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## Troubleshooting

### EMCP 3

Media Number -RENR7902-01

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i02461491

## Engine Overcrank Warning

SMCS - 4490

### System Operation Description:

The crank cycle and the number of crank cycles are programmable. The crank cycle is the amount of time for engagement of the starting motor. This also includes the amount of time for cooling of the starting motor between crank cycles. If the engine does not start within the number of crank cycles that are programmed, "ENGINE FAILURE TO START SHUTDOWN " will be displayed on the EMCP 3 in order to inform the operator of an overcrank condition.

**Note: Refer to the engine Troubleshooting manual for more information on engine starting and engine cranking for your particular genset.**

### Conditions Which Generate This Code:

The code for the engine overcrank is generated when the EMCP 3 determines that an engine overcrank condition has occurred.

### Test Step 1. PERFORM THE INITIAL CHECK.

- A. Check for active diagnostic codes on the engine ECM and the EMCP 3. If any codes are present, correct the diagnostic codes first.

### Expected Result:

No other diagnostic codes or indicators are active.

### Results:

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

**Repair:** Exit this procedure. Troubleshoot the active code or indicator. Resume normal operation and verify that the problem has been corrected.

**STOP**

### **Test Step 2. CHECK THE SETPOINTS.**

- A. View the setpoints (Crank Duration, Crank Cycle Rest Interval, and Maximum Number of Crank Cycles). 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 for MUI engines. Proceed to Test step 4 for EUI engines.
- **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. Inspect the 2301A Governor Power Source and Wiring. (MUI Engines Only)**

Refer to the Genset Electrical System Schematic in the Service Manual for an accurate representation of the genset that is being serviced.

- A. Verify the Emergency Stop Push Button is not pressed
- B. Verify pin 58 on the EMCP 3 is connected through a normally open contact on the emergency stop switch to battery positive.
- C. Verify the Fuel Control Relay Output on pin 38 of the EMCP 3 is connected to terminal 2 on the 2301A Governor and verify the in line fuse is not open.
- D. Verify terminal 1 on the 2301A is connected to battery negative.

#### **Expected Result:**

The 2301A Governor power Source and wiring are correct.

#### **Results:**

- **OK** - The wiring is correct. The EMCP 3 may have failed.

**Repair:** It is unlikely that the EMCP 3 has failed. Exit this procedure and perform this procedure again. If the failure is not found, replace the EMCP 3.

**STOP**

- **NOT OK** - The wiring is not correct.

**Repair:** Repair the wiring or replace the wiring. Reset the genset. Resume normal operation and verify that the problem has been corrected.

**STOP**

#### **Test Step 4. Check communications between EMCP 3 and Engine ECM. (EUI Engines Only)**

- A. Use the Caterpillar Electronic Technician in order to verify that the fuel enable input on the Engine ECM is configured for "CAN Input".
- B. Refer to the Genset Electrical System Schematic in the Service Manual and check the Data Link wiring between the EMCP and the Engine ECM. See Troubleshooting, "Data Link Circuit Fault"

#### **Results:**

- **OK** - The Data Link wiring is correct. The EMCP 3 may have failed.

**Repair:** It is unlikely that the EMCP 3 has failed. Exit this procedure and perform this procedure again. If the failure is not found, replace the EMCP 3.

**STOP**

- **NOT OK** - The wiring is not correct.

**Repair:** Repair the wiring or replace the wiring. Reset the genset. Resume normal operation and verify that the problem has been corrected.

**STOP**