Title: Influence of National requirements on the development of MSG-3 analysis and task selection.

Submitter: Transport Canada Civil Aviation (TCCA)

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

Issue:

The current IMPS and MSG-3 documents do not provide sufficient details regarding the use, or exclusion, of National requirements while developing the initial MSG-3 analysis or during periodic review of MRBRs. There is a potential impact on the harmonization of the MRB process and validation of the MRBRs.

Problem:

Overview:

It is TCCAs understanding that some on-aircraft replaceable components, such as safety/emergency equipment or components, may not have been identified as MSIs and analysed for functional failures and failure causes while following the MSG-3 and MRB processes. The assumption is that some components were omitted from the analysis because the aircraft was being certified as a green aircraft or the existence National requirements that are part of the Certifying Authorities (CA) regulatory framework may have influenced the MSG-3 analysis. If these assumptions are accurate, it will impact the ability of the Validating Authorities (VA) to accept the CA MRBR. TCCA is currently aware of one situation that exists with a current MRBR where the MSG-3 analysis may not have been completed on systems containing pressure vessels/cylinders or tasks were not selected because of National requirements.

Impact on harmonization, validation and IMPS:

The acceptance of the IMPS document by the IMRBPB members will ensure a standardized application of the MRB/MTB process, including the development of MSG-3 analysis and task selection. If National requirements are used to develop scheduled maintenance this will impact the MSG-3 analysis development and task selection, which will result in differences being identified by the VA authorities. Therefore it needs to be emphasized throughout the IMPS document, not only in the MRB content and format section, that the process should not be influenced by National requirements.

Impact on MSG-3:

The current versions of MSG-3 include a statement regarding National requirements in Chapter 1 Section 1.1: "National requirements not derived from MSG-3 logic are not part of the MRB Report." However this statement does not address whether the National requirements may or may not influence the MSG-3 development process. This may have an impact on the selection or exclusion of an item or whether the item will be subjected to an analysis based on the influence of National requirements. Taking this into consideration, both volumes of MSG-3 require the addition of clarification statements to the relevant sections to

emphasize that such requirements should not be used or should not influence the identification of items or the analysis of such items.

For reference previous published Issue Papers on the subject: IP 012 and IP 154

Recommendation (including Implementation):

TCCA is requesting confirmation from the members that TCCA's assumptions are accurate.

If accurate, TCCA is proposing changes to both MSG-3 Volume 1 and 2 as well as IMPS as follows (changes in red):

IMPS, Issue 00:

4.2 Type Certificate Holder (TCH) Organizational Rules (page 10)

4.2.2 The TCH should provide the ISC with a candidate Maintenance Significant Items (MSI), Lightning/HIRF Significant Items (LHSI), and Structural Significant Items (SSI) list and a list of the items not selected to be candidate MSI/LHSI/SSI. The generated lists should not be influenced by National requirements. The candidate list should also be supported by the applicable MSG-3 analysis. This is recommended to happen 30 calendar days prior to the beginning of the applicable WG meeting.

4.5　MRB Policy and Procedures Handbook (PPH) Rules

New:
4.5.8 The PPH should contain a statement requiring that the scheduled maintenance development process shall not be unduly influenced by National requirements.

MSG-3 Volume 1 and 2 Chapter 2 Revision 2015.1:

2-1-2. Approach

3. Method for Scheduled Maintenance Development

This document describes the method for developing the scheduled maintenance. Non-scheduled maintenance results from scheduled tasks, normal operation or data analysis.

Scheduled maintenance will be developed via use of a guided logic approach and will result in a task oriented program. The logic's flow of analysis is failure-effect oriented.

The development shall not be unduly influenced by National Requirements.

Items that, after analysis, have no scheduled task specified, may be monitored by an operator's reliability program.

AND

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.

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Revision / Date: R0 / 28/Apr/2017

IMRBPB Position:

Date: 28/Apr/2017
Position: IMRBPB agrees to CIP TCCA 2017-01 with the changes implemented at the IMRBPB Meeting 2017, which becomes IP169

Date:
Position:

Status of Issue Paper and date:
Active 28/Apr/2017

Recommendation for implementation:
IP169 will be included into the next revisions of the MSG-3 and IMPS documents

Retroactive: NO

Important Note: The IMRBPB IPs are not policy. An IP only becomes policy when the IP is adopted into the processes of the appropriate National Aviation Authority. However, before formal adoption, the IP content may be incorporated by the MRB applicant on a voluntary basis with the agreement of all parties as detailed in the program PPH.