Title: MSG-3 analysis of emergency/backup equipment having evident functional failure(s).

Submitter: COMAC (Wan Rong)

Issue: MSG-3 Rev 2001.1 introduced text in Para 2.3.4.3 to force FEC8 analysis, in certain cases, when addressing hidden functions of safety/emergency systems or equipment. The current MSG-3 document does not provide clear guidance on handling emergency and back-up equipment whose failure is evident.

Problem: Specific guidance is provided in Para 2-3-5.3 relating to the analysis of hidden safety/emergency functions and the need to ‘force’ FEC8 when answering Q3 but no equivalent wording has been provided in Para 2-3-5.2 in the analysis of evident safety/emergency functions when answering Q2. The absence of this guidance may confuse new users of MSG-3 who could understand that there is a similar need to ‘force’ FEC5 for safety/emergency functions.

Recommendation (including Implementation):
A Note should be added in MSG-3 document Para 2-3-5.2 to clarify that FEC 5 is only applicable where a single failure has a direct adverse effect on operating safety and there is no situation where FEC5 has to be forced.

MSG-3 Rev 2011 – Para 2-3-5.2:

2. Direct Adverse Effect on Safety

QUESTION 2: DOES THE FUNCTIONAL FAILURE OR SECONDARY DAMAGE RESULTING FROM THE FUNCTIONAL FAILURE HAVE A DIRECT ADVERSE EFFECT ON OPERATING SAFETY?

For a "YES" answer the functional failure must have a direct adverse effect on operating safety.

Note: Contrary to the guidance in Para 2-3-5.3 that requires selection of FEC 8 in specific circumstances, FEC 5 is only selected if the failure cause has a direct adverse effect on safety; no additional failure/event needs to be considered.
Direct: To be direct the functional failure or resulting secondary damage must achieve its effect by itself, not in combination with other functional failures (no redundancy exists and it is a primary dispatch item).

Adverse Effect on Safety: Safety shall be considered as adversely affected if the consequences of the failure condition would prevent the continued safe flight and landing of the aircraft and/or might cause serious or fatal injury to human occupants.

Operating: This is defined as the time interval during which passengers and crew are on board for the purpose of flight.

A "YES" answer indicates that this functional failure must be treated within the Safety Effects category and task(s) must be developed in accordance with [Heading 2-3-6.1].

A "NO" answer indicates the effect is either operational or economic and Question 4 (Ref. [Heading 2-3-5.4]) must be asked.

IMRBPB Position:

Date: April 27, 2012

Position:

During the CIP presentation it was clarified that the purpose of the CIP was to introduce a note for new users of MSG-3 in order to ensure a better understanding of MSG-3 Paragraph 2-3-5.2 so that a FEC5 was not forced during the analysis.

With this understanding, the IMRBPB confirmed that there would be no impact on the existing application of MSG-3 and would avoid potential misinterpretation in the future.

The IMRBPB accepts the CIP and it is closed by IP124.

Status of Issue Paper (when closed state the closure date): April 27, 2012
Recommendation for implementation:

Incorporation into MSG-3 on next revision.

Important Note: The IMRBPB positions are not policy. Positions become policy only when the policy is issued formally by the appropriate National Aviation Authority.