

# **K-03b**

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## **ELECTRICIAN TRAINING**

### **TRAINER'S GUIDE**

**DUTY K: PLC (Modicon)**

**K-03b: Load Program**

**Issued 01/01/98**

## **Instructions To The Trainer**

1. The Learner will contact you when ready to practice loading a program.
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 new machine installation, a bad processor, a PLC lockup, or a new machine program, load a program.

### **Task Standards**

1. The program is loaded on the P190 when the “Load Complete” prompt is displayed.
2. The program is loaded on the P230 when the Controller Status Information Screen is displayed.
3. The “Verify OK” prompt indicates the program loaded successfully for both programmers.

## What The Learner Will Need

This section contains the safety information, tools, and resources you will need before loading a program.



- 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
- Modbus Plus Data Highway Chart



## **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 identify the various Modicon PLC types (184, 384, 484, 584, 884, and 984) and know where the MEMORY PROTECT KEYLOCK on each of the units is located. Ask the Learner to identify the “Power On” or “Power” light and the “Run” light on the PLCs. Contact the machine Operator in advance to schedule a convenient time to allow the Learner to practice stopping and starting the controller. With your supervision, have the Learner practice entering the load program mode and turning the controller off and on to load the program.

### **Practice Objective 1**

The Learner should identify the “Power” or Power On” and “Run” lights on all PLC types. The Learner should indicate that he or she understands the use of the MEMORY PROTECT KEYLOCK, including knowledge of Memory Protect “On” and “Off” and the location of the KEYLOCK for all PLC types. The Learner should point out how the “Run” light extinguishes when the controller stops and illuminates when the controller restarts.

### **Practice 2**

Have the Learner locate the Modbus Plus Data Highway Chart at the various controller sites. Ask the Learner to practice identifying controllers on the Modbus Plus Data Highway Chart. Have the Learner locate a specific controller on the chart and verify the number by entering the unit number at the programmer and communicating with the controller.

## **Practice Objective 2**

The Learner should be able to identify the location of the Modbus Plus Data Highway Chart at the various PLC sites. The Learner should indicate an understanding that the location of the PLC being used is important in using the chart and entering a program to communicate with that PLC. The Learner should demonstrate the ability to locate the unit number and connect with the PLC.

## **Practice 3**

Schedule in advance with the Operator to allow the Learner time to practice loading programs using the P190 and P230 processors with your supervision. Ask the Learner to verify that the load was successful.

## **Practice Objective 3**

The Learner should load a program with both types of programmers and verify that the load was accomplished by pressing <Y> at the prompt “Verify Load?”. The verification should result in the prompt “Verify OK”. Check to see that the correct program is installed on the machine after the Learner has practiced.

## **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.

