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## CONTENTS

|                                                                                                          | <i>Page</i> |
|----------------------------------------------------------------------------------------------------------|-------------|
| Introduction . . . . .                                                                                   | 1           |
| TABLE I - Accidents and Incidents by Type of Operation<br>and Aircraft Weight (1982) . . . . .           | 3           |
| TABLE II - Accidents and Incidents to Aeroplanes by Type of Operation<br>and Powerplant (1982) . . . . . | 4           |
| PART I ACCIDENTS TO AEROPLANES                                                                           |             |
| Scheduled Airline Operations . . . . .                                                                   | 5           |
| Non-Scheduled Airline Operations . . . . .                                                               | 9           |
| Other Airline Operations . . . . .                                                                       | 15          |
| General Aviation . . . . .                                                                               | 19          |
| PART II ACCIDENTS TO HELICOPTERS                                                                         |             |
| Airline Operations . . . . .                                                                             | 25          |
| General Aviation . . . . .                                                                               | 29          |
| PART III INCIDENTS                                                                                       |             |
| Airline Operations . . . . .                                                                             | 33          |

## INTRODUCTION

### General

This is the sixth publication of statistics from the ICAO Accident/Incident Reporting (ADREP) System. These statistics are based on 652 accidents and incidents which occurred in 1982 to aircraft of a maximum take-off weight of more than 2250 kg (5000 lb). The statistics were compiled in February 1985.

### Purpose

The purpose of the ADREP statistics is to provide simple data which may be useful for general safety studies and accident prevention. For more specific needs the ADREP system provides information in response to specific ADREP requests.

### Data Base

These statistics are based on 652 reported occurrences. Of these, 598 were Data Reports. Unfortunately 54 occurrences were reported only as Preliminary Reports, which do not include factors and cannot be used for statistics on factors.

### Limitations

When considering the information presented, the reader must be aware of the following limitations:

- a) Only occurrences reported to ICAO on the ADREP system are included;
- b) The ADREP Manual contains specific coding instructions. Nonetheless there may be some unintentional bias on the part of persons coding since ultimately the coding must be done by humans, one cannot assume that judgemental bias has been totally eliminated in the ADREP reporting forms, particularly with respect to the coding of factors;
- c) Factors statistics are based only on the 598 Accident/Incident Data Reports received from States;
- d) Some accidents are reported to ICAO on computer tapes and are processed through a conversion programme before they are entered in the ADREP data bank. Since the data so reported may not be fully compatible with the ADREP system recording, precision is not attainable in all cases. For example, the ADREP system for type of occurrence subdivides "Gear Collapsed" into "Nose gear, Main gear, Complete gear and Other gear" with a specific code for each. However, the information received on a computer tape may indicate only "Gear collapsed".

### Notes on the Statistical Tables

For each accident or incident there may be two Types of Occurrence, two Phases of Operation, and up to 13 factors. Thus, the totals within these categories will frequently exceed the total number of accidents or incidents reported.

Additionally, factors may be related to the first type of occurrence, the second type of occurrence or to both. Accordingly, the same factor may be listed twice for each accident or incident.

Percentages are rounded off to the nearest full number. Numbers less than one are shown as zero.

### Format

There are three parts:

- Part I Accidents to Aeroplanes,
- Part II Accidents to Helicopters, and
- Part III Incidents

Each part is divided into separate sections for "Airline Operations" and "General Aviation".

The format within each section or sub-section is the same, showing the following:

- The ten most frequent phases of operation for that section.
- The ten most frequent types of occurrence for that section.
- The most frequent factors related to each of the types of occurrence.

### Aircraft Weight Categories

The aircraft weight categories used are for Airline Operations: "over 27 000 kg" and "2 250 to 27 000 kg"; and for General Aviation: "over 5 700 kg" and "2 250 to 5 700 kg".

TABLE I - ACCIDENTS AND INCIDENTS BY TYPE OF OPERATION AND AIRCRAFT WEIGHT (1982)

|                                        | Number<br>of Reports |            | Number of Occurrences |               |       | Number of Fatalities |      |        |       | Number<br>of<br>Aircraft<br>Destroyed |
|----------------------------------------|----------------------|------------|-----------------------|---------------|-------|----------------------|------|--------|-------|---------------------------------------|
|                                        | 1)<br>P.R.           | 2)<br>D.R. | Fatal                 | Non-<br>fatal | Total | Crew                 | Pax. | Others | Total |                                       |
| I. ACCIDENTS TO AEROPLANES             |                      |            |                       |               |       |                      |      |        |       |                                       |
| Scheduled Airline Operations           |                      |            |                       |               |       |                      |      |        |       |                                       |
| Aeroplanes over 27 000 kg              | 12                   | 31         | 12                    | 31            | 43    | 34                   | 447  | 0      | 481   | 15                                    |
| Aeroplanes between 2 250 and 27 000 kg | 9                    | 41         | 16                    | 34            | 50    | 34                   | 205  | 0      | 239   | 19                                    |
| Non-scheduled Airline Operations       |                      |            |                       |               |       |                      |      |        |       |                                       |
| Aeroplanes over 27 000 kg              | 1                    | 5          | 2                     | 4             | 6     | 6                    | 49   | 0      | 55    | 2                                     |
| Aeroplanes between 2 250 and 27 000 kg | 3                    | 91         | 25                    | 69            | 94    | 29                   | 50   | 0      | 79    | 27                                    |
| Other Airline Operations               |                      |            |                       |               |       |                      |      |        |       |                                       |
| Aeroplanes over 27 000 kg              | 1                    | 0          | 0                     | 1             | 1     | 0                    | 0    | 0      | 0     | 0                                     |
| Aeroplanes between 2 250 and 27 000 kg | 0                    | 9          | 2                     | 7             | 9     | 9                    | 0    | 0      | 9     | 4                                     |
| Airline Operations (Total by weight)   |                      |            |                       |               |       |                      |      |        |       |                                       |
| Aeroplanes over 27 000 kg              | 14                   | 36         | 14                    | 36            | 50    | 40                   | 496  | 0      | 536   | 17                                    |
| Aeroplanes between 2 250 and 27 000 kg | 12                   | 141        | 43                    | 110           | 153   | 72                   | 255  | 0      | 327   | 50                                    |
| General Aviation                       |                      |            |                       |               |       |                      |      |        |       |                                       |
| Aeroplanes over 5 700 kg               | 4                    | 18         | 6                     | 16            | 22    | 13                   | 12   | 1      | 26    | 8                                     |
| Aeroplanes between 2 250 and 5 700 kg  | 18                   | 350        | 89                    | 279           | 368   | 106                  | 157  | 1      | 264   | 137                                   |
| II. ACCIDENTS TO HELICOPTERS           |                      |            |                       |               |       |                      |      |        |       |                                       |
| Airline Operations                     | 3                    | 13         | 8                     | 8             | 16    | 13                   | 33   | 0      | 46    | 8                                     |
| General Aviation                       | 3                    | 34         | 13                    | 24            | 37    | 19                   | 18   | 0      | 37    | 22                                    |
| III. INCIDENTS                         |                      |            |                       |               |       |                      |      |        |       |                                       |
| Airline Operations                     | 0                    | 6          | 0                     | 6             | 6     | 0                    | 0    | 0      | 0     | 0                                     |
| General Aviation                       | 0                    | 0          | 0                     | 0             | 0     | 0                    | 0    | 0      | 0     | 0                                     |

1) Preliminary Report

2) Accident/Incident Data Report

TABLE II - ACCIDENTS AND INCIDENTS TO AEROPLANES BY TYPE OF OPERATION AND POWERPLANT (1982)

|                                  | Number of Reports |            | Number of Occurrences |           |       | Number of Fatalities |      |        |       | Number of Aircraft Destroyed |
|----------------------------------|-------------------|------------|-----------------------|-----------|-------|----------------------|------|--------|-------|------------------------------|
|                                  | 1)<br>P.R.        | 2)<br>D.R. | Fatal                 | Non-fatal | Total | Crew                 | Pax. | Others | Total |                              |
| Scheduled Airline Operations     |                   |            |                       |           |       |                      |      |        |       |                              |
| Jet                              | 10                | 33         | 10                    | 33        | 43    | 28                   | 406  | 0      | 434   | 13                           |
| Turbo-Prop                       | 9                 | 26         | 13                    | 22        | 35    | 32                   | 192  | 0      | 224   | 14                           |
| Piston                           | 2                 | 17         | 5                     | 14        | 19    | 8                    | 54   | 0      | 62    | 7                            |
| Non-Scheduled Airline Operations |                   |            |                       |           |       |                      |      |        |       |                              |
| Jet                              | 2                 | 3          | 2                     | 3         | 5     | 5                    | 56   | 0      | 61    | 2                            |
| Turbo-Prop                       | 1                 | 8          | 0                     | 9         | 9     | 0                    | 0    | 0      | 0     | 1                            |
| Piston                           | 1                 | 86         | 25                    | 62        | 87    | 30                   | 43   | 0      | 73    | 26                           |
| Other Airline Operations         |                   |            |                       |           |       |                      |      |        |       |                              |
| Jet                              | 1                 | 2          | 0                     | 3         | 3     | 0                    | 0    | 0      | 0     | 0                            |
| Turbo-Prop                       | 0                 | 2          | 1                     | 1         | 2     | 7                    | 0    | 0      | 7     | 0                            |
| Piston                           | 0                 | 6          | 1                     | 5         | 6     | 2                    | 0    | 0      | 2     | 3                            |
| General Aviation                 |                   |            |                       |           |       |                      |      |        |       |                              |
| Jet                              | 3                 | 14         | 6                     | 11        | 17    | 12                   | 21   | 0      | 33    | 7                            |
| Turbo-Prop                       | 3                 | 43         | 12                    | 34        | 46    | 19                   | 28   | 0      | 47    | 16                           |
| Piston                           | 16                | 311        | 77                    | 250       | 327   | 88                   | 120  | 2      | 210   | 122                          |

1) Preliminary Report

2) Accident/Incident Data Report

## PART I

### ACCIDENTS TO AEROPLANES

## ACCIDENTS TO AEROPLANES

## SCHEDULED AIRLINE OPERATIONS

| TEN MOST FREQUENT PHASES OF OPERATION | TOTAL |     | OVER<br>27 000 |     | 2250 TO<br>27 000 |     |
|---------------------------------------|-------|-----|----------------|-----|-------------------|-----|
|                                       | NO.   | %   | NO.            | %   | NO.               | %   |
| APP & LANDING/LANDING ROLL            | 23    | 17  | 16             | 27  | 7                 | 10  |
| APP & LANDING/LEVEL OFF/TOUCHDOWN     | 19    | 14  | 9              | 15  | 10                | 14  |
| TAKE-OFF INITIAL CLIMB                | 14    | 11  | 3              | 5   | 11                | 15  |
| ENROUTE/NORMAL CRUISE                 | 13    | 10  | 4              | 7   | 9                 | 12  |
| TAKE-OFF RUN                          | 11    | 8   | 7              | 12  | 4                 | 5   |
| APP & LANDING/FINAL APP - VFR         | 10    | 8   | 2              | 3   | 8                 | 11  |
| ENROUTE/CLIMB TO CRUISE               | 9     | 7   | 5              | 8   | 4                 | 5   |
| APP & LANDING/FINAL APP - IFR         | 7     | 5   | 3              | 5   | 4                 | 5   |
| ENROUTE/DESCENDING                    | 6     | 5   | 2              | 3   | 4                 | 5   |
| TAKE-OFF ABORTED                      | 5     | 4   | 2              | 3   | 3                 | 4   |
| * TOTAL ABOVE *                       | 117   | 88  | 53             | 89  | 64                | 87  |
| * TOTAL REMAINING *                   | 15    | 11  | 6              | 10  | 9                 | 12  |
| * TOTAL *                             | 132   | 100 | 59             | 100 | 73                | 100 |

| TEN MOST FREQUENT TYPES OF OCCURRENCE | TOTAL |     | OVER<br>27 000 |     | 2250 TO<br>27 000 |     |
|---------------------------------------|-------|-----|----------------|-----|-------------------|-----|
|                                       | NO.   | %   | NO.            | %   | NO.               | %   |
| OVERRUN                               | 10    | 8   | 8              | 14  | 2                 | 3   |
| ENGINE FAILURE                        | 10    | 8   | 1              | 2   | 9                 | 12  |
| WHEELSUP LANDING/INTENTIONAL          | 8     | 6   | 1              | 2   | 7                 | 10  |
| UNDERSHOOT                            | 7     | 5   | 3              | 5   | 4                 | 5   |
| HARD LANDING                          | 6     | 5   | 5              | 8   | 1                 | 1   |
| COLLISION LEVEL SURFACE-CONTROLLED    | 6     | 5   | 1              | 2   | 5                 | 7   |
| COLLISION HILL/MOUNTAIN-CONTROLLED    | 6     | 5   | 2              | 3   | 4                 | 5   |
| INJURIES IN FLIGHT/TURBULENCE         | 6     | 5   | 6              | 10  | 0                 | 0   |
| LOSS OF CONTROL - GROUND/WATER        | 4     | 3   | 2              | 3   | 2                 | 3   |
| NOSE GEAR COLLAPSED                   | 4     | 3   | 3              | 5   | 1                 | 1   |
| * TOTAL ABOVE *                       | 67    | 50  | 32             | 54  | 35                | 47  |
| * TOTAL REMAINING *                   | 65    | 49  | 27             | 45  | 38                | 52  |
| * TOTAL *                             | 132   | 100 | 59             | 100 | 73                | 100 |

## ACCIDENTS TO AEROPLANES

### SCHEDULED AIRLINE OPERATIONS

| TYPE OF OCCURRENCE<br>RELATED FACTORS | CASES | PERCENT |
|---------------------------------------|-------|---------|
|---------------------------------------|-------|---------|

OVERRUN OCCURS 10 TIMES ( 8 PERCENT ) OF TOTAL 132

|                                                                 |        |         |
|-----------------------------------------------------------------|--------|---------|
| PILOT:APPROACH HIGH AND FAST                                    | 2      | 6       |
| PILOT:DELAYED ACTION IN ABORTING TAKE-OFF                       | 1      | 3       |
| PILOT:IMPROPER OPERATION OF BRAKES OR FLIGHT CONTROLS ON GROUND | 1      | 3       |
| PILOT:EXERCISED POOR JUDGEMENT                                  | 1      | 3       |
| PILOT:MISJUDGED DISTANCE AND SPEED                              | 1      | 3       |
| PILOT:MISUNDERSTANDING OF ORDERS, INSTRUCTIONS, CLEARANCES      | 1      | 3       |
| PILOT:MISUSED OR FAILED TO USE FLAPS (LIFT DEVICES)             | 1      | 3       |
| PILOT:FAILED TO INITIATE GO-AROUND/MISSED APPROACH/OVERSHOOT    | 1      | 3       |
| ATC PERS./FAILURE TO ADVISE OF HAZARD OR A/P COND.              | 1      | 3       |
| LANDING GEAR/BRAKING SYSTEM (NORMAL)                            | 1      | 3       |
| <br>* TOTAL ABOVE *                                             | <br>11 | <br>36  |
| <br>* TOTAL REMAINING *                                         | <br>19 | <br>63  |
| <br>* TOTAL *                                                   | <br>30 | <br>100 |

ENGINE FAILURE OCCURS 10 TIMES ( 8 PERCENT ) OF TOTAL 132

|                                                             |        |         |
|-------------------------------------------------------------|--------|---------|
| POWERPLANT-MISC./FAILURE-UNDETERMINED REASON                | 2      | 7       |
| OVERHEATED                                                  | 2      | 7       |
| ENGINE FAILURE (TWO OR MORE)                                | 2      | 7       |
| PILOT:FAILED TO FOLLOW PROCEDURES, INSTRUCTIONS, ETC.       | 1      | 3       |
| PILOT:FUEL MISMANAGEMENT                                    | 1      | 3       |
| MAINT. SER. PERS./IMPROPER SERV. GROUND CREW                | 1      | 3       |
| SUPERVISORY PERS./COMP. EQUIP., SERVICES, MANUALS DEFICIENT | 1      | 3       |
| PRODUCTION/DESIGN/OTHER                                     | 1      | 3       |
| ENGINE STRUCTURE-RECIPROCATING/CYLINDER ASSEMBLY            | 1      | 3       |
| ENGINE STRUCTURE-RECIPROCATING/PISTON,PISTON RINGS          | 1      | 3       |
| <br>* TOTAL ABOVE *                                         | <br>13 | <br>48  |
| <br>* TOTAL REMAINING *                                     | <br>14 | <br>51  |
| <br>* TOTAL *                                               | <br>27 | <br>100 |

WHEELSUP LANDING/INTENTIONAL OCCURS 8 TIMES ( 6 PERCENT ) OF TOTAL 132

|                                                   |        |         |
|---------------------------------------------------|--------|---------|
| LANDING GEAR/NORMAL RETRACTION/EXTENSION ASSEMBLY | 3      | 17      |
| JAMMED (RESTRICTION)                              | 3      | 17      |
| FUSELAGE/WHEEL WELL DOORS                         | 2      | 11      |
| MAINT. SER., PERS./INADEQUATE MAINT./INSPECTION   | 1      | 5       |
| PRODUCTION/DESIGN/OTHER                           | 1      | 5       |
| FUSELAGE/DOORS, DOOR FRAMES, PANELS               | 1      | 5       |
| LANDING GEAR/EMERGENCY/EXTENSION ASSEMBLY         | 1      | 5       |
| LANDING GEAR/NOSEWHEEL ASSEMBLIES                 | 1      | 5       |
| LOOSE PART OR FITTING                             | 1      | 5       |
| DISCONNECTED                                      | 1      | 5       |
| <br>* TOTAL ABOVE *                               | <br>15 | <br>88  |
| <br>* TOTAL REMAINING *                           | <br>2  | <br>11  |
| <br>* TOTAL *                                     | <br>17 | <br>100 |

## ACCIDENTS TO AEROPLANES

## SCHEDULED AIRLINE OPERATIONS

| TYPE OF OCCURRENCE<br>RELATED FACTORS                                       | CASES | PERCENT |
|-----------------------------------------------------------------------------|-------|---------|
| UNDERSHOOT OCCURS 7 TIMES ( 5 PERCENT) OF TOTAL 132                         |       |         |
| PILOT:MISJUDGED DISTANCE                                                    | 2     | 22      |
| PILOT:MISJUDGED ALTITUDE                                                    | 2     | 22      |
| PILOT:IMPROPER OPERATION, POWERPLANT CONTROLS                               | 1     | 11      |
| PILOT:IMPROPER IN-FLIGHT DECISION OR PLANNING                               | 1     | 11      |
| PILOT:INADEQUATE SUPERVISION OF FLIGHT                                      | 1     | 11      |
| AERODROME COND./SNOW ON RUNWAY                                              | 1     | 11      |
| WEATHER/FOG                                                                 | 1     | 11      |
| * TOTAL *                                                                   | 9     | 100     |
| HARD LANDING OCCURS 6 TIMES ( 5 PERCENT) OF TOTAL 132                       |       |         |
| PILOT:IMPROPER LANDING FLARE                                                | 3     | 13      |
| WEATHER/LOW CEILING                                                         | 3     | 13      |
| PILOT:FAILED TO OBTAIN/MAINTAIN FLYING SPEED                                | 1     | 4       |
| PILOT:IMPROPER OPERATION OF PRIMARY FLIGHT CONTROLS                         | 1     | 4       |
| PILOT:IMPROPER RECOVERY FROM BOUNCED LANDING                                | 1     | 4       |
| PILOT:FAILED TO INITIATE GO-AROUND/MISSED APPROACH/OVERSHOOT                | 1     | 4       |
| PILOT:APPROACH HIGH AND FAST                                                | 1     | 4       |
| CO-PILOT:FAILED TO FOLLOW PROCEDURES, INSTRUCTIONS, ETC.                    | 1     | 4       |
| WEATHER/RAIN                                                                | 1     | 4       |
| WEATHER/ICING CONDITIONS-AIRFRAME ICING                                     | 1     | 4       |
| * TOTAL ABOVE *                                                             | 14    | 63      |
| * TOTAL REMAINING *                                                         | 8     | 36      |
| * TOTAL *                                                                   | 22    | 100     |
| COLLISION LEVEL SURFACE-CONTROLLED OCCURS 6 TIMES ( 5 PERCENT) OF TOTAL 132 |       |         |
| PILOT:DIVERTED ATTENTION FROM OPERATION OF A/C                              | 1     | 16      |
| PILOT:IMPROPER IFR OPERATION                                                | 1     | 16      |
| CO-PILOT:PHYSICAL IMPAIRMENT                                                | 1     | 16      |
| WEATHER/SNOW                                                                | 1     | 16      |
| TERRAIN COND./SNOW COVERED                                                  | 1     | 16      |
| WHITEOUT                                                                    | 1     | 16      |
| * TOTAL *                                                                   | 6     | 100     |
| COLLISION HILL/MOUNTAIN-CONTROLLED OCCURS 6 TIMES ( 5 PERCENT) OF TOTAL 132 |       |         |
| PILOT:CONTINUED VFR FLIGHT INTO ADVERSE WEATHER                             | 3     | 30      |
| PILOT:BECAME LOST/DISORIENTED                                               | 1     | 10      |
| PILOT:FAILED TO FOLLOW PROCEDURES, INSTRUCTIONS, ETC.                       | 1     | 10      |
| PILOT:IMPROPER IN-FLIGHT DECISION OR PLANNING                               | 1     | 10      |
| PILOT:NAVIGATION ERROR                                                      | 1     | 10      |
| SUPERVISORY PERS./INADEQUATE FL. TRAINING PROCEDURES                        | 1     | 10      |
| WEATHER/LOW CEILING                                                         | 1     | 10      |
| WEATHER/FOG                                                                 | 1     | 10      |
| * TOTAL *                                                                   | 10    | 100     |

## ACCIDENTS TO AEROPLANES

## SCHEDULED AIRLINE OPERATIONS

| TYPE OF OCCURRENCE<br>RELATED FACTORS                                   | CASES | PERCENT |
|-------------------------------------------------------------------------|-------|---------|
| INJURIES IN FLIGHT/TURBULENCE OCCURS 6 TIMES ( 5 PERCENT) OF TOTAL 132  |       |         |
| WEATHER/TURBULENCE IN CLOUDS, THUNDERSTORMS                             | 4     | 23      |
| SEAT BELT NOT FASTENED                                                  | 3     | 17      |
| WEATHER/CLEAR AIR TURBULENCE                                            | 2     | 11      |
| PILOT:CONTINUED FLIGHT INTO KNOWN AREA OF SEVERE TURBULENCE             | 1     | 5       |
| MISC. PERS./PASSENGER                                                   | 1     | 5       |
| COMM./NAV. SYS./AIRBORNE RADAR                                          | 1     | 5       |
| WEATHER/WINDSHEAR                                                       | 1     | 5       |
| WEATHER/DOWNDRAFT-UPDRAFT OR MOUNTAIN WAVE                              | 1     | 5       |
| SEAT BELT SIGN ON AND NOT OBEYED                                        | 1     | 5       |
| DISREGARD OF GOOD OPERATING PRACTICE                                    | 1     | 5       |
| * TOTAL ABOVE *                                                         | 16    | 94      |
| * TOTAL REMAINING *                                                     | 1     | 5       |
| * TOTAL *                                                               | 17    | 100     |
| LOSS OF CONTROL - GROUND/WATER OCCURS 4 TIMES ( 3 PERCENT) OF TOTAL 132 |       |         |
| MAINT. SER. PERS./IMPRPER MAINT./MAINT. PERS.                           | 1     | 12      |
| FLIGHT ENGINEER/IMPROPER OPERATION OF EQUIPMENT                         | 1     | 12      |
| LANDING GEAR/BRAKING SYSTEM (NORMAL)                                    | 1     | 12      |
| LANDING GEAR/NOSEWHEEL STEERING                                         | 1     | 12      |
| REVERSE THRUST LEVER/T.JET/OTHER                                        | 1     | 12      |
| HYDRAULIC SYS./OTHER                                                    | 1     | 12      |
| INSTALLED IMPROPERLY                                                    | 1     | 12      |
| THRUST REVERSAL - ASSYMETRICAL OR INCOMPLETE                            | 1     | 12      |
| * TOTAL *                                                               | 8     | 100     |
| NOSE GEAR COLLAPSED OCCURS 4 TIMES ( 3 PERCENT) OF TOTAL 132            |       |         |
| LANDING GEAR/NOSEWHEEL ASSEMBLIES                                       | 2     | 14      |
| PILOT:IMPROPER LANDING FLARE                                            | 1     | 7       |
| PILOT:FAILED TO INITIATE GO-AROUND/MISSED APPROACH/OVERSHOOT            | 1     | 7       |
| PILOT:APPROACH HIGH AND FAST                                            | 1     | 7       |
| CO-PILOT:FAILED TO FOLLOW PROCEDURES, INSTRUCTIONS, ETC.                | 1     | 7       |
| LANDING GEAR/G. LOCKING MECHANISM (INCLUDES DRAG LINKAGE)               | 1     | 7       |
| WEATHER/LOW CEILING                                                     | 1     | 7       |
| WEATHER/WINDSHEAR                                                       | 1     | 7       |
| WEATHER/OBSTRUCTIONS TO VISION-SMOKE,HAZE,SAND,DUST                     | 1     | 7       |
| CREW CO-ORDINATION INADEQUATE                                           | 1     | 7       |
| * TOTAL ABOVE *                                                         | 11    | 78      |
| * TOTAL REMAINING *                                                     | 3     | 21      |
| * TOTAL *                                                               | 14    | 100     |
| * TOTAL NUMBER OF FACTORS ABOVE *                                       | 153   | 50      |
| * TOTAL NUMBER OF FACTORS REMAINING *                                   | 152   | 49      |
| * TOTAL NUMBER OF ALL FACTORS *                                         | 310   | 100     |

## ACCIDENTS TO AEROPLANES

## NON-SCHEDULED AIRLINE OPERATIONS

| TEN MOST FREQUENT PHASES OF OPERATION | TOTAL |     | OVER<br>27 000 |     | 2250 TO<br>27 000 |     |
|---------------------------------------|-------|-----|----------------|-----|-------------------|-----|
|                                       | NO.   | %   | NO.            | %   | NO.               | %   |
| APP & LANDING/LANDING ROLL            | 27    | 18  | 2              | 22  | 25                | 18  |
| APP & LANDING/LEVEL OFF/TOUCHDOWN     | 13    | 9   | 0              | 0   | 13                | 9   |
| TAKE-OFF RUN                          | 12    | 8   | 1              | 11  | 11                | 8   |
| TAXIING FROM LANDING                  | 11    | 7   | 0              | 0   | 11                | 8   |
| TAKE-OFF INITIAL CLIMB                | 10    | 7   | 1              | 11  | 9                 | 7   |
| APP & LANDING/FINAL APP - VFR         | 10    | 7   | 0              | 0   | 10                | 7   |
| TAXIING TO TAKE-OFF                   | 9     | 6   | 0              | 0   | 9                 | 7   |
| ENROUTE/CLIMB TO CRUISE               | 9     | 6   | 0              | 0   | 9                 | 7   |
| TAKE-OFF ABORTED                      | 7     | 5   | 1              | 11  | 6                 | 4   |
| ENROUTE/NORMAL CRUISE                 | 7     | 5   | 2              | 22  | 5                 | 4   |
| * TOTAL ABOVE *                       | 115   | 78  | 7              | 77  | 108               | 78  |
| * TOTAL REMAINING *                   | 32    | 21  | 2              | 22  | 30                | 21  |
| * TOTAL *                             | 147   | 100 | 9              | 100 | 138               | 100 |

| TEN MOST FREQUENT TYPES OF OCCURRENCE | TOTAL |     | OVER<br>27 000 |     | 2250 TO<br>27 000 |     |
|---------------------------------------|-------|-----|----------------|-----|-------------------|-----|
|                                       | NO.   | %   | NO.            | %   | NO.               | %   |
| ENGINE FAILURE                        | 14    | 10  | 0              | 0   | 14                | 10  |
| MAIN GEAR COLLAPSED                   | 13    | 9   | 1              | 11  | 12                | 9   |
| LOSS OF CONTROL - GROUND/WATER        | 10    | 7   | 0              | 0   | 10                | 7   |
| COLLISION LEVEL SURFACE-CONTROLLED    | 8     | 5   | 0              | 0   | 8                 | 6   |
| OVERRUN                               | 7     | 5   | 1              | 11  | 6                 | 4   |
| LOSS OF CONTROL IN FLIGHT/OTHER       | 7     | 5   | 0              | 0   | 7                 | 5   |
| FORCED/PRECAUTIONARY LANDING          | 7     | 5   | 0              | 0   | 7                 | 5   |
| NOSE GEAR COLLAPSED                   | 6     | 4   | 0              | 0   | 6                 | 4   |
| COLLISION HILL/MOUNTAIN-CONTROLLED    | 6     | 4   | 1              | 11  | 5                 | 4   |
| COLLISION OBJECT/OTHER                | 6     | 4   | 0              | 0   | 6                 | 4   |
| * TOTAL ABOVE *                       | 84    | 57  | 3              | 33  | 81                | 58  |
| * TOTAL REMAINING *                   | 63    | 42  | 6              | 66  | 57                | 41  |
| * TOTAL *                             | 147   | 100 | 9              | 100 | 138               | 100 |