

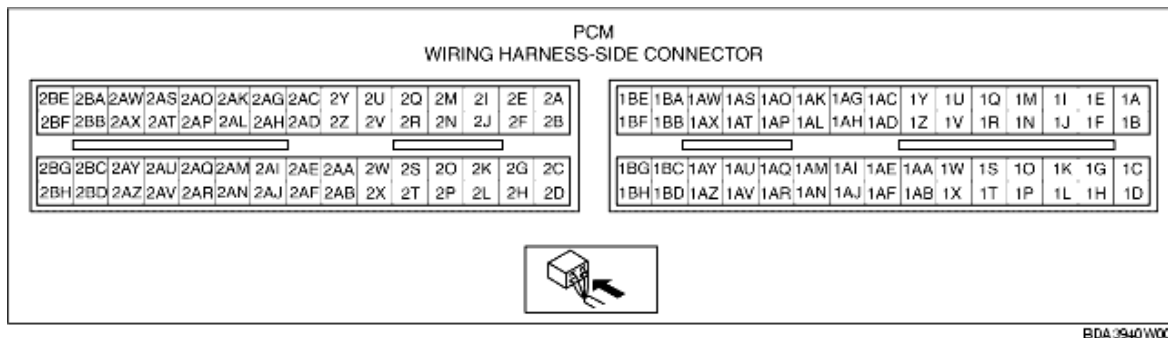
PCM INSPECTION [LF]

B3E014018880W14

Without Using the SST

Note

- The PCM terminal voltage can vary with the conditions when measuring and changes due to aged deterioration on the vehicle, causing false diagnosis. Therefore determine comprehensively where the malfunction occurs among the input systems, output systems, and the PCM.



Terminal	Signal	Connected to	Test condition		Voltage (V)	Inspection item
1A*1	VSS power supply	VSS	Ignition switch is turned to the ON position.		B+	• Related wiring harness
1B*1	Shift solenoid A	Shift solenoid A	(See Inspection Using An Oscilloscope (Reference) .)			• Shift solenoid A • Related wiring harness
1C*1	Shift solenoid B	Shift solenoid B	(See Inspection Using An Oscilloscope (Reference) .)			• Shift solenoid B • Related wiring harness
1D*1	Shift solenoid C	Shift solenoid C	(See Inspection Using An Oscilloscope (Reference) .)			• Shift solenoid C • Related wiring harness
1E*1	Shift solenoid D	Shift solenoid D	P or N position		B+	• Shift solenoid D • Related wiring harness
			Except above		1.0 or less	
1F*1	Shift solenoid E	Shift solenoid E	During TCC operation		B+	• Shift solenoid E • Related wiring harness
			Except above		1.0 or less	
1G*1	Pressure control solenoid (+)	Pressure control solenoid	(See Inspection Using An Oscilloscope (Reference) .)			• Pressure control solenoid • Related wiring harness
1H*1	Pressure control solenoid (-)	Pressure control solenoid	(See Inspection Using An Oscilloscope (Reference) .)			• Pressure control solenoid • Related wiring harness
1I	-	-	-		-	-
1J*1	Vehicle speed	VSS	(See Inspection Using An Oscilloscope (Reference) .)			• VSS • Related wiring harness
1K*1	Manual up	Up switch	Ignition switch is turned to the ON position.	Detects up-shift operation of selector lever in M range	1.0 or less	• Selector lever • Related wiring harness
				Others	B+	

1L	-	-	-		-	-
1M*1	Input/turbine speed sensor (+)	Input/turbine speed sensor	(See Inspection Using An Oscilloscope (Reference).)			<ul style="list-style-type: none">Input/turbine speed sensorRelated wiring harness
1N	-	-	-		-	-
1O	*2Clutch operation	CPP switch	Clutch pedal depressed		Below 1.0	<ul style="list-style-type: none">CPPRelated harness
			Clutch pedal released		B+	
		*1M range switch	M range switch	Ignition switch is turned to the ON position.	M range Except above	1.0 or less B+
1P*1	Manual down	Down switch	Ignition switch is turned to the ON position.	Detects down-shift operation of selector lever in M range	1.0 or less	<ul style="list-style-type: none">Selector leverRelated wiring harness
				Others	B+	
1Q*1	Input/turbine speed sensor (-)	Input/turbine speed sensor	(See Inspection Using An Oscilloscope (Reference).)			<ul style="list-style-type: none">Input/turbine speed sensorRelated wiring harness
1R	Refrigerant pressure switch (middle)	Refrigerant pressure switch (middle)	A/C ON	Refrigerant pressure is above 1.52 MPa {15.5 kgf/cm ² , 220 psi}	Below 1.0	<ul style="list-style-type: none">Refrigerant pressure switchRelated harness
				Refrigerant pressure is below 1.23 MPa {12.5 kgf/cm ² , 178 psi}	B+	
1S	*2Neutral position	Neutral switch	Shift lever is at neutral position		Below 1.0	<ul style="list-style-type: none">Neutral switchRelated harness
			Shift lever is not at neutral position		B+	
	*1Selector lever position	TR switch	Ignition switch is turned to the ON position.	P position	Approx. 4.6	<ul style="list-style-type: none">TR switchRelated wiring harness
				R position	Approx. 3.9	
				N position	Approx. 3.2	
				D range	Approx. 2.5	
			M range	Approx. 2.5		
1T	-	-	-		-	-
1U*1	ATF temperature	TFT sensor	Ignition switch is turned to the ON position.	TFT is 20 °C {68 °F}	Approx. 3.3	<ul style="list-style-type: none">TFT sensorRelated wiring harness
				TFT is 40 °C {104 °F}	Approx. 2.4	
				TFT is 60 °C {140 °F}	Approx. 1.5	
1V	-	-	-		-	-
1W	Cooling fan control	Fan control module	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			<ul style="list-style-type: none">Fan control module.Related harness
1X	-	-	-		-	-
1Y	-	-	-		-	-
1Z	-	-	-		-	-
1AA	Sensor GND	MAF/IAT sensor, BARO sensor, TFT sensor*1, TR switch*1	Under any condition		Below 1.0	<ul style="list-style-type: none">Related harness
1AB	Starter relay control	Starter relay	Under any condition		Below 1.0	<ul style="list-style-type: none">Starter relayRelated harness
1AC	MAF	MAF sensor	Ignition switch ON		Approx. 0.7	<ul style="list-style-type: none">MAF sensorRelated harness
			Idle (after warm up)		Approx. 1.2	
1AD	-	-	-		-	-
1AE	Constant voltage (Vref)	MAP sensor	Ignition switch ON		Approx. 5.0	<ul style="list-style-type: none">Related harness
1AF	-	-	-		-	-

1AG	Atmospheric pressure	BARO sensor	Ignition switch ON (at sea level)		Approx. 4.0	• BARO sensor • Related harness
1AH	IAT	MAF/IAT sensor	Ignition switch ON	IAT 0 °C {32 °F}	Approx. 3.43	• IAT sensor • Related harness
				IAT 20 °C {68 °F}	Approx. 2.38	
				IAT 40 °C {104 °F}	Approx. 1.49	
				IAT 60 °C {140 °F}	Approx. 0.89	
				IAT 80 °C {176 °F}	Approx. 0.53	
				IAT 100 °C {212 °F}	Approx. 0.33	
1AI	CAN (L)	Instrument cluster, ABS HU/CM, DSC HU/CM, Electrical P/S pump	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible.			• Related harness
1AJ	-	-	-	-	-	-
1AK	-	-	-	-	-	-
1AL	-	-	-	-	-	-
1AM	CAN (H)	Instrument cluster, ABS HU/CM, DSC HU/CM, Electrical P/S pump	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible.			• Related harness
1AN	A/C	A/C relay	Idle	A/C operating	Below 1.0	• A/C relay • Related harness
				A/C not operating	B+	
1AO	-	-	-	-	-	-
1AP	A/C on signal	Refrigerant pressure switch (high and low)	Idle	A/C switch and fan switch on	Below 1.0	• Refrigerant pressure switch • Related harness
				A/C switch off	B+	
1AQ	-	-	-	-	-	-
1AR	Fuel pump control	Fuel pump relay	Ignition switch ON		B+	• Fuel pump relay • Related harness
			Cranking		Below 1.0	
			Idle		Below 1.0	
1AS	-	-	-	-	-	-
1AT	Main relay control	Main relay	Ignition switch OFF		B+	• Main relay • Related harness
			Ignition switch ON		Below 1.0	
1AU	Brake	Brake switch	Brake pedal depressed		B+	• Brake switch • Related harness
			Brake pedal released		Below 1.0	
1AV*1	Internal GND	Input/turbine speed sensor shield wire	Under any condition		1.0 or less	• Related wiring harness
1AW	-	-	-	-	-	-
1AX	-	-	-	-	-	-
1AY	-	-	-	-	-	-
1AZ	GND	GND	Under any condition		Below 1.0	• Related harness
1BA	Back-up power supply	Battery (positive terminal)	Under any condition		B+	• Battery • Related harness
1BB	-	-	-	-	-	-
1BC	GND	GND	Under any condition		Below 1.0	• Related harness
1BD	GND	GND	Under any condition		Below 1.0	• Related harness
1BE	B+	Main relay	Ignition switch OFF		Below 1.0	• Battery • Related harness
			Ignition switch ON		B+	

1BF	-	-	-		-	-
1BG	GND	GND	Under any condition		Below 1.0	• Related harness
1BH	GND	GND	Under any condition		Below 1.0	• Related harness
2A	-	-	-		-	-
2B	-	-	-		-	-
2C	Rear HO2S heater control	HO2S (Rear) heater	Ignition switch ON	Engine speed below 3,900 rpm	B+	• HO2S (Front) heater. • Related harness
				Engine speed above 3,900 rpm	Below 1.0	
2D	-	-	-		-	-
2E	IAC (+)	IAC valve	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			• IAC valve • Related harness
2F	IAC (-)	IAC valve	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			• IAC valve • Related harness
2G	Front HO2S heater control	HO2S (Front) heater	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			• HO2S (Front) heater. • Related harness
2H	-	-	-		-	-
2I	Throttle position	TP sensor	Ignition switch ON	CTP	0.65-1.15	• TP sensor • Related harness
				WOT	4.3-4.8	
2J	-	-	-		-	-
2K	-	-	-		-	-
2L	-	-	-		-	-
2M	-	-	-		-	-
2N	-	-	-		-	-
2O	-	-	-		-	-
2P	GND	GND	Under any condition		Below 1.0	• Related harness
2Q	Knocking (+)	KS	Ignition switch ON (Use digital type voltmeter, because measurement voltage will be detected less than true voltage when using analog type voltmeter)		Approx. 4.3	• KS • Related harness
2R	Knocking (-)	KS	Ignition switch ON (Use digital type voltmeter, because measurement voltage will be detected less than true voltage when using analog type voltmeter)		Below 1.0	• KS • Related harness
2S	-	-	-		-	-
2T	-	-	-		-	-
2U	CMP (+)	CMP sensor	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			• CMP sensor • Related harness
2V	CMP (-)	CMP sensor	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			• CMP sensor • Related harness
2W	Constant voltage (Vref)	BARO sensor, TP sensor	Ignition switch ON		Approx. 5.0	• Related harness
2X	-	-	-		-	-
2Y	CKP (+)	CKP sensor	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			• CKP sensor • Related harness
2Z	CKP (-)	CKP sensor	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)			• CKP sensor • Related harness
2AA	Sensor GND	HO2S (Front, Rear), ECT sensor,	Under any condition		Below 1.0	• Related harness

		TP sensor, MAP sensor			
2AB	-	-	-	-	-
2AC	-	-	-	-	-
2AD	-	-	-	-	-
2AE	-	-	-	-	-
2AF	-	-	-	-	-
2AG	Front HO2S	HO2S (front)	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• HO2S (front) • Related harness
2AH	Rear HO2S	HO2S (rear)	Ignition switch ON	Approx. 0	• HO2S (rear) • Related harness
			Idle (after warm up)	Alternates between 0 and 1.0	
2AI	Variable tumble control	Variable tumble solenoid valve	ECT above 63 °C {145 °F} while idling.	B+	• Variable tumble solenoid valve • Related harness
			ECT below 63 °C {145 °F} and engine speed below 3,750 rpm	Below 1.0	
2AJ	Variable intake-air control	Variable intake-air solenoid valve	Ignition switch ON	Below 1.0	• Variable intake-air solenoid valve • Related harness
			Engine speed: below 4,750 rpm	Below 1.0	
			Engine speed: above 4,750 rpm	B+	
2AK	ECT	ECT sensor	Ignition switch ON	IAT 20 °C {68 °F}	• ECT sensor • Related harness
				IAT 40 °C {104 °F}	
				IAT 60 °C {140 °F}	
				IAT 80 °C {176 °F}	
				IAT 100 °C {212 °F}	
2AL	Manifold absolute pressure	MAP sensor	Ignition switch ON (at sea level)	Approx. 4.1	• MAP sensor • Related harness
			Idle	Approx. 1.2	
2AM	Generator output voltage	Generator (terminal P)	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Generator • Related harness
2AN	Purge control	Purge solenoid valve	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Purge solenoid valve • Related harness
2AO	-	-	-	-	-
2AP	-	-	-	-	-
2AQ	Generator field coil control	Generator (terminal D)	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Following PIDs: IAT, ECT, RPM, VPWR, ALTT V. • Generator • Related harness
2AR	EGR valve #2 coil control	EGR valve (terminal A)	Ignition switch ON	B+	• EGR valve • Related harness
			Idle	B+	
2AS	-	-	-	-	-
2AT	-	-	-	-	-
2AU	EGR valve #1 coil control	EGR valve (terminal E)	Ignition switch ON	Below 1.0	• EGR valve • Related harness
			Idle	Below 1.0	
2AV	EGR valve #4 coil control	EGR valve (terminal F)	Ignition switch ON	Below 1.0	• EGR valve • Related harness
			Idle	Below 1.0	
2AW	-	-	-	-	-
2AX	-	-	-	-	-

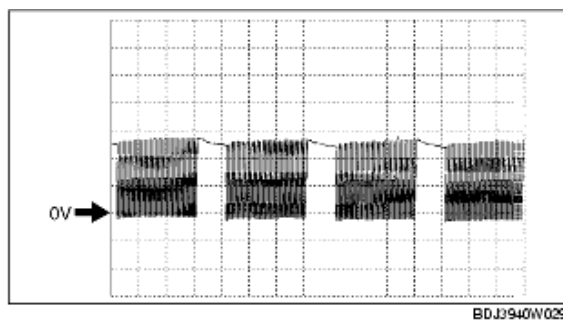
2AY	EGR valve #3 coil control	EGR valve (terminal B)	Ignition switch ON	B+	• EGR valve • Related harness
			Idle	B+	
2AZ	Fuel injection (#4)	Fuel injector No.4	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Fuel injector No.4 • Related harness
2BA	-	-	-	-	-
2BB	Fuel injection (#1)	Fuel injector No.1	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Fuel injector No.1 • Related harness
2BC	Fuel injection (#2)	Fuel injector No.2	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Fuel injector No.2 • Related harness
2BD	Fuel injection (#3)	Fuel injector No.3	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Fuel injector No.3 • Related harness
2BE	IGT1	Ignition coil (No.1 cylinders)	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Ignition coil • Related harness
2BF	IGT2	Ignition coil (No.2 cylinders)	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Ignition coil • Related harness
2BG	IGT3	Ignition coil (No.3 cylinders)	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Ignition coil • Related harness
2BH	IGT4	Ignition coil (No.4 cylinders)	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)		• Ignition coil • Related harness

*1 : ATX

*2 : MTX

Inspection Using An Oscilloscope (Reference)

Shift solenoid A signal



PCM terminals

- 1B (+)-Negative battery terminal (-)

Oscilloscope setting

- 5 V/DIV (Y), 5 ms/DIV (X), DC range

Vehicle condition

- 4GR

Shift solenoid B signal

PCM terminals

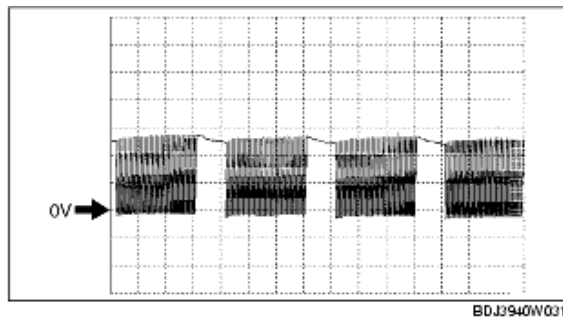
- 1C (+)-Negative battery terminal (-)

Oscilloscope setting

- 5 V/DIV (Y), 5 ms/DIV (X), DC range

Vehicle condition

- 1GR (except L range (HOLD))

Shift solenoid C signal**PCM terminals**

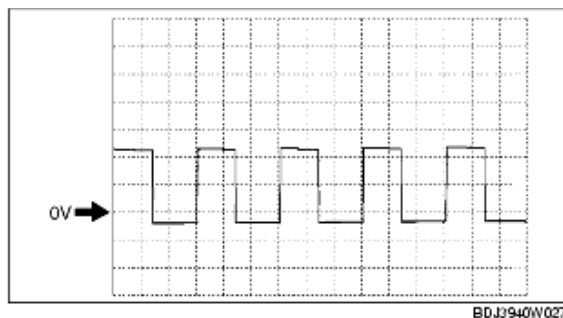
- 1D (+)-Negative battery terminal (-)

Oscilloscope setting

- 5 V/DIV (Y), 5 ms/DIV (X), DC range

Vehicle condition

- 1GR or 2GR

Pressure control solenoid (+) signal**PCM terminals**

- 1G (+)-Negative battery terminal (-)

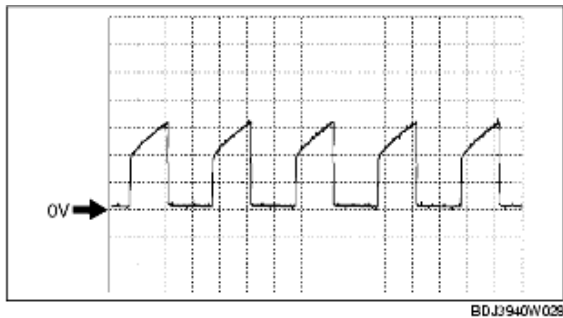
Oscilloscope setting

- 5 V/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition

- All of the following conditions are met.
 - Ignition switch is turned to the ON position. (engine off)
 - P or N position
 - CTP

Pressure control solenoid (-) signal



PCM terminals

- 1H (+)-Negative battery terminal (-)

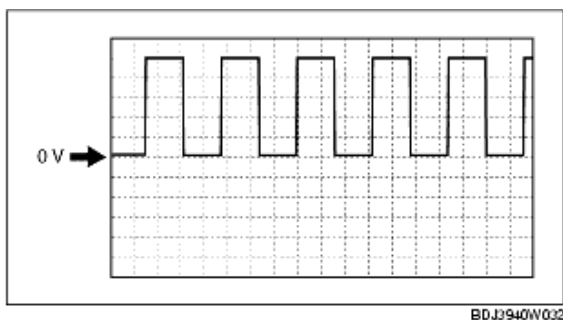
Oscilloscope setting

- 200 mV/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition

- All of the following conditions are met.
 - Ignition switch is turned to the ON position. (engine off)
 - P or N position
 - CTP

Vehicle speed signal



PCM terminals

- 1J (+)-Negative battery terminal (-)

Oscilloscope setting

- 1 V/DIV (Y), 2.5 ms/DIV (X), DC range

Vehicle condition

- Vehicle speed is 32 km/h {20 mph}.

Input/turbine speed sensor (+) signal

PCM terminals

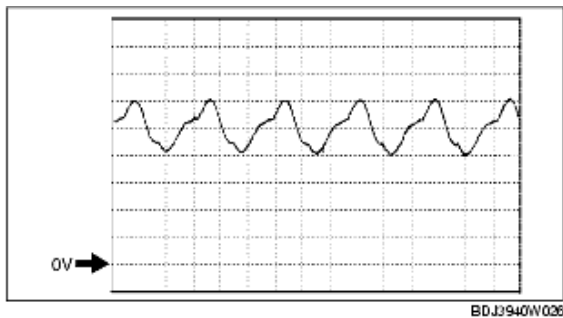
- 1M (+)-Negative battery terminal (-)

Oscilloscope setting

- 500 mV/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition

- Idle after warm-up

Input/turbine speed sensor (-) signal**PCM terminals**

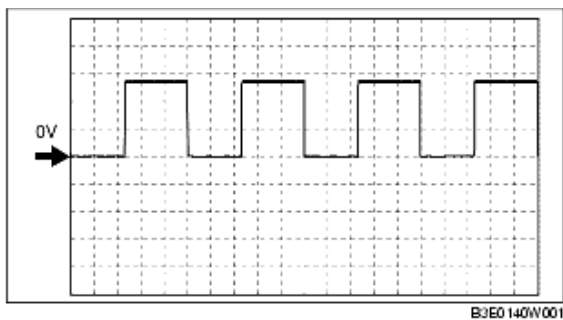
- 1Q (+)-Negative battery terminal (-)

Oscilloscope setting

- 500 mV/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition

- Idle after warm-up

Cooling fan control signals**PCM terminals**

- 1W(+)-1AA(-)

Oscilloscope setting

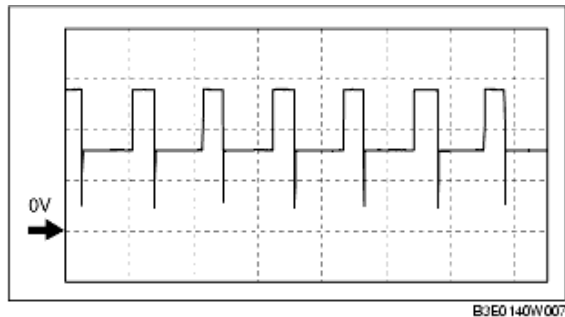
- 5 V/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C ON)

IAC signal

(+)



PCM terminals

- 2E(+)-2AA(-)

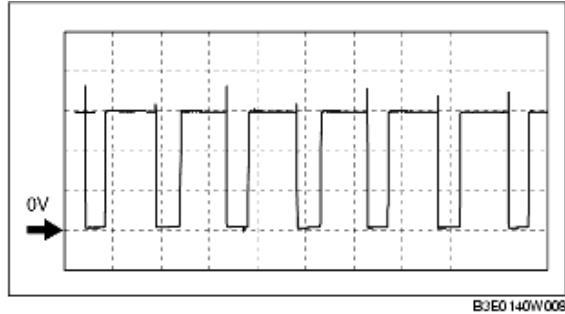
Oscilloscope setting

- 5 V/DIV (Y), 2 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

(-)



PCM terminals

- 2F(+)-2AA(-)

Oscilloscope setting

- 3 V/DIV (Y), 1.5 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

HO2S (front) heater control signal

PCM terminals

- 2G(+)-2AA(-)

Oscilloscope setting

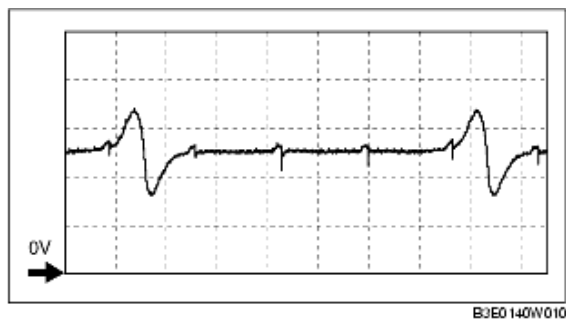
- 5 V/DIV (Y), 125 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

CMP sensor signal

(+)

**PCM terminals**

- 2U(+)-2AA(-)

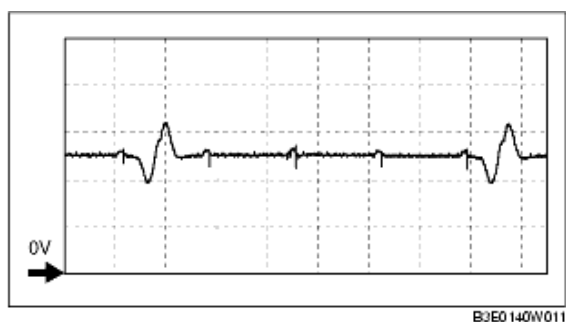
Oscilloscope setting

- 1 V/DIV (Y), 25 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

(-)

**PCM terminals**

- 2V(+)-2AA(-)

Oscilloscope setting

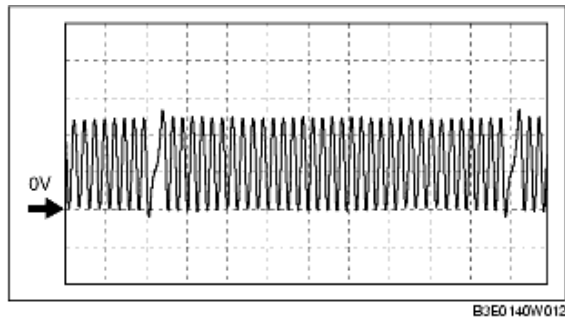
- 1 V/DIV (Y), 25 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

CKP sensor signal

(+)



PCM terminals

- 2Y(+)-2AA(-)

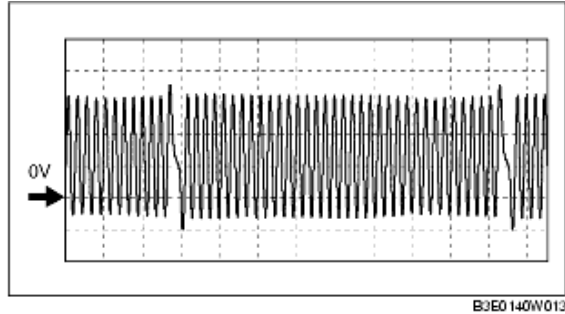
Oscilloscope setting

- 2 V/DIV (Y), 10 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

(-)



PCM terminals

- 2Z(+)-2AA(-)

Oscilloscope setting

- 2 V/DIV (Y), 10 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

HO2S (front) signal

PCM terminals

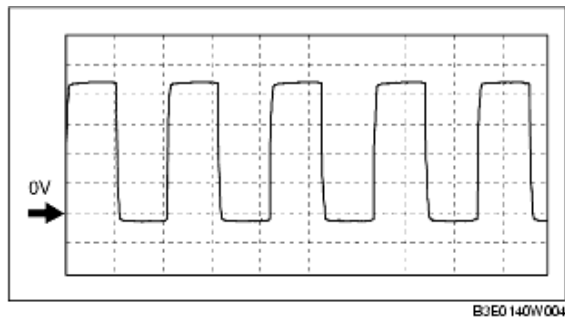
- 2AG(+)-2AA(-)

Oscilloscope setting

- 0.2 V/DIV (Y), 500 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

Generator output voltage signal**PCM terminals**

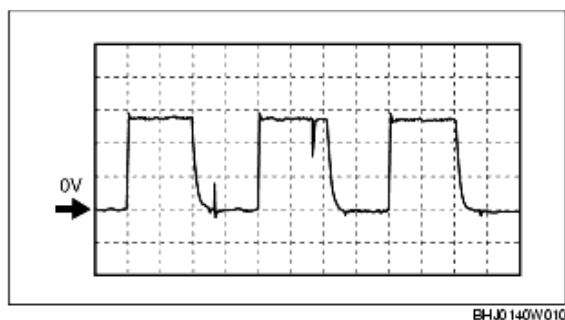
- 2AM (+)-2AA (-)

Oscilloscope setting

- 2 V/DIV (Y), 2.5 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

Generator field coil control signal**PCM terminals**

- 2AQ(+)-2AA(-)

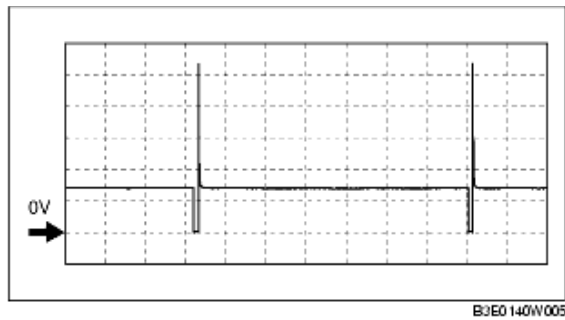
Oscilloscope setting

- 0.5 V/DIV (Y), 1 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

Fuel injection control



PCM terminals

- Fuel Injection No.1: 2BB(+)-1AZ(-)
- Fuel Injection No.2: 2BC(+)-1AZ(-)
- Fuel Injection No.3: 2BD(+)-1AZ(-)
- Fuel Injection No.4: 2AZ(+)-1AZ(-)

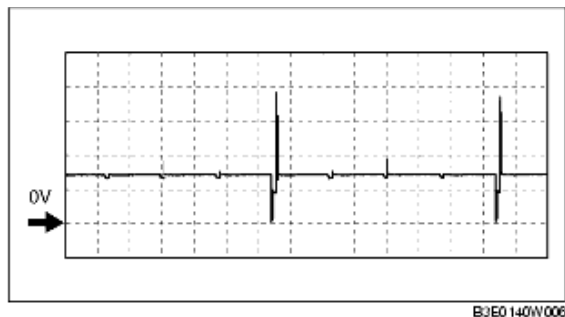
Oscilloscope setting

- 10 V/DIV (Y), 25 ms/DIV (X), DC range

Vehicle condition

- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

IGT1, IGT2 control signals



PCM terminals

- IGT1 (No.1): 2BE(+)-1BG(-)
- IGT2 (No.2): 2BF(+)-1BC(-)
- IGT3 (No.3): 2BG(+)-1BG(-)
- IGT4 (No.4): 2BH(+)-1BC(-)

Oscilloscope setting

- 10 V/DIV (Y), 25 ms/DIV (X), DC range

Vehicle condition

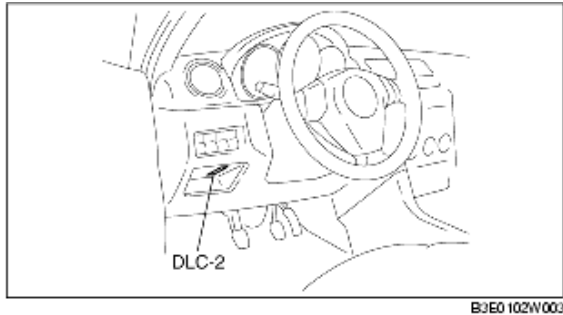
- Idle after warm up (engine speed approx. 650 rpm, no load, A/C off)

Using SST (WDS or Equivalent)

Note

- PIDs for the following parts are not available on this model. Go to the appropriate part inspection page.
 - CMP sensor (See [CAMSHAFT POSITION \(CMP\) SENSOR INSPECTION \[LF\]](#).)
 - Main relay (See [RELAY INSPECTION](#).)

1. Connect the **SST** (WDS or equivalent) to the DLC-2.



2. Turn the ignition switch to ON position.

3. Measure the PID value.

- If PID value is not within the specification, follow the instructions in Action column.

Note

• The PID/DATA MONITOR function monitors the calculated value of the input/output signals in the PCM. Therefore, an output device malfunction is not directly indicated as a malfunction of the monitored value for the output device. If a monitored value of an output device is out of specification, inspect the monitored value of the input device related to the output control.

• For input/output signals except those of the monitoring items, use a voltmeter to measure the PCM terminal voltage.

• The simulation items that are used in the ENGINE CONTROL SYSTEM OPERATION INSPECTION are as follows.

- ACCS
- ALTF
- ARPMDES
- EVAPCP
- FAN_DUTY
- FP
- FUEL PW1
- GENVDSD
- HTR11
- HTR12
- IAC
- IMRC
- IMTV
- INJ_1
- INJ_2
- INJ_3
- INJ_4
- SEGRP

PID/DATA monitor table (reference)

Monitor item (Definition)	Unit/Condition	Condition/Specification (Reference)	Inspection item	PCM terminal
AC_REQ (Refrigerant pressure switch (low pressure switch, high pressure switch))	On/Off	<ul style="list-style-type: none"> • Refrigerant pressure is more than the specification or less than the specification. (Refrigerant pressure switch (low pressure switch, high pressure switch) is off.): Off • Others: On 	<ul style="list-style-type: none"> • Refrigerant pressure switch (low pressure switch, high pressure switch) 	1AP
ACCS		<ul style="list-style-type: none"> • Ignition switch ON: Off 	The following PIDs: RPM, TP,	

(A/C relay)	On/Off		• A/C switch ON and fan switch ON at idle: On	ECT, ACSW. A/C relay	1AN
ALTF (Generator field coil control duty value)	%		• Ignition switch ON: 0% • Idle: 0-100% • Just after A/C switch ON and fan switch ON at idle: Duty value rises	The following PIDs: IAT, ECT, RPM, VPWR, ALTT V. Generator	2AQ
ALTT V (Generator output voltage)	V		• Ignition switch ON: 0 V • Idle: Approx. 14 V* ¹ (E/L not operating)	Generator	2AM
ARPMDES (Target engine speed)	RPM		• Indicate the target engine speed	The following PIDs: CPP, CPP/PNP, PSP, ECT, IAT, RPM, TP, MAF, BARO, VSS, AC_REQ, COLP IAC valve	-
BARO (Barometric pressure)	KPa		• ignition switch ON: indicate the atmospheric pressure	BARO sensor	1AG
	V		• Approx. 4 V (at sea level)		
BOO (Brake switch)	On/Off		• Brake pedal depressed: On • Brake pedal released: Off	Brake switch	1AU
CATT11_DSD (Catalyst temperature)	°C	°F	• Indicate the catalyst temperature	-	-
CHRG LP (Generator warning light)	On/Off		• Ignition switch ON: On • Idle: Off	Perform applicable DTC troubleshooting.	-
COLP (Refrigerant pressure switch (middle))	On/Off		• Refrigerant pressure switch (middle) ON* ⁴ at idle: On • Refrigerant pressure switch (middle) OFF* ⁵ at idle: Off	Refrigerant pressure switch	1R
CPP (Clutch pedal position)	On/Off		• Clutch pedal depressed: On • Clutch pedal released: Off	CPP switch	1O
CPP/PNP (Shift lever position)	Drive/Neutral		• Neutral position: Neutral • Others: Drive	Neutral switch	1S
DTCCNT (Number of DTC detected)	-		-	Perform applicable DTC troubleshooting	-
DWN SW* ⁶	(See PID/DATA MONITOR INSPECTION [FN4A-EL])				
ECT (Engine coolant temperature)	°C	°F	• Ignition switch ON: indicate the ECT	ECT sensor	2AK
	V		• ECT 20 °C {68 °F}: 3.04-3.14 V • ECT 60 °C {140 °F}: 1.29-1.39 V		
EQ_RAT_DSD (Theoretical air/fuel ratio coefficient to calculate target air/fuel ratio)	-		• Idle: approx. 1 • Racing (after warm up): 0.8-1	The following PIDs: IAT, RPM, ECT, MAF, O2S11, BARO, INGEAR, VPWR.	-

EVAPCP (Purge solenoid valve duty value)	%		<ul style="list-style-type: none"> Ignition switch ON: 0% Idle: 0-9% 	The following PIDs: IAT, RPM, ECT, MAF, O2S11, BARO, INGEAR, VPWR.	2AN
FAN_DUTY (Cooling fan control)	%		<ul style="list-style-type: none"> When all of following condition are met: 90% <ul style="list-style-type: none"> - Test mode ON - WOT 	The following PIDs: RPM, TP, ECT, ACSW, COLP, TEST. Fan control module	1W
FP (Fuel pump relay)	On/Off		<ul style="list-style-type: none"> Ignition switch ON: On (1 s) → Off Idle: ON Cranking: On 	The following PIDs: RPM. Fuel pump relay	1AR
FUELPW (Fuel injector duration)	ms		<ul style="list-style-type: none"> Ignition switch ON: 0 ms Idle (after warm up): approx. 2.0 ms 	The following PIDs: IAT, MAF, TP, MAP, ECT, RPM, O2S11, O2S12, INGEAR, ACSW, VPWR, ALTT V. Fuel injector	2AZ 2BB 2BC 2BD
FUELSYS (Fuel system status)	OL/OL_Fault/CL_Fault/CL/OL_Drive		<ul style="list-style-type: none"> Ignition switch ON: OL-Drive (Open loop) Idle (after warm up): CL (Closed loop) 	The following PIDs: IAT, MAF, TP, MAP, ECT, RPM, O2S11, O2S12, INGEAR, ACSW, VPWR, ALTT V. Fuel injector	-
GEAR*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])				
GENVDSD (Generator voltage desired)	V		<ul style="list-style-type: none"> Indicate the generator voltage desired 	Perform applicable DTC troubleshooting.	-
HTR11 (HO2S heater (front))	On/Off		<ul style="list-style-type: none"> Idle (after warm up): On ↔ Off 	The following PIDs: IAT, MAF, TP, ECT, RPM, ACSW.	2G
HTR12 (HO2S heater (rear))	On/Off		<ul style="list-style-type: none"> Ignition switch ON: Off (HO2S heater not operating) Idle: On (HO2S heater operating) 	The following PIDs: IAT, MAF, ECT, RPM, ACSW.	2C
IAC (IAC valve)	%		<ul style="list-style-type: none"> Ignition switch ON: 0 % Idle: Approx. 20% (ECT 100 °C {212 °F} and E/L not operating) 	The following PIDs: IAT, RPM, MAP, ECT, MAF, TP, INGEAR, ACSW. IAC valve	2E 2F
IAT (Intake air temperature)	°C	°F	<ul style="list-style-type: none"> Ignition switch ON: indicate the IAT 	IAT sensor	1AH
	V		<ul style="list-style-type: none"> IAT 20 °C {68 °F}: 2.4-2.6 V IAT 30 °C {86 °F}: 1.7-1.9 V 		
IMRC (Variable tumble)	On/Off		<ul style="list-style-type: none"> Engine speed is below approx. 3,750 rpm and low ECT: On 	The following PIDs: TP, ECT, RPM. Variable tumble	2AI

solenoid valve)			• Others: Off	solenoid valve	
IMTV (Variable Intake-air solenoid valve)	On/Off		• Engine speed is below approx. 4,750 rpm: On • Others: Off	The following PIDs: RPM. Variable intake-air solenoid valve	2AJ
INGEAR (Load/no load condition)	On/Off		MTX • CPP or CPP/PNP is ON: Off • Others: On	Perform applicable DTC troubleshooting.	1O 1S
			ATX • Driving range: On • Except above: Off	• TR switch	-
IVS (CTP condition)	Idle/Off Idle		• CTP: Idle • Others: Off Idle	Perform applicable DTC troubleshooting.	-
KNOCKR (Knocking retard)	°		• Ignition switch ON: 0 ° • Idle: 0 °	KS	2Q 2R
LINEDES*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])				
LOAD (Engine load)	%		• Ignition switch ON: 0% • Idle (after warm up): approx.20%	MAF sensor	-
LONGFT1 (long term fuel trim)	%		• Idle (after warm up): - 15-20%	Perform applicable DTC troubleshooting.	-
LPS*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])				
MAF (Mass airflow)	g/s		• Ignition switch ON: approx. 0 g/s • Idle (after warm up): approx. 2.5 g/s	MAF sensor	1AC
	V		• Ignition switch ON: approx. 0.7 V • Idle (after warm up): approx. 1.2 V		
MAP (Manifold absolute pressure)	KPa		• Ignition switch ON (at sea level): approx. 101 kPa • Idle: approx. 30 kPa	MAP sensor	2AL
	V		• Ignition switch ON (at sea level): approx. 4.1 V • Idle: approx. 1.2 V		
MIL (Malfunction indicator lamp)	On/Off		• DTC stored: On • DTC not stored: Off	Perform applicable DTC troubleshooting.	-
MIL_DIS (Travelled distance since MIL illuminated)	km	mile	Indicate the travelled distance since the MIL illuminated		
MNL SW*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])				
O2S11 (Front HO2S)	V		• Ignition switch ON: 0-1.0 V • Idle (After warm up): 0-1.0 V • Acceleration (After warm up): 0.5-1.0 V • Deceleration (After warm up): 0-0.5 V	HO2S (front)	2AG
			• Ignition switch ON: 0-1.0 V		

O2S12 (Rear HO2S)	V	<ul style="list-style-type: none"> • Idle (After warm up): 0-1.0 V • Acceleration (After warm up): 0.5-1.0 V • Deceleration (After warm up): 0-0.5 V 	HO2S (rear)	2AH
OP_SW_B*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
PSP (Power steering pressure signal)	High/Low	<ul style="list-style-type: none"> • Steering wheel is in straight ahead position: Low • Steering wheel is fully turned: High 	Power steering	-
RFCFLAG (Readness function code)	Learnt/Not Learnt	<ul style="list-style-type: none"> • Before running PCM adaptive memory procedure drive mode: Not Learnt • After running PCM adaptive memory procedure drive mode: Learnt 	Run PCM adaptive memory procedure drive mode.	-
RO2FT1 (Rear oxygen sensor fuel trim)	-	<ul style="list-style-type: none"> • Idle (after warm up): approx. -2-2 	Perform applicable DTC troubleshooting.	2AH
RPM (Engine speed)	RPM	<ul style="list-style-type: none"> • Indicate the engine speed 	CKP sensor	2Y 2Z
SEGRP (EGR valve (stepping motor) position)	Step	<ul style="list-style-type: none"> • Ignition switch ON: 0 step • Idle: 0 step • Cranking: 0-52 steps 	The following PIDs: MAF, TP, ECT, RPM, VSS. EGR valve	2AR 2AU 2AV 2AY
SEGRP DSD (Desired EGR valve (stepping motor) position)	%	<ul style="list-style-type: none"> • When the PCM control the EGR system: indicate the desired EGR valve position 	The following PIDs: MAF, TP, ECT, RPM, VSS. EGR valve	-
SHRTFT1 (Short term fuel trim)	%	<ul style="list-style-type: none"> • Idle (after warm up): approx.-30-25% 	Perform applicable DTC troubleshooting.	-
SHRTFT11 (Short term fuel trim)	%	<ul style="list-style-type: none"> • Idle (after warm up): approx.-5-0% 	Perform applicable DTC troubleshooting.	2AG
SHRTFT12 (Short term fuel trim)	%	<ul style="list-style-type: none"> • Under any condition: approx. 0% 	Perform applicable DTC troubleshooting.	2AH
SPARKADV (Ignition timing)	° (BTDC)	<ul style="list-style-type: none"> • Indicate the ignition timing 	The following PIDs: MAF, TP, ECT, RPM, INGEAR, ACSW, VPWR. Ignition timing	2BE 2BF 2BG 2BH
SSA/SS1*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
SSB/SS2*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
SSC/SS3*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
TCS*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
test (Test mode)	On/Off	-	-	-
TFT*6	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			

TFTV* ⁶	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
TIRE SIZE (Tire size)	-	• Indicate the tire revolution per a mile		
TP (TP)	%	• CTP: 13-23% • WOT: 86-96%	TP sensor	2I
	V	• CTP: 0.65-1.15 V • WOT: 4.3-4.8 V		
TP REL (Relative TP)	%	• CTP: approx. 0% • WOT: approx. 100%	TP sensor	2I
TPCT (TP sensor voltage at CTP)	V	• Approx. 0.65-1.15 V	TP sensor	2I
TR* ⁶	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
TR_SENS* ⁶	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
TSS* ⁶	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
UP SW* ⁶	(See PID/DATA MONITOR INSPECTION [FN4A-EL])			
VPWR (Battery positive voltage)	V	• Ignition switch ON: B+	Main relay Battery	1A 1BA 1BD 1BE
Vref (Reference voltage)	V	• Ignition switch ON: approx. 5.0 V	Perform applicable DTC troubleshooting.	1AE
VSS (Vehicle speed)	KPH	MPH	• Ignition switch ON: indicate the vehicle speed	Perform applicable DTC troubleshooting. -

*1 : Calculated value; differs from terminal voltage

*2 : A/C compressor pressure switch

*3 : Alternator generating current value

*4 : Refrigerant pressure switch (middle) turns on when the refrigerant pressure is 1.69-1.84 MPa
{17.3-18.7 kgf/cm² , 247-265 psi}

*5 : Refrigerant pressure switch (middle) turns off when the refrigerant pressure is 1.26-1.49 MPa
{12.9-15.1 kgf/cm² , 184-214 psi}

*6 : ATX