



AFRL Test Marks Return to "In-House" Rocket Fuel Development

EDWARDS AIR FORCE BASE, CA -- The Air Force Research Laboratory here returned to its roots with its latest rocket test June 17.

AFRL has tested rockets of all sizes and fuels of all make-ups for years. What makes this test unique is that all components of the test were developed at the laboratory by AFRL employees.

The research lab conducted a 15-pound BATES test. BATES stands for Ballistic Test and Evaluation System, which is a small scale apparatus to test rocket propellant and designs in a standardized rocket motor casing.

"What's special about this test is that it was entirely in-house," said 1st. Lt. Rob Antypas, AFRL program manager and developmental engineer. "The propellant was made here, the rocket motor and nozzle were designed and fabricated here, and then we put it on the test stand."

Lieutenant Antypas said this was the first time in a long time that AFRL designed its own in-house rocket motor in order to conduct a test. Rocket motor development had been contracted in the meantime.

This type of research, development and testing for new solid rocket fuels looks to become the normal procedure for AFRL.

In order for the Air Force to develop more powerful and efficient rocket fuel for future space vehicles and rockets, it will have to do it primarily alone for the time being.

Because of costs and funding cuts, civilian solid rocket companies are doing very little, if any, development of new and improved solid rocket fuels.

"Although we used a standard propellant that has been formulated before, this first test helps us to develop a baseline so we can make our own propellant formulations and test them out and push farther in the solid rocket world because the industry is no longer doing this," said Lieutenant Antypas. "If we're going to build a new space-lift motor for the Air Force, we're going to need the capability to push the limits of propellant testing and manufacturing -- beyond what the civilian world can do."

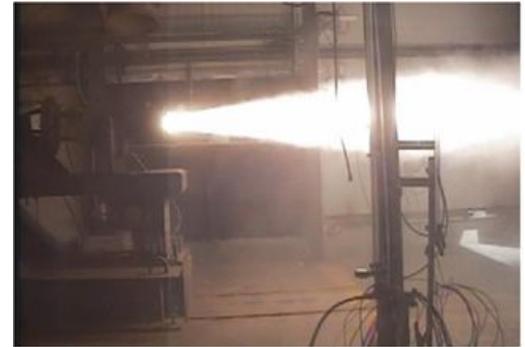
Specifically, the Air Force is looking for rocket propellants that can provide better thrust, burn longer and perform more efficiently.

"This new capability not only serves to train the next generation of Air Force civilian and military rocket scientists but also allows the laboratory to serve as an independent evaluation source of contractor proposed propellants and missile motor performance," said Michael Huggins, AFRL Space and Missile Propulsion division chief.

AFRL has dedicated resources and is conducting administrative measures to bring back the capability to develop its own propellants from scratch.

Lieutenant Antypas said this first test is considered an overall success. He noted the three-second test provided an extraordinary amount of data due to new high speed digital video cameras used for recording.

Workers on the project hope to conduct a 70-pound BATES test after a few more preliminary 15-pound propellant tests. The next test is scheduled for August 5.



The Air Force Research Laboratory conducted a 15-pound BATES test. BATES stands for Ballistic Test and Evaluation System, which is a small scale apparatus to test rocket propellant and designs in a standardized rocket motor casing. AFRL is returning to its roots by developing and testing its own rocket propellant. (U.S. Air Force photo)

Source: <http://www.afmc.af.mil/news/story.asp?id=123213575>