JAA/FAA/TCCA
International MRB Policy
Issue Paper

Date 9/28/2004
IMRBPB # 065

Title:	Enhance Current EZAP Logic in MSG-3 to Incorporate Additional Aspects Now Being Considered by the FAA
Submitter:	Air Transport Association (ATA) of America
Issue:	ATA is seeking concurrence from the IMRBPB regulatory authorities to modify the MSG-3 document section 2-5., "Zonal Analysis Procedure" and its associated figures to ensure the Enhanced Zonal Analysis Procedure (EZAP) decision logic incorporates further enhancements being considered by the FAA. Such incorporation will ensure that the maintenance programs developed with the use of MSG-3 (Revision 2005.1, and subsequent) for future type designs incorporate the most current philosophies concerning wiring.
Problem:	Without IMRBPB approval of this Issue Paper, the proposed 2005.1 Revision of MSG-3 will not incorporate the most current EZAP decision.
Recommendation:	IMRBPB should approve the attached revision for MSG-3, section 2-5, "Zonal Analysis Procedure," associated revised figures 2-5-1.1 and 2-5-1.2, and addition of EWIS to Appendix A, "Glossary."

IMRBPB Position:

28 Sept 2004
The issue paper was accepted and closed with the following changes to 2-5-1 Para l:

1. Change the first sentence from "uniquely identified in the program" to "uniquely identified in the data documentation".
2. Change the first sentence from "during future program changes" to "during future changes".
3. Change the word "tractability" to "traceability".

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

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2-5. Zonal Analysis Procedure

Zonal inspections may be developed from application of the Zonal Analysis Procedure. This requires a summary review of each zone on the aircraft and normally occurs as the MSG-3 analyses of structures, systems, and powerplants are being concluded. These inspections may subsequently be included in the Zonal Inspections.

This Zonal Analysis Procedure permits appropriate attention to be given to electrical wiring installations. Thus, as well as determining zonal inspections, the logic provides a means to identify applicable and effective tasks to minimize contamination and to address significant wiring installation discrepancies that may not be reliably detected through zonal inspection. These dedicated tasks may subsequently be included in the Systems and Powerplant tasks.

In top down analyses conducted under MSG-3, many support items such as plumbing, ducting, Other Structure, wiring, etc., may be evaluated for possible contribution to functional failure. In cases where a general visual inspection is required to assess degradation, the zonal inspection is an appropriate method.

2-5-1. Procedure

The following procedures may be used

a. Divide the aircraft externally and internally into zones as defined in [ATA iSpec 2200], (formerly ATA Spec 100).

b. For each zone, prepare a work sheet that identifies data such as: zone location and access, approximate size (volume), type of systems and components installed, typical power levels in any wiring bundles, features specific to L/HIRF protection, etc. In addition, assess potential for the presence of combustible material, either through contamination (e.g., dust and lint) or occurring by design (e.g., fuel vapor).

c. Develop rating tables to determine the repeat interval for a zonal inspection. Rating tables will permit the likelihood of accidental damage, environmental deterioration and the density of equipment in the zone to be taken into account.

d. For all zones containing systems installations, perform a standard zonal analysis using the rating tables from paragraph (c.) to define the extent and interval of zonal inspection tasks. Multiple zonal inspections may be identified for each zone with those having less frequent intervals requiring increased access requirements.

e. Identify zones that both contain electrical wiring and have potential for combustible material being present. For those zones, perform an enhanced zonal analysis that permits the identification of stand-alone inspection tasks that allow appropriate attention to be given to deterioration of installed wiring and electrical wiring interconnection system (EWIS), in particular for wiring in close proximity (i.e., within 2 inches or 50mm) to both primary and back-up hydraulic, mechanical, or electrical flight controls and tasks that minimize contamination by combustible materials if applicable and effective. Rating tables addressing the potential effects of fire caused by a wiring/EWIS failure on adjacent wiring and systems (e.g. the risk to aircraft controllability of a fire), the size of the zone and the density of installed equipment may be used to determine the

inspection level. General Visual Inspections may be found effective for the complete zone. Detailed Inspections may be found applicable and effective for specific items in a zone. Interval determination may be accomplished using rating tables that consider accidental damage and environment.

f. Detailed Inspections, stand-alone GVIs and tasks to minimize contamination arising from paragraph "e" should be included in the Systems and Powerplant tasks. Since these tasks are not specific to the routine ATA-defined systems and do not have a Failure Effect Category, introduction in a dedicated section is suggested, for example, under ATA 20.

g. General Visual Inspections arising from the enhanced zonal analysis (paragraph e.) may be compared with the Zonal Inspections determined from the standard zonal analysis (paragraph d.). The former may be considered fully covered by the zonal inspection if the access requirement is the same and the proposed interval is at least as frequent. Otherwise, a stand-alone GVI should be included with the tasks identified in paragraph (f.).

h. General Visual Inspections arising from the systems, powerplants and structures may be compared with the Zonal Inspections determined from the standard zonal analysis (paragraph d.). Work sheets should record the interval proposed in the originating analysis. These GVIs may be considered fully covered by the zonal inspection if the access requirement is the same and the proposed interval is at least as frequent. Otherwise, a stand-alone GVI should be included within the MSI or SSI from which it was identified.

i. General Visual Inspections arising from the analysis of L/HIRF may be compared with the Zonal Inspections determined from the standard zonal analysis (paragraph d.). These GVIs may be considered fully covered by the zonal inspection if the access requirement is the same and the proposed interval is at least as frequent. Otherwise, a stand-alone GVI should be included within the Systems and Powerplants tasks as described in [Subject 2-6-1].

j. Visual Checks may be considered covered by the Zonal Inspections provided that the Systems Working Group that identified them considers that the failure would be noted and addressed during a zonal inspection. Otherwise, the task should remain in the Systems and Powerplants tasks where specific attention can be drawn to the item.

k. All tasks developed through application of the standard zonal analysis (paragraph d.) should be included in the Zonal Inspections. For accountability purposes, any General Visual Inspection or Visual Check originating from application of systems, powerplant or structures analyses should be referenced in the MRB Report zonal task. To avoid giving unjustified attention to these items, this should not be indicated on task/work cards.

l. All EZAP-derived stand-alone tasks (GVI or DET) should be uniquely identified in the program documentation for tractability during future program changes. This is intended to prevent the inadvertent deletion or escalation of an EZAP-derived stand-alone task without proper consideration of the risk basis for the task and its interval.

A typical logic diagram is depicted in [Figure 2-5-1.1] and [Figure 2-5-1.2]. This is

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provided as a guide and may be customized to reflect individual company policies and procedures.

Appendix A. Glossary

Electrical Wiring Interconnection System (EWIS)	An electrical connection between two or more points including the associated terminal devices (e.g., connectors, terminal blocks, splices) and the necessary means for its installation and identification.