

K-10b

ELECTRICIAN TRAINING

SKILL CHECK GUIDE

Duty K: PLC (Modicon)
K-10b: Replace Processor

Issued 01/01/98

Rationale

This Skill Development Guide provides the knowledge needed to replace a processor. At Caterpillar, when the PLC fails to run the machine, the Learner troubleshoots it to determine if the processor is bad. If so, the Learner must replace it. The Learner must exercise caution when replacing the processor. Failure to lock out and tag out could result in electrical hazard, machine damage, or personnel injury due to sudden machine movement. Failure to follow the steps to replace the processor correctly could result in further downtime or damage to the machine.

Skill Check Set-Up

Select a PLC type (i.e., 184, 384, 984) to replace for the Skill Check. Contact the Operator where the PLC is located to schedule a convenient time for the Skill Check. As a part of the Skill Check, have the Learner talk you through the steps for replacing the processor with a new one or repaired one from the “Crib”. If you have a processor that does need to be replaced, then have the Learner carry out all steps of this task. The Learner should carry out all safety measures and other steps of this task, from removing the original processor and demonstrating setting the DIP switches (on 984 and 884 processors) to reinstalling the processor. Have the Learner verify that the processor is reloaded and the machine is running according to the original specifications. You must make available the tools, materials, and resources needed to demonstrate the task.

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What The Learner Will Need

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



- 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 I/O chassis.
- Wear safety glasses and hearing protection in assembly and production areas.



- 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)
- Wiggy voltage tester



- Basic Help Keys, which are 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
- Lockout/Tagout procedures



Skill Check

When a processor has been determined as faulty, replace the processor.

Needs
Mastered Practice

Safe Work Practices

- | | | |
|-------|-------|---|
| _____ | _____ | 1. Follow all Caterpillar Facility Safety Standards when performing this task in the plant. |
| _____ | _____ | 2. 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. |
| _____ | _____ | 3. Wear safety glasses and hearing protection in assembly and production areas. |

Task Standards

- | | | |
|-------|-------|---|
| _____ | _____ | 1. The Learner ensures that the replacement processor matches with the original processor identically before replacing it. |
| _____ | _____ | 2. The replaced processor communicates with the programmer, which allows the Learner to reinstall the machine program. |
| _____ | _____ | 3. After replacing the processor, the Learner cycles the machine to verify that the processor is functioning within specifications. |



Evaluator's Sign-Off

The Learner has demonstrated safe work practices and competent performance of the task.

Evaluator: _____ Date: _____

Learner: _____ Clock No: _____