

2019 Aviation Safety Review



UNITED KINGDOM CIVIL AVIATION AUTHORITY (UK CAA)



Civil Aviation
Authority



Documents

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Glossary

Name	Description
<i>AAIB</i>	Air Accidents Investigation Branch
<i>ACAS</i>	Airborne Collision Avoidance System
<i>AME</i>	Aeromedical Examiners
<i>AIRPROX</i>	A Situation in which the relative separation between aircraft as well as their relative positions and speeds were such that the safety of the aircraft involved may have been compromised.
<i>ANO</i>	Air Navigation Order
<i>ATC</i>	Air Traffic Control
<i>ATM</i>	Air Traffic Management
<i>BASP</i>	Business Aviation Safety Partnership
<i>BHA</i>	British Helicopter Association
<i>CAT</i>	Commercial Air Transport
<i>CHIRP</i>	Confidential Incident Reporting Program
<i>DfT</i>	Department for Transport
<i>DGP</i>	Dangerous Goods Panel
<i>EASA</i>	European Aviation Safety Agency
<i>ECCAIRS</i>	European Co-ordination Accident & Incident Reporting System
<i>EU376/2014</i>	Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation
<i>EU996/2010</i>	Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation
<i>GHOST</i>	Ground Handling Operations Safety Team

Name	Description
<i>HTAWS</i>	Helicopter Terrain Awareness and Warning System
<i>ICAO</i>	International Civil Aviation Organization
<i>IFR</i>	Instrument Flight Rules
<i>MAC</i>	Mid-Air Collision
<i>MOR</i>	Mandatory Occurrence Report
<i>OHSAG</i>	Offshore Helicopter Safety Action Group
<i>PART-NCC</i>	Non-commercial flights in complex motor-powered aircraft (European Regulation)
<i>PART-SPO</i>	Specialised Operations (European Regulation)
<i>PBO</i>	Performance Based Oversight
<i>PED</i>	Portable Electronic Device
<i>SUAS</i>	Small Unmanned Air System
<i>SME</i>	Subject Matter Expert
<i>UA</i>	Unmanned Aircraft. See also SUAS
<i>UK CAA</i>	United Kingdom Civil Aviation Authority
<i>UKLWG</i>	UK Laser Working Group
<i>VFR</i>	Visual Flight Rules
<i>Whistleblower</i>	Protected disclosures made by persons to the UK CAA regarding potentially unsafe practice, policies or events.

Welcome To Our Aviation Safety Review 2019

Welcome and Introduction

Welcome to the United Kingdom (UK) Aviation Safety Review for 2019.

This review has been published annually since 2016 and is intended to provide the general public and industry with a summary of occurrences reported to the UK Civil Aviation Authority (UK CAA). It contains key statistics and analysis prepared by our subject matter experts.

The UK is home to a diverse aviation environment that represents a number of different aviation activities from large commercial aviation operations to unmanned aircraft and everything in between. As a collective we represent pilots, air traffic controllers and engineers from all backgrounds and experience levels who work with us daily to ensure we are a proportionate and just regulator that works to provide a safe and transparent regulatory framework.

We continue to be extremely grateful to our aviation industry for the information and insights provided to us. It is through this ongoing collaboration and communication that we can achieve our goal of a safe aviation system for everyone in the UK and every UK citizen across the world.

If you would like to read more about our work please visit our publications page on our [website](#).

Why publish an annual safety review?

European Regulation No. 376/2014 details the regulatory requirements relating to the reporting, analysis and follow up of occurrences for each EASA member state. Article 13 Paragraph 11 states that each member state shall publish a safety review at least once a year, with the overarching objective being to inform the public of the level of aviation safety. The UK CAA published its first annual safety review in 2016 and is now in its fourth version.

We very much hope that you find this report to be informative and interesting. Should you have any additional questions or require any additional information, please contact us:

Safety.Intelligence@caa.co.uk

Thank you for reading our 2019 Aviation Safety Review.



In Brief: UK Aviation Safety

2019

Total Reported Occurrences

3 0 7 7 9

High Severity

Fatal Injury
Accidents

Fatalities

381

Occurrences
Reported

12

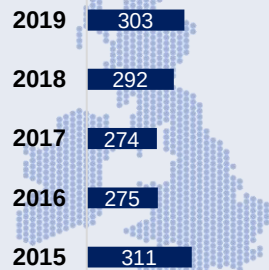
Fatal accidents

11 GA Fatal
Accidents

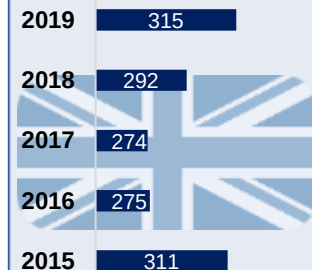
21

Fatalities

High Severity
Occurrences in the UK



High Severity Occurrences
involving UK Aircraft



High Severity Occurrences involving UK Aircraft
Operating Overseas & Top 5 States

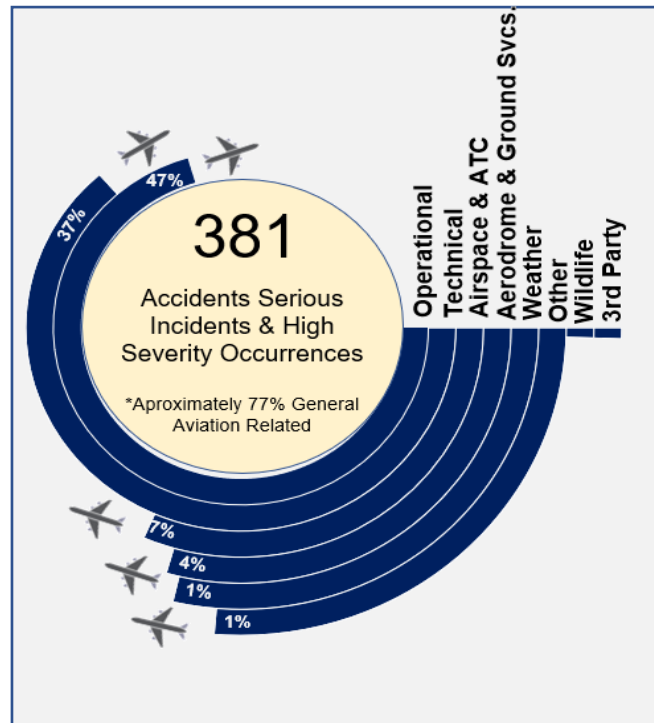
Occurrences	2019	2015-19
40 Occurrences 2019		
	France	5
	Spain	5
163 Occurrences 2015-19	Portugal	4
	Netherlands	4
	Ireland	4

High Severity Occurrences by Aviation Sector (January 2015- December 2019)

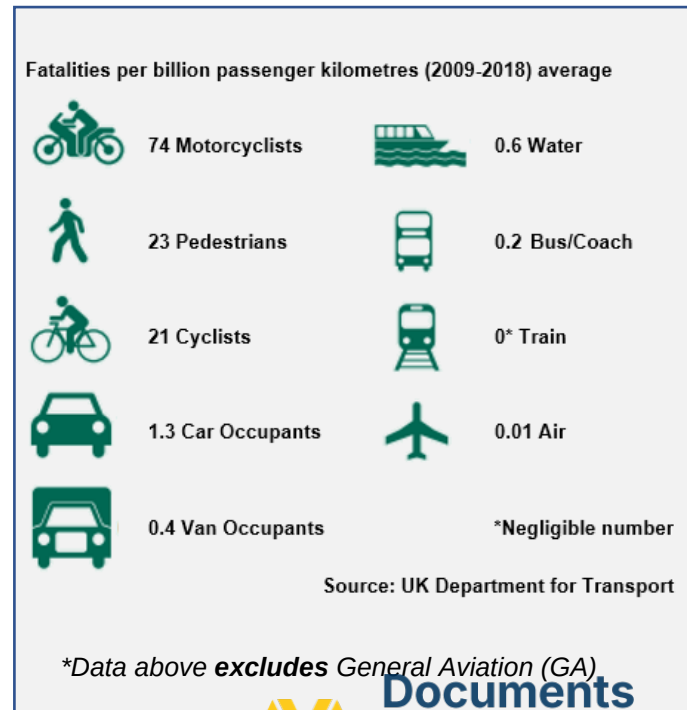
2019	82	8	3	3	31	7	1	262
2015-19	319	39	10	9	85	17	13	1264
Yearly Average	64	8	2	2	17	3	3	253
	Large Commercial	Small Commercial/Business	Specialised Operations	Emergency Services	Unmanned Aircraft	Onshore Helicopter	Offshore Helicopter	General Aviation

*Categories are not mutually exclusive as occurrences may involve multiple aircraft types

High Severity Occurrences by Occurrence Area (2019)



Passenger Fatality Rates by Transport Mode (2018)



*Data above excludes General Aviation (GA)

UK Aviation Sector Summary

Large Commercial Aeroplanes	Total Occurrences 26,181 in 2019 Compared to 27,177 in 2018	High Severity 82 in 2019 Compared to 71 in 2018	Total Aircraft 20 Thousand (UK Registered Aircraft)	Total Occurrences 1,113 in 2019 Compared to 1,083 in 2018	Small Commercial & Business Aviation	High Severity 8 in 2019 Compared to 5 in 2018
Offshore Helicopters	Total Occurrences 463 in 2019 Compared to 436 in 2018	High Severity 1 in 2019 Compared to 6 in 2018	Total Flights 2.3 Million Movements (Arrivals and Departures recorded by commercial air carriers)	Total Occurrences 224 in 2019 Compared to 102 in 2018	Onshore Helicopters	High Severity 7 in 2019 Compared to 4 in 2018
General Aviation*	Total Occurrences 3,128 in 2019 Compared to 2,883 in 2018	High Severity 262 in 2019 Compared to 232 in 2018	Total Flight Hours Circa. 3.0 Million Flight Hours (Operated by UK Registered Aircraft)	Total Occurrences 433 in 2019 Compared to 388 in 2018	Emergency Services	High Severity 3 in 2019 Compared to 4 in 2018
Unmanned Aircraft	Total Occurrences 550 in 2019 Compared to 573 in 2018	High Severity 31 in 2019 Compared to 25 in 2018	Avg. Fleet Age 31 Years 17 Years excluding GA Aircraft (Average GA Aircraft Age: 32 Years)	Total Occurrences 168 in 2019 Compared to 168 in 2018	Specialised Operations	High Severity 3 in 2019 Compared to 2 in 2018

*General Aviation Aircraft defined as any fixed wing aeroplane with an MTOW <5,701kg, any helicopter with and MTOW <3,175kg, any ultralight/microlight/gyroplane or glider and any ex-military aircraft registered in the UK.

Full document details: UKCAA CAP2240 2021



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Large Commercial Aeroplanes

Large Commercial Aeroplanes in Brief

What kind of aircraft are these?

- Large commercial aeroplanes are any fixed wing aircraft with a maximum take-off weight greater than 5,701kg operated for commercial purposes.
- In simple terms these are the kinds of aircraft you are likely to see operating into airports like London Heathrow.
- As of 2019 there were approximately 1,000 large commercial aeroplanes operating in the UK for an AOC holder; collectively large commercial aeroplanes operated more than 2.3 million movements in and out of the UK.

Summary of Safety Performance

- 82 high severity occurrence reports relating to large commercial aircraft were received by the UK CAA during 2019.
- 38% (31) of these reports were related to operational issues brought about by factors associated with human performance.
- 30% (25) of reports were associated with technical failures or defects on the aircraft brought about by equipment failure or equipment not being maintained to a degree that would have prevented the failure from occurring.
- During 2019 there were no fatalities to either aircraft occupants or third parties associated with a UK registered large commercial aeroplane or a large commercial aeroplane operating in the UK.
- For the period between 2015-19 the UK CAA received 326 high severity reports, a yearly average of 64.

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	130	31	- Flight crew illness/incapacitation - Incorrect Take-off performance calculations - Unstable approach continuing to land	- Departure from runway intersections - Human performance limitations - Weather conditions impacting aircraft controllability during landing/go arounds
 TECHNICAL	99	25	- Smoke or fumes detected in the aircraft during flight - Instrumentation error or failure - Cabin pressurisation failure	- Maintenance errors, maintenance procedures not followed - Manufacturing error with component - Damage to component
 AIRSPACE & ATC	54	13	- AIRPROX with Unmanned Aircraft (UA) - AIRPROX with other CAT aircraft - Aircraft misrouted into conflict with other aircraft	- Unmanned aircraft flown into conflict with CAT aircraft. - Flight crew not following ATC instructions. - ATC issued instruction to incorrect aircraft.
 AERODROME & GROUND SERVICES	14	10	- Aircraft struck by ground vehicle - Aircraft damaged during push back - Aircraft struck object during push back or taxi	- Aircraft pushed back into perimeter fence - Ground vehicle operator misjudged aircraft position - Miscommunication or poor visibility of the aircraft during pushback - Vehicle cleared to enter runway in conflict with aircraft on approach
 WEATHER	16	2	- Crew or Passenger injury during turbulence - Aircraft component failure or in operation - Aircraft diversion	- Crew or passengers not secured during turbulence or loose objects not secured - Ice causing components to not function or loss of lift due to ice build-up - Diversion due to arrival aerodrome closed or not suitable for safe landing
 3 rd PARTY	2	1	- Aircraft return following laser interference during take-off, resulting in-flight crew temporary incapacitation - Weather balloon encounter	Inadvertent, unsafe or Illegal operation of a laser
 WILDLIFE	2	--	- Birdstrike resulting in damage to aircraft or engines - Aircraft upset/loss of control during landing - Aircraft return from flight following birdstrike/bird encounter	- Ineffective wildlife management - Seasonal migration of birds
 OWNER & USER INVESTIGATION	2	--	- Aircraft ground collision - Runway safety event	- Pilot Situational Awareness - Ground handling procedures

What and Why information presented above should be read independently of on another.

Small Commercial and Business Aviation

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	11	2	- Runway Excursion on take-off/landing - Aircraft attempted to land at incorrect aerodrome	- Mishandling of the aircraft after landing - Human Error - Miscommunication between flight crew and ATC
 TECHNICAL	20	4	- Landing gear fault - Cabin pressurisation system failure	- Aircraft electrical or hydraulic failure - Burst tyre on landing - General component failure
 AIRSPACE & ATC	7	2	AIRPROX in Class G airspace	- Unmanned Aircraft flown into conflict with other aircraft. - General Aviation Aircraft flown into conflict with other aircraft
 AERODROME & GROUND SERVICES	1	--	Aircraft struck nose of stationary aircraft.	Aircraft marshals and wing walkers misjudged wing clearance of manoeuvring aircraft
 WEATHER	--	--		
 3 rd PARTY	--	--		
 WILDLIFE	--	--		
 OTHER & UNDER INVESTIGATION	--	--		

What and Why information presented above should be read independently of on another

Small Commercial and Business Aviation in Brief

What kind of aircraft are these?

- Small commercial aeroplanes are considered to be any fixed wing aircraft with a maximum take-off weight less than 5,701kg being operated for commercial purposes or corporate/business travel.
- In simple terms these are smaller aircraft operating short passenger flights or business aircraft (e.g. corporate jets).

Summary of Safety Performance

- 8 high severity occurrence reports relating to small commercial or business aviation aircraft were received by the UK CAA during 2019.
- 25% (2) of these reports were related to AIRPROX occurrences where aircraft had operated in conflict with each other in uncontrolled airspace (Class G).
- 25% (2) of these reports were associated with operational issues related to human performance or decision making.
- During 2019 there were no fatalities to either aircraft occupants or third parties associated with small commercial or business aviation aircraft either registered or operating in the UK.
- For the period between 2015-19 the UK CAA received 39 high severity reports, a yearly average of 8.

Offshore Helicopters

Offshore Helicopters in Brief

What kind of aircraft are these?

- Offshore helicopters are rotary wing aircraft that are operated in support of offshore operations including oil and gas exploration activities.
- Many of these flights are carrying oil and gas workers as well as essential supplies to remote locations offshore (e.g. the North Sea).

Summary of Safety Performance

- There was 1 high severity occurrence reported to the UK CAA involving an offshore helicopter during 2019.
- During the last five years the UK CAA have received 13 high severity occurrence reports related to offshore operations.
- No fatalities were reported to have been sustained by aircraft occupants or third parties related to the operation of an offshore helicopter during 2019.

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	5	--	• Aircraft landed or attempted to land on incorrect helideck • Flight crew incapacitation or impairment	• Transition from electronic navigation to visual flight for landing • Short time between take-off landings; reduced thinking time for crew
 TECHNICAL	5	--	• Landing gear collapse • Loss of rotor authority	• Gearbox component failure • Bearing, fastening or other component failure
 AIRSPACE & ATC	2	1	• AIRPROX with Military aircraft • AIRPROX with small CAT aircraft	• Delay in adhering to deconfliction instructions issued by ATC • Situational awareness and tactical planning
 AIRPROX & GROUND SERVICES	--	--		
 WEATHER	1	--	• Loss of situational awareness in low visibility	• Visual reference points lost during low visibility flight at night
 3 rd PARTY	--	--		
 WILDLIFE	--	--		
 OTHER & UNDER INVESTIGATION	--	--		

What and Why information presented above should be read independently of one another