

Kiowa Warrior (OH-58D)

SUMMARY

- The Army completed flight-testing of upgraded Control and Display System (CDS4) software in FY04.
- In response to a request from the Scout/Attack Product Manager to address actual Operation Iraqi Freedom concerns, the Live Fire Test and Evaluation (LFT&E) program added a series of ballistic tests for the tail rotor drive system and the crew seat armor. LFT&E for this helicopter is complete.

SYSTEM DESCRIPTION AND MISSION

The Kiowa Warrior OH-58D is a two-seat, single engine armed reconnaissance helicopter. The Kiowa Warrior features a mast-mounted infrared sensor, television sensor, and laser range-finder/designator. Mounted on both sides of the aircraft are universal weapons pylons. They are capable of accepting combinations of the semi-active laser Hellfire missile, the Air-to-Air Stinger missile, 2.75-inch Folding Fin Aerial Rocket pods, and a .50 caliber machine gun.

Recent Kiowa Warrior upgrades include:

- Upgrades to targeting and weapons systems.
- Improvements in air-to-air and air-to-ground communications.
- Improvements in mission planning and management.
- Improvements to available power.
- Improvements to survivability.
- Improvements in night flying.
- Reductions in crew workload due to onboard automation and cockpit integration.



Kiowa Warrior copes with dust during Operation Iraqi Freedom.

The primary mission of the Kiowa Warrior is armed reconnaissance in air cavalry troops and light attack companies. In addition, the Kiowa Warrior may participate in Joint Air Attack operations, air combat, limited attack operations, or artillery target designation. The prime contractor is Bell Helicopter Textron, Inc.

The Kiowa Warrior is an Acquisition Category III program. The Army's acquisition objective is 411 Kiowa Warrior helicopters. Due to attrition, the current fleet inventory is 359 aircraft.

Over time, concerns have surfaced regarding the impact of weight growth on aircraft performance. Our concerns involve the aircraft's power margin, endurance and auto-rotation performance, and the impact of several important Interim Statements of Aircraft Qualification restrictions on the operational utility of the Kiowa Warrior. To address these and other concerns, the Army is executing a Safety Enhancement Program (SEP) for the Kiowa Warrior. The SEP incorporates an improved engine with full-authority digital electronic control, crashworthy crew seats, air bags, improved master controller processor, and a data modem. The intention of the SEP is to improve engine reliability and crew crash protection, reduce pilot workload during emergency maneuvers, and provide additional digitization capabilities. Current funding for the SEP will modify 304 of the required 354 aircraft. Through FY04, 219 aircraft have completed the SEP upgrade process, which should continue through FY09.

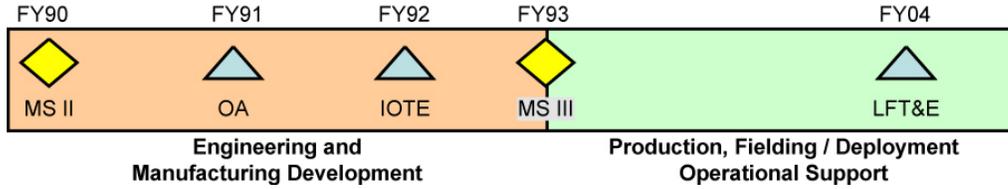
DOT&E approved the Kiowa Warrior LFT&E strategy in July 1996. An updated strategy approved in January 1999 identified the resources necessary for an adequate vulnerability assessment program, to include an operating air vehicle.

During Operation Iraqi Freedom, Kiowa Warrior units have maintained high readiness rates in spite of an intense operational tempo and harsh desert conditions. Often employed in route reconnaissance and security missions, the Kiowa Warrior is an effective member of the Joint and combined arms team. In spite of the generally adequate

ARMY PROGRAMS

survivability characteristics of the Kiowa Warrior, ten aircraft were lost in mishaps or were shot down during combat operations over Iraq in FY04.

TEST AND EVALUATION ACTIVITY



The flight-testing of the upgraded CDS4, which is the fourth configuration change for the Master Controller Processing Unit and supporting software, took place during FY04. Elements of the assessment include software verification, integration testing of the Improved Data Modem, assessment of the Common Transponder performance, and conduct of a preliminary airworthiness evaluation to address the aircraft's current handling qualities.

The Army completed live fire testing of the ballistic tolerance of the Kiowa Warrior under dynamic conditions this year. Based on the earlier static tests, the Army replaced some tests of the mast-mounted sight with tests of the tail rotor drive system. Additionally, the Scout/Attack Product Manager, based on actions by field commanders in Operation Iraqi Freedom, requested an evaluation of the idea of removing a portion of the crew seat armor as a weight reduction measure. An Army analysis of increased vulnerability due to removing the armor led the product manager to decide to leave the armor in place. The Army subsequently decided to conduct ballistic tests of the main rotor blade.

TEST AND EVALUATION ASSESSMENT

Successful completion of the flight-testing of the CDS software with positive findings resulted in the Army issuing a revised airworthiness release for this new version of CDS software on June 30, 2004. Fielding of CDS4 is in progress and the Army intends to upgrade aircraft simulators to support CDS4 training as soon as possible.

The Army conducted an adequate Live Fire Test program. This program marks the first time that the Army conducted dynamic rotor blade testing as part of LFT&E. The Army intends to release test reports in early FY05. This completes all planned live fire testing on the Kiowa Warrior. A complete evaluation of test results is ongoing.