

***International Maintenance Review Board Policy Board (IMRBPB)***  
***Issue Paper (IP)***

***Initial Date: 7 Dec 2009***

***CIP Number: 2009-2***

***Revision / Date: Initial / 18 Feb 10***

- Title:** Clarification of Glossary Definitions for General Visual (GVI), Detailed (DET), and Special Detailed (SDI) Inspections
- Submitter:** David Lawton (Gulfstream Aerospace LP)
- Issue:** The existing glossary definitions for Inspection - General Visual (GVI), Inspection - Detailed (DET), and Inspection - Special Detailed (SDI) as written do not clearly convey the distinctions between them and as a result are subject to interpretation and inconsistent application of inspection level and methods.
- Problem:** During general discussion at the MPIG meeting held in Bordeaux in November 2009, it was highlighted that the inspection definitions in MSG-3 lack clarity and confuse the level of inspection with the means to perform the inspection.

**The current definitions are provided below for reference:**

***Inspection – General Visual***

*A visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light and may require removal or opening of access panels or doors. Stands, ladders or platforms may be required to gain proximity to the area being checked.*

***Inspection – Detailed (DET)***

*An intensive examination of a specific item, installation or assembly to detect damage, failure or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses, etc. may be necessary. Surface cleaning and elaborate access procedures may be required.*

***Inspection – Special Detailed (SDI)***

*An intensive examination of a specific item, installation, or assembly to detect damage, failure or irregularity. The examination is likely to make extensive use of specialized Inspection Techniques and/or equipment. Intricate cleaning and substantial access or disassembly procedure may be required.*

**The following are the proposed changes to the current definitions:**

***Inspection – General Visual***

*A general examination by visual means of an interior or exterior area, installation, assembly or specific item to detect obvious damage, failure or irregularity.*

*This level of inspection is made from within touching distance unless otherwise specified. While maintaining this level of inspection, use of a mirror or other visual aids may be necessary to allow visual access to exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light.*

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**Inspection – Detailed (DET)**

A close examination by visual and/or tactile means of an installation, assembly or specific item to detect damage, failure or irregularity.

This level of inspection may require the use of mirrors, magnifying lenses or other aids to provide a means to accomplish a focused inspection. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate.

**Inspection – Special Detailed (SDI)**

An intensive examination of an installation, assembly or specific item to detect damage, failure or irregularity that is not evident through visual and/or tactile means.

This level of inspection requires the use of specialized techniques and/or equipment (eddy-current, radiography, ultrasonic, dye penetrant, etc.).

**Discussion:**

When reviewing and comparing the current glossary definitions for General Visual (GVI), Detailed (DET), and Special Detailed (SDI) we find that each definition can be broken down into the following three basic elements:

- Level / Scope
- Tools / Aids
- Access (removals / disassembly and or surface cleaning)

For ease of comparison the table below is provided with comments from the MPIG:

Inspection	Level / Scope	Tools / Aids	Access
General Visual (GVI)	A <b>visual examination</b> of an interior or exterior area, installation or assembly <b>to detect obvious damage, failure or irregularity</b> . This level of inspection is made from <b>within touching distance</b> unless otherwise specified.	A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light	...may require removal or opening of access panels or doors. Stands, ladders or platforms may be required to gain proximity to the area being checked.
Detailed (DET)	An <b>intensive examination</b> of a specific item, installation or assembly <b>to detect damage, failure or irregularity</b> .	Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses, etc. may be necessary.	Surface cleaning and elaborate access procedures may be required.
Special Detailed (SDI)	An <b>intensive examination</b> of a specific item, installation or assembly <b>to detect damage, failure or irregularity</b> .	The examination is likely to make extensive use of specialized Inspection Techniques and/or equipment.	Intricate cleaning and substantial access or disassembly procedure may be required.

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Comparison Comments:	The GVI is a visual examination with a generally less specific scope/focus than the DET and SDI. The minimum proximity requirement for visual examination is within touching distance (or arm's length). A closer inspection of a more specific focus then becomes either a DET or SDI	For the GVI a mirror, flashlight, drop-light may be necessary to enhance <u>visual</u> access.	The GVI definition merely states that removals and the use of stands etc. may be required to gain access within touching distance.
	DET and SDI currently have identical level ( <i>intensive examination... to detect damage, failure or irregularity</i> ) and scope ( <i>specific item, installation or assembly</i> )  The MPIG felt intuitively and in spite of the fact that currently they are identical that there is a difference in the level of inspection achieved between DET and SDI and that the definitions should be revised to reflect this.	The MPIG position is that use of equipment in and of itself does determine the inspection level. For the DET, use of equipment which merely enhances the visual and/or tactile means being applied does not does elevate the DET to and SDI.  The "specialized Inspection Techniques and/or equipment" referred to in the SDI definition are needed because of the limitations of visual and/or tactile means to achieve the require level of inspection. NDT methods are required to achieve the requisite inspection level.	The "Access" element for the DET and SDI are essentially the same. There is a cleaning aspect ("surface" vs. "intricate"), and there is an "access" aspect ("elaborate" vs. "substantial access or disassembly").

When considering these definitions and their elements as proposed above, it is the MPIG's position that the "Level / Scope" element is the critical and essential aspect which defines the true intent of the inspection as it pertains to the inspection's contribution to the maintaining of the inherent design level of safety and reliability of that which is being inspected. Additionally, the level of inspection increases as you move from GVI to DET (from "general" to "close"), and from DET to SDI (from "close" to "intensive").

It is the MPIG's position that the "Access" element of the definitions, whether referring to the removal of installed items or the cleaning of surfaces to be inspected, are not relevant and do not contribute in any way to the MSG-3 intent of the inspection. The "access" element of the inspection definitions certainly plays no role in maintaining the inherent designed level of safety and reliability of the item being inspected. Adequate access necessary to perform the inspection must be achievable – whether it is "elaborate", "substantial", or as simple as requiring "stands, ladders, or platforms". In short the access required "is what it is" and has no relevance to the inspection definitions since access will not and should not drive inspection level decisions. For these reasons, we propose the removal of the "Access" element from each of the definitions.

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When considering the GVI, as the name clearly indicates this is a visual inspection. The “Level / Scope” element is clear and provides the minimum requirement – “within touching distance”. Regarding the “Tools / Aids” element of the definition, the listing of the mirror, flashlight, drop-light should not be interpreted to be limiting and therefore the MPIG proposes adding the “or other visual aids” phrase. Use of other equipment which is visual in nature (e.g. video equipment), even if the ability of the equipment exceeds the arms length intensity requirement, should be allowed and the mere use of such equipment does not elevate the level of the inspection.

When considering the Detailed inspection (DET), the MPIG feels that the DET is essentially a sensory based inspection, relying on the basic human senses of sight (visual) and touch (tactile) as the means for detecting “failure, damage, or irregularity”. Whether aids (mirror, magnifying lens, or “other”) are used or not does not change the basic visual and/or tactile nature of the inspection method. While the GVI also has a visual aspect, what differentiate between the GVI and the DET are the physical proximity requirement and the specificity / focus of the inspection. The DET requires closer physical proximity and a more “specific” focus (the broad “area” scope of the GVI is not applied to the DET) than the GVI.

When considering the SDI, what distinguishes the SDI from the DET is that we are no longer in the visual and/or tactile inspection realm but rather into a more intensive inspection level requiring the use of specialized inspection techniques and/or equipment. The MPIG proposes that the SDI is more intensive than the DET, and while the DET is a sensory-based (visual and/or tactile) inspection the SDI moves to the “extra-sensory” realm. This higher or more intensive inspection level is achieved through the use of specialized inspection techniques and/or equipment which go beyond the ability of mere sight and/or touch (aided or otherwise) to detect the inspected for “damage, failure, or irregularity”. When referring to specialized inspection techniques and/or equipment, the MPIG consensus is that we are referring to Nondestructive Test (NDT) methods such as eddy-current, ultrasonic, radiographic, dye penetrant, magnetic particle, etc. for which specific training is required.

Finally, an added benefit of these improved inspection definitions is the ease of training of personnel involved in aircraft maintenance and/or in developing MSG3 based maintenance programs. The proposed definitions provide intuitive and clear distinctions between the inspections and the level of inspection achieved by each – something which the current definitions do not do.

#### **Recommendation (including Implementation):**

Revise the MSG-3 Glossary definitions for General Visual (GVI), Detailed (DET), and Special Detailed (SDI) inspections as proposed above.

#### **IMRBPB Position:**

**Date:**

**Position:**

**Status of Issue Paper (when closed state the closure date):**

**Recommendation for implementation:**

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

**Comments Target: 07. Jan. 2010**

**Finalization target: Mar. 2010**