

**ATA MSG-3, “Operator/Manufacturer Scheduled Maintenance Development”**  
for Revision 2007.1

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

The scheduled structural maintenance tasks and intervals are based on an assessment of structural design information, fatigue and damage tolerance evaluations, service experience with similar structure and pertinent test results.

The assessment of structure for selection of maintenance tasks should include the following

- a. The sources of structural deterioration:
  1. Accidental Damage
  2. Environmental Deterioration
  3. Fatigue Damage
- b. The susceptibility of the structure to each source of deterioration.
- c. The consequences of structural deterioration to continuing airworthiness
  1. Effect on aircraft (e.g. loss of function or reduction of residual strength).
  2. Multiple site or multiple element fatigue damage.
  3. The effect on aircraft flight or response characteristics caused by the interaction of structural damage or failure with systems or powerplant items.
  4. In-flight loss of structural items.
- d. The applicability and effectiveness of various methods of preventing, controlling or detecting structural deterioration, taking into account inspection thresholds and repeat intervals.

## **1. Procedure**

The procedure for developing structural maintenance tasks is shown in the logic diagram (Ref. [\[Figure 2-4-4.1\]](#)) and described by a series of process steps (P1, P2, P3, etc.) and decision steps (D1, D2, D3, etc.) as follows:

- a. The structural maintenance analysis is to be applied to all aircraft structure which is divided into zones or areas (P1) and structural items (P2) by the manufacturer.
- b. The manufacturer categorizes each item as structurally significant (SSI) or Other Structure, on the basis of the consequences to aircraft safety of item failure or malfunction (D1).
- c. >>>>.
- d. >>>>
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- s. Visual inspections during appropriate scheduled maintenance checks are used, where applicable and effective, to provide the necessary fatigue damage detection opportunities (D7).
- t. Applicable nondestructive inspection (NDI) methods, during appropriate scheduled maintenance checks, are used to provide necessary fatigue damage detection opportunities when visual inspections are inadequate (D8).
- u. Details of the fatigue related inspection requirements based on manufacturer’s approved damage tolerance evaluations are presented to the SWG (or equivalent body) who determines if they are feasible (D9). Improved inspection access and/or redesign of the SSI may be required if no practical and effective visual and/or nondestructive inspections are available (D10, P17). If this is not feasible for the manufacturer, the SSI must be categorized as safe-life (P15).
- v. Fatigue related inspection requirements are listed ~~selected by the SWG are included in the preliminary Scheduled Structural Maintenance (P20).~~

**w. The FD analysis procedure is repeated for all damage tolerant SSIs.**

**xw.** To support Type Certification, selected FD requirements associated with PSEs (D5) SSIs (P18, P19) ~~that will eventually be included in the fatigue related inspection~~ should be listed in the Airworthiness Limitations document.

~~**x.** The FD analysis procedure is repeated for all damage tolerant SSIs.~~

- y. Tasks from AD, ED, FD (other than Airworthiness Limitations), and other structure analyses are listed in the Scheduled Structural Maintenance (P20).
- z. The resulting maintenance requirements for all structure from step “y” are submitted to the ISC for approval and inclusion in the MRB report proposal.
- aa. The structural maintenance portion of the Airworthiness Limitations should be included in a separate document and submitted to the appropriate Regulatory Authority (certification) for approval.

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**Figure 2-4-4.1. Structural Logic Diagram**

**(NEW DIAGRAM - see related “.ppt”)**

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[illegible]

**Figure 2-4-4.2. Structural Logic Diagram (unchanged)**

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[illegible]

**Figure 2-4-4.3. Structural Logic Diagram  
(unchanged)**

 $\succ$ [illegible]

**Figure 2-4-4.4. Structural Logic Diagram (unchanged)**

 $\succ$ [illegible]

**Figure 2-4-4.5. Structural Logic Diagram  
(unchanged)**

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[illegible]

**Figure 2-4-4.6. Fatigue Damage Analysis Logic Diagram**

**(NEW DIAGRAM- see related “.ppt”)**

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