



Technical Diagnostic Services Training Institute

Personal Protective Grounding 16 Hours

Who should attend?

Designed for field and/or plant personnel, supervisors and others with the need to learn the proper technique for installing Personal Protective Grounds. This course is excellent for new electrical personnel and cross-training.

Course Description:

Personal Protective Grounding is designed to present the application of personal protective grounds, from a practical point of view. The student will understand the use of the devices that are discussed and gain the knowledge to safely install protective grounds.

The course is a combination of practical application and hands-on training.

Participants are asked to ask questions regarding personal protective grounds and their purpose and components and practical examples are used to broaden their understanding. Each student receives a course text for reference.

Lab vs. Lecture Time:

Approximately 50% hands-on lab time vs. 50% lecture. This will vary with the actual class.

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Personal Protective Grounding Outline

I. PURPOSE

- A. PRIMARY

II. PREREQUISITIES

- A. LOTO ISSUED
- B. JOB BRIEFING
- C. FUSES, SWITCHES
- D. CONTROL CLOSING FUSES PULLED
- E. MANUAL AIR SWITCHES
- F. I&E TECH AND OPERATOR COMMUNICATION
- G. REVIEWING DIAGRAMS
- H. TESTING FOR POTENTIAL

III. QUALIFICATIONS

- A. EXPOSED LIVE PARTS
- B. NORMAL VOLTAGE OF LIVE PARTS
- C. MINIMUM APPROACH DISTANCE
- D. PRECAUTIONARY TECHNIQUES
- E. EQUIPMENT KNOWLEDGE
- F. SWITCHING PROCEDURE
- G. SAFETY RULES
- H. MANAGEMENT REQUIREMENTS

IV. SPECIAL TOOLS & EQUIPMENT

- A. APPROVED GROUNDING DEVICE
- B. FLASH SUIT/GLOVES/HARD HAT/GLASSES
- C. HIGH VOLTAGE METERING DEVICE
- D. ELECTRICAL SCHEMATIC

V. RESPONSIBILITIES

- A. OPERATIONS & MAINTENANCE MANAGERS
- B. PLANT MANAGER
- C. PRIMARY AUTHORIZED OPERATOR

VI. TERMS

- A. ELECTRICAL GROUNDING INSTALLER
- B. GROUNDING ASSISTANT
- C. QUALIFIED GROUNDING OBSERVER
- D. GROUNDING
- E. APPROVED GROUNDING DEVICES
- F. EQUAL POTENTIAL ZONE GROUNDING
- G. FOREIGN POTENTIAL
- H. BRACKET GROUNDING
- I. FAULT CURRENTS
- J. GROUNDING DEVICES
- K. GROUND
- L. JUMPER
- M. JUMPERING
- N. VOLTAGE DROP

- O. MEASURED VOLTAGE DROP
- P. CALCULATED VOLTAGE DROP
- Q. INDUCED VOLTAGE

VII. CAUTION

- A. SATISFY REQUIREMENTS
- B. APPROVED GROUNDS
- C. PROPER NUMBER OF GROUNDS TO INSTALL

VIII. SHOCK HAZARD

- A. ACCEPTED VALUE OF RESISTANCE
- B. BURNS
- C. CONTINUED CURRENT
- D. VENTRICULAR FIBRILATION
- E. RESPIRATORY INHIBITION
- F. CARDIAC ARREST
- G. CENTRAL NERVOUS SYSTEM
- H. DEEP BURNS

IX. GROUNDING EQUIPMENT

- A. GROUNDING ON PAINTED STEEL
- B. GROUNDING CABLES
- C. GROUNDING CLAMPS
- D. MAINTENANCE
- E. ADEQUATE CABLE LENGTH
- F. USING HOT STICKS
- G. WHIPPING OF CABLES
- H. PARALLEL CABLES
- I. GROUND CABLE FERRULES
- J. BUSHING LEADS
- K. PROTECTIVE GROUNDS

X. CARE, INSPECTION & TESTING

- A. CARE
- B. INSPECTION-GROUND CLAMPS
- C. TESTING-MILLIVOLT DROP TEST
- D. TEST RECORDS

XI. SHOCK SITUATIONS

- A. STEP VOLTAGE
- B. TOUCH VOLTAGE
- C. MESH VOLTAGE
- D. TRANSFERRED VOLTAGE

XII. CHECKING FOR VOLTAGE

- A. VOLTAGE DETECTION METHODS
- B. VOLTAGE DETECTOR
 - neon
 - noisy tester
 - multiple ring type

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**XII. POWER CIRCUIT BREAKER &
TRANSFORMER GROUNDING**

- A. VOLTAGE DETECTORS
- B. PERSONAL PROTECTIVE GROUNDS
- C. BUSHING LEADS

**XIV. DISCONNECT SWITCH AND BUSS
GROUNDING**

- A. HIGH-VOLTAGE DISCONNECT
- B. INSTALL PROTECTIVE GROUNDING
CABLES

XV. HIGH VOLTAGE CABLE GROUNDING

- A. GROUNDS IN POTHEADS
- B. SLICING CABLES
- C. GROUNDING CABLE

**XVII. GROUNDING TRANSFORMER & PHASE
REACTOR PERSONAL PROTECTIVE
GROUNDS**

- A. CAPACITOR BANKS
- B. BANKS ELECTRICALLY ISOLATED

XVIII. PLACING GROUNDS IN SWITCHYARD

- A. PROCEDURES

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