Team Airborne Laser Delivers Infrared Sensors for Lab Testing and Aircraft Integration

The revolutionary Airborne Laser (ABL) missile defense system's infrared sensors - designed to be the system's initial detector of a theater ballistic missile in its boost phase - have been delivered for installation on the first ABL 747-400 Freighter aircraft platform.

ABL will be the world's first boost-phase defense against theater ballistic missiles similar to those used against U.S. troops during the Gulf War.

The first shipset of six ABL Infrared Search and Track (IRST) sensors, a derivative of the proven F-14 IRST sensor, were delivered to Boeing by Lockheed Martin Missiles & Fire Control of Orlando, Fla. Four of the six sensors were sent to Wichita, Kan., where Boeing is extensively modifying a 747-400 Freighter into the ABL weapon-system platform. Two sensors were delivered to Boeing in Seattle for integrated testing with missile-tracking software now under development.

The IRST sensors together comprise the ABL's wide-area surveillance subsystem and are to maintain 360-degree surveillance over hundreds of miles from the aircraft while on mission. Once the sensors make an initial detection of a boosting theater ballistic missile, the detection information is sent to the battle management command, control, communication, computers and intelligence (BMC4I) tracker. It will use that information to track the missile's trajectory, and send commands to another surveillance component, the active ranging system (ARS). ARS provides mission personnel with a highly accurate 3D track of its missile target.

The IRST sent to Boeing in Seattle has been installed in the BMC4I "Virtual Lab" integration facility for testing. There, it will be integrated with the BMC4I software to verify that the interface is working as designed.

"We will use a target generator to stimulate the IRST and verify that its detections are properly reported to BMC4I," said Rich Flanders, Boeing ABL BMC4I manager. He expects the testing to continue for about one month.

Flanders says the IRSTs are a significant component of the BMC4I segment. They will be the focus of ABL flight testing to be accomplished following modification completion in Wichita next spring. Flight tests will be conducted with each system separately, then with the system as a whole. The sophisticated ABL beam control system and lasers are to be installed aboard the aircraft beginning next spring at Edwards Air Force Base, Calif.

Unlike ground-based systems, ABL will operate hundreds of miles away from an adversary's location and will be able to lock onto an enemy missile shortly after it lifts off. ABL will fire an intense beam of heat that causes the missile's skin to rupture and its fuel to explode. Since the missile is still rising, its warhead will fall onto or near enemy territory.

Boeing is leading the team selected by the U.S. Air Force to develop and demonstrate the ABL. Team ABL includes Boeing, Lockheed Martin and TRW, working closely with the Air Force. Boeing is responsible for developing the ABL surveillance BMC4I, integrating the weapon system, and supplying the modified 747-400 Freighter aircraft. Lockheed Martin is developing the beam control/fire control system, which will acquire the target, then accurately point and fire the laser. TRW is providing the complete chemical oxygen iodine laser system.

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For further information:
Bob Smith
Boeing Communications
(253) 773-0983
robert.d.smith4@boeing.com
Lori Reichert
Lockheed Martin Communications
(408) 742-7606
lori.k.reichert@lmco.com