

vided on the card for such identification data as the serial number, rating, and location. All repair work, including repair cost, should be entered on the records.

The date of each inspection, with a brief comment on the condition of the motor and the effectiveness of its protective equipment, and a report of maintenance work performed should be recorded on the card. Each entry should be signed by the man who makes the inspection.

Periodic review of motor record cards will reveal unusual conditions, such as too frequent appearance of certain defects, inadequate maintenance of protective devices, or evidence of misapplication.

High-voltage equipment

In general, high-voltage equipment is more carefully guarded than low-voltage equipment because of the greater inherent hazard. In newer installations of 2300 volts or more, attempts have been made to insulate or armor apparatus so that casual contact with the current-carrying parts is not possible.

In this type of equipment, the metal cladding, barriers, or other protective coverings may require removal for inspection or repairs. Before these coverings are removed, it is imperative that circuit and machines be deenergized and that circuit breakers, disconnecting switches, and controls be checked with the operator or electrician to make sure that the equipment is free from current.

This rule also applies to older installations with open wiring and many of the current-carrying parts exposed and uninsulated. Under these conditions, extra care is necessary to maintain more than ample clearance when work is done near energized circuits. When cables have been deenergized and discharged, they should be shorted and grounded at the terminal switches where feedback or induction from other lines is possible.

Most high-voltage equipment has voltmeters, ammeters, power factor meters, and essential indicators in the circuit. Thermocouples or other thermometers are sometimes provided. These indicators provide for safer operation since the characteristics of the apparatus can be constantly observed and men need not make separate tests near energized circuits.

When high-voltage equipment is not equipped

with built-in indicators must be inspected, the operator or inspector should examine it carefully to see that it has a substantial ground. An electrical fault in an ungrounded machine may not be visible during operation, but touching the frame may result in fatal shock. A good ground will keep the machine at or near earth potential.

Power factor improvement capacitors are used in almost every efficiently operated distribution system. These capacitors usually have an internal discharge resistor to reduce the voltage to 50 volts within one minute after the capacitor is deenergized. Nevertheless, each terminal and the case must be grounded by means of a grounding stick whenever work is to be done on or near the capacitor. This ground connection must be maintained until the entire job inspection, maintenance, or cleaning of the capacitor has been completed.

Extreme precaution should be taken when insulation resistance of high-voltage equipment is tested to make sure that the megohmmeter is not connected into a live circuit. After it has been determined that the apparatus is completely dead, the free test lead can be attached to an exposed connection by use of a switch hook or other type of insulated hot stick. Rubber gloves should be worn in case of hand contact with the hanging leads.

Contact to test insulation resistance should be made whenever possible with an exposed conductor in the circuit to be tested. Puncturing of insulation is not recommended except with the knowledge and permission of the plant electrician, engineering department, or operator. Then it should be understood that the place punctured will be immediately taped or reinsulated.

As assurance of additional safety, especially when the punctured insulation is near metal framework or grounded structures, an insulation test should be made of the taped portion.

Rubber gloves should not be used as a substitute for safety devices or procedures, but are worn as a supplementary measure. Before each use they should be checked for punctures, tears, or abrasions. For an on-the-job test the cuffs should be rolled up and air forced into the fingers and palms of the gloves. If there is leakage, the gloves should not be used.

Leather protectors should be worn over