



***Ares I First Stage Main Parachute Cluster Drop Test:*** NASA and Alliant Techsystems, Inc. (ATK) successfully conducted an Ares I main parachute cluster test at the U.S. Army Proving Grounds in Yuma, Arizona. The test was conducted on May 20. It involved three 150-foot diameter parachutes lowering a 41,500 pound test weight to the desert floor. The parachute system will be used to recover the first stage of Ares I. It will also be used to recover the first stage of Ares I-X following its test flight this fall.



*Chute Being Loaded into C-17 Aircraft*



*Preparing for Takeoff*



*The Pilot Chute*



*Parachute Reefing*



*Another Drop Test Success!*



***Deceleration Subsystem (DSS) Ares I-X Main Parachute Installation:*** United Space Alliance (USA) completed the final tasks associated with the installation of the three main parachutes into the Ares I-X first stage forward skirt extension this week at the Assembly and Refurbishment Facility (ARF) at Kennedy Space Center (KSC). The last tasks to be completed were the installation of the aft bay curtain and the attachment of the riser spools to the main parachute attach fittings. The aft bay curtain provides protection from the metal edges on the circumference of the forward skirt extension as the mains deploy, especially if they deploy on an angle tilted off vertical. The riser spools connect the main parachutes to the first stage at the forward skirt and could not be connected until after the forward skirt extension was mated to the forward skirt. The three main parachutes are now 100 percent ready for flight on Ares I-X.



***Test Stand (TS) 4550 – Special Test Equipment (STE):*** The Mast Climbers have now been assembled at TS 4550. The appropriate training with facilities personnel has been completed by the vendor (Klimer) and various tours have been conducted demonstrating operability and capability.



*Ares Projects Manager Visits TS 4550*



***Ares I-X Forward Skirt Extension (FSE) to Forward Skirt Mate:*** The FSE was lifted and mated onto the forward skirt on May 17 in the ARF at KSC. This major accomplishment was achieved due to a very dedicated crew of USA, ATK, Lockheed Martin (LM), and NASA conducting Joint Senior Material Review Boards (MRBs) throughout the weekend to resolve the constraints to mate and then working to actually perform the mate.



*Ares I-X Forward Skirt Extension to Forward Skirt Mate*



*Recent activities specific to the Elements include:*

### **First Stage (FS)**

- ***FS Preliminary Design Review (PDR) Avionics Recovery Plan Approved:*** On May 13, the ATK Avionics and Control Team presented proposed deviations to the original FS PDR Avionics recovery plan, which had been approved by the FS Engineering Review Board (ERB) in the April 2008 timeframe. The deviations included delaying the Avionics Software delta Technical Interchange Meeting (dTIM) to no earlier than July 22, 2009. A new electrical ground support equipment/hardware-in-the-loop (EGSE/HIL) approach was presented, along with a team transition plan from ATK/Plymouth to ATK/Bacchus. A roadmap to baseline the Avionics Subsystem Specification and Electrical Characteristics Document was presented as well. The FS ERB approved the ATK recommendations.

### **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:
  - Cold flow test water hammer data are under review in support of a potential waiver request. Many verification closures dependent on cold flow and final vibration tests are being prepared and finalized.
  - Final coordination for installing tank mount locking fasteners is complete and work is underway at KSC.
  - RoCS supported the Upper Stage Simulator Acceptance Review and Ares I-X Business Office Meeting at KSC last week. The Teledyne Safety Engineer supported the final Integrated Hazards Review sponsored by the Systems Engineering and Integration Office at Langley Research Center (LaRC).
  - The Waiver Request AIX-0169 for Peacekeeper Ordnance Shelf Life/Lot Acceptance Testing was presented to the Systems Engineering Review Forum/Engineering Review Board, with recommendation to proceed to the Ares I-X Control Board.
  - The Acceptance Data Package drop for the Acceptance Review is underway with the review scheduled to be held at KSC on May 27.

### **Project Integration**

- ***Team America Rocketry Challenge (TARC):*** The Ares Projects outreach team staffed an information table at the Seventh Annual Team America Rocketry Challenge on May 16 at Great Meadows Farm in The Plains, VA. Team members spoke with approximately 800 people and showed video animation of the Ares flight plan. This nationwide competition challenged students to design, build, and fly a single-stage



*Student Rockets Blast Off at TARC*



model rocket that reached an altitude of 750 feet, remained aloft for 45 seconds, and returned a raw egg unbroken to simulate a human astronaut. Of the more than 600 teams from 45 states and the District of Columbia participating in preliminary events around the country over the past year, only 100 teams were invited to the finals. NASA has been a partner of the TARC since it started 7 years ago. Ares has supported the event for the last 3 years. The event, sponsored by the Aerospace Industries Association and the National Association of Rocketry, is designed to encourage students to consider careers in aerospace.

The Ares Projects look forward to the I-X Forward Assembly delivery to the Vehicle Assembly Building (VAB) at KSC in June.

***...and as of this Ares Projects Weekly Summary, there are only 100 days until the first Ares I test flight, Ares I-X!!!***