Guidance Material to JCAR Part 13

31 GM -01

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Introduction:

This document "Guidance Material to JCAR Part 13" No. 31 GM -01 is a complementary Doc. Of the JCAR Part 13 and read along with it, in order to achieve the highest degree of compliance and implementation of the requirements of this part covering the attachments provided in ICAO Annex 13 which are referring at range of critical topics, including:

- Rights and Obligations of the State and Operator in Respect of Accidents and Incidents Involving Leased, Chartered or Interchanged Aircraft: This attachment outlines the legal framework governing responsibilities and liabilities in cases of aircraft accidents or incidents involving leased, chartered, or interchanged aircraft. It clarifies the roles and obligations of both the state and the operator in such situations.
- Notification and Reporting Checklist: This attachment provides a checklist to assist operators in fulfilling their notification and reporting obligations in the event of an accident or incident. It outlines the essential information that must be reported and the procedures to follow.
- List of Examples of Serious Incidents: This attachment provides a list of examples of serious incidents that require immediate notification and investigation. It helps operators to identify situations that warrant prompt attention and reporting.
- Guidelines for Flight Recorder Read-out and Analysis: This attachment provides guidance on the procedures for reading out and analysing flight recorder data. It outlines the importance of accurate data retrieval and analysis in accident investigations.
- Guidance for the Determination of Aircraft Damage: This attachment provides guidance on determining the extent of aircraft damage in the event of an accident or incident. It outlines the criteria for assessing damage and the procedures for reporting it.
- Investigation Delegation Agreements: This attachment outlines the procedures for delegating accident investigation responsibilities to other entities. It clarifies the conditions under which such delegations can be made and the requirements for ensuring a thorough and impartial investigation.

By providing clear guidance on these critical topics, this document aims to enhance aviation safety and improve the efficiency of accident investigation procedures in Jordan."

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Chief Commissioner /CEO

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Attachments

Attachment A. Rights and Obligations of the State of the Operator in Respect of Accidents and Incidents Involving Leased, Chartered or Interchanged Aircraft

The Standards and Recommended Practices of Annex 13 — Aircraft Accident and Incident Investigation were developed when the State of Registry and the State of the Operator normally were the same. In recent years, however, international aircraft leasing and interchanging arrangements have developed so that in many instances the State of the Operator is different from the State of Registry. Leasing or interchange arrangements sometimes include the provision of flight crews from the State of Registry. However, more often, flight crews are provided by the State of the Operator and the aircraft operated under national legislation of the State of the Operator. Similarly, a variety of arrangements for airworthiness can emerge from these arrangements. Airworthiness responsibility may rest, wholly or partly, with the State of the Operator or State of Registry. Sometimes the operator, in conformity with an airworthiness control system specified by the State of Registry, carries out maintenance and keeps records.

In the event of an accident or incident, it is important that any State which has assumed responsibility for the safety of an aircraft has the right to participate in an investigation, at least in respect of that responsibility. It is also important that the State conducting the investigation should have speedy access to all documents and other information relevant to that investigation.
When the location of an accident or an incident cannot definitely be established as being in the territory of another State, the State of the Operator, after consultation with the State of Registry, should accept full or partial responsibility for the conduct of the investigation.

Attachment B. Notification and Reporting Checklist

Note. In this checklist, the following terms have the meaning indicated below:

- **International occurrences**: accidents and incidents occurring in the territory of a Contracting State to aircraft registered in another Contracting State.
- **Domestic occurrences**: accidents and incidents occurring in the territory of the State of Registry.
- **Other occurrences**: accidents and incidents occurring in the territory of a non-Contracting State, or outside the territory of any State.

1. Accidents, Serious Incidents and Incidents to be Investigated

From	For	Send to	Part 13 Reference
State of occurrence	International Occurrences: All aircraft	Sate of Registry State of Operator State of Design State of Manufacture ICAO (when aircraft over 2250 Kg or is turbojet-powered aeroplane)	13.4.1
State of Registry	Domestic and Other Occurrences: All aircraft	State of Operator State of Design State of Manufacture ICAO (when aircraft over 2250 Kg or is turbojet-powered aeroplane)	13.4.8

2. Final Report
Accidents and Incidents Wherever They Occurred

From	Type of Report	Concerning	Send to	Part 13 Reference
State conducting the investigation	Final report	All Aircraft	State instituting the investigation State of registry State of Operator State of Design State of Manufacture Other states participating in the investigation State having suffered fatalities or serious injuries to its citizens State providing information, significant facilities or experts	13.6.4
		Aircraft over 5700Kg	ICAO	13.6.7

3. ADREP Report
Accidents and Incidents Wherever They Occurred

From	Type of report	Concerning	Send to	Part 13 References
State conducting the investigation	PRELIMINARY REPORT	Accident to aircraft over 2250 Kg	Sate of Registry **or** State of Occurrence State of Operator State of Design State of Manufacture State providing information, significant facilities or experts ICAO	13.7.1
		Accident to aircraft over 2250 Kg or less if airworthiness or matters of interest are involved	Same as above, except ICAO	13.7.2
	ACCIDENT DATA REPORT	Accident to aircraft over 2250 Kg	ICAO	13.7.5
	INCIDENT DATA REPORT	Incidents to aircraft over 5700 Kg	ICAO	13.7.7

4. Accident Prevention Measures
Safety Matters of Interest to Other States

From	Type	Concerning	Send to	Part 13 References
State making safety recommendations	Safety recommendations	Recommendations made to another state	Accident investigation authority in the state	13.6.8 13.8.3
		ICAO documents	ICAO	13.6.9

Attachment C. List of Examples of Serious Incidents

1. The term "serious incident" is defined in Chapter 1 as follows:
Serious incident. An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down.

2. There may be a high probability of an accident if there are few or no safety defences remaining to prevent the incident from progressing to an accident. To determine this, an event risk-based analysis (that takes into account the most credible scenario had the incident escalated and the effectiveness of the remaining defences between the incident and the potential accident) can be performed as follows:

   a. Consider whether there is a credible scenario by which this incident could have escalated to an accident; and
   b. Assess the remaining defences between the incident and the potential accident as:
      — Effective, if several defences remained and needed to coincidently fail; or
      — limited, if few or no defences remained, or when the accident was only avoided due to providence

   2.1 Consider both the number and robustness of the remaining defences between the incident and the potential accident. Ignore defences that failed, and consider only those that worked and any subsequent defences still in place.

Note 1. The most credible scenario refers to the realistic assessment of injury and/or damage resulting from the potential accident.

Note 2. Defences include crew, their training and procedures, ATC, alerts (within and outside the aircraft), aircraft systems and redundancies, structural design of the aircraft and aerodrome infrastructure.

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

		(b) Remaining defenses between the incident and the potential accident	
		Effective	Limited
(a) most credible scenario	Accident	Incident	Serious Incident
	No accident	Incident	

3. In the case of an unmanned aircraft, consider whether the most credible outcome, had the incident escalated into an accident, could have resulted in a person being fatally or seriously injured. Fatal and serious injuries are more likely to justify an investigation than those occurrences where the most credible outcome was merely damage to or loss of the unmanned

aircraft. The risk of fatal or serious injury may also influence the extent of the investigation to be conducted.

4. The incidents listed are examples of what may be serious incidents. However, the list is not exhaustive and, depending on the context, items on the list may not be classified as serious incidents if effective defences remained between the incident and the credible scenario.

- Near collisions requiring an avoidance manoeuvre to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate.
- Collisions not classified as accidents.
- Controlled flight into terrain only marginally avoided.
- Aborted take-offs on a closed or engaged runway, on a taxiway or unassigned runway.
- Take-offs from a closed or engaged runway, from a taxiway or unassigned runway.
- Landings or attempted landings on a closed or engaged runway, on a taxiway, on an unassigned runway or on unintended landing locations such as roadways.
- Retraction of a landing gear leg or a wheels-up landing not classified as an accident.
- Dragging during landing of a wing tip, an engine pod or any other part of the aircraft, when not classified as an accident.
- Gross failures to achieve predicted performance during take-off or initial climb.
- Fires and/or smoke in the cockpit, in the passenger compartment, in cargo compartments or engine fires, even though such fires were extinguished by the use of extinguishing agents.
- Events requiring the emergency use of oxygen by the flight crew.
- Aircraft structural failures or engine disintegrations, including uncontained turbine engine failures, not classified as an accident.
- Multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft.
- Flight crew incapacitation in flight:
  a. For single pilot operations (including remote pilot); or
  b. For multi-pilot operations for which flight safety was compromised because of a significant increase in workload for the remaining crew.
- Fuel quantity level or distribution situations requiring the declaration of an emergency by the pilot, such as insufficient fuel, fuel exhaustion, fuel starvation, or inability to use all usable fuel on board.
- Runway incursions classified with severity A (A serious incident in which a collision is narrowly avoided). The Manual on the Prevention of Runway Incursions (Doc 9870) contains information on the severity classifications.
- Take-off or landing incidents. Incidents such as under-shooting, overrunning or running off the side of runways.
- System failures (including loss of power or thrust), weather phenomena, operations outside the approved flight envelope or other occurrences which caused or could have caused difficulties controlling the aircraft.
- Failures of more than one system in a redundancy system mandatory for flight guidance and navigation.
- The unintentional or, as an emergency measure, the intentional release of a slung load or any other load carried external to the aircraft.

Attachment D. Guidelines for Flight Recorder Read-out and Analysis

Initial response

The aftermath of a major accident is a demanding time for any State's accident investigation authority. One of the immediate items requiring a decision is where to have the flight recorders read out and analysed. It is essential that the flight recorders be read out as early as possible after an accident. Early identification of problem areas can affect the investigation at the accident site where evidence is sometimes transient. Early identification of problem areas may also result in urgent safety recommendations which may be necessary to prevent a similar occurrence.
Many States do not have their own facilities for the playback and analysis of flight recorder information (both voice and data) and consequently request assistance from other States. It is essential, therefore, that the accident investigation authority of the State conducting the investigation make timely arrangements to read out the flight recorders at a suitable read-out facility.

Choice of facility

The State conducting the investigation may request assistance from any State that, in its opinion, can best serve the investigation. The manufacturer's standard replay equipment and playback software, which are typically used by airlines and maintenance facilities, are not considered adequate for investigation purposes. Special recovery and analysis techniques are usually required if the recorders have been damaged.
Facilities for the read-out of flight recorders should have the ability to:

a) Disassemble and read out recorders that have sustained substantial damage;
b) Play back the original recording/memory module without the need for the use of a manufacturer's copy device or the recorder housing that was involved in the accident or incident;
c) Manually analyse the raw binary waveform from digital tape flight data recorders;
d) Enhance and filter voice recordings digitally by means of suitable software; and
e) Graphically analyse data, derive additional parameters not explicitly recorded, validate the data by cross-checking and use other analytical methods to determine data accuracy and limitations.

Participation by the State of Manufacture (or Design) and the State of the Operator

The State of Manufacture (or Design) has airworthiness responsibilities and the expertise normally required to read out and analyse flight recorder information. Since flight recorder information can often reveal airworthiness problems, the State of Manufacture (or Design) should have a representative present when the flight recorder read-out and analysis are being conducted in a State other than the State of Manufacture (or Design).
The State of the Operator has regulatory responsibilities regarding the flight operation and can provide insights into operational issues which may be specific to the operator. Since flight recorder information can reveal operational problems, the State of the Operator should also have a representative present when the flight recorder read-out and analysis are being conducted.

Recommended procedures

The flight data recorder and the cockpit voice recorder should be read out by the same facility, because they contain complementary data which can help validate each recording and aid in determining timing and synchronization.

Flight recorders should not be opened or powered up and original recordings should not be copied (particularly not by high-speed copy devices) prior to the read-out because of the risk of damage to the recordings.

The facility at which the flight recorders are read out for another State should be given an opportunity to comment on the Final Report in order to ensure that the characteristics of the flight recorder analysis have been taken into account.

The facility at which the flight recorders are read out may require the expertise of the aircraft manufacturer and the operator in order to verify the calibration data and validate the recorded information.

The State conducting the investigation may leave the original recordings, or a copy of them, with the read-out facility until the investigation is completed, in order to facilitate the timely resolution of additional requests or clarifications, providing that the facility has adequate security procedures to safeguard the recordings.

Attachment E. Guidance for the Determination of Aircraft Damage

1. If an engine separates from an aircraft, the event is categorized as an accident even if damage is confined to the engine.

2. A loss of engine cowls (fan or core) or reverser components which does not result in further damage to the aircraft is not considered an accident.

3. Occurrences where compressor or turbine blades or other engine internal components are ejected through the engine tail pipe are not considered accidents.

4. A collapsed or missing radome is not considered an accident unless there is related substantial damage in other structures or systems.

5. Occurrences of missing flaps, slats and other lift augmenting devices, winglets, etc., that are permitted for dispatch under the configuration deviation list (CDL) are not considered accidents.

6. Retraction of a landing gear leg or wheels-up landing, resulting in skin abrasion only, when the aircraft can be safely dispatched after minor repairs or patching, and subsequently undergoes more extensive work to effect a permanent repair, would not be classified as an accident.

7. If the structural damage is such that the aircraft depressurizes, or cannot be pressurized, the occurrence is categorized as an accident.

8. The removal of components for inspection following an occurrence, such as the precautionary removal of an undercarriage leg following a low-speed runway excursion, while involving considerable work, is not considered an accident unless significant damage is found.

9. Occurrences that involve an emergency evacuation are not counted as accidents unless someone receives serious injuries or the aircraft has sustained significant damage.

Note 1. Regarding aircraft damage which adversely affects the structural strength, performance or flight characteristics, the aircraft may have landed safely, but cannot be safely dispatched on a further sector without repair.

Note 2. If the aircraft can be safely dispatched after minor repairs and subsequently undergoes more extensive work to effect a permanent repair, then the occurrence would not be classified as an accident. Likewise, if the aircraft can be dispatched under the CDL with the affected component removed, missing or inoperative, the repair would not be considered as a major repair and consequently the occurrence would not be considered an accident.

Note 3. The cost of repairs, or estimated loss, such as provided by insurance companies may provide an indication of the damage sustained but should not be used as the sole guide as to whether the damage is sufficient to count the occurrence as an accident. Likewise, an aircraft may be considered a "hull loss" because it is uneconomic to repair, without it having incurred sufficient damage to be classified as an accident.

Attachment F. Investigation Delegation Agreements

1. In accordance with paragraph 13.5.1, the State of Occurrence is responsible for instituting and conducting an investigation, but it may delegate the whole or any part of the conducting of such investigation to another State or a regional accident and incident investigation organization (RAIO) by mutual arrangement and consent. Similarly, delegation of the conducting of an investigation may take place when a State is expected or required to institute an investigation of an accident or serious incident occurring in the territory of a non-Contracting State that does not intend to conduct an investigation in accordance with Annex 13, or when the location of the accident or serious incident cannot definitely be established as being in the territory of any State.

2. Entering into an investigation delegation agreement normally begins with a decision made by the State responsible for instituting and conducting the investigation. In general, such a State may consider delegating the conducting of the investigation to another State or RAIO, in particular for those situations when it may be beneficial or more practical for the selected State or RAIO to conduct the investigation, or when the State responsible for instituting the investigation lacks the resources or capability to investigate the occurrence in accordance with Annex 13.

3. Depending on the parties involved in the investigation, the scope of the investigation to be conducted by another State or RAIO would determine whether a formal investigation delegation agreement is necessary, or if a mutual understanding would suffice. In general, delegation of the whole investigation would require a formal investigation delegation agreement. In the case of delegation of part of the investigation, a formal delegation agreement would be at the discretion of the two parties.

4. When the whole investigation is delegated to another State or an RAIO, such State or RAIO is expected to be responsible for the conduct of the investigation, including the issuance of the Final Report and the ADREP reporting. When a part of the investigation is delegated, the delegating State usually retains the responsibility for the conduct of the investigation, including the issuance of the Final Report and the ADREP reporting. In any event, the delegating State shall use every means to facilitate the investigation.

5. It is important to differentiate between the institution and the conduct of an investigation in terms of the triggering and terminating events of each function. Instituting the investigation begins at the time the accident investigation authority is informed about the accident or incident and forwards the official notification of the occurrence to concerned States and to ICAO as required by paragraph 13.4.1. Conducting the investigation is the function of performing an investigation in accordance with this Part, and issuing reports including the Final Report.

6. It is important that the investigation delegation agreement achieves the purpose of the investigation and maintains conformity with the requirements of Annex 13. Therefore, the parties to the agreement should ensure that the responsibility of each party is clearly defined. The contents and details of the agreement depend on the scope of the delegation.

Note. The IHB, Part I — Organization and Planning, Chapter 2, contains guidance material on the delegation of investigations and a model delegation agreement.