

2019 Aviation Safety Review



UNITED KINGDOM CIVIL AVIATION AUTHORITY (UK CAA)



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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

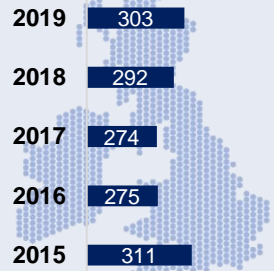
12

Fatal accidents
11 GA Fatal
Accidents

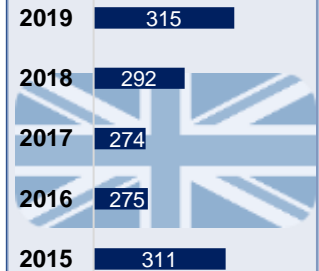
21

Fatalities

High Severity
Occurrences in the UK



High Severity Occurrences
involving UK Aircraft



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

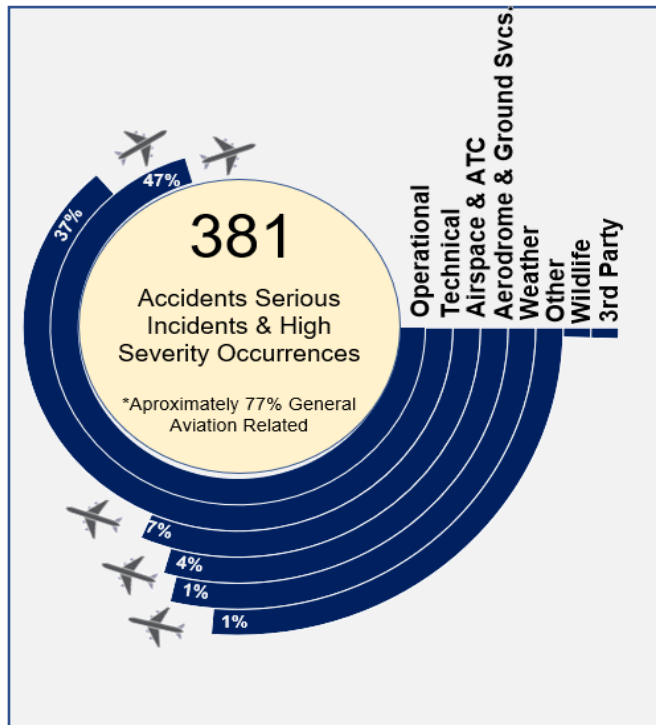
Occurrences		2019	2015-19
40	France	5	29
Occurrences 2019	Spain	5	20
163	Portugal	4	11
Occurrences 2015-19	Netherlands	4	10
	Ireland	4	22

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

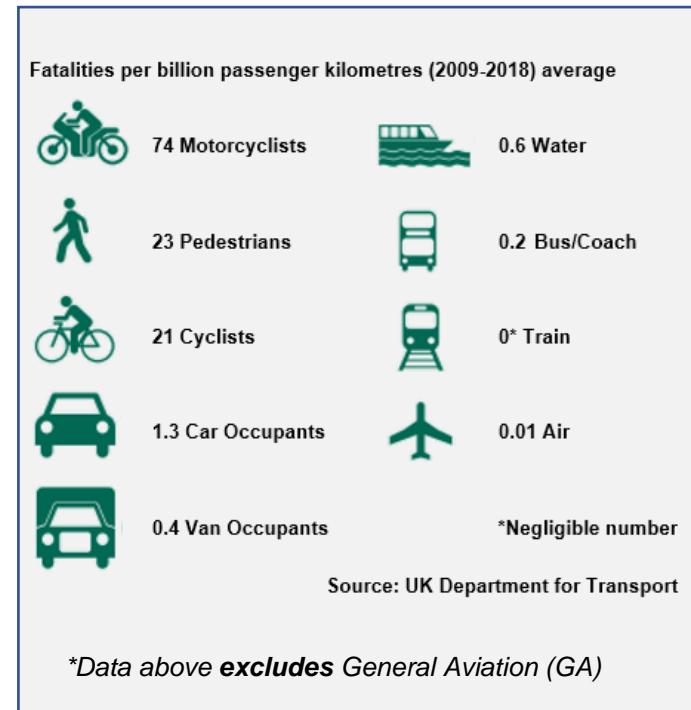
	Large Commercial	Small Commercial/ Business	Specialised Operations	Emergency Services	Unmanned Aircraft	Onshore Helicopter	Offshore Helicopter	General Aviation
2019	82	8	3	3	31	7	1	262
2015-19	319	39	10	9	85	17	13	1264
Yearly Average	64	8	2	2	17	3	3	253

*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)



*Occurrence categorisations are subject to change as new information becomes available

UK Aviation Sector Summary

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

*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.

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	<ul style="list-style-type: none"> • Flight crew illness/incapacitation • Incorrect Take-off performance calculations • Unstable approach continuing to land 	<ul style="list-style-type: none"> • Departure from runway intersections • Human performance limitations • Weather conditions impacting aircraft controllability during landing/go arounds
 TECHNICAL	99	25	<ul style="list-style-type: none"> • Smoke or fumes detected in the aircraft during flight • Instrumentation error or failure • Cabin pressurisation failure 	<ul style="list-style-type: none"> • Maintenance errors, maintenance procedures not followed • Manufacturing error with component • Damage to component
 AIRSPACE & ATC	54	13	<ul style="list-style-type: none"> • AIRPROX with Unmanned Aircraft (UA) • AIRPROX with other CAT aircraft • Aircraft misrouted into conflict with other aircraft 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Aircraft struck by ground vehicle • Aircraft damaged during push back • Aircraft struck object during push back or taxi 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Crew or Passenger injury during turbulence • Aircraft component failure or in operation • Aircraft diversion 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Aircraft return following laser interference during take-off, resulting in-flight crew temporary incapacitation • Weather balloon encounter 	<ul style="list-style-type: none"> • Inadvertent, unsafe or illegal operation of a laser
 WILDLIFE	2	--	<ul style="list-style-type: none"> • Birdstrike resulting in damage to aircraft or engines • Aircraft upset/loss of control during landing • Aircraft return from flight following birdstrike/bird encounter 	<ul style="list-style-type: none"> • Ineffective wildlife management • Seasonal migration of birds
 CREW & CABIN INVESTIGATION	2	--	<ul style="list-style-type: none"> • Aircraft ground collision • Runway safety event 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> Runway Excursion on take-off/landing Aircraft attempted to land at incorrect aerodrome 	<ul style="list-style-type: none"> Mishandling of the aircraft after landing Human Error Miscommunication between flight crew and ATC
 TECHNICAL	20	4	<ul style="list-style-type: none"> Landing gear fault Cabin pressurisation system failure 	<ul style="list-style-type: none"> Aircraft electrical or hydraulic failure Burst tyre on landing General component failure
 AIRSPACE & ATC	7	2	<ul style="list-style-type: none"> AIRPROX in Class G airspace 	<ul style="list-style-type: none"> Unmanned Aircraft flown into conflict with other aircraft. General Aviation Aircraft flown into conflict with other aircraft
 AERODROME & GROUND SERVICES	1	--	<ul style="list-style-type: none"> Aircraft struck nose of stationary aircraft. 	<ul style="list-style-type: none"> 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	--	<ul style="list-style-type: none"> • Aircraft landed or attempted to land on incorrect helideck • Flight crew incapacitation or impairment 	<ul style="list-style-type: none"> • Transition from electronic navigation to visual flight for landing • Short time between take-off landings; reduced thinking time for crew
 TECHNICAL	5	--	<ul style="list-style-type: none"> • Landing gear collapse • Loss of rotor authority 	<ul style="list-style-type: none"> • Gearbox component failure • Bearing, fastening or other component failure
 AIRSPACE & ATC	2	1	<ul style="list-style-type: none"> • AIRPROX with Military aircraft • AIRPROX with small CAT aircraft 	<ul style="list-style-type: none"> • Delay in adhering to deconfliction instructions issued by ATC • Situational awareness and tactical planning
 AIRCRAFT & GROUND SERVICES	--	--		
 WEATHER	1	--	<ul style="list-style-type: none"> • Loss of situational awareness in low visibility 	<ul style="list-style-type: none"> • 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 on another

Onshore Helicopters

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	7	3	<ul style="list-style-type: none"> Loss of control after take-off Aircraft collided with electricity cables 	<ul style="list-style-type: none"> Lack of awareness of prevailing wind conditions Pilot distraction/disorientation
 TECHNICAL	5	2	<ul style="list-style-type: none"> Failure of control surface or system. Detachment of component in flight 	<ul style="list-style-type: none"> Component re-installed incorrectly Component failure
 AIRSPACE & ATC	4	2	<ul style="list-style-type: none"> AIRPROX with Military aircraft AIRPROX with small CAT aircraft 	<ul style="list-style-type: none"> Delay in adhering to deconfliction instructions issued by ATC Situational awareness and tactical planning
 AERODROME & GROUND SERVICES	--	--		
 WEATHER	--	--		
 3 rd PARTY	--	--		
 WILDLIFE	1	--	<ul style="list-style-type: none"> Birdstrike during approach 	
 OTHER & UNSEEN INVESTIGATION	--	--		

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

Onshore Helicopters in Brief

What kind of aircraft are these?

- Onshore helicopter operations support the transportation of people and goods across the UK.
- Perhaps the most common type of work undertaken by onshore helicopters is the movement of people for the purposes of business or private travel.

Summary of Safety Performance

- There were 7 high severity occurrences related to onshore helicopters reported to the UK CAA during 2019.
- 43% (3) of occurrences reported in 2019 were related to operational issues brought about by pilot distraction or loss of control.
- There were no fatalities reported to the UK CAA involving an onshore helicopter either registered or operating in the UK.
- The last recorded fatal injury reported to the UK CAA occurred in October 2018 in Leicester, resulting in five fatalities to the aircraft occupants.
- There were 17 high severity occurrences reported to the UK CAA between 2015-2019, and average of 3 per year.

In November 2019 the UK CAA completed a review of onshore Helicopters published as CAP1864, the document can be found on our [website](#).

Emergency Services









Emergency Services in Brief

What kind of aircraft are these?

- Emergency service aircraft comprise of both fixed and rotary wing aircraft (e.g. aeroplanes and helicopters) and unmanned aircraft (UA) that are operated by entities including the police and air ambulance.
- Perhaps the most widely observed use of these aircraft are police and Air Ambulance helicopters. However, these aircraft also operate Search and Rescue and Coast Guard services and play a critical role in ensuring the safety and security of UK residents.









Summary of Safety Performance

- There were 3 high severity occurrences reported to the UK CAA involving Emergency Services aircraft during 2019.
- Between 2015-2019 9 high severity occurrences involving emergency services aircraft were reported to the UK CAA, an average of 2 per year.
- All the high severity occurrences reported involving emergency services aircraft during 2019 were related to technical issues with aircraft components or occurrences where components of the aircraft detached in flight.
- During 2019 there were no fatalities caused by an occurrence related to the operation of an emergency services aircraft to either the aircraft occupants or third parties.

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	3	--	<ul style="list-style-type: none"> • Aircraft landed at closed airfield • Aircraft fouled cable during landing 	<ul style="list-style-type: none"> • Precautionary diversion • Loss of situational awareness during night operations
 TECHNICAL	4	3	<ul style="list-style-type: none"> • Component detachment in flight • Failure of flight critical component in flight 	<ul style="list-style-type: none"> • Cyclic control failure during flight. • Component failure during flight (fixings)
 AIRSPACE & ATC	1	--	<ul style="list-style-type: none"> • AIRPROX with General Aviation aircraft 	<ul style="list-style-type: none"> • General Aviation aircraft flown into conflict with Emergency Services aircraft
 AERODROME & GROUND SERVICES	--	--		
 WEATHER	1	--	<ul style="list-style-type: none"> • Pilot disorientation in Instrument Metrological Conditions (IMC) 	<ul style="list-style-type: none"> • Pilot operating in low cloud during rescue mission
 3 rd PARTY	--	--		
 WILDLIFE	--	--		
 OTHER & UNDER INVESTIGATION	--	--		

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

Specialised Operations

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	4	2	<ul style="list-style-type: none"> Aircraft lost control during approach Parked aircraft affected by helicopter downwash 	<ul style="list-style-type: none"> Aircraft encountered unstable air caused by proceeding aircraft Helicopter parked too close to another parked aircraft.
 TECHNICAL	2	--	<ul style="list-style-type: none"> Smoke in cockpit Canopy detached during flight Powerplant failure Landing gear collapse 	<ul style="list-style-type: none"> Component failure (fixings) Electrical component failure
 AIRSPACE & ATC	4	1	<ul style="list-style-type: none"> AIRPROX with General Aviation aircraft in class G airspace 	<ul style="list-style-type: none"> Reduced visibility impacting on pilot's ability to maintain visual separation Pilot not reacting to traffic information
 AERODROME & GROUND SERVICES	--	--		
 WEATHER	--	--		
 3 rd PARTY	--	--		
 WILDLIFE	--	--		
 OTHER & UNDER INVESTIGATION	--	--		

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

Specialised Operations in Brief

What kind of aircraft are these?

- Specialised operations aircraft can be either fixed or rotary wing aircraft (e.g. aeroplanes and helicopters) which operate in support of a range of activities from powerline inspections to aerial photography.
- Due to the diverse nature of these operations it is possible to see this type of aviation at almost every part of the UK operated by a diverse fleet of aircraft.

Summary of Safety Performance

- There were 3 high severity occurrences reported to the UK CAA involving the operations of aircraft for the purposes of aerial work.
- Between 2015-2019 there were 10 high severity occurrences reported to the UK CAA involving the operations of aircraft for the purposes of aerial work, an average of 2 per year.
- 66% (2) of the high severity occurrences related to aerial work aircraft were related to aircraft loss of control in flight or the operation of aircraft near other parked aircraft nearby.
- There was one fatal accident associated with the operation of a specialised operations aircraft reported to the UK CAA during 2019. This occurrence resulted in 4 fatalities (the occurrence involved a light aircraft being operated for flight calibration purposes in Dubai).

General Aviation (GA)









General Aviation in Brief

What kind of aircraft are these?

- General Aviation (GA) aircraft make up the largest single proportion of the UK aircraft fleet and account for around 90% of the circa. 20,000 of aircraft currently registered in the UK.
- Typically, these aircraft are smaller recreational aircraft operated for pleasure or training purposes.
- This aviation sector also includes ex-military jets that you may see performing at air display events, lighter than air aircraft (e.g. hot air balloons), light aeroplanes, helicopters, microlights and gyroplanes.
- Collectively these aircraft operate around 800,000 flight hours each year.









Summary of Safety Performance

- There were 262 high severity occurrences involving general aviation aircraft reported to the UK CAA during 2019, in line with the 5-year average.
- 47% (129) of these high severity occurrences were related to operational issues caused by human performance or decision making resulting in aircraft loss of control, collision with other objects during take-off or landing or runway safety events occurring.
- There were 11 fatal accidents involving General Aviation Aircraft reported to the UK CAA during 2019. These occurrences resulted in 17 fatalities
- As of 2019 there were over 18,000 General Aviation Aircraft operating in the UK and collectively these aircraft logged around 800,000 flight hours.
- Between 2015-2019 there were 1,264 high severity occurrences involving General Aviation Aircraft reported to the UK CAA, an average of 253 per year.

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	667	128	<ul style="list-style-type: none"> • Aircraft overran runway on landing • Aircraft loss of control during landing • Aircraft collided with object during take-off/landing • Hard/bounced landing 	<ul style="list-style-type: none"> • Human error or misjudgement • Pilot recency/currency • Situational awareness and decision making
 TECHNICAL	390	94	<ul style="list-style-type: none"> • Engine failure resulting in forced landing • Rough running engine or reduced power • Undercarriage collapse • Structural component failure 	<ul style="list-style-type: none"> • Fuel system blockage or starvation • Component not secured to aircraft correctly • Failure of engine component
 AIRSPACE & ATC	78	17	<ul style="list-style-type: none"> • AIRPROX with other aircraft in Class G airspace • AIRPROX with other aircraft in Class D airspace • Loss of separation in the visual circuit 	<ul style="list-style-type: none"> • Pilot not maintaining good situational awareness • Misunderstanding of ATC instructions • Poor tactical planning by pilot(s)
 AERODROME & GROUND SERVICES	20	7	<ul style="list-style-type: none"> • Aircraft ground looped • Undercarriage collapse • Aircraft booged down in soft ground 	<ul style="list-style-type: none"> • Poorly maintained runway surface
 WEATHER	82	11	<ul style="list-style-type: none"> • Heavy landing • Loss of control on landing • Forced landing outside of aerodrome • Runway excursion 	<ul style="list-style-type: none"> • Ineffective weather planning • Aircraft operated in adverse weather conditions
 3 rd PARTY	3	--	<ul style="list-style-type: none"> • Aircraft tipped over whilst waiting at holding point 	<ul style="list-style-type: none"> • Combination of downwash from other aircraft and prevailing wing conditions
 WILDLIFE	2	--	<ul style="list-style-type: none"> • Bird/wildlife strike with damage to aircraft 	<ul style="list-style-type: none"> • Aircraft operating near wildlife • Aircraft component not required to withstand birdstrike
 OTHER & UNDER INVESTIGATION	22	5	<ul style="list-style-type: none"> • Aircraft reported to have crashed in unknown circumstances • Fire of unknown origin reported on an aircraft • Engine failed under unknown circumstances 	

Please note that Annex 1 aircraft are not mandated to report occurrence reports to the UK CAA although they are encouraged to do so in the interests of improving aviation safety it is accepted that the above view may not be a complete summary of GA reporting.

Remote Piloted Air System (RPAS)

Key Safety Area	2015-2019 (total)	2019	What	Why?
 OPERATIONAL	21	12	<ul style="list-style-type: none"> UA loss of control UA damaged on landing (Hard landing) UA collision with ground objects (e.g. tress) 	<ul style="list-style-type: none"> Incorrect programming or operation of UA systems Software error Operator error
 TECHNICAL	27	19	<ul style="list-style-type: none"> Power loss during flight. Uncommanded control input Rotor arm failure Loss of control link with UA 	<ul style="list-style-type: none"> Battery not fitted correctly UA loaded with software that it was incompatible with Failure of motor
 AIRSPACE & ATC	35	--	<ul style="list-style-type: none"> AIRPROX with other aircraft in controlled airspace UA sighted near other aircraft on approach to land 	<ul style="list-style-type: none"> UA Operated near aerodrome or other aircraft
 AERODROME & GROUND SERVICES	--	--		
 WEATHER	--	--		
 3 rd PARTY	--	--		
 WILDLIFE	1	--	<ul style="list-style-type: none"> UA struck ground object (e.g. tree) 	<ul style="list-style-type: none"> UA operator was attempting to avoid birds
 OTHER & UNDER INVESTIGATION	1	--		

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

Unmanned Aircraft in Brief

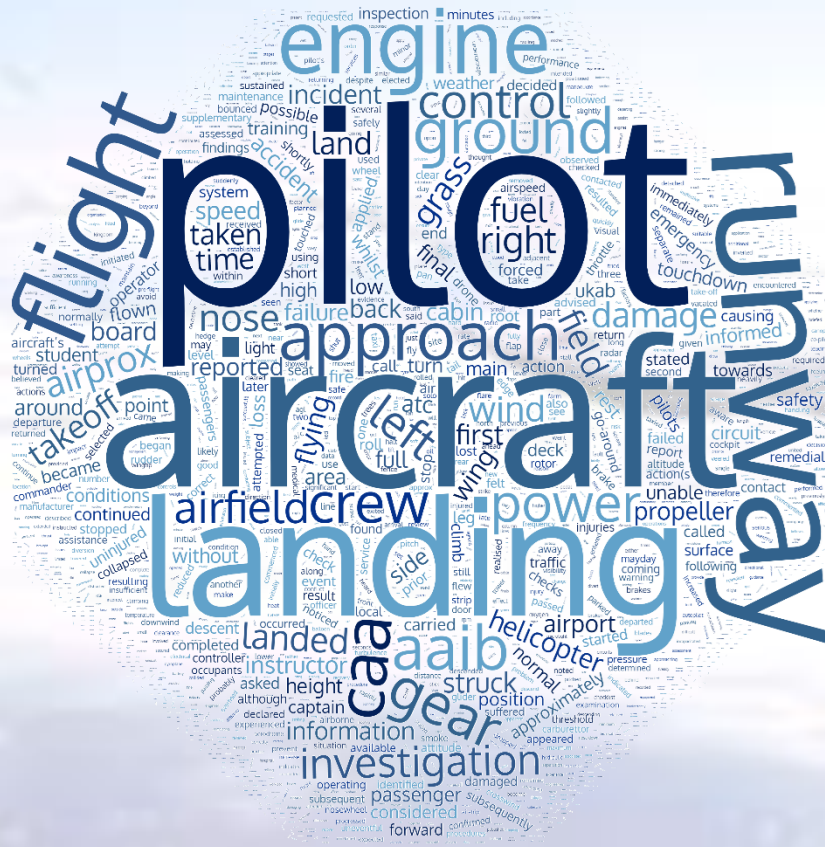
What kind of aircraft are these?

- Unmanned aircraft (UA) are aircraft that can be operated for commercial purposes or recreation.
- This activity has grown in popularity over recent years and has emerged as the UK newest aviation sector.
- Common uses of unmanned aircraft are filming at events and law enforcement; trials are currently planned for urban mobility and consignment delivery.

Summary of Safety Performance

- There were 31 high severity occurrences involving Unmanned Aircraft reported to the UK CAA during 2019.
- 61% (19) of these high severity occurrences were related to aircraft technical malfunctions including loss of power during flight and loss of control link between the operator and the unmanned aircraft.
- Between 2015-2019 there were 85 high severity occurrences involving Unmanned Aircraft reported to the UK CAA, an average of 17 per year.

High Severity Summary & Hot Topics



Our 2019 Aviation Safety Review Topics

- Our 2019 Aviation Safety Review will focus on six additional areas and provide more details around what is being done by the UK CAA; and within the wider aviation system to maintain and improve aviation safety performance long term.
- Each section will provide some key statistics and a more detailed narrative provided by our subject matter experts.



Summary of High Severity Report Contents

- A visualisation of the most frequently observed words contained within occurrence reports is shown above.
- This view allows us to identify key words and themes within our reporting data to focus are analytical work further. The contents of occurrence reports provide a crucial insight into events and as ever; the more detail a reporter can provide to us, the more effectively we can work to ensure that we identify and learn key lessons to reduce the likelihood of the same occurrence happening repeatedly.

Focus on General Aviation (GA)



Key Statistics 2019

2,843

Total Occurrences

262

High Severity

176

Total Accidents

>18,000

Total Aircraft

In Detail

During 2019 there were 2,843 occurrences that involved a General Aviation Aircraft, 9% (262) of these were classified as either an accident or high severity occurrence.

- The majority of General Aviation occurrences reported to the UK CAA are related to Airspace Infringements. During 2019 there were 1,015 airspace infringements related to GA aircraft around 80% of the 1,272 airspace infringements reported during 2019 involved at least one GA Aircraft.
- Loss of control in flight occurrences accounted for the highest proportion of accidents in GA aircraft with one of the primary causes of this attributed to aircraft handling and decision making, particularly during critical phases of flight (e.g. take-off or landing).
- Aircraft powerplant failure or reduction in power is also a common theme that is frequently observed when analysing accidents and high severity occurrences for GA.
- In terms of primary error factor, pilot error and aircraft technical faults are the most frequently observed themes for General Aviation Aircraft.
- There were 11 fatal accidents involving General Aviation Aircraft reported to the UK CAA during 2019. These occurrences resulted in 17 fatalities
-

What is Being Done to Improve Safety?

- The UK CAA has published a series of new documents (known as CAPS) and safety notices to the wider General Aviation community during 2019. These notices are intended to provide you with current and safety relevant information to ensure that everyone can fly safely. Below are a few examples of safety publications released during 2019:
 - o [CAP1741](#) Declared Balloon Operators Guidance
 - o [CAP1535](#) Skyway Code
 - o [CAP1220](#) Operation of Experimental Aircraft
 - o [CAP1740](#) Maintenance Guidance for Permit to Fly (PtF) Aircraft
- The General Aviation Unit, working with our safety partners, promotes and organises a series of safety events through the year, these forums are open to all and allow the UK CAA to share safety critical information and insight with the community whilst also hearing from you.
- More information relating to the work undertaken to support the GA community can be found here: www.caa.co.uk/generalaviation

How Can You Help?

- Collaboration and engagement are two of the best ways you can help support a safe General Aviation system. Simply filing an occurrence report when something out of the ordinary happens during your flight can make the difference to us; and may well help prevent someone else having the same occurrence happen to them.



- All members of our aviation community are encouraged to ensure that they have been properly trained by a licenced instructor for the conditions and aircraft they are operating. Recurrent training and regular checks with an instructor are also recommended.



- Pre-flight route planning remains critical for all pilots to reduce the chances of you encountering adverse weather during your flight or inadvertently entering controlled airspace without permission of Air Traffic Control (ATC).

Please note that Annex 1 aircraft are not mandated to report occurrence reports to the UK CAA although they are encouraged to do so in the interests of improving aviation safety it is accepted that the above view may not be a complete summary of GA reporting.

Focus on UK Airspace & Air Traffic Management



Key Statistics 2019

5,556

Total Occurrences

1,272

Airspace Infringements

328

AIRPROX

2

Mid Air Collisions

In Detail

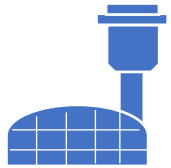
- During 2019 there were 5,556 occurrence reports related to Airspace and ATM:
 - o 51% (2,784) occurrences were associated with airspace, a 2% reduction on 2018 levels (2,847).
 - o 49% (2,772) reports related to Air Traffic Management (ATM) for 2019, a reduction 4% compared to 2018 (2,886).
- During 2019 there were 1,272 airspace infringement reports a decrease of 6% compared to 2018. The majority of these occurred in Control Areas (CTA) and around 8% resulted in a loss of separation with another aircraft.
- During 2019 there were 328 AIRPROX reports assessed, 203 (62%) involved manned aircraft, of these 125 (38%) were found to be risk bearing; meaning that a mid-air collision was highly likely.
- There were 88 reports related to ATC issuing an unsafe clearance compared to 99 reported for 2018. This can be caused by high workload for ATC or resourcing/staffing levels available.
- During 2019 there were 2 mid-air collisions reported, there were no injuries reported to have resulted from mid-air collisions during 2019.

What is Being Done to Improve Safety?

- The UK CAA monitors occurrences involving airspace closely and has several internal groups tasked with reviewing these occurrences and their respective root causes.
- These groups are responsible for reviewing all reported occurrences in an open and impartial way and ensuring that any necessary follow up action is taken and communicated.
- Technical standards for mapping and electronic conspicuity devices have been produced and can be found in [CAP 1391](#).
- [CAP 1404](#) outlines the remedial actions process related to airspace infringements. This document currently being updated and will be published shortly.
- The UK CAA continues to advocate the use of electronic conspicuity devices on all aircraft operating in UK airspace as this ensures that the aircraft is visible to air traffic controllers on the ground.

How Can You Help?

- As ever pre-flight planning is critical to any flight; whether you are operating a large complex commercial aircraft or a light sport aircraft.
- Some parts of UK Airspace can be complex; however, there are several online tools and apps (some of them free) which can help you navigate and plan your route effectively. Changes to airspace and temporary restrictions are also published on [SkyWise](#).
- If you are intending to fly through controlled airspace it is important that you obtain clearance to do so before entering the airspace you wish to cross.
- If you are not wanting to enter controlled airspace it is still worth having an awareness of where the controlled airspace is situated and plan your route to remain well clear of it.
- Remember that if you do happen to infringe airspace it is important that you report this to the UK CAA. This information is used extensively by our teams to monitor safety performance and in future air space design work.
- The UK CAA continues to encourage the use of VFR Moving Map technology, both during planning and in-flight, to increase a pilot's situational awareness and provide timely warnings of permanent and temporary notified airspace thereby reducing airspace infringements.



Key Statistics 2019

6,401

Total Occurrences

47

High Severity

822

Vehicle Related

341

Runway Safety

In Detail

- During 2019 there were 6,401 reported occurrences related to aerodromes in the UK an 8% increase compared to 2018 (5,914).
- 341 reports were related to runway safety events; either a runway incursion or excursion.
- There were 293 runway incursions reported in 2019, an increase of 45% compared to 2018 (202).
- The most common themes observed with runway incursion reports were associated with aircraft entering the runway without permission, or aircraft being given clearance to enter the runway area whilst another aircraft whilst already in it or on final approach to land.
- There were 48 runway excursion events reported in 2019, an increase of 20% compared to 2018 (40).
- Most runway excursions reported were low speed excursions where the aircraft departed the runway surface at low speed with no injuries to the aircraft occupants or damage to the aircraft being reported.
- 822 reports were related to ground vehicles operating in conflict, or coming into conflict with aircraft, around 21% were reported to have occurred on the aircraft stand (170), with 14% (117) occurring on a taxiway and 4% (33) on a runway.

What is being done to Improve Safety?

- The UK CAA collaborates extensively with industry and members of the GA communicate to monitor safety performance and promote best practices across all aerodromes that we oversee.
- We also continue to work with industry and champion new technology to help reduce the likelihood of runway safety events and collisions with low objects in and around aerodromes.
- During 2020 CAP738 was updated which assess the impact of any development near an aerodrome to ensure safety levels are considered and maintained.
- Our teams regularly review the risks associated with aerodromes in the UK and use the data provided in Occurrence reports, from oversight activity and with engagement with our aerodromes to ensure new risk areas are identified and assessed and proportionate action taken to manage these risk to as low as a level as possible.
- The UK CAA also hold regular runway safety group meetings to collaborate with external parties to promote and enhance runway safety.

How can you help?

- When operating at a controlled airfield (whether as a pilot operating an aircraft, a ground vehicle or even a pedestrian) it is critical that you maintain a good awareness of what is happening around you by listening and communicating with ATC or other aircraft (if no ATC is provided at your airfield) and maintaining a good visual look out.



- If you are driving on an aerodrome, make sure you have familiarised yourself with the layout of the aerodrome and are aware which runway(s) are in use and obtain clearance to cross runways and enter taxiways from Air Traffic Control.



- As a pedestrian make sure that you are not inadvertently straying onto operational areas of an aerodrome without permission. If you are working airside, ensure you are making yourself as visible as possible to other aircraft and vehicles and that you do not enter active runways and taxiways without permission.

Focus on Offshore Helicopters



Key Statistics 2019

531

Total Occurrences

1

High Severity

0

Total Accidents

>100

Total Aircraft

In Detail

- During 2019 there were 531 occurrences associated with the operation of or involving an offshore helicopter. <1% of these were classified as high severity occurrences.
- Reports relating to technical failures were the most frequently observed theme for offshore helicopters during 2019.
 - o Most notable among these occurrences were reports of autopilot failure, magnetic chip detector (MCD) indications and display control panel (DCP) failure.
- Airborne conflict with other airspace users, AIRPROX, TCAS RA and loss of separation events were the second most frequently observed theme mentioned in the occurrence reports.
- Reports relating to personal electronic devices (PEDs) being found switched on in passenger baggage and the carriage of lithium ion batteries also featured in several reports during 2019.
- Other reports related to wildlife encounters during operations (birdstrikes etc.), issues with ATC clearance and discomfort caused by the requirement to wear life jackets during flight.

What is being done to Improve Safety?

- To discuss, address and monitor safety performance of Offshore operations the UK CAA created and leads the Offshore Helicopter Safety Action Group (OHSAG) which is attended and supported by industry with the aims of:
 - o Facilitating dialogue between operators, employees and the regulatory bodies involved or responsible for overseeing the operation of offshore helicopters.
 - o Defining and assessing the implementation of safety related initiatives.
 - o Co-ordinating and communicating with stakeholders engaged with offshore helicopter operations.
 - o For more information on the OHSAG please visit our [website](#).
- [CAP 1877](#) was published in January 2020 and contains more detailed safety information focused on offshore helicopter operations.
- For more information on the work the UK CAA is doing to support offshore aviation please see the Offshore Helicopter Operations page on our [website](#).

How can you help?

- As ever pre-flight is critical to any flight whether you are operating a large complex commercial aircraft or a light sport aircraft.
- Offshore helicopters are fitted with traffic collision avoidance systems; however, these only provide a certain level of protection. It is always important to ensure that a good lookout is maintained throughout the flight and if you are operating into areas where you are likely to encounter offshore helicopters to listen into Air Traffic Control (ATC) and ensure your transponder is switched on if one is fitted to your aircraft.
- Although the carriage of personal electronic devices is commonplace onboard aircraft it is important that you ensure they are stored correctly when not on your person and switched to a flight safe mode or switched off for the duration of the flight.
- Aircraft components, like any machine, are subject to failure from time to time. When this happens, it is important to report this to your company or the UK CAA. This data helps us identify trends and share insights with operators across the UK.

Focus on Crew Wellbeing



Key Statistics 2019

780

Total Occurrences

390

Disruptive Passenger

131

Flight Crew Related

695

Cabin Crew Related

In Detail

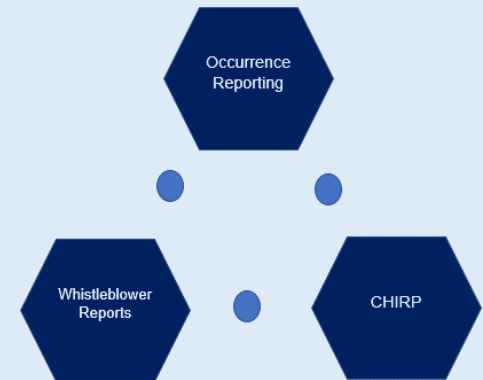
- During 2019, 780 occurrences were associated with crew wellbeing, including flight and cabin crew illness, incapacitation or fatigue and disruptive passengers.
- There were 390 reports of disruptive or abusive passengers reported during 2019, an increase of 5% compared to 2018 figures. Passenger intoxication, smoking in aircraft lavatories, passenger aggression (both verbal and physical) and use of narcotics on board the aircraft were the most frequently observed themes within these reports.
- 131 reports of flight crew illness or incapacitation were reported during 2019. Flight crew illness during flight, exposure to fumes on the flight deck and issues associated with fatigue and other minor injuries sustained in flight were also mentioned in the report narratives.
- 695 reports of cabin crew illness, injury or incapacitation were reported during 2019. The most commonly observed themes within these reports were related to injury resulting from the onset of turbulence, light headedness or nausea from working in hot cabins or following exposure to fumes and reports related to stomach-ache etc.

What is being done to Improve Safety?

- Regulation is to be introduced in early 2021 relating to flight crew wellbeing. To enable this commercial air transport operators are to establish and implement Support Programmes including, where available, the use of trained pilot peers, creating trust and capability within the pilot community for the early support and intervention of any wellbeing concerns. Support Programmes provide independent and confidential support for all UK commercial pilots to recognise, cope with and overcome any problem which might negatively affect their ability to safely exercise the privileges of their licence.
- Access and availability of Pilot Peers, through networks where appropriate, is being established and the CAA continues to engage and support with promotion of health and wellbeing to industry.
- [CAP1695](#) contains guidance material for commercial air transport operators related to flight crew wellbeing. The document scope includes the promotion and education of mental health in an aviation environment, and more details the use of Pilot Peer assistance.

How can you help?

- Keeping your company and the UK CAA informed of any wellbeing related issues is always the first step towards finding an appropriate way forward. There are several ways you can keep us informed about wellbeing related issues including:
 - o Mandatory Occurrence Reports (MORS)
 - o UK CAA Whistleblower reports
 - o CHIRP



- Information received by the UK CAA from whistleblower reports is kept confidential, unless agreed otherwise with the whistleblower, and is always investigated where sufficient information is provided. CHIRP is independent of the CAA, but the CAA provides advice and support if requested.

Focus on Cabin Air Quality



Key Statistics 2019

674

Total Occurrences

16

High Severity

42

Aircraft Diversions

In Detail

- During 2019 there were 674 occurrences associated with smoke and fumes in an aircraft cabin during flight. 2.4% of these were classified as Accidents, Serious incidents or high severity occurrences.
- The most frequently observed effects associated with exposure to fumes in an aircraft cabin were irritation to eyes and mouth and in extreme cases passengers have been given supplementary oxygen by the cabin crew.
- Normal procedure for an inflight fume event is for the crew to assess the situation and potentially land the aircraft at the nearest suitable diversion airport. Cabin crew are also briefed and trained to provide additional support to passengers adversely affected by such environments if required.
- Numerous studies and research papers have been published around the effect of cabin air quality of crew and passenger health. To date, any long-term ill effects from exposure to an aircraft environment are thought to be unlikely.

What is being done to Improve Safety?

- Aircraft operators are required to report any occurrences involving cabin air quality (fire, smoke, fumes and smells) to the UK CAA (or their national authority if not UK registered) within 72 hours becoming aware of it.
- The UK CAA requires an investigation by the operator to identify any root causes with the aim of reducing reoccurrences in the future.
 - o Operators are required to provide an update with any additional information identified through any subsequent analysis or investigation of the occurrence.
- The UK CAA has supported various scientific studies researching cabin air quality and works closely with industry to further our understanding in this area and identify any reasonable actions to safeguard passenger and crew safety.
- For more information relating to Cabin Air Quality please visit our [website](#).

How can you help?

- If you experience any discomfort whilst flying, alert the cabin crew as soon as you can, they will assess your condition and can also ensure the flight crew are made aware of the situation.



- Cabin crew are also able to provide basic first aid and supplementary oxygen if you need it.



- If you notice the presence of smoke or fumes in the cabin either visibly or by smell, alert a member of the cabin crew. In all likelihood there is nothing to worry about, however if the crew are aware, they can investigate further and take any appropriate action.

Focus on Unmanned Aircraft (UA)



Key Statistics 2019

544

Total Occurrences

31

High Severity

29

Total Accidents

>6,000

Total Operators

In Detail

- During 2019 there were 544 occurrences associated with Unmanned Aircraft (UA). 6% of these were classified as high severity occurrences.
- Similar to the occurrences trends observed in General Aviation, Unmanned Aircraft (UA) reports are more prevalent during the summer months (Jul-Sep) when weather and conditions are more conducive to the operation of these aircraft.
- Mid-air conflict and loss of control were the most frequently reported occurrence types involving UA.
- There were 358 Mid Air Conflict (MAC) occurrences reported to the UK CAA during 2019, compared to 433 in 2018; a 15% decrease year over year.
 - o 278 of these occurrences involved a UA and commercial aircraft, and 46 involved a UA and General Aviation Aircraft.
- 96 Loss of Control occurrences involving a UA were reported in 2019, a 95% increase on 2018 (48 occurrences).
 - o Human error was the most frequently identified root cause for these occurrences, followed by loss of control link and issues associated with the aircraft propulsion system.

What is being done to Improve Safety?

- **Flight Restriction Zones (FRZs).** These have been established around protected aerodromes since March 2019. These are areas around aerodromes where remote pilots must obtain permission from the aerodrome operator before flying their UA. A map of FRZs can be found here at <https://dronesafe.uk/restrictions/>.
- **Safety Notices (SNs).** For more urgent safety concerns the CAA will publish SNs. They provide recommendations to help keep people safer. Recent SNs about UA have covered advice on the overflight of uninvolved people, [SN-2020/002](#) and practicing for in-flight failures, [SN-2020/010](#).
- **Registration and Education.** This is key to improving behaviours and from November 2019 it became mandatory for anyone responsible for UA (including model aircraft) weighing between 250 g and 20 kg to register as an operator. The cost for registration is £9 and is renewable annually.
- **New regulations.** New UAS regulations will become applicable on 31 December 2020. These will improve the regulation of all UA by becoming more safety risk based.
- Further guidance in UA operations within the UK airspace can be found in our UK guidance [CAP722](#).
- More details can be found on [our website](#)

How can you help?

- As ever pre-flight planning is critical to any flight whether you are operating a large complex commercial aircraft or an unmanned aircraft.



- Keep yourself as up to date as possible by checking out our [safety notices](#), you can also stay up to date with the latest publications from the UK CAA by subscribing to our [SkyWise](#) alerts.



- If you are operating an unmanned aircraft with a weight between 250g to 20Kg, register for an operator ID and ensure that this is visible on all your unmanned aircraft.



- Unmanned Aircraft are mandated to report under the existing occurrence reporting regulation. If you witness or experience a reportable occurrence, please tell us about this by filing an occurrence report. More details on how to do this and what is considered reportable can be found in EU 376/2014 and associated reporting list detailed in IR 2015/1018.

Our 2020 Aviation Safety Review Preview

2020 promises to be a year that will be forever remembered in the annals of history.

For the United Kingdom 2020 represents a year of transition as we migrate from the role of a member state of EASA to one of an independent industry and regulator. These changes will bring new opportunities for industry development but also challenges as we adapt to this new role and operating environment.

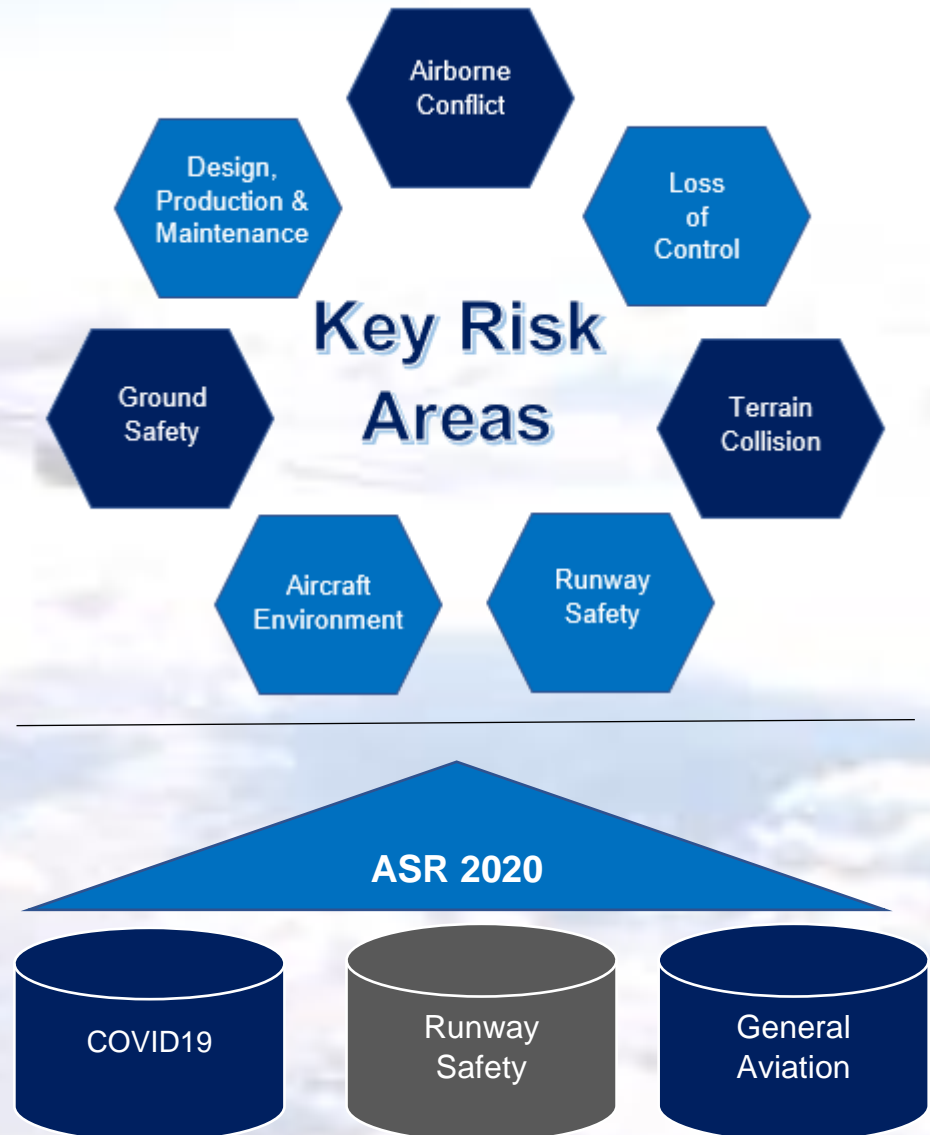
The impact of global pandemic brought about by COVID-19 will also have a sustained impact on our aviation system globally. This again presents new challenges and opportunities for both the regulator and wider industry to adapt in a way that is both safe and viable.

For the UK CAA our mission remains unchanged in that we will continue to work to ensure that our aviation safety and all those who are or might be affected by aviation are kept as safe as possible every day. We will achieve this by continuing our development of Performance Based Regulation (PBR) and evolving this concept to introduce a Total Safety Risk Framework which allows us to segment the aviation system to monitor risk performance and safety more effectively; and by adopting the Key Risk Areas (KRA) framework used by EASA and other authorities across the world.

Preview of our 2020 Annual Safety Review

Our 2020 aviation review will provide a safety summary based on the total safety risk framework and key risk areas as well as providing more detail around the below topics:

- Safety actions and impact of Coronavirus (SARS-COV-2) aka. COVID19.
- Runway Safety Performance
- General Aviation Safety Performance



The Future of Aviation Regulation in the United Kingdom



From 01 January 2021 the United Kingdom will emerge as an independent regulator. Our mission as a safety regulator remains unchanged and we will continue to work to ensure this transition is managed in a safe, smooth and efficient way.

Mandatory occurrence regulation/reporting beyond 2020

From 01 January 2021 the United Kingdom will exit the transition period and emerge as an independent state outside of the European Union.

For the UK CAA this means that we will no longer be part of EASA and not bound by European regulation. To ensure a smooth and efficient transition the UK CAA will be adopting the existing European Regulation whilst new legislation that will govern the future of aviation regulation in the United Kingdom is developed and approved by central government.

If you are using ECCAIRS compatible software for mandatory occurrence reporting, you should not notice any difference. For guidance on the type of mandatory occurrences that need to be reported to the CAA and how to report those occurrences please see EU 376/2014 and associated reporting list detailed in IR 2015/1018.

For reporters using the aviation reporting portal (aviationreporting.eu) please note that from 18 December 2020 this portal is being updated to a new look reporting form where you can send your report to us.

The United Kingdom will continue to use ECCAIRS following the end of the transition period and remain committed to continuing to work with our colleagues in Europe and across the world to ensure that safety concerns and trends are made as visible as possible in the interests of enhancing aviation safety globally.

More information can be found on: www.info.caa.co.uk/brexit/

Working with Industry

The UK CAA also remains committed to working closer with our industry and aviation communities to build and develop insight and take appropriate and proportionate action to ensure that our aviation system continues to serve and protect all involved or effected by aviation in the UK.

Explanations

Please note that for some of the terms presented in the list below, there may be no formal definition, or the existing definitions may be complex. In such cases, we have used simplified explanations instead of the definitions.

Name	Explanation	Name	Explanation
Accident	<p><u>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:</u></p> <p><u>a) a person is fatally or seriously injured as</u> <u>https://www.skybrary.aero/index.php/Accident result of: being in the aircraft, or direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or</u></p> <p><u>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, would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or</u></p> <p><u>c) the aircraft is missing or is completely inaccessible</u></p>	Large cargo aeroplanes	Scheduled and unscheduled cargo commercial air transport services in aircraft with maximum allowed take-off weight of more than 5,700 kilograms

Aerial work	Aircraft used for specialised operations, such as agriculture, construction, photography, surveying, observation, patrol and aerial advertisement	Large commercial aeroplanes	Scheduled and unscheduled passenger and cargo commercial air transport services in aircraft with maximum allowed take-off weight of more than 5,700 kilograms
Airborne collision avoidance systems	Aircraft system providing advice to pilots for the purpose of avoiding potential collisions	Large passenger aeroplanes	Scheduled and unscheduled passenger commercial air transport services in aircraft with maximum allowed take-off weight of more than 5,700 kilograms
Commercial air transport	Aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration	Loss of separation	Occurs whenever specified separation minima between airborne aircraft in controlled airspace are breached. Minimum separation standards for airspace are specified by Air Traffic Services
Commercial operation (aviation)	Operation of an aircraft, in return for remuneration or other valuable consideration, which is available to the public or, when not made available to the public, which is performed under a contract between an operator and a customer, where the latter has no control over the operator	Mandatory occurrence reports	An occurrence means any safety-related event which endangers or which, if not corrected or addressed, could endanger an aircraft, its occupants or any other person
Complex motor-powered aircraft	An aeroplane: with a maximum certificated take-off mass exceeding 5700 kg, or certificated for a maximum passenger seating configuration of more than nineteen, or certificated for operation with a minimum crew of at least two pilots, or equipped with (a) turbojet engine(s) or more than one turboprop engine, or a helicopter certificated: for a maximum take-off mass exceeding 3175 kg, or for a maximum passenger seating configuration of more than nine, or for a maximum passenger seating configuration of more than nine, or for operation with a minimum crew of at least two pilots, or a tilt rotor aircraft	Member State	European Aviation Safety Agency Member States
Confirmed birdstrike	Any reported collision between a bird and an aircraft for which evidence, in the form of a carcass, or other remains is found on the ground, or damage and/or other evidence is found on the aircraft	Non-commercial operation (aviation)	Operation of aircraft for private flying consisting of business or corporate, personal transport, recreational and sporting activity

Control area	Area normally established in the vicinity of one or more major airports, with specified lower and upper limits	Non-G-registered aircraft	Aircraft not registered by the UK CAA or State of registry is not the UK (registration mark does not contain the prefix "G-")
Control zone	Controlled airspace extending upwards from the surface of the earth to a specified upper limit, normally around an airport	Offshore helicopters	Scheduled and non-scheduled offshore commercial operation of helicopters (predominantly for the Oil & Gas industry)
Danger area	Airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times	Onshore helicopters	Onshore commercial and non-commercial operation of helicopters, including Business/Corporate flights and excluding General Aviation operations
Emergency services	Emergency operations with helicopters, such as Search and Rescue, Police and emergency medical services	Propeller (or rotor) wash	<u>The force or wind generated behind a propeller, particularly when high/full power is set</u>
Engine cowl	Engine protective covering	Runway excursion	Occurs when an aircraft departs the runway in use during the take-off or landing phase
General aviation	Aeroplanes, Airships, Balloons, Gliders, Gyroplanes, Helicopters and Microlights used for private flying consisting of personal transport, recreational and sporting activity. Includes commercial operations with Balloons	Serious incident	<u>An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down</u>
G-Registered aircraft	Aircraft registered in the UK, by the UK CAA (registration mark contains the prefix "G-"), including other aircraft operated in the UK that do not require a registration mark	Small commercial and business aeroplanes	Scheduled and unscheduled passenger and cargo commercial air transport services in aircraft with maximum allowed take-off weight of 5,700 kilograms or below, or commercial and non-commercial operations with aircraft engaged in Business/Corporate flights, with no maximum allowed take-off weight threshold
Ground roll	The movement of an aircraft on the ground, under its own power, until it becomes airborne on take-off, or after touchdown on landing	Tail strike	Occurs when the tail of an aircraft impacts the runway during the take-off or landing phase
Hazard	Any condition that can cause or contribute to an aircraft incident or accident	UK airline	UK registered or operated scheduled and unscheduled commercial air transport services

High severity occurrences MORs that involve fatalities or serious injuries, the inability to continue safe flight and landing, a significant increase in flight crew workload, a serious loss of separation, a serious ATM system failure or a serious degradation of aircraft strength / integrity / handling / performance and a potential catastrophic outcome

UK aviation UK Aviation represents all the occurrences reported to the UK CAA in the UK or involving G-Registered or UK operated aircraft overseas

