

OCCURRENCE REPORTING FOR GENERAL AVIATION





December 23

YOUR SAFETY SENSE LEAFLET FOR: OCCURRENCE REPORTING FOR GENERAL AVIATION

This leaflet is intended as a guide for the reporting of safety occurrences in General Aviation operations. Reporting is an important element of improving aviation safety and is often a legal requirement.

Occurrence reports are submitted to the UK CAA via the <u>ECCAIRS portal</u>. The CAA reviews reports and determines if any follow up action is required. The leaflet also covers reporting to the Air Accidents Investigation Branch (AAIB), Airprox Board and the Confidential Human Factors Incident Reporting Programme (CHIRP).

All reviews of occurrences are conducted in accordance with **'Just Culture'** principles, meaning that people are treated fairly and not punished for actions, omissions or decisions that are commensurate with their experience and training. The aim of a Just Culture is to promote continuous learning from previous mistakes and to encourage pilots to share safety related information.

Occurrence Reports

'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 and includes in particular an accident or serious incident.

Occurrence reports relating to flight operations must normally be submitted by the pilot in command of the aircraft.

Members of the public or other aviation stakeholders wishing to report a safety concern or possible breach of aviation law should read the guidance on the CAA website regarding the <u>appropriate channel</u> for making a report.

What must be reported?

Any occurrence that you feel could have had an impact on aviation safety should be reported. This will ensure that we always review and learn from events. Some occurrences are mandatory to report under the <u>Occurrence Reporting</u> <u>Regulations</u> – UK Regulation (EU) 376/2014 and UK Regulation (EU) 2015/1018. A report required by regulation is known as a 'Mandatory Occurrence Report' (MOR) and when not required by regulation, a 'Voluntary Occurrence Report' (VOR).

You should not be concerned whether you are making an MOR or a VOR. The reporting process is the same, however failure to report an occurrence classified as an MOR is a breach of the Occurrence Reporting Regulation. If multiple parties were involved in the same occurrence, each should submit a report giving details of their involvement. If in doubt, submit a report.

Reporting for GA

This SSL addresses reporting requirements for 'other than complex motor-powered aircraft', including sailplanes and balloons.

For operations with complex motor-powered aircraft or commercial air transport operations, you should consult the relevant Annex of the Occurrence Reporting Regulation and, if applicable, your company operations manual.

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Aeroplanes	Helicopter
Maximum certificated take-off mass exceeding 5700 kg	Maximum certificated take-off mass exceeding 3175 kg
Certificated for a maximum passenger seating configuration of more than 19	Certificated for a maximum passenger seating configuration of more than 9
Certificated for operation with a minimum crew of at least two pilots	For operation with minimum crew of least two pilots
Equipped with at least one turbojet engine or more than one turboprop engine	

'Complex motor-powered aircraft' means:

Mandatory Reports for GA

The pilot in command of other-than complex motor-powered aeroplanes or helicopters is required to report the following occurrences:



- Unintentional loss of control.
- Landing outside of intended landing area.
- Inability or failure to achieve required aircraft performance expected in normal conditions during take-off, climb or landing.
- Runway incursion.
- Runway excursion.
- Any flight which has been performed with an aircraft which was not airworthy, or for which flight preparation was not completed, which has or could have endangered the aircraft, its occupants or any other person.
- Unintended flight into IMC (*Instrument Meteorological Conditions*) conditions of aircraft not IFR (Instrument flight rules) certified, or a pilot not qualified for IFR, which has or could have endangered the aircraft, its occupants or any other person.
- Unintentional release of cargo.

Technical



- Abnormal severe vibration (for example: aileron or elevator 'flutter', or of propeller).
- Any flight control not functioning correctly or disconnected.
- A failure or substantial deterioration of the aircraft structure.
- A loss of any part of the aircraft structure or installation in flight.
- A failure of an engine, rotor, propeller, fuel system or other essential system.
- Leakage of any fluid which resulted in a fire hazard or possible hazardous contamination of aircraft structure, systems or equipment, or risk to occupants.



Emergencies and other critical situations



- Any occurrence leading to an emergency call.
- Fire, explosion, smoke, toxic gases or toxic fumes in the aircraft.
- Incapacitation of the pilot leading to inability to perform any duty.

Interaction with air navigation services and air traffic management



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- Interaction with air navigation services (for example: incorrect services provided, conflicting communications or deviation from clearance) which has or could have endangered the aircraft, its occupants or any other person.
- Airspace infringement.



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- A collision on the ground or in the air, with another aircraft, terrain or obstacle^{*}.
- A near collision, on the ground or in the air, with another aircraft, terrain or obstacle* requiring an emergency avoidance manoeuvre to avoid a collision.
- Wildlife strike including bird strike which resulted in damage to the aircraft or loss or malfunction of any essential service.
- Interference with the aircraft by firearms, fireworks, flying kites, laser illumination, high powered lights lasers, Remotely Piloted Aircraft Systems, model aircraft or by similar means.
- A lightning strike resulting in damage to or loss of functions of the aircraft.
- Severe turbulence encounter which resulted in injury to aircraft occupants or in the need for a post-flight turbulence damage check of the aircraft.
- Icing including carburettor icing which has or could have endangered the aircraft, its
 occupants or any other person.

Note that under the Occurrence Reporting Regulation, reports are only mandatory for occurrences involving 'Part 21' aircraft. Occurrences involving 'non-Part 21' aircraft are not mandatory, however the CAA strongly encourages all safety events to be reported. Reports of accidents or serious incidents must be made to AAIB, regardless of the aircraft.

Submitting a report

Reports are submitted via the ECCAIRS 2 Aviation Reporting Portal at <u>www.aviationreporting.eu</u>.

You will be required to register for access to the portal. The portal will ask which state the report is intended for – you should select the state that issued your licence or certificate. There is a webform or PDF format available to submit a report. The PDF version can be downloaded and edited offline, and then uploaded as a completed form.

The form requires information such as details of the aircraft, flight and the nature of the occurrence. More guidance on the use of the reporting portal and form is available in <u>CAP 1496</u>.

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It is important to use the Occurrence Reporting system, even if you believe that the information has been passed to the CAA via other channels or stakeholders – use of the system ensures that every occurrence is captured and entered into the reporting database. Submission of reports facilitates learning from safety events.

Runway signage

case study

The CAA received a significant number of occurrence reports relating to runway incursions at a GA aerodrome. The runway in question was grass with an adjacent grass taxiway and pilots were sometimes entering the runway area without realising it. After reviewing the issue, the CAA determined that improvements could be made and worked with the aerodrome on revised signage and markings. Since implementing the improvements, no further reports of runway incursions have been received.



The CAA records all reports for safety data purposes and will conduct follow up action if required. For example, an MOR reporting the failure of an aircraft component may lead to an Airworthiness Directive or Safety Notice.

Reports are routinely categorised and used to identify safety trends. This may lead to implementing mitigations through safety policy. The CAA has the internal Occurrence Reporting Governance Group, which ensures a standardised approach across the organisation to compliance with the Occurrence Reporting Regulation.

Fatigue cracks

case study

During an annual maintenance inspection on an aircraft, longitudinal cracks were found in an undercarriage bracket. The engineers were initially alerted to the problem due to a deformation or skin ripple effect forward of the fitting.

The CAMO *(Continuing Airworthiness Management Organisation)* submitted an MOR and the Chief Engineer informed their CAA surveyor about the issue. The GA Continued and Initial Airworthiness team

liaised with the CAMO about the matter and then contacted all registered owners/operators of the aircraft type to raise awareness of it.

A CAA Safety Notice was subsequently published for consultation. <u>Safety Notice</u> <u>SN-2021/013</u> was published and the MOR was closed. Open communication between the CAMO, CAA and owners/operators allowed essential safety information to be promulgated effectively to the wider GA community.



Air displays

case study

During an air display, the Flying Display Director made a **'Stop Call'** due to safety concerns. Such a call results in the provisional suspension of a pilot's Display Authorisation. The CAA Air Display Team investigated in accordance with CAP 403 'Flying Displays and Special Events' and the Baines Simmons FAiR *(Flowchart Analysis of Investigation Results)* Model.

The investigation completed in seven days and the pilot's display authorisation was reinstated. The Flying Display Director and display pilot involved later discussed the incident at the Post-Season Flying Display Symposium, attended by over 200 members of the display community, allowing others to benefit from the lessons learned.

Airspace Infringements

If you are aware that you have infringed controlled airspace, you are obliged to file an occurrence report giving your narrative of the event. The relevant Air Navigation Service Provider *(ANSP)* or airspace sponsor will also submit a report, however it is important that the CAA hear both sides of the story.

The relevant team will ask you to complete an <u>Airspace Infringement form</u> with as much detail as possible. This will enable a thorough review of the occurrence to take place. <u>CAP 1404 - Airspace Infringements: review and actions process</u> details the process for dealing with airspace infringements.

For more information see: Airspace infringements | Civil Aviation Authority (caa.co.uk)

Just Culture

'Just culture' means a culture in which front-line operators or other persons are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, wilful violations and destructive acts are not tolerated.

Just Culture describes how human mistakes and errors are dealt with in a way that is fair to the individuals concerned and prioritises the improvement of overall safety above punitive measures. An occurrence may sometimes highlight that the performance of an individual is below the acceptable level and retraining may be mandated to restore an appropriate level of competence. Such actions must never be punitive.

Human errors will occur, and resolution should take precedence over blame. An early example of what we might now think of as a Just Culture statement hung above the shop floor of a Second World War Hawker factory:

"A fault revealed voluntarily will be treated leniently but a fault concealed may lead to serious consequences for the workman, not to mention the pilot."

Most descriptions of '*Just Culture*' focus on scenarios within organisations - for example how the management of maintenance organisations or flight schools deal with errors and occurrences that may be committed by their employees or other individuals under their direction. Such descriptions emphasise that employees must feel able to report openly and investigations should focus on improving safety within the organisation rather than assigning blame. This applies to all organisations in the aviation system, including those in GA.

Just Culture for GA

GA organisations should have a Safety Policy which covers reporting and how reports of occurrences are dealt with in the organisation. The policy should ensure:

- both individuals and management are open about occurrences and errors such that everyone learns from them;
- this openness focuses on learning rather than people being made 'an example of'; and
- when the competence of individuals is found to be below the required standard, solutions focus on retraining rather than demotion or dismissal.

Just Culture is also relevant to individual GA pilots or others working outside of an organisation. The principles of '*Just Culture*' apply when reporting occurrences directly to the CAA. Those involved in GA should feel able to report genuine safety concerns about something, knowing that they will be treated confidentially. Just Culture also applies to how participants in GA respond to their peers and colleagues when they make mistakes or errors, such that they are not dissuaded from talking openly about safety issues and lessons learnt.

Benefits of reporting

Just Culture is important because an open and honest reporting culture improves flight safety. This has obvious benefits to everyone involved in aviation. As a GA pilot, you can contribute to this by reporting occurrences when required or when you feel that a report may contribute to an improvement in safety.

You may wonder whether individual reports will 'make a difference'. It may appear that the benefit of reporting an individual safety occurrence – that would otherwise go unnoticed – is negligible. One report in isolation may not have much impact, but it may be that other stakeholders have reported similar issues that indicate a trend in need of addressing.

Occurrence reports are a core data source used to inform our safety policy and decisions. We make frequent use of occurrence data to identify safety trends, hazards, risks and issues that have the potential to impact on the safety of the UK aviation system.

We also support numerous academic and safety related studies through the provision of analysis and de-identified datasets.

Dealing with human error

It is important to acknowledge that 'Just Culture' does not translate as 'no blame'. Many occurrences lie somewhere between the two extremes of errors that are commensurate with experience and those which stem from gross negligence.

Systems that aim to improve safety must apply the principles of Just Culture to a variety of different errors and occurrences. Individuals should always be treated fairly, however if an occurrence reveals a lack of competence, appropriate retraining must be applied by the organisation involved or directly by the CAA. This retraining should be relevant to the occurrence and focus on restoring the individual to the appropriate level of competence.

Occurrences that clearly indicate a disregard for risk or poor attitudes and behaviours will be treated more harshly and may result in a loss of privileges, or in extreme cases, criminal prosecution.

Requesting MOR information

Occurrence information can only be used to maintain or improve aviation safety. This means that the CAA is not permitted to release occurrence information to the general public or media, including in response to Freedom of Information Act *(FOIA)* requests.

If you have a requirement for occurrence report analysis or listing, this can be requested using forms SRG1604 and SRG1605. These requests allow for the release of occurrence reporting data to support safety improvement activities.

SRG1604: Application for monthly MOR listings

SRG1605: Application for MOR Data Release for the maintenance or improvement of aviation safety

Accidents and serious incidents

Accidents and serious incidents must be reported as soon as possible to the Air Accident Investigation Branch (AAIB). If you are able to do so, you must also submit an Occurrence Report. Aircraft accidents in the UK must also be reported to the Police.



The **24-hour AAIB** reporting line is available on **01252 512299**.



The number may be dialled from **outside the UK*** as **+44 1252 512299**.

*If you suffer an accident or serious incident outside the UK, you must inform the relevant local authorities as soon as possible. ICAO maintains a list of <u>national accident investigation authorities</u>.

The AAIB will need as much of the following information as possible:

- type, model, nationality and registration marks of the aircraft
- names of the owner, operator and hirer (if any) of the aircraft
- name of the commander of the aircraft
- date and time (UTC) of the accident or serious incident
- last point of departure and the next point of intended landing of the aircraft
- position of the aircraft in relation to some easily defined geographical location
- number of:
 - crew on board and the number killed or seriously injured
 - passengers on board and the number killed or seriously injured
 - other persons killed or seriously injured as a result of the accident
- nature of the accident or serious incident and the extent of damage as far as is known

Definition of an accident

"Accident" means an occurrence 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 and 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 it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:



is completely inaccessible.

Definition of serious injury

"Serious injury" means an injury which is sustained by a person in an accident and which involves one of the following:

- hospitalisation for more than 48 hours, commencing within 7 days from the date the injury was received;
- 2. a fracture of any bone (except simple fractures of fingers, toes, or nose);
- 3. lacerations which cause severe haemorrhage, nerve, muscle or tendon damage;
- 4. injury to any internal organ;
- second or third degree burns, or any burns affecting more than 5% of the body surface; or
- 6. verified exposure to infectious substances or injurious radiation.

Definition of serious incident

"Serious Incident" means an incident involving circumstances indicating that there was a high probability of an accident and is 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.

The incidents listed below are typical examples of serious incidents. The list is not exhaustive and only serves as a guide to the definition of 'serious incident':

- Near collisions requiring an avoidance manoeuvre to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate.
- Collisions not classified as accidents.
- 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, on an unassigned runway or on unintended landing locations such as roadways.

- Retraction of a landing gear leg or a wheels-up landing not classified as an accident.
- Dragging during landing of a wing tip, an engine pod or any other part of the aircraft, when not classified as an accident.
- Gross failures to achieve predicted performance during take-off or initial climb.
- Fires and/or smoke in the cockpit, 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.

Definition of serious incident - continued

- Aircraft structural failures or engine disintegrations, including uncontained turbine engine failures, 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:
 - for single pilot operations (including remote pilot);
 - for multi-pilot operations for which flight safety was compromised because of a significant increase in workload for the remaining crew.
- Fuel quantity level or distribution situations requiring the declaration of an emergency by the pilot, such as insufficient fuel, fuel exhaustion, fuel starvation, or inability to use all usable fuel on board.

- 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 under-shooting, overrunning or running off the side of runways.
- System failures (including loss of power or thrust), weather phenomena, operations outside the approved flight envelope or other occurrences which caused or could have caused difficulties controlling the aircraft.
- Failures of more than one system in a redundancy system mandatory for flight guidance and navigation.
- The unintentional or, as an emergency measure, the intentional release of a slung load or any other load carried external to the aircraft.

Airprox



An Airprox is a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. If you believe that you have been involved in an Airprox, this should be reported to the Airprox Board via their website.

The UK Airprox Board is a joint CAA and Military Aviation Authority (*MAA*) organisation responsible for receiving, analysing and publishing reports of Airproxes. More information on reporting an Airprox or reviewing Airprox Board reports can be found at <u>www.airproxboard.org.uk.</u>

Note that if the event also met the description in the MOR regulation of 'requiring an emergency avoidance manoeuvre' to avoid a collision, you must also file a MOR.



An independent and confidential reporting system for the Maritime industry

Confidential Human Factors Incident Reporting Programme (CHIRP)

The Confidential Human Factors Incident Reporting Programme *(CHIRP)* is a charity funded by the CAA and the maritime industry. The aim of CHIRP is the enhancement of aviation safety in the UK and maritime safety worldwide. <u>The UK State Safety Programme</u> acknowledges CHIRP as the UK's independent confidential voluntary reporting scheme.

Purpose

The information in a CHIRP report is disseminated as widely as possible, but in a disidentified manner and only with the consent of the reporter. Reports normally either describe an undesirable safety trend, or relate to specific safety events or issues.

Mandatory reporting systems make an important contribution to the safety data and feedback process, but they may not generate a complete picture regarding human factors or emerging safety trends. Confidential human factors reporting was introduced to supplement mandatory requirements. CHIRP provides a vital function in collecting reports that may otherwise have gone unwritten, and promoting change as a result.

The process also acts as an 'Agony Aunt' for those who seek counsel on safety issues or wish to share reflections and lessons from events that may not have been their finest hour. In response, CHIRP will often highlight relevant sources of information or points of contact to help resolve concerns. If appropriate, CHIRP may champion a cause and advocate it to industry or the regulator.

Who can report?

CHIRP may be used by engineers and technical staff involved with design and manufacturing processes, flight and cabin crew members, air traffic controllers, maintenance/engineering personnel and individual aircraft and drone owners/operators. CHIRP has dedicated expertise to review reports from GA pilots or other personnel involved in the sector.

Please note that reporting to CHIRP does not replace the legal responsibility on pilots or operators to report accidents to the AAIB and safety-related occurrences (including accidents) via the Occurrence Reporting Portal. Personnel working for an organisation with a Safety Management System (SMS) should in the first instance use their internal reporting system.

Aviation Advisory Boards

CHIRP operates through four volunteer-based Aviation Advisory Boards, comprised of expert peers from the principal aviation interests in the UK. Members provide expertise in the definition and resolution of issues raised in CHIRP reports. The four Advisory Boards cover:

- 1. Air transport
- 2. Cabin Crew
- 3. General Aviation
- 4. Drone/UAS

Personal details are removed from reports prior to discussion. The Boards also review the responses received from third-party organisations to assess the adequacy of any action taken in response to a reported concern. The Advisory Boards are the great strength of the CHIRP process because they provide professional credibility.

Publications

CHIRP publishes regular compilations of reports submitted, so that the issues identified, and lessons learnt can be shared with all those interested in reading them. Any names, dates, locations and aircraft registrations are removed from the published reports. More information and details of how to submit a report can be found at <u>www.chirp.co.uk</u> and within the <u>CAP2521</u> information sheet.



References

- Occurence Reporting Portal <u>www.aviationreporting.eu/</u>
- AAIB 01252 512 299
- Airprox <u>www.airproxboard.org.uk</u>
- CHIRP <u>www.chirp.co.uk</u>

Sailplane mandatory reports

- Unintentional loss of control.
- An occurrence where the sailplane pilot was unable to release either the winch cable or the aerotow rope and had to do so using emergency procedures.
- Any release of the winch cable or the aerotow rope if the release has or could have endangered the sailplane, its occupants or any other person.
- In the case of a powered sailplane, an engine failure during take-off.
- Any flight which has been performed with a sailplane which was not airworthy, or for which an incomplete flight preparation has or could have endangered the sailplane, its occupants or any other person.
- Abnormal severe vibration (for example: aileron or elevator 'flutter', or of propeller).
- Any flight control not functioning correctly or disconnected.
- A failure or substantial deterioration of the sailplane structure.
- A loss of any part of the sailplane structure or installation in flight.

- Interaction with air navigation services (for example:. incorrect services provided, conflicting communications or deviation from clearance) which has or could have endangered the sailplane, its occupants or any other person.
- Airspace infringements. Any occurrence leading to an emergency call.
- Any situation where no safe landing area remains available.
- Fire, explosion, smoke, or toxic gases or fumes in the sailplane.
- Incapacitation of the pilot leading to inability to perform any duty.
- A collision on the ground or in the air, with an aircraft, terrain or obstacle.
- A near collision, on the ground or in the air, with an aircraft, terrain or obstacle requiring an emergency avoidance manoeuvre to avoid a collision.
- Interference with the sailplane by firearms, fireworks, flying kites, laser illumination, high powered lights lasers, Remotely Piloted Aircraft Systems, model aircraft or by similar means.
- A lightning strike resulting in damage to the sailplane.

Balloon and Airship mandatory reports

- Any flight which has been performed with a lighter-than-air vehicle which was not airworthy, or for which an incomplete flight preparation has or could have endangered the lighter-than-air vehicle, its occupants or any other person.
- Unintended permanent extinction of the pilot light.
- Failure of any of the following parts or controls: dip tube on fuel cylinder, envelope pulley, control line, tether rope, valve seal leak on burner, valve seal leak on fuel cylinder, carabiner, damage to fuel line, lifting gas valve, envelope or ballonet, blower, pressure relief valve (gas balloon), winch (tethered gas balloons).
- Significant leakage or loss of lifting gas (for example: porosity, unseated lifting gas valves).
- Interaction with air navigation services (for example: incorrect services provided, conflicting communications or deviation from clearance) which has or could have endangered the lighter-than-air vehicle, its occupants or any other person.
- Airspace infringement.
- Any occurrence leading to an emergency call.

- Fire, explosion, smoke or toxic fumes in the lighter-than-air vehicle (beyond the normal operation of the burner).
- Lighter-than-air vehicle's occupants ejected from basket or gondola.
- Incapacitation of the pilot leading to inability to perform any duty.
- Unintended lift or drag of ground crew, leading to fatality or injury of a person.
- A collision or near collision on the ground or in the air, with an aircraft, terrain or obstacle which has or could have endangered the lighter-than-air vehicle, its occupants or any other person.
- Interference with the lighter-than-air vehicle by firearms, fireworks, flying kites, laser illumination, high powered lights lasers, Remotely Piloted Aircraft Systems, model aircraft or by similar means.
- Unexpected encounter of adverse weather conditions which has or could have endangered the lighter-than-air vehicle, its occupants or any other person.