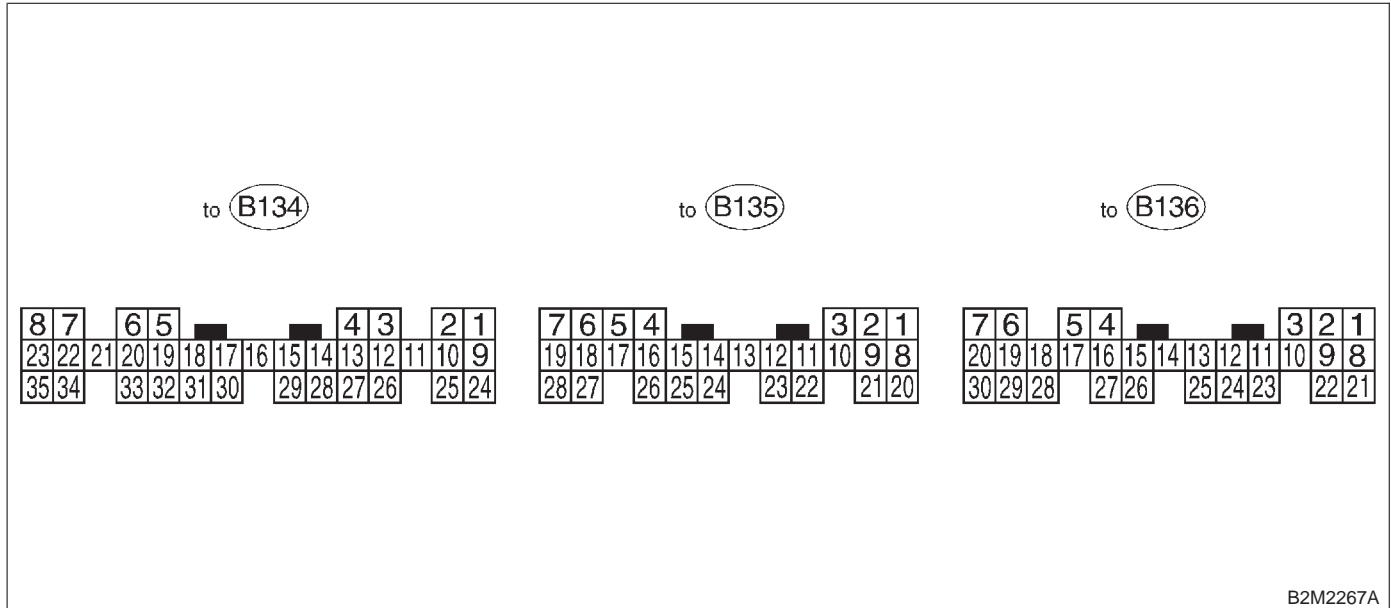


## 5. Specified Data

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



B2M2267A

| Content                                     |                   | Con-<br>nector<br>No. | Termi-<br>nal<br>No. | Signal (V)   |                       | Note  |
|---|-------------------|-----------------------|----------------------|--|-----------------------|---|
|   |                   |                       |                      | Ignition SW ON<br>(Engine OFF)                     | Engine ON (Idling)    |   |
| Crankshaft<br>position sen-<br>sor          | Signal (+)        | B135                  | 1                    | 0  | -7 to +7              | Sensor output waveform  |
|   | Signal (-)        | B135                  | 8                    | 0  | 0                     | —   |
|   | Shield            | B135                  | 10                   | 0  | 0                     | —   |
| Camshaft<br>position sen-<br>sor            | Signal (+)        | B135                  | 2                    | 0  | -7 to +7              | Sensor output waveform  |
|   | Signal (-)        | B135                  | 9                    | 0  | 0                     | —   |
|   | Shield            | B135                  | 10                   | 0  | 0                     | —   |
| Throttle<br>position sen-<br>sor            | Signal            | B136                  | 17                   | Fully closed: 0.2 — 1.0<br>Fully opened: 4.2 — 4.7 |                       | —   |
|   | Power sup-<br>ply | B136                  | 15                   | 5  | 5                     | —   |
|   | GND (sen-<br>sor) | B136                  | 16                   | 0  | 0                     | —   |
| Rear oxygen<br>sensor                       | Signal            | B136                  | 18                   | 0  | 0 — 0.9               | —   |
|   | Shield            | B136                  | 24                   | 0  | 0                     | —   |
|   | GND (sen-<br>sor) | B136                  | 16                   | 0  | 0                     | —   |
| Front oxy-<br>gen (A/F)<br>sensor<br>heater | Signal 1          | B134                  | 22                   | 0 — 1.0  | 0 — 1.0               | —   |
|   | Signal 2          | B134                  | 23                   | 0 — 1.0  | 0 — 1.0               | —   |
| Rear oxygen sensor heater<br>signal         |                   | B134                  | 21                   | 0 — 1.0  | 0 — 1.0               | —   |
| Engine cool-<br>ant tempera-<br>ture sensor | Signal            | B136                  | 14                   | 1.0 — 1.4  | 1.0 — 1.4             | After warm-up the engine.   |
|   | GND (sen-<br>sor) | B136                  | 16                   | 0  | 0                     | After warm-up the engine.   |
| Vehicle speed signal                        |                   | B135                  | 24                   | 0 or 5   | 0 or 5                | "5" and "0" are repeatedly dis-<br>played when vehicle is driven. |
| Starter switch                              |                   | B135                  | 28                   | 0  | 0                     | Cranking: 8 — 14  |
| A/C switch                                  |                   | B135                  | 27                   | ON: 10 — 13<br>OFF: 0                              | ON: 13 — 14<br>OFF: 0 | —   |

| Content                                 | Con-<br>nector<br>No. | Termi-<br>nal<br>No. | Signal (V)                       |                                  | Note   |          |
|---|-----------------------|----------------------|----------------------------------|----------------------------------|--|----------|
|   |                       |                      | Ignition SW ON<br>(Engine OFF)   | Engine ON (Idling)               |  |          |
| Ignition switch                         | B135                  | 7                    | 10 — 13                          | 13 — 14                          | —  |          |
| Neutral position switch (MT)            | B136                  | 26                   | ON: 12±0.5<br>OFF: 0             |                                  | Switch is ON when gear is in neutral position.     |          |
| Neutral position switch (AT)            | B135                  | 26                   | ON: 0<br>OFF: 12±0.5             |                                  | Switch is ON when shift is in "N" or "P" position. |          |
| Test mode connector                     | B135                  | 14                   | 5                                | 5                                | When connected: 0                                  |          |
| Knock sen-<br>sor                       | Signal                | B136                 | 4                                | 2.8                              | 2.8  | —        |
|   | Shield                | B136                 | 25                               | 0                                | 0  | —        |
| Back-up power supply                    | B136                  | 9                    | 10 — 13                          | 13 — 14                          | Ignition switch "OFF": 10 — 13                     |          |
| Control unit power supply               | B136                  | 1                    | 10 — 13                          | 13 — 14                          | —  |          |
|   | B136                  | 2                    | 10 — 13                          | 13 — 14                          | —  |          |
| Sensor power supply                     | B136                  | 15                   | 5                                | 5                                | —  |          |
| Line end check 1                        | B135                  | 20                   | 0                                | 0                                | —  |          |
| Ignition con-<br>trol                   | #1, #2                | B134                 | 25                               | 0                                | 1 — 3.4  | Waveform |
|   | #3, #4                | B134                 | 26                               | 0                                | 1 — 3.4  | Waveform |
| Fuel injector                           | #1                    | B134                 | 4                                | 10 — 13                          | 1 — 14   | Waveform |
|   | #2                    | B134                 | 13                               | 10 — 13                          | 1 — 14   | Waveform |
|   | #3                    | B134                 | 14                               | 10 — 13                          | 1 — 14   | Waveform |
|   | #4                    | B134                 | 15                               | 10 — 13                          | 1 — 14   | Waveform |
| Idle air con-<br>trol solenoid<br>valve | Signal 1              | B134                 | 5                                | —                                | 1 — 13   | Waveform |
|   | Signal 2              | B134                 | 6                                | —                                | 1 — 13   | Waveform |
|   | Signal 3              | B134                 | 19                               | —                                | 1 — 13   | Waveform |
|   | Signal 4              | B134                 | 20                               | —                                | 1 — 13   | Waveform |
|   | Power sup-<br>ply     | B136                 | 2                                | 10 — 13                          | 13 — 14  | —        |
| Fuel pump relay control                 | B134                  | 16                   | ON: 0.5, or less<br>OFF: 10 — 13 | 0.5, or less                     | —  |          |
| A/C relay control                       | B134                  | 17                   | ON: 0.5, or less<br>OFF: 10 — 13 | ON: 0.5, or less<br>OFF: 13 — 14 | —  |          |
| Radiator fan relay 1 control            | B134                  | 3                    | ON: 0.5, or less<br>OFF: 10 — 13 | ON: 0.5, or less<br>OFF: 13 — 14 | —  |          |
| Radiator fan relay 2 control            | B134                  | 2                    | 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                    | B135                  | 19                   | 10 — 13                          | 13 — 14                          | —  |          |
| Malfunction indicator lamp              | B134                  | 11                   | —                                | —                                | Light "ON": 1, or less<br>Light "OFF": 10 — 14     |          |
| Engine speed output                     | B134                  | 30                   | —                                | 0 — 13, or more                  | Waveform   |          |
| Torque control 1 signal                 | B135                  | 16                   | 5                                | 5                                | —  |          |
| Torque control 2 signal                 | B135                  | 17                   | 5                                | 5                                | —  |          |
| Torque control cut signal               | B134                  | 31                   | 8                                | 8                                | —  |          |
| Purge control solenoid<br>valve         | B134                  | 2                    | ON: 1, or less<br>OFF: 10 — 13   | ON: 1, or less<br>OFF: 13 — 14   | —  |          |
| Atmospheric<br>pressure<br>sensor       | Signal                | B136                 | 29                               | 3.9 — 4.1                        | 2.0 — 2.3  | —        |
|   | Power sup-<br>ply     | B136                 | 15                               | 5                                | 5  |          |
|   | GND (sen-<br>sor)     | B136                 | 16                               | 0                                | 0  |          |
| Fuel temperature sensor                 | B136                  | 26                   | 2.5 — 3.8                        | 2.5 — 3.8                        | Ambient temperature: 25°C<br>(75°F)                |          |
| Fuel level sensor                       | B136                  | 27                   | 0.12 — 4.75                      | 0.12 — 4.75                      | —  |          |

| Content                                   |              | Con-<br>nector<br>No. | Termi-<br>nal<br>No. | Signal (V)                     |                                | Note  |
|---|--------------|-----------------------|----------------------|--------------------------------|--------------------------------|---|
|   |              |                       |                      | Ignition SW ON<br>(Engine OFF) | Engine ON (Idling)             |   |
| Fuel tank<br>pressure<br>sensor           | Signal       | B136                  | 12                   | 2.3 — 2.7                      | 2.3 — 2.7                      | The value obtained after the fuel filler cap was removed once and recapped. |
|   | Power supply | B136                  | 15                   | 5                              | 5                              | —   |
|   | GND (sensor) | B136                  | 16                   | 0                              | 0                              | —   |
| Fuel tank pressure control solenoid valve |              | B134                  | 1                    | ON: 1, or less<br>OFF: 10 — 13 | ON: 1, or less<br>OFF: 13 — 14 | —   |
| Drain valve                               |              | B134                  | 10                   | ON: 1, or less<br>OFF: 10 — 13 | ON: 1, or less<br>OFF: 13 — 14 | —   |
| AT diagnosis input signal                 |              | B135                  | 4                    | Less than 1 ↔ More than 4      | Less than 1 ↔ More than 4      | Waveform  |
| Small light switch                        |              | B136                  | 3                    | ON: 0<br>OFF: 10 — 13          | ON: 0<br>OFF: 13 — 14          | —   |
| Blower fan switch                         |              | B136                  | 30                   | ON: 0<br>OFF: 10 — 13          | ON: 0<br>OFF: 13 — 14          | —   |
| Rear defogger switch                      |              | B135                  | 21                   | ON: 0<br>OFF: 10 — 13          | ON: 0<br>OFF: 13 — 14          | —   |
| Front oxygen (A/F) sensor signal 1        |              | B136                  | 19                   | 2.8 — 3.2                      | 2.8 — 3.2                      | —   |
| Front oxygen (A/F) sensor signal 2        |              | B136                  | 6                    | 2.4 — 2.7                      | 2.4 — 2.7                      | —   |
| Front oxygen (A/F) sensor signal 3        |              | B136                  | 7                    | 0.2 — 4.9                      | 0.2 — 4.9                      | —   |
| Front oxygen (A/F) sensor signal 4        |              | B136                  | 20                   | 0.2 — 4.9                      | 0.2 — 4.9                      | —   |
| Pressure sensor                           |              | B136                  | 5                    | 2.4 — 4.8                      | 0.4 — 1.8                      | —   |
| Intake air temperature sensor             |              | B136                  | 13                   | 2.3 — 2.5                      | 1.4 — 1.6                      | —   |
| SSM/GST communication line                |              | B135                  | 3                    | Less than 1 ↔ More than 4      | Less than 1 ↔ More than 4      | —   |
| GND (sensors)                             |              | B136                  | 16                   | 0                              | 0                              | —   |
| GND (injectors)                           |              | B134                  | 7                    | 0                              | 0                              | —   |
| GND (ignition system)                     |              | B134                  | 27                   | 0                              | 0                              | —   |
| GND (power supply)                        |              | B134                  | 8                    | 0                              | 0                              | —   |
| GND (control systems)                     |              | B136                  | 21                   | 0                              | 0                              | —   |
|   |              | B136                  | 22                   | 0                              | 0                              | —   |
| GND (oxygen sensor heater 1)              |              | B134                  | 35                   | 0                              | 0                              | —   |
| GND (oxygen sensor heater 2)              |              | B134                  | 34                   | 0                              | 0                              | —   |

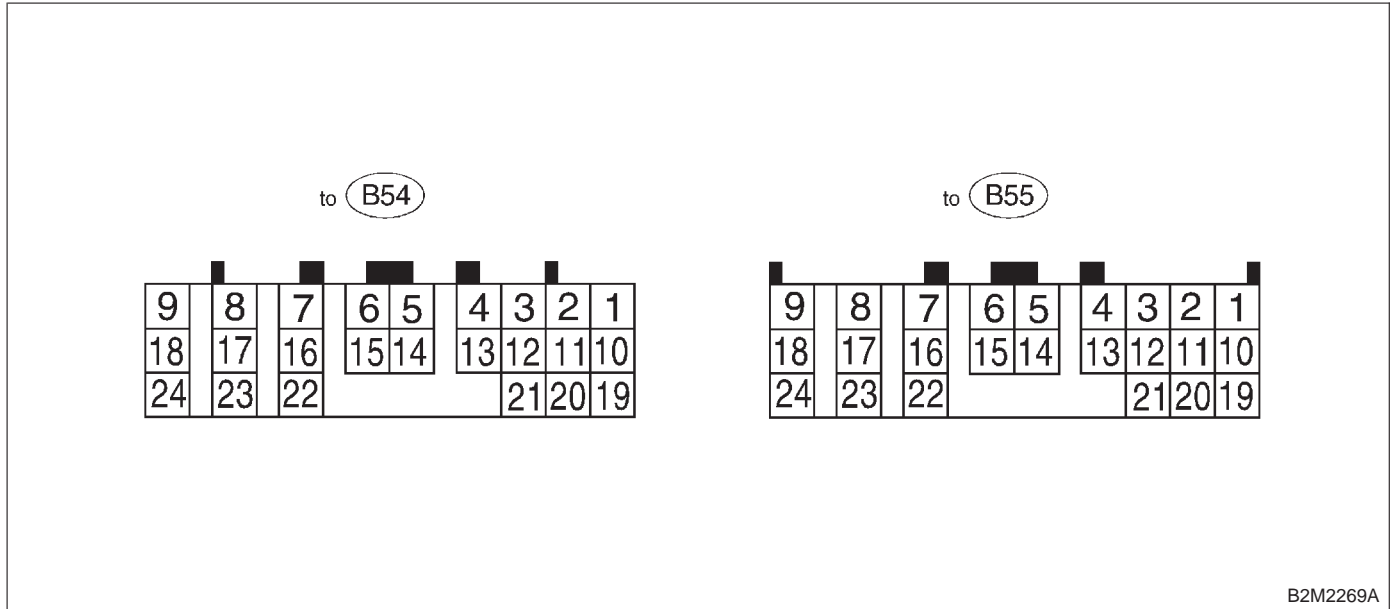
**B: ENGINE CONDITION DATA**

| Content     | Specified data                   |
|-------------|----------------------------------|
| Engine load | 1.6 — 2.9 (%): Idling            |
|             | 6.4 — 12.8 (%): 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.

C: TRANSMISSION CONTROL MODULE (TCM) I/O SIGNAL



B2M2269A

NOTE:  
Check with ignition switch ON.

| Content               |                  | Connector No. | Terminal No.                             | Measuring conditions                     | Voltage (V)   |
|-----------------------|------------------|---------------|--|--|---------------|
| Back-up power supply  |                  | B55           | 6  | Ignition switch OFF                      | 10 — 16       |
| Ignition power supply |                  | B54           | 23                                       | Ignition switch ON (with engine OFF)     | 10 — 16       |
|                       |                  | B54           | 24                                       |  |               |
| Inhibitor switch      | "P" range switch | B55           | 23                                       | Select lever in "P" range                | Less than 1   |
|                       |                  |               |  | Select lever in any other than "P" range | More than 8   |
|                       | "N" range switch | B55           | 22                                       | Select lever in "N" range                | Less than 1   |
|                       |                  |               |  | Select lever in any other than "N" range | More than 8   |
|                       | "R" range switch | B55           | 17                                       | Select lever in "R" range                | Less than 1   |
|                       |                  |               |  | Select lever in any other than "R" range | More than 9.5 |
|                       | "D" range switch | B55           | 8  | Select lever in "D" range                | Less than 1   |
|                       |                  |               |  | Select lever in any other than "D" range | More than 9.5 |
| "3" range switch      | B55              | 18            | Select lever in "3" range                | Less than 1                              |               |
|                       |                  |               | Select lever in any other than "3" range | More than 9.5                            |               |
| "2" range switch      | B54              | 10            | Select lever in "2" range                | Less than 1                              |               |
|                       |                  |               | Select lever in any other than "2" range | More than 9.5                            |               |
| "1" range switch      | B54              | 1             | Select lever in "1" range                | Less than 1                              |               |
|                       |                  |               | Select lever in any other than "1" range | More than 9.5                            |               |
| Brake switch          | B55              | 24            | Brake pedal depressed                    | More than 10.5                           |               |
|                       |                  |               | Brake pedal released                     | Less than 1                              |               |
| ABS signal            | B54              | 19            | ABS switch ON                            | Less than 1                              |               |
|                       |                  |               | ABS switch OFF                           | More than 6.5                            |               |

| Content                               | Connector No. | Terminal No. | Measuring conditions   | Voltage (V)                 | Resistance to body (ohms) |
|---------------------------------------|---------------|--------------|--|-----------------------------|---------------------------|
| Throttle position sensor              | B55           | 1            | Throttle fully closed.   | 0.3 — 0.7                   | —                         |
|                                       |               |              | Throttle fully open.   | 4.3 — 4.9                   |                           |
| Throttle position sensor power supply | B55           | 2            | Ignition switch ON (with engine OFF)   | 4.8 — 5.3                   | —                         |
| ATF temperature sensor                | B55           | 11           | ATF temperature 20°C (68°F)  | 2.9 — 4.0                   | 2.1 k — 2.9 k             |
|                                       |               |              | ATF temperature 80°C (176°F)   | 1.0 — 1.4                   | 275 — 375                 |
| Vehicle speed sensor 1                | B55           | 3            | Vehicle stopped.   | 0                           | 450 — 650                 |
|                                       |               |              | Vehicle speed at least 20 km/h (12 MPH)  | More than 1 (AC range)      |                           |
| Vehicle speed sensor 2                | B55           | 5            | Vehicle speed at most 10 km/h (6 MPH)  | Less than 1 ← → More than 4 | —                         |
| Torque converter turbine speed sensor | B55           | 12           | Vehicle stopped.   | 0                           | 450 — 650                 |
|                                       |               |              | Vehicle speed at least 20 km/h (12 MPH)  | More than 1 (AC range)      |                           |
| Vehicle speed output signal           | B55           | 13           | Vehicle speed at most 10 km/h (6 MPH)  | Less than 1 ← → More than 4 | —                         |
| Engine speed signal                   | B55           | 4            | Ignition switch ON (with engine OFF).  | More than 10.5              | —                         |
|                                       |               |              | Ignition switch ON (with engine ON).   | 8 — 11                      |                           |
| Cruise set signal                     | B54           | 11           | When cruise control is set (SET lamp ON).  | Less than 1                 | —                         |
|                                       |               |              | When cruise control is not set (SET lamp OFF).   | More than 6.5               |                           |
| Torque control 1 signal               | B54           | 13           | Ignition switch ON (with engine ON)  | More than 9                 | —                         |
| Torque control 2 signal               | B54           | 21           | Ignition switch ON (with engine ON)  | More than 9                 | —                         |
| Torque control cut signal             | B54           | 2            | Ignition switch ON   | 8                           | —                         |
| AT load signal                        | B55           | 20           | Engine idling after warm-up  | 1.2 — 1.8                   | —                         |
| Shift solenoid 1                      | B54           | 7            | 1st or 4th gear  | More than 9                 | 10 — 16                   |
|                                       |               |              | 2nd or 3rd gear  | Less than 1                 |                           |
| Shift solenoid 2                      | B54           | 6            | 1st or 2nd gear  | More than 9                 | 10 — 16                   |
|                                       |               |              | 3rd or 4th gear  | Less than 1                 |                           |
| Line pressure duty solenoid           | B54           | 9            | Throttle fully closed (with engine OFF) after warm-up.                                     | 1.5 — 4.0                   | 2.0 — 4.5                 |
|                                       |               |              | Throttle fully open (with engine OFF) after warm-up.                                       | Less than 0.5               |                           |
| Dropping resistor                     | B54           | 18           | Throttle fully closed (with engine OFF) after warm-up.                                     | More than 8.5               | 9 — 15                    |
|                                       |               |              | Throttle fully open (with engine OFF) after warm-up.                                       | Less than 0.5               |                           |
| Lock-up duty solenoid                 | B54           | 16           | When lock up occurs.   | More than 8.5               | 10 — 17                   |
|                                       |               |              | When lock up is released.  | Less than 0.5               |                           |
| Transfer duty solenoid                | B54           | 15           | Fuse on FWD switch   | More than 8.5               | 10 — 17                   |
|                                       |               |              | Fuse removed from FWD switch (with throttle fully open and with select lever in 1st gear). | Less than 0.5               |                           |

| Content                                  | Connector No. | Terminal No. | Measuring conditions                                   | Voltage (V)               | Resistance to body (ohms) |
|--|---------------|--------------|--|---------------------------|---------------------------|
| 2-4 brake duty solenoid                  | B54           | 8            | Throttle fully closed (with engine OFF) after warm-up. | 1.5 — 4.0                 | 2.0 — 4.5                 |
|  |               |              | Throttle fully open (with engine OFF) after warm-up.   | Less than 0.5             |                           |
| 2-4 brake duty solenoid resistor         | B54           | 17           | Throttle fully closed (with engine OFF) after warm-up. | More than 8.5             | 9 — 15                    |
|  |               |              | Throttle fully open (with engine OFF) after warm-up.   | Less than 0.5             |                           |
| 2-4 brake timing solenoid                | B54           | 5            | 3rd gear   | More than 9               | 10 — 16                   |
|  |               |              | 1st gear   | Less than 1               |                           |
| Low clutch timing solenoid               | B54           | 14           | 2nd gear   | Less than 1               | 10 — 16                   |
|  |               |              | 4th gear   | More than 9               |                           |
| Sensor ground line 1                     | B55           | 10           | —  | 0                         | Less than 1               |
| Sensor ground line 2                     | B55           | 21           | —  | 0                         | Less than 1               |
| System ground line                       | B55           | 9            | —  | 0                         | Less than 1               |
|  |               | 19           |  |                           |                           |
| FWD switch                               | B55           | 14           | Fuse removed.  | 6 — 9.1                   | —                         |
|  |               |              | Fuse installed.  | Less than 1               |                           |
| FWD indicator lamp                       | B54           | 12           | Fuse on FWD switch                                     | Less than 1               | —                         |
|  |               |              | Fuse removed from FWD switch.                          | More than 9               |                           |
| Data link signal (Subaru Select Monitor) | B55           | 7            | —  | —                         | —                         |
|  |               | 16           | —  | —                         |                           |
| AT diagnosis signal                      | B54           | 4            | Ignition switch ON                                     | Less than 1 ↔ More than 4 | —                         |