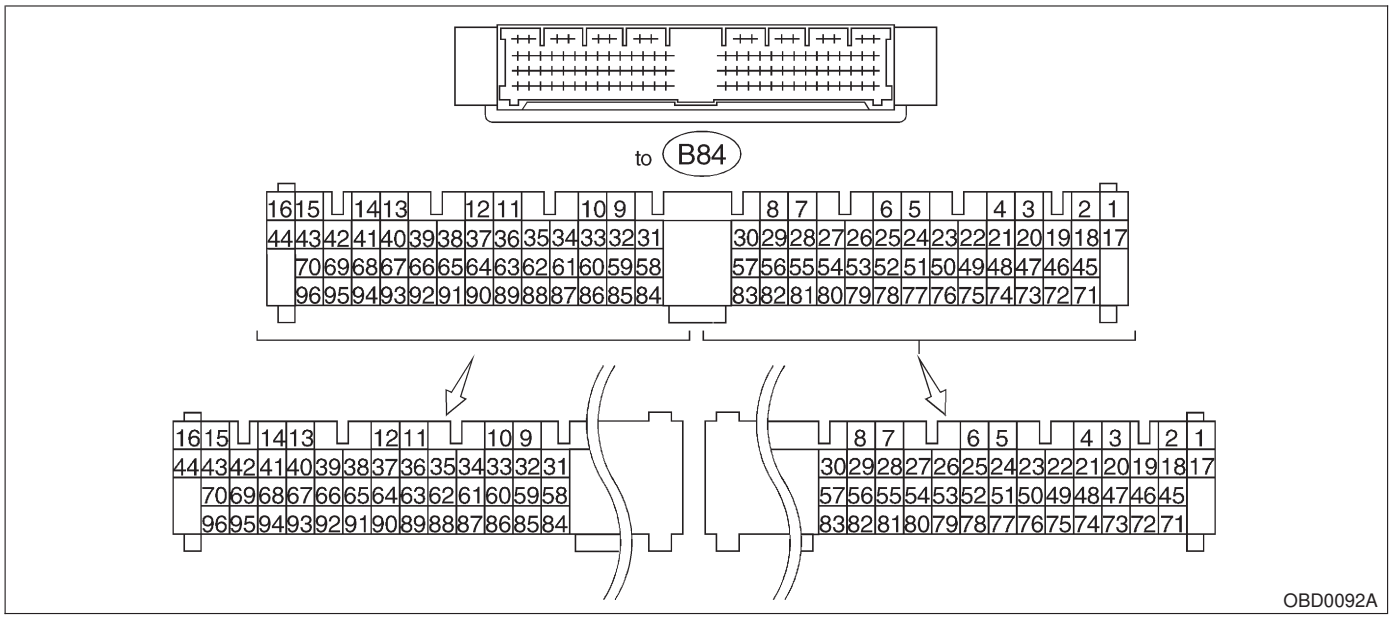
# 5. Specified Data

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




| 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<br>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<br>OFF: 0 | ON: 13 — 14<br>OFF: 0 | — |
| Ignition switch | | B84 | 85 | 10 — 13 | 13 — 14 | — |

| Content | | Connector No. | Terminal No. | Signal (V) | | Note |
|---|---|---|---|---|---|---|
| | | | | Ignition SW ON (Engine OFF) | Engine ON (Idling) | |
| Neutral position switch (MT) | | B84 | 82 | ON: 5.0±0.5<br>OFF: 0 | | • On MT vehicle; switch is ON when gear is in neutral position. |
| Neutral position switch (AT) | | | | ON: 0<br>OFF: 5.0±0.5 | | • On AT vehicle; 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 | 2.8 | — |
| | Shield | B84 | 56 | 0 | 0 | — |
| AT/MT identification | | B84 | 81 | (AT) 5<br>(MT) 0 | (AT) 5<br>(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<br>2 | 10 — 13 | 13 — 14 | — |
| 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<br>OFF: 10 — 13 | 0.5, or less | — |
| A/C relay control | | B84 | 31 | ON: 0.5, or less<br>OFF: 10 — 13 | ON: 0.5, or less<br>OFF: 13 — 14 | — |
| Radiator fan relay 1 control | | B84 | 74 | ON: 0.5, or less<br>OFF: 10 — 13 | ON: 0.5, or less<br>OFF: 13 — 14 | — |
| Radiator fan relay 2 control | | B84 | 73 | ON: 0.5, or less<br>OFF: 10 — 13 | ON: 0.5, or less<br>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<br>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<br>OFF: 10 — 13 | ON: 1, or less<br>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<br>OFF: 10 — 13 | ON: 1, or less<br>OFF: 13 — 14 | — |
| EGR solenoid valve | | B84 | 71 | ON: 1, or less<br>OFF: 10 — 13 | ON: 1, or less<br>OFF: 13 — 14 | Except 2200 cc MT vehicles |
| Front oxygen sensor heater signal | | B84 | 38 | 0 — 1.0 | 0 — 1.0 | — |

| Content | | Connector No. | Terminal No. | Signal (V) | | Note |
|---|---|---|---|---|---|---|
| | | | | Ignition SW ON (Engine OFF) | Engine ON (Idling) | |
| 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<br>OFF: 10 — 13 | ON: 1, or less<br>OFF: 13 — 14 | — |
| Vent control solenoid valve | | B84 | 35 | ON: 1, or less<br>OFF: 10 — 13 | ON: 1, or less<br>OFF: 13 — 14 | 2500 cc models |
| Drain valve | | B84 | 35 | ON: 1, or less<br>OFF: 10 — 13 | ON: 1, or less<br>OFF: 13 — 14 | 2200 cc models |
| 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 | Model | Specified data |
|---|---|---|
| Mass air flow | 2200 cc | 1.7 — 3.3 (g/sec): Idling |
| | | 7.1 — 14.2 (g/sec): 2,500 rpm racing |
| | 2500 cc | 2.2 — 4.2 (g/sec): Idling |
| | | 8.6 — 14.5 (g/sec): 2,500 rpm racing |
| Engine load | 2200 cc | 1.6 — 2.9 (%): Idling |
| | | 6.4 — 12.8 (%): 2,500 rpm racing |
| | 2500 cc | 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.

**MEMO:**