



# CAE Mission Reality (MR) Training Systems



# 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.

## MR<sup>SERIES</sup> - Mission Reality

CAE's **Mission Reality** 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 addresses the following:

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

## CAESimfinityMR<sup>SERIES</sup> Digital Classroom (Ground School) Solutions

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### Virtual Simulator (VSIM): The complete desktop aircraft simulation

- Aircraft familiarization tool offering simulation fidelity equivalent to a 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 guided mode
- Complete interactive system simulation with 3D physical part component

## CAE400MR<sup>SERIES</sup> Integrated Procedure Trainers

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### 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 or instructor-led practice in a small, affordable footprint.**

### CAESprint™

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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 on fixed-wing or rotary-wing aircraft.

#### Platform-specific flight controls for optimal realism

- Pedals -- combined with physical cues boosted by haptics
- Force-feedback stick / cyclic
- Throttle / collective

#### 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

#### 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 Prodigy Image Generator

#### 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<sup>SERIES</sup> 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 dedicated image generator channels 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 Prodigy 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.

## CAE600MR<sup>SERIES</sup> 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 Prodigy 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 Operating Station interface

## MR<sup>SERIES</sup> - Mission Reality

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



**Digital Classroom**



**CAE400MR<sup>SERIES</sup>  
Integrated Procedures Trainers**



**Augmented/Virtual/  
Mixed Reality Solutions**



**CAESprint™  
Virtual Reality (VR) Trainer**



**CAE600MR<sup>SERIES</sup>  
Flight Training Devices**



**CAE700MR<sup>SERIES</sup>  
Flight Training Devices**

# CAE Full-Mission Simulators

## CAE7000MR<sup>SERIES</sup> 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
- ➔ Re-designed instructor office support for mobile devices
- ➔ CAE debriefing station with the Simulator Operational Quality Assurance (SOQA) system to assess training effectiveness



## CAE3000MR<sup>SERIES</sup> 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 expansive 230 by 88-degree field-of-view
  - 10-foot dome display capable of a 210 by 70-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.



The **CAE e-Series MR Prodigy Visual Display System** integrates CAE's Prodigy gaming-engine-based image generator combined with synthetic environment solutions to deliver stunningly realistic graphics via extraordinarily true-to life visual images. Using Commercial-Off-The-Shelf (COTS) projection technology and an innovative rear-projection display system, CAE continues to lead the way in immersive training for fighter and fast-jet applications.

- 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 drogue)
  - Close formation training tasks
  - Low altitude flying
- Innovative, hybrid NVG mode with dynamic reallocation of image generator (IG) resources for artifact-free visuals

The CAE e-Series MR Prodigy 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 delivers 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 CAE Prodigy Image Generator

The CAE Prodigy image generators (IG) deliver extreme visual realism for optimal training and mission rehearsal.



The CAE Prodigy IG image generator uses gaming engine technology to deliver Industry-leading scene realism optimized for real-life simulation and training.

- High-fidelity gaming-engine generated graphics provide an extremely realistic environment.
- Generates realistic lifeforms
- Provides high scene density
- Enhances lighting with shadows, reflections and raytracing (specular effects)
- Scalable quantities of entities and lifeforms to realistically populate extensive and complex scenarios.
- Supports AI-based technology for 1000-fold increase in realistic scene content
- Accurate interaction of entities and the environment
- High-fidelity models and textures for the complete range of special effects.

CAE Prodigy IG provides true-to-life scenario immersion to satisfy the most demanding mission training needs.

# CAE's MR Series Program Highlights

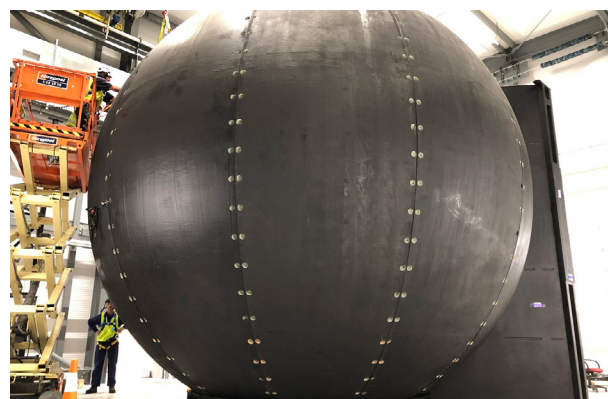
## CAE Dothan Training Center

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, under contract from the New Zealand Defence Force (NZDF), provided the Royal New Zealand Air Force (RNZAF) with a CAE 700MR Series NH90 flight training device (FTD). Delivered and installed at RNZAF base Ohakea, CAE also provides 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 e-Series MR Prodigy selected by BAE Systems and Leonardo Aircraft Division for Eurofighter Typhoon and M-346 simulators

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

CAE is also providing four e-Series MR visual display systems to the International Flight Training School, a joint venture between CAE and Leonardo Aircraft Division, for use on M-346 full-mission simulators at the Italian Air Force base in Decimomannu, Sardinia, Italy.

# 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](http://cae.com)

