

Light Utility Helicopter (LUH)

Executive Summary

- DOT&E found that the UH-72A Lakota LUH is effective in the performance of light utility missions, but is not effective for use in hot environments or for medical evacuation of two litter patients requiring critical medical care. The LUH is effective for air movement and aerial sustainment missions, but does not meet its criteria to lift required external and internal loads. The LUH demonstrated performance and mission effectiveness over the Kiowa (OH-58A/C) and Huey (UH-1H) aircraft it will replace.
- The LUH aircraft is not operationally suitable due to excessive heat in the aircraft cockpit and cabin from the sun, heat generated by aircraft avionics and inadequate ventilation.
- The LUH meets required design standards for crashworthiness in accordance with the Federal Aviation Regulations to protect crew and passengers.
- The reliability, maintainability, and availability of the UH-72 Lakota exceeded requirements.
- All LUHs are being modified with solar shades over the pilot seats and an improved ventilation system to direct ambient air into the cabin and cockpit on all 322 aircraft.
- All LUHs medical evacuation (MEDEVAC) aircraft are being modified with Federal Aviation Administration (FAA) approved ceiling rails, additional lighting, and a wall mounted MEDEVAC equipment rack. The improved configuration will enhance the flight medic's ability to care for patients during transport for all 81 designated MEDEVAC aircraft.
- The LUH is not a covered system for Live Fire test and evaluation because the Army intends for the aircraft to operate in non-hostile environments.

System

- The UH-72A Lakota LUH is a commercial aircraft derived from the Eurocopter 145 aircraft, certified by the FAA for use in civil airspace. The Army intends to employ the LUH worldwide, in non-hostile operational environments.
- The Army is procuring 322 systems that began in May 2007 to replace UH-1H and OH-58 A and C aircraft in the Active Army and National Guard inventory.

Activity

- After a Source Selection Performance Demonstration during 2006, the Army selected the EADS North America UH-145 helicopter and designated the aircraft as the UH-72A Lakota in October 2007.
- Six LUH aircraft have been delivered to the Army's First Unit Equipped, with 13 more LUH aircraft in various stages of production. The Columbus, Mississippi, plant has undergone



- The LUH is certified for instrument flight with a Global Positioning System to operate in day, night, and adverse weather conditions.
- The LUH is compatible with night vision goggles; nuclear, biological, and chemical gear; and the Air Warrior ensemble. The LUH mission equipment packages include a 600-pound hoist, fire bucket, slings for external loads, and patient litters.

Mission

- LUH-equipped units will provide general aviation support, respond to terrorist events, conduct civil search and rescue, support damage assessment, support test and training centers, perform medical evacuation, and provide support to counter-drug operations.
- LUH units will conduct general administrative aviation and aerial sustainment missions, and execute tasks as part of an integrated effort with joint forces, government agencies, and nongovernmental organizations.
- LUH units will perform Homeland Security and medical evacuation missions in permissive environments.

major expansion to accommodate the LUH program and achieved full-up assembly capability in August 2007.

- DOT&E approved the Test and Evaluation Master Plan (TEMP) on March 5, 2007, to support the IOT&E followed by the LUH full-rate production decision in August 2007.
- The Army conducted the IOT&E with an Air Ambulance Detachment, equipped with three production-representative

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LUH aircraft at the National Training Center at Fort Irwin, California, and Barstow, California, March 7-26, 2007.

- Additional developmental and operational testing and evaluation included:
 - Inclusion of data from a 10-month, 252 flight-hour Reliability Validation Effort ending in FY07
 - A 36 flight-hour Safety Release Test conducted by the Army at Fort Rucker, Alabama, with production-representative LUH aircraft in December 2006 and January 2007
 - Demonstration of the LUH to conduct fire-fighting missions with a water bucket by successfully completing nine water delivery sorties without incident during December 2006 at Fort Rucker, Alabama
- Based on IOT&E findings, the Army conducted an Aircraft Temperature Data Collection Effort at Barstow-Daggett Airfield during June 20-21, 2007. This effort confirmed findings from the IOT&E in March 2007 that the interior of the LUH in mission configuration is hotter than the UH-60, UH-1, and OH-58A/C (cockpit heated as much as 15-24 °F above outside air temperature, while the cabin area heated as much as 8-16 °F above outside air temperature).
- Based on IOT&E findings the Army conducted a review of commercially available medical evacuation storage systems and equipment mounting provisions on July 3, 2007, and intends for EADS North America to improve medical and casualty evacuation capability of the aircraft.

Assessment

- The Army executed the LUH IOT&E in accordance with the DOT&E-approved test plan. The IOT&E was adequate to assess operational effectiveness, suitability, and survivability.
- DOT&E published its OT&E report in July 2007 and found that the LUH is effective in the performance of light utility missions, but not effective for use in hot environments or for medical evacuation of two litter patients requiring critical medical care. The LUH is effective for air movement and aerial sustainment missions, but does not meet its criteria to lift external and internal loads. The LUH demonstrated performance and mission effectiveness over the Kiowa and Huey aircraft it will replace.
- The LUH aircraft is not operationally suitable due to excessive heat in the aircraft cockpit and cabin from the sun, heat generated by aircraft avionics, and inadequate ventilation. The aircraft's Rotorcraft Flight Manual describes an avionics overheat condition where various avionics components have a 30-minute operating time if temperatures exceed safe operating ranges. This did not occur during the IOT&E.

- The reliability, maintainability, and availability of the LUH exceeded requirements.
- The LUH costs less to operate and support than the UH-60 helicopter.
- After modification of the LUH aircraft at the National Training Center with solar shades and an improved ventilation system, the Army will assess the internal temperatures in mission configuration during 1QFY08.
- After modification of the LUH MEDEVAC aircraft, ceiling rails, additional lighting, and wall mounted MEDEVAC equipment rack, the Army plans to assess the flight medic's ability to care for patients during transport.
- The LUH meets required design standards for crashworthiness in accordance with the Federal Aviation Regulations to protect crew and passengers.
- The LUH is not a covered system for Live Fire test and evaluation because the Army intends for the aircraft to operate in non-hostile environments. The FAA has certified the UH-72A meets standards for crashworthiness. LUH aircrews, wearing the Army's Air Warrior ensemble and when operating with chemical masks, and night vision goggles, are afforded adequate protection in the event of an emergency.

Recommendations

- Status of Previous Recommendations. The Army effectively resolved both previous FY06 recommendations.
- FY07 Recommendations. The July 2007 DOT&E OT&E Report included a set of 10 recommendations to the Army to improve operational effectiveness and operational suitability. These include:
 1. Reconfigure or modify the cabin to provide additional space for the medic and MEDEVAC equipment when in a two-litter configuration.
 2. Update LUH performance data to incorporate into a standardized flight manual and to facilitate more accurate mission planning.
 3. Install and test potential material fixes to include the Environmental Control System, engine inlet barrier filters, landing gear skid shoes, and relocation of the first aid kit and fire extinguisher.
 4. Reconfigure the LUH communication package to allow simultaneous communication on Ultra High Frequency (UHF) and Frequency Modulation (FM) channels and secure communications.
 5. Assess the New Equipment Training package and the hybrid maintenance concept planned for Army National Guard units once implemented.