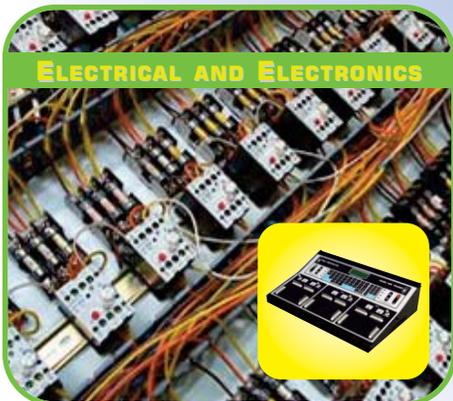
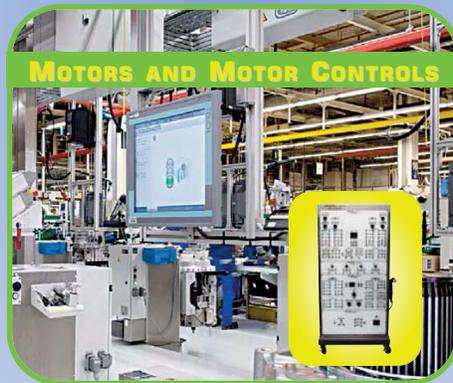
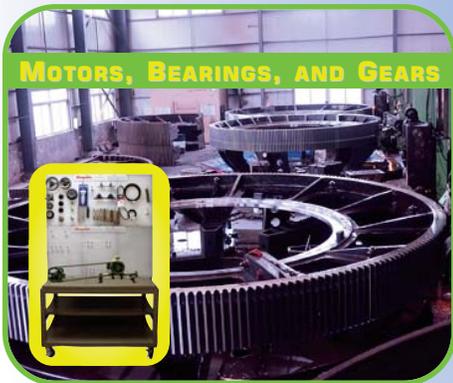
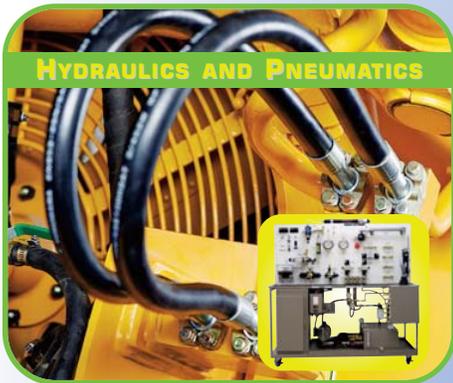


Hampden[®] ENGINEERING CORPORATION

INDUSTRIAL MAINTENANCE FOR INDUSTRY



INTRODUCTION

Hampden Engineering has been building equipment for the industrial market for over 60 years and is the world leader in industrial training devices. Our training equipment is designed to match the skill sets required for the jobs of today and tomorrow.

All of Hampden's equipment is designed to meet the objectives specified and allows students to complete their courses in a minimal amount of time while gaining the skills and hands on training necessary for their new jobs. We offer instructional material for all of our equipment through computerized systems as well as printed copies for your convenience.

Hampden's list of products offer the type of training needed for a variety of industries in the United States and around the world vary depending on the industrial markets, time frame for completing courses, and the programs offered for the workforce.

Hampden has sales staff and engineers throughout the world and are always available to meet with you and help provide the type of curriculum and equipment required for your program.

Hampden offers training with all these equipment programs. We can provide personal training at your site with our staff or come into our factory for a full training program on your exact equipment.



Hampden Products Designed to Train your Workforce!

HYDRAULICS/PNEUMATICS — H-FP-223-14



Fluid power cylinders and motors are compact and have high energy potential. They fit in small spaces and do not clutter the machine. These devices can be stalled for extended time periods, are instantly reversible, have infinitely variable speed, and often replace mechanical linkages at a much lower cost. With good circuit design, the power source, valves, and actuators will run with little maintenance for extended times. In most plants there are few persons with direct responsibility for fluid power circuit design or maintenance. In most facilities, the responsibility for fluid power systems is part of the mechanical engineers' job description.

Recommended Trainer

Hampden **Model H-FP-223-14** Hydraulic Trainer

Options

- H-FP-223-14-FP Hydraulic Fault System
- H-FP-223-14-EH Electrohydraulics Option
- H-FP-223-14-PLC Programmable Logic Controller
- H-FP-223-14-P Pneumatics Option
- H-FP-223-14-JS Joy Stick Option
- H-FP-223-14-A Accumulator Option
- H-FP-223-14-PPS Pneumatic Air Supply Option



HYDRAULIC TRAINER

Objectives

- RPM Measurement and Control
- Open Loop Motor Control
- Open Loop Cylinder Control
- Closed Loop Cylinder Control
- Control Valves
- Sequence Valves
- Double and Single Acting Cylinders

Program Expanders

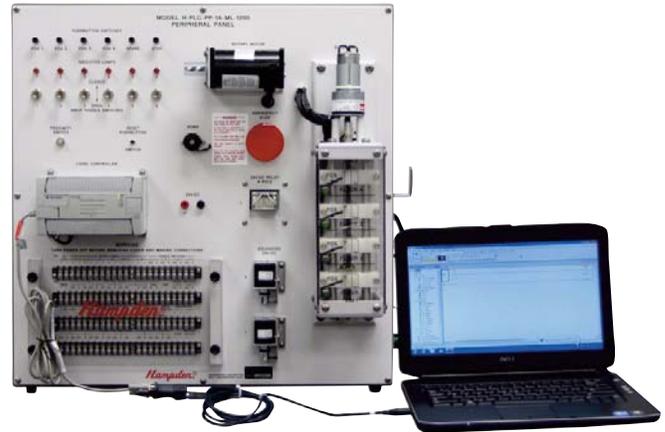
Expand and Customize your program with the following Hampden Trainers

- H-FP-223-15 Pneumatics Trainer



Hampden Products Designed to Train your Workforce!

PROGRAMMABLE LOGIC CONTROLS – H-PLC-PP-1A-ML-1200



PROGRAMMABLE LOGIC CONTROLS TRAINING SYSTEM

Programmable Logic Controls is a solid-state control device that is programmed and reprogrammed to automatically control electrical systems in residential, commercial, and industrial facilities. PLCs control heating and air conditioning (HVAC), security, building automation, process control, assembly, and process electrical systems. PLCs are currently used to control the electrical systems in furnaces, air conditioners, car washes, sporting complexes, transportation systems, bakeries, automated food production, and almost any other electrical system that has more than a few inputs and outputs.

Recommended Trainer

Hampden **Model H-PLC-PP-1A-ML-1200** Controls Training System

Objectives

- PLC and Electrical Safety
- Electrical Principles and PLCs
- Electrical Circuits and PLCs
- PLC Hardware
- PLC Programming Instructions
- Programming PLC Timers and Counters
- PLC and System Interfacing
- PLC Installations and Startup
- PLC and System Maintenance
- Troubleshooting Principles and Test Instruments
- Troubleshooting PLC Hardware
- Troubleshooting with PLC Software

RSLogix[™]

SIEMENS[®]

MICROLOGIX[®]
COMPLEX PROBLEMS. SMART SOLUTIONS.

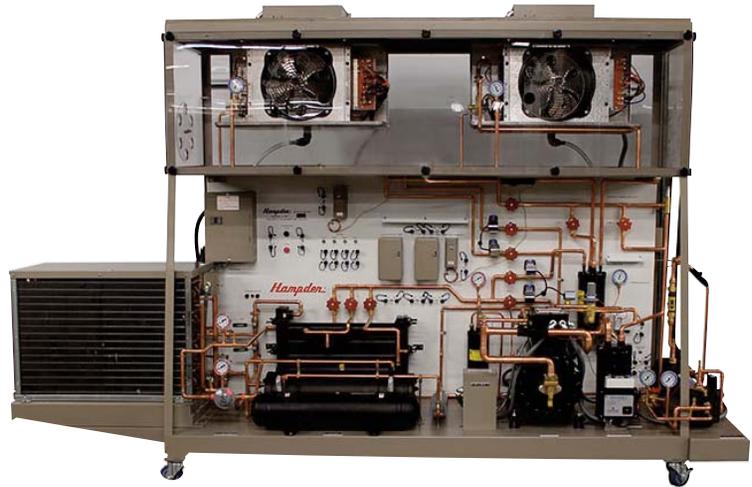
AB
QUALITY

Allen-Bradley[®]



Hampden Products Designed to Train your Workforce!

REFRIGERATION — H-IRT-1



INDUSTRIAL REFRIGERATION TRAINER

Environmental heating and air conditioning, which refers to the control of a space's air temperature, humidity, circulation, cleanliness, and freshness. When this is done to promote the comfort, health, and productivity of the inhabitants, it is called environmental heating or air conditioning. Homes, offices, schools, colleges, factories, sporting areas, hotels, cars, trucks, and other vehicles such as aircraft and spacecraft are heated and cooled. The main purpose of environmental heating or cooling is to help maintain the body temperature within its normal range.

Recommended Trainer

Hampden **Model H-IRT-1** Industrial Refrigeration Trainer

Options

- H-IRT-FP-M Mechanical Fault Package
- H-IRT-FP-18E Electrical Fault Package
- H-IRT-ACC Third Condenser to expand training capabilities (Air Cooled)
- H-IRT-EC Evaporator Chiller, shell and tube type water chiller
- H-ACTK-CT Water Cooling Tower

Objectives

- Tube-in-Tube Condenser
- Shell-in-Tube Condenser
- Electric Defrost
- Hot Gas Defrost
- Troubleshooting
- Pressure Controls
- Evaporators
- Liquid Control Devices
- Leak Detection

Program Expanders

Expand and Customize your program with the following Hampden Trainers

- H-MZBM Building Management Trainer
- H-RST-2 Refrigeration System Trainer
- H-ACCS-1 Air Conditioning Control System
- H-RST-RCP-1 A/C Refrigeration Charging and Recovery Package

Honeywell[®]

AUTOMATEDLOGIC[®]
United Technologies

Johnson Controls[®]

Reliable[®]
controls

Carrier[®]

Hampden Products Designed to Train your Workforce!

MOTORS, BEARINGS, AND GEARS — H-IMTS-1



Industrial Maintenance addresses the needs of the multicrafted maintenance technician by presenting an all-encompassing view of the field of industrial maintenance and covers a variety of technical skill areas including: mechanical installation, fluid power, piping systems, power transmission, print reading, and safety, electrical (electrical theory, test equipment, electronics, the National Electrical Code, control circuits, rotating machines, PLC's and drives), and welding. A multicrafted maintenance technician must have knowledge and skills in all these areas.

Recommended Trainer

Hampden **Model H-IMTS-1** Industrial Maintenance Training System

Options

- H-IMTS-DT DVD Training Package
- H-IMTS-CP Courseware Package
- H-IMTS-CDL Computer Data Logging Package
- H-IMTS-STP Special Tools Package (Metric Only)
- H-IMTS-TEP Test Equipment Package
- H-IMTS-LAK Laser Alignment Kit



INDUSTRIAL MAINTENANCE TRAINING SYSTEM

Objectives

- System Components
- Dual Voltage Motor Connections
- Capacitor Testing
- Electric Motor
- Coupling Alignment
- Centrifugal Pump Operation
- Understanding Gear Box Ratios
- Installing Drive Belts
- Installing Drive Chains
- Speed Reduction
- Speed Increaser
- Changing Pump Speed
- Variable Pitch V-Pulley Exercise
- Cam Clutch Operation

Program Expanders

Expand and Customize your program with the following Hampden Trainers

- H-IMTS-GB Gearbox Maintenance Trainer
- H-IMTS-BM Bearing Module Trainer
- H-IMTS-VAK Vibration Analysis Kit
- H-IMTS-2S Second Student Package

Hampden Products Designed to Train your Workforce!

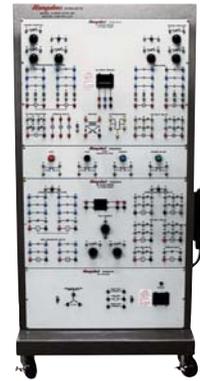
MOTORS AND MOTOR CONTROLS – H-REM-ACDC-MC



Motors and Motor Controls are typically used in industries such as electrical, water, oil, gas and data. Based on data received from remote stations, automated or operator-driven supervisory commands can be pushed to remote station control devices, which are often referred to as field devices. Field devices control local operations such as opening and closing valves and breakers, collecting data from sensor systems, and monitoring the local environment for alarm conditions.

Objectives

- AC Control
 - Full Voltage Starter
 - Full Voltage Reversing Starter
 - Reduced Voltage Resistor Type Starter
 - Reduced Voltage Autotransformer Type Starter for a Squirrel Cage Motor – Two Step
 - Reduced Voltage Reversing Starter
 - Dynamic Braking
 - Two Step Resistor Type Starter
 - Three Step Resistor Type Starter
- DC Control
 - Full Voltage Starter
 - Full Voltage Reversing
 - Reduced Voltage Starter
 - Reduced Voltage Reversing Starter
 - Overload Protection
 - Failure Protection
 - Dynamic Braking
 - Two Step Reduced Voltage Starter



**MOTOR
CONTROLLER**



**SUGGESTED EXPANDER
TRAINER H-MCTT**

Recommended Trainer

Hampden **Model H-REM-ACDC-MC** Motor Controller

Options

- SM-100-3 Synchronous Machine
- WRM-100-3A Wound Rotor Motor

Program Expanders

Expand and Customize your program with the following Hampden Trainers

- GNR-H2200 Industrial Controls Training System
- HDI-100 Dissectible Motors
- H-MCTT Motor Control Troubleshooting Trainer
- H-VFD-100C Variable Frequency Drive Trainer
- H-DMCTT Digital Motor Control Troubleshooting Trainer
- H-EWT-100 Electrical Wiring Trainer



Hampden Products Designed to Train your Workforce!

PROCESS CONTROLS – H-ICS-FL-TT



Process control is extensively used in industry and enables mass production of consistent products from continuously operated processes such as oil refining, paper manufacturing, chemicals, power plants and many others. Process control enables automation, by which a small staff of operating personnel can operate a complex process from a central control room.

Recommended Trainer

Hampden **Model H-ICS-FL-TT** Flow and Level Process Trainer

Options

- PLC Control instead of PID Control - *Specify Model H-ICS-FL-PLC-TT*

Objectives

- Flow Familiarization
- Automatic Flow Control
- Level Familiarization
- Automatic Level Control
- PID Manipulation
- Setting Alarms



FLOW AND LEVEL PROCESS CONTROL TRAINER

Program Expanders

Expand and Customize your program with the following Hampden Trainers

- H-ICS-TT Temperature Process Loop
- H-ICS-LT Level Process Loop
- H-ICS-PT Temperature Process Loop
- H-ICS-FT Flow Process Loop

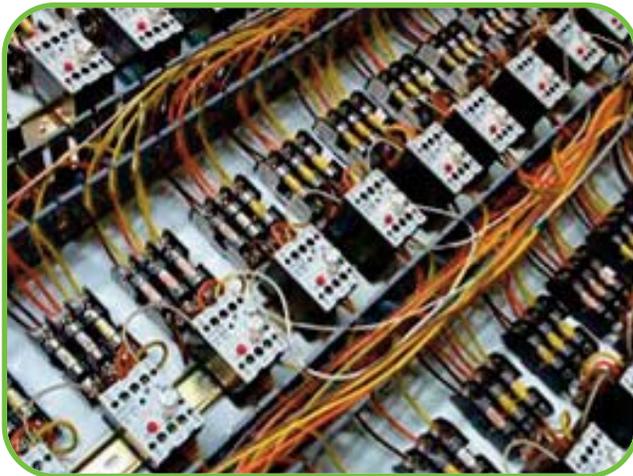


Foxboro.



Hampden Products Designed to Train your Workforce!

ELECTRICAL AND ELECTRONICS



NIDA TRAINER

Electrical functions as the primary platform for electronic experiments performed in Computer Assisted Instruction (CAI) or text based curriculum. The 130E serves as a current limited power supply for Nida 130 Series printed circuit boards (experiment cards). Discrete voltages are used to activate the experiment cards allowing students to check, align, and troubleshoot operational electronic circuits using standard laboratory test equipment.

Program Expanders

Expand and Customize your program with the following Hampden Trainers

- Model 1410 Soldering Model
- Model 1413 - Circuit Construction Experiment Card Set

Recommended Trainer

The Nida **Model 130E** Console

Options

- Model 1401 - DC Experiment Card Set
- Model 1402 - AC Experiment Card Set
- Model 1403 - Analog Experiment Card Set
- Model 2105 - Digital Electronics Experiment Card Set

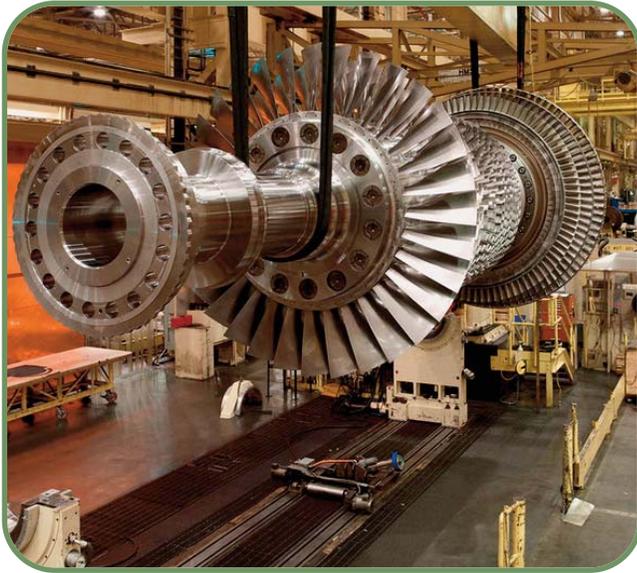
Objectives

- DC Circuits
- AC Circuits
- Ohm's Law
- Kirchof's Law
- Transformers
- Resistors
- Inductors
- Capacitors
- Transistors
- Integrated Circuits
- Rectifiers
- Relay Logic
- Diodes



Hampden Products Designed to Train your Workforce!

OSHA SAFETY – H-RIG-1C



RIGGING SYSTEMS TRAINER

Accident statistics show that construction is a high-hazard industry to work in. As most of the accidents that occur are the result of human error, it's important for everyone involved in rigging; lifting, hoisting, and scaffolding procedures, to accept responsibility for the part they play in the operations.

OSHA and the various standard organizations identify the elements of safe rigging practices and minimum safety regulations.

Recommended Trainer

Hampden **Model H-RIG-1C** Rigging Systems Trainer

Objectives

- Moving Heavy Load
- Box Lift
- Knots
- Hoisting Using Lifting Bar Assembly
- Lift Using Spreader Beam
- Balanced Load Lift
- Unbalanced Load Lift
- Wenches
- Hoists



Hampden Products Designed to Train your Workforce!

PUMPS, VALVES, AND BOILERS – H-PVST-50



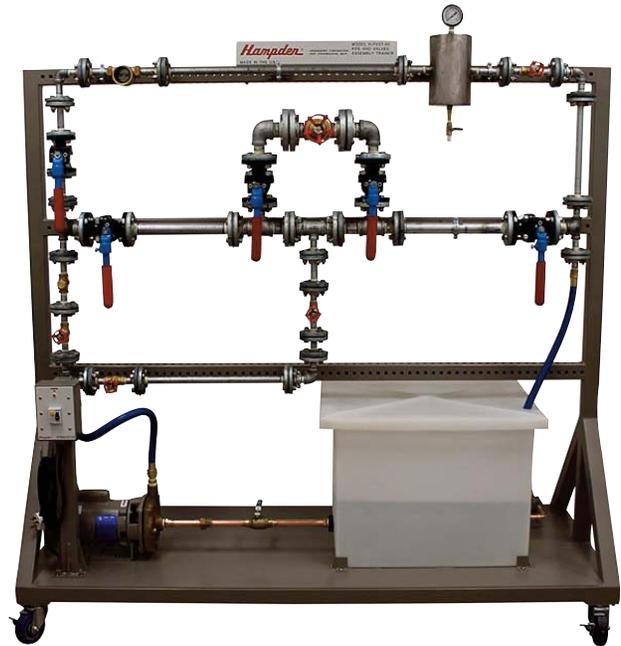
Pumps and valves are essential mechanisms that are utilized in many industrial manufacturing processes. Pumps are devices used to raise, compress or transfer fluids or gases. Pumps can be hydraulic pumps, pneumatic pumps or electric pumps and include a large variety of types such as centrifugal pumps, diaphragm pumps and vacuum pumps.

Recommended Trainer

Hampden **Model H-PVST-50** Pipe and Valves Assembly Trainer

Objectives

- Identifying Components
- Identifying Symbols
- Design and Function of Valves
- Planning of Piping and System Installations
- Cutting Pipe
- Threading Pipe
- Securing Threaded Metal Coupling
- Piping Arrangement 1
- Piping Arrangement 2
- Piping Arrangement 3
- Designing Your Own Arrangements



PIPE AND VALVES ASSEMBLY TRAINER

Program Expanders

Expand and Customize your program with the following Hampden Trainers

- H-181-100A Steam Boiler Trainer
- H-PVST-1 Pump and Valve System Trainer
- H-CVAT-1A Control Valve Actuator Trainer

Cutaway Valves

- H-1500-AVC-B Gate Valve
- H-1500-BVC-B Ball Valve
- H-1500-CVC-B Check Valve
- H-1500-GVC-B Globe Valve
- H-1500-PVC-B Plug Valve
- H-1500-RVC-B Safety Relief Valve
- H-1500-UVC-B Butterfly/Diaphragm



Hampden Products Designed to Train your Workforce!

WELDING

Mobile welding programs designed to meet the regional needs for highly skilled welders in the manufacturing, ship building and construction industries. Focus on training workers with no or limited welding experience. Live and virtual programs are available to meet your needs.



LIVE WELDING



VIRTUAL WELDING



Hampden Products Designed to Train your Workforce!

MOBILE CLASSROOMS

20' Long Mobile Classroom



The 20' mobile classroom is set up as a training environment for 3-6 students at various stations. Trailer also includes one side mounted door that raises up to allow for open classroom environment, as well as two side access doors and one large transportation door in back for movement of equipment.

28' Long Mobile Classroom



The 28' mobile classroom is set up as a training environment for 6-8 students at various stations. Trailer also includes one side mounted door that raises up to allow for open classroom environment, as well as two side access doors and one large transportation door in back for movement of equipment.

**LOOK TO HAMPDEN FOR YOUR
MOBILE TRAINING NEEDS!**



44' Long Mobile Classroom



The 44' mobile classroom is set up as a training environment for 10-12 students at various stations. Trailer also includes two side mounted doors that raise up to allow for open classroom environment, as well as two side access doors and one large transportation door in back for movement of equipment.

52' Long Mobile Classroom



The 52' mobile classroom is set up as a training environment for 12-14 students at various stations. Trailer also includes two side mounted doors that raise up to allow for open classroom environment, as well as two side access doors and one large transportation door in back for movement of equipment.

Mobile Classrooms

The Hampden Mobile Trailers come complete with air conditioning and electrical power included in the system. Optional generator system to run air conditioning and electrical power. Graphics and logos on side of trailers are included. The trailer also includes two side access doors and one large transportation door in back for removing and moving in equipment. Optional two side mounted doors that raise up to allow for open classroom environment.



Hampden Products Designed to Train your Workforce!

FAULTS

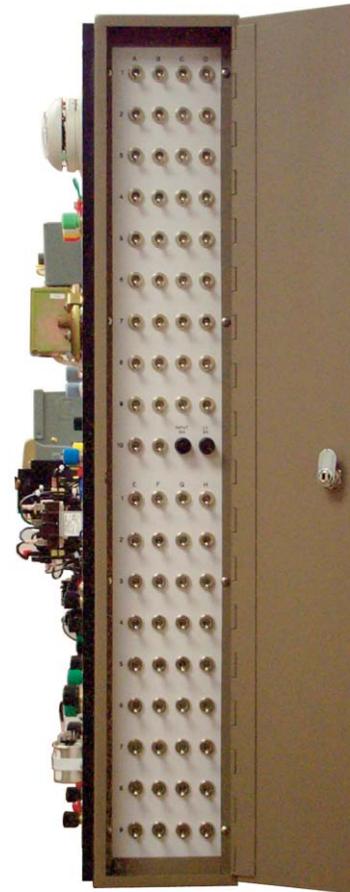
Faults and Programs

Many of Hampden's Trainers have the capabilities of instructor insertable faults. Faults will provide you with one of the most beneficial educational tools available... troubleshooting.

Through the use of faults you will have the ability to test the students' troubleshooting skills.

Troubleshooting will utilize all the knowledge learned about the system being tested. When a piece of equipment is down, being able to quickly find out what is wrong in the system, will save valuable time and money.

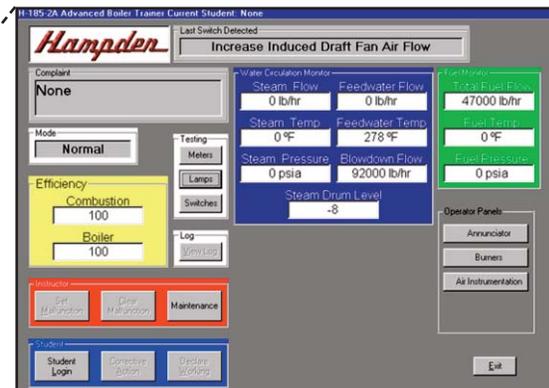
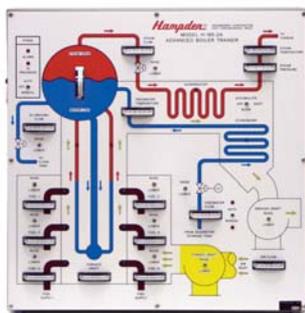
Proper troubleshooting skills are one of the most desirable and sought after requirements in an employee.



H-ACCS-1 FAULTS



H-MCTT FAULTS



SCREEN SHOT FROM H-185-2A PROGRAM AVAILABLE

Hampden Products Designed to Train your Workforce!

OUTFITTING YOUR TRAINING FACILITY

Furniture

Need a bench or work surface to meet a specific need? No problem, with a complete in house wood and metal shop we can design and build to suit your needs. Capable of being fully outfitted with instrument panels, power supplies, power strips, storage turrets, drawers, shelves, and cabinets our durable furniture will provide you with years of service.



Hampden Products Designed to Train your Workforce!

TRAINING

Hampden offers classes held at our 120,000 sq. ft. factory where you see equipment being built and tested. We offer classes for 1 or more of your instructors.

We also provide onsite training with our certified staff to allow for a turnkey operation.

LOOK TO HAMPDEN FOR YOUR INDUSTRIAL TRAINING NEEDS!



Onsite Training Available



Factory and Field Training Available



Field Training Available



Hampden is committed to providing industry-leading technology.

For the latest from Hampden, visit our home page at <http://www.hampden.com> or e-mail us at sales@hampden.com

Hampden[®]
ENGINEERING CORPORATION

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