

# UH-60V Black Hawk Digital Cockpit



The Army completed IOT&E II on the UH-60V in August 2022. DOT&E published the report in December 2022, finding the UH-60V operationally effective, suitable, and survivable. The Army's production decision is pending.

## SYSTEM DESCRIPTION

The UH-60V Black Hawk is designed to update the existing UH-60L analog architecture to a digital infrastructure enabling a Pilot-Vehicle Interface (PVI) similar to the UH-60M. The program will address current capability gaps while employing an evolutionary acquisition approach to leverage mature technologies that have been successfully integrated on other military aircraft, such as the

FlightPro Gen III Mission Computer from the Marines H-1 program.

## MISSION

Units equipped with UH-60V aircraft will conduct air assault, air movement, aerial command and control (C2), and aerial medical evacuation (MEDEVAC) missions. Garrison units equipped with the UH-60V will execute garrison support missions, training and training support, and test support. The UH-60V has two pilots

assisted by one to two crew chiefs in the rear cabin. Aircraft and their crews are employed individually, in multi-ship formations, or as a company, as required by the unit mission.

## PROGRAM

The UH-60V is an Acquisition Category II effort. The original Acquisition Program Baseline was approved in 2014 and with a revision in December 2020. DOT&E approved the updated Test and

Evaluation Master Plan in October 2021. The Army completed IOT&E II in August 2022. The Army planned to make a full-rate production decision in 2QFY23 but is continuing to conduct acquisition strategy analysis. The Army now anticipates a full-rate production decision 2QFY24. Planning is ongoing for the UH-60V MEDEVAC variant FOT&E, scheduled to occur 4QFY24.

## » MAJOR CONTRACTORS

- Redstone Defense Systems – Huntsville, Alabama (development and engineering)
- Northrop Grumman Corporation – Woodland Hills, California (avionics enhancements)

## TEST ADEQUACY

In 2019, the Army conducted IOT&E I, which was not adequate due to the software, hardware, and production process not being production representative. The Army completed a cyber adversarial assessment on the UH-60V in March 2022, at Redstone Arsenal, Huntsville, Alabama, and IOT&E II in July and August 2022, at Fort McCoy, Wisconsin. The adversarial assessment and IOT&E II were conducted in accordance with DOT&E-approved test plans and was adequate to assess system performance. DOT&E published the IOT&E II report with a classified annex in December 2022. The Army plans to make a full-rate production decision on the UH-60V in 2QFY24.

## PERFORMANCE

### » EFFECTIVENESS

The UH-60V is operationally effective. The UH-60V digital cockpit provides pilots with improved situational awareness, enhanced mission planning capability, an expanded communication suite, and improved instrument flight capabilities when compared to the UH-60L. The UH-60V meets external lift and troop movement requirements with approximately the same performance margin as the UH-60L. IOT&E II data indicate that key performance shortfalls observed during IOT&E I, including map display latency, missing map data, and uncommanded range scale changes, have been resolved.

The Aviation Mission Planning System needs improvements to enhance the effectiveness of aircrew mission planning. Currently, the system does not transfer planned airspeeds to the UH-60V mission computers, resulting in aircrews having to manually input airspeeds.

### » SUITABILITY

The UH-60V is operationally suitable. The UH-60V met its reliability, availability, and maintainability requirements, demonstrating improvements during IOT&E II compared to IOT&E I.

There are areas that require improvement, and these will be reassessed during the planned

FOT&E of the UH-60V MEDEVAC variant. The interactive electronic technical manuals and operator manual should be updated to correct missing information and inaccuracies. Maintenance personnel did not believe that the hands-on portion of new equipment training was sufficient due to the degree of changes and pilots stated that additional training on the Blue Force Tracker system is needed. Additionally, pilots have reported issues with the Heads-Up Display's power cord snagging during certain body movements and that applying the parking brake is ergonomically uncomfortable. Crew chiefs expressed concerns regarding their seats and the possible cumulative effects on fatigue.

### » SURVIVABILITY

The UH-60V's survivability against ballistic, infrared, radar, and laser threats is equivalent to the UH-60L fleet. It is survivable against moderate cyber threats with nearsider or insider access.

## RECOMMENDATIONS

The Army should:

1. Update UH-60V interactive electronic technical manuals and operators manuals to ensure they are complete and accurate for changes to UH-60V subsystems.
2. Improve maintenance personnel training by incorporating more hands-on UH-60V troubleshooting into the UH-60V training program.

3. Modify the Head's-Up Display to reduce the likelihood that the cord will snag.
4. Modify the UH-60V software to import airspeeds planned with the Aviation Mission Planning System.
5. Refine pilot training to cover Blue Force Tracker usage in more depth and increase the focus on procedures unique to UH-60V.
6. Modify the UH-60V parking brake to make it easier to set.
7. Conduct an ergonomic study to investigate the usability and fatigue contribution factors of the UH-60V crew seats.