

Implementing the Vision

2nd Space Exploration Conference



Ares I First Stage

December 6, 2006

Transition to Exploration



Today



Current
STS

Tomorrow



Ares I

Future



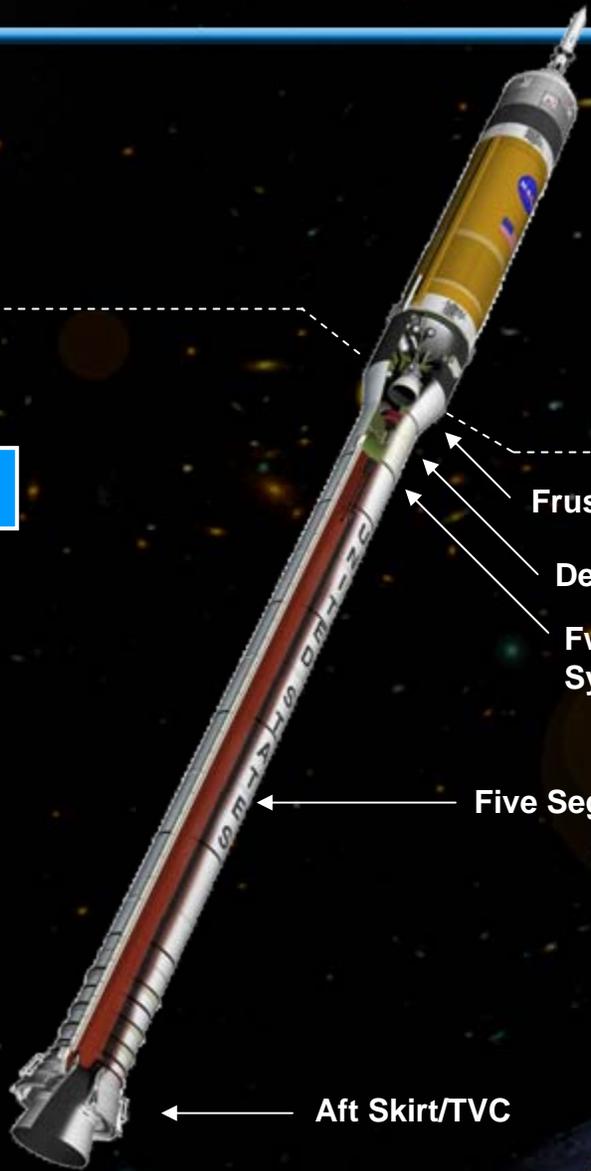
Ares V

Implementing the Vision

Ares I



First Stage



Frustum/Separation System

Deceleration System

Fwd Skirt/Electrical System

Five Segment Motor

Aft Skirt/TVC

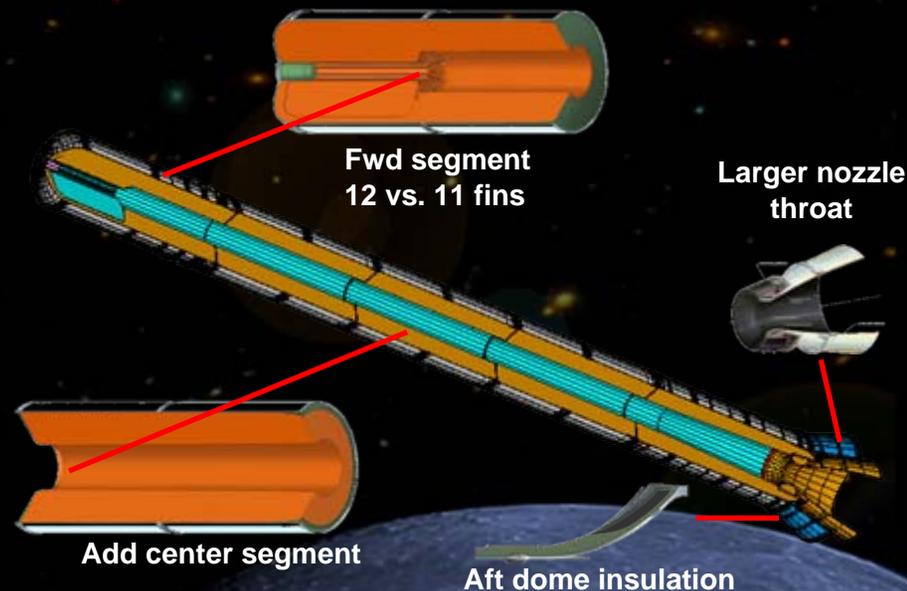
Five Segment Motor Changes from RSRM



ETM-3 Five Segment Static Test –
Demonstrated Margins and Future Capability
October 23, 2003

Changes from RSRM Baseline

Component	Same as 4 Segment	New/Modified
Case Hardware	Existing	
Nozzle	Some Existing	Driven by Throat Dia.
Grain Design		12 vs. 11 Fwd Fins and Chamfer
Propellant	Burn Rate Adjustment	
Insulation/Liner		Chrysotile Replacement and Aft Dome Increase
Igniter	Existing	



Ares I 1st Stage Progress



- Five-Segment Motor (RSRMV) performance parameters baselined
 - Nozzle and propellant grain configurations baselined
- Tooling and hardware necessary to fabricate RSRMV full-scale pathfinder/GVT articles are in the fabrication cycle and on schedule
 - Nozzle tape wrap mandrels, nozzle housings and casting tooling



Tape Wrap Mandrel



Nozzle Fixed Housing



Fwd Grain Mandrel



Ares I 1st Stage Progress

- Two full-scale forward skirt mockups fabricated
- Ares I-1 fwd structure forgings are on order
- Deceleration system test article fabricated and tested
- RSRM static test configured to capture data for roll control

Forward Skirt Mockups



Pilot Chute Drop Test



**November 16, 2006
RSRM Test Firing**

Ares I 1st Stage Progress



- All milestones to date have been met
 - Successfully completed Pre-Systems Requirement Review (SRR); final SRR is currently underway and will be completed this month
 - Successfully completed Ares I-1 SRR
- Looking ahead at key near-term milestones
 - Dec 07: Preliminary Design Review (PDR)
 - June 08: First full-scale full-up inert pathfinder delivery to MSFC
 - July- Oct 08: Ares I-1 hardware delivery to KSC
 - October 08: Commence fabrication of first static test article (DM-1)
 - April 09: Ares I-1 flight test
 - April 09: DM-1 static test