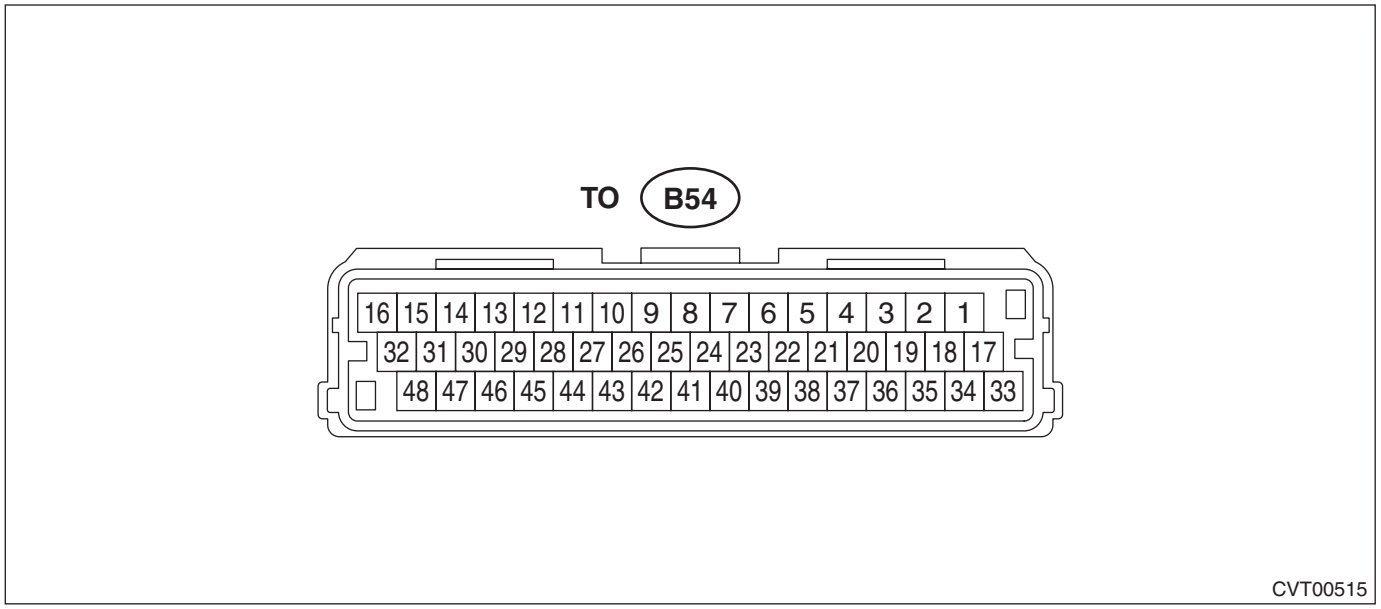
# 5. Transmission Control Module (TCM) I/O Signal

## A: ELECTRICAL SPECIFICATION




NOTE:
Measure after warming up.

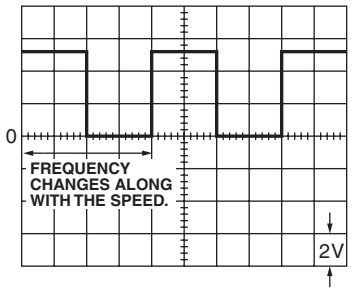
| Item | Terminal No. | Measuring condition | Measurement value | Resistance between terminal and chassis ground | Remarks |
|---|---|---|---|---|---|
| Backup power supply | 34 | — | 10 — 13 V | — | |
| Ignition power supply | 41 | — | 10 — 13 V | — | |
| Main power supply | 8 | — | 10 — 13 V | — | |
| Main power supply | 24 | — | 10 — 13 V | — | |
| Main power supply | 40 | — | 10 — 13 V | — | |
| Manual mode switch | 20 | Manual mode switch ON | Less than 1 V | — | |
| | | Manual mode switch OFF | 8 V or more | — | |
| Manual mode UP switch | 19 | Manual mode UP switch ON | Less than 1 V | — | |
| | | Manual mode UP switch OFF | 8 V or more | — | |
| Manual mode DOWN switch | 18 | Manual mode DOWN switch ON | Less than 1 V | — | |
| | | Manual mode DOWN switch OFF | 8 V or more | — | |
| Stop light switch | 29 | Stop light switch ON | 8 V or more | — | |
| | | Stop light switch OFF | Less than 1 V | — | |
| P range switch | 38 | P range | Less than 1 V | — | |
| | | Except for P range | 8 V or more | — | |
| R range switch | 37 | R range | Less than 1 V | — | |
| | | Except for R range | 8 V or more | — | |
| N range switch | 36 | N range | Less than 1 V | — | |
| | | Except for N range | 8 V or more | — | |
| D range switch | 35 | D range | Less than 1 V | — | |
| | | Except for D range | 8 V or more | — | |

| Item | Terminal No. | Measuring condition | Measurement value | Resistance between terminal and chassis ground | Remarks |
|---|---|---|---|---|---|
| ATF temperature sensor | 6 | ATF temperature at 20°C (68°F) | Approx. 2.6 V | Approx. 2.6 kΩ | |
| | | ATF temperature at 80°C (176°F) | Approx. 0.7 V | Approx. 370 Ω | |
| ATF temperature sensor GND | 1 | Always | Approx. 0 V | — | |
| Secondary pressure sensor power supply output | 33 | Ignition switch ON | 5 V | — | |
| Secondary pressure sensor | 5 | Ignition switch ON, engine OFF | Approx. 0.5 V (0 MPa) | — | Value increases with increase of engine load. (0.5 — 4.5 V) |
| | | Ignition switch ON, engine ON | Approx. 1.0 V (1.0 MPa) | — | |
| Secondary pressure sensor GND | 2 | Always | Approx. 0 V | — | |
| Primary speed sensor | 14 | While driving | 0 or 5 V | — | Refer to the waveform (sensor) |
| Secondary speed sensor | 13 | While driving | 0 or 5 V | — | Refer to the waveform (sensor) |
| Front wheel speed sensor | 12 | Engine ON, “P” or “N” range | 0 or 5 V | — | Refer to the waveform (sensor) |
| Rear wheel speed sensor | 11 | Engine ON, “P” or “N” range | 0 or 5 V | — | Refer to the waveform (sensor) |
| Self shut output | 25 | For three seconds after ignition switch ON and OFF | Less than 1 V | — | |
| | | Ignition switch OFF | 8 V or more | | |
| F&R solenoid | 16 | Engine ON | Refer to the waveform (solenoid (1)) | Approx. 4 — 6 Ω | Resistance value at 20°C (68°F). Value is higher as the temperature increase. |
| Secondary solenoid | 32 | Engine ON | Refer to the waveform (solenoid (2)) | Approx. 5 — 7 Ω | Resistance value at 20°C (68°F). Value is higher as the temperature increase. |
| Primary UP solenoid | 47 | Engine ON, while UP shifting | Refer to the waveform (solenoid (3)) | Approx. 10 — 13.5 Ω | Resistance value at 20°C (68°F). Value is higher as the temperature increase. |
| Primary DOWN solenoid | 30 | Engine ON, while DOWN shifting | Refer to the waveform (solenoid (4)) | Approx. 10 — 13.5 Ω | Resistance value at 20°C (68°F). Value is higher as the temperature increase. |
| Lock-up duty solenoid | 15 | Lock-up ON | Refer to the waveform (solenoid (5)) | Approx. 10 — 13.5 Ω | Resistance value at 20°C (68°F). Value is higher as the temperature increase. |
| AWD solenoid | 48 | Engine ON, “P” or “N” range | Refer to the waveform (solenoid (6)) | Approx. 2 — 4.5 Ω | Resistance value at 20°C (68°F). Value is higher as the temperature increase. |
| | | Engine ON, “D” range, brake ON | Refer to the waveform (solenoid (7)) | | |
| Lock-up ON/OFF solenoid | 31 | With lock-up OFF | Less than 1 V | Approx. 13 — 18.5 Ω | Resistance value at 20°C (68°F). Value is higher as the temperature increase. |
| | | With lock-up ON and in “R” range | Battery voltage or higher | | |

| Item | Terminal No. | Measuring condition | Measurement value | Resistance between terminal and chassis ground | Remarks |
|---|---|---|---|---|---|
| CAN communication line (+) | 43 | — | — | — | |
| CAN communication line (–) | 44 | — | — | — | |
| GND | 26 | Always | Approx. 0 V | — | |
| GND | 42 | Always | Approx. 0 V | — | |

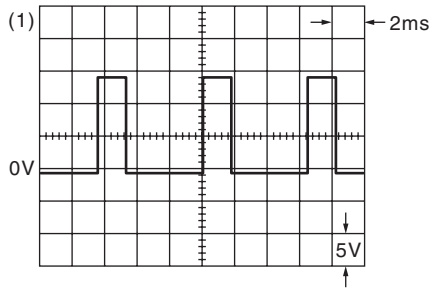
## B: WAVEFORM

### 1. SENSOR

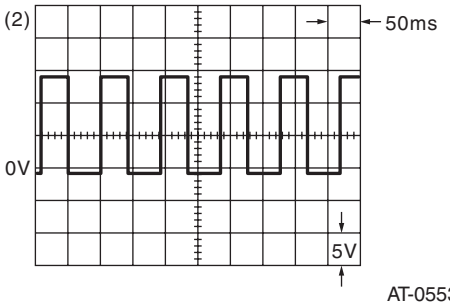


AT-04690

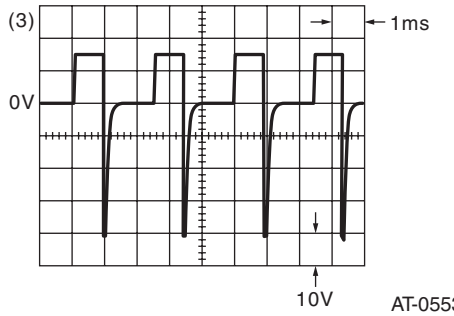
## 2. SOLENOID



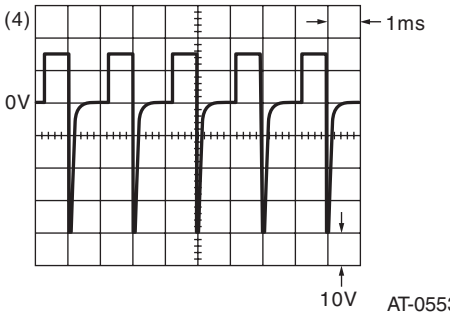
AT-05529



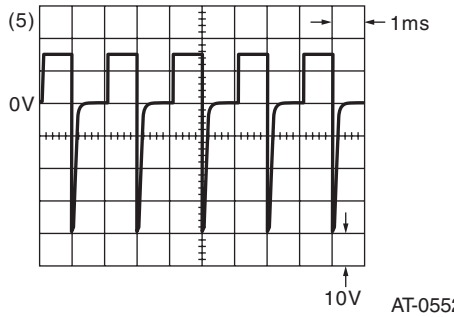
AT-05531



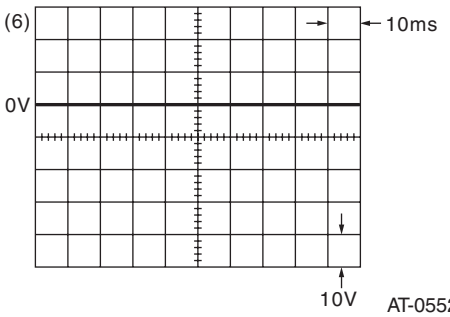
AT-05532



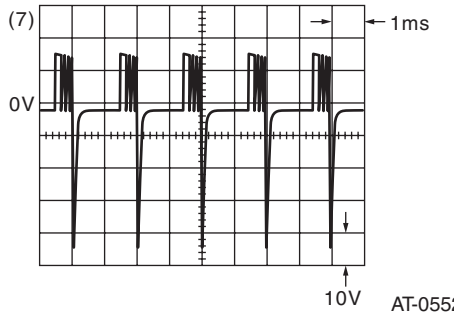
AT-05530



AT-05526



AT-05527



AT-05528