



National Aeronautics and
Space Administration

Washington, D. C.
20546

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Reply to Attn of :

JSC, TA-93-037

TO: Distribution

FROM: TA/Manager, Space Shuttle Integration and Operations

SUBJECT: Structural Integrity Following Mechanism Failures

The information contained in this letter is an interpretation and clarification of the payload safety requirements of NHB/NSTS 1700.7, "Safety Policy and Requirements For Payloads Using the Space Transportation System." This letter will be utilized by the Space Shuttle Payload Safety Review Panel (PSRP) in assessing payload design compliance. Please add this letter to your copy of NSTS 18798A, "Interpretations of NSTS Payload Safety Requirements," as applicable against NHB 1700.7A and NSTS 1700.7B. Enclosed is an updated table of contents for NSTS 18798A.

This interpretation letter is intended to clarify that the requirements in NHB/NSTS 1700.7, paragraph 208.1 (Structural Design), apply to all loading conditions including those that occur after credible mechanism failure(s). Mechanism failure(s) which result in limit load redistribution will require structural verification of the redistributed loads if the PSRP determines the failed condition is credible.

In order to minimize the number of structural configurations to be analyzed, payloads should provide two-failure tolerance against load redistribution caused by credible mechanism failures which could result in a hazard to the orbiter or crew. When two-failure tolerance cannot be implemented, the number of structural configurations to be certified must be approved by the Space Shuttle Program. Structural verification of the redistributed load path is required and the 1.4 factor-of-safety on limit loads must be maintained.

Questions concerning this subject should be directed to the Executive Secretary, Space Shuttle Payload Safety Review Panel, NS2/JSC, at (713) 483-4297.

ORIGINAL SIGNED BY :

C. Harold Lambert, Jr.

Enclosure