

**Study Guide
for
Electrical Journeyman
Performance Test
#4702
Steam & Nuclear Power
Generation Units**

**Human Resources
Performance Assessment Services
Southern California Edison
An Edison International Company**

REV 031803

STUDY GUIDE
FOR
ELECTRICAL JOURNEYMAN PERFORMANCE TEST

GOAL:

It is required to wire a three phase 480 Volt reversing motor starter control circuit and its associated three phase motor.

You will be given an elementary diagram (schematic) and instructions on how to mark the motor leads. The starter control panel and motor will have all wires and markings removed. You will also answer the written technical questions attached to the package.

CONDITIONS:

You will be administered the test at ITAC Training Center, ALGS or SONGS. A three-phase motor starter control panel and a three-phase motor with all wires and markings removed, will be set up in the electrical shop. All the necessary tools, diagrams and instructions will be supplied by ITAC.

You will have 8 hours to complete the test. When you complete the test, the instructor will ensure that the starter and motor operate properly, and that all the lights, electrical interlocks, motor overloads and fuses are wired properly and they work as indicated in the schematic.

The instructor will also review the 10 technical questions in the package. Your performance will be graded on 3 areas: (1) your starter, motor and associated parts are wired and work properly as indicated in the diagram and schematic; (2) you do not violate any OSHA safety rules; and (3) you successfully answer at least 7 out of 10 of the technical questions. You must pass all three areas to pass the test. Any mechanical or safety errors will be cause for failure.

Please read all the materials and instructions carefully before you take the test.

Test Scheduling

If you are an Edison employee, your supervisor will schedule you for testing through Test Administration (626-302-9830 or PAX 29830). If you are unsuccessful in passing the test on your first attempt, please refer to the testing guidelines on MyEdison.Net (employees only) or call 626-302-9830.

Test Session

In order to take the test, you will need to show a picture ID (driver's license or some other identification with a photo). Please be sure to bring this with you.

It is important that you follow the directions of the Test Administrator exactly. If you have any questions about the testing session, be sure to ask the Test Administrator before the test begins. During the test, you may not leave the room, talk, smoke, eat, or drink. Since some tests take several hours, you should consider these factors before the test begins.

You will receive a Test Comment form so that you can make comments about the tests. Write any comments you have and turn it in with your test when you are done.

Study Guide Feedback

At the end of this Guide you have been provided with a Study Guide Feedback page. If a procedure or policy has changed, making any part of this Guide incorrect, your feedback would be appreciated so that corrections can be made.

Test Taking Strategies

Introduction

Your emotional and physical state during the test may determine whether you are prepared to do your best. The following list provides common sense techniques you can use before the test begins.

Technique

Remarks

Be confident

- o If you feel confident about passing the test, you may lose some of your anxiety.
- o Think of the test as a way of demonstrating how much you know, the skills you can apply, the problems you can solve, and your good judgment capabilities.

Be punctual

- o Arrive early enough to feel relaxed and comfortable before the test begins.

Concentrate

- o Try to block out all distractions and concentrate only on the test. You will not only finish faster but you will reduce your chances of making careless mistakes.
- o If possible, select a seat away from others who might be distracting.
- o If lighting in the room is poor, sit under a light fixture.
- o If the test room becomes noisy or there are other distractions or irregularities, mention them to the Test Administrator *immediately*.

Budget your time

- o You are allowed eight hours to complete the test.
- o Pace yourself carefully to ensure that you will have enough time to complete all parts.

INSTRUCTIONS:

You need to wire the motor feeder circuit and control circuit according to NEC and ANSI standard wiring practices. At Edison, we lug and bolt motor connections. **We don't use twist locks!** You will wire the motor control circuit to be protected by the proper size fuses. When the forward push button is activated the motor will run clock-wise. When the reverse push button is activated, the motor will run counter-clock-wise.

The motor leads are unmarked. In this package, you will find a written procedure to determine the proper motor wiring. The motor should be "Y" connected for 440 Volts. The indicating lights should be connected so as the red light will indicate reverse and the green light will indicate forward. All fuses and motor overloads should be of the proper size to protect their respective circuits. You will fail the test if you burn up or destroy any components. You can test-run the circuit to make sure it works.

You are not allowed to make any changes once you tell the instructor that you are finished *or* when the eight hours have elapsed. The instructor will grade your work at that time.

You can ask questions for clarification or advice but the instructor will not be directing you on how to do something.

An important rule to follow:

Besides the general testing rules, you are highly expected to follow all OSHA Safety practices at all times during the test. Failure to do so will cause you to fail the test.

REFERENCES

- A review of OSHA electrical safety rules 1910-332 to 1910-337;
OSHA TITLE 9
- An ability to wire a three phase reversing motor starter:
American Electrician Hand Book
- A understanding of the rules and codes for wiring and motors;
National Electrical Code
- An ability to read electrical diagrams;
American Electricians Hand Book
The “Ugly Reference Book”
- An ability to use a multi-meter, meggar, and clamp on Amp meter;
American Electricians Hand Book

Tools That You Will Be Expected To Know How To Use Include:

Phillips and standard screw driver
3/8 spin tight
Screw starter
Wire strippers
Hand crimpers
Easy codes
Electrical tape
Misc. Screws and Lugs:
Channel locks
Misc. fuses and overloads

Study Guide Feedback

Please use this page to notify us of any changes in policies, procedures, or materials affecting this guide. Once completed, return to:

Southern California Edison
8631 Rush St.
Performance Assessment Services, G04 Ground Floor
Rosemead, CA 91770

Test Name: Journeyman Electrician

Test No: 4702

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