

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

A: ELECTRICAL SPECIFICATION

| TO B55 | | | | | | | | | | TO B54 | | | | | | | | | |
|-----------------------------------|--|--|--|--|--|--|--|--|--|----------------------------------|--|--|--|--|--|--|--|--|--|
| 7 6 5 4 3 2 1 | | | | | | | | | | 6 5 4 3 2 1 | | | | | | | | | |
| 19 18 17 16 15 14 13 12 11 10 9 8 | | | | | | | | | | 16 15 14 13 12 11 10 9 8 7 | | | | | | | | | |
| 27 26 25 24 23 22 21 20 | | | | | | | | | | 27 26 25 24 23 22 21 20 19 18 17 | | | | | | | | | |
| 35 34 33 32 31 30 29 28 | | | | | | | | | | 35 34 33 32 31 30 29 28 | | | | | | | | | |

AT-03733

NOTE:

The measurement should be performed after warming up.

| Item | Connector No. | Terminal No. | Measuring condition | Measured value | Resistance between terminal and chassis ground | Remarks |
|--------------------------------|---------------|--------------|--|-----------------|--|---|
| P/L solenoid output | B54 | 6 | Engine ON, "P" range, accelerator OFF, brake ON | 3.5 — 7.5 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 300 Hz |
| I/C oil pressure switch input | B54 | 20 | While driving at 1st — 3rd of manual mode | 6 V or more | | |
| | | | While driving at 4th or 5th of manual mode | Less than 1.5 V | | |
| Power GND | B54 | 12 | Always | Approx. 0 V | — | |
| CAN communication line (+) | B55 | 21 | — | — | — | |
| CAN communication line (-) | B55 | 20 | — | — | — | |
| ATF temperature sensor 1 input | B54 | 17 | Ignition switch ON ATF temperature 20°C (68°F) | 3.5 — 4.3 V | 2.5 — 7.0 kΩ | Measure the resistance with the connector disconnected. |
| | | | Ignition switch ON ATF temperature 80°C (176°F) | 1 — 2.2 V | 0.3 — 0.8 kΩ | |
| Backup power supply | B55 | 24 | Ignition switch ON | 8 V or more | — | |
| | | | Ignition switch OFF | | | |
| I/C solenoid output | B54 | 3 | While driving at 1st — 3rd of manual mode | 5 V or more | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 300 Hz |
| | | | While driving at 4th or 5th of manual mode | Less than 1.5 V | | |
| H & LR/C solenoid output | B54 | 5 | While driving at 2nd of manual mode | 5 V or more | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 300 Hz |
| | | | While driving at 1st or 3rd — 5th of manual mode | Less than 1.5 V | | |

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Item | Connector No. | Terminal No. | Measuring condition | Measured value | Resistance between terminal and chassis ground | Remarks |
|--|---------------|--------------|--|---------------------------|--|--------------------------------|
| Power GND | B54 | 13 | Always | Approx. 0 V | — | |
| Analog GND | B54 | 18 | Always | Approx. 0 V | — | |
| Fr/B solenoid output | B54 | 4 | While driving at other than 4th of manual mode | 5 V or more | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 300 Hz |
| | | | While driving at 4th of manual mode | Less than 1.5 V | | |
| L/U solenoid output | B54 | 7 | When lock-up | 3 V or more | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 300 Hz |
| | | | When not lock-up | Less than 1 V | | |
| D/C solenoid output | B54 | 1 | While driving at 1st or 5th of manual mode | 5 V or more | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 300 Hz |
| | | | While driving at 2nd-4th of manual mode | Less than 1.5 V | | |
| D/C oil pressure switch input | B54 | 22 | While driving at 1st or 5th of manual mode | 6 V or more | | |
| | | | While driving at 2nd-4th of manual mode | Less than 1.5 V | | |
| Subaru Select Monitor communication line | B55 | 8 | Ignition switch ON | 8 V or more | — | |
| | | | Ignition switch OFF | Less than 1 V | | |
| Sensor GND (analog) | B54 | 16 | Always | Approx. 0 V | — | |
| H&LR/C oil pressure switch input | B54 | 14 | While driving at 2nd of manual mode | 6 V or more | — | |
| | | | While driving at 3rd — 5th of manual mode | Less than 1.5 V | | |
| Fwd/B solenoid output | B54 | 19 | While driving at 1st or 2nd of manual mode | 5 V or more | | Driving frequency 300 Hz |
| | | | While driving at 3rd — 5th of manual mode | Less than 1.5 V | | |
| Fwd/B oil pressure switch input | B54 | 21 | While driving at 1st or 2nd of manual mode | Less than 1.5 V | | |
| | | | While driving at 3rd — 5th of manual mode | 6 V or more | | |
| Front vehicle speed sensor input | B54 | 24 | While driving at 2nd and 20 km/h (12 MPH) of manual mode | Approx. 500 — 700 rpm | — | Use the Subaru Select Monitor. |
| | | | While driving at 4th and 80 km/h (50 MPH) of manual mode | Approx. 2,000 — 2,500 rpm | | Use the Subaru Select Monitor. |
| Inhibitor switch 1 input | B54 | 8 | Ignition switch ON, "P" range | Less than 0.5 V | — | |
| | | | Ignition switch ON, "N" range | 5 V or more | | |
| Inhibitor switch 2 input | B54 | 9 | Ignition switch ON, "P" range | 5 V or more | — | |
| | | | Ignition switch ON, "D" range | Less than 0.5 V | | |
| Ignition power supply | B54 | 27 | Ignition switch ON | 8 V or more | — | |
| | | | Ignition switch OFF | Less than 1 V | | |

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Item | Connector No. | Terminal No. | Measuring condition | Measured value | Resistance between terminal and chassis ground | Remarks |
|---------------------------------|---------------|--------------|--|---------------------------|--|--------------------------------|
| Rear vehicle speed sensor input | B54 | 23 | While driving at 2nd and 20 km/h (12 MPH) of manual mode | Approx. 500 — 700 rpm | — | Use the Subaru Select Monitor. |
| | | | While driving at 4th and 80 km/h (50 MPH) of manual mode | Approx. 2,000 — 2,500 rpm | | Use the Subaru Select Monitor. |
| Fr/B oil pressure switch input | B54 | 15 | While driving at other than 4th of manual mode | Less than 1.5 V | — | |
| | | | While driving at 4th of manual mode | 6 V or more | | |
| Turbine speed sensor 1 input | B54 | 26 | 2nd gear of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 0 rpm | — | Use the Subaru Select Monitor. |
| | | | 4th of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 1,900 — 2,100 rpm | | Use the Subaru Select Monitor. |
| Inhibitor switch 3 input | B54 | 10 | Ignition switch ON, "R" range | 5 V or more | — | |
| | | | Ignition switch ON, "D" range | Less than 0.5 V | | |
| Control GND1 | B55 | 23 | Ignition switch ON | Approx. 0 V | — | — |
| | | | Ignition switch OFF | | — | — |
| Control GND2 | B55 | 22 | Ignition switch ON | Approx. 0 V | — | — |
| | | | Ignition switch OFF | | — | — |
| Inhibitor switch 4 input | B54 | 11 | Ignition switch ON, "P" range | Less than 0.5 V | — | |
| | | | Ignition switch ON, "D" range | 5 V or more | | |
| Back-up light relay output | B55 | 13 | Ignition switch ON, "R" range | Less than 1 V | 90 — 110 Ω (ATF temperature 25°C (77°F)) | |
| | | | Ignition switch ON, other than "R" range | 8 V or more | | |
| AWD solenoid output | B54 | 2 | Engine ON, "P" range or "N" range, accelerator OFF | Less than 1 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 300 Hz |
| | | | Engine ON, "D" range, accelerator OFF, brake ON | 2 V or more | | |
| Turbine speed sensor 2 input | B54 | 25 | 2nd gear of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 1,200 — 1,500 rpm | — | Use the Subaru Select Monitor. |
| | | | 4th of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 1,900 — 2,100 rpm | | Use the Subaru Select Monitor. |
| PN signal output | B55 | 11 | Ignition switch ON, Other than "P" range or "N" range | 8 V or more | — | |
| | | | Ignition switch ON, "P" range or "N" range | Less than 1 V | | |

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Item | Connector No. | Terminal No. | Measuring condition | Measured value | Resistance between terminal and chassis ground | Remarks |
|-------------------------|---------------|--------------|---------------------|----------------|--|---------|
| Ignition power supply 1 | B55 | 26 | Ignition switch ON | 8 V or more | | |
| | | | Ignition switch OFF | Less than 1 V | | |
| Ignition power supply 2 | B55 | 19 | Ignition switch ON | 8 V or more | | |
| | | | Ignition switch OFF | Less than 1 V | | |
| Ignition power supply 3 | B55 | 18 | Ignition switch ON | 8 V or more | | |
| | | | Ignition switch OFF | Less than 1 V | | |
| Ignition power supply 4 | B55 | 25 | Ignition switch ON | 8 V or more | | |
| | | | Ignition switch OFF | Less than 1 V | | |