

# Trailblazer

## Low-Cost Suborbital Research Platform



### Payload

Trailblazer allows the payload to be externally deployed. A standard nosecone is provided with a powered payload bus and telemetry interface. Alternatively, the customer could supply their own payload section according to vehicle specifications.

### Green hypergolic propellant

Special high density, nontoxic fuel and oxidizer mixture enable a smaller vehicle envelope, simplified propulsion system, and low cost of operation.

### Pressure feed system

Efficient warm-gas system with composite overwrapped tanks allow reduced vehicle complexity and pressurant mass.

### Main engine

The composite main engine, which utilizes a robust injector architecture in addition to the proprietary propellant mixture, allows for low cost and extremely high reliability.

### Avionics

Controller and telemetry modules are based on Aphelion's flight tested avionics units, providing proven reliability.

### Reliability and ease of manufacture

The design philosophy of the rocket is rooted in simplicity and reliability. The scale of the rocket allows for the introduction of novel production techniques that keep the cost low while reducing component fault rates.

### Optional boost stage

An optional high-thrust inline solid rocket booster is available for Trailblazer for a greater payload capacity or apogee upon customer request.



### Late 2018 availability\*

The Trailblazer rocket is projected to conduct its first test flight by the end of 2018 after two years of development and testing. Launches will be made available with short turnaround time.

## A low cost suborbital platform.

Trailblazer makes suborbital flight accessible to commercial customers and opens a multitude of new possibilities in research and testing. Unique technical innovations provide low cost, frequent suborbital flights where commercial availability is often rare and where flight opportunities are hard to obtain.

- Extremely competitive pricing: \$100,000 per flight\* including range fees
- Flight trajectories and vehicle configurations determined according to customer requirements
- Low wait time: one-month turnaround

Our small scale allows one of the most cost-effective and flexible rides to space. The technology demonstration, research, and pharmaceutical-biophysical markets can benefit greatly from the availability of prolonged microgravity and space exposure flights which can only be provided by the use of sounding rockets as suborbital platforms. Some potential applications are listed below.

- Heliospheric and aeronomic research
- Technology demonstration/space hardware testing missions
- Microgravity research in pharmaceutical and medical industries
- Communication system testing
- Space environment exposure

Gross Lift-Off Weight	410kg
Height	6.5m
Diameter	0.31m
Fuel	Proprietary hypergolic mixture
Primary stage thrust	9.5kN
Boost stage thrust	~40kN
Payload capacity (>150km apogee)	20kg