

DATA ITEM DESCRIPTION			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. TITLE  Flutter Analysis Report			2. IDENTIFICATION NUMBER  DI-MISC-81390	
3. DESCRIPTION/PURPOSE  3.1 This report documents the determination of the air vehicle aeroelastic and aeroservoelastic characteristics. The principal use is to substantiate that the air vehicle meets the design requirements for the prevention of aeroelastic and aeroservoelastic instabilities.				
4. APPROVAL DATE (YYMMDD)  940211	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)  F/ASC-ENFSL		6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
7. APPLICATION/INTERRELATIONSHIP  7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.  7.2 This DID is applicable in any contract where flutter analysis is required.				
8. APPROVAL LIMITATION		9a. APPLICABLE FORMS		9b. AMSC NUMBER  F7002
10. PREPARATION INSTRUCTIONS  10.1 <u>Format</u> . Contractor format is acceptable.  10.2 <u>Content</u> .  10.2.1 This report shall contain, when applicable, results of the following:  a. Flutter analyses of the air vehicle including control surfaces.  b. Aeroservoelastic analyses.  c. Panel flutter analyses.  d. Control surface buzz analyses.  e. Whirl flutter analyses.  <div style="text-align: right;">(Continued on Page 2)</div>				
11. DISTRIBUTION STATEMENT  DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.				

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Block 10, Preparation Instructions (Continued)

f. Divergence analyses.

g. Component flutter analyses, other than control surfaces, which are exposed to the airstream.

h. Flutter analyses of the air vehicle with external stores.

10.2.2 Analyses results for both normal and design failure conditions shall be presented. The methods used in the analyses shall be clearly described. The methods of representing the inertial and elastic characteristics (such as the finite element structural model used), as well as the methods of representing the aerodynamic forces and flight control augmentation system effects, shall be described in detail.

10.2.3 Presentation of results shall include:

a. Representative plots of mode shapes and frequencies of the structural modes used in the flutter analyses.

b. Representative plots of damping coefficient,  $g$ , and variation in frequency of each mode versus air speed.

c. Plots or tables of flutter speed versus the variation in important parameters resulting from parametric studies.

d. Summary plots showing predicted flutter speed and air vehicle limit speed versus Mach number for various altitudes.

e. Root locus plots, Nyquist plots, or other suitable stability presentation forms for aeroservoelastic analysis results.

10.2.4 Where the approach to flutter substantiation involves supporting test effort (model tests, ground vibration tests, flight control augmentation system ground tests, and other tests that have been completed), their interpretation and relation or correction to the analyses results shall be presented or included.