National Aeronautics and Space Administration

Propulsion Testing

WSTF offers numerous ambient pressure and altitude stands to test rocket propulsion test systems as well as single rocket engines. Propellant capabilities include hypergolic and liquid oxygen/hydrocarbons. Both propellant and test article temperature conditioning is available, as well as the capability to provide saturated propellants to the test article inlets.

Six test stands provide vacuum test capability to altitudes greater than 100,000 ft (30,000 m) and three test stands provide ambient testing to an altitude of 5000 ft (1500 m) above sea level for the International Space Station, government agencies, and commercial industry.

Unique Facility Offerings

- Large Buffer Zone and Controlled Remote Property for Hazardous Testing
- Moderate Desert Climate Ideal for Year-round Testing
- Existing Environmental Permits in Place for Hazardous Testing

Johnson Space Center

Services Provided

Altitude Testing

Six test stands at WSTF provide vacuum test capability:

- Engine and engine systems up to 25,000 lbf (110 kN) thrust
- Altitude greater than 100,000 ft (30,000 m) engine firing with steam ejectors up to 250,000 ft (76,000 m) using vacuum pumps without firing
- Propellants: liquid hydrogen, gaseous and liquid oxygen, hydrocarbon, hydrazine, Aerozine-50, monomethylhydrazine (MMH), nitrogen tetroxide (N_2O_4), gaseous and liquid methane
- Solid motors
- Helium pressurants
- Nitrogen pressurants
- Vertical or horizontal firing
- Temperature-conditioned propellants and test article, 40 to 120 °F (4 to 49 °C)

Ambient Testing

Three test stands at WSTF support ambient firing at 5,000 ft (1500 m) above sea level:
Thrust from 25,000 to 60,000 lbf (110 to 270 kN)
Vertical or horizontal firing
Articulating thrust mounts
Propellants: liquid hydrogen, gaseous and liquid oxygen, hydrocarbon, hydrazine, Aerozine-50, MMH, N_2O_4, or solid rocket propellant

Unique Propulsion Testing Capabilities

- Hypergolic Propellant Handling
- Training
- Iron Nitrate Problems
- Electrical Devices in Hazardous, Flammable, and Explosive Environments
- Bubble Point Testing
- Hydrostatic Burst Testing
- System Leak Detection

We have developed customer-friendly agreements to streamline business relationships and are eager to share our unique facilities and expertise with new customers. We invite your inquiries regarding application or adaptation of our capabilities to satisfy your special requirements. Briefings on general or specific subjects of mutual interest can be arranged at JSC or at your business site.

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