



The External Tank (ET) gore-gore Common Bulkhead demo second bond was completed on June 12 in Marshall Space Flight Center (MSFC) Building 4707. This bond consisted of adhesive layup on machined honeycomb core, gore mating, vacuum bagging, and curing in an oven at a temperature near 320° F. The bond was visually successful. It will subsequently be Non-Destructive Evaluation (NDE)-inspected for de-bonds, if any. NDE techniques under consideration for the inspection are shearography, thermography, and conventional ultrasonics.



ET Gore-Gore Common Bulkhead Demo Article

Recent activities specific to the Elements include:

First Stage (FS)

- ***Ares I-X Thrust Pressure Cartridge Ultrasonic Inspection At ATK:*** The Thrust Pressure Cartridge (TPC) bondline inspections continued last week with the two TPCs being ultrasonically inspected at ATK in Promontory, Utah. Participants included members of the NASA/MSFC NDE Engineering Team, NASA Engineering Safety Center (NESC), and ATK. TPC S/N 102 and 106 were inspected with conventional A-scan ultrasonics using a dual element, pitch-catch transducer at 15 MHz. A contour shoe was made to ensure the transducer remained perpendicular to the body of the TPC. The technique developed allowed easy differentiation between bonded and un-bonded areas. Both TPCs showed large areas of un-bond and small areas of bond. These results correlate with the results obtained from both Neutron Radiography and Sonoscan ultrasonics.



However, there was a discrepancy in S/N 106, as the bond area correlated well, but not the bond location. NESC is pursuing a review with Sonoscan and their results to further investigate the bond location discrepancy in S/N 106.

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

- ***Ares I-X Roll Control System (RoCS) Element:*** Activities specific to the RoCS Element include:
 - The post-Acceptance Review open work burn-down plan continued to be worked. Twenty-two of 36 items are closed. Post-vibration-test checkout of bi-prop valves seals was completed. Flow test of non-flight check valve assemblies was completed, which also mitigates Risk R-26. All End Item Specification verifications (125) and Element Requirement Document verifications (43) are closed through MSFC Engineering. Three submitted waivers are still outstanding either in the Systems Engineering and Integration (SE&I) assessment or Ares I-X Control Board review. Five verifications are yet to be submitted to SE&I.

- ***Test Stand 4550 – Security & Safety:*** The Test Stand has begun to implement security measures to control unsupervised entry in the test stand. This also cultivates a safety mindset of working within a potentially hazardous area with work being performed overhead and throughout the stand. In preparation for upcoming hardware deliveries and testing, safety signs have been made, safety fencing installed, and a sign-in/out board put into operation. This will help control the access to the area for the remaining Test Stand modifications and subsequent testing activities.



Security Signs Posted on TS 4550 at MSFC



Project Integration

- ***Ares Education Outreach:*** The Ares Projects outreach team supported a June 9 presentation to Alabama teachers attending a week-long workshop hosted by the University of Alabama in Huntsville. The teachers enjoyed a day of NASA activities that they could take back and integrate into their classrooms. The team also supported a presentation to teachers attending Space Academy for Teachers on June 11. The teachers were introduced to the Ares and the NASA exploration stories and discussed ways to use that information to generate interest in their classrooms. Outreach activities such as these with teachers help to get the Ares message to a wider audience, including future generations of explorers.



Outreach Team Discusses Ares with Space Academy Teachers

The Ares Projects looks forward to the Ares I-X mate review on June 30 and the STS-127 Endeavour launch July 11.

...and as of this Ares Projects Weekly Summary, there are only 72 days until the first Ares I test flight, Ares I-X!!!