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European Aviation Safety Agency

ANNUAL SAFETY REVIEW 2006

EUROPEAN AVIATION SAFETY AGENCY

ANNUAL SAFETY REVIEW 2006

CONTENT

EXECUTIVE SUMMARY

Flying is the safest form of transportation. As this Annual Safety Review shows, 2006 saw the lowest number of fatal accidents to fixed wing aircraft in public transportation within the last decade (1997 – 2006). 42 fatal accidents happened worldwide that year. The number of onboard fatalities was also below the average of the decade.

European aviation safety performance is high although the number of fatal accidents slightly increased since 2004. In 2006, six fatal accidents for fixed wing aircraft in public transport operations occurred resulting in 146 onboard fatalities which is above the average of the decade (105). The high number of fatalities is mainly the result of one single accident. On 9 July 2006, a French registered Airbus 310 overran a runway in Irkutsk, Russia causing 126 losses of life. This review also shows that Europe's accident improvement rates are lower than in the rest of the world.

For the first time, the European Aviation Safety Agency (EASA) collected and included European accident data for General Aviation and Aerial Work in this review. The data were made available by the National Accident Investigation Bodies or National Aviation Authorities.

Efforts to maintain and improve aviation safety continue to be a priority for EASA. The Annual Safety Review also gives an overview of the Agency's enhanced safety actions including the European Strategic Safety Initiative.

INTRODUCTION

This Annual Safety Review is compiled by EASA to inform the public of the general safety level in the field of civil aviation as required by Article 11 (4) of Regulation (EC) No 1592/2002 of the European Parliament and of the Council of 15 July 2002.

In preparation of this review, the Agency had access to accident information collected by the International Civil Aviation Organisation (ICAO) through its Accident/Incident Data Reporting (ADREP) system[1], accident statistics published by ICAO as well as data on the use of aircraft provided by ICAO. In addition, a request was made to EASA Member States to obtain data on light aircraft[2] accidents for the year 2006.

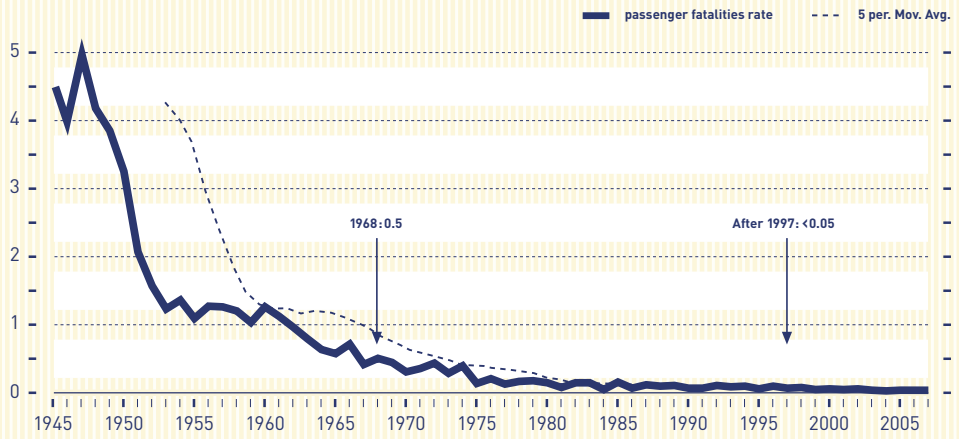
In this review "Europe" is considered as the 27 EU Member States plus Iceland, Liechtenstein, Norway and Switzerland. Compared to the Annual Safety Review 2005, the definition of Europe is expanded to include the new EU Member States Bulgaria and Romania and the four non-EU EASA members. The region is assigned based on the State of Registry of the accident aircraft.

[1] Annex 13 – Aircraft Accident and Incident Investigation – requires States to report to ICAO information on accidents to aircraft with a maximum certificated take-off mass over 2,250 kg.
[2] Light aircraft: aircraft with a certified maximum takeoff mass below 2,251 kg.

1.0 HISTORICAL DEVELOPMENT OF AVIATION SAFETY

The figures below are based on accident rates published in the Annual Report of the Council of ICAO.

FIGURE 1 Passenger fatalities per 100 million passenger miles, scheduled public transport operations, excluding acts of unlawful interference

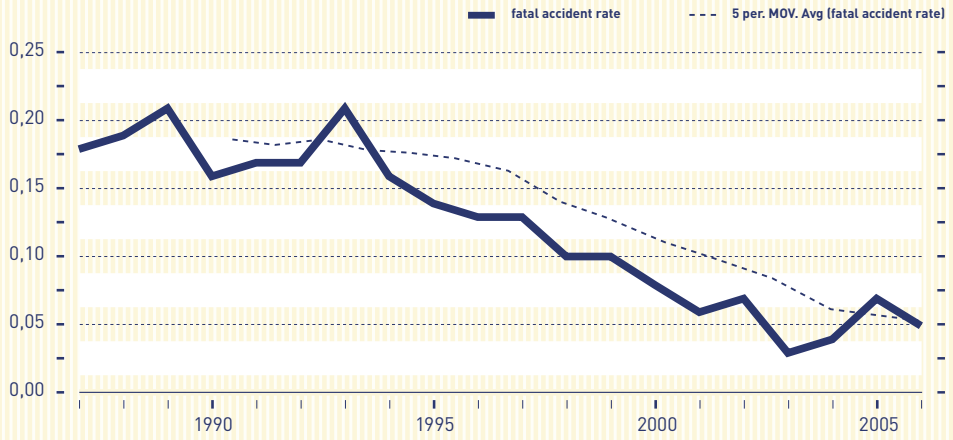


The data in **FIGURE 1** show that the safety of aviation has improved from 1945 onwards. Based on the measure of passenger fatalities per 100 million miles flown, it took some 20 years (1948 to 1968) to achieve the first ten-fold improvement from 5 to 0.5. Another ten-fold improvement was reached in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

The accident rate on 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.

ICAO produces in its Annual Reports accident rates of accidents involving passenger fatalities by 100,000 aircraft flights. The development of this rate over the last twenty years is shown in **FIGURE 2**.

FIGURE 2 Rate of accidents involving passenger fatalities per 100,000 flights, scheduled operations, excluding acts of unlawful interference



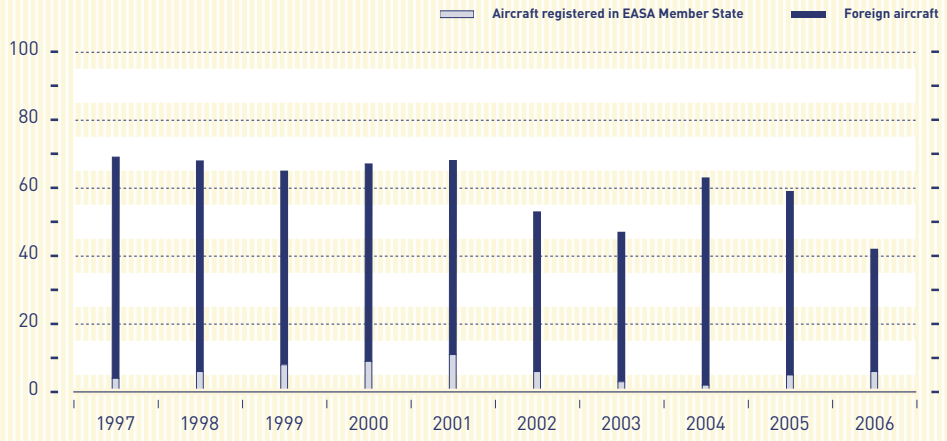
The rate of accidents involving passenger fatalities in scheduled operations per 100,000 flights varied from 0.18 (1987) to 0.21 (1993) and showed no improvement from 1987 to 1993. From that year, the rate dropped continuously until 2003, when it reached its lowest value of 0.03. After increases in 2004 and 2005, in line with the decreasing number of fatal accidents the rate dropped in 2006 to 0.05.

2.0 WORLDWIDE SAFETY OF PUBLIC TRANSPORT OPERATIONS

The number of accidents provided in this part of the report is based on data obtained from the ICAO Accident/Incident Data reporting (ADREP) system. They concern fatal accidents[3] to fixed wing aircraft with a maximum certificated take-off mass exceeding 2,250 kg.

The average number of fatal accidents to fixed wing aircraft in public transport operations in the last decade was 60 per year. The number of fatal accidents in 2006 (42) is lower than that of the previous year 2005 (59) and is the lowest in the decade 1997 to 2006.

FIGURE 3 Fatal accidents, public transport operations total, fixed wing aircraft over 2,250 kg MTOM[4]

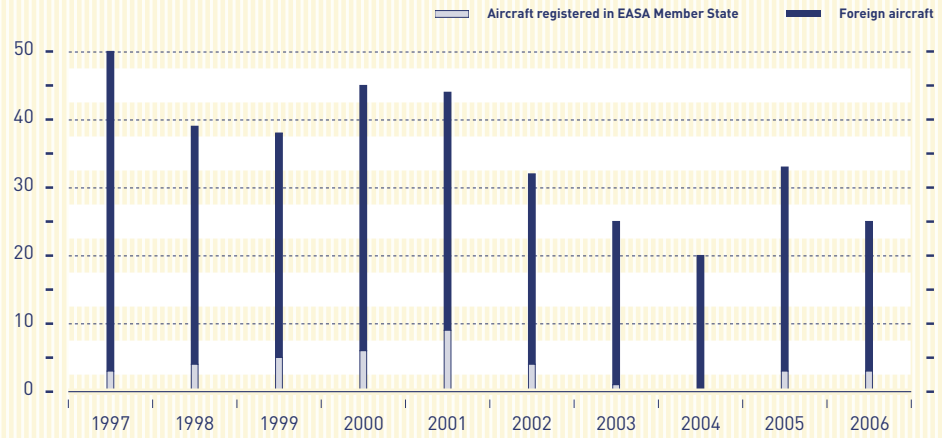


Public transport operations can be further sub-divided into passenger operations, cargo operations and other operations, such as ferry, positioning, sightseeing and air taxi flights. The most important operations in terms of number of operations performed are passenger and cargo flights. **FIGURES 4** and **5** show the number of fatal accidents for these operations.

[3] 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

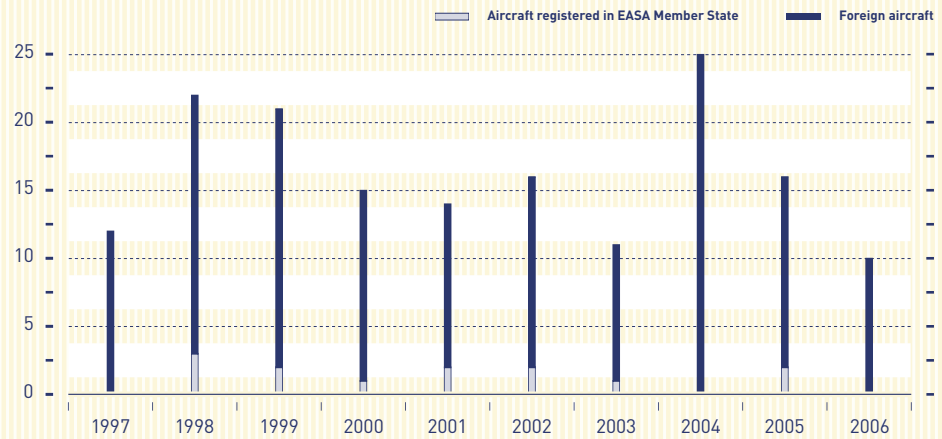
[4] MTOM: maximum certificated take-off mass

FIGURE 4 Fatal accidents, passenger public transport operations, fixed wing aircraft over 2,250 kg MTOM



A total of 25 fatal accidents with passenger public transport operations occurred in 2006; the same number as in 2003. Only in 2004 the number of accidents was lower (20).

FIGURE 5 Fatal accidents, cargo public transport operations, fixed wing aircraft over 2,250 kg MTOM



The number of fatal accidents for cargo public transport operations in 2006 was the lowest for the decade (10).

The total number of onboard fatalities for all public transport operations decreased from 1,140 in 2005 to 923 in 2006. The year 2006 is below the average of the decade (1,048) and only during three years of the last decade, the number of fatalities was lower than in 2006. The number of passenger fatalities in public transport operations in 2006 was 823, up from 456 in 2004 but down from 990 in 2005. The number of passenger fatalities in 2006 is below the average (891.3) of the last decade.

Note that the fatality numbers in the graphs include fatalities resulting from acts of unlawful interference with civil aviation.

FIGURE 6 Onboard fatalities, public transport operations, total fixed wing aircraft over 2,250 kg MTOM

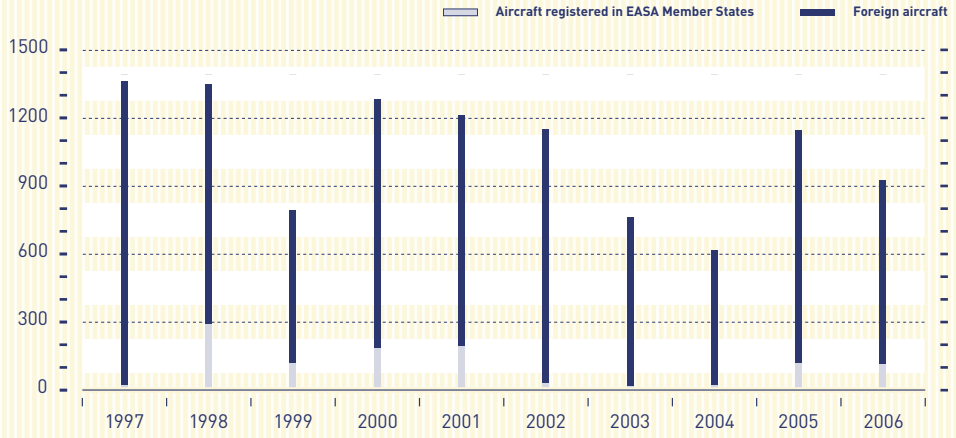
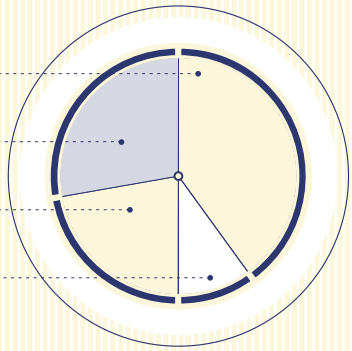


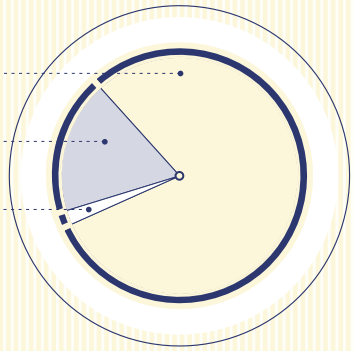
FIGURE 7 shows that in the last decade most fatal accidents occurred during the approach and landing phase (40 percent) even though most of the time aboard is spent in the en-route or cruise phase of flight.

FIGURE 7 Distribution of fatal accidents over the phases of flight, world, public transport operations, 1997 – 2006, fixed wing aircraft over 2,250 kg MTOM



Data obtained from ICAO show that the public air transport fleet, aircraft over 9,000 kg MTOM, is mainly composed of turbine powered aircraft which make up 99% of the fleet. The distribution is shown in **FIGURE 8.**

FIGURE 8 Public air transport fleet, distribution by type of propulsion, ICAO contracting states 1996 – 2005, aircraft mass greater than 9,000 kg MTOM



The distribution of traffic by ICAO statistical region is the subject of **FIGURE 9.**

FIGURE 9 Regional distribution of the number of flights, scheduled and non-scheduled operations, 2000 – 2005

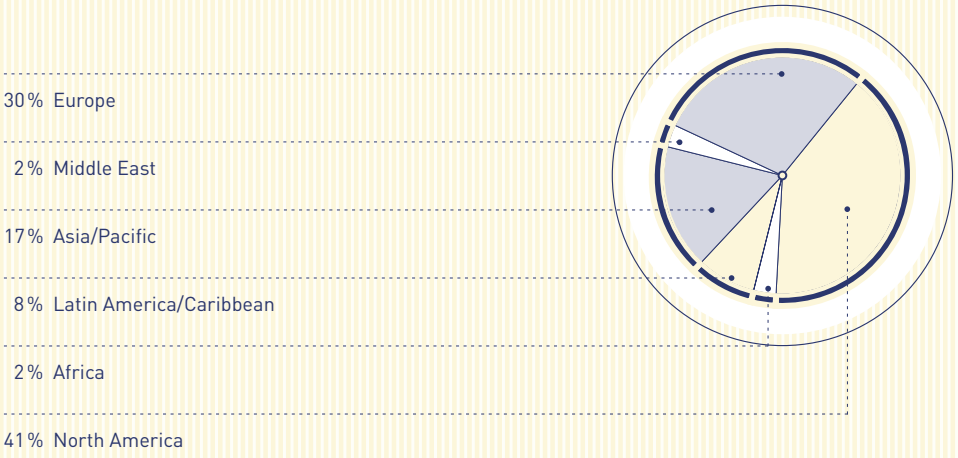
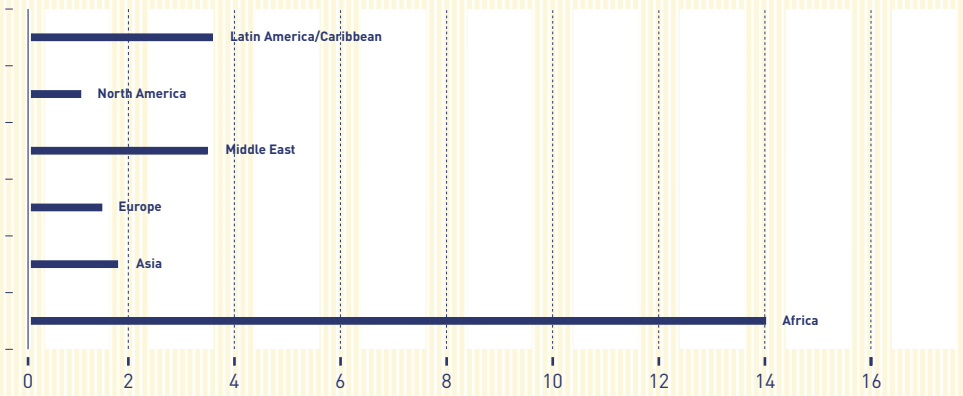


FIGURE 10 shows the rate of all fatal accidents, for fixed wing aircraft over 2,250 kg MTOM, scheduled and non-scheduled operations (ICAO statistical regions only). The calculation is based on data obtained from ICAO ADREP for accidents to aircraft over 2,250 kg MTOM as well as ICAO data on movements (scheduled plus non-scheduled) for the ICAO statistical regions.

FIGURE 10 Rate of the fatal accidents for the period 2000 – 2005 scheduled and non-scheduled operations (per million flights)



3.0 EUROPEAN SAFETY

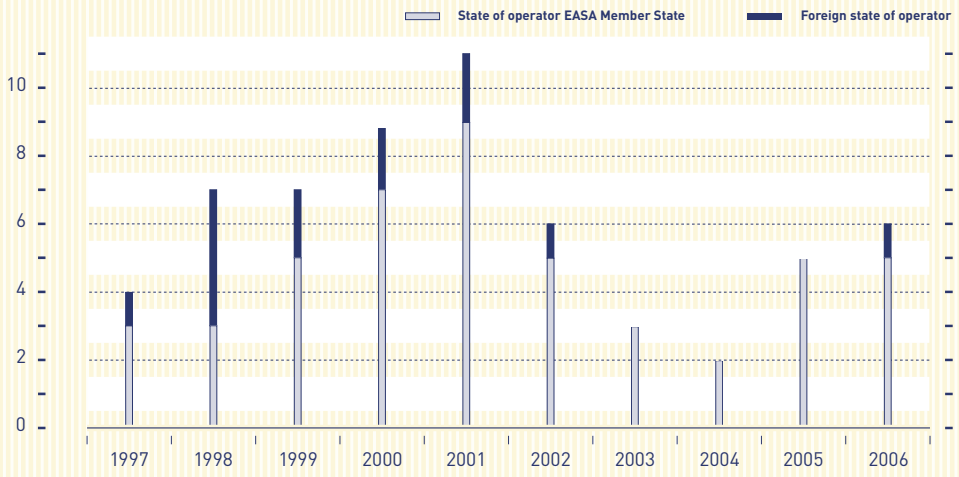
This chapter reviews the aviation accident data for Europe. Compared to the Annual Safety Review 2005, the definition of "Europe" is expanded to include the new EU Member States Bulgaria and Romania as well as the non-EU Member States of EASA.

3.1 PUBLIC TRANSPORT OPERATIONS

3.1.1 FIXED WING AIRCRAFT OVER 2,250 KG MTOM

In 2006, the number of fatal accidents in Europe for fixed wing aircraft, public transport operations, was six. Compared to 2005 (five) and 2004 (two) this means an increase in fatal accidents. However, the number is equal to the average of fatal accidents for the decade 1997–2006.

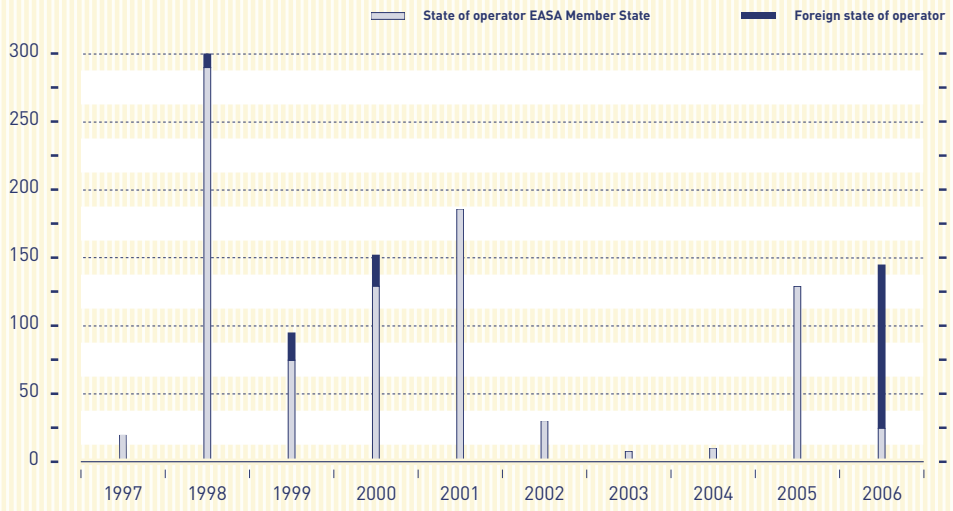
FIGURE 11 Fatal accidents, public transport operations total, fixed wing aircraft over 2,250 kg MTOM



The number of onboard fatalities in Europe increased from 127 in 2005 to 147 in 2006, which is above the average of the decade (105.3). The number of passenger fatalities in public transport operations in 2006 was 134, up from 4 in 2004 and 117 in 2005. The number of passenger fatalities was also above the average (91.4) for the decade 1997 to 2006.

Both in 2005 and 2006, the high number of fatalities was the result of a single accident with more than 100 fatalities (see also Appendix 3). On 9 July 2006, a French registered Airbus 310 of Sibir Airlines overran the runway when landing in Irkutsk, Russia, resulting in 126 fatalities. Even though the aircraft involved in this accident was registered in an EASA Member State, it was operated by a company from a non-EASA Member State.

FIGURE 12 Onboard fatalities, public transport operations total, fixed wing aircraft over 2,250 kg MTOM, registered in EASA Member State



As in the rest of the world, in Europe most fatal accidents occur during the approach and landing phase (43 percent). In comparison with the data presented, it shows that fewer fatal accidents occur during the en-route phase while more fatal accidents are registered for other flight phases.

FIGURE 13 Distribution of fatal accidents over the phases of flight, public transport operations, 1997 – 2006, fixed wing aircraft over 2,250 kg MTOM

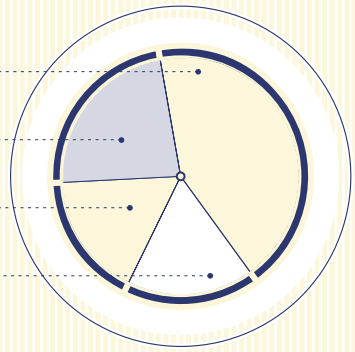
Aircraft registered in EASA Member State

43 % Approach and landing

23 % Take-off

17 % En-route

17 % Other



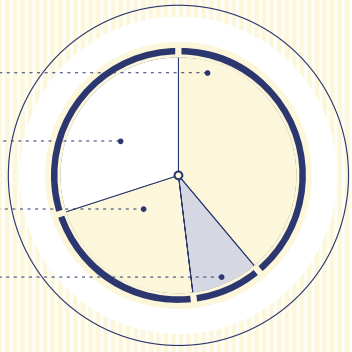
Foreign aircraft

39 % Approach and landing

30 % En-route

22 % Take-off

9 % Other



3.1.2 HELICOPTERS

The information on public transport operations helicopter accidents for the year 2006 provided in this chapter is based on the data received from the EASA Member States (see also paragraph 3.2) and ICAO ADREP.

TABLE 1 Public Transport Helicopter Operations, 2006

Year	Accidents	Fatal accidents	Onboard Fatalities
2006	18	6	20

More than half of the 20 fatalities were the result of two accidents: an accident with an offshore operations helicopter on 27 December 2006 at Morecambe Bay, United Kingdom resulted in 7 fatalities and the crash of a ferry flight in the vicinity of Tenerife, Canary Islands, resulted in 6 fatalities on 8 July 2006.

FIGURE 14 Accidents and fatal accidents per type of public transport operation, helicopters, registered in EASA Member State, 2006

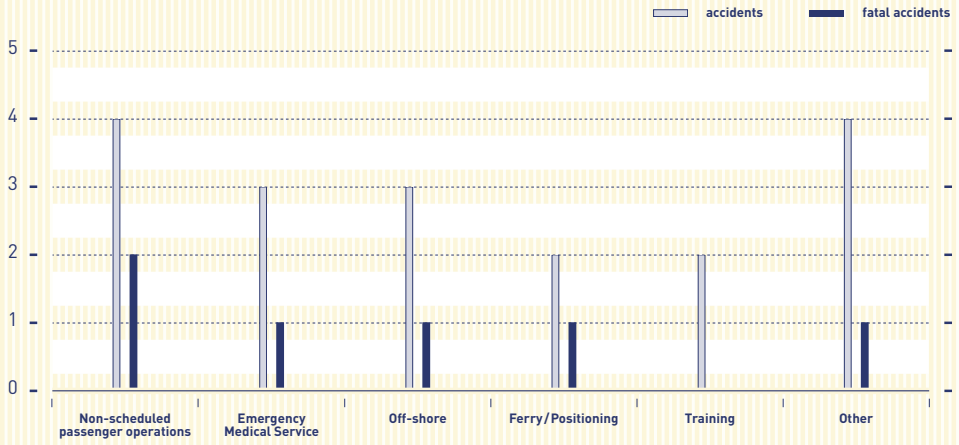
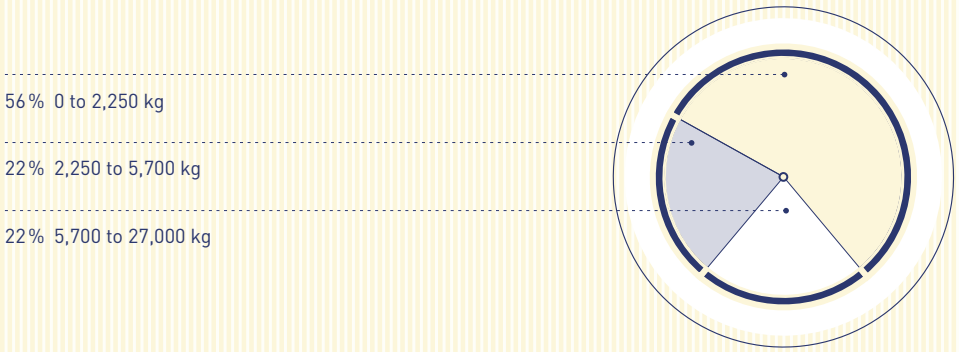


FIGURE 15 Distribution of helicopters engaged in public transport operation, accidents by MTOM, registered in EASA Member State, 2006



In many cases the investigation into the causes of the accidents of the year 2006 is ongoing. It is therefore not possible to provide an overview of the causes of the accidents in public transport operations helicopters for the year 2006.

3.2 GENERAL AVIATION AND AERIAL WORK OPERATIONS

For light aircraft, unlike for aircraft over 2,250 kg MTOM, there is no accident reporting or notification requirement to ICAO. Therefore EASA made a request to the EASA Member States to provide light aircraft accident data to the Agency. The information in this paragraph is based on the accident data received from 30 EASA Member States combined with ICAO ADREP data[5].

General Aviation operations[6] include for example pleasure and training flights. Aerial work operations are operations in which an aircraft is used for specialized services such as agriculture, construction, photography, aerial advertisement and fire fighting.

This is the first time the Agency has collected accident data for General Aviation and for Aerial Work. The Agency intends to develop a historical record over time. As exposure data are not available for General Aviation or Aerial Work, a calculation of accident rates could not be performed.

[5] All countries but Austria provided the requested data.
[6] General aviation operations are aircraft operations other than a commercial air transport operation or an aerial work operation.

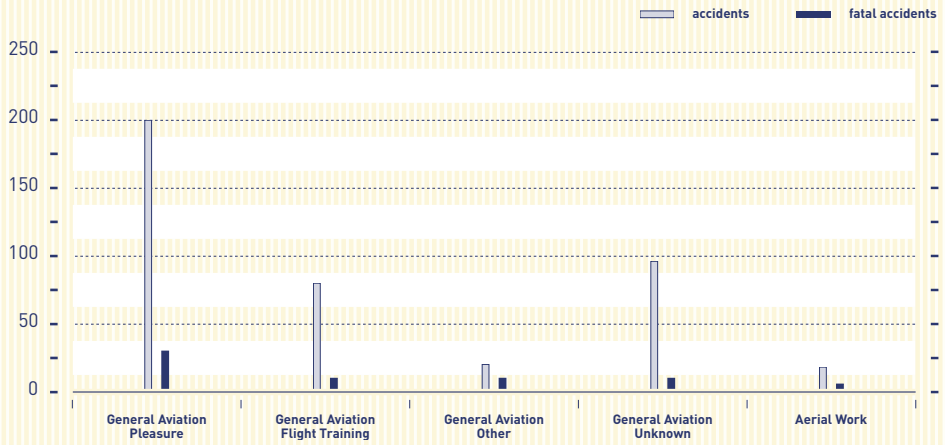
3.2.1 FIXED WING AIRCRAFT

This chapter presents accident data for fixed wing aircraft for which a type-certificate or a certificate of airworthiness has been issued based on Regulation (EC) 1592/2002.

TABLE 2 Fixed wing General Aviation and Aerial Work operations, 2006

Year	Accidents	Fatal accidents	Onboard Fatalities
2006	385	55	102

FIGURE 16 Accidents and fatal accidents per type of operation, General Aviation and Aerial Work, 2006, fixed wing aircraft



As indicated in **FIGURE 16,** most accidents and fatal accidents involved pleasure flights. The number of fatalities is also the highest (57) for this type of operation.

3.2.2 HELICOPTERS

This paragraph provides data on General Aviation and Aerial Work helicopter operations in 2006.

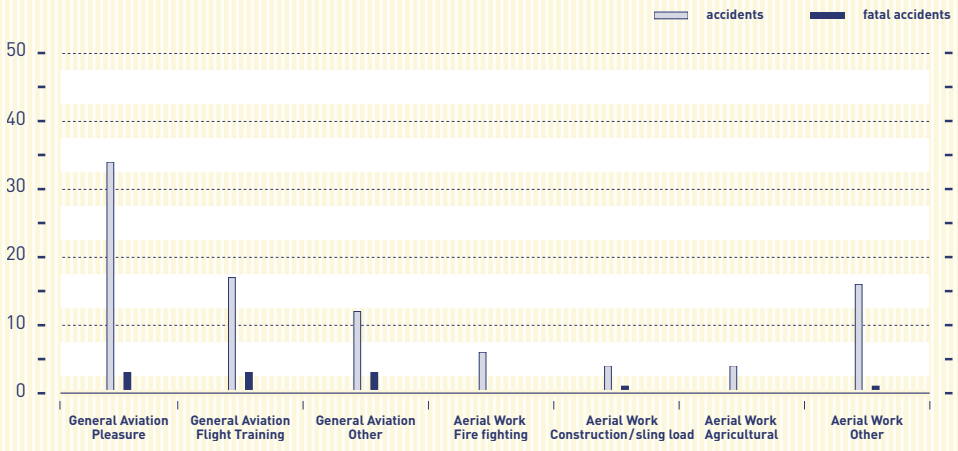
TABLE 3 Helicopter General Aviation and Aerial Work operations, 2006

Year	Accidents	Fatal accidents	Onboard Fatalities
2006	97	9	19

There were 9 fatal accidents in 2006 resulting in 19 fatalities.

The data in **FIGURE 17** show that in 2006 most accidents involved general aviation pleasure flights.

FIGURE 17 Accidents and fatal accidents per type of operation, 2006, helicopters



In 2006 almost 85 percent of the accidents occurred with light helicopters with a MTOM of mass of 2,250 kg or less.

FIGURE 18 Distribution of accidents by MTOM, 2006, helicopters

3.2.3 GLIDERS

In 2006 a total of 245 glider accidents were reported. This includes both gliders and motor gliders. The 31 fatal accidents accounted for 41 fatalities.

TABLE 4 Glider General Aviation and Aerial Work operations, 2006

Year	Accidents	Fatal accidents	Onboard Fatalities
2006	245	31	41

3.2.4 BALLOONS

In 2006 a total of 15 light balloon accidents (0 – 2,250 kg) were reported. There were no fatal accidents.

TABLE 5 Totals Balloon operations, 2006

Year	Accidents	Fatal accidents	Onboard Fatalities
2006	15	0	0

3.2.5 ANNEX 2 AIRCRAFT

This paragraph contains information on so-called Annex 2 aircraft. Annex 2 of the Regulation (EC) No 1592/2002 lists categories of aircraft for which no type-certificate or a certificate of airworthiness has to be issued by EASA. These categories include among others:

— aircraft with a clear historical relevance;
— aircraft designed or modified for research, experimental or scientific purposes;
— amateur built aircraft;
— military aircraft;
— aircraft with a limited speed and limited MTOM.

TABLE 6 Annex 2 aircraft General Aviation and Aerial Work operations, 2006

Year	Accidents	Fatal accidents	Onboard Fatalities
Small Aeroplanes & Microlights	356	64	81
Gyroplanes	5	1	1
Parachutes[7]	23	2	2

[7] The 23 accidents with parachutes have been reported by one State only, and therefore the total number is considered not to be representative for EASA Member States.

4.0 ACCIDENT CATEGORIES

This chapter reviews the aviation accident data for Europe. Compared to the Annual Safety Review 2005, the definition of Europe is expanded to include the new EU Member States Bulgaria and Romania and to include all non-EU EASA members.

4.1 CAST-ICAO SAFETY INDICATORS

Each year the ICAO Safety Indicator Study Group (SISG) assigns accident categories to worldwide accidents using a taxonomy developed by the CAST-ICAO Common Taxonomy Team. The analysis is based on accidents with fixed wing, turbine powered aircraft with a maximum certificated take-off mass exceeding 5,700 kg. Public Transport Operations and General Aviation operations are included, but air shows, demonstration flights, test flight and illegal flights are excluded.

The SISG has categorised accidents to this class of aircraft from 1997 onwards. More than one category can be assigned to an accident.

The figures in this paragraph show the distribution of occurrence categories in respect to Europe and the rest of the world. The figures are based on a total of 1,701 accidents worldwide for the period 1997 – 2006.

The top three accident categories for Europe and the rest of the world are the same, but the ranking differs.

FIGURE 19 Accident categories – accidents to aircraft registered in EASA Member State used in public transport operations or general aviation, turbine powered, fixed wing aircraft, over 5,700 kg MTOM

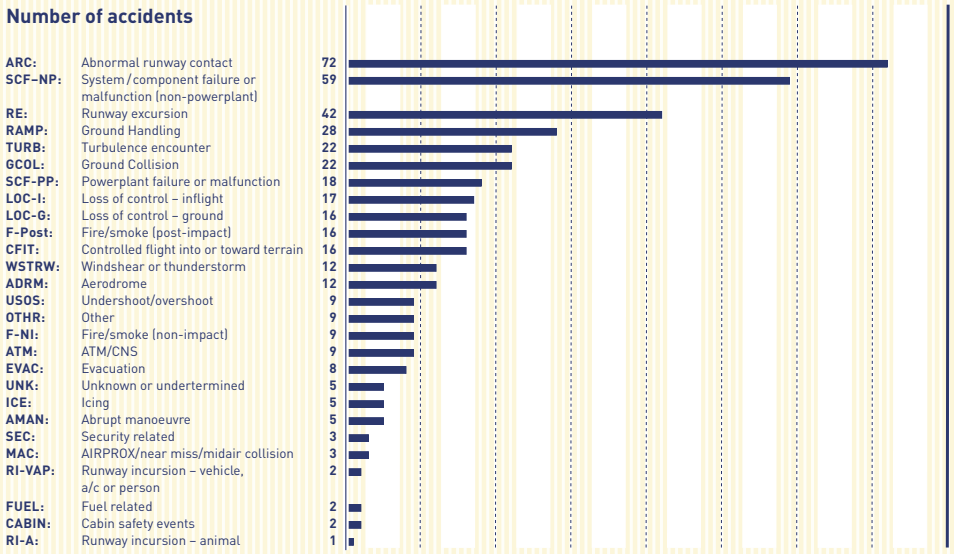
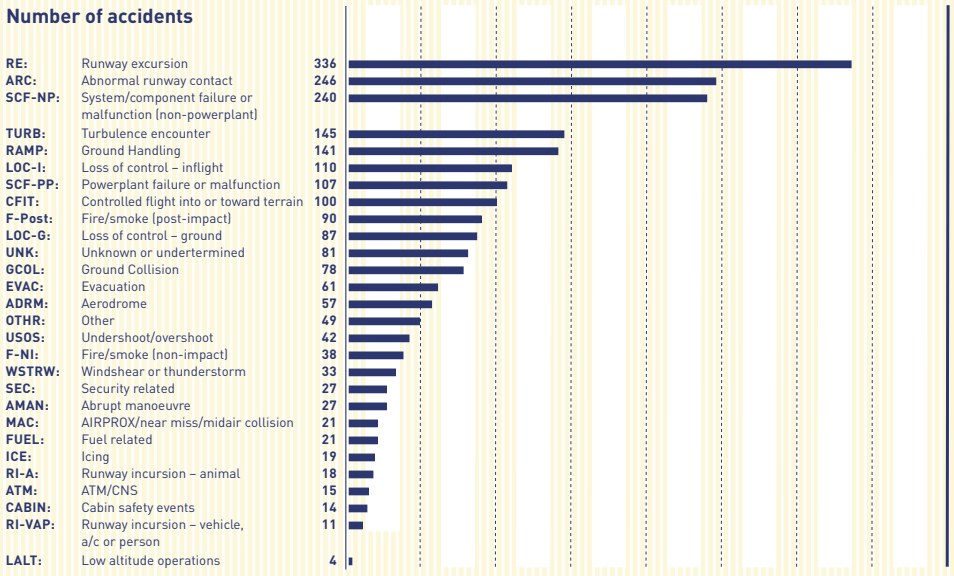


FIGURE 20 Accident categories – accidents to foreign aircraft used in public transport operations or general aviation, turbine powered, fixed wing aircraft, over 5,700 kg MTOM



When looking at fatal accidents only, the two most frequent accident categories are 'loss of control in-flight' and 'controlled flight into terrain'. They also account for most of the fatalities worldwide.

FIGURE 21 Accident categories – fatal accidents to aircraft registered in EASA Member State used in public transport operations or general aviation turbine powered, fixed wing aircraft, over 5,700 kg MTOM

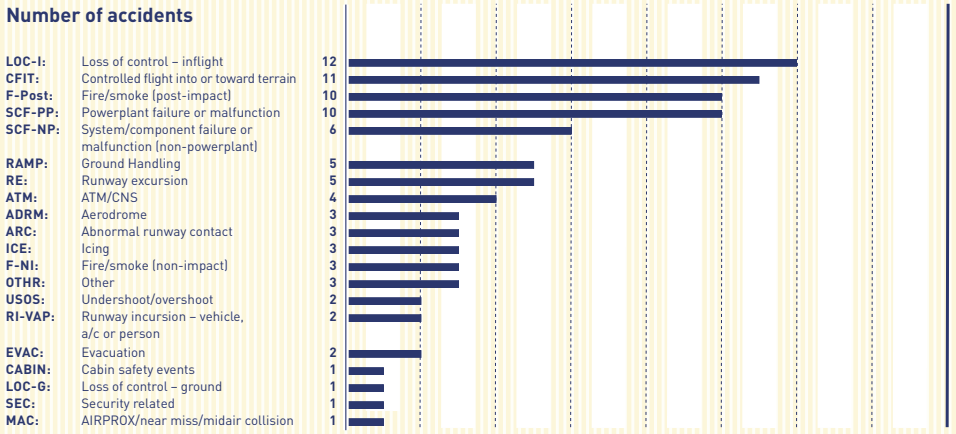
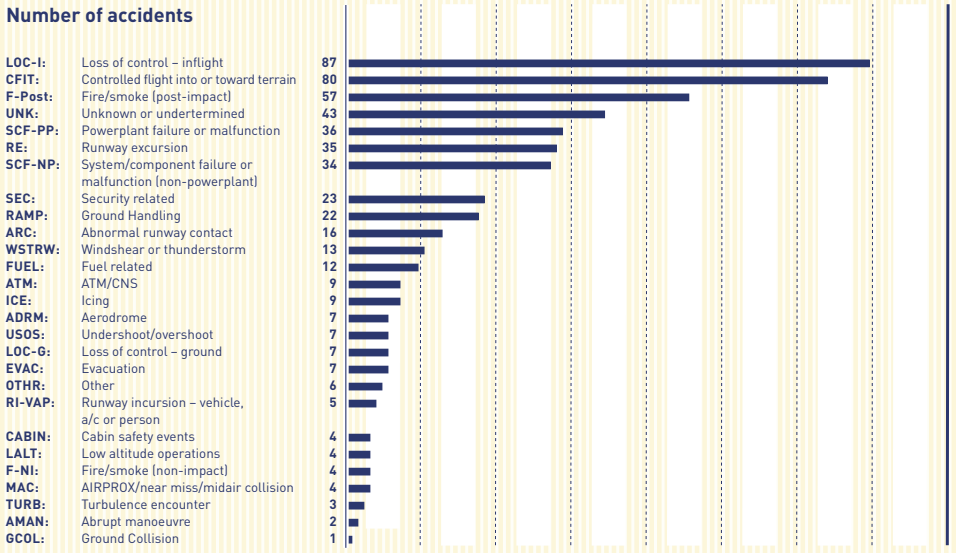


FIGURE 22 Accident categories – fatal accidents to foreign aircraft used in public transport operations or general aviation, turbine powered, fixed wing aircraft, over 5,700 kg MTOM



For European registered aircraft the dominant categories regarding the number of fatalities are 'system and component failure or malfunction-non powerplant' and 'fire – non impact' (see **FIGURE 23**). As only few accidents with a large number of fatalities occur with European registered aircraft, a single accident can influence the order of the categories. The large number of fatalities related to the category of non-impact fires is the result of two accidents: Swissair MD-11 (1998) and the Air France Concorde (2000). Both accidents also account for almost all of the fatalities in the SCF-NP category.

The occurrence category 'aerodrome' is fourth, the number of fatalities mainly resulting from two major accidents: SAS MD80 (2001) in Italy and Air France Concorde (2000) in France. 'Controlled flight into terrain' and 'loss of control in-flight' are represented with 137 and 162 fatalities respectively.

FIGURE 23 Fatalities per accident category, aircraft registered in EASA Member State used in public transport operations or general aviation, turbine powered, fixed wing aircraft, over 5,700 kg MTOM

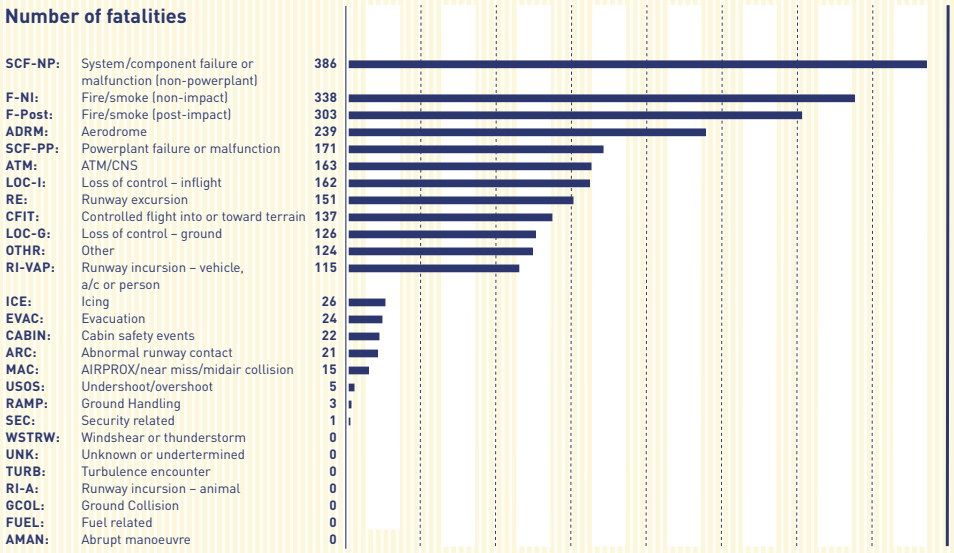
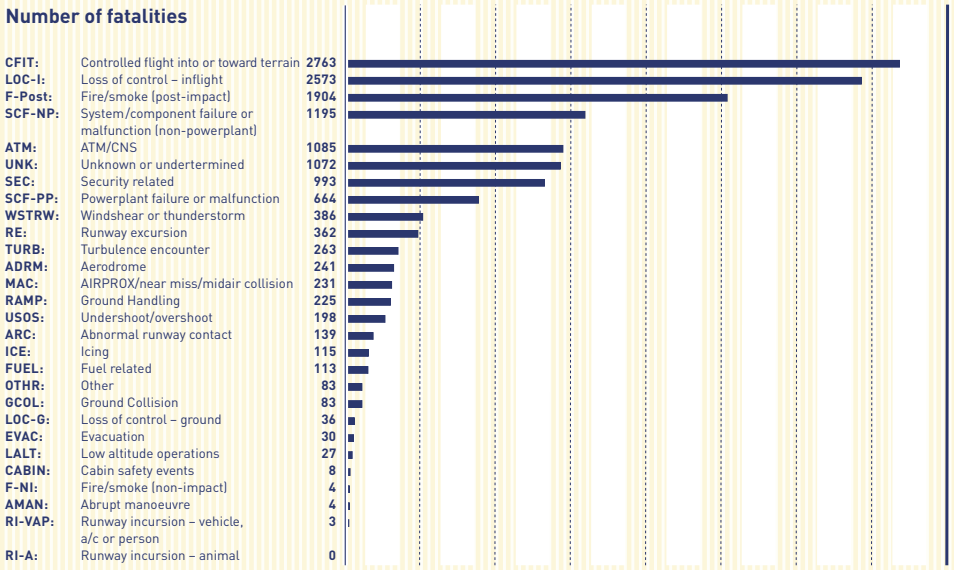


FIGURE 24 Fatalities per accident category, foreign aircraft used in public transport operations or general aviation, turbine powered, fixed wing aircraft, over 5,700 kg MTOM

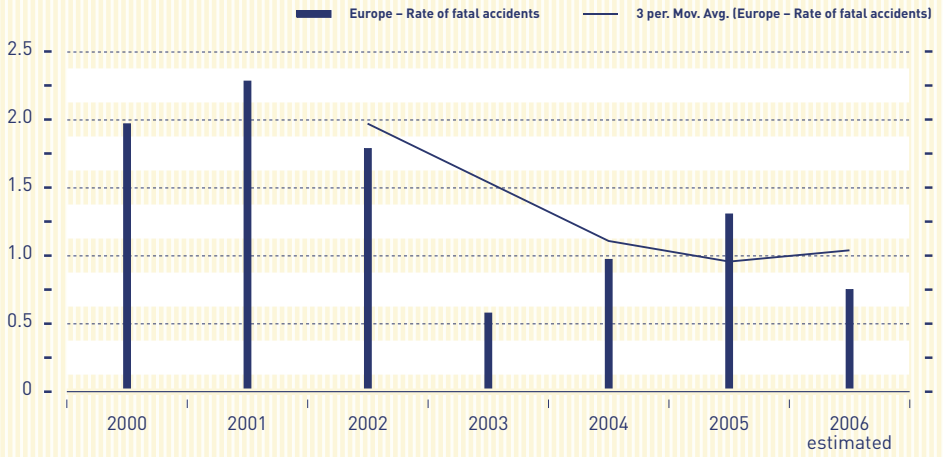


4.2 PUBLIC AIR TRANSPORT SAFETY INDICATORS

In addition to the CAST-ICAO assigned accident categories outlined in chapter 4.1, accident categories for aircraft with a maximum certificated take-off mass between 2,250 and 5,700 kg were assigned.

The following accident rates are based on data obtained from the ICAO ADREP system and exposure/movement data provided by the Air Transport Bureau of ICAO. When compiling this review, movement data for 2006 were not yet available which required limiting the review to the years 2000 – 2005 (although an estimation for 2006 was done, please see below). In addition, only aggregated data for all European states were available, i.e. the calculations include accident rates also of European states not members of or associated with EASA.

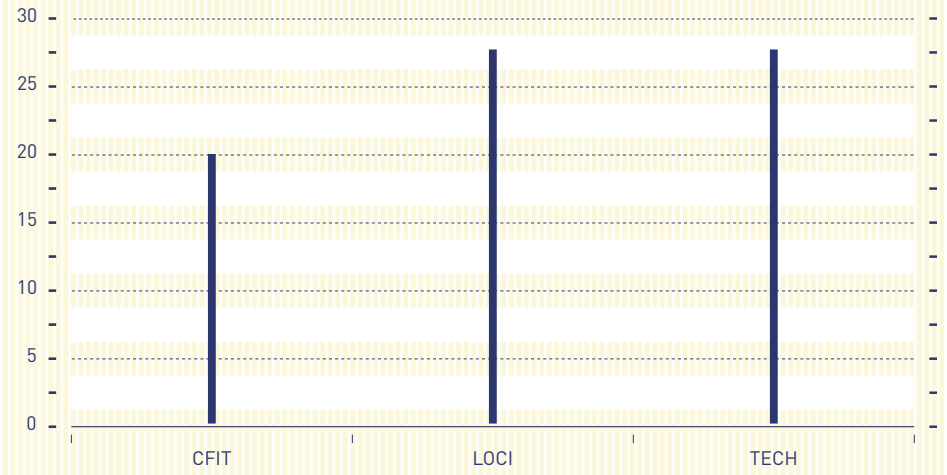
FIGURE 25 Rate of fatal accidents, aircraft registered in Europe, 2000 – 2006, fixed wing aircraft, over 2,250 kg MTOM, public transport operations (rate of fatal accidents per million departures)



The rate displayed in **FIGURE 25** is based on the number of all fatal accidents to aircraft registered in Europe, irrespective of their causes. The value for 2006 has been derived based on an estimate for number of flights and using the actual number of fatal accidents. The drop in the rate from 2005 to 2006 is mainly the result of the reduced number of accidents which dropped from 10 in 2005 to 6 in 2006.

FIGURE 26 shows the relative frequency of the three most significant accident categories of fatal accidents involving aircraft registered in Europe.

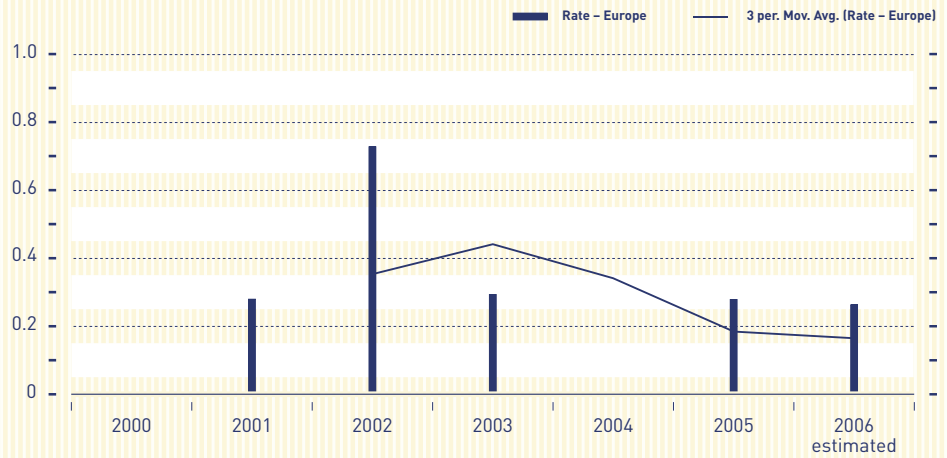
FIGURE 26 The most significant accident categories, fixed wing aircraft, over 2,250 kg MTOM, registered in Europe, public transport operations fatal accidents, 2000 – 2006 (in % of all fatal accidents)



CFIT: Controlled Flight Into Terrain LOC-I: Loss of control in flight
TECH: Accidents related to aircraft/aircraft systems or aircraft engine failures

Controlled Flight Into Terrain (CFIT)

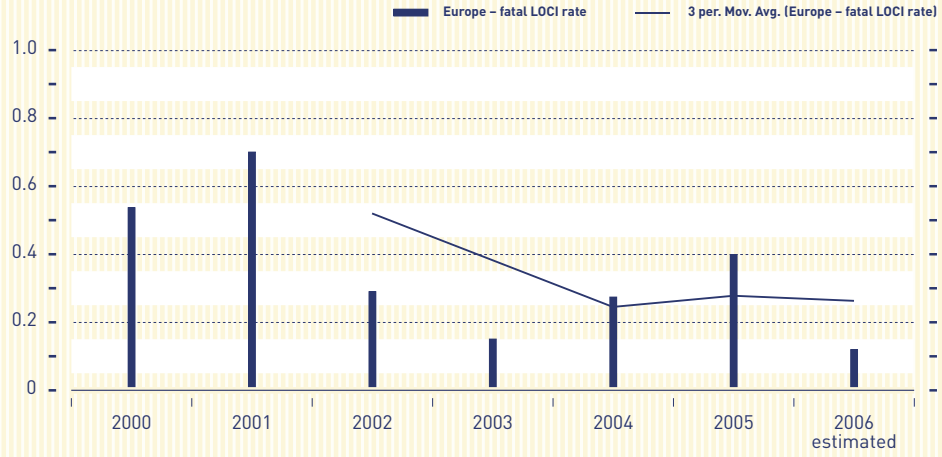
FIGURE 27 CFIT: Rate of fatal accidents 2000 – 2006, fixed wing aircraft, over 2,250 kg MTOM, registered in Europe, public transport operations (rate of fatal CFIT accidents per million departures)



The slight drop in the rate when comparing the years 2003 and 2005 and the estimated rate for 2006 is the result of an increase in traffic while the number of 'controlled flight into terrain' related accidents remained the same (two).

Loss of control in flight (LOC-I)

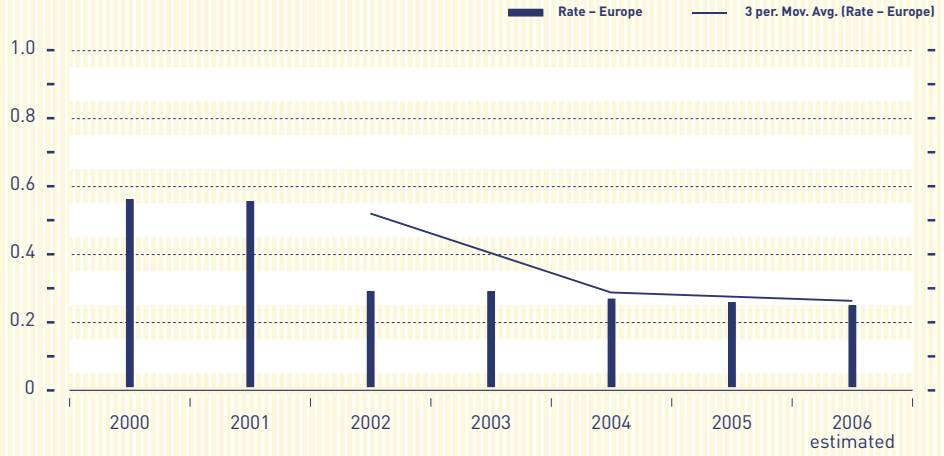
FIGURE 28 LOC-I: Rate of fatal accidents 2000 – 2006, fixed wing aircraft, over 2,250 kg MTOM, registered in Europe, public transport operations (rate of fatal LOCI accidents per million departures)



While the number of accidents related to the category 'loss of control in flight' varied, the average rate of fatal accidents involving 'loss of control in flight' has been stable over the last five years at about 0.27 accidents per million flights.

Accidents related to aircraft/aircraft systems or aircraft engine failures (TECH)[8]

FIGURE 29 TECH: Rate of fatal accidents 2000 – 2006, fixed wing aircraft, over 2,250 kg MTOM, registered in Europe, public transport operations (rate of fatal accidents related to aircraft systems/components/engines failures per million departures)



Resulting from a stable number of fatal accidents in this category, the related fatal accident rate has been stable over the last five years. The small drop that can be observed from 2002 onwards is the result of the increase in the number of flights while the related number of accidents remained constant (two per year).

CONCLUSION

The data show that the safety level of European aviation is high and that there is a trend towards continuing improvement. Nevertheless there are concerns: improvement rates are lower than in the rest of the world, there is a persistent low number of accidents and some accident categories are almost exclusively dominated by accidents of European aircraft.

In addition to the fatalities in public transport operations, almost the same number of persons was fatally injured in European General Aviation related accidents. There is a need for a coordinated European effort to address these issues.

[8] Note: For the purposes of this analysis, accident data for the accident categories "SCF-NP" (Systems/component failure, non-power plant) and "SCF-PP" (System/component failure, power plant) were combined.

5.0 EASA'S SAFETY ACTION

5.1 THE EUROPEAN STRATEGIC SAFETY INITIATIVE (ESSI)

EASA launched the European Strategic Safety Initiative (ESSI) in April 2006 as the successor to the Joint Aviation Safety Initiative (JSSI) of the Joint Aviation Authorities (JAA). The ESSI foundation meeting took place on 27 April 2006, and the JSSI-ESSI handover was performed on 28 June 2006.

The ESSI is an aviation safety partnership in Europe. Its objective is to further enhance safety in Europe and for the European citizens worldwide in 2007-2017, through analysis of safety data, coordination with safety initiatives worldwide, and the implementation of cost effective action plans.

The ESSI has redefined and revitalised cooperative safety efforts in Europe with a new objective, a new regulator-industry partnership approach, and a new process. In line with its JSSI heritage, the ESSI will maintain and further develop cooperation with the Commercial Aviation Safety Team (CAST) in the US and with other major safety initiatives worldwide, in particular under the Cooperative Development of Operational Safety and Continuing Airworthiness Programme (COSCAP) of the ICAO Technical Cooperation Programme.

The ESSI fits naturally within the Global Aviation Safety Road Map developed in 2006 for ICAO by the Industry Safety Strategy Group led by the International Air Transport Association (IATA). As encouraged by the Road Map, ESSI provides a mechanism for coordinating safety initiatives within Europe and between Europe and the rest of the world, seeking for global alignment and minimising duplication of efforts across stakeholders.

The ESSI participants are drawn from the EASA Member States (27 European Union Member States plus Switzerland, Lichtenstein, Iceland and Norway) and the JAA States, from manufacturers, operators and professional unions, research organisations, the Federal Aviation Administration (FAA) and international organisations such as EUROCONTROL and ICAO. More than seventy civil and military organisations are participating to date.

ESSI is a partnership between EASA, other European regulators and the industry. Like CAST, the ESSI is based on the principle that industry can complement regulatory action by voluntary committing to cost effective safety enhancement. The partnership is sealed by signing a pledge, by which organisations commit to be equal partners within the ESSI, provide reasonable resources to ensure that the

ESSI is effective, and take reasonable actions as a result of ESSI recommendations, guidance and solutions. To consolidate this partnership, the ESSI terms of reference state that each ESSI team shall be co-chaired by a regulator and an industry member.

The ESSI is a data driven and goal oriented, risk assessment and management initiative. It shall analyse safety data to determine factors causing or contributing to accidents or incidents and identify safety risks. It shall take advantage of other safety initiatives in order to avoid duplication of resources and maximise synergy. It will also conduct prognostic studies to determine potential future hazards. The ESSI will define safety baselines, set up and publish safety objectives and balance potential for risk reduction with costs. It will develop action plans and allocate resources to achieve these goals, and provide results to the aviation industry free of charge.

The ESSI applies and promotes safety management principles, applies a "just culture" approach, treats all safety data and the sources of safety data in a confidential manner, and protects proprietary information and data.

The ESSI has three pillars: the European Commercial Aviation Safety Team (ECAST), the European Helicopter Safety Team (EHEST), and the European General Aviation Safety Team (EGAST). The helicopter activity includes commercial and general helicopter operations.

5.1.1 THE EUROPEAN COMMERCIAL AVIATION SAFETY TEAM (ECAST)

ECAST addresses large aircraft operations. It was launched in October 2006 by the team that created the ESSI. ECAST is Europe's equivalent of CAST in the US. ECAST aims at further enhancing commercial aviation safety in Europe, and for European citizens worldwide.

ECAST is developing a new safety work using three phase process: Phase 1 – Identification and selection of safety issues, Phase 2 – Safety issues analysis, and Phase 3 – Development, implementation and monitoring of actions plans. In Phase 1, ECAST will generate a list of safety issues that put the European public at risk and may be appropriate subjects of mitigating action. This list will be made available for further analysis, which is the objective of Phase 2. For each safety issue ECAST will develop, assess, select, implement and monitor cost-efficient

action plans in Phase 3. Using the safety performance metrics defined in Phase 2, ECAST will monitor the efficacy of action plans to achieve the stated safety objectives, and take corrective actions if necessary. The work on Phase 1 started in April 2006 and the first results are expected in 2007.

ECAST also monitors in Europe the completion of the action plans inherited from the JSSI. These plans were adapted from the work of CAST by the JSSI. They address the reduction of the risks of 'control flight into terrain', 'loss of control' and 'approach and landing' accidents in Europe.

Two additional ECAST processes concern communication and coordination with other safety initiatives in Europe and worldwide.

5.1.2 THE EUROPEAN HELICOPTER SAFETY TEAM (EHEST)

EHEST is the second ESSI pillar. It features representatives of manufacturers, operators, research organisations, regulators, accident investigators and military from across Europe.

EHEST is also the European component of the International Helicopter Safety Team (IHST). The IHST was established in the US in 2006 with the goal of achieving 80 percent reduction of the accident rate by 2016. To address the specificities of helicopter operations safety in Europe, the European members of the IHST have established EHEST in November 2006.

The European Helicopter Safety Analysis Team (EHSAT) was formed with the purpose of developing a process for analysis of European helicopter accidents and the performance of the analysis, similar to the function of the Joint Helicopter Safety Team (JHSAT) within the IHST. EHSAT is committed to ensuring that the analysis carried out in Europe will be compatible with the work of the JHSAT.

To tackle the variety of languages used in accident reports and optimise the use of resources, EHSAT has set up seven regional analysis teams across Europe, with the objective of covering more than 89 percent of the European fleet in 2007. Consolidation of results is performed by EHSAT with the support of EASA.

5.1.3 THE EUROPEAN GENERAL AVIATION SAFETY TEAM (EGAST)

EGAST is the third ESSI pillar, to be launched in late 2007.

In Europe, like in other regions of the world, General Aviation is a dispersed community. Air sports and recreational aviation embrace a wide spectrum of airborne activities, ranging from powered flying, ballooning and gliding to newly-invented activities such as sky-surfing, micro light flying and paragliding.

EGAST will take into account the new regulatory materials developed by EASA for general aviation. Getting general aviation safety data and participation from the general aviation community is a challenge. EGAST will build on the national general aviation initiatives in Europe and create a forum for sharing safety data and best practices in Europe.

5.2 RULEMAKING

In response to the accident experience, EASA is working on the improvement of the related regulatory material in its rulemaking activities. Details of which can be found at: **HTTP://WWW.EASA.EUROPA.EU/HOME/RM_APP_EN.HTML.**

5.3 CERTIFICATION

EASA also takes specific actions in response to the accident experience. The Agency addresses improving the operational system in relation to the accident categories by various actions, including the issuing of airworthiness directives. Details can be found at: **HTTP://WWW.EASA.EUROPA.EU/HOME/AW_DIR_EN.HTML.**

APPENDIXES

APPENDIX 1: DEFINITIONS AND ACRONYMS

Accident[8]	An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which: a) a person is fatally or seriously injured as a result of: — being in the aircraft, or — direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or — direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or b) the aircraft sustains damage or structural failure which: — adversely affects the structural strength, performance or flight characteristics of the aircraft, and — would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or c) the aircraft is missing or is completely inaccessible.
Aerial Work	An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.
ADREP	ICAO Accident/Incident Data Reporting
EASA	European Aviation Safety Agency
EC	European Commission
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.
Foreign Aircraft	All aircraft not registered in one of the EASA Member States
General Aviation operations	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
Public Transport operations	An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.
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

[8] EASA uses ICAO definitions for the terms “Accident” and “Fatal accident” (see ICAO Annex 13, Chapter 1 – Definitions)

ABBREVIATIONS OF OCCURRENCE CATEGORIES

for further details see
HTTP://INTLAVIATIONSTANDARDS.ORG/OCCURRENCECATEGORIES.HTML

ARC	Abnormal Runway Contact
AMAN	Abrupt Manoeuvre
ADRM	Aerodrome
ATM	ATM/CNS
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

APPENDIX 2: LIST OF FIGURES

APPENDIX 2: LIST OF FIGURES

APPENDIX 3: LISTING OF FATAL ACCIDENTS IN 2006

Public Transport Operations with fixed wing aircraft over 2,250 kg MTOM only

AIRCRAFT REGISTERED IN EASA MEMBER STATES

Date	State of occurrence	Aircraft Type	Type of Operation	On board fatalities	Flight phase
12/01/06	Germany	Beech 300 King Air	Ferry/positioning	2	Approach
07/03/06	Spain	Cessna 421	Air taxi	6	Approach
02/07/06	Germany	De Havilland DHC2 MK I Beaver	Passenger	5	Take-off
09/07/06	Russian Federation	Airbus A310	Passenger	126	Landing
10/10/06	Norway	BAE Systems 146-200	Passenger	4	Landing
19/10/06	France	Beech 90 King Air	Emergency Medical Service	4	Take-off

AIRCRAFT REGISTERED IN REST OF WORLD (FOREIGN AIRCRAFT)

Date	State of occurrence	Aircraft Type	Type of Operation	On board fatalities	Flight phase
02/01/06	Ukraine	BAE Systems 125 Series 700	Ferry/positioning	3	Approach
16/01/06	United States	Boeing 737-500	Passenger	1	Standing
19/01/06	Australia	Beech 58 Baron	Passenger	2	Unknown
21/01/06	Canada	Cessna 208B	Passenger	3	En route
08/02/06	United States	Swearingen Metro II	Cargo	1	En route
08/03/06	United States	Cessna 414A	Ferry/positioning	3	Approach
08/03/06	Canada	Piper PA-31-350	Cargo	1	Landing
18/03/06	United States	Beech C99	Cargo	2	Approach
24/03/06	Ecuador	Cessna 208 Caravan I	Passenger	5	Take-off
31/03/06	Brazil	Let L-410	Passenger	19	En route
16/04/06	Bolivia	Fokker F-27	Passenger	1	Landing
24/04/06	Afghanistan	Antonov An-32	Passenger	2	Landing
27/04/06	Congo	Convair 580	Cargo	8	Landing
28/04/06	Uganda	CESSNA 208 Grand Caravan	Cargo	3	En route
03/05/06	Russian Federation	Airbus A320	Passenger	113	Approach
02/06/06	United States	Learjet 35A	Passenger	2	Approach

AIRCRAFT REGISTERED IN REST OF WORLD (FOREIGN AIRCRAFT)

Date	State of occurrence	Aircraft Type	Type of Operation	On board fatalities	Flight phase
21/06/06	Nepal	De Havilland DHC6-300	Passenger	9	Approach
25/06/06	United States	Mitsubishi MU-2B-60	Ferry/positioning	1	Take-off
30/06/06	Mozambique	Cessna 208B	Passenger	1	Approach
07/07/06	Congo	Antonov An-12	Cargo	6	En route
10/07/06	United States	Piper PA-31-350	Cargo	1	En route
10/07/06	Pakistan	Fokker F-27	Passenger	45	Take-off
03/08/06	Congo	Antonov An-28	Passenger	17	Approach
04/08/06	United States	Embraer 110 Bandeirante	Ferry/positioning	1	Approach
13/08/06	Italy	Lockheed Hercules 100-30	Cargo	3	En route
22/08/06	Ukraine	Tupolev TU-154M	Passenger	170	En route
27/08/06	United States	Bombardier CRJ-100	Passenger	49	Take-off
01/09/06	Iran	Tupolev TU-154M	Passenger	28	Landing
29/09/06	Brazil	Boeing 737-800	Passenger	154	En route
25/10/06	Madagascar	Cessna 425	Passenger	6	Take-off
29/10/06	Nigeria	Boeing 737-200	Passenger	96	Take-off
09/11/06	Congo	Let L-410	Passenger	1	Landing
17/11/06	Indonesia	De Havilland DHC6-300	Passenger	12	En route
18/11/06	Colombia	Boeing 727-100	Cargo	5	Approach
16/12/06	Tanzania	Cessna 310Q	Passenger	2	Take-off
30/12/06	Mexico	Rockwell Sabreliner	Cargo	2	Approach

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