



CAE700MR^{SERIES}

CAE's Mission Reality Helicopter Flight Training Device

Overview

Helicopters continue to serve a variety of critical roles for defence forces, thus requiring high-fidelity and capable training solutions. The CAE 700MR Series is CAE's next-generation flight training device (FTD) that offers an immersive, realistic and cost-effective experience for military helicopter-specific flight and mission training. The CAE 700MR Series is based on the CAE 3000MR Series, a proven full-mission simulator platform. The CAE 700MR is a fixed-base FTD focused on the highest priority design attributes for military helicopter training, such as the synthetic environment, visual system immersion (field-of-view, resolution, database content), cockpit layout and avionics simulation fidelity. The CAE 700MR fixed-based FTD is also ideal for traditional helicopter pilot training, including familiarization and procedures training as well as visual flight rules (VFR) and instrument flight rules (IFR) training. The CAE 700MR Series offers a revolutionary dynamic seat for vibration and motion cueing, maximizing the realism of the training experience on a fixed-based device.

Maximum training value to enhance helicopter mission readiness

The CAE 700MR Series FTD enables:

- Flexibility for aircrew training schedules – not influenced by training aircraft availability;
- More effective training, including tasks not feasible for training on actual aircraft;
- Detailed, high-fidelity synthetic environments for low altitude maneuvering;
- Support for the Open Geospatial Consortium Common Database (OGC CDB) standard enabling more accurate terrain profile and enhanced local terrain features such as coastlines, rivers and roads;
- Lower acquisition costs than traditional full-motion, full-mission simulators;
- Significantly reduced lifecycle operating costs;
- Ease of operation and maintenance;
- World-renowned CAE customer support.

MR^{SERIES} - Mission Reality

CAE's Mission Reality tools provide the training experience required to help ensure mission readiness.

Unprecedented visual realism

The CAE 700MR helicopter FTD features a CAE Medallion-6000MR image generator with high-definition / high-brightness laser projectors integrated in a projected dome display environment. The main configuration provides a 240-degree horizontal field-of-view (FOV) with a 88-degree vertical FOV to provide continuous chin windows coverage. High-density 3D databases based on the OGC CDB standard tailored to helicopter training operations are also included to enhance the immersive training experience. The high performance 120Hz frame rate rendering capability significantly enhances the realism and immersiveness of the synthetic environment by reducing the image smearing effect. The CAE 700MR FTD supports night vision goggle (NVG) stimulation with increased realism coming from a dedicated infrared image generator to allow specific infrared rendering. Alternate configurations providing either a 180-degree or 210-degree FOV are also available.

Distributed Mission Training

The CAE 700MR Series is designed to perform in distributed mission training (DMT) and integrated live-virtual-constructive (iLVC) training environments. The ground-up design focused on mission training in addition to flight training provides all the essential elements for DMT/iLVC:

- Immersive visual system with FOV greater than full-motion training devices;
- Support of the OGC CDB standard, facilitating content reuse, correlated interoperability and fast mission rehearsal;
- High-level architecture (HLA) and distributed interactive simulation (DIS) connectivity to enable networking and interoperability.

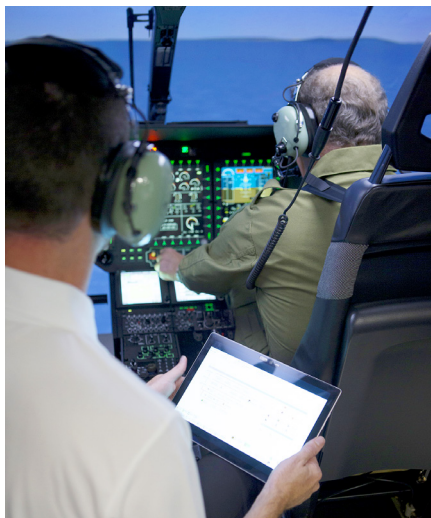


Advanced computer-generated forces

The CAE 700MR Series for military helicopters includes CAE's proven and well-established computer-generated forces capabilities to support complex mission training. Enemy threats behave with realistic behaviors that can be tailored using interactive scenario creation tools. Weapon systems and counter-measures are accurately simulated, including proper ballistics and weapon scoring.

Spacious design

The CAE 700MR Series FTD is built with a spacious area behind the cockpit that can accommodate four people including rear crew, instructors, and observers. The 12-foot radius dome display addresses the full range of helicopter cockpits, and offers a maximum parallax error below 10 degrees.



Innovative vibration and motion cues

The CAE 700MR Series FTD can be designed with an optional, innovative three degree-of-freedom (DOF) vibration and motion cueing system installed on the original equipment manufacturer (OEM) seats. With these dynamic seats, the CAE 700MR FTD can perform many of the training tasks typically performed on a full-motion simulator.

Highly realistic mission training scenarios

- Offshore maritime environments, including wind and 3D wave effects up to Sea State 6;
- Realistic ship deck landings in high seas, including wind turbulence caused by ship;
- Confined area landing procedures;
- Helipad, oil platform, rooftop and pinnacle landings;
- Dynamic scenes in highly detailed urban areas in support of emergency response mission training;
- Night flying and day/night transition;
- Inadvertent entry into instrument meteorological conditions (IMC);
- NVG and forward-looking infrared (FLIR);
- Scenario editors enable customization to specific end-user training needs.

Regulatory requirements

The CAE 700MR Series FTD is designed to meet or exceed global standards for helicopter flight simulation training devices (FSTD), such as International Civil Aviation Organization (ICAO) Type IV, Federal Aviation Administration (FAA) FTD Level7 and European Aviation Safety Agency (EASA) FTD Level 3.

Program examples

CAE is providing Airbus Helicopters H135/H145 synthetic training equipment in support of the United Kingdom's Military Flying Training System (UKMFTS) program. CAE is providing a total of seven CAE 700MR FTDs and one command and tactics trainer (CTT). All the training devices at Royal Air Force (RAF) Base Shawbury are used to support ab initio helicopter pilot training for the Royal Air Force, British Army and Royal Navy.

CAE under contract from the New Zealand Defence Force (NZDF) has provided the Royal New Zealand Air Force (RNZAF) with a CAE 700MR Series NH90 flight training device (FTD). The CAE 700MR Series NH90 FTD was delivered to RNZAF Base Ohakea in 2020 where, upon delivery CAE New Zealand staff provide long term maintenance and support services.



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