

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Upper Stages, Space Transfer, Entry and Landing Systems (3)

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3RD STAGE SYSTEM FOR H-III LAUNCH VEHICLE: CONCEPT AND EVALUATION

Abstract

The primary aim of this work is to perform a concepts study for the 3rd upper stage system of the H-III launch vehicle, the next-generation expendable launch vehicle. H-II, the current, prime launch vehicle in Japan, already has the upper (2nd) stage that has long-coasting and multi-burn capabilities. However, this stage is designed to be suitable for the SSO or GTO missions. This new, small upper stage system will provide additional capabilities for the Japanese prime launch vehicle, such as for the longer delta-V requirement to GSO and planetary science missions. Moreover, these small upper stage reduce the debris impact risk on the orbit and the ground. The results of the concept and trade-off studies after several design cycles will be covered with the stage configuration in this paper.