Effeciency upgrading for a gas actuating medium feed-and-storage system by monitoring its airtightness and therma control during a spacecraft operation

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The paper presents the basic operational requirements for a gas actuating medium feed-and-storage system of a propulsion installation of an automatic spacecraft with a non-pressurized body. A comparative analysis of the suggested measures for determining and monitoring the airtightness at a long-term spacecraft operation is provided. The lifecycle increase up to several years at the expend of power and fuel efficiency of a propulsion installation with gas rocket engines is evaluated based on experience of Yamal geostationary repeater spacecraft operation. There are some recommendations resulted from the analysis of those suggested measures for gas actuating medium feed and storage systems design and operation. The suggested measures are patented and currently are being used during spacecrafts operations.

Keywords: *working medium, the propulsion system of the spacecraft, robot spacecraft, geostationary spacecraft, gas rocket engines.*

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