

**JAA/FAA/TCCA**  
**International MRB Policy Board**  
**Issue Paper**

**Date: 16-July-04**  
**IMRBPB # 070**

<b>Title:</b>	Enhance MSG-3 to Better Reflect AC 20-107A Regarding the “Growth” Versus “No Growth” Design Concepts of Composites
<b>Submitter:</b>	Air Transport Association (ATA) of America
<b>Issue:</b>	ATA is seeking concurrence from the IMRBPB regulatory authorities to modify the MSG-3 document section 2-4-2, “Scheduled Structural Maintenance,” paragraph 6, so as to better reflect Advisory Circular (AC) 20-107A regarding the “growth” versus “no growth” design concepts of composites.
<b>Problem:</b>	Current wording is misleading, in that not only may a “no growth”, but a “growth” design concept may be designated by the manufacturer during certification.
<b>Recommendation:</b>	IMRBPB should approve the attached revision for MSG-3, section 2-4-2., paragraph 6.

**IMRBPB Position:**

DOT/FAA/AR-99/49 and DOT/FAA/AR-99-2 were discussed as both documents suggest composite designs are subject to fatigue. Word changes to be incorporated. As per attached material, “should vs. may and if vs. as.” Issue paper accepted and closed by regulatory/industry working group with changes.

**Important Note:** The IMRBPB positions are not policy. Positions become policy only when the policy is issued formally by the appropriate National Aviation Authority. (JAA, FAA or TCCA)

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## **2-4-2. Scheduled Structural Maintenance**

The primary objective of the scheduled structural maintenance is to maintain the inherent airworthiness throughout the operational life of the aircraft in an economical manner. To achieve this, the inspections must meet the detection requirements from each of the AD, ED and FD assessments. Full account may be taken of all applicable inspections occurring in the fleet.

Inspections related to detection of AD/ED are applicable to all aircraft when they first enter service. Changes or adjustments can be made to these inspections based on individual operator experience, when approved by their local regulatory authority.

Additional maintenance tasks (related to ED in metallics) to control corrosion to Level 1 or better are applicable at a threshold which is established during the aircraft type certification process. These are based on manufacturer and operator experience with similar aircraft structure, taking into consideration differences in relevant design features e.g. choice of material, assembly process, corrosion protection systems, galley and toilet design etc. See also [\[Heading 2-4-1.5\]](#) entitled Corrosion Prevention and Control Program.

Non-metallic structure is susceptible to damage and/or deterioration (e.g., disbonding and delamination). Such structure that is classified as an SSI will require inspections to ensure adequate strength throughout its operational life. Susceptibility to long term deterioration is assessed with regard to the operating environment. Areas such as major attachments, joints with metallic parts and areas of high stress levels are suggested as likely candidates for inspection.

Inspections related to FD detection in metals are applicable after a threshold, which is established during the aircraft type certification process. At the time the fatigue related inspections are implemented, sampling can be used, where it is applicable and effective. The fatigue related inspections are based directly on the manufacturer's approved damage tolerance evaluations and changes or adjustments by the operators require use of an approved procedure.

Inspections related to FD detection in non-metals ~~may should~~ not be required ~~as if~~ their design is based on a "no-damage growth" design philosophy, and substantiated by testing.

Where no service experience exists with similar structure, the structural maintenance requirements shall be based on manufacturer's recommendations.

Proposed initial scheduled maintenance tasks, to be used as the basis for the structural maintenance, are established for each aircraft type by the Industry Steering Committee on the basis of:

- a. Operator experience
- b. Manufacturer's proposals
- c. Considerations of systems analysis requirements

## **1. Structural Maintenance Tasks**

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