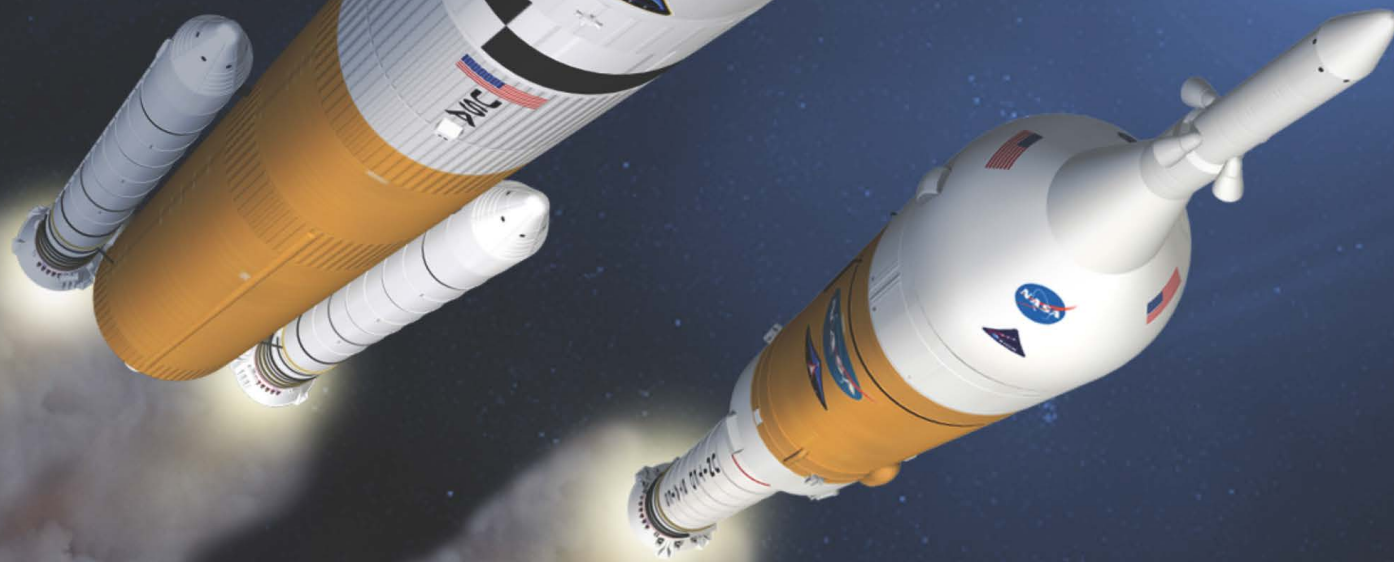




Designing the Ares I Crew Launch Vehicle Upper Stage Element and Integrating the Stack at NASA's Marshall Space Flight Center



Neil E. Otte

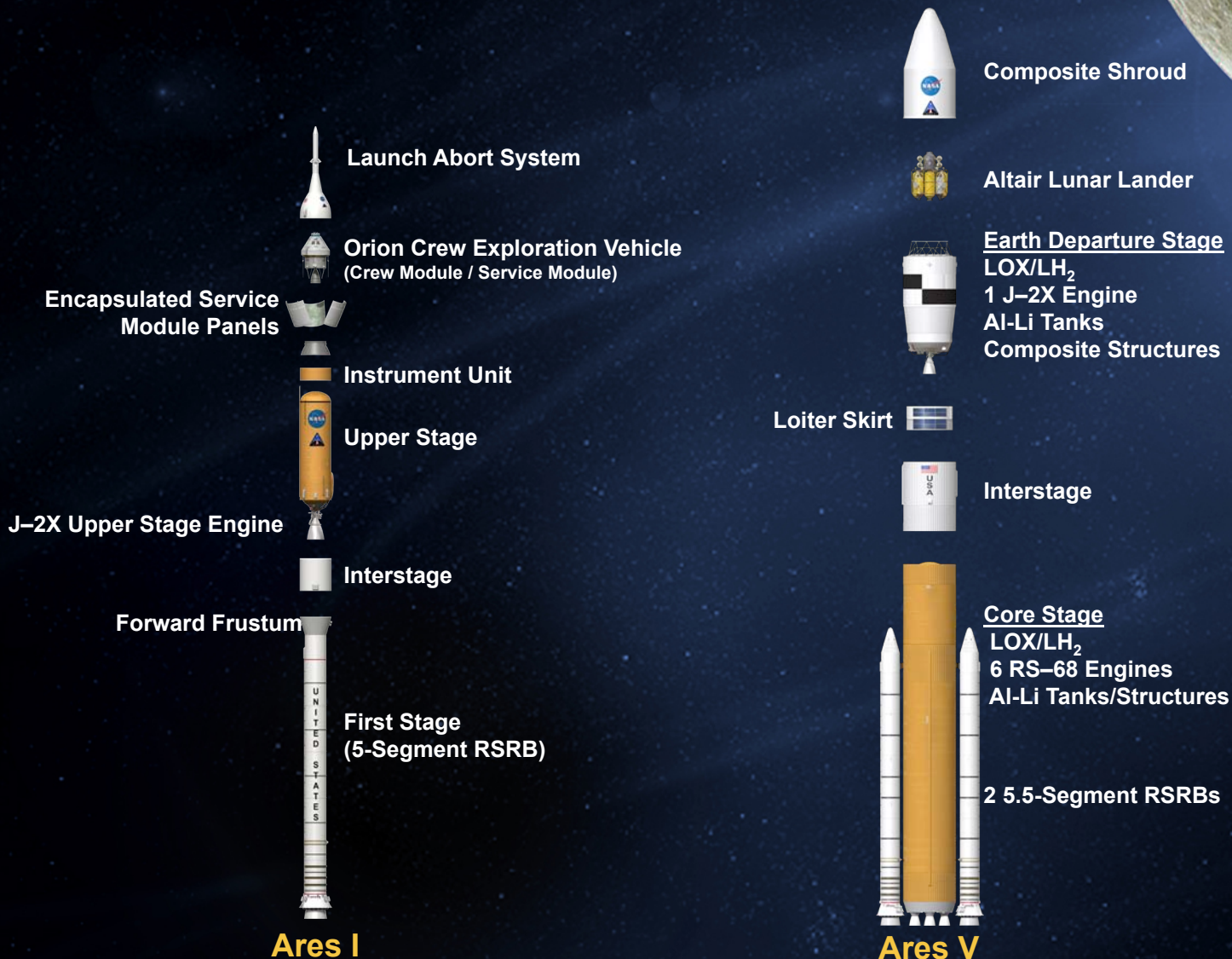
Ares Projects Chief Engineer

AIAA Joint Propulsion Conference 2008

July 23, 2008



Ares I and Ares V Vehicle Elements



25.5 mT (56.2K lbm) to
Low Earth Orbit (LEO)

71.1 mT (156.7K lbm) to TLI (with Ares I)
62.8 mT (138.5K lbm) to TLI
~187.7 mT (413.8K lbm) to LEO

First Stage Accomplishments



Nozzle Process Simulation Article
Promontory, UT



Forward Segment Propellant Core Dry Fit
Promontory, UT



Main Parachute Fabrication/Columbia, MS
Main Parachute Test/Yuma, AZ



Solid Rocket Motor Testing
Promontory, UT

Upper Stage Accomplishments



Dome Gore Panel Fabrication
Los Angeles, CA



Dome Gore Panel Chemical Milling
Los Angeles, CA



S-IVB Vent Relief Valve Test
MSFC, AL

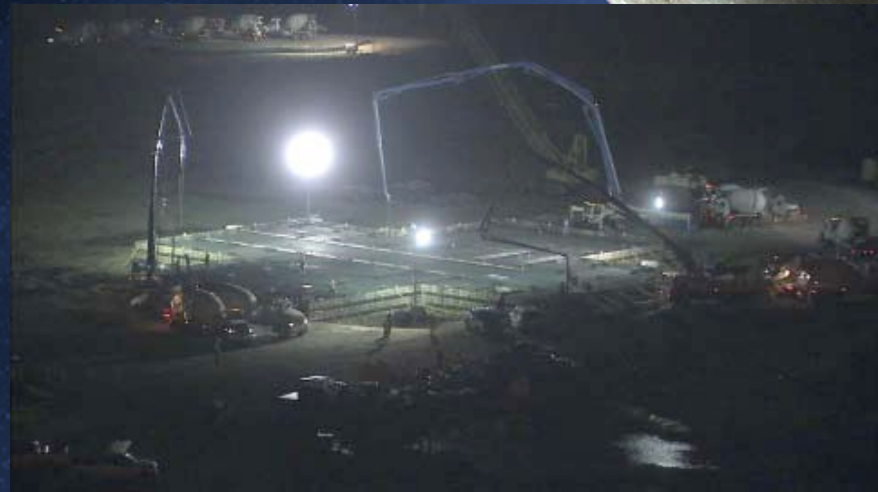


New Vertical Weld Tool
MSFC, AL

Upper Stage Engine Accomplishments



E-3 Subscale Diffuser Testing
SSC, MS



Test Stand A-3 Foundation
SSC, MS

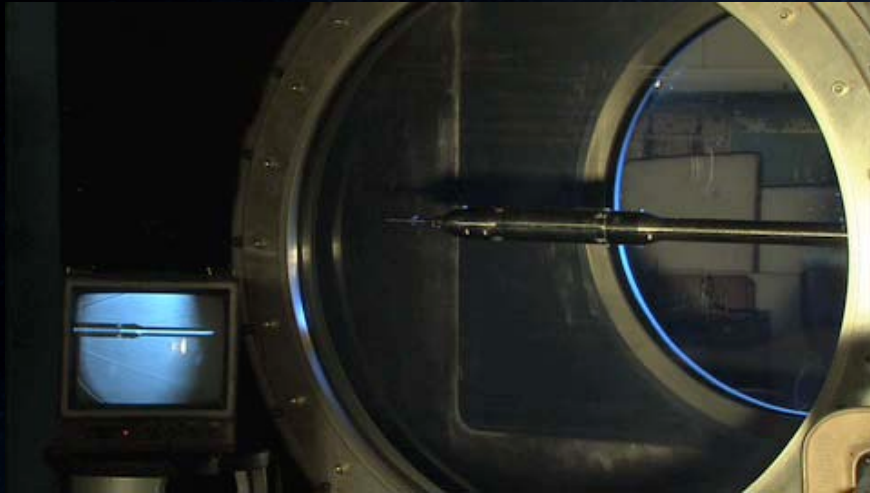
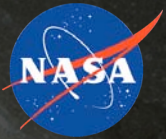


J-2X Powerpack 1A Testing
SSC, MS

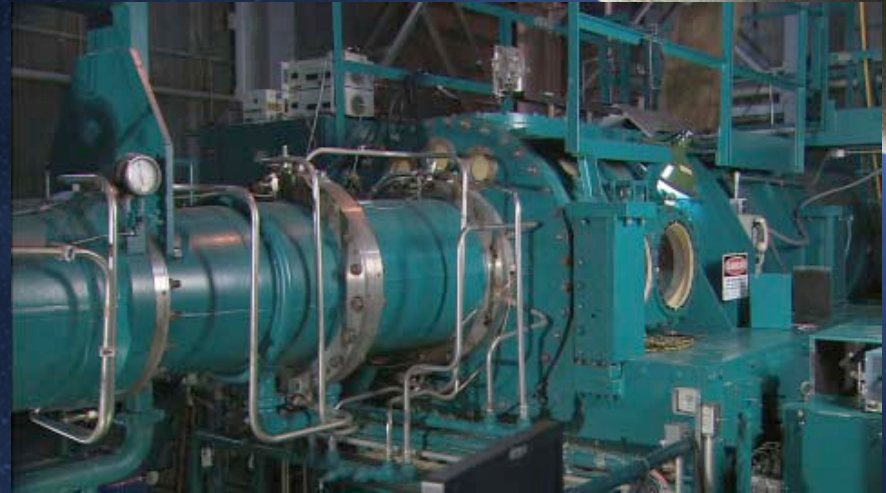


J-2X Materials Testing
MSFC, AL

Vehicle Integration Accomplishments



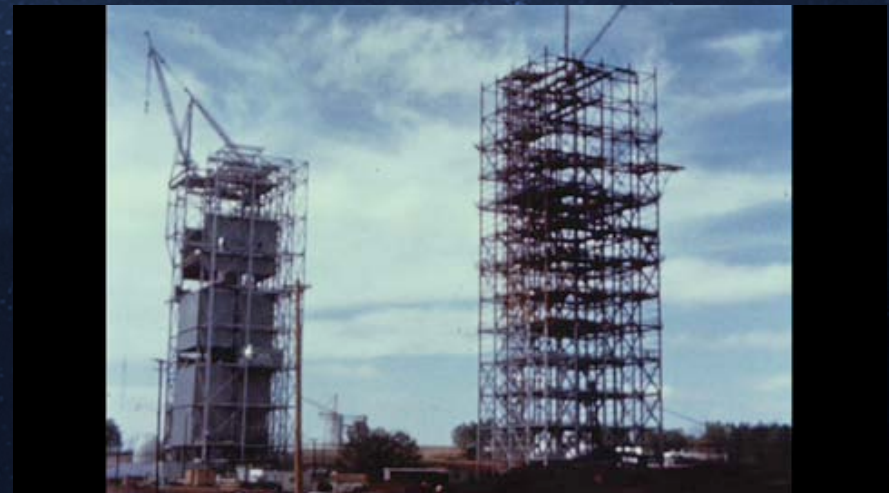
Boeing Polysonic Wind Tunnel
St. Louis, MO



3% First Stage Reentry Testing
Arnold Air Force Base, TN

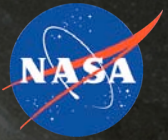


Ares I-X Rigid Buffet Model
LaRC, VA



Dynamic Test Stand Renovation
MSFC, AL

Ares I-X Accomplishments



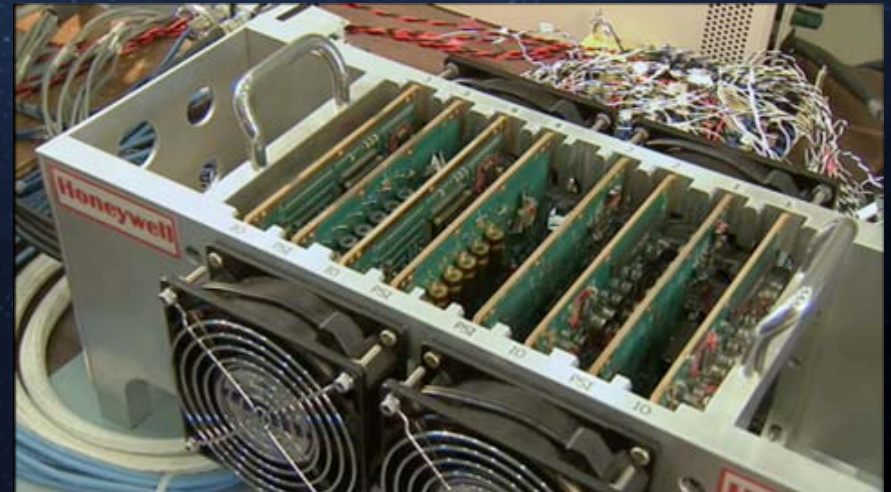
Upper Stage Simulator Assembly
GRC, OH



Roll Control System Test and Fabrication
Huntsville, AL and WSTF, NM

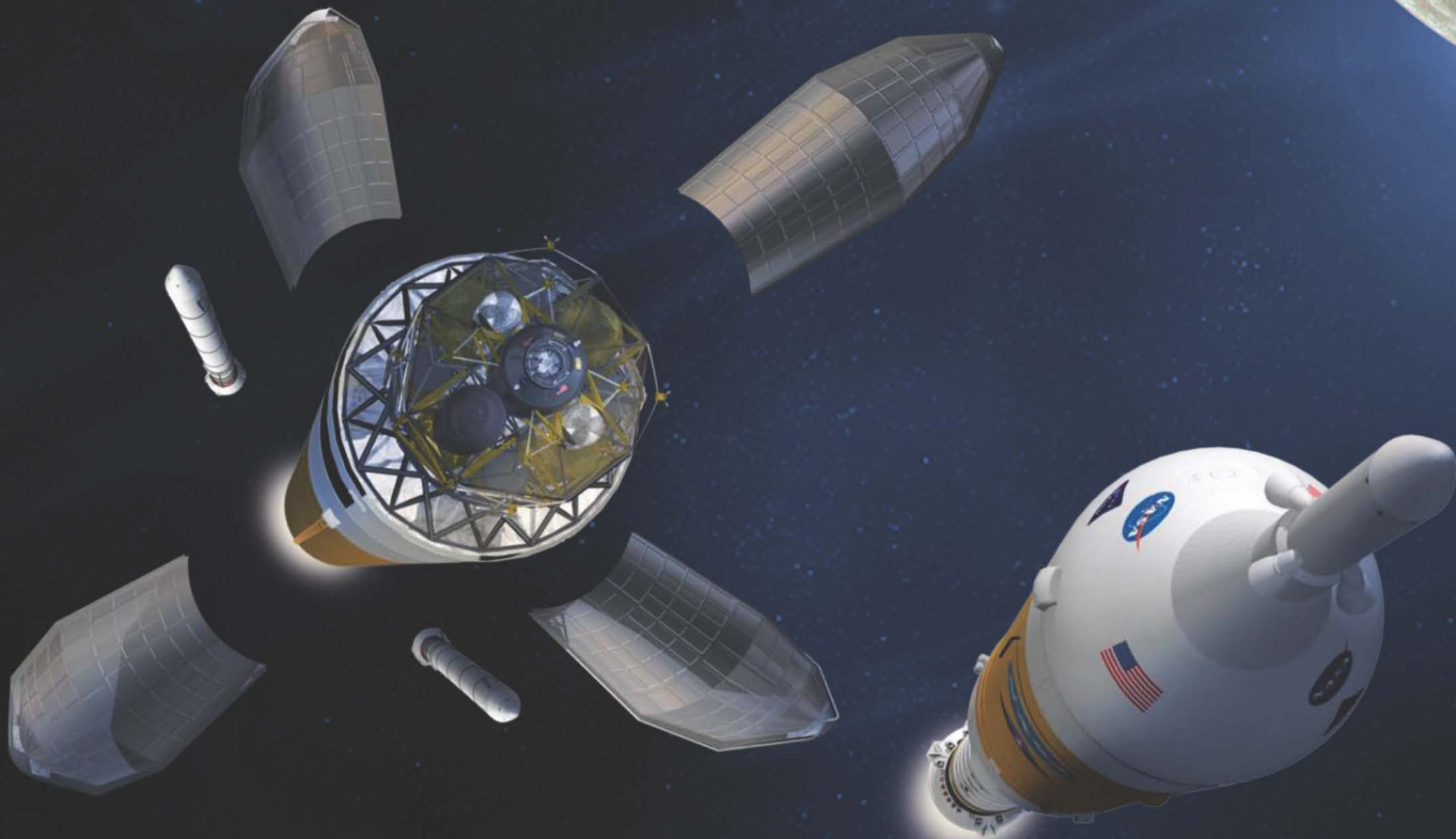


Forward Frustum Fabrication
Indianapolis, IN

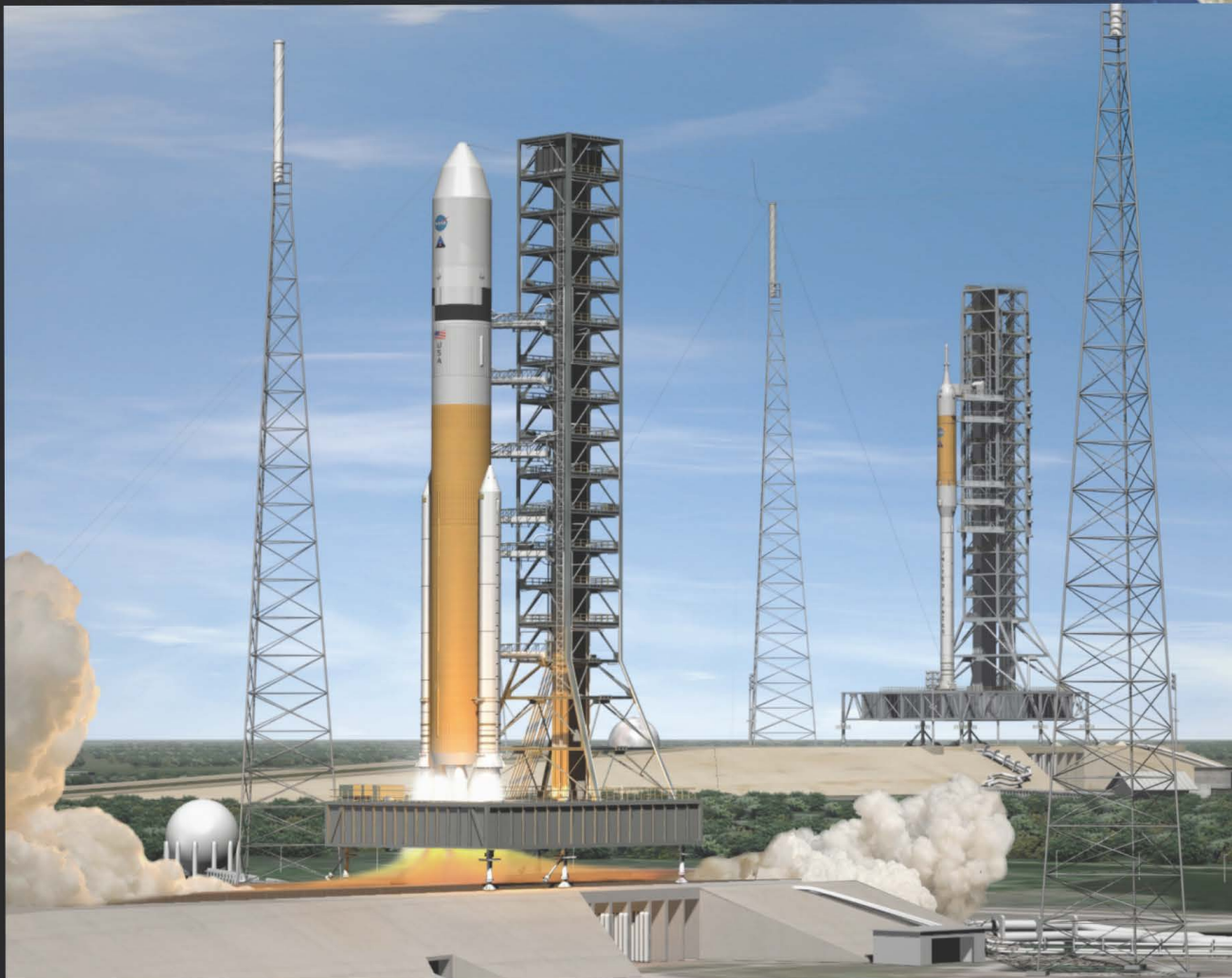


First Stage Actuator Systems Testing
MSFC, AL

The Next Giant Leap in Space Exploration



Questions?



www.nasa.gov/ares