International Maintenance Review Board Policy Board (IMRBPB)

Issue Paper (IP)

IP Number: CIP EASA 2024-05
Initial Date (DD/MMM/YYYY):
Revision / Date (DD/MMM/YYYY):
Effective Date (DD/MMM/YYYY):
Retroactivity (Y/N): Y

Title:	Consideration of static discharging function at MSI selection level
Submitter:	EASA

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

Issue:

The communication and navigation systems are continuously transmitting and receiving signals, from various ground stations, satellites, and other aircraft. When a corona discharge takes place radio frequency noise is produced. The noise can interfere with the signals used for communication and navigation. The interference may cause distortion of the signals, and pilots could have problems in retrieving the necessary information during the flight.

To prevent corona discharge, the static discharger wicks are installed at sharpest points (protruding parts/ assembly) of the horizontal stabilizers, vertical stabilizer, and the aircraft wings.
The static discharger wicks have high resistance values (e.g. 6-200 mΩ) to prevent it from discharging the static energy rapidly and possibly causing radio interference. The wicks dissipate static charge moderately and by doing it continuously never let the aircraft surface reach the corona discharge voltage.

Continuous availability of the static discharging function is therefore considered important and must be properly analysed.

Problem:

On some fixed wing MRB project, MSG-3 analysis seems not to properly cover the static discharging function (e.g. no MSI selected).
However, for such “Other Structure” element, having system related functionality, static discharger wicks need to be addressed as part of the MSI selection process. Thus ensuring necessary coordination between Systems and Structures Working Groups in accordance with established transfer policies and procedures.

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Recommendation (including Implementation):

Amend MSG-3 Revision 2022.1, Volume 1 – Fixed Wing Aircraft, Para. 2-3-1.1. as follows:

2-3-1. MSI Selection

Before the actual MSG-3 logic can be applied to an item, the aircraft's significant systems and components must be identified. The identification process shall not be influenced by National Requirements.

Maintenance Significant Items (MSIs) are items fulfilling defined selection criteria (see Step 3 below) for which MSI analyses are established at the highest manageable level.

This process of identifying Maintenance Significant Items is a conservative process (using engineering judgment) based on the anticipated consequences of failure. The top-down approach is a process of identifying the significant items on the aircraft at the highest manageable level.

The MSI selection process is outlined below:

1. Step 1.

The manufacturer partitions the aircraft into major functional areas; ATA Systems and Subsystems. This process continues until all on-aircraft replaceable components have been identified.

NOTE: 1. Structural items, whether designated as SSI or Other Structure, having system related functionality (e.g. firewalls, shields, integral fuel tank boundaries, flight control hinge bearings, drains, door hinges, static discharger wicks) need to be addressed in the MSI selection through coordination between Systems and Structures Working Groups in accordance with established transfer policies and procedures.

2. System components that contribute significantly to carrying flight, ground, pressure or control loads and whose failure could affect the structural integrity necessary for the safety of the aircraft should be analyzed in consultation with the Structures Working Group in accordance with established transfer policies and procedures

3. All safety/emergency systems or equipment should also be included.

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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