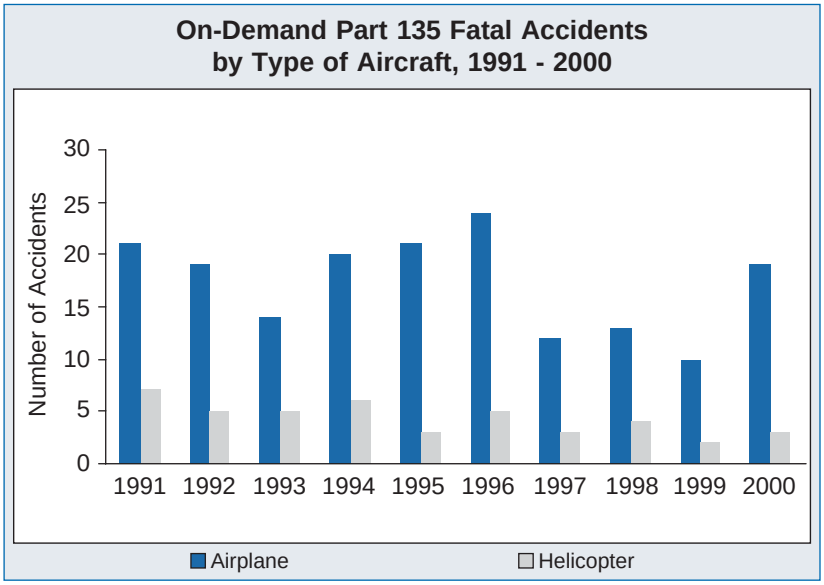
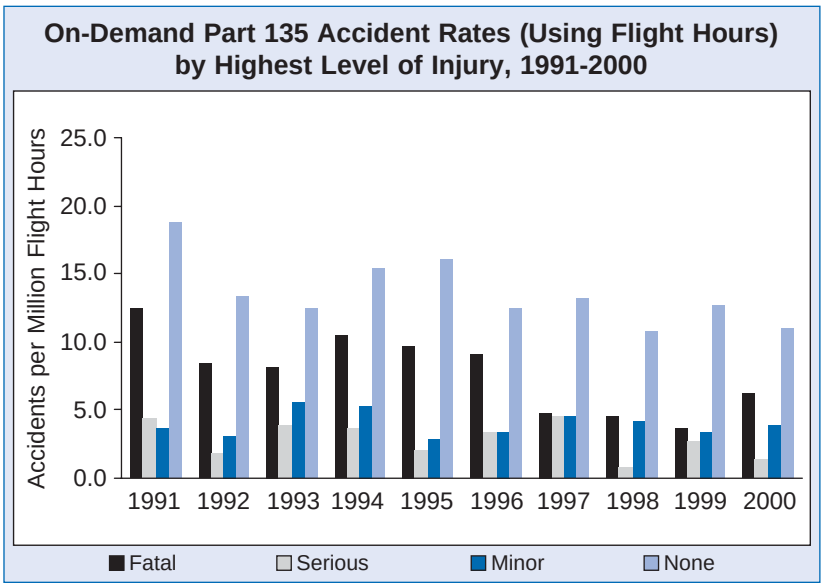


Figure 19



In keeping with the increase in fatal accidents involving airplanes in 2000, the fatal accident rate for on-demand Part 135 operations doubled from 1999 to 2000 (figure 20). Historically, 30% to 40% of the people aboard on-demand Part 135 accident aircraft are injured; the increase in fatal airplane accidents in 2000 pushed that proportion to more than half of those on board. Rates for all other types of accidents (serious, minor, none) declined for the most part, especially after 1994. This decline in rate was partly due to the FAA's 2002 revision of its method for estimating on-demand Part 135 flight hours.

Figure 20



Most on-demand Part 135 accident aircraft were either substantially damaged or destroyed, as shown in figures 21 and 22 for airplanes and helicopters, respectively. Year 2000 accident data were consistent with this trend; of the 63 airplanes involved in on-demand Part 135 accidents, 17 were destroyed, 45 had substantial damage, and 1 sustained minor damage. In 2000, 6 helicopters were destroyed, and 11 were substantially damaged.

Figure 21

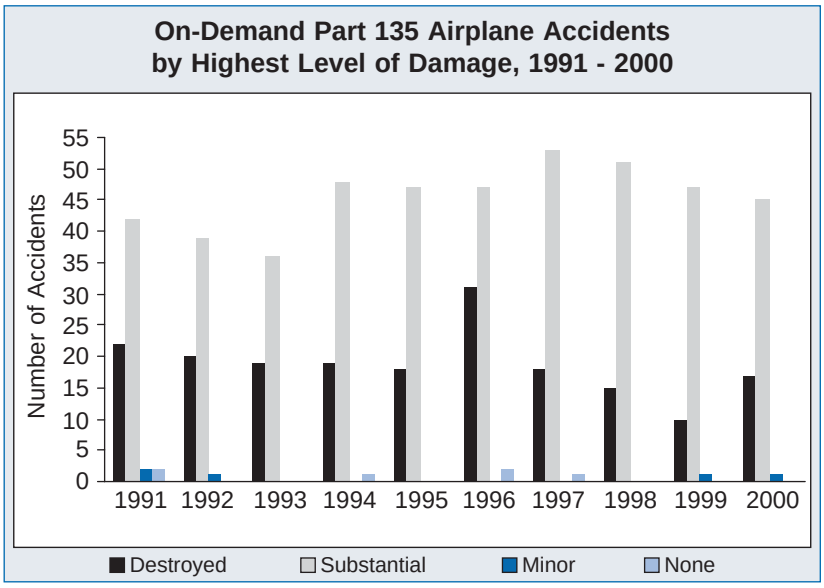
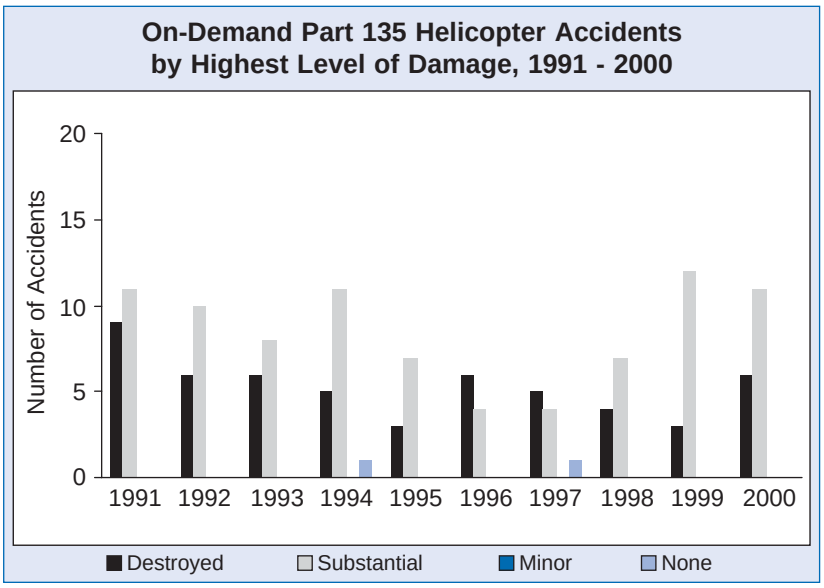


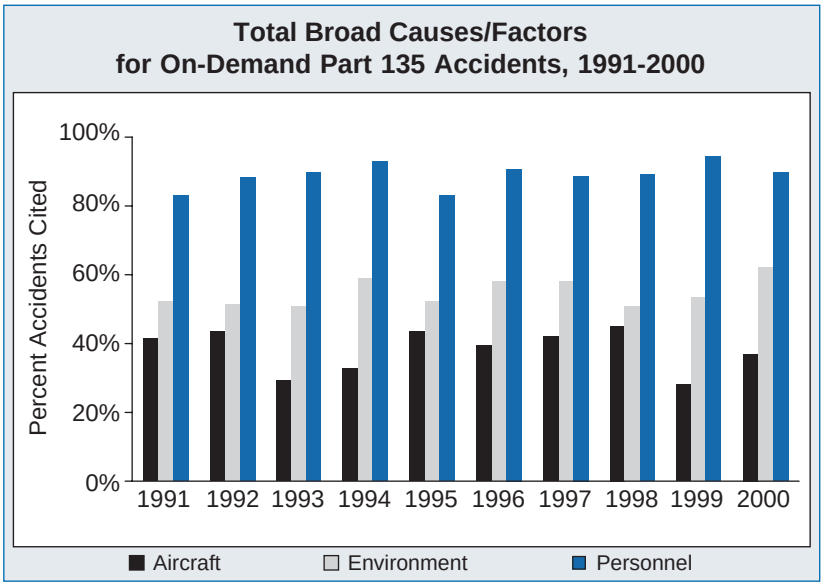
Figure 22



PROBABLE CAUSES, FACTORS, AND THE BROAD CAUSE/FACTOR CLASSIFICATION

The distribution of accident causes/factors for on-demand Part 135 accidents in 2000 was consistent with previous years, as shown in figure 23: personnel were cited in the most accidents, followed by the environment and aircraft, in that order. In 2000, cause/factor information was available for all 80 accidents involving on-demand Part 135 operations. Aircraft-related causes/factors were cited in 37.7% of accidents, environment in 61.0%, and personnel in 89.6%.

Figure 23



FOCUS ON 2000

Unlike the 10-year summaries, which describe accident trends, this section focuses on accident data specific to calendar year 2000. This section also provides a more in-depth analysis of the factors that characterize Part 121 and Part 135 accidents. The discussion begins by addressing the socioeconomic factors that affected commercial aviation in 2000.

GENERAL UNITED STATES SOCIAL, ECONOMIC, AND AVIATION INDICATORS

A number of indicators characterize the general economic, travel, and aviation environment for U.S. commercial aviation in 2000 (table 6). For instance, the U.S. population increased 13.1% between 1990 and 2000, and the gross domestic product rose 37.5% during that decade. In 2000, the median household income was $43,162,[26] and consumers spent a record $36.7 billion on airline travel (up 12.2% from 1999).[27]

Although the number of major air carriers did not change greatly between 1990 and 2000, ranging from 11 in 1995 to 15 in 2000, the number of other carriers (including national, large regional, and medium regional) increased 35.7%.[28] The number of air carrier aircraft in the fleet increased 35% from 1990 to 1999 to a peak of 8,228 aircraft; however, the removal of 293 aircraft from service in 2000 reduced the fleet by 3.6%. Between 1990 and 2000, air carrier passenger miles increased 49.2%, and the average number of miles flown per aircraft increased 12.8%. Similarly, per-passenger-mile revenues for domestic scheduled air carriers increased steadily over the last two decades, with a record average high of 14.6 cents per mile in 2000.

[26] U.S. Bureau of Labor Statistics: ftp://ftp.bls.gov/pub/special.requests/ce/share/1999/income.txt.
[27] BTS, *2002 National Transportation Statistics* (BTS-02-08), Table 3-13.
[28] BTS, *2002 National Transportation Statistics* (BTS-02-08), Table 1-2.

Table 6

United States Economic Indicators

	1980	1990	2000
Resident Population (Millions)[a]	227.3	248.8	281.4
Gross Domestic Product (Billions)[b]	$4,900.9	$6,707.9	$9,224.0
Median Household Income[c]	$36,035	$39,324	$43,162
Number of Households (Millions)[d]	80.8	93.3	104.7
Number of Certificated Air Carrier Aircraft[e]	3,808	6,083	7,935
Number of Major Air Carriers[f]	n/a	14	15
Number of Other Air Carriers[f]	n/a	56	76
Air Carrier Passenger Miles (Millions)[g]	204,368	345,873	516,129
Average Miles Flown per Air Carrier Aircraft (Thousands)[e]	768	776	875
Average Passenger Revenue per Mile for Domestic, Scheduled Service (Current $.00)[h]	11.5	13.4	14.6

[a] BTS, *2002 National Transportation Statistics* (BTS-02-08), Table A.

[b] In year 1996 dollars. Source: BTS, *2002 National Transportation Statistics* (BTS-02-08), Table A.

[c] U.S. Census Bureau <http://www.census.gov/hhes/income/histinc/h07.html>, in year 2001 dollars, using the CPI-U-RS (Consumer Price Index Research Series Using Current Methods).

[d] U.S. Census Bureau, *People, Population Household Economic Topics, Households and Families*, Table HH-1.

[e] Aircraft operating under 14 CFR 121 and 14 CFR 135. BTS, *2002 National Transportation Statistics* (BTS-02-08), Table 4-8.

[f] Carrier groups are categorized based on their annual operating revenues as major, national, large regional, and medium regional. The thresholds were last adjusted July 1, 1999, and the threshold for major air carriers is currently $1 billion. The other air carrier category contains all national, large regional, and medium regional air carriers. Source: BTS, *2002 National Transportation Statistics* (BTS-02-08), Table 1-2.

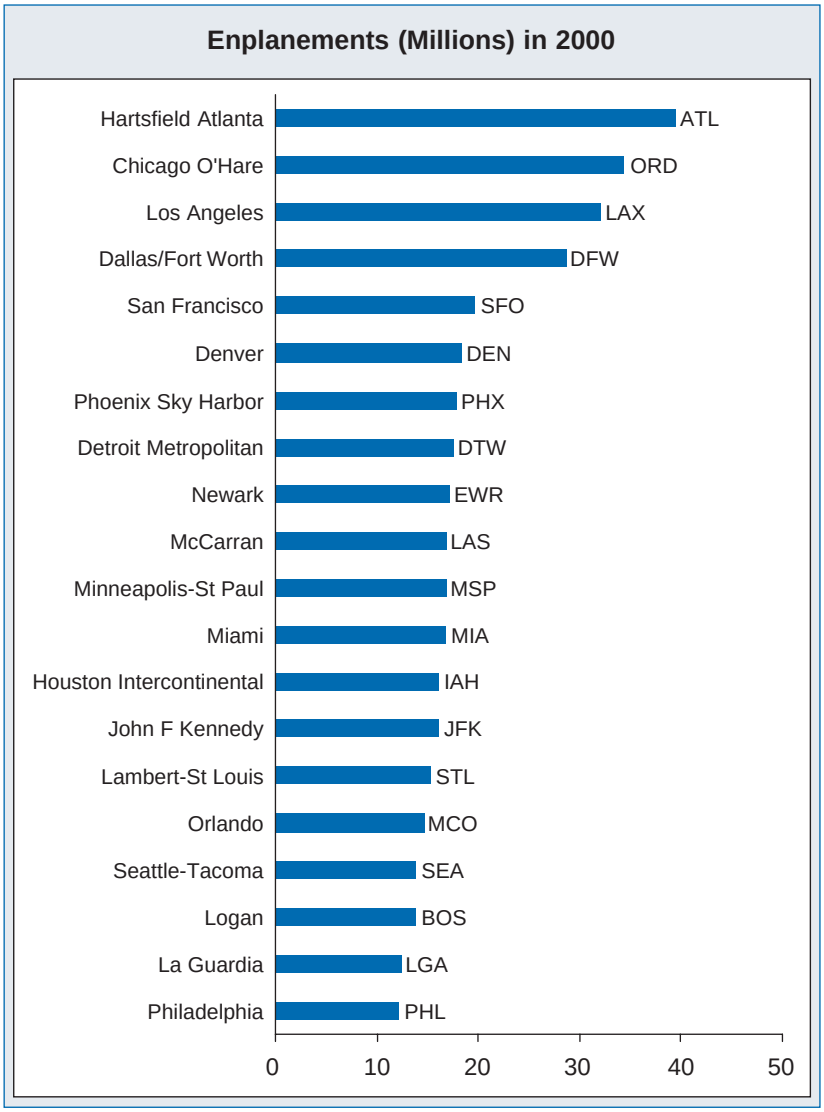
[g] Certificated, domestic, all services. Source: BTS, *2002 National Transportation Statistics* (BTS-02-08), Table 1-34.

[h] BTS, 2002 *National Transportation Statistics* (BTS-02-08), Table 3-16.

The number of enplanements is another indicator of the aviation environment. In 2000, 629 million passengers boarded airplanes at U.S. airports. Figure 24 lists the number of enplanements at the top 20 airports in the United States in

2000.[29] As in previous years, Hartsfield Atlanta International Airport had the highest traffic volume with 39.4 million enplanements.

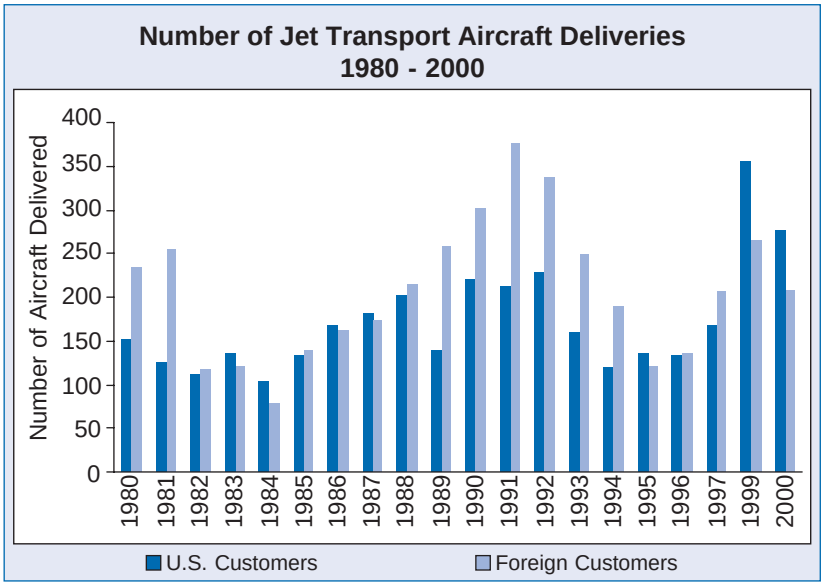
Figure 24



The number of jet transport aircraft deliveries also increased overall from 1980 to 2000 although the trend was cyclical (see figure 25); deliveries both to U.S. and foreign customers peaked in 1980, 1991, and 1999.[30] An average 46.2% of all deliveries went to U.S. customers from 1980 through 2000, with a low of 33.0% in 1981 and a high of 57.4% in 1999. After a record 620 total shipments in 1999, the number was down 135 aircraft in 2000, signaling a 22.5% decrease to U.S. customers (276 total aircraft) and a 20.8% decrease to foreign customers (209 total aircraft).

[29] BTS, *2000 National Transportation Statistics* (BTS-01-01), Table 1-36.
[30] Includes 707, 737, 747, 757, 767, 777, MD-11, MD-80, MD-90, MD-95, DC-8, DC-9, DC-10, and L-1011. From Aerospace Industries Association www.aia-aerospace.org/stats/aero_stats/stat21.pdf.

Figure 25



The total number of U.S. air carrier aircraft in operation peaked in 1999 and declined 3.6% in 2000 (table 7). The greatest decline was for fixed-wing turboprops (down 16.8%) and helicopters (down 69.7%). The number of fixed-wing turbojets in the 2000 fleet increased by 3.4%, primarily due to the addition of 269 two-engine turbojets, offsetting the loss of 78 three-engine turbojets.[31]

Table 7

Active Air Carrier Aircraft by Type of Aircraft, 1991 - 2000

Year	Total	Fixed Wing Turbojet	Fixed Wing Turboprop	Fixed Wing Piston	Helicopter
1991	6,054	4,167	1,598	283	6
1992	7,320	4,446	1,894	847	133
1993	7,297	4,584	1,868	721	124
1994	7,370	4,636	1,782	824	128
1995	7,411	4,832	1,713	748	118
1996	7,478	4922,	1,696	739	121
1997	7,616	5,108	1,646	728	134
1998	8,111	5,411	1,832	751	117
1999	8,228	5,630	1,788	688	122
2000	7,935	5,821	1,488	589	37

[31] Includes Part 121 and scheduled Part 135. The number of aircraft is the monthly average reported in use for the last 3 months of the year. Source: BTS, *2002 National Transportation Statistics* (BTS-02-08), Table 1-13.

PART 121 ACCIDENTS IN 2000

This section provides more details about the Part 121 accidents that occurred in 2000. As discussed previously, Part 121 operations apply to major U.S. airlines and cargo carriers that fly large transport-category aircraft. In 2000, Part 121 operations carried more than 629 million passengers, more than 12.6 million tons of freight, and 2.3 million tons of mail. A total of 56 accidents occurred among such operations in 2000, resulting in 92 fatalities, 27 serious injuries, and 104 minor injuries.

Of the 4,165 passengers involved in Part 121 accidents, only 4% received any type of injury, and of the 130 flight crewmembers involved, only 6% sustained injuries. As a group, cabin crewmembers suffered the greatest proportion of injuries; of 185 cabin crew involved, 23.2% sustained injuries (table 8).

Table 8

Part 121 Injuries by Role in 2000

	Fatal	Serious	Minor	None	Total
Flight Crew	5		3	122	130
Cabin Crew	4	15	24	142	185
Other Crew				6	6
Passengers	83	9	77	3,996	4,165
Total Aboard	**92**	**24**	**104**	**4,266**	**4,486**
On Ground		3			3
Total	**92**	**27**	**104**	**4,257**	**4,490**
Accidents	3	22	6	25	**6**

All 92 fatalities resulting from Part 121 accidents in 2000 resulted from three accidents:

- On January 31, 88 people were fatally injured when a McDonnell Douglas MD-83 crashed into the Pacific Ocean near Anacapa Island, California, as the result of a flight control system failure and subsequent loss of control.

- On February 16, 3 people were fatally injured when a McDonnell Douglas DC-8-71F crashed during takeoff in Rancho Cordova, California.

- On November 20, 1 flight attendant received fatal injuries during an emergency evacuation in Miami, Florida, when an Airbus Industrie A300B4-605R failed to depressurize after landing.

Of the 56 Part 121 accidents that occurred in 2000, 51 occurred in the United States and its territories, 4 in foreign countries, and 1 over the Gulf of Mexico. Figure 26 shows the location of domestic accidents, and table 9 lists details about the accidents that occurred outside the United States.

Figure 26

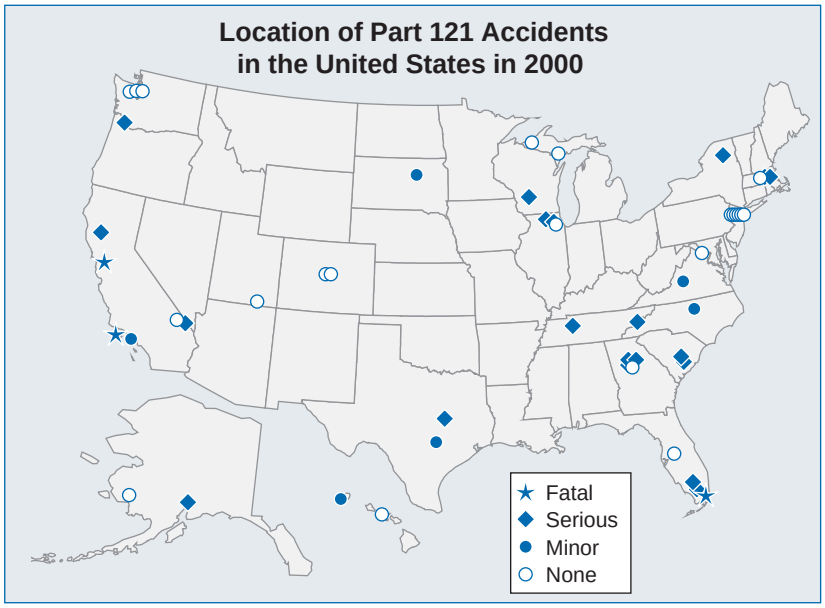


Table 9

Location of Part 121 Accidents Outside the United States in 2000

Date	Location	Type Operation	Severity	Highest Injury
2-Feb	San Salvador El Salvador	Passenger	Damage	None
2-Apr	Guayaquil Ecuador	Cargo	Damage	None
14-Apr	Guayaquil Ecuador	Cargo	Damage	None
3-Dec	Tahiti	Passenger	Substantial	None

Of the 57 aircraft involved in Part 121 accidents in 2000, 87.5% were conducting passenger flights. All of the passenger flights were scheduled, while six of the seven cargo-only accidents occurred during nonscheduled flights. After 1997, the proportion of Part 121 accidents associated with nonscheduled flights consistently ranged between 9.8% and 14.0% for all Part 121 accidents. This statistic is particularly notable because nonscheduled flights accounted for only 4.5% of all Part 121 flight hours and just 3.6% of Part 121 departures. Finally, as shown in table 10, most Part 121 accidents (89.3%) in 2000 were classified as either *injury* or *damage* (i.e., the two least-severe categories), a finding consistent with the years 1991 through 1999. In 2000, more than half of the accidents produced no injuries or only minor injuries.

Table 10

Part 121 Accident Severity by Schedule Type in 2000

	Scheduled Passenger	Nonscheduled		
		Cargo	Passenger	Total
Major	2	1		3
Serious	3			3
Injury	20			20
Damage	24	6		30
Total	**49**	**7**	**0**	**56**

Table 11

Part 121 Accident Severity by Level of Injury in 2000

	Fatal	Serious	Minor	None	Total
Major	2		1		3
Serious	1	2			3
Injury		20			20
Damage			6	25	31
Total	**3**	**22**	**7**	**25**	**57**

In 2000, most (63.2%) Part 121 accidents involved aircraft with turbofan engines; 26.3% had turboprop engines; and 10.5%, turbojet engines. More than half of the aircraft were either substantially damaged or destroyed, but almost a third were undamaged (table 12).

Table 12

Part 121 Engine Type by Level of Aircraft Damage for 2000

	Turbofan	Turbojet	Turboprop	Total
Destroyed	3	0	0	3
Substantial	18	2	11	31
Minor	4	0	1	5
None	11	4	3	18
Total	**36**	**6**	**15**	**57**

Phase of Flight and First Occurrences for Part 121 Operations. Investigators use first occurrence data by phase of flight to describe the initiating event of an accident flight. In 2000, the first occurrences cited most often for Part 121 accidents were in-flight encounters with weather during cruise or descent (25.0%). Cruise and descent accounted for more than a third of all first occurrences, followed by approach or landing (22.0%). One of the approach or landing accidents involved an Embraer 120 hitting a deer on the runway. Table 13 shows first occurrence data by phase of flight for 51 of the aircraft involved in Part 121 accidents.

Interestingly, two of the phase-of-flight categories related to ground operations (standing and taxiing) together accounted for 25% of Part 121 accidents. Four of the accidents related to ground operations involved ground vehicles striking an aircraft, and four involved taxiing aircraft striking other objects (especially around the gate area). In two instances, jet blast caused injuries and damage: a Boeing 737 taxiing on a ramp blew over a Cessna 150, and a Boeing 767 pulling up to a gate knocked down a ramp serviceman.

Table 13

Part 121 First Occurrences by Phase of Flight for 2000						
	Takeoff or Climb	Cruise or Descent	Approach or Landing	Standing	Taxiing	Total
In-flight Encounter with Weather		13				13
On Ground/Water Collision with Object	2		1	1	5	9
Airframe, Component, System Failure	3	2		1	1	7
Miscellaneous/Other	2	1		2		5
Hard Landing			3			3
Loss of Control - On Ground/Water	1		2			3
Overrun			3			3
Propeller Blast or Jet Exhaust/Suction					2	2
Abrupt Maneuver		1				1
Collision between Aircraft (not midair)					1	1
Gear Retraction on Ground			1			1
In-flight Collision with Object			1			1
Loss of Engine Power (partial)	1					1
Loss of Engine Power (total)		1				1
Total	9	18	11	4	9	51
* 51 of 57 Part 121 aircraft included occurrence data.						

Figure 27 relates the severity of an accident to phase of flight for the first occurrence. As might be expected, takeoff/climb, cruise/descent, and approach/landing accidents resulted in the most severe injuries and damage, with cruise or descent accidents causing the most injuries. More than half the accidents involved only damage to the aircraft, with ground operations (standing and taxiing) accounting for 30% of the damage-only accidents.

Figure 27

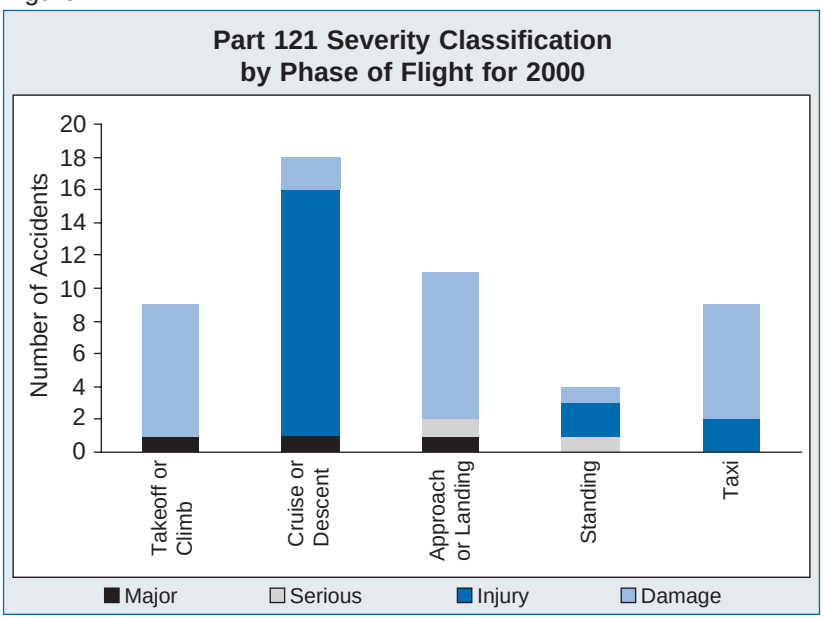
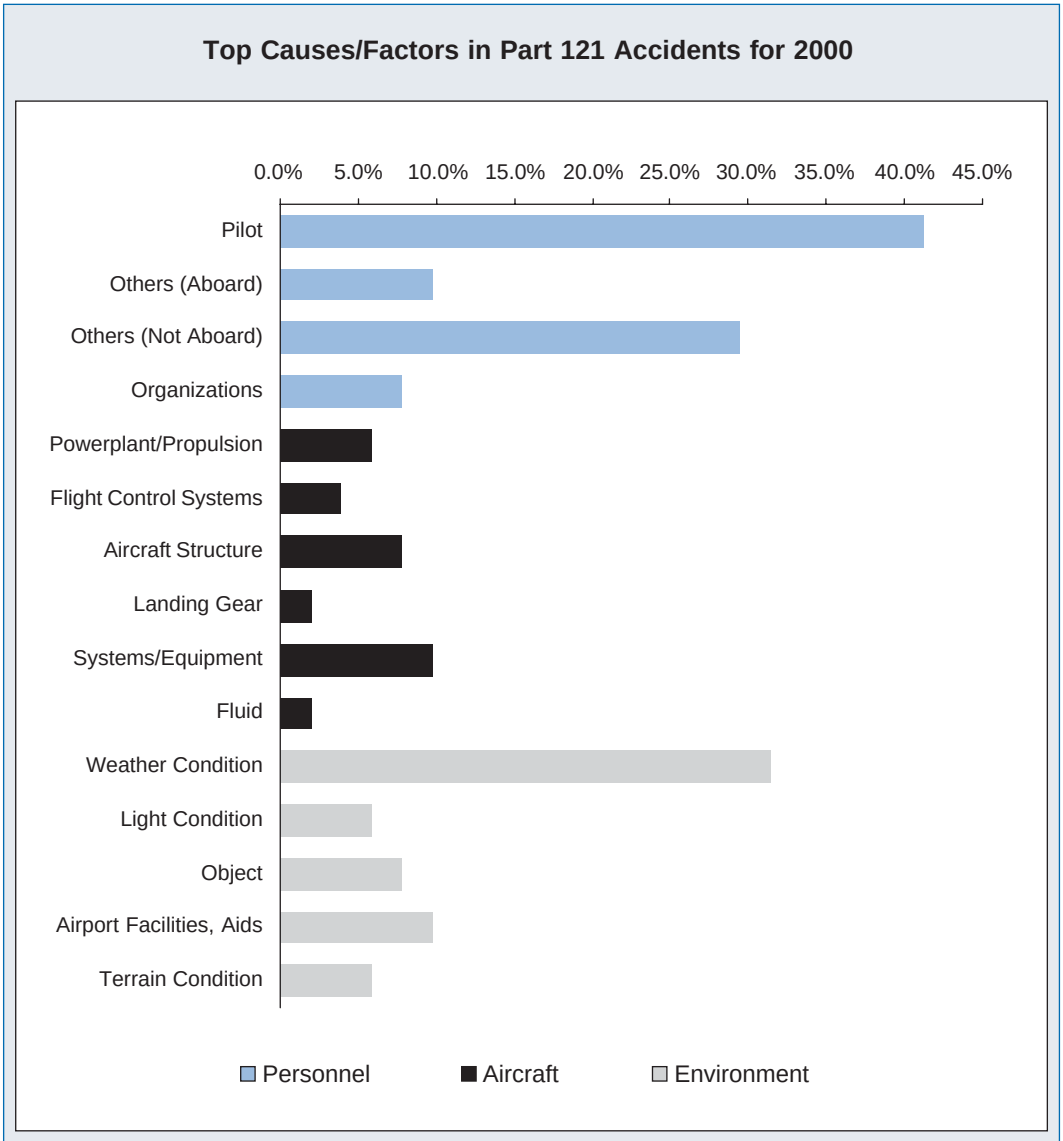


Figure 28 summarizes causes/factors for Part 121 accidents in 2000, organized within the broad categories of personnel, environment, and aircraft. As this graph shows, pilots were the most frequently cited personnel (41.2%), but numerous accidents (29.4%) were attributed to people not aboard the aircraft, such as ground personnel, air traffic controllers, and manufacturer personnel. Weather conditions (31.4%) were the causes/factors cited most frequently in the environmental category. Airport facilities and navigation aids (9.8%) and objects such as birds or airport vehicles (7.8%) were the second and third most frequently cited environmental factors. The systems/equipment category was the aircraft cause/factor (9.8%) cited most often, with powerplant/propulsion cited in 5.9% of the accidents and aircraft structure in 7.8%.

Figure 28



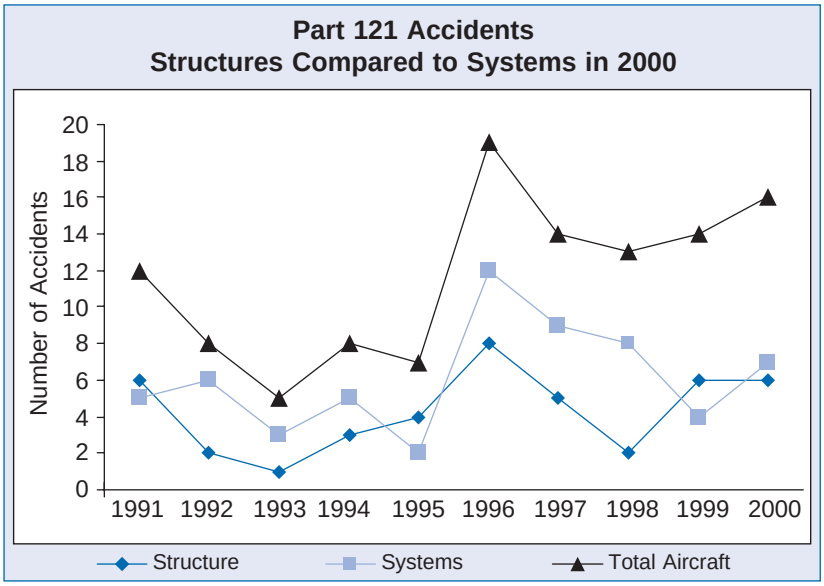
* Broad causes/factors were available in 52 of 56 Part 121 accidents.

** "Others (not aboard)" refers to 33 different parties, including air traffic control personnel, manufacturers, ground personnel, and FAA personnel.

Aircraft structures and aircraft systems, two categories of aircraft-related causes and factors, have been singled out for special attention by the FAA's National Aging Aircraft Research Program (NAARP).[32] NAARP was prompted by the 1988 Aviation Safety Research Act[33] and was expanded in 1997 to include mechanical and electrical systems. Figure 29 shows the number of Part 121 accidents from 1991 to 2000 that were attributed to aircraft structures and to aircraft systems, and the total number attributed to aircraft-related causes/factors.[34] Because any given accident may have multiple causes/factors, an accident may be attributed to both a structural failure or malfunction and a system failure or malfunction.

In 2000, six structure-related and seven systems-related accidents occurred among Part 121 aircraft. Those 13 accidents accounted for 81.2% of the Part 121 cause/factor citations that were aircraft-related, and 8 of the 12 accidents attributed to aircraft-related factors. As shown in figure 29, systems-related accidents typically occurred more frequently than structure-related accidents from 1991 to 2000, although the difference between the two categories was greater from 1996 through 1998 than in previous years.

Figure 29



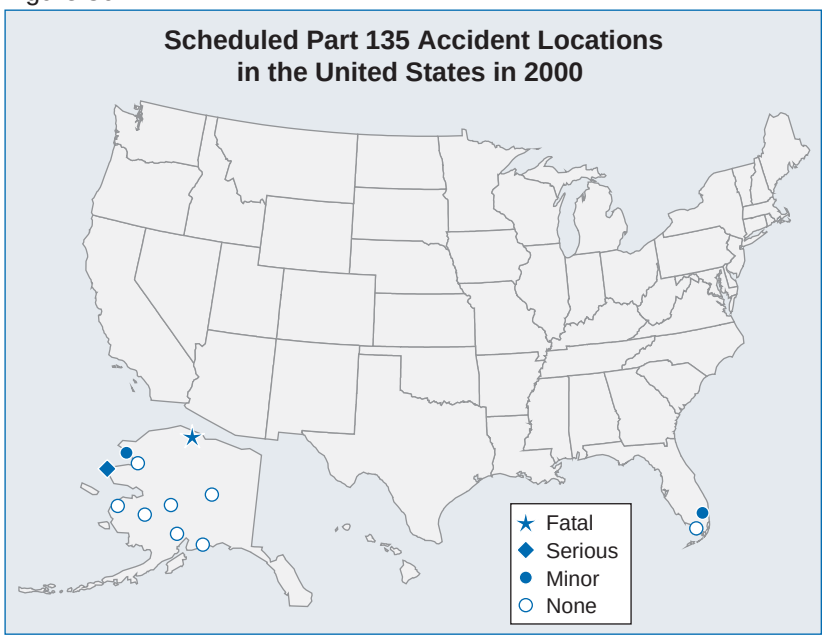
[32] NAARP defines aircraft structures to include the hull, wings, vertical and horizontal stabilizers, flight control surfaces, and doors and windows. Aircraft systems include flight control systems, instruments, heating and air conditioning, all hydraulic systems including landing gear, and all electrical systems including wiring.
[33] Initially, NAARP aimed to study fatigue and environmental degradation of aircraft structures. Over the years, the program has evolved to include engines and other aircraft systems in both Part 121 and Part 135 aircraft.
[34] The graph was constructed by identifying the aircraft-related causes/factors that could be categorized as attributable to aircraft structures or to aircraft systems. This was done by using the detailed aircraft-related occurrence codes that identify the specific aircraft structure or system involved in the accident.

PART 135 ACCIDENTS IN 2000

As noted previously, Part 135 applies to commercial air carriers that can operate commuter flights (i.e., scheduled Part 135), air taxis (i.e., on-demand Part 135), and cargo flights (both scheduled and on-demand). Scheduled Part 135 operations consist of common-carriage, passenger-revenue flights for which the operator must offer the departure location, departure time, and arrival location in advance and must include five or more round trips per week between two or more points. In contrast, on-demand operations typically include flights for which the departure time, departure location, and arrival location are specifically negotiated with the customer. Of the 92 aircraft involved in Part 135 accidents in 2000, 12 were scheduled and 80 were on-demand.

All of the scheduled Part 135 accidents occurred in the United States, with 10 in Alaska and 2 in Florida, as shown in figure 30. The proportion of accidents in Alaska is large in part because over half of all scheduled Part 135 operators are certificated in Alaska, where the operating environment is challenging.[35]

Figure 30



Of the 80 on-demand Part 135 accidents, 75 occurred in the United States, 3 in the Caribbean, and 2 over the Gulf of Mexico, as shown in figure 31. Of the 75 that occurred in the U.S., 18 occurred in Alaska and the rest were distributed among the other 49 states and Puerto Rico (including the Gulf of Mexico). For

[35] National Transportation Safety Board, *Aviation Safety in Alaska*, NTSB/SS-95-03 (Washington, DC: NTSB, 1995).

on-demand Part 135 accidents, 53.8% were passenger flights, and 46.2% were cargo and/or mail flights. In both scheduled and on-demand Part 135 accidents, fewer than half resulted in injuries, as shown in table 14.

Figure 31

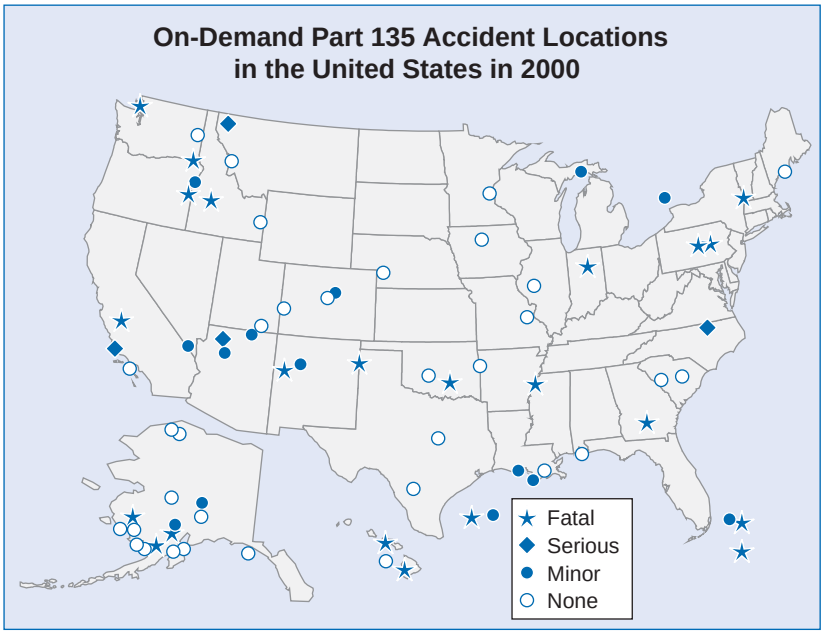


Table 14

Part 135 Accidents
Highest Injury by Schedule Type in 2000

	Scheduled	On-Demand		
	Passenger Operations	Passenger Operations	Cargo/Mail	Total
Fatal	1	11	11	23
Serious	1	4	1	6
Minor	2	10	4	16
None	8	18	21	47
Total	**12**	**43**	**37**	**92**

Part 135 flights can operate under two basic types of flight plans: visual flight rules (VFR) and instrument flight rules (IFR). VFR flights are defined by specific minimum weather conditions related to visibility, distance from clouds and cloud ceiling, and requirements for minimum fuel and cruising altitudes. IFR flights are defined by reference only to instruments and are subject to specific limits imposed by published procedures and weather conditions. An IFR flight plan allows flying in weather conditions that do not meet the minimums specified by VFR. For scheduled Part 135 accidents in 2000, nine had filed VFR flight plans,

and one of the remaining three had filed no flight plan (table 15). For on-demand flights, 55% of the accident flights were flown under VFR flight plans and 38.8% under IFR flight plans. In 6.2% of the on-demand accidents, the flight plan was unknown or there was no flight plan.

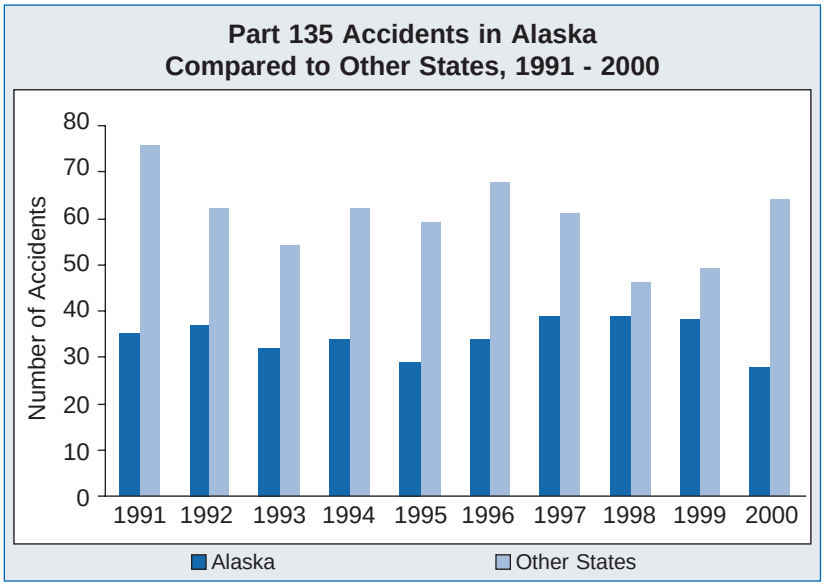
Table 15

Part 135 Accidents by Schedule Type and Flight Plan for 2000

	Scheduled	On-Demand	Total
Visual Flight Rules (VFR)	9	44	53
Instrument Flight Rules (IFR)	2	31	33
Unknown or None	1	5	6
Total	**12**	**80**	**92**

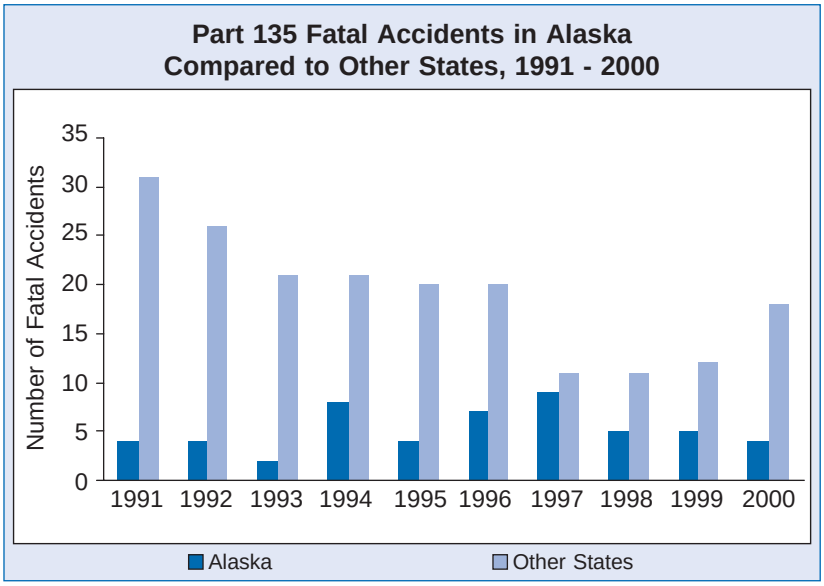
On-Demand Part 135 Operations in Alaska. Throughout the period, Alaska consistently accounted for a significant proportion of all Part 135 accidents. As shown in figure 32, 30% to 45% of all Part 135 accidents in the 10-year period occurred in Alaska. In 2000, 28 Part 135 accidents (30.4% of the total) occurred in Alaska. Of those 28, 18 were on-demand (22.5% of the total number of accidents among on-demand flights), and 10 were scheduled (83.3% of the total number of accidents among scheduled flights). In comparison, Arizona and Hawaii had the second-highest number of Part 135 accidents at five each, all operating as on-demand Part 135.

Figure 32



Despite the large proportion of Part 135 accidents that occurred in Alaska, the number of fatal Part 135 accidents in Alaska remained low, especially when compared to other U.S. states (figure 33). The proportion of fatal accidents ranged from a low of 8.7% in 1993, to a high of 45.0% in 1997. In recent years, the number of fatal accidents in Alaska remained relatively constant, while the total number of Part 135 fatal accidents in other states increased.

Figure 33



Accident rates for Alaska are difficult to determine because of the way in which Part 135 flight hours are calculated. However, almost all scheduled Part 135 operations occur in Alaska; consequently, the overall rate of 32.5 accidents per million flight hours may be a reasonable estimate of the accident rate in Alaska for 2000. This rate is more than 10 times greater than the Part 121 accident rate and 1.4 times greater than the on-demand Part 135 accident rate.

The on-demand Part 135 accident rate in Alaska is more difficult to determine. As previously discussed, on-demand Part 135 flight hours are taken from the *GAATA Survey*, which does not partition estimated flight hours for on-demand operations by state or region. Consequently, flight hours for on-demand Part 135 operations in Alaska cannot be obtained.

Detailed Analysis of Scheduled Part 135 Accidents for 2000

In 2000, approach or landing accounted for half of all scheduled Part 135 accidents, with the initiating event distributed almost uniformly among first occurrences (table 16). No accidents were attributed to ground operations (that is, standing or taxiing). Cruise or descent accidents were mostly (3 of 4) related to in-flight collision with an object (all bird strikes). Airframe, component, or system failure occurred in all phases of flight not associated with ground operations and was the second-most-frequently cited first occurrence.

Table 16

Scheduled Part 135 First Occurrences by Phase of Flight for 2000				
	Takeoff or Climb	Cruise or Descent	Approach or Landing	Total
In-flight Collision with Object		3	1	4
Airframe, Component, System Failure	1	1	1	3
Dragged Wing, Rotor, Pod, Float, or Tail/Skid			1	1
In-flight Collision with Terrain or Water			1	1
In-flight Encounter with Weather			1	1
On-surface Encounter with Terrain or Water	1			1
Undershoot			1	1
Total Accidents	**2**	**4**	**6**	**12**

As shown in figure 34, approach or landing accidents resulted in the greatest number of injuries (including all fatal and serious injuries) while none of the cruise or descent accidents resulted in injuries. Three of the accidents that occurred during cruise or descent were bird strikes, and the fourth occurred when a mud flap separated from the left main landing gear and struck the horizontal stabilizer.

The pilot was identified as the primary cause/factor in the largest proportion of scheduled Part 135 accidents (50.0%), with a number of important environmental factors cited as major contributors (figure 35). Objects accounted for the greatest proportion of environmental factors (33.3%), with terrain and airport facilities each cited 25.0% of the time. The most frequently cited aircraft cause/factor in the accidents was the landing gear (16.7%).

Figure 34

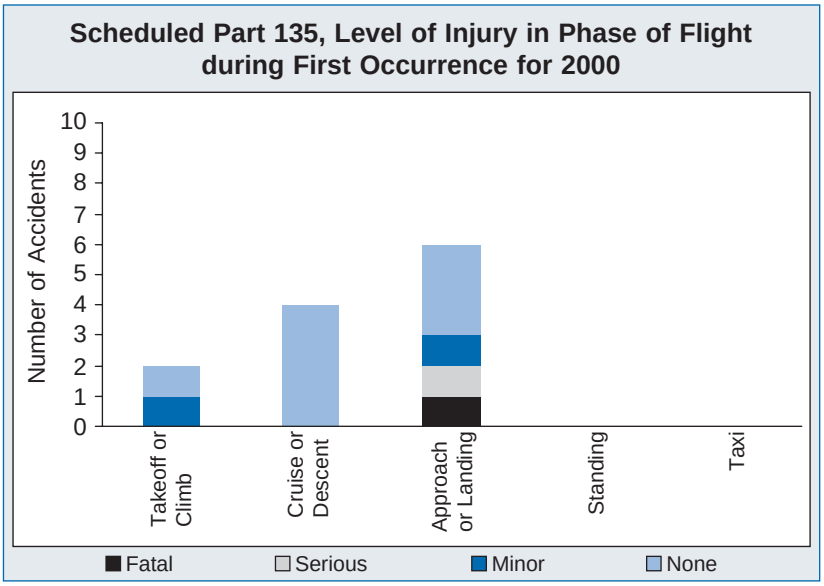
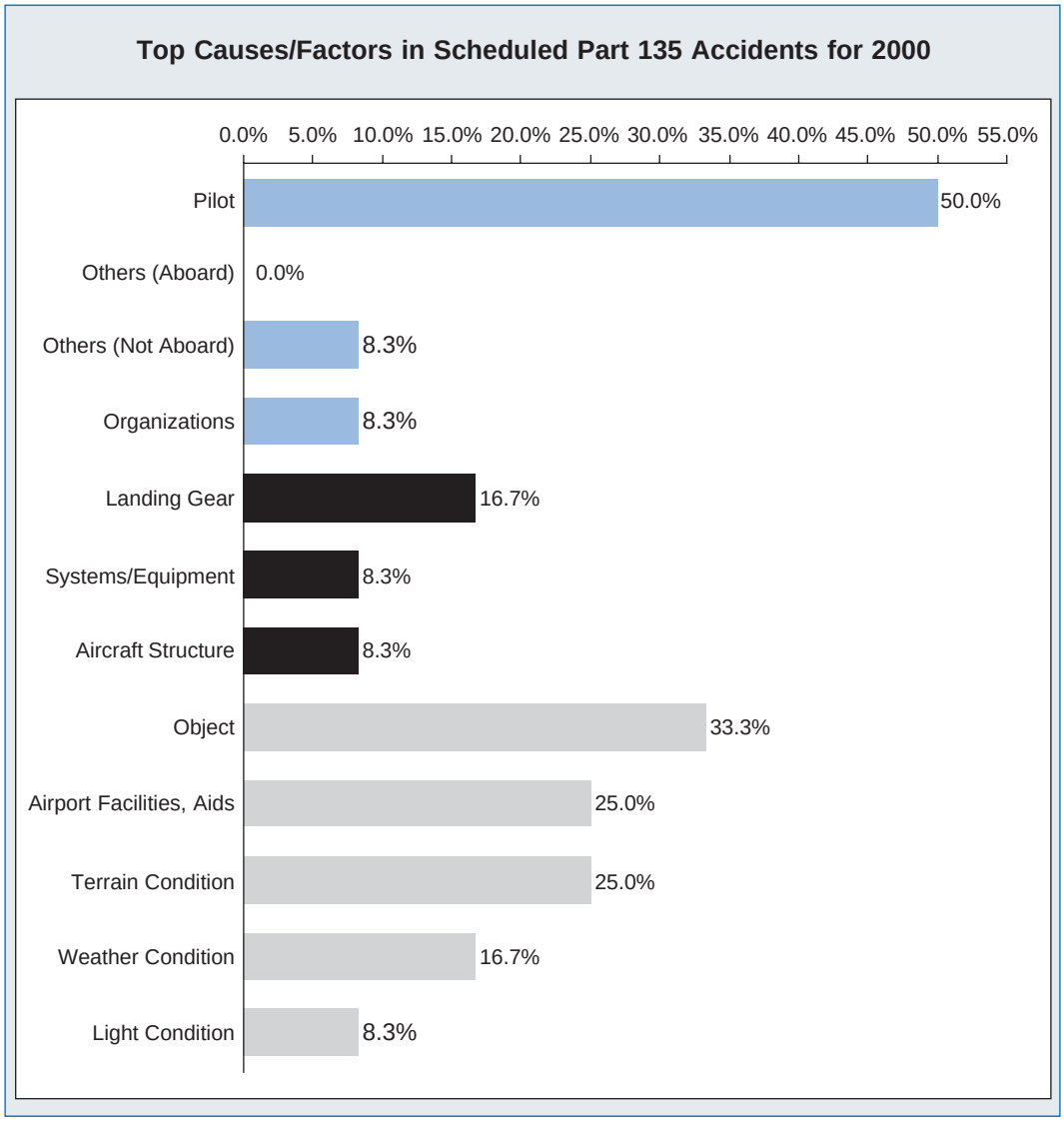


Figure 35



Of the 21 people who were injured in scheduled Part 135 accidents in 2000, five suffered fatal injuries (table 17). All of the fatalities and five of the seven serious injuries were due to a single accident in Nuiqsut, Alaska, when a twin-engine Piper PA-31T3 crashed during an aborted landing. The difference in accident frequency between aircraft with reciprocating engines and aircraft with turboprop engines was small (table 18).

Table 17

Scheduled Part 135 Injuries by Role in 2000

	Fatal	Serious	Minor	None	Total
Flight Crew	1	1	1	10	13
Cabin Crew					0
Other Crew					0
Passengers	4	6	8	22	40
Total Aboard	**5**	**7**	**9**	**32**	**53**
On Ground					0
Total	**5**	**7**	**9**	**32**	**53**
Accidents	1	1	2	8	12

Table 18

Scheduled Part 135 Accidents
Engine Type by Aircraft Damage for 2000

	Piston	Turboprop	Total
Destroyed		1	1
Substantial	7	4	11
Minor			
None			
Total	7	5	12

Detailed Analysis of On-Demand Part 135 Accidents for 2000

On-demand Part 135 operations provide charter and air taxi service to customers. In 2000, airplanes accounted for 63 of the 80 aircraft involved in on-demand Part 135 accidents, and the remaining 17 were helicopters. This section provides more detailed analysis of on-demand Part 135 airplane and helicopter accidents.

The approach or landing phase of flight accounted for the greatest number of on-demand Part 135 airplane accidents in 2000, followed by cruise or descent and takeoff or landing (table 19). This pattern was distinctly different for helicopter accidents, which occurred most often during cruise or descent (table 20). In-flight encounter with weather was the first occurrence most frequently cited during cruise or descent for both airplanes and helicopters. In-flight encounter with weather was also a factor for airplanes during approach or landing, but not for helicopters. This may be due, in part, to the capability of helicopters to hover and maneuver at slow speeds at much lower altitudes. Loss of control while in flight was, however, the most frequently cited first occurrence for helicopters during takeoff, climb, approach, landing, and maneuvering or hovering. Only four of the airplane accidents and none of the helicopter accidents occurred during the taxiing or standing phase, in contrast to the Part 121 first occurrence data in which 25% of the accidents occurred during those two phases of flight.

Table 19

On-Demand Part 135 Airplanes, First Occurrences by Phase of Flight for 2000

	Takeoff or Climb	Cruise or Descent	Approach or Landing	Maneuver	Taxiing or Standing	Total
In-flight Encounter with Weather	1	5	3			9
Airframe, Component, System Failure	1	1	2		1	5
In-flight Collision with Terrain or Water	1	1		2		4
Loss of Control - On Ground/Water	1		2		1	4
On-surface Encounter with Terrain or Water			3	1		4
Hard Landing			3			3
In-Flight Collision with Object	1		1	1		3
Loss of Engine Power		2	1			3
Loss of Engine Power Nonmechanical	1	1	1			3
Midair Collision		1	1	1		3
Wheels Up Landing			3			3
Collision between Aircraft (not midair)	1				1	2
Loss of Engine Power (partial) - Mechanical		1		1		2
Loss of Engine Power (partial) - Nonmechanical	1		1			2
Loss of Engine Power Mechanical		2				2

Table 19 continues on next page

Table 19 continued from previous page

	Takeoff or Climb	Cruise or Descent	Approach or Landing	Maneuver	Taxiing or Standing	Total
Propeller Failure or Malfunction	1	1				2
Cargo Shift	1					1
Miscellaneous/Other	1					1
On-surface Encounter with Weather			1			1
Overrun			1			1
Undershoot			1			1
Undetermined		1				1
Total	**11**	**16**	**24**	**5**	**4**	**60**

Table 20

On-Demand Part 135 Helicopters, First Occurrences by Phase of Flight for 2000

	Takeoff or Climb	Cruise or Descent	Approach or Landing	Maneuver or Hover	Total
Loss of Control - In Flight	2		1	2	5
In-flight Encounter with Weather		2			2
Loss of Engine Power	1	1			2
Airframe, Component, System Failure		1			1
Dragged Rotor, Tail, Pod, Float, or Skid				1	1
In-flight Collision with Terrain or Water			1		1
Loss of Engine Power (total) - Mechanical		1			1
Loss of Engine Power (total) - Nonmechanical					1
Miscellaneous/Other		1			1
Missing Aircraft		1			1
Rollover	1				1
Total	5	7	2	3	17

On-demand Part 135 accidents resulting in the most fatalities for both airplanes and helicopters occurred during cruise or descent (figures 36 and 37). Because helicopters can hover and slowly depart and approach landing areas, fewer helicopter accidents occur during takeoff and climb or approach and landing and injuries resulting from the accidents that do occur are less serious.

Figure 36

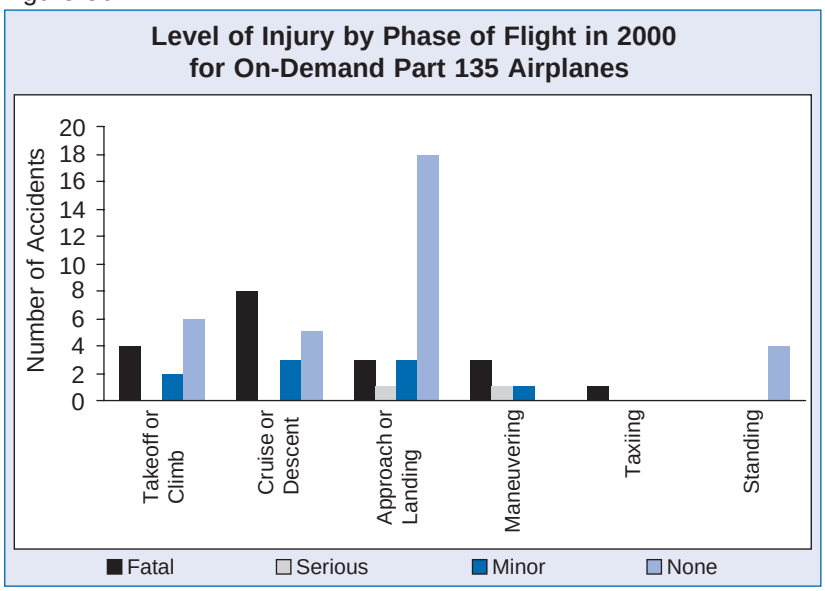
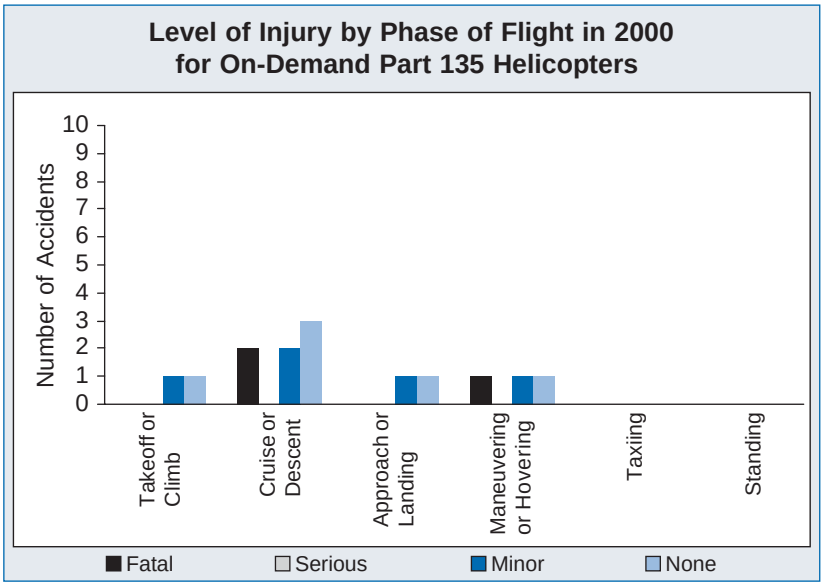


Figure 37



For both on-demand Part 135 airplane and helicopter accidents, the pilot was the most frequently cited cause/factor, followed by terrain and weather conditions (table 21). Powerplant/propulsion factors, were cited as often for helicopters as weather. Note that powerplant and propulsion factors were cited much more frequently for helicopters (35.3%) than for airplanes (16.9%); in both cases, these factors were cited more frequently than in Part 121 accidents (only 6.0%).

Table 21

On-Demand Part 135 Accidents
Top Causes/Factors in 2000

	Airplanes (percent)	Helicopters (percent)
Personnel		
Pilot	79.7%	70.6%
Others (Aboard)	0.0%	0.0%
Others (Not Aboard)	23.7%	17.6%
Organizations	5.1%	0.0%
Aircraft		
Powerplant/Propulsion	16.9%	35.3%
Flight Control Systems	0.0%	0.0%
Aircraft Structure	3.4%	0.0%
Landing Gear	5.1%	0.0%
Systems and Equipment	6.8%	0.0%
Engine Power Loss	0.0%	0.0%
Aircraft Performance	3.4%	0.0%
Fluid	6.8%	5.9%
Instruments	0.0%	5.9%
Environment		
Weather Condition	37.3%	35.3%
Light Condition	15.3%	17.6%
Object	8.5%	17.6%
Airport/Airways Facilities, Aids	11.9%	0.0%
Terrain Condition	32.2%	29.4%

The most common engine type among on-demand Part 135 accident aircraft was the reciprocating engine at 58.8%. Turboshaft and turboprop engines represented 21.2% and 17.5%, respectively, with one turbofan and one turbojet in the set (table 22).

Table 22

On-Demand Part 135 Accidents
Engine Type by Aircraft Damage in 2000

	Piston	Turboshaft	Turboprop	Turbojet	Turbofan	Total
Destroyed	14	6	3			23
Substantial	33	11	10	1	1	56
Minor			1			1
None						0
Total	**47**	**17**	**14**	**1**	**1**	**80**

Among the 80 on-demand Part 135 accidents that occurred in 2000 (table 23), 22 resulted in 71 fatalities, but almost half of the fatalities (30) resulted from two accidents.

- On May 21, a British Aerospace J-3101 crashed on approach to Wilkes-Barre/Scranton International Airport after losing both engines due to fuel exhaustion and starvation, resulting in 19 fatalities.

- On August 9, a chartered Piper PA-31 Navajo Chieftain and a Piper PA-44-180 Seminole collided over Burlington Township, New Jersey, resulting in 11 fatalities.

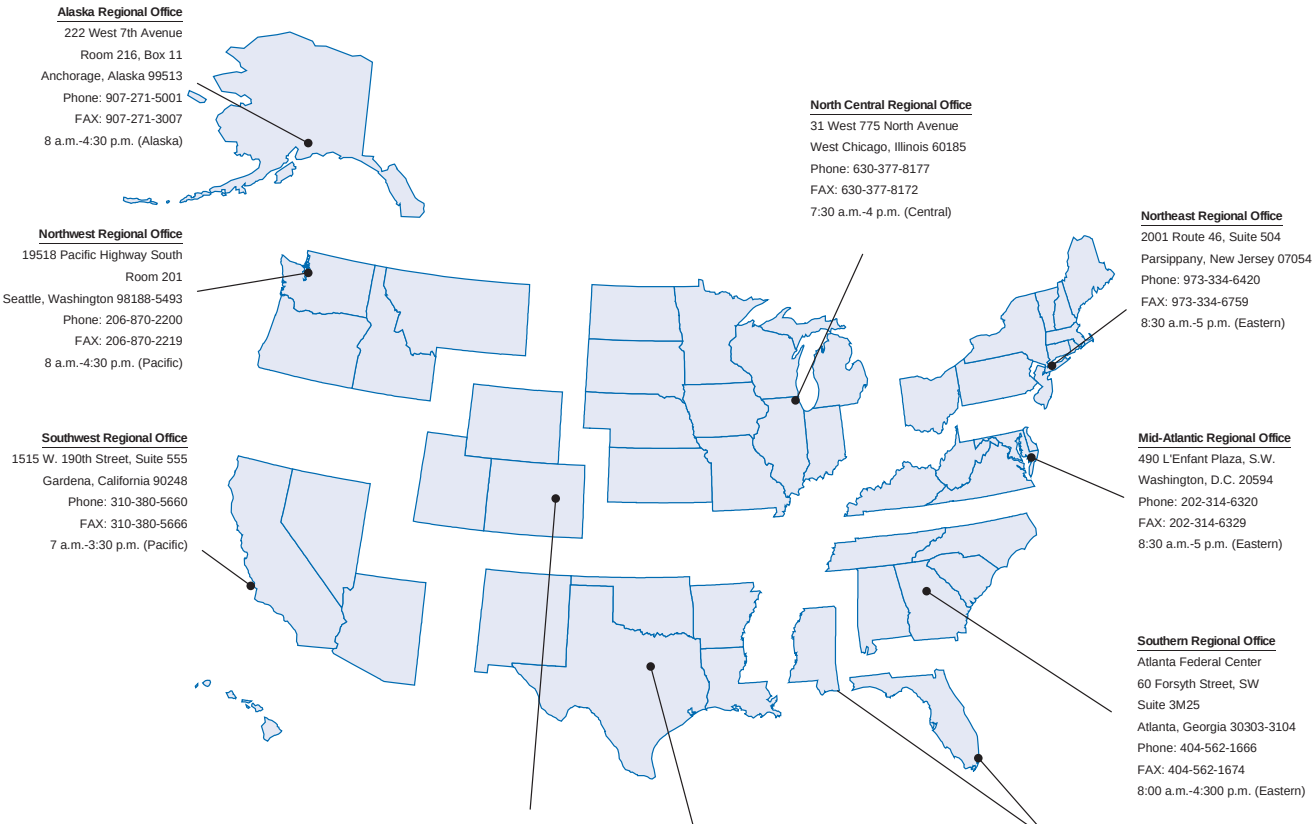
In addition to these fatalities, accidents among on-demand Part 135 operations accounted for 12 serious and 44 minor injuries. Of the 141 passengers involved in on-demand Part 135 accidents, 51% received injuries.

Table 23

On-Demand Part 135 Accident Injuries by Role for 2000

	Fatal	Serious	Minor	None	Total
Flight Crew	23	3	14	49	89
Cabin Crew					0
Other Crew	2		2	33	7
Passengers	43	9	26	6	141
Total Aboard	**68**	**12**	**42**	**115**	**237**
On Ground					0
Other Aircraft	3		2	9	14
Total	**71**	**12**	**44**	**124**	**251**
Accidents	22	5	14	39	80

National Transportation Safety Board Regional Offices[36]



Alaska Regional Office
222 West 7th Avenue
Room 216, Box 11
Anchorage, Alaska 99513
Phone: 907-271-5001
FAX: 907-271-3007
8 a.m.-4:30 p.m. (Alaska)

Northwest Regional Office
19518 Pacific Highway South
Room 201
Seattle, Washington 98188-5493
Phone: 206-870-2200
FAX: 206-870-2219
8 a.m.-4:30 p.m. (Pacific)

Southwest Regional Office
1515 W. 190th Street, Suite 555
Gardena, California 90248
Phone: 310-380-5660
FAX: 310-380-5666
7 a.m.-3:30 p.m. (Pacific)

Central Mountain Regional Office
4760 Oakland Street, Suite 500
Denver, Colorado 80239
Phone: 303-361-0600
FAX: 303-361-0619
7:30 a.m.-4 p.m. (Mountain)

North Central Regional Office
31 West 775 North Avenue
West Chicago, Illinois 60185
Phone: 630-377-8177
FAX: 630-377-8172
7:30 a.m.-4 p.m. (Central)

South Central Regional Office
624 Six Flags Drive
Suite 150
Arlington, Texas 76011
Phone: 817-652-7800
FAX: 817-652-7803
7:30 a.m.-4 p.m. (Central)

Northeast Regional Office
2001 Route 46, Suite 504
Parsippany, New Jersey 07054
Phone: 973-334-6420
FAX: 973-334-6759
8:30 a.m.-5 p.m. (Eastern)

Mid-Atlantic Regional Office
490 L'Enfant Plaza, S.W.
Washington, D.C. 20594
Phone: 202-314-6320
FAX: 202-314-6329
8:30 a.m.-5 p.m. (Eastern)

Southern Regional Office
Atlanta Federal Center
60 Forsyth Street, SW
Suite 3M25
Atlanta, Georgia 30303-3104
Phone: 404-562-1666
FAX: 404-562-1674
8:00 a.m.-4:300 p.m. (Eastern)

Southeast Regional Office
8405 N.W. 53rd Street
Suite B-103
Miami, Florida 33166
Phone: 305-597-4610
FAX: 305-597-4614
8 a.m.-4:30 p.m. (Eastern)

[36] As of FY 2003

2000 Part 121 Accidents

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Aircraft Type	Damage to Aircraft	Highest Injury	Accident Severity	Total Fatalities	First Occurrence	Phase of Flight
January 11, 2000	N909AW	Passenger	Las Vegas, NV	America West Airlines	Boeing 757-2G7	None	Serious	Injury	0	In Flight Encounter With Weather	Cruise
Probable Cause: Encounter with Clear Air Turbulence. Poor communication between the captain and flight attendants as to the urgency for the flight attendants to take their seats was a contributing factor.											
January 31, 2000	N963AS	Passenger	Port Hueneme, CA	Alaska Airlines	Douglas MD-83	Destroyed	Fatal	Major	88	Airframe/Component/System Failure/Malfunctio n	Cruise - Normal
Probable Cause: A loss of airplane pitch control resulting from the in-flight failure of the horizontal stabilizer trim system jackscrew assembly's acme nut threads. The thread failure was caused by excessive wear resulting from Alaska Airlines' insufficient lubrication of the jackscrew assembly. Contributing to the accident were Alaska Airlines' extended lubrication interval and the FAA's approval of that extension, which increased the likelihood that a missed or inadequate lubrication would result in excessive wear of the acme nut threads, and Alaska's extended end play check interval and the FAA's approval of that extension, which allowed the excessive wear of the acme threads to progress to failure without the opportunity for detection. Also, contributing to the accident was the abasence on the McDonnell Douglas MD-80 of a fail-safe mechanism to prevent the catastrophic effects of total acme nut thread loss.											
February 3, 2000	N397US	Passenger	Boston, MA	US Airways	Boeing 737-300	None	Serious	Injury	0	In Flight Encounter With Weather	Cruise
Probable Cause: In flight encounter with turbulence.											
February 12, 2000	N671DN	Passenger	San Salvador, El Salvado r	Delta Airlines	Boeing 757-232	Substantial	None	Damage	0	Hard Landing	Landing - Flare/Touchdown
Probable Cause: The pilot's improper flare which resulted in a bounced landing.											
February 14, 2000	N493US	Passenger	Red Bluff, CA	Horizon Air	Fokker FK-28-4000	None	Serious	Injury	0	In Flight Encounter With Weather	Descent - Normal
Probable Cause: The failure of the passenger to fasten his seat belt without the necessity of being instructed by the flight attendant.											
February 15, 2000	N81SK	Passenger	Escanaba, MI	Astral Aviation, DBA Skyway Airlines	Beech 1900D	Substantial	None	Damage	0	Loss Of Control - On Ground/Water	Landing - Roll
Probable Cause: The failure of the flightcrew to maintain directional control due to unsafe/hazardous conditions on the runway that was not relayed to them. Factors were the uneven snow covered runway and the snowbank.											
February 16, 2000	N8079U	Cargo	Rancho Cordova, CA	Emery Worldwide Airlines	Douglas DC-8-71F	Destroyed	Fatal	Major	3		
Probable Cause: A loss of pitch control resulting from the disconnection of the right elevator control tab. The disconnection was caused by the failure to properly secure and inspect the attachment bolt.											
February 19, 2000	N811CK	Cargo	Seattle, WA	Kitty Hawk International DBA American International Airways	McDonnell Douglas DC-8-63F	Substantial	None	Damage	0	Miscellaneous/Other	Takeoff
Probable Cause: Inadequate inspection of the number 1 and 2 engine cowls by company maintenance personnel and inadequate preflight inspection by the flight engineer, resulting in unsecured cowls separating from the aircraft during takeoff. A factor was unsecured number 1 and 2 engine cowls.											
February 21, 2000	N1403M	Passenger	Chicago, IL	American Airlines	Fokker F28 MK100	Substantial	Serious	Serious	0	On Ground/Water Collision With Obj ect	Standing
Probable Cause: The driver of the refueling truck fell asleep which resulted in him not maintaining clearance with the parked aircraft. Factors associated with the accident were severe obstructive sleep apnea and significant hypersomnolence which resulted in chronic fatigue.											
March 1, 2000	N302FE	Cargo	Newark, NJ	Federal Express	McDonnell Douglas DC-10-30F	Substantial	None	Damage	0	On Ground/Water Collision With Object	Taxi - Pushback/Tow
Probable Cause: The tug operator's inadequate visual lookout.											
March 5, 2000	N668SW	Passenger	Burbank, CA	Southwest Airlines	Boeing 737-300	Destroyed	Minor	Major	0	Overrun	Landing - Roll
Probable Cause: The flight crew's excessive airspeed and flightpath angle during the approach and landing and its failure to abort the approach when stabilized approach criteria were not met. Contributing to the accident was the controller's positioning of the airplane in such a manner as to leave no safe options for the flight crew other than a go-around maneuver.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Aircraft Type	Damage to Aircraft	Highest Injury	Accident Severity	Total Fatalities	First Occurrence	Phase of Flight
March 10, 2000	N636AS	Passenger and Cargo	Athens, GA	Atlantic Southeast Airlines	Aerospatiale ATR-72-212	None	Serious	Injury	0	In Flight Encounter With Weather	Cruise
Probable Cause: The flight attendant's failure to seat and belt herself during an inflight encounter with turbulence in clouds resulting in her losing foothold and falling against a passenger seat, sustaining a fractured ankle.											
March 16, 2000	N858CA	Passenger	Plattsburgh, NY	Champlain Enterprises, DBA Commutair	Beechcraft 1900D	None	Serious	Injury	0	Airframe/Component/System Failure/Malfunction	Standing
Probable Cause: The failure of the upper anchor bracket for the airstair door.											
March 18, 2000	N199GA	Passenger	Miami, FL	Gulfstream Int'L Airlines	Beech 1900	Minor	Serious	Injury	0	On Ground/Water Collision With Object	Taxi - From Landing
Probable Cause: Inadequate visual lookout by the driver of the vehicle.											
March 20, 2000	N329MX	Passenger	Denver, CO	Air Wisconsin	Dornier 328-100	Substantial	None	Damage	0	Gear Retraction On Ground	Landing - Roll
Probable Cause: Uncommanded retraction of the nose and right main landing gears during landing roll for reasons undetermined.											
March 21, 2000	N353SB	Passenger and Cargo	Killeen, TX	American Eagle Airlines	Saab 340B	Substantial	Minor	Damage	0	Overrun	Landing - Roll
Probable Cause: The captain's failure to follow standard operating procedure for landing on a contaminated ruway in that he touched down long, which combined with his delayed braking resulted in a runway overrun. Contributing factors were the captain's failure to maintain runway alignment following his disconnect of the autopilot, the gusty crosswind and the wet runway. In addition, the following were contributing factors: (1) the airport operator's failure to fill in a ditch in the runway safety area, (2) the FAA's granting of 14 CFR Part 139 approval to the airport when the runway safety area (RSA) did not meet the recommended length for a Part 139 airport, and (3) the FAA's continued lack of acknowledgement to the airport of the inadequate RSA following their annual airport inspection checks.											
April 2, 2000	N910AW	Passenger	Dallas, TX	America West Airlines	Boeing 757-2G7	None	Serious	Injury	0	In Flight Encounter With Weather	Cruise - Normal
Probable Cause: The en route cruise encounter with forecast moderate turbulence.											
April 2, 2000	N534MC	Cargo	Guayaquil, Ecuado r	Atlas Air	Boeing 747-200F	Substantial	None	Damage	0	In Flight Encounter With Weather	Cruise - Normal
Probable Cause:											
April 14, 2000	N308GB	Cargo	Guayaquil, Ecuado r	Arrow Air	Lockheed L-1011-385	Substantial	None	Damage	0	In Flight Encounter With Weather	Cruise - Normal
Probable Cause:											
April 25, 2000	N404XJ	Passenger	Hancock, MI	Lambert Leasing, DBA Northwest Airlink	Saab-Scania AB (Saab) SF-340B	Substantial	None	Damage	0	On Ground/Water Collision With Object	Takeoff - Roll/Run
Probable Cause: The deer which ran onto the runway and were subsequently struck by the airplane.											
April 25, 2000	N39081	Passenger	Newark, NJ	Continental Airlines	McDonnell Douglas DC-10-30	Substantial	None	Damage	0		
Probable Cause: Stress rupture of the 2nd-stage low pressure turbine anti-rotation nozzle locks, resulting from inadequate nozzle lock design.											
April 27, 2000	N990CF	Cargo	Denver, CO	Emery Worldwide Airlines	Douglas DC-8-62F	Substantial	None	Damage	0	Airframe/Component/System Failure/Malfunction	Cruise
Probable Cause: The failure of the clamp that secured the high-pressure bleed air duct to the high-pressure relief valve. Factors were the resulting excessive pressurization of the engine nacelle, and the subsequent separation of the engine cowling.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Aircraft Type	Damage to Aircraft	Highest Injury	Accident Severity	Total Fatalities	First Occurrence	Phase of Flight
May 5, 2000	N241SA	Passenger	Monument Valley, UT	Eagle Canyon Airlines, DBA Scenic Airlines	de Havilland DHC-6-300	Substantial	None	Damage	0	Loss Of Control - On Ground/Water	Takeoff - Roll/Run
Probable Cause: The pilot-in-command's failure to maintain directional control. A factor was wind shear.											
May 9, 2000	N192AT	Passenger	Maui, HI	American Trans Air	Lockheed L1011-385-1	Substantial	None	Damage	0	Hard Landing	Landing - Flare/Touchdown
Probable Cause: The captain's failure to maintain the proper wind-adjusted Vref airspeed, by a margin which varied from 7 to 20 knots too slow, during the final 10 seconds of the approach prior to touchdown.											
May 20, 2000	N522SW	Passenger and Car go	Nashville, TN	Southwest Airlines	Boeing 737-500	None	Serious	Injury	0	Miscellaneous/Other	Standing - Engine(s) Not Operating
Probable Cause: The passenger's onboard disturbance and self-evacuation from the parked aircraft, resulting in injuries. A factor in the accident was the lack of backup electrical power to the terminal which necessitated a lengthy ground hold.											
May 24, 2000	N767AX	Cargo	Seattle, WA	Abx Air, DBA Airborne Express	Boeing 767-200	None	None	Damage	0	Propeller Blast Or Jet Exhaust/Suction	Taxi - From Landing
Probable Cause: The failure of the B-767 flight crew to ensure their aircraft's jet blast was not a hazard to the Cessna. A factor for the Cessna was the B-767 moving on the taxiway. A factor for the B-767 was the Cessna standing in the runup area. A factor for both aircraft was congested/confined taxiway conditions.											
June 12, 2000	N655AW	Passenger	Las Vegas, NV	America West Airlines	Airbus Industrie A320-232	Substantial	None	Damage	0	Miscellaneous/Other	Takeoff
Probable Cause: The failure of the mechanic to refasten the cowling door prior to returning the aircraft to service.											
June 14, 2000	N649HA	Passenger	Lihue, Kauai, HI	Hawaiian Airlines	McDonnell Douglas DC-9-51	Substantial	Minor	Damage	0	Hard Landing	Landing - Flare/Touchdown
Probable Cause: The first officer's delayed and misjudged landing flare resulting in a tail strike and hard landing. Contributing factors were his relative inexperience flying the type of airplane, and the captain's and the first officer's failure to adhere to required company procedures and Federal Aviation Regulations.											
July 2, 2000	N460PR	Passenger	Orlando, FL	Pro Air	Boeing 737-49R	Substantial	None	Damage	0	On Ground/Water Collision With Object	Taxi - From Landing
Probable Cause: The captain's failure to stop the aircraft when given a stop signal by the ground marshaller and his failure to turn the aircraft when given a turn signal by the ground marshaller as he taxied into the gate resulting in the aircraft's left wing colliding with ground equipment.											
July 28, 2000	N364PA	Passenger	Charleston, SC	Pan Am Airways	Boeing 727-200	Minor	Serious	Injury	0	In Flight Encounter With Weather	Cruise
Probable Cause: The pilot's inadequate evaluation of weather information, and his delay in taking remedial action that resulted in the in-flight encounter with severe weather.											
July 31, 2000	N313UA	Passenger	Chicago, IL	United Airlines	Boeing 737-322	None	Serious	Injury	0	Abrupt Maneuver	Descent
Probable Cause: The evasive maneuver performed by the pilot. A factor was the activation of the collision avoidance system.											
August 8, 2000	N838AT	Passenger	Greensboro, NC	Airtran Airlines	Douglas DC-9-32	Substantial	Minor	Damage	0	Airframe/Component/System Failure/Malfunctio n	Takeoff - Initial Climb
Probable Cause: A phase-to-phase arc in the left heat exchanger cooling fan relay, which ignited the surrounding wire insulation and other combustible materials within the electrical power center panel. Contributing to the left heat exchanger fan relay malfunction was the unauthorized repair that was not to the manufacturer's standards and the circuit breaker's failure to recognize an arc-fault.											
August 16, 2000	N764AT	Passenger	Chicago, IL	American Trans Air	Boeing 727-264	Substantial	None	Damage	0	On Ground/Water Collision With Object	Taxi - Pushback/Tow
Probable Cause: The fractured tow bar and the inadequate weld of the tow bar by an unknown person.											
August 22, 2000	N785AN	Passenger	Baraboo, WI	American Airlines	Boeing 777-223	None	Serious	Injury	0	Miscellaneous/Other	Descent - Normal
Probable Cause: The unexpected turbulence encountered by the airplane.											
August 23, 2000	N657AM	Passenger and Car go	Gulf of Mexico, GM	American Airlines	Boeing 757-223	Minor	Serious	Injury	0	In Flight Encounter With Weather	Cruise - Normal
Probable Cause: The flight crew's inadvertent encounter with convective turbulence while in cruise flight. A factor was the rapidly developing convective activity.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Aircraft Type	Damage to Aircraft	Highest Injury	Accident Severity	Total Fatalities	First Occurrence	Phase of Flight
September 10, 2000	N296SC	Passenger	Minneapolis, MN	Sun Country Airlines	Boeing 727-224	Substantial	None	Damage	0	Airframe/Component/System Failure/Malfunction	Taxi - To Takeoff
Probable Cause: The fatigue failure of the wheel assembly. A factor was the inadequate inspection procedures prior to the issuance of a service bulletin.											
September 15, 2000	N461PR	Passenger	Flushing, NY	Pro Air	Boeing 737-49R	Substantial	None	Damage	0	On Ground/Water Collision With Object	Taxi - Pushback/Tow
Probable Cause: The tug operator's inadequate visual lookout. A factor in this accident was the night light condition.											
September 17, 2000	N853AS	Passenger and Cargo	Atlanta, GA	Atlantic Southeast Airlines, DBA Delta Connection	Bombardier CRJ	None	Serious	Injury	0	In Flight Encounter With Weather	Cruise - Normal
Probable Cause: The inadvertent flight into turbulent weather conditions.											
September 20, 2000	N172DZ	Passenger	Atlanta, GA	Delta Airlines	Boeing 767-332ER	None	Serious	Injury	0	In Flight Encounter With Weather	Descent - Normal
Probable Cause: An in-flight encounter with turbulence in clouds during a normal descent, resulting in serious injuries.											
September 26, 2000	N789AN	Passenger	Miami, FL	American Airlines	Boeing 777-223	None	Serious	Injury	0	In Flight Encounter With Weather	Descent - Normal
Probable Cause: An in-flight encounter with turbulence.											
September 29, 2000	N241AE	Passenger	Boston, MA	American Eagle Airlines	Saab 340B	Substantial	None	Damage	0	Miscellaneous/Other	Standing
Probable Cause: The operator's loss of control of the belt-loader, due to his improper decision to depress the vehicle's accelerator in the proximity of the airplane.											
October 10, 2000	N234NW	Passenger	Paris, France	Northwest Airlines	McDonnell Douglas DC-10-30	None	Serious	Injury	0		
Probable Cause:											
October 20, 2000	N488UE	Passenger	Dulles, VA	Atlantic Coast Airlines, DBA United Express	British Aerospace Jetstream 3201	Substantial	None	Damage	0	Loss Of Engine Power(Total) - Mech Failure/Malf	Descent
Probable Cause: The manufacturer's lack of dimensional inspection and repair requirements for the gearbox forward and aft diaphragm, which caused the bull gear to shift and resulted in an uncontained separation of the bull gear during flight.											
October 22, 2000	N575D	Passenger	Bethel, AK	Frontier Flying Service	Beech 1900D	Substantial	None	Damage	0	Loss Of Control - On Ground/Water	Landing - Roll
Probable Cause: The flight crew's failure to maintain directional control during the landing roll. A factor associated with the accident was the crew's failure to follow appropriate procedures.											
October 23, 2000	N786AT	Passenger	New York, NY	American Trans Air	Boeing 727-214	Minor	None	Damage	0	Collision Between Aircraft (Other Than Midair)	Taxi - To Takeoff
Probable Cause: The Boeing captain's misjudgment of the distance between his airplane and the CRJ. A factor was the nighttime conditions.											
October 23, 2000	N804CA	Passenger	New York, NY	Comair	Bombardier CL-600	Substantial	None	Damage	0	Collision Between Aircraft (Other Than Midair)	Taxi - To Takeoff
Probable Cause: The Boeing captain's misjudgment of the distance between his airplane and the CRJ. A factor was the nighttime conditions.											
November 4, 2000	N173DZ	Passenger and Car go	Portland, OR	Delta Air Lines	Boeing 767-332ER	None	Serious	Injury	0	In Flight Encounter With Weather	Descent - Normal
Probable Cause: An inflight encounter with turbulence that occurred before flight attendants could finish stowing a beverage cart and return to their seats.											
November 8, 2000	N402XJ	Passenger	Aberdeen, SD	Mesaba Aviation	Saab 340-B	Substantial	Minor	Damage	0	In Flight Collision Wi th Object	Approach
Probable Cause: The impact with the flock of snow geese.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Aircraft Type	Damage to Aircraft	Highest Injury	Accident Severity	Total Fatalities	First Occurrence	Phase of Flight
November 13, 2000	N611AS	Passenger	Anchorage, AK	Alaska Air Group, DBA Alaska Airlines	Boeing 737-790	None	Serious	Injury	0	In Flight Encounter With Weather	Descent - Normal
Probable Cause: An in-flight encounter with clear air turbulence.											
November 20, 2000	N630AS	Passenger and Cargo	Ashevelle, NC	Atlantic Southeast Airlines, DBA Delta Connection	Aerospatiale ATR-72-212	None	Serious	Injury	0	In Flight Encounter With Weather	Descent - Normal
Probable Cause: The flight encountered forecasted turbulence, which resulted in serious injury to a flight attendant. Factors in this accident were; the captain's inadequate briefing to the cabin crew; and the insufficient information about the known turbulence that would be encountered during descent.											
November 20, 2000	N14056	Passenger	Miami, FL	American Airlines	Airbus Industrie A300B4-605 R	Minor	Fatal	Serious	1	In Flight Encounter With Weather	Cruise - Normal
Probable Cause: not available.											
November 29, 2000	N826AT	Passenger	Atlanta, GA	Airtran Airways	Douglas DC-9	Substantial	Minor	Damage	0	Airframe/Component/System Failure/Malfunctio n	Climb
Probable Cause: The leakage of lavatory fluid from the airplane's forward lavatory onto electrical connectors, which caused shorting that led to a fire. Contributing to the accident were the inadequate servicing of the lavatory and the failure of maintenance to ensure reinstallation of the shield over the fuselage station 237 disconnect panel.											
December 6, 2000	N504AS	Passenger	Charleston, WV	Atlantic Southeast Airways	Embraer 120RT	Substantial	Serious	Serious	0	On Ground/Water Collision With Object	Landing - Roll
Probable Cause: Deer on the runway. Factors included reduced visibility due to nighttime lighting and light snow conditions, breaches in the perimeter fence, increased seasonal deer activity, and the rural location of the airport.											
December 23, 2000	N132AA	Passenger	FAAA Tahiti, French Polynesi a	Hawaiian Airlines	McDonnell Douglas DC-10-10	Substantial	None	Damage	0		
Probable Cause:											
December 27, 2000	N155DL	Passenger	Boston, MA	Delta Air Lines	Boeing 767-300ER	None	Serious	Injury	0	Propeller Blast Or Jet Exhaust/Suction	Taxi
Probable Cause: The vehicle driver's improper decision to pass behind an aircraft with operating engines, which resulted in an encounter with jet blast.											
December 27, 2000	N769NC	Passenger	Jamaica, NY	Northwest Airlines	McDonnell Douglas DC-9-51	Substantial	None	Damage	0	On Ground/Water Collision With Object	Takeoff - Roll/Run
Probable Cause: The low cycle fatigue fracturing of the approach lighting cover securing bolts.											
December 29, 2000	N323UE	Passenger	Charlottesville, VA	Atlantic Coast Airlines, DBA United Express	Jetstream 4101	Substantial	Minor	Damage	0	Overrun	Landing - Roll
Probable Cause: The captain's improper application of power after responding to a beta warning light during landing rollout, which resulted in an excessive rollout speed and an inability to stop the airplane before it reached the end of the runway.											

2000 Scheduled Part 135 Accidents

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalties	First Occurrence	Phase of Flight
February 7, 2000	N327CT	Passenger and Cargo	Tuluksak, AK	Hageland Aviation Services	Cessna 207	Substantial	None	0	On Ground/Water Encounter With Terrain/Water	Takeoff - Roll/Run
Probable Cause: The pilot's failure to maintain proper ali gnment during the takeoff roll. A factor associated with the accident was a soft area of snow on the runway.										
	N110JK	Passenger	Wales, AK	Cape Smythe Air Service	Piper PA-31-T3	Substantial	Serious	0	In Flight Encounter With Weather	Approach - VFR Pattern - Base Le g/Base To Final
Probable Cause: The pilot's inade quate evaluation of the weather conditions, and his inadvertent flight into adverse weather conditions. Factors in the accident were terrain induced turbulence and a tailwind										
February 21, 2000	N219CS	Passenger and Car go	Kotzebue, AK	Cape Smythe Air Service	Piper PA-31-T3	Substantial	Minor	0	In Flight Collision With Terrain/Water	Approach - Faf/Outer Marker To Threshold (IFR)
March 4, 2000	N407GV	Passenger and Cargo	Holy Cross, AK	Hageland Aviation Services	Cessna 208B	Substantial	None	0	Airframe / Component / System Failure/Malfunctio n	
Probable Cause: An in-flight se paration of a main landing gear tire mud flap, and subse quent im pact with the horizontal stabilizer.										
March 16, 2000	N251RS	Passenger	Fort Lauderdale, FL	Air Sunshine	Cessna 402C	Substantial	Minor	0	Airframe/Component/S ystem Failure/Malfunctio n	
Probable Cause: Separation of the right main landing gear tire recap during takeoff resulting in the pilot's loss of directional control, the aircraft departing the runway, collapse of the landing gear, and collision with the airport fence.										
March 27, 2000	N8540F	Passenger and Car go	Fairbanks, AK	Servant Air	Piper PA-32R	Substantial	None	0	Undershoot	Landing - Flare/Touchdown
Probable Cause: The pilot's misjudgment of distance/altitude, and subsequent undershoot during landing. Factors in the accident were light snow precipitation, flat light conditions, snow-covered terrain, and the absence of a visual approach slope indicator.										
May 22, 2000	N402ET	Passenger and Car go	Cordova, AK	Arctic Circle Air Service	Cessna 402C	Substantial	None	0	In Flight Collision With Object	
Probable Cause: An in-fli ght collision with a bird.										
June 30, 2000	N7037E	Passenger	Naples, FL	Hyannis Air Service, DBA Ca pe Air	Cessna 402C	Substantial	None	0	In Flight Collision With Object	
Probable Cause: An infli ght collision with a bird durin g descent that resulted in substantial damage to the air plane's vertical stabilizer s par.										
August 18, 2000	N995SB	Passenger	Deadhorse, AK	Cape Smythe Air Service	Beech C-99	Substantial	None	0	In Flight Collision With Object	
Probable Cause: An in-fli ght collision with a bird.										
September 14, 2000	N4105D	Passenger	Emmonak, AK	Grant Aviation	Piper PA-31-350	Substantial	None	0	Airframe/Component/S ystem Failure/Malfunctio n	
Probable Cause: The pilot's continued operation of the airplane on unsuitable terrain, and the subsequent failure of the main landing gear torque link. Factors in the accident were rough and uneven runways, and inadequate surveillance of airport facilities/runway conditions by company management.										
September 18, 2000	N220CS	Passenger	Nuiqsut, AK	Cape Smythe Air Service	Piper PA-31T3	Destroyed	Fatal	5	Dragged Wing, Rotor, Pod, Float Or Tail/Skid	Landing - Flare/Touchdown
Probable Cause: The pilot's failure to extend the landing gear, his improper aborted landing procedure, and inadvertent stall/mush. Factors in the accident were an improper adjustment of the landing gear warning horn s ystem b y com pany maintenance personnel , and the failure of the pilot to utilize the prelandin g checklis t										
	N5293X	Passenger	Kiana, AK	Baker Aviation	Cessna 206	Substantial	None	0	In Flight Collision With Object	
Probable Cause: An in-fli ght collision with birds.										

2000 On-Demand Part 135 Accidents

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
January 19, 2000	N9457B	Cargo	Warsaw, IN	Planemasters Ltd	Airplane	Cessna 208B	Substantial	None	0	Miscellaneous/Other	Takeoff - Initial Climb
Probable Cause: The misjudged unsafe/hazardous condition by the pilot. Factors to the accident were the precautionary landing being performed by the pilot and the snow covered runway. Additional factors were the dark night, the snowing weather condition, the airport perimeter fence, and the railroad track.											
January 26, 2000	N8004N	Cargo	Ekuk, AK	Peninsula Airways DBA Penair	Airplane	Piper PA-32-301	Substantial	None	0	On Ground/Water Encounter With Terrain/Water	Landing - Roll
Probable Cause: The pilot's selection of an unsuitable runway for landing. Factors associated with the accident were the inadequate runway maintenance by the runway maintenance personnel, snow berms, and insufficie runway condition information disseminated by the company dispatcher.											
January 27, 2000	N87338	Cargo	Columbia Falls, MT	Exec Air	Airplane	Cessna 310R	Destroyed	Serious	0	In Flight Collision With Terrain/Water	Maneuvering
Probable Cause: Failure of the pilot-in-command to follow the prescribed instrument approach missed approach procedure.											
January 28, 2000	N245DH	Cargo	Fayetteville, AR	Ameriflight	Airplane	Swearingen SA-227-AT	Substantial	None	0	Wheels Up Landing	Landing - Flare/Touchdown
Probable Cause: The flight crew's failure to extend the landing gear. Contributing factors were the flight crew's non-compliance with the checklist, the pilot-in-command's diverted attention as a result of the loss of instrument approach/runway lighting, the partial failure of the instrument approach/runway lighting system, and the partial failure of the intercom system.											
January 28, 2000	N42Y	Cargo	W. Columbia, SC	Corporate Air Fleet	Airplane	Piper PA-32RT-300	Substantial	None	0	On Ground/Water Encounter With Terrain/Water	Taxi - From Landing
Probable Cause: The inadequate wording of the NOTAM for failure to identify that the usable width of the runway was reduced and the inadequate snow removal by airport personnel for failure to remove the snow from the runway resulting in the on-ground collision with a snow bank.											
February 2, 2000	N122V	Cargo	Bimini, Bahamas	Florida Air Cargo	Airplane	Beech D18S	Substantial	Minor	0		
Probable Cause:											
February 5, 2000	N756HG	Passenger	Iliamna, AK	Iliamna Air Taxi	Airplane	Cessna U206G	Destroyed	Fatal	6	In Flight Encounter With Weat her	Cruise
Probable Cause: The pilot's attempted flight into adverse weather, and his failure to maintain altitude/clearance above the snow-covered tundra. Factors associated with the accident were snow, rain, and whiteout conditions.											
February 11, 2000	N152BK	Cargo	Lewiston, ID	American Check Transport	Airplane	Mitsubishi MU-2B 60	Destroyed	Fatal	1	Loss Of Engine Power	Approach
Probable Cause: The pilot failed to follow the flight manual procedures and did not engage the Continuous Ignition system resulting in both engines flaming out when the air induction system was blocked with ice. Additional factors to the accident included the hilly terrain, the icing conditions, and the operator not complying with a Service Bulletin for the installation of an auto-ignition system.											
February 15, 2000	N106RS	Passenger	Amery, WI	Wisconsin Aviation	Airplane	Piper PA-23-250	Substantial	None	0	In Flight Encounter With Weather	Cruise
Probable Cause: The pilots failure to maintain directional control. Factors to the accident were the icing conditions, the snow and ice covered runway and the snowbank.											
February 16, 2000	N9505B	Cargo	Mcalester, OK	Martinaire	Airplane	Cessna 208B	Substantial	Fatal	1	Midair Collision	Maneuvering
Probable Cause: The failure of both pilots to maintain visual lookout while maneuvering in the traffic pattern.											
March 10, 2000	N335T	Passenger	Dalhart, TX	Temsco Helicopters, DBA Northwest Texas Hospital	Helicopter	Eurocopter BO105S	Destroyed	Fatal	4	Loss Of Control - In Flight	Maneuvering
Probable Cause: The pilot's failure to maintain control of the helicopter as a result of his continued flight into known adverse weather conditions. Factors were the dark night light condition, fog, low ceiling, and the pilot's lack of total instrument flight time.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
March 10, 2000	N75703	Cargo	Delta Junction, AK	40 Mile Air, Ltd.	Airplane	Cessna 207	Substantial	Minor	0	Loss Of Engine Power(Total) - Mech Failure/Malf	Cruise
Probable Cause: The disintegration of the number two piston. A factor in this accident was the subsequent metal fouling of the spark plugs, which resulted in total loss of engine power.											
March 15, 2000	N11NX	Cargo	San Antonio, TX	Texas Air Charters, DBA National Ex press	Airplane	Cessna 402C	Substantial	None	0	Hard Landing	Landing - Flare/Touchdown
Probable Cause: The pilot's inadequate handling of the aircraft during the landing flare/touchdown resulting in a hard landing that collapsed the left main landing gear.											
March 20, 2000	N5002E	Passenger and Cargo	Brazos 542, GM	Horizon Helicopters	Helicopter	Bell 206B3	Destroyed	Minor	0	Loss Of Control - In Flight	Maneuvering - Turn To Reverse Direction
Probable Cause: The pilot's right turn maneuver during low speed resulting in a loss of tail rotor effectiveness and subsequent loss of control.											
March 29, 2000	N5006R	Passenger	Manokotak, AK	U.S. Coast Guard	Helicopter	Bell 206B	Substantial	None	0	In Flight Encounter With Weather	Cruise
Probable Cause: The pilot's continued VFR flight into instrument meteorological conditions. Factors in the accident were low ceilings and snow, and snow-covered terrain.											
March 31, 2000	N8230V	Passenger	Rocky Mount, NC	Causey Aviation Service	Airplane	Beech 58	Substantial	Serious	0	In Flight Collision With Object	Approach
Probable Cause: The pilot's inadvertent VFR flight into IMC conditions and the failure of the pilot to maintain altitude/clear ance resulting in the in-flight collision with trees and unmarked power lines during a visual approach to the runway.											
April 5, 2000	N549WB	Cargo	Delta Junction, AK	Allwest Freight	Airplane	Short Brothers SC7	Substantial	None	0	On Ground/Water Encounter With Weather	Landing - Roll
Probable Cause: The pilot's inadequate compensation for wind conditions during landing. Factors associated with the accident were an unfavorable wind, a crosswind, and an inadvertent swerve.											
April 15, 2000	N26SA	Cargo	Lansing, MI	Superior Aviation	Airplane	Cessna 404	Substantial	None	0	Loss Of Engine Power(Total) - Nonmechanical	Takeoff - Initial Climb
Probable Cause: A loss of engine power due to improper fuel. Also causal was the improper aircraft service by the fixed base operator personnel and the unsuitable terrain for the forced landing encountered by the pilot. Factors were the improper grade of fuel and the lack of suitable terrain for the landing.											
April 16, 2000	N175PA	Passenger	Grand Canyon, AZ	Papillon Airways, DBA Papillon Grand Cyn. Helicopters	Helicopter	Bell 407	Substantial	None	0	Miscellaneous/Other	Cruise - Normal
Probable Cause: The failure and subsequent disintegration of the oil cooler fan forward hanger bearing.											
April 18, 2000	N2267N	Passenger	Grand Canyon, AZ	Kenai Air Of Hawaii, DBA Kenai Helico pters	Helicopter	Bell 206L-3	Destroyed	Serious	0	Loss Of Engine Power(Total) - Nonmechanical	Takeoff - Initial Climb
Probable Cause: A snow ingestion caused loss of engine power due to the pilot's inadequate preflight inspection and failure to remove the accumulated snow from the engine inlet area. Also causal was the pilot's failure to maintain main rotor rpm while maneuvering to avoid power lines directly in his path during the autorotation necessitated by the loss of power. While the failure to maintain proper rotor rpm is listed as causal, the Safety Board acknowledges that the pilot's successful avoidance of the power lines, which required expenditure of rotor energy, likely precluded a more severe accident.											
April 18, 2000	N9429Q	Car go	Decatur, I L	Gailforce	Airplane	Beech 58	Substantial	None	0	Wheels U p Landin g	Landin g
Probable Cause: The failure of the pilot to extend the landing g ear which resulted in the gear-u p landin g. A factor to the accident was the pilot's failure to comp lete the landin g checklist											
April 21, 2000	N6094H	Passenger	Kahului, HI	Sunshine Helicopters	Helicopter	Eurocopter AS-350BA	Substantial	None	0	Loss Of Engine Power(Total) - Mech Failure/Malf	Cruise
Probable Cause: Failure of the manufacturer to ensure proper quality control of the ignition solenoid housing chamfer area, wh ich allowed for insufficient clamping forces between the ignition solenoid housing and T-fitting, and the eventual separation of the T-fitting, loss of fuel, and loss of engine power.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
May 1, 2000	N301MH	Passenger	Homer, AK	Maritime Helicopters	Helicopter	Bell 206B	Substantial	None	0	In Flight Collision With Terrain/Water	Landing - Flare/Touchdown
Probable Cause: The pilot's misjudging the landing flare in whiteout/flat light conditions. Factors associated with the accident are the whiteout and flat lighting conditions.											
May 6, 2000	N9TD	Passenger	Eckerman, MI	Watchill Llc.	Helicopter	Bell 206B	Destroyed	Minor	0	Loss Of Control - In Flight	Lan ding - Aborted
Probable Cause: The pilot's failure to attain translational lift following an aborted landing and the loss of tail rotor effectiveness encountered by the pilot. Factors to the accident were the low rotor rpm and the trees.											
May 7, 2000	N3622C	Passenger	Monument Valley, UT	Westwind Aviation	Airplane	Cessna R182	Substantial	Minor	0	In Flight Encounter With Weather	Approach - VFR Pattern - Final Approach
Probable Cause: The pilot's inadequate compensation for wind conditions and his delayed go-around, which resulted in the loss of aircraft control. A factor was the turbulent weather conditions.											
May 19, 2000	N235BA	Cargo	Denver, CO	Superior Aviation	Airplane	Swearingen SA226TC	Substantial	Minor	0	Propeller Failure/Malfunction	Takeoff - Roll/Run
Probable Cause: propeller blade fatigue failure due to stress corrosion.											
May 21, 2000	N16EJ	Passenger	Bear Creek Town, PA	East Coast Aviation Services, DBA Executive Airlines	Airplane	British Aerospace J-3101	Destroyed	Fatal	19	Loss Of Engine Power(Total) - Nonmechanical	Approach
Probable Cause: The flight crew's failure to ensure an adequate fuel supply for the flight, which led to the stoppage of the right engine due to fuel exhaustion and the intermittent stoppage of the left engine due to fuel starvation. Contributing to the accident were the flight crew's failure to monitor the airplanes fuel state and the flight crew's failure to maintain directional control after the initial engine stoppage.											
May 24, 2000	N350JG	Passenger and Cargo	Patterson, LA	Tex Air Helcopters	Helicopter	Eurocopter AS350B2	Substantial	Minor	0	Airframe/Component/System Failure/Malfunction	Cruise
Probable Cause: The failure of the tail rotor spider bearing, the pilot's failure to follow the proper emergency procedures as stated in the helicopter's checklist by not performing a run-on landing, and the inadvertent deactivation of the hydraulic system.											
May 31, 2000	N7817S	Passenger and Cargo	Cocodrie, LA	Panther Helicopters	Helicopter	Bell 206B	Substantial	Serious	0	Roll Over	Takeoff
Probable Cause: The pilot's failure to maintain clearance with the platform's safety fence during takeoff.											
June 12, 2000	N61441	Cargo	New Orleans, LA	Southern Seaplane	Airplane	Cessna A185F	Substantial	None	0	Loss Of Control - On Ground/Water	Landing - Roll
Probable Cause: The pilot's failure to maintain directional control during landing roll, which resulted in a ground loop.											
June 13, 2000	N184GA	Cargo	Peterborough, Canada	Grand Aire, DBA Grand Air Express	Airplane	Dassault FALCON 20	Substantial	Minor	0		
Probable Cause:											
June 19, 2000	N1589F	Passenger	Talkeetna, AK	National Parks Service	Airplane	Cessna 185E	Destroyed	Fatal	4	In Flight Encounter With Weather	Cruise
Probable Cause: The pilot's continued flight into known adverse weather conditions and subsequent in-flight break-up. Factors in the accident were weather conditions consisting of low ceilings, turbulence, and an occluded front with convective activity, and inadequate oversight of the flight by company management.											
June 22, 2000	N495K	Passenger	King Salmon, AK	Katmai Air	Airplane	Cessna 206	Substantial	Minor	0	Collision Between Aircraft (Other Than Midair)	Takeoff - Roll/Run
Probable Cause: The Cessna pilot's inadequate visual lookout, and both pilots' inadequate radio traffic advisories. A factor associated with the accident was sunglare on the water.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
July 6, 2000	N756HK	Passenger	North Haven, ME	Telford Aviation	Airplane	Cessna U206G	Substantial	None	0	Overrun	Landing - Roll
Probable Cause: The pilot's failure to perform a go-around. Factors related to the accident were the pilot's lack of total flight experience in make and model, and the short landing area.											
July 8, 2000	N402NA	Cargo	Del City, TX	Saber Cargo Airlines, DBA Saber Cargo Airlines	Airplane	Cessna 402A	Substantial	None	0	Loss Of Engine Power(Total) - Nonmechanical	Cruise
Probable Cause: The total loss of engine power on both engines during cruise due to fuel starvation as a result of the pilot's improper use of the fuel selectors. Contributing factors were the pilot's lack of familiarity with the aircraft, and the lack of suitable terrain for the forced landing.											
July 8, 2000	N405MN	Mail	Vieques, PR	M And N Aviation	Airplane	Cessna 402C	Destroyed	Fatal	1	Undetermined	Descent
Probable Cause: The airplanes entry into an uncontrolled descent for undetermined reasons from which it crashed into the ocean.											
July 12, 2000	N1549U	Cargo	Kotlik, AK	Larry's Flying Service	Airplane	Cessna 207	Substantial	None	0	Hard Landing	Landing - Flare/Touchdown
Probable Cause: The pilot's inadequate flare during landing.											
July 17, 2000	N158MT	Cargo	Hernando, MS	AirNet Systems, DBA Star Check	Airplane	Beech 58	Destroyed	Fatal	1		
Probable Cause: The arcing of an electrical wire behind the instrument panel and the associated cracking of fuel and oil lines. Also causal was the pilot's inappropriate remedial action not in accordance with the emergency checklist.											
July 20, 2000	N54AA	Cargo	Nassau, Bahamas	Allied Air Freight	Airplane	Douglas DC-3	Destroyed	Fatal	2		
Probable Cause:											
July 21, 2000	N510TG	Passenger	Kahului, Maui, HI	Helicopter Consultants Of Maui, DBA Blue Hawaiian Helico pters	Helicopter	Aerospatiale AS 355F1	Destroyed	Fatal	7	In Flight Encounter With Weather	Cruise
Probable Cause: The pilot's inadequate decision by which he continued visual flight rules flight into instrument meteorological conditions. Also causal was his failure to maintain terrain clearance resulting in a collision with mountainous terrain. A contributing factor was the low ceiling.											
July 23, 2000	N600EE	Passenger	Boulder City, NV	Air Bridge	Airplane	Piper PA-31-350	Substantial	None	0	Loss Of Engine Power(Total) - Mech Failure/Malf	Cruise - Normal
Probable Cause: The fatigue fracture and separation of the No. 6 cylinder fuel injector line due to the company maintenance personnel's failure to comply with an Airworthiness Directive. A factor in the accident was the company's decision to operate the aircraft in environmental conditions, which were outside of the single engine performance capability of the aircraft.											
July 25, 2000	N206RA	Cargo	Pistol Creek, ID	Arnold Aviation	Airplane	Cessna TU-206G	Destroyed	Fatal	1	Airframe/Component/System Failure/Malfunctio n	Climb
Probable Cause: A loss of engine power due to the fracture of the #2 cylinder intake valve stem and the puncturing of the #2 piston dome by the intake valve head. Factors include no suitable landing site within the maneuverin g abilities of the aircraft, and coniferous trees in the area where the pilot attempted a forced landin g											
August 9, 2000	N27944	Passenger	Burlington Twp., NJ	Patuxent Airways	Airplane	Piper PA-31 Navajo	Destroyed	Fatal	11	Midair Collision	Cruise
Probable Cause: The failure of the pilots of the two airplanes to see and avoid each other and maintain proper airspace separation during visual flight rules flight.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
August 11, 2000	N1116Y	Cargo	North Platte, NE	Suburban Air Freight	Airplane	Cessna 208B	Minor	None	0	Collision Between Aircraft (Other Than Midair)	Taxi
Probable Cause: The pilot not maintaining clearance form the other airplane while taxiing. A factor was the dark night.											
August 11, 2000	N20752	Passenger	Barrow, AK	Cape Smythe Air Service	Airplane	Cessna 185F	Substantial	None	0	On Ground/Water Encounter With Terrain/Water	Landing - Roll
Probable Cause: The pilot's selection of unsuitable terrain for landing. A factor in the accident was a hidden obstruction, and soft terrain.											
August 15, 2000	N801MW	Passenger	Lumber City, GA	Holman Funeral Home	Airplane	Piper PA-31-350	Destroyed	Fatal	3	In Flight Encounter With Weather	Approach
Probable Cause: Pilot's failure to follow instrument procedures and descended below approach minimums and collided with trees. A factor was low clouds.											
August 16, 2000	N185M	Passenger	Yakutat, AK	Paul Swanstrom, DBA Mountain Flying Service	Airplane	Cessna 185	Substantial	None	0	Airframe/Component/System Failure/Malfunction	Landing - Flare/Touchdown
Probable Cause: The total fatigue failure of the right main landing gear leg.											
August 24, 2000	N770MA	Cargo	Corsicana, TX	International Business Acft	Airplane	Mitsubishi MU-2B 35	Substantial	None	0	Propeller Failure/Malfunction	Cruise - Normal
Probable Cause: The in-flight separation of the propeller blade, which resulted from intergranular corrosion and fatigue cracking.											
August 25, 2000	N570CA	Passenger	Coolin, ID	Silverhawk Aviation	Helicopter	Hughes 369E	Substantial	None	0	Loss Of Engine Power	Takeoff - Initial Climb
Probable Cause: The turbine outlet temperature indicating system was out of calibration. Factors included improper maintenance calibration, which resulted in the over temperature of the turbine assembly.											
August 25, 2000	N923BA	Passenger	Hilo, HI	Big Island Air, DBA Big Island Air	Airplane	Piper PA-31-350	Substantial	Fatal	1	Loss Of Engine Power(Partial) - Mech Failure/Malf	Cruise
Probable Cause: Deterioration and failure of the oil filter converter plate gasket, which resulted in a loss of engine power and a subsequent in-flight fire.											
August 28, 2000	N6993N	Passenger	Council, ID	Scott M. Patrick, DBA Sp Aircraft	Airplane	Cessna T210N	Substantial	Minor	0	Loss Of Engine Power	Cruise
Probable Cause: The fatigue failure of the crankshaft due to improper overhaul procedures. Factors include a soft area in the field where the forced landing took place.											
September 1, 2000	N8304C	Cargo	Mason City, IA	Delta Sales Company, DBA Safewing Aviation	Airplane	Piper PA-32R-300	Substantial	None	0	Loss Of Engine Power	Cruise
Probable Cause: The unsuitable terrain for landing encountered by the pilot and the failure of the oil filter converter plate gasket. Factors to the accident were the total loss of oil and the soft terrain condition.											
September 6, 2000	N9874M	Mail	Kongiganak, AK	Alaska Central Express	Airplane	Cessna 207	Substantial	None	0	On Ground/Water Encounter With Terrain/Water	Landing - Roll
Probable Cause: The pilot's selection of an unsuitable, rough, runway. Factors were the crosswind, the pilot's inexperience, the company's inadequate surveillance of their operation, and dispatch of an inexperienced pilot to the unsuitable airport.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
September 14, 2000	N806BF	Cargo	Belleville, MI	Thunder Aviation Acquisition	Airplane	Cessna 208B	Substantial	None		Cargo Shift	Takeoff - Roll/Run
Probable Cause: The pilot's improper securing of the cargo that led up to the cargo shift during takeoff roll. A factor was the cargo restraint failure.											
September 18, 2000	N17754	Passenger	Hoover Dam, AZ	Papillon Helicopters, DBA Papillon Grand Canyon Helicopt	Helicopter	Sikorsky/Orlando S-55	Substantial	Minor	0	Loss Of Engine Power	Cruise
Probable Cause: The failure of maintenance personnel to accomplish a service bulletin addressing the potential failure of engine drive gears, and the ignored oil analysis testing results that indicated an impending internal engine failure that subsequently resulted in the loss of engine drive to the main rotor during flight.											
September 19, 2000	N90214	Passenger	Ojai, CA	Aspen Helicopters	Helicopter	Bell 206BIII	Substantial	Serious	0	Loss Of Control - In Flight	Takeoff
Probable Cause: The pilot encountered a loss of tail rotor effectiveness which led to an uncontrolled rotation and subsequent hard landing. Factors were unfavorable wind conditions, density altitude, and uneven terrain.											
September 20, 2000	N42472	Cargo	Aniak, AK	Inland Holdings, DBA Inland Aviation Services	Airplane	Cessna 207	Destroyed	Fatal	1	In Flight Collision With Terrain/Water	Climb
Probable Cause: The pilot's decision to initiate visual flight into dark night instrument meteorological conditions. Factors associated with the accident are a low ceiling, a dark night, the pilot's failure to follow regulatory procedures and directives, and his self-induced pressure to return to base to take another flight.											
September 22, 2000	N388SP	Passenger	Broomfield, CO	Star West Aviation	Airplane	Cessna 340	Substantial	None	0	Hard Landing	Landing - Flare/Touchdown
Probable Cause: The pilot landing the aircraft hard exceeding the design stress limits. Factors were: Low ceiling, freezing rain, dark night, excessive descent rate, and improper glide path.											
September 22, 2000	N99TH	Cargo	Missoula, MT	Alpine Air	Airplane	Beech B99	Substantial	None	0	Loss Of Control - On Ground/Water	Landing
Probable Cause: A loss of directional control due to a brake locked as a result of snow and ice contamination.											
September 23, 2000	N9439M	Passenger	Valle, AZ	Westwind Aviation	Airplane	Cessna 207A	Substantial	Minor	0	Loss Of Engine Power(Partial) - Mech Failure/Malf	Maneuvering - Turn To Reverse Direction
Probable Cause: Improper maintenance and adjustment of the engine magnetos resulting in a loss of optimum performance during a critical takeoff that required peak engine performance.											
September 27, 2000	N114SA	Passenger	Blanding, UT	American Aviation, DBA Frog Air	Airplane	Piper PA-31-350	Substantial	None	0	Wheels Up Landing	Landing - Flare/Touchdown
Probable Cause: The pilot's failure to follow the checklist and lower the landing gear for landing. A factor was diverted attention.											
September 27, 2000	N159SW	Cargo	Grand Junction, CO	Western Aviators	Airplane	Piper PA-31-350	Substantial	None	0	Airframe/Component/System Failure/Malfunction	Approach
Probable Cause: Total failure of the right forward inboard landing gear door hinge pin for undetermined reasons.											
October 5, 2000	N4673C	Cargo	Cahokia, IL	Flight Express	Airplane	Cessna T210N	Substantial	None	0	Loss Of Control - On Ground/Water	Taxi - To Takeoff
Probable Cause: Aircraft control not being maintained by the inattentive pilot during the taxi. A factor to the accident was the soft terrain condition.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
October 7, 2000	N4882P	Passenger	Ekwok, AK	Coyote Air Llc.	Airplane	Piper PA-18	Substantial	None	0	In Flight Encounter With Wea ther	Takeoff
Probable Cause: The pilot's inadequate compensation for a crosswind condition. A factor in the accident was a crosswind.											
October 9, 2000	N941FE	Cargo	Lummi Island, WA	Empire Airlines	Airplane	Cessna 208B	Substantial	Fatal	1	In Flight Collision With Object	Maneuvering
Probable Cause: The pilot's attempted flight into known adverse weather conditions, and his subsequent failure to maintain altitude above, or clearance with, trees. Factors contributing to the accident included low ceilings, fog, the pilot's low-altitude fli ght, risin g terrain , and trees .											
October 10, 2000	N182BG	Cargo	Grants, NM	Durango Air Services	Airplane	Cessna R-182	Destroyed	Fatal	1	In Flight Collision With Terrain/Water	Cruise
Probable Cause: The pilot's continued VFR flight into IMC during cruise. Contributing factors were the dark night light conditions, and the cloudy weather conditions.											
October 14, 2000	N2233F	Passenger	Grand Canyon, AZ	Classic Life guard	Helicopter	Bell 206L-1	Substantial	Minor	0	Loss Of Control - In Flight	Takeoff - Initial Climb
Probable Cause: The pilot's in-flight loss of control during liftoff due to his improper planning and decisions. Related factors were the high density altitude and helicopter weight condition, and the lack of a suitable takeoff area.											
October 17, 2000	N1801B	Passenger	Van Nuys, CA	Sun Quest Executive Air	Airplane	Beech C90	Substantial	None	0	Midair Collision	Approach
Probable Cause: The failure of the pilot to correctly set a new transponder code and an anomaly in ATC software that precluded the controller from manually overriding the resulting inhibition of displayed data. Factors in the accident were impaired function of the collision avoidance system in the other airplane due to structural masking of the ai rplane's transponder antenna, an intermittent failure of the approach controller's communication radio transmitter which interfered with his ability to communicate traffic information to the flight crew of other airplane, the failure of both the approach controller and the tower controller to issue safety alerts when the traffic conflict became a pparent , and the failure of the fli ght crew of the other air plane to maintain an ade quate visual lookout to see and avoid the airplan e											
November 3, 2000	N7336U	Mail	Bethel, AK	Yute Air Alaska, DBA Yute Air Alaska	Airplane	Cessna 207A	Substantial	None	0	Loss Of Control - On Ground/Water	Takeoff - Roll/Run
Probable Cause: The pilot's failure to use all available runway. Factors associated with the accident were the pilot's inadequate preflight planning/preparation, a short runway, a tailwind, and a slush-covered runway.											
November 6, 2000	N12273	Passenger and Cargo	Selma, CA	Yecny Enterprises, DBA Air San Luis	Airplane	Cessna 340A	Destroyed	Fatal	1	Undershoot	Approach - VFR Pattern - Final Approach
Probable Cause: The pilot's improper decision to attempt a visual approach and landing in instrument meteorological conditions and his failure to follow instrument flight rules procedures.											
November 9, 2000	N4803S	Passenger	Lime Village, AK	Bidzy Ta Hot Aana, DBA Tanana Air Service	Airplane	Piper PA-32-260	Substantial	None	0	Loss Of Engine Power(Partial) - Nonmechanical	Approach - VFR Pattern - Final Approach
Probable Cause: The pilot's failure to properly utilize carburetor heat. Factors in the accident were the presence of carbure tor icing conditions, and unsuitable terrain for a forced landing.											
November 9, 2000	N731AC	Cargo	Fort Wayne, IN	Superior Aviation	Airplane	Swearingen SA226TC	Destroyed	Fatal	1	In Flight Collision With Object	Takeoff
Probable Cause: The indicated failure of the right hand AC bus during takeoff with low ceiling. The factors were the low cei ling, night, and the execssive workload the pilot experienced on takeoff with an electrical failure without a second in command.											
November 11, 2000	N216EH	Passenger	Girdwood, AK	Era Aviation	Helicopter	Eurocopter AS-350B2	Substantial	None	0	Dragged Wing,Rotor,Pod,Float Or Tail/Skid	Maneuvering
Probable Cause: The pilot's failure to maintain adequate altitude/clearance from terrain. A factor in the accident was flat light conditions.											
November 16, 2000	N8529Q	Passenger	Cambridge, ID	Baker Aircraft Service	Airplane	Cessna U206F	Destroyed	Fatal	2	In Flight Collision With Terrain/Water	Maneuvering
Probable Cause: Airspeed not maintained and an inadvertent stall while maneuvering. Mountainous terrain was a factor.											

Date	Registration Number	Type of Operation	Location	Operator of Aircraft	Category	Aircraft Type	Damage to Aircraft	Highest Injury	Total Fatalities	First Occurrence	Phase of Flight
November 29, 2000	N6YB	Cargo	Florence, SC	Corporate Air Fleet	Airplane	Piper PA-32-260	Substantial	None	0	Loss Of Engine Power(Partial) - Nonmechanical	Takeoff - Initial Climb
Probable Cause: Loss of engine power due to carburetor icing, which resulted in a emergency landing into rough uneven terrain.											
December 13, 2000	N781SL	Passenger	Pensacola, FL	Lifeguard Air Ambulance	Airplane	Cessna 421B	Substantial	None	0	Airframe/Component/System Failure/Malfunction	Taxi - To Takeoff
Probable Cause: The failure of the left main landing gear scissors washer during taxi for takeoff, and collapse of the left main landing gear. A factor in the accident was the failure of unknown maintenance personnel to comply with a manufacturers service letter concerning the scissors washers.											
December 14, 2000	N55QS	Cargo	Chesterfield, NH	Island Express	Airplane	Cessna 310Q	Destroyed	Fatal	1	In Flight Encounter With Weather	Cruise
Probable Cause: The pilot's continued flight into icing conditions, and his failure to use alternate air. A factor was the icing conditions.											
December 20, 2000	N236BN	Passenger	Jackson, WY	R.R. Investments, DBA Million Air Dallas	Airplane	Hawker Siddeley HS-125-700	Substantial	None	0	In Flight Encounter With Weather	Landing - Flare/Touchdown
Probable Cause: The pilot's failure to follow IFR approach procedures and perform a missed approach when the runway was not in sight below approach minimums. Contributing factors were the copilot's failure to follow current ILS approach procedures and use the correct frequency to turn on the runway lights, the snowy whiteout conditions near the ground, and the dark night light conditions.											
December 22, 2000	N63MB	Passenger	Deadhorse, AK	Wright Air Service	Airplane	Piper PA-31-350	Substantial	Minor	0	In Flight Encounter With Weather	Descent
Probable Cause: The pilot's continued VFR flight into instrument meteorological conditions. Factors associated with the accident were clouds, fog, dusk light conditions, and the pilot's self-induced pressure to complete the flight prior to nightfall.											
December 26, 2000	N83137	Passenger and Cargo	High Island 116, GM	Dudley Tarlton, DBA Tarlton Helicopters	Helicopter	Bell 206B	Destroyed	Fatal	1	Missing Aircraft	Cruise
Probable Cause: Undetermined, missing aircraft.											