Distribution Trainer

Educational Training Equipment for the 21st Century

Bulletin 180-110A

H-OFT-180

Oil Filled Transformer Trainer

Purpose

The Hampden **Model H-OFT-180** Oil-filled Transformer Trainer is designed to provide training in the areas of power distribution and how transformers relate to power being supplied to the user.

The Transformer used in the distribution of power is affected by many factors such as voltage level, balanced loading, reactive lines and loads, phase angles, temperature, overloading, and distance, to name a few. This trainer is designed to assist the student in investigating these elements.

Elementary concepts can easily be demonstrated on this equipment, leading up to the more complex system analysis. The education level of the user will determine what level of training can be utilized on this trainer.

This trainer is designed to be connected to, or in series with a distribution line. Since it is fully operational, it can be used as a integral part of a laboratory distribution system, as well as a stand alone trainer.

Specifications

Circuit Breakers:
The circuit breakers are the de-ion air type enclosed in a bakelite housing and properly rated for the voltage and current required, and as manufactured by Westinghouse Electric or General Electric.

Switches:
All switches shall conform to U/L standard #1054 for special use snap switches. They are properly rated for the voltage and current required in each specific application, and as manufactured by AH&H, American Solenoid, or equal.

Panel Jacks:
The panel jacks are U/L approved with the proper voltage and current ratings for the application. The manufacturer is Hampden Engineering Corporation or an approved equal.

Transformers/Reactors:
All transformers and reactors are dry type, double wound, core and coil construction with bakelite terminal boards. The manufacturer is Epco or GE companies.

Gas Accumulation System:
All components of the gas accumulation system are of commercial design for actual transformers. They are manufactured by General Electric, Qualitrol, or equal.

Liquid Level Indicator:
The liquid level indicator system is of commercial design for actual transformers. It is manufactured by General Electric, Qualitrol, or equal.

Thermometer:
The 5" bi-metallic thermometer is of commercial design for actual transformers. It is manufactured by General Electric, Qualitrol, or equal.

Resistors:
All resistors are properly rated for the circuit which they are used in. They are manufactured by Ohmite or Clarostat Electric companies.

Control Components:
All control components are of high quality with ratings in excess of the intended application. The quality is equal to or greater than the companies previously listed in this specification.

Experiments & Studies

- Transformer familiarization
- Transformer action
- Delta - Wye connections
- Voltage regulation
- Transformer efficiency
- Transformer tap - changing
- Surge diversion
- Transformer oil
- Transformer oil level
- Temperature
- Gas accumulation
- Dehydrating breather

All Hampden units are available for operation at any voltage or frequency

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Hampden® ENGINEERING CORPORATION

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Construction:

The trainer is constructed of code gauge sheet metal. It is mobile, mounted on 4" poly-jar swivel casters, two with brakes and two without brakes.

The finish of the trainer is gray hammertone enamel. The control panel is clear Lexan. The panel contains a silkscreened diagram of the transformer system and control components.

The control circuit breaker, tap-switch and connection terminals are all located on the control panel, so that all electrical connections can safely be made with patch cords designed for the purpose.

Transformer surge protection is located within the control panel enclosure, and is permanently connected to the transformer arc-horns. The instrument transformers required for the student experiments are located within the control panel enclosure, with connections to the control panel.

The entire oil-filled transformer enclosure is located within a retaining pan, designed to hold any or all of the oil from the transformer, should a leak occur.

Accessories

(priced separately)

- Digital Multimeter
- Wheatstone Bridge
- Resistive Load Bank
- Service Outlet

The trainer is completely self-contained, complete with operating instructions, maintenance manual, student exercise manual, and teachers manual.

The input power shall be 127/220V AC, 10-KVA, 60-hertz, 3ϕ, 4-wire, plus a ground.

The overall size is 60" (152 cm) high, by 30" (76 cm) wide, by 34" (86 cm.) deep.

The dry weight of the training system is approximately 700 lbs. (318 kg.) The eighteen (18) gallons of oil required weighs 135 lbs. (61 kg).

All Hampden units are available for operation at any voltage or frequency

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