

Peregrine Sustainer Motor Development

Project Manager(s)/Lead(s)

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Sponsoring Program(s)

Marshall Space Flight Center/Center Management
and Operations
Center Strategic Development Steering Group

Project Description

The Peregrine sounding rocket is an in-house NASA design that provides ~15% better performance than the motor it replaces. The design utilizes common materials and well-characterized architecture to reduce flight issues encountered with the current motors. It engages NASA design, analysts, test engineers and technicians, ballisticians, and systems engineers. The in-house work and collaboration within the government provides flexibility to efficiently accommodate design and program changes as the design matures and enhances the ability to meet schedule milestones. It provides a valuable tool to compare industry costs, develop contracts, and it develops foundational knowledge for the next generation of NASA engineers.



Motor cases ready for processing.



Exit cone.

Anticipated Benefits

This project creates a NASA-owned design to facilitate easier design evolution in the future as well as provides a hands-on learning experience to hone NASA's internal propulsion expertise. It also establishes multiple vendors to mitigate supply risk and helps foster a competitive market.

Potential Applications

After demonstration tests, the sustainer motor will be available to support many sounding rocket missions including near-Earth flights for Earth-bound science projects.



Motor loaded into test stand.

Notable Accomplishments

The team is implementing the development phase of the project, which includes three flight tests. The static test of the motor is scheduled for January 2015 at NASA Marshall Space Flight Center's East Test Facility. The domestic manufacturers have been identified for development and production phases. During development, additional ways were found to reduce the costs of motor production, making it a competitive cost and performance choice over its replacement.