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START-UP TRANSIENT SIMULATION OF 60T CLASS LOX/METHANE LIQUID ROCKET ENGINE

Abstract

Toward the object of furthering domestic liquid rocket engine preparing ability, a series of theoretical analysis and experimental investigation were performed, focusing on the start-up technology of 60 ton thrust reusable Oxygen/Methane liquid rocket engine. The mainly schematic and specification for the 60-ton-thrust reusable Oxygen/Methane liquid rocket engine were introduced. The transient behavior simulation system of rocket engine was established and the start-up characteristics were predicted. The test results show that the simulation results were well in line with the ground test data. However, the phenomenon of combustion chamber fuel-rich ignition impulsion and subcritical two-phase pressure oscillation in cooling jacket cannot be predicted perfectly. The proper simulation models should be added for modifying these deficiencies of current computational model.