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# NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

## ANNUAL REVIEW OF AIRCRAFT ACCIDENT DATA

U.S. GENERAL AVIATION  
CALENDAR YEAR 1983

NTSB/ARG-87/01

UNITED STATES GOVERNMENT

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## INTRODUCTION

This report presents a statistical compilation and review of general aviation accidents which occurred in 1983. The accidents reported are all those involving U.S. registered aircraft not conducting air carrier revenue operations under 14 CFR 121, 14 CFR 125, 14 CFR 127, or 14 CFR 135.

Accident data upon which this review is based have been extracted from the Safety Board's automated Aviation Accident Data System. Flight hours used for computing accident rates were estimated using data published by the Federal Aviation Administration.

This report is divided into sections, each of which (except for the "All Operations" section) presents a review of a subset of all general aviation accidents. Each subset represents aircraft of similar types or aircraft being operated for particular purposes.

In general, each section begins with an overview of accidents and their consequences for 1983 and for each of the two preceding years. Several tables then present accident parameters for 1983 only. Concluding each section are tabulations which present comparative statistics for 1983 and for the five-year period 1978-1982.

In 1983, a total of 3,107 U.S. registered general aviation aircraft were involved in accidents in the United States and its territories. Since a collision between aircraft is counted as one accident for the purposes of this report, and since there were 32 cases in which two general aviation aircraft collided, the number of accidents in 1983 was 3,075.

The total number of accidents in 1983 decreased 4.8 percent from 1982. The number of fatal accidents decreased by 5.8 percent from the 1982 total. There also was a decrease of 10.0 percent in the number of fatalities in 1983. In spite of the decreases in the numbers, the total and fatal accident rates were slightly greater in 1983 than the average of the three preceding years.

The lowest accident rates (total and fatal) among aircraft types were recorded for turbojet airplanes. The highest total accident rate was for reciprocating engine powered rotorcraft (25.27 accidents per 100,000 hours flown). This rate was 2.6 times the rate for all aircraft. Reciprocating engine powered rotorcraft also had the highest fatal accident rate (3.53 fatal accidents per 100,000 hours flown), almost double that for all aircraft.

For categories under kind of flying, the highest rate for total accidents was found in aerial application. The highest rate of fatal accidents was recorded for the personal/business combination. The fatal accident rate for the personal/business combination was almost 3.4 times greater than for aerial application. The total and fatal accident rates are depicted graphically in figures 1, 2, and 3.

The NTSB no longer uses accident types (first and second type) to describe an accident but rather, as of 1982, uses a classification called occurrences which describes more precisely the sequence of events in an accident. Table 6 presents a list of the occurrences which are being used. Up to five occurrences may be used to describe an accident sequence. Although similar in appearance to the accident types formerly used by the Board, the application of the occurrences differs significantly from that of accident types, by providing a better description of the accident scenario and by facilitating citation of underlying causes. The majority of tables in this report that list occurrences are based only on the first occurrence in the accident sequence. Further explanation of the terms used in this report is provided in Appendix A.

To facilitate comparison of 1982 and 1983 occurrences to accident types under the pre-1982 system, similar types of occurrences have been combined into categories resembling accident types. (A table comparing occurrence types with the accident types previously used is presented in appendix A.) Table 22 presents this comparison for all operations. Similar tables are included for each category of aircraft type and kind of flying.

Table 1 - SUMMARY OF LOSSES  
ALL OPERATIONS  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	555	589	654
Involved Serious Injury	319	338	349
Involved Minor Injury	431	420	551
Involved No Injury	1770	1884	1946
	----	----	----
Total	3075	3231	3500
Fatalities			
-----			
Passenger	484	550	571
Crew	573	616	690
Other Persons	7	16	21
	----	----	----
Total	1064	1182	1282
Aircraft Damaged*			
-----			
Destroyed	860	977	1121
Substantial	2205	2246	2389
Minor	12	21	14
None	30	20	7
Unknown	0	6	1
	----	----	----
Total	3107	3270	3532

\* Number of General Aviation Aircraft

Table 2 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
BY TYPE OF AIRCRAFT AND BY KIND OF FLYING  
ALL OPERATIONS  
1983

Type of Aircraft	Accidents	Fatal Accidents	Fatalities Aboard	Accident Rate Per 100,000 Aircraft Hours Flown	
				Total	Fatal
Fixed Wing	2729	503	985	9.43	1.74
Single Recip. Engine	2439	419	771	11.01	1.89
Multiple Recip. Engine	243	74	188	6.35	1.93
Turboprop	33	10	19	2.26	0.68
Turbojet	14	4	6	0.96	0.28
Rotorcraft	238	37	56	13.93	2.17
Recip. Engine(s)	143	20	25	25.27	3.53
Turbine Powered	95	17	31	8.31	1.49
Gliders	71	11	11	N/A	N/A
Kind of Flying					
Personal	1884	398	772	13.78*	2.87*
Business	276	52	114		
Corporate/Executive	39	6	23	0.74	0.11
Aerial Application	254	15	15	14.32	0.85
Instructional	379	26	40	6.51	0.45
All Aircraft	3075	555	1057	9.90	1.79

\* The accident rate per 100,000 flying hours is presented for the combination of personal flying and business flying and not for each category separately. The NTSB has previously stated its objections to presenting separate rates until exposure data are available which depict a more credible division of flying hours between the two categories.

**FIG-1 Airplane Accident Rates by Type of Power**

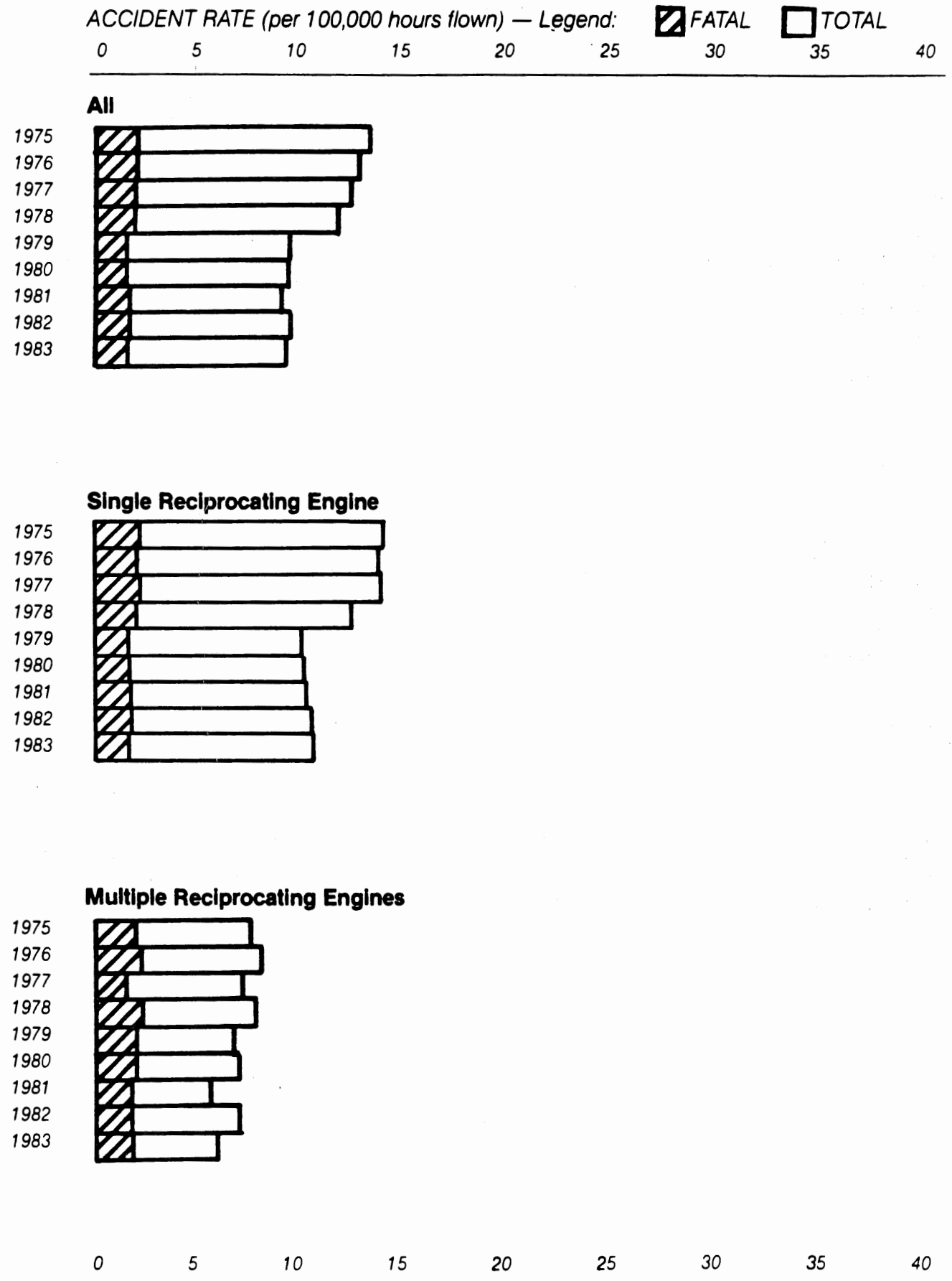


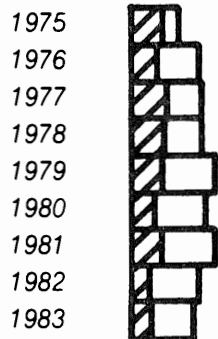


FIG-1 Airplane Accident Rates by Type of Power — Continued

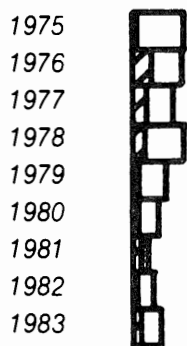
ACCIDENT RATE (per 100,000 hours flown) — Legend:  FATAL  TOTAL

0 5 10 15 20 25 30 35 40

**Turboprop**



**Turbojet**



0 5 10 15 20 25 30 35 40

**FIG-2 Rotorcraft Accident Rates by Type of Power**

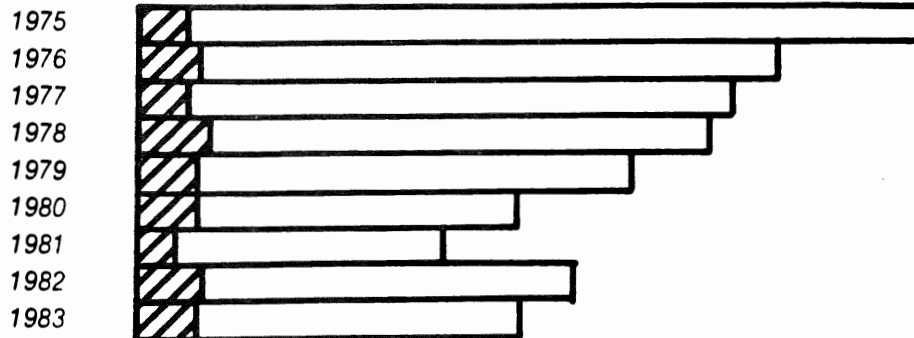
ACCIDENT RATE (per 100,000 hours flown) — Legend:

▨ FATAL

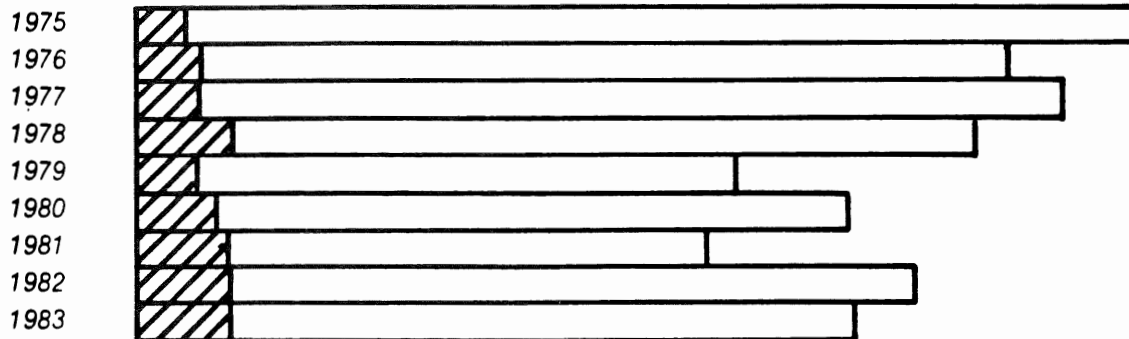
□ TOTAL

0 5 10 15 20 25 30 35 40

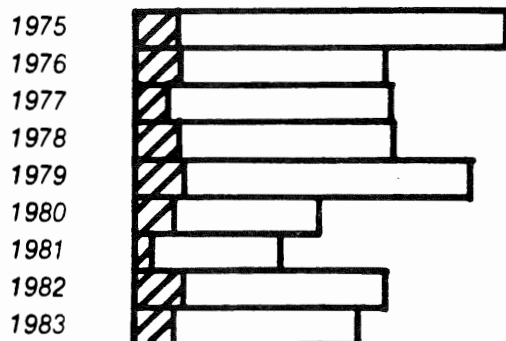
**ALL**



**Reciprocating Engine(s)**

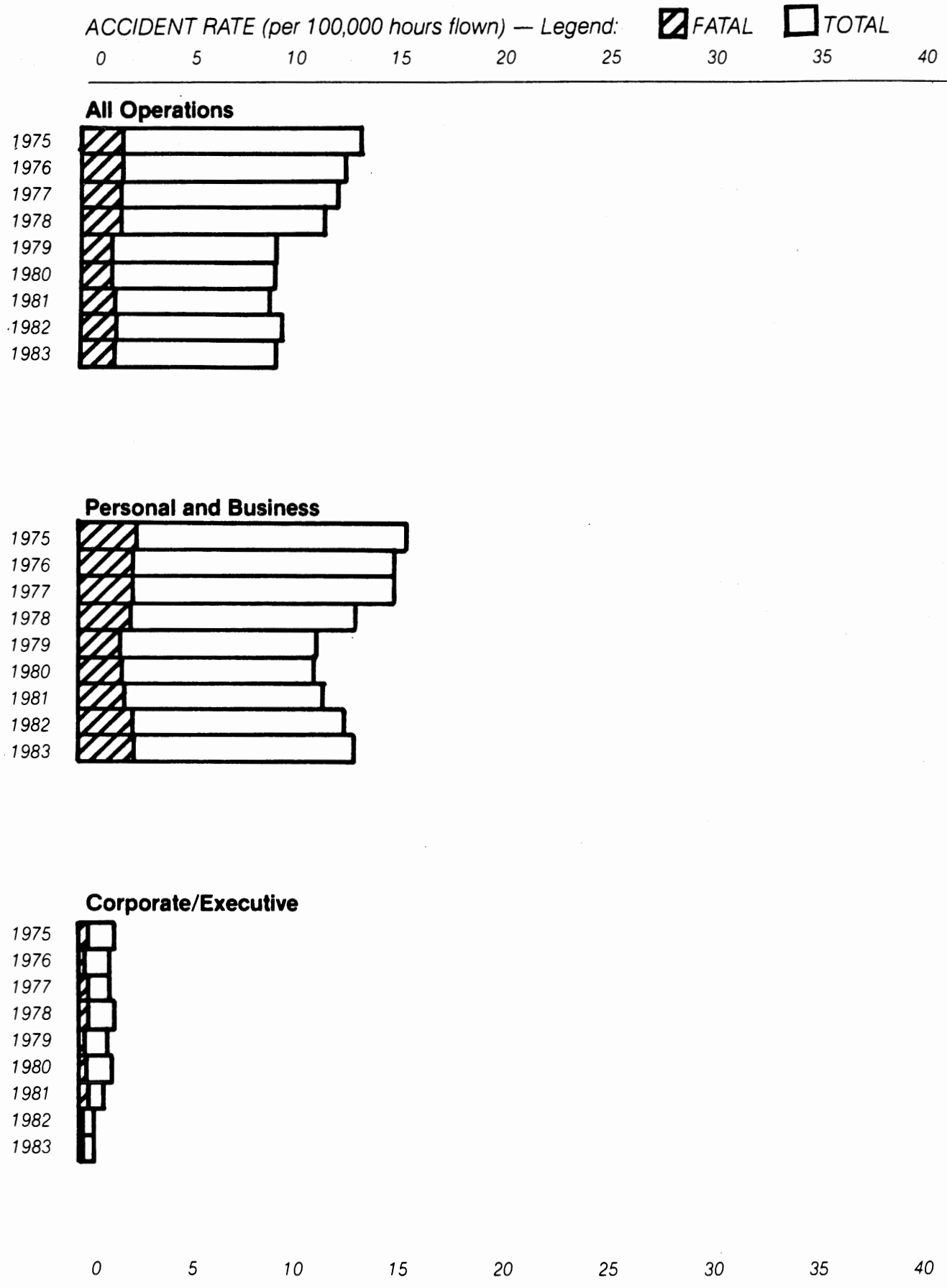


**Turbine Power**



0 5 10 15 20 25 30 35 40

**FIG-3 Accident Rates by Kind of Flying**





**FIG-3 Accident Rates by Kind of Flying — Continued**

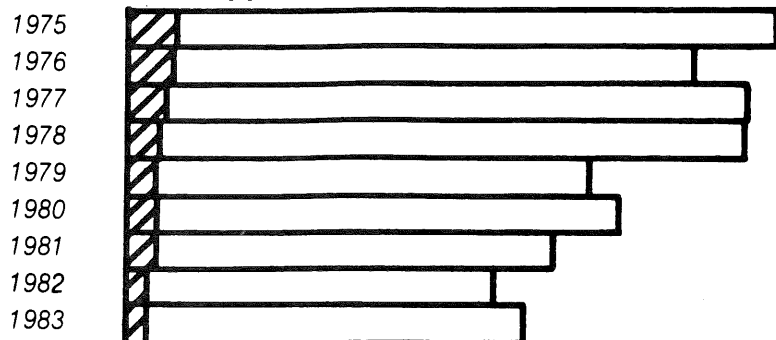
ACCIDENT RATE (per 100,000 hours flown) — Legend:

 FATAL

 TOTAL

0 5 10 15 20 25 30 35 40

**Aerial Application**



**Instruction**

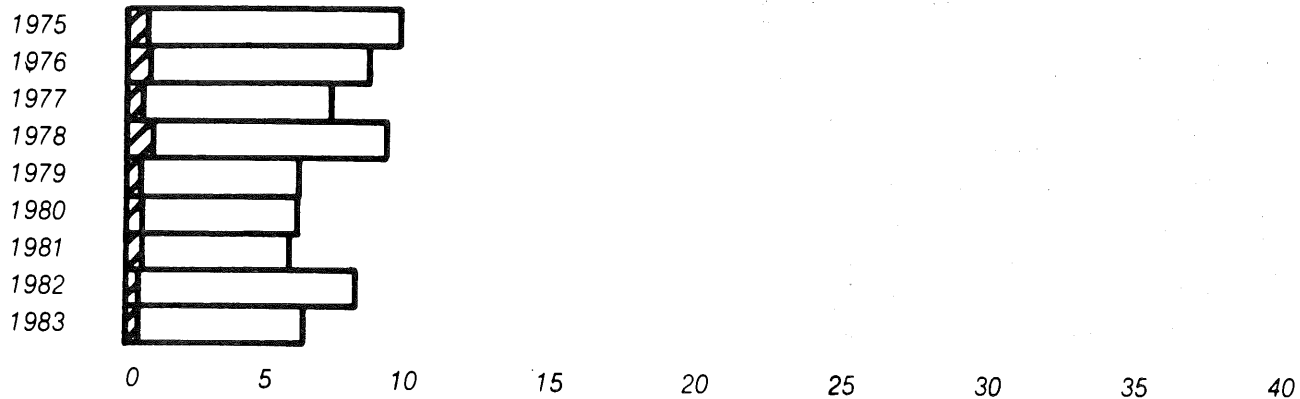


Table 3 - PERSONS BY ROLE AND DEGREE OF INJURY  
ALL OPERATIONS  
1983

Role of Person -----	Degree of Injury -----				Total -----
	Fatal -----	Serious -----	Minor -----	None -----	
Pilot	520	284	418	1906	3128
Copilot	33	13	11	49	106
Dual student	15	9	12	91	127
Check pilot	1	1	4	5	11
Flight engineer	0	0	0	3	3
Other crew	4	3	3	28	38
Passenger	484	228	351	1652	2715
	-----	-----	-----	-----	-----
Total aboard	1057	538	799	3734	6128
Other aircraft*	3	3	0	2	8
Other ground	4	13	5	22	44
	-----	-----	-----	-----	-----
Grand total	1064	554	804	3758	6180
Percent	17.2	9.0	13.0	60.8	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.

**Table 4 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
ALL OPERATIONS  
1983**

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	772	357	506	2390	4025
Business	114	48	80	350	592
Corporate/Executive	23	4	18	106	151
Aerial application	15	25	44	173	257
Instructional	40	36	66	444	586
Other	93	68	85	271	517
Total	1057	538	799	3734	6128
Percent	17.2	8.8	13.0	60.9	

**Table 5 - AIRCRAFT BY DAMAGE AND DEGREE OF INJURY  
ALL OPERATIONS  
1983**

Aircraft damage	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
None	1	0	25	4	30	1.0
Minor	3	0	6	3	12	0.4
Substantial	1671	322	161	51	2205	71.0
Destroyed	116	110	130	504	860	27.7
Aircraft						
Number -	1791	432	322	562	3107	
Percent -	57.6	13.9	10.4	18.1		

Table 6 - AIRCRAFT BY FIRST THRU FIFTH OCCURRENCES  
ALL OPERATIONS  
1983

Occurrence	Occurrence					Occurrences 1 - 5	
	One	Two	Three	Four	Five	No.	Percent of Accident Involved Aircraft
Abrupt Maneuver	8	1	0	0	0	9	0.29
Altitude Deviation, Uncontrolled	1	1	0	0	0	2	0.06
Cargo Shift	0	0	0	0	0	0	0.00
Airframe/Component/System Failure/Malfunction	178	18	13	0	0	209	6.72
Decompression	0	0	0	0	0	0	0.00
Ditching	1	20	11	1	0	33	1.06
Dragged Wing, Rotor, Pod or Float	10	18	8	0	0	36	1.16
Fire/Explosion	2	0	1	0	0	3	0.10
Fire	18	9	3	3	0	33	1.06
Explosion	0	0	1	0	0	1	0.03
Forced Landing	10	753	29	0	0	792	25.49
Gear Collapsed	7	13	24	6	0	50	1.61
Main Gear Collapsed	16	75	64	14	2	171	5.50
Nose Gear Collapsed	12	68	71	10	1	162	5.21
Tail Gear Collapsed	1	2	1	0	0	4	0.13
Complete Gear Collapsed	17	18	29	7	1	72	2.32
Other Gear Collapsed	1	2	0	1	0	4	0.13
Hard Landing	173	36	54	5	0	268	8.63
Hazardous Materials Leak/Spill (Fumes/Smoke)	1	0	0	0	0	1	0.03
In Flight Col. w/ Object	239	143	142	9	0	533	17.15
In Flight Col. w/ Terrain	198	525	295	91	2	1111	35.76
In Flight Enc. w/ Weather	224	0	2	0	0	226	7.27
Loss of Control-In Flight	401	160	34	1	0	596	19.18
Loss of Control-On Ground	352	82	10	4	0	448	14.42
Midair Collision	23	0	0	0	0	23	0.74
Near Col. Between Aircraft	0	0	0	0	0	0	0.00
Nose Down	1	17	16	5	0	39	1.26
Nose Over	37	129	184	53	7	410	13.20
On Ground Col. w/ Object	89	135	125	19	3	371	11.94
On Ground Col. w/ Terrain	50	171	92	14	0	327	10.52
On Ground Enc. w/ Weather	6	0	0	0	0	6	0.19
Overrun	124	25	3	0	0	152	4.89
Loss of Power	185	7	0	0	0	192	6.18
Loss of Power (Total) Mech. Failure/Malfunction	145	5	0	0	0	150	4.83
Loss of Power (Partial) Mech. Failure/Malfunction	67	1	0	0	0	68	2.19

Table 6 - (continued)

Occurrence	Occurrence					Occurrences 1 - 5	
	One	Two	Three	Four	Five	No.	Percent of Accident Involved Aircraft
Loss of Power (Total)							
Non-Mechanical	365	10	0	0	0	375	12.07
Loss of Power (Partial)							
Non-Mechanical	39	2	0	0	0	41	1.32
Engine Tearaway	0	0	0	0	0	0	0.00
Propeller Blast or Jet							
Exhaust/Suction	0	0	0	0	0	0	0.00
Propeller/Rotor Contact	15	1	0	0	0	16	0.51
Roll Over	9	15	28	8	3	63	2.03
Undershoot	56	7	8	0	0	71	2.29
Undetermined	1	0	1	0	0	2	0.06
Vortex Turbulence Enc.	4	1	0	0	0	5	0.16
Missing Aircraft	9	0	1	0	0	10	0.32
Miscellaneous/Other	7	2	1	0	0	10	0.32
Not reported	5	633	1856	2856	3088	3088	99.39
Number of Aircraft	3107	2474	1251	251	19		

Table 7 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
ALL OPERATIONS  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	3	0	0	5	8	0.3
Altitude deviation, uncontrolled	1	0	0	0	1	0.0
Airframe/component/system failure/malfunction	110	19	13	36	178	5.7
Ditching	1	0	0	0	1	0.0
Dragged wing, rotor, pod, or float	9	1	0	0	10	0.3
Fire/explosion	1	0	0	1	2	0.1
Fire	11	4	1	2	18	0.6
Forced landing	7	2	0	1	10	0.3
Gear collapsed	7	0	0	0	7	0.2
Main gear collapsed	16	0	0	0	16	0.5
Nose gear collapsed	12	0	0	0	12	0.4
Tail gear collapsed	1	0	0	0	1	0.0
Complete gear collapsed	17	0	0	0	17	0.5
Other gear collapsed	1	0	0	0	1	0.0
Hard landing	143	14	16	0	173	5.6
Hazardous materials leak/spill (fumes/smoke)	1	0	0	0	1	0.0
In flight collision with object	95	47	42	55	239	7.7
In flight collision with terrain	80	22	25	71	198	6.4
In flight encounter with weather	53	12	14	145	224	7.2
Loss of control - in flight	139	70	45	147	401	12.9
Loss of control - on ground	303	36	12	1	352	11.3
Midair collision	6	0	4	13	23	0.7
Nose down	1	0	0	0	1	0.0
Nose over	32	5	0	0	37	1.2
On ground collision with object	74	6	5	4	89	2.9
On ground collision with terrain	42	5	3	0	50	1.6
On ground encounter with weather	6	0	0	0	6	0.2
Overrun	98	15	9	2	124	4.0
Loss of power	108	32	26	19	185	6.0
Loss of power(total) - mech failure/malfunction	87	29	22	7	145	4.7
Loss of power(partial) - mech failure/malfunction	38	13	8	8	67	2.2
Loss of power(total) - non-mechanical	211	83	46	25	365	11.7
Loss of power(partial) - non-mechanical	25	9	1	4	39	1.3
Propeller/rotor contact	0	0	11	4	15	0.5

Table 7 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY (CONTINUED)  
ALL OPERATIONS  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Roll over	7	0	2	0	9	0.3
Undershoot	36	8	11	1	56	1.8
Undetermined	0	0	1	0	1	0.0
Vortex turbulence encountered	4	0	0	0	4	0.1
Missing aircraft	0	0	0	9	9	0.3
Miscellaneous/other	3	0	4	0	7	0.2
Not reported	2	0	1	2	5	0.2
Aircraft						
Number -	1791	432	322	562	3107	
Percent -	57.6	13.9	10.4	18.1		

Table 8 - AIRCRAFT BY FIRST OCCURRENCE AND DAMAGE  
ALL OPERATIONS  
1983

Type of first occurrence	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Abrupt maneuver	0	0	4	4	8	0.3
Altitude deviation, uncontrolled	0	0	1	0	1	0.0
Airframe/component/system failure/malfunction	0	1	128	49	178	5.7
Ditching	0	0	0	1	1	0.0
Dragged wing, rotor, pod, or float	0	0	9	1	10	0.3
Fire/explosion	0	0	1	1	2	0.1
Fire	0	0	6	12	18	0.6
Forced landing	0	0	10	0	10	0.3
Gear collapsed	0	0	7	0	7	0.2
Main gear collapsed	0	0	16	0	16	0.5
Nose gear collapsed	0	0	11	1	12	0.4
Tail gear collapsed	0	0	0	1	1	0.0
Complete gear collapsed	0	0	16	1	17	0.5
Other gear collapsed	0	0	1	0	1	0.0
Hard landing	10	0	157	6	173	5.6
Hazardous materials leak/spill (fumes/smoke)	0	0	1	0	1	0.0
In flight collision with object	1	1	135	102	239	7.7
In flight collision with terrain	1	0	106	91	198	6.4
In flight encounter with weather	1	0	66	157	224	7.2
Loss of control - in flight	2	0	211	188	401	12.9
Loss of control - on ground	0	1	333	18	352	11.3
Midair collision	1	1	12	9	23	0.7
Nose down	0	0	1	0	1	0.0
Nose over	0	0	36	1	37	1.2
On ground collision with object	0	3	79	7	89	2.9
On ground collision with terrain	0	0	50	0	50	1.6
On ground encounter with weather	0	0	6	0	6	0.2
Overrun	0	0	116	8	124	4.0
Loss of power	0	0	137	48	185	6.0
Loss of power(total) - mech failure/malfunction	0	0	112	33	145	4.7
Loss of power(partial) - mech failure/malfunction	0	0	48	19	67	2.2
Loss of power(total) - non-mechanical	1	1	290	73	365	11.7
Loss of power(partial) - non-mechanical	0	0	31	8	39	1.3
Propeller/rotor contact	10	4	1	0	15	0.5



Table 8 - AIRCRAFT BY FIRST OCCURRENCE AND DAMAGE (CONTINUED)  
ALL OPERATIONS  
1983

Type of first occurrence	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Roll over	0	0	7	2	9	0.3
Undershoot	1	0	49	6	56	1.8
Undetermined	0	0	1	0	1	0.0
Vortex turbulence encountered	0	0	3	1	4	0.1
Missing aircraft	0	0	0	9	9	0.3
Miscellaneous/other	2	0	4	1	7	0.2
Not reported	0	0	3	2	5	0.2
Aircraft						
Number -	30	12	2205	860	3107	
Percent -	1.0	0.4	71.0	27.7		

Table 9 - AIRCRAFT BY FIRST OCCURRENCE AND BROAD PHASE OF OPERATION  
ALL OPERATIONS  
1983

Type of first occurrence	Phase of operation											Aircraft	
	Stdg	Taxi	Tkoff	Climb	Cruis	Dscnt	Aprch	Landg	Manvr	Unk	Other	No.	Percent
Abrupt maneuver	0	0	1	0	2	0	0	0	5	0	0	8	0.3
Altitude deviation,uncontrolled	0	0	1	0	0	0	0	0	0	0	0	1	0.0
Airframe/component/system failure/malfunction	2	4	41	6	41	1	24	20	32	5	2	178	5.7
Ditching	0	0	0	0	0	0	0	1	0	0	0	1	0.0
Dragged wing, rotor, pod, or float	0	1	3	0	1	0	0	4	1	0	0	10	0.3
Fire/explosion	0	0	1	0	0	0	0	0	0	1	0	2	0.1
Fire	3	1	2	0	6	1	1	0	3	1	0	18	0.6
Forced landing	0	0	0	0	1	1	1	6	1	0	0	10	0.3
Gear collapsed	0	1	1	0	0	0	0	5	0	0	0	7	0.2
Main gear collapsed	0	2	0	0	0	0	0	14	0	0	0	16	0.5
Nose gear collapsed	0	0	2	0	0	0	0	10	0	0	0	12	0.4
Tail gear collapsed	0	0	0	0	0	0	0	1	0	0	0	1	0.0
Complete gear collapsed	0	0	0	0	0	0	0	17	0	0	0	17	0.5
Other gear collapsed	0	0	0	0	0	0	0	1	0	0	0	1	0.0
Hard landing	0	0	0	0	0	0	1	171	1	0	0	173	5.6
Hazardous materials leak/spill (fumes/smoke)	0	0	1	0	0	0	0	0	0	0	0	1	0.0
In flight collision with object	0	2	46	3	5	1	59	26	93	4	0	239	7.7
In flight collision with terrain	0	2	27	3	16	7	24	45	65	8	1	198	6.4
In flight encounter with weather	0	0	16	14	150	5	28	2	9	0	0	224	7.2
Loss of control - in flight	0	0	129	10	10	2	70	48	126	5	1	401	12.9
Loss of control - on ground	7	15	82	0	0	0	3	244	1	0	0	352	11.3
Midair collision	0	0	1	3	9	0	6	2	2	0	0	23	0.7
Nose down	0	1	0	0	0	0	0	0	0	0	0	1	0.0
Nose over	0	5	7	0	0	0	0	25	0	0	0	37	1.2
On ground collision with object	11	30	18	0	0	0	1	29	0	0	0	89	2.9
On ground collision with terrain	0	12	15	0	1	0	0	19	1	0	2	50	1.6
On ground encounter with weather	0	2	1	0	0	0	0	3	0	0	0	6	0.2
Overrun	0	0	23	0	0	0	1	99	0	0	1	124	4.0

Table 9 - AIRCRAFT BY FIRST OCCURRENCE AND BROAD PHASE OF OPERATION (CONTINUED)  
ALL OPERATIONS  
1983

Type of first occurrence	Phase of operation											Aircraft	
	Stndg	Taxi	Tkoff	Climb	Cruis	Dscnt	Aprch	Landg	Manvr	Unk	Other	No.	Percent
Loss of power	0	1	75	11	47	7	19	1	22	2	0	185	6.0
Loss of power(total) - mech failure/malfunction	0	0	34	7	61	5	13	1	23	0	1	145	4.7
Loss of power(partial) - mech failure/malfunction	0	0	27	4	18	0	9	0	8	1	0	67	2.2
Loss of power(total) - non-mechanical	0	0	85	9	131	23	75	0	37	4	1	365	11.7
Loss of power(partial) - non-mechanical	0	0	16	1	6	3	8	0	5	0	0	39	1.3
Propeller/rotor contact	15	0	0	0	0	0	0	0	0	0	0	15	0.5
Roll over	1	1	2	0	0	0	0	3	2	0	0	9	0.3
Undershoot	0	0	0	0	0	0	52	4	0	0	0	56	1.8
Undetermined	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Vortex turbulence encountered	0	1	0	0	0	0	1	0	2	0	0	4	0.1
Missing aircraft	0	0	0	0	0	0	0	0	0	9	0	9	0.3
Miscellaneous/other	0	1	4	0	1	0	0	0	1	0	0	7	0.2
Other	0	0	0	0	0	1	1	0	1	0	2	5	0.2
Aircraft													
Number -	39	82	661	71	506	57	397	801	441	41	11	3107	
Percent -	1.3	2.6	21.3	2.3	16.3	1.8	12.8	25.8	14.2	1.3	0.4		

Table 10 - AIRCRAFT BY PHASE OF OPERATION AND DEGREE OF INJURY  
ALL OPERATIONS  
1983

Phase of operation	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Standing - pre-flight	0	0	1	0	1	0.0
Standing - starting engine(s)	5	1	5	1	12	0.4
Standing - engine(s) operating	12	0	7	4	23	0.7
Standing - idling rotors	0	0	2	1	3	0.1
Taxi	8	1	2	0	11	0.4
Taxi - to takeoff	31	2	1	0	34	1.1
Taxi - from landing	34	0	0	0	34	1.1
Taxi - aerial	3	0	0	0	3	0.1
Takeoff	40	7	9	8	64	2.1
Takeoff - ground run	117	21	7	3	148	4.8
Takeoff - initial climb	229	85	64	71	449	14.5
Climb	7	3	2	7	19	0.6
Climb - to cruise	21	8	5	18	52	1.7
Cruise	33	11	14	36	94	3.0
Cruise - normal	204	60	31	117	412	13.3
Descent	4	1	2	4	11	0.4
Descent - normal	21	10	2	6	39	1.3
Descent - emergency	2	0	0	0	2	0.1
Descent - uncontrolled	0	0	0	5	5	0.2
Approach	29	9	11	19	68	2.2
Approach - VFR pattern - downwind	10	2	3	4	19	0.6
Approach - VFR pattern - base turn	6	3	2	4	15	0.5
Approach - VFR pattern - base to final	8	4	3	8	23	0.7
Approach - VFR pattern - final approach	90	39	25	11	165	5.3
Approach - go-around (VFR)	34	14	11	14	73	2.3
Approach - IAF to FAF/outer marker (IFR)	2	0	1	6	9	0.3
Approach - FAF/outer marker to threshold (IFR)	4	1	5	8	18	0.6
Approach - missed approach (IFR)	1	0	2	4	7	0.2
Landing	43	15	6	6	70	2.3
Landing - flare/touchdown	312	31	27	5	375	12.1
Landing - roll	314	32	8	2	356	11.5
Maneuvering	68	32	32	136	268	8.6
Maneuvering - aerial application	70	25	18	11	124	4.0
Maneuvering - turn to reverse direction	4	6	3	6	19	0.6
Maneuvering - turn to landing area (emergency)	2	1	1	2	6	0.2

Table 10 - AIRCRAFT BY PHASE OF OPERATION AND DEGREE OF INJURY (CONTINUED)  
ALL OPERATIONS  
1983

Phase of operation	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Hover	12	4	7	1	24	0.8
Other	5	0	0	1	6	0.2
Unknown	4	3	2	32	41	1.3
Not reported	2	1	1	1	5	0.2
Aircraft						
Number -	1791	432	322	562	3107	
Percent -	57.6	13.9	10.4	18.1		

Table 11 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
ALL OPERATIONS  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Standing - pre-flight	1	0	0	0	1	0.0
Standing - starting engine(s)	3	0	6	3	12	0.4
Standing - engine(s) operating	6	6	9	2	23	0.7
Standing - idling rotors	0	0	2	1	3	0.1
Taxi	0	0	10	1	11	0.4
Taxi - to takeoff	0	0	33	1	34	1.1
Taxi - from landing	0	0	32	2	34	1.1
Taxi - aerial	0	0	3	0	3	0.1
Takeoff	0	0	47	17	64	2.1
Takeoff - ground run	0	1	132	15	148	4.8
Takeoff - initial climb	4	1	305	139	449	14.5
Climb	1	0	10	8	19	0.6
Climb - to cruise	0	0	28	24	52	1.7
Cruise	0	0	49	45	94	3.0
Cruise - normal	1	1	248	162	412	13.3
Descent	0	0	6	5	11	0.4
Descent - normal	0	0	29	10	39	1.3
Descent - emergency	0	0	2	0	2	0.1
Descent - uncontrolled	0	0	1	4	5	0.2
Approach	0	0	37	31	68	2.2
Approach - VFR pattern - downwind	0	0	14	5	19	0.6
Approach - VFR pattern - base turn	0	0	8	7	15	0.5
Approach - VFR pattern - base to final	0	0	15	8	23	0.7
Approach - VFR pattern - final approach	1	0	139	25	165	5.3
Approach - go-around (VFR)	0	1	48	24	73	2.3
Approach - IAF to FAF/outer marker (IFR)	0	0	2	7	9	0.3
Approach - FAF/outer marker to threshold (IFR)	0	0	6	12	18	0.6
Approach - missed approach (IFR)	0	0	1	6	7	0.2
Landing	0	0	52	18	70	2.3
Landing - flare/touchdown	11	1	340	23	375	12.1
Landing - roll	0	1	347	8	356	11.5
Maneuvering	0	0	112	156	268	8.6
Maneuvering - aerial application	1	0	83	40	124	4.0
Maneuvering - turn to reverse direction	0	0	9	10	19	0.6
Maneuvering - turn to landing area (emergency)	0	0	5	1	6	0.2

Table 11 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)  
ALL OPERATIONS  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Hover	1	0	18	5	24	0.8
Other	0	0	5	1	6	0.2
Unknown	0	0	11	30	41	1.3
Not reported	0	0	1	4	5	0.2
Aircraft						
Number -	30	12	2205	860	3107	
Percent -	1.0	0.4	71.0	27.7		

Table 12 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
ALL OPERATIONS  
1983

Condition of light	Type of weather			Aircraft	
	VMC	IMC	Not Reptd	No.	Percent
Dawn	23	3	1	27	0.9
Daylight	2424	130	24	2578	83.0
Night (dark)	220	81	11	312	10.0
Night (bright)	44	0	0	44	1.4
Dusk	111	14	2	127	4.1
Not reported	10	0	9	19	0.6
Aircraft					
Number -	2832	228	47	3107	
Percent -	91.1	7.3	1.5		

Table 13 - AIRCRAFT BY STATE AND MONTH  
ALL OPERATIONS  
1983

State	Month												Aircraft	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	No.	Percent
Alabama	2	2	3	6	5	2	8	6	10	7	1	2	54	1.7
Alaska	8	7	10	11	10	22	19	16	29	10	8	6	156	5.0
Arizona	3	11	13	8	9	13	8	9	6	8	10	6	104	3.3
Arkansas	0	2	3	3	6	6	6	5	3	4	2	3	43	1.4
California	24	26	39	31	38	41	44	37	44	22	31	26	403	13.0
Colorado	3	9	12	3	6	8	9	7	10	7	9	12	95	3.1
Connecticut	5	1	2	0	2	2	2	1	1	1	1	2	20	0.6
Delaware	0	1	0	0	0	0	0	0	1	1	0	0	3	0.1
Florida	14	12	17	19	15	17	21	16	15	17	9	13	185	6.0
Georgia	2	5	6	4	7	9	13	13	11	2	3	2	77	2.5
Hawaii	1	0	1	1	2	0	0	0	0	1	0	1	7	0.2
Idaho	4	0	2	7	2	3	4	7	0	5	1	1	36	1.2
Illinois	12	4	7	9	9	8	7	18	14	5	1	1	95	3.1
Indiana	2	3	3	3	5	4	6	8	7	5	2	3	51	1.6
Iowa	3	2	1	2	1	6	7	9	4	3	4	7	49	1.6
Kansas	2	3	3	5	6	1	5	9	6	4	3	4	51	1.6
Kentucky	1	1	4	2	3	2	3	5	3	4	0	2	30	1.0
Louisiana	3	3	2	4	10	7	3	9	4	3	4	0	52	1.7
Maine	1	0	1	0	3	0	3	2	1	0	2	1	14	0.5
Maryland	1	2	1	1	5	7	3	2	1	1	5	2	31	1.0
Massachusetts	0	3	1	4	4	7	4	3	4	2	4	1	37	1.2
Michigan	1	6	5	6	12	10	14	11	7	12	5	4	93	3.0
Minnesota	2	3	7	4	6	11	14	7	5	0	4	2	65	2.1
Mississippi	1	3	1	0	1	2	5	1	1	2	1	1	19	0.6
Missouri	5	1	4	4	6	10	9	10	10	3	3	4	69	2.2
Montana	4	2	0	5	6	5	2	4	1	1	1	3	34	1.1
Nebraska	1	3	1	3	0	4	10	6	0	0	6	1	35	1.1
Nevada	1	1	0	0	2	2	8	3	3	4	2	2	28	0.9
New Hampshire	0	0	0	0	0	5	2	2	3	3	0	2	17	0.5
New Jersey	3	2	1	2	4	5	5	7	4	0	5	2	40	1.3



Table 13 - AIRCRAFT BY STATE AND MONTH (CONTINUED)  
ALL OPERATIONS  
1983

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State	Month												Aircraft	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	No.	Percent
New Mexico	1	2	4	3	4	0	7	5	5	4	5	5	45	1.4
New York	1	2	2	9	7	6	15	12	9	8	9	5	85	2.7
North Carolina	3	4	2	4	4	7	7	5	6	3	3	1	49	1.6
North Dakota	0	1	0	2	1	6	1	3	2	3	1	0	20	0.6
Ohio	4	4	6	6	3	10	10	6	5	10	4	3	71	2.3
Oklahoma	2	2	9	7	6	4	7	5	3	5	6	6	62	2.0
Oregon	4	4	0	8	10	13	4	5	2	2	5	1	58	1.9
Pennsylvania	4	7	1	9	3	10	8	8	5	5	4	5	69	2.2
Puerto Rico	1	2	2	0	1	1	0	3	2	0	0	0	12	0.4
Rhode Island	0	0	0	1	0	3	1	0	0	1	0	0	6	0.2
South Carolina	4	4	0	2	2	2	6	1	3	2	6	4	36	1.2
South Dakota	1	2	0	0	0	3	3	5	0	2	0	1	17	0.5
Tennessee	2	4	4	1	3	4	5	3	2	6	2	2	38	1.2
Texas	16	21	19	22	17	30	22	24	19	24	24	9	247	7.9
Utah	2	1	5	2	5	3	4	6	6	3	1	1	39	1.3
Vermont	0	0	0	0	0	3	2	1	1	0	2	1	10	0.3
Virginia	3	5	4	2	3	5	8	6	2	4	1	3	46	1.5
Washington	4	2	9	10	13	8	9	17	9	5	2	2	90	2.9
West Virginia	0	0	0	2	0	2	4	3	2	3	1	0	17	0.5
Wisconsin	4	4	3	6	5	4	5	10	2	4	1	1	49	1.6
Wyoming	2	2	5	4	7	5	3	2	3	2	3	1	39	1.3
Gulf of Mexico	0	0	1	1	0	0	0	1	1	2	0	0	6	0.2
Unknown	1	0	1	0	0	0	0	1	0	0	0	0	3	0.1
Aircraft														
Number -	168	191	227	248	279	348	375	365	297	235	207	167	3107	
Percent -	5.4	6.1	7.3	8.0	9.0	11.2	12.1	11.7	9.6	7.6	6.7	5.4		

TABLE 14 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
ALL OPERATIONS  
1983

Proximity to Airport	Type of Flight Plan					Aircraft	
	VFR	IFR	VFR/IFR	None	Not Reptd	No.	Percent
On Airport	151	94	3	949	16	1213	39.0
On Airstrip	15	2	0	159	1	177	5.7
Within 5 SM	31	46	1	335	4	417	13.4
5 SM Or Greater	34	25	1	189	2	251	8.1
Unknown	120	52	1	861	15	1049	33.8
Aircraft							
Number -	351	219	6	2493	38	3107	
Percent -	11.3	7.0	0.2	80.2	1.2		

Table 15 - AIRCRAFT BY ELT OPERATION AND ELT AID IN LOCATION  
ALL OPERATIONS  
1983

ELT aided location	ELT operated			Aircraft	
	Yes	No	Not Reptd	No.	Percent
Yes	6	0	0	6	0.2
No	1	9	2	12	0.4
Not reported	823	1479	787	3089	99.4
Aircraft					
Number -	830	1488	789	3107	
Percent -	26.7	47.9	25.4		

Table 16 - AIRCRAFT BY OCCURRENCE OF FIRE AND AIRCRAFT DAMAGE  
ALL OPERATIONS  
1983

Aircraft fire	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
None	29	12	2150	625	2816	90.6
In-flight	0	0	7	6	13	0.4
On ground	1	0	23	203	227	7.3
In-flight and on ground	0	0	2	3	5	0.2
Not reported	0	0	23	23	46	1.5
Aircraft						
Number -	30	12	2205	860	3107	
Percent -	1.0	0.4	71.0	27.7		

Table 17 - AIRCRAFT BY OCCURRENCE OF FIRE AND DEGREE OF INJURY  
ALL OPERATIONS  
1983

Aircraft fire	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
None	1715	410	293	398	2816	90.6
In-flight	6	2	3	2	13	0.4
On ground	49	15	25	138	227	7.3
In-flight and on ground	3	0	0	2	5	0.2
Not reported	18	5	1	22	46	1.5
Aircraft						
Number -	1791	432	322	562	3107	
Percent -	57.6	13.9	10.4	18.1		

Table 18 - PILOTS BY TOTAL TIME AND TIME IN TYPE  
ALL OPERATIONS  
1983

Total time (hours)	Time in type (hours)								Pilots	
	1- 49	50- 99	100- 499	500- 999	1000- 4999	5000- 9999	10000 or more	Not reptd	No.	Percent
0 - 49	210	0	0	0	0	0	0	6	216	7.0
50 - 99	117	84	0	0	0	0	0	8	209	6.7
100 - 499	281	146	289	0	0	0	0	35	751	24.2
500 - 999	110	52	168	62	0	0	0	30	422	13.6
1000 - 4999	154	69	258	129	152	0	0	85	847	27.3
5000 - 9999	32	12	67	42	87	17	0	28	285	9.2
10000 or more	21	8	38	20	47	13	5	19	171	5.5
Not reported	10	1	6	6	6	0	0	177	206	6.6
Pilots										
Number -	935	372	826	259	292	30	5	388	3107	
Percent -	30.1	12.0	26.6	8.3	9.4	1.0	0.2	12.5		

Table 19 - PILOTS BY AGE AND ACCIDENT DEGREE OF INJURY  
ALL OPERATIONS  
1983

Pilot age	Degree of injury				Pilots	
	None	Minor	Ser	Fatal	No.	Percent
15 - 19	23	4	2	4	33	1.1
20 - 24	121	28	16	37	202	6.5
25 - 29	215	39	37	46	337	10.8
30 - 34	260	71	48	73	452	14.5
35 - 39	293	54	63	79	489	15.7
40 - 44	217	59	40	75	391	12.6
45 - 49	189	57	29	63	338	10.9
50 - 54	151	40	36	72	299	9.6
55 - 59	129	41	30	46	246	7.9
60 - 64	85	19	9	27	140	4.5
65 - 69	28	5	7	18	58	1.9
70 or older	13	4	1	12	30	1.0
Not reported	67	11	4	10	92	3.0
Pilots						
Number -	1791	432	322	562	3107	
Percent -	57.6	13.9	10.4	18.1		

Table 20 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
ALL OPERATIONS  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Directional control - Not maintained - Pilot in command	298	9.6
Undetermined	244	7.9
Distance - Misjudged - Pilot in command	140	4.5
Preflight planning/preparation - Inadequate - Pilot in command	133	4.3
In-flight planning/decision - Improper - Pilot in command	132	4.3
Airspeed - Not maintained - Pilot in command	118	3.8
Visual lookout - Inadequate - Pilot in command	117	3.8
Unsuitable terrain - Selected - Pilot in command	115	3.7
Fuel supply - Inadequate - Pilot in command	113	3.6
Fluid, fuel - Exhaustion	112	3.6
Total Number of Aircraft:	3107	

Table 21 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
ALL OPERATIONS  
1975 - 1983

Year	Accidents	Fatal Accidents	Total	Fatalities
				Aboard Aircraft In This Category
1975	3995	633	1252	1231
1976	4018	658	1216	1203
1977	4079	661	1276	1265
1978	4216	719	1556	1398
1979	3818	631	1221	1203
1980	3590	618	1239	1230
1981	3500	654	1282	1261
1982	3231	589	1182	1166
1983	3075	555	1064	1057

Accident Rate per 100,000 \*  
Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	28,799,000	13.87	2.19
1976	30,476,000	13.17	2.16
1977	31,578,000	12.91	2.09
1978	34,887,000	12.08	2.06
1979	38,641,000	9.88	1.63
1980	36,402,000	9.86	1.69
1981	36,803,000	9.51	1.78
1982	32,095,000	10.06	1.84
1983	31,048,000	9.90	1.79

\* Suicide and sabotage accidents excluded from rates as follows :

Total - 1975 (2), 1976 (4), 1977 (1), 1978 (2), 1980 (1), 1982 (2), 1983 (1)

Fatal - 1975 (2), 1976 (1), 1977 (1), 1978 (2), 1980 (1)

Table 22 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
ALL OPERATIONS  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	801	25.8	932.4	25.1
Collision with object/terrain	576	18.5	896.8	24.2
Loss of control - in flight	401	12.9	449.6	12.1
Loss of control - on ground	352	11.3	409.4	11.0
Hard landing	173	5.6	234.2	6.3
Miscellaneous	142	4.6	173.6	4.7
Airframe/component/system fail/malf	178	5.7	123.4	3.3
Undershoot	56	1.8	109.6	3.0
Nose over/down	38	1.2	105.0	2.8
Gear collapsed/retracted	54	1.7	80.8	2.2
Encounter with weather/turbulence	234	7.5	56.0	1.5
Midair collision	23	.7	52.8	1.4
(All other types)	79	2.5	85.4	2.3
Total	3107	100.0	3709.0	100.0



Table 23 - MOST PREVALENT FIRST OCCURRENCES IN FATAL ACCIDENTS  
ALL OPERATIONS  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Collision with object/terrain	130	23.1	222.2	33.8
Loss of control - in flight	147	26.2	202.0	30.7
Loss of power	63	11.2	80.8	12.3
Airframe/component/system fail/malf	36	6.4	44.0	6.7
Midair collision	13	2.3	31.4	4.8
Encounter with weather/turbulence	145	25.8	29.8	4.5
Missing aircraft	9	1.6	10.8	1.6
Undershoot	1	.2	7.6	1.2
(All other types)	18	3.2	28.8	4.4
Total	562	100.0	657.4	100.0

Table 24 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
ALL OPERATIONS  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	801	25.8	1038.2	28.0
Takeoff	661	21.3	743.0	20.0
Cruise	506	16.3	565.8	15.3
Maneuvering	441	14.2	470.0	12.7
Approach	397	12.8	469.6	12.7
Descent	57	1.8	154.8	4.2
Taxi	82	2.6	115.8	3.1
Climb	71	2.3	90.8	2.4
Other	52	1.7	36.4	1.0
Standing	39	1.3	24.6	.7
Total	3107	100.0	3709.0	100.0

Table 25 - MOST PREVALENT FIRST PHASES OF OPERATION IN FATAL ACCIDENTS  
ALL OPERATIONS  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Maneuvering	156	27.8	161.8	24.6
Cruise	153	27.2	146.0	22.2
Approach	78	13.9	101.2	15.4
Takeoff	82	14.6	88.2	13.4
Descent	15	2.7	87.0	13.2
Other	34	6.0	26.2	4.0
Climb	25	4.4	25.2	3.8
Landing	13	2.3	16.6	2.5
Standing	6	1.1	3.8	.6
Taxi	0	.0	1.4	.2
Total	562	100.0	657.4	100.0

Table 26 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
ALL OPERATIONS  
1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	2607	83.9	2962.0	79.9
Weather	889	28.6	888.8	24.0
Terrain	982	31.6	836.8	22.6
Powerplant	677	21.8	613.2	16.5
Personnel	290	9.3	343.0	9.2
Miscellaneous	1000	32.2	336.8	9.1
Airport/Airways/Facilities	133	4.3	257.6	6.9
Landing Gear	389	12.5	157.4	4.2
Undetermined	253	8.1	124.0	3.3
Airframe	130	4.2	65.4	1.8
Systems	61	2.0	57.0	1.5
Rotorcraft	35	1.1	41.0	1.1
Instruments/Equipment/Accessories	40	1.3	20.2	.5
Number of Aircraft	3107		3709.0	

Table 27 - BROAD CAUSE/FACTOR ASSIGNMENTS IN FATAL ACCIDENTS  
ALL OPERATIONS  
1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	484	86.1	568.2	86.4
Weather	238	42.3	261.2	39.7
Terrain	140	24.9	84.4	12.8
Personnel	55	9.8	79.0	12.0
Miscellaneous	204	36.3	68.0	10.3
Powerplant	58	10.3	55.8	8.5
Undetermined	67	11.9	52.4	8.0
Airframe	48	8.5	28.0	4.3
Systems	9	1.6	9.2	1.4
Airport/Airways/Facilities	8	1.4	9.2	1.4
Rotorcraft	8	1.4	8.8	1.3
Instruments/Equipment/Accessories	15	2.7	6.0	.9
Landing Gear	1	.2	.8	.1
Number of Aircraft	562		657.4	

Table 28 - SUMMARY OF LOSSES  
ALL FIXED WING AIRCRAFT  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	503	537	610
Involved Serious Injury	251	277	293
Involved Minor Injury	389	370	482
Involved No Injury	1578	1669	1776
	----	----	----
Total	2729	2883	3161
Fatalities			
-----			
Passenger	467	527	545
Crew	518	562	645
Other Persons	5	11	18
	----	----	----
Total	990	1100	1208
Aircraft Damaged*			
-----			
Destroyed	778	873	1016
Substantial	1955	2013	2158
Minor	11	15	14
None	14	11	1
Unknown	0	6	1
	----	----	----
Total	2758	2918	3190

\* Number of Fixed Wing, General Aviation Aircraft

Table 29 - PERSONS BY ROLE AND DEGREE OF INJURY  
ALL FIXED WING AIRCRAFT  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	471	237	381	1687	2776
Copilot	31	12	10	44	97
Dual student	13	8	12	76	109
Check pilot	1	1	4	4	10
Flight engineer	0	0	0	3	3
Other crew	2	1	2	23	28
Passenger	467	194	307	1499	2467
Total aboard	985	453	716	3336	5490
Other aircraft*	1	1	0	4	6
Other ground	4	11	4	18	37
Grand total	990	465	720	3358	5533
Percent	17.9	8.4	13.0	60.7	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.

Table 30 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
ALL FIXED WING AIRCRAFT  
1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	743	321	484	2244	3792
Business	107	44	70	290	511
Corporate/Executive	23	4	15	96	138
Aerial application	14	22	40	142	218
Instructional	34	31	58	386	509
Other	64	31	49	178	322
Total	985	453	716	3336	5490
Percent	17.9	8.3	13.0	60.8	



Table 31 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
ALL FIXED WING AIRCRAFT  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	2	0	0	2	4	0.1
Airframe/component/system failure/malfunction	94	8	8	23	133	4.8
Ditching	1	0	0	0	1	0.0
Dragged wing, rotor, pod, or float	7	1	0	0	8	0.3
Fire/explosion	0	0	0	1	1	0.0
Fire	9	4	1	2	16	0.6
Forced landing	5	2	0	0	7	0.3
Gear collapsed	7	0	0	0	7	0.3
Main gear collapsed	16	0	0	0	16	0.6
Nose gear collapsed	12	0	0	0	12	0.4
Tail gear collapsed	1	0	0	0	1	0.0
Complete gear collapsed	17	0	0	0	17	0.6
Hard landing	132	11	4	0	147	5.3
Hazardous materials leak/spill (fumes/smoke)	1	0	0	0	1	0.0
In flight collision with object	76	38	35	53	202	7.3
In flight collision with terrain	69	17	20	66	172	6.2
In flight encounter with weather	48	10	13	141	212	7.7
Loss of control - in flight	113	65	38	133	349	12.7
Loss of control - on ground	299	36	7	1	343	12.4
Midair collision	4	0	4	10	18	0.7
Nose down	1	0	0	0	1	0.0
Nose over	32	5	0	0	37	1.3
On ground collision with object	73	6	5	3	87	3.2
On ground collision with terrain	35	5	2	0	42	1.5
On ground encounter with weather	6	0	0	0	6	0.2
Overrun	97	15	8	2	122	4.4
Loss of power	87	31	23	16	157	5.7
Loss of power(total) - mech failure/malfunction	75	26	20	5	126	4.6
Loss of power(partial) - mech failure/malfunction	29	13	8	8	58	2.1
Loss of power(total) - non-mechanical	192	81	43	24	340	12.3
Loss of power(partial) - non-mechanical	22	8	1	4	35	1.3
Propeller/rotor contact	0	0	11	3	14	0.5
Undershoot	27	8	8	1	44	1.6
Undetermined	0	0	1	0	1	0.0

Table 31 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY (CONTINUED)  
ALL FIXED WING AIRCRAFT  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Vortex turbulence encountered	4	0	0	0	4	0.1
Missing aircraft	0	0	0	9	9	0.3
Miscellaneous/other	2	0	1	0	3	0.1
Other	2	0	1	2	5	0.2
Aircraft						
Number -	1597	390	262	509	2758	
Percent -	57.9	14.1	9.5	18.5		

Table 32 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
ALL FIXED WING AIRCRAFT  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Standing - pre-flight	1	0	0	0	1	0.0
Standing - starting engine(s)	3	0	6	3	12	0.4
Standing - engine(s) operating	6	6	9	1	22	0.8
Taxi	0	0	8	1	9	0.3
Taxi - to takeoff	0	0	32	1	33	1.2
Taxi - from landing	0	0	32	2	34	1.2
Takeoff	0	0	43	12	55	2.0
Takeoff - ground run	0	0	128	15	143	5.2
Takeoff - initial climb	2	1	269	120	392	14.2
Climb	0	0	7	6	13	0.5
Climb - to cruise	0	0	27	24	51	1.8
Cruise	0	0	38	40	78	2.8
Cruise - normal	1	1	215	150	367	13.3
Descent	0	0	6	5	11	0.4
Descent - normal	0	0	27	9	36	1.3
Descent - emergency	0	0	1	0	1	0.0
Descent - uncontrolled	0	0	1	4	5	0.2
Approach	0	0	32	28	60	2.2
Approach - VFR pattern - downwind	0	0	11	4	15	0.5
Approach - VFR pattern - base turn	0	0	8	7	15	0.5
Approach - VFR pattern - base to final	0	0	11	7	18	0.7
Approach - VFR pattern - final approach	0	0	117	25	142	5.1
Approach - go-around (VFR)	0	1	47	24	72	2.6
Approach - IAF to FAF/outer marker (IFR)	0	0	2	7	9	0.3
Approach - FAF/outer marker to threshold (IFR)	0	0	6	12	18	0.7
Approach - missed approach (IFR)	0	0	1	6	7	0.3
Landing	0	0	46	17	63	2.3
Landing - flare/touchdown	0	1	301	20	322	11.7
Landing - roll	0	1	341	8	350	12.7
Maneuvering	0	0	89	141	230	8.3
Maneuvering - aerial application	1	0	68	36	105	3.8
Maneuvering - turn to reverse direction	0	0	8	10	18	0.7
Maneuvering - turn to landing area (emergency)	0	0	3	1	4	0.1

Table 32 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)  
ALL FIXED WING AIRCRAFT  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Other	0	0	4	1	5	0.2
Unknown	0	0	10	27	37	1.3
Not reported	0	0	1	4	5	0.2
Aircraft						
Number -	14	11	1955	778	2758	
Percent -	0.5	0.4	70.9	28.2		

Table 33 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
ALL FIXED WING AIRCRAFT  
1983

Condition of light	Type of weather			Aircraft	
	VMC	IMC	Not Reptd	No.	Percent
Dawn	22	3	1	26	0.9
Daylight	2099	124	23	2246	81.4
Night (dark)	217	77	11	305	11.1
Night (bright)	43	0	0	43	1.6
Dusk	103	14	2	119	4.3
Not reported	10	0	9	19	0.7
Aircraft					
Number -	2494	218	46	2758	
Percent -	90.4	7.9	1.7		

TABLE 34 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
ALL FIXED WING AIRCRAFT  
1983

Proximity to Airport	Type of Flight Plan					Aircraft	
	VFR	IFR	VFR/IFR	None	Other	No.	Percent
On Airport	141	94	3	887	15	1140	41.3
On Airstrip	15	2	0	142	1	160	5.8
Within 5 SM	28	46	1	308	2	385	14.0
5 SM Or Greater	30	25	1	163	1	220	8.0
Unknown	93	52	1	696	11	853	30.9
Aircraft							
Number -	307	219	6	2196	30	2758	
Percent -	11.1	7.9	0.2	79.6	1.1		

Table 35 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
ALL FIXED WING AIRCRAFT  
1983

Detailed Cause	Number of Aircraft	Percent of Aircraft
Directional control - Not maintained - Pilot in command	289	10.5
Undetermined	205	7.4
Distance - Misjudged - Pilot in command	131	4.8
Preflight planning/preparation - Inadequate - Pilot in command	120	4.4
In-flight planning/decision - Improper - Pilot in command	118	4.3
Airspeed - Not maintained - Pilot in command	111	4.0
Fluid, fuel - Exhaustion	104	3.8
Fuel supply - Inadequate - Pilot in command	104	3.8
Visual lookout - Inadequate - Pilot in command	104	3.8
Unsuitable terrain - Selected - Pilot in command	103	3.7
Total Number of Aircraft:	2758	

Table 36 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
ALL FIXED WING AIRCRAFT  
1975 - 1983

Year	Accidents	Fatal Accidents	Total	Fatalities
				Aboard Aircraft In This Category
1975	3644	609	1216	1193
1976	3695	624	1168	1154
1977	3745	632	1240	1230
1978	3850	670	1487	1335
1979	3477	592	1155	1142
1980	3233	569	1168	1162
1981	3161	610	1208	1190
1982	2883	537	1100	1089
1983	2729	503	990	985

Accident Rate per 100,000 \*  
Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	28,393,000	12.83	2.14
1976	29,202,000	12.64	2.13
1977	30,166,000	12.41	2.09
1978	33,162,000	11.60	2.01
1979	36,760,000	9.46	1.61
1980	34,145,000	9.47	1.66
1981	34,113,000	9.27	1.79
1982	30,077,000	9.59	1.79
1983	28,917,000	9.43	1.74

\* Suicide and sabotage accidents excluded from rates as follows :  
Total - 1975 (1), 1976 (4), 1977 (1), 1978 (2), 1980 (1), 1983 (1)  
Fatal - 1975 (1), 1976 (1), 1977 (1), 1978 (2), 1980 (1)

Table 37 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
ALL FIXED WING AIRCRAFT  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	716	26.0	849.8	25.3
Collision with object/terrain	503	18.2	793.0	23.6
Loss of control - in flight	349	12.7	416.8	12.4
Loss of control - on ground	343	12.4	404.8	12.1
Hard landing	147	5.3	202.0	6.0
Miscellaneous	133	4.8	160.4	4.8
Nose over/down	38	1.4	103.2	3.1
Undershoot	44	1.6	99.4	3.0
Airframe/component/system fail/malf	133	4.8	81.4	2.4
Gear collapsed/retracted	53	1.9	80.4	2.4
Encounter with weather/turbulence	222	8.0	52.2	1.6
Midair collision	18	.7	49.4	1.5
(All other types)	59	2.1	63.6	1.9
Total	2758	100.0	3356.4	100.0

Table 38 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
ALL FIXED WING AIRCRAFT  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	735	26.6	962.2	28.7
Takeoff	590	21.4	687.8	20.5
Cruise	445	16.1	502.2	15.0
Approach	356	12.9	428.6	12.8
Maneuvering	357	12.9	385.8	11.5
Descent	53	1.9	143.4	4.3
Taxi	76	2.8	106.8	3.2
Climb	64	2.3	86.0	2.6
Other	47	1.7	33.6	1.0
Standing	35	1.3	20.0	.6
Total	2758	100.0	3356.4	100.0



Table 39 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
ALL FIXED WING AIRCRAFT  
1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	2331	84.5	2716.0	80.9
Weather	806	29.2	820.4	24.4
Terrain	885	32.1	755.4	22.5
Powerplant	619	22.4	550.0	16.4
Miscellaneous	905	32.8	300.6	9.0
Personnel	254	9.2	300.0	8.9
Airport/Airways/Facilities	130	4.7	254.2	7.6
Landing Gear	385	14.0	155.4	4.6
Undetermined	212	7.7	105.6	3.1
Airframe	120	4.4	59.4	1.8
Systems	52	1.9	51.0	1.5
Instruments/Equipment/Accessories	34	1.2	15.8	.5
(All other types)	2	.1	.0	.0
Number of Aircraft	2758		3356.4	

Table 40 - SUMMARY OF LOSSES  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	419	453	497
Involved Serious Injury	234	255	268
Involved Minor Injury	359	346	455
Involved No Injury	1427	1492	1601
	----	----	----
Total	2439	2546	2821
 Fatalities			
-----			
Passenger	349	387	398
Crew	422	454	509
Other Persons	7	16	12
	----	----	----
Total	778	857	919
 Aircraft Damaged*			
-----			
Destroyed	656	747	861
Substantial	1783	1800	1969
Minor	9	13	13
None	12	8	1
Unknown	0	4	0
	-----	-----	-----
Total	2460	2572	2844

\* Number of Fixed Wing, Single Reciprocating Engine, General Aviation Aircraft

Table 41 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	628	288	450	1995	3361
Business	74	36	48	202	360
Corporate/Executive	0	1	0	6	7
Aerial application	12	22	39	140	213
Instructional	27	26	51	355	459
Other	30	27	45	107	209
Total	771	400	633	2805	4609
Percent	16.7	8.7	13.7	60.9	

Table 42 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	2	0	0	1	3	0.1
Airframe/component/system failure/malfunction	72	6	6	20	104	4.2
Dragged wing, rotor, pod, or float	6	1	0	0	7	0.3
Fire/explosion	0	0	0	1	1	0.0
Fire	7	4	1	2	14	0.6
Forced landing	5	2	0	0	7	0.3
Gear collapsed	4	0	0	0	4	0.2
Main gear collapsed	14	0	0	0	14	0.6
Nose gear collapsed	10	0	0	0	10	0.4
Tail gear collapsed	1	0	0	0	1	0.0
Complete gear collapsed	6	0	0	0	6	0.2
Hard landing	125	11	4	0	140	5.7
Hazardous materials leak/spill (fumes/smoke)	1	0	0	0	1	0.0
In flight collision with object	71	36	34	48	189	7.7
In flight collision with terrain	54	14	18	57	143	5.8
In flight encounter with weather	43	10	11	116	180	7.3
Loss of control - in flight	110	61	35	113	319	13.0
Loss of control - on ground	280	34	6	1	321	13.0
Midair collision	4	0	4	5	13	0.5
Nose down	1	0	0	0	1	0.0
Nose over	32	4	0	0	36	1.5
On ground collision with object	66	6	5	2	79	3.2
On ground collision with terrain	30	5	2	0	37	1.5
On ground encounter with weather	6	0	0	0	6	0.2
Overrun	83	12	7	1	103	4.2
Loss of power	82	29	22	11	144	5.9
Loss of power(total) - mech failure/malfunction	71	24	19	4	118	4.8
Loss of power(partial) - mech failure/malfunction	22	9	7	2	40	1.6
Loss of power(total) - non-mechanical	182	77	35	21	315	12.8
Loss of power(partial) - non-mechanical	22	7	1	4	34	1.4
Propeller/rotor contact	0	0	9	2	11	0.4
Undershoot	24	8	8	1	41	1.7
Undetermined	0	0	1	0	1	0.0

Table 42 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY (CONTINUED)  
 FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
 1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Vortex turbulence encountered	4	0	0	0	4	0.2
Missing aircraft	0	0	0	7	7	0.3
Miscellaneous/other	1	0	1	0	2	0.1
Not reported	2	0	1	1	4	0.2
Aircraft						
Number -	1443	360	237	420	2460	
Percent -	58.7	14.6	9.6	17.1		

Table 43 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Standing - pre-flight	1	0	0	0	1	0.0
Standing - starting engine(s)	3	0	6	3	12	0.5
Standing - engine(s) operating	4	4	6	1	15	0.6
Taxi	0	0	8	1	9	0.4
Taxi - to takeoff	0	0	27	1	28	1.1
Taxi - from landing	0	0	29	2	31	1.3
Takeoff	0	0	37	11	48	2.0
Takeoff - ground run	0	0	118	11	129	5.2
Takeoff - initial climb	2	1	253	99	355	14.4
Climb	0	0	7	5	12	0.5
Climb - to cruise	0	0	25	14	39	1.6
Cruise	0	0	35	35	70	2.8
Cruise - normal	1	1	199	134	335	13.6
Descent	0	0	6	5	11	0.4
Descent - normal	0	0	25	7	32	1.3
Descent - emergency	0	0	1	0	1	0.0
Descent - uncontrolled	0	0	1	3	4	0.2
Approach	0	0	25	21	46	1.9
Approach - VFR pattern - downwind	0	0	9	3	12	0.5
Approach - VFR pattern - base turn	0	0	7	4	11	0.4
Approach - VFR pattern - base to final	0	0	10	5	15	0.6
Approach - VFR pattern - final approach	0	0	106	22	128	5.2
Approach - go-around (VFR)	0	1	47	19	67	2.7
Approach - IAF to FAF/outer marker (IFR)	0	0	1	4	5	0.2
Approach - FAF/outer marker to threshold (IFR)	0	0	2	8	10	0.4
Approach - missed approach (IFR)	0	0	1	3	4	0.2
Landing	0	0	43	13	56	2.3
Landing - flare/touchdown	0	1	272	17	290	11.8
Landing - roll	0	1	301	6	308	12.5
Maneuvering	0	0	87	127	214	8.7
Maneuvering - aerial application	1	0	67	34	102	4.1
Maneuvering - turn to reverse direction	0	0	8	10	18	0.7

Table 43 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Maneuvering - turn to landing area (emergency)	0	0	3	1	4	0.2
Other	0	0	3	0	3	0.1
Unknown	0	0	7	24	31	1.3
Not reported	0	0	1	3	4	0.2
Aircraft						
Number -	12	9	1783	656	2460	
Percent -	0.5	0.4	72.5	26.7		

Table 44 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1983

Detailed Cause	Number of Aircraft	Percent of Aircraft
Directional control - Not maintained - Pilot in command	272	11.1
Undetermined	184	7.5
Distance - Misjudged - Pilot in command	118	4.8
Preflight planning/preparation - Inadequate - Pilot in command	111	4.5
Airspeed - Not maintained - Pilot in command	105	4.3
In-flight planning/decision - Improper - Pilot in command	104	4.2
Visual lookout - Inadequate - Pilot in command	102	4.1
Fluid, fuel - Exhaustion	97	3.9
Fuel supply - Inadequate - Pilot in command	96	3.9
Unsuitable terrain - Selected - Pilot in command	95	3.9
Total Number of Aircraft:	2460	

Table 45 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1975 - 1983

Year	Accidents	Fatal Accidents	Fatalities	
			Total	Aboard Aircraft In This Category
1975	3305	514	972	949
1976	3319	510	899	887
1977	3383	542	996	987
1978	3440	544	1150	997
1979	3071	471	869	856
1980	2854	459	876	864
1981	2821	497	919	907
1982	2546	453	857	841
1983	2439	419	778	771

Accident Rate per 100,000 \*  
Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	22,881,000	14.44	2.24
1976	23,442,000	14.15	2.17
1977	23,798,000	14.21	2.27
1978	26,556,000	12.95	2.04
1979	29,128,000	10.54	1.62
1980	26,876,000	10.62	1.70
1981	26,347,000	10.71	1.89
1982	23,165,000	10.99	1.96
1983	22,152,000	11.01	1.89

\* Suicide and sabotage accidents excluded from rates as follows :

Total - 1975 (1), 1976 (2), 1977 (1), 1978 (2), 1980 (1), 1982 (1), 1983 (1)

Fatal - 1975 (1), 1976 (1), 1977 (1), 1978 (2), 1980 (1)



Table 46 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	651	26.5	757.8	25.5
Collision with object/terrain	448	18.2	692.2	23.3
Loss of control - on ground	321	13.0	378.2	12.7
Loss of control - in flight	319	13.0	375.6	12.6
Hard landing	140	5.7	184.4	6.2
Miscellaneous	113	4.6	149.0	5.0
Nose over/down	37	1.5	101.8	3.4
Undershoot	41	1.7	88.0	3.0
Airframe/component/system fail/malf	104	4.2	69.6	2.3
Encounter with weather/turbulence	190	7.7	46.0	1.5
Gear collapsed/retracted	35	1.4	45.4	1.5
Midair collision	13	.5	42.2	1.4
(All other types)	48	2.0	44.8	1.5
Total	2460	100.0	2975.0	100.0

Table 47 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	654	26.6	848.8	28.5
Takeoff	532	21.6	620.4	20.9
Cruise	405	16.5	450.8	15.2
Maneuvering	338	13.7	369.4	12.4
Approach	298	12.1	360.2	12.1
Descent	48	2.0	118.8	4.0
Taxi	68	2.8	94.8	3.2
Climb	51	2.1	70.6	2.4
Other	38	1.5	24.6	.8
Standing	28	1.1	16.6	.6
Total	2460	100.0	2975.0	100.0

Table 48 - SUMMARY OF LOSSES  
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
1981 - 1983

	1983	1982	1981
	----	----	----
<b>Accidents</b>			
-----			
Fatal	74	78	94
Involved Serious Injury	22	19	20
Involved Minor Injury	22	20	27
Involved No Injury	125	179	148
	----	----	----
Total	243	296	289
<b>Fatalities</b>			
-----			
Passenger	106	114	110
Crew	82	94	108
Other Persons	4	4	2
	----	----	----
Total	192	212	220
<b>Aircraft Damaged*</b>			
-----			
Destroyed	104	112	133
Substantial	139	180	156
Minor	2	1	0
None	0	2	0
Unknown	0	2	1
	----	----	----
Total	245	297	290

\* Number of Fixed Wing, Multiple Reciprocating Engine, General Aviation Aircraft

Table 49 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
 FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
 1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	106	30	30	182	348
Business	32	8	17	61	118
Corporate/Executive	12	2	10	33	57
Instructional	7	5	7	29	48
Other	31	3	4	58	96
Total	188	48	68	363	667
Percent	28.2	7.2	10.2	54.4	

Table 50 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Airframe/component/system failure/malfunction	20	2	2	3	27	11.0
Ditching	1	0	0	0	1	0.4
Dragged wing, rotor, pod, or float	1	0	0	0	1	0.4
Fire	2	0	0	0	2	0.8
Gear collapsed	3	0	0	0	3	1.2
Main gear collapsed	2	0	0	0	2	0.8
Nose gear collapsed	2	0	0	0	2	0.8
Complete gear collapsed	10	0	0	0	10	4.1
Hard landing	5	0	0	0	5	2.0
In flight collision with object	3	1	1	3	8	3.3
In flight collision with terrain	13	3	2	9	27	11.0
In flight encounter with weather	4	0	1	19	24	9.8
Loss of control - in flight	3	1	2	17	23	9.4
Loss of control - on ground	11	1	1	0	13	5.3
Midair collision	0	0	0	4	4	1.6
Nose over	0	1	0	0	1	0.4
On ground collision with object	6	0	0	1	7	2.9
On ground collision with terrain	4	0	0	0	4	1.6
Overrun	12	1	1	0	14	5.7
Loss of power	5	2	1	5	13	5.3
Loss of power(total) - mech failure/malfunction	3	2	1	1	7	2.9
Loss of power(partial) - mech failure/malfunction	5	4	1	6	16	6.5
Loss of power(total) - non-mechanical	9	3	8	3	23	9.4
Loss of power(partial) - non-mechanical	0	1	0	0	1	0.4
Propeller/rotor contact	0	0	1	0	1	0.4
Undershoot	2	0	0	0	2	0.8
Missing aircraft	0	0	0	2	2	0.8
Miscellaneous/other	1	0	0	0	1	0.4
Not reported	0	0	0	1	1	0.4
Aircraft						
Number -	127	22	22	74	245	
Percent -	51.8	9.0	9.0	30.2		

Table 51 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
1983

Phase of operation	Aircraft damage			Aircraft	
	Minor	Subs	Dest	No.	Percent
Standing - engine(s) operating	2	3	0	5	2.0
Taxi - to takeoff	0	5	0	5	2.0
Taxi - from landing	0	2	0	2	0.8
Takeoff	0	6	1	7	2.9
Takeoff - ground run	0	7	3	10	4.1
Takeoff - initial climb	0	13	19	32	13.1
Climb - to cruise	0	2	10	12	4.9
Cruise	0	2	4	6	2.4
Cruise - normal	0	13	16	29	11.8
Descent - normal	0	1	1	2	0.8
Descent - uncontrolled	0	0	1	1	0.4
Approach	0	7	4	11	4.5
Approach - VFR pattern - downwind	0	2	1	3	1.2
Approach - VFR pattern - base turn	0	1	2	3	1.2
Approach - VFR pattern - base to final	0	1	2	3	1.2
Approach - VFR pattern - final approach	0	9	3	12	4.9
Approach - go-around (VFR)	0	0	4	4	1.6
Approach - IAF to FAF/outer marker (IFR)	0	1	3	4	1.6
Approach - FAF/outer marker to threshold (IFR)	0	2	3	5	2.0
Approach - missed approach (IFR)	0	0	3	3	1.2
Landing	0	3	4	7	2.9
Landing - flare/touchdown	0	25	3	28	11.4
Landing - roll	0	29	1	30	12.2
Maneuvering	0	1	11	12	4.9
Not reported	0	1	1	2	0.8
Unknown	0	3	3	6	2.4
Other	0	0	1	1	0.4
Aircraft					
Number -	2	139	104	245	
Percent -	0.8	56.7	42.4		

Table 52 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Undetermined	19	7.8
Proper altitude - Not maintained - Pilot in command	14	5.7
Directional control - Not maintained - Pilot in command	12	4.9
Aircraft preflight - Inadequate - Pilot in command	12	4.9
In-flight planning/decision - Improper - Pilot in command	11	4.5
Judgement - Poor - Pilot in command	10	4.1
Distance - Misjudged - Pilot in command	10	4.1
VFR flight into IMC - Continued - Pilot in command	8	3.3
Supervision - Inadequate - Pilot in command(CFI)	8	3.3
Preflight planning/preparation - Inadequate - Pilot in command	8	3.3
Total Number of Aircraft:	245	

Table 53 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINE  
1975 - 1983

Year	Accidents	Fatal Accidents	Fatalities	
			Total	Aboard Aircraft In This Category
1975	312	84	208	208
1976	346	103	238	231
1977	324	73	173	166
1978	367	112	295	292
1979	358	108	258	247
1980	330	99	262	256
1981	289	94	220	218
1982	296	78	212	208
1983	243	74	192	188

Accident Rate per 100,000 \*  
Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	3,918,000	7.96	2.14
1976	4,085,000	8.42	2.52
1977	4,320,000	7.50	1.69
1978	4,496,000	8.16	2.49
1979	5,098,000	7.02	2.12
1980	4,491,000	7.35	2.20
1981	4,833,000	5.98	1.94
1982	4,026,000	7.33	1.94
1983	3,828,000	6.35	1.93

\* Suicide and sabotage accidents excluded from rates as follows :  
Total - 1976 (2), 1982 (1)  
Fatal - None



Table 54 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Collision with object/terrain	46	18.8	87.0	26.4
Loss of power	60	24.5	85.2	25.9
Loss of control - in flight	23	9.4	34.0	10.3
Gear collapsed/retracted	17	6.9	32.2	9.8
Loss of control - on ground	13	5.3	20.6	6.3
Hard landing	5	2.0	14.6	4.4
Fire/explosion	2	.8	9.4	2.9
Miscellaneous	15	6.1	9.2	2.8
Undershoot	2	.8	9.2	2.8
Airframe/component/system fail/malf	27	11.0	7.4	2.2
Encounter with weather/turbulence	24	9.8	5.6	1.7
Midair collision	4	1.6	5.6	1.7
(All other types)	7	2.9	9.2	2.8
Total	245	100.0	329.2	100.0

Table 55 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	65	26.5	96.6	29.3
Takeoff	49	20.0	59.8	18.2
Approach	48	19.6	59.0	17.9
Cruise	35	14.3	46.0	14.0
Descent	3	1.2	20.8	6.3
Climb	12	4.9	13.4	4.1
Maneuvering	12	4.9	12.0	3.6
Taxi	7	2.9	11.2	3.4
Other	9	3.7	8.4	2.6
Standing	5	2.0	2.0	.6
Total	245	100.0	329.2	100.0

Table 56 - SUMMARY OF LOSSES  
FIXED WING AIRCRAFT - TURBOPROP  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	10	9	17
Involved Serious Injury	1	2	4
Involved Minor Injury	3	4	0
Involved No Injury	19	23	28
	----	----	----
Total	33	38	49
Fatalities			
-----			
Passenger	8	22	27
Crew	11	11	21
Other Persons	1	4	13
	----	----	----
Total	20	37	61
Aircraft Damaged*			
-----			
Destroyed	10	12	19
Substantial	21	26	30
Minor	0	0	0
None	2	0	0
Unknown	0	0	0
	----	----	----
Total	33	38	49

\* Number of Turboprop General Aviation Airplanes

Table 57 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
FIXED WING AIRCRAFT - TURBOPROP  
1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	8	3	1	65	77
Business	1	0	3	16	20
Corporate/Executive	5	0	0	22	27
Aerial application	2	0	1	2	5
Other	3	0	0	4	7
Total	19	3	5	109	136
Percent	14.0	2.2	3.7	80.1	

Table 58 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
FIXED WING AIRCRAFT - TURBOPROP  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	0	0	0	1	1	3.0
Airframe/component/system failure/malfunction	1	0	0	0	1	3.0
Complete gear collapsed	1	0	0	0	1	3.0
Hard landing	2	0	0	0	2	6.1
In flight collision with object	0	0	0	2	2	6.1
In flight collision with terrain	2	0	0	0	2	6.1
In flight encounter with weather	1	0	0	4	5	15.2
Loss of control - in flight	0	1	0	1	2	6.1
Loss of control - on ground	7	0	0	0	7	21.2
On ground collision with terrain	1	0	0	0	1	3.0
Overrun	1	1	0	1	3	9.1
Loss of power(total) - mech failure/malfunction	1	0	0	0	1	3.0
Loss of power(partial) - mech failure/malfunction	1	0	0	0	1	3.0
Loss of power(total) - non-mechanical	1	1	0	0	2	6.1
Propeller/rotor contact	0	0	1	1	2	6.1
Aircraft						
Number -	19	3	1	10	33	
Percent -	57.6	9.1	3.0	30.3		

Table 59 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
FIXED WING AIRCRAFT - TURBOPROP  
1983

Phase of operation	Aircraft damage			Aircraft	
	None	Subs	Dest	No.	Percent
Standing - engine(s) operating	2	0	0	2	6.1
Takeoff - ground run	0	2	1	3	9.1
Takeoff - initial climb	0	1	0	1	3.0
Climb	0	0	1	1	3.0
Cruise	0	1	1	2	6.1
Cruise - normal	0	2	0	2	6.1
Descent - normal	0	1	1	2	6.1
Approach	0	0	1	1	3.0
Approach - VFR pattern - base turn	0	0	1	1	3.0
Approach - VFR pattern - final approach	0	1	0	1	3.0
Approach - FAF/outer marker to threshold (IFR)	0	0	1	1	3.0
Landing - flare/touchdown	0	4	0	4	12.1
Landing - roll	0	8	0	8	24.2
Maneuvering	0	0	1	1	3.0
Maneuvering - aerial application	0	1	2	3	9.1
Aircraft					
Number -	2	21	10	33	
Percent -	6.1	63.6	30.3		

Table 60 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
FIXED WING AIRCRAFT - TURBOPROP  
1983

Detailed Cause	Number of Aircraft	Percent of Aircraft
Directional control - Not maintained - Pilot in command	4	12.1
IFR procedure - Improper - Pilot in command	3	9.1
Flare - Improper - Pilot in command	2	6.1
Distance - Misjudged - Pilot in command	2	6.1
Unsuitable terrain - Selected - Pilot in command	2	6.1
Supervision - Inadequate - Pilot in command	2	6.1
Propeller system/accessories, blade - Failure, total	1	3.0
Propeller system/accessories, blade - Fatigue	1	3.0
Propeller system/accessories, prop control unit - Loose	1	3.0
Fluid - Exhaustion	1	3.0
Gear retraction - Inadvertent - Pilot in command	1	3.0
Gear extension - Not possible - Pilot in command	1	3.0
Fuel supply - Inadequate - Pilot in command	1	3.0
Powerplant controls - Improper use of - Pilot in command	1	3.0
Preflight planning/preparation - Inadequate - Pilot in command	1	3.0
Aircraft preflight - Inadequate - Pilot in command	1	3.0
In-flight planning/decision - Improper - Pilot in command	1	3.0
NOTAMs - Not followed - Pilot in command	1	3.0
VFR flight into IMC - Attempted - Pilot in command	1	3.0
Refueling - Not performed - Pilot in command	1	3.0
Flight into known adverse weather - Attempted - Pilot in command	1	3.0
Propeller system/accessories, blade - Corroded	1	3.0
Compensation for wind conditions - Improper - Pilot in command	1	3.0
Turbine assembly, shaft bearing - Worn	1	3.0
Judgement - Poor - Pilot in command	1	3.0
Procedures/directives - Not followed - Pilot in command	1	3.0
Maintenance, overhaul - Inadequate - Other maintenance psnl	1	3.0
Aborted takeoff - Delayed - Pilot in command	1	3.0
Aborted takeoff - Not performed - Pilot in command	1	3.0
Airspeed - Misjudged - Pilot in command	1	3.0
Airspeed - Not maintained - Pilot in command	1	3.0
Airspeed(Vlof) - Below - Pilot in command	1	3.0
Altitude - Misjudged - Pilot in command	1	3.0
Proper altitude - Not maintained - Pilot in command	1	3.0
Distance - Inadequate - Pilot in command	1	3.0
Turbine assembly, turbine blade - Failure, total	1	3.0
Clearance - Inadequate - Pilot in command	1	3.0
Clearance - Misjudged - Pilot in command	1	3.0
Minimum descent altitude - Not maintained - Pilot in command	1	3.0

Table 60 - MOST PREVALENT DETAILED ACCIDENT CAUSES (CONTINUED)  
FIXED WING AIRCRAFT - TURBOPROP  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Proper alignment - Not attained - Pilot in command	1	3.0
Proper alignment - Not maintained - Pilot in command	1	3.0
Proper touchdown point - Not attained - Pilot in command	1	3.0
Lift-off - Premature - Pilot in command	1	3.0
Landing gear,normal retraction/extension assembly - Inoperative	1	3.0
Flare - Misjudged - Pilot in command	1	3.0
Go-around - Delayed - Pilot in command	1	3.0
Go-around - Not performed - Pilot in command	1	3.0
Ground loop/swerve - Inadvertent - Pilot in command	1	3.0
Landing gear,nose gear assembly - Jammed	1	3.0
Directional control - Not possible - Pilot in command	1	3.0
Load jettison - Inadvertent - Pilot in command	1	3.0
Remedial action - Improper - Pilot in command	1	3.0
Pull-up - Excessive - Pilot in command	1	3.0
Stall - Inadvertent - Pilot in command	1	3.0
Stall/spin - Inadvertent - Pilot in command	1	3.0
Recovery from bounced landing - Delayed - Pilot in command	1	3.0
Interpretation of instructions - Not understood - Passenger	1	3.0
Instructions,written/verbal - Inadequate - Pilot in command	1	3.0
Instructions,written/verbal - Not followed - Passenger	1	3.0
Landing gear,nose gear assembly - Vibration	1	3.0
Undetermined	1	3.0
Physical impairment(alcohol) - Pilot in command	1	3.0
Total Number of Aircraft:	33	



Table 61 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
FIXED WING AIRCRAFT - TURBOPROP  
1975 - 1983

Year	Accidents	Fatal Accidents	Fatalities	
			Total	Aboard Aircraft In This Category
1975	16	10	35	35
1976	22	8	19	18
1977	29	14	61	59
1978	28	11	32	31
1979	42	14	31	30
1980	41	11	38	35
1981	49	17	61	48
1982	38	9	37	33
1983	33	10	20	19

Accident Rate per 100,000  
Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	900,000	1.78	1.11
1976	901,000	2.44	0.89
1977	1,093,000	2.65	1.28
1978	1,056,000	2.65	1.04
1979	1,375,000	3.05	1.02
1980	1,524,000	2.69	0.72
1981	1,606,000	3.05	1.06
1982	1,515,000	2.51	0.59
1983	1,460,000	2.26	0.68

Table 62 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
FIXED WING AIRCRAFT - TURBOPROP  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Collision with object/terrain	5	15.2	11.2	28.3
Loss of power	4	12.1	6.6	16.7
Loss of control - in flight	2	6.1	5.2	13.1
Loss of control - on ground	7	21.2	4.4	11.1
Airframe/component/system fail/malf	1	3.0	3.2	8.1
Gear collapsed/retracted	1	3.0	2.6	6.6
Hard landing	2	6.1	2.2	5.6
Midair collision	0	.0	1.0	2.5
Undershoot	0	.0	1.0	2.5
Prop/rotor contact	2	6.1	.8	2.0
Encounter with weather/turbulence	5	15.2	.6	1.5
Miscellaneous	3	9.1	.6	1.5
(All other types)	1	3.0	.2	.5
Total	33	100.0	39.6	100.0

Table 63 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 FIXED WING AIRCRAFT - TURBOPROP  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	12	36.4	12.8	32.3
Approach	4	12.1	6.2	15.7
Takeoff	4	12.1	5.6	14.1
Cruise	4	12.1	4.6	11.6
Maneuvering	4	12.1	3.8	9.6
Descent	2	6.1	2.8	7.1
Climb	1	3.0	1.6	4.0
Standing	2	6.1	1.0	2.5
Taxi	0	.0	.8	2.0
Other	0	.0	.4	1.0
Total	33	100.0	39.6	100.0

Table 64 - SUMMARY OF LOSSES  
FIXED WING AIRCRAFT - TURBOJET  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	4	2	4
Involved Serious Injury	2	1	1
Involved Minor Injury	2	0	0
Involved No Injury	6	7	2
	----	----	----
Total	14	10	7
 Fatalities			
-----			
Passenger	2	4	10
Crew	4	3	7
Other Persons	9	0	0
	----	----	----
Total	15	7	17
 Aircraft Damaged*			
-----			
Destroyed	6	2	3
Substantial	9	7	3
Minor	0	1	1
None	0	1	0
Unknown	0	0	0
	----	----	----
Total	15	11	7

\* Number of Turbojet General Aviation Airplanes

Table 65 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
FIXED WING AIRCRAFT - TURBOJET  
1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Business	0	0	2	11	13
Corporate/Executive	6	1	5	35	47
Instructional	0	0	0	2	2
Other	0	1	0	9	10
Total	6	2	7	57	72
Percent	8.3	2.8	9.7	79.2	

Table 66 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
FIXED WING AIRCRAFT - TURBOJET  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Airframe/component/system failure/malfunction	1	0	0	0	1	6.7
In flight collision with object	2	0	0	0	2	13.3
In flight encounter with weather	0	0	1	2	3	20.0
Loss of control - in flight	0	1	1	1	3	20.0
Loss of control - on ground	1	0	0	0	1	6.7
Midair collision	0	0	0	1	1	6.7
On ground collision with object	1	0	0	0	1	6.7
Overrun	1	1	0	0	2	13.3
Undershoot	1	0	0	0	1	6.7
Aircraft						
Number -	7	2	2	4	15	
Percent -	46.7	13.3	13.3	26.7		

Table 67 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
FIXED WING AIRCRAFT - TURBOJET  
1983

Phase of operation	Aircraft damage		Aircraft	
	Subs	Dest	No.	Percent
Taxi - from landing	1	0	1	6.7
Takeoff - ground run	1	0	1	6.7
Takeoff - initial climb	1	2	3	20.0
Cruise - normal	1	0	1	6.7
Approach	0	2	2	13.3
Approach - FAF/outer marker to threshold (IFR)	2	0	2	13.3
Landing - roll	2	1	3	20.0
Maneuvering	1	1	2	13.3
Aircraft				
Number -	9	6	15	
Percent -	60.0	40.0		

Table 68 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
FIXED WING AIRCRAFT - TURBOJET  
1983

Detailed Cause	Number of Aircraft	Percent of Aircraft
Landing gear,tire - Failure,total	1	6.7
Flt control syst,aileron control - Inadequate	1	6.7
Electrical system,circuit breaker - Popped/tripped	1	6.7
Thrust reverser,door - Deployed inadvertently	1	6.7
Thrust reverser,door - Unlocked	1	6.7
Annunciator panel lights - Switched off	1	6.7
Brakes(normal) - Improper use of - Copilot	1	6.7
Nosewheel steering - Not used - Pilot in command	1	6.7
Aircraft preflight - Inadequate - Pilot in command	1	6.7
Operation with known deficiencies in equipment - Attempted - Pilot in command	1	6.7
In-flight planning/decision - Improper - Pilot in command	1	6.7
VFR procedures - Not followed - Pilot in command	1	6.7
Visual lookout - Inadequate - Pilot in command	1	6.7
Visual lookout - Inadequate - Pilot of other aircraft	1	6.7
Weather evaluation - Poor - Pilot in command	1	6.7
IFR procedure - Improper - Pilot in command	1	6.7
Flight to alternate destination - Delayed - Pilot in command	1	6.7
Compensation for wind conditions - Improper - Pilot in command	1	6.7
Checklist - Not followed - Pilot in command	1	6.7
Procedures/directives - Not followed - Pilot in command	1	6.7
Procedures/directives - Not followed - Pilot of other aircraft	1	6.7
Maintenance - Inadequate - Company maintenance psnl	1	6.7
Aborted landing - Not performed - Pilot in command	1	6.7
Airspeed - Excessive - Pilot in command	1	6.7
Airspeed - Misjudged - Pilot in command	1	6.7
Proper altitude - Not maintained - Pilot in command	1	6.7
Distance - Misjudged - Pilot in command	1	6.7
Minimum descent altitude - Not identified - Pilot in command	1	6.7
Proper touchdown point - Exceeded - Pilot in command	1	6.7
Proper touchdown point - Not attained - Pilot in command	1	6.7
Go-around - Not performed - Pilot in command	1	6.7
Go-around - Not selected - Pilot in command	1	6.7
Directional control - Not maintained - Copilot	1	6.7
Directional control - Not maintained - Dual student	1	6.7
Remedial action - Inadequate - Pilot in command(CFI)	1	6.7
Supervision - Inadequate - Pilot in command	1	6.7
Supervision - Inadequate - Pilot in command(CFI)	1	6.7
Airframe - Manufacturer	1	6.7
Total Number of Aircraft:	15	

Table 69 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
FIXED WING AIRCRAFT - TURBOJET  
1975 - 1983

Year	Accidents	Fatal Accidents	Total	Fatalities
				Aboard Aircraft In This Category
1975	13	1	1	1
1976	13	5	19	18
1977	13	5	18	18
1978	20	5	17	15
1979	13	3	9	9
1980	12	3	7	7
1981	7	4	17	17
1982	10	2	7	7
1983	14	4	15	6

Accident Rate per 100,000  
Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	687,000	1.89	0.15
1976	752,000	1.73	0.66
1977	943,000	1.38	0.53
1978	1,061,000	1.89	0.47
1979	1,120,000	1.16	0.27
1980	1,244,000	0.96	0.24
1981	1,318,000	0.53	0.30
1982	1,349,000	0.74	0.15
1983	1,452,000	0.96	0.28



Table 70 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
FIXED WING AIRCRAFT - TURBOJET  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Collision with object/terrain	3	20.0	2.6	20.6
Loss of control - in flight	3	20.0	2.0	15.9
Loss of control - on ground	1	6.7	1.6	12.7
Miscellaneous	2	13.3	1.6	12.7
Airframe/component/system fail/malf	1	6.7	1.2	9.5
Undershoot	1	6.7	1.2	9.5
Hard landing	0	.0	.8	6.3
Midair collision	1	6.7	.6	4.8
Dragged wing, rotor, pod, float	0	.0	.2	1.6
Fire/explosion	0	.0	.2	1.6
Gear collapsed/retracted	0	.0	.2	1.6
Loss of power	0	.0	.2	1.6
Undetermined	0	.0	.2	1.6
(All other types)	3	20.0	.0	.0
Total	15	100.0	12.6	100.0

Table 71 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 FIXED WING AIRCRAFT - TURBOJET  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	3	20.0	4.0	31.7
Approach	4	26.7	3.2	25.4
Takeoff	4	26.7	2.0	15.9
Descent	0	.0	1.0	7.9
Cruise	1	6.7	.8	6.3
Maneuvering	2	13.3	.6	4.8
Standing	0	.0	.4	3.2
Climb	0	.0	.4	3.2
Other	0	.0	.2	1.6
(All other types)	1	6.7	.0	.0
Total	15	100.0	12.6	100.0

Table 72 - SUMMARY OF LOSSES  
ALL ROTORCRAFT  
1981 - 1983

	1983	1982	1981
	----	----	----
<b>Accidents</b>			
-----			
Fatal	37	41	30
Involved Serious Injury	30	32	36
Involved Minor Injury	33	42	56
Involved No Injury	138	140	134
	----	----	----
Total	238	255	256
<b>Fatalities</b>			
-----			
Passenger	16	16	21
Crew	40	46	31
Other Persons	2	4	3
	----	----	----
Total	58	66	55
<b>Aircraft Damaged*</b>			
-----			
Destroyed	69	78	85
Substantial	167	175	171
Minor	0	2	0
None	2	1	0
Unknown	0	0	0
	----	----	----
Total	238	256	256

\* Number of General Aviation Rotorcraft

Table 73 - PERSONS BY ROLE AND DEGREE OF INJURY  
ALL ROTORCRAFT  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	34	28	28	150	240
Copilot	2	1	1	5	9
Dual student	2	0	0	12	14
Check pilot	0	0	0	1	1
Other crew	2	2	1	5	10
Passenger	16	19	33	108	176
Total aboard	56	50	63	281	450
Other aircraft*	2	2	0	0	4
Other ground	0	2	1	4	7
Grand total	58	54	64	285	461
Percent	12.6	11.7	13.9	61.8	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.

Table 74 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
ALL ROTORCRAFT  
1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	18	9	8	70	105
Business	7	4	9	55	75
Corporate/Executive	0	0	3	10	13
Aerial application	1	3	4	31	39
Instructional	5	1	4	39	49
Other	25	33	35	76	169
Total	56	50	63	281	450
Percent	12.4	11.1	14.0	62.4	

Table 75 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
ALL ROTORCRAFT  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	0	0	0	3	3	1.3
Altitude deviation, uncontrolled	1	0	0	0	1	0.4
Airframe/component/system failure/malfunction	15	10	3	11	39	16.4
Dragged wing, rotor, pod, or float	1	0	0	0	1	0.4
Fire/explosion	1	0	0	0	1	0.4
Fire	2	0	0	0	2	0.8
Other gear collapsed	1	0	0	0	1	0.4
Hard landing	7	3	0	0	10	4.2
In flight collision with object	11	7	5	1	24	10.1
In flight collision with terrain	9	2	4	2	17	7.1
In flight encounter with weather	0	1	1	3	5	2.1
Loss of control - in flight	19	4	4	9	36	15.1
Loss of control - on ground	1	0	2	0	3	1.3
Midair collision	0	0	0	1	1	0.4
On ground collision with terrain	1	0	0	0	1	0.4
Loss of power	19	1	3	3	26	10.9
Loss of power(total) - mech failure/malfunction	12	2	2	2	18	7.6
Loss of power(partial) - mech failure/malfunction	8	0	0	0	8	3.4
Loss of power(total) - non-mechanical	19	2	3	1	25	10.5
Loss of power(partial) - non-mechanical	3	1	0	0	4	1.7
Propeller/rotor contact	0	0	0	1	1	0.4
Roll over	7	0	2	0	9	3.8
Miscellaneous/other	1	0	1	0	2	0.8
Aircraft						
Number -	138	33	30	37	238	
Percent -	58.0	13.9	12.6	15.5		

Table 76 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
ALL ROTORCRAFT  
1983

Phase of operation	Aircraft damage			Aircraft	
	None	Subs	Dest	No.	Percent
Standing - engine(s) operating	0	0	1	1	0.4
Standing - idling rotors	0	2	1	3	1.3
Taxi	0	1	0	1	0.4
Taxi - aerial	0	3	0	3	1.3
Takeoff	0	3	5	8	3.4
Takeoff - ground run	0	1	0	1	0.4
Takeoff - initial climb	1	28	15	44	18.5
Climb	0	1	2	3	1.3
Climb - to cruise	0	1	0	1	0.4
Cruise	0	7	5	12	5.0
Cruise - normal	0	28	11	39	16.4
Descent - normal	0	1	1	2	0.8
Descent - emergency	0	1	0	1	0.4
Approach	0	4	2	6	2.5
Approach - VFR pattern - downwind	0	3	0	3	1.3
Approach - VFR pattern - final approach	0	5	0	5	2.1
Landing	0	4	0	4	1.7
Landing - flare/touchdown	0	20	3	23	9.7
Maneuvering	0	19	12	31	13.0
Maneuvering - aerial application	0	15	4	19	8.0
Hover	1	18	5	24	10.1
Other	0	1	0	1	0.4
Unknown	0	1	2	3	1.3
Aircraft					
Number -	2	167	69	238	
Percent -	0.8	70.2	29.0		

Table 77 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
ALL ROTORCRAFT  
1983

Condition of light	Type of weather			Aircraft	
	VMC	IMC	Not Reptd	No.	Percent
Dawn	1	0	0	1	0.4
Daylight	216	5	1	222	93.3
Night (dark)	3	4	0	7	2.9
Night (bright)	1	0	0	1	0.4
Dusk	7	0	0	7	2.9
Aircraft					
Number -	228	9	1	238	
Percent -	95.8	3.8	0.4		

TABLE 78 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
ALL ROTORCRAFT  
1983

Proximity to Airport	Type of Flight Plan			Aircraft	
	VFR	None	Not Reptd	No.	Percent
On Airport	9	36	1	46	19.3
On Airstrip	0	5	0	5	2.1
Within 5 SM	3	13	1	17	7.1
5 SM Or Greater	4	16	0	20	8.4
Unknown	24	124	2	150	63.0
Aircraft					
Number -	40	194	4	238	
Percent -	16.8	81.5	1.7		



Table 79 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
ALL ROTORCRAFT  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Undetermined	34	14.3
Rotor rpm - Not maintained - Pilot in command	12	5.0
Preflight planning/preparation - Inadequate - Pilot in command	11	4.6
Aircraft preflight - Inadequate - Pilot in command	11	4.6
Visual lookout - Inadequate - Pilot in command	10	4.2
Rotorcraft flight controls - Improper use of - Pilot in command	9	3.8
Fuel supply - Inadequate - Pilot in command	9	3.8
Fluid, fuel - Starvation	8	3.4
Fluid, fuel - Exhaustion	8	3.4
Airplane handling - Not maintained - Pilot in command	7	2.9
Flight controls - Improper use of - Pilot in command	7	2.9
Total Number of Aircraft:	238	

Table 80 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
ALL ROTORCRAFT  
1975 - 1983

Year	Accidents	Fatal Accidents	Total	Fatalities
				Aboard Aircraft In This Category
1975	264	18	30	28
1976	248	25	38	38
1977	246	22	28	25
1978	283	39	56	48
1979	265	33	56	51
1980	260	40	60	57
1981	256	30	55	52
1982	255	41	66	62
1983	238	37	58	56

Accident Rate per 100,000 \*  
Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	974,000	27.10	1.85
1976	1,103,000	22.48	2.27
1977	1,170,000	21.03	1.88
1978	1,397,000	20.26	2.79
1979	1,522,000	17.41	2.17
1980	1,891,000	13.75	2.12
1981	2,303,000	11.12	1.30
1982	1,628,000	15.60	2.52
1983	1,709,000	13.93	2.17

\* Suicide and sabotage accidents excluded from rates as follows :  
Total - 1982 (1)  
Fatal - None

Table 81 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
ALL ROTORCRAFT  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	81	34.0	81.4	30.8
Collision with object/terrain	42	17.6	69.0	26.1
Airframe/component/system fail/malf	39	16.4	39.0	14.8
Hard landing	10	4.2	23.2	8.8
Loss of control - in flight	36	15.1	20.2	7.7
Roll over	9	3.8	15.6	5.9
Miscellaneous	2	.8	4.8	1.8
Encounter with weather/turbulence	5	2.1	3.0	1.1
(All other types)	14	5.9	7.8	3.0
Total	238	100.0	264.0	100.0

Table 82 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
ALL ROTORCRAFT  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Maneuvering	74	31.1	78.4	29.7
Cruise	51	21.4	59.2	22.4
Takeoff	53	22.3	42.6	16.1
Landing	27	11.3	42.4	16.1
Approach	14	5.9	13.8	5.2
Descent	3	1.3	9.2	3.5
Taxi	4	1.7	8.8	3.3
Standing	4	1.7	4.2	1.6
Climb	4	1.7	3.4	1.3
Other	4	1.7	2.0	.8
Total	238	100.0	264.0	100.0

Table 83 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
ALL ROTORCRAFT  
1983 AND 1978 - 1982

Broad Cause/Factor -----	1983 -----		1978 - 1982 -----	
	No.	Percent	Mean	Percent
Pilot	174	73.1	170.4	64.5
Terrain	66	27.7	62.8	23.8
Powerplant	55	23.1	61.8	23.4
Rotorcraft	33	13.9	41.0	15.5
Weather	42	17.6	38.0	14.4
Personnel	26	10.9	32.4	12.3
Miscellaneous	62	26.1	26.6	10.1
Undetermined	36	15.1	16.4	6.2
Systems	7	2.9	2.8	1.1
Landing Gear	4	1.7	2.0	.8
Airport/Airways/Facilities	0	.0	2.0	.8
Instruments/Equipment/Accessories	4	1.7	1.6	.6
Airframe	4	1.7	1.4	.5
Number of Aircraft	238		264.0	

Table 84 - SUMMARY OF LOSSES  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	20	20	21
Involved Serious Injury	16	14	19
Involved Minor Injury	21	27	35
Involved No Injury	86	96	103
	----	----	----
Total	143	157	178
Fatalities			
-----			
Passenger	2	3	7
Crew	23	21	22
Other Persons	0	0	3
	----	----	----
Total	25	24	32
Aircraft Damaged*			
-----			
Destroyed	37	40	57
Substantial	106	117	121
Minor	0	0	0
None	0	0	0
Unknown	0	0	0
	----	----	----
Total	143	157	178

\* Number of Reciprocating Engine, General Aviation Rotorcraft

Table 85 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	12	6	4	31	53
Business	0	2	4	15	21
Aerial application	1	3	3	26	33
Instructional	5	1	4	36	46
Other	7	8	16	32	63
Total	25	20	31	140	216
Percent	11.6	9.3	14.4	64.8	

Table 86 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	0	0	0	1	1	0.7
Altitude deviation, uncontrolled	1	0	0	0	1	0.7
Airframe/component/system failure/malfunction	7	5	0	9	21	14.7
Dragged wing, rotor, pod, or float	1	0	0	0	1	0.7
Fire	2	0	0	0	2	1.4
Hard landing	6	2	0	0	8	5.6
In flight collision with object	5	6	2	1	14	9.8
In flight collision with terrain	7	1	3	1	12	8.4
In flight encounter with weather	0	0	0	1	1	0.7
Loss of control - in flight	11	3	3	4	21	14.7
Loss of control - on ground	1	0	2	0	3	2.1
Loss of power	10	0	3	2	15	10.5
Loss of power(total) - mech failure/malfunction	7	1	0	1	9	6.3
Loss of power(partial) - mech failure/malfunction	6	0	0	0	6	4.2
Loss of power(total) - non-mechanical	15	2	2	0	19	13.3
Loss of power(partial) - non-mechanical	1	1	0	0	2	1.4
Roll over	5	0	1	0	6	4.2
Miscellaneous/other	1	0	0	0	1	0.7
Aircraft						
Number -	86	21	16	20	143	
Percent -	60.1	14.7	11.2	14.0		



Table 87 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1983

Phase of operation	Aircraft damage		Aircraft	
	Subs	Dest	No.	Percent
Standing - engine(s) operating	0	1	1	0.7
Standing - idling rotors	1	1	2	1.4
Taxi - aerial	2	0	2	1.4
Takeoff	2	5	7	4.9
Takeoff - initial climb	17	11	28	19.6
Climb	0	1	1	0.7
Cruise	3	1	4	2.8
Cruise - normal	14	6	20	14.0
Descent - normal	1	0	1	0.7
Approach	2	0	2	1.4
Approach - VFR pattern - downwind	2	0	2	1.4
Approach - VFR pattern - final approach	3	0	3	2.1
Landing	4	0	4	2.8
Landing - flare/touchdown	15	1	16	11.2
Maneuvering	15	6	21	14.7
Maneuvering - aerial application	14	3	17	11.9
Hover	10	0	10	7.0
Unknown	1	1	2	1.4
Aircraft				
Number -	106	37	143	
Percent -	74.1	25.9		

Table 88 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1983

----- Detailed Cause -----	----- Number of Aircraft -----	----- Percent of Aircraft -----
Undetermined	19	13.3
Preflight planning/preparation - Inadequate - Pilot in command	8	5.6
Rotorcraft flight controls - Improper use of - Pilot in command	7	4.9
Rotor rpm - Not maintained - Pilot in command	7	4.9
Flight controls - Improper use of - Pilot in command	7	4.9
Aircraft preflight - Inadequate - Pilot in command	7	4.9
Visual lookout - Inadequate - Pilot in command	6	4.2
Supervision - Inadequate - Pilot in command(CFI)	6	4.2
Fuel supply - Inadequate - Pilot in command	6	4.2
Adequate rotor rpm - Not maintained - Pilot in command	5	3.5
Fluid,fuel - Exhaustion	5	3.5
Fluid,fuel - Starvation	5	3.5
Total Number of Aircraft:	143	

Table 89 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1975 - 1983

Year	Accidents	Fatal Accidents	Total	Fatalities
				Aboard Aircraft In This Category
1975	217	12	16	16
1976	209	17	24	24
1977	190	14	17	17
1978	223	28	40	33
1979	185	20	30	25
1980	180	22	25	24
1981	178	21	32	29
1982	157	20	24	24
1983	143	20	25	25

Accident Rate per 100,000 \*  
 Aircraft Hours Flown

Year	Hours Flown	Total	Fatal
1975	623,000	34.83	1.93
1976	680,000	30.74	2.50
1977	571,000	33.27	2.45
1978	766,000	29.11	3.66
1979	859,000	21.54	2.33
1980	719,000	25.03	3.06
1981	878,000	20.27	2.39
1982	570,000	27.37	3.51
1983	566,000	25.27	3.53

\* Suicide and sabotage accidents excluded from rates as follows :  
 Total - 1982 (1)  
 Fatal - None

Table 90 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	51	35.7	54.0	29.3
Collision with object/terrain	26	18.2	51.2	27.7
Airframe/component/system fail/malf	21	14.7	27.8	15.1
Hard landing	8	5.6	17.8	9.6
Loss of control - in flight	21	14.7	13.6	7.4
Roll over	6	4.2	11.6	6.3
Miscellaneous	1	.7	2.0	1.1
(All other types)	9	6.3	6.6	3.6
Total	143	100.0	184.6	100.0

Table 91 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 ROTORCRAFT - RECIPROCATING ENGINE(S)  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Maneuvering	48	33.6	60.8	32.9
Cruise	24	16.8	34.6	18.7
Takeoff	35	24.5	31.6	17.1
Landing	20	14.0	30.8	16.7
Approach	7	4.9	9.6	5.2
Taxi	2	1.4	6.2	3.4
Descent	1	.7	6.0	3.3
Climb	1	.7	2.4	1.3
Standing	3	2.1	1.6	.9
Other	2	1.4	1.0	.5
Total	143	100.0	184.6	100.0

Table 92 - SUMMARY OF LOSSES  
 ROTORCRAFT - TURBINE POWERED  
 1981 - 1983

	1983	1982	1981
-----	-----	-----	-----
Accidents			
-----			
Fatal	17	21	9
Involved Serious Injury	14	18	17
Involved Minor Injury	12	15	21
Involved No Injury	52	44	31
-----	-----	-----	-----
Total	95	98	78
Fatalities			
-----			
Passenger	14	13	14
Crew	17	25	9
Other Persons	2	4	0
-----	-----	-----	-----
Total	33	42	23
Aircraft Damaged*			
-----			
Destroyed	32	38	28
Substantial	61	58	50
Minor	0	2	0
None	2	1	0
Unknown	0	0	0
-----	-----	-----	-----
Total	95	99	78

\* Number of Turbine Powered, General Aviation Rotorcraft

Table 93 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
 ROTORCRAFT - TURBINE POWERED  
 1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	6	3	4	39	52
Business	7	2	5	40	54
Corporate/Executive	0	0	3	10	13
Aerial application	0	0	1	5	6
Instructional	0	0	0	3	3
Other	18	25	19	44	106
Total	31	30	32	141	234
Percent	13.2	12.8	13.7	60.3	

Table 94 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
 ROTORCRAFT - TURBINE POWERED  
 1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	0	0	0	2	2	2.1
Airframe/component/system failure/malfunction	8	5	3	2	18	18.9
Fire/explosion	1	0	0	0	1	1.1
Other gear collapsed	1	0	0	0	1	1.1
Hard landing	1	1	0	0	2	2.1
In flight collision with object	6	1	3	0	10	10.5
In flight collision with terrain	2	1	1	1	5	5.3
In flight encounter with weather	0	1	1	2	4	4.2
Loss of control - in flight	8	1	1	5	15	15.8
Midair collision	0	0	0	1	1	1.1
On ground collision with terrain	1	0	0	0	1	1.1
Loss of power	9	1	0	1	11	11.6
Loss of power(total) - mech failure/malfunction	5	1	2	1	9	9.5
Loss of power(partial) - mech failure/malfunction	2	0	0	0	2	2.1
Loss of power(total) - non-mechanical	4	0	1	1	6	6.3
Loss of power(partial) - non-mechanical	2	0	0	0	2	2.1
Propeller/rotor contact	0	0	0	1	1	1.1
Roll over	2	0	1	0	3	3.2
Miscellaneous/other	0	0	1	0	1	1.1
Aircraft						
Number -	52	12	14	17	95	
Percent -	54.7	12.6	14.7	17.9		

Table 95 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
 ROTORCRAFT - TURBINE POWERED  
 1983

Phase of operation	Aircraft damage			Aircraft	
	None	Subs	Dest	No.	Percent
Standing - idling rotors	0	1	0	1	1.1
Taxi	0	1	0	1	1.1
Taxi - aerial	0	1	0	1	1.1
Takeoff	0	1	0	1	1.1
Takeoff - ground run	0	1	0	1	1.1
Takeoff - initial climb	1	11	4	16	16.8
Climb	0	1	1	2	2.1
Climb - to cruise	0	1	0	1	1.1
Cruise	0	4	4	8	8.4
Cruise - normal	0	14	5	19	20.0
Descent - normal	0	0	1	1	1.1
Descent - emergency	0	1	0	1	1.1
Approach	0	2	2	4	4.2
Approach - VFR pattern - downwind	0	1	0	1	1.1
Approach - VFR pattern - final approach	0	2	0	2	2.1
Landing - flare/touchdown	0	5	2	7	7.4
Maneuvering	0	4	6	10	10.5
Maneuvering - aerial application	0	1	1	2	2.1
Hover	1	8	5	14	14.7
Other	0	1	0	1	1.1
Unknown	0	0	1	1	1.1
Aircraft					
Number -	2	61	32	95	
Percent -	2.1	64.2	33.7		



Table 96 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
 ROTORCRAFT - TURBINE POWERED  
 1983

Detailed Cause	Number of Aircraft	Percent of Aircraft
Undetermined	15	15.8
Rotor rpm - Not maintained - Pilot in command	5	5.3
Proper altitude - Not maintained - Pilot in command	4	4.2
Airplane handling - Not maintained - Pilot in command	4	4.2
Visual lookout - Inadequate - Pilot in command	4	4.2
VFR flight into IMC - Continued - Pilot in command	4	4.2
In-flight planning/decision - Improper - Pilot in command	4	4.2
Aircraft preflight - Inadequate - Pilot in command	4	4.2
Fluid,fuel - Exhaustion	3	3.2
Flare - Not possible - Pilot in command	3	3.2
Fluid,fuel - Starvation	3	3.2
Fuel supply - Inadequate - Pilot in command	3	3.2
Clearance - Inadequate - Pilot in command	3	3.2
Preflight planning/preparation - Inadequate - Pilot in command	3	3.2
Total Number of Aircraft:	95	

Table 97 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
 ROTORCRAFT - TURBINE POWERED  
 1975 - 1983

Year	Accidents	Fatal Accidents	Fatalities	
			Total	Aboard Aircraft In This Category
1975	47	6	14	12
1976	39	8	14	14
1977	56	8	11	8
1978	60	11	16	15
1979	80	13	26	26
1980	80	18	35	33
1981	78	9	23	23
1982	98	21	42	38
1983	95	17	33	31

Year	Hours Flown	Accident Rate per 100,000 Aircraft Hours Flown	
		Total	Fatal
1975	351,000	13.39	1.71
1976	423,000	9.22	1.89
1977	599,000	9.35	1.34
1978	631,000	9.51	1.74
1979	663,000	12.07	1.96
1980	1,172,000	6.83	1.54
1981	1,424,000	5.48	0.63
1982	1,061,000	9.24	1.98
1983	1,143,000	8.31	1.49

Table 98 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
 ROTORCRAFT - TURBINE POWERED  
 1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	30	31.6	27.4	34.5
Collision with object/terrain	16	16.8	17.8	22.4
Airframe/component/system fail/malf	18	18.9	11.2	14.1
Loss of control - in flight	15	15.8	6.6	8.3
Hard landing	2	2.1	5.4	6.8
Roll over	3	3.2	4.0	5.0
Miscellaneous	1	1.1	2.8	3.5
Encounter with weather/turbulence	4	4.2	1.2	1.5
Prop/rotor contact	1	1.1	1.2	1.5
(All other types)	5	5.3	1.8	2.3
Total	95	100.0	79.4	100.0

Table 99 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 ROTORCRAFT - TURBINE POWERED  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Cruise	27	28.4	24.6	31.0
Maneuvering	26	27.4	17.6	22.2
Landing	7	7.4	11.6	14.6
Takeoff	18	18.9	11.0	13.9
Approach	7	7.4	4.2	5.3
Descent	2	2.1	3.2	4.0
Standing	1	1.1	2.6	3.3
Taxi	2	2.1	2.6	3.3
Climb	3	3.2	1.0	1.3
Other	2	2.1	1.0	1.3
Total	95	100.0	79.4	100.0

Table 100 - SUMMARY OF LOSSES  
ALL GLIDERS  
1981 - 1983

	1983 ----	1982 ----	1981 ----
Accidents -----			
Fatal	11	6	12
Involved Serious Injury	10	12	10
Involved Minor Injury	6	4	11
Involved No Injury	44	29	26
	----	----	----
Total	71	51	59
Fatalities -----			
Passenger	0	1	1
Crew	11	4	12
Other Persons	0	1	0
	----	----	----
Total	11	6	13
Aircraft Damaged* -----			
Destroyed	8	13	15
Substantial	62	39	45
Minor	1	1	0
None	1	0	0
Unknown	0	0	0
	----	----	----
Total	72	53	60

\* Number of General Aviation Gliders

Table 101 - PERSONS BY ROLE AND DEGREE OF INJURY  
ALL GLIDERS  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	11	8	6	48	73
Dual student	0	0	0	3	3
Passenger	0	3	1	10	14
Total aboard	11	11	7	61	90
Other aircraft*	0	0	0	1	1
Grand total	11	11	7	62	91
Percent	12.1	12.1	7.7	68.1	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.

Table 102 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY  
ALL GLIDERS  
1983

Kind of Flying	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Personal	9	8	5	42	64
Business	0	0	0	1	1
Instructional	1	3	2	13	19
Other	1	0	0	5	6
Total	11	11	7	61	90
Percent	12.2	12.2	7.8	67.8	

Table 103 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
ALL GLIDERS  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	1	0	0	0	1	1.4
Airframe/component/system failure/malfunction	1	0	1	0	2	2.8
Dragged wing, rotor, pod, or float	1	0	0	0	1	1.4
Forced landing	2	0	0	1	3	4.2
Hard landing	2	0	0	0	2	2.8
In flight collision with object	3	2	0	0	5	6.9
In flight collision with terrain	2	2	0	3	7	9.7
In flight encounter with weather	4	1	0	1	6	8.3
Loss of control - in flight	6	1	2	5	14	19.4
Loss of control - on ground	3	0	2	0	5	6.9
Midair collision	0	0	0	2	2	2.8
On ground collision with terrain	6	0	0	0	6	8.3
Overrun	1	0	1	0	2	2.8
Loss of power	2	0	0	0	2	2.8
Loss of power(partial) - mech failure/malfunction	1	0	0	0	1	1.4
Undershoot	9	0	3	0	12	16.7
Miscellaneous/other	0	0	1	0	1	1.4
Aircraft						
Number -	44	6	10	12	72	
Percent -	61.1	8.3	13.9	16.7		

Table 104 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
ALL GLIDERS  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Taxi - to takeoff	0	0	1	0	1	1.4
Takeoff	0	0	1	0	1	1.4
Takeoff - ground run	0	1	3	0	4	5.6
Takeoff - initial climb	0	0	4	3	7	9.7
Cruise	0	0	3	0	3	4.2
Cruise - normal	0	0	5	1	6	8.3
Descent - normal	0	0	1	0	1	1.4
Approach	0	0	1	1	2	2.8
Approach - VFR pattern - base to final	0	0	4	1	5	6.9
Approach - VFR pattern - final approach	1	0	15	0	16	22.2
Approach - go-around (VFR)	0	0	1	0	1	1.4
Landing - flare/touchdown	0	0	11	0	11	15.3
Landing - roll	0	0	6	0	6	8.3
Maneuvering	0	0	3	2	5	6.9
Maneuvering - turn to reverse direction	0	0	1	0	1	1.4
Maneuvering - turn to landing area (emergency)	0	0	2	0	2	2.8
Aircraft						
Number -	1	1	62	8	72	
Percent -	1.4	1.4	86.1	11.1		



Table 105 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
ALL GLIDERS  
1983

Condition of light	Type of weather		Aircraft	
	VMC	IMC	No.	Percent
Daylight	71	1	72	100.0
Aircraft				
Number -	71	1	72	
Percent -	98.6	1.4		

TABLE 106 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
ALL GLIDERS  
1983

Proximity to Airport	Type of Flight Plan			Aircraft	
	VFR	None	Not Reptd	No.	Percent
On Airport	1	24	0	25	34.7
On Airstrip	0	11	0	11	15.3
Within 5 SM	0	8	1	9	12.5
5 SM Or Greater	0	9	1	10	13.9
Unknown	3	12	2	17	23.6
Aircraft					
Number -	4	64	4	72	
Percent -	5.6	88.9	5.6		

Table 107 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
ALL GLIDERS  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Distance - Misjudged - Pilot in command	7	9.7
Unsuitable terrain - Selected - Pilot in command	7	9.7
Airspeed - Not maintained - Pilot in command	6	8.3
In-flight planning/decision - Improper - Pilot in command	6	8.3
Directional control - Not maintained - Pilot in command	5	6.9
Clearance - Misjudged - Pilot in command	5	6.9
Flight controls - Improper use of - Pilot in command	4	5.6
Airspeed - Misjudged - Pilot in command	4	5.6
Altitude - Misjudged - Pilot in command	4	5.6
Compensation for wind conditions - Inadequate - Pilot in command	4	5.6
Compensation for wind conditions - Improper - Pilot in command	4	5.6
Undetermined	4	5.6
Total Number of Aircraft:	72	

Table 108 - ACCIDENTS, FATAL ACCIDENTS AND FATALITIES  
ALL GLIDERS  
1975 - 1983

Year	Accidents*	Fatal Accidents*	Fatalities	
			Total	Aboard Aircraft In This Category
1975	82	7	11	9
1976	64	8	9	8
1977	78	7	8	8
1978	66	10	14	10
1979	55	3	3	3
1980	62	7	7	7
1981	59	12	13	13
1982	51	6	6	5
1983	71	11	11	11

\* The yearly accident counts include suicide and sabotage accidents as follows :  
Total - 1975 (1)  
Fatal - 1975 (1)

Table 109 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
ALL GLIDERS  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Collision with object/terrain	18	25.0	19.8	33.3
Loss of control - in flight	14	19.4	11.8	19.9
Undershoot	12	16.7	9.6	16.2
Miscellaneous	6	8.3	5.8	9.8
Hard landing	2	2.8	4.2	7.1
Loss of control - on ground	5	6.9	3.0	5.1
Airframe/component/system fail/malf	2	2.8	2.4	4.0
Midair collision	2	2.8	2.2	3.7
(All other types)	11	15.3	.6	1.0
Total	72	100.0	59.4	100.0

Table 110. - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
ALL GLIDERS  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Approach	24	33.3	20.2	34.0
Landing	17	23.6	19.8	33.3
Takeoff	12	16.7	9.6	16.2
Maneuvering	8	11.1	4.8	8.1
Cruise	9	12.5	2.2	3.7
Descent	1	1.4	1.2	2.0
Climb	0	.0	1.0	1.7
Other	0	.0	.6	1.0
(All other types)	1	1.4	.0	.0
Total	72	100.0	59.4	100.0

Table 111 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
ALL GLIDERS  
1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	67	93.1	52.6	88.6
Weather	28	38.9	16.6	27.9
Terrain	23	31.9	12.2	20.5
Personnel	5	6.9	5.4	9.1
Miscellaneous	19	26.4	5.4	9.1
Airframe	4	5.6	3.4	5.7
Instruments/Equipment/Accessories	2	2.8	2.8	4.7
Undetermined	4	5.6	1.8	3.0
Airport/Airways/Facilities	3	4.2	1.4	2.4
Systems	0	.0	1.0	1.7
(All other types)	1	1.4	.0	.0
Number of Aircraft	72		59.4	

Table 112 - SUMMARY OF LOSSES  
PERSONAL FLYING  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	398	398	383
Involved Serious Injury	205	211	206
Involved Minor Injury	253	261	336
Involved No Injury	1028	1036	1033
	----	----	----
Total	1884	1906	1958
Fatalities			
-----			
Passenger	382	408	360
Crew	390	401	378
Other Persons	4	17	11
	----	----	----
Total	776	826	749
Aircraft Damaged*			
-----			
Destroyed	552	591	608
Substantial	1308	1299	1347
Minor	9	13	8
None	22	14	4
Unknown	0	4	0
	----	----	----
Total	1891	1921	1967

\* Number of General Aviation Aircraft in Personal Operations

Table 113 - PERSONS BY ROLE AND DEGREE OF INJURY  
PERSONAL FLYING  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	369	177	247	1111	1904
Copilot	17	6	3	7	33
Dual student	2	1	0	3	6
Check pilot	0	0	0	1	1
Other crew	2	1	1	13	17
Passenger	382	172	255	1255	2064
Total aboard	772	357	506	2390	4025
Other aircraft*	1	1	0	12	14
Other ground	3	10	3	17	33
Grand total	776	368	509	2419	4072
Percent	19.1	9.0	12.5	59.4	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.



Table 114 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
PERSONAL FLYING  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	2	0	0	3	5	0.3
Altitude deviation, uncontrolled	1	0	0	0	1	0.1
Airframe/component/system failure/malfunction	60	4	9	21	94	5.0
Ditching	1	0	0	0	1	0.1
Dragged wing, rotor, pod, or float	4	0	0	0	4	0.2
Fire/explosion	1	0	0	1	2	0.1
Fire	2	3	1	1	7	0.4
Forced landing	4	1	0	1	6	0.3
Gear collapsed	3	0	0	0	3	0.2
Main gear collapsed	9	0	0	0	9	0.5
Nose gear collapsed	6	0	0	0	6	0.3
Tail gear collapsed	1	0	0	0	1	0.1
Complete gear collapsed	11	0	0	0	11	0.6
Other gear collapsed	1	0	0	0	1	0.1
Hard landing	69	10	12	0	91	4.8
In flight collision with object	54	24	20	41	139	7.4
In flight collision with terrain	40	11	14	55	120	6.3
In flight encounter with weather	33	9	10	102	154	8.1
Loss of control - in flight	74	44	28	105	251	13.3
Loss of control - on ground	189	24	8	1	222	11.7
Midair collision	2	0	3	4	9	0.5
Nose down	1	0	0	0	1	0.1
Nose over	22	4	0	0	26	1.4
On ground collision with object	37	4	4	1	46	2.4
On ground collision with terrain	31	2	3	0	36	1.9
On ground encounter with weather	3	0	0	0	3	0.2
Overrun	75	11	5	2	93	4.9
Loss of power	56	18	17	14	105	5.6
Loss of power(total) - mech failure/malfunction	39	14	12	3	68	3.6
Loss of power(partial) - mech failure/malfunction	20	7	4	6	37	2.0
Loss of power(total) - non-mechanical	132	54	35	20	241	12.7
Loss of power(partial) - non-mechanical	17	4	1	4	26	1.4
Propeller/rotor contact	0	0	10	2	12	0.6
Roll over	3	0	0	0	3	0.2
Undershoot	24	5	7	1	37	2.0
Undetermined	0	0	1	0	1	0.1

Table 114 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY (CONTINUED)  
PERSONAL FLYING  
1983

Type of first occurrence -----	Degree of injury -----				Aircraft -----	
	None	Minor	Ser	Fatal	No.	Percent
Vortex turbulence encountered	2	0	0	0	2	0.1
Missing aircraft	0	0	0	9	9	0.5
Miscellaneous/other	2	0	2	0	4	0.2
Other	1	0	1	2	4	0.2
Aircraft						
Number -	1032	253	207	399	1891	
Percent -	54.6	13.4	10.9	21.1		

Table 115 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
PERSONAL FLYING  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Standing - pre-flight	1	0	0	0	1	0.1
Standing - starting engine(s)	2	0	6	2	10	0.5
Standing - engine(s) operating	5	5	4	0	14	0.7
Taxi	0	0	7	0	7	0.4
Taxi - to takeoff	0	0	17	1	18	1.0
Taxi - from landing	0	0	18	1	19	1.0
Takeoff	0	0	27	9	36	1.9
Takeoff - ground run	0	1	68	11	80	4.2
Takeoff - initial climb	3	1	188	93	285	15.1
Climb	1	0	5	5	11	0.6
Climb - to cruise	0	0	18	16	34	1.8
Cruise	0	0	26	31	57	3.0
Cruise - normal	1	0	164	115	280	14.8
Descent	0	0	1	3	4	0.2
Descent - normal	0	0	19	9	28	1.5
Descent - emergency	0	0	2	0	2	0.1
Descent - uncontrolled	0	0	1	1	2	0.1
Approach	0	0	24	16	40	2.1
Approach - VFR pattern - downwind	0	0	7	3	10	0.5
Approach - VFR pattern - base turn	0	0	5	1	6	0.3
Approach - VFR pattern - base to final	0	0	11	5	16	0.8
Approach - VFR pattern - final approach	1	0	92	22	115	6.1
Approach - go-around (VFR)	0	0	29	20	49	2.6
Approach - IAF to FAF/outer marker (IFR)	0	0	0	4	4	0.2
Approach - FAF/outer marker to threshold (IFR)	0	0	3	7	10	0.5
Approach - missed approach (IFR)	0	0	0	4	4	0.2
Landing	0	0	30	11	41	2.2
Landing - flare/touchdown	7	1	198	12	218	11.5
Landing - roll	0	1	242	5	248	13.1
Maneuvering	0	0	70	111	181	9.6
Maneuvering - aerial application	0	0	2	0	2	0.1
Maneuvering - turn to reverse direction	0	0	7	7	14	0.7
Maneuvering - turn to landing area (emergency)	0	0	3	0	3	0.2

Table 115 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)  
PERSONAL FLYING  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Hover	1	0	5	0	6	0.3
Other	0	0	4	0	4	0.2
Unknown	0	0	5	25	30	1.6
Not reported	0	0	0	2	2	0.1
Aircraft						
Number -	22	9	1308	552	1891	
Percent -	1.2	0.5	69.2	29.2		

Table 116 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
PERSONAL FLYING  
1983

Condition of light	Type of weather			Aircraft	
	VMC	IMC	Not Reptd	No.	Percent
Dawn	10	2	1	13	0.7
Daylight	1428	88	13	1529	80.9
Night (dark)	157	49	8	214	11.3
Night (bright)	34	0	0	34	1.8
Dusk	75	9	2	86	4.5
Not reported	7	0	8	15	0.8
Aircraft					
Number -	1711	148	32	1891	
Percent -	90.5	7.8	1.7		

TABLE 117 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
PERSONAL FLYING  
1983

Proximity to Airport	Type of Flight Plan					Aircraft	
	VFR	IFR	VFR/IFR	None	Not Reptd	No.	Percent
On Airport	92	44	3	609	10	758	40.1
On Airstrip	9	2	0	97	1	109	5.8
Within 5 SM	23	24	1	224	3	275	14.5
5 SM Or Greater	22	15	1	120	2	160	8.5
Unknown	67	28	0	484	10	589	31.1
Aircraft							
Number -	213	113	5	1534	26	1891	
Percent -	11.3	6.0	0.3	81.1	1.4		

Table 118 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
PERSONAL FLYING  
1983

Detailed Cause	Number of Aircraft	Percent of Aircraft
Directional control - Not maintained - Pilot in command	198	10.5
Undetermined	145	7.7
Distance - Misjudged - Pilot in command	107	5.7
In-flight planning/decision - Improper - Pilot in command	97	5.1
Preflight planning/preparation - Inadequate - Pilot in command	91	4.8
Airspeed - Not maintained - Pilot in command	82	4.3
Judgement - Poor - Pilot in command	74	3.9
Proper altitude - Not maintained - Pilot in command	72	3.8
Fuel supply - Inadequate - Pilot in command	71	3.8
Unsuitable terrain - Selected - Pilot in command	69	3.7
Total Number of Aircraft:	1891	

Table 119 - ACCIDENTS, FATAL ACCIDENTS AND FATALITIES  
PERSONAL FLYING  
1975 - 1983

Year	Accidents*	Fatal Accidents*	Fatalities	
			Total	Aboard Aircraft In This Category
1975	2228	414	875	861
1976	2334	428	844	829
1977	2280	437	889	874
1978	2376	460	957	946
1979	2206	414	820	807
1980	2040	389	808	799
1981	1958	383	749	738
1982	1906	398	826	809
1983	1884	398	776	772

\* The yearly accident counts include suicide and sabotage accidents as follows :

Total - 1975 (2), 1976 (1), 1978 (2), 1980 (1)

Fatal - 1975 (2), 1978 (2), 1980 (1)

Table 120 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
PERSONAL FLYING  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	477	25.2	511.6	24.2
Collision with object/terrain	341	18.0	502.0	23.8
Loss of control - in flight	251	13.3	269.2	12.8
Loss of control - on ground	222	11.7	240.6	11.4
Hard landing	91	4.8	126.8	6.0
Miscellaneous	103	5.4	118.0	5.6
Undershoot	37	2.0	71.2	3.4
Nose over/down	27	1.4	61.4	2.9
Airframe/component/system fail/malf	94	5.0	57.0	2.7
Gear collapsed/retracted	31	1.6	46.4	2.2
Encounter with weather/turbulence	159	8.4	39.0	1.8
Midair collision	9	.5	25.8	1.2
(All other types)	49	2.6	41.4	2.0
Total	1891	100.0	2110.4	100.0

Table 121 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 PERSONAL FLYING  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	507	26.8	626.8	29.7
Takeoff	401	21.2	429.8	20.4
Cruise	337	17.8	336.8	16.0
Approach	254	13.4	288.8	13.7
Maneuvering	206	10.9	170.4	8.1
Descent	36	1.9	102.6	4.9
Taxi	44	2.3	69.2	3.3
Climb	45	2.4	54.2	2.6
Other	36	1.9	19.8	.9
Standing	25	1.3	12.0	.6
Total	1891	100.0	2110.4	100.0



Table 122 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
 PERSONAL FLYING  
 1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	1632	86.3	1748.8	82.9
Weather	587	31.0	581.6	27.6
Terrain	606	32.0	473.0	22.4
Powerplant	420	22.2	320.0	15.2
Miscellaneous	631	33.4	196.4	9.3
Personnel	145	7.7	168.2	8.0
Airport/Airways/Facilities	79	4.2	155.4	7.4
Landing Gear	242	12.8	81.2	3.8
Undetermined	149	7.9	62.6	3.0
Airframe	73	3.9	40.4	1.9
Systems	40	2.1	29.6	1.4
Instruments/Equipment/Accessories	27	1.4	10.8	.5
Rotorcraft	6	.3	5.8	.3
Number of Aircraft	1891		2110.4	

Table 123 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
PERSONAL AND BUSINESS FLYING COMBINED  
1975 - 1983

Year	Accidents	Fatal Accidents	Fatalities	
			Total	Aboard Aircraft In This Category
1975	2545	478	995	981
1976	2629	490	950	933
1977	2579	487	973	963
1978	2656	522	1066	1055
1979	2461	470	932	917
1980	2285	450	924	915
1981	2220	456	892	883
1982	2194	471	979	965
1983	2160	450	890	886

Year	Hours Flown	Accident Rate per 100,000 *	
		Total	Fatal
1975	15,832,000	16.06	3.01
1976	16,850,000	15.58	2.90
1977	16,727,000	15.42	2.91
1978	19,322,000	13.74	2.69
1979	20,638,000	11.92	2.28
1980	19,374,000	11.79	2.32
1981	18,323,000	12.12	2.49
1982	16,584,000	13.23	2.84
1983	15,676,000	13.78	2.87

\* Suicide and sabotage accidents excluded from rates as follows :  
Total - 1975 (2), 1976 (3), 1978 (2), 1980 (1)  
Fatal - 1975 (2), 1976 (1), 1978 (2), 1980 (1)

Table 124 - SUMMARY OF LOSSES  
BUSINESS FLYING  
1981 - 1983

	1983	1982	1981
	----	----	----
<b>Accidents</b>			
-----			
Fatal	52	74	74
Involved Serious Injury	28	25	23
Involved Minor Injury	38	32	33
Involved No Injury	158	161	134
	----	----	----
Total	276	292	264
<b>Fatalities</b>			
-----			
Passenger	55	79	67
Crew	59	77	78
Other Persons	0	1	0
	----	----	----
Total	114	157	145
<b>Aircraft Damaged*</b>			
-----			
Destroyed	82	101	99
Substantial	196	188	165
Minor	1	1	3
None	1	1	0
Unknown	0	1	0
	----	----	----
Total	280	292	267

\* Number of General Aviation Aircraft in Business Operations

Table 125 - PERSONS BY ROLE AND DEGREE OF INJURY  
BUSINESS FLYING  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	52	23	39	167	281
Copilot	6	2	1	6	15
Dual student	1	0	1	0	2
Flight engineer	0	0	0	1	1
Other crew	0	0	0	1	1
Passenger	55	23	39	175	292
Total aboard	114	48	80	350	592
Other aircraft*	0	0	0	9	9
Other ground	0	0	0	1	1
Grand total	114	48	80	360	602
Percent	18.9	8.0	13.3	59.8	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.

Table 126 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
BUSINESS FLYING  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	0	0	0	1	1	0.4
Airframe/component/system failure/malfunction	14	5	0	3	22	7.9
Dragged wing, rotor, pod, or float	1	0	0	0	1	0.4
Fire	1	0	0	0	1	0.4
Gear collapsed	4	0	0	0	4	1.4
Main gear collapsed	1	0	0	0	1	0.4
Nose gear collapsed	1	0	0	0	1	0.4
Complete gear collapsed	1	0	0	0	1	0.4
Hard landing	5	0	0	0	5	1.8
In flight collision with object	5	3	5	2	15	5.4
In flight collision with terrain	9	2	1	3	15	5.4
In flight encounter with weather	11	1	2	29	43	15.4
Loss of control - in flight	12	2	3	7	24	8.6
Loss of control - on ground	21	3	2	0	26	9.3
Midair collision	1	0	0	2	3	1.1
Nose over	5	1	0	0	6	2.1
On ground collision with object	17	0	0	0	17	6.1
On ground collision with terrain	4	2	0	0	6	2.1
Overrun	8	2	0	0	10	3.6
Loss of power	5	1	3	3	12	4.3
Loss of power(total) - mech failure/malfunction	9	2	4	0	15	5.4
Loss of power(partial) - mech failure/malfunction	5	2	1	1	9	3.2
Loss of power(total) - non-mechanical	14	9	4	2	29	10.4
Loss of power(partial) - non-mechanical	3	2	0	0	5	1.8
Propeller/rotor contact	0	0	1	0	1	0.4
Roll over	1	0	0	0	1	0.4
Undershoot	2	1	2	0	5	1.8
Miscellaneous/other	1	0	0	0	1	0.4
Aircraft						
Number -	161	38	28	53	280	
Percent -	57.5	13.6	10.0	18.9		

Table 127 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
BUSINESS FLYING  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Standing - starting engine(s)	1	0	0	0	1	0.4
Standing - engine(s) operating	0	1	2	1	4	1.4
Standing - idling rotors	0	0	1	0	1	0.4
Taxi	0	0	1	0	1	0.4
Taxi - to takeoff	0	0	8	0	8	2.9
Taxi - from landing	0	0	6	1	7	2.5
Taxi - aerial	0	0	1	0	1	0.4
Takeoff	0	0	3	4	7	2.5
Takeoff - ground run	0	0	10	1	11	3.9
Takeoff - initial climb	0	0	19	10	29	10.4
Climb	0	0	2	0	2	0.7
Climb - to cruise	0	0	4	7	11	3.9
Cruise	0	0	7	4	11	3.9
Cruise - normal	0	0	27	24	51	18.2
Descent	0	0	1	2	3	1.1
Descent - normal	0	0	4	0	4	1.4
Descent - uncontrolled	0	0	0	2	2	0.7
Approach	0	0	4	6	10	3.6
Approach - VFR pattern - downwind	0	0	1	0	1	0.4
Approach - VFR pattern - base turn	0	0	2	1	3	1.1
Approach - VFR pattern - base to final	0	0	2	1	3	1.1
Approach - VFR pattern - final approach	0	0	16	2	18	6.4
Approach - go-around (VFR)	0	0	3	2	5	1.8
Approach - IAF to FAF/outer marker (IFR)	0	0	1	2	3	1.1
Approach - FAF/outer marker to threshold (IFR)	0	0	0	4	4	1.4
Approach - missed approach (IFR)	0	0	1	1	2	0.7
Landing	0	0	3	3	6	2.1
Landing - flare/touchdown	0	0	22	1	23	8.2
Landing - roll	0	0	34	1	35	12.5
Maneuvering	0	0	5	0	5	1.8
Hover	0	0	3	1	4	1.4
Other	0	0	1	0	1	0.4
Unknown	0	0	1	1	2	0.7
Other	0	0	1	0	1	0.4
Aircraft						
Number -	1	1	196	82	280	
Percent -	0.4	0.4	70.0	29.3		

Table 128 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
BUSINESS FLYING  
1983

Condition of light	Type of weather			Aircraft	
	VMC	IMC	Not Reptd	No.	Percent
Dawn	0	1	0	1	0.4
Daylight	185	24	3	212	75.7
Night (dark)	29	22	2	53	18.9
Night (bright)	2	0	0	2	0.7
Dusk	8	4	0	12	4.3
Aircraft					
Number -	224	51	5	280	
Percent -	80.0	18.2	1.8		

TABLE 129 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
BUSINESS FLYING  
1983

Proximity to Airport	Type of Flight Plan				Aircraft	
	VFR	IFR	None	Not Reptd	No.	Percent
On Airport	11	31	67	0	109	38.9
On Airstrip	4	0	8	0	12	4.3
Within 5 SM	3	13	23	0	39	13.9
5 SM Or Greater	6	6	19	0	31	11.1
Unknown	19	15	54	1	89	31.8
Aircraft						
Number -	43	65	171	1	280	
Percent -	15.4	23.2	61.1	0.4		

Table 130 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
BUSINESS FLYING  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Undetermined	18	6.4
Distance - Misjudged - Pilot in command	18	6.4
Preflight planning/preparation - Inadequate - Pilot in command	16	5.7
Unsuitable terrain - Selected - Pilot in command	14	5.0
Directional control - Not maintained - Pilot in command	14	5.0
In-flight planning/decision - Improper - Pilot in command	13	4.6
VFR flight into IMC - Continued - Pilot in command	13	4.6
Visual lookout - Inadequate - Pilot in command	13	4.6
Fluid, fuel - Starvation	12	4.3
Aircraft preflight - Inadequate - Pilot in command	11	3.9
Total Number of Aircraft:	280	



Table 131 - ACCIDENTS, FATAL ACCIDENTS AND FATALITIES  
BUSINESS FLYING  
1975 - 1983

Year	Accidents*	Fatal Accidents*	Fatalities	
			Total	Aboard Aircraft In This Category
1975	318	64	120	120
1976	298	62	106	104
1977	302	53	95	89
1978	281	62	109	109
1979	255	56	112	110
1980	246	62	126	116
1981	264	74	145	145
1982	292	74	157	156
1983	276	52	114	114

\* The yearly accident counts include suicide and sabotage accidents as follows :  
Total - 1976 (2)  
Fatal - 1976 (1)

Table 132 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
 BUSINESS FLYING  
 1983 AND 1978 - 1982

Type of Occurrence -----	1983 -----		1978 - 1982 -----	
	No. ---	Percent -----	Mean ----	Percent -----
Collision with object/terrain	53	18.9	71.0	26.5
Loss of power	70	25.0	67.6	25.2
Loss of control - in flight	24	8.6	25.8	9.6
Loss of control - on ground	26	9.3	21.2	7.9
Miscellaneous	11	3.9	16.8	6.3
Gear collapsed/retracted	7	2.5	11.6	4.3
Airframe/component/system fail/malf	22	7.9	10.4	3.9
Hard landing	5	1.8	10.0	3.7
Encounter with weather/turbulence	43	15.4	8.4	3.1
Undershoot	5	1.8	7.4	2.8
Nose over/down	6	2.1	6.6	2.5
Midair collision	3	1.1	3.6	1.3
Fire/explosion	1	.4	3.2	1.2
(All other types)	4	1.4	4.8	1.8
	-----	-----	-----	-----
Total	280	100.0	268.4	100.0

Table 133 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
 BUSINESS FLYING  
 1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	64	22.9	77.6	28.9
Cruise	62	22.1	53.2	19.8
Takeoff	47	16.8	45.4	16.9
Approach	49	17.5	35.8	13.3
Descent	9	3.2	20.2	7.5
Taxi	17	6.1	13.0	4.8
Maneuvering	9	3.2	10.4	3.9
Climb	13	4.6	8.4	3.1
Standing	6	2.1	2.4	.9
Other	4	1.4	2.0	.7
Total	280	100.0	268.4	100.0

Table 134 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
 BUSINESS FLYING  
 1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	232	82.9	209.8	78.2
Weather	98	35.0	87.2	32.5
Terrain	83	29.6	58.8	21.9
Powerplant	56	20.0	48.6	18.1
Miscellaneous	99	35.4	28.8	10.7
Personnel	32	11.4	27.4	10.2
Airport/Airways/Facilities	19	6.8	21.8	8.1
Landing Gear	34	12.1	17.2	6.4
Undetermined	19	6.8	11.0	4.1
Systems	9	3.2	7.8	2.9
Airframe	19	6.8	6.2	2.3
Rotorcraft	8	2.9	3.0	1.1
Instruments/Equipment/Accessories	2	.7	1.8	.7
Number of Aircraft	280		268.4	

Table 135 - SUMMARY OF LOSSES  
CORPORATE/EXECUTIVE FLYING  
1981 - 1983

	1983	1982	1981
-----	-----	-----	-----
Accidents			
-----			
Fatal	6	6	30
Involved Serious Injury	4	3	10
Involved Minor Injury	4	4	6
Involved No Injury	25	26	38
-----	-----	-----	-----
Total	39	39	84
 Fatalities			
-----			
Passenger	14	11	61
Crew	9	9	38
Other Persons	0	1	0
-----	-----	-----	-----
Total	23	21	99
 Aircraft Damaged*			
-----			
Destroyed	12	8	38
Substantial	27	30	44
Minor	0	0	1
None	0	1	0
Unknown	0	0	1
-----	-----	-----	-----
Total	39	39	84

\* Number of General Aviation Aircraft in Corporate/Executive Operations

Table 136 - PERSONS BY ROLE AND DEGREE OF INJURY  
CORPORATE/EXECUTIVE FLYING  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	6	2	4	27	39
Copilot	3	0	0	10	13
Passenger	14	2	14	69	99
Total aboard	23	4	18	106	151
Grand total	23	4	18	106	151
Percent	15.2	2.6	11.9	70.2	

Table 137 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
CORPORATE/EXECUTIVE FLYING  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Airframe/component/system failure/malfunction	3	1	0	0	4	10.3
Main gear collapsed	1	0	0	0	1	2.6
Hard landing	3	0	0	0	3	7.7
In flight collision with object	2	0	0	1	3	7.7
In flight collision with terrain	2	0	1	0	3	7.7
In flight encounter with weather	2	0	1	3	6	15.4
Loss of control - in flight	0	0	1	0	1	2.6
Loss of control - on ground	5	0	0	0	5	12.8
On ground collision with object	1	0	0	0	1	2.6
Overrun	1	1	0	0	2	5.1
Loss of power	1	0	0	0	1	2.6
Loss of power(total) - mech failure/malfunction	3	0	0	0	3	7.7
Loss of power(partial) - mech failure/malfunction	0	1	0	1	2	5.1
Loss of power(total) - non-mechanical	0	1	1	1	3	7.7
Undershoot	1	0	0	0	1	2.6
Aircraft						
Number -	25	4	4	6	39	
Percent -	64.1	10.3	10.3	15.4		

Table 138 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
CORPORATE/EXECUTIVE FLYING  
1983

Phase of operation	Aircraft damage		Aircraft	
	Subs	Dest	No.	Percent
Taxi - from landing	1	0	1	2.6
Takeoff - ground run	3	0	3	7.7
Takeoff - initial climb	1	0	1	2.6
Climb - to cruise	1	1	2	5.1
Cruise	1	0	1	2.6
Cruise - normal	4	4	8	20.5
Descent - normal	1	1	2	5.1
Approach	0	2	2	5.1
Approach - VFR pattern - base turn	0	2	2	5.1
Approach - IAF to FAF/outer marker (IFR)	1	0	1	2.6
Approach - FAF/outer marker to threshold (IFR)	3	0	3	7.7
Approach - missed approach (IFR)	0	1	1	2.6
Landing	1	0	1	2.6
Landing - flare/touchdown	5	0	5	12.8
Landing - roll	4	0	4	10.3
Maneuvering	0	1	1	2.6
Unknown	1	0	1	2.6
Aircraft				
Number -	27	12	39	
Percent -	69.2	30.8		



Table 139 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
CORPORATE/EXECUTIVE FLYING  
1983

Condition of light	Type of weather			Aircraft	
	VMC	IMC	Not Reptd	No.	Percent
Dawn	2	0	0	2	5.1
Daylight	22	5	1	28	71.8
Night (dark)	5	3	0	8	20.5
Not reported	1	0	0	1	2.6
Aircraft					
Number -	30	8	1	39	
Percent -	76.9	20.5	2.6		

TABLE 140 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
CORPORATE / EXECUTIVE FLYING  
1983

Proximity to Airport	Type of Flight Plan		Aircraft	
	IFR	None	No.	Percent
On Airport	12	3	15	38.5
On Airstrip	0	0	0	0.0
Within 5 SM	7	3	10	25.6
5 SM Or Greater	2	2	4	10.3
Unknown	6	4	10	25.6
Aircraft				
Number -	27	12	39	
Percent -	69.2	30.8		

Table 141 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
CORPORATE/EXECUTIVE FLYING  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Directional control - Not maintained - Pilot in command	2	5.1
Flare - Improper - Pilot in command	2	5.1
Distance - Misjudged - Pilot in command	2	5.1
Proper altitude - Not maintained - Pilot in command	2	5.1
Compensation for wind conditions - Improper - Pilot in command	2	5.1
IFR procedure - Inaccurate - Pilot in command	2	5.1
Refueling - Not performed - Pilot in command	2	5.1
Fuel supply - Inadequate - Pilot in command	2	5.1
Fluid,fuel - Exhaustion	2	5.1
Propeller system/accessories,pitch change mech - Inoperative	1	2.6
Fuel system,line - Disconnected	1	2.6
Fuel system,pump - Inoperative	1	2.6
Fuel system,fuel shutoff - Loose	1	2.6
Exhaust system,turbocharger - Disconnected	1	2.6
Fluid,fuel - Starvation	1	2.6
Aircraft performance,two or more engines - Erratic	1	2.6
Weather condition - Lightning strike	1	2.6
Object - Animal(s)	1	2.6
Gear extension - Not performed - Pilot in command	1	2.6
Brakes(normal) - Improper use of - Copilot	1	2.6
Parking brakes - Inadvertent use - Pilot in command	1	2.6
Nosewheel steering - Not used - Pilot in command	1	2.6
Raising of flaps - Improper - Pilot in command	1	2.6
Fuel tank selector position - Improper - Pilot in command	1	2.6
Exhaust system,manifold - Fatigue	1	2.6
Preflight planning/preparation - Inadequate - Pilot in command	1	2.6
Aircraft preflight - Improper - Pilot in command	1	2.6
Aircraft service - Improper - Pilot in command	1	2.6
In-flight planning/decision - Improper - Pilot in command	1	2.6
VFR flight into IMC - Attempted - Pilot in command	1	2.6
VFR procedures - Not followed - Pilot in command	1	2.6
Rotorcraft flight control,tail rotor cable - Failure,total	1	2.6
Weather evaluation - Poor - Pilot in command	1	2.6
Flight into known adverse weather - Attempted - Pilot in command	1	2.6
IFR procedure - Improper - Pilot in command	1	2.6
IFR procedure - Improper use of - Pilot in command	1	2.6
Rotorcraft flight control,tail rotor cable - Chafed	1	2.6
Flight to alternate destination - Continued - Pilot in command	1	2.6

Table 141 - MOST PREVALENT DETAILED ACCIDENT CAUSES (CONTINUED)  
CORPORATE/EXECUTIVE FLYING  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Flight to alternate destination - Delayed - Pilot in command	1	2.6
Flt control syst,elevator tab control(trim) - Incorrect	1	2.6
Checklist - Not followed - Pilot in command	1	2.6
Judgement - Poor - Pilot in command	1	2.6
Procedures/directives - Inaccurate - Pilot in command	1	2.6
Procedures/directives - Not followed - Pilot in command	1	2.6
Planned approach - Misjudged - Pilot in command	1	2.6
Maintenance - Improper - Other maintenance psnl	1	2.6
Maintenance - Inadequate - Other maintenance psnl	1	2.6
Maintenance,installation - Improper - Company maintenance psnl	1	2.6
Maintenance,installation - Improper - Other maintenance psnl	1	2.6
Maintenance,overhaul - Improper - Other maintenance psnl	1	2.6
Airplane handling - Inadequate - Pilot in command	1	2.6
Aborted landing - Not performed - Pilot in command	1	2.6
Aborted takeoff - Delayed - Pilot in command	1	2.6
Airspeed - Excessive - Pilot in command	1	2.6
Airspeed - Misjudged - Pilot in command	1	2.6
Altitude - Misjudged - Pilot in command	1	2.6
Landing gear,normal retraction/extension assembly - Inoperative	1	2.6
Landing gear,normal retraction/extension assembly - Improper	1	2.6
Proper descent rate - Not maintained - Pilot in command	1	2.6
Minimum descent altitude - Not identified - Pilot in command	1	2.6
Proper alignment - Not maintained - Pilot in command	1	2.6
Proper touchdown point - Exceeded - Pilot in command	1	2.6
Proper touchdown point - Not attained - Pilot in command	1	2.6
Landing gear,normal brake system - Undetermined	1	2.6
Go-around - Delayed - Pilot in command	1	2.6
Go-around - Not selected - Pilot in command	1	2.6
Ground loop/swerve - Inadvertent - Pilot in command	1	2.6
Landing gear,tire - Failure,total	1	2.6
Directional control - Not maintained - Copilot	1	2.6
Emergency procedure - Not followed - Pilot in command	1	2.6
Stall/mush - Inadvertent - Pilot in command	1	2.6
Recovery from bounced landing - Improper - Pilot in command	1	2.6
Supervision - Inadequate - Pilot in command	1	2.6
Equipment, other - Not corrected - Pilot in command	1	2.6
Undetermined	1	2.6
Physical impairment(alcohol) - Pilot in command	1	2.6
Total Number of Aircraft:	39	

Table 142 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
CORPORATE/EXECUTIVE FLYING  
1975 - 1983

Year	Accidents	Fatal Accidents	Total	Fatalities
				Aboard Aircraft In This Category
1975	63	17	44	44
1976	56	14	42	38
1977	59	18	51	49
1978	88	24	70	67
1979	78	15	57	51
1980	96	21	66	63
1981	84	30	99	99
1982	39	6	21	20
1983	39	6	23	23

Year	Hours Flown	Accident Rate per 100,000 Aircraft Hours Flown	
		Total	Fatal
1975	3,262,000	1.93	0.52
1976	3,396,000	1.65	0.41
1977	3,501,000	1.69	0.51
1978	4,898,000	1.80	0.49
1979	5,022,000	1.55	0.30
1980	5,351,000	1.79	0.39
1981	6,209,000	1.35	0.48
1982	4,998,000	0.78	0.12
1983	5,253,000	0.74	0.11

Table 143 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
CORPORATE/EXECUTIVE FLYING  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Collision with object/terrain	7	17.9	23.8	30.9
Loss of power	9	23.1	16.0	20.8
Loss of control - on ground	5	12.8	7.2	9.4
Loss of control - in flight	1	2.6	6.6	8.6
Airframe/component/system fail/malf	4	10.3	4.8	6.2
Gear collapsed/retracted	1	2.6	3.8	4.9
Hard landing	3	7.7	3.2	4.2
Undershoot	1	2.6	3.0	3.9
Miscellaneous	2	5.1	2.2	2.9
Fire/explosion	0	.0	1.8	2.3
Midair collision	0	.0	1.2	1.6
Prop/rotor contact	0	.0	1.2	1.6
Roll over	0	.0	1.2	1.6
(All other types)	6	15.4	1.0	1.3
Total	39	100.0	77.0	100.0

Table 144 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
CORPORATE/EXECUTIVE FLYING  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	10	25.6	20.8	27.0
Approach	9	23.1	15.0	19.5
Takeoff	4	10.3	13.6	17.7
Cruise	9	23.1	12.0	15.6
Climb	2	5.1	4.2	5.5
Descent	2	5.1	4.0	5.2
Taxi	1	2.6	3.0	3.9
Standing	0	.0	2.4	3.1
Maneuvering	1	2.6	1.8	2.3
Other	1	2.6	.2	.3
Total	39	100.0	77.0	100.0

Table 145 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
CORPORATE/EXECUTIVE FLYING  
1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	30	76.9	51.6	67.0
Weather	16	41.0	23.2	30.1
Powerplant	10	25.6	14.0	18.2
Personnel	5	12.8	13.2	17.1
Terrain	12	30.8	11.8	15.3
Airport/Airways/Facilities	2	5.1	9.2	11.9
Landing Gear	7	17.9	8.0	10.4
Miscellaneous	9	23.1	5.0	6.5
Systems	0	.0	4.0	5.2
Undetermined	1	2.6	3.8	4.9
Airframe	1	2.6	2.4	3.1
Rotorcraft	1	2.6	2.0	2.6
Instruments/Equipment/Accessories	0	.0	.6	.8
Number of Aircraft	39		77.0	

Table 146 - SUMMARY OF LOSSES  
AERIAL APPLICATION FLYING  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	15	17	30
Involved Serious Injury	25	35	44
Involved Minor Injury	44	31	50
Involved No Injury	170	189	254
	----	----	----
Total	254	272	378
Fatalities			
-----			
Passenger	0	0	6
Crew	15	15	28
Other Persons	0	3	2
	----	----	----
Total	15	18	36
Aircraft Damaged*			
-----			
Destroyed	70	87	125
Substantial	182	183	255
Minor	1	2	0
None	1	1	0
Unknown	0	0	0
	----	----	----
Total	254	273	380

\* Number of General Aviation Aircraft in Aerial Application Operations



Table 147 - PERSONS BY ROLE AND DEGREE OF INJURY  
AERIAL APPLICATION FLYING  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	15	24	44	171	254
Other crew	0	0	0	1	1
Passenger	0	1	0	1	2
Total aboard	15	25	44	173	257
Other aircraft*	0	0	0	1	1
Other ground	0	3	1	1	5
Grand total	15	28	45	175	263
Percent	5.7	10.6	17.1	66.5	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.

Table 148 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
AERIAL APPLICATION FLYING  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Abrupt maneuver	1	0	0	1	2	0.8
Airframe/component/system failure/malfunction	15	3	0	1	19	7.5
Dragged wing, rotor, pod, or float	3	0	0	0	3	1.2
Fire	3	1	0	0	4	1.6
Main gear collapsed	2	0	0	0	2	0.8
Hazardous materials leak/spill (fumes/smoke)	1	0	0	0	1	0.4
In flight collision with object	17	10	12	6	45	17.7
In flight collision with terrain	11	2	3	3	19	7.5
In flight encounter with weather	2	0	0	0	2	0.8
Loss of control - in flight	16	7	4	4	31	12.2
Loss of control - on ground	17	4	1	0	22	8.7
Nose over	4	0	0	0	4	1.6
On ground collision with object	3	0	0	0	3	1.2
On ground collision with terrain	1	1	0	0	2	0.8
On ground encounter with weather	1	0	0	0	1	0.4
Overrun	2	0	1	0	3	1.2
Loss of power	14	4	0	0	18	7.1
Loss of power(total) - mech failure/malfunction	21	9	2	0	32	12.6
Loss of power(partial) - mech failure/malfunction	8	1	1	0	10	3.9
Loss of power(total) - non-mechanical	23	2	0	0	25	9.8
Loss of power(partial) - non-mechanical	2	0	0	0	2	0.8
Roll over	0	0	1	0	1	0.4
Vortex turbulence encountered	2	0	0	0	2	0.8
Other	1	0	0	0	1	0.4
Aircraft						
Number -	170	44	25	15	254	
Percent -	66.9	17.3	9.8	5.9		

Table 149 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
AERIAL APPLICATION FLYING  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Standing - idling rotors	0	0	0	1	1	0.4
Taxi - to takeoff	0	0	1	0	1	0.4
Takeoff	0	0	2	1	3	1.2
Takeoff - ground run	0	0	19	1	20	7.9
Takeoff - initial climb	0	0	34	9	43	16.9
Climb - to cruise	0	0	2	0	2	0.8
Cruise	0	0	3	2	5	2.0
Cruise - normal	0	0	10	6	16	6.3
Approach	0	0	1	0	1	0.4
Approach - VFR pattern - final approach	0	0	3	1	4	1.6
Approach - go-around (VFR)	0	1	0	0	1	0.4
Landing	0	0	2	0	2	0.8
Landing - flare/touchdown	0	0	3	1	4	1.6
Landing - roll	0	0	15	0	15	5.9
Maneuvering	0	0	4	4	8	3.1
Maneuvering - aerial application	1	0	80	40	121	47.6
Maneuvering - turn to reverse direction	0	0	2	2	4	1.6
Maneuvering - turn to landing area (emergency)	0	0	1	0	1	0.4
Unknown	0	0	0	1	1	0.4
Other	0	0	0	1	1	0.4
Aircraft						
Number -	1	1	182	70	254	
Percent -	0.4	0.4	71.7	27.6		

Table 150 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
AERIAL APPLICATION FLYING  
1983

Condition of light	Type of weather		Aircraft	
	VMC	IMC	No.	Percent
Dawn	6	0	6	2.4
Daylight	233	1	234	92.1
Night (dark)	3	0	3	1.2
Night (bright)	1	0	1	0.4
Dusk	9	0	9	3.5
Not reported	1	0	1	0.4
Aircraft				
Number -	253	1	254	
Percent -	99.6	0.4		

TABLE 151 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
AERIAL APPLICATION FLYING  
1983

Proximity to Airport	Type of Flight Plan			Aircraft	
	VFR	None	Other	No.	Percent
On Airport	0	28	0	28	11.0
On Airstrip	1	23	0	24	9.4
Within 5 SM	0	26	0	26	10.2
5 SM Or Greater	0	17	0	17	6.7
Unknown	3	155	1	159	62.6
Aircraft					
Number -	4	249	1	254	
Percent -	1.6	98.0	0.4		

Table 152 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
AERIAL APPLICATION FLYING  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Visual lookout - Inadequate - Pilot in command	24	9.5
Undetermined	23	9.1
Directional control - Not maintained - Pilot in command	13	5.1
Clearance - Misjudged - Pilot in command	13	5.1
Airspeed - Not maintained - Pilot in command	13	5.1
Unsuitable terrain - Selected - Pilot in command	13	5.1
Aircraft preflight - Inadequate - Pilot in command	12	4.7
Preflight planning/preparation - Inadequate - Pilot in command	12	4.7
Fuel supply - Inadequate - Pilot in command	11	4.3
Fluid, fuel - Exhaustion	10	3.9
Total Number of Aircraft:	254	

Table 153 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
AERIAL APPLICATION FLYING  
1975 - 1983

Year	Accidents	Fatal Accidents	Total	Fatalities
				Aboard Aircraft In This Category
1975	432	34	35	35
1976	434	40	44	42
1977	455	31	35	34
1978	457	28	28	27
1979	395	27	27	25
1980	363	25	32	28
1981	378	30	36	34
1982	272	17	18	15
1983	254	15	15	15

Year	Hours Flown	Accident Rate per 100,000 *	
		Total	Fatal
1975	1,876,000	23.03	1.81
1976	2,136,000	20.27	1.87
1977	2,072,000	21.96	1.50
1978	2,082,000	21.95	1.34
1979	2,393,000	16.51	1.13
1980	2,063,000	17.60	1.21
1981	2,466,000	15.33	1.22
1982	2,058,000	13.22	0.83
1983	1,774,000	14.32	0.85

\* Suicide and sabotage accidents excluded from rates as follows :  
Total - 1976 (1)  
Fatal - None

Table 154 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
AERIAL APPLICATION FLYING  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Collision with object/terrain	69	27.2	132.8	35.5
Loss of power	87	34.3	116.2	31.1
Loss of control - in flight	31	12.2	55.4	14.8
Loss of control - on ground	22	8.7	24.6	6.6
Airframe/component/system fail/malf	19	7.5	18.6	5.0
Nose over/down	4	1.6	8.0	2.1
Miscellaneous	4	1.6	3.8	1.0
(All other types)	18	7.1	14.8	4.0
Total	254	100.0	374.2	100.0

Table 155 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
AERIAL APPLICATION FLYING  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Maneuvering	134	52.8	190.8	51.0
Takeoff	66	26.0	88.6	23.7
Cruise	21	8.3	43.8	11.7
Landing	21	8.3	37.0	9.9
Approach	6	2.4	6.2	1.7
Climb	2	.8	3.8	1.0
Taxi	1	.4	2.6	.7
Descent	0	.0	.8	.2
Standing	1	.4	.6	.2
(All other types)	2	.8	.0	.0
Total	254	100.0	374.2	100.0



Table 156 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
AERIAL APPLICATION FLYING  
1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	186	73.2	260.4	69.6
Terrain	98	38.6	114.4	30.6
Powerplant	76	29.9	88.8	23.7
Weather	41	16.1	42.0	11.2
Miscellaneous	89	35.0	31.4	8.4
Personnel	18	7.1	28.6	7.6
Airport/Airways/Facilities	7	2.8	17.4	4.6
Landing Gear	22	8.7	13.6	3.6
Rotorcraft	8	3.1	12.8	3.4
Undetermined	23	9.1	9.6	2.6
Airframe	13	5.1	4.2	1.1
Systems	1	.4	3.8	1.0
Instruments/Equipment/Accessories	6	2.4	3.2	.9
Number of Aircraft	254		374.2	

Table 157 - SUMMARY OF LOSSES  
INSTRUCTIONAL FLYING  
1981 - 1983

	1983	1982	1981
	----	----	----
Accidents			
-----			
Fatal	26	22	40
Involved Serious Injury	23	28	21
Involved Minor Injury	45	46	61
Involved No Injury	285	315	306
	----	----	----
Total	379	411	428
 Fatalities			
-----			
Passenger	0	3	6
Crew	40	33	57
Other Persons	0	2	7
	----	----	----
Total	40	38	70
 Aircraft Damaged*			
-----			
Destroyed	48	74	87
Substantial	333	339	342
Minor	1	0	1
None	1	1	1
Unknown	0	0	0
	----	----	----
Total	383	414	431

\* Number of General Aviation Aircraft in Instructional Operations

Table 158 - PERSONS BY ROLE AND DEGREE OF INJURY  
INSTRUCTIONAL FLYING  
1983

Role of Person	Degree of Injury				Total
	Fatal	Serious	Minor	None	
Pilot	25	22	40	302	389
Copilot	2	2	5	16	25
Dual student	12	8	11	88	119
Check pilot	1	1	3	4	9
Other crew	0	0	1	1	2
Passenger	0	3	6	33	42
Total aboard	40	36	66	444	586
Other aircraft*	0	0	0	5	5
Other ground	0	0	1	3	4
Grand total	40	36	67	452	595
Percent	6.7	6.1	11.3	76.0	

\* Injuries carried opposite Other aircraft are injuries occurring in aircraft that are not part of this tabulation, but which were involved in collisions with aircraft which are a part of this tabulation.

Table 159 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY  
INSTRUCTIONAL FLYING  
1983

Type of first occurrence	Degree of injury				Aircraft	
	None	Minor	Ser	Fatal	No.	Percent
Airframe/component/system failure/malfunction	5	1	1	2	9	2.3
Dragged wing, rotor, pod, or float	1	1	0	0	2	0.5
Fire	2	0	0	1	3	0.8
Forced landing	3	0	0	0	3	0.8
Main gear collapsed	1	0	0	0	1	0.3
Nose gear collapsed	4	0	0	0	4	1.0
Complete gear collapsed	4	0	0	0	4	1.0
Hard landing	59	4	1	0	64	16.7
In flight collision with object	12	5	2	3	22	5.7
In flight collision with terrain	14	4	2	1	21	5.5
In flight encounter with weather	2	1	0	4	7	1.8
Loss of control - in flight	29	6	5	13	53	13.8
Loss of control - on ground	58	5	1	0	64	16.7
Midair collision	2	0	1	3	6	1.6
Nose over	1	0	0	0	1	0.3
On ground collision with object	14	0	0	1	15	3.9
On ground collision with terrain	2	0	0	0	2	0.5
On ground encounter with weather	2	0	0	0	2	0.5
Overrun	9	0	3	0	12	3.1
Loss of power	17	5	1	0	23	6.0
Loss of power(total) - mech failure/malfunction	5	2	1	0	8	2.1
Loss of power(partial) - mech failure/malfunction	1	1	1	0	3	0.8
Loss of power(total) - non-mechanical	27	8	2	0	37	9.7
Loss of power(partial) - non-mechanical	3	1	0	0	4	1.0
Roll over	2	0	0	0	2	0.5
Undershoot	8	1	1	0	10	2.6
Miscellaneous/other	0	0	1	0	1	0.3
Aircraft						
Number -	287	45	23	28	383	
Percent -	74.9	11.7	6.0	7.3		

Table 160 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
INSTRUCTIONAL FLYING  
1983

Phase of operation	Aircraft damage				Aircraft	
	None	Minor	Subs	Dest	No.	Percent
Standing - starting engine(s)	0	0	0	1	1	0.3
Standing - engine(s) operating	0	0	3	1	4	1.0
Taxi	0	0	2	0	2	0.5
Taxi - to takeoff	0	0	6	0	6	1.6
Taxi - from landing	0	0	4	0	4	1.0
Taxi - aerial	0	0	1	0	1	0.3
Takeoff	0	0	6	1	7	1.8
Takeoff - ground run	0	0	27	0	27	7.0
Takeoff - initial climb	0	0	39	10	49	12.8
Climb	0	0	2	0	2	0.5
Climb - to cruise	0	0	1	0	1	0.3
Cruise	0	0	4	1	5	1.3
Cruise - normal	0	1	17	4	22	5.7
Descent	0	0	3	0	3	0.8
Descent - normal	0	0	2	0	2	0.5
Approach	0	0	2	4	6	1.6
Approach - VFR pattern - downwind	0	0	4	0	4	1.0
Approach - VFR pattern - base turn	0	0	1	3	4	1.0
Approach - VFR pattern - base to final	0	0	2	1	3	0.8
Approach - VFR pattern - final approach	0	0	20	0	20	5.2
Approach - go-around (VFR)	0	0	16	1	17	4.4
Approach - IAF to FAF/outer marker (IFR)	0	0	0	1	1	0.3
Landing	0	0	11	3	14	3.7
Landing - flare/touchdown	1	0	97	6	104	27.2
Landing - roll	0	0	43	0	43	11.2
Maneuvering	0	0	14	8	22	5.7
Maneuvering - aerial application	0	0	1	0	1	0.3
Maneuvering - turn to reverse direction	0	0	0	1	1	0.3
Maneuvering - turn to landing area (emergency)	0	0	1	1	2	0.5
Hover	0	0	3	0	3	0.8
Unknown	0	0	1	1	2	0.5
Aircraft						
Number -	1	1	333	48	383	
Percent -	0.3	0.3	86.9	12.5		

Table 161 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
INSTRUCTIONAL FLYING  
1983

Condition of light	Type of weather			Aircraft	
	VMC	IMC	Not Reptd	No.	Percent
Dawn	2	0	0	2	0.5
Daylight	343	5	1	349	91.1
Night (dark)	13	2	0	15	3.9
Night (bright)	4	0	0	4	1.0
Dusk	13	0	0	13	3.4
Aircraft					
Number -	375	7	1	383	
Percent -	97.9	1.8	0.3		

TABLE 162 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN  
INSTRUCTIONAL FLYING  
1983

Proximity to Airport	Type of Flight Plan				Aircraft	
	VFR	IFR	None	Not Reptd	No.	Percent
On Airport	40	3	181	3	227	59.3
On Airstrip	1	0	22	0	23	6.0
Within 5 SM	3	1	30	1	35	9.1
5 SM Or Greater	3	1	13	0	17	4.4
Unknown	12	3	66	0	81	21.1
Aircraft						
Number -	59	8	312	4	383	
Percent -	15.4	2.1	81.5	1.0		

Table 163 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
INSTRUCTIONAL FLYING  
1983

Detailed Cause -----	Number of Aircraft -----	Percent of Aircraft -----
Directional control - Not maintained - Pilot in command	64	16.7
Supervision - Inadequate - Pilot in command(CFI)	54	14.1
Recovery from bounced landing - Improper - Pilot in command	37	9.7
Flare - Improper - Pilot in command	37	9.7
Undetermined	26	6.8
Ground loop/swerve - Not corrected - Pilot in command	18	4.7
Flight controls - Improper use of - Pilot in command	18	4.7
Flare - Misjudged - Pilot in command	15	3.9
Fluid,fuel - Exhaustion	12	3.1
Ground loop/swerve - Uncontrolled - Pilot in command	12	3.1
Total Number of Aircraft:	383	

Table 164 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES  
INSTRUCTIONAL FLYING  
1975 - 1983

				Fatalities
				-----
Year	Accidents	Fatal Accidents	Total	Aboard Aircraft In This Category
-----	-----	-----	-----	-----
1975	587	43	77	60
1976	541	55	97	87
1977	572	48	68	64
1978	604	62	243	92
1979	516	39	59	51
1980	461	41	73	70
1981	428	40	70	63
1982	411	22	38	36
1983	379	26	40	40

Accident Rate per 100,000 Aircraft Hours Flown			
-----			
Year	Hours Flown	Total	Fatal
-----	-----	-----	-----
1975	5,882,000	9.98	0.73
1976	6,102,000	8.87	0.90
1977	7,646,000	7.48	0.63
1978	6,322,000	9.55	0.98
1979	8,144,000	6.34	0.48
1980	7,315,000	6.30	0.56
1981	7,104,000	6.02	0.56
1982	4,939,000	8.32	0.45
1983	5,820,000	6.51	0.45



Table 165 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS  
INSTRUCTIONAL FLYING  
1983 AND 1978 - 1982

Type of Occurrence	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Loss of power	75	19.6	97.4	20.0
Loss of control - on ground	64	16.7	92.8	19.0
Hard landing	64	16.7	80.2	16.4
Collision with object/terrain	60	15.7	76.8	15.7
Loss of control - in flight	53	13.8	39.8	8.2
Undershoot	10	2.6	22.2	4.5
Miscellaneous	16	4.2	19.8	4.1
Nose over/down	1	.3	19.0	3.9
Midair collision	6	1.6	12.4	2.5
Airframe/component/system fail/malf	9	2.3	7.6	1.6
Gear collapsed/retracted	9	2.3	7.6	1.6
(All other types)	16	4.2	12.6	2.6
Total	383	100.0	488.2	100.0

Table 166 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS  
INSTRUCTIONAL FLYING  
1983 AND 1978 - 1982

Phase of Operation	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Landing	161	42.0	204.8	42.0
Takeoff	83	21.7	87.2	17.9
Approach	55	14.4	84.6	17.3
Cruise	27	7.0	40.2	8.2
Maneuvering	29	7.6	29.8	6.1
Taxi	13	3.4	16.6	3.4
Descent	5	1.3	10.4	2.1
Climb	3	.8	8.8	1.8
Standing	5	1.3	3.8	.8
Other	2	.5	2.0	.4
Total	383	100.0	488.2	100.0

Table 167 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS  
INSTRUCTIONAL FLYING  
1983 AND 1978 - 1982

Broad Cause/Factor	1983		1978 - 1982	
	No.	Percent	Mean	Percent
Pilot	332	86.7	421.6	86.4
Terrain	102	26.6	87.4	17.9
Weather	89	23.2	87.2	17.9
Powerplant	49	12.8	56.6	11.6
Personnel	47	12.3	47.0	9.6
Airport/Airways/Facilities	18	4.7	40.2	8.2
Miscellaneous	91	23.8	28.4	5.8
Landing Gear	65	17.0	18.2	3.7
Undetermined	28	7.3	8.4	1.7
Systems	4	1.0	5.6	1.1
Rotorcraft	1	.3	3.2	.7
Airframe	4	1.0	3.0	.6
Instruments/Equipment/Accessories	2	.5	1.4	.3
Number of Aircraft	383		488.2	

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## APPENDIX A -- EXPLANATORY NOTES

AIRCRAFT ACCIDENT: The accidents included in this report 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 Board's definition of substantial damage as stated in 49 CFR 830.2 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 cowlings, dented skin, small punctured holes in the skin of 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".

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 and effect relationships in the accident sequence about which something can be done to prevent recurrence of the type of accident under consideration. Accordingly, 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 and related factor table, the figures shown in the columns dealing with cause will exceed the total number of accidents. The term "factor" is used, in general, to denote those elements of an accident that further explain or supplement the probable cause(s); this provides a means for collecting essential items of information that could not be readily categorized elsewhere in the system.

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.

FATAL INJURY: Any injury which results in death within 30 days of the accident.

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

KIND OF FLYING: The purpose for which the aircraft was being operated at the time of the accident. In this report, accident statistics are presented for five kinds of flying which are defined as follows:

Personal - Flying by individuals in their own or rented aircraft for pleasure, or personal transportation not in furtherance of their occupation or company business. This category includes practice flying (for the purpose of increasing or maintaining proficiency) not performed under supervision of an accredited instructor, and not part of an approved flight training program.

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 - The use of aircraft owned or leased, and operated by a corporate 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.

Aerial Application - The operation of aircraft for the purpose of dispensing any substance for plant nourishment, soil treatment, propagation of plant life, pest control, or fire control, including flying to and from the application site.

Instructional - Flying accomplished in supervised training under the direction of an accredited instructor.

PHASE OF OPERATION: The phase of the flight or operation is the particular phase of flight in which the first occurrence or circumstance occurred. In the event that there was more than one occurrence in one operational phase, the same phase is recorded for each of those occurrences.

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. (49 CFR 830.2)

TYPE OF OCCURRENCE: "Occurrences" is the highest level of an accident classification mechanism known as the Sequence of Events. This concept was introduced in 1982 accident investigations to describe the circumstances in an accident better than the formerly-used "Accident Types". It had long been recognized that several of the pre-1982 Accident Types (e.g., ground loop/swerve) were events which do not necessarily produce either injury or damage. Therefore, with the publication of the 1982 review, the nomenclature was changed to Occurrences (which does not imply injury or damage). Some Accident Types were retained as Occurrences, others were eliminated or combined with others to become one or more Occurrences. In some cases several Occurrences replace a single Accident Type.

To describe an accident, up to five Occurrences may be used, as compared to only two Accident Types in the pre-1982 data base. The Occurrences are only the highest level classification mechanism used. Typically each Occurrence is further defined by one or more "Findings" which, when presented chronologically, depict the accident scenario from beginning to end in considerable detail.

The Findings are developed by NTSB analysts from a menu of words and phrases, and are the most detailed means of classifying an accident. The Findings are also the vehicle used in 1982, 1983 (and in the future) to describe the probable cause of, and related factors in an accident. Appendix B contains a cause/factor table for all general aviation accidents in 1983. Each line of that table depicts either a specific Finding or an aggregation of Findings (those for which frequencies are enclosed in parentheses). The example below is taken from a 1982 general aviation accident record and illustrates the relationship between Occurrences and Findings. Both Findings 1 and 2 were cited as the probable cause of the accident.

Occurrence	IN FLIGHT COLLISION WITH TERRAIN
Phase of Operation	LANDING - FLARE/TOUCHDOWN

Finding(s)

1. WHEELS UP LANDING - INADVERTENT - PILOT IN COMMAND
2. IMPROPER USE OF PROCEDURE, DIVERTED ATTENTION - PILOT IN COMMAND

Pre-1982 editions of this annual review of general aviation accident data included tables comparing accidents in the current year with mean numbers of accidents in the preceding five-year period on an Accident Type basis. To perpetuate this practice to the extent feasible, Occurrences and Accident Types have (since 1982) each been grouped as necessary in order to produce comparable (if not equivalent) "Historical Comparison Categories". All tables in this report which are entitled "Most Prevalent Occurrences ..." employ this categorization of Occurrences and Accident Types. The categories are defined in the three-page table at the end of Appendix A.

TYPES OF WEATHER CONDITIONS: The types of weather conditions (VMC/IMC) 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 is based on surface weather as determined from officially recognized sources. Weather conditions encountered in flight are not necessarily representative of the classifications VMC/IMC as carried under Type of Weather Conditions.

HISTORICAL COMPARISON CATEGORY	PRE-1982 ACCIDENT TYPES	1982 AND 1983 OCCURRENCES
Abrupt maneuver	Evasive maneuver	Abrupt maneuver
Altitude deviation, uncontrolled	Uncontrolled alt deviation	Altitude deviation, uncontrolled
Airframe/component/system fail/malf	Airframe failure - in flight - on ground Propeller/rotor failure - propeller - tail rotor - main rotor	Airframe/component/system failure/malf
Collision with object/terrain	Wheels-up landing Wheels-down landing in water Collision with ground/water-controlled Bird strike Collision between aircraft-one airborne - both on ground Collided with: wires/poles; trees; residence/s; building/s; fence; fenceposts; electronic towers; runway or approach lights; airport hazard; animals; crop; flagman; loader; ditches; snowbank; parked aircraft (unattended); automobile; dirt bank; other	In flight collision with object In flight collision with terrain On ground collision with object On ground collision with terrain
Ditching	Ditching	Ditching
Dragged wing, rotor, pod, float	Dragged wingtip, pod, or float	Dragged wing, rotor, pod or float
Encounter with weather/turbulence	Turbulence Hail damage to aircraft Lightning strike	In flight encounter with weather On ground encounter with weather Vortex turbulence encountered



HISTORICAL COMPARISON CATEGORY	PRE-1982 ACCIDENT TYPES	1982 AND 1983 OCCURRENCES
Engine tearaway	Engine tearaway	Engine tearaway
Fire/Explosion	Fire or explosion - in flight - on ground	Fire/explosion Fire Explosion
Gear collapsed/retracted	Gear collapsed Gear retracted	Gear collapsed Main gear collapsed Nose gear collapsed Tail gear collapsed Complete gear collapsed Other gear collapsed
Hard landing	Hard landing	Hard landing
Loss of control - in flight	Collision with ground/water- uncontrolled Stall - Spin - Spiral - Mush	Loss of control - in flight
Loss of control - on ground	Ground-water loop-swerve	Loss of control - on ground
Loss of power	Engine failure or malfunction	Loss of power Loss of power (total) - mech failure/malfunction Loss of power (partial) - mech failure/malfunction Loss of power (total) - non-mech Loss of power (partial) - non-mech
Midair collision	Collision between aircraft- both in flight	Midair collision

HISTORICAL COMPARISON CATEGORY	PRE-1982 ACCIDENT TYPES	1982 AND 1983 OCCURRENCES
Miscellaneous	Miscellaneous/Other Overshoot	Cargo shift Decompression Forced landing Harzardous materials leak/spill (fumes/smoke) Near collision between aircraft Overrun Miscellaneous/other
Missing aircraft	Missing Acft not recovered	Missing aircraft
Nose over/down	Nose over/down	Nose down Nose over
Prop blast or jet exhaust/suction	Jet intake/exh acdnt to pers Propeller/jet/rotor blast	Propeller blast or jet exhaust/suction
Prop/rotor contact	Prop rotor acdnt to person	Propeller/rotor contact
Roll over	Roll over	Roll over
Undershoot	Undershoot	Undershoot
Undetermined	Undetermined	Undetermined

APPENDIX B  
CAUSE/FACTOR TABLE  
ALL OPERATIONS

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE	(1192)	(1370)	(2562)	(6705)	(6327)	(13032)
AIRCRAFT	(127)	(101)	(228)	(1082)	(846)	(1928)
STRUCTURE	(44)	(51)	(95)	(256)	(476)	(732)
FUSELAGE	(1)	(0)	(1)	(11)	(6)	(17)
FUSELAGE	(1)	(0)	(1)	(2)	(4)	(6)
BUCKLED	0	0	0	0	1	1
BURNED	0	0	0	0	1	1
DISINTEGRATED	1	0	1	1	0	1
FIRE	0	0	0	1	0	1
ICE	0	0	0	0	1	1
WATER	0	0	0	0	1	1
FUSELAGE, CREW COMPARTMENT	(0)	(0)	(0)	(4)	(1)	(5)
FIRE	0	0	0	1	0	1
FUMES	0	0	0	1	0	1
SMOKE	0	0	0	2	1	3
FUSELAGE, SKIN	(0)	(0)	(0)	(0)	(1)	(1)
BUCKLED	0	0	0	0	1	1
FUSELAGE, SEAT	(0)	(0)	(0)	(5)	(0)	(5)
FAILURE, PARTIAL	0	0	0	1	0	1
NOT ENGAGED	0	0	0	2	0	2
UNLOCKED	0	0	0	1	0	1
WORN	0	0	0	1	0	1
WING	(17)	(25)	(42)	(23)	(45)	(68)
WING	(11)	(13)	(24)	(14)	(23)	(37)
DISTORTED	0	0	0	0	1	1
FAILURE, PARTIAL	0	1	1	0	2	2
FAILURE, TOTAL	1	1	2	1	1	2
ICE	7	1	8	9	8	17
INCORRECT	0	0	0	1	0	1
OVERLOAD	2	4	6	2	4	6
PREVIOUS DAMAGE	0	0	0	0	1	1
SEPARATION	1	6	7	1	6	7
WING, SPAR	(4)	(9)	(13)	(4)	(11)	(15)
BENT	0	0	0	0	2	2
BUCKLED	0	1	1	0	1	1
DETERIORATED	2	0	2	2	0	2
FAILURE, TOTAL	1	2	3	1	2	3
OVERLOAD	0	4	4	0	4	4
SEPARATION	1	2	3	1	2	3
WING, WING RIB	(0)	(0)	(0)	(1)	(1)	(2)
DISINTEGRATED	0	0	0	0	1	1
FAILURE, PARTIAL	0	0	0	1	0	1
WING, WING ATTACHMENT FITTING	(0)	(0)	(0)	(1)	(0)	(1)
FAILURE, TOTAL	0	0	0	1	0	1
WING, WING ATTACHMENT BOLT	(0)	(0)	(0)	(0)	(1)	(1)
DISTORTED	0	0	0	0	1	1
WING, BRACING STRUT	(0)	(2)	(2)	(0)	(3)	(3)
OVERLOAD	0	1	1	0	2	2
SEPARATION	0	1	1	0	1	1
WING, SKIN	(2)	(0)	(2)	(3)	(4)	(7)
BUCKLED	0	0	0	0	1	1
DISTORTED	0	0	0	0	1	1
ICE	0	0	0	1	1	2
INADEQUATE	1	0	1	1	0	1
SEPARATION	1	0	1	1	1	2
WING, WING TIP	(0)	(1)	(1)	(0)	(2)	(2)
BENT	0	0	0	0	1	1
SEPARATION	0	1	1	0	1	1
NACELLE/PYLON	(0)	(0)	(0)	(0)	(1)	(1)
NACELLE/PYLON	(0)	(0)	(0)	(0)	(1)	(1)
LOOSE	0	0	0	0	1	1
FLIGHT CONTROL SURFACES/ATTACHMENTS	(5)	(10)	(15)	(12)	(16)	(28)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
STRUCTURE (Continued)						
FLIGHT CONTROL SURFACES/ATTACHMENTS (Continued)						
FLIGHT CONTROL SURFACES/ATTACHMENTS INADEQUATE	(1)	(0)	(1)	(1)	(0)	(1)
	1	0	1	1	0	1
FLIGHT CONTROL,ELEVATOR	(1)	(0)	(1)	(1)	(3)	(4)
BENT	0	0	0	0	1	1
IMPROPER	1	0	1	1	0	1
JAMMED	0	0	0	0	1	1
LOSS,PARTIAL	0	0	0	0	1	1
FLIGHT CONTROL,ELEVATOR TAB SURFACE	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER	0	0	0	1	0	1
FLIGHT CONTROL,ELEVATOR ATTACHMENT	(1)	(0)	(1)	(2)	(0)	(2)
FAILURE,TOTAL	1	0	1	1	0	1
IMPROPER	0	0	0	1	0	1
FLIGHT CONTROL,STABILATOR	(0)	(3)	(3)	(0)	(3)	(3)
OVERLOAD	0	2	2	0	2	2
SEPARATION	0	1	1	0	1	1
FLIGHT CONTROL,STABILATOR SURFACE	(0)	(1)	(1)	(0)	(2)	(2)
ICE	0	0	0	0	1	1
OVERLOAD	0	1	1	0	1	1
FLIGHT CONTROL,STABILATOR ATTACHMENT	(2)	(0)	(2)	(3)	(0)	(3)
FAILURE,TOTAL	1	0	1	2	0	2
FATIGUE	1	0	1	1	0	1
FLIGHT CONTROL,AILERON	(0)	(1)	(1)	(1)	(1)	(2)
JAMMED	0	0	0	1	0	1
OVERLOAD	0	1	1	0	1	1
FLIGHT CONTROL,AILERON TAB ATTACHMENT	(0)	(0)	(0)	(2)	(0)	(2)
FAILURE,TOTAL	0	0	0	1	0	1
OVERLOAD	0	0	0	1	0	1
FLIGHT CONTROL,RUDDER	(0)	(2)	(2)	(1)	(2)	(3)
DISCONNECTED	0	0	0	1	0	1
SEPARATION	0	2	2	0	2	2
FLIGHT CONTROL,RUDDERVATOR	(0)	(1)	(1)	(0)	(1)	(1)
OVERLOAD	0	1	1	0	1	1
FLIGHT CONTROL,FLAP	(0)	(1)	(1)	(0)	(3)	(3)
INOPERATIVE	0	0	0	0	1	1
MOVEMENT RESTRICTED	0	0	0	0	1	1
SEPARATION	0	1	1	0	1	1
FLIGHT CONTROL,LEADING EDGE FLAP	(0)	(1)	(1)	(0)	(1)	(1)
SEPARATION	0	1	1	0	1	1
LANDING GEAR	(0)	(2)	(2)	(135)	(358)	(493)
LANDING GEAR	(0)	(0)	(0)	(2)	(19)	(21)
BINDING(MECHANICAL)	0	0	0	0	1	1
FAILURE,PARTIAL	0	0	0	0	1	1
INOPERATIVE	0	0	0	0	1	1
OVERLOAD	0	0	0	1	16	17
UNDETERMINED	0	0	0	1	0	1
LANDING GEAR,MAIN GEAR	(0)	(1)	(1)	(10)	(76)	(86)
CORRODED	0	0	0	1	0	1
DISABLED	0	0	0	0	1	1
FAILURE,TOTAL	0	0	0	1	3	4
FATIGUE	0	0	0	2	0	2
INCORRECT	0	0	0	1	0	1
JAMMED	0	0	0	1	0	1
LOOSE	0	0	0	1	0	1
OVERLOAD	0	1	1	1	68	69
PREVIOUS DAMAGE	0	0	0	0	1	1
SEPARATION	0	0	0	1	3	4
UNLOCKED	0	0	0	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
STRUCTURE (Continued)						
LANDING GEAR (Continued)						
LANDING GEAR, MAIN GEAR SHOCK ABSORBING STRUT	(0)	(0)	(0)	(4)	(1)	(5)
CRACKED	0	0	0	0	1	1
DETERIORATED	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	2	0	2
FATIGUE	0	0	0	1	0	1
LANDING GEAR, MAIN GEAR STRUT	(0)	(0)	(0)	(6)	(24)	(30)
FAILURE, PARTIAL	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	1	1	2
FATIGUE	0	0	0	2	0	2
OVERLOAD	0	0	0	1	23	24
PREVIOUS DAMAGE	0	0	0	1	0	1
LANDING GEAR, MAIN GEAR ATTACHMENT	(0)	(0)	(0)	(8)	(27)	(35)
CORRODED	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	2	0	2
IMPROPER	0	0	0	1	0	1
INADEQUATE	0	0	0	2	0	2
OVERLOAD	0	0	0	1	27	28
PREVIOUS DAMAGE	0	0	0	1	0	1
LANDING GEAR, NOSE GEAR	(0)	(1)	(1)	(7)	(93)	(100)
FAILURE, PARTIAL	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	2	5	7
LOSS, TOTAL	0	0	0	1	0	1
NOT ENGAGED	0	0	0	0	1	1
OVERLOAD	0	1	1	2	82	84
SEPARATION	0	0	0	0	3	3
UNDETERMINED	0	0	0	1	0	1
VIBRATION	0	0	0	0	2	2
LANDING GEAR, NOSE GEAR ASSEMBLY	(0)	(0)	(0)	(12)	(77)	(89)
BUCKLED	0	0	0	1	0	1
CONTAMINATION	0	0	0	0	1	1
FAILURE, PARTIAL	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	1	1	2
FATIGUE	0	0	0	1	0	1
JAMMED	0	0	0	2	0	2
LOCKED	0	0	0	1	0	1
LOOSE	0	0	0	1	0	1
OVERLOAD	0	0	0	2	73	75
PRESSURE TOO LOW	0	0	0	0	1	1
PREVIOUS DAMAGE	0	0	0	1	0	1
SEPARATION	0	0	0	0	1	1
VIBRATION	0	0	0	1	0	1
LANDING GEAR, EMERGENCY EXTENSION ASSEMBLY	(0)	(0)	(0)	(1)	(0)	(1)
INOPERATIVE	0	0	0	1	0	1
LANDING GEAR, TAILWHEEL ASSEMBLY	(0)	(0)	(0)	(4)	(3)	(7)
FAILURE, TOTAL	0	0	0	2	0	2
IMPROPER	0	0	0	1	0	1
INCORRECT	0	0	0	1	0	1
OVERLOAD	0	0	0	0	2	2
SEPARATION	0	0	0	0	1	1
LANDING GEAR, WHEEL	(0)	(0)	(0)	(0)	(2)	(2)
FROZEN	0	0	0	0	1	1
MOVEMENT RESTRICTED	0	0	0	0	1	1
LANDING GEAR, TIRE	(0)	(0)	(0)	(8)	(9)	(17)
BURST	0	0	0	0	1	1
FAILURE, PARTIAL	0	0	0	0	1	1
FAILURE, TOTAL	0	0	0	4	4	8
NO PRESSURE	0	0	0	2	1	3
OVERLOAD	0	0	0	0	1	1
PENETRATED	0	0	0	1	0	1
SEPARATION	0	0	0	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
STRUCTURE (Continued)						
LANDING GEAR (Continued)						
LANDING GEAR,TIRE (Continued)						
WORN	0	0	0	0	1	1
LANDING GEAR,AXLE	(0)	(0)	(0)	(3)	(0)	(3)
BENT	0	0	0	1	0	1
SEPARATION	0	0	0	1	0	1
STRIPPED THREAD	0	0	0	1	0	1
LANDING GEAR,SKI ASSEMBLY	(0)	(0)	(0)	(1)	(2)	(3)
IMPROPER	0	0	0	0	1	1
OVERLOAD	0	0	0	0	1	1
WORN	0	0	0	1	0	1
LANDING GEAR,FLOAT ASSEMBLY	(0)	(0)	(0)	(1)	(2)	(3)
IMPROPER	0	0	0	1	0	1
LEAK	0	0	0	0	1	1
OVERLOAD	0	0	0	0	1	1
LANDING GEAR,GEAR WARNING SYSTEM	(0)	(0)	(0)	(2)	(1)	(3)
INOPERATIVE	0	0	0	2	1	3
LANDING GEAR,GEAR INDICATING SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
FAILURE,PARTIAL	0	0	0	1	0	1
LANDING GEAR,SKID ASSEMBLY	(0)	(0)	(0)	(1)	(1)	(2)
MOVEMENT RESTRICTED	0	0	0	1	1	2
LANDING GEAR,NORMAL BRAKE SYSTEM	(0)	(0)	(0)	(37)	(17)	(54)
ASYMMETRICAL	0	0	0	0	1	1
BINDING(MECHANICAL)	0	0	0	0	2	2
CORRODED	0	0	0	1	1	2
DISABLED	0	0	0	0	1	1
DISCONNECTED	0	0	0	0	1	1
FAILURE,PARTIAL	0	0	0	9	0	9
FAILURE,TOTAL	0	0	0	7	0	7
FIRE	0	0	0	1	0	1
IMPROPER	0	0	0	0	2	2
INADEQUATE	0	0	0	1	0	1
INOPERATIVE	0	0	0	1	4	5
LEAK	0	0	0	4	1	5
LOCKED	0	0	0	2	1	3
LOOSE	0	0	0	2	0	2
LOSS,PARTIAL	0	0	0	0	1	1
NOT ENGAGED	0	0	0	0	1	1
OVERTEMPERATURE	0	0	0	1	0	1
UNDETERMINED	0	0	0	2	0	2
WORN	0	0	0	6	1	7
LANDING GEAR,EMERGENCY BRAKE SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
INOPERATIVE	0	0	0	1	0	1
LANDING GEAR,GEAR LOCKING MECHANISM	(0)	(0)	(0)	(3)	(1)	(4)
CONTAMINATION	0	0	0	0	1	1
FAILURE,TOTAL	0	0	0	1	0	1
UNLOCKED	0	0	0	2	0	2
LANDING GEAR,GEAR LEVER	(0)	(0)	(0)	(2)	(0)	(2)
CLEARANCE	0	0	0	1	0	1
UNLOCKED	0	0	0	1	0	1
LANDING GEAR,NOSEWHEEL STEERING	(0)	(0)	(0)	(0)	(1)	(1)
OTHER	0	0	0	0	1	1
LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY	(0)	(0)	(0)	(21)	(2)	(23)
BINDING(MECHANICAL)	0	0	0	1	0	1
CRACKED	0	0	0	1	0	1
DISABLED	0	0	0	2	0	2
FAILURE,PARTIAL	0	0	0	2	0	2
FAILURE,TOTAL	0	0	0	3	0	3
IMPROPER	0	0	0	2	0	2

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS		ALL ACCIDENTS	
	CAUSE FACTOR	TOTAL	CAUSE FACTOR	TOTAL
AIRCRAFT (Continued)				
STRUCTURE (Continued)				
LANDING GEAR (Continued)				
LANDING GEAR, NORMAL RETRACTION/EXTENSION ASSEMBLY	(0)	(0)	(Continued)	
INOPERATIVE	0	0	6	8
LOOSE	0	0	1	1
OVERLOAD	0	0	1	1
UNLOCKED	0	0	1	1
WORN	0	0	1	1
DOOR	(0)	(5)	(5)	(17)
DOOR	(0)	(0)	(1)	(2)
OPEN	0	0	1	1
UNLOCKED	0	0	0	1
DOOR, EXTERIOR CREW	(0)	(1)	(0)	(7)
NOT ENGAGED	0	0	0	1
OPEN	0	0	0	3
UNLOCKED	0	1	0	2
WORN	0	0	0	1
DOOR, PASSENGER	(0)	(3)	(0)	(7)
INCORRECT	0	1	0	1
NOT ENGAGED	0	1	0	1
OPEN	0	1	0	4
UNLOCKED	0	0	0	1
DOOR, CARGO	(0)	(1)	(0)	(1)
LOOSE	0	1	0	1
WINDOW	(0)	(1)	(4)	(17)
WINDOW, FLIGHT COMPARTMENT WINDOW/WINDSHIELD	(0)	(1)	(4)	(17)
CONTAMINATION	0	0	0	1
DIRTY (FOGGY)	0	0	2	9
ICE	0	0	0	4
SEPARATION	0	1	1	2
UNLOCKED	0	0	1	1
FLIGHT CONTROL SYSTEM	(6)	(2)	(8)	(24)
FLIGHT CONTROL SYSTEM	(1)	(0)	(1)	(2)
DISCONNECTED	0	0	1	1
JAMMED	1	0	1	1
FLT CONTROL SYST, AILERON CONTROL	(2)	(0)	(2)	(8)
FOREIGN OBJECT DAMAGE	0	0	0	2
IMPROPER	1	0	1	1
INCORRECT	1	0	1	1
INADEQUATE	0	0	1	1
JAMMED	0	0	1	1
LOCKED	0	0	1	1
MOVEMENT RESTRICTED	0	0	0	1
FLT CONTROL SYST, ELEVATOR CONTROL	(3)	(1)	(4)	(7)
BLOCKED (PARTIAL)	0	0	0	1
DISCONNECTED	1	0	1	1
FOREIGN OBJECT	1	0	1	1
INCORRECT	0	1	0	1
JAMMED	0	0	1	1
MOVEMENT RESTRICTED	1	0	2	2
FLT CONTROL SYST, ELEVATOR TAB CONTROL (TRIM)	(0)	(0)	(1)	(2)
BINDING (MECHANICAL)	0	0	0	1
INCORRECT	0	0	1	1
FLT CONTROL SYST, RUDDER CONTROL	(0)	(0)	(2)	(3)
FAILURE, PARTIAL	0	0	1	1
JAMMED	0	0	1	1
LOSS, PARTIAL	0	0	0	1
FLT CONTROL SYST, RUDDER TAB CONTROL (TRIM)	(0)	(0)	(1)	(1)
BINDING (MECHANICAL)	0	0	1	1
FLT CONTROL SYST, WING FLAP CONTROL	(0)	(1)	(0)	(1)
INOPERATIVE	0	1	0	1



CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
STRUCTURE (Continued)						
STABILIZER	(5)	(4)	(9)	(7)	(9)	(16)
STABILIZER	(2)	(1)	(3)	(3)	(2)	(5)
ICE	2	0	2	2	1	3
SEPARATION	0	1	1	1	1	2
HORIZONTAL STABILIZER SURFACE	(0)	(1)	(1)	(1)	(3)	(4)
BENT	0	0	0	0	1	1
FOREIGN OBJECT DAMAGE	0	0	0	1	0	1
ICE	0	1	1	0	1	1
LOSS,PARTIAL	0	0	0	0	1	1
HORIZONTAL STABILIZER ATTACHMENT	(3)	(0)	(3)	(3)	(0)	(3)
DISCONNECTED	1	0	1	1	0	1
FAILURE,TOTAL	1	0	1	1	0	1
IMPROPER	1	0	1	1	0	1
VERTICAL STABILIZER SURFACE	(0)	(2)	(2)	(0)	(4)	(4)
BENT	0	0	0	0	1	1
ICE	0	0	0	0	1	1
OVERLOAD	0	1	1	0	1	1
SEPARATION	0	1	1	0	1	1
ROTORCRAFT FLIGHT CONTROL	(1)	(0)	(1)	(5)	(0)	(5)
ROTORCRAFT FLIGHT CONTROL,CYCLIC CONTROL	(1)	(0)	(1)	(2)	(0)	(2)
DISCONNECTED	1	0	1	1	0	1
JAMMED	0	0	0	1	0	1
ROTORCRAFT FLIGHT CONTROL,TAIL ROTOR CABLE	(0)	(0)	(0)	(2)	(0)	(2)
CHAFED	0	0	0	1	0	1
FAILURE,TOTAL	0	0	0	1	0	1
ROTORCRAFT FLIGHT CONTROL,BWASHPLATE ASSEMBLY	(0)	(0)	(0)	(1)	(0)	(1)
DISCONNECTED	0	0	0	1	0	1
ROTOR DRIVE SYSTEM	(3)	(0)	(3)	(30)	(1)	(31)
ROTOR DRIVE SYSTEM	(2)	(0)	(2)	(3)	(0)	(3)
FAILURE,TOTAL	1	0	1	1	0	1
FATIGUE	1	0	1	1	0	1
FOREIGN OBJECT DAMAGE	0	0	0	1	0	1
ROTOR DRIVE SYSTEM,ENGINE TO TRANSMISSION DRIVE	(0)	(0)	(0)	(1)	(0)	(1)
FAILURE,TOTAL	0	0	0	1	0	1
ROTOR DRIVE SYSTEM,MAIN ROTOR MAST(DRIVE SHAFT)	(1)	(0)	(1)	(1)	(0)	(1)
OVERLOAD	1	0	1	1	0	1
ROTOR DRIVE SYSTEM,CLUTCH ASSEMBLY	(0)	(0)	(0)	(6)	(0)	(6)
DISABLED	0	0	0	1	0	1
DISINTEGRATED	0	0	0	1	0	1
FAILURE,TOTAL	0	0	0	1	0	1
INCORRECT	0	0	0	1	0	1
OTHER	0	0	0	1	0	1
WORN	0	0	0	1	0	1
ROTOR DRIVE SYSTEM,MAIN GEAR BOX/TRANSMISSION	(0)	(0)	(0)	(3)	(1)	(4)
CORRODED	0	0	0	0	1	1
FAILURE,PARTIAL	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1
SEPARATION	0	0	0	1	0	1
ROTOR DRIVE SYSTEM,TAIL ROTOR GEAR BOX(90 DEG)	(0)	(0)	(0)	(5)	(0)	(5)
DISCONNECTED	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1
OTHER	0	0	0	1	0	1
SEPARATION	0	0	0	1	0	1
WORN	0	0	0	1	0	1
ROTOR DRIVE SYSTEM,TAIL ROTOR DRIVE SHAFT	(0)	(0)	(0)	(7)	(0)	(7)
FAILURE,TOTAL	0	0	0	5	0	5
OVERTEMPERATURE	0	0	0	1	0	1
WORN	0	0	0	1	0	1
ROTOR DRIVE SYSTEM,TAIL ROTOR DRIVE SHAFT BEARING	(0)	(0)	(0)	(4)	(0)	(4)

**CAUSE/FACTOR TABLE  
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			FATAL ACCIDENTS		ALL ACCIDENTS	
			CAUSE FACTOR	TOTAL	CAUSE FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
STRUCTURE (Continued)						
ROTOR DRIVE SYSTEM (Continued)						
ROTOR DRIVE SYSTEM, TAIL ROTOR DRIVE SHAFT BEARING			(0)	(0)	(Continued)	
FAILURE, TOTAL			0	0	2	2
FATIGUE			0	0	1	1
UNDERTORQUED			0	0	1	1
ROTOR SYSTEM						
ROTOR SYSTEM			(6)	(2)	(8)	(12)
MOVEMENT RESTRICTED			(0)	(0)	(0)	(2)
SEPARATION			0	0	1	1
ROTOR SYSTEM, MAIN ROTOR BLADE			(5)	(2)	(7)	(6)
FAILURE, PARTIAL			0	0	1	0
FAILURE, TOTAL			1	0	1	0
FATIGUE			1	0	1	0
FOREIGN OBJECT DAMAGE			0	0	0	1
SEPARATION			2	2	2	2
UNDETERMINED			1	0	1	0
ROTOR SYSTEM, MAIN ROTOR BLADE SPAR			(1)	(0)	(1)	(1)
OVERLOAD			1	0	1	0
ROTOR SYSTEM, MAIN ROTOR BLADE CUFF			(0)	(0)	(0)	(1)
FATIGUE			0	0	1	0
ROTOR SYSTEM, TAIL ROTOR BLADE			(0)	(0)	(0)	(1)
LOOSE			0	0	1	0
ROTOR SYSTEM, TAIL ROTOR HUB			(0)	(0)	(0)	(1)
VIBRATION			0	0	1	0
SYSTEMS						
ELECTRICAL SYSTEM			(9)	(13)	(22)	(46)
ELECTRICAL SYSTEM			(2)	(1)	(3)	(13)
FAILURE, PARTIAL			(2)	(0)	(2)	(6)
FAILURE, TOTAL			0	0	0	1
OPEN			1	0	1	0
OVERTEMPERATURE			0	0	0	1
UNDETERMINED			1	0	1	2
ELECTRICAL SYSTEM, BATTERY			(0)	(0)	(0)	(3)
CORRODED			0	0	0	1
FAILURE, PARTIAL			0	0	0	1
FAILURE, TOTAL			0	0	1	1
LEAK			0	0	1	0
OUTPUT LOW			0	0	0	2
OVERLOAD			0	0	0	1
ELECTRICAL SYSTEM, ALTERNATOR			(0)	(0)	(0)	(0)
INOPERATIVE			0	0	0	2
ELECTRICAL SYSTEM, ELECTRIC RELAY			(0)	(0)	(0)	(1)
BINDING (MECHANICAL)			0	0	0	1
CORRODED			0	0	0	1
ELECTRICAL SYSTEM, ELECTRIC WIRING			(0)	(0)	(0)	(2)
BURNED			0	0	0	1
DISCONNECTED			0	0	0	1
INCORRECT			0	0	1	0
ELECTRICAL SYSTEM, ELECTRIC SWITCH			(0)	(0)	(0)	(0)
FAILURE, TOTAL			0	0	0	1
ELECTRICAL SYSTEM, FUSE			(0)	(1)	(1)	(0)
LOOSE			0	0	0	1
OPEN			0	1	1	1
ELECTRICAL SYSTEM, CIRCUIT BREAKER			(0)	(0)	(0)	(1)
POPPED/TRIPPED			0	0	0	1
HYDRAULIC SYSTEM						
HYDRAULIC SYSTEM			(2)	(0)	(2)	(9)
BINDING (MECHANICAL)			(2)	(0)	(2)	(4)
			0	0	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
SYSTEMS (Continued)						
HYDRAULIC SYSTEM (Continued)						
HYDRAULIC SYSTEM (Continued)						
IMPROPER	1	0	1	1	0	1
JAMMED	1	0	1	1	0	1
NO PRESSURE	0	0	0	1	0	1
HYDRAULIC SYSTEM, LINE	(0)	(0)	(0)	(2)	(0)	(2)
CHAFED	0	0	0	2	0	2
HYDRAULIC SYSTEM, SEAL	(0)	(0)	(0)	(3)	(1)	(4)
DETERIORATED	0	0	0	0	1	1
FAILURE, TOTAL	0	0	0	1	0	1
LEAK	0	0	0	1	0	1
OTHER	0	0	0	1	0	1
FLIGHT/NAV INSTRUMENTS	(3)	(7)	(10)	(7)	(13)	(20)
FLIGHT/NAV INSTRUMENTS, ALTIMETER	(0)	(0)	(0)	(0)	(1)	(1)
ERRATIC	0	0	0	0	1	1
FLIGHT/NAV INSTRUMENTS, AIRSPEED INDICATOR	(0)	(2)	(2)	(3)	(4)	(7)
INCORRECT	0	2	2	1	2	3
INOPERATIVE	0	0	0	2	2	4
FLIGHT/NAV INSTRUMENTS, ATTITUDE BYRO	(1)	(1)	(2)	(1)	(1)	(2)
BINDING (MECHANICAL)	1	0	1	1	0	1
FAILURE, TOTAL	0	1	1	0	1	1
FLIGHT/NAV INSTRUMENTS, ATTITUDE INDICATOR	(1)	(2)	(3)	(1)	(2)	(3)
ERRATIC	1	0	1	1	0	1
INOPERATIVE	0	2	2	0	2	2
FLIGHT/NAV INSTRUMENTS, VERTICAL VELOCITY INDICATOR	(0)	(0)	(0)	(0)	(1)	(1)
ERRATIC	0	0	0	0	1	1
FLIGHT/NAV INSTRUMENTS, DIRECTIONAL BYRO	(1)	(2)	(3)	(1)	(4)	(5)
FAILURE, TOTAL	0	1	1	0	1	1
FALSE INDICATION	0	0	0	0	1	1
INOPERATIVE	1	1	2	1	1	2
OTHER	0	0	0	0	1	1
FLIGHT/NAV INSTRUMENTS, COMPASS	(0)	(0)	(0)	(1)	(0)	(1)
INCORRECT	0	0	0	1	0	1
ANTI-ICE/DE-ICE SYSTEM	(0)	(0)	(0)	(4)	(1)	(5)
ANTI-ICE/DE-ICE SYSTEM, WING	(0)	(0)	(0)	(1)	(0)	(1)
DETERIORATED	0	0	0	1	0	1
ANTI-ICE/DE-ICE SYSTEM, CARBURETOR DE-ICE	(0)	(0)	(0)	(3)	(0)	(3)
DISCONNECTED	0	0	0	1	0	1
INADEQUATE	0	0	0	1	0	1
LACK OF	0	0	0	1	0	1
ANTI-ICE/DE-ICE SYSTEM, PITOT ANTI-ICE	(0)	(0)	(0)	(0)	(1)	(1)
LACK OF	0	0	0	0	1	1
FIRE WARNING SYSTEM	(0)	(1)	(1)	(1)	(1)	(2)
FIRE WARNING SYSTEM, POWERPLANT	(0)	(1)	(1)	(0)	(1)	(1)
INOPERATIVE	0	1	1	0	1	1
FIRE WARNING SYSTEM, CARGO	(0)	(0)	(0)	(1)	(0)	(1)
LACK OF	0	0	0	1	0	1
FIRE EXTINGUISHER	(0)	(0)	(0)	(2)	(3)	(5)
FIRE EXTINGUISHER, PORTABLE	(0)	(0)	(0)	(2)	(3)	(5)
DISCONNECTED	0	0	0	1	0	1
IMPROPER	0	0	0	0	1	1
INADEQUATE	0	0	0	0	1	1
LACK OF	0	0	0	0	1	1
LOOSE	0	0	0	1	0	1
COMM/NAV EQUIPMENT	(0)	(1)	(1)	(0)	(5)	(5)
COMM/NAV EQUIPMENT	(0)	(0)	(0)	(0)	(2)	(2)
INOPERATIVE	0	0	0	0	1	1
OTHER	0	0	0	0	1	1
COMM/NAV EQUIPMENT, VOR RECEIVER	(0)	(0)	(0)	(0)	(1)	(1)

CAUSE/FACTOR TABLE  
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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
SYSTEMS (Continued)						
COMM/NAV EQUIPMENT (Continued)						
COMM/NAV EQUIPMENT,VOR RECEIVER (Continued)						
UNDETERMINED	0	0	0	0	1	1
COMM/NAV EQUIPMENT,DISTANCE MEASURING EQPT(DME)	(0)	(1)	(1)	(0)	(2)	(2)
ERRATIC	0	0	0	0	1	1
INOPERATIVE	0	1	1	0	1	1
AUTOPILOT/FLIGHT DIRECTOR	(0)	(2)	(2)	(1)	(5)	(6)
AUTOPILOT/FLIGHT DIRECTOR	(0)	(2)	(2)	(1)	(2)	(3)
INOPERATIVE	0	2	2	0	2	2
UNDETERMINED	0	0	0	1	0	1
AUTOPILOT/FLIGHT DIRECTOR,SERVO	(0)	(0)	(0)	(0)	(3)	(3)
CONTAMINATION	0	0	0	0	1	1
ENGAGED	0	0	0	0	1	1
MOVEMENT RESTRICTED	0	0	0	0	1	1
MISC ROTORCRAFT	(0)	(0)	(0)	(3)	(0)	(3)
MISC ROTORCRAFT,TAIL BOOM	(0)	(0)	(0)	(2)	(0)	(2)
DISCONNECTED	0	0	0	1	0	1
FAILURE,TOTAL	0	0	0	1	0	1
MISC ROTORCRAFT,TAIL CONE	(0)	(0)	(0)	(1)	(0)	(1)
LOOSE	0	0	0	1	0	1
OTHER SYSTEM	(2)	(1)	(3)	(6)	(6)	(12)
PITOT/STATIC SYSTEM	(0)	(0)	(0)	(3)	(3)	(6)
BLOCKED(TOTAL)	0	0	0	1	0	1
FALSE INDICATION	0	0	0	1	0	1
FOREIGN OBJECT	0	0	0	1	0	1
NOT REMOVED	0	0	0	0	1	1
UNDETERMINED	0	0	0	0	1	1
WATER	0	0	0	0	1	1
VACUUM SYSTEM	(1)	(1)	(2)	(1)	(1)	(2)
FAILURE,TOTAL	1	1	2	1	1	2
PNEUMATIC SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
SEPARATION	0	0	0	1	0	1
WARNING SYSTEM(OTHER)	(0)	(0)	(0)	(0)	(2)	(2)
ENGAGED	0	0	0	0	1	1
INOPERATIVE	0	0	0	0	1	1
SAFETY SYSTEM(OTHER)	(1)	(0)	(1)	(1)	(0)	(1)
INADEQUATE	1	0	1	1	0	1
POWERPLANT	(44)	(16)	(60)	(440)	(147)	(587)
ENGINE ASSEMBLY	(11)	(2)	(13)	(122)	(14)	(136)
ENGINE ASSEMBLY	(2)	(0)	(2)	(11)	(4)	(15)
FAILURE,PARTIAL	1	0	1	1	0	1
FAILURE,TOTAL	0	0	0	1	0	1
FIRE	0	0	0	0	2	2
FOREIGN OBJECT DAMAGE	1	0	1	1	0	1
IMPROPER	0	0	0	0	1	1
OVERTEMPERATURE	0	0	0	2	0	2
SEPARATION	0	0	0	0	1	1
UNDETERMINED	0	0	0	5	0	5
VIBRATION	0	0	0	1	0	1
ENGINE ASSEMBLY,BEARING	(0)	(0)	(0)	(3)	(0)	(3)
FAILURE,TOTAL	0	0	0	2	0	2
WORN	0	0	0	1	0	1
ENGINE ASSEMBLY,CRANKCASE	(0)	(0)	(0)	(2)	(0)	(2)
PENETRATED	0	0	0	1	0	1
PREVIOUS DAMAGE	0	0	0	1	0	1
ENGINE ASSEMBLY,CRANKSHAFT	(0)	(0)	(0)	(14)	(0)	(14)
FAILURE,TOTAL	0	0	0	3	0	3
FATIGUE	0	0	0	8	0	8

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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)

AIRCRAFT (Continued)

POWERPLANT (Continued)

ENGINE ASSEMBLY (Continued)

ENGINE ASSEMBLY, CRANKSHAFT (Continued)

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
LOOSE	0	0	0	1	0	1
VIBRATION	0	0	0	1	0	1
WORN	0	0	0	1	0	1
ENGINE ASSEMBLY, MASTER ROD	(0)	(0)	(0)	(2)	(0)	(2)
FAILURE, TOTAL	0	0	0	2	0	2
ENGINE ASSEMBLY, CONNECTING ROD	(5)	(0)	(5)	(22)	(1)	(23)
BINDING (MECHANICAL)	0	0	0	1	0	1
FAILURE, PARTIAL	1	0	1	1	0	1
FAILURE, TOTAL	2	0	2	14	0	14
FATIGUE	0	0	0	2	0	2
OVERTEMPERATURE	1	0	1	2	0	2
SEPARATION	1	0	1	1	1	2
UNDERTORQUED	0	0	0	1	0	1
ENGINE ASSEMBLY, CYLINDER	(0)	(0)	(0)	(18)	(3)	(21)
BURNED	0	0	0	2	0	2
CRACKED	0	0	0	3	0	3
FAILURE, PARTIAL	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	5	0	5
FATIGUE	0	0	0	2	0	2
INCORRECT	0	0	0	0	1	1
LOW COMPRESSION	0	0	0	2	1	3
OVERTEMPERATURE	0	0	0	1	0	1
SEPARATION	0	0	0	2	1	3
ENGINE ASSEMBLY, PISTON	(0)	(0)	(0)	(13)	(1)	(14)
BURNED	0	0	0	2	0	2
DISINTEGRATED	0	0	0	2	0	2
FAILURE, TOTAL	0	0	0	4	0	4
LEAK	0	0	0	1	0	1
MOVEMENT RESTRICTED	0	0	0	1	0	1
OTHER	0	0	0	1	0	1
OVERTEMPERATURE	0	0	0	2	0	2
SEPARATION	0	0	0	0	1	1
ENGINE ASSEMBLY, PUSH ROD	(0)	(0)	(0)	(4)	(1)	(5)
BENT	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	3	0	3
INCORRECT	0	0	0	0	1	1
ENGINE ASSEMBLY, RING	(1)	(1)	(2)	(4)	(1)	(5)
FAILURE, PARTIAL	1	0	1	1	0	1
FAILURE, TOTAL	0	0	0	1	0	1
IMPROPER	0	0	0	1	0	1
LEAK	0	1	1	1	1	2
ENGINE ASSEMBLY, VALVE	(1)	(1)	(2)	(14)	(2)	(16)
FAILURE, PARTIAL	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	6	0	6
FATIGUE	1	0	1	2	0	2
INCORRECT	0	0	0	1	0	1
LEAK	0	1	1	1	1	2
MOVEMENT RESTRICTED	0	0	0	0	1	1
OTHER	0	0	0	2	0	2
WORN	0	0	0	1	0	1
ENGINE ASSEMBLY, BLOWER/IMPELLER	(1)	(0)	(1)	(8)	(0)	(8)
FAILURE, PARTIAL	0	0	0	1	0	1
FAILURE, TOTAL	1	0	1	6	0	6
LEAK	0	0	0	1	0	1
ENGINE ASSEMBLY, MOUNT	(0)	(0)	(0)	(2)	(1)	(3)
CORRODED	0	0	0	0	1	1
FAILURE, TOTAL	0	0	0	2	0	2
ENGINE ASSEMBLY, OTHER	(1)	(0)	(1)	(5)	(0)	(5)
FAILURE, TOTAL	0	0	0	2	0	2

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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
POWERPLANT (Continued)						
ENGINE ASSEMBLY (Continued)						
ENGINE ASSEMBLY, OTHER (Continued)						
FATIGUE	0	0	0	2	0	2
UNDERTORQUED	1	0	1	1	0	1
COMPRESSOR ASSEMBLY	(0)	(0)	(0)	(2)	(0)	(2)
COMPRESSOR ASSEMBLY, IMPELLER	(0)	(0)	(0)	(2)	(0)	(2)
FAILURE, TOTAL	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1
COMBUSTION ASSEMBLY	(0)	(0)	(0)	(0)	(1)	(1)
COMBUSTION ASSEMBLY, COMBUSTION LINER	(0)	(0)	(0)	(0)	(1)	(1)
DISTORTED	0	0	0	0	1	1
TURBINE ASSEMBLY	(1)	(0)	(1)	(8)	(3)	(11)
TURBINE ASSEMBLY, SHROUD	(0)	(0)	(0)	(1)	(0)	(1)
CHAFED	0	0	0	1	0	1
TURBINE ASSEMBLY, GUIDE VANE	(0)	(0)	(0)	(0)	(1)	(1)
OVERTEMPERATURE	0	0	0	0	1	1
TURBINE ASSEMBLY, TURBINE WHEEL	(0)	(0)	(0)	(2)	(2)	(4)
FAILURE, TOTAL	0	0	0	1	1	2
FATIGUE	0	0	0	1	0	1
OVERSPEED	0	0	0	0	1	1
TURBINE ASSEMBLY, TURBINE BLADE	(1)	(0)	(1)	(2)	(0)	(2)
FAILURE, TOTAL	0	0	0	1	0	1
FATIGUE	1	0	1	1	0	1
TURBINE ASSEMBLY, SHAFT	(0)	(0)	(0)	(2)	(0)	(2)
CORRODED	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	1	0	1
TURBINE ASSEMBLY, SHAFT BEARING	(0)	(0)	(0)	(1)	(0)	(1)
WORN	0	0	0	1	0	1
EXHAUST SYSTEM	(4)	(2)	(6)	(21)	(8)	(29)
EXHAUST SYSTEM, MANIFOLD	(2)	(0)	(2)	(2)	(0)	(2)
FATIGUE	1	0	1	1	0	1
LOOSE	1	0	1	1	0	1
EXHAUST SYSTEM, MUFFLER	(0)	(0)	(0)	(3)	(0)	(3)
CRACKED	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	2	0	2
EXHAUST SYSTEM, GASKET	(0)	(0)	(0)	(0)	(1)	(1)
LOOSE	0	0	0	0	1	1
EXHAUST SYSTEM, CLAMP	(0)	(0)	(0)	(3)	(0)	(3)
FAILURE, TOTAL	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1
SEPARATION	0	0	0	1	0	1
EXHAUST SYSTEM, STACK	(1)	(0)	(1)	(4)	(1)	(5)
BLOCKED (PARTIAL)	1	0	1	1	0	1
DISCONNECTED	0	0	0	2	0	2
FAILURE, PARTIAL	0	0	0	1	0	1
SEPARATION	0	0	0	0	1	1
EXHAUST SYSTEM, BAFFLE	(1)	(0)	(1)	(1)	(0)	(1)
DETERIORATED	1	0	1	1	0	1
EXHAUST SYSTEM, END PLATE	(0)	(0)	(0)	(0)	(1)	(1)
SEPARATION	0	0	0	0	1	1
EXHAUST SYSTEM, EXTERNAL SUPERCHARGER	(0)	(0)	(0)	(1)	(0)	(1)
FAILURE, TOTAL	0	0	0	1	0	1
EXHAUST SYSTEM, TURBOCHARGER	(0)	(2)	(2)	(7)	(5)	(12)
BINDING (MECHANICAL)	0	0	0	0	1	1
DISCONNECTED	0	0	0	3	0	3
FAILURE, PARTIAL	0	1	1	0	2	2
IMPROPER	0	0	0	2	0	2
LOOSE	0	0	0	1	0	1

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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
POWERPLANT (Continued)						
EXHAUST SYSTEM (Continued)						
EXHAUST SYSTEM, TURBOCHARGER (Continued)						
OVERSPEED	0	0	0	0	1	1
SEPARATION	0	0	0	1	0	1
WORN	0	1	1	0	1	1
PROPELLER SYSTEM/ACCESSORIES	(3)	(1)	(4)	(26)	(5)	(31)
PROPELLER SYSTEM/ACCESSORIES	(0)	(0)	(0)	(1)	(1)	(2)
FATIGUE	0	0	0	1	0	1
INOPERATIVE	0	0	0	0	1	1
PROPELLER SYSTEM/ACCESSORIES, BLADE	(2)	(1)	(3)	(14)	(2)	(16)
BENT	0	1	1	0	1	1
CORRODED	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	4	0	4
FATIGUE	0	0	0	3	0	3
IMPROPER	1	0	1	2	0	2
SEPARATION	0	0	0	2	1	3
STRESS CORROSION	0	0	0	1	0	1
VIBRATION	1	0	1	1	0	1
PROPELLER SYSTEM/ACCESSORIES, HUB	(0)	(0)	(0)	(3)	(0)	(3)
FAILURE, TOTAL	0	0	0	1	0	1
SEPARATION	0	0	0	2	0	2
PROPELLER SYSTEM/ACCESSORIES, COUNTERWEIGHT	(0)	(0)	(0)	(1)	(0)	(1)
FAILURE, TOTAL	0	0	0	1	0	1
PROPELLER SYSTEM/ACCESSORIES, DOME	(0)	(0)	(0)	(0)	(2)	(2)
LOOSE	0	0	0	0	1	1
WORN	0	0	0	0	1	1
PROPELLER SYSTEM/ACCESSORIES, GOVERNOR	(1)	(0)	(1)	(2)	(0)	(2)
IMPROPER	1	0	1	1	0	1
OVERSPEED	0	0	0	1	0	1
PROPELLER SYSTEM/ACCESSORIES, PROPELLER SLIP RING	(0)	(0)	(0)	(1)	(0)	(1)
UNDETERMINED	0	0	0	1	0	1
PROPELLER SYSTEM/ACCESSORIES, PROP CONTROL UNIT	(0)	(0)	(0)	(1)	(0)	(1)
LOOSE	0	0	0	1	0	1
PROPELLER SYSTEM/ACCESSORIES, PITCH CHANGE MECH	(0)	(0)	(0)	(3)	(0)	(3)
FAILURE, TOTAL	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1
INOPERATIVE	0	0	0	1	0	1
ACCESSORY DRIVE ASSY	(0)	(0)	(0)	(1)	(0)	(1)
ACCESSORY DRIVE ASSY, DRIVE GEAR	(0)	(0)	(0)	(1)	(0)	(1)
LOOSE	0	0	0	1	0	1
IGNITION SYSTEM	(9)	(1)	(10)	(53)	(10)	(63)
IGNITION SYSTEM	(0)	(0)	(0)	(3)	(0)	(3)
INADEQUATE	0	0	0	1	0	1
INOPERATIVE	0	0	0	1	0	1
WATER	0	0	0	1	0	1
IGNITION SYSTEM, MAGNETO	(7)	(0)	(7)	(25)	(2)	(27)
CORRODED	0	0	0	0	1	1
CRACKED	1	0	1	1	0	1
DISINTEGRATED	0	0	0	1	0	1
DISCONNECTED	0	0	0	1	0	1
ERRATIC	1	0	1	2	0	2
FAILURE, PARTIAL	1	0	1	2	0	2
FAILURE, TOTAL	2	0	2	4	0	4
IMPROPER	1	0	1	3	0	3
INCORRECT	0	0	0	1	1	2
INOPERATIVE	0	0	0	2	0	2
LOOSE	0	0	0	4	0	4
SHORTED	1	0	1	2	0	2
WORN	0	0	0	2	0	2
IGNITION SYSTEM, DISTRIBUTOR	(0)	(0)	(0)	(0)	(1)	(1)

**CAUSE/FACTOR TABLE  
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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
POWERPLANT (Continued)						
IGNITION SYSTEM (Continued)						
IGNITION SYSTEM,DISTRIBUTOR (Continued)						
ARCING	0	0	0	0	1	1
IGNITION SYSTEM,SPARK PLUG	(2)	(1)	(3)	(17)	(6)	(23)
CONTAMINATION	0	0	0	4	1	5
CORRODED	0	0	0	1	0	1
DETERIORATED	1	0	1	2	0	2
IMPROPER	0	0	0	1	1	2
INCORRECT	0	0	0	1	0	1
LEADED PLUGS	0	0	0	1	1	2
LOOSE	0	0	0	0	1	1
OTHER	0	0	0	2	0	2
UNDERTORQUED	0	1	1	0	1	1
WATER	0	0	0	1	0	1
WORN	1	0	1	4	1	5
IGNITION SYSTEM,IGNITION COIL	(0)	(0)	(0)	(1)	(0)	(1)
INOPERATIVE	0	0	0	1	0	1
IGNITION SYSTEM,HIGH TENSION WIRING	(0)	(0)	(0)	(0)	(1)	(1)
LOOSE	0	0	0	0	1	1
IGNITION SYSTEM,IGNITION HARNESS	(0)	(0)	(0)	(1)	(0)	(1)
OUTPUT LOW	0	0	0	1	0	1
IGNITION SYSTEM,IGNITION LEAD	(0)	(0)	(0)	(6)	(0)	(6)
BURNED	0	0	0	2	0	2
CRACKED	0	0	0	1	0	1
IMPROPER	0	0	0	1	0	1
LEAK	0	0	0	1	0	1
SHORTED	0	0	0	1	0	1
ENGINE ACCESSORIES	(0)	(0)	(0)	(3)	(3)	(6)
ENGINE ACCESSORIES	(0)	(0)	(0)	(2)	(0)	(2)
FIRE	0	0	0	2	0	2
ENGINE ACCESSORIES,ENGINE STARTER	(0)	(0)	(0)	(1)	(3)	(4)
CORRODED	0	0	0	0	1	1
INOPERATIVE	0	0	0	0	2	2
LACK OF	0	0	0	1	0	1
BLEED AIR SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
BLEED AIR SYSTEM,VALVE	(0)	(0)	(0)	(1)	(0)	(1)
CORRODED	0	0	0	1	0	1
FUEL SYSTEM	(13)	(6)	(19)	(148)	(52)	(200)
FUEL SYSTEM	(1)	(0)	(1)	(9)	(1)	(10)
FROZEN	0	0	0	1	0	1
IMPROPER	1	0	1	2	0	2
LEAK	0	0	0	1	0	1
OVERTEMPERATURE	0	0	0	1	0	1
UNDETERMINED	0	0	0	3	0	3
WATER	0	0	0	1	0	1
SIPHONING	0	0	0	0	1	1
FUEL SYSTEM,TANK	(2)	(1)	(3)	(12)	(8)	(20)
CONTAMINATION	0	0	0	0	2	2
CORRODED	0	0	0	1	0	1
DISTORTED	0	1	1	0	1	1
EXPLODED	2	0	2	2	0	2
IMPROPER	0	0	0	3	0	3
INADEQUATE	0	0	0	4	0	4
LEAK	0	0	0	1	3	4
LOOSE	0	0	0	0	1	1
WATER	0	0	0	0	1	1
SIPHONING	0	0	0	1	0	1
FUEL SYSTEM,LINE	(4)	(0)	(4)	(20)	(1)	(21)
BLOCKED(PARTIAL)	1	0	1	1	0	1



CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
POWERPLANT (Continued)						
FUEL SYSTEM (Continued)						
FUEL SYSTEM, LINE (Continued)						
BUCKLED	0	0	0	1	0	1
BURNED	0	0	0	1	0	1
CHAFED	0	0	0	1	0	1
CRACKED	0	0	0	1	0	1
DETERIORATED	0	0	0	1	0	1
DISCONNECTED	0	0	0	1	0	1
DISTORTED	1	0	1	1	0	1
FAILURE, TOTAL	1	0	1	3	0	3
FIRE	1	0	1	1	0	1
ICE	0	0	0	0	1	1
LEAK	0	0	0	4	0	4
LOOSE	0	0	0	1	0	1
OVERTEMPERATURE	0	0	0	1	0	1
SEPARATION	0	0	0	1	0	1
UNDERTORQUED	0	0	0	1	0	1
FUEL SYSTEM, LINE FITTING	(0)	(0)	(0)	(8)	(0)	(8)
BLOCKED(TOTAL)	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1
LEAK	0	0	0	2	0	2
LOOSE	0	0	0	3	0	3
FUEL SYSTEM, SELECTOR VALVE	(0)	(0)	(0)	(5)	(0)	(5)
FROZEN	0	0	0	1	0	1
IMPROPER	0	0	0	2	0	2
INCORRECT	0	0	0	1	0	1
SWITCHED OFF	0	0	0	1	0	1
FUEL SYSTEM, FILTER	(0)	(0)	(0)	(3)	(2)	(5)
BLOCKED(PARTIAL)	0	0	0	2	1	3
BLOCKED(TOTAL)	0	0	0	0	1	1
LOOSE	0	0	0	1	0	1
FUEL SYSTEM, STRAINER	(0)	(0)	(0)	(6)	(1)	(7)
BLOCKED(PARTIAL)	0	0	0	2	0	2
BLOCKED(TOTAL)	0	0	0	1	0	1
CORRODED	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	1	0	1
LACK OF	0	0	0	0	1	1
LEAK	0	0	0	1	0	1
FUEL SYSTEM, SCREEN	(0)	(0)	(0)	(2)	(2)	(4)
BLOCKED(PARTIAL)	0	0	0	1	2	3
BLOCKED(TOTAL)	0	0	0	1	0	1
FUEL SYSTEM, PRIMER SYSTEM	(0)	(0)	(0)	(2)	(1)	(3)
ERRATIC	0	0	0	0	1	1
LOOSE	0	0	0	1	0	1
UNLOCKED	0	0	0	1	0	1
FUEL SYSTEM, CARBURETOR	(2)	(1)	(3)	(42)	(20)	(62)
BLOCKED(PARTIAL)	0	0	0	1	0	1
BLOCKED(TOTAL)	0	0	0	3	0	3
CRACKED	0	0	0	2	0	2
DETERIORATED	0	0	0	1	0	1
ERRATIC	0	0	0	1	0	1
FAILURE, PARTIAL	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	1	0	1
ICE	1	1	2	24	16	40
IMPROPER	0	0	0	1	1	2
INCORRECT	0	0	0	1	1	2
LEAK	0	0	0	3	0	3
LOOSE	0	0	0	2	1	3
LOSS, TOTAL	0	0	0	0	1	1
SEPARATION	1	0	1	1	0	1
FUEL SYSTEM, PUMP	(0)	(0)	(0)	(6)	(2)	(8)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
POWERPLANT (Continued)						
FUEL SYSTEM (Continued)						
FUEL SYSTEM,PUMP (Continued)						
BLOCKED(TOTAL)	0	0	0	2	0	2
CONTAMINATION	0	0	0	0	1	1
FAILURE,TOTAL	0	0	0	1	0	1
IMPROPER	0	0	0	1	0	1
INOPERATIVE	0	0	0	1	0	1
NOT SWITCHED	0	0	0	0	1	1
WORN	0	0	0	1	0	1
FUEL SYSTEM,INJECTOR	(1)	(0)	(1)	(8)	(1)	(9)
BLOCKED(PARTIAL)	0	0	0	1	1	2
BLOCKED(TOTAL)	0	0	0	2	0	2
CORRODED	0	0	0	1	0	1
FAILURE,PARTIAL	0	0	0	1	0	1
FOREIGN OBJECT	1	0	1	1	0	1
IMPROPER	0	0	0	1	0	1
LIFE EXPIRED	0	0	0	1	0	1
FUEL SYSTEM,VENT	(0)	(0)	(0)	(3)	(2)	(5)
BLOCKED(PARTIAL)	0	0	0	1	0	1
BLOCKED(TOTAL)	0	0	0	1	1	2
DETERIORATED	0	0	0	1	0	1
INADEQUATE	0	0	0	0	1	1
FUEL SYSTEM,DRAIN	(0)	(0)	(0)	(0)	(2)	(2)
INOPERATIVE	0	0	0	0	1	1
LOOSE	0	0	0	0	1	1
FUEL SYSTEM,CAP	(0)	(3)	(3)	(11)	(7)	(18)
BLOCKED(TOTAL)	0	0	0	2	0	2
DETERIORATED	0	1	1	0	1	1
FAILURE,TOTAL	0	0	0	0	1	1
IMPROPER	0	0	0	2	1	3
INCORRECT	0	0	0	1	0	1
LEAK	0	1	1	5	1	6
LOOSE	0	0	0	1	1	2
WORN	0	1	1	0	2	2
FUEL SYSTEM,RAM AIR	(2)	(0)	(2)	(6)	(0)	(6)
BLOCKED(PARTIAL)	0	0	0	2	0	2
ICE	1	0	1	2	0	2
LOOSE	0	0	0	1	0	1
SEPARATION	1	0	1	1	0	1
FUEL SYSTEM,NOZZLE	(1)	(0)	(1)	(3)	(0)	(3)
BLOCKED(PARTIAL)	1	0	1	1	0	1
BLOCKED(TOTAL)	0	0	0	1	0	1
JAMMED	0	0	0	1	0	1
FUEL SYSTEM,FUEL CONTROL	(0)	(1)	(1)	(1)	(2)	(3)
BLOCKED(PARTIAL)	0	1	1	0	1	1
FAILURE,TOTAL	0	0	0	1	0	1
PRESSURE EXCESSIVE	0	0	0	0	1	1
FUEL SYSTEM,FUEL SHUTOFF	(0)	(0)	(0)	(1)	(0)	(1)
LOOSE	0	0	0	1	0	1
LUBRICATING SYSTEM	(2)	(3)	(5)	(22)	(7)	(29)
LUBRICATING SYSTEM	(1)	(0)	(1)	(6)	(2)	(8)
BLOCKED(PARTIAL)	1	0	1	1	0	1
CHAFED	0	0	0	1	0	1
LEAK	0	0	0	2	1	3
LOOSE	0	0	0	1	0	1
LOW LEVEL	0	0	0	0	1	1
UNDETERMINED	0	0	0	1	0	1
LUBRICATING SYSTEM,OIL LINE	(0)	(0)	(0)	(4)	(0)	(4)
FAILURE,TOTAL	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
POWERPLANT (Continued)						
LUBRICATING SYSTEM (Continued)						
LUBRICATING SYSTEM,OIL LINE (Continued)						
INCORRECT	0	0	0	1	0	1
SEPARATION	0	0	0	1	0	1
LUBRICATING SYSTEM,OIL HOSE	(0)	(3)	(3)	(5)	(3)	(8)
BURST	0	0	0	1	0	1
CHAFED	0	0	0	1	0	1
DETERIORATED	0	1	1	1	1	2
FAILURE,PARTIAL	0	0	0	1	0	1
FAILURE,TOTAL	0	1	1	0	1	1
LIFE EXPIRED	0	1	1	1	1	2
LUBRICATING SYSTEM,OIL PRESSURE PUMP	(1)	(0)	(1)	(1)	(0)	(1)
FOREIGN OBJECT	1	0	1	1	0	1
LUBRICATING SYSTEM,OIL MAGNETIC PLUG	(0)	(0)	(0)	(1)	(0)	(1)
SEPARATION	0	0	0	1	0	1
LUBRICATING SYSTEM,OIL SEAL	(0)	(0)	(0)	(2)	(1)	(3)
FAILURE,TOTAL	0	0	0	1	0	1
LEAK	0	0	0	1	0	1
WORN	0	0	0	0	1	1
LUBRICATING SYSTEM,OIL TUBING	(0)	(0)	(0)	(3)	(1)	(4)
BLOCKED(PARTIAL)	0	0	0	2	1	3
CRACKED	0	0	0	1	0	1
ENGINE INSTRUMENTS	(0)	(0)	(0)	(2)	(30)	(32)
ENGINE INSTRUMENTS	(0)	(0)	(0)	(0)	(1)	(1)
INOPERATIVE	0	0	0	0	1	1
ENGINE INSTRUMENTS,FUEL QUANTITY GAGE	(0)	(0)	(0)	(0)	(29)	(29)
ERRATIC	0	0	0	0	4	4
FALSE INDICATION	0	0	0	0	14	14
IMPROPER	0	0	0	0	1	1
INCORRECT	0	0	0	0	5	5
INADEQUATE	0	0	0	0	1	1
INOPERATIVE	0	0	0	0	3	3
MOVEMENT RESTRICTED	0	0	0	0	1	1
ENGINE INSTRUMENTS,EGT GAGE	(0)	(0)	(0)	(1)	(0)	(1)
FALSE INDICATION	0	0	0	1	0	1
ENGINE INSTRUMENTS,CYLINDER HEAD TEMPERATURE GAUG	(0)	(0)	(0)	(1)	(0)	(1)
INCORRECT	0	0	0	1	0	1
TORQUEMETER SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
TORQUEMETER SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
FAILURE,PARTIAL	0	0	0	1	0	1
REDUCTION GEAR ASSY	(0)	(0)	(0)	(2)	(0)	(2)
REDUCTION GEAR ASSY	(0)	(0)	(0)	(1)	(0)	(1)
OTHER	0	0	0	1	0	1
REDUCTION GEAR ASSY,ACCESSORY DRIVE GEAR	(0)	(0)	(0)	(1)	(0)	(1)
FATIGUE	0	0	0	1	0	1
COOLING SYSTEM	(0)	(1)	(1)	(1)	(4)	(5)
COOLING SYSTEM	(0)	(0)	(0)	(0)	(2)	(2)
OTHER	0	0	0	0	1	1
OVERTEMPERATURE	0	0	0	0	1	1
COOLING SYSTEM,COWLING	(0)	(1)	(1)	(1)	(2)	(3)
INADEQUATE	0	0	0	1	0	1
LOOSE	0	1	1	0	2	2
THRUST REVERSER	(0)	(0)	(0)	(2)	(0)	(2)
THRUST REVERSER,DOOR	(0)	(0)	(0)	(2)	(0)	(2)
DEPLOYED INADVERTENTLY	0	0	0	1	0	1
UNLOCKED	0	0	0	1	0	1
TURBOSHAFT ENGINE	(1)	(0)	(1)	(6)	(1)	(7)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT (Continued)						
POWERPLANT (Continued)						
TURBOSHAFT ENGINE (Continued)						
TURBOSHAFT ENGINE FAILURE, TOTAL	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
TURBOSHAFT ENGINE, GAS GENERATOR FAILURE, TOTAL	(0)	(0)	(0)	(3)	(1)	(4)
	0	0	0	1	0	1
FATIGUE	0	0	0	1	0	1
FLUCTUATING	0	0	0	0	1	1
FOREIGN OBJECT	0	0	0	1	0	1
TURBOSHAFT ENGINE, GAS GENERATOR TURBINE BURNED	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
TURBOSHAFT ENGINE, REDUCTION GEAR BOX FATIGUE	(1)	(0)	(1)	(1)	(0)	(1)
	1	0	1	1	0	1
THROTTLE/POWER LEVER	(0)	(0)	(0)	(11)	(2)	(13)
THROTTLE/POWER LEVER BINDING (MECHANICAL)	(0)	(0)	(0)	(2)	(2)	(4)
	0	0	0	1	0	1
LEAK	0	0	0	0	1	1
LOCKED	0	0	0	0	1	1
MOVEMENT RESTRICTED	0	0	0	1	0	1
THROTTLE/POWER LEVER, BELLCRANK FAILURE, TOTAL	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
THROTTLE/POWER LEVER, CABLE DISCONNECTED	(0)	(0)	(0)	(3)	(0)	(3)
	0	0	0	1	0	1
FAILURE, PARTIAL	0	0	0	1	0	1
STRIPPED THREAD	0	0	0	1	0	1
THROTTLE/POWER LEVER, LINKAGE BINDING (MECHANICAL)	(0)	(0)	(0)	(5)	(0)	(5)
	0	0	0	1	0	1
DISCONNECTED	0	0	0	2	0	2
MOVEMENT RESTRICTED	0	0	0	1	0	1
PENETRATED	0	0	0	1	0	1
MIXTURE CONTROL	(0)	(0)	(0)	(3)	(0)	(3)
MIXTURE CONTROL DISCONNECTED	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
MIXTURE CONTROL, CABLE DISCONNECTED	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
MIXTURE CONTROL, LINKAGE LEAK	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
CARBURETOR HEAT CONTROL	(0)	(0)	(0)	(2)	(1)	(3)
CARBURETOR HEAT CONTROL INOPERATIVE	(0)	(0)	(0)	(2)	(0)	(2)
	0	0	0	1	0	1
LOOSE	0	0	0	1	0	1
CARBURETOR HEAT CONTROL, LINKAGE DISCONNECTED	(0)	(0)	(0)	(0)	(1)	(1)
	0	0	0	0	1	1
INDUCTION AIR CONTROL	(0)	(0)	(0)	(1)	(0)	(1)
INDUCTION AIR CONTROL, LINKAGE UNDETERMINED	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
MISCELLANEOUS	(0)	(0)	(0)	(2)	(6)	(8)
MISCELLANEOUS FIRE	(0)	(0)	(0)	(2)	(6)	(8)
	0	0	0	2	0	2
OTHER	0	0	0	0	1	1
UNDETERMINED	0	0	0	0	5	5
MISCELLANEOUS FLUID	(30)	(21)	(51)	(340)	(170)	(510)
	(18)	(14)	(32)	(304)	(132)	(436)
FLUID	(0)	(0)	(0)	(3)	(0)	(3)
EXHAUSTION	0	0	0	2	0	2
INCORRECT	0	0	0	1	0	1
FLUID, FUEL CONTAMINATION	(15)	(10)	(25)	(266)	(123)	(389)
	0	0	0	12	5	17
EXHAUSTION	6	2	8	112	53	165
ICE	2	0	2	3	0	3

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
AIRCRAFT (Continued)						
MISCELLANEOUS (Continued)						
FLUID (Continued)						
FLUID,FUEL (Continued)						
IMPROPER	0	1	1	0	1	1
INADEQUATE	0	0	0	0	1	1
LOW LEVEL	0	3	3	0	14	14
OVERTEMPERATURE	0	0	0	1	0	1
STARVATION	5	3	8	92	32	124
WATER	2	1	3	45	17	62
TERRAIN/RUNWAY CONDITION	0	0	0	1	0	1
FLUID,OIL	(2)	(2)	(4)	(18)	(5)	(23)
CONTAMINATION	0	0	0	1	0	1
EXHAUSTION	1	0	1	7	0	7
FUMES	0	0	0	0	1	1
INADEQUATE	0	0	0	0	1	1
LEAK	0	1	1	2	2	4
LOSS,TOTAL	0	1	1	0	1	1
LOW LEVEL	0	0	0	1	0	1
NO PRESSURE	0	0	0	1	0	1
STARVATION	1	0	1	5	0	5
UNDETERMINED	0	0	0	1	0	1
FLUID,HYDRAULIC	(0)	(0)	(0)	(9)	(0)	(9)
CONTAMINATION	0	0	0	1	0	1
EXHAUSTION	0	0	0	1	0	1
LACK OF	0	0	0	1	0	1
LEAK	0	0	0	3	0	3
LOSS,PARTIAL	0	0	0	1	0	1
LOW LEVEL	0	0	0	2	0	2
FLUID,WATER	(0)	(0)	(0)	(0)	(1)	(1)
LOW LEVEL	0	0	0	0	1	1
FLUID,SYNTHETIC OIL	(0)	(0)	(0)	(1)	(0)	(1)
LACK OF	0	0	0	1	0	1
FLUID,FUEL GRADE	(1)	(2)	(3)	(6)	(3)	(9)
IMPROPER	1	2	3	6	3	9
FLUID,OIL GRADE	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER	0	0	0	1	0	1
MISC EQPT/FURNISHINGS	(5)	(1)	(6)	(6)	(3)	(9)
MISC EQPT/FURNISHINGS	(2)	(0)	(2)	(3)	(0)	(3)
INADEQUATE	1	0	1	1	0	1
NOT REMOVED	1	0	1	1	0	1
OTHER	0	0	0	1	0	1
MISC EQPT/FURNISHINGS,SEAT BELT	(3)	(0)	(3)	(3)	(1)	(4)
DETERIORATED	1	0	1	1	0	1
DISCONNECTED	1	0	1	1	0	1
INADEQUATE	1	0	1	1	0	1
UNLOCKED	0	0	0	0	1	1
MISC EQPT/FURNISHINGS,SHOULDER HARNESS	(0)	(1)	(1)	(0)	(1)	(1)
FAILURE,TOTAL	0	1	1	0	1	1
MISC EQPT/FURNISHINGS,SURVIVAL EQUIPMENT	(0)	(0)	(0)	(0)	(1)	(1)
INOPERATIVE	0	0	0	0	1	1
LIGHTS	(0)	(3)	(3)	(1)	(5)	(6)
FLIGHT COMPARTMENT LIGHTS	(0)	(0)	(0)	(0)	(1)	(1)
ENGAGED	0	0	0	0	1	1
INSTRUMENT LIGHTS	(0)	(2)	(2)	(0)	(2)	(2)
DETERIORATED	0	1	1	0	1	1
INADEQUATE	0	1	1	0	1	1
EMERGENCY LIGHTS	(0)	(1)	(1)	(0)	(1)	(1)
LACK OF	0	1	1	0	1	1
LANDING LIGHT	(0)	(0)	(0)	(0)	(1)	(1)

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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
MISCELLANEOUS (Continued)						
LIGHTS (Continued)						
LANDING LIGHT (Continued)						
INOPERATIVE	0	0	0	0	1	1
ANNUNCIATOR PANEL LIGHTS	(0)	(0)	(0)	(1)	(0)	(1)
SWITCHED OFF	0	0	0	1	0	1
AIRCRAFT PERFORMANCE	(7)	(2)	(9)	(25)	(20)	(45)
AIRCRAFT PERFORMANCE	(2)	(0)	(2)	(4)	(3)	(7)
DETERIORATED	2	0	2	3	2	5
EXCEEDED	0	0	0	1	0	1
LOSS, PARTIAL	0	0	0	0	1	1
AIRCRAFT PERFORMANCE, TAKEOFF CAPABILITY	(0)	(0)	(0)	(4)	(1)	(5)
DETERIORATED	0	0	0	1	1	2
EXCEEDED	0	0	0	2	0	2
INADEQUATE	0	0	0	1	0	1
AIRCRAFT PERFORMANCE, LANDING CAPABILITY	(1)	(0)	(1)	(2)	(0)	(2)
EXCEEDED	1	0	1	2	0	2
AIRCRAFT PERFORMANCE, CLIMB CAPABILITY	(4)	(2)	(6)	(8)	(6)	(14)
DETERIORATED	1	1	2	1	2	3
EXCEEDED	3	1	4	6	4	10
LOSS, PARTIAL	0	0	0	1	0	1
AIRCRAFT PERFORMANCE, ENGINE OUT CAPABILITY	(0)	(0)	(0)	(0)	(1)	(1)
INADEQUATE	0	0	0	0	1	1
AIRCRAFT PERFORMANCE, TURN CAPABILITY	(0)	(0)	(0)	(1)	(1)	(2)
EXCEEDED	0	0	0	1	1	2
AIRCRAFT PERFORMANCE, YAWING MANEUVERS	(0)	(0)	(0)	(1)	(0)	(1)
ERRATIC	0	0	0	1	0	1
AIRCRAFT PERFORMANCE, TWO OR MORE ENGINES	(0)	(0)	(0)	(5)	(2)	(7)
ERRATIC	0	0	0	1	0	1
FAILURE, PARTIAL	0	0	0	0	1	1
FAILURE, TOTAL	0	0	0	2	0	2
INOPERATIVE	0	0	0	2	1	3
AIRCRAFT PERFORMANCE, HYDROPLANING CONDITION	(0)	(0)	(0)	(0)	(6)	(6)
WATER	0	0	0	0	6	6
AERIAL APPLICATION EQUIPMENT	(0)	(1)	(1)	(1)	(5)	(6)
AERIAL APPLICATION EQUIPMENT	(0)	(0)	(0)	(0)	(1)	(1)
BINDING (MECHANICAL)	0	0	0	0	1	1
SPRAY/DUSTING EQUIPMENT	(0)	(1)	(1)	(1)	(4)	(5)
INOPERATIVE	0	0	0	0	1	1
LEAK	0	1	1	0	2	2
LOOSE	0	0	0	1	0	1
UNMARKED	0	0	0	0	1	1
TOWING/ADVERTISING EQUIPMENT	(0)	(0)	(0)	(1)	(3)	(4)
TOWING/ADVERTISING EQUIPMENT	(0)	(0)	(0)	(0)	(1)	(1)
NOT REMOVED	0	0	0	0	1	1
GLIDER LAUNCH/TOW EQUIPMENT	(0)	(0)	(0)	(1)	(2)	(3)
DISCONNECTED	0	0	0	1	0	1
FAILURE, TOTAL	0	0	0	0	1	1
WORN	0	0	0	0	1	1
BALLOON EQUIPMENT	(0)	(0)	(0)	(2)	(2)	(4)
BALLOON EQUIPMENT, ENVELOPE	(0)	(0)	(0)	(1)	(0)	(1)
PENETRATED	0	0	0	1	0	1
BALLOON EQUIPMENT, CONTROL SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
DISABLED	0	0	0	1	0	1
BALLOON EQUIPMENT, HEATER SYSTEM	(0)	(0)	(0)	(0)	(2)	(2)
DISCONNECTED	0	0	0	0	1	1
INOPERATIVE	0	0	0	0	1	1
AIRCRAFT ENVIRONMENT	(3)	(230)	(233)	(15)	(1474)	(1489)

**CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT ENVIRONMENT (Continued)						
ATC SYSTEMS	(0)	(4)	(4)	(1)	(5)	(6)
AIR NAVIGATION AIDS	(0)	(1)	(1)	(0)	(1)	(1)
AIR NAVIGATION AIDS,VOR	(0)	(1)	(1)	(0)	(1)	(1)
NOT OPERATING	0	1	1	0	1	1
APPROACH AIDS	(0)	(3)	(3)	(0)	(3)	(3)
APPROACH AIDS	(0)	(3)	(3)	(0)	(3)	(3)
CONGESTED	0	1	1	0	1	1
UNAVAILABLE	0	2	2	0	2	2
PROCEDURES	(0)	(0)	(0)	(1)	(1)	(2)
VISUAL APPROACH PROCEDURE	(0)	(0)	(0)	(0)	(1)	(1)
INACCURATE	0	0	0	0	1	1
TRAFFIC PATTERN PROCEDURE	(0)	(0)	(0)	(1)	(0)	(1)
INADEQUATE	0	0	0	1	0	1
AIRPORT	(0)	(7)	(7)	(4)	(160)	(164)
AIRPORT FACILITIES	(0)	(7)	(7)	(4)	(159)	(163)
AIRPORT FACILITIES	(0)	(0)	(0)	(1)	(1)	(2)
NOT OPERATING	0	0	0	1	0	1
UPHILL	0	0	0	0	1	1
AIRPORT FACILITIES,RUNWAY/LANDING AREA CONDITION	(0)	(4)	(4)	(1)	(129)	(130)
INADEQUATE	0	0	0	1	4	5
TERRAIN/RUNWAY CONDITION	0	0	0	0	2	2
DISPLACED THRESHOLD	0	0	0	0	2	2
DITCH	0	0	0	0	1	1
DOWNHILL	0	1	1	0	4	4
HIGH VEGETATION	0	1	1	0	6	6
HIGH OBSTRUCTION(S)	0	0	0	0	2	2
HIDDEN OBSTRUCTION(S)	0	0	0	0	3	3
ICY	0	0	0	0	14	14
LOOSE GRAVEL/SANDY	0	0	0	0	5	5
ROUGH/UNEVEN	0	0	0	0	10	10
RUNWAY	0	0	0	0	1	1
SNOWBANK	0	0	0	0	10	10
SNOW COVERED	0	0	0	0	18	18
SOFT	0	0	0	0	13	13
UPHILL	0	1	1	0	3	3
WET	0	1	1	0	31	31
AIRPORT FACILITIES,VISUAL APCH SLOPE IND(VASI)	(0)	(1)	(1)	(0)	(2)	(2)
UNAVAILABLE	0	1	1	0	2	2
AIRPORT FACILITIES,RUNWAY EDGE LIGHTS	(0)	(1)	(1)	(0)	(14)	(14)
FAILURE,PARTIAL	0	0	0	0	1	1
INADEQUATE	0	0	0	0	1	1
INOPERATIVE	0	0	0	0	1	1
UNAVAILABLE	0	1	1	0	9	9
NOT OPERATING	0	0	0	0	2	2
AIRPORT FACILITIES,ROTATING BEACON	(0)	(1)	(1)	(0)	(1)	(1)
UNAVAILABLE	0	1	1	0	1	1
AIRPORT FACILITIES,WIND DIRECTION INDICATOR	(0)	(0)	(0)	(0)	(2)	(2)
FAILURE,TOTAL	0	0	0	0	1	1
UNAVAILABLE	0	0	0	0	1	1
AIRPORT FACILITIES,TAXIWAY CONDITION	(0)	(0)	(0)	(0)	(5)	(5)
INADEQUATE	0	0	0	0	1	1
HIDDEN OBSTRUCTION(S)	0	0	0	0	1	1
ICY	0	0	0	0	2	2
SNOW COVERED	0	0	0	0	1	1
AIRPORT FACILITIES,TAXIWAY LIGHTING	(0)	(0)	(0)	(0)	(2)	(2)
INADEQUATE	0	0	0	0	1	1
UNAVAILABLE	0	0	0	0	1	1
AIRPORT FACILITIES,TAXIWAY MARKING	(0)	(0)	(0)	(0)	(1)	(1)
INADEQUATE	0	0	0	0	1	1
AIRPORT FACILITIES,OBSTRUCTION MARKING	(0)	(0)	(0)	(2)	(2)	(4)

**CAUSE/FACTOR TABLE  
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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
<b>AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)</b>						
AIRCRAFT ENVIRONMENT (Continued)						
AIRPORT (Continued)						
AIRPORT FACILITIES (Continued)						
AIRPORT FACILITIES, OBSTRUCTION MARKING (Continued)						
INADEQUATE	0	0	0	1	1	2
UNAVAILABLE	0	0	0	1	1	2
OBJECT	(0)	(0)	(0)	(0)	(1)	(1)
FENCE	0	0	0	0	1	1
MISCELLANEOUS	(1)	(1)	(2)	(1)	(2)	(3)
CHARTS	(0)	(0)	(0)	(0)	(0)	(0)
CHARTS	(0)	(1)	(1)	(0)	(2)	(2)
CHARTS	(0)	(1)	(1)	(0)	(1)	(1)
DARK NIGHT	0	1	1	0	1	1
ENROUTE CHARTS	(0)	(0)	(0)	(0)	(1)	(1)
UNAVAILABLE	0	0	0	0	1	1
AIRCRAFT MANUALS	(0)	(0)	(0)	(0)	(0)	(0)
AIRCRAFT MANUALS	(1)	(0)	(1)	(1)	(0)	(1)
AIRCRAFT MANUALS, PROCEDURE INFORMATION	(1)	(0)	(1)	(1)	(0)	(1)
INADEQUATE	1	0	1	1	0	1
TERRAIN/RUNWAY	(2)	(218)	(220)	(9)	(1307)	(1316)
MAIL	0	1	1	0	1	1
TERRAIN/RUNWAY CONDITION	0	0	0	0	6	6
CROP	0	1	1	1	24	25
DIRT BANK	0	3	3	1	84	85
DITCH	0	2	2	1	141	142
DOWNHILL	0	3	3	0	14	14
GROUND	0	0	0	1	15	16
HIGH TERRAIN	1	47	48	1	58	59
HIGH VEGETATION	0	0	0	0	60	60
HIGH OBSTRUCTION(S)	0	14	14	0	99	99
HIDDEN OBSTRUCTION(S)	0	1	1	0	16	16
ICY	0	0	0	0	5	5
LOOSE GRAVEL/SANDY	0	1	1	0	15	15
LOOSE OBJECTS	0	0	0	0	4	4
NONE SUITABLE	0	0	0	0	21	21
MOUNTAINOUS/HILLY	1	82	83	1	134	135
OPEN FIELD	0	4	4	0	18	18
RISEING	0	33	33	0	58	58
ROUGH/UNEVEN	0	3	3	2	144	146
RUNWAY	0	1	1	0	7	7
SAND BAR	0	0	0	0	7	7
SLUSH COVERED	0	0	0	0	3	3
SNOWBANK	0	0	0	0	38	38
SNOW COVERED	0	10	10	0	41	41
SOFT	0	1	1	1	183	184
UPHILL	0	1	1	0	8	8
WATER, GLASSY	0	7	7	0	17	17
WATER, ROUGH	0	3	3	0	12	12
WEAK ICE	0	0	0	0	1	1
WET	0	0	0	0	65	65
BUILDING(NONRESIDENTIAL)	0	0	0	0	1	1
FENCE	0	0	0	0	1	1
RUNWAY LIGHT	0	0	0	0	1	1
TREE(S)	0	0	0	0	2	2
UTILITY POLE	0	0	0	0	1	1
WIRE, TRANSMISSION	0	0	0	0	2	2
ENVIRONMENTAL CONDITIONS	(1)	(802)	(803)	(58)	(2780)	(2838)
WEATHER CONDITION	(1)	(560)	(561)	(41)	(1629)	(1670)
STARVATION	0	0	0	0	1	1
WEATHER CONDITION	0	0	0	0	3	3
BELOW APPROACH MINIMUMS	0	8	8	0	10	10
CARBURETOR ICING CONDITIONS	0	2	2	1	40	41
CROSSWIND	0	5	5	6	190	196
CLOUDS	0	52	52	0	81	81



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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)			FATAL ACCIDENTS		ALL ACCIDENTS	
ENVIRONMENTAL CONDITIONS (Continued)			CAUSE FACTOR	TOTAL	CAUSE FACTOR	TOTAL
WEATHER CONDITION (Continued)						
DOWNDRAFT	0	6	6	2	38	40
FOG	0	85	85	0	136	136
GUSTS	0	14	14	8	189	197
HAZE	0	9	9	0	20	20
HIGH WIND	0	13	13	4	57	61
HIGH DENSITY ALTITUDE	0	21	21	0	94	94
ICING CONDITIONS	0	18	18	0	33	33
LOW CEILING	0	124	124	0	175	175
LIGHTNING	0	2	2	0	4	4
LIGHTNING STRIKE	0	0	0	1	0	1
MOUNTAIN WAVE	0	1	1	0	4	4
OBSCURATION	0	30	30	0	43	43
RAIN	0	43	43	0	109	109
SNOW	0	25	25	0	39	39
TAILWIND	1	7	8	1	87	88
TEMPERATURE EXTREMES	0	1	1	0	11	11
TURBULENCE	0	13	13	1	39	40
TURBULENCE, CLEAR AIR	0	1	1	0	2	2
TURBULENCE IN CLOUDS	0	5	5	0	5	5
TURBULENCE (THUNDERSTORMS)	0	16	16	0	21	21
THUNDERSTORM	0	21	21	0	35	35
TORNADO	0	0	0	1	0	1
WHITEOUT	0	3	3	0	9	9
WINDSHEAR	0	1	1	4	16	20
UNFAVORABLE WIND	0	13	13	11	126	137
DUSK	0	0	0	0	1	1
DARK NIGHT	0	1	1	0	3	3
SUNGLARE	0	0	0	1	0	1
BIRD(S)	0	0	0	0	1	1
ELECT TOWER (MARKED)	0	0	0	0	1	1
FENCE	0	0	0	0	1	1
TREE(S)	0	0	0	0	2	2
VEHICLE	0	0	0	0	2	2
WIRE, TRANSMISSION	0	0	0	0	1	1
LIGHT CONDITION	(0)	(126)	(126)	(0)	(310)	(310)
UNAVAILABLE	0	0	0	0	1	1
FOG	0	1	1	0	1	1
DAWN	0	2	2	0	6	6
DAYLIGHT	0	1	1	0	1	1
DUSK	0	14	14	0	48	48
NIGHT	0	5	5	0	32	32
DARK NIGHT	0	100	100	0	204	204
SUNGLARE	0	3	3	0	17	17
OBJECT	(0)	(116)	(116)	(17)	(841)	(858)
FOG	0	0	0	0	1	1
DARK NIGHT	0	0	0	0	1	1
DIRT BANK	0	0	0	0	1	1
DOWNHILL	0	0	0	0	1	1
HIDDEN OBSTRUCTION(S)	0	0	0	0	2	2
SNOWBANK	0	0	0	0	1	1
OBJECT	0	0	0	0	6	6
AIRCRAFT MOVING ON GROUND	0	0	0	1	20	21
AIRCRAFT PARKED	0	1	1	0	29	29
AIRPORT FACILITY	0	0	0	0	2	2
ANIMAL(S)	0	0	0	9	8	17
APPROACH LIGHT/NAVAID	0	0	0	0	12	12
BIRD(S)	0	0	0	2	2	4
BUILDING (NONRESIDENTIAL)	0	1	1	0	18	18
ELECT TOWER (MARKED)	0	1	1	0	2	2
ELECT TOWER	0	2	2	0	2	2
FENCE	0	3	3	0	125	125
GUY WIRE	0	3	3	0	5	5

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
ENVIRONMENTAL CONDITIONS (Continued)						
OBJECT (Continued)						
OTHER PERSON	0	2	2	0	8	8
RESIDENCE	0	4	4	0	11	11
RUNWAY LIGHT	0	0	0	0	20	20
SUBMERGED OBJECT	0	0	0	2	1	3
TREE(S)	0	58	58	2	342	344
UTILITY POLE	0	6	6	0	38	38
VEHICLE	0	3	3	0	49	49
WIRE, STATIC	0	2	2	1	9	10
WIRE, TRANSMISSION (MARKED)	0	0	0	0	3	3
WIRE, TRANSMISSION	0	30	30	0	122	122
HUMAN PERFORMANCE	(1061)	(237)	(1298)	(5550)	(1227)	(6777)
AIRCRAFT	(56)	(10)	(66)	(645)	(65)	(710)
LANDING GEAR	(3)	(0)	(3)	(89)	(15)	(104)
GEAR RETRACTION	(1)	(0)	(1)	(12)	(5)	(17)
INADVERTENT	(0)	(0)	(0)	(8)	(0)	(8)
PILOT IN COMMAND	0	0	0	7	0	7
DUAL STUDENT	0	0	0	1	0	1
INTENTIONAL	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	1	1
DUAL STUDENT	0	0	0	0	1	1
NOT PERFORMED	(1)	(0)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	1	0	1	1	1	2
PERFORMED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
PREMATURE	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
GEAR EXTENSION	(2)	(0)	(2)	(31)	(4)	(35)
DELAYED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
INADVERTENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(2)	(0)	(2)
DUAL STUDENT	0	0	0	1	0	1
PILOT IN COMMAND (CFI)	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(5)	(0)	(5)
PILOT IN COMMAND	0	0	0	5	0	5
NOT IDENTIFIED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(13)	(0)	(13)
PILOT IN COMMAND	0	0	0	11	0	11
DUAL STUDENT	0	0	0	2	0	2
NOT OBTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(2)	(4)	(6)
PILOT IN COMMAND	0	0	0	2	4	6
NOT SELECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PERFORMED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
PREMATURE	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
GEAR DOWN AND LOCKED	(0)	(0)	(0)	(5)	(0)	(5)
NOT ATTAINED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT IDENTIFIED	(0)	(0)	(0)	(2)	(0)	(2)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
LANDING GEAR (Continued)						
GEAR DOWN AND LOCKED (Continued)						
PILOT IN COMMAND	0	0	0	2	0	2
NOT OBTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
BRAKES(NORMAL)	(0)	(0)	(0)	(35)	(4)	(39)
CONFLICTING	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
DELAYED	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
EXCESSIVE	(0)	(0)	(0)	(3)	(1)	(4)
PILOT IN COMMAND	0	0	0	2	1	3
DUAL STUDENT	0	0	0	1	0	1
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
DUAL STUDENT	0	0	0	1	0	1
IMPROPER USE OF	(0)	(0)	(0)	(25)	(0)	(25)
PILOT IN COMMAND	0	0	0	22	0	22
COPILOT	0	0	0	1	0	1
DUAL STUDENT	0	0	0	2	0	2
INADEQUATE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT POSSIBLE	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
NOT USED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
POOR	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PARKING BRAKES	(0)	(0)	(0)	(5)	(1)	(6)
IMPROPER USE OF	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
INADVERTENT USE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT USED	(0)	(0)	(0)	(2)	(1)	(3)
PILOT IN COMMAND	0	0	0	2	1	3
NOSEWHEEL STEERING	(0)	(0)	(0)	(1)	(1)	(2)
NOT USED	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
FLIGHT CONTROLS	(25)	(4)	(29)	(164)	(22)	(186)
FLIGHT CONTROLS	(16)	(0)	(16)	(98)	(2)	(100)
IMPROPER USE OF	(16)	(0)	(16)	(98)	(2)	(100)
PILOT IN COMMAND	15	0	15	87	2	89
COPILOT	0	0	0	1	0	1
DUAL STUDENT	0	0	0	9	0	9
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
ELEVATOR	(1)	(0)	(1)	(4)	(0)	(4)
IMPROPER USE OF	(1)	(0)	(1)	(3)	(0)	(3)
PILOT IN COMMAND	1	0	1	3	0	3
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
ELEVATOR TRIM	(2)	(1)	(3)	(2)	(4)	(6)
IMPROPER	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
IMPROPER USE OF	(0)	(1)	(1)	(0)	(4)	(4)
PILOT IN COMMAND	0	1	1	0	4	4
AILERON	(0)	(0)	(0)	(2)	(1)	(3)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
FLIGHT CONTROLS (Continued)						
AILERON (Continued)						
IMPROPER USE OF	(0)	(0)	(0)	(2)	(1)	(3)
PILOT IN COMMAND	0	0	0	1	1	2
DUAL STUDENT	0	0	0	1	0	1
RUDDER	(0)	(0)	(0)	(11)	(0)	(11)
IMPROPER USE OF	(0)	(0)	(0)	(11)	(0)	(11)
PILOT IN COMMAND	0	0	0	10	0	10
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	1	0	1
RAISING OF FLAPS	(6)	(1)	(7)	(30)	(7)	(37)
IMPROPER	(1)	(0)	(1)	(12)	(1)	(13)
PILOT IN COMMAND	1	0	1	12	1	13
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADVERTENT	(0)	(0)	(0)	(1)	(0)	(1)
PASSENGER	0	0	0	1	0	1
NOT ATTAINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT IDENTIFIED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(0)	(0)	(0)	(0)	(1)	(1)
NO PERSON SPECIFIED	0	0	0	0	1	1
NOT PERFORMED	(2)	(1)	(3)	(7)	(4)	(11)
PILOT IN COMMAND	2	1	3	7	3	10
DUAL STUDENT	0	0	0	0	1	1
NOT OBTAINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
NOT SELECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PREMATURE	(1)	(0)	(1)	(5)	(1)	(6)
PILOT IN COMMAND	1	0	1	4	1	5
DUAL STUDENT	0	0	0	1	0	1
LOWERING OF FLAPS	(0)	(2)	(2)	(13)	(6)	(19)
EXCESSIVE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER	(0)	(1)	(1)	(5)	(1)	(6)
PILOT IN COMMAND	0	1	1	5	1	6
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(4)	(2)	(6)
PILOT IN COMMAND	0	0	0	4	2	6
NOT SELECTED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT USED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PREMATURE	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
SPOILER RETRACTION	(0)	(0)	(0)	(2)	(0)	(2)
NOT SELECTED	(0)	(0)	(0)	(1)	(0)	(1)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
FLIGHT CONTROLS (Continued)						
SPOILER RETRACTION (Continued)						
PILOT IN COMMAND	0	0	0	1	0	1
PREMATURE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
SPOILER EXTENSION	(0)	(0)	(0)	(1)	(2)	(3)
INADVERTENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT SELECTED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PERFORMED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
SPEED BRAKES	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
FUEL SYSTEM	(15)	(2)	(17)	(232)	(3)	(235)
FUEL SYSTEM	(0)	(0)	(0)	(17)	(1)	(18)
IMPROPER USE OF	(0)	(0)	(0)	(14)	(1)	(15)
PILOT IN COMMAND	0	0	0	12	1	13
DUAL STUDENT	0	0	0	2	0	2
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADVERTENT DEACTIVATION	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
FUEL TANK SELECTOR POSITION	(4)	(0)	(4)	(38)	(0)	(38)
DELAYED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
DISREGARDED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER	(3)	(0)	(3)	(25)	(0)	(25)
PILOT IN COMMAND	3	0	3	23	0	23
DUAL STUDENT	0	0	0	2	0	2
IMPROPER USE OF	(0)	(0)	(0)	(4)	(0)	(4)
PILOT IN COMMAND	0	0	0	3	0	3
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT CORRECTED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT IDENTIFIED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT SELECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
SELECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
FUEL BOOST PUMP SELECTOR POSITION	(1)	(0)	(1)	(3)	(0)	(3)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT SELECTED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT USED	(0)	(0)	(0)	(1)	(0)	(1)

**CAUSE/FACTOR TABLE  
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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
FUEL SYSTEM (Continued)						
FUEL BOOST PUMP SELECTOR POSITION (Continued)						
PILOT IN COMMAND	0	0	0	1	0	1
FUEL DUMPED	(0)	(0)	(0)	(1)	(0)	(1)
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
FUEL SUPPLY	(10)	(2)	(12)	(173)	(2)	(175)
DELAYED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DISREGARDED	(1)	(0)	(1)	(3)	(0)	(3)
PILOT IN COMMAND	1	0	1	3	0	3
IMPROPER	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	2	0	2
COMPANY/OPERATOR NGMT	0	0	0	1	0	1
IMPROPER USE OF	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
INATTENTIVE	(0)	(0)	(0)	(12)	(0)	(12)
PILOT IN COMMAND	0	0	0	12	0	12
INADEQUATE	(8)	(1)	(9)	(114)	(1)	(115)
PILOT IN COMMAND	8	1	9	113	1	114
DUAL STUDENT	0	0	0	1	0	1
INADVERTENT DEACTIVATION	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(1)	(0)	(1)	(16)	(0)	(16)
PILOT IN COMMAND	1	0	1	16	0	16
NOT CORRECTED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT MAINTAINED	(0)	(0)	(0)	(17)	(0)	(17)
PILOT IN COMMAND	0	0	0	17	0	17
REDUCED	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
NO PERSON SPECIFIED	0	1	1	0	1	1
POWERPLANT CONTROLS	(6)	(0)	(6)	(124)	(14)	(138)
POWERPLANT CONTROLS	(1)	(0)	(1)	(10)	(2)	(12)
IMPROPER USE OF	(1)	(0)	(1)	(9)	(2)	(11)
PILOT IN COMMAND	1	0	1	7	2	9
DUAL STUDENT	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT USED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
THROTTLE/POWER CONTROL	(2)	(0)	(2)	(53)	(3)	(56)
BELOW	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DELAYED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	2	0	2
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
EXCESSIVE	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
UNQUALIFIED PERSON	0	0	0	1	0	1
IMPROPER USE OF	(2)	(0)	(2)	(45)	(2)	(47)
PILOT IN COMMAND	2	0	2	37	2	39
COPLOT	0	0	0	1	0	1
DUAL STUDENT	0	0	0	4	0	4
PILOT IN COMMAND(CFI)	0	0	0	2	0	2
OTHER PERSON	0	0	0	1	0	1
INATTENTIVE	(0)	(0)	(0)	(1)	(0)	(1)

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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) AIRCRAFT (Continued) POWERPLANT CONTROLS (Continued) THROTTLE/POWER CONTROL (Continued) PILOT IN COMMAND(CFI)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
	0	0	0	1	0	1
INADVERTENT USE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
REDUCED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PROPELLER	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MIXTURE	(0)	(0)	(0)	(8)	(0)	(8)
DELAYED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER USE OF	(0)	(0)	(0)	(5)	(0)	(5)
PILOT IN COMMAND	0	0	0	5	0	5
INADVERTENT USE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
CARBURETOR HEAT	(2)	(0)	(2)	(41)	(4)	(45)
DELAYED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
IMPROPER USE OF	(1)	(0)	(1)	(24)	(2)	(26)
PILOT IN COMMAND	1	0	1	24	2	26
NOT POSSIBLE	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
NOT USED	(1)	(0)	(1)	(13)	(0)	(13)
PILOT IN COMMAND	1	0	1	13	0	13
SELECTED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PROPELLER FEATHERING	(0)	(0)	(0)	(3)	(4)	(7)
INTENTIONAL	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
NOT ATTAINED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT PERFORMED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
PERFORMED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
ADEQUATE ROTOR RPM	(1)	(0)	(1)	(7)	(1)	(8)
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(1)	(0)	(1)	(6)	(1)	(7)
PILOT IN COMMAND	0	0	0	5	1	6
COPILOT	1	0	1	1	0	1
WRONG PROPELLER FEATHERED	(0)	(0)	(0)	(1)	(0)	(1)
INADVERTENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
ELECTRICAL SYSTEM	(0)	(0)	(0)	(1)	(1)	(2)
ELECTRICAL SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
MANUFACTURER	0	0	0	1	0	1
ALTERNATOR	(0)	(0)	(0)	(0)	(1)	(1)
NOT USED	(0)	(0)	(0)	(0)	(1)	(1)

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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
ELECTRICAL SYSTEM (Continued)						
ALTERNATOR (Continued)						
PILOT IN COMMAND	0	0	0	0	1	1
AUTOPILOT	(0)	(0)	(0)	(1)	(1)	(2)
AUTOPILOT	(0)	(0)	(0)	(1)	(1)	(2)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADVERTENT	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
FLIGHT AND NAVIGATION INSTRUMENTS	(2)	(0)	(2)	(7)	(2)	(9)
FLIGHT AND NAVIGATION INSTRUMENTS	(1)	(0)	(1)	(1)	(0)	(1)
INATTENTIVE	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
WEATHER RADAR	(0)	(0)	(0)	(0)	(1)	(1)
IMPROPER USE OF	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
ALTIMETER SETTING	(1)	(0)	(1)	(1)	(0)	(1)
IMPROPER	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NAVIGATION RECEIVER	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
ALTIMETER	(0)	(0)	(0)	(1)	(0)	(1)
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
AIRSPEED INDICATOR	(0)	(0)	(0)	(1)	(0)	(1)
NOT USED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
HEADING INDICATOR	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
ENGINE INSTRUMENT	(0)	(0)	(0)	(1)	(1)	(2)
IMPROPER USE OF	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
INACCURATE	(0)	(0)	(0)	(1)	(0)	(1)
MANUFACTURER	0	0	0	1	0	1
ROTORCRAFT FLIGHT CONTROLS	(3)	(0)	(3)	(23)	(1)	(24)
ROTORCRAFT FLIGHT CONTROLS	(1)	(0)	(1)	(13)	(0)	(13)
IMPROPER USE OF	(1)	(0)	(1)	(13)	(0)	(13)
PILOT IN COMMAND	1	0	1	9	0	9
COPILLOT	0	0	0	1	0	1
DUAL STUDENT	0	0	0	3	0	3
CYCLIC	(1)	(0)	(1)	(5)	(0)	(5)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
OTHER PERSON	0	0	0	1	0	1
IMPROPER USE OF	(1)	(0)	(1)	(4)	(0)	(4)
PILOT IN COMMAND	1	0	1	4	0	4
COLLECTIVE	(1)	(0)	(1)	(4)	(0)	(4)
EXCESSIVE	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER USE OF	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
TAIL ROTOR	(0)	(0)	(0)	(1)	(1)	(2)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2



**CAUSE/FACTOR TABLE  
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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
<b>AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)</b>						
HUMAN PERFORMANCE (Continued)						
AIRCRAFT (Continued)						
MISCELLANEOUS EQUIPMENT	(2)	(4)	(6)	(4)	(6)	(10)
MISCELLANEOUS EQUIPMENT	(1)	(2)	(3)	(2)	(3)	(5)
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
GROUND PERSONNEL	0	0	0	1	0	1
NOT USED	(1)	(2)	(3)	(1)	(3)	(4)
PILOT IN COMMAND	1	0	1	1	1	2
NO PERSON SPECIFIED	0	1	1	0	1	1
PILOT IN COMMAND(CFI)	0	1	1	0	1	1
PITOT SYSTEM	(0)	(0)	(0)	(1)	(0)	(1)
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
SEAT BELT	(0)	(2)	(2)	(0)	(3)	(3)
IMPROPER USE OF	(0)	(0)	(0)	(0)	(1)	(1)
PASSENGER	0	0	0	0	1	1
NOT USED	(0)	(2)	(2)	(0)	(2)	(2)
PILOT IN COMMAND	0	2	2	0	2	2
LANDING LIGHTS	(1)	(0)	(1)	(1)	(0)	(1)
IMPROPER USE OF	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
<b>OPERATIONS</b>						
PLANNING-DECISION	(1005)	(227)	(1232)	(1905)	(1162)	(6067)
PLANNING-DECISION	(417)	(109)	(526)	(1809)	(280)	(2089)
IMPROPER	(4)	(4)	(8)	(65)	(7)	(72)
PILOT IN COMMAND	(4)	(4)	(8)	(59)	(6)	(65)
PILOT IN COMMAND(CFI)	4	4	8	57	6	63
GROUND PERSONNEL	0	0	0	1	0	1
INTENTIONAL	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
INADEQUATE	(0)	(0)	(0)	(6)	(0)	(6)
PILOT IN COMMAND	0	0	0	6	0	6
PREFLIGHT PLANNING/PREPARATION	(30)	(27)	(57)	(166)	(45)	(211)
IMPROPER	(3)	(2)	(5)	(19)	(3)	(22)
PILOT IN COMMAND	3	2	5	19	3	22
INACCURATE	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
INADEQUATE	(25)	(25)	(50)	(137)	(41)	(178)
PILOT IN COMMAND	25	24	49	133	39	172
DUAL STUDENT	0	0	0	1	1	2
PILOT IN COMMAND(CFI)	0	1	1	1	1	2
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
MISJUDGED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
POOR	(1)	(0)	(1)	(6)	(1)	(7)
PILOT IN COMMAND	1	0	1	6	1	7
AIRCRAFT PREFLIGHT	(9)	(3)	(12)	(129)	(16)	(145)
IMPROPER	(0)	(1)	(1)	(10)	(3)	(13)
PILOT IN COMMAND	0	1	1	10	3	13
INACCURATE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
INTENTIONAL	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(9)	(2)	(11)	(117)	(11)	(128)
PILOT IN COMMAND	9	2	11	110	10	120

**CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983**

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
<b>AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)</b>						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
PLANNING-DECISION (Continued)						
AIRCRAFT PREFLIGHT (Continued)						
DUAL STUDENT	0	0	0	2	1	3
PILOT IN COMMAND(CFI)	0	0	0	3	0	3
FBO PERSONNEL	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
AIRCRAFT SERVICE	(1)	(0)	(1)	(9)	(0)	(9)
IMPROPER	(1)	(0)	(1)	(4)	(0)	(4)
PILOT IN COMMAND	1	0	1	4	0	4
INATTENTIVE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
COMPANY MAINTENANCE PBNL	0	0	0	1	0	1
ICE/FROST REMOVAL FROM AIRCRAFT	(0)	(0)	(0)	(3)	(0)	(3)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
DUAL STUDENT	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
AIRCRAFT UNATTENDED/ENGINE(S) RUNNING	(0)	(0)	(0)	(2)	(0)	(2)
ATTEMPTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INTENTIONAL	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
AIRCRAFT WEIGHT AND BALANCE	(6)	(10)	(16)	(17)	(20)	(37)
DISREGARDED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
EXCEEDED	(4)	(9)	(13)	(8)	(15)	(23)
PILOT IN COMMAND	4	9	13	8	15	23
EXCESSIVE	(0)	(1)	(1)	(0)	(2)	(2)
PILOT IN COMMAND	0	1	1	0	2	2
IMPROPER	(2)	(0)	(2)	(3)	(2)	(5)
PILOT IN COMMAND	2	0	2	3	2	5
INACCURATE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT CORRECTED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT	(7)	(4)	(11)	(24)	(11)	(35)
ATTEMPTED	(1)	(1)	(2)	(8)	(3)	(11)
PILOT IN COMMAND	0	1	1	7	3	10
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
CONTINUED	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
IMPROPER	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
INTENTIONAL	(2)	(3)	(5)	(3)	(6)	(9)
PILOT IN COMMAND	2	3	5	3	6	9

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS		ALL ACCIDENTS	
	CAUSE FACTOR	TOTAL	CAUSE FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)				
HUMAN PERFORMANCE (Continued)				
OPERATIONS (Continued)				
PLANNING-DECISION (Continued)				
OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT				
INITIATED	(7)	(4)	(Continued)	
PILOT IN COMMAND	(0)	(0)	(0)	(1)
	0	0	0	1
NOT CORRECTED	(2)	(0)	(2)	(2)
PILOT IN COMMAND	2	0	2	0
PERFORMED	(1)	(0)	(1)	(4)
PILOT IN COMMAND	0	0	0	3
NO PERSON SPECIFIED	1	0	1	1
POOR	(0)	(0)	(0)	(1)
PILOT IN COMMAND	0	0	0	1
TIE DOWN/SECURITY OF CARGO	(0)	(0)	(0)	(2)
IMPROPER	(0)	(0)	(0)	(1)
NO PERSON SPECIFIED	0	0	0	1
INADEQUATE	(0)	(0)	(0)	(1)
GROUND PERSONNEL	0	0	0	1
PROPER ASSISTANCE	(0)	(1)	(1)	(16)
DELAYED	(0)	(0)	(0)	(1)
PILOT IN COMMAND(CFI)	0	0	0	1
NOT ATTAINED	(0)	(0)	(0)	(5)
PILOT IN COMMAND	0	0	0	5
NOT OBTAINED	(0)	(1)	(1)	(9)
PILOT IN COMMAND	0	1	1	9
NOT USED	(0)	(0)	(0)	(1)
PILOT IN COMMAND	0	0	0	1
IN-FLIGHT PLANNING/DECISION	(46)	(4)	(50)	(167)
NO MODIFIER SPECIFIED	(0)	(0)	(0)	(1)
NO PERSON SPECIFIED	0	0	0	1
IMPROPER	(43)	(3)	(46)	(139)
PILOT IN COMMAND	43	3	46	132
DUAL STUDENT	0	0	0	1
PILOT IN COMMAND(CFI)	0	0	0	4
PILOT OF OTHER AIRCRAFT	0	0	0	1
UNQUALIFIED PERSON	0	0	0	1
INACCURATE	(0)	(0)	(0)	(1)
PILOT IN COMMAND	0	0	0	1
INADEQUATE	(2)	(0)	(2)	(11)
PILOT IN COMMAND	2	0	2	11
MISJUDGED	(0)	(0)	(0)	(1)
PILOT IN COMMAND	0	0	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)
PILOT IN COMMAND	0	0	0	1
POOR	(1)	(1)	(2)	(12)
PILOT IN COMMAND	1	1	2	11
PILOT IN COMMAND(CFI)	0	0	0	1
PREMATURE	(0)	(0)	(0)	(1)
PILOT IN COMMAND	0	0	0	1
WIND INFORMATION	(3)	(1)	(4)	(25)
DISREGARDED	(0)	(0)	(0)	(5)
PILOT IN COMMAND	0	0	0	4
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	1
INADVERTENT	(0)	(0)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1
INADEQUATE	(0)	(0)	(0)	(1)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
PLANNING-DECISION (Continued)						
WIND INFORMATION (Continued)						
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISREAD	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	1	1	1	1	2
NOT ATTAINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT FOLLOWED	(2)	(0)	(2)	(4)	(0)	(4)
PILOT IN COMMAND	2	0	2	4	0	4
NOT IDENTIFIED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT OBTAINED	(0)	(0)	(0)	(7)	(1)	(8)
PILOT IN COMMAND	0	0	0	7	1	8
NOT UNDERSTOOD	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT RECEIVED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
FUEL CONSUMPTION CALCULATIONS	(0)	(0)	(0)	(15)	(0)	(15)
IMPROPER	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
INACCURATE	(0)	(0)	(0)	(8)	(0)	(8)
PILOT IN COMMAND	0	0	0	8	0	8
INATTENTIVE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOTAMS	(0)	(0)	(0)	(6)	(1)	(7)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(0)	(1)	(1)
AIRPORT PERSONNEL	0	0	0	0	1	1
NOT FOLLOWED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT OBTAINED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
NOT RECEIVED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
BECAME LOST/DISORIENTED	(14)	(5)	(19)	(31)	(18)	(49)
INADVERTENT	(13)	(5)	(18)	(30)	(18)	(48)
PILOT IN COMMAND	13	5	18	30	18	48
INTENTIONAL	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
VFR FLIGHT INTO IMC	(89)	(2)	(91)	(113)	(3)	(116)
ATTEMPTED	(3)	(0)	(3)	(3)	(0)	(3)
PILOT IN COMMAND	3	0	3	3	0	3
CONTINUED	(64)	(0)	(64)	(80)	(1)	(81)
PILOT IN COMMAND	63	0	63	79	1	80
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
IMPROPER	(0)	(0)	(0)	(3)	(0)	(3)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
PLANNING-DECISION (Continued)  
VFR FLIGHT INTO IMC (Continued)  
PILOT IN COMMAND

FATAL ACCIDENTS  
CAUSE FACTOR TOTAL

ALL ACCIDENTS  
CAUSE FACTOR TOTAL

	0	0	0	3	0	3
INADVERTENT	(8)	(1)	(9)	(10)	(1)	(11)
PILOT IN COMMAND	8	1	9	10	1	11
INTENTIONAL	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
INITIATED	(7)	(0)	(7)	(8)	(0)	(8)
PILOT IN COMMAND	7	0	7	8	0	8
MISJUDGED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT POSSIBLE	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
PERFORMED	(5)	(0)	(5)	(7)	(0)	(7)
PILOT IN COMMAND	5	0	5	7	0	7
VFR PROCEDURES	(4)	(0)	(4)	(6)	(0)	(6)
IMPROPER	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
INACCURATE	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT FOLLOWED	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
FLIGHT MANUALS	(0)	(0)	(0)	(3)	(0)	(3)
INACCURATE	(0)	(0)	(0)	(1)	(0)	(1)
MANUFACTURER	0	0	0	1	0	1
NOT FOLLOWED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
PERFORMANCE DATA	(6)	(0)	(6)	(39)	(1)	(40)
DISREGARDED	(0)	(0)	(0)	(4)	(1)	(5)
PILOT IN COMMAND	0	0	0	4	1	5
INACCURATE	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
INADEQUATE	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
MISJUDGED	(0)	(0)	(0)	(4)	(0)	(4)
PILOT IN COMMAND	0	0	0	4	0	4
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT FOLLOWED	(2)	(0)	(2)	(4)	(0)	(4)
PILOT IN COMMAND	2	0	2	4	0	4
NOT IDENTIFIED	(1)	(0)	(1)	(6)	(0)	(6)
PILOT IN COMMAND	1	0	1	5	0	5
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT UNDERSTOOD	(2)	(0)	(2)	(14)	(0)	(14)
PILOT IN COMMAND	1	0	1	13	0	13
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
NOT USED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
REFUELING	(1)	(0)	(1)	(47)	(6)	(53)
DELAYED	(0)	(0)	(0)	(1)	(0)	(1)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) PLANNING-DECISION (Continued) REFUELING (Continued) PILOT IN COMMAND	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
	0	0	0	1	0	1
INADEQUATE PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(2) 2	(0) 0	(2) 2
MISJUDGED PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
NOT CORRECTED PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
NOT MAINTAINED PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
NOT PERFORMED PILOT IN COMMAND	(1) 1	(0) 0	(1) 1	(38) 38	(5) 5	(43) 43
NOT OBTAINED PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(2) 2	(0) 0	(2) 2
NOT POSSIBLE PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(0) 0	(1) 1	(1) 1
NOT USED PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
VISUAL LOOKOUT ATTEMPTED PILOT IN COMMAND	(41) (0) 0	(0) (0) 0	(41) (0) 0	(201) (1) 1	(5) (0) 0	(206) (1) 1
CONFLICTING PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
IMPROPER PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
INACCURATE PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(2) 2	(0) 0	(2) 2
INATTENTIVE PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
INADEQUATE PILOT IN COMMAND	(32) 19	(0) 0	(32) 19	(159) 117	(3) 3	(162) 120
NO PERSON SPECIFIED	0	0	0	1	0	1
COPILOT	1	0	1	1	0	1
DUAL STUDENT	0	0	0	3	0	3
PILOT IN COMMAND(CFI)	2	0	2	6	0	6
OTHER CREW MEMBER	1	0	1	1	0	1
PILOT OF OTHER AIRCRAFT	9	0	9	29	0	29
DRIVER OF VEHICLE	0	0	0	1	0	1
MISREAD PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
NOT MAINTAINED PILOT IN COMMAND	(7) 5	(0) 0	(7) 5	(21) 17	(0) 0	(21) 17
PILOT OF OTHER AIRCRAFT	2	0	2	4	0	4
NOT POSSIBLE PILOT IN COMMAND	(1) 1	(0) 0	(1) 1	(8) 7	(0) 0	(8) 7
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
POOR PILOT IN COMMAND	(1) 1	(0) 0	(1) 1	(2) 2	(1) 1	(3) 3
REDUCED PILOT IN COMMAND	(0) 0	(0) 0	(0) 0	(4) 4	(1) 0	(5) 4
NO PERSON SPECIFIED	0	0	0	0	1	1
WEATHER EVALUATION DISREGARDED	(12) (2)	(1) (0)	(13) (2)	(53) (4)	(3) (0)	(56) (4)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
PLANNING-DECISION (Continued)  
WEATHER EVALUATION (Continued)  
PILOT IN COMMAND

FATAL ACCIDENTS  
CAUSE FACTOR TOTAL

ALL ACCIDENTS  
CAUSE FACTOR TOTAL

	2	0	2	4	0	4
IMPROPER	(1)	(0)	(1)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	2	0	2
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
INACCURATE	(5)	(1)	(6)	(23)	(1)	(24)
PILOT IN COMMAND	5	1	6	23	1	24
INATTENTIVE	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
INADEQUATE	(1)	(0)	(1)	(13)	(2)	(15)
PILOT IN COMMAND	1	0	1	12	2	14
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
NOT POSSIBLE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
POOR	(2)	(0)	(2)	(4)	(0)	(4)
PILOT IN COMMAND	2	0	2	4	0	4
FLIGHT INTO KNOWN ADVERSE WEATHER	(51)	(30)	(81)	(69)	(39)	(108)
ATTEMPTED	(5)	(0)	(5)	(12)	(0)	(12)
PILOT IN COMMAND	5	0	5	12	0	12
CONTINUED	(23)	(7)	(30)	(29)	(10)	(39)
PILOT IN COMMAND	22	7	29	28	10	38
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
IMPROPER	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
INADVERTENT	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
INTENTIONAL	(2)	(1)	(3)	(2)	(1)	(3)
PILOT IN COMMAND	2	1	3	2	1	3
INADEQUATE	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
INITIATED	(18)	(21)	(39)	(21)	(25)	(46)
PILOT IN COMMAND	17	21	38	20	25	45
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PERFORMED	(2)	(0)	(2)	(4)	(0)	(4)
PILOT IN COMMAND	2	0	2	4	0	4
IFR PROCEDURE	(18)	(3)	(21)	(30)	(4)	(34)
CONTINUED	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
IMPROPER	(11)	(2)	(13)	(19)	(2)	(21)
PILOT IN COMMAND	10	2	12	18	2	20
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INACCURATE	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT FOLLOWED	(5)	(0)	(5)	(5)	(1)	(6)
PILOT IN COMMAND	5	0	5	5	1	6
NOT POSSIBLE	(0)	(0)	(0)	(1)	(0)	(1)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
PLANNING-DECISION (Continued)  
IFR PROCEDURE (Continued)  
PILOT IN COMMAND

FATAL ACCIDENTS  
CAUSE FACTOR TOTAL

ALL ACCIDENTS  
CAUSE FACTOR TOTAL

	0	0	0	1	0	1
POOR	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
SIMULATED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
FLIGHT TO ALTERNATE DESTINATION	(4)	(2)	(6)	(10)	(14)	(24)
ATTEMPTED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
CONTINUED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
DELAYED	(3)	(1)	(4)	(7)	(2)	(9)
PILOT IN COMMAND	3	1	4	7	2	9
INITIATED	(0)	(0)	(0)	(0)	(3)	(3)
PILOT IN COMMAND	0	0	0	0	3	3
NOT PERFORMED	(0)	(1)	(1)	(2)	(4)	(6)
PILOT IN COMMAND	0	1	1	2	4	6
PERFORMED	(0)	(0)	(0)	(0)	(4)	(4)
PILOT IN COMMAND	0	0	0	0	4	4
COMPENSATION FOR WIND CONDITIONS	(2)	(1)	(3)	(153)	(13)	(166)
DELAYED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
IMPROPER	(1)	(1)	(2)	(71)	(3)	(74)
PILOT IN COMMAND	1	1	2	64	2	66
DUAL STUDENT	0	0	0	5	1	6
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(71)	(1)	(72)
PILOT IN COMMAND	0	0	0	69	1	70
DUAL STUDENT	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
ISSUED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
NOT MAINTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(1)	(0)	(1)	(5)	(8)	(13)
PILOT IN COMMAND	1	0	1	5	8	13
POOR	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
LANDED AT WRONG AIRPORT	(0)	(0)	(0)	(0)	(1)	(1)
INADVERTENT	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
WRONG RUNWAY	(1)	(1)	(2)	(23)	(12)	(35)
SELECTED	(1)	(1)	(2)	(23)	(12)	(35)
PILOT IN COMMAND	1	1	2	21	12	33
PILOT IN COMMAND(CFI)	0	0	0	2	0	2
UNSUITABLE TERRAIN	(4)	(0)	(4)	(128)	(6)	(134)
INADVERTENT USE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT IDENTIFIED	(0)	(0)	(0)	(2)	(0)	(2)



CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
PLANNING-DECISION (Continued)  
UNSUITABLE TERRAIN (Continued)  
PILOT IN COMMAND

FATAL ACCIDENTS  
CAUSE FACTOR TOTAL

ALL ACCIDENTS  
CAUSE FACTOR TOTAL

	0	0	0	2	0	2
NOT OBTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT UNDERSTOOD	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PERFORMED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
SELECTED	(4)	(0)	(4)	(121)	(5)	(126)
PILOT IN COMMAND	4	0	4	115	5	120
PILOT IN COMMAND(CFI)	0	0	0	4	0	4
CHECK PILOT	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
CHECKLIST	(1)	(0)	(1)	(23)	(2)	(25)
INATTENTIVE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
DUAL STUDENT	0	0	0	1	0	1
NOT FOLLOWED	(0)	(0)	(0)	(10)	(0)	(10)
PILOT IN COMMAND	0	0	0	9	0	9
DUAL STUDENT	0	0	0	1	0	1
NOT PERFORMED	(1)	(0)	(1)	(3)	(0)	(3)
DUAL STUDENT	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	1	0	1	2	0	2
NOT USED	(0)	(0)	(0)	(6)	(2)	(8)
PILOT IN COMMAND	0	0	0	6	2	8
PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
JUDGEMENT	(34)	(6)	(40)	(101)	(9)	(110)
IMPROPER	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT USED	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
POOR	(32)	(6)	(38)	(97)	(9)	(106)
PILOT IN COMMAND	29	6	35	89	8	97
PILOT IN COMMAND(CFI)	1	0	1	3	0	3
GROUND PERSONNEL	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	2	0	2
DRIVER OF VEHICLE	0	0	0	0	1	1
OTHER PERSON	1	0	1	1	0	1
UNQUALIFIED PERSON	1	0	1	1	0	1
PROCEDURES/DIRECTIVES	(24)	(3)	(27)	(100)	(20)	(120)
DELAYED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DISREGARDED	(4)	(0)	(4)	(7)	(0)	(7)
PILOT IN COMMAND	4	0	4	7	0	7
IMPROPER	(6)	(0)	(6)	(29)	(2)	(31)
PILOT IN COMMAND	6	0	6	27	1	28
PILOT IN COMMAND(CFI)	0	0	0	2	1	3
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INACCURATE	(0)	(0)	(0)	(2)	(0)	(2)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
PLANNING-DECISION (Continued)						
PROCEDURES/DIRECTIVES (Continued)						
PILOT IN COMMAND	0	0	0	2	0	2
INADEQUATE	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
MISJUDGED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT FOLLOWED	(11)	(3)	(14)	(52)	(18)	(70)
PILOT IN COMMAND	10	3	13	49	16	65
PASSENGER	1	0	1	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	2	2	4
NOT ISSUED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT OBTAINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT UNDERSTOOD	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
ALL AVAILABLE RUNWAY	(0)	(0)	(0)	(3)	(1)	(4)
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT USED	(0)	(0)	(0)	(2)	(1)	(3)
PILOT IN COMMAND	0	0	0	2	1	3
PLANNED APPROACH	(5)	(1)	(6)	(30)	(5)	(35)
BELOW	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER	(2)	(1)	(3)	(13)	(3)	(16)
PILOT IN COMMAND	2	1	3	13	3	16
INACCURATE	(1)	(0)	(1)	(5)	(0)	(5)
PILOT IN COMMAND	1	0	1	5	0	5
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(1)	(0)	(1)	(7)	(1)	(8)
PILOT IN COMMAND	1	0	1	7	1	8
POOR	(1)	(0)	(1)	(3)	(1)	(4)
PILOT IN COMMAND	1	0	1	3	0	3
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
MAINTENANCE	(21)	(13)	(34)	(158)	(39)	(197)
MAINTENANCE	(4)	(2)	(6)	(30)	(13)	(43)
IMPROPER	(3)	(2)	(5)	(13)	(4)	(17)
PILOT IN COMMAND	0	1	1	1	1	2
NO PERSON SPECIFIED	0	0	0	2	2	4
OTHER MAINTENANCE PSNL	3	1	4	10	1	11
INADEQUATE	(1)	(0)	(1)	(16)	(9)	(25)
PILOT IN COMMAND	1	0	1	2	0	2
NO PERSON SPECIFIED	0	0	0	2	3	5
COMPANY MAINTENANCE PSNL	0	0	0	1	2	3
OTHER MAINTENANCE PSNL	0	0	0	9	1	10
COMPANY/OPERATOR MGMT	0	0	0	1	3	4
MANUFACTURER	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
NO PERSON SPECIFIED	0	0	0	1	0	1
MAINTENANCE, SERVICE OF AIRCRAFT	(0)	(1)	(1)	(9)	(1)	(10)
IMPROPER	(0)	(1)	(1)	(7)	(1)	(8)
PILOT IN COMMAND	0	1	1	1	1	2
NO PERSON SPECIFIED	0	0	0	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) MAINTENANCE (Continued) MAINTENANCE, SERVICE OF AIRCRAFT (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
COMPANY MAINTENANCE PSNL	0	0	0	1	0	1
FBO PERSONNEL	0	0	0	1	0	1
COMPANY/OPERATOR MGMT	0	0	0	1	0	1
AIRPORT PERSONNEL	0	0	0	2	0	2
INADEQUATE	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
MAINTENANCE, INSPECTION OF AIRCRAFT	(3)	(2)	(5)	(27)	(5)	(32)
IMPROPER	(0)	(0)	(0)	(2)	(0)	(2)
OTHER MAINTENANCE PSNL	0	0	0	2	0	2
INADEQUATE	(2)	(2)	(4)	(21)	(5)	(26)
NO PERSON SPECIFIED	0	0	0	1	0	1
COMPANY MAINTENANCE PSNL	0	0	0	4	0	4
OTHER MAINTENANCE PSNL	2	1	3	14	4	18
COMPANY/OPERATOR MGMT	0	0	0	1	0	1
MANUFACTURER	0	1	1	0	1	1
OTHER PERSON	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
POOR	(1)	(0)	(1)	(3)	(0)	(3)
OTHER MAINTENANCE PSNL	0	0	0	2	0	2
OTHER PERSON	1	0	1	1	0	1
MAINTENANCE, COMPLIANCE WITH AD	(0)	(0)	(0)	(2)	(1)	(3)
IMPROPER	(0)	(0)	(0)	(1)	(1)	(2)
OTHER MAINTENANCE PSNL	0	0	0	1	1	2
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
MAINTENANCE, ANNUAL INSPECTION	(1)	(4)	(5)	(15)	(8)	(23)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
INADEQUATE	(1)	(1)	(2)	(11)	(3)	(14)
PILOT IN COMMAND	0	0	0	1	0	1
OTHER MAINTENANCE PSNL	1	1	2	10	3	13
INITIATED	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
NOT ATTAINED	(0)	(1)	(1)	(0)	(1)	(1)
OTHER MAINTENANCE PSNL	0	1	1	0	1	1
NOT PERFORMED	(0)	(1)	(1)	(1)	(3)	(4)
PILOT IN COMMAND	0	1	1	0	2	2
COMPANY/OPERATOR MGMT	0	0	0	1	1	2
NOT OBTAINED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
MAINTENANCE, 100 HOUR INSPECTION	(1)	(0)	(1)	(4)	(1)	(5)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
INADEQUATE	(1)	(0)	(1)	(2)	(1)	(3)
NO PERSON SPECIFIED	0	0	0	1	0	1
OTHER MAINTENANCE PSNL	1	0	1	1	1	2
PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
MAINTENANCE, ADJUSTMENT	(2)	(1)	(3)	(9)	(3)	(12)
ABOVE	(0)	(0)	(0)	(0)	(1)	(1)
OTHER MAINTENANCE PSNL	0	0	0	0	1	1
IMPROPER	(2)	(0)	(2)	(8)	(1)	(9)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) MAINTENANCE (Continued) MAINTENANCE, ADJUSTMENT (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
PILOT IN COMMAND	1	0	1	2	0	2
COMPANY MAINTENANCE PSNL	1	0	1	2	0	2
OTHER MAINTENANCE PSNL	0	0	0	4	1	5
NOT ATTAINED	(0)	(1)	(1)	(0)	(1)	(1)
COMPANY MAINTENANCE PSNL	0	1	1	0	1	1
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
MAINTENANCE, ALIGNMENT	(0)	(1)	(1)	(0)	(1)	(1)
IMPROPER	(0)	(1)	(1)	(0)	(1)	(1)
OTHER MAINTENANCE PSNL	0	1	1	0	1	1
MAINTENANCE, INSTALLATION	(6)	(0)	(6)	(28)	(4)	(32)
IMPROPER	(6)	(0)	(6)	(27)	(4)	(31)
PILOT IN COMMAND	3	0	3	8	0	8
NO PERSON SPECIFIED	2	0	2	3	3	6
COMPANY MAINTENANCE PSNL	0	0	0	1	0	1
OTHER MAINTENANCE PSNL	0	0	0	13	1	14
OTHER PERSON	1	0	1	2	0	2
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
MAINTENANCE, LUBRICATION	(1)	(0)	(1)	(6)	(0)	(6)
INADEQUATE	(0)	(0)	(0)	(4)	(0)	(4)
OTHER MAINTENANCE PSNL	0	0	0	4	0	4
NOT PERFORMED	(1)	(0)	(1)	(1)	(0)	(1)
COMPANY MAINTENANCE PSNL	1	0	1	1	0	1
POOR	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	0	0	0	1	0	1
MAINTENANCE, MODIFICATION	(0)	(1)	(1)	(4)	(1)	(5)
IMPROPER	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	1	0	1
OTHER MAINTENANCE PSNL	0	0	0	2	0	2
INADEQUATE	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MAINTENANCE, REPLACEMENT	(0)	(1)	(1)	(10)	(1)	(11)
IMPROPER	(0)	(0)	(0)	(6)	(0)	(6)
PILOT IN COMMAND	0	0	0	1	0	1
OTHER MAINTENANCE PSNL	0	0	0	3	0	3
OTHER PERSON	0	0	0	2	0	2
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
COMPANY MAINTENANCE PSNL	0	0	0	1	0	1
NOT PERFORMED	(0)	(1)	(1)	(3)	(1)	(4)
PILOT IN COMMAND	0	0	0	2	0	2
OTHER MAINTENANCE PSNL	0	1	1	1	1	2
MAINTENANCE, MAJOR REPAIR	(2)	(0)	(2)	(7)	(0)	(7)
IMPROPER	(2)	(0)	(2)	(5)	(0)	(5)
OTHER MAINTENANCE PSNL	1	0	1	4	0	4
OTHER PERSON	1	0	1	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(2)	(0)	(2)
OTHER MAINTENANCE PSNL	0	0	0	2	0	2
MAINTENANCE, RECORDKEEPING	(0)	(0)	(0)	(1)	(0)	(1)
POOR	(0)	(0)	(0)	(1)	(0)	(1)
OTHER PERSON	0	0	0	1	0	1
MAINTENANCE, SERVICE BULLETINS	(1)	(0)	(1)	(2)	(0)	(2)
NOT FOLLOWED	(1)	(0)	(1)	(2)	(0)	(2)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) MAINTENANCE (Continued) MAINTENANCE, SERVICE BULLETINS (Continued) COMPANY MAINTENANCE PBNL OTHER MAINTENANCE PBNL	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
	1	0	1	1	0	1
	0	0	0	1	0	1
MAINTENANCE, OVERHAUL	(0)	(0)	(0)	(4)	(0)	(4)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PBNL	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(2)	(0)	(2)
OTHER MAINTENANCE PBNL	0	0	0	2	0	2
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
OTHER MAINTENANCE PBNL	0	0	0	1	0	1
AIRPORT	(0)	(0)	(0)	(9)	(1)	(10)
RUNWAY MAINTENANCE	(0)	(0)	(0)	(1)	(0)	(1)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
AIRPORT PERSONNEL	0	0	0	1	0	1
AIRPORT SNOW REMOVAL	(0)	(0)	(0)	(2)	(0)	(2)
INADEQUATE	(0)	(0)	(0)	(2)	(0)	(2)
NO PERSON SPECIFIED	0	0	0	1	0	1
AIRPORT PERSONNEL	0	0	0	1	0	1
OTHER AIRPORT/RUNWAY MAINTENANCE	(0)	(0)	(0)	(2)	(1)	(3)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
AIRPORT PERSONNEL	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(1)	(2)
FBO PERSONNEL	0	0	0	1	0	1
AIRPORT PERSONNEL	0	0	0	0	1	1
AIRPORT OPERATIONS	(0)	(0)	(0)	(4)	(0)	(4)
IMPROPER	(0)	(0)	(0)	(2)	(0)	(2)
AIRPORT PERSONNEL	0	0	0	1	0	1
DRIVER OF VEHICLE	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
AIRPORT PERSONNEL	0	0	0	1	0	1
INADVERTENT USE	(0)	(0)	(0)	(1)	(0)	(1)
DRIVER OF VEHICLE	0	0	0	1	0	1
METEOROLOGICAL SERVICE	(7)	(7)	(14)	(23)	(11)	(34)
WEATHER FORECAST	(1)	(1)	(2)	(3)	(2)	(5)
DISREGARDED	(1)	(0)	(1)	(2)	(1)	(3)
PILOT IN COMMAND	1	0	1	2	1	3
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT OBTAINED	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
HAZARDOUS WEATHER ADVISORY	(1)	(0)	(1)	(1)	(0)	(1)
DISREGARDED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
PREFLIGHT BRIEFING SERVICE	(3)	(3)	(6)	(15)	(5)	(20)
DISREGARDED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
INADEQUATE	(1)	(0)	(1)	(1)	(1)	(2)
ATC PERSONNEL (FSS)	1	0	1	1	1	2
NOT OBTAINED	(2)	(3)	(5)	(4)	(4)	(8)
PILOT IN COMMAND	2	3	5	4	4	8
NOT USED	(0)	(0)	(0)	(8)	(0)	(8)
PILOT IN COMMAND	0	0	0	8	0	8
IN FLIGHT BRIEFING SERVICE	(1)	(2)	(3)	(3)	(3)	(6)
NOT FOLLOWED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
METEOROLOGICAL SERVICE (Continued)						
IN FLIGHT BRIEFING SERVICE (Continued)						
NOT OBTAINED	(0)	(1)	(1)	(2)	(1)	(3)
PILOT IN COMMAND	0	1	1	2	1	3
NOT USED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PERFORMED	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
IN FLIGHT WEATHER ADVISORIES	(1)	(1)	(2)	(1)	(1)	(2)
NOT ISSUED	(0)	(1)	(1)	(0)	(1)	(1)
ATC PERSONNEL (DEP/APCH)	0	1	1	0	1	1
NOT OBTAINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
AIRCRAFT HANDLING	(538)	(86)	(624)	(2746)	(784)	(3530)
AIRCRAFT HANDLING	(78)	(5)	(83)	(105)	(11)	(116)
EXCESSIVE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER	(9)	(0)	(9)	(17)	(0)	(17)
PILOT IN COMMAND	9	0	9	17	0	17
INADEQUATE	(3)	(0)	(3)	(5)	(0)	(5)
PILOT IN COMMAND	3	0	3	5	0	5
NOT MAINTAINED	(42)	(1)	(43)	(53)	(1)	(54)
PILOT IN COMMAND	41	1	42	52	1	53
PILOT OF OTHER AIRCRAFT	1	0	1	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(1)	(4)	(5)	(2)	(9)	(11)
PILOT IN COMMAND	1	4	5	2	9	11
UNCONTROLLED	(23)	(0)	(23)	(26)	(1)	(27)
PILOT IN COMMAND	22	0	22	24	1	25
DUAL STUDENT	0	0	0	1	0	1
PASSENGER	1	0	1	1	0	1
AEROBATICS	(16)	(18)	(34)	(21)	(20)	(41)
ATTEMPTED	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
INADVERTENT	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
INTENTIONAL	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
INITIATED	(0)	(2)	(2)	(0)	(2)	(2)
PILOT IN COMMAND	0	2	2	0	2	2
PERFORMED	(13)	(16)	(29)	(17)	(18)	(35)
PILOT IN COMMAND	12	16	28	16	18	34
PILOT IN COMMAND (CFI)	1	0	1	1	0	1
ABORT	(0)	(0)	(0)	(9)	(1)	(10)
ATTEMPTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DELAYED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
IMPROPER	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT PERFORMED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
NOT POSSIBLE	(0)	(0)	(0)	(1)	(1)	(2)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
AIRCRAFT HANDLING (Continued)  
ABORT (Continued)  
PILOT IN COMMAND

FATAL ACCIDENTS  
CAUSE FACTOR TOTAL

ALL ACCIDENTS  
CAUSE FACTOR TOTAL

	0	0	0	1	1	2
ABORTED LANDING	(0)	(6)	(6)	(19)	(39)	(58)
ATTEMPTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DELAYED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
INITIATED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT PERFORMED	(0)	(0)	(0)	(10)	(0)	(10)
PILOT IN COMMAND	0	0	0	10	0	10
NOT SELECTED	(0)	(0)	(0)	(3)	(1)	(4)
PILOT IN COMMAND	0	0	0	3	1	4
PERFORMED	(0)	(6)	(6)	(3)	(37)	(40)
PILOT IN COMMAND	0	5	5	3	34	37
PILOT IN COMMAND(CFI)	0	0	0	0	2	2
PILOT OF OTHER AIRCRAFT	0	1	1	0	1	1
ABORTED TAKEOFF	(4)	(0)	(4)	(70)	(37)	(107)
ATTEMPTED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
DELAYED	(0)	(0)	(0)	(42)	(1)	(43)
PILOT IN COMMAND	0	0	0	40	1	41
PILOT IN COMMAND(CFI)	0	0	0	2	0	2
DISREGARDED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
DUAL STUDENT	0	0	0	1	0	1
INITIATED	(0)	(0)	(0)	(0)	(7)	(7)
PILOT IN COMMAND	0	0	0	0	7	7
NOT PERFORMED	(4)	(0)	(4)	(18)	(3)	(21)
PILOT IN COMMAND	4	0	4	18	3	21
NOT POSSIBLE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PERFORMED	(0)	(0)	(0)	(6)	(24)	(30)
PILOT IN COMMAND	0	0	0	6	22	28
DUAL STUDENT	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
SELECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
AIR SPEED	(78)	(1)	(79)	(290)	(38)	(328)
ABOVE	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
BELOW	(2)	(0)	(2)	(8)	(0)	(8)
PILOT IN COMMAND	2	0	2	7	0	7
DUAL STUDENT	0	0	0	1	0	1
CONTINUED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
EXCEEDED	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
EXCESSIVE	(2)	(0)	(2)	(29)	(4)	(33)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
AIRCRAFT HANDLING (Continued)  
AIRSPEED (Continued)

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
PILOT IN COMMAND	2	0	2	29	3	32
COPILOT	0	0	0	0	1	1
IMPROPER	(0)	(0)	(0)	(4)	(0)	(4)
PILOT IN COMMAND	0	0	0	4	0	4
INADEQUATE	(12)	(0)	(12)	(32)	(8)	(40)
PILOT IN COMMAND	12	0	12	31	4	35
NO PERSON SPECIFIED	0	0	0	0	4	4
DUAL STUDENT	0	0	0	1	0	1
MISJUDGED	(3)	(1)	(4)	(71)	(18)	(89)
PILOT IN COMMAND	3	1	4	68	17	85
COPILOT	0	0	0	0	1	1
DUAL STUDENT	0	0	0	2	0	2
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(9)	(1)	(10)
PILOT IN COMMAND	0	0	0	9	1	10
NOT MAINTAINED	(53)	(0)	(53)	(124)	(1)	(125)
PILOT IN COMMAND	49	0	49	118	1	119
COPILOT	0	0	0	1	0	1
DUAL STUDENT	4	0	4	5	0	5
NOT OBTAINED	(3)	(0)	(3)	(6)	(0)	(6)
PILOT IN COMMAND	2	0	2	5	0	5
UNQUALIFIED PERSON	1	0	1	1	0	1
NOT POSSIBLE	(1)	(0)	(1)	(1)	(3)	(4)
PILOT IN COMMAND	1	0	1	1	3	4
REDUCED	(0)	(0)	(0)	(1)	(2)	(3)
PILOT IN COMMAND	0	0	0	1	2	3
AIRSPEED(VLOF)	(0)	(0)	(0)	(2)	(0)	(2)
BELOW	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
AIRSPEED(VMC)	(9)	(0)	(9)	(10)	(0)	(10)
BELOW	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
NOT MAINTAINED	(6)	(0)	(6)	(7)	(0)	(7)
PILOT IN COMMAND	6	0	6	7	0	7
NOT POSSIBLE	(1)	(0)	(1)	(1)	(0)	(1)
UNQUALIFIED PERSON	1	0	1	1	0	1
AIRSPEED(VYSE)	(0)	(0)	(0)	(1)	(0)	(1)
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
AIRSPEED(VS)	(2)	(0)	(2)	(5)	(1)	(6)
NOT MAINTAINED	(2)	(0)	(2)	(4)	(1)	(5)
PILOT IN COMMAND	2	0	2	3	1	4
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
AIRSPEED(VSO)	(0)	(0)	(0)	(2)	(0)	(2)
NOT MAINTAINED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
DUAL STUDENT	0	0	0	1	0	1
AIRSPEED(VA)	(1)	(0)	(1)	(1)	(0)	(1)
ABOVE	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
ALTITUDE	(52)	(0)	(52)	(135)	(4)	(139)



CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)

HUMAN PERFORMANCE (Continued)

OPERATIONS (Continued)

AIRCRAFT HANDLING (Continued)

ALTITUDE (Continued)

ABOVE

PILOT IN COMMAND

FATAL ACCIDENTS			ALL ACCIDENTS		
CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1

BELOW

PILOT IN COMMAND

PILOT IN COMMAND(CFI)

(2)	(0)	(2)	(3)	(0)	(3)
1	0	1	2	0	2
1	0	1	1	0	1

EXCEEDED

PILOT IN COMMAND

(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1

EXCESSIVE

PILOT IN COMMAND

(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1

IMPROPER

PILOT IN COMMAND

(2)	(0)	(2)	(4)	(0)	(4)
2	0	2	4	0	4

INADEQUATE

PILOT IN COMMAND

COPILOT

(21)	(0)	(21)	(31)	(0)	(31)
20	0	20	30	0	30
1	0	1	1	0	1

MISJUDGED

PILOT IN COMMAND

DUAL STUDENT

PILOT IN COMMAND(CFI)

(16)	(0)	(16)	(70)	(4)	(74)
16	0	16	62	2	64
0	0	0	7	2	9
0	0	0	1	0	1

NOT ATTAINED

PILOT IN COMMAND

(1)	(0)	(1)	(2)	(0)	(2)
1	0	1	2	0	2

NOT MAINTAINED

PILOT IN COMMAND

(9)	(0)	(9)	(21)	(0)	(21)
9	0	9	21	0	21

UNCONTROLLED

PILOT IN COMMAND

(1)	(0)	(1)	(1)	(0)	(1)
1	0	1	1	0	1

PROPER ALTITUDE

BELOW

PILOT IN COMMAND

(61)	(2)	(63)	(103)	(4)	(107)
(2)	(0)	(2)	(2)	(0)	(2)
2	0	2	2	0	2

EXCEEDED

PILOT IN COMMAND

(0)	(1)	(1)	(0)	(1)	(1)
0	1	1	0	1	1

NOT ATTAINED

PILOT IN COMMAND

(1)	(0)	(1)	(1)	(0)	(1)
1	0	1	1	0	1

NOT FOLLOWED

PILOT IN COMMAND

(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1

NOT MAINTAINED

PILOT IN COMMAND

PILOT IN COMMAND(CFI)

UNQUALIFIED PERSON

(55)	(1)	(56)	(96)	(3)	(99)
54	1	55	93	3	96
1	0	1	2	0	2
0	0	0	1	0	1

NOT OBTAINED

PILOT IN COMMAND

(1)	(0)	(1)	(1)	(0)	(1)
1	0	1	1	0	1

NOT SELECTED

PILOT IN COMMAND

(2)	(0)	(2)	(2)	(0)	(2)
2	0	2	2	0	2

AUTOROTATION

ATTEMPTED

PILOT IN COMMAND

(1)	(2)	(3)	(6)	(40)	(46)
(0)	(0)	(0)	(0)	(1)	(1)
0	0	0	0	1	1

IMPROPER

PILOT IN COMMAND

(0)	(0)	(0)	(2)	(0)	(2)
0	0	0	2	0	2

INADVERTENT

PILOT IN COMMAND

(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1

INITIATED

PILOT IN COMMAND

(0)	(0)	(0)	(0)	(1)	(1)
0	0	0	0	1	1

NOT ATTAINED

(1)	(0)	(1)	(1)	(0)	(1)
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**CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983**

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) AIRCRAFT HANDLING (Continued) AUTOROTATION (Continued) COPILOT	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
	1	0	1	1	0	1
NOT POSSIBLE	(0)	(1)	(1)	(0)	(2)	(2)
PILOT IN COMMAND	0	1	1	0	2	2
PERFORMED	(0)	(1)	(1)	(2)	(32)	(34)
PILOT IN COMMAND	0	1	1	2	29	31
DUAL STUDENT	0	0	0	0	2	2
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
SIMULATED	(0)	(0)	(0)	(0)	(4)	(4)
PILOT IN COMMAND	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	0	3	3
BUZZING	(11)	(2)	(13)	(18)	(4)	(22)
INTENTIONAL	(3)	(0)	(3)	(4)	(0)	(4)
PILOT IN COMMAND	3	0	3	4	0	4
PERFORMED	(8)	(2)	(10)	(14)	(4)	(18)
PILOT IN COMMAND	8	2	10	14	3	17
NO PERSON SPECIFIED	0	0	0	0	1	1
DECISION HEIGHT	(5)	(0)	(5)	(7)	(0)	(7)
BELOW	(2)	(0)	(2)	(3)	(0)	(3)
PILOT IN COMMAND	2	0	2	3	0	3
DISREGARDED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
NOT ATTAINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT IDENTIFIED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
DISTANCE	(7)	(1)	(8)	(154)	(22)	(176)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(4)	(1)	(5)
PILOT IN COMMAND	0	0	0	3	0	3
PILOT IN COMMAND(CFI)	0	0	0	1	1	2
MISJUDGED	(7)	(1)	(8)	(147)	(21)	(168)
PILOT IN COMMAND	7	1	8	140	18	158
COPILOT	0	0	0	0	1	1
DUAL STUDENT	0	0	0	6	2	8
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT OBTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DESCENT	(1)	(0)	(1)	(6)	(0)	(6)
EXCEEDED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT CORRECTED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
PREMATURE	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
UNCONTROLLED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)

HUMAN PERFORMANCE (Continued)

OPERATIONS (Continued)

AIRCRAFT HANDLING (Continued)

PROPER DESCENT RATE

EXCEEDED

PILOT IN COMMAND

DUAL STUDENT

FAA INSPECTOR

EXCESSIVE

PILOT IN COMMAND

NOT ATTAINED

PILOT IN COMMAND

NOT MAINTAINED

PILOT IN COMMAND

UNQUALIFIED PERSON

NOT OBTAINED

DUAL STUDENT

NOT POSSIBLE

PILOT IN COMMAND

DUAL STUDENT

CLEARANCE

ATTEMPTED

PILOT IN COMMAND

IMPROPER

PILOT IN COMMAND

INADEQUATE

PILOT IN COMMAND

MISJUDGED

PILOT IN COMMAND

NOT ATTAINED

PILOT IN COMMAND

NOT IDENTIFIED

OTHER CREW MEMBER

NOT MAINTAINED

PILOT IN COMMAND

PILOT OF OTHER AIRCRAFT

DRIVER OF VEHICLE

NOT OBTAINED

PILOT IN COMMAND

PILOT IN COMMAND(CFI)

NOT POSSIBLE

PILOT IN COMMAND

CLIMB

CONTINUED

PILOT IN COMMAND

EXCESSIVE

PILOT IN COMMAND

INADEQUATE

PILOT IN COMMAND(CFI)

CHECK PILOT

INITIATED

PILOT IN COMMAND

NOT MAINTAINED

PILOT IN COMMAND

NOT POSSIBLE

PILOT IN COMMAND

FATAL ACCIDENTS  
CAUSE FACTOR TOTAL

ALL ACCIDENTS  
CAUSE FACTOR TOTAL

(0)	(0)	(0)	(24)	(3)	(27)
(0)	(0)	(0)	(4)	(0)	(4)
0	0	0	2	0	2
0	0	0	1	0	1
0	0	0	1	0	1
(0)	(0)	(0)	(2)	(0)	(2)
0	0	0	2	0	2
(0)	(0)	(0)	(0)	(1)	(1)
0	0	0	0	1	1
(0)	(0)	(0)	(16)	(1)	(17)
0	0	0	15	1	16
0	0	0	1	0	1
(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1
(0)	(0)	(0)	(1)	(1)	(2)
0	0	0	1	0	1
0	0	0	0	1	1
(33)	(0)	(33)	(144)	(1)	(145)
(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1
(1)	(0)	(1)	(7)	(0)	(7)
1	0	1	7	0	7
(3)	(0)	(3)	(19)	(0)	(19)
3	0	3	19	0	19
(14)	(0)	(14)	(56)	(0)	(56)
14	0	14	56	0	56
(0)	(0)	(0)	(5)	(0)	(5)
0	0	0	5	0	5
(0)	(0)	(0)	(1)	(0)	(1)
0	0	0	1	0	1
(15)	(0)	(15)	(50)	(0)	(50)
15	0	15	47	0	47
0	0	0	2	0	2
0	0	0	1	0	1
(0)	(0)	(0)	(2)	(0)	(2)
0	0	0	1	0	1
0	0	0	1	0	1
(0)	(0)	(0)	(3)	(1)	(4)
0	0	0	3	1	4
(1)	(2)	(3)	(7)	(4)	(13)
(0)	(0)	(0)	(0)	(1)	(1)
0	0	0	0	1	1
(0)	(2)	(2)	(0)	(2)	(2)
0	2	2	0	2	2
(0)	(0)	(0)	(2)	(0)	(2)
0	0	0	1	0	1
0	0	0	1	0	1
(0)	(0)	(0)	(0)	(1)	(1)
0	0	0	0	1	1
(1)	(0)	(1)	(2)	(1)	(3)
1	0	1	2	1	3
(0)	(0)	(0)	(1)	(1)	(2)
0	0	0	1	1	2

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
AIRCRAFT HANDLING (Continued)						
CLIMB (Continued)						
PREMATURE						
PILOT IN COMMAND	(0)	(0)	(0)	(2)	(0)	(2)
	0	0	0	2	0	2
PROPER CLIMB RATE						
INADEQUATE						
PILOT IN COMMAND	(6)	(0)	(6)	(22)	(11)	(33)
	(1)	(0)	(1)	(1)	(0)	(1)
	1	0	1	1	0	1
NOT ATTAINED						
PILOT IN COMMAND	(3)	(0)	(3)	(12)	(0)	(12)
	3	0	3	11	0	11
DUAL STUDENT	(0)	(0)	(0)	1	(0)	1
	0	0	0	1	0	1
NOT FOLLOWED						
PILOT IN COMMAND	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
NOT MAINTAINED						
PILOT IN COMMAND	(2)	(0)	(2)	(6)	(0)	(6)
	2	0	2	6	0	6
NOT OBTAINED						
PILOT IN COMMAND	(0)	(0)	(0)	(2)	(0)	(2)
	0	0	0	2	0	2
NOT POSSIBLE						
PILOT IN COMMAND	(0)	(0)	(0)	(0)	(10)	(10)
	0	0	0	0	8	8
NO PERSON SPECIFIED	(0)	(0)	(0)	(0)	1	1
	0	0	0	0	1	1
DUAL STUDENT	(0)	(0)	(0)	(0)	1	1
	0	0	0	0	1	1
SELECTED						
PILOT IN COMMAND	(0)	(0)	(0)	(0)	(1)	(1)
	0	0	0	0	1	1
MINIMUM DESCENT ALTITUDE						
BELOW						
PILOT IN COMMAND	(5)	(0)	(5)	(8)	(1)	(9)
	(2)	(0)	(2)	(2)	(1)	(3)
	2	0	2	2	1	3
NOT IDENTIFIED						
PILOT IN COMMAND	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
NOT MAINTAINED						
PILOT IN COMMAND	(3)	(0)	(3)	(5)	(0)	(5)
	3	0	3	5	0	5
PROPER ALIGNMENT						
MISJUDGED						
PILOT IN COMMAND	(3)	(1)	(4)	(78)	(13)	(91)
	(0)	(0)	(0)	(2)	(0)	(2)
DUAL STUDENT	(0)	(0)	(0)	1	(0)	1
	0	0	0	1	0	1
NOT ATTAINED						
PILOT IN COMMAND	(0)	(0)	(0)	(11)	(0)	(11)
	0	0	0	11	0	11
NOT CORRECTED						
PILOT IN COMMAND(CFI)	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
NOT FOLLOWED						
PILOT IN COMMAND	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
NOT MAINTAINED						
PILOT IN COMMAND	(3)	(1)	(4)	(62)	(9)	(71)
	3	1	4	61	8	69
NO PERSON SPECIFIED	(0)	(0)	(0)	(0)	1	1
	0	0	0	1	0	1
DUAL STUDENT	(0)	(0)	(0)	(0)	1	1
	0	0	0	0	1	1
NOT PERFORMED						
PILOT IN COMMAND	(0)	(0)	(0)	(0)	(1)	(1)
	0	0	0	0	1	1
NOT OBTAINED						
PILOT IN COMMAND	(0)	(0)	(0)	(1)	(0)	(1)
	0	0	0	1	0	1
NOT POSSIBLE						
PILOT IN COMMAND	(0)	(0)	(0)	(0)	(3)	(3)
	0	0	0	0	3	3
PROPER TOUCHDOWN POINT						
EXCEEDED						
PILOT IN COMMAND	(1)	(0)	(1)	(54)	(3)	(57)
	(1)	(0)	(1)	(32)	(0)	(32)
DUAL STUDENT	1	0	1	30	0	30
	0	0	0	2	0	2
EXCESSIVE						
	(0)	(0)	(0)	(1)	(0)	(1)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
AIRCRAFT HANDLING (Continued)  
PROPER TOUCHDOWN POINT (Continued)  
PILOT IN COMMAND

FATAL ACCIDENTS  
CAUSE FACTOR TOTAL

ALL ACCIDENTS  
CAUSE FACTOR TOTAL

	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(5)	(0)	(5)
PILOT IN COMMAND	0	0	0	5	0	5
NOT ATTAINED	(0)	(0)	(0)	(16)	(3)	(19)
PILOT IN COMMAND	0	0	0	16	3	19
PROPER GLIDEPATH	(0)	(0)	(0)	(10)	(3)	(13)
MISJUDGED	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
NOT FOLLOWED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(0)	(0)	(0)	(7)	(1)	(8)
PILOT IN COMMAND	0	0	0	6	1	7
UNQUALIFIED PERSON	0	0	0	1	0	1
NOT OBTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
LIFT-OFF	(3)	(2)	(5)	(24)	(9)	(33)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADVERTENT	(1)	(1)	(2)	(2)	(3)	(5)
PILOT IN COMMAND	1	1	2	1	3	4
GROUND PERSONNEL	0	0	0	1	0	1
INITIATED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(0)	(0)	(0)	(4)	(1)	(5)
PILOT IN COMMAND	0	0	0	4	1	5
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PREMATURE	(2)	(1)	(3)	(14)	(4)	(18)
PILOT IN COMMAND	1	1	2	10	3	13
NO PERSON SPECIFIED	0	0	0	0	1	1
DUAL STUDENT	0	0	0	3	0	3
UNQUALIFIED PERSON	1	0	1	1	0	1
LEVEL OFF	(0)	(0)	(0)	(18)	(6)	(24)
IMPROPER	(0)	(0)	(0)	(12)	(4)	(16)
PILOT IN COMMAND	0	0	0	11	4	15
DUAL STUDENT	0	0	0	1	0	1
MISJUDGED	(0)	(0)	(0)	(3)	(1)	(4)
PILOT IN COMMAND	0	0	0	3	1	4
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(0)	(1)	(1)
NO PERSON SPECIFIED	0	0	0	0	1	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
AIRCRAFT HANDLING (Continued)						
FLARE	(3)	(0)	(3)	(154)	(6)	(160)
DELAYED	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
IMPROPER	(1)	(0)	(1)	(100)	(2)	(102)
PILOT IN COMMAND	0	0	0	95	2	97
COPILOT	0	0	0	1	0	1
DUAL STUDENT	1	0	1	3	0	3
ATC PERSONNEL (ARTCC)	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
MISJUDGED	(0)	(0)	(0)	(40)	(2)	(42)
PILOT IN COMMAND	0	0	0	38	2	40
COPILOT	0	0	0	1	0	1
DUAL STUDENT	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
NOT MAINTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT OBTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(1)	(0)	(1)	(6)	(1)	(7)
PILOT IN COMMAND	0	0	0	4	1	5
COPILOT	1	0	1	1	0	1
UNQUALIFIED PERSON	0	0	0	1	0	1
GO-AROUND	(12)	(4)	(16)	(144)	(60)	(204)
ATTEMPTED	(1)	(0)	(1)	(3)	(7)	(10)
PILOT IN COMMAND	1	0	1	3	7	10
DELAYED	(9)	(0)	(9)	(57)	(3)	(60)
PILOT IN COMMAND	9	0	9	53	3	56
PILOT IN COMMAND (CFI)	0	0	0	4	0	4
IMPROPER	(2)	(0)	(2)	(5)	(0)	(5)
PILOT IN COMMAND	2	0	2	5	0	5
INTENTIONAL	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
INITIATED	(0)	(3)	(3)	(3)	(34)	(37)
PILOT IN COMMAND	0	2	2	3	31	34
DUAL STUDENT	0	0	0	0	1	1
PILOT IN COMMAND (CFI)	0	0	0	0	1	1
PILOT OF OTHER AIRCRAFT	0	1	1	0	1	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(59)	(13)	(72)
PILOT IN COMMAND	0	0	0	58	11	69
NO PERSON SPECIFIED	0	0	0	0	2	2
PILOT IN COMMAND (CFI)	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT SELECTED	(0)	(0)	(0)	(8)	(0)	(8)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)

HUMAN PERFORMANCE (Continued)

OPERATIONS (Continued)

AIRCRAFT HANDLING (Continued)

GO-AROUND (Continued)

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
PILOT IN COMMAND	0	0	0	8	0	8
PERFORMED	(0)	(1)	(1)	(3)	(2)	(5)
PILOT IN COMMAND	0	1	1	3	2	5
POOR	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
GROUND LOOP/SWERVE	(0)	(0)	(0)	(195)	(102)	(297)
INADVERTENT	(0)	(0)	(0)	(57)	(50)	(107)
PILOT IN COMMAND	0	0	0	53	48	101
NO PERSON SPECIFIED	0	0	0	0	1	1
COPILOT	0	0	0	1	0	1
DUAL STUDENT	0	0	0	2	0	2
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
INTENTIONAL	(0)	(0)	(0)	(5)	(5)	(10)
PILOT IN COMMAND	0	0	0	5	5	10
INITIATED	(0)	(0)	(0)	(0)	(3)	(3)
PILOT IN COMMAND	0	0	0	0	2	2
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
NOT CORRECTED	(0)	(0)	(0)	(75)	(2)	(77)
PILOT IN COMMAND	0	0	0	72	1	73
DUAL STUDENT	0	0	0	2	1	3
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT USED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PERFORMED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
UNCONTROLLED	(0)	(0)	(0)	(56)	(40)	(96)
PILOT IN COMMAND	0	0	0	55	36	91
NO PERSON SPECIFIED	0	0	0	0	3	3
DUAL STUDENT	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
DESIGN STRESS LIMITS OF AIRCRAFT	(20)	(0)	(20)	(24)	(0)	(24)
EXCEEDED	(20)	(0)	(20)	(23)	(0)	(23)
PILOT IN COMMAND	19	0	19	22	0	22
NO PERSON SPECIFIED	1	0	1	1	0	1
INACCURATE	(0)	(0)	(0)	(1)	(0)	(1)
PRODUCTION/DESIGN PSNL	0	0	0	1	0	1
DIRECTIONAL CONTROL	(5)	(1)	(6)	(342)	(54)	(396)
INADEQUATE	(0)	(0)	(0)	(1)	(2)	(3)
PILOT IN COMMAND	0	0	0	1	1	2
NO PERSON SPECIFIED	0	0	0	0	1	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT MAINTAINED	(5)	(0)	(5)	(316)	(15)	(331)
PILOT IN COMMAND	4	0	4	298	15	313
COPILOT	0	0	0	2	0	2
DUAL STUDENT	1	0	1	11	0	11
PILOT IN COMMAND(CFI)	0	0	0	2	0	2
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
AIRCRAFT HANDLING (Continued)						
DIRECTIONAL CONTROL (Continued)						
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
UNQUALIFIED PERSON	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
NOT OBTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(21)	(32)	(53)
PILOT IN COMMAND	0	0	0	20	31	51
DUAL STUDENT	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
REDUCED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	1	1
NO PERSON SPECIFIED	0	0	0	0	1	1
UNCONTROLLED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
LOAD JETTISON	(1)	(1)	(2)	(14)	(16)	(30)
ATTEMPTED	(0)	(0)	(0)	(2)	(1)	(3)
PILOT IN COMMAND	0	0	0	2	1	3
DELAYED	(0)	(0)	(0)	(5)	(0)	(5)
PILOT IN COMMAND	0	0	0	5	0	5
INADVERTENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT PERFORMED	(1)	(1)	(2)	(2)	(4)	(6)
PILOT IN COMMAND	1	1	2	2	4	6
NOT POSSIBLE	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
PERFORMED	(0)	(0)	(0)	(3)	(9)	(12)
PILOT IN COMMAND	0	0	0	3	9	12
LOW PASS	(6)	(13)	(19)	(19)	(27)	(46)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INITIATED	(1)	(3)	(4)	(1)	(3)	(4)
PILOT IN COMMAND	1	3	4	1	3	4
PERFORMED	(5)	(10)	(15)	(17)	(24)	(41)
PILOT IN COMMAND	5	9	14	17	23	40
COPILLOT	0	1	1	0	1	1
REMEDIAL ACTION	(12)	(0)	(12)	(64)	(6)	(70)
ATTEMPTED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
CONTINUED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DELAYED	(3)	(0)	(3)	(17)	(0)	(17)
PILOT IN COMMAND	2	0	2	6	0	6
DUAL STUDENT	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	1	0	1	10	0	10
IMPROPER	(3)	(0)	(3)	(12)	(0)	(12)
PILOT IN COMMAND	3	0	3	12	0	12
INACCURATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(5)	(0)	(5)	(19)	(2)	(21)



CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
AIRCRAFT HANDLING (Continued)						
REMEDIAL ACTION (Continued)						
PILOT IN COMMAND	4	0	4	14	1	15
PILOT IN COMMAND(CFI)	1	0	1	5	0	5
PASSENGER	0	0	0	0	1	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT PERFORMED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT UNDERSTOOD	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(3)	(1)	(4)
PILOT IN COMMAND	0	0	0	3	0	3
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
NOT USED	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
PERFORMED	(0)	(0)	(0)	(1)	(2)	(3)
PILOT IN COMMAND	0	0	0	0	2	2
COPILOT	0	0	0	1	0	1
PREMATURE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MANEUVER	(9)	(5)	(14)	(22)	(37)	(59)
ATTEMPTED	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
DELAYED	(1)	(0)	(1)	(1)	(0)	(1)
COPILOT	1	0	1	1	0	1
EXCESSIVE	(2)	(1)	(3)	(4)	(1)	(5)
PILOT IN COMMAND	2	0	2	4	0	4
NO PERSON SPECIFIED	0	1	1	0	1	1
IMPROPER	(4)	(0)	(4)	(8)	(0)	(8)
PILOT IN COMMAND	4	0	4	8	0	8
INACCURATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INITIATED	(0)	(2)	(2)	(0)	(7)	(7)
PILOT IN COMMAND	0	2	2	0	7	7
MISJUDGED	(1)	(0)	(1)	(3)	(0)	(3)
PILOT IN COMMAND	1	0	1	3	0	3
NOT PERFORMED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
NOT POSSIBLE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PERFORMED	(1)	(1)	(2)	(4)	(25)	(29)
PILOT IN COMMAND	1	1	2	4	23	27
NO PERSON SPECIFIED	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
UNCONTROLLED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISSED APPROACH	(3)	(2)	(5)	(5)	(3)	(8)
DELAYED	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
AIRCRAFT HANDLING (Continued)						
MISSED APPROACH (Continued)						
INITIATED	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
NOT PERFORMED	(2)	(0)	(2)	(2)	(1)	(3)
PILOT IN COMMAND	1	0	1	1	1	2
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
PERFORMED	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	1	1	1	1	2
EMERGENCY PROCEDURE	(7)	(4)	(11)	(34)	(28)	(62)
ATTEMPTED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
DELAYED	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
IMPROPER	(6)	(0)	(6)	(15)	(1)	(16)
PILOT IN COMMAND	6	0	6	15	1	16
INTENTIONAL	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
INADEQUATE	(0)	(1)	(1)	(4)	(2)	(6)
PILOT IN COMMAND	0	1	1	4	2	6
INITIATED	(0)	(1)	(1)	(0)	(5)	(5)
PILOT IN COMMAND	0	1	1	0	5	5
NOT FOLLOWED	(0)	(0)	(0)	(5)	(1)	(6)
PILOT IN COMMAND	0	0	0	4	1	5
DUAL STUDENT	0	0	0	1	0	1
NOT PERFORMED	(1)	(0)	(1)	(3)	(0)	(3)
PILOT IN COMMAND	1	0	1	3	0	3
NOT UNDERSTOOD	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
PERFORMED	(0)	(0)	(0)	(1)	(4)	(5)
PILOT IN COMMAND	0	0	0	1	4	5
SIMULATED	(0)	(2)	(2)	(1)	(14)	(15)
PILOT IN COMMAND	0	1	1	0	6	6
PILOT IN COMMAND(CFI)	0	0	0	1	7	8
OTHER CREW MEMBER	0	1	1	0	1	1
PRECAUTIONARY LANDING	(0)	(2)	(2)	(8)	(55)	(63)
ATTEMPTED	(0)	(0)	(0)	(1)	(3)	(4)
PILOT IN COMMAND	0	0	0	1	3	4
INITIATED	(0)	(0)	(0)	(0)	(4)	(4)
PILOT IN COMMAND	0	0	0	0	4	4
PERFORMED	(0)	(2)	(2)	(7)	(38)	(45)
PILOT IN COMMAND	0	2	2	7	36	43
DUAL STUDENT	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
SELECTED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
SIMULATED	(0)	(0)	(0)	(0)	(8)	(8)
PILOT IN COMMAND	0	0	0	0	3	3
DUAL STUDENT	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	0	4	4
PULL-UP	(2)	(1)	(3)	(3)	(3)	(6)
DELAYED	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
EXCESSIVE	(1)	(0)	(1)	(1)	(0)	(1)

**CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983**

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)  
HUMAN PERFORMANCE (Continued)  
OPERATIONS (Continued)  
AIRCRAFT HANDLING (Continued)  
PULL-UP (Continued)

**FATAL ACCIDENTS  
CAUSE FACTOR TOTAL**      **ALL ACCIDENTS  
CAUSE FACTOR TOTAL**

PILOT IN COMMAND	1	0	1	1	0	1
INADVERTENT	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
PERFORMED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
ROTATION	(0)	(0)	(0)	(2)	(0)	(2)
NOT MAINTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PREMATURE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
STARTING PROCEDURE	(0)	(0)	(0)	(6)	(0)	(6)
IMPROPER	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
INADVERTENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PREMATURE	(0)	(0)	(0)	(1)	(0)	(1)
DUAL STUDENT	0	0	0	1	0	1
SPIRAL	(2)	(0)	(2)	(3)	(0)	(3)
INADVERTENT	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
UNCONTROLLED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
STALL	(43)	(5)	(48)	(124)	(29)	(153)
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADVERTENT	(32)	(4)	(36)	(90)	(22)	(112)
PILOT IN COMMAND	30	4	34	84	21	105
NO PERSON SPECIFIED	1	0	1	1	1	2
COPILOT	0	0	0	1	0	1
DUAL STUDENT	1	0	1	3	0	3
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
INTENTIONAL	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT CORRECTED	(3)	(0)	(3)	(8)	(0)	(8)
PILOT IN COMMAND	3	0	3	7	0	7
COPILOT	0	0	0	1	0	1
NOT MAINTAINED	(1)	(0)	(1)	(1)	(0)	(1)
DUAL STUDENT	1	0	1	1	0	1
PERFORMED	(1)	(1)	(2)	(2)	(1)	(3)
PILOT IN COMMAND	1	1	2	2	1	3
UNCONTROLLED	(6)	(0)	(6)	(22)	(5)	(27)
PILOT IN COMMAND	6	0	6	22	5	27
STALL/SPIN	(28)	(3)	(31)	(38)	(6)	(44)
INADVERTENT	(16)	(1)	(17)	(25)	(4)	(29)
PILOT IN COMMAND	15	1	16	24	4	28
PILOT IN COMMAND(CFI)	1	0	1	1	0	1
INTENTIONAL	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
NOT CORRECTED	(5)	(0)	(5)	(6)	(0)	(6)
PILOT IN COMMAND	4	0	4	5	0	5
PILOT IN COMMAND(CFI)	1	0	1	1	0	1

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
AIRCRAFT HANDLING (Continued)						
STALL/SPIN (Continued)						
UNCONTROLLED	(7)	(1)	(8)	(7)	(1)	(8)
PILOT IN COMMAND	6	1	7	6	1	7
UNQUALIFIED PERSON	1	0	1	1	0	1
STALL/MUSH	(5)	(0)	(5)	(48)	(16)	(64)
NO MODIFIER SPECIFIED	(0)	(0)	(0)	(0)	(1)	(1)
NO PERSON SPECIFIED	0	0	0	0	1	1
IMPROPER USE OF	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADVERTENT	(4)	(0)	(4)	(35)	(11)	(46)
PILOT IN COMMAND	4	0	4	33	11	44
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
NOT CORRECTED	(1)	(0)	(1)	(8)	(1)	(9)
PILOT IN COMMAND	1	0	1	8	1	9
UNCONTROLLED	(0)	(0)	(0)	(4)	(3)	(7)
PILOT IN COMMAND	0	0	0	4	3	7
WATER LOOP/SWERVE	(0)	(0)	(0)	(1)	(0)	(1)
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
WHEELS DOWN LANDING IN WATER	(1)	(0)	(1)	(2)	(0)	(2)
INADVERTENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PERFORMED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
WHEELS UP LANDING	(0)	(0)	(0)	(26)	(25)	(51)
INADVERTENT	(0)	(0)	(0)	(15)	(6)	(21)
PILOT IN COMMAND	0	0	0	10	6	16
DUAL STUDENT	0	0	0	5	0	5
INTENTIONAL	(0)	(0)	(0)	(2)	(5)	(7)
PILOT IN COMMAND	0	0	0	2	5	7
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
UNQUALIFIED PERSON	0	0	0	1	0	1
PERFORMED	(0)	(0)	(0)	(8)	(14)	(22)
PILOT IN COMMAND	0	0	0	7	14	21
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
POWER ON LANDING	(0)	(0)	(0)	(0)	(1)	(1)
PERFORMED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
ROTOR RPM	(1)	(0)	(1)	(12)	(2)	(14)
NOT MAINTAINED	(1)	(0)	(1)	(12)	(0)	(12)
PILOT IN COMMAND	1	0	1	12	0	12
NOT POSSIBLE	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	1	1
NO PERSON SPECIFIED	0	0	0	0	1	1
RUN ON LANDING	(0)	(0)	(0)	(1)	(3)	(4)
PERFORMED	(0)	(0)	(0)	(1)	(3)	(4)
PILOT IN COMMAND	0	0	0	1	3	4
RUNNING TAKEOFF	(0)	(0)	(0)	(1)	(0)	(1)
PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
DUAL STUDENT	0	0	0	1	0	1
VERTICAL TAKEOFF	(0)	(0)	(0)	(0)	(1)	(1)
INITIATED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
RECOVERY FROM BOUNCED LANDING	(0)	(0)	(0)	(100)	(5)	(105)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) AIRCRAFT HANDLING (Continued) RECOVERY FROM BOUNCED LANDING (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
DELAYED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DISREGARDED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER	(0)	(0)	(0)	(87)	(4)	(91)
PILOT IN COMMAND	0	0	0	85	4	89
DUAL STUDENT	0	0	0	2	0	2
INADEQUATE	(0)	(0)	(0)	(6)	(0)	(6)
PILOT IN COMMAND	0	0	0	5	0	5
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
INITIATED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
MISJUDGED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT POSSIBLE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT USED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PERFORMED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
TOUCH-AND-GO LANDING	(0)	(3)	(3)	(1)	(22)	(23)
CONTINUED	(0)	(2)	(2)	(0)	(3)	(3)
PILOT IN COMMAND	0	1	1	0	2	2
PILOT OF OTHER AIRCRAFT	0	1	1	0	1	1
INITIATED	(0)	(0)	(0)	(0)	(10)	(10)
PILOT IN COMMAND	0	0	0	0	9	9
DUAL STUDENT	0	0	0	0	1	1
PERFORMED	(0)	(1)	(1)	(1)	(9)	(10)
PILOT IN COMMAND	0	1	1	1	8	9
DUAL STUDENT	0	0	0	0	1	1
COMMUNICATIONS/INFORMATION/ATC	(20)	(8)	(28)	(134)	(35)	(169)
COMMUNICATIONS/INFORMATION/ATC	(0)	(0)	(0)	(2)	(2)	(4)
DELAYED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER USE OF	(0)	(0)	(0)	(0)	(1)	(1)
PILOT OF OTHER AIRCRAFT	0	0	0	0	1	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT UNDERSTOOD	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
INTERPRETATION OF INSTRUCTIONS	(1)	(0)	(1)	(2)	(0)	(2)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
GROUND PERSONNEL	0	0	0	1	0	1
NOT UNDERSTOOD	(1)	(0)	(1)	(1)	(0)	(1)
PASSENGER	1	0	1	1	0	1
INSTRUCTIONS, WRITTEN/VERBAL	(2)	(1)	(3)	(7)	(3)	(10)
INACCURATE	(0)	(1)	(1)	(0)	(1)	(1)
ATC PSNL(LCL/BND/CLNC)	0	1	1	0	1	1
INADEQUATE	(1)	(0)	(1)	(4)	(0)	(4)
PILOT IN COMMAND	1	0	1	3	0	3

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
1983

AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) COMMUNICATIONS/INFORMATION/ATC (Continued) INSTRUCTIONS, WRITTEN/VERBAL (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
NOT FOLLOWED	(1)	(0)	(1)	(2)	(0)	(2)
OTHER MAINTENANCE PSNL	1	0	1	1	0	1
PASSENGER	0	0	0	1	0	1
NOT UNDERSTOOD	(0)	(0)	(0)	(1)	(2)	(3)
PILOT IN COMMAND	0	0	0	0	1	1
PILOT OF OTHER AIRCRAFT	0	0	0	1	1	2
IDENTIFICATION OF AIRCRAFT VISUALLY	(0)	(0)	(0)	(0)	(1)	(1)
NOT MAINTAINED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
ARTCC SERVICE	(1)	(0)	(1)	(2)	(0)	(2)
IMPROPER	(1)	(0)	(1)	(1)	(0)	(1)
ATC PERSONNEL(ARTCC)	1	0	1	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
ATC PERSONNEL(ARTCC)	0	0	0	1	0	1
CONTROL TOWER SERVICE	(0)	(2)	(2)	(0)	(2)	(2)
INADEQUATE	(0)	(1)	(1)	(0)	(1)	(1)
ATC PSNL(LCL/GND/CLNC)	0	1	1	0	1	1
NOT POSSIBLE	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
COMMUNICATIONS	(0)	(1)	(1)	(4)	(2)	(6)
DISREGARDED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISREAD	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT UNDERSTOOD	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
NOT POSSIBLE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
POOR	(0)	(0)	(0)	(0)	(1)	(1)
ATC PSNL(LCL/GND/CLNC)	0	0	0	0	1	1
INFORMATION	(0)	(0)	(0)	(1)	(0)	(1)
INACCURATE	(0)	(0)	(0)	(1)	(0)	(1)
OTHER PERSON	0	0	0	1	0	1
MONITORING	(0)	(0)	(0)	(1)	(0)	(1)
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
FBO PERSONNEL	0	0	0	1	0	1
RADIO COMMUNICATIONS	(0)	(0)	(0)	(3)	(5)	(8)
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT ATTAINED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT MAINTAINED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT OBTAINED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT POSSIBLE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT RECEIVED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2

CAUSE/FACTOR TABLE  
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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
COMMUNICATIONS/INFORMATION/ATC (Continued)						
RADIO COMMUNICATIONS (Continued)						
NOT USED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
TRAFFIC ADVISORY	(0)	(2)	(2)	(0)	(6)	(6)
ISSUED	(0)	(2)	(2)	(0)	(2)	(2)
OTHER PERSON	0	2	2	0	2	2
NOT ISSUED	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
NOT POSSIBLE	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	1	1
PILOT OF OTHER AIRCRAFT	0	0	0	0	1	1
FSS SERVICE	(0)	(0)	(0)	(0)	(1)	(1)
NOT POSSIBLE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
SAFETY ADVISORY	(2)	(1)	(3)	(3)	(1)	(4)
DISREGARDED	(0)	(0)	(0)	(1)	(0)	(1)
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	1	0	1
NOT FOLLOWED	(1)	(0)	(1)	(1)	(0)	(1)
PASSENGER	1	0	1	1	0	1
NOT ISSUED	(1)	(1)	(2)	(1)	(1)	(2)
ATC PERSONNEL(ARTCC)	1	0	1	1	0	1
ATC PERSONNEL(DEP/APCH)	0	1	1	0	1	1
RADAR ASSISTANCE TO VFR AIRCRAFT	(0)	(0)	(0)	(1)	(0)	(1)
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
ATC PERSONNEL(DEP/APCH)	0	0	0	1	0	1
VISUAL SEPARATION	(0)	(0)	(0)	(0)	(1)	(1)
INITIATED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
AIR/GROUND COMMUNICATIONS	(0)	(0)	(0)	(0)	(2)	(2)
NOT ATTAINED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
NOT IDENTIFIED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
CREW/GROUP COORDINATION	(1)	(0)	(1)	(8)	(2)	(10)
DISREGARDED	(1)	(0)	(1)	(1)	(0)	(1)
OTHER PERSON	1	0	1	1	0	1
INADEQUATE	(0)	(0)	(0)	(6)	(2)	(8)
PILOT IN COMMAND	0	0	0	4	1	5
NO PERSON SPECIFIED	0	0	0	1	0	1
FAA INSPECTOR	0	0	0	0	1	1
GROUND PERSONNEL	0	0	0	1	0	1
POOR	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
CREW/GROUP BRIEFING	(0)	(0)	(0)	(1)	(0)	(1)
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT OF OTHER AIRCRAFT	0	0	0	1	0	1
PASSENGER BRIEFING	(0)	(0)	(0)	(6)	(0)	(6)
INADEQUATE	(0)	(0)	(0)	(6)	(0)	(6)
PILOT IN COMMAND	0	0	0	6	0	6
SUPERVISION	(12)	(0)	(12)	(83)	(4)	(87)
IMPROPER	(2)	(0)	(2)	(4)	(2)	(6)
PILOT IN COMMAND	1	0	1	1	2	3
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	1	0	1
COMPANY/OPERATOR MGMT	1	0	1	1	0	1
INADEQUATE	(10)	(0)	(10)	(77)	(2)	(79)

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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)						
HUMAN PERFORMANCE (Continued)						
OPERATIONS (Continued)						
COMMUNICATIONS/INFORMATION/ATC (Continued)						
SUPERVISION (Continued)						
PILOT IN COMMAND	2	0	2	13	0	13
PILOT IN COMMAND(CFI)	7	0	7	55	0	55
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	4	1	5
CHECK PILOT	1	0	1	3	0	3
OTHER CREW MEMBER	0	0	0	1	0	1
FBO PERSONNEL	0	0	0	1	0	1
COMPANY/OPERATOR MGMT	0	0	0	0	1	1
POOR	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
UNSAFE/HAZARDOUS CONDITION	(1)	(1)	(2)	(7)	(2)	(9)
INATTENTIVE	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	1	0	1
PASSENGER	1	0	1	1	0	1
NOT IDENTIFIED	(0)	(0)	(0)	(4)	(0)	(4)
PILOT IN COMMAND	0	0	0	1	0	1
AIRPORT PERSONNEL	0	0	0	2	0	2
OTHER PERSON	0	0	0	1	0	1
NOT UNDERSTOOD	(0)	(0)	(0)	(0)	(1)	(1)
COMPANY/OPERATOR MGMT	0	0	0	0	1	1
PERFORMED	(0)	(1)	(1)	(1)	(1)	(2)
PASSENGER	0	1	1	0	1	1
OTHER PERSON	0	0	0	1	0	1
UNSAFE/HAZARDOUS CONDITION WARNING	(0)	(0)	(0)	(3)	(1)	(4)
DELAYED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
DISREGARDED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
NOT IDENTIFIED	(0)	(0)	(0)	(1)	(0)	(1)
AIRPORT PERSONNEL	0	0	0	1	0	1
NOT UNDERSTOOD	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
MISCELLANEOUS	(2)	(4)	(6)	(26)	(12)	(38)
MISCELLANEOUS	(0)	(0)	(0)	(2)	(0)	(2)
ABOVE	(0)	(0)	(0)	(1)	(0)	(1)
PASSENGER	0	0	0	1	0	1
INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
MANUFACTURER	0	0	0	1	0	1
DISTURBANCE	(0)	(0)	(0)	(0)	(1)	(1)
INITIATED	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
EQUIPMENT, OTHER	(0)	(0)	(0)	(3)	(1)	(4)
IMPROPER	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER USE OF	(0)	(0)	(0)	(1)	(1)	(2)
AIRPORT PERSONNEL	0	0	0	0	1	1
OTHER PERSON	0	0	0	1	0	1
NOT CORRECTED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
CONTROL INTERFERENCE	(2)	(0)	(2)	(15)	(0)	(15)
CONFLICTING	(0)	(0)	(0)	(2)	(0)	(2)
COPILLOT	0	0	0	1	0	1
DUAL STUDENT	0	0	0	1	0	1
EXCESSIVE	(0)	(0)	(0)	(1)	(0)	(1)



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AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued) HUMAN PERFORMANCE (Continued) OPERATIONS (Continued) MISCELLANEOUS (Continued) CONTROL INTERFERENCE (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
DUAL STUDENT	0	0	0	1	0	1
IMPROPER PASSENGER	(0) 0	(0) 0	(0) 0	(2) 2	(0) 0	(2) 2
INADVERTENT PILOT IN COMMAND	(2) 0	(0) 0	(2) 0	(8) 1	(0) 0	(8) 1
FLIGHT INSTRUCTOR (ON GROUND)	0	0	0	1	0	1
PASSENGER	2	0	2	6	0	6
INTENTIONAL PASSENGER	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
PERFORMED PASSENGER	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
RELINQUISHING OF CONTROL DELAYED	(0) (0)	(0) (0)	(0) (0)	(2) (2)	(0) (0)	(2) (2)
DUAL STUDENT	0	0	0	2	0	2
STOLEN AIRCRAFT/UNAUTHORIZED USE	(0)	(4)	(4)	(3)	(10)	(13)
NO MODIFIER SPECIFIED	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
IMPROPER USE OF PILOT IN COMMAND	(0) 0	(1) 1	(1) 1	(0) 0	(1) 1	(1) 1
INTENTIONAL PILOT IN COMMAND	(0) 0	(2) 2	(2) 2	(1) 1	(5) 3	(6) 4
UNQUALIFIED PERSON	0	0	0	0	2	2
INITIATED UNQUALIFIED PERSON	(0) 0	(0) 0	(0) 0	(1) 1	(0) 0	(1) 1
PERFORMED PILOT IN COMMAND	(0) 0	(1) 1	(1) 1	(0) 0	(4) 4	(4) 4
SABOTAGE	(0)	(0)	(0)	(1)	(0)	(1)
INTENTIONAL	(0)	(0)	(0)	(1)	(0)	(1)
OTHER PERSON	0	0	0	1	0	1
UNDETERMINED	3	0	3	5	0	5
UNDETERMINED	64	0	64	244	4	248
DIRECT UNDERLYING CAUSE FACTORS:	(181)	(170)	(351)	(430)	(394)	(824)
IMPROPER USE OF PROCEDURE	(34)	(28)	(62)	(152)	(66)	(218)
IMPROPER USE OF PROCEDURE	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
DIVERTED ATTENTION	(1)	(0)	(1)	(20)	(4)	(24)
PILOT IN COMMAND	1	0	1	20	4	24
PILOT IN COMMAND (CFI)	0	0	0	1	0	1
OTHER PERSONNEL	0	0	0	1	0	1
PILOT OF OTHER AIRCRAFT	0	0	0	0	1	1
INATTENTIVE	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	1	1	1	1	2
COMPLACENCY	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
UNDER CONFIDENCE IN PERSONAL ABILITY	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	1	1	1	1	2
OVER CONFIDENCE IN PERSONAL ABILITY	(6)	(2)	(8)	(8)	(3)	(11)
PILOT IN COMMAND	6	2	8	8	3	11
PILOT IN COMMAND (CFI)	0	0	0	1	0	1
OVER CONFIDENCE IN AIRCRAFT'S ABILITY	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
ANXIETY/APPREHENSION	(1)	(0)	(1)	(3)	(0)	(3)
PILOT IN COMMAND	1	0	1	3	0	3
SELF-INDUCED PRESSURE	(1)	(0)	(1)	(2)	(1)	(3)

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DIRECT UNDERLYING CAUSE FACTORS: (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
IMPROPER USE OF PROCEDURE (Continued)						
SELF-INDUCED PRESSURE (Continued)						
PILOT IN COMMAND	1	0	1	2	1	3
PILOT IN COMMAND(CFI)	0	1	1	0	1	1
PRESSURE INDUCED BY OTHERS	(0)	(1)	(1)	(2)	(1)	(3)
PILOT IN COMMAND	0	1	1	2	1	3
OTHER PERSONNEL	0	0	0	1	0	1
VISUAL/AURAL PERCEPTION	(1)	(0)	(1)	(5)	(2)	(7)
PILOT IN COMMAND	1	0	1	5	2	7
EXPECTANCY	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
EMOTIONAL REACTION	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PHYSICAL IMPAIRMENT	(1)	(1)	(2)	(1)	(1)	(2)
PILOT IN COMMAND	1	1	2	1	1	2
PHYSICAL IMPAIRMENT(ANOXIA/HYPOXIA)	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
PHYSICAL IMPAIRMENT(HYPERTENSION)	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
PHYSICAL IMPAIRMENT(MOTION SICKNESS)	(0)	(0)	(0)	(0)	(1)	(1)
OTHER PERSONNEL	0	0	0	0	1	1
PHYSICAL IMPAIRMENT(STROKE)	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PHYSICAL IMPAIRMENT(ALCOMOL)	(3)	(0)	(3)	(3)	(0)	(3)
PILOT IN COMMAND	3	0	3	3	0	3
INCAPACITATION	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
SPATIAL DISORIENTATION	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
VISUAL/AURAL DETECTION	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
FATIGUE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PILOT IN COMMAND(CFI)	0	1	1	0	1	1
FATIGUE(FLIGHT SCHEDULE)	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
FATIGUE(FLIGHT AND GROUND SCHEDULE)	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
QUALIFICATION	(0)	(1)	(1)	(0)	(3)	(3)
PILOT IN COMMAND	0	1	1	0	3	3
COPILLOT	0	0	0	0	1	1
IMPROPER TRAINING	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
INADEQUATE TRAINING	(0)	(2)	(2)	(1)	(4)	(5)
PILOT IN COMMAND	0	2	2	1	4	5
INADEQUATE INITIAL TRAINING	(1)	(0)	(1)	(2)	(0)	(2)
PILOT IN COMMAND	1	0	1	2	0	2
DUAL STUDENT	0	0	0	0	1	1
INADEQUATE RECURRENT TRAINING	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
INADEQUATE TRANSITION/UPGRADE TRAINING	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
INADEQUATE TRAINING(EMERGENCY PROCEDURE(S))	(0)	(1)	(1)	(0)	(1)	(1)

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DIRECT UNDERLYING CAUSE FACTORS: (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
IMPROPER USE OF PROCEDURE (Continued)						
INADEQUATE TRAINING(EMERGENCY PROCEDURE(S)) (Continued)						
PILOT IN COMMAND	0	1	1	0	1	1
EXPERIENCE	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	1	1	1	1	2
LACK OF FAMILIARITY WITH AIRCRAFT	(0)	(0)	(0)	(10)	(1)	(11)
PILOT IN COMMAND	0	0	0	10	1	11
DUAL STUDENT	0	0	0	1	1	2
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
OTHER PERSONNEL	0	0	0	0	1	1
LACK OF FAMILIARITY WITH GEOGRAPHIC AREA	(0)	(4)	(4)	(3)	(6)	(9)
PILOT IN COMMAND	0	4	4	3	6	9
LACK OF TOTAL EXPERIENCE	(0)	(2)	(2)	(6)	(7)	(13)
PILOT IN COMMAND	0	2	2	6	7	13
TOTAL	(0)	(0)	(0)	(9)	(0)	(9)
PILOT IN COMMAND	0	0	0	9	0	9
LACK OF TOTAL EXPERIENCE IN KIND OF AIRCRAFT	(0)	(0)	(0)	(9)	(0)	(9)
PILOT IN COMMAND	0	0	0	9	0	9
LACK OF TOTAL EXPERIENCE IN TYPE OF AIRCRAFT	(2)	(1)	(3)	(5)	(2)	(7)
PILOT IN COMMAND	2	1	3	5	2	7
LACK OF TOTAL INSTRUMENT TIME	(6)	(1)	(7)	(7)	(1)	(8)
PILOT IN COMMAND	6	1	7	7	1	8
LACK OF TOTAL EXPERIENCE IN TYPE OPERATION	(4)	(0)	(4)	(21)	(2)	(23)
PILOT IN COMMAND	4	0	4	21	2	23
LACK OF RECENT EXPERIENCE	(1)	(1)	(2)	(1)	(2)	(3)
PILOT IN COMMAND	1	1	2	1	2	3
LACK OF RECENT TOTAL EXPERIENCE	(1)	(0)	(1)	(4)	(0)	(4)
PILOT IN COMMAND	1	0	1	4	0	4
LACK OF RECENT EXPERIENCE IN KIND OF AIRCRAFT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
LACK OF RECENT EXPERIENCE IN TYPE OF AIRCRAFT	(0)	(0)	(0)	(1)	(1)	(2)
PILOT IN COMMAND	0	0	0	1	1	2
LACK OF RECENT INSTRUMENT TIME	(0)	(2)	(2)	(0)	(3)	(3)
PILOT IN COMMAND	0	2	2	0	3	3
LACK OF RECENT EXPERIENCE IN TYPE OPERATION	(3)	(0)	(3)	(8)	(0)	(8)
PILOT IN COMMAND	3	0	3	8	0	8
INFORMATION UNCLEAR(PHRASEOLOGY)	(0)	(1)	(1)	(0)	(1)	(1)
ATC PERSONNEL(ARTCC)	0	1	1	0	1	1
IMPROPER USE OF EQUIPMENT/AIRCRAFT	(108)	(65)	(173)	(204)	(210)	(414)
IMPROPER USE OF EQUIPMENT/AIRCRAFT	(0)	(0)	(0)	(2)	(0)	(2)
PILOT IN COMMAND	0	0	0	2	0	2
DIVERTED ATTENTION	(6)	(1)	(7)	(37)	(12)	(49)
PILOT IN COMMAND	6	1	7	37	12	49
COPILOT	1	0	1	1	0	1
PILOT IN COMMAND(CFI)	0	0	0	3	0	3
INATTENTIVE	(1)	(0)	(1)	(2)	(3)	(5)
PILOT IN COMMAND	1	0	1	2	3	5
COMPLACENCY	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
CHECK PILOT	0	0	0	1	0	1
OVER CONFIDENCE IN PERSONAL ABILITY	(2)	(6)	(8)	(3)	(12)	(15)
PILOT IN COMMAND	2	6	8	3	12	15
OVER CONFIDENCE IN AIRCRAFT'S ABILITY	(0)	(1)	(1)	(0)	(2)	(2)
PILOT IN COMMAND	0	1	1	0	2	2
ANXIETY/APPREHENSION	(0)	(1)	(1)	(0)	(2)	(2)

CAUSE/FACTOR TABLE  
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DIRECT UNDERLYING CAUSE FACTORS: (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
IMPROPER USE OF EQUIPMENT/AIRCRAFT (Continued)						
ANXIETY/APPREHENSION (Continued)						
PILOT IN COMMAND	0	1	1	0	2	2
SELF-INDUCED PRESSURE	(0)	(0)	(0)	(2)	(3)	(5)
PILOT IN COMMAND	0	0	0	2	3	5
VISUAL/AURAL PERCEPTION	(1)	(1)	(2)	(1)	(3)	(4)
PILOT IN COMMAND	1	1	2	1	3	4
OSTENTATIOUS DISPLAY	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
HABIT INTERFERENCE	(0)	(0)	(0)	(1)	(0)	(1)
DUAL STUDENT	0	0	0	1	0	1
PHYSICAL IMPAIRMENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PHYSICAL IMPAIRMENT(HEART ATTACK)	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
PHYSICAL IMPAIRMENT(VISUAL DEFICIENCY)	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
PHYSICAL IMPAIRMENT(OTHER ORGANIC PROBLEM)	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PHYSICAL IMPAIRMENT(ALCOHOL)	(19)	(0)	(19)	(21)	(0)	(21)
PILOT IN COMMAND	19	0	19	21	0	21
PHYSICAL IMPAIRMENT(DRUGS)	(1)	(0)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	1	0	1	1	1	2
INCAPACITATION(HEART ATTACK)	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
INCAPACITATION(OTHER CARDIOVASCULAR)	(2)	(0)	(2)	(2)	(0)	(2)
PILOT IN COMMAND	2	0	2	2	0	2
INCAPACITATION(CARBON MONOXIDE)	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INCAPACITATION(STROKE)	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
INCAPACITATION(LOSS OF CONSCIOUSNESS)	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
SPATIAL DISORIENTATION	(49)	(3)	(52)	(50)	(3)	(53)
PILOT IN COMMAND	49	3	52	50	3	53
VISUAL/AURAL DETECTION	(0)	(1)	(1)	(0)	(4)	(4)
PILOT IN COMMAND	0	1	1	0	4	4
FATIGUE	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
FATIGUE(FLIGHT SCHEDULE)	(1)	(0)	(1)	(3)	(0)	(3)
PILOT IN COMMAND	1	0	1	3	0	3
FATIGUE(FLIGHT AND GROUND SCHEDULE)	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
QUALIFICATION	(0)	(0)	(0)	(0)	(3)	(3)
PILOT IN COMMAND	0	0	0	0	3	3
INADEQUATE TRAINING	(1)	(1)	(2)	(2)	(1)	(3)
PILOT IN COMMAND	1	1	2	2	1	3
INADEQUATE INITIAL TRAINING	(0)	(0)	(0)	(3)	(0)	(3)
PILOT IN COMMAND	0	0	0	3	0	3
INADEQUATE RECURRENT TRAINING	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	1	1	1	1	2

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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
DIRECT UNDERLYING CAUSE FACTORS: (Continued)						
IMPROPER USE OF EQUIPMENT/AIRCRAFT (Continued)						
INADEQUATE TRANSITION/UPGRADE TRAINING	(2)	(2)	(4)	(4)	(3)	(7)
PILOT IN COMMAND	2	2	4	4	3	7
COMPANY/OPERATOR MGMT	0	1	1	0	1	1
LACK OF FAMILIARITY WITH AIRCRAFT	(0)	(2)	(2)	(5)	(6)	(11)
PILOT IN COMMAND	0	2	2	5	6	11
COPILOT	0	0	0	0	1	1
LACK OF FAMILIARITY WITH GEOGRAPHIC AREA	(0)	(1)	(1)	(0)	(6)	(6)
PILOT IN COMMAND	0	1	1	0	6	6
LACK OF TOTAL EXPERIENCE	(0)	(2)	(2)	(2)	(45)	(47)
PILOT IN COMMAND	0	2	2	2	45	47
TOTAL	(2)	(0)	(2)	(8)	(1)	(9)
PILOT IN COMMAND	2	0	2	8	1	9
LACK OF TOTAL EXPERIENCE IN KIND OF AIRCRAFT	(2)	(0)	(2)	(4)	(4)	(8)
PILOT IN COMMAND	2	0	2	4	4	8
COPILOT	0	0	0	1	1	2
LACK OF TOTAL EXPERIENCE IN TYPE OF AIRCRAFT	(2)	(11)	(13)	(14)	(37)	(51)
PILOT IN COMMAND	2	11	13	14	37	51
COPILOT	0	0	0	0	2	2
DUAL STUDENT	0	1	1	0	1	1
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
LACK OF TOTAL INSTRUMENT TIME	(6)	(22)	(28)	(6)	(23)	(29)
PILOT IN COMMAND	6	22	28	6	23	29
LACK OF TOTAL EXPERIENCE IN TYPE OPERATION	(2)	(2)	(4)	(6)	(5)	(11)
PILOT IN COMMAND	2	2	4	6	5	11
DUAL STUDENT	0	1	1	0	1	1
LACK OF RECENT EXPERIENCE	(0)	(1)	(1)	(0)	(6)	(6)
PILOT IN COMMAND	0	1	1	0	6	6
LACK OF RECENT TOTAL EXPERIENCE	(0)	(0)	(0)	(5)	(3)	(8)
PILOT IN COMMAND	0	0	0	5	3	8
DUAL STUDENT	0	0	0	2	0	2
LACK OF RECENT EXPERIENCE IN KIND OF AIRCRAFT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
LACK OF RECENT EXPERIENCE IN TYPE OF AIRCRAFT	(1)	(1)	(2)	(1)	(2)	(3)
PILOT IN COMMAND	1	1	2	1	2	3
PILOT IN COMMAND(CFI)	0	0	0	0	1	1
LACK OF RECENT INSTRUMENT TIME	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
LACK OF RECENT EXPERIENCE IN TYPE OPERATION	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
INFORMATION INSUFFICIENT	(0)	(0)	(0)	(0)	(1)	(1)
OTHER PERSONNEL	0	0	0	0	1	1
IMPROPER DECISION	(30)	(77)	(107)	(49)	(117)	(166)
IMPROPER DECISION	(0)	(1)	(1)	(0)	(1)	(1)
FBO PERSONNEL	0	1	1	0	1	1
DIVERTED ATTENTION	(0)	(1)	(1)	(1)	(2)	(3)
PILOT IN COMMAND	0	1	1	1	2	3
PILOT IN COMMAND(CFI)	0	0	0	1	0	1
MOTIVATION	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
OVER CONFIDENCE IN PERSONAL ABILITY	(6)	(27)	(33)	(10)	(35)	(45)
PILOT IN COMMAND	6	27	33	10	35	45
OVER CONFIDENCE IN AIRCRAFT'S ABILITY	(1)	(2)	(3)	(1)	(4)	(5)
PILOT IN COMMAND	1	2	3	1	4	5
PILOT IN COMMAND(CFI)	0	1	1	0	1	1
ANXIETY/APPREHENSION	(0)	(0)	(0)	(2)	(0)	(2)

CAUSE/FACTOR TABLE  
ALL OPERATIONS  
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DIRECT UNDERLYING CAUSE FACTORS: (Continued)	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE FACTOR	TOTAL		CAUSE FACTOR	TOTAL	
IMPROPER DECISION (Continued)						
ANXIETY/APPREHENSION (Continued)						
PILOT IN COMMAND	0	0	0	2	0	2
SELF-INDUCED PRESSURE	(1)	(8)	(9)	(2)	(8)	(10)
PILOT IN COMMAND	1	8	9	2	8	10
COMPANY-INDUCED PRESSURE	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PRESSURE INDUCED BY OTHERS	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
OTHER PERSONNEL	0	0	0	0	1	1
VISUAL/AURAL PERCEPTION	(0)	(1)	(1)	(1)	(1)	(2)
PILOT IN COMMAND	0	1	1	1	1	2
OTHER PERSONNEL	0	0	0	1	0	1
MENTAL PERFORMANCE OVERLOAD	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
INTERPERSONAL RELATIONS	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
PHYSICAL IMPAIRMENT	(0)	(0)	(0)	(1)	(0)	(1)
PILOT IN COMMAND	0	0	0	1	0	1
PHYSICAL IMPAIRMENT(OTHER ORGANIC PROBLEM)	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
PHYSICAL IMPAIRMENT(ALCOHOL)	(13)	(3)	(16)	(16)	(5)	(21)
PILOT IN COMMAND	13	3	16	16	5	21
PHYSICAL IMPAIRMENT(DRUGS)	(0)	(2)	(2)	(0)	(3)	(3)
PILOT IN COMMAND	0	2	2	0	3	3
FATIGUE	(0)	(1)	(1)	(0)	(3)	(3)
PILOT IN COMMAND	0	1	1	0	3	3
FATIGUE(LACK OF SLEEP)	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
QUALIFICATION	(0)	(2)	(2)	(0)	(3)	(3)
PILOT IN COMMAND	0	2	2	0	3	3
INADEQUATE TRAINING	(0)	(0)	(0)	(0)	(1)	(1)
PILOT IN COMMAND	0	0	0	0	1	1
FLIGHT INSTRUCTOR(ON GROUND)	0	0	0	1	0	1
ATC PERSONNEL(ARTCC)	0	1	1	0	1	1
EXPERIENCE	(0)	(1)	(1)	(0)	(2)	(2)
PILOT IN COMMAND	0	1	1	0	2	2
LACK OF FAMILIARITY WITH AIRCRAFT	(1)	(1)	(2)	(1)	(1)	(2)
PILOT IN COMMAND	1	1	2	1	1	2
DUAL STUDENT	0	0	0	1	0	1
LACK OF FAMILIARITY WITH GEOGRAPHIC AREA	(1)	(5)	(6)	(1)	(9)	(10)
PILOT IN COMMAND	1	5	6	1	9	10
LACK OF TOTAL EXPERIENCE	(1)	(4)	(5)	(1)	(13)	(14)
PILOT IN COMMAND	1	4	5	1	13	14
LACK OF TOTAL EXPERIENCE IN TYPE OF AIRCRAFT	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
LACK OF TOTAL INSTRUMENT TIME	(1)	(13)	(14)	(1)	(14)	(15)
PILOT IN COMMAND	1	13	14	1	14	15
LACK OF TOTAL EXPERIENCE IN TYPE OPERATION	(0)	(0)	(0)	(0)	(2)	(2)
PILOT IN COMMAND	0	0	0	0	2	2
LACK OF RECENT EXPERIENCE	(1)	(1)	(2)	(2)	(1)	(3)
PILOT IN COMMAND	1	1	2	2	1	3
LACK OF RECENT EXPERIENCE IN TYPE OF AIRCRAFT	(0)	(0)	(0)	(0)	(1)	(1)

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	FATAL ACCIDENTS			ALL ACCIDENTS		
	CAUSE	FACTOR	TOTAL	CAUSE	FACTOR	TOTAL
DIRECT UNDERLYING CAUSE FACTORS: (Continued)						
IMPROPER DECISION (Continued)						
LACK OF RECENT EXPERIENCE IN TYPE OF AIRCRAFT (Continued)						
PILOT IN COMMAND	0	0	0	0	1	1
LACK OF RECENT INSTRUMENT TIME	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
INFORMATION INSUFFICIENT	(0)	(1)	(1)	(0)	(1)	(1)
PILOT IN COMMAND	0	1	1	0	1	1
PROCEDURE INADEQUATE	(2)	(0)	(2)	(2)	(0)	(2)
PROCEDURE INADEQUATE	(1)	(0)	(1)	(1)	(0)	(1)
MANUFACTURER	1	0	1	1	0	1
CONDITION(S)/STEP(S) INSUFFICIENTLY DEFINED	(1)	(0)	(1)	(1)	(0)	(1)
PILOT IN COMMAND	1	0	1	1	0	1
AIRCRAFT/EQUIPMENT INADEQUATE	(4)	(0)	(4)	(13)	(1)	(14)
AIRCRAFT/EQUIPMENT INADEQUATE	(0)	(0)	(0)	(1)	(0)	(1)
MANUFACTURER	0	0	0	1	0	1
AIRCRAFT/EQUIPMENT, INADEQUATE DESIGN	(1)	(0)	(1)	(4)	(0)	(4)
MANUFACTURER	1	0	1	4	0	4
AIRFRAME	(1)	(0)	(1)	(1)	(0)	(1)
OTHER MAINTENANCE PSNL	1	0	1	1	0	1
MANUFACTURER	0	0	0	2	0	2
PRODUCTION/DESIGN PSNL	0	0	0	1	0	1
AIRCRAFT COMPONENT	(0)	(0)	(0)	(1)	(1)	(2)
MANUFACTURER	0	0	0	1	1	2
OTHER PERSONNEL	0	0	0	1	0	1
AIRCRAFT/EQUIPMENT, INADQTY COMPLIANCE DETERMINATION	(1)	(0)	(1)	(1)	(0)	(1)
MANUFACTURER	1	0	1	1	0	1
PRODUCTION/DESIGN PSNL	1	0	1	1	0	1
MATERIAL INADEQUATE	(3)	(0)	(3)	(10)	(0)	(10)
MATERIAL DEFECT (INADEQUATE QUALITY CONTROL)	(1)	(0)	(1)	(2)	(0)	(2)
OTHER MAINTENANCE PSNL	1	0	1	2	0	2
MANUFACTURER	2	0	2	8	0	8
INDIRECT UNDERLYING CAUSE FACTORS:						
INADEQUATE SURVEILLANCE OF OPERATION	(0)	(1)	(1)	(0)	(2)	(2)
INADEQUATE SURVEILLANCE OF OPERATION	(0)	(1)	(1)	(0)	(2)	(2)
FAA (ORGANIZATION)	(0)	(1)	(1)	(0)	(1)	(1)
INADEQUATE PROCEDURE	(0)	(0)	(0)	(0)	(1)	(1)
OTHER GOVT ORGANIZATION	0	0	0	0	1	1

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