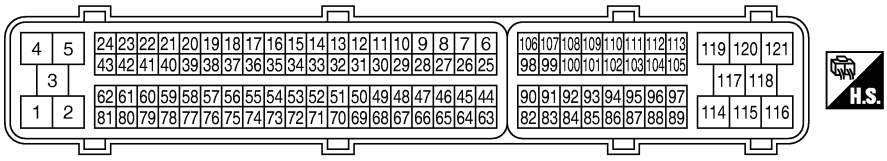
ECM Harness Connector Terminal Layout

ABS00814



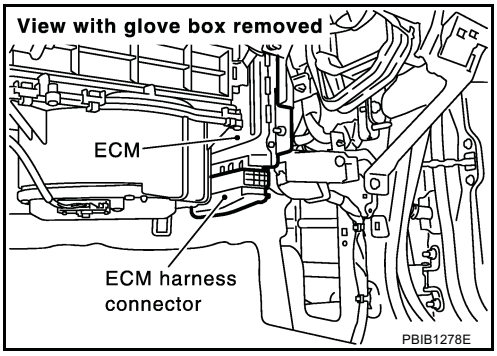
PBIB1192E

ECM Terminals and Reference Value

ABS00815

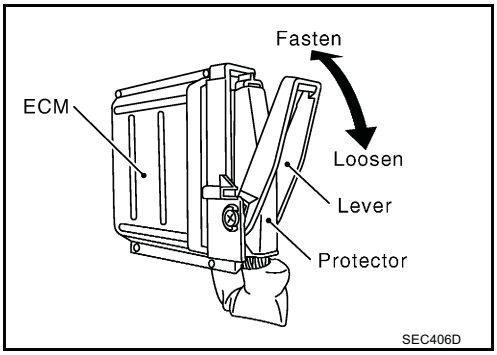
PREPARATION

1. ECM is located behind the passenger side instrument lower panel. For this inspection, remove passenger side instrument lower panel.
2. Remove ECM harness connector.



PBIB1278E

3. When disconnecting ECM harness connector, loosen it with levers as far as they will go as shown in the figure.
4. Connect a break-out box (SST) and Y-cable adapter (SST) between the ECM and ECM harness connector.
   - Use extreme care not to touch 2 pins at one time.
   - Data is for comparison and may not be exact.



SEC406D

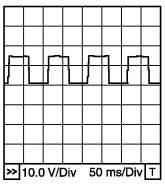
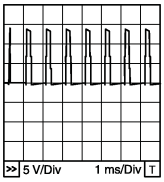
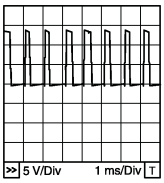
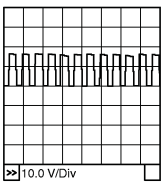
ECM INSPECTION TABLE

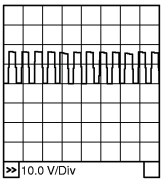
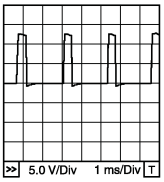
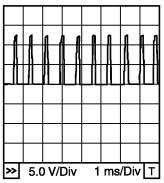
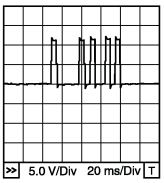
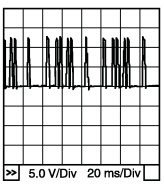
Specification data are reference values and are measured between each terminal and ground.
Pulse signal is measured by CONSULT-II.

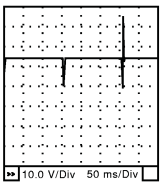
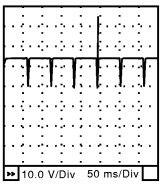
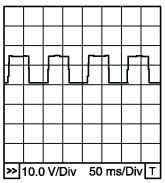
CAUTION:

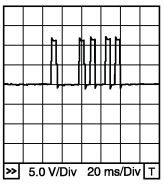
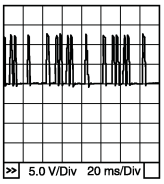
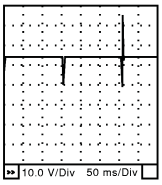
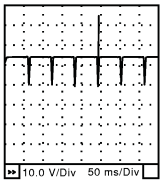
Do not use ECM ground terminals when measuring input/output voltage. Doing so may result in damage to the ECMs transistor. Use a ground other than ECM terminals, such as the ground.

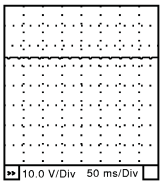
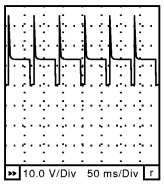
TERMINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
1	B	ECM ground	**[Engine is running]** ● Idle speed	Body ground

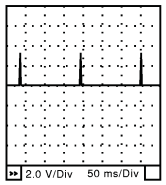
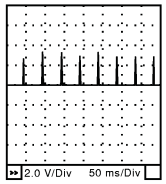
TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
2	Y	Heated oxygen sensor 1 heater (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Engine speed is below 3,600 rpm.	Approximately 8V★  PBIB0519E
			[Engine is running] ● Engine speed is above 3,600 rpm.	BATTERY VOLTAGE (11 - 14V)
3	W/R	Throttle control motor relay power supply	**[Ignition switch: ON]**	BATTERY VOLTAGE (11 - 14V)
4	BR	Throttle control motor (Close)	**[Ignition switch: ON]** ● Engine stopped ● Shift lever: D (A/T) or 1st (M/T) ● Accelerator pedal is released	0 - 14V★  PBIB1104E
5	G	Throttle control motor (Open)	**[Ignition switch: ON]** ● Engine stopped ● Shift lever: D (A/T) or 1st (M/T) ● Accelerator pedal is fully depressed	0 - 14V★  PBIB1105E
6	BR/W	Heated oxygen sensor 2 heater (bank 2)	**[Engine is running]** ● Engine speed is below 3,600 rpm after the following conditions are met. – Engine: after warming up – Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load.	0 - 1.0V
			[Ignition switch: ON] ● Engine stopped **[Engine is running]** ● Engine speed is above 3,600 rpm.	BATTERY VOLTAGE (11 - 14V)
10	W/G	Intake valve timing control solenoid valve (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	BATTERY VOLTAGE (11 - 14V)
			[Engine is running] ● **Warm-up condition** ● When revving engine up to 2,500 rpm quickly	7 - 12V★  PBIB1790E

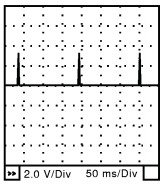
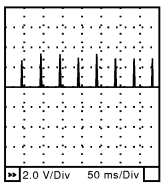
TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
11	R/W	Intake valve timing control solenoid valve (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	BATTERY VOLTAGE (11 - 14V)
			[Engine is running] ● **Warm-up condition** ● When revving engine up to 2,500 rpm quickly	7 - 12V★  PBIB1790E
12	L/W	Power steering pressure sensor	**[Engine is running]** ● Steering wheel is being turned.	0.5 - 4.5V
			[Engine is running] ● Steering wheel is not being turned.	0.4 - 0.8V
13	BR	Crankshaft position sensor (POS)	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	Approximately 1.2V★  PBIB1041E
			[Engine is running] ● Engine speed is 2,000 rpm.	Approximately 1.1V★  PBIB1042E
14	Y	Camshaft position sensor (PHASE) (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	1.0 - 4.0V★  PBIB1039E
			[Engine is running] ● Engine speed is 2,000 rpm.	1.0 - 4.0V★  PBIB1040E
15	W	Knock sensor	**[Engine is running]** ● Idle speed	Approximately 2.5V
16	LG	Heated oxygen sensor 1 (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Engine speed is 2,000 rpm.	0 - Approximately 1.0V (Periodically change)

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
21 22 23	G R/Y R/B	Injector No. 5 Injector No. 3 Injector No. 1	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	BATTERY VOLTAGE (11 - 14V)★  SEC984C
			[Engine is running] ● **Warm-up condition** ● Engine speed is 2,000 rpm.	BATTERY VOLTAGE (11 - 14V)★  SEC985C
24	G/B	Heated oxygen sensor 1 heater (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Engine speed is below 3,600 rpm.	Approximately 8V★  PBIB0519E
			[Engine is running] ● Engine speed is above 3,600 rpm.	BATTERY VOLTAGE (11 - 14V)
25	P/B	Heated oxygen sensor 2 heater (bank 1)	**[Engine is running]** ● Engine speed is below 3,600 rpm after the following conditions are met. – Engine: after warming up – Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load.	0 - 1.0V
			[Ignition switch: ON] ● Engine stopped **[Engine is running]** ● Engine speed is above 3,600 rpm.	BATTERY VOLTAGE (11 - 14V)
32	P	EVAP control system pressure sensor	**[Ignition switch: ON]**	Approximately 1.8 - 4.8V

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
33	OR	Camshaft position sensor (PHASE) (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	1.0 - 4.0V★  PBIB1039E
			[Engine is running] ● Engine speed is 2,000 rpm.	1.0 - 4.0V★  PBIB1040E
34	Y/G	Intake air temperature sensor	**[Engine is running]**	Approximately 0 - 4.8V Output voltage varies with intake air temperature.
35	W/B	Heated oxygen sensor 1 (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Engine speed is 2,000 rpm.	0 - Approximately 1.0V (Periodically change)
40 41 42	P R/L R/W	Injector No. 6 Injector No. 4 Injector No. 2	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	BATTERY VOLTAGE (11 - 14V)★  SEC984C
			[Engine is running] ● **Warm-up condition** ● Engine speed is 2,000 rpm	BATTERY VOLTAGE (11 - 14V)★  SEC985C

TERMINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
45	L/Y	EVAP canister purge volume control solenoid valve	**[Engine is running]** ● Idle speed	BATTERY VOLTAGE (11 - 14V)★  SEC990C
			[Engine is running] ● Engine speed is about 2,000 rpm (More than 100 seconds after starting engine).	BATTERY VOLTAGE (11 - 14V)★  SEC991C
47	B	Sensor power supply (Throttle position sensor)	**[Ignition switch: ON]**	Approximately 5V
48	B/Y	Sensor power supply (EVAP control system pressure sensor)	**[Ignition switch: ON]**	Approximately 5V
49	W/L	Sensor power supply (Refrigerant pressure sensor)	**[Ignition switch: ON]**	Approximately 5V
50	W	Throttle position sensor 1	**[Ignition switch: ON]** ● Engine stopped ● Shift lever: D (A/T) or 1st (M/T) ● Accelerator pedal fully released	More than 0.36V
			[Ignition switch: ON] ● Engine stopped ● Shift lever: D (A/T) or 1st (M/T) ● Accelerator pedal fully depressed	Less than 4.75V
51	OR	Mass air flow sensor	**[Engine is running]** ● **Warm-up condition** ● Idle speed	0.9 - 1.2V
			[Engine is running] ● **Warm-up condition** ● Engine speed is 2,500 rpm.	1.6 - 1.9V
55	R/Y	Heated oxygen sensor 2 (bank 2)	**[Engine is running]** ● **Warm-up condition** ● Revving engine from idle to 3,000 rpm quickly after the following conditions are met. – After keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load.	0 - Approximately 1.0V

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
60 61 62	PU/W L/R Y/R	Ignition signal No. 5 Ignition signal No. 3 Ignition signal No. 1	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	0 - 0.2V★  SEC986C
			[Engine is running] ● **Warm-up condition** ● Engine speed is 2,500 rpm.	0.1 - 0.4V★  SEC987C
66	W/R	Sensor ground (Throttle position sensor)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 0V
67	B/W	Sensor ground	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 0V
68	Y	Sensor power supply (Power steering pressure sensor)	**[Ignition switch: ON]**	Approximately 5V
69	R/L	Throttle position sensor 2	**[Ignition switch: ON]** ● Engine stopped ● Shift lever: D (A/T) or 1st (M/T) ● Accelerator pedal fully released	Less than 4.75V
			[Ignition switch: ON] ● Engine stopped ● Shift lever: D (A/T) or 1st (M/T) ● Accelerator pedal fully depressed	More than 0.36V
70	R/B	Refrigerant pressure sensor	**[Engine is running]** ● **Warm-up condition** ● Both A/C switch and blower switch are ON. (Compressor operates.)	1.0 - 4.0V
73	Y/B	Engine coolant temperature sensor	**[Engine is running]**	Approximately 0 - 4.8V Output voltage varies with engine coolant temperature.
74	L/B	Heated oxygen sensor 2 (bank 1)	**[Engine is running]** ● **Warm-up condition** ● Revving engine from idle to 3,000 rpm quickly after the following conditions are met. – After keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load.	0 - Approximately 1.0V
78	B/Y	Sensor ground (Heated oxygen sensor)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 0V

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
79 80 81	GY/R GY G/R	Ignition signal No. 6 Ignition signal No. 4 Ignition signal No. 2	**[Engine is running]** ● **Warm-up condition** ● Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle.	0 - 0.2V★  SEC986C
			[Engine is running] ● **Warm-up condition** ● Engine speed is 2,500 rpm.	0.1 - 0.4V★  SEC987C
82	GY/L	Sensor ground (APP sensor 1)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 0V
83	B/R	Sensor ground (APP sensor 2)	**[Engine is running]** ● **Warm-up condition** ● Idle speed	Approximately 0V
85	PU	Data link connector	**[Ignition switch: ON]** ● CONSULT-II or GST is disconnected.	Approximately 5V - Battery voltage (11 - 14V)
86	R	CAN communication line	**[Ignition switch: ON]**	Approximately 1.1 - 2.3V Output voltage varies with the communication status.
90	BR/Y	Sensor power supply (APP sensor 1)	**[Ignition switch: ON]**	Approximately 5V
91	G	Sensor power supply (APP sensor 2)	**[Ignition switch: ON]**	Approximately 5V
94	L	CAN communication line	**[Ignition switch: ON]**	Approximately 2.6 - 3.2V Output voltage varies with the communication status.
98	LG/B	Accelerator pedal position sensor 2	**[Ignition switch: ON]** ● Engine stopped ● Accelerator pedal fully released	0.15 - 0.60V
			[Ignition switch: ON] ● Engine stopped ● Accelerator pedal fully depressed	1.95 - 2.40V
99	G/Y	ASCD steering switch	**[Ignition switch: ON]** ● ASCD steering switch: OFF	Approximately 4V
			[Ignition switch: ON] ● ON/OFF (MAIN) switch: Pressed	Approximately 0V
			[Ignition switch: ON] ● CANCEL switch: Pressed	Approximately 1V
			[Ignition switch: ON] ● COAST/SET switch: Pressed	Approximately 2V
			[Ignition switch: ON] ● ACCEL/RESUME switch: Pressed	Approximately 3V

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
101	P/L	Stop lamp switch	**[Ignition switch: ON]** ● Brake pedal is fully released	Approximately 0V
			[Ignition switch: ON] ● Brake pedal is depressed	BATTERY VOLTAGE (11 - 14V)
102	G/OR	PNP switch	**[Ignition switch: ON]** ● Shift lever: P or N (A/T), Neutral (M/T)	Approximately 0V
			[Ignition switch: ON] ● Except the above gear position	BATTERY VOLTAGE (11 - 14V)
104	G/W	Throttle control motor relay	**[Ignition switch: OFF]**	BATTERY VOLTAGE (11 - 14V)
			[Ignition switch: ON]	0 - 1.0V
106	BR	Accelerator pedal position sensor 1	**[Ignition switch: ON]** ● Engine stopped ● Accelerator pedal fully released	0.5 - 1.0V
			[Ignition switch: ON] ● Engine stopped ● Accelerator pedal fully depressed	3.9 - 4.7V
107	L/OR	Fuel tank temperature sensor	**[Engine is running]**	Approximately 0 - 4.8V Output voltage varies with fuel tank temperature.
108	SB	ASCD brake switch	**[Ignition switch: ON]** ● Brake pedal is depressed (A/T models) ● Brake pedal and/or clutch pedal are depressed (M/T models)	Approximately 0V
			[Ignition switch: ON] ● Brake pedal is fully released (A/T models) ● Brake pedal and clutch pedal are fully released (M/T models)	BATTERY VOLTAGE (11 - 14V)
109	W/L	Ignition switch	**[Ignition switch: OFF]**	0V
			[Ignition switch: ON]	BATTERY VOLTAGE (11 - 14V)
111	W	ECM relay (Self shut-off)	**[Engine is running]** **[Ignition switch: OFF]** ● For a few seconds after turning ignition switch OFF	0 - 1.5V
			[Ignition switch: OFF] ● More than a few seconds after turning ignition switch OFF	BATTERY VOLTAGE (11 - 14V)
113	B/OR	Fuel pump relay	**[Ignition switch: ON]** ● For 1 second after turning ignition switch ON **[Engine is running]**	0 - 1.5V
			[Ignition switch: ON] ● More than 1 second after turning ignition switch ON.	BATTERY VOLTAGE (11 - 14V)
115 116	B/R B	ECM ground	**[Engine is running]** ● Idle speed	Body ground
117	GY/L	EVAP canister vent control valve	**[Ignition switch: ON]**	BATTERY VOLTAGE (11 - 14V)

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
119 120	P L	Power supply for ECM	**[Ignition switch: ON]**	BATTERY VOLTAGE (11 - 14V)
121	R/W	Power supply for ECM (Back-up)	**[Ignition switch: OFF]**	BATTERY VOLTAGE (11 - 14V)

★: Average voltage for pulse signal (Actual pulse signal can be confirmed by oscilloscope.)

CONSULT-II Function

ABS00816

FUNCTION

Diagnostic test mode	Function
Work support	This mode enables a technician to adjust some devices faster and more accurately by following the indications on the CONSULT-II unit.
Self-diagnostic results	Self-diagnostic results such as 1st trip DTC, DTCs and 1st trip freeze frame data or freeze frame data can be read and erased quickly.*
Data monitor	Input/Output data in the ECM can be read.
Data monitor (SPEC)	Input/Output of the specification for Basic fuel schedule, AFM, A/F feedback control value and the other data monitor items can be read.
CAN diagnostic support monitor	The results of transmit/receive diagnosis of CAN communication can be read.
Active test	Diagnostic Test Mode in which CONSULT-II drives some actuators apart from the ECMs and also shifts some parameters in a specified range.
DTC & SRT confirmation	The status of system monitoring tests and the self-diagnosis status/result can be confirmed.
Function test	This mode is used to inform customers when their vehicle condition requires periodic maintenance.
ECM part number	ECM part number can be read.

*: The following emission-related diagnostic information is cleared when the ECM memory is erased.

- Diagnostic trouble codes
- 1st trip diagnostic trouble codes
- Freeze frame data
- 1st trip freeze frame data
- System readiness test (SRT) codes
- Test values
- Others