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INTRODUCTION

General

The information in this publication is based on 583 accident and 84 incident reports of the ICAO ADREP system for the year 1985 for aircraft of a maximum certificated take-off mass over 2 250 kg. The statistics were compiled in February 1988.

Purpose

The purpose of the ADREP statistics is to provide data that 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 667 occurrences. Of these, 576 were Data Reports and 91 were Preliminary Reports. Preliminary reports do not contain factors and are therefore excluded in the compilation of statistics on factors.

Limitations

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

- a) The ADREP manual contains specific coding instructions; nonetheless, there may be some unintentional bias on the part of the person coding the information particularly in the coding of factors.
- b) Some accidents are reported to ICAO on computer tapes and processed through a conversion programme before they are entered in the ADREP data bank. Since some of the data reported are not compatible with the ADREP coding system, precision is not attainable in all cases.

Notes on the Statistical Tables

- a) For each accident/incident there may be up to two types of occurrences and up to 13 factors. Thus, the totals in these categories will frequently exceed the total number of reports.
- b) Factors may be related to the first as well as to the second type of occurrence or to both. Accordingly, a factor may be counted twice for a given occurrence.



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- c) Factors are combined in groups of related factors. For instance, the factors "Pilot misjudged speed" and "Pilot misjudged distance" are both included in the group "Flight Crew - Perception". Groups of factors are listed only if they occur more than twice.
- d) In the lists presenting comparisons, only data representing significant differences are presented. "Significant" here means that the difference exceeds the average difference in a given list by more than one standard deviation. Accordingly, lists in which none of the groups of factors show a significant difference are omitted.

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 subsection is the same, showing the following:

- A comparison of the year 1985 with the preceding five years by:
 - phase of operation,
 - type of occurrence,
 - personnel factors,
 - aircraft/powerplant factors,
 - aerodrome factors, and
 - weather factors;
- The 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.

TABLE I - ACCIDENTS AND INCIDENTS BY TYPE OF OPERATION AND AIRCRAFT MASS (1985)

I. ACCIDENTS TO AEROPLANES

	Number of Reports		Number of Occurrences			Number of Fatalities				Number of Aircraft Destroyed
	1) P.R.	2) D.R.	Fatal	Non-Fatal	Total	Crew	Pax	Other	Total	
Scheduled Airline Operations										
Aeroplanes over 27 000 kg	14	25	8	31	39	66	1129	0	1195	6
Aeroplanes between 2 250 and 27 000 kg	10	36	17	29	46	36	175	0	211	24
Non-scheduled Airline Operations										
Aeroplanes over 27 000 kg	6	5	5	6	11	26	369	0	395	5
Aeroplanes between 2 250 and 27 000 kg	20	88	29	79	108	36	46	0	82	37
Other Airline Operations										
Aeroplanes over 27 000 kg	0	1	0	1	1	0	0	0	0	0
Aeroplanes between 2 250 and 27 000 kg	2	29	8	23	31	11	1	0	12	12
Airline Operations (Total by mass)										
Aeroplanes over 27 000 kg	20	31	13	38	51	92	1498	0	1590	11
Aeroplanes between 2 250 and 27 000 kg	32	153	54	131	185	83	222	0	305	73
General Aviation										
Aeroplanes over 5 700 kg	6	25	10	21	31	14	15	1	30	14
Aeroplanes between 2 250 and 5 700 kg	23	249	76	196	272	83	106	0	189	104
II. ACCIDENTS TO HELICOPTERS										
Airline Operations	5	4	3	6	9	3	6	0	9	6
General Aviation	5	32	10	27	37	9	3	0	12	15
III. INCIDENTS										
Airline Operations	0	77	0	77	77	0	0	0	0	0
General Aviation	0	7	0	7	7	0	0	0	0	0

1) Preliminary Report

2) Accident/Incident Data Report



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TABLE II - ACCIDENTS AND INCIDENTS TO AEROPLANES BY TYPE OF OPERATION AND POWERPLANT (1985)

	Number of Reports		Number of Occurrences			Number of Fatalities				Number of Aircraft Destroyed
	1) P.R.	2) D.R.	Fatal	Non-Fatal	Total	Crew	Pax	Other	Total	
Scheduled Airline Operations										
Jet	13	63	9	67	76	68	1129	0	1197	7
Turbo-Prop	9	35	11	33	44	28	149	0	177	14
Piston	2	22	5	19	24	6	26	0	32	9
Non-Scheduled Airline Operations										
Jet	5	14	4	15	19	19	306	0	325	4
Turbo-Prop	5	10	6	9	15	14	65	0	79	6
Piston	16	84	24	76	100	29	44	0	73	32
Other Airline Operations										
Jet	0	3	1	2	3	2	1	0	3	1
Turbo-Prop	0	10	3	7	10	5	0	0	5	4
Piston	2	20	4	18	22	4	0	0	4	7
General Aviation										
Jet	4	15	7	12	19	11	8	1	20	8
Turbo-Prop	6	49	18	37	55	20	32	0	52	21
Piston	19	217	61	175	236	66	81	0	147	89

1) Preliminary Report

2) Accident/Incident Data Report

PART I

ACCIDENTS TO AEROPLANES

ACCIDENTS TO AEROPLANES

AIRLINE OPERATIONS

PHASE OF OPERATION

	1980-1984		1985		COMPARISON OF 1980-1984 WITH 1985	
	NO.	%	NO.	%	1985 LESS FREQUENT	1985 MORE FREQUENT
LANDING	447	48.3	157	43.4	*****!	!
EN-ROUTE	225	24.3	106	29.3		!*****

TYPE OF OCCURRENCE

	1980-1984		1985		COMPARISON OF 1980-1984 WITH 1985	
	NO.	%	NO.	%	1985 LESS FREQUENT	1985 MORE FREQUENT
GEAR COLLAPSED	101	10.9	33	9.1		*****!
INJURIES TO PERSONS ON GROUND	17	1.8	1	0.2		*****!
HARD LANDING	24	2.8	5	1.3		*****!
AIRFRAME FAILURE	18	1.9	2	0.5		*****!
OVERRUN	46	4.9	13	3.6		*****!
LOSS OF CONTROL - GROUND/WATER	47	7.2	22	6.0		*****!
LOSS OF CONTROL IN FLIGHT	70	7.5	32	8.8		!*****
ENGINE FAILURE/DISINTEGRATION	86	9.2	40	11.0		!*****
FORCED/PRECAUTIONARY LANDING	35	3.7	22	6.0		!*****
COLLISION TERRAIN	97	10.4	50	13.8		!*****

PERSONNEL FACTORS

	1980-1984		1985		COMPARISON OF 1980-1984 WITH 1985	
	NO.	%	NO.	%	1985 LESS FREQUENT	1985 MORE FREQUENT
FLIGHT CREW - PERCEPTION	98	17.4	21	11.4		*****!
FLIGHT CREW - OPERATIONAL DECISIONS	154	27.4	63	34.2		!*****
FLIGHT CREW - PROCEDURES/REGULATIONS/INSTRUCTIONS	360	64.1	145	78.8		!*****

AIRCRAFT/POWERPLANT FACTORS

	1980-1984		1985		COMPARISON OF 1980-1984 WITH 1985	
	NO.	%	NO.	%	1985 LESS FREQUENT	1985 MORE FREQUENT
LANDING GEAR	148	26.3	37	20.1		*****!
ENGINE STRUCTURE (RECIP.)	13	2.3	1	0.5		*****!
FLIGHT AND NAVIGATION INSTRUMENTS	6	1.0	4	2.1		!***
EXHAUST SYSTEM (RECIP.)	1	0.1	3	1.6		!****

AERODROME FACTORS

	1980-1984		1985		COMPARISON OF 1980-1984 WITH 1985	
	NO.	%	NO.	%	1985 LESS FREQUENT	1985 MORE FREQUENT
AERODROME CONDITION	88	15.6	12	6.5		*****!

WEATHER FACTORS

	1980-1984		1985		COMPARISON OF 1980-1984 WITH 1985	
	NO.	%	NO.	%	1985 LESS FREQUENT	1985 MORE FREQUENT
WEATHER/DOWNDRAFT-UPDRAFT OR MOUNTAIN WAVE	8	1.4	0	0.0		*****!
WEATHER/THUNDERSTORM ACTIVITY	14	2.5	2	1.0		*****!
WEATHER/FOG	38	6.7	10	5.4		*****!
WEATHER/RAIN	25	4.4	11	5.9		!*****
WEATHER/ICING CONDITIONS-AIRFRAME ICING	12	2.1	7	3.8		!*****
WEATHER/SNOW	14	2.5	8	4.3		!*****