Group:	Service Manual Update
Bulletin No.:	SB-15-015
Issue Date:	2/12/2015

SERVICE INFORMATION BULLETIN

Subject: Information of Troubleshooting Procedure for Engine Lacked Power during the DPR Automatic Regeneration

RELEVANT MODELS:
Hino 2008MY - 2010MY Trucks

CONTENTS:
Addition of the troubleshooting procedure for engine lacked power during the DPR automatic regeneration.

Refer to the page attached for the details.

NOTE: This troubleshooting procedure will be added to the workshop manuals for the relevant vehicles in the next revision.

RELEVANT MANUALS:

Hino 145, 165, 185, 238, 258, 268, 308 and 338

Vendor Ref.:	SB-A-17-024

ENGINE CONTROL SYSTEM (J05D/J08E)

NO DTC

ENGINE LACKED POWER DURING THE DPR AUTOMATIC REGENERATION

1	Check the DTC detected

1. Connect the vehicle to Hino-DX.
2. Set the starter switch to the "ON" position.
3. Select [Engine] on the screen of Hino-DX and verify the DTC associated with the following equipment:
   Air flow sensor, EGR, Boost pressure sensor (turbo charger), VNT, Diesel throttle (Intake throttle)

Has a related DTC been detected?

YES	NO
Go to diagnosis procedure of a related DTC.	Go to step 2.

2	Failure reproduction test

1. On Hino-DX, after writing a soot amount value of 2.1, run a test on a highway to verify the failure during automatic regeneration.
   -Hino-DX selection:Configuration/Customization/DPR deposition quantity.

HINT
When the DPR gauge reading reaches the third bar, automatic regeneration will start.

Did the engine lack power during the automatic regeneration?

YES	NO
Go to step 3.	Inspect and fix any problem found using the "Troubleshooting check list" on the following page.

3	Inspect the air cleaner element

1. Check the air cleaner element and air rectification (Net) for dirty, clogged, damaged or deformation.
2. Make sure the element is a Hino genuine part.

Was any failure found?

YES	NO
Clean or replace the air cleaner element. In case of deformation in air rectification (Net), replace the intake pipe assembly. After cleaning/replacement, go to step 20.	Go to step 4.

4	Check the intake system

1. Check the intake hose and verify that there are no disconnections, clogging, punctures, or cracks.
2. Check the breather hose and verify that there are no disconnections, clogging, punctures, or cracks.
3. Check the intercooler hose and verify that there are no disconnections, clogging, punctures, or cracks.

Was any failure found?

YES	NO
Repair or replace the intake system hoses. After repair or replacement, go to step 20.	Go to step 5.

5	Inspect the air flow sensor connector

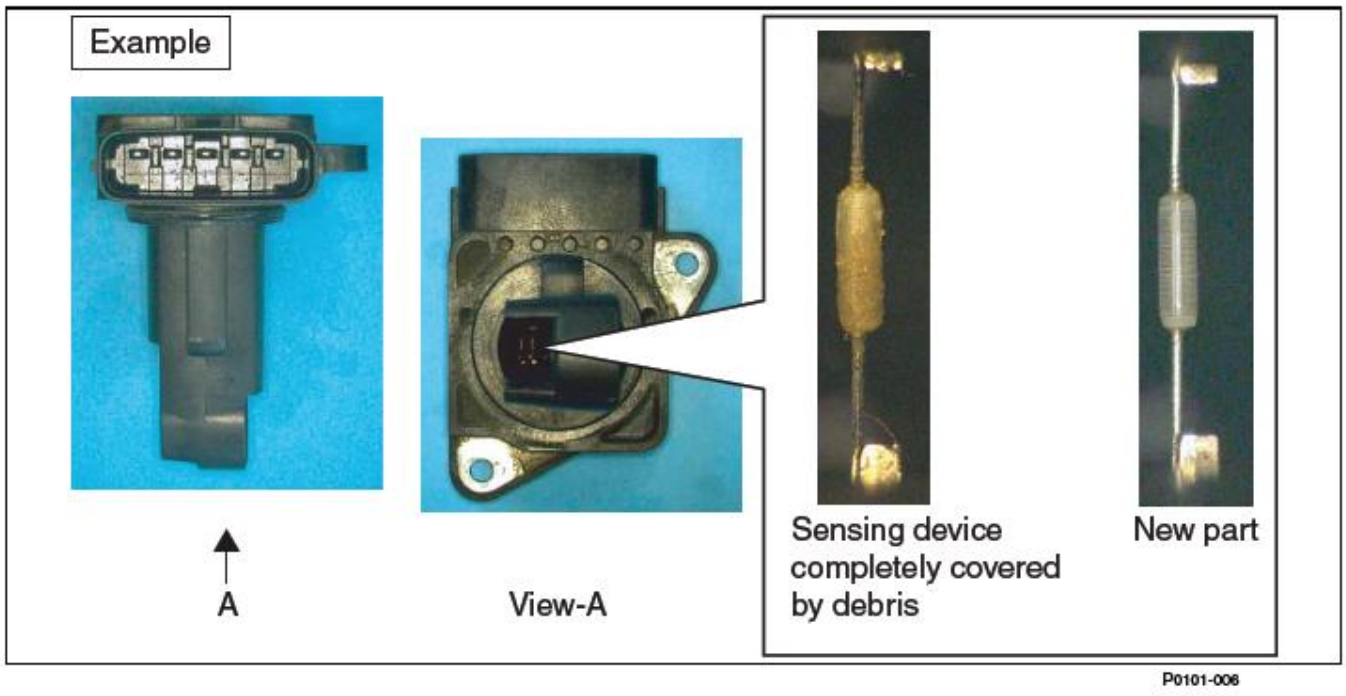
1. Check the connection of the air flow sensor (Looseness and poor contact).

Was any failure found?

YES	NO
Repair in case of poor connection. After repair or replacement, go to step 20.	Go to step 6.

6	Inspect the air flow sensor

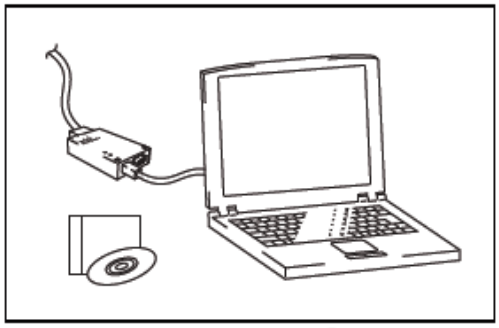
1. Check the installation of the air flow sensor.
2. Make sure there is no dirt or damage to the air flow sensor.



Was any failure found?

YES	NO
Go to step 7.	Go to step 8.

7	Inspect air flow sensor [Hino-DX]



P0101-007

Prepare the new air flow sensor, and compare the air flow sensor characteristics between the sensor on the vehicle and new sensor by using Hino-DX.

1. Set the starter switch to the lock position and connect Hino-DX to the vehicle.
2. Reconnect the sensor to the vehicle.
3. Set the starter switch to ON position and select [Engine] on Hino-DX menu.
4. Select [Intake air volume check] from the [Check functions] menu on Hino-DX.
5. Perform [intake air volume check] as instructed on the Hino-DX screen.
6. Perform the same check with the new sensor, and compare the characteristics between old and new.

Standard values
Performance error: less than 10 %

Do the measurements meet the standard value?

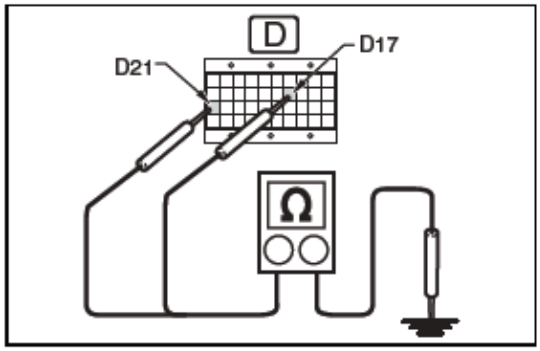
YES

Go to step 8.

NO

After installing a new air flow sensor, go to step 20.

8	Inspect for short-circuits in wire harness of air flow sensor



10MY-P0102-005

1. Set the starter switch to the "LOCK" position.
2. Disconnect the air flow sensor connector.
3. Connect the signal check harness to the engine ECU vehicle-side harness. (Do not connect harness to the ECU.)
4. Use the electrical tester to measure the resistance between the engine ECU (signal check harness) terminals and ground.

HINT
Measure while shaking the harness.

Measurement conditions	Tester connections	Standard values
Starter switch: LOCK	Engine ECU (signal check harness) D21 – Ground D17 – Ground	∞ Ω

Do the measurements meet the standard value?

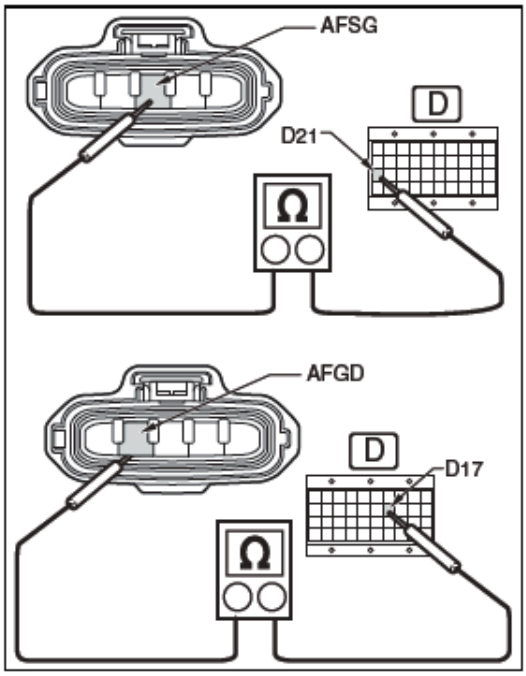
YES

Go to step 9.

NO

Repair or replace the harness.
After repair or replacement, go to step 20.

9	Inspect for disconnection in wire harness of air flow sensor



10MY-P0102-006

1. Use the electrical tester to measure the resistance between the engine ECU (signal check harness) terminal and the air flow sensor vehicle-side connector terminal.

HINT
Measure while shaking the harness.

Measurement conditions	Tester connections	Standard values
Starter switch: LOCK	Engine ECU (signal check harness) – air flow sensor vehicle-side connector D21 – AFSG D17 – AFGD	1 Ω or less

Do the measurements meet the standard value?

YES → **Go to step 10.**

NO → **Repair or replace the harness.**
Go to step 20.

10	Inspect the EGR valve

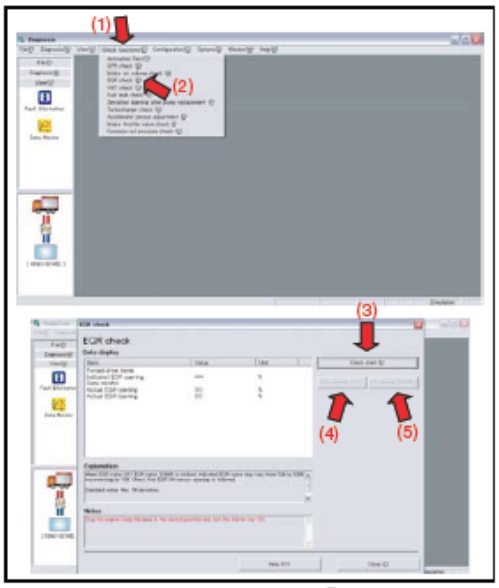
1. Check the EGR valve for damage due to foreign substances.
2. Check if there is soot obstructing the exhaust gas passageway inlet or outlet.

Was any failure found?

YES → **Remove foreign substances and clean the valve.**
Replace the EGR valve if it is damaged.
After cleaning or replacement, go to step 20.

NO → **Go to step 11.**

11	Check the response delay of the EGR valve [Hino-DX]



P0101-011

1. Set the starter switch to the "LOCK" position.
2. Connect the vehicle to Hino-DX.
3. Set the starter switch to the "ON" position.
4. Select [Check functions] on the Hino-DX screen and check the time lag (following characteristics) of the target EGR valve opening and actual EGR valve opening.

⚠ CAUTION
Perform the inspection while the engine is stopped to avoid engine damages.

<Inspection procedure>
(1) Select [Check functions].
(2) Select [EGR check].
(3) Click [Check start].
(4) Click [EGR opening UP]:
- Check each step from 0 % – 90 % of the time lag (following characteristics) of the target EGR valve opening and actual EGR valve opening.

(5) Click [EGR opening DOWN]:
- Check each step from 90 % – 0 % of the time lag (following characteristics) of the target EGR valve opening and actual EGR valve opening.

HINT
In EGR openings from 0 % – 90 %, 1 step corresponds to a 10 % change.

Standard values
The response delay should be less than 5 seconds.

Do the measurements meet the standard value?

YES	NO
Go to step 12.	Replace the EGR valve. After replacement, go to step 20.

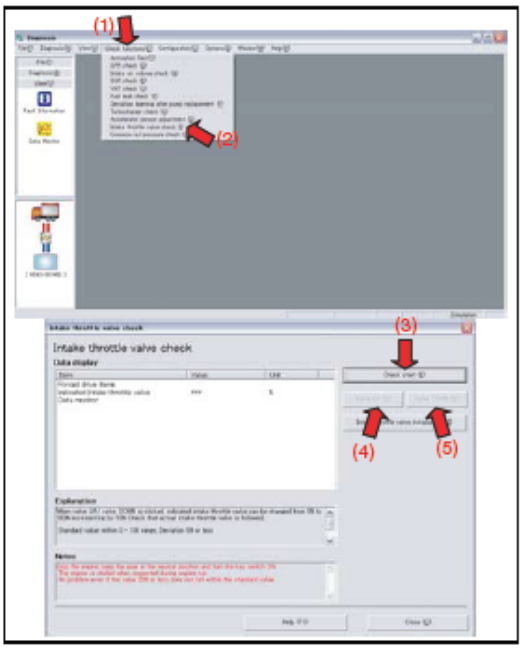
12	Inspect the diesel throttle

1. Disconnect the diesel throttle from the vehicle and confirm that there is no damage due to snagging or incursion of foreign substances.

Was any failure found?

YES	NO
Clean the diesel throttle. If necessary, replace it. After cleaning or replacement, go to step 20.	Go to step 13.

13	Check the operation of the diesel throttle valve [Hino-DX]



P0101-013

1. Select [Check functions] from the menu and check the operation of the diesel (intake) throttle valve.

⚠CAUTION
Make sure the engine is stopped; otherwise, the engine may be damaged.

<Inspection procedure>
(1) Select [Check functions].
(2) Select [Intake throttle valve check].
(3) Click [Check start].
(4) Select [Valve UP].

- Check the operation of the throttle valve.

(5) Select [Valve DOWN].

- Check the operation of the throttle valve.

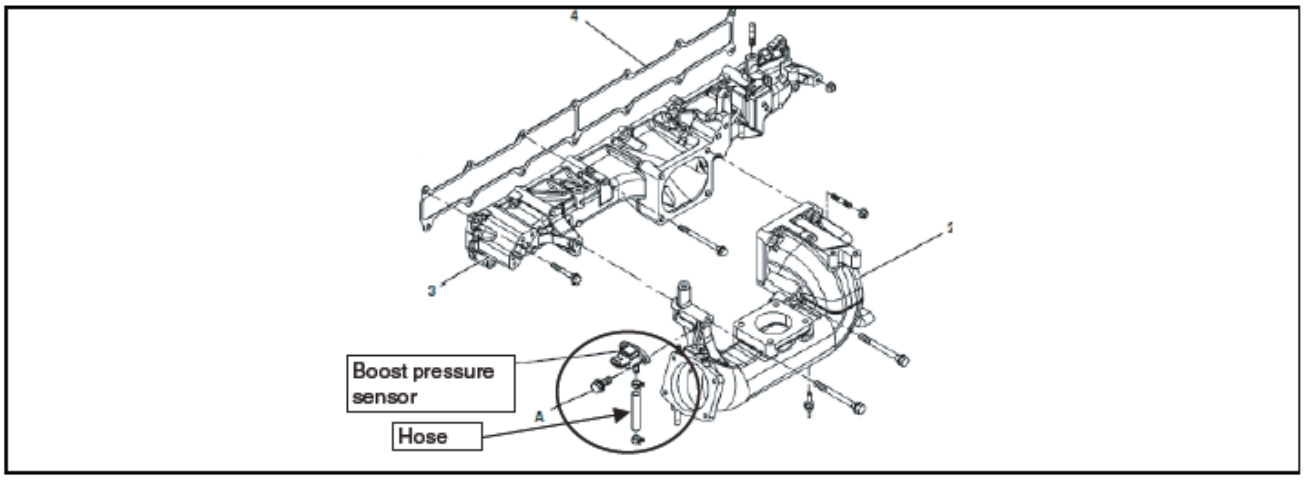
HINT
The throttle valve opening position changes of around 10 % per step between 0 – 100 %.

Is the throttle valve operating normally?

YES	NO
Go to step 14.	Replace the diesel throttle valve. After replacement, go to step 20.

14	Inspect the boost pressure sensor hose

1. Make sure the boost pressure sensor hose is not clogged, ruptured, or cracked.
2. Make sure the pipe on the intake manifold side is not clogged.



P0101-014

Was any failure found?

YES

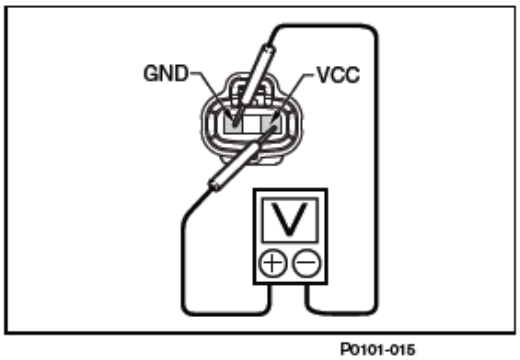
1. Replace the boost pressure sensor hose.
2. Clean the intake manifold pipes.

After cleaning or replacement, go to step 20.

NO

Go to step 15.

15	Inspect the boost pressure sensor power supply system



P0101-015

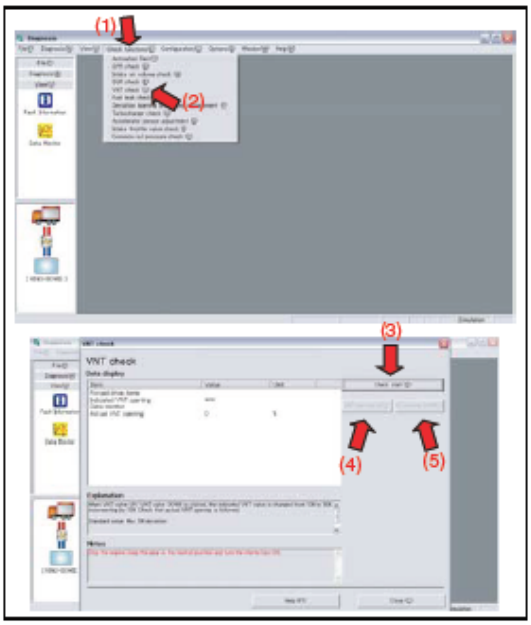
1. Set the starter switch to the "LOCK" position.
2. Disconnect the boost pressure sensor connector.
3. Set the starter switch to the "ON" position.
4. Measure the voltage between the terminals of the boost pressure sensor vehicle-side connector using the electrical tester.

Measurement conditions	Tester connections	Standard values
Starter switch: ON	Boost pressure sensor vehicle-side connector VCC – GND	4.5 – 5.5 V

Do the measurements meet the standard value?

YES	NO
Go to step 16.	Inspect the wire harness and engine ECU sensor power supply output value. After repair/replacement, go to step 20.

16	Inspect the response delay of the VNT controller [Hino-DX]



P0101-016

1. Select [Check functions] from the menu, then inspect the response delay at the Target VNT position and Actual VNT position.

⚠ CAUTION
Perform the inspection while the engine is stopped to avoid damages.

<Inspection procedure>
(1) Select [Check functions].
(2) Select [VNT check].
(3) Click [Check start].
(4) Select [VNT opening UP]:

- Inspect the response delay at each step of the Target VNT position and Actual VNT position from 0 to 90 %.

(5) Select [VNT opening DOWN]:

- Inspect the response delay at each step of the Target VNT position and Actual VNT position from 90 to 0 %.

HINT
The VNT opening position changes of around 10 % per step between 0 – 90 %.

Standard values
From the Target VNT position to the Actual VNT position, the response delay should be within 3 seconds.

Do the measurements meet the standard value?

YES	NO
Go to step 17.	Replace the turbocharger. After replacement, go to step20.

17	Inspect the turbine blade

1. Remove air inlet pipe and exhaust pipe on turbocharger.
2. Check the damage of turbine blade, loosen of shaft, etc.

Was any failure found?

YES	NO
Replace the turbocharger. Go to step 20 after replacement.	Go to step 18.

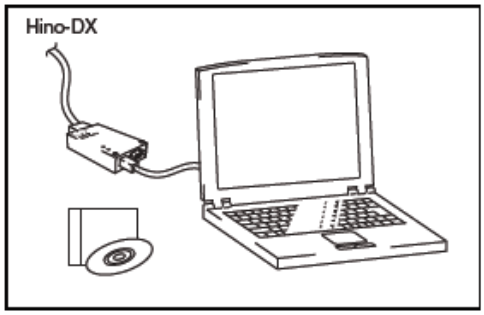
18	Inspect the intercooler

1. Check if there is an obstruction due to clogging inside the intercooler.

Was any failure found?

YES	NO
Remove foreign substances and clean the intercooler. Replace the intercooler if it is damaged. After cleaning/replacement, go to step 20.	Go to step 19. Go to step 20 if the air flow sensor was replaced at step 7.

19	Inspect the air flow sensor [Hino-DX]



P0101-019

Prepare the new air flow sensor, and compare the air flow sensor characteristics between the sensor on the vehicle and new sensor by using Hino-DX.

1. Set the starter switch to the lock position and connect Hino-DX to the vehicle.
2. Set the starter switch to ON position and select [Engine] on Hino-DX menu.
3. Select [Intake air volume check] from the [Check functions] menu on Hino-DX.
4. Perform [intake air volume check] as instructed on the Hino-DX screen.
5. Perform the same check with the new sensor, and compare the characteristics between old and new.

Standard values
Performance error: less than 10%

Do the measurements meet the standard value?

YES	NO
Go to step 20.	**Replace the air flow sensor. After replacement, go to step 20.**

20	Failure reproduction test

On Hino-DX, after writing a soot amount value of 2.1, run a test on a highway to verify the failure during automatic regeneration.
-Hino-DX selection:Configuration/Custmozation/DPR deposition quantity

HINT
When the DPR gauge reading reaches the third bar, automatic regeneration will start.

Did the engine lack power during the automatic regeneration?

YES	NO
Start again from the former step.	**Procedure completed.**

Troubleshooting check list

CHECK ITEM	CHECK POINT
Inspection of air cleaner	Dirt, clogging, air rectification (Net) damage, deformation, use of non-genuine components.
Inspection of the intake system	Intake hose, breather hose, intercooler hose are disconnected, crushed, or cracked
Inspection of the air flow sensor	Contamination of the sensing unit, clogging, (see characterization, inspection procedures step 7 on the previous page in case of dirt / jam)
Short circuit / wire break of air flow sensor harness	Contact failure of connector, broken pins, open circuit/ short circuit (Verified by shaking the harness)
EGR valve check	Presence of foreign substances, obstruction by the presence of soot
Diesel throttle valve check	The catch of the valve, presence of foreign substances
Boost pressure sensor hose check	Jam, crush, cracks
Power supply system of the boost pressure sensor	Supply voltage check (Verified by shaking the harness)