

## **Apache Longbow Helicopter Lifts off for First Time With Full-Color Multi-Purpose Displays**

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The world's most famous green combat helicopter, the U.S. Army's AH-64D Apache Longbow, now sports a bright display of color inside its fully integrated glass cockpits.

The Apache Longbow, produced by The Boeing Company in Mesa, Ariz., lifted off Sept. 12 for the first time equipped with four new color flat-panel multipurpose displays (MPDs). The MPDs will replace the standard cathode-ray tube multifunction displays in use today on the world's most advanced multi-role combat helicopter. Integration of the color MPDs paves the way for future growth that includes the introduction of digital maps for more precise navigation.

The first flight was flawless, said Boeing chief pilot Mark Metzger, who commanded the one-hour flight along with engineering test pilot Pete Nicholson.

"The color-coded MPDs make an already outstanding cockpit design even better," he said, noting that color displays "add another dimension to the information we receive, making it faster and easier to maintain situational awareness.

"For a combat helicopter pilot, easy identification of targets is critical, especially in battle," he said. "These new displays will make everyone's job easier."

And by incorporating flat-panel MPDs, Boeing has been able to reduce aircraft weight, increase reliability and add color capabilities.

Starting with the 27th production aircraft, all Apache Longbows will be equipped with MPDs and color display processors manufactured by AlliedSignal Guidance and Control Systems in Teterboro, N.J. Boeing is under contract with the U.S. Army to remanufacture the first 232 AH-64A Apaches into the advanced Apache Longbow configuration. The MPDs and display processors also will be standard on all 97 AH-64Ds ordered by the United Kingdom (67) and The Netherlands (30).

Since the U.S. Army plans to remanufacture its entire fleet of 758 AH-64As, more than 4,000 MPDs will be required for aircraft installation and spares.

The MPDs -- two in each cockpit -- are at the heart of the Apache Longbow's pilot and copilot/gunner's fully integrated crew stations that bring together a wide array of advanced avionics and weapon systems. The Apache Longbow's multipurpose displays are the cornerstone of the information management system since they give the crew the ability to control the aircraft's advanced avionics, sensors and weapon systems.

Final integration of the color displays began several weeks ago with modification of the instrument panel, electrical wiring and installation of the color display hardware, which have completed safety-of-flight qualification requirements.

During the ground-test phase, Boeing engineers focused their efforts on sensor video performance as well as new color symbology performance for the new display system. Results from both day and night ground tests have been excellent, according to Mike Wares, a Boeing research and engineering technical leader on the program.

An intensive flight test program, which will include evaluation of the color displays by U.S. Army Apache Longbow instructors during flight training, will help validate all performance characteristics of the new color system.

The AlliedSignal design integrates an active matrix liquid crystal display from Optical Imaging Systems in Northville, Mich., and a specially designed backlight from Korry Electronics in Seattle, Wash.

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