HINO TRUCKS™
A Toyota Group Company

SB-10055112-2278

VOLUNTARY CAMPAIGN BULLETIN

SUBJECT:	ECU Software Enhancement – DPR (Diesel Particulate Reduction)
DATE:	2/21/2014
BULLETIN NO.:	RCB-010-12
CAMPAIGN NO.:	A8440
AFFECTED MODELS:	Certain 2008-2010 model years NA6J, NB6J, NC6J, ND8J, NE8J, NJ8J, and NV8J model vehicles.

IMPORTANT NOTE:
Verify the vehicle requires the work to be performed by referencing the subject vehicle by VIN within the Hino Warranty System (DCS).

CONDITION:
When soot accumulates in the DPF (Diesel Particulate Filter) due to aging degradation of the fuel injector, the engine control program could potentially work improperly, which may cause the CEL (Check Engine Light) in the instrument cluster of the vehicle to turn "ON". An enhanced ECU (Engine Control Unit) software program has been released to provide improved DPR (Diesel Particulate Reduction) operation.

SUBJECT VEHICLES:
Certain 2008 through 2010 model year NA6J, NB6J, NC6J, ND8J, NE8J, NJ8J and NV8J Conventional Hino Trucks equipped with either a J05 or J08 engine series. These trucks were assembled at the Williamstown, WV assembly plant or the Long Beach, CA assembly plant.

BEFORE YOU BEGIN:
Read and understand all instructions and procedures before you begin. Read and observe all Notes, Cautions and Warning alerts that precede these instructions while following the procedures. The alerts help to avoid damage to components, serious personal injury, or both.

- Park the vehicle on a level and solid surface and apply the parking brake.
- Confirm the engine is stopped, the starter switch is in the off (LOCK) position, and the key is removed.
- Wear safety glasses to prevent eye injuries.
- Place wheel chocks in front of and behind all wheels.
- Be certain the vehicle batteries are fully charged to insure battery power does not drop below 11.5 volts during the procedure.
- If necessary, a battery charger is installed on the vehicle to insure battery voltage is maintained during ECU programming
- Be certain the programming computer battery is fully charged or a power supply is connected to insure the computer doesn't shut down during the procedure.

PARTS APPLICATION CHARTS:

SOFTWARE NUMBERS:

PART NUMBER	DESCRIPTION		QUANTITY
89663E0K72B	J08ETV ECU Software	2008-2010	As Required By VIN
89663E1252B			
89663E1F62B			
89663E0K52B	J08ETW ECU Software		
89663E1242C			
89663E1F52B			
89663E0K83B	J05DTF ECU Software		
89663E1J22B			

PART NUMBERS AND CONTENTS:

PARTS REQUIRED FOR 176 LDT DPF REPLACEMENT		
S1805E0260	FILTER SUB-ASSY, PARTICULATE	1
SH56220830	BOLT, FLANGE	16
SZ17808007	NUT, FLANGE	16
S171041930	GASKET SUB ASSY, EXH MFLD	2

PARTS REQUIRED FOR 176 MDT DPF REPLACEMENT		
S1805E0270	FILTER SUB-ASSY, PARTICULATE	1
SH56220830	BOLT, FLANGE	16
SZ17808007	NUT, FLANGE	16
S171041930	GASKET SUB ASSY, EXH MFLD	2

PARTS REQUIRED FOR 176 LDT/MDT Inspection		
SH56220830	BOLT, FLANGE	8
SZ17808007	NUT, FLANGE	8
S171041930	GASKET SUB ASSY, EXH MFLD	1

VEHICLE PREPARATION:

1. Park the vehicle on level ground.

2. Confirm the engine is stopped, the starter switch is in the "OFF" (LOCK) position and the key is removed.

3. Apply the parking brakes.

4. Chock the wheels.

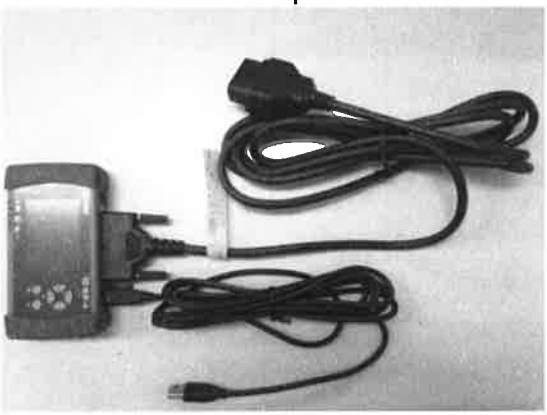
REPAIR PROCEDURE:

Programming of the Engine ECU:

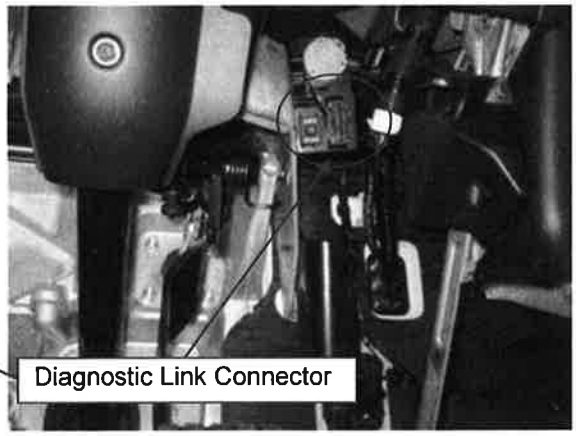
1. Before continuing any further, confirm the computer being used for the programming is equipped with the new **Hino Diagnostic eXplorer II (DXII) program**.

2. Connect the electronic interface tool between the DLC (Diagnostic Link Connector) and USB port of the programming computer.

   IMPORTANT NOTE:
   Use ONLY the DST-i or Nexiq USB Link electronic interfaces. Use ONLY the USB cable connection from the electronic interface to the computer - **do NOT use the Bluetooth feature for programming.**

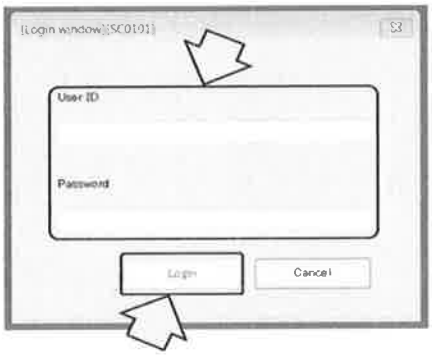


3. Connect the electronic interface cable connector to the vehicle's DLC connector. The vehicle's DLC connector is found under the dash on the right side of the steering column.



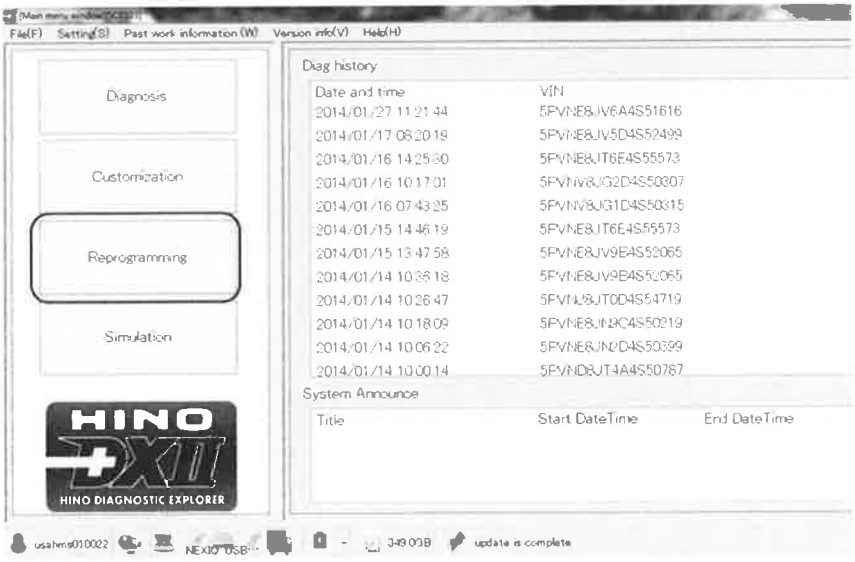
4. On your computer, locate the Hino DX2 program and open the program.

5. The Hino DX2 will prompt you for a User ID and Password. Enter your dealer credentials then select the "Login" button.

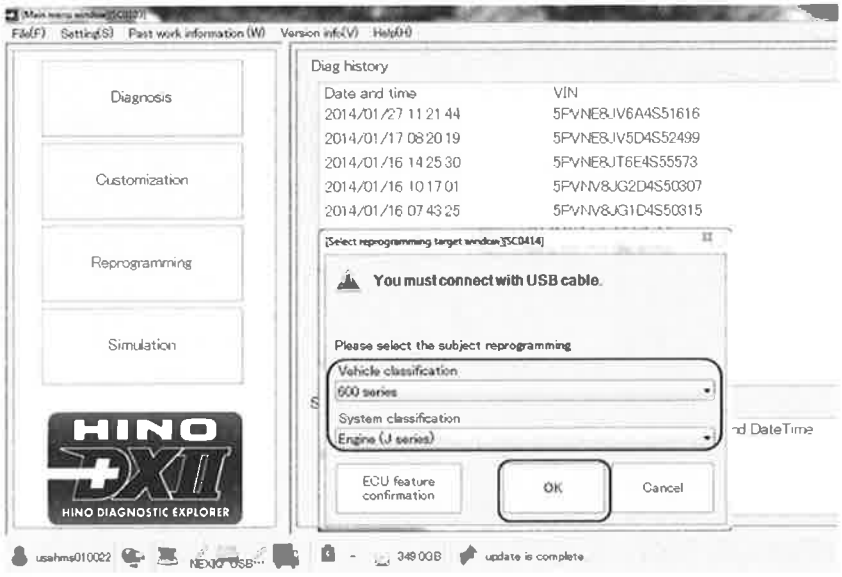


6. Insert the starter key into the starter switch and turn the key to the "ON" position.

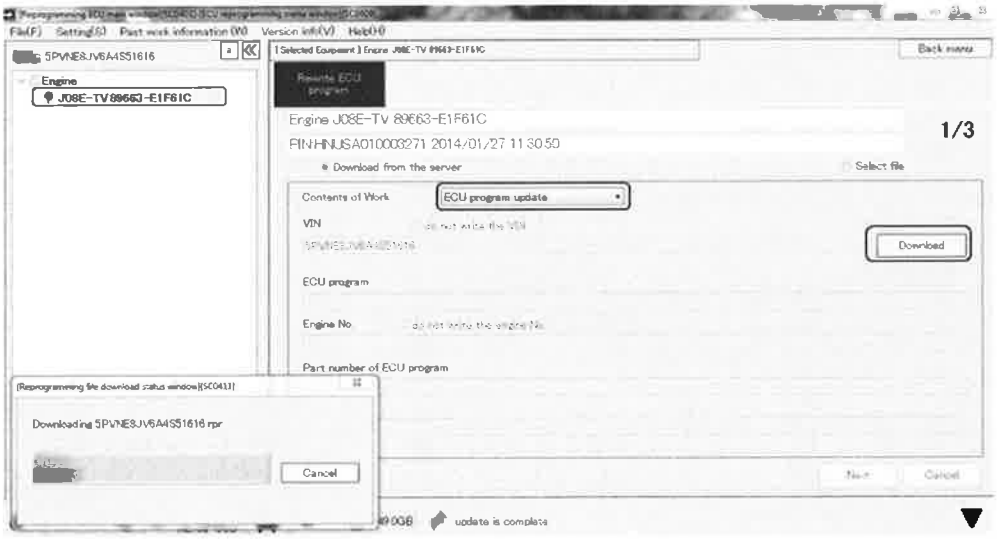
7. Select the "Programming" icon from the main DX2 screen.



8. In the drop down menus, select "600 series" and "Engine (J series)". Then click the "OK" button to proceed.

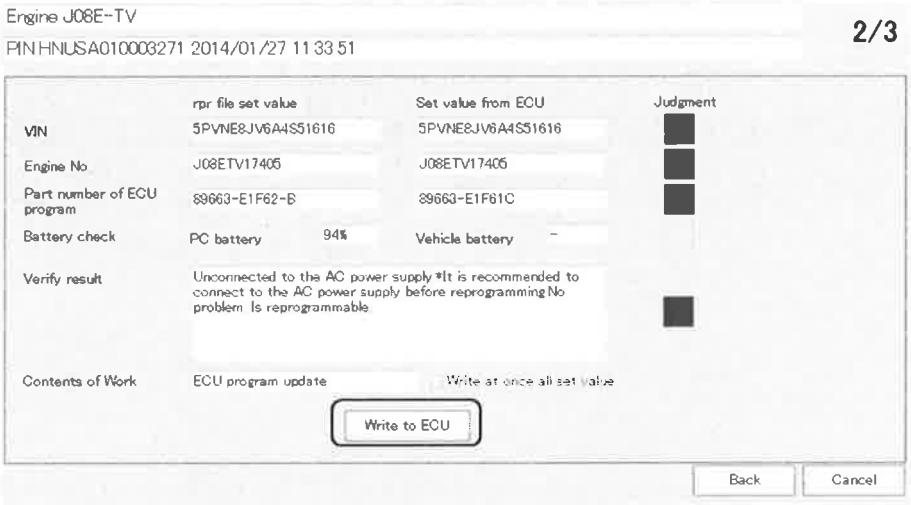


9. Select (highlight) the Engine ECU control software part number (with Red bulb adjacent), then using the dropdown menu, select "ECU Program Update" for Contents of Work. Now click the "Download" button to download the reprogram file from the Hino server.

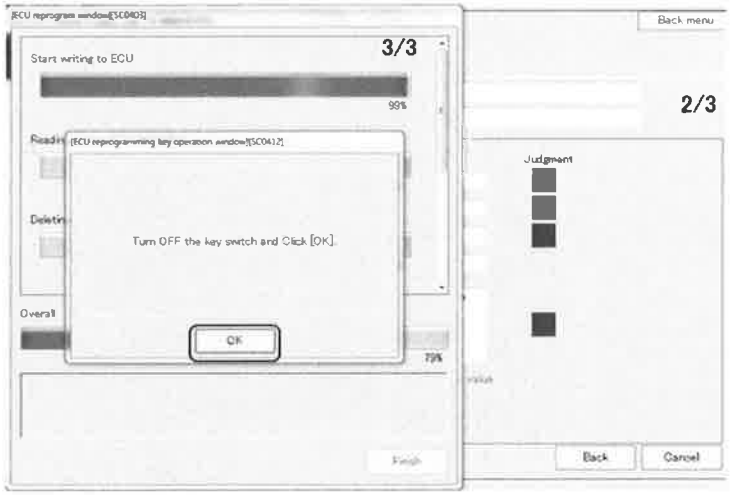


10. Once the file confirmation is complete, the "Next" button will become available. Click the "Next" button to proceed.

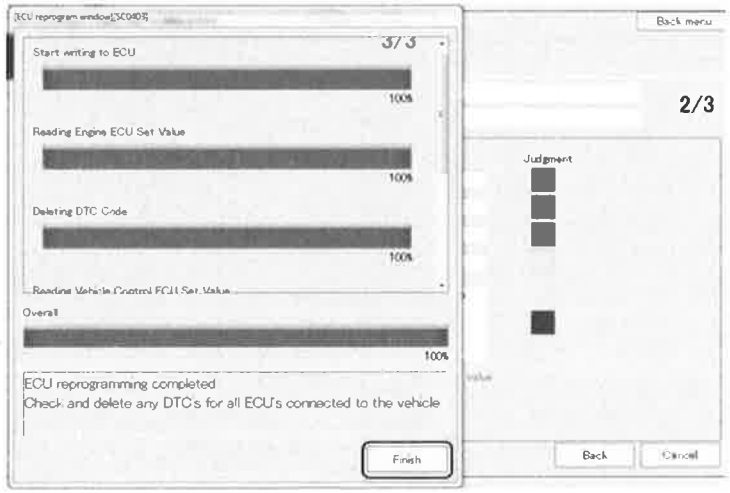
11. The DX2 will automatically verify all necessary requirements to proceed with programming. The result of these checks will be displayed as shown. If all judgments pass as green or yellow, select the "Write to ECU" button to begin programming.



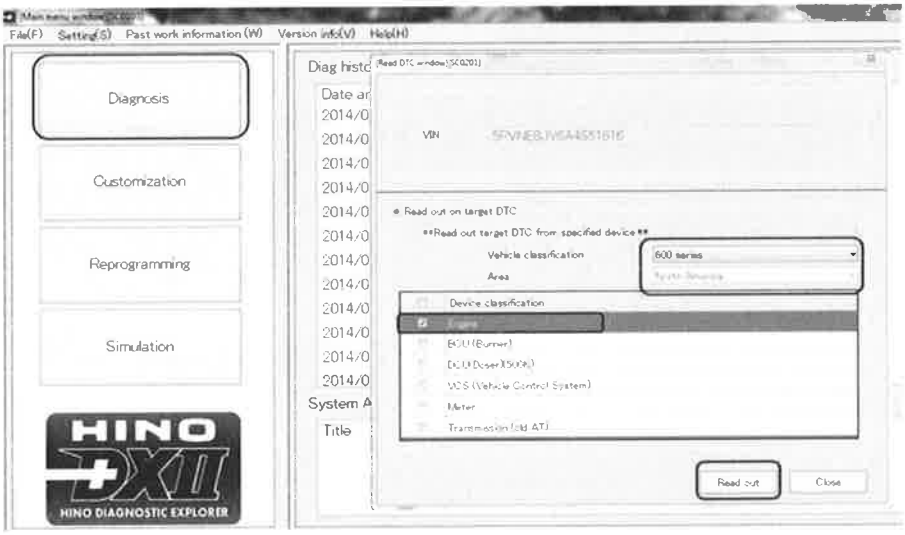
12. The DX2 will then provide a programming status screen. During this process, the DX2 will prompt you to turn the key switch to the OFF position for ten (10) seconds then back to the "ON" position to complete the programming. It is important to follow the prompts exactly until programming is completed.



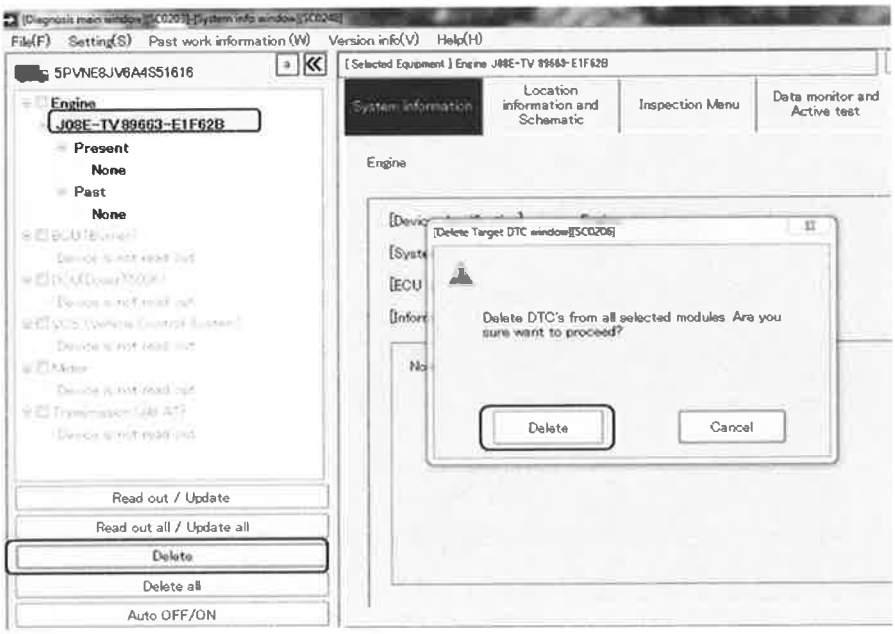
13. Once the programming is complete, click the "Finish" button.



14. Click the "Diagnosis" button to display the Read DTC Window. From the drop down menus, select "600 series" then place a check mark next to "Engine" for device classification. Now click the "Read Out" button.



15. Select (highlight) the Engine ECU control software part number, then click the "Delete" button as shown to delete any potential DTC's stored in the ECU after programming. Now confirm DTC deleting by clicking the "Delete" button within the popup screen.



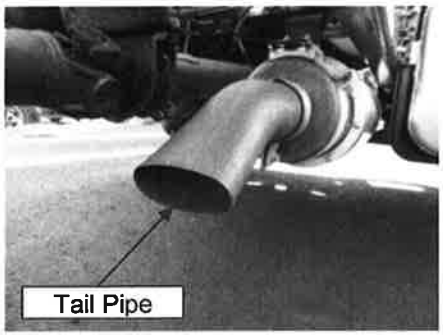
NOTE:
At this point programming of the Engine ECU is completed. The next several steps will relate to inspection of the DPF (Diesel Particulate Filter).

Inspection of the DPF (Diesel Particulate Filter):

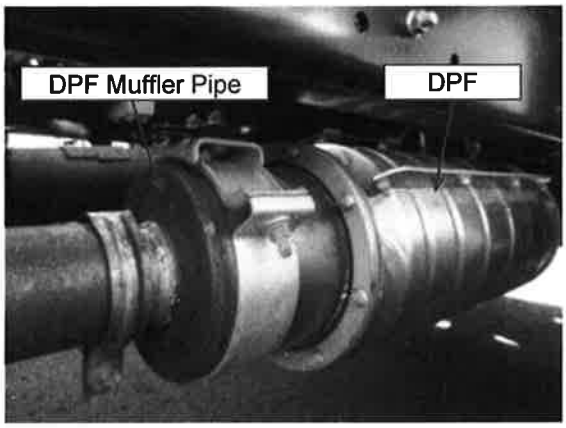
1. Inspect the tail pipe. Does the tail pipe have heavy soot accumulation?

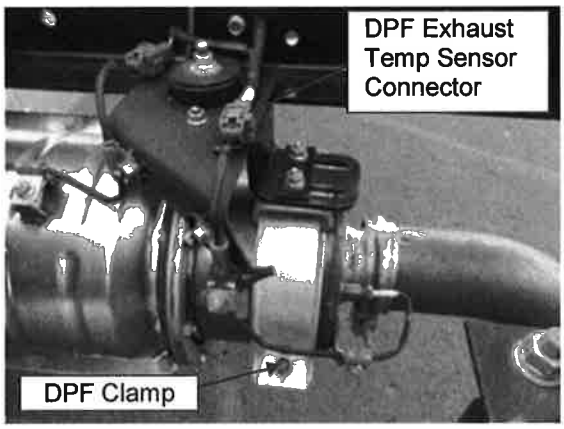
   Yes, the tail pipe has heavy soot accumulation. Proceed to **Step 2**.

   No, the tail pipe does not have heavy soot accumulation. Proceed to the **Inspection of the Exhaust Brake Adjustment** section.



2. Inspection of the outlet surface of the DPF is required. To inspect the outlet surface of the DPF, the rear DPF muffler pipe must be removed.
   a. Disconnect the electrical connector for the DPF exhaust temperature sensor.
   b. Support the DPF with a jack and remove the nuts and bolts that secure the rear muffler to the DPF.
   c. Remove the DPF rear clamp.
   d. Remove the DPF muffler pipe.





3. Visually inspect the DPF outlet surface for heavy soot or melting. Figure 1 (following) represents a DPF outlet surface that is melted and Figure 2 represents a DPF outlet surface that has heavy soot accumulation. Figure 3 represents a DPF outlet surface that does not have heavy soot or melting. Does a visual inspection of the DPF outlet surface indicate heavy soot accumulation or melting?

   Yes, the DPF outlet surface has heavy soot accumulation and/or melting - proceed to **Step 4**.

   No, the DPF outlet surface does not have any heavy soot accumulation or melting. Reverse the disassembly instruction provided in Step 2. Refer to the Hino Workshop Manual, Section EN-04 (Exhaust System) for specific assembly and torque specifications. Once the exhaust system has been reassembled, proceed to the **Inspection of the Exhaust Brake Adjustment** section.

DPF Condition

Figure 1

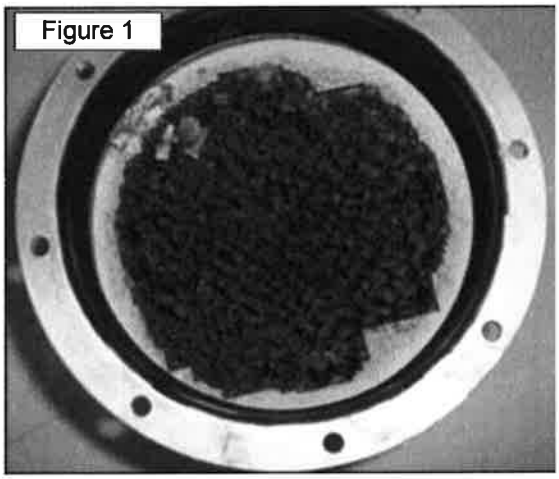


Figure 2

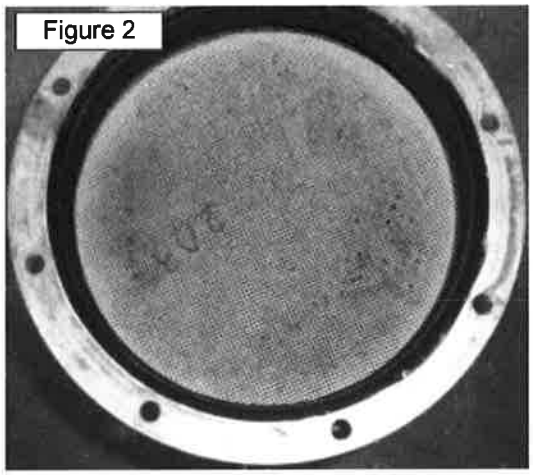
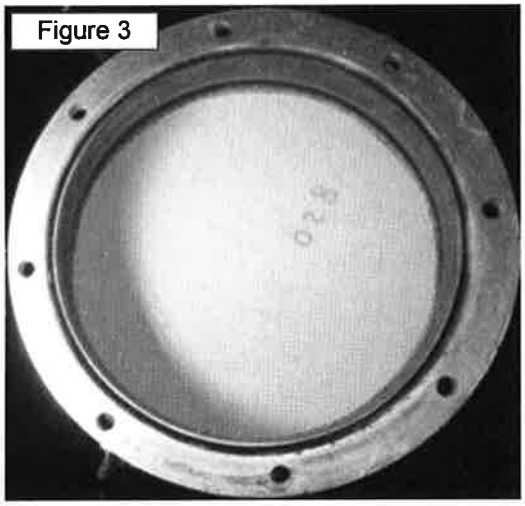
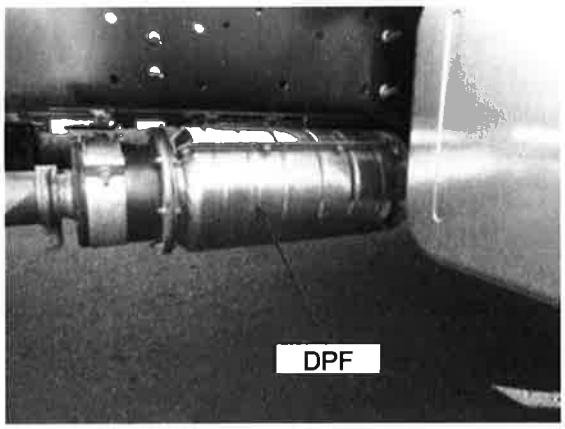


Figure 3

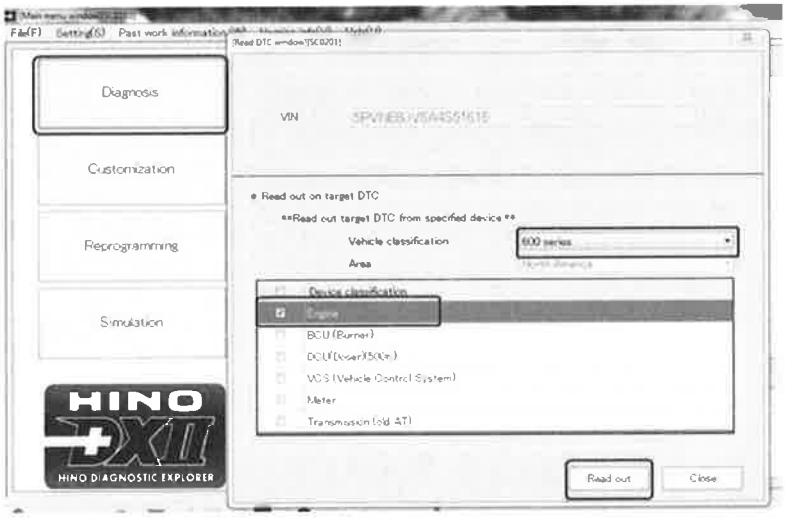


4. Replace the DPF in accordance with the Hino Workshop Manual, Section EN-04 (Exhaust System).

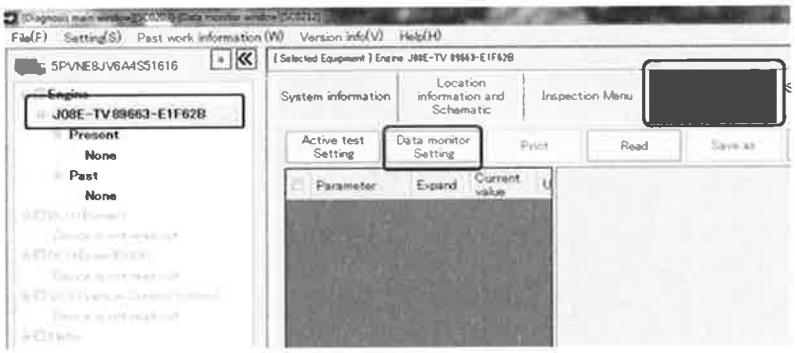


Inspection of the Exhaust Brake Adjustment:

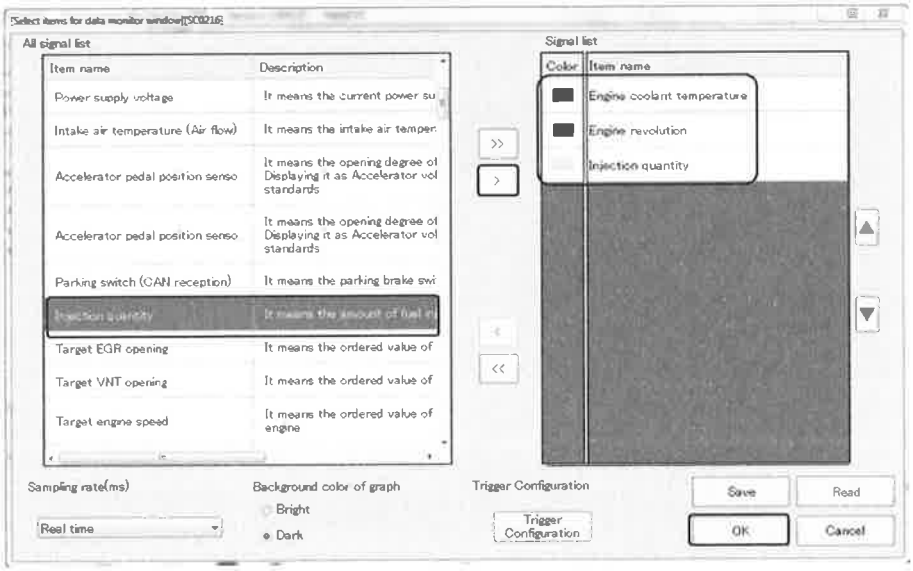
1. Select the "Diagnosis" icon from the main DX2 screen. If the electronic interface is connected and communicating correctly, the VIN will automatically populate after a couple seconds. Now select "600 Series" from the vehicle classification drop down menu. Place a check mark next to "Engine" for device classification. Now click the "Read Out" button.



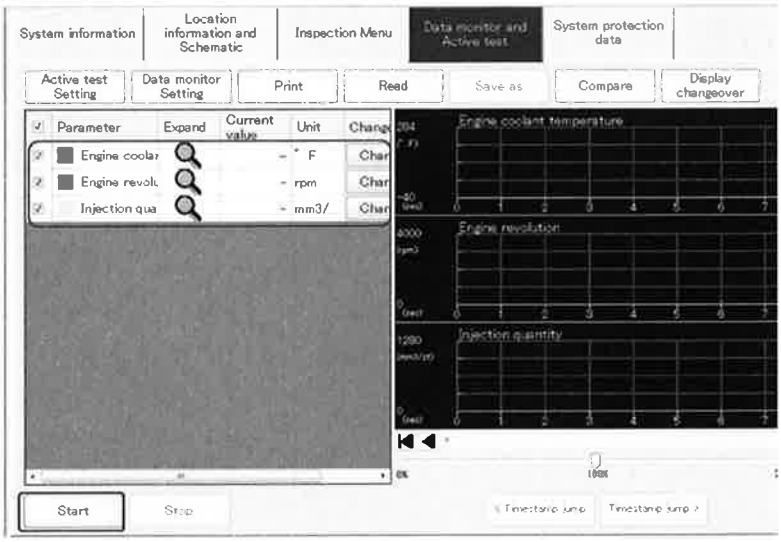
2. Select (highlight) the Engine ECU control software part number then click "Data Monitor and Active Test" tab. Now click the "Data Monitor Setting" tab to select the required parameters.



3. In the window that appears, highlight "Engine Coolant Temperature" then click the ">" button to move the parameter to the Signal List. Do the same for "Engine Revolution" and "Injection Quantity". Then click the "OK" button.



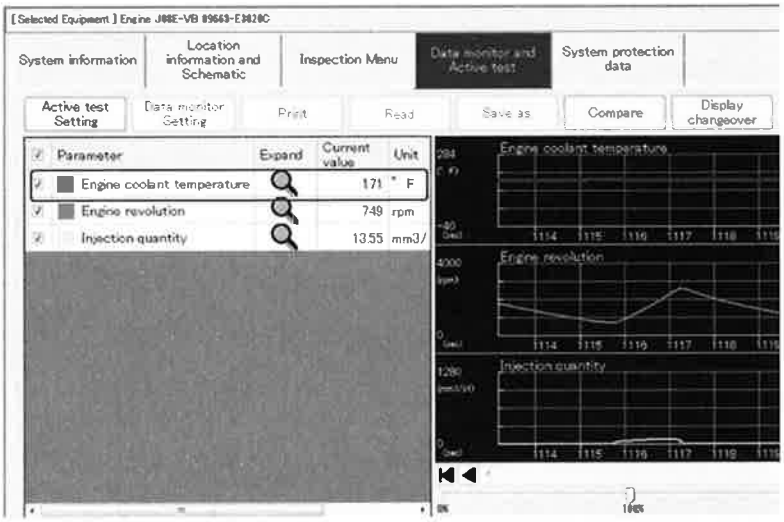
4. Confirm that "Engine Coolant Temperature", "Engine Revolution" and "Injection Quantity" have been selected correctly then click the "Start" button to begin monitoring data.



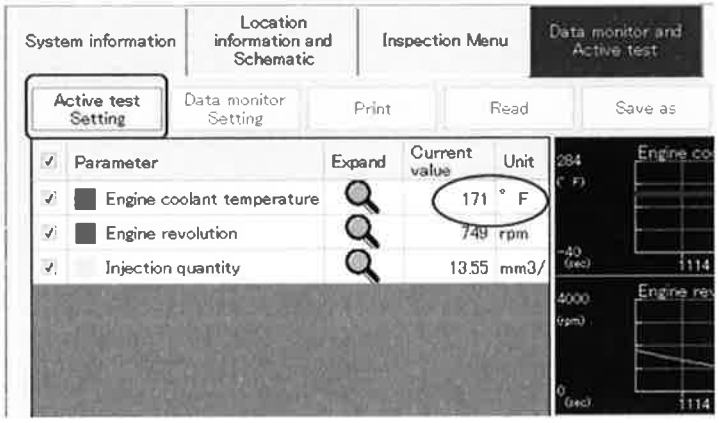
IMPORTANT STEP

5. Start the engine and allow the Engine Coolant Temperature to reach <u>at least 170F (76.7C)</u>.

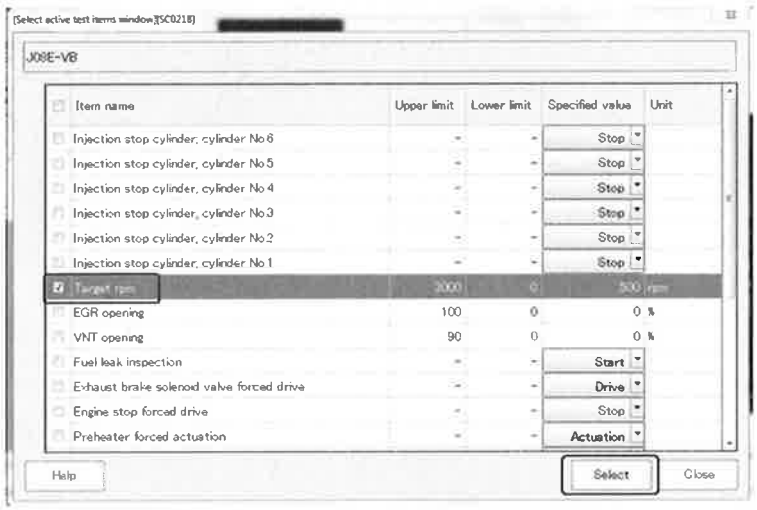
IMPORTANT NOTE:
Engine Coolant Temperature must be at least 170F before proceeding to the next step.



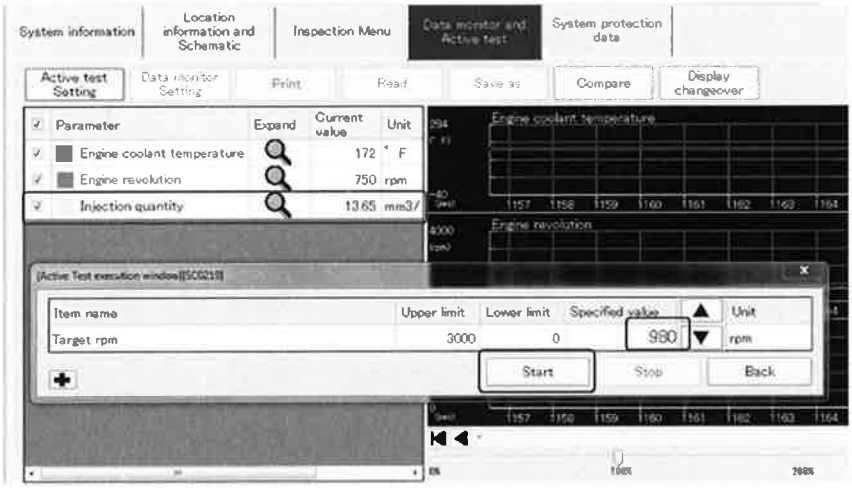
6. Once the Engine Coolant Temperature has reached <u>at least 170F (76.7C)</u>, click the "Active Test Setting" button.



7. The Active Test Items window will appear over the Data Monitor screen. Place a check mark next to "Target RPM" as shown then click the "Select" button to continue.



8. The Active Test Execution Window should now appear. Enter 980 RPM for the specified value of Target RPM then click the "Start" button. The engine speed should elevate to 980 RPM's. After approx. sixty (60) seconds, make a note of the Injection Quantity shown on the Data Monitor. Injection Quantity for this step is for <u>Exhaust Brake OFF</u>.



9. Next, turn the Exhaust Brake ON using the lever on right side of the steering column. After approx. sixty (60) seconds, make a note of the Injection Quantity shown on the Data Monitor. Injection Quantity for this step is for <u>Exhaust Brake ON</u>.

   For the example shown, the difference in Injection Quantity is 33.71 minus 13.65 = **20.06**.

NOTE:
Exhaust Brake Adjustment Specification:
Difference Specification: 10 - 14 mm3/st
Target Difference: 12 mm3/st

10. If Exhaust Brake adjustment is required, refer to the illustration (Figure 1) as a guide to adjust the exhaust brake to obtain the Target Difference specification. If the injection quantity difference is within specification, proceed to the "*Inspection of the Maximum Exhaust Gas Temperature*" procedure.

IMPORTANT NOTE:
The engine must be OFF while adjusting the exhaust brake.

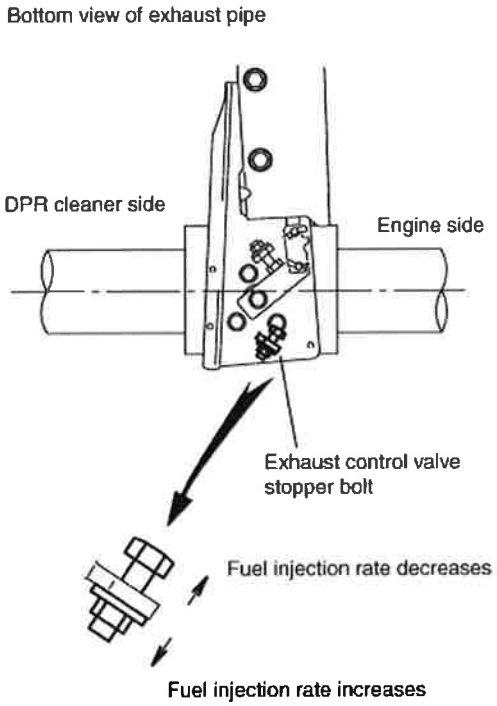


Figure 1: Exhaust Brake Adjustment

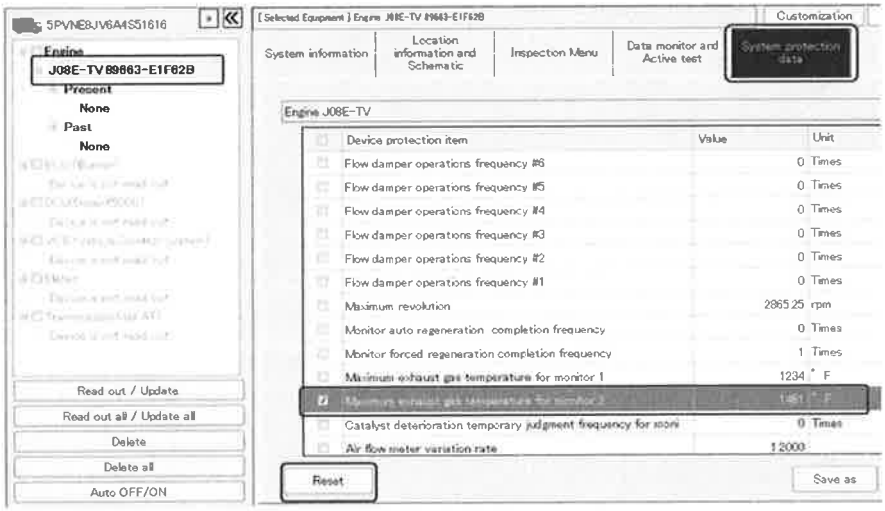
Inspection of the Maximum Exhaust Gas Temperature:

1. Was the DPF replaced during the initial inspection of the DPF (Diesel Particulate Filter)?

Yes, the DPF was replaced – Reset the System Protection Data proceed to **Final Inspection Procedure.**

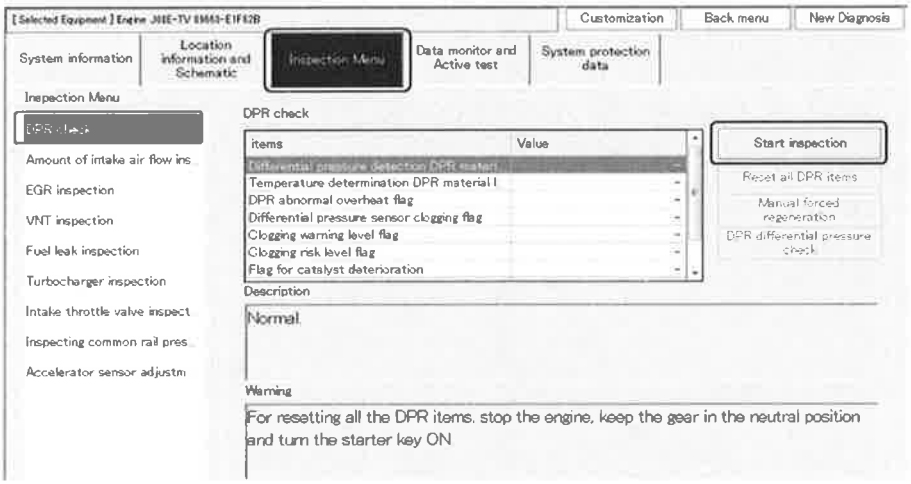
No, the DPF was not replaced, proceed to the next step.

2. From the Diagnosis main screen, select (highlight) the Engine ECU control software part number, then click the "System Protection Data" tab. Next, place a check mark next to "Maximum Exhaust Gas Temperature for Monitor 2" then click the "Reset" button.

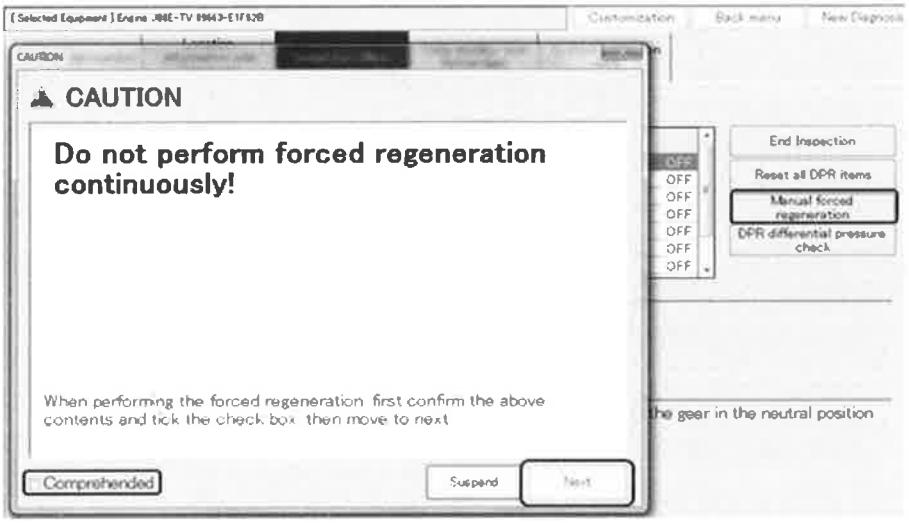


3. Click the "Inspection Menu" tab then select "DPR Check" from the Inspection Menu. Now click the "Start Inspection" button.

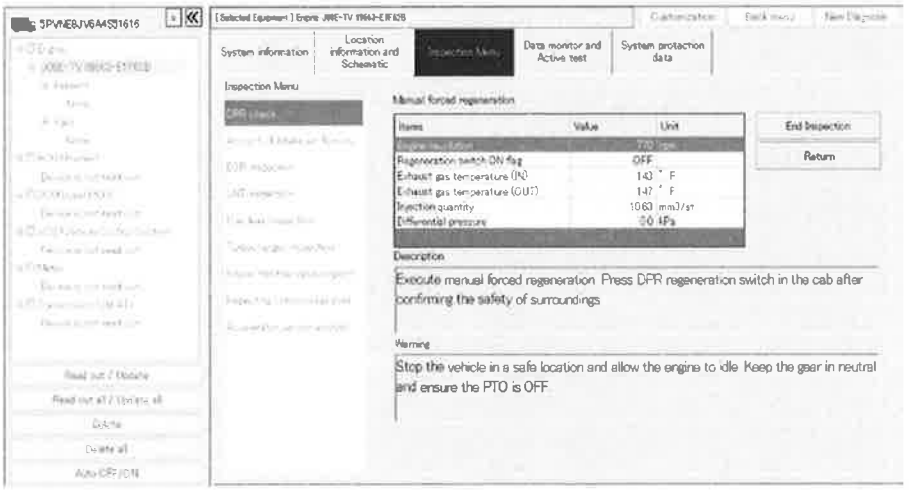
   IMPORTANT NOTE:
   The next steps will involve performing two (2) Manual Forced Regenerations of the DPR.



4. Click the "Manual Forced Regeneration" button, place a check mark in the "Comprehended" box on the pop up warning and press "Next" when highlighted.

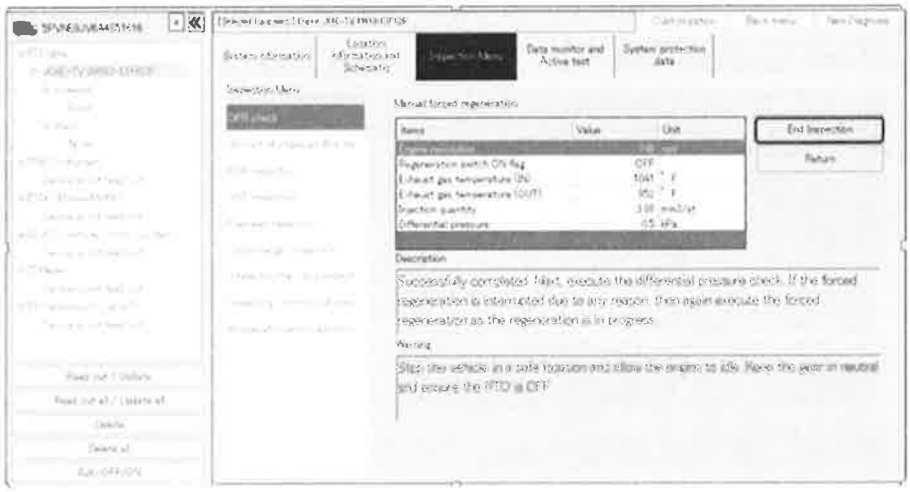


5. Press the Manual Regeneration button in the cab after verifying the safety of surroundings.



6. Once the Regen has completed click the "End Inspection" button.

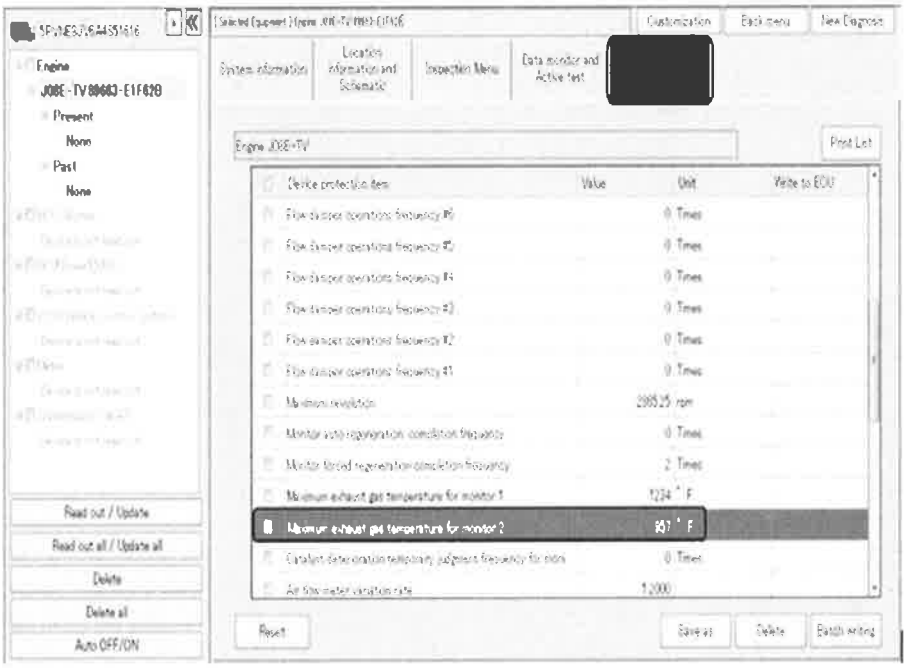
   Perform a second Manual Regeneration by following steps 3 through 6 in this section observing all DX2 prompts during the procedure.



7. Once the regeneration Procedure is complete, return To the System Protection Data Tab. Does the DPF Maximum Outlet temperature exceed 800°C (1472°F)?

   -**Yes**, temperature exceeds 800°C (1472°F). Reset the System Protection Data and proceed to step 8 of this section.

   -**No**, Temperature does not exceed 800°C (1472°F). reset the System Protection data and proceed to the **Final Inspection Procedure.**

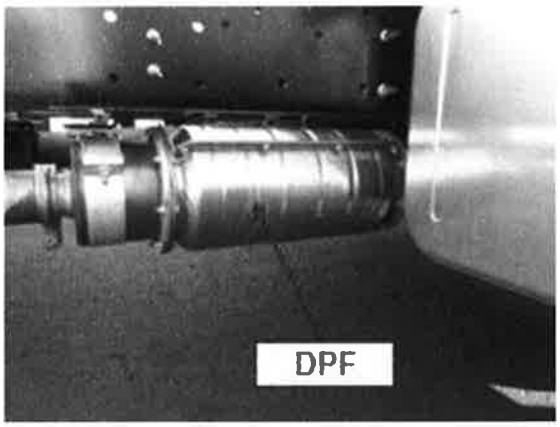


8. Refer to steps 2 and 3 of the **Inspection of the DPF (Diesel Particulate Filter)** and perform a visual inspection on the DPF outlet surface for heavy soot accumulation or melting. Does the DPF outlet surface have heavy soot accumulation?

   - **Yes**, the DPF outlet surface has heavy soot accumulation or melting, proceed to step 9.

   - **No**, the DPF outlet surface does not have heavy soot accumulation or melting. Reverse the disassembly instruction provided in step 2. Refer to the Hino Workshop Manual, section EN-04(Exhaust System) for specific assembly and torque specifications. Once the exhaust system has been reassembled, proceed to **Final Inspection Procedure.**

9. Replace the DPF in accordance with the Hino Workshop Manual, section EN-04(Exhaust System) and proceed to the **Final Inspection Procedure**.



FINAL INSPECTION PROCEDURE:

To complete this campaign procedure, review the campaign and confirm the following:

- DTC's related to the DPF or related to programming of the engine ECU are cleared.
- If any component of the DPF was removed or replaced, all fasteners are torqued to the specified value in accordance to the Hino Workshop Manual, section EN-04(Exhaust System).
- If disconnected, the DPF exhaust temperature sensor connector has been reconnected.

Claim Application:

ECU Programming:
a) Campaign No: A8440
b) Labor Charge: 0.8 Hr
c) Warranty Code: 86311
d) TCode: 98
e) Operation Code: 86350AOT
f) Original Failed Part: 9999999999

Inspect and replace DPF as needed:
a) Campaign No: A8510
b) Labor Charge: Actual time (Based on chart below)
c) Warranty Code: 11419
d) TCode: 98
e) Operation Code: 11450AOT
f) Original Failed Part: 9999999999

Operation Completed	Labor
Tailpipe visual inspection.	.1hr
DPF outlet inspection. (Primary inspection based on tailpipe inspection result)	.5hr
DPF Replacement. (Outlet previously removed during inspection) Reset DPF outlet temperature.	.6hr
Exhaust brake inspection.	.1hr
Exhaust brake adjustment.	1.0hr
Reset DPF temp history. Manual regeneration twice. Check DPF outlet temperature.	1.0hr
DPF outlet inspection. (Secondary inspection if over 800C during manual regeneration)	.5