

# Oriole Sounding Rocket Booster Motor



Advanced booster with a range of 330 miles

## Overview

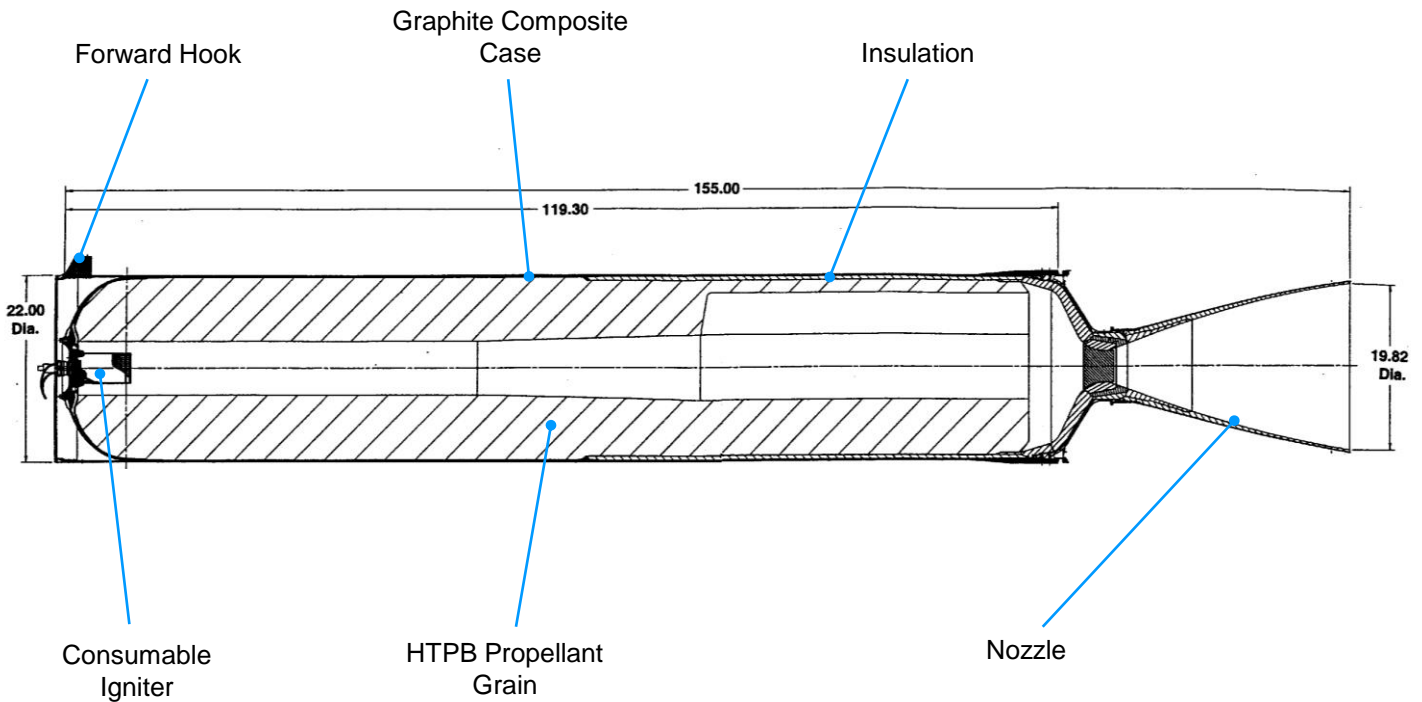
The Oriole booster was developed jointly by ATK and DTI Associates (formerly Astrotech) as a next-generation sounding rocket for launching scientific and commercial payloads. The Oriole provides several minutes of useful microgravity environment for payloads at low cost without entering Earth orbit. In flight testing, the Oriole achieved a maximum altitude of 229 miles (368.5 kilometers) and a maximum range of 330 miles (531 kilometers).

## Application

The Oriole booster was developed primarily for use as a Sounding Rocket for NASA.

## Development

ATK Tactical Systems Company began development of the Oriole booster in November 1998 under contract to Astrotech, Inc. The Oriole progressed through a development and demonstration program that culminated in a successful static test at the AMPC facility on April 20, 2000. The Oriole was then successfully flight tested by NASA's Wallops Island Flight Facility in Virginia on July 7, 2000.



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### Features

- Qualified reduced smoke propellant
- Graphite/epoxy resin composite case with aluminum and titanium parts
- Kevlar composite external heat shield

### Performance

- Temperature Limits:
  - Operating: 0°F to +120°F
  - Storage: -10°F to +125°F
- Service life: 10 years

### Technical Data

Weight: 2,500 lbs  
 Length: 155.0 in.  
 Diameter: 22.0 in.  
 Case: IM7/HBRF-307A graphite epoxy resin  
 Insulator: R-181 Kevlar filled EPDM rubber  
 Nozzle: 4340 steel, carbon & glass phenolic  
 Propellant: Aluminized HTPB  
 Igniter: Consumable BKNO<sub>3</sub> pellets  
 External heat shield: Kevlar composite

For information contact: ATK Missile Subsystems & Components  
 Allegany Ballistics Laboratory  
 210 State Route 956  
 Rocket Center, WV 26726  
 304-726-5000 Tel 304-726-5183 Fax

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