

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

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LAUNCHERONE: RESPONSIVE LAUNCH FOR SMALL SATELLITES

Abstract

Virgin Orbit is a developing small launch platform that will provide affordable, dedicated rides to orbit for small satellites starting this year. We are in the midst of a small satellite revolution and with technology advancement packing more capability in smaller packages, small satellites are progressively providing solutions for remote sensing, communications, earth observation and other low-Earth orbit needs. Currently, a small satellite operator is typically forced to ride as a secondary payload, constrained to the primary payload's launch schedule and orbit. However, Virgin Orbit's small launch vehicle, LauncherOne, will soon begin providing frequent, affordable, and dedicated transportation to orbit for small payloads. LauncherOne is a two stage, liquid propulsion (LOX/RP) rocket launched from a Boeing 747-400. By utilizing air-launch, the system is designed to conduct operations from a variety of locations, removing the complexity and scheduling typically associated with traditional launch ranges. LauncherOne will allow customers to select from various launch azimuths, including equatorial inclinations, and will increase available orbital launch windows. The Long Beach, California, USA facility where the team is based has been outfitted with the equipment needed for the manufacture of the LauncherOne rocket, and currently staffs over 300 employees. The facility is well under way in the manufacture and test of flight hardware, having already completed Launch Campaign Rehearsals with our Pathfinder rocket. In addition, LauncherOne's propulsion system is progressing with flight-like engines undergoing long duration hot fires. This presentation will summarize the progress made on the LauncherOne platform in the past year, and provide an overall technical overview of the vehicle.