



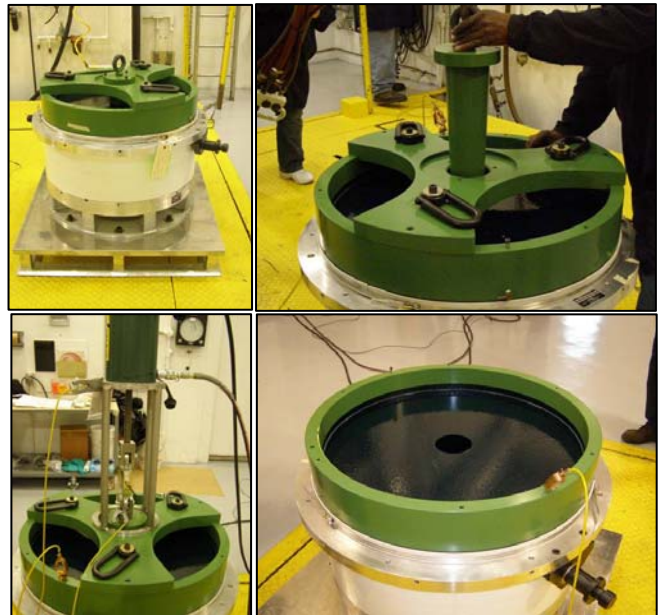
Week ending November 15, 2008


## Countdown to Pad Abort-1 - 151 days



 **NASA and ATK successfully performed a ground firing test of the Orion crew exploration vehicle Launch Abort System abort motor in Promontory, Utah.** This major milestone brings the Orion Project one step closer to the Constellation Program's first flight test, Pad Abort 1 in spring 2009. This inaugural test of Orion's full-scale abort motor marks the first time such a test has been conducted since the Apollo Program tested its launch escape system in the 1960s.

 **The Launch Abort System attitude control motor inert structural development unit motor cure is completed and core is successfully removed (Photos below).**



 **Jettison Motor replacement igniter 1A is currently in production.** The revised assembly procedure was tested by use with assembly of the structural development unit (SDU) igniter as a process pathfinder, with successful assembly achieved. The SDU igniter is in x-ray inspection and final disposition will be given prior to proceeding with assembly of the Launch Abort System Pad Abort-1 igniter 1A.

**Two weeks of testing of the 1/4 scale Orion mockup water egress and survival trainer at the U.S. Army's Aberdeen Proving Grounds in Aberdeen, Maryland is complete.** The final 3 days of testing was conducted in sea state 3 to 6. The test article did not roll from stable 1 to stable 2 in any configuration or any sea state, even when exposed to excessively large waves. A final report is due in January.

**The Androgynous Peripheral Assembly System (APAS) to LIDS Adapter Segment (ATLAS) received an APAS Pro/E CAD model from RSC-Energia.** It was assembled into the ATLAS model. Several possible interference issues were noted and conveyed to RSC-Energia during a recent TIM. Energia confirmed the interferences. ATLAS will modify the tunnel design to accommodate. All bonding interfaces on ATLAS were identified and the bonding diagram will be updated as a result. The APAS drill template was delivered to NASA on a temporary engineering evaluation from The Boeing Company. The formal transfer of this hardware is in work with the Orbiter Docking System transition team.



The landing and descent team conducted four drop tests to evaluate an anticipated reduction in friction due to the presence of charred AVCOAT (Photos top and bottom left). The test data is being generated to support the 11/14 passive landing architecture engineering review board. The friction effect prospectively reduces the longitudinal acceleration at the vehicle center or gravity. A polyisocyanurate foam was selected as a surrogate material to replicated charred AVCOAT given its similar stiffness and strength characteristics. These contact modeling test are being performed with 25 fps vertical drop tests of a half scale Orion boiler plate pitched to 30 degrees, dropped on a plywood on soil 20 degree ramp. Follow on tests are currently being developed to swing the test article to generate higher horizontal velocities to get sufficient shear to demonstrate the predicted load reduction.



Landing and descent team technicians developing the Crew Impact Attenuation System Pallet test article completed the paper honeycomb blocks for the first two qualification tests to calibrate pulse generation with the crushable honeycomb material. The instrumentation was installed on the test article and the data acquisition systems are ready. The strut configuration was updated from the 606C configuration using two high load struts, to the 606D configuration using four high load struts. The test team is redirecting its effort to the passive landing attenuation test activities. The pallet test hardware is ready for tests and when complete, the honeycomb/acceleration calibration tests will begin.

## Facilities

- **Operations and Checkout (O&C) Facility bridge crane was delivered and installed on rails. The High Bay and Low Bay floor top coat was installed and emergency light fixtures were delivered.**

## Public Engagement

- **An Orion overview, production operations plans and tour of the KSC O&C high bay facility was provided for Senator Bill Nelson and his staff.**
- **Orion participated in the press briefing event staged at KSC on November 12** to highlight the Ares 1-X hardware and the Constellation Firing Room with general status briefings provided by the various project managers.
- **FORBES Houston Bureau Chief Chris Helman interviewed Orion Program Manager Cleon Lacefield for an introduction to Lockheed Martin and its role in the Orion program.** In addition to the interview, Helman toured the Exploration Development Lab with Olivia Fuentes and was given a detailed overview of the upcoming Pad Abort-1 Test Flight scheduled for spring 2009. Orion Deputy Program Manager Larry Price provided a tour of the Exploration Development Lab and an in-depth briefing of Orion and the Constellation Program for a group of aerospace trade media and international journalists hosted by the Bay Area Houston Economic Partnership (BAHEP) and the Greater Houston Partnership on Nov. 13 as part of a Houston familiarization tour.
- **Lockheed Martin was a sponsor of the Students for the Exploration and Development of Space (SEDS) National Conference called SpaceVision 2008.** The Conference was held at TX A&M University. Approximately 300 university-age students and young professionals attended. SEDS is a network of students in science, engineering, education, business and policy who support and advocate for the cause of human space exploration.
- **Crew Module Manager Blaine Brown gave a presentation on Orion to 120 students at Chiddix Junior High School following the Orion Strategic Council Meeting in Chicago to give a talk to approx 120 Jr. High students about Orion.** The students had recently visited the Challenger Learning Center at the Bloomington/Normal airport earlier in the week, so they were very interested in learning ore about space exploration.