Northrop Grumman Cryocooler On Board NASA's OCO-2 Satellite Becomes 17th Unit to Operate in Space without a Failure

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REDONDO BEACH, Calif., Aug. 20, 2014 /PRNewswire/ -- A cool thing about space: cryogenic refrigerators from Northrop Grumman Corporation (NYSE: NOC) that chill satellite sensors to hundreds of degrees below zero Fahrenheit (degrees F) for maximum sensitivity.

A photo accompanying this release is available at http://media.globenewswire.com/noc/mediagallery.html?pkgid=27220.

A new NASA satellite with infrared sensors provides the most recent example. The space agency launched Orbiting Carbon Observatory-2 into space on July 2. Its mission is to make the clearest and most complete measurements ever of atmospheric carbon dioxide near the Earth's surface.

That meant chilling OCO-2's light detectors to minus 244 degrees F. NASA contracted with Northrop Grumman to supply a cryocooler for the job. The system started up as expected during check out tests on Aug. 6 and cooled sensors to required cryogenic temperatures, said NASA.

"The successful activation of the OCO-2 cryocooler means that it is the 17th to operate in space without a failure. With 17 of these units on orbit, Northrop Grumman has more than all other U.S. manufacturers combined," said Chris Yamada, vice president, aerospace products, Northrop Grumman Aerospace Systems. "Our high efficiency cryocooler [HEC] unit has a solid space flight heritage and flawless record for reliability."

OCO-2 is NASA's first dedicated Earth remote sensing satellite for studying atmospheric carbon dioxide. This newest member of the international Afternoon (or "A Train") Constellation of Earth-observing satellites will give a bigger, clearer and more complete global picture of this greenhouse gas.

Other NASA climate monitoring missions that use the company's pulse tube cryocoolers include the Atmospheric Infrared Sounder on Earth Observing System (EOS) Aqua and the Tropospheric Emission Spectrometer on EOS Aura. Northrop Grumman is the prime contractor for Aqua and Aura, launched in 2002 and 2004.

NASA's Jet Propulsion Laboratory in Pasadena, which manages the mission for NASA, integrated OCO-2's sensor instrument and conducted cryocooler characterization tests.

The cryocooler is the fourth in Northrop Grumman's current generation of HEC designs. OCO-2 represents the first space operation for the latest generation of cryocooler electronics, called Advanced Cryocooler Electronics.

Twenty other HEC units from Northrop Grumman are being integrated or tested on instruments and spacecraft for near-term missions.

Along with cryocoolers, the company's aerospace products group offers a spacecraft bus family; sensors such as hyperspectral imagers and passive millimeter wave cameras; and wideband communication links.

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