Flight Simulation Training Systems

Supporting Commercial Aviation Worldwide

FlightSafety
international

World-Class Simulation.
Worldwide Reach.

FlightSafety International is a world-leading supplier of advanced-technology training devices designed to ensure the safety and proficiency of commercial aircraft operators around the globe. We serve as a vertically integrated expert in the design, manufacture and support of Level D-qualified full flight simulators, advanced flight training devices, visual systems and displays. We have manufactured more than 720 full flight simulators, including 155 for transport category aircraft.

From our extensive worldwide network of Learning Centers – located in Asia, Europe, North and South America and Africa – we deliver more than 1.4 million hours of training each year to customers from 167 countries, with almost 700,000 hours delivered in simulators. We provide factory-authorized training for the vast majority of business and regional aircraft manufacturers, including professional pilot and maintenance technician training for 135 aircraft models and more than 4,000 courses.

Innovative, Industry-Leading Technology

Whether seeking a single flight-training device or a complete turnkey training facility, FlightSafety stands ready to meet your needs. We customize our simulators for the ever-changing demands of the commercial air-transport market.

- We offer decades of simulator design and manufacturing experience, enabling us to replicate the operating characteristics of virtually any commercial aircraft. We have built simulators for a wide range of aircraft manufactured by ATR, Airbus, Beechcraft, Boeing, Bell Helicopter, Bombardier, Cessna, Dassault Falcon, Embraer, Fairchild Dornier, Fokker, Gulfstream, Honda Aircraft, Hawker, Jetstream, Leonardo Helicopters, Lockheed Martin, McDonnell Douglas, Northrop Grumman, Piaggio, Saab and Sikorsky.
- FlightSafety simulators are built to Level D standards and are qualified by government authorities worldwide.
- Our state-of-the-art simulation design, manufacturing and support facility has enabled us to increase simulator production to meet the immediate needs of the global aviation market.
- We provide a broad range of design and engineering expertise, covering every aspect of simulator design and manufacturing. This includes everything from fundamental R&D through avionics development (re-host or re-engineered applications), advances in cueing, aerodynamic performance, image generation and display solutions.

FlightSafety delivers turnkey service to establish, operate and support highly effective, cost-efficient training facilities for airlines. We have worked with airlines in North and South America, the Middle East, Africa, Asia and Europe to establish new training centers and to support existing facilities. Our services include a team of architects and learning-workflow designers who are highly experienced in successfully developing efficient and effective layouts for training centers. We design, manufacture and install new simulators, advanced training devices, classrooms, aircraft systems and crew emergency trainers.

Equipment and Training Systems for the Largest Members of the Fleet

Integrated Training Solutions

Thanks to our work and experience with commercial aircraft operators worldwide, we have perfected an integrated approach to developing highly effective and cost-efficient turnkey in-house training facilities.

FlightSafety simulators are:
- Part of an integrated training system that includes classroom simulation equipment, flight training devices, full flight simulators and post-flight debriefing systems.
- Used by airlines and leading organizations worldwide.
- Known for offering the highest level of realism and fidelity.
- Designed for maximum reliability and ease of maintenance.
- Relied upon for their advanced instructional capabilities.
- Supported by our dedicated team of engineers and specialized technicians.

Deep Resources and Experience

As a wholly owned subsidiary of Berkshire Hathaway Inc., one of the most respected and financially secure companies in the world, we have the resources to support and deliver on even the largest projects. Our founding in 1951 and long-standing industry leadership give us an unrivaled depth of experience. Our simulation products benefit from more than 65 years of training experience.

The refinements of each FlightSafety simulator are the result of millions of hours of real-world training.

Innovation With One Purpose: Safety

› Custom-equipped, modular design

› Designs based on 65+ years of experience

› ISO 9001:2008 certified quality

› Worldwide support

› Industry-leading fidelity

› VITAL systems imaging

› High-resolution visual database

› Electric motion and control loading

› Reliable operation and exceptional availability

› MATRIX integrated training devices that incorporate Level D full flight simulator software

99%
FlightSafety simulators are built to exceed a 99 percent reliability standard.

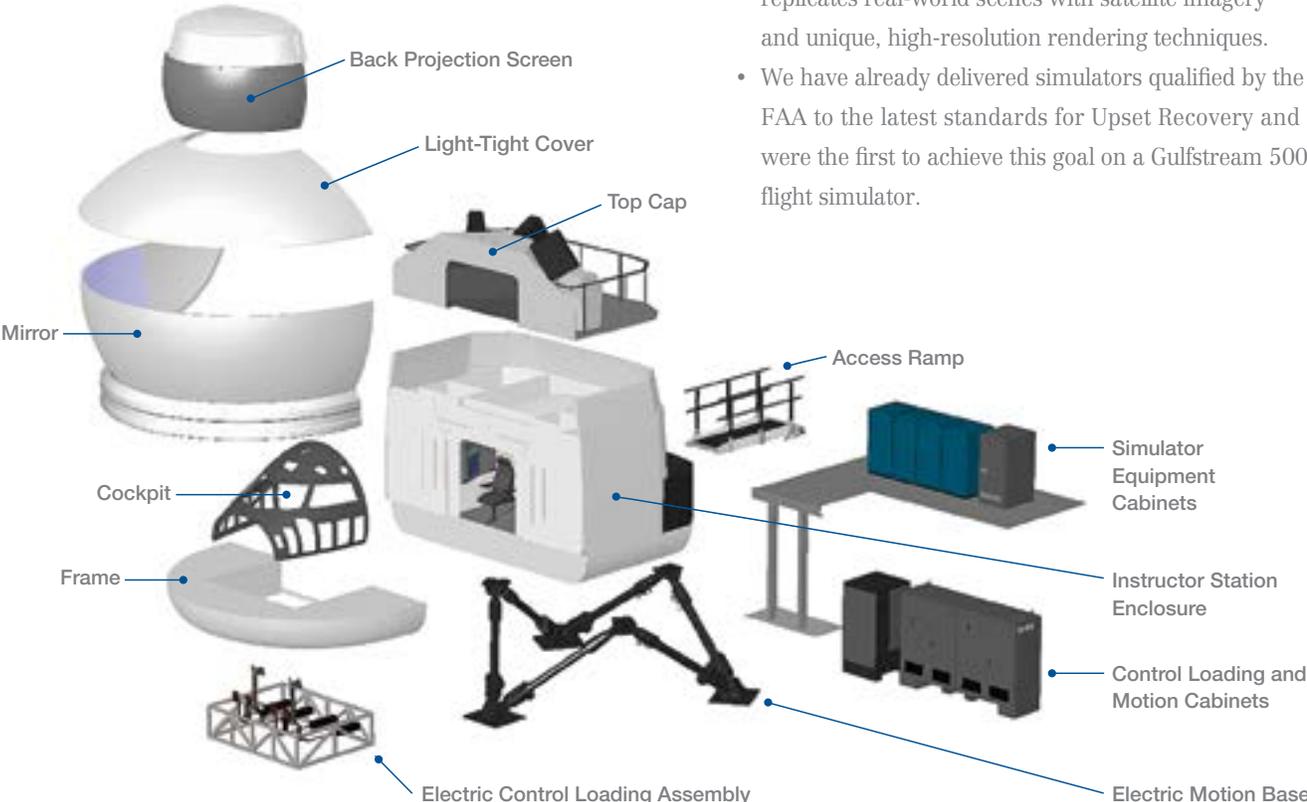# Advanced Flight Simulation Tools for Superior Training

FlightSafety is a world leader in the engineering, manufacture and support of full flight simulators and other advanced-technology training devices. Commercial, government and military organizations worldwide rely on our equipment for their training programs. Our full flight simulators provide the highest level of realism and fidelity in aircraft simulation. They feature advanced instructional capabilities designed to exceed our 99 percent reliability standard.

Recent advances in simulation technology by FlightSafety engineers have further increased fidelity and created a more secure training environment.

- We were the first to engineer, manufacture and deploy flight simulators equipped with electric motion and control loading technology. This enhances motion fidelity, eliminates the need for hydraulic fluids and reduces ambient noise and energy consumption.
- Our latest state-of-the-art VITAL 1100 visual system replicates real-world scenes with satellite imagery and unique, high-resolution rendering techniques.
- We have already delivered simulators qualified by the FAA to the latest standards for Upset Recovery and were the first to achieve this goal on a Gulfstream 500 flight simulator.

Back Projection Screen

Light-Tight Cover

Top Cap

Mirror

Access Ramp

Cockpit

Frame

Simulator Equipment Cabinets

Instructor Station Enclosure

Control Loading and Motion Cabinets

Electric Control Loading Assembly

Electric Motion Base

- We have incorporated widespread use of PC-based architecture and MS Windows simulation that provides accurate simulation and motion cues required for a wide variety of aircraft ranging from light twins to wide-body transports to helicopters.
- We have manufactured simulators for more than 80 different aircraft types in the past five years.
- We provide engineering and logistic support to approximately 400 simulators worldwide. Skilled factory-trained technicians from our manufacturing site and throughout our network of Learning Centers provide full and prompt product service, technical support and spares around the world.

Electric Motion and Control Loading

FlightSafety pioneered the use of electric motion systems in flight simulation. Our reliable electric motion and control loading-equipped simulators offer the highest level of fidelity, enhanced performance and increased availability due to a reduction in maintenance requirements. They incorporate our Objective Motion Cueing algorithms to ensure the highest level of realism.

- These simulators have been qualified by the FAA, CAA, DGAC, JCAB, LBA, EASA and other aviation authorities.
- They are in service at FlightSafety Learning Centers, military installations and commercial Customer sites worldwide.

MATRIX Integrated Learning

FlightSafety's integrated learning system – MATRIX – brings the realities of the Level D simulator experience into the classroom and to other training devices. MATRIX consists of the DeskTop Simulator, Integrated Courseware and Graphical Flight-deck Simulator. This innovative suite of flight training tools features shared applications and graphics. By drawing on the same powerful software that drives our Level D full flight simulators, MATRIX creates a consistent progression of training suitable for the most rigorous proficiency demands.

DeskTop Simulator

The DeskTop Simulator can be used for instructor-led or self-paced instruction. It is an interactive PC-based training system used to demonstrate and learn the function and control of aircraft systems. It provides an interactive representation of the cockpit displayed on multiple touch-screen monitors. This enables the pilot or technician to monitor or execute all the functions that would be performed in an aircraft.

Graphical Flight-deck Simulator

The Graphical Flight-deck Simulator provides an interactive representation of the cockpit displayed on multiple touch-screen monitors. This allows the user to monitor or carry out virtually all the functions that would be performed in the aircraft. System schematics and flows are illustrated through animated graphics. An instructor operating station with the same appearance provides control of the Graphical Flight-deck Simulator, just as on our full flight simulators.

SimVu Debriefing

Our PC-based, SimVu debriefing system maximizes training efficiency with remarkable new perspective and value. It captures data from simulator sessions to create a layered visual debriefing. The large interactive, super-high-resolution monitor displays the complete training experience from multiple points of view, showing exactly what happened inside and outside the cockpit – from airspeed, altitude, aircraft orientation and engine performance to an exterior view of the animated flight path, destination airport and more. This allows immediate reinforcement of training lessons and gives pilots and instructors a chance to identify areas for special emphasis. This includes small, but important, irregularities that may have been missed during flight.

Watch on synchronized screens as SimVu replicates a simulation session on an animated instrument panel while a 3-D display shows the aircraft's response to commands. Replay simulator sessions in fast, slow, single-step or at various speeds including real time.

SimVu

Follow cockpit instrumentation, graphs, electronic Jeppesen charts and digital audio and video. Optionally access other types of geo-referenced charts.

VITAL Visual System

FlightSafety's VITAL visual system provides pilots with simulator training that features realistic, detailed, high-resolution views designed to enhance safety. More than 1,000 VITAL visual systems have been designed, manufactured and installed in 42 countries to date.

- VITAL 1100, our current state-of-the-art visual system, provides high-performance, low-cost training solutions for both civil and military applications. VITAL 1100 incorporates Commercial-Off-The-Shelf (COTS) PC graphics hardware, advanced PC Graphics Processor Unit (GPU) and a comprehensive Display Management System. These components dramatically reduce initial and recurring system costs, maximize system performance, improve scene fidelity, optimize display quality and enhance system flexibility. The system replicates real-world scenes with satellite imagery and unique, high-resolution rendering techniques.
- Multichannel image generators display high-resolution, photorealistic images and provide up to 512 six-degrees-of-freedom moving models with full animations and articulations.

- Combined with the latest state-of-the-art high-resolution projectors, VITAL 1100 wraps the flight deck in a seamless image and reproduces day and night scenes accurately for all kinds of weather. It is capable of producing up to 500,000 polygons per channel along with accurate environmental conditions, providing stunning detail and rich scene content.
- VITAL 1100 flight operations include visual navigation, instrument flight and landing capabilities.
- The system is compatible with NVG, HUD and EVS and supports FLIR, ColorTV, LLTV/EO, ALLTV and DVO sensors and exceeds FAA Level D standards.
- VITAL 1100 provides a whole-Earth model called Global Synthetic Natural Environment (GSNE). The worldwide database incorporates the latest terrain information with geo-specific satellite images for unprecedented realism. This allows the user to fly continuous, no-break flights anywhere in the world.
- Our CrewView solid mirror display solution provides a bright, high contrast, distortion free out of the window scene over a field of view of 200 by 40 degrees. In fact, fields of view as great as 300 by 60 degrees can be provided if needed.

Training simulation visual depicts busy commercial terminal.

Photo realism delivers highest fidelity for maximum training benefit.

Worldwide database includes specific commercial airports.

Geocentric databases support worldwide flight with no discontinuity, distortion.

A Center of Simulation Excellence

Our state-of-the-art manufacturing center in Broken Arrow, Oklahoma, keeps us on the cutting edge of simulator engineering and training fidelity. We designed the center to follow a lean manufacturing workflow to ensure maximum efficiency and the highest quality.

The 375,000-square-foot center, which opened in 2011, features 19 full flight simulator assembly positions, allowing us to proceed simultaneously with a wide range of projects.

Efficient, Energy-Saving

Our facility includes dedicated areas for component manufacturing, final assembly and shipping and receiving as well as sections for engineering, Customer service and logistics support. The entire facility is designed and built to conserve energy and to provide an efficient and productive work environment.

World-Leading Supplier

We have designed and manufactured more than 720 full flight simulators and more than 100 other advanced training devices since 1978. We use our simulators exclusively in training programs for pilots, aircraft maintenance technicians, flight attendants and other aviation professionals at Learning Centers across the globe. We also are a leading supplier worldwide of aviation training devices to airlines, governments and military agencies.

Commercial
Air Transport Support

Whether you're training for an Airbus, Boeing, Bombardier Regional Jet, Embraer or another commercial aircraft, your FlightSafety simulator faithfully reproduces the look, feel and performance of your aircraft.

FlightSafety has built more than 130 simulators for commercial aircraft, including the following:

- ❯ **Airbus A320, A350**

- ❯ **Boeing 717, 737C, 737NG, 757, 767, 777**

- ❯ **Embraer 135, 145, 170, 190, 195, E2**

- ❯ **Beech 1900**

- ❯ **Bombardier DASH 8 Q100/Q200/Q300, Q400**

- ❯ **Bombardier CRJ200, CRJ700, CRJ900**

- ❯ **Fokker 100**

- ❯ **McDonnell Douglas DC-9 and DC-10**

- ❯ **ATR 42 and 72**

ThinkSafety.

FlightSafety International is the world's premier professional aviation training company and supplier of flight simulators, visual systems and displays to commercial, government and military organizations. The company provides more than 1.4 million hours of training each year to pilots, technicians and other aviation professionals from 167 countries and independent territories. FlightSafety operates the world's largest fleet of advanced full flight simulators at Learning Centers and training locations in the United States, Australia, Brazil, Canada, China, France, Japan, the Netherlands, Norway, South Africa and the United Kingdom.

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