



Ares I Preliminary Design Review (PDR) Readiness Review: A review was held on June 25 at Marshall Space Flight Center (MSFC) to assess the preparedness of Ares I to conduct the integrated PDR. This forum provided discussion of all issues related to the Ares I design including maturity, status against requirements, meeting the Ares PDR entrance and success criteria, and included a special topic discussion on thrust oscillation. The unanimous consensus of the Ares Project Office, MSFC Engineering, MSFC Safety and Mission Assurance (S&MA), Constellation Systems Engineering and Integration (SE&I), and Headquarters Exploration Systems Mission Directorate (ESMD) was that Ares I is ready to proceed to PDR which begins on July 28, 2008.

Recent activities specific to the Elements include:

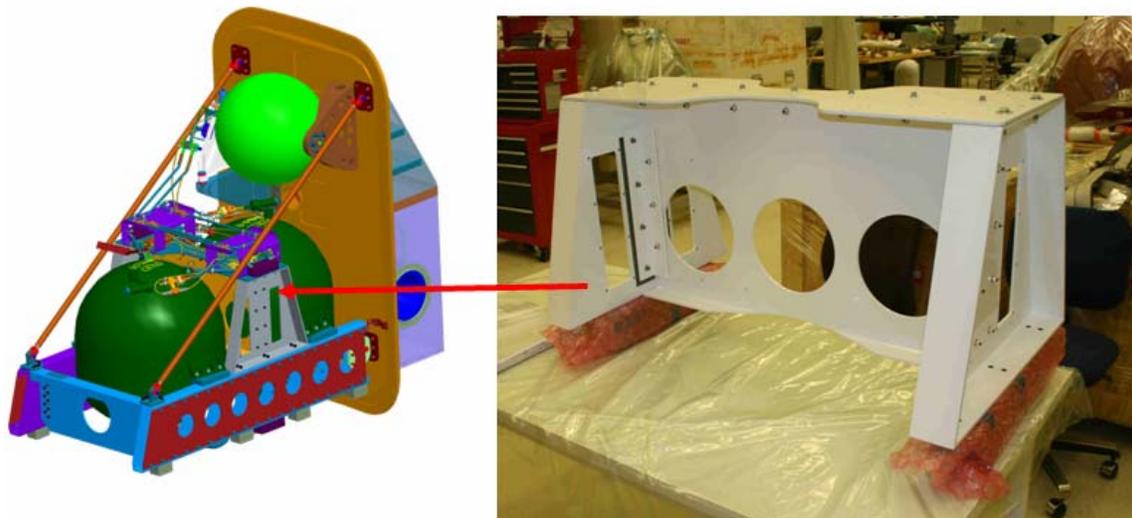
- **Upper Stage (US)**

- **US Thrust Vector Control (TVC) Subsystem:** The US TVC team conducted an Engineering Model (EM) Final Design Review with Moog on the TVC actuators, Data and Control Units (DCUs), software, and cabling on June 17–18. Moog demonstrated compliance with the requirements for the hardware and software. Some components that were unaffected by the recent actuator resizing activity are in production or have been ordered. That bulk of the integrated assembly work for the DCUs and actuators begins in July and September, respectively. This EM hardware will be tested at NASA GRC in early 2009 in a 2-axis test rig currently under construction. Another set of this hardware will be tested in the Main Propulsion Test Article at NASA MSFC in 2012. The review also addressed what needs to be done to transition this EM design to the flight design.
- **Upper Stage (US) – Stage Operations (SO):** The US Main Propulsion Test (MPT) team conducted a Ground Operations (GO) Technical Interchange Meeting (TIM) at the Kennedy Space Center (KSC) on June 18–20. The TIM featured more than 60 unique participants over the course of the 3 days, including personnel from Marshall Space Flight Center (MSFC), KSC, Glenn Research Center (GRC), and Stennis Space Center (SSC). Presentations from KSC and SSC provided requirements for data collection and procedure development utilizing the MPT series, with details surrounding KSC propellant load and drain operations; including software sequences, timeline development for loading, draining, boil-off and purge/inert, cryo helium bottle chill-down, common bulkhead performance characterization during cryo conditions, and integrated Main Propulsion System (MPS) system leakage. In addition, discussions were held about ground system interfaces, ground support equipment, umbilical plate design, and hazardous gas detection. SSC provided an overview of the stage green run operations in the B–2 complex and identified areas of commonality between MPT and stage green runs and areas for which MPT will provide training opportunities for the green run personnel. These presentations generated good discussion and 15 actions. These actions will

be tracked in the MPT Article (MPTA) Actions and Issues tracking system, with status and closures recorded in the MSFC Design and Data Management System (DDMS).

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

- **Ares I-X Roll Control System (RoCS) Element:** Teledyne is proceeding with processing of flight panels to support match drilling at GRC in accordance with Ares I-X Control Board (XCB) direction, prior to the actual approval of the Change Request (CR) to the Upper Stage-to-Roll Control System (RoCS) Interface Requirements Document (IRD). The RoCS team supported a review of Interstage-to-RoCS match drilling procedure. The handling and lifting procedure is forthcoming. RoCS Critical Design Review (CDR) Review Item Discrepancy (RID) burn-down meetings are now being planned for the remaining 63 of 347 RIDs. The Ares I-X hardware close-out and acceptance Lean Event was supported in Atlanta, GA. Assembly of RoCS Cold Flow module has started at Teledyne. The RoCS Element Requirements Document (ERD) v2.01 was accepted outside of the XCBAll required documentation, updates, and presentation support was provided as required for the Ares I-X CDR Part II data drop schedule.



Intertank Saddle Assembly

- **Project Integration (PI)**

- **Ares Education Outreach:** The Ares Projects integration team supported several activities for both teachers and students during the past week. On June 16, the integration team conducted an Ares briefing and a straw rocket activity to 41 children, ages 11 and up, attending summer



camp at the Morale, Welfare, and Recreation Youth Center at Redstone Arsenal in Huntsville, AL. On June 17, the integration team gave an Ares briefing to 18 pre-service teachers from Historically Black Colleges and University attending MSFPC's Pre-Service Teacher Institute. On June 19, the team supported an Ares presentation to 130 teachers from schools across the U.S. and other countries attending Space Camp for Teachers at the U.S. Space & Rocket Center. On June 20, the team staffed an Ares table at the Alabama Math, Science, and Technology Initiative Summer Institute, held in Decatur, AL, and talked to approximately 250 teachers from across the state. Activities such as these continue to inform and educate teachers and students on NASA's space exploration mission and on the Ares Projects' role in meeting those goals.



The Program Planning & Control Deputy briefs Ares information to Space Camp for Teachers attendees.

The Ares Projects looks forward to the many Element Preliminary Design Review (PDR) and CDR Kickoffs, Boards, and Readiness Reviews in June and July.

...and as of this Ares Projects Weekly Summary, there are only 292 days until the first Ares I test flight, Ares I-X!!!