Paper ID: 27510
oral

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Small Launchers: Concepts and Operations (7)

Author: Mr. Steve Cook
Dynetics, United States, steve.cook@dynetics.com

Mr. Andy Crocker
Dynetics, United States, andy.crocker@dynetics.com

ENABLING A ROBUST, SMALL SATELLITE LAUNCH SYSTEM

Abstract

Dynetics has developed an innovative launch concept that can place a 25 kg satellite into a 750 km low Earth orbit for a wide variety of payloads. The need for on-demand intelligence and communications in remote geographical locations is increasing the requirement for rapidly deployable and tailorable space assets. The personal electronics revolution that has put enormous processing capabilities into small hand-held devices is now being extended into space. Nanosats are emerging as key assets for a broad array of federal agencies including DoD, NASA, the National Science Foundation (NSF) and universities. Dynetics' initial approach will deliver a nano satellite to a 750 km orbit via a direct insertion trajectory on the first orbital mission. This capability is based on Dynetics successfully demonstrated Multi-Purpose NanoMissile System (MNMS) architecture, which has been matured over three years. Dynetics successfully demonstrated the performance of a nitrous oxide-ethane 3,000 pound thrust booster in a 60-second static fire test, which proved our design concept. This booster stage, coupled with an innovative Peroxide/Kerosene upperstage - recently demonstrated at Dynetics in ground tests - is easily adaptable with a building block approach to increase payload throw weight and orbital altitudes up to 25kg to LEO.