

SPACE PROPULSION SYMPOSIUM (C4)
Propulsion System (1) (1)

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MODERNIZATION OF POWERFUL LOX-KEROSENE LPRE OF NPO ENERGOMASH BY CHANGE
OF FUEL KEROSENE ON METHANE

Abstract

Estimation of possibility of modernization of powerful RD191, RD180 and RD171 LPRE by change of fuel RG-1 (kerosene) on liquefied natural gas (methane) with preservation of the scheme with afterburning of oxidize-rich gas in the chamber has conducted in NPO Energomash. It is shown that about 70% The use of methane instead of kerosene will give new performances for engine: 1) improve the energy of launch-vehicle due to higher specific impulse despite a reduction in density of fuel; 2) improve the reliability of the chamber cooling at decrease of hydro-losses in the cooling duct by 4-5 times in comparison with kerosene; 3) simplify and reduce the cost of technology of the removal of residual fuel from the engine ducts after the test. The parameters of the methane modifications for normal and forced modes are presented.