Troubleshooting

EMCP 3

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i02463502

Digital Input Circuit Fault

SMCS - 4490

System Operation Description:

Digital inputs are used to bring on/off information, such as switch closures, to the Genset Control. Depending on how the input is programmed, the EMCP 3 associates the inputs with levels, temperatures, pressures, and status conditions . Two of the Digital Inputs, which are programmed at the factory, are used by the EMCP 3 to control Emergency Stop and Remote Initiate functions. The spare digital inputs must be programmed before use.

For additional information on programming digital inputs, see System Operation, "Digital Input Programming"

Conditions Which Generate This Code:

This code is generated when the digital input is active. The code may indicate that a problem exists with the genset, or the code may indicate a status that does not need to be repaired.

Test Step 1. PERFORM THE INITIAL CHECK.

A. Use the Caterpillar Electronic Technician in order to check for active diagnostic codes on the Engine ECM. If any codes are present, correct the diagnostic codes first.

Expected Result:

No other diagnostic codes or indicators are active on the Engine ECM.

Results:

- **OK** - No other diagnostic codes or indicators are active. Proceed to Test Step 2
- **NOT OK** - Another Engine ECM diagnostic code is active.

Repair: Exit this procedure. Troubleshoot the active code or indicator. Refer to the engine Troubleshooting manual for your particular genset.

STOP

Test Step 2. CHECK THE SETPOINTS.

A. View the Digital Input setpoints. Make a note of the setpoints. See Testing and Adjusting, "Electronic Control Module (Generator Set) - Configure". Compare the setpoints against the default setpoints of the particular generator set.

Expected Result:

The setpoints are correct.

Results:

- **OK** - The setpoints are correct for your particular genset. Proceed to Test Step 3
- **NOT OK** - The setpoints are NOT correct.

  Repair: Reprogram the setpoints. Reset the genset. Resume normal operation and verify that the problem has been corrected.

  STOP

Test Step 3. CHECK THE DIGITAL INPUT WIRING

A. Check the wiring to the corresponding digital inputs for an unwanted short circuit. The short can be to the battery negative ("B-"). Carefully check ALL wires that are connected to the appropriate digital input for abrasion or worn spots in the insulation that could be causing the short. Check the wires in the generator control panel. Check the wires in the engine harness. Refer to the appropriate wiring diagrams for the circuit that is being checked.

Expected Result:

The wiring is correct.

Results:

- **OK** - No problems can be found with the digital input wiring. Proceed to test step 4
- **NOT OK** - The digital input wiring is defective.

  Repair: Repair the wiring or replace the wiring.

  Proceed to test step 4

Test Step 4. CHECK IF THE DIAGNOSTIC CODE REMAINS

A. Inspect the harness connectors and clean the contacts of the machine harness connectors.

B. Reconnect all harness connectors.

C. Reset the genset.

D. Operate the genset.

E. Check the status of the diagnostic code.

Expected Result:

The diagnostic code is not active.

Results:

- **OK** - The diagnostic code is not active. The diagnostic code does not exist at this time. The initial diagnostic code was probably caused by a poor connection or a short at one of the connectors that was disconnected and reconnected. Resume normal operation.**STOP**

- **NOT OK** - The code is active. The diagnostic code has not been corrected. The ECM may have failed.

  Repair: It is unlikely that the ECM has failed. Exit this procedure and perform this procedure again. If the cause of the failure is not found, then replace the ECM. See Testing and Adjusting, "Electronic Control Module (Generator Set) - Replace".

  STOP
