

# DETROIT DIESEL



## DDEC<sup>®</sup> VI Troubleshooting

NUMBER: 07 DDEC VI-17 S.M. REF.: 55 ENGINE: MBE 900 DATE: September 2007

SUBJECT: SPN 636

PUBLICATION: 6SE580

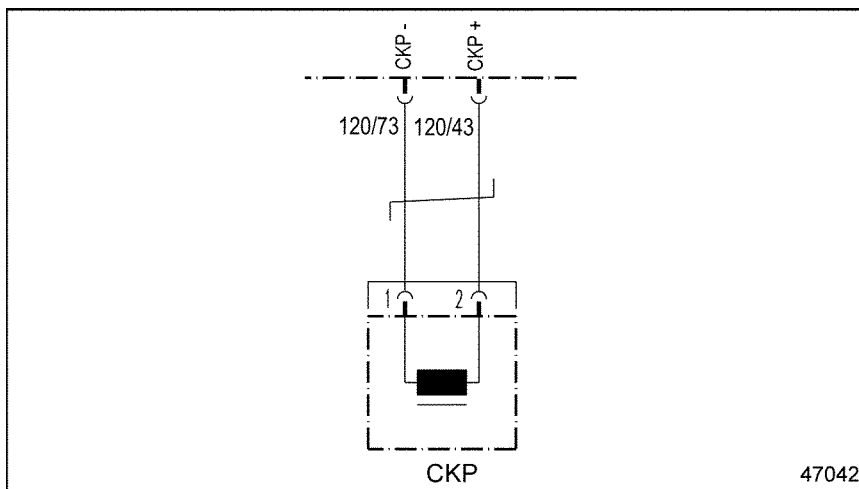
There is a pin number change for SPN 636/FMI 3 and SPN 636/FMI 4. In both procedures, pin 42 has changed to pin 73.

### SPN 636/FMI 3

The diagnostic condition is typically CKP Sensor has an open circuit.

Check as follows:

1. Disconnect the CKP Sensor.
2. Measure the resistance across pins 1 and 2 of the CKP Sensor. See Figure 1.



**Figure 1 Crankshaft Position Sensor Wiring**

- [a] If the resistance is greater than 140  $\Omega$ , replace CKP Sensor. Verify repairs.
  - [b] If the resistance is less than 140  $\Omega$ , go to step 3.
3. Disconnect the 120-pin MCM connector.
  4. Measure the resistance across pins 1 and 2 of the CKP Sensor harness connector.
    - [a] If the resistance is greater than 5  $\Omega$ , go to step 5.

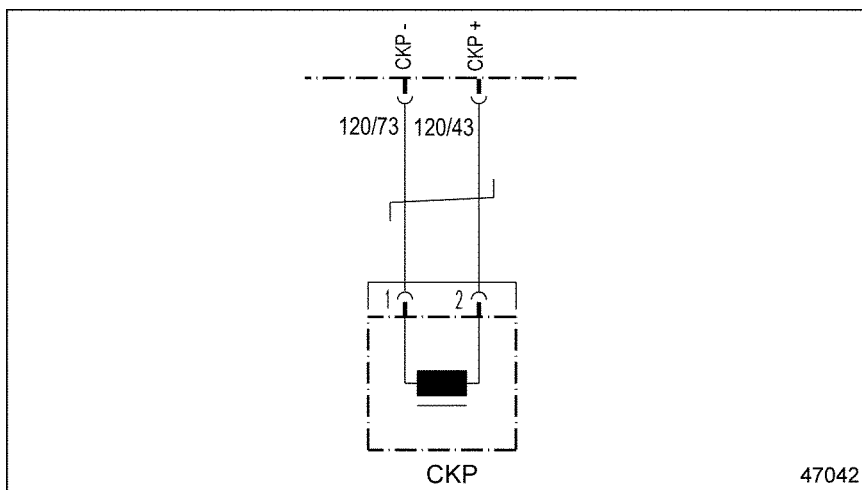
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- [b] If the resistance is less than 5  $\Omega$ , repair the short between pins 1 and 2 of the CKP Sensor harness connector and pins 73 and 43 of the 120-pin MCM connector. Verify repairs.
5. Measure the resistance between pin 1 of the CKP Sensor harness connector and pin 73 of the 120-pin MCM connector.
    - [a] If the resistance is greater than 5  $\Omega$ , repair the open between pin 1 of the CKP Sensor harness connector and pin 73 of the 120-pin MCM connector. Verify repairs.
    - [b] If the resistance is less than 5  $\Omega$ , go to step 6.
  6. Measure the resistance between pin 2 of the CKP Sensor harness connector and pin 43 of the 120-pin MCM connector.
    - [a] If the resistance is greater than 5  $\Omega$ , repair the open between pin 2 of the CKP Sensor harness connector and pin 43 of the 120-pin MCM connector. Verify repairs.
    - [b] If the resistance is less than 5  $\Omega$ , refer to the next section and check the crankshaft position sensor gap.
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## SPN 636/FMI 4

The diagnostic condition is typically CKP Sensor shorted to ground.

Check as follows:

1. Disconnect the CKP Sensor.
2. Measure the resistance between pin 1 of the CKP Sensor and ground.
  - [a] If the resistance is greater than 5  $\Omega$ , go to step 3.
  - [b] If the resistance is less than 5  $\Omega$ , replace the sensor. Verify repairs
3. Measure the resistance between pin 2 of the CKP Sensor and ground.
  - [a] If the resistance is greater than 5  $\Omega$ , go to step 4.
  - [b] If the resistance is less than 5  $\Omega$ , replace the sensor. Verify repairs
4. Disconnect the 120-pin MCM connector.
5. Measure the resistance across pins 1 and 2 of the CKP Sensor harness connector. See Figure 2.



**Figure 2 Crankshaft Position Sensor Wiring**

- [a] If the resistance is greater than 5  $\Omega$ , go to step 6.
  - [b] If the resistance is less than 5  $\Omega$ , repair the short between the CKP Sensor harness connector pins 1 and 2 and pins 73 and 43 of the 120-pin MCM connector. Verify repairs
6. Measure the resistance between pin 1 of the CKP Sensor harness connector and ground.
    - [a] If the resistance is greater than 5  $\Omega$ , go to step 7.

- [b] If the resistance is less than 5  $\Omega$ , repair the short to ground between pin 1 of the CKP Sensor harness connector and pin 73 of the 120-pin MCM connector. Verify repairs
- 7. Measure the resistance between pin 2 of the CKP Sensor harness connector and pin 43 of the 120-pin MCM connector.
  - [a] If the resistance is greater than 5  $\Omega$ , reconnect the 120-pin MCM connector and review steps 2 through 7. If the results are the same, call the Detroit Diesel Customer Support Center (313-592-5800).
  - [b] If the resistance is less than 5  $\Omega$ , repair the short to ground between pin 2 of the CKP Sensor harness connector and pin 43 of the 120-pin MCM connector. Verify repairs.

### **ADDITIONAL SERVICE INFORMATION**

Additional service information is available in one of the DDEC VI troubleshooting guides.

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