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Troubleshooting

EMCP 3

Media Number -RENR7902-01

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I02463493

Analog Input Circuit Fault

SMCS - 4490

System Operation Description:

Spare Analog Inputs are connected to resistive type sensors either on the engine, generator, or supporting systems. The EMCP 3 converts the resistive sensor values into levels, temperatures, and pressures depending on how the input is configured. Six programmable thresholds are provided. These thresholds include both high and low for each of the three supported data types. The appropriate thresholds are selected based on the Spare Analog Input Type Configuration setpoints. The EMCP 3 will also detect sensor diagnostics for shorted high and shorted low conditions.

An active spare analog input can be programmed to cause an alarm or a shutdown. For programming of the spare inputs, see System Operation, "Spare Analog Input Programming".

Conditions Which Generate This Code:

This code is generated when the measured Spare Analog Input value goes above or below the programmed threshold for a configurable duration.

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, then 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 Spare Analog 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 ANALOG INPUT DEVICE WIRING

- A. Check the wiring to the corresponding spare analog input for an unwanted short circuit. The short can be to the battery negative ("B-"). The short can be to the battery positive terminal ("B+"). Carefully check ALL wires that are connected to the appropriate analog 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 analog input wiring. Proceed to test step 4
- **NOT OK** - The analog 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

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- A. Inspect the harness connectors and clean the contacts of the 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, replace the ECM. See Testing and Adjusting, "Electronic Control Module (Generator Set) - Replace".

STOP