

MH-60R Multi-Mission Helicopter Upgrade

Executive Summary

- MH-60R is effective and suitable. There is a notable increase in capability over legacy aircraft (SH-60B and SH-60F).
- Joint H-60 LFT&E identified survivability issues common to all H-60 based helicopters.
- Mission system complexity and software deficiencies increase operator workload significantly.

System

- The MH-60R is a ship-based helicopter designed to operate from cruisers, destroyers, frigates, Littoral Combat Ships, or aircraft carriers.
- It incorporates dipping sonar and sonobuoy acoustic sensors, multi-mode radar, electronic warfare sensors, forward-looking infrared sensor with laser designator, and an advanced mission data processing system.
- It employs torpedoes, Hellfire air-to-surface missiles, and crew-served mounted machine guns.
- It has a three-man crew: two pilots and one sensor operator.

Mission

The Maritime Component Commander employs the MH-60R from ships or shore stations to accomplish:



- Under Sea Warfare, Anti-Surface Warfare, Area Surveillance, Combat Identification, and Naval Surface Fire Support missions that previously required two different (SH-60B and SH-60F) helicopters
- Support missions such as search and rescue at-sea and (when outfitted with necessary armament) maritime force protection duties

Activity

- Combined technical evaluation and operational assessment (OT-IIA) began October 2004 and concluded March 2005. Operational evaluation (OT-IIB) was conducted May to September 2005 in accordance with a DOT&E-approved test plan.
- The MH-60R is a covered system for purposes of LFT&E. The approved LFT&E strategy included a coordinated LFT&E program among the Army UH-60M, the Navy MH-60R and MH-60S, and the DOT&E Joint Live Fire programs. MH-60R unique LFT&E has been completed. LFT&E under the Joint Live Fire program will be complete in early FY06.

Assessment

- MH-60R is effective and suitable for fleet operations.
- Operational testing was adequate. Testers leveraged previous operational assessment data from testing approved by DOT&E to streamline the evaluation process. This added rigor and saved resources by avoiding event duplication and increasing data points for most areas of examination.
- Human factors issues remain with the complex sensor and weapons mission system control suite. System deficiencies

that require workarounds, lead to a high workload management challenge for a three-person crew, particularly for Anti-Surface Warfare missions. At present, crews must be highly trained and proficient in the workarounds to successfully accomplish missions.

- The aircraft can gather and transmit more tactical data than current shipboard systems can receive and process simultaneously. Depending on the operations in which the aircraft is involved, it may be necessary to hold some data in the aircraft for post mission analysis on the ship.

The H-60 aircraft has a demonstrated survivability record. The MH-60R variant incorporates many vulnerability reduction features of the basic aircraft; however, the system could be enhanced by improvements in the fuel system, main transmission, and rotor dampener lines. The Joint H-60 Live Fire testing to date has revealed a high risk of fuel cell ullage explosion, resulting in disabling of the fuel system, though the testing did not result in a catastrophic explosion of the aircraft. The H-60 has also shown a high risk of clogging the transmission chip detector with ballistic damage fragments, resulting in loss of lubrication and oil flow. The MH-60R rotor dampener lines are

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relatively soft and easily penetrated, which increases the risk of severe ground resonance problems on landing.

Recommendations

The Navy should:

1. Continue working to correct software deficiencies and reduce the complexity in the mission systems that necessitate workarounds.
2. Ensure training curricula and documentation support the high level of crew proficiency required to operate the MH-60R mission systems.
3. Investigate improvements to existing shipboard data link systems to make use of the large amount of tactical information MH-60R can gather and transmit.