CIVIL AVIATION PUBLICATION

CAP 21

MANDATORY OCCURRENCE REPORTING

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1. INTRODUCTION

This CAP is interpretative material and provides guidance in order to determine which occurrences must be reported to the Authority and to other organisations, and it provides guidance on the timescale for submission of such reports. It also describes the objective of the overall occurrence reporting system including internal and external functions. Operators and organisations are encouraged to include occurrence reporting data bases within their Safety Management System.

2. APPLICABILITY

(a) [This CAP only applies to occurrence reporting by persons/organisations regulated by either CAR OPS 1, CAR OPS 2A/H, CAR OPS 3, CAR OPS 4, CAR GEN or CAR 145. It does not address reporting by aerodrome organisations, air navigation service providers and authorities themselves.]

(b) The CAP does not apply to dangerous goods reporting. The definition of reportable dangerous goods occurrences is different from the other occurrences and the reporting system is also separate. This subject is covered in CAP 18.

3. OBJECTIVE OF OCCURRENCE REPORTING

(a) [The occurrence reporting system is an essential part of the overall monitoring function. The objective of the occurrence reporting, collection, investigation and analysis systems required by CAR OPS 1/2A/2H/3/4, CAR GEN and CAR 145 is to use the reported information to contribute to the improvement of aviation safety, and not to attribute blame, impose fines or take other enforcement actions.]

(b) The detailed objectives of the occurrence reporting systems are:

(1) To enable an assessment of the safety implications of each occurrence to be made, including previous similar occurrences, so that any necessary action can be initiated. This includes determining what and why it had occurred and what might prevent a similar occurrence in the future.

(2) To ensure that knowledge of occurrences is disseminated so that other persons and organisations may learn from them.

(c) The occurrence reporting system is complementary to the normal day to day procedures and 'control' systems and is not intended to duplicate or supersede any of them. The occurrence reporting system is a tool to identify those occasions where routine procedures have failed.

(d) Occurrences should remain in the database when judged reportable by the person submitting the report as the significance of such reports may only become obvious at a later date.

4. REPORTING TO THE AUTHORITY

(a) Reporter

In most cases the obligation to report is on the holders of a certificate or approval, which in most cases are organisations, but in some cases can be a single person.

Every person listed below must report to the Authority, the State of Registry if different to the Authority, and the organisation responsible for the design of the aircraft or component, as soon as practicable, or within 72 hours, any event which constitutes an mandatory occurrence in the Appendices and which comes to that person's attention in the exercise of that person's functions:

(1) the operator and the pilot-in-command of an aircraft which has a certificate of airworthiness or permit to fly issued by the Authority;

(2) a person who carries on in the territory of San Marino, the business of maintaining, modifying or manufacturing an aircraft, or any equipment or part thereof;

(3) a person who carries on the business of maintaining or modifying an aircraft that has a certificate of airworthiness or permit to fly issued by the Authority and a person who carries on the business of maintaining or modifying any equipment or part of such an aircraft;

(4) a person who carries on the business of maintaining or modifying an aircraft, operated under an air operator's certificate granted by the Authority, and a person who carries on the business of maintaining or modifying any equipment or part of such an aircraft;

(5) a person who signs an airworthiness report or a certificate of release to service in respect of such an aircraft, part or equipment;

(6) a person who performs a function concerning the ground-handling of aircraft, including fuelling, servicing, load sheet preparation, de-icing and towing.

(b) Requirements

(1) Occurrences, such as an incident, malfunction, defect, technical defect or exceedance of technical limitations that endangers or could endanger the safe operation of the aircraft, must be reported to the Authority within 72 hours of the event.

(2) CAR 21 prescribes that occurrences defined as a failure, malfunction, defect or other occurrence which has resulted in or may result in an unsafe condition must be reported to the Authority.

(3) According to CAR 21 occurrences defined as a deviation which could lead to an unsafe condition must be reported to the Authority.

(4) CAR 145 stipulates that occurrences defined as any condition of the aircraft or aircraft component that has resulted or may result in an unsafe condition that could seriously hazard the aircraft must be reported to the Authority.

(5) Reporting does not remove the reporter's or organisation's responsibility to investigate the occurrence and process the identified hazard and risks under their Safety Management System and commence corrective actions to prevent similar occurrences in the future. Known and planned preventive actions should be included within the report.

(6) Where a continuing airworthiness safety issue is associated with a modification, information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the continuing airworthiness of the aircraft must be transmitted to the CAA as well as the organisation responsible for the type design of that aircraft and the organisation responsible for the design of the modification. Refer also to Section 9.

(c) Paragraph 10(e) and the Appendices of this CAP provide guidance as to what should be reported by an organisation to the Authority. The list of criteria provided may be used as guidance for establishing which occurrences shall be reported by which organisation. For example, the organisation responsible for the design will not need to report certain operational occurrences that it has been made aware of, if the continuing airworthiness of the product is not involved.

(d) [Occurrence Reporting

To facilitate consistent reporting and subsequent storage and analysis of data, a Centrik web-portal on line reporting system has been established. This Centrik web-portal can be used for all types of occurrence, including reports under the Voluntary (Confidential) Reporting System (Refer CAP 22). Guidance material to assist in the submission process can be found at Appendix 6.]

5. NOTIFICATION OF ACCIDENTS AND SERIOUS INCIDENTS

In addition to the requirement to notify the appropriate accident investigating authorities directly of any accident or serious incident, operators must also report to the CAA.

6. REPORTING TIME

(a) The period of 72 hours is normally understood to start from when the occurrence took place or from the time when the reporter determined that there was, or could have been, a potentially hazardous or unsafe condition.

(b) For many occurrences there is no evaluation needed; it must be reported. However, there will be occasions when, as part of a Safety Management System or Quality Programme, a previously non-reportable occurrence is determined to be reportable

(c) Within the overall limit of 72 hours for the submission of a report, the degree of urgency should be determined by the level of hazard judged to have resulted from the occurrence:

(1) Where an occurrence is judged to have resulted in an immediate and particularly significant hazard the CAA expects to be advised immediately, and by the fastest possible means (e.g. telephone, fax, telex, e-mail) of whatever details are available at that time. This initial notification should then be followed up by a report within 72 hours.

(2) Where the occurrence is judged to have resulted in a less immediate and less significant hazard, report submission may be delayed up to the maximum of 72 hours in order to provide more details or more reliable information.

Note: Reportable accidents require that notice be given to the CAA by the quickest means of communication available and serious incidents require that notice be given to the CAA by the quickest means of communication available within 24 hours.

7. CONTENT OF REPORTS

(a) [Reports shall be transmitted via the Centrik web-portal. The amount of information in the submission should be commensurate with the severity of the occurrence.] Each report should at least contain the following elements, as applicable to each organisation:

(1) Organisation name

(2) Approval reference (if relevant)

(3) Information necessary to identify the aircraft or part affected.

(4) Date and time if relevant

(5) A written summary of the occurrence

(6) Any other specific information, photographs or documentation

(b) For any occurrence involving a system or component, which is monitored or protected by a warning and/or protection system (for example: fire detection/extinguishing) the occurrence report should always state whether such system(s) functioned properly.

8. NOTIFICATION TO OTHER AGENCIES

For CAR OPS approved organisations, in addition to reporting occurrences to the Authority, the following agencies should also be notified in specific cases:

(a) Reports relating to 'security incidents' should also be notified to the appropriate local security agency

(b) Reports relating to air traffic, aerodrome occurrences or bird strikes should also be notified to the appropriate air navigation, aerodrome or ground agency

(c) Reports relating to air traffic management safety occurrences should be notified to the responsible Regional authority

9. REPORTING BETWEEN ORGANISATIONS

(a) Requirements exist that address the reporting of data relating to unsafe or un-airworthy conditions. For San Marino operators/organisations these reporting lines are:

(1) Maintenance organisation to the organisation responsible for the design;

(2) Maintenance organisation to operator;

(3) Operator to organisation responsible for the design;

(b) The Organisation responsible for the design is a general term, which can be any one or a combination of the following organisations

(1) Holder of Type Certificate (TC) of an Aircraft, Engine or Propeller;

(2) Holder of a Supplemental Type Certificate (STC) on an Aircraft, Engine or Propeller;

(3) Holder of a Technical Standard Order (TSO) Authorisation; or

(4) Holder of a Part Approval (PA) Authorisation

(c) If it can be determined that the occurrence has an impact on or is related to an aircraft component which is covered by a separate design approval (TC, STC, TSO or PA), then the holders of such approval/authorisation should be informed.

If an occurrence happens on a component which is covered by an TC, STC, TSO or PA (e.g. during maintenance), then only that TC, STC, TSO Authorisation or PA Authorisation holder needs to be informed.

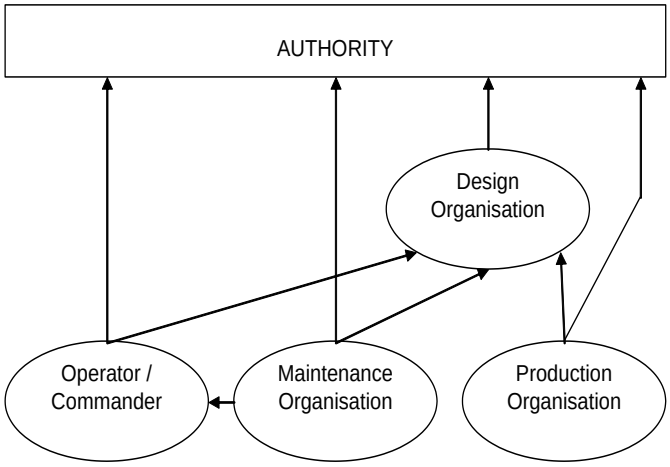
(d) The form and timescale for reports to be exchanged between organisations is left for individual organisations to determine. What is important is that a relationship exists between the organisations to ensure that there is an exchange of information relating to occurrences.

(e) Paragraph 10 and the Appendices of this CAP provide guidance as to what should be reported by an organisation to the authority. The list of criteria provided may be used as guidance for establishing which occurrences shall be reported to which organisation. For example, certain operational occurrences will not need to be reported by an operator to the design or production organisation.

10. REPORTABLE OCCURRENCES

(a) *General*. There are different reporting requirements for operators (and/or commanders), maintenance organisations, design organisations and production organisations. Moreover, there are not only requirements for reporting to the Authority, but also for reporting to other (private) entities. The criteria for all these different reporting lines are not the same. For example the Authority will not receive the same kind of reports from a design organisation as from an operator. This is a reflection of the different perspectives of the organisations based on their activities.

The following presents a simplified scheme of all reporting lines.



(b) *Operations and Maintenance.* The list of examples of reportable occurrences offered below under sub-paragraph (g) below is established from the perspective of primary sources of occurrence information in the operational area (operators and maintenance organisations) to provide guidance for those persons developing criteria for individual organisations on what they need to report to the authority. The list is neither definitive nor exhaustive and judgement by the reporter of the degree of hazard or potential hazard involved is essential.

(c) *Customised list.* Each San Marino approval or authorisation holder should develop a customised list or data base adapted to its aircraft, operation or product. The list of reportable occurrences applicable to an organisation is usually published within the organisation and could be part of the organisation's SMS.

(d) *Internal reporting*. The perception of safety is central to occurrence reporting. It is for each organisation to determine what is safe and what is unsafe and to develop its reporting system on that basis. The organisation should establish an internal reporting system whereby reports are centrally collected and reviewed to establish which reports meet the criteria for occurrence reporting to the CAA and other NAAs, as required.

(e) *List of examples of reportable occurrences.* The following Appendices detail a generic list. Not all examples are applicable to each reporting organisation. In addition, some organisations may prefer a less detailed list. Therefore each organisation should define and agree with the authority a specific list of reportable occurrences or a list of more generic criteria, tailored to its activity and scope of work. In establishing that customised list, the organisation should take into account the following considerations:

Reportable occurrences are those where the safety of operation was or could have been endangered or which could have led to an unsafe condition. If in the view of the reporter an occurrence did not hazard the safety of the operation but if repeated in different but likely circumstances would create a hazard, then a report should be made. What is judged to be reportable on one class of product, part or appliance may not be so for another and the absence or presence of a single factor, human or technical, can transform an occurrence into a serious incident or accident.

Specific operational approvals, e.g. RVSM, EDTOs, PBN, or a maintenance programme, may have specific reporting requirements for failures or malfunctions associated with that approval or programme.

A lot of the qualifying adjectives like 'significant' have been deleted from the list. Instead it is expected that all examples are qualified by the reporter using the general criteria that are applicable in his field, and specified in the requirement. (e.g. for operators: 'hazards or could have endangered the safety of the operation')

Note: Refer to following Appendices 1-5 for various reportable occurrences.

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APPENDIX 1

REPORTABLE OCCURRENCES FOR SPECIFIC SYSTEMS

The following subparagraphs give examples of reportable occurrences resulting from the application of the generic criteria to specific systems listed in paragraph 10(e) of this Section.

1. Air conditioning/ventilation

   (a) complete loss of avionics cooling

   (b) depressurisation

2. Autoflight system

   (a) failure of the autoflight system to achieve the intended operation while engaged

   (b) significant reported crew difficulty to control the aircraft linked to autoflight system functioning

   (c) failure of any autoflight system disconnect device

   (d) un-commanded autoflight mode change

3. Communications

   (a) failure or defect of passenger address system resulting in loss or inaudible passenger address

   (b) total loss of communication in flight

4. Electrical system

   (a) loss of one electrical system distribution system (AC or DC)

   (b) total loss or loss or more than one electrical generation system

   (c) failure of the back-up (emergency) electrical generating system

5. Cockpit/Cabin/Cargo

   (a) pilot seat control loss during flight

   (b) failure of any emergency system or equipment, including emergency evacuation signalling system , all exit doors , emergency lighting etc.

   (c) loss of retention capability of the cargo loading system

6. Fire protection system

(a) fire warnings, except those immediately confirmed as false

(b) undetected failure or defect of fire/smoke detection/protection system, which could lead to loss or reduced fire detection/protection

(c) absence of warning in case of actual fire or smoke

7. Flight controls

(a) Asymmetry of flaps, slats, spoilers etc.

(b) limitation of movement, stiffness or poor or delayed response in the operation of primary flight control systems or their associated tab and lock systems

(c) flight control surface run away

(d) flight control surface vibration felt by the crew

(e) mechanical flight control disconnection or failure

(f) significant interference with normal control of the aircraft or degradation of flying qualities

8. Fuel system

(a) fuel quantity indicating system malfunction resulting in total loss or erroneous indicated fuel quantity on board

(b) leakage of fuel which resulted in major loss, fire hazard , significant contamination

(c) malfunction or defects of the fuel jettisoning system which resulted in inadvertent loss of significant quantity, fire hazard, hazardous contamination of aircraft equipment or inability to jettison fuel

(d) fuel system malfunctions or defects which had a significant effect on fuel supply and/or distribution

(e) inability to transfer or use total quantity of usable fuel

9. Hydraulics

(a) loss of one hydraulic system (EDTOs only)

(b) failure of the isolation system to operate

(c) loss of more than one hydraulic circuit

(d) failure of the back-up hydraulic system

(e) inadvertent Ram Air Turbine extension

10. Ice detection/protection system

(a) undetected loss or reduced performance of the anti-ice/de-ice system

(b) loss of more than one of the probe heating systems

(c) inability to obtain symmetrical wing de icing

(d) abnormal ice accumulation leading to significant effects on performance or handling qualities

(e) crew vision significantly affected

11. Indicating/warning/recording systems

(a) malfunction or defect of any indicating system when the possibility of significant misleading indications to the crew could result in an inappropriate crew action on an essential system

(b) loss of a red warning function on a system

(c) for glass cockpits: loss or malfunction of more than one display unit or computer involved in the display/warning function

12. Landing gear system /brakes/tyres

(a) brake fire

(b) significant loss of braking action

(c) unsymmetrical braking leading to significant path deviation

(d) failure of the L/G free fall extension system (including during scheduled tests)

(e) unwanted gear or gear doors extension/retraction

(f) multiple tyres burst

13. Navigation systems (including precision approaches system) and air data systems

(a) total loss or multiple navigation equipment failures

(b) total failure or multiple air data system equipment failures

(c) significant misleading indication

(d) Significant navigation errors attributed to incorrect data or a database coding error

(e) Unexpected deviations in lateral or vertical path not caused by pilot input.

(f) Problems with ground navigational facilities leading to significant navigation errors not associated with transitions from inertial navigation mode to radio navigation mode.

14. Oxygen

(a) for pressurised aircraft: loss of oxygen supply in the cockpit

(b) loss of oxygen supply to a significant number of passengers (more than 10%), including when found during maintenance or training or test purposes

15. Bleed air system

(a) hot bleed air leak resulting in fire warning or structural damage

(b) loss of all bleed air systems

(c) failure of bleed air leak detection system

16. RPAS Command & Control (C2)

(a) Loss of C2 link

APPENDIX 2

REPORTABLE OCCURRENCES FOR FLIGHT OPERATIONS

A. Operation of the Aircraft

(1) (a) Risk of collision with an aircraft, terrain or other object or an unsafe situation when avoidance action would have been appropriate.

(b) An avoidance manoeuvre required to avoid a collision with an aircraft, terrain or other object.

(c) An avoidance manoeuvre to avoid other unsafe situations.

(2) Take-off or landing incidents, including precautionary or forced landings. Incidents such as under-shooting, overrunning or running off the side of runways; rejected take-offs, landings or attempted landings on a closed, occupied or incorrect runway; runway incursions.

(3) Inability to achieve predicted performance during take-off or initial climb.

(4) Critically low fuel quantity (including landing with less than the final reserve fuel) or inability to transfer fuel or use total quantity of usable fuel.

(5) Loss of control (including partial or temporary loss of control) from any cause.

(6) Occurrences close to or above V1 resulting from or producing a hazardous or potentially hazardous situation (e.g. rejected take-off, tail strike, engine power loss etc.).

(7) Go-around producing a hazardous or potentially hazardous situation.

(8) Unintentional significant deviation from airspeed, intended track or altitude. (more than 300 ft) from any cause.

(9) Descent below decision height/altitude or minimum descent height/altitude without the required visual reference.

(10) Loss of position awareness relative to actual position or to other aircraft.

(11) Breakdown in communication between flight crew (CRM) or between Flight crew and other parties (cabin crew, ATC, engineering).

(12) Heavy landing - a landing deemed to require a 'heavy landing check'.

(13) Exceedance of fuel imbalance limits.

(14) Incorrect setting of an SSR code or of an altimeter subscale.

(15) Incorrect programming of, or erroneous entries into, equipment used for navigation or performance calculations, or use of incorrect data.

(16) Incorrect receipt or interpretation of radiotelephony messages.

(17) Fuel system malfunctions or defects, which had an effect on fuel supply and/or distribution.

(18) Aircraft unintentionally departing a paved surface.

(19) Collision between an aircraft and any other aircraft, vehicle or other ground object.

(20) Inadvertent and/or incorrect operation of any controls.

(21) Inability to achieve the intended aircraft configuration for any flight phase (e.g. landing gear and doors, flaps, stabilisers, slats etc.).

(22) A hazard or potential hazard which arises as a consequence of any deliberate simulation of failure conditions for training, system checks or training purposes.

(23) Abnormal vibration.

(24) Operation of any primary warning system associated with manoeuvring of the aircraft e.g. configuration warning, stall warning (stick shake), over speed warning etc. unless:

(a) the crew conclusively established that the indication was false. Provided that the false warning did not result in difficulty or hazard arising from the crew response to the warning; or

(b) operated for training or test purposes.

(25) GPWS/TAWS 'warning' when:

(a) the aircraft comes into closer proximity to the ground than had been planned or anticipated; or

(b) the warning is experienced in IMC or at night and is established as having been triggered by a high rate of descent (Mode 1); or

(c) the warning results from failure to select landing gear or land flap by the appropriate point on the approach (Mode 4); or

(d) any difficulty or hazard arises or might have arisen as a result of crew response to the 'warning' e.g. possible reduced separation from other traffic. This could include warning of any Mode or Type i.e. genuine, nuisance or false.

(26) GPWS/TAWS 'alert' when any difficulty or hazard arises or might have arisen as a result of crew response to the 'alert'.

(27) ACAS RAs.

(28) Jet or prop blast incidents resulting in significant damage or serious injury.

B. Emergencies

(1) Fire, explosion, smoke or toxic or noxious fumes, even though fires were extinguished.

(2) The use of any non-standard procedure by the flight or cabin crew to deal with an emergency when:

(a) the procedure exists but is not used; or

(b) a procedure does not exist; or

(c) the procedure exists but is incomplete or inappropriate; or

(d) the procedure is incorrect; or

(e) the incorrect procedure is used.

(3) Inadequacy of any procedures designed to be used in an emergency, including when being used for maintenance, training or test purposes.

(4) An event leading to an emergency evacuation.

(5) Depressurisation.

(6) The use of any emergency equipment or prescribed emergency procedures in order to deal with a situation.

(7) An event leading to the declaration of an emergency ('Mayday' or 'Pan').

(8) Failure of any emergency system or equipment, including all exit doors and lighting, to perform satisfactorily, including when being used for maintenance, training or test purposes.

(9) Events requiring any emergency use of oxygen by any crew member.

C. Crew Incapacitation

(1) Incapacitation of any member of the flight crew, including that which occurs prior to departure if it is considered that it could have resulted in incapacitation after take-off.

(2) Incapacitation of any member of the cabin crew which renders them unable to perform essential emergency duties.

D. Injury

(1) Occurrences, which have or could have led to significant injury to passengers or crew but which are not considered reportable as an accident.

E. Meteorology

(1) A lightning strike which resulted in damage to the aircraft or loss or malfunction of any essential service.

(2) A hail strike which resulted in damage to the aircraft or loss or malfunction of any essential service.

(3) Severe turbulence encounter – an encounter resulting in injury to occupants or deemed to require a 'turbulence check' of the aircraft.

(4) A windshear encounter.

(5) Icing encounter resulting in handling difficulties, damage to the aircraft or loss or malfunction of any essential service.

F. Security

(1) Unlawful interference with the aircraft including a bomb threat or hijack.

(2) Difficulty in controlling intoxicated, violent or unruly passengers.

(3) Discovery of a stowaway.

G. Other Occurrences

(1) Repetitive instances of a specific type of occurrence which in isolation would not be considered 'reportable' but which due to the frequency at which they arise, form a potential hazard.

(2) A bird strike which resulted in damage to the aircraft or loss or malfunction of any essential service.

(3) Wake turbulence encounters.

(4) Any other occurrence of any type considered to have endangered or which might have endangered the aircraft or its occupants on board the aircraft or on the ground.

APPENDIX 3

REPORTABLE OCCURRENCES FOR ENGINEERING

A. Structural

Not all structural failures need to be reported. Engineering judgement is required to decide whether a failure is serious enough to be reported. The following examples can be taken into consideration:

(1) Damage to a Principal Structural Element that has not been qualified as damage tolerant (life limited element). Principal Structural Elements are those which contribute significantly to carrying flight, ground, and pressurisation loads, and whose failure could result in a catastrophic failure of the aircraft.

Typical examples of such elements are listed for large aeroplanes in the State of Design regulations. For example, EASA AC/AMC 25.571(a) "damage tolerance and fatigue evaluation of structure" and in the equivalent AMC material for rotorcraft as well as FAR 25.

(2) Defect or damage exceeding admissible damages to a Principal Structural Element that has been qualified as damage tolerant.

(3) Damage to or defect exceeding allowed tolerances of a structural element which failure could reduce the structural stiffness to such an extent that the required flutter, divergence or control reversal margins are no longer achieved.

(4) Damage to or defect of a structural element, which could result in the liberation of items of mass that may injure occupants of the aircraft.

(5) Damage to or defect of a structural element, which could jeopardise proper operation of systems. See paragraph II.B. below.

(6) Loss of any part of the aircraft structure in flight.

B. Systems

The following generic criteria applicable to all systems are proposed:

(1) Loss, significant malfunction or defect of any system, subsystem or set of equipment when standard operating procedures, drills etc. could not be satisfactorily accomplished.

(2) Inability of the crew to control the system, e.g.:

(a) un-commanded actions;

(b) incorrect and or incomplete response, including limitation of movement or stiffness;

(c) runaway;

(d) mechanical disconnection or failure.

(3) Failure or malfunction of the exclusive function(s) of the system (one system could integrate several functions).

(4) Interference within or between systems.

(5) Failure or malfunction of the protection device or emergency system associated with the system.

(6) Loss of redundancy of the system.

(7) Any occurrence resulting from unforeseen behaviour of a system.

(8) For aircraft types with single main systems, subsystems or sets of equipment: Loss, significant malfunction or defect in any main system, subsystem or set of equipment.

(9) For aircraft types with multiple independent main systems, subsystems or sets of equipment: The loss, significant malfunction or defect of more than one main system, subsystem or set of equipment

(10) Operation of any primary warning system associated with aircraft systems or equipment unless the crew conclusively established that the indication was false provided that the false warning did not result in difficulty or hazard arising from the crew response to the warning.

(11) Leakage of hydraulic fluids, fuel, oil or other fluids which resulted in a fire hazard or possible hazardous contamination of aircraft structure, systems or equipment, or risk to occupants.

(12) Malfunction or defect of any indication system when this results in the possibility of misleading indications to the crew.

(13) Any failure, malfunction or defect if it occurs at a critical phase of flight and relevant to the operation of that system.

(14) Occurrences of significant shortfall of the actual performances compared to the approved performance which resulted in a hazardous situation (taking into account the accuracy of the performance calculation method) including braking action, fuel consumption etc.

(15) Asymmetry of flight controls; e.g. flaps, slats, spoilers etc.

A list of examples of reportable occurrences resulting from the application of these generic criteria to specific systems is in Section 10(e)

C. Propulsion (including Engines, Propellers and Rotor Systems) and APUs

(1) Flameout, shutdown or malfunction of any engine.

(2) Overspeed or inability to control the speed of any high speed rotating component (for example: Auxiliary power unit, air starter, air cycle machine, air turbine motor, propeller or rotor).

(3) Failure or malfunction of any part of an engine or powerplant resulting in any one or more of the following:

(a) non containment of components/debris;

(b) uncontrolled internal or external fire, or hot gas breakout;

(c) thrust in a different direction from that demanded by the pilot;

(d) thrust reversing system failing to operate or operating inadvertently;

(e) inability to control power, thrust or rpm;

(f) failure of the engine mount structure;

(g) partial or complete loss of a major part of the powerplant;

(h) Dense visible fumes or concentrations of toxic products sufficient to incapacitate crew or passengers;

(i) inability, by use of normal procedures, to shutdown an engine;

(j) inability to restart a serviceable engine.

(4) An uncommanded thrust/power loss, change or oscillation which is classified as a loss of thrust or power control (LOTC):

(a) for a single engine aircraft; or

(b) where it is considered excessive for the application, or

(c) where this could affect more than one engine in a multi-engine aircraft, particularly in the case of a twin engine aircraft; or

(d) for a multi-engine aircraft where the same, or similar, engine type is used in an application where the event would be considered hazardous or critical.

(5) Any defect in a life controlled part causing retirement of before completion of its full life.

(6) Defects of common origin which could cause an in-flight shut down rate so high that there is the possibility of more than one engine being shut down on the same flight.

(7) An engine limiter or control device failing to operate when required or operating inadvertently.

(8) exceedance of engine parameters.

(9) FOD resulting in damage.

Propellers and transmission

(10) Failure or malfunction of any part of a propeller or powerplant resulting in any one or more of the following:

(a) an overspeed of the propeller;

(b) the development of excessive drag;

(c) a thrust in the opposite direction to that commanded by the pilot;

(d) a release of the propeller or any major portion of the propeller;

(e) a failure that results in excessive unbalance;

(f) the unintended movement of the propeller blades below the established minimum in-flight low-pitch position;

(g) an inability to feather the propeller;

(h) an inability to command a change in propeller pitch;

(i) an uncommanded change in pitch;

(j) an uncontrollable torque or speed fluctuation;

(k) The release of low energy parts.

Rotors and -transmission

(11) Damage or defect of main rotor gearbox / attachment which could lead to in flight separation of the rotor assembly, and /or malfunctions of the rotor control.

(12) Damage to tail rotor, transmission and equivalent systems.

APUs

(13) Shut down or failure when the APU is required to be available by operational requirements, e.g. EDTOS, MEL.

(14) Inability to shut down the APU.

(15) Overspeed.

(16) Inability to start the APU when needed for operational reasons.

D. Human Factors

(1) Any incident where any feature or inadequacy of the aircraft design could have led to an error of use that could contribute to a hazardous or catastrophic effect.

E. Other Occurrences

(1) Any incident where any feature or inadequacy of the aircraft design could have led to an error of use that could contribute to a hazardous or catastrophic effect.

(2) An occurrence not normally considered as reportable (for example, furnishing and cabin equipment, water systems), where the circumstances resulted in endangering of the aircraft or its occupants.

(3) A fire, explosion, smoke or toxic or noxious fumes.

(4) Any other event which could hazard the aircraft , or affect the safety of the occupants of the aircraft, or people or property in the vicinity of the aircraft or on the ground.

(5) Failure or defect of passenger address system resulting in loss or inaudible passenger address system.

(6) Loss of pilot's seat control during flight.

APPENDIX 4

REPORTABLE OCCURRENCES FOR MAINTENANCE AND REPAIR

A. Incorrect assembly of parts or components of the aircraft found during an inspection or test procedure not intended for that specific purpose.

B. Hot bleed air leak resulting in structural damage.

C. Any defect in a life controlled part causing retirement before completion of its full life.

D. Any damage or deterioration (i.e. fractures, cracks, corrosion, de-lamination, dis-bonding etc.) resulting from any cause (such as flutter, loss of stiffness or structural failure) to:

(1) primary structure or a principal structural element (as defined in the manufacturers' Repair Manual) where such damage or deterioration exceeds allowable limits specified in the Repair Manual and requires a repair or complete or partial replacement of the element;

(2) secondary structure which consequently has or may have endangered the aircraft;

(3) the engine, propeller or rotorcraft rotor system.

E. Any failure, malfunction or defect of any system or equipment, or damage or deterioration found as a result of compliance with an Airworthiness Directive or other mandatory instruction issued by a Regulatory Authority, when:

(1) it is detected for the first time by the reporting organisation implementing compliance;

(2) on any subsequent compliance where it exceeds the permissible limits quoted in the instruction and/or published repair/rectification procedures are not available.

F. Failure of any emergency system or equipment, including all exit doors and lighting, to perform satisfactorily, including when being used for maintenance or test purposes.

G. Non-compliance or significant errors in compliance with required maintenance procedures.

H. Products, parts, appliances and materials of unknown or suspect origin.

I. Misleading, incorrect or insufficient maintenance data or procedures that could lead to maintenance errors.

J. Failure, malfunction or defect of ground equipment used for test or checking of aircraft systems and equipment when the required routine inspection and test procedures did not clearly identify the problem when this results in a hazardous situation.

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APPENDIX 5

REPORTABLE OCCURRENCES FOR AIR NAVIGATION, FACILITIES AND GROUND SERVICES

A. Air Navigation Services

(1) Provision of significantly incorrect, inadequate or misleading information from any ground sources, e.g. Air Traffic Control (ATC), Automatic Terminal Information Service (ATIS), Meteorological Services, navigation databases, maps, charts, manuals, etc.

(2) Provision of less than prescribed terrain clearance.

(3) Provision of incorrect pressure reference data (i.e. altimeter setting).

(4) Incorrect transmission, receipt or interpretation of significant messages when this results in a hazardous situation.

(5) Separation minima infringement.

(6) Unauthorised penetration of airspace.

(7) Unlawful radio communication transmission.

(8) Failure of ANS ground or satellite facilities.

(9) Major ATC/Air Traffic Management (ATM) failure or significant deterioration of aerodrome infrastructure.

(10) Aerodrome movement areas obstructed by aircraft, vehicles, animals or foreign objects, resulting in a hazardous or potentially hazardous situation.

(11) Errors or inadequacies in marking of obstructions or hazards on aerodrome movement areas resulting in a hazardous situation.

(12) Failure, significant malfunction or unavailability of airfield lighting.

B. Aerodrome and Aerodrome Facilities

(1) Significant spillage during fuelling operations.

(2) Loading of incorrect fuel quantities likely to have a significant effect on aircraft endurance, performance, balance or structural strength.

(3) unsatisfactory ground de-icing/anti-icing

C. Passenger Handling, Baggage and Cargo

(1) Significant contamination of aircraft structure, or systems and equipment arising from the carriage of baggage or cargo.

(2) Incorrect loading of passengers, baggage or cargo, likely to have a significant effect on aircraft mass and/or balance.

(3) Incorrect stowage of baggage or cargo (including hand baggage) likely in any way to hazard the aircraft, its equipment or occupants or to impede emergency evacuation.

(4) Inadequate stowage of cargo containers or other substantial items of cargo.

Note: For Dangerous goods incidents reporting see CAP 18.

D. Aircraft Ground Handling and Servicing

(1) Failure, malfunction or defect of ground equipment used for test or checking of aircraft systems and equipment when the required routine inspection and test procedures did not clearly identify the problem when this results in a hazardous situation.

(2) Non-compliance or significant errors in compliance with required servicing procedures.

(3) Loading of contaminated or incorrect type of fuel or other essential fluids (including oxygen and potable water).

[APPENDIX 6

MANDATORY OCCURRENCE REPORTING

The following contains guidance on the new occurrence reporting submission web-portal introduced by San Marino CAA

Introduction

San Marino Civil Aviation Regulations relating to occurrence reporting are aimed at improving aviation safety by ensuring that relevant safety information relating to civil aviation is reported, collected, stored, protected, exchanged, disseminated and analysed. CAA is the designated competent authority to establish the mechanism to independently collect, evaluate, process, analyse and store details of occurrences reported pursuant to regulation.

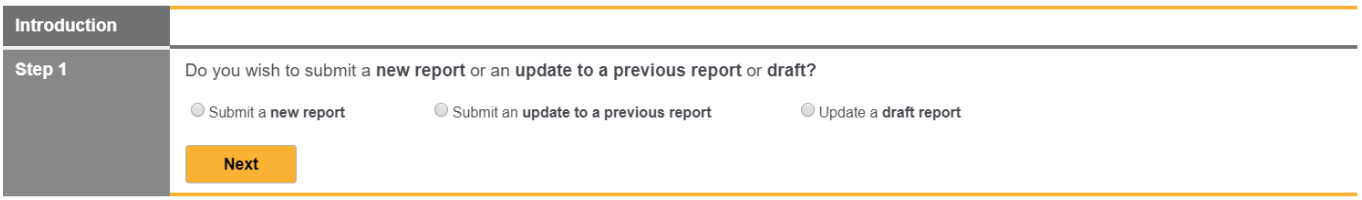
In this regard, CAA is adopting a new occurrence reporting system for the management of reports including their relevant follow-up submissions and analysis. CAA will be utilising a designated Centrik web-link as the reporting portal. This web-link will be directly linked to CAA's database and all information will be stored and recorded in the Centrik software database and administered by the CAA.

This quick-reference guide serves as a tool to assist users with the simple steps of the new reporting system which will be introduced among organisations/operators under the oversight of the CAA.

The new Centrik reporting portal (https://smar.centrik.net/SMS/Case/ExternalReport.aspx) must be used instead of the Reporting Form SM20 in order to ensure that data is automatically submitted to the CAA's database. The same Centrik portal may also be used by individuals who would like to submit an occurrence report that needs to be brought to the attention of the CAA.

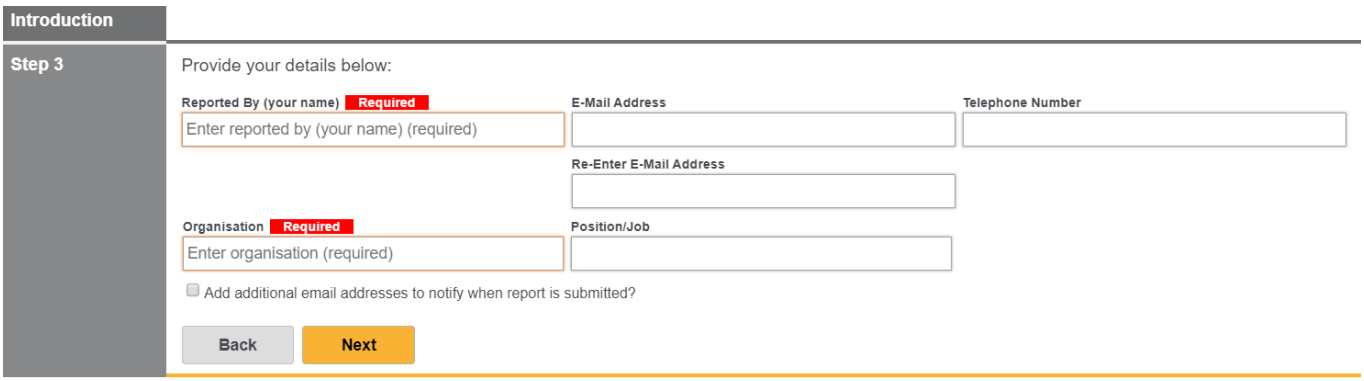
New Report Submissions

The link https://smar.centrik.net/SMS/Case/ExternalReport.aspx will open the following web page:



Step 1: Select 'Submit a new report'. Other options are submit an update to a previous report that has been submitted or update a report that has been drafted but not submitted.

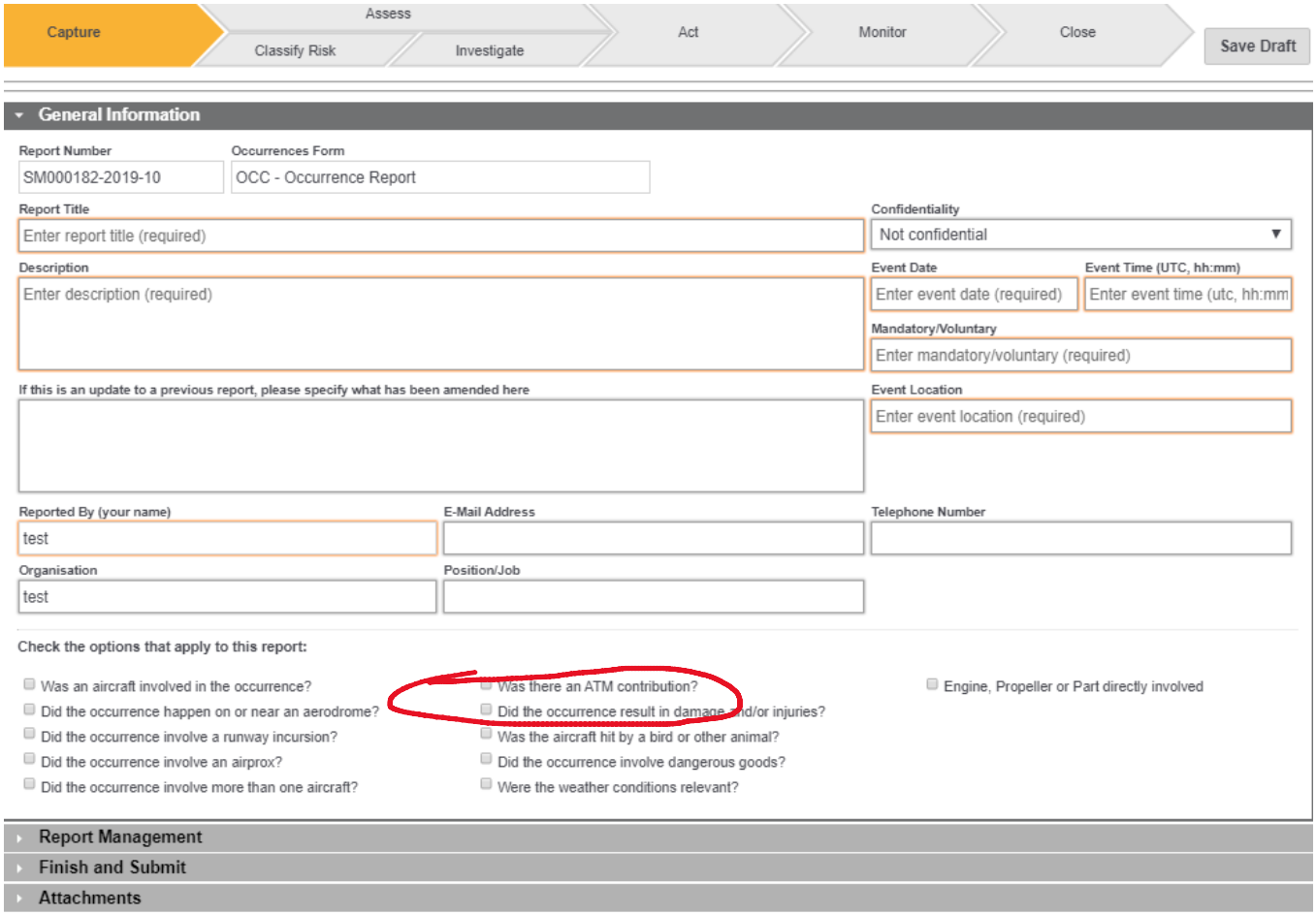
Step 2: The reporter selects whether the report is being submitted by an individual or else on behalf of an organisation.



Step 3: The individual is required to enter the details as necessary.

Note 1: A report cannot be submitted without populating the 'Orange-bordered' cell(s).

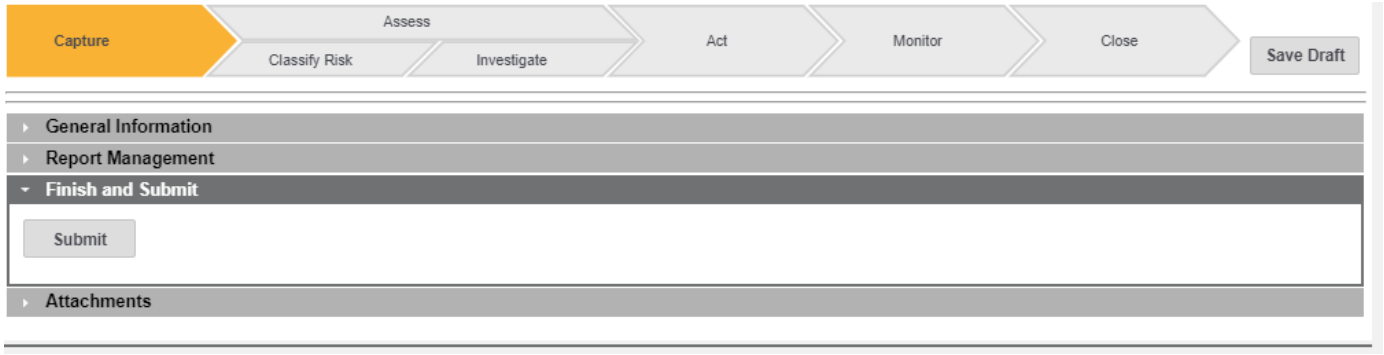
Note2: The details populated by the submitter will automatically be pre-populated by Centrik on any subsequent submission.



Step 4: After selecting the type of report, the submitter will be prompted with the respective occurrence report form.

Note 1: All mandatory fields are identified as 'Orange-bordered' cells. These need to be filled-in in order for the report to be accepted by Centrik. An error message with any missing fields will be prompted when trying to submit the report.

Note 2: When selecting the options additional tabs will be displayed requesting additional information applicable to the option selected.



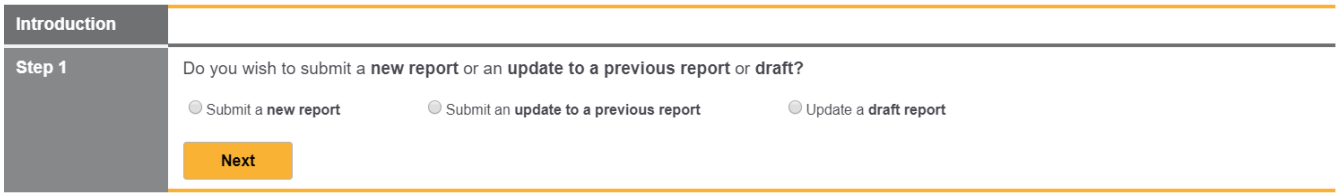
Step 5: Once the mandatory fields are filled in from each respective Tab the user can submit the report by opening the 'Finish and Submit' Tab and click on the **'Submit'** button.

Note: The report will be submitted only to the CAA. Any obligations required by the operator/organisation to report to third-party entities (ex: State of Occurrence) shall be done separately by the submitter.

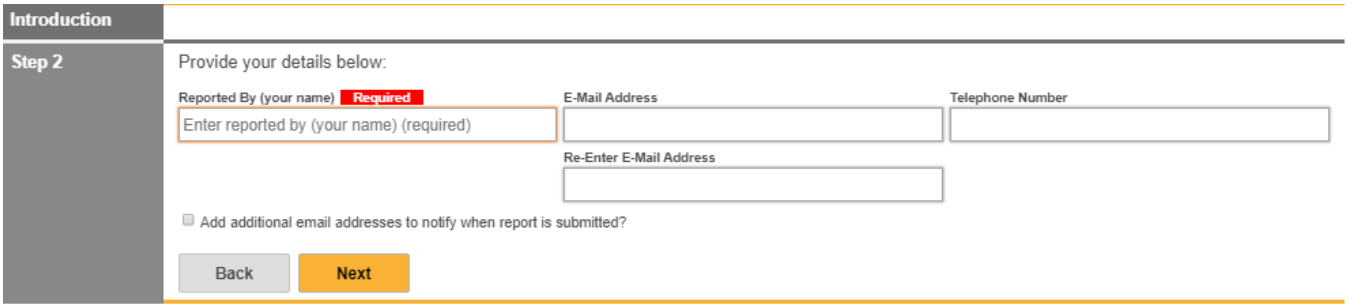
Once the report is submitted, a unique code for the submitted report will be provided. These references must be retained, since they will serve as report identifiers when updating any previous submissions.

Updating a previously submitted report via the Centrik portal

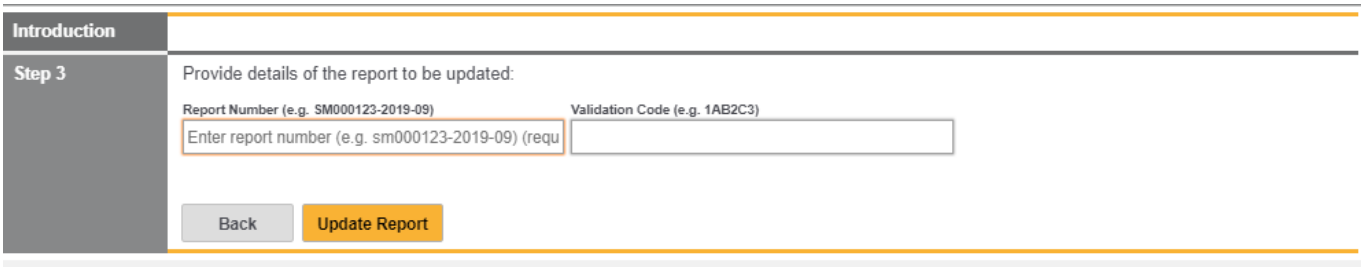
The link https://smar.centrik.net/SMS/Case/ExternalReport.aspx will open the following page:



Step 1: Select the "Submit an update to a previous report".



Step 2: Insert the submitter details as required.



Step 3: The submitter is requested to input the Report Number (e.g. 000123) and the Validation Code (e.g. 1AB2C3) followed by clicking the **'Update'** button.

Step 4: Proceed with the necessary updating

Important Notes on Centrik:

It is recommended that an email address is populated in the appropriate box when submitting a report. This will facilitate follow-up communication between the CAA and the organisation/operator.

1. *All mandatory fields must be filled. In cases where details are not yet available, you can opt to choose a 'not specified' selection from the drop-down menu or else insert text manually. Reports will not be accepted by Centrik unless all mandatory fields are populated.*

2. *The risk classification is based on the ICAO model of Severity vs Probability (likelihood) matrix. It is important that a risk classification is performed for each report.*

3. *This portal submits reports only to the CAA. Any other reporting obligations referred to in the regulation in relation to an event (ex: Report to State of Occurrence, Aircraft Manufacturer, etc.) are to be handled by the operator.*

4. *Any difficulties encountered when submitting reports are to be reported to the CAA on info@smar.aero.]*