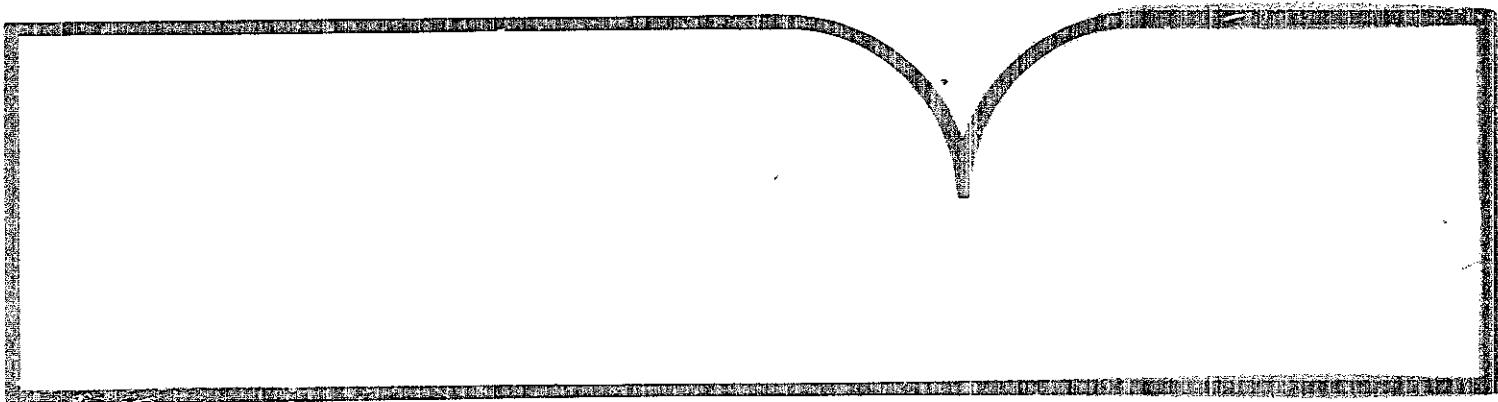


Annual Review of Aircraft Accident Data
U.S. General Aviation Calendar Year 1978

(U.S.) National Transportation Safety Board
Washington, DC

20 May 80



U.S. Department of Commerce
National Technical Information Service
NTIS.

PEAC-201936



NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

ANNUAL REVIEW OF AIRCRAFT ACCIDENT DATA

U. S. GENERAL AVIATION
CALENDAR YEAR 1978

NTSB-ARG-80-1

UNITED STATES GOVERNMENT
REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NTSB-ARG-80-1	2. Government Accession No.	3. Report Project's Catalog No. PB 80 201916	
4. Title and Subtitle Annual Review of Aircraft Accident Data - U.S. General Aviation, Calendar Year 1978		5. Report Date May 20, 1980	
7. Author(s)		6. Performing Organization Code	
9. Performing Organization Name and Address Bureau of Technology National Transportation Safety Board Washington, D.C. 20594		8. Performing Organization Report No.	
12. Sponsoring Agency Name and Address NATIONAL TRANSPORTATION SAFETY BOARD Washington, D. C. 20594		10. Work Unit No. 2974	
		11. Contract or Grant No.	
		13. Type of Report and Period Covered Summary of Aircraft Accident Data for Calendar Year 1978	
15. Supplementary Notes		14. Sponsoring Agency Code	
16. Abstract This publication presents a detailed summary of aircraft accidents which occurred in U.S. general aviation operations during the calendar year 1978. It includes an analysis of accident data providing an overview, types of accidents, accident causal factors, kind of flying, and conclusions; a statistical compilation of accident information presented in the form of accident and rate tables, analytic tables, injury tables and cause/factor tables. These statistical data are divided into sections pertaining to all operations, small fixed-wing aircraft, large fixed-wing aircraft, rotorcraft, gliders, and collisions between aircraft.			
In 1978, there were 4,494 total general aviation accidents, 793 of which were fatal. Included in the total number of accidents are 63 collisions between aircraft. In coding each aircraft involved in collisions, an additional 63 records resulted, which brought the total number of accident records to 4,557. This figure reflects the actual number of pilots and aircraft involved in the accidents.			
17. Key Words Aircraft accidents, U.S. general aviation, accident rates, aviation safety, crash injuries, collisions between aircraft, small fixed-wing aircraft, rotorcraft, helicopters, gyrocopters, gliders, cause/factor calculations.		18. Distribution Statement This document is available to the public through the National Technical Information Service, Springfield, Virginia, 22151	
19. Security Classification (of this report) UNCLASSIFIED	20. Security Classification (of this page) UNCLASSIFIED	21. No. of Pages	22. Price

Foreword

The Statistical Review of U.S. General Aviation Accidents, published annually by the National Transportation Safety Board, contains statistics compiled from reports of 4,494 aviation accidents that occurred during calendar year 1978. General aviation comprises one category of U.S. civil aviation and includes air taxi/commuter operations. The accident records of the other statistical category - air carriers - are contained in the Safety Board publication, "Annual Review of Aircraft Accident Data, U.S. Air Carriers."

Sixty-three collisions are included in these accidents which brings the total number of records to 4,557. This figure reflects the actual number of pilots and aircraft involved in the 4,494 accidents. There were two collisions involving air carrier and general aviation aircraft and one involving U.S. military and general aviation aircraft in 1978. The tabulations of statistical information exclude the three air carrier and military aircraft records, except where noted.

There were two accidents involving suicide in 1978 which are included in all computations except rates.

The aircraft activity and exposure information used in this publication has historically been provided by the Federal Aviation Administration (FAA). These data include hours flown for all operations, for various types of aircraft and for specific primary uses of these aircraft. In the years before 1977 the FAA obtained this information on the same form used annually by all aircraft owners to revalidate their aircraft registration.

Beginning in 1977, the FAA began a new program for collecting exposure information on general aviation operations. The new statistical sampling procedure involves a survey questionnaire mailed to a random sample of 31,208 (about 13 percent) of the general aviation aircraft owners. Approximately 74 percent of these owners responded to the survey. The survey solicited information relating to hours flown, aircraft location, and other pertinent data.

When the 1977 Statistical Review was compiled the information from the new survey program had not been released by FAA. Alternate exposure data was requested and FAA provided forecast data. This data was used to compute rates in the 1977 Review. After publication of the 1977 Review, FAA released the final exposure data and revisions were made to the rates in a supplemental release. To avoid this situation in the 1978 Review, the publication of the Review was delayed until the final FAA survey results were available.

The Safety Board has published numerous special studies, safety information bulletins, and accident reports on many of the hazards to aviation covered in this review. Single copies of all of these publications are available to the public on request. Safety information bulletins are released concurrently with each issue of the Board's publication, "Aircraft Accident Reports, Brief Format, U.S. Civil Aviation." Each issue of this publication contains a computer printed synopsis of the pertinent facts and probable cause(s) of about 900 aviation accidents. The 1978 accidents were published in five issues. Each Safety Information Bulletin highlights a hazardous condition and includes the Safety Board's suggested preventive action.

TABLE OF CONTENTS

	<u>Page</u>
Foreword	ii
Analysis of Statistical Information	1
Statistical Information	
All Operations	23
Small Fixed-Wing	113
Large Fixed-Wing	131
Rotorcraft	143
Gliders	157
Collisions	167
Yearly Accident Record	191
Explanatory Notes	193

LIST OF TABLES

	<u>Page</u>
All Operations	
Statistical recapitulation of accidents	23
Accidents, rates and active aircraft	24
Accidents, hours flown, rates, injury index, aircraft damage by kind of flying	25
Type of accident by injury index	26
Type of accident by aircraft damage	28
First by second accident type	31
Phase of operation by injury index	33
Phase of operation by aircraft damage	35
Cause/factor - broad	37
Cause/factor - detailed	38
Cause/factor - instructional (broad)	48
Cause/factor - pleasure (broad)	49
Cause/factor - business (broad)	50
Cause/factor - corporate/executive (broad)	51
Cause/factor - aerial application (broad)	52
Cause/factor - air taxi (broad)	53
Kind of flying by injury index	54
Kind of flying by aircraft damage	56
 Injury Tables (By kind of flying)	
All operations - total of kinds of flying	58
Instructional - dual	59
Instructional - solo	60
Instructional - check	61
Instructional - training	62
Noncommercial - pleasure	63
Noncommercial - practice	64
Noncommercial - business	65
Noncommercial - corporate/executive	66
Noncommercial - aerial survey	67
Noncommercial - other	68
Commercial - aerial application - crop control	69
Commercial - associated crop control	70
Commercial - fire control	71
Commercial - associated fire control	72
Commercial - aerial mapping/photography	73
Commercial - aerial advertizing	74
Commercial - power/pipeline patrol	75
Commercial - fish spotting	76
Commercial - air taxi passenger	77

Injury Tables (By kind of flying) (continued)

	<u>Page</u>
Commercial - air taxi cargo	78
Commercial - construction work (helicopter)	79
Commercial - scheduled passenger - intrastate carrier	80
Commercial - scheduled cargo - intrastate carrier	81
Commercial - other	82
Miscellaneous - experimentation	83
Miscellaneous - test	84
Miscellaneous - demonstration	85
Miscellaneous - ferry	86
Miscellaneous - search and rescue	87
Miscellaneous - air show/racing	88
Miscellaneous - parachute jump (sport)	89
Miscellaneous - parachute jump (show)	90
Miscellaneous - towing gliders	91
Miscellaneous - seeding clouds	92
Miscellaneous - hunting	93
Miscellaneous - police patrol	94
Miscellaneous - highway traffic survey	95
Miscellaneous - other	96

Selected Information

Pilot total time	97
Pilot time in type	97
Pilot age by injury index	98
Pilot certificate by injury index	100
Conditions of light by injury index	100
Type of weather conditions by injury index	101
Type of flight plan by injury index	101
Month of occurrence by injury index	102
Month of occurrence by weather conditions	102
Month of occurrence by type of accident	103
State of occurrence by injury index	105
State of occurrence by aircraft damage	107
Type of aircraft by injury index	109
Type of aircraft by aircraft damage	109
Type of power by injury index	110
Type of power by aircraft damage	110
Airport proximity by injury index	111
Fire after impact by injury index	111

Page

Small Fixed-Wing Aircraft

Type of Accident and Phase of Operation	113
Cause/Factor Tables	117
Kind of Flying	127
Injury Table	129

Large Fixed-Wing Aircraft

Type of Accident Phase of Operation	131
Cause/Factor Tables	135
Kind of Flying	139
Injury Tables	141

Rotorcraft

Type of Accident and Phase of Operation	143
---	-----

Rotorcraft (continued)

	<u>Page</u>
Cause/Factor Tables	147
Kind of Flying	153
Injuries, Accidents	155
Gliders	
Type of Accident and Phase of Operation	157
Cause/Factor Tables	161
Kind of Flying	164
Injuries, Accidents	166
Collisions	
Type of Collisions and Phase of Operation	167
Cause/Factor Tables	170

Collisions (continued)

	<u>Page</u>
Kind of Flying	173
Injury Tables	
Injuries, accidents all collisions	175
Injuries, accidents both airborne	176
Injuries, accidents one airborne	177
Injuries, accidents both on ground	178
Selected Collision Information	
Segments of aviation by injury index	179
Pilot age by injury index	180
Pilot certificate by injury index	182
Pilot certificate by weather conditions	182
Month of occurrence by injury index	183
Month of occurrence by aircraft damage	183
State of occurrence by injury index	184
State of occurrence by aircraft damage	185
Type of aircraft by injury index	186
Type of aircraft by aircraft damage	186
Type of power by injury index	187
Type of power by aircraft damage	187
Type of flight plan by injury index	188
Type of weather conditions by injury index	188
Airport proximity by injury index	189
Controlled/uncontrolled airport by injury index	189
Conditions of light by injury index	190
Fire after impact by injury index	190
Yearly Accident Record 1969 -- 1978	191
Explanatory Notes	193

Analysis of Statistical Information

Overview

There were more fatalities in U.S. general aviation aircraft accidents in 1978 than in any previous year since aviation accident data were first recorded by the U.S. Bureau of Air Commerce in 1938. In addition, fatal accidents increased to their highest level since 1947, and total accidents exceeded previous year marks dating back to 1971.

Aircraft accidents claimed 1,770 lives in 1978. This represents a 23.26% increase over 1977's total of 1,436. There were 793 fatal accidents in 1978, up 12.96% over the previous year's total of 702, and total accidents rose from 4,286 to 4,494, a 4.85% increase. Four hundred fifty-eight accidents resulted in serious injuries to 858 occupants and 3,243 accidents involved minor or no injuries to the 6,916 occupants. There were 9,288 persons aboard general aviation accident aircraft for an average occupant factor of 2.04.

As a result of collisions there were 4,557 aircraft involved in these accidents, of which 4,554 were general aviation. The remainder were two U.S. air carrier and one U.S. military aircraft involved in collisions with general aviation aircraft. Destroyed aircraft numbered 1,227 and 3,284 sustained substantial damage.

Since 1968, general aviation accident rates per 100,000 aircraft hours flown have shown a steady downward trend, from 20.6 in 1968 to 12.0 in 1977 and 11.4 in 1978. Fatal accident rates have shown a similar downward trend, starting with 2.86 in 1968 decreasing to 2.46 in 1970, climbing slightly to 2.59 in 1971 before decreasing gradually to 1.96 in 1977. In 1978, the fatal accident rate rose slightly to 2.01.

Of the 1,770 fatalities recorded in 1978, 144 resulted from the collision between a Pacific Southwest Airlines Boeing 727 and a Gibb Flying Service Cessna 172 over San Diego, CA, on September 25, 1978. Of these fatalities, 135 were aboard the Boeing 727, two were aboard the Cessna 172, and seven were on the ground.

Even excluding the San Diego collision fatalities from the total 1978 general aviation fatalities, the remainder --- 1,628 --- would still be the highest in general aviation history. This high number of fatalities can be attributed, at least in part, to the high number of fatal accidents and the higher-than-normal average occupant load factor for 1978 when compared with previous years.

Table 1. -- Overview
U.S. General Aviation
1977 Through 1978

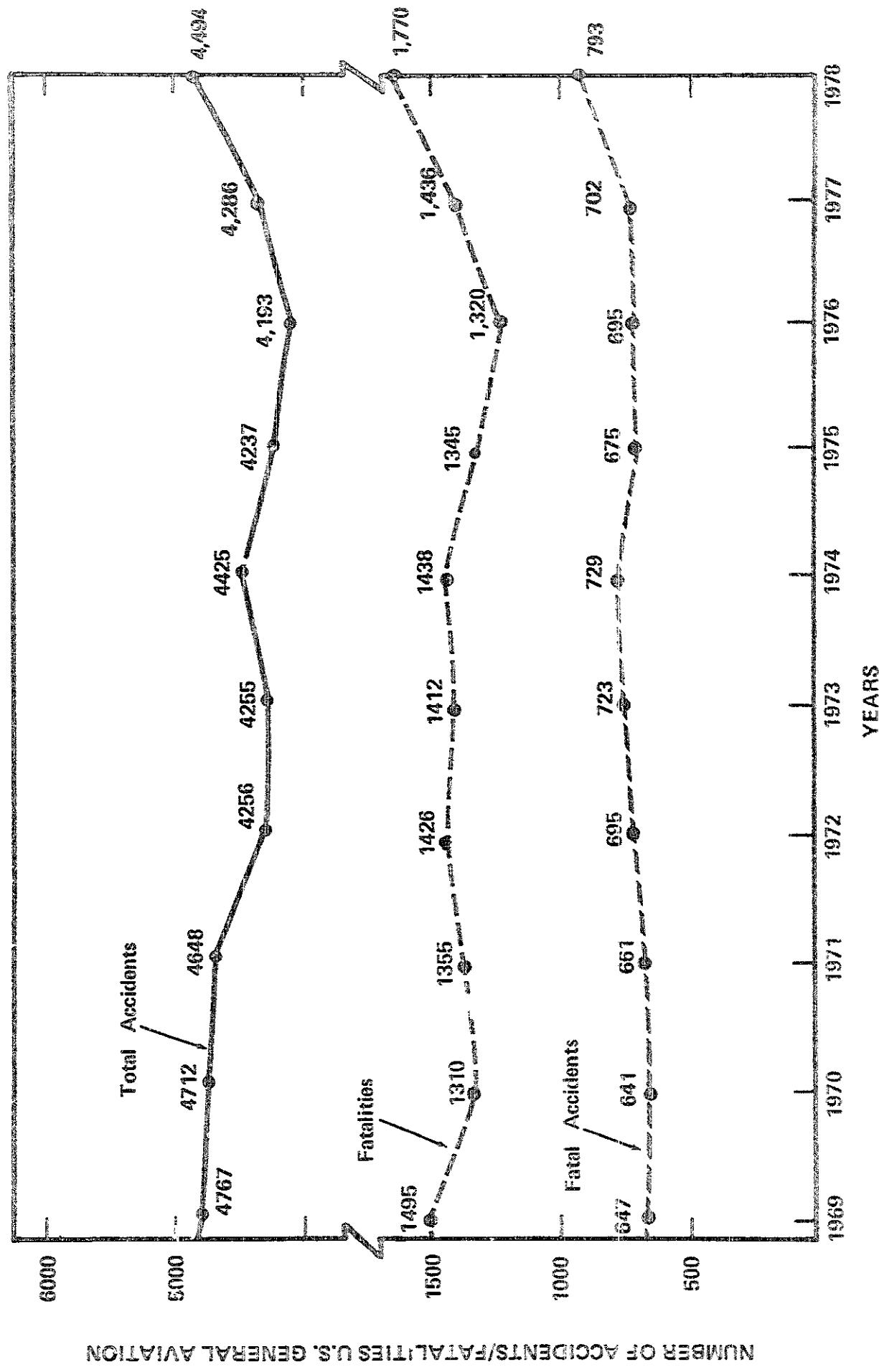
	<u>1977</u>	<u>1978</u>	<u>Percentage Change</u>
Aircraft-hours flown <u>1/</u>	35,792,000	39,409,269	+10.11
Eligible aircraft <u>1/</u>	184,300	198,778	+ 7.86
Total accidents	4,286	4,494	+ 4.85
Aircraft involved <u>2/</u>	4,337	4,557	+ 5.07
Aircraft damage <u>2/</u>			
Destroyed	1,129	1,227	+ 8.68
Substantial	3,157	3,284	+ 4.02
Minor	28	29	+ 7.41
None	23	17	-26.09
Unknown/Not Reported	0	0	None
Injury index			
Fatal	702	793	+12.96
Serious	424	458	+ 8.02
Minor	627	662	+ 5.58
None	2,533	2,581	+ 1.89
Unknown/Not Reported	0	0	None
Injuries <u>3/</u>			
Fatal	1,436	1,770	+23.26
Serious	789	858	+ 8.75
Minor	1,132	1,317	+16.34
None	5,315	5,599	+ 5.34
Unknown/not reported	0	0	None
Total aboard	8,625	9,288	+ 7.67
Occupant Load Factor	1.99	2.04	+ 2.51
Fire after impact <u>2/</u>			
Fatal accidents	190	198	+ 3.68
Nonfatal accidents	170	143	-15.88

1/ Source: Federal Aviation Administration

2/ Includes all aircraft involved in collisions.

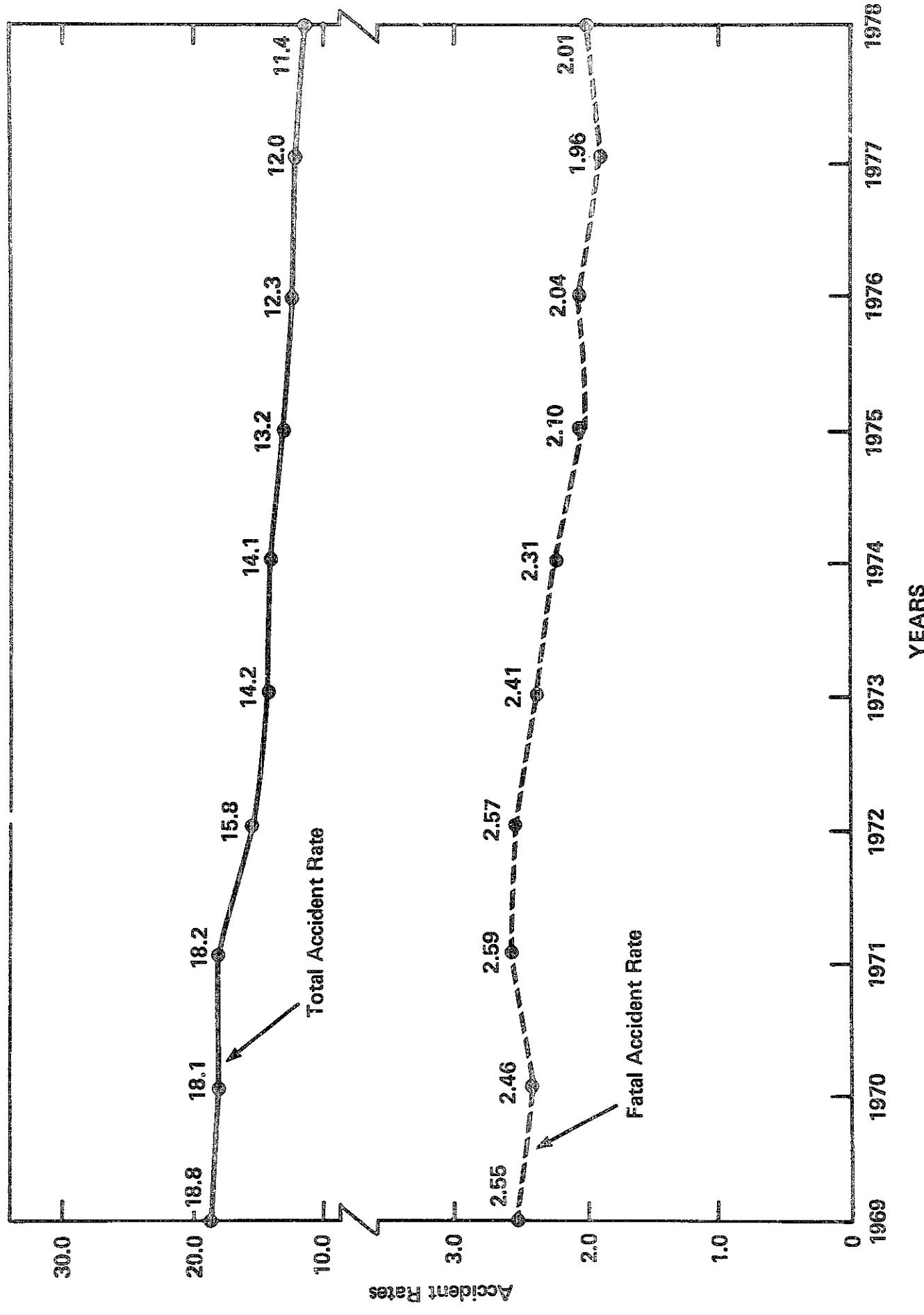
3/ Includes persons aboard any aircraft involved in a collision with general aviation aircraft and persons injured on the ground.

Figure 1.— ACCIDENTS, FATALITIES U.S. GENERAL AVIATION 1969-1978



NUMBER OF ACCIDENTS/FATALITIES U.S. GENERAL AVIATION

Figure 2.—ACCIDENT RATES PER 100,000 AIRCRAFT-HOURS FLOWN U.S. GENERAL AVIATION
1969–1978



Types of Accidents

Little change occurred in the types of accidents prevalent in 1978 and in previous years. Engine failure or malfunction continues to be the leading first accident type in general aviation, accounting for 23.91% or 1,089 of the total accidents recorded. In 1977, 1,025 or 23.64% of the total accidents were of this type. The most common accidents that follow engine failure malfunction are: collision with trees (196), nose over/down (140), collision with ground/water-controlled (113), hard landing (106), and gear collapsed (88).

Ground/water loop-swerve is the second most common first accident type with 568 accidents or 12.47% of the total 1978 accidents. In 1977 these figures were 501 and 11.55%, respectively. Accidents following ground/water loop-swerve are: nose over/down (110), gear collapsed (101), collided with snowbank (75), collided with ditches (46), and collided with trees (19).

Hard landing is the third highest first accident type, consisting of 283 accidents (6.21%) in 1978 as compared with 251 accidents (5.79%) in 1977. Most common second accident types following hard landing are gear collapsed (119) and nose over/down (26).

The five leading first accident types - engine failure/malfunction, ground/water loop-swerve, hard landing, collision with ground/water-controlled and collision with trees - account for over half (52.65%) of the total accidents but only 15% of the fatal accidents. However, the five leading fatal accident types - collision with ground/water-controlled, collision with ground/water-uncontrolled, engine failure/malfunction, collision with trees and stall/spin - account for well over half (59.08%) of the fatal accidents but less than half (38.80%) of the total accidents. Three first accident types - engine failure/malfunction, collision with ground/water-controlled and collision with trees - appear in the top five first accident types for both total and fatal accidents.

Those first accident types having the highest percentage of fatal accidents to total accidents are: collision with ground/water-uncontrolled (83%), spiral (70%), and spin (68%). These three first accident types, closely related in nature, account for over 24% of all fatal accidents.

Types of Accidents
 Table 2 -- Ten Most Frequent Types of Accidents
 1978

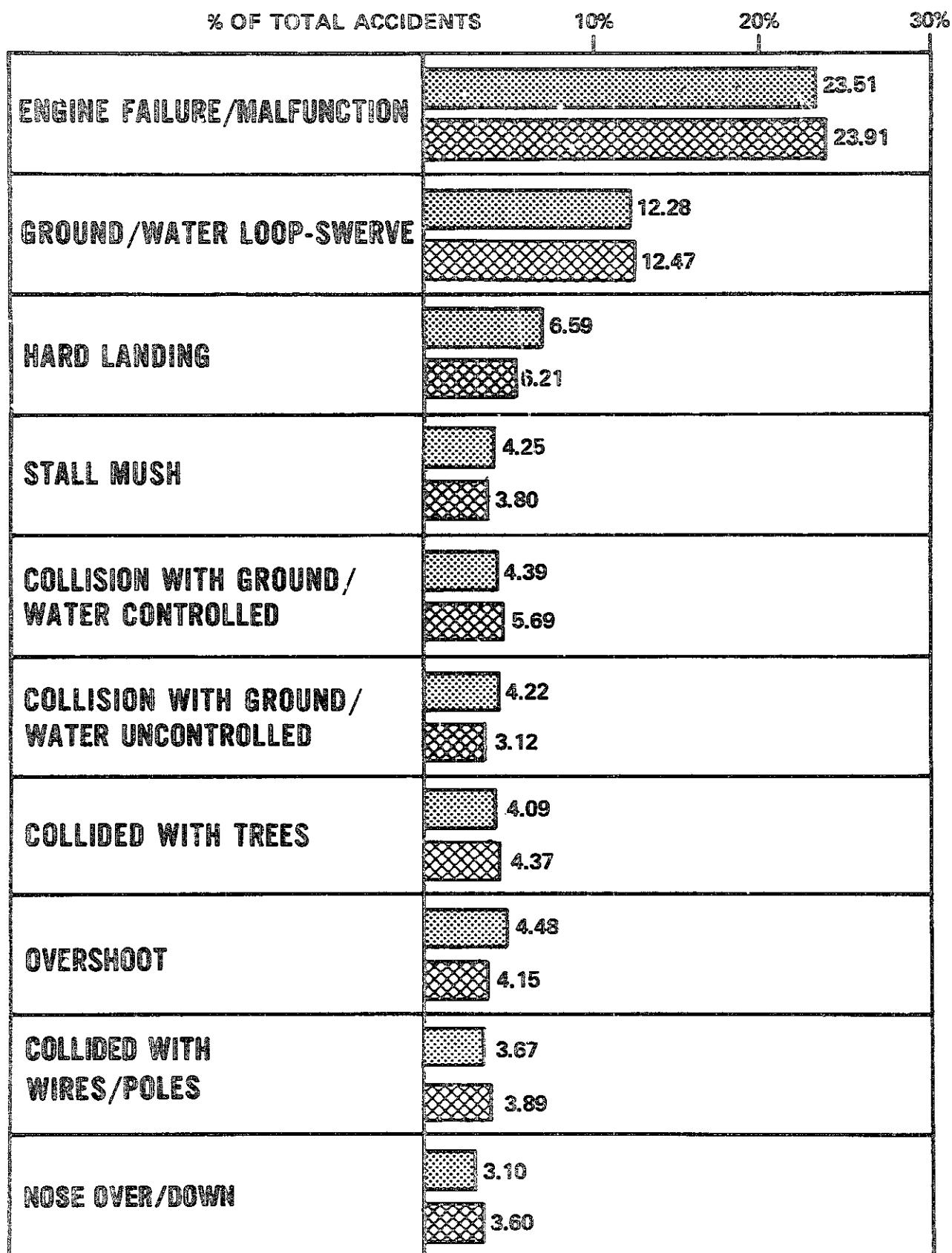
<u>Type of Accident</u>	<u>Frequency</u>	<u>Percent of total accident records</u>
Engine failure or malfunction	1089	23.91
Ground water loop-swerve	568	12.47
Hard landing	283	6.21
Collision with ground/water controlled	259	5.69
Collided with trees	199	4.37
Overshoot	189	4.15
Collided with wires/poles	177	3.89
Stall/mush	173	3.80
Nose over/down	164	3.60
Collision ground/water uncontrolled	142	3.12

Types of Fatal Accidents
 Table 3 -- Ten Most Frequent Types of Fatal Accidents
 1978

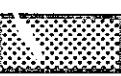
<u>Type of Accident</u>	<u>Frequency</u>	<u>Percent of total accident records</u>
Collision with ground/water controlled	132	16.18
Collision with ground/water uncontrolled	118	14.46
Engine failure/malfunction	108	13.24
Collision with trees	71	8.70
Stall/Spin	53	6.50
Airframe failure in flight	52	6.37
Stall	46	5.64
Midair collisions	45*	5.51
Collided with wires/poles	42	5.15
Stall/Mush	13	1.59

* Includes both aircraft records

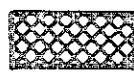
**Figure 3.-- TEN MOST PREVALENT ACCIDENT TYPES
U.S. GENERAL AVIATION 1978 Vs. 5-YEAR AVERAGE**



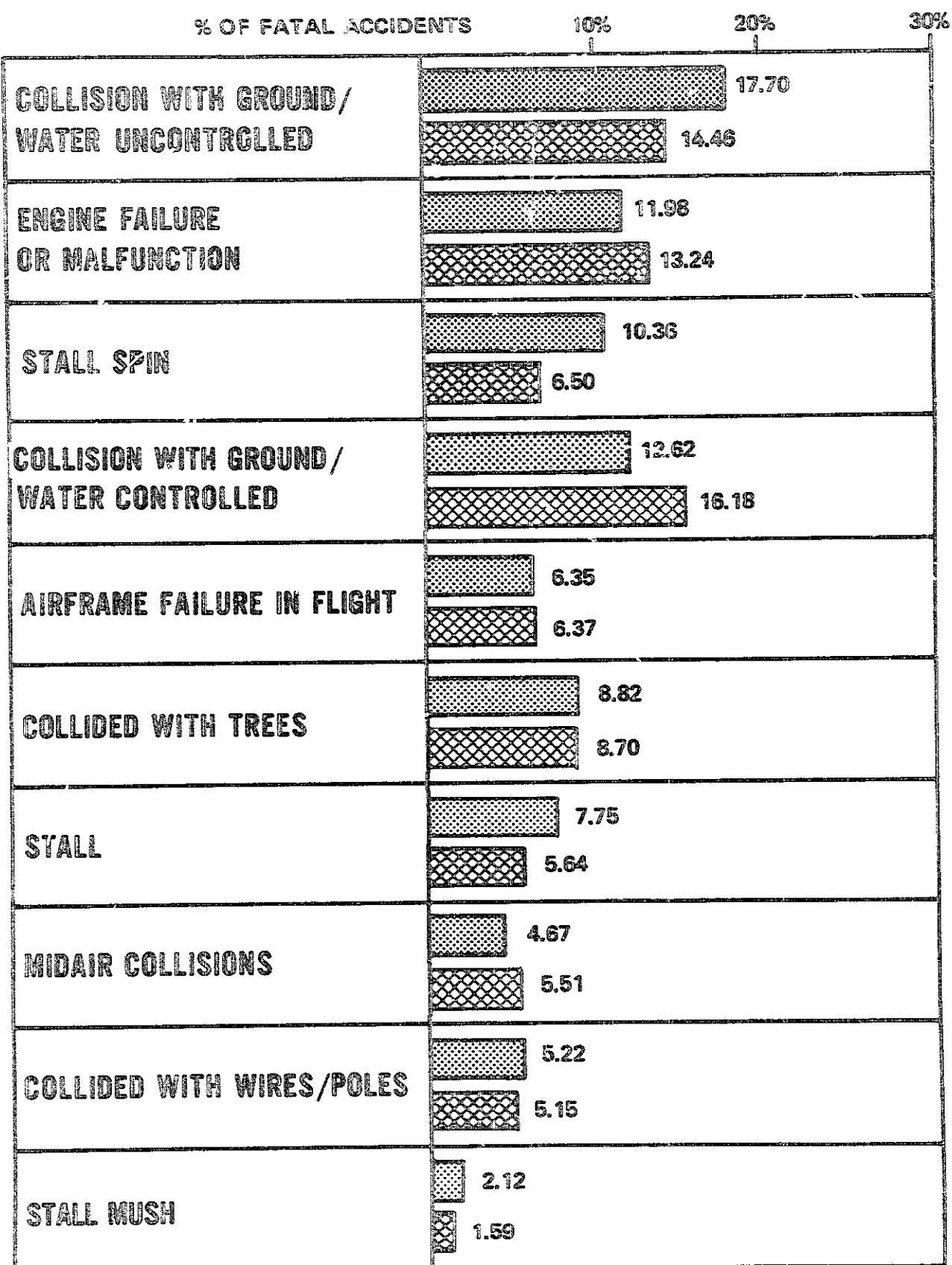
1973-1977 AVERAGE—



1978—



**Figure 4.--TEN MOST PREVALENT FATAL ACCIDENT TYPES
U.S. GENERAL AVIATION 1978 VS. 5-YEAR AVERAGE**



1973-1977 AVERAGE -



1978 -



Phases of Operations

Most of the total accidents recorded in 1978 occurred during landing, while the majority of fatal accidents occurred during the inflight phase of operation. There were 1,880 total accidents (41.28%) that occurred during the landing phase and included ground/water loop-swerve, hard landing, overshoot, undershoot and nose over/down as the most common accident types. Inflight phases of operation had the second highest number of accidents, 1,528, representing 33.55% of the total. Engine failure or malfunction led all other accidents in this phase of operation. Accidents occurring during takeoff numbered 889, or 19.52%.

Fatal accidents occurred more often during the inflight phase of operations, accounting for 520 accidents, or 63.73% of all fatal accidents. Fatal landing and takeoff accidents numbered 143 (17.52%) and 107 (13.11%), respectively. Most of the inflight fatal accidents occurred during normal cruise, uncontrolled descent, and initial climb, in that order.

Phases of Operation

Table 4 -- Total Accident by Phase of Operation

<u>Phase of Operation</u>	<u>Accident Records</u>	<u>Percent of Total Records</u>
Landing	1880	41.28
Inflight	1528	33.55
Takeoff	889	19.52
Taxi	175	3.84
Static	37	0.81

Table 5 -- Fatal Accidents by Phase of Operation

<u>Phase of Operation</u>	<u>Accident Records</u>	<u>Percent of Fatal Records</u>
Inflight	520	63.73
Landing	143	17.52
Takeoff	107	13.11
Static	5	0.61
Taxi	3	0.37

Figure 5...PERCENTAGE OF TOTAL ACCIDENTS PER PHASE OF OPERATION
 U.S. GENERAL AVIATION
 5-YEAR AVERAGE VS. 1978

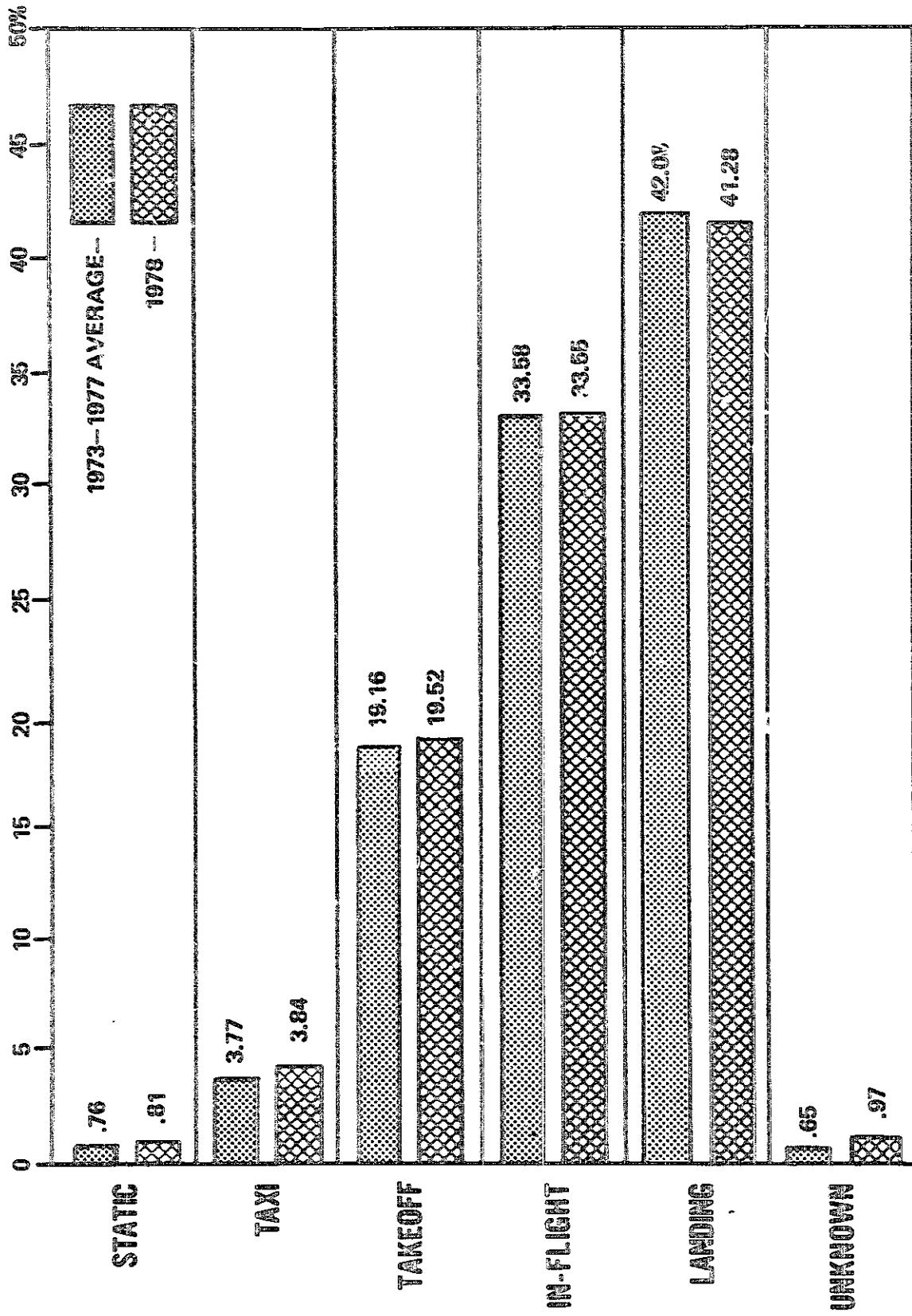
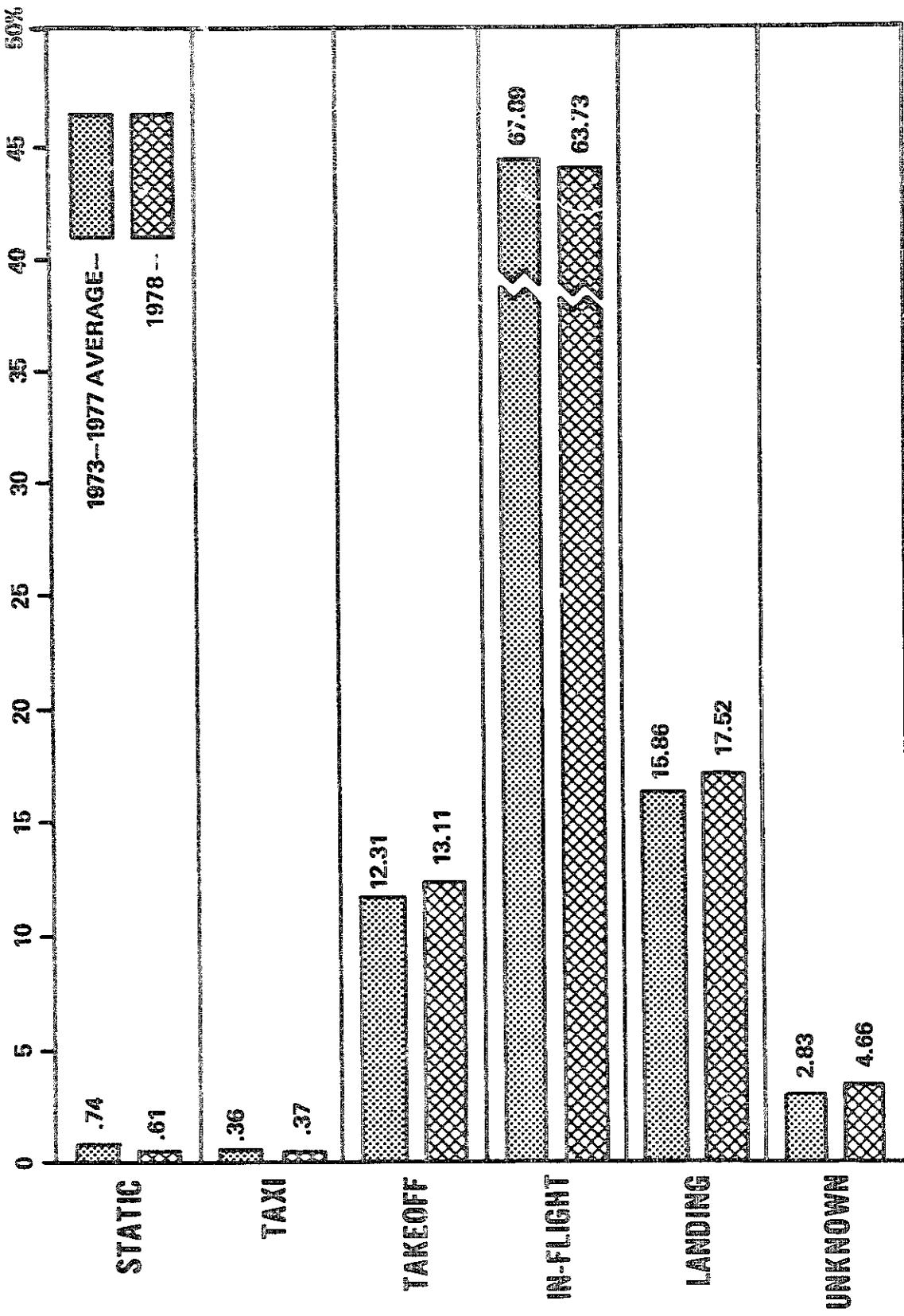


Figure 6.-PERCENTAGE OF FATAL ACCIDENTS PER PHASE OF OPERATION
U.S. GENERAL AVIATION
5-YEAR AVERAGE VS. 1978



Accident Causes/Factors

A cause/factor determination was made on 4,424 of the 4,494 U.S. general aviation accidents occurring in 1978. As in the past weather and the pilot continue to be involved, significantly, in the vast majority of accidents.

The predominant causal factor for nonfatal accidents was "Pilot - Inadequate Preflight Preparation or Planning." There were 420 accidents (11.47%) in this one category. Pilots were also cited in six out of the 10 leading cause/factors of nonfatal accidents (see Table 6).

The most frequent causal factor involved in fatal accidents was "Weather - Low Ceiling." This one cause was recorded in 182 (23.92%) accident cause/factor determinations which involved 409 (23.10%) of U.S. general aviation fatalities (see Table 7). Following this cause was "Pilot - Continued VFR Flight Into Adverse Weather Conditions," accounting for 150 (19.71%) fatal accidents. "Pilot - Failed to Obtain/Maintain Flying Speed" was the third leading cause/factor, encompassing 148 (19.45%) fatal accidents. As in the nonfatal accident category, pilots were cited in six out of the 10 leading fatal accident cause/factor determinations.

In summary, the pilot was a causal factor in 644 of the 761 fatal accidents with cause/factor determination (84.63%), and 2,916 of the 3,663 nonfatal accidents with cause/factor assignment (79.16%). Weather was cited as a cause/factor in 310 fatal accidents (40.74%), and in 599 nonfatal accidents (16.35%).

Table 6-- Ten Most Frequently Cited
Cause/Factor of 3,663 Nonfatal Accidents

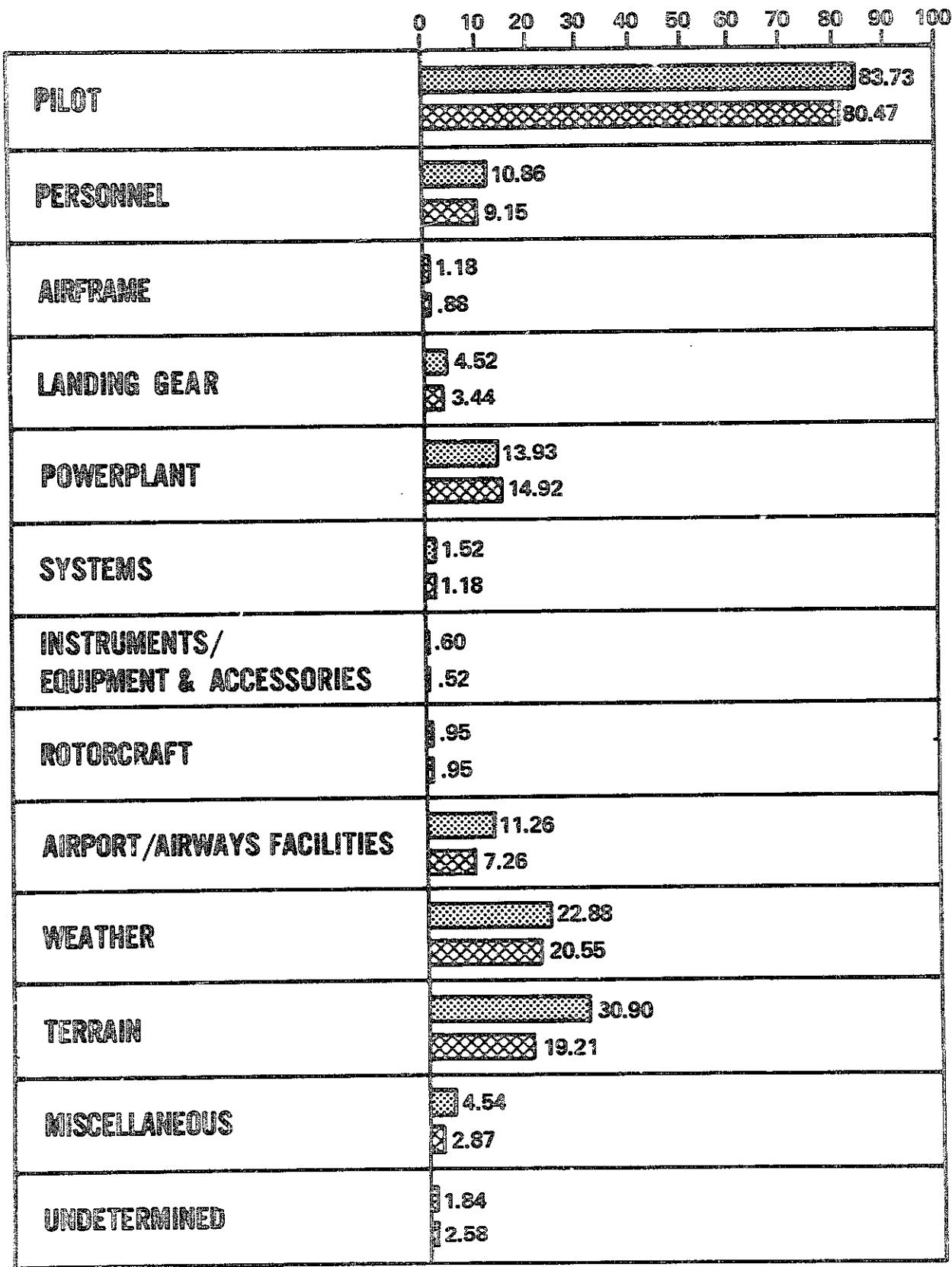
<u>Cause/Factors</u>	<u>Frequency</u>	<u>Percent</u>
Pilot - Inadequate Preflight Preparation or Planning	420	11.47
Miscellaneous Acts, Conditions Overload Failure	384	10.48
Terrain - High Obstructions	296	8.08
Weather - Unfavorable Wind Conditions	288	7.86
Pilot - Mismanagement of Fuel	274	7.48
Pilot - Failed to Obtain/Maintain Flying Speed	272	7.43
Pilot - Improper Level Off	265	7.23
Pilot - Failed to Maintain Directional Control	258	7.04
Miscellaneous Acts, Conditions Material Failure	241	6.58
Pilot - Selected Unsuitable Terrain	227	6.20

Table 7 -- Ten Most Frequently Cited Cause/Factors of 761 Fatal Accidents

<u>Cause/Factors</u>	<u>Frequency</u>	<u>Percent</u>
Weather - Low Ceiling	182	23.92
Pilot - Continued VFR Flight Into Adverse Weather Conditions	150	19.71
Pilot - Failed to Obtain/Maintain Flying Speed	148	19.45
Weather - Fog	112	14.72
Pilot - Spatial Disorientation	88	11.56
Pilot - Inadequate Preflight Preparation or Planning	84	11.04
Terrain - High Obstructions	83	10.91
Pilot - Improper Inflight Decisions or Planning	74	9.72
Weather - Rain	71	9.33
Miscellaneous - Unwarranted Low Flying	70	9.20

**Figure 7.-- TOTAL ACCIDENTS
CAUSE OR RELATED FACTORS PERCENTAGE DISTRIBUTION
U.S. GENERAL AVIATION**

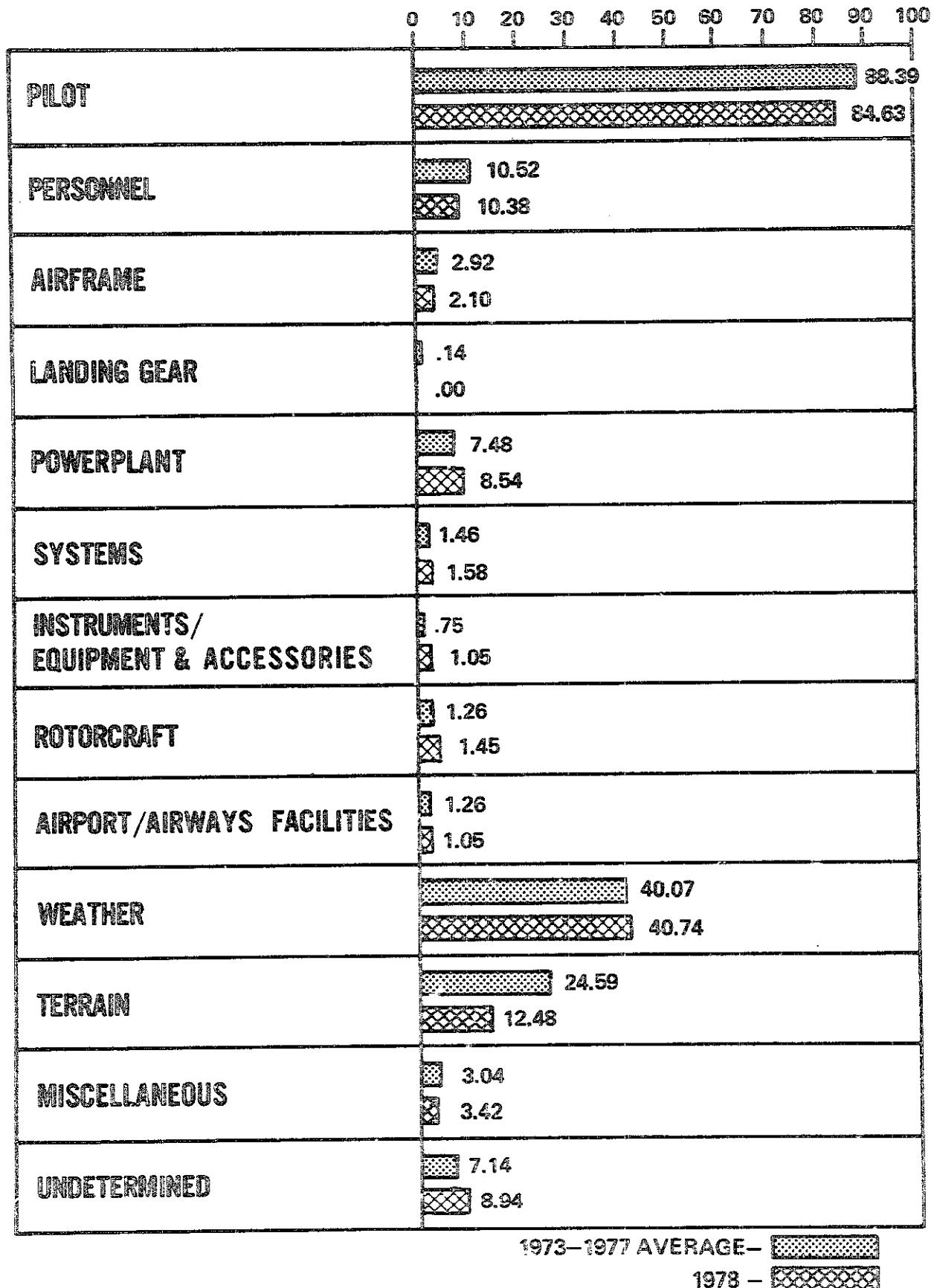
5-YEAR AVERAGE Vs. 1978



1973 - 1977 AVERAGE -

1978 -

**Figure 6.--FATAL ACCIDENTS
CAUSE OR RELATED FACTORS PERCENTAGE DISTRIBUTION
U.S. GENERAL AVIATION
5-YEAR AVERAGE Vs. 1978**



Kinds of Flying

Pleasure flying continues to experience the highest total and fatal accident rates. It had 19.13 total and 3.81 fatal accidents per 100,000 aircraft hours flown in 1978, compared to 18.45 and 3.64 posted in 1977, respectively.

Aerial application had the second highest accident rate (16.44), followed by instructional (9.58) and air taxi (6.06). For fatal accidents, however, air taxi (and this includes the commuter airlines) was in second place (1.56), followed by aerial application (1.01) and instructional (0.97). Corporate/executive flying posted the lowest 1978 accident rates of 1.78 total and 0.45 fatal. The average total accident rate for all kinds of flying was 11.40 during 1978, compared to 11.97 for 1977. Average fatal accident rate in 1978 was 2.01 and 1.96 in 1977.

Table 8 -- Kind of Flying
Total Accident Rates per
100,000 Aircraft Hours Flown

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Pleasure	21.05	20.37	18.45	19.13
Aerial Application	19.74	17.29	16.97	16.44
Instructional	10.51	9.59	9.42	9.58
Air Taxi	5.42	4.76	5.16	6.06
Business	4.79	4.06	3.89	3.49
Corporate/Executive	1.65	1.43	1.51	1.78

Table 9 -- Kind of Flying
Fatal Accident Rates per
100,000 Aircraft Hours Flown

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Pleasure	3.99	3.88	3.64	3.81
Aerial Application	1.56	1.56	1.09	1.01
Air Taxi	0.95	1.17	1.05	1.56
Instructional	0.77	1.01	0.79	0.97
Business	0.96	0.85	0.69	0.77
Corporate/Executive	0.45	0.33	0.42	0.45

Figure 9.—KIND OF FLYING—TOTAL ACCIDENT RATES PER 100,000 AIRCRAFT-HOURS FLOWN
1975–1978

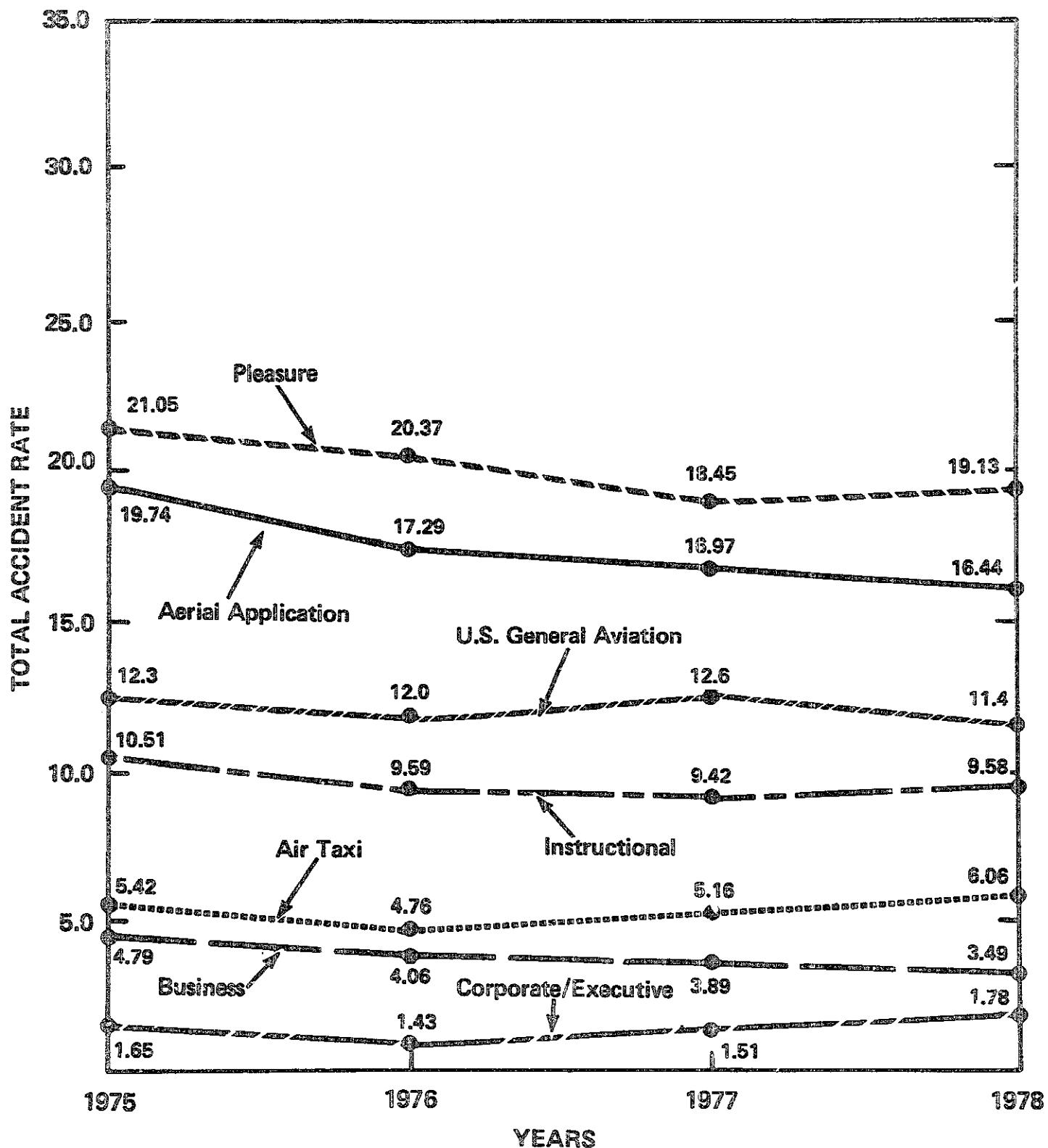
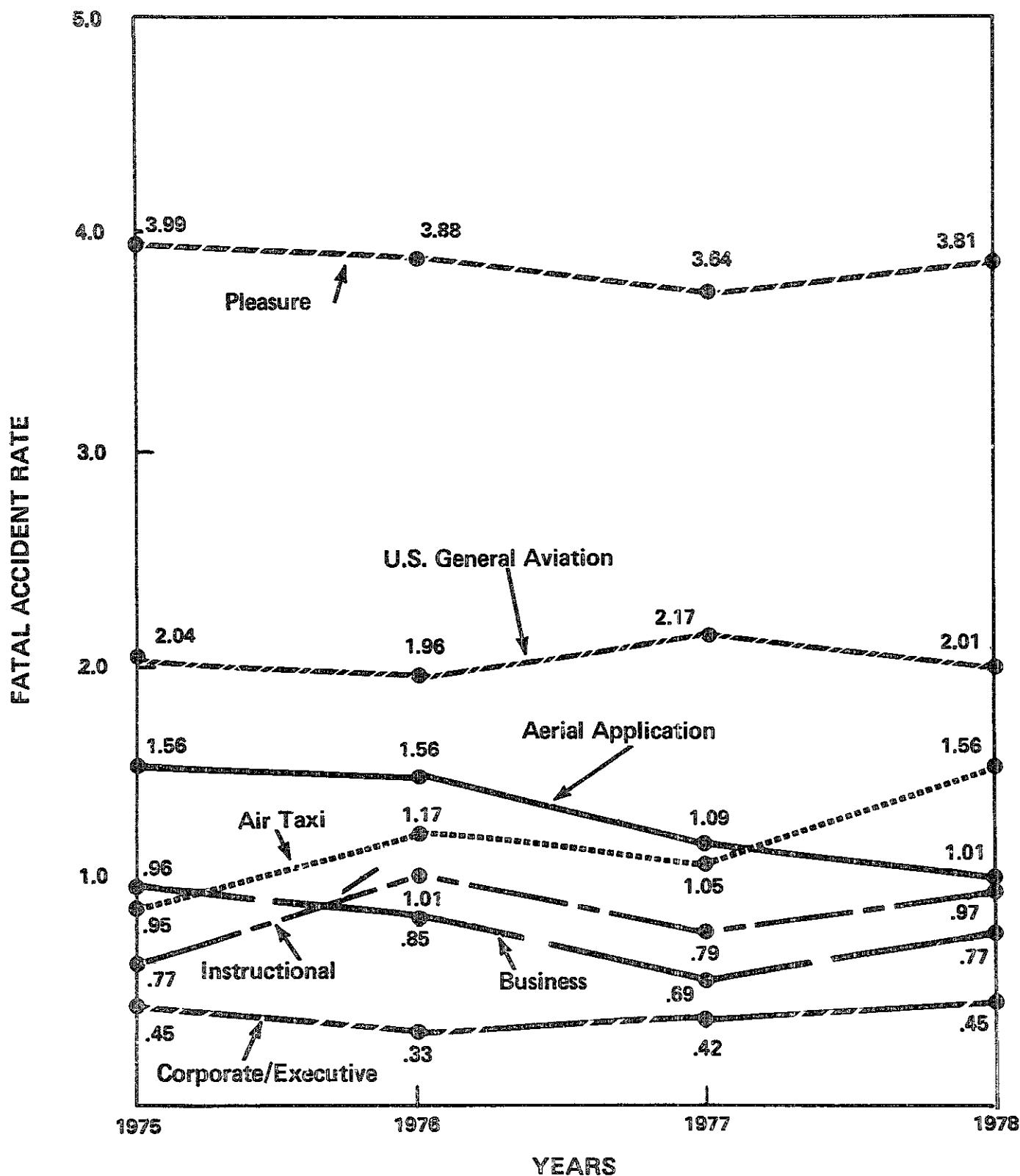


Figure 10—KIND OF FLYING—FATAL ACCIDENT RATE PER 100,000 AIRCRAFT—HOURS FLOWN
1975–1978



Conclusions

1. The 1978 general aviation accident record was not good when compared with 1977 or previous years.
 - * More people were killed (1,770) in general aviation aircraft accidents than in any previous year.
 - * Fatal accidents were up (793), exceeding all other year-end totals for the past 31 years.
 - * Total accidents increased (4,494), the highest level since 1971.
 - * The total accident rate per 100,000 aircraft hours flown decreased from 11.97 in 1977 to 11.40 in 1978.
 - * The fatal accident rate per 100,000 aircraft hours increased from 1.96 (1977) to 2.01 (1978). With the exception of 1977's rate, this was the lowest fatal general aviation rate on record.
2. More aircraft were involved in accidents in 1978 than in 1977 (4,557 up 5.07%), and more people were aboard accident aircraft (9,288 up 7.67%). Average accident occupant load factor was 2.04, up 2.5%. On the other hand, the U.S. general aviation fleet increased to 198,778 aircraft (up 7.86%) and flew a record 39,409,269 hours (up 10.11%).
3. Engine failure or malfunction continues to be the leading first accident type in all general aviation accidents (23.91%) and ground/water loop-swerve is second (12.47%).
 - * Most common first accident type for fatal accidents was controlled collision with ground/water (16.18%), followed by uncontrolled collision with ground/water (14.46%).
 - * Stall, stall/spin and stall/mush continue to claim a high share of fatal accidents, totalling 112 (14.12%) in 1978, down from 155 (22.08%) in 1977.
4. No changes were noted between 1978 and 1977 in either total or fatal accidents when ranked according to phase of operation.
 - * As in previous years, the 1978 fatal accidents occurred most often during the inflight phase of operation, accounting for 520 accidents, or 63.73% of all fatal accidents.
5. Weather and the pilot continue to be the most significant causal factors in fatal accidents; the latter is also cited most frequently in nonfatal accidents.

6. No rank order changes have been noted for total accident rates by the major categories of kinds of flying since 1973. Ranked in descending order (see Table 8) are pleasure, aerial application, instructional, air taxi, business, and corporate/executive. In fatal accidents, (see Table 9) air taxi showed the greatest change from 4th in 1975 to 2nd in 1978. Accidents increased from 200 to 268 (+34%), an increase of 68. Air taxi flying accounted for 25% fo the 1978 increase in total and fatal accidents.
7. Part of the increase in fatal accidents can be explained by examining kinds of flying as related to various cause/factors. Air taxi, pleasure, instructional and business flying accounted for 71 of the 93 fatal accident increase.
 - * Air taxi (which includes commuter air carriers) flying had the largest increase in fatal accidents, jumping from 44 to 69 (+52.82%), a difference of 25. The most frequently cited cause/factors were low ceiling (19) and continued VFR into adverse weather conditions (18). This is especially significant because in 1977 these particular causes numbered 6 and 6, respectively.
 - * Pleasure flying fatal accidents showed the second highest increase, up from 420 to 444 (+5.71%), an increase of 24. Again, continued VFR into adverse weather conditions was the most frequently cited cause/factor, up from 85 in 1977 to 101 in 1978.
 - * Instructional flying fatal accidents rose from 48 to 61 (+27.08%), an increase of 13. Failure to obtain/maintain flying speed was the most often cited cause/factor in 1978, as it was in 1977, with 14 citations each year.
 - * Business flying fatal accidents (those not employing a professional pilot) increased from 53 to 62 (+16.98%), an increase of 9. Most frequently cited cause/factors for this kind of flying included continued VFR into adverse weather conditions (13), initiated flight into adverse weather conditions (10), and spatial disorientation (15).

In order for the general aviation safety record to improve, the general aviation community must adopt and pursue a more aggressive accident prevention program, aimed especially at the pleasure pilot. Special emphasis should be placed on pilot training, particularly subjects pertaining to preflight preparation and planning, meteorology and weather evaluation, engine operation and fuel management, IFR procedures and position awareness, stall/spin, and takeoff and landing techniques -- including those under emergency conditions.

Obviously, the pilot who has accidents is the one who needs this training the most. Special efforts should be made to identify the "accident pilot" profile, so that the benefits of these combined efforts can be channeled towards improving his aeronautical knowledge and skills.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ JAMES B. KING
Chairman

/s/ ELWOOD T. DRIVER
Vice Chairman

/s/ FRANCIS H. MCADAMS
Member

/s/ PATRICIA A. GOLDMAN
Member

/s/ G.H. PATRICK BURSLEY
Member

STATISTICAL INFORMATION

GENERAL AVIATION ACCIDENTS

ALL CATEGORIES OF AIRCRAFT

G. J. R.

STATISTICAL RECAPITULATION OF ACCIDENTS
U.S. GENERAL AVIATION
1977-1978

	<u>1977</u>	<u>1978</u>
<u>Total Accidents</u>	4,286	4,494
<u>Aircraft Involved 1/</u>	4,337	4,557
<u>Injury Index</u>		
Fatal	702	793
Serious	424	458
Minor	627	662
None	2,533	2,581
Unknown	0	0
<u>Injuries 1/</u>		
Fatal	1,436	1,770
Serious	789	858
Minor	1,132	1,317
None	5,315	5,599
Unknown	0	0
<u>Total Aboard</u>	8,625	9,288
<u>Aircraft Damage 1/</u>		
Destroyed	1,129	1,227
Substantial	3,157	3,284
Minor/None	28	29
None	23	17
Not Reported	0	0
<u>Fire After Impact 1/</u>		
Fatal Accidents	190	197
Nonfatal Accidents	170	143
<u>Active Aircraft (Est.) 2/</u>	184,300	198,778
<u>Hours Flown(000) (Est.) 2/</u>	35,792	39,409
<u>Accident Rates Per 100,000 Hours Flown</u>		
Total	11.97	11.40
Fatal	1.96	2.01

1/ Includes all aircraft involved in collisions

2/ Source: FAA

Note: Suicide accident included in all computations except rates (1977-1, 1978-2).

ACCIDENTS, RATES, ACTIVE AIRCRAFT

ALL OPERATIONS

1978

	<u>Single* Engine</u>	<u>Multi- Engine</u>	<u>Glider</u>	<u>Balloon</u>	<u>Heli- copter</u>	<u>Gyro- copter</u>
ACCIDENTS	3,540	559	67	19	302	17
AIRCRAFT INVOLVED	3,587	560	68	19	303	17
<u>INJURY INDEX</u>						
Fatal	562	167	11	1	48	8
Serious	363	46	9	9	32	0
Minor	540	48	15	1	55	4
None	2,076	298	32	8	167	5
Unknown	0	0	0	0	0	0
ACTIVE AIRCRAFT (est.) 1/	161,071	28,364	2,804	1,224	5,315	
<u>AIRCRAFT DAMAGE</u>						
Destroyed	896	206	17	1	98	8
Substantial	2,659	350	51	12	201	9
Minor/None	32	4	0	6	4	0
Unknown/Not Reported	0	0	0	0	0	0
HOURS FLOWN (est.) 1/	27,857,308	8,682,999	284,887	53,000	2,227,651	
<u>ACCIDENT RATES PER 100,000 HOURS FLOWN</u>						
Total	12.70*	6.44	23.52	35.85	14.32	
Fatal	2.01*	1.92	3.86	1.89	2.51	

*Note: Two suicide accident in single engine fixed-wing included in all computations except rates.

1/ Source: FAA

ACCIDENTS, RATES, INJURY INDEX, AIRCRAFT DAMAGE
BY KIND OF FLYING
ALL OPERATIONS
1978

KIND OF FLYING

NONCOMMERCIAL

COMMERCIAL

AIR TAXI

SCHEDULED NONSCHEDULED

ACCIDENTS	HOURS FLOWN (THOUSANDS OF HOURS) 1/	INSTRUCTIONAL		PLEASURE*		BUSINESS		CORPORATE		AERIAL APPLICATION		PASSENG.		CARGO		PASSG.		CARGO			
		603	2222	280	87	4,881.7	2,767.4	3.49	1.78	0.45	1.01	16.44	1.01	28	8	5	37	19	7	16	7
ACCIDENT RATES PER 100,000 HOURS FLOWN		9.58	19.13*	3.49	1.78	16.44	1.01														
Total Accidents	0.97	3.81*	0.77	0.45	0.45	1.01															
Fatal Accidents																					
ACCIDENT INJURY INDEX																					
Fatal	61	444	62	22	22	28	8	5	37	19											
Serious	34	251	28	9	37	4	1	1													
Minor	91	340	38	7	61	4	4	4													
None	417	1187	152	49	329	18	11	11													
Unknown/Not Reported	0	0	0	0	0	0	0	0													
AIRCRAFT DAMAGE																					
Destroyed	93	592	78	28	156	12	7	49	28	22	22	14	7	49	28						
Substantial	508	1623	200	57	298	1	1	1													
Minor	5	14	2	2	1	1	0	0													
None	3	9	0	0	0	0	0	0													
Unknown/Not Reported	0	0	0	0	0	0	0	0													

1/ Source: FAA

* Note: Two suicides in pleasure flying included in all computations except rates.

ANALYTIC TABLE

FIRST TYPE OF ACCIDENT BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
GROUND-WATER LOOP-SWERVE	4	8	53	503	568	568	12.47
DRAGGED WINGTIP POD OR FLAT			2	7	9	9	.20
WHEELS-UP LANDING				77	77	77	1.69
WHEELS-DOWN LANDING IN WATER			1	2	3	3	.07
GEAR COLLAPSED			1	5	62	62	1.49
GEAR RETRACTED	1	1	2	44	48	48	1.05
HARD LANDING	1	12	47	223	283	283	6.21
NOSE OVER/DOWN	3	4	22	135	164	164	3.60
ROLL OVER	2	2	4	12	20	20	.44
OVERSHOOT	2	14	45	130	189	189	4.15
UNDERSHOOT	8	23	17	82	130	130	2.85
<u>COLLISION BETWEEN AIRCRAFT</u>							
BOTH IN FLIGHT	46	4	6	13	68	35	1.49
ONE AIRBORNE			4	2	12	18	.40
BOTH ON GROUND	2	2	4	29	37	19	.81
<u>COLLISION WITH GROUND/WATER</u>							
CONTROLLED	132	37	38	52	259	259	5.69
UNCONTROLLED	118	13	5	6	142	142	3.12
<u>COLLIDED WITH</u>							
WIRES/POLES	42	37	30	68	177	177	3.89
TREES	71	28	37	63	199	199	4.37
RESIDENCE/S			1		1	1	.02
BUILDINGS/S	1		1	7	9	9	.20
FENCE, FENCEPOSTS	1	3	7	41	52	52	1.14
ELECTRONIC TOWERS	5	1			6	6	.13
RUNWAY OR APPROACH LIGHTS	1			7	8	8	.18
AIRPORT HAZARD			1	9	10	10	.22
ANIMALS				3	3	3	.07
CROP		1	3	10	14	14	.31
FLAGMAN LOADER	1	1			2	2	.04
DITCHES	1	2	6	15	24	24	.53
SNOWBANK			2	43	45	45	.99
PARKED AIRCRAFT (UNATTENDED)	1		5	26	32	32	.70
AUTOMOBILE		1	3	14	18	18	.40
DIRT BANK		1	8	19	28	28	.61
OTHER	9	5	7	50	71	71	1.56
BIRD STRIKE				3	3	3	.07

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STALL	46	31	13	27	117	117	.2.57
SPIN	53	14	6	5	78	78	.1.71
SPRAL	16	3	2	2	23	23	.051
MUSH	13	32	25	103	173	173	.3.80
<u>FIRE OR EXPLOSION</u>							
IN FLIGHT	6	3	1	12	22	22	.048
ON GROUND				7	7	7	.015
<u>AIRFRAME FAILURE</u>							
IN FLIGHT	5	1	3	19	75	75	.1.65
ON GROUND	1			2	3	3	.007
<u>ENGINE TEARAWAY</u>							
ENGINE FAILURE OR MALFUNCTION	108	149	236	596	1089	1089	.23.91
<u>PROPELLER/ROTOR FAILURE</u>							
PROPELLER	3	1	5	25	34	34	.075
TAIL ROTOR	5	1	6	13	25	25	.055
MAIN ROTOR	6	1	1	6	14	14	.031
PROP ROTOR ACONT TO PERSON	5	9			14	14	.031
JET INTAKE/EXH ACONT TO PERS							
PROPELLER/JET/ROTOR BLAST	2		2		4	4	.009
TURBULENCE	10	3	1	2	16	16	.035
HAIL DAMAGE TO AIRCRAFT				1	1	1	.002
LIGHTNING STRIKE				1	1	1	.002
EVASIVE MANEUVER	2		1		3	3	.007
<u>UNCONTROLLED ALT DEVIATION</u>							
DITCHING	2			3	5	5	.011
MISSING ACFT NOT RECOVERED	24				24	24	.053
MISCELLANEOUS/OTHER	3	4	5	3	20	20	.044
UNDETERMINED	10	3	2	6	21	21	.046
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581	4494		
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

FIRST TYPE OF ACCIDENT BY AIRCRAFT DAMAGE
ALL OPERATIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
GROUND-WATER LOOP-SWERVE	21	547			568	568	12.47
DRAGGED WINGTIP POD OR FLOAT	2	7			9	9	.26
WHEELS-UP LANDING	1	76			77	77	1.69
WHEELS-DOWN LANDING IN WATER		3			3	3	.07
GEAR COLLAPSED		67	1		68	68	1.49
GEAR RETRACTED	2	46			48	48	1.05
HARD LANDING	17	263	2	1	283	283	6.21
NOSE OVER/DOWN	9	155			164	164	3.60
ROLL OVER	8	12			20	20	.44
OVERSHOOT	19	170			189	189	4.15
UNDERSHOOT	19	110		1	130	130	2.85
<u>COLLISION BETWEEN AIRCRAFT</u>							
BOTH IN FLIGHT	39	23	5	1	68	35	1.49
ONE AIRBORNE	2	13	3		18	9	.40
BOTH ON GROUND	4	26	7		37	19	.81
<u>COLLISION WITH GROUND/WATER</u>							
CONTROLLED	148	110	1		259	259	5.69
UNCONTROLLED	119	23			142	142	3.12
<u>COLLIDED WITH</u>							
WIRES/POLES	88	89			177	177	3.89
TREES	99	99	1		199	199	4.37
RESIDENCE/S		1			1	1	.02
BUILDING/S	2	7			9	9	.20
FENCE, FENCEPOSTS	6	46			52	52	1.14
ELECTRONIC TOWERS	6				6	6	.13
RUNWAY OR APPROACH LIGHTS	2	6			8	8	.18
AIRPORT HAZARD		10			10	10	.22
ANIMALS		3			3	3	.07
CROP	3	11			14	14	.31
FLAGMAN LOADER			2		2	2	.04
DITCHES	1	23			24	24	.53
SNOWBANK		45			45	45	.99
PARKED AIRCRAFT (UNATTENDED)	3	28	1		32	32	.70
AUTOMOBILE		18			18	18	.40
DIRT BANK	4	24			28	28	.61
OTHER	13	56	2		71	71	1.56
BIRD STRIKE		3			3	3	.07

ANALYTIC TABLE

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STALL	62	55			117	117	2.57
SPIN	60	18			78	78	1.71
SPIRAL	17	6			23	23	.51
MUSH	58	115			173	173	3.80
FIRE OR EXPLOSION							
IN FLIGHT	13	9			22	22	.48
ON GROUND	2	5			7	7	.15
AIRFRAME FAILURE							
IN FLIGHT	53	22			75	75	1.65
ON GROUND	1	2			3	3	.07
ENGINE TEARAWAY							
ENGINE FAILURE OR MALFUNCTION	243	845	1		1089	1089	23.91
PROPELLER/ROTOR FAILURE							
PROPELLER	4	30			34	34	.75
TAIL ROTOR	10	15			25	25	.55
MAIN ROTOR	5	9			14	14	.31
PROP ROTOR ACNTN TO PERSON	1	5	8		14	14	.31
JET INTAKE/EXH ACNTN TO PERS							
PROPELLER/JET/ROTOR BLAST	4				4	4	.09
TURBULENCE	12	4			16	16	.35
HAIL DAMAGE TO AIRCRAFT		1			1	1	.02
LIGHTNING STRIKE		1			1	1	.02
EVASIVE MANEUVER	2	1			3	3	.07
UNCONTROLLED ALT DEVIATION							
DITCHING	5				5	5	.11
MISSING ACFT NOT RECOVERED	24				24	24	.53
MISCELLANEOUS/OTHER	3	13	4		20	20	.44
UNDETERMINED	15	6			21	21	.46
RECORDS	1226	3282	29	17		4554	
ACCIDENTS	1212	3264	29	17			4494
PERCENTS	26.9	72.1	.6	.4			

FIRST TRY

	Propeller/rotor malfunction	Propeller/rotor failure	Tail rotor	Blade rotor	Propeller/rotor acc. to person	Propeller/intake/exha. acc. to person	Turbulence	Hail damage to aircraft	Lightning strike	Evasive maneuver	Uncontrolled maneuver	Ditching	Missing aircraft, not recovered	Other/miscellaneous	Undetermined
Ground/water loss															
Drogued wingtips															
Wheels-up landing															
Wheels-down loss															
Gear collapsed															
Gear retracted															
Hard landing															
Nose over/down															
Roll over															
Overshoot															
Undershoot															
Collision with ai															
Both in flight															
One steering															
Both on ground															
Collision with gr															
Controlled															
Uncontrolled															
Collided with															
Wires/poles															
Trees															
Residence(s)															
Other buildings															
Fences, fenceposts															
Electrical towers															
Runway or approach															
Airport hazard															
Animals															
Crop															
Flagman, marker															
Bitches															
Snowbank															
Parked aircraft															
Automobile															
Dirt bank															
Other															
Bird strike (cell)															
Stall															
Spin															
Spiral															
Bust															
Fire or explosion															
In flight															
On ground															
Airframe failure															
In flight															
On ground															
Engine failure	1														
Engine failure	1														
Propeller/rotor															
Propeller															
Tail rotor															
Blade rotor															
Propeller/rotor															
Jet intake/exha															
Propeller/jet/t															
Turbulence															
Hail damage to															
Lightning strike															
Evasive maneuver															
Uncontrolled st															
Ditching															
Missing aircraft															
Other/miscell															
Undetermined															
	0	1	0	0	0	0	0	0	0	0	0	39	0	2	0
	24	25	14	14	0	4	16	1	1	3	0	5	24	20	21
	34	26	14	14	0	4	16	1	1	3	0	44	24	22	21

- 31 -

FIRST TYPE OF ACCIDENT

	TOTAL FIRST TYPES	Ground/water loop/swerve	Drogued wingtip, pod, or float	Wheels-up landing	Wheels-down landing in water	Gear collapsed	Gear retracted	Hard landing	Nose over/down	Roll over	Overshoot	Undershoot	Both in flight	On ground	Controlled	Uncontrolled	Whirlwinds	Trees	Residence(s)	Other buildings	Farms, reservoirs	Electronic levers	Runway or approach lights	Airport hazard	Residence(s)		
Ground/water loop/swerve	568			101		110	1										19	7	13	8	3	5					
Drogued wingtip, pod, or float	9			1		1												1									
Wheels-up landing	77																										
Wheels-down landing in water	3																										
Gear collapsed	68	1																									
Gear retracted	48																										
Hard landing	283	13		119		26	2										5	1	4	2	1						
Nose over/down	164			3														1									
Roll over	20		1																								
Overshoot	189	4		17	3	23											4	11	30	1	25	2					
Undershoot	130	1		18	5	6											7	17	21	9	1	2					
Collision with aircraft																											
Both in flight	35																1										
On airbase	9																										
Both on ground	19																										
Collision with ground/water																	2	1									
Controlled	259																										
Uncontrolled	142																										
Collided with																	2	2		2	1						
Wires/ducts	177																										
Trees	199																		1								
Residence(s)	1																										
Other buildings	9																										
Fences, fenceposts	52	1															3										
Electrical towers	6																										
Survey or approach lights	2																										
Airport hazard	10																1										
Animals	3																										
Crop	14																										
Flagpoles, ladder	2																										
Ditches	24																										
Snowbank	45																1	2									
Parked aircraft (unattended, engines not running)	32																										
Automobile	18																										
Dirt bank	28																2										
Other	71		1	1	1												3										
Bird strike (collision with birds)	3																										
Stall	117																										
Spin	78																										
Spiral	29																										
Blush	178																1	2			1	1					
Fire or explosion																											
In flight	22																1	1				3	1	1			
On ground	7																										
Airframe failure																											
In flight	75	1															1	1			3	1	3				
On ground	3																1										
Engine failure	0																										
Engine failure or malfunction	1089	3	1	35	83	1	106	140	13									113	19	51	196	7	2	56	1		
Propeller/rotor failure	0																										
Propeller	34	2	1	3													5	3			2	4	2				
Tall rotor	25																6	1	7		1	2					
Blade rotor	14																4	1			5						
Propeller/rotor acc. to person	14																										
Jet intake/exhaust acc. to person	0																										
Propeller/jet/rotor blast	4																1										
Turbulence	16																										
Hail damage to aircraft	1																										
Lightning strike	1																										
Evasive maneuver	3																1										
Uncontrolled altitude deviations	0																										
Ditching	5																										
Missing aircraft, not recovered	24																										
Other/miscellaneous	20																				1	3					
Undetermined	21																										
TOTAL SECOND ACCIDENT TYPE	26	2	38	0	357	1	134	338	25	0	0	0	0	0	0	0	138	45	84	286	9	10	108	0	13	5	
TOTAL FIRST ACCIDENT TYPE	568	9	77	3	68	48	283	167	30	189	130	35	9	19	259	142	177	196	1	9	52	6	8	10			
TOTAL TYPES	594	11	115	3	422	44	417	502	45	189	130	35	9	19	397	187	261	487	9	19	160	6	21	15			

A

e blank

ACCIDENT TYPE vs. SECOND ACCIDENT TYPE

SECOND TYPE OF ACCIDENT

	Collided with																																										
	Fence	Buildings	Other buildings	Barriers (v)	Electronics	Wireless or speech (data)	Airport ground	Mobile	Grocery	Furniture, ledge	Others	Seaplane	Other aircraft (unintended, engines not running)	Automobile	Other	Bird +	The collision with birds	Spin	Spiral	Stall	Wing	On ground	In flight	On board	In flight	On board	Engine failure	Airframe failure	Fire or explosion														
19	7	13	8	3	3	3	3	3	46	75	9	14	15	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
4	2	1							3	5	1	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1																
30	1	25	2	2	24	4	3	2	12	10	5			5		6																											
21	9	1	2	1	7	12	1	1	9	7	5			5		1																											
57	196	7	2	56	1	1	20	25	8	1	3	25	38	38	16	4	20	3																									
4	2																																										
2																																											
3																																											
3																																											
26	233	9	16	108	0	13	5	1	33	0	119	106	17	10	62	84	0	54	18	4	31	3	0	2	0	0	1	0	0	0	0	0	0	39	0	2	0						
27	169	1	9	52	6	8	10	3	14	2	24	45	32	19	23	71	3	17	78	23	173	22	7	75	3	0	1089	0	34	25	14	14	0	4	16	1	1	3	0	5	24	20	21
28	1587	9	19	160	6	21	15	4	47	2	143	151	49	23	90	155	3	171	96	27	204	25	7	77	5	0	1049	0	34	26	14	14	0	4	16	1	1	3	0	44	24	22	21

B

ANALYTIC TABLE

FIRST PHASE OF OPERATION BY INJURY INDEX
ALL OPERATIONS

FATAL SERIOUS MINOR NONE

RECORDS ACCIDENTS PERCENT

STATIC

STARTING ENGINE/S	1	3	7	11	11	.24	
IDLING ENGINE/S	2	5	1	6	14	13	.31
ENGINE RUNUP				4	4	.09	
IDLING ROTORS	2	1	1	4	8	8	.18
PARKED-ENGINES NOT OPERATING				1	1	.02	
OTHER							

TAXI

TO TAKEOFF		2	69	71	70	1.56	
FROM LANDING		2	4	65	71	71	1.56
OTHER	2	3	2	16	23	23	.51
GROUND TAXI TO TAKEOFF			1	1	2	2	.04
GROUND TAXI FROM LANDING				1	1	1	.02
GROUND TAXI, OTHER	1				1	1	.02
AERIAL TAXI TO TAKEOFF			1		1	1	.02
AERIAL TAXI TO/FROM LANDING			1		1	1	.02
AERIAL TAXI, OTHER			4		4	4	.09

TAKEOFF

RUN	5	10	31	177	223	223	4.90
INITIAL CLIMB	98	100	102	253	553	553	12.14
VERTICAL		5	7	19	31	31	.68
RUNNING (ROTORCRAFT/VTOL-STOL)	1		2	1	4	4	.09
ABORTED (FIXED-WING)		6	13	53	72	72	1.58
ABORTED (ROTORCRAFT/VTOL)			1		1	1	.02
ABORTED (ROTORCRAFT/STOL)			1		1	1	.02
OTHER	3		1		4	4	.09

INFLIGHT

CLIMB TO CRUISE	33	16	19	46	114	114	2.50
NORMAL CRUISE	169	74	100	291	634	625	13.92
DESCENDING	31	5	22	38	96	96	2.11
HOLDING (IFR)							
HOVERING	4	4	2	12	22	22	.48
POWER-ON DESCENT (ROTORCRAFT)	1			3	4	4	.09
AUTOROTATIVE DESCENT	1	1	1	2	5	5	.11
ACROBATICS	25	7	2	3	37	37	.81
BUZZING	18	6	2	5	31	31	.68
UNCONTROLLED DESCENT	98	2			100	100	2.20

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
EMERGENCY DESCENT	4		1		5	5	.11
LOW PASS	42	18	14	18	92	92	2.02
OTHER	68	12	13	21	114	109	2.50
EN ROUTE TO TREAT CROP	2	1	3	14	20	20	.44
EN ROUTE TO RELOADING AREA			3		3	3	.07
SURVEY FIELD/AREA			8		8	8	.18
STARTING SWATH RUN	2	2	7	9	20	20	.44
SWATH RUN	1	9	18	51	79	79	1.73
FLAREOUT FOR SWATH RUN	2		2	5	9	9	.20
PULLUP FROM SWATH RUN	7	5	4	24	40	40	.86
PROCEDURE TURNAROUND	9	10	9	44	72	72	1.58
CLEANUP SWATH	2	2		1	5	5	.11
MANEUVER TO AVOID OBSTRUCTION		1	1	3	5	5	.11
RETURN TO STRIP	1		3	9	13	13	.29
<u>LANDING</u>							
TRAFFIC PATTERN-CIRCLING	28	19	20	37	104	102	2.28
FINAL APPROACH (VFR)	39	54	50	138	281	276	6.17
INITIAL APPROACH	5	1	3	1	10	10	.22
FINAL APPROACH (IFR)	27	7	4	9	47	47	1.03
LEVEL OFF/TOUCHDOWN	9	35	117	558	719	712	15.79
ROLL (FIXED WING)	4	10	48	483	545	544	11.97
ROLL-ON/RUN-ON (ROTORCRAFT)			3		3	3	.07
POWER-ON LANDING (ROTORCRAFT)	4	1	8	17	30	30	.66
POWER-OFF AUTOROTATIVE LDG		2		4	6	6	.13
GO-AROUND (VFR)	15	18	24	57	114	114	2.50
MISSED APPROACH (IFR)	7	1	2		10	10	.22
OTHER	5	3		3	11	11	.24
UNKNOWN/NOT REPORTED	38	1	2	3	44	44	.97
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581		4494	
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

FIRST PHASE OF OPERATION BY AIRCRAFT DAMAGE
ALL OPERATIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>STATIC</u>							
STARTING ENGINE/S	7	4			11	11	.24
IDLING ENGINE/S	6	4	4		14	13	.31
ENGINE RUNUP	3	1			4	4	.09
IDLING ROTORS	6	2			8	8	.18
PARKED-ENGINES NOT OPERATING	1				1	1	.02
<u>OTHER</u>							
<u>TAXI</u>							
TO TAKEOFF	2	64	5		71	70	1.56
FROM LANDING	2	68	1		71	71	1.56
OTHER	3	18	2		23	23	.51
GROUND TAXI TO TAKEOFF	2				2	2	.04
GROUND TAXI FROM LANDING	1				1	1	.02
GROUND TAXI, OTHER	1				1	1	.02
AERIAL TAXI TO TAKEOFF	1				1	1	.02
AERIAL TAXI TO/FROM LANDING	1				4	4	.09
AERIAL TAXI, OTHER	1	3					
<u>TAKEOFF</u>							
RUN	16	206	1		223	223	4.90
INITIAL CLIMB	179	374			553	553	12.14
VERTICAL	8	23			31	31	.68
RUNNING (ROTORCRAFT/VTOL-STOL)	2	2			4	4	.09
ABORTED (FIXED-WING)	5	67			72	72	1.58
ABORTED (ROTORCRAFT/VTOL)		1			1	1	.02
ABORTED (ROTORCRAFT/STOL)		1			1	1	.02
OTHER	4				4	4	.09
<u>INFLIGHT</u>							
CLIMB TO CRUISE	46	68			114	114	2.50
NORMAL CRUISE	214	416	4		634	625	13.92
DESCENDING	34	61	1		96	96	2.11
HOLDING (IFR)							
HOVERING	9	11	2		22	22	.48
POWER-ON DESCENT (ROTORCRAFT)	1	3			4	4	.09
AUTOROTATIVE DESCENT	1	4			5	5	.11
ACROBATICS	28	9			37	37	.81
BUZZING	19	12			31	31	.68
UNCONTROLLED DESCENT	95	5			100	100	2.20

ANALYTIC TABLE

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
EMERGENCY DESCENT	6	1			5	5	.11
LOW PASS	58	34			92	92	2.02
OTHER	74	40			114	109	2.50
EN ROUTE TO TREAT CROP	9	11			20	20	.44
EN ROUTE TO RELOADING AREA	1	2			3	3	.07
SURVEY FIELD/AREA	3	5			8	8	.18
STARTING SWATH RUN	13	7			20	20	.44
SWATH RUN	33	46			79	79	1.73
FLAREOUT FOR SWATH RUN	2	6	1		9	9	.20
PULLUP FROM SWATH RUN	13	27			40	40	.88
PROCEDURE TURNAROUND	35	36	1		72	72	1.58
CLEANUP SWATH	4	1			5	5	.11
MANEUVER TO AVOID OBSTRUCTION	2	3			5	5	.11
RETURN TO STRIP	1	12			13	13	.29
<u>LANDING</u>							
TRAFFIC PATTERN-CIRCLING	37	66	1		104	102	2.28
FINAL APPROACH (VFR)	69	211	1		281	276	6.17
INITIAL APPROACH	8	2			10	10	.22
FINAL APPROACH (IFR)	30	17			47	47	1.03
LEVEL OFF/TOUCHDOWN	53	656	6	4	719	712	15.79
ROLL (FIXED WING)	16	528	1		545	544	11.97
ROLL-ON/RUN-ON (ROTORCRAFT)	1	2			3	3	.07
POWER-ON LANDING (ROTORCRAFT)	7	23			30	30	.66
POWER-OFF AUTOROTATIVE LDG		6			6	6	.13
GO-AROUND (VFR)	32	82			114	114	2.50
MISSED APPROACH (IFR)	6	4			10	10	.22
OTHER	6	5			11	11	.24
UNKNOWN/NOT REPORTED	39	5			44	44	.97
RECORDS	1226	3282	29	17	4554		
ACCIDENTS	1212	3264	29	17		4494	
PERCENTS	26.9	72.1	.6	.4			

CAUSE/FACTOR TABLE

U.S. GENERAL AVIATION ACCIDENTS
ALL OPERATIONS
1978

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 44,24 TOTAL ACCIDENTS
INVOLVES 761 FATAL ACCIDENTS

GENERAL CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
PILOT	633 R3.18	129 16.95	644 R4.63	2895 79.03	103 R.27	2916 79.61	3528 79.75	432 9.075	3560 R0.47
PERSONNEL	62 R.15	27 2.09	79 10.36	276 7.53	58 1.58	326 R.90	338 7.64	80 1.81	405 9.15
AIRFRAME	9 1.18	7 .92	16 2.10	16 .66	7 .19	23 .63	25 .57	16 .32	39 .88
LANDING GEAR	0 54	0 1.97	0 65	138 55.6	15 15.18	152 16.24	138 59.5	15 61.0	152 59
COMPLAINT	7.10 .66	7 .92	12 1.58	30 .82	10 .27	40 1.09	35 13.79	17 .79	660 14.92
SYSTEMS	5 1.13	7 .92	8 1.05	6 .16	9 .25	15 .41	16 .41	7 1.16	52 1.18
INSTRUMENTS/EQUIPMENT & ACCESSORIES	10 1.31	1 .14	11 1.45	30 .87	1 .04	31 .05	40 .90	2 .05	42 .95
AIRCRAFT	0 10	0 303	0 310	34 47	0 560	313 59.9	34 57	288 1.29	321 19.51
AIRPORT/AIRWAYS/FACILITIES	0 1.31	0 39.82	0 40.74	0 1.28	0 15.29	0 16.35	0 1.29	0 19.51	0 20.55
TERRAIN	7 .92	88 11.56	95 12.48	201 5.49	557 15.21	755 20.61	208 4.70	645 16.58	850 19.21
MISCELLANEOUS	22 2.89	4 .53	26 3.42	81 2.21	20 .55	101 2.76	103 2.33	24 .56	127 2.87
UNDETERMINED	69 R.94	68 .00	68 R.94	46 1.26	46 .00	46 1.26	114 2.58	114 .00	114 2.58

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE
U.S. GENERAL AVIATION ACCIDENTS
ALL OPERATIONS
1978

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 4424 TOTAL ACCIDENTS

INVOLVES 741 FATAL ACCIDENTS

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
## PILOT ##									
PILOT IN COMMAND									
ATTEMPTED OPERATION W/KNOWN DEFICIENCIES IN EQUIPMENT	11	9	20	30	10	40	41	19	60
ATTEMPTED OPERATION BEYOND EXPERIENCE/ABILITY LEVEL	35	16	51	22	12	34	57	28	85
BECAME LOST/DISORIENTED	20	3	23	32	10	42	52	13	65
CONTINUED VFR FLIGHT INTO ADVERSE WEATHER CONDITIONS	148	2	150	49	9	58	197	11	208
CONTINUED INTO KNOWN AREA OF SEVERE TURBULENCE	6		6				6		6
DELAYED ACTION IN ABORTING TAKEOFF				48	6	54	48	6	54
DELAYED IN INITIATING GO-AROUND	8	2	10	133	13	146	141	15	156
DIVERTED ATTENTION FROM OPERATION OF AIRCRAFT	14	6	20	44	19	65	60	25	85
EXCEEDED DESIGN STRESS LIMITS OF AIRCRAFT	35	1	36	6		6	41	1	42
FAILED TO EXTEND LANDING GEAR		1	1	41		41	41	1	42
FAILED TO RETRACT LANDING GEAR	1	1	2	5		5	6		7
RETRACTED GEAR PREMATURELY				1	1	2	1	1	2
INADVERTENTLY RETRACTED GEAR				15		15	15		15
FAILED TO SEE AND AVOID OTHER AIRCRAFT	27		27	42	2	44	69	2	71
FAILED TO SEE AND AVOID OBJECTS OR OBSTRUCTIONS	30		30	129	1	130	159	1	160
FAILED TO DETERMINE/MAINTAIN FLYING SPEED	147	1	148	272		272	419	1	420
MISJUDGED SPEED, ALTITUDE OR CLEARANCE	5		5	12		12	17		17
FAILED TO MAINTAIN ADEQUATE ROTOR RPM	4		4	34		34	38		38
FAILED TO USE OR INCORRECTLY USED MISC EQUIPMENT	4	3	7	1	1	2	5	4	9
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES ETC	26	5	31	70	15	85	96	20	116
IMPROPER OPERATION OF POWERPLANT + POWERPLANT CONTROLS	8	3	11	88	11	99	96	14	110
IMPROPER OPERATION OF BRAKES AND/OR FLIGHT CONTROLS				162	3	165	162	3	165
IMPROPER OPERATION OF FLIGHT CONTROLS	10		10	57	4	61	67	4	71
PREMATURE LIFT OFF	2	1	3	45	3	48	47	4	51
IMPROPER LEVEL OFF	1		1	264	1	265	265	1	266
IMPROPER TIE-IN OPERATION	30	1	31	11	1	12	41	2	43
IMPROPER IN-FLIGHT DECISIONS OR PLANNING	68	6	74	130	5	135	198	11	209
IMPROPER COMPENSATION FOR WIND CONDITIONS	2	1	3	130	8	138	132	9	141
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING	66	18	84	384	36	420	450	54	504
INADEQUATE SUPERVISION OF FLIGHT	9		9	86	3	89	95	3	98
LACK OF FAMILIARITY WITH AIRCRAFT	7	16	23	21	58	79	28	74	102
MISMANAGEMENT OF FUEL	32		32	271	3	274	303	3	306
EXERCISED POOR JUDGMENT	20	8	28	34	9	43	54	17	71
OPERATED CARELESSLY	1	1	2	3	1	4	4	2	6
SELECTED UNSUITABLE TERRAIN	5	2	7	212	15	227	217	17	234
IMPROPER STARTING PROCEDURES				5	1	6	5	1	6
STARTED ENGINE WITHOUT PROPER ASSISTANCE/EQUIPMENT	1		1	13		13	14		14
TAXIED/PARKED WITHOUT PROPER ASSISTANCE				16		16	16		16
FAILED TO ASSURE THAT GEAR WAS DOWN AND LOCKED				24		24	24		24
INITIATED FLIGHT IN ADVERSE WEATHER CONDITIONS	37	2	39	17	9	20	54	5	59
SPONTANEOUS-IMPROPER ACTION	2	1	3	10		10	12	1	13
MISJUDGED DISTANCE, SPEED, AND ALTITUDE	8		8	19		19	27		27
MISJUDGED DISTANCE AND SPEED	2		2	189	2	191	191	2	193
MISJUDGED DISTANCE				5		5	5		5
MISJUDGED DISTANCE AND ALTITUDE	7		7	107	1	108	114	1	115
MISJUDGED SPEED AND ALTITUDE	2		2	11		11	13		13
MISJUDGED SPEED				7	1	8	7	1	8
MISJUDGED SPEED AND CLEARANCE				8		8	8		8
MISJUDGED ALTITUDE AND CLEARANCE	23		23	39		39	62		62
MISJUDGED ALTITUDE	16		16	22	1	23	38	1	39
MISJUDGED CLEARANCE	16		16	96		96	112		112
INADEQUATE TRAINING OF STUDENT				1		1	1		1
MISUNDERSTANDING OF ORDERS OR INSTRUCTIONS				1		1	1		1
IMPROPER RECOVERY FROM BOUNCED LANDING				152	1	153	152	1	153
INCAPACITATION	7	1	8	2		2	9	1	10
PHYSICAL IMPAIRMENT	24	24	48	6	6	12	30	30	60
SPATIAL DISORIENTATION	87	1	88	10		10	97	1	98
PSYCHOLOGICAL CONDITION	2	2	4	2	2	4	4	4	8
MISUSED OR FAILED TO USE FLAPS	2	3	5	23	19	42	25	22	47
LEFT AIRCRAFT UNATTENDED ENGINE RUNNING				1		1	1		1

CAUSE/FACTOR TABLE

FAILED TO MAINTAIN DIRECTIONAL CONTROL (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
FAILED TO MAINTAIN DIRECTIONAL CONTROL	3	3	258			258	261	17	261
SELECTED WRONG RUNWAY RELATIVE TO EXISTING WIND	2	2	53	17	70	55	5	72	65
FAILED TO ABORT TAKEOFF	10	10	50	5	55	60	16	16	128
FAILED TO INITIATE GO-AROUND	1	1	111	16	127	112	1	1	7
DIRECT ENTRYS	3	1	4	3	3	6			
SUBTOTAL	1037	142	1179	4147	335	4482	5184	477	5661
COPILOT				1	1	1	1	1	1
INADVERTENTLY RETRACTED GEAR				1	1	1	1	1	1
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC				1	1	1	1	1	1
IMPROPER LEVEL OFF				1	1	1	1	1	1
IMPROPER COMPENSATION FOR WIND CONDITIONS				1	1	1	1	1	1
LACK OF FAMILIARITY WITH AIRCRAFT				1	1	1	1	1	1
EXERCISED POOR JUDGEMENT	1	1	1	1	1	1	1	1	1
SPONTANEOUS-IMPROPER ACTION	1	1	1	1	1	2	1	2	2
MISJUDGED DISTANCE AND ALTITUDE				1	1	1	1	1	1
MISJUDGED ALTITUDE				1	1	1	1	1	1
IMPROPER RECOVERY FROM BOUNCED LANDING				1	1	1	1	1	1
PHYSICAL IMPAIRMENT	1	1	1	1	1	1	1	1	1
SPATIAL DISORIENTATION				3	3	3	1	3	3
FAILED TO MAINTAIN DIRECTIONAL CONTROL				3	3	3	4	4	16
SUBTOTAL	2	2	4	10	2	12	12	4	16
DUAL STUDENT				2	2	2	2	2	2
DELAYED ACTION IN ABORTING TAKEOFF				2	2	2	2	2	2
DELAYED IN INITIATING GO-AROUND				1	1	1	1	1	1
INVERTED ATTENTION FROM OPERATION OF AIRCRAFT				2	2	2	2	2	2
FAILED TO EXTEND LANDING GEAR	1	1	1	1	1	2	2	2	2
FAILED TO SEE OTHER AIRCRAFT	2	2	2	12	12	14	14	14	14
FAILED TO OBTAIN/MAINTAIN FLYING SPEED				2	2	2	2	2	2
FAILED TO MAINTAIN ADEQUATE ROTOR RPM				1	2	2	3	3	3
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC	1	1	1	3	3	3	3	3	3
IMPROPER OPERATION OF POWERPLANT + POWERPLANT CONTROLS				7	7	7	7	7	7
IMPROPER OPERATION OF BRAKES AND/OR FLIGHT CONTROLS				12	12	12	12	12	12
IMPROPER OPERATION OF FLIGHT CONTROLS				2	2	2	2	2	2
PREMATURE LIFT-OFF				12	12	12	12	12	12
IMPROPER LEVEL OFF				1	1	1	1	1	1
IMPROPER IFR OPERATION	1	1	1	1	1	1	1	1	1
IMPROPER COMPENSATION FOR WIND CONDITIONS				2	2	2	2	2	2
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING				1	1	1	1	1	1
MISMANAGEMENT OF FUEL				1	1	1	2	2	2
FAILURE TO RELINQUISH CONTROL	1	1	1	1	1	1	1	1	1
SPONTANEOUS-IMPROPER ACTION				2	1	3	2	1	3
MISJUDGED DISTANCE, SPEED, AND ALTITUDE				3	3	3	3	3	3
MISJUDGED DISTANCE AND SPEED				11	11	11	11	11	11
MISJUDGED DISTANCE AND ALTITUDE	1	1	1	1	1	1	1	1	1
MISJUDGED SPEED AND ALTITUDE				1	1	1	1	1	1
MISJUDGED SPEED AND CLEARANCE				3	3	3	3	3	3
MISJUDGED CLEARANCE				1	1	1	1	1	1
MISUNDERSTANDING OF ORDERS OR INSTRUCTIONS				1	1	1	1	1	1
IMPROPER RECOVERY FROM BOUNCED LANDING				1	1	1	1	1	1
PHYSICAL IMPAIRMENT	1	1	1	1	1	1	1	1	1
SPATIAL DISORIENTATION	1	1	1	2	2	2	2	2	2
MISUSED OR FAILED TO USE FLAPS	2	2	2	9	9	11	11	11	11
FAILED TO MAINTAIN DIRECTIONAL CONTROL				4	4	4	4	4	4
FAILED TO INITIATE GO-AROUND				10	1	11	102	2	104
SUBTOTAL	10	1	11	102	2	104	112	3	115
CHECK PILOT				1	1	1	4	1	5
INADEQUATE SUPERVISION OF FLIGHT	1	1	2	3	3	4	1	1	1
INCAPACITATION	1	1	1						
SUBTOTAL	2	1	3	3	3	5	1	1	6
** PERSONNEL **				1	1			1	1
FLIGHT INSTRUCTOR				1	1	4	9	5	9
INADEQUATE SUPERVISION OF FLIGHT				1	1	3	3	4	4
INADEQUATE TRAINING OF STUDENT				5	5	33	3	17	41
MAINTENANCE, SERVICING, INSPECTION				1	1	16	16	17	17
IMPROPER MAINTENANCE(MAINTENANCE PERSONNEL)									
IMPROPER MAINTENANCE(OWNER PERSONNEL)									

CAUSE/FACTOR TABLE

PERSONNEL (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
IMPROPERLY SERVICED AIRCRAFT(GROUND CREW)	1		1	6		6	7		7
IMPROPERLY SERVICED AIRCRAFT(OWNER-PILOT)				7		7	7		7
INADEQUATE INSPECTION OF AIRCRAFT(MAINTENANCE PERSONNEL)				5	4	9	5	4	9
INADEQUATE INSPECTION OF ACFT(OWNER-PILOT PERSONNEL)	1		1	4		4	5		5
INADEQUATE MAINTENANCE AND INSPECTION	16	6	22	93	9	102	109	15	124
OTHER				3	1	4	3	1	4
OPERATIONAL SUPERVISORY PERSONNEL									
INADEQUATE FLIGHT TRAINING-PROCEDURES		3	3		1	1		4	4
INADEQUATE SUPERVISION OF FLIGHT CREW		2	2	2	2	4	2	4	6
INADEQUATE SUPERVISION/TRAINING OF RAMP CREWS		1	1					1	1
FAILURE TO PROVIDE ADEQ DIRECTIVES, MANUALS, EQUIPMENT DEFICIENCY, COMPANY MAINTAINED EQMT, SERV, REGULATIONS	2	2	4	1	2	3	1	4	5
WEATHER PERSONNEL	4			2	4	6	2	8	10
INCORRECT WEATHER FORECAST					1		1	1	2
TRAFFIC CONTROL PERSONNEL									
FAILURE TO ADVISE OF UNSAFE AIRPORT CONDITION				1		1	1		1
FAILURE TO ADVISE OF OTHER TRAFFIC	2		2		4	4	2	4	6
ISSUED IMPROPER OR CONFLICTING INSTRUCTIONS	1		1	3		3	4		4
INADEQUATE SPACING OF AIRCRAFT	2		2	2		2	2		4
FAILURE TO PROPERLY IDENTIFY AIRCRAFT ON RADAR					1	1		1	1
OTHER	1	3	4				1	3	4
AIRPORT SUPERVISORY PERSONNEL									
IMPROPER MAINTENANCE-AIRPORT FACILITIES				1		1	1		1
FAILURE TO NOTIFY OF UNSAFE COND/AND OR FAILURE TO MARK				1	3	4	1	3	4
IMPROPER/INADEQUATE SNOW REMOVAL				1	3	4	1	3	4
IMPROPER OPERATION OF FACILITIES				1		1	1		1
IMPROPER INSPECTION OF FACILITIES				1		1	1		1
OTHER					1	1		1	1
AIRWAYS FACILITIES PERSONNEL									
PRODUCTION-DESIGN-PERSONNEL									
SUBSTANDARD QUALITY CONTROL	2		2	7		7	9		9
INCORRECT FACTORY INSTALLATION				2		2	2		2
POOR/INADEQUATE DESIGN	5	2	7	11	6	17	16	8	24
OTHER	1		1	3	1	4	4	1	5
MISCELLANEOUS-PERSONNEL									
PILOT OF OTHER AIRCRAFT	32	1	33	51	2	53	83	3	86
GROUND SIGNALMAN				1	1	1	1		1
SPECTATOR				1		1	1		1
GROUND CREWMAN	1		1	3		3	4		4
PASSENGER	3	1	4	13	1	14	16	2	18
DRIVER OF VEHICLE				9	2	11	9	2	11
OTHER	2	2	4	2	1	3	4	3	7
DIRECT ENTRIES				2		1	1	3	3
THIRD PILOT									
FLIGHT ENGINEER									
FLIGHT PERSONNEL									
DISPATCHING (AIR CARRIER ONLY)									
SUBTOTAL	78	31	109	292	63	355	370	94	464
** AIRFRAME **									
WINGS									
SPARS	2	4	6	1	1	2	3	5	8
RIBS, STRINGERS, CAP STRIPS				1		1	1		1
WING ATTACHMENT FITTINGS, BOLTS	2		2		2		2		2
BRACING WIRES, STRUTS					2		2		2
WINGTIPS					1	1		1	1
OTHER		1	1					1	1
FUSELAGE									
SKIN AND ATTACHMENTS				1		1	1		1
DOORS, DOOR FRAMES				2		2	2		2
WINDSHIELDS, WINDOWS, CANOPIES	1		1	1	2	3	2	2	4
SEATS	1		1	3	1	4	4	1	5
LANDING GEAR									
MAIN GEAR-SHOCK ABSORBING ASSY, STRUTS, ATTACHMENTS, ETC				21	1	22	21	1	22
NORMAL RETRACTION/EXTENSION ASSEMBLY				27	3	30	27	3	30
EMERGENCY/EXTENSION ASSEMBLY				3	1	4	3	1	4
TAILWHEEL ASSEMBLIES				7		7	7		7
NOSEWHEEL ASSEMBLIES				6		6	6		6
WHEELS, TIRES, AXLES				16	1	17	16	1	17
SKI ASSEMBLIES				1		1	1		1
BRAKING SYSTEM (NORMAL)				75	6	41	35	6	41
BRAKING SYSTEM (EMERGENCY)				2		2	2		2
LANDING GEAR WARNING AND INDICATING COMPONENTS				1	2	3	1	2	3
GEAR LOCKING MECHANISM				16		16	16		16

AIRFRAME (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
SWITCHES, LEVERS, CRANKING MECHANISM, ETC				2	1	3	2	1	3
NOSEWHEEL STEERING				3		3	3		3
OTHER				2		2	2		2
FLIGHT CONTROL SURFACES									
ELEVATOR, ASSEMBLY ATTACHMENTS	1		1	3	1	4	4	1	5
RUDDER, SURFACES ATTACHMENTS				2	1	3	2	1	3
AILERON, SURFACES ATTACHMENTS		1	1	1		1	1	1	2
HORIZONTAL STABILIZER, ATTACHMENTS	1	1	2				1	1	2
VERTICAL STABILIZER, ATTACHMENTS	1	1	2		1	1	1	2	3
OTHER			1				1		1
SUBTOTAL	10	8	18	159	23	182	169	31	200
** POWERPLANT **									
ENGINE STRUCTURE									
CRANKCASE				4		4	4		4
CRANKSHAFT	1		1	16		16	17		17
MASTER AND CONNECTING RODS	4	1	5	30		30	34	1	35
CYLINDER ASSEMBLY	2	1	3	17		17	19	1	20
PISTON, PISTON RINGS	1	1	2	10		10	11	1	12
VALVE ASSEMBLIES	1	1	2	34		34	35	1	36
BLOWER- IMPELLER ASSEMBLY				8	1	9	8		9
MOUNT AND VIBRATION ISOLATORS				1		1	1		1
OTHER				2		2	2		2
IGNITION SYSTEM									
MAGNETOES	3		3	28	3	31	31	3	34
SPARK PLUG		1	1	13	2	15	13	3	16
COILS				2		2	2		2
LOW TENSION WIRING				2		2	2		2
IGNITION HARNESS, SHIELDING				1		1	1		1
LEADS			1					1	1
FUEL SYSTEM									
TANKS				2		2	2		2
LINES AND FITTINGS	1		1	16		16	17		17
SELECTOR VALVES		1	1	10	2	12	10	3	13
FILTERS, STRAINERS, SCREENS				4		4	4		4
CARBURETOR		1	1	21	1	22	21	2	23
PUMPS	3	1	4	13		13	16	1	17
FUEL INJECTION SYSTEM	2		2	12	3	15	14	3	17
VENTS, DRAINS, TANK CAPS			2	12	1	13	12	3	15
RAM AIR ASSEMBLY				6	1	7	6	1	7
OTHER	1	1	2	4	2	6	5	3	8
LUBRICATING SYSTEM									
LINES, HOSES, FITTINGS	1		1	8		8	9		9
FILTERS, SCREENS				2		2	2		2
PUMP-PRESSURE	2		2	2		2	4		4
PUMPS-SCAVENGER				1		1	1		1
OIL COOLERS				1		1	1		1
MAGNETIC PLUGS				1		1	1		1
SEALS AND GASKETS				2		2	2		2
OTHER				7		7	7		7
COOLING SYSTEM									
BAFFLES				1		1	1		1
PROPELLER AND ACCESSORIES									
BLADES	2		2	20		20	22		22
HUBS				3		3	3		3
HYDRAULIC PITCH CONTROL MECHANISM				1		1	1		1
SPINNERS, DOMES				1		1	1		1
GOVERNORS				1		1	1		1
BLADE RETENTION MECHANISM	1		1	4	1	5	4	1	5
OTHER	1		1	4		4	5	1	2
EXHAUST SYSTEM									
MANIFOLDS					1	1		1	1
MUFFLERS	1	1	2	2		2	3	1	4
STACKS				2		2	2		2
EXTERNAL SUPERCHARGER	1		1	1		1	2		2
OTHER				3		3	3		3
ENGINE ACCESSORIES									
VACUUM PUMPS	2		2	1		1	2		2
HYDRAULIC PUMPS				1		1	1		1
STARTERS				1		1	1		1
OTHER				1		1	1		1
ENGINE CONTROLS									
THROTTLE-POWER LEVER ASSEMBLIES				21	2	23	21	2	23
MIXTURE CONTROL ASSEMBLIES				1		1	1		1

CAUSE/FACTOR TABLE

POWERPLANT (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
INDUCTION AIR, PREHEAT CONTROLS	3	3	3	1	1	1	3	3	3
PROPELLER GOVERNOR CONTROLS	1	1	1				1	1	1
POWERPLANT-INSTRUMENTS				1	1	1	1	1	1
POWER INDICATORS							1	1	1
FUEL PRESSURE GAUGE	20	20	20				20	20	20
FUEL QUANTITY GAUGE	1	1	1				1	1	1
OIL PRESSURE GAUGE	2	2	2				2	2	2
OTHER									
MISCELLANEOUS									
POWERPLANT FAILURE FOR UNDETERMINED REASONS	28	28	28	199	199	227			227
FOREIGN OBJECT DAMAGE	1	1	1				1	1	1
COMPRESSOR STALLS	1	1	1				1	1	1
OTHER	2	2	4				1	1	4
REDUCTION GEAR ASSEMBLY									
SHAFT, ACCESSORY DRIVE				1	1	1	1	1	1
COMPRESSOR ASSEMBLY							3	3	3
BEARING, ROTOR SHAFT							3	3	3
COMBUSTION ASSEMBLY									
TURBINE ASSEMBLY							2	2	2
BLADE, TURBINE WHEEL							1	1	1
OTHER									
ACCESSORY DRIVE ASSEMBLY							1	1	1
EXTENSION SHAFT				1	1	1	1	1	1
BEARING, ACCESSORY DRIVE SHAFT				1	1	1	1	1	1
Gears, ACCESSORY DRIVE									
LUBRICATING SYSTEM				1	1	1	1	1	1
OTHER									
FUEL SYSTEM							1	1	1
PUMP, FUEL							1	1	1
FUEL CONTROL							3	3	3
SAFETY SYSTEM									
IGNITION SYSTEM									
TORQUEMETER									
AIR BLEED									
EXHAUST SYSTEM									
THRUST REVERSER									
PROPELLER SYSTEM									
PITCH CHANGING MECHANISM				1	1	1	1	1	1
GOVERNOR				1	1	1	1	1	1
CONSTANT SPEED DRIVE									
POWER LEVER									
PROPELLER LEVER									
REVERSE THRUST LEVER									
ENGINE INDICATING EQUIPMENT				1	1	1	1	1	1
TACHIMETER				1	1	1	1	1	1
ENGINE INSTALLATION									
OTHER									
SUBTOTAL	67	17	74	585	46	631	642	63	705
** SYSTEMS **									
ELECTRICAL SYSTEM									
BATTERIES				2	3	5	2	3	5
GENERATORS/ALTERNATORS	1	1	1	2	2	1	3	3	4
REGULATOR					1	1	1	1	1
RELAYS AND WIRING				2	1	3	2	1	3
OTHER	1	1					1	1	1
HYDRAULIC SYSTEM									
PRESSURE REGULATORS				1	1	1	1	1	1
HYDRAULIC PUMPS				1	1	1	1	1	1
RESERVOIR, LINES, FITTINGS				8	8	8	8	8	8
SEALS				1	1	2	1	1	2
OTHER				3	2	3	1	1	3
FLIGHT CONTROL SYSTEMS									
AILERON AND AILERON TAB CONTROL SYSTEM				2	3	3	3	3	3
ELEVATOR AND ELEVATOR TAB CONTROL SYSTEM	3	1	4	1	1	2	4	1	5
ELEVATOR TRIM INDICATOR SYSTEM	1		1				1	1	1
RUDDER AND RUDDER TAB CONTROL SYSTEM				3	3	3	3	3	3
WING FLAP CONTROL SYSTEM (ELECTRICAL)	1		1	1	1	1	1	1	1
WING FLAP CONTROL SYSTEM (HYDRAULIC)				2	2	2	1	1	1
OTHER							3	3	3
ANTI-ICING, DE-ICING SYSTEMS							1	1	1
CARBURETOR DE-ICING SYSTEM									
AIR CONDITION, HEATING AND PRESSURIZATION							1	1	1
OTHER									

CAUSE/FACTOR TABLE

SYSTEMS (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AUTO PILOT				1		1	1		1
AMPLIFIER AND COMPUTER									
FIRE WARNING SYSTEM									
FIRE EXTINGUISHER SYSTEM									
OXYGEN SYSTEM									
OTHER SYSTEMS									
PITOT SYSTEM				1		1	1		1
VACUUM SYSTEM								3	3
OTHER				1		1	1		1
SUBTOTAL	6	7	13	31	10	41	37	17	54
** INSTRUMENTS/EQUIPMENT AND ACCESSORIES **									
FLIGHT AND NAVIGATION INSTRUMENTS									
ALTIMETERS				1		1	1		1
AIRSPEED								1	1
BANK AND TURN				1		1	1		1
ATTITUDE GYRO				1		2	1		2
RATE OF CLIMB				1		1	1		1
DIRECTIONAL GYRO				1		1	1		1
OTHER				2		2	2		2
COMMUNICATIONS AND NAVIGATION EQUIPMENT									
TRANSMITTERS AND/OR RECEIVERS				1		1	2		2
VOR RECEIVERS							1		1
OTHER						1	1		1
MISCELLANEOUS EQUIPMENT									
SPRAY, DUSTING EQUIPMENT					2	4	2	4	6
SIGN TOWING EQUIPMENT						1	1		1
PICK-UP EQUIPMENT					1		1		1
GLIDER LAUNCH/TOW EQUIPMENT					3	3	3		3
SUBTOTAL	1	8	9	6	9	15	7	17	24
** ROTORCRAFT **									
ROTOR ASSEMBLIES									
MAIN ROTOR BLADES				2		1	1	3	3
TAIL ROTOR BLADES				3		3	6		6
MAIN ROTOR HEAD ASSEMBLIES					3		1		1
UNIVERSAL JOINTS, COUPLINGS					1		1		1
BEARINGS					1		1		1
OTHER				1		1	1		1
TRANSMISSION ROTOR DRIVE SYSTEM									
ENGINE DRIVE SHAFT				1		1	1		1
MAIN ROTOR DRIVE SHAFT					2		2		2
MAIN ROTOR GEAR BOX					1		1		1
MAIN ROTOR PULLEYS, BELTS					2		2		2
TAIL ROTOR DRIVE SHAFT ASSEMBLY				1		1	1		1
TAIL ROTOR GEAR BOX					4		4		4
MAIN ROTOR INTERMEDIATE GEARS					1		1		1
CLUTCH ASSEMBLY					2		2		2
SPRAG SYSTEM					1		1		1
OTHER					2		2		2
FLIGHT CONTROL SYSTEMS									
CYCLOMIC PITCH CONTROL SYSTEM					1		1	1	1
COLLECTIVE PITCH CONTROL SYSTEM					2		2		3
TAIL ROTOR PITCH CONTROL SYSTEM				1	3	3	4		4
OTHER					1		1		1
MISCELLANEOUS UNITS AND ASSEMBLIES									
DUAL TACHOMETER				1		1	1		1
TAIL BOOMS/PYLONS/CONES				1		1	2		2
SUBTOTAL	10	1	11	32	1	33	42	2	44
** AIRPORTS/AIRWAYS/FACILITIES **									
AIRPORT FACILITIES									
RUNWAY LIGHTING				1		1	1	14	15
TAXIWAY LIGHTING AND MARKING					1		1	1	1
OTHER				1		6	6	7	7
AIRPORT CONDITIONS									
WET RUNWAY				1		1	40	41	41
ICE/SLUSH ON RUNWAY					4	37	41	4	41
SNOW ON RUNWAY					6	53	59	6	53
SNOW WINDROWS					7	54	61	7	54
									61

CAUSE/FACTOR TABLE

AIRPORTS/AIRWAYS/FACILITIES (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS			
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	
UNMARKED OBSTRUCTIONS			4	4	13	4	9	13		
SOFT SHOULDERS (RUNWAY)			2	15	17	2	15	17		
HIGH VEGETATION	2	2	2	13	15	2	15	17		
HIDDEN HAZARD			3	2	5	3	2	5		
Poorly Maintained Runway Surface			2	12	14	2	12	14		
SOFT RUNWAY	2	2	2	12	14	2	20	21		
ICE/SLUSH ON RAMP/TAXIWAY			1	1	1	1	1	1		
SNOW ON RAMP/TAXIWAY			1	1	1	1	1	1		
OTHER	1	1	4	45	49	4	46	50		
AIRWAYS FACILITIES										
OTHER			1	1			1	1		
SUBTOTAL			9	9	37	320	357	329	366	
** WEATHER **										
LOW CEILING			182	182	1	59	60	1	242	
RAIN			71	71	27	27	98	98		
FOG			112	112	60	60	172	172		
SNOW			39	39	1	22	23	1	62	
HAIL					1	1	61	62		
ICING CONDITIONS—INCLUDES SLEET, FREEZING RAIN, ETC	2	31	33	1	15	16	3	46	46	
CONDITIONS CONDUCIVE TO CAA/INDUCTION SYSTEM ICING		7	7	46	46		53	53		
UNFAVORABLE WIND CONDITIONS	2	0	11	22	268	288	24	275	299	
WIND SHEAR		2	2	6	6	6	8	8		
SUDDEN WINDSHIFT		1	1	7	12	10	7	13	20	
TURBULENCE IN FLIGHT, CLEAR AIR	1	2	3	1	5	5	2	8	9	
TURBULENCE ASSOCIATED WITH CLOUDS AND/OR THUNDERSTORMS	4	13	17	1	5	5	4	18	22	
DOWNDRAFFS, UPDRAFTS	2	13	15	9	30	38	10	43	53	
LOCAL WHIRLWIND		1	1	4	1	5	4	5	6	
LIGHTNING STRIKE				1	1	1	1	1		
SCAUL LINE			2	2	1	1	1	3	3	
ADVERSE WINDS ALOFT			1	1	3	3	4	4		
HIGH TEMPERATURE			3	3	1	25	26	1	29	
OBSTRUCTIONS TO VISION			8	8	1	9	10	1	18	
HIGH DENSITY ALTITUDE			22	22	2	56	58	2	80	
THUNDERSTORM ACTIVITY	3	26	29	2	21	23	5	47	52	
OTHER		6	6	1	1	1	5	5	5	
SUBTOTAL		14	549	563	52	470	722	66	1219	1285
** TERRAIN **										
WET, SOFT GROUND			1	1	30	79	109	30	80	110
SNOW-COVERED			2	2	8	30	38	8	32	49
ICY					3	3	3	3	3	
HIGH VEGETATION			1	1	23	54	79	23	57	80
HIDDEN OBSTRUCTIONS				6	11	16	5	11	16	
ROUGH/UNEVEN			3	3	66	124	190	66	127	193
ROUGH WATER			1	1	1	3	4	1	6	5
GLOSSY WATER			2	2	3	3	3	5	5	
HIGH OBSTRUCTIONS	6	77	83	64	232	296	70	300	370	
LOOSE GRAVEL					5	5	5	5	5	
SANDY			1	2	2	10	12	2	10	12
OTHER				11	23	34	12	25	37	
SUBTOTAL		7	80	98	210	474	780	217	448	885
** MISCELLANEOUS **										
SUICIDE			2	2	1	1	2	1	2	
FOREIGN OBJECT DAMAGE			2	2	1	1	5	1	6	
SMOKE IN COCKPIT					1	2	3	2	3	
FOREIGN MATERIAL AFFECTING NORMAL OPERATIONS	4	4	21	1	22	25	1	25	26	
UNDETERMINED	48	48	44	44	46	114	114	114		
BIRD COLLISION				3	3	3	3	3	3	
VORTEX TURBULENCE				4	1	5	0	1	1	
PROP/JET/ROTOR BLAST	5	5	4	4	1	5	4	1	5	
ANIMAL(S) ON RUNWAY/TAXIWAY/RAMP				4	1	5	4	1	5	
EVASIVE MANEUVER TO AVOID COLLISION	2	1	3	27	10	37	29	11	40	
UNQUALIFIED PERSON OPERATED AIRCRAFT	5	3	8	4	3	7	0	6	15	
DIRECT ENTRIES	6	6	10	10	10	15				
SUBTOTAL		91	4	95	120	20	149	220	24	244
GRAND TOTAL		1325	849	2194	5795	2090	7875	7120	2949	10060

CAUSE/FACTOR TABLE

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
** MISCELLANEOUS ACTS, CONDITIONS **									
TIEDOWN LINES SNAPPED			1			1			1
FIRE OF UNDETERMINED ORIGIN	2	2		2	2		4	4	
UNAPPROVED MODIFICATION	1	1		1	1		2	2	
IMPROPER/INADEQUATE VENTING			4			4			4
POOR WELD			5			7			7
PREVIOUS DAMAGE	3	3		10	4	14	13	4	17
BRAKES FROZEN			1			2			3
LEAK/LEAKAGE	1	2	3	20	1	21	21	3	24
LOW FLUID LEVEL			1			1			1
CIRCUIT BREAKER POPPED			1			3			4
ARCING	1	1		1	1		2	2	
LOW COMPRESSION	1	1		2	1	3	2	2	
RUNWAY CLOSED	1	1		1	4	5	1	5	6
DOWNDOWN	2	2		89	89		91	91	
CARBON DEPOSITS			1			10			11
OVER TORQUED			8			2			2
UNDER TORQUED			3			3			3
LOOSE, PART/FITTING	2	2		14	4	18	16	4	20
FEMALE PILOT				1		1			1
BENT				2		2			2
BINDING				5		7			7
BRITTLE				1		1			1
BURST				2		2			2
BURNED				3		3			3
CHAFFED				5		5			5
COLLAPSED				3		3			3
DETERIORATED	1	1		3		3			4
DISCONNECTED	3	1	4	31	2	33	34	3	37
ELONGATED	1	1		1	1		2	2	
EXCESSIVE-WEAR/PLAY	2	2		10	2	12	12	2	14
ERRATIC	1	5	6	1	11	12	2	16	18
FLUCTUATING				1	1	1			1
FRAYED				3	1	4			5
FRICITION, EXCESSIVE	1	1	1	3	1	4	3	1	1
GROUNDED	1	1	2	3	2	5	4	3	7
IMPROPERLY INSTALLED	2	2	4	19		19	21	2	23
JAMMED	1	1	2	11		11	12	1	13
OBSTRUCTED	1	1	33	3		36	34	3	37
OPEN				1		1			1
OVERHEATED	1		1	14	3	17	15	3	18
EXCESSIVE PRESSURE				2	1	3	2	1	3
PRESSURE TOO LOW	1		1	8		8	9		9
PRESSURE, NONE				8		8	8		8
SCORED				1		1	1		1
SHEARED				1		1	1		1
STICKING	1		1	2		2	3		3
STRIPPED				4		4	4		4
STUCK				10	9	19	10	9	19
EXCESSIVE TEMPERATURE				4		4	4		4
VIBRATION, EXCESSIVE				1		1	1		1
WARPED				1		1	1		1
ICE-INDUCTION	1		1	2		2	3		3
LOAD NOT JETTISONED				1		1	1	15	16
FAILED TO USE LANDING LIGHT(S)	2	1	2	1	14	15	1	3	3
INTENTIONAL GROUND-WATER LOOP-SWERVE				14	9	23	14	9	23
INTENTIONAL WHEELS UP				21	13	34	21	13	34
RAN OFF END OF RUNWAY				1		129	129		130
ALTIMETER SETTING-INCORRECT	1	2	3	2	2	4	3	4	7
ANTI-ICING/DEICING EQUIP-IMPROPER OPER. OR/FAILED TO USE	5	2	7	45		45	50	2	52
CHECKLIST-FAILED TO USE				1		13	13		14
CREW COORDINATION-Poor				2		3	4	1	6
DISREGARD OF GOOD OPERATING PRACTICE				5	5	2	9	11	16
IMPROPER EMERGENCY PROCEDURES	12	2	14	18	8	26	30	10	40
FEATHERED WRONG ENGINE	1		1	1		1	2		2
GUST LOCKS ENGAGED	2		2	2		2	4		4
INSTRUMENTS-MISREAD OR FAILED TO READ	1		2	4		1	5	2	7
NOT ALIGNED WITH RUNWAY/INTENDED LANDING AREA	1		1	14	15	29	15	15	30
UNWARRANTED LOW FLYING	21	49	70	25	29	54	46	78	124
FAILED TO EXTEND THE LANDING FLAPS				2	1	3	2	1	3
FAILED TO USE ALL AVAILABLE RUNWAY	2	2	4	6	3	9	8	5	13
LANDED AT WRONG AIRPORT				3	3	3	3	3	3
INATTENTIVE TO FUEL SUPPLY	7	1	8	53	5	58	60	6	66
FLEW INTO BLIND CANYON	7	4	11	5	5	10	12	9	21
PREMATURE FLAP RETRACTION				1	2	1	2	2	4
POORLY PLANNED APPROACH	1	4	5	6	27	33	7	31	38

CAUSE/FACTOR TABLE

MISCELLANEOUS ACTS, CONDITIONS (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
MISCALCULATED FUEL CONSUMPTION	3		3	40	5	45	43	5	48
JETTISONED LOAD		1	1	25		25	26		26
STOLEN OR UNAUTHORIZED USE OF AIRCRAFT	11		11	17		17	28		28
LANDED ON FOAMED RUNWAY				1		1	1		1
CORRECTING LENSES-NOT USED		2	2	8	2	10	10	2	12
IMPROPERLY SECURED	2		2	1		1	1		1
COMMUNICATIONS FAILURE				5		7	3		10
ELECTRICAL FAILURE	1	2	3	4		4	6		6
ENGINE LOADED UP	2		2	42		42	53		53
FATIGUE-FRACTURE	11		11	6		6	7		7
FUEL GRADE-IMPROPER	1		1	6	1	7	6	1	7
HYDRAULIC FAILURE				1		1	1		1
RPM-INCONTROLABLE-OVERSPEED				1		1	1		1
THRUST REVERSAL-ASYMETRICAL				5		6	5		6
THRUST REVERSAL-UNWANTED				1		1	1		1
WINDSHIELD, DIRTY, FOGGY, ETC-RESTRICTED VISION				1		1	1		1
WRONG PART	1	1	2	9	1	10	10	2	12
IMPROPER ALIGNMENT/ADJUSTMENT	3		3	24	5	29	27	5	32
FAILURE OF TWO OR MORE ENGINES		3	3	3	9	12	3	12	15
SEPARATION IN FLIGHT	45	45	45	24		24	69		69
FIRE IN CABIN/ COCKPIT/ BAGGAGE COMPARTMENT	1	1	2	2	3	5	4	11	15
FIRE IN ENGINE	1	3	4	3	8	11	1	2	3
FIRE IN BRAKES/ WHEEL ASSEMBLY/ WHEEL WELL		2	2	1			1		1
ASYMETRICAL FLAPS	1		1	3		3	3		3
LATERAL IMBALANCE				6		6	6		6
CORRODED/CORROSION				2		5	4	3	7
INCORRECT TRIM SETTING	1	1	2	3	4	4	6	6	6
CONGESTED TRAFFIC-PATTERN		2	2	5	5	5	7	12	19
PILOT FATIGUE	7	7	14	226		226	244		244
FUEL EXHAUSTION	18		18	13	2	15	15	2	17
FUEL CONTAMINATION-EXCLUSIVE OF WATER IN FUEL	2		2	2			1		1
PILOT SUFFERED HEART ATTACK	1		1	1		1	1		1
HYPERVENTILATION				1		1	1		1
ALCOHOLIC IMPAIRMENT OF EFFICIENCY AND JUDGMENT	24	21	45	2	2	4	26	23	49
HYPOTENIA	1		1				1		1
CARBON MONOXIDE POISONING	2	1	3	5		5	8	1	3
ICE-IN FUEL	3		3	1	1	2	1	1	2
TCE-ENGINE				1		1	1		1
TCE-CARBURETOR	4		4	44		44	48		48
ICE-PROPELLER	1		1				1		1
AIRFRAME ICE	10	7	17	11	12	23	21	19	40
ICE-WINDSHIELD	2	1	3	2	6	8	4	7	11
IMPROPERLY LOADED AIRCRAFT-WEIGHT-AND/OR CG	7	8	15	14	15	29	21	23	44
INTERFERENCE WITH FLIGHT CONTROLS	3	1	4	10	2	12	13	3	16
WHITEOUT	1	4	5	3	5	8	4	9	13
SUNGLARE		6	6	1	15	16	1	21	22
LACK OF LUBRICATION-SPECIFIC PART, NOT SYSTEM				9	1	10	9	1	10
OIL EXHAUSTION-ENGINE LUBRICATION SYSTEM	2		2	18	1	19	20	1	21
OIL CONTAMINATION				1		1	1		1
SIMULATED CONDITIONS		1	1	2	28	30	2	29	31
FUEL SIPHONING				2	1	3	2	1	3
WATER IN FUEL	8	1	9	56	1	57	64	2	66
AIRCRAFT CAME TO REST IN WATER		58	58	91	91			149	149
FROZEN, MOISTURE				6	1	7	6	1	7
MISSING				14		14	14		14
TOUCH AND GO LANDING		8	8		100	100		108	108
HYDROPLANING ON WET RUNWAY				3		3	3	3	3
OVERLOAD FAILURE	2	14	16	9	375	384	11	389	400
MATERIAL FAILURE	16	6	21	228	13	241	244	18	262
FUEL STARVATION	25		25	134		134	159		159
OIL STARVATION	1		1	8	3	11	9	3	12
IMPROPER CLEARANCE-TOLERANCE				2		2	2		2
FUEL SELECTOR POSITIONED BETWEEN TANKS	6		6	4	1	5	10	1	11

DIRECT ENTRY CAUSES

PILOT-FAILED TO MANTAIN POSITIVE RATE OF CLIMB
 PILOT-PLACED BANNER IN 2FT HIGH GRASS
 PILOT-LOSS OF CTL FOR UNDETERMINED REASON
 MISC-PREMATURE CHUTE OPENING
 MISC-NOSE GR DOOR OPENED FOR UNDETERMINED REASON
 PILOT-TOOK OFF TO AVOID ARREST
 MISC-PREMATURE CHUTE OPENING
 MISC-CLAMP SLIPPED CAUSING RIGGING TO HIT WORKMAN
 MISC-FUEL STARVATION FOR UNDETERMINED REASON.

CAUSE/FACTOR TABLE

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL

DIRECT ENTRY CAUSES (CONTINUED)

MISC-PITCH MALFUNCTION FOR UNDETERMINED REASON.
 MISC-FUEL STARVATION FOR UNDETERMINED REASON.
 MISC-PAX DOOR OPENED FOR UNDETERMINED REASON.
 MISC-FUEL STARVATION FOR UNDETERMINED REASON.
 PERSONNEL-INEFFECTIVE FAA SURVEILLANCE
 PILOT-FAILED TO MAINTAIN POSITIVE RATE OF CLIMB.
 MISC-PREMATURE CHUTE OPENING
 PILOT-FAILED TO MAINTAIN A POSITIVE RATE OF CLIMB
 MISC-POWERLINE TOWER STATIC CABLE FELL ON ACFT.
 MISC-FIRE OF UNDET SOURCE IN FLOOR AREA OF COCKPIT
 PERSONNEL-MIN VIS & CEILING INFO MISSING ON BRIEF
 PERSONNEL-PROCEDURE NOT COVERED IN FLT MANUAL.
 PILOT-ATHEROSCLEROTIC CARDIOVASCULAR DISEASE
 MISC- UNDETERMINED LOSS OF AIRCRAFT CONTROL.
 ACQUIRE OTH ACFT. DARK NHT.OTH ACFT NOT ILLUM.
 ARANCE/COLLISION LIGHTS WERE ILLUMINATED.

DIRECT ENTRY CAUSES ARE CARRIED UNDER THEIR APPROPRIATE
 CAUSAL CATEGORIES AND ARE INCLUDED IN THE TOTALS

CAUSE/FACTOR TABLE

PLANE

(EXCLUDING ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVS 2207 TOTAL ACCIDENTS
INVOLVS 431 FATAL ACCIDENTS

PARTIAL CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	INITIAL*	CAUSE	FACTOR	INITIAL*	CAUSE	FACTOR	TOTAL*
PILOT	376	.75	.380	1446	.164	1455	1822	.239	1835
	87.24	17.40	RA.17	R1.42	.9.23	R1.93	R2.56	10.83	R3.14
PERSONNEL	25	10	.45	111	.17	127	136	.27	162
	5.80	2.32	R.12	6.25	.96	7.15	6.16	1.22	7.34
AIRFRAMF	4	4	.7	4	.3	7	8	6	14
	.93	.70	1.62	.23	.17	.39	.36	.27	.63
LANDING GEAR				58	7	65	58	7	65
				.00	.00	.39	.66	.64	.95
POWERPLANT	26	11	.34	245	.18	261	271	.29	295
	6.03	2.55	7.89	13.80	1.01	14.70	12.28	1.31	13.37
SYSTEMS	7	4	.6	10	.6	16	12	10	22
	.46	.93	1.39	.46	.34	.90	.54	.45	1.00
INSTRUMENTS/EQUIPMENT & ACCESSORIES	5	5	.5	1	2	3	1	7	8
	.00	1.16	1.16	.06	.11	.17	.05	.32	.36
ROTORGRAFT				1	.3	3	3	1	4
				.00	.17	.00	.17	.14	.05
AIRPORT/AIRWAYS/FACILITIES	5	5	.1	146	.156	11	151	161	
	.00	1.16	1.16	.62	R.22	R.78	.50	R.84	7.29
WEATHER	6	1.92	1.96	26	311	332	32	503	528
	1.39	44.55	45.48	1.46	17.51	18.69	1.45	22.79	23.97
TERRAIN	4	4.4	.48	112	269	379	116	313	427
	.93	10.21	11.14	6.31	16.15	21.34	5.26	14.18	19.35
MISCELLANEOUS	11	1	.12	32	9	41	43	10	53
	2.55	.23	2.78	1.80	.51	2.31	1.95	.45	2.40
UNDEFINABLE	34	.34	.16	.00	.00	.16	.50	.50	50
	7.89	.00	.789	.90	.90	.27	.27	.00	2.27

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE

BUSINESS

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 276 TOTAL ACCIDENTS
INVOLVES 58 FATAL ACCIDENTS

ACCIDENT CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
PILOT	49	7	49	171	19	173	220	25	222
	84.4%	12.07	84.4%	78.44	9.26	79.36	79.71	9.06	80.43
PERSONNEL	5	1	6	16	4	19	21	5	26
	8.62	1.72	10.34	7.34	1.83	8.72	7.61	1.81	9.06
AIRFRAME	.00	.00	.00	.00	.00	.00	.00	.00	.00
LANDING GEAR	.00	.00	.00	14	2	16	14	2	16
	6	1	7	31	6	36	37	7	43
POWERPLANT	10.34	1.72	12.07	16.22	2.75	16.51	13.41	2.54	15.98
SYSTEMS	1	1	2	6	6	7	1	1	8
	1.72	1.72	3.45	7.75	.00	2.75	2.54	.36	2.90
INSTRUMENTS/EQUIPMENT & ACCESSORIES	1	1	1	1	1	1	1	1	2
	1.72	.00	1.72	.00	.46	.46	.26	.36	.72
ROTORGRAFT	.00	.00	.00	.00	.00	.00	.00	.00	.00
AIRPORT/AIRWAYS/FACILITIES	1	1	0	19	28	28	9	20	29
	.00	1.72	1.72	6.13	8.72	12.84	3.26	7.25	10.51
WEATHER	1	35	36	5	32	37	6	67	73
	1.72	60.34	62.07	2.29	14.58	16.97	2.17	24.28	26.45
TERAIN	.00	15.52	15.52	6.42	16.06	22.02	5.07	15.94	20.65
MISCELLANEOUS	1	1	5	1	6	6	1	7	7
	1.72	.00	1.72	2.29	.46	2.75	2.17	.36	2.54
UNDETERMINED	5	5	3	3	3	3	3	3	3
	8.62	.00	8.62	1.38	.00	1.38	2.90	.00	2.90

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE

CORPORATE/EXECUTIVE

(EXCLUDING ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES R7 TOTAL ACCIDENTS
INVOLVES 22 FATAL ACCIDENTS

PARTIAL CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
PILOT	15 68.14	5 22.73	17 77.27	45 69.73	4 6.16	45 69.23	60 68.97	9 10.34	62 71.26
PERSONNEL	4 18.18	1 4.55	4 18.18	9 13.85	3 4.62	12 18.46	13 14.94	4 4.60	16 18.39
AIRFRAME	.00 .00	1 4.55	1 4.55	1 1.54	.00 .00	1 1.54	1 1.15	1 1.15	2 2.30
LANDING GEAR	.00 6 27.27	.00 ? 9.00	7 31.82	12 18.66	1 1.54	5 7.69	5 7.75	1 1.15	5 5.75
POWERPLANT	6 .00	7 4.56	7 4.55	12 3.08	.00 .00	12 3.08	18 20.69	2 2.30	19 21.84
SYSTEMS	.00 .00	1 4.55	1 4.55	2 3.08	.00 .00	2 3.08	2 2.30	1 1.15	3 3.45
INSTRUMENTS/EQUIPMENT & ACCESSORIES	.00 4.55	.00 4.55	.00 4.55	.00 4.55	.00 4.55	.00 4.55	.00 4.55	.00 4.55	.00 4.55
ROTORCRAFT	1 .00	1 4.55	1 4.55	.00 .00	.00 .00	.00 .00	1 1.15	.00 .00	1 1.15
AIRPORT/AIRWAYS/FACILITIES	.00 .00	.00 50.00	.00 50.00	2 12.31	R 13.85	10 15.38	2 2.30	8 9.20	10 11.49
WEATHER	11 .00	11 18.18	11 18.18	1 1.54	1 1.54	9 13.85	9 9.23	1 1.15	20 22.99
TERRAIN	4 .00	4 18.18	4 18.18	.00 .00	.00 .00	6 9.23	6 6.62	1 4.60	10 11.49
MISCELLANEOUS	1 4.55	1 4.55	3 4.62	.00 .00	.00 .00	3 4.62	4 4.60	.00 .00	4 4.60
UNDETERMINED	? 9.09	2 .00	2 9.09	.00 .00	.00 .00	2 2.30	2 2.30	.00 .00	2 2.30

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED.

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE

AERIAL APPLICATION AND FIRE CONTROL (INCLUDES ASSOCIATED ACTIVITIES)
 (EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

Reproduced from
 best available copy.

INVOLVES 455 TOTAL ACCIDENTS
 INVOLVES 28 FATAL ACCIDENTS

	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
AERIAL CAUSE/FACTOR									
PILOT	24	24	306	21	206	340	21	330	430
	85.71	.00	85.71	71.66	4.92	71.66	72.53	4.67	72.53
PERSONNEL	2	2	29	3	32	31	3	34	34
AIRFRAME	7.14	.00	7.14	6.74	.70	7.49	6.81	.66	7.47
LANDING GEAR	1	1	4	4	0.00	4	4	1	5
POWERPLANT	.00	3.57	3.57	.94	.00	.94	.88	.22	1.10
SYSTEMS	.00	.00	.00	1.4	1	1.4	1.3	1	1.4
INSTRUMENTS/EQUIPMENT & ACCESSORIES	.00	.00	.00	.23	.23	.23	2.06	.22	3.08
ROTORCRAFT	.00	.00	.00	.95	7	102	.95	7	107
AIRPORT/AIRWAYS/FACILITIES	.00	.00	.00	22.25	1.64	23.89	20.48	1.54	22.42
WEATHER	7.14	.00	7.14	2.34	.23	2.58	2.64	.22	2.86
THREAT	.00	.00	.00	.23	1	1.7	.18	1	1.8
MISCELLANEOUS	.00	39.29	39.29	8.67	8.67	15.22	23.89	.22	3.96
UNDETERMINED	.00	.00	.00	11	3	14	11	3	14
	1	1	5	5	5	5	6	6	6
	3.57	.00	3.57	1.17	.00	1.17	1.32	.00	1.32

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED.
 * IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY.

CAUSE/FACTOR TABLE

AIR TAXI

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

14111.VFS 269 TOTAL ACCIDENTS

66 FATAL ACCIDENTS

14111.VFS 66 FATAL ACCIDENTS

HIERARCHY CAUSE/FACTOR	FATAL ACCIDENTS			MILITARY AIR ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	INITIAL*	CAUSE	FACTOR	INITIAL*	CAUSE	FACTOR	INITIAL*
PILOT	46	7	48	135	14	137	181	21	195
	69.70	10.61	72.73	69.95	7.25	70.98	69.98	8.11	71.43
PERSONNEL	5	7	10	24	13	148	33	20	48
	7.58	10.61	15.15	14.51	6.74	19.69	12.74	7.72	19.63
AIRCRAFT	1	2	3	2	2	2	1	4	5
	1.52	3.03	4.95	.00	1.04	1.04	.39	1.54	1.93
LANDING GEAR	.00	.00	.00	19	1	20	19	1	20
				9.84	.52	10.46	7.44	.39	7.72
POWERPLANT	7	1	8	26	4	28	33	5	36
	16.61	1.62	12.12	13.47	2.07	14.51	12.74	1.93	13.90
SYSTEMS	2	2	3	3	2	5	5	2	7
	3.03	.00	3.03	1.55	1.04	2.59	1.93	.77	2.70
INSTRUMENTS/EQUIPMENT & ACCESSORIES	.00	1	1	.00	.00	.00	.00	1	1
		1.52	1.52						
AIRCRAFT	2	2	5	5	5	5	7	7	7
	3.03	.00	3.03	2.69	.00	2.59	2.70	.00	2.70
AIRPORT/AIRWAYS/FACILITIES	.00	.00	.00	3	20	23	3	20	23
				1.45	10.36	11.92	1.16	7.72	8.88
WEATHER	2	26	28	4	48	52	74	80	80.49
	3.03	39.39	42.42	2.07	24.87	26.94	2.32	28.57	
TERRAIN	1	5	6	7	23	30	8	28	36
	1.52	7.58	9.09	3.63	11.92	15.34	3.09	10.81	13.90
MISCELLANEOUS	3	3	5	2	7	7	9	2	10
	4.55	.00	4.55	2.59	1.04	3.63	3.09	.77	3.86
UNDETERMINED	10	10	6	6	6	6	16	16	16
	15.16	.00	15.15	3.11	.00	3.11	6.18	.00	6.18

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT
OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL
CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY.

ANALYTIC TABLE

KIND OF FLYING BY INJURY INDEX
ALL OPERATIONS

FATAL
SERIOUS
MINOR
NONE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>INSTRUCTIONAL</u>							
DUAL	19	17	26	151	213	210	4.68
Solo	20	10	37	150	217	216	4.77
CHECK	7	1	4	1	13	13	.29
TRAINING	17	6	24	119	166	165	3.65
<u>NONCOMMERCIAL</u>							
PLEASURE	449	251	344	1194	2238	2222	49.14
PRACTICE	20	15	21	99	155	155	3.40
BUSINESS	62	28	38	152	280	280	6.15
CORPORATE/EXECUTIVE	22	9	7	49	87	87	1.91
AERIAL SURVEY	5	1	3		9	8	.20
COMPANY FLIGHT			1	1	2	2	.04
OTHER	6	2	4	5	17	17	.37
<u>COMMERCIAL</u>							
AERIAL APPLICATION	22	29	40	145	236	236	5.18
CROP CONTROL RELATED FLIGHT	6	9	21	183	219	218	4.81
FIRE CONTROL	1				1	1	.02
FIRE CONTROL RELATED FLIGHT			1		1	1	.02
AERIAL MAPPING/PHOTOGRAPHY	2		6	3	11	11	.24
AERIAL ADVERTISING		5	1	2	8	7	.18
POWER AND PIPELINE PATROL	3	1	1	4	9	9	.20
FISH SPOTTING	3	1	2		6	4	.13
AIR TAXI-PASSENGER OPERATIONS	45	20	22	87	174	172	3.82
AIR TAXI-CARGO OPERATIONS	24	8	12	52	96	96	2.11
CONSTRUCTION WORK	1	2	2	5	10	10	.22
SCHEDULED PASSENGER SERVICE							
SCHEDULED CARGO SERVICE							
INTRA-STATE CHARTER PASSG.	1		1	1	3	3	.07
INTRA-STATE CHARTER CARGO.							
MILITARY CONTRACT-PASSENGER							
MILITARY CONTRACT-CARGO							
CHARTER CARGO-DOMESTIC		1	3		4	4	.09
CHARTER PASSG-DOMESTIC		2	2		4	4	.09
CHARTER-CARGO-INTERNATIONAL	1		1		2	2	.04
CHARTER-PASSG-INTERNATIONAL			1		1	1	.02
OTHER	4	2	4	13	23	23	.51
UNKNOWN/NOT REPORTED							

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>MISCELLANEOUS</u>							
EXPERIMENTATION	2	1		1		4	.09
TEST	14	10	7	24		55	55
Demonstration	4	3	4	10		21	.46
FERRY	16	11	13	74		114	2.50
SEARCH AND RESCUE	1	2	2	2		7	.15
AIR SHOW/AIR RACING	4	3		3		10	.22
PARACHUTE JUMP	1	1	3	8		13	.29
PARACHUTE JUMP-AIR SHOW							
TOWING GLIDERS	1	1	4	5		11	.24
SEEDING CLOUDS							
HUNTING	3		1	5		9	.20
POLICE PATROL	3	2		1		6	.13
HIGHWAY TRAFFIC ADVISORY						4	.09
ALL OTHER PUBLIC FLYING	1			3		4	.09
OTHER	7	4	5	15		31	.68
UNKNOWN/NOT REPORTED	19	4	7	30		60	1.32
RECORDS	816	463	668	2607		4554	
ACCIDENTS	793	458	662	2581		4494	
PERCENTS	17.9	10.2	14.7	57.2			

	ANALYTIC TABLE				RECORDS	ACCIDENTS	PERCENT
	DESTROYED	SUBSTANTIAL	MINOR	NONE			
KIND OF FLYING BY AIRCRAFT DAMAGE ALL OPERATIONS							
INSTRUCTIONAL							
DUAL	34	173	3	3	213	210	4.68
SOLID	24	191	2		217	216	4.77
CHECK	8	5			13	13	.29
TRAINING	27	139			166	165	3.65
NONCOMMERCIAL							
PLEASURE	592	1623	14	9	2238	2222	49.14
PRACTICE	31	124			155	155	3.40
BUSINESS	78	200	2		280	280	6.15
CORPORATE/EXECUTIVE	28	57	2		87	87	1.91
AERIAL SURVEY	5	4			9	8	.20
COMPANY FLIGHT		2			2	2	.04
OTHER	8	9			17	17	.37
COMMERCIAL							
AERIAL APPLICATION	102	132	2		236	236	5.18
CROP CONTROL RELATED FLIGHT	53	165	1		210	218	4.81
FIRE CONTROL	1				1	1	.02
FIRE CONTROL RELATED FLIGHT		1			1	1	.02
AERIAL MAPPING/PHOTOGRAPHY	3	8			11	11	.24
AERIAL ADVERTISING	3	5			8	7	.18
POWER AND PIPELINE PATROL	4	5			9	9	.20
FISH SPOTTING	5	1			6	4	.13
AIR TAXI-PASSENGER OPERATIONS	61	110	3		174	172	3.82
AIR TAXI-CARGO OPERATIONS	35	61			96	96	2.11
CONSTRUCTION WORK	5	4	1		10	10	.22
SCHEDULED PASSENGER SERVICE							
SCHEDULED CARGO SERVICE							
INTRA-STATE CHARTER PASSG.	1	2			3	3	.07
INTRA-STATE CHARTER CARGO.							
MILITARY CONTRACT-PASSENGER							
MILITARY CONTRACT-CARGO							
CHARTER CARGO-DOMESTIC	2	2			4	4	.09
CHARTER PASSG-DOMESTIC	1	3			4	4	.09
CHARTER-CARGO-INTERNATIONAL	2				2	2	.04
CHARTER-PASSG-INTERNATIONAL		1			1	1	.02
OTHER	9	14			23	23	.51
UNKNOWN/NOT REPORTED							

ANALYTIC TABLE

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
MISCELLANEOUS							
EXPERIMENTATION	2	2			4	4	.00
TEST	15	40			55	55	1.21
Demonstration	5	16			21	21	.46
FERRY	29	84	1		114	114	2.50
SEARCH AND RESCUE	2	5			7	7	.15
AIR SHOW/AIR RACING	5	5			10	9	.22
PARACHUTE JUMP	2	11			13	13	.29
PARACHUTE JUMP-AIR SHOW							
TOWING GLIDERS	2	9			11	11	.24
SEEDING CLOUDS							
HUNTING	1	8			9	9	.20
POLICE PATROL	4	2			6	6	.13
HIGHWAY TRAFFIC ADVISORY	3	1			4	4	.09
ALL OTHER PUBLIC FLYING	4				4	4	.09
OTHER	9	21	1		31	30	.68
UNKNOWN/NOT REPORTED	28	31	1		60	60	1.32
RECORDS	1226	3282	29	17			4554
ACCIDENTS	1212	3264	29	17			4494
PERCENTS	26.9	72.1	.6	.4			

INJURIES, ACCIDENTS ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	724	422	659	2749		4554
COPILOT	52	19	12	82		165
DUAL STUDENT	22	16	26	179		243
CHECK PILOT	5	1	2	2		10
FLIGHT ENGINEER	2	1	5			8
NAVIGATOR		3	2			5
CABIN ATTENDANT	2		2			7
EXTRA CREW	10		2			25
PASSENGERS	792	386	587	2506		4271

- 58

* OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

INVOLES 4494 TOTAL ACCIDENTS
INVOLES 793 FATAL ACCIDENTS

9544

186
70

ABOARD 9288

1608 848 1292 5539

TOTAL

- 58

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
INSTRUCTIONAL (DUAL)
ALL OPERATIONS

I INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	16	15	23	159		213
COPILOT	1	1	1			3
DUAL STUDENT	14	14	19	157		204
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW	1	1	4			1
PASSENGERS	4					20
TOTAL	36	31	47	327		441

- 59 -

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
* OTHER AIRCRAFT	140	1				157
OTHER GROUND	7					24
GRAND TOTAL	183	32	63	344		622

INVOLVES 210 TOTAL ACCIDENTS
INVOLVES 19 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
INSTRUCTIONAL (SDN-SUPERVISED)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	17	10	38	152		217
COPilot			1			1
DIAL STUDENT						2
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL	17	10	39	156		220

TOTAL

- 60 -

* OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

224

INJURIES 216 TOTAL ACCIDENTS
INJURIES 19 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BFTWEEN AIRCRAFT.

INJURIES, ACCIDENTS
INSTRUCTIONAL (CHECK)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONF	UNKNOWN	TOTAL
PILOT	4	4	4	1		13
COPILOT	2					2
DUAL STUDENT	1		2			3
CHECK PILOT	5	1	2			8
FLIGHT ENGINEER						0
NAVIGATOR						0
CABIN ATTENDANT						0
EXTRA CREW						0
PASSENGERS			1			1
						2
TOTAL		12	6	9	2	29

	FATAL	SERIOUS	MINOR	NONF	UNKNOWN	TOTAL
* OTHER AIRCRAFT				1		1
* OTHER GROUND						0
						1
GRAND TOTAL		13	6	9	2	30

INVOLVES 13 TOTAL ACCIDENTS
INVOLVES 7 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN
AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION. BUT WERE PART
OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
INSTRUCTIONAL (TRAINING)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	17	6	24	119		166
COPilot	1		3	3		4
DUAL STUDENT	3			13		19
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
			8			
				1		
					1	
TOTAL		24	7	27	143	
						204

ABOARD

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
* OTHER AIRCRAFT		1				1
OTHER GROUND						
						3

GRAND TOTAL

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
		25	8	27	144	
						204

INVOLVES 165 TOTAL ACCIDENTS
INVOLVES 16 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
NONCOMMERCIAL (PLEASURE/PERSONAL TRANSPORTATION)
A.I.L. OPERATIONS

	INJURIES			TOTAL		
	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	
PILOT	401	228	333	1276		2238
COPILOT	21	9	1	15		46
DUAL STUDENT			1			10
CHECK PILOT			1			
FLIGHT ENGINEER					1	
NAVIGATOR			1			1
CABIN ATTENDANT						4
EXTRA CREW						
PASSENGERS	504	240	384	1566		2694
TOTAL	930	479	719	2866	ABOARD	4994
* OTHER AIRCRAFT	9	2		24		35
OTHER GROUND	4	3	4	3		14
GRAND TOTAL	943	484	723	2893		5043

INVOLVES 2222 TOTAL ACCIDENTS
INVOLVES 444 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
NONCOMMERCIAL (PRACTICE)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MILD	UNKNOWN	TOTAL
PILLOT	18	15	22	100	155
COPILLOT	?				4
DUAL STUDENT				2	2
CHECK PILOT					
FLIGHT ENGINEER					
NAVIGATOR			1		1
CABIN ATTENDANT			3		3
EXTRA CREW		4			4
PASSENGERS				19	19
TOTAL		24	19	124	192
* OTHER AIRCRAFT				7	7
OTHER GROUND					
GRAND TOTAL		27	19	131	202
INVOLVES	155	TOTAL ACCIDENTS			
INVOLVES	20	FATAL ACCIDENTS			

- 64 -

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
ALL OPERATIONS
NONCOMMERCIAL (BUSINESS-NONPROFESSIONAL PILOT)

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	57	24	42	157	5	280
COPILOT		2				9
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS	49	26	40	167		282
TOTAL		108	53	84	329	574
* OTHER AIRCRAFT OTHER GROUND			1	1	65	66
				2	1	4
GRAND TOTAL		108	54	87	395	644

INVOLVES 280 TOTAL ACCIDENTS
INVOLVES 62 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

NONCOMMERCIAL (CORPORATE/EXECUTIVE-PROFESSIONAL PILOT)
ALL OPERATIONS

INJURIES

	INJURIES			TOTAL
	FATAL	SERIOUS	MINOR	UNKNOWN
PILOT	20	5	8	54
COPilot	8	1	1	18
DUAL STUDENT				1
CHECK PILOT				
FLIGHT ENGINEER				
NAVIGATOR				
CABIN ATTENDANT				1
EXTRA CREW				
PASSENGERS	32	9	9	143
TOTAL	60	15	18	217
* OTHER AIRCRAFT				1
OTHER GROUND				1
				5
GRAND TOTAL	63	17	18	316

- 66 -

INVOLVES 87 TOTAL ACCIDENTS
INVOLVES 22 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT STABILIZATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES-ACCIDENTS
NONCOMMERCIAL(AERIAL SURVEY)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	2	3	1	3	9	
COPILOT						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL				5	3	15

INJURIES
ABOARD

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
OTHER AIRCRAFT						
OTHER GROUND						

GRAND TOTAL

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
GRAND TOTAL				5	3	15

INVOLVES 8 TOTAL ACCIDENTS
INVOLVES 4 FATAL ACCIDENTS

INJURIES, ACCIDENTS
NONCOMMERCIAL (OTHER)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILLOT	6	2	5	6	19	
CPPILOT	1		1		2	
DUAL STUDENT					1	
CHECK PILOT			1			
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW				4		
PASSENGERS	10					14
TOTAL		17	2	5	12	
OTHER AIRCRAFT						
OTHER GROUND						

68

	ABOARD	TOTAL
		36
GRAND TOTAL	17	2
INVOLVES	19	TOTAL ACCIDENTS
INVOLVES	6	FATAL ACCIDENTS

INJURIES, ACCIDENTS
COMMERCIAL (AERIAL APPLICATION-CROP CONTROL)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	20	28	39	149		236
COPILOT						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT		1				1
EXTRA CREW						
PASSENGERS						1
TOTAL		20	28	40	150	238
* OTHER AIRCRAFT				1		1
OTHER GROUND				1		2
GRAND TOTAL		22	29	40	150	241

- 69 -

INVOLVES 236 TOTAL ACCIDENTS
INVOLVES 22 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES-ACCIDENTS
COMMERCIAL ASSOCIATED GROUP CONTROLLED OR FROM
ALL OPERATIONS

	INJURIES			
	FATAL	SERIOUS	MINOR	UNKNOWN
PILOT	5	8	22	184
COPILOT				219
DUAL STUDENT				
CHECK PILOT				
FLIGHT ENGINEER				
NAVIGATOR				
CABIN ATTENDANT			1	1
EXTRA CREW		1		3
PASSENGERS				2
TOTAL		6	9	222
* OTHER AIRCRAFT				
OTHER GROUND			1	1
GRAND TOTAL		6	9	231
INVOLVES	218	TOTAL ACCIDENTS		
INVOLVES	6	FATAL ACCIDENTS		
				228

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES-ACCIDENTS
COMMERCIAL (FIRE CONTROL)
ALL OPERATIONS

	INJURIES			TOTAL
	FATAL	SERIOUS	MINOR	UNKNOWN
PILOT				
COPILOT				
DUAL STUDENT				
CHECK PILOT				
FLIGHT ENGINEER				
NAVIGATOR				
CABIN ATTENDANT				
EXTRA CREW				
PASSENGERS				
TOTAL				1

	AROARD	TOTAL
OTHER AIRCRAFT		
OTHER GROUND		
GRAND TOTAL		1

INVOLVES 1 TOTAL ACCIDENTS
INVOLVES 1 FATAL ACCIDENTS

INJURIES, ACCIDENTS
 COMMERCIAL (ASSOCIATED FIRE CONTROL-TO OR FROM)
 ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT						1
COPILOT						1
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL						1

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
ABOARD						1
OTHER AIRCRAFT						
OTHER GROUND						
GRAND TOTAL						1

INVOLVES 1 TOTAL ACCIDENTS
 INVOLVES 1 FATAL ACCIDENTS

INJURIES-ACCIDENTS
 COMMERCIAL (AERIAL MAPPING/PHOTOGRAPHY)
 ALL OPERATIONS

	INJURIES				TOTAL
	FATAL	SERIOUS	MINOR	NONF	UNKNOWN
PILOT	2		5	4	11
COPILOT					
DUAL STUDENT					
CHECK PILOT					
FLIGHT ENGINEER					
NAVIGATOR					
CARIN ATTENDANT	1		7	8	16
EXTRA CREW					
PASSENGERS					
 TOTAL	 3	 12	 12	 12	 27
OTHER AIRCRAFT					
OTHER GROUND					
 GRAND TOTAL	 3	 12	 12	 12	 27
INVOLVES	11	TOTAL ACCIDENTS			
INVOLVES	2	TOTAL ACCIDENTS			
FATAL	2	TOTAL ACCIDENTS			

INJURIES, ACCIDENTS
COMMERCIAL AIRLINES ADVERTISING
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT						
COPILOT						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL						
OTHER AIRCRAFT						
OTHER GROUND						

TOTAL

ABOARD

R

GRAND TOTAL

R

INVOLVES 7 TOTAL ACCIDENTS
INVOLVES FATAL ACCIDENTS

INJURIES, ACCIDENTS
 COMMERCIAL (POWER AND PIPELINE PATROL)
 ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONF	UNKNOWN	TOTAL
Pilot	3			1	5	9
COPilot						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL	3			2	1	9

	FATAL	SERIOUS	MINOR	NONF	UNKNOWN	TOTAL
OTHER AIRCRAFT						
OTHER GROUND						
GRAND TOTAL	3			2	1	9

INVOLVES 9 TOTAL ACCIDENTS
 INVOLVES 3 FATAL ACCIDENTS

INJURIES, ACCIDENTS
COMMERCIAL (FISH SPOTTING)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MILD	UNKNOWN	TOTAL
PILOT	3	1	1	1	6
COPilot					
DUAL STUDENT					
CHECK PILOT					
FLIGHT ENGINEER					
NAVIGATOR					
CABIN ATTENDANT					
EXTRA CREW					
PASSENGERS					
TOTAL	4	2	1	1	8

INJURIES

	ARDARD	R	GRAND TOTAL
OTHER AIRCRAFT			
OTHER GROUND			
TOTAL ACCIDENTS	4		
FATAL ACCIDENTS	2		

INVOLVES 4 TOTAL ACCIDENTS
INVOLVES 2 FATAL ACCIDENTS

INJURIES, ACCIDENTS
COMMERCIAL (AIR TAXI-PASSENGER)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	37	14	18	104	173	251
COPILOT	4	2	2	17	2	1
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR	2	1	1	3	6	2
CABIN ATTENDANT	1	66	63	375		619
EXTRA CREW	115					
PASSENGERS						
TOTAL	159	82	86	499		826
* OTHER AIRCRAFT						
OTHER GROUND	2	3	1	2	5	8
GRAND TOTAL	164	85	89	501		839

INVOLVES 171 TOTAL ACCIDENTS
INVOLVES 45 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES-ACCIDENTS
 COMMERCIAL(AIR TAXI-CARGO)
 ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	23	6	14	53	7	96
COPILOT	1	3	2	5	3	13
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL						130
* OTHER AIRCRAFT						
OTHER GROUND						
GRAND TOTAL	33	12	17	68	72	134

* OTHER AIRCRAFT
 OTHER GROUND

INVOLVES 96 TOTAL ACCIDENTS
 INVOLVES 24 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
COMMERCIAL (CONSTRUCTION-ROTORCRAFT)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	2	2	6	1		10
COPILOT						1
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL		2	7			11

INJURIES

	ABOARD	TOTAL
OTHER AIRCRAFT	2	2
OTHER GROUND	1	1

GRAND TOTAL

	7	12
--	---	----

INVOLVES 10 TOTAL ACCIDENTS
INVOLVES 1 FATAL ACCIDENTS

INJURIES, ACCIDENTS
COMMERCIAL SCHEDULED PASSENGER-INTRASTATE CARRIER
ALL OPERATIONS

	INJURIES			TOTAL
	FATAL	SERIOUS	MINOR	UNKNOWN
PILOT				
COPILOT				
DUAL STUDENT				
CHECK PILOT				
FLIGHT ENGINEER				
NAVIGATOR				
CABIN ATTENDANT				
EXTRA CREW				
PASSENGERS				
TOTAL				

ABROAD

OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

INVOLVES
INVOLVES
INVOLVES

TOTAL ACCIDENTS
TOTAL ACCIDENTS
FATAL ACCIDENTS

INJURIES, ACCIDENTS
 COMMERCIAL (SCHEDULED CARGO-INTRASTATE CARRIER)
 ALL OPERATIONS

	INJURIES			TOTAL
	FATAL	SERIOUS	MINOR	UNKNOWN
PILOT				
COPILOT				
DUAL STUDENT				
CHECK PILOT				
FLIGHT ENGINEER				
NAVIGATOR				
CABIN ATTENDANT				
EXTRA CREW				
PASSENGERS				
TOTAL				
OTHER AIRCRAFT				
OTHER GROUND				
GRAND TOTAL				

ABOARD

OTHER AIRCRAFT
 OTHER GROUND

GRAND TOTAL

INVOLVES
 INVOLVES

TOTAL ACCIDENTS
 FATAL ACCIDENTS

INJURIES-ACCIDENTS
COMMERCIAL(OTHER)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	5	2	9	21	2	37
COPILOT			1			1
DUAL STUDENT				2		2
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW	1		12	33		1
PASSENGERS		10				55
 TOTAL	 16	 2	 22	 58	 98	 98

OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

INVOLVES 37 TOTAL ACCIDENTS
INVOLVES 6 FATAL ACCIDENTS

INJURIES-ACCIDENTS
MISCELLANEOUS (EXPERIMENTATION)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	2				1	
COPilot		1				
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL		2		1		

ABOARD 4

OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

1 2 1

INVOLVES 4 TOTAL ACCIDENTS
INVOLVES 2 FATAL ACCIDENTS

INJURIES-ACCIDENTS
MISCELLANEOUS (TEST)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	13	9	8	25	55	
COPILOT	2			1	3	
DUAL STUDENT						
CHECK PILOT	1	1				2
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT	1	5	2	9	1	18
EXTRA CREW	2					
PASSENGERS						
TOTAL		19	15	10	35	
OTHER AIRCRAFT						
OTHER GROUND						
GRAND TOTAL		19	15	10	35	79

INVOLVES 55 TOTAL ACCIDENTS
INVOLVES 14 FATAL ACCIDENTS

INJURIES-ACCIDENTS
MISCELLANEOUS (DEMONSTRATION)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNK NOWN	TOTAL
PILOT	4	3	1	13	2	21
COPILOT					2	2
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
 TOTAL	 12	 3	 7	 33	 7	 55
ABOARD						

OTHER AIRCRAFT
 OTHER GROUND

GRAND TOTAL 12 3 7 33 55

INVOLVES 21 TOTAL ACCIDENTS
 INVOLVES 4 FATAL ACCIDENTS

INJURIES-ACCIDENTS
MISCELLANEOUS(FERRY)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	12	15	13	74		114
COPilot			1	2		3
DUAL STUDENT						
CHECK PILOT				1		
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW	3		2	2		5
PASSENGERS	6		3	17		28
TOTAL			21	18	16	96
* OTHER AIRCRAFT					1	
OTHER GROUND						2
GRAND TOTAL						153

- 86 -

INVOLES 114 TOTAL ACCIDENTS
INVOLVES 16 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
MISCELLANEOUS (SEARCH AND RESCUE)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	NONE	MINOR	UNKNOWN	TOTAL
PILOT	1	2	1	2	2	7
COPILOT						1
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CARIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL			3	4	3	14

OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

INVOLVES 7 TOTAL ACCIDENTS
INVOLVES 1 FATAL ACCIDENTS

INJURIES-ACCIDENTS
 MISCELLANEOUS(AIR SHOW/RACING)
 ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	4	3		3		10
COPILOT						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CARIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL				5		13

OTHER AIRCRAFT
 OTHER GROUND

GRAND TOTAL	5	5	3	13
INVOLVES	9	TOTAL ACCIDENTS		
INVOLVES	3	FATAL ACCIDENTS		

INJURIES, ACCIDENTS
MISCELLANEOUS (PARACHUTE JUMP-SPORTING)
ALL OPERATIONS

	INJURIES			TOTAL		
	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	
PILOT	1			2	10	13
COPILOT			1			1
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL		1	3	17	55	76
OTHER AIRCRAFT						
OTHER GROUND						
GRAND TOTAL		1	3	17	55	76
INVOLVES	13	TOTAL ACCIDENTS				
INVOLVES	1	FATAL ACCIDENTS				

INJURIES-ACCIDENTS
MISCELLANEOUS PARACHUTE JUMP-AIR SHOW
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
--	-------	---------	-------	------	---------	-------

PILOT
 COPILOT
 DUAL STUDENT
 CHECK PILOT
 FLIGHT ENGINEER
 NAVIGATOR
 CABIN ATTENDANT
 EXTRA CREW
 PASSENGERS

TOTAL

ABOARD

OTHER AIRCRAFT
 OTHER GROUND

GRAND TOTAL

INVOLVES
INVOLVES

TOTAL ACCIDENTS
FATAL ACCIDENTS

INJURIES, ACCIDENTS
MISCELLANEOUS (TOWING GLIDERS)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	1	1	3	6		11
COPILOT						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT			1			1
EXTRA CREW						
PASSENGERS						
TOTAL			1	4	7	
ABOARD						13

OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

INVOLVES 11 TOTAL ACCIDENTS
INVOLVES 1 FATAL ACCIDENTS

INJURIES-ACCIDENTS
MISCELLANEOUS (SEEDED CLOUDS)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT						
COPilot						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						

TOTAL

ABOARD

OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL

INVOLVES
INVOLVES

TOTAL ACCIDENTS
FATAL ACCIDENTS

INJURIES, ACCIDENTS,
MISCELLANEOUS (HUNTING),
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	2				5	9
COPILOT		2				2
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS						
TOTAL		3	1	1	3	10

	ABOARD	TOTAL	17
OTHER AIRCRAFT			
OTHER GROUND			

	GRAND TOTAL	10
INVOLVES	3	
INVOLVES	1	

	9	TOTAL ACCIDENTS
INVOLVES	3	FATAL ACCIDENTS

INJURIES, ACCIDENTS
MISCELLANEOUS (POLICE, PATROL, INCLUDES TRAFFIC ADVISORY)
ALL OPERATIONS

	INJURIES			TOTAL		
	FATAL	SERIOUS	MINOR	NONE	UNK/NONE	
PILLOT	3	2		1		6
COPILLOT						
DUAL STUDENT						
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS	3	1		1		6
TOTAL		6	4	1	2	
OTHER AIRCRAFT						
OTHER GROUND						
GRAND TOTAL				6	2	13

INVOLVES 6 TOTAL ACCIDENTS
INVOLVES 3 FATAL ACCIDENTS

INJURIES, ACCIDENTS
MISCELLANEOUS (HIGHWAY TRAFFIC ADVISORY NON POLICE)
ALL OPERATIONS

	INJURIES			TOTAL
	FATAL	SERIOUS	MINOR	NONE UNKNOWN
PILOT	1	2	1	4
COPilot				
DUAL STUDENT				
CHECK PILOT				
FLIGHT ENGINEER				
NAVIGATOR				
CABIN ATTENDANT				
EXTRA CREW		2		
PASSENGERS				
TOTAL	3	2	1	6
OTHER AIRCRAFT				
OTHER GROUND				1
GRAND TOTAL	4	2	1	7
INVOLVES	4	TOTAL ACCIDENTS		
INVOLVES		FATAL ACCIDENTS		

INJURIES, ACCIDENTS
MISCELLANEOUS (OTHER)
ALL OPERATIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	24	7	14	50		95
COPILOT	7	1	1	4		13
DUAL STUDENT			1			1
CHECK PILOT						
FLIGHT ENGINEER			1			2
NAVIGATOR		1				1
CABIN ATTENDANT				1		1
EXTRA CREW	2		11	22	3	38
PASSENGERS	24			57		114
TOTAL	58	20	38	113		229

OTHER AIRCRAFT
OTHER GROUND

GRAND TOTAL	65	20	38	113	236
INVOLVES	94	TOTAL ACCIDENTS			
INVOLVES	27	FATAL ACCIDENTS			

SELECTED ACCIDENT DATAALL OPERATIONS

1978

<u>Pilot Total Time</u>	<u>Total</u>	<u>Accident Records</u>	<u>Fatal</u>
0- 25 Hours	156		21
26- 50 Hours	210		26
51- 100 Hours	326		45
101- 300 Hours	771		130
301- 500 Hours	427		76
501- 1000 Hours	558		98
1001- 3000 Hours	928		172
3001- 5000 Hours	396		65
5001- 8000 Hours	280		56
8001-10,000 Hours	100		10
over-10,000 Hours	237		43
Unknown/not reported	165		74

Pilot Time In Type Aircraft

5- Or less Hours	252	37
6- 25 Hours	768	107
26- 50 Hours	551	75
51- 100 Hours	612	88
101- 300 Hours	840	129
301- 500 Hours	367	46
501- 1000 Hours	362	61
1001- 2000 Hours	217	26
2001- 3000 Hours	105	12
over- 3000 Hours	99	9
Unknown/not reported	381	226

ANALYTIC TABLE

PILOT AGE BY INJURY INDEX
ALL OPERATIONS

FATAL SERIOUS MINOR NONE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
15				1		1	.02
16	1	3	7		11	11	.24
17	3	1	2	11		17	.37
18	12	1	4	15		32	.70
19	7	7	5	18		37	.81
20	8	4	6	41		59	1.30
21	10	9	14	40		73	1.60
22	14	10	12	52		88	1.93
23	19	11	11	61		102	2.24
24	20	17	7	70		114	2.50
25	16	15	11	66		108	2.37
26	22	9	14	73		118	2.59
27	16	19	16	72		123	2.70
28	24	10	21	82		137	3.01
29	25	15	27	70		137	3.01
30	18	16	24	93		151	3.32
31	31	16	33	102		182	4.00
32	23	15	13	81		132	2.80
33	20	12	24	79		135	2.98
34	25	11	14	103		153	3.36
35	30	14	24	99		167	3.67
36	19	14	17	68		118	2.59
37	24	11	16	68		119	2.61
38	22	7	14	83		126	2.77
39	12	12	17	59		100	2.20
40	18	15	21	63		117	2.57
41	24	4	9	52		89	1.95
42	22	18	20	69		129	2.83
43	18	12	16	59		105	2.31
44	14	13	12	47		86	1.89
45	17	9	10	47		83	1.82
46	14	9	14	60		97	2.13
47	19	12	19	56		106	2.33
48	30	8	15	67		120	2.64
49	22	9	13	52		96	2.11
50	20	9	11	43		83	1.82
51	15	8	12	55		90	1.98

ANALYTIC TABLE

FATAL
SERIOUS
MINOR
NONE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
52	15	9	11	27	62	62	1.36
53	18	8	15	48	89	89	1.95
54	20	10	14	36	80	80	1.76
55	11	8	23	42	84	84	1.84
56	19	6	13	36	73	73	1.60
57	8	8	7	31	54	54	1.19
58	7	5	4	19	35	35	.77
59	10	4	7	16	37	37	.81
60	6	2	5	18	31	31	.68
61	2	2	9	8	21	21	.46
62	7	1	3	10	21	21	.46
63	4	2	1	8	15	15	.33
64	3		2	8	13	13	.29
65		2	4	7	13	13	.29
66	3	3	3		9	9	.20
67	5	1	2	5	13	13	.29
68	2		2	6	10	10	.22
69	4	1	1	3	9	9	.20
70		2		2	4	4	.09
71			1		1	1	.02
72			1	2	3	3	.07
73	1		1		2	2	.04
74			2		2	2	.04
75	1				1	1	.02
77			1		1	1	.02
78			1		1	1	.02
UNKNOWN	17	10	19	83	129	129	2.83

RECORDS 816 463 668 2607

4554

ACCIDENTS 793 458 662 2581

4494

PERCENTS 17.9 10.2 14.7 57.2

ANALYTIC TABLE

PILOT CERTIFICATE BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STUDENT	66	39	92	351	548	546	12.03
PRIVATE	384	188	275	988	1835	1829	40.29
COMMERCIAL	195	136	167	714	1212	1206	26.61
AIRLINE TRANSPORT	41	15	25	84	165	165	3.62
PRIVATE W/FLIGHT INSTRUCTOR	1		1		2	2	.04
COML WITH FLT INSTRUCTOR	75	55	81	338	549	547	12.06
ATR W/FLIGHT INSTRUCTOR	25	20	16	71	132	132	2.90
OTHER			1		1	1	.02
NONE	14	6	5	19	44	44	.97
UNKNOWN/NOT REPORTED	15	4	7	40	66	66	1.45
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581	4494		
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

CONDITIONS OF LIGHT BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
DAWN	16	13	15	48	92	92	2.02
DAYLIGHT	557	372	570	2214	3713	3658	81.53
DUSK	23	23	22	92	160	158	3.51
NIGHT (DARK)	183	44	42	191	460	459	10.10
NIGHT (MOONLIGHT-BRIGHT)	16	10	17	42	85	83	1.87
UNKNOWN/NOT REPORTED	21	1	2	20	44	44	.97
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581	4494		
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

TYPE WEATHER CONDITIONS BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
VFR	548	422	630	2495	4095	4035	89.92
IFR	227	35	32	84	378	378	8.30
BELOW MINIMUMS	6	5	2	4	17	17	.37
UNKNOWN/NOT REPORTED	35	1	4	24	64	64	1.41
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581	4494		
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

TYPE FLIGHT PLAN BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
NONE	602	374	537	2160	3673	3621	80.65
VFR	87	46	85	263	481	480	10.56
IFR	104	36	36	147	323	323	7.00
CONTROLLED VFR			1	1	2	2	.04
IFR (VFR CONDITIONS ON TOP)	2		1		3	3	.07
TOWER EN ROUTE CONTROL SERVICE					3	3	.07
OVER	1		2		2	2	.04
VFR FLIGHT FOLLOWING SERVICE	2				2	2	.04
SPECIAL VFR	2		1	3	6	6	.13
OTHER	3	3	5		11	11	.24
UNKNOWN/NOT REPORTED	13	4	7	26	50	50	1.10
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581	4494		
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

MONTH OF OCCURRENCE BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
01	55	28	28	139	250	247	5.49
02	53	21	35	168	277	275	6.08
03	65	30	41	200	336	333	7.38
04	59	36	40	213	348	343	7.64
05	85	46	68	269	468	460	10.28
06	61	51	80	275	467	465	10.25
07	78	62	85	330	555	547	12.19
08	86	60	91	274	511	502	11.22
09	81	33	81	250	445	433	9.77
10	67	42	54	175	338	333	7.42
11	67	20	27	129	243	242	5.34
12	59	34	38	185	316	314	6.94
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581		4494	
PERCENTS	17.9	10.2	14.7	57.2			

MONTH OF OCCURRENCE BY TYPE OF WEATHER CONDITIONS
ALL OPERATIONS

	VER	JFR	BLOW MINIMUMS	UNKNOWN	RECORDS	ACCIDENTS	PERCENT
01	195	43	4	8	250	247	5.49
02	236	34	2	5	277	275	6.08
03	285	44	3	4	336	333	7.38
04	324	16	1	7	348	343	7.64
05	428	34	1	5	468	460	10.28
06	451	10		6	467	465	10.25
07	524	27		4	555	547	12.19
08	472	35		4	511	502	11.22
09	410	26	2	7	445	443	9.77
10	319	13		6	338	333	7.42
11	185	51	1	6	243	242	5.34
12	266	45	3	2	316	314	6.94
RECORDS	4095	378	17	64	4554		
ACCIDENTS	4035	378	17	64		4494	
PERCENTS	89.9	8.3	1.4	1.4			

ANALYTIC TABLE

MONTH OF OCCURRENCE BY FIRST TYPE OF ACCIDENT
ALL OPERATIONS

	01	02	03	04	05	06	07	08	09	10	11	12	RECORDS	ACCIDENTS
GROUND-WATER LOOP-SWERVE	34	57	51	46	60	57	63	43	50	37	29	41	568	568
DRAGGED WINGTIP POD OR FLOAT	1			3	1	1			1	1	1	1	9	9
WHEELS-UP LANDING	2	2	5	4	9	10	6	8	7	14	2	8	77	77
WHEELS-DOWN LANDING IN WATER				1			2						3	3
GEAR COLLAPSED	5	2	1	6	5	8	7	7	8	6	6	7	68	68
GEAR RETRACTED	4	3	4	3	6	1	9	2	3	5	3	5	48	48
HARD LANDING	9	14	25	31	29	31	40	29	28	22	13	12	283	283
NOSE OVER/DOWN	11	11	12	13	16	19	20	16	15	10	7	14	164	164
ROLL OVER	1		3		2	1	2	2	2	2	3	2	20	20
OVERSHOOT	6	5	7	17	25	28	30	17	21	16	10	7	189	189
UNDERSHOOT	11	12	13	13	9	10	11	15	15	9	5	7	130	130
<u>COLLISION BETWEEN AIRCRAFT</u>														
BOTH IN FLIGHT	2	2	2	6	12	2	6	9	17	6	2		68	35
ONE AIRBORNE				4		2	2	4	4		2		18	9
BOTH ON GROUND	4	2		2	2		6	6	9	2		4	37	19
<u>COLLISION WITH GROUND/WATER</u>														
CONTROLLED	23	19	17	13	25	22	24	35	22	21	20	18	259	259
UNCONTROLLED	13	10	15	14	11	10	10	11	10	8	15	15	142	142
<u>COLLIDED WITH</u>														
WIRES/POLES	7	8	12	7	17	25	27	29	11	17	8	9	177	177
TREES	9	7	8	15	29	18	26	27	23	12	13	12	199	199
RESIDENCE/S				1									1	1
BUILDING/S				1	1		1	1	2		1	2	9	9
FENCE, FENCEPOSTS	3	2	2	2	3	6	9	5	12	2	1	5	52	52
ELECTRONIC TOWERS	1			2			1				1		6	6
RUNWAY OR APPROACH LIGHTS	1			2			1	1	1	1		1	8	8
AIRPORT HAZARD	1		1		1	3	2	1				1	10	10
ANIMALS							1		1	1			3	3
CROP				1			1	3	6	3			14	14
FLAGMAN LOADER						2							2	2
DITCHES			2	2	3	4		6	4		2	1	24	24
SNOWBANK	6	14	13							1	11		45	45
PARKED AIRCRAFT (UNATTENDED)	4		2	1	2	2	3	4	5	2	2	5	32	32
AUTOMOBILE	1	2	1	2	2	2			6	1		1	18	18
DIRT BANK	2		2	4	3	4	4	4	1	1	2	1	28	28
OTHER	2	5	3	9	5	6	7	9	7	6	6	6	71	71
BIRD STRIKE						1				2			3	3

ANALYTIC TABLE

	01	02	03	04	05	06	07	08	09	10	11	12	RECORDS	ACCIDENTS
STALL	5	4	9	3	11	18	19	18	8	9	7	6	117	117
SPIN	4	2	7	5	13	10	9	8	9	7	3	1	78	78
SPIRAL	1	1	4	5	2	2	6		1		1		23	23
MUSH	7	4	9	16	24	21	28	25	12	14	6	7	173	173
<u>FIRE OR EXPLOSION</u>														
IN FLIGHT	1	1	1	2	2	2	4	2	4	2	1		22	22
ON GROUND	1		1		1			2		1	1		7	7
<u>AIRFRAME FAILURE</u>														
IN FLIGHT	3	4	5	8	7	5	10	10	5	7	5	6	75	75
ON GROUND							2	1					3	3
ENGINE TEARAWAY														
ENGINE FAILURE OR MALFUNCTION	58	72	84	73	110	109	139	126	104	80	56	78	1089	1089
PROPELLER/ROTOR FAILURE														
PROPELLER					1	4	5	6	2	4	4	4	34	34
TAIL ROTOR	3	1	2	2	1	5	4	3	2		2		25	25
MAIN ROTOR	1	1	2		1	2			3	1	1	1	14	14
PROP ROTOR ACNT TO PERSON	2	1	2		1	1	1		1			5	14	14
JET INTAKE/EXH ACNT TO PERS													4	4
PROPELLER/JET/ROTOR BLAST					1		1		1					
TURBULENCE	1	3	2	2	3	1		2			2		16	16
HAIL DAMAGE TO AIRCRAFT							1						1	1
LIGHTNING STRIKE			1										1	1
EVASIVE MANEUVER								1	1	1			3	3
UNCONTROLLED ALT DEVIATION														
DITCHING					1	1		1	1		1		5	5
MISSING ACFT NOT RECOVERED	3	2	1	4	2		1	1	3		5	2	24	24
MISCELLANEOUS/OTHER	5			2	4	4	1	3			1		20	20
UNDETERMINED	4		1	2	1	3	1	2		3	3	1	21	21
RECORDS	250	277	336	348	468	467	555	511	465	338	243	316	4554	
ACCIDENTS	247	275	333	343	460	465	547	502	433	333	242	314		4494

ANALYTIC TABLE

STATE OF OCCURRENCE BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
ALABAMA	10	7	10	43	70	70	1.54
ALASKA	49	24	45	147	265	262	5.82
ARIZONA	28	13	22	88	151	148	3.32
ARKANSAS	14	5	10	67	96	96	2.11
CALIFORNIA	109	54	78	308	549	540	12.06
COLORADO	20	14	12	67	113	113	2.48
CONNECTICUT	7	2	6	11	26	26	.57
DELAWARE	1	1	2	2	6	6	.13
FLORIDA	50	26	23	143	242	239	5.31
GEORGIA	17	20	16	67	120	119	2.64
HAWAII			6	11	17	16	.37
IDAHO	9	5	6	23	43	42	.94
ILLINOIS	18	9	21	113	161	159	3.54
INDIANA	16	11	13	54	94	91	2.06
IOWA	7	6	10	40	63	63	1.38
KANSAS	13	9	8	37	67	66	1.47
KENTUCKY	9	5	6	31	51	49	1.12
LOUISIANA	17	17	15	60	109	106	2.39
MAINE	4	2	3	16	25	24	.55
MARYLAND	7	8	4	9	28	28	.61
MASSACHUSETTS	10	4	11	45	70	66	1.54
MICHIGAN	16	13	19	72	120	119	2.64
MINNESOTA	11	7	20	62	100	98	2.20
MISSISSIPPI	8	5	9	27	49	49	1.08
MISSOURI	11	16	15	67	110	110	2.42
MONTANA	11	4	4	38	57	57	1.25
NEBRASKA	9	4	6	30	49	49	1.08
NEVADA	12	2	12	32	58	57	1.27
NEW HAMPSHIRE	3	4	3	10	20	20	.44
NEW JERSEY	7	3	9	31	50	49	1.10
NEW MEXICO	13	12	10	58	93	93	2.04
NEW YORK	15	7	30	75	127	124	2.79
NORTH CAROLINA	20	13	12	30	75	73	1.65
NORTH DAKOTA	7	2		9	18	18	.40
OHIO	11	9	16	60	96	95	2.11
OKLAHOMA	8	11	7	37	63	62	1.38
OREGON	22	15	12	38	87	87	1.91

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
PENNSYLVANIA	21	13	16	72	122	121	2.68
RHODE ISLAND	3	1		7	11	11	.24
SOUTH CAROLINA	7	8	11	29	55	55	1.21
SOUTH DAKOTA	3	5	3	27	38	38	.83
TENNESSEE	14	4	6	14	38	37	.83
TEXAS	47	22	39	164	272	270	5.97
UTAH	11	7	7	18	43	42	.94
VERMONT	3	3		8	14	14	.31
VIRGINIA	12	10	13	29	64	61	1.41
WASHINGTON	27	5	28	53	113	112	2.48
WEST VIRGINIA	4	3	6	4	17	17	.37
WISCONSIN	11	3	17	59	90	88	1.98
WYOMING	10	4	5	24	43	43	.94
UNKNOWN/NOT REPORTED	25			3	28	28	.61
PUERTO RICO	2	1		6	9	9	.20
VIRGIN ISLANDS	2			2	4	4	.09
SAMOA				1	1	1	.02
OTHER-U.S. TERRITORIES & POSSES.	1				1	1	.02
CANADA	1	1		6	8	8	.18
MEXICO	1	1	1	5	8	8	.18
CENTRAL AMERICA	1			2	3	3	.07
SOUTH AMERICA	1			1	2	2	.04
EUROPE				1	1	1	.02
ASIA	2	2	1	3	8	8	.18
AFRICA				1	1	1	.02
GREENLAND	1				1	1	.02
OTHER-FOREIGN COUNTRIES	4	1	6		11	11	.24
PACIFIC OCEAN NORTH LATITUDES	1	1	3		5	5	.11
ATLANTIC OCEAN NORTH LAT.	3	1			4	4	.09
ATLANTIC OCEAN SOUTH LAT.				1	1	1	.02
OTHER-INTERNATIONAL WATERS							
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	456	662	2581		4494	
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE
STATE OF OCCURRENCE BY AIRCRAFT DAMAGE
ALL OPERATIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
ALABAMA	18	51	1		70	70	1.54
ALASKA	53	212			265	262	5.82
ARIZONA	46	103	2		151	148	3.32
ARKANSAS	35	60		1	96	96	2.11
CALIFORNIA	165	379	6		549	540	12.06
COLORADO	24	87	2		113	113	2.48
CONNECTICUT	8	18			26	26	.57
DELAWARE	2	4			6	6	.13
FLORIDA	81	159	2		242	239	5.31
GEORGIA	40	79	1		120	119	2.64
HAWAII	2	14	1		17	16	.37
IDAHO	15	28			43	42	.94
ILLINOIS	23	136		2	161	159	3.54
INDIANA	26	65	3		94	91	2.06
IOWA	12	51			63	63	1.38
KANSAS	18	49			67	66	1.47
KENTUCKY	10	38	3		51	49	1.12
LOUISIANA	32	76		1	109	106	2.39
MAINE	4	20		1	25	24	.55
MARYLAND	13	15			28	28	.61
MASSACHUSETTS	10	59		1	70	66	1.54
MICHIGAN	29	89	1	1	120	119	2.64
MINNESOTA	24	74	1	1	100	98	2.20
MISSISSIPPI	25	23		1	49	49	1.08
MISSOURI	19	91			110	110	2.42
MONTANA	13	44			57	57	1.25
NEBRASKA	16	32		1	49	49	1.08
NEVADA	19	39			58	57	1.27
NEW HAMPSHIRE	4	16			20	20	.44
NEW JERSEY	8	42			50	49	1.10
NEW MEXICO	12	81			93	93	2.04
NEW YORK	14	111	1	1	127	124	2.79
NORTH CAROLINA	24	50	1		75	73	1.65
NORTH DAKOTA	9	9			18	18	.40
OHIO	22	73		1	96	95	2.11
OKLAHOMA	14	48		1	63	62	1.38
OREGON	27	59	1		87	87	1.91

ANALYTIC TABLE

DESTROYED
SUBSTANTIAL
MINOR
NONE

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
PENNSYLVANIA	23	98	1		122	121	.268
RHODE ISLAND	1	9	1		11	11	.24
SOUTH CAROLINA	18	37			55	55	1.21
SOUTH DAKOTA	2	36			38	38	.83
TENNESSEE	16	22			38	37	.83
TEXAS	79	193			272	270	5.97
UTAH	11	32			43	42	.94
VERMONT	4	10			14	14	.31
VIRGINIA	22	40	2		64	61	1.41
WASHINGTON	43	68	1	1	113	112	2.48
WEST VIRGINIA	7	10			17	17	.37
WISCONSIN	13	76	1		90	88	1.98
WYOMING	10	33			43	43	.94
UNKNOWN/NOT REPORTED	27	1			28	28	.61
PUERTO RICO	4	5			9	9	.20
VIRGIN ISLANDS	2	2			4	4	.09
SAMOA		1			1	1	.02
OTHER-U.S.TERRITORIES&POSSES.	1				1	1	.02
CANADA	2	6			8	8	.18
MEXICO	4	4			8	8	.18
CENTRAL AMERICA	1	2			3	3	.07
SOUTH AMERICA	2				2	2	.04
EUROPE		1			1	1	.02
ASIA	3	4	1		8	8	.18
AFRICA	1				1	1	.02
GREENLAND	1				1	1	.02
OTHER-FOREIGN COUNTRIES	6	5			11	11	.24
PACIFIC OCEAN NORTH LATITUDES	3	2			5	5	.11
ATLANTIC OCEAN NORTH LAT.	3	1			4	4	.09
ATLANTIC OCEAN SOUTH LAT.	1				1	1	.02
OTHER-INTERNATIONAL WATERS							
RECORDS	1226	3282	29	17		4554	
ACCIDENTS	1212	3264	29	17		4494	
PERCENTS	26.9	72.1	.6	.4			

ANALYTIC TABLE

TYPE AIRCRAFT BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
FIXED-WING	748	413	592	2393	4146	4091	91.04
HELICOPTER	48	32	55	168	303	302	6.65
GLIDER	11	9	16	32	68	67	1.49
BALLOON	1	9	1	8	19	19	.42
BLIMP							
DIRIGIBLE							
ROCKET							
CONVERTIPLANE							
GYROPLANE		8	4	5	17	17	.37
OTHER							
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581		4494	
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

TYPE AIRCRAFT BY AIRCRAFT DAMAGE
ALL OPERATIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
FIXED-WING	1102	3008	25	11	4146	4091	91.04
HELICOPTER	98	201	2	2	303	302	6.65
GLIDER	17	51			68	67	1.49
BALLOON	1	12	2	4	19	19	.42
BLIMP							
DIRIGIBLE							
ROCKET							
CONVERTIPLANE							
GYROPLANE		8	9		17	17	.37
OTHER							
RECORDS	1226	3282	29	17	4554		
ACCIDENTS	1212	3264	29	17		4494	
PERCENTS	26.9	72.1	.6	.4			

ANALYTIC TABLE

TYPE POWER BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
RECIPROCATING ENGINE	762	422	629	2497	4310	4258	94.64
TURBOJET ENGINE	2	5	3	14	24	24	.53
TURBOPROP ENGINE	15	6	5	22	48	48	1.05
TURBOFAN ENGINE	1			2	3	3	.07
NONE	12	18	17	40	87	86	1.91
TURBOSHAFT	24	12	14	32	82	81	1.80
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2581	4494		
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

TYPE POWER BY AIRCRAFT DAMAGE
ALL OPERATIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
RECIPROCATING ENGINE	1150	3124	24	12	4310	4258	94.64
TURBOJET ENGINE	6	18			24	24	.53
TURBOPROP ENGINE	17	28	3		48	48	1.05
TURBOFAN ENGINE	1	2			3	3	.07
NONE	18	63	2	4	87	86	1.91
TURBOSHAFT	34	47		1	82	81	1.80
RECORDS	1226	3282	29	17	4554		
ACCIDENTS	1212	3264	29	17	4494		
PERCENTS	26.9	72.1	.6	.4			

ANALYTIC TABLE

AIRPORT PROXIMITY BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
ON AIRPORT	88	133	269	1566	2056	2019	45.15
ON SEAPLANE BASE	1	1	8	9	19	19	.42
ON HELIPORT	1	3	1	7	12	11	.26
ON BARGE/SHIP/PLATFORM	1		2	2	5	5	.11
IN TRAFFIC PATTERN	24	37	33	54	148	145	3.25
WITHIN 1/4 MILE	58	44	31	98	231	229	5.07
WITHIN 1/2 MILE	32	27	21	40	120	119	2.64
WITHIN 3/4 MILE	11	5	1	6	23	23	.51
WITHIN 1 MILE	25	13	26	43	105	105	2.31
WITHIN 2 MILES	51	17	12	35	115	112	2.53
WITHIN 3 MILES	33	9	13	23	78	77	1.71
WITHIN 4 MILES	15	7	8	18	48	48	1.05
WITHIN 5 MILES	20	5	6	17	48	48	1.05
BEYOND 5 MILES	398	138	189	535	1260	1250	27.67
UNKNOWN/NOT REPORTED	58	24	50	154	286	286	6.28
RECORDS	816	463	668	2607	4554		
ACCIDENTS	793	458	662	2621	4494		
PERCENTS	17.9	10.2	14.7	57.2			

ANALYTIC TABLE

FIRE AFTER IMPACT BY INJURY INDEX
ALL OPERATIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
YES	197	50	31	63	341	340	97.71
UNKNOWN/NOT REPORTED	5		1	2	8	8	2.29
RECORDS	202	50	32	65	349		
ACCIDENTS	201	50	32	65	348		
PERCENTS	57.9	14.3	9.2	18.6			

GENERAL AVIATION ACCIDENTS

SMALL FIXED-WING AIRCRAFT

ANALYTIC TABLE

FIRST TYPE OF ACCIDENT BY AIRCRAFT DAMAGE
SMALL FIXED WING

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
GROUND-WATER LOOP-SWERVE	20	539			559	559	13.64
DRAGGED WINGTIP POD OR FLOAT	2	6			8	8	.20
WHEELS-UP LANDING		76			76	76	1.85
WHEELS-DOWN LANDING IN WATER		3			3	3	.07
GEAR COLLAPSED		65	1		66	66	1.61
GEAR RETRACTED		2	44		46	46	1.12
HARD LANDING	14	236	1		251	251	6.12
NOSE OVER/DOWN		8	154		162	162	3.95
ROLL OVER							
OVERSHOOT		18	163		181	181	4.42
UNDERSHOOT		14	88		102	102	2.49
<u>COLLISION BETWEEN AIRCRAFT</u>							
BOTH IN FLIGHT	34	22	5	1	62	34	1.51
ONE AIRBORNE	2	12	3		17	9	.41
BOTH ON GROUND	4	24	7		35	18	.85
<u>COLLISION WITH GROUND/WATER</u>							
CONTROLLED	129	85			214	214	5.22
UNCONTROLLED	103	17			120	120	2.93
<u>COLLIDED WITH</u>							
WIRES/POLES	71	68			139	139	3.39
TREES	91	84	1		176	176	4.29
RESIDENCE/S		1			1	1	.02
BUILDING/S	2	5			7	7	.17
FENCE, FENCEPOSTS	6	44			50	50	1.22
ELECTRONIC TOWERS	6				6	6	.15
RUNWAY OR APPROACH LIGHTS	2	5			7	7	.17
AIRPORT HAZARD		9			9	9	.22
ANIMALS		3			3	3	.07
CROP	3	11			14	14	.34
FLAGMAN LOADER			2		2	2	.05
DITCHES	1	22			23	23	.56
SNOWBANK		45			45	45	1.10
PARKED AIRCRAFT (UNATTENDED)	3	25	1		29	29	.71
AUTOMOBILE		16			16	16	.39
DIRT BANK	4	20			24	24	.59
OTHER	10	51	2		63	63	1.54
BIRD STRIKE		3			3	3	.07

ANALYTIC TABLE

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STALL	60	52			112	112	.273
SPIN	57	17			74	74	.181
SPIRAL	17	5			22	22	.54
MUSH	58	114			172	172	.420
FIRE OR EXPLOSION							
IN FLIGHT	12	9			21	21	.51
ON GROUND	2	4			6	6	.15
AIRFRAME FAILURE							
IN FLIGHT	46	16			62	62	.151
ON GROUND	1	2			3	3	.07
ENGINE TEARAWAY							
ENGINE FAILURE OR MALFUNCTION	220	765	1		986	986	.2406
PROPELLER/ROTOR FAILURE							
PROPELLER	4	30			34	34	.83
TAIL ROTOR							
MAIN ROTOR							
PROP. ROTOR ACNTN TO PERSON		3	8		11	11	.27
JET INTAKE/EXH ACNTN TO PERS							
PROPELLER/JET/ROTOR BLAST	4				4	4	.10
TURBULENCE	12	4			16	16	.39
HAIL DAMAGE TO AIRCRAFT		1			1	1	.02
LIGHTNING STRIKE		1			1	1	.02
EVASIVE MANEUVER	2	1			3	3	.07
UNCONTROLLED ALT DEVIATION							
DITCHING		4			4	4	.10
MISSING ACFT NOT RECOVERED	23				23	23	.56
MISCELLANEOUS/OTHER	1	6			7	7	.17
UNDETERMINED	11	6			17	17	.41
RECORDS	1079	2983	25	11	4098		
ACCIDENTS	1068	2967	25	11		4045	
PERCENTS	26.3	72.8	.6	.3			

ANALYTIC TABLE

FIRST PHASE OF OPERATION BY INJURY INDEX
SMALL FIXED WING

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT	
STATIC								
STARTING ENGINE/S	1	3	4		8	8	.20	
IDLING ENGINE/S	2	5	1	5		13	12	.32
ENGINE RUNUP				4		4	.10	
IDLING ROTORS								
PARKED-ENGINES NOT OPERATING			1			1	.02	
OTHER								
TAXI								
TO TAKEOFF		2	69			71	70	1.73
FROM LANDING		2	4	64		70	70	1.71
OTHER		2	3	2	16		23	.56
GROUND TAXI TO TAKEOFF								
GROUND TAXI FROM LANDING			1			1	.1	.02
GROUND TAXI, OTHER								
AERIAL TAXI TO TAKEOFF								
AERIAL TAXI TO/FROM LANDING								
AERIAL TAXI, OTHER								
TAKEOFF								
RUN	5	7	28	176		216	216	5.27
INITIAL CLIMB	92	97	99	242		530	530	12.93
VERTICAL								
RUNNING (ROTORCRAFT/VTOL-STOL)								
ABORTED (FIXED-WING)		6	12	52		70	70	1.71
ABORTED (ROTORCRAFT/VTOL)								
ABORTED (ROTORCRAFT/STOL)								
OTHER		2				2	2	.05
INFILIGHT								
CLIMB TO CRUISE	30	16	18	43		107	107	2.61
NORMAL CRUISE	151	67	88	258		564	555	13.76
DESCENDING	29	5	21	35		90	90	2.20
HOLDING (IFR)								
HOVERING								
POWER-ON DESCENT (ROTORCRAFT)								
AUTOROTATIVE DESCENT								
ACROBATICS	25	7	2	3		37	37	.90
BUZZING	18	6	2	5		31	31	.76
UNCONTROLLED DESCENT	94	1				95	95	2.32

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
EMERGENCY DESCENT	4		1		5	5	.12
LOW PASS	38	17	13	18	86	86	2.10
OTHER	59	11	10	18	98	95	2.39
EN ROUTE TO TREAT CROP	2	1	2	10	15	15	.37
EN ROUTE TO RELOADING AREA			2		2	2	.05
SURVEY FIELD/AREA			6		6	6	.15
STARTING SWATH RUN	2	2	4	7	15	15	.37
SWATH RUN	1	9	15	32	57	57	1.39
FLAREOUT FOR SWATH RUN	2		2	4	8	8	.20
PULLUP FROM SWATH RUN	7	5	2	20	34	34	.83
PROCEDURE TURNAROUND	7	10	7	35	59	59	1.44
CLEANUP SWATH	2	1		1	4	4	.10
MANEUVER TO AVOID OBSTRUCTION		1	1	3	5	5	.12
RETURN TO STRIP	1		3	7	11	11	.27
<u>LANDING</u>							
TRAFFIC PATTERN-CIRCLING	21	18	17	33	89	88	2.17
FINAL APPROACH (VFR)	32	43	41	108	224	219	5.47
INITIAL APPROACH	5	1	3	1	10	10	.24
FINAL APPROACH (IFR)	27	7	4	9	47	47	1.15
LEVEL OFF/TOUCHDOWN	7	29	110	546	692	685	16.89
ROLL (FIXED WING)	4	9	48	472	533	532	13.01
ROLL-ON/RUN-ON (ROTORCRAFT)							
POWER-ON LANDING (ROTORCRAFT)							
POWER-OFF AUTOROTATIVE LDG							
GO-AROUND (VFR)	14	14	24	54	106	106	2.59
MISSIED APPROACH (IFR)	7	1	2		10	10	.24
OTHER	5	1		2	8	8	.20
UNKNOWN/NOT REPORTED	36		2	3	41	41	1.00
RECORDS	734	405	589	2370	4098		
ACCIDENTS	714	401	584	2346	4045		
PERCENTS	17.9	9.9	14.4	57.8			

CAUSE/FACTOR TABLE

SMALL FIXED WING

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 3987 TOTAL ACCIDENTS

INVOLVES 688 FATAL ACCIDENTS

BROAD CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
PILOT	588 85.47	118 17.15	598 86.92	2640 80.02	277 8.40	2659 80.60	3228 80.96	395 9.91	3257 81.69
PERSONNEL	52 7.56	20 2.91	68 9.88	243 7.37	48 1.45	283 8.58	295 7.40	68 1.71	351 8.80
AIRFRAME	9 1.31	7 1.02	16 2.33	.48 .48	6 .18	22 .67	25 .63	13 .33	38 .95
LANDING GEAR	.00	.00	.00	135 4.09	13 .39	148 4.49	135 3.39	13 .33	148 3.71
POWERPLANT	48 6.98	15 2.18	59 8.58	489 14.82	38 1.15	522 15.82	537 13.47	53 13.47	581 14.57
SYSTEMS	4 .58	7 1.02	11 1.60	.82 .82	10 .30	37 1.12	31 .78	17 .43	48 1.20
INSTRUMENTS/EQUIPMENT & ACCESSORIES	1 .15	7 1.02	8 1.16	1 .03	9 .27	10 .30	2 .30	16 .05	18 .40
ROTORCRAFT	.00	.00	.00	.00	.00	.00	.00	.00	.00
AIRPORT/AIRWAYS/FACILITIES	.00	8 1.16	8 1.16	34 1.03	273 8.28	306 9.28	34 .85	281 7.05	314 7.88
WEATHER	10 1.45	292 42.44	299 43.46	42 1.27	507 15.37	545 16.52	52 1.30	799 20.04	844 21.17
TERRAIN	7 1.02	75 10.90	82 11.92	189 5.73	479 14.52	665 20.16	196 4.92	554 13.90	747 18.74
MISCELLANEOUS	17 2.47	2 .29	19 2.76	68 2.06	19 .58	87 2.64	85 2.13	21 .53	106 2.66
UNDETERMINED	58 8.43	58 8.43	58 8.43	32 .97	32 .00	90 .97	90 2.26	90 .00	90 2.26

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY. THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE
SMALL FIXED WING
(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 3987 TOTAL ACCIDENTS

INVOLVES 688 FATAL ACCIDENTS

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
** PILOT **									
PILOT IN COMMAND									
ATTEMPTED OPERATION W/KNOWN DEFICIENCIES IN EQUIPMENT	11	8	19	29	9	38	40	17	57
ATTEMPTED OPERATION BEYOND EXPERIENCE/ABILITY LEVEL	33	15	48	17	11	28	50	26	76
BECAME LOST/DISORIENTED	19	3	22	32	10	42	51	13	64
CONTINUED VFR FLIGHT INTO ADVERSE WEATHER CONDITIONS	143	1	144	47	9	56	190	10	200
CONTINUED INTO KNOWN AREA OF SEVERE TURBULENCE	6		6				6		6
DELAYED ACTION IN ABORTING TAKEOFF				48	6	54	48	6	54
DELAYED IN INITIATING GO-AROUND	7	2	9	130	13	143	137	15	152
DIVERTED ATTENTION FROM OPERATION OF AIRCRAFT	14	6	20	42	18	60	56	24	80
EXCEEDED DESIGN STRESS LIMITS OF AIRCRAFT	34		34	6		6	40		40
FAILED TO EXTEND LANDING GEAR				1	1	41	41	1	42
FAILED TO RETRACT LANDING GEAR				1	1	5	6	1	7
RETRACTED GEAR PREMATURELY	1	1	2	5		5	1		2
INADVERTENTLY RETRACTED GEAR				1	1	2	1	1	2
FAILED TO SEE AND AVOID OTHER AIRCRAFT	24		24	30	2	41	63	2	65
FAILED TO SEE AND AVOID OBJECTS OR OBSTRUCTIONS	28		28	103	1	104	131	1	132
FAILED TO OBTAIN/MAINTAIN FLYING SPEED	141	1	142	265		265	406	1	407
MISJUDGED SPEED, ALTITUDE OR CLEARANCE	4		4	12		12	16		16
FAILED TO USE OR INCORRECTLY USED MISC EQUIPMENT	3	1	4	1	1	2	4	2	6
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES ETC	23	5	28	52	13	65	75	18	93
IMPROPER OPERATION OF POWERPLANT + POWERPLANT CONTROLS	5	3	8	87	11	98	92	14	106
IMPROPER OPERATION OF BRAKES AND/OR FLIGHT CONTROLS				159	3	162	159	3	162
IMPROPER OPERATION OF FLIGHT CONTROLS	8		8	34		34	42		42
PREMATURE LIFT OFF	2	1	3	45	3	48	47	4	51
IMPROPER LEVEL OFF	1		1	258	1	259	259	1	260
IMPROPER IFR OPERATION	30	1	31	11	1	12	41	2	43
IMPROPER IN-FLIGHT DECISIONS OR PLANNING	61	6	67	115	5	120	176	11	187
IMPROPER COMPENSATION FOR WIND CONDITIONS	2	1	3	123	6	129	125	7	132
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING	62	16	78	348	33	381	410	49	459
INADEQUATE SUPERVISION OF FLIGHT	7		7	76	2	78	83	2	85
LACK OF FAMILIARITY WITH AIRCRAFT	5	14	19	21	54	75	26	68	94
MISMANAGEMENT OF FUEL	29		29	256	3	259	285	3	288
EXERCISED POOR JUDGMENT	19	7	26	32	8	40	51	15	66
OPERATED CARELESSLY	1	1	2	3		3	4	1	5
SELECTED UNSUITABLE TERRAIN	5	1	6	203	12	215	208	13	221
IMPROPER STARTING PROCEDURES				4		4	4		4
STARTED ENGINE WITHOUT PROPER ASSISTANCE/EQUIPMENT	1		1	13		13	14		14
TAXIED/PARKED WITHOUT PROPER ASSISTANCE				16		16	16		16
FAILED TO ASSURE THE GEAR WAS DOWN AND LOCKED				22		22	22		22
INITIATED FLIGHT IN ADVERSE WEATHER CONDITIONS	37	2	39	12	3	15	49	5	54
SPONTANEOUS-IMPROPER ACTION	1	1	2	8		8	9	1	10
MISJUDGED DISTANCE, SPEED, AND ALTITUDE	6		6	18		18	24		24
MISJUDGED DISTANCE AND SPEED	2		2	180	2	182	182	2	184
MISJUDGED DISTANCE				4		4	4		4
MISJUDGED DISTANCE AND ALTITUDE	7		7	79	1	80	86	1	87
MISJUDGED SPEED AND ALTITUDE	1		1	4		4	5		5
MISJUDGED SPEED				7	1	8	7	1	8
MISJUDGED SPEED AND CLEARANCE				8		8	8		8
MISJUDGED ALTITUDE AND CLEARANCE	20		20	33		33	53		53
MISJUDGED ALTITUDE	15		15	19	1	20	34	1	35
MISJUDGED CLEARANCE	14		14	81		81	95		95
INADEQUATE TRAINING OF STUDENT				1		1	1		1
MISUNDERSTANDING OF ORDERS OR INSTRUCTIONS				1		1	1		1
IMPROPER RECOVERY FROM BOUNCED LANDING				150	1	151	150	1	151
INCAPACITATION	7	1	8	2		2	9	1	10
PHYSICAL IMPAIRMENT	24	24	48	6	4	10	30	28	58
SPATIAL DISORIENTATION	83	1	84	7		7	90	1	91
PSYCHOLOGICAL CONDITION	2	2	4	2	2	4	4	4	8
MISUSED OR FAILED TO USE FLAPS	2	3	5	23	18	41	25	21	46
FAILED TO MAINTAIN DIRECTIONAL CONTROL	1		1	256		256	257		257
SELECTED WRONG RUNWAY RELATIVE TO EXISTING WIND	1		1	52	16	68	53	16	69
FAILED TO ABORT TAKEOFF	10		10	50	5	55	60	5	65
FAILED TO INITIATE GO-AROUND	1		1	110	14	124	111	14	125
DIRECT ENTRIES	3	1	4	3		3	6	1	7
SUBTOTAL	966	130	1096	3827	304	4131	4793	434	5227

CAUSE/FACTOR TABLE

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
COPilot									
INADVERTENTLY RETRACTED GEAR	1		1						1
IMPROPER LEVEL OFF	1		1						1
IMPROPER COMPENSATION FOR WIND CONDITIONS	1		1						1
LACK OF FAMILIARITY WITH AIRCRAFT				1		1			1
EXERCISED POOR JUDGEMENT			1	1		1		1	1
SPONTANEOUS-IMPROPER ACTION				1		1			1
MISJUDGED DISTANCE AND ALTITUDE				1		1			1
MISJUDGED ALTITUDE				1		1			1
IMPROPER RECOVERY FROM BOUNCED LANDING				1		1			1
PHYSICAL IMPAIRMENT	1		1						1
FAILED TO MAINTAIN DIRECTIONAL CONTROL				2		2			2
SUBTOTAL	1	1	2	9	1	10	10	2	12
DUAL STUDENT									
DELAYED ACTION IN ABORTING TAKEOFF				2		2			2
DELAYED IN INITIATING GO-AROUND				1		1			1
DIVERTED ATTENTION FROM OPERATION OF AIRCRAFT				1		1			1
FAILED TO EXTEND LANDING GEAR				2		2			2
FAILED TO SEE OTHER AIRCRAFT	1		1	1		1		2	2
FAILED TO OBTAIN/MAINTAIN FLYING SPEED	2		2	12		12	14		14
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC	1		1	2		2	3		3
IMPROPER OPERATION OF POWERPLANT + POWERPLANT CONTROLS				2		2			2
IMPROPER OPERATION OF BRAKES AND/OR FLIGHT CONTROLS				7		7			7
IMPROPER OPERATION OF FLIGHT CONTROLS				6		6			6
PREMATURE LIFT-OFF				2		2			2
IMPROPER LEVEL OFF				12		12			12
IMPROPER IFR OPERATION	1		1	1		1		1	1
IMPROPER COMPENSATION FOR WIND CONDITIONS				1		1			1
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING				2		2			2
MISMANAGEMENT OF FUEL				1		1			1
FAILURE TO RELINQUISH CONTROL	1		1	1		1		2	2
SPONTANEOUS-IMPROPER ACTION				1		1			1
MISJUDGED DISTANCE, SPEED, AND ALTITUDE				2		3	2	1	3
MISJUDGED DISTANCE AND SPEED				3		3			3
MISJUDGED DISTANCE AND ALTITUDE				11		11			11
MISJUDGED SPEED AND CLEARANCE				1		1			1
MISUNDERSTANDING OF ORDERS OR INSTRUCTIONS				3		3			3
IMPROPER RECOVERY FROM BOUNCED LANDING				1		1			1
PHYSICAL IMPAIRMENT	1		1						1
SPATIAL DISORIENTATION	1		1						1
MISUSED OR FAILED TO USE FLAPS				2		2			2
FAILED TO MAINTAIN DIRECTIONAL CONTROL	2		2	9		9	11		11
FAILED TO INITIATE GO-AROUND				4		4	4		4
SUBTOTAL	9	1	10	92	2	94	101	3	104
CHECK PILOT									
INADEQUATE SUPERVISION OF FLIGHT	1	1	2			2	3	1	4
INCAPACITATION	1		1				1		1
SUBTOTAL	2	1	3	2		2	4	1	5
** PERSONNEL **									
FLIGHT INSTRUCTOR				1		1			1
INADEQUATE SUPERVISION OF FLIGHT	1		1	4		8	12	5	8
INADEQUATE TRAINING OF STUDENT	1		1	3		3	4		4
MAINTENANCE, SERVICING, INSPECTION									
IMPROPER MAINTENANCE(MAINTENANCE PERSONNEL)	3		3	29	3	32	32	3	35
IMPROPER MAINTENANCE(OWNER PERSONNEL)				16		16			16
IMPROPERLY SERVICED AIRCRAFT(GROUND CREW)	1		1	4		4	5		5
IMPROPERLY SERVICED AIRCRAFT(OWNER-PILOT)				5		5			5
INADEQUATE INSPECTION OF AIRCRAFT(MAINTENANCE PERSONNEL)				4		6	4	2	6
INADEQUATE INSPECTION OF ACFT(OWNER-PILOT PERSONNEL)	1		1	4		4	5	5	5
INADEQUATE MAINTENANCE AND INSPECTION	14	6	20	83	8	91	97	14	111
OTHER				3	1	4	3	1	4
OPERATIONAL SUPERVISORY PERSONNEL									
INADEQUATE FLIGHT TRAINING-PROCEDURES	3	3						3	3
INADEQUATE SUPERVISION OF FLIGHT CREW	2	2		2	1	3	2	3	5
INADEQUATE SUPERVISION/TRAINING OF RAMP CREWS	1	1						1	1
FAILURE TO PROVIDE ADEQ. DIRECTIVES, MANUALS, EQUIPMENT	2	2		1	2	3	1	4	5
DEFICIENCY, COMPANY MAINTAINED EQMT, SERV, REGULATIONS	4	4		1	2	3	1	6	7
WEATHER PERSONNEL									

CAUSE/FACTOR TABLE

PERSONNEL (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
INCORRECT WEATHER FORECAST		1	1		1	1		1	2
TRAFFIC CONTROL PERSONNEL									
FAILURE TO ADVISE OF UNSAFE AIRPORT CONDITION				1		1	1		1
FAILURE TO ADVISE OF OTHER TRAFFIC	1		1	4	4	1	4	5	
ISSUED IMPROPER OR CONFLICTING INSTRUCTIONS	1		1	3		3	4		4
INADEQUATE SPACING OF AIRCRAFT	1		1	2		2	3		3
FAILURE TO PROPERLY IDENTIFY AIRCRAFT ON RADAR				1	1	1	1		1
OTHER	1	3	4				1	3	4
AIRPORT SUPERVISORY PERSONNEL									
IMPROPER MAINTENANCE-AIRPORT FACILITIES				1		1	1		1
FAILURE TO NOTIFY OF UNSAFE COND/AND OR FAILURE TO MARK				1	2	3	1	2	3
IMPROPER/INADEQUATE SNOW REMOVAL				1	3	4	1	3	4
IMPROPER OPERATION OF FACILITIES				1		1	1		1
IMPROPER INSPECTION OF FACILITIES				1		1	1		1
OTHER					1	1		1	1
AIRWAYS FACILITIES PERSONNEL									
PRODUCTION-DESIGN-PERSONNEL									
SUBSTANDARD QUALITY CONTROL				5		5	5		5
INCORRECT FACTORY INSTALLATION				2		2	2		2
POOR/INADEQUATE DESIGN	4	2	6	9	6	15	13	8	21
OTHER	1		1	2	1	3	3	1	4
MISCELLANEOUS-PERSONNEL									
PILOT OF OTHER AIRCRAFT	30		30	46	2	48	76	2	78
GROUNDSIGNALMAN				1	1		1		1
SPECTATOR				1		1	1		1
GROUND CREWMAN				1	2	2	3		3
PASSENGER		1	1	9	1	10	9	2	11
DRIVER OF VEHICLE				9	2	11	9	2	11
OTHER	2	1	3	2		2	4	1	5
DIRECT ENTRIES				2	2			2	2
THIRD PILOT									
FLIGHT ENGINEER									
FLIGHT PERSONNEL									
DISPATCHING (AIR CARRIER ONLY)									
SUBTOTAL	63	29	92	257	52	309	320	81	401
** AIRFRAME **									
WINGS									
SPARS	2	4	6	1	1	2	3	5	8
RIBS, STRINGERS, CAP STRIPS				1		1	1		1
WING ATTACHMENT FITTINGS, BOLTS	2		2	2		2	2		2
BRACING WIRES, STRUTS				2		2	2		2
WINGTIPS					1	1	1	1	1
OTHER			1	1				1	1
FUSELAGE									
SKIN AND ATTACHMENTS				1		1	1		1
DOORS, DOOR FRAMES				2		2	2		2
WINDSHIELDS, WINDOWS, CANOPIES	1		1	1	1	2	2	1	3
SEATS	1		1	3	1	4	4	1	5
LANDING GEAR									
MAIN GEAR-SHOCK ABSORBING ASSY, STRUTS, ATTACHMENTS, ETC				21		21	21		21
NORMAL RETRACTION/EXTENSION ASSEMBLY				26	2	28	26	2	28
EMERGENCY/EXTENSION ASSEMBLY				3	1	4	3	1	4
TAILWHEEL ASSEMBLIES				7		7	7		7
NOSEWHEEL ASSEMBLIES				6		6	6		6
WHEELS, TIRES, AXLES				15	1	16	15	1	16
SKI ASSEMBLIES				1		1	1		1
BRAKING SYSTEM (NORMAL)				35	6	41	35	6	41
BRAKING SYSTEM (EMERGENCY)				2		2	2		2
LANDING GEAR WARNING AND INDICATING COMPONENTS				1	2	3	1	2	3
GEAR LOCKING MECHANISM				15		15	15		15
SWITCHES, LEVERS, CRANKING MECHANISM, ETC				2	1	3	2	1	3
NOSEWHEEL STEERING				3		3	3		3
OTHER				2		2	2		2
FLIGHT CONTROL SURFACES									
ELEVATOR, ASSEMBLY ATTACHMENTS	1		1	3	1	4	4	1	5
RUDDER, SURFACES ATTACHMENTS				2	1	3	2	1	3
AILERON, SURFACES ATTACHMENTS		1	1	1			1	1	2
HORIZONTAL STABILIZER, ATTACHMENTS	1	1	2				1	1	2
VERTICAL STABILIZER, ATTACHMENTS	1	1	2		1	1	1	2	3
OTHER	1		1				1		1
SUBTOTAL	10	8	18	156	20	176	166	28	194
** POWERPLANT **									

CAUSE/FACTOR TABLE

POWERPLANT (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
ENGINE STRUCTURE									
CRANKCASE	1	1	4	15	4	4	16	4	4
CRANKSHAFT	4	1	5	24	24	28	1	1	29
MASTER AND CONNECTING RODS	1	1	2	16	16	17	1	1	18
CYLINDER ASSEMBLY	1	1	2	8	8	9	1	1	10
PISTON, PISTON RINGS	1	1	2	33	33	34	1	1	35
VALVE ASSEMBLIES	1	1	2	8	1	9	1	1	9
BLOWER, IMPELLER ASSEMBLY				1	1	1	1	1	1
MOUNT AND VIBRATION ISOLATORS				1	1	1	1	1	1
OTHER									
IGNITION SYSTEM									
MAGNETOES	3		3	25	3	28	3	3	31
SPARK PLUG		1	1	10	2	12	10	3	13
COILS				1		1	1		1
LOW TENSION WIRING				2		2	2		2
IGNITION HARNESS, SHIELDING				1		1	1		1
LEADS			1	1			1		1
FUEL SYSTEM									
TANKS				2		2			2
LINES AND FITTINGS	1		1	13		14			14
SELECTOR VALVES		1	1	10	2	12	10	3	13
FILTERS, STRAINERS, SCREENS				4		4			4
CARRURETOR				1	1	22	21	2	23
PUMPS	2	1	3	10		10	12	1	13
FUEL INJECTION SYSTEM	2		2	12	3	15	14	3	17
VENTS, DRAINS, TANK CAPS		2	2	10	1	11	10	3	13
RAM AIR ASSEMBLY				6	1	7	6	1	7
OTHER	1	1	2	4	2	6	5	3	8
LUBRICATING SYSTEM									
LINES, HOSES, FITTINGS	1		1	8		9			9
FILTERS, SCREENS				2		2			2
PUMP-PRESSURE	1		1	2		2	3		3
OIL COOLERS				1		1	1		1
MAGNETIC PLUGS				1		1	1		1
SEALS AND GASKETS				2		2	2		2
OTHER				6		6	6		6
COOLING SYSTEM									
BAFFLES				1		1	1		1
PROPELLER AND ACCESSORIES									
BLADES	2		2	19		19	21		21
HUBS				3		3	3		3
HYDRAULIC PITCH CONTROL MECHANISM				1		1	1		1
SPINNERS, DOMES				1		1	1		1
GOVERNORS				4	1	5	4	1	5
BLADE RETENTION MECHANISM	1		1	4		4	1		1
OTHER	1		1	4		4	5		5
EXHAUST SYSTEM									
MANIFOLDS				1		1		1	1
MUFFLERS	1	1	2	2		2	3	1	4
STACKS				2		2	2		2
EXTERNAL SUPERCHARGER	1		1	1		1	2		2
OTHER				2		2	2		2
ENGINE ACCESSORIES									
VACUUM PUMPS		2	2				2		2
HYDRAULIC PUMPS				1		1	1		1
STARTERS				1		1	1		1
ENGINE CONTROLS									
THROTTLE-POWER LEVER ASSEMBLIES				20	2	22	20	2	22
MIXTURE CONTROL ASSEMBLIES				1		1	1		1
INDUCTION AIR, PREHEAT CONTROLS				3		3	3		3
PROPELLER GOVERNOR CONTROLS				1		1	1		1
POWERPLANT-INSTRUMENTS									
FUEL PRESSURE GAUGE		1	1				1		1
FUEL QUANTITY GAUGE				16		16	16		16
OIL PRESSURE GAUGE				1		1	1		1
OTHER				2		2	2		2
MISCELLANEOUS									
POWERPLANT FAILURE FOR UNDETERMINED REASONS	25		25	177		177	202		202
FOREIGN OBJECT DAMAGE				1		1	1		1
OTHER				2		2	2		2
REDUCTION GEAR ASSEMBLY									
COMPRESSOR ASSEMBLY									
BEARING, ROTOR SHAFT				1		1	1		1
COMBUSTION ASSEMBLY									
TURBINE ASSEMBLY									
BLADE, TURBINE WHEEL				1		1	1		1

CAUSE/FACTOR TABLE

POWERPLANT (CONTINUED)(CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
OTHER						1		1	1
ACCESSORY DRIVE ASSEMBLY									
BEARING, ACCESSORY DRIVE SHAFT	1		1					1	1
LUBRICATING SYSTEM									
FUEL SYSTEM									
SAFETY SYSTEM									
IGNITION SYSTEM									
TORQUEMETER									
AIR BLEED									
EXHAUST SYSTEM									
THRUST REVERSER									
PROPELLER SYSTEM									
PITCH CHANGING MECHANISM									
GOVERNOR	1		1	1		1	1	1	2
CONSTANT SPEED DRIVE									
POWER LEVER									
PROPELLER LEVER									
REVERSE THRUST LEVER									
ENGINE INDICATING EQUIPMENT									
ENGINE INSTALLATION									
SUBTOTAL	51	17	68	514	40	554	565	57	622
** SYSTEMS **									
ELECTRICAL SYSTEM									
BATTERIES									
GENERATORS/ALTERNATORS	1		1	2	3	5	2	3	5
REGULATOR				1	2	3	1	3	4
RELAYS AND WIRING				1	1	1	1	1	1
OTHER	1		1	2	1	3	2	1	3
HYDRAULIC SYSTEM									
PRESSURE REGULATORS				1		1	1		1
HYDRAULIC PUMPS				1		1	1		1
RESERVOIR, LINES, FITTINGS				8		8	8		8
SEALS				1	1	2	1	1	2
OTHER				2		2	2		2
FLIGHT CONTROL SYSTEMS									
AILERON AND AILERON TAB CONTROL SYSTEM				3		3	3		3
ELEVATOR AND ELEVATOR TAB CONTROL SYSTEM	3	1	4	1		1	4	1	5
ELIMATOR TRIM INDICATOR SYSTEM	1		1	1		1	1		1
RUDDER AND RUDDER TAB CONTROL SYSTEM				3		3	3		3
WING FLAP CONTROL SYSTEM (ELECTRICAL)	1		1				1		1
ANTI-ICING, DE-ICING SYSTEMS									
CARBURETOR DE-ICING SYSTEM							1		1
AIR CONDITION, HEATING AND PRESSURIZATION							1		1
OTHER							1		1
AUTO PILOT							1		1
AMPLIFIER AND COMPUTER							1		1
FIRE WARNING SYSTEM							1		1
FIRE EXTINGUISHER SYSTEM							1		1
OXYGEN SYSTEM							1		1
OTHER SYSTEMS							1		1
PIROT SYSTEM							1		1
VACUUM SYSTEM	3		3				3		3
OTHER	1		1				1		1
SUBTOTAL	5	7	12	27	10	37	32	17	49
** INSTRUMENTS/EQUIPMENT AND ACCESSORIES **									
FLIGHT AND NAVIGATION INSTRUMENTS									
ALTIMETERS	1		1				1		1
AIRSPEED							1		1
BANK AND TURN	1		1				1		1
ATTITUDE GYRO	1	1	2				1	1	2
RATE OF CLIMB	1		1				1		1
DIRECTIONAL GYRO	1		1				1		1
OTHER	2		2				2		2
COMMUNICATIONS AND NAVIGATION EQUIPMENT									
TRANSMITTERS AND/OR RECEIVERS	1		1				2		2
VOR RECEIVERS							1		1
OTHER							1		1
MISCELLANEOUS EQUIPMENT									
SPRAY, DUSTING EQUIPMENT							1		1
SIGN TOWING EQUIPMENT							1		1
SUBTOTAL	1	8	9	1	9	10	2	17	19

CAUSE/FACTOR TABLE

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
** AIRPORTS/AIRWAYS/FACILITIES **									
AIRPORT FACILITIES									
RUNWAY LIGHTING	1	1	1	13	14	1	14	15	15
TAXIWAY LIGHTING AND MARKING				1	1		1	1	1
OTHER	1	1	5	5	5		6	6	6
AIRPORT CONDITIONS									
WET RUNWAY	1	1	1	39	40	1	40	41	41
ICED/SLUSH ON RUNWAY	4	36	40	4	4	4	36	40	40
SNOW ON RUNWAY	6	52	58	6	52	58			
SNOW WINDROWS	7	54	61	7	54	61			
UNMARKED OBSTRUCTIONS	4	9	13	4	9	13	9	13	13
SOFT SHOULDERS (RUNWAY)	2	15	17	2	15	17			
HIGH VEGETATION	2	13	15	2	15	17	2	15	17
HIDDEN HAZARD	3	2	5	3	2	5	2	5	5
Poorly MAINTAINED RUNWAY SURFACE	2	11	13	2	11	13			
SOFT RUNWAY	2	18	19	1	1	1	20	21	21
SNOW ON RAMP/TAXIWAY							1	1	1
OTHER	1	1	4	44	48	4	45	49	49
AIRWAYS FACILITIES									
OTHER	1	1					1	1	1
SUBTOTAL	9	9	37	313	350	37	322	359	359
** WEATHER **									
LOW CEILING	177	177	1	56	57	1	233	234	234
RAIN	69	69	26	26	26		95	95	95
FOG	108	108	57	57	57		165	165	165
SNOW	38	38	1	18	19	1	56	57	57
HAIL				1	1		1	1	1
ICING CONDITIONS-INCLUDES SLEET, FREEZING RAIN, ETC	2	31	33	1	14	15	3	45	48
CONDITIONS CONDUCIVE TO CARB/INDUCTION SYSTEM ICING	6	6	45	45	45		51	51	51
UNFAVORABLE WIND CONDITIONS	2	9	11	21	240	261	23	249	272
WIND SHEAR	2	2	6	6	6		8	8	8
SUDDEN WINDSHIFT	1	1	5	12	17	5	13	18	18
TURBULENCE IN FLIGHT, CLEAR AIR	1	2	3	1	3	4	2	5	7
TURBULENCE ASSOCIATED WITH CLOUDS AND/OR THUNDERSTORMS	4	13	17	4	4	4	4	17	21
DOWNDRAFTS, UPDRAFTS	2	12	14	6	25	31	8	37	45
LOCAL WHIRLWIND			4	1	5	4	1	5	5
LIGHTNING STRIKE			1	1	1	1			1
SQUALL LINE	2	2	1	1	1		3	3	3
ADVERSE WINDS ALOFT	1	1	2	2	2		3	3	3
HIGH TEMPERATURE	3	3	1	19	20	1	22	23	23
OBSTRUCTIONS TO VISION	8	8	1	8	9	1	16	17	17
HIGH DENSITY ALTITUDE	21	21	2	50	52	2	71	73	73
THUNDERSTORM ACTIVITY	3	25	28	2	18	20	5	43	48
OTHER	3	3	1	1	1		4	4	4
SUBTOTAL	14	531	545	47	607	654	61	1138	1199
** TERRAIN **									
WET, SOFT GROUND	1	1	26	72	98	26	73	99	99
SNOW-COVERED	1	1	7	27	34	7	28	35	35
ICY			3	3	3		3	3	3
HIGH VEGETATION	1	1	20	46	66	20	47	67	67
HIDDEN OBSTRUCTIONS			5	10	15	5	10	15	15
ROUGH/UNEVEN	1	1	65	109	174	65	110	175	175
ROUGH WATER			1	1	1		1	1	1
GLASSY WATER	1	1	1	1	1		2	2	2
HIGH OBSTRUCTIONS	6	68	74	62	196	258	68	264	332
LOOSE GRAVEL			5	5	5		5	5	5
SANDY			2	9	11	2	9	11	11
OTHER	1	2	3	10	19	29	11	21	32
SUBTOTAL	7	75	82	197	498	695	204	573	777
** MISCELLANEOUS **									
SUICIDE	2		2				2		2
FOREIGN OBJECT DAMAGE			2	1	3	2	1	3	3
SMOKE IN COCKPIT			1	2	3	1	2	3	3
FOREIGN MATERIAL AFFECTING NORMAL OPERATIONS	3	3	14	14	14	17			17
UNDETERMINED	58	58	32	32	90	90			90
BIRD COLLISION			3	3	3	3			3
VORTEX TURBULENCE	5	5	4	1	5	9	1	10	10

CAUSE/FACTOR TABLE

MISCELLANEOUS (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
PROP/JET/ROTOR BLAST				4	1	5	4	1	5
ANIMAL(S) ON RUNWAY/TAXIWAY/RAMP				4	1	5	4	1	5
EVASIVE MANEUVER TO AVOID COLLISION	2	1	3	25	10	35	27	11	38
UNQUALIFIED PERSON OPERATED AIRCRAFT	2	1	3	4	3	7	6	4	10
DIRECT ENTRIES	4		4	0		0	13		13
SUBTOTAL	76	2	78	102	19	121	178	21	199
GRAND TOTAL	1205	819	2024	5268	1875	7143	6473	2694	9167
** MISCELLANEOUS ACTS, CONDITIONS **									
FIRE OF UNDETERMINED ORIGIN	2	2		2	2		4	4	
UNAPPROVED MODIFICATION	1	1		1	1		2	2	
IMPROPER/INADEQUATE VENTING				4		4	4		4
POOR WELD				5	2	7	5	2	7
PREVIOUS DAMAGE	2		2	10	3	13	12	3	15
BRAKES FROZEN				1	2	3	1	2	3
LEAK/LEAKAGE	1	2	3	17		17	18	2	20
LOW FLUID LEVEL				1		1	1		1
CIRCUIT BREAKER POPPED	1	1		3	3		4	4	
ARCING	1	1		1	1		2	2	
LOW COMPRESSION	1	1		1	1	2	1	2	3
RUNWAY CLOSED	1	1		4	5	1	5	6	
DOWNWIND	2	2		83	83		85	85	
CARBON DEPOSITS	1	1		7	2	9	7	3	10
OVER TORQUED				2	2	2	2		2
UNDER TORQUED				3	3	3	3		3
LOOSE, PART/FITTING	2		2	12	3	15	14	3	17
FEMALE PILOT				1		1	1		1
BENT				2		2	2		2
BINDING				5	2	7	5	2	7
BRITTLE				1		1	1		1
BURST				2		2	2		2
BURNED				2		2	2		2
CHAFFED				5		5	5		5
COLLAPSED				3		3	3		3
DETERIORATED	1		1	2		2	3		3
DISCONNECTED	2	1	3	27	1	28	29	2	31
ELONGATED	1		1	1		1	1		1
EXCESSIVE-WEAR/PLAY	2		2	9	2	11	11	2	13
ERRATIC	1	5	6	9	9	9	1	14	15
FLUCTUATING				1	1	1	1		1
FRAYED	1		1	2		2	2		3
FRICITION, EXCESSIVE				1		1	1		1
GROUNDED	1	1	2	2	2	4	3	3	6
IMPROPERLY INSTALLED	2	2	4	15		15	17	2	19
JAMMED	1	1	2	9		9	10	1	11
OBSTRUCTED	1		1	31	3	34	32	3	35
OPEN				1		1	1		1
OVERHEATED	1		1	11	3	14	12	3	15
EXCESSIVE PRESSURE				2	1	3	2	1	3
PRESSURE TOO LOW	1		1	7		7	8		8
PRESSURE, NONE				8		8	8		8
SCORED				1		1	1		1
STICKING	1		1	2		2	3		3
STRIPPED				3		3	3		3
STUCK				9	9	18	9	9	18
EXCESSIVE TEMPERATURE				4		4	4		4
VIBRATION, EXCESSIVE				4	1	5	4	1	5
ICE-INDUCTION	1		1	2		2	3		3
LOAD NOT JETTISONED		1	1	1	13	14	1	14	15
FAILED TO USE LANDING LIGHT(S)	2		2	1		1	3		3
INTENTIONAL GROUND-WATER LOOP-SWERVE				14	9	23	14	9	23
INTENTIONAL WHEELS UP				21	11	32	21	11	32
RAN OFF END OF RUNWAY	1		1			123	123		124
ALTIMETER SETTING-INCORRECT	2	2	2	2	1	3	2	3	5
ANTI-ICING/DEICING EQUIP-IMPROPER OPER. OF/FAILED TO USE	4	2	6	44		44	48	2	50
CHECKLIST=FAILED TO USE	1	1	1		12	12		13	13
CREW COORDINATION-Poor	2	2	2		1	1	3	3	3
DISREGARD OF GOOD OPERATING PRACTICE	5	5	2	9		11	2	14	16
IMPROPER EMERGENCY PROCEDURES	11	2	13	13	7	20	24	9	33
FEATHERED WRONG ENGINE	1		1	1		1	2		2
GUST LOCKS ENGAGED	1		1	2		2	3		3
INSTRUMENTS-MISREAD OR FAILED TO READ	1	1	2	2		2	3	1	4
NOT ALLIGNED WITH RUNWAY/INTENDED LANDING AREA	1		1	14	15	29	15	15	30

CAUSE/FACTOR TABLE

MISCELLANEOUS ACTS, CONDITIONS (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
UNWARRANTED LOW FLYING	21	47	68	23	29	52	44	76	120
FAILED TO EXTEND THE LANDING FLAPS		2	4	2	1	3	2	1	3
FAILED TO USE ALL AVAILABLE RUNWAY	2	2	4	6	3	9	8	5	13
LANDED AT WRONG AIRPORT				3	3	3	3	3	3
INATTENTIVE TO FUEL SUPPLY	7	4	11	48	5	53	55	5	60
FLEW INTO BLIND CANYON	7	1	1	5	5	10	12	9	21
PREMATURE FLAP RETRACTION		1	1	2	1	3	2	2	4
PORLY PLANNED APPROACH	1	4	5	4	22	26	5	26	31
MISCALCULATED FUEL CONSUMPTION	2		2	38	5	43	40	5	45
JETTISONED LOAD		1	1	20	20		21	21	
STOLEN OR UNAUTHORIZED USE OF AIRCRAFT		11	11	16	16	1	27	27	
LANDED ON FOAMED RUNWAY				1	1		1	1	
CORRECTING LENSES-NOT USED		2	2				2	2	
IMPROPERLY SECURED	1		1	5	1	6	6	1	7
COMMUNICATIONS FAILURE		2	2	2	5	7	2	7	9
ELECTRICAL FAILURE		2	2	4	4	4	6	6	
ENGINE LOADED UP	2		2	30		30	35		35
FATIGUE FRACTURE	5		5	5	5	5	6	6	
FUEL GRADE-IMPROPER	1		1	6	1	7	6	1	7
HYDRAULIC FAILURE				1	1	1	1	1	1
RPM-UNCONTROLLABLE-OVERSPEED				1	5	6	5	5	6
THRUST REVERSAL-ASYMETRICAL				7	1	8	7	2	9
WINDSHIELD, DIRTY, FOGGY, ETC-RESTRICTED VISION		1	1	1	5	6	1	5	6
WRONG PART		3	3	22	5	27	25	5	30
IMPROPER ALIGNMENT/ADJUSTMENT	3	3	3	1	8	9	1	11	12
FAILURE OF TWO OR MORE ENGINES		40	40	16	16	16	56	56	
SEPARATION IN FLIGHT							4	4	7
FIRE IN CABIN/ COCKPIT/ BAGGAGE COMPARTMENT	1	1	2	2	3	5	4	10	14
FIRE IN ENGINE	1	3	4	3	7	10	1	1	3
FIRE IN BRAKES/ WHEEL ASSEMBLY/ WHEEL WELL		2	2	1		1	1	1	1
ASYMETRICAL FLAPS	1		1				1	1	1
LATERAL IMBALANCE				1	5	5	5	5	5
CORRODED/CORROSION		1	1	2	3	2	4	3	7
INCORRECT TRIM SETTING		2	2	4	4	4	6	6	6
CONGESTED TRAFFIC-PATTERN	7	7	14	4	4	4	7	11	18
PILOT FATIGUE	16	7	16	209		209	225		225
FUEL EXHAUSTION	2		2	12	2	14	14	2	16
FUEL CONTAMINATION-EXCLUSIVE OF WATER IN FUEL							1	1	
PILOT SUFFERED HEART ATTACK	1		1	1		1	1	1	1
HYPERVENTILATION		24	21	45	2	2	4	26	23
ALCOHOLIC IMPAIRMENT OF EFFICIENCY AND JUDGMENT				2	2	4	26	23	49
HYPOTENIA	1		1				1	1	
CARBON MONOXIDE POISONING	2	1	3	5		5	8	8	
ICE-IN FUEL	3		3	1	1	2	1	1	2
ICE-ENGINE		3	3	43		43	46		46
ICE-CARBURETOR	1		1				1	1	1
ICE-PROPELLER	10	7	17	11	11	22	21	18	39
AIRFRAME ICE	2	1	3	2	5	7	4	6	10
ICE-WINDSHIELD	7	7	14	13	15	28	20	22	42
IMPROPERLY LOADED AIRCRAFT-WEIGHT-AND/OR CG		2	1	3	6	2	8	3	11
INTERFERENCE WITH FLIGHT CONTROLS		4	4	2	4	6	2	8	10
WHITEOUT		6	6	13		13	19	19	
SUNGLARE				8	1	9	8	1	9
LACK OF LUBRICATION-SPECIFIC PART, NOT SYSTEM	2		2	17		17	19		19
OIL EXHAUSTION-ENGINE LUBRICATION SYSTEM				1		1	1		1
OIL CONTAMINATION				2	1	3	2	1	3
SIMULATED CONDITIONS		1	1	2	1	3	2	1	3
FUEL SIPHONING		7	1	8	51	1	52	58	60
WATER IN FUEL				51		52			
AIRCRAFT CAME TO REST IN WATER		46	46	76	76		122	122	
FROZEN, MOISTURE				6	1	7	6	1	7
MISSING				12		12	12		12
TOUCH AND GO LANDING		7	7	97	97		104	104	
HYDROPLANING ON WET RUNWAY				3	3	3	3	3	3
OVERLOAD FAILURE	1	14	15	8	367	375	9	381	390
MATERIAL FAILURE	12	4	16	194	13	207	206	17	223
FUEL STARVATION	23		23	129		129	152		152
OIL STARVATION				8	3	11	8	3	11
IMPROPER CLEARANCE-TOLERANCE				2	2	2	2	2	
FUEL SELECTOR POSITIONED BETWEEN TANKS	6		6	4	1	5	10	1	11

CAUSE/FACTOR TABLE

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL

DIRECT ENTRY CAUSES

PILOT-FAILED TO MANTAIN POSITIVE RATE OF CLIMB
 PILOT-PLACED RAVNER IN 2FT HIGH GRASS
 PILOT-LOSS OF CTL FOR UNDETERMINED REASON
 MISC-PREMATURE CHUTE OPENING
 MISC-NOSE GR DOOR OPENED FOR UNDETERMINED REASON
 PILOT-TOOK OFF TO AVOID ARREST
 MISC-PREMATURE CHUTE OPENING
 MISC-FUEL STARVATION FOR UNDETERMINED REASON.
 MISC-PITCH MALFUNCTION FOR UNDETERMINED REASON.
 MISC-FUEL STARVATION FOR UNDETERMINED REASON.
 MISC-PAX DOOR OPENED FOR UNDETERMINED REASON
 MISC-FUEL STARVATION FOR UNDETERMINED REASON.
 PERSONNEL-INEFFECTIVE FAA SURVEILLANCE
 PILOT-FAILED TO MAINTAIN POSITIVE RATE OF CLIMB.
 MISC-PREMATURE CHUTE OPENING
 PILOT-FAILED TO MAINTAIN A POSITIVE RATE OF CLIMB
 MISC-FIRE OF UNDET SOURCE IN FLOOR AREA OF COCKPIT
 PERSONNEL-MIN VIS & CEILING INFO MISSING ON BRIEF
 PILOT-ATHEROSCLEROTIC CARDIOVASCULAR DISEASE
 MISC- UNDETERMINED LOSS OF AIRCRAFT CONTROL.
 ACQIRI OTH ACFT. DARK NH,OTH ACFT NOT ILLUM.
 ARANC/COLLISION LIGHTS W/F LUMINATED.

DIRECT ENTRY CAUSES ARE CARRIED UNDER THEIR APPROPRIATE CAUSAL CATEGORIES AND ARE INCLUDED IN THE TOTALS

ANALYTIC TABLE

KIND OF FLYING BY INJURY INDEX
SMALL FIXED WING

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
INSTRUCTIONAL							
DUAL	17	13	24	137	191	188	4.66
Solo	18	9	36	142	205	204	5.00
CHECK	6	1	3	1	11	11	.27
TRAINING	13	5	19	115	152	152	3.71
NONCOMMERCIAL							
PLEASURE	432	235	324	1142	2133	2120	52.05
PRACTICE	18	13	19	93	143	143	3.49
BUSINESS	58	26	34	150	268	268	6.54
CORPORATE/EXECUTIVE	19	5	4	37	65	65	1.59
AERIAL SURVEY	3	1	3		7	6	.17
COMPANY FLIGHT			1	1	2	2	.05
OTHER	6	2	4	3	15	15	.37
COMMERCIAL							
AERIAL APPLICATION	20	28	30	108	186	186	4.54
CROP CONTROL RELATED FLIGHT	4	8	17	158	187	186	4.56
FIRE CONTROL							
FIRE CONTROL RELATED FLIGHT							
AERIAL MAPPING/PHOTOGRAPHY		1	3		4	4	.10
AERIAL ADVERTISING	5	1	2		8	7	.20
POWER AND PIPELINE PATROL	3		1	1	5	5	.12
FISH SPOTTING	3		2		5	3	.12
AIR TAXI-PASSENGER OPERATIONS	32	15	17	70	134	133	3.27
AIR TAXI-CARGO OPERATIONS	22	7	12	47	88	88	2.15
CONSTRUCTION WORK							
SCHEDULED PASSENGER SERVICE							
SCHEDULED CARGO SERVICE							
INTRA-STATE CHARTER PASSG.	1				1	1	.02
INTRA-STATE CHARTER CARGO							
MILITARY CONTRACT-PASSENGER							
MILITARY CONTRACT-CARGO							
CHARTER CARGO-DOMESTIC							
CHARTER PASSG-DOMESTIC							
CHARTER-CARGO-INTERNATIONAL							
CHARTER-PASSG-INTERNATIONAL							
OTHER	3	2	3		8	8	.20
UNKNOWN/NOT REPORTED							

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	None	RECORDS	ACCIDENTS	PERCENT
MISCELLANEOUS							
EXPERIMENTATION	1	1	1		3	3	.07
TEST	10	7	6	20	43	43	1.05
DEMONSTRATION	4	1	3	8	16	16	.30
FERRY	12	8	9	64	93	93	2.27
SEARCH AND RESCUE	1	2	2	1	6	6	.15
AIR SHOW/AIR RACING	4	3		2	9	8	.22
PARACHUTE JUMP	1		3	8	12	12	.29
PARACHUTE JUMP-AIR SHOW							
TOWING GLIDERS	1	1	4	5	11	11	.27
SEEDING CLOUDS							
HUNTING	2			5	7	7	.17
POLICE PATROL	2	1			3	3	.07
HIGHWAY TRAFFIC ADVISORY			2		2	2	.05
ALL OTHER PUBLIC FLYING				2	2	2	.05
OTHER	4	2	4	11	21	20	.51
UNKNOWN/NOT REPORTED	14	4	7	27	52	52	1.27
RECORDS	734	405	589	2370	4098		
ACCIDENTS	714	401	584	2346	4045		
PERCENTS	17.9	9.9	14.4	57.8			

INJURIES, ACCIDENTS
SMALL FIXED WING

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	658	374	578	2488		4098
COPilot	45	16	9	53		123
DUAL STUDENT	17	13	23	161		214
CHECK PILOT	5	1	1	2		9
FLIGHT ENGINEER						
NAVIGATOR		2	2			4
CABIN ATTENDANT			2	1		3
EXTRA CREW	4		1	8		13
PASSENGERS	753	339	509	2246		3847
TOTAL	1482	745	1125	4959		8311
* OTHER AIRCRAFT	141	10	24	58		199
OTHER GROUND	18			9		61
GRAND TOTAL	1641	755	1149	5026		8571

INVOLVES 4045 TOTAL ACCIDENTS
INVOLVES 714 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

GENERAL AVIATION ACCIDENTS

LARGE FIXED-WING AIRCRAFT

ANALYTIC TABLE

FIRST TYPE OF ACCIDENT BY AIRCRAFT DAMAGE
LARGE FIXED WING

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
GROUND-WATER LOOP-SWERVE	1	6			7	7	14.58
DRAGGED WINGTIP POD OR FLOAT							
WHEELS-UP LANDING	1				1	1	2.08
WHEELS-DOWN LANDING IN WATER							
GEAR COLLAPSED		2			2	2	4.17
GEAR RETRACTED		2			2	2	4.17
HARD LANDING	1	1			2	2	4.17
NOSE OVER/DOWN							
ROLL OVER							
OVERSHOOT		1			1	1	2.08
UNDERSHOOT		5			5	5	10.42
<u>COLLISION BETWEEN AIRCRAFT</u>							
BOTH IN FLIGHT	1				1	1	2.08
ONE AIRBORNE		1			1	1	2.08
BOTH ON GROUND							
<u>COLLISION WITH GROUND/WATER</u>							
CONTROLLED	3	1			4	4	8.33
UNCONTROLLED		4			4	4	8.33
<u>COLLIDED WITH</u>							
WIRES/POLES							
TREES		1			1	1	2.08
RESIDENCE/S							
BUILDING/S		1			1	1	2.08
FENCE. FENCEPOSTS							
ELECTRONIC TOWERS							
RUNWAY OR APPROACH LIGHTS							
AIRPORT HAZARD							
ANIMALS							
CROP							
FLAGMAN LOADER							
DITCHES							
SNOWBANK							
PARKED AIRCRAFT (UNATTENDED)							
AUTOMOBILE							
DIRT BANK							
OTHER							
BIRD STRIKE							

ANALYTIC TABLE

DESTROYED
SUBSTANTIAL
MINOR
NONE

			RECORDS	ACCIDENTS	PERCENT
STALL		1		1	2.08
SPIN					
SPIRAL					
MUSH					
<u>FIRE OR EXPLOSION</u>					
IN FLIGHT					
ON GROUND		1		1	2.08
<u>AIRFRAME FAILURE</u>					
IN FLIGHT		1		1	2.08
ON GROUND					
ENGINE TEARAWAY					
ENGINE FAILURE OR MALFUNCTION	5	4		9	18.75
PROPELLER/ROTOR FAILURE					
PROPELLER					
TAIL ROTOR					
MAIN ROTOR					
PROP ROTOR ACNTN TO PERSON					
JET INTAKE/EXH ACNTN TO PERS					
PROPELLER/JET/ROTOR BLAST					
TURBULENCE					
HAIL DAMAGE TO AIRCRAFT					
LIGHTNING STRIKE					
EVASIVE MANEUVER					
UNCONTROLLED ALT DEVIATION					
DITCHING	1			1	2.08
MISSING ACFT NOT RECOVERED	1			1	2.08
MISCELLANEOUS/OTHER	1			1	2.08
UNDETERMINED	1			1	2.08
RECORDS	23	25		48	
ACCIDENTS	23	25		48	
PERCENTS	47.9	52.1	.0	.0	

ANALYTIC TABLE

FIRST PHASE OF OPERATION BY INJURY INDEX
LARGE FIXED WING

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STATIC							
STARTING ENGINE/S			2		2	2	4.17
IDLING ENGINE/S			1		1	1	2.08
ENGINE RUNUP							
IDLING ROTORS							
PARKED-ENGINES NOT OPERATING							
OTHER							
TAXI							
TO TAKEOFF							
FROM LANDING			1		1	1	2.08
OTHER							
GROUND TAXI TO TAKEOFF							
GROUND TAXI FROM LANDING							
GROUND TAXI, OTHER							
AERIAL TAXI TO TAKEOFF							
AERIAL TAXI TO/FROM LANDING							
AERIAL TAXI, OTHER							
TAKEOFF							
RUN	3	1			4	4	8.33
INITIAL CLIMA	4	1			5	5	10.42
VERTICAL							
RUNNING (ROTORCRAFT/VTOL-STOL)							
ABORTED (FIXED-WING)		1			1	1	2.08
ABORTED (ROTORCRAFT/VTOL)							
ABORTED (ROTORCRAFT/STOL)							
OTHER							
INFILIGHT							
CLIMB TO CRUISE	1				1	1	2.08
NORMAL CRUISE	2		5		7	7	14.58
DESCENDING							
HOLDING (IFR)							
HOVERING							
POWER-ON DESCENT (ROTORCRAFT)							
AUTOROTATIVE DESCENT							
ACROBATICS							
BUZZING							
UNCONTROLLED DESCENT	1				1	1	2.08

ANALYTIC TABLE

FATAL
SERIOUS
MINOR
NONE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
EMERGENCY DESCENT							
LOW PASS	2				2	2	4.17
OTHER							
EN ROUTE TO TREAT CROP							
EN ROUTE TO RELOADING AREA							
SURVEY FIELD/AREA							
STARTING SWATH RUN							
SWATH RUN							
FLAREOUT FOR SWATH RUN							
PULLUP FROM SWATH RUN							
PROCEDURE TURNAROUND							
CLEANUP SWATH							
MANEUVER TO AVOID OBSTRUCTION							
RETURN TO STRIP							
LANDING							
TRAFFIC PATTERN-CIRCLING	2		1		3	3	6.25
FINAL APPROACH (VFR)	2	1	4		7	7	14.58
INITIAL APPROACH							
FINAL APPROACH (IFR)							
LEVEL OFF/TOUCHDOWN	2		4		6	6	12.50
ROLL (FIXED WING)			5		5	5	10.42
ROLL-ON/RUN-ON (ROTORCRAFT)							
POWER-ON LANDING (ROTORCRAFT)							
POWER-OFF AUTOROTATIVE LG							
GO-AROUND (VFR)		1			1	1	2.08
MISSED APPROACH (IFR)							
OTHER							
UNKNOWN/NOT REPORTED		1			1	1	2.08
RECORDS	14	8	3	23		48	
ACCIDENTS	14	8	3	23		48	
PERCENTS	29.2	16.7	6.3	47.9			

CAUSE/FACTOR TABLE

LARGE FIXED WING

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 40 TOTAL ACCIDENTS

INVOLVES 12 FATAL ACCIDENTS

BROAD CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
PILOT	9	3	9	1A	3	18	27	6	27
	75.00	25.00	75.00	64.29	10.71	64.29	67.50	15.00	67.50
PERSONNEL	1		1	2	5	7	3	5	8
	8.33	.00	8.33	7.14	17.86	25.00	7.50	12.50	20.00
AIRFRAME	.00	.00	.00	.00	.00	.00	.00	.00	.00
LANDING GEAR	.00	.00	.00	3	2	4	3	2	4
POWERPLANT	.00	.00	.00	21.43	.00	6	6	.00	6
SYSTEMS	.00	.00	.00	.00	.00	.00	.00	.00	.00
INSTRUMENTS/EQUIPMENT & ACCESSORIES	.00	.00	.00	.00	.00	.00	.00	.00	.00
ROTORCRAFT	.00	.00	.00	.00	.00	.00	.00	.00	.00
AIRPORT/AIRWAYS/FACILITIES	.00	.00	.00	4	4	14.29	.00	4	4
WEATHER	.00	.00	.00	.00	4	4	.00	4	4
TERRAIN	.00	1	1	.00	2	2	.00	3	3
MISCELLANEOUS	1		1	.00	7.14	7.14	.00	7.50	7.50
UNDETERMINED	3		3	1	.00	.00	1	.00	1
	25.00	.00	25.00	3.57	.00	3.57	4	.00	4
									10.00

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE
LARGE FIXED WING
(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 40 TOTAL ACCIDENTS
INVOLVES 12 FATAL ACCIDENTS

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
** PILOT **									
PILOT IN COMMAND									
ATTEMPTED OPERATION BEYOND EXPERIENCE/ABILITY LEVEL	1	1	2	1		1	2	1	3
BECAME LOST/DISORIENTED	1		1				1		1
FAILED TO SEE AND AVOID OTHER AIRCRAFT	1		1				1		1
FAILED TO OBTAIN/MAINTAIN FLYING SPEED	1		1				1		1
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES ETC				5		5			5
IMPROPER OPERATION OF BRAKES AND/OR FLIGHT CONTROLS				3		3			3
IMPROPER IN-FLIGHT DECISIONS OR PLANNING				1		1	1		1
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING	2	1	3	1	2	3	3	3	6
INADEQUATE SUPERVISION OF FLIGHT				1		1	1		1
LACK OF FAMILIARITY WITH AIRCRAFT				1		1	1		1
MISMANAGEMENT OF FUEL	1		1	1		1	2		2
EXERCISED POOR JUDGMENT				1		1	1		1
OPERATED CARELESSLY							1		1
SELECTED UNSUITABLE TERRAIN				1		1	1		1
FAILED TO ASSURE THE GEAR WAS DOWN AND LOCKED				2		2	2		2
MISJUDGED DISTANCE, SPEED, AND ALTITUDE	1		1	3		3	1		1
MISJUDGED DISTANCE AND SPEED				5		5	3		3
MISJUDGED DISTANCE AND ALTITUDE							5		5
MISJUDGED ALTITUDE AND CLEARANCE	1		1				1		1
MISJUDGED ALTITUDE	1		1				1		1
FAILED TO MAINTAIN DIRECTIONAL CONTROL	1		1	1		1	1		1
FAILED TO INITIATE GO-AROUND							1		1
SUBTOTAL	11	4	15	25	3	28	36	7	43
COPILOT									
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC				1		1	1		1
FAILED TO MAINTAIN DIRECTIONAL CONTROL				1		1	1		1
SUBTOTAL				1		2	1	1	2
CHECK PILOT									
INADEQUATE SUPERVISION OF FLIGHT				1		1	1		1
SUBTOTAL				1		1	1		1
** PERSONNEL **									
FLIGHT INSTRUCTOR									
MAINTENANCE, SERVICING, INSPECTION									
INADEQUATE INSPECTION OF AIRCRAFT(MAINTENANCE PERSONNEL)				1		2	2		2
INADEQUATE MAINTENANCE AND INSPECTION					1	1	1		1
OPERATIONAL SUPERVISORY PERSONNEL									
INADEQUATE FLIGHT TRAINING-PROCEDURES				1		1	1		1
INADEQUATE SUPERVISION OF FLIGHT CREW				1		1	1		1
DEFICIENCY, COMPANY MAINTAINED EQMT, SERV, REGULATIONS				1		1	1		1
WEATHER PERSONNEL									
TRAFFIC CONTROL PERSONNEL									
FAILURE TO ADVISE OF OTHER TRAFFIC	1		1				1		1
INADEQUATE SPACING OF AIRCRAFT	1		1				1		1
AIRPORT SUPERVISORY PERSONNEL									
AIRWAYS FACILITIES PERSONNEL									
PRODUCTION-DESIGN-PERSONNEL									
MISCELLANEOUS-PERSONNEL									
PILOT OF OTHER AIRCRAFT				1		1	1	2	1
DIRECT ENTRIES							1		1
THIRD PILOT									
FLIGHT ENGINEER									
FLIGHT PERSONNEL									
DISPATCHING (AIR CARRIER ONLY)									
SUBTOTAL	3		3	2	6	8	5	6	11
** AIRFRAME **									

CAUSE/FACTOR TABLE

ATRFRAME (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
WINGS									
FUSELAGE									
LANDING GEAR									
MAIN GEAR-SHOCK ABSORBING ASSY, STRUTS, ATTACHMENTS, ETC			1			1			1
NORMAL RETRACTION/EXTENSION ASSEMBLY			1			2			2
WHEELS, TIRES, AXLES			1			1			1
GEAR LOCKING MECHANISM			1			1			1
FLIGHT CONTROL SURFACES									
SUBTOTAL			3			2			5
** POWERPLANT **									
ENGINE STRUCTURE									
MASTER AND CONNECTING RODS									
IGNITION SYSTEM									
FUEL SYSTEM									
LINES AND FITTINGS									
LUBRICATING SYSTEM									
PUMPS-SCAVENGER									
COOLING SYSTEM									
PROPELLER AND ACCESSORIES									
EXHAUST SYSTEM									
ENGINE ACCESSORIES									
ENGINE CONTROLS									
POWERPLANT-INSTRUMENTS									
MISCELLANEOUS									
POWERPLANT FAILURE FOR UNDETERMINED REASONS									
REDUCTION GEAR ASSEMBLY									
COMPRESSOR ASSEMBLY									
COMBUSTION ASSEMBLY									
TURBINE ASSEMBLY									
ACCESSORY DRIVE ASSEMBLY									
LUBRICATING SYSTEM									
FUEL SYSTEM									
FUEL CONTROL									
SAFETY SYSTEM									
IGNITION SYSTEM									
TACHOMETER									
AIR BLEED									
EXHAUST SYSTEM									
THRUST REVERSER									
PROPELLER SYSTEM									
CONSTANT SPEED DRIVE									
POWER LEVER									
PROPELLER LEVER									
REVERSE THRUST LEVER									
ENGINE INDICATING EQUIPMENT									
ENGINE INSTALLATION									
SUBTOTAL			6			6			6
** AIRPORTS/AIRWAYS/FACILITIES **									
AIRPORT FACILITIES									
AIRPORT CONDITIONS									
ICE/SLUSH ON RUNWAY									
SNOW ON RUNWAY									
POORLY MAINTAINED RUNWAY SURFACE									
ICE/SLUSH ON RAMP/TAXIWAY									
AIRWAYS FACILITIES									
SUBTOTAL			4			4			4
** WEATHER **									
SNOW									
ICING CONDITIONS-INCLUDES SLEET, FREEZING RAIN, ETC									
HIGH DENSITY ALTITUDE									
SUBTOTAL			4			4			4
** TERRAIN **									
HIGH VEGETATION									
ROUGH/UNEVEN									
SUBTOTAL			2			2			2

CAUSE/FACTOR TABLE

TERRAIN (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
HIGH OBSTRUCTIONS		1	1		3	3		4	4
SUBTOTAL		1	1		3	3		4	4
** MISCELLANEOUS **									
UNDETERMINED	3		3	1		1	4		4
UNQUALIFIED PERSON OPERATED AIRCRAFT	1		1				1		1
SUBTOTAL	4		4	1		1	5		5
GRAND TOTAL	18	5	23	34	23	62	57	28	85
** MISCELLANEOUS ACTS, CONDITIONS **									
DETERIORATED				1		1	1		1
INTENTIONAL WHEELS UP					2	2		2	2
RAN OFF END OF RUNWAY				2	2	2		2	2
CHECKLIST-FAILED TO USE					1	1		1	1
IMPROPER EMERGENCY PROCEDURES				3	3	3	3		3
GUST LOCKS ENGAGED					1	1	1		1
INATTENTIVE TO FUEL SUPPLY				1		1		1	1
PORRY PLANNED APPROACH					1	1		1	1
STOLEN OR UNAUTHORIZED USE OF AIRCRAFT					1	1		1	1
ELECTRICAL FAILURE				1		1	1		1
FATIGUE FRACTURE					1	1	1		1
THRUST REVERSAL-UNWANTED					1	1		1	1
FAILURE OF TWO OR MORE ENGINES				2	1	2	1		1
SEPARATION IN FLIGHT					1	1		1	1
FIRE IN ENGINE					1	1		1	1
CORRODED/CORROSION				3	1	1	1		1
AIRFRAME TCF					1	1		1	1
ICF-WINGSHIELD					1	1		1	1
IMPROPERLY LOADED AIRCRAFT-WEIGHT-AND/OR CG				1	1	1	1		1
OIL EXHAUSTION-ENGINE LUBRICATION SYSTEM					1	1		1	1
SIMULATED CONDITIONS					1	1		1	1
WATER IN FUEL				1		1		1	1
AIRCRAFT CAME TO REST IN WATER				1	1	3	3		4
TOUCH AND GO LANDING				1	1		2		1
OVERLOAD FAILURE					4	4		4	4
MATERIAL FAILURE				1		6	6		6
FUEL STARVATION					1	1	1	2	2

DIRECT ENTRY CAUSES

PERSONNEL-PROCEDURE NOT COVERED IN FLT MANUAL.

DIRECT ENTRY CAUSES ARE CARRIED UNDER THEIR APPROPRIATE
CAUSAL CATEGORIES AND ARE INCLUDED IN THE TOTALS

ANALYTIC TABLE

KIND OF FLYING BY INJURY INDEX
LARGE FIXED WINGFATAL
SERIOUS
MINOR
NONE

RECORDS ACCIDENTS PERCENT

INSTRUCTIONAL

DUAL 1 1 1 2.08

SOLO

CHECK

TRAINING

NONCOMMERCIAL

PLEASURE 2 1 3 6.25

PRACTICE

BUSINESS

CORPORATE/EXECUTIVE

AERIAL SURVEY

COMPANY FLIGHT

OTHER

COMMERCIAL

AERIAL APPLICATION

CROP CONTROL RELATED FLIGHT

FIRE CONTROL

FIRE CONTROL RELATED FLIGHT

AERIAL MAPPING/PHOTOGRAPHY

AFRIAL ADVERTISING

POWER AND PIPELINE PATROL

FISH SPOTTING

AIR TAXI-PASSENGER OPERATIONS 1 1 5 7 7 14.58

AIR TAXI-CARGO OPERATIONS

CONSTRUCTION WORK

SCHEDULED PASSENGER SERVICE

SCHEDULED CARGO SERVICE

INTRA-STATE CHARTER PASSG.

INTRA-STATE CHARTER CARGO.

MILITARY CONTRACT-PASSENGER

MILITARY CONTRACT-CARGO

CHARTER CARGO-DOMESTIC

CHARTER PASSG-DOMESTIC

CHARTER-CARGO-INTERNATIONAL

CHARTER-PASSG-INTERNATIONAL

OTHER

UNKNOWN/NOT REPORTED

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
MISCELLANEOUS							
EXPERIMENTATION							
TEST	1				1	1	2.08
DEMONSTRATION							
FERRY	1	1	2		4	4	8.33
SEARCH AND RESCUE							
AIR SHOW/AIR RACING							
PARACHUTE JUMP	1				1	1	2.08
PARACHUTE JUMP-AIR SHOW							
TOWING GLIDERS							
SEEDING CLOUDS							
HUNTING							
POLICE PATROL							
HIGHWAY TRAFFIC ADVISORY							
ALL OTHER PUBLIC FLYING			1		1	1	2.08
OTHER	1	1	1		3	3	6.25
UNKNOWN/NOT REPORTED	4		3		7	7	14.58
RECORDS	14	8	3	23		48	
ACCIDENTS	14	8	3	23		48	
PERCENTS	29.2	16.7	6.3	47.9			

INJURIES, ACCIDENTS
LARGE FIXED WING

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	13	3	6	26		48
COPILOT	6	2	1	25		34
DUAL STUDENT	3	1	1			4
CHECK PILOT						1
FLIGHT ENGINEER	2		5			7
NAVIGATOR						4
CABIN ATTENDANT	2		2			5
EXTRA CREW	3		2			5
PASSENGERS	7	8	16	103		134
TOTAL	36	14	24	163		

- 141 -

* OTHER AIRCRAFT
OTHER GROUND

3

	ABOARD	237
GRAND TOTAL	38	15

38

INVOLVES 48 TOTAL ACCIDENTS
INVOLVES 14 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

GENERAL AVIATION ACCIDENTS

ROTORCRAFT

ANALYTIC TABLE

FIRST TYPE OF ACCIDENT BY AIRCRAFT DAMAGE
ROTORCRAFT

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
GROUND-WATER LOOP-SWERVE		1			1	1	.31
DRAGGED WING/TIP POD OR FLOAT							
WHEELS-UP LANDING							
WHEELS-DOWN LANDING IN WATER							
GEAR COLLAPSED							
GEAR RETRACTED							
HARD LANDING	2	22			24	24	7.50
NOSE OVER/DOWN		1			1	1	.31
ROLL OVER	8	12			20	20	6.25
OVERSHOOT							
UNDERSHOOT		2			2	2	.63
<u>COLLISION BETWEEN AIRCRAFT</u>							
BOTH IN FLIGHT							
ONE AIRBORNE							
BOTH ON GROUND		2			2	1	.63
<u>COLLISION WITH GROUND/WATER</u>							
CONTROLLED	16	21			37	37	11.56
UNCONTROLLED	12	6			18	18	5.63
COLLIDED WITH							
WIRES/POLES	16	14			30	30	9.38
TREES	5	5			10	10	3.03
RESIDENCE/S							
BUILDING/S		1			1	1	.31
FENCE, FENCEPOSTS		2			2	2	.63
ELECTRONIC TOWERS							
RUNWAY OR APPROACH LIGHTS		1			1	1	.31
AIRPORT HAZARD		1			1	1	.31
ANIMALS							
CROP							
FLAGMAN LOADER							
DITCHES							
SNOWBANK							
PARKED AIRCRAFT (UNATTENDED)		1			1	1	.31
AUTOMOBILE		2			2	2	.63
DIRT BANK		2			2	2	.63
OTHER	3	2			5	5	1.56
PIRD STRIKE							

ANALYTIC TABLE

DESTROYED
SUBSTANTIAL
MINOR
NONE

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STALL	1				1	1	.31
SPIN							
SPIRAL							
MUSH	1				1	1	.31
FIRE OR EXPLOSION							
IN FLIGHT	1				1	1	.31
ON GROUND							
AIRFRAME FAILURE							
IN FLIGHT	4	6			10	10	3.13
ON GROUND							
ENGINE TEARAWAY							
ENGINE FAILURE OR MALFUNCTION	18	76			94	64	29.38
PROPELLER/ROTOR FAILURE							
PROPELLER							
TAIL ROTOR	10	15			25	25	7.81
MAIN ROTOR	5	0			14	14	4.38
PROP ROTOR ACDNT TO PERSON	1	2			3	3	.04
JET INTAKE/EXH ACDNT TO PERS							
PROPELLER/JET/ROTOR BLAST							
TURBULENCE							
HAIL DAMAGE TO AIRCRAFT							
LIGHTNING STRIKE							
EVASIVE MANEUVER							
UNCONTROLLED ALT DEVIATION							
DITCHING							
MISSING ACFT NOT RECOVERED							
MISCELLANEOUS/OTHER	1	5	2		8	8	2.50
UNDETERMINED	3				3	3	.94
RECORDS	106	210	2	2	320		
ACCIDENTS	106	209	2	2		319	
PERCENTS	33.1	65.6	.6	.6			

ANALYTIC TABLE

FIRST PHASE OF OPERATION BY INJURY INDEX
ROTORCRAFT

FATAL SERIOUS MINOR NONE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STATIC							
STARTING ENGINE/S			1		1	1	.31
IDLING ENGINE/S							
ENGINE RUNUP							
IDLING ROTORS	2	1	1	4	8	8	2.50
PARKED-ENGINES NOT OPERATING							
OTHER							
TAXI							
TO TAKEOFF							
FROM LANDING							
OTHER							
GROUND TAXI TO TAKEOFF		1	1		2	2	.63
GROUND TAXI FROM LANDING							
GROUND TAXI, OTHER	1				1	1	.31
AERIAL TAXI TO TAKEOFF		1			1	1	.31
AERIAL TAXI TO/FROM LANDING		1			1	1	.31
AERIAL TAXI, OTHER			4		4	4	1.25
TAKEOFF							
RUN							
INITIAL CLIMB	2	1	3	10	16	16	5.00
VERTICAL	5	7	19		31	31	9.69
RUNNING (ROTORCRAFT/VTOL-STOL)		2	1		3	3	.94
ABORTED (FIXED-WING)							
ABORTED (ROTORCRAFT/VTOL)		1			1	1	.31
ABORTED (ROTORCRAFT/STOL)	1				1	1	.31
OTHER		1			1	1	.31
INFLIGHT							
CLIMB TO CRUISE	1		1	3	5	5	1.56
NORMAL CRUISE	16	7	12	28	63	63	19.69
DESCENDING	1		1	3	5	5	1.56
HOLDING (IFR)							
HOVERING	4	4	2	12	22	22	6.88
POWER-ON DESCENT (ROTORCRAFT)	1		3		4	4	1.25
AUTOROTATIVE DESCENT	1	1	1	2	5	5	1.56
ACROBATICS							
BUZZING							
UNCONTROLLED DESCENT	3	1			4	4	1.25

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
EMERGENCY DESCENT							
LOW PASS	2	1	1		4	4	1.25
OTHER	6	1	1	3	11	11	3.44
EN ROUTE TO TREAT CROP			1	4			
EN ROUTE TO RELOADING AREA				1		1	.31
SURVEY FIELD/AREA				2		2	.63
STARTING SWATH RUN			3	2		5	1.56
SWATH RUN			3	19		22	6.88
FLAREOUT FOR SWATH RUN				1		1	.31
PULLUP FROM SWATH RUN				2		6	1.88
PROCEDURE TURNAROUND	2		2	9		13	4.06
CLEANUP SWATH			1			1	.31
MANEUVER TO AVOID OBSTRUCTION							
RETURN TO STRIP				2		2	.63
<u>LANDING</u>							
TRAFFIC PATTERN-CIRCLING	3		2	1		6	1.88
FINAL APPROACH (VFR)	4	2	2	5		13	4.06
INITIAL APPROACH							
FINAL APPROACH (IFR)							
LEVEL OFF/TOUCHDOWN			1	1		2	.63
ROLL (FIXED WING)							
ROLL-ON/RUN-ON (ROTORCRAFT)				3		3	.94
POWER-ON LANDING (ROTORCRAFT)	4	1	8	17		30	9.38
POWER-OFF AUTOROTATIVE LDG			2	4		6	1.88
GO-AROUND (VFR)	1	2		2		5	1.56
MISSSED APPROACH (IFR)							
OTHER			1			1	.31
UNKNOWN/NOT REPORTED			2			2	.63
RECORDS	56	32	59	173		320	
ACCIDENTS	56	32	59	172		319	
PERCENTS	17.5	10.0	18.4	54.1			

CAUSE/FACTOR TABLE

ROTORCRAFT

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 315 TOTAL ACCIDENTS
INVOLVES 52 FATAL ACCIDENTS

BROAD CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
PILOT	27	8	29	174	13	175	200	21	204
PERSONNEL	51.92	15.38	55.77	65.78	4.94	66.54	63.49	6.67	64.76
AIRFRAME	9	1	10	30	3	33	39	4	43
LANDING GEAR	17.31	1.92	19.23	11.41	1.14	12.55	12.38	1.27	13.65
POWERPLANT	.00	.00	.00	.00	.00	.00	.00	.00	.00
SYSTEMS	.00	.00	.00	.00	.00	.00	.00	.00	.00
INSTRUMENTS/EQUIPMENT & ACCESSORIES	.00	.00	.00	2	.76	2	2	.63	.63
ROTORCRAFT	10	1	11	30	1	31	40	2	42
AIRPORT/AIRWAYS/FACILITIES	19.23	1.92	21.15	11.41	.38	11.79	12.70	.63	13.33
WEATHER	.00	.00	.00	.00	1.14	1.14	.00	.00	.00
TERRAIN	.00	10	10	2	27	27	2	.63	.37
MISCELLANEOUS	19.23	19.23	.76	10.27	10.27	10.27	.63	11.75	11.75
UNDETERMINED	7	7	11	6	71	71	11	71	82
	13.46	.00	13.46	4.18	.00	4.18	18	.00	18
							5.71	.00	5.71

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE
ROTORCRAFT
(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 315 TOTAL ACCIDENTS

INVOLVES 52 FATAL ACCIDENTS

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
** PILOT **									
PILOT IN COMMAND									
ATTEMPTED OPERATION W/KNOWN DEFICIENCIES IN EQUIPMENT	1	1	1	1	2	1	2	2	3
ATTEMPTED OPERATION BEYOND EXPERIENCE/ABILITY LEVEL			3		3	3		3	3
CONTINUED VFR FLIGHT INTO ADVERSE WEATHER CONDITIONS	5	1	6	2	2	2	7	1	8
DELAYED IN INITIATING GO-AROUND	1		1	2	2	2	3		3
DIVERTED ATTENTION FROM OPERATION OF AIRCRAFT			4	1	5	4	1	1	5
EXCEEDED DESIGN STRESS LIMITS OF AIRCRAFT		1	1				1		1
FAILED TO SEE AND AVOID OBJECTS OR OBSTRUCTIONS	2		2	23		23	25		25
FAILED TO OBTAIN/MAINTAIN FLYING SPEED			2	2	2	2	2		2
FAILED TO MAINTAIN ADEQUATE ROTOR RPM	4		4	34		34	38		38
FAILED TO USE OR INCORRECTLY USED MISC EQUIPMENT	1	1	2	11	2	13	13	2	15
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES ETC	2		2	1	1	1	4		4
IMPROPER OPERATION OF POWERPLANT + POWERPLANT CONTROLS	3		3			20	22		22
IMPROPER OPERATION OF FLIGHT CONTROLS	2		2	20		1	1		1
IMPROPER LEVEL OFF			1			4	8		8
IMPROPER IN-FLIGHT DECISIONS OR PLANNING	4		4	4		5	3	2	5
IMPROPER COMPENSATION FOR WIND CONDITIONS			3	2		5	2	3	37
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING	1	1	2	34	1	35	35	2	37
INADEQUATE SUPERVISION OF FLIGHT	2		2	8	1	9	10	1	11
LACK OF FAMILIARITY WITH AIRCRAFT	1	1	2		1	1	1	2	3
MISMANAGEMENT OF FUEL	2		2	14		14	16		16
EXERCISED POOR JUDGMENT	1		1	1		1	2		2
SELECTED UNSUITABLE TERRAIN		1	1	6	2	8	6	3	9
IMPROPER STARTING PROCEDURES			1	1	1	2	1	1	2
INITIATED FLIGHT IN ADVERSE WEATHER CONDITIONS			1			1	1		1
SPONTANEOUS-IMPROPER ACTION	1		1	1		1	1		1
MISJUDGED DISTANCE, SPEED, AND ALTITUDE	1		1			1	1		1
MISJUDGED DISTANCE			1			1	1		1
MISJUDGED DISTANCE AND ALTITUDE			3			3	3		3
MISJUDGED SPEED AND ALTITUDE	1		1	7		7	8		8
MISJUDGED ALTITUDE AND CLEARANCE	1		1	5		5	6		6
MISJUDGED ALTITUDE			2			2	2		2
MISJUDGED CLEARANCE	2		2	14		14	16		16
PHYSICAL IMPAIRMENT			1		1	1		1	1
SPATIAL DISORIENTATION	4		4	3		3	7		7
LEFT AIRCRAFT UNATTENDED ENGINE RUNNING			1	1		1	1		1
FAILED TO MAINTAIN DIRECTIONAL CONTROL	1		1	2		2	3		3
FAILED TO INITIATE GO-AROUND				1	1	1	1		1
SUBTOTAL	42	7	49	215	14	229	257	21	278
COPILOT									
MISJUDGED DISTANCE AND ALTITUDE	1		1				1		1
SPATIAL DISORIENTATION			1	1			1		1
SUBTOTAL	1	1	2				1	1	2
DUAL STUDENT									
FAILED TO MAINTAIN ADEQUATE ROTOR RPM			2			2	2		2
IMPROPER OPERATION OF POWERPLANT + POWERPLANT CONTROLS			1			1	1		1
IMPROPER OPERATION OF FLIGHT CONTROLS			6			6	6		6
MISJUDGED SPEED AND ALTITUDE	1		1				1		1
SUBTOTAL	1		1	9		9	10		10
** PERSONNEL **									
FLIGHT INSTRUCTOR									
MAINTENANCE, SERVICING, INSPECTION									
IMPROPER MAINTENANCE(MAINTENANCE PERSONNEL)	2		2	4		4	6		6
IMPROPER MAINTENANCE(OWNER PERSONNEL)	1		1				1		1
IMPROPERLY SERVICED AIRCRAFT(GROUND CREW)			2			2	2		2
IMPROPERLY SERVICED AIRCRAFT(OWNER-PILOT)			2			2	2		2
INADEQUATE INSPECTION OF AIRCRAFT(MAINTENANCE PERSONNEL)			1			1	1		1

CAUSE/FACTOR TABLE

PERSONNEL (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
INADEQUATE MAINTENANCE AND INSPECTION				9	1	10	20	1	21
OPERATIONAL SUPERVISORY PERSONNEL				1	1	2	1	1	2
DEFICIENCY, COMPANY MAINTAINED FOMT, SERV, REGULATIONS									
WEATHER PERSONNEL									
TRAFFIC CONTROL PERSONNEL									
AIRPORT SUPERVISORY PERSONNEL									
AIRWAYS FACILITIES PERSONNEL									
PRODUCTION-DESIGN-PERSONNEL									
SUBSTANDARD QUALITY CONTROL				2			2	4	4
POOR/INADEQUATE DESIGN				1	1	2	3	3	3
OTHER					1	1	1		1
MISCELLANEOUS-PERSONNEL									
PILOT OF OTHER AIRCRAFT					1		1		1
GROUND CREWMAN					1		1		1
PASSENGER				3	4	7	7	7	7
OTHER						1	1	2	2
THIRD PILOT									
FLIGHT ENGINEER									
FLIGHT PERSONNEL									
DISPATCHING (AIR CARRIER ONLY)									
SUBTOTAL	10	1	11	30	3	33	40	4	44
** POWERPLANT **									
ENGINE STRUCTURE									
CRANKSHAFT				1		1	1		1
MASTER AND CONNECTING RODS				4		4	4		4
CYLINDER ASSEMBLY				1		1	2		2
PISTON, PISTON RINGS				1		2	2		2
VALVE ASSEMBLIES				1		1	1		1
OTHER				1		1	1		1
IGNITION SYSTEM									
MAGNETOES				3		3	3		3
SPARK PLUG				3		3	3		3
COILS				1		1	1		1
FUEL SYSTEM									
LINES AND FITTINGS				2		2	2		2
PUMPS				1	3	3	4		4
VENTS, DRAINS, TANK CAPS				2		2	2		2
LUBRICATING SYSTEM									
PUMP-PRESSURE				1	1	1	1		1
OTHER									
COOLING SYSTEM									
PROPELLER AND ACCESSORIES									
BLADES				1		1	1		1
BLADE RETENTION MECHANISM					1	1	1		1
EXHAUST SYSTEM									
OTHER				1		1	1		1
ENGINE ACCESSORIES									
OTHER				1		1	1		1
ENGINE CONTROLS									
THROTTLE-POWER LEVER ASSEMBLIES				1		1	1		1
POWERPLANT-INSTRUMENTS					1		1		1
POWER INDICATORS					1		1		1
FUEL QUANTITY GAUGE					4	4	4		4
MISCELLANEOUS									
POWERPLANT FAILURE FOR UNDETERMINED REASONS	3	3	21	21	24	24			
COMPRESSOR STALLS			1	1	1	1			1
OTHER			1	1	1	1			1
REDUCTION GEAR ASSEMBLY									
SHAFT, ACCESSORY DRIVE				1		1	1		1
COMPRESSOR ASSEMBLY					2	2	2		2
BEARING, ROTOR SHAFT									
COMBUSTION ASSEMBLY									
TURBINE ASSEMBLY									
BLADE, TURBINE WHEEL				1		1	1		1
ACCESSORY DRIVE ASSEMBLY					1	1	1		1
EXTENSION SHAFT				1		1	1		1
Gears, ACCESSORY DRIVE				1		1	1		1
LUBRICATING SYSTEM									
OTHER				1		1	1		1
FUEL SYSTEM									
PUMP, FUEL				1		1	1		1
FUEL CONTROL					2	2	2		2
SAFETY SYSTEM									

CAUSE/FACTOR TABLE

POWERPLANT (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
IGNITION SYSTEM									
TORQUEMETER									
AIR BLEED									
EXHAUST SYSTEM									
THRUST REVERSER									
PROPELLER SYSTEM									
CONSTANT SPEED DRIVE									
POWER LEVER									
PROPELLER LEVER									
REVERSE THRUST LEVER									
ENGINE INDICATING EQUIPMENT									
TACHOMETER									
ENGINE INSTALLATION									
OTHER									
SUBTOTAL	6		6	65	5	70	71	5	76
** INSTRUMENTS/EQUIPMENT AND ACCESSORIES **									
FLIGHT AND NAVIGATION INSTRUMENTS									
COMMUNICATIONS AND NAVIGATION EQUIPMENT									
MISCELLANEOUS EQUIPMENT									
SPRAY, DUSTING EQUIPMENT									
PICK-UP EQUIPMENT									
SUBTOTAL				2		2	2		2
** ROTORCRAFT **									
ROTOR ASSEMBLIES									
MAIN ROTOR BLADES	2		2	1		1	3		3
TAIL ROTOR BLADES	3		3	3		3	6		6
MAIN ROTOR HEAD ASSEMBLIES				1		1	1		1
UNIVERSAL JOINTS, COUPLINGS				1		1	1		1
BEARINGS				1		1	1		1
OTHER				1		2	2		3
TRANSMISSION ROTOR DRIVE SYSTEM									
ENGINE DRIVE SHAFT	1		1	2		2	1		1
MAIN ROTOR DRIVE SHAFT				1		1	2		2
MAIN ROTOR GEAR BOX				2		2	1		1
MAIN ROTOR PULLEYS, BELTS				1		1	2		2
TAIL ROTOR DRIVE SHAFT ASSEMBLY	1		1	4		4	1		1
TAIL ROTOR GEAR BOX				1		1	1		1
MAIN ROTOR INTERMEDIATE GEARS				2		2	2		2
CLUTCH ASSEMBLY				1		1	1		1
SPRAG SYSTEM				2		2	2		2
OTHER									
FLIGHT CONTROL SYSTEMS									
CYCLIC PITCH CONTROL SYSTEM				1		1	1		1
COLLECTIVE PITCH CONTROL SYSTEM				2		2	1		3
TAIL ROTOR PITCH CONTROL SYSTEM	1		1	3		3	4		4
OTHER				1		1	1		1
MISCELLANEOUS UNITS AND ASSEMBLIES									
DUAL TACHOMETER				1		1	1		1
TAIL BOOMS/PYLONS/CONES	1		1	1		1	2		2
SUBTOTAL	10		11	32	1	33	42	2	44
** AIRPORTS/AIRWAYS/FACILITIES **									
AIRPORT FACILITIES									
OTHER							1		1
AIRPORT CONDITIONS							1		1
WET RUNWAY							1		1
OTHER							1		1
AIRWAYS FACILITIES									
SUBTOTAL							3		3
** WEATHER **									
LOW CEILING	5		5	3		3	8		8
RAIN	2		2	1		1	3		3
FOG	4		4	3		3	7		7
SNOW	1		1	2		2	3		3
CONDITIONS CONDUCIVE TO CARR/INDUCTION SYSTEM ICING	1		1	1		1	2		2

CAUSE/FACTOR TABLE

WEATHER (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
UNFAVORABLE WIND CONDITIONS				1	10	11	1	10	11
TURBULENCE ASSOCIATED WITH CLOUDS AND/OR THUNDERSTORMS				1	1	1	1	1	1
DOWNDRAFTS, UPDRAFTS	1	1	1	1	1	2	1	2	3
LOCAL WHIRLWIND							1	1	1
HIGH TEMPERATURE				5	5		5	5	5
OBSTRUCTIONS TO VISION				1	1		1	1	1
HIGH DENSITY ALTITUDE				5	5		5	5	5
THUNDERSTORM ACTIVITY	1	1	1				1	1	1
OTHER	1	1	1				1	1	1
SUBTOTAL			17	17	2	35	2	50	52
** TERRAIN **									
WPT, SOFT GROUND				4	7	11	4	7	11
SNOW-COVERED	1	1	1	1	3	4	1	4	5
HIGH VEGETATION				2	6	8	2	6	8
HIDDEN OBSTRUCTIONS				1	1		1	1	1
ROUGH/UNEVEN	2	2	2	1	11	12	1	13	14
ROUGH WATER	1	1	1	1	2	3	1	3	4
GLASSY WATER				1	2	2		3	3
HIGH OBSTRUCTIONS	7	7	7	2	25	27	2	32	34
SANDY				1	1		1	1	1
OTHER				1	4	5	1	4	5
SUBTOTAL			12	12	12	62	12	74	86
** MISCELLANEOUS **									
FOREIGN OBJECT DAMAGE				3	3	3	3	3	3
FOREIGN MATERIAL AFFECTING NORMAL OPERATIONS	1		1	7	1	8	8	1	9
UNDETERMINED	7		7	11		11	18		18
EVASIVE MANEUVER TO AVOID COLLISION				1		1	1	1	1
UNQUALIFIED PERSON OPERATED AIRCRAFT	2	2	4				2	2	4
DIRECT ENTRIES	1		1	1		1	2		2
SUBTOTAL	11	2	13	23	1	24	34	3	37
GRAND TOTAL	81	41	122	390	122	512	471	163	634
** MISCELLANEOUS ACTS, CONDITIONS **									
PREVIOUS DAMAGE				1	1	1	1	1	2
LEAK/LEAKAGE				3	3	3	3	3	3
LOW COMPRESSION				1	1	1	1	1	1
DOWNWIND				4	4		4	4	4
CARBON DEPOSITS				1	1	1	1	1	1
LOOSE, PART/FITTING	2		1	1	3	2	1	3	3
BURNED				1	1	1	1	1	1
DISCONNECTED	3		3	3	3	3	3	3	3
ELONGATED	1		1	1	1	1	1	1	1
EXCESSIVE-WEAR/PLAY				1	1	1	1	1	1
ERRATIC	1		2	3	1	1	2	3	3
FRAYED	1		1	2	1	1	1	1	2
GROUNDED	1		1	1	2	2	1	1	1
IMPROPERLY INSTALLED	4		4	4	4	4	4	4	4
JAMMED	1		1	1	1	1	1	1	1
OBSTRUCTED	2		2	2	2	2	2	2	2
OVERHEATED	3		3	3	3	3	3	3	3
PRESSURE TOO LOW	1		1	1	1	1	1	1	1
SCHEARED	1		1	1	1	1	1	1	1
STRIPPED	1		1	1	1	1	1	1	1
STUCK	1		1	1	1	1	1	1	1
VIBRATION, EXCESSIVE	1	1	1	3	3	3	1	4	4
WARPED				1	1	1	1	1	1
LOAD NOT JETTISONED							1	1	1
ALTIMETER SETTING-INCORRECT	1		1		1	1	1	1	2
ANTI-ICING/DEICING EQUIP-IMPROPER OPER. OF/FAILED TO USE	1		1	1	1	1	2	2	2
CREW COORDINATION-Poor				1	2	3	1	2	3
IMPROPER EMERGENCY PROCEDURES	1		1	2	1	3	3	1	4
INSTRUMENTS-MISREAD OR FAILED TO READ				2	2	3	2	3	3
UNWARRANTED LOW FLYING	2		2	2	1	2	2	2	4
INATTENTIVE TO FUEL SUPPLY	1		1	4	4	4	4	4	5
Poorly PLANNED APPROACH					1	1	1	1	1
MISCALCULATED FUEL CONSUMPTION			1	2	2	3	2	3	3
JETTISONED LOAD				5	5	5	5	5	5

CAUSE/FACTOR TABLE

MISCELLANEOUS ACTS, CONDITIONS (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
IMPROPERLY SECURED				3	1	4	3	1	4
FATIGUE-FRACTURE	6		6	11		11	17		17
FUEL GRADE-IMPROPER				1		1	1		1
WRONG PART	1		1	2		2	3		3
IMPROPER ALIGNMENT/ADJUSTMENT				1		1	1		1
SEPARATION IN FLIGHT	3		3	7		7	10		10
LATERAL IMBALANCE				2		2	2		2
PILOT FATIGUE				1		1	1		1
FUEL EXHAUSTION	2		2	17		17	19		19
FUEL CONTAMINATION-EXCLUSIVE OF WATER IN FUEL				1		1	1		1
ICE-CARBURFTOR	1		1	1		1	2		2
INTERFERENCE WITH FLIGHT CONTROLS	1		1	4		4	5		5
WHITEOUT	1		1	1		2	2		3
SUNGLARE				2		2	2		2
LACK OF LUBRICATION-SPECIFIC PART, NOT SYSTEM				1		1	1		1
OIL EXHAUSTION-ENGINE LUBRICATION SYSTEM				1		1	1		1
SIMULATED CONDITIONS				2		2	2		2
WATER IN FUEL				5		5	5		5
AIRCRAFT CAME TO REST IN WATER	11		11	12		12	23		23
MISSING				2		2	2		2
TOUCH AND GO LANDING				1		1	1		1
OVERLOAD FAILURE	1		1	1		3	4		5
MATERIAL FAILURE	4		1	26		26	30		31
FUEL STARVATION	1		1	4		4	5		5
OIL STARVATION	1		1				1		1

DIRECT ENTRY CAUSES

MISC-CLAMP SLIPPED CAUSING RIGGING TO HIT WORKMAN
 MISC-POWERLINE TOWER STATIC CARL FELL ON ACFT.

DIRECT ENTRY CAUSES ARE CARRIED UNDER THEIR APPROPRIATE CAUSAL CATEGORIES AND ARE INCLUDED IN THE TOTALS

ANALYTIC TABLE

KIND OF FLYING BY INJURY INDEX
ROTORCRAFT

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>INSTRUCTIONAL</u>							
DUAL	1	2	1	10		14	14
Solo				2		2	.63
CHECK		1				1	.31
TRAINING	3		2	3		8	8
<u>NONCOMMERCIAL</u>							
PLEASURE	6	3	7	23		39	39
PRACTICE	1		2	5		8	8
BUSINESS	4	2	4	1		11	11
CORPORATE/EXECUTIVE	3	2	2	6		13	13
AERIAL SURVEY	2					2	.63
COMPANY FLIGHT							
OTHER				1		1	.31
<u>COMMERCIAL</u>							
AERIAL APPLICATION	2	1	10	37		50	50
CROP CONTROL RELATED FLIGHT	2	1	4	25		32	32
FIRE CONTROL							
FIRE CONTROL RELATED FLIGHT				1		1	.31
AERIAL MAPPING/PHOTOGRAPHY	2		5			7	7
AERIAL ADVERTISING							
POWER AND PIPELINE PATROL		1		3		4	4
FISH SPOTTING		1				1	.31
AIR TAXI-PASSENGER OPERATIONS	12	4	5	12		33	32
AIR TAXI-CARGO OPERATIONS	2			4		6	6
CONSTRUCTION WORK	1	2	2	5		10	10
SCHEDULED PASSENGER SERVICE							
SCHEDULED CARGO SERVICE							
INTRA-STATE CHARTER PASSG.		1	1			2	2
INTRA-STATE CHARTER CARGO							
MILITARY CONTRACT-PASSENGER							
MILITARY CONTRACT-CARGO							
CHARTER CARGO-DOMESTIC		1	3			4	4
CHARTER PASSG-DOMESTIC		2	2			4	4
CHARTER-CARGO-INTERNATIONAL							
CHARTER-PASSG-INTERNATIONAL			1			1	.31
OTHER	1	2	2	10		15	15
UNKNOWN/NOT REPORTED							4.69

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
MISCELLANEOUS							
EXPERIMENTATION	1				1	1	.31
TEST	3	3	1	4	11	11	3.44
DEMONSTRATION		2	1	2	5	5	1.56
FERRY	3	2	4	8	17	17	5.31
SEARCH AND RESCUE				1	1	1	.31
AIR SHOW/AIR RACING							
PARACHUTE JUMP							
PARACHUTE JUMP-AIR SHOW							
TOWING GLIDERS							
SEEDING CLOUDS							
HUNTING	1		1		2	2	.63
POLICE PATROL	1	1		1	3	3	.94
HIGHWAY TRAFFIC ADVISORY		2			2	2	.63
ALL OTHER PUBLIC FLYING	1				1	1	.31
OTHER	2	1	1	3	7	7	2.19
UNKNOWN/NOT REPORTED	1				1	1	.31
RECORDS	56	32	59	173		320	
ACCIDENTS	56	32	59	172			319
PERCENTS	17.5	10.0	18.4	54.1			

INJURIES, ACCIDENTS
ROTORGRAFT

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	41	31	56	192	320	
COPILOT	1	1	2	3	7	
DUAL STUDENT	2	1	2	14	19	
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW	3	32	1	3	7	
PASSENGERS	29		58	136	255	
TOTAL	76	67	119	348	610	

	ABOARD	GRAND TOTAL
OTHER AIRCRAFT		
OTHER GROUND	8	1
		9
GRAND TOTAL		619

INVOLVES 319 TOTAL ACCIDENTS
INVOLVES 56 FATAL ACCIDENTS

GENERAL AVIATION ACCIDENTS

GLIDER AIRCRAFT

ANALYTIC TABLE

FIRST TYPE OF ACCIDENT BY AIRCRAFT DAMAGE
GLIDER

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
GROUND-WATER LOOP-SWERVE	1				1	1	1.47
DRAGGED WINGTIP POD OR FLOAT	1				1	1	1.47
WHEELS-UP LANDING							
WHEELS-DOWN LANDING IN WATER							
GEAR COLLAPSED							
GEAR RETRACTED							
HARD LANDING	3				3	3	4.41
NOSE OVER/DOWN	1				1	1	1.47
ROLL OVER							
OVERSHOOT	1	5			6	6	8.82
UNDERSHOOT	3	17			20	20	29.41
<u>COLLISION BETWEEN AIRCRAFT</u>							
BOTH IN FLIGHT	4	1			5	4	7.35
ONE AIRBORNE							
BOTH ON GROUND							
<u>COLLISION WITH GROUND/WATER</u>							
CONTROLLED	3				3	3	4.41
UNCONTROLLED							
<u>COLLIDED WITH</u>							
WIRES/POLES							
TREES	2	6			8	8	11.76
RESIDENCE/S							
BUILDING/S							
FENCE, FENCEPOSTS							
ELECTRONIC TOWERS							
RUNWAY OR APPROACH LIGHTS							
AIRPORT HAZARD							
ANIMALS							
CROP							
FLAGMAN LOADER							
DITCHES	1				1	1	1.47
SNOWBANK							
PARKED AIRCRAFT (UNATTENDED)	2				2	2	2.94
AUTOMOBILE							
DIRT BANK	2				2	2	2.94
OTHER	3				3	3	4.41
BIRD STRIKE							

ANALYTIC TABLE

DESTROYED
SUBSTANTIAL
MINOR
NONE

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STALL	1	2			3	3	4.41
SPIN	3	1			4	4	5.88
SPIRAL		1			1	1	1.47
MUSH							
<u>FIRE OR EXPLOSION</u>							
IN FLIGHT							
ON GROUND							
<u>AIRFRAME FAILURE</u>							
IN FLIGHT		2			2	2	2.94
ON GROUND							
ENGINE TEARAWAY							
ENGINE FAILURE OR MALFUNCTION							
PROPELLER/ROTOR FAILURE							
PROPELLER							
TAIL ROTOR							
MAIN ROTOR							
PROP ROTOR ACNT TO PERSON							
JET INTAKE/EXH ACNT TO PERS							
PROPELLER/JET/ROTOR BLAST							
TURBULENCE							
HAIL DAMAGE TO AIRCRAFT							
LIGHTNING STRIKE							
EVASIVE MANEUVER							
UNCONTROLLED ALT DEVIATION							
DITCHING							
MISSING ACFT NOT RECOVERED							
MISCELLANEOUS/OTHER	2				2	2	2.94
UNDETERMINED							
RECORDS	17	51				68	
ACCIDENTS	16	51				67	
PERCENTS	25.0	75.0	.0	.0			

ANALYTIC TABLE

FIRST PHASE OF OPERATION BY INJURY INDEX
GLIDERFATAL
SERIOUS
MINOR
NONE

RECORDS ACCIDENTS PERCENT

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>STATIC</u>							
STARTING ENGINE/S							
IDLING ENGINE/S							
ENGINE RUNUP							
IDLING ROTORS							
PARKED-ENGINES NOT OPERATING							
OTHER							
TAXI							
TO TAKEOFF							
FROM LANDING							
OTHER							
GROUND TAXI TO TAKEOFF							
GROUND TAXI FROM LANDING							
GROUND TAXI, OTHER							
AERIAL TAXI TO TAKEOFF							
AERIAL TAXI TO/FROM LANDING							
AERIAL TAXI, OTHER							
<u>TAKEOFF</u>							
RUN	2	1			3	3	4.41
INITIAL CLIMB		1			1	1	1.47
VERTICAL							
RUNNING (ROTORCRAFT/VTOL-STOL)	1				1	1	1.47
ABORTED (FIXED-WING)		1			1	1	1.47
ABORTED (ROTORCRAFT/VTOL)							
ABORTED (ROTORCRAFT/STOL)							
OTHER	1				1	1	1.47
<u>INFLIGHT</u>							
CLIMB TO CRUISE							
NORMAL CRUISE							
DESCENDING	1				1	1	1.47
HOLDING (IFR)							
HOVERING							
POWER-ON DESCENT (ROTORCRAFT)							
AUTOROTATIVE DESCENT							
ACROBATICS							
BUZZING							
UNCONTROLLED DESCENT							

ANALYTIC TABLE

FATAL SERIOUS MINOR NONE

RECORDS ACCIDENTS PERCENT

EMERGENCY DESCENT	3	2	5	4	7.35
LOW PASS					
OTHER					
EN ROUTE TO TREAT CRIP					
EN ROUTE TO RELOADING AREA					
SURVEY FIELD/AREA					
STARTING SWATH RUN					
SWATH RUN					
FLAREOUT FOR SWATH RUN					
PULLUP FROM SWATH RUN					
PROCEDURE TURNAROUND					
CLEANUP SWATH					
MANEUVER TO AVOID OBSTRUCTION					
RETURN TO STRIP					
LANDING					
TRAFFIC PATTERN-CIRCLING	2	1	1	2	8.82
FINAL APPROACH (VFR)	3	6	5	17	45.59
INITIAL APPROACH					
FINAL APPROACH (IFR)					
LEVEL OFF/TOUCHDOWN		6	4	10	14.71
ROLL (FIXED WING)		1	6	7	10.29
ROLL-ON/RUN-ON (ROTORCRAFT)					
POWER-ON LANDING (ROTORCRAFT)					
POWER-OFF AUTOROTATIVE LDG					
GO-AROUND (VFR)					
MISSIED APPROACH (IFR)					
OTHER	1			1	1.47
UNKNOWN/NOT REPORTED					
RECORDS	11	9	16	32	68
ACCIDENTS	11	9	15	32	67
PERCENTS	16.2	13.2	23.5	47.1	

CAUSE/FACTOR TABLE

GLIDER

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 67 TOTAL ACCIDENTS
INVOLVES 11 FATAL ACCIDENTS

(from copy)
*Produced
Reproduced
Available
Test*

FATAL ACCIDENTS						NONFATAL ACCIDENTS						ALL ACCIDENTS					
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR
Pilot	10	1	10	50	8	50	50	60	60	9	60	60	90.91	9.09	90.91	89.29	89.29
PERSONNEL	2	1	3	2	1	3	3	4	4	2	6	6	18.18	9.09	27.27	3.57	1.79
AIRFRAME	.00	.00	.00	.00	1.79	1.79	1	1	1	.00	1.49	1.49					
LANDING GEAR	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					
POWERPLANT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					
SYSTEMS	1	1	1	1	1	1	1	2	2	2	2	2	9.09	9.09	9.09	1.79	1.79
INSTRUMENT/EQUIPMENT & ACCESSORIES	.00	.00	.00	3	3	3	3	3	3	3	3	3				4.48	4.48
ROTORCRAFT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					
AIRPORT/AIRWAYS/FACILITIES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					
WEATHER	1	1	1	13	13	13	1	14	14	1	14	14	.00	9.09	9.09	23.21	23.21
TERRAIN	.00	9.09	9.09	1	1	1	13	14	14	1	14	15					
MISCELLANEOUS	.00	.00	.00	1	1.79	1.79	1	1.49	1.49	1	1.49	1.49					
UNDETERMINED	.00	.00	.00	2	3.57	3.57	2	2	2	2	2	2					

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY. THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE
GLIDER
(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 67 TOTAL ACCIDENTS

INVOLVES 11 FATAL ACCIDENTS

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
** PILOT **									
PILOT IN COMMAND									
ATTEMPTED OPERATION BEYOND EXPERIENCE/ABILITY LEVEL	1		1		1	1	1	1	2
EXCEEDED DESIGN STRESS LIMITS OF AIRCRAFT	1		1		1	1	1	1	1
FAILED TO SEE AND AVOID OTHER AIRCRAFT	2		2	3		3	5		5
FAILED TO SEE AND AVOID OBJECTS OR OBSTRUCTIONS				2		2	2		2
FAILED TO OBTAIN/MAINTAIN FLYING SPEED	5		5		5	5	10		10
MISJUDGED SPEED, ALTITUDE OR CLEARANCE	1		1		5		1		1
FAILED TO USE OR INCORRECTLY USED MISC EQUIPMENT		1	1		1	1	1		1
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES ETC	1		1	1		1	2		2
IMPROPER OPERATION OF FLIGHT CONTROLS				3	3	6	3	3	6
IMPROPER LEVEL OFF				3		3	3		3
IMPROPER IN-FLIGHT DECISIONS OR PLANNING	2		2	9		9	11		11
IMPROPER COMPENSATION FOR WIND CONDITIONS				4		4	4		4
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING	1		1	1		1	2		2
LACK OF FAMILIARITY WITH AIRCRAFT	1		1	3	3	6	3	3	6
EXERCISED POOR JUDGMENT				1	1	1	1	1	1
SELECTED UNSUITABLE TERRAIN				1	1	2	1	1	2
INITIATED FLIGHT IN ADVERSE WEATHER CONDITIONS				1	1	1	1	1	1
SPOONTANEOUS-IMPROPER ACTION				1	1	1	1	1	1
MISJUDGED DISTANCE, SPEED, AND ALTITUDE				1	1	1	1	1	1
MISJUDGED DISTANCE AND SPEED				5	5	5	5	5	5
MISJUDGED DISTANCE AND ALTITUDE				18	18	18	18	18	18
MISJUDGED ALTITUDE AND CLEARANCE				1	1	1	1	1	1
MISJUDGED ALTITUDE				1	1	1	1	1	1
MISJUDGED CLEARANCE				1	1	1	1	1	1
IMPROPER RECOVERY FROM BOUNCED LANDING				1	1	1	1	1	1
PHYSICAL IMPAIRMENT					1	1		1	1
MISUSED OR FAILED TO USE FLAPS					1	1		1	1
SELECTED WRONG RUNWAY RELATIVE TO EXISTING WIND				1	1	2	2	1	3
SUBTOTAL	16	1	17	63	12	75	79	13	92
** PERSONNEL **									
FLIGHT INSTRUCTOR									
Maintenance, Servicing, Inspection									
INADEQUATE MAINTENANCE AND INSPECTION	1		1				1		1
OPERATIONAL SUPERVISORY PERSONNEL									
WEATHER PERSONNEL									
TRAFFIC CONTROL PERSONNEL									
AIRPORT SUPERVISORY PERSONNEL									
FAILURE TO NOTIFY OF UNSAFE COND/AND OR FAILURE TO MARK					1	1	1	1	1
AIRWAYS FACILITIES PERSONNEL									
PRODUCTION-DESIGN-PERSONNEL									
MISCELLANEOUS-PERSONNEL									
PILOT OF OTHER AIRCRAFT	1	1	2	3		3	4	1	5
THIRD PILOT									
FLIGHT ENGINEER									
FLIGHT PERSONNEL									
DISPATCHING (AIR CARRIER ONLY)									
SUBTOTAL	2	1	3	3	1	4	5	2	7
** AIRFRAME **									
WINGS									
FUSELAGE									
WINDSHIELDS, WINDOWS, CANOPIES							1	1	1
LANDING GEAR									
FLIGHT CONTROL SURFACES									
SUBTOTAL					1	1	1	1	1
** SYSTEMS **									

CAUSE/FACTOR TABLE

SYSTEMS (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
ELECTRICAL SYSTEM				1		1	1		1
HYDRAULIC SYSTEM									
OTHER									
FLIGHT CONTROL SYSTEMS				1		1	1		1
WING FLAP CONTROL SYSTEM (HYDRAULIC)									
OTHER			1			1			
ANTI-ICING, DE-ICING SYSTEMS									
AIR CONDITION, HEATING AND PRESSURIZATION									
AUTO PILOT									
FIRE WARNING SYSTEM									
FIRE EXTINGUISHER SYSTEM									
OXYGEN SYSTEM									
OTHER SYSTEMS									
SUBTOTAL			1			2		3	3
** INSTRUMENTS/EQUIPMENT AND ACCESSORIES **									
FLIGHT AND NAVIGATION INSTRUMENTS									
COMMUNICATIONS AND NAVIGATION EQUIPMENT									
MISCELLANEOUS EQUIPMENT				3		3	3		3
GLIDER LAUNCH/TOW EQUIPMENT						3		3	3
SUBTOTAL						3		3	3
** WEATHER **									
UNFAVORABLE WIND CONDITIONS							9	9	9
SUDDEN WINDSHIFT				1		1	1		1
TURBULENCE IN FLIGHT, CLEAR AIR						1	1		1
DOWNDRAFTS, UPDRAFTS				2		2	2		2
HIGH TEMPERATURE						1	1		1
HIGH DENSITY ALTITUDE			1	1					1
SUBTOTAL			1	1	1	13	14	1	14
** TERRAIN **									
HIGH VEGETATION						1	3	1	3
ROUGH/UNEVEN				1		2	2		2
HIGH OBSTRUCTIONS						8	8	9	9
SUBTOTAL			1	1	1	13	14	1	14
** MISCELLANEOUS **									
UNDETERMINED						2	2		2
EVASIVE MANEUVER TO AVOID COLLISION				1		1	1		1
SUBTOTAL						3	3		3
GRAND TOTAL	19	4	23	76	40	116	95	44	139
** MISCELLANEOUS ACTS, CONDITIONS **									
DOWNWIND						2	2		2
DISCONNECTED				1		1	2	1	3
JAMMED						1	1	1	1
RAN OFF END OF RUNWAY						4	4		4
POORLY PLANNED APPROACH				2		3	5	2	5
IMPROPERLY SECURED								1	1
SEPARATION IN FLIGHT			1	2	2		2	2	2
MATERIAL FAILURE						2	2		2

DIRECT ENTRY CAUSES ARE CARRIED UNDER THEIR APPROPRIATE
CAUSAL CATEGORIES AND ARE INCLUDED IN THE TOTALS



ANALYTIC TABLE

KIND OF FLYING BY INJURY INDEX
GLIDER

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
INSTRUCTIONAL							
DUAL	1	1	3		5	5	7.35
Solo	2	1	4		7	7	10.29
CHECK							
TRAINING	1	2	2		4	4	5.88
NONCOMMERCIAL							
PLEASURE	8	5	13	22	48	47	70.59
PRACTICE	1	1	1		3	3	4.41
BUSINESS							
CORPORATE/EXECUTIVE							
AERIAL SURVEY							
COMPANY FLIGHT							
OTHER							
COMMERCIAL							
AERIAL APPLICATION							
CROP CONTROL RELATED FLIGHT							
FIRE CONTROL							
FIRE CONTROL RELATED FLIGHT							
AERIAL MAPPING/PHOTOGRAPHY							
AERIAL ADVERTISING							
POWER AND PIPELINE PATROL							
FISH SPOTTING							
AIR TAXI-PASSENGER OPERATIONS							
AIR TAXI-CARGO OPERATIONS							
CONSTRUCTION WORK							
SCHEDULED PASSENGER SERVICE							
SCHEDULED CARGO SERVICE							
INTRA-STATE CHARTER PASSG.							
INTRA-STATE CHARTER CARGO							
MILITARY CONTRACT-PASSENGER							
MILITARY CONTRACT-CARGO							
CHARTER CARGO-DOMESTIC							
CHARTER PASSG-DOMESTIC							
CHARTER-CARGO-INTERNATIONAL							
CHARTER-PASSG-INTERNATIONAL							
OTHER							
UNKNOWN/NOT REPORTED							

ANALYTIC TABLE

FATAL SERIOUS MINOR NONE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
MISCELLANEOUS							
EXPERIMENTATION							
TEST							
DEMONSTRATION							
FERRY							
SEARCH AND RESCUE							
AIR SHOW/AIR RACING			1			1	1 1.47
PARACHUTE JUMP							
PARACHUTE JUMP-AIR SHOW							
TOWING GLIDERS							
SEEDING CLOUDS							
HUNTING							
POLICE PATROL							
HIGHWAY TRAFFIC ADVISORY							
ALL OTHER PUBLIC FLYING							
OTHER							
UNKNOWN/NOT REPORTED							
RECORDS	11	9	16	32			68
ACCIDENTS	11	9	15	32			67
PERCENTS	16.2	13.2	23.5	47.1			

INJURIES, ACCIDENTS
GLIDER

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	11	9	15	33		68
COPilot					5	
DUAL STUDENT		1	1	3		
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW		1	2	9		
PASSENGERS						
TOTAL		12	11	18	45	86

* OTHER AIRCRAFT	4					
OTHER GROUND						
				3		7
GRAND TOTAL		16	11	18	48	93

INVOLVES 67 TOTAL ACCIDENTS
INVOLVES 11 FATAL ACCIDENTS

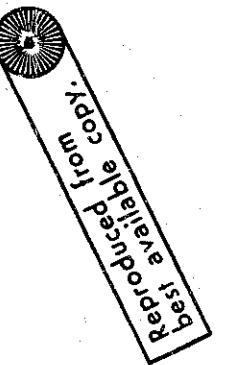
* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

COLLISIONS BETWEEN AIRCRAFT

ANALYTIC TABLE

TYPE OF COLLISION BY INJURY INDEX

	RECORDS	ACCIDENTS	PERCENT
ATRIAL SERIOUS MINOR NONFATAL			
BOTH IN FLIGHT	45	4	6
ONE AIRBORNE		4	2
BOTH ON GROUND		2	4
		13	12
		12	29
		54	43.9
		28	43.9
		12	9.8
		6	8.1
		5	6
		10	10
		47	47
ONCE IN FLIGHT			
ONE AIRBORNE	18	1	5
BOTH ON GROUND	37	19	30.08
	68	35	55.28
	18	9	14.63



ANALYTIC TABLE

FIRST PHASE OF OPERATION BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>STATIC</u>							
STARTING ENGINE/S		1			1	1	.81
IDLING ENGINE/S	1	4			5	4	4.07
ENGINE RUNUP		4			4	4	3.75
IDLING ROTORS		1			1	1	.81
PARKED-ENGINES NOT OPERATING							
<u>OTHER</u>							
<u>TAXI</u>							
TO TAKEOFF		10			10	9	8.13
FROM LANDING	1	5			6	6	4.88
OTHER		1			1	1	.81
GROUND TAXI TO TAKEOFF							
GROUND TAXI FROM LANDING		1			1	1	.81
GROUND TAXI, OTHER							
AERIAL TAXI TO TAKEOFF							
AERIAL TAXI TO/FROM LANDING							
AERIAL TAXI, OTHER							
<u>TAKEOFF</u>							
RUN	3	1			4	4	3.25
INITIAL CLIMB	1	1			2	2	1.63
<u>VERTICAL</u>							
RUNNING (ROTORCRAFT/VTOL-STOL)							
ABORTED (FIXED-WING)							
ABORTED (ROTORCRAFT/VTOL)							
ABORTED (ROTORCRAFT/STOL)							
OTHER							
<u>INFILIGHT</u>							
CLIMB TO CRUISE	2		1		3	3	2.44
NORMAL CRUISE	13	2	2	2	19	10	15.45
DESCENDING	3				3	3	2.44
HOLDING (IFR)							
HOVERING							
POWER-ON DESCENT (ROTORCRAFT)							
AUTOROTATIVE DESCENT							
ACROBATICS							
BUZZING							
UNCONTROLLED DESCENT							

ANALYTIC TABLE

FIRST PHASE OF OPERATION BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>STATIC</u>							
STARTING ENGINE/S		1			1	1	.81
IDLING ENGINE/S	1	4			5	4	4.07
ENGINE RUNUP		4			4	4	3.25
IDLING ROTORS		1			1	1	.81
PARKED-ENGINES NOT OPERATING							
<u>OTHER</u>							
<u>TAXI</u>							
TO TAKEOFF		10			10	9	8.13
FROM LANDING	1	5			6	6	4.88
OTHER		1			1	1	.81
GROUND TAXI TO TAKEOFF							
GROUND TAXI FROM LANDING		1			1	1	.81
GROUND TAXI, OTHER							
AERIAL TAXI TO TAKEOFF							
AERIAL TAXI TO/FROM LANDING							
AERIAL TAXI, OTHER							
<u>TAKEOFF</u>							
RUN	3	1			4	4	3.25
INITIAL CLIMB	1	1			2	2	1.63
VERTICAL							
RUNNING (ROTORCRAFT/VTOL-STOL)							
ABORTED (FIXED-WING)							
ABORTED (ROTORCRAFT/VTOL)							
ABORTED (ROTORCRAFT/STOL)							
OTHER							
<u>INFLIGHT</u>							
CLIMB TO CRUISE	2		1		3	3	2.44
NORMAL CRUISE	13	2	2	2	19	10	15.45
DESCENDING	3				3	3	2.44
HOLDING (IFR)							
HOVERING							
POWER-ON DESCENT (ROTORCRAFT)							
AUTOROTATIVE DESCENT							
ACROBATICS							
BUZZING							
UNCONTROLLED DESCENT							

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
EMERGENCY DESCENT							
LOW PASS		1			1	1	.81
OTHER	8	2			10	5	8.13
EN ROUTE TO TREAT CROP							
EN ROUTE TO RELOADING AREA							
SURVEY FIELD/AREA							
STARTING SWATH RUN							
SWATH RUN							
FLAREOUT FOR SWATH RUN							
PULLUP FROM SWATH RUN							
PROCEDURE TURNAROUND	1				1	1	.81
CLEANUP SWATH							
MANEUVER TO AVOID OBSTRUCTION							
RETURN TO STRIP	1				1	1	.81
<u>LANDING</u>							
TRAFFIC PATTERN-CIRCLING	4	2			6	4	4.88
FINAL APPROACH (VFR)	9	1	2		12	7	9.76
INITIAL APPROACH							
FINAL APPROACH (IFR)							
LEVEL OFF/TOUCHDOWN	2	1	15		18	11	14.63
ROLL (FIXED WING)	2	2	2	5	11	10	8.94
ROLL-ON/RUN-ON (ROTORCRAFT)							
POWER-ON LANDING (ROTORCRAFT)							
POWER-OFF AUTOROTATIVE LDG							
GO-AROUND (VFR)	2				2	2	1.63
MISSIED APPROACH (IFR)							
OTHER	1				1	1	.81
UNKNOWN/NOT REPORTED							
RECORDS	47	10	12	54	123		
ACCIDENTS	24	5	6	28		63	
PERCENTS	38.2	8.1	9.8	43.9			

CAUSE/FACTOR TABLE

COLLISIONS

(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 61 TOTAL ACCIDENTS

INVOLVES 22 FATAL ACCIDENTS

BRIDAL CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*	CAUSE	FACTOR	TOTAL*
PILOT	21 95.45	3 13.64	21 95.45	39 100.00	7 17.95	39 100.00	60 98.36	10 16.39	60 98.34
PERSONNEL	22 100.00	2 9.09	27 100.00	37 94.97	4 10.26	37 94.97	59 96.72	6 9.84	59 96.77
AIRFRAME	•00	•00	•00	•00	•00	•00	•00	•00	•00
LANDING GEAR	•00	•00	•00	•00	•00	•00	•00	•00	•00
POWERPLANT	•00	•00	•00	•00	•00	•00	•00	•00	•00
SYSTEMS	•00	•00	•00	•00	•00	•00	•00	•00	•00
INSTRUMENTS/EQUIPMENT & ACCESSORIES	•00	•00	•00	•00	•00	•00	•00	•00	•00
ROTORGRAFT	•00	•00	•00	•00	•00	•00	•00	•00	•00
AIRPORT/AIRWAYS/FACILITIES	•00	•00	•00	•00	•00	•00	•00	•00	•00
WEATHER	•00	•00	•00	•00	•00	•00	•00	•00	•00
TERRAIN	•00	•00	•00	•00	•00	•00	•00	•00	•00
MISCELLANEOUS	1 4.55	1 4.55	2 •00	2 5.13	2 •00	2 5.13	2 •00	2 3.28	2 3.28
UNDETERMINED	•00	•00	•00	•00	•00	•00	•00	1 1.64	1 1.64

THE FIGURES OPPOSITE EACH CAUSAL CATEGORY REPRESENT THE NUMBER AND PERCENT OF ACCIDENTS IN WHICH THAT PARTICULAR CAUSAL CATEGORY WAS ASSIGNED

* IF AN ACCIDENT INCLUDES BOTH A CAUSE AND RELATED FACTOR IN THE SAME CAUSAL CATEGORY, THE ACCIDENT IS REPRESENTED ONCE UNDER THE TOTAL FOR THAT CATEGORY

CAUSE/FACTOR TABLE
COLLISIONS
(EXCLUDES ACCIDENTS WITHOUT CAUSAL ASSIGNMENT)

INVOLVES 61 TOTAL ACCIDENTS
INVOLVES 22 FATAL ACCIDENTS

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
** PILOT **									
PILOT IN COMMAND									
DELAYED IN INITIATING GO-AROUND	2	1	1						1
DIVERTED ATTENTION FROM OPERATION OF AIRCRAFT	2	4	6						10
FAILED TO SEE AND AVOID OTHER AIRCRAFT	27	27	41	2	43	48	2	2	70
FAILED TO USE OR INCORRECTLY USED MISC EQUIPMENT	1	3	4				1	2	3
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES ETC	5	5	6	15	14	6			20
IMPROPER OPERATION OF BRAKES AND/OR FLIGHT CONTROLS			1	1	1				1
INADEQUATE PREFLIGHT PREPARATION AND/OR PLANNING			2	2					2
INADEQUATE SUPERVISION OF FLIGHT			1	1	1				1
OPERATED CARLESSLY			1	1	1				1
SELECTED UNSUITABLE TERRAIN			1	1	1				1
IMPROPER STARTING PROCEDURES		1	1			1		1	1
SPONTANEOUS-IMPROPER ACTION			1			1			1
MISJUDGED SPEED AND CLEARANCE			3	3	6				6
MISJUDGED CLEARANCE			1	1	1				1
INCAPACITATION			1	1	2				2
SELECTED WRONG RUNWAY RELATIVE TO EXISTING WIND			1	1	1				1
FAILED TO INITIATE GO-AROUND			1	1	1				1
SUBTOTAL	39	6	45	66	12	78	105	18	123
DUAL STUDENT									
FAILED TO SEE OTHER AIRCRAFT	1		1			1	2		2
FAILED TO FOLLOW APPROVED PROCEDURES, DIRECTIVES, ETC	1		1			1		1	1
SUBTOTAL	2		2		1		1	3	3
** PERSONNEL **									
FLIGHT INSTRUCTOR									
MAINTENANCE, SERVICING, INSPECTION									
OPERATIONAL SUPERVISORY PERSONNEL									
WEATHER PERSONNEL									
TRAFFIC CONTROL PERSONNEL									
FAILURE TO ADVISE OF OTHER TRAFFIC	2		2		4	4	2	4	6
INADEQUATE SPACING OF AIRCRAFT	2		2	2		2	4		4
FAILURE TO PROPERLY IDENTIFY AIRCRAFT ON RADAR	1	1	2		1	1	1	1	2
OTHER									
AIRPORT SUPERVISORY PERSONNEL									
AIRWAYS FACILITIES PERSONNEL									
PRODUCTION-DESIGN-PERSONNEL									
MISCELLANEOUS-PERSONNEL									
PILOT OF OTHER AIRCRAFT									
THIRD PILOT									
FLIGHT ENGINEER									
FLIGHT PERSONNEL									
DISPATCHING (AIR CARRIER ONLY)									
SUBTOTAL	31	1	32	50	1	51	81	2	83
** TERRAIN **									
WET, SOFT GROUND									
SNOW-COVERED									
SUBTOTAL					1	1	1	2	1
DIRECT ENTRIES					2	2	2		2
SUBTOTAL					2	2	2		2
GRAND TOTAL	79	8	87	119	21	140	198	29	227

** MISCELLANEOUS ACTS, CONDITIONS **

Reproduced from
best available copy.

CAUSE/FACTOR TABLE

MISCELLANEOUS ACTS, CONDITIONS (CONTINUED)

DETAILED CAUSE/FACTOR	FATAL ACCIDENTS			NONFATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
FAILED TO USE LANDING LIGHT(S)	2		2				2		2
ALTIMETER SETTING-INCORRECT		1	1					1	1
CREW COORDINATION-POOR		1	1					1	1
DISREGARD OF GOOD OPERATING PRACTICE				2		2		2	2
Poorly Planned Approach	1	1	2		1	1	1	2	3
Congested Traffic-Pattern				2		2		2	2
Alcoholic Impairment of Efficiency and Judgment				1		1		1	1
SunGlare	2		2		3	3		5	5
Aircraft Came to Rest in Water	2		2	1		1		3	3
Touch and Go Landing	3		3					3	3

DIRECT ENTRY CAUSES

ACQUIRE OTH ACFT. DARK NHT.OTH ACFT NOT ILLUM.
ARANCE/COLLISION LIGHTS WERE ILLUMINATED.

DIRECT ENTRY CAUSES ARE CARRIED UNDER THEIR APPROPRIATE
CAUSAL CATEGORIES AND ARE INCLUDED IN THE TOTALS

ANALYTIC TABLE

KIND OF FLYING BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
<u>INSTRUCTIONAL</u>							
DUAL	5		14		19	16	15.45
SOLO	4		1		5	4	4.07
CHECK	1				1	1	.81
TRAINING	4		1		5	4	4.07
<u>NONCOMMERCIAL</u>							
PLEASURE	19	2	9	21	51	35	41.46
PRACTICE	3	2		2	7	7	5.69
BUSINESS	1	1		5	7	7	5.69
CORPORATE/EXECUTIVE			1		1	1	.81
AERIAL SURVEY		2			2	1	1.63
COMPANY FLIGHT							
OTHER							
<u>COMMERCIAL</u>							
AERIAL APPLICATION	1				1	1	.81
CROP CONTROL RELATED FLIGHT	1	2			3	2	2.44
FIRE CONTROL							
FIRE CONTROL RELATED FLIGHT							
AERIAL MAPPING/PHOTOGRAPHY							
AERIAL ADVERTISING		2			2	1	1.63
POWER AND PIPELINE PATROL							
FISH SPOTTING	2		2		4	2	3.25
AIR TAXI-PASSENGER OPERATIONS	1		1	6	8	6	6.50
AIR TAXI-CARGO OPERATIONS				1	1	1	.81
CONSTRUCTION WORK							
SCHEDULED PASSENGER SERVICE							
SCHEDULED CARGO SERVICE							
INTRA-STATE CHARTER PASSG.							
INTRA-STATE CHARTER CARGO							
MILITARY CONTRACT-PASSENGER							
MILITARY CONTRACT-CARGO							
CHARTER CARGO-DOMESTIC							
CHARTER PASSG-DOMESTIC							
CHARTER-CARGO-INTERNATIONAL							
CHARTER-PASSG-INTERNATIONAL							
OTHER							
UNKNOWN/NOT REPORTED							

ANALYTIC TABLE

FATAL
SERIOUS
MINOR
NONE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
MISCELLANEOUS							
EXPERIMENTATION							
TEST							
DEMONSTRATION							
FERRY	1		1		2	2	1.63
SEARCH AND RESCUE							
AIR SHOW/AIR RACING	2				2	1	1.63
PARACHUTE JUMP							
PARACHUTE JUMP-AIR SHOW							
TOWING GLIDERS							
SEEDING CLOUDS							
HUNTING							
POLICE PATROL							
HIGHWAY TRAFFIC ADVISORY							
ALL OTHER PUBLIC FLYING							
OTHER			2		2	1	1.63
UNKNOWN/NOT REPORTED							
RECORDS	47	10	12	54		123	
ACCIDENTS	24	5	6	28		63	
PERCENTS	38.2	8.1	9.8	43.9			

INJURIES, ACCIDENTS
COLLISIONS

INJURIES

	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	34	8	9	72		123
COPILOT		1		5		6
DUAL STUDENT	7			16		23
CHECK PILOT	1					1
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS	9	3		69		81
TOTAL	51	12	9	162		234
* OTHER AIRCRAFT						
OTHER GROUND	135	7		50		185
				16		23
GRAND TOTAL	193	12	25	212		442

INVOLVES 63 TOTAL ACCIDENTS
INVOLVES 24 FATAL ACCIDENTS

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
BOTH AIRCRAFT AIRBORNE
COLLISIONS

INJURIES

	INJURIES			
	FATAL	SERIOUS	MINOR	NONE
PILAT	32	5	6	25
COPILOT		1		
DUAL STUDENT	6			
CHECK PILOT	1			
FLIGHT ENGINEER				
NAVIGATOR				
CABIN ATTENDANT				
EXTRA CREW		2		
PASSENGERS	8			
			12	
				41
TOTAL		47	8	6
				41
* OTHER AIRCRAFT	135			
OTHER GROUND	7			
			16	
				2
GRAND TOTAL	189		8	43
				262
INVOLVES	35	TOTAL ACCIDENTS		
INVOLVES	23	FATAL ACCIDENTS		

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

INJURIES, ACCIDENTS
ONE AIRCRAFT AIRBORNE
COLLISIONS

INJURIES					
FATAL	SERIOUS	MINOR	NONE	UNKNOWN	TOTAL
PILOT	2	1	15	1	18
COPILOT			1		1
DUAL STUDENT				3	3
CHECK PILOT					
FLIGHT ENGINEER					
NAVIGATOR					
CABIN ATTENDANT					
EXTRA CREW					
PASSENGERS					
TOTAL	2	1	32	1	35
ABOARD					
OTHER AIRCRAFT					
OTHER GROUND					
GRAND TOTAL	2	1	32	1	35
INVOLVES	9	TOTAL ACCIDENTS			
INVOLVES		FATAL ACCIDENTS			

INJURIES, ACCIDENTS
COLLISIONS
BOTH AIRCRAFT ON GROUND

INJURIES

	INJURIES			TOTAL		
	FATAL	SERIOUS	MINOR	NONE	UNKNOWN	
PILOT	2	1	2	32		37
COPILOT				4		4
DUAL STUDENT	1			9		9
CHECK PILOT						
FLIGHT ENGINEER						
NAVIGATOR						
CABIN ATTENDANT						
EXTRA CREW						
PASSENGERS	1	1		44		46
TOTAL	4	2	2	89		97

* OTHER AIRCRAFT
OTHER GROUND

INVOLVES	19	TOTAL ACCIDENTS
INVOLVES	1	FATAL ACCIDENTS
GRAND TOTAL	4	2
INVOLVES	137	
GRAND TOTAL	145	

* INJURIES CARRIED OPPOSITE OTHER-AIRCRAFT ARE INJURIES OCCURRING IN AIRCRAFT THAT ARE NOT PART OF THIS SUBJECT TABULATION, BUT WERE PART OF THE TOTAL INJURIES INVOLVED IN COLLISIONS BETWEEN AIRCRAFT.

ANALYTIC TABLE

SEGMENTS OF AVIATION INVOLVED
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
SML US GEN AVN-COLLISION SAME	46	8	12	52			
SML US GEN AVN-LRG US GEN AVN		2				2	1 1.59
SML US GEN AVN-US AIR CARRIER	2		2			4	2 3.17
SML US GEN AVN-US MILITARY			2			2	1 1.59
SML US GEN AVN-FOREIGN GEN AV							
SML US GEN AVN-FOREIGN ACR							
SML US GEN AVN-FOREIGN MIL							
LRG US GEN AVN-COLLISION SAME							
LRG US GEN AVN-US AIR CARRIER							
LRG US GEN AVN-US MILITARY							
LRG US GEN AVN-FOREIGN GEN AV							
LRG US GEN AVN-FOREIGN ACR							
LRG US GEN AVN-FOREIGN MIL							
US AIR CARRIER-US AIR CARRIER							
U.S. AIR CARRIER-U.S. MILITARY							
US ACR-FOREIGN GEN AVIATION							
US AIR CARRIER-FOREIGN ACR							
US AIR CARRIER-FOREIGN MIL							
RECORDS	48	10	12	56		126	
ACCIDENTS	24	5	6	28			43
PERCENTS	38.1	7.9	9.5	44.4			

ANALYTIC TABLE

PILOT AGE BY INJURY INDEX
COLLISIONS

	FATAL	SEVERE	MILD	NO INJ	RECORDS	ACCIDENTS	PERCENT
16			2		2	2	1.63
18	3		1		4	4	3.25
20			1		1	1	.81
21			2		2	2	1.63
22	1		1		2	2	1.63
23	2				2	2	1.63
24	2	1			3	3	2.44
25	2		1		3	3	2.44
26	1	1	5		7	7	5.69
27	2	1			3	3	2.44
28	1	1			2	2	1.63
29	1				1	1	.81
30	2	1	4		7	7	5.69
31	4	1	2		7	7	5.69
32	2		3		5	5	4.07
33	2		3		5	5	4.07
34	1		4		5	5	4.07
35		1	1		2	2	1.63
36	1	1	1	1	4	4	3.25
37	2	1	1		4	4	3.25
38			1		1	1	.81
39	1	1	1		3	3	2.44
40	3	2	1		6	6	4.88
42			1		1	1	.81
43	2				2	2	1.63
45	1	2			2	2	1.63
46	2		1		3	3	2.44
47			3		3	3	2.44
48	2		1		3	3	2.44
49			1		1	1	.81
50		1			1	1	.81
51	1		1		2	2	1.63
52	1		1		2	2	1.63
53	2		1		3	3	2.44
54	1		1		2	2	1.63
55			1		1	1	.81
56		1	2		3	3	2.44

ANALYTIC TABLE

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
57			3		3	3	2.44
58		1			1	1	.81
59		1	1		2	2	1.63
61			2		2	2	1.63
65			1		1	1	.81
67		1	1		2	2	1.63
68			1		1	1	.81
UNKNOWN			1		1	1	.81
RECORDS	47	10	12	54		123	
ACCIDENTS	24	5	6	28			63
PERCENTS	38.2	8.1	9.8	43.9			

ANALYTIC TABLE

PILOT CERTIFICATE BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
STUDENT	9	1	2	5			
PRIVATE	13	2	4	16			
COMMERCIAL	14	3	3	12			
AIRLINE TRANSPORT	1	1	2	3			
PRIVATE W/FLIGHT INSTRUCTOR							
COMM W/FLT INSTRUCTOR	8	2	1	14			
ATR W/FLIGHT INSTRUCTOR	2	1		3			
OTHER							
NONE							
UNKNOWN/NOT REPORTED				1			
RECORDS	47	10	12	54			
ACCIDENTS	24	5	6	28			
PERCENTS	38.2	8.1	9.8	43.9			

ANALYTIC TABLE

PILOT CERTIFICATE BY TYPE OF WEATHER CONDITIONS
COLLISIONS

	STUDENT	PRIVATE	COMMERCIAL	ATR	PRIVATE / FL. INSTR.	COMMERCIAL / FL. INSTR.	ATR / FL. INSTR.	OTHER	NONE	UNKNOWN / NOT REPORTED	RECORDS	ACCIDENTS	PERCENT
VFR	17	35	32	7	25	6			1		123	63	100.00
IFR													
BELLOW MINIMUMS													
UNKNOWN/NOT REPORTED													
RECORDS	17	35	32	7	25	6			1		123		
ACCIDENTS	15	29	26	7	23	6			1			63	
PERCENTS	13.8	28.5	26.0	5.7	19.0	4.9			0.8				

ANALYTIC TABLE

MONTH OF OCCURRENCE BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
01	2		4		6	3	4.88
02	2		2		4	2	3.25
03	2	2	2		6	3	4.88
04	4	2	4		10	5	8.13
05	8	2	6		16	8	13.01
06			4		4	2	3.25
07	2	2	4	8	16	8	13.01
08	6	4	9		19	10	15.45
09	13		13		26	14	21.14
10	6	4			10	5	8.13
11	2				2	1	1.63
12		2	2		4	2	3.25
RECORDS	47	10	12	54	123		
ACCIDENTS	24	5	6	28		63	
PERCENTS	38.2	8.1	9.8	43.9			

MONTH OF OCCURRENCE BY AIRCRAFT DAMAGE
COLLISIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
01	1	3	2		6	3	4.88
02	1	3			4	2	3.25
03	2	4			6	3	4.88
04	4	5	1		10	5	8.13
05	10	5	1		16	8	13.01
06		3	1		4	2	3.25
07	4	10	2		16	8	13.01
08	7	8	4		19	10	15.45
09	9	13	3	1	26	14	21.14
10	6	4			10	5	8.13
11	1		1		2	1	1.63
12		4			4	2	3.25
RECORDS	45	62	15	1	123		
ACCIDENTS	31	44	15	1		63	
PERCENTS	36.6	50.4	17.2	.8			

ANALYTIC TABLE

STATE OF OCCURRENCE BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
ALASKA	6				6	3	4.88
ARIZONA	2	2	3		7	4	5.60
CALIFORNIA	13	6			19	10	15.45
FLORIDA	2	4			6	3	4.88
GEORGIA		2			2	1	1.63
HAWAII		2			2	1	1.63
IDAHO	2				2	1	1.63
ILLINOIS	2	2			4	2	3.25
INDIANA	4	2			6	3	4.88
KANSAS	2				2	1	1.63
KENTUCKY	2	2			4	2	3.25
LOUISIANA	2	2	3		7	4	5.60
MAINE		2			2	1	1.63
MARYLAND							
MASSACHUSETTS	2	6			8	4	6.50
MICHIGAN	2				2	1	1.63
MINNESOTA		6			4	2	3.25
MISSISSIPPI							
NEVADA	2				2	1	1.63
NEW JERSEY		2			2	1	1.63
NEW YORK		2	4		6	3	4.88
NORTH CAROLINA	2	2			4	2	3.25
OHIO	2				2	1	1.63
OKLAHOMA		2			2	1	1.63
PENNSYLVANIA		2			2	1	1.63
TENNESSEE	2				2	1	1.63
TEXAS	2	2			4	2	3.25
UTAH		2			2	1	1.63
VIRGINIA	2	4			6	3	4.88
WASHINGTON	2				2	1	1.63
WISCONSIN	2	2			4	2	3.25
RECORDS	47	19	12	54		123	
ACCIDENTS		24	9	6	28		63
PERCENTS		38.2	8.1	9.8	43.9		

ANALYTIC TABLE
STATE OF OCCURRENCE BY AIRCRAFT DAMAGE
COLLISIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
ALASKA	6				6	3	4.88
ARIZONA	3	2	2		7	4	5.69
CALIFORNIA	7	10	2		19	10	15.45
FLORIDA	1	3	2		6	3	4.88
GEORGIA		2			2	1	1.63
HAWAII		1	1		2	1	1.63
IDAHO	1	1			2	1	1.63
ILLINOIS	2	2			4	2	3.25
INDIANA	4	1	1		6	3	4.88
KANSAS	2				2	1	1.63
KENTUCKY	1	1	2		4	2	3.25
Louisiana	3	4			7	4	5.69
MAINE		2			2	1	1.63
MARYLAND							
MASSACHUSETTS	2	5	1		8	4	6.50
MICHIGAN	1	1			2	1	1.63
MINNESOTA		3	1		4	2	3.25
MISSISSIPPI							
NEVADA	2				2	1	1.63
NEW JERSEY		2			2	1	1.63
NEW YORK		5	1		6	3	4.88
NORTH CAROLINA	1	2	1		4	2	3.25
OHIO	2				2	1	1.63
OKLAHOMA		2			2	1	1.63
PENNSYLVANIA		2			2	1	1.63
TENNESSEE	2				2	1	1.63
TEXAS	1	3			4	2	3.25
UTAH		2			2	1	1.63
VIRGINIA	2	3	1		6	3	4.88
WASHINGTON		2			2	1	1.63
WISCONSIN		3	1		4	2	3.25
RECORDS	45	62	15	1	123		
ACCIDENTS	31	44	15	1		63	
PERCENTS	36.6	50.4	12.2	.8			

ANALYTIC TABLE

TYPE OF AIRCRAFT BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
FIXED-WING	46	10	10	51	116	61	94.31
HELICOPTER				2	2	1	1.63
GLIDER	2		2	1	5	4	4.07
BALLOON							
BLIMP							
DIRIGIBLE							
ROCKET							
CONVERTIPLANE							
GYROPLANE							
OTHER							
RECORDS	47	10	12	54	123		
ACCIDENTS	24	5	6	28		63	
PERCENTS	38.2	8.1	9.8	43.9			

ANALYTIC TABLE

TYPE AIRCRAFT BY AIRCRAFT DAMAGE
COLLISIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
FIXED-WING	41	59	15	1	116	61	94.31
HELICOPTER			2		2	1	1.63
GLIDER	4	1			5	4	4.07
BALLOON							
BLIMP							
DIRIGIBLE							
ROCKET							
CONVERTIPLANE							
GYROPLANE							
OTHER							
RECORDS	45	62	15	1	123		
ACCIDENTS	31	44	15	1		63	
PERCENTS	36.6	50.4	12.2	.8			

ANALYTIC TABLE

TYPE OF POWER BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
RECIPROCATING ENGINE	44	9	9	51	113	61	91.87
TURBOJET ENGINE		1			1	1	.81
TURBOPROP ENGINE		1			1	1	.81
TURBOFAN ENGINE		1			1	1	.81
NONE	2	2	1		5	4	4.07
TURBOSHAFT		2			2	1	1.63
RECORDS	47	10	12	54	123		
ACCIDENTS	24	5	6	28		63	
PERCENTS	38.2	8.1	9.8	43.9			

ANALYTIC TABLE

TYPE POWER BY AIRCRAFT DAMAGE
COLLISIONS

	DESTROYED	SUBSTANTIAL	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
RECIPROCATING ENGINE	40	57	15	1	113	61	91.87
TURBOJET ENGINE		1			1	1	.81
TURBOPROP ENGINE		1			1	1	.81
TURBOFAN ENGINE		1			1	1	.81
NONE	4	1			5	4	4.07
TURBOSHAFT		2			2	1	1.63
RECORDS	45	62	15	1	123		
ACCIDENTS	31	44	15	1		63	
PERCENTS	36.6	50.4	12.2	.8			

ANALYTIC TABLE

TYPE OF FLIGHT PLAN BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT	
NONE	44	8	11	49		112	60	91.06
VFR	2			3		5	4	4.07
IFR	1	1		1		3	3	2.44
CONTROLLED VFR				1		1	1	.81
IFR (VFR CONDITIONS ON TOP)								
TOWER EN ROUTE CONTROL SERVICE								
OVER								
VFR FLIGHT FOLLOWING SERVICE								
SPECIAL VFR								
OTHER		1				1	1	.81
UNKNOWN/NOT REPORTED				1		1	1	.81
RECORDS	47	10	12	54		123		
ACCIDENTS	24	5	6	28			63	
PERCENTS	38.2	8.1	9.8	43.9				

ANALYTIC TABLE

TYPE OF WEATHER CONDITIONS BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT	
VFR	47	10	12	54		123	63	100.00
IFR								
BELLOW MINIMUMS								
UNKNOWN/NOT REPORTED								
RECORDS	47	10	12	54		123		
ACCIDENTS	24	5	6	28			63	
PERCENTS	38.2	8.1	9.8	43.9				

ANALYTIC TABLE

AIRPORT PROXIMITY BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
ON AIRPORT	13	8	8	47	76	39	61.79
ON SEAPLANE BASE							
ON HELIPORT			2		2	1	1.63
ON BARGE/SHIP/PLATFORM							
IN TRAFFIC PATTERN	4		2		6	3	4.88
WITHIN 1/4 MILE	4				4	2	3.25
WITHIN 1/2 MILE	2				2	1	1.63
WITHIN 3/4 MILE							
WITHIN 1 MILE							
WITHIN 2 MILES	6				6	3	4.88
WITHIN 3 MILES	3				3	2	2.44
WITHIN 4 MILES	1				1	1	.81
WITHIN 5 MILES							
BEGOND 5 MILES	13	2	4	3	22	12	17.89
UNKNOWN/NOT REPORTED	1				1	1	.81
RECORDS	47	10	12	54	123		
ACCIDENTS	24	5	6	28		63	
PERCENTS	38.2	8.1	9.8	43.9			

ANALYTIC TABLE

CONTROLLED/UNCONTROLLED AIRPORT BY INJURY INDEX
COLLISIONS

	FATAL	SERIOUS	MINOR	NONE	RECORDS	ACCIDENTS	PERCENT
CONTROLLED AIRPORT	9	4		14	27	15	32.53
UNCONTROLLED AIRPORT	18	6	6	26	56	28	67.47
RECORDS	27	10	6	40	83		
ACCIDENTS	14	5	3	21		43	
PERCENTS	32.5	12.0	7.2	48.2			

ANALYTIC TABLE

CONDITIONS OF LIGHT BY INJURY INDEX
COLLISIONS

FATAL SERIOUS MINOR NONE

	RECORDS	ACCIDENTS	PERCENT
DAWN			
DAYLIGHT	41 8 12 52	113 58	91.87
DUSK	2 2	4 2	3.25
NIGHT (DARK)	2	2	1.63
NIGHT (MOONLIGHT-BRIGHT)	4	4	3.25
UNKNOWN/NOT REPORTED			
RECORDS	47 10 12 54	123	
ACCIDENTS	24 5 6 28	63	
PERCENTS	38.2 8.1 9.8 43.9		

ANALYTIC TABLE

FIRE AFTER IMPACT BY INJURY INDEX
COLLISIONS

FATAL SERIOUS MINOR NONE

	RECORDS	ACCIDENTS	PERCENT
YES	6	5	85.71
UNKNOWN/NOT REPORTED	1	1	14.29
RECORDS	7		
ACCIDENTS	6		
PERCENTS	100.0 .0 .0 .0		

YEARLY ACCIDENT RECORD

ACCIDENTS, FATALITIES, RATES
U. S. GENERAL AVIATION

1969 - 1978

Year	Accidents		Fatalities	Aircraft- Hours Flown (000) c/	Aircraft- Miles Flown (000) c/	Accident Rates		
	Total	Fatal				Per 100,000 Aircraft- Hours Flown	Per Million Aircraft- Miles Flown	Total Fatal
1969	4,767	647	1,495 b/	25,351	3,926,461	18.80	2.55	1.21
1970	4,712 a/	641 a/	1,310	26,030	3,207,127 d/	18.10	2.46	1.47
1971	4,648	661	1,355	25,512	3,143,181	18.22	2.59	1.48
1972	4,256 a/	695 a/	1,426 b/	26,974	3,317,100	15.77	2.57	1.28
1973	4,255 a/	723 a/	1,412	29,974 r/	3,686,802 e/	14.19	2.41	1.15
1974	4,425 a/	729 a/	1,438	31,413 r/	3,863,799 e/	14.08	2.31	1.14
1975	4,237 a/	675 a/	1,345	32,024 r/	3,938,952 e/	13.22	2.10	1.08
1976	4,193 a/	695 a/	1,320	33,922 r/	4,172,406 e/	12.35	2.04	1.00
1977	4,286 a/	702 a/	1,436	35,792 r/	4,402,126 e/	11.97	1.96	0.97
1978	4,494 a/	793 a/	1,770 b/	39,409	4,964,400 e/	11.40	2.01	0.90

a/ Suicide/sabotage accidents included in all computations except rates (1970-1, 1972-3, 1973-2, 1974-2, 1975-2, 1976-4, 1977-1, 1978-2).

b/ Includes air carrier fatalities (1972-5, 1978-142) when in collision with general aviation aircraft.

c/ Source: FAA

d/ Beginning in 1970, the decrease in aircraft-miles flown is the result of a change in the standard for estimating miles flown.

e/ Estimated by NTSB.

r/ Revised by FAA.

EXPLANATORY NOTES

GENERAL AVIATION

General Aviation refers to the operation of U.S. Civil Aircraft owned and operated by persons, corporations, etc., other than those engaged in U.S. air carrier operations. (U.S. air carrier operations include the certificated route air carriers, supplemental air carriers, and commercial operators of large aircraft).

AIRCRAFT ACCIDENT

The accidents included herein are the occurrences incident to flight in which, "as a result of the operation of an aircraft, any person (occupant or nonoccupant) receives fatal or serious injury or any aircraft receives substantial damage." The definition of substantial damage is:

- (1) Except as provided in subparagraph (2) of this paragraph, substantial damage means damage or structural 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.
- (2) Engine failure, damage limited to an engine, bent fairings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, damage to landing gear, wheels, tires, flaps engine accessories, brakes, or wingtips are not considered "substantial damage" for this part.

INJURY INDEX

Injury index refers to the highest degree of personal injury sustained as a result of the accident.

FATAL INJURY

Any injury which results in death within 7 days of the accident.

SERIOUS INJURY

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) involves lacerations which cause severe hemorrhages, nerve, muscle, or tendon damage; 4) involves injury to any internal organ; or 5) involves second- or third-degree burns, or any burns affecting more than 5 percent of body surface.

EXPLANATORY NOTES

TYPE OF ACCIDENT

Type of accident relates to the immediate circumstances of the occurrence. Many accidents involve a series of circumstances and therefore require a second type to more fully describe the sequence of events. The fold out page shows the relationship of first and second accidents types. Some examples of types of accidents are as follows:

Gear Collapsed

Collapse of the landing gear due to mechanical failure other than a malfunction of the retracting mechanism.

Gear Retracted

Retraction of the landing gear due to malfunction or failure of the retracting mechanism or to inadvertent retraction by the crew. Excludes intentional gear retraction and wheels-up landing.

Airframe Failure

Occurrences resulting from failure of any part of the airframe while in flight or in motion on the ground. Excludes failure resulting from contact with another airplane or object, or impact with the ground, or damage from landing gear collapse or retraction.

Engine Failure/Malfunction

Occurrences of engine failure or malfunction for any reason. Includes engine stoppage, power interruption or power loss.

PHASE OF OPERATION

The phase of operation relates to the particular segment of the flight or operation during which the circumstances of the accident occur.

KIND OF FLYING

Refers to the purpose for which the aircraft is being operated at the time of the accident. There are four broad categories of kind of flying.

1. Instructional Flying

Refers to flying accomplished in supervised training under the direction of an accredited instructor.

EXPLANATORY NOTES

KIND OF FLYING

2. Noncommercial Flying

Refers to the use of an aircraft for purposes of pleasure, personal transportation or in connection with a private business, in corporate/executive operations, and in other operations, wherein there is no direct monetary fee charged. It includes the following categories.

Pleasure

Flying by individuals in their own or rented aircraft for pleasure, or personal transportation not in furtherance of their occupation or company business.

Business

The use of aircraft by pilots (not receiving direct salary or compensation for piloting) in connection with their occupation or in the furtherance of a private business.

Corporate/Executive Operations

The use of aircraft owned or leased, and operated by a corporation or business firm for the transportation of personnel or cargo in furtherance of the corporation's or firm's business, and which are flown by professional pilots receiving a direct salary or compensation for piloting.

3. Commercial Flying

Commercial flying includes all general aviation flying normally conducted for direct financial return, except instructional flying. It includes air taxi operations, aerial application, fire control, aerial mapping or photography, aerial advertising, power/pipeline patrol and fish spotting.

4. Miscellaneous Flying

Includes other kinds of flying not covered under the other three broad categories. In some instances, the criterion of direct financial return may or may not be present.

COLLISION BETWEEN AIRCRAFT

Collisions between aircraft are so classified only when both aircraft are occupied. This includes collisions wherein both aircraft are airborne (midair); one is airborne, the other on the ground; and both are on the ground. A collision with a parked, unoccupied aircraft is classified under the broad category of collision with objects (parked, unoccupied aircraft). A collision between aircraft is treated as one accident in the overall total. However, each aircraft involved in a collision is analyzed completely.

EXPLANATORY NOTES

COLLISION BETWEEN AIRCRAFT

and coded, thus two aircraft accident records are produced -- one for each aircraft. These records contain the same broad categories of coded data; however, the specific entries, such as type of aircraft, kind of flying, and phase of operation, may not be common to each aircraft. As a result, the number of accidents may differ in the various tables depending on whether collisions are involved. If collisions are involved, the number of accidents would depend on whether the selected data are common to each aircraft. For example, in a table which shows the number of accidents in the various kinds of flying, if each of the colliding aircraft was conducting pleasure flying, one accident would appear in the pleasure flying column. However, if one aircraft was engaged in pleasure flying and the other was conducting dual instruction, the accident would appear twice -- in the pleasure flying column and in the dual instruction column.

CAUSES AND RELATED FACTORS

In determining probable cause(s) of an accident, all facts, conditions, and circumstances are considered. The objective is to ascertain those cause-effect relationships in the accident sequence about which something can be done to prevent recurrence of the type of accident under consideration. For statistical purposes where two or more causes exist in an accident, each is recorded and no attempt is made to establish a primary cause. Therefore, in the cause/related factor tables, the figures shown in the columns dealing with cause may exceed the total number of accidents. The term "factor" is used, in general, to denote those elements of an accident which further explain or supplement the probable cause(s). This provision was incorporated in the coding system to increase flexibility and to provide a means for collecting essential items of information which could not be readily categorized elsewhere in the system.

The number of total accidents and fatal accidents shown in the cause/factor tables may not agree with the number of total accidents or fatal accidents in other tables covering the same basic aircraft category or operational segment of General Aviation. This is because accidents that occurred on foreign soil were investigated and analyzed for cause by the government of the country involved, and in many cases the final report has been received. All accidents awaiting final causal determination were excluded from the cause/factor tables.

AIRCRAFT WEIGHT CATEGORIES

The International Civil Aviation Organization's categories of aircraft weight are utilized to classify accident data as follows:

0 -	2,250 kilograms	(0 -	4,960 pounds)
2,251 -	5,700 kilograms	(4,961 -	12,565 pounds)
5,701 -	27,000 kilograms	(12,566 -	59,525 pounds)
27,001 -	272,000 kilograms	(59,526 -	599,650 pounds)
272,001 -	kilograms and greater	(599,651 pounds and greater)	

EXPLANATORY NOTES

SMALL FIXED-WING AIRCRAFT

Fixed-wing aircraft which have a maximum gross takeoff weight of 5700 kilograms (12,565 pounds), or less.

LARGE FIXED-WING AIRCRAFT

Fixed-Wing aircraft which have a maximum takeoff weight greater than 5,700 kilograms (12,565 pounds).

ROTORCRAFT

Aircraft which in all usual flight attitudes are supported in the air wholly or in part by a rotor or rotors; i.e., by airfoils rotating or revolving about an axis.

TYPES OF WEATHER CONDITIONS

The types of weather conditions (VFR/IFR) are determined in accordance with the prescribed minima in Part 91 of the Federal Aviation Regulations. These minima pertain to the ceiling and visibility, in conjunction with the type of airspace, at the accident site. Type of weather conditions are based on surface weather as determined from officially recognized sources. Weather conditions encountered in flight are not necessarily representative of the classifications VFR/IFR as carried under Type of Weather Conditions.

ABBREVIATIONS

AIRCRAFT

SFW - Small Fixed-Wing
LFW - Large Fixed-Wing
ROTOR - Rotorcraft

ENGINES

SE - Single Engine
ME - Multiengine

AIRCRAFT DAMAGE

DEST - Destroyed
SUBST - Substantial

WEATHER CONDITIONS AND/OR TYPE OF FLIGHT PLAN

VFR - Visual Flight Rules
IFR - Instrument Flight Rules
DVFR - Defense Visual Flight Rules

EXPLANATORY NOTES

ABBREVIATIONS

MISCELLANEOUS

EST - Estimated

FAA - Federal Aviation Administration

FAR - Federal Aviation Regulations

NA - Not Available

PASSG - Passenger

UNK - Unknown