



Ares

WEEKLY SUMMARY



The third drop test of the Ares I First Stage (FS) drogue parachute (DDT-3) was successfully conducted at the U. S. Army's Yuma Proving Ground (YPG) in Yuma, Arizona, on April 14. The 68-foot diameter parachute, attached to the 65,000-pound Jumbo Drop Test Vehicle (JDTV) was extracted from an Air Force C-17 at an altitude of 25,000 feet. After extraction from the aircraft, the JDTV was allowed to descend under a programmer chute to an altitude of approximately 16,000 feet with a targeted dynamic pressure of 420 pounds per square foot for the initial deployment of the drogue parachute. These staging conditions were designed to produce an opening peak load on the drogue parachute equivalent to its design load capability. All parachute systems performed as planned and all test hardware was safely recovered from the drop zone without damage. All onboard and test range instrumentation and video data were recorded and retrieved, and are now being processed. Early indications are that all test objectives have been met. This was the first engineering test of the drogue parachute and data collected from this test will be used to support the design analysis used in the upcoming FS Critical Design Review. In addition, the total extracted weight of the entire JDTV system for this test was 77,024 pounds, which broke the record for the heaviest single payload to ever be extracted from a C-17 aircraft. The remaining two drop tests scheduled for next year will continue to add weight to this record.





Flight and Integrated Test Office (FITO)



A typical working platform that was built to perform the inspections and repairs.

Test Stand 4550 – Facility Modifications:

The inspection and subsequent repairs of approximately 75 structural connections at Test Stand 4550 are now completed. This effort focused primarily on the structural steel connections that are associated with the roof derrick crane load path to be used for the stacking of Integrated Vehicle Ground Vibration Test (IVGVT) test articles.

Upper Stage Engine (USE)

J-2X Heat Exchanger (HEX) Coil: Representatives from the J-2X Engine office and Pratt & Whitney Rocketdyne (PWR) recently visited Cain Tubular Products in St. Charles, Illinois, to honor them for their outstanding work on the development of the J-2X HEX coil. Cain spent over a year developing a unique process to wind 50 feet of tubing into a seamless, wrinkle-free inner and outer coil for the J-2X HEX. Working with personnel from PWR, Cain applied innovative techniques to modify an off-the-shelf Computed Numerically Controlled (CNC) milling machine, creating a unique tool, which allowed them to successfully create the HEX coil. Cain's efforts enabled them to deliver all seven development coils on schedule.



Pictured are members of PWR, J-2X and Cain Tubular Products, along with Otter, "the inspection lab."

Project Integration



Students participating in the student launch project admire a successful launch by another team.

2010 Student Launch Projects: The Ares Projects outreach team supported two Ares presentations to students involved in the Student Launch Projects April 15–16 in Huntsville. This year, 14 middle and high school teams and 20 college and university teams participated in this year-long event, which exposes students to the NASA process for designing and building their own rockets and payloads. The culmination of this effort is the launch activity at Bragg Farms. The competition is designed to inspire students to study science, math, and engineering and is managed by the Marshall Space Flight Center Academic Affairs Office.



Welcome home STS-131, Space Shuttle Discovery!

The Ares Projects look forward to the launch of STS-132, Space Shuttle Atlantis, on May 14.