



**Upper Stage (US) Small Solids Subsystem:** The first Upper Stage Heavy Weight Motor (HWM) hot-fire test was successfully conducted on September 11 in MSFC Test Stand 116. The test met targets for thrust, pressure, and burn time. The purpose of this test was to validate the performance of the ullage settling motor (USM) propellant, propellant grain structure, and propellant geometry for the Ares I. The HWM insulated case and nozzle were provided by the U.S. Army's Aviation and Missile Research, Development, and Engineering Center (AMRDEC). To keep test costs to a minimum, the US Small Solids subsystem coordinated with Redesigned Solid Rocket Motor and External Tank personnel to use existing facilities at Marshall for the USM motor fire tests. Test Stand 116 was upgraded with the newly-developed USM Test Stand Adapter to accommodate the length of the USM. The Test Stand Adapter was designed by NASA and machined locally.



*Hot-Fire Test on MSFC's Test Stand 116*

*Recent activities specific to the Elements include:*

- **First Stage (FS)**
  - **Ares I Forward Skirt Assembly Integration Technical Interchange Meeting (TIM):** The objectives of the TIM were to demonstrate the proper integration of the forward skirt



assembly through requirements identification, identify design drivers, and demonstrate current activities addressing those drivers. Of particular interest for this review was the thermal analysis based upon power dissipation for the boxes within the forward skirt with the current integrated mission timeline inputs and evaluated approaches to shock and vibration mitigation. On the second day of the review, Kennedy Space Center (KSC) representatives presented assembly operations with focus on the thermal mitigation at the Vehicle Assembly Building (VAB) and on the Pad.

- **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:
  - Three waivers were presented and approved at the Ares I-X Control Board. Three more are in process.
  - Dimensional inspection continues on match drilled panels received from Glenn Research Center (GRC).
  - Inner Installation Tables' assembly is complete, all tables have been proof loaded, and are ready to support the upcoming RoCS handling/installation simulation at Teledyne with the KSC handling team.
  - Minor requested changes by Engineering to the Orifice Flow Bench (in work at Teledyne) has delayed the start of the flow line calibrations and subsequent cold flows.
  - Engine/bi-prop valve assembly has been readied to go to Wyle for vibe testing.
  - Audit results of System Requirements Document (SRD)/Element Requirements Document (ERD) disconnects were received, and a Change Request is being prepared against the ERD to address the issues.
  - The first flight unit fairing arrived at Teledyne.

- **Project Integration (PI)**

- **AIAA Space 2008 Conference:** The Ares Projects outreach team supported the American Institute of Aeronautics and Astronautics Space 2008 conference, September 9–11, in San Diego, CA. The Ares Projects and Johnson Space Center exhibits team provided the 1:100 Ares model set, Ares animation, Ares Next Giant Leap popup, and a 1:30 Orion model for the conference's Education Alley. Visitors to the exhibit included California Lt. Gov. John Garamendi. *The San Diego Tribune* visited to write an article about Education Alley.



Approximately 2,800 people attended the exhibits. The team also provided papers and/or presentations, specifically: Ares Projects/Phil Sumrall, First Stage/Alex Priskos, Vehicle Integration/Jim Reuter, Upper Stage/Craig McArthur, Ares I-X/Steve Davis, and Ares V/Phil Sumrall.

The Ares Project looks forward to the I-X Forward Skirt Extension on dock at the Assembly and Refurbishment Facility (ARF) on September 23; the launch of STS-125, Space Shuttle Atlantis, on October 10; and Friction Stir Welding “confidence welds” on actual US dome gores, in Building 4755, in late October.

***...and as of this Ares Projects Weekly Summary, there are only 208 days until the first Ares I test flight, Ares I-X!!!***