

Fighter/Trainer Aircraft Training Solutions



Operating Complex Fighter/Trainer Aircraft Demands The Highest Quality Training

The role of both fighter and trainer aircraft have evolved dramatically as the nature of warfare has changed. Fighter aircraft are highly complex, connected, powerful, agile, and integrated with advanced technologies such as night vision goggles (NVG), helmet-mounted displays (HMD), data links, sophisticated sensors and weapon systems. Lead-in fighter trainers are also incorporating these capabilities and systems as militaries look for ways to offload some of the training requirements from operational combat aircraft to trainers. Whether the fighter or trainer aircraft is operated by one pilot or two crew members, flying on its own, or operating in joint and coalition combat missions, the various roles of these fighter and trainer aircraft place unique demands on the training required.

CAE designs and develops some of the most sophisticated training systems in the world for 4th and 5th generation combat aircraft, and is a leading provider of training solutions for fighter lead-in trainer aircraft. With the industry's most comprehensive portfolio of simulation products and training services, CAE is uniquely qualified to handle fighter and trainer simulation, training, and mission rehearsal needs for today's defence forces. CAE's proven training systems integrator (TSI) capabilities along with its expertise and experience in both fighter and trainer aircraft programs guarantees a highly reliable and effective training enterprise that will contribute to the mission readiness of your aircrews.



Your Training Partner Of Choice

Fighter and trainer aircraft serve a variety of roles for militaries around the world. While some types are specialized for training, the majority of them are specifically designed for combat and capable of performing multi-role, air-to-air, and air-to-surface missions. Today's 4th and 5th generation fighter aircraft are highly complex, dynamic configurations with integrated avionics, mission computer systems, sophisticated sensors and a range of weapon systems, all of which require expert skill and preparation to operate.

CAE provides customers with a more unified and all-inclusive approach to training by optimizing the balance between live and virtual training. We offer a systemic approach to a full-spectrum live-virtual-constructive (LVC) training enterprise that covers academic/classroom training, self-paced learning, simulation-based training and live training, all connected within an integrated learning environment. We deliver comprehensive training – from ab initio and undergraduate individual training all the way through to operational, joint and coalition mission training. CAE partners with its customers to develop and deliver turnkey training solutions, including:

- > Training needs analysis
- > Media evaluation and optimization
- > Instructional systems design
- > Courseware
- > Training devices
- > Instruction delivery and support
- > Learning management information systems
- > Facilities
- > Maintenance support services
- > Logistics support
- > Configuration management
- > Technology insertion
- > Financing





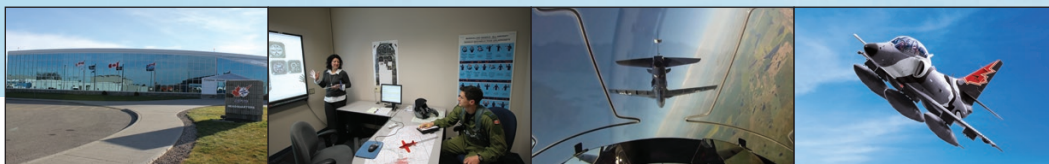
Turnkey Training Solutions

Expanding our capabilities to include live flying training

Training Next-Generation Fighter Pilots for the RCAF and Allied Forces

CAE is the prime contractor responsible for the NATO Flying Training in Canada (NFTC) program that produces qualified military pilots for defence customers. The NFTC program significantly enhances CAE's core capabilities as a global training systems integrator (TSI), and expands our capabilities from simulation-based training to live flying training of future military pilots.

The NFTC program has been in operation since 2000 and includes more than 200 CAE employees supporting the program, which is designed and operated in partnership with the Government of Canada. NFTC combines basic, advanced, and lead-in fighter training as part of the comprehensive pilot training program. CAE operates the NFTC base facilities, delivers the ground-school classroom and simulator training, and supports the live flying training that comprises this world-class, turnkey training system.



CAE's experienced and dedicated workforce delivers training services and in-service support as part of the NFTC program. CAE's expertise and competencies include:

- > Live flight training
- > Flight operations support
- > Courseware development
- > Ground-based academic training
- > Site management
- > Simulator training
- > Program management

In addition to classroom, computer-based, and simulator training, the NFTC program delivers live flying training on a fleet of Beechcraft T-6 (CT-156 Harvard) trainer aircraft and BAE Systems Hawk (CT-155 Hawk) lead-in fighter trainer aircraft. CAE is also responsible for full maintenance and operation of the aircraft under

the governance of Canada's Department of National Defence airworthiness program. Along with the Royal Canadian Air Force, other NATO partners and allies have sent student and instructor pilots through the NFTC program.

Aggressor/Adversary Training

CAE has partnered with Draken International, operator of the world's largest fleet of privately-owned fighter aircraft, to pursue Canada's Contracted Airborne Training Services (CATS) program. The combined CAE/Draken offering will provide a comprehensive, realistic and more challenging training experience for adversary and threat training. In addition, CAE and Draken are planning a research and development program aimed at developing the next-generation live-virtual-constructive (LVC) training capabilities for adversary and aggressor air training services, which will be increasingly important for effectively training 5th generation fighter pilots.

CAE – A Leading Training Service Provider

CAE has been providing training support services to our customers around the world for nearly 70 years. We have the largest training footprint in the industry with approximately 8,000 employees at more than 160 sites around the world. Our team of experts have the knowledge and skills required to deliver training and in-service support services to our fighter and trainer customers to help ensure they are always mission ready.

As a training system integrator, CAE's offering includes professional and support services such as project management, training and courseware development, integrated learning management systems, systems engineering, human factors and in-service support. Our expert instructors deliver classroom, simulator and live flying training to support the learning and education of aircrews. Our vision is to be the global training partner of choice to help our customers enhance safety, improve efficiency, and maintain readiness.





In addition, CAE has been providing in-service support solutions such as systems engineering, integrated logistics support and avionics software upgrades to the Royal Canadian Air Force as part of the CF-18 fighter program for over 25 years. CAE has achieved the Capability Maturity Model Integration (CMMI) Level 5 certification for its team supporting the CF-18 fleet. This is the highest quality standard possible for software engineering and CAE is one of the few organizations in Canada to be Level 5 certified. CAE is a true partner providing our customers with mission and weapon system capabilities that are optimized and always operationally ready.



Technology Leadership & Innovation

CAE is uniquely qualified and focused on simulation-based training for militaries around the world. For almost seven decades, CAE has maintained its reputation for technology leadership and innovation specific to training. We design and develop some of the most advanced simulation-based training systems in the industry for fighters, and comprehensive ground-based training systems for lead-in fighter trainer aircraft.

Benefits

- > Realistic, immersive training experience
- > Considerable cost savings
- > Increased efficiency and reduced risks
- > Allows pilots to practice manoeuvres that would not be possible to train for in the real aircraft
- > Realistic scenario in which full sensors and mission systems can be trained
- > Reduces wear and tear on operational aircraft by maximising the use of simulation-based training
- > Provides vast synthetic battle space for training with no airspace limitations

Night Vision Goggles (NVG)

CAE offers NVG training solutions for fighter aircraft crews to learn how to safely and effectively operate at night. Combining CAE's simulation-based NVG with our flight simulators will provide a realistic, fully-immersive environment for pilots and crews to prepare for mission success.

Collective Training Made Possible

Distributed mission training and mission rehearsal is made possible by using networking capabilities across devices and platforms for combined air training, joint and coalition training for increased mission readiness.



Instructor Operator Station (IOS)

CAE has developed a multi-functional off-board and tactical control instructor operator station (IOS) that is powerful and easy to use. The IOS will increase effectiveness of training during simulator sessions.

Immersive G-Cueing System

CAE's dynamic G-cueing system is comprised of a G-seat, G-suit, and lap-belt elements that provide a realistic representation of the motion cues experienced by fighter aircrews during flight for a more realistic and immersive training experience.



Air-to-Air Refuelling

Air-to-air refuelling is a demanding, high-risk flying task, critical to military operations. Performing air refuelling training in a life-like simulated environment ensures the aircrews are trained safely and efficiently at a fraction of the cost of live aircraft.

Weapon Systems Simulation

CAE simulates all weapon systems to provide a true mission training capability for both air-to-air and air-to-ground weapons delivery.

High-Fidelity Visual Systems

CAE's simulation-based training solutions are equipped with our integrated, high-fidelity visual systems including leading-edge target projection system and Head-Up Displays (HUD) that provides superior fidelity to help customers achieve mission readiness.

Real World Representation

The use of synthetic environments creates a realistic, immersive training experience while increasing efficiency, cost-savings and mission preparedness.

Advanced Simulation-Based Sensors

CAE offers leading-edge training solutions for Electronic Warfare (EW), Forward-Looking Infrared (FLIR), and radar systems to ensure our customers have the capabilities required to face today's complex systems and mission requirements.

Realistic Flight Controls

CAE's high-fidelity simulation of the electric control loading system provides pilots with realistic aircraft flight control forces and handling characteristics for increased training realism.

Program Highlights

CAE has designed some of the most advanced training systems for fighter and trainer aircraft around the world. Our customers benefit from CAE's unique training and simulation experience that helps ensure their training needs are met. Our training solutions allow our customers to train in a safe, low-risk, and cost-effective environment, rehearsing missions that otherwise would be difficult and dangerous to perform in live aircraft.

Eurofighter Aircrew Synthetic Training Aids (ASTA)

CAE's Medallion image generator is used on the Eurofighter Aircrew Synthetic Training Aids (ASTA) program, providing pilots with a fast response, high resolution visual cue environment to support advanced fighter tactical training. CAE has also provided front projection dome and rear projected mosaic displays for the Eurofighter simulators to create a complete visual solution and immersive training environment. In addition, CAE is responsible for developing the synthetic and interactive threat environments for all of the Eurofighter training devices, including the full-mission simulators, cockpit trainer/interactive pilot stations, and other ancillary devices.

Finmeccanica Aircraft Division M-346

CAE is Finmeccanica's preferred full-mission simulator and training device supplier for the M-346 advanced lead-in fighter trainer aircraft. As part of the ground-based training system (GBTS) for the M-346, CAE has the responsibility for designing and developing a range of M-346 training systems, as well as delivering training support and maintenance services. CAE has developed and delivered a range of M-346 training systems for the Italian Air Force, Republic of Singapore Air Force, Israeli Air Force and Polish Air Force.





German Air Force Tornado

The Tornado is a long-serving combat aircraft used for strike missions, battlefield interdiction, close air support and reconnaissance. With the variety of roles for which the aircraft is used comes the requirement for a comprehensive training solution capable of preparing the pilot and weapon systems officer for the range of missions performed. CAE has developed all the Tornado full-mission simulators and training devices for the German Air Force, and continues to provide upgrades as well as on-site maintenance and support services in Germany and at the German Air Force Flying Training Centre at Holloman Air Force Base in the United States.

Other Program Examples

CAE has been involved in delivering a range of training devices and training support services for other fighter and trainer aircraft, including:

M-346



Italian Air Force, Polish Air Force, Republic of Singapore Air Force, Israeli Air Force

Hawk 128



U.K. Military Flying Training System (MFTS)

Hawk 132



Indian Air Force

A-10



U.S. Air Force

AV-8B



U.S. Marine Corps

F/A-18



U.S. Navy

T-50



Korea Aerospace Industries

F-16



Havelsan/Turkish Air Force

Hawk Mk127



Royal Australian Air Force



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