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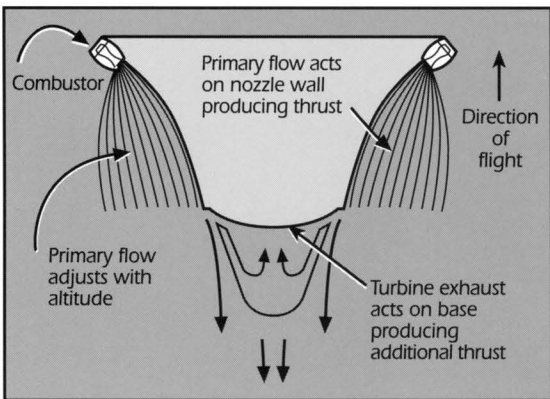
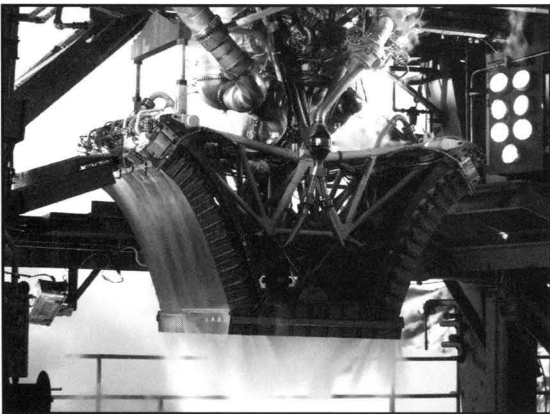
RS-2200
LINEAR AEROSPIKE ENGINE

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LINEAR AEROSPIKE ENGINE

The RS-2200 Linear Aerospike Engine is being developed for use on the Lockheed Martin Skunk Works' Reusable Launch Vehicle. The Aerospike allows the smallest, lowest cost RLV to be developed because the engine fills the base, reducing base drag, and is integral to the vehicle, reducing installed weight when compared to a bell-shaped engine. The Aerospike is the same as bell shaped rocket engines except for its nozzle, which is open to the atmosphere. The open plume compensates for decreasing atmospheric pressure as the vehicle ascends, keeping the engine's performance very high along the entire trajectory. This altitude compensating feature allows a simple, low-risk gas generator cycle to be used. Over \$500 million have been invested to date in aerospike engines, and full size linear engines have accumulated 73 tests and over 4,000 seconds of operation.



Thrust, lbf

At Sea Level	431,000
In Vacuum	495,000

Specific Impulse, sec.

At Sea Level	347
In Vacuum	455

Propellants

Oxygen, Hydrogen

Mixture Ratio (O/H)

6.0

Chamber Pressure, psia

2,250

Cycle

Gas Generator

Area Ratio

173

Throttling, Percent Thrust

20-109

Dimensions, Inches

Forward End

252 wide X 93 long

Aft End

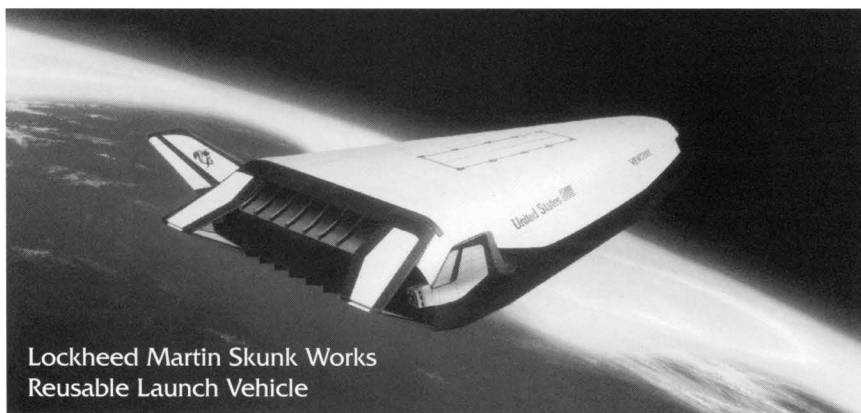
93 wide X 93 long

Forward to Aft

170

Pictured above left: Linear hot-fire test

Left: Aerospike operation



Lockheed Martin Skunk Works
Reusable Launch Vehicle

AEROSPIKE BENEFITS:

- Enables smallest, lowest cost vehicle
- High installed performance
- Low-risk gas-generator cycle

For more information contact: RLV Propulsion Systems • Rocketdyne Division • Rockwell International Corporation
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