CAE Mission Reality (MR) Training Systems

Your worldwide
training partner
of choice

How do you better prepare aircrews for mission success?

With our integrated, immersive and interoperable training systems.

Training and operational support for mission success

CAE is a world-class training and mission systems integrator offering a comprehensive portfolio of simulation-based training equipment as one component of our suite of training and operational support solutions.

CAE knows the importance of having the right tools to help prepare for mission success.

Discover CAE's innovative MR Series training equipment suite ranging from ground school training solutions and Virtual Reality-enhanced devices to full-mission simulators. Enhance proficiency and operational mission training with the industry's leading portfolio of synthetic training equipment. The goal – mission readiness and ultimately success.

MRSERIES **- Mission Reality**

CAE's **M**ission **R**eality tools provide the training experience required to help ensure mission success.

CAE Mission Reality Training Devices

CAE's Mission Reality training devices provide the experience required to help ensure mission success. Our suite of simulation-based training devices address the following:

- ➔ Self-paced training
- ➔ Operational training
- ➔ Collaborative/collective training
- ➔ Integrated live-virtual-constructive (iLVC)

CAE**Simfinity**MR SERIES Digital Classroom (Ground School) Solutions

Virtual Simulator (VSIM):
The complete desktop aircraft simulation

- ➔ Aircraft familiarization tool offering simulation fidelity equivalent to full-mission simulator
- ➔ Instructor-led and self-paced classroom training
- ➔ Intuitive and interactive learning for crews
- ➔ Courseware available to support all training tasks

Virtual Maintenance Trainer (VMT):
The complete desktop maintenance trainer

- ➔ Ideal for system maintenance: familiarization, procedural training and troubleshooting
- ➔ Free play and computer-guided mode
- ➔ Complete interactive system simulation with 3D physical part component

CAE**400**MR SERIES Integrated Procedure Trainers

An optimized use of training time
for normal and abnormal procedures

- ➔ Ground operations and in-flight training
- ➔ Collaborative task procedures

Networked devices for joint training

- ➔ Communications skill development
- ➔ Reinforces team/collective training

3D high-fidelity simulation based
on CAE's full mission simulator

- ➔ Aircraft display and control panel using the latest tactile display technology
- ➔ Integrated cockpit hardware including flight controls (Optional)
- ➔ Intuitive lesson plan builder

Immersive environment

- ➔ State-of-the-art immersive environment (Optional)

CAE Virtual Reality Training Device

A highly realistic virtual reality simulation device for self-paced practice in a small, affordable footprint.

CAE**Sprint**™

The **CAE Sprint Virtual Reality (VR)** trainer is an integral element of the CAE Trax Academy, a comprehensive and integrated training continuum for pilot training.

The CAE Sprint (Self-Paced, Real-time Insights for Next-Generation Training) VR trainer is more than just another simulation-based training device -- it is an integrated, self-paced tool delivering lesson content and guided training to help student pilots acquire and practice requisite skills.

Platform-specific flight controls for optimal realism

➔ Rudder pedals -- combined with physical cues boosted by haptics

➔ Force-feedback Y stick

➔ Throttle

➔ Seat vibration cueing

High-fidelity visual immersion delivered via

➔ VR headset with high-resolution out-the-window visuals

➔ 20/20 visual acuity to read the instrument panel

➔ CAE Medallion-6000MR image generator

Integrated with CAE Rise (Real-time Insights and Standardized Evaluations)

➔ CAE Rise virtual coach for automated guidance (audio and visual) for immediate correction and intervention

➔ Performance assessment, data collection and analytics to capture progress

Common core simulation base ensures continuity throughout the training continuum

➔ From digitally-enabled courseware and self-paced VR trainer to higher-fidelity flight training devices and full-mission simulators a common core simulation base is used across all devices.

The CAE Sprint VR trainer is an affordable training device delivering a high fidelity immersive and interactive virtual environment for pilot training. CAE Sprint can be configured to replicate fixed or rotary wing platforms.

CAE Mission Reality Flight Training Devices

CAE700MR SERIES Rotary Wing

The **CAE 700MR** is a high-end, fixed-base Flight Training Device (FTD) focused on the highest priority design attributes for military helicopter training: synthetic environment; visual system immersion (field-of-view, resolution, database content); cockpit layout; and, avionics simulation fidelity. This highly-immersive FTD helps address the issue of aircraft availability to provide flexibility for aircrew training schedules.

➔ 240-degree horizontal field-of-view (FOV) with an 88-degree vertical FOV to provide continuous chin windows coverage (Alternate configurations provide either a 210-degree or a 180-degree FOV.)

➔ Night vision goggle (NVG) stimulation with increased realism via a dedicated infrared image generator for specific infrared rendering

➔ High-density 3D databases based on the OGC CDB standard, tailored to helicopter training operations

➔ 12-foot diameter dome display addresses the full range of helicopter cockpits

➔ Revolutionary dynamic seat provides vibration and motion cueing

➔ CAE Medallion-6000MR image generator with high-definition/high-brightness laser projectors

➔ Spacious interior design

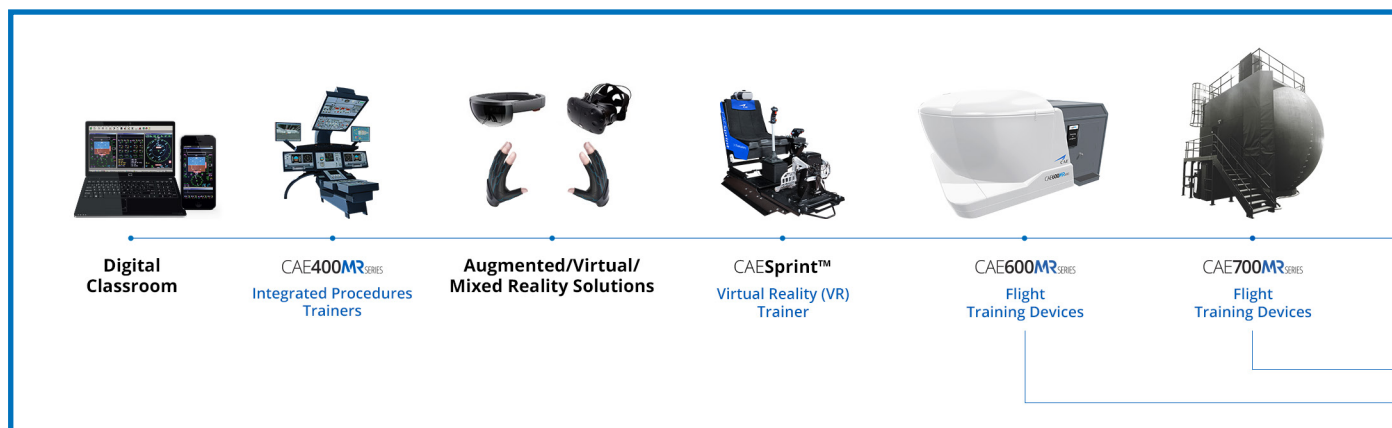— Accommodates up to four people behind the cockpit

The CAE 700MR provides maximum training value via optimal realism to enhance helicopter training and mission rehearsal.

CAE3000MR SERIES Rotary Wing

The **CAE 3000MR** Series helicopter flight and mission simulator, developed with extensive input from CAE's helicopter advisory board with a specific emphasis on providing helicopter-specific mission training, delivers an immersive and realistic training experience for helicopter aircrews.

➔ Extreme field-of-view visual display

— 12-foot dome display capable of an extreme 220 by 88-degree field-of-view

— 10-foot dome display capable of a 210 by 75-degree field-of-view

➔ High-fidelity vibration and motion cues:

— CAE True™ Electric Motion System with six degrees of freedom

— Vibration platform for full cockpit vibration cueing

➔ Simulated tactical environment and sensor simulation

➔ Roll On/Roll Off cockpit interchange capability addresses the needs of a mixed fleet

— Cost effective solution to train crew on various aircraft types

— Docking station to maximize usage of cockpits as a flight training device when not on motion

The CAE 3000MR Series supports an enhanced simulated tactical environment to deliver the realistic mission training required for helicopter aircrews.

| **Digital Classroom** | CAE400MR SERIES Integrated Procedures Trainers | **Augmented/Virtual/ Mixed Reality Solutions** | CAESprint™ Virtual Reality (VR) Trainer | CAE600MR SERIES Flight Training Devices | CAE700MR SERIES Flight Training Devices |

CAE Full-Mission Simulators

CAE7000MR SERIES Fixed Wing

The **CAE 7000MR** is a full-mission simulator, an evolution of CAE's industry benchmark Full-Flight Simulators (FFS). Designed in collaboration with our customers, the CAE 7000MR Series sets a new standard for fidelity in full-mission simulators.

➔ Leverages the latest advancements in technology and training capabilities

➔ Optimizes life-cycle costs via the CAE Sentinel diagnostic application

➔ Re-designed instructor office support for mobile devices

➔ CAE debriefing station with the Simulator Operational Quality Assurance (SOQA) system to assess training effectiveness

CAE600MR SERIES Fixed Wing

The **CAE 600MR** fosters the development of essential skills for mission readiness. The CAE 600MR is a high-fidelity Flight Training Device designed for optimal training capabilities in an immersive, realistic environment.

➔ CAE Medallion-6000MR image generator

➔ Fully tactile cockpit with exact panel positioning

— Tactile primary flight controls

— Tactile secondary flight controls

— FMS display units

➔ Configurable aircraft avionics

➔ Accurate Design Eye Point (DEP), Pilot Eye Point (PEP) and Co-pilot Eye Point (CPEP)

➔ Complete communication systems

➔ Collimated visual system (optional)

➔ Instructor iOS interface

MR SERIES - Mission Reality

CAE's **M**ission **R**eality training devices provide the training experience required to help ensure mission readiness.

| CAE3000MR SERIES | CAE7000MR SERIES | CAE Full-Mission Simulators |
| Full-Flight and Mission Simulators | Full-Flight and Mission Simulators | with CAEMedallion MR e-SERIES VISUAL SYSTEM |

Rotary-Wing

Fixed-Wing

Fast jet/Attack helicopter

CAEMedallion MR
e-SERIES VISUAL SYSTEM **Fighter/Fast-Jet**

The exceptional realism of the **CAE Medallion MR e-Series visual system** is a product of the integration of CAE's best-of-breed CAE Medallion image generator and synthetic environment solutions with leading-edge Commercial-Off-The-Shelf (COTS) projection technology and innovative rear-projection display system for fighter and fast-jet training.

➔ Purpose-built, complete back-projection, 360° display system housed in a dome (a 225° configuration is available)

➔ Leading-edge technology in projection and image generation delivers
— Unparalleled immersive visual experience
— Instantaneous and correct perspective of objects in the scene

➔ E-collimation
— Eliminates parallax error associated with typical small-radius displays,
— Improves Heads-Up Display (HUD) and Helmet-Mounted Display (HMD) registration

➔ State-of-the-art performance system consists of a high-resolution visual system
— Air-to-air and air-to-ground combat
— Realistic target detection, orientation, recognition, and identification (DORI) ranges.

➔ Available enhanced 3D system helps ensure flawless first-time live execution and mission operation of:
— Air-to-Air refueling (boom, hose and rogue)
— Close formation training tasks
— Low altitude flying

➔ Innovative, hybrid NVG mode with dynamic reallocation of image generator (IG) resources for artifact-free visuals

CAE's Medallion MR e-Series visual system offers a cost-competitive, integrated, turnkey training solution to satisfy an extensive range of mission operations in single and tandem seat military fighter, fast-jet and attack helicopter applications.

CAE's range of MR training devices deliver interactive technology in a realistic operational environment fostering the acquisition of the knowledge and skills essential to mission success.

CAE Mission Reality training devices are powered by the Medallion-6000MR Image Generator

CAE Medallion™-6000MR image generators (IG) deliver extreme visual realism for optimal training and mission rehearsal.

CAE Medallion™-6000MR image generators

➔ Leverages industry standard Open Geospatial Consortium Common Database (OGC CDB) architecture

➔ High brightness laser projectors with smearing reduction

➔ Unprecedented night-vision-goggle (NVG) rendering

Networkable with Rear-Crew Trainers in Distributed Mission Training (DMT) for complete crew readiness

➔ High-Level Architecture (HLA)

➔ Distributed Interactive Simulation (DIS)

Advanced Instructor office for improved training efficiency

➔ Increased information density and easy access to advanced functions

➔ Intuitive lesson plan builder

➔ 3D map of aircraft flight path with event markers

Computer-Generated Forces

➔ High-fidelity computer-generated forces with thousands of virtual entities

➔ Intuitive scenario creator for true mission reality

CAE's Medallion-6000MR Image Generators (IGs) support highly realistic and immersive synthetic environments for mission training.

CAE's MR Series Program Highlights

CAE Dothan Training Center

CAE's Dothan Training Center houses an impressive suite of synthetic training equipment that provides a safe and cost-effective environment for pilot training. A range of desktop trainers, CAE Simfinity integrated procedures trainers and flight training devices (FTDs) help provide the required procedural and familiarization training required by fixed-wing aviators. The Dothan Training Center houses four CAE 7000XR Series C-12 Huron full-flight simulators (FFSs), two of which are equipped with CAE's revolutionary roll-on/roll-off cockpit design allowing cockpits representing different configurations of the C-12 aircraft to be used in the simulator.

Royal New Zealand Air Force (RNZAF) CAE 700MR Series NH90 FTD

CAE is under contract from the New Zealand Defence Force (NZDF) to provide the Royal New Zealand Air Force (RNZAF) with a CAE 700MR Series NH90 flight training device (FTD). CAE will deliver the CAE 700MR Series NH90 FTD to RNZAF Base Ohakea in 2020 where, upon delivery of the simulator, CAE will also provide long-term maintenance and support services.

Lockheed Martin/UK Military Flying Training System

Under subcontract to Lockheed Martin, CAE is providing Airbus Helicopters H135/H145 synthetic training equipment in support of the United Kingdom's Military Flying Training System (UKMFTS) program. A total of seven CAE 700MR FTDs and one command and tactics trainer (CTT) have been delivered to Royal Air Force (RAF) Base Shawbury to support undergraduate helicopter pilot training for the Royal Air Force, British Army and Royal Navy.

C-130J simulators for U.S. Air Force

CAE USA, under subcontract to Lockheed Martin, has designed and manufactured every C-130J simulator for the U.S. Air Force. CAE has developed simulators for all variants of the C-130J, including HC-130J, MC-130J, EC-130J, and AC-130J. These simulators have been delivered to all branches of the U.S. Air Force, including Air Mobility Command, Air Combat Command, Air Force Special Operations Command, and Air National Guard. In addition, CAE has developed KC-130J simulators for the U.S. Marine Corps.

CAE Medallion MR e-Series selected by BAE Systems for Royal Air Force Eurofighter Typhoon simulators

CAE is providing the Medallion MR e-Series visual system for Eurofighter Typhoon full-mission simulators for the Royal Air Force (RAF). CAE is providing ten Medallion MR e-Series to BAE Systems, the prime contractor for the Royal Air Force Typhoon Future Synthetic Training (TFST) program, to be integrated into the Typhoon full-mission simulators. In addition, BAE Systems is procuring a CAE Medallion MR e-Series visual system to be used as part of the Typhoon Virtual Environment systems integration lab for evaluation and testing at the company's Typhoon production facility in Warton, Lancashire, UK.

About CAE Defence & Security

CAE's Defence & Security business unit focuses on helping prepare our customers to develop and maintain the highest levels of mission readiness. We are a world-class training and mission systems integrator offering a comprehensive portfolio of training and operational support solutions across the air, land, sea and public safety market segments. We serve our global defence and security customers through regional operations in Canada; the United States/Latin America; Europe/Middle East; and Asia-Pacific, all of which leverage the full breadth of CAE's capabilities, technologies and solutions.

For more information visit our website
cae.com

Your worldwide
training partner
of choice