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GROUP: Vehicle Performance

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THE StarSCAN® FLASH FILES FOR THIS BULLETIN ARE AVAILABLE VIA THE INTERNET.

StarSCAN® SOFTWARE LEVEL MUST BE AT RELEASE 8.04 OR HIGHER.

StarMOBILE DESKTOP CLIENT -OR- StarMOBILE STANDALONE MODE MAY ALSO BE USED TO PERFORM THE FLASH.

SUBJECT:

FLASH: Engine System And Exhaust Aftertreatment System Enhancements

OVERVIEW:

This bulletin involves:

- ==> If eligible, verifying that **Emission Recall G30 - Replace Oxygen Sensor Module and Reprogram ECM** has been performed. If not, perform Recall G30 first.
- ==> Verifying software level, and if necessary, selectively erasing and reprogramming the **Engine Control Module (ECM)** with new software.
- ==> Verifying software level, and if necessary, selectively erasing and reprogramming the **Cab Compartment Node (CCN)** module with new software.
- ==> The installation of a **Documentation Kit** containing: and Owners Manual Diesel Supplement, a driver side sun visor label, and an Informational DVD/CD kit.

NOTE: To determine the level of repair that will be required, it will be IMPORTANT to perform the steps in the DIAGNOSIS section of this Service Bulletin in order and completely.

MODELS:

2007 - 2008 (DH/D1) Ram Truck (2500 / 3500 Pickup)

NOTE: This bulletin applies to vehicles equipped with a Cummins 6.7L engine (sale code ETJ) built on or before February 14, 2008 (MDH 0214XX).



SYMPTOM/CONDITION:

NOTE: The following conditions and improvements have been addressed with the latest Engine Control Module (ECM) software. This Service Bulletin (SB) only addresses the labor associated with the reprogramming of the ECM, the CCN, and the installation of a Documentation Kit. Any other labor associated with the performance of additional diagnostics is not addressed by this SB and must be claimed separately.

A. ISSUES ADDRESSED BY VARIOUS ECM SOFTWARE RELEASES TO DATE:

NOTE: With this latest ECM software release listed in this Service Bulletin, the following symptoms have been completely addressed.

1. The technician may not be able to reprogram (flash) the PCM with new application software.
2. One of the following driveability conditions:
 - a. An intermittent rough engine idle and/or white smoke following initial engine start.
 - b. A throttle tip-in stumble at engine speeds of 1,300 to 2,100 rpm.
 - c. An engine hesitation at altitude of 5,000 feet between engine speeds of 1,200 to 1,600 rpm.
 - d. A turbocharger “chuff-like” sound during rapid deceleration.
3. The vehicle may fail an Emission Inspection Maintenance (I/M) Test because two or more On-Board Diagnostic (OBD) monitors report that they are not ready for testing. This condition may cause the customer vehicle to not pass an Emissions I/M test. The following is a list of OBD Monitors that may report as not ready for testing:
 - a. Non-Methane Hydrocarbon (NMHC) Catalyst Monitor.
 - b. Nitrogen Oxide (NOx) Absorber Monitor.
 - c. Exhaust Gas Temperature Sensor Monitor.
 - d. Electrical Charging System Monitor.
 - e. EGR System Monitor.
 - f. Oxygen Sensor Monitor.
4. Malfunction Indicator Lamp (MIL) due to one or more of the following Diagnostic Trouble Codes (DTC):
 - a. **P0101** - Mass Air Flow (MAF) Sensor Rationality
 - b. **P0128** - Thermostat Rationality
 - c. **P061A** - ETC Level 2 Torque Performance.
 - d. **U1421** - Implausible Ignition Key Off Time Received

If condition persists perform the appropriate Diagnostic Procedure and, if necessary, contact STAR for further assistance.

B. ISSUES IMPROVED SIGNIFICANTLY BY VARIOUS ECM SOFTWARE RELEASES TO DATE:

NOTE: The following symptoms and conditions have been significantly enhanced by the latest ECM software listed in this Service Bulletin. Always check TechCONNECT to see if there are new or additional Service Bulletins that may apply to a condition. If condition persists contact STAR for further assistance.

1. The latest ECM software includes a new extended idle feature to accommodate the extended idle times present in some duty cycles. This feature may help to reduce the accumulation of soot in the exhaust aftertreatment system when the engine is idling for an extended period of time. Briefly how this feature works:
 - a. As needed, the engine enters an idling mode which dramatically reduces the rate of soot accumulation in the diesel particulate filter (called "Net Zero"). Further, under extended idle periods of longer than 2 hours, the engine enters a mode which reduces the amount of soot accumulated in the diesel particulate filter (called "Net Reduction"). While in these modes, the idle speed increases to 900 rpm for a period of time. The idle speed may return to normal idle speed and then return to 900 rpm to repeat this cycle during very long idle periods.
 - b. These modes occur automatically provided two conditions are met. The vehicle must be in Park (automatic transmission) or have the Parking Brake engaged (manual transmission) for these modes to be enabled. There must also be no accelerator pedal input.
 - c. After extended idling, if operation of the engine consists of light loads for short periods of time the engine will return more quickly to the Net Zero or the Net Reduction mode of the extended idle operation feature.
 - d. After extended idling, if operating the engine consists of higher loads for longer periods of time the engine must again idle for an extended period before the engine will return to the Net Zero or the Net Reduction mode of the extended idle operation feature.
2. A MIL illumination due to one of the following DTC's:
 - a. **P2000** - NOx Absorber Efficiency Below Threshold - Bank 1
 - b. **P2A00** - Oxygen Sensor 1/1 Circuit Performance
 - c. **P2A01** - Oxygen Sensor 1/2 Circuit Performance

Perform this Service Bulletin and the appropriate Diagnostic Procedures for the respective DTC. If condition persists contact STAR for further assistance.

When performing the appropriate Diagnostic Procedures for this condition. **Make certain to remove and thoroughly CLEAN BOTH OXYGEN SENSORS using a clean cloth and compressed air. Do not use any type of liquid cleaner to clean the oxygen sensor tips.** Use compressed air to remove all soot from the oxygen sensor tip that is inside (under) the metal shield/cover. Blow compressed air into the center hole of the sensor shield to remove soot from the sensor tip. Ensure all soot has been removed from the sensor tip (inside the shield) and on the outside of the sensor tip shield.

3. After extended idling or if an intake leak is present, the vehicle operator may experience a MIL illumination and/or an Electronic Vehicle Information Center (EVIC) message alert due to one or more of the following DTC's:
 - a. **P1451** - Diesel Particulate Filter System Performance.
 - b. **P2463** - Diesel Particulate Filter - Soot Accumulation.
 - c. **P242F** - Diesel Particulate Filter Restriction - Ash Accumulation.

Perform this Service Bulletin and Service Bulletin (SB) 11-002-07. It is VERY IMPORTANT that SB 11-002-07 be performed COMPLETELY to return the engine and exhaust aftertreatment systems to a "like new" condition. If condition persists contact STAR for further assistance.

4. A MIL illumination due to the following DTC:
 - a. **P2262** - Turbocharger Boost Pressure Not Detected - Mechanical

Perform this Service Bulletin and Service Bulletin (SB) 11-003-07. It is VERY IMPORTANT that SB 11-003-07 be performed COMPLETELY to return the engine and exhaust aftertreatment systems to a "like new" condition. If condition persists contact STAR for further assistance.

5. A MIL illumination due to one of the following DTC's:
 - a. **P0106** - Manifold Absolute Pressure Sensor Performance.

Perform this Service Bulletin and the appropriate Diagnostic Procedures for the respective DTC. If condition persists contact STAR for further assistance.

6. A MIL illumination due to one of the following DTC's:
 - a. **P200C** - Diesel Particulate Filter Over Temperature - Bank 1
 - b. **P242B** - Exhaust Gas Temperature Sensor Circuit Performance - Bank 1 Sensor 3.

Perform this Service Bulletin and the appropriate Diagnostic Procedures for the respective DTC. If condition persists contact STAR for further assistance. **Ensure that the exhaust temperature sensors have been thoroughly cleaned for any temperature sensor related DTC's.**

7. A MIL illumination due to one of the following DTC's:

- a. **P0401** - EGR System Performance
- b. **P0402** - EGR Flow Excessive Detected
- c. **P0403** - EGR Control Circuit - Open
- d. **P0405** - EGR Position Sensor Circuit Low
- e. **P042E** - EGR Control Stuck Open
- f. **P0489** - EGR Control Circuit - Low

Perform this Service Bulletin and the appropriate Diagnostic Procedures for the respective DTC. If condition persists contact STAR for further assistance. **IMPORTANT: Ensure that the EGR Valve and EGR Temperature Sensor are thoroughly cleaned for any of the above EGR DTC's occur.**

8. A MIL illumination due to the following DTC:
 - a. **P245A** - EGR Cooler Bypass Control Circuit - Open.

Perform this Service Bulletin and the appropriate Diagnostic Procedures for the respective DTC. If condition persists contact STAR for further assistance. **IMPORTANT: Ensure that the EGR Temperature Sensor is thoroughly cleaned for if this DTC occurs .**

C. IMPROVED DIAGNOSTIC CAPABILITIES:

NOTE: A number of improvements have been made to the engine diagnostics. Performing this Service Bulletin completely will enable these diagnostic improvements.

1. Improved Fuel Level Sensor diagnostics in the ECM.
2. Improvement to the single diagnostic DTC P0148 - Fuel Delivery Error. This DTC is now addressed by the following two DTC diagnostics:
 - a. **P1011** - Fuel Pump Delivery Pressure Too Low
 - b. **P1012** - Fuel Pump Delivery Pressure Too HighPerform this Service Bulletin. If a DTC is present, perform the appropriate Diagnostic Procedure. If condition persists contact STAR for further assistance.
3. Creation of three new DTC's to address the inlet air temperature sensor separate from the ambient air temperature sensor. The new DTC's are:
 - a. **P1191** - Inlet Air Temperature Sensor Rationality / Performance. This DTC enhances the current DTC P0071 - Inlet Air Temp Sensor Rationality / Ambient Air Temperature Sensor Performance - TIPM.
 - b. **P1192** - Inlet Air Temperature Sensor Too Low. This DTC enhances the current DTC P0072 - Inlet Air Temp Sensor Voltage Too Low - TIPM.
 - c. **P1193** - Inlet Air Temperature Sensor Too High. This DTC enhances the current DTC P0073 - Inlet Air Temp Sensor Voltage Too High - TIPM.Perform this Service Bulletin. If a DTC is present, perform the appropriate Diagnostic Procedure. If condition persists contact STAR for further assistance.
4. New ECM and CCN software that together will improve the customer understanding of the exhaust aftertreatment system messages that can be displayed on the overhead Electronic Vehicle Information Center (EVIC).
Perform this Service Bulletin to update the ECM and CCN software. Install the new sun visor label.

DIAGNOSIS:

Using a Scan Tool (StarSCAN® / StarMOBILE) with the appropriate Diagnostic Procedures available in TechCONNECT, verify all engine systems are functioning as designed. If DTC's other than those listed above are present record them on the repair order and repair as necessary before proceeding further with this bulletin.

1. If one or more of the above symptoms or conditions is experienced, complete the following steps.

NOTE: It is IMPORTANT to perform the following diagnostic steps in order and completely to determine what level of repair is required.

2. Is the vehicle eligible to have Emissions Recall G30 - Replace Oxygen Sensor Module and Reprogram ECM performed?
 - a. **If YES** ==> then proceed to Step 3.
 - b. **If NO** ==> then proceed to Step 4.

3. Has Emission Recall G30 - Replace Oxygen Sensor Module and Reprogram ECM been completed on vehicle?
 - a. **If YES** ==> then proceed to Step 4.
 - b. **If NO** ==> then STOP. Perform and complete Recall G30 now. Then proceed to Step 4.
4. Using the StarSCAN® / StarMOBILE, **determine current software level of the ECM and CCN**. Record on the repair order, for later use, the current ECM and CCN software level part numbers. Proceed to the next step.
5. If the vehicle in question **is a 2007 Model Year vehicle**, then compare the current ECM software level part number. Determine if the current ECM software level part number, recorded in Step 4, is one of the following part numbers (or with a higher suffix):
 - a. **55350230AX (or higher)** = DH 2500 6.7L Manual Transmission 50 State.
 - b. **55350235AX (or higher)** = DH 2500 6.7L Automatic Transmission 50 State.
 - c. **55351230AX (or higher)** = D1 3500 6.7L Manual Transmission 50 State.
 - d. **55351235AX (or higher)** = D1 3500 6.7L Automatic Transmission 50 State.
6. If the vehicle in question **is a 2008 Model Year vehicle**, then compare the current ECM software level part number. Determine if the current ECM software level part number, recorded in Step 4, is one of the following part numbers (or with a higher suffix):
 - a. **62350230AO (or higher)** = DH 2500 6.7L Manual Transmission 50 State.
 - b. **62350235AP (or higher)** = DH 2500 6.7L Automatic Transmission 50 State.
 - c. **62351230AO (or higher)** = D1 3500 6.7L Manual Transmission 50 State.
 - d. **62351235AP (or higher)** = D1 3500 6.7L Automatic Transmission 50 State.
7. Is the part number of the current ECM level software at (or higher) than one of the software part numbers listed in Step 5 or Step 6?
 - a. **If YES** ==> then the ECM **DOES NOT** require reprogramming as part of this repair. Record this on the repair order for later reference. Proceed to the next step.
 - b. **If NO** ==> then the ECM **DOES** require reprogramming as part of this repair. Record this on the repair order for later reference. Proceed to the next step.
8. Determine if the **current CCN module level software part number**, that was recorded earlier in Step 4, is one of the following (or with a higher suffix):
 - a. **05172187AG (or higher)** = 2007 DH (2500) or 2007 D1 (3500).
 - b. **05172334AG (or higher)** = 2008 DH (2500) or 2008 D1 (3500).
9. Is the part number of the current CCN level software at (or higher) than one of the software part numbers listed in Step 8?
 - a. **If YES** ==> then the CCN **DOES NOT** require reprogramming as part of this repair. Record this on the repair order for later reference. Proceed to the next step.
 - b. **If NO** ==> then the CCN **DOES** require reprogramming as part of this repair. Record this on the repair order for later reference. Proceed to the next step.
10. Has the vehicle already had a **COMPLETE Documentation Kit installed**? Some vehicles may only have a part of the Documentation Kit (i.e. Diesel Owners Manual Supplement). Make sure the vehicle/customer has received a complete Documentation Kit.
 - a. **If YES** ==> then the Documentation Kit **DOES NOT** need to be installed as part of this repair. Record this on the repair order for later reference. Proceed to the Repair Procedure.
 - b. **If NO** ==> then the Documentation Kit **DOES** need to be installed as part of this repair. Record this on the repair order for later reference. Proceed to the Repair Procedure.

PARTS REQUIRED:

Qty.	Part No.	Description
(AR) 1	04275086AB	Label, Authorized Modification
(AR) 1	68049170AA	Documentation Kit (includes: Diesel Owners Manual Supplement, Sun Visor Label, and Informational DVD/CD Kit) - Kit is zero cost

SPECIAL TOOLS / EQUIPMENT REQUIRED:

NPN	Battery Charger
CH9401	StarSCAN® Tool
CH9404D	StarSCAN® Vehicle Cable
CH9409	StarSCAN® Documentation Kit
CH9410	StarSCAN® Ethernet Cable, 12 ft.
CH9412	StarSCAN® Software Update Device Kit
	TechCONNECT PC or equivalent

REPAIR PROCEDURE:

NOTE: The repairs in this Service Bulletin (SB) only address the labor associated with the reprogramming of the ECM, the CCN, and the installation of a Documentation Kit. Any other labor associated with the performance of additional diagnostics or repairs are not addressed by this SB and must be claimed separately.

SECTION A: INSTALLATION OF THE DOCUMENTATION KIT:

1. If it was determined earlier in the Diagnosis Section of this Service Bulletin, that a complete Documentation Kit has not been installed on the vehicle, then install the Documentation Kit now.
 - a. Place the new **Diesel Owners Manual Supplement** in the vehicle Glove Box.
 - b. Place the **Informational DVD/CD** in the vehicle Glove Box.
 - c. Install the new **Sun Visor Label** to the left (driver) side sun visor. The label should be centered on the sun visor and to the left of the seat belt warnings. Verify that the label is firmly attached to the sun visor material.

NOTE: IMPORTANT: At time of customer vehicle pickup, the dealer should take the time to review the Documentation Kit material with the customer.

SECTION B: CCN MODULE REPROGRAM - USING THE INTERNET TO RETRIEVE THE FLASH FILE:

1. If it was determined earlier in the Diagnosis Section of this Service Bulletin, that the CCN module requires reprogramming with new software, then reprogram the CCN module.

2. Open the hood and install a battery charger. Using a voltmeter, verify that the charging rate provides 13.2 - 13.5 volts. Set the battery charger to continuous charge. Do not allow the charger to time out during the flash process. Remove the charger from the battery when the flash process is complete.

NOTE: Do not allow the charging voltage to climb above 13.5 volts during the flash process.

3. If not already performed, connect the CH9410 StarSCAN® ethernet cable to the StarSCAN® and the dealer's network drop.
4. Connect the CH9404D StarSCAN® vehicle cable to the StarSCAN® and the vehicle.
5. Turn the ignition switch to the "RUN/ON" position.
6. Power ON the StarSCAN®.
7. Retrieve the old ECU (CCN) module part number and reprogram the CCN module. Using the StarSCAN® at the "Home" screen:
 - a. Select "ECU View"
 - b. Touch the screen to highlight the CCN in the list of modules.
 - c. Select "More Options"
 - d. Select "ECU Flash".
 - e. Record the part number at the top of the "Flash CCN" screen for later reference.
 - f. Select "Browse for New File". Follow the on screen instructions.
 - g. Select "Download to Scantool".
 - h. Select "Close" after the download is complete, then select "Back".
 - i. Highlight the listed calibration.
 - j. Select "Update Controller".
 - k. When the CCN module update is complete, select "OK".

NOTE: CCN software controls the Electronic Vehicle Information Center (EVIC) messages. The CCN software must be up to date (correct software level) in order for the new engine system and exhaust aftertreatment system messages to be displayed on the EVIC. These new messages are addressed on the new sun visor label and in the new Diesel Owners Manual Supplement.

SECTION C: ECM REPROGRAM - USING THE INTERNET TO RETRIEVE THE FLASH FILE: USING THE INTERNET TO RETRIEVE THE FLASH FILE:

1. If it was determined earlier in the Diagnosis Section of this Service Bulletin, that the ECM requires reprogramming with new software, then reprogram the ECM.
2. Reprogram the ECM with the latest software. Follow the detailed service procedures available in DealerCONNECT / TechCONNECT. Refer to the "Service Info" tab > Group 8 - Electrical > Electronic Control Modules - Service Information > Module - Engine Control - Diesel > Standard Procedures > PCM/ECM Programming - Diesel.
3. Type the necessary information on the "Authorized Modification Label" and attach it near the VECI label.

NOTE: ECM software commands when and what the CCN will display on the EVIC regarding the new engine system and exhaust aftertreatment system messages. The ECM software will must be up to date (correct software level) in order for the new EVIC messages to display as designed and to also address the symptoms and conditions addressed above.

POLICY:

Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:

NOTE: The repairs in this Service Bulletin (SB) only address the labor associated with the reprogramming of the ECM, the CCN, and the installation of a Documentation Kit. Any other labor associated with the performance of additional diagnostics or repairs are not addressed by this SB and must be claimed separately.

Labor Operation No:	Description	Amount
18-19-04-41	Module, Powertrain Control (PCM) - Reprogram (B) - (NOTE: Do not use this labor operation number if Recall G30 was performed per this Service Bulletin. Complete Recall G30 as directed using the appropriate Recall G30 labor operation number for PCM / ECM reprogram).	0.4 Hrs.
18-19-04-42	Module, Cab Compartment Node (CCN) - Reprogram (B)	0.3 Hrs.
18-19-04-43	Kit, Documentation - Install (B)	0.2 Hrs.

FAILURE CODE:

ZZ	Service Action
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