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CIRCULAR 268-AN/160

1997

ACCIDENT/INCIDENT REPORTING (ADREP)

ANNUAL STATISTICS — 1996

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INTRODUCTION

GENERAL

1. The information in this publication is based on accident and incident reports provided to ICAO by Contracting States in accordance with the reporting requirements in Chapter 6 of Annex 13, *Aircraft Accident and Incident Investigation.*

2. The ICAO Accident/Incident Reporting (ADREP) annual statistics were last published for the year 1988, but discontinued until this edition. This edition contains detailed information for the year 1996, preliminary data for the year 1997, and ten year trends from 1987 to 1997. ADREP data reports are sent to ICAO upon completion of an accident or incident investigation, and therefore data can be published only with some delay.

PURPOSE

3. The purpose of ADREP statistics is to provide data that may be useful for general safety studies and accident prevention programmes. For more specific needs, States are invited to make full use of ADREP information by making specific ADREP requests to facilitate safety studies, accident prevention programmes and accident investigations.

LIMITATIONS

4. The reader should be aware of the following:

a) the *Accident/Incident Reporting Manual (ADREP Manual)* (Doc 9156) contains lists of codes to be used by States in the preparation of ADREP reports. Due to the sensitive subject matter, it is possible for the compiler to show unintentional bias in the choice of codes used to describe the occurrence and, in particular, those organizations or persons involved;

b) some occurrences are reported to ICAO through electronic means. Most of this data is converted to ICAO's format before it is entered into the ADREP database. Since some of the data reported is not compatible with the ADREP coding system, precision is not attainable in all cases; and

c) coding of accidents and incidents have been redefined over time, in particular those pertaining to incidents. Older data has not been recoded to reflect the new coding and format.

LAYOUT

5. This circular contains four parts:

- Part I provides general information regarding the scope of the information contained in the ADREP system.
- Part II presents information on accident types which have been the focus of accident prevention programmes in the last 10 years.
- Part III contains detailed information for the year 1995.
- Part IV provides general accident trend information including preliminary data for 1997.

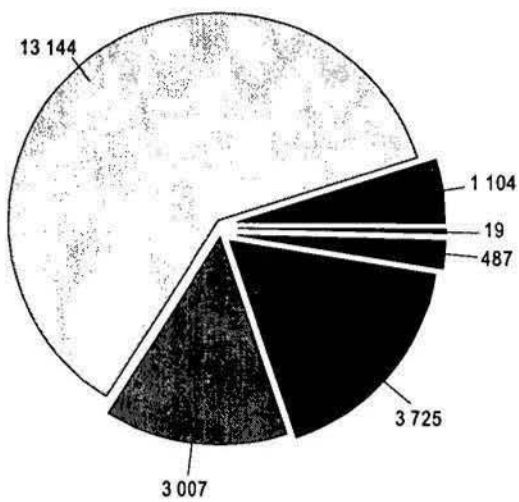
Part I
GENERAL INFORMATION REGARDING THE ADREP SYSTEM

1. As of 15 March 1997, the ICAO ADREP system contained data from some 21 579 reports: 3 209 preliminary reports, 16 211 data reports, and unofficial data on 2 159 occurrences, which were within the reporting requirements of Annex 13, Chapter 6. Of a total of 21 579 reports, 86.2% were accident reports and 13.8% were incident reports.

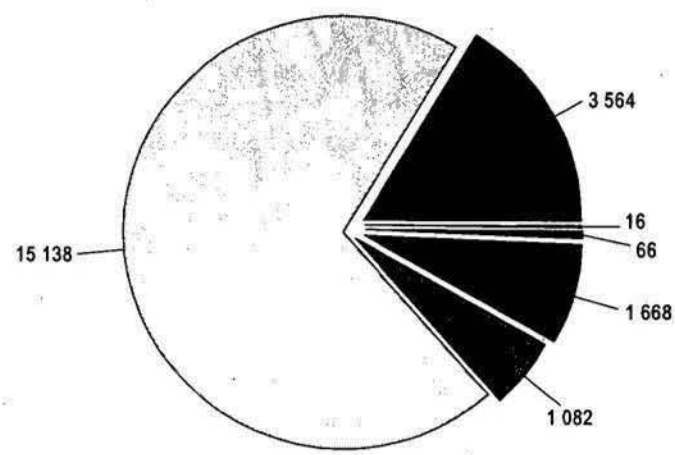
2. General aviation accounted for 55% of the reports, and airline operations for 45%. In terms of the types of aircraft, 93% were for fixed-wing aircraft, and 7% for helicopters.

3. The percentages of reports in relation to the mass category of the aircraft involved and their number of engines are shown below:

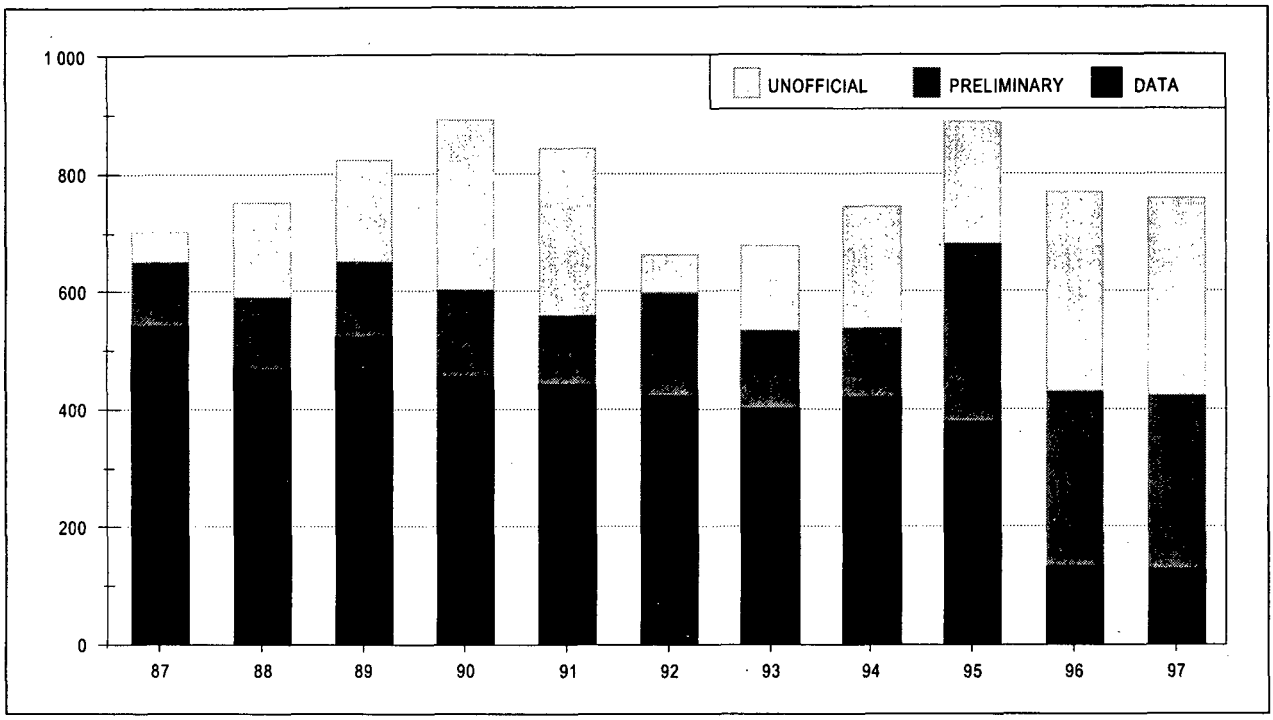
Mass category



Number of engines



4. The information in Part II presents data from the last 10 years based on 7 789 reports and Part III, for the year 1996 is based on 895 reports. The table below shows the distribution of these reports into accident/incident data reports, preliminary reports and unofficial reports, for the last 10 years.



Note.— The reporting to ICAO of an accident is usually done twice, first with a short report called a "Preliminary Report" and, when the investigation is completed, with a complete report called an "Accident Data Report". A Preliminary Report is not required for incidents (only for accidents) nor is it required if the Accident Data Report can be submitted within 30 days of the date of the accident.

Part II
ACCIDENT TYPES

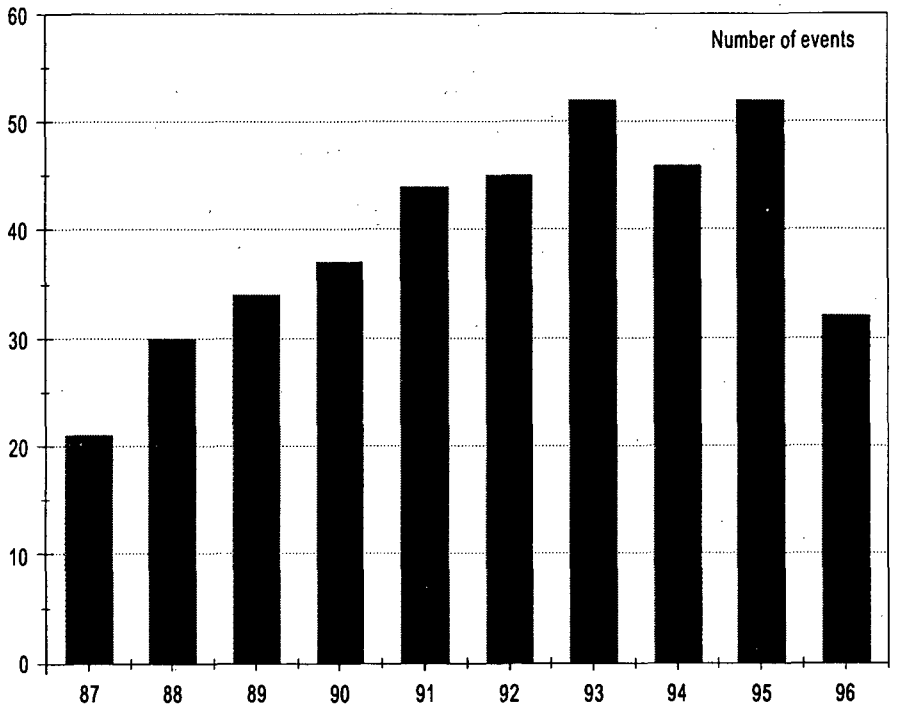
The following tables present accident types which have been of special interest and subject to specific accident prevention programmes in the last 10 years. It should be noted that a given accident may fall into more than one of the following accident types.

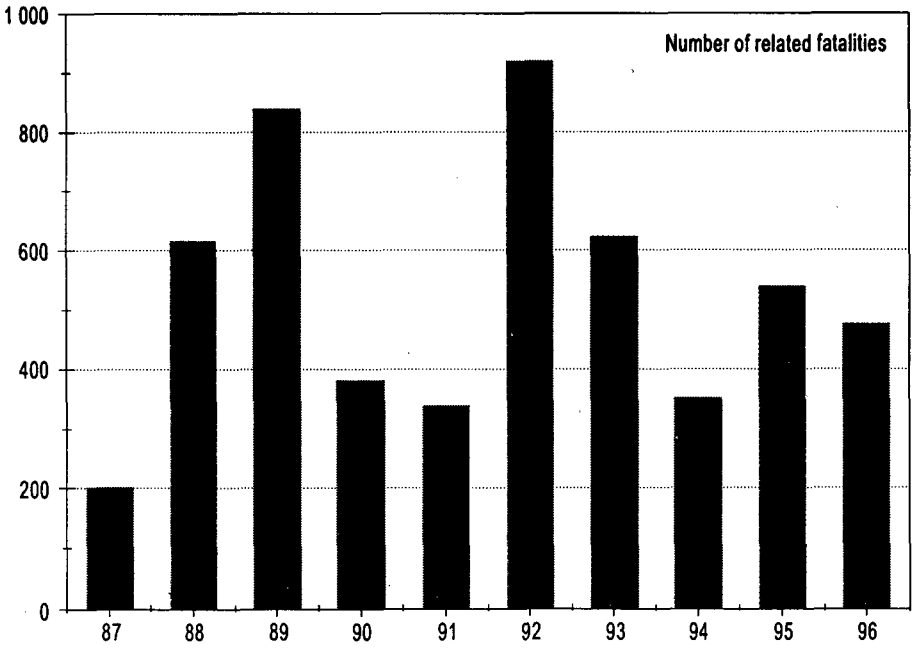
Note on the statistical tables.— The tables were developed with data from the ADREP reporting system. In the ADREP report, each accident/incident may be described by up to five events. For each event type, there is a corresponding phase of operation and five descriptive factors consisting of one subject and up to three modifiers as well as up to three related explanatory factors consisting of one organization/ person, a subject and a modifier.

Controlled Flight into Terrain (CFIT)

CFIT is defined as an accident in which aircraft, under the control of the crew, is flown into terrain (or water) with no prior awareness on the part of the crew of the impending accident. The prevention of these types of accidents has recently been the subject of an industry task force.

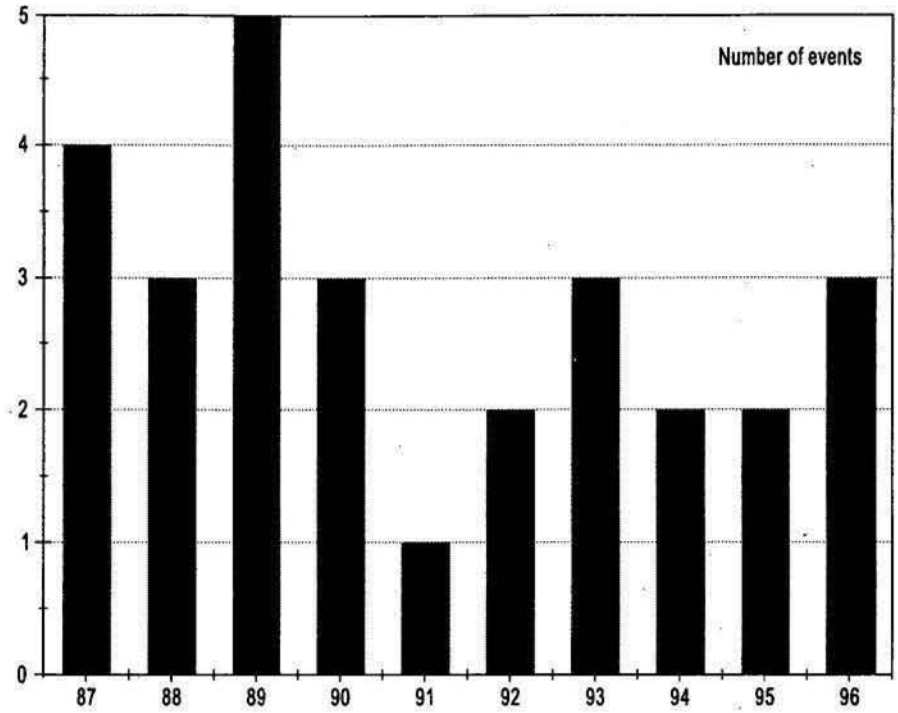
The tables present information on accidents which were classified as "CFIT" accidents.

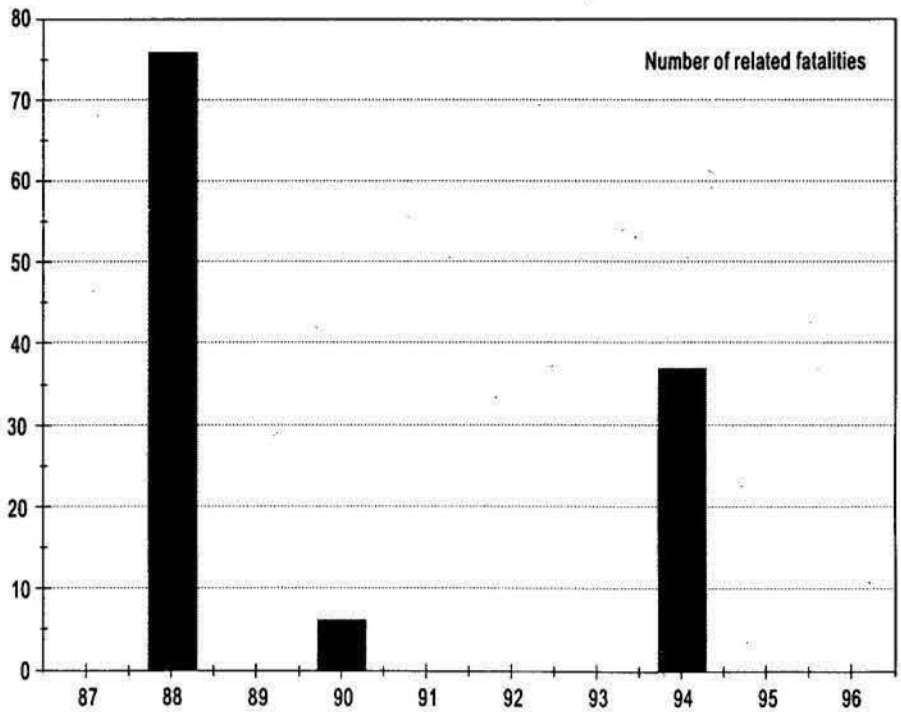




Windshear

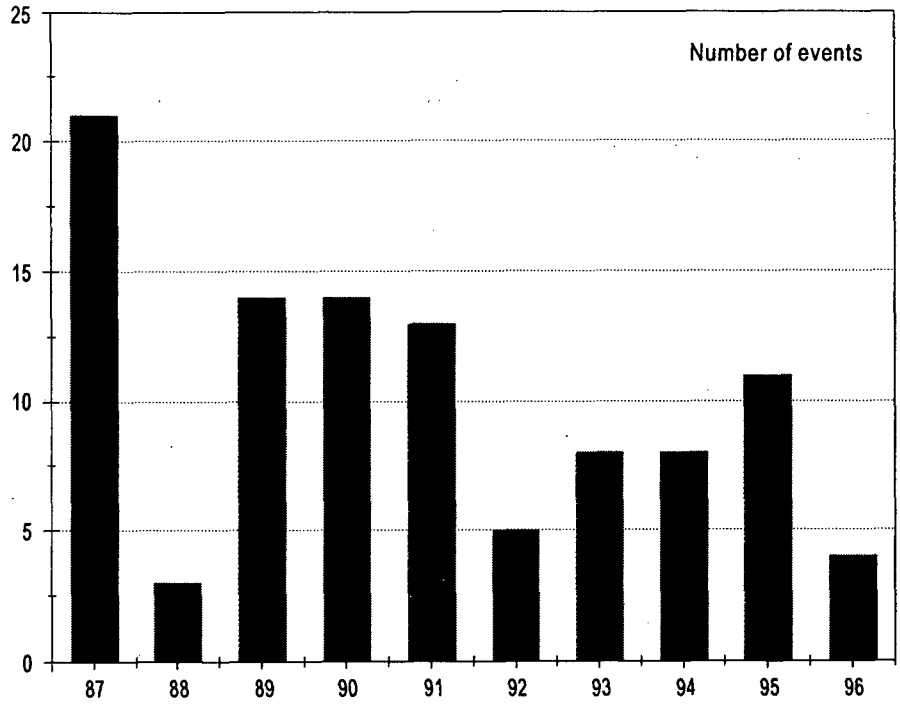
The tables present information on occurrences where windshear was quoted as a type of event or where a factor "windshear" was entered in the report.

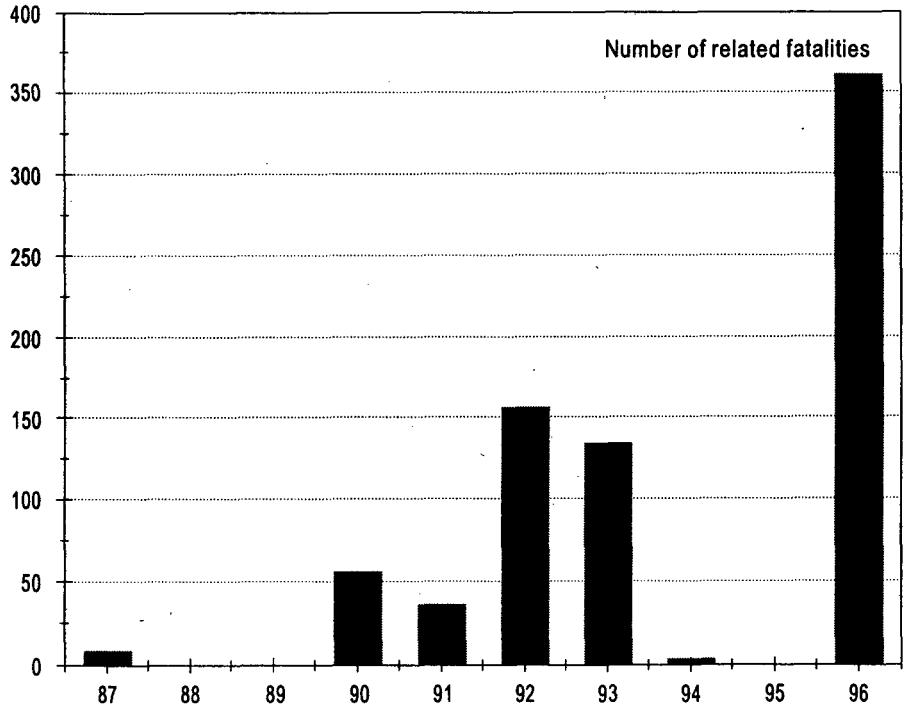




Aircraft collisions

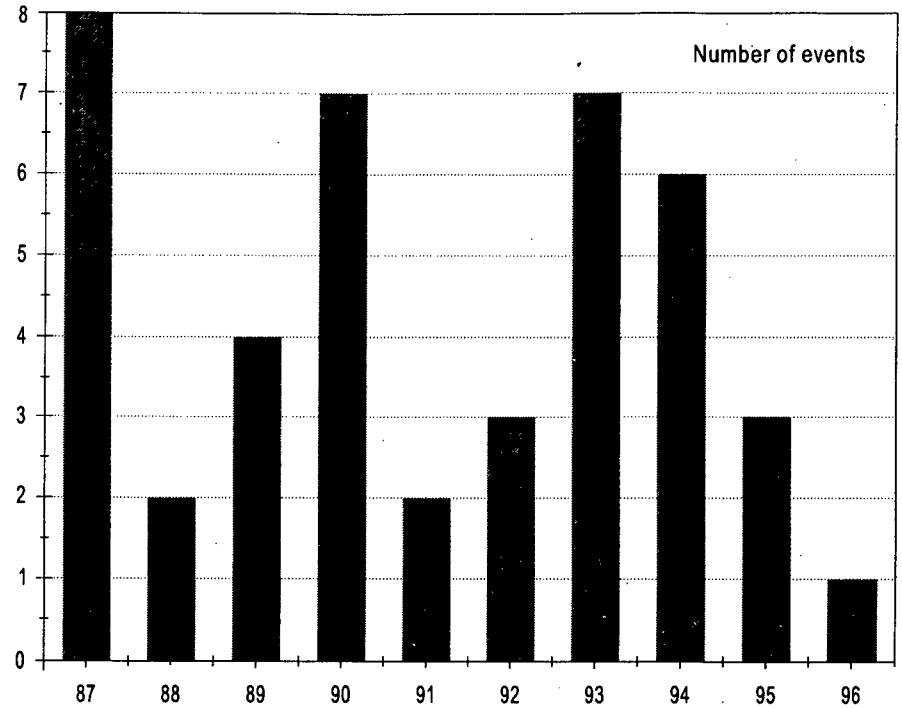
The tables present information on collisions between two aircraft (collisions between an aircraft and other objects are not included).

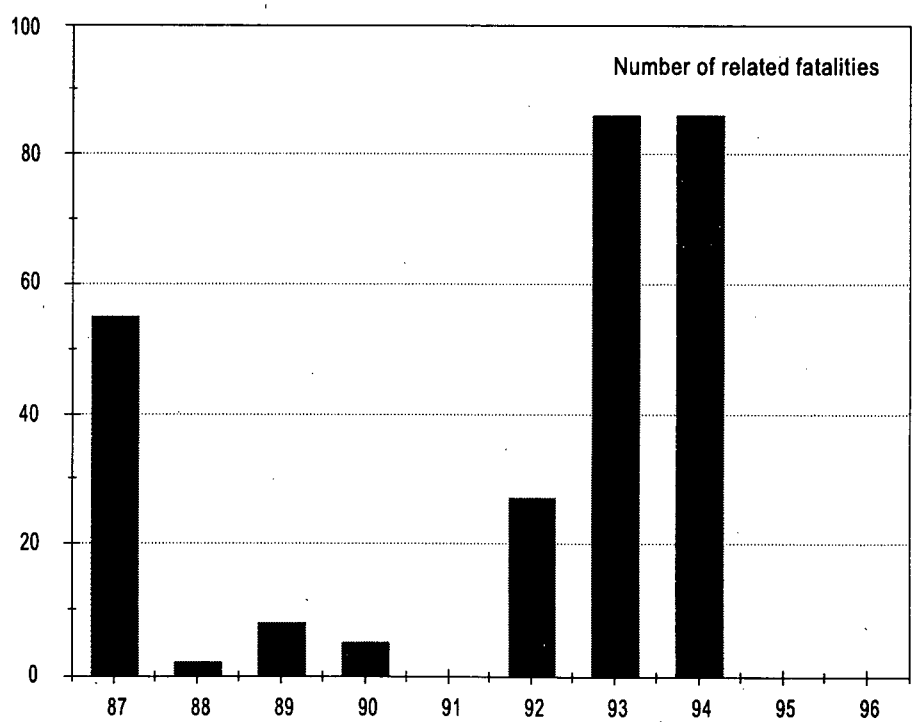




Icing

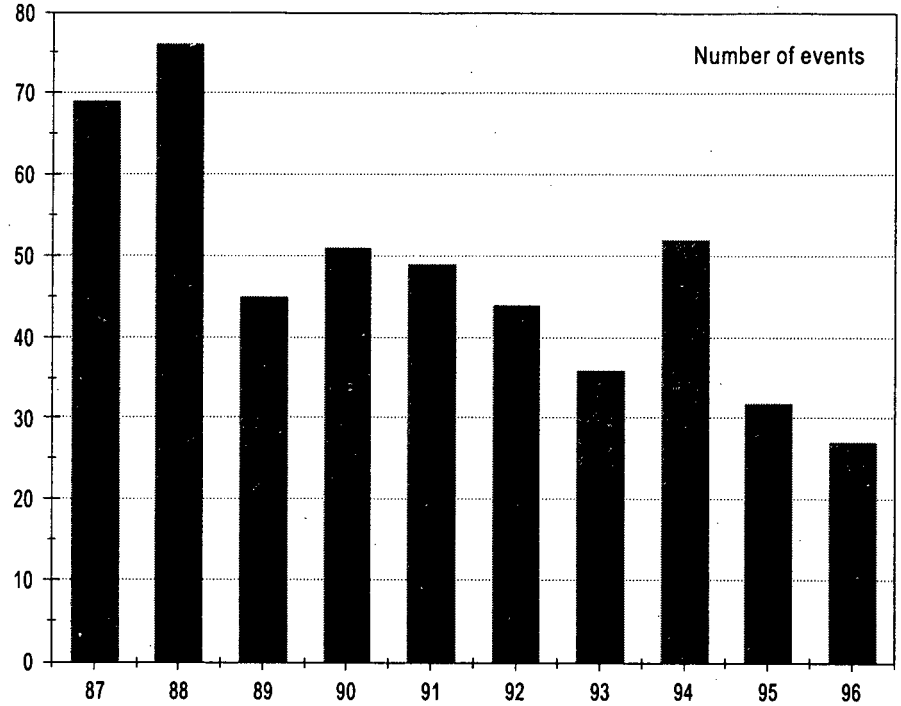
The tables present information on occurrences in which either an event "aircraft encountered icing" was coded, or "icing" was coded as a factor.

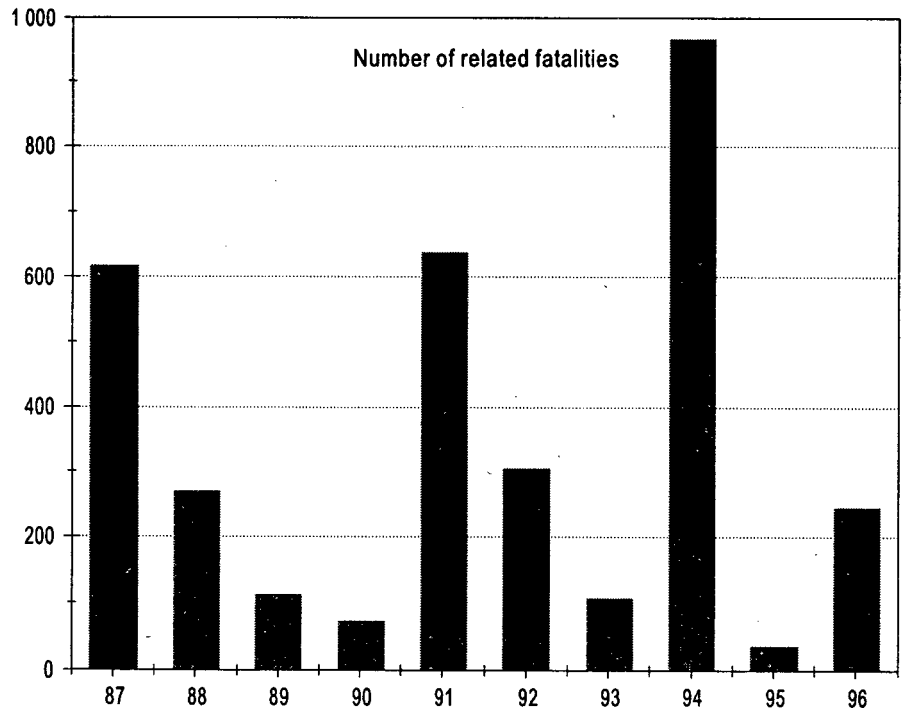




Loss of control

The tables present information on accidents in which at least one event was coded as "loss of control".





Part III
INFORMATION FOR THE YEAR 1995

Note.— Tables 1 to 4 provide data for 1995 and 1996. The charts that follow provide data up to 1995 only.

Table 1. Accidents and incidents by type of operation and aircraft mass

1995

Type of operation and aircraft mass	Number of reports			Number of occurrences			Number of fatalities				Number of aircraft destroyed
	PR	DR	Unofficial	Fatal	Non-fatal	Total	Crew	Pax	Other	Total	
I. Accidents to aeroplanes											
Scheduled airline operations											
Aeroplanes: over 27 000 kg	14	34	29	10	67	77	52	631	3	686	13
Aeroplanes: 2 250 to 27 000 kg	18	16	20	24	30	54	40	164	0	204	27
Non-scheduled airline operations											
Aeroplanes: over 27 000 kg	5	3	6	4	10	14	5	144	6	155	6
Aeroplanes: 2 250 to 27 000 kg	38	32	29	41	58	99	82	177	0	259	46
Other airline operations											
Aeroplanes: over 27 000 kg	0	1	0	1	0	1	3	0	0	3	1
Aeroplanes: 2 250 to 27 000 kg	1	5	5	6	5	11	12	1	0	13	9
General aviation											
Aeroplanes: over 5 700 kg	5	19	8	16	16	32	49	116	0	165	17
Aeroplanes: 2 250 to 5 700 kg	33	197	21	75	176	251	78	91	2	171	96
II. Accidents to helicopters											
Airline operations	5	2	6	7	6	13	19	30	0	49	6
General aviation	29	15	8	19	33	52	26	23	0	49	21
III. Incidents											
Aeroplanes											
Airlines operations	120	73	38	1	230	231	1	0	0	1	0
General aviation	18	1	2	0	21	21	0	0	0	0	0
Helicopters											
Airline operations	2	0	0	0	2	2	0	0	0	0	0
General aviation	3	1	0	0	4	4	0	0	0	0	0

Table 2. Accidents and incidents by type of operation and type of powerplant

1995

Type of operation and type of powerplant	Number of reports			Number of occurrences			Number of fatalities				Number of aircraft destroyed
	PR	DR	Unofficial	Fatal	Non-fatal	Total	Crew	Pax	Other	Total	
I. Fixed wing aircraft											
Scheduled airline operations											
Turbofan/turbojet	74	78	61	11	202	213	53	631	3	687	14
Turboprop	48	38	17	19	84	103	33	149	0	182	17
Piston	7	1	5	5	8	13	7	15	0	22	9
Non-scheduled airline operations											
Turbofan/turbojet	12	7	7	5	21	26	9	12	6	27	7
Turboprop	22	11	16	16	33	49	41	276	0	317	22
Piston	32	23	15	24	46	70	37	33	0	70	23
Other airline operations											
Turbofan/turbojet	0	1	2	1	2	3	3	0	0	3	2
Turboprop	1	3	3	5	2	7	10	1	0	11	6
Piston	0	2	1	1	2	3	2	0	0	2	2
General aviation											
Turbofan/turbojet	11	13	2	4	22	26	8	3	0	11	4
Turboprop	7	31	7	14	31	45	42	115	1	158	18
Piston	38	173	22	73	160	233	77	89	1	167	91
II. Helicopters											
Airline operations											
Turboshaft	7	2	6	7	8	15	19	30	0	49	6
General aviation											
Turboshaft	27	16	8	18	33	51	26	22	0	48	19
Piston	5	0	0	1	4	5	0	1	0	1	2

Table 3. Accidents and incidents by type of operation and aircraft mass

1996

Type of operation and aircraft mass	Number of reports			Number of occurrences			Number of fatalities				Number of aircraft destroyed
	PR	DR	Unofficial	Fatal	Non-fatal	Total	Crew	Pax	Other	Total	
I. Accidents to aeroplanes											
Scheduled airline operations											
Aeroplanes: over 27 000 kg	21	11	60	15	77	92	92	1 140	51	1 283	16
Aeroplanes: 2 250 to 27 000 kg	10	7	28	14	31	45	23	115	0	138	15
Non-scheduled airline operations											
Aeroplanes: over 27 000 kg	11	3	8	10	12	22	73	349	2	424	9
Aeroplanes: 2 250 to 27 000 kg	41	17	22	31	49	80	42	137	239	418	31
Other airline operations											
Aeroplanes: over 27 000 kg	1	1	1	1	2	3	4	0	0	4	2
Aeroplanes: 2 250 to 27 000 kg	4	1	2	4	3	7	10	0	10	20	5
General aviation											
Aeroplanes: over 5 700 kg	5	7	13	13	12	25	34	103	2	139	16
Aeroplanes: 2 250 to 5 700 kg	37	69	30	48	88	136	60	40	0	100	65
II. Accidents to helicopters											
Airline operations	5	0	7	3	9	12	6	11	0	17	4
General aviation	24	5	8	14	23	37	22	31	0	53	16
III. Incidents											
Aeroplanes											
Airlines operations	90	40	129	1	258	259	0	0	0	0	0
General aviation	20	3	14	0	37	37	0	0	0	0	0
Helicopters											
Airline operations	1	0	0	0	1	1	0	0	0	0	0
General aviation	5	0	0	0	5	5	0	0	0	0	0

Table 4. Accidents and incidents by type of operation and type of powerplant

1996

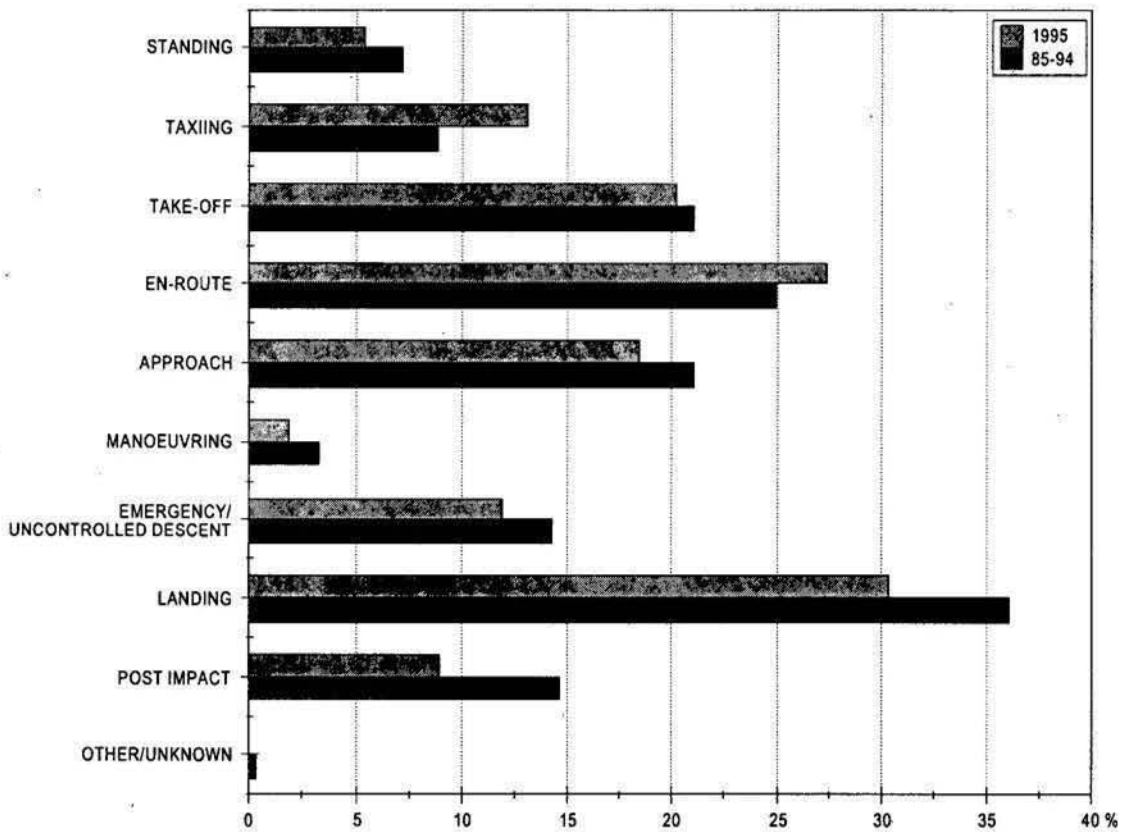
Type of operation and type of powerplant	Number of reports			Number of occurrences			Number of fatalities				Number of aircraft destroyed
	PR	DR	Unofficial	Fatal	Non-fatal	Total	Crew	Pax	Other	Total	
I. Fixed wing aircraft											
Scheduled airline operations											
Turbofan/turbojet	76	37	170	16	267	283	93	1 137	50	1 280	16
Turboprop	31	12	20	9	54	63	16	102	1	119	9
Piston	5	2	14	5	16	21	6	16	0	22	6
Non-scheduled airline operations											
Turbofan/turbojet	13	8	16	11	26	37	74	367	2	443	12
Turboprop	19	3	13	13	22	35	24	83	239	346	12
Piston	28	15	12	17	38	55	17	36	0	53	16
Other airline operations											
Turbofan/turbojet	3	0	1	2	2	4	5	0	0	5	3
Turboprop	2	2	2	2	4	6	5	0	0	5	2
Piston	1	1	1	1	2	3	4	0	10	14	2
General aviation											
Turbofan/turbojet	10	5	11	8	18	26	19	67	0	86	8
Turboprop	18	13	18	17	32	49	25	19	2	46	20
Piston	34	61	28	36	87	123	50	57	0	107	53
II. Helicopters											
Airline operations											
Turboshaft	6	0	7	3	10	13	6	11	0	17	4
General aviation											
Turboshaft	26	5	8	14	25	39	22	31	0	53	16
Piston	3	0	0	0	3	3	0	0	0	0	0

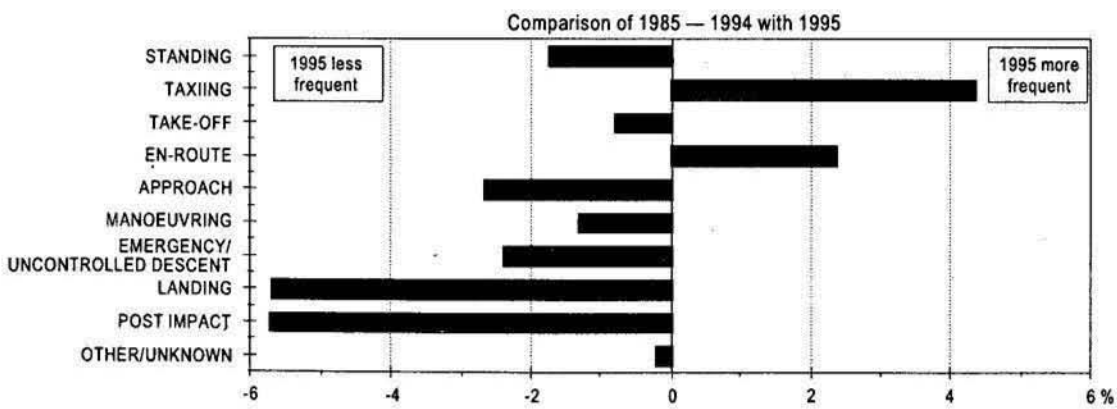
FIXED WING AIRCRAFT

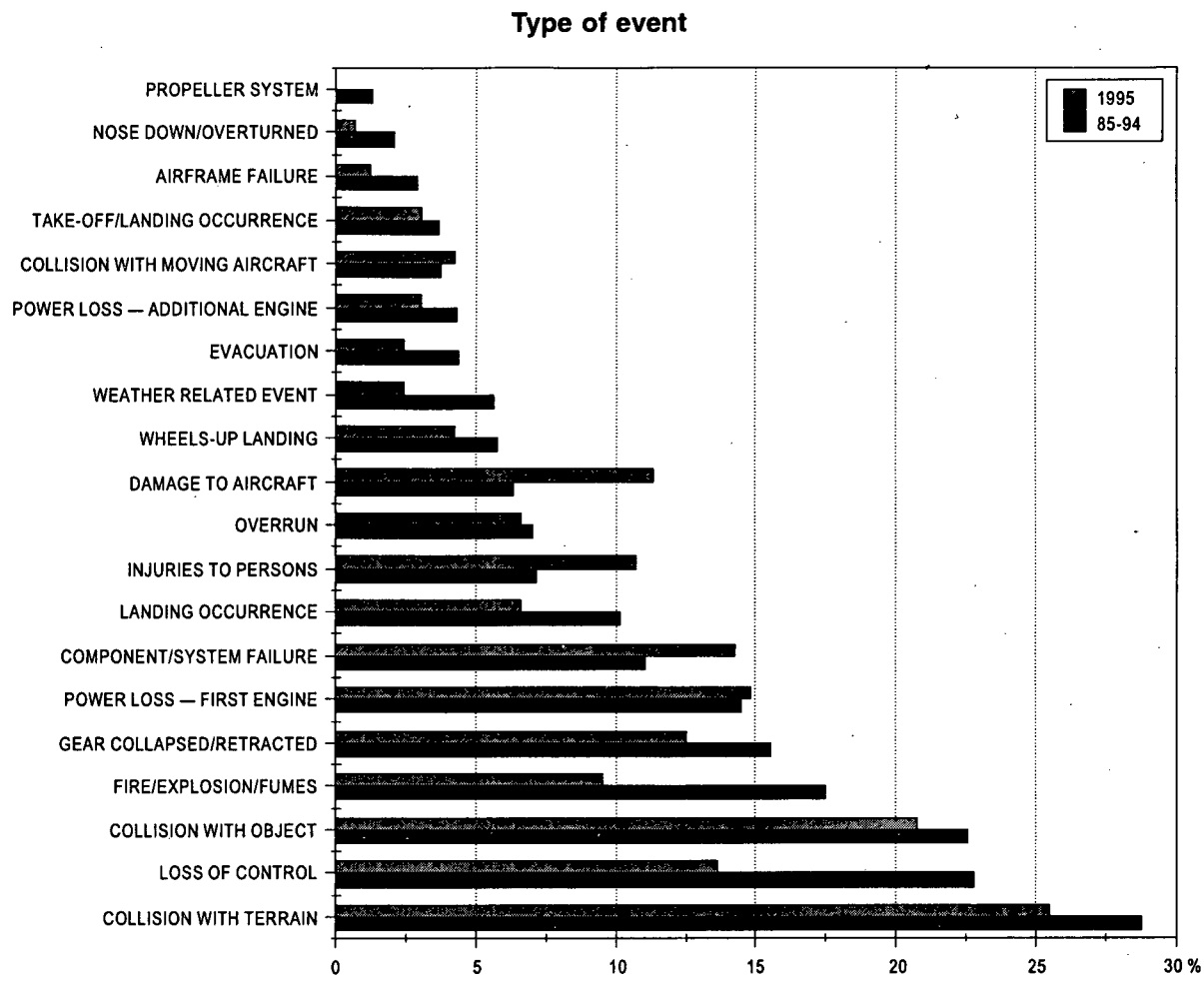
Airline Operations

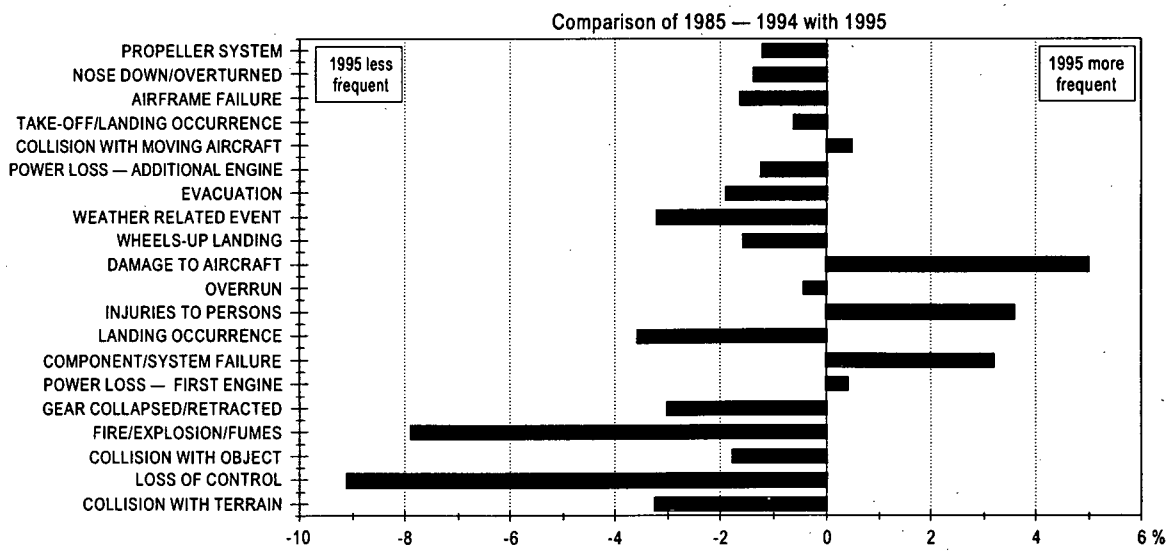
Accidents

Phase of operation

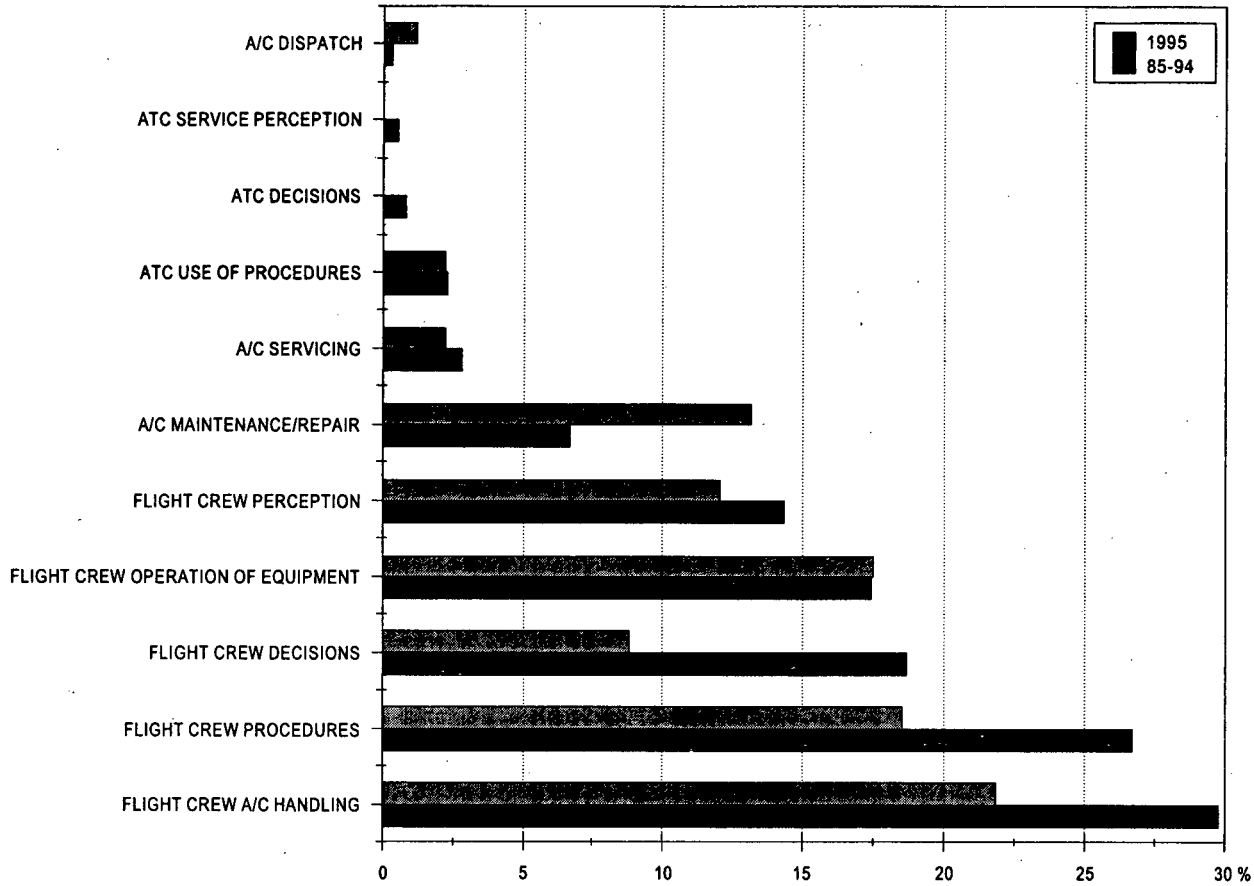




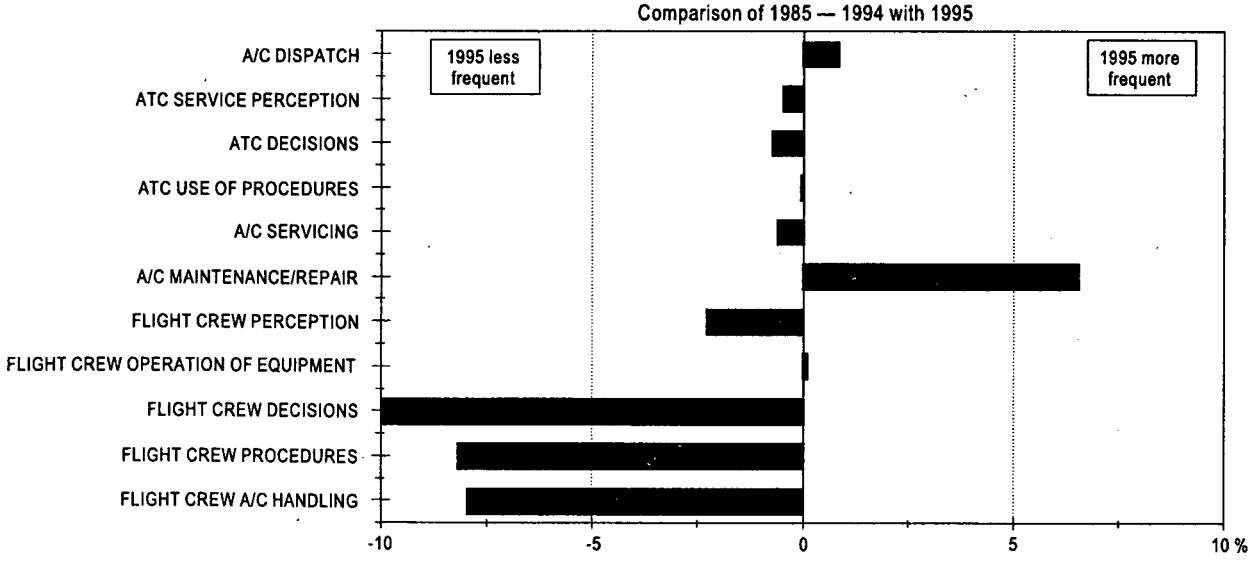

Type of event
PROPELLER SYSTEM
NOSE DOWN/OVERTURNED
AIRFRAME FAILURE
TAKE-OFF/LANDING OCCURRENCE
COLLISION WITH MOVING AIRCRAFT
POWER LOSS — ADDITIONAL ENGINE
EVACUATION
WEATHER RELATED EVENT
WHEELS-UP LANDING
DAMAGE TO AIRCRAFT
OVERRUN
INJURIES TO PERSONS
LANDING OCCURRENCE
COMPONENT/SYSTEM FAILURE
POWER LOSS — FIRST ENGINE
GEAR COLLAPSED/RETRACTED
FIRE/EXPLOSION/FUMES
COLLISION WITH OBJECT
LOSS OF CONTROL
COLLISION WITH TERRAIN
1995
85-94
0
5
10
15
20
25
30 %


Comparison of 1985 — 1994 with 1995
1995 less frequent
1995 more frequent
PROPELLER SYSTEM
NOSE DOWN/OVERTURNED
AIRFRAME FAILURE
TAKE-OFF/LANDING OCCURRENCE
COLLISION WITH MOVING AIRCRAFT
POWER LOSS — ADDITIONAL ENGINE
EVACUATION
WEATHER RELATED EVENT
WHEELS-UP LANDING
DAMAGE TO AIRCRAFT
OVERRUN
INJURIES TO PERSONS
LANDING OCCURRENCE
COMPONENT/SYSTEM FAILURE
POWER LOSS — FIRST ENGINE
GEAR COLLAPSED/RETRACTED
FIRE/EXPLOSION/FUMES
COLLISION WITH OBJECT
LOSS OF CONTROL
COLLISION WITH TERRAIN
-10
-8
-6
-4
-2
0
2
4
6 %

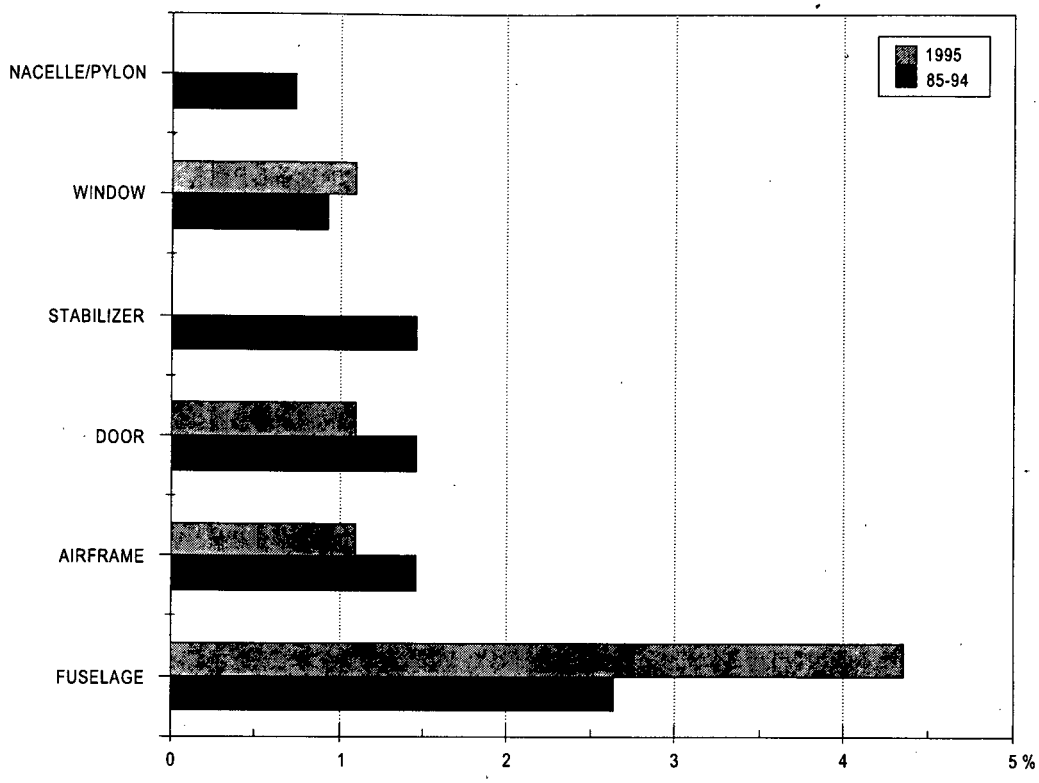
Personnel factors



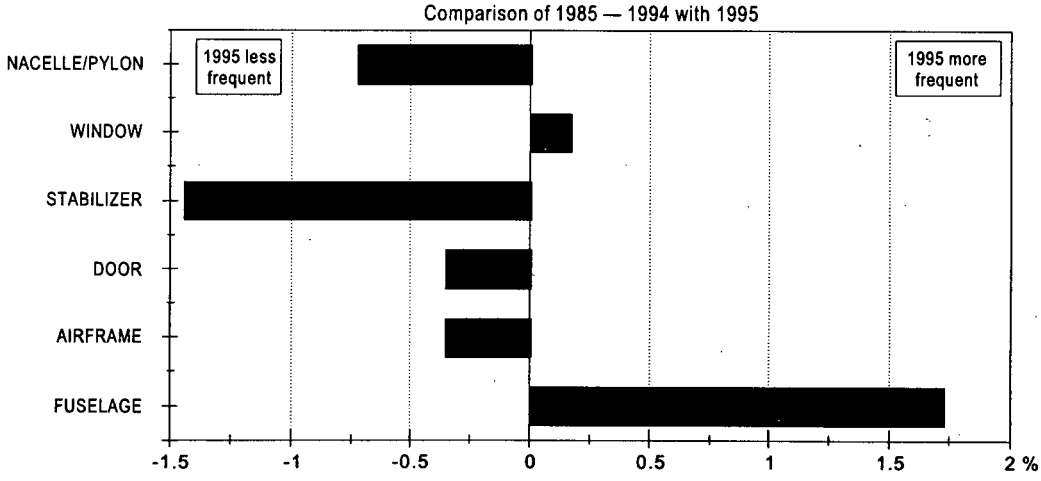
Comparison of 1985 — 1994 with 1995



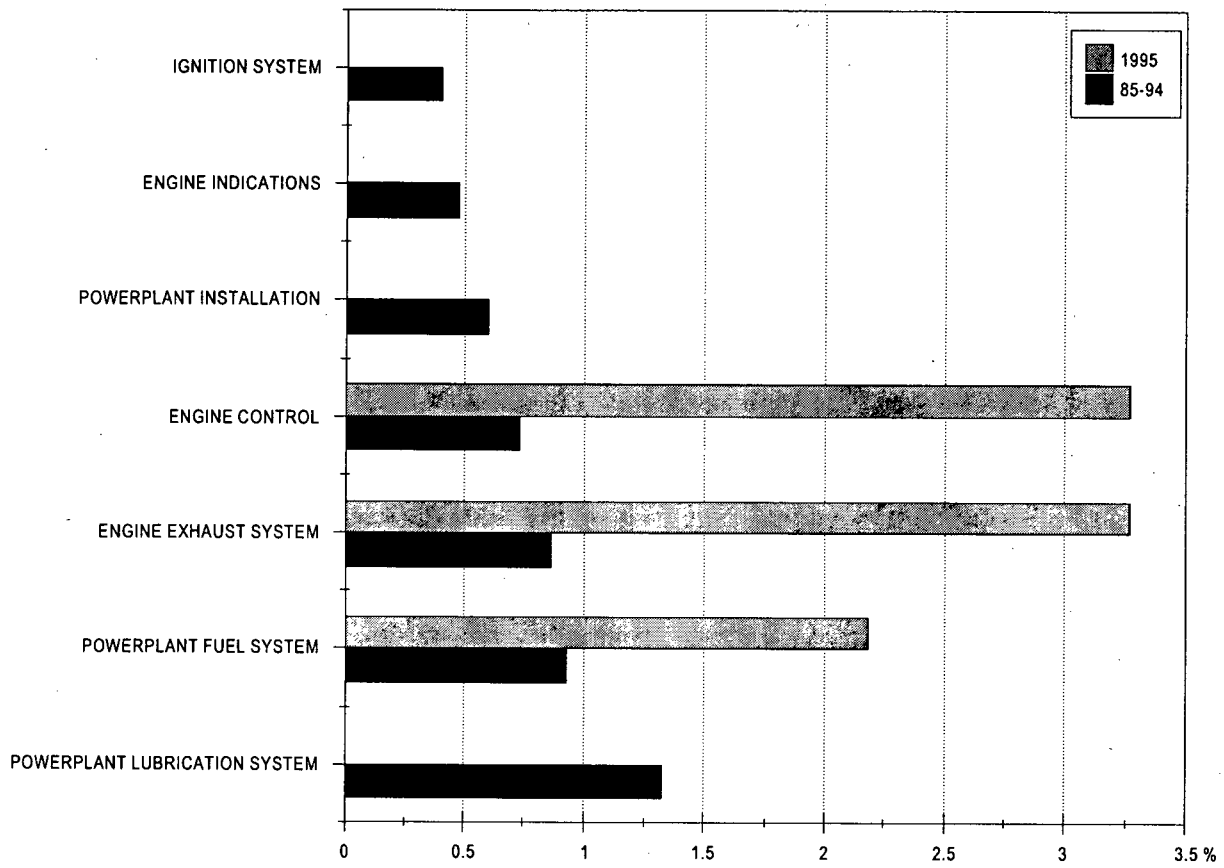
Airframe factors

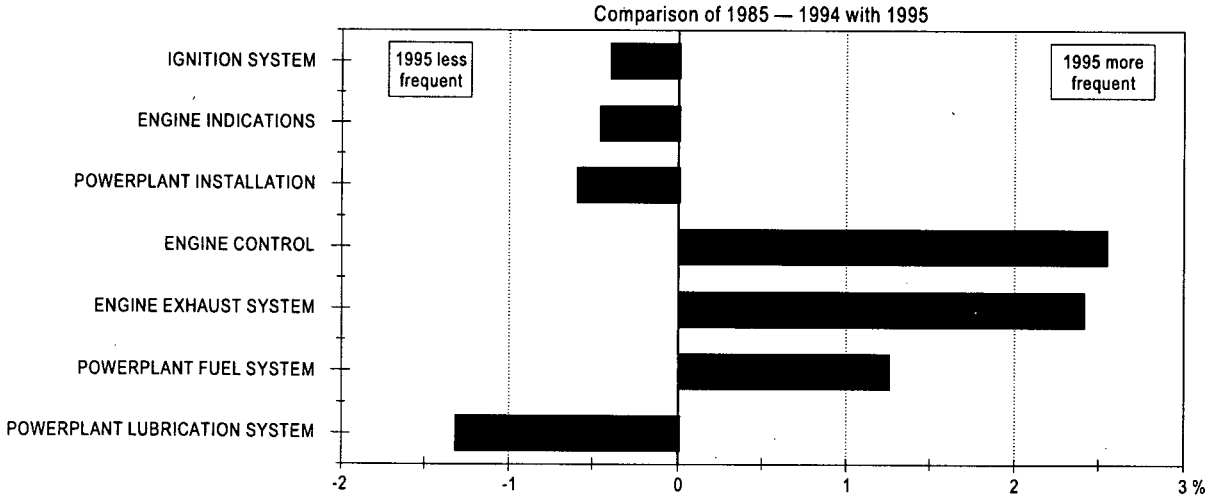


Comparison of 1985 — 1994 with 1995

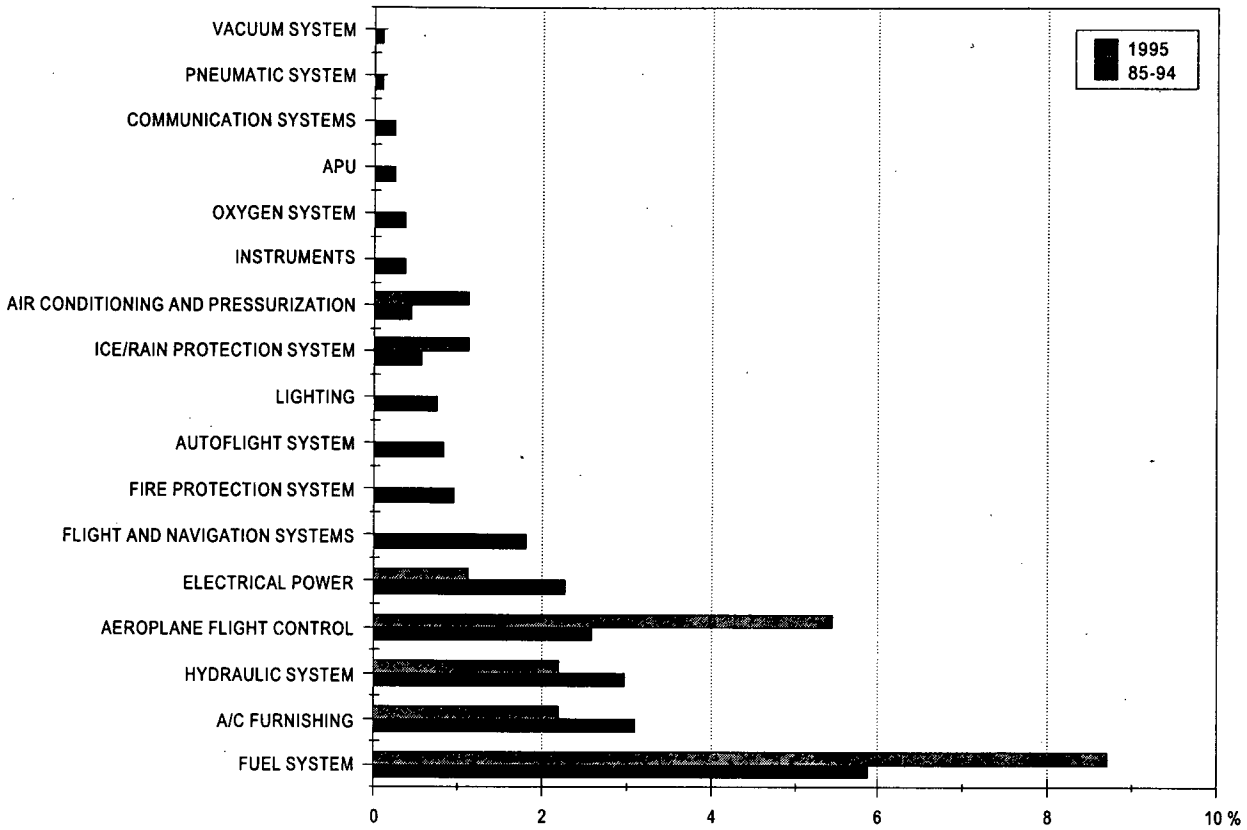


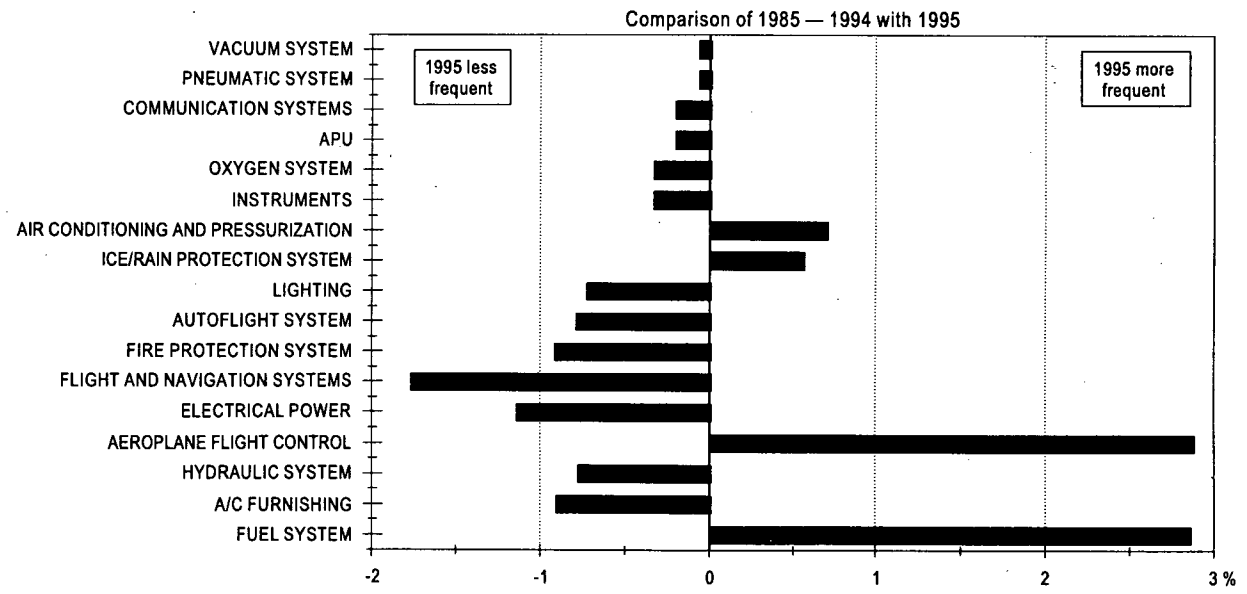
Powerplant factors



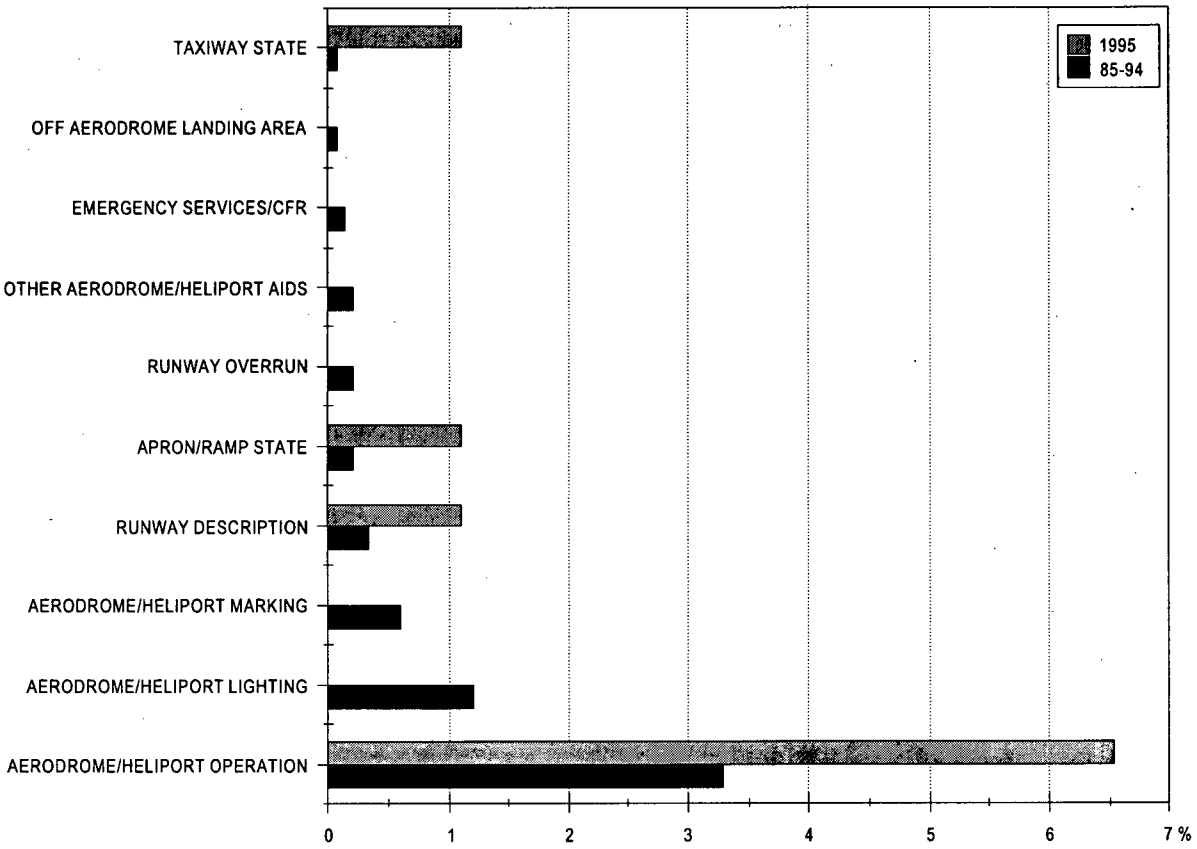


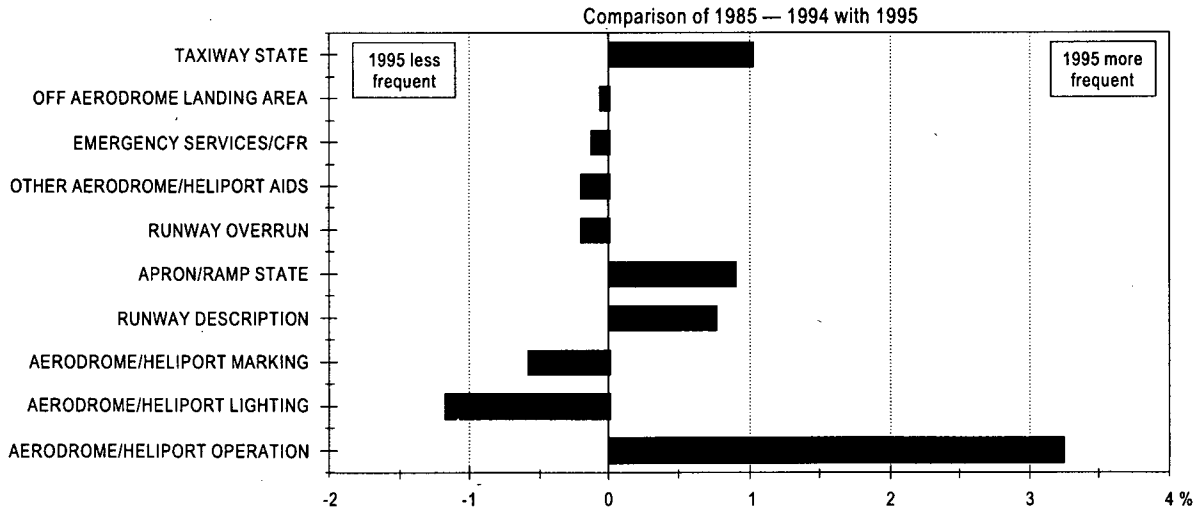
System factors



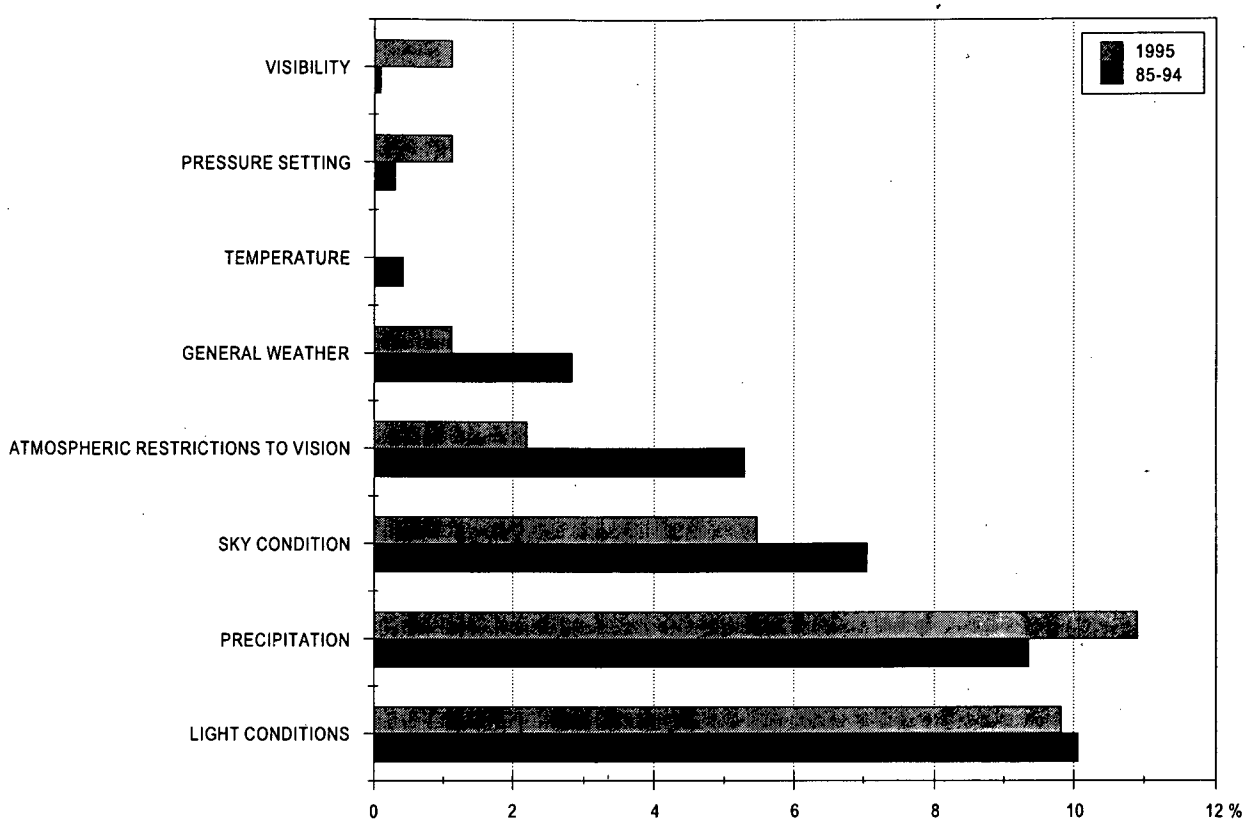


Aerodrome factors





Weather factors

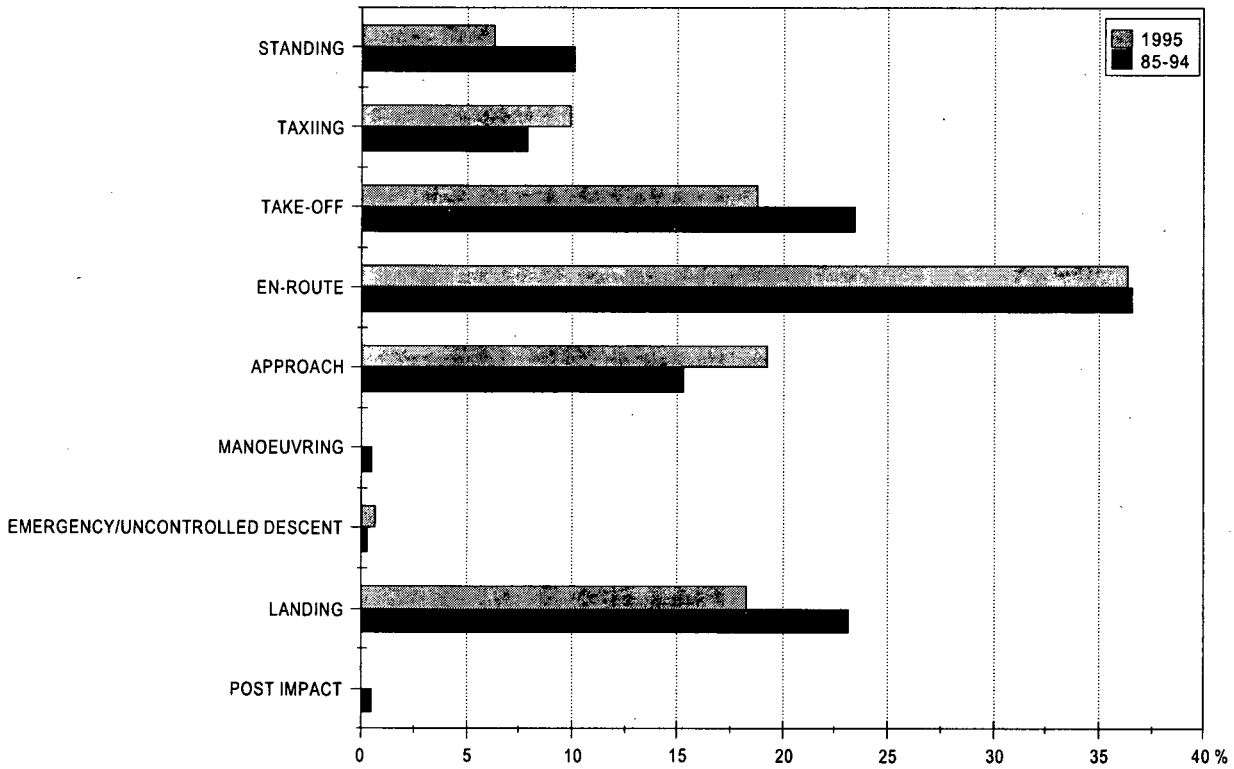


FIXED WING AIRCRAFT

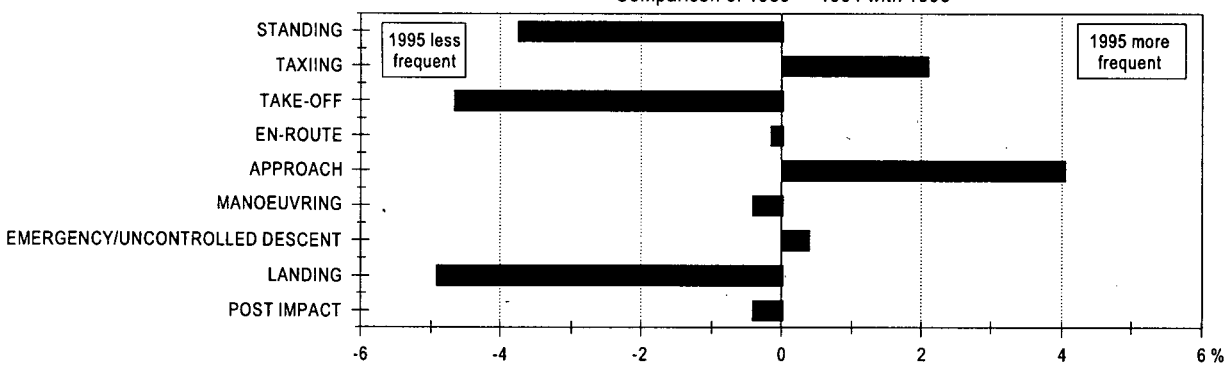
Airline operations

Incidents

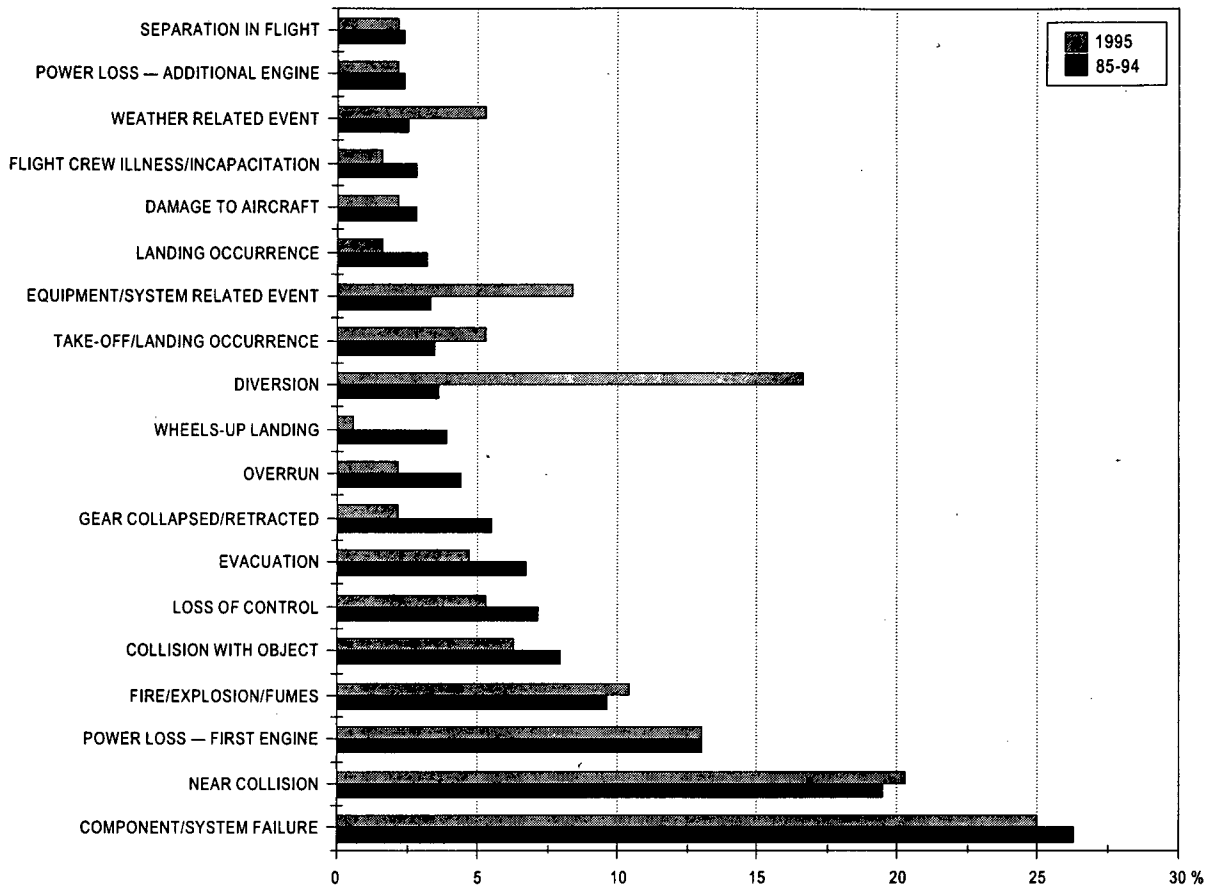
Phase of operation

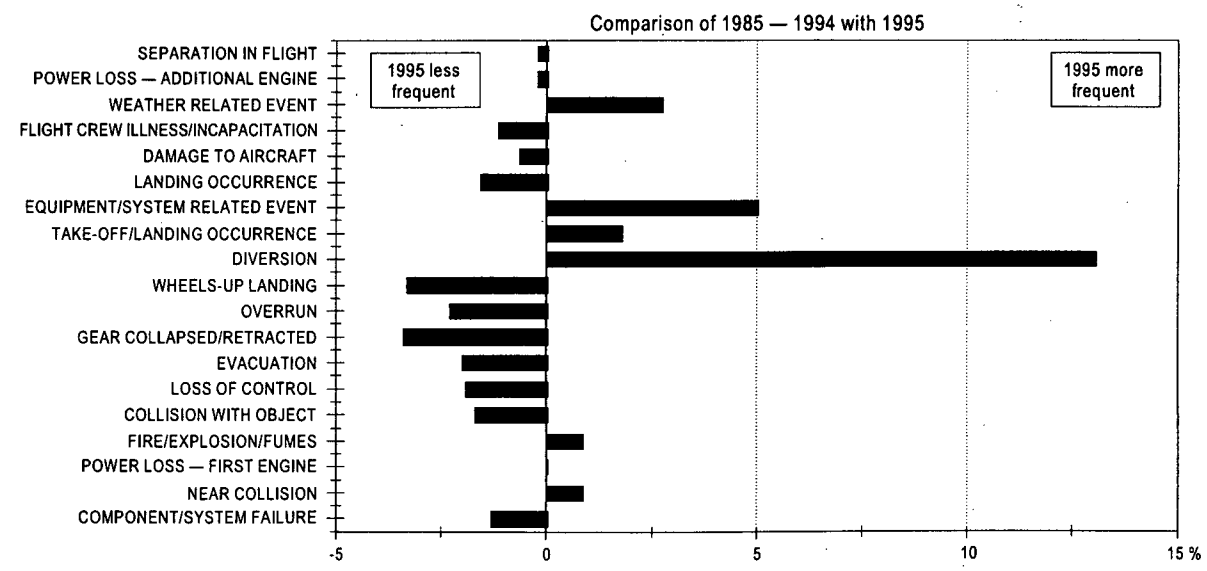


Comparison of 1985 — 1994 with 1995

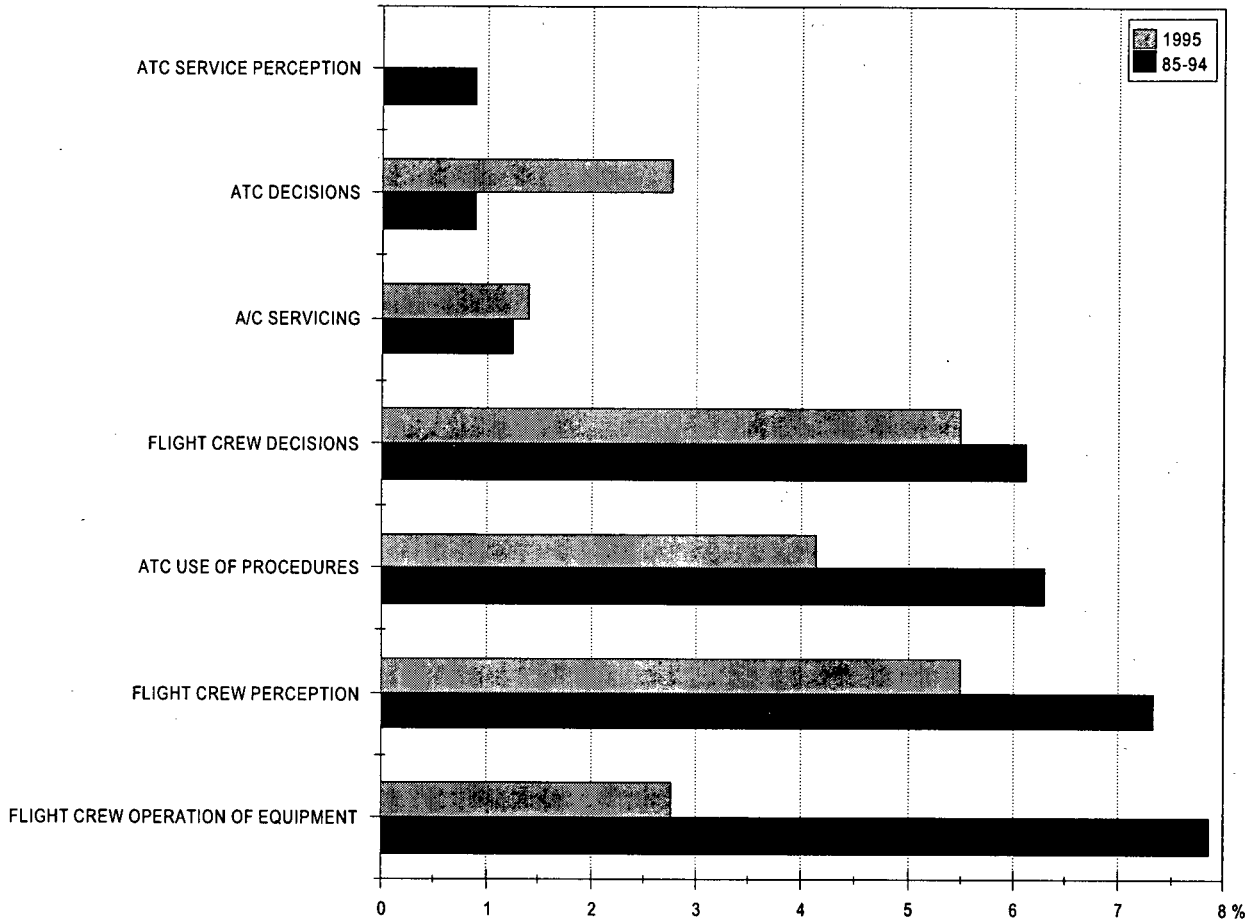


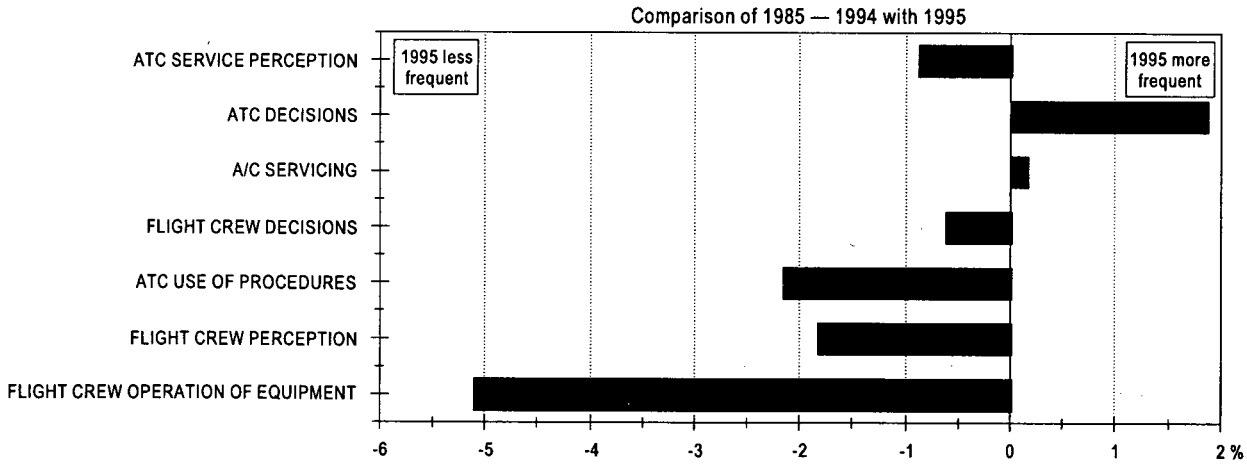
Type of event





Personnel factors



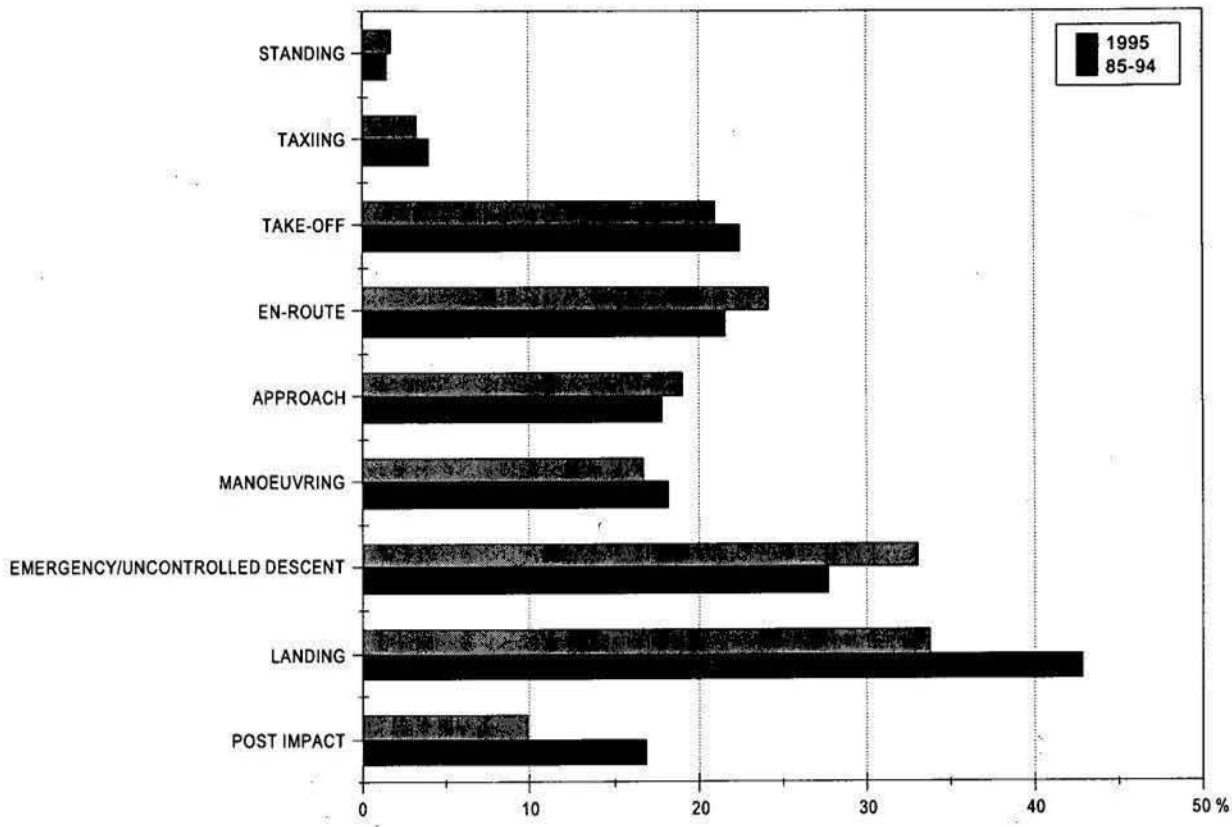


FIXED WING AIRCRAFT

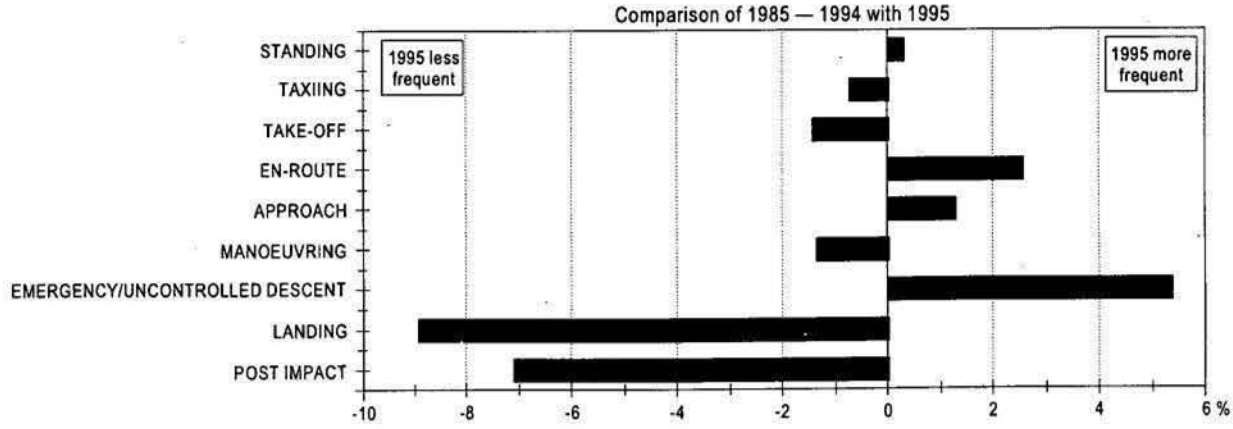
General Aviation

Accidents

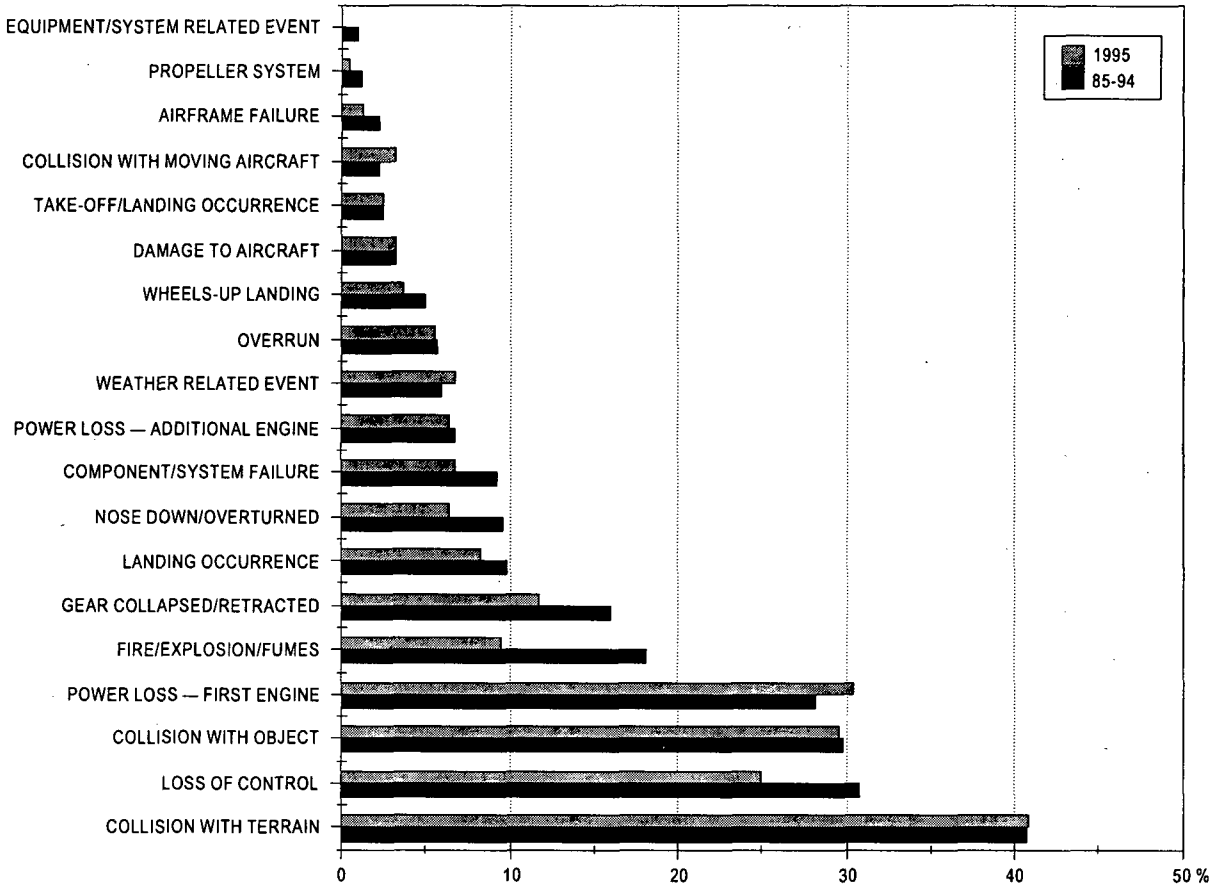
Phase of operation

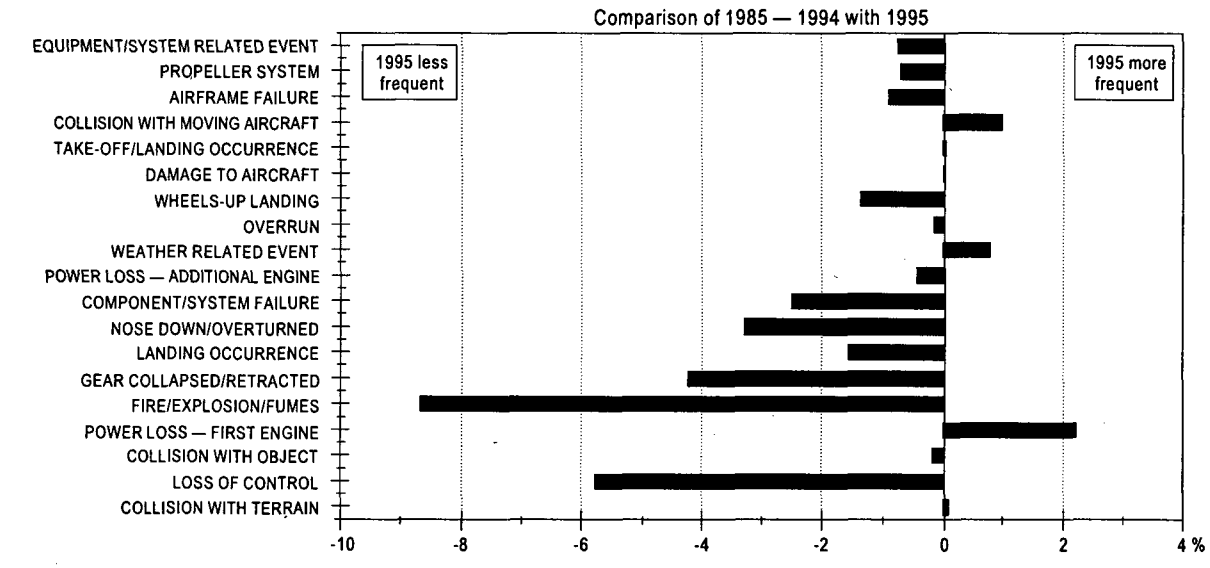


Comparison of 1985 — 1994 with 1995

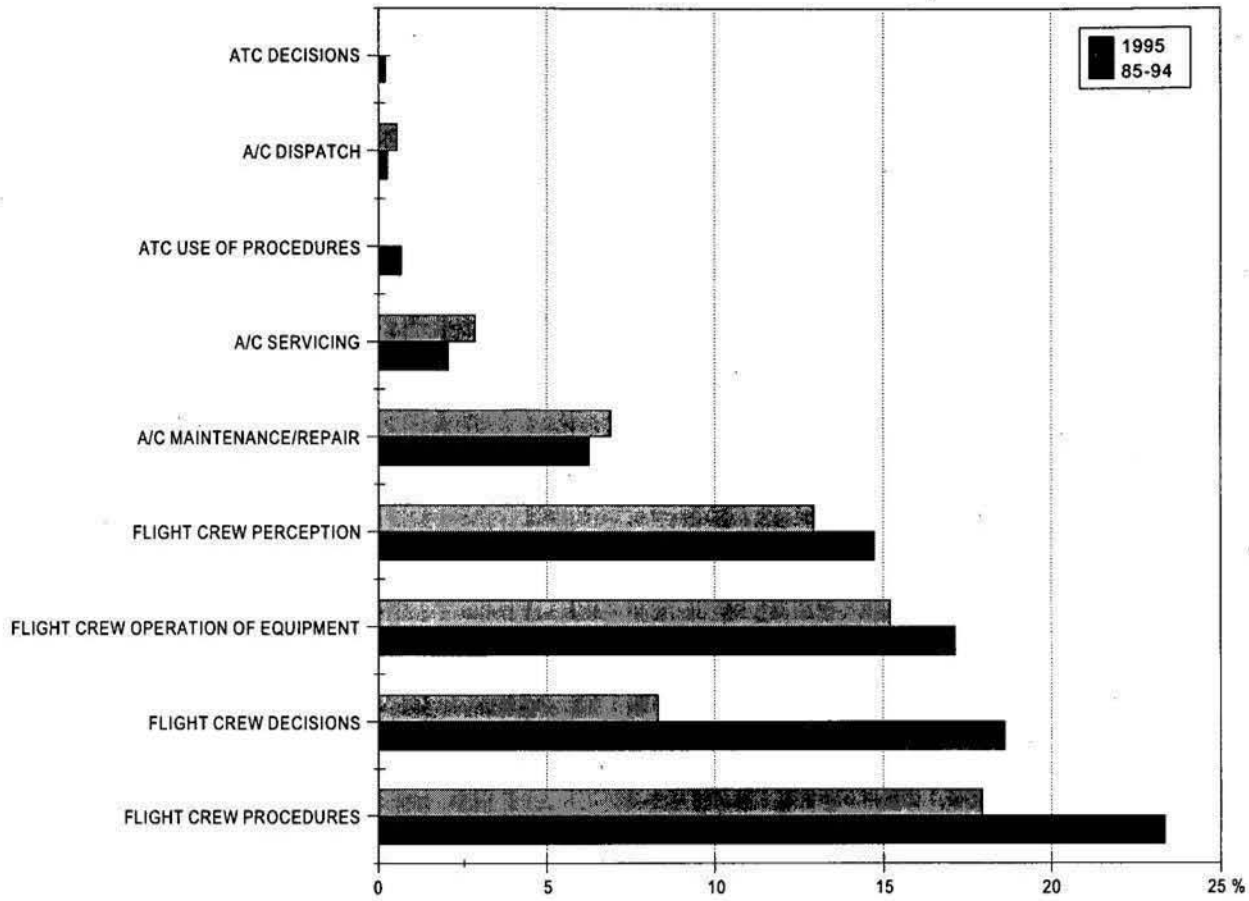


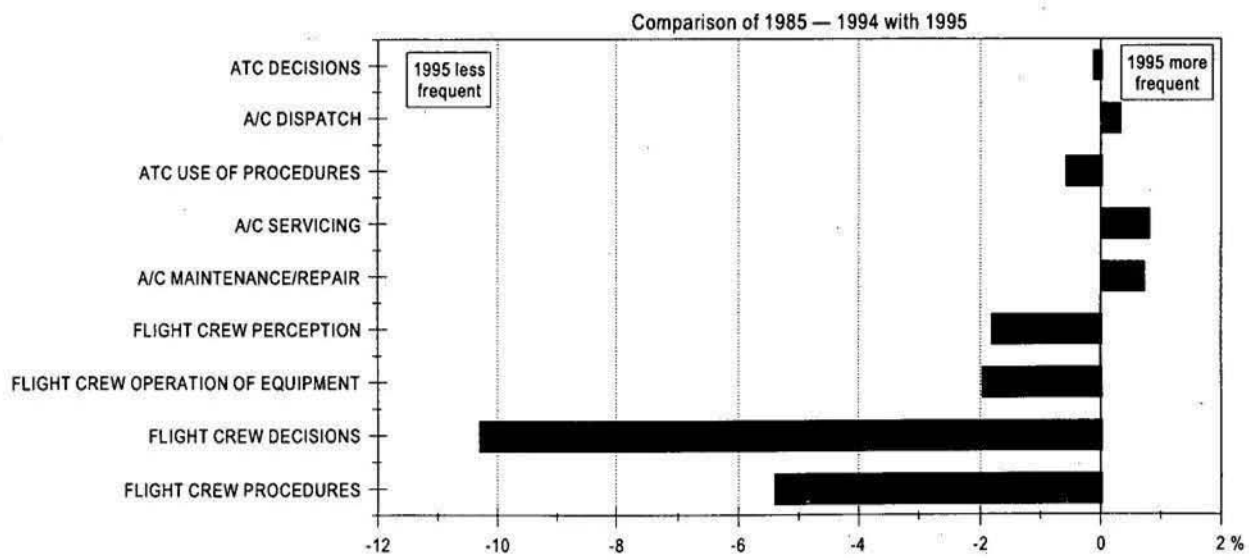
Type of event



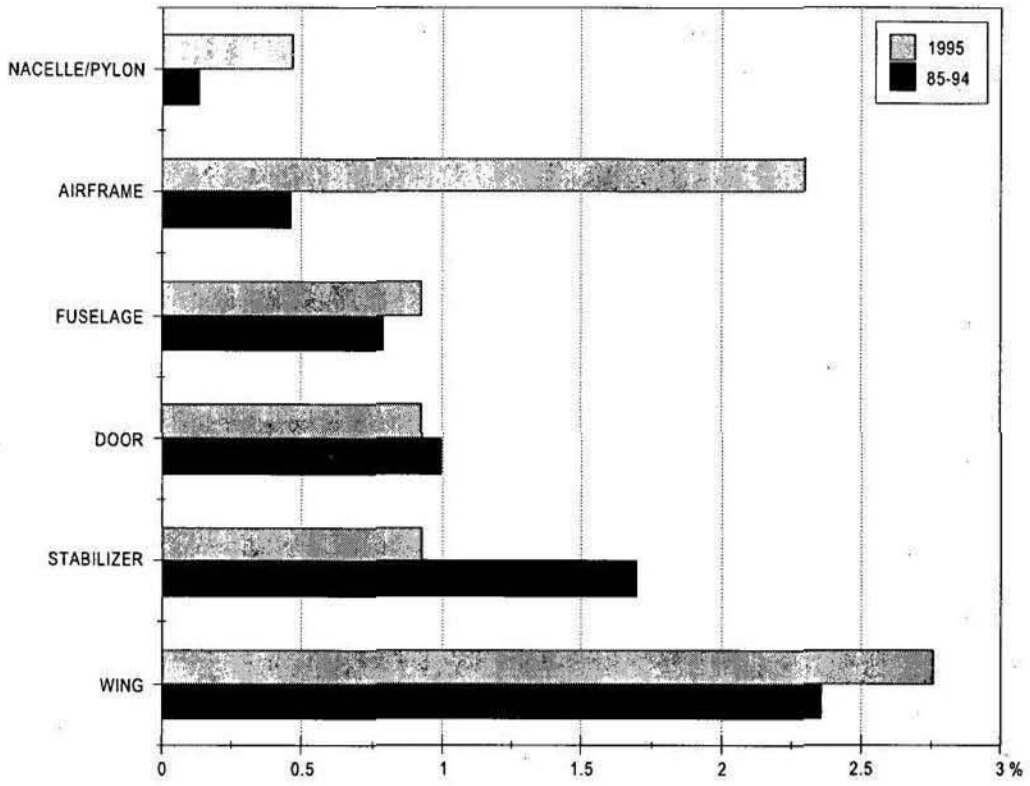


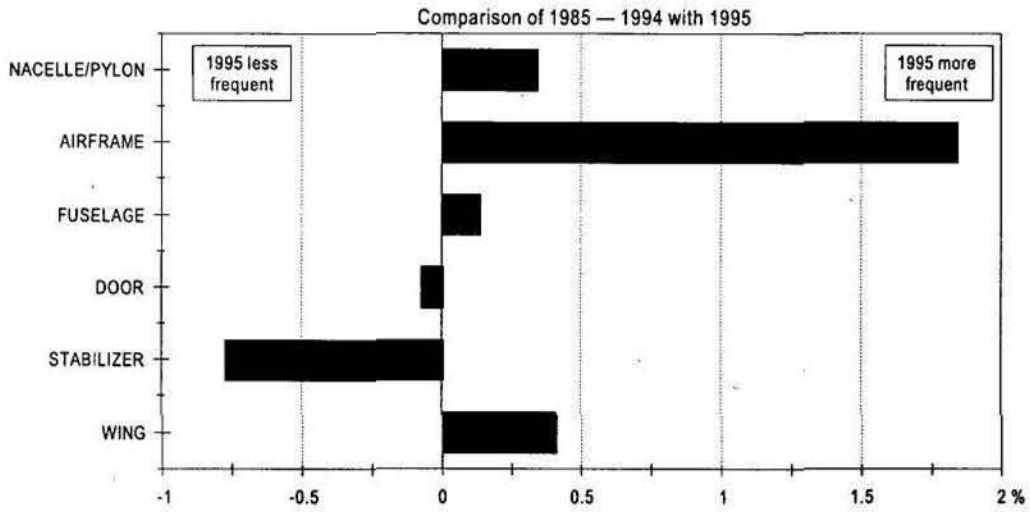
Personnel factors



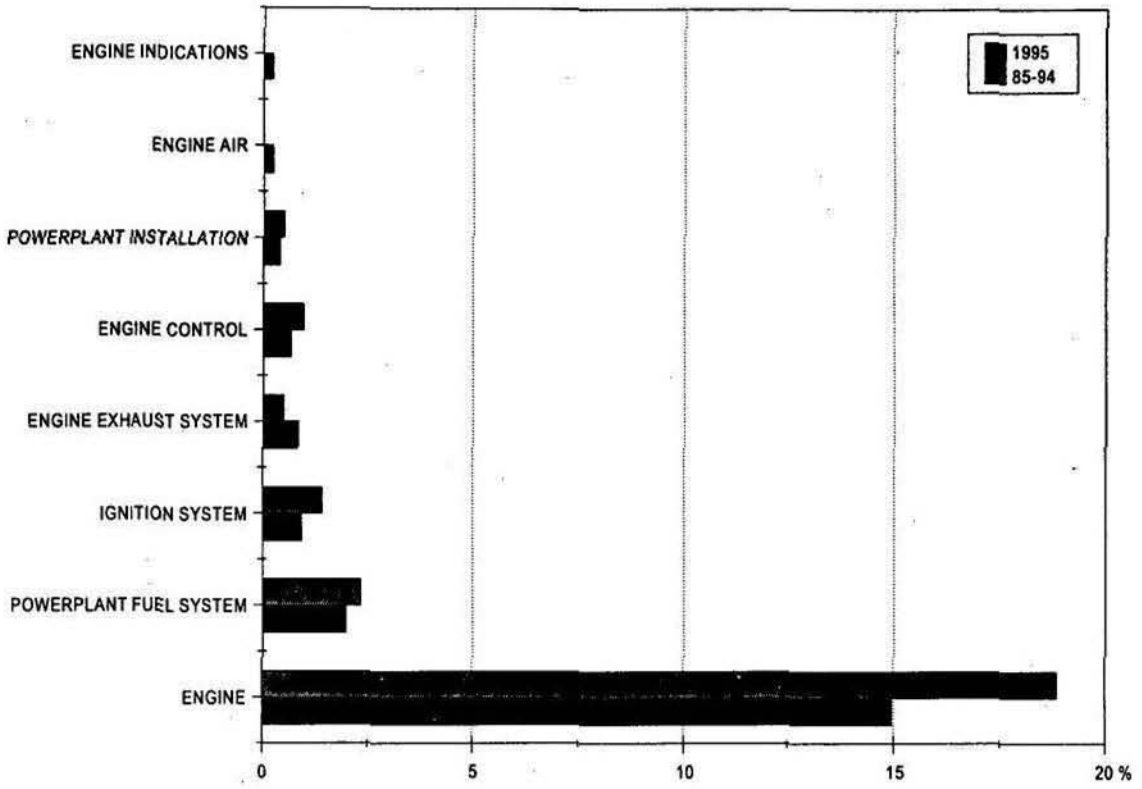


Airframe factors

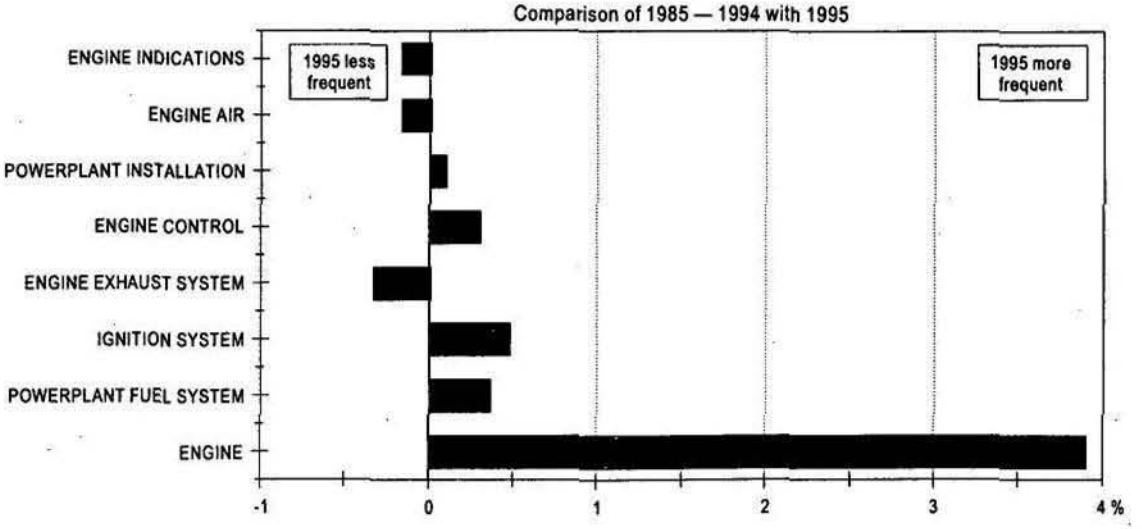




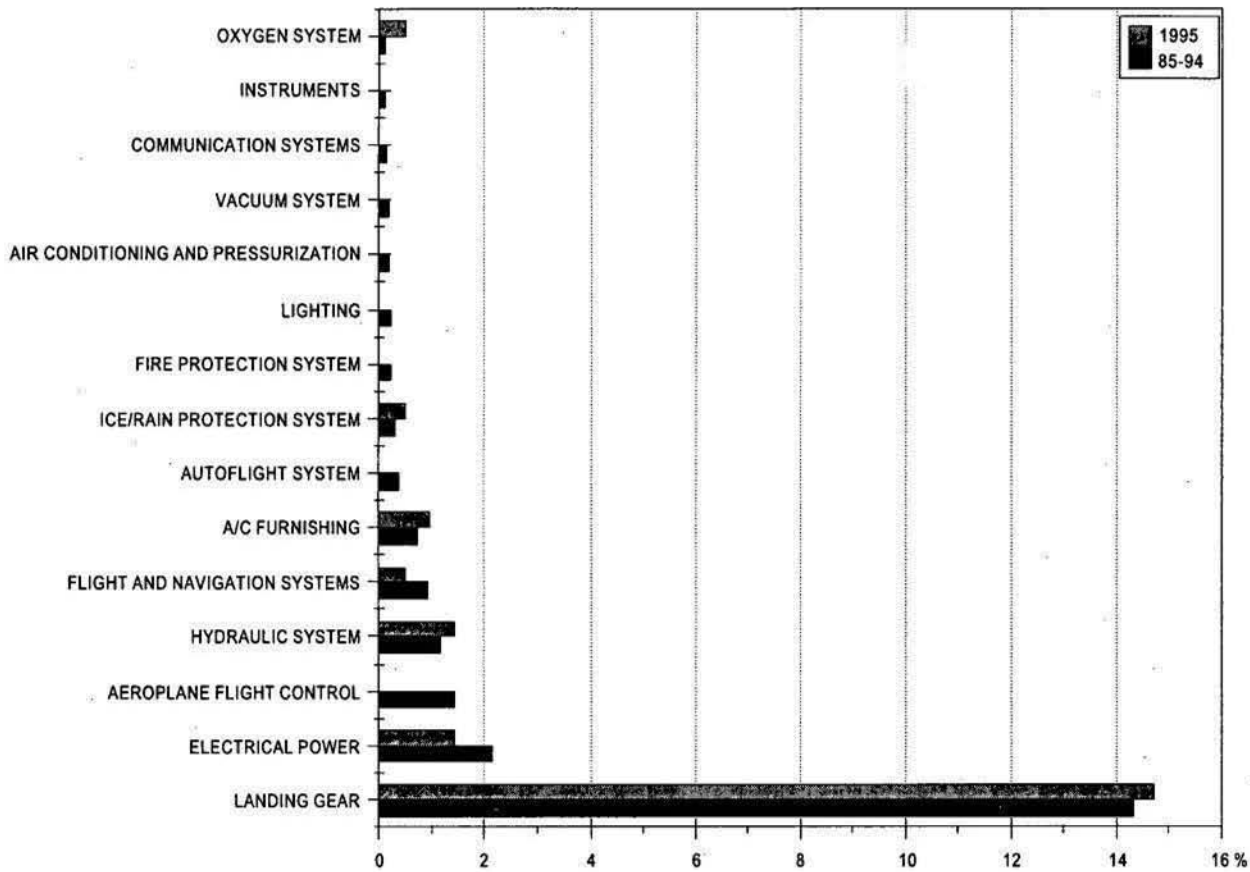
Powerplant factors



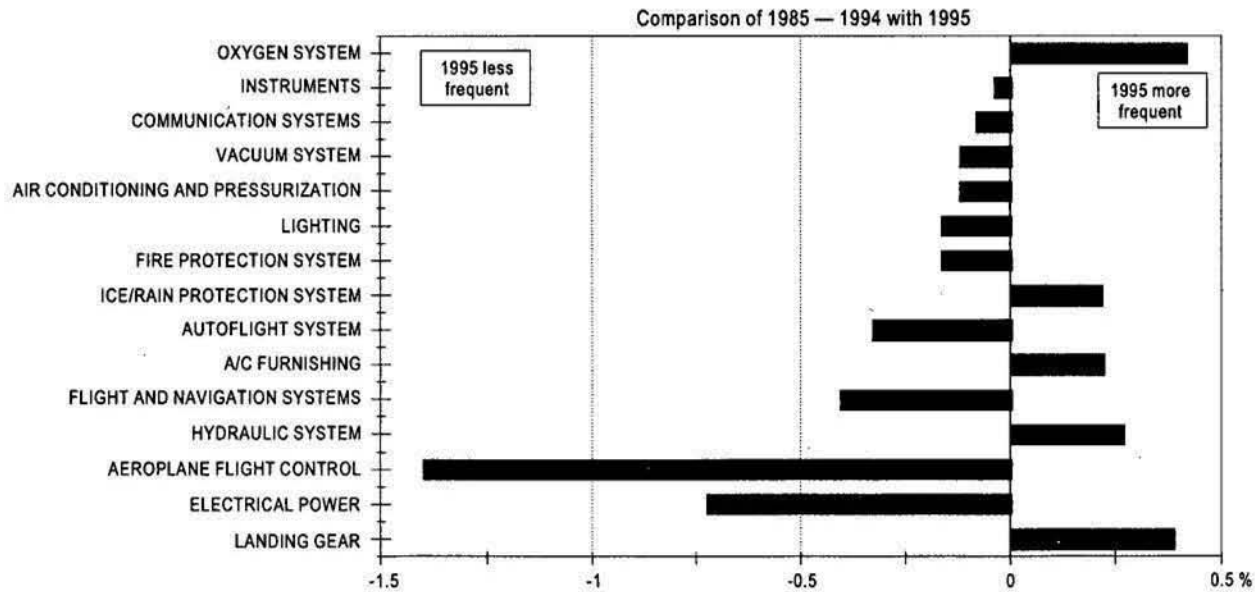
Comparison of 1985 — 1994 with 1995



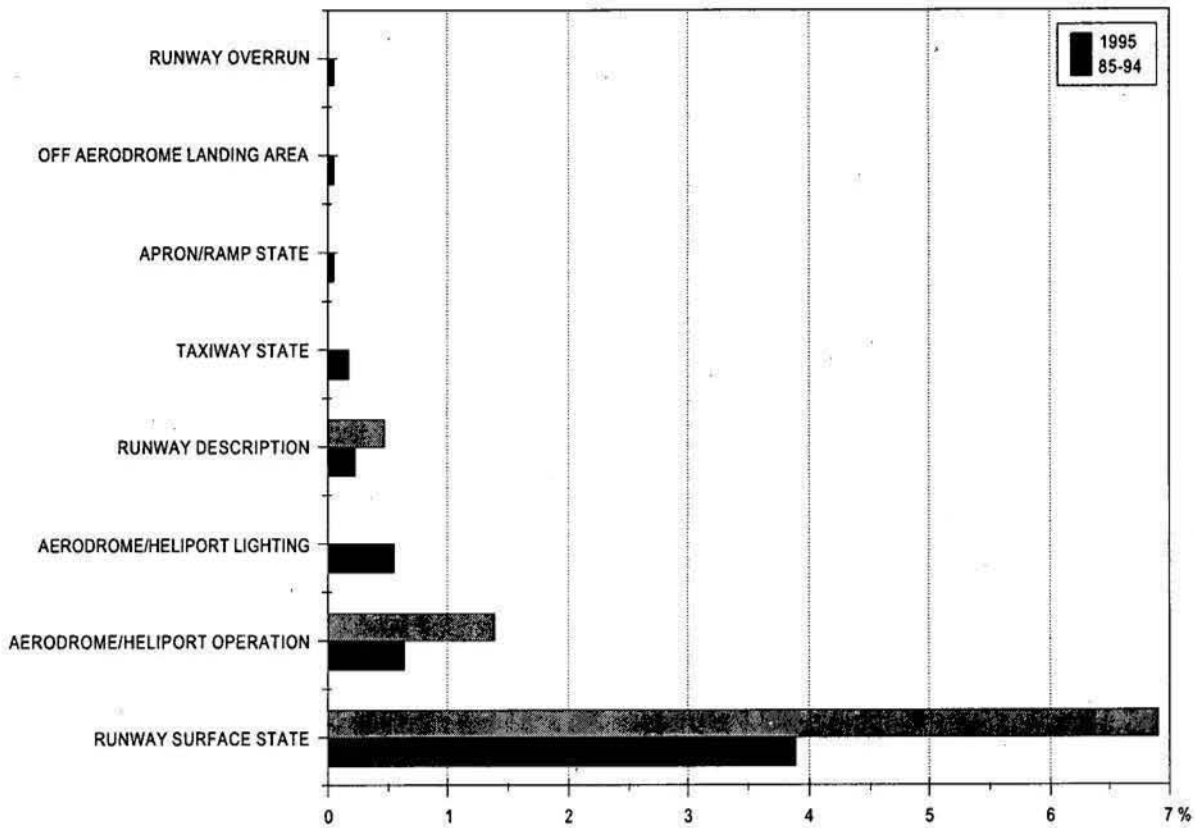
System factors



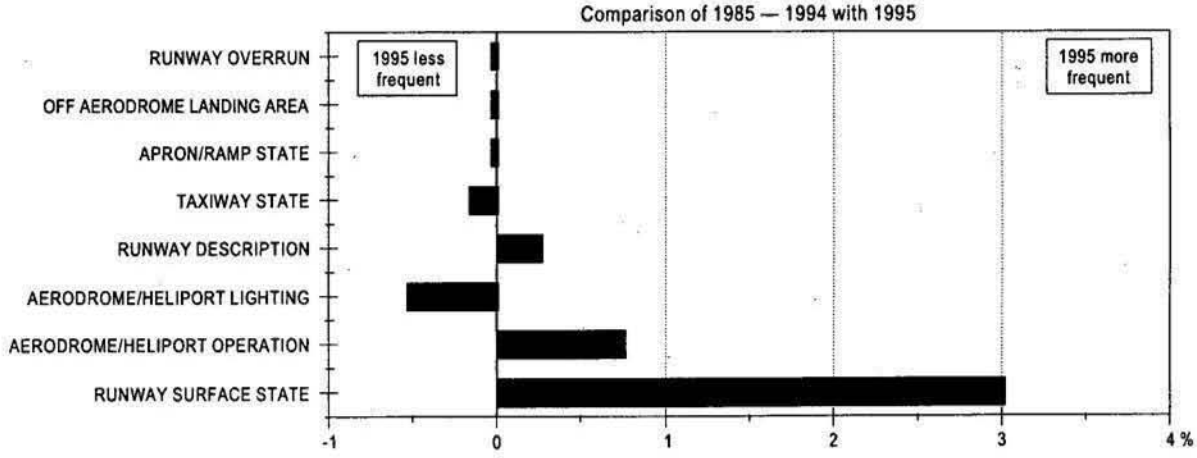
Comparison of 1985 — 1994 with 1995



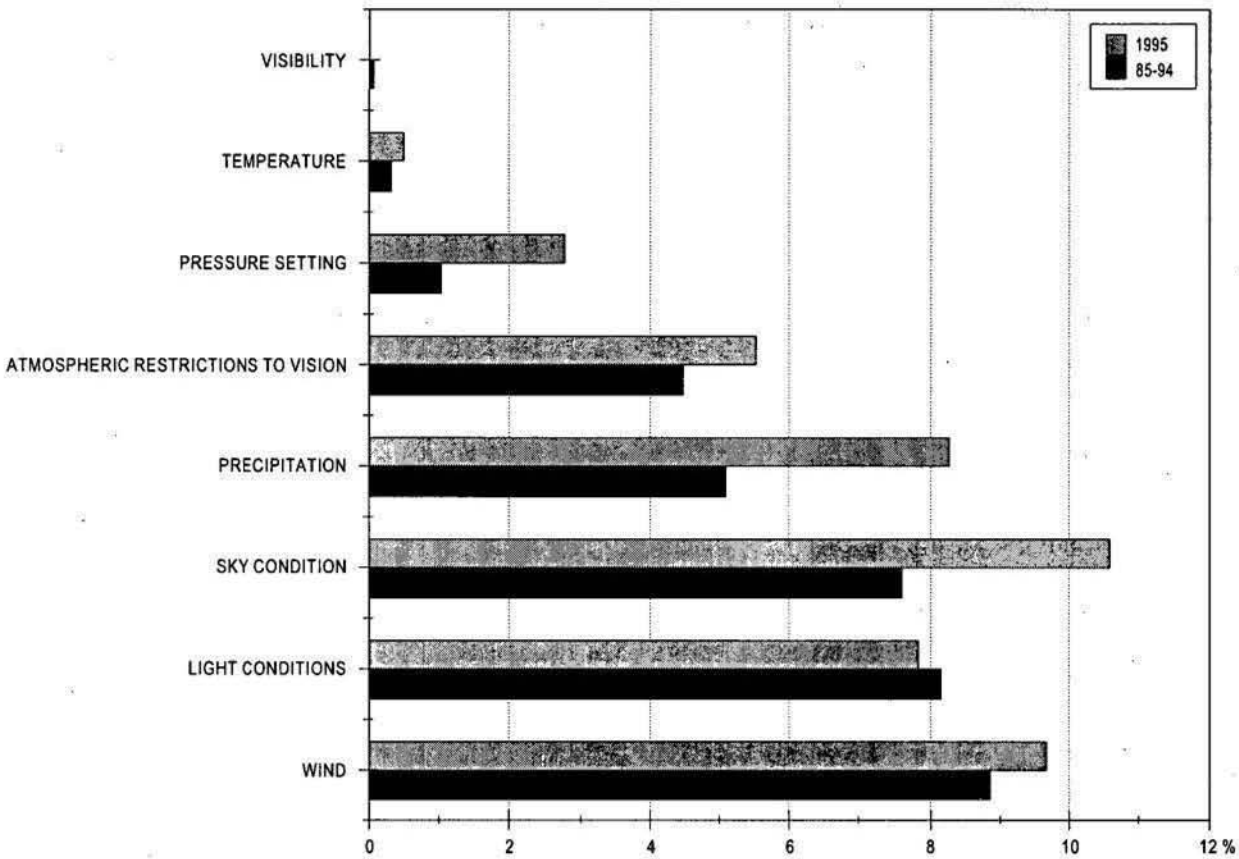
Aerodrome factors



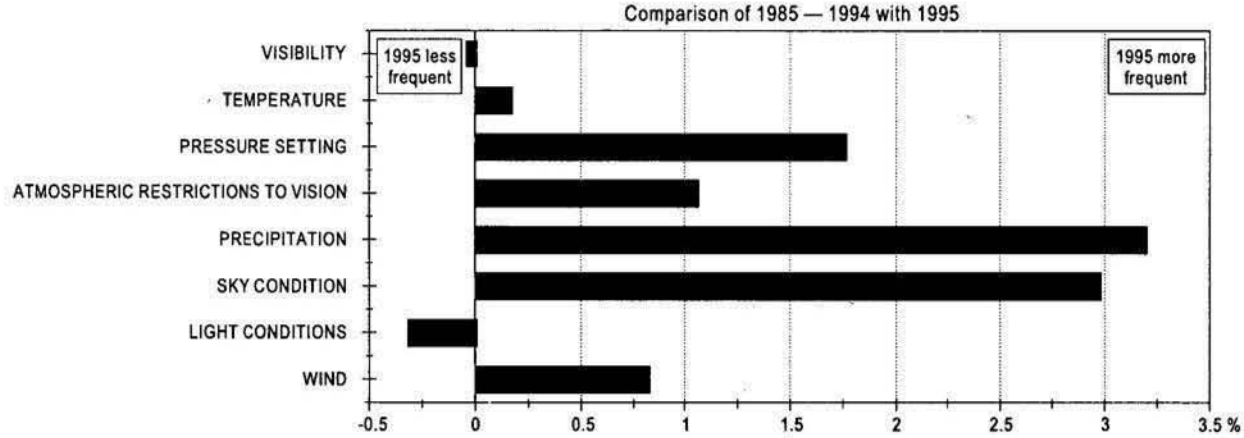
Comparison of 1985 — 1994 with 1995



Weather factors



Comparison of 1985 — 1994 with 1995

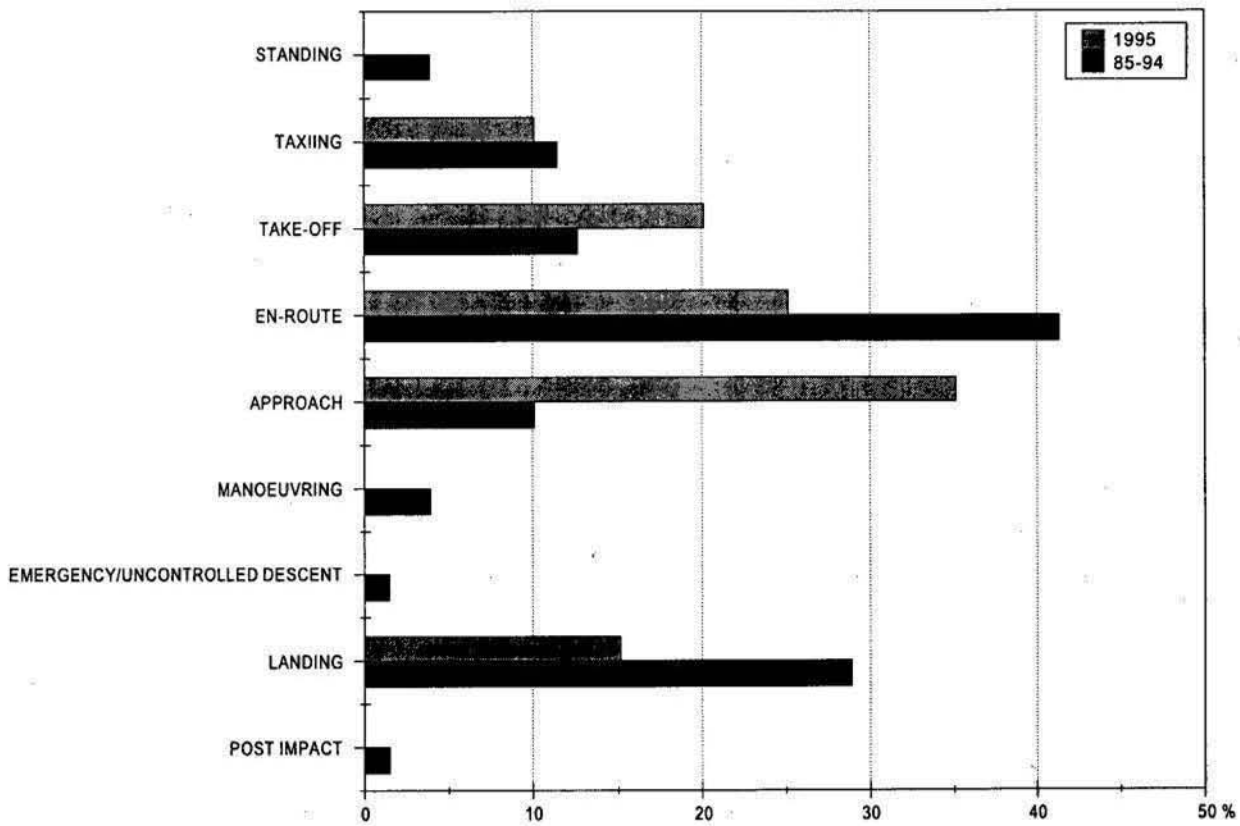


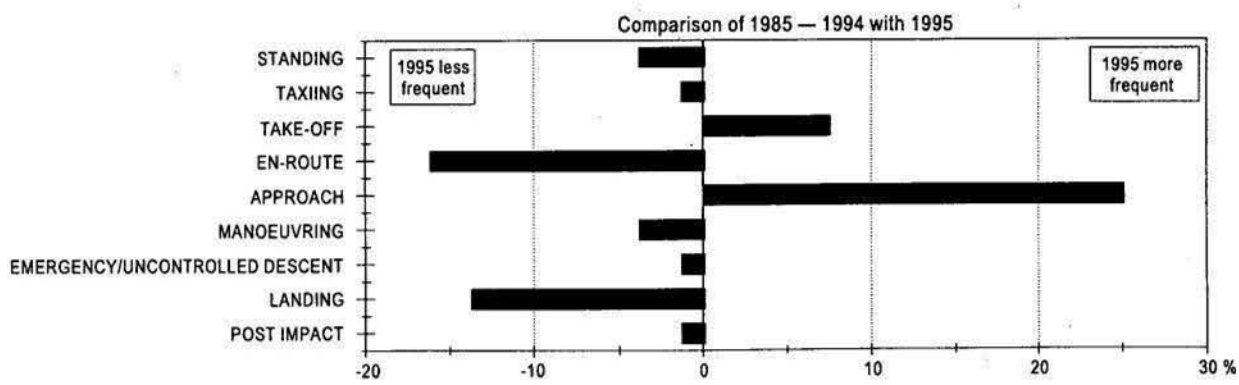
FIXED WING AIRCRAFT

General Aviation

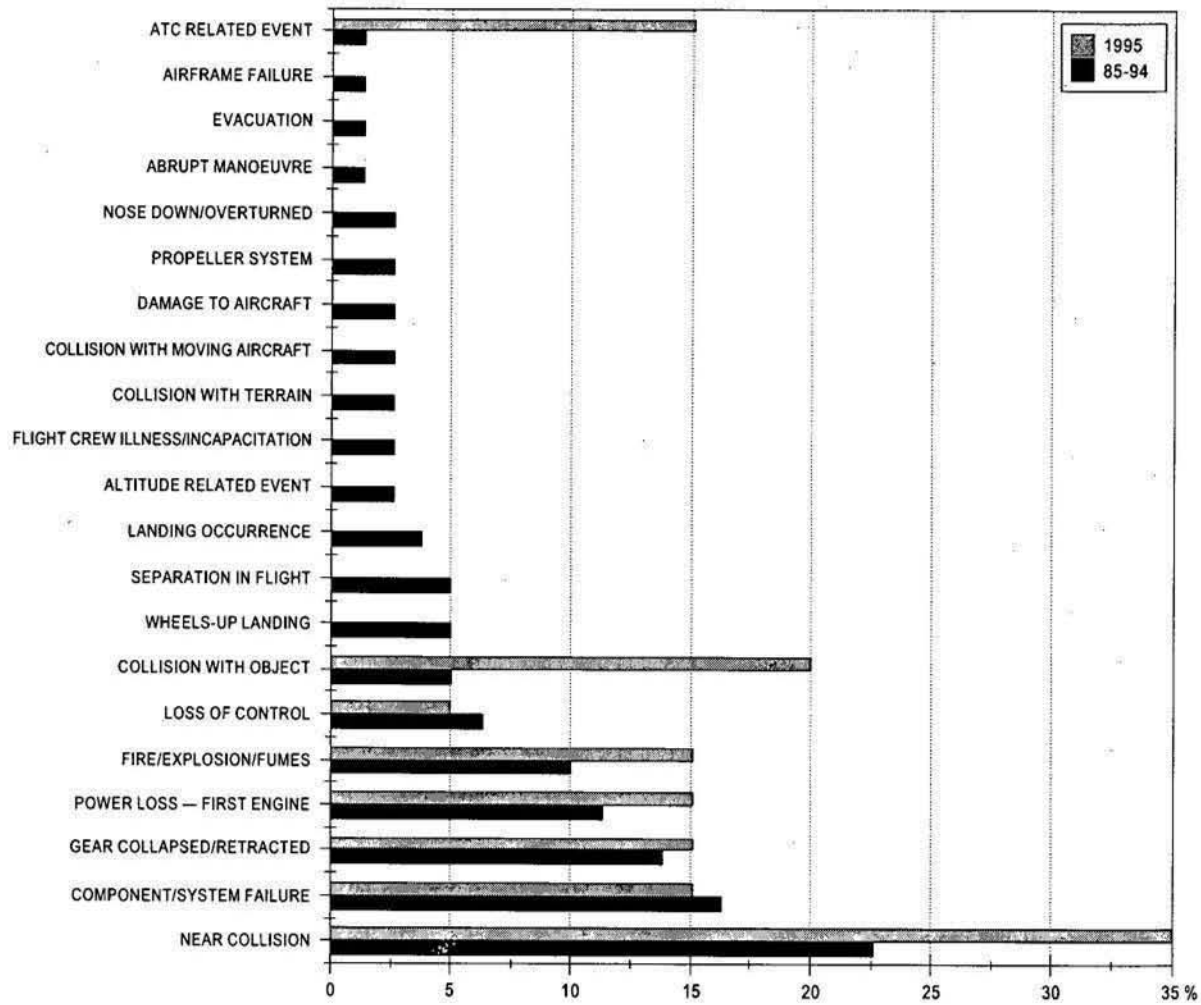
Incidents

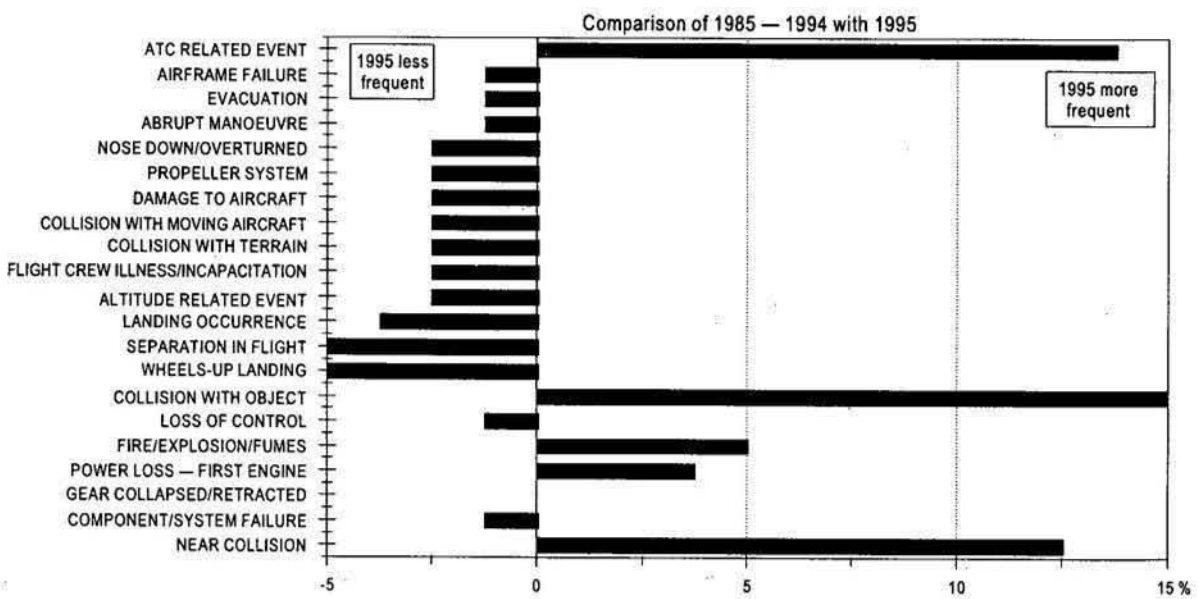
Phase of operation



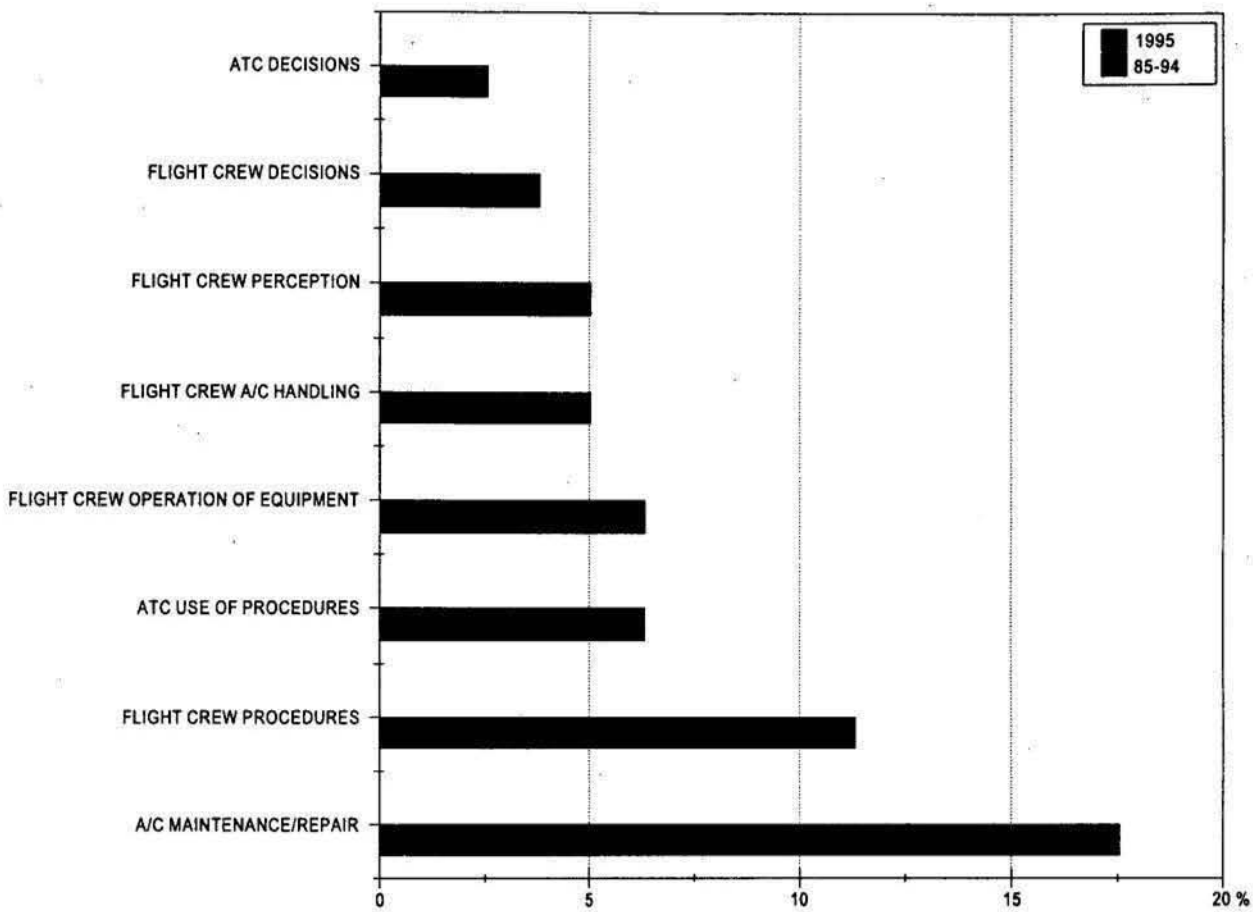


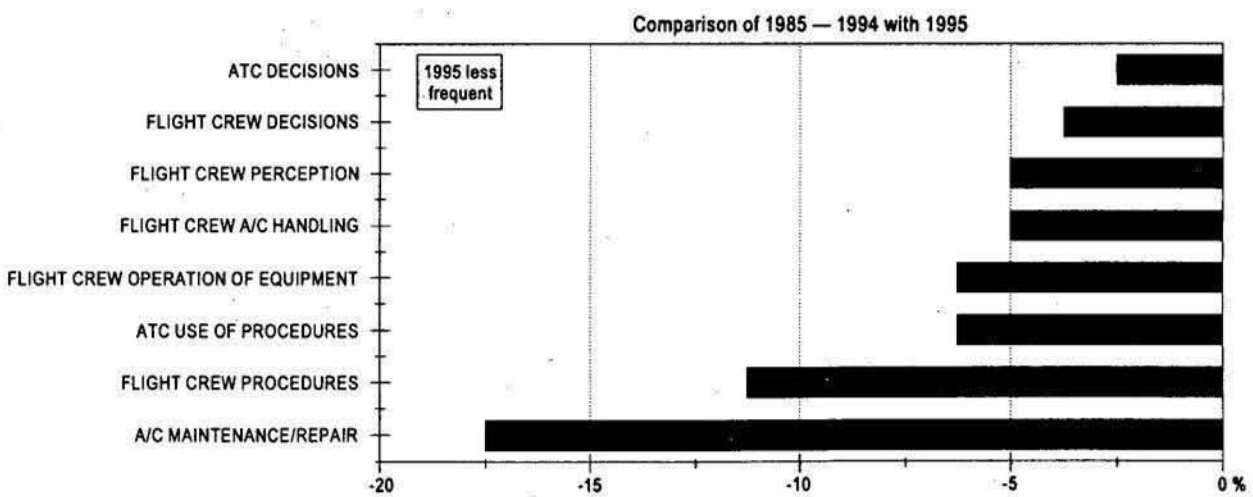
Type of event





Personnel factors



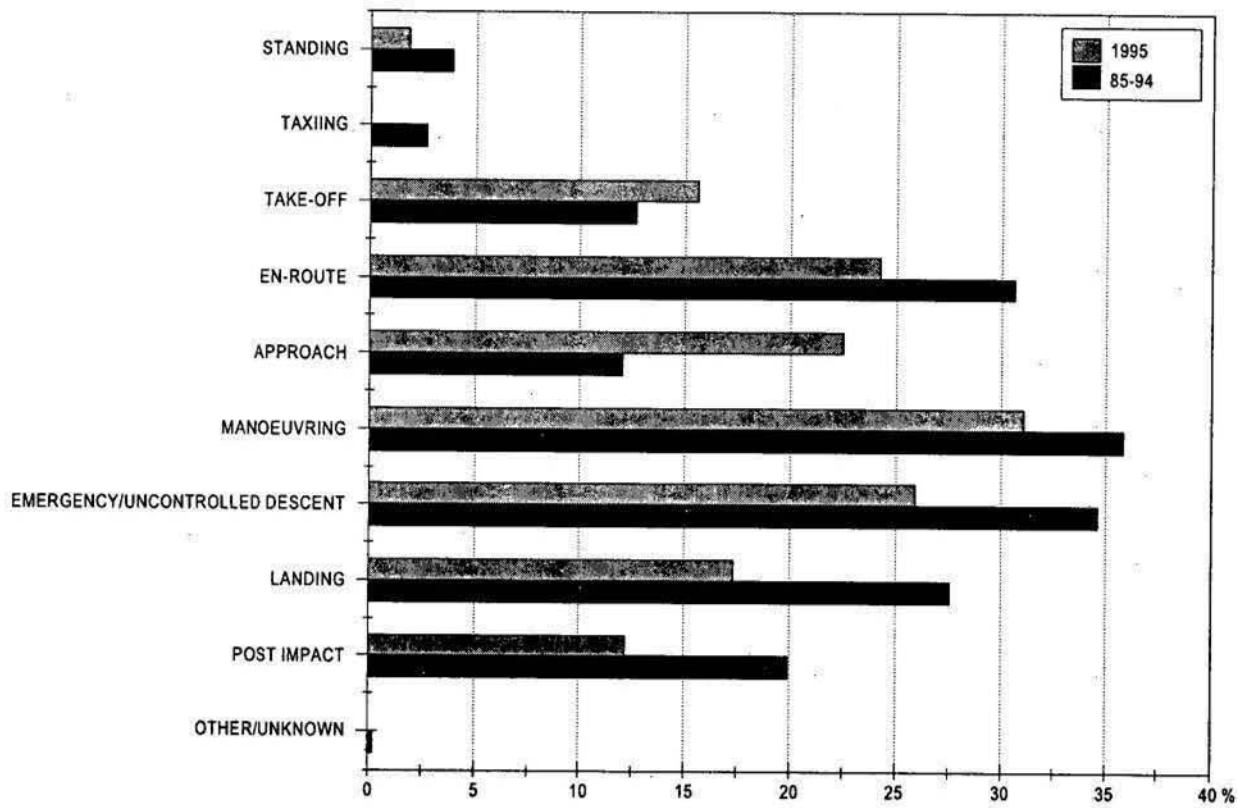


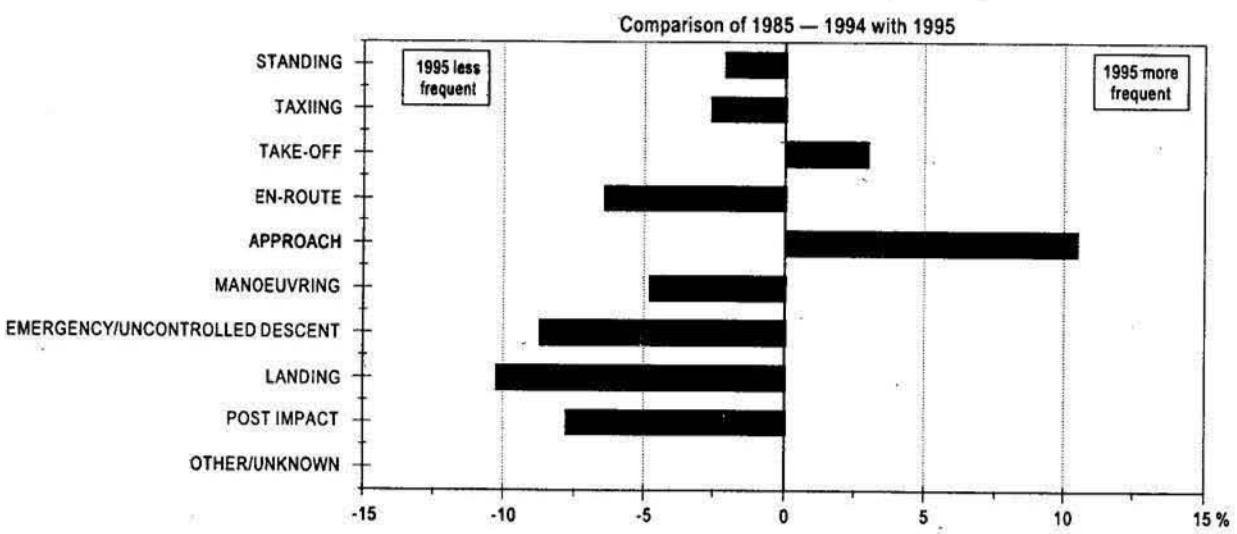
HELICOPTERS

General Aviation and Airline Operations

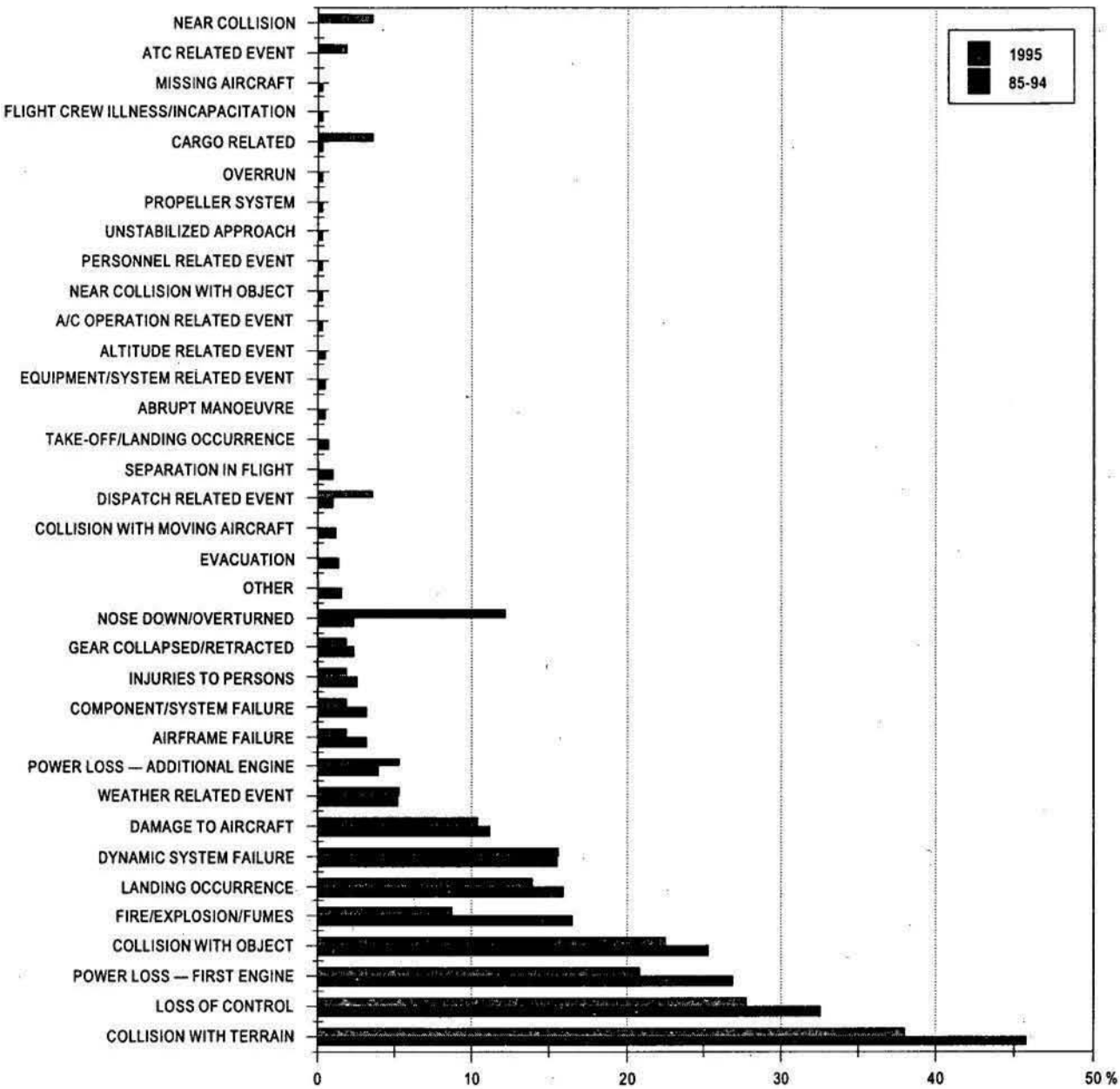
Accidents and Incidents

Phase of operation

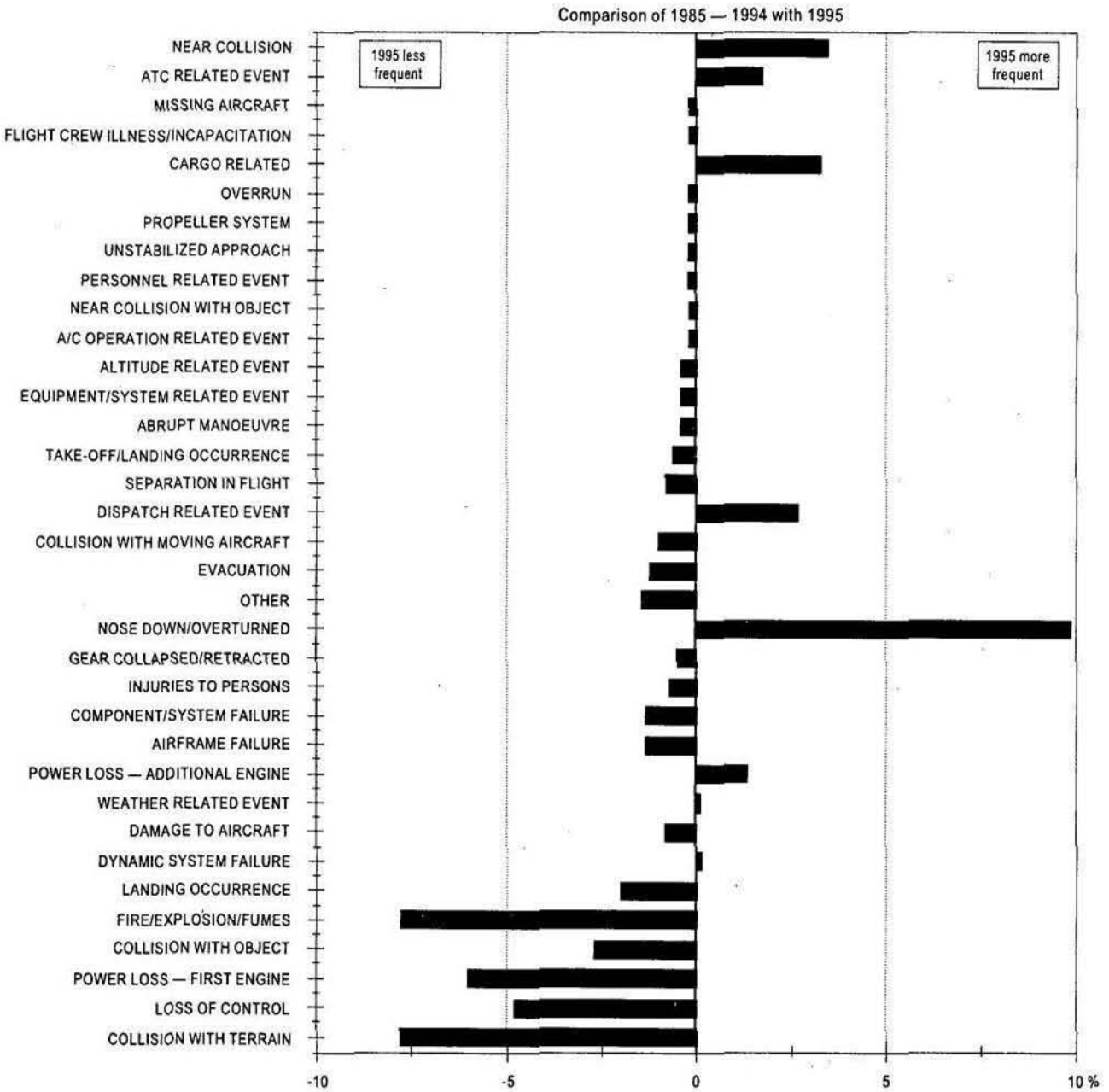




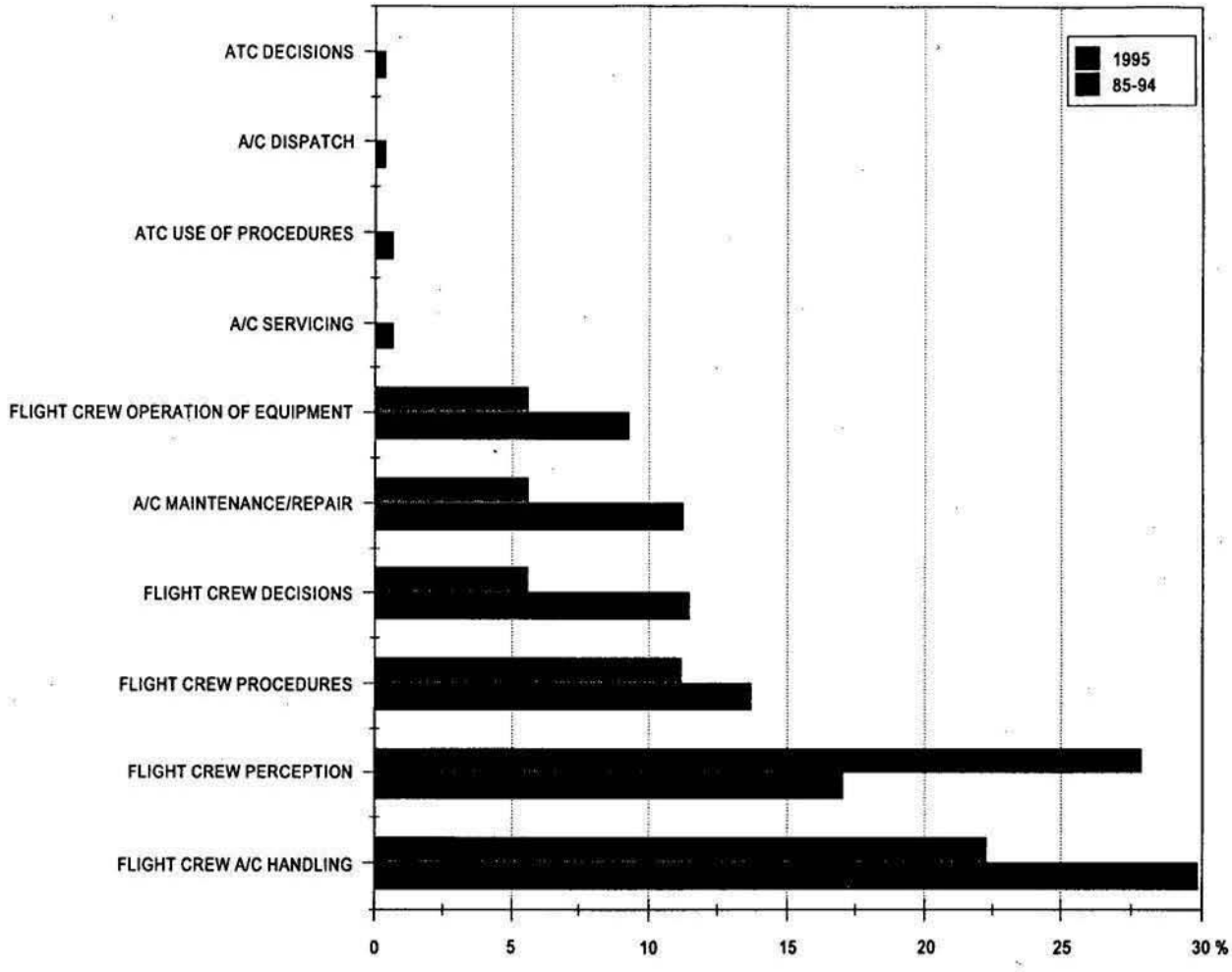
Type of event



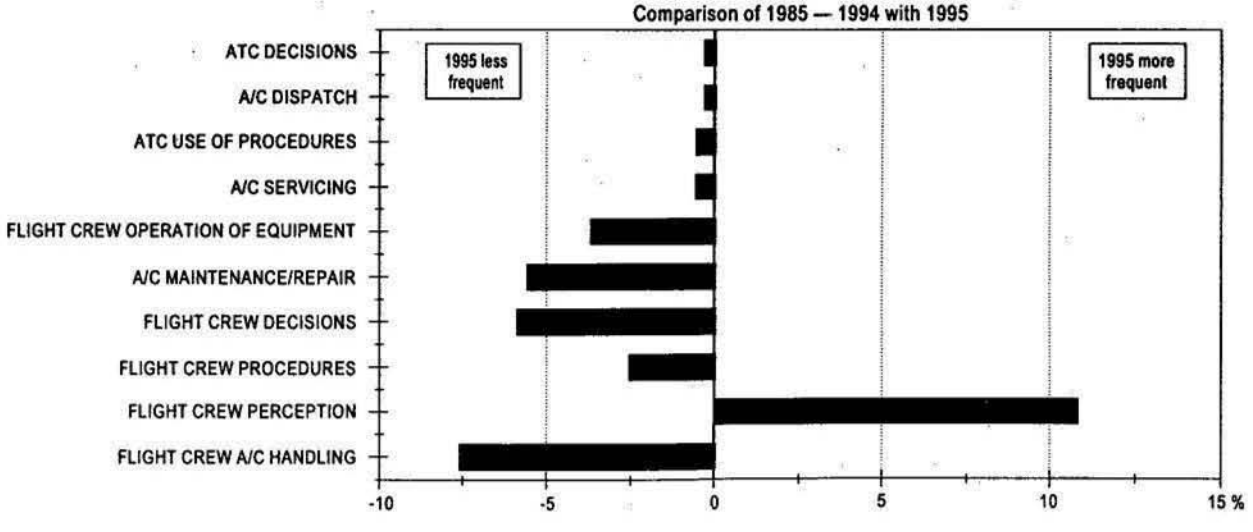
Type of event



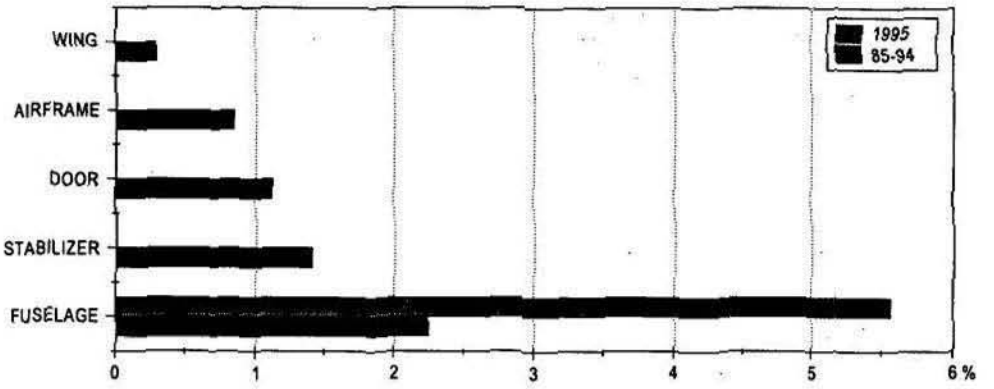
Personnel factors



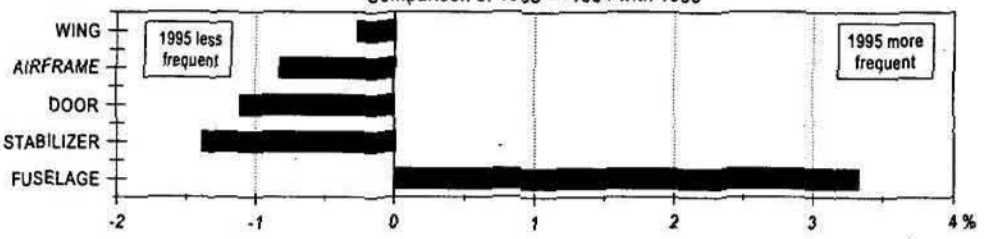
Comparison of 1985 — 1994 with 1995

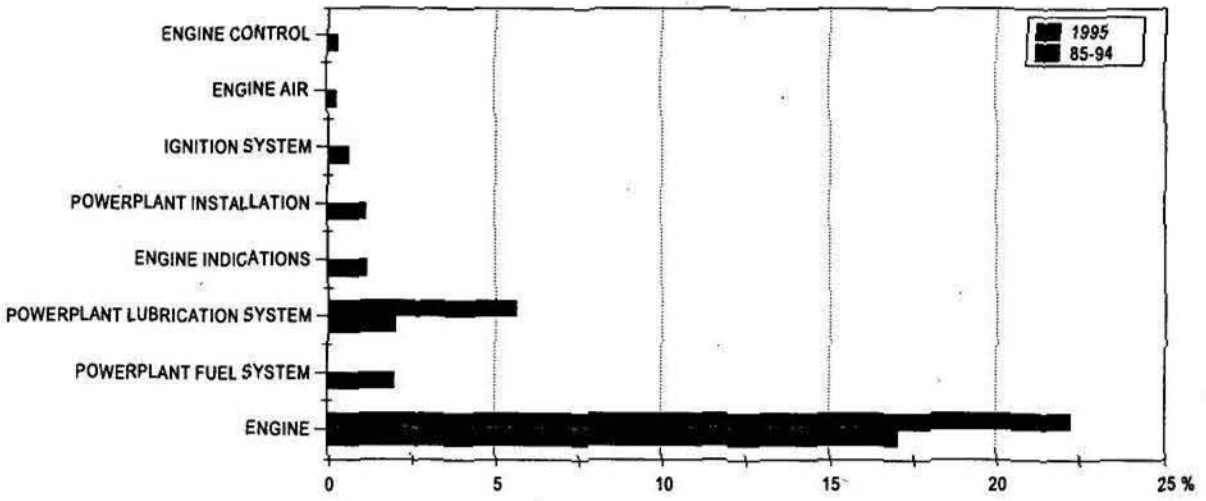


Airframe factors

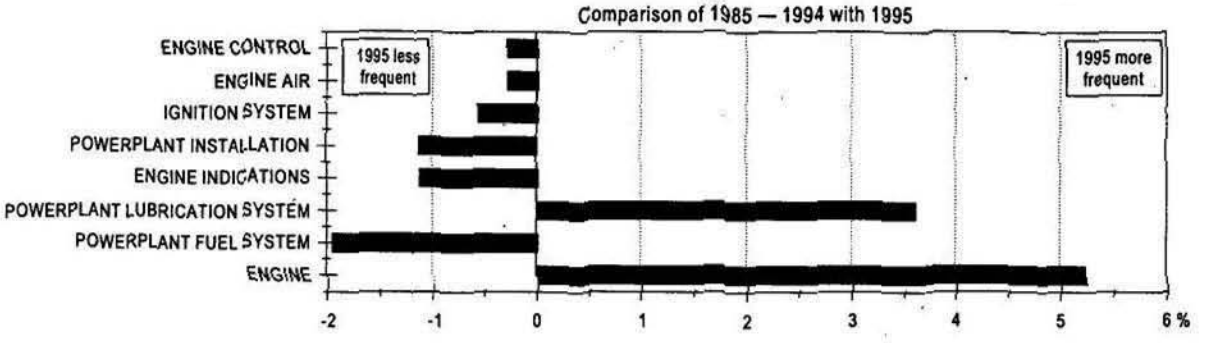


Comparison of 1985 — 1994 with 1995

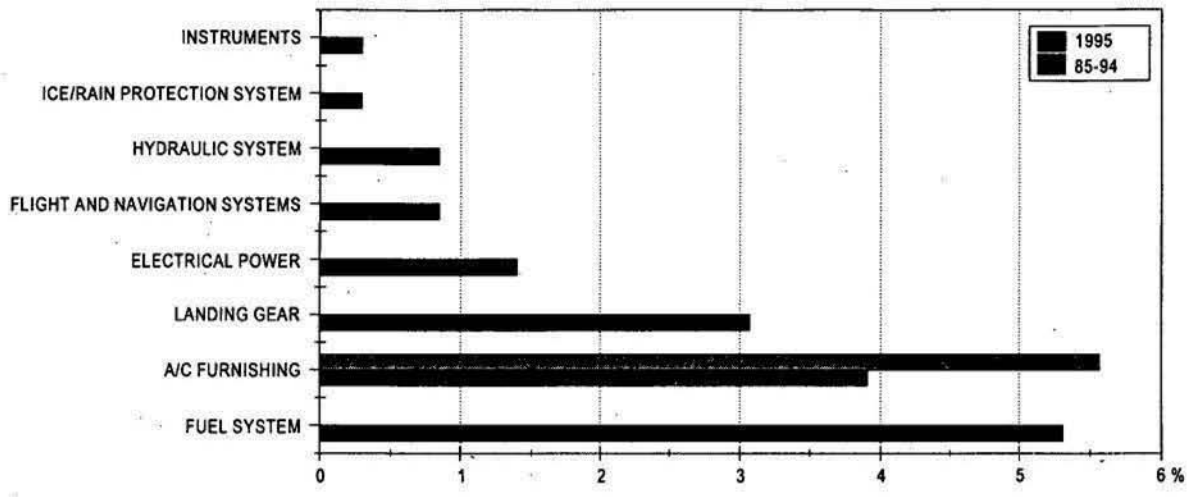


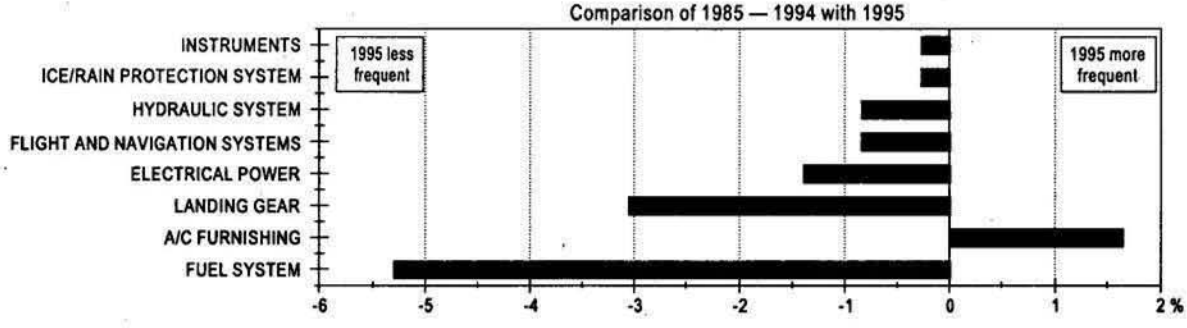


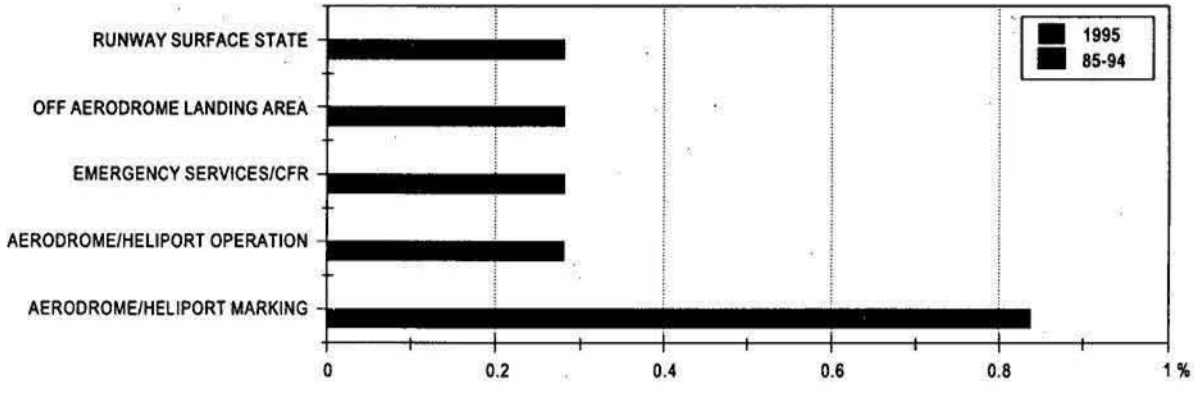
Comparison of 1985 — 1994 with 1995

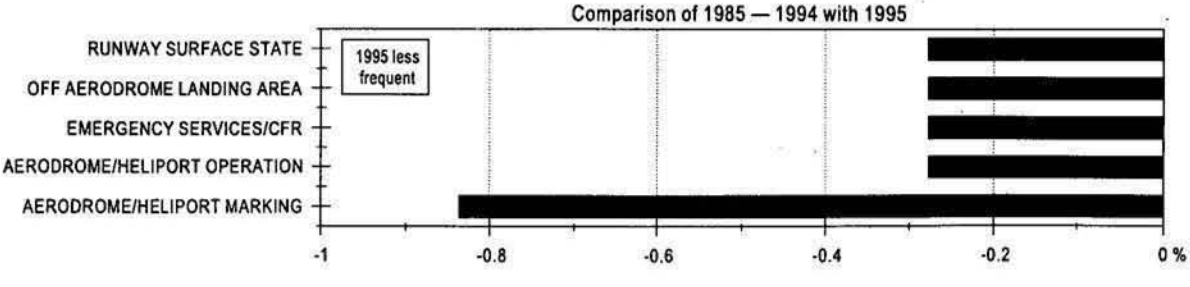


System factors

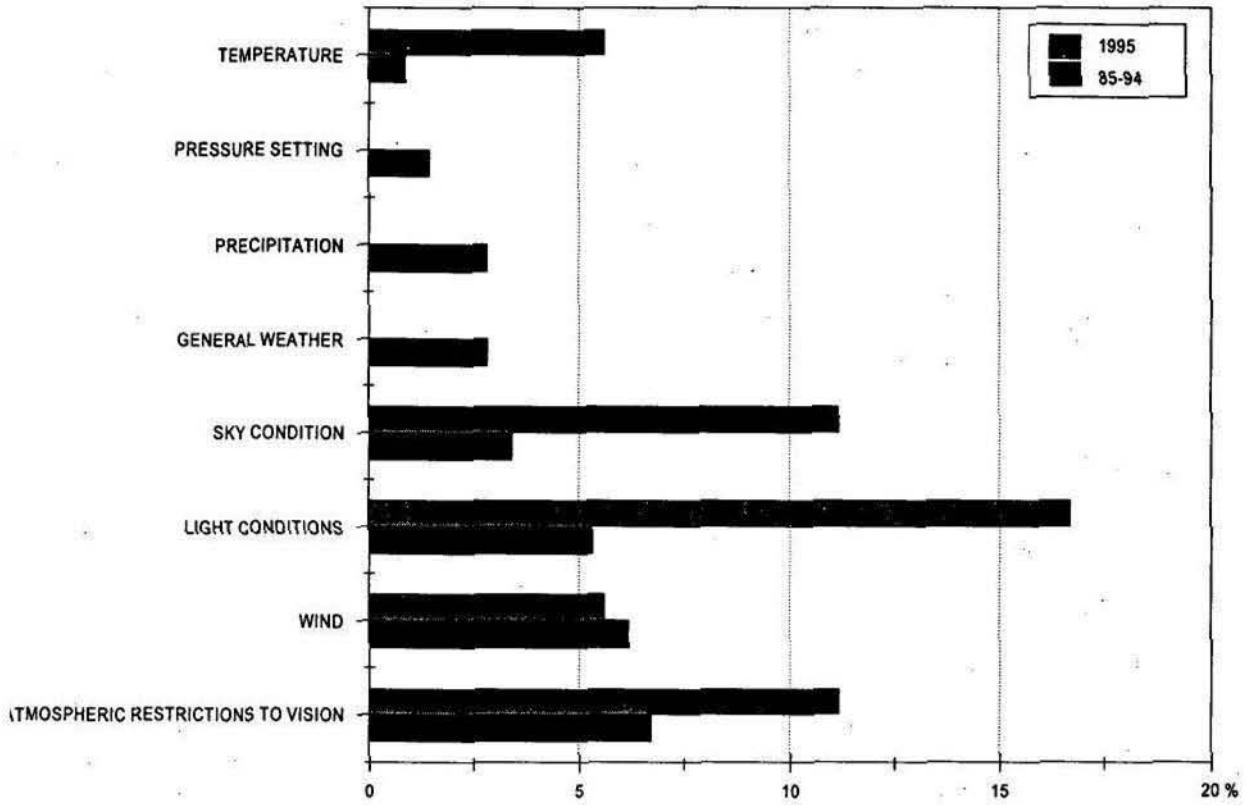




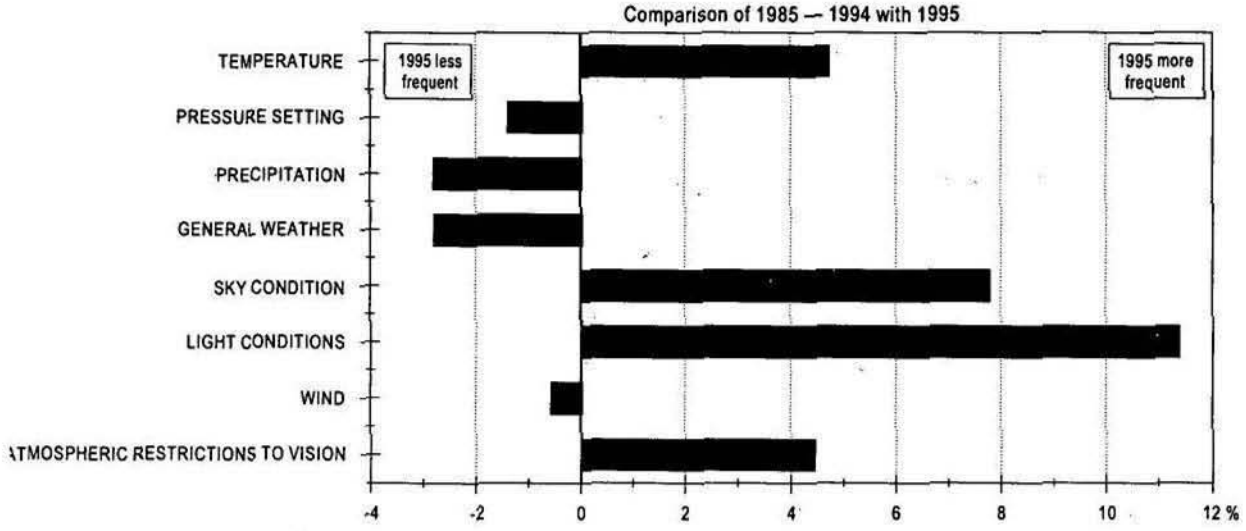




Weather factors



Comparison of 1985 — 1994 with 1995



Part IV

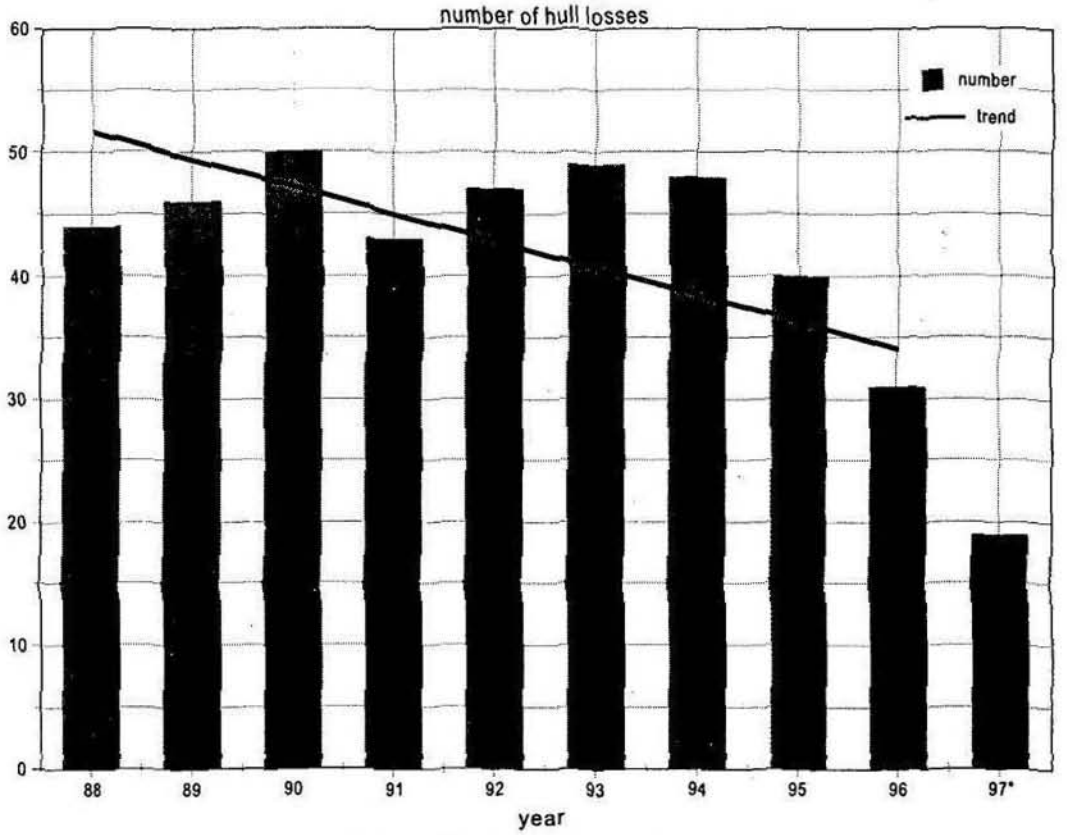
TREND INFORMATION AND PRELIMINARY DATA FOR THE YEAR 1997

Accident trends

1. The number of hull losses (aircraft destroyed) is being provided for fixed wing operations in respect to airline scheduled, airline non-scheduled and general aviation. In addition, the number of helicopters destroyed is provided. The data includes occurrences which have been reported in the media but have not been reported by States.

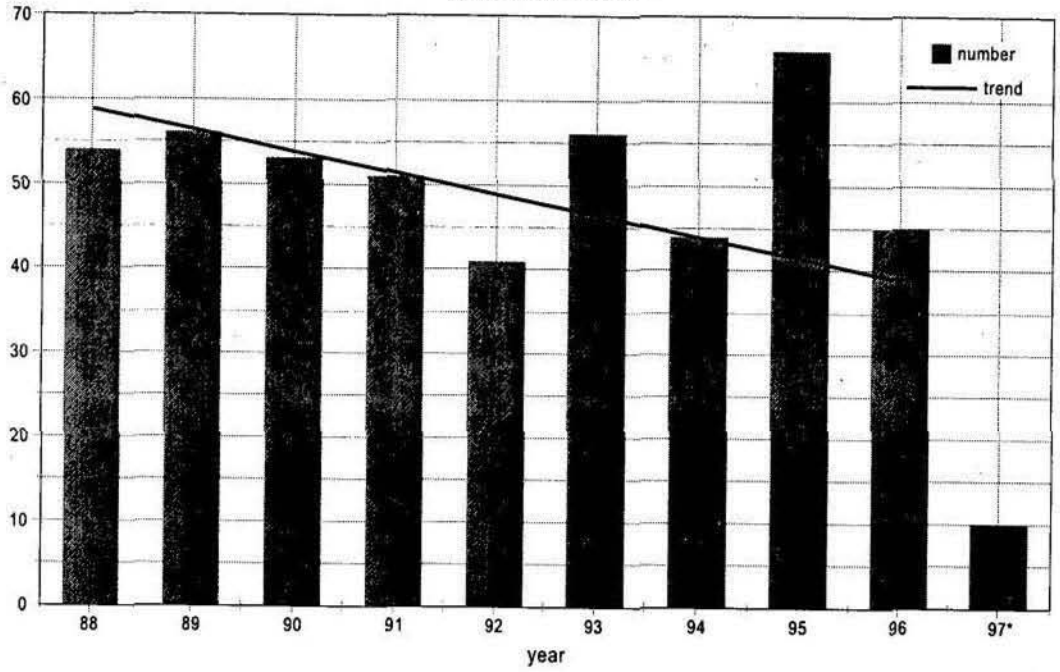
2. The data for 1997 are based on initial information (including unofficial information) available to ICAO by the end of June 1997 and are likely to understate the total number of occurrences for the period under review. Trend lines were calculated based on the data for the period from 1988 to 1996.

Airline scheduled operations



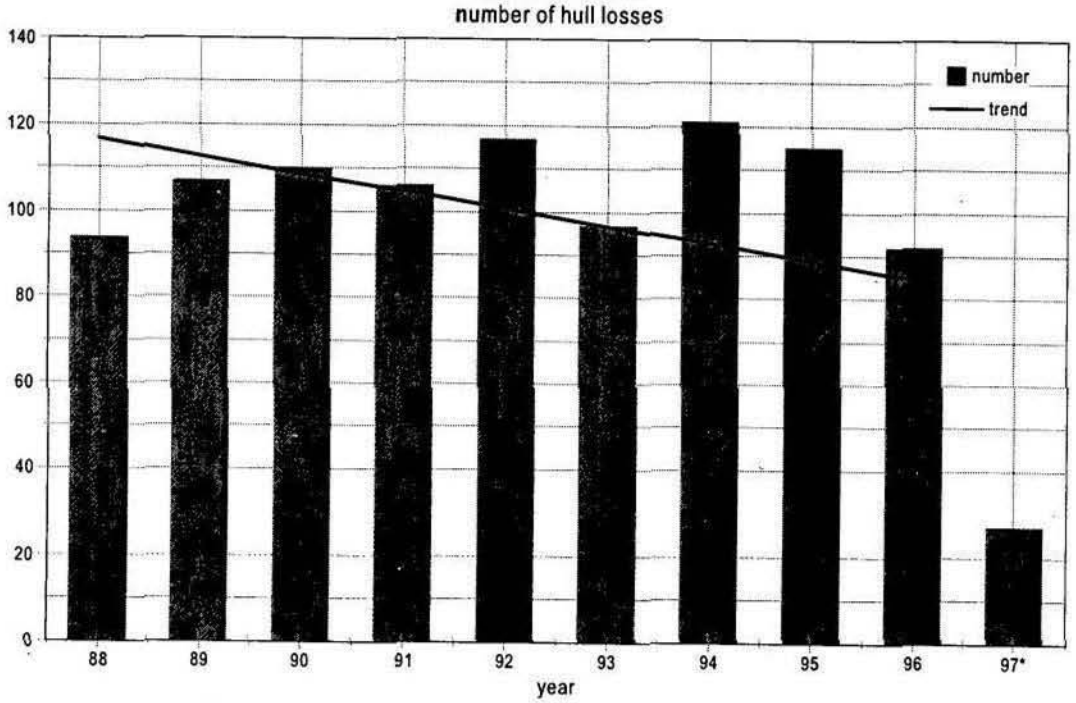
** 1997 data is based on initial information available to ICAO by the end of June 1997.*

Airline non-scheduled operations
number of hull losses

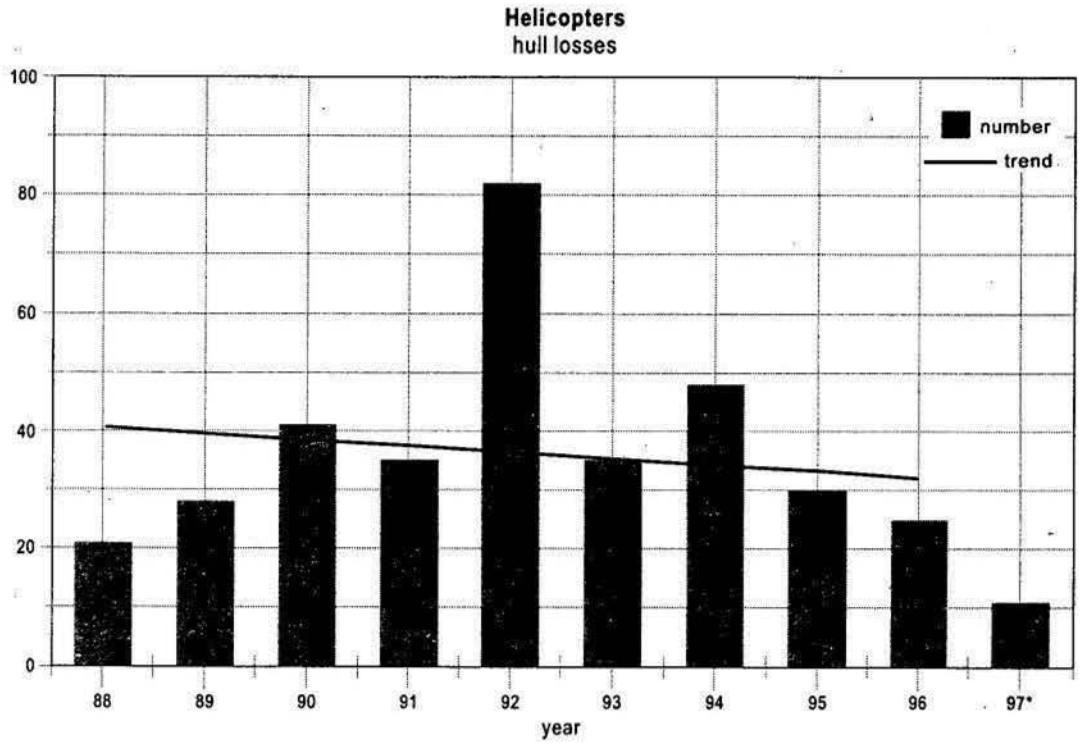


** 1997 data is based on initial information available to ICAO by the end of June 1997.*

General Aviation
number of hull losses



** 1997 data is based on initial information available to ICAO by the end of June 1997.*



** 1997 data is based on initial information available to ICAO by the end of June 1997.*

— 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.

International Standards and Recommended Practices are adopted by the Council in accordance with *Articles 54, 37 and 90 of the Convention on* International Civil Aviation and are designated, for convenience, as Annexes to the Convention. The uniform application by Contracting States of the specifications contained in the International Standards is recognized as necessary for the safety or regularity of international air navigation while the uniform application of the specifications in the Recommended Practices is regarded as desirable in the interest of safety, regularity or efficiency of international air navigation. Knowledge of any differences between the national regulations or practices of a State and those established by an International Standard is essential to the safety or regularity of international air navigation. In the event of non-compliance with an International Standard, a State has, in fact, an obligation, under Article 38 of the Convention, to notify the Council of any differences. Knowledge of differences from Recommended Practices may also be important for the safety of air navigation and, although the Convention does not impose any obligation with regard thereto, the Council has invited Contracting States to notify such differences in addition to those relating to International Standards.

Procedures for Air Navigation Services (PANS) are approved by the Council for world-wide application. They contain, for the most part, operating procedures regarded as not yet having attained a sufficient degree of maturity for adoption as International Standards and Recommended Practices, as well as material of a more permanent character which is considered too detailed for incorporation in an Annex, or is susceptible to frequent amendment, for which the processes of the Convention would be too cumbersome.

Regional Supplementary Procedures (SUPPS) have a status similar to that of PANS in that they are approved by the Council, but only for application in the respective regions. They are prepared in consolidated form, since certain of the procedures apply to overlapping regions or are common to two or more regions.

The following publications are prepared by authority of the Secretary General in accordance with the principles and policies approved by the Council.

Technical Manuals provide guidance and information in amplification of the International Standards, Recommended Practices and PANS, the implementation of which they are designed to facilitate.

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