Futuristic Boeing Rotorcraft Pilot's Associate Makes Public Debut

The U.S. Army and The Boeing Company offered the world a glimpse of the future today as they unveiled the Rotorcraft Pilot's Associate, an advanced cockpit management system destined to change how combat helicopter pilots fly in the next millennium.

Members of the news media and government and military leaders gathered at the U.S. Army's Yuma Proving Ground to fly on a prototype AH-64D Apache Longbow multi-role combat helicopter and learn more about the RPA system. The RPA had its first flight in an Apache Longbow last October.

The RPA was developed by the Boeing Phantom Works under an $80 million advanced technology demonstration contract with the U.S. Army Aviation Applied Technology Directorate at Fort Eustis, Va. The program included flight demonstrations that simulated combat missions and the use of advanced night-vision sensors. A Boeing rotorcraft fly-by-wire demonstration system also was demonstrated.

The advanced cockpit management system will help combat helicopter pilots fly their helicopters and manage the battlefield of the future with greater effectiveness and increased survivability.

RPA will assist the aircrew by maintaining comprehensive internal and external situational awareness, continuously planning for optimized reconnaissance and attack positions, coordinating the actions of team members, and managing the use of sensors, communications, weapons and other mission equipment.

Pilots will have the opportunity to automatically control varying levels of mission activity, including planning and subsystem management.

The RPA features an advanced helicopter pilotage system and advanced data fusion, where data from diverse sources are combined, evaluated and processed to maximize the usefulness of the information to the crew.

Data fusion is a key benefit of the RPA, said Lee Daniel, RPA program manager, who noted that the system would be able to take diverse inputs from global positioning satellites, off- and on-board sensors, communications channels and aircrew input.

RPA will combine inputs from these sources and evaluate the data to produce a comprehensive picture of friendly and enemy troop locations, rate and direction. RPA continuously re-assesses any impact this might have on current route and mission plans.

Although RPA technology is still in its development phase and will require additional tests before fielding, it demonstrates the potential for use in advanced combat systems like the Apache Longbow, which is designed to incorporate new technologies as they emerge.

In addition, RPA can be applied to a wide range of aircraft, including the RAH-66 Comanche, the Joint Strike Fighter fixed-wing combat aircraft and command vehicles.

RPA technology also is included in the Boeing/DARPA Uninhabited Combat Air Vehicle being developed for the U.S. Force.

The new RPA cockpit uses state-of-the-art controls and displays, including the Boeing-developed four-axis, full-authority advanced digital flight control system. Pilots view their status and controls via three large multipurpose color displays that give crews easy access to all flight and mission data.

The RPA-equipped Apache Longbow is undergoing eight weeks of flight testing.

To date, the prototype has logged more than 90 flight hours to help validate the system's effectiveness. About 50 hours of additional flight evaluations will be completed.

Boeing, as prime contractor, developed the RPA with a team that includes Lockheed Martin Federal Systems in Owego, N.Y.; Kaiser Electronics in San Jose, Calif.; Honeywell in Minneapolis, Minn.; Allied Signal in Teeterboro, N.J.; Raytheon Texas Instruments Systems in Dallas TX; and Lockheed Martin

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