



*Issue Paper (IP)*

**IP Number:** CIP EASA 2024-02

**Initial Date (DD/MMM/YYYY):**

**Revision - Date (DD/MMM/YYYY):**

**Effective Date (DD/MMM/YYYY):**

**Retroactivity (Y/N):** N

<b>Title:</b>	System analysis and relation with inhibited functions.
<b>Submitter:</b>	EASA

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

**Issue:**

When answering question 3 for hidden functional failure, to assess the potential safety effect it should be considered the alerting system installed, inhibiting functions and functions that may be inhibited related to the hidden failure.

**Problem:**

Some incident/accident reports of the recent years mentioned inhibited functions as contributing causes, where flight crew has been unaware of certain failures due to inhibited warnings or when pilots were unable to react due to unknown inhibited functions under certain conditions, making it much more complicated or impossible for the crew to understand the situation and/or act accordingly.

In terms of inhibition of functions, these capabilities are normally installed to avoid distractions in certain flight phases. 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). In this case, could it be expected that the pilot does a mistake in combination with a hidden failure of the inhibited function?

Regarding failed alerting function, is it possible to take credit for the flight crew about the failure recognition when answering question 1? Answer to this question depends on the implementation of the function, the alerting architecture, and its redundancies.

Indicating and warning functions are expected to be analysed as “protective devices”, as defined in MSG-3 (2-3-2), as these are functions “to draw the attention of the operating crew to abnormal conditions”.

It is therefore 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, to allow correct consideration when flight crew reaction is claimed in the Level 1 analysis, and to understand during which phase of flight, under which circumstances or in case of which functional failure the inhibit function will be active and which function will be inhibited. It is also important to identify inhibit functions as normal functions of the MSI and to fully analyse them.



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**Recommendation (including Implementation):**

Before answering question 1, 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 inhibiting functions and 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.



## International MRB Policy Board

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<b>IMRBPB Position:</b>	
<b>Date:</b>	
<b>Position:</b>	
<b>Recommendation for Implementation:</b>	

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