

# K-06a

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## ELECTRICIAN TRAINING

### SKILL CHECK GUIDE

Duty K: PLC (Allen-Bradley)  
K-06a: Troubleshoot I/O Module

Issued 01/01/98

## **Rationale**

This Skill Development Guide provides the knowledge a Learner needs to troubleshoot an Intelligent or Discrete I/O module. The Learner needs to be able to determine if the problem is in the I/O module or outside the PLC. The Learner needs to be able to use the I/O module's User's Manual to determine the corrective actions associated with the status indicators. The Learner also needs to be able to access the STATUS word and READ BLOCK TRANSFER information to determine if the I/O module is performing properly.

## **Skill Check Set-Up**

Select a PLC location for the Skill Check. Contact the Operator where the PLC is located to schedule a convenient time for the Skill Check.

Set up a problem by inserting a fault in the hardware or software that would cause an abnormal condition with the I/O module's status indicators or would cause an error message to occur. Ask the Learner to identify the problem and recommend the corrective action.

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 the Learner will need before troubleshooting an I/O module.



- 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.



- PC equipped with PLC software
- PLC
- Interconnect cable
- Digital Voltmeter (to check the I/O module or device performance)
- Oscilloscope (to check the I/O module or device performance)
- Basic electrical hand tools
- Processor Keyswitch Key (if the processor is not in the REM position)
- Password (if necessary)



- Electrical Schematics
- Ladder Diagram printout
- User's Manual for I/O Module



## Skill Check

If an I/O module's status lights indicate an abnormal condition or if a "FAULTED" message is displayed, troubleshoot the I/O module.

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. Be careful when working near moving or rotating machinery.                                                                       |
| _____ | _____ | 4. Wear safety glasses and hearing protection in assembly and production areas.                                                     |

### Task Standards

- |       |       |                                                              |
|-------|-------|--------------------------------------------------------------|
| _____ | _____ | 1. The Learner identifies the I/O module problem.            |
| _____ | _____ | 2. The Learner recommends the appropriate corrective action. |



## Evaluator's Sign-Off

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

Evaluator: \_\_\_\_\_ Date: \_\_\_\_\_

Learner: \_\_\_\_\_ Clock No: \_\_\_\_\_