

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. Where applicable, other sources of damage/deterioration, such as wear are to be considered when establishing scheduled maintenance requirements. Full account may be taken of all applicable inspections occurring in the fleet.

Wear is typically found in/at bushings, bearings, stops, latches, locks, tracks, guides, cams, rollers, cables, pulleys or floors. Wear can influence loads and strength, lead to inaccurate positioning and adverse free play or change resistance to environmental deterioration. Wear can be systematic for parts intended to be in contact, or random for parts that should normally not come in contact or should not be subjected to relative motion.

AD and ED analysis is done by means of an assessment based on a rating system, as described in 2-4-5. FD analysis (as part of the MRB process) is an accessibility and feasibility evaluation of the damage tolerant assessment, as described in Figure 2-4-4-6. This evaluation can be done based on a rating system as described in 2-4-5.

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 [\[Heading 2-4-2.5\]](#) 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 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 should not be required 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

minimum scheduled interval/tasking requirements

1. Structural Maintenance Tasks

As part of the structural maintenance development procedure, applicable and effective structural maintenance tasks are selected for each deterioration process of the SSI. To assure a direct correlation between the structural damage tolerance evaluations and the structural maintenance, it is necessary to describe each task.

To all extents possible, the inspection methods specified in the tasks should use the standard set of definitions included in the MSG-3 glossary. Changes and/or additions to the inspection methods and definitions must be approved by the Industry Steering Committee.

Emerging technology, such as SHM may be an option to check or watch for Accidental Damage (AD), Environmental Deterioration (ED) and/or Fatigue Damage (FD) where demonstrated to be applicable and effective. For the time being, MSG-3