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THERMAL CHARACTERISTICS FOR KSLV-1 KICK MOTOR NOZZLE ON GROUND FIRING TEST

Abstract

In this study, the strain of kick motor nozzle was measured to verify the nozzle design which is newly developed in firing test. Transient heat transfer analysis was done to explain the pyrolysis gas generation. The expansion part assembly is mainly affected by the high inner wall temperature rather than the inner wall pressure. Therefore, the strain history of the expansion part surface material is gradually increasing in proportion to the radial temperature increment. The strain history of the throat outer surface material shows the increment and decrement due to the accumulation and exhaust of the pyrolysis gas.