

# **K-04b**

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## **ELECTRICIAN TRAINING**

### **TRAINER'S GUIDE**

**Duty K: PLC (Modicon)**

**K-04b: Access and Modify Data Table**

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## **Instructions To The Trainer**

1. The Learner will contact you when ready to practice accessing and modifying a data table.
2. Be prepared to demonstrate the steps for this task.
3. Ask the Learner to contact the Evaluator when ready for the Skill Check.



## **Skill Objective**

Upon notification of a machine timer problem, a part problem, or if data is needed from the data table, access and modify the data table.

### **Task Standards**

1. The location of the needed data register is identified.
2. The stored information from that register is accessed.
3. The data table is modified to improve the machine's current program so that the machine will function according to production specifications.

## What The Learner Will Need

This section contains the safety information, tools, and resources you will need before accessing and modifying a data table.



- Follow all Caterpillar Facility Safety Standards when performing this task in the plant.
- You will perform this task online. Perform the steps carefully; mistakes could result in injury to personnel or damage to the equipment.
- Use caution when working around the PLC; high voltage is present on the inside of the PLC cabinet door and near the I/O chassis.



- P190 programmer (Typically used with the 184, 384, 484, 584, 884, and 984 processors.)
- P230 programmer (Used with the 984 processor and the 184, 384, 484, 584, and 884 processors in the P190 emulator mode.)
- PLC communication cable
- Tape Loader Tape (P190 only)
- Program Loader Tape (P190 only)
- Modicon Bus Plus (Used with all processors.)



- Basic Help Keys, available on programmer software
- Modsoft Programmer User's Manual (GM-MSFT-001 Rev. F)
- Modicon P230 Quick Key reference card
- Ladder Diagram Printout and Cross Reference
- Modbus Plus Data Highway Chart
- Machine Print



## Practice Set-Up

The Learner may perform the following practice to help prepare for the Skill Check. Set up the practice for the Learner. Assist the Learner during the practice, if necessary; answer any questions concerning the task; and be prepared to demonstrate the task to the Learner. Make sure the Learner follows safe work practices while practicing the task.

### Practice 1

Ask the learner to practice making modifications to a register in the machine programs with both types of programmers (P190 and P230) with your supervision. Provide access to a machine program and allow the Learner to practice changing the time on the timers. The Learner should change the timer increments value and point out the effect when the coil is activated. The Learner should change the timer value and should point out the difference the increments value has on it. The Learner should set any preset values to the original values when finished practicing. Ask the Learner to discuss safety issues associated with changing a data register.

#### Practice Objective 1

The Learner should enter a network and make changes to a specific timer register. With your supervision, the Learner should practice changing timer values and activate the coil, demonstrating the difference from each change. Returning register values to preset values is a crucial safety step in this practice session.

### Practice 2

Have the Learner practice making modifications to a register in the machine programs with both types of programmers (P190 and P230) with your supervision. Provide access to a machine program and allow the Learner to practice changing the count on up and down counters. The Learner should activate the coil and point out the prompt counting to the specified number. The Learner should be able to discuss safety issues associated with changing a data register.

## **Practice Objective 2**

The Learner should enter a network and make changes to a specific up or down counter register. With your supervision, the Learner should practice changing counter values and activate the coil to notice the difference in the changes. Also, returning register values to preset values is a crucial safety step in this practice session.

## **Practice 3**

The Learner should practice locating and identifying the problem devices in the Ladder Diagram printout. Have the machine Operator describe some “problem” devices (actual devices on the machine that do not really have problems) and have the Learner identify the device on the Ladder Diagram printout.

## **Practice Objective 3**

The Learner should locate a “problem” device on the machine and note its ID number. The Learner should then locate that device on the electrical print and note the register reference number. Using the register reference number from the schematic, the Learner should locate the device in the Ladder Cross Reference which will tell where the device is located in the Ladder Diagram program. The Learner should find the device on the Ladder Diagram printout and note the network reference number which is the network number needed to modify the program.

## **Next Step**

Allow the Learner to continue practicing and developing skills needed to demonstrate the task. The Learner should ask the Evaluator to schedule a Skill Check whenever he or she is ready to demonstrate the task unaided and meet all the task standards and safe work practices.

