Safety Information Bulletin

Airworthiness

SIB No.: 2009-28R2

Issued: 12 November 2026

Subject: **Serviceability of Required Flight Recording Systems**

Revision:

This SIB revises EASA SIB 2009-28R1 dated 08 January 2015.

Ref. Publications:

- Commission Regulation (EU) No 965/2012 of 05 October 2012.
- Regulation (EU) 2018/1139 of 04 July 2018.
- Regulation (EU) No 996/2010 of 20 October 2010.
- EASA Certification Specifications (CS) and Acceptable Means of Compliance (AMC) for Large Aeroplanes (CS-25), Amendment (Amdt) 26 dated 15 December 2020, and later amendments.
- EASA Certification Specifications, AMC and Guidance Material (GM) for Large Rotorcraft (CS-29), Amdt 9 dated 14 June 2021, and later amendments.
- EASA Certification Specifications, AMC and GM for Small Rotorcraft (CS-27), Amdt 10 dated 27 January 2023, and later amendments.
- EASA Certification Specifications Amdt 6; and AMC and GM Issue 5 for Normal Category Aeroplanes (CS-23) dated 13 April 2026 and later amendments.
- ICAO Annex 6, Operation of Aircraft – Part I - International Commercial Air Transport Aeroplanes; Part II - International General Aviation - Aeroplanes and Helicopters; and Part III - International Commercial Air Transport - Helicopters, all parts at 12th edition dated August 2026.
- European Organisation for Civil Aviation Equipment (EUROCAE) ED-112A and ED-112B, Minimum Operational Performance Specification for Crash Protected Airborne Recorder Systems.
- EUROCAE ED-155 and ED-155A, Minimum Operational Performance Specification for Lightweight Flight Recording Systems.

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Applicability:

(Supplemental) Type Certificate ((S)TC) holders, maintenance organisations and operators of aircraft having a flight recorder[1] installed to comply with operating rules[2], in particular those certified under CS-25, CS-29, CS-27 and CS-23 (or equivalent JAR, FAR and PART standards).

This SIB is also addressed to National Aviation Authorities (NAAs) and Safety Investigation Authorities.

Description:

Safety Investigation Authorities have reported several cases in which the required flight recording systems have not recorded data as expected, due to a malfunction of the unit or the dedicated equipment. Such failures may remain hidden for a certain amount of time, as it is difficult or impossible to automatically assess the full system serviceability on board the aircraft. This behaviour is described as a dormant failure.

In addition, it was found on many occasions that required flight recorders were recording data to a quality insufficient to serve the needs of a safety investigation into an accident or serious incident, and not up to the standards recommended by industry guidance documents.

Finally, Safety Investigation Authorities found cases where the information necessary to convert the FDR raw data into parameters expressed in engineering units, as provided by the (S)TC holder, was incomplete or inaccurate. As a result, the analysis of the FDR data was significantly delayed. Since air operation rules of Commission Regulation (EU) No 965/2012 require the aircraft operator[3] to "*keep and maintain up-to-date documentation that presents the necessary information to convert raw flight data into flight parameters expressed in engineering units*", this can only be done if the (S)TC holder has provided the corresponding maintenance instructions to the operator.

In addition, Commission Regulation (EU) No 965/2012 also requires aircraft operators[4] to conduct operational checks and evaluations of recordings of flight recorders carried as required under that Regulation in order to ensure their "*continued serviceability*".

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[1] ICAO Annex 6 defines flight recorders as follows:

- *Crash-protected flight recorders, which comprise one or more of the following: a flight data recorder (FDR), a cockpit voice recorder (CVR), an airborne image recorder (AIR), a data link recorder (DLR).*
- *Lightweight flight recorders, which comprise one or more of the following: an aircraft data recording system (ADRS), a cockpit audio recording system (CARS), an airborne image recording system (AIRS), a data link recording system (DLRS).*

Note that flight parameters and data link information may be recorded by means of images when permitted by airworthiness and operational requirements.

[2] In this SIB, such recorders and their recordings are qualified as 'required'

[3] See in point (d) of CAT.GEN.MPA.195, NCC.GEN.145 and SPO.GEN.145.

[4] See in point (b) of CAT.GEN.MPA.195, NCC.GEN.145 and SPO.GEN.145.

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This requirement in Air Operations Regulation is supplemented by AMC and GM which, consistently with the standards in ICAO Annex 6[5] and EUROCAE ED-112A[6] for crash-protected recorders and ED-155[7] for lightweight recorders, recommend that these operational checks and evaluations include periodic inspections of the required recordings, as well as the periodic calibration check of the FDR and ADRS parameters.

To align with the standards in ICAO Annex 6 and EUROCAE Document ED-112A, the Agency introduced CS/AMC 25/29.1460 (for data link recorders) alongside with updates to AMC 25/29.1457 (for CVR) and AMC 25/29.1459 (for FDR). Enacted via CS-25 Amdt 26 and CS-29 Amdt 9, these certification changes clarify what design applicants for new flight recorder installation(s) should provide in the equipment Instructions for Continued Airworthiness (ICA) as maintenance tasks to ensure quality and system serviceability of the recordings. The same applies also to CS/AMC 27.1458 (for lightweight recorders) on small rotorcraft from CS-27 Amdt 10.
Among other things, the new AMC 25/29.1459, AMC 25/29.1460 in CS-25 and CS-29 and AMC 27.1458 in CS-27 added provisions to include flight recorder decoding documentation (content and format) in the list of items to be part of the flight recorder ICA, so that this documentation is made available to aircraft operators and enables them to fulfil the aforementioned responsibilities for flight recorder serviceability and proper conversion of recordings into flight parameters expressed in engineering units.

Note 1: As part of its rulemaking activity, the Agency intends to amend the AMC and GM to CS-23 (currently at Issue 5) in order to align AMC1 23.2555 ('Installation of recorders (e.g. cockpit voice recorders and flight data recorders)') with the already amended AMC to CS-25/29/27, since ICAO Annex 6 and EUROCAE ED-112A standards equally apply to CS-23 aeroplanes.

In accordance with Regulation (EU) No 2018/1139 Article 77, the Agency carries out where applicable on behalf of the Member States the functions and tasks of the State of Design and Registry, when those functions and tasks are related to design certification and mandatory continuing airworthiness information. In addition, according to Regulation (EU) No 996/2010, the Agency is entitled to access all relevant factual information when it has been authorised to appoint an adviser to a safety investigation. Since flight recorders are an essential tool to quickly determine the circumstances of an accident or a serious incident that can have implications for the airworthiness of products, parts or equipment, the Agency may take mandatory action to address a deficiency preventing the flight recorders to perform their intended function, as mentioned in GM1 21.A.3B(b).

This SIB has been revised following regulatory changes relating to data link recording and the ICA of flight recorders, introduced in CS-25 at Amdt 26 and CS-29 at Amdt 9, as well as the introduction of lightweight recorders in Commission Regulation (EU) No 965/2012 and CS-27 at Amdt 10. This SIB is revised in its entirety, and no revision bars are used.

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[5] See in ICAO Annex 6, Part I, Appendix 8 (commercial – aeroplanes), Part II, Appendix 2.3 (international general aviation - aeroplanes) and Part III, Appendix 4 (helicopters).

[6] See in EUROCAE ED-112B change 1, Annex I-C (CVR maintenance practices), Annex II-B (FDR maintenance practices), Annex III-B (AIR maintenance practices), Annex IV-B (DLR maintenance practices).

[7] See in EUROCAE ED-155, Annex I-B (ADRS maintenance practices), Annex II-C (CARS maintenance practices), Annex III-A (AIRS maintenance practices), Annex IV-B (DLRS maintenance practices).

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At this time, the safety concern described in this SIB is not considered to be an unsafe condition that would warrant Airworthiness Directive (AD) action under Commission Regulation (EU) No 748/2012, Part 21.A.3B.

Recommendation(s):

EASA recommends that:

Design Approval Holders of (Supplemental) Type Certificates that include flight recording systems installed to comply with operating rules about data or data link recording, including by means of images, and that are approved under CS-25 prior to Amdt 26, or CS-29 prior to Amdt 9, or CS-27 prior to Amdt 10, should:

- Review the relevant equipment ICA to ensure that these maintenance instructions provide sufficient information to European aircraft operators for maintaining the serviceability of their installed flight recording systems in compliance with Commission Regulation (EU) No 965/2012. Therefore, the (S)TC Holder should provide equipment ICA in accordance with AMC 25/29.1457, AMC 27.1458, AMC 25/29.1459 and AMC 25/29.1460 in force, as applicable to aircraft type and flight recorder, and including in particular the necessary information to convert raw data or images, as applicable, into flight parameters expressed in engineering units.

- This recommendation also applies to Design Approval Holders of (S)TCs that include flight recording system installations approved under CS-23 Amdt 6 / AMC and GM to CS-23 Issue 5 or prior amendments/issues (see Note 1 of this SIB).

- When developing Master Minimum Equipment List (MMEL) content for the required flight recorders, the (S)TC Holder should take the guidance from CS-MMEL into account.

- The provisions of ICAO Annex 6 regarding the maintenance of required flight recording systems and EUROCAE ED-112A, ED-112B, ED-155 or ED-155A may also be considered.

Aircraft Operators should:

- When developing the aircraft maintenance programme (AMP), consider the requirements of Commission Regulation (EU) No 965/2012 and the corresponding AMCs and GMs, as well as the ICA provided by the (S)TC Holder for the required flight recordings and the ICAO guidelines as described above as a minimum.

- Evaluate the quality of the required flight recordings during the recording inspections and ensure that they remain within acceptable limits. In particular, all required signals recorded by the CVR or CARS should meet intelligibility standards, and all flight parameters required to be recorded should meet the performance recommended in the AMCs.

- Report to the competent authority and the (S)TC Holder any malfunction occurrences, recurrent reliability issues and recording quality deficiencies affecting required recordings.

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- Not authorise aircraft dispatch with any known recording failure affecting required flight recordings, unless it is done in accordance with the provisions of the operator's approved Minimum Equipment List.

- Cases where the operator is unable to properly perform the required serviceability tasks (e.g. due to a lack of maintenance instructions or documentation in the equipment ICA) should also be reported to the competent authority.

Aircraft Maintenance Organisations should:

- Perform flight recorder maintenance in accordance with the applicable AMP, when required by the aircraft operator. In the absence of detailed instructions, the guidelines of the relevant AMC to Commission Regulation (EU) No 965/2012 should be used.

- Report to the competent authority and the (S)TC Holder any flight recording malfunction occurrences, as well as any recurrent reliability and recording quality issues.

National Aviation Authorities should:

- Transmit to the Agency reports from aircraft operators where the (S)TC holder fails to address reliability or recording quality issues with a flight recorder installation, or to provide complete maintenance instructions for the continued serviceability of flight recorders, or to supply the data required for operator compliance under Commission Regulation (EU) No 965/2012.

Safety Investigation Authorities should:

- Report to the Agency significant findings about the serviceability of a flight recorder or the quality of a recording.

Contact(s):

For further information contact the EASA Safety Information Section, Certification Directorate.
E-mail: ADs@easa.europa.eu.

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