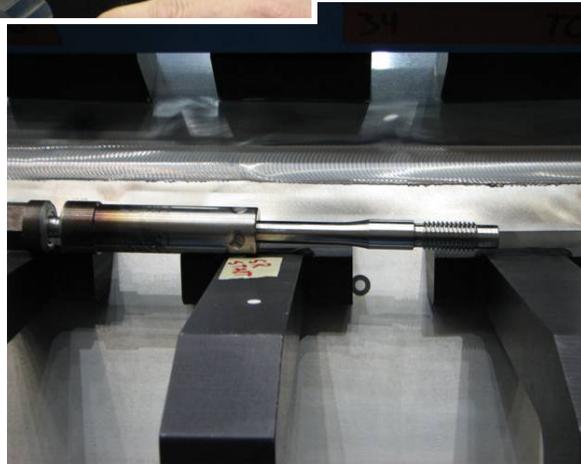




Engineers have friction stir welded a 2014 single-piece, spun-form dome with a 2219 single-piece rolled-ring forging as a confidence article for the Common Bulkhead Demonstration Article. The dome and ring welds were trimmed on the Robotic Weld Tool in Marshall Space Flight Center Building 4755, where they were manually cleaned, friction stir partial-penetration tack welded without anvil (production baseline), and then full-penetration self reacting friction stir welded, all within 48 hours of cleaning, per specification requirements. The dome/ring structure did not oilcan (dimple) in the thin dome upon release of the welding fixture clamps. Subsequently, the weld will be non-destructively evaluated, plug welded, and specimens taken for mechanical testing of the joint.



Common Bulkhead Dome/Ring Weld

Upper Stage Engine (USE)

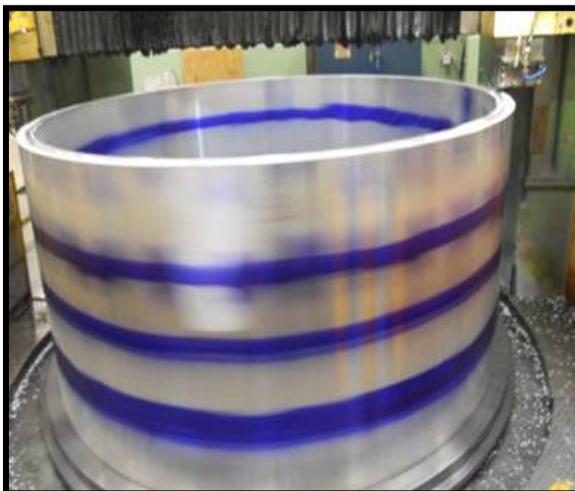
Workhorse Gas Generator (GG): Test Stand 116 (TS 116) is undergoing modifications to activate the helium spin start system (HeSS) for the requirements verification phase of testing. Leak checks on the newly installed piping are in progress.

The HeSS will be used during the start transient to simulate the inert, high-pressure start environment during the GG ignition. A requirement of the verification test series is to ensure that the solid propellant igniters can light the main chamber under these conditions.

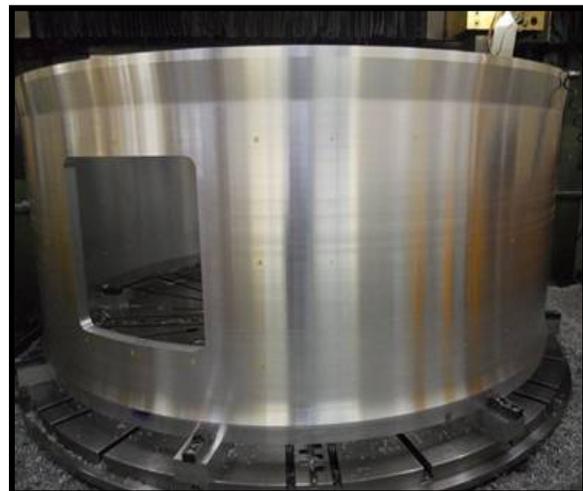
In addition to hardware modifications, Pratt & Whitney Rocketdyne has provided May 7 as the delivery date for the new elbow chamber that matches the new flight design for the hot gas transfer duct. Testing should commence the third week in May. The testing will focus on verifying the design on both temperature uniformity and dynamic stability (two component requirements that cannot be verified on an engine system level) as well as exploring risk mitigation strategies that could be employed if necessary.

First Stage (FS)

Ares FS Orthogrid Machining Pathfinder: The first aluminum 2219 ingots were cast at Ladish for the forward skirt and forward skirt extension. This is the largest single piece forging of its kind for these articles which will greatly simplify the manufacturing and assembly process. A variety of materials and manufacturing processes are being investigated with this first article. Votaw is conducting the machining for Alliant Techsystems Inc. and to date they have completed the rough turning operations. Votaw is now in the process of moving the part to the Computer Numerical Control (CNC) machine to begin orthogrid rough machining..



Forward skirt with purple spray-cam used as a visual indicator during machining



Forward skirt in rough machining with cut-out for door



Project Integration

Ares Projects Education Outreach: An Ares Projects outreach team member and a project integration team member discussed NASA, the Moon landings, benefits of space exploration, and NASA careers with 50 third grade students at Whitesburg Christian Academy, in Huntsville, Alabama, on February 3. Students were also shown a video of the Ares I-X launch.

The Ares Projects look forward to the launch of STS-131, Space Shuttle Discovery, planned for March 18.