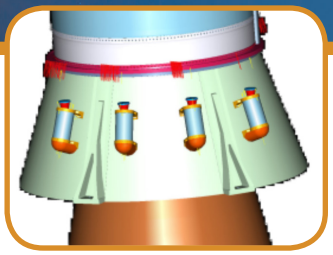
National Aeronautics and Space Administration

Marshall Space Flight Center
Solid Propulsion Systems

Engineering Solutions for Space Science and Exploration



Solid Separation and Maneuvering Systems

Launch Abort System mounted to Multi Purpose Crew Vehicle

The Solid Propulsion Systems Division (ER50)

performs engineering development, oversight, and integration of solid propulsion systems for space transportation applications, ensuring the sustained, safe operation of existing systems as well as the successful development of new systems.

ER50 partners with our customers and provides component and systems engineering expertise for development or evaluation of solid propulsion advanced technologies, conceptual designs, detailed design, system (ballistic) analyses, component and system integration, test plans, testing, and experimental data. The division provides cradle-to-grave component and system engineering excellence to NASA's solid propulsion activities.

Customers include the Space Launch System (SLS) Program Office, which requires the division's help with development of the Shuttle-derived five-segment solid rocket motor (RSRMV), Booster Separation Motor (BSM), and the Upper Stage Ullage Settling Motor (USM). Support development of Solar Probe Plus new third stage motor, the Star 48GXV. The division's work with the Flight Programs and Partnerships Office is focused on the development of three solid propellant motors of the Orion Multi-Purpose Crew Vehicle (MPCV) Launch Abort System (LAS): Launch Abort Motor, Attitude Control Motor (ACM), and Jettison Motor. Support to the Sounding Rocket Project Office (SRPO) including the design and development of a new sustainer motor.

LAS Jettison Motor DM-2

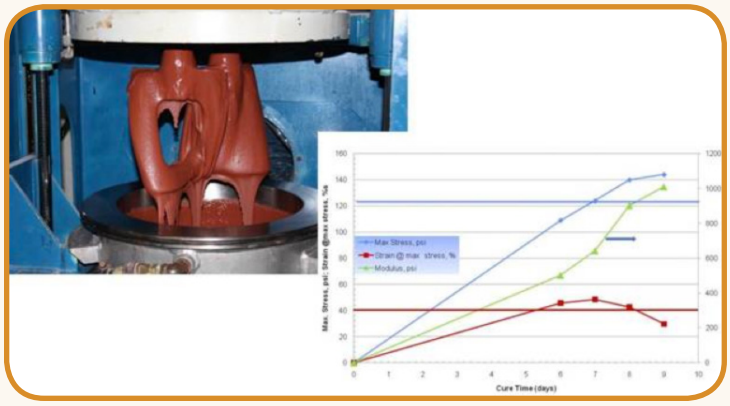
Solid Launch Systems and Analysis Branch

Primary Responsibility

- Design and Trade Studies
- Anomaly Resolution/Tiger Team Support
- Flight Readiness Assessments
- Propellant Grain Design
- Ballistics Performance Analysis
- Requirements Analysis/Development/Test Planning
- Propellant/Liner/Inhibitor Formulation and Evaluation
- Propellant and Liner Mix Cast Insight

Current Activity

- RSRM Systems Engineering and Components
- Ares 1st Stage Systems Engineering and Components
- Ares 1-X Systems Engineering and Components
- Lunar Braking Motor
- All (large and small motor) grain design and ballistics



Solid Propellant Formulation and Characterization

Solid Separation & Maneuvering Systems Branch

Primary Responsibility

- Design and Trade Studies
- Anomaly Resolution
- Flight Readiness Assessments
- Propellant Grain Design
- Requirements Analysis/Development/Test Planning
- Propellant and Liner Mix Cast
- Independent access to motor production capacity

Current Activity

- BSM, BDM, BTM Systems and Components
- Launch Abort Motor Systems Engineering and Components
  - Abort motor, Jettison Motor and Altitude Control Motor
- Peregrine Sustainer Motor Development & Test
- MLAS Design and Test
- Advanced Solid Motor Systems (Hybrid)
- Propellant Development
- Solar Probe Plus Star 48GXV Systems Engineering

MLAS

For more information, please visit www.nasa.gov/centers/marshall/about/business.html

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