

International Maintenance Review Board Policy Board (IMRBPB)

Issue Paper (IP)

IP Number:

Initial Date (DD/MMM/YYYY):

Revision / Date (DD/MMM/YYYY):

Effective Date (DD/MMM/YYYY):

Retroactivity (Y/N):

Title:	Aircraft FDR, CVR and DLR, recording systems to be analysed as safety/emergency systems.
Submitter:	FAA

Applies To:	
MSG-3 Vol 1	X
MSG-3 Vol 2	X
IMPS	X

Issue:

Aircraft FDR, CVR, and DLR recording systems are not currently analysed as safety/emergency systems however, data preserved by recording systems most certainly is critical in preventing future accidents/incidents. Most recently, FDR and CVR data were the primary sources of data identifying the cause of recent 737 MAX accidents. Flight Data Recorders are required to record, preserve, and download flight data parameters. CVR data from the cockpit crew and area microphones also must be preserved and downloaded along with datalink communication. There are also minimum recording time requirements to be maintained for each of these systems. There are multiple guidance documents from various NAA's and ICAO establishing operational and functional checks for continued airworthiness of recording systems yet, without an MRB task to drive periodic maintenance, these checks are easily overlooked.

Problem:

Current MSG-3 analysis procedure allows the functional failure of these systems to be considered "evident failure" through the indication of one or more failures in the system while failure of other critical functions such as recording fidelity, data preservation or parameter correlation may remain hidden, yet they are critical to the system. Further, if some functions of the system are identified as hidden, a task will not normally be considered due to lack of "direct adverse effect on safety" implications. This prevents the development of effective tasks to ensure the continued availability of these critical recording systems.

Recommendation (including Implementation):

Systems used to record and store data used in accident/incident investigation should be considered "safety/emergency systems" and, as such, should be analysed in accordance with MSG-3 guidance for hidden functional failures of safety/emergency systems or equipment. Update the MSG-3 volume 1 and 2 glossary definition of Safety/Emergency Systems or Equipment to include recording devices as follows:

A device or system that:

- 1) enhances the evacuation of the aircraft in an emergency or,*
- 2) if it does not function when required, results in a Failure*

Condition that might have an adverse effect on safety.

- 3) Is used to record and store data used in accident/incident investigation, ie FDR, CVR and DLR.*

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To ensure latent functions are considered in MSG-3 first level analysis question 1, add the following note in MSG-3 volume 1 and 2 paragraph 2.3.5:

Latent failures of FDR/CVR/DLR functions, including recording fidelity, data preservation, or parameter correlation should be considered a hidden functional failure in question 1 of first level systems analysis. In addition, systems used to record and store data used in accident/incident investigation should be considered “safety/emergency systems” and question 3 of first level systems analysis should be performed in accordance with MSG-3 guidance for functional failures of safety/emergency systems or equipment.

Add the following to IMPS document paragraph 10:

It should be understood by the applicable working group that FDR, CVR and DLR systems are to be analysed as safety/emergency systems. Any hidden functions of the recording system i.e. Record, preserve, time requirements, download, parameter correlation, will require the system to be analysed as an FEC 8.

IMRBPB Position:	
Date:	
Position:	

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Recommendation for Implementation:	
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Status of the Issue Paper:	<input type="checkbox"/>	Active
	<input type="checkbox"/>	Incorporated in MSG-3 / IMPS (with details)
	<input type="checkbox"/>	Archived