

Boeing/DARPA Successfully Complete Major Milestone in Development of Unmanned Combat Air Vehicles

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The Boeing Company [NYSE: BA] announced today that the Unmanned Combat Air Vehicle (UCAV) program has successfully completed all ground and flight objectives for the first phase of demonstrations and is ready to begin the second phase of flight demonstrations, focused on more advanced, multi-vehicle operations.

The completed demonstrations are an important step toward a planned experimental capability of the UCAV system by the U.S. Air Force by 2008.

As a joint effort of the Defense Advanced Research Projects Agency (DARPA), the U.S. Air Force and the Boeing Phantom Works, the UCAV program consists of two X-45A air vehicles, a mission control system and various supportability elements. Its objective is to demonstrate the technical feasibility of a UCAV system to effectively and affordably perform suppression of enemy air defenses (SEAD) and strike missions.

In the first phase of demonstrations, known as Block 1, 48 discrete laboratory, simulation and flight demonstrations were conducted, primarily focused on initial systems checkout, including a total of 16 flights for the two air vehicles. The final demonstration flight occurred on Feb. 28, which verified safe operation of the weapons bay door at 35,000 ft. and speeds up to 0.75 Mach, the maximum planned altitude and speed for the X-45A demonstrator vehicles.

"This is a remarkable example of an integrated government/industry team successfully achieving a wide variety of challenging goals on a groundbreaking new program," said Darryl Davis, UCAV program manager for the Boeing Phantom Works. "By demonstrating, with real hardware and software, basic single-ship UCAV functionality in the areas of communications, contingency management, mission control/air vehicle interface and navigation, we have reduced the risk and cleared the way for Block 2 flight demonstrations and beyond."

Col. Earl Wyatt, the UCAV Program Manager for DARPA said he was "extremely proud" of the joint team. "When we first flew last May, the team committed to completing Block 1 demonstrations by February 2003, and we did it."

Key Block 1 demonstrations included:

- Assembly and disassembly of the UCAV wings for transport
- Autonomous taxiing
- Concept of operations simulations that included demonstration of the UCAV's mission control in SEAD missions
- Distributed control, during which control was passed between mission control people and others in a ground vehicle
- Response to a loss of communication, during which the aircraft was able to return and land safely
- Successful 4-D navigation, which allowed the UCAV system to accurately control time as well as position -- a critical capability in multi-vehicle operations.

With these Block 1 demonstrations complete, the UCAV program will now proceed to Block 2 flight demonstrations. These demonstrations will include multi-vehicle coordinated operations, beyond-line-of-sight communications capability/mission management and the employment of inert ordnance. This phase of demonstrations will also demonstrate the ability of multiple operators to simultaneously manage multiple UCAVs in a simulated tactical scenario.

The UCAV demonstration program is scheduled to proceed through Block 2, 3 and 4 phases over the next two years and culminate in a "graduation exercise" consisting of both X-45A vehicles performing a coordinated SEAD mission using inert munitions.

The X-45A air vehicles have a stealthy, tailless, 27-foot long airframe with a 34-foot wingspan. They weigh 8,000 pounds (empty) and can carry a 3,000-pound payload. The open architecture mission control station has robust and secure satellite-relay and line-of-sight communications links for distributed control.

The X-45A system is demonstrating the technical feasibility of the UCAV concept. The program is now designing a more operationally representative and robust demonstrator aircraft that will demonstrate the military utility and operational value of the UCAV system to effectively and affordably prosecute 21st century SEAD and strike missions within the emerging global command and control architecture.

The X-45A UCAV system is being developed by the Boeing Phantom Works, which is the advanced R&D unit and catalyst of innovation for the enterprise. By working with the company's business units, it provides advanced solutions and innovative, breakthrough technologies that reduce cycle time and cost while improving the quality

and performance of aerospace products and services.

The Boeing Company is the world's largest manufacturer of satellites, commercial jetliners and military aircraft. In terms of sales, Boeing is the largest exporter in the United States. Total company revenues for 2002 were \$54 billion.

Note to editors: X-45A images available [here](#).

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