EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

ANNUAL SAFETY REVIEW
2008

EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

ANNUAL SAFETY REVIEW
2008

TABLE OF CONTENTS


EASA
EASA

EXECUTIVE SUMMARY

Aviation safety in Europe in the year 2008 was overshadowed by the tragic accident of a McDonnell Douglas MD-82 aircraft in Spain involving 154 fatalities. This was the most severe accident worldwide that year.

The safety record shows that the number of fatal accidents in commercial air transport remained at the level of 2007 (three) and is one of the lowest in the decade. In 2008, only 5.5 per cent of all fatal accidents in commercial air transport worldwide occurred with airplanes registered in a Member State of the European Aviation Safety Agency (EASA MS). Set against the world average, the fatal accident rate of scheduled passenger operations in Europe is low. The number of fatal accidents in helicopter commercial air transport operations in Europe was two, up from one in 2007, but below the ten year average of three.

The number of fatal accidents for aerial work and general aviation operations with aeroplanes and helicopters remained relatively stable. 'Loss of control in flight' (LOC-I) is the most frequent accident category for this type of operations. Technical issues appear to play a much smaller role.

For the third year, the Agency collected accident data for light aircraft (mass below 2 250 kg) from EASA MS. Overall, the number of accidents in 2008 in this category of aircraft was below 2006 and 2007 figures. However, the data received were not complete. The Agency continues to cooperate with EASA MS to further improve harmonisation of data collection and to facilitate data sharing among the states.

The ANNUAL SAFETY REVIEW also offers an overview of aviation safety measures taken in the different EASA Directorates. The Certification Directorate is responsible for the initial and continuing airworthiness of aeronautical products, parts and appliances. The Rulemaking Directorate is drafting new or amendments to existing regulations to ensure high common aviation safety standards in Europe. In the Standardisation Directorate compliance with these rules is monitored.

The European Strategic Safety Initiative (ESSI) saw considerable progress in 2008. The European Commercial Aviation Safety Team launched two working groups on Safety Management Systems (SMS) and Ground Safety. The material developed by the SMS group was published in April 2009. The European Helicopter Safety Team performed an analysis of 186 helicopter accidents working with nine regional analysis teams across Europe and developed suggestions for safety enhancements based on this work. The preliminary report was published in April 2009. The European General Aviation Safety Team performed a survey of general aviation safety initiatives, safety publications and materials to build a European repository and develop work priorities.

Please note that this ANNUAL SAFETY REVIEW covers the period up to the end of 2008. Accidents occurring in 2009 are not part of this report but will be included in the next one which will be published in the first half of 2010.

1.0 INTRODUCTION

1.1 BACKGROUND

Air transport is one of the safest forms of travel. As air traffic continues to grow, a common initiative is needed at the European level to keep air transport safe and sustainable. The European Aviation Safety Agency (EASA) is the centrepiece of the European Union's strategy for aviation safety. The Agency develops common safety and environmental rules at a European level. Also, it monitors the implementation of standards through inspections in the Member States and provides technical expertise, training and research. The Agency works together with the national authorities who continue to carry out operational tasks such as the issue of Certificates of Airworthiness for individual aircraft and the licensing of pilots.

This document is published by EASA to inform the public of the general safety level in the field of civil aviation. The Agency provides this review on an annual basis as required by Article 15(4) of Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008. Analysis of information received from oversight and enforcement activities may be published separately.

1.2 SCOPE

This ANNUAL SAFETY REVIEW (ASR) presents statistics on European and worldwide civil aviation safety. The statistics are grouped according to type of operation, for instance commercial air transport, and aircraft category, such as aeroplanes, helicopters and gliders.

The Agency had access to accident and statistical information collected by the International Civil Aviation Organisation (ICAO). States are required, according to ICAO ANNEX 13 *'Aircraft accident and incident investigation'*, to report to ICAO information on accidents and serious incidents to aircraft with a maximum certificated take-off mass (MTOM) over 2 250 kg. Therefore, most statistics in this review concern aircraft above this mass.

The ANNUAL SAFETY REVIEW is based on the data that were available to the Agency on 9 March 2009. Any changes after that date are not included. Note: much of the information is based on initial data. That data is updated as results of investigations become available. As investigations may take several years, even data from previous years need to be modified. This leads to differences between data reported in this ASR when compared to that of previous years.

In this review 'Europe' and 'EASA Member States' are considered as the 27 EU Member States plus Iceland, Liechtenstein, Norway and Switzerland. The region is assigned based on the State of Registry of the accident aircraft.

Within the statistics, special attention is given to fatal accidents. In general these accidents are internationally well documented. Figures including non-fatal accident numbers are also presented. Compared to previous reports, this ANNUAL SAFETY REVIEW may, in some cases, have slightly different results due to reclassification of accidents done at an ICAO and national level.

1.3 CONTENT OF THE REPORT

CHAPTER 2 presents an overview of the historical development of aviation safety. Statistics are provided on commercial air transport operations in **CHAPTER 3**. **CHAPTER 4** provides data on general aviation and aerial work. **CHAPTER 5** covers accidents of aircraft lighter than 2 250 Kgs in EASA Member States. Finally **CHAPTER 6** provides an overview of aviation safety measures taken in the different EASA Directorates.

An overview of used definitions and acronyms as well as extra information on the accident categories can be found in **APPENDIX 2: DEFINITIONS AND ACRONYMS.**

2.0 HISTORICAL DEVELOPMENT OF AVIATION SAFETY

Since 1945, ICAO has been publishing accident rates for accidents involving passenger fatalities (excluding acts of unlawful interference with civil aviation) for scheduled commercial transport operations. The figures below are based on accident rates published in the ANNUAL REPORT OF THE COUNCIL of ICAO. The rates for the year 2008 are based on preliminary estimates.

The data in **FIGURE 2-1** show that the safety of aviation has improved from 1945 onwards. Based on the measure of passenger fatalities per 100 million miles flown, it took some 20 years (1948 to 1968) to achieve the first 10-fold improvement from 5 to 0.5. Another 10-fold improvement was reached in 1997, some 30 years later, when the rate had dropped below 0.05. For the year 2008 this rate is estimated to have dropped to 0.010 fatalities per 100 million miles flown.

The accident rate in this figure appears to be flat for recent years. This is the result of the scale used to reflect the high rates in the late 1940s.

In the ANNUAL REPORT OF THE COUNCIL, ICAO also produces accident rates for accidents involving passenger fatalities. The progress of this rate over the past 20 years is shown in **FIGURE 2-2**.

The rate of accidents involving passenger fatalities in scheduled operations (excluding acts of unlawful interference) per 10 million flights ranged from 16 (1990) to 21 (1993) and showed no improvement until 1993. From that year, the rate dropped continuously until 2003, where it reached its lowest value, three (3). After increases in 2004 and 2005, in line with the decreasing number of fatal accidents the rate dropped in 2007 to four and remained at that level in the year 2008. The five year moving average rate has remained almost constant since 2004. It should be noted that the accident rate for scheduled operations differs significantly per world region (see **FIGURE 2-3**).

FIGURE 2-3 shows the average rate of fatal accidents per 10 million flights from 2001 to 2008, per world region. The region of South America includes Central America and the Caribbean. The regions of North America, East Asia and EASA MS have the lowest rates of fatal accidents in the world.

FIGURE 2-1

Global passenger fatalities per 100 million passenger miles, scheduled commercial transport operations, excluding acts of unlawful interference

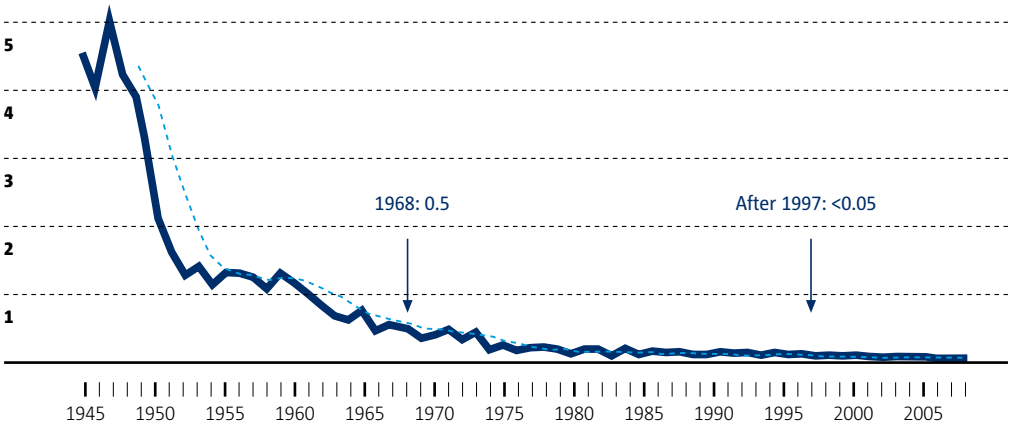


FIGURE 2-2

Global rate of accidents involving passenger fatalities per 10 million flights, scheduled commercial transport operations, excluding acts of unlawful interference

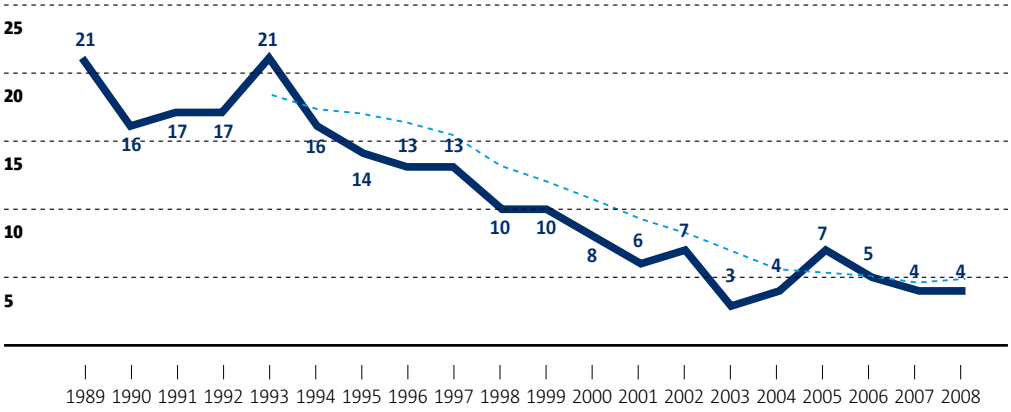
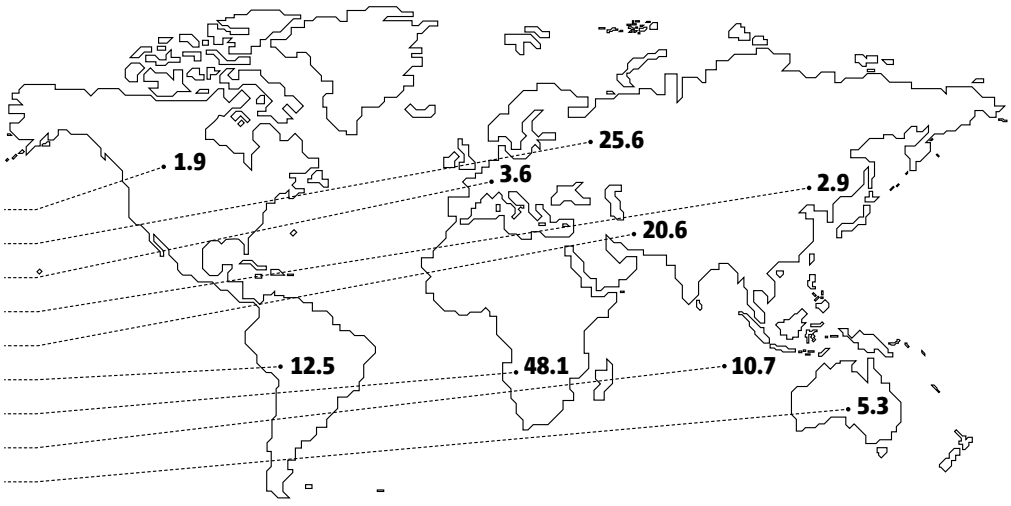


FIGURE 2-3

Rate of fatal accidents per 10 million flights per world region – 2001–08, scheduled passenger and cargo operations




LONDON LGW BR
LONDON-GATWICK
LOS ANGELES
MELBOURNE FL
MEXICO CITY
MIAMI
MIAMI
MILWAUKEE
MONTREAL
NASHVILLE
NASSAU
NEW ORLEANS
NEW YORK/JFK
NEWARK
PHILADELPHIA
PHILADELPHIA
PITTSBURGH
SAINT LOUIS
SARASOTA
SARASOTA/BRADENT
SYRACUSE
TALLAHASSEE
TAMPA
WEST PALM BEACH
WEST PALM BEACH
ARRIVING FROM

3.0 COMMERCIAL AIR TRANSPORT

This chapter reviews the aviation accident data for commercial air transport operations. These operations involve the transportation of passengers, cargo or mail for remuneration or hire. The accidents concerned involved at least one fatal injury and an aircraft with a maximum certificated take-off mass (MTOM) exceeding 2 250 kg during the period 1999–2008. These aircraft may be aeroplanes or helicopters. Aircraft accidents were aggregated based on the State of Registry. The use of the aircraft's registration mark to determine the geographic dispersal of accidents has certain characteristics. For example, accidents involving EASA MS registered aircraft were included, even if the aircraft were operated by organisations outside the jurisdiction of those states.

TABLE 3-1
Overview of total number of accidents and fatal accidents for EASA MS registered aeroplanes

Period	Total Number of Accidents	Fatal Accidents	Fatalities on Board	Ground Fatalities
1997–2006 (average)	32	6	105	1
2007 (total)	37	3	25	1
2008 (total)	35	3	160	2

3.1. AEROPLANES

Several measurements can be used to assess the safety level. The number of accidents involving at least one fatal injury can be one such measurement. Aircraft accidents involving a fatality are random events and for this reason one year may exhibit a significantly different number of accidents from the previous year.

3.1.1. FATAL ACCIDENTS

The number of fatalities onboard for 2008 (160 fatalities) was above the average of the decade 1997–2006 (105 fatalities). A total of 154 people were fatally injured when a McDonnell Douglas MD-82 aircraft crashed during take-off in Madrid on 20 August. The second accident concerned an Airbus A320 in Honduras that overran the runway during landing. Although this aircraft was operated by an airline from outside Europe, it was registered in one of the EASA MS. **FIGURE 3-1** presents the number of accidents for EASA MS and for foreign (non-EASA MS) registered aeroplanes within the decade 1999 to 2008. Regarding foreign registered aeroplanes, the number of fatal accidents has decreased from 53 in the year 2007 to 51 accidents in 2008.

The number of accidents in 2008 is within the decade's average (53 accidents). The trend for the decade indicates that the number of accidents worldwide is declining.

The number of fatal accidents involving aircraft registered in EASA MS has remained the same for the past two consecutive years (three accidents). The number of fatal accidents in 2008 is one of the lowest in the decade, well below the average of six fatal accidents per year. The number of accidents involving aircraft registered in the EASA MS represents 6% of the total number of accidents worldwide that occurred in 2008.

3.1.2. FATAL ACCIDENT RATES

In order to derive meaningful conclusions from the absolute accident numbers, the number of fatal accidents in scheduled air transport operations was combined only with the number of flights conducted by such operations. These rates allow the comparison of safety trends, by taking into account changes in the level of traffic. **FIGURE 3-2** provides the fatal accident rate per 10 million scheduled passenger flights averaged over three-year periods.

FIGURE 3-1

Fatal accidents in commercial air transport — EASA MS and foreign registered aeroplanes

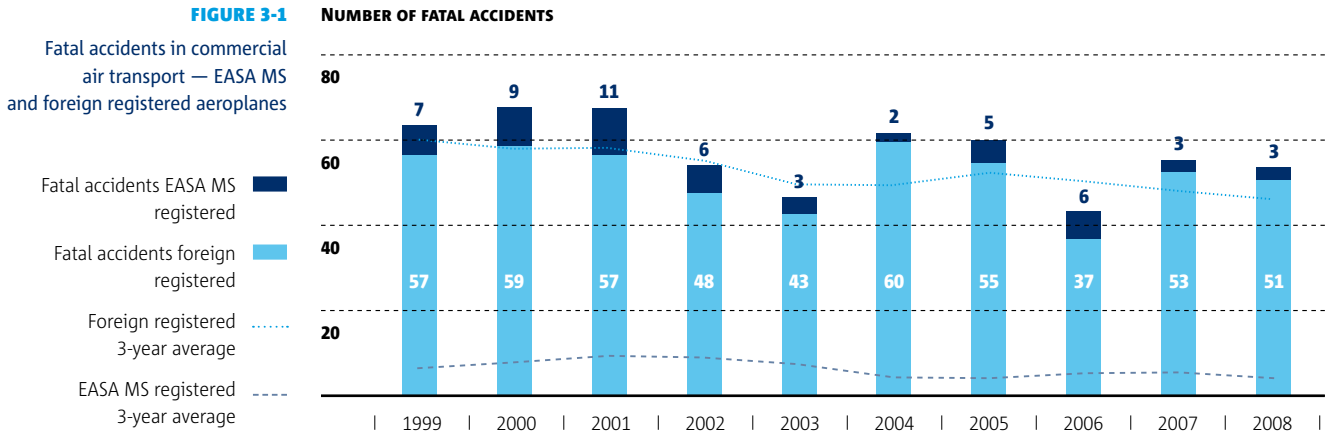


FIGURE 3-2

Rate of fatal accidents in scheduled passenger operations — EASA MS and foreign registered aeroplanes

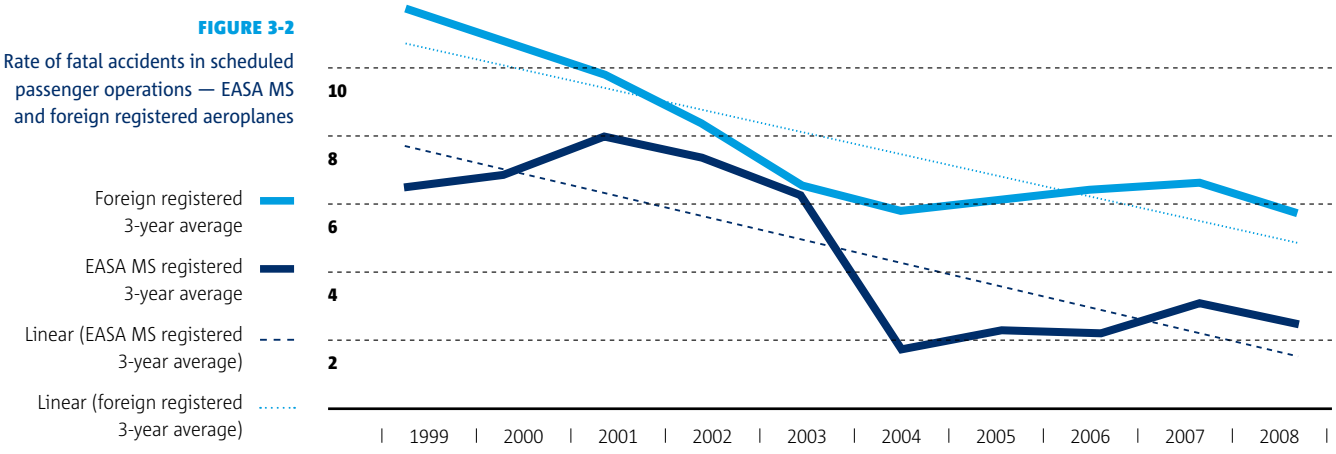
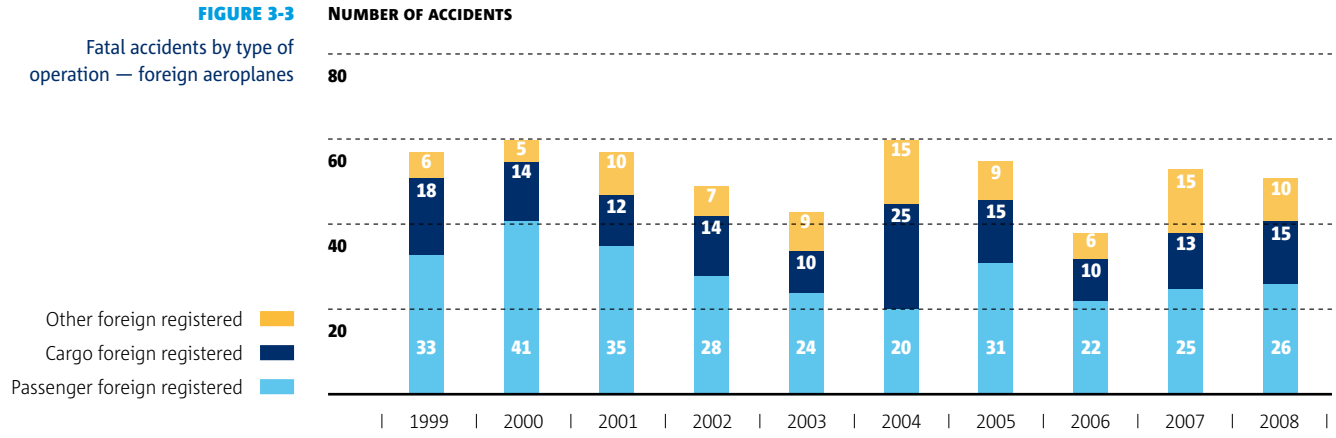


FIGURE 3-3

Fatal accidents by type of operation — foreign aeroplanes



The safety record for aircraft registered in EASA MS conducting scheduled passenger operations is substantially better than that for the rest of the world. During the past decade the rate of accidents decreased from an average of four to three accidents per 10 million flights for EASA MS.

In **FIGURE 3-2**, it can be observed that during 2001 the rate of fatal accidents increased significantly above the decade average. During that year, seven accidents — involving scheduled passenger operations — occurred which represent a third of all accidents in the decade. Because of the three year average used, in 2004 the accident rate for EASA MS registered aircraft drops significantly compared to previous years.

The number of fatal accidents may not necessarily give a comprehensive overview of the safety levels. This is because an accident with a single fatality has the same weight as an accident involving many more fatalities.

3.1.3. FATAL ACCIDENTS PER TYPE OF OPERATION

The number of fatal accidents differs per type of operation. As shown in **FIGURE 3-3**, worldwide (excluding EASA MS), passenger

FIGURE 3-4

Fatal accidents by type of operation — EASA MS

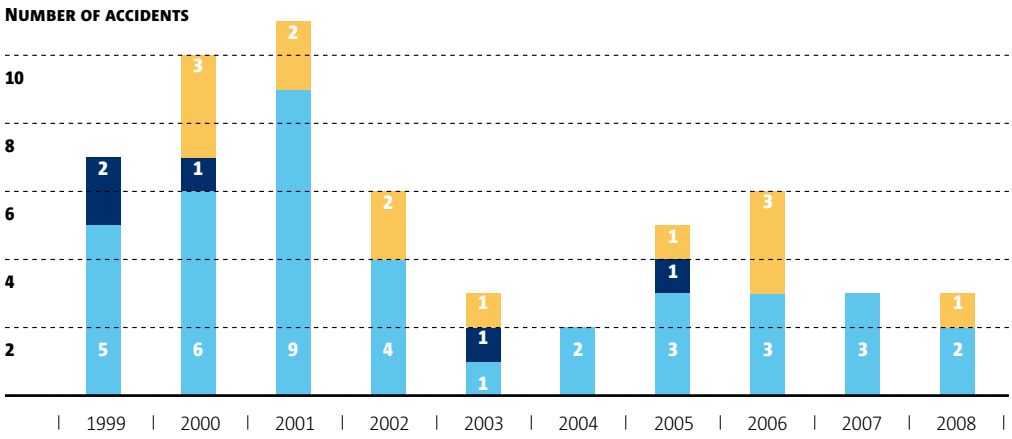


FIGURE 3-5

Accident categories for fatal and non-fatal accidents — aeroplanes registered in EASA MS (1999–2008)

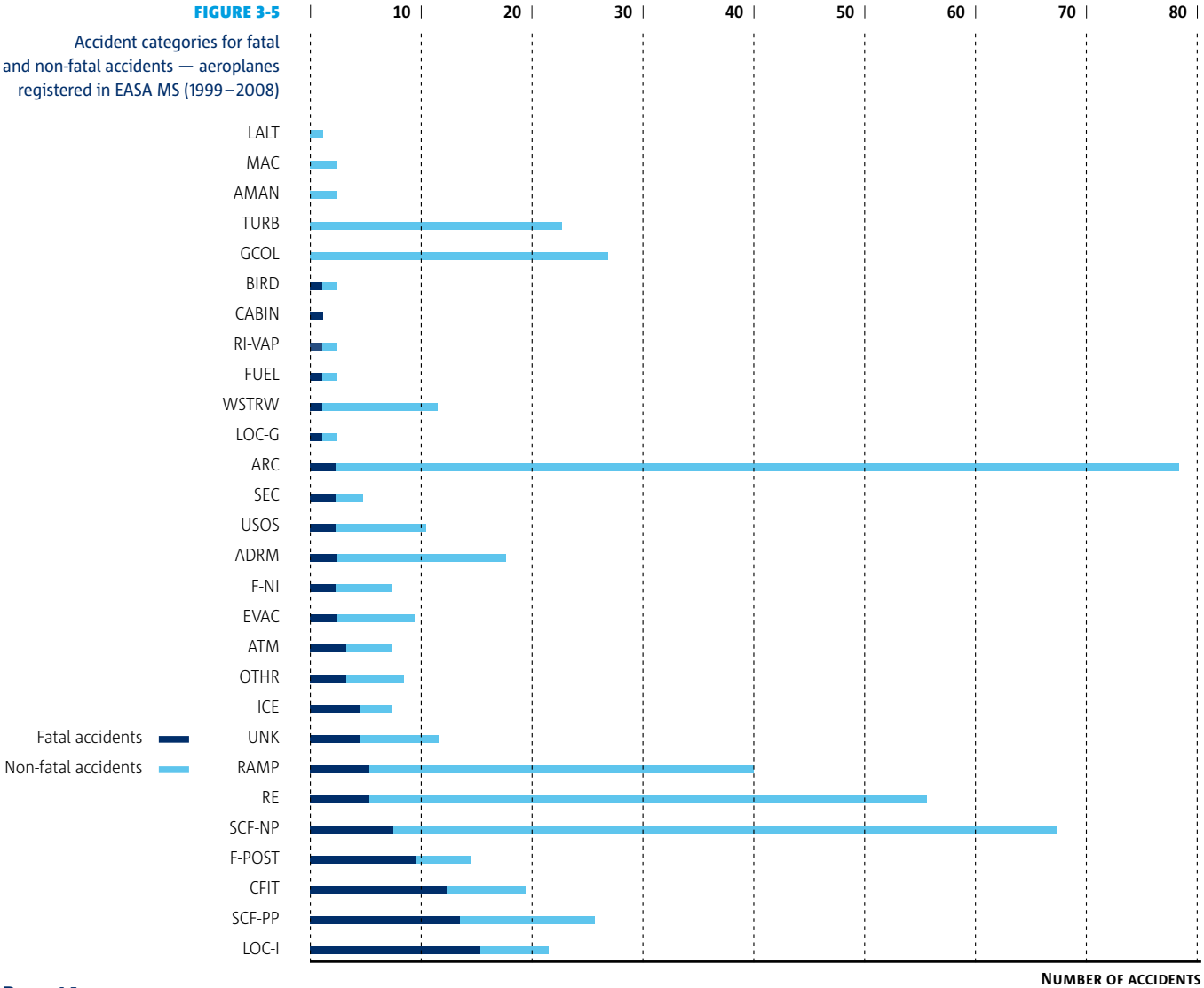
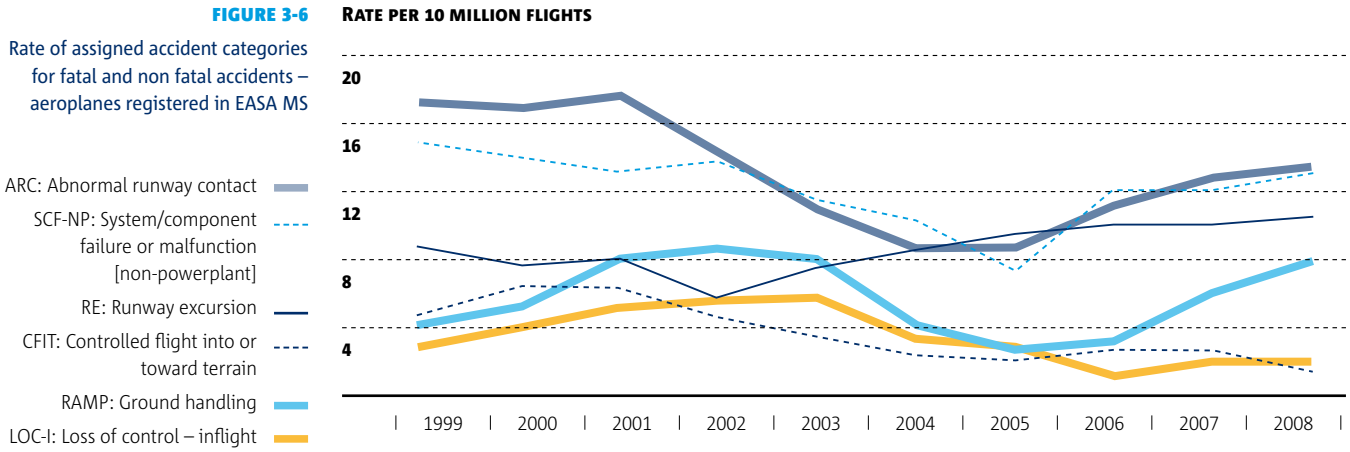


FIGURE 3-6

Rate of assigned accident categories for fatal and non fatal accidents – aeroplanes registered in EASA MS



commercial air transport flights appear to have a declining proportion in the total number of fatal accidents. Other commercial air transport operations, such as air taxi or ferry flights, have an increasing proportion of the total (category: other). Almost a quarter of all accidents appear to involve aircraft conducting operations under this category. It is worth noting that the proportion of accidents in this category is significantly higher than the proportion of aircraft conducting such operations. Information on the number of aircraft and the type of operations they are used for is not provided in this safety review.

For EASA MS the accidents per type of operation appear to be different, as shown in **FIGURE 3-4**. The small number of accidents makes the type of operation during which an accident occurred an almost random characteristic. However, despite the steadily decreasing number of accidents, there is a constant occurrence of accidents involving passenger air transport operations.

3.1.4. ACCIDENT CATEGORIES

The assignment of accidents under one or multiple categories assists in identifying particular safety issues. Fatal and non-fatal accidents involving EASA MS registered aircraft which occurred during commercial air transport operations were assigned under relevant accident categories. These categories are based on the work (1) done by the CAST-ICAO Common Taxonomy Team (CICTT). **FIGURE 3-5** shows the accident categories for all accidents involving EASA MS registered aircraft in the decade 1999–2008.

As shown in **FIGURE 3-5**, the categories which included a high number of fatal accidents were amongst others LOC-I ('loss of control — in flight'), SCF-PP ('system or component failure or malfunction related to the engine/powerplant') and CFIT ('controlled flight into terrain').

Events assigned under LOC-I involve the momentary or total loss of control of the aircraft by the crew. This loss of control might be the result of reduced aircraft performance or because the aircraft was flown outside its capabilities for control. SCF-PP involves the malfunction of a single or multiple engines due to the failure of a related component or system.

An accident may be assigned more than one category depending on the number of factors contributing to the accident. **FIGURE 3-6** shows that the categories with the highest rate of accidents assigned are ARC ('abnormal

(1) The CICTT developed a common taxonomy for accident and incident reporting systems. Further information may be found in Appendix 2: Definitions and acronyms.

runway contact'), SCF-NP ('non-powerplant component failure'), RE ('runway excursion') and RAMP ('ground handling'). Accidents are assigned under the runway excursion category if during the accident the aircraft veered off or overran the runway surface. In many cases runway excursions are consequential events in accidents and therefore a large number of accidents are assigned this category. There has been an increase in the rate of accidents associated with 'flight preparation, loading or ground servicing' (all categorised under RAMP). Although this rate has increased to an average of almost 8 accidents per 10 million flights, it remains relatively low. 'System or component failures not associated with the engines' (SCF-NP), also appear to be ever more present in accidents of EASA MS registered aircraft. Accidents attributed as 'controlled flight into terrain' (CFIT) appear to have an overall decreasing rate.

3.2. HELICOPTERS

The following section provides an overview of accidents in commercial air transport operations with helicopters (MTOM over 2 250 kg). Comprehensive operation data (e.g. flying hours) was not available for this report. In general, helicopter operations differ from aeroplane operations. Helicopters often operate close to terrain and take-off or land in areas other than airports, such as helipads, private landing sites and unprepared landing sites. Also, a helicopter has different

TABLE 3-2
Overview of total number of accidents and fatal accidents – EASA MS registered helicopters

DATE	TOTAL NUMBER OF ACCIDENTS	FATAL ACCIDENTS	FATALITIES ON BOARD	GROUND FATALITIES
1997–2006 (average)	8	3	12	0
2007 (total)	7	1	7	0
2008 (total)	8	2	4	0

FIGURE 3-7
Number of fatal accidents — EASA MS and foreign registered helicopters

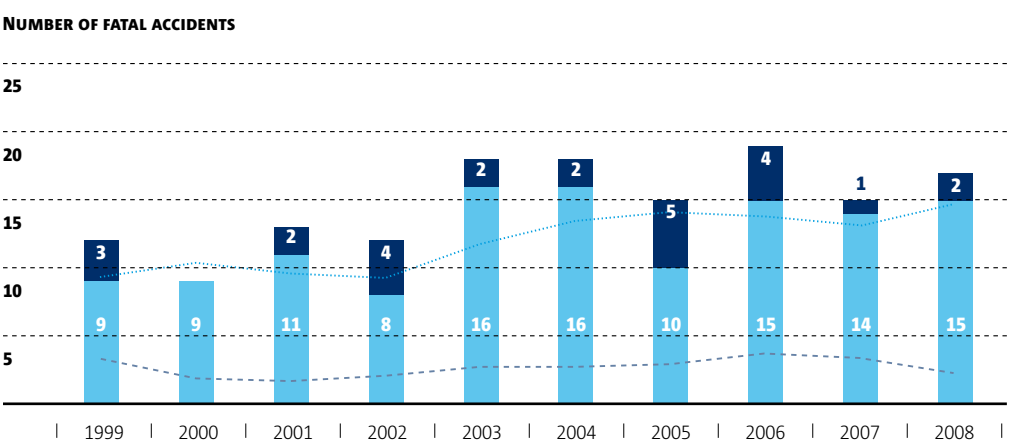
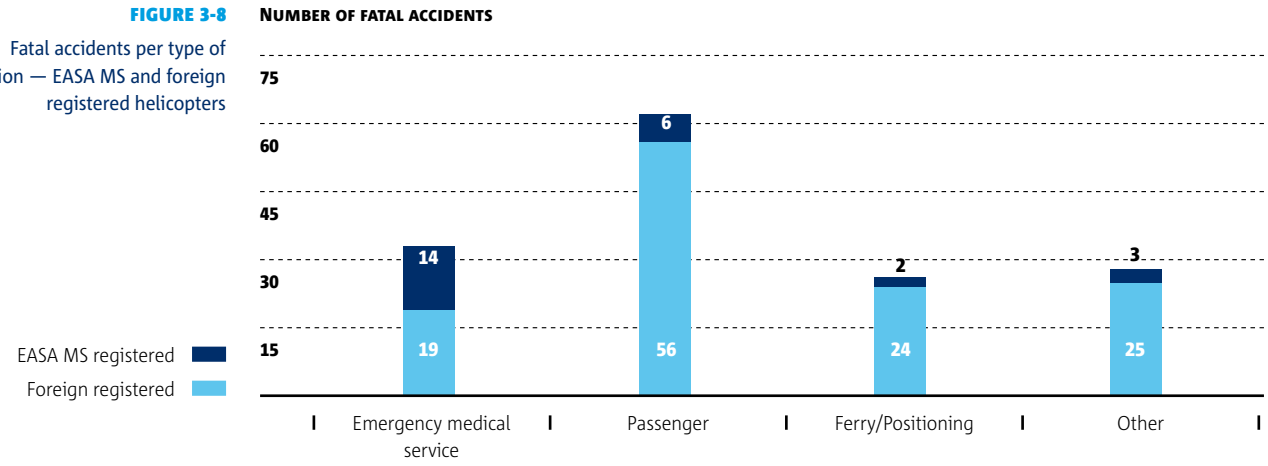


FIGURE 3-8
Fatal accidents per type of operation — EASA MS and foreign registered helicopters



aerodynamic and handling characteristics from aeroplanes. All this is reflected in the different accident characteristics.

3.2.1. FATAL ACCIDENTS

FIGURE 3-7 shows that between 1999 and 2008, 25 fatal accidents involving an EASA MS registered helicopter occurred compared to 124 fatal accidents involving foreign registered aircraft. As a proportion, EASA MS accidents represent 17 % of the total. The number of accidents varies over the decade. When looking at the three-year moving average, it appears that the number of fatal accidents worldwide has increased in the second half of the decade while the average for EASA MS registered aircraft remained almost constant.

3.2.2. FATAL ACCIDENTS PER TYPE OF OPERATION

FIGURE 3-8 presents the type of operation involved in fatal accidents. When reviewing the type of operation involved in fatal accidents, a difference can be observed between the EASA MS registered helicopters and foreign registered helicopters.

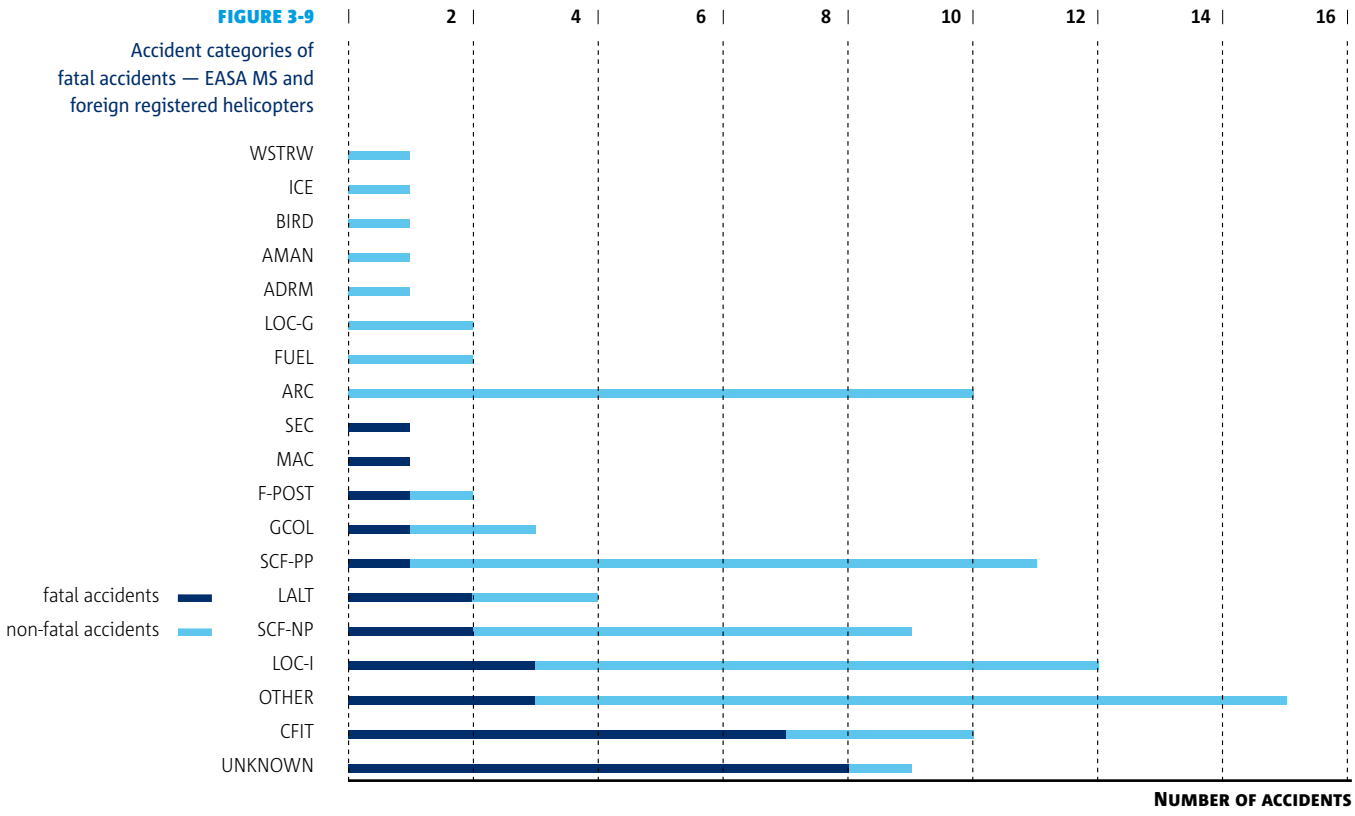
When looking at foreign registered helicopters, passenger transport is the main type of operation involved in fatal accidents. Most fatal accidents (14) of EASA MS aircraft involved helicopter emergency medical services (HEMS). This represents 42 % of the total number of fatal accidents involving HEMS operations worldwide. These HEMS flights facilitate emergency medical assistance, where immediate and rapid transportation of medical personnel, medical supplies or injured persons is essential.

The 'other' category includes operations such as cargo, commercial training flights or operations the type of which is unknown.

It is worth noting that in the last decade, worldwide 24 helicopters involved in fatal accidents were performing an offshore flight: flights to or from an offshore installation. These accidents are included in all four of the categories mentioned above.

FIGURE 3-9

Accident categories of fatal accidents — EASA MS and foreign registered helicopters



3.2.3. ACCIDENT CATEGORIES

The CICTT accident categories were originally developed for accidents involving large commercial aeroplanes. For this ANNUAL SAFETY REVIEW, those accident categories have also been assigned to the fatal helicopter accidents. More than one category can be assigned to an accident.

As shown in **FIGURE 3-9**, the majority of helicopter accidents are assigned under the category of 'unknown'. This applies when not enough data to determine the accident category is available. In the last years, the Agency has attempted to obtain additional data to continuously reduce the share of accidents classified as 'unknown'.

The category with the second highest number of fatal accidents assigned is CFIT ('controlled flight into terrain'). In most cases adverse weather circumstances were prevalent, such as deteriorating visibility due to mist or fog. Also, several flights had taken place at night.

'Loss of control in flight' (LOC-I) has the fourth highest number of accidents assigned. Helicopter handling difficulties together with the presence of adverse weather conditions were mentioned in several accidents. The 'other' (OTHR) category has mainly been assigned to accidents during take-off and landing phases where collisions with objects on the ground occurred.

FIGURE 3-10

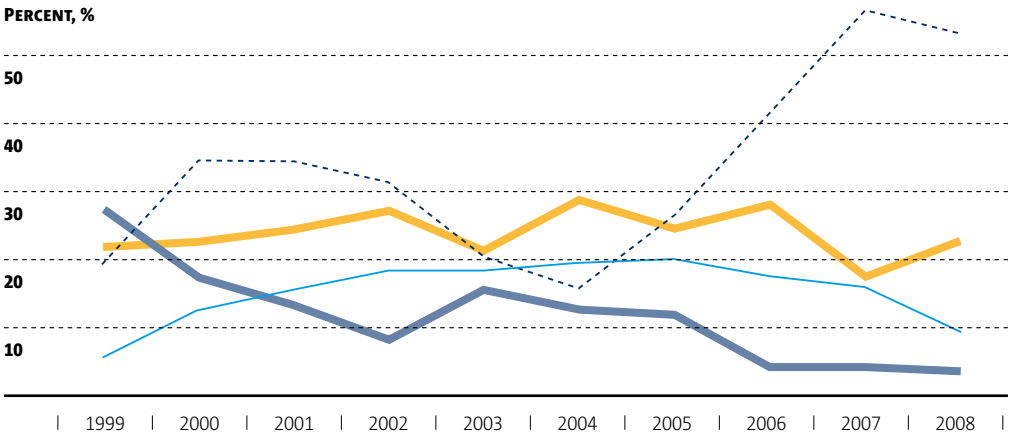
Proportion of top four accident categories — fatal accidents — helicopter commercial transport operations — EASA MS and foreign registered

LOC-I: Loss of control – in flight

CFIT: Controlled flight into or toward terrain

UNK: Unknown or undetermined

TECH: System or component



'Low altitude' (LALT) accidents are collisions with terrain and obstacles that occurred while intentionally operating near the surface, excluding take-off and landing phases. It is important to note that a significant number of LALT and OTHR involved a collision with power lines.

SCF-NP and SCF-PP can be grouped together as the more technical systems related accidents or TECH category. The accidents in this category mainly involve critical systems: engine failures, main rotor system failures or tail rotor system failures.

FIGURE 3-10 presents the trend of the top six categories over the decade (three-year moving averages). The sharp rise for the 'unknown' category is the result of the lack of information for these years. The Agency cooperates with the European Helicopter Safety Analysis Team to address this issue.


TEST
EMERGENCY CUT OFF
TEST
MONIT
TRIM
FreeFlight
GPS SVI 01
ELV -064° AZM 261
ENT
NAV
WPT
NRST
FPL
CALC
AUX
MSG
MENU
USING GPS FOR INSTRUMENT APPROACHES AND SID-STARS IS PROHIBITED
CPL
ELT
F/O

4.0 GENERAL AVIATION AND AERIAL WORK, AIRCRAFT OVER 2 250 KG MTOM

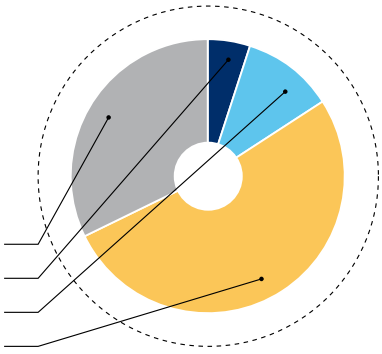
This chapter provides data on accidents to aircraft involved in general aviation and aerial work. The information provided in this chapter is based on data obtained from ICAO.

In ICAO documents, the term 'aerial work' is defined as an aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, or aerial advertisement. ICAO defines as 'general aviation' all civil aviation operations other than scheduled or non-scheduled air transport operations for remuneration or hire or aerial work. For the decade 1999–2008, the distribution of fatal accidents by type of operation is as shown below.

FIGURE 4-1

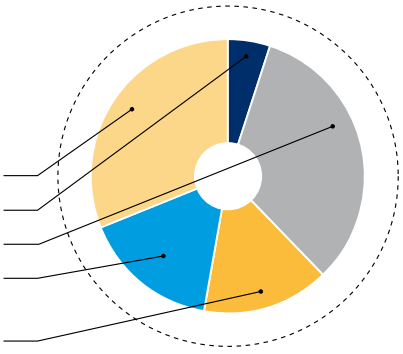
Aeroplanes over 2 250 kg — fatal accidents — EASA MS

DISTRIBUTION BY TYPE OF AERIAL WORK



Other **32%**
Unknown **5%**
Agricultural **11%**
Fire fighting **52%**

DISTRIBUTION BY TYPE OF GENERAL AVIATION

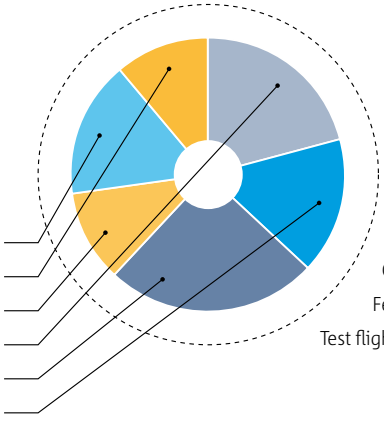


Pleasure **31%**
Unknown **5%**
Other **33%**
Business **15%**
Flight training/ instructional **16%**

FIGURE 4-2

Helicopters over 2 250 kg – fatal accidents – EASA MS

DISTRIBUTION BY TYPE OF AERIAL WORK



Agricultural **16%**
Search and rescue **11%**
Fire fighting **11%**
Other/unknown **21%**
Logging **25%**
Construction and external load **16%**

DISTRIBUTION BY TYPE OF GENERAL AVIATION

Pleasure **20%**
Business **20%**
Other/unknown **33%**
Ferry/positioning **13%**
Test flight/experimental **7%**
Flight training/ instructional **7%**

TABLE 4-1

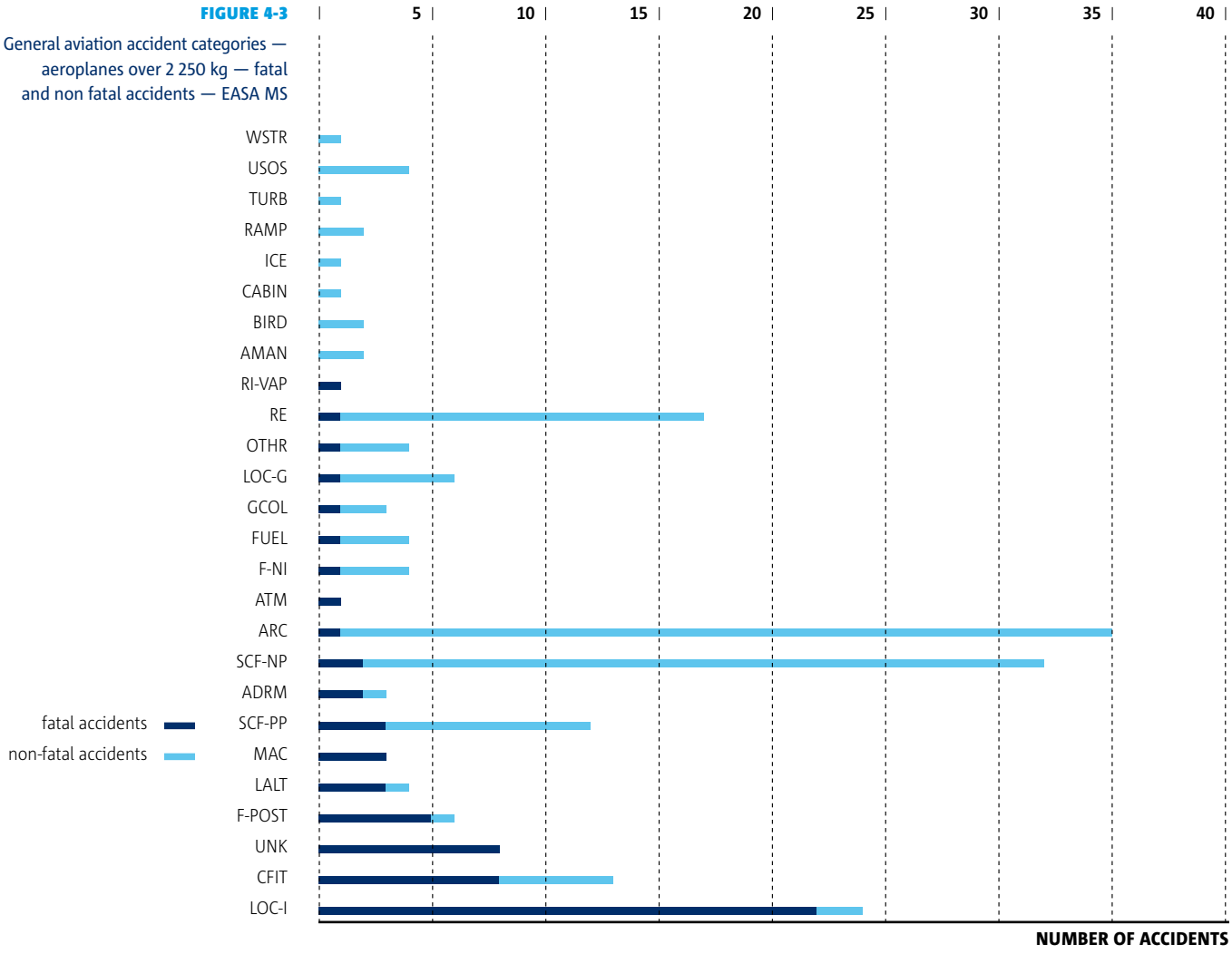
Aircraft over 2 250 kg — number of accidents, fatal accidents and fatalities by type of aircraft and type of operation — aircraft registered in EASA MS

Aircraft type	Operations type	Period	Total number of accidents	Fatal accidents	Fatalities on board	Ground fatalities
Aeroplane	Aerial work	1997–2006 (average)	6	2	4	0
		2007 (total)	4	2	3	0
		2008 (total)	7	2	3	1
Aeroplane	General aviation	1997–2006 (average)	16	5	13	< 1
		2007 (total)	14	4	5	0
		2008 (total)	17	7	17	1
Helicopter	Aerial work	1997–2006 (average)	6	2	4	< 1
		2007 (total)	8	1	0	1
		2008 (total)	5	1	2	0
Helicopter	General aviation	1997–2006 (average)	4	1	2	0
		2007 (total)	4	3	10	0
		2008 (total)	3	1	3	0

TABLE 4-1 provides an overview of the number of accidents and fatal injuries since 1997. The number of accidents in aerial work operations is similar for aeroplanes and helicopters for the decade 1997–2006. In general aviation the small number of accidents involving helicopters in comparison to aeroplanes is probably a reflection of the relatively lower number of helicopters used in this type of operation.

FIGURE 4-3

General aviation accident categories — aeroplanes over 2 250 kg — fatal and non fatal accidents — EASA MS



4.1. ACCIDENT CATEGORIES — GENERAL AVIATION — AEROPLANES

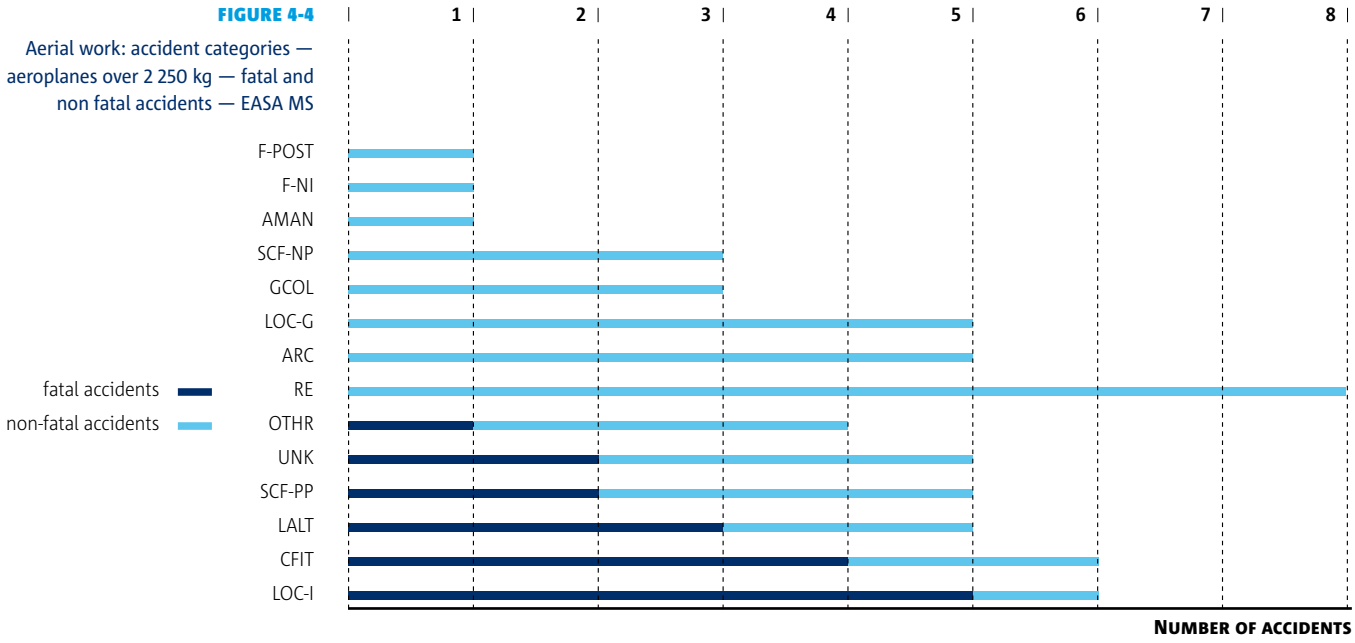
It was observed that several accidents obtained from ICAO had not been classified in terms of the accident categories. Consequently, the numbers presented provide a low estimate of the frequency for all accident categories. All data refer to the decade 1999–2008.

FIGURE 4-3 presents that for general aviation aircraft worldwide and within the EASA MS, LOC-I ('loss of control in flight') is the leading accident category. The number of CFIT ('controlled flight into or towards terrain') occurrences worldwide is about half of that of 'loss of control in flight', while for EASA MS it is about one third. Technical issues appear to play a much smaller role.

In general, the experience for general aviation is similar to that of commercial air transport operations in that CFIT and 'loss of control in flight' are the leading categories for fatal accidents.

FIGURE 4-4

Aerial work: accident categories — aeroplanes over 2 250 kg — fatal and non fatal accidents — EASA MS



4.2. ACCIDENT CATEGORIES — AERIAL WORK — AEROPLANES

As mentioned above, aerial work involves specialised operations such as fire fighting, agricultural operations and aerial observation.

There is a particular problem in obtaining data related to accidents in aerial work. One of the most hazardous types of operation in this regard is related to fire fighting. However, in some states, this activity is carried out by state organisations (e.g. the Air Force) and consequently the related activities are not classified as aerial work but as 'state flights' and related accidents were thus not included in this review.

In **FIGURE 4-4** the high number fatal accidents related to 'loss of control in flight' (LOC-I), 'controlled flight into terrain' (CFIT) and 'low altitude operations' (LALT) is no surprise as the nature of aerial work frequently involves operations close to the ground, e.g. agricultural operations. Operating at low altitudes makes recovery from a loss of control or an unforeseen event more difficult. The high number of accidents assigned the category 'unknown' is testimony that the investigation and reporting of such accidents can be improved.

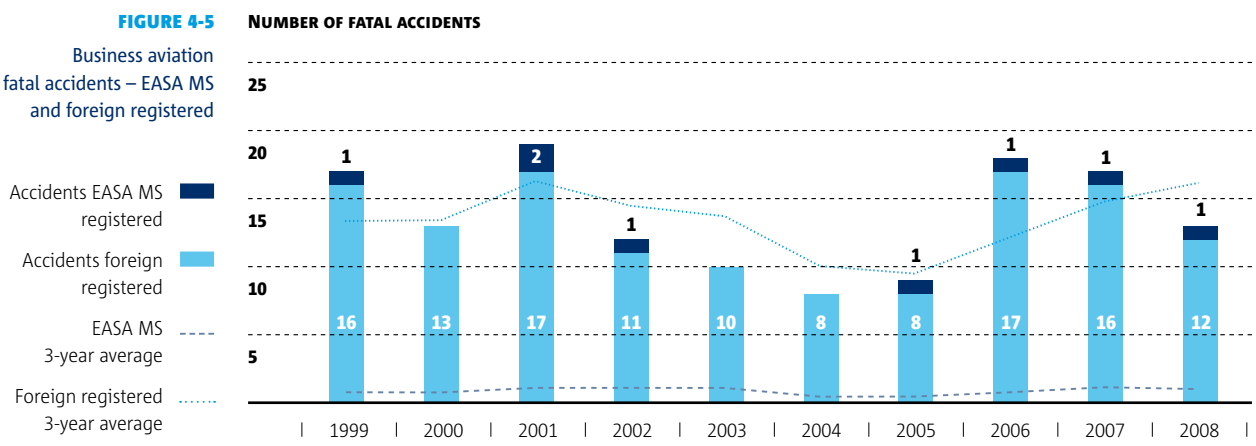
4.3. BUSINESS AVIATION — AEROPLANES

Under the ICAO definitions contained in Annex 6 to the CONVENTION ON INTERNATIONAL CIVIL AVIATION, business aviation is a subset of general aviation. Data on business aviation are presented separately in light of the importance of this sector.

The number of fatal accidents in business aviation for aircraft registered in EASA MS is low. Worldwide the number of accidents in this type of operation appears to have decreased in the year 2008, despite the well documented increase in the fleet of aircraft conducting such operations.

FIGURE 4-5

Business aviation fatal accidents – EASA MS and foreign registered



5.0 LIGHT AIRCRAFT, AIRCRAFT BELOW 2 250KG MTOM

Data on light aircraft accidents was requested from EASA Member States in January 2009. As of April 2009, most states had supplied the information. Data were missing from Italy, Liechtenstein, Luxembourg and Slovenia. The table below provides the number of accidents and their related fatalities for the years 2006, 2007 and 2008 based on the data reported.

TABLE 5-1

Aircraft below 2 250 kg — number of accidents, fatal accidents and fatalities by type of aircraft and type of operation — aircraft registered in EASA MS

A/C Category	Year	Total number of accidents	Fatal accidents	Fatalities on board	Ground fatalities
Aeroplanes	2006	546	72	124	1
Aeroplanes	2007	533	61	120	0
Aeroplanes	2008	517	53	98	2
Balloon	2006	21	0	0	0
Balloon	2007	14	0	0	0
Balloon	2008	25	1	1	0
Glider	2006	175	17	17	0
Glider	2007	187	20	21	1
Glider	2008	178	16	16	0
Gyroplane	2006	5	1	1	0
Gyroplane	2007	6	3	4	0
Gyroplane	2008	12	3	3	0
Helicopter	2006	89	7	17	0
Helicopter	2007	86	11	23	4
Helicopter	2008	64	7	12	0
Microlight	2006	177	34	44	0
Microlight	2007	213	26	35	0
Microlight	2008	261	45	70	0
Motorglider	2006	52	9	15	0
Motorglider	2007	46	9	19	0
Motorglider	2008	41	10	11	0
Other	2006	56	11	13	2
Other	2007	72	12	16	0
Other	2008	46	5	5	0
Unknown	2006	0	0	0	0
Unknown	2007	0	0	0	0
Unknown	2008	1	0	0	0
Total	**2006**	**1121**	**151**	**231**	**3**
	2007	**1157**	**142**	**238**	**5**
	2008	**1145**	**140**	**216**	**2**
Grand total		**3423**	**433**	**685**	**10**

Reporting by states is uneven. Some states provided revised data for previous years; 24 states provided data for 2006, 25 for 2007 and 27 for 2008. Regarding the aircraft category, some EASA MS provided data for accidents to parachutists, para-motors and hang-gliders, the majority did not. Some used a mass limit of 1,000 pounds to delineate 'micro-light' aircraft from 'normal' aeroplanes, others did not. The use of the limits set in Regulation (EC) 216/2008 Annex II paragraph (e) would have mitigated this uneven classification. The level of completeness of the fields necessary for making the statistics and the level of quality of coding the categories, events, etc., also shows appreciable variation.

5.1. FATAL ACCIDENTS

The vast majority of light aircraft in EASA States is involved in general aviation. Some, in particular light helicopters, are also involved in aerial work, e.g. aerial observation activities.

The majority of light aircraft involved in accidents 2006–2007 are aeroplanes. The non-uniform way in which aircraft categories were assigned to the aircraft (e.g. microlights vs. aeroplanes or vs. gyroplanes) may have caused a slight distortion to these figures.

FIGURE 5-1

Aircraft below 2250 kg – fatal accidents, type of operation, 2006–2008 – aircraft registered in EASA MS

DISTRIBUTION BY TYPE OPERATION

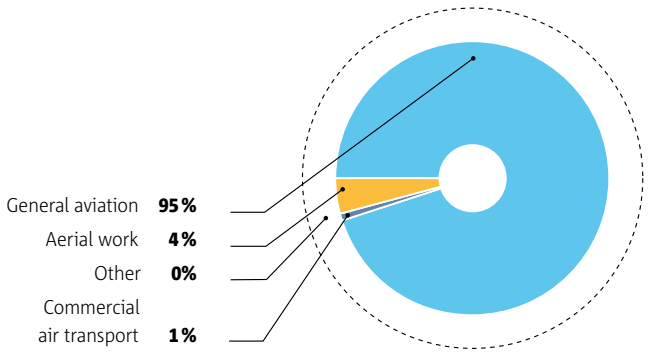


FIGURE 5-2

Aircraft below 2 250 kg – fatal accidents, categories of aircraft, 2006–2008 – aircraft registered in EASA MS

DISTRIBUTION BY TYPE AIRCRAFT CATEGORY

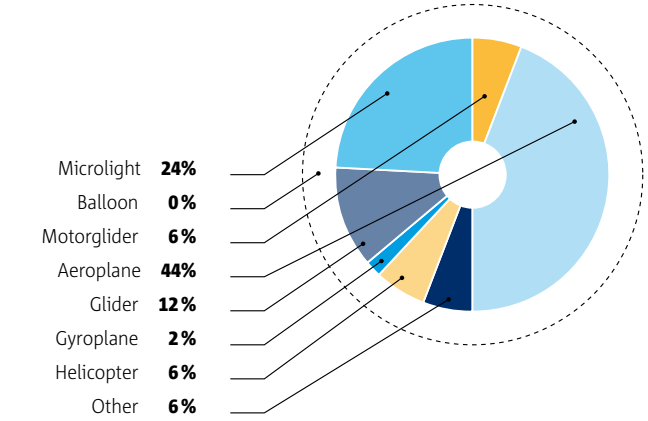
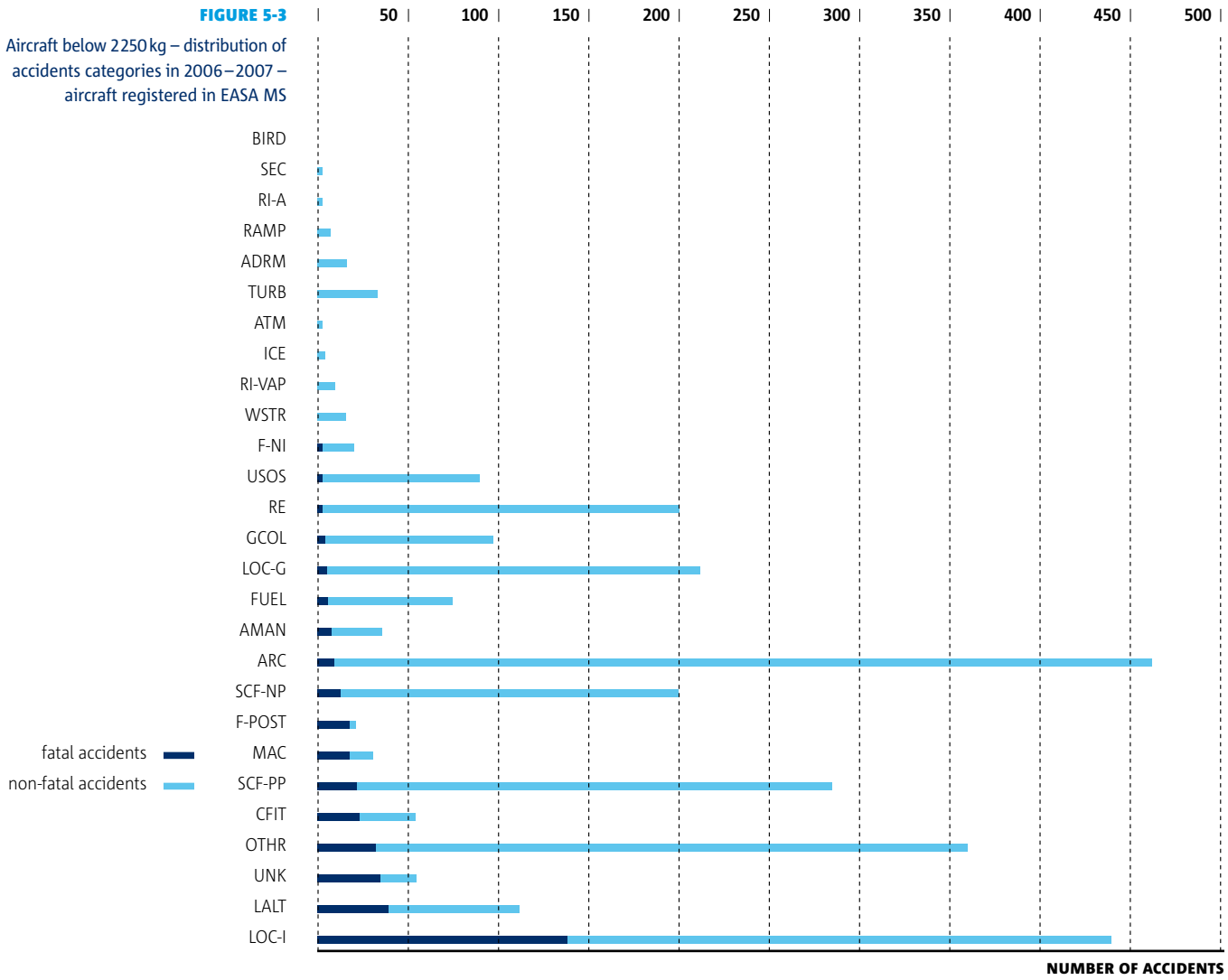


FIGURE 5-3

Aircraft below 2250 kg – distribution of accidents categories in 2006–2007 – aircraft registered in EASA MS



5.2. ACCIDENT CATEGORIES

The CAST-ICAO accident categories were applied by the reporting states to the set of light aircraft data accidents for the period 2006–2008. The accident categories had been, historically, developed to permit the tracing of the safety efforts for fixed wing air transport operations. New approaches, not yet fully implemented, are being developed to better address the needs of this segment of the aviation system, because their application to light aircraft proved difficult.

Analysis was based only on data received for the years 2006 and 2007, as the analysis of the occurrences in 2008 is still incomplete in most of the countries.

The non-uniform application of coding of the accident categories by the reporting states may have caused some distortion to the above graph. The highest number of fatal accidents were categorized as LOC-I 'loss of control in flight' and LALT 'low altitude'. In particular LOC-I appears to be one of the most significant

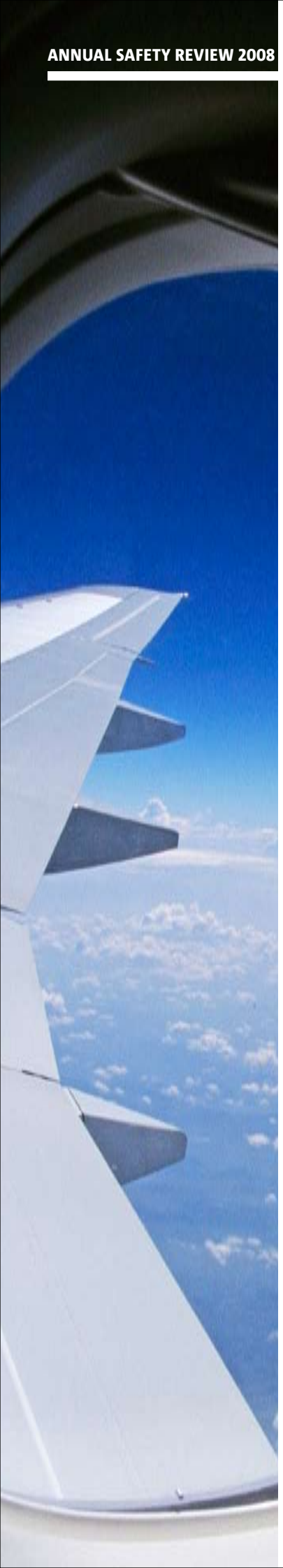

OMGO-D

categories in non-fatal accidents. These categories also show a high proportion of fatalities relative to the total number of accident.

The high number of accidents classified as 'other' is an indication of weakness in the taxonomy, whereas the high number of 'unknown' may reflect the difficulty of analysing accidents in aircraft not usually equipped with recording equipment.

Although it is not possible at present to have reliable exposure rates for EASA MS, the number of accidents (over 1,100 per year) and the number of related fatalities (from 216 to 238) are a cause for concern. An accurate estimate of flight hours or movements is needed to allow a meaningful analysis of data, compared to those for large aircraft.

With only three years of data available no trend could be developed. Further, analysis of causes was limited by the lack of complete data from states. It was expected that in 2009 complete data on the majority of the accidents in 2006/2007 would be available. This was not the case. Without timely availability of investigation results, without complete and timely provision of data by states, the Agency cannot present a complete picture of all aspects of the safety of aviation in Europe. The Agency will continue to cooperate with its Member States to improve the picture.



6.0 AGENCY'S SAFETY ACTIONS

Promoting and maintaining a high uniform level of safety and environmental protection is the Agency's main objective. To achieve this goal, EASA engages into several safety related activities among which are certification, rulemaking and standardisation. These activities are reflected in its organisational structure through relevant directorates. The Certification Directorate is responsible, among others, for the certification of new or existing aircraft, engines and systems. Among the activities of the Rulemaking Directorate is the drafting of new or amendments to existing regulations pertaining to aviation safety. The Standardisation Directorate aims at standardising and maintaining safety levels in all EASA MS. To this end, this directorate among others performs inspections of civil aviation authorities, aircraft operators and other stakeholders in the aviation industry.

6.1. STANDARDISATION

The Agency's inspections during 2008 have shown that the standardisation process has become quite mature for Initial and Continuing Airworthiness where Commission Regulation EC 736/2006 provides a robust framework for the monitoring of the regulation's implementation by the Member States, well articulated with the Basic Regulation 216/2008 and the Implementing Rules (2042/2003 and 1702/2003). Nonetheless there is still the need for significant improvements in the areas of operations, Flight Synthetic Training Devices and flight crew licensing. Here the Implementing Rules have not been issued yet and the JAA system is in a declining phase and will disappear on 30 June 2009.

Within the EU legal framework, the number of inspections (13 in Initial Airworthiness, 26 in Continuing Airworthiness) determined through a risk-based approach, has remained quite stable compared to the previous year.

The Initial Airworthiness domain confirms the status of the previous years, showing a satisfactory and uniform level of understanding and implementation in all involved countries. In the Continuing Airworthiness domain (CAW), where all Member States exercise their competences, despite a general average improvement, the uniform and proper implementation of the rules still needs further efforts. This confirms the CAW status of the previous years.

It is worth noting that the number of non-conformity findings per number of inspections has significantly decreased in both fields. This is because in 2008 a full second cycle of inspections was initiated. It is evident that, by the beginning of the entry into force of EC 736/2006, the standardisation process has had a significant impact in helping the NAAs to comply with the EU regulations. This is particularly true for many new accession states, where, however, some difficulties persist.

Most of the competent authorities, including those of the newly associated states, continued to support actively the process in its execution and in providing EASA with resources for the standardisation teams. Together with the growing success of the Standardisation Meetings organised by the Agency, this is a confirmation of the well accepted approach to pro-active standardisation.

The EASA training strategy to open training to NAA inspectors appears to be a good tool to improve the uniform implementation of the rules among Member States. However, further development is needed.

The organisation approvals activity, with regards to the initial scope of the Agency, has reached a consistently mature level both in terms of activity and of methodologies.

As regards the Production Organisation Approval (POA) activity, 2008 was marked by a great achievement, with the issuing of the Single European POA to Airbus on 21 July. With production facilities growing in China, the activity of the section has increased in this direction. It is expected to grow in the future also with respect to Russia.

The SAFA coordination activities were transferred from the JAA to the Agency on 1 January 2007. The role of the Agency in this field is two-fold. On the one hand it has to maintain and improve the SAFA database and on the other it performs three monthly data analyses as well as ad-hoc analysis requested by the Commission. In 2008 the Agency implemented a major update to the SAFA web-based application that will enhance the harmonisation level and provide SAFA participating states with new functionalities (pre-described findings, better support for follow-up actions and for focusing inspections). Furthermore, the analysis of the SAFA data has been delivering important indicators concerning the overall safety level of airlines operating in Europe, which helps identifying potential risk factors and direct qualitative targeting. Finally, following the consultation of the SAFA participating states and other interested parties, the Guidance Material on the qualification of SAFA inspectors was adopted on 29 September and subsequently published on the EASA website. The remaining part of the Guidance Material is scheduled to be published in the first half of 2009.

6.2. CERTIFICATION

The Certification Directorate directly contributes to aviation safety by conducting certification activities leading to the EU-wide

approval of aeronautical products, parts and appliances on the highest possible safety level. In this respect, an aeronautical product can only receive its design approval when it complies with all applicable safety requirements. In total, the Agency issued 5,379 design-related certificates in 2008.

In addition to the certification activities, another main task for the Certification Directorate is to actively ensure the continuing airworthiness of aeronautical products, parts and appliances during their entire lifecycle. The Certification Directorate has therefore established a thorough continuing airworthiness process, aiming at preventing unsafe conditions and accidents. This process is based on data provided through mandatory occurrence reporting, accident or incident investigations, type design reviews and various other activities.

On the basis of the investigation and analysis of the Certificate Holder, or of on any other relevant information, EASA defines appropriate actions that may lead, in case of determination of an unsafe condition, to the issuance of Airworthiness Directives (AD's) to mandate appropriate corrective actions.

In 2008, the Agency mandated 261 ADs including 45 Emergency ADs. The 'Airworthiness Directives, Safety Management & Research' Section within the Certification Directorate provides for consistency of the continuing airworthiness process.

Additional actions are performed, such as the implementation of Airworthiness Information Networks with Civil Aviation Authorities which have validated EASA certificates for major European products (e.g. A380). Regular continuing airworthiness meetings with manufactures and foreign authorities take place addressing potential safety issues. All this is part of the Agency's and Certification Directorate's approach to closely cooperate with European and non-European stakeholders through bilateral arrangements, the development of an innovative safety network with the State of Registry, etc.

Regular audits by independent parties (such as ICAO) confirmed that the Certification Directorate and the Agency as a whole are on the right track towards fulfilling their obligations and providing a high level of aviation safety.

6.3. RULEMAKING

The Agency's Rulemaking Directorate contributes to the production of all EU legislation and implementation material related to the regulation of civil aviation safety and environmental compatibility. It submits opinions to the European Commission and must be consulted by the Commission on any technical question in its field of competence.

It is also in charge of the related international co-operation. **TABLE 6-1** identifies the current rulemaking tasks with a direct impact on the identified accident and incident category.

TABLE 6-1
EASA rulemaking tasks sorted by impact on accident category

Accident Category	Rulemaking task	Timeframe
RI-VAP (Runway incursion-vehicle, aircraft or person)	OPS.009 Runways incursion development of implementing rules based on transferred tasks form the JAA and the EUROCONTROL EAPRI report	2012–2015
ARC (Abnormal runway contact)	OPS.012 Unexpected runway changes task transferred from the JAA OPSG	2012–2015
	25.026 Electronic checklist, smart alerting and automated altitude call out	2011–2012
	25.027 Aircraft design	2012–2014
	AWO.006 GNSS landing system	2011–2013
RE (Runway excursion)	OPS.012 Unexpected runway changes task transferred from the JAA OPSG	2012–2015
	25.026 Electronic checklist, smart alerting and automated altitude call out	2011–2012
	25.027 Aircraft design	2012–2014
	AWO.006 GNSS landing system	2011–2013
LATL (Low altitude operations)	OPS.054 Helicopter radio-altimeters; review of implementing rule due to implementation/ interpretation problems	2012–2015
CFIT (controlled flight into terrain)	OPS.057 Transposition of JAA TGL-43 HEMS mountain operations	2012–2015
	20.003 Required navigation performance/ area navigation	2009
	20.006 APV/LPV RNAV	2009
	25.026 Electronic checklist, smart alerting and automated altitude call out	2011–2012
	25.027 Aircraft design	2012–2014
ATM/CNS (air traffic management / communication navigation surveillance	20.003 Required navigation performance/area navigation	2009
	20.006 APV/LPV RNAV	2009
	AWO.006 GNSS landing system	2011–2013
	ANS/ATM. 001 IR, CS and AMC for ANS/ATM	2009–2013
F-NI (fire/ smoke (non-impact))	25.006 Thermal acoustic insulation material	2009
	MDM.002 Electrical wiring interconnection systems	closed
	25.028 Protection form debris impact and fire	started–2011
	26.003 Class D to class C cargo compartment	2010–2011
	26.004 Thermal acoustic insulation material	2010–2011
	26.005 Class B/ F cargo compartment	
	25.056(b) Flammability reduction/ fuel tank safety	2009

ACCIDENT CATEGORY	RULEMAKING TASK	TIMEFRAME
F-POST (fire/ smoke (post-impact))	25.006 Thermal acoustic insulation material	2009
EVAC (Evacuation)	25.004 25.039 Type and number of passenger emergency exits	2009–2011
	26.001 Type II exit: access and ease of operation	started–2011
	27/29.008 Ditching occupant survivability	2011–2013
SCF-NP (system/component failure or malfunction (non-powerplant))	25.056(b) Flammability reduction/ fuel tank safety	2009
	MDM.002 Electrical wiring interconnection systems	closed
	25.055 Fuel low level indication/ fuel exhaustion	2009–2011
	25.027 Aircraft design	2012–2014
	25.028 Protection form debris impact and fire	started–2011
	27/29.002 Damage tolerance and fatigue evaluation	2009–2011
	MDM.028 Aging aircraft structures	started–2013
SCF-PP (system/ component failure or malfunction (powerplant))	25.055 Fuel low level indication/ fuel exhaustion	2009–2011
	E.009 Ice protection	started–2010
	E.011 Propulsion lubricating oil	2012–2013
	E.014 Engine core lock	2010–2012
LOC-I (Loss of control-in flight)	23.010 Consideration of the spin resistant in CS-23	2011–2013
	25.028 Protection form debris impact and fire	started–2011
	27/29.003 Yawing conditions	started–2011
	21.039 OSC	started –2010
USOS (Undershoot/ overshoot)	25.026 Electronic checklist, smart alerting and automated altitude call out	2011–2012
	25.027 Aircraft design	2012–2014
	AWO.006 GNSS landing system	2011–2013
ADRM (aerodrome)	ADR.001 Implementing rules and CS/AMC	2010–2013
CABIN (Cabin safety events)	25.035 Cabin environment-air quality-ANPA	started–2011
	26.002 Dynamic seat testing (16g)	2009–2011
	27/29.008 Ditching occupant survivability	2011–2013
FUEL (fuel related)	25.055 Fuel low level indication/ fuel exhaustion	2009–2011
SEC (security related)	25.057 Security	2009–2011
	26.006 Re-enforced cockpit doors-double incapacitation	2012–2014
ICE (Icing)	MDM.054 AMC for maintenance organisations following ANPA 2007-13	2009–2010

6.4. THE EUROPEAN STRATEGIC SAFETY INITIATIVE (ESSI)

The European Strategic Safety Initiative (ESSI) is a voluntary, privately funded and non legally binding aviation safety partnership between EASA, National Aviation Authorities, EUROCONTROL, operators, manufacturers, associations, research laboratories, and other stakeholders aiming to further enhance aviation safety in Europe and for citizens worldwide. More than 150 organisations take part in the initiative. Launched in April 2006, ESSI is the successor to the Joint Safety Strategy Initiative (JSSI) of the Joint Aviation Authorities (JAA).

For background information, the terms of reference, and the list of the participating organisations, please visit the ESSI website www.easa.europa.eu/essi.

ESSI is a member of the European Aviation Research Partnership Group (EARPG) led by EASA, where it may provide proposals for research projects.

ESSI has three safety teams:
– European Commercial Aviation Safety Team (ECAST),
– European Helicopter Safety Team (EHEST),
– European General Aviation Safety Team (EGAST).

6.4.1. EUROPEAN COMMERCIAL AVIATION SAFETY TEAM (ECAST)

With more than 60 participating organisations, ECAST is Europe's equivalent of US CAST. It was launched in October 2006 and is co-chaired by IATA and EASA.

ECAST monitors implementation of the action plans inherited from the JSSI in Europe. These plans address the reduction of the risks of 'controlled flight into terrain' (CFIT), 'approach and landing', and 'loss of control' accidents. Two action plans completion surveys were conducted in 2007–2008 with the National Aviation Authorities and with the airlines. Currently, from the 23 action plans inherited from JSSI, 20 have been completed, and 3 are under way.

In parallel, ECAST developed in 2007 a three-phase process:
– **PHASE 1:** Identification and selection of safety issues in Europe;
– **PHASE 2:** Safety issues analysis; and
– **PHASE 3:** Development, implementation and monitoring of action plans.

PHASE 1 started in April 2007. The objective was to identify priorities for further ECAST work based on three criteria: safety importance, coverage (the extent to which the subjects are already covered in other safety work), and high-level costs benefits or impact assessment considerations.

As part of **PHASE 2**, ECAST launched in 2008 two working groups on Safety Management Systems (SMS), and ground safety, and a sub-team on safety analysis methodology. The SMS working group was tasked to develop best practice material to help stakeholders comply with ICAO standards and future EASA rules relevant to safety management. This material was published on the ESSI website in April 2009 and is freely available.

For further information, refer to the ECAST website www.easa.europa.eu/essi/ecastEN.html.

6.4.2. EUROPEAN HELICOPTER SAFETY TEAM (EHEST)

Launched in November 2006, EHEST brings together major helicopter airframe, engine and systems manufacturers, operators, regulators, helicopter and pilots associations, research organisations, accident investigators from across Europe and some military helicopter operators. EHEST is co-chaired by EASA, the European Helicopter Operators Committee (EHOC), and EUROCOPTER.

EHEST is also the European component of the International Helicopter Safety Team (IHST). EHEST is committed to the IHST goal of reducing the worldwide helicopter accident rate by 80 % by 2016.

In 2008, the European Helicopter Analysis Safety Team (the analysis team of EHEST), has performed an analysis of 186 accidents where a final investigation report from the Accident Investigation Board has been issued. This represents some 58 % of the entire set for this timeframe.

To tackle the variety of languages used in accident reports and optimise the use of resources, EHSAT has established nine regional analysis teams across Europe. Regional analyses are consolidated at European level. This initiative is unique in its efforts to conduct a European wide analysis of helicopter accidents.

The EHSAT has also derived suggestions for safety enhancement from the analyses. Most of these address training and instruction, flight operations, Safety Management and Safety Culture, and regulations and standards. They are processed since February 2009 by the European Helicopter Safety Implementation Team (EHSIT) within the EHEST. The preliminary report was published in April 2009.

For further information, refer to the EHEST website www.easa.europa.eu/essi/ehestEN.html.

6.4.3. EUROPEAN GENERAL AVIATION SAFETY TEAM (EGAST)

EGAST is the third component of the ESSI. The foundation meeting took place at EASA in October 2007 and was attended by over 60 representatives of the general aviation (GA) community from across Europe. "General aviation has a high priority for the European Aviation Safety Agency. EGAST is a new venture in Europe and a challenge. The Agency welcomes the wide participation of the aviation community, as part of its overall efforts to revitalise general aviation", said Patrick Goudou, Executive Director of EASA, at the opening session.

EGAST responds to the need for a coordinated European effort. Building on existing initiatives, it is co-chaired by EASA, the European Business Aviation Association (EBAA), the European Airshow Council (EAC) and the European Council for General Aviation Support (ECOGAS).

The initiative is composed of representatives of associations, manufacturers, regulators, aero-clubs, accident investigators, research organisations, and other GA stakeholders. It is organised in three layers representing different levels of involvement: Level 1, is the core team that runs the initiative. It is composed of around 20 participants reflecting the different general aviation sectors. EGAST Level 2 is composed of around 60 organisations involved in the initiative, without running it. EGAST Level 3 is the global European GA community.

In 2008, EGAST has performed a survey of existing general aviation safety initiatives, safety publications and materials, and safety priorities in Europe in order to build a European repertoire and define work priorities. Terms of reference were produced, the EGAST website was developed, and close cooperation was established with the 'Institut pour l'Amélioration de la Sécurité Aérienne' (IASA), France.

For further information, refer to the EGAST website www.easa.europa.eu/essi/egastEN.html.

APPENDIX 1

GENERAL REMARKS ON DATA COLLECTION AND QUALITY

The data presented is not complete. For light aircraft, information from some Member States is missing. Without prompt availability of investigation results and without complete or timely provision of data by states, the Agency cannot present a complete picture of all aspects of the safety of aviation in Europe.

The Agency will continue to make efforts to obtain light aircraft accident data for future ANNUAL SAFETY REVIEWS and expects better data coverage as the reporting systems and awareness of lack of data matures in EASA MS.

Work with the data shows that the CICTT occurrence category taxonomy has limited usefulness when applied to helicopters, light aircraft and other aviation activities such as hang-gliding or parachuting. To this end, new approaches have been developed to better trace the safety concerns in this segment of the aviation system. Relative changes already made to the CICTT occurrence category taxonomy could not be applied to this year's accidents as the authorities will begin using the new classification scheme from 2009 and onwards.

For larger aircraft, the data is as complete as states have reported accident data to ICAO in accordance with Annex 13. Checks have revealed that not all states report in full and in time to ICAO.

APPENDIX 2

DEFINITIONS AND ACRONYMS

A2-1: GENERAL

AD	Airworthiness directive: a notification to aircraft owners and operators of a known safety issue with a particular model of aircraft, engine, avionics or other system.
Aerial work (AW)	An aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, or aerial advertisement.
ATM	Air Traffic Management
Commercial air transport (CAT)	An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.
CAST	Commercial Aviation Safety Team. ECAST is the European initiative.
CICTT	CAST-ICAO Common Taxonomy Team
CNS	Communications, Navigations and Surveillance/Air Traffic Management
EASA	European Aviation Safety Agency
EASA MS	European Aviation Safety Agency Member States. These States are the 27 European Union Member States plus Iceland, Liechtenstein, Norway and Switzerland.
ECAST	European Commercial Aviation Safety Team
EGAST	European General Aviation Safety Team
EHEST	European Helicopter Safety Team
ESSI	European Strategic Safety Initiative
Fatal accident	An accident that resulted in at least one fatality, flight crew and/or passenger or on the ground, within 30 days of the accident. (Source: ICAO Annex 13)
Foreign registered aircraft	All aircraft not registered in one of the EASA MS.
General aviation (GA)	An aircraft operation other than a commercial air transport operation or an aerial work operation.
ICAO	International Civil Aviation Organisation
Light aircraft	Aircraft with a maximum certificated take-off mass below 2 251 kg.
MTOM	Maximum certificated take-off mass
SAFA	Safety Assessment of Foreign Aircraft
Scheduled air service	An air service open to use by the general public and operated according to a published timetable or with such a regular frequency that it constitutes an easily recognisable systematic series of flights which are open to direct booking by members of the public.
SISG	ICAO Safety Indicator Study Group
Third-country aircraft	An aircraft which is not used or operated under control of a competent authority of an EU Member State.

APPENDIX 2

DEFINITIONS AND ACRONYMS

A2-2: ACCIDENT CATEGORIES ACRONYMS

ARC	Abnormal runway contact
AMAN	Abrupt manoeuvre
ADRM	Aerodrome
ATM/CNS	Air Traffic Management/Communication Navigation Surveillance
BIRD	Collision/near collision with bird(s)
CABIN	Cabin safety events
CFIT	Controlled flight into or toward terrain
EVAC	Evacuation
F-NI	Fire/smoke (non-impact)
F-POST	Fire/smoke (post-impact)
FUEL	Fuel related
GCOL	Ground collision
RAMP	Ground handling
ICE	Icing
LOC-G	Loss of control — Ground
LOC-I	Loss of control — In flight
LALT	Low altitude operations
MAC	Airprox/TCAS alert/loss of separation/near midair collisions/midair collision
OTHR	Other
RE	Runway excursion
RI-A	Runway incursion — Animal
RI-VAP	Runway incursion — Vehicle, aircraft or person
SEC	Security related
SCF-NP	System/component failure or malfunction (non-powerplant)
SCF-PP	System/component failure or malfunction (powerplant)
TURB	Turbulence encounter
USOS	Undershoot/overshoot
UNK	Unknown or undetermined
WSTRW	Windshear or thunderstorm

Accident categories can be used to classify occurrence at a high level to permit analysis of the data. The CICTT has developed the accident categories used in this ANNUAL SAFETY REVIEW. For further details on this team and the accident categories see the website www.intlaviationstandards.org/index.html.

APPENDIX 3

LIST OF FIGURES AND TABLES

A3-1: LIST OF FIGURES

APPENDIX 3

LIST OF FIGURES AND TABLES

A3-2 LIST OF TABLES

APPENDIX 4

LISTING OF FATAL ACCIDENTS (2008)

The following tables contain a listing of fatal accident in 2008 with commercial air transport operations with aeroplanes over 2 250 kg maximum certificated take-off mass only.

AIRCRAFT REGISTERED IN EASA MS

Date	State of occurence	Aircraft type	Type of operation	Fatalities on board	Ground fatalities
30.05.2008	Honduras	AIRBUS INDUSTRIES - A320	Passenger	3	2
20.06.2008	Norway	FAIRCHILD - 300	Training/Check	3	0
20.08.2008	Spain	MCDONNELL-DOUGLAS - MD80 SERIES	Passenger	154	0

AIRCRAFT REGISTERED IN REST OF THE WORLD (FOREIGN REGISTERED)

Date	State of occurence	Aircraft type	Type of operation	Fatalities on board	Ground fatalities
04.01.2008	Venezuela	LET AERONAUTICAL WORKS L410UVP	Passenger	14	
05.01.2008	United States	PIPER PA-31P-350 (MOJAVE)	Passenger	6	
14.01.2008	United States	BEECH 1900	Cargo	1	
16.01.2008	United States	NORTH AMERICAN COMMANDER 500	Cargo	1	
16.01.2008	United States	RAYTHEON 58 BARON	Ferry/positioning	1	
19.01.2008	Angola	BEECH 200 KING AIR	Passenger	13	
26.01.2008	Indonesia	IPTN NC-212-100	Cargo	3	
30.01.2008	Indonesia	DE HAVILLAND DHC6-300	Passenger	1	
13.02.2008	United States	PIPER PA-23-250 AZTEC	Cargo	1	
21.02.2008	Venezuela	AVIONS DE TRANSPORT REGIONAL ATR 42-300	Passenger	46	
04.03.2008	United States	CESSNA 500/501 CITATION	Passenger	5	
15.03.2008	Nigeria	RAYTHEON 1900	Ferry/positioning	3	
30.03.2008	United Kingdom	CESSNA 500/501 CITATION	Passenger	5	
31.03.2008	Brazil	NEIVA NE-821 (CARAJA)	Cargo	2	
03.04.2008	Suriname	PZL-Polskie Zaklady Lotnicze AN-28	Passenger	19	
09.04.2008	Australia	FAIRCHILD SA227 III	Cargo	1	
11.04.2008	Republic of Moldova	ANTONOV AN-32	Ferry/positioning	8	

CONT.

Date	State of occurence	Aircraft type	Type of operation	Fatalities on board	Ground fatalities
15.04.2008	The Democratic Republic of Congo	MCDONNELL-DOUGLAS DC-9-50	Passenger	15	33
02.05.2008	Brazil	CESSNA 310	Air taxi	6	
02.05.2008	Sudan	BEECH 1900	Passenger	21	
10.05.2008	South Africa	BRITTEN-NORMAN BN-2A ISLANDER	Passenger	9	
17.05.2008	United States	DE HAVILLAND DHC2 MK I BEAVER	Passenger	2	
23.05.2008	United States	BEECH 1900	Cargo	1	
26.05.2008	Russian Federation	ANTONOV AN-12	Ferry/positioning	9	
07.06.2008	Chile	CESSNA 208 CARAVAN I	Passenger	1	
18.06.2008	United States	DE HAVILLAND DHC6 TWIN OTTER	Cargo	1	
27.06.2008	Sudan	ANTONOV AN-12	Cargo	7	
30.06.2008	Sudan	ILYUSHIN IL-76	Cargo	4	
06.07.2008	Mexico	MCDONNELL-DOUGLAS DC-9-10	Cargo	1	
07.07.2008	Colombia	BOEING 747-100/200	Cargo		2
10.07.2008	Chile	BEECH 99 AIRLINER	Passenger	9	
31.07.2008	United States	BRITISH AEROSPACE 125 SERIES 800	Passenger	8	
03.08.2008	Canada	GRUMMAN G21 GOOSE	Air taxi	5	
09.08.2008	Indonesia	PILATUS PC-6B TURBO-PORTER	Cargo	1	
13.08.2008	Somalia	FOKKER F27 MK 500	Cargo	3	
24.08.2008	Kyrgyzstan	BOEING 737-200	Passenger	65	
24.08.2008	Guatemala	CESSNA 208 CARAVAN I	Passenger	11	
30.08.2008	Venezuela	BOEING 737-200	Passenger	3	
30.08.2008	Ecuador	BOEING 737-200	Ferry/positioning	3	
01.09.2008	The Democratic Republic of Congo	BEECH 1900	Passenger	17	
14.09.2008	Russian Federation	BOEING 737-300	Passenger	88	
19.09.2008	United States	LEARJET 60	Passenger	4	

CONT.

Date	State of occurence	Aircraft type	Type of operation	Fatalities on board	Ground fatalities
06.10.2008	Sudan	AIRBUS INDUSTRIES A310	Passenger	33	
08.10.2008	Nepal	DE HAVILLAND DHC6-300	Passenger	18	
13.11.2008	Iraq	ANTONOV AN-12	Cargo	7	
16.11.2008	Canada	GRUMMAN G21 GOOSE	Air taxi	7	
03.12.2008	Puerto Rico	NORTH AMERICAN COMMANDER 690/1685	Passenger	3	
03.12.2008	Colombia	NORTH AMERICAN COMMANDER 500	Emergency Medical Service	2	
15.12.2008	North Atlantic Ocean	BRITTEN-NORMAN BN-2A MK3 TRISLANDER	Passenger	12	
18.12.2008	Argentina	AERO INDUSTRIAL COLOMBIANA SA PA-31T-620/T2-620 CHEYENNE 2	Unknown	2	
19.12.2008	Vanuatu	BRITTEN-NORMAN BN-2A ISLANDER	Passenger	1	

Disclaimer:
The accident data presented is strictly for information purposes only. It is obtained from Agency databases comprised of data from ICAO, the EASA MS for light aircraft and the aviation industry. It reflects knowledge at the time the report was generated.

Whilst every care has been taken in preparing the content of the report to avoid errors, the Agency makes no warranty as to the accuracy, completeness or currency of the content. The Agency shall not be liable for any kind of damages or other claims or demands incurred as a result of incorrect, insufficient or invalid data, or arising out of or in connection with the use, copying, or display of the content, to the extent permitted by European and national laws. The information contained in the report should not be construed as legal advice. For any further information or clarifications on this document please do not hesitate to contact the EASA Safety Analysis and Research Department.

Acknowledgements:
The authors wish to acknowledge the contribution made by the Member States and to thank them for their support in the conduct of this work and in the preparation of this report. The authors also wish to acknowledge ICAO and NLR for their support in the conduct of this work.

Photo credits:
Cover: Tom Davison, fotolia / Inside front cover: Dassault Falcon /
Page 4: Rolls-Royce plc 2009; Elisabeth Schöffmann, EASA /
Page 6: European Commission; Thomas Zimmer / Page 10: BananaStock Ltd. /
Page 20: Eurocopter; aerosud elicotteri / Page 26: Eurocopter; 2008 Diamond Aircraft Industries GmbH / Page 30: Jeffrey van Daele, fotolia; Schröder fire balloons /
Page 32: BananaStock Ltd.; Heller & C / Inside back cover: BananaStock Ltd.

Imprint
EUROPEAN AVIATION SAFETY AGENCY
Safety Analysis and Research Department
Ottoplatz 1
D-50679 Cologne
Tel. +49 (221) 89 99 00 00
Fax +49 (221) 89 99 09 99
E-mail: asr@easa.europa.eu

Information on the European Aviation Safety Agency is available on the Internet www.easa.europa.eu.

ISBN 978-92-9210-032-2

EUROPEAN AVIATION SAFETY AGENCY

Ottoplatz 1, D-50679 Cologne, Germany
www.easa.europa.eu

ISBN 978-92-9210-032-2