



Ares I-X Mate Review: The Ares I-X Mate Review was held on June 30. The focus of the meeting was to assess the readiness of the Ares I-X mission to begin the mating of stack 1 (first of five upper vehicle stacks) to the motor segment on July 20. This mating activity formally starts the final integration of the vehicle in High Bay 3. The Mate Review was chaired by the Ares I-X Mission Manager.

Most aspects of the review showed Ares I-X to be ready to begin stacking on time. However, there was a key issue which resulted in a conditional approval to proceed. The issue is that the latest loads have resulted in impacts to the FTS (Flight Termination System); to the TVC (Thrust Vector Controller), and to the secondary structures in both the First Stage (FS) and Upper State Simulator (USS).

This issue is expected to be resolved by mid-July. Therefore, the chairman’s decision was to have a checkpoint prior to the start of the mating. The checkpoint will be held no later than July 16.



The Ares I-X “Super Segments” in High Bay 4 as the segments are processed prior to the start of mating to the Ares I-X motor segment in High Bay 3



FS Development Motor DM-1 Static Test Assembly: The DM-1 aft skirt assembly, Ground Test Controller (GTC) Validation, Thrust Vector Control (TVC) Polarity Testing, and the aft exit cone installation were completed at ATK in Utah, during June 2009. Instrumentation and support equipment assembly continues in parallel. The DM-1 static test assembly is on track for an August 25 test firing.



DM-1 aft exit cone installation



Recent activities specific to the Elements include:

First Stage (FS)

- ***Deceleration Subsystem (DSS) Ares I-X Navy Cast Glance Mission Planning:*** The DSS project conducted an Ares I-X mission pre-coordination meeting this week at KSC with the Navy Cast Glance mission director and the U.S. Air Force (USAF) 45th Space Wing's Eastern Test Range Flight Safety Office. The Navy Cast Glance aircraft will provide gyro-stabilized air to air digital HD video of the Ares I-X first stage reentry and parachute deployment. The DSS project presented their mission objectives along with the first stage reentry trajectory. The Navy presented their capabilities and coordinated their tentative mission flight plan with the Air Force Range Safety Officer. The Navy will follow up by formally submitting their mission requirements to Range Safety and Range Safety will provide the Navy with their guidelines in conducting this mission for the Ares I-X first stage.

Upper Stage Engine (USE)

- ***J-2X Critical Design Review (CDRs):*** On June 25–26, 2009, a CDR was conducted for the J-2X Hardware-In-the-Loop Laboratory (HILL). The J-2X HILL will be used to support J-2X software validation and verification test activities as well as provide a test bed for integration of J-2X hardware and software in system-level testing. The J-2X HILL will test the flight software in the engine control unit (ECU) using different test methods: Analog Fault Insertion, Digital Fault Insertion, Software Trace Ability, and Software Test Patch. Hardware and software components will be tested to make sure we meet all requirements. System testing will be performed to verify system-level requirements, for example System Timing and Functional Validation.



The HILL at Marshall Space Flight Center (MSFC)

Upper Stage (US)

- US Thrust Vector Control (TVC) Subsystem:*** Assembly and checkout of the TVC two-axis rig at Glenn Research Center is progressing. Some secondary structures and hydraulics components have been installed on the thrust cone for fit checks. The load actuators have been used to move the upper stage engine mass simulator and begin calibration of the rig. The helium bottle warming cabinets are being assembled as part of the helium delivery system for the turbine pump assemblies.



US thrust cone with some TVC components mounted



USE simulator with load actuators



Helium bottle warming cabinet

Project Integration

- Ares Education Outreach:*** The Ares Projects outreach team staffed an information table at the Alabama Math, Science, and Technology Initiative’s Summer Institute at Cedar Ridge Middle School in Decatur, AL, June 24. Approximately 125 teachers from North Alabama learned about the Ares Projects and gathered information for their classrooms. The team also supported a June 25 presentation to teachers attending the Space Academy at the U.S. Space & Rocket Center, in



Huntsville, AL. The teachers were introduced to the Ares Projects and discussed ways to integrate the information into their curriculum. By providing teachers with lesson plans and ideas before the school year begins, Ares can better equip educators to use space exploration as a means of exciting students about math and science.

The Ares Projects looks forward to the STS-127 Endeavour launch July 11.

...and as of this Ares Projects Weekly Summary, there are only 58 days until the first Ares I test flight, Ares I-X!!!

**** Have a safe and happy July 4th! ****