

K-09b

ELECTRICIAN TRAINING

SKILL CHECK GUIDE

Duty K: PLC (Modicon)

K-09b: Troubleshoot Processor

Issued 01/01/98

Rationale

The Skill Development Guide provides the knowledge needed to troubleshoot a processor. At Caterpillar, typical PLC problems occur such as a machine shutdown, a loss of communication between a controller and the I/O boards or programmer, or no illuminated “active” lights on I/O boards. The Learner must exercise extreme caution when troubleshooting a processor. Performing troubleshooting steps incorrectly could result in sudden machine movement which could injure personnel or damage the machine.

Skill Check Set-Up

Select a processor connected to a machine to troubleshoot for the Skill Check. Contact the Operator where the PLC is located to schedule a convenient time for the Skill Check. Before the Learner begins, communicate with the PLC and set up the PLC to simulate a fault. Ask the Learner to identify the problem and to suggest a corrective action. Verify that there are no problems on the machine before re-engaging the program. You must make available the tools, materials, and resources needed to demonstrate the task.

What The Learner Will Need

This section contains the safety information, tools, and resources you will need before troubleshooting 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)
- Modicon Bus Plus (Used with all processors.)
- Wiggy voltage tester



- 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
- Modbus Plus Data Highway Chart
- Machine print



Skill Check

Upon notification of a complete machine shutdown, no communication between the controller and the I/O boards or the programmer, or no illuminated “Active” lights on the I/O boards, troubleshoot 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 must perform a complete analysis of the processor. |
| _____ | _____ | 2. The Learner must recommend a corrective action. |
| _____ | _____ | 3. Corrective action resolves the processor problem. |



Evaluator's Sign-Off

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

Evaluator: _____ Date: _____

Learner: _____ Clock No: _____