

Circuit Breaker Maintenance, Molded and Insulated Case

2 Days, 1.6 CEUs

Molded and insulated case circuit breakers are the most common low voltage breaker found in any industrial power system. Both of these types of breakers are enclosed in an insulating housing, while an insulated case breaker is simply a molded case breaker with a stored energy mechanism. While both types require testing and maintenance, insulated case breakers can actually be disassembled and adjusted. With proper maintenance, technicians can prevent nuisance trips, and ensure tripping operations execute as required for equipment protection. In addition to improving electrical system reliability, well maintained circuit breakers also minimize the arc flash hazard energy levels that technicians can be exposed to during a fault.

Pre-Requisite:

This hands-on course is intended for new or experienced electricians and technicians that install, maintain, repair or troubleshoot molded or insulated case circuit breakers, rated less than 1000 V AC, equipped with thermal, magnetic or solid state tripping devices. The student should have basic knowledge of AC/DC electricity.

PPE Requirements:

AVO is committed to the personal safety of each participant. Long pants and ANSI rated "safety toe" work shoes are acceptable to meet this requirement. No shorts are allowed to complete the lab portion of this course.

Learning Objectives:

Upon completion of this course and lab practice, the participant will demonstrate by attaining a minimum average grade of 80% (between lab and final exam), that he/she will be able to:

- Identify circuit breaker components.
- Utilize appropriate personal protective equipment and safe work procedures for breaker maintenance.
- Interpret NEMA breaker maintenance procedures.
- Carry out complete circuit breaker maintenance, removal and restoration procedures.
- Perform and evaluate the results of low resistance, insulation resistance and overcurrent tests.
- Verify trip device operation/operation of accessories.

SCOPE

Day 1*

I. Introduction

- A. Schedule
- B. Course Outline

II. Introduction to Molded- and Insulated-Case Circuit Breakers

- A. The Need for Maintenance
- B. Technical Literature
- C. Trained Personnel
- D. Spare Parts
- E. Tools

- F. Maintenance Justification
- G. Description of Components
- H. Auxiliary Equipment
- I. Selecting a Breaker
- J. Testing Guidelines
- K. Testing
- L. Insulation Resistance
- M. Contact Resistance Tests
- N. Testing the Auxiliary Equipment
- O. Practical Exercise

Day 2

III. Overcurrent Devices

- A. Overcurrent Testing Procedures
- B. Timing Tests
- C. Operating Principles

IV. Testing Lab

V. Conclusion

- A. Review
- B. Final Exam

TRAINING INSTITUTE, INC.

