

RETROFITTED DAMPING TREATMENT FOR A THREE STAGE BOOSTER SYSTEM

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ABSTRACT

A three-stage solid propellant booster system has been developed to launch a variety of payloads. A critical issue to the success of any flight is the possible interaction of the elastic vibrational modes with the control system. Modal test results indicate that damping factors may be very low ($0 < 0.5\%$), adversely affecting control design. To alleviate the concerns, a study of retrofitted damping application was performed. The central difficulty in designing a damping treatment was that access could be obtained to only a fraction of the straining surfaces. Thus, achieving an optimal damping design on those surfaces became essential.

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