

Troubleshooting

CB44B, CB54B, CD44B and CD54B Vibratory Asphalt Compactors Machine Electronic Control

System

Media Number -UENR2411-06

Publication Date -01/07/2015

Date Updated -29/01/2019

i04710333

MID 039 - CID 0162 - FMI 02

SMCS - 4309-038-PSN; 430S-038

Conditions Which Generate This Code:



Illustration 1

g02807819

Location of the Steering Wheel Position Sensor

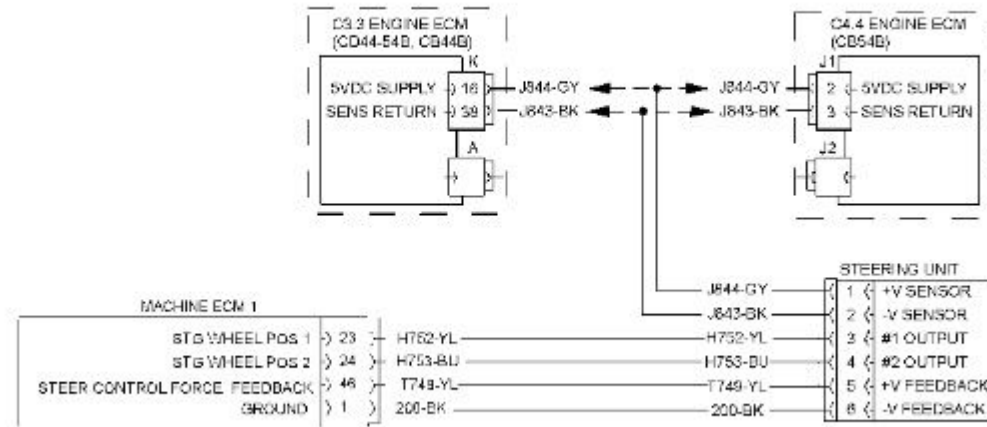


Illustration 2
Steering Wheel Position Sensor Connections

g02807670

This diagnostic code is associated with the Steering Wheel Position Sensor. The steer position sensor is located on the LH Operator console.

The position sensor sends the two PWM input signals to the Machine ECM 1. The position sensor is a twin PWM sensor that operates at a frequency of approximately 200 ± 40 Hz. The voltage of each signal ranges from 0.0 VDC to 5.0 VDC. The duty cycle of the signals will vary from 5 percent to approximately 95 percent depending on the position of the Steering Wheel.

In normal operation, one signal will lead the other signal by 45% duty cycle. The FMI 02 diagnostic code is activated when the ECM determines that the output of the sensor Erratic, Intermittent, or Incorrect. If the difference in duty cycle of the two signals is incorrect, this code will be activated. The difference must be between 40% and 50% or else this code will be activated. Some typical duty cycle readings are shown in the table below.

Table 1

Typical Duty Cycle Signals from the Sensor	
Signal 1	Signal 2
10%	55%
45%	90%
55%	10%
90%	45%

The possible causes of this diagnostic code are listed:

- The sensor power supply circuit is open.
- The sensor return circuit is open.

- The signal circuit is open.
- The signal circuit is shorted to another voltage source.
- The sensor has failed.
- The ECM has failed. ECM failure is unlikely.

Note: If a CID 0041 code for the 5 VDC power supply has been activated by the Engine ECM , investigate and correct the problem before proceeding with this procedure.

Note: Poor connections can often be the cause of a problem in an electrical circuit. Verify that all connections in the circuit are clean, secure and in good condition. If a problem with a connection is found, correct the problem and verify that this diagnostic code is active before performing this procedure.

Note: The following test procedure may create other diagnostic codes. Ignore these created diagnostic codes and clear the diagnostic codes when the problem has been corrected.

Test Step 1. CHECK THE SENSOR POWER SUPPLY CIRCUIT

- Turn the disconnect switch and the key switch to the ON position. **DO NOT START THE ENGINE.**
- At the machine harness side of the Steering Wheel Position Sensor, insert **7X-1710** Multimeter Probes along the power supply contact 1 (wire J844-GY(Grey)) and along the return contact 2 (wire J843-BK(Black)). Do not disconnect the machine harness connector from the sensor.
- Measure the DC voltage.

Expected Result:

The voltage measurement is between 4.0 VDC and 6.0 VDC.

Results:

- **YES** - The voltage measurement is between 4.0 VDC and 6.0 VDC. The power and ground circuits for the sensor are correct. Go to Test Step 2.
- **NO** - The voltage measurement is less than 4.0 VDC. The power supply for the sensor is not correct.

Repair: Refer to the complete machine Electrical System Schematic. Examine all of the connectors that are in the power and ground circuits. Ensure that the connections are clean, secure and in good condition. Once the power supply problem has been corrected, verify that the CID 0162 FMI 02 diagnostic code is no longer active.

STOP

Test Step 2. CHECK FOR AN OPEN IN THE SENSOR CIRCUIT

- Turn the key switch and the disconnect switch to the OFF position.
- Disconnect the Steering Wheel Position Sensor from the machine harness. At the harness connector, place a jumper wire between the signal contact 3 (wire H752-YL(Yellow)) and the signal contact 4 (wire H753-BU(Blue)).