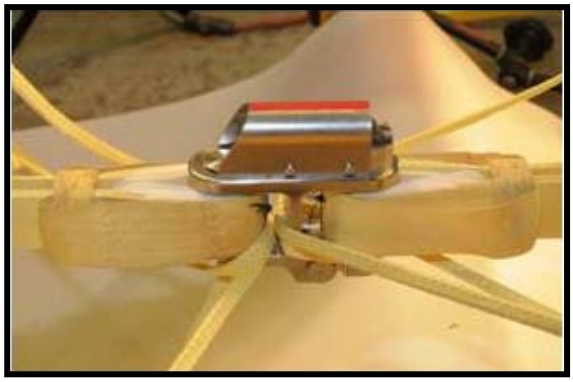
The final major component of the Mobile Launcher (ML), Tier 9, was lifted and attached atop the launch tower last week north of the Vehicle Assembly Building (VAB) at Kennedy Space Center (KSC). When completed, the structure will be about 345 feet tall, and will provide support and access to the Ares rocket and Orion crew module while in the VAB and at the launch pad. The ML, similar to the Mobile Launch Platform (MLP) utilized by the Shuttle Program, is being constructed to support the added weight of the launch tower.

The investigation team completed testing of the Ares I-X (AI-X) Sea Water Activated Release (SWAR) links last week. Three SWARs from the same AI-X lot were pull-tested to failure at the Proof Load Shop at KSC using flight-like straps of nylon and Kevlar. A flight-like nylon riser was used on the first test, but the riser failed before the SWAR. However, at this load the SWAR exhibited yielding similar to what was seen on a few of the AI-X SWARs. A stronger Kevlar riser was used for the second and third tests which resulted in a SWAR failure at predicted loads. These ultimate load values will support Ares I loads with positive margins. In addition, hardness tests of individual SWAR piece parts yielded values all within their requirements. Although a SWAR failed on AI-X, this testing concludes that the failure was not due to an inadequate design or defective SWAR. This helps substantiate our previous position that the SWAR failed from being overloaded when the parachute missed its first reefed position due to the premature firing of a reefing line cutter. These test results also preclude a structural redesign of the SWARs for future Ares I use.



Test Set-up

Failed SWAR

Sheared Release Pin in failure mode

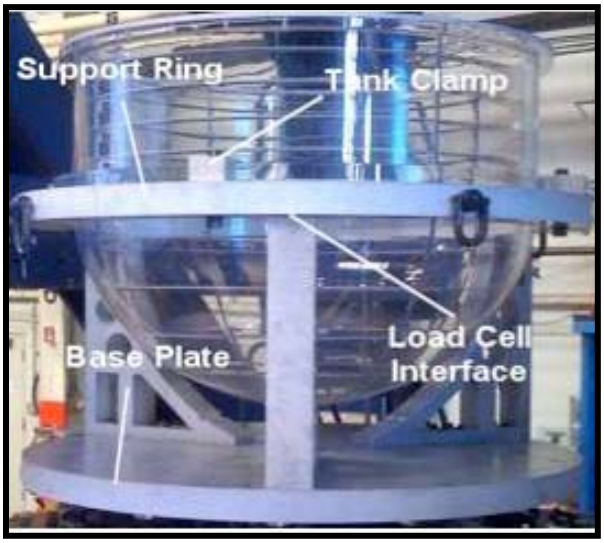
Recent activities specific to the Elements include:

Flight and Integrated Test Office (FITO)

Ares I Slosh test setup for liquid oxygen (LOX) and liquid hydrogen (LH2) tank tests is progressing. Test fixture and mounting hardware have been completed and calibration is in process. Test Facility assembly and checkout has begun and testing is planned to begin in early February. The test is being

conducted to acquire data for validating the fluid slosh mechanical model for analysts to use to verify the Ares I vehicle propellant tank design and control system algorithms. Testing will also acquire data on the pressure incident on the anti-slosh baffles currently in the tank designs, as well as damping data that will be used to support the Orion service module design.

Final calibration activities with instrumented holding fixture



LOX tank with baffles in holding fixture

LH2 tank with inverted base

Project Integration

Marshall Center Brochure Profiles: Ares Projects outreach team used oral histories of Ares team members, the Ares advanced planning manager, and a materials scientist who leads Ares upper stage manufacturing development at the Marshall Center to write profiles for a new Marshall Center brochure and web site being developed by the Office of Strategic Analysis and Communications (OSAC). The goal is to employ people to tell the Marshall Center story as part of public outreach and for the Center's 50th anniversary activities.

The Ares Projects look forward to the launch of STS-130, Space Shuttle Endeavour, planned for February 7.