

## FOREWORD

This Guidance Material (GM) is interpretative material and provides guidance in order to determine when occurrences should be reported to CAAB, competent authorities and other organisations.

It also describes the objective of the overall occurrence-reporting system, including internal and external functions.



**Air Vice Marshal M Mafidur Rahman**

BBP, BSP, BUP, ndu, afwc, psc

Chairman

Civil Aviation Authority of Bangladesh

## **Guidance Material on Occurrence Reporting**

### **1. Introduction**

- (a) This GM applies to occurrence reporting by persons or organisations that are approved as CAMO, AMO and operator.
- (b) 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 natural person. In addition, some reporting requirements are directed to persons. However, in order not to complicate the text, only the term ‘organisation’ is used.
- (c) The GM does not specifically address dangerous goods reporting.

### **2. 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 to use the reported information to contribute to the improvement of aviation safety and it should not be used to attribute blame or liability or to establish benchmarks for safety performance.

- (b) The detailed objectives of the occurrence-reporting systems are to:
  - (i) 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 had occurred and why, and what might prevent a similar occurrence from happening in the future;
  - (ii) 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.

### **3. Reportable Occurrences — Mandatory Reporting**

- (a) For organisations that have their principal place of business in Bangladesh, Appendix-A of this GM provides a classification of the occurrences in civil aviation for which reporting is mandatory. This list should not be understood as being an exhaustive collection of all the issues that may pose a significant risk to aviation safety, and therefore reporting should not be limited to the items listed therein.

For organisations that do not have their principal place of business in Bangladesh, such a list is provided in Appendix-B.

- (b) These lists are based on the following general airworthiness requirements:
  - (i) The continuing airworthiness requirements stipulate that an occurrence that is defined as any safety-related event or condition of an aircraft or component identified by the organisation that endangers or, if not corrected or addressed, could endanger an aircraft, its occupants or any other person, must be reported to the CAAB.
  - (ii) In addition, the continuing airworthiness requirements prescribe that any incident, malfunction, technical defect, exceedance of technical limitations, occurrence that would highlight inaccurate, incomplete or ambiguous information, contained in the Instructions for Continued Airworthiness (ICA) established in accordance with ANO Part-21, or other irregular circumstance that has or may have endangered an aircraft, its occupants or any other person, must be reported to the CAAB and to the organisation responsible for the design of the aircraft.
- (c) Reporting does not remove the responsibility of the reporter or the organisation to initiate actions to prevent similar occurrences from happening in the future.
- (d) A design or maintenance programme may include additional reporting requirements for failures or malfunctions associated with that approval or programme.

#### **4. Reporting Time — Mandatory Reporting — Initial Report**

- (a) The period of 72 hours is normally understood to start from when the person or organisation became aware of the occurrence. This means that there may be up to 72 hours maximum for a person to report to the organisation or to directly report to the CAAB.
- (b) Within the overall limit of 72 hours for the submission of a report, the organisation should determine the degree of urgency based on the severity of consequence judged to have resulted from the occurrence:
  - (i) Where an occurrence is judged to have resulted in an immediate and particularly severe consequence, CAAB and/or the competent authority expects to be notified 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.

A typical example of severe consequences would be an uncontained Engine failure that results in damage to the aircraft primary structure.
  - (ii) Where the occurrence is judged to have resulted in a less immediate and less significant risk, the report submission may be delayed up to the maximum of 72 hours in order to provide more details or more reliable information.

#### **5. Content Of Initial Reports**

- (a) the content of mandatory reports and, where possible, voluntary reports, is defined in **Appendix D of this GM(Form CA-31).**

## 6. Reporting Time — Follow-Up Reports

- (a) where the organisation identifies an actual or potential aviation safety risk as a result of their analysis of occurrences or groups of occurrences reported to CAAB, it should:
  - (i) transmit the following information to CAAB within 30 days from the date of notification of the occurrence to CAAB:
    - (1) the preliminary results of the risk assessment performed; and
    - (2) any preliminary mitigation action to be taken;
  - (ii) where required, transmit the final results of the risk analysis to CAAB as soon as they are available and, in principle, no later than 3 months from the date of the initial notification of the occurrence to CAAB.

## 7. Reporting Among Organisations

- (a) In addition to reporting occurrences to the competent authority or CAAB, reporting among organisations should be considered. Such reporting will depend on the type of the organisation, its interfaces with other organisations, and their respective safety policies and procedures, as well as the extent of contracting or subcontracting.
- (b) The following provides a non-exhaustive list of reporting lines that exist for the reporting of occurrences among organisations related to unsafe or non-airworthy conditions:
  - (i) maintenance organisation/continuing airworthiness management organization (CAMO) to the organisation responsible for the design (Design approval holder);
  - (ii) maintenance organisation/CAMO to the operator; and
  - (iii) operator to the organisation responsible for the design;
- (b) The ‘design approval holder’ is a general term, which can be any one or a combination of the following natural persons or organisations:
  - (i) the holder of a type certificate (TC) of an aircraft, Engine or Propeller;
  - (ii) the holder of a supplemental type certificate (STC) on an aircraft, Engine or Propeller;
  - (iii) the holder of a European technical standard order (ETSO) authorisation; or
  - (iv) the holder of a repair design approval or a change to a type design approval.
- (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/authorisation (TC, STC or ETSO), then the holder of such approval/authorisation should be informed. Such information must be part of the reporting to the ‘main’ design approval holder. If an occurrence concerns a component which is covered by a TC, STC, repair or change design approval or an ETSO authorisation (e.g. during maintenance), then only that TC, STC, repair or change design approval holder or ETSO authorisation holder needs to be informed by the reporting person or organisation that first determined the impact of the TC, STC, repair or change design or ETSO authorisation.

- (d) Any organisation that reports to the design approval holder should actively support any investigations that may be initiated by that organisation. Support should be provided by a timely response to information requests, and by making available the affected components, parts or appliances for the purpose of the investigation, subject to an agreement with the respective component, part or appliance owners. Design approval holders are expected to provide feedback to the reporting organisations on the results of their investigations.
- (e) To ensure that there is effective reporting among organisations, it is important that:
  - (i) an interface is established between the organisations to ensure that there is an effective and timely exchange of information related to occurrences;
  - (ii) any relevant safety issue is identified; and
  - (iii) it is clearly established which party is responsible for taking further action, if required.
- (f) Organisations should establish procedures to be used for reporting among them, which should include as a minimum:
  - (i) a description of the applicable requirements for reporting;
  - (ii) the scope of such reporting, considering the organisation's interfaces with other organisations, including any contracting and subcontracting;
  - (iii) a description of the reporting mechanism, including reporting forms, means, and deadlines;
  - (iv) safeguards to ensure the confidentiality of the reporter and protection of personal data; and
  - (v) the responsibilities of the organisations and personnel involved in reporting, including for reporting to the competent authority.

Such procedures should be include in the organisation's expositions/ handbooks/manuals.

## OCCURRENCES RELATED TO THE OPERATION OF THE AIRCRAFT

Occurrences are linked with categories of activities during which they are normally observed, according to experience, in order to facilitate the reporting of those occurrences. However, this presentation must not be understood as meaning that occurrences must not be reported in case they take place outside the category of activities to which they are linked in the list.

### 1. AIR OPERATIONS

#### 1.1. Flight preparation

- (1) Use of incorrect data or erroneous entries into equipment used for navigation or performance calculations which has or could have endangered the aircraft, its occupants or any other person.
- (2) Carriage or attempted carriage of dangerous goods in contravention of applicable legislations including incorrect labelling, packaging and handling of dangerous goods.

#### 1.2. Aircraft preparation

- (1) Incorrect fuel type or contaminated fuel.
- (2) Missing, incorrect or inadequate De-icing/Anti-icing treatment.

#### 1.3. Take-off and landing

- (1) Taxiway or runway excursion.
- (2) Actual or potential taxiway or runway incursion.
- (3) Final Approach and Take-off Area (FATO) incursion.
- (4) Any rejected take-off.
- (5) Inability to achieve required or expected performance during take-off, go-around or landing. (6) Actual or attempted take-off, approach or landing with incorrect configuration setting.
- (7) Tail, blade/wingtip or nacelle strike during take-off or landing.
- (8) Approach continued against air operator stabilised approach criteria.
- (9) Continuation of an instrument approach below published minimums with inadequate visual references.
- (10) Precautionary or forced landing.
- (11) Short and long landing.
- (12) Hard landing.

**1.4. Any phase of flight**

- (1) Loss of control.
- (2) Aircraft upset, exceeding normal pitch attitude, bank angle or airspeed inappropriate for the conditions.
- (3) Level bust.
- (4) Activation of any flight envelope protection, including stall warning, stick shaker, stick pusher and automatic protections.
- (5) Unintentional deviation from intended or assigned track of the lowest of twice the required navigation performance or 10 nautical miles.
- (6) Exceedance of aircraft flight manual limitation.
- (7) Operation with incorrect altimeter setting.
- (8) Jet blast or rotor and prop wash occurrences which have or could have endangered the aircraft, its occupants or any other person.
- (9) Misinterpretation of automation mode or of any flight deck information provided to the flight crew which has or could have endangered the aircraft, its occupants or any other person.

**1.5. Other types of occurrences**

- (1) Unintentional release of cargo or other externally carried equipment.
- (2) Loss of situational awareness (including environmental, mode and system awareness, spatial disorientation, and time horizon).
- (3) Any occurrence where the human performance has directly contributed to or could have contributed to an accident or a serious incident.

**2. TECHNICAL OCCURRENCES****2.1 Structure and systems**

- (1) Loss of any part of the aircraft structure in flight. (2) Loss of a system.
- (3) Loss of redundancy of a system.
- (4) Leakage of any fluid which resulted in a fire hazard or possible hazardous contamination of aircraft structure, systems or equipment, or which has or could have endangered the aircraft, its occupants or any other person.
- (5) Fuel system malfunctions or defects, which had an effect on fuel supply and/or distribution.
- (6) Malfunction or defect of any indication system when this results in misleading indications to the crew.
- (7) Abnormal functioning of flight controls such as asymmetric or stuck/jammed flight controls (for example: lift (flaps/slats), drag (spoilers), attitude control (ailerons, elevators, rudder) devices).

**2.2. Propulsion (including engines, propellers and rotor systems) and auxiliary power units (APUs)**

- (1) Failure or significant malfunction of any part or controlling of a propeller, rotor or powerplant.
- (2) Damage to or failure of main/tail rotor or transmission and/or equivalent systems.
- (3) Flameout, in-flight shutdown of any engine or APU when required (for example: ETOPS (Extended range Twin engine aircraft Operations), MEL (Minimum Equipment List)).
- (4) Engine operating limitation exceedance, including overspeed or inability to control the speed of any high-speed rotating component (for example: APU, air starter, air cycle machine, air turbine motor, propeller or rotor).
- (5) Failure or malfunction of any part of an engine, powerplant, APU or transmission resulting in any one or more of the following:
  - (a) thrust-reversing system failing to operate as commanded;
  - (b) inability to control power, thrust or rpm (revolutions per minute);
  - (c) non-containment of components/debris.

**3. INTERACTION WITH AIR NAVIGATION SERVICES (ANS) AND AIR TRAFFIC MANAGEMENT (ATM)**

- (1) Unsafe ATC (Air Traffic Control) clearance.
- (2) Prolonged loss of communication with ATS (Air Traffic Service) or ATM Unit.
- (3) Conflicting instructions from different ATS Units potentially leading to a loss of separation.
- (4) Misinterpretation of radio-communication which has or could have endangered the aircraft, its occupants or any other person.
- (5) Intentional deviation from ATC instruction which has or could have endangered the aircraft, its occupants or any other person.

**8. EMERGENCIES AND OTHER CRITICAL SITUATIONS**

- (1) Any event leading to the declaration of an emergency ('Mayday' or 'PAN call').
- (2) Any burning, melting, smoke, fumes, arcing, overheating, fire or explosion.
- (3) Contaminated air in the cockpit or in the passenger compartment which has or could have endangered the aircraft, its occupants or any other person.
- (4) Failure to apply the correct non-normal or emergency procedure by the flight or cabin crew to deal with an emergency.
- (5) Use of any emergency equipment or non-normal procedure affecting in-flight or landing performance.
- (6) Failure of any emergency or rescue system or equipment which has or could have endangered the aircraft, its occupants or any other person.



- (7) Uncontrollable cabin pressure.
- (8) Critically low fuel quantity or fuel quantity at destination below required final reserve fuel. (9) Any use of crew oxygen system by the crew.
- (10) Incapacitation of any member of the flight or cabin crew that results in the reduction below the minimum certified crew complement.
- (11) Crew fatigue impacting or potentially impacting their ability to perform safely their flight duties.

## **9. EXTERNAL ENVIRONMENT AND METEOROLOGY**

- (1) A collision or a near collision on the ground or in the air, with another aircraft, terrain or obstacle
- (2) ACAS RA (Airborne Collision Avoidance System, Resolution Advisory).
- (3) Activation of genuine ground collision system such as GPWS (Ground Proximity Warning System)/TAWS (Terrain Awareness and Warning System) 'warning'.
- (4) Wildlife strike including bird strike.
- (5) Foreign object damage/debris (FOD).
- (6) Unexpected encounter of poor runway surface conditions.
- (7) Wake-turbulence encounters.
- (8) 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.
- (9) A lightning strike which resulted in damage to the aircraft or loss or malfunction of any aircraft system.
- (10) A hail encounter which resulted in damage to the aircraft or loss or malfunction of any aircraft system.
- (11) Severe turbulence encounter or any encounter resulting in injury to occupants or deemed to require a 'turbulence check' of the aircraft.
- (12) A significant wind shear or thunderstorm encounter which has or could have endangered the aircraft, its occupants or any other person.
- (13) Icing encounter resulting in handling difficulties, damage to the aircraft or loss or malfunction of any aircraft system.
- (14) Volcanic ash encounter.

## **10. SECURITY**

- (1) Bomb threat or hijack.
- (2) Difficulty in controlling intoxicated, violent or unruly passengers.
- (3) Discovery of a stowaway.

**Appendix-B****OCCURRENCES RELATED TO TECHNICAL CONDITIONS, MAINTENANCE AND REPAIR OF THE AIRCRAFT****1. MAINTENANCE AND CONTINUING AIRWORTHINESS MANAGEMENT**

- (1) Serious structural damage (for example: cracks, permanent deformation, delamination, debonding, burning, excessive wear, or corrosion) found during maintenance of the aircraft or component.
- (2) Serious leakage or contamination of fluids (for example: hydraulic, fuel, oil, gas or other fluids).
- (3) Failure or malfunction of any part of an engine or powerplant and/or transmission resulting in any one or more of the following:
  - (a) non-containment of components/debris;
  - (b) failure of the engine mount structure.
- (4) Damage, failure or defect of propeller, which could lead to in-flight separation of the propeller or any major portion of the propeller and/or malfunctions of the propeller control.
- (5) Damage, failure 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.
- (6) Significant malfunction of a safety-critical system or equipment including emergency system or equipment during maintenance testing or failure to activate these systems after maintenance.
- (7) Incorrect assembly or installation of components of the aircraft found during an inspection or test procedure not intended for that specific purpose.
- (8) Wrong assessment of a serious defect, or serious non-compliance with MEL and Technical logbook procedures.
- (9) Serious damage to Electrical Wiring Interconnection System (EWIS).
- (10) Any defect in a life-controlled critical part causing retirement before completion of its full life.
- (11) The use of products, components or materials, from unknown, suspect origin, or unserviceable critical components.
- (12) Misleading, incorrect or insufficient applicable maintenance data or procedures that could lead to significant maintenance errors, including language issue.
- (13) Incorrect control or application of aircraft maintenance limitations or scheduled maintenance.
- (14) Releasing an aircraft to service from maintenance in case of any non-compliance which endangers the flight safety.
- (15) Serious damage caused to an aircraft during maintenance activities due to incorrect maintenance or use of inappropriate or unserviceable ground support equipment that requires additional maintenance actions.

- (16) Identified burning, melting, smoke, arcing, overheating or fire occurrences.
- (17) Any occurrence where the human performance, including fatigue of personnel, has directly contributed to or could have contributed to an accident or a serious incident.
- (18) Significant malfunction, reliability issue, or recurrent recording quality issue affecting a flight recorder system (such as a flight data recorder system, a data link recording system or a cockpit voice recorder system) or lack of information needed to ensure the serviceability of a flight recorder system.

## OCCURRENCES RELATED TO AIRCRAFT OTHER THAN COMPLEX MOTOR-POWERED AIRCRAFT

### 1.1 Air operations

- (1) Unintentional loss of control.
- (2) Landing outside of intended landing area.
- (3) Inability or failure to achieve required aircraft performance expected in normal conditions during take-off, climb or landing.
- (4) Runway incursion
- (5) Runway excursion.
- (6) 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.
- (7) 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.
- (8) Unintentional release of cargo.

### 1.2. Technical occurrences

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

### 1.3. Interaction with air navigation services and air traffic management

- (1) 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.
- (2) Airspace infringement.

### 1.4. Emergencies and other critical situations

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

**1.5. External environment and meteorology**

- (1) A collision on the ground or in the air, with another aircraft, terrain or obstacle (1).
- (2) A near collision, on the ground or in the air, with another aircraft, terrain or obstacle (1) requiring an emergency avoidance manoeuvre to avoid a collision.
- (3) Wildlife strike including bird strike which resulted in damage to the aircraft or loss or malfunction of any essential service.
- (4) 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.
- (5) A lightning strike resulting in damage to or loss of functions of the aircraft.
- (6) Severe turbulence encounter which resulted in injury to aircraft occupants or in the need for a post-flight turbulence damage check of the aircraft.
- (7) Icing including carburettor icing which has or could have endangered the aircraft, its occupants or any other person.