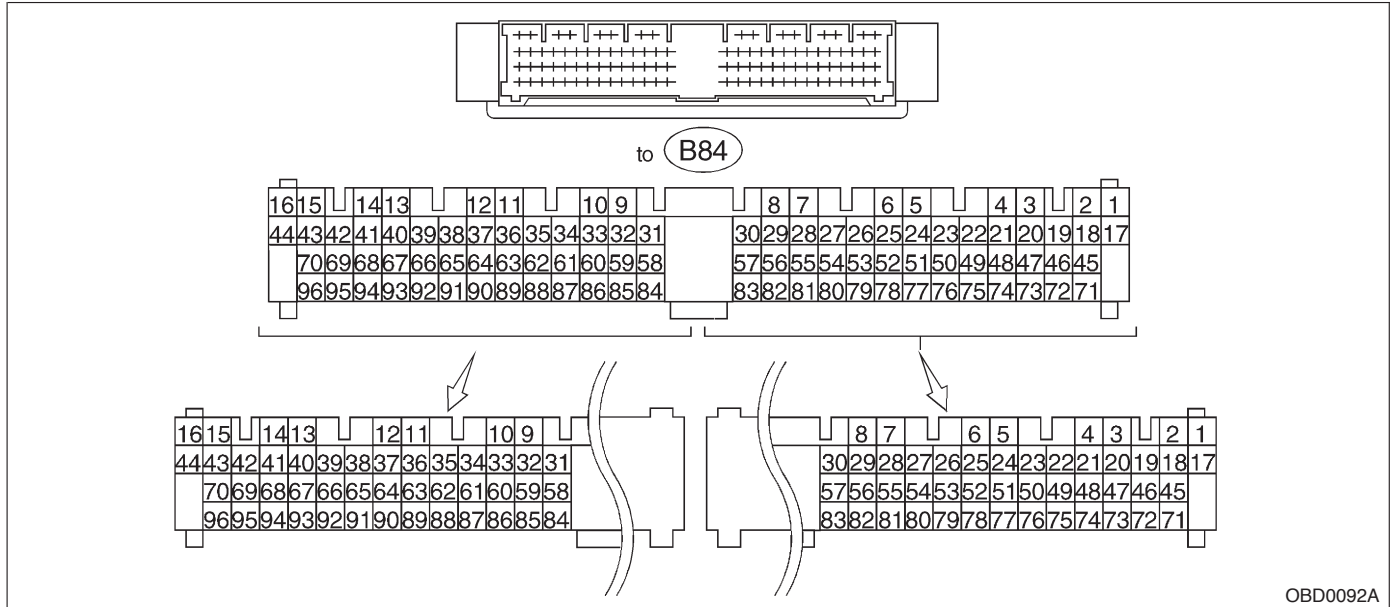


## 5. Specified Data

### A: ENGINE CONTROL MODULE (ECM) I/O SIGNAL



#### ● WITHOUT ORVR MODEL

Content	Con- nector No.	Termi- nal No.	Signal (V)		Note	
			Ignition SW ON (Engine OFF)	Engine ON (Idling)		
Crankshaft position sensor	Signal (+)	B84	8	0	-7 — +7	Sensor output waveform
	Signal (-)	B84	29	0	0	—
	Shield	B84	54	0	0	—
Camshaft position sensor	Signal (+)	B84	7	0	-7 — +7	Sensor output waveform
	Signal (-)	B84	28	0	0	—
	Shield	B84	54	0	0	—
Mass air flow sensor	Signal	B84	5	0 — 0.3	0.8 — 1.2	—
	Shield	B84	57	0	0	—
	GND	B84	53	0	0	—
Throttle position sensor	Signal	B84	6	Fully closed: 0.2 — 1.0 Fully opened: 4.2 — 4.7		—
	Power sup- ply	B84	21	5	5	—
	GND	B84	20	0	0	—
Front oxy- gen sensor	Signal	B84	23	0	0 — 0.9	—
	Shield	B84	56	0	0	—
Rear oxy- gen sensor	Signal	B84	24	0	0 — 0.9	—
	Shield	B84	56	0	0	—
Engine coolant tem- perature sensor	B84	22	1.0 — 1.4	1.0 — 1.4	After warm-up	
Vehicle speed sensor 2	B84	83	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.	
Starter switch	B84	86	0	0	Cranking: 8 to 14	
A/C switch	B84	60	ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	—	

Ignition switch	B84	85	10 – 13	13 – 14	—	
Neutral position switch (MT)	B84	82	ON: 5.0±0.5 OFF: 0		● On MT vehicles; switch is ON when gear is in neutral position.	
Neutral position switch (AT)			ON: 0 OFF: 5.0±0.5		● On AT vehicles; switch is ON when shift is in “N” or “P” position	
Test mode connector	B84	84	5	5	When connected: 0	
Knock sensor	Signal	B84	3	2.8	—	
	Shield	B84	56	0		
AT/MT identification	B84	81	AT: 5 MT: 0	AT: 5 MT: 0	When measuring voltage between ECM and chassis ground.	
Back-up power supply	B84	39	10 – 13	13 – 14	Ignition switch “OFF”: 10 – 13	
Control unit power supply	B84	1	10 – 13	13 – 14	—	
		2				
Ignition control	# 1, # 2	B84	41	0	1 – 3.4	—
	# 3, # 4	B84	40	0	1 – 3.4	—
Fuel injector	# 1	B84	96	10 – 13	1 – 14	Waveform
	# 2	B84	70	10 – 13	1 – 14	Waveform
	# 3	B84	44	10 – 13	1 – 14	Waveform
	# 4	B84	16	10 – 13	1 – 14	Waveform
Idle air control solenoid valve	OPEN end	B84	14	—	1 – 13	Waveform
	CLOSE end	B84	13	—	13 – 1	Waveform
Fuel pump relay control	B84	32	ON: 0.5, or less OFF: 10 – 13	0.5, or less	—	
A/C relay control	B84	31	ON: 0.5, or less OFF: 10 – 13	ON: 0.5, or less OFF: 13 – 14	—	
Radiator fan relay 1	B84	74	ON: 0.5, or less OFF: 10 – 13	ON: 0.5, or less OFF: 13 – 14	—	
Radiator fan relay 2	B84	73	ON: 0.5, or less OFF: 10 – 13	ON: 0.5, or less OFF: 13 – 14	With A/C vehicles only	
Self-shutoff control	B84	63	10 – 13	13 – 14	—	
Malfunction indicator lamp	B84	58	—	—	Light “ON”: 1, or less Light “OFF”: 10 – 14	
Engine speed output	B84	64	—	0 – 13, or more	Waveform	
Torque control signal	B84	79	5	5	—	
Mass air flow signal for AT	B84	47	0 – 0.3	0.8 – 1.2	—	
Purge control solenoid valve	B84	72	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
Atmospheric pressure sensor	B84	26	3.9 – 4.1	2.0 – 2.3	—	
Pressure sources switching solenoid valve	B84	15	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
EGR solenoid valve	B84	71	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
Front oxygen sensor heater signal	B84	38	0 – 1.0	0 – 1.0	—	
Rear oxygen sensor heater signal	B84	37	0 – 1.0	0 – 1.0	—	
Fuel temperature sensor	B84	25	2.5 – 3.8	2.5 – 3.8	Ambient temperature: 25°C (77°F)	

Fuel level sensor	B84	27	0.12 — 4.75	0.12 — 4.75	—	
Fuel tank pressure sensor	Signal	B84	4	2.3 — 2.7	2.3 — 2.7	The value obtained after the fuel filler cap was removed once and recapped.
	Power supply	B84	21	5	5	
	GND	B84	20	0	0	
Fuel tank pressure control solenoid valve	B84	10	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—	
Vent control solenoid valve	B84	35	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—	
Fed. spec. vehicle identification	B84	87	Fed.: 5 Cal.: 0	Fed.: 5 Cal.: 0	When measuring voltage between ECM and chassis ground.	
AT diagnosis input signal	B84	80	Less than 1 ↔ More than 4	Less than 1 ↔ More than 4	Waveform	
GND (sensors)	B84	20	0	0	—	
GND (injectors)	B84	69	0	0	—	
		95				
GND (ignition system)	B84	94	0	0	—	
GND (power supply)	B84	19	0	0	—	
		46				
GND (control systems)	B84	17	0	0	—	
		18				
GND (oxygen sensor heater)	B84	42	0	0	—	

## ● WITH ORVR MODEL

Content	Connector No.	Terminal No.	Signal (V)		Note	
			Ignition SW ON (Engine OFF)	Engine ON (Idling)		
Crankshaft position sensor	Signal (+)	B84	8	0	-7 — +7	Sensor output waveform
	Signal (-)	B84	29	0	0	—
	Shield	B84	54	0	0	—
Camshaft position sensor	Signal (+)	B84	7	0	-7 — +7	Sensor output waveform
	Signal (-)	B84	28	0	0	—
	Shield	B84	54	0	0	—
Mass air flow sensor	Signal	B84	5	0 — 0.3	0.8 — 1.2	—
	Shield	B84	57	0	0	—
	GND	B84	53	0	0	—
Throttle position sensor	Signal	B84	6	Fully closed: 0.2 — 1.0 Fully opened: 4.2 — 4.7		—
	Power supply	B84	21	5	5	—
	GND	B84	20	0	0	—
Front oxygen sensor	Signal	B84	23	0	0 — 0.9	—
	Shield	B84	56	0	0	—
Rear oxygen sensor	Signal	B84	24	0	0 — 0.9	—
	Shield	B84	56	0	0	—
Engine coolant temperature sensor	B84	22	1.0 — 1.4	1.0 — 1.4	After warm-up	
Vehicle speed sensor 2	B84	83	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.	
Starter switch	B84	86	0	0	Cranking: 8 to 14	

A/C switch	B84	60	ON: 10 – 13 OFF: 0	ON: 13 – 14 OFF: 0	—	
Ignition switch	B84	85	10 – 13	13 – 14	—	
Neutral position switch (MT)	B84	82	ON: 5.0±0.5 OFF: 0		● On MT vehicles; switch is ON when gear is in neutral position.	
Neutral position switch (AT)			ON: 0 OFF: 5.0±0.5		● On AT vehicles; switch is ON when shift is in “N” or “P” position	
Test mode connector	B84	84	5	5	When connected: 0	
Knock sensor	Signal	B84	3	2.8	—	
	Shield	B84	56	0		
AT/MT identification	B84	81	AT: 5 MT: 0	AT: 5 MT: 0	When measuring voltage between ECM and chassis ground.	
Back-up power supply	B84	39	10 – 13	13 – 14	Ignition switch “OFF”: 10 – 13	
Control unit power supply	B84	1	10 – 13	13 – 14	—	
		2				
Ignition control	# 1, # 2	B84	41	0	1 – 3.4	—
	# 3, # 4	B84	40	0	1 – 3.4	—
Fuel injector	# 1	B84	96	10 – 13	1 – 14	Waveform
	# 2	B84	70	10 – 13	1 – 14	Waveform
	# 3	B84	44	10 – 13	1 – 14	Waveform
	# 4	B84	16	10 – 13	1 – 14	Waveform
Idle air control solenoid valve	OPEN end	B84	14	—	1 – 13	Waveform
	CLOSE end	B84	13	—	13 – 1	Waveform
Fuel pump relay control	B84	32	ON: 0.5, or less OFF: 10 – 13	0.5, or less	—	
A/C relay control	B84	31	ON: 0.5, or less OFF: 10 – 13	ON: 0.5, or less OFF: 13 – 14	—	
Radiator fan relay 1	B84	74	ON: 0.5, or less OFF: 10 – 13	ON: 0.5, or less OFF: 13 – 14	—	
Radiator fan relay 2	B84	73	ON: 0.5, or less OFF: 10 – 13	ON: 0.5, or less OFF: 13 – 14	With A/C vehicles only	
Self-shutoff control	B84	63	10 – 13	13 – 14	—	
Malfunction indicator lamp	B84	58	—	—	Light “ON”: 1, or less Light “OFF”: 10 – 14	
Engine speed output	B84	64	—	0 – 13, or more	Waveform	
Torque control signal	B84	79	5	5	—	
Mass air flow signal for AT	B84	47	0 – 0.3	0.8 – 1.2	—	
Purge control solenoid valve	B84	72	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
Atmospheric pressure sensor	B84	26	3.9 – 4.1	2.0 – 2.3	—	
Pressure sources switching solenoid valve	B84	15	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
EGR solenoid valve	B84	71	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
Front oxygen sensor heater signal	B84	38	0 – 1.0	0 – 1.0	—	
Rear oxygen sensor heater signal	B84	37	0 – 1.0	0 – 1.0	—	

Fuel temperature sensor	B84	25	2.5 – 3.8	2.5 – 3.8	Ambient temperature: 25°C (77°F)	
Fuel level sensor	B84	27	0.12 – 4.75	0.12 – 4.75	—	
Fuel tank pressure sensor	Signal	B84	4	2.3 – 2.7	2.3 – 2.7	The value obtained after the fuel filler cap was removed once and recapped.
	Power supply	B84	21	5	5	—
	GND	B84	20	0	0	—
Fuel tank pressure control solenoid valve	B84	10	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
Drain valve	B84	35	ON: 1, or less OFF: 10 – 13	ON: 1, or less OFF: 13 – 14	—	
Fed. spec. vehicle identification	B84	87	Fed.: 5 Cal.: 0	Fed.: 5 Cal.: 0	When measuring voltage between ECM and chassis ground.	
AT diagnosis input signal	B84	80	Less than 1 ↔ More than 4	Less than 1 ↔ More than 4	Waveform	
GND (sensors)	B84	20	0	0	—	
GND (injectors)	B84	69	0	0	—	
		95				
GND (ignition system)	B84	94	0	0	—	
GND (power supply)	B84	19	0	0	—	
		46				
GND (control systems)	B84	17	0	0	—	
		18				
GND (oxygen sensor heater)	B84	42	0	0	—	

## B: ENGINE CONDITION DATA

Content	Specified data
Mass air flow	2.2 – 4.2 (g/sec): Idling
	8.6 – 14.5 (g/sec): 2,500 rpm racing
Engine load	1.9 – 3.5 (%): Idling
	7.2 – 12.1 (%): 2,500 rpm racing

Measuring condition:

- After warm-up the engine.
- Gear position is in “N” or “P” position.
- A/C is turned OFF.
- All accessory switches are turned OFF.