



Successful Delivery of the Forward Structure for Ares I-X First Stage to the VAB



After several months of hard work installing a variety of hardware including parachutes, linear shaped charges, Developmental Flight Instrumentation, Operational Flight Instrumentation, and cameras, and finally integration, the Ares I-X first stage forward structure, containing the frustum, forward skirt extension, and forward skirt, has successfully been delivered from the Assembly and Refurbishment Facility (ARF) to the Vehicle Assembly Building (VAB) at Kennedy Space Center (KSC). This is a major milestone for NASA, and we have taken another huge step toward launching Ares I-X!



Forward Structure Delivery (Also Shown is the Stacked Fifth Segment Simulator in the Background)



After much hard work refurbishing, adding ballast, (and a few extra motors), the Ares I-X aft skirt was successfully delivered from the ARF to the Rotation, Processing, and Surge Facility (RPSF) on June 8. It will begin its stacking procedure to the aft motor segment on June 11. This integration process will take three weeks before the transfer over to the VAB to begin the stacking of Ares I-X on our Mobile Launcher Platform. Yet another huge milestone for NASA!



Aft Skirt Delivery to the VAB

Recent activities specific to the Elements include:

Upper Stage (US)

- **US Manufacturing & Assembly (M&A) Subsystem:** The Ares I US Element welding team recently completed welding of a Manufacturing Demonstration Article (MDA) half dome in Marshall Space Flight Center (MSFC) Building 4755. The half dome consists of four gores and three conventional friction stir welds. There were no issues in welding. The welds will be non-destructively inspected by radiography and phased-array ultrasonics. An additional three



MSFC Weld Engineers Conduct MDA Half Dome Weld In Building 4755

welds will subsequently be made to produce a complete dome. Friction stir welding transforms the aluminum-lithium alloy from a solid state into a “plastic-like” state, and then methodically stirs the materials together under pressure to form a welded joint.

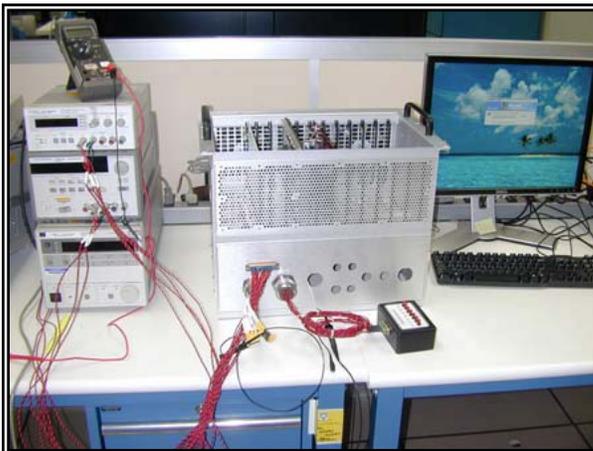
Upper Stage Engine (USE)

- **USE Hardware-in-the-Loop Lab (HILL) Completion:** On June 3, construction was completed on the USE HILL at MSFC. The HILL will perform flight software verification and validation as well as engine control system testing.



The USE HILL at MSFC

- **Engine Controller Unit (ECU) Critical Design Review (CDR):** A CDR for the USE ECU was conducted in May. The ECU performs two basic functions: engine propellant/ancillary valve and ignition open-loop control and engine performance/health sensor acquisition and transmission.



ECU Unit (and CAD Drawing)



Ares V

- ***Ares V Technical Interchange Meetings (TIMs):*** Ares V held TIMs at MSFC this week covering topics including Cryo Fluid Management for the Earth Departure Stage (EDS), Shell Buckling, and Ground Operations in relation to the Operational Concept. Team members from KSC, Langley Research Center, and Glenn Research Center were in attendance.

Flight and Integrated Test Office (FITO) and Ares I-X

- ***Ares I-X Roll Control System (RoCS) Element:*** Activities specific to the RoCS Element include:
 - The post-Acceptance Review open work burn-down plan continued to be worked. Fourteen of 36 items have been closed.
 - A review of KSC procedure SE-HYP-0030 was conducted and approved for continuity and functional testing of the RoCS engine solenoid valves.
 - The post-vibration-test check-out of the helium pressurization relief valve was completed.

Project Integration



Discovery Middle School students watch propulsion physics at work during a straw rocket launch activity

- ***Ares Quarterly Progress Report #12:*** The Ares Projects outreach team released the Quarterly Progress Report #12 video to the NASA Web Portal, YouTube, iTunes, and Facebook June 3-5. The video team recently won a silver Telly Award for its 3-year progress video. The Telly Awards honor the very best local, regional, and cable television commercials and programs, as well as the best video and film productions, and work created for the Worldwide Web. As of June 8, the video had been viewed 263 times on YouTube. As of the end of May, quarterly and summary videos on YouTube had received nearly 18,000 hits. However, the biggest numbers are coming from iTunes, with 30,000 to 45,000 downloads monthly.



- ***Save the Youth Science, Technology, Engineering, and Mathematics (STEM) Workshop:*** The Ares Projects outreach team presented the Ares story to campers attending the Save the Youth STEM Workshop at Discovery Middle School on June 4. Campers also participated in a hands-on straw rocket activity. The Ares team provided participating teachers with information and materials on the Ares Projects that they can use in their classrooms to stimulate student interest in technical careers.

The Ares Projects looks forward to the STS-127 Endeavour launch on June 13.

...and as of this Ares Projects Weekly Summary, there are only 79 days until the first Ares I test flight, Ares I-X!!!