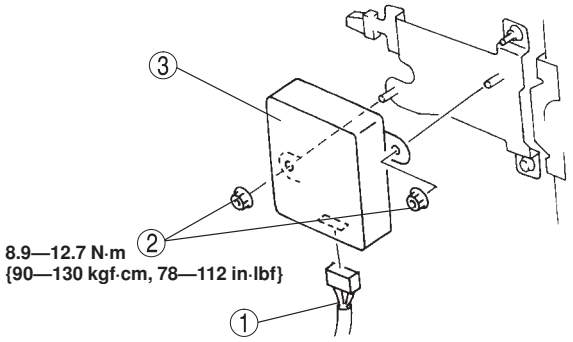
POWERTRAIN CONTROL MODULE (PCM) REMOVAL/INSTALLATION

1. Disconnect the battery negative cable.
2. Remove the driver's side front side trim. (Refer to Section S, TRIM, FRONT SIDE TRIM REMOVAL/INSTALLATION.)
3. Remove in the order indicated in the table.
4. Install in the reverse order of removal.



1	PCM connector
2	PCM installation nut
3	PCM

POWERTRAIN CONTROL MODULE (PCM) INSPECTION

Caution
- **The PCM terminal voltages vary with change in measuring conditions and vehicle conditions. Always carry out a total inspection of the input systems, output systems, and PCM to determine the cause of trouble. Otherwise, a wrong diagnosis will be made.**

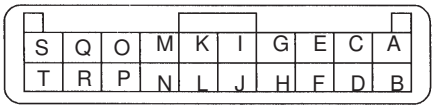
1. Remove the driver's side front side trim. (Refer to Section S, TRIM, FRONT SIDE TRIM REMOVAL/INSTALLATION.)
2. Remove the PCM with the connector connected. (Refer to POWERTRAIN CONTROL MODULE (PCM) REMOVAL/INSTALLATION.)

Note
- With the PCM connector connected, body ground the voltmeter negative (–) lead and measure the voltage at each PCM terminal by inserting the voltmeter positive (+) lead.

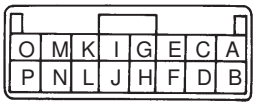
3. Measure the voltage of each PCM terminals by using a voltmeter.
4. If the output voltage is not normal while each input voltage is normal, inspect the related device systems. When they are normal, replace the PCM.
5. Install the PCM. (Refer to POWERTRAIN CONTROL MODULE (PCM) REMOVAL/INSTALLATION.)
6. Install the driver's side front side trim. (Refer to Section S, TRIM, FRONT SIDE TRIM REMOVAL/INSTALLATION.)

Terminal Voltage (Reference)

Europe and UK



Turkey and General (R.H.D. ,L.H.D.)



Terminal	Signal	Connected to	Test condition		Voltage (V)	Action
A	–	–	–		–	–
A*1	Constant voltage	• Control lever position sensor • EGR valve position sensor	Engine switch	ON	Approx. 5.0	• Inspect related harness.
				OFF	Below 1.0	• Inspect PCM. • Inspect related harness.
			Idle		Approx. 5.0	
B	System ground	Ground	Constant		Below 1.0	• Inspect related harness.
C	FICD control	FICD solenoid valve No.1	Idle	ECT is below 20°C {68°F}.	Below 1.0	• Inspect FICD solenoid valve No.1. + FUEL SYSTEM, FICD SOLENOID VALVE No.1, No.2 INSPECTION • Inspect related harness
				ECT is above 20°C {68°F}.	B+	
D	Start	Engine switch (Starter)	Engine switch is on.		Below 1.0	• Inspect related harness
			While cranking		Approx. 10	
E	ECT	ECT sensor	Engine switch is on.	ECT is 20°C {68°F}.	Approx. 3.1	• Inspect engine coolant temperature sensor. + ECT SENSOR INSPECTION • Inspect related harness
				After warm-up	Approx. 0.8	
F	Engine speed (Input)	NE sensor	Engine switch is on.		Approx. 0	• Inspect NE sensor. + NE SENSOR INSPECTION • Inspect related harness
			Idle		Approx. 0.05	
G	A/C (With A/C)	Temperature control dial	Engine switch is on.	Temperature control dial is off and fan switch is off.	B+	• Inspect microswitch. + Section U, CONTROL SYSTEM, HEATER CONTROL UNIT INSPECTION • Inspect fan switch. + Section U, CONTROL SYSTEM, HEATER CONTROL UNIT INSPECTION • Inspect related harness
				Temperature control dial is at position other than off and fan switch is on.	Below 1.0	
H	–	–	–		–	–
H*1	Idle (Control lever open or close)	Idle switch	Engine switch is on.	Accelerator pedal is depressed.	B+	• Inspect idle switch. + IDLE SWITCH INSPECTION • Inspect related harness.
				Accelerator pedal is released.	Below 1.0	

*1: Europe and UK

Terminal	Signal	Connected to	Test condition		Voltage (V)	Action
I	Glow plug voltage	Glow plug	ECT is below 60°C {140°F}.	For less than approx. 15 seconds after turning engine switch on.	B+	● Inspect related harness
				Over approx. 15 seconds after turning engine switch on.	Below 1.0	
				For less than 10 minutes after starting engine.	B+	
				Over 10 minutes after starting engine.	Below 1.0	
				While cranking	B+	
			ECT is above 60°C {140°F}.	For less than approx. 2 seconds after turning engine switch on.	B+	
				Over approx. 2 seconds after turning engine switch on.	Below 1.0	
				While cranking	B+	
J	Power supply	Engine switch	Engine switch	OFF	Below 1.0	● Inspect engine switch. + Section T, POWER SYSTEM, IGNITION SWITCH INSPECTION ● Inspect related harness.
				ON	B+	
J*1	Control lever position (Detection)	Control lever position sensor	Engine switch is on.	Accelerator pedal is fully open.	Approx. 4.2	● Inspect control lever position sensor. + CONTROL LEVER POSITION SENSOR INSPECTION ● Inspect related harness.
				Accelerator pedal is fully closed.	Approx. 0.8—1.5	
K	Engine speed (Output)	Instrument cluster	Engine switch is on.		B+	● Inspect related harness.
			Idle		6.9—7.1	
L*1	Power supply	Engine switch	Engine switch	OFF	Below 1.0	● Inspect engine switch. + Section T, POWER SYSTEM, IGNITION SWITCH INSPECTION ● Inspect related harness.
				ON	B+	
L*2	A/C control (With A/C)	A/C relay	Engine switch is on.		B+	● Inspect A/C relay. + Section U, CONTROL SYSTEM, A/C RELAY INSPECTION ● Inspect related harness.
			Idle	A/C is not operating	B+	
				A/C is operating	Below 1.0	
M	Glow indicator light control	Glow indicator light	Engine switch is off.		Below 1.0	● Inspect glow indicator light + Section T, WARNING AND INDICATOR SYSTEM, WARNING AND INDICATOR LIGHT BULB REPLACEMENT ● Inspect related harness.
			Engine switch is on and within approx. 4.5 sec. (25 °C {77 °F}).			
			Over 4.5 seconds (25 °C {77 °F}) after turning engine switch on.		B+	
N*1	A/C control (With A/C)	A/C relay	Engine switch is on.		B+	● Inspect A/C relay. + Section U, CONTROL SYSTEM, A/C RELAY INSPECTION ● Inspect related harness.
			Idle	A/C is not operating	B+	
				A/C is operating	Below 1.0	
N*2	–	–	–		–	–

*1: Europe and UK
*2: Turkey and General (R.H.D., L.H.D.)

Terminal	Signal	Connected to	Test condition		Voltage (V)	Action
O	Glow system	Glow plug relay	Engine coolant temperature is below 60°C {140°F}.	For less than approx. 15 seconds after turning engine switch on.	B+	● Inspect glow plug relay. + INTAKE-AIR SYSTEM, GLOW PLUG RELAY INSPECTION ● Inspect related harness.
				Over approx. 15 seconds after turning engine switch on.	Below 1.0	
				For less than 10 minutes after starting engine.	B+	
				Over 10 minutes after starting engine.	Below 1.0	
				While cranking	B+	
			Engine coolant temperature is above 60°C {140°F}.	For less than approx. 2 seconds after turning engine switch on.	B+	
				Over approx. 2 seconds after turning engine switch on.	Below 1.0	
				While cranking	B+	
P	FICD control	FICD solenoid valve No.2	Idle	● Temperature control dial is not at OFF ● Engine coolant temperature is below 60°C {140°F}.	Below 1.0	● Inspect FICD solenoid valve No.2. + FUEL SYSTEM, FICD SOLENOID VALVE No.1, No.2 INSPECTION ● Inspect related harness.
				● Temperature control dial is not at OFF ● Engine coolant temperature is above 60°C {140°F}.	B+	
Q	–	–	–		–	–
Q*1	Timer control	TCV	Engine switch is on.		B+	● Inspect TCV. + CONTROL SYSTEM, TIMER CONTROL VALVE (TCV) INSPECTION ● Inspect related harness.
			Idle		Below 1.0	
R	–	–	–		–	–
R*3	EGR valve control	EGR solenoid valve	Engine switch is on.		B+	● Inspect EGR solenoid valve. + EMISSION SYSTEM, EGR SOLENOID VALVE INSPECTION ● Inspect related harness.
			Idle		Below 1.0	
S	–	–	–		–	–
S*1	Diagnostic test mode	Data link connector (DLC) (Terminal TEN)	Engine switch is on.	Open terminal TEN	B+	● Inspect related harness.
				Short terminal TEN	Below 1.0	
T	–	–	–		–	–
T*1	DTC output	Data link connector (DLC) (Terminal FEN)	No DTC output		Below 1.0	● Inspect related harness.
			DTC output		0—B+	

*1: Europe and UK
*2: Turkey and General (R.H.D., L.H.D.)
*3: WL Turbo for Europe and UK