Boeing Technology to Keep Apache Longbow a Generation Ahead

To keep the AH-64D Apache Longbow the most effective multi-role combat helicopter in the world, The Boeing Company is developing new technologies to ensure that the aircraft stays in front of its competitors and its enemies.

Numerous Boeing technology programs are under way to keep the Apache Longbow affordable to build and to operate, and reliable and effective on the battlefield well into the future. The aircraft enhancements could be integrated either individually or as a package during this decade and beyond.

Examples of the technology programs include:

Affordable Apache Rotor Program - Boeing is developing an improved main rotor system for the AH-64D Apache Longbow. This program is focused on reducing acquisition, operating and support costs, while improving performance. To achieve these goals, Boeing engineers have determined that a five-blade design is preferred. The rotor system is being designed to simplify maintenance and enhance reliability.

Rotary Wing Structure Technology Demonstration - The Boeing Phantom Works has a cooperative program with the Aviation Applied Technology Directorate of the U.S. Army to employ new technologies and design tools with the RWSTD. The goal is to reduce the cost and weight of the Apache fuselage center section, while providing for increased loads.

Air-to-Air Stinger - Boeing has a contract with the U.S. Army to integrate and flight test the ATAS missile system aboard the Apache Longbow aircraft. Boeing is expanding the mil standard 1760 weapon system interface to support multiple missiles or a mix of missiles to be employed based upon the threat environment.

Vehicle Management Systems Integrated Technology for Affordable Life Cycle Costs - New fly-by-wire technology and components will bring all flight, engine and utility controls into one common processor unit on the Apache through a cooperative agreement with Boeing Phantom Works and the Defense Advance Research Projects Agency. Benefits of VITAL include reductions in weight, cost, structural loads and aircrew workload. The results of the program will be applicable to all Boeing products.

Tactical Internet/Joint Variable Message Format - Sending position reports and targeting information will be as easy as transmitting e-mail with the tactical Internet system, which is similar to the commercial Internet. The tactical Internet utilizes onboard radios to transmit digital messages over the air. The JVMF messages will facilitate digital communications in joint, combined and coalition operations and will link the entire maneuver force to near real-time command, control and friendly and enemy location information.

High Frequency Radio - Non-line-of-sight communications will become a reality with the integration of new HF technology. With this system, the Apache will be capable of long-range communications over a variety of terrain and other obstructions.

Rotorcraft Open Systems Avionics - The Boeing Phantom Works is contracted with the U.S. Army to demonstrate avionics integration employing open systems standards used by the commercial computer industry. Commercial and industrial standards, and hardware and software components, such as high speed networks, processors, real-time operating systems and graphics languages, will be evaluated for use across multiple Army aircraft. The benefits of ROSA include cost reduction, increased capability and tolerance of parts obsolescence.

Advanced Apache Drive System - Boeing Phantom Works is working with the U.S. government on six technology development programs aimed at the many components that make up the Apache drive system. Boeing also is teaming with Derlan Aerospace of Canada to jointly develop additional technology, and to design, develop, manufacture and test the next generation Apache drive system. The result will be a new drive system that will lower the cost of ownership, and in combination with new engines developed through the U.S. Army's Common Engine Program, provide superior performance for Apache.

The AH-64D Apache is in production with more than 120 aircraft delivered to the U.S. Army, the United Kingdom and The Netherlands. The advanced, multi-mission AH-64D features fully integrated avionics and weapons plus a state-of-the-art modem that transmits real-time, secure digitized battlefield information to air and ground forces. The AH-64D incorporates a series of enhancements that make it more survivable in combat, and more easily deployable and easier to maintain.

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