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UK SAFETY PERFORMANCE VOLUME I

Safety Regulation Group

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Executive Summary

This document provides statistics on the safety of UK aviation between 2000 and 2009, covering reportable and fatal accidents, serious incidents and occurrences as a whole. Information is provided for UK public transport, UK non-public transport, UK airspace and UK aerodromes, large and small aeroplanes, helicopters, airships, balloons, gliders, gyroplanes and microlights.

The document replaces the Aviation Safety Review and is the first in a series of publications designed to provide more in-depth information to the UK aviation industry and to the public. The document does not provide any comments regarding trends or the statistical significance of the statistics presented but rather invites readers to draw their own interpretations and conclusions.

Safety of UK Public Transport Aircraft Worldwide

Safety statistics are provided for UK-registered and UK-operated aircraft worldwide engaged in ambulance, cargo, passenger, police support or search and rescue operations.

Large Aeroplanes

There were 113 reportable accidents involving large UK public transport aeroplanes between 2000 and 2009. The most common type of accident was a ramp incident, followed by abnormal runway contact or runway excursion. Three accidents involved fatalities to aircraft occupants, with a total of five fatalities. One accident involved a third party fatality.

The reportable accident rate over the period as a whole was 9.8 per million flights, and the fatal accident rate was 0.3 per million flights. Grouping aircraft into jets, business jets and turboprops, the group most commonly involved in a reportable accident was jet aircraft, but they had the lowest accident rate at 9.1 per million flights. By contrast, business jets were involved in the least number of reportable accidents but had the highest accident rate at 19.4 per million flights.

In addition to the five on-board fatalities and one third-party fatality, there were 15 serious injuries and 44 minor injuries.

There were 179 serious incidents, of which aircraft technical failure/malfunction was the most common type of serious incident, followed by in-flight fire/smoke/fumes. The serious incident rate was 15.7 per million flights, and was highest for turboprop aircraft at 20.1 per million flights.

Overall, there were 49,000 occurrences involving large UK public transport aeroplanes and the annual number of these occurrences increased by 20% in the ten year period. Accidents and Serious Incidents form less than 1% of the total number of occurrences.

Small Aeroplanes

There were 16 reportable accidents involving small UK public transport aeroplanes between 2000 and 2009, including one fatal accident on an ambulance flight, resulting in five fatalities. In total, there were five fatal, two serious and four minor injuries to aircraft occupants.

The reportable accident rate over the period was 24.7 per million flights and the fatal accident rate was 1.5 per million flights.

There were 12 serious incidents in the ten year period, and 730 occurrences. Accidents and Serious Incidents form 3.8% of the total number of occurrences.

Helicopters

UK public transport helicopters were involved in 22 reportable accidents between 2000 and 2009. Helicopter public transport can be divided into three main types of operation: emergency services, off-shore and 'other'. Although all three types were involved in the 22 reportable accidents, the three fatal accidents that occurred all involved offshore helicopters, resulting in a total of 34 fatalities. In addition to these fatalities, there was 1 serious injury and 17 minor injuries involving public transport helicopters.

The reportable accident rate for all public transport helicopters was 8.3 per million flights and the fatal accident rate was 1.1 per million flights. By type of operation, the rates are as follows: for emergency services helicopters the accident rate was 11.3 per million flights; for offshore helicopters the accident rate was 8.5 per million flights and the fatal accident rate was 2.0 per million flights; for other helicopters the accident rate was 2.4 per million flights.

There were 12 serious incidents in the ten-year period and 2,900 occurrences. Accidents and Serious Incidents form 1.2% of UK public transport helicopter occurrences.

Balloons

There were 27 reportable accidents involving UK public transport balloons between 2000 and 2009, but there were no fatal accidents and no serious incidents. However, there were 15 serious injuries and 36 minor injuries.

102 occurrences involving public transport balloons were reported to the UK MOR scheme, with accidents forming 26% of occurrences.

Safety of UK Non-Public Transport Aircraft Worldwide

Safety statistics are provided for UK-registered and UK-operated aircraft worldwide, involved in non-public transport flights. Non-public transport flights are those that do not involve ambulance, cargo, passenger, police support or search and rescue flights, and may involve operations such as aerial survey, construction work, line inspections, flying clubs, business and executive aviation, test flights, training, positioning or private flying.

Large Aeroplanes

Between 2000 and 2009 there were 18 reportable accidents involving large non-public transport aeroplanes. The most common type of accident was abnormal runway contact/runway excursion, followed by ramp incidents. One reportable accident was also a fatal accident, resulting in two fatalities, and one resulted in a serious injury.

There were 20 serious incidents and 6,600 occurrences. Reportable accidents and serious incidents form 0.6% of occurrences in this category.

Small Conventional Aeroplanes

Conventional aeroplanes are defined as landplanes, seaplanes and self-launching motorgliders. There were nearly 1,400 reportable accidents involving small conventional aeroplanes between 2000 and 2009, of which 85 were fatal. The reportable accident rate was 174.4 per million hours and the fatal accident rate was 10.6 per million hours.

There were 144 fatalities, 101 serious injuries and 234 minor injuries over the ten year period, and 30 serious incidents were investigated by the UK Air Accidents Investigation Branch (AAIB).

Small Helicopters

There were 202 reportable accidents involving small helicopters between 2000 and 2009. 73% of reportable accidents involved single piston helicopters, 23% single turbine helicopters and 4% twin turbine helicopters. 25 of the accidents were fatal.

The reportable accident rate over the period was 128.8 per million hours and the fatal accident rate was 15.9 per million hours.

There were 58 fatalities, 19 serious injuries and 75 minor injuries during the ten year period and 9 serious incidents were investigated by the AAIB.

Other Small Aircraft

The aircraft types included in the analysis of 'other' aircraft included: airships, balloons, gliders, gyroplanes and microlights.

Airships were involved in only one reportable accident and no fatal accidents between 2000 and 2009, and no aircraft occupants were injured.

Balloons were involved in 21 reportable accidents and no fatal accidents, however there were 10 serious injuries and 9 minor injuries.

Safety statistics for gliders are provided by the British Gliding Association and cover the period 1st October 1999 to 31st September 2009. During this time, there were 444 reportable accidents, of which 32 were fatal. There were 39 fatalities, 65 serious injuries and 464 minor/no injuries to aircraft occupants. The reportable accident rate was 322.4 per million hours and the fatal accident rate was 23.2 per million hours.

There were 32 reportable accidents involving gyroplanes, of which 9 were fatal accidents. There were 11 fatalities, 1 serious injury and 7 minor injuries. The reportable accident rate was 1,422.4 per million hours and the fatal accident rate was 400.0 per million hours.

There were 387 reportable accidents involving microlights, of which 20 were fatal accidents. There were 28 fatal injuries, 72 serious injuries and 104 minor injuries. The reportable accident rate was 347.0 per million hours and the fatal accident rate was 17.9 per million hours.

Safety of UK Airspace and Aerodromes

Safety statistics for UK airspace and aerodromes relates to any aircraft, regardless of the country of registration or operator.

Foreign Registered/Operated Aircraft in UK Airspace

Foreign-registered and foreign-operated aircraft in UK airspace between 2000 and 2009 were involved in 199 reportable accidents, of which 21 were fatal accidents. 65% of reportable accidents involved small non-public transport aeroplanes and 21% involved large public transport aeroplanes.

There were 44 fatalities, 15 serious injuries and 66 minor injuries. 66 of the 13,000 occurrences involving these aircraft were serious incidents.

UK Airspace

25,000 occurrences had an impact on the safety of UK air traffic services. 71% of these occurrences were in controlled airspace, 14% were in uncontrolled airspace and the remainder of the occurrences did not record the type of airspace affected. The most common type of airspace occurrence was airspace infringement, followed by altitude deviation. 401 occurrences (1.6%) were considered to be high-severity.

UK Aerodromes

There were nearly 6,400 aerodrome occurrences in the UK between 2000 and 2009, where an aerodrome occurrence can be described as one involving an aerodrome's infrastructure or personnel. The most common type of aerodrome occurrence was ramp incident, followed by loading error. There were 48 high-severity aerodrome occurrences, 0.8% of the total.

High-Severity Events

Occurrences received through the UK MOR scheme are subject to a risk grading system. This system assesses the severity of the event (using criteria such as aircraft damage or injury to occupants) and the likelihood of the event recurring.

In Chapter 7, a narrative has been provided for high-severity events that have a UK interest. A UK interest may be: events occurring in UK airspace; involving UK licensed pilots; or the state of registry, design, manufacture or operation.

The narratives are extremely brief and are intended to provide the reader only with a snapshot of the occurrence itself. The AAIB provides full reports of UK reportable accidents and serious incidents, made available on their website: http://www.aaib.dft.gov.uk/

CAA MOR Scheme

The majority of the occurrence data used in UK Safety Performance Volume I are sourced from the UK Mandatory Occurrence Reporting Scheme. The scheme receives nearly 14,000 reports per year and is one of many schemes operating throughout the European Union.

Over 109,000 occurrence reports were received between 2000 and 2009, beginning in 2000 with 9,600 reports and finishing at nearly 14,000 in 2009. 86,900 occurrences received by MORS were UK occurrences – that is they were UK-registered, UK-operated or in UK airspace and assigned a severity grade between A-D.

1,500 UK occurrences were high-severity and the number of these occurrences was higher at the end of the decade than at the start.

Reportable Accidents and Serious Incidents are classified as such by the AAIB, independently of the CAA. There are approximately 2,700 reportable accidents and 300 serious incidents recorded in the MOR database between 2000 and 2009.

Introduction

CAP 800 – UK Safety Performance – Volume I – replaces the Aviation Safety Review, providing an update to CAPs 780, 763, 735 and 701. It covers the period 1st January 2000 to 31st December 2009.

The document is the first in a series of planned publications, which aim to provide more information on UK safety performance while removing duplication between current documents; the current documents affected are the Aviation Safety Review and Global Fatal Accident Review. The publications will each cover the same time period (2000 to 2009) and are planned as follows:

1 UK Safety Performance Volume I *(this document)* – high-level analysis of UK accidents, serious incidents and incidents, divided by industry sector.

2 UK Safety Performance Volume II *(new publication)* – in depth analysis of the main risks to UK aviation, covering precursors to accidents and the causal factors behind accidents, serious incidents and incidents.

3 Global Accident Review – following on from the Global Fatal Accident Review 1997-2006 (CAP 776) and worldwide and European statistics from the Aviation Safety Review.

UK Safety Performance Vol. I has been divided into the following chapters: UK Public Transport, UK Non-Public Transport, UK Airspace and Aerodromes, UK High-Severity Events, CAA MOR Scheme. The intention is for this document to be used as a statistical reference for the UK aviation community, allowing common and consistent safety statistics to be used by all. It also reports on the safety performance of UK aviation and makes the figures publicly available. The CAA has deliberately avoided providing interpretation of the statistics in this document in terms of their significance, or any comments regarding trends. Readers are invited to make their own interpretations and conclusions.

Notwithstanding the changes to the document in light of the revised publications, there may be slight differences between the statistics presented in this document and the Aviation Safety Reviews. The reasons for these differences include:

- More accurate information becoming available;
- Definitions of data varying slightly;
- Reclassification of occurrences, for example following the publication of an accident report. This can happen many months or even years after an accident.

Definitions of the terms used in UK Safety Performance Vol. I can be found in Appendix 1 and a glossary is provided in Appendix 2. A discussion of the terms and data used in this document is provided in Appendix 3.

The statistics presented in UK Safety Performance are derived from a number of data sources: UK accidents, serious incidents and incidents (collectively described as occurrences) are sourced from the UK Mandatory Occurrence Reporting Scheme; utilisation data is provided by Economic Regulation Group's Data Collection Unit, NATS and Eurocontrol (departures, arrivals, internal flights and overflights); glider accident and utilisation statistics were provided by the British Gliding Association. Sources external to the CAA are referenced within the document and are hereby thanked for the information supplied.

The CAA welcomes comments on UK Safety Performance Volume I, and suggestions regarding Volume II and the Global Accident Review. If you have any comments, questions or suggestions regarding these publications then please email safety.analysis@caa.co.uk.

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Chapter 1 Safety of UK Public Transport Worldwide

1 Introduction

1.1 This chapter discusses the safety of UK-registered or operated aircraft engaged in public transport flights, both in the UK and overseas. Public transport operations are those involving ambulance, cargo, passenger, police support or search and rescue.

1.2 The chapter is divided into the following sections: large aeroplanes, small aeroplanes, helicopters and balloons. Large aeroplanes are those with a maximum total weight that exceeds 5,700 kg, while small aeroplanes are those with a maximum total weight not exceeding 5,700 kg.

1.3 The source for the occurrence data used in this chapter is the UK mandatory occurrence reporting scheme. Further information regarding the scheme and the types of occurrences used in this chapter may be found in Chapter 5 and Appendix 3. Utilisation data is sourced from the CAA Economic Regulation Group's Data Collection Unit.

2 Large Aeroplanes

2.1 This section contains information relating to UK-registered or operated aeroplanes with a maximum total weight greater than 5,700 kg.

2.2 It should be noted that there are some aircraft where the original type did not exceed 5,700 kg maximum total weight, but where subsequent variants do exceed this weight. An example of this is the Embraer EMB110 Bandeirante. For consistency across the dataset, types such as the EMB110 are categorised using the original maximum total weight. Appendix 5 contains a list of aircraft types, showing the weight groups and classes of aircraft that have been used.

2.3 Reportable Accidents

2.3.1 There were 113 reportable accidents involving large UK public transport aeroplanes in the decade 2000-2009. Figure 1 shows the number of UK reportable accidents per year, divided by class of aeroplane into: business jets, jets, piston and turboprop aeroplanes. There were no reportable accidents involving piston aeroplanes in the period analysed, therefore they are not shown in Figure 1.

Figure 1 Number of UK reportable accidents per year involving large public transport aeroplanes

2.3.2 Figure 2 shows the types of reportable accident, dividing the 113 accidents into seven categories.

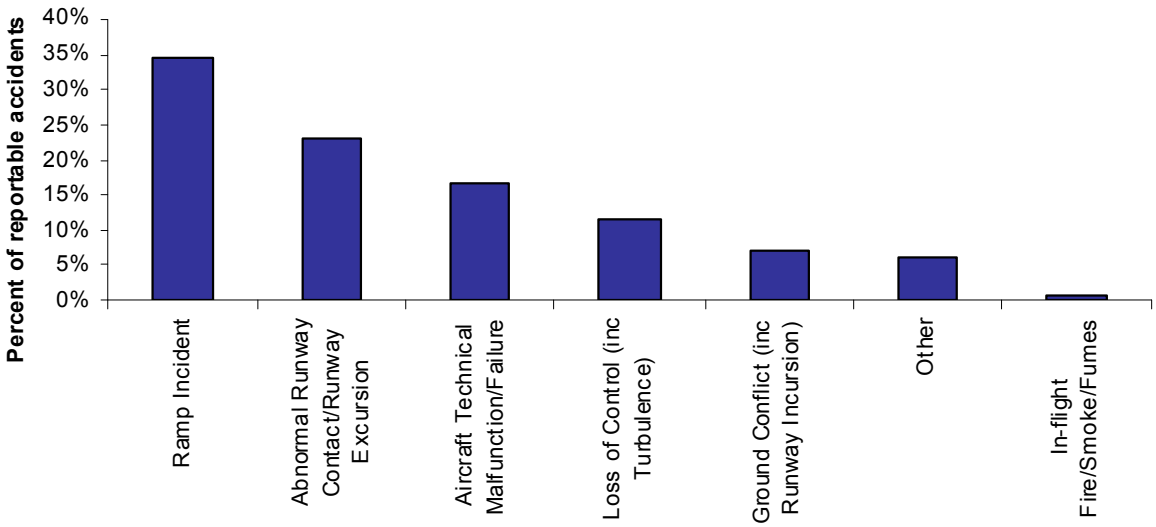

Figure 2 Types of reportable accident involving large public transport aeroplanes

2.4 Fatal Accidents

2.4.1 Between 2000 and 2009 there were 3 fatal accidents involving large UK public transport aeroplanes, resulting in a total of 5 fatalities to aircraft occupants. Details of each of these accidents are shown in Table 1.

Table 1 Details of fatal accidents involving large UK public transport aeroplanes

Date	Aircraft Type	Phase Of Flight	Type of Operation	Location of Occurrence	Description	POB	Fatalities
2-May-2000	Learjet	Approach	Passenger	Lyon	Aircraft caught fire on landing, following diversion due to engine problems en route.	5	2
25-May-2000	SD330	Taxi	Cargo	Paris CDG	MD83 collided with SD330 during take off run, striking the SD330's flight deck.	2	1
27-Feb-2001	SD360	Climb	Cargo	Firth of Forth	Aircraft ditched in the Firth of Forth following a double engine flameout.	2	2

2.4.2 In addition to the three fatal accidents to aircraft occupants between 2000 and 2009, there was also one accident involving a third party fatality.

Table 2 Details of third-party fatalities involving large UK public transport aeroplanes

Date	Aircraft Type	Phase of Flight	Type of Operation	Location of Occurrence	Description	Fatalities
5-Sep-2001	B777	Parked	Passenger	Denver	Fire during aircraft refuelling, fatally injuring refuelling operative.	1

2.5 Utilisation

2.5.1 UK operators of large aeroplanes completed over 11.5 million public transport flights, and over 26.9 million flying hours between 2000 and 2009. The annual breakdown of these figures is shown in Table 3.

Table 3 Hours and flights flown by UK large public transport aeroplane airline and air taxi operators

Year	Flights (x1,000)	Hours (x1,000)
2000	1,088	2,442
2001	1,136	2,505
2002	1,083	2,408
2003	1,078	2,473
2004	1,137	2,626
2005	1,175	2,736
2006	1,211	2,908
2007	1,238	2,996
2008	1,227	3,027
2009	1,150	2,829

2.5.2 82% of flights involved jet aeroplanes, 17% involved turboprops, 1% involved business jets and 0.01% involved piston aeroplanes. For hours the proportions were similar: 92.5% of the hours flown involved jet aeroplanes, 7% involved turboprops, 0.5% involved business jets and 0.01% involved piston aeroplanes.

2.5.3 For UK airlines, information is available regarding the number of passengers carried. Over 1.1 billion passengers were carried by UK airlines. The annual breakdown for these figures is shown in Table 4. The data in Table 4 are restricted to airlines because the CAA does not require air taxi operators to report the number of passengers carried.

Table 4 Passengers carried by UK airlines (large aeroplanes)

Year	Airline passengers carried (millions)
2000	100
2001	100
2002	101
2003	104
2004	115
2005	120
2006	125
2007	128
2008	129
2009	124

2.5.4 Information regarding the number of passenger and cargo flights and hours performed by UK airlines is shown in Table 5. Equivalent data are not shown for air taxi operators as they are not required to report to this level of detail.

Table 5 UK airline utilisation by type of operation

Year	Passenger		Cargo	
	Hours (x1,000)	Flights (x1,000)	Hours (x1,000)	Flights (x1,000)
2000	2,381	1,023	42	35
2001	2,444	1,069	38	32
2002	2,347	1,015	40	35
2003	2,409	1,019	55	40
2004	2,574	1,082	59	41
2005	2,679	1,124	56	35
2006	2,845	1,156	52	33
2007	2,901	1,165	76	41
2008	2,943	1,156	71	38
2009	2,753	1,090	66	36

2.6 Reportable and Fatal Accident Rates

2.6.1 Figure 3 shows the reportable and fatal accident rates for large UK public transport aeroplanes between 2000 and 2009. Three-year moving averages have also been calculated, which help to show the overall trend. The reportable accident rate was 9.8 per million flights and the corresponding fatal accident rate was 0.3 per million flights. The equivalent rates using flying hours were 4.2 per million flying hours for reportable accidents and 0.1 per million flying hours for fatal accidents.

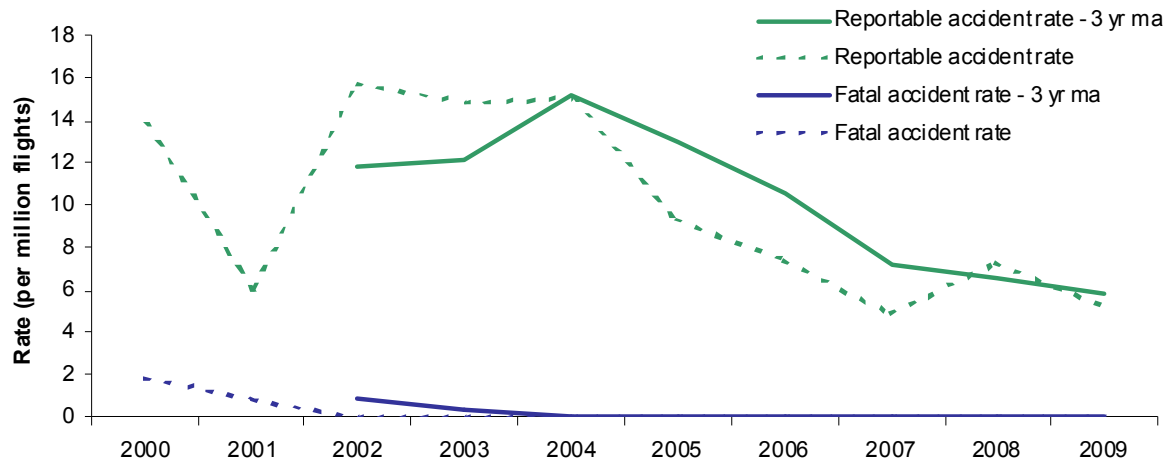

Figure 3 Reportable and fatal accident rates for large public transport aeroplanes

2.6.2 The reportable accident rate, shown as a three-year moving average and broken down by class of aircraft is shown in Figure 4.

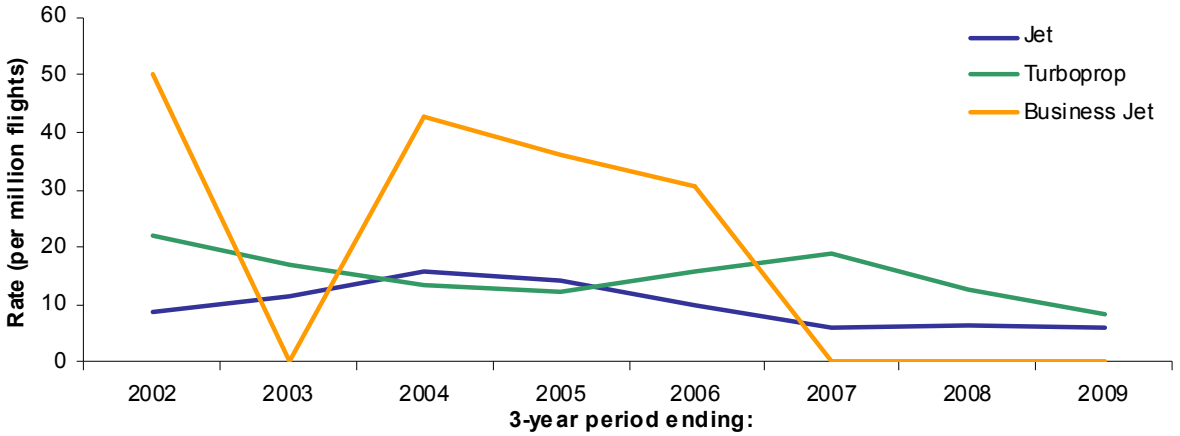

Figure 4 Reportable accident rate by class of aircraft

2.6.3 The reportable and fatal accident rates for each class of aircraft are compared in Table 6.

Table 6 Reportable and fatal accident rate by class of aircraft (large aeroplanes)

Class of aircraft	Reportable accident rate (per million flights)	Fatal accident rate (per million flights)	Reportable accident rate (per million hours)	Fatal accident rate (per million hours)
Business Jet	19.4	9.7	14.1	7.1
Jet	9.1	0.0	3.4	0.0
Piston	0.0	0.0	0.0	0.0
Turboprop	15.5	1.0	16.0	1.1
All classes of aircraft	9.8	0.3	4.2	0.1

2.7 Injury Tables

2.7.1 The number of injuries sustained by aircraft occupants in the reportable accidents analysed in this section is shown in Table 7. The injuries are divided into fatal, serious and minor injuries. Definitions for these injuries are available in Appendix 1.

2.7.2 In total, there were five fatalities, 15 serious injuries and 44 minor injuries in the period 2000-2009.

Table 7 Injuries sustained in reportable accidents involving large UK public transport aeroplanes

Year	Crew				Passengers			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	3	1	4	8	0	1	13	14
2001	2	0	0	2	0	0	0	0
2002	0	3	0	3	0	0	1	1
2003	0	1	5	6	0	1	0	1
2004	0	1	0	1	0	1	0	1
2005	0	1	0	1	0	0	0	0
2006	0	1	1	2	0	0	2	2
2007	0	0	0	0	0	0	0	0
2008	0	1	4	5	0	2	10	12
2009	0	1	1	2	0	0	3	3
Total	5	10	15	30	0	5	29	34

2.8 Serious Incidents

2.8.1 There were 179 serious incidents involving large public transport aeroplanes in the period 2000-2009, as classified by the Air Accidents Investigation Branch. Figure 5 shows the number of serious incidents per year for Business Jets, Turboprops and Jets. There were no serious incidents involving large piston aeroplane UK public transport in the period examined.

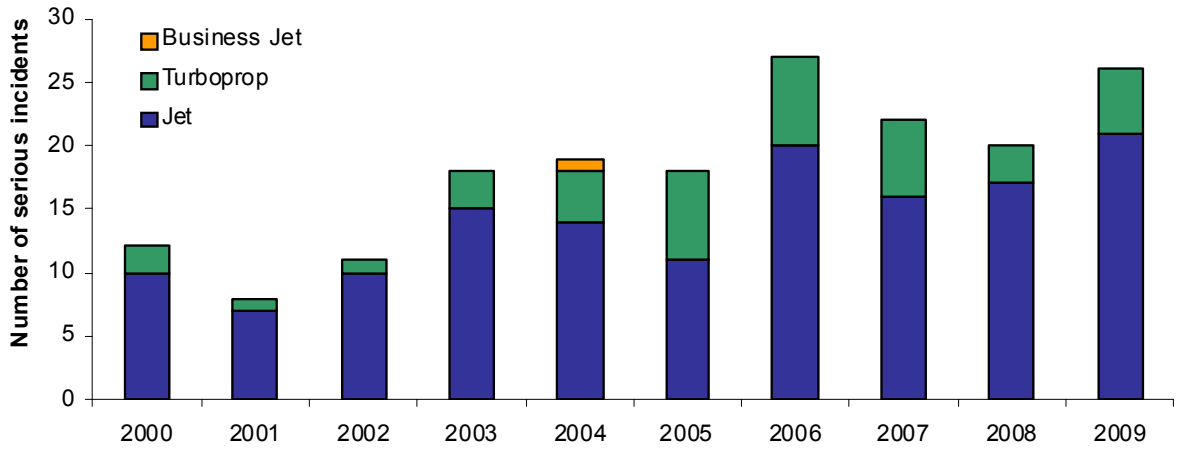

Figure 5 Number of serious incidents per year involving large public transport aeroplanes

2.8.2 Figure 6 shows a categorisation of the types of serious incident that occurred.

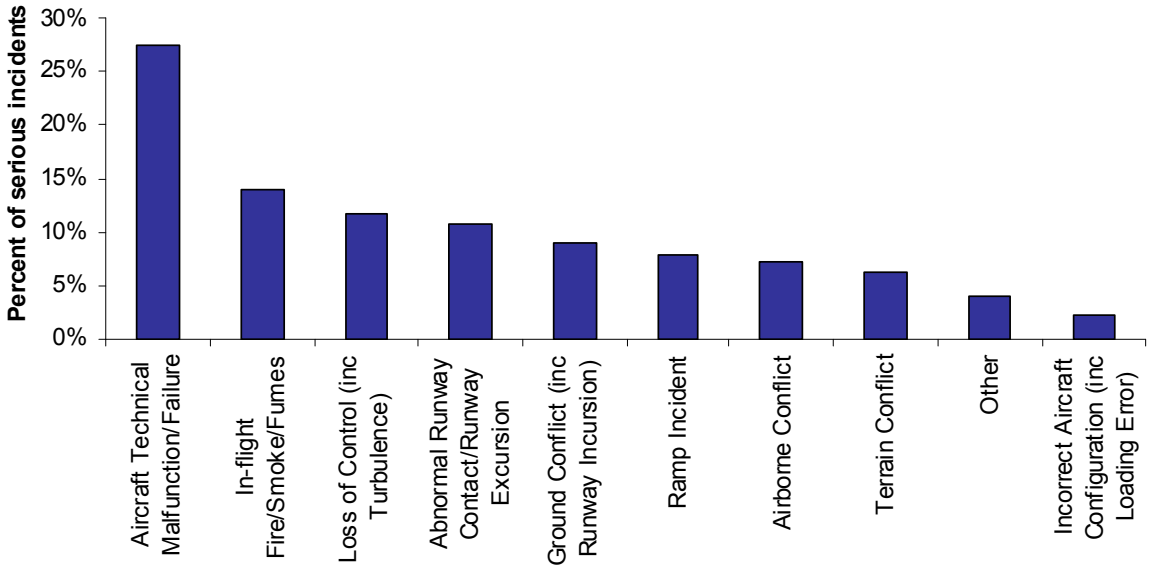

Figure 6 Types of serious incident involving large UK public transport aeroplanes

2.9 Serious Incident Rate

2.9.1 The three-year moving average serious incident rate is shown by class of aircraft in Figure 7.

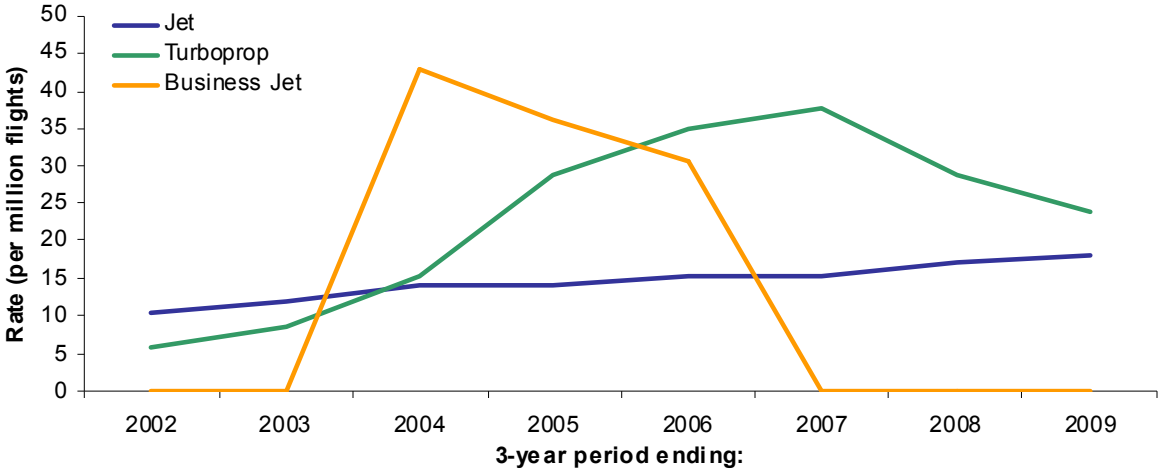

Figure 7 Serious incident rate by class of aircraft

2.9.2 The overall rate of serious incidents by class of aircraft is shown in Table 8.

Table 8 Serious incident rate by class of aircraft

Class of aircraft	Serious incident rate (per million flights)	Serious incident rate (per million hours)
Jet	14.9	5.7
Turboprop	20.1	20.8
Business Jet	9.7	7.1
All classes of aircraft	15.7	6.7

2.10 Occurrences

2.10.1 There were 49,000 occurrences involving large UK public transport aeroplanes reported to the CAA between 2000 and 2009. This figure includes both accidents and serious incidents, which together form less than 1% of the total. The three-year moving average occurrence rate has increased by 20%, from 1,300 per million flights in the period 2000-2002 to 1,600 per million flights in the period 2007-2009. The occurrences are shown below divided into their occurrence severity grade, a description of which can be found in Appendix 4.

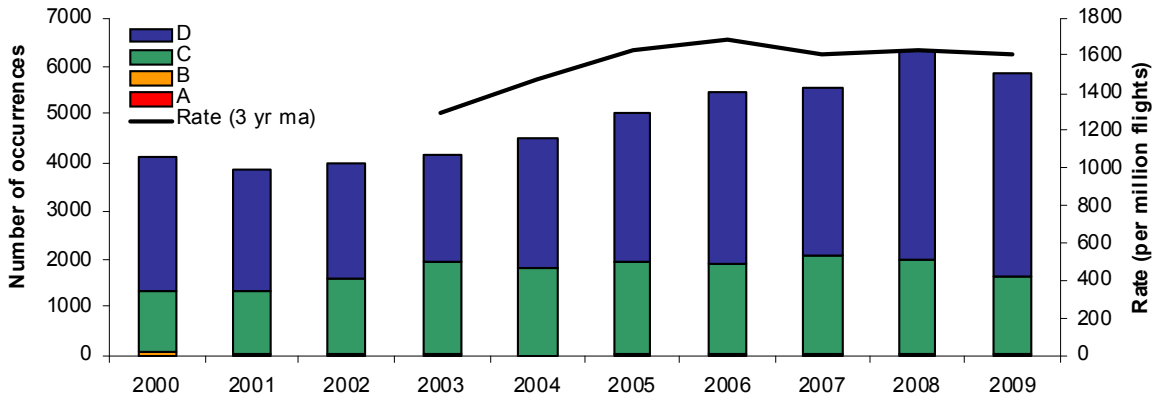

Figure 8 Number and rate of occurrences involving large UK public transport aeroplanes

2.10.2 Figure 9 shows the rate of high-severity occurrences. Over the ten-year period, less than 1% of occurrences involving large UK public transport aeroplanes have been considered to be high-severity.

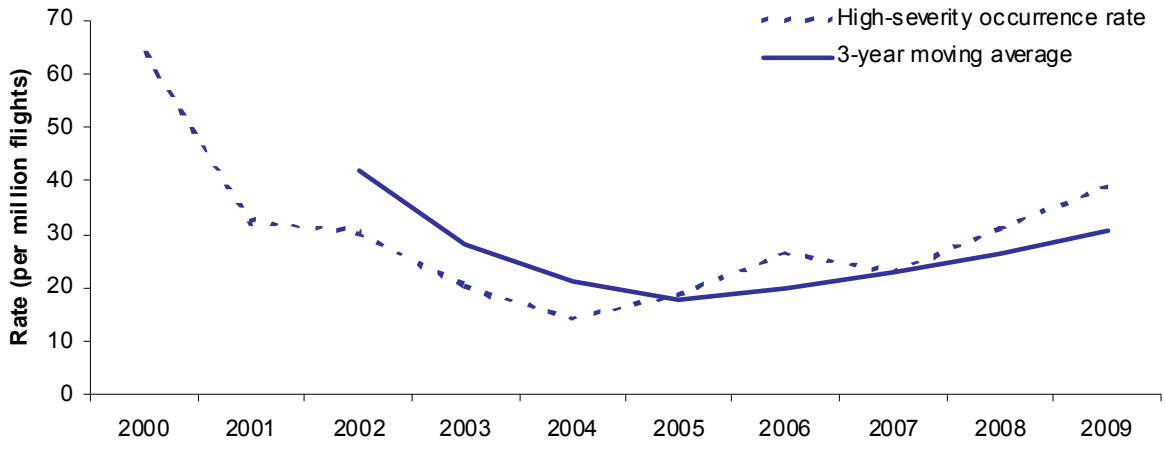

Figure 9 High-severity occurrence rate for large UK public transport aeroplanes

3 Small Aeroplanes

3.1 This section contains information relating to UK-registered or operated aeroplanes with a maximum total weight no greater than 5,700 kg.

3.2 It should be noted that there are some aircraft where the original type did not exceed 5,700 kg maximum total weight, but where subsequent variants do exceed this weight. An example of this is the Embraer EMB110 Bandeirante. For consistency across the dataset, types such as the EMB110 are categorised using the original maximum total weight. Appendix 5 contains a list of aircraft types, showing the weight groups and classes of aircraft that have been used.

3.3 Public transport using small aeroplanes includes emergency services flights. This type of operation is very different to small aeroplane passenger and cargo services, therefore the data has been categorised by type of operation wherever possible. Emergency services helicopter operations are discussed later in the chapter.

3.4 Reportable Accidents

3.4.1 There were 16 reportable accidents involving small public transport aeroplanes between 2000 and 2009. Figure 10 shows the number of reportable accidents per year by class of aircraft. The classes of aircraft used were business jets, turboprops and piston aeroplanes; however there have been no small public transport business jet accidents in the period analysed.

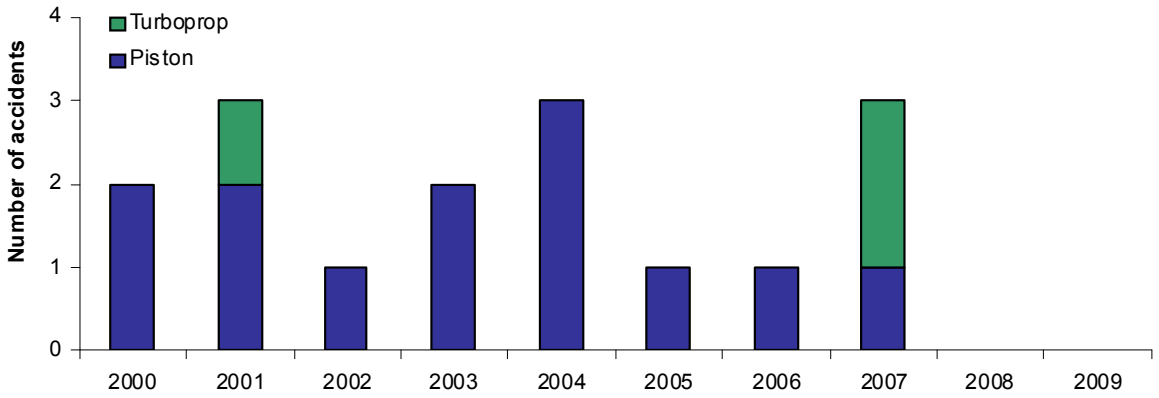

Figure 10 Number of reportable accidents involving small public transport aeroplanes, by class of aircraft

3.4.2 The annual breakdown of reportable accidents by type of operation is shown in Figure 11.

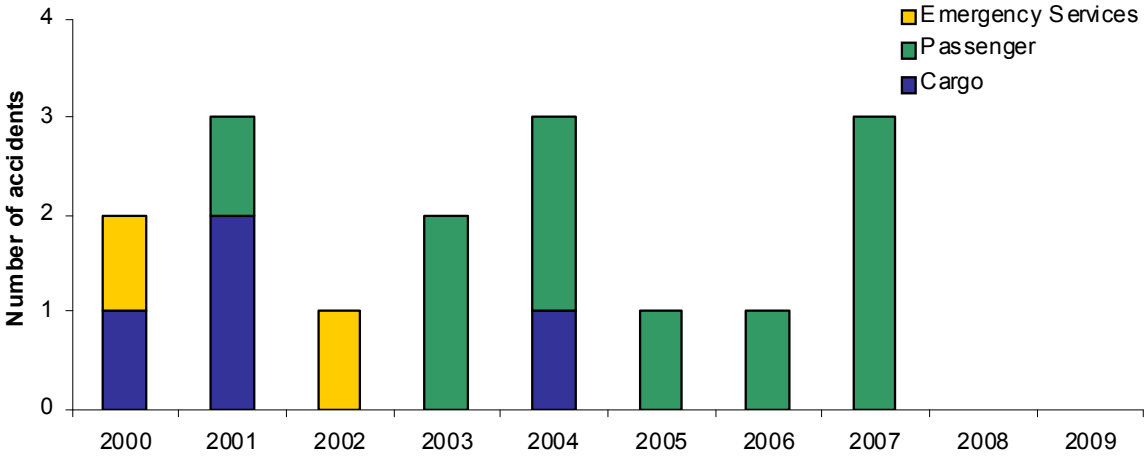

Figure 11 Number of reportable accidents involving small public transport aeroplanes, by type of operation

3.5 Fatal Accidents

3.5.1 There was one fatal accident involving a small public transport aeroplane between 2000 and 2009, resulting in five fatalities.

Table 9 Fatal Accidents Involving Small Public Transport Aeroplanes

Date	Aircraft Type	Phase of Flight	Nature of Flight	Location	Description	Fatalities	POB
14-Jun 2000	Piper PA31	Approach	Ambu-lance	River Mersey	Aircraft crashed into the River Mersey following a loss of control on approach.	5	5

3.6 Utilisation Data

3.6.1 Between 2000 and 2009, UK airline and air taxi operators of small aeroplanes have completed over 648,000 flights and have flown for over 425,000 hours. The annual breakdown of these flights and hours is shown in Table 10.

Table 10 Hours and flights flown by UK small public transport aeroplane airline and air taxi operators

Year	Flights (x1000)	Hours (x1000)
2000	63	39
2001	61	36
2002	66	38
2003	60	38
2004	67	44
2005	67	44
2006	65	43
2007	69	49
2008	69	49
2009	62	47

3.6.2 Looking at the relative contribution of each class of aircraft to the total number of flights; 4% involved business jets, 73% involved piston aeroplanes and 23% involved turboprops. For hours, the proportions are similar: 8% involved business jets, 61% involved piston aeroplanes and 32% involved turboprops.

3.6.3 Although air taxi operators are not required to report the number of passengers carried, the information is reported by airlines. Table 11 shows the number of passengers carried by airlines in small aeroplanes.

Table 11 Passengers carried by UK airlines (small aeroplanes)

Year	Airline passengers carried (x1000)
2000	270
2001	275
2002	269
2003	225
2004	229
2005	237
2006	219
2007	244
2008	250
2009	235

3.7 Reportable and Fatal Accident Rates

3.7.1 The reportable and fatal accident rates for small public transport aeroplanes have been calculated, along with three-year moving average rates. It has not been possible to separate emergency services utilisation from the rest of public transport, so the rates cover small public transport aeroplanes as a whole.

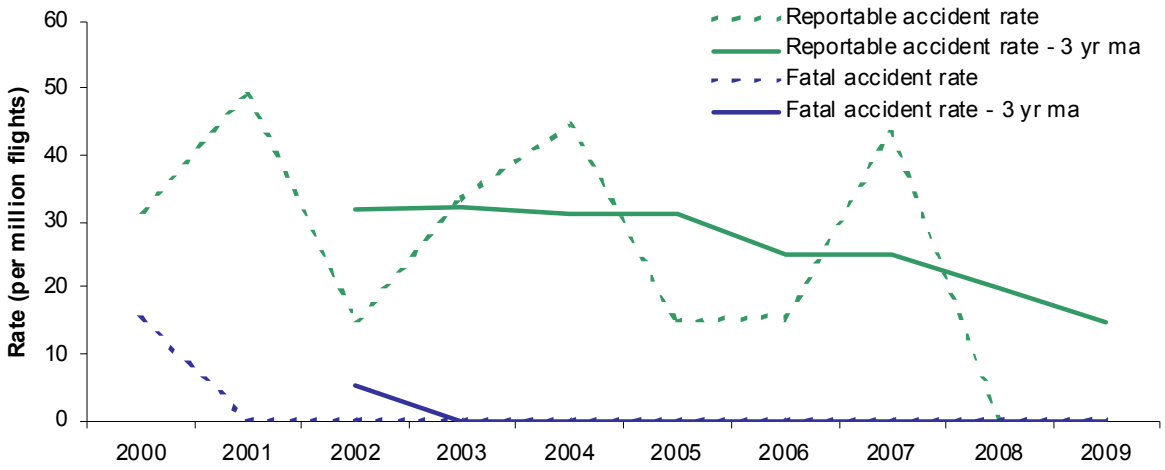

Figure 12 Reportable and fatal accident rate for small public transport aeroplanes

3.7.2 Table 12 shows the reportable and fatal accident rates by class of aircraft for small public transport aeroplanes between 2000 and 2009.

Table 12 Reportable and fatal accident rate by class of aircraft (small aeroplanes)

Class of aircraft	Reportable accident rate (per million flights)	Fatal accident rate (per million flights)	Reportable accident rate (per million hours)	Fatal accident rate (per million hours)
Business Jet	0	0	0	0
Piston	27.3	2.1	50.5	3.9
Turboprop	20.5	0	22.4	0
All classes of aircraft	24.7	1.5	37.6	2.4

3.8 Injury Tables

3.8.1 The number of injuries sustained by aircraft occupants in the reportable accidents discussed in this section is shown in Table 13. The injuries are divided into fatal, serious and minor injuries. The definitions of these injuries are available in Appendix 1.

3.8.2 In total, there were five fatal, two serious and four minor injuries. The serious and minor injuries involved passenger flights, whereas the fatal injuries involved an emergency services (ambulance) flight.

Table 13 Injuries sustained in reportable accidents involving small UK public transport aeroplanes

Year	Crew				Passengers			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	1	0	0	1	4	0	0	5
2001	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	1	1	2
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	1	1	0	1	1	2
2008	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0
Total	1	0	1	2	4	2	3	9

3.9 Serious Incidents

3.9.1 There were 12 serious incidents involving small UK public transport aeroplanes in the period 2000-2009. Figure 13 shows the annual number of serious incidents, broken down by class of aircraft.

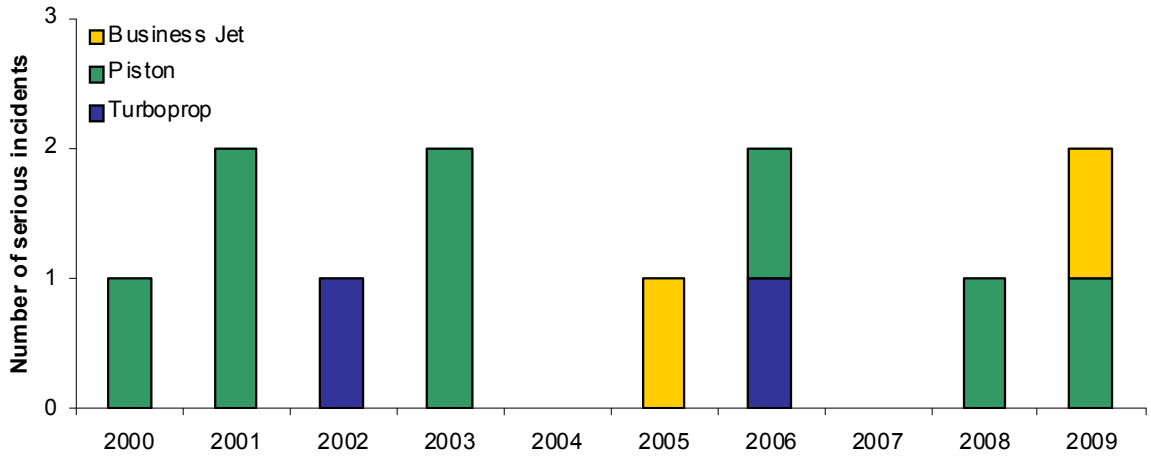

Figure 13 Serious incidents involving small public transport aeroplanes, by class of aircraft

3.9.2 Figure 14 shows the number of serious incidents per year, broken down by type of operation.

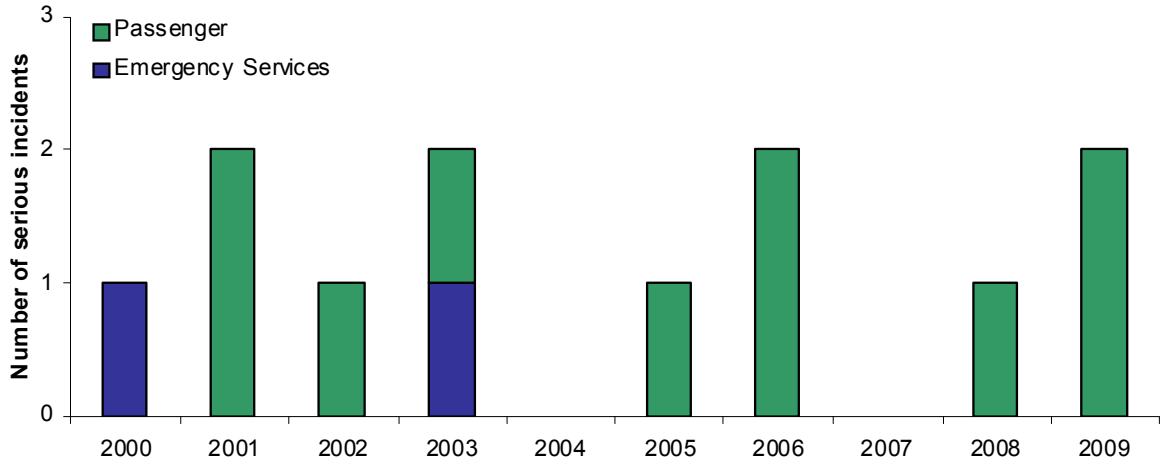

Figure 14 Serious incidents involving small public transport aeroplanes, by type of operation

3.10 Occurrences

3.10.1 730 occurrences involving small UK public transport aeroplanes were reported to the MOR scheme between 2000 and 2009. This figure includes accidents and serious incidents, which form 3.8% of the total number of occurrences. The three-year moving average rate of occurrences increased by 84%, from 750 per million flights in 2000-2002 to 1,400 per million flights in 2007-2009. The occurrences are shown below divided into their occurrence severity grade, a description of which can be found in Appendix 4.

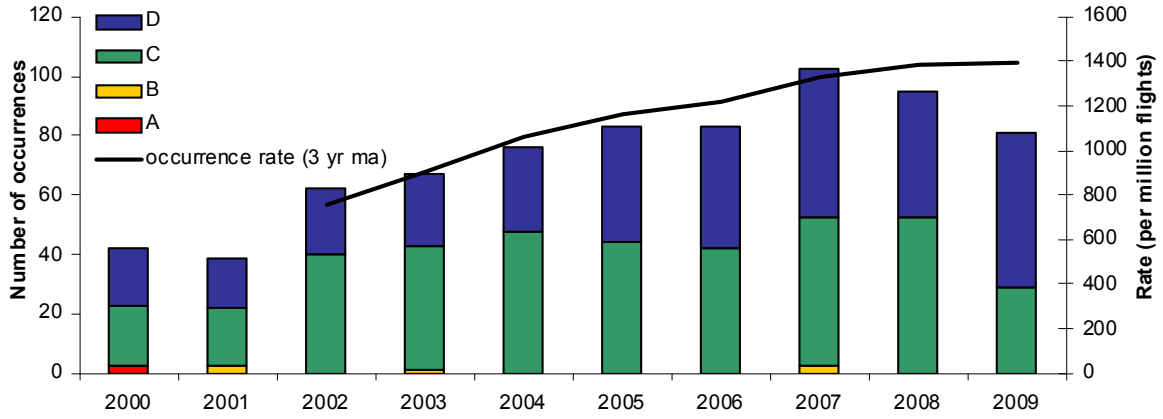

Figure 15 Number and rate of occurrences involving small public transport aeroplanes

3.10.2 The rate of high-severity occurrences is shown in Figure 16, along with a three-year moving average rate. Over the period, 1% of occurrences have been considered to be high-severity.

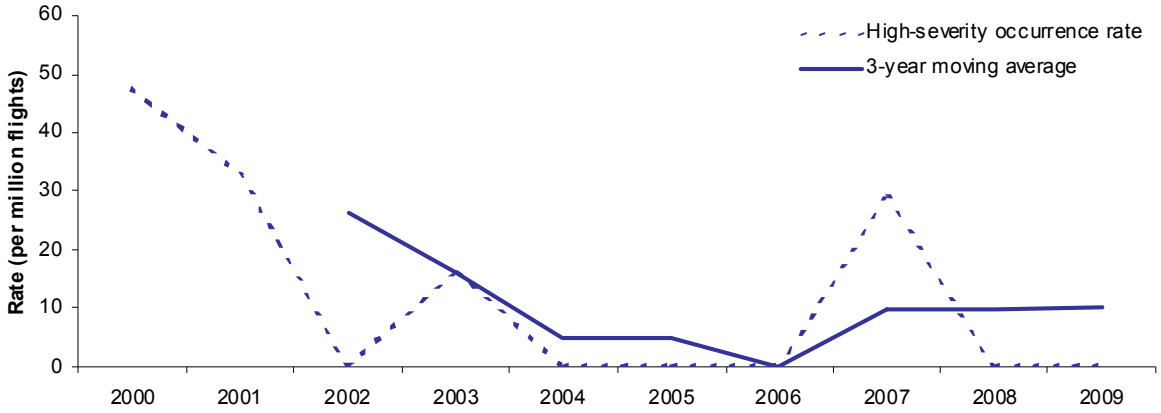

Figure 16 High-severity occurrence rate for small UK public transport aeroplanes

4 Helicopters

4.1 This section contains information relating to all UK registered or operated helicopters engaged in public transport operations.

4.2 Helicopter public transport may be divided into three main areas of industry: emergency services, offshore and 'other'; where the 'other' category comprises land-based passenger and cargo operations, but is predominantly passenger flights.

4.3 Emergency services operations are those involving helicopter emergency medical services, police support or search and rescue. Emergency services operations involving aeroplanes are discussed in section 3 of this chapter.

4.4 The offshore category refers to passenger and cargo operations to oil and gas platforms or to drilling and support platforms, located in the North Sea or Irish Sea.

4.5 It is not always possible to differentiate between the categories of helicopter operations. This is particularly the case for offshore operations, which are identified through departure and arrival locations. Therefore although every reasonable attempt has been made to present an accurate view, some caution should be attached to the data presented in this section.

4.6 Reportable Accidents

4.6.1 Between 2000 and 2009, there were 22 reportable accidents involving UK public transport helicopters. Figure 17 shows the number of accidents per year, divided by the type of operation.

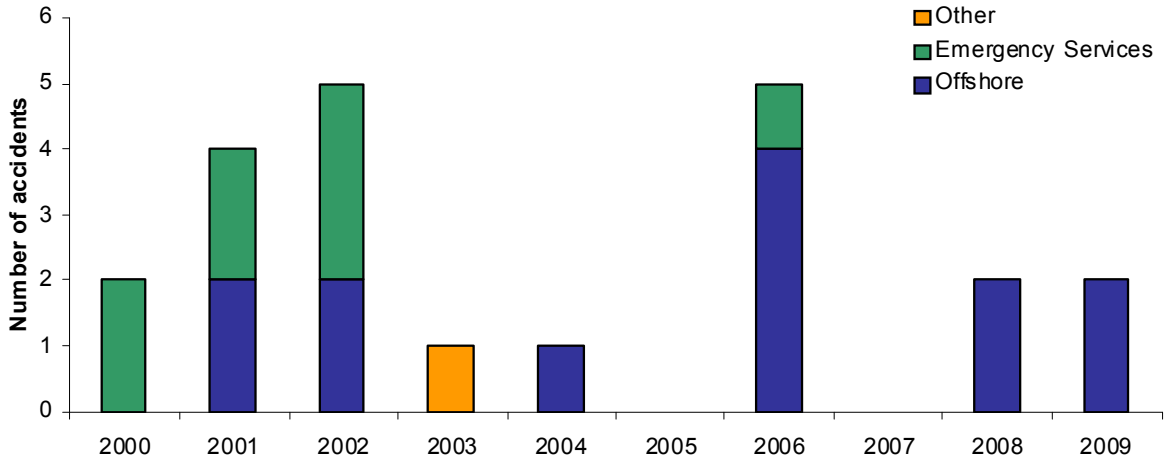

Figure 17 Reportable accidents involving helicopters, by type of operation

4.6.2 Figure 18 shows the number of reportable accidents per year divided by class of aircraft. The available categories were: single piston, single turbine, and twin turbine. There were no single piston accidents in the period examined.

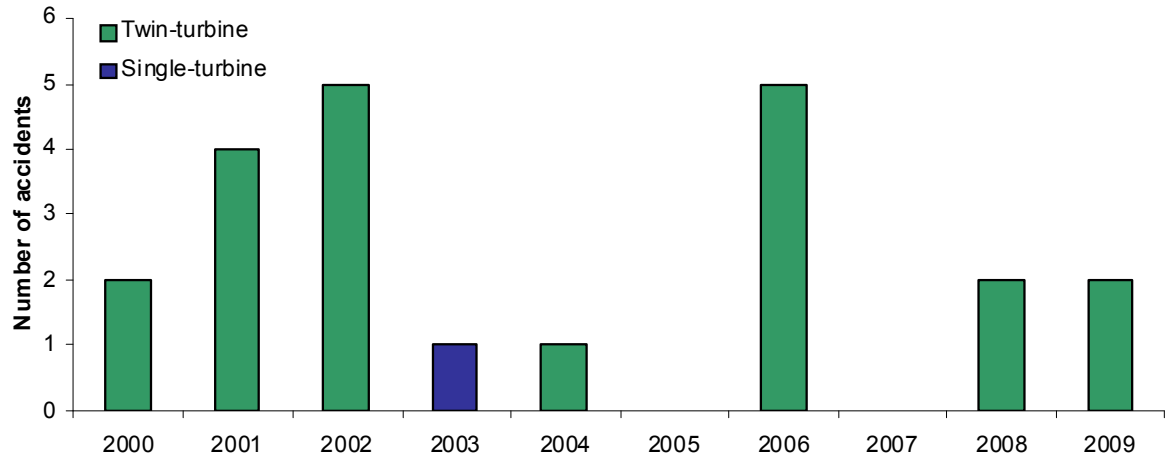

Figure 18 Reportable accidents involving helicopters, by class of aircraft

4.7 Fatal Accidents

4.7.1 There were three fatal accidents between 2000 and 2009 involving UK public transport helicopters, resulting in 34 fatalities.

Table 14 Details of fatal accidents involving UK public transport helicopters

Date	Aircraft Type	Phase of Flight	Nature of Flight	Location	Description	Fatalities	POB
16 Jul 2002	Sikorsky S76	Approach	Passenger	North Sea	The aircraft crashed into the sea and was destroyed following the failure of a main rotor blade.	11	11
27 Dec 2006	SA365 Dauphin	Initial Climb	Passenger	Morecambe Bay	Helicopter seen to descend into sea close to offshore platform in poor weather conditions.	7	7
01 Apr 2009	SA332 Super Puma	Cruise	Passenger	North Sea	The aircraft crashed into sea following gearbox failure and rotor head separation.	16	16

4.8 Utilisation

4.8.1 Between 2000 and 2009, UK airline and air taxi helicopter operators performed over 2.6 million flights and flew for a total of over 1.3 million hours on revenue operations. The annual breakdown of these figures is in Table 15.

Table 15 Hours and flights flown by UK public transport helicopter operators

Year	Flights (x1000)	Hours (x1000)
2000	254	118
2001	250	128
2002	261	136
2003	263	132
2004	259	128
2005	277	136
2006	274	143
2007	279	145
2008	267	138
2009	262	132

4.8.2 Looking at the relative contribution of each class of aircraft to the total number of flights: 96% involved twin turbines, 3% involved single turbines and 1% involved pistons. For hours the proportions are similar: 92% involved twin turbines, 8% involved single turbines and 1% involved pistons.

4.8.3 Utilisation data by industry sector is not available, however utilisation for the helicopter types typically used by offshore and emergency services operators is available. An estimate per year for each type of operation has been calculated and is presented below:

Table 16 Hours and flights completed by offshore and emergency service helicopters

Year	Offshore		Emergency Services	
	Flights (x1000)	Hours (x1000)	Flights (x1000)	Hours (x1000)
2000	154	63	46	19
2001	145	69	58	22
2002	156	76	58	23
2003	149	69	69	28
2004	146	67	69	29
2005	163	75	76	33
2006	161	79	81	36
2007	160	80	81	37
2008	153	77	85	39
2009	139	71	87	39

4.9 Reportable and Fatal Accident Rates

4.9.1 Figure 19 shows the reportable and fatal accident rates for UK public transport helicopters between 2000 and 2009. Three-year moving averages have also been calculated, which help to show the overall trend. The reportable accident rate was 8.3 per million flights and the fatal accident rate was 1.1 per million flights. The equivalent rates using flying hours were 16.5 per million flying hours for reportable accidents and 2.2 per million flying hours for fatal accidents.

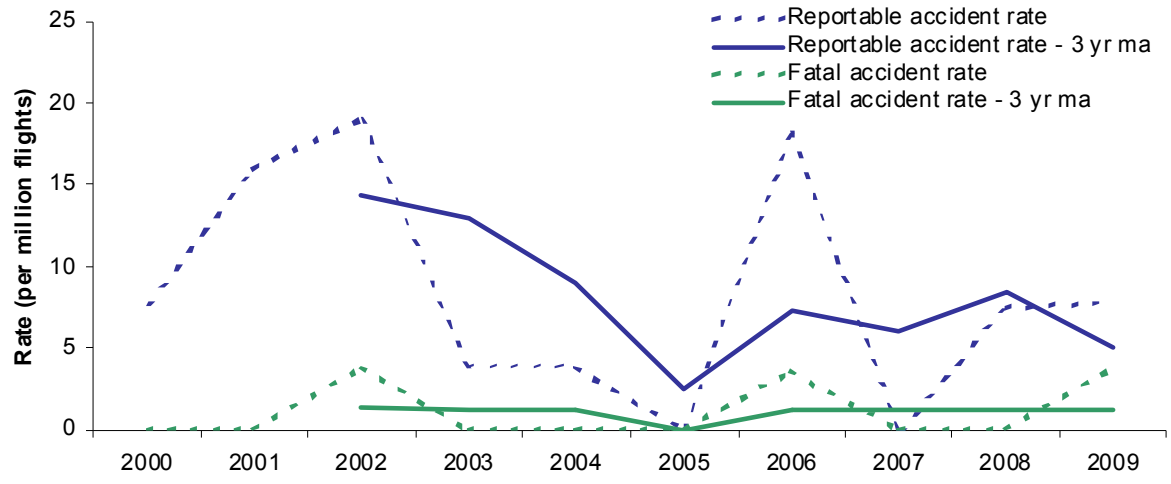

Figure 19 Reportable and fatal accident rate for UK public transport helicopters

4.9.2 Figure 20 and Figure 21 show the reportable and fatal accident rates for offshore and emergency services helicopters. Helicopters in the 'other' category were involved in no fatal accidents and only one reportable accident (in 2003) so this has not been shown as a graph.

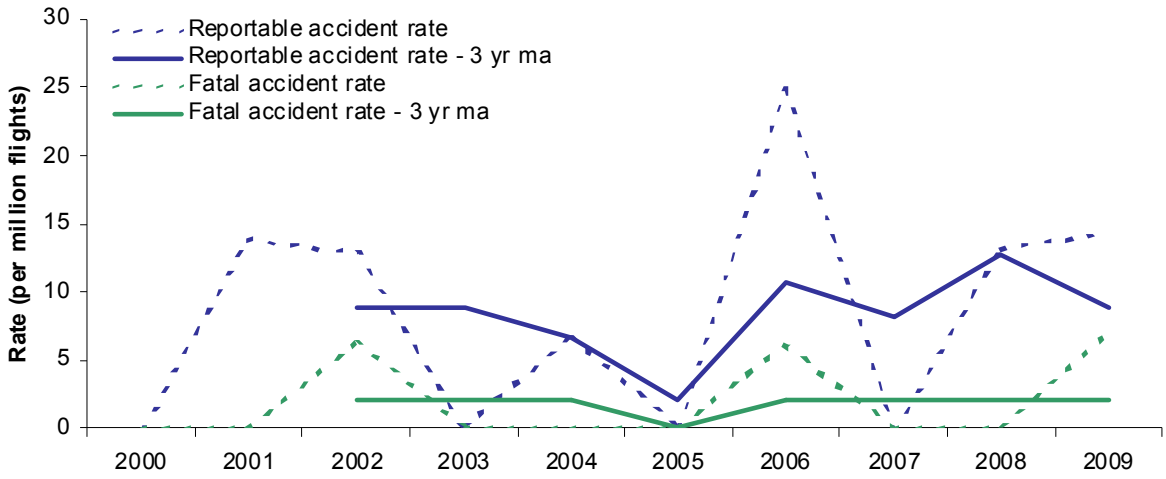

Figure 20 Reportable and fatal accident rate for UK public transport offshore helicopters

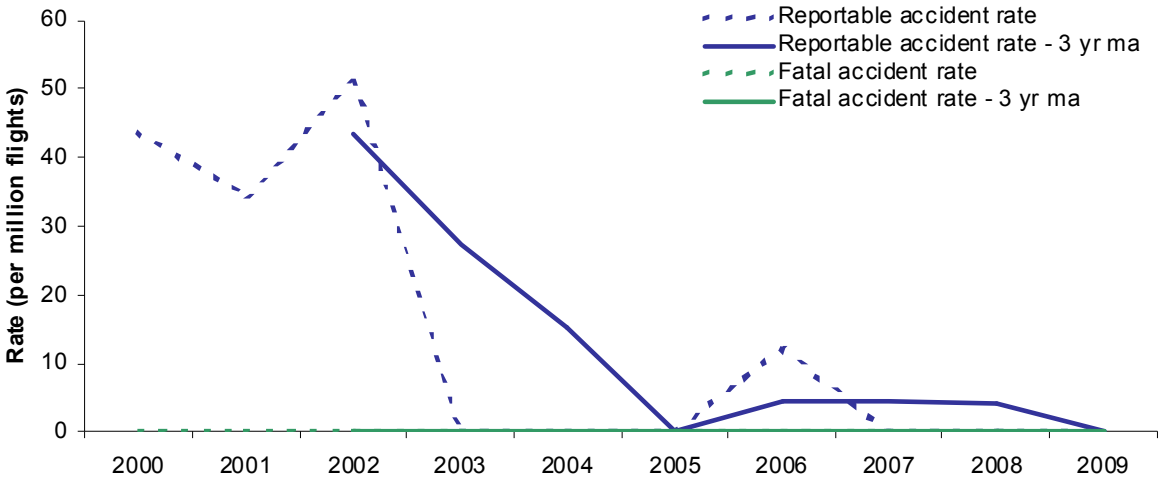

Figure 21 Reportable and fatal accident rate for UK public transport emergency services helicopters

4.9.3 Table 17 shows the overall reportable and fatal accident rates by type of operation for UK public transport helicopters.

Table 17 Reportable and fatal accident rate by class of aircraft (small aeroplanes)

Type of operation	Reportable accident rate (per million flights)	Fatal accident rate (per million flights)	Reportable accident rate (per million hours)	Fatal accident rate (per million hours)
Offshore	8.5	2.0	17.9	4.1
Emergency Services	11.3	0.0	26.2	0.0
Other	2.4	0.0	3.3	0.0
All types of operation	8.3	1.1	16.5	2.2

4.10 Injury Tables

4.10.1 The number of injuries sustained by aircraft occupants in reportable accidents involving public transport helicopters is shown in Table 18. The injuries are divided into fatal, serious and minor injuries. Definitions for these injuries are available in Appendix 1.

4.10.2 In total, there were 34 fatalities, one serious injury and 17 minor injuries between 2000 and 2009.

Table 18 Injuries sustained in reportable accidents involving UK public transport helicopters

Year	Crew				Passenger			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	0	0	1	1	0	0	2	2
2001	0	0	2	2	0	0	3	3
2002	2	0	1	3	9	1	1	11
2003	0	0	3	3	0	0	0	0
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	2	0	0	2	5	0	1	6
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0
2009	2	0	0	2	14	0	3	17
Total	6	0	7	13	28	1	10	39

4.10.3 Table 19 and Table 20 show the number of injuries sustained in reportable accidents involving offshore and emergency services helicopters. The only injuries involving helicopters in the 'other' category were three minor injuries to crew members in 2003.

Table 19 Injuries sustained in reportable accidents involving UK public transport offshore helicopters

Year	Crew				Passenger			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0
2002	2	0	0	2	9	0	0	9
2003	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	2	0	0	2	5	0	1	6
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0
2009	2	0	0	2	14	0	3	17
Total	6	0	0	6	28	0	4	32

Table 20 Injuries sustained in reportable accidents involving UK public transport emergency services helicopters

Year	Crew				Passenger			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	0	0	1	1	0	0	2	2
2001	0	0	2	2	0	0	3	3
2002	0	0	1	1	0	1	1	2
2003	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0
Total	0	0	4	4	0	1	6	7

4.11 Serious Incidents

4.11.1 There were 12 serious incidents involving UK public transport helicopters in the period 2000-2009, as classified by the Air Accidents Investigation Branch. Figure 22 shows the annual number of serious incidents, categorised by type of operation. All but one of these serious incidents involved twin turbine helicopters; there was one single turbine helicopter serious incident in 2006.

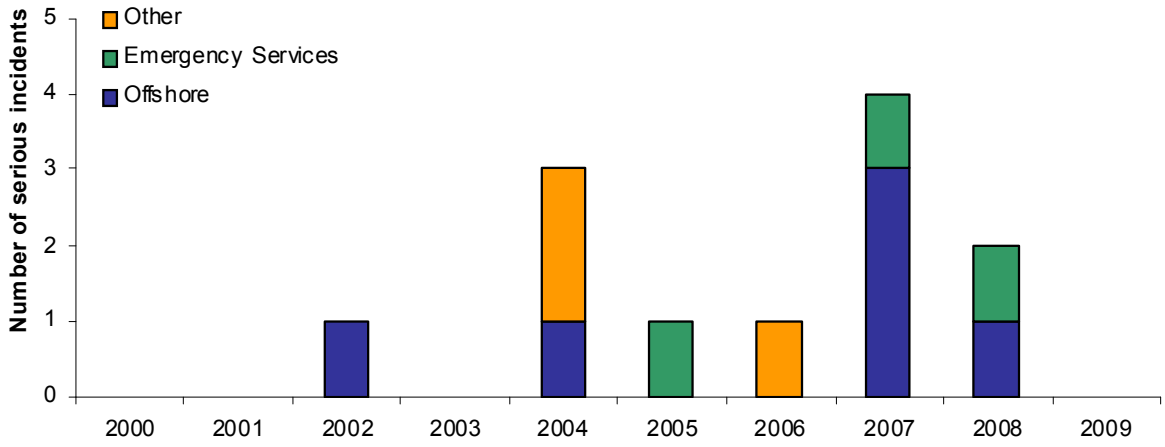

Figure 22 Number of serious incidents per year involving public transport helicopters

4.12 Occurrences

4.12.1 Figure 23 shows the number of occurrences per year, divided into their severity grades. Approximately 2,900 occurrences involving public transport helicopters were reported to the MOR scheme between 2000 and 2009, increasing from 200 occurrences in 2000 to 450 occurrences in 2009. This figure includes accidents and serious incidents, which form 1.2% of the total number of occurrences. The severity grading is described in detail in Appendix 4.

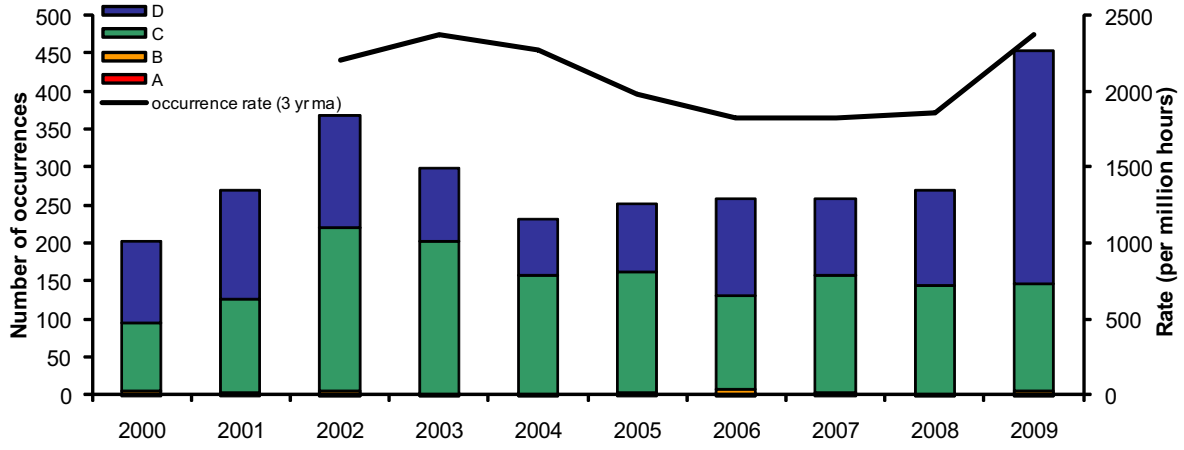

Figure 23 Number and rate of occurrences involving public transport helicopters

4.12.2 The rate of high-severity occurrences is shown in Figure 24. High-severity occurrences form 1.4% of the total number of occurrences involving public transport helicopters that were reported to the MOR scheme.

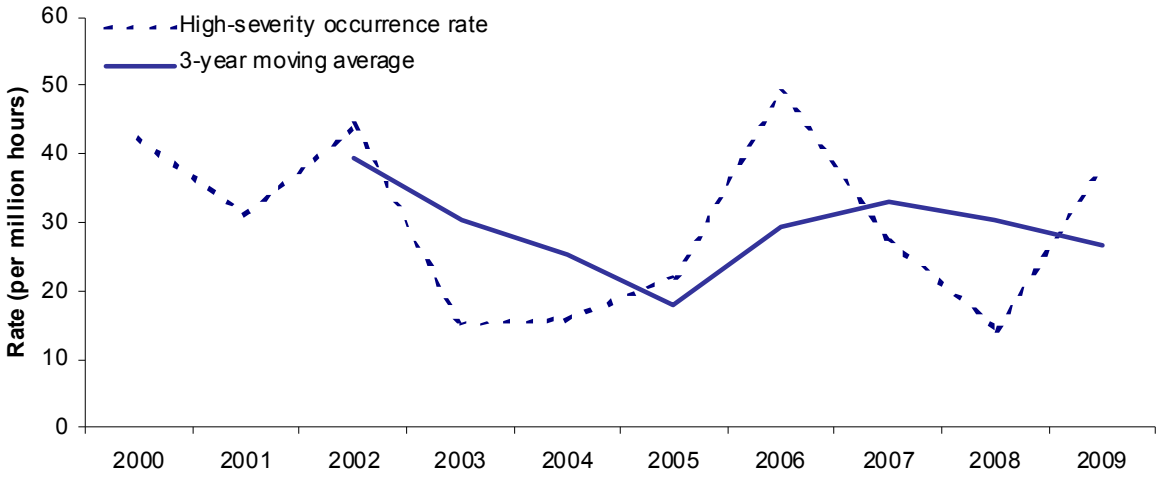

Figure 24 Rate of high-severity occurrences involving public transport helicopters

5 Balloons

5.1 This section contains information relating to balloons engaged in public transport operations. Information relating to non-public transport balloons can be found in Chapter 2, Section 5.

5.2 Reportable Accidents

5.2.1 There were 27 reportable accidents involving public transport balloons in the period 2000-2009. Figure 25 shows the number of reportable accidents per year.

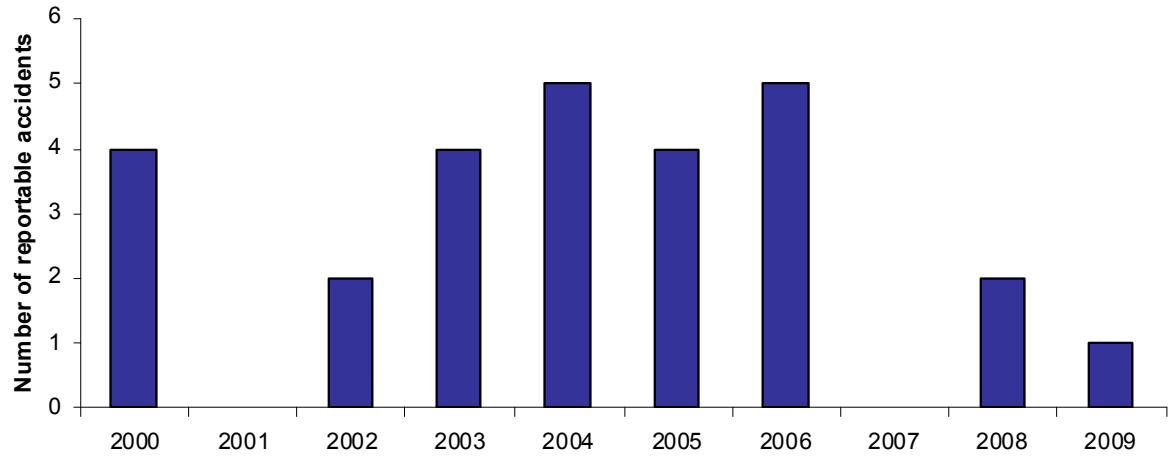

Figure 25 Number of public transport balloon accidents per year

5.3 Fatal Accidents

5.3.1 There were no fatal accidents in the period analysed. The most recent fatal accident in this category was in 1997, details of which can be found in CAP 763, Aviation Safety Review 2005.

5.4 Utilisation Data and Reportable Accident Rates

5.4.1 No utilisation data are available for public transport balloon operations, therefore it is not possible to calculate the rate of accidents over the period analysed.

5.5 Injury Tables

5.5.1 The injuries sustained in reportable accidents involving public transport balloon operations are shown in Table 21. There were no fatalities, 15 serious injuries and 36 minor injuries between 2000 and 2009.

Table 21 Injuries sustained in accidents involving public transport balloons

Year	Crew				Passenger			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	0	0	0	0	0	1	0	1
2001	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	1	0	1
2003	0	0	0	0	0	1	0	1
2004	0	0	0	0	0	2	0	2
2005	0	2	1	3	0	4	20	24
2006	0	1	0	1	0	1	14	15
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	2	0	2
2009	0	0	0	0	0	0	1	1
Total	0	3	1	4	0	12	35	47

5.6 Serious Incidents

5.6.1 There were no serious incidents involving public transport balloons between 2000 and 2009.

5.7 Occurrences

5.7.1 There were 102 occurrences involving public transport balloon operations between 2000 and 2009. This figure includes reportable accidents, which form 26% of the total.

5.7.2 Figure 26 shows the number of occurrences per year, divided into their severity categories. Five percent of public transport balloon occurrences were graded as high-severity. The available severity grades were A, B, C and D, however there were no A-grade occurrences in the period analysed.

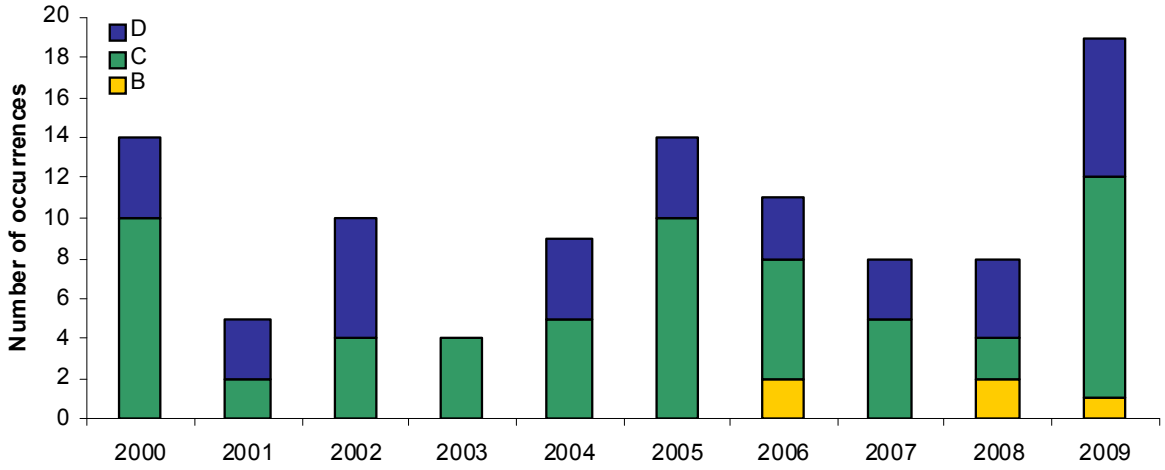

Figure 26 Number of occurrences per year involving public transport balloons

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Chapter 2 Safety of UK Non-Public Transport Worldwide

1 Introduction

1.1 This chapter discusses the safety of UK-registered or operated aircraft, engaged in non-public transport flights.

1.2 The definition of a non-public transport flight is available in Appendix 1. Non-public transport flights are those that do not involve ambulance, cargo, passenger, police support or search and rescue flights, but may involve operations such as aerial survey, construction work, line inspections, flying clubs, business and executive aviation, test flights, training, positioning or private flying. In cases where the nature of flight has been stated to be 'unknown' or 'not applicable', the flight is assumed to be non-public transport.

1.3 The source of the data used in this chapter is the UK MOR scheme and in the case of gliders the BGA. Further information regarding the MOR scheme and the types of occurrences used in this chapter may be found in Appendix 3. Utilisation data is sourced from the UK Aircraft Register and from the BGA.

2 Large Aeroplanes

2.1 This section contains information relating to UK-registered or UK-operated aeroplanes with a maximum total weight authorised exceeding 5,700kg, on non-public transport flights.

2.2 It should be noted that there are some aeroplanes where the weight of the original type was below 5,700kg MTWA, but where subsequent series of aircraft have exceeded this weight. An example is the Embraer EMB110 Bandeirante. For consistency across the dataset, all series of the types have been included under the original weight limit. A list of public transport aircraft types is available in Appendix 5, which although limited to public transport aircraft types, is a useful reference for this section.

2.3 Utilisation data are not available for this section, so occurrence rates cannot be calculated.

2.4 Reportable Accidents

2.4.1 In the period 2000-2009, there were 18 reportable accidents involving large non-public transport aeroplanes. Figure 27 shows the number of UK reportable accidents per year, divided by class of aeroplane into: business jet, jet, piston and turbo-prop aeroplanes. There were no piston aeroplane reportable accidents in this category in the period analysed. One accident in 2005 involved both a jet and a turboprop aeroplane, so although there were 18 accidents in the period analysed, the graph total is 19.

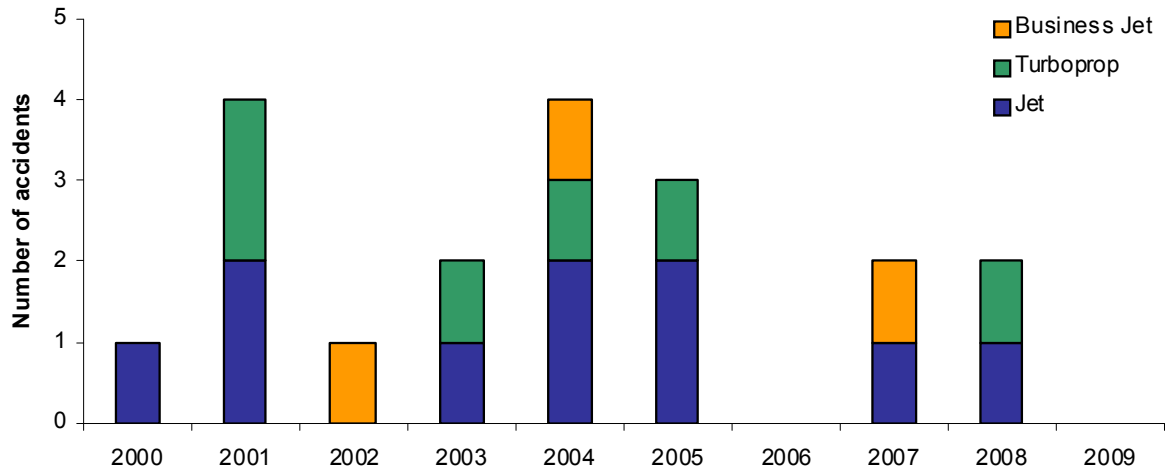

Figure 27 Number of reportable accidents per year involving large non-public transport aeroplanes

2.5 Types of Reportable Accident

2.5.1 Figure 28 shows the types of reportable accident involving UK large public transport aeroplanes that occurred in the period 2000-2009.

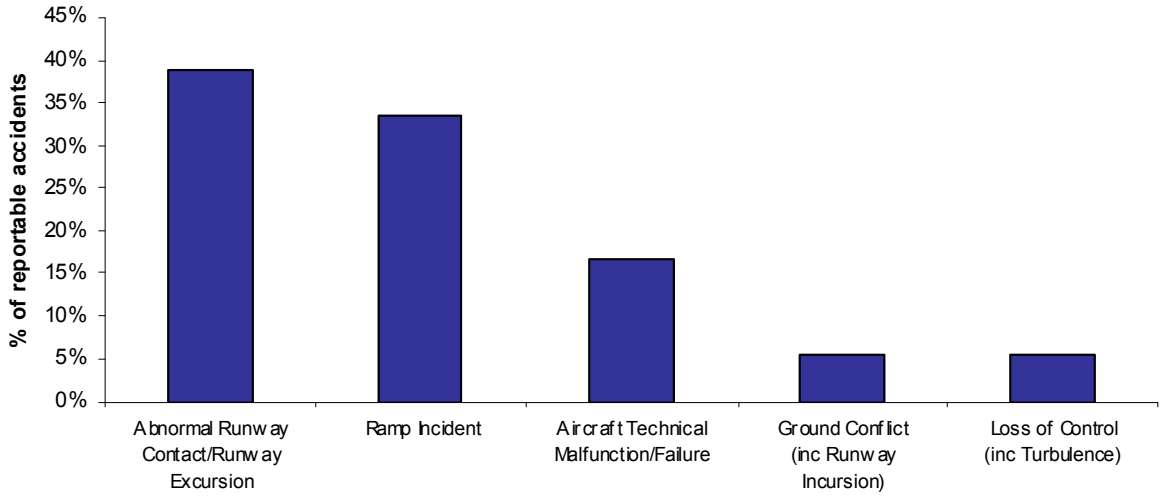

Figure 28 Types of reportable accident involving large non-public transport aeroplanes

2.6 Fatal Accidents

2.6.1 There was one fatal accident involving a large non-public transport aeroplane between 2000 and 2009, resulting in two fatalities. Details are shown in Table 22.

Table 22 Details of fatal accidents involving large non-public transport aeroplanes

Date	Aircraft Type	Phase Of Flight	Type of Operation	Location of Occurrence	Description	POB	Fatalities
02 June 2001	Vampire	Flight	Air Display	Biggin Hill, Kent	Crashed following loss of control during flying display.	2	2

2.7 Injury Tables

2.7.1 The number of injuries sustained by aircraft occupants in the reportable accidents analysed in this section are shown in Table 23. The injuries are divided into fatal, serious and minor, with definitions available in Appendix 1.

2.7.2 In total, there were two fatal injuries and one serious injury between 2000 and 2009. None of the injuries involved passengers.

Table 23 Injuries sustained in reportable accidents involving large non-public transport aeroplanes

Year	Crew			
	Fatal	Serious	Minor	Total
2000	0	0	0	0
2001	2	0	0	2
2002	0	0	0	0
2003	0	1	0	1
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	0	0	0
Total	2	1	0	3

2.8 Serious Incidents

2.8.1 There were 20 serious incidents involving large non-public transport aeroplanes between 2000 and 2009. Figure 29 shows the number of serious incidents per year divided by class of aeroplane into: business jet, jet, piston and turbo-prop aeroplanes. There were no piston aeroplane serious incidents in this category in the period analysed.

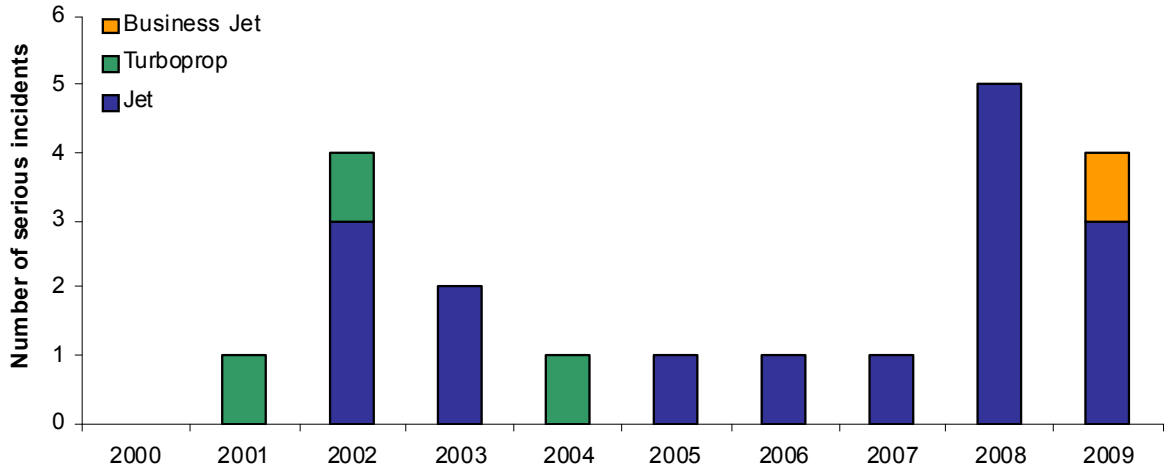

Figure 29 Number of serious incidents per year involving large non-public transport aeroplanes

2.9 Occurrences

2.9.1 Approximately 6,600 occurrences were reported between 2000 and 2009 involving large non-public transport aeroplanes. This figure includes both accidents and serious incidents, which form 0.6% of occurrences in this category. 0.5% of occurrences were considered to be high-severity.

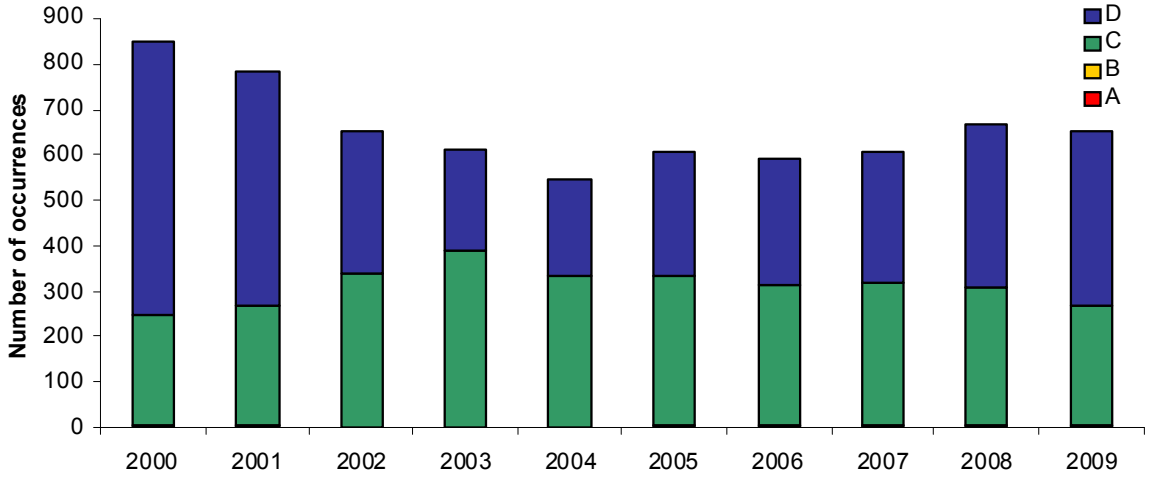

Figure 30 Number of occurrences per year involving large non-public transport aeroplanes

3 Small Conventional Aeroplanes

3.1 This section contains information regarding UK registered or operated non-public transport conventional aeroplanes, with a maximum total weight not exceeding 5,700kg.

3.2 Conventional aeroplanes may be defined as: landplanes, seaplanes and self-launching motorgliders. Data relating to other types of glider and to microlights may be found in Section 5 of this chapter.

3.3 It should be noted that there are some aeroplanes where the weight of the original type was below 5,700kg MTWA, but where subsequent series of aircraft have exceeded this weight. An example is the Embraer EMB110 Bandeirante. For consistency across the dataset, all series of the types have been included under the original weight limit.

3.4 A large proportion of the aircraft that fall into the category of small conventional aeroplanes are not legally required to report incidents to the MOR scheme (although they are encouraged to). As a result, although reportable accidents and serious incidents are discussed in this section, there is no section discussing occurrences as a whole (reportable accidents, serious incidents and incidents).

3.5 Reportable Accidents

3.5.1 There were approximately 1,400 reportable accidents involving small conventional aeroplanes between 2000 and 2009, Figure 31 shows the number of reportable accidents per year.

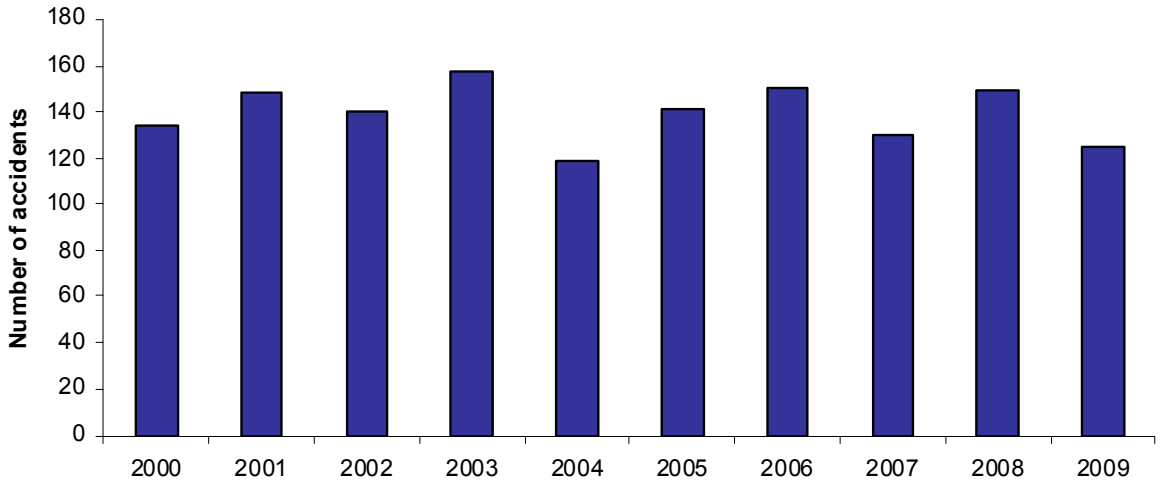

Figure 31 Number of reportable accidents per year involving small conventional aeroplane non-public transport

3.6 Fatal Accidents

3.6.1 There were 85 fatal accidents involving small conventional aeroplanes between 2000 and 2009, Figure 32 shows the number of fatal accidents per year.

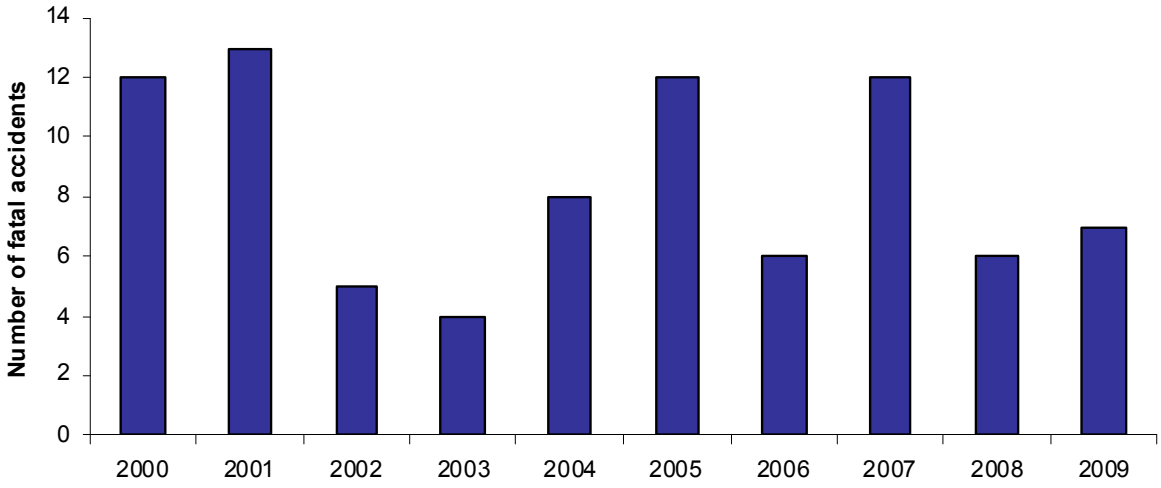

Figure 32 Number of fatal accidents per year involving small conventional aeroplane non-public transport

3.6.2 Details of the 85 fatal accidents are shown in Table 24. There are a small number of mid-air collisions in the table; mid air collisions are counted as one accident and the figures showing the number of people on board and number of fatal injuries apply to the sum of both aircraft involved. Where the mid-air collision involved another class of aircraft (that is, not a small conventional aeroplane), it is only included if fatalities occurred on-board the small conventional aeroplane. Otherwise, an incident such as this is detailed under the relevant section for the other aircraft.

Table 24 Details of fatal accidents involving small conventional aeroplane non-public transport

Date	Aircraft type	Location of accident	Type of operation	Description	POB	Fatal
04-Mar 2000	DH Chipmunk	Cosford, Shrops.	Towing	Pilot incapacitated during take-off, struck telegraph pole and inverted.	1	1
24-Mar 2000	Europa	Upwood, Cambs.	Other	Lost control after unintentional take-off during taxi test run.	1	1
08-Apr 2000	Spitfire	Goodwood, W. Sussex.	Training	During low level turn onto final approach left wing struck embankment and separated. Aircraft crashed short of runway and was destroyed.	2	2
19-Apr 2000	Cessna 150	North Weald, Essex	Private	Mid-air collision with Russian registered Yak 50.	3	3
27-May 2000	Mooney 20	Montseny Mtns, Spain	Private	Crashed in mountainous region.	1	1
01-Jun 2000	Piper PA34	Newmarket, Cambs.	Private	Lost control and crashed after propeller struck ground on take-off.	3	1
16-Jul 2000	Nipper	Cumberworth, Lincs.	Private	Engine failure after take-off. Forced landing.	1	1
18-Aug 2000	Aero L29 Delfin	Eastbourne, E.Sussex	Other	Aircraft spun into the sea during air display.	1	1
11-Sep 2000	Jodel D112	Swansea	Private	Crashed in mountainous region, possible power loss .	1	1
03-Dec 2000	Piper PA28	Lambourn Downs, Berks.	Private	In-flight structural failure of left wing.	4	4
09-Dec 2000	Jet Provost	Welton le Wold, Lincs.	Other	Aircraft entered uncontrollable spin. Both crew ejected at low level.	2	1
13-Dec 2000	Cessna 152	Torridon, Highlands	Private	Crashed in mountainous region. Wreckage found 2 months later.	2	2
24-Feb 2001	Rockwell 114	Sharpthorne, W.Sussex	Private	Aircraft entered steep descent during sharp right turn. Right wing detached and aircraft struck ground at high speed.	4	4

Table 24 Details of fatal accidents involving small conventional aeroplane non-public transport (Continued)

Date	Aircraft type	Location of accident	Type of operation	Description	POB	Fatal
27-Mar 2001	Piper PA28	Verdun, France	Private	Crashed shortly after take-off.	1	1
27-Apr 2001	Socata TB10	Sherburn, W Yorks.	Private	Lost control during return due open baggage compartment door.	1	1
12-May 2001	Cessna 182	Leicester, Leics.	Private	Stalled and crashed shortly after take-off.	2	2
12-May 2001	Piper PA24	Osea Island, Essex	Training	Aircraft spun into ground approx 12 minutes after take off. Both occupants showed signs of carbon monoxide poisoning.	2	2
12-May 2001	Sea Fury	Sywell, Northants.	Private	Lost control on landing, entered area of soft ground and turned over.	1	1
03-Jun 2001	Bell King Cobra	Biggin Hill, Kent	Other	Lost control and crashed during air display.	1	1
03-Jun 2001	Robin DR250	Monte Tobbio, Italy	Private	Crashed in mountainous region.	2	2
04-Jun 2001	Spitfire	Rouen, France	Other	Engine malfunctioned after take-off. Crashed during attempted return.	1	1
23-Jun 2001	Cessna 182	St Mawgan, Cornwall	Private	Departed runway on landing, struck light, overturned and caught fire.	4	1
15-Aug 2001	Piper PA28	Halesworth, Suffolk	Private	Engine failure. Crashed during forced landing.	1	1
14-Sep 2001	Piper PA25	Aston Down, Glos.	Private	Mid-air collision with glider, both aircraft destroyed.	2	2
28-Dec 2001	Robin 2160	Goodwood, W.Sussex.	Private	Failed to pull out of barrel roll during aerobatics.	1	1
07-Feb 2002	Cessna 150	Hannington, Hants.	Private	Struck power cables in poor weather.	1	1
01-Apr 2002	Piper PA38	Cwmbran, Torfaen	Private	Struck an electricity pylon on high ground in poor visibility.	2	2
02-Jun 2002	Aero L39 Albatros	Duxford, Cambs.	Training	Overran on landing and came to rest on M11 motorway.	2	1

Table 24 Details of fatal accidents involving small conventional aeroplane non-public transport (Continued)

Date	Aircraft type	Location of accident	Type of operation	Description	POB	Fatal
03-Jul 2002	Piper PA32	Sintra Mountains, Portugal	Private	Crashed into mountain in poor weather conditions.	4	4
03-Nov 2002	Slingsby 67	Banbury, Oxon.	Training	Failed to recover from a spinning exercise and crashed.	2	2
05-Jan 2003	YAK 52	Towcester, Northants.	Club-Group	Dived vertically into the ground during aerobatics.	2	2
15-Feb 2003	Scheibe SF25 Falke	Chipping, Lancs	Private	On take-off the tailwheel became entangled with a launch cable.	2	2
29-Mar 2003	Cessna 421	Humberside, N Lincs.	Training	Crashed following touch and go landing.	3	1
18-May 2003	Piper PA31	Barbados	Private	Ditched after failure of one engine and loss of fuel.	2	2
01-Feb 2004	Piper PA25	Crowland, Lincs.	Towing	Tug aircraft failed to pull out of dive from approx 300ft following glider release.	1	1
29-Feb 2004	Piper PA25	West Chiltington, W.Sussex	Towing	Crashed after pilot became incapacitated.	1	1
13-Mar 2004	Cessna 310	Hotham, E Yorks.	Training	Crashed in a field.	2	2
27-Jun 2004	Cessna 206	Beacon, Devon	Parachuting	Nosed over and hit the ground hard due to inflight engine failure.	6	4
04-Jul 2004	Piper PA28	Liverpool Bay, Wirral	Private	Ditched off Wallasey following engine problem.	2	2
28-Aug 2004	Socata TB10	Bournemouth, Dorset	Private	During attempt to return to airfield, aircraft struck fence and crashed.	3	1
16-Oct 2004	Mooney 20	Jersey, Channel Islands	Private	Stalled and nose dived after engine problems.	1	1
22-Oct 2004	Cessna 406	Inverness, Highlands	Other	Crashed in bad weather .	1	1
08-Feb 2005	Piper PA28	Horsmonden, Kent	Private	Crashed into muddy field in dense fog.	1	1
30-Apr 2005	ARV	Clapton in Gordano, Somerset	Private	Struck trees and power cables after take off.	1	1

Table 24 Details of fatal accidents involving small conventional aeroplane non-public transport (Continued)

Date	Aircraft type	Location of accident	Type of operation	Description	POB	Fatal
15-Mar 2005	BN2 Islander	Campbeltown, Strathclyde	Positioning	Descended into sea during instrument approach.	2	2
25-May 2005	Slingsby 67	Potterspury, Northants	Training	Spun into ground and was destroyed.	2	2
08-Jul 2005	CAP 222 (Modified)	White Waltham, Berks.	Private	During aerobatic practise the aircraft entered an inverted spin and spiralled into the ground.	1	1
07-Aug 2005	Cessna 172	Bracklesham Bay, W Sussex	Other	Shortly after take off the aircraft entered a banked left turn, stalled and crashed into a field.	1	1
18-Aug 2005	DH Tigermoth	Henley on Thames, Oxon.	Private	Entered spin and crashed into field.	2	2
04-Sep 2005	Piper PA28	Irish Sea	Private	Unknown - Wreckage of aircraft subsequently recovered from sea.	2	2
02-Oct 2005	MCR01	Lymington, Hants.	Private	Nosedived into ground and was destroyed.	2	2
22-Oct 2005	Piper PA38	Biggin Hill, Kent	Training	Engine failed during initial climb.During an attempted turn back the aircraft stalled, crashed and was destroyed.	2	2
17-Nov 2005	Grumman AA1	Northampton, Northants.	Private	MAYDAY declared and aircraft spun into field from 5000ft.	2	2
18-Dec 2005	Cessna 152	Moreton-in-Marsh, Glos.	Private	Mid-air collision between C152 and EV-97 microlight.	1	1
29-Jun 2006	Piper PA23	Thirkleby, N.Yorks.	Private	Suspected loss of engine power on take-off.	1	1
16-Jul 2006	Slingsby 67	Hoxne, Suffolk	Private	Entered spin during aerobatics, crashed and was destroyed.	1	1
19-Jul 2006	Cessna 150	Eastwood Park, Essex	Training	During go-around, aircraft stalled and crashed in a park.	1	1
22-Jul 2006	YAK 52	Bournemouth, Dorset	Private	Crashed from apparent aerobatic manoeuvre.	2	2

Table 24 Details of fatal accidents involving small conventional aeroplane non-public transport (Continued)

Date	Aircraft type	Location of accident	Type of operation	Description	POB	Fatal
10-Sep 2006	Tailwind	Schramberg, Germany	Private	Stalled during emergency landing following smoke in the cockpit.	1	1
11-Sep 2006	Cessna 152	Bethesda, Gwynedd	Private	Flew into terrain.	2	1
03-Feb 2007	Piper PA28	Blackpool, Lancs.	Private	During approach to Blackpool in poor visibility, the aircraft descended into the sea and sank.	2	2
09-Apr 2007	Piper PA28	Bragleenmore Farm, Strathclyde	Private	Crashed into farmland/high ground.	3	3
17-Apr 2007	Pulsar	Aston Juxta Mondrum, Cheshire	Private	Crashed following loss of engine power shortly after take-off.	1	1
13-May 2007	Homebuilt	Koprubasi, Turkey	Private	Crashed in deteriorating weather conditions.	2	2
01-Jun 2007	Europa	Magor, Gwent	Private	Suffered in-flight structural failure.	2	2
08-Jul 2007	Cessna 150	Clutton Hill, Avon	Private	Entered vertical dive, crashed and caught fire.	2	2
05-Aug 2007	Piper PA28	Sandown, Isle of Wight	Private	Crashed on take-off.	4	4
15-Sep 2007	Hurricane	Shoreham, W.Sussex	Other	Crashed during aerobatic display.	1	1
16-Sep 2007	Piper PA32	Shotteswell, Oxon	Private	Experienced problems after take-off and crashed into field.	1	1
17-Oct 2007	BN2 Islander	Guadalcanal, Spain	Unknown	Overran runway on landing.	2	1
16-Dec 2007	Luscombe	Rudgeley, Staffs.	Private	Mid-air collision between Luscombe 8 and PAC 750	2	2
30-Dec 2007	Zenair	Selkirk, Borders	Private	Following an apparent loss of control in flight, aircraft impacted ground at high speed in a nose down attitude and was destroyed.	1	1

Table 24 Details of fatal accidents involving small conventional aeroplane non-public transport (Continued)

Date	Aircraft type	Location of accident	Type of operation	Description	POB	Fatal
13-Feb 2008	Piper PA28	Empingham, Leicestershire	Private	Descended into foggy conditions and collided with trees at high speed.	1	1
05-Apr 2008	Piper PA32	Cairngorm, Moray	Private	Collided with mountain during diversion due to poor weather.	1	1
17-Aug 2008	Cessna 402 & Rand KR2	Coventry, W Mids.	Private	Mid-air collision between Cessna 402 and Rand KR2.	5	5
17-Oct 2008	Piper PA38	Robin Hood's Bay, N Yorks.	Private	Crashed into sea, sank and was destroyed.	1	1
25-Oct 2008	Piper PA28	Corriebracks Mountain, Co. Wicklow, Ireland.	Private	Collided with mountain in poor visibility.	4	4
29-Oct 2008	Eagle	Seething, Norfolk	Other	Collided with farm vehicle in adjacent field whilst on approach.	2	2
02-Jan 2009	Piper PA28	Little Haywood, Staffs.	Private	Impacted the ground at high-speed following loss of control.	3	3
21-Feb 2009	Micklebur gh L107	Spalding, Lincs.	Private	MAYDAY declared shortly after take-off, spun in from 300-400ft during attempted return to airfield.	1	1
24-May 2009	Casa I 131	Stourton Caundle, Dorset	Private	MAYDAY declared due to engine failure. Struck telephone lines during forced landing.	2	1
12-Jun 2009	Jodel DR1050	Kilkeel, Co. Down	Private	Aircraft believed to have stalled on approach shortly before nose diving into ground.	3	3
27-Jun 2009	Taylor Mono	Great Oakley, Northants.	Private	Reported to be in difficulties after take-off. Attempted to return to airstrip but spun in.	1	1
20-Sep 2009	Nord NC854	Tangley, Hants.	Private	Crashed in field and destroyed by fire.	2	2
08-Nov 2009	Taylor Titch	Coates, Cambs.	Private	Aircraft crashed into a ditch. Circumstances unknown.	1	1

3.7 Utilisation Data

3.7.1 Between 2000 and 2009, small conventional aeroplanes flew an estimated 8.0 million hours. The annual breakdown of these figures is in Table 25.

3.7.2 The data is sourced from the UK Aircraft Register and therefore relies on information submitted during certificate of airworthiness and permit to fly renewals. Data from the Aircraft Register does not make a distinction between types of operation performed, so the data do also contain some public transport operations and should be used with caution. However, it is reasonable to consider the data to be representative of this category of aircraft.

Table 25 Hours flown by UK registered small conventional aeroplanes

Year	Estimated hours (x1000)
2000	811
2001	801
2002	795
2003	799
2004	785
2005	774
2006	792
2007	805
2008	815
2009	811

3.8 Reportable and Fatal Accident Rates

3.8.1 Figure 33 shows the reportable and fatal accident rates for small conventional aeroplanes between 2000 and 2009. These rates have been produced using the data presented in Table 25 so are subject to the caveats described in 3.7.1. The overall reportable accident rate was 174.4 per million hours and the overall fatal accident rate was 10.6 per million hours.

Figure 33 Reportable and fatal accident rate for small non-public transport conventional aeroplanes

3.9 Injury Tables

3.9.1 The injuries sustained in reportable accidents involving small conventional aeroplanes are summarised in Table 26. In total, there were 144 fatalities, 101 serious injuries and 234 minor injuries.

Table 26 Injuries sustained in reportable accidents involving small non-public transport conventional aeroplanes

Year	Crew				Passenger			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	14	8	7	29	5	5	3	13
2001	17	10	21	48	4	2	7	13
2002	6	5	20	31	4	1	8	13
2003	4	5	20	29	3	1	10	14
2004	8	10	8	26	5	3	3	11
2005	14	7	22	43	5	2	4	11
2006	7	5	17	29	0	7	13	20
2007	13	5	11	29	9	4	6	19
2008	7	4	18	29	7	5	10	22
2009	7	7	19	33	5	4	10	19
Total	97	66	163	326	47	35	71	153

3.9.2 The rate of fatalities (as opposed to fatal accidents) is shown in Figure 34. The overall fatality rate between 2000 and 2009 was 18.0 per million hours.

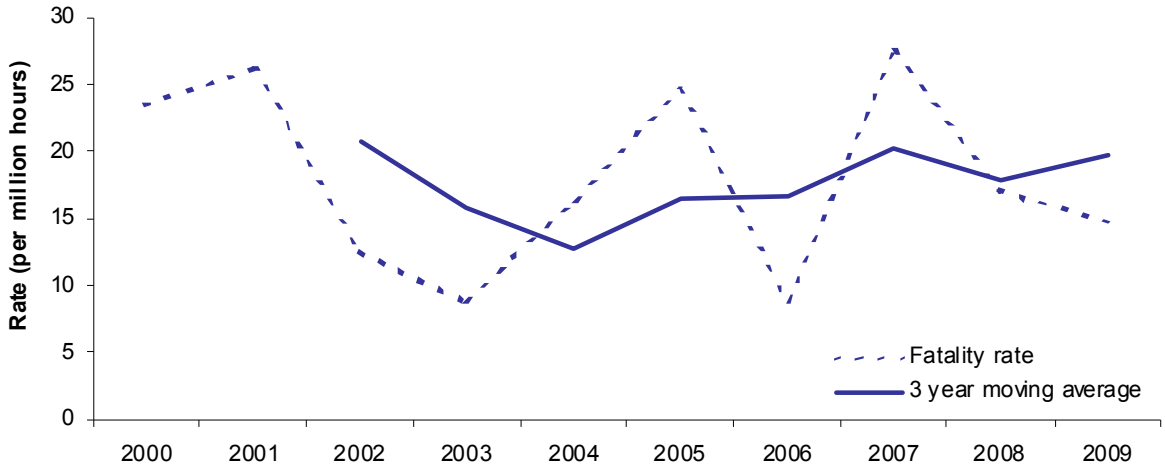

Figure 34 Fatality rate of small non-public transport conventional aeroplanes

3.10 Serious Incidents

3.10.1 There were 30 serious incidents between 2000 and 2009. Figure 35 shows the annual number of serious incidents.

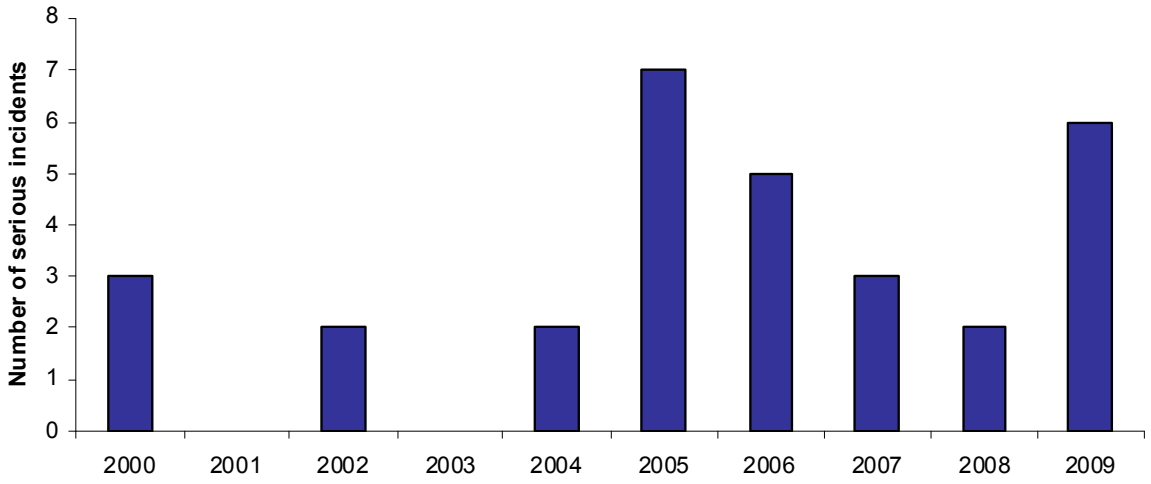

Figure 35 Number of serious incidents per year involving small non-public transport conventional aeroplanes

4 Small Helicopters

4.1 This section contains information regarding UK registered or operated helicopters with a maximum total weight not exceeding 2,730kg, engaged in non-public transport operations.

4.2 A large proportion of the aircraft that fall into the category of small conventional aeroplanes are not legally required to report incidents to the MOR scheme (although they are encouraged to). As a result, although reportable accidents and serious incidents are discussed in this section, there is no section discussing occurrences as a whole (reportable accidents, serious incidents and incidents).

4.3 Reportable Accidents

4.3.1 There were 202 reportable accidents involving small helicopters between 2000 and 2009. Figure 36 shows the annual distribution of these accidents.

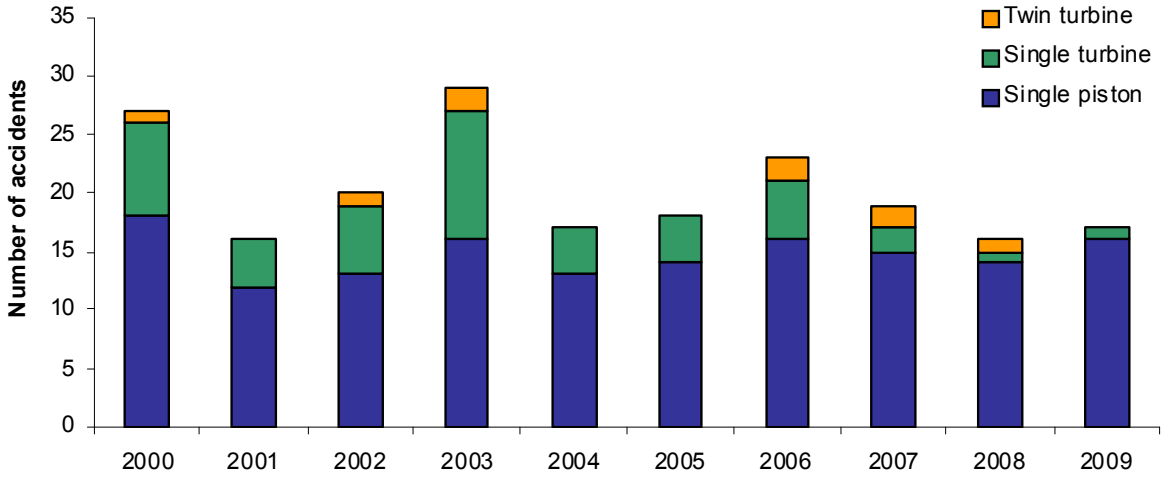

Figure 36 Number of reportable accidents per year involving small non-public transport helicopters

4.3.2 73% of reportable accidents in this category involved single piston helicopters, 23% single turbine helicopters and 4% twin turbine helicopters.

4.4 Fatal Accidents

4.4.1 There were 25 fatal accidents between 2000 and 2009 that involved small non-public transport helicopters. Fatal mid-air collisions are not included if the fatality occurred on board another class of aircraft. The number of fatal accidents per year is shown in Figure 37.

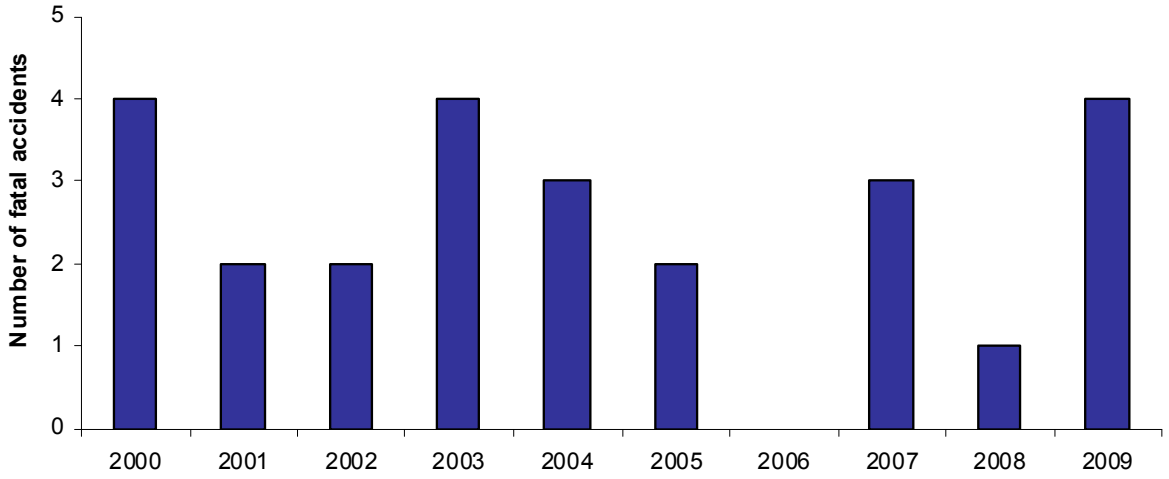

Figure 37 Number of fatal accidents per year involving small non-public transport helicopters

4.4.2 Details of the fatal accidents are shown in Table 27.

Table 27 Details of fatal accidents involving small non-public transport helicopters

Date	Aircraft type	Location of occurrence	Type of operation	Description	POB	Fatal
01-Feb 2000	Robinson R44	Chorley, Lancs	Private	Lost control after inadvertently entering cloud.	3	3
08-Mar 2000	Hughes 269	Hare Hatch, Berks	Private	Crashed following in-flight break up.	3	3
05-Aug 2000	Robinson R44	French Alps	Private	Collided with power cable in poor weather.	2	2
02-Dec 2000	Robinson R22	Sherburn in Elmet, N.Yorks.	Private	Main rotor blades struck canopy following apparent loss of engine power. Aircraft fell to the ground and was destroyed.	2	2
21-Jan 2001	SA350 Ecureuil	Enniskillen, County Fermanagh	Private	Lost control after inadvertently entering cloud.	5	3
05-May 2001	Robinson R22	Beaune, France	Private	Crashed in bad weather.	2	2
24-May 2002	Bolkow 105	Brough of Birsay, Orkney	Other	Underslung load became unstable and struck the tail rotor. The aircraft crashed into the sea.	1	1

Table 27 Details of fatal accidents involving small non-public transport helicopters

Date	Aircraft type	Location of occurrence	Type of operation	Description	POB	Fatal
13-Jul 2002	Robinson R22	Warwick, Warks.	Private	Broke up in-flight and crashed in a field.	2	2
17-Jan 2003	Bell 206 Jet Ranger	Cudham, Kent	Private	Crashed shortly after take off and was destroyed in post impact fire.	2	2
19-Jul 2003	Hughes 369 / 500	Knockholt, Kent	Private	Entered a descending left turn from which it did not recover before striking the ground.	3	3
30-Jul 2003	Robinson R44	Teviothead, Borders	Private	After encountering low cloud, the aircraft entered a rapid descent and the main rotor struck the tailboom.	1	1
02-Dec 2003	SA355 Ecureuil Twin	Hurstbourne Tarrant, Hants	Test	Crashed during post-maintenance test flight.	3	3
19-Sep 2004	Robinson R44	Kentallen, Highland	Private	Aircraft struck hillside and was destroyed by post-crash fire.	2	1
24-Oct 2004	Enstrom 280	Asane, Norway	Private	Ditched in sea following loss of engine power.	3	1
11-Nov 2004	Robinson R22	Stratford upon Avon, Warks	Training	Helicopter crashed in deteriorating weather.	1	1
22-Jan 2005	Bell 206 Jet Ranger	Taunton, Somerset	Private	Helicopter crashed in poor weather and was destroyed.	4	4
21-Dec 2005	Bell 206 Jet Ranger	Coupar Angus, Tayside	Survey	Vertical stabiliser detached in flight, causing tail rotor and associated gearbox to separate.	2	2
01-May 2007	SA355 Ecureuil Twin	Peterborough, Cambs.	Private	Disappeared from radar screens after making a sharp turn. Wreckage found on following day.	4	4
03-Aug 2007	Robinson R44	Kendal, Cumbria	Private	Aircraft crashed in poor weather.	4	4
15-Sep 2007	SA350 Ecureuil	Lanark, South Lanarkshire	Private	Crashed into trees while manoeuvring at high speed and low height and was destroyed by fire.	4	4
01-Nov 2008	Gazelle	Winchcombe, Glos	Private	Crashed into hillside after inadvertently entering IMC.	3	3
14-Feb 2009	Robinson R22	Sandtoft, Lincs	Training	During solo circuit consolidation, engine stopped and aircraft fell into a field.	1	1

Table 27 Details of fatal accidents involving small non-public transport helicopters

Date	Aircraft type	Location of occurrence	Type of operation	Description	POB	Fatal
05-Apr 2009	Robinson R44	Amboise/Dier re, France	Private	Aircraft crashed on landing and burned	3	3
22-Sep 2009	Schweizer 300C	Barnaby Sands, Lancs	Private	MAYDAY declared stating aircraft had suffered a power failure, crashed shortly afterwards.	2	2
15-Nov 2009	Robinson R22	Whiteley Green, Cheshire	Other	Aircraft crashed in a field and was destroyed.	1	1

4.5 Utilisation Data

4.5.1 In the period 2000 to 2009, UK-registered small helicopters flew an estimated 1.6 million hours. The annual breakdown of these hours is shown in Table 28.

4.5.2 The data is sourced from the UK Aircraft Register and therefore relies on information submitted during certificate of airworthiness and permit to fly renewals. Data from the Aircraft Register does not make a distinction between types of operation performed, so the data do also contain some public transport operations and should be used with caution. However, it is reasonable to consider the data to be representative of this category of aircraft.

Table 28 Hours flown by UK-registered small helicopters

Year	Estimated hours (x1000)
2000	153
2001	149
2002	154
2003	156
2004	158
2005	158
2006	156
2007	151
2008	172
2009	161

4.6 Reportable and Fatal Accident Rates

4.6.1 Figure 38 shows the reportable and fatal accident rates for small non-public transport helicopters between 2000 and 2009. These rates have been produced using the data presented in Table 28 and are therefore subject to the caveats outlined in 4.5.2. Overall, the reportable accident rate was 128.8 per million hours and the fatal accident rate was 15.9 per million hours.

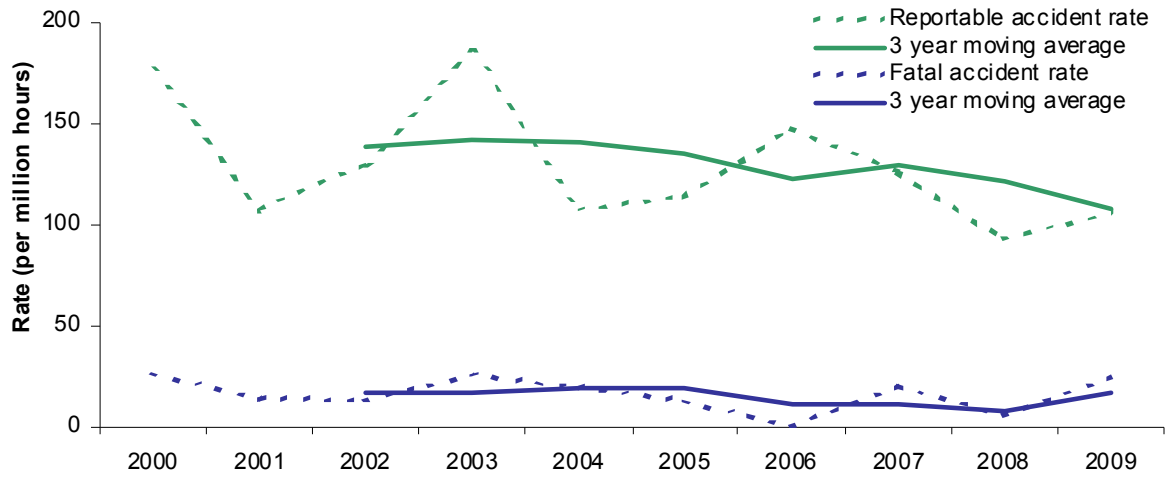

Figure 38 Rate of reportable and fatal accidents involving small non-public transport helicopters

4.7 Injury Tables

4.7.1 The injuries sustained in the reportable accidents involving small helicopters are shown in Table 29. There were 58 fatalities, 19 serious injuries and 75 minor injuries between 2000 and 2009.

Table 29 Injuries sustained in reportable accidents involving small non-public transport helicopters

Year	Crew				Passenger			
	Fatal	Serious	Minor	Total	Fatal	Serious	Minor	Total
2000	7	1	4	12	3	2	4	9
2001	2	0	4	6	3	2	1	6
2002	2	2	5	9	1	0	2	3
2003	4	0	10	14	5	0	3	8
2004	2	6	6	13	3	0	3	6
2005	3	1	4	8	3	0	3	6
2006	0	0	7	7	0	0	0	0
2007	3	1	8	12	9	1	1	11
2008	1	2	4	7	2	0	2	4
2009	4	0	4	8	3	1	0	4
Total	27	13	56	96	31	6	19	56

4.7.2 The rate of fatalities is shown in Figure 39. The overall fatality rate between 2000 and 2009 was 37.0 per million hours.

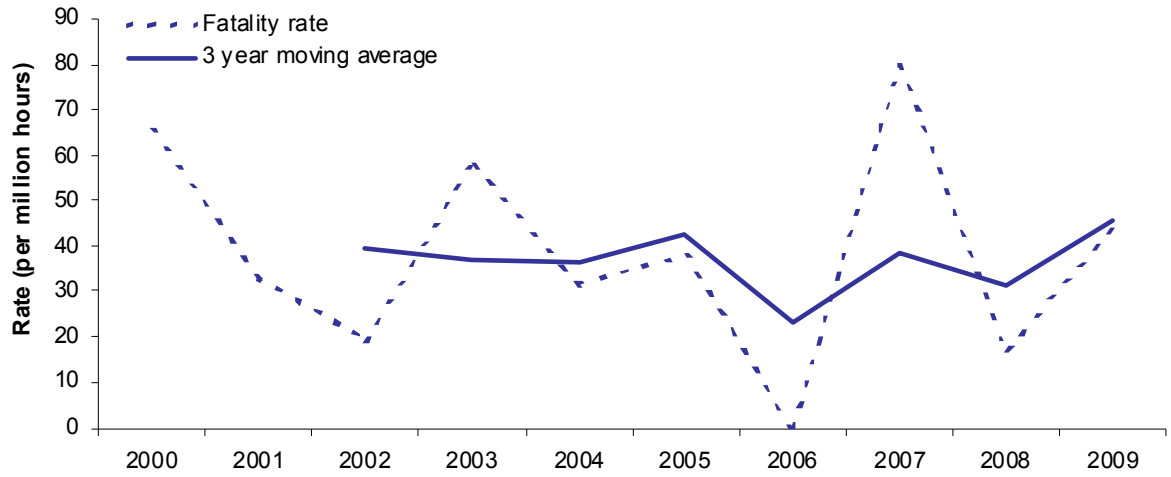

Figure 39 Fatality rate of small non-public transport helicopters

4.8 Serious Incidents

4.8.1 There were nine serious incidents involving small non-public transport helicopters between 2000 and 2009. Figure 40 shows the number of serious incidents per year.

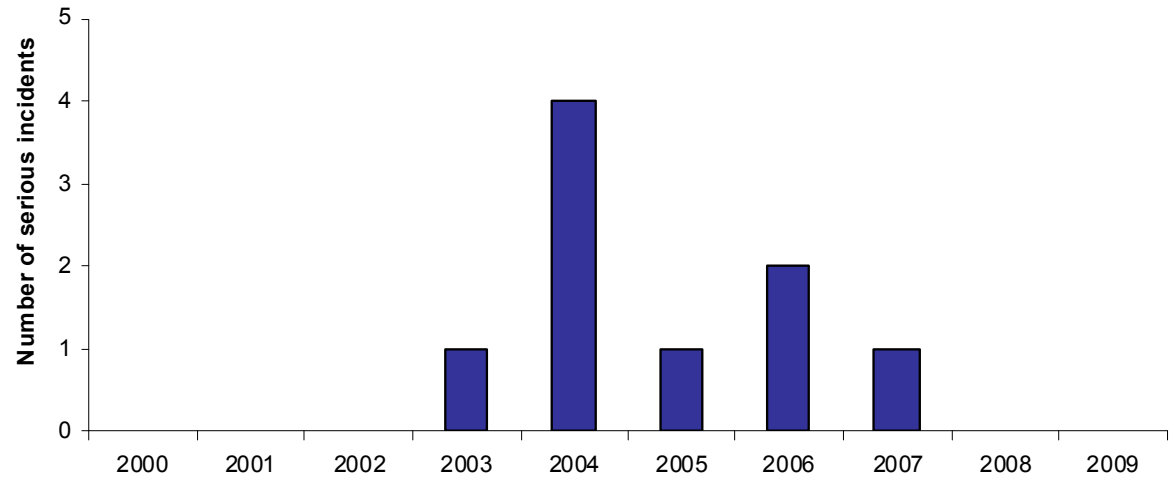

Figure 40 Number of serious incidents per year involving small non-public transport helicopters

5 Other Small Aircraft

5.1 This section contains information regarding UK registered or operated airships, balloons, gliders, gyroplanes and microlights engaged in non-public transport flights.

5.2 For some of these aircraft types, the CAA has devolved the carrying out of certain tasks to their representative bodies. For airships and balloons this is the British Balloon and Airship Club (BBAC), for gliders the British Gliding Association (BGA) and for microlights the British Microlight Aircraft Association (BMAA).

5.3 Information in this section is limited to accident data and, where available utilisation data (and therefore accident rates).

5.4 Airships

5.4.1 Between 2000 and 2009 there was one reportable accident involving a UK registered airship. This accident, in 2003, was a mid-air collision between two airships and did not result in any injuries. Table 30 summarises safety data for airships.

Table 30 Safety data for UK airships

Year	Aircraft Registered in UK	Estimated Hours Flown	Fatal Accidents	Reportable Accidents	Injuries
2000	33	305	0	0	0
2001	28	1040	0	0	0
2002	31	990	0	0	0
2003	30	854	0	1	0
2004	29	306	0	0	0
2005	27	309	0	0	0
2006	24	235	0	0	0
2007	24	235	0	0	0
2008	24	291	0	0	0
2009	22	278	0	0	0
Total	Average 27	4842	0	1	0

5.5 Balloons

5.5.1 There were 21 reportable accidents involving UK registered non-public transport balloons. None of these accidents resulted in a fatal injury, however there were 10 serious injuries and 9 minor injuries. Table 31 summarises safety data for this category.

5.5.2 It is not possible to separate utilisation data for public and non-public transport balloons, therefore this information has been excluded from the table. Safety data relating to public transport balloons can be found in Chapter 1, Section 5.

Table 31 Safety data for non-public transport balloons

Year	Fatal Accidents	Reportable Accidents	Serious Incidents	Fatal Injuries	Serious Injuries	Minor Injuries
2000	0	1	0	0	1	0
2001	0	0	0	0	0	0
2002	0	1	0	0	1	0
2003	0	2	0	0	1	1
2004	0	1	0	0	0	0
2005	0	1	0	0	0	0
2006	0	6	0	0	4	5
2007	0	2	1	0	1	1
2008	0	3	0	0	1	0
2009	0	4	0	0	1	2
Total	0	21	1	0	10	9

5.6 Gliders

5.6.1 The information in this section has been provided by the British Gliding Association (BGA). The BGA statistical analysis year is 1st October – 30th September. Paragliders and hang gliders are not included within these data.

5.6.2 Between 1st October 1999 and 30th September 2009, there were 444 reportable accidents involving UK gliders, of which 32 were fatal. Table 32 summarises safety data for UK gliders. The reportable accident rate was 322.4 per million hours and the fatal accident rate was 23.2 per million hours. The number of movements may be a better measure of glider safety, and the reportable accident rate per million movements was 70.7 and the fatal accident rate was 5.3 per million movements.

Table 32 Safety data for UK gliders

BGA year	Number of aircraft	Movements x1000	Hours flown x1000	Fatal accidents	Reportable accidents	Fatal injuries	Serious injuries	Minor/no injuries
99/00	2,667	728	144	3	57	3	6	71
00/01	2,621	651	129	7	38	8	6	34
01/02	2,614	708	145	1	41	2	5	45
02/03	2,594	688	137	3	42	3	15	36
03/04	2,641	632	149	7	40	9	5	37
04/05	2,537	629	139	1	37	1	3	40
05/06	2,511	591	139	3	46	3	8	41
06/07	2,550	578	134	4	48	5	10	50
07/08	2,463	539	124	0	46	0	6	50
08/09	2,431	537	137	3	49	5	1	60
Total	Average 2,563	6,281	1,377	32	444	39	65	464

5.6.3 Details of the 33 fatal accidents between 1st October 1999 and 30th September 2009 are shown in Table 33. There are a small number of mid-air collisions in the table; mid air collisions are counted as one accident and the figures showing the number of people on board and number of fatal injuries apply to the sum of both aircraft involved. Where the mid-air collision involved another class of aircraft (that is, not a glider), it is only included if fatalities occurred on-board the glider. Otherwise, an incident such as this is detailed under the relevant section for the other aircraft.

Table 33 Details of fatal accidents involving UK gliders

Date	Aircraft Type	Location of accident	Description of accident	People on board	Fatal injuries
18-Jun 2000	Slingsby Swallow	Riggewell, Suffolk	Crashed on take-off	1	1
31-Jul 2000	Nimbus 4DT	Arcania, Spain	Spiral dive following loss of control. Wing separated	2	1

Table 33 Details of fatal accidents involving UK gliders (Continued)

Date	Aircraft Type	Location of accident	Description of accident	People on board	Fatal injuries
4-Aug 2000	ASW 22	Segovia mountains, Spain	Crashed in mountainous region	1	1
3-Feb 2001	Ventus 2CT	Benalla, Australia	Pitched nose down and spiralled into ground	1	1
1-Apr 2001	SZD Junior	Long Stratton, Norfolk	Spiralled into ground on downwind leg to airfield	1	1
23-Jun 2001	D5 Kestrel	Husbands Bosworth, Leics.	Wingtip struck ground during low level turn	1	1
15-Jul 2001	ASW15	Bidford, Warks.	Mid-air collision between glider and PA18 tug/glider tow	3	1
15-Jul 2001	Cirrus Standard	Usk, Monmouthshire	Stalled and spun in shortly after winch launch	1	1
26-Aug 2001	LS8	Syerston, Notts.	Spun into ground after loss of control during winch launch	1	1
14-Sep 2001	Cirrus	Aston Down, Glos.	Mid-air collision between glider and PA25 tug.	2	2
1-Jun 2002	KA8	Hinton in the Hedges, Northants.	Mid-air collision between glider and freefall parachutist	2	2
21-Feb 2003	SZD-50-3 Puchacz	Great Hucklow, Derbyshire	Spiralled into ground after impacting launch cable of another glider	2	1
11-Jun 2003	ASW19	Camphill, Derbyshire	During launch, left wing hit ground and aircraft tipped onto nose	1	1
29-Jun 2003	Discus 'B'	High Ellington, N Yorks.	Lost control and impacted ground in steep nose down attitude	1	1
18-Jan 2004	Puchacz	Husbands Bosworth, Leics	Entered spin at 1500ft and crashed nose-down into a field	2	2
26-Apr 2004	Skylark IV/ Ventus CT	Lasham, Hants.	Mid-air collision between two gliders	2	1
16-May 2004	ASK18	Halesland, Somerset	Crashed on take-off following winch cable failure	1	1
26-May 2004	KA7	Strubby, Lincs.	Crashed after reported wing separation	2	2
9-Jul 2004	ASW20L	La Motte Du Caire, France	Ground collision shortly after take off by hoist system	1	1
7-Aug 2004	LS7	Dunstable, Beds.	Climbed too steeply during winch launch, stalled and nose dived to ground	1	1
7-Aug 2004	Std. Cirrus	Nympsfield, Glos.	Collided with tree following early release from winch launch	1	1

Table 33 Details of fatal accidents involving UK gliders (Continued)

Date	Aircraft Type	Location of accident	Description of accident	People on board	Fatal injuries
18-Sep 2005	Glaser Dirks DG600	Sudbury, Suffolk	Entered steep climb, stalled and spun into ground	1	1
12-Jun 2006	Schleicher ASW 27	Les Pads, France	Crashed in mountainous terrain	1	1
30-Aug 2006	Slingsby T.51 Dart 15	Sutton Bank, N Yorks.	Spun in during low-level ridge soaring	1	1
23-Sep 2006	Schleicher ASW 20L	Raf Keevil, Wilts	Wing tip struck ground during winch launch	1	1
2-Oct 2006	Scheibe SF27, Schleicher ASW 19	Sutton Bank, N Yorks.	Mid-air collision between two gliders	2	1
15-Nov 2006	Stemme S10-V	Mount Pleasant, New Zealand	Went missing during cross-country competition	2	2
2-Sep 2007	Ash 25	Tomintoul, Grampian	Crashed into field whilst attempting to land	2	1
6-Sep 2007	Centrair 101A Pegase	Heusca, Spain	Impacted mountainous terrain	1	1
31-May 2009	Jantar Standard 2	Long Mynd Airfield	Impacted the ground after autorotation on a winch launch	1	1
13-Jun 2009	Grob G102 Astir CS77	Ratley, Warks	Departed from controlled flight while positioning for a field landing	1	1
9-July 2009	Discus B	West of Gransden Lodge Airfield, Cambs	Aircraft spun while soaring and struck the ground	1	1

5.6.4 Third party only fatal accidents are not included in the fatal accident statistics presented in this paper. Details of the third party fatalities involving UK gliders are shown separately in Table 34.

Table 34 Details of third party only fatal accidents involving gliders

Date	Aircraft type	Location of accident	Description	Fatal injuries
9-Aug-2005	LS1F	Husbands Bosworth, Leics	Hit spectator during competition finish	1
14-Jun 2009	Standard Cirrus & Grob G115E (Tutor)	Drayton, Oxon	Mid air collision between glider and light aircraft, where the light aircraft was military-operated	2

5.7 Gyroplanes

5.7.1 There were 32 reportable accidents involving UK-registered gyroplanes between 2000 and 2009, of which nine were fatal. Table 35 summarises safety data for UK-registered gyroplanes. The reportable accident rate was 1,422.4 per million hours and the fatal accident rate was 400.0 per million hours.

Table 35 Safety data for UK-registered gyroplanes

Year	Aircraft Registered in UK	Estimated Hours Flown	Fatal Accidents	Reportable Accidents	Fatal Injuries	Serious Injuries	Minor Injuries
2000	233	1,266	1	2	1	0	0
2001	242	1,596	1	2	1	0	0
2002	244	2,535	2	2	3	0	0
2003	247	2,346	1	6	1	1	3
2004	251	1,904	1	4	1	0	0
2005	249	2,408	0	0	0	0	0
2006	260	2,361	1	3	1	0	0
2007	278	2,525	0	1	0	0	0
2008	306	2,779	0	5	1	0	2
2009	306	2,779	2	7	2	0	2
Total	Average 262	22,499	9	32	11	1	7

5.7.2 Details of the nine fatal accidents involving UK-registered gyroplanes are shown in Table 36.

Table 36 Details of fatal accidents involving UK-registered gyroplanes

Date	Aircraft type	Location of occurrence	Description	POB	Fatal
16-Apr 2000	Bensen	Carlisle, Cumbria	Aircraft crashed during attempt to land in field adjacent to end of runway.	1	1
01-Jun 2001	Cricket	Henstridge, Somerset	Crashed on approach.	1	1
23-Mar 2002	Bensen	Kirkbride, Cumbria	Shortly after take off the aircraft began to roll from side to side at low speed, then crashed onto the runway and was destroyed.	1	1
17-May 2002	RAF 2000 Autogyro	Braintree, Essex	Lost control, started to break up and fell vertically to the ground	2	2
29-Jun 2003	Bensen	Shipdham, Norfolk	Control lost after rotor blades struck rudder in flight	1	1
15-Dec 2004	Ken Brock KB-2	Sutton Bank, N Yorks	Crashed into trees after failing to gain height following take-off	1	1
01-Jun 2006	RAF 2000 Autogyro	Bodmin Moor, Cornwall	Main rotor struck vertical stabiliser, propeller and rudder in flight.	1	1
09-Oct 2008	RAF 2000 Autogyro	Henstridge, Somerset	During descent the gyroplane rotor struck the propellor and rudder, causing an in-flight break up.	1	1
11-Oct 2009	Bensen	Little Rissington, Glos	Loss of control while flyng in the circuit.	1	1

5.7.3 Third party only fatal accidents are not included in the fatal accident statistics presented in this paper. Details of the third party fatalities involving UK-registered gyroplanes are shown separately in Table 37.

Table 37 Details of third-party fatal accidents involving UK-registered gyroplanes

Date	Aircraft Type	Location Of Occurrence	Description	On-ground fatal
09-Mar 2009	Rotorsport MT03	Long Marston	Collided with pedestrian on the ground who was fatally injured.	1

5.8 Microlights

5.8.1 There were 387 reportable accidents involving UK-registered microlights between 2000 and 2009, 20 of which were fatal. Table 38 summarises safety data for UK-registered microlights. The reportable accident rate was 347.0 per million hours and the fatal accident rate was 17.9 per million hours.

Table 38 Safety data for UK-registered microlights

Year	Aircraft Registered in UK	Estimated Hours Flown x1000	Fatal Accidents	Reportable Accidents	Fatal Injuries	Serious Injuries	Minor Injuries
2000	3,477	80	0	20	0	4	8
2001	3,521	89	3	25	4	3	3
2002	3,598	101	1	30	1	11	5
2003	3,799	117	2	38	2	5	9
2004	4,038	118	4	32	7	9	3
2005	4,087	118	1	32	3	8	11
2006	4,223	119	3	44	4	10	14
2007	4,365	123	4	55	5	8	19
2008	4,449	126	1	49	1	5	15
2009	4,375	124	1	62	2	10	17
Total	Average 3,993	1,115	20	387	28	72	104

5.8.2 Details of fatal accidents involving UK-registered microlights between 2000 and 2009 are shown in Table 39. There are a small number of mid-air collisions in the table; mid air collisions are counted as one accident and the figures showing the number of people on board and number of fatal injuries apply to the sum of both aircraft involved. Where the mid-air collision involved another class of aircraft (that is, not a microlight), it is only included if fatalities occurred on-board the microlight. Otherwise, an incident such as this is detailed under the relevant section for the other aircraft.

Table 39 Details of fatal accidents involving UK-registered microlights

Date	Aircraft Type	Location Of Occurrence	Description	POB	Fatal
13-Jan 2001	Mainair Blade	Enson, Staffs.	Engine stopped due fuel starvation. Overturned on landing.	2	1
14-Feb 2001	Rans S4	Davidstow Moor, Cornwall	Loss of control during climb out, entered spin and crashed.	1	1
23-Jun 2001	Aviasud Mistral	Nash, Shrops.	Stalled and spun into ground from low level after engine failure.	2	2
02-Jan 2002	Mainair Blade	Alby, Norfolk	Failed to climb due to ice accretion. Wing tip struck ground and aircraft overturned.	2	1
13-Apr 2003	Chaser S	Clitheroe, Lancs.	Crashed following an apparent loss of control in flight.	1	1
07-May 2003	Pegasus XLQ	Stock, Essex	Crashed into a tree during go-around.	1	1
27-Jan 2004	Sirocco 377GB	Ashby de la Zouch, Leics.	Crashed following an in-flight structural failure of the tailplane.	1	1
06-Jul 2004	Hybred 44XLR	Welham Green, Herts.	Mid-air collision with Robinson R22.	4	2
21-Aug 2004	Pegasus Quik	Eastchurch, Kent	Crashed in a field following possible in-flight break-up.	2	2
03-Sep 2004	Ikarus C42 FB UK	Pyrenees, Spain	Crashed in the Pyrenees Mountains.	2	2
15-Jun 2005	Aerotechnik EV-97 Eurostar	Wotton-under-Edge, Glos.	Stalled at low level.	2	2
09-Jun 2006	Raven X	Cliffe, Nr, Kent	Went missing during duration flight.	1	1
06-Aug 2006	Letov LK-2M Sluka	North Coates, Lincs.	Pilot reported control problems. Aircraft lined up for runway but dived into ground.	1	1
25-Aug 2006	Zenair	Rotherham, S. Yorks.	Crashed and exploded on impact.	2	2
28-Mar 2007	Airborne Edge/Streak	St Albans, Herts.	Clipped a tree on approach and crashed.	2	1
06-Apr 2007	Pegasus Quasar	Shifnal, Shrops	Clipped a hedge on approach and crashed.	1	1
30-Apr 2007	Pegasus Quantum 15-912	Benicolet, France	Entered rapid descent/left turn and struck ground short of threshold.	1	1
26-Aug 2007	Pegasus Quantum 15	Knotting, Northants.	Crashed in field.	2	2
08-Oct 2008	Flight Design CTSW	Saddleworth Moor, Lancs.	Aircraft descended rapidly and crashed into high-ground in poor weather.	1	1
04-Apr 2009	Escapade 912(1)	Shobdon, Hereford and Worcester	Aircraft took avoiding action and subsequently entered a spin, crashing adjacent to the airfield.	2	2

5.9 Comparison of Fatal Accident Rates

5.9.1 Figure 41 shows the fatal accident rate for the three categories of aircraft listed in the "other small aircraft" section where both utilisation data and fatal accidents are present. The rates have been calculated as a three-year moving average rate per million hours for the ten-year period 2000 to 2009.

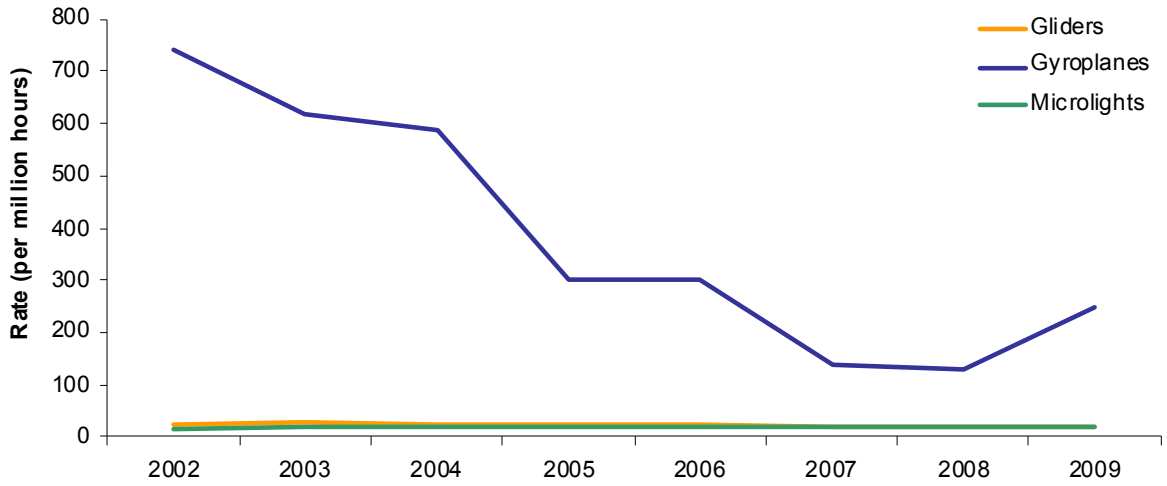

Figure 41 Comparison of glider, microlight and gyroplane fatal accident rates

5.9.2 The scale of difference between gyroplanes and the other two aircraft types obscures the trend for microlights and gliders, so Figure 41 has been recreated using a logarithmic scale.

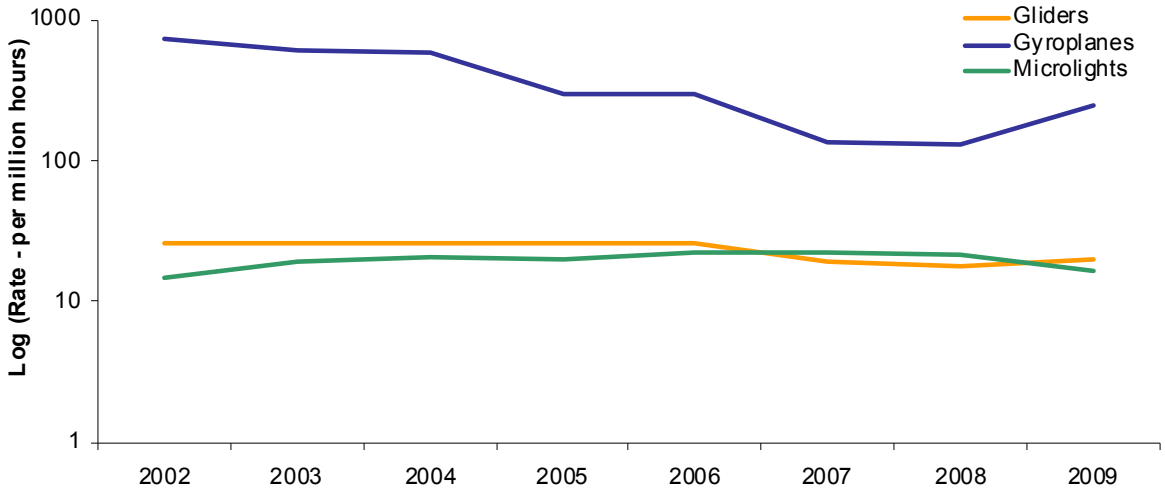

Figure 42 Logarithmic comparison of glider, microlight and gyroplane fatal accident rates

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Chapter 3 Safety of UK Airspace and Aerodromes

1 Introduction

1.1 This chapter contains information regarding the safety of UK airspace and aerodromes. The data relates to any aircraft using UK airspace or aerodromes, regardless of the country of registration.

1.2 The source data for occurrences is the Mandatory Occurrence Reporting Scheme, while utilisation has been sourced from the Economic Regulation Group's Data Collection Unit.

2 Foreign Registered/Operated Aircraft in UK Airspace

2.1 This section contains information relating to foreign-registered or foreign-operated aircraft in UK airspace. Where neither the registration nor operator of an aircraft is recorded in the occurrence report it has not been included in these data; therefore the figures presented in this section underestimate the actual number of occurrences.

2.2 Various categories of aircraft are referred to in this section. Large and small aircraft refer to aircraft exceeding or not exceeding 5,700kg MTWA respectively. Public transport refers to aircraft that can be established to have been engaged in ambulance, cargo, passenger, police support or search and rescue operations. By contrast, non-public transport is assigned where it could not be established that the aircraft was engaged in one of these types of operation.

2.3 Reportable Accidents

2.3.1 There were 199 reportable accidents involving foreign registered or operated aircraft between 2000 and 2009. The number of accidents per year is shown in Figure 43, divided into public transport aircraft and non-public transport aircraft.

2.3.2 78% of the 199 reportable accidents involved non-public transport aircraft and 22% involved public transport aircraft. Some of the accidents also involved a UK-registered or operated aircraft, for example where a collision between two aircraft occurred.

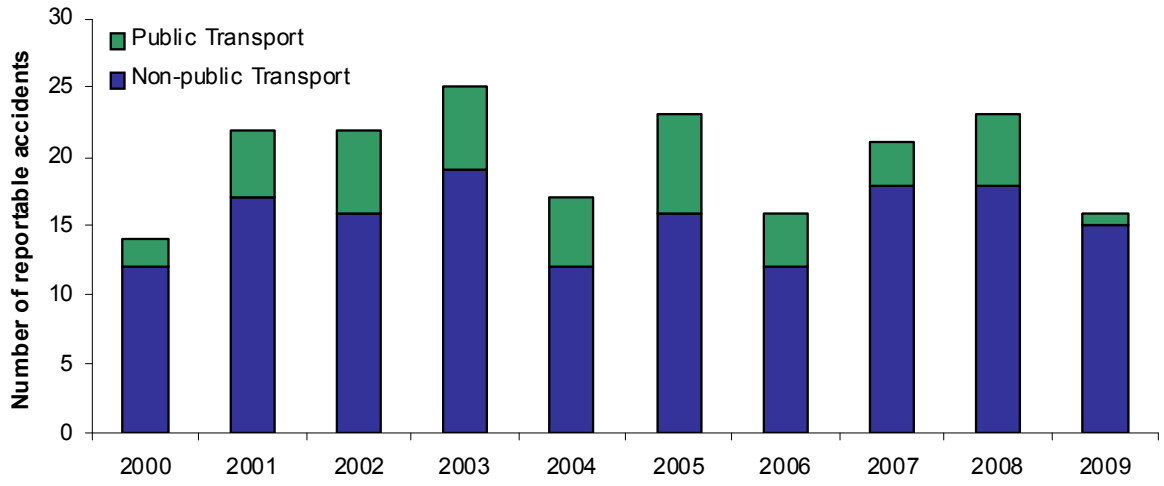

Figure 43 Number of reportable accidents per year involving foreign-registered aircraft in UK airspace

2.3.3 Figure 44 shows the proportion of reportable accidents attributable to each category of aircraft.

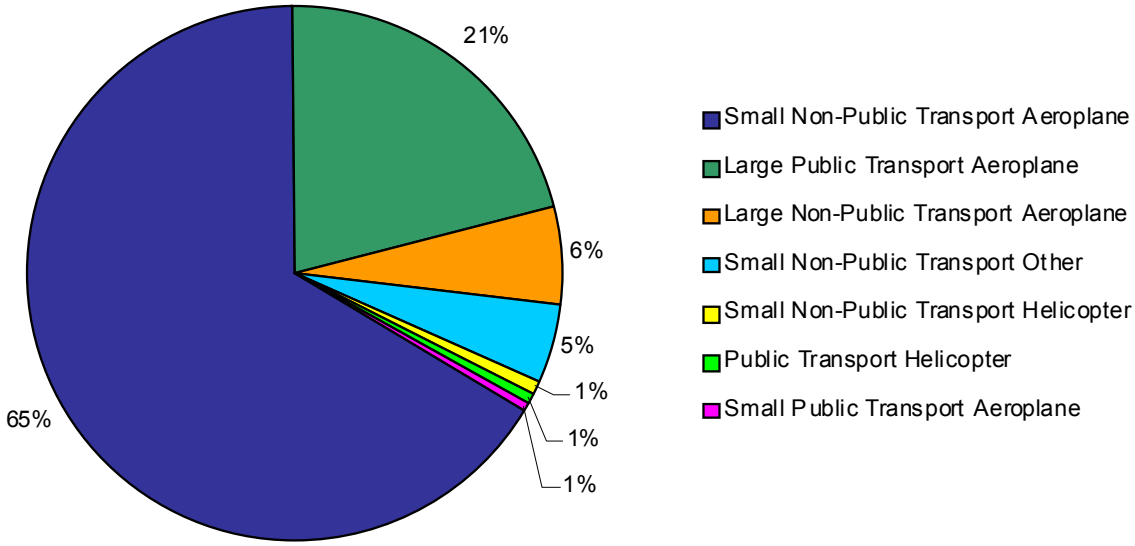

Figure 44 Class of foreign-registered/operated aircraft involved in reportable accidents in UK airspace

2.4 Fatal Accidents

2.4.1 There were 21 fatal accidents involving foreign-registered aircraft in UK airspace between 2000 and 2009, resulting in 44 fatalities.

2.4.2 There were no fatal accidents involving foreign public transport aircraft in UK airspace in the period analysed. However, there was one fatal accident involving a large non-public transport aeroplane, 19 involving small non-public transport aeroplanes and one involving a non-public transport helicopter. Details of these accidents are shown in the tables below, which have been divided by class of aircraft.

Table 40 Details of fatal accidents involving large non-public transport aeroplanes

Date	Aircraft Type	Location Of Accident	Type of operation	Description	Fatal	POB
04-Jan 2002	CL600 Challenger	Birmingham, W Mids.	Private	Shortly after becoming airborne, aircraft rolled left and wingtip clipped ground. Aircraft cartwheeled and caught fire.	5	5

Table 41 Details of fatal accidents involving small non-public transport aeroplanes

Date	Aircraft Type	Location Of Occurrence	Type of operation	Description	Fatal	POB
19-Apr 2000	Yak 50	North Weald, Essex	Private	Mid-air collision with Cessna 150. 1 fatality on board the Yak 50, 2 fatalities on board the C150.	1	1
30-Nov 2000	Aerostar	Fortingall, Perthshire	Private	Aircraft lost control during climb and crashed, following reported icing problems.	1	1
23-Dec 2000	BE200 Super King Air	Blackbushe, Hants.	Private	Aircraft crashed while taking off in fog, following a reduction in RPM on one propeller.	5	5

Table 41 Details of fatal accidents involving small non-public transport aeroplanes

Date	Aircraft Type	Location Of Occurrence	Type of operation	Description	Fatal	POB
06-Jun 2001	BE58 Baron	Isle of Man	Private	Aircraft crashed into the sea following a reported compass problem.	1	1
19-Jun 2001	Rockwell 114	Southampton, Hants.	Private	Aircraft failed to climb after take-off and crashed during attempted return.	2	2
22-Jul 2001	Wassmer WA40	Litchfield, Hants.	Private	Left wing and tailplane detached in flight. Aircraft descended vertically from 4000ft.	1	1
11-Aug 2001	YAK 52	Compton Abbas, Dorset	Private	Aircraft stalled and spun into ground during practice aerobatic manoeuvre.	1	1
07-Apr 2003	Cessna 310	Sandtoft, N Lincs.	Private	Loss of control after the aircraft door opened during take-off.	1	1
31-May 2003	Ryan M1/M2 NYP	Coventry, W Mids.	Air Display	Structural failure of right wing shortly after take-off.	1	1
01-Aug 2003	Cessna 182 Skylane	Marlow, Bucks.	Private	Aircraft entered a spiral dive and crashed.	1	1
06-Dec 2003	Socata TBM700	Oxford, Oxon.	Private	On final approach the aircraft entered an uncontrolled roll to the left and crashed beside the runway threshold.	3	3
30-Mar 2004	Cessna 310	Trawden, Lancs.	Private	Aircraft crashed following a fire in the nose baggage compartment.	1	1
25-Mar 2005	Europa	Kemble, Glos	Private	Aircraft entered a spin from 400ft after take off, impacted the ground and caught fire.	2	2
11-Mar 2007	DHC2 Beaver	Headcorn / Lashenden, Kent	Parachuting	Aircraft failed to get airborne and overran the runway, striking a parked aircraft.	1	9
27-Aug 2007	Bolkow 207	Navestock, Essex	Private	Aircraft crashed shortly after take-off and was destroyed by fire.	2	3
30-Sep 2007	Dyn'Aero MCR-01	Bethersden, Kent	Private	Engine lost power shortly after take-off. Aircraft returned but was forced to go-around and crashed into tree	1	2
30-Mar 2008	Cessna C501 Citation 1	Biggin Hill, Kent	Private	Aircraft crashed into housing estate during in-flight return due to perceived engine vibration.	5	5
10-Apr 2009	Piper PA28	Steep, Hants	Private	Aircraft collided with trees in low cloud. ATC confirmed no emergency call made.	2	2
22-Aug 2009	Edge 540	Silverstone, Northants.	Air Display	Aircraft crashed during aerobatics and was destroyed.	1	0

Table 42 Details of fatal accidents involving non-public transport helicopters

Date	Aircraft Type	Location Of Occurrence	Type of operation	Description	Fatal	POB
26-Jan 2008	Gazelle	Rudding Park	Private	Loss of control during low-level slow speed manoeuvres in gusty conditions.	2	2

2.5 Injury Tables

2.5.1 The injuries sustained in UK-reportable accidents involving foreign-registered aircraft in the period 2000-2009 are shown in Table 43 In total, there were 44 fatalities, 15 serious injuries and 66 minor injuries.

Table 43 Injuries sustained in reportable accidents involving foreign-registered/ operated aircraft in UK airspace

Category	Injury		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Large Public Transport Aeroplane	Crew	Fatal	0	0	0	0	0	0	0	0	0	0	0
		Serious	0	0	0	0	0	0	0	0	0	0	0
		Minor	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0
	Passenger	Fatal	0	0	0	0	0	0	0	0	0	0	0
		Serious	0	0	0	0	0	0	0	0	0	0	0
		Minor	0	0	0	0	0	24	0	0	0	0	24
		Total	0	0	0	0	0	24	0	0	0	0	24
Large Non-Public Transport Aeroplane	Crew	Fatal	0	0	2	0	0	0	0	0	0	0	2
		Serious	0	0	0	0	0	0	1	0	0	0	1
		Minor	0	0	2	0	0	0	0	0	0	0	2
		Total	0	0	4	0	0	0	1	0	0	0	5
	Passenger	Fatal	0	0	3	0	0	0	0	0	0	0	3
		Serious	0	0	0	0	0	0	0	0	0	0	0
		Minor	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	3	0	0	0	0	0	0	0	3
Small Non-Public Transport Aeroplane	Crew	Fatal	4	5	0	4	1	1	0	4	2	2	23
		Serious	0	1	1	0	0	1	0	2	3	0	8
		Minor	2	4	1	1	3	4	1	0	0	2	18
		Total	6	10	2	5	4	6	1	6	5	4	49
	Passenger	Fatal	5	0	0	2	0	1	0	2	3	1	14
		Serious	0	3	0	0	0	1	0	1	1	0	6
		Minor	2	2	3	3	2	4	1	1	1	1	20
		Total	7	5	3	5	2	6	1	4	5	2	40

Table 43 Injuries sustained in reportable accidents involving foreign-registered/ operated aircraft in UK airspace (Continued)

Small Non-Public Transport Helicopter	Crew	Fatal	0	0	0	0	0	0	0	0	1	0	1
		Serious	0	0	0	0	0	0	0	0	0	0	0
		Minor	0	0	0	0	0	0	0	1	0	0	1
		Total	0	0	0	0	0	0	0	1	1	0	2
	Passenger	Fatal	0	0	0	0	0	0	0	0	1	0	1
		Serious	0	0	0	0	0	0	0	0	0	0	0
		Minor	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	1	0	1
Small Public Transport Aeroplane	Crew	Fatal	0	0	0	0	0	0	0	0	0	0	0
		Serious	0	0	0	0	0	0	0	0	0	0	0
		Minor	0	0	0	0	0	0	1	0	0	0	1
		Total	0	0	0	0	0	0	1	0	0	0	1
	Passenger	Fatal	0	0	0	0	0	0	0	0	0	0	0
		Serious	0	0	0	0	0	0	0	0	0	0	0
		Minor	0	0	0	0	0	0	0	0	0	0	0
		Total	0	0	0	0	0	0	0	0	0	0	0

2.6 Serious Incidents

2.6.1 There were 66 serious incidents between 2000 and 2009 involving foreign-registered or operated aircraft in UK airspace. 82% of these involved public transport aircraft, while 18% involved non-public transport aircraft. The number of serious incidents per year is shown in Figure 45, divided into public transport aircraft and non-public transport aircraft.

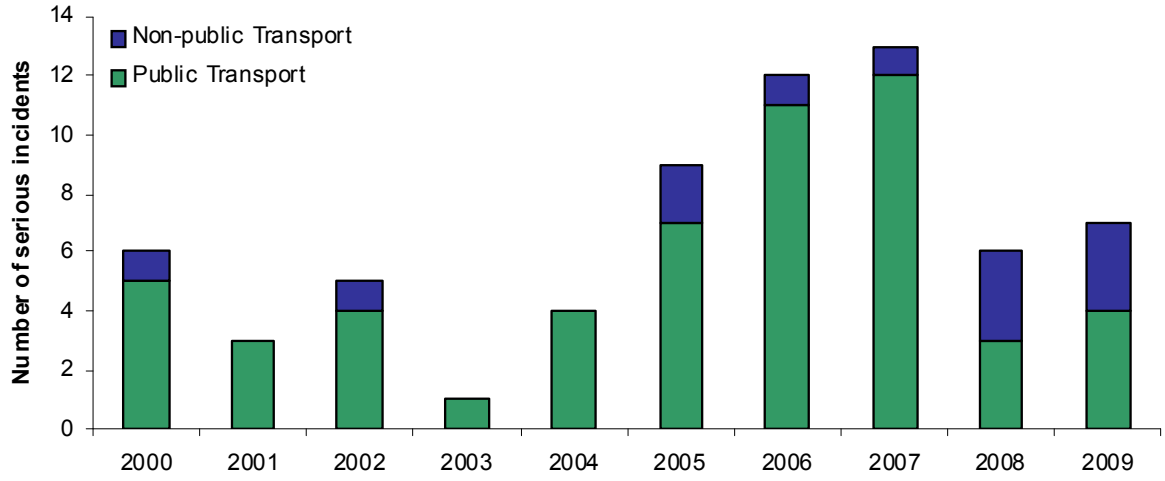

Figure 45 Number of serious incidents per year involving foreign-registered aircraft in UK airspace

2.7 Occurrences

2.7.1 There were nearly 13,000 occurrences involving foreign-registered or operated aircraft in UK airspace between 2000 and 2009. This figure includes the reportable accidents and serious incidents previously discussed, which form 2% of the total number of occurrences. High-severity occurrences form 1% of all occurrences. Figure 46 shows the number of occurrences per year, divided by their severity grading.

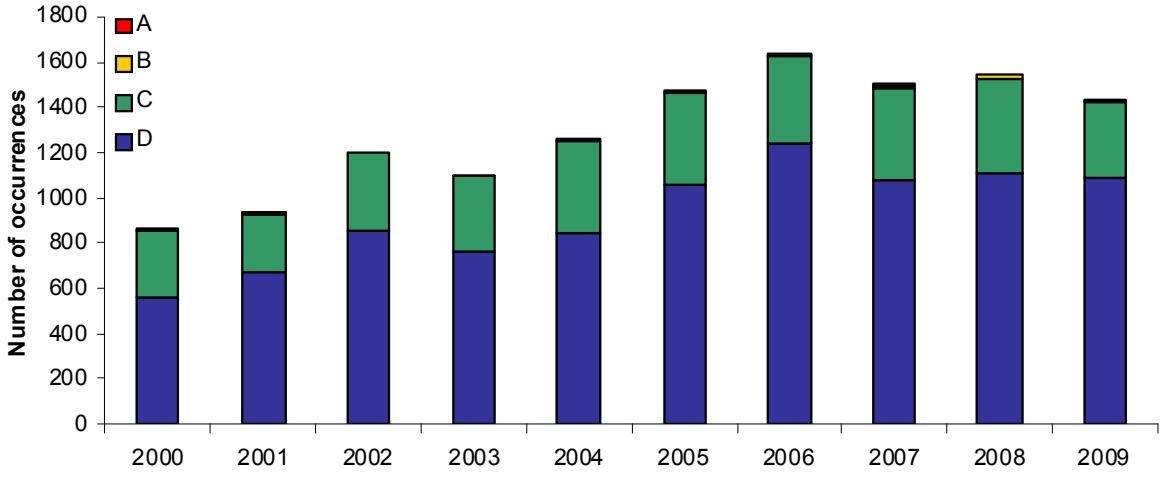

Figure 46 Number of occurrences per year involving foreign-registered aircraft in UK airspace

3 UK Airspace

3.1 This section examines occurrences with an Air Traffic Control (ATC) involvement that occurred within UK airspace.

3.2 The involvement of ATC in an occurrence does not imply that ATC were at fault or even the cause of the occurrence. The types of occurrence examined in this section include: runway incursions, level busts, losses of separation, airspace infringements, ATC engineering problems and difficulties with communication.

3.3 The description "ATC occurrence" is broad and there is no strict definition of the term, therefore it is difficult to ensure that all relevant occurrences have been included. As a result, the statistics produced in this section should be considered indicators rather than absolute figures.

3.4 Utilisation

3.4.1 It is not possible to produce a measure of utilisation that can be compared to all ATC occurrences. However to put the occurrences into context, the utilisation of UK airspace in terms of Instrument Flight Rules (IFR) flights is shown in Table 44. The data are recorded by Eurocontrol and are available on request. In total, there were 7.4 million departures and 7.4 million arrivals to the UK in the period 2000-2009. In addition, there were 5.0 million internal flights and 3.0 million overflights. In the ten-year period analysed, the total number of flights in UK airspace has increased by 9%, having peaked at 21% growth between 2000 and 2007 before falling again.

Table 44 UK departures, arrivals, internal flights and overflights

Year	Departures from the UK (x1000)	Arrivals to the UK (x1000)	Internal flights within the UK (x1000)	Overflights of the UK (x1000)	Total (x1000)
2000	673	672	477	261	2083
2001	676	675	489	260	2100
2002	674	675	481	241	2072
2003	698	699	484	261	2142
2004	733	733	500	276	2242
2005	773	774	520	295	2362
2006	798	799	523	319	2439
2007	830	831	517	346	2523
2008	812	812	507	383	2514
2009	737	737	460	344	2278

3.5 All ATC Occurrences

3.5.1 There were nearly 25,000 ATC occurrences involving at least one civil aircraft in UK airspace between 2000 and 2009. The figures below show the number of ATC occurrences per year divided by: the type of airspace (Figure 47), the country of registry (Figure 48) and the type of operation (Figure 49). ATC occurrences frequently involve more than one aircraft and these have been counted separately in Figure 48 and Figure 49.

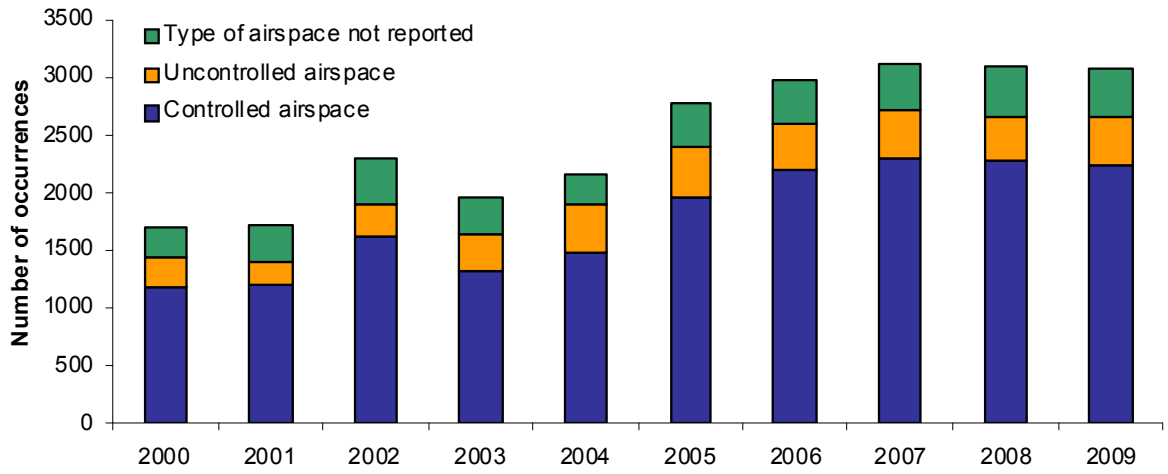

Figure 47 ATC occurrences in UK airspace, by type of airspace

3.5.2 71 % of ATC occurrences were in controlled airspace, 14% in uncontrolled airspace and 14% did not report the type of airspace.

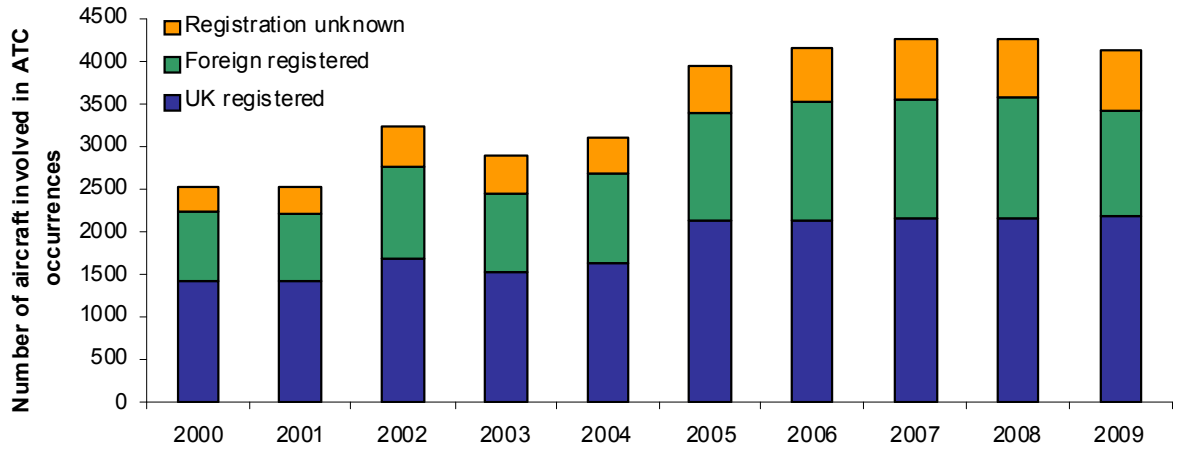

Figure 48 ATC occurrences in UK airspace, by country of registry

3.5.3 53% of aircraft involved in an ATC occurrence were UK registered, 33% were foreign-registered and 15% were aircraft with registrations that were not reported.

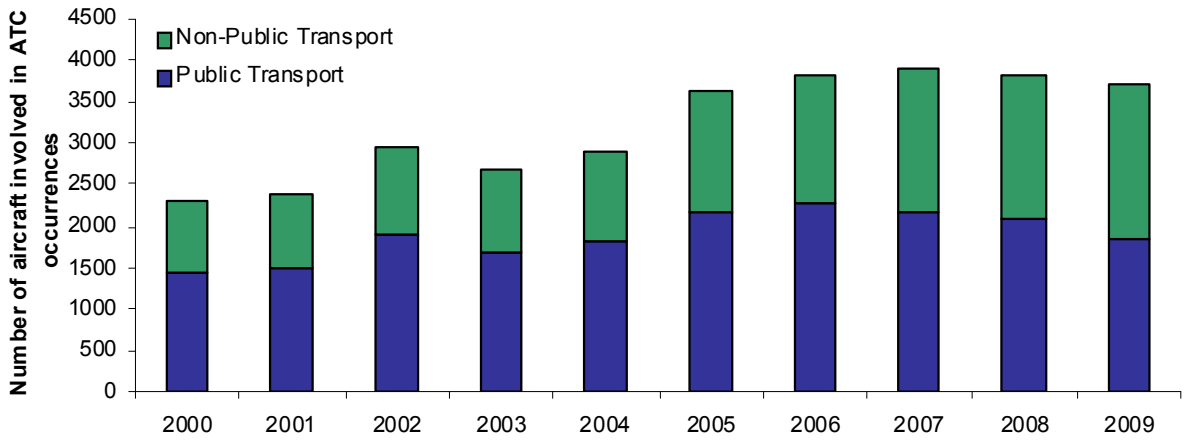

Figure 49 ATC occurrences in UK airspace, by type of operation

3.5.4 59% of aircraft involved in an ATC occurrence were engaged in public transport operations, 41% were engaged in non-public transport operations.

3.6 High-Severity ATC Occurrences

3.6.1 There were 401 high-severity ATC occurrences in UK airspace between 2000 and 2009 (1.6% of all ATC occurrences). The figures below show the number of high-severity ATC occurrences per year divided by: the type of airspace (Figure 50), the country of registry (Figure 51) and the type of operation (Figure 52). ATC occurrences frequently involve more than one aircraft and these have been counted separately in Figure 51 and Figure 52.

3.6.2 The figures include airprox, which were analysed separately in the Aviation Safety Review. The increase compared with previous analyses is particularly notable for occurrences in uncontrolled airspace, UK registered aircraft and non-public transport operations.

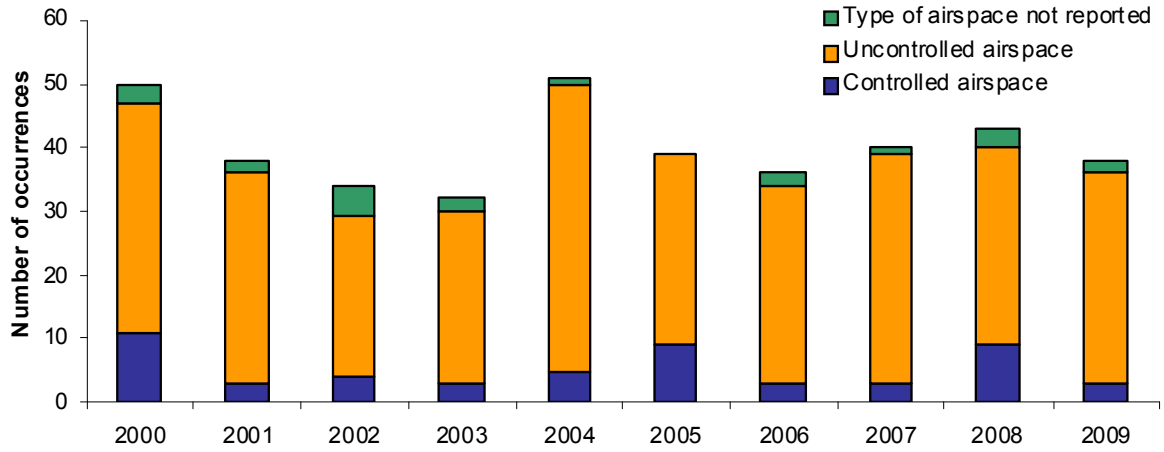

Figure 50 High-severity ATC occurrences, by type of airspace

3.6.3 82% of high-severity ATC occurrences were in uncontrolled airspace, 13% were in controlled airspace and 5% did not report the type of airspace.

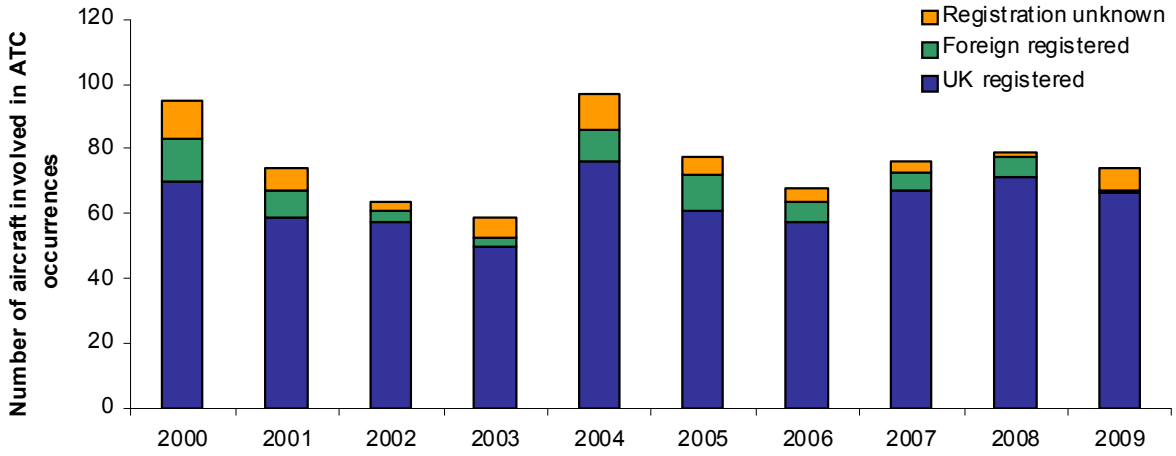

Figure 51 High-severity ATC occurrences, by country of registry

3.6.4 83% of aircraft involved in high-severity ATC occurrences were UK-registered, 9% were foreign-registered and 8% involved aircraft with a registration that is unknown.

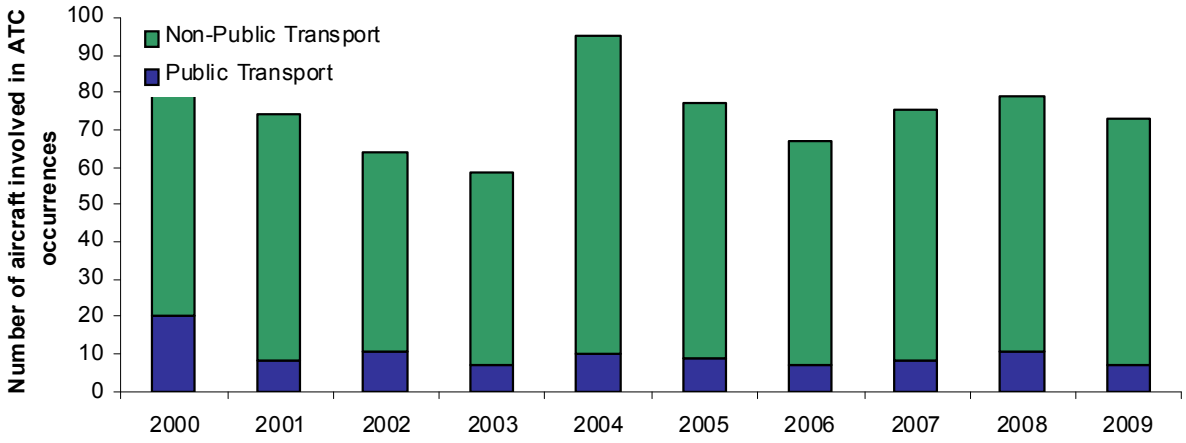

Figure 52 High-severity ATC occurrences, by type of operation

3.6.5 87% of aircraft involved in high-severity ATC occurrences were engaged in non-public transport operations and 13% of aircraft were involved in public transport operations.

3.7 Types of ATC Occurrence

3.7.1 Figure 53 shows a number of different types of ATC occurrence. 77% of ATC occurrences could be grouped into these categories. The categories do overlap, for example, an altitude deviation may result in an ATC conflict.

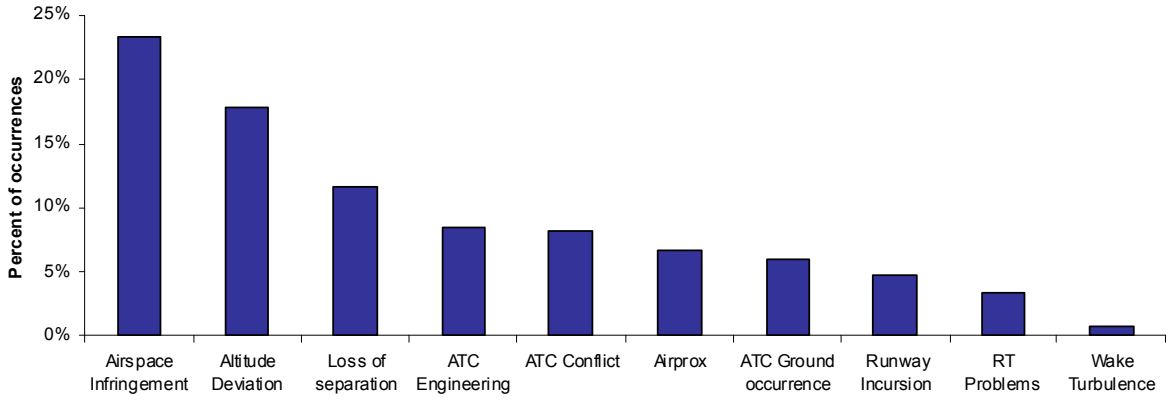

Figure 53 Types of ATC occurrence

4 UK Aerodromes

4.1 This section examines aerodrome-related occurrences at UK licensed aerodromes and involving civil aircraft. A list of UK licensed aerodromes is provided in the UK Aeronautical Information Publication (AIP), which is available online[1]. Because the list changes over time, a list of the aerodromes considered as UK licensed aerodromes in this publication may be found in Appendix 5. RAF Northolt has been excluded from this analysis as it is not a civil aerodrome.

4.2 An aerodrome occurrence may be described as those involving an aerodrome's infrastructure, or personnel working at the aerodrome (although they may be employed by a third party such as a ground handler or an airline). Events such as technical malfunctions on aircraft are only included if there are factors directly related to the aerodrome that influence the outcome of the occurrence. Security events are not covered by this document, therefore events such as bomb threats and stowaways have been excluded. By contrast, occurrences involving people or non-airport vehicles entering an aerodrome unescorted have been included as they present a safety hazard.

4.3 Utilisation

4.3.1 Between 2000 and 2009 there were approximately 36.5 million aircraft movements at UK airports. Table 45 shows the annual number of aircraft movements and the proportion of these that were commercial aircraft movements.

1. http://www.nats-uk.ead-it.com/public/index.php.html (accessed on 9th November 2010)

Table 45 Aircraft movements at UK reporting airports

Year	Total aircraft movements (x1000)	Percent that are commercial movements
2000	3,542	65%
2001	3,603	65%
2002	3,456	67%
2003	3,604	66%
2004	3,670	68%
2005	3,795	69%
2006	3,951	68%
2007	3,798	72%
2008	3,673	72%
2009	3,378	72%

4.4 All Aerodrome Occurrences

4.4.1 There were nearly 6,400 aerodrome occurrences at UK licensed aerodromes between 2000 and 2009. Figure 54 shows the annual number of aerodrome occurrences and the rate of aerodrome occurrences per million aircraft movements at UK reporting aerodromes (which account for 91% of aerodrome occurrences).

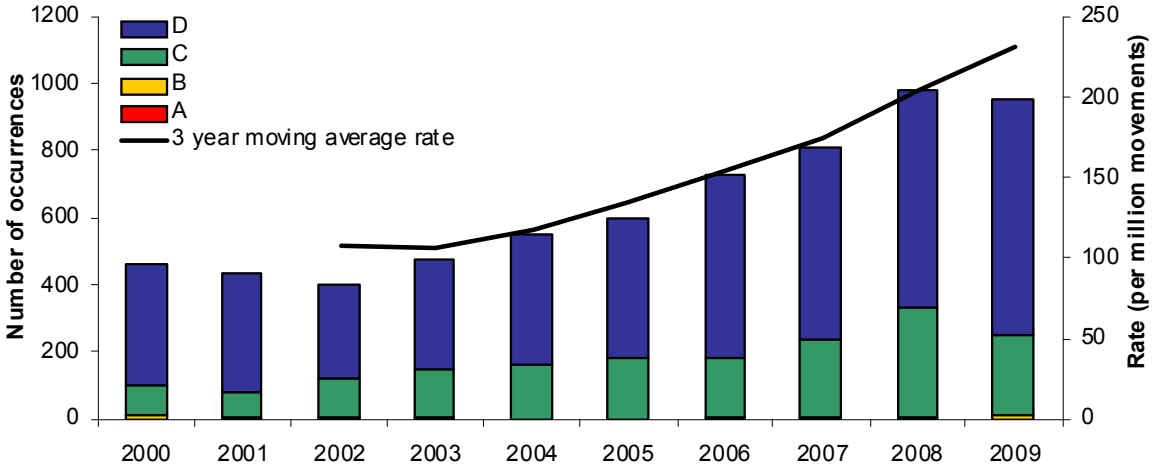

Figure 54 Aerodrome occurrences at UK licensed aerodromes

4.5 High-severity Aerodrome Occurrences

4.5.1 There were 48 high-severity aerodrome occurrences at UK licensed aerodromes, of which 37 were at UK reporting aerodromes. Figure 55 shows the rate of occurrences at UK reporting aerodromes per year.

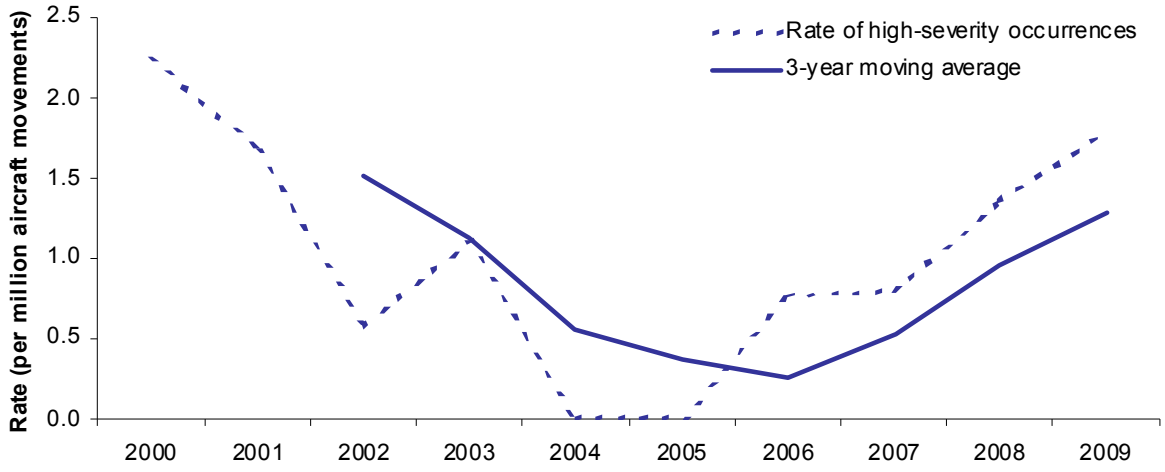

Figure 55 Rate of high-severity aerodrome occurrences at UK licensed aerodromes

4.6 Types of Aerodrome Occurrence

4.6.1 Figure 56 shows the most common types of aerodrome occurrence identified in the data analysed. 86% of aerodrome occurrences were grouped into these categories, with very little overlap. Loading errors have been separated from other ramp incidents, as they were the most common type of ramp occurrence.

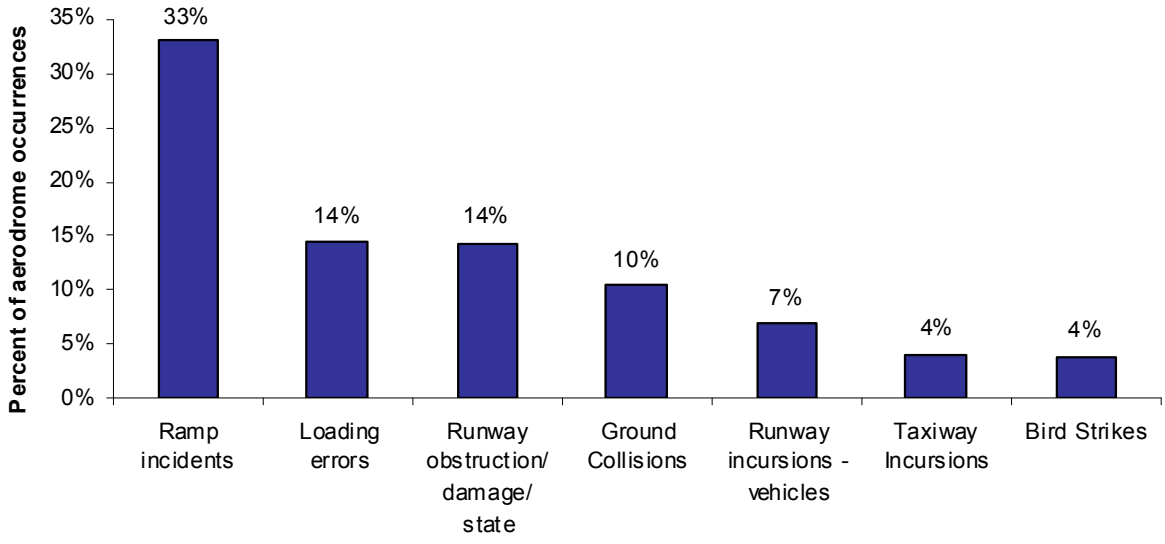

Figure 56 Types of aerodrome occurrence at UK licensed aerodromes

Chapter 4 High-Severity Events

1 Introduction

1.1 Occurrences received through the MOR scheme are graded according to their severity and the likelihood of the occurrence recurring; the risk grading process is described in Appendix 4 in more detail. This chapter provides details of occurrences assigned the highest two severity grades, covering the aircraft type, brief narrative, location, injuries and date. The likelihood of recurrence component of the risk grading process is not considered, hence these occurrences are considered to be high-severity instead of high-risk.

1.2 High-severity occurrences are included if they have a UK interest. Most commonly, this interest will be that the aircraft is UK registered, UK operated or in UK airspace at the time of the occurrence. However, occurrences may also be included if, for example, they involved a UK licensed pilot, UK citizens or if the aircraft was originally designed or manufactured in the UK. The UK fatal accidents listed have already been described in other chapters.

1.3 The Aviation Safety Review provides data up to 31st December 2007, so this document provides data from 1st January 2008 to 31st December 2009. Unlike the Aviation Safety Review, the tables for the two years are combined instead of being presented separately.

1.4 Occurrences in this chapter are divided into separate categories. These categories are:

- UK air traffic services - controlled airspace and aerodromes
- UK registered/AOC aircraft - foreign air traffic services and aerodromes
- UK public transport aeroplanes
- UK public transport balloons
- UK public transport helicopters
- UK non-public transport small conventional aeroplanes
- UK non-public transport helicopters
- UK non-public transport other
- Foreign registered aircraft in UK airspace
- Foreign registered aircraft overseas

1.5 Some high-severity events may qualify for more than one of these categories, however in order that events are not repeated (and therefore counted twice) they are only assigned to one category. Where an overlap exists, the categories are prioritised in the following order: UK air traffic services, Foreign air traffic services, UK public transport, UK non-public transport, and foreign-registered aircraft.

1.6 The list of foreign-registered aircraft is not exhaustive; it includes only those incidents that were reported to the UK MOR scheme and have a UK interest. UK airprox are not listed in this chapter as they are available in more detail in the publications of the UK Airprox Board, which are available online[1].

1.7 In a small change from the Aviation Safety Review, minor injuries are listed in this chapter, in order to be consistent with the injury tables provided in other chapters. However, it should be noted that minor injuries are difficult to record accurately and frequently change following publication of an accident report.

1. http://www.airproxboard.org.uk/ (accessed 10th November 2010)

2 Air Traffic Services (Controlled Airspace and Aerodromes)

Table 46 UK air traffic services (controlled airspace and aerodromes) high-severity events

Aircraft Type	Narrative	Location	Injuries	Date
None	Step ladder discovered on operational runway during a routine runway inspection	Stansted Airport	-	Nov-2008
B767	B767 departing approximately one min behind a B747-400 encountered wake turbulence shortly after rotation and rolled to the left. After applying right aileron to correct roll, stick shaker activated.	Gatwick Airport	-	Jan-2008
EV-97A	Infringement of Airway N864 (Class A) at Brecon at 8400ft by an EV97. Standard separation maintained.	Brecon, Powys	-	Jan-2008
EMB 135 A340	EMB135 reported a severe wake turbulence encounter at FL360 from an A340-300 12nm ahead. A340-300 was descending through the same flight level. EMB135 rolled nearly 50deg.	North Sea	-	Feb-2008
EMB 145 Eurocopter EC225	EMB145 at approximately 10ft above ground in the flare encountered severe wake turbulence from preceding EC225. EMB145 rolled rapidly right approximately 30deg and was forced off centreline before recovering.	Aberdeen Airport	-	Apr-2008
B737	B737 carried out a rushed visual approach at night to runway 31 instead of runway 28. Crew and ATC realised the error when the aircraft was at 700ft and crew initiated a go-around.	Blackpool Airport	-	Apr-2008
ATR 72	Aircraft instructed to go-around due to unsafe descent. During go-around aircraft initially climbed up to 300ft above cleared altitude then, on base leg, descended 300ft below cleared altitude.	Southampton Airport	-	May-2008
C525 Citationjet	C525 descended below glide path on ILS approach to runway 30, 600ft at 4.5nm and was instructed to go-around.	Cardiff Airport	-	Jul-2008
Maule M6 Cessna 152	C152 was cleared for a touch and go, but whilst on the ground a Maule passed overhead the C152 and landed in front of it.	Bournemouth Airport	-	Jul-2008
A320	Aircraft came within 950ft of terrain, triggering EGPWS warning while 10 miles northeast of Glasgow Airport.	Glasgow, Strathclyde	-	Nov-2008
A300 Unknown	A300 had poor R/T discipline and allegedly failed to comply with ATC instructions during ILS approach, go-around and second approach.	Manchester Airport	-	Oct-2008
Jabiru, A319 (x2) and A321	Infringement of the London CTR (Class A) by a Jabiru UL, at 2000ft. Separation lost with three Heathrow outbounds.	Heathrow Airport	-	Mar-2009
DHC8	Aircraft failed to establish on the localiser and continued to descend to 640ft above ground 5nm out from destination airport	Glasgow Airport	-	May-2009
DHC8 A320	As DHC8 was climbing following departure after an A320 approximately 2.5nm ahead, it encountered severe wake turbulence, rolled 30-45deg left then rapidly right.	Gatwick Airport	-	May-2009
DHC8 B737	DHC8 lined up on runway while B737 was landing on reciprocal runway.	Exeter Airport	-	Oct-2009

Table 47 Foreign air traffic services and UK-registered/AOC aircraft high severity events

Aircraft Type	Narrative	Location	Injuries	Date
B767 Unknown	At night, B767 was in late stages of finals when ATC cleared an aircraft to land on an intersecting runway.	Philadelphia, USA	-	Jan-2008
A321 SF340	A321 crew, instructed to expedite vacating runway, came into conflict with a SF340 which had landed previously and vacated at an earlier rapid exit taxiway.	Vienna, Austria	-	Feb-2008
A319 Helicopter	A319 landed without ATC clearance, as it was unable to go around due to conflict with a helicopter crossing the runway.	Madrid, Spain	-	Mar-2008
A340 B757	Foreign AIRPROX - A340 and B757.	LIE VOR, Latvia	-	Apr-2008
A319 Glider	FOREIGN AIRPROX - A319 and a glider near Dortmund at FL60.	Dortmund, Germany	-	May-2008
EMB 145 A321	EMB145 experienced severe wake turbulence whilst landing. At 30ft, aircraft rolled 20 deg.	Frankfurt, Germany	-	May-2008
A330 Unknown	Foreign AIRPROX - A330 descending to 6000ft received a TCAS TA on opposite direction traffic. A330 became visual with traffic and identified it as a Cessna.	OMN VOR, United States	-	May-2008
B757 Unknown	Foreign AIRPROX - B757 and unknown aircraft during descent into Madrid. TCAS RA followed.	ORBIS, Spain	-	Jun-2008
B747 Balloon Met	Foreign AIRPROX - B747 and weather balloon at FL350.	Barcelona, France	-	Jul-2008
A319 A320	A319 on taxiway endangered by an A320 making a runway change at a late stage instead of initiating a go-around.	Bilbao, Spain	-	Sep-2008
A321 EMB 190	Foreign AIRPROX - A321 and an EMB190 on approach to Paris CDG.	Paris CDG, France	-	Nov-2008
C550 Citation 2 A330	Tower cleared a C550 to land while a tug towing an A330 on another frequency had been cleared to cross the runway. C550 initiated a go-around at 50ft.	Amsterdam, Netherlands	-	Jan-2009
EMB 190 Unknown	Foreign AIRPROX - EMB190 and another airliner opposite direction at FL360. EMB190 received and actioned a TCAS RA.	Southwest of Paris, France	-	Feb-2009
B737 A320	Ground conflict between taxiing aircraft	Barcelona, Spain	-	Mar-2009
DHC8 B747	ATC cleared DHC8 to taxi from stand to departure runway via the threshold of another runway.	Frankfurt, Germany	-	Mar-2009

Table 47 Foreign air traffic services and UK-registered/AOC aircraft high severity events

Aircraft Type	Narrative	Location	Injuries	Date
B757	Engine Indicating and Crew Alerting System 'L Eng Bleed Off', 'R Pack Temp' and 'Cabin Alt' warnings. Quick reference handbook actioned, oxygen masks donned, MAYDAY declared and aircraft diverted.	KUMRU, Turkey	-	May-2009
DHC8 Robin 1180	Foreign AIRPROX - DHC8 and a Robin 1180.	Montelimar, France	-	May-2009
B757 Motor Glider	Foreign AIRPROX - B757 and two gliders/motor gliders	Madrid, Spain	-	Aug-2009
B737 Unknown	Foreign AIRPROX - B737 and unknown aircraft.	Malaga, Spain	-	Sep-2009
B777	Aircraft departed from incorrect runway intersection using all available runway.	St Kitts, St Kitts and Nevis	-	Sep-2009
EMB 135 A319	EMB 135 experienced wake turbulence at between 50ft and 100ft in the landing flare causing a wing down angle of 10degs.	Munich, Germany	-	Oct-2009
B737	Multiple birdstrike on take-off. Diverted and landed safely. Fan blade damage. Significant debris on runway at departure airport.	Shannon, Ireland	-	Oct-2009
A320 Unknown	Foreign AIRPROX - A320 and a light aircraft overhead Marrakech at 500ft.	Marrakech, Morocco	-	Oct-2009
B767 Unknown	Foreign AIRPROX - B767 and unknown aircraft	Sanford, Florida, USA	-	Oct-2009
B737 A319	ATC cleared an A319 to take-off whilst B737 was landing on intersecting runway.	Rome Fiumicino, Italy	-	Nov-2009

3 UK public transport

Table 48 UK public transport aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
B777	Engines failed to respond to power demands. Aircraft lost speed and landed short of runway.	Heathrow Airport	1 serious, 12 minor	Jan-2008
BAE146	Generator failure accompanied by autopilot/autothrottle disconnect, failure of both flight directors and loss of right-hand instruments.	Frankfurt, Germany	-	Jan-2008
A319	Member of cabin crew sustained cracked vertebrae during severe turbulence.	Venice, Italy	1 serious	Mar-2008
B757 B737	Whilst parking on stand under marshalled guidance, B757 came into very close proximity with a parked B737.	Chambery, France	-	Mar-2008
Jetstream 41	Passing FL90, autopilot trim warning. No pitch control. MAYDAY declared. Aircraft descended and control returned.	Northwest of Aberdeen	-	Apr-2008
A340	Aircraft entered fog during flare and drifted off runway after touchdown. Go-around initiated followed by uneventful diversion.	Nairobi, Kenya	-	Apr-2008
B767	At 1700-1800ft, shortly after localiser capture, the aircraft entered a steep right bank to about 35deg and pitched down sharply. Autopilot disconnected and manual recovery effected.	Sanford, Florida, USA	-	May-2008
B767	Water compressor fire prior to flight. Passengers disembarked. MAYDAY declared.	Manchester Airport	-	May-2008
DHC8	Tailscrape on landing.	Paris CDG, France	-	May-2008
TU154 A320	Passengers disembarking an A320 onto awaiting bus when crew observed a Tupolev 154 come within 50cm of the bus.	St Petersburg, Russia	-	Jun-2008
B737	Aircraft out of trim. Rejected take-off.	Belfast International	-	Jun-2008
A321	Heavy landing. Two further sectors were flown before a wing rib gear support lug was found cracked.	Manchester Airport	-	Jul-2008
B737	Take-off configuration warning sounded on commencing take-off roll. Crew identified that flap zero was indicated. Flap 1 selected during take-off roll but achieved at 88kts.	Barcelona, Spain	-	Aug-2008
EMB 145	Take-off rejected after V1 due to configuration warning.	Leeds Bradford Airport	-	Sep-2008
B747	During descent, aircraft pitched up 'firmly' due to inadvertent speedbrake extension.	Hong Kong, China	1 serious, 2 minor	Oct-2008
B737	GPWS warning due to high rate of descent during approach.	Chittagong, Bangladesh	-	Oct-2008

Table 48 UK public transport aeroplane high severity events (Continued)

Aircraft Type	Narrative	Location	Injuries	Date
B757	Stick shaker activated on approach. Aircraft went around. Stick shaker operated a second time. Aircraft recovered for another approach and landed.	Gatwick Airport	-	Dec-2008
B767	Tailstrike on take-off. Stick shaker operated briefly during initial climb. Fuel dumped and aircraft returned for overweight landing.	Manchester Airport	-	Dec-2008
DHC8	Aircraft observed to be well below glide path on approach.	Edinburgh, Lothian	-	Dec-2008
DHC8	Aircraft targeted by laser on approach, Captain's vision impaired. A standard missed approach was flown. Aircraft then landed without further incident on reciprocal runway.	Plymouth Airport, Cornwall	-	Dec-2008
B737	Aircraft had been de-iced but then stood out in frost. After rotation aircraft pitched up rapidly. Profile recovered.	Luton Airport	-	Dec-2008
EMB 145	Aircraft slid off runway into overrun area. Minor damage to left hand main landing gear and threshold light.	Stuttgart, Germany	-	Jan-2009
B757	Heavy landing damaged landing gear.	Chambery, France	-	Jan-2009
Saab F340	Upon landing the rear of the aircraft hit the runway. Substantial damage to aircraft tail. Suspected loading issue.	Benbecula, Outer Hebrides	-	Jan-2009
B757	Air Speed Indicator discrepancy at 80kts - take-off continued. Aircraft later experienced mode control panel / autopilot anomalies. Aircraft returned.	Accra, Ghana	-	Jan-2009
BAE146	Nosewheel bearing failed during taxi-in.	London City Airport	-	Feb-2009
B737	Take-off rejected above V1 due to failure of aircraft to rotate. Fire service deployed, aircraft returned to stand. Stabiliser trim found incorrectly set.	Birmingham Airport	-	Feb-2009
BAE146	Nose landing gear collapsed on landing. Nose landing gear, nose area and some internal aircraft damage.	London City Airport	2 minor	Feb-2009
B737	Climb thrust called for and incorrectly set at 800ft AGL instead of 1500ft AGL as agreed during the briefing.	Salzburg, Austria	-	Feb-2009
A321	Multiple system failures within 10sec period during initial climb. Nr1 landing gear control interface unit fault suspected.	Heathrow Airport	-	Feb-2009
B737	Aircraft encountered windshear on landing. Right hand engine cowling scraped runway.	Leeds Bradford Airport	-	Feb-2009
A319	On selecting nr1 generator, two circuit breakers tripped and electrical burning was smelt. Fire damage found behind circuit breaker panel.	Heathrow Airport	-	Mar-2009

Table 48 UK public transport aeroplane high severity events (Continued)

Aircraft Type	Narrative	Location	Injuries	Date
B747	Nr2 and nr3 engine thrust reverser amber warnings displayed on rotation. Aircraft suffered buffet and brief stick shake activated.	Johannesburg, South Africa	-	May-2009
DHC8	High speed rejected take-off.	Southampton Airport	-	May-2009
A320	High speed rejected take-off at V1 due to birdstrike.	Exeter Airport	-	Jul-2009
A319	Severe turbulence encounter during descent.	Venice, Italy	1 serious, 2 minor	Jul-2009
B757	Decompression. Oxygen masks donned by flight crew and passenger masks manually deployed. Emergency descent.	Deauville, France	-	Aug-2009
A319 A320	Ground conflict between taxiing aircraft	Madrid, Spain	-	Sep-2009
A319	Multiple birds struck aircraft during take-off roll at 120kts resulting in nose swing to the right followed by surge of right-hand engine. High speed rejected take-off performed.	Liverpool Airport	-	Oct-2009
B737	On take-off, just before V1 at 100kts, aircraft suddenly slewed to the right. Take-off aborted.	Manchester Airport	-	Oct-2009
B757	Low speed rejected take-off due to configuration warning with flaps not in take-off configuration.	Sofia, Bulgaria	-	Oct-2009
B747	Tyre believed to have burst on take-off. Upon landing, FOD believed to be from the aircraft found on the runway.	Johannesburg, South Africa	-	Oct-2009
DHC8	Tailscrape on landing.	Gatwick Airport	-	Nov-2009
B747	Nr3 engine failure between V1 and VR on take-off. Significant damage to fan, fan blades and cowling possibly due to ingestion of FOD.	Nairobi, Kenya	-	Dec-2009
B777	Captain incapacitated during cruise. Aircraft flown by First Officer with assistance of CSD from jump seat.	Heathrow Airport	-	Dec-2009

Table 49 UK public transport balloon high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Cameron Z-275	Clipped hedge while landing in windy conditions. Basket bounced and rolled onto side.	Lenham, Kent	1 serious	Jul-2008
Cameron A-300	Landed heavily and bounced twice before coming to rest on its side.	Croxton, Lincs,	1 serious	Aug-2008
Cameron Z-275	Struck an obstacle on landing.	Keynsham, Avon	1 minor	Aug-2009

Table 50 UK public transport helicopter high severity events

Aircraft Type	Narrative	Location	Injuries	Date
SA332 Super Puma	Aborted landing on offshore platform carried out from 10ft due to severe turbulence.	Oil Rig, North Sea	-	Jan-2008
SA332 Super Puma	Go-around switch selected below recommended airspeed during initial climb. Aircraft pitched up and airspeed reduced to zero. Aircraft recovered manually.	Forties Bravo, North Sea	-	Jan-2009
Eurocopter EC225	Aircraft descended into the sea close to offshore platform. All 18 occupants rescued. Aircraft remained afloat but tail cone separated and sank.	Nr ETAP Platform, North Sea	3 minor	Feb-2009
MD 900 Explorer	Nr2 main rotor blade retaining pin (one of two) sheared.	Shoreham, W Sussex	-	Mar-2009
SA332 Super Puma	Aircraft crashed into sea following gearbox failure and rotor head separation.	North Sea, nr Peterhead, Aberdeenshire	16 fatal	Apr-2009
MD 900 Explorer	Just after aircraft started its engines, two large sheets of metal edged with plastic approximately 7ft x 4ft landed either side of the aircraft.	Battersea, London	-	Apr-2009

4 UK non-public transport

Table 51 UK non-public transport large aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Cessna C550 Citation 2	Control difficulties during descent required emergency landing. Difficulties experienced extending landing gear.	Edinburgh, Lothian	-	Mar-2008
Falcon 900	Double engine power loss, probably due to icing, resulting in inability to maintain altitude.	Suriname	-	Sep-2008
B737	Rapid pitch down during test flight. VMO exceeded by 100kts+ and 10,000 ft altitude lost. Recovered at approx 5,600 ft.	West of Norwich, Norfolk	-	Jan-2009
Learjet	Top half of left engine cowling separated during descent. Aircraft landed safely.	Marrakech, Morocco	-	May-2009
EMB 135	Aircraft left paved surface whilst backtracking and turning on icy runway. Subsequently managed to taxi back onto runway and vacate.	Southend, Essex	-	Dec-2009
DHC8	Aircraft diverted due to numbers 1 and 2 AC Bus failures.	Gatwick Airport	-	Dec-2009

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Piper PA24 Comanche	Following a loss of electrical power the landing gear failed to fully extend and collapsed on landing.	Tatenhill, Staffs.	-	Jan-2008
Cessna 206 Super Sky	Engine failure at 3,000 ft. Emergency landing carried out. Nose landing gear collapsed and propeller blades damaged.	Abay, Jaca, Spain	-	Jan-2008
Piper PA31	Total electrical failure. Aircraft diverted. Gear extended using emergency system.	Brussels, Belgium	-	Feb-2008
Homebuilt	Forced landing in field due to possible engine failure.	Norton, Nr Daventry, Northants.	-	Feb-2008
Piper PA28	Descended into foggy conditions and collided with trees at high speed.	Empingham, Leics.	1 fatal	Feb-2008
Cessna 172	Aircraft encountered deteriorating weather and entered cloud. During attempted recovery aircraft struck trees.	Lyminge, Kent.	2 minor	Feb-2008
Cessna 150	Engine failure following take-off during dual circuit training. Forced landing carried out in field at the end of the runway.	Dunkeswell, Nr Honiton, Devon	-	Mar-2008
Druine D31 Turbulent	Aircraft crashed, and was destroyed, on runway while performing low-level fly past.	Headcorn / Lashenden, Kent	1 minor	Mar-2008
Piper PA32	Collided with mountain during diversion due to poor weather.	Cairngorm, Grampian	1 fatal	Apr-2008
Cessna 152	Aircraft landed long, overran runway and nosed over.	Full Sutton, Humberside	-	Apr-2008
Evans VP	Aircraft lost height after encountering a downdraught. Pilot elected to make a forced landing, during which right-hand main landing gear collapsed.	Farley Farm, Nr Winchester, Hants.	1 minor	Apr-2008
Cessna 177 Cardinal	Main landing gear retracted on landing. Substantial damage.	Swansea, Glamorgan	-	Apr-2008
Piper PA28	Aircraft landed long, ran through a boundary fence and struck a hedge.	Popham, Hants.	2 minor	May-2008
Socata TB9	Engine stopped due to fuel starvation. Aircraft damaged during forced landing.	Gloucester-Staverton Airport, Glos.	-	May-2008
Spitfire	Return initiated due to engine oil temperature caution. Propeller separated during approach. Safe glide landing carried out.	Aboyne, Grampian	-	May-2008
Streak	Engine stopped due to fuel stavation. Aircraft damaged during forced landing.	Hayton, Notts.	1 minor	May-2008
Streak	Aircraft landed heavily and overturned.	Hinton Charterhouse, Avon.	1 serious, 1 minor	May-2008

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Piper PA22	On initiating go-around, pilot mis-selected flaps and aircraft struck rising ground.	Kingswells, Grampian.	1 serious, 1 minor	May-2008
DH Tigermoth	Aircraft made forced landing in field following engine failure. Landing gear collapsed, lower wing and fuselage damaged.	Headcorn / Lashenden, Kent	-	May-2008
Extra 300	Aircraft descended below 600ft in poor visibility and struck ground.	Hastingleigh, Kent	1 serious, 1 minor	May-2008
DH Tigermoth	Wheels dug in to wet patch on runway and aircraft overturned.	Land Mead, Oxon.	-	Jun-2008
Piper PA22	Controlled flight into terrain.	Le Bessat, France	1 serious	Jun-2008
Cirrus SR20	Aircraft bounced on landing and propeller struck ground. Go-around initiated but aircraft crashed into trees and was destroyed.	Denham, Bucks.	2 minor	Jun-2008
PZL-104 Wilga 80	Lower part of right-hand main landing gear separated on landing and aircraft overturned.	Wortham, Suffolk	3 minor	Jun-2008
Piper PA28	Aircraft ditched in a lake due to engine failure.	Bradford on Avon, Wilts.	1 minor	Jun-2008
Denney Kitfox	Engine stopped during climb out from practice forced landing. Aircraft overturned during actual forced landing.	Near Humberside Airfield, Lincs.	-	Jun-2008
Piper PA28	Aircraft veered off runway during crosswind take-off and struck a fence.	Old Sarum, Wilts.	-	Jul-2008
Kis	Engine lost power during climb out. Aircraft struck tree and came to rest in a field and was destroyed by post-impact fire	Newport	-	Jul-2008
Piper PA15	Engine stopped during initial climb due to suspected carburettor icing. Minor damage sustained during forced landing in field.	Fishburn, Durham	-	Jul-2008
PZL Koliber 160A	Aircraft suffered engine failure in flight and made forced landing in field without damage or injury.	Swansea	-	Jul-2008
Pietenpol Aircamper	Engine failure followed by forced landing in field.	Passel, France	-	Jul-2008
Piper PA38 Tomahawk	Aircraft became airborne prematurely and stalled in from about 50ft.	Manchester Barton Airfield, Greater Manchester	1 serious	Jul-2008
Aeronca	Engine stopped in flight. Forced landing made in field.	Coningsby, Lincs.	-	Jul-2008
Acroduster SA750	Aircraft climbed to 300-400ft then turned back towards airfield, pitched up, rolled inverted and struck trees.	Farthing Corner, Kent	1 serious	Jul-2008

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Piper PA28	Forced landing carried out on farmland following engine failure.	Elstree, Herts.	-	Aug-2008
Cessna 152	Aircraft overran end of runway and struck wire fence.	Netherthorpe, S Yorks.	-	Aug-2008
Cessna 172	Aircraft bounced on landing and overturned into crop field.	Strubby, Lincs.	2 serious, 2 minor	Aug-2008
Europa	Engine failed in flight due to oil starvation. Nose landing gear damaged during forced landing in field.	Sherburn in Elmet, N Yorks.	-	Aug-2008
Cessna 402 Rand KR2	Mid-air collision between Cessna 402 and Rand KR2.	Coventry, West Midlands	4 fatal	Aug-2008
Maule M5	During approach aircraft struck bank of ditch on airstrip boundary and overturned.	Perrow Farm, Crickham, Somerset	1 serious	Aug-2008
Gardan 80	Engine stopped due to fuel shortage. Aircraft clipped hedge and overturned during forced landing.	Easingwold, N Yorks.	-	Aug-2008
Piper PA28	MAYDAY declared due to engine failure. Forced landing made on mud flats.	Topsham, Devon	-	Aug-2008
Vans RV6	Nose hit ground on landing and aircraft overturned.	Fishburn, Durham	1 serious, 1 minor	Aug-2008
Cap 232	Engine stopped due to fuel starvation. Aircraft overturned during forced landing.	Near Llay, 3 nm South of Hawarden Airport, Clwyd	-	Sep-2008
Robin 200	MAYDAY declared due to engine failure at 200ft altitude during the climb. Forced landed into a field.	Cardiff Airport	-	Sep-2008
DH Tigermoth	Engine failed at about 80ft during initial climb and aircraft landed in field. Damage to left wing.	Dunkeswell, Nr Honiton, Devon	-	Sep-2008
Cessna C525 Citationjet	Take-off rejected after V1 due to loss of power. Wheel and speed brakes applied. Aircraft veered right then left, both main landing gear tyres burst and fire ignited in right-hand main landing gear.	Jersey, Channel Islands	-	Sep-2008
Robin 400 Jabiru	Aircraft landed without clearance and with another aircraft on the runway. Both MLG tyres burst due to consequent heavy braking.	Culdrose, Cornwall	-	Sep-2008
Glasair	Engine failure on approach. Aircraft landed short and came to rest inverted.	Robledillo de Mohemando, Guadalajara, Spain	2 minor	Oct-2008
Piper PA38 Tomahawk	Crashed into sea, sank and was destroyed.	Robin Hood's Bay, N Yorks.	1 fatal	Oct-2008
Piper PA28	Collided with mountain in poor visibility.	Corriebracks Mountain, County Wicklow, Ireland.	4 fatal	Oct-2008

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Eagle	Collided with farm vehicle in adjacent field whilst on approach.	Seething, Norfolk	2 fatal	Oct-2008
Luscombe	Brakes locked during landing roll and aircraft nosed over at low speed.	Clacton Airfield, Essex	1 minor	Dec-2008
Piper PA28	Impacted the ground at high-speed following loss of control.	Little Haywood, Staffs.	3 fatal	Jan-2009
Flight Design CT2K	Engine stopped in flight. Nose landing gear failed during forced landing and aircraft overturned.	Hook Norton, Oxon.	-	Jan-2009
Taylor Mono	Unintentional take-off during high-speed taxi. Aircraft stalled and left wing struck ground.	Bodmin, Cornwall	1 minor	Jan-2009
Diamond DA42	Aircraft overran runway on take-off and overturned on soft ground.	Lands End, Cornwall	3 minor	Jan-2009
CZAW Sportcruiser	On take-off aircraft failed to accelerate as expected. Take-off rejected but aircraft overran runway and struck wooden post.	Firs Farm, Nr Newbury, Berks.	-	Feb-2009
DH Chipmunk	Aircraft came down in field due to engine power loss/failure and clipped hedge. Wings detached from fuselage.	Harome, North Yorks.	1 minor	Feb-2009
Mickleburgh L107	MAYDAY declared shortly after take-off, spun in from 300-400ft during attempted return to airfield.	Spalding, Lincs.	1 fatal	Feb-2009
Maule M7	Engine lost power in flight. Right-hand main landing gear sheared off during forced landing and aircraft overturned.	Lower Upham Farm, Swindon, Wilts.	1 minor	Feb-2009
Beagle 121 Pup	Reported engine problem. Attempted forced landing. Came to rest in a ditch.	Cranfield, Beds.	1 minor	Feb-2009
Piper PA38 Tomahawk	On approach, engine failed to respond to throttle movements. MAYDAY declared. Successful forced landing made into field.	Hale, Liverpool, Merseyside	-	Mar-2009
H36 Dimona	Control lost during low pass. Aircraft came to rest inverted on airfield.	Enstone, Oxon.	1 serious	Mar-2009
Stampe Sv4	Engine hand started with no chocks in place. Aircraft moved off, became airborne with no one on board and crashed into trees.	Goodwood, W Sussex,	-	Apr-2009
DH Tigermoth	Pilot landed due to engine trouble. On landing, wheels dug in and the aircraft overturned.	Honeybourne Airfield, Hereford and Worcester	-	Apr-2009
BE76 Duchess	Wheels up landing.	Bournemouth Airport	-	Apr-2009
ST2	In cruise on flight test, one right-hand propeller blade separated and passed through nose cone.	Woodbridge, Suffolk	-	Apr-2009
Robin 1180	Aircraft overran runway and struck bushes on landing. Wings damaged.	Eddsfield, E Yorks.	1 serious	Apr-2009

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
BAC 167 Strikemaster	Engine flame out followed by electrical failure.	Witheridge, Devon	1 serious, 1 minor	Apr-2009
Cessna 150	Mechanical engine noise followed, after 15 seconds, by the engine seizing. MAYDAY declared and aircraft landed in a field.	Linley Hill, E Yorks	-	May-2009
Rans S6	Diversion due to engine problems. Forced landing in field.	Goodwood, W Sussex	-	May-2009
Vans RV9	Engine failure. Forced landing in field.	Old Buckenham, Norfolk	-	May-2009
Pitts Special	Aircraft stalled at threshold of runway whilst performing aerobatics in the overhead.	White Waltham, Berks.	1 serious	May-2009
Grumman AA5	Aircraft forced landing on disused airfield due to rough running engine and struck a post.	Oakley, Bucks	-	May-2009
Maule MX7	Aircraft forced to descend by bad weather/extreme turbulence, hit trees and crashed in woodland.	Goles Forest, County Tyrone	2 minor	May-2009
Casa I 131	MAYDAY declared due to engine failure. Struck telephone lines during forced landing.	Stourton Caundle, Dorset	1 fatal, 1 serious	May-2009
Rockwell 114	Forced landing in a field.	Cookstown, County Tyrone	2 serious	May-2009
Europa	Aircraft diverted due rough running engine which stopped during go-around. Struck post on landing.	Ashcroft, Greater Manchester	-	Jun-2009
Jodel DR1050	Aircraft believed to have stalled on approach shortly before nose diving into ground.	Kilkeel, County Down	3 fatal	Jun-2009
Acrosport II	Aircraft in difficulties after take-off and crashed in field 1km from airfield.	Bidford-on-Avon, Warks.	1 serious	Jun-2009
MS Rallye	Engine failure in flight. Forced landing in field.	Bugbrook, Northants	-	Jun-2009
Denney Kitfox	MAYDAY declared due to engine failure caused by fuel starvation, successful forced landing in a field and attended by Police helicopter.	Coventry, W Mids.	-	Jun-2009
Cessna 172	Pilot reported rough running engine with smoke. Forced landing made in field	Daventry, Northants	-	Jun-2009
Cessna 150	MAYDAY declared on take-off due to rough running engine. Aircraft landed in nearby field without incident.	Haverfordwest Pembrokeshire	-	Jun-2009
Robin 2100	Aircraft made a forced landing in a field.	near Coggeshall, Essex	-	Jun-2009
Taylor Mono	Reported to be in difficulties after take-off. Attempted to return to airstrip but spun in.	Great Oakley, Northants	1 fatal	Jun-2009

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Piper PA32	Emergency declared due to engine failure. Aircraft ditched in sea nine miles off Lydd and sank	English Channel, 9 miles off Kent coast.	1 minor	Jun-2009
DH Tigermoth	On first flight after rebuild, engine lost power in climb and aircraft struck trees.	Sandtoft, Lincs	-	Jul-2009
Percival Provost T1	Aircraft crashed, with reports of a fire and extensive aircraft damage.	Barff Farm, Bishop Norton, Lincs	1 fatal	Jul-2009
Jodel D112	PAN declared due to fire in the flight deck flooring. Upgraded to MAYDAY. Aircraft landed safely.	Manchester Barton Airfield, Greater Manchester	-	Jul-2009
Pietenpol Aircamper	During test flight, after climbing to about 400ft, RPM dropped drastically and pilot was not able to get back to airfield so landed in a field	Farthing Corner, Kent	-	Jul-2009
Piper PA34 Seneca	Following engine start, aircraft moved forward and collided with a parked van.	Stapleford Airfield, Essex	-	Jul-2009
Extra 300	Aircraft crashed during aerobatics.	Tervakoski, Janakkala, Finland	1 minor	Jul-2009
Spitfire	Propeller rpm uncontrollable and smoke from engine, forced landing.	Knoke Hall Farm, Bulpham, Essex,	1 minor	Jul-2009
Beagle 121 Pup	Pilot reported rough running engine when on approach. Aircraft failed to reach the runway and completed a forced landing in a wheat field.	Lydd, Kent	-	Jul-2009
Isaacs Fury II	Heavy landing in field and came to rest inverted.	Ellistown, Leics	1 minor	Aug-2009
Jodel D112	Engine power loss, possibly due to carburettor icing. Forced landing.	Coltishall, Norfolk	-	Aug-2009
Rebel	Engine failure. Forced landing.	West Midlands Safari Park, Kidderminster, Hereford and Worcester	-	Aug-2009
Avid	Aircraft ditched following engine failure.	Near Tuskar Rock, Rosslare, County Wexford, Ireland	1 minor	Aug-2009
Fury	Attempted landing in changing wind conditions. Go-around attempted. Caught by gust and veered off runway.	Little Rissington, Glos.	-	Aug-2009
Cri Cri	Forced landing due to engine failure.	Coonagh, County Limerick, Ireland	-	Aug-2009
CZAW Sportcruiser	Crosswind gust caught aircraft during landing roll. Attempted to straighten aircraft but wing caught a hedge and came to rest in a ditch.	Priory Farm Airfield, Tibenham, Norfolk	-	Aug-2009
Piper PA28	Aircraft declared MAYDAY during a circuit. Crashed into a tree.	Biggin Hill, Kent	1 minor	Aug-2009

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Cessna 177 Cardinal	Rough running engine. Forced landing in field.	Framfield, E Sussex	1 minor	Aug-2009
Piper PA32	Aircraft believed to have stalled on approach.	Alderney, Channel Islands	4 minor	Aug-2009
Vans RV6	PAN declared due to loss of oil pressure and subsequent engine failure. Aircraft initiated a return to departure airfield.	Longside, Peterhead, Aberdeenshire	-	Aug-2009
Luscombe	Engine power reduced prematurely and aircraft landed heavily.	Northrepps Airfield, nr Cromer, Norfolk	-	Aug-2009
Cessna 150	Landed in strong winds. Came to rest inverted.	Wombleton, N Yorks.	-	Sep-2009
Rockwell 114 Cessna 172	Mid-air collision at 1500ft in Class G airspace.	Commune de Brethencourt, France	-	Sep-2009
Piper PA28	MAYDAY declared due to engine failure. Forced landing in a field. Landed safely.	Eastchurch, Isle of Sheppey, Kent	-	Sep-2009
Piper PA28	Aircraft clipped airfield boundary hedge during landing due to sink rate. Came to rest inverted.	Yarnscombe, nr Barnstaple, Devon	1 serious, 1 minor	Sep-2009
Bolkow 208	Canopy detached at approx 60kts during take-off. Canopy destroyed and leading edge of fin damaged.	Lee On Solent, Hants.	-	Sep-2009
Piper PA28	Engine stopped at approximately 1800ft during practice forced landing. Emergency landing in a cropped stubble field.	Sherburn in Elmet, N Yorks.	-	Sep-2009
Luton LA4A Minor	Power decrease following take-off. Aircraft landed in field.	Thatcham, Berkshire	-	Sep-2009
Auster	Aircraft reported as not gaining sufficient height and crashed into trees.	Bicester, Oxon	1 serious, 1 minor	Sep-2009
Nord NC854	Crashed in field and destroyed by fire.	Tangley, Hants.	2 fatal	Sep-2009
Piper PA28	Loss of control during landing. Aircraft became inverted.	Humberside Airport, Lincs	1 serious	Sep-2009
Piper PA28	Rudder control lost on landing, believed due to tailwind gust. Aircraft departed runway. Nose landing gear collapsed when entering an adjacent field.	South Cave / Mount Airey, E Yorks	-	Sep-2009
Cessna 152	MAYDAY declared due to engine failure. Forced landing in a field. Landed safely.	near Derby Airfield, Derbyshire	-	Oct-2009
Diamond DA42	Nose landing gear pivot assembly service bulletin carried out. Inspection revealed distortion and twisting of pivot pin bearings.	Maintenance	-	Oct-2009
Piper J3	Engine lost power. Forced landing in a field.	near Ledbury, Hereford and Worcester	-	Oct-2009

Table 52 UK non-public transport small conventional aeroplane high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Cessna 152	Aircraft lost power during flight. Emergency landing in a field.	near Blackbushe, Surrey	1 minor	Oct-2009
Piper PA28	Aircraft returning due to rough running engine. MAYDAY subsequently declared due to engine failure. Forced landing off airfield carried out.	Horton, Dorset	-	Oct-2009
Tecnam P2002-JF	Aircraft veered to the left on take-off, departed runway and collided with ground vehicles near to perimeter road.	Old Sarum, Wilts	-	Oct-2009
Cessna 152	Aircraft bounced on landing and rested nose down on the runway.	Caernarfon Airport, Gwynedd	-	Oct-2009
Cessna 172 Diamond DA42 Twin Star	DA42 was 50m into the landing run when the C172 entered the runway. DA42 used maximum braking to avoid collision, causing the aircraft to skid.	Bagby, N Yorks	-	Oct-2009
Piper PA28	On landing, aircraft skidded on wet runway, crossed the threshold and stopped on an embankment.	Panshanger, Welwyn Garden City, Herts	-	Oct-2009
Taylor Titch	Aircraft crashed into a ditch. Circumstances unknown.	Coates, Cambs	1 fatal	Nov-2009
Siai Marchetti S.205	MAYDAY declared due to engine failure. Aircraft force landed in field.	Field 2nm W of Stirling	-	Nov-2009
Piper PA28 Cessna 172	During taxi, aircraft collided with a parked empty aircraft. Substantial damage to parked aircraft.	Manchester Barton Airfield, Greater Manchester	-	Nov-2009
Cessna 182 Skylane	Aircraft caught edge of runway and flipped over during take-off roll. Aircraft inverted in wheat field.	Fenland Aerodrome, Lincs	-	Nov-2009
Jodel D18	During training flight, aircraft veered off runway due to loss of control.	Old Sarum, Wilts	-	Dec-2009
Rand KR2	Engine failure in flight. Forced landing in a field, clipping a tree on approach.	Nr Beeston Castle, Tarporley, Cheshire	1 minor	Dec-2009

Table 53 UK non-public transport helicopters high-severity events

Aircraft Type	Narrative	Location	Injuries	Date
Schweizer 300C	While parked with engine running, main rotor gearbox pinion outer bearing seized and aircraft began to vibrate significantly.	Sheffield, S Yorks	-	Feb-2008
Robinson R44	Power loss/engine failure during climb out. Aircraft entered autorotation and engine out forced landing carried out.	Durham Tees Valley Airport, County Durham	-	Feb-2008
Robinson R44	Aircraft failed to obtain sufficient lift and rolled over on touchdown.	Courchevel, France	-	Mar-2008
Robinson R22	Hover taxied, then turned downwind and tipped over forward.	Wellesbourne Mountford, Warks	1 minor	Apr-2008
Robinson R22	Helicopter moved rearwards and down in the hover. Right skid contacted ground and helicopter rolled over.	Cutler Helipad, Grampian	-	May-2008
Robinson R44	A/c pitched nose down while landing. Rotor struck ground, aircraft crashed, caught fire and was destroyed.	Tottington, Lancs	1 minor	May-2008
Schweizer 300C	Aircraft lifted without clearance and then forced/crash landed due to reported engine failure.	Bournemouth Airport	-	Jul-2008
Agusta A109	After a short test flight pilot discovered an alleged bullet hole in the rear stabilizer.	Wycombe, Bucks	-	Jul-2008
Robinson R44	After entering hover, change in wind direction caused aircraft to rotate out of control. Aircraft fell to ground and was destroyed.	Delph, Saddleworth, Greater Manchester	1 serious	Jul-2008
Robinson R22	Student pilot lost control during take-off and helicopter rolled onto its side.	Shoreham, W Sussex	1 serious	Oct-2008
Gazelle	Crashed into hillside after inadvertently entering IMC.	Winchcombe, Glos	3 fatal	Nov-2008
Robinson R22	Engine failed in flight. MAYDAY declared. Forced landing made in field.	Brampton, Cumbria	-	Jan-2009
SA332 Super Puma	Unintended descent towards the sea during positioning flight to offshore platform.	North Sea	-	Jan-2009
Robinson R22	During solo circuit consolidation, engine stopped and aircraft fell into a field.	Sandtoft, Lincs	1 fatal	Feb-2009
Robinson R44	Pilot reportedly lost control on take-off. Aircraft veered left and rotor struck ground.	Swansea, Glamorgan	1 serious, 1 minor	Mar-2009
Robinson R44	Aircraft crashed on landing and caught fire.	Amboise/Dierre, France	3 fatal	Apr-2009
Robinson R22	Helicopter rolled onto its side from the hover.	Nottingham City Airport	-	Apr-2009
Robinson R44	Engine total drive failure/degradation of rotor rpm during flight followed by autorotation in wind. MAYDAY declared. Aircraft landed vertically in orchard and vertical stabiliser contacted a tree.	Nr Girona, Spain.	-	May-2009

Table 53 UK non-public transport helicopters high-severity events (Continued)

Aircraft Type	Narrative	Location	Injuries	Date
MD 900	Blade retention bolt failure found during maintenance.	Sheffield, S Yorks	-	May-2009
Helicopter	Loss of tail rotor effectiveness in hover. Aircraft crashed and was destroyed.	Hardwick Airfield, Norfolk	-	May-2009
Robinson R44	Aircraft rolled over during landing. A piece of the aircraft detached and struck a workman at a nearby hangar.	Goodwood, W Sussex.	1 serious, 1 minor	May-2009
Robinson R44	Helicopter main rotor blade bolt failure found during maintenance.	Sandy, Beds	-	Jul-2009
Enstrom 480	PAN declared due to severe airframe vibration. Precautionary landing in field.	nr Biggin Hill, Kent	-	Aug-2009
Robinson R44	Uncommanded yaw and spin on shut down. No injuries to student pilot or damage to other parked aircraft.	Son Bonet, Majorca, Spain	-	Aug-2009
Sikorsky S92A	Right-hand main gearbox mounting foot observed to be cracked in several locations around the feet mounting bolts.	Scatsta, Shetland	-	Sep-2009
Sikorsky S92A	Main gearbox right-hand foot found to be cracked by the forward mounting bolt during maintenance.	Scatsta, Shetland	-	Sep-2009
Enstrom 280	Forced landing due to faulty low rotor RPM horn.	Hullbridge, Essex	-	Sep-2009
Schweizer 300C	MAYDAY declared stating aircraft had suffered a power failure, crashed shortly afterwards.	Barnaby Sands, Lancs	2 fatal	Sep-2009
Sikorsky S92A	Main gearbox right-hand foot found to be cracked by the forward mounting bolt, found during daily inspection.	Scatsta, Shetland	-	Oct-2009
Robinson R44	Student pilot lost control during start up. Helicopter lifted off the ground and rolled onto its right side.	Cutler Helipad, Grampian	1 minor	Oct-2009
Sikorsky S92A	Main gearbox right-hand foot found to be cracked by the forward mounting bolt, found during daily inspection.	Scatsta, Shetland	-	Oct-2009
Robinson R22	Aircraft crashed in a field and was destroyed.	Pinfold Farm, Whiteley Green, Cheshire	1 fatal	Nov-2009
Robinson R44	On landing, aircraft tipped onto its side and made contact with hangar doors.	Shobdon, Hereford and Worcester	-	Nov-2009
Robinson R22	Smoke noticed in the cockpit during flight. PAN declared. Precautionary landing made in a field.	Oswestry, Shrops.	-	Nov-2009
Sikorsky S92A	Main gearbox right-hand foot found to be cracked by the forward mounting bolt, found during daily inspection.	Scatsta, Shetland	-	Dec-2009
Sikorsky S92A	Main gearbox right-hand foot found to be cracked by the forward mounting bolt, found during daily inspection.	Scatsta, Shetland	-	Dec-2009

Table 54 UK non-public transport other high-severity events

Aircraft Type	Narrative	Location	Injuries	Date
Snowbird	Loud bang heard and vibration felt in flight. Pilot switched off engine and performed a successful forced landing. Propeller splintered.	Cardiff Airport	-	Apr-2008
MCR-01 ULC	Aircraft caught by gust of wind on landing, entered a ditch and struck a fence.	Caunton, Notts	-	Apr-2008
Mosquito B	Wing touched hillside. Glider came to rest in a river bed with broken tail and smashed canopy.	Thirlmere, Keswick, Cumbria	1 minor	Apr-2008
Rans S6-ESD (Mod)	Engine stopped at 100ft during climb out and aircraft dropped to the ground. Nose landing gear folded and pushed up the lower frame.	Priory Farm Airfield, Tibenham, Norfolk	-	Apr-2008
Gemini Flash IIA	Gemini Flash microlight struck a fence during forced landing following engine failure.	Otherton Airfield, Staffs	1 minor	Apr-2008
Rans S6	Aircraft stalled into the ground shortly after take-off.	Chilbolton, Hants	-	May-2008
Pegasus Quik	Aircraft crashed on beach.	Pilling Sands, Lancs	1 serious	May-2008
Schleicher KA2B	Aircraft caught in turbulence on approach, right-hand wing clipped a tree. Aircraft cartwheeled onto airfield.	Sackville, Beds	2 serious	Jun-2008
Team Minimax	Canopy opened and separated at 3,800 ft, striking tailplane. Aircraft entered dive, recovering at 400 ft.	Waterbeach, Cambs	-	Jul-2008
RAF 2000	MAYDAY declared due to engine failure whilst joining left-hand base leg. Forced landing in field.	Oxford Airport (Kidlington), Oxon	-	Jul-2008
Ask 21	Following release from tug aircraft, glider struck tow rope. Both aircraft landed safely. Damage to glider's wing.	Ringmer, E Sussex	-	Jul-2008
Pegasus Quantum	Forward strut securing bracket had been fitted upside down and failed in flight. Successful forced landing carried out.	Sandy, Bedfordshire	-	Sep-2008
Thruster	Aircraft clipped power lines on approach and crashed in field.	Usselby, Lincs	1 minor	Sep-2008
Pegasus Quantum	Aircraft landed heavily, cartwheeled and came to rest just off runway.	Sutton Meadows, Cambs	-	Sep-2008
Mainair Blade	Engine lost power shortly after take-off. Aircraft struck hedge and was destroyed.	Husthwaite, North Yorkshire	1 serious, 1 minor	Sep-2008
Thruster TST Mk1	Aircraft crash landed after take-off. Pilot suspects drop in fuel pressure.	Chirk, Nr Wrexham	1 serious	Oct-2008
Flight Design CTSW	Aircraft descended rapidly and crashed into high-ground in poor weather.	Saddleworth Moor, Lancs	1 fatal	Oct-2008

Table 54 UK non-public transport other high-severity events (Continued)

Aircraft Type	Narrative	Location	Injuries	Date
Rotorsport MT03	On approach aircraft lost power and dropped.	Manchester Barton Airfield, Greater Manchester	2 minor	Oct-2008
RAF 2000	During descent the gyroplane rotor struck the propeller and rudder, causing an in-flight break up.	Henstridge airfield	1 fatal	Oct-2008
Chevvron	Precautionary landing following engine failure in flight.	Shobdon, Hereford and Worcester	-	Oct-2008
Cyclone	Aircraft stalled at about 100ft during steep climb out and landed heavily on runway.	Chilbolton, Hants	2 minor	Oct-2008
Pegasus Quik	Aircraft flew into high ground after encountering wake vortex.	Glas Maol, Glen Shee, Tayside	-	Nov-2008
Jabiru	Engine failed on final approach. Forced landing carried out in field.	Londonderry Airport (Eglington)	-	Dec-2008
Chevvron 2-32C	Precautionary landing following engine failure in flight.	Sandtoft, Lincs	-	Dec-2008
Schleicher ASK-13	Glider crashed on final approach.	Camphill Airfield, Derbyshire	1 minor	Jan-2009
Pegasus XL-R	Aircraft landed heavily, bounced and rolled onto its side.	Caernarfon Airport, Gwynedd	-	Feb-2009
Rans S6	Aircraft crashed on airfield and was destroyed.	Brimpton, Berkshire,	1 serious	Feb-2009
Flight Design CTSW	Late flare resulting in heavy landing. Nose landing gear collapsed and aircraft overturned.	Priory Farm Airfield, Tibenham, Norfolk	-	Mar-2009
Rotorsport MT03	Gyroplane collided with pedestrian who was fatally injured.	Long Marston, Warwickshire	1 fatal (ground)	Mar-2009
Pegasus Xl-Q	During touch and go, when nosewheel contacted ground, aircraft pitched nose down and overturned.	Hingham Grass, Norfolk	2 minor	Mar-2009
Jabiru	Engine failed during approach. Aircraft struck hedge and overturned.	Headon, Notts	-	Mar-2009
Thruster T600N	Forced landing. Possible engine failure. Oil covered windscreen.	Ards peninsula, County Down	-	Mar-2009
Escapade 912(1)	Aircraft took avoiding action and subsequently entered a spin, crashing adjacent to the airfield.	Shobdon, Herefordshire	2 fatal	Apr-2009
Thruster T600N	Aircraft stalled after lift off, turned through 90deg then impacted ground, striking a tree and a hide.	Pershore, Hereford and Worcester	-	Apr-2009
G102 Astir	Glider pilot took evasive action to avoid another aircraft during approach, resulting in a loss of control and crash landing.	Husbands Bosworth, Leics	-	Apr-2009
Gemini Flash IIA	Aircraft struck trees whilst attempting to land.	Chirk, Nr Wrexham	-	May-2009

Table 54 UK non-public transport other high-severity events (Continued)

Aircraft Type	Narrative	Location	Injuries	Date
Skyranger 912(2)	Aircraft cartwheeled following hard landing.	Newtownards, County Down	1 minor	May-2009
Gemini Flash	Aircraft crashed, substantial damage.	Birch Hill, Forest of Dean, Glos	2 serious	May-2009
Schleicher ASW 15B	Glider struck hillside during turn.	Portmoak, Perthshire and Kinross	1 minor	May-2009
SZD-48-1	Aircraft stalled and spun on take-off.	Long Mynd Airfield, Shrops	1 fatal	May-2009
Tecnam P92-EM Echo	Crashed at road junction in rural area approx 3nm short of airfield.	Kilkeel, County Down	1 serious, 1 minor	Jun-2009
G102 Astir	Glider believed to have stalled then crashed.	Ratley, Warks	1 fatal	Jun-2009
X'AIR 582	MAYDAY declared due to engine problem. Aircraft overturned during forced landing in field.	Carland Cross, Devon	-	Jun-2009
Grob G115 Cirrus	Mid-air collision between Grob 115 and Cirrus glider. Glider pilot parachuted clear of the aircraft.	Sutton Courtenay, Abingdon, Oxon.	2 fatal (Grob 115)	Jun-2009
Skylark 3	Overshot during landing, impacted bank edge of perimeter track and ground looped.	Camphill Airfield, Derbyshire	-	Jun-2009
Slingsby T59D	Glider crashed in field. Extensive damage.	Middle Lyttleton, Nr Evesham, Warks	1 minor	Jun-2009
Pegasus Quantum 15	Engine faltered during circuit to land and aircraft forced landed in field.	Enstone, Oxon	-	Jun-2009
Flight Design CTSW	Engine failed shortly after take-off. Aircraft crashed in a garden.	Manchester Barton Airfield, Greater Manchester	2 minor	Jun-2009
Gemini Flash	Aircraft took off from grounds of a public house and collided with a tree.	Park Hall Country Park, Staffs	1 serious	Jul-2009
MW6-S (Modified)	Nosewheel slewed to the left on landing. Pilot tried to correct with rudder. Aircraft entered gulley and flipped over.	Rayne, Essex	-	Jul-2009
Discus B	Glider crashed in field.	Gransden, Cambs	1 fatal	Jul-2009
Ikarus C42	Simulated engine failure during take-off practice. Hard landing.	Popham, Hants	-	Jul-2009
M16 Tandem Trainer	PAN declared due to engine failure. Aircraft rolled over during forced landing.	Goring, Oxon	2 minor	Jul-2009
Cyclone AX2000	Engine failure. MAYDAY declared. Struck a fence during forced landing in a field.	Shoreham, Kent	2 serious	Jul-2009
Ventus 2CT	Mid-air collision between two gliders (one UK, one German registered). Both aircraft landed safely. Minor damage to one glider.	Wittering, Cambs	-	Jul-2009

Table 54 UK non-public transport other high-severity events (Continued)

Aircraft Type	Narrative	Location	Injuries	Date
Ev-97 Eurostar	Cockpit canopy failed. Forced landing in a field.	Edwinstowe Village, Notts	1 serious	Jul-2009
Pegasus Quantum 15	Propeller blade detached in flight. Subsequent forced landing in field.	Huddersfield, W Yorks	1 serious	Aug-2009
Flight Design CTSW	Aircraft ran out of fuel and landed in a tree.	Dundee, Tayside	1 minor	Aug-2009
Balloon	Balloon touched down and bounced approx 15ft. Upon landing, basket was dragged approx 35 yards at a 45° angle.	Brodsworth Hall, S Yorks	1 serious	Aug-2009
Roadster/Bailey Quattro	Caught in a gust of wind when coming in to land.	Klyeakin, Isle of Skye	-	Aug-2009
Janus B	Caught between rain showers, unable to reach airfield. Attempted landing in field. Wing tip hit ground and looped.	Sutton Bank, N Yorks	-	Aug-2009
Schleicher ASW 19B	Aircraft hit a tractor with the wingtip after landing.	Pocklington, E Yorks	-	Aug-2009
Balloon	Balloon struck power lines on landing. Envelope detached, basket fell approx 15 ft to the ground.	Chop Gate, N Yorks	2 minor	Sep-2009
Standard Libelle 201 B	It is believed the aircraft ran out of available landing distance.	Husbands Bosworth, Leics	-	Sep-2009
SZD-50-3	Canopy opened and detached during final approach. Aircraft landed safely.	Husbands Bosworth, Leics	-	Sep-2009
Ikarus C42	Forced landing on a beach.	Hoylake Beach, Merseyside	-	Sep-2009
Zenair (Microlight)	Loss of control on landing. Aircraft skidded into a ditch.	Shobdon, Hereford and Worcester	-	Sep-2009
Bensen	Loss of control while flying in the circuit.	Little Rissington, Glos	1 fatal	Oct-2009
T Minimax	Fuel flow problem on descent. Forced landing in a field approximately 4 miles from destination.	Garthone Farm, Archdean Newton, Durham	-	Oct-2009
Rans S6	Aircraft lost power during take-off roll, pulled to left and departed runway into ploughed field.	Southery Airstrip, Norfolk	-	Oct-2009
Thruster T600N	Propeller detached during the climb. Forced landing in practice field.	Newtownards, County Down	-	Oct-2009
Quik GT450	Aircraft departed runway on landing and rolled on its side in a field.	Northrepps Airfield, nr Cromer, Norfolk,	-	Dec-2009
Skyranger 912(2)	On landing, aircraft bounced and turned over.	Sandown, Isle of Wight	2 minor	Dec-2009

5 Foreign registered aircraft

Table 55 Foreign-registered aircraft in UK airspace high severity events

Aircraft Type	Narrative	Location	Injuries	Date
Gazelle	Helicopter crashed while flying slowly at low level in gusty conditions.	Rudding Park, N Yorks	2 fatal	Jan-2008
B747	During crosswind landing, engine nacelles 1, 2 and 4 contacted the ground and one tyre burst.	Manchester Airport	-	Mar-2008
Cessna C501 Citation 1	Aircraft crashed into housing estate during attempted return to airport.	Biggin Hill, Kent	5 fatal	Mar-2008
Mcr-01	On approach to a small private landing field, the aircraft rolled left and crashed in the garden of a private house.	Highclere, Hants	1 serious	Apr-2008
Robin 400	Forced landing in field following engine run-down.	Llanfihangel Glyn Myfyr, Clwyd.	2 serious	Jul-2008
Mooney 20	Aircraft stalled just after take-off and crashed in crop field.	Garston Farm Airstrip, Wilts	-	Jul-2008
B767	Right-hand overwing escape slide separated during approach.	Marsh Green, Kent.	-	Aug-2008
Cirrus SR22	Engine lost power shortly after take-off and hit tree during forced landing.	Gloucester-Staverton Airport, Glos	1 serious, 1 minor	Nov-2008
CL600RJ Regional Jet	While an engineer was working in the nosewheel area, an explosion occurred and the engineer was seriously injured.	Manchester Airport	1 serious	Nov-2008
Piper PA28	Aircraft collided with trees in low cloud.	Steep, Nr Petersfield, Hants	2 fatal	Apr-2009
B757	MAYDAY declared due to smoke inside aircraft and nr1 engine shutdown. Oxygen masks donned by crew. Aircraft diverted and landed safely.	Gatwick Airport	-	Jun-2009
Glasair	Engine failed in flight due to a fuel contamination problem. Landed in a field.	Enniskilen, County Fermanagh	2 minor	Jul-2009
B737	Child fell from aircraft integral steps onto tarmac whilst boarding and sustained minor injuries.	Stansted Airport	1 minor	Jul-2009
Cessna C510 Citation Mustang	Wheels-up landing, aircraft scraped along runway before taking off again, subsequently landed safely.	Cambridge, Cambs	-	Aug-2009
Edge 540	Aircraft crashed during aerobatics display and was destroyed.	Silverstone, Northants	1 fatal	Aug-2009
DO 328	Left-hand engine low oil pressure warning during the climb. Right-hand engine low oil pressure then illuminated. Aircraft Diverted and landed safely.	Leuchars, Fife	-	Sep-2009
ATR 72	MAYDAY declared due to engine fire whilst parked on stand. Aircraft evacuated with fire service in attendance.	Manchester Airport	-	Sep-2009
Falcon 2000	During ground checks whilst taxi testing along the runway, tyre burst followed by brake fire.	Biggin Hill, Kent	-	Nov-2009
Piper PA30 Twin Comanche	Engine failed during flight so diversion initiated. Second engine then malfunctioned so aircraft ditched into the sea.	Irish Sea	1 minor	Dec-2009

Table 56 Foreign registered aircraft overseas high-severity events

Aircraft Type	Narrative	Location	Injuries	Date
BAE146	Aircraft became uncontrollable in strong winds during taxi-in. right-hand main landing gear collapsed and aircraft came to rest on right-hand side of taxiway.	Bucharest, Romania	-	Apr-2008
B737	Aircraft crashed during second approach in poor weather.	Perm, Russia	87 fatal	Sep-2008
Cirrus SR22	Aircraft descended to 3000ft for approach into Jersey then disappeared from radar. Believed to have ditched.	English Channel, 12nm N Cherbourg, France.	1 fatal	Nov-2008
B777	Power surge in right-hand engine on take-off. Take-off aborted.	Atlanta, United States of America	-	Jan-2009
BAE146	MAYDAY declared due to aileron/elevator control restriction and severe pitch down.	Dublin, Ireland	-	Jan-2009
Jetstream 31	Right-hand main landing gear collapsed during the landing roll.	Heraklion, Greece	-	Feb-2009
BAE146	All four engines flamed out during landing roll.	Cape Town, South Africa	-	Mar-2009
Microlight	Aircraft crashed into sea, possibly due to engine failure	In sea off coast of Republic of Korea	2 fatal	May-2009
Jetstream 32	Loss of power during take-off run. Left runway and hit a large object.	Salam, Afghanistan	-	Jun-2009
BN2a Trislander	Right-hand propeller and hub separated during initial climb, striking fuselage and removing passenger door. Aircraft returned.	Okiwi, Great Barrier Island, New Zealand	3 minor	Jul-2009
BN2 Islander	Emergency declared due to double engine failure. Aircraft ditched approximately 2nm from airport.	Simon Bolivar Airport, Venezuela	10 minor	Aug-2009
BAE ATP	Number 2 engine fire during take-off. Take-off aborted.	Porto Santo, Portugal	-	Aug-2009
Jetstream 41	Aircraft crashed shortly after take-off, following right-hand engine failure.	Durban, South Africa	1 fatal, 2 serious	Sep-2009
BN2 Islander	On approach, one engine failed. A/c lost altitude, ditched and sank.	Bonaire-Flamingo, Netherlands Antilles	1 fatal	Oct-2009
HS125	Aircraft crashed during go-around following second approach attempt.	Minsk, Belarus	5 fatal	Oct-2009
Jetstream 41	During take-off in wet and windy conditions, aircraft veered off runway. Came to rest 40m from side of runway with nose landing gear collapsed.	Port Elizabeth, South Africa	-	Nov-2009

Chapter 5 CAA MOR Scheme

1 Introduction

1.1 The majority of the data used in this review are sourced from the CAA's Mandatory Occurrence Reporting Scheme (MORS). The scheme was created in January 1976, with the aim of preventing accidents and incidents by ensuring that relevant safety information is reported, collected, stored, protected and disseminated throughout industry. The scheme requires UK aviation professionals and approved and licensed organisations to report to the CAA all incidents which endangered or, if not corrected, would have endangered an aircraft, its occupants or any other person.

1.2 In its first year the scheme received 5,500 reports. It now receives nearer 14,000 reports and is just one of many similar schemes across Europe. Further details regarding the MOR scheme are available in CAP382 – The Mandatory Occurrence Reporting Scheme[1].

1.3 The aim of this chapter is to examine reporting trends during the period 2000-2009, putting some of the trends shown in the previous chapters into context. It should be noted that the scope of the scheme was expanded in 2005 by EC directive 2003/42. The most notable changes in this expansion of scope were the inclusion of reporting from ground service providers and reporting of single engine failures on multiple-engine aircraft.

2 Total Mandatory Occurrence Reports

2.1 Over 109,000 MORS were received during the period 2000-2009, with the annual number of reports starting at approximately 9,600 in 2000 and finishing at nearly 14,000 in 2009, an increase of 45%. Figure 57 shows the annual number of reports received from 2000-2009.

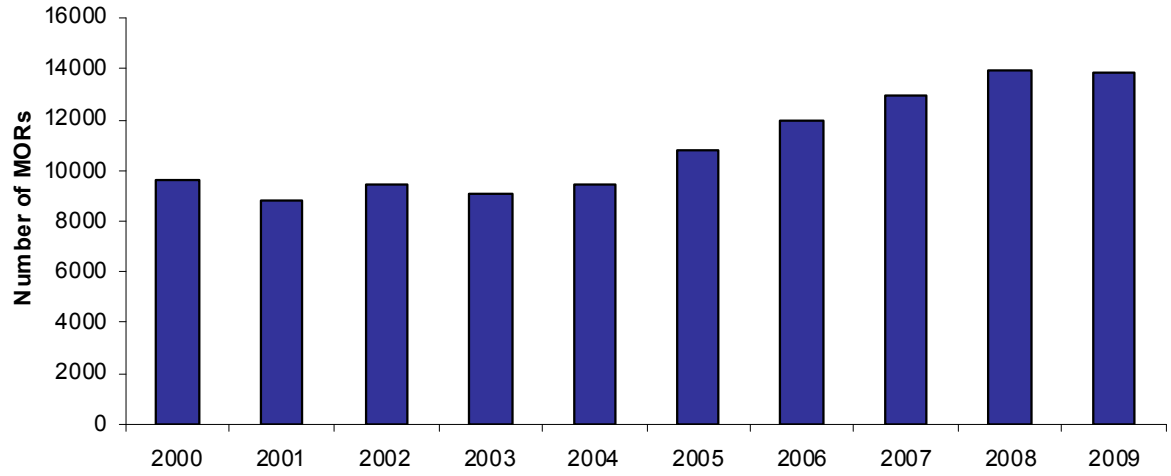

Figure 57 Total number of MORs received per year

1. http://www.caa.co.uk/CAP382

3 UK Mandatory Occurrence Reports

3.1 This section considers occurrences that involved UK-registered or operated aircraft, or that occurred in UK airspace. Occurrences that only involved military aircraft have been excluded.

3.2 There were approximately 86,900 grade A-D UK occurrences reported to the MOR scheme in the period 2000-2009. Figure 58 shows the number of reports received per year, divided by their severity grade. A rate of occurrence has been calculated using NATS "General Air Traffic" movements.

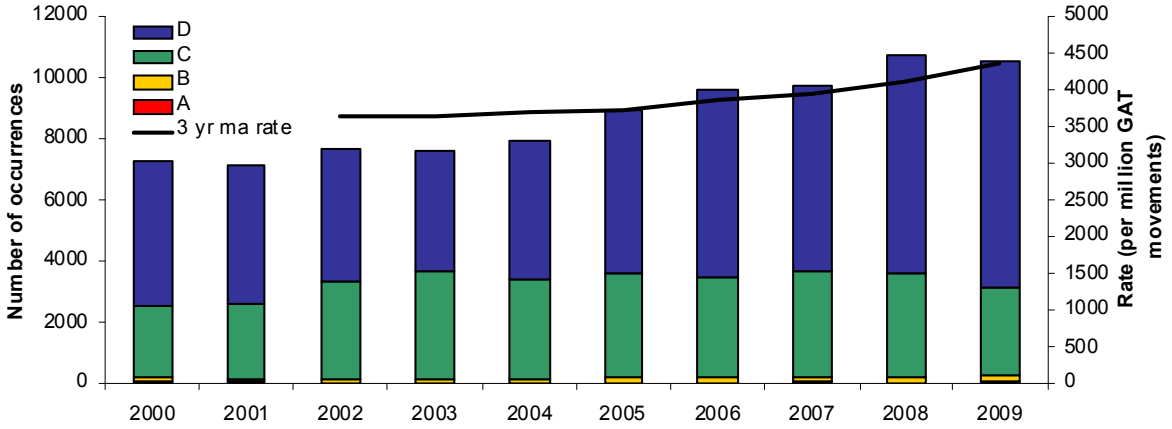

Figure 58 Number and rate of UK MORs per year

3.3 Approximately 1,500 UK occurrences were considered to be high-severity, corresponding to 1.7%. The scale of Figure 58 obscures the trend in high-severity (grade A or B) occurrences, therefore Figure 59 shows the number of high-severity occurrences without the more numerous grade C and D occurrences.

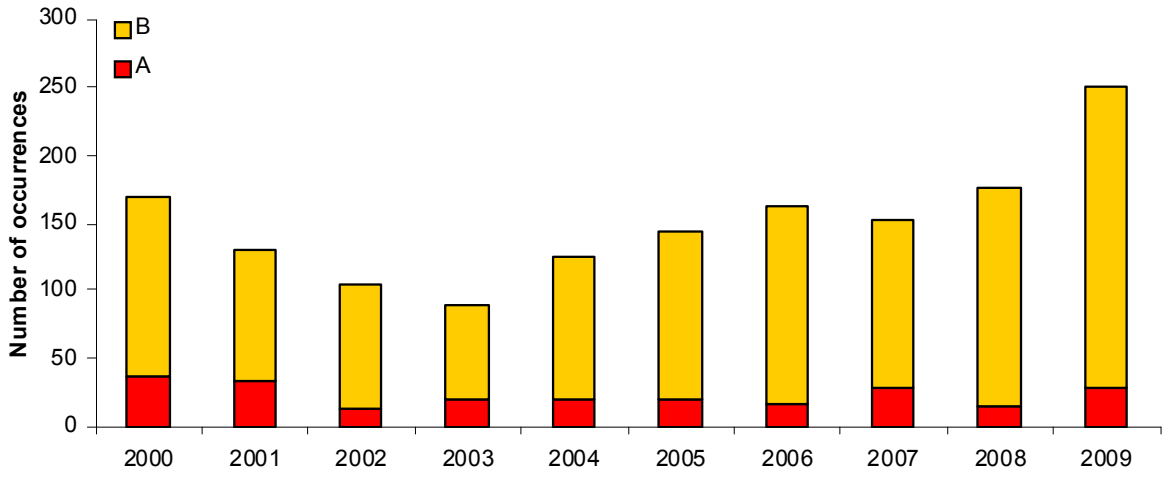

Figure 59 Number of high-severity UK occurrences per year

3.4 Figure 60 shows the rate of high-severity occurrences per year, along with a three-year moving average rate.

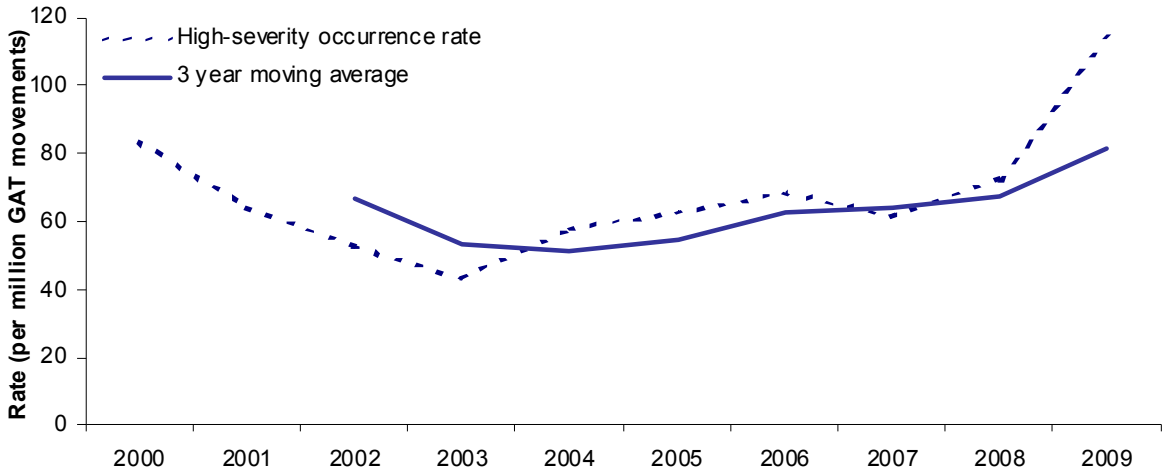

Figure 60 Rate of high-severity occurrences per million GAT movements

4 UK Reportable Accidents and Serious Incidents

4.1 Reportable accidents and serious incidents are classified as such by the UK Air Accidents Investigation Branch (AAIB), independently of the CAA. Definitions of a reportable accident and serious incident are available in Appendix 1. The reportable accidents analysed in this section only include occurrences that involved a UK-registered or operated aircraft or which occurred in UK airspace.

4.2 In the period 2000-2009, there were approximately 2,700 reportable accidents and 300 serious incidents. Figure 61 shows the annual number of reportable accidents and serious incidents in the period analysed.

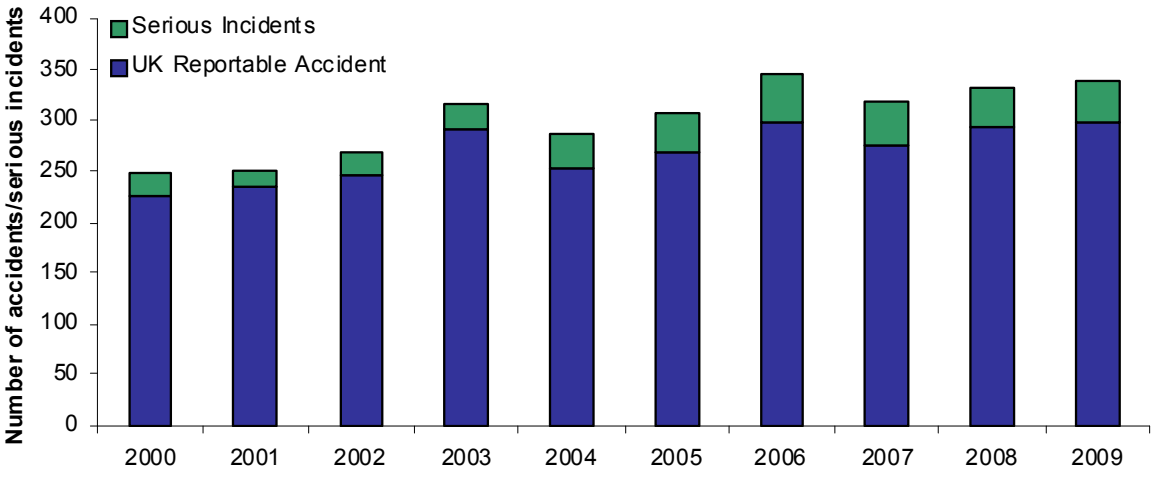

Figure 61 Number of reportable accidents and serious incidents per year

4.3 Figure 62 shows the rate of reportable accidents and serious incidents, along with a three-year moving average.

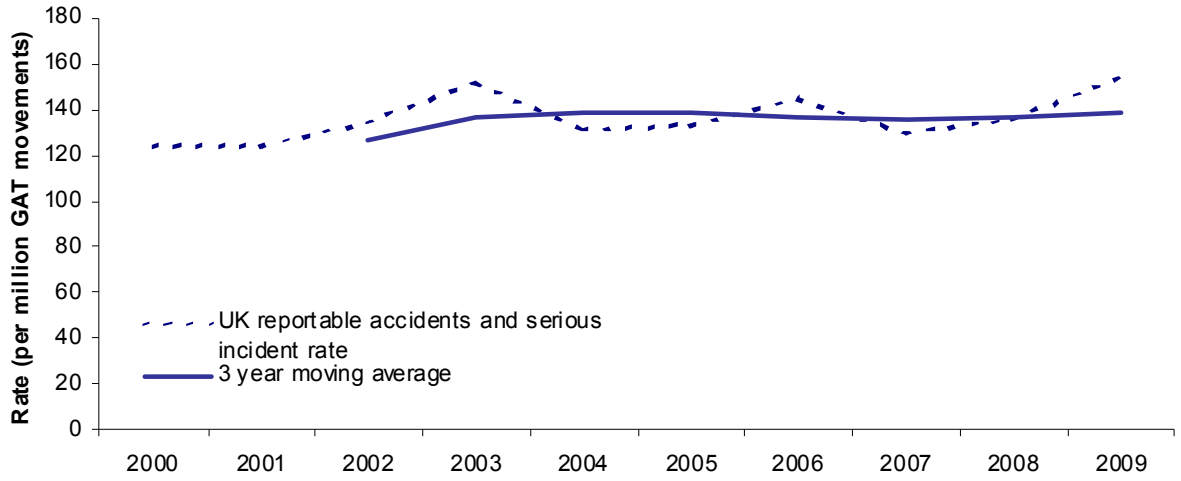

Figure 62 Rate of UK reportable accidents and serious incidents

Summary

1 Introduction

1.1 UK Safety Performance Vol. I provides an update to statistics presented previously in the Aviation Safety Review. Although the CAA does not provide its own conclusions within the document, it invites readers to do so. To aid this, a summary of each chapter's statistics is provided here.

1.2 If required, further information on UK safety performance can be obtained as follows: a selection of statistics on UK safety performance are available on the CAA website and are updated quarterly; Global statistics are presented in CAP 776 and CAP 780 and are due to be updated in 2011; the main safety concerns of the CAA and the safety planning process are discussed in both the Safety Plan and State Safety Programme.

2 Safety of UK Public Transport Aircraft Worldwide

Table 57 Summary statistics for UK Public Transport Aircraft Worldwide, 2000-2009

Large aeroplanes	Number of occurrences	49,000
	Number of reportable accidents	113
	Number of fatal accidents	3
	Number of serious incidents	179
	Reportable accident rate (per million flights)	9.8
	Fatal accident rate (per million flights)	0.3
Small aeroplanes	Number of occurrences	730
	Number of reportable accidents	16
	Number of fatal accidents	1
	Number of serious incidents	12
	Reportable accident rate (per million flights)	24.7
	Fatal accident rate (per million flights)	1.5
Helicopters	Number of occurrences	2,900
	Number of reportable accidents	22
	Number of fatal accidents	3
	Number of serious incidents	12
	Reportable accident rate (per million flights)	8.3
	Fatal accident rate (per million flights)	1.1
Balloons	Number of occurrences	102
	Number of reportable accidents	27
	Number of fatal accidents	0
	Number of serious incidents	0

3 Safety of UK Non-Public Transport Aircraft Worldwide

Table 58 Summary statistics for UK Non-Public Transport Aircraft Worldwide, 2000-2009

Large aeroplanes	Number of occurrences	6,500
	Number of reportable accidents	18
	Number of fatal accidents	1
	Number of serious incidents	20
Small aeroplanes	Number of reportable accidents	1400
	Number of fatal accidents	85
	Reportable accident rate (per million hours)	174.4
	Fatal accident rate (per million hours)	10.6
Small helicopters	Number of reportable accidents	202
	Number of fatal accidents	25
	Reportable accident rate (per million hours)	128.8
	Fatal accident rate (per million hours)	15.9
Airships	Number of reportable accidents	1
	Number of fatal accidents	0
Balloons	Number of reportable accidents	21
	Number of fatal accidents	0
Gliders	Number of reportable accidents	444
	Number of fatal accidents	32
	Reportable accident rate (per million hours)	322.4
	Fatal accident rate (per million hours)	23.2
Gyroplanes	Number of reportable accidents	32
	Number of fatal accidents	9
	Reportable accident rate (per million hours)	1422.4
	Fatal accident rate (per million hours)	400.0
Microlights	Number of reportable accidents	387
	Number of fatal accidents	20
	Reportable accident rate (per million hours)	347.0
	Fatal accident rate (per million hours)	17.9

4 Safety of UK Airspace and Aerodromes

Table 59 Summary statistics for UK airspace and aerodromes, 2000-2009

Foreign-registered aircraft in UK airspace	Number of occurrences	13,000
	Number of reportable accidents	199
	Number of fatal accidents	21
	Number of serious incidents	66
ATC occurrences in UK airspace	Number of occurrences	25,000
	High-severity occurrences	401
UK Aerodromes	Number of occurrences	6,400
	High-severity occurrences	48

5 UK Mandatory Occurrence Reporting Scheme

Table 60 Summary statistics for UK MOR scheme 2000-2009

Total MORs	109,000
UK MORs	86,900
High-severity UK occurrences	1500
UK Reportable Accidents	2700
UK Serious Incidents	300

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Appendix 1 Definitions

Abnormal Runway Contact

Any landing or take-off involving abnormal runway or landing surface contact. Events such as hard/heavy landings, long/fast landings, off center landings, crabbed landings, nose wheel first touchdown, tail strikes, and wingtip/nacelle strikes are included in this category.

(Source – CICTT)

Accident

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 suffers a fatal or serious injury as a result of:
   - being in or upon the aircraft;
   - 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, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin; or

c) the aircraft is missing or is completely inaccessible.

(Source – Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996)

Aerodrome

a) Any area of land or water designed, equipped, set apart or commonly used for affording facilities for the landing and departure of aircraft; and

b) includes any area or space, whether on the ground, on the roof of a building or elsewhere, which is designed, equipped or set apart for affording facilities for the landing and departure of aircraft capable of descending or climbing vertically; but

c) does not include any area the use of which for affording facilities for the landing and departure of aircraft has been abandoned and has not been resumed.

(Source – Air Navigation Order)

Aeroplane

An aeroplane is a (fixed wing) power-driven heavier than air aircraft. It includes landplanes, seaplanes, amphibians and self-launching motor gliders.

(Source – CAA)

Airborne Conflict

Aircraft in flight that are on converging headings, which if not corrected would result in a mid-air collision. Examples include airprox, losses of separation, altitude deviations, airspace infringements.

(Source – CAA)

Airline

Commercial air carrier carrying revenue paying passengers and cargo.

(Source – CAA, ERG)

Air taxi

Small airlines, none of whose aircraft capacities exceed 20 seats, or sole use charter flights utilising aircraft of less than 15 tonnes MTWA, i.e. small scale scheduled, charter and air taxi operations.

(Source – CAA, ERG)

Air Traffic Control Service

A service provided for the purpose of preventing collisions between aircraft, and, on the manoeuvring area, between aircraft and obstructions, and expediting and maintaining an orderly flow of air traffic.

(Source – ANO)

Air Transport Movement (ATM)

A landing or a take-off of aircraft engaged on the transport of passengers, cargo or mail on commercial terms. All scheduled movements, including those operated empty, loaded charter and air taxi movements are included.

(Source – CAA, ERG)

Airprox

A situation in which, in the opinion of a pilot or a controller, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved was or may have been compromised.

(Source – UK Airprox Board)

Cargo

Includes mail and animals.

(Source – ANO)

Controlled Airspace

Airspace which has been notified as Class A, Class B, Class C, Class D or Class E airspace.

(Source – ANO)

Emergency services

An aircraft being used for the purpose of police support, ambulance or search and rescue (SAR).

(Source – CAA)

Fatal accident

A reportable accident which results in fatal injury to any person in or upon the aircraft or by direct contact with any part of the aircraft, as defined in 'reportable accident'.

(Source – CAA)

Fatal injury

An injury which is sustained by a person in an accident and which results in his death within 30 days of the date of the accident.

(Source – ICAO)

Ground Conflict

A collision or near collision between an aircraft and another aircraft or vehicle during taxi to or from the runway.

(Source – CAA)

Incident

An occurrence, other than an accident, associated with the operation of an aircraft, which affects or would affect the safety of operation.

(Source – ICAO)

In-flight Fire/Smoke/Fumes

The presence during flight of a smoke, fumes or a fire. The nature of aircraft is such that it is often not possible to identify the source of the smoke or fumes, or differentiate between the two.

(Source – CAA)

Large Aeroplane

An aeroplane with a maximum total weight authorised that exceeds 5,700 kg.

(Source – CAA)

Minor injury

An injury, other than fatal or serious, which is sustained by a person in a reportable accident.

(Source – CAA)

Non-public transport

All operations by UK operators other than public transport (as defined) including aerial applications, aerial survey, construction work, line inspections, club and group, business and executive, commercial operations, test, training, positioning and private flying.

(Source – CAA)

Offshore

An aircraft being used for the purpose of carrying passengers or cargo to oil or gas platforms primarily in the North Sea or Irish Sea, or to drilling or support ships.

(Source – CAA)

Occurrence

Accidents, serious incidents and other incidents.

(Source – CAA)

Public transport

Operations involving transport of passengers and/or cargo, or other revenue services including police, ambulance and search and rescue flights.

(Source – CAA)

Ramp Incident

Any interaction between the aircraft and a ground service provider during the aircraft's time on the apron area. Examples include pushback and parking errors, collisions with ground equipment such as airstairs, inadequate or incorrect deicing of the aircraft and personnel approaching running engines.

(Source – CAA)

Reportable accident

See accident.

Runway Excursion

A veer-off or overrun of the runway surface.

(Source – CICTT)

Runway Incursion

The incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

(Source – ICAO)

Serious incident

An incident involving circumstances indicating that an accident nearly occurred.

(Source – Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996)

Serious injury

An injury which is sustained by a person in an accident and which:

a) requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received;

b) results in a fracture of any bone (except simple fractures of fingers, toes or nose);

c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage;

d) involves injury to any internal organ;

e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or

f) involves verified exposure to infectious substances or harmful radiation.

(Source – Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996)

Small Aeroplane

An aeroplane with a maximum total weight authorised that does not exceed 5,700 kg.

(Source – CAA)

Small Helicopter

A helicopter with a maximum total weight authorised that does not exceed 2,730 kg.

(Source – CAA)

State of registry

The State on whose register the aircraft is entered.

(Source – ICAO)

State of the operator

The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

(Source – ICAO)

Terrain Conflict

The CAA uses the CICTT definition of Controlled Flight Into Terrain (CFIT) for it's "Terrain Conflict" category, but uses a different name to avoid confusion with actual collisions with terrain. As such, terrain conflict is defined as:

In-flight collision or near collision with terrain, water, or obstacle without indication of loss of control

Where terrain includes those objects extending above the surface, for example, towers, trees, power lines, cable car support, transport wires, power cables, telephone lines and aerial masts.

(Source – CICTT)

Third party accident

An accident that involves injury to third parties only such as people on the ground, in another aircraft or vehicle.

(Source – CAA)

UK Airspace

The combined flight information regions EGTT, EGPX, EGGX

(Source – CAA)

UK Operated

An aircraft operated by the holder of a UK air operator certificate (AOC).

(Source – CAA)

UK Registered

An aircraft registered on the UK Aircraft Register - a list of all the civil aircraft registered in the UK. It contains details of the aircraft registration (UK registrations begin "G-"), the make, model and series of the aircraft, the manufacturer and current owner.

(Source – CAA)

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Appendix 2 Abbreviations

AAIB	UK Air Accidents Investigation Branch
AIP	Aeronautical Information Publication
ANO	Air Navigation Order
AOC	Air Operator's Certificate
ATC	Air Traffic Control
ATM	Air Transport Movement
ATS	Air Traffic Service
BBAC	British Balloon and Airship Club
BGA	British Gliding Association
BMAA	British Microlight Aircraft Association
CAA	UK Civil Aviation Authority
CAST	Commercial Aviation Safety Team
CICTT	CAST/ICAO Common Taxonomy Team
ERG	Economic Regulation Group
EU	European Union
GASIL	General Aviation Safety Information Leaflet
ICAO	International Civil Aviation Organisation
MOR	Mandatory Occurrence Report
MORS	Mandatory Occurrence Reporting Scheme
MTWA	Maximum Total Weight Authorised
SAR	Search And Rescue
UK	United Kingdom

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Appendix 3 Types of Occurrence

1 Introduction

1.1 There are various terminologies used in this document with respect to accidents and incidents. Although a definitions list is provided in Appendix 1, this appendix discusses the terms and origins of the data in more detail.

2 Background

2.1 In the 1930s H.W. Heinrich suggested that for every major injury accident there were approximately 30 minor injury accidents and 300 non-injury accidents. This information was presented as a pyramid, known as a Heinrich pyramid, with major injury accidents as the pinnacle and non-injury accidents at the base. Heinrich proposed that if the events at the bottom of the pyramid are identified and, where possible, corrected then the consequent effect would be the prevention of an event at the top of the pyramid. This concept is still used today and may be extended to include incidents and even unreported events as shown in figure A.3.1.

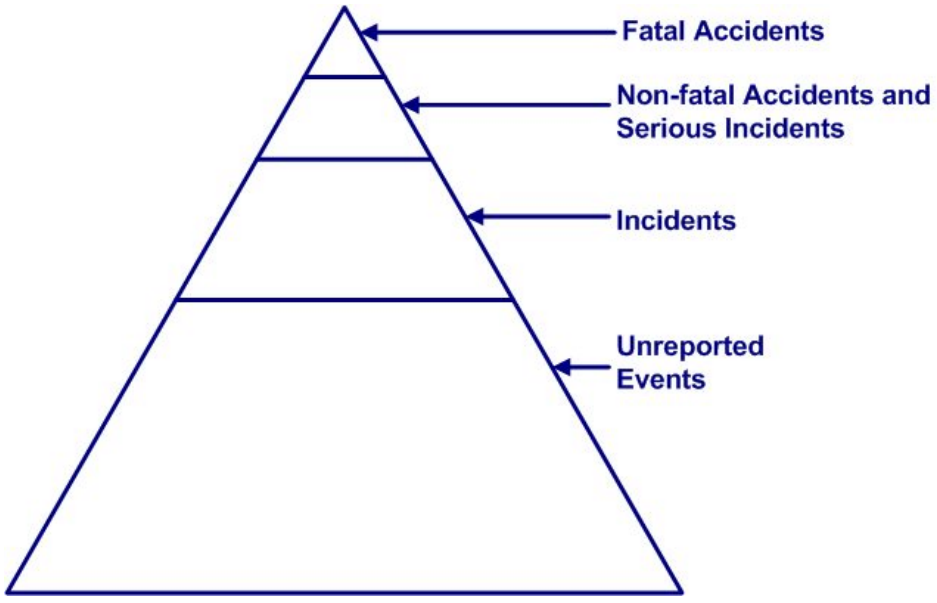

Figure A3.1 Heinrich pyramid

2.2 Within the UK, fatal accidents, non-fatal accidents, serious incidents and incidents are reported to the CAA through the Mandatory Occurrence Reporting (MOR) scheme. The Heinrich pyramid also suggests that there are a large number of events that remain unreported.

3 Data Types and Limitations

3.1 Occurrences

3.1.1 An occurrence is an umbrella term that covers both accidents and incidents. In this document, an occurrence can be a fatal accident, a non-fatal accident, a serious incident or an incident. All of these occurrences are reported through the CAA's MOR scheme.

3.1.2 The MOR scheme was established in 1976 with the objectives of ensuring that the CAA is advised of hazardous or potentially hazardous occurrences, to disseminate knowledge of these occurrences so that lessons can be learnt and to allow an assessment of the safety implications of each occurrence so that necessary action can be taken. The emphasis of the scheme is that the information reported to CAA should be used to improve flight safety and not to attribute blame.

3.1.3 In the UK, criteria for reportable occurrences has been established in law since 1976. The European Union (EU), recognising the value of such a scheme in helping improve safety, produced a European Directive[1] that, with some modifications, mandates the MOR scheme for all EU Member States. The Directive has been transposed into UK law and can be found in Article 226[2] of the Air Navigation Order (ANO) 2009.

3.1.4 The revised definition of a reportable occurrence from Article 226 of the ANO is as follows:

'occurrences which endanger or which, if not corrected, would endanger an aircraft, its occupants or any other person'

3.1.5 The types of persons required to report these occurrences are also outlined in Article 226. The amendments created by transposing the Directive into Article 226 of the ANO resulted in an expansion of the persons required to report to the MOR scheme. Personnel and companies performing ground-handling activities, such as re-fuelling or loading of the aircraft are now required by law to report occurrences to the CAA.

3.1.6 The definition of occurrence is necessarily subjective, given the complexity of the aviation industry. To assist reporters to the scheme, a list of examples is included in CAP 382[3], but it is not a comprehensive list and CAP 382 acknowledges this with the inclusion of the definition in 3.1.4. However, the CAA believe that the reporting culture in the UK is good and improving, hence the data can be used to assist industry and CAA to address safety issues. The subjectivity in the scheme also means that each dataset must be viewed in context. For example, an increase in the number of reports, either in general or related to a specific issue, may at first glance appear to be a sign of decreasing safety levels. However, it must be borne in mind that an increase may be as a result of an improved reporting culture or increased awareness of an issue, for example following a well-publicised occurrence, or by making the method of reporting significantly easier.

3.1.7 As with the UK MOR scheme, the Directive also encourages voluntary reporting outside the mandatory requirements. It is through this voluntary reporting that many high-severity occurrences involving general aviation (that are not accidents or serious incidents) come to light, thus allowing safety issues to be highlighted to GA pilots (for example through GASIL).

1. Directive 2003/42/EC of the European Parliament and of the Council on occurrence reporting in civil aviation
2. Can be viewed at www.legislation.gov.uk/uksi/2009/3015/contents/made
3. CAP 382 The Mandatory Occurrence Reporting Scheme – Information and Guidance (can be viewed at www.caa.co.uk/CAP382)

3.1.8 The Civil Aviation (Investigation of Accidents and Incidents) Regulations[1] require that accidents and serious incidents be reported to the Air Accidents Investigation Branch (AAIB). The AAIB can also elect to investigate an incident if it is felt to be appropriate. All occurrences reported to AAIB are forwarded to CAA for inclusion in the MOR database.

3.2 Accidents and Serious Incidents

3.2.1 Occurrences may be designated as accidents or serious incidents by the AAIB, and this designation is independent of the CAA. The definitions of accidents and serious incidents are the responsibility of ICAO and are published in Annex 13 to the Chicago Convention and incorporated into UK law in the UK Civil Aviation – Investigation of Air Accidents and Incidents – Regulations 1996.

3.2.2 The definition of a reportable accident in UK regulation, is taken from the definition of 'accident' in Annex 13, and is as follows:

'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 suffers a fatal or serious injury as a result of

- *being in or upon the aircraft*
- *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, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin; or

c) the aircraft is missing or is completely inaccessible.'

3.2.3 An aircraft occurrence is typically designated by the AAIB as being a reportable accident if, as a result, a person has been fatally or seriously injured and/or the aircraft has sustained significant damage. An additional case that is defined as an accident is an aircraft that is missing or completely inaccessible. In all cases, the aircraft must be in flight or in the process of being prepared for a flight at the time of the accident.

3.2.4 The scale of severity of an accident can range from a complete loss of the aircraft and all of those persons on board, to a more minor event, for example a ground collision between an aircraft and an aerodrome vehicle that results in damage to the aircraft but no injuries. This wide range of severity means that reportable accidents are not necessarily a good measure of safety, hence they cannot be used in isolation to compare, for example, the safety of two countries; it may be that one country has experienced many minor accidents while the other may have experienced a few catastrophic accidents.

1. Can be viewed at www.legislation.hmso.gov.uk/si/si1996/Uksi_19962798_en_1.htm

3.2.5 Note that the definition of an accident does not include intentional acts such as violence, sabotage, war or hijacking.

3.2.6 The definition of a serious incident is, out of necessity, more vague; it is an incident that nearly resulted in an accident. Examples of serious incidents are provided in Annex 13 and are as follows:

- *Near collisions requiring an avoidance manoeuvre to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate.*
- *Controlled flight into terrain only marginally avoided.*
- *Aborted take-offs on a closed or engaged runway, on a taxiway or unassigned runway.*
- *Take-offs from a closed or engaged runway, from a taxiway or unassigned runway.*
- *Landings or attempted landings on a closed or engaged runway, on a taxiway or unassigned runway.*
- *Gross failures to achieve predicted performance during take-off or initial climb.*
- *Fires and smoke in the passenger compartment, in cargo compartments or engine fires, even though such fires were extinguished by the use of extinguishing agents.*
- *Events requiring the emergency use of oxygen by the flight crew.*
- *Aircraft structural failures or engine disintegrations not classified as an accident.*
- *Multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft.*
- *Flight crew incapacitation in flight.*
- *Fuel quantity requiring the declaration of an emergency by the pilot.*
- *Runway incursions classified with severity A. The Manual on the Prevention of Runway Incursions (Doc 9870) contains information on the severity classifications.*
- *Take-off or landing incidents. Incidents such as undershooting, overrunning or running off the side of runways.*
- *System failures, weather phenomena, operations outside the approved flight envelope or other occurrences which could have caused difficulties controlling the aircraft.*
- *Failures of more than one system in a redundancy system mandatory for flight guidance and navigation.*

3.2.7 Although serious incidents are classed as near-accidents, they tend to be potential severe accidents more than potential minor accidents. An example of a serious incident could be a near collision with high ground, whereas a near collision with a vehicle on an aerodrome whilst taxiing would not be considered a serious incident.

3.3 Fatal accident, Fatalities and Serious injuries

3.3.1 Fatal accidents are a subset of reportable accidents. The definition of a fatal accident, derived from the definition of a reportable accident in UK regulation, transposed from Annex 13, is as follows:

A reportable accident which results in fatal injury to any person in or upon the aircraft or by direct contact with any part of the aircraft, as defined in 'reportable accident'.

3.3.2 The exceptions to the definition are when the fatal injury results from natural causes, is self inflicted or when the injury involves a stowaway hiding outside the areas normally available to passengers and crew.

3.3.3 A fatal injury is defined as an injury that results in death within 30 days of the accident. Fatal injuries are further sub-divided into onboard fatalities and third party fatalities. If the fatality occurs to persons outside the aircraft then these are treated as third party fatalities. This document counts all injuries to third parties separately to injuries of aircraft occupants.

3.3.4 Fatal accidents are a good measure of safety in that they are closely defined, which means that useful comparisons between different groups of accidents can be made. An alternative measure of safety is the number of fatalities, rather than fatal accidents, and this is particularly important in assessing the risk to the travelling public. However, it can be difficult to identify trends within fatal accident and fatality data as they are relatively rare occurrences and the resulting dataset can be small.

3.3.5 In addition to fatal injuries, serious injuries have their own specific definition. For an injury to be 'serious', a person must have been hospitalised for more than 48 hours (within 7 days of the accident), fractured major bones, suffered significant lacerations, suffered internal organ damage, received serious burns or been subject to exposure to infectious substances or significant radiation.

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Appendix 4 Occurrence Grading

1 Introduction

1.1 In 1998, the CAA established a system of grading the occurrences according to risk. As has been discussed in Appendix 3 – Types of Occurrence, a reportable accident is not necessarily an indication of the risks associated with the accident. Therefore a risk grading system was developed in order to provide better analysis of occurrences, allowing better management information within the CAA.

2 Occurrence Grading Criteria

2.1 The occurrence grading criteria are based on the severity of the occurrence and the likelihood of recurrence, creating an overall assessment of risk.

2.2 **Severity**

2.2.1 The severity of the occurrence is graded as described in Table 61:

Table 61 Occurrence grading severity categories

Severity	A (Severe)
	B (High)
	C (Medium)
	D (Low)
	E (Non-significant)

2.2.2 Occurrences are assessed for their severity when they first arrive with the MOR scheme. This initial assessment may be re-evaluated on receipt of supplementary information or following further investigation. The severity assessed is the *actual* severity of the occurrence, not the *potential* severity.

2.2.3 When assessing the severity of an occurrence, the criteria used depends on whether the occurrence is Air Traffic Management (ATM) related.

2.2.4 Non-ATM related occurrences are assessed in terms of the numbers of injuries that resulted, the ability to continue safe flight and landing and/or the effect on flight crew workload, aircraft strength/integrity, and/or aircraft performance/handling. For example, a severe (A) Non-ATM occurrence would be one where there was a catastrophic, or potentially catastrophic, event or an inability to continue safe flight and landing. All fatal accidents are considered to be severe and are graded as such.

2.2.5 ATM occurrences are assessed in terms of the proximity of the aircraft involved, the ability of the pilot/controller to correct the situation, the workload of the controllers and/or ATC system failures. For example, a severe (A) ATM occurrence would be one where there were aircraft in very close proximity or a mid-air collision.

2.2.6 Occurrences are assigned an occurrence grade 'E' if they are not considered reportable in accordance with the European Directive 2003/42 on occurrence reporting in civil aviation (copied in CAP 382) or if they are required to be reported for statistical purposes only e.g. PAN call made for an expeditious approach due to a passenger medical emergency on board, with no associated flight safety hazard.

2.2.7 For analysis purposes, occurrences are considered to be high severity events if they have been assigned an A or B grade.

2.3 Likelihood of Recurrence

2.3.1 The likelihood, or probability, of an event recurring is assessed using the three categories shown in Table 62:

Table 62 Occurrence grading probability categories

Probability	1 (High)
	2 (Medium)
	3 (Low)

2.3.2 When the severity has been assigned, the probability is then added, using the following criteria:

1 HIGH A significant number of similar incidents already on record. Has occurred several times to aircraft of the type or a significant number of times at the same location or involving the particular ground based system.

2 MEDIUM Several similar incidents on record, has occurred more than once to aircraft of the type or similar, or more than once at the same location, or more than once to similar ground based systems.

3 LOW Only very few similar incidents on record when considering a large fleet, or no records on a small fleet. No similar incidents on record when considering a particular location or ground based system.

2.4 Risk Grading

2.4.1 The severity and likelihood of recurrence are combined to create the following occurrence grading user matrix:

Table 63 Occurrence grading user matrix

SEVERITY	SEVERE A	**A1**	**A2**	**A3**
	HIGH B	**B1**	**B2**	**B3**
	MEDIUM C	**C1**	**C2**	**C3**
	LOW D	**D1**	**D2**	**D3**
		1 HIGH	2 MEDIUM	3 LOW
		PROBABILITY		

Appendix 5 Aeroplane Types

1 Introduction

1.1 Within the document a distinction is made between small aeroplanes and large aeroplanes. Small aeroplanes are defined to have a maximum total weight authorised (MTWA) not exceeding 5,700kg whereas large aeroplanes are defined as having an MTWA exceeding 5,700kg.

1.2 There are some aeroplanes where the weight of the original type did not exceed 5,700kg MTWA, but where subsequent series aeroplane have exceeded this weight, e.g. Bandeirante. For purposes of consistency, all series of the types have been included under the original weight limit.

1.3 It is not practical to list all the aeroplane types that are included within the document broken down as to whether they are considered 'large' or 'small' because the lists would be too large. However, it is possible to show those types typically used for public transport.

1.4 Table A5.1 shows public transport aeroplane types that have been considered 'large' for analysis purposes, by class of aeroplane.

Table A5.1 Large public transport aeroplane types

Jets		
Airbus A300	BAe (BAC) 111	Embraer RJ135
Airbus A310	BAe 146	Embraer RJ145
Airbus A318	Boeing 727	Embraer RJ170
Airbus A319	Boeing 737	Embraer RJ190
Airbus A320	Boeing 747	Fokker 100
Airbus A321	Boeing 757	Fokker 70
Airbus A330	Boeing 767	Lockheed L1011 Tristar
Airbus A340	Boeing 777	McDonnell-Douglas DC10
Avroliner RJ	Bombardier Regional Jet RJ700	McDonnell-Douglas MD-80
BAC/Aerospatiale Concorde	Bombardier Regional Jet RJ900	McDonnell-Douglas MD-90
Turboprops		
ATR 42	DHC-8 Dash 8	Fokker F27
ATR 72	Dornier 228	Lockheed L-188 Electra
BAe (H.P) Jetstream 31/32	Dornier 328	Saab 2000
BAe (HS) 748	Embraer 120	Saab Fairchild 340
BAe ATP	Fairchild SA-227 Metro III	Shorts SD330
BAe Jetstream 41	Fokker 50	Shorts SD360
Beech 1900		

Table A5.1 Large public transport aeroplane types (Continued)

Pistons		
Douglas DC3	Douglas DC6	Scottish Aviation Twin Pioneer
Business Jets		
Airbus A319 CJ	Cessna 560	Dassault Mystere-Falcon 2000
BAe (HS) 125	Cessna 650	Dassault Mystere-Falcon 50
Beech 400 Beechjet	Cessna 680	Dassault Mystere-Falcon 900
BD700 Global Express	Cessna 750	Gulf American Gulfstream IV
CL600 Challenger	Dassault Mystere-Falcon 10/100	Gulf American Gulfstream V
Cessna 550	Dassault Mystere-Falcon 20/200	Learjet

1.5 Table A5.2 shows public transport aeroplane types that have been considered 'small' for analysis purposes.

Table A5.2 Small public transport aeroplane types

Business jets		
Cessna 500	Cessna 525	Raytheon Premier 1
Turboprops		
Beech King Air	DHC-6 Twin Otter	Rockwell Turbo Commander
Beech Super King Air	Embraer EMB110 Bandeirante	
Cessna 441	Reims-Cessna 406	
Pistons		
Beech Baron 55/58	Cessna 337	Partenavia P68
Cessna 150	Cessna 340	Pilatus BN2 Islander
Cessna 152	Cessna 401	Pilatus BN Trislander
Cessna 172	Cessna 402	Pilatus PC12
Cessna 180	Cessna 404	Piper PA-23
Cessna 182	Cessna 411	Piper PA-28
Cessna 206	Cessna 414	Piper PA-31
Cessna 210	Cessna 421	Piper PA-32
Cessna 310	DH 104 Dove	Piper PA-34
Cessna 320	DHC-2 Beaver	Tiger Moth
Cessna 336	Dragon Rapide	

Appendix 6 UK Licensed Aerodromes

1 Introduction

1.1 This appendix provides a list of the aerodromes that were considered as UK licensed aerodromes for the purposes of this document. Since an aerodrome may operate as either licensed or unlicensed, the status of an aerodrome may change during the period covered by the analysis. For the purposes of consistency, only aerodromes that were licensed at the end of 2009 were included in the analysis presented in Chapter 3.

1.2 An up to date list of licensed aerodromes is available in the Aeronautical Information Service, provided by NATS and available online at http://www.nats-uk.ead-it.com/. The aerodrome index is provided in the integrated aeronautical information package and is updated every 28 days.

2 List of UK Licensed Aerodromes

Aberdeen/Dyce - EGPD
Alderney - EGJA
Andrewsfield - EGSL
Barra - EGPR
Barrow/Walney Island - EGNL
Beccles - EGSM
Bedford - EGBF
Belfast/Aldergrove - EGAA
Belfast/City - EGAC
Bembridge - EGHJ
Benbecula - EGPL
Beverley/Linley Hill - EGNY
Biggin Hill - EGKB
Birmingham - EGBB
Blackbushe - EGLK
Blackpool - EGNH
Bodmin - EGLA
Bournemouth - EGHH
Bristol - EGGD
Bristol Filton - EGTG
Caernarfon - EGCK
Cambridge - EGSC
Campbeltown - EGEC
Cardiff - EGFF
Carlisle - EGNC
Chalgrove - EGLJ
Chichester/Goodwood - EGHR
Clacton - EGSQ
Coll - EGEL
Colonsay - EGEY
Compton Abbas - EGHA
Coventry - EGBE
Cranfield - EGTC
Cumbernauld - EGPG
Denham - EGLD
Derby - EGBD
Doncaster Sheffield - EGCN
Dundee - EGPN
Dunkeswell - EGTU
Durham Tees Valley - EGNV
Duxford - EGSU
Earls Colne - EGSR
East Midlands - EGNX
Eday - EGED
Edinburgh - EGPH
Elstree - EGTR
Enniskillen/St Angelo - EGAB
Exeter - EGTE
Fair Isle - EGEF
Fairoaks - EGTF
Farnborough - EGLF
Fenland - EGCL
Glasgow - EGPF
Gloucestershire - EGBJ
Guernsey - EGJB
Haverfordwest - EGFE
Hawarden - EGNR
Hucknall - EGNA
Humberside - EGNJ
Inverness - EGPE
Islay - EGPI
Isle of Man - EGNS
Jersey - EGJJ
Kemble - EGBP
Kirkwall - EGPA
Lands End/St Just - EGHC
Lashenden/Headcorn - EGKH
Leeds Bradford - EGNM
Leicester - EGBG
Lerwick/Tingwall - EGET
Liverpool - EGGP
London/City - EGLC

London Gatwick - EGKK
London Heathrow - EGLL
London Luton - EGGW
London Stansted - EGSS
Londonderry/Eglinton - EGAE
Lydd - EGMD
Manchester - EGCC
Manchester/Barton - EGCB
Manchester Woodford - EGCD
Manston - EGMH
Netherthorpe - EGNF
Newcastle - EGNT
Newquay - EGHQ
Newtownards - EGAD
Northampton/Sywell - EGBK
Northolt - EGWU
North Ronaldsay - EGEN
Norwich - EGSH
Nottingham - EGBN
Oban - EGEO
Old Buckenham - EGSV
Old Sarum - EGLS
Oxford/Kidlington - EGTK
Panshanger - EGLG
Papa Westray - EGEP
Pembrey - EGFP
Perranporth - EGTP
Perth/Scone - EGPT
Peterborough/Conington - EGSF
Peterborough/Sibson - EGSP
Plymouth - EGHD
Prestwick - EGPK
Redhill - EGKR
Retford/Gamston - EGNE
Rochester - EGTO
Sanday - EGES
Sandtoft - EGCF
Scatsta - EGPM
Scilly Isles/St Mary's - EGHE
Sherburn-in-Elmet - EGCJ
Shobdon - EGBS
Shoreham - EGKA
Sleap - EGCV
Southampton - EGHI
Southend - EGMC
Stapleford - EGSG
Stornoway - EGPO
Stronsay - EGER
Sumburgh - EGPB
Swansea - EGFH
Tatenhill - EGBM
Thruxton - EGHO
Tiree - EGPU
Turweston - EGBT
Warton - EGNO
Wellesbourne Mountford - EGBW
Welshpool - EGCW
Westray - EGEW
West Wales/Aberporth - EGFA
White Waltham - EGLM
Wick - EGPC
Wickenby - EGNW
Wolverhampton - EGBO
Wycombe Air Park/Booker - EGTB
Yeovil/Westland - EGHG