



Upper Stage (US) Thrust Vector Control (TVC) Subsystem Completes Assembly: The US TVC subsystem recently completed the 2-Axis Test Rig assembly at Advanced Manufacturing in Cleveland, OH. The TVC subsystem also successfully completed a short functional test demonstrating that the US engine inertial mass simulator moved freely and the gimbal brake, which simulates gimbal friction, worked properly. The rig is being disassembled, painted, and prepared for shipment to NASA Glenn Research Center (GRC), with the base and thrust cone scheduled to arrive this week.



2-Axis Test Rig



Upper Stage Engine Inertial Mass Simulator for 2-Axis Test Rig



Ares I-X Forward Skirt Extension (FSE) Separation Ring Inspection at Kennedy Space Center (KSC): United Space Alliance (USA) has begun the receiving inspection on the Ares I-X FSE Separation Ring segments. The FSE Separation Ring consists of three segments of 330 grain/foot aluminum-sheathed linear-shaped charge. Hardware was removed from shipping bags for cork fit check, inspected, and then bagged & resealed with the desiccant.



Separation Ring Inspection Held at KSC



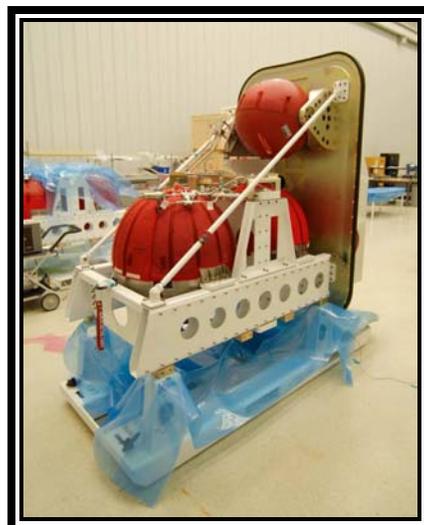
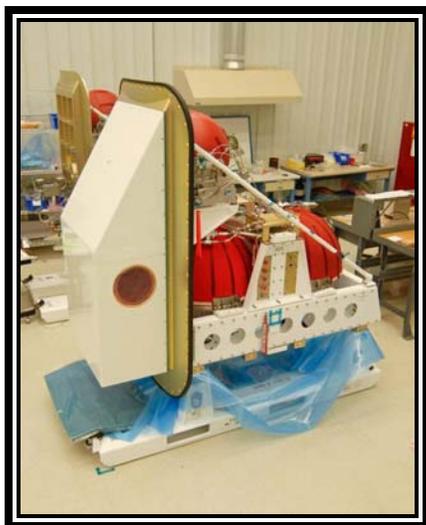
Recent activities specific to the Elements include:

- **First Stage (FS)**
 - **Deceleration Subsystem (DSS) Drogue Drop Test (DDT-2) Test Configuration Review (TCR):** The TCR in support of the second drop test of the Ares I drogue parachute scheduled for February 26 in Yuma, AZ was successfully conducted last week at KSC. This test will validate the drag area from the first test and measure the peak inflation loads at different reefed positions and will be the last drogue performance test before the design load test in support of CDR. This will also be the second use of the Jumbo Drop Test Vehicle (JDTV) which will have an extracted weight of 60,000 pounds. Action items were recorded that will be closed prior to the drop test.
 - **DSS Separation Functional Demonstration Test:** ATK conducted a separation demonstration test of the Ares I-X forward skirt extension from the forward skirt on January 29. Witness panels covered with Spectra cloth were installed in the proximity of where the main parachute riser lines attach to the forward skirt, approximately 6 inches from the linear shaped charge (LSC). The hot gas discharge from the LSC melted the Spectra cloth. The DSS IPT is aggressively working a risk mitigation to protect the nylon risers from this hot gas impingement. At this time an Aluminized Fiberglass material has been selected to wrap and encompass the riser lines and the attach spool, and incorporation of this fix is being coordinated with the AI-X project. Thermal analysis indicates that the riser attach area is the only area of concern for the DSS fabric components.
- **Upper Stage (US)**
 - **US TVC Subsystem Reservoir Delivery:** Three TVC Engineering Model (EM) hydraulic reservoirs were delivered to NASA GRC from Arkwin Industries in Long Island, NY, on 2/3/09. This EM hardware will be used on the 2-Axis Test Rig as part of the full TVC subsystem build-up and test program.



TVC Engineering Model Hydraulic Reservoir

- **Flight and Integrated Test Office (FITO) and Ares I-X**
 - **Ares I-X RoCS Element:** Activities specific to the RoCS Element include:
 - Module B shipped to KSC on January 30 and fit checks into the Interstage are underway. Module A shipped to KSC February 5. Both modules were fully assembled per agreement with Pre-Ship Review Board, less the to-be-determined work to modify the fairings and the pre-planned safety cap welding over the propellant fill valves.
 - Comments to the RoCS Acceptance Review Plan version 2.0 are being consolidated and responded to, with boarding at the Ares I-X Control Board (XCB) planned for February 10. A Decisional Briefing is also being prepared for presentation to the XCB no earlier than February 17 to allow proceeding with propellant and pressurant loading after RoCS module fit checks prior to the final Acceptance Review in order to maintain the critical path processing flow of the Ares I-X hardware towards a July 11 launch.



RoCS Module A Prior to Shipping to KSC

- **Project Integration (PI)**
 - **Ares Education Outreach:** Ares Projects outreach team members reviewed and participated in the Concept Design Review presentations for teams involved in the Student Launch Initiative for middle and high school students and the University Student Launch Initiative for college students January 30 – February 2. This outreach effort provides students with hands-on experience with rocket design, encouraging them to study science and math. Volunteers are welcomed and encouraged to participate in future reviews, as well as attend the launches, currently scheduled for April 18-19.



- ***Ares Exhibit Outreach:*** The Ares Projects outreach team provided a 1:50 Ares model set and the 1:100 Ares I-X model for a January 30 media event marking the shipment of Ares I-X hardware from Teledyne Brown in Huntsville to KSC. More than 75 people attended. The outreach team also supported the Apollo 40th Anniversary Gala weekend with outreach products. Sixteen reporters attending a media dinner January 6 at the EarlyWorks Museum, where they were briefed on the Ares Projects and received copies of the Ares 3-year progress video and Ares launch animation. The team also provided content management and support for the February 7 unveiling of a new 1:10 set of Ares I and Ares V models for the New Beginnings exhibit at the U.S. Space & Rocket Center's Davidson Center for Space Exploration. Donated by ATK and Lockheed Martin, the models were among the highlights of the anniversary black tie gala that night, attended by approximately 1,000 people.



New 1:10 Scale Models of the Ares Launch Vehicles

The Ares Projects looks forward to the FS Drogue drop test in February and Cluster drop test in April.

...and as of this Ares Projects Weekly Summary, there are only 148 days until the first Ares I test flight, Ares I-X!!!