

Introducing

TECHNICAL *Interactive*

Electrical Fundamentals Edition
Comprehensive Teaching Resources for Professional Service Instructors

Finally!!

Electrical Theory and Diagnostics

TEACHING RESOURCE!

**ATTENTION
INSTRUCTORS!**

Automotive, Heavy Vehicle,
Motorcycle, Snowmobile,
Watercraft, ATV,
Outboard Marine and
Small Engine
Service Instructors!

Introduction

In response to hundreds of inquiries from community college instructors, technical center instructors, and high school teachers across North America, requesting a "fundamental electrical" teaching resource, similar in design to our Air Brake *Interactive* programs, we are very pleased to announce the SOON-to-be-released first program in our new series, "TECHNICAL *Interactive*!" This new training program was developed specifically for professional EDUCATORS and SERVICE INSTRUCTORS in the automotive, heavy vehicle, motorcycle, ATV, snowmobile, watercraft, outboard marine, and small engine industries!

TECHNICAL *Interactive* Electrical Fundamentals Edition (TI-EF), employs the same visual multimedia learning techniques that have made our Air Brake programs the leading teaching resources for heavy vehicle air brake instructors, around the world!

The TI Electrical Fundamentals Program

TECHNICAL *Interactive* Electrical Fundamentals Edition is a complete, ready-to-present, teaching resource! The package consists of a comprehensive, state-of-the-art, computer interactive instructor-controlled multimedia presentation supported by a comprehensive, full color, Instructor's Reference and Presentation Guide. Your students will actually SEE how electricity works, SEE how various electrical circuits and components function, and SEE how to effectively diagnose circuit malfunctions!

TECHNICAL *Interactive* Electrical Fundamentals Edition consists of 7 teaching modules, which can be presented in order, or as individual learning subjects to match your existing curriculum. The following list describes the content of each module and illustrates some of the visuals and animations in this course.

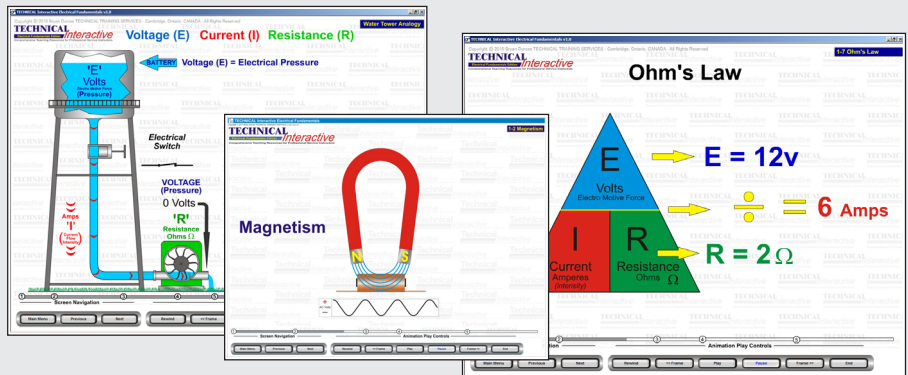
For further information, or
to arrange a no-obligation LIVE
on-line demonstration, please contact:

Ron Gervais at FreinMeister Group Inc.
Tel: (519) 641-6770
E-mail: ron@freinmeister.com

Module 1 – Basic Electrical Theory

Module 1 focuses on the theoretical issues associated with electricity. Employing a combination of voice narrated animations and detailed static illustrations, this module illustrates and explains the following topics:

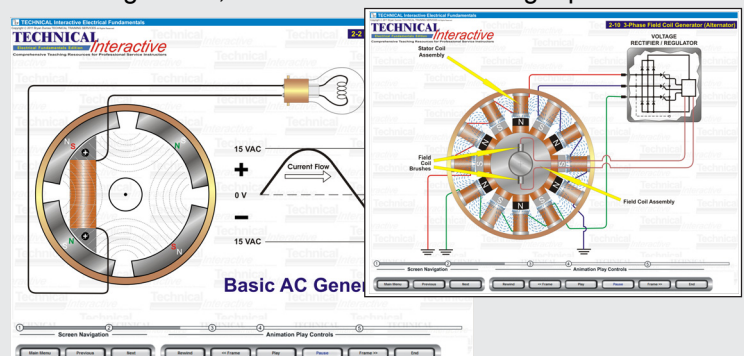
- Atoms and Electrons (visual)
- Magnetism (animation)
- Electrical Conductors (visual)
- Electrical Insulators (visual)
- What is Electricity? (visual)
- Water Tower Analogy (animation)
- Ohm's Law (animation)
- Ohm's Law Applied (animation)
- Watt's Law (animation)
- Watt's Law Example 1 (animation)
- Watt's Law Example 2 (animation)



Module 2 – Alternating Current (AC) & Direct Current (DC) Generation and Voltage Rectification

Module 2 focuses on electrical current generation, rectification and regulation, and includes the following topics:

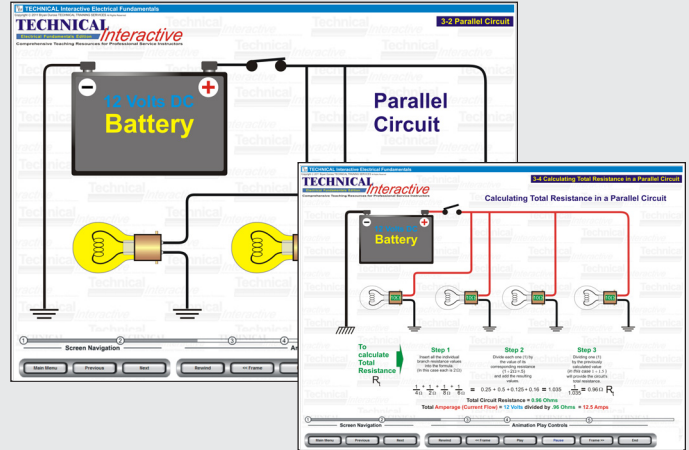
- Current Types (visual)
- Basic AC Electrical Generation (animation)
- Multiple (3) Phase AC Generation (animation)
- AC to DC Rectification (animation)
- Half Wave Current Rectification (animation)
- Full Wave Current Rectification (animation)
- 3-Phase Generator with 6 Element Rectifier (animation)
- Field Coil Generator (animation)
- Zener Diode Voltage Regulation (visual)
- 3-Phase Field Coil Alternator (animation)



Module 3 – Electrical Circuits

In Module 3, students will learn about electrical circuits, how they function and what problems can develop and occur within an electrical circuit. Topics include:

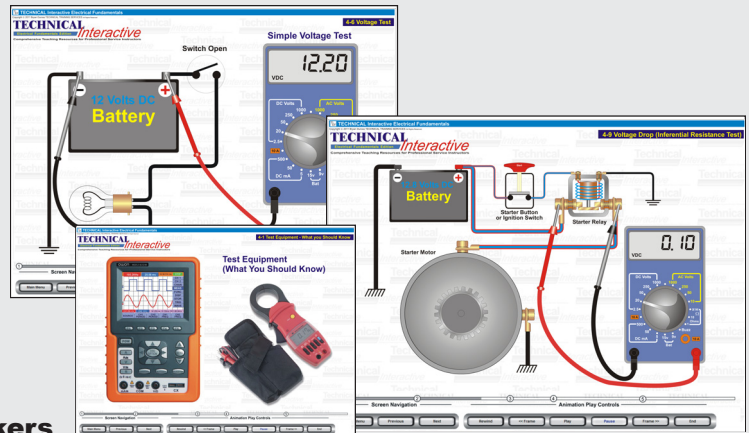
- The Series Circuit (animation)
- The Parallel Circuit (animation)
- Adding Resistors (loads) to a Parallel Circuit (animation)
- Calculating Total Resistance - Parallel Circuit 1 (visual)
- Calculating Total Resistance - Parallel Circuit 2 (visual)
- Calculating Total Resistance - Parallel Circuit 3 (visual)
- The Series/Parallel Circuit (animation)
- Circuit Problems (visual)
- Open Circuits - Series and Parallel (animation)
- Short Circuit (animation)
- The Results of a Short Circuit (animation)
- Excessive Circuit Resistance (animation)



Module 4 – Basic Electrical Test Precautions, Equipment and Diagnostic Procedures

This module addresses electrical test equipment and electrical test procedures in full animation. Subjects include:

- Introduction to Test Equipment (visual)
- Inductive Meters (visual)
- Digital Oscilloscopes (visual)
- Basic Electrical Testing (visual)
- Electrical Testing Precautions (visual)
- Voltage Test (animation)
- Amperage, Current Flow, Test (animation)
- The Resistance (Continuity) Test (animation)
- Voltage Drop - Inferential Resistance Test (animation)
- The Importance of Circuit Grounds (visual)
- High Amperage Current Shunt (narrated animation)



Module 5 – Wire Gauges, Fuses and Circuit Breakers

In module 5, students will learn about Wire Gauge Amp/Ohm Specifications, Fuse types and circuit breakers, including: Wire Size Standards (AMG & Metric), Wire Gauge Amp/Ohm Specifications, Fuse types (SFE, ATC, ATM), Circuit Breakers and ATC replacement.

Module 6 – Electrical Symbols and Schematics

In module 6, students will see and learn about electrical symbols and how to identify specific electrical components in electrical schematics.

Module 7 – Common Electrical Components (How They Work)

Module 7 is our “How They Function” module. Employing full voice-narrated animations, students will see and hear how a variety of electrical components actually function.

- Ignition Coil, Collapsing field (animation)
- Ignition Coil, Expanding field (animation)
- Wheel Speed Sensor (animation)
- Fuel Injector (animation)
- Relay Switch, Electro-magnetic (animation)
- ABS Modulator (animation)
- Electric Motor (animation)
- Manifold Absolute Pressure (MAP) Sensor (animation)
- O² Sensor (animation)
- Throttle Position Sensor (TPS) (animation)
- Starter Solenoid (animation)
- Light Emitting Diode (LED) (animation)

