

# **K-05a**

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## **ELECTRICIAN TRAINING**

### **TRAINER'S GUIDE**

**Duty K: PLC (Allen-Bradley)**

**K-05a: Modify PLC Program**

**Issued 01/01/98**

## **Instructions To The Trainer**

1. The Learner will contact you when ready to practice modifying a PLC 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 receiving a request to perform a permanent modification, or after determining a need to perform a temporary modification, modify the PLC program.

### **Task Standards**

1. When the machine is cycled, the machine demonstrates the effect of the modification.
2. The machine operates within specifications and meets production requirements.

## What The Learner Will Need

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

### **SAFETY FIRST**

**DON'T TAKE  
CHANCES**

- Follow all Caterpillar Facility Safety Standards when performing this task in the plant.
- Use caution when working around the PLC; high voltage is present on the inside of the PLC cabinet door and near the input/output (I/O) chassis.
- Be careful when working near moving or rotating machinery.
- Wear safety glasses and hearing protection in assembly and production areas.
- Use caution when making any modifications, pay attention to values, addresses, etc.
- When making any changes to the program, especially when you are online, exercise caution when putting the machine back in cycle.



- PC equipped with PLC software
- PLC
- Interconnect cable
- Floppy disk (to back up processor memory, if necessary)
- Processor Keyswitch Key (if the processor is not in the REM position)
- Password (if necessary)



- Electrical Schematics
- Ladder Diagram printout
- Engineering Modification



## **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**

Designate an offline PC or a PLC location for the practice. Provide the Learner with an Engineering Modification requesting an addition, deletion, or change to an instruction, address, or rung in a specific file in the PLC program. Run a machine cycle to test the modification. Be prepared to explain the safe work practices that apply to this task.

#### **Practice Objective 1**

The modification in the PLC program should be displayed in the Ladder file.

### **Practice 2**

Designate a PLC location for the practice. Provide the Learner with a troubleshooting scenario which will require bypassing an input or output device that will have a predictable effect. Have the Learner cycle the machine to verify the effect of the bypassed device. After verification, ask the Learner to remove the bypass.

Ask the Learner to describe the safe work practices required for this task.

#### **Practice Objective 2**

The modification should result in the machine performing as predicted. After verification, the Learner should restore the PLC program to the original state.

## **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.