U.S. Navy MH-60R Seahawk

Overview

CAE is the prime contractor responsible for the design and manufacture of MH-60R tactical operational flight trainers (TOFTs). The MH-60R TOFTs play a key role in the delivery of a safe environment for training and mission readiness of pilot and sensor operator crews who operate the MH-60R "Romeo" helicopter for the Navy.

MH-60R Missions

The MH-60R, also called the Seahawk, is a multi-mission helicopter used by the Navy for anti-submarine warfare and surface attack. The MH-60R and MH-60S helicopters form the cornerstone of the Navy's Helicopter Master Plan. The two aircraft share a common cockpit and technology. The Navy acquired 254 MH-60R and 271 MH-60S helicopters. The massive overhaul of the Navy's rotary wing fleet was the catalyst for development of a range of new high fidelity training systems.

Contract History

CAE began work on the MH-60R training program in July 2006, at which time CAE won a competitive procurement to design and manufacture MH-60R TOFTs. The MH-60R TOFTs include both an operational flight

trainer (OFT) and a weapons tactics trainer (WTT) that can operate independently or jointly. CAE also delivered an additional TOFT reconfigurable to both the MH-60R and MH-60S helicopter variants.

As the proven success of the MH-60R Romeo helicopter and training system grew, CAE became a member of Team Seahawk, which includes Lockheed Martin/ Sikorsky, to pursue foreign military sales (FMS) opportunities. In 2012 CAE entered the Foreign Military Sales market with deliveries of two MH-60R TOFTs, one Avionic Maintenance / Weapons Loading Trainer, one Rear Crew Trainer, and one Composite Maintenance Trainer for the Royal Australian Navy, and a MH-60R Mission Operational Flight Trainer (MOFT) for the Royal Danish Navy. In 2022 CAE was named by the United States Navy as the MH-60R sole provider of training systems for the Indian Navy and Republic of Korea Navy.

In 2016, CAE won the competitive procurement for a program called the MH-60 Technology Refresh and Procurement of Simulators (TRPS). As part of the "Tech Refresh" program for the U.S. Navy, CAE will design and manufacture new fixed-base MH-60R TOFTs, as well as refurbish the fixed-base SH-60B TOFT, which was originally designed by CAE to be easily converted to an MH-60R TOFT. In addition to the new MH-60R training devices, the Tech Refresh program will involve CAE providing hardware and software updates for existing MH-60R TOFTs. CAE will also provide the

structural integration and MH-60R TOFT interoperability to the Naval Aircrew Training System (NATS). The Tech Refresh program is scheduled to be completed by 2022.

MH-60R OFTs

The MH-60R OFTs are full-mission simulators used to train pilots and co-pilots of the MH-60R helicopter. The comprehensive suite of simulators includes:

- ➔ Fixed-base simulators;
- ➔ Motion-based 6 degree-of-freedom (DOF) electric simulators;
- ➔ Motion seats to provide vibrations and motion onset cues;
- ➔ 220° by 60° collimated out-the-window visual display;
- ➔ Operational night vision goggles;
- ➔ Full-mission and weapons system simulation except for acoustics;
- ➔ Employs actual aircraft operational equipment and software to facilitate concurrency with the evolving aircraft.
- ➔ Cyber compliant Deployment Team maintains cybersecurity accreditations required by DoD 8570.01-M.
- ➔ Cross platform Interoperability and compatibility with Navy Aviation Simulation Master Plan (NASMP).
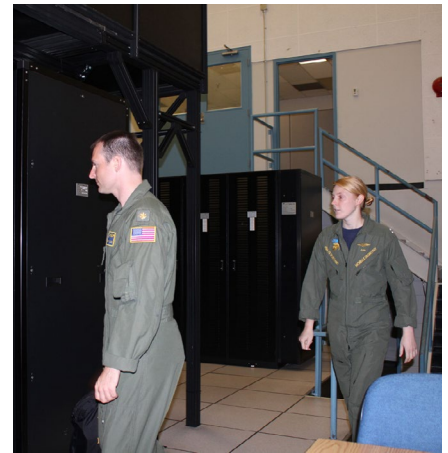
MH-60R WTTs

The MH-60R WTTs replicate the back-end of the helicopter and are used to train sensor operators (SO) and airborne tactics officers (ATO). The MH-60R WTTs feature detailed simulations of the underwater and atmospheric environment and the aircraft weapons and sensors to prepare crew members for anti-submarine and anti-surface warfare missions. Each WTT includes a partially instrumented ATO station as well as a fully-replicated SO station. The WTT also employs actual aircraft mission equipment and software. It includes an automatic flight capability so that full sensor integration and mission training can be accomplished without a pilot when the WTT is operated independently from the OFT. The systems simulated in the WTT include the acoustic processor, dipping sonar, forward-looking infrared (FLIR), radar, electronic support measures (ESM), radios and datalinks including Link-16, sonobuoys, torpedoes and the Hellfire missile. All simulated systems are fully functional in the WTT and include a high fidelity environment for training.

MH-60R Full Crew Tactical Training

When the OFT and WTT are used in joint mode, they become an MH-60R TOFT to provide the Navy with a comprehensive training solution designed to provide a total aircrew mission training system. While operating in this mode, the pilot and co-pilot in the OFT can interact with the sensor operator in the WTT during the training scenario as they would do during a real life submarine hunting or surface warfare mission. Otherwise, when the OFT and WTT operate independently, they can simulate two separate MH-60R aircraft flying in formation using a common database. With the OFT and WTT operating independently, they can simulate two MH-60R aircraft operating in the same environment. In addition, all the MH-60R TOFTs are designed according to the Navy Aviation Simulation Master Plan (NASMP). The Navy has initiated the integration and modernization of all Navy aviation simulation assets to support networked training in a tactically relevant synthetic environment that meets the fleet's training requirements throughout the entire training continuum.