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

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## DEVELOPMENT AND TEST OF THE LOX/METHANE REGENERATIVE COOLED ROCKET ENGINE (2ND REPORT)

## Abstract

IHI Corporation and IHI Aerospace have been continuing the research and development of LOX/Methane regenerative-cooled rocket engine since 2008. LOX/Methane regenerative-cooled rocket engine is expected to bring many advantages to reality for future propulsion system, such as high performance, reusability, long storage and so on. The engine adopted Gas Generator Cycle. In 2012, the first hot firing tests of the engine were successfully conducted. In 2013, the engine components have been modified almost close to prototype model, and the engine system hot firing has been conducted. This paper describes the status of the 100kN thrust level class LOX/Methane regenerative cooled rocket engine and the results of sea level hot firing tests held in 2013. The main chamber and thrust valves were modified and tested. In addition, thrust and mixture ration control valves were used to obtain wide operational range of engine system operating within single hot firing duration.