



T-BOS takes flexible, efficient Black Hawk flight training to the battlefield.

Problem: For the first time in U.S. Army aviation history, the Army needed to field new Black Hawk aircraft and train pilots on the aircraft using new Black Hawk flight simulators – simultaneously. This posed several never-before-seen challenges:

- › Simultaneous development and deployment – the new UH-60M aircraft and its training system had to be developed and deployed at the exact same time
- › Multi-mission capable – the training system needed to support simulation training for both the new UH-60M and the previous UH-60L
- › Transportable – pilots needed to train right in the field, so the training system needed to be designed to go virtually anywhere

Solution: The first Army aviation simulator to meet extensive, high-fidelity training requirements and be capable of being deployed to forward operating bases via ship, rail, military air or road – Rockwell Collins’ Transportable Black Hawk Operations Simulator, or T-BOS.

During T-BOS development, the key to solving the Army’s training challenges was in finding efficiencies in all aspects of training system design. Rockwell Collins engineers collaborated with the Army Utility Helicopters Project Office and the System Simulation and Development Directorate to examine such

elements as: the modular design of the system components; integration of the UH-60M aircraft and simulation software; and ways to balance cost, performance and supportability.

Primary breakthroughs in developing the system included:

- › **Using the Operational Flight Program (OFP) software** – this software ensured that the T-BOS and the UH-60M were developed concurrently.
- › **Employing a minimal, modular design** – the conversion from one aircraft configuration to the other included a hardware swap-out of just the main instrument panel, lower and upper console, and flight control grips. Flightworthy hardware and avionics components were limited by using simulated instruments and hardware that looked and felt identical to the actual aircraft. In addition, the system was configured to detect which aircraft model was in place during the power-up sequence of the system.

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- › **Using Army divisional transportation assets and existing components** – the system can be deployed to operate autonomously with its own power and environmental systems or it can use shore power and/or air when available.

Results:

- › The T-BOS is a key player in the digitized battlefield and the only U.S. Army accredited flight-training device for the UH-60M aircraft
- › It was successfully used in the first pilot training for the UH-60M and continues to be the U.S. Army's standard deployable training device for Black Hawk helicopters, training pilots worldwide
- › With its high-fidelity, immersive environment, the T-BOS supports all of the required simulator tasks specified in the UH-60 Aircrew Training Manual and the UH-60M Critical Task List
- › Offering an extensive library of existing terrain databases, the T-BOS gives crews the ability to perform mission planning and rehearsal in real-world tactical areas
- › The T-BOS continues to support all required simulator maintenance test pilot tasks, instrument flight training and all emergency procedures, as well as a host of new simulated 60M-unique operations and updates
- › Commanders can rapidly relocate T-BOS between garrison and field environments – and set up training within eight hours
- › It takes less than four hours to swap configuration between the UH-60L and UH-60M
- › T-BOS minimizes pilot training costs and resources while maximizing supportability and performance

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