DETROIT DIESEL

Service Information Bulletin

NUMBER: 6 **4**–09 **S.M. REF.:** Listed in Table 1 **ENGINE:** Series 60 **DATE:** June 2009

SUBJECT: SPN 641

ADDITIONS, REVISIONS, OR UPDATES

Publication Number	Platform	Section Title	Change	Page Number(s)
DDC-SVC-MAN-0009	EPA07 Series 60 DDEC VI	57 SPN 641	SPN 641/FMI 7, 11, and 14 have been revised	57–1

NOTE: Page numbers are based on the most recent version of the individual publication and may be adjusted throughout the annual print cycle.

Table 1

SPN 641/FMI 7

Check as follows:

1. Using DDDL 7.0, perform the Turbo Hysteresis test.
   [a] If the Turbo Hysteresis test is a pass, repeat the test to see if the results are the same. If the results are the same, verify repairs. If the repeat test fails, go to the next step.
   [b] If the test results fail, go to the next step.
2. Turn the ignition OFF (key OFF, engine OFF).
3. Inspect the turbocharger electrical connectors.
   [a] If bent, corroded or damaged pins are found, repair as necessary. Verify repairs.
   [b] If electrical connections are OK, go to the next step.
4. Remove the turbo actuator.

NOTE:
Do NOT perform the re-alignment or scan test; doing so will give misleading results.

5. Perform one more Turbo Hysteresis test with the actuator off the turbocharger.
6. Does the Turbo Hysteresis test pass?
   [a] Yes; go to next step.
   [b] No; replace the turbo actuator. Verify repairs.
7. Remove the turbocharger and inspect for signs of foreign material contamination.
   [a] If foreign material damage is found, repair the source of material entry. Replace the turbocharger.
   [b] If no foreign material damage is found, replace the turbocharger.

SPN 641/FMI 11

Check as follows:

1. Check for multiple codes.
   [a] If 168/1 (low battery voltage) is present with 641/11, troubleshoot 168/1 first.
   [b] If only 641/11 is present, go to the next step.
2. Using DDDL 7.0, perform the Turbo Hysteresis test.
   [a] If you are unable to perform the Turbo Hysteresis test, go to step 11.
   [b] If the Turbo Hysteresis test fails, go to step 6.
   [c] If the Turbo Hysteresis test is a pass, repeat the test to see if the results are the same. If the results are the same, verify repairs. If the repeat test fails, go to the next step.
3. Disconnect the turbo actuator.
4. Check the actuator supply voltage.
5. Measure the voltage between pins 1 and 2 of the turbo actuator harness connector.
   [a] If the voltage is less than 11 volts, repair the cause of the low voltage. Verify repairs.
   [b] If the voltage is greater than 11 volts, go to the next step.
6. Turn the ignition OFF (key OFF, engine OFF).
7. Disconnect the MCM 120–pin connector.
8. Measure the resistance between pin 3 of the turbo actuator harness connector and pin 74 of the MCM 120–pin connector.
   [a] If the resistance is greater than 3 Ω, repair the open circuit between pin 3 of the turbo actuator harness connector and pin 74 of the MCM 120–pin connector. Verify repairs.
   [b] If the resistance is less than 3 Ω, go to the next step.
9. Measure the resistance between pin 4 of the turbo actuator harness connector and pin 75 of the MCM 120–pin connector.
   [a] If the resistance is greater than 3 Ω, repair the open circuit between pin 4 of the turbo actuator harness connector and pin 75 of the MCM 120–pin connector. Verify repairs.
   [b] If the resistance is less than 3 Ω, replace the turbo actuator. Verify repairs.

10. Remove the turbo actuator.

NOTE:
Do NOT perform the re-alignment or scan test; doing so will give misleading results.

11. Perform one more Turbo Hysteresis test with the actuator off the turbocharger.
12. Does the Turbo Hysteresis test pass?
    [a] Yes; go to next step.
    [b] No; replace the turbo actuator. Verify repairs.
13. Remove the turbocharger and inspect for signs of foreign material contamination.
    [a] If foreign material damage is found, repair the source of material entry. Replace the turbocharger.
    [b] If no foreign material damage is found. Replace the turbocharger.

SPN 641/FMI 14

Check as follows:

1. Using DDDL 7.0, perform the Turbo Hysteresis test.
   [a] If the Turbo Hysteresis test fails, go to step 9.
   [b] If you are unable to perform the Turbo Hysteresis test, go to the next step.
   [c] If the Turbo Hysteresis test is a pass, repeat the test to see if the results are the same. If the results are the same, verify repairs. If the repeat test fails, go to the next step.
2. Disconnect the turbo actuator.
3. Check the actuator supply voltage.
4. Measure the voltage between pins 1 and 2 of the turbo actuator harness connector.
   [a] If the voltage is less than 11 volts, repair the cause of the low voltage. Verify repairs.
   [b] If the voltage is greater than 11 volts, go to the next step.
5. Turn the ignition OFF (key OFF, engine OFF).
6. Disconnect the MCM 120–pin connector.
7. Measure the resistance between pin 3 of the turbo actuator harness connector and pin 74 of the MCM 120–pin connector.
   [a] If the resistance is greater than 3 Ω, repair the open circuit between pin 3 of the turbo actuator harness connector and pin 74 of the MCM 120–pin connector. Verify repairs.
   [b] If the resistance is less than 3 Ω, go to the next step.
8. Measure the resistance between pin 4 of the turbo actuator harness connector and pin 75 of the MCM 120–pin connector.
   [a] If the resistance is greater than 3 Ω, repair the open circuit between pin 4 of the turbo actuator harness connector and pin 75 of the MCM 120–pin connector. Verify repairs.
   [b] If the resistance is less than 3 Ω, replace the turbo actuator. Verify repairs.

NOTE:
Do NOT perform the re-alignment or scan test; doing so will give misleading results.

9. Remove the turbo actuator.

10. Perform one more Turbo Hysteresis test with the actuator off the turbocharger.
11. Does the Turbo Hysteresis test pass for the second time?
    [a] Yes; go to next step.
    [b] No; replace the turbo actuator. Verify repairs.
12. Remove the turbocharger and inspect for signs of foreign material contamination.
    [a] If foreign material damage is found, repair the source of material entry. Replace the turbocharger.
    [b] If no foreign material damage is found. Replace the turbocharger.

ADDITIONAL SERVICE INFORMATION

Additional service information is available in *Power Service Literature*.

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