Team Airborne Laser Continues Modification Work with Delivery of New Titanium Belly Skins for 747-400 Freighter Flying Platform

Two 25-foot-long-by-5.5-foot-wide titanium "belly skins" for the first flying platform of the Airborne Laser (ABL) -- a 747-400 Freighter -- have been delivered to the Boeing modification center in Wichita, Kan. This is the first large application of formed titanium structure on a commercial derivative aircraft for the military.

The two complex contour panels, manufactured by AHF Ducommun, Gardena, Calif., are to be fastened together to form the largest single, one-piece titanium aircraft component in the world. The titanium belly skin is located on the underside of the aircraft, at the mid-section under which the ABL chemicals are situated.

Team ABL -- Boeing, Lockheed Martin, TRW and the U.S. Air Force -- is developing a high-energy, chemical-oxygen-iodine laser carried aboard a 747-400 Freighter platform capable of shooting down boost-phase theater ballistic missiles while hundreds of miles from their launch site.

Titanium was chosen by Team ABL to meet the thermal, strength and chemical compatibility requirements for the aircraft, currently undergoing an 18-month modification effort in Wichita. Each panel contains 18 14.75-inch-diameter ejector holes, which are designed to resist buckling, and will be used for the laser exhaust system. Steam, a by-product of the laser, will be ejected from the holes in the laser exhaust fairing, under the belly skin. The steam then will immediately evaporate, causing no harmful effects to the environment. All modifications will maintain the designed structural capability of the modified aircraft.

Installation of the titanium skins onto the aircraft is scheduled for the fourth quarter of 2000.

During the $1.4 billion Program Definition Risk Reduction (PDRR) contract phase, Team ABL has been designing, developing, integrating and testing the sophisticated design. The program has consistently been on-schedule and on-budget since the PDRR contract was awarded in November. The effort will culminate with the planned test destruction of Scud-type missiles by the ABL in 2003, providing the U.S. and its allies with emergency defense if needed against theater ballistic missiles.

The Air Force Airborne Laser System Program Office at Kirtland Air Force Base, N.M., manages the ABL program; Col. Ellen Pawlikowski is executive director of the effort.

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