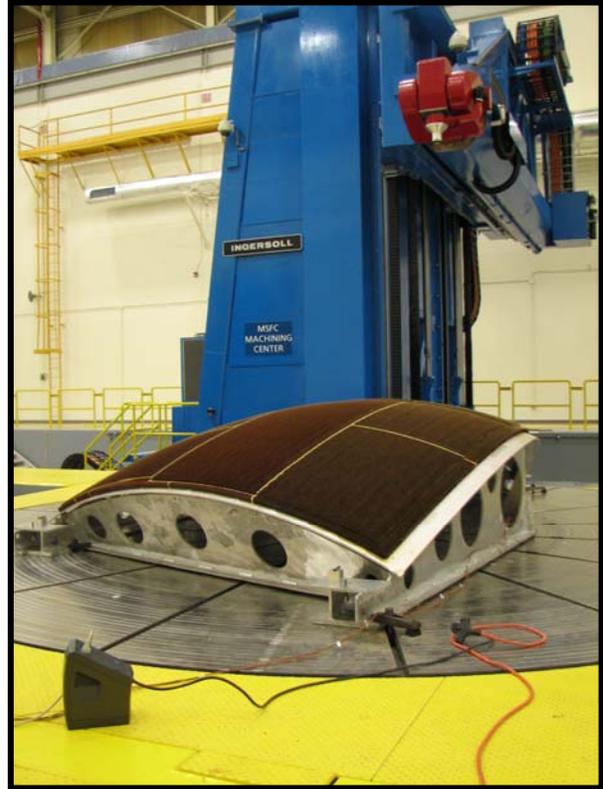




US Manufacturing & Assembly

Subsystem: A second External Tank (ET) gore honeycomb bonding demonstration article was recently prepared in order to checkout and exercise the Building 4705 Machining Center established for Upper Stage development efforts at Marshall Space Flight Center (MSFC). The checkout went well and the honeycomb was machined similar to previous machining demonstrations at Michoud Assembly Facility (MAF). After machining the core, the Demo Article was prepared for verification film processing. The team installed vacuum bag sealing tape around welded tabs, and installed a vacuum bag onto assembled hardware and checked for leaks. The Demo Article assembly was then moved to the Building 4707 Dispatch Oven for processing at $\sim 170 \pm 5$ °F for 30 minutes. The hardware was eventually moved back to 4705 for disassembly and the inspection of the verification film. The Machining Center is now ready to receive the full-scale Common Bulkhead Demonstration Article for full-dome honeycomb machining.



ET gore honeycomb bonding demonstration article

Upper Stage (US)

US Logistics Subsystem: The Upper Stage (US) Element recently completed a successful US Production Contract/Ground Support Equipment (USPC/GSE) Value Stream Mapping (VSM) activity. A key item realized as a result of this event was that, with some minor modifications to the USPC Transportation Mechanical Equipment (TME) and minor modifications to the US GSE, the TME can be used to both build and assemble US Flight Hardware components and handle and assemble US GSE to the flight elements. This will save costs by eliminating the need to design and develop additional tooling for assembly/installation of US GSE to the elements or stages. Many actions were identified as a result of this VSM, and forward work was clearly understood and documented.



HDS Bounce Test

Flight and Integration Test Office (FITO)

Hydrodynamic Support (HDS) – Bounce Test Results: The Integrated Vehicle Ground Vibration Test (IVGVT) HDS team continues to test the refurbished HDS units. The HDS units, which were used previously during Saturn V and Space Shuttle dynamic testing, will be used to simulate a free-free boundary condition during the Ares I IVGVT. Functional testing of four HDS units will be conducted in two phases. The first phase, commonly referred to as “bounce” testing, was recently initiated and will be used to improve operational procedures and to characterize the dynamic behavior of the units. A photograph and some representative data are shown below. Very preliminary results, obtained by “floating” approximately 50,000 pounds, have shown good correlation with historical data for bounce frequency and damping. This work is being performed in MSFC Building 4619.

Aft Skirts for IVGVT - Refurbishment: The IVGVT will be utilizing two First Stage Aft Skirts for the integrated stack. Shown below is progress being made to one of two Aft Skirts scheduled to be refurbished for IVGVT. One skirt will be utilized for the “lift-off” configuration and the other for the “burn-out” configuration.



Internal Stripped of Corrosion Paint



Structure Rotation



Painted Kick Ring



Project Integration

Ares Technical Communications: The Ares Projects outreach team is assisting element and project management with preparations for several technical conference abstracts, papers and presentations. Abstracts and papers have been submitted or are in draft stages for the Institute of Electrical and Electronics Engineers, International Astronautical Congress, and AIAA SpaceOps 2010. These conferences provide a venue for the Ares Projects to discuss progress to date toward the nation's human exploration goals.

The Ares Projects look forward to the launch of STS-131, Space Shuttle Discovery, planned for April 5.