

Safety Information Bulletin

Operations

SIB No.: 2023-08**Issued: 07 July 2023**

Subject: Reporting of occurrences involving human interventions linked to flight deck design, operating procedures, training, or a combination thereof.

Ref. Publications:

- Regulation (EU) [2018/1139](#) dated 04 July 2018.
- Regulation (EU) [376/2014](#) dated 03 April 2014.
- Commission Regulation (EU) [965/2012](#) dated 05 October 2012.

Applicability

Commercial air transport (CAT) operators of CS 25/JAR 25/FAR 25 large aeroplanes.

Description

Note: For the purpose of this SIB, the following definitions apply:

Human intervention: Any action taken by the flight crew during operations that preceded the safety related occurrence. It can belong to different categories such as perception, planning and decision making, response execution and communication.

Occurrence: (under ORO.GEN.160 (b)) Any incident or irregular circumstance that has or may have endangered the safe operation of the aircraft and that has not resulted in an accident or a serious incident.

Event: Any safety relevant condition encountered in service (including occurrences) or during simulator training and checking.

Regulation (EU) 376/2014, Article 4, together with Regulation (EU) 965/2012, ORO.GEN.160(a) require that CAT operators report occurrences of which they become aware to their competent authority. Without prejudice to this mandatory reporting, CAT operators are further required by ORO.GEN.160(b) to report occurrences to the design approval holder (DAH).

To enable the in-depth analysis of in-service events involving human interventions, the assumptions, which have been made by the DAH when demonstrating compliance with the certification basis about the expected flight crew behaviour, need to be known in order to identify any deviations from these assumptions in the context of operation. Since operators do not own this knowledge, the responsibility of such analysis is assigned to the DAH. However, the effectiveness of the continuing airworthiness system depends on the DAH being made aware by operators, in a systematic and comprehensive way, of occurrences/events or trends that may

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reveal shortcomings related to flight deck design, operating procedures, training, or a combination of the three.

Therefore, this SIB emphasises the need to strengthen the systematic reporting of occurrences/events involving human interventions by operators to the DAH and provides additional guidance on the kind of events that are expected to be reported.

At this time, the safety concern described in this SIB does not warrant the issuance of an operational directive under Regulation (EU) [965/2012](#), Annex II, ARO.GEN.135(c).

Recommendation(s)

Occurrence reporting and analysis

CAT operators of CS/JAR/FAR 25 aeroplanes are required to report, as part of the mandatory occurrence reporting process to the respective DAH, occurrences involving human interventions detected by the flight crew during the operator's flight operations. CAT operators are further recommended to report also corresponding events detected by the instructor/examiner during the operator's simulator training and checking. With regard to simulator training and checking, it is important to emphasise that any relevant limitations that may affect analysis and validity should be considered when reporting to DAH.

Table 1 provides a non-exhaustive list of possible contributing human interventions that could lead or contribute to a reduction in safety margins and will require a thorough analysis by the DAH to determine if a possible unsafe condition exists.

Table 1 - Non-exhaustive list of events and/or conditions

Category	Outcome	Definition
PERCEPTION	No/wrong/late visual detection	The operator's flight crew does not detect (or detects too late or inaccurately) a visual signal necessary to formulate a proper action plan or make a correct decision.
	No/wrong/late aural detection	The operator's flight crew does not detect (or detects too late or inaccurately) an aural signal necessary to formulate a proper action plan or make a correct decision.
	No/wrong/late kinaesthetic detection	The operator's flight crew does not detect (or detects too late or inaccurately) a kinaesthetic signal (e.g., stick shaker or pusher) necessary to formulate a proper action plan or make a correct decision.
PLANNING AND DECISION MAKING	Incorrect/late/absence of decision or plan	The operator's flight crew was not able to develop an adequate action plan or decision to manage the situation.
RESPONSE EXECUTION	Timing error	The operator's flight crew takes an action which is appropriate for the situation but executes it either too early or too late.
	Sequence error	The operator's flight crew carries out a series of actions in the wrong sequence.

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Category	Outcome	Definition
	Correct action on the wrong object	The operator's flight crew takes an action which is appropriate for the perceived situation but executes it wrongly by selecting an object (e.g., lever, knob, button, any other HMI element) different from the intended one.
	Wrong action on the right object	The operator's flight crew selects the correct object (e.g., lever, knob, button, any other HMI element), but performs an action that is not the correct one.
	Lack of physical coordination	The operator's flight crew takes an action which is appropriate for the perceived situation but executes it in a wrong manner.
	No action executed	The operator's flight crew intends to take an action which is appropriate for the perceived situation but does not execute it.
COMMUNICATING	Incorrect/unclear transmission of information	The operator's flight crew transmits to other actors' information, which is incorrect or unclear, e.g., use of incorrect entry.
	No transmission of information	The operator's flight crew does not transmit information which is necessary for other actors to operate safely/effectively.

Source: 'SHIELD (Safety Human Incident & Error Learning Database) human factors model'
Stroeve S., Doorn B., Jonk P., Kirwan B., Navas de Maya B., 2022

CAT operators should process reported events or adverse trends of events that may reveal shortcomings related to design, procedures, training, or a combination of those. This should be included in their management system to ensure that any reports sent to the DAH have been thoroughly analysed and contain detailed information. This will allow the DAH to conduct its own analysis in an efficient manner.

Guidance Material to Regulation (EU) 376/2014, in Section 2.4 'Key principle', emphasises that where the operator cannot determine with certainty that the event or trend is linked to design or where it cannot be excluded that there is a link to design, the operator is recommended to report the occurrence or event to the DAH.

Report content

As part of the mandatory data fields, required to be provided by Regulation 376/2014, to support the DAH in their analysis, the operator is recommended to provide at least the following additional supporting information, when available:

- Description of:
 - The operational context at the time of occurrence, such as, ATC clearance, meteorological and environmental conditions;
 - The aircraft status, including details on any Minimum Equipment List items;
 - Any relevant issue on crew resource management (CRM);
 - Relevant pilot training details.

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- Information on how:
 - The occurrence was detected (whom, when and how);
 - The crew recovered from the occurrence (whom, when and how).
- Other relevant data, such as:
 - Pilot Report (PIREP) data;
 - Technical Logbook data;
 - If permitted by flight data monitoring (FDM) programme requirements and by the operator's procedures regarding the protection of flight crew identity, data from the FDM programme that is relevant for the analysis of the occurrence;
 - Aircraft Communication Addressing and Reporting System (ACARS) data;
 - The existence of similar previous events, and whether they resulted (on those occasions) in unsafe conditions.

In case the event or trends concern operator simulator training or checking, the information provided to the DAH should include information regarding the training or checking scenario, configuration of the simulator, type representativeness of the simulator used, any simulator limitations, and any other relevant information pertaining to the training or checking, and simulator used.

Contact(s):

For further information contact the EASA Safety Information Section, Certification Directorate.

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