International MRB Policy Board

Issue Paper (IP)

IP Number: CIP EASA 2024-02_R01
Initial Date (DD/MMM/YYYY):
Revision - Date (DD/MMM/YYYY):
Effective Date (DD/MMM/YYYY):
Retroactivity (Y/N): N

Title:	System analysis: inhibited functions.
Submitter:	EASA

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

Issue:

Prior to applying the MSG-3 logic diagram to an item, a preliminary work sheet is required to clearly define all the data relevant to the MSI. When addressing "*any additional data pertinent to the item*", it is important to consider in the analysis the information related to functions that may be inhibited and may affect the MSI analysed.

Problem:

Some incident/accident reports of the recent years mentioned inhibited functions as contributing factors, where sometimes the flight crew was unaware of certain failures due to alerts which were inhibited or when pilots were unable to react due to unknown inhibited functions under certain conditions, making it much more difficult to understand the situation to act accordingly.

In terms of inhibited functions, these are designed to avoid distractions in certain flight phases, or to protect against certain failure conditions. In some other cases, those functions are installed to prevent the pilot from doing something wrong (e.g., to retract the Landing Gear on ground). As well, some alerts may be inhibited in certain flight phases due to design factors considered adequate.

These examples are observed from existing events.

1. TOGA was inhibited in a case where the conditions for TOGA inhibition were met, however crew aimed to abort landing, resulting in a runway overrun.
2. After a bird strike, an open cargo door disturbed the airflow affecting the air data system, however due to the flight phase inhibition scheme of certain alerts, the crew was unaware of such condition.

It is essential to have the complete information about the behaviour of the system, including all possible functions or indications that can be inhibited and affect the analysis of the MSI in the different flight phases.

The MSI "work sheet", according to MSG-3 2-3-2, should include all the details to assess the flight crew reaction, which may be different depending on the potential hidden or inhibited functions.

IP Template Rev 7, dated 01 October 2022

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The Level 1 analysis should consider if in certain flight phases a relevant alert is or is not available, leading to different reaction scenarios. It is also important to identify the inhibition of functions as normal capabilities and fully analyse them within the MSG-3 analysis.

Recommendation (including Implementation):

To proceed with a complete analysis, it is essential to have the information about the behaviour of the system, including all possible inhibition of functions clearly included in the MSI "work sheet" according to MSG-3 2-3-2.

It is recommended to amend the following paragraph in both MSG-3 Volume 1 and Volume 2 (Revision 2022.1), in chapter **2-3-2. Analysis Procedure**, adding the proposed text:

Prior to applying the MSG-3 logic diagram to an item, a preliminary work sheet will be completed that clearly defines the MSI, its function(s), functional failure(s), failure effect(s), Failure Cause(s) and any additional data pertinent to the item; e.g., ATA chapter reference, fleet applicability, manufacturer's part number, a brief description of the item, expected failure rate, hidden functions (including functions that may be inhibited), need to be on M.E.L., redundancy (may be unit, system or system management), AHM capability (including certification considerations), parameters and outputs (data generated), etc. This work sheet is to be designed to meet the user's requirements and will be included as part of the total MSG-3 documentation for the item.

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IMRBPB Position:	
Date:	
Position:	
Recommendation for Implementation:	

Status of the Issue Paper:		Active
		Incorporated in MSG-3 / IMPS (with details)
		Archived