AeroTrain Corp. has gone through an evolutionary process from a modest start in 1995 as a dba (doing business as) company named ‘Systems Solutions’ to a Michigan-incorporated company in April 2001 as ‘Avitek Engineering Corporation’. The company name was changed to the current name ‘AeroTrain Corp.’ in 2006 to show our total focus on aircraft training products.

With a customer base spread in 23 countries, AeroTrain is your one-stop source for aircraft maintenance training equipment needs. We have sound expertise in developing standard and customized training-aids for aircraft systems training.

Our expertise includes design and development of training-aids for avionics, aircraft engines, aircraft systems, instruments, and electrical systems relevant to aircraft maintenance training. We have made substantial investments over last eight years in the development of multimedia computer based training (CBT) courseware. Consequently, we have a very wide range of CBT modules that cover almost all major topics taught in a typical aircraft maintenance training program.

Besides supplying training aids, AeroTrain Corp. also offers consulting services for the development of Federal Aviation Administration (FAA) Part 147 and European Aviation Safety Agency (EASA) part 147 approved curricula for aircraft maintenance training schools. We have recently begun offering our consultation services to universities for the establishment of undergraduate degree programs in Aerospace Engineering, and in Avionics Engineering.

We look forward to expanding our customer base and are continuously striving to improve our product quality and capabilities, to ensure on-time deliveries, and to provide excellent after sales support.
Aircraft System Trainers

Our system trainers provide hands-on training environment for aircraft maintenance training. Trainees learn not only the principle of operation of various aircraft systems, but they can also perform some maintenance tasks that closely replicate the real life scenarios. Our aircraft system training equipment incorporate actual aircraft parts to provide a good understanding of the real systems found in current aircraft.

We can bundle the trainers with comprehensive training materials including operating manual, study guide, practice questions, and computer-based training (CBT).

We are always keen to discuss with our customers’ to develop custom-made trainers for any specific requirements. Please contact AeroTrain for further information. AeroTrain can offer training solutions tailored to your specific requirements.

Landing Gear System Trainers
- Hydraulic Landing Gear System Trainer (Single L/G)
- Tricycle Hydraulic Landing Gear System Trainer (Three L/Gs)
- Anti-Skid Brake System Trainer
- Brake System Trainer
- Nose Gear Display
- Main Gear Display
- Tricycle Landing Gear Display
- Hydraulic System Trainer
- Fluid Lines and Fittings Trainer
- Pneumatic System Trainer
- Aircraft Oxygen System Trainer
- Ice and Rain Protection System Trainer
- Fire Detection & Extinguishing System
- Aircraft Galley Equipment Trainer
- Aircraft Lavatory System Trainer
- Helicopter Transmission System & Flight Controls Trainer

Environment Control System Trainers
- Cabin Pressurization System Trainer
- Air-conditioning & Heating System Trainer
- Air Cycle Machine Trainer
- Vapor Cycle Air-conditioning Trainer
- Janitrol Combustion Heater Trainer

Fuel System Trainers
- Turbine Aircraft Fuel System Trainer
- TCM Fuel Injection System Trainer
- Fuel Measurement System Trainer

Electrical System Trainers
- Aircraft Electrical System Trainer
- Aircraft NiCad Battery Maintenance Training System
- Electrical Fundamentals Training Kit
- Electronics Fundamentals Training kit
- Basic Electricity Trainer
The Model AS-01 Tricycle Landing Gear Trainer can be used by students for hands-on training related to light aircraft landing gears. The students’ task may include:

- Inspection and maintenance of nose wheel steering mechanism
- Shock strut inspection and maintenance
- Shock strut disassembly and reassembly, and
- Hydraulic brakes inspection and maintenance.

The Tricycle Landing Gear Trainer is fitted with actual aircraft parts that includes tires, tubes, wheels, dual Cleveland single-disc brakes, nose-wheel steering mechanism, brake pedals, dual brake-fluid reservoirs, master cylinders and hydraulic plumbing for the brakes. One of the three shock struts has a cutaway to expose the internal mechanism, while the other two are complete, and functional shock struts.

The trainer is mounted on a frame with caster wheels for easy mobility. As an additional option, the trainer may be fitted with electrical actuators for retraction and extension operation (Model AS-01-E).

(Model AS-01 shown without the caster wheels)

Dimensions:
48L x 48W x 64H inches

Manuels & Documentation
- Operation/Maintenance manual
- Instructor’s manual
- Student’s manual
- Technical reference manual
- Wiring diagram (for Model AS-01-E)

Computer Based-Training (CBT)
The trainer is bundled with CBT covering the relevant topics, that explain the essential concepts in an easy-to-understand explanation together with clear graphic and animations.
Aircraft Electrical Landing Gear Trainer Model AS-04 is functional model to demonstrate electrical operation of a landing gear. Its design is based on actual control circuits found in currently flying aircraft.

**Features:**

**Limit Switches:**
Uplock switch, Downlock switch, Throttle Switch

**Indicators:**
Gear Up (Red), Gear Down (Green)

**Controls:**
Gear Operation Lever, Simulated Throttle

**Circuit Breakers:**
AC Mains to 28 VDC Power Supply, DC Master Power, L/G Motor, Control Panel

**Relay:**
Gear Motor Relay/Contactor
Ground Safety Switch Simulation
A moveable surface under the wheel simulates aircraft on ground.

**Warning:**
Audio Horn (below 33% Power when gear is up)
Flasher Unit

**Mobility:**
Mounted on four casters

**Overall Dimensions (approx.):**
Height: 48 inches, Width: 33 inches, Depth: 18 inches

**Power Supply:**
110 VAC 60 Hz or 220-240 VAC 50 Hz

**Testing/Troubleshooting:**
All signals will be available on a terminal strip.
Instructor’s Panel for fault insertion.

**Training Documentation:**
Circuit diagram, Training Manual, Instructors supplement
The Landing Gear Mechanism Trainer is very valuable equipment for the hands-on training for aircraft maintenance training schools. It is essential to ensure that trainees not only understand the theory but they are also well prepared to maintain the landing gear system in the best possible manner, and in compliance with the prevailing safety standards.

Our Trainer Model AS-03 is a very effective hands-on training system for landing gear system. The Landing Gear Mechanism Trainer Model AS-03 includes all assemblies and components of the standard hydraulically operated landing gear system. Two types of trainers are available; Model AS03/3 comprises of three wheels comprising two main landing gears and one nose gear, and Model AS-03/1 has one wheel. Both models depict the landing gear mechanism as found in actual aircraft. The model is mounted on a moveable stand to facilitate easy positioning of the trainer for a clear view from all directions.

Model AS-03 includes complete wheel and tire assembly with hydraulic brake system, including master cylinder and brake pedal. The control unit contains control throttles for landing gear and hydraulic flap operation. Three indicators show up, down, and in-transition conditions. A throttle warning horn is also mounted on the control panel.

**Features:**

1-Tire Assembly  
- Wheel  
- Tires

2-Hydraulic Brake Components  
- Master Brake Cylinder  
- Fluid Reservoir  
- Brake Assembly

3-Hydraulically Operated Landing Gear  
- Electrically Driven Hydraulic Pump  
- Emergency Hand Pump  
- Relief Valves

4-Hydraulic-operated Flap  
- Actuating Cylinder  
- Control Lever  
- Flap Position Indicator

5-Hydraulically Operated L/G Door  
- Door Actuator  
- Sequencing Valve
Components:

- Hydraulically operated retractable L/G with operational strut
- Hydraulically operated landing gear door
- Sequencing is controlled through squat switches and sequencing valves
- All components are mounted on the display panel to provide a clear view to the students.
- Can be used to demonstrate a typical hydraulic system operation in addition to the landing gear operation
- Flap and landing gear controls can be mechanical or electrical (customer’s choice)
- Wing section included
- Hydraulically operated flap with electrical indication system
- The system includes electrical motor & a mechanical pump with all associated components (pressure regulator, relief valve, check valves, reservoir and filter assy.)
- Full function brake system with parking brake operation
- Landing gear indication includes: gear up, gear down and in-transit
- Throttle lever with associated components completes the warning circuit of gear up warning horn

- Emergency hand pump
- Accumulator
- Powder coated finish for durability
- Swivel casters with brakes for full mobility and safe positioning
- System powered by either 220vac 50hz or 110 vac 60hz, single phase.
- Computer-based training (CBT) included.

All components are mounted on the display panel which makes the system a great tool to demonstrate a typical hydraulic system operation, in addition to the landing gear operation. The system includes electrical motor & a mechanical pump with all associated components (pressure regulator, relief valve, check valves, reservoir and filter assembly). The system also includes a full function brake system with parking brake operation.

The landing gear trainer is supplied with an interactive computer-based training (CBT) package at no additional cost.
The nose gear is mounted on a sturdy steel frame, allowing full access to the landing gear. This display may be used for demonstration and for hands-on training assignments for the students.

Features:
- Shock absorber
- Oleo strut
- Shimmy dampener
- Nose steering mechanism
- Taxi Light

Dimensions:
- 36 L x 32 D x 50 H inches

Manuals & Documentation:
- Operation/Maintenance manual
- Instructor’s manual
- Student’s manual
- Technical reference manual
The Antiskid braking system is an essential part of a modern jet aircraft. There is a definite need for training aircraft maintenance technicians in this area. Hands-on training is the only effective method of training to ensure that trainees not only understand the theory but they are also well prepared to maintain the antiskid braking system in the best possible manner. Our Trainer Model AS-06 is an effective hands-on training system for antiskid braking system. The Antiskid Brake System Trainer Model AS-06 includes standard hydraulic brake system plus the antiskid assemblies and components. The system is designed to meet or exceed the FAR requirements for instruction on aircraft anti-skid braking system.

The Model AS-06 antiskid brake system trainer consists of:

- Landing Gear wheel and Tire (with Multiple Disc Brake) Assembly
- Skid Sensor
- Electronic Control Box (Antiskid Control Computer)
- Antiskid Control Valve
- Motor-powered Hydraulic System (Pump, Filter, Reservoir, Valves, Gauge, Plumbing)
- Control Panel

**Power Supply**
The trainer requires 110V AC 60 Hz (Model AS-06A) or 220V AC 50 Hz (Model AS-06B)

**Documentation**
A manual, describing the principles of aircraft antiskid braking system and practice questions, is supplied with the trainer.

**Computer Based Training (CBT)**
Our trainers are supplied with a multimedia interactive CBT to enhance the training value of the equipment. The CBT explains the essential concepts in an easy-to-understand explanation together with clear graphics and animations. The CBT also contains questions to test students’ achievement. The CBT is supplied FREE with the equipment.
The Model AS-07 Aircraft Brake System Trainer is a training aid that displays two functional brakes representing multiple-disk brake and single disk brake. The students can be taught how to bleed the brakes. Also, the instructor can explain the procedures for the maintenance of brake system. The system includes Master Cylinder, Reservoir, Parking Brake Valve, and a Selector Valve which allows the selection of any of the two brakes for operation by the Brake Pedal. The trainer also demonstrates the functionality of parking brakes. The system is mounted on a display stand with caster wheels for easy mobility.

**Product Features**

- Ergonomic design
- A complete and functional single-disk brake system.
- A complete and functional multiple-disk brake system
- Hydraulic Reservoir
- Master Cylinder
- Parking Brake Valve
- Selector Valve to choose one of the two brakes for operation / demonstration.
- Dimensions: 32” Wide x 19” Deep x 48” High

**Computer-Based Training (CBT)**

The trainer can be supplied with optional CBT (at extra cost) that covers the essential topics for flexible and solid fluid lines fabrication and installation training.
The model AS-08 Aircraft Pneumatic System Trainer is designed to provide hands-on training on a functional pneumatic system that uses actual aircraft parts. The system represents a pneumatic system that is used as an emergency backup for hydraulic system. A typical example is emergency braking system in case of hydraulically actuated brake failure.

The trainer can be operated by a switch which allows the air pressure from a reservoir to operate an actuator. The reservoir can be refilled after use from any pressurized air source like shop air or air compressor commonly found in AMT schools.

The Model AS-08 is installed with the following components:
- Pneumatic Reservoir
- Filler Valve
- Pneumatic Filter
- Pneumatic Pressure Gauge
- Relief Valve
- Check Valve
- Solenoid Control Valve
- Shuttle Valve
- Pneumatic Actuator
- All necessary fittings and plumbing

The pneumatic components are mounted on a vertical panel supported on a durable, moveable steel frame, with sturdy casters.

**Computer Based Training (CBT)**
A CBT courseware is included with the Model AS-08, which covers the system description and components’ details. A training manual is also included.
The Model AS-09 Fluid Lines & Fittings Trainer is a display of several types of fluid lines fittings and their assembly techniques. The display shows the aircraft standard for assembling, routing, and supporting fluid lines. Also shown are some examples of common mistakes to teach the students to avoid those mistakes.

**Product Features**
- A tool kit is provided for hands-on practice for assembling solid and flexible fluid lines.
- Illustrations include AN, AC, MS, and NPT fittings
- Four examples of correct/incorrect flexible hoses, and two examples of correct/incorrect solid lines.
- Eight examples of rubber hoses construction include samples of light inner steel braiding, heavy inner steel braiding, and inner/outer steel braiding; displaying examples of low and high pressure applications.
- One example of fire sleeved rubber hose included.
- Rubber hoses on the back panel show Stratoflex types 111, 112, 124, 130, 154, 170, 171, 191, and 193 hoses.
- Eighty seven types of fittings are mounted on the panel.
- Three examples of flared connections include single and double flared ends and fittings.
- The trainer is configured as vertical standing panel, on caster wheels with brakes. The components / hoses are mounted in the front and the back of the panel.

**Dimensions:**
39W x 19D x 75H Inches

**Computer-Based Training (CBT)**
The trainer can be supplied with optional CBT (at extra cost) that covers the essential topics for flexible and solid fluid lines fabrication and installation training.
Hydraulic System Trainer Model AS-10

The Model AS-10 Hydraulic System Trainer provides hands-on training to the students so that they could understand the function, identify components, and troubleshoot a fully functional hydraulic system. Model AS-10 is a complete standalone trainer designed such that each component can be removed, overhauled, reinstalled, and functionally tested. A simulated flight control surface is operated to demonstrate the principle of hydraulic-actuated flight controls. Supplied with CBT to enhance students’ assimilation of hydraulic systems found on modern aircraft.

Product Features

Fully Functional
All components are operational, removable, and re-build able. Parts kits for these common components are available through many parts dealers.

Reliable
The components installed on this completely operational trainer are either new or completely disassembled, resealed, cleaned and painted or chemically treated for years of trouble-free operation.

Actuator Sequencing
Model AS-10 demonstrates actuator sequencing. The actuator has a hydraulically sequenced double-check ball to time the main actuator with fluid pressure. Electrically switched valve may be installed as an optional item.

Portable stand
The ergonomically-designed trainer is configured as vertical standing panel, on caster wheels with brakes. The white backboard and iron frame make this a durable, and presentable trainer.

Training Manuals
Trainer is supplied with a complete curriculum/operation manual. Both instructor and student manuals are in full color.

Computer-Based Training
The trainer is supplied with free CBT that covers the essential topics in hydraulic training.

Specifications
- Fluid Reservoir (various capacities available)
- Rotary vane or gear hydraulic pump (depending on availability) with electrically driven motor, powered by 110 volt AC/60 Hz or 220V AC/50 Hz
- Aircraft hydraulic cylinder (dual acting), sequenced by a sequencing valve.
- Pressure Gauge (direct reading)
- Check valve
- 4-way selector valve
- Hand Pump
- Filter Assembly
- Pressure relief valve (adjustable within safe limits for students)
- Accumulator Assembly
- Complete curriculum with schematics, and User / Training Manual
- Large, laminated, colored schematic poster of system plumbing.
Model AS-11 Turbine Fuel System Trainer is specially designed to allow trainees to understand the fundamentals of turbine fuel system components and how they are interconnected in a typical aircraft fuel system. The system is mounted on a mobile stand.

This completely functional Turbine Fuel System Trainer includes a capacitance fuel system, with multiple probes set at different angles to demonstrate non-linear fuel quantity indications. Capacitance fuel quantity fuel system comes with a wing tank and all associated plumbing.

This functional fuel system is designed to represent a complete turbine engine fuel system. It includes a fuel management panel, fuel transfer system and capacitance fuel quantity indicating system. An instructor’s panel is included allowing faults to be added to assist in teaching troubleshooting.

The fuel system panel includes fuel quantity indicators, a fuel transfer selector valve, fuel transfer and low fuel warning lights, fuel pressure and flow indicators, and complete fuel system drawings.

The turbine fuel system trainer includes an electric fuel boost pump, engine driven fuel pump (either constant or variable displacement), screen type fuel filter with pressure bypass, fuel control unit, duplex turbine fuel nozzle inside a clear enclosed container, and a dump valve.

Features
• Fully functional and configured like a typical turbine engine aircraft fuel system.
• Instructor’s panel for introduction of usual system faults and errors (at least 10 simulated faults)
• Training manuals including troubleshooting charts, explanatory text, symbols charts, wiring diagrams, flow schematics, and component cut-away diagrams.
• Includes overhead transparencies and laminated fuel system drawings.
• Works with 28 volt DC power or with an APU.
• Designed with aircraft parts
Components
The trainer is designed using actual aircraft parts, including:
• Fuel quantity indicator
• Fuel quantity sender / transmitter
• Fuel flow/pressure gauge
• Electric fuel transfer/boast pump
• Fuel transfer selector valve
• Fuel filter
• Fuel lines both flexible and metal lines
• Circuit breakers switches and electrical components

Training Materials
The following training resources are provided with the system:
• User’s Manual
• Students’ Study Guide
• Instructional Resource Kit
• CBT
• Troubleshooting charts

Power Requirements:
110/220 volts AC 50/60 Hz

Dimensions:
52 L x 20 D x 75 H inches

Computer Based Training (CBT)
The trainer is provided with CBT that explains the fuel system and its components with visually rich contents for better understanding.
The CBT includes EASA Part 66 compliant contents, and includes learning management system (LMS)
Note: Due to continuous product updates, specifications are subject to change without notice.
Model AS-12 is a functional fuel injection system trainer that demonstrates the working principle of a Teledyne Continental (or TCM) fuel injection system. The trainer is built to provide the instructor an effective resource for teaching, as well as to provide hands-on training to the students. The carburetor-less fuel systems are very commonly used on general aviation aircraft, and students must be very familiar with the TCM fuel injection system in order to effectively maintain and troubleshoot the system. Our Model AS-12 and associated documentation provides a complete resource to meet the applicable regulatory requirements for aircraft maintenance training schools.

The trainer is equipped with instructor’s panel in the back of the panel that allows the instructor to insert various faults. The students are trained to apply a logical methodology to locate and identify the fault, and to determine a remedial action to fix the problem.

The training value of the Model AS-12 is further enhanced by our proprietary computer-based training (CBT), which is included with the equipment. The CBT covers the basic concepts of fuel injection systems with the help of visually rich contents. The CBT is very user friendly due to short text substantiated by clear illustrations and animations.

The trainer is mounted on a stand with caster wheels, including brakes, to facilitate the instructor and students to position the stand for good visibility and easy access during teaching sessions.

### Specifications

**Instruments**
- Fuel Flow Indicator
- Fuel Quantity Indicator

**Components**
- Fuel Tank (with cap)
- Vane-Type Fuel Injector Pump
- Fuel Quantity Transmitter
- Throttle
- Fuel Injectors
- Gascolator

**Cutaways**
- Fuel Injector
- Fuel Manifold Assembly

**Fault Insertion & Trouble System**
- No. of Simulated Faults: 10
- Test Points Panel
- Trouble-shooting Chart

**Computer-Based Training (CBT)**
- Interactive CBT included free of charge

**Electrical Power**
- Either 110-120 VAC/60Hz or 220-240 VAC/50 Hz
- (Please specify at the time of order)
The Model AS-13 Aircraft Hydraulic System Trainer is a complete and functional hydraulic system trainer equipped with actual aircraft parts and accessories. All components and indicating instrumentation of the system are fully functional.

The Aircraft Hydraulic System Trainer provides hands-on training to students; the hands-on training covers practical instructions and operations using manual hydraulic actuations. The objective is to provide a hands-on training resource to the students so that they could understand the function, identify components, and troubleshoot a fully functional hydraulic system. The system is installed with safety features and warning signs for safe operation by the students under instructor’s supervision.

The Model AS-13 Aircraft Hydraulics Trainer can be used to demonstrate the following hydraulic systems:

- Landing gear
- Flap
- Spoiler/Speed Brake

The following components are included in the Model AS-13:

- Hydraulic reservoir
- Hydraulic pump
- Hydraulic actuator
- Hydraulic pressure indicator
- Hydraulic selector valve
- Landing Gear strut
- Flap control surface
- Spoiler/Speed brake control surface
- Relief valve
- Non-return valve
- All related miscellaneous components, connectors, and plumbing

**Computer Based Training Software:**

The Model AS-13 Hydraulic System Trainer is supplied with an interactive Computer Based Training (CBT) courseware. The CBT covers the basic topics in hydraulics, as well as the topics as per EASA Module 11.11 Indication and warning systems;

- Basic Principles of Hydraulics:
- Pascal's Law
- Hydraulic Pressure and Force
- Simple Hydraulic System Operation
- Hydraulic Brakes
- Hydraulic NRV

EASA Module 11.11:
- System layout;
- Hydraulic fluids;
- Hydraulic reservoirs and accumulators;
- Pressure generation: electric, mechanical, pneumatic;
- Emergency pressure generation;
- Pressure Control;
- Power distribution;

The CBT also provides interactive contents that replicate the Model AS-13 Aircraft Hydraulic System Trainer and its schematic, as installed on the trainer.

**Manuals / Documentation:**

- Operation Manual
- Instructor Manual
- Students’ Study Guide

**Dimensions:**

75 L x 40 D x 60 H inches

**Power:**

110V AC or 220V AC
The Model AS-15 Capacitive Fuel Quantity Measurement System Trainer is a fuel quantity measurement system using real aircraft parts. The system comprises of a fuel tank, capacitive probe and a fuel quantity indicator. The students can perform hands-on tasks like fuel probe calibration, and system maintenance.

Features

- Easy Push Button Calibration - Simple push buttons make calibration easy and accurate. No sensitive screw adjustments to make. Place the probe in tank, connect power and press EMPTY. Fill tank and press FULL. Calibration is complete.

- Steady Readings - Digital filtering minimizes the effects of fuel slosh providing greater accuracy.

- Proven Design - Designed specifically for the aircraft that are subject to harsh environments, such as vibration, temperature, and electrical noise. Probes designed for industrial applications can fail under these conditions. Proven reliability with over 4 years of history.

- No Moving Parts - There are not any parts to wear out. Will not require future maintenance or replacement.

- Unique Press-fit Installation - Can be mounted in plastic tank by drilling a 1/2” hole. A rubber grommet is used to hold the probe in place.

- Standard SAE 5-Hole Bolt Pattern - A backing plate and seal are used to secure the probe to the tank.
This fully functional fire detection and extinguishing system incorporates the continuous loop and spot detectors with corresponding controls, indication, and test circuits. This dual sensor simulator features the two predominant systems in the aerospace industry. The extinguisher discharges shop air upon activation of the system. Systems trainer provides a hands-on resource for troubleshooting faults that can be introduced by the instructor to challenge the student. Typically, the bottle charge is maintained by a breakable seal. We use shop air to discharge from the flexible hose, simulating a bottle discharge.

Features
• Control unit
• Loop detector
• Fenwall spot detector
• Electromech guarded and unguarded switches and lights
• Stainless steel flexible fire discharge hose
• Fenwall spot detector sensor hybrid into the fire detection alarm system.
• Fire warning lights
• Fire warning horn with latching horn-silencing relay switch-found on large transports
• Continuous-loop temperature sensor and control box
• All electrical wires marked with ATA codes corresponding to the electrical schematics provided.
• The alarm system is the same as found in all single-engine through four-engine transports
• Press-to-test illuminated switch wired to reset the system after discharge
• Guarded “fire extinguish discharge” illuminated switch
• Complete full color operations manual
• Electrical schematics with lecture notes corresponding to the colored overhead transparencies
• Fire extinguisher bottle pressure gauge is wired into the system giving a simulated bottle pressure; full or empty indication dependent upon system condition includes automatic reset.
AeroTrain Model AS-40 is a typical oxygen system installed in a general aviation type of aircraft. The system as illustrated by the shown block diagram. The external filler valve has an orifice that limits the filling rate and is protected with a cap to prevent contamination when the charging line is not connected. The storage cylinder is of an approved type. The shutoff valve on the cylinder is slow-opening, requiring several turns of the knob to open or close it, preventing a rapid change in the flow rate, which could place too much strain on the system or generate too much heat. The pressure regulator reduces the pressure in the cylinder to a pressure that is usable by the masks. The mask couplings are fitted with restricting orifices to meter the amount of oxygen needed at each mask. Each tube to the mask has a flow indicator built into it. This is a colored indicator that is visible when no oxygen is flowing. When oxygen flows, it pushes the indicator out of sight.

**System components include:**
- Oxygen Cylinder
- Pressure Regulator
- Filler Valve
- Control Valve
- Pilots’ Oxygen Mask
- Passenger’s Portable Mask
- Passenger Drop-down masks
- All necessary plumbing and fittings

**Product Features**
- Complete functional system mounted on a vertical standing panel
- Crew Oxygen System
- Passenger Oxygen System
- System Controls and Indications
- Drop-down mask system

**Documentation**
- System Diagrams
- User Manual
- Students’ Study Guide
- Instructor’s Teaching Resource

**Computer Based Training (CBT)**
The trainer is supplied with computer-based training (CBT) at no additional cost.
The Cabin Pressurization System simulates the function of a complete aircraft cabin atmosphere and pressurization control system. The trainer is manufactured using fully functional aircraft components. Due to the close proximity of all the components, students can comprehend how the total system works and how the interaction between various components regulates the cabin environment. The trainer has two sealed chambers simulating altitude and cabin pressure. The vacuum chamber can simulate altitude up to approximately 22,000 ft. above the mean sea level. The cabin chamber simulates the pressurized aircraft cabin, and contains cabin components.

**System Features**
- Altitude controlled in vacuum chamber
- Pressure monitored in “cabin” chamber
- Operates from 115/220 VAC electrical power
- 24 VDC power supply included
- Aircraft components
- Pressure supplied by regulated shop air
- Differential controller
- Rate of climb indicator
- Altimeter

**Mechanical**
- Tubular steel frame on casters
- Choice of color (frame only)
- Reinforced acrylic chambers (easily observed valve operation)
- Cabin pressure sensor
- Vacuum chamber (altitude simulator)
- Cabin pressure chamber (cabin simulator)
- Regulator (simulates air to cabin)
- Cabin dump valve
- Regulating valve
- Aluminum panels
- 52 L x 30 D x 72 H Inches
- Weight: 450 lbs. Approx.

**Training Capabilities/Suggestions**
- Total system in one close proximity configuration
- Daltons and Boyles Laws
- Team orientated up to 10 students
- Provides LEVEL 1,2 and limited LEVEL 3 training

**Computer Based Training (CBT)**
The trainer is supplied with computer-based training (CBT) at no additional cost.

AeroTrain Corp. specializes in customized aircraft systems trainers. If you would like any additional features incorporated in the above system, we will be glad to do so. Please contact AeroTrain for more information.
The Model AS-43 Air-conditioning and Heating system trainer is a fully operational model of a typical light aircraft air-conditioning and heating system. All components are actual aircraft parts, and it allows the instructor to fully demonstrate the operation of the various system components. The trainer also allows the students to troubleshoot various faults induced by the instructor.

**System Features**
- Vapor Cycle Compressor
- Compressor Motor
- Receiver Dryer
- Condenser
- Thermal Switch
- Combustion chamber
- Fuel tank and associated plumbing
- Fuel pump and associated electrical components
- Ignition system components
- Thermal control switches
- Control Valves
- Air Blower and associated ducting
- Panel mounted control panel

**Highlights**
- All components are mounted on steel frame with full swivel casters and brakes
- Durable powder coating finish
- Fully labeled electrical wires (FAA Standard)
- System operates on 110/220V AC and 24VDC
- Operational Manual and Electrical Diagram
- Dimensions: 80 L x 30 D x 80 H Inches

The trainer is also supplied with a comprehensive Computer-based Training (CBT) courseware to enhance students’ understanding and to provide the essential knowledge about aircraft air-conditioning and heating system.
The Model AS-44 heat exchanger system is a fully functional Air Cycle Machine (ACM) with heat exchanger driven by simulated turbine-engine bleed air, representing a typical system in a modern turbine engine powered aircraft.

**System Components**
The trainer includes the following components:
- Air cycle machine (ACM)
- Heat exchanger
- Temperature sensor
- Temperature control valves
- Digital display of the temperatures of the cabin chamber, bleed air, and ambient air controller
- ACM bypass valve
- Cabin ventilation blower
- Lag chamber
- Simulated bleed air source

**Dimensions**
72 L x 35 D x 72 H Inches

**Computer Based Training**
Computer Based Training (CBT) courseware related to the principles of ACM air-conditioning is included with the trainer.

**Features**
- Uses aircraft components
- Mounted on a sturdy moveable stand
- Simulated Faults insertion

All wiring is numbered to enable easy troubleshooting.

The ACM system has the ability to demonstrate the production of cold air that is less than 10 degrees Celsius for a duration of at least 5 seconds.
The Aircraft Ice & Rain Protection and Control System Trainer incorporates all aspects of de-icing and rain protection system found in an aircraft. The trainer offers the opportunity to the students to physically see the various components and assemblies of the system and to understand the interaction between them. This fully functional trainer incorporates a pneumatic wing de-ice system using a vacuum/pressure ejector boot control valve and pressure switches. An electric motor driven vacuum pump provides system pressure and suction. Propeller de-icing is done with an electrically heated propeller boot. A timer control operates the cycle of the propeller de-ice system. Windshield heating is done through internally built heating elements.

System Features
- Aircraft components and assemblies
- Six separate sub-systems
- Windshield Wiper System
  Windscreen Wiper
  Motor
  Actuator
  Wiper Arm and Wiper Blade
- Windshield Heating System
  Windshield with heating elements
  Temperature Control Thermostat
- Windshield De-Icing (Alcohol Dispensing)
  Alcohol Tank
  Alcohol Pump
  Sprayer
  Flow regulator
- Pitot Tube with electrical heating elements
- Propeller De-Icing System
  Electrically Heated

The system is supplied with computer-based training (CBT) at no additional cost.

AeroTrain trainers may be customized as per customers’ request. We can configure this trainer in a variety of ways, e.g. free-standing or bench-top placement. If you would like any additional features incorporated in the above system, we will be glad to do so. Please contact AeroTrain for more information.

Training Capabilities:
Level 1: Demonstration of each of the six sub-systems
Level 2: Functional diagramming (for each sub-system and full system), Trace and draw plumbing & electrical diagrams of the complete system
Level 3: Replace lines, Make wing boot repairs
The Model AS-46 Janitrol Combustion Heating System Trainer is a complete and a fully functional system. All components are panel mounted to provide a clear visibility and unhindered access to the students. The trainer is mounted on a work-stand with full-swivel caster wheels and brakes for easy mobility. The installed combustion chamber (with jacket) is a fully functional unit. All relevant fuel system components (tank, pump, solenoid valve, metering nozzle) are also installed. Using the included test set, and the manual, the students will be able to perform all related tests mimicking the work done on actual aircraft.

The instructor’s panel is installed in the rear of the trainer, which allows the instructor to simulate wiring faults like short circuits, open circuits, and system faults. All electrical wiring is of aircraft quality, and is properly labeled like on real aircraft. This makes it easy for the students to identify the wiring on the electrical diagram of the trainer, enabling them to easily troubleshoot the induced fault.

Electrical Power:
110V AC at 60 Hz, or 220V AC at 50 Hz.

Dimensions:
36 L x 20 D x 72 H inches

The following items are mounted on the panel:
- Combustion Chamber with jacket
- Fuel system components
- Cycling sensor
- Adjustable duct sensor
- Ignition unit
- Temperature-sensing safety sensor
- Air Blower for combustion air (including air pressure switch)
- Air Blower for ventilation air
- Cabin heat and defrosting controls

A test set and a mobile cart for the test set is also included.

Manuals / Documentation:
- Operation Manual
- Instructor’s Manual
- Students’ Manual
- Wiring Diagram

**Computer Based-Training (CBT):**
The trainer is supplied with CBT courseware covering the relevant topics. The CBT presents the essential concepts in an easy-to-understand explanation together with clear graphic and animations.
The aircraft electrical system trainer is an ideal resource to teach about an aircraft multiengine electrical system. By using this trainer, students not only learn the functionality of each component, but they also develop logical and systematic approach to perform troubleshooting tasks. The system is laid out to depict a typical aircraft electrical system, and contains standard aircraft components and wiring. Model AS-51 is a complete functional simulation of a dual-engine 28V DC electrical system of a typical turbine aircraft.

Model AS-51 trainer has been designed to teach the students both parallel generator bus configuration (like DC-10, Boeing 727, etc.) and split bus configuration (like Boeing 757, Boeing 767, MD-80, Airbus A320, etc.). Instructor can switch the main bus configuration simply by flicking a switch. This unique feature is not available from any other manufacturer.

**System Features**
The trainer Model AS-51 in dual generator configuration comprises of:

Note: The system components listed above are for Model AS-51-DG (dual generator system). Model AS-51-SG (single generator version) has fewer components but it can be readily upgraded to dual engine configuration

- Two Independently Driven 28V DC Generators
- Two Interconnected Generator Control Units
- Switchable main buses configuration between Split Bus System and Parallel Bus System (DG models only)
- Avionics Relay and avionics bus
- Two solid-state Generator Control Units (GCU)
- Typical Cockpit Instrumentation, Circuit Breakers, and Controls
- Representative Loads
- Two Main Bus-bars for each generator
- Two Auxiliary Bus-bars
- Battery Bus-bar
- Two 115 V @ 400 Hz Bus-bars
- Two 26 V @ 400 Hz Bus-bars
- Parts used are aircraft components
- Battery charging system
- Faults incorporated by instructor to teach troubleshooting techniques
- Voltmeters (two) and Ammeters (three)
- Distribution terminal strips (six)
- Instructor’s manual & Students’ manual with wiring diagrams
- Computer-based Training (optional)
- APU Input Plug (one)
- Dual Solid State Inverters to produce 115 VAC @ 400 Hz and 26VAC @ 400 Hz
- Low noise enclosure for generators
- Comprehensive safety features, e.g. emergency shutdown

**Specifications:**
**Battery:**
- Aircraft sealed, 24V battery

**Generator:**
- Aircraft DC generator rated 28VDC @40A/50A at 3600 rpm, driven by 230 VAC/50 Hz Motor.
Generator Controls:
- Electronic Controlled Generator Build-up
- Electronic Field Controller/Switching
- Current Limiter
- Reverse Current Protection
- Paralleling / Equalizing
- GCU induced Over Voltage (OV) Protected
- Voltage Regulation: 28.4V ± 0.4V
- Max Field Current: 3A.

Starters:
- Aircraft Starter 24 VDC

AC Power:
- Two Static Inverters, each rated 50VA minimum.
  - No.1 Generator Bus-bar 28VDC
  - No.2 Generator Bus-bar 28VDC
  - Two Auxiliary Bus-bars 28VDC
  - Battery Bus-bar
  - Ground Bus-bar

Power Distribution:
- Two bus-bars 115VAC @ 400 Hz.
- Two bus-bars 26VAC @ 400 Hz.
- Two AC Neutral Bus-bars
- Avionics bus-bar

Electromechanical Loads:
- Landing Gear Motor
- Cabin Air Blower
- Avionics Blower
- Electromechanical Actuator (Optional)

External Lights:
- Navigation Lights (Right Wing, Left Wing, Tail)
- Strobes (Right Wing, Left Wing, Tail)
- Rotating Beacon
- Landing/Taxi Light

Internal Lights:
- Cabin Light
- Reading Light
- Multifunction Cockpit Light with Dimmer

Stall Warning System (SWS):
- Leading Edge Sensor (Vane type)
- Audio Warning Horn
- Independent Battery for SWS

Instruments:
- No.1 Generator Voltmeter
- No.1 Generator Ammeter
- No.1 Generator Hourmeter
- No.2 Generator Voltmeter
- No.2 Generator Ammeter
- No.2 Generator Hourmeter
- Battery Ammeter
- Fuel Gauge

Wiring:
- Aircraft wires, with clear identification labels for each wire.
- All wires are coded and labeled for troubleshooting.
- Demonstrates aircraft standard wiring practices
- All electrical signals are accessible to students through terminal strips
Controls:
- Mains AC circuit breakers, manual switch, and starter switch.
- Guarded Switch for Master Power
- Parallel/Split Bus Selector
- Starter Selector
- Generator / Alternator Selector
- Inverter Power Switch
- Internal / External Lighting Switches
- Instrument Power Switch
- Landing Gear Motor Switch
- Cabin Air Switch
- Avionics Blower Switch

Instructor’s Panel:
- 10 x 10 inches access panel mounted in the back.
- Sixteen fault insertion switches

Indicators:
- Master Power Indicator
- Generator Status Indicators
- Inverter Status Indicators
- Bus Configuration Indicator

Warnings:
- Generator Out Warning
- Stall Warning System aural warnings

Training Materials:
- User’s Manual (Colored, 42 pages)
- Study Guide (Colored, 65 pages)
- Instructor’s Guide (Colored, 15 pages)

Training Materials (optional item):
- Computer-Based Training (15 hours)

Our system trainers are supplied with computer-based training (CBT) as an optional item at additional cost.

Access for Training & Maintenance:
- Hinged Control Panel for quick and easy access to internal wiring for demonstration and maintenance.
- Hinged Circuit Breaker Panel for quick and easy access to internal wiring for demonstration and maintenance.
- Two large access doors for the motor and generators.
- Rear access panel for battery compartment.
- Easy access for components removal and installation by one person using common hand tools.

Ventilation:
- Dual ventilating fans installed in generator / motor cabinet.

Sound Proofing:
- Fire-resistant soundproofing installed in generator / motor cabinet.

Safety:
- Triple-protection for AC power.
- All circuits have dual levels of protection using circuit breakers at source and load.
- Power distribution area protected by transparent cover with access holes to all bus-bars.
- All terminal strips protected by transparent covers.
- All moving parts covered with transparent covers.
- Clearly visible safety warnings.
- Low noise cabinet for generator and AC electrical motor.

Ordering Information:
Electrical Trainer is available in two configurations as below:
Model AS-51-DG: Dual Generator System
Model AS-51-SG: Single Generator System

Dimensions:
Dual Generator System: 65 L x 33 D x 64H inches
Single Generator System: 40L x 33D x 64H inches

Weight:
Dual Generator System: 700 Lbs.
Single Generator System: 600 Lbs.

- Mounted on four heavy-duty casters.
- Rugged and durable metal-frame construction

AeroTrain trainers may be customized as per customers’ request. If you would like any additional features incorporated in our standard system, we will be glad to do so.
The Basic Electrical Training Panel has been designed for initial hands-on training for an introduction to electrical components and circuits. The training panel includes typical components that are part of an aircraft’s electrical system. The training panel allows the students to configure an electrical circuit and explore the purpose and functionality of various components. The trainer uses a 12V DC power supply to power up the circuits. The trainer is a bench-top unit, and is meant for individual student’s use during practical sessions.

**Components**
- Master Power Switch with indicator light
- DC Power Switch with indicator light
- Circuit Breakers
- DC power buss
- Voltmeter
- Ammeter
- Indicator lamps
- Relays

**Power Requirement**
110V AC or 220V AC

**Dimensions**
18 L x 18 W x 10 H inches

**Manuals & Documentation**
- Operation/Maintenance manual
- Instructor’s manual
- Student’s manual
- Technical reference manual
- Wiring diagram

**Computer Based-Training (CBT)**
The trainer is bundled with CBT covering the relevant topics, explaining the essential concepts in an easy-to-understand explanation together with clear graphic and animations.
This comprehensive solution is designed to fulfill the learning requirements of the European Safety Agency (EASA) module 3 - electrical fundamentals - for aircraft maintenance engineers. The solution contains all the Locktronics parts needed as well as 4 separate workbooks covering each of the sub-modules in the EASA specification.

**EASA Electrical Fundamentals 1**
- Series and Parallel Circuits
- Measuring Voltage and Current
- Cells and Batteries
- Thermocouples
- Photocells
- Ohm's Law

**EASA Electrical Fundamentals 2**
- Resistors in Series and in Parallel
- Series/Parallel Networks
- Voltage and Current dividers
- Kirchoff's Laws
- Power in DC Circuits
- Power Transfer

**EASA Electrical Fundamentals 3**
- Capacitors and Electrostatics
- Inductors and Inductance
- DC Motors
- Generator Principals
- Transformers and their Construction
- Transformer Losses

**EASA Electrical Fundamentals 4**
- AC Measurements
- Inductance and Capacitance
- LR and CR Series AC Circuits
- LCR Series AC Circuits
- LR and CR Parallel AC Circuits
- LCR Parallel AC Circuits
- Q Factor for Bandwidth
- Low Pass and High Pass Filters
- Band Pass and Band Stop Filters
This solution is designed to fulfill the learning requirements of the European Safety Agency (EASA) module 4 - electronic fundamentals - for aircraft maintenance engineers. The solution contains all the Locktronics parts needed, including 4 separate workbooks covering each of the sub-modules in the EASA specification.

**EASA Electronic Fundamentals 1**
- Diodes and Diode Types
- Full and Half Wave Rectifiers
- Rectifier Efficiency
- Reservoir Capacitors
- Voltage Multipliers
- Thyristor and SCR Circuits
- Zener Diodes and Circuits
- LEDs in AC and DC Circuits

**EASA Electronic Fundamentals 2**
- NPN and PNP Transistors
- Transistor Characteristics
- Transistor Bias and Decoupling
- Common Base, Common Emitter and Common Collector Circuits
- Class A, B and C Amplifiers
- Other Transistor Circuits

**EASA Electronic Fundamentals 3**
- AND, OR, NAND, NOR and NOT Gates
- Simple Logic Circuits
- Operational Amplifiers
- Inverting and Non-Inverting Amplifiers
- Integrator, Differentiator, Comparator
- Positive and Negative Feedback in Amplifiers

**EASA Electronic Fundamentals 4**
- Open and Closed Loop Systems
- Analogue Transducers
- Damping in Feedback Systems
AeroTrain’s Model AS-70 Aircraft Maintenance Practices Trainer is a modular system that can be used for providing hands-on training to students in the following areas:

- Safety Wire Locking (AS-70-1)
- Aircraft Wiring (AS-70-2)
- Control Surfaces Hardware Installation (AS-70-3)
- Fuel Lines and Fittings Installation (AS-70-4)
- Pitot-static Lines and Fittings Installation (AS-70-5)

The trainer has a vertical standing frame that can accommodate five interchangeable panels. Each panel contains the necessary parts and mountings to setup the work in the above listed five areas. The user schools can procure any one or any combination of the five panels, and can easily add other panels as and when needed.

**Model AS-70 Specifications**

**Frame Dimensions:**
36 L x 32 D x 80 H inches

**Frame Weight:**
Less than 200 pounds

**Training Panels:**
30 x 30 inches work area, .125 inch thick, Aluminum
Locking mechanism for easy attachment to Model AS-70 frame
Each Panel has two handles for easy handling

**Documentation**
Training Manual is provided with Model AS-70, containing Job Sheets for numerous experiments for each panel.

**Computer Based Training (CBT)**
The trainer is supplied with CBT covering the topics relevant to the purchased panels. The contents are compliant with European Aviation Safety Agency (EASA) Part 66 Module 7.
The Safety Wire Locking training panel provides various configurations on an interchangeable panel. The panel provides hands-on training for the students to practice safety locking techniques as per FAA AC43-13 and EASA Part 66 Module 7 requirements. The components are arranged in clusters of straight, circular and rectangular patterns. The wire locking may be applied in a single or double pattern as per the standard aviation maintenance practices. Aviation standard hydraulic connectors and bulkhead fittings are used.

Safety Wire Locking Panel Specifications

**Hardware Used:**
- Drilled Head Bolts (Type AN73) (10)
- Engine Bolts (Type AN101001) (10)
- Castle Nut (AN310) (10)
- Fillister Head Screws (10)

**Methods of Safety Wiring:**
- Double-Twist Method
- Single-Wire Method

**Geometrical Patterns:**
- Straight, Triangle, Rectangle, Circle.

**Safety Wires Included:**
- .020 inch diameter (1 pound)
- .032 inch diameter (1 pound)

**Several Examples of Fittings / Couplings**
- Oil Cap (1)
- Drain Cock (1)
- Valve (1)

**Included Connectors**
- Tee (2)
- Straight (2)
- Bulkhead (2)
The aircraft wiring training panel provides hands-on practice to students for fabricating, installing, and repairing aircraft wire harnesses. The exercises are designed to provide training that would prepare the students to comply with FAA AC43-13 and EASA Part 66 Module 7 requirements.

All components used in this trainer are of aircraft grade. The panel allows wiring preparation and routing between two points on the panel while following the standard and approved aircraft maintenance practices. The panel can be set up for many wiring and routing configurations. The trainer allows learning of Wire Routing Techniques through holes, bulkheads, floors, or structural members.

Following is the list of items that are included with each set. The consumables will need replenishment for regular use.

• Circular Mil Spec Connectors Included:
  - MIL-DTL-D38999 Series Plate Mount Receptacle (1)
  - MIL-DTL-D38999 Series Jan Nut Receptacle (1)
  - MIL-DTL-D38999 Series Straight Plug (1)
  - Female Contacts for MIL-DTL-D38999 Series (20)
  - Male Contacts for MIL-DTL-D38999 Series (20)
  - MIL-DTL-5015 Series Plate Mount Receptacle (1)

• Connector mounting plates (4)
• Coaxial Plugs (5)
• Strain Relief Hardware Kit (2)
• KLIXON 7277 series Circuit Breakers (2)
• Relays
  - Aircraft Battery Relay (1)
  - Aircraft Relay MS24171-D1 (1)
• Mil Spec MS27212 Aircraft terminal Strip (2)
• Fuse and Fuse Holder Kit (1)
• Rubberized C-Clamps (5)
• Aircraft Grade Switches (toggle, rotary, push, and micro-switch) (1 each)
• Breakout Box (1)
• Junction Box (1)
• Rigid Conduit (1)
• Flexible Conduit (1)
• Cable Cradles (20)

Training Capabilities
Following is a list of training capabilities of the wiring trainer. The students will learn:

• How Wires and cables are supported by clamps, grommets, and spacers at intervals
• How Metal stand-offs are used to maintain clearance between wires and structure.
• How plastic liners and rubber grommets are installed in holes, bulkheads, floors, or structural members
• How Wires and cables in junction boxes, panels, and bundles are properly supported and laced to provide proper grouping and routing.
• How to Clamp retaining screws to restrict the movement of wires and cables
• How Wire and cables are properly supported and bound
• How to perform lacing
• How to route wires and cables to prevent chafing against the airframe or other components
• How to route electrical wires and cables around fluid lines and provide a safe separation from any flammable liquid
• How to bend wire groups or bundles
• How to route and bend coaxial and triaxial cables
• How to wire in areas that are attached to assemblies where relative movement occurs (such as at hinged objects)
• How to separate wires and electrical cables from mechanical control cables
• How to secure unused wires
• How to properly identify all wires and cables and at what distances labeling should be repeated
• How to replace a damaged wire
• How to properly connect wires to terminal strip
• How to terminate multiple wires at the same terminal point
• How to terminate wires at busbar
• How to connect install a fuse holder and how to connect fuse to the wiring
• How to install rigid conduit, and wire through conduit
• How to install flexible conduit, and wire through conduit
• How to install solderless terminals
• How to install quick disconnect splices
• How to install butt splices
• How to install a circuit breaker on a panel
• How to connect wires to circuit breakers
• How to wire a breakout box
• How to wire a junction box
• How to provide strain relief to wires.
• How to install and wire toggle, rotary, push, and micro switches.
• How to use clamps to support wire harness.
• How to terminate wires at relay terminals.
• How to attach bonding straps.
• How to install cable cradles.
• How to use cable tie gun to install cable ties.

Model AS-70 Expansion Capabilities
The Model AS-70 can be expanded with the following additional interchangeable panels:
Control Surfaces Hardware Installation Panel (AS-70-3)
Fuel Lines and Fittings Installation (AS-70-4)
Pitot-static Lines and Fittings Installation (AS-70-5)