MITSUBISHI MOTORS

SERVICE BULLETIN

GLOBAL AFTER SALES OFFICE, MITSUBISHI MOTORS CORPORATION

PURPOSE : INFORMATION	ISSUE NO. : MSB-10E13-005	DATE : 2010-11-20
SUBJECT : CODE P0106 DIAGNOSTIC PROCEDURE		<MODEL> <M/Y>
GROUP : FUEL		(EUR/RUSSIA) See following 2. Applicable Manuals table.

1. Description:

The diagnostic procedure of code P0106 for common rail diesel engines (4D56, 4M41 and 4N1) is changed in the applicable Workshop Manuals. This Service Bulletin contains the modified descriptions.

Overview of change
- EGR cooler clogging, EGR pipes (A, B) clogging, and EGR cooler by-pass valve clogging are added to the list of Probable Causes.

2. Applicable Manuals:

See Attached sheets 1 (1/3) to 1 (3/3).

There may be some attached sheets not included in this Service Bulletin because they are not applicable to your market. Their sheet numbers are not listed in the above table.

3. Details:

See Attached sheet 3.

Attached sheet 1 (1/3)

<EUR>

Manual/Model	<M/Y>	Pub. No.	Engine	Title (Info-ID)	Attached Sheet
2007 PAJERO/MONTERO Workshop Manual CD-ROM (V80/90)	07	CBKE07E2-CD (English) CBKS07E2-CD (Spanish) CBKF07E2-CD (French) CBKG07E2-CD (German)	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-24800-01)	Attached sheet 3
2008 PAJERO/MONTERO Workshop Manual CD-ROM (V80/90)	08	CBKE08E1-CD (English) CBKS08E1-CD (Spanish) CBKF08E1-CD (French) CBKG08E1-CD (German)	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-24800-01)	
2009.5 PAJERO/MONTERO Workshop Manual CD-ROM (V80/90)	09.5	CBKE09E2-CD (English) CBKS09E2-CD (Spanish) CBKF09E2-CD (French) CBKG09E2-CD (German)	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-32300-01)	
2010 PAJERO/MONTERO Workshop Manual CD-ROM (V80/90)	10	CBKE10E1-CD (English) CBKS10E1-CD (Spanish) CBKF10E1-CD (French) CBKG10E1-CD (German)	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-32300-01)	
2011 PAJERO/MONTERO Workshop Manual CD-ROM (V80/90)	11	CBKE11E1-CD (English) CBKS11E1-CD (Spanish) CBKF11E1-CD (French) CBKG11E1-CD (German)	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-32300-01)	
2007 L200 Workshop Manual CD-ROM (KA0T/KB0T)	07	CCRE07E2-CD (English) CCRS07E2-CD (Spanish) CCRF07E2-CD (French) CCRG07E2-CD (German)	4D56	Gr.13A: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-09900-01)	
2009 L200 Workshop Manual CD-ROM (KA0T/KB0T)	09	CCRE09E1-CD (English) CCRS09E1-CD (Spanish) CCRF09E1-CD (French) CCRG09E1-CD (German) CCRI09E1-CD (Italian)	4D56	Gr.13A: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-09900-01)	

Attached sheet 1 (2/3)

Manual/Model	<M/Y>	Pub. No.	Engine	Title (Info-ID)	Attached Sheet
2010 L200 Workshop Manual CD-ROM (KA0T/KB0T)	10	CCRE10E1-CD (English) CCRS10E1-CD (Spanish) CCRF10E1-CD (French) CCRG10E1-CD (German) CCRI10E1-CD (Italian)	4D56	Gr.13A: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-53800-01)	Attached sheet 3
2011 L200 Workshop Manual CD-ROM (KA0T/KB0T)	11	CCRE11E1-CD (English) CCRS11E1-CD (Spanish) CCRF11E1-CD (French) CCRG11E1-CD (German) CCRI11E1-CD (Italian)	4D56	Gr.13A: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-60200-01)	
2011 LANCER/LANCER SPORTBACK Workshop Manual CD-ROM (CY0A/CX0A)	11	CG1E11E1-CD (English) CG1S11E1-CD (Spanish) CG1F11E1-CD (French) CG1G11E1-CD (German) CG1I11E1-CD (Italian)	4N13	Gr.13C: Code No P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-59400-01)	
2011 OUTLANDER Workshop Manual CD-ROM (CW0W)	11	CGXE11E1-CD (English) CGXS11E1-CD (Spanish) CGXF11E1-CD (French) CGXG11E1-CD (German) CGXI11E1-CD (Italian)	4N14	Gr.13F: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-62400-01)	
2011 ASX Workshop Manual CD-ROM (GA0W)	11	CGWE11E2-CD (English) CGWS11E2-CD (Spanish) CGWF11E2-CD (French) CGWG11E2-CD (German) CGWI11E2-CD (Italian)	4N13	Gr.13B: Code No.P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-54900-01)	

<RUSSIA>

Underneath Manual/ Model	<M/Y>	Underneath Pub. No.	Engine	Title (Info-ID)	Attached Sheet
2008 PAJERO Workshop Manual CD-ROM (V80/90)	08	N/A	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-24800-01)	Attached sheet 3
2009.5 PAJERO Workshop Manual CD-ROM (V80/90)	09.5	N/A	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-32300-01)	
2010 PAJERO Workshop Manual CD-ROM (V80/90)	10	N/A	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-32300-01)	
2011 PAJERO Workshop Manual CD-ROM (V80/90)	11	N/A	4M41	Gr.13B: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-32300-01)	
2009 PAJERO SPORT Workshop Manual CD-ROM (KH0W)	09	N/A	4M41	Gr.13A: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-30100-01)	
			4D56	Gr.13C: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-41900-01)	
2010 PAJERO SPORT Workshop Manual CD-ROM (KH0W)	10	N/A	4M41	Gr.13A: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-50500-01)	
			4D56	Gr.13C: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-51600-01)	
2011 PAJERO SPORT Workshop Manual CD-ROM (KH0W)	11	N/A	4M41	Gr.13A: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-57200-01)	
			4D56	Gr.13C: Code No. P0106: Manifold Absolute Pressure Sensor Range/Performance Problem (M133-50-020-58300-01)	

PROBABLE CAUSES

- Vacuum hose clogged between manifold absolute pressure sensor and inlet manifold
- Failed manifold absolute pressure sensor
- Manifold absolute pressure sensor circuit harness damage or loose connector contact.
- Failed engine-ECU

<Added>

- EGR cooler clogged.
- EGR pipe (A, B) clogged.
- EGR cooler by-pass valve clogged <EURO5>.

DIAGNOSTIC PROCEDURE

STEP 1. M.U.T.-III data list

- Refer to Data List Reference Table.
  a. Item 6: Manifold absolute pressure sensor

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions – How to Cope with Intermittent Malfunctions).

<Changed>

Go to Step 11.

NO : Go to Step 2.

STEP 2. Check for vacuum hose for clogs between manifold absolute pressure sensor and inlet manifold.

- Check whether the vacuum hose is clogged between the manifold absolute pressure sensor and the inlet manifold, which is caused by dirt and the hose folded. Also check the inside inlet manifold and the nipple that can be possibly contaminated with dirt.

Q: Is the check result normal?

YES : Go to Step 3 .
NO : Repair

STEP 3. Connector check: manifold absolute pressure sensor connector

Q: Is the check result normal?

YES : Go to Step 4.
NO : Repair or replace the connector.

STEP 4. Perform voltage measurement at manifold absolute pressure sensor connector.

- Use special tool test harness (MB991709) to connect connector, and measure at pick-up harness.
- Ignition switch: ON
- Voltage between terminal No. 1 and earth.

OK: 4.9 – 5.1 V

Q: Is the check result normal?

YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Connector check: engine-ECU connector

Q: Is the check result normal?

YES : Check and repair harness between manifold absolute pressure sensor connector and engine-ECU connector.
- Check power supply line for damage.

NO : Repair or replace the connector.

STEP 6. Perform voltage measurement at manifold absolute pressure sensor connector.
- Use special tool harness (MB991709) to connect connector, and measure at pick-up harness.
- Ignition switch: ON
- Voltage between terminal No. 3 and earth.

OK: 0.5 V or less

Q: Is the check result normal?

YES : Go to Step 8.
NO : Go to Step 7.

STEP 7. Connector check: engine-ECU connector

Q: Is the check result normal?

YES : Check and repair harness between manifold absolute pressure sensor connector and engine-ECU connector.
- Check earthing line for damage.

NO : Repair or replace the connector.

STEP 8. Perform voltage measurement at manifold absolute pressure sensor connector.
- Use special tool harness (MB991709) to connect connector, and measure at pick-up harness.
- Ignition switch: ON
- Voltage between terminal No. 2 and earth.

OK: The voltage should be 0.7 – 1.2 V. When the accelerator pedal is quickly depressed from the idling state, the voltage temporarily rises.

Q: Is the check result normal?

YES : Go to Step 9.
NO : Replace the manifold absolute pressure sensor.

STEP 9. Perform voltage measurement at engine-ECU connector.
- Measure engine-ECU terminal voltage.
- Ignition switch: ON
- Voltage between terminal No. 37 and earth. <154-pin type>
- Voltage between terminal No. 52 and earth. <103-pin type>

OK: The voltage should be 0.7 – 1.2 V. When the accelerator pedal is quickly depressed from the idling

state, the voltage temporarily rises.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Check and repair harness between manifold absolute pressure sensor connector and engine-ECU connector.

- Check output line for damage.

STEP 10. Connector check: engine-ECU connector.

Q: Is the check result normal?

YES : Go to Step 11.

NO : Repair or replace the connector.

~~STEP 11~~. M.U.T.-III data list

- Refer to Data List Reference Table.
  a. Item 6: Manifold absolute pressure sensor

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).

NO : Replace the engine-ECU.

<Changed>

STEP 14

<Added>

STEP 11. Check on clogged EGR cooler.
NOTE: When checking the clogged EGR cooler, make a visual check or use an air blower.
・Check whether the EGR cooler is being clogged or not.
Q: Is the check result normal?
YES: Go to Step 12.
NO: Replace the EGR cooler.

STEP 12. Check on clogged EGR pipe (A, B).
・Check whether the EGR pipe (A, B) is being clogged or not.
Q: Is the check result normal?
YES: Go to Step 13 <EURO5>.
YES: Go to Step 14 <Except EURO5>.
NO: Replace the EGR pipe (A, B).

STEP 13. Check on clogged EGR cooler by-pass valve.
・Check whether the EGR cooler by-pass valve is being clogged or not.
YES: Go to Step 14.
NO: Replace the EGR cooler by-pass valve.