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FAA Fuel-Tank Safety System Tested At NASA

An aircraft normally used to transport the Space Shuttle has been pressed into service to test technology to make airliners safer.

Researchers from NASA's Glenn Research Center (GRC), Cleveland, arranged for a fuel inerting system to be installed aboard a NASA Boeing 747. The system, designed to reduce the chance of an explosion inside an airplane tank, made its first flight tests as part of ongoing research being conducted by the Federal Aviation Administration (FAA) in partnership with NASA.

GRC's Dr. Clarence Chang proposed that the FAA use the B747-100 Shuttle Carrier Aircraft based at NASA's Dryden Flight Research Center Edwards, Calif. "I'm glad we were able to help make this happen," Chang said. "We look forward to the benefits that will be derived as a result of the flight testing," he added.

The FAA had already tested the system using ground-based facilities. The next critical step in the technology development was the program of actual flight tests aboard a large aircraft, such as NASA's 747.

The tests, completed in two weeks last month at NASA's Johnson Space Center, Houston, produced data the FAA will use to help implement its recently announced policy requiring measures to reduce fuel-tank flammability in the near future.

The FAA and NASA have been working on technology to prevent fuel tank fires since July 1996. That's when TWA Flight 800, a Boeing 747-131, suffered a catastrophic fuel tank explosion. The jumbo jet crashed into the Atlantic Ocean near East Moriches, N.Y., killing all 230 people on board.

Fuel-tank inerting technology works by replacing, in the fuel tank space open to air and fuel vapors, much of the air or oxygen with nitrogen. Oxygen accelerates fire. Replacing the oxygen with nitrogen suppresses it.

To design a system that can be more readily installed on airliners, the FAA developed a relatively simple and unique technology-test system made up of inerting technology already available.

NASA is conducting research that is closely coupled with the FAA's efforts. GRC's engineers are studying next-generation advanced gas-separation technologies that can make inert gas generation cheaper and fuels harder to ignite in the tank. This work, and research into

advanced fire-detection gas sensors, is part of NASA's Aviation Safety and Security Program.

The NASA Aviation Safety and Security Program is a partnership with the FAA, aircraft manufacturers, airlines and the Department of Homeland Security to reduce fatal aircraft accident rates and protect air travelers and the public from security threats.

Researchers at four NASA centers are working to develop advanced, affordable technologies to make flying safer and more secure. Glenn; Dryden; Ames Research Center, Moffett Field, Calif.; and Langley Research Center, Hampton, Va.; are working on the program.

For information about NASA's Aviation Safety and Security Program on the Internet, visit:

<http://avsp.larc.nasa.gov>

For information about NASA's work in Aeronautics on the Internet, visit:

<http://www.aeronautics.nasa.gov>

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