NINTH MEETING OF THE ASIA PACIFIC ACCIDENT INVESTIGATION GROUP (APAC-AIG/9)

(27-28 October 2021 on Virtual Platform at 11.00 hrs. Bangkok Time UTC+7)

Agenda Item 3: Update on ICAO AIG-Related Requirements and Activities

UPDATES ON ANNEX 13 AND DOC 9756 AMENDMENTS, ADREP DATA REPORTING AND VALIDATION REQUIREMENTS FOR ASR

(Presented by the Secretariat)

SUMMARY

With the introduction of ICAO Annex 13 Twelfth Edition in July 2020 and the amendment of Doc 9756 Part IV — Reporting-third Edition in 2020; Manual of Aircraft Accident and Incident Investigation; States are strongly encouraged to actively engage with implementation of amendments in a timely manner, if not implemented already.
Validation of safety information received by ICAO require collaborative efforts with APAC States and RO in order to prepare safety reports and monitor safety performance in a timely manner. Nonetheless such reporting in the past has not been documented in a timely manner and therefore existence of some gaps in the procedures adopted by the States, have been identified.

Similar situation has been remedied through an identified mechanism implemented by ICAO NACC office, improving States confidence in the collaboration with ROs engagement and States' visibility, through Occurrence Validation Study Group (OVSG) forum and their expertise.

This paper proposes adoption of the same mechanism by APAC States to improve the situation in the region in collecting and validating safety data.

1. INTRODUCTION

1.1 ICAO Annex 13, 12th Edition was adopted by the council on19 March 2020, as recommended by the Fourth meeting of the Accident Investigation Panel (AIGP/4) introducing new definition and Standard for "safety recommendation of global concern (SRGC)" and revised provisions on recorded data for accident and incident investigations and became applicable from 15th November 2020. Additionally other improvements introduced emphasize, inter alia, Attachment c: list of examples of serious incidents.

1.2 Further, having identified about the challenges faced by the States distinguishing between Serious incidents and Incidents, Attachment C has been amended. Attachment C contains a new mechanism, as a flow chart process, in order to support States in the determination of, if an occurrence is considered to be a Serious Incident or normal incident.

1.3 Decision process in order to determine the category of incidents as introduced in Annex 13 Attachment C:

2.2 The combination of these two assessments helps to determine which incidents are serious incidents:

		b) Remaining defences between the incident and the potential accident	
		Effective	*Limited*
a) Most credible scenario	*Accident*	Incident	Serious Incident
	No accident	Incident	

1.4 Parallely, Doc 9756, 2020 of Manual of Aircraft Accident and Incident Investigation;

Part IV — Reporting, amended version Third Edition was published in 2020.

Focus mainly here on this paper is based on Chapter 3. The accident/incident data reporting (ADREP) system Paragraph 3-9;

Table 4-A6-1. Notification and reporting checklist ADREP Data Reporting Format;

ADREP Data Report

From	*Category*	*Report*	*To*	*For*	*By*
State conducting the investigation	Accident	Data	ICAO	Aircraft over 2 250 kg	When the investigation has been completed and Final Report issued
	Incident			Aircraft over 5 700 kg	

1.5 *Occurrence Validation Study Group (OVSG)*

1.5.1 ICAO Annual Safety Report (ASR) as well as APAC ASR and all other safety performance data derived through ADREP system by collecting all accident/incident data and verification and validation process through a subject matter expert group very well known as OVSG. Since 2020, as an enhancement to actions in the validation process all regional offices have been requested to support the activity enabling timely and accurately processing of validation.

1.5.2 APAC RO has positively contributed to the OVSG meetings and outcomes, achieving its objectives by supporting validation of regional data on accidents/incidents. However there are many challenges identified so far, in the process of APAC States engagement with APAC RO in sharing accident/incident data. Hence, it is considered that there is always room for improvements in this aspect, particularly in receiving responses from States in a timely manner.

1.6 *Monitoring of AP-RASP Implementation*

1.6.1 Additionally, APAC Regional Safety Plan (AP-RASP) 20-22 has been already commenced its implementation in mid-2021 and hence monitoring the progress requires analysis of performance and behaviour of all identified indicators. In that regard, data shared by regional AIAs and

CAAs plays a critical role in monitoring the safety performance by the region. Therefore data management for regional activities monitoring as well, require timely collection and validation of occurrence data from the States.

2. DISCUSSION

2.1 *OVSG Membership and TOR,*

2.1.1 Current membership Composition of the OVSG is about 17 regional and other States including FAA, NTSB, EASA, about 08 members from International partner Organizations and about 08 more members from major equipment manufacturers including Boing and Airbus. ICAO and RO members count to about 11 members from all regions and HQ.

2.1.2 OVSG's scope of action, as per their established TOR is mainly to review the classification and categorization of Annex 13 reportable occurrences involving airplanes of MTOW over 5700kg, according to ICAO ADREP and CAST/ICAO Common Taxonomy Team (CICTT) taxonomies for:

a) Accidents from the prior year;

b) ADREP final reports from investigations of accidents and serious incidents completed during the prior year. Upon request, the OVSG may provide additional expert ADREP data support to other ICAO groups.

2.2 *Report inconclusiveness of the Incident*

2.2.1 APAC RO has understood during its activities with OVSG during last two years that most of the Incident/Serious Incident data received by OVSG are mainly through Equipment Manufactures, International Organizations and other safety stake holders such as Safety Communities and Associations, Mass Media and not forgetting Social Media. More often than not direct inputs by the States into ADREP Data reports has been very rare, understandably due to time taken by the States in determining if an incident weighs positively on its seriousness to be reported as a Serious Incident or otherwise.

2.2.2 However, the States should consider and be aware of the fact that, it is very much evident that OVSG would have very rare and insignificant chance of opportunity of missing out an incident however much insignificant a particular case may be, as considered by the State.

2.2.3 Given the nature and sensitivity of the Data communicated to RO in this regard, it would be appropriate to agree to share it only with OVSG validation process and ruling out the data leakage and hence fostering confidence of contributing Agencies. Such Data shared may be utilized for the purpose of report production only after being de-identified as necessary.

2.2.4 Nonetheless, OVSG validation process requires only categorization of the occurrence, into any one of the types, accident, Serious Incident or just an incident based on its outcomes. Hence OVSG may require additional information on the extent of damage to equipment, property, loss of life etc, during which State should possess at the time of receipt of the initial context of the occurance.

2.3 *ICAO RO proposal*

2.3.1 ICAO RO would offer its services to come forward in the communication with the State and OVSG in order to determine collaboratively, the category of the incident or any other ambiguity related to an incident, working with the support of OVSG Global experts. In this regard the attached

Xcell sheet, developed and utilized by ICAO NACC office, is suggested be utilized as the common format to retrieve information from the regional States whenever deemed necessary.

2.4 *AIA Focal Points*

2.4.1 Further, in order to establish effective and rapid communication, APAC RO wishes to propose establishment of direct contact with all AIA Focal Points and to exchange data rapidly sharing the populated common template.

2.4.2 In summary, implementation of the proposed mechanism for data sharing may bring in the expected outcomes through improved visibility and understanding addressing the gaps in collaborations with ICAO, RO and the regional States. .

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) Encourage States strongly, to note the contents and implement the updates to Annex 13 and Doc 9786, if not already implemented;

b) Encourage States to Adopt Table 4-A6-1. Of chapter 3 DOC 9756 Part4, Notification and reporting checklist Data Reporting Format for effective data reporting to ICAO ADREP; and

c) Encourage APAC States to share the accident/incident data/information if and when requested by APAC-RO, using the Excel sheet format attached to this paper, collaboratively with OVSG through APAC RO through the State AIG Focal Point.

— END —

In the next sheet, please provide the information regarding accidents and serious incidents of commercial air transport and general aviation

In accordance with Annex 6, Part I:

Commercial air transport operation. An aircraft operation involving the transport of passengers, cargo or m

General aviation operation. An aircraft operation other than a commercial air transport operation or an ae

Information on the definition of each Category of Occurrence can be found in sheet "**Taxonomy Occ Categ"**

Once completed, this file should be sent to: APAC@icao.int

Feel free to contact us (APAC@icao.int) if you have any questions

State of the Ocurrence	Local date	Occurrence class	Aircraft registration	Operator	Flight phase	Aircraft Manufacturer	Aircraft Model	Mass group	Occurrence Category	Damage	Injury Level	Total number fatalities	Total number serious injuries	Operation Type	Schedule type	Narrative text [Plain Text]

Taxonomy Occurrence Category	
Abnormal runway contact (**ARC**)	Any landing or takeoff involving abnormal runway or landing surface contact. Usage Notes: • Events such as hard/heavy landings, long/fast landings, off center landings, crabbed landings, nose wheel first touchdown, tail strikes, and wingtip/nacelle strikes are included in this category. • Gear-up landings are also recorded here. However, if a system/component failure or malfunction occurred, which led to the gear up landing, the event is also coded under the appropriate system/component failure or malfunction category. • Do not use this category for runway contacts after losing control, e.g., runway contact after takeoff. • Occurrences in which the gear collapses during the takeoff run or the landing roll are not included here except if a condition in the usage notes above has been met. NOTE: Throughout this document the term runway or landing area is taken in its broadest sense and includes runways, landing strips, waterways, unimproved landing areas, and landing pads (which may include offshore platforms, building roo landing areas. NOTE: Does not include helicopter hard/heavy landings after an off-field emergency autorotation when there was no intention to land before the autorotation was entered. NOTE: Includes any rotor striking the intended landing surface during takeoff and landing. However, collisions with obstacles during takeoff and landing, such as trees or walls, should be coded under Collision With Obstacle(s) During Takeoff ar NOTE: Does not include off-field landing by gliders.
Abrupt maneuvre (**AMAN**)	The intentional abrupt maneuvering of the aircraft by the flight crew. Usage Notes: • This category includes the intentional maneuvering of the aircraft to avoid a collision with terrain, objects/obstacles, weather or other aircraft (Note: The effect of intentional maneuvering is the key consideration). • Abrupt maneuvering may also result in a loss of control or system/component failure or malfunction. In this case, the event is coded under both categories (e.g., AMAN and Loss of Control–Inflight (LOC–I), AMAN and System/Component Failu (SCF–NP), or AMAN and System/Component Failure or Malfunction (Powerplant) (SCF–PP)). • Abrupt maneuvering may also occur on ground; examples include hard braking maneuver, rapid change of direction to avoid collisions, etc.
Aerodrome (**ADRM**)	Occurrences involving Aerodrome design, service, or functionality issues. Usage Notes: Occurrences do not necessarily involve an aircraft. Includes: • Deficiencies/issues associated with State-approved Aerodromes and Heliports, including: o Runways and Taxiways o Buildings and structures o Crash/Fire/Rescue (CFR) services o Obstacles on the Aerodrome property o Lighting, markings, and signage o Procedures, policies, and standards • Deficiencies with snow, frost, or ice removal from aerodrome surfaces • Closed runways, improperly marked runways, construction interference, lighting failures, signage limitations, etc. • Effects of Aerodrome Design (See crossovers below) • Loose foreign objects on aerodromes and heliports (See exceptions below) • Failures of glider winch launch equipment (See crossovers below) Does NOT include: • Deficiencies or loose foreign objects at unprepared or natural landing sites, which are coded as OTHR. • Occurrences related to snow, frost, or ice removal from aircraft, which are coded as RAMP. Crossover to/from other occurrence categories: • For effects of aerodrome design, code both ADRM and the phenomenon encountered. For example, building layout and architecture leading to surface wind disruptions would be coded as both ADRM and WSTRW or TURB, as appropriate. • If a glider winch launch equipment failure causes an event meeting the criteria for the GTOW category, code both ADRM and GTOW.
Air proximity issues (**MAC**)	Air proximity issues, Traffic Collision Avoidance System (TCAS)/Airborne Collision Avoidance System (ACAS) alerts, loss of separation as well as near collisions or collisions between aircraft in flight. Usage Notes: Includes: • All collisions between aircraft while both aircraft are airborne. • Separation-related occurrences caused by either air traffic control or cockpit crew. • AIRPROX reports • Genuine TCAS/ACAS alerts. Does NOT include: • False TCAS/ACAS alerts caused by equipment malfunctions, which are coded as SCF-NP. • Loss of separation with at least one aircraft on the ground, which may be coded as ATM, GCOL, NAV, and/or RI if the occurrence meets the criteria and usage notes for those categories. Crossover to/from other occurrence categories: • Code both MAC and NAV if the event was caused by a navigation error and the event meets the usage notes of both categories. • Code both MAC and ATM if the event was caused by an ATC/ATM error and the event meets the usage notes of both categories.
ATM/CNS (**ATM**)	Occurrences involving Air Traffic Management (ATM) or Communication, Navigation, Surveillance (CNS) service issues. Usage Notes: • Includes Air Traffic Control (ATC) facility/personnel failure/degradation, CNS service failure/degradation, procedures, policies, and standards. • Examples include NAVAID outage, NAVAID service error, controller error, supervisor error, ATC computer failure, radar failure, and navigation satellite failure. • Occurrences do not necessarily involve an aircraft. NOTE: ATM includes all of the facilities, equipment, personnel, and procedures involved in the provision of State-approved Air Traffic Services.
Bird (**BIRD**)	Occurrences involving collisions/near collisions with bird(s). Usage Notes: • May occur in any phase of flight. NOTE: Bird strikes were previously categorized as “other”. Users may wish to update their historic data by replacing “other” with “BIRD” where the occurrence involved a bird strike.

Cabin safety events (**CABIN**)	Miscellaneous occurrences in the passenger cabin of transport category aircraft. Usage Notes: Includes: • Events related to carry-on baggage, supplemental oxygen, or missing/non-operational cabin emergency equipment. • Inadvertent deployment of emergency equipment. • Injuries of persons while in the passenger cabin of an aircraft (see below for exceptions). Does NOT include: • Injuries sustained as a result of— o Thunderstorms and/or wind shear, which are coded as WSTRW; o Turbulence (excluding turbulence caused by wind shear and/or thunderstorms), which is coded as TURB; o Intentional acts (suicide, homicide, acts of violence, self-inflicted injury, or laser attacks), which are coded as SEC; o Icing events, which are coded as ICE. • Illnesses or non-injury medical emergencies, which are coded as Medical (MED). Crossover to/from other occurrence categories: • Medical emergencies involving persons other than crew members or a medical evacuation patient were coded as CABIN before October 2013. All medical emergencies are now coded as MED.
Collision with obstacle(s) during take-off and landing (**CTOL**)	Collision with obstacle(s) during takeoff or landing while airborne. Usage Notes: • For all aircraft (excluding rotorcraft), to be used only in cases in which the crew was aware of the true location of the obstacle, but its clearance from the aircraft flightpath was inadequate. • Includes contact with obstacles, such as vegetation, trees and walls, snowdrifts, power cables, telegraph wires and antennae, offshore platforms, maritime vessels and structures, land structures and buildings. • Includes collisions during takeoff to and landing from the hover. • Includes water obstacles during takeoff from water (e.g., waves, dead-heads, ships, swimmers). • Not to be used for occurrences classified under Controlled Flight Into or Toward Terrain (CFIT), Loss of Control–Inflight (LOC–I) or System/Component Failure or Malfunction (Powerplant)(SCF–PP).
Controlled flight into or toward terrain (**CFIT**)	In-flight collision or near collision with terrain, water, or obstacle without indication of loss of control. Usage Notes: • Use only for occurrences during airborne phases of flight. • Includes collisions with those objects extending above the surface (for example, towers, trees, power lines, cable car support, transport wires, power cables, telephone lines and aerial masts). • Can occur during either Instrument Meteorological Conditions (IMC) or Visual Meteorological Conditions (VMC). • Includes instances when the cockpit crew is affected by visual illusions or degraded visual environment (e.g., black hole approaches and helicopter operations in brownout or whiteout conditions) that result in the aircraft being flown under c obstacles. • If control of the aircraft is lost (induced by crew, weather or equipment failure), do not use this category, use Loss of Control–Inflight (LOC–I) instead. • For an occurrence involving intentional low altitude operations (e.g., crop dusting, aerial work operations close to obstacles, and Search and Rescue (SAR) operations close to water or ground surface) use the Low Altitude Operations (LALT) c • Do not use this category for occurrences involving intentional flight into/toward terrain in manned aircraft or intentional ground impact of unmanned aircraft. Code all collisions with obstacles during takeoff and landing under Collision With Landing (CTOL). Code all suicides under Security Related (SEC) events. Code system, equipment, or command and control failures involving unmanned aircraft under System/Component Failure or Malfunction (Non-Powerplant) (SCF–NP) or LOC • Do not use this category for occurrences involving runway undershoot/overshoot, which are classified as Undershoot/Overshoot (USOS). • Includes flying into terrain during transition into forward flight. • For helicopter operations, not to be used for takeoff and landing phases, except when the occurrence involves flying into terrain without indication of loss of control during transition into forward flight.
Evacuation (**EVAC**)	Occurrence in which either, (a) a person(s) was/were injured during an evacuation, (b) an unnecessary evacuation was performed, (c) evacuation equipment failed to perform as required, or (d) the evacuation contributed to the severity of the Usage Notes: • Includes cases in which an injury(ies) was (were) sustained during the evacuation through an emergency exit or main cabin door. • Includes cases in which the evacuation itself is the accident (in essence, had there not been an evacuation there would not have been an accident). • An unnecessary evacuation is one that was either erroneously commanded by the crew or uncommanded. • Only used for passenger-carrying operations involving transport category aircraft. • Includes evacuation following a ditching or survivable crash landing in water provided one of the conditions above is met.
External load related occurrences (**EXTL**)	Occurrences during or as a result of external load or external cargo operations. Usage Notes: • Includes cases in which external load or the load lifting equipment used (e.g., long line, cable) contacts terrain, water surface, or objects. • Includes cases in which the load or, in the absence of a load, the load lifting equipment strikes or becomes entangled with the main rotor, tail rotor, or the helicopter fuselage. • Includes injuries to ground crew handling external loads as result of contact with/dropping/inadvertent release of external load. • Includes ground injuries to ground crew handling external loads due to the downwash effect or falling branch, tree, etc. • Includes external hoist, human external cargo, and long lines. • If the preparation of the external load by ground crew played a role, also code under Ground Handling (RAMP). • Failures or malfunctions of the onboard external load handling lifting equipment or release systems should be coded under System/Component Failure or Malfunction (Non-Powerplant) (SCF–NP), as these are considered to be aircraft system
Fire/smoke (non-impact) (**F–NI**)	Fire or smoke in or on the aircraft, in flight, or on the ground, which is not the result of impact. Usage Notes: • Includes fire due to a combustive explosion from an accidental ignition source. • Includes fire and smoke from system/component failures/malfunctions in the cockpit, passenger cabin, or cargo area. • Non-combustive explosions such as tire burst and pressure bulkhead failures are coded under System/Component Failure–Non-Powerplant (SCF–NP). • Fire/Smoke resulting from an accident impact is coded under Fire/Smoke (Post-Impact) (F–POST).
Fire/smoke (post-impact) (**F–POST**)	Fire/Smoke resulting from impact. Usage Notes: • This category is only used for occurrences in which post impact fire was a factor in the outcome. • This category is only used in conjunction with another category. For example, a system/component failure that also results in a post-impact fire will be coded as System/Component Failure or Malfunction (Powerplant) (SCF–PP) and F–POST o Malfunction (Non-Powerplant) (SCF–NP) and F–POST.

Fuel related (**FUEL**)	One or more powerplants experienced reduced or no power output due to fuel exhaustion, fuel starvation/mismanagement, fuel contamination/wrong fuel, or carburetor and/or induction icing. Usage Notes: • The following fuel-related definitions are provided for clarity: o Exhaustion: No usable fuel remains on the aircraft. o Starvation/mismanagement: Usable fuel remains on the aircraft, but it is not available to the engines. o Contamination: Any foreign substance (for example, water, oil, ice, dirt, sand, bugs) in the correct type of fuel for the given powerplant(s). o Wrong fuel: Fuel supplied to the powerplant(s) is incorrect, for example, Jet A into a piston powerplant, 80 octane into a powerplant requiring 100 octane. • Includes flight crew or ground crew-induced fuel-related problems that are not the result of mechanical failures. Interruptions of the fuel supply caused by mechanical failures are coded elsewhere as non-powerplant or powerplant system/co (System/Component Failure or Malfunction (Powerplant) (SCF–PP) or System/Component Failure or Malfunction (Non-Powerplant) (SCF–NP)), as appropriate. • Also used when the wrong fuel causes a powerplant failure (e.g., through detonation). In this case it should be coded as FUEL, not as a system/component failure or malfunction–powerplant (System/Component Failure or Malfunction (Powe • Includes cases in which there was a high risk of fuel exhaustion but there was no actual loss of power. • Includes exhaustion of battery(s) used as an energy source for the powerplant(s) (e.g., electrically propelled aircraft), including unmanned aircraft.
Glider towing related events (**GTOW**)	Premature release, inadvertent release or non-release during towing, entangling with towing, cable, loss of control, or impact into towing aircraft/winch. Usage Notes: • Applicable both to aircraft under tow by winch or by another aircraft, or to aircraft executing towing. • To be used in events only after reaching airborne phase. • Includes loss of control because of entering the towing aircraft wake turbulence and events in which airspeed is out of limits during tow.
Ground collision (**GCOL**)	Collision while taxiing to or from a runway in use. Usage Notes: • Includes collisions with an aircraft, person, ground vehicle, obstacle, building, structure, etc., while on a surface other than the runway used for landing or intended for takeoff. • Ground collisions resulting from events categorized under Runway Incursion (RI), Wildlife (WILD), or Ground Handling (RAMP) are excluded from this category. NOTE: Taxiing includes ground and air taxiing for rotorcraft on designated taxiways.
Ground handling (**RAMP**)	Occurrences during (or as a result of) ground handling operations. Usage Notes: Includes: • Occurrences that occur while servicing, boarding, loading, and deplaning the aircraft • Occurrences involving boarding and disembarking while a helicopter is hovering • Deficiencies or issues related to snow, frost, and/or ice removal from aircraft • Injuries to people from propeller/main rotor/tail rotor/fan blade strikes • Pushback/powerback/towing events • Jet Blast and Prop/rotor downwash ground handling occurrences • Aircraft external preflight configuration errors (e.g., improper loading and improperly secured doors and latches) that lead to subsequent events. • All parking areas (ramp, gate, tiedowns). • Operations at aerodromes, heliports, helidecks, and unprepared operating sites Does NOT include: • Collisions while the aircraft is moving under its own power in the gate, ramp, or tiedown area, which are coded as GCOL (except during powerback, which is coded here) Crossover to/from other occurrence categories • If an external load is involved with an event during ground handling operations, code both RAMP and EXTL.
Icing (**ICE**)	Accumulation of snow, ice, freezing rain, or frost on aircraft surfaces that adversely affects aircraft control or performance. Usage Notes: • Includes accumulations that occur in flight or on the ground (i.e., deicing-related). • Carburetor and induction icing events are coded in the Fuel Related (FUEL) category. • Windscreen icing which restricts visibility is also covered here. • Includes ice accumulation on sensors, antennae, and other external surfaces. • Includes ice accumulation on external surfaces including those directly in front of the engine intakes.
Loss of control–ground (**LOC–G**)	Loss of aircraft control while the aircraft is on the ground. Usage Notes: • Used only for non-airborne phases of flight, i.e., ground/surface operations. • The loss of control may result from a contaminated runway or taxiway (e.g., rain, snow, ice, slush). • The loss of control during ground operations can occur as the result of other occurrence categories as well. For example, LOC–G may result from a system/component failure or malfunction to the powerplant (System/Component Failure or M non-powerplant (System/Component Failure or Malfunction (Non-Powerplant) (SCF–NP)), or from evasive action taken during a Runway Incursion (RI) or Wildlife (WILD) encounter. For these occurrences, the event is coded under both categori and SCF–NP, LOC–G and RI, or LOC-G and WILD). • Do not use when a mechanical failure rendered the aircraft uncontrollable. • Rotorcraft during sloping ground or moving helideck operations, dynamic rollover and ground resonance events are also included here.
Loss of control–inflight (**LOC–I**)	Loss of aircraft control while, or deviation from intended flightpath, in flight. Loss of control inflight is an extreme manifestation of a deviation from intended flightpath. The phrase “loss of control” may cover only some of the cases during which an unintended deviation occurred. Usage Notes: • Used only for airborne phases of flight in which aircraft control was lost. • Loss of control can occur during either Instrument Meteorological Conditions (IMC) or Visual Meteorological Conditions (VMC). • The loss of control during flight may occur as a result of a deliberate maneuver (e.g., stall/spin practice). • Occurrences involving configuring the aircraft (e.g., flaps, slats, onboard systems, etc.) are included as well as rotorcraft retreating blade stall. • Stalls are considered loss of control and are included here. • Manned and unmanned rotorcraft (including multi-rotor) occurrences which involve power settling (vortex ring), or settling with power to ground contact are coded here and as Abnormal Runway Contact (ARC) if during normal landing or tak operations involving loss of control related to the external load should be coded as LOC–I as well as External Load Related Occurrences (EXTL). • Includes Rotorcraft “Loss of Tail Rotor Effectiveness.” • Includes loss of control during practice or emergency autorotation. • Includes pilot-induced or assisted oscillations. • For unmanned aircraft events, includes hazardous outcomes involving deviation from intended flightpath associated with anticipated or unanticipated loss of datalink. However, if loss of datalink is the direct result of a system/component fail occurrence as System/Component Failure or Malfunction (Non-Powerplant) (SCF–NP) only. • For icing-related events, which are also loss of control, code both LOC–I and Icing (ICE)). • If the loss of control is a direct result of a system/component failure or malfunction (SCF), code the occurrence as an System/Component Failure or Malfunction (Non-Powerplant) (SCF–NP), or System/Component Failure or Malfunction (Powe of control may follow less severe system/component failures, and in this case, code both categories. • Cockpit crew vision-related events and flight in degraded visual environments (for example, obscuration, black hole approach events, brownouts, or whiteout events), in which the aircraft is flown under control into terrain, water, or obstacle Into or Toward Terrain (CFIT), not LOC–I.

Loss of lifting conditions en route (**LOLI**)	Landing en route due to loss of lifting conditions. Usage Notes: • Applicable only to aircraft that rely on static lift to maintain or increase flight altitude, namely sailplanes, gliders, hang gliders and paragliders, balloons and airships. • All static lift forms to be considered, including atmospheric lift, namely from orographic, Thermal, mountain wave and convergence zone, and buoyancy lift namely from lighter than air gas or hot air. • Also include motorglider and paramotor aircraft if operating under static atmospheric lift conditions, and the engine could not be started. • If the aircraft was flying intentionally at low height above the terrain, use Low Altitude Operations (LALT) instead (typical cases occur with gliders in competition flying).
Low altitude operations **(LALT**)	Collision or near collision with obstacles/objects/terrain while intentionally operating near the surface (excludes takeoff or landing phases). Usage Notes: • "Terrain" includes water, vegetation, rocks, and other natural elements lying on, or growing out of, the earth. • Includes ostentatious display, maneuvering at low height, aerobatics, sightseeing, demonstration flights, aerial inspection, avalanche mining, human hoist or human cargo sling, search and rescue operations, aerial application, intentional heli during aerial work and scud running with airplanes (ducking under low visibility conditions). • Also includes intentional maneuvering in close proximity to cliffs, mountains, into box canyons, and similar flights in which the aircraft aerodynamic capability is not sufficient to avoid impact. • If there is a loss of control during low altitude operations, both Loss of Control–Inflight (LOC–I) and LALT are coded. NOTE: Excluding rotorcraft air taxi phase of flight on designated taxiways.
Medical (**MED**)	Occurrences involving illnesses of persons on board an aircraft. Usage Notes: Includes: • Crewmembers unable to perform duties due to illness. • Medical emergencies due to illness involving any person on board an aircraft, including passengers and crew. Does NOT include: • Injuries sustained during flight operations. Injuries are coded as— o WSTRW for injuries sustained as a result of thunderstorms or wind shear, o TURB for injuries sustained as a result of turbulence (excluding turbulence caused by wind shear and/or thunderstorms), o SEC for injuries resulting from intentional acts (suicide, homicide, acts of violence, or self-inflicted injury), o CABIN for any injury sustained on an aircraft not occurring as a result of any events above, such as sprains, cuts, or burns resulting from normal cabin operations (handling bags, operating galley equipment, etc.) • Injuries, temporary blindness, or other incapacitation resulting from laser attacks, which are coded as SEC. Crossover to/from other occurrence categories: • Medical emergencies involving persons other than crew members or a medical evacuation patient were coded as CABIN before October 2013. All medical emergencies are now coded as MED.
Navigation errors (**NAV**)	Occurrences involving the incorrect navigation of aircraft on the ground or in the air. Usage Notes: Includes: • Lateral navigation errors caused by navigating using the improper navaid or improper programming of aircraft navigation systems, • Airspace incursions resulting from improper navigation, uncertainty of position, improper planning, or failure to follow procedures prior to entering airspace, • Failure to accurately track navigation signals (lateral or vertical), • Altitude/level busts (see below for exceptions), • Deviating from ATC/ATM clearances or published procedures (SID/DP, STAR, approach procedures, charted visual procedures), • Failure to follow clearances or restrictions while operating on the surface of an aerodrome, including— o Taxiing or towing an aircraft on an unassigned taxiway or runway (see crossover section below), o Taxiing or otherwise operating an aircraft on a restricted portion of an aerodrome (cargo ramp, air carrier ramp, general aviation ramp, military ramp, wingspan- or weight-restricted taxiways or runways, etc.) o Take-offs, aborted take-offs, or landings on a taxiway, unassigned runway, or closed runway (see below for exceptions), o Approaches or landings to/on unassigned runways or to/at the wrong aerodrome. • Taxiway excursions (except following a loss of control on the ground or intentionally steering an aircraft off a taxiway to avoid a collision). Does NOT include: • Intentional deviations resulting from a PIC exercising emergency authority. • Deviations from assigned altitude or course to avoid other aircraft as a result of visual detection or complying with a TCAS RA, which are coded as MAC. • Deviations from assigned altitude or electronic navigation path as a result of wind shear or turbulence, which are coded as WSTRW or TURB. • Lateral or vertical deviations resulting from extreme manifestations of loss of aircraft control in flight, which is coded as LOC-I. • Taxiway excursions due to a loss of control on the ground, which is coded as LOC-G. • Taxiway excursions to avoid a ground collision, which are coded as AMAN. • Takeoffs, aborted takeoffs, landings, or approaches to engaged runways due to ATC/ATM error, which are coded as ATM (and MAC if it resulted in a loss of separation). • Navigation errors at an aerodrome made by vehicles or pedestrians. Code RI if the navigation error results in the vehicle or pedestrian incorrectly entering a runway. Code RAMP if the error meets the usage notes for the RAMP category. Crossover to/from other occurrence categories: • Code both NAV and MAC if a navigation error causes an AIRPROX/loss of separation. • Code both NAV and RI for any navigation error that also meets the RI usage notes, including takeoffs/landings without a clearance, wrong runway takeoffs/landings, and wrong aerodrome landings. • Code both NAV and RAMP if a navigation error occurs during pushback or towing operations.
Other (**OTHR**)	Any occurrence not covered under another category.
Runway excursion (**RE**)	A veer off or overrun off the runway surface. Usage Notes: • Only applicable during either the takeoff or landing phase. • The excursion may be intentional or unintentional. For example, the deliberate veer off to avoid a collision, brought about by a Runway Incursion. In this case, code both categories. • Use RE in all cases in which the aircraft left the runway/helipad/helideck regardless of whether the excursion was the consequence of another event.
Runway incursion (**RI**)	Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft. Usage Notes: • Definition from Procedures for Air Navigation Services–Air Traffic Management (ICAO DOC 4444) and Manual on the Prevention of Runway Incursions (ICAO DOC 9870), first included in April 2004. Does NOT include: • Events at unprepared/natural landing sites. • Occurrences involving animals or birds on the runway which are coded as Wildlife (WILD) or Bird (BIRD). Crossover to/from other occurrence categories: • Code both RI and NAV for runway incursions resulting from the improper navigation of an aircraft at an aerodrome, or takeoffs, aborted takeoffs, or landings on an unassigned runway. • Code both RI and ATM for runway incursions resulting from an ATC/ATM error. • Code both RI and MAC if a runway incursion event causes an AIRPROX/loss of separation while airborne.

Security related (**SEC**)	Criminal/Security acts which result in accidents or incidents (per Annex 13 to the Convention on International Civil Aviation). Usage Notes: • While security-related acts can lead to accidents as defined as by Annex 13 to the Convention on International Civil Aviation, they are not considered accidents by some organizations. Regardless, these events have similar consequences in tha to person(s) and/or substantial damage to the aircraft. For these reasons, they are categorized as security-related occurrences for prevention purposes only. • Examples include, (a) hijacking and/or aircraft theft, (b) interference with a crewmember (e.g., unruly passengers), (c) flight control interference, (d) ramp/runway/taxiway security, (e) sabotage, (f) suicide, and (g) acts of war.
System/component failure or malfunction (non-powerplant) (**SCF–NP**)	Failure or malfunction of an aircraft system or component other than the powerplant. Usage Notes: • If the failure renders the aircraft uncontrollable it is coded as SCF–NP only, not as loss of control (Loss of Control–Inflight (LOC–I) or Loss of Control–Ground (LOC–G)). However, if the failure does not render the aircraft uncontrollable, but leac under both SCF–NP and LOC–I or LOC–G, as appropriate. • Rotorcraft main rotor and tail rotor system, drive system and flight control failures or malfunctions are also coded here. • Includes errors or failures in software and database systems. • Includes non-powerplant parts or pieces separating from an aircraft. • For unmanned aircraft, includes failure or malfunction of ground-based, transmission, or aircraft-based communication systems or components or datalink systems or components. • Includes failures/malfunctions of ground-based launch or recovery systems equipment. • Includes all failures/malfunctions, including those related to or caused by maintenance issues.
System/component failure or malfunction (powerplant) (**SCF–PP**)	Failure or malfunction of an aircraft system or component related to the powerplant. Usage Notes: • If the failure renders the aircraft uncontrollable it is coded as SCF–PP only, not as loss of control (Loss of Control–Inflight (LOC–I) or Loss of Control–Ground (LOC–G)). However, if the failure does not render the aircraft uncontrollable, but leac under both SCF–PP and LOC–I or LOC–G, as appropriate. • Includes failures or malfunctions of any of the following: propellers, propeller system and engine gearbox, reversers, and powerplant controls. • Includes powerplant parts or pieces separating from a powerplant. • Includes all failures/malfunctions, including those related to or caused by maintenance issues. • Rotorcraft main rotor and tail rotor system, drive system and flight control failures or malfunctions are coded as System/Component Failure or Malfunction (Non-Powerplant) (SCF–NP), not SCF–PP. • The following fuel-related powerplant problems are coded under the category Fuel Related (FUEL), not under the category SCF–PP: fuel exhaustion, fuel starvation/mismanagement, fuel contamination, wrong fuel, carburetor and induction ic NOTE: For subcategorization of SCF–PP, a separate taxonomy has been developed and can be found on the CICTT Web site.
Turbulence encounter (**TURB**)	In-flight turbulence encounter. Usage Notes: • Includes encounters with turbulence in clear air, mountain wave, mechanical, and/or cloud-associated turbulence. • Wake vortex encounters are also included here. • Flights into wind shear or thunderstorm-related turbulence are coded as Wind Shear or Thunderstorm (WSTRW). • Includes turbulence encountered by aircraft when operating around or at buildings, structures, and objects.
Undershoot/overshoot (**USOS**)	A touchdown off the runway/helipad/helideck surface. Usage Notes: • An undershoot/overshoot of a runway/helipad/helideck occurs in close proximity to the runway/helipad/helideck and includes offside touchdowns and any occurrence in which the landing gear touches off the runway/helipad/helideck surfa • Off-airport emergency landings are excluded from this category. • To be used for occurrences during the landing phase. • Includes offside touchdowns on heliports, helidecks and other defined areas to be used wholly or in part for the arrival, departure and surface movement of helicopters (does not include helicopter unprepared or natural landing sites).
Unintended flight in IMC (**UIMC**)	Unintended flight in Instrument Meteorological Conditions (IMC). Usage Notes: • May be used as a precursor to Controlled Flight Into or Toward Terrain (CFIT), Loss of Control–Inflight (LOC–I) or Low Altitude Operations (LALT). • Applicable if the pilot was flying according to Visual Flight Rules (VFR), as defined in Annex 2 to the Convention on International Civil Aviation, Rules of the Air, and by any reason ended up inadvertently in IMC. • Only to be used when loss of visual references is encountered. • Only to be used if pilot not qualified to fly in IMC and/or aircraft not equipped to fly in IMC.
Unknown or undetermined (**UNK**)	Insufficient information exists to categorize the occurrence. Usage Notes: • Includes cases in which the aircraft is missing. • Includes those occurrences in which there is not enough information at hand to classify the occurrence or in which additional information is expected in due course to better classify the occurrence.
Wildlife (**WILD**)	Collision with, risk of collision, or evasive action taken by an aircraft to avoid wildlife on the movement area of an aerodrome or on a helipad/helideck in use. Usage Notes: • Includes encounters with wildlife on a runway in use or on any other movement area of the aerodrome. • Includes instances where evasive action is taken by the flight crew that leads to a collision off the movement area of the aerodrome or to consequences other than a collision (e.g., gear collapsing). • Wildlife encounters may occur at controlled or uncontrolled airports, or on unprepared/natural landing sites. • Excludes bird strikes, which are coded as Bird (BIRD).
Wind shear or thunderstorm (**WSTRW**)	Flight into wind shear or thunderstorm. Usage Notes: • Includes flight into wind shear and/or thunderstorm-related weather. • Includes in-flight events related to hail. • Includes events related to lightning strikes. • Includes events related to heavy rain (not just in a thunderstorm). • Icing and turbulence encounters are coded separately (see Icing (ICE) and Turbulence Encounter (TURB)).