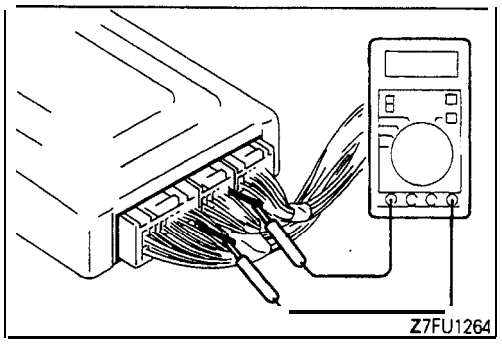


ENGINE CONTROL MODULE (ECM) TERMINAL VOLTAGE INSPECTION

(1) Connect a very thin wire probe (such as a paper clip) to the probe of the voltmeter.
(2) Insert the very thin probe from the wire side into contact with each of the terminals of the ECM connector and check the voltage, while referring to the check chart.

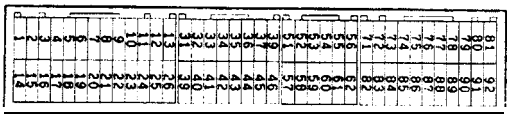
NOTE
1. Measure a voltage with the ECM connector connected.
2. Measure the voltage between each terminal and the No. 26 terminal (ground terminal).
3. Withdraw the ECM for easier access to the connector terminals.
4. The inspection need not be performed in the order of the chart.

Caution
Short-circuiting the positive (+) probe between a connector terminal and ground could cause damage to the vehicle wiring, sensors or ECM, or all of them. Use care to prevent it!

(3) If the voltmeter shows any deviation from the standard value, check the corresponding sensor, actuator and related electrical wiring, then repair or replace.
(4) After repair or replacement, recheck with the voltmeter to confirm that the problem has cleared completely.

TERMINAL VOLTAGE CHECK CHART

Engine Control Module Connector Terminal Configuration



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Terminal No.	Check point	Check conditions (Engine conditions)	Standard value	Remarks
80	Back-up power supply	Ignition switch: OFF	B+	–
12	power supply	Ignition switch: ON	B+	–
25				
82	Ignition switch: IG	Ignition switch: ON	B+	–
38	MFI relay (power supply)	Ignition switch: OFF	B+	–
		Ignition switch: ON	0–3 V	
8	MFI relay (fuel pump)	Ignition switch: ON	B+	–
		Engine: Idle	0–3 V	
81	Sensor impressed voltage	Ignition switch: ON	4.5–5.5 V	–

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Terminal No.	Check point	Check conditions (Engine conditions)		Standard value	Remarks
90	Volume air flow sensor	Engine: Idle		2.2-3.2 V	–
		Engine: 2,000 rpm			
19	Volume air flow sensor reset signal	Engine: Idle		o-1 v	–
		Engine: 3,000 rpm		6-9 V	
72	Intake air temperature sensor	ignition switch: ON	When intake temperature is 0°C (32°F)	3.2-3.8 V	–
			When intake temperature is 20°C (68°F)	2.3-2.9 V	
			When intake temperature is 40°C (104°F)	1.5-2.1 V	–
			When intake temperature is 80°C (176°F)	0- 10 V	
85	Barometric pressure sensor	Ignition switch: ON	When altitude is 0 m (0 ft.)	3.7-4.3 V	–
			When altitude is 1,200 m (3,937 ft.)	3.2-3.8 V	
83	Water temperature sensor	Ignition switch: ON	When water temperature is 0°C (32°F)	3.2-3.8 V	–
			When water temperature is 20°C (68°F)	2.3-2.9 V	
			When water temperature is 40°C (104°F)	1.3–1.9 V	–
			When water temperature is 80°C (176°F)	0.3-0.9 V	
84	Throttle position sensor	Ignition-switch: Kept in ON state for more than 15 seconds	Idle	0.3–1.0 v	–
			Wide open throttle	4.5-5.5 v	
87	Closed throttle position switch	Ignition switch: ON	Throttle valve placed in idle position	O-l V	–
			Throttle valve placed in slightly opened position	4 V or more	
88	Camshaft position sensor	Engine: Cranked		0.2-3.0 V	–
		Engine: Idle			
89	Crankshaft position sensor	Engine: Cranked		0.2-3.0 V	–
		Engine: Idle			
71	Ignition Switch – ST	Engine: Cranked		8 V or more	M/T
91	Park/Neutral position switch	Ignition switch: ON	Selector lever set to P or N	o-3 v	A/T
			Selector lever set to D, 2, L or R	8-14 V	

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Terminal No.	Check point	Check conditions (Engine conditions)		Standard value	Remarks
86	Vehicle speed sensor	• Ignition switch: ON • Move the vehicle slowly forward		0 ↔ 5 V (Changes repeated)	–
37	Power steering pressure switch	Engine: Idle, warm	Steering wheel placed in neutral (straight ahead) position	B+	
			Steering wheel turned half a turn	O-3 V	
45	Air conditioning switch 1	Engine: Idle	Air conditioning switch set to OFF	O-3 V	
			Air conditioning switch set to ON (Air conditioning compressor in driven state)	B+	
59 <Turbo, Non-Turbo up to 1995 models> 61 <Non-Turbo From 1996 models>	Air conditioning switch 2	Engine: Idle	Air conditioning switch set to OFF	O-3 V	
			• Air conditioning switch set to ON • Indoor set temperature brought closer to atmospheric temperature	B+	
22	Air conditioning relay	• Engine: Idle • Air conditioning switch: OFF → ON (Air compressor in driven state)		B+ or 6 V or more for a moment → O-3 V	–
21	Fan motor relay (Lo)	Radiator fan not operating [Coolant temperature: below 90°C (194°F)]		B+	–
		Radiator fan operating at low speeds [Coolant temperature: 95–105°C (203-221 "F)]		o-3 v	
20	Fan motor relay (Hi)	Radiator fan not operating [Coolant temperature: below 90°C (194°F)]		B+	
		Radiator fan operating at high speeds [Coolant temperature: above 105°C (221 °F)]		o-3 v	
24 <Up to 1995 models> 58 <From 1996 models>	Electric load switch	Engine: Running at idle	Lighting switch set to OFF	o-3 v	
			Lighting switch set to ON	B+	
75 76	Heated oxygen sensor(front)	Engine: Warm, 2,000 rpm (Check using a digital type voltmeter.)		0 ↔ 0.8 V (Changes repeatedly)	–

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Terminal No.	Check point	Check conditions (Engine conditions)	Standard value	Remarks
60 <Up to 1995 models> 73, 79 <From 1996 models>	Heated oxygen sensor (rear)	• Transaxle: 2nd gear <M/T>, L range <A/T> • Drive with wide open throttle • Engine 3,500 rpm or more	0.6–1.0 V	<California, Federal - from 1996 models>
1	No. 1 injector	Engine: Running at idle after warmup, and accelerated abruptly by depressing accelerator pedal	Falls temporarily a little from 11-14 V.	–
14	No. 2 injector			
2	No. 3 injector			
15	No. 4 injector			
3	No. 5 injector			
16	No. 6 injector			
4	Stepper motor coil <A1>	Engine: Warm Check immediately after hot restart.	B+ ↔ 0–3 V (Changed repeated)	–
17	Stepper motor coil <A2>			
5	Stepper motor coil <B1>			
18	Stepper motor coil <B2>			
10	Ignition power transistor unit A	Engine speed: 3,000 rpm	0.3-3 v	–
23	Ignition power transistor unit B			
11	Ignition power transistor unit C			
9	Evaporative emission purge solenoid	Ignition switch: ON	B+	
		Engine: Warm, 3,000 rpm	o-3 v	
7 cup to 1995 models> 40 <From 1996 models>	Fuel pressure solenoid	Ignition switch: ON	B+	Turbo
		Engine: From cranking to idling (within approx. 2 minutes)	O-3 V → B+	
32	Turbocharger waste gate solenoid	Ignition switch: ON	B+	Turbo
		Engine: Idle (when the premium gasoline is used)	O-3 V	
41 <Up to 1995 models> 39 <From 1996 models>	Turbo meter	Ignition switch: ON	4-13 v	Turbo
		Engine: Depress the accelerator pedal abruptly while the engine is idling	Falls temporarily from B+	

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Terminal No.	Check point	Check conditions (Engine conditions)		Standard value	Remarks
31	Fuel pump relay 2	Engine: Depress the accelerator pedal abruptly while the engine is idling		Rises temporarily from 0–3 V	Turbo
58 <Up to 1995 models> 51 <From 1996 models>	Engine ignition signal	Engine: 3,000 rpm		0.3–3 V	–
35 <Up to 1995 models> 7 <From 1996 models>	Valve opened or closed indication signal	Muffler mode change-over switch: ON	Engine: Idle	0–3 V	Turbo
			Engine: 4,500 rpm	B+	
34 <Up to 1995 models> 61 <From 1996 models>	Muffler mode change-over switch	Ignition switch: ON	Changeover switch set to ON (TOUR)	O-3 V	Turbo
			Changeover switch set to OFF (SPORT)	B+	
52	Ignition timing adjustment terminal	Ignition switch: ON	Ignition timing adjustment terminal connected to ground	O-l V	–
			Ignition timing adjustment terminal disconnected from ground	4.0-5.5 V	
36	Check engine/malfunction indicator lamp	Ignition switch: OFF → ON		0–3 V → 9-13 v (Several seconds later)	–
6	EGR solenoid	Ignition switch: ON		B+	<up to 1995: California – Non Turbo, Turbo> <From 1996: All models>
		Engine: Idle Suddenly depress the accelerator pedal		Falls temporarily from B+.	
73 <Up to 1995 models>	EGR temperature sensor	Ignition switch: ON	When sensor temperature is 50°C (122°F)	3.6-4.4 V	California, Federal – Turbo
			When sensor temperature is 100°C (212°F)	2.2-3.0 V	
74, 77 <Up to 1995 models> 34, 35, 42, 43 <From 1996 models>	Oxygen sensor heater	Engine: Idle, warm		o-3 v	<Up to 1995: California – Non Turbo> <From 1996: All models>
		Engine: 5,000 rpm		B+	

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Terminal No.	Check point	Check conditions (Engine conditions)	Standard value	Remarks
41 <Up to 1995 models> 54 <From 1996 models>	Induction control valve position sensor No. 1	Ignition switch: ON	O-l V or 4.5-5.5 v	Non Turbo
		Engine: Slowly accelerated from idling speed to 5,000 rpm	O-l V or 4.5-5.5 v → 1.5–4 v (for a moment)	
33 <Up to 1995 models> 55 <From 1996 models>	Induction control valve position sensor No. 2	Ignition switch: ON	O-l V or 4.5-5.5 v	Non-Turbo
		Engine: Slowly accelerated from idling speed to 5,000 rpm	O-l V or 4.5-5.5 v → 1.5-4 v (for a moment)	
40	Induction control valve (Opened)	Engine: Slowly accelerated from idling speed to 5,000 rpm	O-l V → 4 V or more (for a moment)	Non Turbo
39	Induction control valve (Closed)	Engine: Slowly decelerated from 5,000 rpm to idling speed		
44	Anti-lock braking signal	Engine: Idle	B+	Turbo
		• When vehicle is put in motion for the first time after the ignition switch was placed in ON position • Vehicle speed: 0 → 10 km/h (0 → 0.6 mph)	B+ → O-3 V (for a moment)	
46	Total control "Reduce torque" request signal 1	Engine: Idle	4.5-5.5 v	A/T
		Engine: Running at idle after warmup and changing speeds	O-l V	
43 <Up to 1995 models> 60 <From 1996 models>	Total control "Reduce torque" request signal 2	Engine: Idle	o-1 v	A/T
		Engine: Running at idle after warmup and changing speeds	l-5.5 V	
7	Total control "Reduce torque" execution signal	Engine: Running at idle with coolant temperature at 50°C (122°F) or lower	O-l V	A/T
		Engine: idle, warm	1–4 V	
74	Manifold differential pressure senosr	Engine: Idle	0.8-2.4 V	A/T
		• Engine: Idle • Suddenly depress the accelerator pedal.	Voltage rises temporarily from 0.8-2.4 V	

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