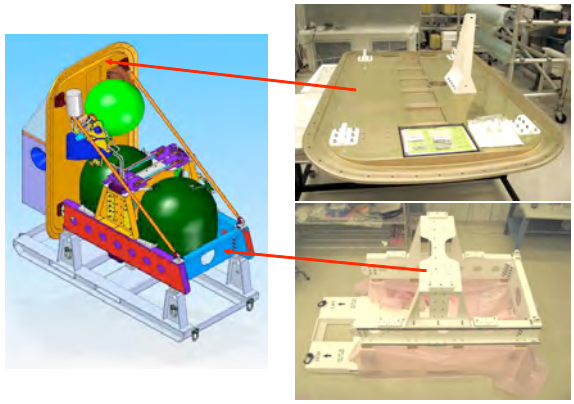
Request for Information (RFI) Requesting Input from Industry for Ares V Concept Phase Released: An RFI was released on July 9 requesting information from the aerospace industry to aid in the acquisition planning for the Ares V launch vehicle. The current strategies include the potential for concept design contracts to be awarded as early as the first half of the calendar year 2009. Industry is invited to provide inputs in areas such as pros and cons of early multiple fixed-price concept design contracts as part of phased acquisition, with subsequent competitions and award at either System Design Review (SDR) or Preliminary Design Review (PDR). Industry is also asked for input on alternative procurement approaches to the Ares V stack integration approach and the hardware element approach followed in the Ares I procurement, as well as process and performance improvement recommendations. The response date for the RFI is August 4.

Recent activities specific to the Elements include:

- **Flight and Integrated Test Office (FITO) and Ares I-X**
  - ***Ares I-X Roll Control System (RoCS) Element:*** The RoCS Team supported the Ares I-X Critical Design Review (CDR) Part II flip-through/dress rehearsal activities, the Lightning Strike/Re-Test Technical Interchange meeting at Kennedy Space Center (KSC), and a Chief Engineer/Lead Engineer Face-to-Face at Glenn Research Center (GRC). Waiver Change Request (CR) numbers/titles have been assigned, and waivers are being drafted. Drafts were provided to Systems Engineering and Integration (SE&I) for excerpting in the Acceptance Testing and environment compliance CDR II charts. A response was submitted to SE&I on splashdown loads/maritime hazard of floating tanks. The presentation was finalized for CR AIX–0159 for changing the RoCS initiation from after T=0 to before T=0. A coordination meeting was held with Safety and Mission Assurance (S&MA) pyro Subject Matter Expert (SME) for planning an acceptable demonstration testing and waiver using available Peacekeeper hardware. Cable harness breakout boxes are nearing completion.



Cold Flow Unit Main Structural Assembly Status

Cable Harness Breakout Boxes

- **Upper Stage Engine (USE)**

  - ***Contractor Engine System CDR:*** The J-2X Engine System CDR at the contractor level was successfully conducted last week at the Pratt & Whitney Rocketdyne (PWR) facility in Los Angeles, CA. Over approximately the past 8 weeks, contractor CDRs at the component and subsystem level have been taking place. There are a handful of additional reviews still to occur. All of these reviews are a prelude to the NASA milestone CDR for J-2X, set to kick off at the beginning of September and to be completed by mid-November.

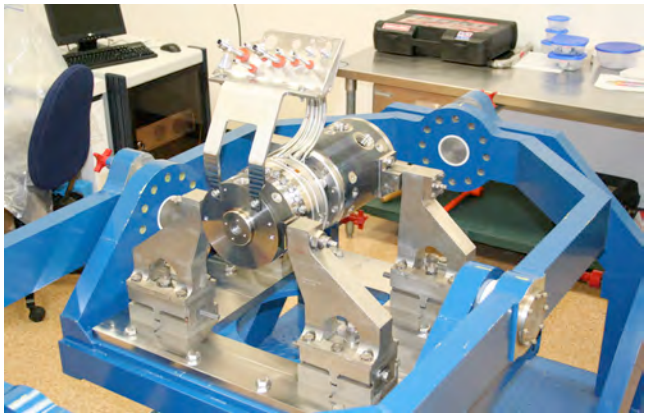
  - ***A–3 Subscale Diffuser (SD):*** The SD was tested this week at the Stennis Space Center (SSC) E-complex to evaluate gimbal effects on diffuser heat loads. The J-2X subscale (JSS) engine was set at varying angles to simulate an engine gimbal and fired into the SD. These tests are part of a risk mitigation plan for Test Stand A–3.

  - ***J-2X Check Valves (CVs), Intermediate Seal Purge Valve (IMSLPVV), and the Augmented Spark Igniter Oxidizer Valve (ASIOV) PDR:*** On July 8, a PDR was conducted for the J-2X CVs, IMSLPVV, and the ASIOV. The IMSLPVV regulates the helium pressure supplied by the vehicle for the barrier pressure in the intermediate seal within the Oxidizer Turbopump (OTP). The CVs are distributed in the engine system to provide a free-flowing path of purge gas and to prevent backflow of engine propellants or combustion gas into the purge gas supply system. The ASIOV provides Liquid Oxygen (LOX) flow to the main injector spark ignition system. This control provides the proper sequence of propellant into the Augumented Spark Igniter (ASI) as part of the engine start transient.

  - ***A–3, Chemical Steam Generator (CSG) Fabrication:*** The first of three developmental CSG "cans" is fabricated and ready for installation. It will be installed in SSC E-complex and tested as part of a risk mitigation plan for Test Stand A–3. The steam that powers A–3 will be provided by 27 CSG cans producing a total flow rate of 4,680 lbm per second.

First Developmental CSG Can

- ***J-2X OTP Seal Tester:*** The J-2X OTP seal tester assembly has been completed and is being prepared to be moved to the Marshall Space Flight Center (MSFC) Test Stand 500. The tester will be used to downselect competing options for each of the seals within the OTP interpropellent seal package (LOX face seal, turbine face seal, and helium buffer seals). This is the first of up to seven builds planned within the Technology Task Agreement (TTA) between PWR and MSFC Engineering. The initial test series is meant to check out the tester design itself, simply using seals originally built for the X-33 program. Once this series is completed, the tester will be rebuilt with a combination of the seal alternatives, with each seal compared against the others for wear and leakage characteristics. Engineers from MSFC's ER34 Branch designed the tester at as part of the TTA, and all new parts were fabricated at MSFC, while the shaft and rotating features were supplied by PWR from heritage J-2S hardware.



J-2X OTP seal tester shown in the assembly tooling as it nears assembly completion by EM10 personnel at MSFC

- ***J-2X Fuel Turbopump (FTP) Whirligig Test:*** The J-2X FTP Heritage Whirligig testing has begun at the Canoga Park facility of PWR. A whirligig test is designed to verify both the predicted structural resonance frequency and the amount of structural damping that is present in a specific turbine blade/disk assembly. While more commonly used to verify the turbine design being built, this test is targeted at early verification of the tools and assumptions being used to perform the analyses of the current J-2X turbines. The testing uses a heritage J-2S turbine wheel and blade set. While there are several changes to the J-2X fuel turbine blades, the basic shape has not been changed and the blade-to-disk interface, a firtree-type design, has not been altered either. Each run is be targeted at exciting a particular set of blade natural frequencies, and a set-up change is required to excite the remaining frequencies. The data from this test is being analyzed, and the second test is being set up to occur early next week.

- ***Main Fuel Valve (MFV) and Main Oxidizer Valve (MOV) CDR:*** On July 7, a CDR was conducted for the J-2X MFV and MOV. These valves allow the flow of the propellants (liquid hydrogen for fuel and LOX) to the main injector and main combustion chamber.

- **First Stage (FS)**

  - ***Ares I-X Forward Skirt Extension (FSE) Assembly Drawing Review:*** ATK led a review of the FSE assembly drawing and procedures for Ares I-X at KSC from July 7–10. Participation included representatives from MSFC, Jacobs, USA, Lockheed Martin, and ATK. The assembly drawing and procedures for installation of components and additional hardware were discussed to ensure the intent of the drawing was accurately interpreted into the procedures. This was the final review for the mechanical aspects of the FSE drawing which should be released for NASA review in August. The Development Flight Instrumentation (DFI) installation details will follow this drawing release as a drawing revision currently expected to be delivered to NASA for review in September.

- **Project Integration (PI)**

  - ***Ares Outreach:*** The Ares Projects integration team coordinated a tour of the Propulsion Research Development Laboratory (PRDL) and the Friction Stir Welding facility for teachers attending Space Camp on July 7. An Ares briefing was given to 100 teachers attending Space Camp on July 10. The team also supported a presentation to 80 children attending the Reading for Rockets program at the Madison County Public Library on July 9. These outreach activities help fulfill NASA's mission to inspire, as well as to educate.

Educating teachers at Space Camp

The Ares Project looks forward to the kickoff of the Ares I PDR on July 28.

…and as of this Ares Projects Weekly Summary, there are only 271 days until the first Ares I test flight, Ares I-X!!!