

CAE Simfinity™

Suite of training devices

Training programs are typically composed of equipment and services originating from multiple vendors, leading to differences in simulation fidelity between training devices, a lack of consistency, and consequently, a loss of continuity in the training environment. This increases the risk of negative training and limits the ability to improve training efficiency. Concurrency between the training assets and the actual platform is often compromised. Training is often not available outside of the training facility, resulting in skill fade and less than ideal readiness levels.

With the CAE Simfinity suite of training devices, we offer total, integrated training solutions fulfilling the training requirements for a complete ground school, including practice tools, instructor-led courses, self-paced courses, three-dimensional trainers, and full-mission simulators (FMS). The entire portfolio of products utilizes a common core simulation - CAE's full-mission simulator software.

The integration of line-replaceable unit (LRU), cockpit-initiated built-in test equipment (BITE), and component locations provides maintenance personnel with exceptional training and troubleshooting tools. Web-access to the simulation software allows training anytime and anywhere for review, refresher, and recurrent training, as well as on-line troubleshooting.

Virtual simulator (VSIM)

The CAE Simfinity virtual simulator (VSIM) is a powerful familiarization and practice tool for pilot training that provides access to all aircraft systems. The VSIM offers the functionality of a FMS on a laptop, giving you the ability to perform almost all procedures as if you were in the cockpit of the FMS. The VSIM may be used by an instructor as a classroom aid, or in the curriculum as a free play environment for discovery learning and training on system faults and malfunctions. It can also be used as a briefing and de-briefing tool for self-paced courseware and for previewing training sessions in a full-mission simulator.

The avionics trainers are subsets of the VSIM with a focus on the interfaces (cockpit panels and schematics) relevant for a specific avionics system such as the flight management system, navigation system, communications system, or defensive aids system suite. They can be used to run courseware or free play scenarios and can interface to the actual display equipment. Wherever possible, they incorporate the actual operational flight program (OFF) software to ensure concurrency with the aircraft platform.



Simulation-based courseware

CAE Simfinity simulation-based courseware (SBC) provides real-time high-fidelity self-paced or instructor-led courses for aircrew and maintenance training. SBC lessons are offered for knowledge-based training (systems review) as well as skills-based training (procedures training). Courseware includes multiple learning modes and student performance tracking and recording capabilities through a learning management system (LMS).

CAE instructor aid tool

The CAE Simfinity instructor aid tool (IAT) is an interface from which the VSIM, Powerpoint and many other applications can be accessed (i.e. Word, PDF, Flash, video). Instructors can access training material during classroom instruction using the IAT. The IAT can also be used for more effective briefing and debriefing sessions within a self-paced training environment.





Integrated procedures trainer (IPT)

The CAE Simfinity integrated procedures trainer (IPT) provides aircrews with realistic procedural training in a three-dimensional spatial environment. The IPT uses multiple touch-sensitive screens to display the actual cockpit environment in a 1:1 ratio as well as to display active schematics. The IPT is easily reconfigurable to multiple aircraft types and can be enhanced with hardware panels and throttles to further enhance the pilot training experience and increase training credits. For maintenance training, BITE can be added to the IPT. This trainer is the answer to the need for high fidelity and cost-effective flight training devices. The IPT can be used in freeplay with the assistance of an instructor, or self-paced by running the simulation-based courseware.

Virtual maintenance trainer (VMT)

In addition to VSIM functionality, the CAE Simfinity virtual maintenance trainer (VMT) combines LRU, cockpit-initiated BITE, and component location to provide a “virtual aircraft” where systems familiarization, maintenance procedural training, and troubleshooting can be taught. The VMT offers the ability to display cockpit panels and instruments, and to save and recall layouts.

It also includes a library of malfunctions and active schematics interacting in real-time in a high-fidelity simulated environment. This makes the VMT a powerful desktop training tool for both pilot and maintenance training.



Programs

Recent applications of CAE’s Simfinity technology include the following.

- **Australian Defence Forces.** Under a program called the next-generation simulated aircraft maintenance trainer (SAMTGENX), CAE delivered Simfinity-based courseware and virtual maintenance trainers (VMT) for the Australian Army’s Black Hawk and Royal Australian Navy’s Seahawk maintenance personnel. The courseware and desktop trainers give maintenance technicians the ability to diagnose and troubleshoot aircraft systems, avionics and flight control systems in real-time, using the full simulation software.
- **US Navy C-40 Training.** CAE is providing initial and recurrent pilot groundschool and simulator training at its Dallas facility for U.S. Navy Reserve C-40 aircrews. As part of the training curriculum, aircrews train on the CAE Simfinity C-40 (737-700) VSIM. This offers the ability to display cockpit panels and instruments, and can save and recall layouts. It also includes a library of malfunctions and active schematics, all interacting in real-time in a high-fidelity simulated environment.
- **CH-53 Courseware.** CAE has produced a Simfinity module for the German Army Aviation School covering engine startup and shutdown procedures for a CH-53 helicopter. The courseware has been developed to train and test the student in the correct procedures under both normal and abnormal conditions. This has reduced the time in the aircraft or full mission simulator. Four additional training modules have been developed for training on the CH-53 helicopter’s electronic warfare and defensive system suite. In addition, CAE is currently developing NH90 virtual maintenance trainers for the German Armed Forces.

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