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INTRODUCTION

General

The information in this publication is based on 600 accident and 15 incident reports of the ICAO ADREP SYSTEM for the year 1987 for aircraft of a maximum certificated take-off mass over 2 250 kg. The statistics were compiled in May 1990.

A new coding scheme for factors was introduced in 1988. Old data were recoded to the new format. Factors were recoded only for the years 1983 and following. Some precision may have been lost in the process.

The presentation format of these statistics differs from previous years. This was done to simplify production and presentation. Due to lack of recoded data, only four years could be used for comparison with 1987.

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 615 occurrences. Of these, 485 were Data Reports and 130 were Preliminary Reports. Preliminary reports do not contain factors and are therefore excluded from 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 coding instructions; nonetheless, there may be some unintentional bias on the part of the person coding the information;
- b) some occurrences 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 on these tapes are not compatible with the ADREP coding system, precision is not attainable in all cases; and
- c) accidents reported to ICAO before 1988 were classified in a format that differs from the one used now. These data were recoded to the extent possible.

Notes on the Statistical Tables

- a) Each accident/incident may be described by up to five events. For each event, a type of event, a corresponding phase of operation and up to 10 descriptive factors can be coded.
- b) 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 two parts:

- | | |
|---------|--------------------------|
| Part I | Accidents to Aeroplanes |
| Part II | Accidents to Helicopters |

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

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

- Phases of operation;
- Types of events;
- A comparison of the year 1987 with the preceding four years by:
 - phase of operation,
 - type of event,
 - personnel factors,
 - airframe factors,
 - powerplant factors,
 - aircraft systems factors,
 - helicopter components factors (when applicable),
 - aerodrome factors, and
 - weather factors.

TABLE I - ACCIDENTS AND INCIDENTS BY TYPE OF OPERATION AND AIRCRAFT MASS (1987)

	NUMBER OF REPORTS		NUMBER OF OCCURRENCES			NUMBER OF FATALITIES				NUMBER OF AIRCRAFT DESTROYED
	PR ¹	DR ²	FATAL	NON-FATAL	TOTAL	CREW	PAX	OTHER	TOTAL	
I. ACCIDENTS TO AEROPLANES										
Scheduled Airline Operations										
Aeroplanes over 27 000 kg										
	23	42	11	54	65	79	741	2	822	10
Aeroplanes between 2 250 and 27 000 kg										
	13	50	21	42	63	41	196	0	237	23
Non-scheduled Airline Operations										
Aeroplanes over 27 000 kg										
	1	8	1	8	9	0	2	44	46	3
Aeroplanes between 2 250 and 27 000 kg										
	34	77	23	88	111	27	29	1	57	33
Other Airline Operations										
Aeroplanes over 27 000 kg										
	2	1	2	1	3	8	0	0	8	2
Aeroplanes between 2 250 and 27 000 kg										
	10	15	4	21	25	4	0	1	5	5
Airline Operations (Total by mass)										
Aeroplanes over 27 000 kg										
	26	51	14	63	77	87	743	46	876	15
Aeroplanes between 2 250 and 27 000 kg										
	57	143	49	151	200	73	225	2	300	62
General Aviation										
Aeroplanes over 5 700 kg										
	3	20	8	15	23	13	2	0	15	8
Aeroplanes between 2 250 and 5 700 kg										
	36	230	65	201	266	76	81	6	163	82
II. ACCIDENTS TO HELICOPTERS										
Airline Operations										
	1	3	0	4	4	0	0	0	0	1
General Aviation										
	6	24	8	22	30	12	15	0	27	14
III. INCIDENTS										
Airline Operations										
	1	13	0	14	14	0	0	0	0	0
General Aviation										
	0	1	0	1	1	0	0	0	0	0

¹Preliminary Report

²Accident/Incident Data Report

TABLE II - ACCIDENTS AND INCIDENTS TO AEROPLANES BY TYPE OF OPERATION AND POWERPLANT (1987)

	NUMBER OF REPORTS		NUMBER OF OCCURRENCES			NUMBER OF FATALITIES				NUMBER OF AIRCRAFT DESTROYED
	PR ¹	DR ²	FATAL	NON-FATAL	TOTAL	CREW	PAX	OTHER	TOTAL	
Scheduled Airline Operations										
Jet	24	50	13	61	74	85	752	2	839	12
Turbo-Prop	7	36	10	33	43	24	162	0	186	12
Piston	6	16	9	13	22	11	23	0	34	9
Non-Scheduled Airline Operations										
Jet	3	10	1	12	13	2	0	0	2	3
Turbo-Prop	8	18	8	18	26	9	11	1	21	9
Piston	24	58	15	67	82	16	20	44	80	24
Other Airline Operations										
Jet	2	0	1	1	2	5	0	0	5	1
Turbo-Prop	7	6	1	12	13	3	0	0	3	3
Piston	3	10	4	9	13	4	0	1	5	3
General Aviation										
Jet	3	10	5	8	13	9	2	0	11	5
Turbo-Prop	5	40	14	31	45	22	18	6	46	19
Piston	31	201	54	178	232	58	63	0	121	6

¹Preliminary Report²Accident/Incident Data Report

PART I
ACCIDENTS TO AEROPLANES

AIRLINE OPERATIONS

Distribution of cases and percentage of each according to phase of operation

<u>PHASE OF OPERATION</u>	CASES	PER CENT
AIRCRAFT STANDING	18	3.4
TAXIING	33	6.3
TAKE-OFF	82	15.5
EN-ROUTE	140	26.5
MANOEUVERING	10	1.9
APPROACH	74	14.0
LANDING	144	27.3
POST-IMPACT	26	4.9
UNKNOWN	1	0.2
TOTAL	528	100.0

Distribution of cases and percentage of each according to type of event

<u>TYPE OF EVENT</u>	CASES	PER CENT
AIRFRAME FAILURE	6	1.1
CARGO RELATED	1	0.2
COLLISION WITH OBJECT	62	11.7
COLLISION WITH TERRAIN	56	10.6
COLLISION WITH MOVING AIRCRAFT	21	4.0
COMPONENT/SYSTEM FAILURE	27	5.1
DAMAGE TO AIRCRAFT	11	2.1
EVACUATION	9	1.7
FIRE/EXPLOSION/FUMES	37	7.0
GEAR COLLAPSED/RETRACTED	42	8.0
INJURIES TO PERSONS	15	2.8
LOSS OF CONTROL	62	11.7
MISSING AIRCRAFT	2	0.4
NEAR COLLISION	1	0.2
NOSE DOWN/OVERTURNED	7	1.3
OVERRUN	12	2.3
POWER LOSS - FIRST ENGINE	47	8.9
POWER LOSS - ADDITIONAL ENGINE	16	3.0
PROPELLER FAILURE	3	0.6
SECURITY OCCURRENCE	6	1.1
SEPARATION IN FLIGHT	1	0.2
TAKE-OFF/LANDING OCCURRENCE	11	2.1
LANDING OCCURRENCE	35	6.6
WHEELS-DOWN LANDING ON WATER	2	0.4
WHEELS-UP LANDING	16	3.0
ALTITUDE RELATED EVENT	1	0.2
WEATHER RELATED EVENT	12	2.3
ABRUPT MANOEUVRE	1	0.2
OTHER	6	1.1
TOTAL	528	100.0

Comparison of the year 1987 with the preceding four years

PHASE OF OPERATION

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
LANDING	523	30.8	144	27.3	*****!	
TAKE-OFF	295	17.4	82	15.5	*****!	
APPROACH	262	15.4	74	14.0	*****!	
AIRCRAFT STANDING	51	3.0	18	3.4	! **	
MANOEUVERING	24	1.4	10	1.9	! **	
EN-ROUTE	403	23.7	140	26.5	!*****	
TAXIING	58	3.4	33	6.3	!*****	

EVENT

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
GEAR COLLAPSED/RETRACTED	170	10.0	42	8.0	*****!	
LOSS OF CONTROL	231	13.6	62	11.7	*****!	
OVERRUN	58	3.4	12	2.3	*****!	
COLLISION WITH TERRAIN	197	11.6	56	10.6	*****!	
WHEELS-UP LANDING	64	3.8	16	3.0	*****!	
INJURIES TO PERSONS	57	3.4	15	2.8	*****!	
EVACUATION	23	1.4	9	1.7	!***	
NOSE DOWN/OVERTURNED	16	0.9	7	1.3	!***	
COLLISION WITH OBJECT	190	11.2	62	11.7	!****	
DAMAGE TO AIRCRAFT	22	1.3	11	2.1	!*****	
TAKE-OFF/LANDING OCCURRENCE	22	1.3	11	2.1	!*****	
SECURITY OCCURRENCE	4	0.2	6	1.1	!*****	
POWER LOSS - ADDITIONAL ENGINE	35	2.1	16	3.0	!*****	
COLLISION WITH MOVING AIRCRAFT	28	1.6	21	4.0	!*****	

PERSONNEL FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
FLIGHT CREW DECISIONS	271	19.9	42	14.1	*****!	
FLIGHT CREW PROCEDURES	371	27.3	74	24.8	*****!	
FLIGHT CREW A/C HANDLING	292	21.5	61	20.5	***!	
FLIGHT CREW OPERATION OF EQUIPMENT	208	15.3	57	19.1	!*****	
ATC USE OF PROCEDURES	13	1.0	16	5.4	!*****	

AIRFRAME FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
LANDING GEAR	212	67.5	39	54.9	*****!	
AIRFRAME	13	4.1	1	1.4	****!	
DOOR	9	2.9	3	4.2	! **	
FUSELAGE	13	4.1	4	5.6	! **	
A/C FURNISHING	20	6.4	7	9.9	!*****	
WING	32	10.2	11	15.5	!*****	

POWERPLANT FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
ENGINE	89	57.8	23	53.5	*****!	
ENGINE EXHAUST SYSTEM	7	4.5	1	2.3	*****!	
POWERPLANT INSTALLATION	6	3.9	2	4.7	!***	
POWERPL LUBRICATION SYSTEM	13	8.4	4	9.3	!****	
PROPELLER	17	11.0	6	14.0	!*****	
POWERPL FUEL SYSTEM	13	8.4	6	14.0	!*****	

AIRCRAFT SYSTEMS FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
FLIGHT AND NAVIGATION SYSTEMS	20	9.9	1	2.3	*****!	
ELECTRICAL POWER	28	13.8	5	11.6	***!	
AEROPLANE FLIGHT CONTROL	23	11.3	4	9.3	**!	
HYDRAULIC SYSTEM	25	12.3	6	14.0	!***	
FIRE PROTECTION SYSTEM	5	2.5	3	7.0	!*****	
FUEL SYSTEM	76	37.4	22	51.2	!*****	

AERODROME FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
RUNWAY SURFACE STATE	118	82.5	8	53.3	*****!	
AERODROME/HELIPORT LIGHTING	11	7.7	2	13.3	!***	
AERODROME/HELIPORT MARKING	5	3.5	2	13.3	!*****	

WEATHER FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
ATMOSPHERIC RESTRICTIONS TO VISION	72	24.9	7	14.3	*****!	
SKY CONDITION	73	25.3	10	20.4	*****!	
WEATHER INFORMATION	5	1.7	3	6.1	!*****	
WIND	136	47.1	28	57.1	!*****	

GENERAL AVIATION

Distribution of cases and percentage of each according to phase of operation

<u>PHASE OF OPERATION</u>	CASES	PER CENT
AIRCRAFT STANDING	4	0.6
TAXIING	20	2.9
TAKE-OFF	109	15.7
EN-ROUTE	168	24.1
MANOEUVERING	52	7.5
APPROACH	73	10.5
LANDING	228	32.8
POST-IMPACT	38	5.5
UNKNOWN	4	0.6
TOTAL	696	100.0

Distribution of cases and percentage of each according to type of event

<u>TYPE OF EVENT</u>	CASES	PER CENT
AIRFRAME FAILURE	6	0.9
COLLISION WITH OBJECT	88	12.6
COLLISION WITH TERRAIN	110	15.8
COLLISION WITH MOVING AIRCRAFT	8	1.1
COMPONENT/SYSTEM FAILURE	28	4.0
DAMAGE TO AIRCRAFT	6	0.9
FIRE/EXPLOSION/FUMES	45	6.5
FLIGHT CREW ILLNESS/INCAPACITATION	1	0.1
GEAR COLLAPSED/RETRACTED	69	9.9
LOSS OF CONTROL	91	13.1
MISSING AIRCRAFT	2	0.3
NOSE DOWN/OVERTURNED	37	5.3
OVERRUN	22	3.2
POWER LOSS - FIRST ENGINE	77	11.1
POWER LOSS - ADDITIONAL ENGINE	18	2.6
PROPELLER FAILURE	6	0.9
TAKE-OFF/LANDING OCCURRENCE	5	0.7
LANDING OCCURRENCE	36	5.2
WHEELS-UP LANDING	19	2.7
ALTITUDE RELATED EVENT	1	0.1
EQUIPMENT/SYSTEM RELATED EVENT	3	0.4
WEATHER RELATED EVENT	11	1.6
OTHER	6	0.9
UNKNOWN	1	0.1
TOTAL	696	100.0

Comparison of the year 1987 with the preceding four years

PHASE OF OPERATION

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
APPROACH	384	13.6	73	10.5	*****!	
MANOEUVERING	261	9.3	52	7.5	*****!	
TAKE-OFF	462	16.4	109	15.7	*****!	
POST-IMPACT	144	5.1	38	5.5	****!	!***
TAXIING	57	2.0	20	2.9		!*****
LANDING	865	30.7	228	32.8		!*****
EN-ROUTE	607	21.5	168	24.1		!*****

EVENT

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
COLLISION WITH OBJECT	399	14.2	88	12.6	*****!	
LANDING OCCURRENCE	179	6.3	36	5.2	*****!	
LOSS OF CONTROL	401	14.2	91	13.1	*****!	
OTHER	56	2.0	6	0.9	*****!	
POWER LOSS - FIRST ENGINE	343	12.2	77	11.1	*****!	
WHEELS - UP LANDING	90	3.2	19	2.7	****!	
WEATHER RELATED EVENT	56	2.0	11	1.6	****!	
OVERRUN	95	3.4	22	3.2	**!	
EQUIPMENT/SYSTEM RELATED EVENT	4	0.1	3	0.4		!***
PROPELLER FAILURE	13	0.5	6	0.9		!****
POWER LOSS - ADDITIONAL ENGINE	58	2.1	18	2.6		!*****
GEAR COLLAPSED/RETRACTED	228	8.1	69	9.9		!*****
NOSE DOWN/OVERTURNED	94	3.3	37	5.3		!*****
COLLISION WITH TERRAIN	389	13.8	110	15.8		!*****

PERSONNEL FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
FLIGHT CREW DECISIONS	472	21.3	70	18.6	*****!	
FLIGHT CREW PROCEDURES	513	23.2	77	20.5	*****!	
AERODROME/HELIPORT OPERATION	18	0.8	0	0.0	****!	
FLIGHT CREW OPERATION OF EQUIPMENT	356	16.1	64	17.0		!*****
ATC USE OF PROCEDURES	12	0.5	10	2.7		!*****
FLIGHT CREW A/C HANDLING	577	26.1	110	29.3		!*****

AIRFRAME FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
AIRFRAME	26	6.3	1	1.4	*****!	
WING	38	9.2	4	5.7	*****!	
FUSELAGE	11	2.7	3	4.3		!****
A/C FURNISHING	5	1.2	3	4.3		!*****
LANDING GEAR	293	70.6	55	78.6		!*****

POWERPLANT FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
IGNITION SYSTEM	22	7.6	2	2.9		*****!
POWERPL FUEL SYSTEM	26	9.0	3	4.3		*****!
POWERPL LUBRICATION SYSTEM	29	10.0	5	7.2		****!
PROPELLER	29	10.0	8	11.6		! **
ENGINE	162	56.1	47	68.1		!*****

AIRCRAFT SYSTEMS FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
FLIGHT AND NAVIGATION SYSTEMS	18	7.8	2	4.4		*****!
HYDRAULIC SYSTEM	20	8.6	7	15.6		!*****

AERODROME FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
RUNWAY SURFACE STATE	101	79.5	12	60.0	*****!	
AERODROME/HELIPORT LIGHTING	12	9.4	3	15.0		!*****
RUNWAY DESCRIPTION	3	2.4	2	10.0		!*****

WEATHER FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
ATMOSPHERIC RESTRICTIONS TO VISION	79	21.3	5	9.4		*****!
SKY CONDITION	120	32.3	13	24.5		*****!
WIND	161	43.4	33	62.3		!*****

PART II

ACCIDENTS TO HELICOPTERS

AIRLINE OPERATIONS

Distribution of cases and percentage of each according to phase of operation

<u>PHASE OF OPERATION</u>	CASES	PER CENT
TAXIING	2	25.0
EN-ROUTE	4	50.0
LANDING	2	25.0
TOTAL	8	100.0

Distribution of cases and percentage of each according to type of event

<u>TYPE OF EVENT</u>	CASES	PER CENT
AIRFRAME FAILURE	2	25.0
DYNAMIC SYSTEM FAILURE	2	25.0
LOSS OF CONTROL	1	12.5
POWER LOSS - FIRST ENGINE	1	12.5
TAKE-OFF/LANDING OCCURRENCE	1	12.5
LANDING OCCURRENCE	1	12.5
TOTAL	8	100.0

Comparison of the year 1987 with the preceding four years

<u>PHASE OF OPERATION</u>	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
TAKE-OFF	12	16.4	0	0.0	*****!	
APPROACH	8	11.0	0	0.0	*****!	
MANOEUVERING	6	8.2	0	0.0	*****!	
POST-IMPACT	3	4.1	0	0.0	***!	
LANDING	12	16.4	2	25.0	!*****	
EN-ROUTE	30	41.1	4	50.0	!*****	

<u>EVENT</u>	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
LOSS OF CONTROL	22	30.1	1	12.5	*****!	
LANDING OCCURRENCE	4	5.5	1	12.5	!*****	
DYNAMIC SYSTEM FAILURE	4	5.5	2	25.0	!*****	

PERSONNEL FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
FLIGHT CREW PROCEDURES	21	33.3	0	0.0		*****!
FLIGHT CREW DECISIONS	15	23.8	0	0.0		*****!
FLIGHT CREW A/C HANDLING	15	23.8	0	0.0		*****!
FLIGHT CREW PERCEPTION	7	11.1	0	0.0		***!
FLIGHT CREW OPERATION OF EQUIPMENT	5	7.9	1	100.0		!*****

POWERPLANT FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
ENGINE	11	47.8	1	100.0		!*****

HELICOPTER COMPONENTS FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
TAIL ROTOR	3	23.1	1	100.0		!*****

GENERAL AVIATION

Distribution of cases and percentage of each according to phase of operation

<u>PHASE OF OPERATION</u>	CASES	PER CENT
TAXIING	2	2.7
TAKE-OFF	2	2.7
EN-ROUTE	24	32.0
MANOEUVERING	14	18.7
APPROACH	8	10.7
LANDING	18	24.0
POST-IMPACT	7	9.3
TOTAL	75	100.0

Distribution of cases and percentage of each according to type of event

<u>TYPE OF EVENT</u>	CASES	PER CENT
COLLISION WITH OBJECT	11	14.7
COLLISION WITH TERRAIN	13	17.3
DAMAGE TO AIRCRAFT	2	2.7
FIRE/EXPLOSION/FUMES	5	6.7
GEAR COLLAPSED/RETRACTED	1	1.3
DYNAMIC SYSTEM FAILURE	8	10.7
LOSS OF CONTROL	1	1.3
LOSS OF CONTROL	8	10.7
NOSE DOWN/OVERTURNED	2	2.7
POWER LOSS - FIRST ENGINE	10	13.3
POWER LOSS - ADDITIONAL ENGINE	2	2.7
LANDING OCCURRENCE	10	13.3
WEATHER RELATED EVENT	1	1.3
ABRUPT MANOEUVRE	1	1.3
TOTAL	75	100.0

Comparison of the year 1987 with the preceding four years

<u>PHASE OF OPERATION</u>	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
MANOEUVERING	89	27.4	14	18.7	*****!	
TAKE-OFF	36	11.1	2	2.7	*****!	
AIRCRAFT STANDING	11	3.4	0	0.0	*****!	
POST-IMPACT	20	6.2	7	9.3		*****
EN-ROUTE	93	28.6	24	32.0		*****
LANDING	58	17.8	18	24.0		*****
APPROACH	11	3.4	8	10.7		*****

EVENT

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
POWER LOSS - FIRST ENGINE	57	17.5	10	13.3	*****!	
LOSS OF CONTROL	44	13.5	8	10.7	*****!	
DAMAGE TO AIRCRAFT	11	3.4	2	2.7	***!	
POWER LOSS - ADDITIONAL ENGINE	7	2.2	2	2.7	!***	
COLLISION WITH TERRAIN	53	16.3	13	17.3	!****	
FIRE/EXPLOSION/FUMES	18	5.5	5	6.7	!****	
NOSE DOWN/OVERTURNED	4	1.2	2	2.7	!****	
DYNAMIC SYSTEM FAILURE	28	8.6	8	10.7	!*****	
COLLISION WITH OBJECT	35	10.8	11	14.7	!*****	
LANDING OCCURRENCE	27	8.3	10	13.3	!*****	

PERSONNEL FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
FLIGHT CREW A/C HANDLING	44	34.1	6	24.0	*****!	
A/C HANDLING MISCELLANEOUS	4	3.1	0	0.0	*****!	
ATC USE OF PROCEDURES	3	2.3	0	0.0	****!	
FLIGHT CREW OPERATION OF EQUIPMENT	12	9.3	3	12.0	!*****	
FLIGHT CREW DECISIONS	18	14.0	5	20.0	!*****	
FLIGHT CREW PERCEPTION	25	19.4	7	28.0	!*****	

AIRFRAME FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
LANDING GEAR	9	39.1	1	100.0		!*****

POWERPLANT FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
ENGINE	43	72.9	4	80.0		!*****

AIRCRAFT SYSTEMS FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
FUEL SYSTEM	12	66.7	1	100.0		!*****

HELICOPTER COMPONENTS FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
HELICOPT CONTROL SYSTEMS	16	27.1	2	13.3	*****!	
MAIN ROTOR	13	22.0	2	13.3	*****!	
TAIL ROTOR	9	15.3	3	20.0		!*****
POWER DRIVE SYSTEM	11	18.6	4	26.7		!*****
TAIL ROTOR DRIVE SYSTEM	10	16.9	4	26.7		!*****

WEATHER FACTORS

	1983-1986		1987		COMPARISON OF 1983-1986 WITH 1987	
	NO.	%	NO.	%	1987 LESS FREQUENT	1987 MORE FREQUENT
ATMOSPHERIC RESTRICTIONS TO VISION	8	40.0	1	20.0	*****!	
SKY CONDITION	5	25.0	1	20.0		***!
WIND	6	30.0	3	60.0		!*****

— END —

ICAO TECHNICAL PUBLICATIONS

The following summary gives the status, and also describes in general terms the contents of the various series of technical publications issued by the International Civil Aviation Organization. It does not include specialized publications that do not fall specifically within one of the series, such as the Aeronautical Chart Catalogue or the Meteorological Tables for International Air Navigation.

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