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DESIGN, DEVELOPMENT AND TESTING OF A LIQUID ROCKET ENGINE TECHNOLOGY
DEMONSTRATOR FOR CAPACITY BUILDING.**Abstract**

While there are many new entrants into the launch vehicle market, very few come from Latin America. The root cause of this phenomenon is complex, but a step in the right direction is research and development for capacity building. In this context, Salaverria Aerospace S.A. a private enterprise, along with academic institutions are working on the development of the SVE-1, a 5 kN, pressure-fed, regeneratively cooled, liquid oxygen/ethanol rocket engine as a testbed for furthering the understanding of liquid rocket technology and acquiring practical methodologies into designing, manufacturing, assembling and testing critical components. These critical components include the thrust chamber, injector, igniter, high-pressure tanks; feed system, ducts, valves, regulators, filters, electronic control system, instrumentation and the test stand. This paper presents the design and analysis efforts, it then describes the construction and assembly of the rocket engine and the test facility. Subsequently, it provides detailed results of the various cold and hot fire tests that were carried out in order to verify the performance of the engine and its components. Finally, it presents prospects for the future, including improvements to the rocket engine in order to serve as the propulsion unit of a sounding rocket with stratospheric apogee capabilities.