

# PRESSURE FLUCTUATIONS IN THE BASE OF A TYPICAL RE-ENTRY MODULE

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## Abstract

Unsteady pressure measurements were carried out on the flow side and around the base of a blunt-nosed bluff body representing a spacecraft re-entry module in the Mach number range of 0.8 to 4.0. The results show that the pressure fluctuations in the base region are much higher than in the attached flow region of the body. Most of the energy in the pressure fluctuations in the base region is in the low-frequency band, while fluctuations in the attached flow region occur over a wider bandwidth. In the separated flow region at the base, highest pressure fluctuations were observed around the rear stagnation point. The frequency spectra do not show any dominant tone attributable to the configuration at any measurement location. The observations suggest that vortex shedding behind such 3-d bluff bodies could be relatively weak and that most of the fluctuating energy in the separated flow region could be due to random oscillations of the rear stagnation point.