Test Cabinet

for Power/Vac® Vacuum Circuit Breakers
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1-1 Introduction
This manual provides the information needed by the user to properly install, operate and maintain the Test Cabinet.

1-2 Safety
Each user must maintain a safety program for the protection of personnel, as well as other equipment, from the potential hazards associated with electrical equipment.

The following requirements are intended to augment the user’s safety program, but NOT supplant the user’s responsibility for devising a complete safety program. The following basic industry practiced safety requirements are applicable to all major electrical equipment such as switchgear or switchboards. GE neither condones nor assumes any responsibility for practices which deviate from the following:

1. ALL CONDUCTORS MUST BE ASSUMED TO BE ENERGIZED UNLESS THEIR POTENTIAL HAS BEEN MEASURED AS GROUND AND SUITABLE GROUNDING CONDUCTORS HAVE BEEN APPLIED TO PREVENT ENERGIZING. Many accidents have been caused by back feeds from a wide variety of sources.

2. Although interlocks to reduce some of the risks are provided, the individual’s actions while performing service or maintenance are essential to prevent accidents. Each person’s knowledge; his mental awareness; and his planned and executed actions often determine if an accident will occur. The most important method of avoiding accidents is for all associated personnel to carefully apply a thorough understanding of the specific equipment from the viewpoints of its purpose, its construction, its operation and the situations which could be hazardous.

All personnel associated with installation, operation and maintenance of electrical equipment, such as power circuit breakers and other power handling equipment, must be thoroughly instructed, with periodic retraining, regarding power equipment in general as well as the particular model of equipment with which they are working. Instruction books, actual devices and appropriate safety and maintenance practices such as OSHA publications, National Electric Safety Code (ANSI C2), the National Electric Code, and National Fire Protection Association (NFPA) 70B Electrical Equipment Maintenance must be closely studied and followed. During actual work, supervision should audit practices to assure conformance.

1-3 Maintenance
Excellent maintenance is essential for reliability and safety of any electrical equipment. Maintenance programs must be tuned to the specific application, well planned and carried out consistent with both industry experience and manufacturer’s recommendations. Local environment must always be considered in such programs, including such variables as ambient temperatures, extreme moisture, number of operations, corrosive atmosphere or major insect problems and any other unusual or abusive condition of the application.

One of the critical service activities, sometimes neglected, involves the calibration of various control devices. These monitor conditions in the primary and secondary circuits, sometimes initiating emergency corrective action such as opening or closing circuit breakers. In view of the vital role of these devices, it is important that a periodic test program be followed. As was outlined above, it is recognized that the interval between periodic checks will vary depending upon environment, the type of device and the user’s experience. It is the GE recommendation that, until the user has accumulated enough experience to select a test interval better suited to his individual requirements, all significant calibrations be checked at an interval of one to two years.

To accomplish this, some devices can be adequately tested using test sets. Specific calibration instructions on particular devices typically are provided by supplied instruction books.

Instruction books supplied by manufacturers address components that would normally require service or maintenance during the useful life of the equipment. However, they can not include every possible part that could require attention, particularly over a very long service period or under adverse environments. Maintenance personnel must be alert to deterioration of any part of the supplied switchgear, taking actions, as necessary to restore it to serviceable status.

Industry publications of recommended maintenance practices such as ANSI/NFPA 70B, Electrical Equipment Maintenance, should be carefully studied and applied in each user’s formation of planned maintenance.

Some users may require additional assistance from GE in the planning and performance of maintenance. GE can be contracted to either undertake maintenance or to provide technical assistance such as the latest publications.

The performance and safety of all equipment may be compromised by the modification of supplied parts or their replacement by non-identical substitutes. All such design changes must be qualified to ANSI/IEEE Standard C37.59.

The user should methodically keep written maintenance records as an aid in future service planning and equipment reliability improvement. Unusual experiences should be promptly communicated to GE.
**Power/Vac® Test Cabinet**

**Section 2. Receiving, Handling and Storage**

**2-1. Receiving**

Each test cabinet is carefully inspected before shipment. Immediately upon receipt of the test cabinet, an examination should be made for any damage sustained in transit. If injury or rough handling is evident, a damage claim should be filed immediately with the transportation company and the nearest General Electric Sales Office should be notified.

It is expected that due care will be exercised during the unpacking and installation of the test cabinet so that no damage will occur from careless or rough handling, or from exposure to moisture or dirt.

**2-2. Handling**

Normal care in handling the test cabinet will result in a trouble-free installation and long testing life.

**2-3. Storage**

It is recommended that the test cabinet be put immediately in its permanent location. If this is not possible, the following precautions should be taken to assure proper storage of the test cabinet.

1. The test cabinet should be stored in a clean location, free from corrosive gases or fumes; particular care, for example, should be taken to protect the equipment from moisture and dust, as this combination has a very corrosive effect on many parts.

2. If the test cabinet is stored for any length of time, it should be inspected periodically to see that rusting has not started and to insure good mechanical condition. Should the cabinet be stored under unfavorable atmospheric conditions, it should be cleaned and dried out before being placed in service.

**Section 3. Description and Principles of Operation**

The test cabinet, catalog no. 0231C9827G001, G002, G003 (Fig. 1) is used to operate a Power/Vac circuit breaker that has been removed from the metal-clad equipment. It provides a convenient means of accessing the electrical close and trip circuits of the breaker during maintenance and inspection procedures.

This unit is designed to be wall or cabinet mounted. It has an 8-foot cable (1), a storage bracket (2), control power selector switch (4), close push-button switch (5) for closing the breaker, trip 1 push-button switch (6) for opening the breaker. An optional pushbutton switch is available for testing circuit breakers that have either a 2nd trip coil or a direct-acting undervoltage trip device.

An indicating light (8), connected to the close circuit fuse block, indicates the selector switch (4) is on or off. The indicating light is furnished from the factory with a 250V resistor. If the close circuit voltage is 125V or less, replace the indicating light resistor with the resistor taped to the inside of the cabinet (9).

Inside the unit is a rectifier board (10), a stud for attaching a ground wire (14) and fuse blocks (11,12,13) for supply voltage fuses. There are also two holes, one on upper left and the other on lower right to accommodate 3/8 inch studs for mounting.

**CAUTION:** It is strongly recommended that the test coupler be connected to the breaker before the power is turned on.
Fig. 1  Typical Test Cabinet

1- CABLE
2- STORAGE BRACKET
3- TEST COUPLER
4- CONTROL POWER SELECTOR SWITCH
5- CLOSE PUSHBUTTON
6- TRIP COIL #1 PUSHBUTTON
7- TRIP COIL #2 OR UVTD PUSHBUTTON
8- INDICATING LIGHT (w/ 250V resistor)
9- 125V INDICATING LIGHT RESISTOR
10- RECTIFIER BOARD
11- MOTOR CIRCUIT FUSE BLOCK
12- CLOSE CIRCUIT FUSE BLOCK
13- TRIP CIRCUIT FUSE BLOCK
14- GROUND STUD
Section 4. Installation

The test cabinet should be installed on the wall at a location where maintenance and testing of the breaker can be conveniently done. Make sure that the green ground conductor is connected to electrical ground. Conduits may be installed for cables to supply control power for testing. Two 1-inch diameter grommets are located on top to accommodate wiring. Refer to the wiring diagrams figures 2, 3, and 4 for control power connections.

Section 5. Maintenance

The contact surfaces of the coupler require periodic lubrication to inhibit oxidation and minimize friction. It is recommended that during each maintenance interval, the pins of the breaker coupler be lightly coated with 0282A2048P009 grease. Aside from keeping the unit clean and dry, the most important thing is to return the clamp to the cabinet area when not connected to a breaker.

Fig. 2. Test Cabinet Outline Drawing
Fig. 3. Test Cabinet Wiring Diagram for 1-Trip Coil
Fig. 4. Test Cabinet Wiring Diagram for 2-Trip C
Fig. 5. Test Cabinet Wiring Diagram for 1-Trip Coil & UVTD
These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser’s purposes, the matter should be referred to the General Electric Company.