

Certification Authorities for Large Transport Aircraft (CATA)
Technical Issue Paper TCCA-005 – MRB task interval escalation

Date Raised:	August 17, 2017	Updated: N/A	Status:	Closed
Date Revised:	N/A			
Subject:	MRB task interval escalation - Tasks adopted from Candidate CMRs			
Related Issue(s): (Identify Discussion Paper number, if any)	International Maintenance Review Board Policy Board (IMRBPB) Issue Paper 44; FAA AC 25-19A; EASA AMC 25-19.			

Description of Issue(s):

(Give a brief background of issue(s))

Preliminary note: For the comfort of reading, the Authority-specific terminology (RBAC, CS, 14 CFR and AWM) will be removed from this document. Only “25.1309” and “25.1309 guidance” will be used.

CMRs (Certification Maintenance Requirements) are derived from system safety analysis required by 25.1309. CMR tasks are mandatory airworthiness limitations which form part of the type certificate. The approval of the initial and any subsequent changes to CMRs is part of the type certification and post TC process, respectively under the responsibility of the Certifying Authority who issues the TC.

MRBR tasks (use of MSG-3 methodology) are derived within the ISC/MRB process. The approval of the initial MRBR tasks and any subsequent changes proposed by the applicants/design approval holders is within the MRB/ISC process.

Per AC 25-19A, Candidate CMRs may be dispositioned as MRBR tasks, effectively replacing the need to generate specific CMR tasks.

25.1529 stipulates the requirements to provide the ICAs, which includes amongst others, the MRBR tasks and the airworthiness limitations (hence the CMRs).

Applicants/design approval holders have the MRBR tasks approved for a number of aircraft types where these tasks were formerly CCMRs.

The issue of concern is three-fold:

- These MRB task intervals in many cases are close to those derived from the SSAs (for the former CCMRs) and may not provide sufficient safety margin for escalation when using task evolution procedures.
- There is no proper identification or traceability of the instances where CCMRs have been dispositioned by these MRBR tasks and as such, there are no controls over the tasks and the task intervals. These MRBR tasks may then be modified, or their task intervals escalated beyond that established in the SSAs for the CCMRs.
- Without proper identification, traceability or control of these MRBR tasks, the airworthiness authority (representing the State of Registry) responsible for the operations and maintenance of the aircraft may approve changes to these tasks in the aircraft maintenance schedule (content and/or intervals) for individual aircraft operators that go beyond the CCMR limits established in the SSAs.

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Background:

The above issues and concerns were identified and documented in a number of aircraft certification and validation projects and notably after the issuance of the IMRBPB IP 44.

It is noted that EASA has issued its AMC 25-19 on August 30, 2017. AMC 25-19 and FAA AC 25-19A do not fully address the issues/concerns identified above.

Proposed Prioritization:

(Per CATA Technical Issues List Prioritization schema, SME proposes along with authority CATA members)

Question	Answer
1. Is there an active working group related to this issue?	No
2. In which documents are there deviations amongst the authorities?	AC 25-19A, AMC 25-19
3. Was this issue raised by or at the CMT?	No
4. What is the level of impact on projects in the future (i.e. minor, major, critical)?	Major
5. How many authorities does the issue impact?	All
6. What is the approximate technical complexity of the issue (i.e. low, medium, high)?	Low

Recommendation:

(SME proposes expected resolution of the issue)

CATA to establish a working group comprised of SME(s) from each member's organization. This working group is to recommend to CATA a plan to address the issues/concerns identified above.

CATA Decision:

(Using CATA criteria for determination of technical issues)

In October 2017, with authorities' SMEs consensus that this topic deserved attention, CATA decided to action this issue and established a working group to develop harmonized paper.

SME Recommendation:

(Recommendations from SME Working Group; may contain links and/or embedded documents)

The two escalation control options provided in Appendix 3 of EASA AMC 25-19 are acceptable to EASA, ANAC and TCCA.

CATA recognizes that the FAA system does not have provisions to enable utilization of the two escalation control options provided in Appendix 3 of EASA AMC 25-19. This conclusion comes after extensive analysis through a collaborative effort with the FAA Flight Standards Division, whereas neither Appendix 3 approach would be effective, within the FAA system, at controlling the safety issue that motivated this CATA project. The rationale supporting this conclusion is summarized below.

Analysis of AMC Example 1 under the FAA system: in order to make this method effective in the FAA system, the ALS entry would have to reference the "limited" task in the same manner as a CMR, with the same level of detail as provided for each CMR task. Doing so will require operators to track the identified "CCMR" tasks in the same manner as CMR or any other repetitive task identified in the ALS. The reference to the MRBR task would have to be removed as not relevant, and potentially misleading or providing false assurance in a system that allows evolution of an operator AMP independent of the MRBR.

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Analysis of AMC Example 2 under the FAA system: this approach imposes certain obligations on the DAH and operator to monitor changes in the operator's maintenance program, to ensure that escalation of tasks associated with CCMR are managed with consideration of the interval limits established in the SSA. It will not meet the safety objective because operator AMPs are controlled at the local CMO level in the FAA system. In particular, a given operator can have its own unique reliability program in their approved AMP and can escalate and modify tasks using their own reliability data without consideration of the MRBR intervals. Although the MRBR is normally used to develop an operator's initial AMP, once that AMP is approved at the local level, the connection to the MRBR is no longer required as a consideration for future changes to the AMP. Operators are not under any regulatory or policy obligation to follow the MRBR.

Therefore, as an alternative, the escalation control method documented in the guidance paper appended directly to this CWI may be followed by all DAH and operators.

Final CATA Position:

(Explain agreement, dissent or conclusion on this IP)

CATA accept the SME team's recommendation and proposed guidance paper. The guidance paper is appended directly to this CWI.

The CWI represents an agreement that the guidance paper is harmonized and accepted by all CMT authorities.

The CWI form, including the appended guidance, document a CMT member authority agreement that member authorities may reference when they are acting as the certifying authority (CA). Following CA endorsement for a particular project, the other CMT member authorities, when acting as validating authority, will accept the approach.

If any member-authority under CATA becomes aware of circumstances that make it apparent that following the guidance paper would not result in compliance with the member-authority's applicable airworthiness standards, then the use of this guidance paper is non-binding and the member-authority may require additional substantiation or design changes as a basis for finding compliance.

This CWI is closed.

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Release of CWI:

CATA Representative	Name	Signature	Date
ANAC	Daniel Pessoa	/s/	Oct. 20, 2022
EASA	Mathilde Labatut	/s/	Oct. 20, 2022
	Colin Hancock	/s/	Oct. 20, 2022
FAA	Hung Cao	/s/	Oct. 20, 2022
	Suzanne Masterson	/s/	Oct. 20, 2022
TCCA	Andre Celere	/s/	Oct. 20, 2022
	Canh Nham	/s/	Oct. 20, 2022

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Appendix A

MRB task interval escalation - Tasks adopted from Candidate CMRs
FAA AC 25-19A / EASA AMC 25-19

The two escalation control options provided in Appendix 3 of EASA AMC 25-19 are acceptable to EASA, ANAC and TCCA.

CATA recognizes that the FAA system does not have provisions to enable utilization of the two escalation control options provided in Appendix 3 of EASA AMC 25-19.

Therefore, as an alternative, the following escalation control method may be followed by all DAHs for all CMT authorities:

Follow the methodology described in AC 25-19A & AMC 25-19 for identification of CCMR and, for any CCMR for which task interval escalation could lead to unacceptable safety risk, identify those CCMR as CMR.

For task intervals determined by quantitative means, the unacceptable safety risk manifests if the top failure condition probability increases beyond the threshold required for certification (e.g., above the E-9/hr for a catastrophic failure condition) when the task interval is escalated to the full design life of the aircraft. In other words, if the numeric system safety objectives continue to be met for catastrophic, hazardous, or major failure conditions, with the task intervals set at the design life of the airplane, then a CMR may not be necessary. All latent for life failures that:

- leave the aircraft one or two failures away from a catastrophic or hazardous failure condition, or
- for a system/equipment required by RBAC 25/CS 25/14CFR Part 25/AWM 525 or
- for backup or emergency systems,

should be identified in the safety assessment and have an associated proposed CCMRs unless adequate justification can be provided.

For CCMRs identified in a qualitative manner, as described in section 10(c) of AC 25-19A, unacceptable safety risk can also manifest when task intervals, determined by qualitative engineering and operational judgments, are escalated. In this qualitative case, the risk can be controlled by identifying the CCMR as CMR

Once CMRs are established from the list of CCMRs, the CMRs provide the necessary control on the required tasks and interval, whether the tasks and intervals were defined quantitatively or qualitatively.