16 Acoustics, Vibration, and Panel Flutter

The purpose of this section is to provide guidance on the analysis of structure in relation to acoustics, vibration and panel flutter. In addition to basic methods, program specific and customer generated guidance and data are required to perform this type of analysis in terms of sound pressure levels, vibration environments, etc.

Currently this Section refers the analyst to the appropriate sections of the Lockheed Martin Stress Memo manual (SM125) or the General Dynamics Structural Analysis Manual (Section 15) for guidance. Additional criteria and guidance can generally be found in program specific documents.

16.1 References

16.1-1. anon., *Lockheed Martin Engineering Stress Memo Manual*, Lockheed Martin Aeronautical Systems, Marietta, GA (October 1998 Release; April 2002 Revision)

16.1-2. anon., *Structures Analysis Manual, Volume 1 and Volume 2*, General Dynamics Convair and Space Structures Divisions (1988).

16.1-3. Staff, *LTV Structures Manual*, LTV Aircraft Products Group, Grand Prairie, TX (June 1989 Revision)

16.1-4. anon., "Metallic Materials And Elements For Aerospace Vehicle Structures," *MIL-HDBK-5*[1], Battelle Memorial Inst., Secretariat (2001).

16.1-5. Hoblit, F.M., "Structural Analysis of Control Rods", LR6757, Lockheed California, (December 1948)

16.2 Basic Theory and Graphical Results

For general information on acoustics, vibration and panel flutter refer to Program-specific and customer-generated guidance and/or the LM Stress Memo Manual SM125, Reference 16.1-1 and the GD Structural Analysis Manual, Section 15, Reference 16.1-2.

16.3 Sonic Fatigue

For general information on acoustics, vibration and panel flutter refer to Program-specific and customer-generated guidance and/or the GD Structural Analysis Manual, Section 15.4, Reference 16.1-2.

16.4 Panel Flutter

For general information on acoustics, vibration and panel flutter refer to Program-specific and customer-generated guidance and/or the GD Structural Analysis Manual, Section 15.5, Reference 16.1-2.

16.5 Acoustics and Vibration

For general information on acoustics, vibration and panel flutter refer to Program-specific and customer-generated guidance and/or the LM Stress Memo Manual SM125, Reference 16.1-1 and the GD Structural Analysis Manual, Section 15.6, Reference 16.1-2.

[1] In 2003, MIL-HDBK-5 was superseded by the Metallic Materials Properties Development and Standardization (MMPDS) Handbook, Battelle Memorial Institute, Secreteriat (2003).

16.6 FEM-Based Calculation

This section reserved for future use.

16.7 Unix/PC-Based Calculation

This section reserved for future use.