2009 Mazda 3 L4-2.0L

Vehicle > Powertrain Management > Computers and Control Systems > Testing and Inspection > Pinout Values and Diagnostic Parameters

TERMINAL VOLTAGE TABLES

PCM INSPECTION [LF, L3]

Without Using the M-MDS

California emission regulation applicable model

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.

PCM WIRING HARNESS-SIDE CONNECTOR

2BE 2BF	2BA	2AW	2AS	2AO	2AK	2AG	2AC	2Y	2U	2Q	2M	21	2E	2A
2BF	2BB	2AX	2AT	2AP	2AL	2AH	2AD	2Z	2V	2R	2N	2J	2F	2B
]			=			3	
2BG 2BH	2BC	2AY	2AU	2AQ	2AM	2AI	2AE	2AA	2W	28	20	2K	2G	2C

1BE	1BA	1AW	1AS	1AO	1AK	1AG	1AC	1Y	1U	1Q	1M	11	1E	1A
1BF	1BB	1AX	1AT	1AP	1AL	1AH	1AD	1Z	1V	1R	1N	1J	1F	1B
														1
1BG														
1BH	1BD	147	1 A\/	1AR	1AN	1A.I	1AF	1AR	1X	1T	1P	11	1H	1D



Terminal Voltage Tables (Part 1)

1A	Shift solenoid A* ¹	Shift solenoid A	• (See Insp (Referen	pection Using An Oscillosc ce).)	cope	Shift solenoid A Related wiring harness
	_* ²	_	_		_	_
	Charley valay					 Starter relay
1B	Starter relay control	Starter relay	Under any cond	lition	Below 1.0	 Related wiring harness
1C	_	_	_		_	_
	_*1	_	_		_	_
1D	Obstala		Clutch pedal de	pressed	Below 1.0	 CPP switch
	Clutch operation*2	CPP switch	Clutch pedal rel	eased	B+	Related wiring harness
					•	Shift solenoid B
1E	Shift solenoid B*1	Shift solenoid B	• (See Insp (Referen	pection Using An Oscilloso ce).)	cope	 Related wiring harness
	_*2	_	_		_	_
1F	Shift solenoid	Shift solenoid C	• (See Insp (Reference	pection Using An Oscillosoce).)	cope	Shift solenoid CRelated wiring harness
	* 2	_	_		_	_
1G	_	_	_		_	_
			Ignition switch to	o the ON position	B+	Fuel pump
1H	Fuel pump control	Fuel pump relay	Cranking		Below 1.0	relay
	Control		Idle		Below 1.0	 Related wiring harness
				A/C operating	Below 1.0	A/C relay
11	A/C	A/C relay	Idle	A/C not operating	B+	 Related wiring harness
1J	Refrigerant pressure switch	Refrigerant pressure	A/C ON	Refrigerant pressure is above 1.52 MPa {15.5 kgf/cm², 220 psi}	Below 1.0	Refrigerant pressure switch
	(medium)	switch (medium)	A/O ON	Refrigerant pressure is below 1.23 MPa {12.5 kgf/cm ² , 178 psi}	B+	 Related wiring harness
1K	_	_	_		_	_
1L	_	_	_		_	_
1M	Pressure control solenoid (+)*1	Pressure control solenoid	• (See Insp (Referen	pection Using An Oscillosoce).)	cope	Pressure control solenoidRelated wiring
					1	harness
	_* ²	<u> -</u>	<u> -</u>		_	<u> -</u>

Test condition

Voltage (V)

Inspection item

Terminal Voltage Tables (Part 2)

Terminal

Signal

Connected to

	Pressure control	Pressure control	• (See Insp	pection Using An Oscilloso	cope	•	Pressure control solenoid
1N	solenoid (-)*1	solenoid	(Reference		•	Related wiring harness	
	*2	_	_	_	_		
10	_	_	_		_	_	
1P	_	_	_		_	_	
1Q	Main relay	Main relay	Ignition switch o	ff after 15 min	B+	•	Main relay
	control		Ignition switch to	the ON position	Below 1.0	•	Related wiring harness
1R	_	_	_		_	_	
1S	GND (shield)*1	Input/turbine speed sensor harness, GND	Under any cond	ition	Below 1.0	•	Related wiring harness
	*2	_	_		_	_	
1T	_	_	_		_	_	
411	EVAP leak	EVAP leak detection	Ignition switch to	the ON position	B+	•	EVAP leak detection pump
1U	detection pump (pump)	pump	Idling		B+	•	Related wiring harnesses
417	EVAP leak	EVAP leak detection	Ignition switch to	the ON position	B+	•	EVAP leak detection pump
1V	detection pump (solenoid)	pump	ldling		B+	•	Related wiring harnesses
1W	_	_	_		_	_	
	*1	_	_		_	_	
1X			Ignition switch	Shift lever is at neutral position	Below 1.0	•	Neutral switch
	Neutral position*2	Neutral switch	is turned to the ON position	Shift lever is not at neutral position	B+	•	Related wiring harness
			Inspect us	sing the wave profile.	I	•	Fan control
1Y	Cooling fan	Fan control module	(See Inco	ection Using An Oscilloso	2020		module
	control		(Reference		оре	•	Related wiring harness
	Shift solenoid	Obits and and I	• (See Insp	ection Using An Oscilloso	cope	•	Shift solenoid E
1Z	E* 1	Shift solenoid E	(Reference		'	•	Related wiring harness
	*2	_	_		_	_	
1AA	_	_	_		_	_	
			Brake pedal dep	pressed	B+	•	Brake switch
1AB	Brake	Brake switch	Brake pedal rele	eased	Below 1.0	•	Related wiring harness
			Inspect us	sing the wave profile.		•	APP sensor
1AC	APP sensor 2	APP sensor	(See Insp (Reference	pection Using An Oscilloso ce).)	cope	•	Related wiring harness

Terminal Voltage Tables (Part 3)

			Inspect using the wave profile.			Shift solenoid D
	Shift solenoid	Shift solenoid D	,	,		• Office Soletions B
1AD	D* 1	Still Solelloid D	(See Insp (Reference	ection Using An Oscilloso ce).)	соре	 Related wiring harness
	_*2	_	_		_	_
1AE	_	_	_		_	_
1AF	Manual down*1	Down switch	Ignition switch is turned to the ON position		1.0 or less	Selector leverRelated wiring
			ON position.	Others	B+	harness
	_*2	_	_		_	_
1AG	Input/turbine speed sensor	Input/turbine speed sensor		sing the wave profile.	cope	Input/turbine speed sensor
IIAG	(-)*1		(Reference	ce).)	·	 Related wiring harness
	*2	_	_		_	_
				P position	Approx. 4.6	
			Ignition switch	R position	Approx. 3.9	TR switch
	Selector lever position* 1	TR switch	is turned to the	N position	Approx. 3.2	Related wiring
1AH	position		ON position	D range	Approx. 2.5	harness
				M range	Approx. 2.5	
	*2	_	_		_	_
1AI	CAN (L)	Instrument cluster, ABS HU/CM, EHPAS control module		minal is for CAN, good/no minal voltage is not possib		Related wiring harness
1AJ	Manual up*1	Up switch	Ignition switch is turned to the	Detects up-shift operation of selector lever in M range	1.0 or less	Selector leverRelated wiring
17.0			ON position.	Others	B+	harness
	*2	_	_		_	_
1AK	MAF	МАГараза	Ignition switch to	the ON position	Approx. 0.7	MAF sensor
IAN	MAF	MAF sensor	Idle (after warm	up)	Approx. 1.5	 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		minal is for CAN, good/nc ninal voltage is not possik		Related wiring harness
		M. company dest	Ignition switch	M range	1.0 or less	Selector lever
1AN	M range switch*1	M range switch	is turned to the ON position.	Except above	B+	 Related wiring harness
	*2	_	_		_	_

Terminal Voltage Tables (Part 4)

1AO	Input/turbine speed sensor (+)*1	Input/turbine speed sensor		sing the wave profile. ection Using An Oscillosc ee).)	ope	Input/turbine speed sensorRelated wiring harness
	*2	_	_		_	_
IAD.	ADD1	ADD	Ignition switch	When the accelerator pedal is depressed	Approx. 3.0	APP sensor
1AP	APP sensor 1	APP sensor	to the ON position	When the accelerator pedal is released	Approx. 0.4	 Related wiring harness
				ON/OFF switch pressed in	Approx. 0	
			Ignition switch	CANCEL switch pressed in	Approx. 1.1	 Cruise control switch
1AQ	Cruise control switch	Cruise control switch	to the ON position	SET/COAST switch pressed in	Approx. 3.1	 Related wiring
				RES/ACCEL switch pressed in	Approx. 4.2	harnesses
				Except above	Approx. 5	<u> </u>
1AR	Sensor GND	MAF sensor	Under any condi	tion	Below 1.0	 Related wiring harness
IAS	Sensor GND	TFT sensor*1, TR switch*1, IAT sensor, APP sensor	Under any condi	tion	Below 1.0	 Related wiring harness
				IAT 0 °C	Approx.	
				{32 °F}	3.43	İ
				IAT 20 °C	Approx.	İ
				 {68 °F}	2.38	l
				IAT 40 °C	Approx.	İ
			Ignition switch			 IAT sensor
1AT	IAT	MAF/IAT sensor	to the ON	{104 °F} IAT 60 °C	1.49	 Related wiring
			position		Approx.	harness
				{140 °F}	0.89	İ
				IAT 80 °C	Approx.	l
				{176 °F}	0.53	İ
				IAT 100 °C	Approx.	İ
				{212 °F}	0.33	l
						Refrigerant
1AU	A/C on signal	Refrigerant pressure	Idle	A/C switch and fan	Below 1.0	pressure switch
		switch (high and low)		switch on		 Related wiring harness
1AV	_	_	_		_	
			 Inspect us 	sing the wave profile.		• VSS
1AW	Vehicle speed*1	VSS	(See Insp (Referenc	ection Using An Oscilloso e).)	оре	 Related wiring harness
	_*2	_	_		_	

Terminal Voltage Tables (Part 5)

1AX	Drive-by-wire	Drive-by-wire relay	Ignition switch off	B+→ Below 1.0	 Drive-by-wire relay
""	relay control	5.770 by Wile Iciay	Ignition switch to the ON position	Below 1.0	 Related wiring harness
			Ignition switch off	Below 1.0	
1AY	Ignition switch	Ignition switch	Ignition switch to the ON position	B+	 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+	BatteryRelated 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
100	р.	Main rolov	Ignition switch off after 15 min	Below 1.0	Battery
1BE	B+	Main relay	Ignition switch to the ON position	B+	 Related wiring harness
1BF	B+	Drive by wire relev	Ignition switch off	Below 1.0	Battery
IBF	B+	Drive-by-wire relay	Ignition switch to the ON position	B+	 Related wiring harness
	B+* ¹	Main rolov	Ignition switch off after 15 min	Below 1.0	Battery
1BG	B+ '	Main relay	Ignition switch to the ON position	B+	 Related wiring harness
	<u>_*2</u>	_	_	_	_
1BH	GND	GND	Under any condition	Below 1.0	 Related wiring harness
2A	Throttle actuator	Throttle actuator	Ignition switch to the ON position	B+	Throttle actuator
	control (+)				 Related wiring harness
2B	Throttle actuator	Throttle actuator	Idle (after warm up)	Approx.	Throttle actuator
20	control (–)	Thouse actuator	idie (aitei waiii up)	3.5—5.5	 Related wiring harness
			Inspect using the wave profile.		 Purge solenoid valve
2C	Purge control	Purge solenoid valve	(See Inspection Using An Oscilloso (Reference).)	cope	 Related wiring harness
2D	_	_	_	_	_
			Inspect using the wave profile.		OCV valve
2E	OCV control	OCV	(See Inspection Using An Oscilloso (Reference).)	cope	 Related wiring harness
2F	_	_	_	_	_

Terminal Voltage Tables (Part 6)

	EGR valve #2	EGR valve	Ignition switch to the ON position	B+	EGR valve
2G	coil control	(terminal A)	Idle	B+	Related wiring harness
	EGR valve #4	EGR valve	Ignition switch to the ON position	B+	EGR valve
2H	coil control	(terminal F)	Idle	B+	 Related wiring harness
			ECT above 62 °C {143 °F} while idling.	B+	Variable tumble solenoid valve
21	Variable tumble control	Variable tumble solenoid valve	ECT below 63 °C {145 °F} and engine speed below 3,750 rpm	Below 1.0	 Related wiring harness
			Ignition switch to the ON position	Below 1.0	Variable intake
2J	Variable intake	Variable intake air solenoid valve	Engine speed: below 4,750 rpm [LF]/4,600 rpm [L3]	Below 1.0	air solenoid valve
		Colonial valvo	Engine speed: above 4,750 rpm [LF]/4,600 rpm [L3]	B+	 Related wiring harness
014	EGR valve #1	EGR valve	Ignition switch to the ON position	Below 1.0	EGR valve
2K	coil control	(terminal E)	Idle	Below 1.0	 Related wiring harness
	EGR valve #3	EGR valve (terminal	Ignition switch to the ON position	B+	EGR valve
2L	coil control	B)	Idle	B+	 Related wiring harness
	*1	_	_	_	_
2M			Inspect using the wave profile.		• VSS
ZIVI	VSS(+)*2	VSS	(See Inspection Using An Oscillos (Reference).)	cope	 Related wiring harness
	*1	_	_	_	_
2N			Inspect using the wave profile.		• VSS
	VSS(-)*2	VSS	(See Inspection Using An Oscillos (Reference).)	cope	 Related wiring harness
20	_	_	_	_	_
2P	_	_	_	_	_
			Ignition switch to the ON position	Approx. 0	Rear HO2S
2Q	Rear HO2S	Rear HO2S	ldle (after warm up)	Alternates between 0 and 1.0	 Related wiring harness
			Ignition switch to the ON position	Approx. 0	Fornt HO2S
2R	Fornt HO2S	Fornt HO2S	ldle (after warm up)	Alternates between 0 and 1.0	Related wiring harness
			Inspect using the wave profile.	,	CMP sensor
2S	CMP	CMP sensor	(See Inspection Using An Oscillos (Reference).)	cope	Related wiring harness
2T	_	_	_	_	_
			•		*

Terminal Voltage Tables (Part 7)

2U	Knocking (+)	KS	digital type voltn measurement vo	o the ON position (Use neter, because oltage will be detected oltage when using analog	Approx. 4.3		KS Related wiring harness
2V	Knocking (-)	KS	digital type voltm measurement vo	o the ON position (Use neter, because oltage will be detected oltage when using analog	Below 1.0		KS Related wiring harness
2W	CKP	CKP sensor	'	sing the wave profile. ection Using An Oscilloso ce).)	cope		CKP sensor Related wiring harness
2X	GND (shield)	KS harness, A/F sensor, HO2S (front, rear) harness, GND	Under any cond	ition	Below 1.0	•	Related wiring harness
2Y	_	_	_		_	_	
2Z	Sensor GND	A/F sensor	Under any cond	ition	Below 1.0	•	Related wiring harness
2AA	_	_	_		_	_	
2AB	_	_	_		_	_	
			Ignition switch	TFT is 20 °C {68 °F}	Approx. 3.3	•	TFT sensor
	ATF temperature*1	TFT sensor	is turned to the	TFT is 40 °C {104 °F}	Approx. 2.4	_	Related wiring
2AC	lemperature		ON position.	TFT is 60 °C {140 °F}	Approx. 1.5		harness
	*2	_	_		_	_	
						•	A/F sensor
2AD	A/F sensor	A/F sensor	Idle (after warm	up): Approx. 0 mA	_	•	Related wiring harness
	Variable tumble		ECT above 63 °	C {145 °F} while idling.	Approx. 5.0	•	Variable tumble shutter valve
2AE	shutter valve monitor	Variable tumble shutter valve switch	ECT below 63 ° speed below 3,7	C {145 °F} and engine ′50 rpm	Below 1.0	•	switch Related wiring harness
2AF	_	_	_		_	_	
2AG	Manifold absolute	MAP sensor	Ignition switch to level)	the ON position (at sea	Approx. 4.1	•	MAP sensor
	pressure		Idle		Approx. 1.4		Related wiring harness

Terminal Voltage Tables (Part 8)

				IAT 20 °C {68 °F}	3.04—3.14	
2AH	ECT	ECT sensor	Ignition switch to the ON	IAT 40 °C {104 °F} IAT 60 °C	2.09—2.21	ECT sensor Related wiring
			position	{140 °F} IAT 80 °C {176 °F} IAT 100 °C	0.76—0.83	harness
2AI	Generator field coil control	Generator (terminal D)	,	{212 °F} sing the wave profile. pection Using An Oscilloso pe).)	cope	Following PIDs: IAT, ECT, RPM, VPWR, ALTT V Generator Related wiring harness
2 A J	Generator output voltage	Generator (terminal P)	,	sing the wave profile. pection Using An Oscilloso ce).)	cope	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	_	_	_		_	_
2 A O	Constant voltage (Vref)	TP sensor	Ignition switch to	o the ON position	Approx. 5.0	TP sensorRelated wiring harness
2AP	Sensor GND	TP sensor	Under any cond	ition	Below 1.0	TP sensor Related wiring harness
2AQ	Constant voltage (Vref)	CKP sensor	Ignition switch to	o the ON position	B+	CKP sensor Related wiring harness
2AR	_	_	_		_	_
2AS		_	_			_
_						

Terminal Voltage Tables (Part 9)

			Inspect using the wave profile.	 Ignition coil 	
2AT	IGT4	Ignition coil (No.4 cylinders)	(See Inspection Using An Oscilloso (Reference).)	cope	 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. (See Inspection Using An Oscilloso (Reference).) 	cope	Ignition coil Related wiring harness
			Inspect using the wave profile.		Ignition coil
2AX	IGT3	Ignition coil (No.3 cylinders)	(See Inspection Using An Oscilloso (Reference).)	cope	 Related wiring harness
2AY	Sensor GND	Variable tumble shutter valve switch, ECT sensor, MAP sensor, HO2S (front, rear)	Under any condition	Below 1.0	Variable tumble shutter valve switch ECT sensor MAP sensor HO2S (front, rear) Related wiring harness
2AZ	Fuel injection (#4)	Fuel injector No.4	Inspect using the wave profile. (See Inspection Using An Oscilloso	cope	Fuel injector No.4Related wiring
			(Reference).)		harness
		lanition coil (No. 1	 Inspect using the wave profile. 		Ignition coil
2BA	IGT1	Ignition coil (No.1 cylinders)	(See Inspection Using An Oscilloso (Reference).)	cope	 Related wiring harness
2BB	Fuel injection (#1)	Fuel injector No.1	Inspect using the wave profile. (See Inspection Using An Oscilloso (Reference).)	cope	Fuel injector No.1 Related wiring harness
2BC	Fuel injection (#2)	Fuel injector No.2	Inspect using the wave profile. (See Inspection Using An Oscilloso (Reference).)	cope	Fuel injector No.2 Related wiring harness
2BD	Fuel injection (#3)	Fuel injector No.3	Inspect using the wave profile. (See Inspection Using An Oscilloso (Reference).)	cope	Fuel injector No.3 Related wiring harness

Terminal Voltage Tables (Part 10)

	Rear HO2S	D	Inspect using the wave profile.		•	Rear HO2S heater
2BE	heater control	Rear HO2S heater	(See Inspection Using An Oscilloscope (Reference).)			Related wiring harness
	Front HO2S		Inspect using the wave profile.		•	Front HO2S heater
2BF	heater control	Front HO2S heater	(See Inspection Using An Oscillosc (Reference).)	ope	•	Related wiring harness
000	A/F sensor	A/F	Inspect using the wave profile.		•	A/F sensor heater
2BG	heater control	A/F sensor heater	(See Inspection Using An Oscilloscope (Reference).)		•	Related wiring harness
2BH	GND	GND	Under any condition	Below 1.0	•	Related wiring harness

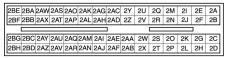
*1
ATX
*2
MTX

Except for California emission regulation applicable model with LF ATX

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.

PCM WIRING HARNESS-SIDE CONNECTOR



1BE	1BA	1AW	1AS	1AO	1AK	1AG	1AC	1Y	1U	1Q	1M	11	1E	1A
1BF	1BB	1AX	1AT	1AP	1AL	1AH	1AD	1Y 1Z	1V	1R	1N	1J	1F	1B
1BG	1BC	1AY	1AU	1AQ	1AM	1AI	1AE	1AA 1AB	1W	1S	10	1K	1G	1C
1BH	1BD	1AZ	1AV	1AR	1AN	1AJ	1AF	1AB	1X	1T	1P	1L	1H	1D



Terminal	Signal	Connected to	Tes	st condition	Voltage (V)	Inspection item
			Ignition switch off	f after 5 min	Below 1.0	Battery
1A	B+	Main relay	Ignition switch to	the ON position	B+	 Related wiring harness
			(See Inspection Using An Oscilloscop		ine	Shift solenoid A
1B	Shift solenoid A	Shift solenoid A	(Reference			 Related wiring harness
	0	01.18	• (See Inspe	ection Using An Oscillosco	pe	Shift solenoid B
1C	Shift solenoid B	Shift solenoid B	(Reference			 Related wiring harness
			(0.1			Shift solenoid C
1D	Shift solenoid C	Shift solenoid C	(See Inspe	ection Using An Oscillosco e).)	ppe	Related wiring
						harness
1E	Shift solenoid D	Shift solenoid D Shift solenoid D		ation	B+	Shift solenoidD
	Office Solotions B	Office Solotion B	Except above		1.0 or less	 Related wiring harness
	0.15		<u> </u>		B+	Shift solenoid E
1F	Shift solenoid E	Shift solenoid E			1.0 or less	 Related wiring harness
1G	Pressure control	Pressure control		ection Using An Oscillosco	ppe	Pressure control solenoid
	solenoid (+)	solenoid	(Reference	e).)		Related wiring harness
	Pressure control	Pressure control	• (See Inspe	ection Using An Oscillosco	ine	 Pressure control solenoid
1H	solenoid (-)	solenoid	(Reference		,pc	Related wiring
					_	harness
11	_	_	_		_	_
			(See Inspe	ection Using An Oscillosco	pe	• VSS
1J	Vehicle speed	VSS	(Reference		'	 Related wiring harness
			Ignition switch is	Detects up-shift operation of selector	1.0 or less	Selector lever
1K	Manual up	Up switch	turned to the ON position.	lever in M range		Related wiring
				Others	B+	harness
1L	_	_	_			
1M	Input/turbine speed sensor	Input/turbine speed sensor	• (See Inspe	ection Using An Oscillosco	ppe	Input/turbine speed sensor
	(+)		(, , , , , , , , , , , , , , , , , , ,	-/-/		 Related wiring harness
1N	_	_	_		_	_

10			Ignition switch is	M range	1.0 or less	Selector lever
10	M range switch	M range switch	turned to the ON position.	Except above	B+	 Related wiring harness
4.5	N A 1 -1	Danie zwitak	Ignition switch is	Detects down-shift operation of selector	1.0 or less	Selector lever
1P	Manual down	Down switch	turned to the ON position.	lever in M range		Related wiring
			, , , , , , , , , , , , , , , , , , ,	Others	B+	harness
1Q	Input/turbine speed sensor (–)	Input/turbine speed sensor	• (See Inspe (Reference	ection Using An Oscillosco e).)	pe	Input/turbine speed sensorRelated wiring
						harness
1B	Refrigerant	Refrigerant pressure	A/C ON	Refrigerant pressure is above 1.52 MPa {15.5 kgf/cm², 220 psi}	Below 1.0	Refrigerant pressure switch
IR .	pressure switch (medium)	switch (medium)	A/C ON	Refrigerant pressure is below 1.23 MPa {12.5 kgf/cm ² , 178 psi}	B+	Related wiring harness
				P position	Approx. 4.6	
			Ignition switch is	R position	Approx. 3.9	TR switch
1S	Selector lever position	TR switch	turned to the ON	N position	Approx. 3.2	Related wiring
				D range	Approx. 2.5	harness
				M range	Approx. 2.5	
1T	_	_	_		_	_
			Ignition switch is	TFT is 20 °C {68 °F}	Approx. 3.3	TFT sensor
1U	ATF temperature	TFT sensor	turned to the ON	TFT is 40 °C {104 °F}	Approx. 2.4	Related wiring
	temperature		position.	TFT is 60 °C {140 °F}	Approx. 1.5	harness
1V	_	_	_		_	_
1W	Cooling fan	Fan control module		ing the wave profile.	ne	Fan control module.
	Control		(Reference		pe	 Related wiring harness
1X	_	_	_		_	_
437	ADD	ADD	Ignition switch to	When the accelerator pedal is depressed	Approx. 3.0	APP sensor
1Y	APP sensor 1	APP sensor	the ON position	When the accelerator pedal is released	Approx. 0.4	 Related wiring harness
1Z		_	_		_	_
1AA	Sensor GND	TR sensor, TFT sensor, IAT sensor, APP sensor	Under any condit	ion	Below 1.0	Related wiring harness
						Starter relay
1AB	Starter relay control	Starter relay	Under any condit	ion	Below 1.0	Related wiring harness
116			Ignition switch to	the ON position	Approx. 0.7	MAF sensor
1AC	MAF	MAF sensor	Idle (after warm u	ıp)	Approx. 1.3	 Related wiring harness

				ON/OFF switch pressed in	Approx. 0	
				CANCEL switch pressed in	Approx. 1.1	Cruise control switch
1AD	Cruise control switch	Cruise control switch	Ignition switch to the ON position	SET/COAST switch pressed in	Approx. 3.1	Related wiring
				RES/ACCEL switch pressed in	Approx. 4.2	harnesses
				Except above	Approx. 5	
1AE	Sensor GND	MAF sensor	Under any condition		Below 1.0	 Related wiring harness
1AF	EVAP leak detection pump	EVAP leak detection	Ignition switch to	the ON position	B+	EVAP leak detection pump
IAF	(pump)	pump	Idling		B+	 Related wiring harnesses
1AG	_	_	_		_	_
				IAT 0 °C	Approx.	
				{32 °F}	3.43	
				IAT 20 °C	Approx.	
			Ignition switch to the ON position	 {68 °F}	2.38	
				IAT 40 °C	Approx.	-
		MAF/IAT sensor		 {104 °F}	1.49	IAT sensor
1AH	IAT			IAT 60 °C	Approx.	Related wiring
			·			harness
				{140 °F}	0.89 Approx.	
				{176 °F}	0.53	
				IAT 100 °C	Approx.	
				{212 °F}	0.33	
1AI	CAN (L)	Instrument cluster, ABS HU/CM, EHPAS control module		ninal is for CAN, good/no ູດ ge is not possible.	good judgment	Related wiring harness
	EVAP leak	EVAP leak detection	Ignition switch to	the ON position	B+	EVAP leak detection pump
1AJ	detection pump (solenoid)	pump	Idling		B+	 Related wiring harnesses
1AK	_	_	_		_	_
			Inspect us	ing the wave profile.		APP sensor
1AL	APP sensor 2	APP sensor	(See Inspe (Reference	ection Using An Oscillosco e).)	ре	Related wiring harness
1AM	CAN (H)	Instrument cluster, ABS HU/CM, EHPAS control module		ninal is for CAN, good/no ູ ge is not possible.	good judgment	Related wiring harness

				A/C operating	Below 1.0	A/C relay
1AN	A/C	A/C relay	Idle	A/C not operating	B+	 Related wiring harness
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 wiring harness
1AQ	_	_	_		_	_
			Ignition switch to	the ON position after 1 s	B+	Fuel pump
1AR	Fuel pump control	Fuel pump relay	Cranking		Below 1.0	- relay
	Control		Idle		Below 1.0	 Related wiring harness
1AS	_	_	_		_	_
	Main relay		Ignition switch of	f after 5 min	B+	Main relay
1AT	control	Main relay	Ignition switch to	the ON position	Below 1.0	 Related wiring harness
			Brake pedal depr	ressed	B+	Brake switch
1AU	Brake	Brake switch	Brake pedal relea	ased	Below 1.0	 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 of	f	Below 1.0	Related wiring
	ignition switch	Ignition switch	Ignition switch to	the ON position	B+	harness
1AY	Drive-by-wire relay	Drive-by-wire relay	Ignition switch of		B+	 Related wiring harness
	relay		Ignition switch to	the ON position	Below 1.0	
1AZ	GND	GND	Under any condit	ion	Below 1.0	Related wiring harness
1BA	Back-up power supply	Battery (positive terminal)	Under any condit	ion	B+	Battery Related wiring harness
1BB	GND	GND	Under any condit	ion	Below 1.0	Related wiring harness
1BC	_	_	_		_	_
1BD	GND	GND	Under any condit	ion	Below 1.0	 Related wiring harness
	_		Ignition switch of	f after 5 min	Below 1.0	Battery
1BE	B+	Main relay	Ignition switch to	the ON position	B+	 Related wiring harness
1BF	Throttle actuator power supply	Drive-by-wire relay	Ignition switch of		Below 1.0	Related wiring harness
100	power supply		Ignition switch to	tne ON position	B+	Harriess
1BG	_	-	-		_	- Polotod wisin -
1BH	GND	GND	Under any condit	ion	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	HO2S heater control	HO2S heater	Idle (after warm u	Idle (after warm up)		HO2S heater Related wiring harness
2D	_	_	_	· '	_	—
2E	_	_	_			_
2F 2G	A/F sensor heater control	A/F sensor heater	·	ing the wave profile. ection Using An Oscillosco e).)	<u> </u> —	A/F sensor heater Related wiring harness
2H	_	_	_		_	_
21	TP (No. 2)	TP sensor No. 2	Ignition switch to	APP closed	4.00—4.47	TP sensor
	11 (110. 2)	11 0011001 110. 2	the ON position APP open		0.25—0.75	 Related wiring harness
2J	_	_	_		_	_
2K	Constant voltage (Vref)	TP sensor	Ignition switch to	the ON position	Approx. 5.0	TP sensorRelated wiring harness
2L	_	_	_		_	_
2M	TP (No. 1)	TP sensor No. 1	Ignition switch to	APP closed	0.53—1.00	TP sensor
	(the ON position	APP open	4.25—4.75	 Related wiring harness
2N	-	_	_		_	_
20	TP sensor GND	TP sensor	Under any condit	ion	Below 1.0	TP sensorRelated wiring harness
2P	GND (shield)	KS harness, HO2S, A/F sensor, GND	Under any condit	ion	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	digital type voltmemeasurement vo	the ON position (Use eter, because Itage will be detected less when using analog type	Below 1.0	KS Related wiring harness
2S	_	_	-		-	_

	Constant				CKP sensor
2T	voltage (Vref)	CKP sensor	Ignition switch to the ON position	B+	Related wiring harness
			 Inspect using the wave profile. 		CKP sensor
2U	CKP	CKP sensor	(See Inspection Using An Oscillosco (Reference).)	ре	 Related wiring harness
			Inspect using the wave profile.		CMP sensor
2V	СМР	CMP sensor	(See Inspection Using An Oscillosco (Reference).)	ре	 Related wiring harness
2W	Constant voltage (Vref)	MAP sensor, variable tumble shutter valve switch	Ignition switch to the ON position Approx.		Related wiring harness
	0				CKP sensor
2X	Constant voltage (Vref)	CMP sensor	Ignition switch to the ON position	B+	 Related wiring harness
2Y	_	_	_	_	_
	A/E				A/F sensor
2Z	A/F sensor power supply	A/F sensor	Idle (after warm up)	Approx. 4.1	 Related wiring harness
2AA	Sensor GND	HO2S, ECT sensor, MAP sensor, variable tumble shutter valve switch	Under any condition Below 1.0		Related wiring harness
2AB	_	_	_	_	_
					A/F sensor
2AC	A/F sensor VSIP	A/F sensor	Idle (after warm up)	Approx. 4.0	 Related wiring harness
2AD	A/F sensor IP+	A/F sensor	When the engine speed is increased, the volincreased.	oltage	A/F sensor Related wiring harness
	Variable tumble	Variable tumble	ECT above 63 °C {145 °F} while idling.	Approx. 5.0*1, B+*2	Variable tumble shutter valve switch
2AE	shutter valve monitor	shutter valve switch	ECT below 63 °C {145 °F} and engine speed below 3,750 rpm	Below 1.0	Related wiring harness
			Inspect using the wave profile.		OCV valve
2AF	OCV control	ocv	(See Inspection Using An Oscillosco (Reference).)	pe	 Related wiring harness
2AG		_	_		_
			Ignition switch to the ON position	Approx. 0	• HO2S
2AH	HO2S	HO2S	Idle (after warm up)	Alternates between 0 and 1.0	 Related wiring harness
	Variable trank!	Variable tumble	ECT above 62 °C {143 °F} while idling.	B+	Variable tumble solenoid valve
2Al	Variable tumble control	Variable tumble solenoid valve	ECT below 63 °C {145 °F} and engine speed below 3,750 rpm	Below 1.0	 Related wiring harness

			Ignition switch to	the ON position	Below 1.0	Variable intake air solenoid
2AJ	Variable intake air control	Variable intake air solenoid valve	Engine speed: be	elow 4,750 rpm	Below 1.0	valve
			Engine speed: at	pove 4,750 rpm	B+	 Related wiring harness
				IAT 20 °C	201 011	
				[68 °F]	3.04—3.14	
				IAT 40 °C	0.00 0.01	
				{104 °F}	2.09—2.21	
			Ignition switch to	IAT 60 °C		ECT sensor
2AK	ECT	ECT sensor	the ON position	{140 °F}	1.29—1.39	Related wiring harness
				IAT 80 °C		namess
				{176 °F}	0.76—0.83	
				IAT 100 °C		-
				{212 °F}	0.45—0.49	
2AL	Manifold absolute	MAP sensor	Ignition switch to the ON position (at sea		Approx. 4.1	MAP sensor
	pressure		Idle		Approx. 1.2	 Related wiring harness
		Generator	Inspect us	sing the wave profile.		Generator
2AM	Generator output voltage	(terminal P)	(See Inspection Using An Oscilloscop (Reference).)		рре	 Related wiring harness
			 Inspect us 	ing the wave profile.		Purge solenoid
2AN	Purge control	Purge solenoid valve	(See Inspe	ection Using An Oscillosco	рре	valve Related wiring
			(Reference	e).)		harness
2AO	_	_	_		_	_
2AP	_	_	_		_	_
2AQ	Generator field	Generator		ing the wave profile.		Following PIDs: IAT, ECT, RPM, VPWR, ALTT V.
Lina	coil control	(terminal D)	(See Inspe	ection Using An Oscillosco e).)	ope	Generator
				,,		Related wiring harness
	EGR valve #2	EGR valve	Ignition switch to	the ON position	B+	EGR valve
2AR	coil control	(terminal A)	Idle		B+	 Related wiring harness
2AS	_	_	_		_	_
2AT	_	_	_		_	_
	EGR valve #1	EGR valve	Ignition switch to	the ON position	Below 1.0	EGR valve
2AU	coil control	(terminal E)	Idle		Below 1.0	 Related wiring harness

	EGR valve #4	EGR valve	Ignition switch to the ON position	Below 1.0	EGR valve
2AV	coil control	(terminal F)	Idle	Below 1.0	 Related wiring harness
2AW	_	_	_	_	_
2AX	_	_	_	_	_
2AY	EGR valve #3	EGR valve (terminal	Ignition switch to the ON position	B+	EGR valve
	coil control	B)	Idle	B+	Related wiring harness
2AZ	Fuel injection	Fuel injector No.4	Inspect using the wave profile. (Cas based to be based on the castless of the castless o		Fuel injectorNo.4
	(#4)	,	(See Inspection Using An Oscillosc (Reference).)	Related wiring harness	
2BA	_	_	_	_	_
	Fuel injection		Inspect using the wave profile.		Fuel injectorNo.1
2BB	(#1)	Fuel injector No.1	(See Inspection Using An Oscilloso (Reference).)	 Related wiring harness 	
	Inspect using the wave profile. Fuel injection Fuel injection			Fuel injector No.2	
2BC	(#2)	Fuel injector No.2	(See Inspection Using An Oscilloso (Reference).)	 Related wiring harness 	
	Fuel injection		Inspect using the wave profile.	 Fuel injector No.3 	
2BD	(#3)	Fuel injector No.3	(See Inspection Using An Oscilloso (Reference).)	 Related wiring harness 	
		Invition and Alast	 Inspect using the wave profile. 		Ignition coil
2BE	IGT1	Ignition coil (No.1 cylinders)	(See Inspection Using An Oscilloso (Reference).)	ope	 Related wiring harness
		Inviting and (No. 0)	Inspect using the wave profile.		Ignition coil
2BF	IGT2	Ignition coil (No.2 cylinders)	(See Inspection Using An Oscilloso (Reference).)	ope	 Related wiring harness
		Ignition coil (No. 2	Inspect using the wave profile.		Ignition coil
2BG	IGT3	Ignition coil (No.3 cylinders)	(See Inspection Using An Oscilloso (Reference).)	 Related wiring harness 	
		Innition of 11 /NI- 4	Inspect using the wave profile.		Ignition coil
2BH	IGT4	Ignition coil (No.4 cylinders)	(See Inspection Using An Oscilloso (Reference).)	оре	Related wiring harness

*1

California emission regulation applicable model

*2

Except for California emission regulation applicable model

Except for California emission regulation applicable model with LF MTX and L3

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.

PCM WIRING HARNESS-SIDE CONNECTOR

| 2BE | 2BA | 2AW | 2AS | 2AO | 2AK | 2AG | 2AC | 2Y | 2U | 2O | 2M | 2I | 2E | 2A | 2BF | 2BB | 2AX | 2AT | 2AP | 2AL | 2AH | 2AD | 2Z | 2V | 2R | 2N | 2J | 2F | 2B | 2B | 2AX | 2AT | 2AP | 2AL | 2AH | 2AD | 2Z | 2V | 2R | 2N | 2J | 2F | 2B | 2B | 2B | 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 | 2AZ | 2AV | 2AR | 2AN | 2AJ | 2AF | 2AB | 2X | 2T | 2P | 2L | 2H | 2D | 2AZ | 2AV | 2AR | 2AN | 2AJ | 2AF | 2AB | 2X | 2T | 2P | 2L | 2H | 2D | 2AZ | 2AV | 2AR | 2AN | 2AJ | 2AF | 2AB | 2X | 2T | 2P | 2L | 2H | 2D | 2AZ | 2AV | 2AR | 2AN | 2AJ | 2AF | 2AB | 2X | 2T | 2P | 2L | 2B | 2AZ | 2AV | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT | 2AT



	Г	T	T				
Terminal	Signal	Connected to	Те	st condition	Voltage (V)	Inspection item	
1A	_	_	_		_	_	
1B	Starter relay control	Starter relay	Under any cond	ition	Below 1.0	Starter relayRelated wiring	
						harness	
1C	_	_	_		_	_	
	*1	_	_		-	_	
1D	Clutch	CPP switch	Clutch pedal dep	pressed	Below 1.0	CPP switch	
	operation*2	or r cunton	Clutch pedal released		B+	 Related wiring harness 	
1E	_	_	_		_	_	
1F	_	_	_		_	_	
1G	_	_	_		_	_	
	Fuel europ		Ignition switch to	the ON position	B+	 Fuel pump relay 	
1H	Fuel pump control	Fuel pump relay	Cranking		Below 1.0	Related wiring	
			Idle		Below 1.0	harness	
11	A/C	A/C relay	ldle	A/C operating	Below 1.0	A/C relay	
	A/O	A/O relay	luie	A/C not operating	B+	 Related wiring harness 	
1J	Refrigerant Refrigera		A/C ON	Refrigerant pressure is above 1.52 MPa {15.5 kgf/cm², 220 psi}	Below 1.0	Refrigerant pressure switch	
	(medium)	switch (medium)	A C ON	Refrigerant pressure is below 1.23 MPa {12.5 kgf/cm², 178 psi}	B+	 Related wiring harness 	
1K	_	_	_		_	_	
1L	_	_	_		_	_	
1M	_	_	_		_	_	
1N	_	_	_		_	_	
10	_	_	_		_	_	
1P	_	_	_		_	_	
1Q	Main relay	Main relay	Ignition switch o	ff after 15 min	B+	Main relay	
Δ	control	Iviaiii reiay	Ignition switch to	the ON position	Below 1.0	 Related wiring harness 	
	Cooling fan		• Inspect us	sing the wave profile.		 Fan control module 	
1R	control	Fan control module	(See Inspection Using An Oscilloso (Reference).)		ope	 Related wiring harness 	
1S	_	_	_		_	_	
1T	_	_	_		_	_	
1U	EVAP leak detection pump	EVAP leak detection	Ignition switch to	the ON position	B+	EVAP leak detection pump	
	(pump)	pump	ldling		B+	 Related wiring harnesses 	

1V	EVAP leak detection pump	EVAP leak detection	Ignition switch to	the ON position	B+	EVAP leak detection pump
	(solenoid)	pump	ldling		B+	 Related wiring harnesses
1W	_	_	_		_	_
	*1	_	_		_	_
1X	Neutral	Neutral switch	Ignition switch is turned to the	Shift lever is at neutral position	Below 1.0	Neutral switch
	position*2	Neutral Switch	ON position	Shift lever is not at neutral position	B+	 Related wiring harness
1Y	_	_	_		_	_
1Z	_	_	_		_	_
1AA	_	_	_		_	_
1AB	Brake	Brake switch	Brake pedal dep	ressed	B+	Brake switch
	Brake	Diane switch	Brake pedal rele	ased	Below 1.0	 Related wiring harness
1AC	_	_	_		_	_
1AD	_	_	_		_	_
1AE	_	_	_		_	_
1AF	_	_	_		_	_
1AG	_	_	_		_	_
1AH	_	_	_		_	_
1AI	CAN (L)	Instrument cluster, ABS HU/CM, EHPAS control module		minal is for CAN, good/no ninal voltage is not possib		Related wiring harness
1AJ	_	_	_		_	_
1AK	MAF	MAF sensor	Ignition switch to	the ON position	Approx. 0.7	MAF sensor
IAN	WAF	IVIAF Serisor	ldle (after warm	up)	Approx. 1.5	 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,		minal is for CAN, good/no ninal voltage is not possib		Related wiring harness
		EHPAS control module	jadgment by tem	milai voitage is not possis		marriess
1AN	_	_	_		_	_
			 Inspect us 	sing the wave profile.		 APP sensor
1AO	APP sensor 2	APP sensor	(See Insp (Reference	ection Using An Oscillosco e).)	ope	 Related wiring harness
1AP	APP sensor 1	APP sensor	Ignition switch to the ON	Ignition switch When the accelerator pedal is depressed		APP sensor
I'Al	VI I SELISOL I	IVI I SELISOI	position	When the accelerator pedal is released	Approx. 0.4	 Related wiring harness

				ON/OFF switch pressed in	Approx. 0	
			Ignition switch	CANCEL switch pressed in	Approx. 1.1	Cruise control switch
1AQ	Cruise control switch	Cruise control switch	to the ON position	SET/COAST switch pressed in	Approx. 3.1	Related wiring
				RES/ACCEL switch pressed in	Approx. 4.2	harnesses
				Except above	Approx. 5	
1AR	Sensor GND	MAF sensor	Under any condition		Below 1.0	 Related wiring harness
1AS	_	_	_		_	_
				IAT 0 °C	Approx.	
				{32 °F}	3.43	
				IAT 20 °C	Approx.	
				{68 °F}	2.38	
				IAT 40 °C	Approx.	
		MAF/IAT sensor	Ignition switch	{104 °F}	1.49	IAT sensor
1AT	IAT		to the ON position	IAT 60 °C	Approx.	Related wiring
				{140 °F}	0.89	harness
				IAT 80 °C	Approx.	_
				[176 °F]	0.53	
				IAT 100 °C	Approx.	
				{212 °F}	0.33	
				[212 1]	0.00	Refrigerant
		Refrigerant pressure switch (high and low)		A/C switch and fan switch on	D 1 40	pressure switch
1AU	A/C on signal		ldle		Below 1.0	Related wiring
						harness
1AV	Sensor GND	IAT sensor, APP sensor	Under any cond	ition	Below 1.0	 Related wiring harness
1AW	_	_	_		_	_
			1 22 21	"	B+→	 Drive-by-wire relay
1AX	Drive-by-wire relay control	Drive-by-wire relay	Ignition switch o	П	Below 1.0	
	relay control		Ignition switch to	the ON position	Below 1.0	 Related wiring harness
4 4) (In this country	Lauriti a a sociale	Ignition switch o	ff	Below 1.0	Related wiring
1AY	Ignition switch	Ignition switch	Ignition switch to	the ON position	B+	harness
1AZ	GND	GND	Under any condi	ition	Below 1.0	 Related wiring harness
	Б	B. II. (III				Battery
1BA	Back-up power supply	Battery (positive terminal)	Under any condi	ition	B+	 Related wiring harness
1BB	GND	GND	Under any cond	ition	Below 1.0	 Related wiring harness
1BC		_				_

1BD	GND	GND	Under any condition	Below 1.0	 Related wiring harness
			Ignition switch off after 15 min	Below 1.0	Battery
1BE	B+	Main relay	Ignition switch to the ON position	B+	 Related wiring harness
			Ignition switch off	Below 1.0	Battery
1BF	B+	Drive-by-wire relay	Ignition switch to the ON position	B+	 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 Purge solenoid
2C	Purge control	Purge solenoid valve	Inspect using the wave profile.		valve
20			(See Inspection Using An Oscillosco (Reference).)	ppe	 Related wiring harness
2D	_	_	_	_	_
			Inspect using the wave profile.		OCV valve
2E	OCV control	OCV	(See Inspection Using An Oscillosco (Reference).)	ppe	 Related wiring harness
2F	_	_	_	_	_
	EGR valve #2	EGR valve	Ignition switch to the ON position	B+	EGR valve
2G	coil control	(terminal A)	Idle	B+	 Related wiring harness
	EGR valve #4 coil control	EGR valve	Ignition switch to the ON position	B+	EGR valve
2H		(terminal F)	Idle	B+	 Related wiring harness
	Variable tumble control	Variable tumble solenoid valve	ECT above 62 °C {143 °F} while idling.	B+	Variable tumble solenoid valve
21			ECT below 63 °C {145 °F} and engine speed below 3,750 rpm	Below 1.0	Related wiring harness
	Variable intake	Variable intake air solenoid valve	Ignition switch to the ON position	Below 1.0	Variable intake
2J			Engine speed: below 4,750 rpm [LF]/4,600 rpm [L3]	Below 1.0	air solenoid valve
	an control	SOLUTION VALVO	Engine speed: above 4,750 rpm [LF]/4,600 rpm [L3]	B+	 Related wiring harness
	ECD value #4	EGR valve	Ignition switch to the ON position	Below 1.0	EGR valve
2K	EGR valve #1 coil control	(terminal E)	Idle	Below 1.0	 Related wiring harness
	*		•	•	

	EGR valve #3	EGR valve (terminal	Ignition switch to the ON position B+		EGR valve
2L	coil control	B)	ldle	B+	 Related wiring harness
			Inspect using the wave profile.		• VSS
2M	VSS(+)	VSS	(See Inspection Using An Oscillosco (Reference).)	рре	 Related wiring harness
			Inspect using the wave profile.		• VSS
2N	VSS(-)	VSS	(See Inspection Using An Oscillosco (Reference).)	рре	 Related wiring harness
20	_	_	_	_	_
					 Variable tumble shutter valve switch
		Variable tumble			ECT sensor
2P	Sensor GND	shutter valve switch, ECT sensor, MAP	Under any condition	Below 1.0	MAP sensor
		sensor, HO2S			• HO2S
					 Related wiring harness
		HO2S	Ignition switch to the ON position	Approx. 0	• HO2S
2Q	HO2S		ldle (after warm up)	Alternates between 0 and 1.0	Related wiring harness
2R	_	_	_	_	_
			Inspect using the wave profile.	CMP sensor	
2S	CMP	CMP sensor	(See Inspection Using An Oscillosco (Reference).)	рре	 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
			Inspect using the wave profile.		CKP sensor
2W	CKP	CKP sensor	(See Inspection Using An Oscilloscope (Reference).)		 Related wiring harness
2X	GND (shield)	KS harness, A/F sensor, HO2S harness, GND	Under any condition	Below 1.0	Related wiring harness
2Y	_	_	_	_	_
2Z	A/F sensor power supply	A/F sensor	Idle (after warm up)	Approx. 4.1	A/F sensorRelated wiring harness

2AA	_	_	_		_	_
2AB	_	_	_		_	_
2AC	A/F sensor VSIP	A/F sensor	Idle (after warm	up)	Approx. 4.0	A/F sensorRelated wiring harness
2AD	A/F sensor IP+	A/F sensor	When the engine increased.	e speed is increased, the v	roltage	A/F sensorRelated wiring harness
2AE	Variable tumble shutter valve	Variable tumble	ECT above 63 °C {145 °F} while idling.		Approx. 5.0*3, B+*4	 Variable tumble shutter valve switch
	monitor	shutter valve switch	ECT below 63 °0 speed below 3,7	C {145 °F} and engine '50 rpm	Below 1.0	 Related wiring harness
2AF	_	_	_		_	_
2AG	Manifold absolute	MAP sensor	Ignition switch to the ON position (at sea level)		Approx. 4.1	MAP sensor Related wiring
	pressure		ldle		Approx. 1.4	harness
				IAT 20 °C {68 °F}	3.04—3.14	
				IAT 40 °C {104 °F}	2.09—2.21	. 507
2AH	ECT	ECT sensor	Ignition switch to the ON position	IAT 60 °C {140 °F}	1.29—1.39	ECT sensor Related wiring harness
				IAT 80 °C {176 °F}	0.76—0.83	
				IAT 100 °C {212 °F}	0.45—0.49	
	Generator field coil control	Generator	 Inspect us 	sing the wave profile.		 Following PIDs: IAT, ECT, RPM, VPWR, ALTT V
2AI		(terminal D)		ection Using An Oscillosco	оре	Generator
		((C.11111011 D)	(Referenc	pe).)		Related wiring harness
	Generator output voltage	Generator	Inspect us	sing the wave profile.		Generator
2AJ		(terminal P)	(See Insp (Referenc	ection Using An Oscillosco	оре	 Related wiring harness
	TP (No. 1)		to the ON	APP closed	0.53—1.00	TP sensor
2AK				APP open	4.25—4.75	Related wiring harness
			5	APP closed	4.00—4.47	TP sensor
2AL	TP (No. 2)	TP sensor No. 2	to the ON position	APP open	0.25—0.75	 Related wiring harness

2AM	Constant voltage (Vref)	CMP sensor	Ignition switch to the ON position	B+	 Related wiring harness
2AN	_	_	_	_	_
	0				TP sensor
2AO	Constant voltage (Vref)	TP sensor	Ignition switch to the ON position	Approx. 5.0	 Related wiring harness
					TP sensor
2AP	Sensor GND	TP sensor	Under any condition	Below 1.0	Related wiring harness
					CKP sensor
2AQ	Constant voltage (Vref)	CKP sensor	Ignition switch to the ON position	B+	 Related wiring harness
					MAP sensor
2AR	Constant voltage (Vref)	MAP sensor, variable tumble shutter valve switch	Ignition switch to the ON position	Approx. 5.0	 Variable tumble shutter valve switch
					 Related wiring harness
2AS	_	_	_	_	_
	IGT4	Ignition coil (No.4 cylinders)	 Inspect using the wave profile. 	 Ignition coil 	
2AT			(See Inspection Using An Oscillosc (Reference).)	 Related wiring harness 	
2AU	_	_	_	_	_
2AV	_	_	_	_	_
	IGT2	Ignition coil (No.2 cylinders)	 Inspect using the wave profile. 	 Ignition coil 	
2AW			(See Inspection Using An Oscillosc (Reference).)	 Related wiring harness 	
		1 21 0	 Inspect using the wave profile. 		Ignition coil
2AX	IGT3	Ignition coil (No.3 cylinders)	(See Inspection Using An Oscilloscope (Reference).)		 Related wiring harness
2AY	_	_	_	-	_
0.4.7	Fuel injection (#4)	Fuel injector No.4	Inspect using the wave profile.		 Fuel injector No.4
2AZ			(See Inspection Using An Oscillosc (Reference).)	 Related wiring harness 	
			Inspect using the wave profile.		Ignition coil
2BA	2BA IGT1 Ignition coil (No.1 cylinders)		(See Inspection Using An Oscilloscope (Reference).)		 Related wiring harness
	Fuel injection (#1)	Fuel injector No.1	Inspect using the wave profile.		Fuel injector No.1
2BB			(See Inspection Using An Oscilloscope (Reference).)		Related wiring harness

CMP sensor

Fuel injection			Inspect using the wave profile.	Fuel injector No.2
2BC (#2)		Fuel injector No.2	(See Inspection Using An Oscilloscope (Reference).)	 Related wiring harness
2BD Fuel injection (#3)	Fuel injection		Inspect using the wave profile.	Fuel injector No.3
	(#3)	Fuel injector No.3	(See Inspection Using An Oscilloscope (Reference).)	 Related wiring harness
2BE HO2S heater control	11000 1 1		Inspect using the wave profile.	HO2S heater
	HO2S heater	(See Inspection Using An Oscilloscope (Reference).)	 Related wiring harness 	
2BF	_	_		_
2BG	A/F sensor	A/F sensor heater	Inspect using the wave profile.	A/F sensor heater
	heater control		(See Inspection Using An Oscilloscope (Reference).)	Related wiring harness
2BH	_	_	_	_

ATX *2 MTX *3 California emission regulation applicable model

*4

Except for California emission regulation applicable model