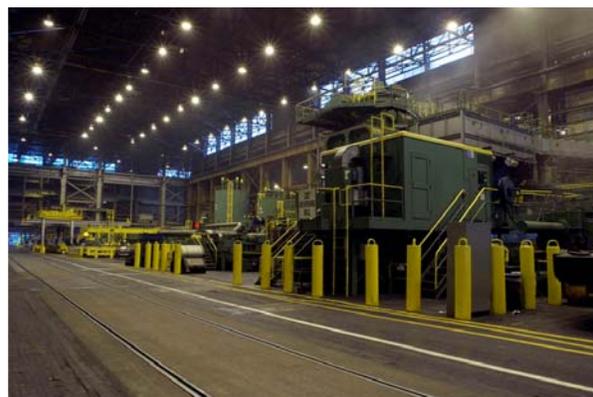




Upper Stage (US) Manufacturing & Assembly (M&A) Subsystem: Alcoa North American Rolled Products, the only Upper Stage supplier of thin-plate aluminum-lithium (Al-Li), is now a “certified” supplier under current contract to Ares. A total of 35 Al-Li ingots and 306 Al-Li plates have been ordered from Alcoa’s Davenport, Iowa facility, enough to take the Ares Projects



Davenport Works’ 220” Hot Mill



Al-Li “thin plate”

through development and some elements to the Orion-2 flight. To date, 13 ingots and 39 plates have been delivered, with the remaining materials to be delivered by May 2009.



J-2X Critical Design Review (CDR) Pre-Board: The Upper Stage Engine (USE) Element conducted the J-2X CDR Pre-Board over two days, October 29–30, 2008, at Marshall Space Flight Center (MSFC). The CDR team leads presented a full slate of technical issues and technical and programmatic risks identified during the course of the review. The members of the Pre-Board represented the broad spectrum of engineering and safety and mission assurance disciplines that were involved in the review process and the Pre-Board was chaired by the USE Chief Engineer. Overall, the Pre-Board declared the CDR to be a success, dependent upon resolution of the issues identified, and made the recommendation that the USE Element proceed with the next phase of the J-2X rocket engine development effort. The next step in the process will be the presentation of the detailed Pre-Board recommendations to the CDR Board, scheduled for November 13, 2008. The J-2X will provide second stage propulsion for the Ares I crew launch vehicle and Earth departure stage propulsion for the Ares V cargo launch vehicle in support of the NASA space exploration initiative.



Deceleration Subsystem (DSS) Ares I-X Main Parachutes: USA completed packing of the first of three main parachutes this week for the Ares I-X mission. This new 150 foot Ares I parachute is larger and has a pack geometry different from that of the Space Shuttle main parachutes. The three main parachute pack assemblies will be delivered for Ares I-X installation in December.



Packing 1 of 3 Ares I-X main parachutes



Fit Checks for Ares First Stage (FS) Forward Structure Hardware: Recently, fit checks were accomplished at Major Tool, a subcontractor to ATK, in Indianapolis, Indiana. After the manufacturing processes are completed at Major Tool, the hardware will be shipped to Kennedy Space Center (KSC) for final processing prior to the flight on Ares I-X. Below are pictures of the forward skirt to forward skirt extension mate as well as the forward skirt to fifth segment simulator (forward XL spacer). As can be seen in the photos, the forward skirt has been painted, while the other parts are awaiting paint.



Forward skirt (painted white) to forward skirt extension fit



Forward skirt to top of fifth segment simulator fit check.

Recent activities specific to the Elements include:

- **Upper Stage Engine (USE)**
 - **A-3 Test Stand Update:** With continued good weather, construction on the new A-3 Altitude Test Stand is making tremendous progress. **Figure 1** is a view from the top of the A-1 test stand. Steel continues to be delivered and erected at the A-3 site. With the sheet pilings driven and rock beds laid, **Figure 2** shows the progress made on excavating for the new barge dock locations for the A-3 stand. **Figure 3** shows a closeup of the tower erection process as well as the concrete footings for both the stand/diffuser (foreground and left background) and the bottle farms/steam generators (center and right background).



Figure 1



Figure 2



Figure 3



- **Flight and Integrated Test Office (FITO) and Ares I-X**

- **The Ares I-X Avionics Integrated Product Team (IPT) Completes Ground Communication, Command, and Control (GC3) System:** The IPT, working with the KSC Ground Systems (GS) IPT, completed the delivery and installation of the GC3 system into the Launch Control Center (LCC) and Mobile Launch Platform (MLP). The GC3 system consists of equipment racks, workstations, a junction box, and cables. Lockheed Martin and USA technicians worked together to install and set up the systems with oversight from the KSC GS IPT and Jacobs Engineering. The GC3 system will work in conjunction with the KSC Ground Control System (GCS) to perform integrated testing of the Ares I-X vehicle while in the Vehicle Assembly Building High Bay 3 and on the Pad. The GC3 and GCS will perform day-of-launch checkout and provide the necessary launch commit criteria to clear the vehicle for launch.



Junction box installed in MLP



GC3 racks installed in MLP



Front room



Back room

- **Upper Stage (US)**

- **US Integrated Test Subsystem:** Ares I Upper Stage Structural Development test efforts are continuing for the small panel Al-Li buckling tests (designated SD01) in MSFC Building 4619. These tests characterize compression behavior of grid-stiffened panel design candidates, characterize panel stability, and allow correlation of analytical models. A test of an orthogrid pattern test panel was successfully completed on October 28. Buckling occurred



at a load close to 344,000 pounds, which was higher than predicted. Engineering is now analyzing test data vs. test predictions to refine the methodology used to calculate structural margins for future upper stage development. A total of 10 SD01 panels have been tested so far, with one additional SD01 panel remaining to be tested. Larger Al-Li panel tests, designated SD02, are planned for next year.

The Ares Projects look forward to the J-2X CDR Board on November 13th and the STS-126 Space Shuttle Endeavor's November 14th launch.

...and as of this Ares Projects Weekly Summary, there are only 246 days until the first Ares I test flight, Ares I-X!!!