## Troubleshooting

**EMCP 3**

**Media Number -RENR7902-01** **Publication Date -01/01/2006** **Date Updated -27/01/2006**

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# Engine Overspeed Warning

**SMCS** - 4490

**System Operation Description:**

If the engine speed rises above the Engine Overspeed Threshold setpoint value, the Engine Overspeed event is made active.

If a overspeed condition is detected, "ENGINE OVERSPEED SHUTDOWN" will be displayed on the EMCP 3 in order to inform the operator of an overspeed condition. The Engine Overspeed Shutdown will always be a hard shutdown and may not be disabled.

**Conditions Which Generate This Code:**

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

**Test Step 1. TALK TO THE OPERATOR**

A. Determine the conditions that caused the overspeed condition.

**Expected Result:**

A overspeed was caused by a occurrence known to the operator and the operator would like to put the genset back into service.

**Results:**

- **OK -** The operator can determine the cause for the overspeed condition, the condition has been repaired and the operator wants to put the genset back into service.

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

**STOP**

- **NOT OK** - The overspeed condition was not caused by a occurrence known to the operator. Proceed to Test Step 2

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

A. View the Engine Speed Monitor and Generator Desired Engine Speed Request 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 for EUI engines. Proceed to test step 4 for MUI 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. VERIFY ENGINE SPEED CAN BE VIEWED AND ADJUSTED FROM THE EMCP 3 (EUI ENGINES ONLY)**

Verify the engine speed can be viewed and adjusted from the EMCP 3 Display Screen.

**Expected Result:**

The engine speed can be viewed and adjusted from the EMCP 3 Display Screen.

**Results:**

- **OK** - The engine speed can be viewed and adjusted from the EMCP 3 Display Screen.

  **Repair:** Adjust the engine speed to meet site requirements. Resume normal operation and verify that the problem has been corrected.

  **STOP**

- **NOT OK** - The engine speed cannot be adjusted. Proceed to test step 7

- **NOT OK** - The engine speed reads zero on the EMCP Display Screen.

**Repair:** The Engine Speed Sensor may have failed or needs to be adjusted. See Testing And Adjusting, "Speed Sensor (Engine) - Adjust". If the problem remains, replace the Engine Speed Sensor.

**STOP**

**Test Step 4. CHECK THE SYSTEM BY USING THE SPEED POTENTIOMETER. (MUI ENGINES ONLY)**

A. With the engine running, adjust the speed of the engine by turning the speed potentiometer.

**Expected Result:**

The engine can be adjusted to the desired speed.

**Results:**

- **OK** - The engine speed can be adjusted.

  **Repair:** Adjust the engine speed to meet site requirements. Resume normal operation and verify that the problem has been corrected.

  **STOP**

- **NOT OK** - The engine speed cannot be adjusted with the speed potentiometer. Proceed to test step 5

**Test Step 5. CHECK THE RESISTANCE OF THE ENGINE SPEED POTENTIOMETER. (MUI ENGINES ONLY)**

A. Shut down the engine.

B. Disconnect the speed potentiometer from the terminals "11" and "12" on the 2301A Governor.

C. At the speed potentiometer, measure the resistance of the speed potentiometer.

**Expected Result:**

The resistance should be adjustable between 0 and 100 ohms.

**Results:**

- **OK** - The resistance of the sensor is correct. Proceed to Test Step 6.

- **NOT OK** - The resistance of the speed potentiometer is not correct.

  **Repair:** Replace the speed potentiometer. Resume normal operation and verify that the problem has been corrected.

**STOP**

**Test Step 6. CHECK THE SPEED POTENTIOMETER HARNESS FOR A OPEN CIRCUIT. (MUI ENGINES ONLY)**

A. Disconnect the speed potentiometer harness from the 2301A governor.

B. Check for an open circuit. Check the resistance from the wire connected to terminal "11" of the 2301A governor to the same wire number at the speed potentiometer. The resistance should be 5 ohms or less.

C. Check for an open circuit. Check the resistance from the wire connected to terminal "12" of the 2301A governor to the same wire number at the speed potentiometer. The resistance should be 5 ohms or less

**Expected Result:**

When the resistance is measured between the wire connected to terminal "11" of the 2301A governor to the same wire number at the speed potentiometer connector, the resistance should be 5 ohms or less.

When the resistance is measured between the wire connected to terminal "12" of the 2301A governor to the same wire number at the speed potentiometer connector, the resistance should be 5 ohms or less.

**Results:**

- **OK** - The harness functions properly.

  **Repair:** The EMCP 3 may have failed. It is unlikely that the EMCP 3 has failed. Exit this procedure and perform this entire procedure again. If the problem remains, replace the EMCP 3. See Testing And Adjusting, " Electronic Control Module (Generator Set) - Replace".

  **STOP**

- **NOT OK** - The harness wiring with the incorrect resistance measurement has failed. Replace the failed harness from the 2301A governor to the speed potentiometer or repair the failed harness from the 2301A governor to the speed potentiometer. Resume normal operation and verify that the problem has been corrected.**STOP**

**Test Step 7. CHECK J1939 DATA LINK BETWEEN THE EMCP 3 AND THE ENGINE ECM (EUI ENGINES ONLY)**

Refer to the Genset Electrical System Schematic in the Service Manual and check the Data Link wiring between the EMCP 3 and the Engine ECM. For more information on troubleshooting the Data Link, see Troubleshooting, "Data Link Circuit Fault ".

**Results:**

- **OK** - The J1939 Data Link wiring is correct.

  **Repair:** The EMCP 3 may have failed. It is unlikely that the EMCP 3 has failed. Exit this

procedure and perform this entire procedure again. If the problem remains, replace the EMCP 3. See Testing And Adjusting, " Electronic Control Module (Generator Set) - Replace".

**STOP**

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

**Repair:** Repair the Data Link wiring or Replace the Data Link wiring. Resume normal operation and verify the problem has been corrected.

**STOP**

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