

Component Procedures: Engine Control Module

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Component Procedures: Engine Control Module

Parts and Labor (itype_189)

Parts

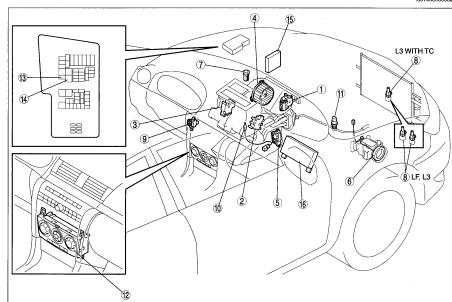
Qualifier	Part #	Name	Price	Note
ECM > Manual Trans > Federal?	L3AR18881A	Ecm	1194.45	
ECM > Manual Trans > Federal?	L3AR18881D	Ecm	1397.51	
ECM > Manual Trans > Califor?	L34P18881G	Ecm	991.42	
ECM > Auto Trans > Federal >?	L3AS18881D	Ecm	785.36	
ECM > Auto Trans > California	L34R18881G	Ecm	1056.70	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Replace	ECM, R&R	B	0.6	0.4
Reset	ECM, Reprogram	B	0.5	0.3

Components (itype_32)

HVAC CONTROL SYSTEM LOCATION INDEX (FULL-AUTO AIR CONDITIONER)

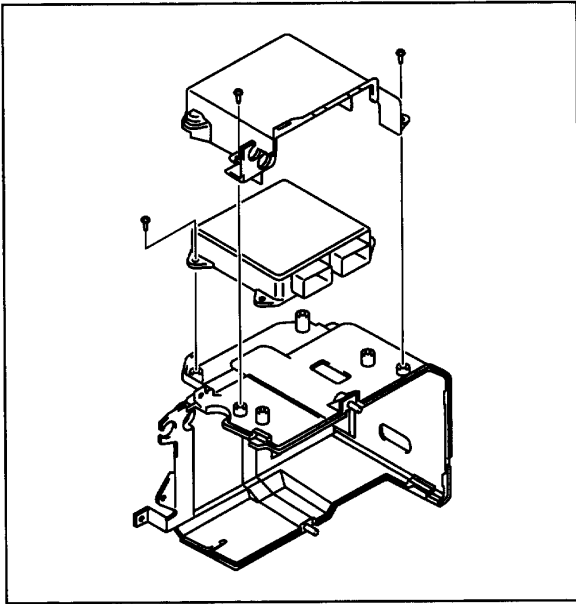


1 Air intake actuator	6 Magnetic clutch
2 Air mix actuator	7 Solar radiation sensor
3 Airflow mode actuator	8 Ambient temperature sensor
4 Blower motor	9 Passenger compartment temperature sensor
5 Power MOS FET	10 Evaporator temperature sensor

11	Refrigerant pressure switch
12	Climate control unit
13	A/C relay

14	Blower relay
15	PCM
16	PJB

Removal and Replacement (itype_401)



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All Technical Service Bulletins (itype_100)

Tsbs

- Engine Controls/Cooling System - MIL ON/DTC P0128 Set (0100711, 2011/02/07)

Customer Interest Bulletins (itype_109)

Tsbs

- Engine Controls/Cooling System - MIL ON/DTC P0128 Set (0100711, 2011/02/07)

PCM Inspection (Article 1358345)

**PCM
WIRING HARNESS-SIDE CONNECTOR**

2BE	2BA	2AW	2AS	2AO	2AK	2AG	2AC	2Y	2U	2Q	2M	2I	2E	2A	1BE	1BA	1AW	1AS	1AO	1AK	1AG	1AC	1Y	1U	1Q	1M	1I	1E	1A
2BF	2BB	2AX	2AT	2AP	2AL	2AH	2AD	2Z	2V	2R	2N	2J	2F	2B	1BF	1BB	1AX	1AT	1AP	1AL	1AH	1AD	1Z	1V	1R	1N	1J	1F	1B
2BG	2BC	2AY	2AU	2AQ	2AM	2AI	2AE	2AA	2W	2S	2O	2K	2G	2C	1BG	1BC	1AY	1AU	1AQ	1AM	1AI	1AE	1AA	1W	1S	1O	1K	1G	1C
2BH	2BD	2AZ	2AV	2AR	2AN	2AJ	2AF	2AB	2X	2T	2P	2L	2H	2D	1BH	1BD	1AZ	1AV	1AR	1AN	1AJ	1AF	1AB	1X	1T	1P	1L	1H	1D

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Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
1A	Shift solenoid A*1	Shift solenoid A	(See Inspection Using An Oscilloscope (Reference).)		<ul style="list-style-type: none"> Shift solenoid A Related wiring harness
	—*2	—	—	—	—
1B	Starter relay control	Starter relay	Under any condition	Below 1.0	<ul style="list-style-type: none"> Starter relay Related wiring harness

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
1C	—	—	—	—	—
1D	Clutch operation ²	CPP switch	Clutch pedal depressed	Below 1.0	<ul style="list-style-type: none"> • CPP switch • Related wiring harness
			Clutch pedal released	B+	
1E	Shift solenoid B ¹	Shift solenoid B	(See Inspection Using An Oscilloscope (Reference).)	—	<ul style="list-style-type: none"> • Shift solenoid B • Related wiring harness
			—	—	
1F	Shift solenoid C ¹	Shift solenoid C	(See Inspection Using An Oscilloscope (Reference).)	—	<ul style="list-style-type: none"> • Shift solenoid C • Related wiring harness
			—	—	
1G	—	—	—	—	—
1H	Fuel pump control	Fuel pump relay	Ignition switch to the ON position	B+	<ul style="list-style-type: none"> • Fuel pump relay • Related wiring harness
			Cranking	Below 1.0	
1I	A/C	A/C relay	Idle	Below 1.0	<ul style="list-style-type: none"> • A/C relay • Related wiring harness
			A/C operating	B+	
1J	Refrigerant pressure switch (medium)	Refrigerant pressure switch (medium)	A/C ON	Below 1.0	<ul style="list-style-type: none"> • Refrigerant pressure switch • Related wiring harness
			Refrigerant pressure is above 1.52 MPa (11.5 kgf/cm ² , 220 psi)	B+	
1K	Refrigerant pressure switch (low)	Refrigerant pressure switch (low)	A/C ON	Below 1.0	<ul style="list-style-type: none"> • Refrigerant pressure switch • Related wiring harness
			Refrigerant pressure is below 1.23 MPa (12.9 kgf/cm ² , 178 psi)	B+	
1L	—	—	—	—	—
1M	Pressure control solenoid (+) ¹	Pressure control solenoid	(See Inspection Using An Oscilloscope (Reference).)	—	<ul style="list-style-type: none"> • Pressure control solenoid • Related wiring harness
			—	—	
1N	Pressure control solenoid (-) ¹	Pressure control solenoid	(See Inspection Using An Oscilloscope (Reference).)	—	<ul style="list-style-type: none"> • Pressure control solenoid • Related wiring harness
			—	—	
1O	—	—	—	—	—
1P	—	—	—	—	—
1Q	Main relay control	Main relay	Ignition switch off after 15 min	B+	<ul style="list-style-type: none"> • Main relay • Related wiring harness
			Ignition switch to the ON position	Below 1.0	
1R	—	—	—	—	—
1S	GND (shield)	Input/turbine speed sensor harness, GND	Under any condition	Below 1.0	<ul style="list-style-type: none"> • Related wiring harness
1T	—	—	—	—	—
1U	EVAP leak detection pump (pump)	EVAP leak detection pump	Ignition switch to the ON position	B+	<ul style="list-style-type: none"> • EVAP leak detection pump • Related wiring harnesses
			Idling	B+	

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
1V	EVAP leak detection pump (solenoid)	EVAP leak detection pump	Ignition switch to the ON position	B+	<ul style="list-style-type: none"> • EVAP leak detection pump • Related wiring harnesses
			Idling	B+	
1W	—	—	—	—	—
1X	Neutral position ²	Neutral switch	Ignition switch is turned to the ON position	Below 1.0	<ul style="list-style-type: none"> • Neutral switch • Related wiring harness
			Shift lever is at neutral position	B+	
1Y	Cooling fan control	Fan control module	<ul style="list-style-type: none"> • Inspect using the wave profile. 	—	<ul style="list-style-type: none"> • Fan control module • Related wiring harness
1Z	Shift solenoid E ¹	Shift solenoid E	(See Inspection Using An Oscilloscope (Reference).)	—	<ul style="list-style-type: none"> • Shift solenoid E • Related wiring harness
			—	—	
1AA	—	—	—	—	—
1AB	Brake	Brake switch	Brake pedal depressed	B+	<ul style="list-style-type: none"> • Brake switch • Related wiring harness
			Brake pedal released	Below 1.0	
1AC	APP sensor 2	APP sensor	<ul style="list-style-type: none"> • Inspect using the wave profile. 	—	<ul style="list-style-type: none"> • APP sensor • Related wiring harness
1AD	Shift solenoid D ¹	Shift solenoid D	<ul style="list-style-type: none"> • Inspect using the wave profile. 	—	<ul style="list-style-type: none"> • Shift solenoid D • Related wiring harness
			—	—	
1AE	—	—	—	—	—
1AF	Manual down ¹	Down switch	Ignition switch is turned to the ON position.	1.0 or less	<ul style="list-style-type: none"> • Selector lever • Related wiring harness
			Detects down-shift operation of selector lever in M range	B+	
1AG	Input/turbine speed sensor (-) ¹	Input/turbine speed sensor	<ul style="list-style-type: none"> • Inspect using the wave profile. 	—	<ul style="list-style-type: none"> • Input/turbine speed sensor • Related wiring harness
			—	—	
1AH	Selector lever position ¹	TR switch	P position	Approx. 4.6	<ul style="list-style-type: none"> • TR switch • Related wiring harness
			R position	Approx. 3.9	
			N position	Approx. 3.2	
			D range	Approx. 2.5	
			M range	Approx. 2.5	
1AI	CAN (L)	Instrument cluster, ABS HJUCM, EVAPAS control module	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible.	—	<ul style="list-style-type: none"> • Related wiring harness

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item	
1AJ	Manual up ¹	Up switch	Ignition switch is turned to the ON position.	Detects up-shift operation of selector lever in M range. Others	1.0 or less B+	• Selector lever • Related wiring harness
	— ²	—	—	—	—	—
1AK	MAF	MAF sensor	Ignition switch to the ON position Idle (after warm up)	Approx. 0.7 Approx. 1.5	• MAF sensor • Related wiring harness	
1AL	Constant voltage (Vref)	APP sensor	Ignition switch to the ON position	Approx. 5.0	• Related wiring harness	
1AM	CAN (H)	Instrument cluster, ABS HIL/CM, EHPAS control module	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible.		• Related wiring harness	
1AN	M range switch ¹	M range switch	Ignition switch is turned to the ON position.	M range Except above	1.0 or less B+	• Selector lever • Related wiring harness
	— ²	—	—	—	—	—
1AO	Input/turbine speed sensor (+) ¹	Input/turbine speed sensor				• Input/turbine speed sensor • Related wiring harness
	— ²	—	—	—	—	—
1AP	APP sensor 1	APP sensor	Ignition switch to the ON position	When the accelerator pedal is depressed When the accelerator pedal is released	Approx. 3.0 Approx. 0.4	• APP sensor • Related wiring harness
			ON/OFF switch pressed in CANCEL switch pressed in		Approx. 0 Approx. 1.1	
1AQ	Cruise control switch	Cruise control switch	Ignition switch to the ON position	SET/COAST switch pressed in RESIACCEL switch pressed in	Approx. 3.1 Approx. 4.2	• Cruise control switch • Related wiring harnesses
			Except above		Approx. 5	
1AR	Sensor GND	MAF sensor	Under any condition		Below 1.0	• Related wiring harness
1AS	Sensor GND	TFT sensor ¹ , TR switch ¹ , IAT sensor, APP sensor	Under any condition		Below 1.0	• Related wiring harness

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item	
1AT	IAT	MAF/IAT sensor	IAT 0 °C (32 °F)	Approx. 3.43	• IAT sensor • Related wiring 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		
1AU	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 wiring harness
			—	—	—	—
1AV	—	—	—	—	—	• VSS • Related wiring harness
1AW	Vehicle speed ¹	VSS	—	—	—	• VSS • Related wiring harness
1AX	Drive-by-wire relay control	Drive-by-wire relay	Ignition switch off	B+	• Drive-by-wire relay • Related wiring harness	
			Ignition switch to the ON position	Below 1.0		
1AY	Ignition switch	Ignition switch	Ignition switch off	Below 1.0	• Related wiring harness	
			Ignition switch to the ON position	B+		
1AZ	GND	GND	Under any condition		Below 1.0	• Related wiring harness
1BA	Back-up power supply	Battery (positive terminal)	Under any condition		B+	• Battery • Related wiring harness
1BB	GND	GND	Under any condition		Below 1.0	• Related wiring harness
1BC	—	—	—	—	—	—
1BD	GND	GND	Under any condition		Below 1.0	• Related wiring harness
1BE	B+	Main relay	Ignition switch off after 15 min	Below 1.0	• Battery • Related wiring harness	
			Ignition switch to the ON position	B+		
1BF	B+	Drive-by-wire relay	Ignition switch off	Below 1.0	• Battery • Related wiring harness	
			Ignition switch to the ON position	B+		
1BG	B+ ¹	Main relay	Ignition switch off after 15 min	Below 1.0	• Battery • Related wiring harness	
			Ignition switch to the ON position	B+		
— ²	—	—	—	—	—	—
1BH	GND	GND	Under any condition		Below 1.0	• Related wiring harness
2A	Throttle actuator control (+)	Throttle actuator	Ignition switch to the ON position		B+	• Throttle actuator • Related wiring harness
2B	Throttle actuator control (-)	Throttle actuator	Idle (after warm up)		Approx. 3.5–5.5	• Throttle actuator • Related wiring harness
2C	Purge control	Purge solenoid valve				• Purge solenoid valve • Related wiring harness
2D	—	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
2E	OCV control	OCV	• Inspect using the wave profile.	—	• OCV valve • Related wiring harness
2F	—	—	—	—	—
2G	EGR valve #2 coil control	EGR valve (terminal A)	Ignition switch to the ON position Idle	B+ B+	• EGR valve • Related wiring harness
2H	EGR valve #4 coil control	EGR valve (terminal F)	Ignition switch to the ON position Idle	B+ B+	• EGR valve • Related wiring harness
2I	Variable tumble control	Variable tumble solenoid valve	ECT above 62 °C (143 °F) while idling ECT below 63 °C (145 °F) and engine speed below 3,750 rpm	B+ Below 1.0	• Variable tumble solenoid valve • Related wiring harness
2J	Variable intake air solenoid valve	Variable intake air solenoid valve	Ignition switch to the ON position Engine speed: below 4,750 rpm (LF/4,600 rpm [1.3]) Engine speed: above 4,750 rpm (LF/4,600 rpm [1.3])	Below 1.0 Below 1.0	• Variable intake air solenoid valve • Related wiring harness
2K	EGR valve #1 coil control	EGR valve (terminal E)	Ignition switch to the ON position Idle	Below 1.0 Below 1.0	• EGR valve • Related wiring harness
2L	EGR valve #3 coil control	EGR valve (terminal B)	Ignition switch to the ON position Idle	B+ B+	• EGR valve • Related wiring harness
2M	—	—	—	—	—
2N	—	—	—	—	—
2O	—	—	—	—	—
2P	—	—	—	—	—
2Q	Rear HO2S	HO2S (rear)	Ignition switch to the ON position Idle (after warm up)	Approx. 0 Alternates between 0 and 1.0	• HO2S (rear) • Related wiring harness
2R	Middle HO2S	HO2S (Middle)	Ignition switch to the ON position Idle (after warm up)	Approx. 0 Alternates between 0 and 1.0	• HO2S (Middle) • Related wiring harness
2S	CMP	CMP sensor	• Inspect using the wave profile.	—	• CMP sensor • Related wiring harness
2T	—	—	—	—	—
2U	Knocking (+)	KS	Ignition switch to the ON position (Use digital type voltmeter, because measurement voltage will be detected less than true voltage when using analog type voltmeter)	Approx. 4.3	• KS • Related wiring harness
2V	Knocking (-)	KS	Ignition switch to the ON position (Use digital type voltmeter, because measurement voltage will be detected less than true voltage when using analog type voltmeter)	Below 1.0	• KS • Related wiring harness
2W	CKP	CKP sensor	• Inspect using the wave profile.	—	• CKP sensor • Related wiring harness
2X	GND (shield)	KS harness, HO2S (front, middle, rear) harness, GND	Under any condition	Below 1.0	• Related wiring harness
2Y	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
2Z	Sensor GND	HO2S (front)	Under any condition	Below 1.0	• Related wiring harness
2AA	—	—	—	—	—
2AB	—	—	—	—	—
2AC	ATF temperature	TFT sensor	Ignition switch to the ON position. TFT is 20 °C (68 °F) TFT is 40 °C (104 °F) TFT is 80 °C (176 °F)	Approx. 3.3 Approx. 2.4 Approx. 1.5	• TFT sensor • Related wiring harness
2AD	Front HO2S	HO2S (front)	Idle (after warm up): Approx. 0 mA	—	• HO2S (front) • Related wiring harness
2AE	Variable tumble shutter valve monitor	Variable tumble shutter valve switch	ECT above 63 °C (145 °F) while idling. ECT below 63 °C (145 °F) and engine speed below 3,750 rpm	B+ Below 1.0	• Variable tumble shutter valve switch • Related wiring harness
2AF	—	—	—	—	—
2AG	Manifold absolute pressure	MAP sensor	Ignition switch to the ON position (at sea level) Idle	Approx. 4.1 Approx. 1.4	• MAP sensor • Related wiring harness
2AH	ECT	ECT sensor	Ignition switch to the ON position IAT 20 °C (68 °F) IAT 40 °C (104 °F) IAT 60 °C (140 °F) IAT 80 °C (176 °F) IAT 100 °C (212 °F)	3.04—3.14 2.09—2.21 1.29—1.39 0.76—0.83 0.46—0.49	• ECT sensor • Related wiring harness
2AI	Generator field coil control	Generator (terminal D)	• Inspect using the wave profile.	—	• Following PIDs: IAT, ECT, RPM, VPWR, ALTT V • Generator • Related wiring harness
2AJ	Generator output voltage	Generator (terminal F)	• Inspect using the wave profile.	—	• Generator • Related wiring harness
2AK	TP (No. 1)	TP sensor No. 1	Ignition switch to the ON position APP closed APP open	0.53—1.00 4.25—4.75	• TP sensor • Related wiring harness
2AL	TP (No. 2)	TP sensor No. 2	Ignition switch to the ON position APP closed APP open	4.00—4.47 0.25—0.75	• TP sensor • Related wiring harness
2AM	Constant voltage (Vref)	CMP sensor	Ignition switch to the ON position	B+	• CMP sensor • Related wiring harness
2AN	—	—	—	—	—
2AO	Constant voltage (Vref)	TP sensor	Ignition switch to the ON position	Approx. 5.0	• TP sensor • Related wiring harness
2AP	Sensor GND	TP sensor	Under any condition	Below 1.0	• TP sensor • Related wiring harness

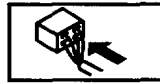
Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
2AQ	Constant voltage (Vref)	CKP sensor	Ignition switch to the ON position	B+	• CKP sensor • Related wiring harness
2AR	—	—	—	—	—
2AS	—	—	—	—	—
2AT	IGT4	Ignition coil (No.4 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2AU	Constant voltage (Vref)	MAP sensor, variable tumble shutter valve switch	Ignition switch to the ON position	Approx. 5.0	• MAP sensor • Variable tumble shutter valve switch • Related wiring harness
2AV	—	—	—	—	—
2AW	IGT2	Ignition coil (No.2 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2AX	IGT3	Ignition coil (No.3 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2AY	Sensor GND	Variable tumble shutter valve switch, ECT sensor, MAP sensor, HO2S (middle, rear)	Under any condition	Below 1.0	• Variable tumble shutter valve switch • ECT sensor • MAP sensor • HO2S (middle, rear) • Related wiring harness
2AZ	Fuel injection (#4)	Fuel injector No.4	• Inspect using the wave profile.	—	• Fuel injector No.4 • Related wiring harness
2BA	IGT1	Ignition coil (No.1 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2BB	Fuel injection (#1)	Fuel injector No.1	• Inspect using the wave profile.	—	• Fuel injector No.1 • Related wiring harness
2BC	Fuel injection (#2)	Fuel injector No.2	• Inspect using the wave profile.	—	• Fuel injector No.2 • Related wiring harness
2BD	Fuel injection (#3)	Fuel injector No.3	• Inspect using the wave profile.	—	• Fuel injector No.3 • Related wiring harness
2BE	Rear HO2S heater control	HO2S (Rear) heater	• Inspect using the wave profile.	—	• HO2S (Rear) heater • Related wiring harness
2BF	Middle HO2S heater control	HO2S (Middle) heater	• Inspect using the wave profile.	—	• HO2S (Middle) heater • Related wiring harness
2BG	Front HO2S heater control	HO2S (Front) heater	• Inspect using the wave profile.	—	• HO2S (Front) heater • Related wiring harness
2BH	GND	GND	Under any condition	Below 1.0	• Related wiring harness

-1 : ATX
-2 : MTX

PCM WIRING HARNESS-SIDE CONNECTOR

2BE	2BA	2AW	2AS	2AO	2AK	2AG	2AC	2Y	2U	2Q	2M	2I	2E	2A
2BF	2BB	2AX	2AT	2AP	2AL	2AH	2AD	2Z	2V	2R	2N	2J	2F	2B
2BG	2BC	2AY	2AU	2AQ	2AM	2AI	2AE	2AA	2W	2S	2O	2K	2G	2C
2BH	2BD	2AZ	2AV	2AR	2AN	2AJ	2AF	2AB	2X	2T	2P	2L	2H	2D

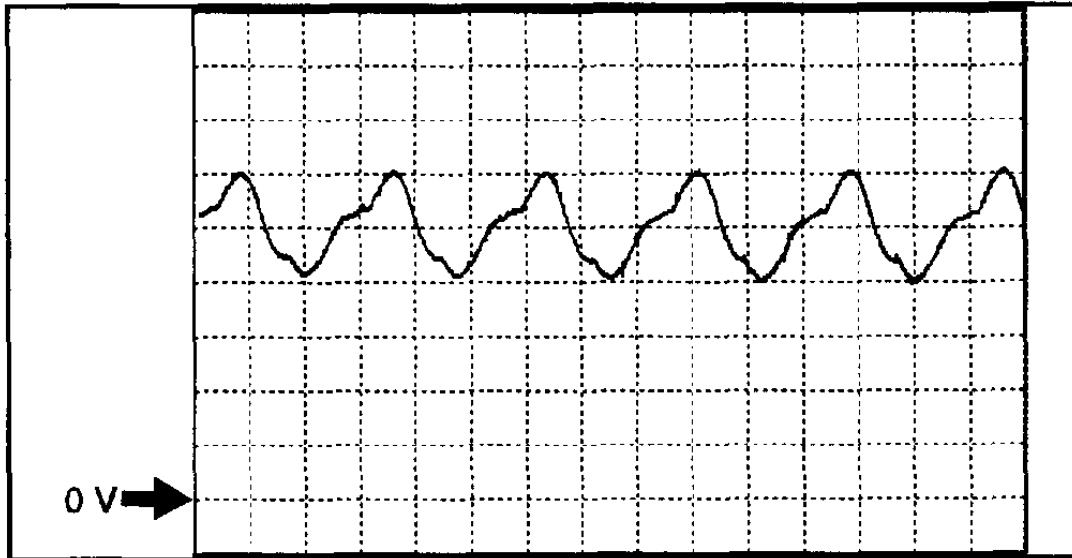
1BE	1BA	1AW	1AS	1AO	1AK	1AG	1AC	1Y	1U	1Q	1M	1I	1E	1A
1BF	1BB	1AX	1AT	1AP	1AL	1AH	1AD	1Z	1V	1R	1N	1J	1F	1B
1BG	1BC	1AY	1AU	1AQ	1AM	1AI	1AE	1AA	1W	1S	1O	1K	1G	1C
1BH	1BD	1AZ	1AV	1AR	1AN	1AJ	1AF	1AB	1X	1T	1P	1L	1H	1D



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Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
1A	B+	Main relay	Ignition switch off after 5 min Ignition switch to the ON position	Below 1.0 B+	• Battery • Related wiring harness
1B	Shift solenoid A	Shift solenoid A	(See Inspection Using An Oscilloscope (Reference).)	—	• Shift solenoid A • Related wiring harness
1C	Shift solenoid B	Shift solenoid B	(See Inspection Using An Oscilloscope (Reference).)	—	• Shift solenoid B • Related wiring harness
1D	Shift solenoid C	Shift solenoid C	(See Inspection Using An Oscilloscope (Reference).)	—	• Shift solenoid C • Related wiring harness
1E	Shift solenoid D	Shift solenoid D	During TCC operation Except above	B+ 1.0 or less	• Shift solenoid D • Related wiring harness
1F	Shift solenoid E	Shift solenoid E	During TCC operation Except above	B+ 1.0 or less	• Shift solenoid E • Related wiring harness
1G	Pressure control solenoid (+)	Pressure control solenoid	(See Inspection Using An Oscilloscope (Reference).)	—	• Pressure control solenoid • Related wiring harness
1H	Pressure control solenoid (-)	Pressure control solenoid	(See Inspection Using An Oscilloscope (Reference).)	—	• Pressure control solenoid • Related wiring harness
1I	—	—	—	—	—
1J	Vehicle speed	VSS	(See Inspection Using An Oscilloscope (Reference).)	—	• VSS • Related wiring harness
1K	Manual up	Up switch	Ignition switch is turned to the ON position. Detects up-shift operation of selector lever in M range Others	1.0 or less B+	• Selector lever • Related wiring harness
1L	—	—	—	—	—
1M	Input/turbine speed sensor (+)	Input/turbine speed sensor	(See Inspection Using An Oscilloscope (Reference).)	—	• Input/turbine speed sensor • Related wiring harness
1N	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item	
1O	M range switch	M range switch	Ignition switch is turned to the ON position. Except above	1.0 or less B+	• Selector lever • Related wiring harness	
1P	Manual down	Down switch	Ignition switch is turned to the ON position. Others	1.0 or less B+	• Selector lever • Related wiring harness	
1Q	Input/turbine speed sensor (-)	Input/turbine speed sensor	(See Inspection Using An Oscilloscope (Reference).)	—	• Input/turbine speed sensor • Related wiring harness	
1R	Refrigerant pressure switch (medium)	Refrigerant pressure switch (medium)	A/C ON	Refrigerant pressure is above 1.52 MPa (15.5 kgf/cm ² , 220 psi)	Below 1.0	• Refrigerant pressure switch • Related wiring harness
				Refrigerant pressure is below 1.23 MPa (12.3 kgf/cm ² , 178 psi)	B+	
1S	Selector lever position	TR switch	Ignition switch is turned to the ON position	P position	Approx. 4.6	• TR switch • Related wiring harness
				R position	Approx. 3.8	
				N position	Approx. 3.2	
				D range	Approx. 2.5	
				M range	Approx. 2.5	
1T	—	—	—	—	—	
1U	ATF temperature	TFT sensor	Ignition switch is turned to the ON position. TFT is 20 °C (68 °F) TFT is 40 °C (104 °F) TFT is 50 °C (140 °F)	Approx. 3.3 Approx. 2.4 Approx. 1.5	• TFT sensor • Related wiring harness	
1V	—	—	—	—	—	
1W	Cooling fan control	Fan control module	• Inspect using the wave profile. (See Inspection Using An Oscilloscope (Reference).)	—	• Fan control module. • Related wiring harness	
1X	—	—	—	—	—	
1Y	APP sensor 1	APP sensor	Ignition switch to the ON position	When the accelerator pedal is depressed	Approx. 3.0	• APP sensor • Related wiring harness
				When the accelerator pedal is released	Approx. 0.4	
1Z	—	—	—	—	—	
1AA	Sensor GND	TR sensor, TFT sensor, KIT sensor, APP sensor	Under any condition	Below 1.0	• Related wiring harness	
1AB	Starter relay control	Starter relay	Under any condition	Below 1.0	• Starter relay • Related wiring harness	



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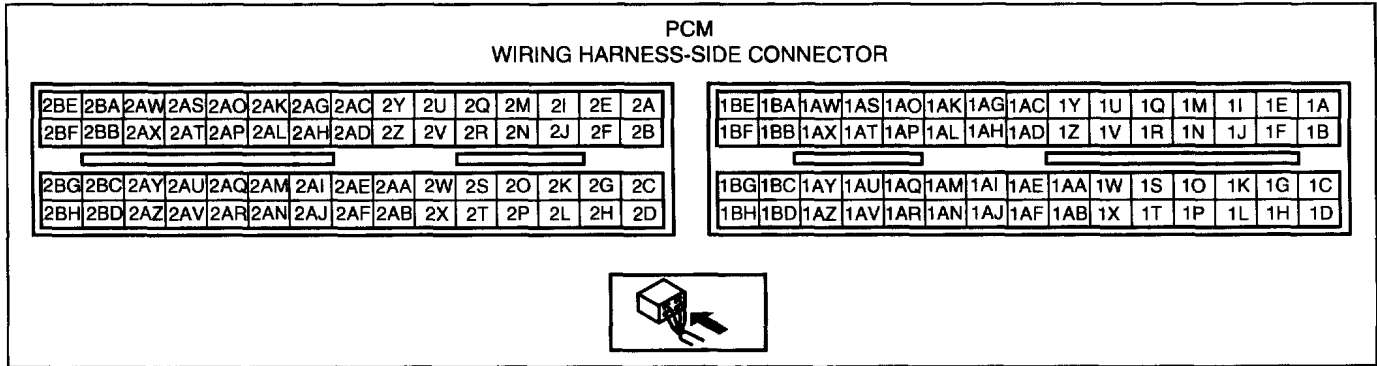
Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
1AC	MAF	MAF sensor	Ignition switch to the ON position Idle (after warm up)	Approx. 1.7 Approx. 1.3	• MAF sensor • Related wiring harness
1AD	Cruise control switch	Cruise control switch	Ignition switch to the ON position ON/OFF switch pressed in CANCEL switch pressed in SET/COAST switch pressed in RES/ACCEL switch pressed in Except above	Approx. 0 Approx. 1.1 Approx. 3.1 Approx. 4.2 Approx. 5	• Cruise control switch • Related wiring harnesses
1AE	Sensor GND	MAF sensor	Under any condition	Below 1.0	• Related wiring harness
1AF	EVAP leak detection pump (pump)	EVAP leak detection pump	Ignition switch to the ON position Idling	B+ B+	• EVAP leak detection pump • Related wiring harnesses
1AG	Atmospheric pressure	BARO sensor	Ignition switch to the ON position (at sea level)	Approx. 4.0	• BARO sensor • Related wiring harness
1AH	IAT	MAF/IAT sensor	Ignition switch to the ON position IAT 0 °C (32 °F) IAT 20 °C (68 °F) IAT 40 °C (104 °F) IAT 60 °C (140 °F) IAT 80 °C (176 °F) IAT 100 °C (212 °F)	Approx. 3.43 Approx. 2.38 Approx. 1.49 Approx. 0.89 Approx. 0.53 Approx. 0.33	• IAT sensor • Related wiring harness
1AI	CAN (L)	Instrument cluster, ABS Hi/COM, EHPAS control module	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible	—	• Related wiring harness
1AJ	EVAP leak detection pump (solenoid)	EVAP leak detection pump	Ignition switch to the ON position Idling	B+ B+	• EVAP leak detection pump • Related wiring harnesses
1AK	—	—	—	—	—
1AL	APP sensor 2	APP sensor	• Inspect using the wave profile.	—	• APP sensor • Related wiring harness
1AM	CAN (H)	Instrument cluster, ABS Hi/COM, EHPAS control module	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible	—	• Related wiring harness
1AN	A/C	A/C relay	Idle A/C operating A/C not operating	Below 1.0 B+	• A/C relay • Related wiring harness
1AQ	—	—	—	—	—
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 wiring harness
1AQ	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
1AR	Fuel pump control	Fuel pump relay	Ignition switch to the ON position after 1 s Cranking Idle	B+ Below 1.0 Below 1.0	• Fuel pump relay • Related wiring harness
1AS	—	—	—	—	—
1AT	Main relay control	Main relay	Ignition switch off after 5 min Ignition switch to the ON position	B+ Below 1.0	• Main relay • Related wiring harness
1AU	Brake	Brake switch	Brake pedal depressed Brake pedal released	B+ Below 1.0	• Brake switch • Related wiring harness
1AV	GND (shield)	Input/turbine speed sensor harness, GND	Under any condition	Below 1.0	• Related wiring harness
1AW	Constant voltage (Vref)	APP sensor	Ignition switch to the ON position	Approx. 5.0	• Related wiring harness
1AX	Ignition switch	Ignition switch	Ignition switch off Ignition switch to the ON position	Below 1.0 B+	• Related wiring harness
1AY	Drive-by-wire relay	Drive-by-wire relay	Ignition switch off Ignition switch to the ON position	B+ Below 1.0	• Related wiring harness
1AZ	GND	GND	Under any condition	Below 1.0	• Related wiring harness
1BA	Back-up power supply	Battery (positive terminal)	Under any condition	B+	• Battery • Related wiring harness
1BB	GND	GND	Under any condition	Below 1.0	• Related wiring harness
1BC	GND	GND	Under any condition	Below 1.0	• Related wiring harness
1BD	GND	GND	Under any condition	Below 1.0	• Related wiring harness
1BE	B+	Main relay	Ignition switch off after 5 min Ignition switch to the ON position	Below 1.0 B+	• Battery • Related wiring harness
1BF	Throttle actuator power supply	Drive-by-wire relay	Ignition switch off after 10 s Ignition switch to the ON position	Below 1.0 B+	• Related wiring harness
1BG	GND	GND	Under any condition	Below 1.0	• Related wiring harness
1BH	GND	GND	Under any condition	Below 1.0	• Related wiring harness
2A	Throttle actuator control (+)	Throttle actuator	Ignition switch to the ON position	B+	• Throttle actuator • Related wiring harness
2B	Throttle actuator control (-)	Throttle actuator	Idle (after warm up)	Approx. 3.5–5.5	• Throttle actuator • Related wiring harness
2C	Rear HC2S heater control	HC2S (Rear) heater	Idle (after warm up) Engine speed above 4,000 rpm	Below 1.0 B+	• HC2S (Rear) heater • Related wiring harness
2D	—	—	—	—	—
2E	—	—	—	—	—
2F	—	—	—	—	—
2G	Front HC2S heater control	HC2S (Front) heater	• Inspect using the wave profile.	—	• HC2S (Front) heater • Related wiring harness
2H	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
2I	TP (No. 2)	TP sensor No. 2	Ignition switch to the ON position APP closed APP open	4.00— 4.47 0.52— 0.75	• TP sensor • Related wiring harness
2J	—	—	—	—	—
2K	Constant voltage (Vref)	TP sensor	Ignition switch to the ON position	Approx. 5.0	• TP sensor • Related wiring harness
2L	—	—	—	—	—
2M	TP (No. 1)	TP sensor No. 1	Ignition switch to the ON position APP closed APP open	0.53— 1.00 4.25— 4.75	• TP sensor • Related wiring harness
2N	—	—	—	—	—
2O	TP sensor GND	TP sensor	Under any condition	Below 1.0	• TP sensor • Related wiring harness
2P	GND (ahead)	KS harness, HO2S (front, rear), GND	Under any condition	Below 1.0	• Related wiring harness
2Q	Knocking (+)	KS	Ignition switch to the ON position (Use digital type voltmeter, because measurement voltage will be detected less than true voltage when using analog type voltmeter)	Approx. 4.3	• KS • Related wiring harness
2R	Knocking (-)	KS	Ignition switch to the ON position (Use digital type voltmeter, because measurement voltage will be detected less than true voltage when using analog type voltmeter)	Below 1.0	• KS • Related wiring harness
2S	—	—	—	—	—
2T	Constant voltage (Vref)	CKP sensor	Ignition switch to the ON position	B+	• CKP sensor • Related wiring harness
2U	CKP	CKP sensor	• Inspect using the wave profile.	—	• CKP sensor • Related wiring harness
2V	CMP	CMP sensor	• Inspect using the wave profile.	—	• CMP sensor • Related wiring harness
2W	Constant voltage (Vref)	MAP sensor, variable tumble shutter valve switch	Ignition switch to the ON position	Approx. 5.0	• Related wiring harness
2X	Constant voltage (Vref)	CMP sensor	Ignition switch to the ON position	B+	• CKP sensor • Related wiring harness
2Y	—	—	—	—	—
2Z	HO2S (front) power supply	HO2S (front)	Idle (after warm up)	Approx. 4.1	• HO2S (front) • Related wiring harness
2AA	Sensor GND	HO2S (rear), ECT sensor, MAP sensor, variable tumble shutter valve switch	Under any condition	Below 1.0	• Related wiring harness
2AB	—	—	—	—	—
2AC	HO2S (front) VSIP	HO2S (front)	Idle (after warm up)	Approx. 4.0	• HO2S (front) • Related wiring harness

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
2AD	HO2S (front) IP+	HO2S (front)	When the engine speed is increased, the voltage increased.	—	• HO2S (front) • Related wiring harness
2AE	Variable tumble shutter valve monitor	Variable tumble shutter valve switch	ECT above 63 °C (145 °F) while idling. ECT below 63 °C (145 °F) and engine speed below 3,750 rpm	B+ Below 1.0	• Variable tumble shutter valve switch • Related wiring harness
2AF	OCV control	OCV	• Inspect using the wave profile.	—	• OCV valve • Related wiring harness
2AG	Front HO2S	HO2S (front)	• Inspect using the wave profile.	—	• HO2S (front) • Related wiring harness
2AH	Rear HO2S	HO2S (rear)	Ignition switch to the ON position Idle (after warm up)	Approx. 0 Alternates between 0 and 1.0	• HO2S (rear) • Related wiring harness
2AI	Variable tumble control	Variable tumble solenoid valve	ECT above 62 °C (143 °F) while idling. ECT below 63 °C (145 °F) and engine speed below 3,750 rpm	B+ Below 1.0	• Variable tumble solenoid valve • Related wiring harness
2AJ	Variable intake air control	Variable intake air solenoid valve	Ignition switch to the ON position Engine speed below 4,750 rpm Engine speed above 4,750 rpm	Below 1.0 Below 1.0 B+	• Variable intake air solenoid valve • Related wiring harness
2AK	ECT	ECT sensor	Ignition switch to the ON position IAT 20 °C (68 °F) IAT 40 °C (104 °F) IAT 60 °C (140 °F) IAT 80 °C (176 °F) IAT 100 °C (212 °F)	3.04— 3.14 2.09— 2.21 1.29— 1.39 0.75— 0.83 0.45— 0.49	• ECT sensor • Related wiring harness
2AL	Manifold absolute pressure	MAP sensor	Ignition switch to the ON position (at sea level) Idle	Approx. 4.1 Approx. 1.2	• MAP sensor • Related wiring harness
2AM	Generator output voltage	Generator (terminal F)	• Inspect using the wave profile.	—	• Generator • Related wiring harness
2AN	Purge control	Purge solenoid valve	• Inspect using the wave profile.	—	• Purge solenoid valve • Related wiring harness
2AO	—	—	—	—	—
2AP	—	—	—	—	—
2AQ	Generator field coil control	Generator (terminal D)	• Inspect using the wave profile.	—	• Following PIDs: IAT, ECT, RPM, VPWR, ALTY • Generator • Related wiring harness
2AR	EGR valve #2 coil control	EGR valve (terminal A)	Ignition switch to the ON position Idle	B+ B+	• EGR valve • Related wiring harness
2AS	—	—	—	—	—
2AT	—	—	—	—	—
2AU	EGR valve #1 coil control	EGR valve (terminal E)	Ignition switch to the ON position Idle	Below 1.0 Below 1.0	• EGR valve • Related wiring harness

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
2AV	EGR valve #4 coil control	EGR valve (terminal F)	Ignition switch to the ON position Idle	Below 1.0 Below 1.0	<ul style="list-style-type: none"> EGR valve Related wiring harness
2AW	—	—	—	—	—
2AX	—	—	—	—	—
2AY	EGR valve #3 coil control	EGR valve (terminal B)	Ignition switch to the ON position Idle	B+ B+	<ul style="list-style-type: none"> EGR valve Related wiring harness
2AZ	Fuel injection (#4)	Fuel injector No.4	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Fuel injector No.4 Related wiring harness
2BA	—	—	—	—	—
2BB	Fuel injection (#1)	Fuel injector No.1	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Fuel injector No.1 Related wiring harness
2BC	Fuel injection (#2)	Fuel injector No.2	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Fuel injector No.2 Related wiring harness
2BD	Fuel injection (#3)	Fuel injector No.3	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Fuel injector No.3 Related wiring harness
2BE	IGT1	Ignition coil (No.1 cylinders)	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Ignition coil Related wiring harness
2BF	IGT2	Ignition coil (No.2 cylinders)	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Ignition coil Related wiring harness
2BG	IGT3	Ignition coil (No.3 cylinders)	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Ignition coil Related wiring harness
2BH	IGT4	Ignition coil (No.4 cylinders)	<ul style="list-style-type: none"> Inspect using the wave profile. 		<ul style="list-style-type: none"> Ignition coil Related wiring harness



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Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
1A	—	—	—	—	—
1B	Starter relay control	Starter relay	Under any condition	Below 1.0	<ul style="list-style-type: none"> Starter relay Related wiring harness

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
1C	—	—	—	—	—
1D	Clutch operation ²	CPP switch	Clutch pedal depressed Clutch pedal released	Below 1.0 B+	• CPP switch • Related wiring harness
1E	—	—	—	—	—
1F	—	—	—	—	—
1G	—	—	—	—	—
1H	Fuel pump relay	Fuel pump relay	Ignition switch to the ON position Cranking Idle	B+ Below 1.0 Below 1.0	• Fuel pump relay • Related wiring harness
1I	A/C	A/C relay	Idle A/C operating A/C not operating	Below 1.0 B+ B+	• A/C relay • Related wiring harness
1J	Refrigerant pressure switch (medium)	Refrigerant pressure switch (medium)	A/C ON Refrigerant pressure is above 1.52 MPa (15.5 kgf/cm ² , 220 psi) Refrigerant pressure is below 1.25 MPa (12.5 kgf/cm ² , 178 psi)	Below 1.0 B+	• Refrigerant pressure switch • Related wiring harness
1K	—	—	—	—	—
1L	—	—	—	—	—
1M	—	—	—	—	—
1N	—	—	—	—	—
1O	—	—	—	—	—
1P	—	—	—	—	—
1Q	Main relay control	Main relay	Ignition switch off after 15 min Ignition switch to the ON position	B+ Below 1.0	• Main relay • Related wiring harness
1R	Cooling fan control	Fan control module	• Inspect using the wave profile.	—	• Fan control module • Related wiring harness
1S	—	—	—	—	—
1T	—	—	—	—	—
1U	EVAP leak detection pump (pump)	EVAP leak detection pump	Ignition switch to the ON position Idling	B+ B+	• EVAP leak detection pump • Related wiring harnesses
1V	EVAP leak detection pump (solenoid)	EVAP leak detection pump	Ignition switch to the ON position Idling	B+ B+	• EVAP leak detection pump • Related wiring harnesses
1W	—	—	—	—	—
1X	Neutral position ²	Neutral switch	Ignition switch is turned to the ON position Shift lever is at neutral position Shift lever is not at neutral position	Below 1.0 B+	• Neutral switch • Related wiring harness
1Y	—	—	—	—	—
1Z	—	—	—	—	—
1AA	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection Item
1AB	Brake	Brake switch	Brake pedal depressed Brake pedal released	B+ Below 1.0	• Brake switch • Related wiring harness
1AC	—	—	—	—	—
1AD	—	—	—	—	—
1AE	—	—	—	—	—
1AF	—	—	—	—	—
1AG	—	—	—	—	—
1AH	—	—	—	—	—
1AI	CAN (L)	Instrument cluster, ABS HU/CM, EHPAS control module	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible.	—	• Related wiring harness
1AJ	—	—	—	—	—
1AK	MAF	MAF sensor	Ignition switch to the ON position Idle (after warm up)	Approx. 0.7 Approx. 1.5	• MAF sensor • Related wiring harness
1AL	Constant voltage (Vref)	APP sensor	Ignition switch to the ON position	Approx. 5.0	• Related wiring harness
1AM	CAN (H)	Instrument cluster, ABS HU/CM, EHPAS control module	Because this terminal is for CAN, good/no good judgment by terminal voltage is not possible.	—	• Related wiring harness
1AN	—	—	—	—	—
1AO	APP sensor 2	APP sensor	• Inspect using the wave profile.	—	• APP sensor • Related wiring harness
1AP	APP sensor 1	APP sensor	Ignition switch to the ON position When the accelerator pedal is depressed When the accelerator pedal is released	Approx. 3.0 Approx. 0.4	• APP sensor • Related wiring harness
1AQ	Cruise control switch	Cruise control switch	Ignition switch to the ON position ON/OFF switch pressed in CANCEL switch pressed in SET/COAST switch pressed in RES/ACCEL switch pressed in Except above	Approx. 0 Approx. 1.1 Approx. 3.1 Approx. 4.2 Approx. 5	• Cruise control switch • Related wiring harnesses
1AR	Sensor GND	MAF sensor	Under any condition	Below 1.0	• Related wiring harness
1AS	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
IAT	IAT	MAF/IAT sensor	Ignition switch to the ON position	IAT 0 °C (32 °F) Approx. 3.43 IAT 20 °C (68 °F) Approx. 2.38 IAT 40 °C (104 °F) Approx. 1.49 IAT 60 °C (140 °F) Approx. 0.59 IAT 80 °C (176 °F) Approx. 0.55 IAT 100 °C (212 °F) Approx. 0.33	IAT sensor • Related wiring harness
1AU	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 wiring harness
1AV	Sensor GND	IAT sensor, APP sensor	Under any condition	—	Below 1.0 • Related wiring harness
1AW	—	—	—	—	—
1AX	Drive-by-wire relay control	Drive-by-wire relay	Ignition switch off	B+ → Below 1.0	Below 1.0 • Drive-by-wire relay • Related wiring harness
1AY	Ignition switch	Ignition switch	Ignition switch to the ON position	Ignition switch to the ON position	Below 1.0 • Related wiring harness
1AZ	GND	GND	Under any condition	—	Below 1.0 • Related wiring harness
1BA	Back-up power supply	Battery (positive terminal)	Under any condition	B+	• Battery • Related wiring harness
1BB	GND	GND	Under any condition	—	Below 1.0 • Related wiring harness
1BC	—	—	—	—	—
1BD	GND	GND	Under any condition	—	Below 1.0 • Related wiring harness
1BE	B+	Main relay	Ignition switch off after 15 min	Below 1.0	• Battery • Related wiring harness
1BF	B+	Drive-by-wire relay	Ignition switch to the ON position	Ignition switch to the ON position	Below 1.0 • Battery • Related wiring harness
1BG	—	—	—	—	—
1BH	GND	GND	Under any condition	—	Below 1.0 • Related wiring harness
2A	Throttle actuator control (+)	Throttle actuator	Ignition switch to the ON position	B+	• Throttle actuator • Related wiring harness
2B	Throttle actuator control (-)	Throttle actuator	Idle (after warm up)	Approx. 3.5–5.5	• Throttle actuator • Related wiring harness
2C	Purge control	Purge solenoid valve	• Inspect using the wave profile.	—	• Purge solenoid valve • Related wiring harness
2D	—	—	—	—	—
2E	OCV control	OCV	• Inspect using the wave profile.	—	• OCV valve • Related wiring harness
2F	—	—	—	—	—
2G	EGR valve #2 coil control	EGR valve (terminal A)	Ignition switch to the ON position	B+	• EGR valve • Related wiring harness
			Idle	B+	• Related wiring harness

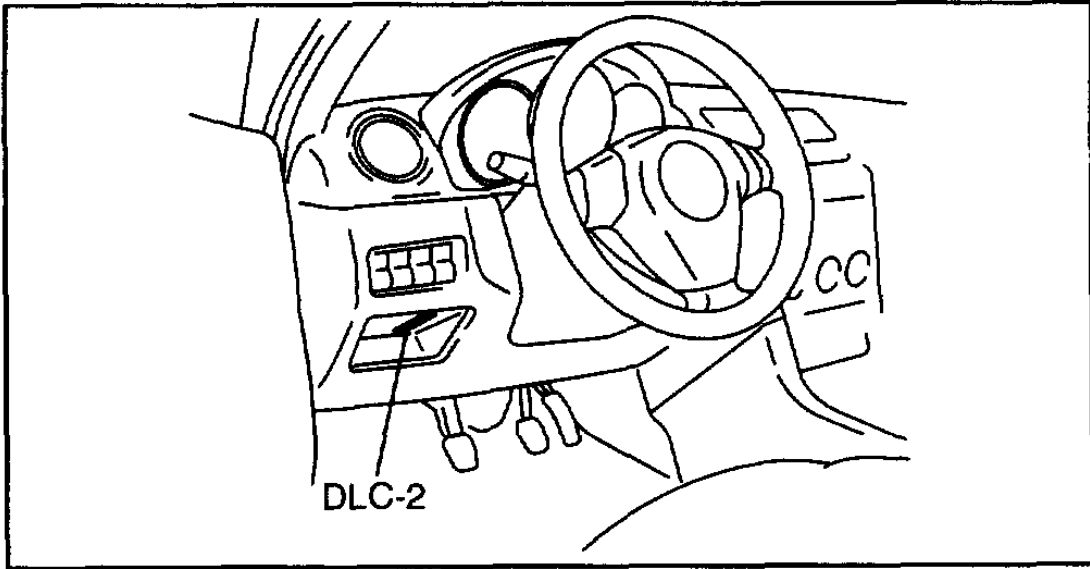
Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
2H	EGR valve #4 coil control	EGR valve (terminal F)	Ignition switch to the ON position	B+	• EGR valve • Related wiring harness
2I	Variable tumble control	Variable tumble solenoid valve	ECT above 62 °C (143 °F) while idling	B+	• Variable tumble solenoid valve • Related wiring harness
			ECT below 63 °C (145 °F) and engine speed below 3,750 rpm	Below 1.0	
2J	Variable intake air control	Variable intake air solenoid valve	Ignition switch to the ON position	Below 1.0	• Variable intake air solenoid valve • Related wiring harness
			Engine speed: below 4,750 rpm (LJ) 4,600 rpm (L3)	Below 1.0	
			Engine speed: above 4,750 rpm (LJ) 4,600 rpm (L3)	B+	
2K	EGR valve #1 coil control	EGR valve (terminal E)	Ignition switch to the ON position	Below 1.0	• EGR valve • Related wiring harness
2L	EGR valve #3 coil control	EGR valve (terminal B)	Ignition switch to the ON position	B+	• EGR valve • Related wiring harness
2M	—	—	—	—	—
2N	—	—	—	—	—
2O	—	—	—	—	—
2P	Sensor GND	Variable tumble shutter valve switch, ECT sensor, MAP sensor, HO2S (middle, rear)	Under any condition	Below 1.0	• Variable tumble shutter valve switch • ECT sensor • MAP sensor • HO2S (middle, rear) • Related wiring harness
2Q	Rear HO2S	HO2S (rear)	Ignition switch to the ON position	Approx. 0	• HO2S (rear) • Related wiring harness
			Idle (after warm up)	Alternates between 0 and 1.0	
2R	—	—	—	—	—
2S	CMP	CMP sensor	• Inspect using the wave profile.	—	• CMP sensor • Related wiring harness
2T	—	—	—	—	—
2U	Knocking (+)	KS	Ignition switch to the ON position (Use digital type voltmeter; because measurement voltage will be detected less than true voltage when using analog type voltmeter)	Approx. 4.3	• KS • Related wiring harness
2V	Knocking (-)	KS	Ignition switch to the ON position (Use digital type voltmeter; because measurement voltage will be detected less than true voltage when using analog type voltmeter)	Below 1.0	• KS • Related wiring harness
2W	CKP	CKP sensor	• Inspect using the wave profile.	—	• CKP sensor • Related wiring harness
2X	GND (shield)	KS harness, HO2S (front, middle, rear) harness, GND	Under any condition	Below 1.0	• Related wiring harness
2Y	—	—	—	—	—
2Z	HO2S (front) power supply	HO2S (front)	Idle (after warm up)	Approx. 4.1	• HO2S (front) • Related wiring harness
2AA	—	—	—	—	—

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item	
2AB	—	—	—	—	—	
2AC	HO2S (front) VSIP	HO2S (front)	Idle (after warm up)	Approx. 4.0	• HO2S (front) • Related wiring harness	
2AD	HO2S (front) IP+	HO2S (front)	When the engine speed is increased, the voltage increases.	—	• HO2S (front) • Related wiring harness	
2AE	Variable tumble shutter valve monitor	Variable tumble shutter valve switch	ECT above 63 °C (145 °F) while idling. ECT below 63 °C (145 °F) and engine speed below 3,750 rpm	B+	• Variable tumble shutter valve switch • Related wiring harness	
2AF	—	—	—	Below 1.0	—	
2AG	Manifold absolute pressure	MAP sensor	Ignition switch to the ON position (at sea level)	Approx. 4.1	• MAP sensor • Related wiring harness	
2AH	ECT	ECT sensor	Ignition switch to the ON position	Idle	Approx. 1.4	• ECT sensor • Related wiring harness
				AT 20 °C (68 °F)	3.04—3.14	
				AT 40 °C (104 °F)	2.08—2.21	
				AT 60 °C (140 °F)	1.26—1.39	
				AT 80 °C (176 °F)	0.76—0.83	
AT 100 °C (212 °F)	0.45—0.49					
2AI	Generator field coil control	Generator (terminal D)	• Inspect using the wave profile.	—	• Following PIDs: IAT, ECT, RPM, VPM, ALT V • Generator • Related wiring harness	
2AJ	Generator output voltage	Generator (terminal F)	• Inspect using the wave profile.	—	• Generator • Related wiring harness	
2AK	TP (No. 1)	TP sensor No. 1	Ignition switch to the ON position	APP closed	0.53—1.00	• TP sensor • Related wiring harness
				APP open	4.25—4.75	
2AL	TP (No. 2)	TP sensor No. 2	Ignition switch to the ON position	APP closed	4.00—4.47	• TP sensor • Related wiring harness
				APP open	0.25—0.75	
2AM	Constant voltage (Vref)	CMP sensor	Ignition switch to the ON position	B+	• CMP sensor • Related wiring harness	
2AN	—	—	—	—	—	
2AO	Constant voltage (Vref)	TP sensor	Ignition switch to the ON position	Approx. 5.0	• TP sensor • Related wiring harness	
2AP	Sensor GND	TP sensor	Under any condition	Below 1.0	• TP sensor • Related wiring harness	
2AQ	Constant voltage (Vref)	CKP sensor	Ignition switch to the ON position	B+	• CKP sensor • Related wiring harness	
2AR	Constant voltage (Vref)	MAP sensor, variable tumble shutter valve switch	Ignition switch to the ON position	Approx. 5.0	• MAP sensor • Variable tumble shutter valve switch • Related wiring harness	

Terminal	Signal	Connected to	Test condition	Voltage (V)	Inspection item
2AS	—	—	—	—	—
2AT	IGT4	Ignition coil (No.4 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2AU	—	—	—	—	—
2AV	—	—	—	—	—
2AW	IGT2	Ignition coil (No.2 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2AX	IGT3	Ignition coil (No.3 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2AY	—	—	—	—	—
2AZ	Fuel injection (#4)	Fuel injector No.4	• Inspect using the wave profile.	—	• Fuel injector No.4 • Related wiring harness
2BA	IGT1	Ignition coil (No.1 cylinders)	• Inspect using the wave profile.	—	• Ignition coil • Related wiring harness
2BB	Fuel injection (#1)	Fuel injector No.1	• Inspect using the wave profile.	—	• Fuel injector No.1 • Related wiring harness
2BC	Fuel injection (#2)	Fuel injector No.2	• Inspect using the wave profile.	—	• Fuel injector No.2 • Related wiring harness
2BD	Fuel injection (#3)	Fuel injector No.3	• Inspect using the wave profile.	—	• Fuel injector No.3 • Related wiring harness
2BE	Rear HO2S heater control	HO2S (Rear) heater	• Inspect using the wave profile.	—	• HO2S (Rear) heater • Related wiring harness
2BF	—	—	—	—	—
2BG	Front HO2S heater control	HO2S (Front) heater	• Inspect using the wave profile.	—	• HO2S (Front) heater • Related wiring harness
2BH	—	—	—	—	—

*1 : ATX
*2 : MTX

PCM Configuration (Article 1359873)



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