ADDITIONS, REVISIONS, OR UPDATES

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<td>Perform a DEF Quantity Test service routine and record the amount of DEF fluid level dispensed. The amount of DEF delivered will vary depending on the diagnostic tool version. 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? Diagnostics for all SPN’s have been revised for the new quantity.</td>
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NOTE: Page numbers are based on the most recent version of the individual publication and may be adjusted throughout the annual print cycle.
SPN 3361/FMI 0

This diagnostic is typically DEF pressure duty cycle high.

Check as follows:

1. Visually check all DEF supply and air lines for physical damage, (kinks, cracks, leaks, disconnects).
   [a] If leakage is found repair as necessary.
   [b] If no leakage is found, go to step 2.
2. Connect DDDL 7.04 SP5 or higher.
3. Turn ignition ON (key ON, engine OFF).
4. Compare DEF Pressure and DEF Air Pressure to Ambient Air Pressure (Baro).
5. Are the pressures within 4 PSI of Ambient Air Pressure (Baro)?
   [a] Yes, go to step 6.
   [b] No, replace the out of range sensor, go to step 6.
6. Disconnect the DEF tank return line from the DEF pump.

7. Visually watch the DEF tank return line outlet on the pump while running the SCR Air Pressure test (60 second duration).
8. Does DEF fluid discharge from the pump return outlet during the test?
   [a] Yes, replace the DEF Pump pneumatic switching valve Refer to section and filter screen refer to section .
   [b] No, reconnect the DEF pump tank return line go to step 9.
9. Disconnect the DEF aerosol outlet line from the DEF Metering Unit.

![Diagram of DEF Metering Unit](image1)

10. Visually watch the DEF aerosol line outlet on the metering unit while running the SCR Pressure test (60 second duration).

11. Does DEF fluid discharge from the port during the test?
   
   [a] Yes, replace the DEF Metering Unit. Refer to section .
   
   [b] No, reconnect aerosol line, go to step 12.

12. Completely discharge pressure from DEF pump module air bladder.

13. Using a suitable air pressure regulator, regulate shop air to 55 psi.

14. Using clean, dry, and oil free shop air, a standard air fitting and an air pressure gauge; re-inflate the DEF pump module air bladder to 40-46 psi (2.8-3.2 bar) through the Schrader valve(1), go to step 15.

![Diagram of Schrader Valve](image2)
15. Perform a DEF Quantity Test service routine and record the amount of DEF fluid level dispensed. The amount of DEF delivered will vary depending on the diagnostic tool version. 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 all faults and release vehicle.

[b] No; retain log file from DEF Quantity Test and contact the Customer Support Center for further instruction.
SPN 3361/FMI 1

This diagnostic is typically DEF pressure duty cycle low.

Check as follows:

1. Check for multiple codes.
   
   [a] If SPN 3361 FMI 3,4 or 5 is also present repair those faults first.
   
   [b] If the above faults are not present, go to step 2.
2. Connect DDDL 7.04 SP5 or higher.
3. Turn ignition ON (key ON, engine OFF).
4. Compare DEF Pressure to Ambient Air Pressure (Baro) and DEF Air Pressure.
5. Is DEF Pressure within 4 PSI of Ambient Air Pressure (Baro) and DEF Air Pressure?
   
   [a] Yes; go to step 6.
   
   [b] No; replace the DEF Pressure sensor. Refer to section .
6. Perform a DEF Quantity Test service routine and record the amount of DEF fluid level dispensed. The amount of DEF delivered will vary depending on the diagnostic tool version. 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 fault codes and release vehicle.
   
   [b] No, go to step 7.
7. Turn ignition OFF (key OFF, engine OFF).
8. Disconnect DEF Metering Unit Doser fuel injector harness connector.
9. Inspect harness connector for bent, spread or corroded pins.
   
   [a] If pin damage is found, repair as necessary.
   
   [b] If no pin damage is found, replace the DEF metering unit. Refer to section .
SPN 3364/FMI 1

This diagnostic is typically Improper DEF Quality Final Warning

1. SPN 4364/FMI 1 and or 18 (SCR NOx Conversion Efficiency) may also be present.

2. Using a refractometer from the Diesel Exhaust Fluid (DEF) Test Kit W060589001900, measure the DEF percentage. Is DEF percentage between 28 and 36%?
   [a] Yes; go to step 6.
   [b] No; refer to appropriate manual for DEF tank cleaning/flushing procedure, then go to step 3.

3. Connect DDDL/DDRS 7.04 SP5 or higher.

4. Monitor (chart) the following parameters.
   □ ASL102 Engine Speed
   □ AS018 SCR Inlet Temperature
   □ AS019 SCR Outlet Temperature
   □ AS035 SCR Inlet NOx sensor
   □ AS036 SCR Outlet NOx sensor
   □ AS101 NOx Conversion Efficiency

5. Start engine and perform a Parked regeneration, does the NOx Conversion Efficiency rise above 70% (0.70) during the regeneration?
   [a] Yes; clear faults and release vehicle
   [b] No; go to step 6.
6. Visually check all DEF supply and air lines for physical damage, (kinks, cracks, leaks, disconnects).

   [a] If damage is found, repair as necessary, go to step 11.
   [b] If no damage is found go to step 7.

7. Perform a DEF Quantity Test service routine and record the amount of DEF fluid level dispensed. The amount of DEF delivered will vary depending on the diagnostic tool version. 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; go to step 11.
   [b] No; go to step 8.

8. Remove DEF Air Pressure and Temperature sensors.

9. Remove the DEF Inlet delivery line and DEF Air Supply line and from metering unit. Remove DEF Nozzle from the ATD box.

10. Flush warm water into DEF Air Pressure and Temp sensor cavity’s in the DEF metering unit until water flows from the DEF Inlet and DEF Nozzle, re-install sensors and repeat Quantity test, if test fails repeat flushing procedure, go to step 11.

11. Monitor (chart) the following parameters
    - ASL102 Engine Speed
    - AS018 SCR Inlet Temperature
    - AS019 SCR Outlet Temperature
    - AS035 SCR Inlet NOx sensor
    - AS036 SCR Outlet NOx sensor
    - AS101 NOx Conversion Efficiency

12. Start engine and perform Parked regeneration, does the NOx Conversion Efficiency rise above 70% (0.70) during the regeneration?

    [a] Yes; clear faults and release vehicle
No; retain log file from Parked regen and contact the Detroit Diesel Customer Support Center at 313–592–5800 for further instructions.
This diagnostic is typically Improper DEF Quality

1. SPN 4364/FMI 1 and or 18 (SCR NOx Conversion Efficiency) may also be present.
2. Using a refractometer from the Diesel Exhaust Fluid (DEF) Test Kit W060589001900, measure the DEF percentage. Is DEF percentage between 28 and 36%?
   [a] Yes; go to step 6.
   [b] No; refer to appropriate manual for DEF tank cleaning/flushing procedure, then go to step 3
3. Connect DDDL/DDRS 7.04 SP5 or higher.
4. Monitor (chart) the following parameters.
   - ASL102 Engine Speed
   - AS018 SCR Inlet Temperature
   - AS019 SCR Outlet Temperature
   - AS035 SCR Inlet NOx sensor
   - AS036 SCR Outlet NOx sensor
   - AS101 NOx Conversion Efficiency
5. Start engine and perform a Parked regeneration, does the NOx Conversion Efficiency rise above 70% (0.70) during the regeneration?
   [a] Yes; clear faults and release vehicle
   [b] No; go to step 6.
6. Visually check all DEF supply and air lines for physical damage, (kinks, cracks, leaks, disconnects).
   
   [a] If damage is found, repair as necessary, go to step 11.
   
   [b] If no damage is found go to step 7.

7. Perform a DEF Quantity Test service routine and record the amount of DEF fluid level dispensed. The amount of DEF delivered will vary depending on the diagnostic tool version. 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; go to step 11.
   
   [b] No; go to step 8

8. Remove DEF Air Pressure and Temperature sensors.

9. Remove the DEF Inlet delivery line and DEF Air Supply line and from metering unit. Remove DEF Nozzle from the ATD box.

10. Flush warm water into DEF Air Pressure and Temp sensor cavity’s in the DEF metering unit until water flows from the DEF Inlet and DEF Nozzle, re-install sensors and repeat Quantity test, if test fails repeat flushing procedure, go to step 11.

11. Monitor (chart) the following parameters
   
   □ ASL102 Engine Speed
   □ AS018 SCR Inlet Temperature
   □ AS019 SCR Outlet Temperature
   □ AS035 SCR Inlet NOx sensor
   □ AS036 SCR Outlet NOx sensor
   □ AS101 NOx Conversion Efficiency
12. Start engine and perform Parked regeneration, does the NOx Conversion Efficiency rise above 70% (0.70) during the regeneration?

[a] Yes; clear faults and release vehicle

[b] No; retain log file from Parked regen and contact the Detroit Diesel Customer Support Center at 313–592–5800 for further instructions.
This diagnostic is typically SCR NOX Conversion Efficiency Very Low.

1. Connect DDDL/DDRS 7.04 SP5 or higher.
2. If SPN 3364 FMI any (Improper DEF Quality) is also present, repair SPN 3364 first.
3. Using a refractometer from the Diesel Exhaust Fluid (DEF) Test Kit W060589001900, measure the DEF percentage. Is DEF percentage between 28 and 36%?
   [a] Yes; go to step 4.
   [b] No; refer to appropriate manual for DEF tank cleaning/flushing procedure, then go to step 12.
4. Turn ignition ON (key ON, engine OFF).
5. Compare DEF Pressure to Ambient Air Pressure (Baro) and DEF Air Pressure.
6. Is DEF Pressure within 4.3 PSI of Ambient Air Pressure (Baro) and DEF Air Pressure?
   [a] Yes, go to step 7.
   [b] No; replace the DEF Pressure sensor, refer to section then go to step 7.
7. Visually check all DEF supply and air lines for physical damage, (kinks, cracks, leaks, disconnects).
   [a] If damage is found, repair as necessary, go to step 12.
   [b] If no damage is found go to step 8.
8. Perform a DEF Quantity Test service routine and record the amount of DEF fluid level dispensed. The amount of DEF delivered will vary depending on the diagnostic tool version. 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; go to step 12.
   [b] No; go to step 9.
9. Remove DEF Air Pressure and Temperature sensors.
10. Remove the DEF Inlet delivery line and DEF Air Supply line and from metering unit. Remove DEF Nozzle from the ATD box.
11. Flush warm water into DEF Air Pressure and Temp sensor cavity’s in the DEF metering unit until water flows from the DEF Inlet and DEF Nozzle, re-install sensors and repeat Quantity test, if test fails repeat flushing procedure, go to step 12.
12. Monitor (chart) the following parameters.
   □ ASL102 Engine Speed
   □ AS018 SCR Inlet Temperature
   □ AS019 SCR Outlet Temperature
   □ AS035 SCR Inlet NOx sensor
   □ AS036 SCR Outlet NOx sensor
   □ AS101 NOx Conversion Efficiency
13. Start engine and perform a Parked regeneration, does the NOx Conversion Efficiency rise above 70% (0.70) during the regeneration?

[a] Yes, clear faults and release vehicle.

[b] No; retain log file from Parked regen and contact the Detroit Diesel Customer Support Center at 313–592–5800 for further instructions.
SPN 4364/FMI 18

This diagnostic is typically SCR NOX Conversion Efficiency Low.

1. Connect DDDL/DDRS 7.04 SP5 or higher.
2. If SPN 3364 FMI any (Improper DEF Quality) is also present, repair SPN 3364 first.
3. Using a refractometer from the Diesel Exhaust Fluid (DEF) Test Kit W060589001900, measure the DEF percentage. Is DEF percentage between 28 and 36%?
   - [a] Yes; go to step 4.
   - [b] No; refer to appropriate manual for DEF tank cleaning/flushing procedure, then go to step 12.
4. Turn ignition ON (key ON, engine OFF).
5. Compare DEF Pressure to Ambient Air Pressure (Baro) and DEF Air Pressure.
6. Is DEF Pressure within 4.3 PSI of Ambient Air Pressure (Baro) and DEF Air Pressure?
   - [a] Yes, go to step 7.
   - [b] No; replace the DEF Pressure sensor, refer to section , go to step 7.
7. Visually check all DEF supply and air lines for physical damage, (kinks, cracks, leaks, disconnects).
   - [a] If damage is found, repair as necessary, go to step 12.
   - [b] If no damage is found go to step 8.
8. Perform a DEF Quantity Test service routine and record the amount of DEF fluid level dispensed. The amount of DEF delivered will vary depending on the diagnostic tool version. 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; go to step 12.
   - [b] No; go to step 9
9. Remove DEF Air Pressure and Temperature sensors.
10. Remove the DEF Inlet delivery line and DEF Air Supply line and from metering unit. Remove DEF Nozzle from the ATD box. Refer to section .
11. Flush warm water into DEF Air Pressure and Temp sensor cavity’s in the DEF metering unit until water flows from the DEF Inlet and DEF Nozzle, re-install sensors and repeat Quantity test, if test fails repeat flushing procedure, go to step 12.
12. Monitor (chart) the following parameters.
   - ASL102 Engine Speed
   - AS018 SCR Inlet Temperature
   - AS019 SCR Outlet Temperature
   - AS035 SCR Inlet NOx sensor
   - AS036 SCR Outlet NOx sensor
   - AS101 NOx Conversion Efficiency
13. Start engine and perform a Parked regeneration, does the NOx Conversion Efficiency rise above 70% (0.70) during the regeneration?

[a] Yes, clear faults and release vehicle.

[b] No; retain log file from Parked regen and contact the Detroit Diesel Customer Support Center at 313–592–5800 for further instructions.
ADDITIONAL SERVICE INFORMATION

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