



Technical Diagnostic Services Training Institute

Low-Voltage Circuit Breaker Maintenance 36 Hours

Who Should Attend: Field and shop technicians, circuit breaker rebuilders, supervisors and others responsible for the maintenance and testing of low-voltage draw out power circuit breakers.

Course Description: Students will learn safe and proper maintenance and testing procedures on a variety of 480V circuit breakers, including Siemens, ABB, Westinghouse, GE, Square D, Federal Pioneer, and ITE. Students will disassemble backboard assemblies, perform maintenance, reassemble and adjust circuit breakers.

All testing and maintenance is done in accordance with manufacturer's specifications and recommendations, NETA, ANSI and NEMA standards.

Lab vs. Lecture Time: Approximately 60% hands-on lab time vs. 40% lecture. This will vary with the actual class.

Outline:

- I. Introduction**
 - A) Student introductions
 - B) Pre-Test
- II. Circuit breaker fundamentals**
 - A) Safety (29 CFR 1910.269 & .331-.335)
 - B) Definitions
 - C) Nameplate data
 - D) Circuit breaker components
- III. Circuit breaker cubicle service**
 - A) Circuit breaker removal
 - B) Cabinet Service
 - C) Restoring the circuit breaker to service
- IV. Circuit breaker service**
 - A) Inspection
 - B) Cleaning
 - C) Lubrication
 - D) Circuit breaker adjustments
- V. Overcurrent trip devices**
 - A) Overcurrent trip device functions
 - B) Series or direct-acting trip devices
 - C) Solid-state trip devices
 - D) Setting overcurrent trip devices
 - E) Time-current characteristic curves
- VI. Testing Low-Voltage Circuit Breakers**
 - A) Micro-ohmmeter
 - B) Insulation resistance
 - C) Over potential
 - D) Overcurrent device
- VII. Course Conclusion**
 - A) Review
 - B) Final Test

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