

Stepper Motor Driven Rotary Electro-Mechanical Actuators for the Mixture Ratio Control Application of Launch Vehicle

M. Kodeeswaran, A. Bahrudheen, Pradeep Kumar, UJ. Naik

Abstract

Rotary electro-mechanical actuator is configured with stepper motor and four stage compound gear train for the Mixture Ratio Control (MRC) application of oxidizer & fuel for the liquid engines of satellite launch vehicle. Qualification tests conducted based on the detailed test plan confirms the design adequacy of actuator meeting the performance requirements. The actuator has been successfully inducted into the flight after successful ground validation tests.

Keywords: Actuator, Stepper motor, Bearings, Rotary Potentiometer, Limit switches, qualification

M. Kodeeswaran (Corresponding author)
Control Actuation Systems Group, Vikram Sarabhai Space Centre, Thiruvananthapuram
Email: kodees_vssc@yahoo.com, m_kodeeswaran@vssc.gov.in

A. Bahrudheen
Control Actuation Systems Group, Vikram Sarabhai Space Centre, Thiruvananthapuram

Pradeep Kumar
Control Actuation Systems Group, Vikram Sarabhai Space Centre, Thiruvananthapuram

UJ. Naik
Control Actuation Systems Group, Vikram Sarabhai Space Centre, Thiruvananthapuram