Upper Stage (US)

***Manufacturing & Assembly (M&A) Subsystem**:* Full-scale weld process development continues in the Advanced Weld Development Facility in Marshall Space Flight Center (MSFC) Building 4755 to develop the tools, fixtures, and facilities necessary for Ares I production. Full-scale in-house development at MSFC is fostering technical acuity within the NASA engineering community and allowing engineers to identify and correct tooling and equipment shortcomings before they become problems on the production floor at Michoud Assembly Facility (MAF) in New Orleans. While the new weld process development facility has been outfitted in support of Ares I development, it has been established to also support all future Constellation Program needs. In particular, both the Robotic Weld Tool (RWT) and Vertical Weld Tool (VWT) were sized with larger hardware in mind. The RWT, the largest welder of its kind in the United States, is being used to develop the manufacturing techniques required to fabricate the tanks of the Ares I upper stage. Tools installed in Building 4755 to-date are: RWT, VWT, Morton Table Tool (MTT) for plug welds, Production Development System (PDS) for development of weld schedules, and Vertical Trim Tool (VTT) for trim barrels. A Seal Weld Tool (SWT) for common bulkhead seal welding will also be installed by October 2010.

A series of welds on various domes, y-rings, and panels continues in Building 4755

Manufacturing & Assembly (M&A) Subsystem*:* A Thermal Protection System (TPS) Transporter was delivered to MSFC and successfully off-loaded and moved to the Building 4765 TPS Development Facility on April 2. The TPS Transporter is an electric motor-driven flat-bed dolly that will be used to transport the TPS Vertical and Horizontal Processing Fixtures. These tooling assemblies support TPS material and process development efforts related to Ares I upper stage primer and cryo-insulation testing. The Transporter provides MSFC with a multi-function capability that also has been selected to transport the common bulkhead proof test fixture into Building 4765 so that it can be insulated prior to beginning test operations.

TPS Transporter in Building 4765

First Stage (FS)

FS Avionics Hardware Demonstration: Representatives from MSFC Engineering, Kennedy Space Center (KSC), and the First Stage Project office witnessed a live demonstration of the FS avionics system at Cincinnati Electronics last week. The demonstration included power-up and switching, initialization testing, command execution, end effecter control, and data recording while executing a mission simulation. The hardware will next undergo system development testing at the Alliant Techsystems, Inc. (ATK) development lab in support of Critical Design Review (CDR) activities beginning this fall.

The Ares Projects look forward to the FS Drogue Parachute Drop Test-3 (DDT-3) on April 14 in Yuma, Arizona.