

AVIATION'S CONTRIBUTION TO THE TRANSFORMATION EFFORT

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Introduction

Army aviation materiel developers; the Program Executive Officer, Aviation; and program and project managers are supporting Commanding General of the U.S. Army Aviation Center MG Tony Jones as he leads aviation efforts to help transform the Army into a lighter, more lethal force. Army leaders have consistently backed the requirement for our four priority platforms—the RAH-66 Comanche, the AH-64D Apache Longbow, the UH-60M BLACK HAWK, and the CH-47F Improved Cargo Helicopter. Along with recapitalization efforts, near-term improvements to these airframes will further enhance aviation's role in the transformed Army. The five primary goals for these platforms are as follows:

- Produce and field Comanche by 2006;
- Enhance recapitalization, reliability, and safety for the Apache, Chinook, and BLACK HAWK fleets;
- Convert 300 CH-47Ds to the F model;
- Transition the utility fleet to the UH-60M Program; and
- Enhance the survivability of the force in the combat environment.

A commitment to these goals is essential if Army aviation is going to be relevant in the next quarter century and beyond.

Comanche

As indicated by lessons learned from the most recent division capstone exercise, the future of how Army aviation will contribute on the joint and combined arms battlefield depends on data being transferred in real time. Clearly, future aviation in the form of Comanche will lead the fight as a "system-of-systems." Comanche will be flown by aviators trained to manage a rapidly changing landscape, collecting and distributing data in real time with onboard mission equipment. The result will be an unmatched warfighting capability.

When fielded, the Comanche will synchronize joint and Army sensors and weapons with situational understanding. This will allow combat leaders to *See First, Understand First, Act First, and Finish Decisively ...* while reducing the risk of fratricide. The

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technology evolving with the Army's Future Combat Systems (FCS) will provide Comanche with enablers to control a wide range of nonorganic threats including robotic guns, loitering attack munitions, and precision attack missiles. Moreover, Comanche will interface with un-manned aerial vehicles, unattended internetted sensors, hyperspectral imagery, and cue joint/combined command and control (C2).

Below are a few of the key capabilities Comanche brings to the objective force:

- Contains multirole (reconnaissance and attack) capability in one system;
- Incorporates fully integrated sensors, communications, weapon systems;
- Operates in an expanded weather spectrum/operational mission profile;
- Integrates combined arms officers with cognitive decision-aiding technology well-forward in the air-ground fight;
- Meets corps and division mission requirements in joint/combined arms environment;
- Links the joint fight to the combined arms commander;
- Takes advantage of new fire support relationships and priorities;
- Ensures information overmatch for the objective force;

- Reduces logistical footprint; and
- Meets objective force requirements for deployability, agility, survivability, versatility, lethality, sustainability, and responsiveness.

To face today's needs, Comanche has transitioned from being the "battlefield quarterback" to being the first of the objective force systems.

Comanche development and technology initiatives are wise investments for the U.S. Army. The maturation of several Comanche systems and technologies will lead the objective force through the transformation by providing a robust technological baseline for the newer technologies required by the FCS. Onboard diagnostics, lightweight armor and high-reliability components, automatic target detection and classification, and high-fidelity fusible and networked sensors are just a few examples of technologies that will be leveraged across the Army. Comanche's fire control radar and integrated communications and navigation are now being adapted to other programs. Concurrently, Army aviation is providing horizontal technology integration (HTI) for legacy systems, saving millions of dollars in total ownership costs.

To face today's needs, Comanche has transitioned from being the "battlefield quarterback" to being the first of the objective force systems. As such, it is the Army's leader for battlefield information and weapons synergy, which will be exported to

the joint and combined arms team and beyond. For a detailed brief on the Comanche, please contact CW4 Steven Sanders or Patrick Sheahan at steven.sanders@comanche.redstone.army.mil or psheahan@elmco.com. These individuals are available to brief U.S. Army units worldwide.

Apache

As the Army transformation continues to be defined and refined for the objective force, the Apache attack helicopter remains a legacy system as well as a cornerstone for developing the interim force. The current multi-year I and II procurements consist of 501 AH-64Ds, resulting in 240 AH-64As being retained in the heavy attack fleet. As the RAH-66 Comanche is fielded, Apaches will gradually be retired. The AH-64As will be the first Apaches retired. However, the AH-64D Longbow will continue to be Army aviation's heavy attack helicopter for years to come. Therefore, our task is to ensure that the Apache is ready and capable of providing combat overmatch.

Several initiatives will guarantee that as we transform to the objective force and the Comanche comes online, the Apache will remain the offensive centerpiece of the legacy force. The Longbow Program is funded to provide necessary reliability and sustainment fixes that address operations and support (O&S) and safety issues for all 741 Apaches. A plan is also being final-

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ized that will focus recapitalization efforts at the depot level for repairable components installed on the Apache fleet. This focused recapitalization will result in the overhaul of selected components to meet the National Maintenance Work Requirement Standard being established. The intent is for Apache to meet a 10-year half-life by 2010.

The Apache Modernized Target Acquisition Designation Sight and Pilot Night Vision Sensor (MTADS/PNVS) initiative will provide significant performance and reliability upgrades while replacing obsolete parts. This program will effectively reduce O&S costs and improve reliability and safety over the current TADS/PNVS. The MTADS/PNVS program also includes a defined HTI effort with the Comanche electro-optical system. This HTI effort will further reduce the logistical footprint of the attack battalion. Focused recapitalization will also result in effective and continued sustainment of the fielded Apache fleet.

Enhancements

Combat capability and survivability enhancements to the AH-64D will be applied during the second multiyear contract. These enhancements include a digital map, high-frequency radio, full joint variable message format digital communication capability, the suite of integrated infrared countermeasures (SIIRCM), and the suite of integrated radio frequency countermeasures (SIRFC). These enhancements will provide the Longbow with significantly improved capability, survivability, and technological overmatch.

The AN/ALQ-212 Advanced Threat Infrared Countermeasures (ATIRCM) system, along with the AN/AAR-57 Common Missile Warning System (CMWS) (an essential element of ATIRCM), provides aircraft platform survivability against an ever-increasing worldwide proliferation of advanced infrared (IR) guided missiles. These systems provide automatic passive missile detection, threat

declaration, crew warning, software reprogramming, false alarm suppression, and cues to other onboard systems such as countermeasure dispensers. The ATIRCM adds active, directional countermeasures via a laser, an arc lamp, and an improved countermeasures dispenser.

ATIRCM and CMWS are the principal components of the Army's larger SIIRCM, which should include Advanced Infrared Countermeasures Munitions, a new-development set of IR flare decoys, and passive IR signature reduction features. The suite also features engine exhaust/heat suppression and IR-absorbing features. Additionally, the ATIRCM and CMWS can be integrated with the SIRFC to provide overall IR and radio frequency self-protection.

The AN/ALQ-211 SIRFC protects against radar-guided anti-aircraft artillery, surface-to-air missiles, and airborne-intercept for all Army aviation including AH-64 and Special Operations Aircraft (SOA) (MH-60/47), and UH-60 and CH-47 aircraft. The SIRFC provides situational awareness, sensor fusion, resource management, target identification, and target location and cueing. The SIRFC also provides pre-emptive and terminal mode electronic countermeasures against fire control radars and semi-active missiles for both air-to-air and surface-to-air hostile weapons. These threats include pulse radar, pulse doppler, and continuous wave radars that operate in a wide operational frequency range. SIRFC consists of an Advanced Threat Radar Warning Receiver and an Advanced Threat Radar Jammer. Both are designed to counter today's anti-aircraft threats and adapt to advancing threat technology. They are vital to the Army's investment of both aircraft and aircrew and provide the protection necessary to achieve our objective.

Training devices of sufficient quantity and quality are fully funded to support our fielded units and the schoolhouses. We have successfully fielded the initial L-6 (Airframe/Powetrain Maintenance Trainer), L-7

(Multiplex, Avionics, Visionics, Weapons and Electrical Systems Trainer), and Longbow Crew Trainers (aircrew training devices). Additionally, we are preparing to upgrade the AH-64A Combat Mission Simulator. These training systems will support both the AH-64A and AH-64D. The Longbow collective training system is also funded.

All these initiatives are included in the FY01-07 Program Objective Memorandum (POM), and will be achieved through either the AH-64D remanufacture line or forced retrofit in the field. Our Apache fielding plan is on schedule, and we have successfully deployed 3 of the planned 19 AH-64D battalions.

The Army transformation effort for the cargo helicopter includes three domains. The first and most immediate domain is providing the field commander with greater mission flexibility. An example of a major response to this challenge is the new CH-47 extended-range fuel system that enables the Chinook to extend its ferry range by 360 percent. It can also simultaneously refuel ground or other air vehicles in the forward areas allowing these vehicles more time near the red zone.

The second domain is improving weapon system readiness without expanding the logistics infrastructure. Examples include the CH-47 maintenance tracking and recap initiatives. These involve tracking maintenance and supply actions at selected field locations to identify both non-value-added maintenance actions and component failure trends. Data are used to revise maintenance practices as well as to focus corrective measures on those areas not currently being overhauled to like-new condition but rather have been only addressed as functional discrepancies. Mechanics will now spend less time per flight hour performing traditional inspections, and components received from the depot will last longer.

The last domain is the remanufacture and selected upgrade of CH-47Ds to the F configuration. The

basic airframe will be stripped to repair any corrosion, and new wiring and plumbing will be installed. The airframe structure will also be tuned to reduce fatigue-inducing resonant vibrations. Additionally, the cockpit will be modernized to provide digital interoperability with other battlefield weapon systems and corresponding C2 nets. This will not only enhance connectivity, but also provide greater operational situation awareness.

Conclusion

Modernizing Army aircrew equipment is included in Army aviation's transformation to the objective force. In concert with the Aviation Electronic System's and Aircrew Integrated System's Air Warrior Program, the Program Executive Office for Aviation is working to ensure that our aircrews survive across the spectrum of warfare. The Air Warrior Program provides each crewmember with enhanced over-water, cold-weather, chemical, and biological protection and begins fielding the "Block 1" version in the FY04 timeframe. This fully integrated, modular, and flexible approach to aviation life support equipment will ensure that warfighters and commanders rapidly adapt to any environment, terrain, or threat and provide the objective force with increased mission support.

The Army aviation community is enthusiastic about the changes associated with the Army's transformation strategy, and the PEO, Aviation is well positioned to support these changes and the goals of the objective force. Our funded programs in place today will improve the way we plan and deploy Army aviation on the future battlefield.

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