# Service Information Bulletin

**SUBJECT**

SPN 4334/FMI 2, 3, 4, 7 and SPN 4375/FMI 6  

**DATE**

February 2012

## Additions, Revisions, or Updates

<table>
<thead>
<tr>
<th>Publication Number / Title</th>
<th>Platform</th>
<th>Section Title</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDC-SVC-MAN-0084</td>
<td>EPA10 DD Platform</td>
<td>SPN 4334/FMI 2</td>
<td>ACM software levels text changed to “Verify ACM software level is version (8.7 ZGS002 or higher), clear codes and release truck.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPN 4334/FMI 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPN 4334/FMI 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPN 4334/FMI 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPN 4375/FMI 6</td>
<td></td>
</tr>
</tbody>
</table>

---

13400 Outer Drive, West, Detroit, Michigan 48239-4001
Telephone: 313-592-5000
www.demanddetroit.com

---

All information subject to change without notice.
This diagnostic is typically Diesel Exhaust Fluid (DEF) metering unit pressure sensor - Drift.

<table>
<thead>
<tr>
<th>SPN 4334/FMI 2</th>
<th>Description</th>
<th>Diesel Exhaust Fluid (DEF) Pressure Sensor - Drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitored Parameter</td>
<td>Diesel Exhaust Fluid (DEF) Pressure</td>
<td></td>
</tr>
<tr>
<td>Typical Enabling Conditions</td>
<td>Pressure Limiting Unit OFF</td>
<td></td>
</tr>
<tr>
<td>Monitor Sequence</td>
<td>5 Hour engine OFF time</td>
<td></td>
</tr>
<tr>
<td>Execution Frequency</td>
<td>Continuous when enabling conditions met</td>
<td></td>
</tr>
<tr>
<td>Typical Duration</td>
<td>5 seconds</td>
<td></td>
</tr>
<tr>
<td>Dash Lamps</td>
<td>MIL</td>
<td></td>
</tr>
<tr>
<td>Engine Reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verification</td>
<td>SCR Quantity Test</td>
<td></td>
</tr>
</tbody>
</table>

1. Connect DDDL 7.04SP2 or higher.
2. Turn ignition ON (key ON, engine OFF).
3. Compare the DEF pressure to the ambient air pressure (Baro) and the DEF air pressure.
4. Is the DEF pressure within 2 PSI of the ambient air pressure (Baro) and the DEF air pressure?
   a. Yes; Go to step 8.
   b. No; Go to step 5.
5. Remove the DEF metering unit air pressure sensor, and re-connect harness to connector. Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor".
6. Again compare the DEF pressure to the ambient air pressure (Baro) and the DEF air pressure.
7. Is the DEF pressure within 2 PSI of the ambient air pressure (Baro) and the DEF air pressure?
   a. Yes; Go to step 8.
   b. No, replace the DEF pressure sensor. Verify ACM software level is version (8.7 ZGS002 or higher), clear codes and release truck.
8. Remove DEF metering unit from vehicle, Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit"
9. Remove the DEF pressure sensor, DEF air pressure sensor and DEF metering unit compressed air supply screen. Refer to section "Removal of the Diesel Exhaust Fluid Pressure Sensor"
   Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Air Pressure Sensor"
   Refer to section "Removal of the Diesel Exhaust Fluid Metering Unit Compressed Air Supply Screen"
10. Flush warm water into all cavities as illustrated in the figure below.
11. Reinstall all components.
12. Perform SCR air pressure test (60 second duration) and record results. Refer to chart below for next action.

<table>
<thead>
<tr>
<th>DEF Air Pressure</th>
<th>DEF Pressure</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 29 psi</td>
<td>66 - 72 psi</td>
<td>Clear faults and release vehicle.</td>
</tr>
<tr>
<td>18 - 29 psi</td>
<td>Less than 65 psi</td>
<td>Obtain log file containing SCR air pressure test and contact the CSC for further instructions.</td>
</tr>
</tbody>
</table>
3 SPN 4334/FMI 3 - EPA10

This diagnostic is typically Diesel Exhaust Fluid (DEF) pressure sensor circuit failed high.

| SPN 4334/FMI 3 |
|-----------------|-------------------------------------------------|
| Description     | Diesel Exhaust Fluid (DEF) Pressure Sensor Circuit Failed High |
| Monitored Parameter | Diesel Exhaust Fluid (DEF) Pressure Sensor |
| Typical Enabling Conditions | Always Enabled |
| Monitor Sequence | None |
| Execution Frequency | Always Enabled |
| Typical Duration | 2 Seconds |
| Dash Lamps       | MIL, CEL |
| Engine Reaction  | Derate 25% |
| Verification     | Engine Idle (1 minute) |

1. Check for multiple codes.
   a. If SPN 4334/FMI 3, SPN 4335/FMI 3 and SPN 3510/FMI 3 are present, repair short to voltage (greater than 5.0v) between pin 3 of the DEF pressure sensor and pin 99 of the ACM2.
   b. If SPN 4334/FMI 3 and SPN 4335/FMI 3 are present, repair open between pin 3 of the DEF pressure sensor and pin 99 of the ACM2.
   c. If only SPN 4334/FMI 3 is present. Go to step 2.

2. Disconnect the DEF pressure sensor.
3. Turn the ignition ON (key ON engine OFF).
4. Measure the voltage between pin 1 on the harness side of the DEF pressure sensor and ground.
   a. If the voltage is greater than 5.0v, repair short to battery between pin 1 of the DEF pressure sensor and pin 100 of the ACM2.
   b. If the voltage is between 4.75 and 4.9v, replace the DEF pressure sensor. Refer to section "Removal of the Diesel Exhaust Fluid Pressure Sensor". Go to step 5.
   c. If the voltage is less than 4.75v, repair wire between pin 1 of the DEF pressure sensor and pin 100 of the ACM2.
5. Verify ACM software level is version (8.7 ZGS002 or higher), clear codes and release truck.
4 SPN 4334/FMI 4 - EPA10

This diagnostic is typically Diesel Exhaust Fluid (DEF) pressure sensor circuit failed low.

<table>
<thead>
<tr>
<th>SPN 4334/FMI 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Monitored Parameter</td>
</tr>
<tr>
<td>Typical Enabling Conditions</td>
</tr>
<tr>
<td>Monitor Sequence</td>
</tr>
<tr>
<td>Execution Frequency</td>
</tr>
<tr>
<td>Typical Duration</td>
</tr>
<tr>
<td>Dash Lamps</td>
</tr>
<tr>
<td>Engine Reaction</td>
</tr>
<tr>
<td>Verification</td>
</tr>
</tbody>
</table>

1. Check for multiple codes.
   a. If SPN 4334/FMI 4, SPN 4335/FMI 4 and SPN 3510/FMI 3 are present, repair short to voltage (greater than 5.0v) between pin 3 of the DEF pressure sensor and pin 84 of the ACM2.
   b. If SPN 4334/FMI 4, SPN 4335/FMI 4 and SPN 3510/FMI 4 are present, repair short to ground between pin 3 of the DEF pressure sensor and pin 84 of the ACM2.
   c. If only SPN 4334/FMI 4 is present Go to step 2.

2. Disconnect the DEF pressure sensor.

3. Disconnect the ACM2 120-pin connector.

4. Measure the resistance between pin 3 on the harness side of the DEF pressure sensor and ground.
   a. If the resistance is less than 1k ohms, repair wire between pin 1 of the DEF pressure sensor and pin 100 of the ACM2.
   b. If the resistance is greater than 1k ohms, replace the DEF pressure sensor and verify ACM software level is version (8.7 ZGS002 or higher), clear codes and release truck. Refer to section "Removal of the Diesel Exhaust Fluid Pressure Sensor".
5 SPN 4334/FMI 7 - EPA10

This diagnostic is typically Diesel Exhaust Fluid (DEF) pressure low.

<table>
<thead>
<tr>
<th>SPN 434/FMI 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Monitored Parameter</td>
</tr>
<tr>
<td>Typical Enabling Conditions</td>
</tr>
<tr>
<td>Monitor Sequence</td>
</tr>
<tr>
<td>Execution Frequency</td>
</tr>
<tr>
<td>Typical Duration</td>
</tr>
<tr>
<td>Dash Lamps</td>
</tr>
<tr>
<td>Engine Reaction</td>
</tr>
<tr>
<td>Verification</td>
</tr>
</tbody>
</table>

1. Check DEF fluid for contamination (quality, clarity and smell).
   a. If contamination is found, contact the Customer Support Center (800-445-1980) for further instruction.
   b. If no contamination is found, Go to step 2.
2. Connect DDDL/DDRS 7.05SP2 or higher.
   **WARNING: ENGINE EXHAUST (i)(eov34)**
   To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.
   **WARNING: PERSONAL INJURY (eov84)**
   To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.
3. Are any other Selective Catalyst Reduction (SCR) component or circuit faults also present on the items listed below?
   - Pressure Limiting Unit (PLU)
   - DEF pump
   - DEF pressure sensor
   - DEF air pressure sensor
   - DEF tank level/zone faults
     b. No, Go to step 4.
4. Start engine and ensure vehicle air pressure is above 100 psi.
5. Does the vehicle air pressure reach and maintain at least 100 psi?
   a. Yes, Go to step 6.
   b. No, refer to OEM literature for air compressor diagnostic and leak checks.
6. Turn ignition OFF; wait five minutes for purge cycle to complete.
7. Disconnect the air supply line to the DEF pump.
   **WARNING: EYE INJURY (cit24)**
   To avoid injury from flying debris when using compressed air, wear adequate eye protection (face shield or safety goggles) and do not exceed 276 kPa (40 psi) air pressure.
8. Connect an appropriate air pressure gauge (0–200 psi) to the DEF pump air supply line.

9. Turn the ignition ON.

10. While monitoring the air pressure gauge, perform SCR air pressure test (60 second duration).

11. Is the air pressure between 75 and 85 psi?
   b. No, Go to step 12.

12. Visually/audibly inspect air feed lines for leaks, kinks, cracks or melting from air tank to Pressure Limiting Unit (PLU) and from pressure limiting unit to DEF pump and metering unit.
   a. If damage is found, repair as necessary. Go to step 18.
   b. If no damage is found, Go to step 13.

13. Turn the ignition key ON, engine OFF; compare DEF pressure to Barometric air pressure (Baro) and DEF air pressure.

14. Is DEF pressure within 28 kPa (4 psi) of Barometric air pressure (Baro) and DEF air pressure?
   a. Yes; Go to step 15.
   b. No; replace the DEF pressure sensor and verify ACM software level is version (8.7 ZGS002 or higher). Go to step 18.

15. Disconnect the DEF tank return line (1) from the DEF pump (2).

16. Observe the DEF tank return outlet fitting on the pump while running the SCR air pressure test (60-second duration).

17. Does DEF fluid discharge from the pump return outlet during the test?
   a. Yes, replace the DEF pump pneumatic switching valve. Refer to section "Removal of the Diesel Exhaust Fluid Pump Module Pneumatic Switching Valve"
   b. No, reconnect the DEF pump tank return line. Go to step 18.

18. Perform SCR air pressure test (60 second duration) and record results. Refer to chart below for next action.
<table>
<thead>
<tr>
<th>DEF Air Pressure</th>
<th>DEF Pressure</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 29 psi</td>
<td>66 - 72 psi</td>
<td>Clear faults and release vehicle.</td>
</tr>
<tr>
<td>18 - 29 psi</td>
<td>Less than 65 psi</td>
<td>Obtain log file containing SCR air pressure test and contact the CSC for further instructions.</td>
</tr>
</tbody>
</table>
6  SPN 4375/FMI 6 - EPA10

This diagnostic is typically Diesel Exhaust Fluid (DEF) pump supply current high.

<table>
<thead>
<tr>
<th>SPN 4375/FMI 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Monitored Parameter</td>
</tr>
<tr>
<td>Typical Enabling Conditions</td>
</tr>
<tr>
<td>Monitor Sequence</td>
</tr>
<tr>
<td>Execution Frequency</td>
</tr>
<tr>
<td>Typical Duration</td>
</tr>
<tr>
<td>Dash Lamps</td>
</tr>
<tr>
<td>Engine Reaction</td>
</tr>
<tr>
<td>Verification</td>
</tr>
</tbody>
</table>

1. Connect DDDL/DDRS 7.05 or higher.
2. Turn the ignition ON.
3. Is the DEF tank temperature above -4°C (25°F)?
   a. Yes; Go to step 4.
   b. No; start and warm engine until DEF tank temperature is above 0°C (32°F), then turn ignition OFF (key OFF, engine OFF), wait ten minutes for modules to fully power down. Go to step 4.
4. Perform the Selective Catalytic Reduction (SCR) air pressure test service routine (60 seconds). After completion of test, graph ACM2 parameter AS027 DEF pump current. Does the DEF pump current rise and remain high for duration of the test?
   a. Yes; Go to step 5.
   b. No; repeat test two times if current does not rise and stay high. Clear faults and release vehicle.
   c. This figure illustrates the normal reaction of a good pump.
   d. This figure illustrates an issue in the system.
5. Compare DEF pressure to ambient air pressure (bar) and DEF air pressure.
6. Is DEF pressure within 4 psi of ambient air pressure (bar) and DEF air pressure?
   a. Yes; Go to step 7.
   b. No; replace the DEF pressure sensor and verify ACM software level is version (8.7 ZGS002 or higher). Go to step 29.
7. Turn the ignition OFF.

**NOTE:** The illustration below is for a vehicle equipped with a positive disconnect battery switch. Contact the CSC for current image of routing if equipped with a negative battery disconnect switch.

8. Inspect Pressure Limiting Unit (PLV) air line routing (1 and 2). Is the air line routing correct?
   a. Yes; Go to step 9.
   b. No; correct the pressure limiting unit air line routing.
WARNING: ENGINE EXHAUST (i)(eov34)
To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.

WARNING: PERSONAL INJURY (eov84)
To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

9. Start engine and ensure vehicle air pressure is above 100 psi.
10. Does the vehicle air pressure reach and maintain 100 psi?
   a. Yes; Go to step 11.
   b. No; refer to OEM literature for air compressor diagnostic and leak checks.

11. Turn ignition OFF; wait five minutes for purge cycle to complete.

WARNING: PERSONAL INJURY (eov103)
To avoid injury from the sudden release of a high-pressure hose connection, wear a face shield or goggles.

12. Disconnect the air supply line to the DEF pump.
13. Connect an appropriate air pressure gauge (0–200 psi) to the DEF pump air supply line.
14. Turn the ignition ON (ignition ON, engine OFF).
15. While monitoring the air pressure gauge, perform SCR air pressure test (60 seconds).
16. Is the air pressure between 75 and 85 psi?
   a. Yes; reconnect DEF pump air line. Go to step 18.
   b. No; Go to step 17.

17. Visually/audibly inspect air feed lines from air tank to the Pressure Limiting Unit, and from unit to DEF pump and metering unit for leaks, kinks, cracks, melting or other damage.
   a. If damage is found, repair as necessary. Go to step 29.
   b. If no damage is found, Go to step 18.

18. Disconnect the DEF pump harness connector.
19. Measure the resistance across the DEF pump.
   a. If the resistance is greater than 400 ohms, replace the DEF pump.
   b. If the resistance is less than 400 ohms, Go to step 20.

20. Disconnect the DEF tank return line from the DEF pump.
21. Visually watch the DEF tank return outlet fitting on the pump while running the SCR air pressure test (60 second duration). Does DEF fluid discharge from the pump return outlet during the test?
   
a. Yes; replace the DEF pump pneumatic switching valve. Refer to section "Installation of the Diesel Exhaust Fluid Pump Module Pneumatic Switching Valve"
   
b. No; reconnect the DEF pump tank return line. Go to step 22.

22. Remove fitting (1) from the DEF Pump.

23. Inspect fitting (1) for blockage.
   
a. If blockage is found, clean fitting and re-install.
   b. If no blockage is found, reinstall fitting and lines. Go to step 24.

24. Disconnect the DEF pump harness connector.

25. Inspect the DEF pump harness connector for corroded, bent, spread or damaged pins.
   
a. If pin damage is found, repair as necessary.
   b. If no pin damage is found, Go to step 26.

26. Turn the ignition ON.

27. Measure the voltage between pin 1 of the DEF pump harness connector and ground.
a. If the voltage is less than 11.5 volts, inspect/repair between pin 1 of the DEF pump harness connector and pin 1 of the ACM2 120-pin connector.
b. If voltage is greater than 11.5 volts, Go to step 28.

28. Measure the voltage between pin 2 of the DEF pump harness connector and ground.
   a. If the voltage is less than 2.25 volts, inspect/repair between pin 2 of the DEF pump harness connector and pin 20 of the ACM2 120-pin connector.
   b. If the voltage is between 2.25 and 2.6 volts, Go to step 29.

NOTE: DEF delivered amount will vary depending on diagnostic tool version.

29. Perform DEF quantity test service routine and record amount of DEF fluid level dispensed. If using DDRS/DDDL version 7.05 or earlier, is the dispensed DEF fluid level between 44 and 59mL? If using DDRS/DDDL version 7.05SP1 or later, is the dispensed DEF fluid level between 102 and 138mL?
   a. Yes; clear faults and release vehicle.
   b. No; replace the DEF pressure sensor. Go to step 30.

30. Repeat the DEF quantity test (make sure vehicle air tank pressure is above 100 PSI prior to starting). Is the proper amount of DEF dispensed?
   a. Yes, clear faults and release vehicle.
   b. No, replace the DEF pump.