HIGH PRESSURE GASEOUS HYDROGEN FUEL STORAGE AND FEED SYSTEM FOR SCRAMJET ENGINE FLIGHT TESTING

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Abstract

Towards scramjet engines flight testing, a high pressure Fuel storage and Feed System (FFS) was developed. The fuel used for this mission is gaseous Hydrogen, which is stored on board in the FFS and supplies fuel to the scramjet engines in regulated mode at required instant of time. The FFS also handles the gaseous Oxygen which is required for ignition operation. The FFS consists of high pressure gas storage bottles, fluid control modules and a passive mass flow regulation system. This paper describes the design and development of the FFS and its performance during scramjet engine flight testing.

Keywords: Scramjet, Fuel Storage, Feed System, Orifice, Hydrogen Environment Embrittlement, Regulator