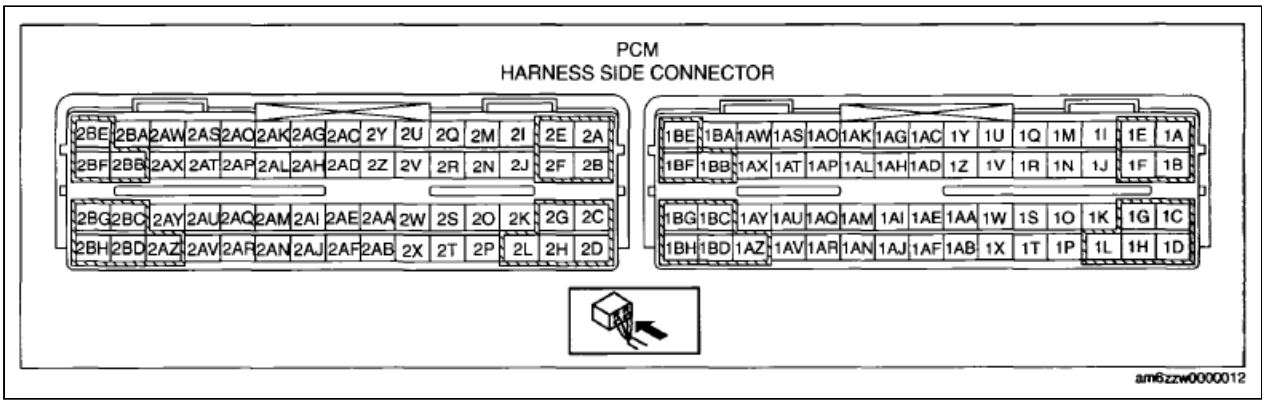
PRODEMAND

YMMS: 2011 Mazda 3 Mazdaspeed
Engine: 2.3L Eng
VIN:

May 31, 2022
License:
Odometer:

PCM Connector End View

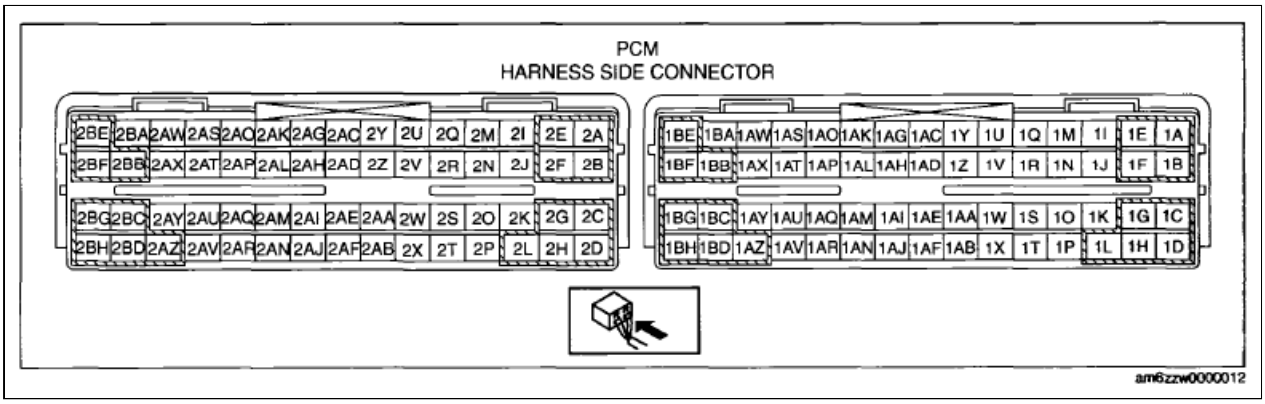
Fig 1: PCM Connector End View



Courtesy of MAZDA MOTORS CORP.

PCM Connector Terminal Identification

Fig 2: PCM Connector Terminal Identification



Courtesy of MAZDA MOTORS CORP.

PCM TERMINAL VOLTAGE TABLE (REFERENCE)

Terminal	Signal	Connected to	Test condition		Voltage (V)	Inspection item
1A	-	-	-	-		-
1B	Starter relay control	Starter relay	Switch the ignition to off		Below 1.0	• Starter relay • Related wiring harness
			Switch the ignition to ON		Below 1.0	

1C	-	-	-		-	-
1D	Clutch operation	CPP switch	Clutch pedal depressed		Approx. 1.5	• CPP switch • Related wiring harness
			Clutch pedal released		B+	
1E	-	-	-		-	-
1F	-	-	-		-	-
1G	-	-	-		-	-
1H	Fuel pump control	Fuel pump relay	Switch the ignition to ON		B+	• Fuel pump relay • Related wiring harness
			Cranking		B+	
			Idle		Below 1.0	
11	A/C	A/C relay	Idle	A/C operating	Below 1.0	• A/C relay • Related wiring harness
				A/C not operating	B+	
1J	-	-	-		-	-
1K	-	-	-		-	-
1L	-	-	-		-	-
1M	IAT	MAF/IAT sensor	Switch the ignition to ON	IAT 20°C {68°F}	2.4E.6	• MAF/IAT sensor • Related wiring harness
				IAT 30°C {86°F}	1.7E.9	
1N	Constant voltage (Vref)	Fuel tank pressure sensor	Switch the ignition to ON		Approx. 5.0	• Related wiring harness
1O	-	-	-		-	-
1P	MAF sensor ground	MAF/IAT sensor	Under any condition		Below 1.0	• Related wiring harness
1Q	APP sensor voltage	APP sensor	Switch the ignition to ON		Approx. 5.0	• APP sensor • Related wiring harness

1R	-	-	-	-	-
1S	Neutral position	Neutral switch	Shift lever is at neutral position	Approx. 1.5	• Neutral switch • Related wiring harness
			Shift lever is not at neutral position	B+	
1T	-	-	-	-	-
1U	APP sensor ground	APP sensor	Under any condition	Below 1.0	• APP sensor • Related wiring harness
1V	-	-	-	-	-
1W	Cruise control switch ground	Cruise control switch	Under any condition	Below 1.0	• Related wiring harness
1X	-	-	-	-	-
1Y	APP sensor (No. 1)	APP sensor No. 1	Switch the ignition to ON: When the accelerator pedal is released	Approx. 0.4	• APP sensor • Related wiring harness
			Switch the ignition to ON: When the accelerator pedal is depressed	Approx. 3.4	
1Z	-	-	-	-	-
1AA	Fuel pump speed control	Fuel pump speed control relay	Switch the ignition to ON	B+	• Fuel pump speed control relay • Related wiring harness
			Cranking	Below 1.0	
			Idle	Below 1.0	
1AB	Brake	Brake switch	Brake pedal depressed	B+	• Brake switch • Related wiring harness
			Brake pedal released	Below 1.0	
1AC	APP sensor (No. 2)	APP sensor No. 2	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• APP sensor • Related wiring harness

1AD	-	-	-	-	-
1AE	Fan control module	Fan control module	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Fan control module • Related wiring harness
1AF	-	-	-	-	-
1AG	Fuel tank pressure	Fuel tank pressure sensor	Fuel tank pressure is 10 kPa {0.10 kgf/cm2, 1.5 psi} lower than barometric pressure	Approx. 1.2	• Fuel tank pressure sensor • Related wiring harness
			Fuel tank pressure is equal to barometric pressure	Approx. 2.6	
			Fuel tank pressure is 6 kPa {0.06 kgf/cm2, 0.9 psi} higher than barometric pressure	Approx. 3.7	
1AH	-	-	-	-	-
1AI	CAN (L)	CAN system related modules	Because this terminal is for CAN, no valid determination of terminal voltage is possible		• Related wiring harness
1AJ	Constant voltage	APP sensor	Switch the ignition to ON	Approx. 5.0	• Related wiring harness
1AK	MAF	MAF/IAT sensor	Switch the ignition to ON	Approx. 0.7	• MAF/IAT sensor • Related wiring harness
			Idle	Approx. 1.3	
1AL	-	-	-	-	-
1AM	CAN (H)	CAN system related modules	Because this terminal is for CAN, no valid determination of terminal voltage is possible		• Related wiring harness
1AN	-	-	-	-	-
1AO	-	-	-	-	-
1AP	-	-	-	-	-
1AQ	Cruise control switch	Cruise control switch	Switch the ignition to ON	OFF switch pressed in: Approx. 0	• Cruise control switch
				CANCEL switch pressed in: Approx. 1.4	

			SET/- switch pressed in	Approx. 2.4	• Related wiring harness
			RES/+ switch pressed in	Approx. 3.9	
			ON switch pressed in	Approx. 4.3	
			Except above	Approx. 4.7	
1AR	IAT sensor ground	MAF/IAT sensor, fuel tank pressure sensor, ECT sensor No. 2	Under any condition	Below 1.0	• Related wiring harness
1AS	CV solenoid control	CV solenoid valve	Switch the ignition to ON	B+	• CV solenoid valve • Related wiring harness
			Idle (CV solenoid valve not operating)	B+	
			Idle (CV solenoid valve operating)	Below 1.0	
1AT	Main relay control	Main relay	Switch the ignition to off	B+	• Main relay • Related wiring harness
			Switch the ignition to ON	Below 1.0	
1AU	-	-	-	-	-
1AV	APP sensor ground	APP sensor	Under any condition	Below 1.0	• Related wiring harness
1AW	Generator field coil control	Generator (terminal D)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Generator • Related wiring harness
1AX	Generator output voltage	Generator (terminal P)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Generator • Related wiring harness
1AY	Ignition switch	Ignition switch(1), Ignition relay No. 1(2)	Switch the ignition to off	Below 1.0	• Ignition switch(1), Ignition relay No. 1(2) • Related wiring
			Switch the ignition to ON	B+	

					harness
1AZ	Ground	Ground	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	Ground	Ground	Under any condition	Below 1.0	• Related wiring harness
1BC	-	-	-	-	-
1BD	Ground	Ground	Under any condition	Below 1.0	• Related wiring harness
1BE	Power supply	Main relay	Switch the ignition to off	Below 1.0	• Related wiring harness
			Switch the ignition to ON	B+	
1BF	Power supply	Main relay	Switch the ignition to off	Below 1.0	• Related wiring harness
			Switch the ignition to ON	B+	
1BG	Ground	Ground	Under any condition	Below 1.0	• Related wiring harness
1BH	Ground	Ground	Under any condition	Below 1.0	• Related wiring harness
2A	Throttle valve actuator control (+)	Throttle body (throttle valve actuator)	Switch the ignition to ON	B+	• Throttle valve actuator • Related wiring harness
2B	Throttle valve	Throttle body (throttle valve	Switch the ignition to ON	B+	• Throttle

	actuator control (-)	actuator)			valve actuator • Related wiring harness
2C	A/F sensor heater control	A/F sensor heater	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• A/F sensor • Related wiring harness
2D	HO2S heater control	HO2S heater	Idle (after warm up)	B+	• HO2S heater • Related wiring harness
2E	Power supply	Main relay	Switch the ignition to off	Below 1.0	• Main relay • Related wiring harness
			Switch the ignition to ON	B+	
2F	High pressure fuel pump control (+)	High pressure fuel pump (Spill valve control solenoid valve)	Switch the ignition to ON	Approx. 9.2	• Spill valve control solenoid valve • Related wiring harness
			Idle	Approx. 9.5	
2G	High pressure fuel pump control (-)	High pressure fuel pump (Spill valve control solenoid valve)	Switch the ignition to ON	Approx. 9.5	• Spill valve control solenoid valve • Related wiring harness
			Idle	Approx. 9.0	
2H	Ground	Body ground	Under any condition	Below 1.0	• Related wiring harness
21	Sensor ground	HO2S	Switch the ignition to off	Below 1.0	• HO2S • Related wiring harness
			Switch the ignition to ON	Approx. 1.5	
2J	-	-	-	-	-

2K	Constant voltage (Vref)	Fuel pressure sensor	Switch the ignition to ON		Approx. 5.0	• Related wiring harness
2L	-	-	-		-	-
2M	Sensor ground	A/F sensor	Under any condition		Below 1.0	• Related wiring harness
2N	Boost air temperature	MAP/boost air temperature sensor	Switch the ignition to ON	IAT 20°C {68°F}	2.4E.6	• Boost air temperature sensor • Related wiring harness
				IAT 30°C {86°F}	1.7E.9	
2O	OCV control	OCV	Switch the ignition to ON		B+	• OCV • Related wiring harness
2P	Sensor ground	Fuel pressure sensor	Under any condition		Below 1.0	• Fuel pressure sensor • Related wiring harness
2Q	HO2S	HO2S	Idle		0E	• HO2S • Related wiring harness
2R	Fuel pressure sensor	Fuel pressure sensor	Switch the ignition to off		Below 1.0	• Fuel pressure sensor • Related wiring harness
			Switch the ignition to ON		Approx. 1.4	
			Idle		Approx. 1.4	
2S	CMP	CMP sensor	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).			• CMP sensor • Related wiring harness

2T	-	-	-	-	-
2U	Knocking (+)	KS	Switch the ignition to 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 wiring harness
2V	Knocking (-)	KS	Switch the ignition to 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 wiring harness
2W	CKP	CKP sensor	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• CKP sensor • Related wiring harness
2X	Internal ground	KS, CMP sensor, CKP sensor, A/F sensor, TP sensor	Under any condition	Below 1.0	• Related wiring harness
2Y	A/F sensor calibration resistor	A/F sensor	Switch the ignition to ON	Approx. 1.5	• A/F sensor • Related wiring harness
2Z	A/F sensor power supply	A/F sensor	Idle (after warm up)	Approx. 4.0	• A/F sensor • Related wiring harness
2AA	Wastegate control solenoid valve	Wastegate control solenoid valve	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Wastegate control solenoid valve • Related wiring harness
2AB	Purge solenoid valve	Purge solenoid valve	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Purge solenoid valve • Related wiring harness

2AC	A/F sensor VSIP	A/F sensor	Idle (after warm up)		Approx. 3.6	• A/F sensor • Related wiring harness
2AD	A/F sensor IP+	A/F sensor	Idle (after warm up)		Approx. 3.5	• A/F sensor • Related wiring harness
2AE	Variable swirl shutter valve monitor	Variable swirl shutter valve switch	variable swirl shutter valve close		Below 1.0	• Variable swirl shutter valve switch • Related wiring harness
			variable swirl shutter valve open		B+	
2AF	OCV control	OCV	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).			• OCV valve • Related wiring harness
2AG	Manifold absolute pressure	MAP sensor	Switch the ignition to ON		Approx. 1.9	• MAP sensor • Related wiring harness
			Idle (after warm up)		Below 1.0	
2AH	ECT (No. 1)	ECT sensor (No. 1)	Switch the ignition to ON	ECT 20°C {68°F}	3.04E.14	• ECT sensor No. 1 • Related wiring harness
				ECT 60°C {140°F}	1.29E.39	
2AI	-	-	-		-	-
2AJ	TP sensor ground	TP sensor	Under any condition		Below 1.0	• TP sensor • Related wiring harness
2AK	TP sensor (No. 1)	TP sensor (No. 1)	**NOTE:** • *When the ignition switch is in the ON position (engine is off), the throttle*			• TP sensor • Related wiring harness

			valve is fully closed regardless of the accelerator pedal opening angle.			
			Switch the ignition to ON (after warm up)	APP is released	Approx. 0.85	
				APP is depressed	Approx. 0.85	
2AL	TP sensor (No. 2)	TP sensor (No. 2)	**NOTE:** • *When the ignition switch is in the ON position (engine is off), the throttle valve is fully closed regardless of the accelerator pedal opening angle.*			• TP sensor • Related wiring harness
			Switch the ignition to ON (after warm up)	APP is released	Approx. 4.15	
				APP is depressed	Approx. 4.15	
2AM	EGR valve #2 coil control	EGR valve	Switch the ignition to ON		B+	• EGR valve • Related wiring harness
			Idle		B+	
2AN	EGR valve #4 coil control	EGR valve	Switch the ignition to ON		B+	• EGR valve • Related wiring harness
			Idle		B+	
2AO	Constant voltage (Vref)	TP sensor	Switch the ignition to ON		Approx. 5.0	• TP sensor • Related wiring harness
2AP	ECT (No. 2)	ECT sensor No. 2	Switch the ignition to ON	ECT 20°C {68°F}	3.04-3.14	• ECT sensor No. 2 • Related wiring harness
				ECT 60°C {140°F}	1.29E.39	

2AQ	EGR valve #1 coil control	EGR valve	Switch the ignition to ON	Below 1.0	• EGR valve • Related wiring harness
			Idle	Below 1.0	
2AR	EGR valve #3 coil control	EGR valve	Switch the ignition to ON	B+	• EGR valve • Related wiring harness
			Idle	B+	
2AS	Variable swirl control	Variable swirl solenoid valve	ECT 0°C {32°F} or more or engine speed 3, 250 rpm or more	B+	• Variable swirl solenoid valve • Related wiring harness
			ECT less than 0°C {32°F} and engine speed less than 3, 250 rpm	Below 1.0	
2AT	IGT4	Ignition coil (No. 4 cylinders)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Ignition coil No. 4 • Related wiring harness
2AU	Constant voltage (Vref)	MAP sensor	Switch the ignition to ON	Approx. 5.0	• Related wiring harness
2AV	Sensor ground	MAP sensor	Under any condition	Below 1.0	• Related wiring harness
2AW	IGT2	Ignition coil (No. 2 cylinders)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Ignition coil No. 2 • Related wiring harness
2AX	IGT3	Ignition coil (No. 3 cylinders)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Ignition coil No. 3 • Related wiring harness
2AY	Sensor ground	ECT sensor	Under any condition	Below 1.0	• ECT sensor

					• Related wiring harness
2AZ	Fuel injection (-) (#4)	Fuel injector (No. 4)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Fuel injector No. 4 • Related wiring harness
2BA	IGT1	Ignition coil (No. 1 cylinders)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Ignition coil No. 1 • Related wiring harness
2BB	Fuel injection (-) (#1)	Fuel injector (No. 1)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Fuel injector No. 1 • Related wiring harness
2BC	Fuel injection B(#2)	Fuel injector (No. 2)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Fuel injector No. 2 • Related wiring 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 wiring harness
2BE	Fuel injector power supply 1	Fuel Injector relay	Switch the ignition to off	Below 1.0	• Fuel Injector relay • Related wiring harness
			Switch the ignition to ON	B+	
2BF	Fuel injector power supply 2	Fuel Injector relay	Switch the ignition to off	Below 1.0	• Fuel Injector relay

					• Related wiring harness
			Switch the ignition to ON	B+	
2BG	Fuel injection (+) (#1,#4)	Fuel injector (No. 1, No. 4)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Fuel injector No. 1, No. 4 • Related wiring harness
2BH	Fuel injection (+) (#2, #3)	Fuel injector (No. 2, No. 3)	• Inspect using the wave profile. (See INSPECTION USING AN OSCILLOSCOPE (REFERENCE)).		• Fuel injector No. 2, No. 3 • Related wiring harness

(1)	Without advanced keyless entry and push button start system
(2)	With advanced keyless entry and push button start system