J-2X Critical Design Review (CDR) Board Completion: The Upper Stage Engine (USE) Element conducted the J-2X CDR Board on November 13, at Marshall Space Flight Center (MSFC). The CDR Preboard Chair and USE Chief Engineer Eric Tepool presented a slate of technical issues and technical and programmatic risks identified during the course of the review. At the department management level, the members of the Board represented the broad spectrum of engineering and safety and mission assurance disciplines that were involved in the review process, including three different NASA field centers. Board membership also included management representation from the other Ares Elements, Ares Vehicle Integration, as well as NASA Headquarters via the Exploration System Mission Directorate (ESMD). The Board was co-chaired by the Ares Projects Deputy Project Manager and the USE Element Manager. Overall, the Board declared the J-2X CDR to be a success dependent on resolution of the issues that were identified as consistent with the dispositions discussed. This declaration of success validates the programmatic movement forward into the next phase of engine development, including full-scale fabrication, assembly, and test. The J-2X will provide second stage propulsion for the Ares I launch vehicle and earth departure stage propulsion for the Ares V launch vehicle in support of the NASA space exploration initiative.

Upper Stage (US) Y-Ring and Common Bulkhead Qualification Dome Delivered to MSFC:
The first final machined 2195 Aluminum-Lithium (Al-Li) Y-rings and confidence rings for the US Liquid Hydrogen (LH2) tank have been delivered to MSFC. The rings were originally shipped from Ladish Forging in Cudahy, Wisconsin, to the Spincraft Company in Boston, Massachusetts, for final machining prior to shipping to MSFC. A full-scale US common bulkhead qualification article dome has also been delivered to MSFC from Spincraft. The 2014 Al-Li dome was manufactured in one piece and will be cut into pieces by Marshall engineers to ensure the manufacturing process meets mechanical properties.

2014 Qualification Dome from Spincraft

Al-Li 2195 Y-ring

Recent activities specific to the Elements include:

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

  - ***Integrated Vehicle Ground Vibration Test (IVGVT):*** A pre-construction conference was held on October 29 with Metro Power, Inc., of Albany, Georgia, which has been awarded the 290-day Facilities Office contract to perform modifications to Test Stand 4550. The work to be performed under this contract consists of upgrading the electrical power and distribution system, as well as minor additions to fire detection and lighting systems of Test Stand 4550. This facility upgrade will require demolition of the existing transformers, busway, panel boards, switches, busway framing, concrete pad, and fence. Construction will include installation of new medium voltage switchgear, unit substation, central battery inverter, busways, conduits, panel boards, receptacles, lighting fixtures, and fire detection/alarm devices. Work is scheduled to complete in the summer of 2009.

  - ***Ares I-X Roll Control System (RoCS) Element:*** Activities specific to the RoCS Element include:

    - All four modified bi-prop valve manifolds have cleared machining, one is back from precision cleaning and is being assembled onto Engine 1. The other three are undergoing more aggressive cleaning due to high residue from original machining.
    - The oxidizer lines have had the Peacekeeper filters welded in place. The propellant line orifice calibration flow bench is up and running, and the first tare runs have been run on the fuel side.
    - The flight fairings are currently undergoing dimensional inspection.
    - RoCS presented the overview of Safety Hazards Assessment to the Systems Engineering Review Forum as a precursor to the Ares I-X Control Board (XCB). Comments to the Safety Hazards Assessment Report, currently in XCB review, are being dispositioned.
    - Teledyne procured and supported laser tracker dimensional inspection services of panel flanges, as requested by Systems Engineering and Integration (SE&I).
    - The handling procedure for shipping RoCS modules to KSC has been drafted and is in review.

- **Project Integration (PI)**

  - ***Ares Quarterly Progress Report (QPR) #10:*** The Ares Projects outreach team completed the Quarterly Progress Report video and released a public version that was posted to NASA.gov and YouTube on November 7. This video, and the earlier series of nine QPR videos, have

been viewed more than 45,000 times on nasa.gov/ares and 5,200 times on YouTube as of October 31. The videos can be viewed at http://www.youtube.com/user/AresTV.

The Ares Projects look forward to the US Element friction stir weld of actual US dome gores in MSFC's Building 4755 in December. This will be a follow-up to the successful welding of two shuttle external tank (ET) dome gores in August.

…and as of this Ares Projects Weekly Summary, there are only 239 days until the first Ares I test flight, Ares I-X!!!