MITSUBISHI MOTORS

SERVICE BULLETIN

GLOBAL AFTER SALES OFFICE, MITSUBISHI MOTORS CORPORATION

PURPOSE : INFORMATION	ISSUE NO. : MSB-12EXL13-001A	DATE : 2012-5-7
SUBJECT : DIESEL FUEL		<MODEL> (G.EXP/GCC/NZ/THAI/CHINA/ MEXICO/MMAL/EUR/RUSSIA) <M/Y> 07-12
GROUP : FUEL		V80/V90/KA0T/KB0T/KH8W/CY0A/CX0A/CW0W/GA0W

1. Description:

See the attached sheets for the information about the change of mention in the current service manual..

2. Applicable manual

See the attached sheets

3. Details :

See the attached sheets

For overseas market A

Destination	Applicable manual	Pub. No. A	Applicable title (INFO IF)	Content
EUR	2008 PAJERO/MONTERO Workshop Manual	CBKE08E1-CD (English) CBKS08E1-CD (Spanish) CBKF08E1-CD (French) CBKG08E1-CD (German)	Code No. P0299: Turbocharger Under Boost Condition(M133-51-180-07300-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)(M133-52-420-02600-01)	Attached sheet 4
	2009.5 PAJERO/MONTERO Workshop Manual	CBKE09E2-CD (English) CBKF09E2-CD (French) CBKG09E2-CD (German) CBKI09E2-CD (Italian) CBKS09E2-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition <EURO4>(M133-51-180-16900-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)<EURO4> (M133-52-420-10100-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition <EURO3>(M133-51-180-16900-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)<EURO3> (M133-52-420-10100-01)	Attached sheet 6
	2010 PAJERO/MONTERO Workshop Manual	CBKE10E1-CD (English) CBKF10E1-CD (French) CBKG10E1-CD (German) CBKI10E1-CD (Italian) CBKS10E1-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition <EURO4>(M133-51-180-16900-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)<EURO4> (M133-52-420-10100-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition <EURO3>(M133-51-180-16900-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)<EURO3> (M133-52-420-10100-01)	Attached sheet 6

Destination	Applicable manual	Pub. No. A	Applicable title (INFO IF)	Content
EUR	2011 PAJERO/MONTERO Workshop Manual	CBKE11E1-CD (English) CBKF11E1-CD (French) CBKG11E1-CD (German) CBKI11E1-CD (Italian) CBKS11E1-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition <EURO4>(M133-51-180-26600-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)<EURO4> (M133-52-420-19000-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition <EURO3>(M133-51-180-26600-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)<EURO3> (M133-52-420-19000-01)	Attached sheet 6
	2012 PAJERO/MONTERO Workshop Manual	CBKE12E1-CD (English) CBKF12E1-CD (French) CBKG12E1-CD (German) CBKI12E1-CD (Italian) CBKS12E1-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-30700-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-22000-01)	Attached sheet 4

Destination	Applicable manual	Pub. No. A	Applicable title (INFO IF)	Content
EUR/RUSSIA	2009 L200 Workshop Manual	CCRE09E1-CD (English) CCRF09E1-CD (French) CCRG09E1-CD (German) CCRI09E1-CD (Italian) CCRS09E1-CD (Spanish) RUSSIA:N/A	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-13600-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-06000-01)	Attached sheet 4
	2010 L200 Workshop Manual	CCRE10E1-CD (English) CCRF10E1-CD (French) CCRG10E1-CD (German) CCRI10E1-CD (Italian) CCRS10E1-CD (Spanish) RUSSIA:N/A	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-13600-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-06000-01)	Attached sheet 4
	2011 L200 Workshop Manual	CCRE11E1-CD (English) CCRF11E1-CD (French) CCRG11E1-CD (German) CCRI11E1-CD (Italian) CCRS11E1-CD (Spanish) RUSSIA:N/A	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-23300-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-17800-01)	Attached sheet 4
	2012 L200 Workshop Manual	CCRE12E1-CD (English) CCRF12E1-CD (French) CCRG12E1-CD (German) CCRI12E1-CD (Italian)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-31800-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-23100-01)	Attached sheet 4

		CCRS12E1-CD (Spanish) RUSSIA:N/A		

Destination	Applicable manual	Pub. No. A	Applicable title (INFO IF)	Content
G.EXP/GCC/ CHINA	2010 PAJERO/MONTERO Workshop Manual	PWJE0908R (English) PWJS0909R (Spanish) CHINA:DRAFT	Code No. P0299: Turbocharger Under Boost Condition <EURO4>(M133-51-180-18100-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)<EURO4> (M133-52-420-12300-01)	Attached sheet 6
G.EXP/GCC/ MEXICO	2011 L200/L200 SPORT/TRITON/STRADA/STRADA SPORTERO Workshop Manual	PWTE1002R (English) PWTS1003R (Spanish) MEXICO:DRAFT	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-21100-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-15600-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-21100-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-15600-01)	Attached sheet 6
THAI	2011 TRITON Workshop Manual	THAI:DRAFT	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-27700-01) <4D5-EURO4>	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-20800-01) <4D5-EURO4>	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-27700-01) <4D5-EURO3>	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-20800-01) <4D5-EURO3>	Attached sheet 6
THAI	2011 TRITON Workshop Manual	THAI:DRAFT	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-28800-01) <4M4>	Attached sheet 5

Destination	Applicable manual	Pub. No. A	Applicable title (INFO IF)	Content
MMAL	2007 PAJERO/MONTERO Workshop Manual	MR936084	Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-01500-01)	Attached sheet 4
	2008 PAJERO/MONTERO Workshop Manual	MR936455	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-08400-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-01500-01)	Attached sheet 4
	2009 PAJERO/MONTERO Workshop Manual	MR936637	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-12500-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-04800-01)	Attached sheet 4
	2010 PAJERO/MONTERO Workshop Manual	DRAFT	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-12500-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-04800-01)	Attached sheet 4
	2010 TRITON Workshop Manual	DRAFT	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-17000-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)	Attached sheet 4
	2011 TRITON Workshop Manual	DRAFT	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-24400-01)	Attached sheet 3
EUR/EXP/GCC /MMAL/NZ/TH AI/RUSSIA/C HINA/MEXICO	2009 PAJERO SPORT/NATIVA/ MONTERO SPORT/ CHALLENGER Workshop Manual	PWJE0808R-2 (English) PWJS0809R-2 (Spanish) MMAL/NZ/THA I/CHINA/MEX ICO/DRAFT RUSSIA:N/A	Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO4> (M133-51-180-14700-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO4> (M133-52-420-08200-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO3> (M133-51-180-14700-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO3> (M133-52-420-08200-01)	Attached sheet 6

Destination	Applicable manual	Pub. No. A	Applicable title (INFO IF)	Content
EUR/EXP/GCC /MMAL/NZ/ THAI/RUSSIA /CHINA/ MEXICO	2010 PAJERO SPORT/NATIVA/ MONTERO SPORT/ CHALLENGER Workshop Manual	PWJE0910R (English) PWJS0911R (Spanish) MMAL/NZ/THA I/CHINA/MEX ICO/DRAFT RUSSIA:N/A	Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO4> (M133-51-180-19200-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO4> (M133-52-420-13400-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO3> (M133-51-180-19200-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO3> (M133-52-420-13400-01)	Attached sheet 6
	2011 PAJERO SPORT/NATIVA/ MONTERO SPORT/ CHALLENGER Workshop Manual	PWJE1004R (English) PWJS1005R (Spanish) MMAL/NZ/THA I/CHINA/MEX ICO/DRAFT RUSSIA:N/A	Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO4> (M133-51-180-19200-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO4> (M133-52-420-13400-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO3> (M133-51-180-19200-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO3> (M133-52-420-13400-01)	Attached sheet 6

Destination	Applicable manual	Pub. No.	Applicable title (INFO IF)	Content
THAI	2011 PAJERO SPORT/NATIVA/ MONTERO SPORT/ CHALLENGER Workshop Manual Suppliment	DRAFT	Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO4> (M133-51-180-29900-01)	Attached sheet 3
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO4> (M133-52-420-21900-01)	Attached sheet 4
			Code No. P0299: Turbocharger Under Boost Condition <4D5-EURO3> (M133-51-180-29900-01)	Attached sheet 5
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) <4D5-EURO3> (M133-52-420-21900-01)	Attached sheet 6

Destination	Applicable manual	Pub. No. A	Applicable title (INFO IF)	Content
EUR	2011 LANCER/LANCER SPORTBACK Workshop Manual	CGSE11E1-CD (English) CGSF11E1-CD (French) CGSG11E1-CD (German) CGSI11E1-CD (Italian) CGSS11E1-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-22200-01)	Attached sheet 7
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-16700-01)	Attached sheet 8
	2012 LANCER/LANCER SPORTBACK Workshop Manual	CGSE12E1-CD (English) CGSF12E1-CD (French) CGSG12E1-CD (German) CGSI12E1-CD (Italian) CGSS12E1-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-22200-01)	Attached sheet 7
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-16700-01)	Attached sheet 8
	2011 OUTLANDER Workshop Manual	CGXE11E1-CD (English) CGXF11E1-CD (French) CGXG11E1-CD (German) CGXI11E1-CD (Italian) CGXS11E1-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-25500-01)	Attached sheet 7
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-18900-01)	Attached sheet 8
	2012 OUTLANDER Workshop Manual	CGXE12E1-CD (English) CGXF12E1-CD (French) CGXG12E1-CD (German) CGXI12E1-CD (Italian) CGXS12E1-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-25500-01)	Attached sheet 7
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-18900-01)	Attached sheet 8

Destination	Applicable manual	Pub. No. △A	Applicable title (INFO IF)	Content
EUR	2011 ASX Workshop Manual	CGWE11E2-CD (English) CGWF11E2-CD (French) CGWG11E2-CD (German) CGWI11E2-CD (Italian) CGWS11E2-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-20000-01)	Attached sheet 9
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-14500-01)	Attached sheet 10
	2012 ASX Workshop Manual	CGWE12E2-CD (English) CGWF12E2-CD (French) CGWG12E2-CD (German) CGWI12E2-CD (Italian) CGWS12E2-CD (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-20000-01)	Attached sheet 9
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-14500-01)	Attached sheet 10
G.EXP	2011 ASX/OUTLANDER SPORT Workshop Manual	PWPE1006R (English) PWPS1007R (Spanish)	Code No. P0299: Turbocharger Under Boost Condition (M133-51-180-20000-01)	Attached sheet 9
			Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure) (M133-52-420-14500-01)	Attached sheet 10

Attached sheet 3-1/2

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION

- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

PROBABLE CAUSES

- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.

- Check whether the intercooler air hose is disconnected or damaged.

Q: Is the check result normal?

YES : Go to Step 2 .
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?

YES : Go to Step 3 .
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check <4M4>).

Q: Is the check result normal?

YES : Go to Step 4 .
NO : Repair.

STEP 4. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?

YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns). After registering the injector identification code, the vehicle equipped with the DPF carries out the forcible DPF regeneration. (Refer to GROUP 17 – Diesel Particulate Filter (DPF) System – Forcible DPF Regeneration).
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 3-2/2 <Correct>

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION

- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

PROBABLE CAUSES

- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.

- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.

- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. Check the EGR cooler for clogging.

NOTE: To check the EGR cooler for clogging, perform a visual inspection or use an air blower.

- Check the EGR cooler for clogging.

Q: Is the check result normal?
YES : Go to Step 6
NO : Replace the EGR cooler.

STEP 6. Check EGR pipes A and B for clogging.

- Check EGR pipes A and B for clogging.

Q: Is the check result normal?
YES : Go to Step 7
NO : Replace the EGR pipe A and B.

STEP 7. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns).
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

Attached sheet 4-1/2

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check the turbocharger supercharging pressure.

- Check the turbocharger supercharging pressure (refer to GROUP 15 – On-vehicle Service – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?

YES : Go to Step 2 .

NO : Repair the variable geometry turbocharger control system.

STEP 2. M.U.T.-III diagnosis code.

- After clearing the diagnosis code through M.U.T.-III, start the engine and confirm whether the diagnosis code is output.

Q: Is the diagnosis code set?

YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns). After registering the injector identification code, carry out the forcible DPF regeneration. (Refer to GROUP 17 – Diesel Particulate Filter (DPF) System – Forcible DPF Regeneration).

NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 4-2/2 <Correct>

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check on intercooler air hose.

- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.

- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. Check the EGR cooler for clogging.

NOTE: To check the EGR cooler for clogging, perform a visual inspection or use an air blower.

- Check the EGR cooler for clogging.

Q: Is the check result normal?
YES : Go to Step 6
NO : Replace the EGR cooler.

STEP 6. Check EGR pipes A and B for clogging.

- Check EGR pipes A and B for clogging.

Q: Is the check result normal?
YES : Go to Step 7
NO : Replace the EGR pipe A and B.

STEP 7. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns).
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

Attached sheet 5-1/2

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION

- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

PROBABLE CAUSES

- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.

- Check whether the intercooler air hose is disconnected or damaged.

Q: Is the check result normal?

YES : Go to Step 2 .
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?

YES : Go to Step 3 .
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check <4M4>).

Q: Is the check result normal?

YES : Go to Step 4 .
NO : Repair.

STEP 4. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?

YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns). After registering the injector identification code, the vehicle equipped with the DPF carries out the forcible DPF regeneration. (Refer to GROUP 17 – Diesel Particulate Filter (DPF) System – Forcible DPF Regeneration).
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 5-2/2 <Correct>

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION

- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

PROBABLE CAUSES

- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.

- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.

- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns).
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

Attached sheet 6-1/2

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check the turbocharger supercharging pressure.

- Check the turbocharger supercharging pressure (refer to GROUP 15 – On-vehicle Service – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?

YES : Go to Step 2 .

NO : Repair the variable geometry turbocharger control system.

STEP 2. M.U.T.-III diagnosis code.

- After clearing the diagnosis code through M.U.T.-III, start the engine and confirm whether the diagnosis code is output.

Q: Is the diagnosis code set?

YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns). After registering the injector identification code, carry out the forcible DPF regeneration. (Refer to GROUP 17 – Diesel Particulate Filter (DPF) System – Forcible DPF Regeneration).

NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 6-2/2 <Correct>

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check on intercooler air hose.

- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbo-charger Supercharging Pressure Check).

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.

- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU. When the engine-ECU is replaced, write the chassis number (Refer to GROUP 00 – Precautions Before Service – How to Perform Chassis Number Writing). After replacing the engine-ECU, register the injector identification code and learn fuel injection (Refer to GROUP 00 – Precautions Before Service – What The Common Rail Engine Learns).
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

Attached sheet 7-1/2

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION

- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

FAIL-SAFE AND BACKUP FUNCTION

- The fuel injection amount is restricted. (Output restriction)
- The DPF regeneration is prohibited.
- The EGR control is stopped (fully closed).
- The open angle of the accelerator pedal is restricted.
- The throttle valve is opened. (Electrical discontinuity)
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES

- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.

- Check whether the intercooler air hose is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 2 .
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3 .
NO : Repair.

STEP 3. Check turbocharger supercharging pressure.

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check <4N1>).

Q: Is the check result normal?
YES : Go to Step 4 .
NO : Repair.

STEP 4. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 7-2/2 <Correct>

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION
- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition
- Engine is running

Judgment Criterion
- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

FAIL-SAFE AND BACKUP FUNCTION
- The fuel injection amount is restricted. (Output restriction)
- The DPF regeneration is prohibited.
- The EGR control is stopped (fully closed).
- The open angle of the accelerator pedal is restricted.
- The throttle valve is opened. (Electrical discontinuity)
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES
- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.
- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2 .
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.
- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3 .
NO : Repair.

STEP 3. Check turbocharger supercharging pressure.
- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check <4N1>).

Q: Is the check result normal?
YES : Go to Step 4 .
NO : Repair.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.
- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. Check the EGR cooler for clogging.

NOTE: To check the EGR cooler for clogging, perform a visual inspection or use an air blower.
- Check the EGR cooler for clogging.

Q: Is the check result normal?
YES : Go to Step 6
NO : Replace the EGR cooler.

STEP 6. Check EGR pipes A and B for clogging.
- Check EGR pipes A and B for clogging.

Q: Is the check result normal?
YES : Go to Step 7
NO : Replace the EGR pipe A and B.

STEP 7. M.U.T.-III diagnosis code
- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

Attached sheet 8-1/2

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

FAIL-SAFE AND BACKUP FUNCTION

- The throttle valve is opened (Electrical discontinuity).
- The EGR control is stopped (fully closed).
- The DPF regeneration is prohibited.
- The fuel injection amount is restricted (Output restriction).
- The open angle of the accelerator pedal is restricted.
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check the turbocharger supercharging pressure.

- Check the turbocharger supercharging pressure (refer to GROUP 15 – On-vehicle Service – Turbocharger Supercharging Pressure Check <4N1>).

Q: Is the check result normal?

YES : Go to Step 2 .

NO : Repair the variable geometry turbocharger control system.

STEP 2. M.U.T.-III diagnosis code.

- After clearing the diagnosis code through M.U.T.-III, start the engine and confirm whether the diagnosis code is output.

Q: Is the diagnosis code set?

YES : Replace the engine-ECU.

NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 8-2/2 <Correct>

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

FAIL-SAFE AND BACKUP FUNCTION

- The throttle valve is opened (Electrical discontinuity).
- The EGR control is stopped (fully closed).
- The DPF regeneration is prohibited.
- The fuel injection amount is restricted (Output restriction).
- The open angle of the accelerator pedal is restricted.
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check on intercooler air hose.

- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check <4N1>).

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair the variable geometry turbocharger control system.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.

- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. Check the EGR cooler for clogging.

NOTE: To check the EGR cooler for clogging, perform a visual inspection or use an air blower.

- Check the EGR cooler for clogging.

Q: Is the check result normal?
YES : Go to Step 6
NO : Replace the EGR cooler.

STEP 6. Check EGR pipes A and B for clogging.

- Check EGR pipes A and B for clogging.

Q: Is the check result normal?
YES : Go to Step 7
NO : Replace the EGR pipe A and B.

STEP 7. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

Attached sheet 9-1/2

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION

- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

FAIL-SAFE AND BACKUP FUNCTION

- The fuel injection amount is restricted. (Output restriction)
- The DPF regeneration is prohibited.
- The EGR control is stopped (fully closed).
- The open angle of the accelerator pedal is restricted.
- The throttle valve is opened. (Electrical discontinuity)
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES

- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.

- Check whether the intercooler air hose is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 2 .
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3 .
NO : Repair.

STEP 3. Check turbocharger supercharging pressure.

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair.

STEP 4. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 9-2/2 <Correct>

Code No. P0299: Turbocharger Under Boost Condition

FUNCTION
- The engine-ECU checks whether the boost pressure is not lower than the specified value.

TROUBLE JUDGMENT

Check Condition
- Engine is running

Judgment Criterion
- The opening degree of accelerator pedal is 23% for 3 seconds and the boost pressure is not lower than the specified value.

FAIL-SAFE AND BACKUP FUNCTION
- The fuel injection amount is restricted. (Output restriction)
- The DPF regeneration is prohibited.
- The EGR control is stopped (fully closed).
- The open angle of the accelerator pedal is restricted.
- The throttle valve is opened. (Electrical discontinuity)
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES
- Intercooler air hose disconnected or damaged
- Vacuum hose of manifold absolute pressure sensor disconnected or damaged
- Failed manifold absolute pressure sensor
- Failed engine-ECU

DIAGNOSIS

STEP 1. Check on intercooler air hose.
- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2 .
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.
- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3 .
NO : Repair.

STEP 3. Check turbocharger supercharging pressure.
- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?
YES : Go to Step 4 .
NO : Repair.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.
- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. Check the EGR cooler for clogging.

NOTE: To check the EGR cooler for clogging, perform a visual inspection or use an air blower.
- Check the EGR cooler for clogging.

Q: Is the check result normal?
YES : Go to Step 6
NO : Replace the EGR cooler.

STEP 6. Check EGR pipes A and B for clogging.
- Check EGR pipes A and B for clogging.

Q: Is the check result normal?
YES : Go to Step 7
NO : Replace the EGR pipe A and B.

STEP 7. M.U.T.-III diagnosis code
- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

Attached sheet 10-1/2

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

FAIL-SAFE AND BACKUP FUNCTION

- The throttle valve is opened (Electrical discontinuity).
- The EGR control is stopped (fully closed).
- The DPF regeneration is prohibited.
- The fuel injection amount is restricted (Output restriction).
- The open angle of the accelerator pedal is restricted.
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check the turbocharger supercharging pressure.

- Check the turbocharger supercharging pressure (refer to GROUP 15 – On-vehicle Service – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the variable geometry turbocharger control system.

STEP 2. M.U.T.-III diagnosis code.

- After clearing the diagnosis code through M.U.T.-III, start the engine and confirm whether the diagnosis code is output.

Q: Is the diagnosis code set?

YES : Replace the engine-ECU.

NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

<Incorrect>

Replace with attached sheet 10-2/2 <Correct>

Code No. P1299: Variable Geometry Turbocharger Control System Malfunction (low pressure)

FUNCTION

- The engine-ECU controls the duty ratio of the variable geometry control solenoid valve so that the actual boost pressure can become the target boost pressure.

TROUBLE JUDGMENT

Check Condition

- Engine is running

Judgment Criterion

- Actual boost pressure is lower than target boost pressure by less than 6.7 kPa

FAIL-SAFE AND BACKUP FUNCTION

- The throttle valve is opened (Electrical discontinuity).
- The EGR control is stopped (fully closed).
- The DPF regeneration is prohibited.
- The fuel injection amount is restricted (Output restriction).
- The open angle of the accelerator pedal is restricted.
- The turbocharger control is prohibited.
- The AS&G control is prohibited.

PROBABLE CAUSES

- Failed variable geometry turbocharger control system
- Failed engine-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Check on intercooler air hose.

- Check the intercooler air hose is disconnected or damaged between turbocharger and inter cooler.

Q: Is the check result normal?
YES : Go to Step 2
NO : Repair.

STEP 2. Check on vacuum hose of manifold absolute pressure sensor.

- Check whether the vacuum hose of manifold absolute pressure sensor is disconnected or damaged.

Q: Is the check result normal?
YES : Go to Step 3
NO : Repair.

STEP 3. Check turbocharger supercharging pressure..

- Check turbocharger supercharging pressure (Refer to GROUP 15 – On-vehicle – Turbocharger Supercharging Pressure Check).

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair.

STEP 4. Check the intercooler for clogging.

NOTE: To check the intercooler for clogging, perform a visual inspection or use an air blower.

- Check the intercooler for clogging.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the intercooler.

STEP 5. Check the EGR cooler for clogging.

NOTE: To check the EGR cooler for clogging, perform a visual inspection or use an air blower.

- Check the EGR cooler for clogging.

Q: Is the check result normal?
YES : Go to Step 6
NO : Replace the EGR cooler.

STEP 6. Check EGR pipes A and B for clogging.

- Check EGR pipes A and B for clogging.

Q: Is the check result normal?
YES : Go to Step 7
NO : Replace the EGR pipe A and B.

STEP 7. M.U.T.-III diagnosis code

- Reconfirmation of diagnosis code.

Q: Is the check result normal?
YES : Replace the engine-ECU.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).