

CH-47F Operational Flight Trainer

Overview

The CH-47F Operational Flight Trainer (OFT), offers a high fidelity environment that immerses CH-47F Chinook aircrews in mission scenarios that support a robust training experience. Aircrews are able to gain training on full operational and employment skills, including environmental and threat conditions that could be encountered in the real world.



Spatially and Physically Accurate Cockpit

The CH-47F OFT accurately simulates the aircraft and the mission environment it operates in by providing a cockpit that is spatially accurate in physical and functional features. The OFT cockpit contains instrumentation, control and display devices that replicate the equipment and configuration of the actual CH-47F Chinook cockpit to ensure a realistic flight training environment.

Direction and movement of the controls and switches and the accurate simulation of the navigation, communication, aural cueing, motion cueing and visual system provides an environment that allows student pilots to become totally immersed in training tasks. All panel backlighting is provided with controls and the cockpit contains an over-the-shoulder cross-cockpit video camera that records all cockpit activity for after action review for all day, night and night vision goggle (NVG) operations.

Motion / Vibration Cueing System

The CH-47F OFT cockpit is installed on a three degree-of-freedom (DOF) vibration platform that provides high frequency vibration cues associated with helicopter flight. The vibration platform is then mounted on a six DOF electric motion system, which eliminates environmental issues associated with traditional hydraulic motion systems.

The motion system provides cueing for normal flight, highly dynamic maneuvering flight, emergency conditions, as well as reflecting atmospheric disturbances including winds, gust and turbulence. Cues are provided for ground or surface contact, effects of weapon impacts on the ownship, sling load operations and deployment of personnel.



Visual Display System

The CH-47F OFT is integrated with a 220° horizontal by 60° vertical out-the-window (OTW) visual system display. Separate dedicated chin window displays are also provided. A full complement of vehicles; troops; immobilized vehicles; in-flight missiles and projectiles; animation and special effects; threat air defense units; and tactical smoke combine to support training on a virtual battlefield under a full range of environmental and battlefield conditions. The displayed images depict the speed, path and attitude of the simulated models.



High Fidelity Flight and Communication Models

Flight dynamics and engine models respond to all required flight and power plant controls and simulated environmental conditions (such as temperature, pressure, winds, and turbulence) in accordance with the aircraft performance data. The high-fidelity blade element flight model includes modeling of variation in gross weight, inertias, center of gravity position, fuel, cargo load, sling load and personnel loading.

The CH-47F OFT communication systems provide the functionality required to support all communication system training tasks. This includes the cockpit communication system controls, panels, switches, indicators, displays and helmet connections. All radio simulation is capable of communication across the real-time network to provide interoperability with any other networked simulator or instructor operator station (IOS) role player containing compatible radio simulations.



Virtual Battlespace Environment

Semi-Automated Forces (SAF) provide a realistic, tactically-correct battlefield training environment. The SAF simulates friendly and opposing aerial and ground weapon systems in day, night, adverse weather, selectable environmental conditions (temperature, wind, visibility and ceiling), battlefield obscurants, dynamic terrain, obstacles and weapon flashes. Training exercises are conducted in tactical, target-rich, interactive virtual environments that are correlated to the visual system. The CH-47F OFT provides its own synthetic environment (SE) for stand-alone operation and is able to interoperate with the SEs of other OFTs or compatible simulation systems selected to be in the same exercise.

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