

# **The Path Forward from DC-X/DC-XA**

**Intl Symposium for Personal  
and Commercial Spaceflight**

**October 20, 2010**

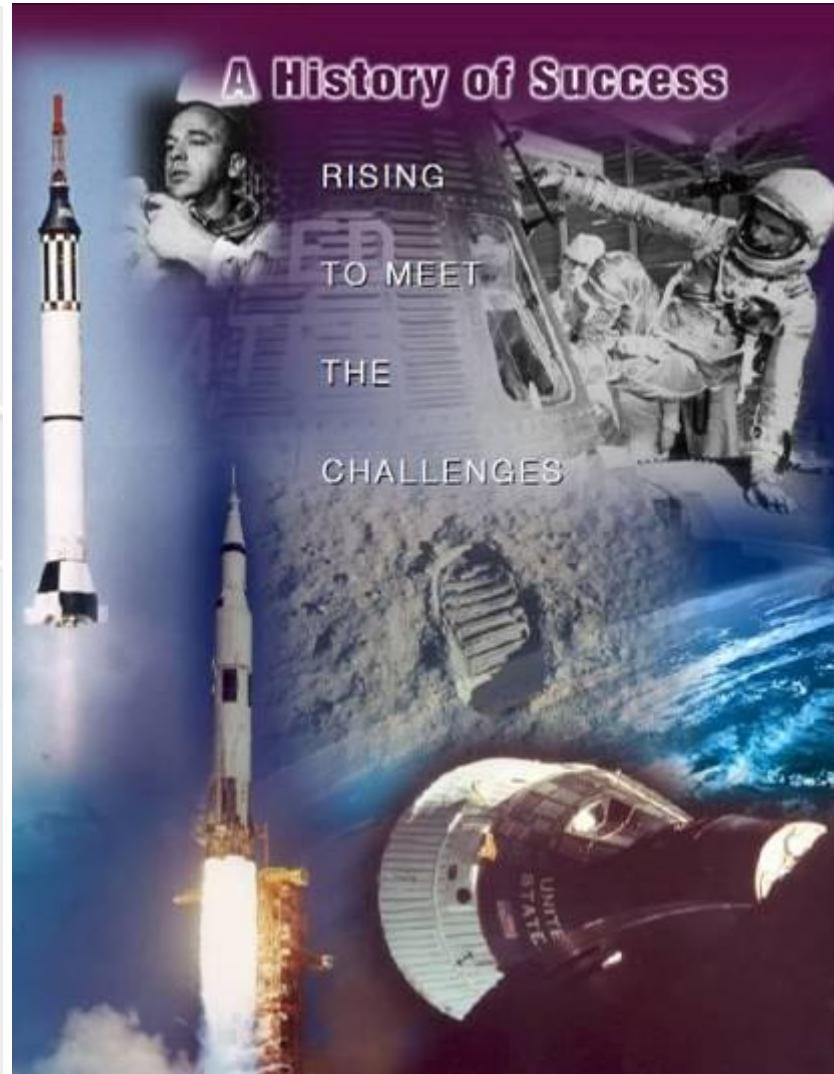
**Rick Bachtel  
Pratt & Whitney Rocketdyne**

# In the Beginning

“Success in space  
demands perfection.

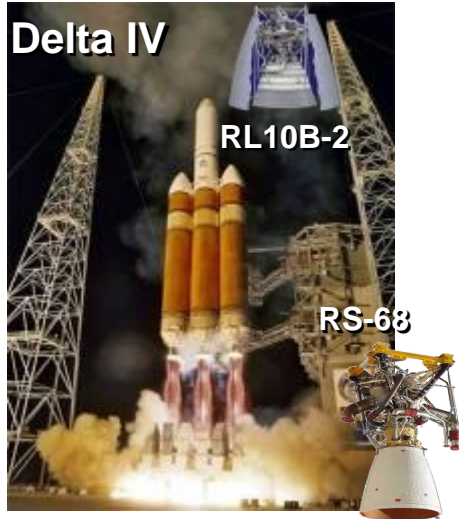
Many of the brilliant achievements made in the vast, austere environment seem almost miraculous. Behind each apparent miracle, however, stands the flawless performance of numerous highly complex systems. All are important. The failure of only one portion of a launch vehicle or spacecraft may cause failure of an entire mission. But the first to feel this awesome imperative for perfection are the propulsion systems, especially the engines. Unless they operate flawlessly first, none of the other systems will get a chance to perform in space.”

Wernher von Braun  
Former Director  
Marshall Space Flight Center, NASA

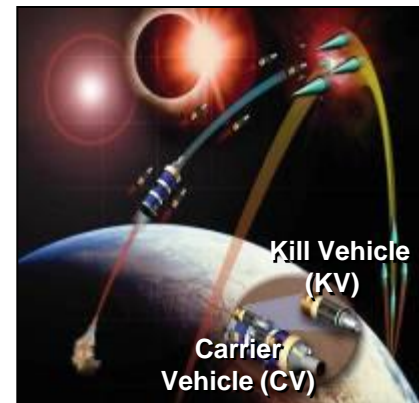




# Current PWR Propulsion Products



## DoD Missile Defense



## Hypersonics





# CECE Testing at WPB



**Demo 1.6 Engine at 105% and 10% Power.**