ANNUAL REVIEW OF AIRCRAFT ACCIDENT DATA

U.S. GENERAL AVIATION CALENDAR YEAR 1984

NTSB/ARG-87/02

WASHINGTON, D.C. 20594

UNITED STATES GOVERNMENT
This report presents a statistical compilation and review of general aviation accidents which occurred in 1984 in the United States, its territories and possessions, and in international waters. 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.

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. Several tables present accident parameters for 1984 only, and each section includes tabulations which present comparative statistics for 1984 and for the five-year period 1979-1983.
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### General Information
- **All Operations**: 106
- **All**: 117
- **Recip. Engine**: 126
- **Multiple**: 133
- **Turbojet**: 142

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INTRODUCTION

This report presents a statistical compilation and review of general aviation accidents which occurred in 1984. 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 1984 and for each of the two preceding years. Several tables then present accident parameters for 1984 only. Concluding each section are tabulations which present comparative statistics for 1984 and for the five-year period 1979-1983.

In 1984, a total of 3,047 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 37 cases in which two general aviation aircraft collided, the number of accidents in 1984 was 3,010.

The total number of accidents in 1984 decreased 2.1 percent from 1983. The number of fatal accidents decreased by 2.2 percent from the 1983 total. There also was a decrease of 2.3 percent in the number of fatalities in 1984. The 1984 total and fatal accident rates decreased 2.8 percent and 4.4 percent respectively from the average of the 3 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 (22.15 accidents per 100,000 hours flown). This rate was 2.4 times the rate for all aircraft. Reciprocating engine powered rotorcraft also had the highest fatal accident rate (3.81 fatal accidents per 100,000 hours flown), almost double that for all aircraft.
For categories under kind of flying, the highest rates (total and fatal) were recorded for the personal/business combination. The total accident rate for personal/business was slightly more than for aerial application and the fatal accident rate for the personal/business combination was almost 2.7 times greater than for aerial application. In the ten year period beginning 1975 and ending 1984 the total and fatal accident rates for aerial application decreased 47.4 percent and 45.3 percent respectively. The total and fatal accident rates are depicted graphically in figures 1, 2, and 3.

The Corporate/Executive segment of General Aviation has achieved substantial reductions in its total and fatal accident rates in recent years. Accident rates per 100,000 hours flown are listed below for Corporate/Executive operations and for Part 121 and Scheduled Part 135 operations.

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For each year, both the total and fatal accident rates for Corporate/Executive operations lie between the corresponding rates for Part 121 and Scheduled Part 135 operations.

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 seven 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 1984 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
1982 - 1984

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* Number of General Aviation Aircraft
Table 2 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
BY TYPE OF AIRCRAFT AND BY KIND OF FLYING
ALL OPERATIONS
1984

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* 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

Accident Rate per 100,000 Hours Flown — Legend: □ FATAL  ■ TOTAL

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Single Reciprocating Engine

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Multiple Reciprocating Engines

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

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Turboprop</th>
<th>Turbojet</th>
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<td><img src="image" alt="Turbojet 1975" /></td>
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<td><img src="image" alt="Turbojet 1984" /></td>
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FIG-2  Rotorcraft Accident Rates by Type of Power

Accident Rate per 100,000 Hours Flown  — Legend:  □ FATAL  □ TOTAL

<table>
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<tr>
<td>1976</td>
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<tr>
<td>1977</td>
<td>□</td>
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<tr>
<td>1978</td>
<td>□</td>
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<tr>
<td>1979</td>
<td>□</td>
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<td>□</td>
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<td>1983</td>
<td>□</td>
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<tr>
<td>1984</td>
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Reciprocating Engine(s)

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</tr>
<tr>
<td>1976</td>
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<tr>
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<td>□</td>
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<td>1984</td>
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Turbine Power

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<td>1976</td>
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<td>□</td>
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<td>□</td>
</tr>
<tr>
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</tr>
<tr>
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<td>□</td>
</tr>
<tr>
<td>1982</td>
<td>□</td>
</tr>
<tr>
<td>1983</td>
<td>□</td>
</tr>
<tr>
<td>1984</td>
<td>□</td>
</tr>
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</table>
FIG-3 Accident Rates by Kind of Flying

Accident Rate per 100,000 Hours Flown — Legend:

0 5 10 15 20 25 30 35 40

All Operations
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984

Personal and Business
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984

Corporate/Executive
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
FIG-3  Accident Rates by Kind of Flying — Continued

Accident Rate per 100,000 Hours Flown — Legend: ⚪ FATAL  □ TOTAL

Aerial Application

<table>
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<tr>
<th></th>
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<th></th>
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<tbody>
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<td>Rate</td>
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Instruction

<table>
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<tbody>
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<td>Rate</td>
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Table 3 - PERSONS BY ROLE AND DEGREE OF INJURY
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>504</td>
<td>313</td>
<td>436</td>
<td>1785</td>
<td>3038</td>
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<tr>
<td>Copilot</td>
<td>27</td>
<td>4</td>
<td>12</td>
<td>40</td>
<td>83</td>
</tr>
<tr>
<td>Dual student</td>
<td>11</td>
<td>6</td>
<td>15</td>
<td>96</td>
<td>128</td>
</tr>
<tr>
<td>Check pilot</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Flight engineer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other crew</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>Passenger</td>
<td>469</td>
<td>241</td>
<td>335</td>
<td>1366</td>
<td>2411</td>
</tr>
<tr>
<td>Total aboard</td>
<td>1018</td>
<td>571</td>
<td>801</td>
<td>3313</td>
<td>5703</td>
</tr>
</tbody>
</table>

| Other aircraft*| 16    | 3       | 6     | 15   | 40    |
| Other ground   | 5     | 9       | 6     | 11   | 31    |
| Grand total    | 1039  | 583     | 813   | 3339 | 5774  |

| Percent        | 18.0  | 10.1    | 14.1  | 57.8 |

* 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  
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>707</td>
<td>412</td>
<td>539</td>
<td>2155</td>
<td>3813</td>
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<tr>
<td>Business</td>
<td>155</td>
<td>49</td>
<td>62</td>
<td>310</td>
<td>576</td>
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<tr>
<td>Corporate/Executive</td>
<td>8</td>
<td>6</td>
<td>19</td>
<td>42</td>
<td>75</td>
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<tr>
<td>Aerial application</td>
<td>20</td>
<td>22</td>
<td>43</td>
<td>171</td>
<td>256</td>
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<tr>
<td>Instructional</td>
<td>37</td>
<td>32</td>
<td>70</td>
<td>415</td>
<td>554</td>
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<tr>
<td>Other</td>
<td>91</td>
<td>50</td>
<td>68</td>
<td>220</td>
<td>429</td>
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<tr>
<td><strong>Total</strong></td>
<td>1018</td>
<td>571</td>
<td>801</td>
<td>3313</td>
<td>5703</td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td>17.9</td>
<td>10.0</td>
<td>14.0</td>
<td>58.1</td>
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Table 5 - AIRCRAFT BY DAMAGE AND DEGREE OF INJURY  
ALL OPERATIONS  
1984

<table>
<thead>
<tr>
<th>Aircraft damage</th>
<th>None</th>
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<th>Ser</th>
<th>Fatal</th>
<th>No.</th>
<th>Percent</th>
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<tr>
<td>None</td>
<td>10</td>
<td>1</td>
<td>25</td>
<td>6</td>
<td>42</td>
<td>1.4</td>
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<tr>
<td>Minor</td>
<td>15</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>26</td>
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<tr>
<td>Substantial</td>
<td>1545</td>
<td>342</td>
<td>158</td>
<td>40</td>
<td>2085</td>
<td>68.4</td>
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<tr>
<td>Destroyed</td>
<td>126</td>
<td>102</td>
<td>159</td>
<td>507</td>
<td>894</td>
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<tr>
<td><strong>Aircraft</strong></td>
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<td></td>
<td>3047</td>
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</tr>
<tr>
<td><strong>Number</strong></td>
<td>1696</td>
<td>447</td>
<td>348</td>
<td>556</td>
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<tr>
<td><strong>Percent</strong></td>
<td>55.7</td>
<td>14.7</td>
<td>11.4</td>
<td>18.2</td>
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Table 6 - AIRCRAFT BY FIRST THRU FIFTH OCCURRENCES
ALL OPERATIONS
1984

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<tr>
<th>Occurrence</th>
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<td>One</td>
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<tr>
<td>Abrupt Maneuver</td>
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<td>Altitude Deviation,</td>
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<td>Uncontrolled</td>
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<td>Cargo Shift</td>
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<td>Airframe/Component/System Failure/Malfunction</td>
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<td>Decompression</td>
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<td>6</td>
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<tr>
<td>Ditching</td>
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<td>17</td>
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<tr>
<td>Dragged Wing, Rotor, Pod or Float</td>
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<td>20</td>
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<tr>
<td>Fire/Explosion</td>
<td>23</td>
<td>69</td>
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<tr>
<td>Fire</td>
<td>13</td>
<td>7</td>
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<tr>
<td>Explosion</td>
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<tr>
<td>Forced Landing</td>
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<tr>
<td>Gear Collapsed</td>
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<td>56</td>
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<tr>
<td>Main Gear Collapsed</td>
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<td>0</td>
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<tr>
<td>Nose Gear Collapsed</td>
<td>16</td>
<td>17</td>
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<tr>
<td>Tail Gear Collapsed</td>
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<td>0</td>
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<tr>
<td>Complete Gear Collapsed</td>
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<td>Hazardous Materials</td>
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<td>1</td>
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<td>Leak/Spill (Fumes/Smoke)</td>
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<td>140</td>
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<td>In Flight Col. w/ Object</td>
<td>193</td>
<td>537</td>
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<td>In Flight Col. w/ Terrain</td>
<td>212</td>
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<tr>
<td>In Flight Enc. w/ Weather</td>
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<td>190</td>
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<td>Loss of Control-In Flight</td>
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<td>Loss of Control-On Ground</td>
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<td>Near Col. Between Aircraft</td>
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<td>Nose Down</td>
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<td>140</td>
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<td>Nose Over</td>
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<td>106</td>
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<td>On Ground Col. w/ Object</td>
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<td>On Ground Enc. w/ Weather</td>
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<td>Loss of Power (Partial)</td>
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<td>Two</td>
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<td>----------------------------------------</td>
<td>-----</td>
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<tr>
<td>Loss of Power (Total)</td>
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<td>Non-Mechanical</td>
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<tr>
<td>Loss of Power (Partial)</td>
<td>67</td>
<td>2</td>
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<tr>
<td>Non-Mechanical</td>
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<tr>
<td>Engine Tearaway</td>
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<td>0</td>
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<tr>
<td>Propeller Blast or Jet</td>
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<tr>
<td>Exhaust/Suction</td>
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<tr>
<td>Propeller/Rotor Contact</td>
<td>12</td>
<td>3</td>
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<td>Roll Over</td>
<td>10</td>
<td>20</td>
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<td>Undershoot</td>
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<td>6</td>
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<td>Undetermined</td>
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<td>Vortex Turbulence Enc.</td>
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<td>648</td>
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Number of Aircraft: 3047
### Table 7 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY

**ALL OPERATIONS 1984**

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>None</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>Aircraft No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrupt maneuver</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>13</td>
<td>0.4</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>13</td>
<td>0.4</td>
</tr>
<tr>
<td>Cargo shift</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>89</td>
<td>17</td>
<td>16</td>
<td>28</td>
<td>150</td>
<td>4.9</td>
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<tr>
<td>Ditching</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, or float</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>17</td>
<td>0.6</td>
</tr>
<tr>
<td>Fire/ explosion</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>Fire</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>13</td>
<td>0.4</td>
</tr>
<tr>
<td>Forced landing</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>0.2</td>
</tr>
<tr>
<td>Gear collapsed</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>0.3</td>
</tr>
<tr>
<td>Main gear collapsed</td>
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Table 8 - AIRCRAFT BY FIRST OCCURRENCE AND DAMAGE
ALL OPERATIONS
1984

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<th>Subs</th>
<th>Dest</th>
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<td>2</td>
<td>13</td>
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<td>191</td>
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-16-
Table 8 - AIRCRAFT BY FIRST OCCURRENCE AND DAMAGE (CONTINUED)
ALL OPERATIONS
1984

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<td>Roll over</td>
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<td>Undershoot</td>
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<td>Undetermined</td>
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<tr>
<td>Vortex turbulence encountered</td>
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Aircraft
Number - 42 26 2085 894 3047
Percent - 1.4 0.9 68.4 29.3

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Table 9 - AIRCRAFT BY FIRST OCCURRENCE AND BROAD PHASE OF OPERATION
ALL OPERATIONS
1984

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<th>TkoF</th>
<th>Climb</th>
<th>Desct</th>
<th>Aprch</th>
<th>Landg</th>
<th>Manvr</th>
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<th>Unk</th>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>Other gear collapsed</td>
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<td>Hazardous materials leak/spill (fumes/smoke)</td>
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<td>In flight collision with object</td>
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<td>In flight collision with terrain</td>
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<td>21</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>0</td>
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<td>7.0</td>
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<td>0</td>
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<td>5</td>
<td>17</td>
<td>7</td>
<td>65</td>
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<td>110</td>
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<td>Loss of control - on ground</td>
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<td>12</td>
<td>91</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>212</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>Midair collision</td>
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<td>0</td>
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<td>21</td>
<td>2</td>
<td>12</td>
<td>21</td>
<td>1</td>
<td>0</td>
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<td>Near collision between aircraft</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>Nose over</td>
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<td>3</td>
<td>0</td>
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<td>0</td>
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<tr>
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<td>6</td>
<td>42</td>
<td>17</td>
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<td>89</td>
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<td>5</td>
<td>13</td>
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<td>1</td>
<td>0</td>
<td>21</td>
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<td>0</td>
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<td>On ground encounter with weather</td>
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<td>0</td>
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<td>0.2</td>
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<tr>
<td>Overrun</td>
<td>0</td>
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<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>90</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>115</td>
<td>3.8</td>
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Table 9 - AIRCRAFT BY FIRST OCCURRENCE AND BROAD PHASE OF OPERATION (CONTINUED)
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Phase of operation</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stndg</td>
<td>Taxi</td>
</tr>
<tr>
<td>Loss of power</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loss of power (total) -</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>mechanical failure/malfunction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of power (partial) -</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>mechanical failure/malfunction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of power (total) -</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>non-mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of power (partial) -</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>non-mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propeller blast or jet</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>exhaust/suction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roll over</td>
<td>8</td>
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</tr>
<tr>
<td>Undershoot</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Undetermined</td>
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<td>0</td>
</tr>
<tr>
<td>Vortex turbulence</td>
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<td>0</td>
</tr>
<tr>
<td>encountered</td>
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<td></td>
</tr>
<tr>
<td>Missing aircraft</td>
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<td>0</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
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<td>1</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft
Number - 29 85 625 78 511 62 375 799 432 42 8 1 3047
Percent - 1.0 2.8 20.5 2.6 16.8 2.0 12.3 26.2 14.2 1.4 0.3 0.0
Table 10 - AIRCRAFT BY PHASE OF OPERATION AND DEGREE OF INJURY
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Degree of injury.</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Standing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Standing - pre-flight</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Standing - idling rotors</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Taxi</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>30</td>
<td>6</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td>Taxi - aerial</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>122</td>
<td>24</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>196</td>
<td>82</td>
</tr>
<tr>
<td>Climb</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>Cruise</td>
<td>51</td>
<td>17</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>172</td>
<td>63</td>
</tr>
<tr>
<td>Cruise - holding(IFR)</td>
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<td>1</td>
</tr>
<tr>
<td>Descent</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Descent - emergency</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Approach - VFR pattern - base turn</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Approach - VFR pattern - final appro...</td>
<td>77</td>
<td>27</td>
</tr>
<tr>
<td>Approach - go-around (VFR)</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>Approach - IAF to FAF/outer marker (IF...</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Approach - FAF/outer marker to threshold (IFR)</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Approach - circling(IFR)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Approach - missed approach (IFR)</td>
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<td>1</td>
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<td>Landing</td>
<td>50</td>
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<td>Landing - flare/ touchdown</td>
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<td>36</td>
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<td>Landing - roll</td>
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<td>25</td>
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<tr>
<td>Maneuvering</td>
<td>56</td>
<td>25</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>72</td>
<td>33</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse direction</td>
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<td>1</td>
</tr>
<tr>
<td>Maneuvering - turn to landing area (emergency)</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hover</td>
<td>15</td>
<td>5</td>
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</table>
Table 10 - AIRCRAFT BY PHASE OF OPERATION AND DEGREE OF INJURY (CONTINUED)
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Other</td>
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<td>Unknown</td>
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<tr>
<td>Not reported</td>
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</tbody>
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Aircraft

| Number | 1696 | 447 | 348 | 556 | 3047 |
| Percent| 55.7 | 14.7 | 11.4 | 18.2 |      |
### Table 11 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
**ALL OPERATIONS**
**1984**

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Standing</td>
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<td>1</td>
</tr>
<tr>
<td>Standing - pre-flight</td>
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<td>0</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Standing - idling rotors</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Taxi - from landing</td>
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<td>1</td>
</tr>
<tr>
<td>Taxi - aerial</td>
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<td>0</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
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<td>0</td>
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<tr>
<td>Takeoff - initial climb</td>
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<td>1</td>
</tr>
<tr>
<td>Climb</td>
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<td>0</td>
</tr>
<tr>
<td>Climb - to cruise</td>
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<td>Cruise</td>
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<td>0</td>
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<td>1</td>
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<tr>
<td>Cruise - holding(IFR)</td>
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</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - normal</td>
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<tr>
<td>Approach</td>
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<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
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</tr>
<tr>
<td>Approach - VFR pattern - base turn</td>
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<td>Approach - VFR pattern - base to final</td>
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<tr>
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<tr>
<td>Approach - go-around (VFR)</td>
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<tr>
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</tr>
<tr>
<td>Approach - FAF/outer marker to threshold</td>
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<td>0</td>
</tr>
<tr>
<td>Approach - circling(IFR)</td>
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<td>0</td>
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<tr>
<td>Approach - missed approach (IFR)</td>
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<td>0</td>
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<td>Landing - flare/touchdown</td>
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<td>2</td>
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<td>Landing - roll</td>
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<td>3</td>
</tr>
<tr>
<td>Maneuvering</td>
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<td>5</td>
</tr>
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</table>
Table 11 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse direction</td>
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<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to landing area (emergency)</td>
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<td>0</td>
</tr>
<tr>
<td>Hover</td>
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<td>0</td>
</tr>
<tr>
<td>Other</td>
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<td>1</td>
</tr>
<tr>
<td>Unknown</td>
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</tr>
<tr>
<td>Not reported</td>
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</tr>
</tbody>
</table>

Aircraft Number - 42 26 2085 894 3047
Aircraft Percent - 1.4 0.9 68.4 29.3
Table 12 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER  
ALL OPERATIONS  
1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
<th>Aircraft</th>
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<td>IMC</td>
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<td>7</td>
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<td>Daylight</td>
<td>2372</td>
<td>131</td>
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<tr>
<td>Night (dark)</td>
<td>158</td>
<td>104</td>
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<tr>
<td>Night (bright)</td>
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<td>6</td>
</tr>
<tr>
<td>Dusk</td>
<td>104</td>
<td>12</td>
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<tr>
<td>Not reported</td>
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</tbody>
</table>

Aircraft  
Number - 2737 261 49 3047  
Percent - 89.8 8.6 1.6
Table 13 - AIRCRAFT BY STATE AND MONTH
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>State</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
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<td>3</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>39</td>
<td>1.3</td>
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<tr>
<td>Alaska</td>
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<td>4</td>
<td>9</td>
<td>11</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Aircraft
Number    - 153 210 228 237 309 342 333 360 293 215 183 184 3047
Percent    - 5.0 6.9 7.5 7.8 10.1 11.2 10.9 11.8 9.6 7.1 6.0 6.0
### Table 14 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
**ALL OPERATIONS**
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>IFR</td>
</tr>
<tr>
<td>On Airport</td>
<td>102</td>
<td>74</td>
</tr>
<tr>
<td>On Airstrip</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>21</td>
<td>56</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>17</td>
<td>26</td>
</tr>
<tr>
<td>Not reported</td>
<td>106</td>
<td>67</td>
</tr>
</tbody>
</table>

### Aircraft
- **Number** - 258 226 5 2544 14 3047
- **Percent** - 8.5 7.4 0.2 83.5 0.5

### Table 15 - AIRCRAFT BY ELT OPERATION AND ELT AID IN LOCATION
**ALL OPERATIONS**
1984

<table>
<thead>
<tr>
<th>ELT aided location</th>
<th>ELT operated</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>Yes</td>
<td>128</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>580</td>
<td>1368</td>
</tr>
<tr>
<td>Not reported</td>
<td>64</td>
<td>230</td>
</tr>
</tbody>
</table>

### Aircraft
- **Number** - 772 1598 677 3047
- **Percent** - 25.3 52.4 22.2
### Table 16 - AIRCRAFT BY FIRE AND DAMAGE
#### ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Aircraft fire</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>None</td>
<td>39</td>
<td>25</td>
</tr>
<tr>
<td>In-flight</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>On ground</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>In-flight and on ground</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft Number - 42 26 2085 894 3047
Aircraft Percent - 1.4 0.9 68.4 29.3

### Table 17 - AIRCRAFT BY FIRE AND DEGREE OF INJURY
#### ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Aircraft fire</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>None</td>
<td>1625</td>
<td>418</td>
</tr>
<tr>
<td>In-flight</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>On ground</td>
<td>54</td>
<td>24</td>
</tr>
<tr>
<td>In-flight and on ground</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Not reported</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft Number - 1696 447 348 556 3047
Aircraft Percent - 55.7 14.7 11.4 18.2

-28-
<table>
<thead>
<tr>
<th>Time in type (hours)</th>
<th>1-49</th>
<th>50-99</th>
<th>100-499</th>
<th>500-4999</th>
<th>10000-49999</th>
<th>10000 or more</th>
<th>Not reported</th>
<th>Pilots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>841</td>
<td>387</td>
<td>811</td>
<td>231</td>
<td>313</td>
<td>30</td>
<td>424</td>
<td>3047</td>
</tr>
<tr>
<td>Percent</td>
<td>27.6</td>
<td>12.7</td>
<td>26.6</td>
<td>7.6</td>
<td>10.3</td>
<td>1.0</td>
<td>0.3</td>
<td>13.9</td>
</tr>
<tr>
<td>Total time (hours)</td>
<td>0-49</td>
<td>50-99</td>
<td>100-499</td>
<td>500-4999</td>
<td>10000-49999</td>
<td>10000 or more</td>
<td>Not reported</td>
<td>Pilots</td>
</tr>
<tr>
<td>Time in type (hours)</td>
<td>0 - 49</td>
<td>205</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>50 - 99</td>
<td>103</td>
<td>90</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>100 - 499</td>
<td>243</td>
<td>133</td>
<td>303</td>
<td>0</td>
<td>0</td>
<td>44</td>
<td>723</td>
</tr>
<tr>
<td></td>
<td>500 - 999</td>
<td>82</td>
<td>54</td>
<td>139</td>
<td>67</td>
<td>0</td>
<td>30</td>
<td>372</td>
</tr>
<tr>
<td></td>
<td>1000 - 4999</td>
<td>141</td>
<td>81</td>
<td>255</td>
<td>111</td>
<td>171</td>
<td>0</td>
<td>852</td>
</tr>
<tr>
<td></td>
<td>5000 - 9999</td>
<td>37</td>
<td>20</td>
<td>58</td>
<td>36</td>
<td>92</td>
<td>19</td>
<td>295</td>
</tr>
<tr>
<td></td>
<td>10000 or more</td>
<td>23</td>
<td>4</td>
<td>49</td>
<td>16</td>
<td>46</td>
<td>10</td>
<td>183</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>7</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>184</td>
</tr>
</tbody>
</table>
Table 19 - PILOTS BY AGE AND ACCIDENT DEGREE OF INJURY
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Pilot age</th>
<th>Degree of injury</th>
<th>Pilots</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
<td>Ser</td>
</tr>
<tr>
<td>15 - 19</td>
<td>28</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>20 - 24</td>
<td>101</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td>25 - 29</td>
<td>186</td>
<td>51</td>
<td>29</td>
</tr>
<tr>
<td>30 - 34</td>
<td>231</td>
<td>52</td>
<td>36</td>
</tr>
<tr>
<td>35 - 39</td>
<td>294</td>
<td>73</td>
<td>46</td>
</tr>
<tr>
<td>40 - 44</td>
<td>237</td>
<td>56</td>
<td>58</td>
</tr>
<tr>
<td>45 - 49</td>
<td>140</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td>50 - 54</td>
<td>144</td>
<td>43</td>
<td>42</td>
</tr>
<tr>
<td>55 - 59</td>
<td>124</td>
<td>49</td>
<td>32</td>
</tr>
<tr>
<td>60 - 64</td>
<td>98</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>65 - 69</td>
<td>29</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>70 or older</td>
<td>29</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Not reported</td>
<td>64</td>
<td>16</td>
<td>11</td>
</tr>
</tbody>
</table>

Pilots
Number - 1696 447 348 556 3047
Percent - 55.7 14.7 11.4 18.2

Table 20 - MOST PREVALENT DETAILED ACCIDENT CAUSES
ALL OPERATIONS
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>330</td>
<td>10.8</td>
</tr>
<tr>
<td>Undetermined</td>
<td>207</td>
<td>6.8</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>144</td>
<td>4.7</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>128</td>
<td>4.2</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in command</td>
<td>127</td>
<td>4.2</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>110</td>
<td>3.6</td>
</tr>
<tr>
<td>Airspeed - Not maintained - Pilot in command</td>
<td>109</td>
<td>3.6</td>
</tr>
<tr>
<td>Unsuitable terrain - Selected - Pilot in command</td>
<td>97</td>
<td>3.2</td>
</tr>
<tr>
<td>Clearance - Not maintained - Pilot in command</td>
<td>96</td>
<td>3.2</td>
</tr>
<tr>
<td>Flare - Improper - Pilot in command</td>
<td>92</td>
<td>3.0</td>
</tr>
<tr>
<td>Aircraft preflight - Inadequate - Pilot in command</td>
<td>92</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 3047
Table 21 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
ALL OPERATIONS
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>3995</td>
<td>633</td>
<td>1252</td>
<td>1231</td>
</tr>
<tr>
<td>1976</td>
<td>4018</td>
<td>658</td>
<td>1216</td>
<td>1203</td>
</tr>
<tr>
<td>1977</td>
<td>4079</td>
<td>661</td>
<td>1276</td>
<td>1265</td>
</tr>
<tr>
<td>1978</td>
<td>4216</td>
<td>719</td>
<td>1556</td>
<td>1398</td>
</tr>
<tr>
<td>1979</td>
<td>3818</td>
<td>631</td>
<td>1221</td>
<td>1203</td>
</tr>
<tr>
<td>1980</td>
<td>3590</td>
<td>618</td>
<td>1239</td>
<td>1230</td>
</tr>
<tr>
<td>1981</td>
<td>3500</td>
<td>654</td>
<td>1282</td>
<td>1261</td>
</tr>
<tr>
<td>1982</td>
<td>3233</td>
<td>591</td>
<td>1187</td>
<td>1171</td>
</tr>
<tr>
<td>1983</td>
<td>3075</td>
<td>555</td>
<td>1064</td>
<td>1057</td>
</tr>
<tr>
<td>1984</td>
<td>3010</td>
<td>543</td>
<td>1039</td>
<td>1018</td>
</tr>
</tbody>
</table>

Accident Rate per 100,000 * Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>28,799,000</td>
<td>13.87</td>
<td>2.19</td>
</tr>
<tr>
<td>1976</td>
<td>30,476,000</td>
<td>13.17</td>
<td>2.16</td>
</tr>
<tr>
<td>1977</td>
<td>31,578,000</td>
<td>12.91</td>
<td>2.09</td>
</tr>
<tr>
<td>1978</td>
<td>34,887,000</td>
<td>12.08</td>
<td>2.06</td>
</tr>
<tr>
<td>1979</td>
<td>38,641,000</td>
<td>9.88</td>
<td>1.63</td>
</tr>
<tr>
<td>1980</td>
<td>36,402,000</td>
<td>9.86</td>
<td>1.69</td>
</tr>
<tr>
<td>1981</td>
<td>36,803,000</td>
<td>9.51</td>
<td>1.78</td>
</tr>
<tr>
<td>1982</td>
<td>32,095,000</td>
<td>10.06</td>
<td>1.84</td>
</tr>
<tr>
<td>1983</td>
<td>31,048,000</td>
<td>9.90</td>
<td>1.79</td>
</tr>
<tr>
<td>1984</td>
<td>31,510,000</td>
<td>9.54</td>
<td>1.72</td>
</tr>
</tbody>
</table>

* Suicide and sabotage accidents excluded from rates as follows:
           1983 (1), 1984 (3)
Table 22 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS
ALL OPERATIONS
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>754</td>
<td>24.7</td>
<td>886.2</td>
<td>25.5</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>558</td>
<td>18.3</td>
<td>810.6</td>
<td>23.3</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>383</td>
<td>12.6</td>
<td>427.0</td>
<td>12.3</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>319</td>
<td>10.5</td>
<td>370.6</td>
<td>10.7</td>
</tr>
<tr>
<td>Hard landing</td>
<td>191</td>
<td>6.3</td>
<td>213.8</td>
<td>6.1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>157</td>
<td>5.2</td>
<td>162.8</td>
<td>4.7</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>150</td>
<td>4.9</td>
<td>131.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>226</td>
<td>7.4</td>
<td>100.0</td>
<td>2.9</td>
</tr>
<tr>
<td>Undershoot</td>
<td>55</td>
<td>1.8</td>
<td>96.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>43</td>
<td>1.4</td>
<td>82.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>60</td>
<td>2.0</td>
<td>72.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Midair collision</td>
<td>49</td>
<td>1.6</td>
<td>43.8</td>
<td>1.3</td>
</tr>
<tr>
<td>(All other types)</td>
<td>102</td>
<td>3.3</td>
<td>79.6</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3047</td>
<td>100.0</td>
<td>3476.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 23 - MOST PREVALENT FIRST OCCURRENCES IN FATAL ACCIDENTS
ALL OPERATIONS
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Collision with object/terrain</td>
<td>134</td>
<td>24.1</td>
<td>201.2</td>
<td>32.4</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>132</td>
<td>23.7</td>
<td>183.8</td>
<td>29.6</td>
</tr>
<tr>
<td>Loss of power</td>
<td>65</td>
<td>11.7</td>
<td>73.8</td>
<td>11.9</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>125</td>
<td>22.5</td>
<td>57.2</td>
<td>9.2</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>28</td>
<td>5.0</td>
<td>39.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Midair collision</td>
<td>27</td>
<td>4.9</td>
<td>25.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Missing aircraft</td>
<td>12</td>
<td>2.2</td>
<td>9.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Undershoot</td>
<td>2</td>
<td>0.4</td>
<td>6.6</td>
<td>1.1</td>
</tr>
<tr>
<td>(All other types)</td>
<td>31</td>
<td>5.6</td>
<td>25.0</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>556</td>
<td>100.0</td>
<td>621.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 24 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS

ALL OPERATIONS
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Landing</td>
<td>799</td>
<td>26.2</td>
</tr>
<tr>
<td>Takeoff</td>
<td>625</td>
<td>20.5</td>
</tr>
<tr>
<td>Cruise</td>
<td>511</td>
<td>16.8</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>432</td>
<td>14.2</td>
</tr>
<tr>
<td>Approach</td>
<td>375</td>
<td>12.3</td>
</tr>
<tr>
<td>Descent</td>
<td>62</td>
<td>2.0</td>
</tr>
<tr>
<td>Taxi</td>
<td>85</td>
<td>2.8</td>
</tr>
<tr>
<td>Climb</td>
<td>78</td>
<td>2.6</td>
</tr>
<tr>
<td>Other</td>
<td>50</td>
<td>1.6</td>
</tr>
<tr>
<td>Standing</td>
<td>29</td>
<td>1.0</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>.0</td>
</tr>
<tr>
<td>Total</td>
<td>3047</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 25 - MOST PREVALENT FIRST PHASES OF OPERATION IN FATAL ACCIDENTS

ALL OPERATIONS
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>148</td>
<td>26.6</td>
</tr>
<tr>
<td>Cruise</td>
<td>141</td>
<td>25.4</td>
</tr>
<tr>
<td>Approach</td>
<td>76</td>
<td>13.7</td>
</tr>
<tr>
<td>Takeoff</td>
<td>77</td>
<td>13.8</td>
</tr>
<tr>
<td>Descent</td>
<td>26</td>
<td>4.7</td>
</tr>
<tr>
<td>Other</td>
<td>37</td>
<td>6.7</td>
</tr>
<tr>
<td>Climb</td>
<td>30</td>
<td>5.4</td>
</tr>
<tr>
<td>Landing</td>
<td>16</td>
<td>2.9</td>
</tr>
<tr>
<td>Standing</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>Taxi</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Total</td>
<td>556</td>
<td>100.0</td>
</tr>
</tbody>
</table>

-33-
### Table 26 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS
**ALL OPERATIONS**
**1984 AND 1979 - 1983**

<table>
<thead>
<tr>
<th>Broad Cause/Factor</th>
<th>1984</th>
<th></th>
<th>1979 - 1983</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>Mean</td>
<td>Percent</td>
</tr>
<tr>
<td>Pilot</td>
<td>2637</td>
<td>86.5</td>
<td>2795.8</td>
<td>80.4</td>
</tr>
<tr>
<td>Weather</td>
<td>821</td>
<td>26.9</td>
<td>897.6</td>
<td>25.8</td>
</tr>
<tr>
<td>Terrain</td>
<td>759</td>
<td>24.9</td>
<td>869.2</td>
<td>25.0</td>
</tr>
<tr>
<td>Powerplant</td>
<td>625</td>
<td>20.5</td>
<td>622.8</td>
<td>17.9</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>725</td>
<td>23.8</td>
<td>510.8</td>
<td>14.7</td>
</tr>
<tr>
<td>Personnel</td>
<td>300</td>
<td>9.8</td>
<td>321.6</td>
<td>9.3</td>
</tr>
<tr>
<td>Airports/Airways/Facilities</td>
<td>160</td>
<td>5.3</td>
<td>224.2</td>
<td>6.4</td>
</tr>
<tr>
<td>Landing Gear</td>
<td>183</td>
<td>6.0</td>
<td>208.8</td>
<td>6.0</td>
</tr>
<tr>
<td>Undetermined</td>
<td>212</td>
<td>7.0</td>
<td>154.8</td>
<td>4.5</td>
</tr>
<tr>
<td>Airframe</td>
<td>105</td>
<td>3.4</td>
<td>84.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Systems</td>
<td>58</td>
<td>1.9</td>
<td>59.8</td>
<td>1.7</td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>26</td>
<td>.9</td>
<td>40.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>29</td>
<td>1.0</td>
<td>23.4</td>
<td>.7</td>
</tr>
<tr>
<td><strong>Number of Aircraft</strong></td>
<td>3047</td>
<td></td>
<td>3476.6</td>
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### Table 27 - BROAD CAUSE/FACTOR ASSIGNMENTS IN FATAL ACCIDENTS
**ALL OPERATIONS**
**1984 AND 1979 - 1983**

<table>
<thead>
<tr>
<th>Broad Cause/Factor</th>
<th>1984</th>
<th></th>
<th>1979 - 1983</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>Mean</td>
<td>Percent</td>
</tr>
<tr>
<td>Pilot</td>
<td>500</td>
<td>89.9</td>
<td>538.6</td>
<td>86.6</td>
</tr>
<tr>
<td>Weather</td>
<td>226</td>
<td>40.6</td>
<td>250.8</td>
<td>40.3</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>187</td>
<td>33.6</td>
<td>103.2</td>
<td>16.6</td>
</tr>
<tr>
<td>Terrain</td>
<td>99</td>
<td>17.8</td>
<td>95.0</td>
<td>15.3</td>
</tr>
<tr>
<td>Personnel</td>
<td>62</td>
<td>11.2</td>
<td>72.2</td>
<td>11.6</td>
</tr>
<tr>
<td>Powerplant</td>
<td>58</td>
<td>10.4</td>
<td>55.6</td>
<td>8.9</td>
</tr>
<tr>
<td>Undetermined</td>
<td>51</td>
<td>9.2</td>
<td>54.4</td>
<td>8.8</td>
</tr>
<tr>
<td>Airframe</td>
<td>43</td>
<td>7.7</td>
<td>34.6</td>
<td>5.6</td>
</tr>
<tr>
<td>Airports/Airways/Facilities</td>
<td>7</td>
<td>1.3</td>
<td>9.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Systems</td>
<td>14</td>
<td>2.5</td>
<td>8.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>6</td>
<td>1.1</td>
<td>8.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>6</td>
<td>1.1</td>
<td>7.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Landing Gear</td>
<td>2</td>
<td>.4</td>
<td>1.0</td>
<td>.2</td>
</tr>
<tr>
<td><strong>Number of Aircraft</strong></td>
<td>556</td>
<td></td>
<td>621.6</td>
<td></td>
</tr>
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</table>
Table 28 - SUMMARY OF LOSSES
ALL FIXED WING AIRCRAFT
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>496</td>
<td>503</td>
<td>539</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>283</td>
<td>251</td>
<td>277</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>385</td>
<td>389</td>
<td>370</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>1531</td>
<td>1578</td>
<td>1669</td>
</tr>
<tr>
<td>Total</td>
<td>2695</td>
<td>2729</td>
<td>2885</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>443</td>
<td>467</td>
<td>530</td>
</tr>
<tr>
<td>Crew</td>
<td>507</td>
<td>518</td>
<td>564</td>
</tr>
<tr>
<td>Other Persons</td>
<td>19</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>969</td>
<td>990</td>
<td>1105</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aircraft Damaged</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>803</td>
<td>778</td>
<td>874</td>
</tr>
<tr>
<td>Substantial</td>
<td>1883</td>
<td>1955</td>
<td>2014</td>
</tr>
<tr>
<td>Minor</td>
<td>19</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>None</td>
<td>23</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>2728</td>
<td>2758</td>
<td>2920</td>
</tr>
</tbody>
</table>

* Number of Fixed Wing, General Aviation Aircraft
### Table 29 - PERSONS BY ROLE AND DEGREE OF INJURY

**ALL FIXED WING AIRCRAFT**

**1984**

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>467</td>
<td>260</td>
<td>379</td>
<td>1611</td>
<td>2717</td>
</tr>
<tr>
<td>Copilot</td>
<td>25</td>
<td>2</td>
<td>7</td>
<td>38</td>
<td>72</td>
</tr>
<tr>
<td>Dual student</td>
<td>10</td>
<td>5</td>
<td>13</td>
<td>84</td>
<td>112</td>
</tr>
<tr>
<td>Check pilot</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Flight engineer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other crew</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Passenger</td>
<td>443</td>
<td>208</td>
<td>290</td>
<td>1263</td>
<td>2204</td>
</tr>
<tr>
<td>Total aboard</td>
<td>950</td>
<td>481</td>
<td>691</td>
<td>3017</td>
<td>5139</td>
</tr>
<tr>
<td>Other aircraft*</td>
<td>15</td>
<td>2</td>
<td>7</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>Other ground</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Grand total</td>
<td>969</td>
<td>489</td>
<td>703</td>
<td>3043</td>
<td>5204</td>
</tr>
<tr>
<td>Percent</td>
<td>18.6</td>
<td>9.4</td>
<td>13.5</td>
<td>58.5</td>
<td></td>
</tr>
</tbody>
</table>

* 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
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>673</td>
<td>376</td>
<td>522</td>
<td>2028</td>
<td>3599</td>
</tr>
<tr>
<td>Business</td>
<td>148</td>
<td>35</td>
<td>33</td>
<td>288</td>
<td>504</td>
</tr>
<tr>
<td>Corporate/Executive</td>
<td>5</td>
<td>4</td>
<td>13</td>
<td>35</td>
<td>57</td>
</tr>
<tr>
<td>Aerial application</td>
<td>20</td>
<td>16</td>
<td>30</td>
<td>146</td>
<td>212</td>
</tr>
<tr>
<td>Instructional</td>
<td>35</td>
<td>22</td>
<td>56</td>
<td>380</td>
<td>493</td>
</tr>
<tr>
<td>Other</td>
<td>69</td>
<td>28</td>
<td>37</td>
<td>140</td>
<td>274</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>950</td>
<td>481</td>
<td>691</td>
<td>3017</td>
<td>5139</td>
</tr>
</tbody>
</table>

| Percent | 18.5 | 9.4  | 13.4 | 58.7  |       |

-37-
<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Cargo shift</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>79</td>
<td>10</td>
</tr>
<tr>
<td>Ditching</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, or float</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Fire/explosion</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Forced landing</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Gear collapsed</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Main gear collapsed</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>Nose gear collapsed</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Complete gear collapsed</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Other gear collapsed</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>151</td>
<td>17</td>
</tr>
<tr>
<td>Hazardous materials leak/spill (fumes/smoke)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>79</td>
<td>36</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>72</td>
<td>18</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>110</td>
<td>44</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>278</td>
<td>23</td>
</tr>
<tr>
<td>Midair collision</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Near collision between aircraft</td>
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<td>0</td>
</tr>
<tr>
<td>Nose over</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>64</td>
<td>16</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>On ground encounter with weather</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Overrun</td>
<td>90</td>
<td>14</td>
</tr>
<tr>
<td>Loss of power</td>
<td>62</td>
<td>36</td>
</tr>
<tr>
<td>Loss of power (total) - mech failure/malfunction</td>
<td>51</td>
<td>21</td>
</tr>
<tr>
<td>Loss of power (partial) - mech failure/malfunction</td>
<td>45</td>
<td>13</td>
</tr>
<tr>
<td>Loss of power (total) - non-mechanical</td>
<td>185</td>
<td>77</td>
</tr>
<tr>
<td>Loss of power (partial) - non-mechanical</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Propeller blast or jet exhaust/suction</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Propeller/rotor contact</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Roll over</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 31 – AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY (CONTINUED)
ALL FIXED WING AIRCRAFT
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>None</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undershoot</td>
<td>40</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>51</td>
<td>1.9</td>
</tr>
<tr>
<td>Undetermined</td>
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<td>0</td>
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<td>5</td>
<td>5</td>
<td>0.2</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>7</td>
<td>0.3</td>
</tr>
<tr>
<td>Missing aircraft</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>12</td>
<td>0.4</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>13</td>
<td>0.5</td>
</tr>
<tr>
<td>Not reported</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1549</td>
<td>389</td>
</tr>
<tr>
<td>Percent</td>
<td>56.8</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>283</td>
<td>507</td>
</tr>
<tr>
<td></td>
<td>10.4</td>
<td>18.6</td>
</tr>
<tr>
<td></td>
<td>2728</td>
<td></td>
</tr>
</tbody>
</table>
Table 32 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
ALL FIXED WING AIRCRAFT
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Standing</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Standing - pre-flight</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Cruise - holding(IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - emergency</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Approach - VFR pattern - base turn</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Approach - go-around (VFR)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Approach - IAF to FAF/outer marker (IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - FAF/outer marker to threshold (IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - circling (IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - missed approach (IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Landing - flare/ touchdown</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 32 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)
ALL FIXED WING AIRCRAFT
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maneuvering - turn to landing area</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(emergency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hover</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft
Number - 23 19 1883 803 2728
Percent - 0.8 0.7 69.0 29.4
Table 33 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
ALL FIXED WING AIRCRAFT
1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WMC</td>
<td>IMC</td>
</tr>
<tr>
<td>Dawn</td>
<td>34</td>
<td>7</td>
</tr>
<tr>
<td>Daylight</td>
<td>2099</td>
<td>121</td>
</tr>
<tr>
<td>Night (dark)</td>
<td>153</td>
<td>102</td>
</tr>
<tr>
<td>Night (bright)</td>
<td>41</td>
<td>6</td>
</tr>
<tr>
<td>Dusk</td>
<td>92</td>
<td>10</td>
</tr>
<tr>
<td>Not reported</td>
<td>15</td>
<td>1</td>
</tr>
</tbody>
</table>

Aircraft Number - 2434, Percent - 89.2

Table 34 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
ALL FIXED WING AIRCRAFT
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>IFR</td>
</tr>
<tr>
<td>On Airport</td>
<td>101</td>
<td>74</td>
</tr>
<tr>
<td>On Airstrip</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>21</td>
<td>56</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>Not reported</td>
<td>95</td>
<td>66</td>
</tr>
</tbody>
</table>

Aircraft Number - 244, Percent - 8.9

-42-
Table 35 - MOST PREVALENT DETAILED ACCIDENT CAUSES
ALL FIXED WING AIRCRAFT
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>315</td>
<td>11.5</td>
</tr>
<tr>
<td>Undetermined</td>
<td>186</td>
<td>6.8</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>137</td>
<td>5.0</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in</td>
<td>121</td>
<td>4.4</td>
</tr>
<tr>
<td>command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in</td>
<td>111</td>
<td>4.1</td>
</tr>
<tr>
<td>command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airspeed - Not maintained - Pilot in command</td>
<td>105</td>
<td>3.8</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>98</td>
<td>3.6</td>
</tr>
<tr>
<td>Flare - Improper - Pilot in command</td>
<td>90</td>
<td>3.3</td>
</tr>
<tr>
<td>Aircraft preflight - Inadequate - Pilot in command</td>
<td>87</td>
<td>3.2</td>
</tr>
<tr>
<td>Stall - Inadvertent - Pilot in command</td>
<td>86</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 2728
### Table 36 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
ALL FIXED WING AIRCRAFT
1975 - 1984

#### Fatalities

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>3644</td>
<td>609</td>
<td>1216</td>
<td>1193</td>
</tr>
<tr>
<td>1976</td>
<td>3695</td>
<td>624</td>
<td>1168</td>
<td>1154</td>
</tr>
<tr>
<td>1977</td>
<td>3745</td>
<td>632</td>
<td>1240</td>
<td>1230</td>
</tr>
<tr>
<td>1978</td>
<td>3850</td>
<td>670</td>
<td>1487</td>
<td>1335</td>
</tr>
<tr>
<td>1979</td>
<td>3477</td>
<td>592</td>
<td>1155</td>
<td>1142</td>
</tr>
<tr>
<td>1980</td>
<td>3233</td>
<td>569</td>
<td>1168</td>
<td>1162</td>
</tr>
<tr>
<td>1981</td>
<td>3161</td>
<td>610</td>
<td>1208</td>
<td>1190</td>
</tr>
<tr>
<td>1982</td>
<td>2885</td>
<td>539</td>
<td>1105</td>
<td>1094</td>
</tr>
<tr>
<td>1983</td>
<td>2729</td>
<td>503</td>
<td>990</td>
<td>985</td>
</tr>
<tr>
<td>1984</td>
<td>2693</td>
<td>496</td>
<td>969</td>
<td>950</td>
</tr>
</tbody>
</table>

#### Accident Rate per 100,000 *

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>28,393,000</td>
<td>12.83</td>
<td>2.14</td>
</tr>
<tr>
<td>1976</td>
<td>29,202,000</td>
<td>12.64</td>
<td>2.13</td>
</tr>
<tr>
<td>1977</td>
<td>30,166,000</td>
<td>12.41</td>
<td>2.09</td>
</tr>
<tr>
<td>1978</td>
<td>33,162,000</td>
<td>11.60</td>
<td>2.01</td>
</tr>
<tr>
<td>1979</td>
<td>36,760,000</td>
<td>9.46</td>
<td>1.61</td>
</tr>
<tr>
<td>1980</td>
<td>34,145,000</td>
<td>9.47</td>
<td>1.66</td>
</tr>
<tr>
<td>1981</td>
<td>34,113,000</td>
<td>9.27</td>
<td>1.79</td>
</tr>
<tr>
<td>1982</td>
<td>30,077,000</td>
<td>9.59</td>
<td>1.79</td>
</tr>
<tr>
<td>1983</td>
<td>28,917,000</td>
<td>9.43</td>
<td>1.74</td>
</tr>
<tr>
<td>1984</td>
<td>29,555,000</td>
<td>9.11</td>
<td>1.67</td>
</tr>
</tbody>
</table>

* Suicide and sabotage accidents excluded from rates as follows:
Table 37 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS
ALL FIXED WING AIRCRAFT
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984 No.</th>
<th>1984 Percent</th>
<th>Mean</th>
<th>1979 - 1983 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>691</td>
<td>25.3</td>
<td>804.4</td>
<td>25.7</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>485</td>
<td>17.8</td>
<td>714.4</td>
<td>22.8</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>329</td>
<td>12.1</td>
<td>389.0</td>
<td>12.4</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>313</td>
<td>11.5</td>
<td>364.6</td>
<td>11.7</td>
</tr>
<tr>
<td>Hard landing</td>
<td>174</td>
<td>6.4</td>
<td>182.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>134</td>
<td>4.9</td>
<td>151.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>202</td>
<td>7.4</td>
<td>93.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>123</td>
<td>4.5</td>
<td>88.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Undershoot</td>
<td>51</td>
<td>1.9</td>
<td>88.0</td>
<td>2.8</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>43</td>
<td>1.6</td>
<td>80.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>60</td>
<td>2.2</td>
<td>71.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Midair collision</td>
<td>44</td>
<td>1.6</td>
<td>40.4</td>
<td>1.3</td>
</tr>
<tr>
<td>(All other types)</td>
<td>79</td>
<td>2.9</td>
<td>59.6</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2728</strong></td>
<td><strong>100.0</strong></td>
<td><strong>3128.2</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 38 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
ALL FIXED WING AIRCRAFT
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>736</td>
<td>27.0</td>
<td>873.4</td>
<td>27.9</td>
</tr>
<tr>
<td>Takeoff</td>
<td>581</td>
<td>21.3</td>
<td>648.4</td>
<td>20.7</td>
</tr>
<tr>
<td>Cruise</td>
<td>457</td>
<td>16.8</td>
<td>478.6</td>
<td>15.3</td>
</tr>
<tr>
<td>Approach</td>
<td>340</td>
<td>12.5</td>
<td>407.8</td>
<td>13.0</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>335</td>
<td>12.3</td>
<td>370.8</td>
<td>11.9</td>
</tr>
<tr>
<td>Descent</td>
<td>52</td>
<td>1.9</td>
<td>118.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Taxi</td>
<td>80</td>
<td>2.9</td>
<td>93.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Climb</td>
<td>73</td>
<td>2.7</td>
<td>77.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Other</td>
<td>50</td>
<td>1.8</td>
<td>35.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Standing</td>
<td>23</td>
<td>0.8</td>
<td>22.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2728</strong></td>
<td><strong>100.0</strong></td>
<td><strong>3128.2</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 39 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS
ALL FIXED WING AIRCRAFT
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>2369</td>
<td>86.8</td>
<td>2547.0</td>
<td>81.4</td>
</tr>
<tr>
<td>Weather</td>
<td>749</td>
<td>27.5</td>
<td>823.6</td>
<td>26.3</td>
</tr>
<tr>
<td>Terrain</td>
<td>697</td>
<td>25.5</td>
<td>787.2</td>
<td>25.2</td>
</tr>
<tr>
<td>Powerplant</td>
<td>573</td>
<td>21.0</td>
<td>561.8</td>
<td>18.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>652</td>
<td>23.9</td>
<td>459.2</td>
<td>14.7</td>
</tr>
<tr>
<td>Personnel</td>
<td>254</td>
<td>9.3</td>
<td>280.8</td>
<td>9.0</td>
</tr>
<tr>
<td>Airport/Airways/Facilities</td>
<td>158</td>
<td>5.8</td>
<td>220.8</td>
<td>7.1</td>
</tr>
<tr>
<td>Landing Gear</td>
<td>177</td>
<td>6.5</td>
<td>206.0</td>
<td>6.6</td>
</tr>
<tr>
<td>Undetermined</td>
<td>191</td>
<td>7.0</td>
<td>131.4</td>
<td>4.2</td>
</tr>
<tr>
<td>Airframe</td>
<td>98</td>
<td>3.6</td>
<td>76.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Systems</td>
<td>57</td>
<td>2.1</td>
<td>52.8</td>
<td>1.7</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>21</td>
<td>.8</td>
<td>18.8</td>
<td>.6</td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>0</td>
<td>.0</td>
<td>.4</td>
<td>.0</td>
</tr>
</tbody>
</table>

Number of Aircraft
2728
3128.2
### Table 40 - SUMMARY OF LOSSES
**FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE**
**1982 - 1984**

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>405</td>
<td>419</td>
<td>455</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>251</td>
<td>234</td>
<td>254</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>358</td>
<td>359</td>
<td>346</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>1367</td>
<td>1427</td>
<td>1492</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2381</td>
<td>2439</td>
<td>2547</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>341</td>
<td>349</td>
<td>390</td>
</tr>
<tr>
<td>Crew</td>
<td>407</td>
<td>422</td>
<td>456</td>
</tr>
<tr>
<td>Other Persons</td>
<td>17</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>765</td>
<td>779</td>
<td>862</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aircraft Damaged</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>680</td>
<td>656</td>
<td>748</td>
</tr>
<tr>
<td>Substantial</td>
<td>1695</td>
<td>1783</td>
<td>1800</td>
</tr>
<tr>
<td>Minor</td>
<td>13</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>None</td>
<td>20</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2408</td>
<td>2460</td>
<td>2573</td>
</tr>
</tbody>
</table>

* 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
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>573</td>
<td>342</td>
<td>478</td>
<td>1835</td>
<td>3228</td>
</tr>
<tr>
<td>Business</td>
<td>82</td>
<td>26</td>
<td>20</td>
<td>132</td>
<td>260</td>
</tr>
<tr>
<td>Corporate/Executive</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Aerial application</td>
<td>19</td>
<td>16</td>
<td>30</td>
<td>141</td>
<td>206</td>
</tr>
<tr>
<td>Instructional</td>
<td>34</td>
<td>18</td>
<td>51</td>
<td>351</td>
<td>454</td>
</tr>
<tr>
<td>Other</td>
<td>39</td>
<td>16</td>
<td>30</td>
<td>90</td>
<td>175</td>
</tr>
<tr>
<td>Total</td>
<td>748</td>
<td>418</td>
<td>610</td>
<td>2552</td>
<td>4328</td>
</tr>
<tr>
<td>Percent</td>
<td>17.3</td>
<td>9.7</td>
<td>14.1</td>
<td>59.0</td>
<td></td>
</tr>
</tbody>
</table>

-48-
### Table 42 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY

**FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE**

1984

| Type of first occurrence | Degree of injury | Aircraft | |
|--------------------------|------------------|----------|
|                          | None | Minor | Ser | Fatal | No. | Percent |

- Abrupt maneuver
- Altitude deviation, uncontrolled
- Cargo shift
- Airframe/component/system failure/malfunction
- Ditching
- Dragged wing, rotor, pod, or float
- Fire/explosion
- Fire
- Forced landing
- Gear collapsed
- Main gear collapsed
- Nose gear collapsed
- Complete gear collapsed
- Hard landing
- In flight collision with object
- In flight collision with terrain
- In flight encounter with weather
- Loss of control - in flight
- Loss of control - on ground
- Midair collision
- Near collision between aircraft
- Nose over
- On ground collision with object
- On ground collision with terrain
- On ground encounter with weather
- Overrun
- Loss of power
- Loss of power(total) - mech failure/malfunction
- Loss of power(partial) - mech failure/malfunction
- Loss of power(total) - non-mechanical
- Loss of power(partial) - non-mechanical
- Propeller blast or jet exhaust/suction
- Propeller/rotor contact
- Roll over
- Undershoot
- Undetermined
- Vortex turbulence encountered

-49-
<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>None</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing aircraft</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>11</td>
<td>0.5</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>13</td>
<td>0.5</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Aircraft</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td><strong>2408</strong></td>
<td><strong>-</strong></td>
</tr>
<tr>
<td><strong>Number</strong></td>
<td>1379</td>
<td>362</td>
<td>251</td>
<td>416</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td>57.3</td>
<td>15.0</td>
<td>10.4</td>
<td>17.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 43 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>Standing</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Standing - pre-flight</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - emergency</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - base turn</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Approach - go-around (VFR)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Approach - IAF to FAF/outer marker (IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - FAF/outer marker to threshold (IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - circling(IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach - missed approach (IFR)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Phase of operation</td>
<td>Aircraft damage</td>
<td>Aircraft</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse direction</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to landing area (emergency)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hover</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Percent</td>
</tr>
</tbody>
</table>
### Table 44 - MOST PREVALENT DETAILED ACCIDENT CAUSES
**FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE**

**1984**

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>297</td>
<td>12.3</td>
</tr>
<tr>
<td>Undetermined</td>
<td>155</td>
<td>6.4</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>126</td>
<td>5.2</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in command</td>
<td>108</td>
<td>4.5</td>
</tr>
<tr>
<td>Airspeed - Not maintained - Pilot in command</td>
<td>98</td>
<td>4.1</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>91</td>
<td>3.8</td>
</tr>
<tr>
<td>Flare - Improper - Pilot in command</td>
<td>85</td>
<td>3.5</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>85</td>
<td>3.5</td>
</tr>
<tr>
<td>Stall - Inadvertent - Pilot in command</td>
<td>83</td>
<td>3.4</td>
</tr>
<tr>
<td>Recovery from bounced landing - Improper - Pilot in command</td>
<td>82</td>
<td>3.4</td>
</tr>
</tbody>
</table>

**Total Number of Aircraft:** 2408
Table 45 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>3305</td>
<td>514</td>
<td>972</td>
<td>949</td>
</tr>
<tr>
<td>1976</td>
<td>3319</td>
<td>510</td>
<td>899</td>
<td>887</td>
</tr>
<tr>
<td>1977</td>
<td>3383</td>
<td>542</td>
<td>996</td>
<td>987</td>
</tr>
<tr>
<td>1978</td>
<td>3440</td>
<td>544</td>
<td>1150</td>
<td>997</td>
</tr>
<tr>
<td>1979</td>
<td>3071</td>
<td>471</td>
<td>869</td>
<td>856</td>
</tr>
<tr>
<td>1980</td>
<td>2854</td>
<td>459</td>
<td>876</td>
<td>864</td>
</tr>
<tr>
<td>1981</td>
<td>2821</td>
<td>497</td>
<td>919</td>
<td>907</td>
</tr>
<tr>
<td>1982</td>
<td>2547</td>
<td>455</td>
<td>862</td>
<td>846</td>
</tr>
<tr>
<td>1983</td>
<td>2439</td>
<td>419</td>
<td>779</td>
<td>771</td>
</tr>
<tr>
<td>1984</td>
<td>2381</td>
<td>405</td>
<td>765</td>
<td>748</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Aircraft Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>22,881,000</td>
<td>14.44</td>
<td>2.24</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>23,442,000</td>
<td>14.15</td>
<td>2.17</td>
<td></td>
</tr>
<tr>
<td>1977</td>
<td>23,798,000</td>
<td>14.21</td>
<td>2.27</td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>26,556,000</td>
<td>12.95</td>
<td>2.04</td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>29,128,000</td>
<td>10.54</td>
<td>1.62</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>26,876,000</td>
<td>10.62</td>
<td>1.70</td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>26,347,000</td>
<td>10.71</td>
<td>1.89</td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>23,165,000</td>
<td>10.99</td>
<td>1.96</td>
<td></td>
</tr>
<tr>
<td>1983</td>
<td>22,152,000</td>
<td>11.01</td>
<td>1.89</td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td>22,710,000</td>
<td>10.47</td>
<td>1.77</td>
<td></td>
</tr>
</tbody>
</table>

* Suicide and sabotage accidents excluded from rates as follows:
Table 46 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>610</td>
<td>25.3</td>
<td>718.8</td>
<td>25.9</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>415</td>
<td>17.2</td>
<td>625.2</td>
<td>22.6</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>305</td>
<td>12.7</td>
<td>350.2</td>
<td>12.6</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>300</td>
<td>12.5</td>
<td>340.4</td>
<td>12.3</td>
</tr>
<tr>
<td>Hard landing</td>
<td>157</td>
<td>6.5</td>
<td>166.6</td>
<td>6.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>111</td>
<td>4.6</td>
<td>137.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>177</td>
<td>7.4</td>
<td>82.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>43</td>
<td>1.8</td>
<td>79.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Undershoot</td>
<td>47</td>
<td>2.0</td>
<td>78.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>102</td>
<td>4.2</td>
<td>73.0</td>
<td>2.6</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>31</td>
<td>1.3</td>
<td>41.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Midair collision</td>
<td>38</td>
<td>1.6</td>
<td>32.8</td>
<td>1.2</td>
</tr>
<tr>
<td>(All other types)</td>
<td>72</td>
<td>3.0</td>
<td>43.4</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2408</strong></td>
<td><strong>100.0</strong></td>
<td><strong>2770.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 47 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
FIXED WING AIRCRAFT - SINGLE RECIPROCATING ENGINE
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>650</td>
<td>27.0</td>
<td>769.2</td>
<td>27.8</td>
</tr>
<tr>
<td>Takeoff</td>
<td>512</td>
<td>21.3</td>
<td>582.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Cruise</td>
<td>403</td>
<td>16.7</td>
<td>431.2</td>
<td>15.6</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>317</td>
<td>13.2</td>
<td>353.2</td>
<td>12.8</td>
</tr>
<tr>
<td>Approach</td>
<td>285</td>
<td>11.8</td>
<td>344.0</td>
<td>12.4</td>
</tr>
<tr>
<td>Descent</td>
<td>46</td>
<td>1.9</td>
<td>98.2</td>
<td>3.5</td>
</tr>
<tr>
<td>Taxi</td>
<td>68</td>
<td>2.8</td>
<td>82.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Climb</td>
<td>61</td>
<td>2.5</td>
<td>63.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Other</td>
<td>44</td>
<td>1.8</td>
<td>27.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Standing</td>
<td>21</td>
<td>.9</td>
<td>18.2</td>
<td>.7</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>.0</td>
<td>.8</td>
<td>.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2408</strong></td>
<td><strong>100.0</strong></td>
<td><strong>2770.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 48 - SUMMARY OF LOSSES
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fatal</strong></td>
<td>74</td>
<td>74</td>
<td>78</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>28</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>22</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>133</td>
<td>125</td>
<td>180</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>257</td>
<td>243</td>
<td>297</td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>86</td>
<td>108</td>
<td>114</td>
</tr>
<tr>
<td>Crew</td>
<td>78</td>
<td>80</td>
<td>94</td>
</tr>
<tr>
<td>Other Persons</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>166</td>
<td>193</td>
<td>212</td>
</tr>
<tr>
<td><strong>Aircraft Damaged</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>102</td>
<td>104</td>
<td>112</td>
</tr>
<tr>
<td>Substantial</td>
<td>148</td>
<td>139</td>
<td>181</td>
</tr>
<tr>
<td>Minor</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>258</td>
<td>245</td>
<td>298</td>
</tr>
</tbody>
</table>

* 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
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>92</td>
<td>31</td>
<td>37</td>
<td>174</td>
<td>334</td>
</tr>
<tr>
<td>Business</td>
<td>47</td>
<td>5</td>
<td>9</td>
<td>105</td>
<td>166</td>
</tr>
<tr>
<td>Corporate/Executive</td>
<td>4</td>
<td>4</td>
<td>11</td>
<td>21</td>
<td>40</td>
</tr>
<tr>
<td>Aerial application</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Instructional</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>21</td>
<td>31</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>8</td>
<td>5</td>
<td>26</td>
<td>59</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>164</strong></td>
<td><strong>52</strong></td>
<td><strong>67</strong></td>
<td><strong>348</strong></td>
<td><strong>631</strong></td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td><strong>26.0</strong></td>
<td><strong>8.2</strong></td>
<td><strong>10.6</strong></td>
<td><strong>55.2</strong></td>
<td></td>
</tr>
</tbody>
</table>
## Table 50 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY
### FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Ditching</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Gear collapsed</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Main gear collapsed</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Nose gear collapsed</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Complete gear collapsed</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Other gear collapsed</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Hazardous materials leak/spill (fumes/smoke)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Midair collision</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Overrun</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Loss of power</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Loss of power (partial) - mech failure/malfunction</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power (total) - mech failure/malfunction</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Loss of power (total) - non-mechanical</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Loss of power (partial) - non-mechanical</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Undershoot</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Missing aircraft</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Number</th>
<th>None</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>134</td>
<td>22</td>
<td>28</td>
<td>74</td>
<td>258</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percent</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>51.9</td>
<td>8.5</td>
</tr>
</tbody>
</table>

10.9 | 28.7
Table 51 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE  
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES  
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
<td>Subs</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Cruise - holding(IFR)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Approach - VFR pattern - base turn</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Approach - VFR pattern - final</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Approach - IAF to FAF/outer marker</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Approach - FAF/outer marker to</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>threshold (IFR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach - circling(IFR)</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Approach - missed approach (IFR)</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>2</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>0</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft Number -  3  5  148  102  258
Aircraft Percent - 1.2 1.9 57.4 39.5

-59-
### Table 52 - MOST PREVALENT DETAILED ACCIDENT CAUSES
#### FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINES
#### 1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undetermined</td>
<td>27</td>
<td>10.5</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>19</td>
<td>7.4</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>Fluid, fuel - Starvation</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>IFR procedure - Improper - Pilot in command</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>Aircraft preflight - Inadequate - Pilot in command</td>
<td>11</td>
<td>4.3</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>10</td>
<td>3.9</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in command</td>
<td>10</td>
<td>3.9</td>
</tr>
<tr>
<td>Fuel supply - Inadequate - Pilot in command</td>
<td>10</td>
<td>3.9</td>
</tr>
</tbody>
</table>

**Total Number of Aircraft:** 258
Table 53 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
FIXED WING AIRCRAFT - MULTIPLE RECIPROCATING ENGINE
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>312</td>
<td>84</td>
<td>208</td>
<td>208</td>
</tr>
<tr>
<td>1976</td>
<td>346</td>
<td>103</td>
<td>238</td>
<td>231</td>
</tr>
<tr>
<td>1977</td>
<td>324</td>
<td>73</td>
<td>173</td>
<td>166</td>
</tr>
<tr>
<td>1978</td>
<td>367</td>
<td>112</td>
<td>295</td>
<td>292</td>
</tr>
<tr>
<td>1979</td>
<td>358</td>
<td>108</td>
<td>258</td>
<td>247</td>
</tr>
<tr>
<td>1980</td>
<td>330</td>
<td>99</td>
<td>262</td>
<td>256</td>
</tr>
<tr>
<td>1981</td>
<td>289</td>
<td>94</td>
<td>220</td>
<td>218</td>
</tr>
<tr>
<td>1982</td>
<td>297</td>
<td>78</td>
<td>212</td>
<td>208</td>
</tr>
<tr>
<td>1983</td>
<td>243</td>
<td>74</td>
<td>193</td>
<td>188</td>
</tr>
<tr>
<td>1984</td>
<td>257</td>
<td>74</td>
<td>166</td>
<td>164</td>
</tr>
</tbody>
</table>

Accident Rate per 100,000 *
Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>3,918,000</td>
<td>7.96</td>
<td>2.14</td>
</tr>
<tr>
<td>1976</td>
<td>4,085,000</td>
<td>8.42</td>
<td>2.52</td>
</tr>
<tr>
<td>1977</td>
<td>4,320,000</td>
<td>7.50</td>
<td>1.69</td>
</tr>
<tr>
<td>1978</td>
<td>4,496,000</td>
<td>8.16</td>
<td>2.49</td>
</tr>
<tr>
<td>1979</td>
<td>5,098,000</td>
<td>7.02</td>
<td>2.12</td>
</tr>
<tr>
<td>1980</td>
<td>4,491,000</td>
<td>7.35</td>
<td>2.20</td>
</tr>
<tr>
<td>1981</td>
<td>4,833,000</td>
<td>5.98</td>
<td>1.94</td>
</tr>
<tr>
<td>1982</td>
<td>4,026,000</td>
<td>7.35</td>
<td>1.94</td>
</tr>
<tr>
<td>1983</td>
<td>3,828,000</td>
<td>6.35</td>
<td>1.93</td>
</tr>
<tr>
<td>1984</td>
<td>3,853,000</td>
<td>6.67</td>
<td>1.92</td>
</tr>
</tbody>
</table>

* 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**
**1984 and 1979 - 1983**

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984 No.</th>
<th>1984 Percent</th>
<th>Mean</th>
<th>1979 - 1983 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>74</td>
<td>28.7</td>
<td>78.6</td>
<td>25.8</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>57</td>
<td>22.1</td>
<td>75.8</td>
<td>24.9</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>17</td>
<td>6.6</td>
<td>31.6</td>
<td>10.4</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>25</td>
<td>9.7</td>
<td>27.2</td>
<td>8.9</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>6</td>
<td>2.3</td>
<td>17.8</td>
<td>5.8</td>
</tr>
<tr>
<td>Hard landing</td>
<td>14</td>
<td>5.4</td>
<td>12.4</td>
<td>4.1</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>17</td>
<td>6.6</td>
<td>11.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>16</td>
<td>6.2</td>
<td>10.8</td>
<td>3.5</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>22</td>
<td>8.5</td>
<td>10.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Undershoot</td>
<td>3</td>
<td>1.2</td>
<td>7.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Fire/explosion</td>
<td>2</td>
<td>.8</td>
<td>7.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Midair collision</td>
<td>2</td>
<td>.8</td>
<td>6.0</td>
<td>2.0</td>
</tr>
<tr>
<td>(All other types)</td>
<td>3</td>
<td>1.2</td>
<td>8.2</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>258</td>
<td>100.0</td>
<td>305.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 55 - Most Prevalent First Phases of Operation in All Accidents
**Fixed Wing Aircraft - Multiple Reciprocating Engines**
**1984 and 1979 - 1983**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>64</td>
<td>24.8</td>
<td>87.0</td>
<td>28.5</td>
</tr>
<tr>
<td>Takeoff</td>
<td>57</td>
<td>22.1</td>
<td>58.4</td>
<td>19.1</td>
</tr>
<tr>
<td>Approach</td>
<td>49</td>
<td>19.0</td>
<td>55.4</td>
<td>18.2</td>
</tr>
<tr>
<td>Cruise</td>
<td>45</td>
<td>17.4</td>
<td>41.8</td>
<td>13.7</td>
</tr>
<tr>
<td>Descent</td>
<td>5</td>
<td>1.9</td>
<td>16.8</td>
<td>5.5</td>
</tr>
<tr>
<td>Climb</td>
<td>8</td>
<td>3.1</td>
<td>13.2</td>
<td>4.3</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>11</td>
<td>4.3</td>
<td>11.8</td>
<td>3.9</td>
</tr>
<tr>
<td>Taxi</td>
<td>11</td>
<td>4.3</td>
<td>9.6</td>
<td>3.1</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>2.3</td>
<td>8.0</td>
<td>2.6</td>
</tr>
<tr>
<td>Standing</td>
<td>2</td>
<td>0.8</td>
<td>2.8</td>
<td>.9</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0.0</td>
<td>.2</td>
<td>.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>258</td>
<td>100.0</td>
<td>305.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 56 - SUMMARY OF LOSSES
**FIXED WING AIRCRAFT - TURBOPROP**
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>12</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>26</td>
<td>19</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>46</td>
<td>33</td>
<td>38</td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>9</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td>Crew</td>
<td>14</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Other Persons</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>23</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td><strong>Aircraft Damaged</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>15</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Substantial</td>
<td>33</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>48</td>
<td>33</td>
<td>38</td>
</tr>
</tbody>
</table>

* Number of Turboprop General Aviation Airplanes
Table 57 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY
FIXED WING AIRCRAFT - TURSOPROP
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Degree of Injury</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fatal</td>
<td>Serious</td>
<td>Minor</td>
<td>None</td>
<td>Total</td>
</tr>
<tr>
<td>Personal</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Business</td>
<td>8</td>
<td>3</td>
<td>3</td>
<td>44</td>
<td>58</td>
</tr>
<tr>
<td>Corporate/Executive</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Aerial application</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Instructional</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>7</td>
<td>13</td>
<td>85</td>
<td>128</td>
</tr>
<tr>
<td>Percent</td>
<td>18.0</td>
<td>5.5</td>
<td>10.2</td>
<td>66.4</td>
<td></td>
</tr>
</tbody>
</table>

-64-
<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Main gear collapsed</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nose gear collapsed</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Complete gear collapsed</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Midair collision</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Overrun</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Loss of power(total) - mech failure/malfunction</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power(partial) - mech failure/malfunction</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Loss of power(total) - non-mechanical failure/malfunction</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Loss of power(partial) - non-mechanical</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Propeller/rotor contact</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Undershoot</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Aircraft Number</th>
<th>None</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>28</td>
<td>5</td>
<td>3</td>
<td>12</td>
<td>48</td>
</tr>
<tr>
<td>Percent</td>
<td>58.3</td>
<td>10.4</td>
<td>6.3</td>
<td>25.0</td>
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</tr>
</tbody>
</table>
Table 59 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
FIXED WING AIRCRAFT - TURBOPROP
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Subs</td>
</tr>
<tr>
<td>Takeoff</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>3</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>2</td>
</tr>
<tr>
<td>Climb</td>
<td>1</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>2</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>6</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>1</td>
</tr>
<tr>
<td>Approach - FAF/outer marker to threshold (IFR)</td>
<td>0</td>
</tr>
<tr>
<td>Landing</td>
<td>3</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>5</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>7</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>1</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>1</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft
Number - 33 15 48
Percent - 68.8 31.3
<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>4</td>
<td>8.3</td>
</tr>
<tr>
<td>Visual lookout - Inadequate - Pilot of other aircraft</td>
<td>4</td>
<td>8.3</td>
</tr>
<tr>
<td>Visual lookout - Inadequate - Pilot in command</td>
<td>4</td>
<td>8.3</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in command</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>Proper glidepath - Not maintained - Pilot in command</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>Ground loop/swarf - Not corrected - Pilot in command</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Stall/spin - Inadvertent - Pilot in command</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Proper climb rate - Not possible - Pilot in command</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Maintenance, inspection of aircraft - Inadequate - Other maintenance panel</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Undetermined</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Terrain condition - Rough/uneven</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Fluid, fuel - Contamination</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Total Number of Aircraft:</strong></td>
<td><strong>48</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Table 61 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
#### FIXED WING AIRCRAFT - TURBOPROP
1975 - 1984

#### Fatalities

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>16</td>
<td>10</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>1976</td>
<td>22</td>
<td>8</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>1977</td>
<td>29</td>
<td>14</td>
<td>61</td>
<td>59</td>
</tr>
<tr>
<td>1978</td>
<td>28</td>
<td>11</td>
<td>32</td>
<td>31</td>
</tr>
<tr>
<td>1979</td>
<td>42</td>
<td>14</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>1980</td>
<td>41</td>
<td>11</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>1981</td>
<td>49</td>
<td>17</td>
<td>61</td>
<td>48</td>
</tr>
<tr>
<td>1982</td>
<td>38</td>
<td>9</td>
<td>37</td>
<td>33</td>
</tr>
<tr>
<td>1983</td>
<td>33</td>
<td>10</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>1984</td>
<td>46</td>
<td>12</td>
<td>23</td>
<td>23</td>
</tr>
</tbody>
</table>

#### Accident Rate per 100,000 Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>900,000</td>
<td>1.78</td>
<td>1.11</td>
</tr>
<tr>
<td>1976</td>
<td>901,000</td>
<td>2.44</td>
<td>0.89</td>
</tr>
<tr>
<td>1977</td>
<td>1,093,000</td>
<td>2.65</td>
<td>1.28</td>
</tr>
<tr>
<td>1978</td>
<td>1,056,000</td>
<td>2.65</td>
<td>1.04</td>
</tr>
<tr>
<td>1979</td>
<td>1,375,000</td>
<td>3.05</td>
<td>1.02</td>
</tr>
<tr>
<td>1980</td>
<td>1,524,000</td>
<td>2.69</td>
<td>0.72</td>
</tr>
<tr>
<td>1981</td>
<td>1,609,000</td>
<td>3.05</td>
<td>1.06</td>
</tr>
<tr>
<td>1982</td>
<td>1,515,000</td>
<td>2.51</td>
<td>0.59</td>
</tr>
<tr>
<td>1983</td>
<td>1,460,000</td>
<td>2.26</td>
<td>0.68</td>
</tr>
<tr>
<td>1984</td>
<td>1,689,000</td>
<td>2.72</td>
<td>0.71</td>
</tr>
</tbody>
</table>
### Table 62 - Most Prevalent First Occurrences in All Accidents
**Fixed Wing Aircraft - Turboprop**
**1984 and 1979 - 1983**

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984</th>
<th></th>
<th>1979 - 1983</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Collision with object/terrain</td>
<td>9</td>
<td>18.8</td>
<td>10.6</td>
<td>26.1</td>
</tr>
<tr>
<td>Loss of power</td>
<td>7</td>
<td>14.6</td>
<td>6.6</td>
<td>16.3</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>5</td>
<td>10.4</td>
<td>5.2</td>
<td>12.8</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>5</td>
<td>10.4</td>
<td>4.6</td>
<td>11.3</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>3</td>
<td>6.3</td>
<td>3.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>4</td>
<td>8.3</td>
<td>2.6</td>
<td>6.4</td>
</tr>
<tr>
<td>Hard landing</td>
<td>1</td>
<td>2.1</td>
<td>2.4</td>
<td>5.9</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>2</td>
<td>4.2</td>
<td>1.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5</td>
<td>10.4</td>
<td>1.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Midair collision</td>
<td>4</td>
<td>8.3</td>
<td>1.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Prop/rotor contact</td>
<td>1</td>
<td>2.1</td>
<td>1.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Undershoot</td>
<td>1</td>
<td>2.1</td>
<td>.8</td>
<td>2.0</td>
</tr>
<tr>
<td>(All other types)</td>
<td>1</td>
<td>2.1</td>
<td>.4</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>48</td>
<td>100.0</td>
<td>40.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 63 - Most Prevalent First Phases of Operation in All Accidents
**Fixed Wing Aircraft - Turboprop**
**1984 and 1979 - 1983**

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th></th>
<th>1979 - 1983</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>15</td>
<td>31.3</td>
<td>13.4</td>
<td>33.0</td>
</tr>
<tr>
<td>Takeoff</td>
<td>9</td>
<td>18.8</td>
<td>6.0</td>
<td>14.8</td>
</tr>
<tr>
<td>Approach</td>
<td>5</td>
<td>10.4</td>
<td>5.2</td>
<td>12.8</td>
</tr>
<tr>
<td>Cruise</td>
<td>8</td>
<td>16.7</td>
<td>4.8</td>
<td>11.8</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>7</td>
<td>14.6</td>
<td>4.6</td>
<td>11.3</td>
</tr>
<tr>
<td>Descent</td>
<td>1</td>
<td>2.1</td>
<td>3.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Standing</td>
<td>0</td>
<td>.0</td>
<td>1.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Climb</td>
<td>3</td>
<td>6.3</td>
<td>1.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>.0</td>
<td>.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>.0</td>
<td>.4</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>48</td>
<td>100.0</td>
<td>40.6</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>1984</td>
<td>1983</td>
<td>1982</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Involved No Injuries</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>14</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Crew</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Other Persons</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>15</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Aircraft Damaged</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Substantial</td>
<td>7</td>
<td>9</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Minor</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>15</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

* Number of Turbojet General Aviation Airplanes
### Table 65 - Persons Aboard by Kind of Flying and Degree of Injury
**Fixed Wing Aircraft - Turbojet**
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Business</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Corporate/Executive</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Instructional</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>16</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>4</td>
<td>1</td>
<td>32</td>
<td>52</td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td>28.8</td>
<td>7.7</td>
<td>1.9</td>
<td>61.5</td>
<td></td>
</tr>
</tbody>
</table>

### Table 66 - Aircraft by First Occurrence and Degree of Injury
**Fixed Wing Aircraft - Turbojet**
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>None</th>
<th>Ser</th>
<th>Fatal</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 7.1</td>
</tr>
<tr>
<td>Hard landing</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2 14.3</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 7.1</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2 14.3</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2 14.3</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2 14.3</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1 7.1</td>
</tr>
<tr>
<td>Overrun</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2 14.3</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1 7.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>8</td>
<td>1 5 14</td>
</tr>
<tr>
<td>Percent</td>
<td>57.1</td>
<td>7.1 35.7</td>
</tr>
</tbody>
</table>
Table 67 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
FIXED WING AIRCRAFT - TURBOJET
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor</td>
<td>Subs</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - final</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Aircraft
Number - 1 7 6 14
Percent - 7.1 50.0 42.9
Table 68 - MOST PREVALENT DETAILED ACCIDENT CAUSES
FIXED WING AIRCRAFT - TURBOJET
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undetermined</td>
<td>2</td>
<td>14.3</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>2</td>
<td>14.3</td>
</tr>
<tr>
<td>Flight and navigation instruments - Improper use of - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Wrong runway - Selected - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Unsuitable terrain - Selected - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Procedures/directives - Not followed - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Airspeed - Not maintained - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Altitude - Not attained - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Proper descent rate - Not maintained - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Proper glidepath - Not attained - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Flare - Misjudged - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Gear extension - Not performed - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Emergency procedure - Delayed - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Rotation - Excessive - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Wheels up landing - Inadvertent - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Visual separation - Inadequate - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Supervision - Inadequate - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Supervision - Inadequate - Check pilot</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Landing gear, anti-skid brake system - Failure, total</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Inattentive - Pilot in command</td>
<td>1</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 14
Table 69 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
FIXED WING AIRCRAFT - TURBOJET
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1976</td>
<td>13</td>
<td>5</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>1977</td>
<td>13</td>
<td>5</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>1978</td>
<td>20</td>
<td>5</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>1979</td>
<td>13</td>
<td>3</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>1980</td>
<td>12</td>
<td>3</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>1981</td>
<td>7</td>
<td>4</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>1982</td>
<td>10</td>
<td>2</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>1983</td>
<td>14</td>
<td>4</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>1984</td>
<td>14</td>
<td>5</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Accident Rate per 100,000 Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>687,000</td>
<td>1.89</td>
<td>0.15</td>
</tr>
<tr>
<td>1976</td>
<td>752,000</td>
<td>1.73</td>
<td>0.66</td>
</tr>
<tr>
<td>1977</td>
<td>943,000</td>
<td>1.38</td>
<td>0.53</td>
</tr>
<tr>
<td>1978</td>
<td>1,061,000</td>
<td>1.89</td>
<td>0.47</td>
</tr>
<tr>
<td>1979</td>
<td>1,120,000</td>
<td>1.16</td>
<td>0.27</td>
</tr>
<tr>
<td>1980</td>
<td>1,244,000</td>
<td>0.96</td>
<td>0.24</td>
</tr>
<tr>
<td>1981</td>
<td>1,318,000</td>
<td>0.53</td>
<td>0.30</td>
</tr>
<tr>
<td>1982</td>
<td>1,349,000</td>
<td>0.74</td>
<td>0.15</td>
</tr>
<tr>
<td>1983</td>
<td>1,452,000</td>
<td>0.96</td>
<td>0.28</td>
</tr>
<tr>
<td>1984</td>
<td>1,303,000</td>
<td>1.07</td>
<td>0.38</td>
</tr>
</tbody>
</table>
Table 70 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS
FIXED WING AIRCRAFT - TURBOJET
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984</th>
<th></th>
<th>1979 - 1983</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>Mean</td>
<td>Percent</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>4</td>
<td>28.6</td>
<td>2.6</td>
<td>22.4</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>2</td>
<td>14.3</td>
<td>2.2</td>
<td>19.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2</td>
<td>14.3</td>
<td>1.6</td>
<td>13.8</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>2</td>
<td>14.3</td>
<td>1.0</td>
<td>8.6</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>1</td>
<td>7.1</td>
<td>.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Hard landing</td>
<td>2</td>
<td>14.3</td>
<td>.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Undershoot</td>
<td>0</td>
<td>.0</td>
<td>.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>1</td>
<td>7.1</td>
<td>.6</td>
<td>5.2</td>
</tr>
<tr>
<td>Midair collision</td>
<td>0</td>
<td>.0</td>
<td>.6</td>
<td>5.2</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, float</td>
<td>0</td>
<td>.0</td>
<td>.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Fire/explosion</td>
<td>0</td>
<td>.0</td>
<td>.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Loss of power</td>
<td>0</td>
<td>.0</td>
<td>.2</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>100.0</td>
<td>11.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 71 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
FIXED WING AIRCRAFT - TURBOJET
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th></th>
<th>1979 - 1983</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>Mean</td>
<td>Percent</td>
</tr>
<tr>
<td>Landing</td>
<td>7</td>
<td>50.0</td>
<td>3.6</td>
<td>31.0</td>
</tr>
<tr>
<td>Approach</td>
<td>1</td>
<td>7.1</td>
<td>2.8</td>
<td>24.1</td>
</tr>
<tr>
<td>Takeoff</td>
<td>3</td>
<td>21.4</td>
<td>1.8</td>
<td>15.5</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>.0</td>
<td>1.0</td>
<td>8.6</td>
</tr>
<tr>
<td>Cruise</td>
<td>1</td>
<td>7.1</td>
<td>.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>.0</td>
<td>.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Climb</td>
<td>1</td>
<td>7.1</td>
<td>.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Standing</td>
<td>0</td>
<td>.0</td>
<td>.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Taxi</td>
<td>1</td>
<td>7.1</td>
<td>.2</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>100.0</td>
<td>11.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 72 - SUMMARY OF LOSSES
ALL ROTORCRAFT
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>38</td>
<td>37</td>
<td>41</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>30</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>47</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>109</td>
<td>138</td>
<td>140</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>238</td>
<td>255</td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>25</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Crew</td>
<td>34</td>
<td>40</td>
<td>46</td>
</tr>
<tr>
<td>Other Persons</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>58</td>
<td>66</td>
</tr>
<tr>
<td><strong>Aircraft Damaged</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>70</td>
<td>69</td>
<td>78</td>
</tr>
<tr>
<td>Substantial</td>
<td>150</td>
<td>167</td>
<td>175</td>
</tr>
<tr>
<td>Minor</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>238</td>
<td>256</td>
</tr>
</tbody>
</table>

* Number of General Aviation Rotorcraft
Table 73 - PERSONS BY ROLE AND DEGREE OF INJURY
ALL ROTORCRAFT
1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>29</td>
<td>30</td>
<td>45</td>
<td>120</td>
<td>224</td>
</tr>
<tr>
<td>Copilot</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Dual student</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Other crew</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Passenger</td>
<td>25</td>
<td>14</td>
<td>32</td>
<td>60</td>
<td>131</td>
</tr>
<tr>
<td>Total aboard</td>
<td>59</td>
<td>47</td>
<td>85</td>
<td>194</td>
<td>385</td>
</tr>
<tr>
<td>Other aircraft*</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Other ground</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Grand total    | 61    | 51      | 86    | 197  | 395   |
Percent        | 15.4  | 12.9    | 21.8  | 49.9 |       |

* 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
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>26</td>
<td>14</td>
<td>6</td>
<td>52</td>
<td>98</td>
</tr>
<tr>
<td>Business</td>
<td>7</td>
<td>14</td>
<td>29</td>
<td>22</td>
<td>72</td>
</tr>
<tr>
<td>Corporate/Executive</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Aerial application</td>
<td>0</td>
<td>6</td>
<td>13</td>
<td>25</td>
<td>44</td>
</tr>
<tr>
<td>Instructional</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>26</td>
<td>41</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>8</td>
<td>21</td>
<td>52</td>
<td>112</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>47</td>
<td>85</td>
<td>194</td>
<td>385</td>
</tr>
</tbody>
</table>

Percent        | 15.3  | 12.2    | 22.1  | 50.4 |       |

-77-
<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Fire</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Forced landing</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Loss of control – in flight</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Loss of control – on ground</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power (total) – mech failure/malfunction</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Loss of power (partial) – mech failure/malfunction</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Loss of power (total) – non-mechanical</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Loss of power (partial) – non-mechanical</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Propeller/rotor contact</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Roll over</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Undetermined</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>109</td>
<td>48.7</td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>13.4</td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>17.0</td>
</tr>
<tr>
<td></td>
<td>224</td>
<td></td>
</tr>
</tbody>
</table>

-78-
### Table 76 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE

**ALL ROTORCRAFT**

1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>None</th>
<th>Minor</th>
<th>Subs</th>
<th>Dest</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing - starting engine(s)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Standing - idling rotors</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Taxi - aerial</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>9</td>
<td>4.0</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>5</td>
<td>21</td>
<td>9.4</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>4</td>
<td>12</td>
<td>5.4</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>1</td>
<td>0</td>
<td>21</td>
<td>10</td>
<td>32</td>
<td>14.3</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>2.2</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>4.5</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>2.2</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>6</td>
<td>22</td>
<td>9.8</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>1</td>
<td>0</td>
<td>11</td>
<td>15</td>
<td>27</td>
<td>12.1</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>8</td>
<td>29</td>
<td>12.9</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse direction</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Maneuvering - turn to landing area (emergency)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Hover</td>
<td>1</td>
<td>0</td>
<td>21</td>
<td>4</td>
<td>26</td>
<td>11.6</td>
</tr>
</tbody>
</table>

### Aircraft

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>3</td>
<td>150</td>
</tr>
<tr>
<td>Percent</td>
<td>1.3</td>
<td>67.0</td>
</tr>
</tbody>
</table>

-79-
### Table 77 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
**ALL ROTORCRAFT**
**1984**

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VMC</td>
<td>IMC</td>
</tr>
<tr>
<td>Dawn</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Daylight</td>
<td>187</td>
<td>9</td>
</tr>
<tr>
<td>Night (dark)</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Night (bright)</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Dusk</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Percent</td>
</tr>
</tbody>
</table>

### Table 78 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
**ALL ROTORCRAFT**
**1984**

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>IFR</td>
</tr>
<tr>
<td>On Airport</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>On Airstrip</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Not reported</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Percent</td>
</tr>
</tbody>
</table>
Table 79 - MOST PREVALENT DETAILED ACCIDENT CAUSES
ALL ROTORCRAFT
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undetermined</td>
<td>17</td>
<td>7.6</td>
</tr>
<tr>
<td>Clearance - Not maintained - Pilot in command</td>
<td>14</td>
<td>6.3</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>12</td>
<td>5.4</td>
</tr>
<tr>
<td>Rotor rpm - Not maintained - Pilot in command</td>
<td>12</td>
<td>5.4</td>
</tr>
<tr>
<td>Clearance - Misjudged - Pilot in command</td>
<td>11</td>
<td>4.9</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>10</td>
<td>4.5</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>10</td>
<td>4.5</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>9</td>
<td>4.0</td>
</tr>
<tr>
<td>Visual lookout - Inadequate - Pilot in command</td>
<td>8</td>
<td>3.6</td>
</tr>
<tr>
<td>Unsuitable terrain - Selected - Pilot in command</td>
<td>8</td>
<td>3.6</td>
</tr>
<tr>
<td>Planning-decision - Improper - Pilot in command</td>
<td>8</td>
<td>3.6</td>
</tr>
<tr>
<td>Airplane handling - Not maintained - Pilot in command</td>
<td>8</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 224
Table 80 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
ALL ROTORCRAFT
1975 - 1984

**Fatalities**

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>264</td>
<td>18</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>1976</td>
<td>248</td>
<td>25</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>1977</td>
<td>246</td>
<td>22</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>1978</td>
<td>283</td>
<td>39</td>
<td>56</td>
<td>48</td>
</tr>
<tr>
<td>1979</td>
<td>265</td>
<td>33</td>
<td>56</td>
<td>51</td>
</tr>
<tr>
<td>1980</td>
<td>260</td>
<td>40</td>
<td>60</td>
<td>57</td>
</tr>
<tr>
<td>1981</td>
<td>256</td>
<td>30</td>
<td>55</td>
<td>52</td>
</tr>
<tr>
<td>1982</td>
<td>255</td>
<td>41</td>
<td>66</td>
<td>62</td>
</tr>
<tr>
<td>1983</td>
<td>238</td>
<td>37</td>
<td>58</td>
<td>56</td>
</tr>
<tr>
<td>1984</td>
<td>224</td>
<td>38</td>
<td>61</td>
<td>59</td>
</tr>
</tbody>
</table>

**Accident Rate per 100,000 * Aircraft Hours Flown**

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>974,000</td>
<td>27.10</td>
<td>1.85</td>
</tr>
<tr>
<td>1976</td>
<td>1,103,000</td>
<td>22.48</td>
<td>2.27</td>
</tr>
<tr>
<td>1977</td>
<td>1,170,000</td>
<td>21.03</td>
<td>1.88</td>
</tr>
<tr>
<td>1978</td>
<td>1,397,000</td>
<td>20.26</td>
<td>2.79</td>
</tr>
<tr>
<td>1979</td>
<td>1,522,000</td>
<td>17.41</td>
<td>2.17</td>
</tr>
<tr>
<td>1980</td>
<td>1,891,000</td>
<td>13.75</td>
<td>2.12</td>
</tr>
<tr>
<td>1981</td>
<td>2,303,000</td>
<td>11.12</td>
<td>1.30</td>
</tr>
<tr>
<td>1982</td>
<td>1,628,000</td>
<td>15.60</td>
<td>2.52</td>
</tr>
<tr>
<td>1983</td>
<td>1,709,000</td>
<td>13.93</td>
<td>2.17</td>
</tr>
<tr>
<td>1984</td>
<td>1,599,000</td>
<td>14.01</td>
<td>2.38</td>
</tr>
</tbody>
</table>

* Suicide and sabotage accidents excluded from rates as follows:
  Total - 1982 (1)
  Fatal - None
### Table 81 - Most Prevalent First Occurrences in All Accidents

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>58</td>
<td>25.9</td>
<td>79.8</td>
<td>31.3</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>55</td>
<td>24.6</td>
<td>61.6</td>
<td>24.2</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>25</td>
<td>11.2</td>
<td>39.4</td>
<td>15.5</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>38</td>
<td>17.0</td>
<td>23.8</td>
<td>9.3</td>
</tr>
<tr>
<td>Hard landing</td>
<td>9</td>
<td>4.0</td>
<td>20.4</td>
<td>8.0</td>
</tr>
<tr>
<td>Roll over</td>
<td>9</td>
<td>4.0</td>
<td>13.2</td>
<td>5.2</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>13</td>
<td>5.8</td>
<td>4.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6</td>
<td>2.7</td>
<td>4.0</td>
<td>1.6</td>
</tr>
<tr>
<td>(All other types)</td>
<td>11</td>
<td>4.9</td>
<td>8.8</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>224</strong></td>
<td><strong>100.0</strong></td>
<td><strong>255.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

### Table 82 - Most Prevalent First Phases of Operation in All Accidents

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maneuvering</td>
<td>85</td>
<td>37.9</td>
<td>77.2</td>
<td>30.3</td>
</tr>
<tr>
<td>Cruise</td>
<td>44</td>
<td>19.6</td>
<td>57.8</td>
<td>22.7</td>
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<tr>
<td>Takeoff</td>
<td>31</td>
<td>13.8</td>
<td>43.6</td>
<td>17.1</td>
</tr>
<tr>
<td>Landing</td>
<td>28</td>
<td>12.5</td>
<td>40.2</td>
<td>15.8</td>
</tr>
<tr>
<td>Approach</td>
<td>17</td>
<td>7.6</td>
<td>13.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Taxi</td>
<td>5</td>
<td>2.2</td>
<td>7.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Descent</td>
<td>4</td>
<td>1.8</td>
<td>6.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Standing</td>
<td>5</td>
<td>2.2</td>
<td>3.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Climb</td>
<td>5</td>
<td>2.2</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
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<td>0.0</td>
<td>2.2</td>
<td>.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>224</strong></td>
<td><strong>100.0</strong></td>
<td><strong>255.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------</td>
<td>--------------</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Pilot</td>
<td>181</td>
<td>80.8</td>
<td>168.0</td>
<td>65.9</td>
</tr>
<tr>
<td>Terrain</td>
<td>45</td>
<td>20.1</td>
<td>60.8</td>
<td>23.8</td>
</tr>
<tr>
<td>Powerplant</td>
<td>49</td>
<td>21.9</td>
<td>59.2</td>
<td>23.2</td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>26</td>
<td>11.6</td>
<td>40.2</td>
<td>15.8</td>
</tr>
<tr>
<td>Weather</td>
<td>32</td>
<td>14.3</td>
<td>40.2</td>
<td>15.8</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>47</td>
<td>21.0</td>
<td>35.6</td>
<td>14.0</td>
</tr>
<tr>
<td>Personnel</td>
<td>34</td>
<td>15.2</td>
<td>29.8</td>
<td>11.7</td>
</tr>
<tr>
<td>Undetermined</td>
<td>17</td>
<td>7.6</td>
<td>20.8</td>
<td>8.2</td>
</tr>
<tr>
<td>Systems</td>
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<td>.4</td>
<td>4.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Landing Gear</td>
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<td>2.7</td>
<td>2.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Airframe</td>
<td>5</td>
<td>2.2</td>
<td>2.2</td>
<td>.9</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>4</td>
<td>1.8</td>
<td>2.0</td>
<td>.8</td>
</tr>
<tr>
<td>Airport/Airways/Facilities</td>
<td>1</td>
<td>.4</td>
<td>1.4</td>
<td>.5</td>
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</table>

| Number of Aircraft                     | 224      | 255.0        |                  |                     |
Table 84 - SUMMARY OF LOSSES
ROTORCRAFT - RECIPROCATING ENGINE(S)
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>22</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>17</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>25</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>64</td>
<td>86</td>
<td>96</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>128</td>
<td>143</td>
<td>157</td>
</tr>
</tbody>
</table>

| **Fatalities**       |      |      |      |
| Passenger            | 8    | 2    | 3    |
| Crew                 | 20   | 23   | 21   |
| Other Persons        | 1    | 0    | 0    |
| **Total**            | 29   | 25   | 24   |

| **Aircraft Damaged***|      |      |      |
| Destroyed            | 44   | 37   | 40   |
| Substantial          | 81   | 106  | 117  |
| Minor                | 1    | 0    | 0    |
| None                 | 2    | 0    | 0    |
| **Total**            | 128  | 143  | 157  |

* Number of Reciprocating Engine, General Aviation Rotorcraft
Table 85 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY
ROTORCRAFT - RECIPROCATING ENGINE(S)
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>17</td>
<td>10</td>
<td>5</td>
<td>33</td>
<td>65</td>
</tr>
<tr>
<td>Business</td>
<td>1</td>
<td>2</td>
<td>12</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>Aerial application</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Instructional</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>23</td>
<td>36</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>5</td>
<td>7</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
<td><strong>22</strong></td>
<td><strong>40</strong></td>
<td><strong>106</strong></td>
<td><strong>196</strong></td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td><strong>14.3</strong></td>
<td><strong>11.2</strong></td>
<td><strong>20.4</strong></td>
<td><strong>54.1</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Table 86 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY
#### ROTORCRAFT - RECIPROCATING ENGINE(S)

1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th></th>
<th></th>
<th></th>
<th>Aircraft No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
<td>Ser</td>
<td>Fatal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
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<td>4</td>
<td>1</td>
<td>4</td>
<td>13</td>
<td>10.2</td>
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<tr>
<td>Fire</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.8</td>
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<tr>
<td>Forced landing</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Hard landing</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>3.9</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>7</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>17</td>
<td>13.3</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>13</td>
<td>10.2</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>3.9</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>13</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>25</td>
<td>19.5</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Loss of power</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>3.9</td>
</tr>
<tr>
<td>Loss of power(total) - mech failure/malfunction</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td>Loss of power(partial) - mech failure/malfunction</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Loss of power(total) - non-mechanical</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>16</td>
<td>12.5</td>
</tr>
<tr>
<td>Loss of power(partial) - non-mechanical</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Propeller/rotor contact</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2.3</td>
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<tr>
<td>Roll over</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>3.9</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Aircraft

- Number: 128
- Percent: 50.0 19.5 13.3 17.2
<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Standing - idling rotors</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Taxi - aerial</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
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<td>0</td>
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<tr>
<td>Approach</td>
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<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
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<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
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<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
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<tr>
<td>LANDING</td>
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<td>0</td>
</tr>
<tr>
<td>LANDING - flare/touchdown</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LANDING - roll</td>
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<td>0</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
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<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse</td>
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<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to landing area (emergency)</td>
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<td>0</td>
</tr>
<tr>
<td>Hover</td>
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</table>

Aircraft

<table>
<thead>
<tr>
<th>Number</th>
<th>None</th>
<th>Minor</th>
<th>Subs</th>
<th>Dest</th>
<th>128</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>1.6</td>
<td>0.8</td>
<td>63.3</td>
<td>34.4</td>
<td></td>
</tr>
</tbody>
</table>
Table 88 - MOST PREVALENT DETAILED ACCIDENT CAUSES
ROTORCRAFT - RECIPROCATING ENGINE(S)
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotor rpm - Not maintained - Pilot in command</td>
<td>9</td>
<td>7.0</td>
</tr>
<tr>
<td>Clearance - Not maintained - Pilot in command</td>
<td>9</td>
<td>7.0</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>8</td>
<td>6.3</td>
</tr>
<tr>
<td>Undetermined</td>
<td>7</td>
<td>5.5</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>7</td>
<td>5.5</td>
</tr>
<tr>
<td>Clearance - Misjudged - Pilot in command</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td>Visual lookout - Inadequate - Pilot in command</td>
<td>6</td>
<td>4.7</td>
</tr>
<tr>
<td>Planning-decision - Improper - Pilot in command</td>
<td>5</td>
<td>3.9</td>
</tr>
<tr>
<td>Airplane handling - Not maintained - Pilot in command</td>
<td>4</td>
<td>3.1</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>4</td>
<td>3.1</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>4</td>
<td>3.1</td>
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</table>

Total Number of Aircraft: 128
Table 89 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
ROTORCRAFT - RECIPROCATING ENGINE(S)
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>217</td>
<td>12</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>1976</td>
<td>209</td>
<td>17</td>
<td>24</td>
<td>24</td>
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<tr>
<td>1977</td>
<td>190</td>
<td>14</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>1978</td>
<td>223</td>
<td>28</td>
<td>40</td>
<td>33</td>
</tr>
<tr>
<td>1979</td>
<td>185</td>
<td>20</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>1980</td>
<td>180</td>
<td>22</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>1981</td>
<td>178</td>
<td>21</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>1982</td>
<td>157</td>
<td>20</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>1983</td>
<td>143</td>
<td>20</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>1984</td>
<td>128</td>
<td>22</td>
<td>29</td>
<td>28</td>
</tr>
</tbody>
</table>

Accident Rate per 100,000 *
Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>623,000</td>
<td>34.83</td>
<td>1.93</td>
</tr>
<tr>
<td>1976</td>
<td>680,000</td>
<td>30.74</td>
<td>2.50</td>
</tr>
<tr>
<td>1977</td>
<td>571,000</td>
<td>33.27</td>
<td>2.45</td>
</tr>
<tr>
<td>1978</td>
<td>766,000</td>
<td>29.11</td>
<td>3.66</td>
</tr>
<tr>
<td>1979</td>
<td>859,000</td>
<td>21.54</td>
<td>2.33</td>
</tr>
<tr>
<td>1980</td>
<td>719,000</td>
<td>25.03</td>
<td>3.06</td>
</tr>
<tr>
<td>1981</td>
<td>878,000</td>
<td>20.27</td>
<td>2.39</td>
</tr>
<tr>
<td>1982</td>
<td>570,000</td>
<td>27.37</td>
<td>3.51</td>
</tr>
<tr>
<td>1983</td>
<td>566,000</td>
<td>25.27</td>
<td>3.53</td>
</tr>
<tr>
<td>1984</td>
<td>578,000</td>
<td>22.15</td>
<td>3.81</td>
</tr>
</tbody>
</table>

* 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)
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>31</td>
<td>24.2</td>
<td>49.8</td>
<td>29.5</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>31</td>
<td>24.2</td>
<td>43.6</td>
<td>25.9</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>13</td>
<td>10.2</td>
<td>26.6</td>
<td>15.8</td>
</tr>
<tr>
<td>Hard landing</td>
<td>5</td>
<td>3.9</td>
<td>15.0</td>
<td>8.9</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>25</td>
<td>19.5</td>
<td>14.8</td>
<td>8.8</td>
</tr>
<tr>
<td>Roll over</td>
<td>5</td>
<td>3.9</td>
<td>9.8</td>
<td>5.8</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>5</td>
<td>3.9</td>
<td>2.0</td>
<td>1.2</td>
</tr>
<tr>
<td>(All other types)</td>
<td>13</td>
<td>10.2</td>
<td>7.0</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>128</strong></td>
<td><strong>100.0</strong></td>
<td><strong>168.6</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 91 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
ROTORCRAFT - RECIPROCATING ENGINE(S)
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maneuvering</td>
<td>48</td>
<td>37.5</td>
<td>56.8</td>
<td>33.7</td>
</tr>
<tr>
<td>Cruise</td>
<td>19</td>
<td>14.8</td>
<td>31.2</td>
<td>18.5</td>
</tr>
<tr>
<td>Takeoff</td>
<td>19</td>
<td>14.8</td>
<td>31.0</td>
<td>18.4</td>
</tr>
<tr>
<td>Landing</td>
<td>18</td>
<td>14.1</td>
<td>28.6</td>
<td>17.0</td>
</tr>
<tr>
<td>Approach</td>
<td>13</td>
<td>10.2</td>
<td>8.0</td>
<td>4.7</td>
</tr>
<tr>
<td>Taxi</td>
<td>4</td>
<td>3.1</td>
<td>4.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Descent</td>
<td>4</td>
<td>3.1</td>
<td>3.6</td>
<td>2.1</td>
</tr>
<tr>
<td>Climb</td>
<td>1</td>
<td>0.8</td>
<td>2.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Standing</td>
<td>2</td>
<td>1.6</td>
<td>1.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.0</td>
<td>1.0</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>128</strong></td>
<td><strong>100.0</strong></td>
<td><strong>168.6</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 92 - SUMMARY OF LOSSES
ROTORCRAFT - TURBINE POWERED
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>16</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>13</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>22</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>45</td>
<td>52</td>
<td>44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>96</td>
<td>95</td>
<td>98</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>17</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Crew</td>
<td>14</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Other Persons</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
<td>33</td>
<td>42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aircraft Damaged</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>26</td>
<td>32</td>
<td>38</td>
</tr>
<tr>
<td>Substantial</td>
<td>69</td>
<td>61</td>
<td>58</td>
</tr>
<tr>
<td>Minor</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>96</td>
<td>95</td>
<td>99</td>
</tr>
</tbody>
</table>

* Number of Turbine Powered, General Aviation Rotorcraft
Table 93 - PERSONS ABOARD BY KIND OF FLYING AND DEGREE OF INJURY
ROTORCRAFT – TURBINE POWERED
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>19</td>
<td>33</td>
</tr>
<tr>
<td>Business</td>
<td>6</td>
<td>12</td>
<td>17</td>
<td>13</td>
<td>48</td>
</tr>
<tr>
<td>Corporate/Executive</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Aerial application</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Instructional</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>3</td>
<td>14</td>
<td>41</td>
<td>71</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>25</strong></td>
<td><strong>45</strong></td>
<td><strong>88</strong></td>
<td><strong>189</strong></td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td>16.4</td>
<td>13.2</td>
<td>23.8</td>
<td>46.6</td>
<td></td>
</tr>
</tbody>
</table>
Table 94 - AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY

ROTORCRAFT - TURBINE POWERED

1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>None</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>12</td>
<td>12.5</td>
</tr>
<tr>
<td>Hard landing</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>14</td>
<td>14.6</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>8</td>
<td>8.3</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>7.3</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>4</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td>13.5</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2.1</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Loss of power</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>Loss of power(total) - mech failure/malfunction</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>Loss of power(partial) - mech failure/malfunction</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>Loss of power(total) - non-mechanical</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>9.4</td>
</tr>
<tr>
<td>Loss of power(partial) - non-mechanical</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Roll over</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>Undetermined</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Number</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>22</td>
<td>13</td>
<td>16</td>
<td>96</td>
<td>46.9</td>
</tr>
<tr>
<td>22.9</td>
<td>13.5</td>
<td>16.7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-94-
Table 95 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
ROTORCRAFT - TURBINE POWERED
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Subs</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Standing - idling rotors</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hover</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

Aircraft
Number - 1 69 26 96
Percent - 1.0 71.9 27.1
Table 96 - MOST PREVALENT DETAILED ACCIDENT CAUSES  
ROTORCRAFT - TURBINE POWERED  
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undetermined</td>
<td>10</td>
<td>10.4</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>Clearance - Not maintained - Pilot in command</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>Clearance - Misjudged - Pilot in command</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>Unsuitable terrain - Selected - Pilot in command</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>Airplane handling - Not maintained - Pilot in command</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>Rotorcraft flight controls - Improper use of - Pilot in</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>Rotor rpm - Not maintained - Pilot in command</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>Planning-decision - Improper - Pilot in command</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft preflight - Inadequate - Pilot in command</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>Procedures/directives - Not followed - Pilot in command</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>Altitude - Misjudged - Pilot in command</td>
<td>3</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 96
Table 97 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
ROTORCRAFT - TURBINE POWERED
1975 - 1984

Fatalities

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>47</td>
<td>6</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>1976</td>
<td>39</td>
<td>8</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>1977</td>
<td>56</td>
<td>8</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>1978</td>
<td>60</td>
<td>11</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>1979</td>
<td>80</td>
<td>13</td>
<td>26</td>
<td>26</td>
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<tr>
<td>1980</td>
<td>80</td>
<td>18</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>1981</td>
<td>78</td>
<td>9</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>1982</td>
<td>98</td>
<td>21</td>
<td>42</td>
<td>38</td>
</tr>
<tr>
<td>1983</td>
<td>95</td>
<td>17</td>
<td>33</td>
<td>31</td>
</tr>
<tr>
<td>1984</td>
<td>96</td>
<td>16</td>
<td>32</td>
<td>31</td>
</tr>
</tbody>
</table>

Accident Rate per 100,000 Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>351,000</td>
<td>13.39</td>
<td>1.71</td>
</tr>
<tr>
<td>1976</td>
<td>423,000</td>
<td>9.22</td>
<td>1.89</td>
</tr>
<tr>
<td>1977</td>
<td>599,000</td>
<td>9.35</td>
<td>1.34</td>
</tr>
<tr>
<td>1978</td>
<td>631,000</td>
<td>9.51</td>
<td>1.74</td>
</tr>
<tr>
<td>1979</td>
<td>663,000</td>
<td>12.07</td>
<td>1.96</td>
</tr>
<tr>
<td>1980</td>
<td>1,172,000</td>
<td>6.83</td>
<td>1.54</td>
</tr>
<tr>
<td>1981</td>
<td>1,424,000</td>
<td>5.48</td>
<td>0.63</td>
</tr>
<tr>
<td>1982</td>
<td>1,061,000</td>
<td>9.24</td>
<td>1.98</td>
</tr>
<tr>
<td>1983</td>
<td>1,143,000</td>
<td>8.31</td>
<td>1.49</td>
</tr>
<tr>
<td>1984</td>
<td>1,021,000</td>
<td>9.40</td>
<td>1.57</td>
</tr>
</tbody>
</table>
### Table 98 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS
**ROTORCRAFT - TURBINE POWERED**
**1984 AND 1979 - 1983**

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984 No.</th>
<th>1984 Percent</th>
<th>Mean Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>27</td>
<td>28.1</td>
<td>30.0</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>24</td>
<td>25.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>12</td>
<td>12.5</td>
<td>12.8</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>13</td>
<td>13.5</td>
<td>9.0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>4</td>
<td>4.2</td>
<td>5.4</td>
</tr>
<tr>
<td>Roll over</td>
<td>4</td>
<td>4.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1</td>
<td>1.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>8</td>
<td>8.3</td>
<td>2.0</td>
</tr>
<tr>
<td>Prop/rotor contact</td>
<td>0</td>
<td>.0</td>
<td>1.0</td>
</tr>
<tr>
<td>(All other types)</td>
<td>3</td>
<td>3.1</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>96</td>
<td>100.0</td>
<td>86.4</td>
</tr>
</tbody>
</table>

### Table 99 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
**ROTORCRAFT - TURBINE POWERED**
**1984 AND 1979 - 1983**

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984 No.</th>
<th>1984 Percent</th>
<th>Mean Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cruise</td>
<td>25</td>
<td>26.0</td>
<td>26.6</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>37</td>
<td>38.5</td>
<td>20.4</td>
</tr>
<tr>
<td>Takeoff</td>
<td>12</td>
<td>12.5</td>
<td>12.6</td>
</tr>
<tr>
<td>Landing</td>
<td>10</td>
<td>10.4</td>
<td>11.6</td>
</tr>
<tr>
<td>Approach</td>
<td>4</td>
<td>4.2</td>
<td>5.0</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Taxi</td>
<td>1</td>
<td>1.0</td>
<td>2.6</td>
</tr>
<tr>
<td>Standing</td>
<td>3</td>
<td>3.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Climb</td>
<td>4</td>
<td>4.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>.0</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>96</td>
<td>100.0</td>
<td>86.4</td>
</tr>
</tbody>
</table>
# Table 100 - SUMMARY OF LOSSES
## ALL GLIDERS
### 1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>10</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>12</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>7</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>26</td>
<td>44</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>55</td>
<td>71</td>
<td>51</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Crew</td>
<td>8</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Other Persons</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
<td>11</td>
<td>6</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aircraft Damaged</strong>&lt;sup&gt;*&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>18</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Substantial</td>
<td>36</td>
<td>62</td>
<td>39</td>
</tr>
<tr>
<td>Minor</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>57</td>
<td>72</td>
<td>53</td>
</tr>
</tbody>
</table>

* Number of General Aviation Gliders
Table 101 - PERSONS BY ROLE AND DEGREE OF INJURY
ALL GLIDERS
1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>8</td>
<td>13</td>
<td>8</td>
<td>28</td>
<td>57</td>
</tr>
<tr>
<td>Copilot</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Dual student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Passenger</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total aboard</strong></td>
<td><strong>9</strong></td>
<td><strong>15</strong></td>
<td><strong>10</strong></td>
<td><strong>35</strong></td>
<td><strong>69</strong></td>
</tr>
<tr>
<td>Other aircraft*</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td><strong>10</strong></td>
<td><strong>15</strong></td>
<td><strong>10</strong></td>
<td><strong>35</strong></td>
<td><strong>70</strong></td>
</tr>
</tbody>
</table>

* 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
1984

<table>
<thead>
<tr>
<th>Kind of Flying</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>24</td>
<td>47</td>
</tr>
<tr>
<td>Instructional</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>15</strong></td>
<td><strong>10</strong></td>
<td><strong>35</strong></td>
<td><strong>69</strong></td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td><strong>13.0</strong></td>
<td><strong>21.7</strong></td>
<td><strong>14.5</strong></td>
<td><strong>50.7</strong></td>
<td><strong>-100-</strong></td>
</tr>
<tr>
<td>Type of first occurrence</td>
<td>Degree of injury</td>
<td>Aircraft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>-----------------</td>
<td>----------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
<td>Ser</td>
<td>Fatal</td>
<td>No.</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, or float</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Forced landing</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>3</td>
<td>0</td>
<td>6</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Midair collision</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>3</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Overrun</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power (total) - mech failure/malfunction</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Undershoot</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>47.4</td>
</tr>
<tr>
<td>7</td>
<td>12.3</td>
</tr>
<tr>
<td>12</td>
<td>21.1</td>
</tr>
<tr>
<td>11</td>
<td>19.3</td>
</tr>
<tr>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>
### Table 104 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
#### ALL GLIDERS
#### 1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minor</td>
<td>Subs</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - emergency</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Approach - VFR pattern - base turn</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>final approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach - VFR pattern - final</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>direction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Percent</td>
</tr>
</tbody>
</table>

### Table 105 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
#### ALL GLIDERS
#### 1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of Weather</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VMC</td>
<td>No.</td>
</tr>
<tr>
<td>Dawn</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Daylight</td>
<td>56</td>
<td>56</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Percent</td>
</tr>
</tbody>
</table>
Table 106 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
ALL GLIDERS
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent</td>
</tr>
<tr>
<td>On Airport</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>22.8</td>
<td></td>
</tr>
<tr>
<td>On Airstrip</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>12.3</td>
<td></td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>24.6</td>
<td></td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Not reported</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>35.1</td>
<td></td>
</tr>
<tr>
<td>Aircraft Number</td>
<td>57</td>
<td>57</td>
</tr>
<tr>
<td>Percent</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 107 - MOST PREVALENT DETAILED ACCIDENT CAUSES
ALL GLIDERS
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>6</td>
<td>10.5</td>
</tr>
<tr>
<td>Airspeed(Va) - Not maintained - Pilot in command</td>
<td>6</td>
<td>10.5</td>
</tr>
<tr>
<td>Clearance - Not maintained - Pilot in command</td>
<td>5</td>
<td>8.8</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>5</td>
<td>8.8</td>
</tr>
<tr>
<td>Stall - Inadvertent - Pilot in command</td>
<td>5</td>
<td>8.8</td>
</tr>
<tr>
<td>Visual lookout - Inadequate - Pilot of other aircraft</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Visual lookout - Inadequate - Pilot in command</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Unsuitable terrain - Selected - Pilot in command</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Airspeed - Not maintained - Pilot in command</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>Altitude - Not maintained - Pilot in command</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>Stall - Not corrected - Pilot in command</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>Planning-decision - Improper - Pilot in command</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>Clearance - Misjudged - Pilot in command</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>Flight controls - Improper use of - Pilot in command</td>
<td>3</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 57
Table 108 - ACCIDENTS, FATAL ACCIDENTS AND FATALITIES
ALL GLIDERS
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents*</th>
<th>Fatal Accidents*</th>
<th>Total</th>
<th>Aboard Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>82</td>
<td>7</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>1976</td>
<td>64</td>
<td>8</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>1977</td>
<td>78</td>
<td>7</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>1978</td>
<td>66</td>
<td>10</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>1979</td>
<td>55</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>1980</td>
<td>62</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>1981</td>
<td>59</td>
<td>12</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>1982</td>
<td>51</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>1983</td>
<td>71</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>1984</td>
<td>55</td>
<td>10</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

* 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
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>11</td>
<td>19.3</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>13</td>
<td>22.8</td>
</tr>
<tr>
<td>Undershoot</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6</td>
<td>10.5</td>
</tr>
<tr>
<td>Hard landing</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>Midair collision</td>
<td>5</td>
<td>8.8</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>8</td>
<td>14.0</td>
</tr>
<tr>
<td>(All other types)</td>
<td>7</td>
<td>12.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>57</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 110 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
ALL GLIDERS
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Landing</td>
<td>12</td>
<td>21.1</td>
</tr>
<tr>
<td>Approach</td>
<td>11</td>
<td>19.3</td>
</tr>
<tr>
<td>Takeoff</td>
<td>10</td>
<td>17.5</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>12</td>
<td>21.1</td>
</tr>
<tr>
<td>Cruise</td>
<td>8</td>
<td>14.0</td>
</tr>
<tr>
<td>Descent</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 111 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS
ALL GLIDERS
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Broad Cause/Factor</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Pilot</td>
<td>54</td>
<td>94.7</td>
</tr>
<tr>
<td>Weather</td>
<td>23</td>
<td>40.4</td>
</tr>
<tr>
<td>Terrain</td>
<td>11</td>
<td>19.3</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>13</td>
<td>22.8</td>
</tr>
<tr>
<td>Personnel</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Airframe</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>4</td>
<td>7.0</td>
</tr>
<tr>
<td>Undetermined</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>Airport/Airways/Facilities</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Systems</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Powerplant</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Number of Aircraft</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>
Table 112 - SUMMARY OF LOSSES
PERSONAL FLYING
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>365</td>
<td>398</td>
<td>398</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>247</td>
<td>205</td>
<td>211</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>280</td>
<td>253</td>
<td>261</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>1014</td>
<td>1028</td>
<td>1036</td>
</tr>
<tr>
<td>Total</td>
<td>1906</td>
<td>1884</td>
<td>1906</td>
</tr>
</tbody>
</table>

|                  |      |      |      |
| **Fatalities**   |      |      |      |
| Passenger        | 351  | 382  | 408  |
| Crew             | 356  | 390  | 401  |
| Other Persons    | 7    | 5    | 17   |
| Total            | 714  | 777  | 826  |

|                  |      |      |      |
| **Aircraft Damaged* |      |      |      |
| Destroyed         | 577  | 552  | 591  |
| Substantial       | 1301 | 1308 | 1299 |
| Minor             | 17   | 9    | 13   |
| None              | 24   | 22   | 14   |
| Unknown           | 0    | 0    | 4    |
| Total             | 1919 | 1891 | 1921 |

* Number of General Aviation Aircraft in Personal Operations
## Table 113 - PERSONS BY ROLE AND DEGREE OF INJURY
### PERSONAL FLYING
#### 1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>340</td>
<td>219</td>
<td>272</td>
<td>1077</td>
<td>1908</td>
</tr>
<tr>
<td>Copilot</td>
<td>12</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>Dual student</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Other crew</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Passenger</td>
<td>351</td>
<td>190</td>
<td>261</td>
<td>1054</td>
<td>1856</td>
</tr>
<tr>
<td><strong>Total aboard</strong></td>
<td>707</td>
<td>412</td>
<td>539</td>
<td>2155</td>
<td>3813</td>
</tr>
<tr>
<td>Other aircraft*</td>
<td>5</td>
<td>1</td>
<td>7</td>
<td>21</td>
<td>34</td>
</tr>
<tr>
<td>Other ground</td>
<td>2</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td>714</td>
<td>420</td>
<td>551</td>
<td>2181</td>
<td>3866</td>
</tr>
</tbody>
</table>

**Percent**

<table>
<thead>
<tr>
<th></th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18.5</td>
<td>10.9</td>
<td>14.3</td>
<td>56.4</td>
<td></td>
</tr>
</tbody>
</table>

* 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
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Cargo shift</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>54</td>
<td>10</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, or float</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Fire/explosion</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Forced landing</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Gear collapsed</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Main gear collapsed</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Nose gear collapsed</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Complete gear collapsed</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Other gear collapsed</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>96</td>
<td>10</td>
</tr>
<tr>
<td>Hazardous materials leak/spill (fumes/smoke)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>43</td>
<td>23</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>41</td>
<td>15</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>27</td>
<td>11</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>76</td>
<td>33</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>176</td>
<td>16</td>
</tr>
<tr>
<td>Midair collision</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Near collision between aircraft</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nose over</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>41</td>
<td>11</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>On ground encounter with weather</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Overrun</td>
<td>62</td>
<td>11</td>
</tr>
<tr>
<td>Loss of power</td>
<td>44</td>
<td>26</td>
</tr>
<tr>
<td>Loss of power (total) - mech failure/malfunction</td>
<td>30</td>
<td>14</td>
</tr>
<tr>
<td>Loss of power (partial) - mech failure/malfunction</td>
<td>19</td>
<td>7</td>
</tr>
<tr>
<td>Loss of power (total) - non-mechanical</td>
<td>127</td>
<td>55</td>
</tr>
<tr>
<td>Loss of power (partial) - non-mechanical</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>Propeller blast or jet exhaust/suction</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Propeller/rotor contact</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Roll over</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Undershoot</td>
<td>23</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 114 – AIRCRAFT BY FIRST OCCURRENCE AND DEGREE OF INJURY (CONTINUED)
PERSONAL FLYING
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Undetermined</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Missing aircraft</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Number</th>
<th>1021</th>
<th>280</th>
<th>247</th>
<th>371</th>
<th>1919</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>53.2</td>
<td>14.6</td>
<td>12.9</td>
<td>19.3</td>
<td></td>
</tr>
</tbody>
</table>


Table 115 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
PERSONAL FLYING
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>None</th>
<th>Minor</th>
<th>Subs</th>
<th>Dest</th>
<th>Aircraft No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0.2</td>
</tr>
<tr>
<td>Standing - pre-flight</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>7</td>
<td>0.4</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>2</td>
<td>20</td>
<td>0</td>
<td>22</td>
<td>1.1</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>0</td>
<td>1</td>
<td>19</td>
<td>0</td>
<td>20</td>
<td>1.0</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>7</td>
<td>28</td>
<td>1.5</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
<td>0</td>
<td>85</td>
<td>6</td>
<td>91</td>
<td>4.7</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>1</td>
<td>188</td>
<td>96</td>
<td>285</td>
<td>14.9</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>12</td>
<td>21</td>
<td>1.1</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>23</td>
<td>37</td>
<td>1.9</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>0</td>
<td>44</td>
<td>47</td>
<td>91</td>
<td>4.7</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>2</td>
<td>0</td>
<td>164</td>
<td>102</td>
<td>268</td>
<td>14.0</td>
</tr>
<tr>
<td>Cruise - holding(IFR)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>0.6</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>6</td>
<td>21</td>
<td>1.1</td>
</tr>
<tr>
<td>Descent - emergency</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>0.4</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>0.3</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>0</td>
<td>31</td>
<td>9</td>
<td>40</td>
<td>2.1</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
<td>1</td>
<td>14</td>
<td>8</td>
<td>23</td>
<td>1.2</td>
</tr>
<tr>
<td>Approach - VFR pattern - base turn</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>11</td>
<td>0.6</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>1</td>
<td>2</td>
<td>72</td>
<td>27</td>
<td>102</td>
<td>5.3</td>
</tr>
<tr>
<td>Approach - go-around (VFR)</td>
<td>1</td>
<td>0</td>
<td>24</td>
<td>13</td>
<td>38</td>
<td>2.0</td>
</tr>
<tr>
<td>Approach - IAF to FAF/outer marker</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>(IFR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach - FAF/outer marker to threshold (IFR)</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>0.7</td>
</tr>
<tr>
<td>Approach - circling(IFR)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Approach - missed approach (IFR)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>Landing</td>
<td>1</td>
<td>0</td>
<td>35</td>
<td>6</td>
<td>42</td>
<td>2.2</td>
</tr>
<tr>
<td>Landing - flare.touchdown</td>
<td>9</td>
<td>0</td>
<td>192</td>
<td>26</td>
<td>227</td>
<td>11.8</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>1</td>
<td>1</td>
<td>234</td>
<td>11</td>
<td>247</td>
<td>12.9</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>4</td>
<td>61</td>
<td>92</td>
<td>157</td>
<td>8.2</td>
</tr>
</tbody>
</table>

-110-
Table 115 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)
PERSONAL FLYING
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hover</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft
Number -                              24   17  1301  577  1919
Percent -                              1.3  0.9  67.8  30.1

-111-
Table 116 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
PERSONAL FLYING
1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VMC</td>
<td>IMC</td>
</tr>
<tr>
<td>Dawn</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Daylight</td>
<td>1464</td>
<td>83</td>
</tr>
<tr>
<td>Night (dark)</td>
<td>110</td>
<td>69</td>
</tr>
<tr>
<td>Night (bright)</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>Dusk</td>
<td>80</td>
<td>9</td>
</tr>
<tr>
<td>Not reported</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>

Aircraft
Number - 1719
Percent - 89.6

Table 117 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
PERSONAL FLYING
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>IFR</td>
</tr>
<tr>
<td>On Airport</td>
<td>60</td>
<td>36</td>
</tr>
<tr>
<td>On Airstrip</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Not reported</td>
<td>67</td>
<td>39</td>
</tr>
</tbody>
</table>

Aircraft
Number - 163
Percent - 8.5

-112-
### Table 118 - MOST PREVALENT DETAILED ACCIDENT CAUSES
#### PERSONAL FLYING
#### 1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>212</td>
<td>11.0</td>
</tr>
<tr>
<td>Undetermined</td>
<td>129</td>
<td>6.7</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>115</td>
<td>6.0</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in command</td>
<td>92</td>
<td>4.8</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>90</td>
<td>4.7</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>76</td>
<td>4.0</td>
</tr>
<tr>
<td>Airspeed - Not maintained - Pilot in command</td>
<td>76</td>
<td>4.0</td>
</tr>
<tr>
<td>Unsuitable terrain - Selected - Pilot in command</td>
<td>71</td>
<td>3.7</td>
</tr>
<tr>
<td>Aircraft preflight - Inadequate - Pilot in command</td>
<td>68</td>
<td>3.5</td>
</tr>
<tr>
<td>Stall - Inadvertent - Pilot in command</td>
<td>62</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 1919

### Table 119 - ACCIDENTS, FATAL ACCIDENTS AND FATALITIES
#### PERSONAL FLYING
#### 1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents*</th>
<th>Fatal Accidents*</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>2228</td>
<td>414</td>
<td>875</td>
<td>861</td>
</tr>
<tr>
<td>1976</td>
<td>2334</td>
<td>428</td>
<td>844</td>
<td>829</td>
</tr>
<tr>
<td>1977</td>
<td>2280</td>
<td>437</td>
<td>889</td>
<td>874</td>
</tr>
<tr>
<td>1978</td>
<td>2376</td>
<td>460</td>
<td>957</td>
<td>946</td>
</tr>
<tr>
<td>1979</td>
<td>2206</td>
<td>414</td>
<td>820</td>
<td>807</td>
</tr>
<tr>
<td>1980</td>
<td>2040</td>
<td>389</td>
<td>508</td>
<td>799</td>
</tr>
<tr>
<td>1981</td>
<td>1958</td>
<td>383</td>
<td>749</td>
<td>738</td>
</tr>
<tr>
<td>1982</td>
<td>1906</td>
<td>398</td>
<td>826</td>
<td>809</td>
</tr>
<tr>
<td>1983</td>
<td>1884</td>
<td>398</td>
<td>777</td>
<td>772</td>
</tr>
<tr>
<td>1984</td>
<td>1906</td>
<td>365</td>
<td>714</td>
<td>707</td>
</tr>
</tbody>
</table>

* The yearly accident counts include suicide and sabotage accidents as follows:
### Table 120 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS

**PERSONAL FLYING**

**1984 AND 1979 - 1983**

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>Loss of power</td>
<td>479</td>
<td>25.0</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>311</td>
<td>16.2</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>262</td>
<td>13.7</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>201</td>
<td>10.5</td>
</tr>
<tr>
<td>Hard landing</td>
<td>114</td>
<td>5.9</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>108</td>
<td>5.6</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>163</td>
<td>8.5</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>90</td>
<td>4.7</td>
</tr>
<tr>
<td>Undershoot</td>
<td>34</td>
<td>1.8</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>27</td>
<td>1.4</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>42</td>
<td>2.2</td>
</tr>
<tr>
<td>Midair collision</td>
<td>24</td>
<td>1.3</td>
</tr>
<tr>
<td>(All other types)</td>
<td>64</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1919</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 121 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS

**PERSONAL FLYING**

**1984 AND 1979 - 1983**

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>Landing</td>
<td>516</td>
<td>26.9</td>
</tr>
<tr>
<td>Takeoff</td>
<td>404</td>
<td>21.1</td>
</tr>
<tr>
<td>Cruise</td>
<td>360</td>
<td>18.8</td>
</tr>
<tr>
<td>Approach</td>
<td>252</td>
<td>13.1</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>179</td>
<td>9.3</td>
</tr>
<tr>
<td>Descent</td>
<td>45</td>
<td>2.3</td>
</tr>
<tr>
<td>Taxi</td>
<td>49</td>
<td>2.6</td>
</tr>
<tr>
<td>Climb</td>
<td>58</td>
<td>3.0</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>1.7</td>
</tr>
<tr>
<td>Standing</td>
<td>22</td>
<td>1.1</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1919</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 122 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS
PERSONAL FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Broad Cause/Factor</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Pilot</td>
<td>1690</td>
<td>88.1</td>
</tr>
<tr>
<td>Weather</td>
<td>565</td>
<td>29.4</td>
</tr>
<tr>
<td>Terrain</td>
<td>460</td>
<td>24.0</td>
</tr>
<tr>
<td>Powerplant</td>
<td>389</td>
<td>20.3</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>470</td>
<td>24.5</td>
</tr>
<tr>
<td>Personnel</td>
<td>156</td>
<td>8.1</td>
</tr>
<tr>
<td>Airport/Airways/Facilities</td>
<td>99</td>
<td>5.2</td>
</tr>
<tr>
<td>Landing Gear</td>
<td>122</td>
<td>6.4</td>
</tr>
<tr>
<td>Undetermined</td>
<td>133</td>
<td>6.9</td>
</tr>
<tr>
<td>Airframe</td>
<td>74</td>
<td>3.9</td>
</tr>
<tr>
<td>Systems</td>
<td>35</td>
<td>1.8</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>20</td>
<td>1.0</td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>10</td>
<td>.5</td>
</tr>
<tr>
<td>Number of Aircraft</td>
<td>1919</td>
<td></td>
</tr>
</tbody>
</table>
Table 123 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
PERSONAL AND BUSINESS FLYING COMBINED
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>2545</td>
<td>478</td>
<td>995</td>
<td>981</td>
</tr>
<tr>
<td>1976</td>
<td>2629</td>
<td>490</td>
<td>950</td>
<td>933</td>
</tr>
<tr>
<td>1977</td>
<td>2579</td>
<td>487</td>
<td>973</td>
<td>963</td>
</tr>
<tr>
<td>1978</td>
<td>2656</td>
<td>522</td>
<td>1066</td>
<td>1055</td>
</tr>
<tr>
<td>1979</td>
<td>2461</td>
<td>470</td>
<td>932</td>
<td>917</td>
</tr>
<tr>
<td>1980</td>
<td>2285</td>
<td>450</td>
<td>924</td>
<td>915</td>
</tr>
<tr>
<td>1981</td>
<td>2220</td>
<td>456</td>
<td>892</td>
<td>883</td>
</tr>
<tr>
<td>1982</td>
<td>2194</td>
<td>471</td>
<td>979</td>
<td>965</td>
</tr>
<tr>
<td>1983</td>
<td>2157</td>
<td>450</td>
<td>891</td>
<td>886</td>
</tr>
<tr>
<td>1984</td>
<td>2153</td>
<td>440</td>
<td>867</td>
<td>862</td>
</tr>
</tbody>
</table>

Accident Rate per 100,000 *
Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>15,832,000</td>
<td>16.06</td>
<td>3.01</td>
</tr>
<tr>
<td>1976</td>
<td>16,850,000</td>
<td>15.58</td>
<td>2.90</td>
</tr>
<tr>
<td>1977</td>
<td>16,727,000</td>
<td>15.42</td>
<td>2.91</td>
</tr>
<tr>
<td>1978</td>
<td>19,322,000</td>
<td>13.74</td>
<td>2.69</td>
</tr>
<tr>
<td>1979</td>
<td>20,638,000</td>
<td>11.92</td>
<td>2.28</td>
</tr>
<tr>
<td>1980</td>
<td>19,374,000</td>
<td>11.79</td>
<td>2.32</td>
</tr>
<tr>
<td>1981</td>
<td>18,323,000</td>
<td>12.12</td>
<td>2.49</td>
</tr>
<tr>
<td>1982</td>
<td>16,584,000</td>
<td>13.23</td>
<td>2.84</td>
</tr>
<tr>
<td>1983</td>
<td>15,676,000</td>
<td>13.76</td>
<td>2.87</td>
</tr>
<tr>
<td>1984</td>
<td>16,537,000</td>
<td>13.00</td>
<td>2.65</td>
</tr>
</tbody>
</table>

* Suicide and sabotage accidents excluded from rates as follows:
Table 124 - SUMMARY OF LOSSES
BASICFLYING
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>76</td>
<td>52</td>
<td>74</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>23</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>30</td>
<td>38</td>
<td>32</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>120</td>
<td>158</td>
<td>161</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>249</td>
<td>276</td>
<td>292</td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>82</td>
<td>55</td>
<td>79</td>
</tr>
<tr>
<td>Crew</td>
<td>73</td>
<td>59</td>
<td>77</td>
</tr>
<tr>
<td>Other Persons</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>155</td>
<td>114</td>
<td>157</td>
</tr>
<tr>
<td><strong>Aircraft Damaged</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>99</td>
<td>82</td>
<td>101</td>
</tr>
<tr>
<td>Substantial</td>
<td>149</td>
<td>196</td>
<td>188</td>
</tr>
<tr>
<td>Minor</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>251</td>
<td>280</td>
<td>292</td>
</tr>
</tbody>
</table>

* Number of General Aviation Aircraft in Business Operations
Table 125 - PERSONS BY ROLE AND DEGREE OF INJURY
BUSINESS FLYING
1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>66</td>
<td>26</td>
<td>28</td>
<td>130</td>
<td>250</td>
</tr>
<tr>
<td>Copilot</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Other crew</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Passenger</td>
<td>82</td>
<td>22</td>
<td>32</td>
<td>174</td>
<td>310</td>
</tr>
<tr>
<td>Total aboard</td>
<td>155</td>
<td>49</td>
<td>62</td>
<td>310</td>
<td>576</td>
</tr>
<tr>
<td>Other aircraft*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Other ground</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Grand total</td>
<td>155</td>
<td>50</td>
<td>63</td>
<td>317</td>
<td>585</td>
</tr>
<tr>
<td>Percent</td>
<td>26.5</td>
<td>8.5</td>
<td>10.8</td>
<td>54.2</td>
<td></td>
</tr>
</tbody>
</table>

* 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
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, or float</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Gear collapsed</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Main gear collapsed</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Nose gear collapsed</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Complete gear collapsed</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Midair collision</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nose over</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Overrun</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Loss of power</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Loss of power(total) - mech failure/malfunction</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power(partial) - mech failure/malfunction</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power(total) - non-mechanical</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Loss of power(partial) - non-mechanical</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Propeller/rotor contact</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Roll over</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Undershoot</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Missing aircraft</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft

<table>
<thead>
<tr>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>121</td>
<td>48.2</td>
</tr>
<tr>
<td>31</td>
<td>12.4</td>
</tr>
<tr>
<td>23</td>
<td>9.2</td>
</tr>
<tr>
<td>76</td>
<td>30.3</td>
</tr>
<tr>
<td>251</td>
<td></td>
</tr>
<tr>
<td>Phase of operation</td>
<td>None</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Standing - pre-flight</td>
<td>0</td>
</tr>
<tr>
<td>Standing - idling rotors</td>
<td>0</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>0</td>
</tr>
<tr>
<td>Taxi - aerial</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>0</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
</tr>
<tr>
<td>Descent - uncontrolled</td>
<td>0</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - base turnthonal</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
<td>0</td>
</tr>
<tr>
<td>Approach - VFR pattern - final</td>
<td>0</td>
</tr>
<tr>
<td>Approach - go-around (VFR)</td>
<td>0</td>
</tr>
<tr>
<td>Approach - IAF to FAF/outer marker (IFR)</td>
<td>0</td>
</tr>
<tr>
<td>Approach - FAF/outer marker to threshold (IFR)</td>
<td>0</td>
</tr>
<tr>
<td>Approach - circling(IFR)</td>
<td>0</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
</tr>
<tr>
<td>Landing - flare/ touchdown</td>
<td>0</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>0</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse direction</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 127 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)
BUSINESS FLYING
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Maneuvering - turn to landing area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(emergency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hover</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft
Number - 1 2 149 99 251
Percent - 0.4 0.8 59.4 39.4
## Table 128 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
BUSINESS FLYING
1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VMC</td>
<td>IMC</td>
</tr>
<tr>
<td>Dawn</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Daylight</td>
<td>156</td>
<td>33</td>
</tr>
<tr>
<td>Night (dark)</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>Night (bright)</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Dusk</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft Number - 185
Aircraft Percent - 73.7

## Table 129 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
BUSINESS FLYING
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>IFR</td>
</tr>
<tr>
<td>On Airport</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>On Airstrip</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Not reported</td>
<td>13</td>
<td>15</td>
</tr>
</tbody>
</table>

Aircraft Number - 28
Aircraft Percent - 11.2

| Aircraft Number - | 28  | 64  | 3      | 154  | 2     | 251 |
| Aircraft Percent -| 11.2| 25.5| 1.2    | 61.4 | 0.8   |     |
Table 130 - MOST PREVALENT DETAILED ACCIDENT CAUSES
BUSINESS FLYING
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undetermined</td>
<td>20</td>
<td>8.0</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>18</td>
<td>7.2</td>
</tr>
<tr>
<td>Airspeed - Not maintained - Pilot in command</td>
<td>13</td>
<td>5.2</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>13</td>
<td>5.2</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>12</td>
<td>4.8</td>
</tr>
<tr>
<td>Unsuitable terrain - Selected - Pilot in command</td>
<td>12</td>
<td>4.8</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in command</td>
<td>10</td>
<td>4.0</td>
</tr>
<tr>
<td>Judgement - Poor - Pilot in command</td>
<td>9</td>
<td>3.6</td>
</tr>
<tr>
<td>Clearance - Not maintained - Pilot in command</td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td>Fuel supply - Inadequate - Pilot in command</td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td>Fluid, fuel - Exhaustion</td>
<td>8</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 251

Table 131 - ACCIDENTS, FATAL ACCIDENTS AND FATALITIES
BUSINESS FLYING
1975 - 1984

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents*</th>
<th>Fatal Accidents*</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>318</td>
<td>64</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>1976</td>
<td>298</td>
<td>62</td>
<td>106</td>
<td>104</td>
</tr>
<tr>
<td>1977</td>
<td>302</td>
<td>53</td>
<td>95</td>
<td>89</td>
</tr>
<tr>
<td>1978</td>
<td>281</td>
<td>62</td>
<td>109</td>
<td>109</td>
</tr>
<tr>
<td>1979</td>
<td>255</td>
<td>56</td>
<td>112</td>
<td>110</td>
</tr>
<tr>
<td>1980</td>
<td>246</td>
<td>62</td>
<td>126</td>
<td>116</td>
</tr>
<tr>
<td>1981</td>
<td>264</td>
<td>74</td>
<td>145</td>
<td>145</td>
</tr>
<tr>
<td>1982</td>
<td>292</td>
<td>74</td>
<td>157</td>
<td>156</td>
</tr>
<tr>
<td>1983</td>
<td>276</td>
<td>52</td>
<td>114</td>
<td>114</td>
</tr>
<tr>
<td>1984</td>
<td>249</td>
<td>76</td>
<td>155</td>
<td>155</td>
</tr>
</tbody>
</table>

* 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**
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>54</td>
<td>21.5</td>
<td>68.2</td>
<td>25.4</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>57</td>
<td>22.7</td>
<td>65.2</td>
<td>24.3</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>21</td>
<td>8.4</td>
<td>25.0</td>
<td>9.3</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>20</td>
<td>8.0</td>
<td>21.2</td>
<td>7.9</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>35</td>
<td>13.9</td>
<td>16.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>13</td>
<td>5.2</td>
<td>16.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>10</td>
<td>4.0</td>
<td>12.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>10</td>
<td>4.0</td>
<td>10.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Hard landing</td>
<td>11</td>
<td>4.4</td>
<td>9.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Undershoot</td>
<td>2</td>
<td>.8</td>
<td>6.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>4</td>
<td>1.6</td>
<td>6.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Midair collision</td>
<td>2</td>
<td>.8</td>
<td>3.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Fire/explosion</td>
<td>1</td>
<td>.4</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>(All other types)</td>
<td>11</td>
<td>4.4</td>
<td>4.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>251</td>
<td>100.0</td>
<td>268.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 133 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
**BUSINESS FLYING**
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>61</td>
<td>24.3</td>
<td>72.8</td>
<td>27.1</td>
</tr>
<tr>
<td>Cruise</td>
<td>52</td>
<td>20.7</td>
<td>57.2</td>
<td>21.3</td>
</tr>
<tr>
<td>Takeoff</td>
<td>50</td>
<td>19.9</td>
<td>45.8</td>
<td>17.1</td>
</tr>
<tr>
<td>Approach</td>
<td>40</td>
<td>15.9</td>
<td>37.0</td>
<td>13.8</td>
</tr>
<tr>
<td>Descent</td>
<td>4</td>
<td>1.6</td>
<td>17.2</td>
<td>6.4</td>
</tr>
<tr>
<td>Taxi</td>
<td>8</td>
<td>3.2</td>
<td>13.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>21</td>
<td>8.4</td>
<td>11.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Climb</td>
<td>7</td>
<td>2.8</td>
<td>9.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Standing</td>
<td>2</td>
<td>.8</td>
<td>3.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>2.4</td>
<td>2.0</td>
<td>.7</td>
</tr>
<tr>
<td>Total</td>
<td>251</td>
<td>100.0</td>
<td>268.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 134 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS
#### BUSINESS FLYING
#### 1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>216</td>
<td>86.1</td>
<td>211.2</td>
<td>85</td>
<td>33.9</td>
<td>91.8</td>
</tr>
<tr>
<td>Weather</td>
<td>85</td>
<td>33.9</td>
<td>64.0</td>
<td>91.8</td>
<td>34.2</td>
<td>51.2</td>
</tr>
<tr>
<td>Terrain</td>
<td>62</td>
<td>24.7</td>
<td>19.5</td>
<td>64.0</td>
<td>23.9</td>
<td>19.1</td>
</tr>
<tr>
<td>Powerplant</td>
<td>49</td>
<td>19.5</td>
<td>51.2</td>
<td>47.0</td>
<td>17.5</td>
<td>19.1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>76</td>
<td>30.3</td>
<td>28.8</td>
<td>47.0</td>
<td>17.5</td>
<td>19.1</td>
</tr>
<tr>
<td>Personnel</td>
<td>23</td>
<td>9.2</td>
<td>20.8</td>
<td>28.8</td>
<td>10.7</td>
<td>19.1</td>
</tr>
<tr>
<td>Landing Gear</td>
<td>14</td>
<td>5.6</td>
<td>20.8</td>
<td>5.6</td>
<td>7.8</td>
<td>19.1</td>
</tr>
<tr>
<td>Airport/Airways/Facilities</td>
<td>25</td>
<td>10.0</td>
<td>19.6</td>
<td>19.6</td>
<td>7.3</td>
<td>19.1</td>
</tr>
<tr>
<td>Undetermined</td>
<td>21</td>
<td>8.4</td>
<td>13.0</td>
<td>13.0</td>
<td>4.8</td>
<td>19.1</td>
</tr>
<tr>
<td>Airframe</td>
<td>9</td>
<td>3.6</td>
<td>10.0</td>
<td>3.6</td>
<td>3.7</td>
<td>19.1</td>
</tr>
<tr>
<td>Systems</td>
<td>9</td>
<td>3.6</td>
<td>8.0</td>
<td>8.0</td>
<td>3.0</td>
<td>19.1</td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>2</td>
<td>.8</td>
<td>4.6</td>
<td>4.6</td>
<td>1.7</td>
<td>19.1</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>3</td>
<td>1.2</td>
<td>1.8</td>
<td>1.8</td>
<td>.7</td>
<td>19.1</td>
</tr>
<tr>
<td>Number of Aircraft</td>
<td>251</td>
<td></td>
<td>268.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 135 – SUMMARY OF LOSSES
CORPORATE/EXECUTIVE FLYING
1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>13</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>4</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Crew</td>
<td>4</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Other Persons</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td><strong>Aircraft Damaged</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>8</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Substantial</td>
<td>17</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25</td>
<td>39</td>
<td>39</td>
</tr>
</tbody>
</table>

* Number of General Aviation Aircraft in Corporate/Executive Operations
### Table 136 - Persons by Role and Degree of Injury
**CORPORATE/EXECUTIVE FLYING**
1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Copilot</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other crew</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Passenger</td>
<td>4</td>
<td>2</td>
<td>14</td>
<td>28</td>
<td>48</td>
</tr>
<tr>
<td><strong>Total aboard</strong></td>
<td>8</td>
<td>6</td>
<td>19</td>
<td>42</td>
<td>75</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td>8</td>
<td>6</td>
<td>19</td>
<td>42</td>
<td>75</td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td>10.7</td>
<td>8.0</td>
<td>25.3</td>
<td>56.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 137 - Aircraft by First Occurrence and Degree of Injury
**CORPORATE/EXECUTIVE FLYING**
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>None</th>
<th>Minor</th>
<th>Ser</th>
<th>Fatal</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3 12.0</td>
</tr>
<tr>
<td>Fire</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 4.0</td>
</tr>
<tr>
<td>Main gear collapsed</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 4.0</td>
</tr>
<tr>
<td>Complete gear collapsed</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 4.0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 4.0</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>5 20.0</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>4 16.0</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 4.0</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 4.0</td>
</tr>
<tr>
<td>Overrun</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4 16.0</td>
</tr>
<tr>
<td>Loss of power(total) - non-mechanical</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2 8.0</td>
</tr>
<tr>
<td>Undershoot</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 4.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Percent</td>
</tr>
</tbody>
</table>
### Table 138 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
CORPORATE/EXECUTIVE FLYING
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subs</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>2</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>1</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>1</td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>1</td>
</tr>
<tr>
<td>Approach - IAF to FAF/outer marker (IFR)</td>
<td>1</td>
</tr>
<tr>
<td>Approach - FAF/outer marker to threshold (IFR)</td>
<td>1</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>3</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>4</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>1</td>
</tr>
</tbody>
</table>

**Aircraft**

<table>
<thead>
<tr>
<th>Aircraft Number</th>
<th>17</th>
<th>8</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>68.0</td>
<td>32.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 139 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
CORPORATE/EXECUTIVE FLYING
1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VMC</td>
</tr>
<tr>
<td>Daylight</td>
<td>11</td>
</tr>
<tr>
<td>Night (dark)</td>
<td>4</td>
</tr>
<tr>
<td>Night (bright)</td>
<td>1</td>
</tr>
<tr>
<td>Dusk</td>
<td>0</td>
</tr>
</tbody>
</table>

**Aircraft**

<table>
<thead>
<tr>
<th>Aircraft Number</th>
<th>16</th>
<th>9</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>64.0</td>
<td>36.0</td>
<td></td>
</tr>
</tbody>
</table>
### Table 140 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
CORPORATE/EXECUTIVE FLYING
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>IFR</td>
</tr>
<tr>
<td>On Airport</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>12.0</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>48.0</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>36.0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Total Number of Aircraft:** 25

### Table 141 - MOST PREVALENT DETAILED ACCIDENT CAUSES
CORPORATE/EXECUTIVE FLYING
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>4</td>
<td>16.0</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in command</td>
<td>3</td>
<td>12.0</td>
</tr>
<tr>
<td>Wrong runway - Selected - Pilot in command</td>
<td>3</td>
<td>12.0</td>
</tr>
<tr>
<td>Minimum descent altitude - Below - Pilot in command</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Proper altitude - Not maintained - Pilot in command</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Airspeed - Misjudged - Pilot in command</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Go-around - Not performed - Pilot in command</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>IFR procedure - Improper - Pilot in command</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Missed approach - Delayed - Pilot in command</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Fluid, fuel - Starvation</td>
<td>2</td>
<td>8.0</td>
</tr>
</tbody>
</table>

**Total Number of Aircraft:** 25
Table 142 - ACCIDENTS, FATAL ACCIDENTS, FATALITIES, AND RATES
CORPORATE/EXECUTIVE FLYING
1975 - 1984

### Fatalities

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>63</td>
<td>17</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>1976</td>
<td>56</td>
<td>14</td>
<td>42</td>
<td>38</td>
</tr>
<tr>
<td>1977</td>
<td>59</td>
<td>18</td>
<td>51</td>
<td>49</td>
</tr>
<tr>
<td>1978</td>
<td>88</td>
<td>24</td>
<td>70</td>
<td>67</td>
</tr>
<tr>
<td>1979</td>
<td>78</td>
<td>15</td>
<td>57</td>
<td>51</td>
</tr>
<tr>
<td>1980</td>
<td>96</td>
<td>21</td>
<td>66</td>
<td>63</td>
</tr>
<tr>
<td>1981</td>
<td>84</td>
<td>30</td>
<td>99</td>
<td>99</td>
</tr>
<tr>
<td>1982</td>
<td>39</td>
<td>6</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>1983</td>
<td>39</td>
<td>6</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>1984</td>
<td>25</td>
<td>4</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

### Accident Rate per 100,000 Aircraft Hours Flown

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>3,262,000</td>
<td>1.93</td>
<td>0.52</td>
</tr>
<tr>
<td>1976</td>
<td>3,396,000</td>
<td>1.65</td>
<td>0.41</td>
</tr>
<tr>
<td>1977</td>
<td>3,501,000</td>
<td>1.69</td>
<td>0.51</td>
</tr>
<tr>
<td>1978</td>
<td>4,898,000</td>
<td>1.80</td>
<td>0.49</td>
</tr>
<tr>
<td>1979</td>
<td>5,022,000</td>
<td>1.55</td>
<td>0.30</td>
</tr>
<tr>
<td>1980</td>
<td>5,351,000</td>
<td>1.79</td>
<td>0.39</td>
</tr>
<tr>
<td>1981</td>
<td>6,209,000</td>
<td>1.35</td>
<td>0.48</td>
</tr>
<tr>
<td>1982</td>
<td>4,998,000</td>
<td>0.78</td>
<td>0.12</td>
</tr>
<tr>
<td>1983</td>
<td>5,253,000</td>
<td>0.74</td>
<td>0.11</td>
</tr>
<tr>
<td>1984</td>
<td>4,788,000</td>
<td>0.52</td>
<td>0.08</td>
</tr>
</tbody>
</table>
### Table 143 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS
CORPORATE/EXECUTIVE FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>5</td>
<td>20.0</td>
</tr>
<tr>
<td>Loss of power</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>3</td>
<td>12.0</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>4</td>
<td>16.0</td>
</tr>
<tr>
<td>Undershoot</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>4</td>
<td>16.0</td>
</tr>
<tr>
<td>Midair collision</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Fire/explosion</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Prop/rotor contact</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Roll over</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>(All other types)</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

| Total                                    | 25   | 100.0      | 67.2 | 100.0   |

### Table 144 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
CORPORATE/EXECUTIVE FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Landing</td>
<td>7</td>
<td>28.0</td>
</tr>
<tr>
<td>Approach</td>
<td>4</td>
<td>16.0</td>
</tr>
<tr>
<td>Takeoff</td>
<td>3</td>
<td>12.0</td>
</tr>
<tr>
<td>Cruise</td>
<td>6</td>
<td>24.0</td>
</tr>
<tr>
<td>Descent</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Climb</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Taxi</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Standing</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<p>| Total                                    | 25   | 100.0      | 67.2 | 100.0   |
|----------------------------------|----------|--------------|-----------|--------------|----------------|-------------------|-------------------|-------------------|
| Pilot                            | 22       | 88.0         | 45.2      | 67.3         | 12             | 48.0              | 22.2              | 33.0              |
| Weather                          | 12       | 48.0         | 22.2      | 33.0         | 6              | 24.0              | 12.2              | 18.2              |
| Powerplant                       | 5        | 20.0         | 12.2      | 18.2         | 4              | 16.0              | 11.0              | 16.4              |
| Terrain                          | 6        | 24.0         | 12.2      | 18.2         | 4              | 16.0              | 8.4               | 12.5              |
| Personnel                        | 4        | 16.0         | 11.0      | 16.4         | 3              | 12.0              | 7.6               | 11.3              |
| Landing Gear                     | 4        | 16.0         | 8.4       | 12.5         | 3              | 12.0              | 3.4               | 5.1               |
| Airport/Airways/Facilities       | 3        | 12.0         | 7.6       | 11.3         | 9              | 36.0              | 5.8               | 8.6               |
| Miscellaneous                    | 9        | 36.0         | 5.8       | 8.6          |                |                   |                   |                   |
| Systems                          | 3        | 12.0         | 3.4       | 5.1          |                |                   |                   |                   |
| Undetermined                     | 0        | 0            | 3.4       | 5.1          |                |                   |                   |                   |
| Airframe                         | 2        | 8.0          | 2.0       | 3.0          |                |                   |                   |                   |
| Rotorcraft                       | 0        | 0            | 2.0       | 3.0          |                |                   |                   |                   |
| Instruments/Equipment/Accessories| 0        | 0            | 3.0       | 9.0          |                |                   |                   |                   |
| Number of Aircraft               | 25       | 67.2         |           |              |                |                   |                   |                   |</p>
<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>20</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>21</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>42</td>
<td>44</td>
<td>31</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>162</td>
<td>170</td>
<td>189</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>245</td>
<td>254</td>
<td>272</td>
</tr>
<tr>
<td><strong>Fatalities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Crew</td>
<td>20</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Other Persons</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td><strong>Aircraft Damaged</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destroyed</td>
<td>75</td>
<td>70</td>
<td>87</td>
</tr>
<tr>
<td>Substantial</td>
<td>173</td>
<td>182</td>
<td>183</td>
</tr>
<tr>
<td>Minor</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>249</td>
<td>254</td>
<td>273</td>
</tr>
</tbody>
</table>

* Number of General Aviation Aircraft in Aerial Application Operations
Table 147 - PERSONS BY ROLE AND DEGREE OF INJURY
AERIAL APPLICATION FLYING
1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>20</td>
<td>20</td>
<td>42</td>
<td>167</td>
<td>249</td>
</tr>
<tr>
<td>Other crew</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Passenger</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Total aboard</td>
<td>20</td>
<td>22</td>
<td>43</td>
<td>171</td>
<td>256</td>
</tr>
<tr>
<td>Other aircraft*</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other ground</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Grand total</td>
<td>21</td>
<td>23</td>
<td>43</td>
<td>171</td>
<td>258</td>
</tr>
<tr>
<td>Percent</td>
<td>8.1</td>
<td>8.9</td>
<td>16.7</td>
<td>66.3</td>
<td></td>
</tr>
</tbody>
</table>

* 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
1984

<table>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, or float</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hard landing</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Midair collision</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Nose over</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Overrun</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Loss of power</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Loss of power(total) - mech failure/malfunction</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Loss of power(partial) - mech failure/malfunction</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power(total) - non-mechanical</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Loss of power(partial) - non-mechanical</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Undershoot</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Aircraft
Number - 163 43 21 22 249
Percent - 65.5 17.3 8.4 8.8

-135-
Table 149 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
AERIAL APPLICATION FLYING
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Subs</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Descent - emergency</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>final</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach - VFR pattern - final approach</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Landing - flare/touchdown</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>1</td>
<td>85</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maneuvering - turn to landing area</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(emergency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Aircraft

Number - 1  173  75  249
Percent - 0.4  69.5  30.1
Table 150 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
AERIAL APPLICATION FLYING
1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VMC</td>
<td>IMC</td>
</tr>
<tr>
<td>Dawn</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Daylight</td>
<td>231</td>
<td>1</td>
</tr>
<tr>
<td>Night (dark)</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Night (bright)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Dusk</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Not reported</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft
Number: 247
Percent: 99.2

Table 151 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
AERIAL APPLICATION FLYING
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>None</td>
</tr>
<tr>
<td>On Airport</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>On Airstrip</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>176</td>
</tr>
</tbody>
</table>

Aircraft
Number: 247
Percent: 99.2
Table 152 - MOST PREVALENT DETAILED ACCIDENT CAUSES
AERIAL APPLICATION FLYING
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearance - Not maintained - Pilot in command</td>
<td>26</td>
<td>10.4</td>
</tr>
<tr>
<td>Clearance - Misjudged - Pilot in command</td>
<td>23</td>
<td>9.2</td>
</tr>
<tr>
<td>Visual lookout - Inadequate - Pilot in command</td>
<td>18</td>
<td>7.2</td>
</tr>
<tr>
<td>Undetermined</td>
<td>15</td>
<td>6.0</td>
</tr>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>13</td>
<td>5.2</td>
</tr>
<tr>
<td>Fluid,fuel - Exhaustion</td>
<td>9</td>
<td>3.6</td>
</tr>
<tr>
<td>Preflight planning/preparation - Inadequate - Pilot in</td>
<td>9</td>
<td>3.6</td>
</tr>
<tr>
<td>command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft preflight - Inadequate - Pilot in command</td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td>In-flight planning/decision - Improper - Pilot in command</td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td>Airspeed(Vs) - Not maintained - Pilot in command</td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Total Number of Aircraft:</strong></td>
<td><strong>249</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Fatalities

<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>432</td>
<td>34</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>1976</td>
<td>434</td>
<td>40</td>
<td>44</td>
<td>42</td>
</tr>
<tr>
<td>1977</td>
<td>455</td>
<td>31</td>
<td>35</td>
<td>34</td>
</tr>
<tr>
<td>1978</td>
<td>457</td>
<td>28</td>
<td>28</td>
<td>27</td>
</tr>
<tr>
<td>1979</td>
<td>395</td>
<td>27</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>1980</td>
<td>363</td>
<td>25</td>
<td>32</td>
<td>28</td>
</tr>
<tr>
<td>1981</td>
<td>378</td>
<td>30</td>
<td>36</td>
<td>34</td>
</tr>
<tr>
<td>1982</td>
<td>272</td>
<td>17</td>
<td>18</td>
<td>15</td>
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<tr>
<td>1983</td>
<td>254</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>1984</td>
<td>245</td>
<td>20</td>
<td>21</td>
<td>20</td>
</tr>
</tbody>
</table>

### Accident Rate per 100,000 *

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Flown</th>
<th>Total</th>
<th>Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>1,876,000</td>
<td>23.03</td>
<td>1.81</td>
</tr>
<tr>
<td>1976</td>
<td>2,136,000</td>
<td>20.27</td>
<td>1.87</td>
</tr>
<tr>
<td>1977</td>
<td>2,072,000</td>
<td>21.96</td>
<td>1.50</td>
</tr>
<tr>
<td>1978</td>
<td>2,082,000</td>
<td>21.95</td>
<td>1.34</td>
</tr>
<tr>
<td>1979</td>
<td>2,393,000</td>
<td>16.51</td>
<td>1.13</td>
</tr>
<tr>
<td>1980</td>
<td>2,063,000</td>
<td>17.60</td>
<td>1.21</td>
</tr>
<tr>
<td>1981</td>
<td>2,466,000</td>
<td>15.33</td>
<td>1.22</td>
</tr>
<tr>
<td>1982</td>
<td>2,058,000</td>
<td>13.22</td>
<td>0.83</td>
</tr>
<tr>
<td>1983</td>
<td>1,774,000</td>
<td>14.32</td>
<td>0.85</td>
</tr>
<tr>
<td>1984</td>
<td>2,022,000</td>
<td>12.12</td>
<td>0.99</td>
</tr>
</tbody>
</table>

* 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
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>82</td>
<td>32.9</td>
</tr>
<tr>
<td>Loss of power</td>
<td>77</td>
<td>30.9</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>27</td>
<td>10.8</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>11</td>
<td>4.4</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>20</td>
<td>8.0</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>5</td>
<td>2.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>(All other types)</td>
<td>23</td>
<td>9.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>249</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 155 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
AERIAL APPLICATION FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Phase of Operation</th>
<th>1984</th>
<th>1979 - 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>145</td>
<td>58.2</td>
</tr>
<tr>
<td>Takeoff</td>
<td>55</td>
<td>22.1</td>
</tr>
<tr>
<td>Cruise</td>
<td>15</td>
<td>6.0</td>
</tr>
<tr>
<td>Landing</td>
<td>18</td>
<td>7.2</td>
</tr>
<tr>
<td>Approach</td>
<td>7</td>
<td>2.8</td>
</tr>
<tr>
<td>Climb</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Taxi</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>Descent</td>
<td>2</td>
<td>.8</td>
</tr>
<tr>
<td>Standing</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Not reported</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>249</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 156 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS
AERIAL APPLICATION FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Broad Cause/Factor</th>
<th>1984 No.</th>
<th>1984 Percent</th>
<th>Mean</th>
<th>1984 Percent</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>191</td>
<td>76.7</td>
<td>231.4</td>
<td>69.4</td>
<td></td>
</tr>
<tr>
<td>Terrain</td>
<td>81</td>
<td>32.5</td>
<td>111.2</td>
<td>33.4</td>
<td></td>
</tr>
<tr>
<td>Powerplant</td>
<td>74</td>
<td>29.7</td>
<td>83.4</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>53</td>
<td>21.3</td>
<td>46.4</td>
<td>13.9</td>
<td></td>
</tr>
<tr>
<td>Weather</td>
<td>33</td>
<td>13.3</td>
<td>42.6</td>
<td>12.8</td>
<td></td>
</tr>
<tr>
<td>Personnel</td>
<td>25</td>
<td>10.0</td>
<td>25.4</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>Landing Gear</td>
<td>9</td>
<td>3.6</td>
<td>15.2</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Airport/Airways/Facilities</td>
<td>5</td>
<td>2.0</td>
<td>15.2</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Undetermined</td>
<td>15</td>
<td>6.0</td>
<td>13.0</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>3</td>
<td>1.2</td>
<td>11.8</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>Airframe</td>
<td>9</td>
<td>3.6</td>
<td>5.8</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Systems</td>
<td>2</td>
<td>.8</td>
<td>3.4</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>1</td>
<td>.4</td>
<td>3.0</td>
<td>.9</td>
<td></td>
</tr>
</tbody>
</table>

Number of Aircraft                       | 249      | 333.2        |
### Table 157 - SUMMARY OF LOSSES INSTRUCTIONAL FLYING 1982 - 1984

<table>
<thead>
<tr>
<th></th>
<th>1984</th>
<th>1983</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accidents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal</td>
<td>25</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>Involved Serious Injury</td>
<td>19</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>Involved Minor Injury</td>
<td>48</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Involved No Injury</td>
<td>261</td>
<td>285</td>
<td>315</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>353</td>
<td>379</td>
<td>411</td>
</tr>
</tbody>
</table>

|                |      |      |      |
| **Fatalities** |      |      |      |
| Passenger      | 1    | 0    | 3    |
| Crew           | 36   | 40   | 33   |
| Other Persons  | 17   | 1    | 2    |
| **Total**      | 54   | 41   | 38   |

|                |      |      |      |
| **Aircraft Damaged** |      |      |      |
| Destroyed       | 49   | 48   | 74   |
| Substantial     | 298  | 333  | 339  |
| Minor           | 2    | 1    | 0    |
| None            | 5    | 1    | 1    |
| Unknown         | 0    | 0    | 0    |
| **Total**       | 354  | 383  | 414  |

* Number of General Aviation Aircraft in Instructional Operations
Table 158 - PERSONS BY ROLE AND DEGREE OF INJURY
INSTRUCTIONAL FLYING
1984

<table>
<thead>
<tr>
<th>Role of Person</th>
<th>Fatal</th>
<th>Serious</th>
<th>Minor</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>24</td>
<td>17</td>
<td>47</td>
<td>270</td>
<td>358</td>
</tr>
<tr>
<td>Copilot</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>Dual student</td>
<td>8</td>
<td>6</td>
<td>12</td>
<td>33</td>
<td>119</td>
</tr>
<tr>
<td>Check pilot</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Other crew</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Passenger</td>
<td>1</td>
<td>7</td>
<td>7</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total aboard</strong></td>
<td><strong>37</strong></td>
<td><strong>32</strong></td>
<td><strong>70</strong></td>
<td><strong>415</strong></td>
<td><strong>554</strong></td>
</tr>
<tr>
<td>Other aircraft*</td>
<td>17</td>
<td>1</td>
<td>3</td>
<td>11</td>
<td>32</td>
</tr>
<tr>
<td>Other ground</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td><strong>54</strong></td>
<td><strong>33</strong></td>
<td><strong>73</strong></td>
<td><strong>429</strong></td>
<td><strong>389</strong></td>
</tr>
<tr>
<td>Percent</td>
<td>9.2</td>
<td>5.6</td>
<td>12.4</td>
<td>72.8</td>
<td></td>
</tr>
</tbody>
</table>

* 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>
<thead>
<tr>
<th>Type of first occurrence</th>
<th>Degree of injury</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Abrupt maneuver</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Airframe/component/system failure/malfunction</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, or float</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Fire</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Forced landing</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Main gear collapsed</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Nose gear collapsed</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Complete gear collapsed</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hard landing</td>
<td>44</td>
<td>8</td>
</tr>
<tr>
<td>In flight collision with object</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>In flight collision with terrain</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>In flight encounter with weather</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>22</td>
<td>7</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>68</td>
<td>7</td>
</tr>
<tr>
<td>Midair collision</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Nose over</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>On ground collision with object</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>On ground collision with terrain</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Overrun</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Loss of power(total) - mech failure/malfunction</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Loss of power(partial) - mech failure/malfunction</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Loss of power(total) - non-mechanical</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Loss of power(partial) - non-mechanical</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Roll over</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Undershoot</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Vortex turbulence encountered</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous/other</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Aircraft
Number - 262 48 19 25 354
Percent - 74.0 13.6 5.4 7.1

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### Table 160 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE
**INSTRUCTIONAL FLYING**
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>None</th>
<th>Minor</th>
<th>Subs</th>
<th>Dest</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Standing - starting engine(s)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Standing - engine(s) operating</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Taxi</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Taxi - to takeoff</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>Taxi - from landing</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>2.0</td>
</tr>
<tr>
<td>Taxi - aerial</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>Takeoff</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1.1</td>
</tr>
<tr>
<td>Takeoff - ground run</td>
<td>1</td>
<td>0</td>
<td>29</td>
<td>1</td>
<td>31</td>
<td>8.8</td>
</tr>
<tr>
<td>Takeoff - initial climb</td>
<td>2</td>
<td>0</td>
<td>23</td>
<td>8</td>
<td>33</td>
<td>9.3</td>
</tr>
<tr>
<td>Climb</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Climb - to cruise</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Cruise</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>2.3</td>
</tr>
<tr>
<td>Cruise - normal</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>1</td>
<td>17</td>
<td>4.8</td>
</tr>
<tr>
<td>Descent</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Descent - normal</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>Approach</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>Approach - VFR pattern - downwind</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>Approach - VFR pattern - base to final</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Approach - VFR pattern - final</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>4</td>
<td>16</td>
<td>4.5</td>
</tr>
<tr>
<td>Approach - go-around (VFR)</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>2</td>
<td>17</td>
<td>4.8</td>
</tr>
<tr>
<td>Approach - circling(IFR)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Landing</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>1</td>
<td>17</td>
<td>4.8</td>
</tr>
<tr>
<td>Landing - flare/ touchdown</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>4</td>
<td>88</td>
<td>24.9</td>
</tr>
<tr>
<td>Landing - roll</td>
<td>0</td>
<td>0</td>
<td>52</td>
<td>0</td>
<td>52</td>
<td>14.7</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>11</td>
<td>21</td>
<td>5.9</td>
</tr>
<tr>
<td>Maneuvering - aerial application</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>Maneuvering - turn to reverse direction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.3</td>
</tr>
</tbody>
</table>
Table 160 - AIRCRAFT BY PHASE OF OPERATION AND AIRCRAFT DAMAGE (CONTINUED)
INSTRUCTIONAL FLYING
1984

<table>
<thead>
<tr>
<th>Phase of operation</th>
<th>Aircraft damage</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Minor</td>
</tr>
<tr>
<td>Maneuvering - turn to landing area (emergency)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hover</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Aircraft Number</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Aircraft Percent</td>
<td>1.4</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Table 161 - AIRCRAFT BY CONDITION OF LIGHT AND TYPE OF WEATHER
INSTRUCTIONAL FLYING
1984

<table>
<thead>
<tr>
<th>Condition of light</th>
<th>Type of weather</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VMC</td>
<td>IMC</td>
</tr>
<tr>
<td>Dawn</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Daylight</td>
<td>316</td>
<td>4</td>
</tr>
<tr>
<td>Night (dark)</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Night (bright)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Dusk</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Not reported</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Percent</td>
</tr>
</tbody>
</table>

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Table 162 - AIRCRAFT BY PROXIMITY TO AIRPORT AND FLIGHT PLAN
INSTRUCTIONAL FLYING
1984

<table>
<thead>
<tr>
<th>Proximity to Airport</th>
<th>Type of Flight Plan</th>
<th>Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VFR</td>
<td>IFR</td>
</tr>
<tr>
<td>On Airport</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>On Airstrip</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Within 5 SM</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>5 SM Or Greater</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not reported</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

Aircraft
Number - 43 3 304 4 354
Percent - 12.1 0.8 85.9 1.1

Table 163 - MOST PREVALENT DETAILED ACCIDENT CAUSES
INSTRUCTIONAL FLYING
1984

<table>
<thead>
<tr>
<th>Detailed Cause</th>
<th>Number of Aircraft</th>
<th>Percent of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directional control - Not maintained - Pilot in command</td>
<td>73</td>
<td>20.6</td>
</tr>
<tr>
<td>Flare - Improper - Pilot in command</td>
<td>27</td>
<td>7.6</td>
</tr>
<tr>
<td>Recovery from bounced landing - Improper - Pilot in command</td>
<td>24</td>
<td>6.8</td>
</tr>
<tr>
<td>Supervision - Inadequate - Pilot in command(CFI)</td>
<td>19</td>
<td>5.4</td>
</tr>
<tr>
<td>Undetermined</td>
<td>16</td>
<td>4.5</td>
</tr>
<tr>
<td>Remedial action - Delayed - Pilot in command(CFI)</td>
<td>15</td>
<td>4.2</td>
</tr>
<tr>
<td>Directional control - Not maintained - Dual student</td>
<td>12</td>
<td>3.4</td>
</tr>
<tr>
<td>Flight controls - Improper use of - Pilot in command</td>
<td>12</td>
<td>3.4</td>
</tr>
<tr>
<td>Ground loop/swarf - Not corrected - Pilot in command</td>
<td>11</td>
<td>3.1</td>
</tr>
<tr>
<td>Compensation for wind conditions - Improper - Pilot in command</td>
<td>11</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Total Number of Aircraft: 354
<table>
<thead>
<tr>
<th>Year</th>
<th>Accidents</th>
<th>Fatal Accidents</th>
<th>Total</th>
<th>Aboard Aircraft In This Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>587</td>
<td>43</td>
<td>77</td>
<td>60</td>
</tr>
<tr>
<td>1976</td>
<td>541</td>
<td>55</td>
<td>97</td>
<td>87</td>
</tr>
<tr>
<td>1977</td>
<td>572</td>
<td>48</td>
<td>68</td>
<td>64</td>
</tr>
<tr>
<td>1978</td>
<td>604</td>
<td>62</td>
<td>243</td>
<td>92</td>
</tr>
<tr>
<td>1979</td>
<td>516</td>
<td>39</td>
<td>59</td>
<td>51</td>
</tr>
<tr>
<td>1980</td>
<td>461</td>
<td>41</td>
<td>73</td>
<td>70</td>
</tr>
<tr>
<td>1981</td>
<td>428</td>
<td>40</td>
<td>70</td>
<td>63</td>
</tr>
<tr>
<td>1982</td>
<td>411</td>
<td>22</td>
<td>38</td>
<td>36</td>
</tr>
<tr>
<td>1983</td>
<td>379</td>
<td>26</td>
<td>41</td>
<td>40</td>
</tr>
<tr>
<td>1984</td>
<td>353</td>
<td>25</td>
<td>54</td>
<td>37</td>
</tr>
</tbody>
</table>

**Fatalities**

<table>
<thead>
<tr>
<th>Year</th>
<th>Accident Rate per 100,000 * Aircraft Hours Flown</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>9.98</td>
</tr>
<tr>
<td>1976</td>
<td>8.87</td>
</tr>
<tr>
<td>1977</td>
<td>7.48</td>
</tr>
<tr>
<td>1978</td>
<td>9.55</td>
</tr>
<tr>
<td>1979</td>
<td>6.34</td>
</tr>
<tr>
<td>1980</td>
<td>6.30</td>
</tr>
<tr>
<td>1981</td>
<td>6.02</td>
</tr>
<tr>
<td>1982</td>
<td>8.30</td>
</tr>
<tr>
<td>1983</td>
<td>6.51</td>
</tr>
<tr>
<td>1984</td>
<td>6.20</td>
</tr>
</tbody>
</table>

* Suicide and sabotage accidents excluded from rates as follows:
  Total - 1982 (1)
  Fatal - None
Table 165 - MOST PREVALENT FIRST OCCURRENCES IN ALL ACCIDENTS
INSTRUCTIONAL FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Type of Occurrence</th>
<th>1984 No.</th>
<th>1984 Percent</th>
<th>Mean</th>
<th>1979 - 1983 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of power</td>
<td>68</td>
<td>19.2</td>
<td>89.2</td>
<td>20.1</td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>76</td>
<td>21.5</td>
<td>82.2</td>
<td>18.6</td>
</tr>
<tr>
<td>Hard landing</td>
<td>53</td>
<td>15.0</td>
<td>76.2</td>
<td>17.2</td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>55</td>
<td>15.5</td>
<td>67.8</td>
<td>15.3</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>40</td>
<td>11.3</td>
<td>40.4</td>
<td>9.1</td>
</tr>
<tr>
<td>Undershoot</td>
<td>13</td>
<td>3.7</td>
<td>18.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>17</td>
<td>4.8</td>
<td>17.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>3</td>
<td>.8</td>
<td>13.0</td>
<td>2.9</td>
</tr>
<tr>
<td>Midair collision</td>
<td>6</td>
<td>1.7</td>
<td>10.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>5</td>
<td>1.4</td>
<td>7.4</td>
<td>1.7</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>5</td>
<td>1.4</td>
<td>7.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>6</td>
<td>1.7</td>
<td>4.8</td>
<td>1.1</td>
</tr>
<tr>
<td>(All other types)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>354</td>
<td>100.0</td>
<td>442.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 166 - MOST PREVALENT FIRST PHASES OF OPERATION IN ALL ACCIDENTS
INSTRUCTIONAL FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>157</td>
<td>44.4</td>
<td>186.8</td>
<td>42.2</td>
</tr>
<tr>
<td>Takeoff</td>
<td>68</td>
<td>19.2</td>
<td>83.6</td>
<td>18.9</td>
</tr>
<tr>
<td>Approach</td>
<td>43</td>
<td>12.1</td>
<td>74.2</td>
<td>16.8</td>
</tr>
<tr>
<td>Cruise</td>
<td>25</td>
<td>7.1</td>
<td>35.4</td>
<td>8.0</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>31</td>
<td>8.8</td>
<td>29.8</td>
<td>6.7</td>
</tr>
<tr>
<td>Taxi</td>
<td>17</td>
<td>4.8</td>
<td>13.6</td>
<td>3.1</td>
</tr>
<tr>
<td>Descent</td>
<td>7</td>
<td>2.0</td>
<td>8.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Climb</td>
<td>3</td>
<td>.8</td>
<td>5.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Standing</td>
<td>3</td>
<td>.8</td>
<td>3.8</td>
<td>.9</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>354</td>
<td>100.0</td>
<td>442.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 167 - BROAD CAUSE/FACTOR ASSIGNMENTS IN ALL ACCIDENTS
INSTRUCTIONAL FLYING
1984 AND 1979 - 1983

<table>
<thead>
<tr>
<th>Broad Cause/Factor</th>
<th>1984</th>
<th>Percent</th>
<th>Mean</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>321</td>
<td>90.7</td>
<td>383.8</td>
<td>86.7</td>
</tr>
<tr>
<td>Terrain</td>
<td>91</td>
<td>25.7</td>
<td>90.2</td>
<td>20.4</td>
</tr>
<tr>
<td>Weather</td>
<td>77</td>
<td>21.8</td>
<td>88.6</td>
<td>20.0</td>
</tr>
<tr>
<td>Powerplant</td>
<td>40</td>
<td>11.3</td>
<td>53.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>61</td>
<td>17.2</td>
<td>44.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Personnel</td>
<td>39</td>
<td>11.0</td>
<td>43.2</td>
<td>9.8</td>
</tr>
<tr>
<td>Airport/Airways/Facilities</td>
<td>22</td>
<td>6.2</td>
<td>31.4</td>
<td>7.1</td>
</tr>
<tr>
<td>Landing Gear</td>
<td>20</td>
<td>5.6</td>
<td>28.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Undetermined</td>
<td>16</td>
<td>4.5</td>
<td>12.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Systems</td>
<td>1</td>
<td>.3</td>
<td>5.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Airframe</td>
<td>3</td>
<td>.8</td>
<td>3.2</td>
<td>.7</td>
</tr>
<tr>
<td>Rotorcraft</td>
<td>1</td>
<td>.3</td>
<td>3.0</td>
<td>.7</td>
</tr>
<tr>
<td>Instruments/Equipment/Accessories</td>
<td>1</td>
<td>.3</td>
<td>1.4</td>
<td>.3</td>
</tr>
</tbody>
</table>

Number of Aircraft                           | 354  | 442.8   |
BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ JIM BURNETT
Chairman

/s/ PATRICIA A. GOLDMAN
Vice Chairman

/s/ JOHN K. LAUBER
Member

/s/ JOSEPH NALL
Member

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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 cowling, 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/swove) 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.

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To describe an accident, up to seven 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.

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>IN FLIGHT COLLISION WITH TERRAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase of Operation</td>
<td>LANDING - FLARE/TOUCHDOWN</td>
</tr>
<tr>
<td>Finding(s)</td>
<td></td>
</tr>
<tr>
<td>1. WHEELS UP LANDING - INADVERTENT - PILOT IN COMMAND</td>
<td></td>
</tr>
<tr>
<td>2. IMPROPER USE OF PROCEDURE, DIVERTED ATTENTION - PILOT IN COMMAND</td>
<td></td>
</tr>
</tbody>
</table>

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.
<table>
<thead>
<tr>
<th>HISTORICAL COMPARISON CATEGORY</th>
<th>PRE-1982 ACCIDENT TYPES</th>
<th>1982 AND LATER OCCURRENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrupt maneuver</td>
<td>Evasive maneuver</td>
<td>Abrupt maneuver</td>
</tr>
<tr>
<td>Altitude deviation, uncontrolled</td>
<td>Uncontrolled alt deviation</td>
<td>Altitude deviation, uncontrolled</td>
</tr>
<tr>
<td>Airframe/component/system fail/malf</td>
<td>Airframe failure - in flight - on ground</td>
<td>Airframe/component/system failure/malf</td>
</tr>
<tr>
<td></td>
<td>Propeller/rotor failure - propeller - tail rotor - main rotor</td>
<td></td>
</tr>
<tr>
<td>Collision with object/terrain</td>
<td>Wheels-up landing</td>
<td>In flight collision with object</td>
</tr>
<tr>
<td></td>
<td>Wheels-down landing in water</td>
<td>In flight collision with terrain</td>
</tr>
<tr>
<td></td>
<td>Collision with ground/water-controlled</td>
<td>On ground collision with object</td>
</tr>
<tr>
<td></td>
<td>Bird strike</td>
<td>On ground collision with terrain</td>
</tr>
<tr>
<td></td>
<td>Collision between aircraft-one airborne - both on ground</td>
<td>Gear not extended</td>
</tr>
<tr>
<td></td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Ditching</td>
<td>Ditching</td>
<td>Ditching</td>
</tr>
<tr>
<td>Dragged wing, rotor, pod, float</td>
<td>Dragged wingtip, pod, or float</td>
<td>Dragged wing, rotor, pod or float</td>
</tr>
<tr>
<td>Encounter with weather/turbulence</td>
<td>Turbulence</td>
<td>In flight encounter with weather</td>
</tr>
<tr>
<td></td>
<td>Hail damage to aircraft</td>
<td>On ground encounter with weather</td>
</tr>
<tr>
<td></td>
<td>Lightning strike</td>
<td>Vortex turbulence encountered</td>
</tr>
<tr>
<td>HISTORICAL COMPARISON CATEGORY</td>
<td>PRE-1982 ACCIDENT TYPES</td>
<td>1982 AND LATER OCCURRENCES</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Engine tearaway</td>
<td>Engine tearaway</td>
<td>Engine tearaway</td>
</tr>
<tr>
<td>Fire/Explosion</td>
<td>Fire or explosion - in flight</td>
<td>Fire/explosion</td>
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<tr>
<td></td>
<td>- on ground</td>
<td>Fire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explosion</td>
</tr>
<tr>
<td>Gear collapsed/retracted</td>
<td>Gear collapsed</td>
<td>Gear collapsed</td>
</tr>
<tr>
<td></td>
<td>Gear retracted</td>
<td>Main gear collapsed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nose gear collapsed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tail gear collapsed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete gear collapsed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other gear collapsed</td>
</tr>
<tr>
<td>Hard landing</td>
<td>Hard landing</td>
<td>Hard landing</td>
</tr>
<tr>
<td>Loss of control - in flight</td>
<td>Collision with ground/water-uncontrolled</td>
<td>Loss of control - in flight</td>
</tr>
<tr>
<td></td>
<td>Stall - Spin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Spiral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Mush</td>
<td></td>
</tr>
<tr>
<td>Loss of control - on ground</td>
<td>Ground-water loop-swarfve</td>
<td>Loss of control - on ground</td>
</tr>
<tr>
<td>Loss of power</td>
<td>Engine failure or malfunction</td>
<td>Loss of power</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of power (total) - mech</td>
</tr>
<tr>
<td></td>
<td></td>
<td>failure/malfunction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of power (partial) - mech</td>
</tr>
<tr>
<td></td>
<td></td>
<td>failure/malfunction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of power (total) - non-mech</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of power (partial) - non-mech</td>
</tr>
<tr>
<td>Midair collision</td>
<td>Collision between aircraft - both in flight</td>
<td>Midair collision</td>
</tr>
<tr>
<td>Historical Comparison Category</td>
<td>Pre-1982 Accident Types</td>
<td>1982 and Later Occurrences</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Miscellaneous/Other, Overshoot</td>
<td>Cargo shift, Decompression, Forced landing, Hazardous materials leak/spill (fumes/smoke), Near collision between aircraft, Overrun, Miscellaneous/other</td>
</tr>
<tr>
<td>Missing aircraft</td>
<td>Missing Acft not recovered</td>
<td>Missing aircraft</td>
</tr>
<tr>
<td>Nose over/down</td>
<td>Nose over/down</td>
<td>Nose down, Nose over</td>
</tr>
<tr>
<td>Prop blast or jet exhaust/suction</td>
<td>Jet intake/exh acdnt to pers, Propeller/jet/rotor blast</td>
<td>Propeller blast or jet exhaust/suction</td>
</tr>
<tr>
<td>Prop/rotor contact</td>
<td>Prop rotor acdnt to person</td>
<td>Propeller/rotor contact</td>
</tr>
<tr>
<td>Roll over</td>
<td>Roll over</td>
<td>Roll over</td>
</tr>
<tr>
<td>Undershoot</td>
<td>Undershoot</td>
<td>Undershoot</td>
</tr>
<tr>
<td>Undetermined</td>
<td>Undetermined</td>
<td>Undetermined</td>
</tr>
</tbody>
</table>
APPENDIX B
CAUSE/FACTOR TABLE
ALL OPERATIONS
<table>
<thead>
<tr>
<th>CAUSE/FACTOR TABLE</th>
</tr>
</thead>
</table>

### 1984 OPERATIONS

#### FATAL ACCIDENTS

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#### ALL ACCIDENTS

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#### AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE

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  - TOTAL: 1

- **FIRE**
  - CAUSE FACTOR: 1
  - TOTAL: 1

- **ICE**
  - CAUSE FACTOR: 1
  - TOTAL: 1

- **OVERLOAD**
  - CAUSE FACTOR: 1
  - TOTAL: 1

- **SEPARATION**
  - CAUSE FACTOR: 1
  - TOTAL: 1

- **VIBRATION**
  - CAUSE FACTOR: 1
  - TOTAL: 1

#### FUSELAGE, CABIN

- **OVERLOAD**
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  - TOTAL: 1

#### FUSELAGE, BULKHEAD

- **BUCKLED**
  - CAUSE FACTOR: 1
  - TOTAL: 1

#### FUSELAGE, FLOOR

- **BUCKLED**
  - CAUSE FACTOR: 1
  - TOTAL: 1

#### FUSELAGE, SKIN

- **INCORRECT**
  - CAUSE FACTOR: 1
  - TOTAL: 1

#### FUSELAGE, SEAT

- **CONNECTED**
  - CAUSE FACTOR: 1
  - TOTAL: 1

#### WING

- **ASYMMETRICAL**
  - CAUSE FACTOR: 1
  - TOTAL: 1

- **BENT**
  - CAUSE FACTOR: 1
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- **CONTAMINATION**
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- **DETERIORATED**
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- **FAILURE, TOTAL**
  - CAUSE FACTOR: 1
  - TOTAL: 1

- **FIRE**
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  - TOTAL: 1

- **ICE**
  - CAUSE FACTOR: 1
  - TOTAL: 1

- **OVERLOAD**
  - CAUSE FACTOR: 1
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- **SEPARATION**
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- **DARK NIGHT**
  - CAUSE FACTOR: 1
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#### WING, SPAR

- **BUCKLED**
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- **DETERIORATED**
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- **OVERLOAD**
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- **SEPARATION**
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- **FAILURE, TOTAL**
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- **IMPROPER**
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- **LOOSE**
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#### WING-FAIRING

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#### FLIGHT CONTROL SURFACES/ATTACHMENTS

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- **ICE**
  - CAUSE FACTOR: 1
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#### NACELLE/ PYLON

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- **VIBRATION**
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-170-
## Cause/Factor Table

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### LUBRICATING SYSTEM

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-182-
## Cause/Factor Table

**All Operations**

### Aircraft, Environment, Human Performance (Continued)

#### Human Performance (Continued)

#### Aircraft (Continued)

#### Flight Controls (Continued)

#### Trim Setting (Continued)

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### CAUSE/FACTOR TABLE

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### CAUSE/FACTOR TABLE (Continued)

#### AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE

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### AIRCRAFT, ENVIRONMENT, HUMAN PERFORMANCE (Continued)

### HUMAN PERFORMANCE (Continued)

### OPERATIONS (Continued)

### PLANNING-DECISION (Continued)

#### FLIGHT INTO KNOWN ADVERSE WEATHER (Continued)

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  - Pilot in Command
    - Improper
      - Pilot in Command
        - 15
        - 5
    - Inadvertent
      - Pilot in Command
        - 1
    - Not Corrected
      - Pilot in Command
        - 1
    - Not Followed
      - Pilot in Command
        - 15
        - 1
    - Not Understood
      - Pilot in Command
        - 0
    - Not Selected
      - Pilot in Command
        - 0
    - Poor
      - Pilot in Command
        - 0

- **Flight to Alternate Destination**
  - Delayed
    - Pilot in Command
      - 2
      - 2
  - Disregarded
    - Pilot in Command
      - 0
  - Improper
    - Pilot in Command
      - 0
  - Not Performed
    - Pilot in Command
      - 0
  - Not Selected
    - Pilot in Command
      - 0

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    - Dual Student
      - 0
  - Delayed
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  - Exceeded
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-205-
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| CLEARANCE (Continued) |
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| MISJUDGED |
| PILOT IN COMMAND |
| COPILOT |
| DUAL STUDENT |
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| PILOT IN COMMAND(CFI) |
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| PILOT IN COMMAND |
| PILOT OF OTHER AIRCRAFT |
| NOT POSSIBLE |
| PILOT IN COMMAND |
| PILOT OF OTHER AIRCRAFT |
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### Cause/Factor Table

**All Operations 1984**

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### Cause/Factor Table

**All Operations**

#### 1984

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**Improper Use of Procedure:** (Continued)

**Panic:** (Continued)

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**1984**
### Cause/Factor Table
**All Operations 1984**

**Fatal Accidents**

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**All Accidents**

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**Direct Underlying Cause Factors:**

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### CAUSE/FACtor TABLE

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