

TR-312-100YN High Performance Dual Mode Liquid Apogee Engine

This advanced liquid apogee engine incorporates Northrop Grumman's high performance pintle injector for reliable, high-performance, multiple-start capabilities for long-life spacecraft operations. Based on flight proven-designs, the thrust chamber is fabricated of powder metallurgy rhenium, which offers high strength and isotropic properties. The chamber is also coated with iridium (internally/externally), rhodium (internally), and hafnium oxide (externally). Special joining techniques are used for the injector-chamber and nozzle-nozzle extension all-metal joints.

Heritage

Two flight-like engines in pre-qualification testing.

Availability

20 months after receipt of order.

Characteristics

Propellants	N_2O_4 and N_2H_4
Thrust	125 lbf
Mixture Ratio	1.06
Specific Impulse	330 seconds
Nozzle Expansion Area Ratio	245
Inlet Press	230 psia
Engine length	28.0 inches
Nozzle Exit Diameter	11.8 inches
Engine Weight	13.3 lbm
Demonstration Life	25,000 seconds
Maximum Firing Duration	3,000 seconds
Throughput	~4 tons
Vibration (Qual)	7.36 g-rms

