

## Armed Reconnaissance Helicopter (ARH)

### Executive Summary

- The Armed Reconnaissance Helicopter (ARH) entered System Development and Demonstration (SDD) at Milestone B on July 7, 2005.
- The Army acquisition strategy was to acquire an existing helicopter and integrate existing subsystems. SDD activities since Milestone B have taken more time for developmental and integration testing than anticipated.
- Flight testing of a modified, off-the-shelf Bell 407 aircraft is ongoing in an effort to accelerate integration and testing of mission equipment.

### System

- The ARH is a replacement for the OH-58D helicopter. While largely based on the commercial Bell Helicopter 407 design, the ARH incorporates new designs for major components.
- The ARH integrates the Common Avionics Architecture System with target acquisition sensor systems for day, night, and marginal weather operations.
- The ARH will fire 2.75-inch aerial rockets and Hellfire missiles. It will have armored crew stations and will employ Aircraft Survivability Equipment, to include radar, laser, and missile warning systems and chaff/flare dispensers.
- The acquisition objective is 368 aircraft with a full-rate production decision in November 2008. The Army plans to have 10 ARH per troop and 30 per squadron.

### Mission

- A regimental aviation squadron, as part of the Multi-Functional Aviation Brigades, employs ARH to



conduct aerial armed reconnaissance for collection of combat information and intelligence about enemy and terrain.

- ARH squadrons also provide security and early warning against enemy observation or attack.
- Other ARH troop missions include:
  - Command and control
  - Communications relay
  - Convoy security
  - Nuclear/chemical surveys

### Activity

- Army and contractor test pilots are conducting developmental test flights and have flown more than 30 hours in a Bell 407 prototype. Sensor and avionics testing continues as part of a risk reduction effort.
- Additional risk reduction efforts for aircraft engine/airframe integration are being conducted using a Bell 417 aircraft. This helicopter flew with the ARH Honeywell Turbo Shaft (HTS)-900 engine on June 1, 2006.
- SDD test activities are continuing to confirm flight performance and integration of mission equipment (navigation, communications, weapons, and survivability equipment) onto a modified, off-the-shelf Bell 407 aircraft.
- Four SDD prototype aircraft are in various preflight stages at Bell. SDD#1 aircraft completed the ground functional test phase of the integration effort and executed its first flight on

July 21, 2006. The remaining three aircraft are at different stages of manufacturing.

- The ARH Test and Evaluation Master Plan (TEMP) and acquisition strategy will be updated for a Milestone C decision scheduled for March 2007. The Milestone C decision to purchase 38 low-rate initial production aircraft will be based upon results from operational and developmental tests.

### Assessment

- The Milestone B decision in July 2005 initiated an aggressive ARH schedule. Complexity of system integration caused delays for two events: the Critical Design Review originally planned for July 2006 was moved to September 2006; the Limited User Test originally planned for August 2006 is now scheduled for February 2007.

# ARMY PROGRAMS

- The Milestone B decision authority approved an accelerated ARH program schedule based on the Army acquisition strategy to acquire an existing helicopter and integrate non-developmental items subsystems. Since Milestone B, the Army learned that the selected ARH design requires a more significant development and integration effort than originally claimed. Planned systems changes and integration include:
  - HTS-900-2 engine
  - Seat Armor
  - Transmission
  - Aircraft Survivability Equipment
  - Rotor Hub
  - Landing Gear
  - Fuel Cell
  - Improved Data Modem
  - Targeting Sensors
  - Software Blocking
  - Armament
  - Floor
- The Army's ARH TEMP was adequate to support a July 2005 Milestone B decision. The Army is updating the ARH TEMP with additional details following source selection to clarify the scope of developmental and integration testing.
- ARH is a covered system for LFT&E. The LFT&E strategy includes full-up system-level testing and will be updated with platform-specific details now that the Bell 407 has been selected. Most of the initial component/subsystem testing will be performed on static, non-operating test articles because of schedule constraint. These tests will be followed by dynamic testing during the full-up system-level test series.
- The Army plans to conduct IOT&E as troop-level missions with ten ARHs.

## Recommendations

- Status of Previous Recommendations. The Army has taken effective actions to resolve the FY05 recommendations.
- FY06 Recommendation.
  1. The Army should realign the ARH acquisition strategy and schedule based upon the ARH Critical Design Review. While largely based on the commercial Bell Helicopter 407 design, the ARH incorporates new designs for major components and requires adequate time to test components/weapon systems. The Army should monitor performance and integration and allow sufficient time to correct problems before the IOT&E.