

TRANSMISSION SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles. This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics. Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

| | |
|---|------------------|
| CONTROL SYSTEMS | CS |
| AUTOMATIC TRANSMISSION | 4AT |
| AUTOMATIC TRANSMISSION (DIAGNOSTICS) | 4AT(diag) |
| AUTOMATIC TRANSMISSION | 5AT |
| AUTOMATIC TRANSMISSION (DIAGNOSTICS) | 5AT(diag) |
| MANUAL TRANSMISSION AND DIFFERENTIAL | 5MT |
| CLUTCH SYSTEM | CL |

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

5AT(diag)

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Basic Diagnostics Procedure

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

1. Basic Diagnostics Procedure

A: PROCEDURE

| Step | Check | Yes | No |
|---|---|---|--|
| 1 CHECK PRE-INSPECTION. 1) Ask the customer when and how the trouble occurred using the interview checklist. <Ref. to 5AT(diag)-4, Check List for Interview.> 2) Before performing diagnosis, inspect the following items which might influence the AT problems. <ul style="list-style-type: none"> • General inspection <Ref. to 5AT(diag)-5, INSPECTION, General Description.> • Oil Leakage • Stall speed test <Ref. to 5AT-31, Stall Test.> • Line Pressure Test <Ref. to 5AT-34, Line Pressure Test.> • Transfer Clutch Pressure Test <Ref. to 5AT-36, Transfer Clutch Pressure Test.> • Time Lag Test <Ref. to 5AT-33, Time Lag Test.> • Road Test <Ref. to 5AT-30, Road Test.> • Inhibitor Switch <Ref. to 5AT-51, Inhibitor Switch.> | Is the unit that might influence the AT problem normal? | Go to step 2. | Repair or replace each item. |
| 2 CHECK SPORT INDICATOR LIGHT. After the ignition switch is turned to "ON", wait for at least 2 seconds. | Does the SPORT indicator light illuminate? | Go to step 4. | Go to step 3. |
| 3 CHECK SPORT INDICATOR LIGHT. 1) Turn the ignition switch to OFF. 2) Check the SPORT indicator light. <Ref. to 5AT(diag)-24, INSPECTION, SPORT Indicator Light Display.> 3) After the ignition switch is turned to ON, wait for at least 2 seconds. | Does the SPORT indicator light blink? | Go to step 4. | Go to step 5. |
| 4 CHECK DTC. Read the DTC. <Ref. to 5AT(diag)-19, OPERATION, Read Diagnostic Trouble Code (DTC).> NOTE: If the communication function of the Subaru Select Monitor cannot be executed normally, check the communication circuit. <Ref. to 5AT(diag)-26, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, Diagnostic Procedure for Select Monitor Communication.> | Is DTC displayed? | Go to step 6. NOTE: Record all DTC. | Go to step 5. |
| 5 PERFORM THE GENERAL DIAGNOSTICS. 1) Inspect using "Diagnostic Procedure without Diagnostic Trouble Code (DTC)". <Ref. to 5AT(diag)-138, Diagnostic Procedure without Diagnostic Trouble Code (DTC).> 2) Perform clear memory mode. 3) Perform the inspection mode. <Ref. to 5AT(diag)-20, Inspection Mode.> 4) Display DTC. | Is DTC displayed? | Go to step 6. | Inspect using "General Diagnostic Table". <Ref. to 5AT(diag)-147, General Diagnostic Table.> |

Basic Diagnostics Procedure

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|-------------------|---|--|
| <p>6 PERFORM THE DIAGNOSIS. 1) Inspect using the "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to 5AT(diag)-34, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> NOTE: For DTC table, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 5AT(diag)-30, List of Diagnostic Trouble Code (DTC).> 2) Repair the trouble cause. 3) Perform clear memory mode. 4) Perform the inspection mode. <Ref. to 5AT(diag)-20, Inspection Mode.> 5) Display DTC.</p> | Is DTC displayed? | Inspect using the "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to 5AT(diag)-34, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> | Inspect using "General Diagnostic Table". <Ref. to 5AT(diag)-147, General Diagnostic Table.> |

Check List for Interview

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

2. Check List for Interview

A: INSPECTION

Check the following items when problem has occurred.

NOTE:

Use copies of this page for interviewing customers.

| | | | |
|--|---|---|---|
| Customer's name | | | |
| Date of sale | | | |
| Date of repair | | | |
| Trans. model | TRANSMISSION | V.I.N. | |
| Odometer reading | km (miles) | | |
| Symptom | <input type="checkbox"/> No up-shift | | |
| | <input type="checkbox"/> No down-shift | | |
| | <input type="checkbox"/> No kick down | | |
| | <input type="checkbox"/> Vehicle does not move (<input type="checkbox"/> Any position <input type="checkbox"/> Particular position) | | |
| | <input type="checkbox"/> Lock-up malfunction | | |
| | <input type="checkbox"/> Noise or vibration | | |
| | <input type="checkbox"/> Shift shock or slip | | |
| | <input type="checkbox"/> Select lever does not move | | |
| | <input type="checkbox"/> Others () | | |
| Frequency | <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent (times a day) | | |
| Weather | <input type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy <input type="checkbox"/> Snowy <input type="checkbox"/> Others () | | |
| Place | <input type="checkbox"/> Highland <input type="checkbox"/> Suburbs <input type="checkbox"/> Inner city <input type="checkbox"/> Uphill <input type="checkbox"/> Rough road <input type="checkbox"/> Others () | | |
| Ambient air temperature | <input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold | | |
| Vehicle speed | km/h (MPH) | | |
| AT warning light (SPORT indicator light) | <input type="checkbox"/> Blinks continuously | | <input type="checkbox"/> Not blink |
| Select lever position | <input type="checkbox"/> P <input type="checkbox"/> R <input type="checkbox"/> N <input type="checkbox"/> D <input type="checkbox"/> Manual mode | | |
| Driving condition | <input type="checkbox"/> Not affected | | <input type="checkbox"/> At starting |
| | <input type="checkbox"/> At racing | <input type="checkbox"/> When accelerating | <input type="checkbox"/> While idling |
| | <input type="checkbox"/> When decelerating | <input type="checkbox"/> While turning (<input type="checkbox"/> RH / <input type="checkbox"/> LH) | <input type="checkbox"/> While cruising |
| Manual mode | <input type="checkbox"/> ON <input type="checkbox"/> OFF | | |

General Description

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

3. General Description

A: CAUTION

- **Supplemental Restraint System**

The airbag system wiring harness is routed near the TCM.

CAUTION:

- All airbag system wiring harnesses and connectors are colored yellow. Do not use an electric test equipment on these circuits.
- Be careful not to damage the airbag system wiring harness when performing diagnostics and servicing the TCM.

- **Measurement**

When measuring the voltage and resistance of the ECM, TCM or each sensor, use a tapered pin with a diameter of less than 0.64 mm (0.025 in) in order to avoid poor contact. Do not insert a pin more than 0.65 mm (0.026 in) diameter.

B: INSPECTION

1. BATTERY

Measure battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V or more

Specific gravity: More than 1.260

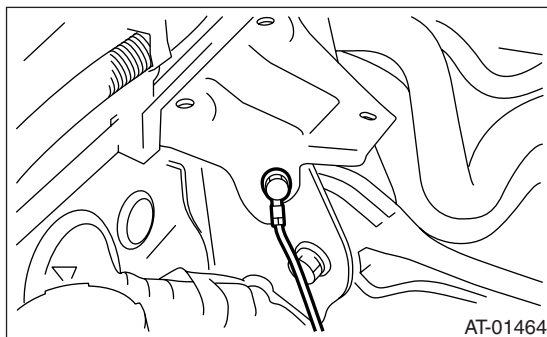
2. TRANSMISSION GROUND

Make sure that the ground terminal bolt is tightened securely.

- Chassis side

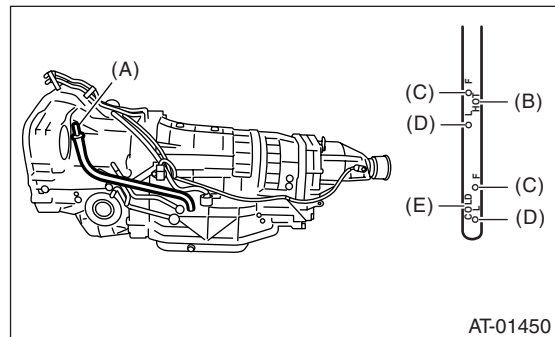
Tightening torque:

13 N·m (1.3 kgf·m, 9.4 ft·lb)



3. ATF LEVEL

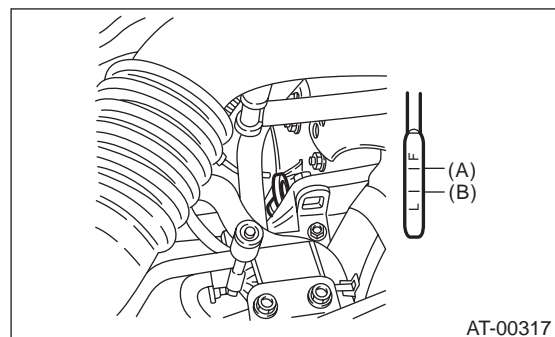
Make sure that ATF level is in the specification. <Ref. to 5AT-27, INSPECTION, Automatic Transmission Fluid.>



- (A) Level gauge
- (B) Check position when "HOT"
- (C) Upper level
- (D) Lower level
- (E) Check position when "COLD"

4. FRONT DIFFERENTIAL OIL LEVEL

Make sure the front differential oil level is in the specification. <Ref. to 5AT-29, INSPECTION, Differential Gear Oil.>



- (A) Upper level
- (B) Lower level

5. OPERATION OF SHIFT SELECT LEVER

Make sure there is no abnormal noise, dragging or contact pattern in each select lever range.

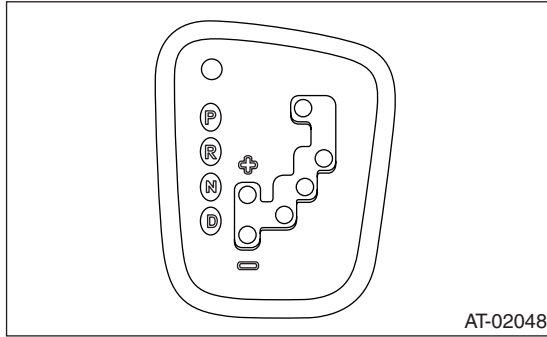
WARNING:

Stop the engine while checking operation of the select lever.

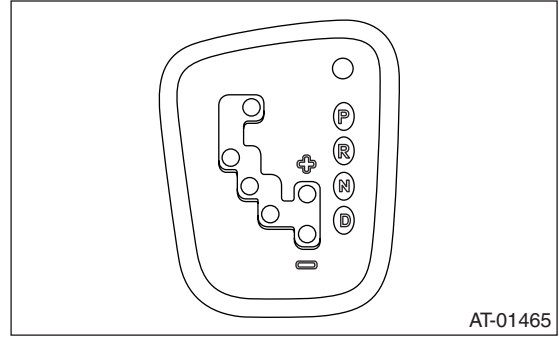
General Description

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- LHD model

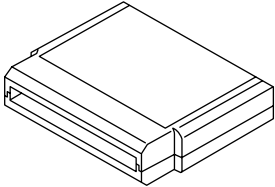



- RHD model



C: PREPARATION TOOL

1. SPECIAL TOOL

| ILLUSTRATION | TOOL NUMBER | DESCRIPTION | REMARKS |
|---|-------------|---------------------------|---|
|  ST24082AA230 | 24082AA230 | CARTRIDGE | Troubleshooting for electrical system. |
|  ST22771AA030 | 22771AA030 | SUBARU SELECT MONITOR KIT | Troubleshooting for electrical system. <ul style="list-style-type: none"> • English: 22771AA030 (Without printer) • German: 22771AA070 (Without printer) • French: 22771AA080 (Without printer) • Spanish: 22771AA090 (Without printer) |

2. GENERAL TOOL

| TOOL NAME | REMARKS |
|----------------|---|
| Circuit tester | Used for measuring resistance, voltage and current. |
| Oscilloscope | Used for measuring sensor. |

Electrical Component Location

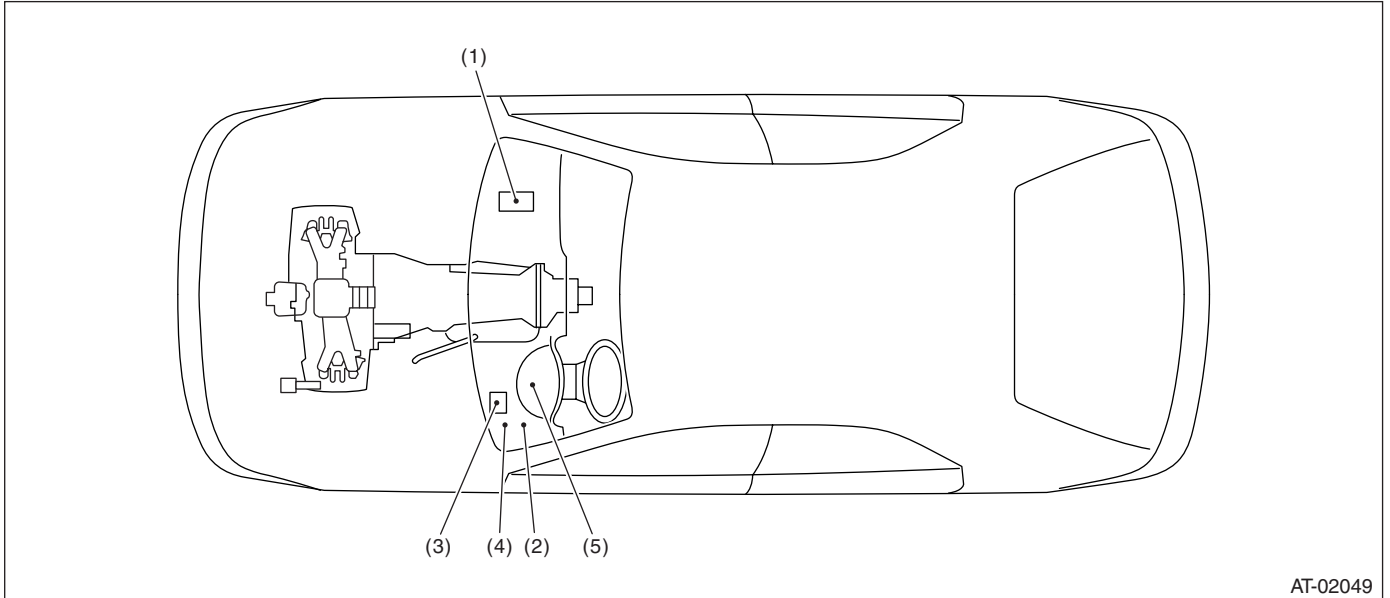
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

4. Electrical Component Location

A: LOCATION

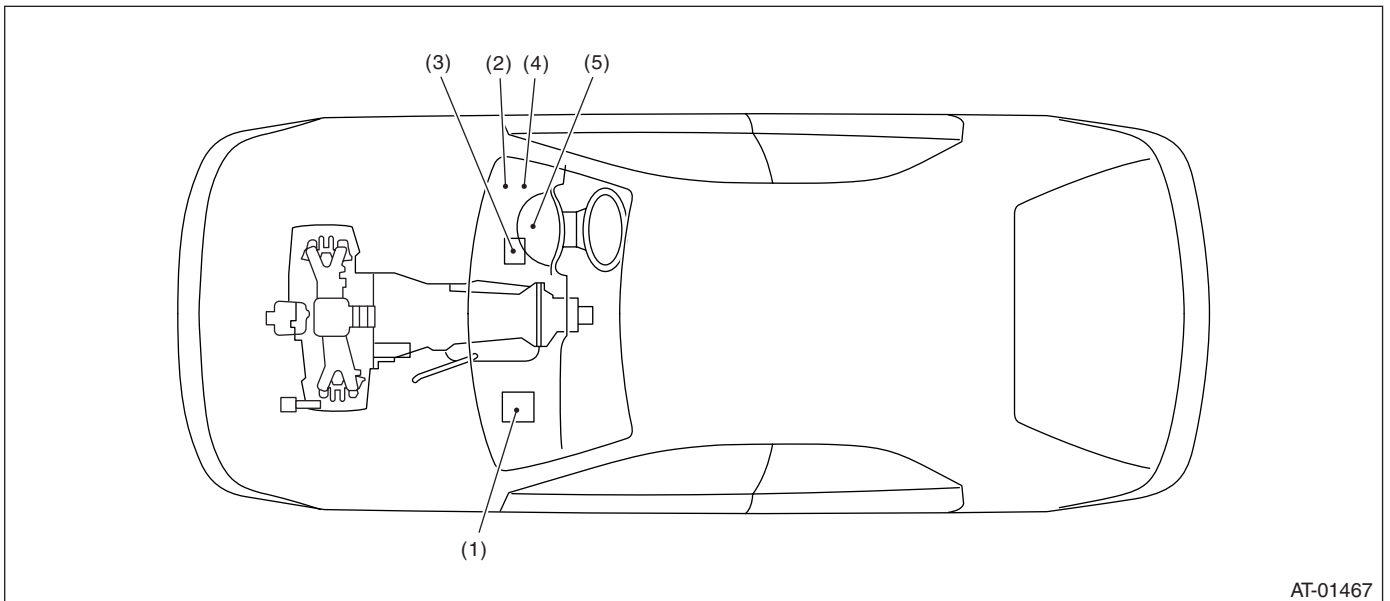
1. CONTROL MODULE

- LHD model



- | | | |
|--|---------------------------------------|--------------------------|
| (1) Engine control module (ECM) | (3) Transmission control module (TCM) | (4) Data link connector |
| (2) SPORT indicator light (AT warning light) | | (5) Body integrated unit |

- RHD model

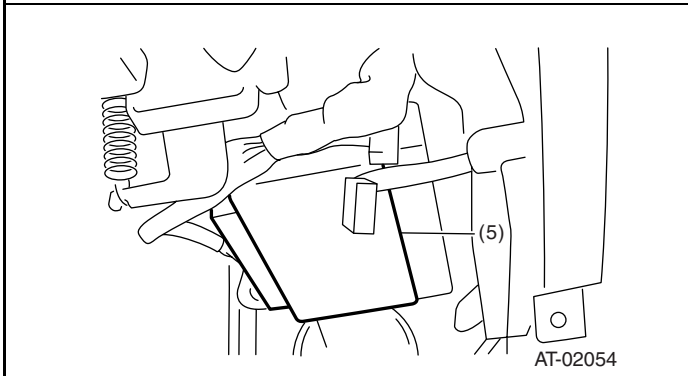
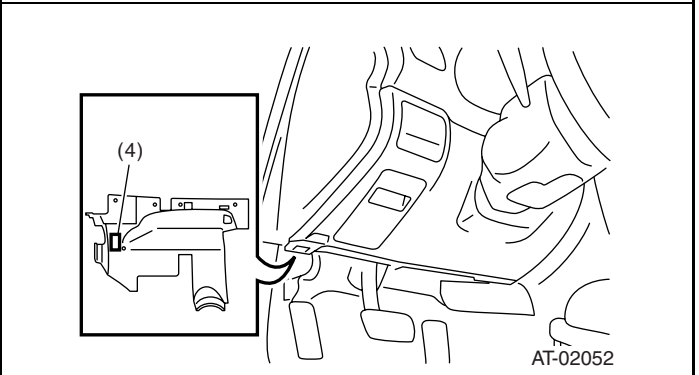
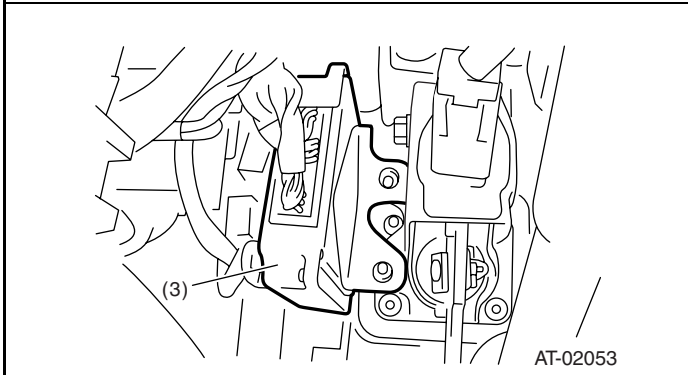
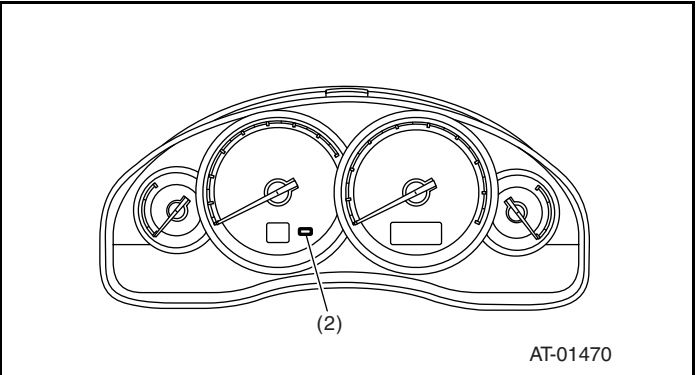
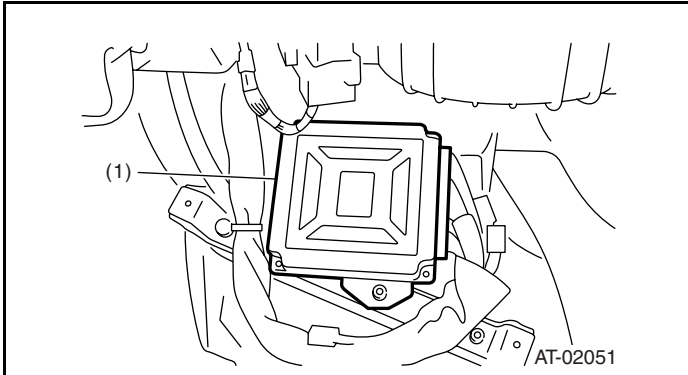


- | | | |
|--|---------------------------------------|--------------------------|
| (1) Engine control module (ECM) | (3) Transmission control module (TCM) | (4) Data link connector |
| (2) SPORT indicator light (AT warning light) | | (5) Body integrated unit |

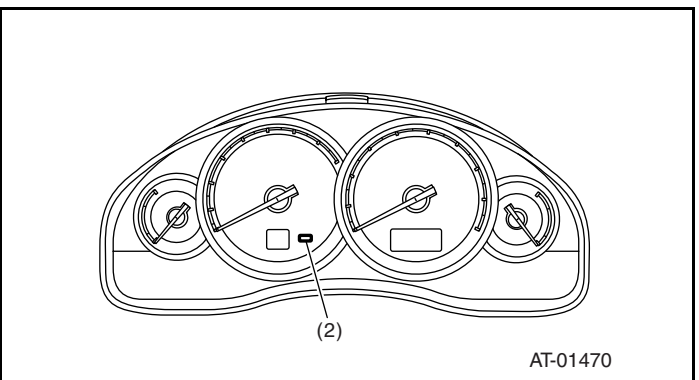
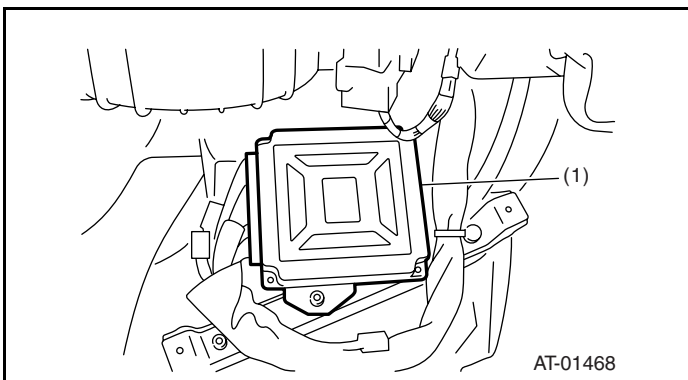
Electrical Component Location

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- LHD model

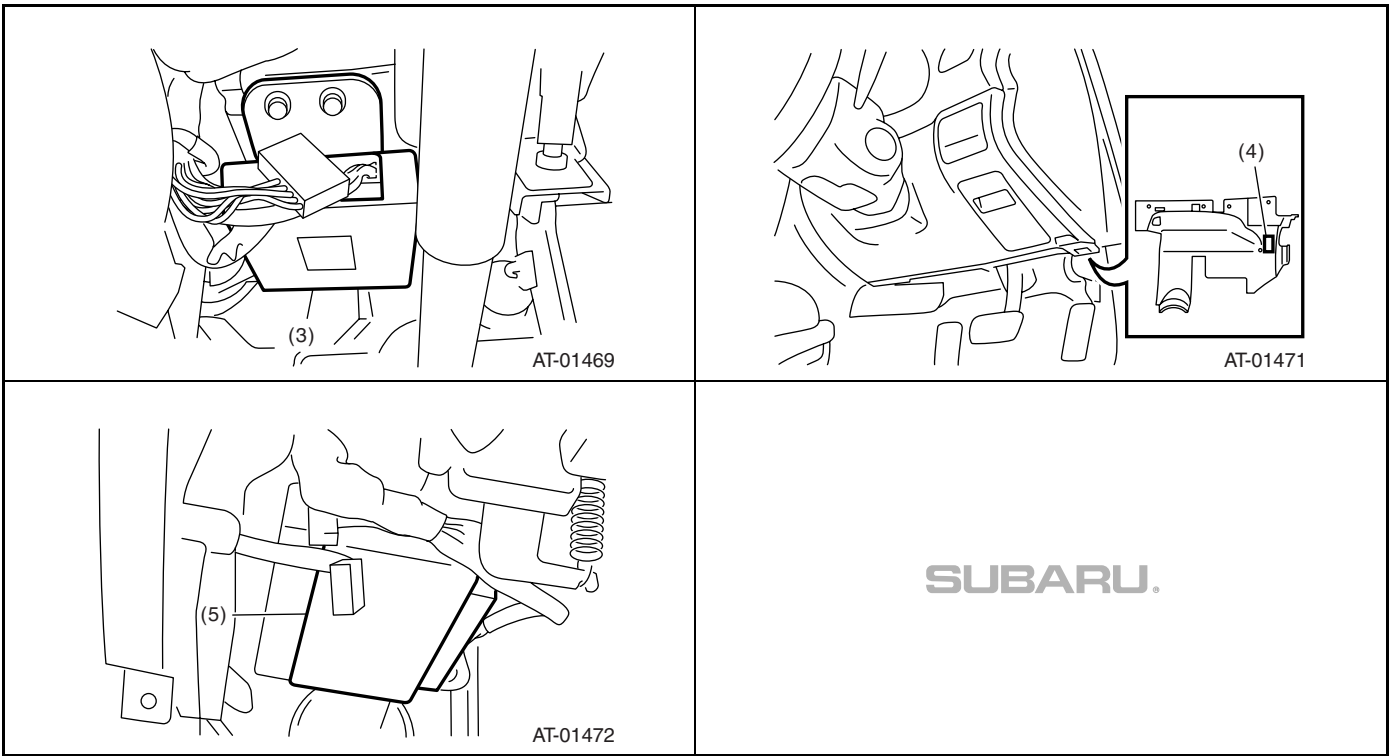


- RHD model



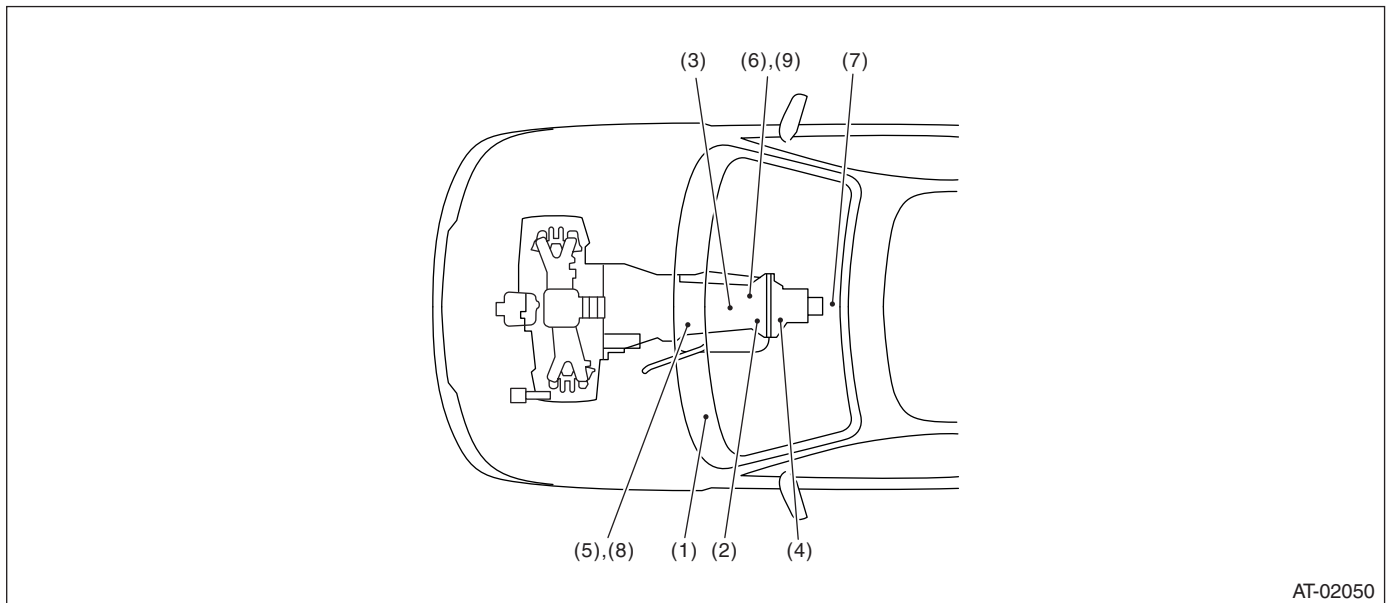
Electrical Component Location

AUTOMATIC TRANSMISSION (DIAGNOSTICS)



2. SENSOR

- LHD model

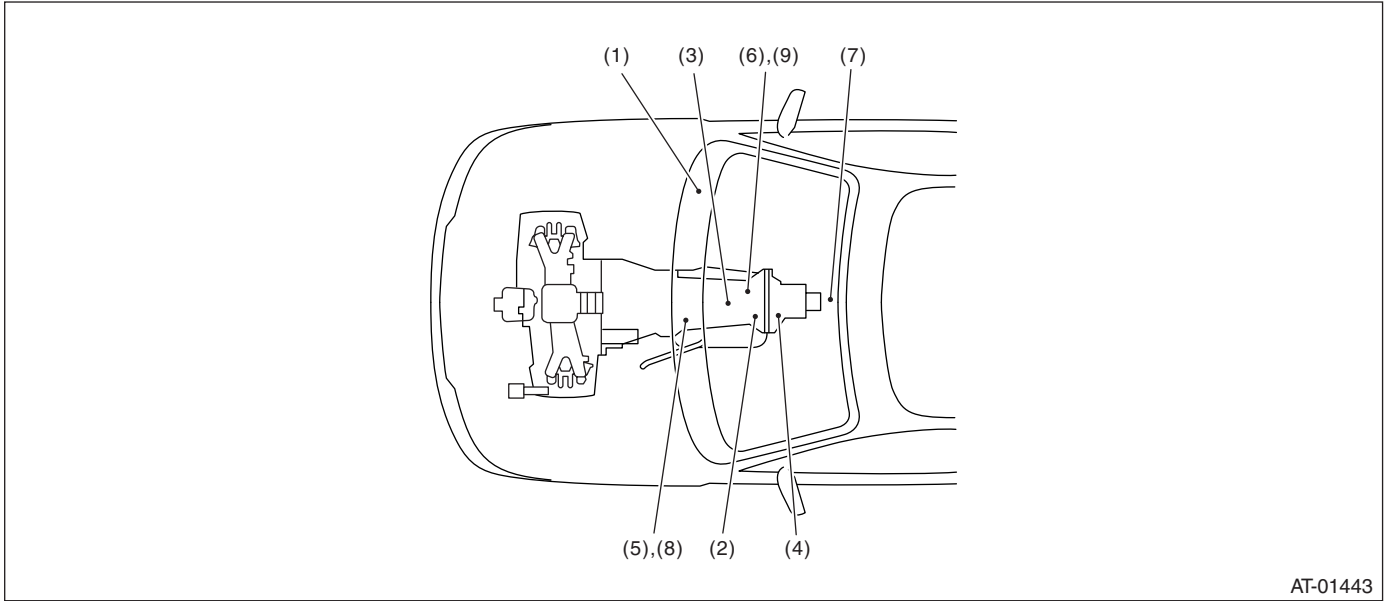


AT-02050

Electrical Component Location

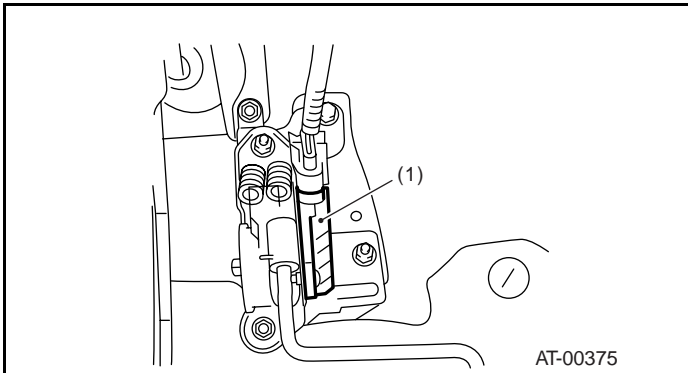
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model

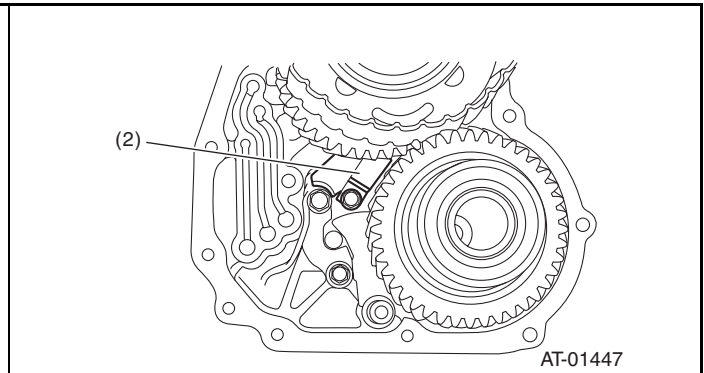


AT-01443

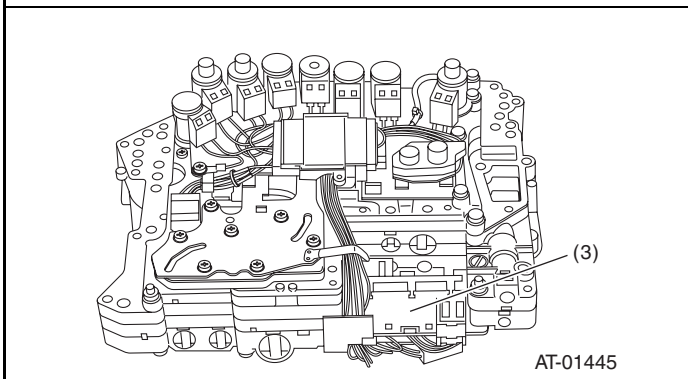
- | | | |
|---------------------------------|-------------------------------|------------------------------|
| (1) Accelerator position sensor | (4) Rear vehicle speed sensor | (7) Lateral G sensor |
| (2) Front vehicle speed sensor | (5) Turbine speed sensor 1 | (8) Turbine speed sensor 2 |
| (3) Inhibitor switch | (6) ATF temperature sensor 1 | (9) ATF temperature sensor 2 |



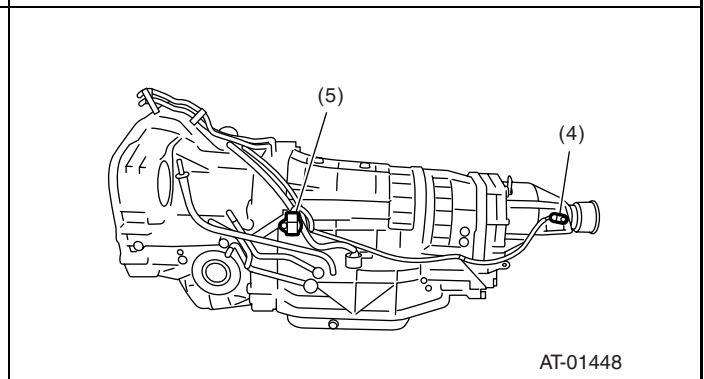
AT-00375



AT-01447



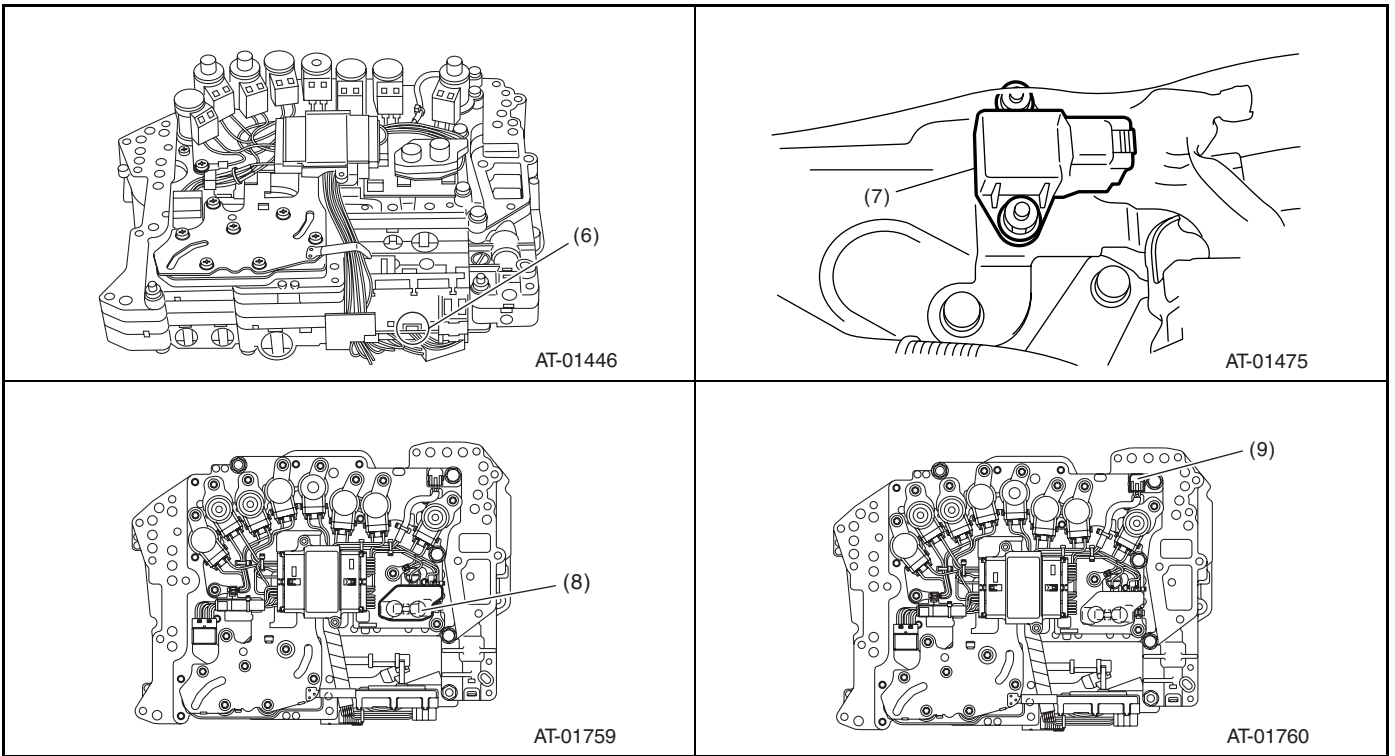
AT-01445



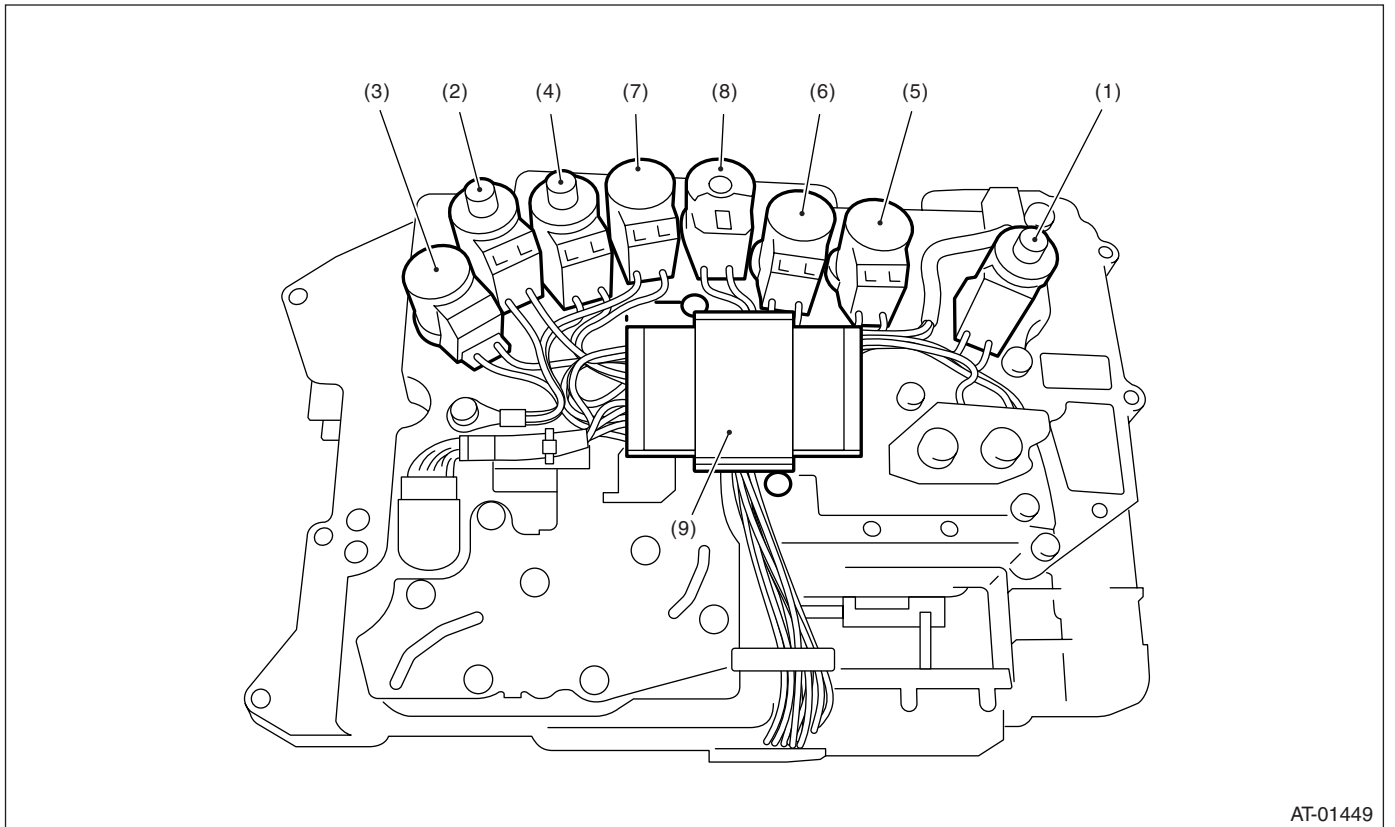
AT-01448

Electrical Component Location

AUTOMATIC TRANSMISSION (DIAGNOSTICS)



3. SOLENOID



AT-01449

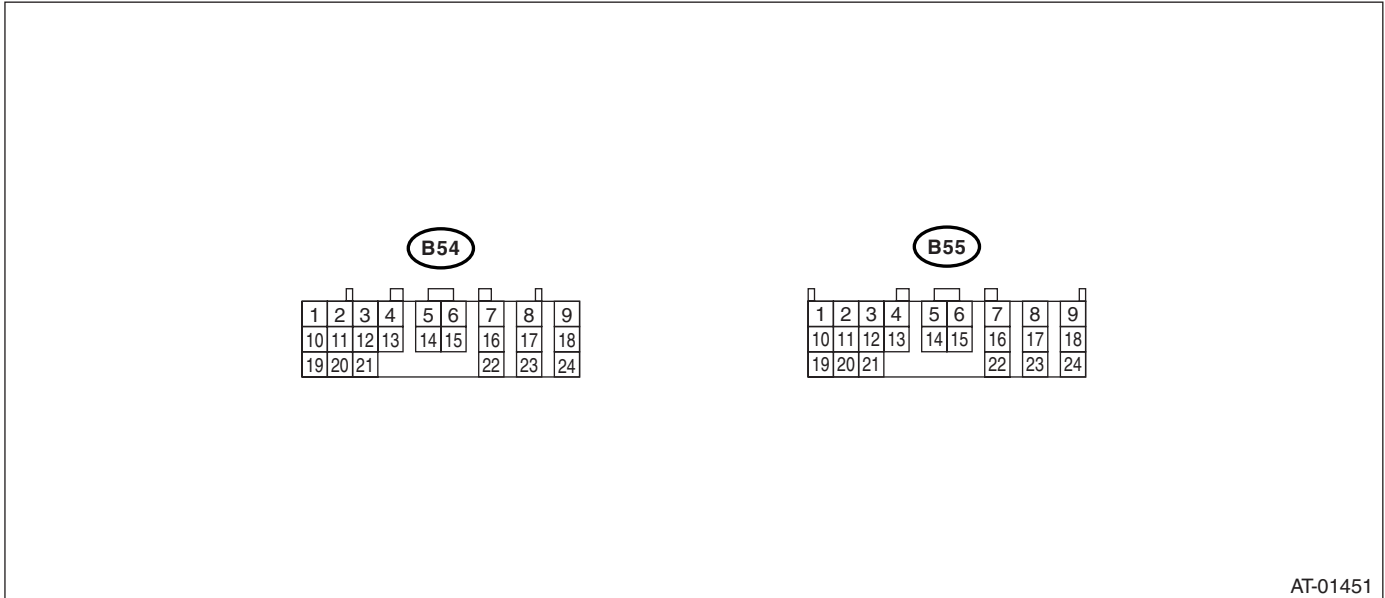
- | | | |
|--|----------------------------|------------------------------|
| (1) High & low reverse clutch solenoid | (4) Input clutch solenoid | (7) Transfer solenoid |
| (2) Direct clutch solenoid | (5) Line pressure solenoid | (8) Low coast brake solenoid |
| (3) Front brake solenoid | (6) Lock up solenoid | (9) Memory box |

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

A: ELECTRICAL SPECIFICATION



AT-01451

NOTE:

The measurement should perform after warming up.

| Item | Connector No. | Terminal No. | Measuring conditions | Voltage (V) | Measure the resistance between terminal and chassis ground. | Remarks |
|--------------------------------|---------------|--------------|---|---|---|---|
| P/L solenoid output | B54 | 9 | Engine ON, "P" range, Accelerator OFF, Brake ON | Approx. 4.0 — 6.0 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 750 — 850 Hz |
| | | | Manual mode 1st, Accelerator OFF, Brake ON | Approx. 2.0 — 4.0 V | | |
| PVIGN power supply | B54 | 8 | Ignition switch ON | Power supply voltage | — | |
| | | 7 | Ignition switch ON | Power supply voltage | — | |
| I/C oil pressure switch input | B54 | 6 | — | — | — | The condition of I/C oil pressure switch cannot read by the tester. |
| Power GND | B54 | 5 | Always | Approx. 0 V | — | |
| CAN communication line (+) | B54 | 4 | — | — | — | |
| CAN communication line (-) | B54 | 3 | — | — | — | |
| ATF temperature sensor 1 input | B54 | 2 | Ignition switch ON | 2.5 — 2.9 V (ATF temperature 20°C (68°F)) 0.8 — 1.0 V (ATF temperature 80°C (176°F)) | 4.0 — 5.0 kΩ (ATF temperature 20°C (68°F)) 0.7 — 0.9 kΩ (ATF temperature 80°C (176°F)) | |

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Item | Connector No. | Terminal No. | Measuring conditions | Voltage (V) | Measure the resistance between terminal and chassis ground. | Remarks |
|--|---------------|--------------|--|--|---|--|
| Battery power supply | B54 | 1 | Always | Power supply voltage | — | |
| I/C solenoid output | B54 | 18 | While driving at 1st — 3rd of manual mode | Approx. 5.5 — 7.5 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 750 — 850 Hz |
| | | | While driving at 4th or 5th of manual mode | Approx. 0 V | | |
| H&LR/C solenoid output | B54 | 17 | While driving at 2nd of manual mode | Approx. 5.5 — 7.5 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 750 — 850 Hz |
| | | | While driving at 3rd — 5th of manual mode | Approx. 0 V | | |
| Control valve power supply output | B54 | 16 | Ignition switch ON | Power supply voltage | — | |
| | | | Ignition switch OFF | Approx. 0 V | | |
| LC/B solenoid output | B54 | 15 | While driving at 1st — 2nd of manual mode | Power supply voltage | 5 — 17 Ω (ATF temperature 25°C (77°F)) | |
| | | | While driving at 3rd — 5th of manual mode | Approx. 0 V | | |
| Power GND | B54 | 14 | Always | Approx. 0 V | — | |
| Analog GND (Sensor GND) | B54 | 13 | Always | Approx. 0 V | — | |
| LC/B oil pressure switch input | B54 | 12 | — | — | — | The condition of LC/B oil pressure switch cannot read by the tester. |
| ATF temperature sensor 2 input | B54 | 11 | Ignition switch ON | 2.3 — 2.7 V (ATF temperature 20°C (68°F)) | 3.0 — 3.6 kΩ (ATF temperature 20°C (68°F)) | |
| | | | | 0.6 — 0.8 V (ATF temperature 80°C (176°F)) | | |
| PVIGN power supply relay output | B54 | 10 | Ignition switch ON | 0 — 1.5 V | — | |
| Fr/B solenoid output | B54 | 24 | While driving at other than 4th of manual mode | Approx. 4.5 — 6.5 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 750 — 850 Hz |
| | | | While driving at 4th of manual mode | Approx. 0 V | | |
| L/U solenoid output | B54 | 23 | When lock-up | Approx. 3.5 — 5.5 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 750 — 850 Hz |
| | | | When not lock-up | Approx. 0 V | | |
| D/C solenoid output | B54 | 22 | While driving at 1st or 5th of manual mode | Approx. 5.5 — 7.5 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 750 — 850 Hz |
| | | | While driving at 2nd — 4th of manual mode | Approx. 0 V | | |
| D/C oil pressure switch input | B54 | 21 | — | — | — | The condition of D/C oil pressure switch cannot read by the tester. |
| Subaru Select Monitor communication line | B54 | 20 | — | — | — | |

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Item | Connector No. | Terminal No. | Measuring conditions | Voltage (V) | Measure the resistance between terminal and chassis ground. | Remarks |
|----------------------------------|---------------|--------------|---|--------------------------|---|----------------------|
| Control GND | B54 | 19 | Always | Approx. 0 V | — | |
| H&LR/C oil pressure switch input | B55 | 8 | While driving at 2nd of manual mode | Power supply voltage | — | |
| | | | While driving at 3rd — 5th of manual mode | Approx. 0 V | | |
| Front vehicle speed sensor input | B55 | 7 | While driving at 2nd and 20 km/h (12 MPH) of manual mode | Approx. 140 — 170 Hz | — | |
| | | | While driving at 4th and 80 km/h (50 MPH) of manual mode | Approx. 560 — 680 Hz | | |
| Lateral G sensor power supply | B55 | 6 | Ignition switch ON | 4.75 — 5.25 V | — | |
| Lateral G sensor signal input | B55 | 5 | Ignition switch ON, Engine ON, Flat value | 2.0 — 3.0 V | — | |
| Inhibitor switch 1 input | B55 | 4 | Ignition switch ON, "P" range | 4.0 — 5.0 V | — | |
| | | | Ignition switch ON, "N" range | 1.5 V or less | | |
| Inhibitor switch 2 input | B55 | 3 | Ignition switch ON, "P" range | 4.0 — 5.0 V | — | |
| | | | Ignition switch ON, "D" range | 1.5 V or less | | |
| Accessory power supply | B55 | 2 | Accessory switch ON | Power supply voltage | — | |
| | | | Accessory switch OFF | Approx. 0 V | | |
| Ignition power supply | B55 | 1 | Ignition switch ON | Power supply voltage | — | |
| | | | Ignition switch OFF | Approx. 0 V | | |
| Rear vehicle speed sensor input | B55 | 18 | While driving at 2nd and 20 km/h (12 MPH) of manual mode | Approx. 190 — 230 Hz | — | |
| | | | While driving at 4th and 80 km/h (50 MPH) of manual mode | Approx. 760 — 920 Hz | | |
| Fr/B oil pressure switch input | B55 | 17 | Ignition switch ON, Engine ON, While driving at other than 4th | Approx. 0 V | — | |
| | | | Ignition switch ON, Engine ON, While driving at 4th | Power supply voltage | | |
| Turbine speed sensor 1 input | B55 | 16 | 2nd of manual mode, Turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 0 Hz | — | Use an oscilloscope. |
| | | | 4th of manual mode, Turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 1,900 — 2,100 Hz | | Use an oscilloscope. |

Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Item | Connector No. | Terminal No. | Measuring conditions | Voltage (V) | Measure the resistance between terminal and chassis ground. | Remarks |
|---|---------------|--------------|---|------------------------------------|---|-----------------------------------|
| Range lock solenoid output | B55 | 15 | Ignition switch ON, While stopping at "D" range | About Power Supply Voltage - 1.2 V | 7 — 21 Ω | |
| | | | Ignition switch ON, Vehicle speed at least 20 km/h (12 MPH) | Approx. 0 V | | |
| Inhibitor switch 3 input | B55 | 14 | Ignition switch ON, "R" range | 4.0 — 5.0 V | — | |
| | | | Ignition switch ON, "D" range | 1.5 V or less | | |
| Inhibitor switch 4 input | B55 | 13 | Ignition switch ON, "P" range | 4.0 — 5.0 V | — | |
| | | | Ignition switch ON, "D" range | 1.5 V or less | | |
| Control valve communication line | B55 | 12 | — | — | — | |
| Back-up light relay output | B55 | 11 | Ignition switch ON, "R" range | 1.5 V | Approx. 90 — 110 Ω (ATF temperature 25°C (77°F)) | |
| | | | Ignition switch ON, Other than "R" range | Power supply voltage | | |
| Ignition power supply | B55 | 10 | Ignition switch ON | Power supply voltage | — | |
| | | | Ignition switch OFF | Approx. 0 V | | |
| AWD solenoid output | B55 | 23 | Engine ON, "P" range or "N" range, Accelerator OFF | Approx. 0 V | 3 — 9 Ω (ATF temperature 20°C (68°F)) | Driving frequency 750 — 850 Hz |
| | | | Engine ON, "D" range, Accelerator OFF, Brake ON | Approx. 2.0 — 3.0 V | | |
| Turbine speed sensor 2 input | B55 | 22 | 2nd of manual mode, Turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 1,300 — 1,500 Hz | — | Use an oscilloscope. |
| | | | 4th of manual mode, Turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor) | Approx. 1,900 — 2,100 Hz | | Use an oscilloscope. |
| Control GND | B55 | 21 | Always | Approx. 0 V | — | |
| Inhibitor switch 3 open circuit monitor input | B55 | 20 | Ignition switch ON, "D" range | 4.0 — 5.0 V | — | |
| | | | Ignition switch ON, "R" range | Less than 1.5 V | | |
| PN signal output | B55 | 19 | Ignition switch ON, Other than "P" range or "N" range | Power supply voltage | — | ECM should be connected correctly |
| | | | Ignition switch ON, "P" range or "N" range | 0 — 1.0 V | | |

Subaru Select Monitor

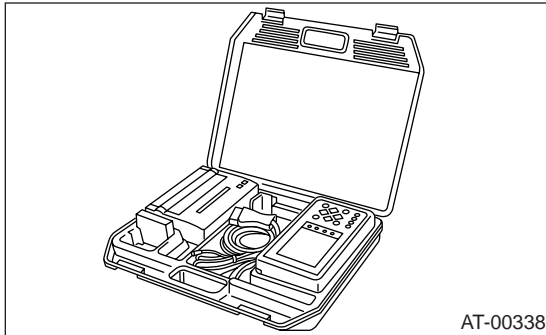
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

6. Subaru Select Monitor

A: OPERATION

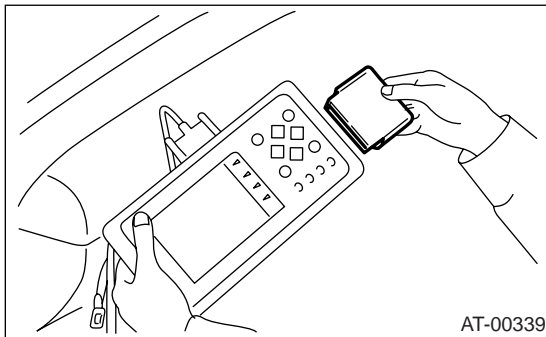
1. READ DIAGNOSTIC TROUBLE CODE (DTC)

1) Prepare the Subaru Select Monitor kit.



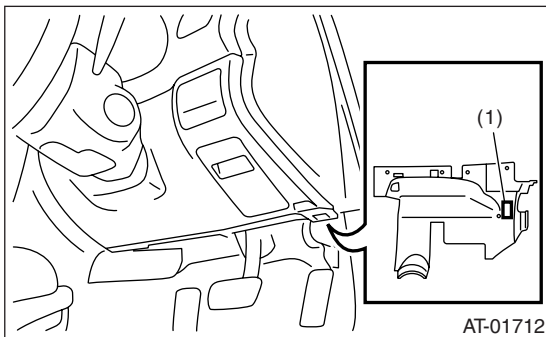
2) Connect the diagnosis cable to Subaru Select Monitor.

3) Insert the cartridge to Subaru Select Monitor.
<Ref. to 5AT(diag)-6, PREPARATION TOOL, General Description.>



4) Connect the Subaru Select Monitor to data link connector.

(1) Data link connector is located in the lower portion of the instrument panel (on the driver's side).



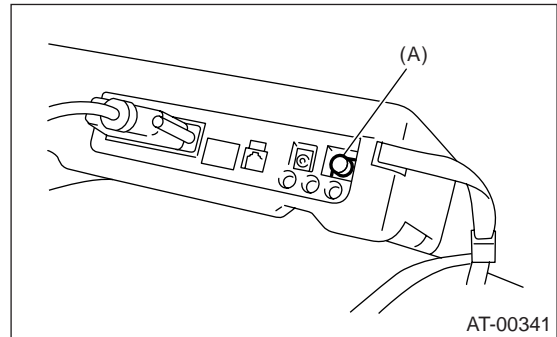
(1) Data link connector

(2) Connect the diagnosis cable to data link connector.

NOTE:

Do not connect scan tools except for Subaru Select Monitor.

5) Turn ignition switch to ON (engine OFF) and turn on the Subaru Select Monitor.



(A) Power switch

6) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.

7) On the «System Selection Menu» display screen, select the {Transmission} and press the [YES] key.

8) Press the [YES] key after the information of transmission type is displayed.

9) On the «Transmission Diagnosis» display screen, select the {Diagnosis Code(s) Display} and press [YES] key.

NOTE:

- For details concerning operation procedure, refer to the "SUBARU SELECT MONITOR OPERATION MANUAL".

- For details concerning DTCs, refer to the List of Diagnostic Trouble Code (DTC). <Ref. to 5AT(diag)-30, List of Diagnostic Trouble Code (DTC).>

2. READ CURRENT DATA

1) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.

2) On the «System Selection Menu» display screen, select the {Transmission} and press the [YES] key.

3) Press the [YES] key after the information of transmission type is displayed.

4) On the «Transmission Diagnosis» display screen, select the {Current Data Display & Save} and press the [YES] key.

5) On the «Transmission Diagnosis» display screen, select the {Data Display} and press the [YES] key.

6) Using the scroll key, scroll the display screen up or down until the desired data is shown.

Subaru Select Monitor

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- A list of the support data is shown in the following table.

| Item | Display | Unit of measure |
|--|---------------------------------|-----------------------|
| Engine speed signal | Engine speed | rpm |
| Battery voltage | Battery Voltage | V |
| Accelerator Position Sensor | Acceleration opening angle | % |
| Front vehicle speed sensor signal | Front Wheel Speed | km/h |
| Gear position | Gear Position | — |
| Turbine speed sensor signal | Turbine Revolution Speed | rpm |
| Rear vehicle speed sensor signal | Rear Wheel Speed | km/h |
| Lateral G sensor | Lateral G sensor | V |
| ATF Temperature Sensor 1 Signal | ATF Temp. | °C |
| ATF Temperature Sensor 2 Signal | ATF Temp. 2 | °C |
| Turbine speed sensor 1 signal | Turbine Revolution Speed 1 | rpm |
| Turbine speed sensor 2 signal | Turbine Revolution Speed 2 | rpm |
| High & Low Reverse Clutch Solenoid Indicator Current | H&LR/C Solenoid Current | A |
| Direct Clutch Solenoid Indicator Current | D/C Solenoid Current | A |
| Front Brake Solenoid Indicator Current | F/B Solenoid Current | A |
| Input Clutch Solenoid Indicator Current | I/C Solenoid Current | A |
| Line Pressure Solenoid Indicator Current | P/L Solenoid Current | A |
| Lock-up Solenoid Indicator Current | L/U Solenoid Current | A |
| Transfer Solenoid Indicator Current | AWD Solenoid Current | A |
| High & Low Reverse Clutch Solenoid Target Oil Pressure | H&LR/C Solenoid Target Pressure | kPa |
| Direct Clutch Solenoid Target Oil Pressure | D/C Solenoid Target Pressure | kPa |
| Front Brake Solenoid Target Oil Pressure | F/B Solenoid Target Pressure | kPa |
| Input Clutch Solenoid Target Oil Pressure | I/C Solenoid Target Pressure | kPa |
| Line Pressure Solenoid Target Oil Pressure | P/L Solenoid Target Pressure | kPa |
| Lock-up Solenoid Target Oil Pressure | L/U Solenoid Target Pressure | kPa |
| Transfer Solenoid Target Oil Pressure | AWD Solenoid Target Pressure | kPa |
| Ignition switch | Ignition SW | ON Input or OFF Input |
| Tip signal | Tip Mode SW | ON or OFF |
| Cruise control On signal | Cruise Control Signal | ON or OFF |
| Tip Down Shift Signal | Down SW | ON or OFF |
| Stop light switch signal | Stop Light SW | ON or OFF |
| Tip Up Shift Signal | Up SW | ON or OFF |
| Drive range signal | D Range | ON or OFF |
| Reverse range signal | R Range | ON or OFF |
| Diagnosis Light Output Signal | Diagnosis Lamp | ON or OFF |
| Shift lock solenoid signal | Shift lock solenoid | ON or OFF |
| Parking range signal | P range | ON or OFF |
| P/N Range Output Signal | P/N Signal | ON or OFF |
| Neutral range signal | N range | ON or OFF |
| Inhibitor Switch 1 Input Signal | Inhibitor SW1 | High or Low |
| Inhibitor Switch 2 Input Signal | Inhibitor SW2 | High or Low |
| Inhibitor Switch 3 Input Signal | Inhibitor SW3 | High or Low |
| Inhibitor Switch 4 Input Signal | Inhibitor SW4 | High or Low |
| Inhibitor Switch 3 Monitor Input Signal | Inhibitor SW3 Monitor | High or Low |
| Backup light relay output signal | Back-up light relay | ON or OFF |
| High & Low Reverse Clutch Oil Pressure Switch Input Signal | H&LR/C Oil Pressure SW | ON or OFF |
| Direct Clutch Oil Pressure Switch Input Signal | D/C Oil Pressure SW | ON or OFF |
| Front Brake Oil Pressure Switch Input Signal | Fr/B Oil Pressure SW | ON or OFF |
| Input Clutch Oil Pressure Switch Input Signal | I/C Oil Pressure SW | ON or OFF |

Subaru Select Monitor

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Item | Display | Unit of measure |
|--|----------------------|-----------------|
| Low Coast Brake Oil Pressure Switch Input Signal | LC/B Oil Pressure SW | ON or OFF |
| Low Coast Brake Solenoid Input Signal | LC B Solenoid | ON or OFF |

NOTE:

For details concerning operation procedure, refer to the "SUBARU SELECT MONITOR OPERATION MANUAL".

3. CLEAR MEMORY MODE

NOTE:

To clear the previous DTC, use {Clear Memory}, and to clear the learned value, use {Clear Memory 2}.

- 1) Check that the select lever is in "P" range.
- 2) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
- 3) On the «System Selection Menu» display screen, select the {Transmission} and press the [YES] key.
- 4) Press the [YES] key after the information of transmission type is displayed.
- 5) On the «Transmission Diagnosis» display screen, select the {Clear Memory} and press the [YES] key.

NOTE:

If {Clear Memory 2} is selected and performed, DTC may not be cleared.

- 6) When the 'Done' are shown on the display screen, turn off the Subaru Select Monitor and turn the ignition switch to OFF. To turn the ignition switch ON again, wait for more than 10 seconds.

NOTE:

For details concerning operation procedure, refer to the "SUBARU SELECT MONITOR OPERATION MANUAL".

7. Read Diagnostic Trouble Code (DTC)

A: OPERATION

Refer to "Subaru Select Monitor" for information about how to obtain and understand the DTC.
<Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.>

NOTE:

DTC can not be read by SPORT indicator light.

8. Inspection Mode

A: PROCEDURE

WARNING:

Observe the traffic law during actual driving.

- 1) Shift the select lever to “D” range, and then drive the vehicle with changing the gear from 1st to 5th.
- 2) When driving the vehicle at 5th speed of “D” range, set the gear to manual mode and drive the vehicle with shifting down using “-” of steering switch or “-” of select lever from 5th → 4th, 4th → 3rd, 3rd → 2nd, 2nd → 1st.

NOTE:

At shifting down, drive the vehicle at least 10 seconds in each speed.

- 3) Shift the select lever to “R” range and drive the vehicle for more than 2 seconds.

9. Clear Memory Mode

A: OPERATION

Use "Subaru Select Monitor" to clear DTC. <Ref. to 5AT(diag)-18, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.>

NOTE:

DTC cannot be cleared without using Subaru Select Monitor.

10. Learning Control

A: GENERAL DESCRIPTION

Be sure to perform the {Clear Memory 2} only when the following services are performed. And when the shifting shock is occurred in total check with vehicle driving, perform the learning with following procedures. <Ref. to 5AT(diag)-18, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.>

- Replacement of TCM
- Replacement of transmission assembly
- Replacement of TCM and transmission assembly

CAUTION:

When {Clear Memory 2} is executed, DTC may not be cleared.

B: PROCEDURE

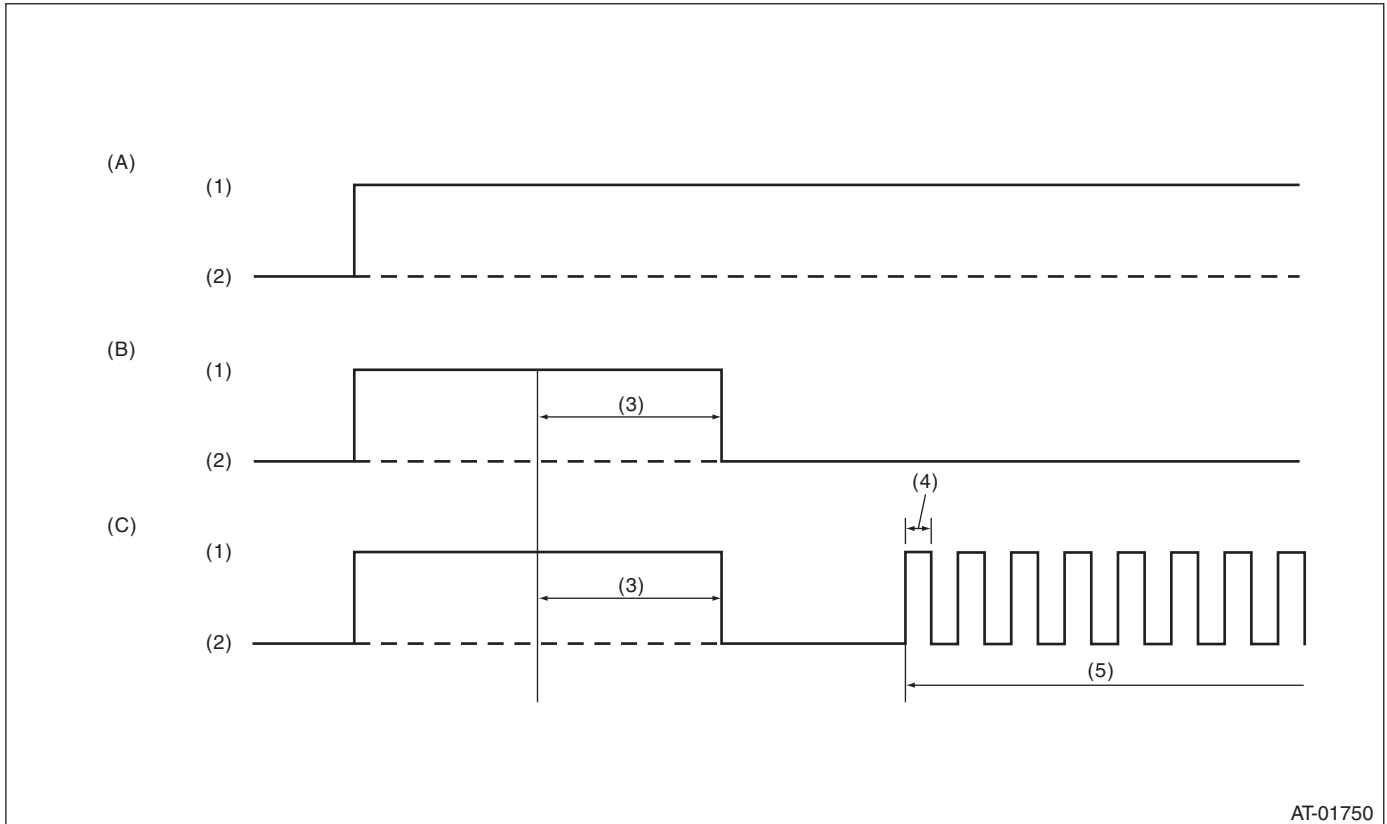
- 1) Turn the ignition switch to OFF.
- 2) Turn the air conditioner switch to OFF.
- 3) Turn the headlight switch to OFF.
- 4) Turn the rear defogger switch to OFF.
- 5) Start the engine.
- 6) Connect the Subaru Select Monitor to the vehicle.
- 7) Drive the vehicle for 5 — 10 km (3 — 6 miles) to warm up ATF temperature more than 70 °C (158 °F).
- 8) With the throttle opening angle on SUBARU select monitor indicates between 10%±2%, shift the gear from 1st → 2nd, 2nd → 3rd, 3rd → 4th, 4th → 5th while driving the vehicle at “D” range. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.>
- 9) Repeat the step 8) until reducing of shifting shock was felt.
- 10) Reducing of shifting shock was not felt though the procedure was repeated 5 cycle, recheck that the learning conditions (throttle opening angle, ATF temperature, etc.) are specified and recheck that other parts are normal.

11.SPORT Indicator Light Display

A: OPERATION

When any on-board diagnostics item is malfunctioning, the display on the SPORT indicator light blinks from the time the malfunction is detected after starting the engine until the ignition switch is turned OFF. The malfunctioning part or unit can be determined by a DTC during the on-board diagnostics operation. Problems which occurred previously can also be identified through the memory function. If the SPORT indicator light does not show a problem (although a problem is occurring), the problem can be determined by checking the performance characteristics of each sensor using the Subaru Select Monitor. Indicator light signal is as shown in the figure.

When the SPORT indicator light does not operate normally though the DTC is not stored, perform the SPORT indicator light inspection. <Ref. to 5AT(diag)-24, INSPECTION, SPORT Indicator Light Display.>



(A) Ignition switch (Engine OFF)

(B) Normal (Engine ON)

(C) Faulty (Engine ON)

(1) ON

(3) 2 sec.

(5) Blink

(2) OFF

(4) 0.25 sec.

SPORT Indicator Light Display

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

B: INSPECTION

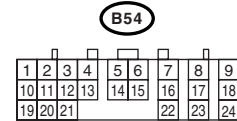
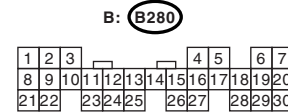
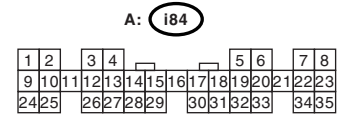
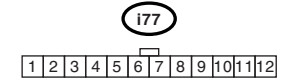
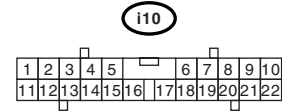
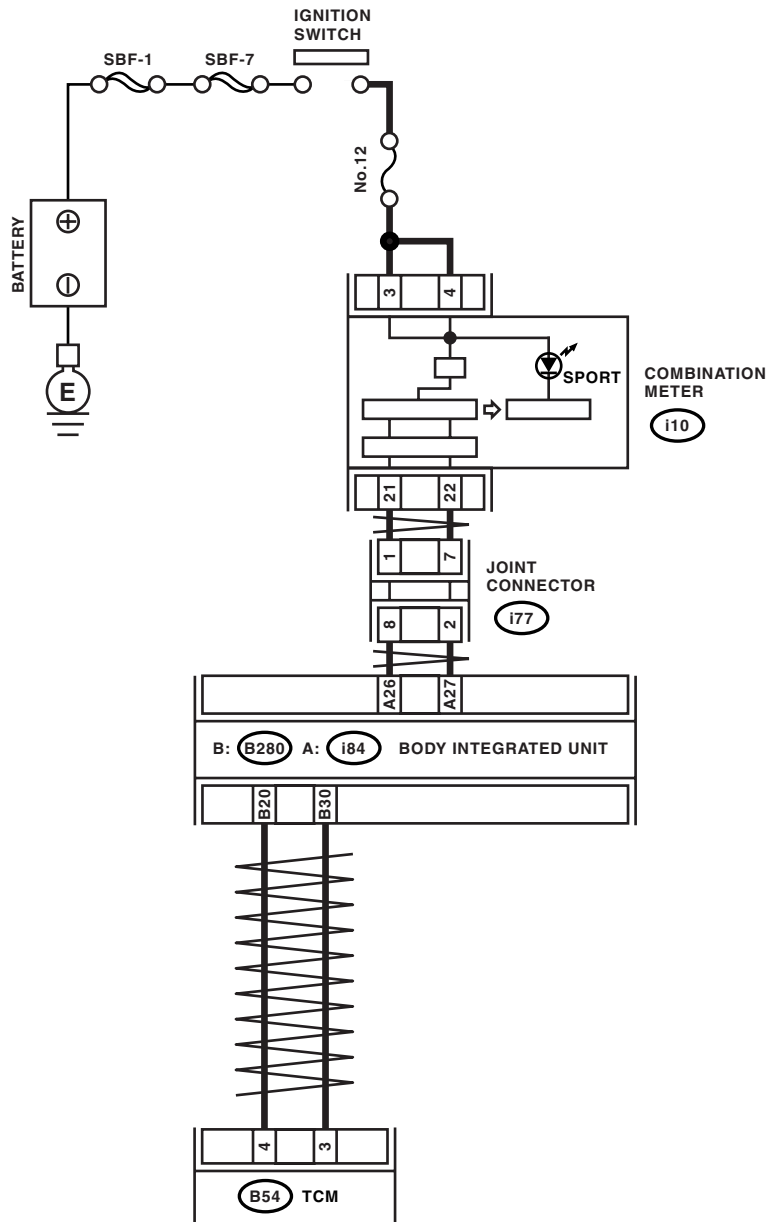
DIAGNOSIS:

SPORT indicator light circuit is open or shorted.

TROUBLE SYMPTOM:

When the ignition switch is turned to ON (engine OFF), SPORT indicator light does not illuminate.

WIRING DIAGRAM:



SPORT Indicator Light Display

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No | |
|------|---|--|--|---|
| 1 | CHECK SPORT INDICATOR LIGHT. Turn the ignition switch to ON. | Does the SPORT indicator light illuminate? | Go to step 2. | Perform the self-diagnosis of combination meter. |
| 2 | CHECK SPORT INDICATOR LIGHT. After the ignition switch is "ON", wait for at least 2 seconds. | Does the SPORT indicator light illuminate? | Go to step 3. | Go to step 4. |
| 3 | CHECK SPORT INDICATOR LIGHT. Start the engine. | Does the SPORT indicator light go off? | Normal. Go back to "Basic Diagnosis Procedure". <Ref. to 5AT(diag)-2, Basic Diagnostics Procedure.> | Go to step 7. |
| 4 | CHECK SUBARU SELECT MONITOR COMMUNICATION. Connect the Subaru Select Monitor to data link connector. | Is the communication between Subaru Select Monitor and TCM normal? | Go to step 5. | Check the TCM power supply ground circuit and Subaru Select Monitor communication. <Ref. to 5AT(diag)-26, Diagnostic Procedure for Select Monitor Communication.> |
| 5 | CHECK TCM. Display the current data of TCM using Subaru Select Monitor. | Is "Diagnosis light" output signal set to "ON"? | Go to step 6. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 6 | CHECK BODY INTEGRATED UNIT. Display the current data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Is "SPORT light" input signal set to "ON"? | Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.> | Check DTC of body integrated unit. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> |
| 7 | CHECK TCM. 1) Start the engine. 2) Display the current data of TCM using Subaru Select Monitor. <Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.> | Is "Diagnosis light" output signal set to "ON"? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 8. |
| 8 | CHECK BODY INTEGRATED UNIT. Display the current data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Is "SPORT light" input signal set to "ON"? | Check DTC of body integrated unit. Perform the diagnosis according to DTC. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Perform the self-diagnosis for combination meter. <Ref. to IDI-3, INSPECTION, Combination Meter System.> |

12. Diagnostic Procedure for Select Monitor Communication

A: COMMUNICATION FOR INITIALIZING IMPOSSIBLE

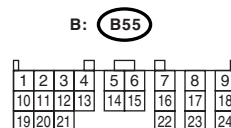
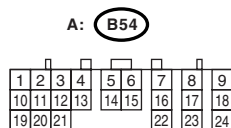
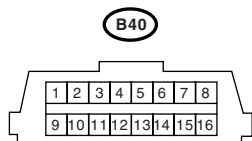
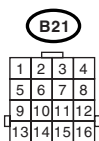
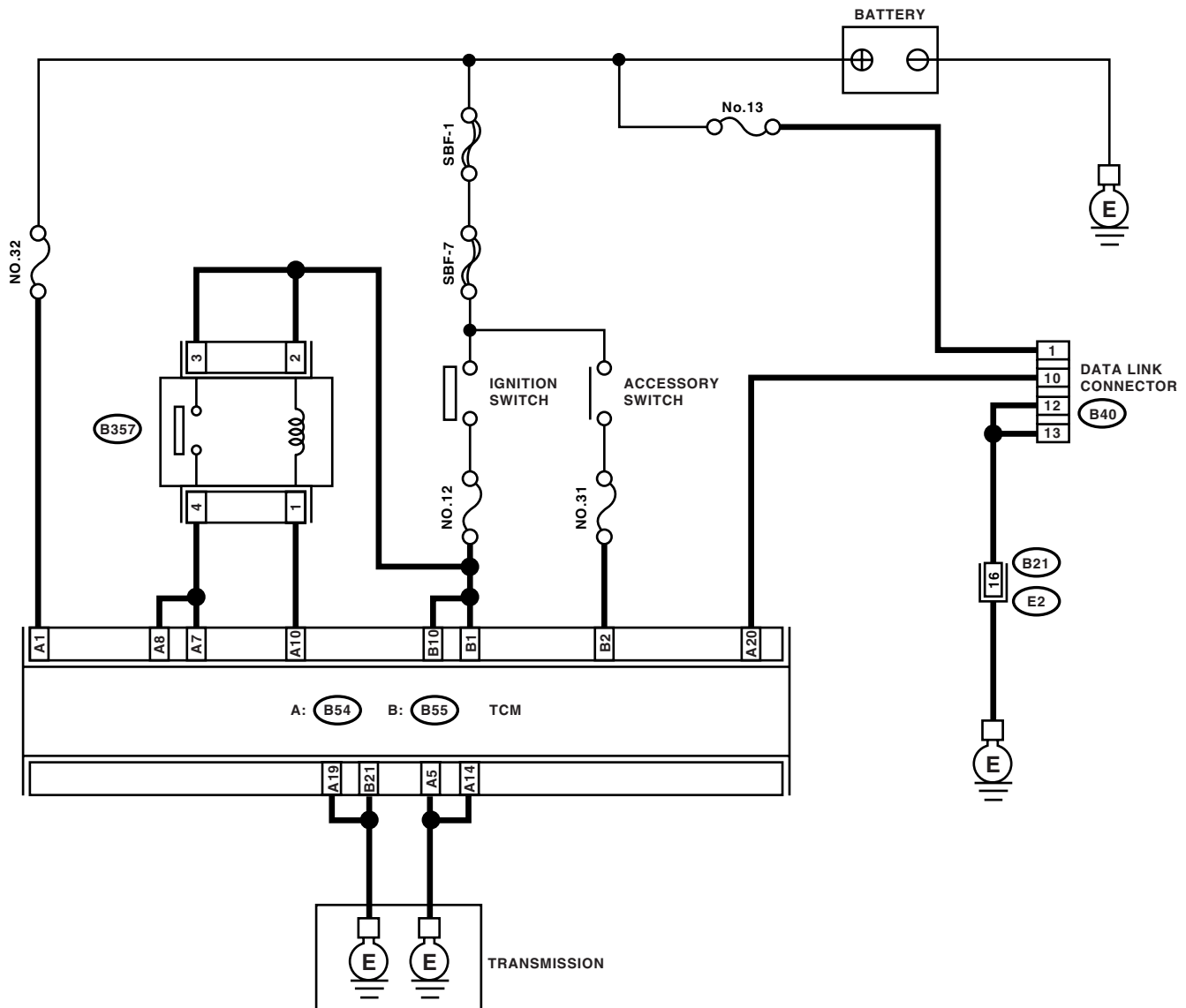
DIAGNOSIS:

Faulty harness connector

TROUBLE SYMPTOM:

Subaru Select Monitor communication failure

WIRING DIAGRAM:



Diagnostic Procedure for Select Monitor Communication

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|--|---|
| 1 CHECK SUBARU SELECT MONITOR POWER SUPPLY CIRCUIT. Measure the voltage between data link connector and chassis ground. Connector & terminal (B40) No. 1 (+) — Chassis ground (-): | Is the voltage more than 10 V? | Go to step 2. | Repair harness connector and connector between battery and data link connector, and poor contact in coupling connector. |
| 2 CHECK SUBARU SELECT MONITOR GROUND CIRCUIT. Measure the resistance of harness between data link connector and chassis ground. Connector & terminal (B40) No. 12 — Chassis ground: (B40) No. 13 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 3. | Repair the open circuit in harness between data link connector and ground terminal, and poor contact in coupling connector. |
| 3 CHECK COMMUNICATION OF SUBARU SELECT MONITOR. 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check whether communication to transmission systems can be executed normally. | Are the name and year of system displayed on Subaru Select Monitor? | Go to step 8. | Go to step 4. |
| 4 CHECK COMMUNICATION OF SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Disconnect the TCM connector. 3) Turn the ignition switch to ON. 4) Check whether communication to engine systems can be executed normally. | Are the name and year of system displayed on Subaru Select Monitor? | Go to step 6. | Go to step 5. |
| 5 CHECK COMMUNICATION OF SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Connect the TCM connector. 3) Disconnect the ECM connector. 4) Turn the ignition switch to ON. 5) Check whether communication to transmission systems can be executed normally. | Are the name and year of system displayed on Subaru Select Monitor? | Inspect the ECM. | Go to step 6. |
| 6 CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL UNIT AND DATA LINK CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the TCM and ECM connector. 3) Measure the resistance between TCM connector and chassis ground. Connector & terminal (B40) No. 10 — Chassis ground: | Is the resistance more than 1 M Ω ? | Go to step 7. | Check harness and connector between each control unit and data link connector. |
| 7 CHECK OUTPUT SIGNAL OF TCM. 1) Turn the ignition switch to ON. 2) Measure the voltage between TCM and chassis ground. Connector & terminal (B40) No. 10 (+) — Chassis ground (-): | Is the voltage more than 1 V? | Check harness and connector between each control unit and data link connector. | Go to step 8. |
| 8 CHECK HARNESS CONNECTOR BETWEEN TCM AND DATA LINK CONNECTOR. Measure the resistance between TCM connector and data link connector. Connector & terminal (B54) No. 20 — (B40) No. 10: | Is the resistance less than 1 Ω ? | Go to step 9. | Repair the harness and connector between TCM and data link connector. |

Diagnostic Procedure for Select Monitor Communication

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|---|---|
| 9 CHECK INSTALLATION OF TCM CONNECTOR. Turn the ignition switch to OFF. | Is TCM connector connected to TCM? | Go to step 10. | Connect the TCM connector to TCM. |
| 10 CHECK INSTALLATION OF TRANSMISSION HARNESS CONNECTOR. | Is the transmission harness connector connected to bulk-head harness connector? | Go to step 11. | Connect the bulk-head harness connector to transmission harness connector. |
| 11 CHECK POOR CONTACT IN CONNECTORS. | Is there poor contact in control unit power supply and data link connector? | Repair the poor contact. | Go to step 12. |
| 12 CHECK POWER SUPPLY OF TCM. 1) Disconnect the connector from TCM. 2) Turn the ignition switch to ON. 3) Measure the voltage between TCM connector and chassis ground. Connector & terminal (B54) No. 1 (+) — Chassis ground (-): | Is the voltage 10 — 13 V? | Go to step 15. | Go to step 13. |
| 13 CHECK FUSE (No. 32). 1) Turn the ignition switch to OFF. 2) Remove the fuse (No. 32). | Is the fuse (No. 32) blown out? | Go to step 14. | Repair the open circuit in harness between fuse (No. 32) and TCM, or fuse (No. 32) and battery, and poor contact in coupling connector. |
| 14 CHECK HARNESS. Measure the resistance between TCM connector and chassis ground. Connector & terminal (B54) No. 1 — Chassis ground: | Is the resistance less than 10 Ω? | Replace the fuse (No. 32). If the replaced fuse (No. 32) has blown out easily, repair the short circuit in harness between fuse (No. 32) and TCM. | Replace the fuse (No. 32). |
| 15 CHECK IGNITION POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON (engine OFF). 2) Measure the ignition power supply voltage between TCM connector and chassis ground. Connector & terminal (B55) No. 1 (+) — Chassis ground (-): (B55) No. 10 (+) — Chassis ground (-): | Is the voltage 10 — 13 V? | Go to step 17. | Go to step 16. |
| 16 CHECK FUSE (No. 12). Remove the fuse (No. 12). | Is the fuse (No. 12) blown out? | Replace the fuse (No. 12). If the replaced fuse (No. 12) has blown out easily, repair the short circuit in harness between fuse (No. 12) and TCM. | Repair the open circuit in harness between fuse (No. 12) and TCM, or fuse (No. 12) and battery, and poor contact in coupling connector. |

Diagnostic Procedure for Select Monitor Communication

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|------------------------|---|
| 17 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal <i>(B54) No. 19 — Chassis ground:</i> <i>(B55) No. 21 — Chassis ground:</i> <i>(B54) No. 5 — Chassis ground:</i> <i>(B54) No. 14 — Chassis ground:</i> | Is the resistance more than 1 MΩ? | Go to step 18 . | Repair the short circuit in harness between TCM and transmission harness connector, and poor contact in coupling connector. |
| 18 CHECK POOR CONTACT IN CONNECTORS. | Is there poor contact in TCM power supply, ground and data link connector? | Repair the connector. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

List of Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

13. List of Diagnostic Trouble Code (DTC)

A: LIST

| DTC | Item | Content of diagnosis | Reference target |
|-------|--|--|--|
| P0705 | Transmission Range Sensor Circuit (PRNDL Input) | Inhibitor switch 1 malfunction, open or short circuit | <Ref. to 5AT(diag)-34, DTC P0705 TRANSMISSION RANGE SENSOR CIRCUIT (PRNDL INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0712 | Transmission Fluid Temperature Sensor Circuit Low Input | ATF temperature sensor 1 malfunction, open input signal circuit | <Ref. to 5AT(diag)-39, DTC P0712 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT LOW INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0713 | Transmission Fluid Temperature Sensor Circuit High Input | ATF temperature sensor 1 malfunction, short input signal circuit | <Ref. to 5AT(diag)-42, DTC P0713 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0715 | Input/Turbine Speed Sensor Circuit | Turbine speed sensor 1 malfunction, short input signal circuit | <Ref. to 5AT(diag)-45, DTC P0715 INPUT/TURBINE SPEED SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0719 | Torque Converter/Brake Switch "B" Circuit Low | Brake switch malfunction, open input signal circuit, body integrated unit malfunction, CAN communication malfunction | <Ref. to 5AT(diag)-49, DTC P0719 TORQUE CONVERTER/BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0720 | Output Speed Sensor Circuit | Front wheel speed sensor is faulty or input signal circuit, ground, power supply is open or shorted. | <Ref. to 5AT(diag)-51, DTC P0720 OUTPUT SPEED SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0724 | Torque Converter/Brake Switch "B" Circuit High | Brake switch malfunction, short circuit of input signal, body integrated unit malfunction, CAN communication malfunction | <Ref. to 5AT(diag)-56, DTC P0724 TORQUE CONVERTER/BRAKE SWITCH "B" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0725 | Engine Speed Input Circuit | Open or short engine speed output signal circuit, ECM malfunction, CAN communication malfunction | <Ref. to 5AT(diag)-58, DTC P0725 ENGINE SPEED INPUT CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0731 | Gear 1 Incorrect Ratio | Vehicle sensor, turbine speed sensor, control valve malfunction or shift clutch malfunction | <Ref. to 5AT(diag)-58, DTC P0731 GEAR 1 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0732 | Gear 2 Incorrect Ratio | Vehicle sensor, turbine speed sensor, control valve malfunction or shift clutch malfunction | <Ref. to 5AT(diag)-58, DTC P0732 GEAR 2 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0733 | Gear 3 Incorrect Ratio | Vehicle sensor, turbine speed sensor, or shift clutch malfunction | <Ref. to 5AT(diag)-58, DTC P0733 GEAR 3 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0734 | Gear 4 Incorrect Ratio | Vehicle sensor, turbine speed sensor, or shift clutch malfunction | <Ref. to 5AT(diag)-58, DTC P0734 GEAR 4 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0735 | Gear 5 Incorrect Ratio | Vehicle sensor, turbine speed sensor, or shift clutch malfunction | <Ref. to 5AT(diag)-58, DTC P0735 GEAR 5 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0736 | Reverse Incorrect Ratio | Vehicle sensor, turbine speed sensor, or shift clutch malfunction | <Ref. to 5AT(diag)-59, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0741 | Torque Converter Clutch Circuit Performance or Stuck Off | Lock-up clutch is faulty or valve is stuck. | <Ref. to 5AT(diag)-60, DTC P0741 TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

List of Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| DTC | Item | Content of diagnosis | Reference target |
|-------|---|---|---|
| P0743 | Torque Converter Clutch Circuit Electrical | L/U solenoid circuit malfunction or L/U solenoid body malfunction | <Ref. to 5AT(diag)-61, DTC P0743 TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0748 | Pressure Control Solenoid "A" Electrical | Line pressure solenoid circuit malfunction or line pressure solenoid body malfunction | <Ref. to 5AT(diag)-63, DTC P0748 PRESSURE CONTROL SOLENOID "A" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0751 | Shift Solenoid "A" Performance or Stuck Off | Shift Solenoid "A" performance malfunction | <Ref. to 5AT(diag)-65, DTC P0751 SHIFT SOLENOID "A" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0753 | Shift Solenoid "A" Electrical | Fr/B solenoid circuit malfunction or Fr/B solenoid body malfunction | <Ref. to 5AT(diag)-69, DTC P0753 SHIFT SOLENOID "A" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0756 | Shift Solenoid "B" Performance or Stuck Off | Shift Solenoid "B" Performance malfunction | <Ref. to 5AT(diag)-72, DTC P0756 SHIFT SOLENOID "B" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0758 | Shift Solenoid "B" Electrical | I/C solenoid circuit malfunction or I/C solenoid body malfunction | <Ref. to 5AT(diag)-75, DTC P0758 SHIFT SOLENOID "B" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0761 | Shift Solenoid "C" Performance or Stuck Off | H&LR/C solenoid malfunction | <Ref. to 5AT(diag)-78, DTC P0761 SHIFT SOLENOID "C" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0763 | Shift Solenoid "C" Electrical | H&LR/C solenoid circuit malfunction or H&LR/C solenoid body malfunction | <Ref. to 5AT(diag)-82, DTC P0763 SHIFT SOLENOID "C" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0766 | Shift Solenoid "D" Performance or Stuck Off | D/C solenoid malfunction | <Ref. to 5AT(diag)-85, DTC P0766 SHIFT SOLENOID "D" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0768 | Shift Solenoid "D" Electrical | D/C solenoid circuit malfunction or D/C solenoid body malfunction | <Ref. to 5AT(diag)-88, DTC P0768 SHIFT SOLENOID "D" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0771 | Shift Solenoid "E" Performance or Stuck Off | LC/B solenoid malfunction | <Ref. to 5AT(diag)-91, DTC P0771 SHIFT SOLENOID "E" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0773 | Shift Solenoid "E" Electrical | <ul style="list-style-type: none"> • LC/B solenoid circuit malfunction or LC/B solenoid body malfunction • OFF malfunction of PVIGN relay circuit or relay body | <Ref. to 5AT(diag)-94, DTC P0773 SHIFT SOLENOID "E" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0801 | Reverse Inhibit Control Circuit | <ul style="list-style-type: none"> • Shift lock solenoid is faulty or output signal circuit is open or shorted. • Brown out of TCM+B fuse | <Ref. to 5AT(diag)-97, DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0817 | Starter Disable Circuit | <ul style="list-style-type: none"> • PN signal output circuit is open or shorted. • ECM Source Voltage Is Abnormal • Brown out of TCM+B fuse | <Ref. to 5AT(diag)-100, DTC P0817 STARTER DISABLE CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0882 | PVIGN Power Supply Circuit (Low) | PVIGN relay output circuit is open, shorted or relay malfunction | <Ref. to 5AT(diag)-102, DTC P0882 TCM POWER INPUT SIGNAL LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

List of Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| DTC | Item | Content of diagnosis | Reference target |
|-------|---|---|--|
| P0957 | Backup Light Relay Circuit Low | Back-up relay output circuit is open, shorted or relay OFF malfunction | <Ref. to 5AT(diag)-104, DTC P0957 BACKUP LIGHT RELAY CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P0958 | Backup Light Relay Circuit High | Back-up relay output circuit is open, shorted or relay ON malfunction | <Ref. to 5AT(diag)-106, DTC P0958 BACKUP LIGHT RELAY CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1601 | TCM Communication Malfunction | Communication Failure between TCM and Memory Box | <Ref. to 5AT(diag)-108, DTC P1601 TCM COMMUNICATION MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1706 | AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel) | Rear wheel speed sensor is faulty or input circuit, ground, power supply is open or shorted. | <Ref. to 5AT(diag)-110, DTC P1706 AT VEHICLE SPEED SENSOR CIRCUIT MALFUNCTION (REAR WHEEL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1707 | AT AWD Solenoid Valve Circuit Malfunction | AWD solenoid circuit malfunction or AWD solenoid body malfunction | <Ref. to 5AT(diag)-114, DTC P1707 AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1710 | Torque Converter Turbine 2 Speed Signal Circuit 2 Malfunction | Torque converter sensor 2 malfunction, input circuit, ground, power open, short circuit | <Ref. to 5AT(diag)-116, DTC P1710 TORQUE CONVERTER TURBINE 2 SPEED SIGNAL CIRCUIT 2 MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1716 | ATF Temp. Sensor 2 Circuit Low | ATF temperature sensor 2 malfunction, open input signal circuit | <Ref. to 5AT(diag)-120, DTC P1716 ATF TEMP. SENSOR 2 CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1717 | ATF Temp. Sensor 2 Circuit High | ATF temperature sensor 2 malfunction, short input signal circuit | <Ref. to 5AT(diag)-123, DTC P1717 ATF TEMP. SENSOR 2 CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1718 | AT CAN Communication Circuit | CAN communication line bus off is open, EUM short circuit, ABS/VDCCM, integrated CU malfunction | <Ref. to 5AT(diag)-125, DTC P1718 AT CAN COMMUNICATION CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1760 | Lateral Acceleration Sensor Performance Problem | Lateral G sensor malfunction | <Ref. to 5AT(diag)-126, DTC P1760 LATERAL ACCELERATION SENSOR PERFORMANCE PROBLEM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1761 | Lateral Acceleration Sensor Circuit Low | Lateral G sensor is faulty or input signal circuit is open. | <Ref. to 5AT(diag)-129, DTC P1761 LATERAL ACCELERATION SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1762 | Lateral Acceleration Sensor Circuit High | Lateral G sensor is faulty or input signal circuit is shorted. | <Ref. to 5AT(diag)-131, DTC P1762 LATERAL ACCELERATION SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1798 | Gear 1 Engine Brake | Malfunction of clutch oil pressure related to 1st engine brake, solenoid current malfunction | <Ref. to 5AT(diag)-133, DTC P1798 GEAR 1 ENGINE BRAKE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1799 | Interlock | Malfunction of clutch oil pressure which emit interlock, solenoid current malfunction | <Ref. to 5AT(diag)-134, DTC P1799 INTERLOCK, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1817 | SPORTS Mode Switch Circuit (Manual Switch) | Manual mode switch is open or shorted, or switch malfunction | <Ref. to 5AT(diag)-135, DTC P1817 SPORTS MODE SWITCH CIRCUIT (MANUAL SWITCH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

List of Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| DTC | Item | Content of diagnosis | Reference target |
|-------|---|--|--|
| P1840 | Transmission Fluid Pressure Sensor/Switch A Circuit | H&LR/C oil pressure switch is open or shorted, or switch malfunction | <Ref. to 5AT(diag)-137, DTC P1840 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH A CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1841 | Transmission Fluid Pressure Sensor/Switch B Circuit | D/C oil pressure switch is open or shorted, or switch malfunction | <Ref. to 5AT(diag)-137, DTC P1841 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH B CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1842 | Transmission Fluid Pressure Sensor/Switch C Circuit | Fr/B oil pressure switch is open or shorted, or switch malfunction | <Ref. to 5AT(diag)-137, DTC P1842 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH C CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1843 | Transmission Fluid Pressure Sensor/Switch D Circuit | I/C oil pressure switch is open or shorted, or switch malfunction | <Ref. to 5AT(diag)-137, DTC P1843 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH D CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |
| P1844 | Transmission Fluid Pressure Sensor/Switch E Circuit | LC/B oil pressure switch is open or shorted, or switch malfunction | <Ref. to 5AT(diag)-137, DTC P1844 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH E CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

14. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC P0705 TRANSMISSION RANGE SENSOR CIRCUIT (PRNDL INPUT)

DTC DETECTING CONDITION:

The inhibitor switch is open or short.

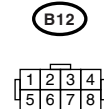
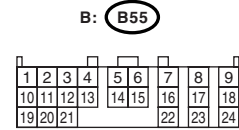
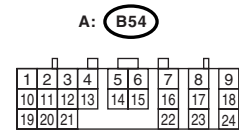
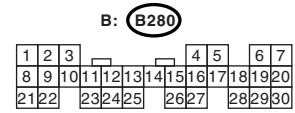
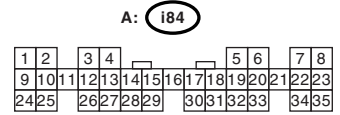
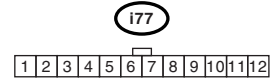
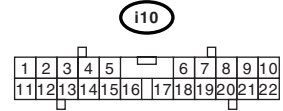
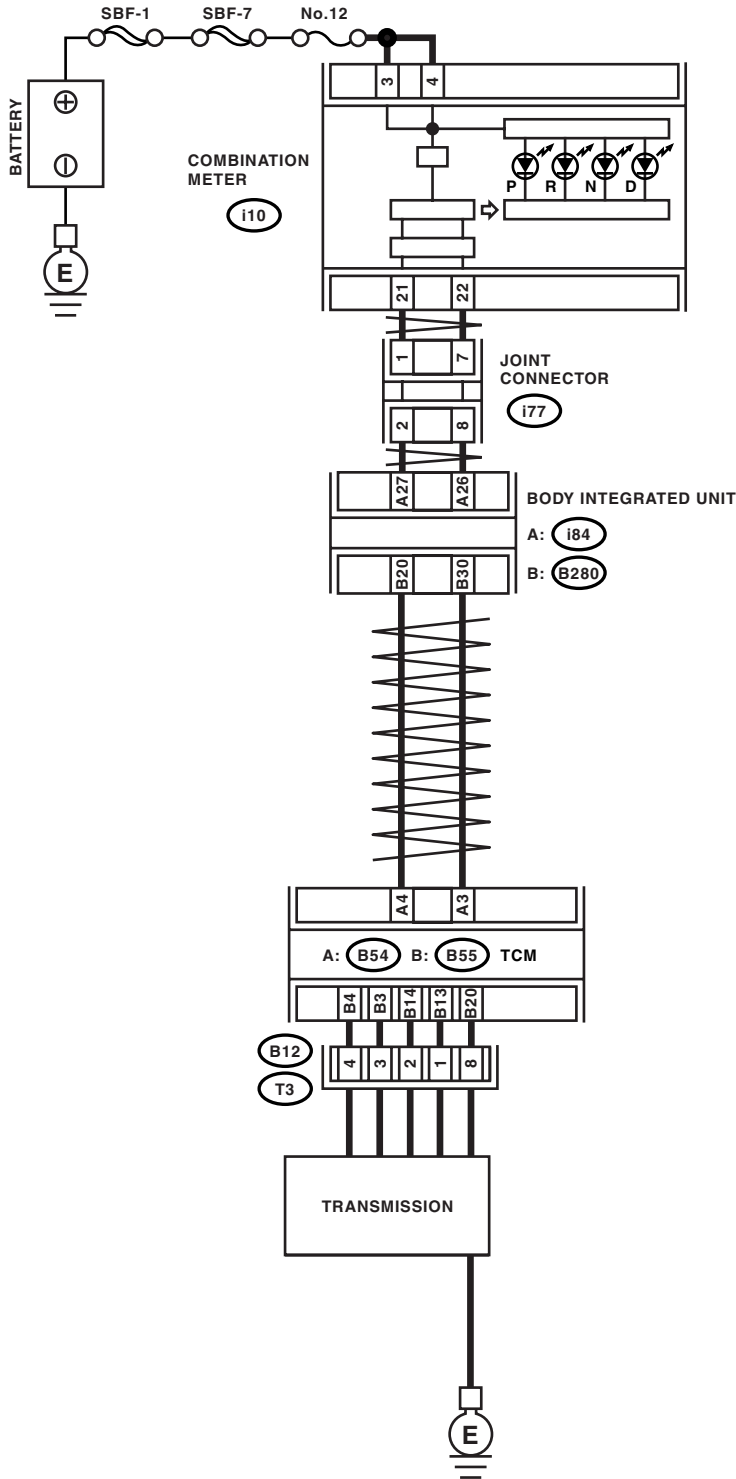
TROUBLE SYMPTOM:

- Shift characteristics are erroneous.
- Shift indicator light does not match with select lever.
- Shift indicator light does not illuminate.
- N-D, N-R shock occur.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

WIRING DIAGRAM:



AT-02073

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|---|--|
| 1 CHECK DTC OF TCM. | Is DTC of AT CAN communication circuit displayed? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 3. | Go to step 7. |
| 3 CHECK INHIBITOR SWITCH. 1) Shift the select lever to "P" range. 2) Check input signal of inhibitor SW 1 — 4 and inhibitor SW 3 monitor using Subaru Select Monitor. | Are all indications High? | Go to step 5. | Go to step 4. |
| 4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance between TCM connector and chassis ground about the item which indicated Low on step 3. Connector & terminal (B55) No. 4 — Chassis ground: (B55) No. 3 — Chassis ground: (B55) No. 14 — Chassis ground: (B55) No. 13 — Chassis ground: (B55) No. 20 — Chassis ground: | Is the resistance more than 1 M Ω ? | Go to step 9. | Repair the short circuit in harness between TCM connector and chassis ground. |
| 5 CHECK INHIBITOR SWITCH. 1) Shift the select lever to "D" range. 2) Check input signal of inhibitor SW 1 — 4 and inhibitor SW 3 monitor using Subaru Select Monitor. | Are all indications High? | Go to step 9. | Go to step 6. |
| 6 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector about the item which indicated High on step 5. Connector & terminal (B55) No. 4 — (B12) No. 4: (B55) No. 3 — (B12) No. 3: (B55) No. 14 — (B12) No. 2: (B55) No. 13 — (B12) No. 1: (B55) No. 20 — (B12) No. 8: | Is the resistance less than 1 Ω ? | Go to step 9. | Repair the open circuit in harness between TCM connector and transmission connector. |
| 7 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B55) No. 4 — (B12) No. 4: (B55) No. 3 — (B12) No. 3: (B55) No. 14 — (B12) No. 2: (B55) No. 13 — (B12) No. 1: (B55) No. 20 — (B12) No. 8: | Is the resistance less than 1 Ω ? | Go to step 8. | Repair the open circuit in harness between TCM connector and transmission connector. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|--|
| <p>8 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance between TCM connector and chassis ground. Connector & terminal <i>(B55) No. 4 — Chassis ground:</i> <i>(B55) No. 3 — Chassis ground:</i> <i>(B55) No. 14 — Chassis ground:</i> <i>(B55) No. 13 — Chassis ground:</i> <i>(B55) No. 20 — Chassis ground:</i></p> | Is the resistance more than 1 M Ω ? | Go to step 9. | Repair the short circuit in harness between TCM connector and chassis ground. |
| <p>9 CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER. 1) Turn the ignition switch to OFF. 2) Disconnect the transmission connector (B12). 3) Connect the TCM connector. 4) Turn the ignition switch to ON. 5) Measure the voltage between TCM terminals. Connector & terminal <i>(B55) No. 4 — (B54) No. 19:</i> <i>(B55) No. 3 — (B54) No. 19:</i> <i>(B55) No. 14 — (B54) No. 19:</i> <i>(B55) No. 13 — (B54) No. 19:</i> <i>(B55) No. 20 — (B54) No. 19:</i></p> | Is the voltage 4 — 6 V for the inhibitor SW 1 — 4? Is the voltage 3.5 — 5.5 V for the inhibitor SW 3 monitor? | Go to step 11. | Go to step 10. |
| <p>10 CHECK TCM I/O SIGNAL. Check I/O signal of power supply, ground and PVIGN power supply relay. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.></p> | Is TCM I/O signal OK? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Repair the open or short circuit for power supply and ground. Perform the diagnosis according to DTC for PVIGN power supply relay. |
| <p>11 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. NOTE: Raise all wheels off floor. 5) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 6) Remove the oil pan, and disconnect the connector from control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. Connector & terminal <i>(T3) No. 4 — (T5) No. 6:</i> <i>(T3) No. 3 — (T5) No. 5:</i> <i>(T3) No. 2 — (T5) No. 4:</i> <i>(T3) No. 1 — (T5) No. 3:</i> <i>(T3) No. 8 — (T5) No. 2:</i></p> | Is the resistance less than 1 Ω ? | Go to step 12. | Repair the open circuit in harness between control valve body connector and transmission connector. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--------------------------|--|
| 12 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. Measure the resistance between transmission ground and control valve body connector. Connector & terminal <i>(T5) No. 6 — Transmission ground:</i> <i>(T5) No. 5 — Transmission ground:</i> <i>(T5) No. 4 — Transmission ground:</i> <i>(T5) No. 3 — Transmission ground:</i> <i>(T5) No. 2 — Transmission ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 13. | Repair the short circuit in harness between control valve body connector and transmission connector. |
| 13 CHECK POOR CONTACT. | Is there any poor contact in inhibitor SW 1 — 4 or inhibitor SW 3 monitor circuit? | Repair the poor contact. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

B: DTC P0712 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT LOW INPUT

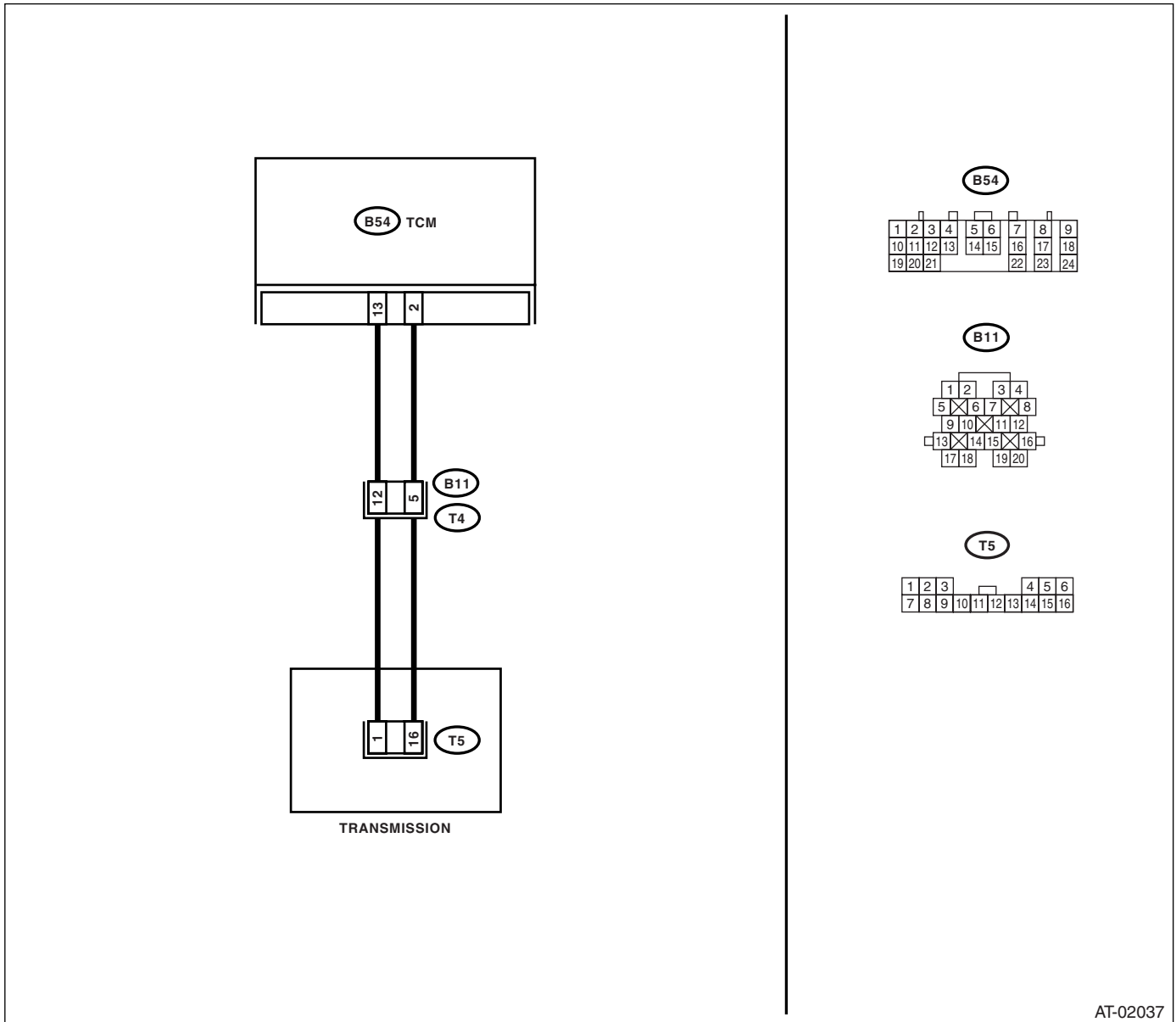
DTC DETECTING CONDITION:

Input signal circuit of TCM to ATF temperature sensor 1 is opened.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-02037

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|--|--|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B54) No. 13 — (B11) No. 12: (B54) No. 2 — (B11) No. 5: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Connect the connectors to transmission and TCM. 3) Turn the ignition switch to ON and start engine. 4) Warm-up the transmission until the ATF temperature reaches to 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 5) Disconnect the connector from transmission. 6) Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 5 — (T4) No. 12: | Is the resistance 500 — 1,200 Ω ? | Go to step 3. | Go to step 7. |
| 3 CHECK ATF TEMPERATURE SENSOR. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 5 — (T4) No. 12: | Does the resistance value increase while the ATF temperature decreases? | Go to step 4. | Go to step 7. |
| 4 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 6. | Go to step 5. |
| 5 CHECK INPUT SIGNAL FROM TCM. 1) Connect the connector to transmission. 2) Warm-up the transmission until the ATF temperature is approx. 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3) Measure the voltage between TCM connector terminals. Connector & terminal (B54) No. 2 (+) — (B54) No. 13 (-): | Is the voltage 0.5 — 1.2 V? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between ATF temperature sensor and transmission connector. | Go to step 8. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|---|
| 6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connector. 2) Turn the ignition switch to ON (engine OFF). 3) Read the ATF temperature using Subaru Select Monitor. | Does the ATF temperature gradually decrease? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between ATF temperature sensor and transmission connector. | Go to step 8 . |
| 7 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. NOTE: Raise all wheels off floor. 5) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 6) Remove the oil pan, and disconnect the connector from control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. <i>Connector & terminal</i> <i>(T4) No. 12 — (T5) No. 1:</i> <i>(T4) No. 5 — (T5) No. 16:</i> | Is the resistance less than 1 Ω ? | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> | Repair the open circuit in harness between control valve body connector and transmission connector. |
| 8 CHECK POOR CONTACT. | Is there poor contact in ATF temperature sensor circuit 1? | Repair the poor contact. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

C: DTC P0713 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT

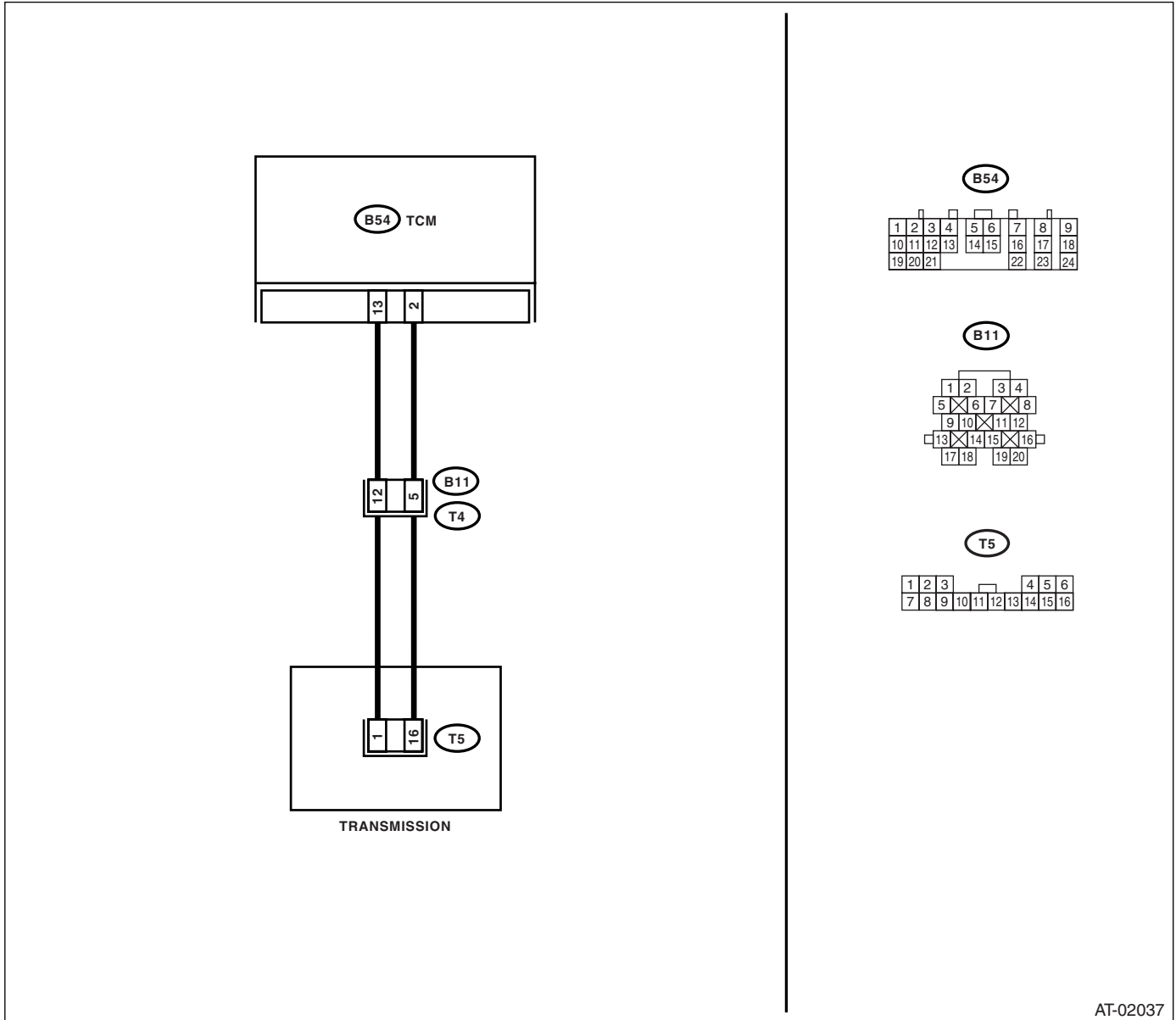
DTC DETECTING CONDITION:

Input signal circuit of TCM to ATF temperature sensor 1 is shorted.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-02037

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|--|---|
| <p>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM connector and chassis ground.</p> <p>Connector & terminal (B54) No. 13 — Chassis ground: (B54) No. 2 — Chassis ground:</p> | Is the resistance more than 1 M Ω ? | Go to step 2. | Repair the short circuit in harness between TCM and transmission connector. |
| <p>2 CHECK ATF TEMPERATURE SENSOR.</p> <p>1) Turn the ignition switch to OFF. 2) Connect the connectors to transmission and TCM. 3) Turn the ignition switch to ON and start engine. 4) Warm-up the transmission until the ATF temperature reaches to 80°C (176°F).</p> <p>NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature.</p> <p>5) Disconnect the connector from transmission. 6) Measure the resistance between transmission connector terminals.</p> <p>Connector & terminal (T4) No. 5 — (T4) No. 12:</p> | Is the resistance 500 — 1,200 Ω ? | Go to step 3. | Go to step 7. |
| <p>3 CHECK ATF TEMPERATURE SENSOR.</p> <p>Measure the resistance between transmission connector terminals.</p> <p>Connector & terminal (T4) No. 5 — (T4) No. 12:</p> | Does the resistance value increase while the ATF temperature decreases? | Go to step 4. | Go to step 7. |
| <p>4 PREPARE SUBARU SELECT MONITOR.</p> | Do you have a Subaru Select Monitor? | Go to step 6. | Go to step 5. |
| <p>5 CHECK INPUT SIGNAL FROM TCM.</p> <p>1) Connect the connector to transmission. 2) Warm-up the transmission until the ATF temperature is approx. 80°C (176°F).</p> <p>NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature.</p> <p>3) Measure the voltage between TCM connector terminals.</p> <p>Connector & terminal (B54) No. 2 (+) — (B54) No. 13 (-):</p> | Is the voltage 0.5 — 1.2 V? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between ATF temperature sensor and transmission connector. | Go to step 8. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|--|
| 6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connector. 2) Turn the ignition switch to ON (engine OFF). 3) Read the ATF temperature using Subaru Select Monitor. | Does the ATF temperature gradually decrease? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between ATF temperature sensor and transmission connector. | Go to step 8. |
| 7 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. NOTE: Raise all wheels off floor. 5) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 6) Remove the oil pan, and disconnect the connector from control valve body connector. 7) Measure the resistance between chassis ground and control valve body connector. Connector & terminal <i>(T5) No. 1 — Chassis ground:</i> <i>(T5) No. 16 — Chassis ground:</i> | Is the resistance more than 1 MΩ? | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> | Repair the short circuit in harness between control valve body connector and transmission connector. |
| 8 CHECK POOR CONTACT. | Is there poor contact in ATF temperature sensor circuit 1? | Repair the poor contact. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

D: DTC P0715 INPUT/TURBINE SPEED SENSOR CIRCUIT

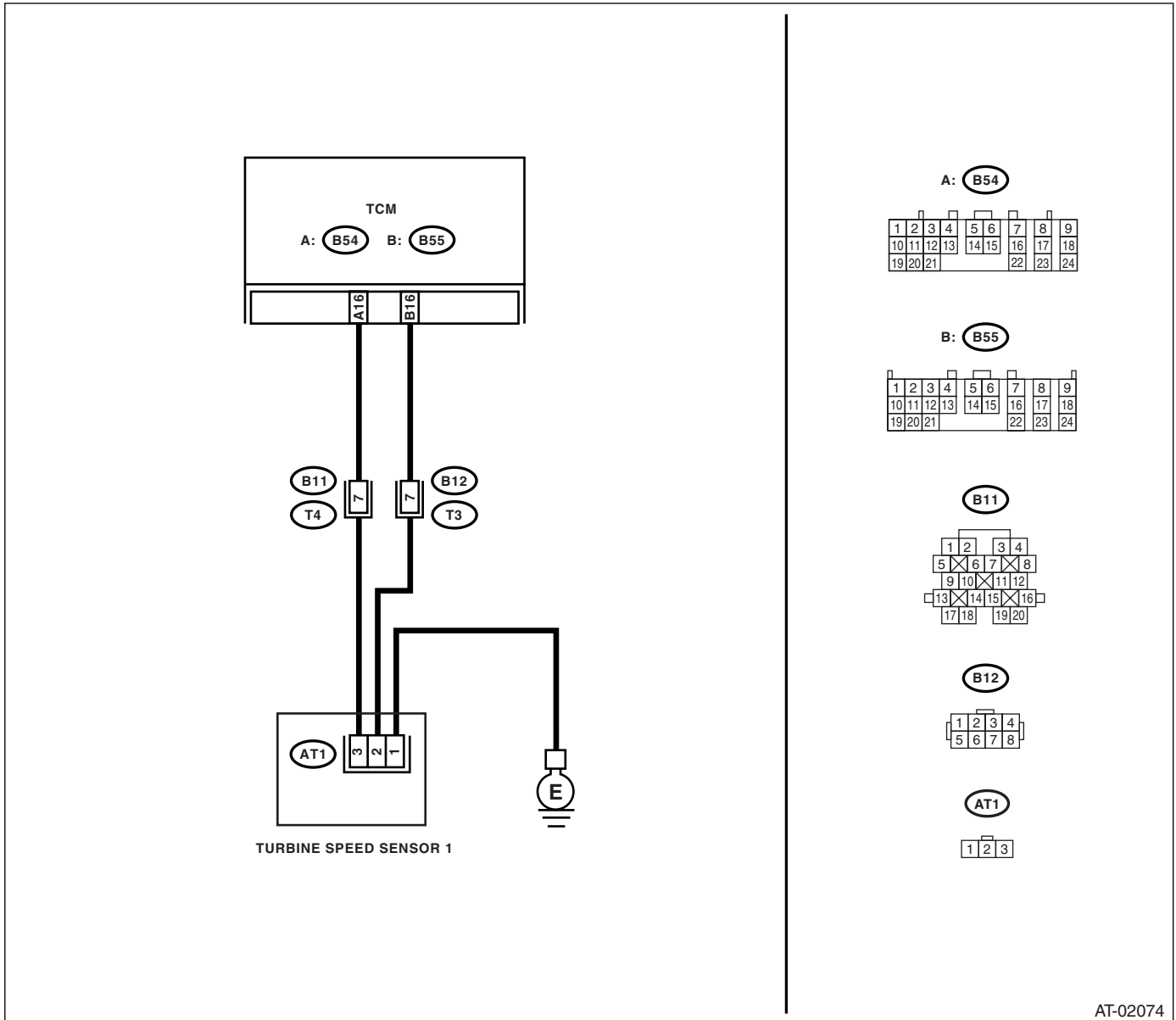
DTC DETECTING CONDITION:

Input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

- Excessive shift shock.
- Does not shift to 5th

WIRING DIAGRAM:



AT-02074

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|--|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>(B55) No. 16 — (B12) No. 7:</i> <i>(B54) No. 16 — (B11) No. 7:</i> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B55) No. 16 — Chassis ground:</i> <i>(B54) No. 16 — Chassis ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 3. | Repair the short circuit in harness between TCM and chassis ground. |
| 3 CHECK TCM POWER SUPPLY OUTPUT. 1) Connect the TCM connector. (Transmission connector is disconnected) 2) Turn the ignition switch to ON. (engine OFF) 3) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 16 (+) — Chassis ground (-):</i> | Is the voltage 10 — 13 V? | Go to step 4. | Go to step 5. |
| 4 CHECK TURBINE SPEED SENSOR INPUT CIRCUIT OF TCM. Measure the voltage between TCM connector terminals. <i>Connector & terminal</i> <i>(B55) No. 16 (+) — (B54) No. 19 (-):</i> | Is the voltage 4 — 6 V? | Go to step 6. | Go to step 5. |
| 5 CHECK TCM I/O SIGNAL. Check I/O signal of power supply, ground and PVIGN power supply relay. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Repair the open or short circuit for power supply and ground. Perform the diagnosis according to DTC for PVIGN power supply relay. |
| 6 CHECK HARNESS ASSEMBLY (TURBINE SPEED SENSOR GROUND). Check the installing condition of ground connecting harness of harness assembly (used for both of turbine speed sensor 1, rear vehicle speed sensor). | Is the ground connecting harness connected to transmission body securely? And there are no excessive damages on harness and terminal? | Go to step 7. | If the poor installation of ground occurs, install it securely. Replace the transmission assembly when the harness or terminal is damaged. <Ref. to 5AT-38, Automatic Transmission Assembly.> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|--|
| 7 CHECK HARNESS ASSEMBLY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Disconnect the connector from turbine speed sensor 1. 4) Measure the resistance between transmission connector and turbine speed sensor 1 connector. Connector & terminal (T4) No. 7 — (AT1) No. 3: (T3) No. 7 — (AT1) No. 2: (AT1) No. 1 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 8. | Repair the open circuit in harness between TCM and transmission connector, and poor contact in coupling connector. |
| 8 CHECK HARNESS ASSEMBLY. Measure the resistance between transmission connector and chassis ground. Connector & terminal (T4) No. 7 — Chassis ground: (T3) No. 7 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 9. | Repair the short circuit in harness between TCM and transmission connector. |
| 9 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 11. | Go to step 10. |
| 10 PREPARE OSCILLOSCOPE. | Do you have an oscilloscope? | Go to step 12. | Go to step 13. |
| 11 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks. NOTE: Raise all wheels off floor. 3) Start the engine, and set the vehicle in 4th speed driving condition of manual mode. NOTE: Turbine speed sensor 1 signal can be measured only on 4th speed. 4) Read the current data of turbine speed sensor 1 using the Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.> NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.> | Does the value of the turbine speed sensor 1 change depending on the acceleration, deceleration and shifting range of the vehicle? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between the ATF temperature sensor and transmission connector. | Replace the turbine speed sensor 1. <Ref. to 5AT-57, Turbine speed sensor 1.> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|--|
| <p>12 CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Set the oscilloscope to TCM connector terminals. Positive probe; (B55) No. 16: Ground lead; (B54) No. 19:</p> <p>4) Start the engine, and set the vehicle in 4th speed driving condition of manual mode.</p> <p>NOTE: Turbine speed sensor 1 signal can be measured only on 4th speed.</p> <p>5) Display the pulse signal of turbine speed sensor 1 to oscilloscope, and measure the frequency.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Is the frequency of measured waveform (pulse wave) changed depending on the acceleration, deceleration and shifting range of the vehicle?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between the ATF temperature sensor and transmission connector.</p> | <p>Replace the turbine speed sensor 1. <Ref. to 5AT-57, Turbine speed sensor 1.></p> |
| <p>13 CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Start the engine, and set the vehicle in 4th speed driving condition of manual mode.</p> <p>NOTE: Turbine speed sensor 1 signal can be measured only on 4th speed.</p> <p>4) Measure the voltage between TCM terminals. Connector & terminal (B55) No. 16 (+) — (B54) No. 19 (-):</p> <p>5) Stop the vehicle, and shift the select lever to "P" range.</p> <p>6) Measure the voltage between TCM terminals. Connector & terminal (B55) No. 16 (+) — (B54) No. 19 (-):</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Does the voltage change within the range of 2 — 3 V when driving the vehicle with 4th of manual mode? Is the voltage less than 0.5 V or more than 4.5 V constantly when the vehicle is parked with "P" range?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between the ATF temperature sensor and transmission connector.</p> | <p>Replace the turbine speed sensor 1. <Ref. to 5AT-57, Turbine speed sensor 1.></p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

E: DTC P0719 TORQUE CONVERTER/BRAKE SWITCH "B" CIRCUIT LOW

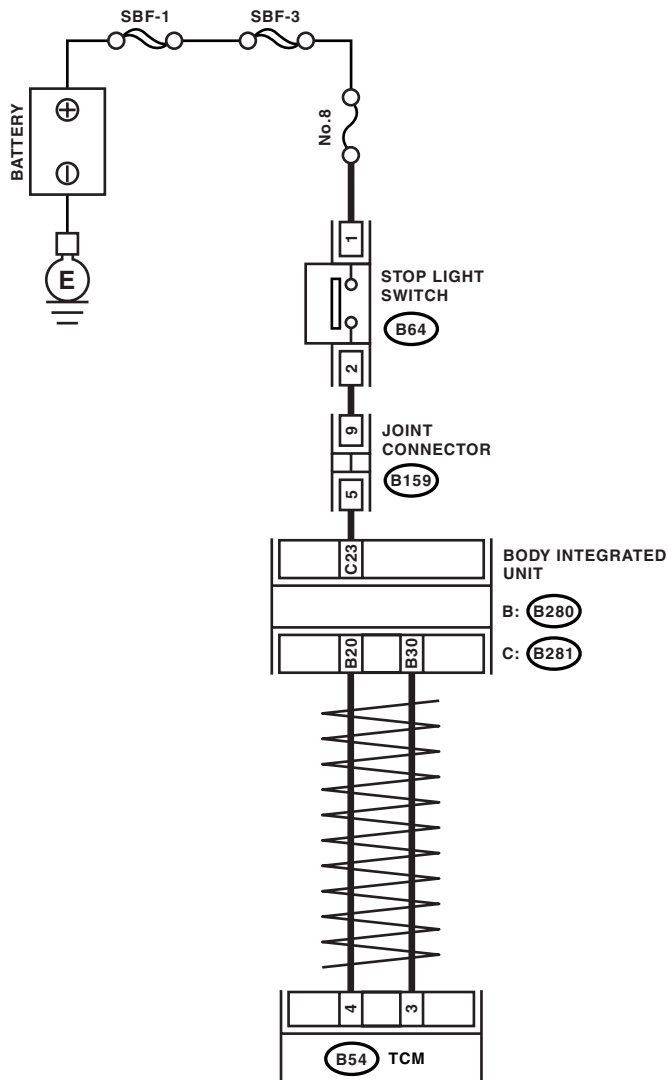
DTC DETECTING CONDITION:

Brake switch malfunction, open input signal circuit

TROUBLE SYMPTOM:

- Brake down control is not operated at SPORT mode.
- No lock-up occurs at braking.

WIRING DIAGRAM:



C: B281

| | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | | | | |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | | | |

B64

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| 1 | 2 |
|---|---|

B159

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | |
| 5 | 6 | 7 | 8 | 9 |

B: B280

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

B54

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | | | | 22 | 23 | 24 |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|----------|---|--|--|
| 1 | CHECK DTC. | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | Is any of following DTC displayed? <ul style="list-style-type: none"> • AT CAN Communication Circuit • Output Speed Sensor Circuit • AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel) | Go to step 3. | Go to step 4. |
| 3 | CHECK BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON. (engine OFF) 4) Turn the Subaru Select Monitor switch to ON. 5) Depress the brake pedal. 6) Read the data of brake pedal switch using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Is the ON displayed? | Go to step 4. |
| 4 | CHECK TCM. Read the data of brake pedal switch using Subaru Select Monitor. <Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.> | Is the ON displayed? | Replace the TCM <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 5 | CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Disconnect the connector from body integrated unit. 2) Depress the brake pedal. 3) Measure the voltage between body integrated unit connector and chassis ground. Connector & terminal (B281) No. 23 (+) — Chassis ground (-): | Is the voltage more than 10 V? | Go to step 5. |
| 6 | CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from stop light switch. 3) Measure the resistance of harness between body integrated unit and stop light switch. Connector & terminal (B281) No. 23 — (B64) No. 2: | Is the resistance less than 1 Ω ? | Go to step 6. |
| 7 | CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH. Measure the resistance of harness between body integrated unit connector and stop light switch. Connector & terminal (B281) No. 23 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 7. |
| 8 | CHECK POOR CONTACT. | Is there poor contact in input signal of brake switch? | Repair the poor contact. Check the body integrated unit. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

F: DTC P0720 OUTPUT SPEED SENSOR CIRCUIT

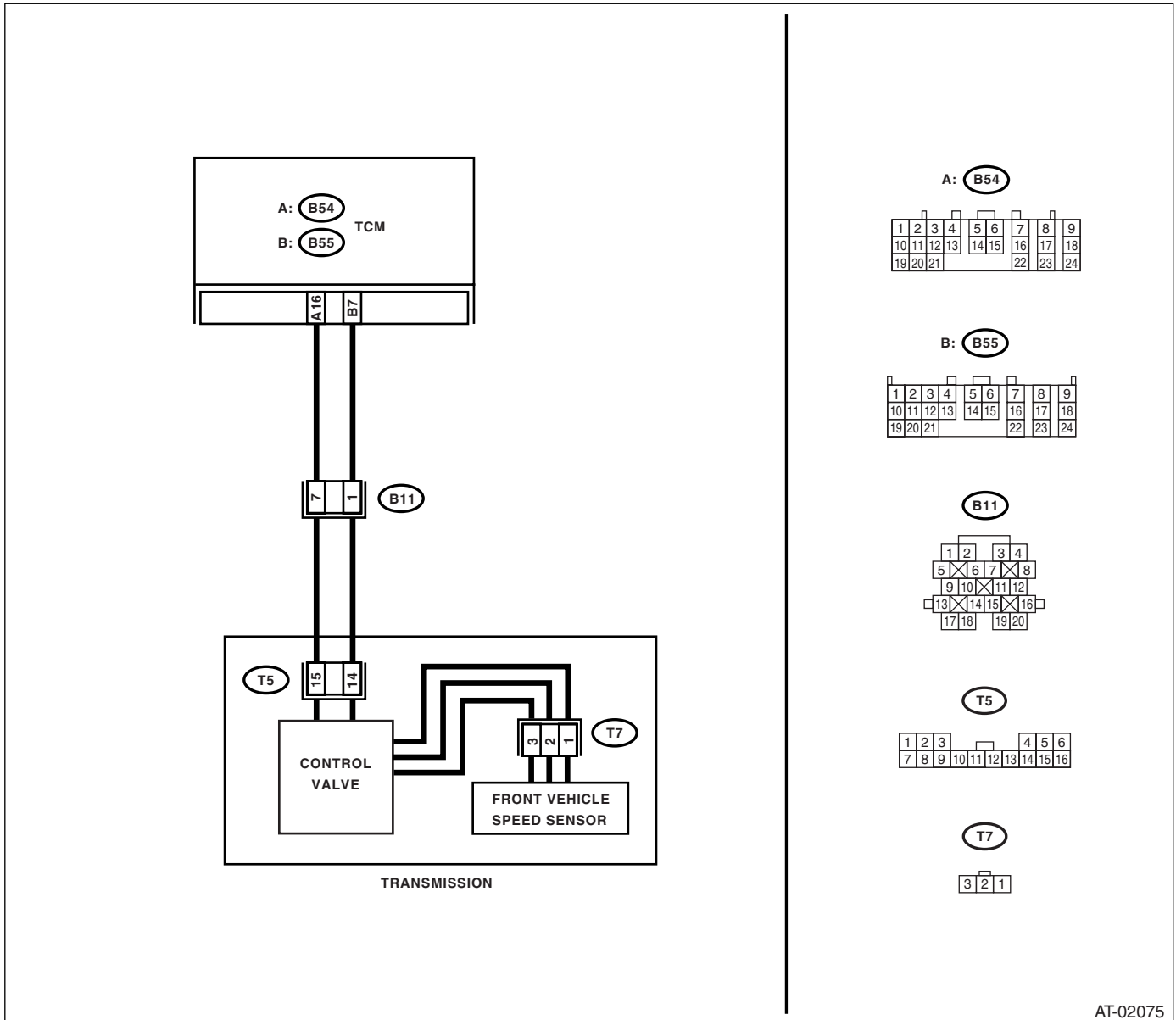
DTC DETECTING CONDITION:

- AT vehicle speed signal is abnormal.
- The harness connector between TCM and vehicle speed sensor is in short or open.

TROUBLE SYMPTOM:

- Deterioration of shifting quality.
- Poor driving performance.

WIRING DIAGRAM:



AT-02075

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|--|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>(B54) No. 16 — (B11) No. 7:</i> <i>(B55) No. 7 — (B11) No. 1:</i> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 16 — Chassis ground:</i> <i>(B55) No. 7 — Chassis ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 3. | Repair the short circuit in harness between TCM and chassis ground. |
| 3 CHECK TCM POWER SUPPLY OUTPUT. 1) Connect the connector to TCM. (Transmission connector is disconnected) 2) Turn the ignition switch to ON. (engine OFF) 3) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 16 (+) — Chassis ground (-):</i> | Is the voltage 10 — 13 V? | Go to step 4. | Go to step 5. |
| 4 CHECK TURBINE SPEED SENSOR INPUT CIRCUIT OF TCM. Measure the voltage between TCM connector terminals. <i>Connector & terminal</i> <i>(B55) No. 7 (+) — (B54) No. 19 (-):</i> | Is the voltage 4 — 6 V? | Go to step 6. | Go to step 5. |
| 5 CHECK TCM I/O SIGNAL. Check I/O signal of power supply, ground and PVIGN power supply relay. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Repair the open or short circuit for power supply and ground. Perform the diagnosis according to DTC for PVIGN power supply relay. |
| 6 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 8. | Go to step 7. |
| 7 PREPARE OSCILLOSCOPE. | Do you have an oscilloscope? | Go to step 9. | Go to step 10. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|-----------------------|
| <p>8 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Start the engine, and drive it. 4) Read the current data of front wheel speed using Subaru Select Monitor. <Ref. to 5AT(diag)-16, READ CURRENT DATA, OPERATION, Subaru Select Monitor.></p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Does the value of the front wheel speed depending on the acceleration and deceleration of the vehicle?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between the ATF temperature sensor and transmission connector.</p> | <p>Go to step 11.</p> |
| <p>9 CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Set the oscilloscope to TCM connector terminals.</p> <p>Positive probe; (B55) No. 16: Ground lead; (B54) No. 19:</p> <p>4) Start the engine, and drive it. 5) Display the pulse signal of turbine speed sensor 1 to oscilloscope, and measure the frequency.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Is the frequency of measured waveform (pulse wave) changed depending on the acceleration and deceleration of the vehicle?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between the ATF temperature sensor and transmission connector.</p> | <p>Go to step 11.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|--|--|
| <p>10 CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Start the engine, and drive it. 4) Measure the voltage between TCM terminals.</p> <p>Connector & terminal (B55) No. 7 (+) — (B54) No. 19 (-):</p> <p>5) Stop the vehicle, and shift the select lever to "P" range. 6) Measure the voltage between TCM terminals.</p> <p>Connector & terminal (B55) No. 7 (+) — (B54) No. 19 (-):</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Does the voltage change within the range of 2 — 3 V when vehicle is driving? Is the voltage less than 0.5 V or more than 4.5 V constantly when the vehicle is parked with "P" range?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness between the ATF temperature sensor and transmission connector.</p> | <p>Go to step 11.</p> |
| <p>11 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>5) Drain the ATF.</p> <p>CAUTION: Do not drain the ATF until it cools down.</p> <p>6) Remove the oil pan, and disconnect the connector from control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (B11) No. 7 — (T5) No. 15: (B11) No. 1 — (T5) No. 14:</p> | <p>Is the resistance less than 1 Ω?</p> | <p>Go to step 12.</p> | <p>Repair the open circuit in harness between control valve body connector and transmission connector.</p> |
| <p>12 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>Measure the resistance between transmission ground and control valve body connector.</p> <p>Connector & terminal (T5) No. 15 — Transmission ground: (T5) No. 14 — Transmission ground:</p> | <p>Is the resistance more than 1 MΩ?</p> | <p>Go to step 13.</p> | <p>Repair the short circuit in harness between transmission connector and transmission ground.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|-----------------------------------|--|
| 13 CHECK HARNESS CONNECTOR BETWEEN CONTROL VALVE BODY AND VEHICLE SPEED SENSOR. 1) Disconnect the connector from vehicle speed sensor. 2) Measure the resistance of harness between control valve body connector and vehicle speed sensor connector. <i>Connector & terminal</i> <i>(T5) No. 15 — (T7) No. 3:</i> <i>(T5) No. 14 — (T7) No. 2:</i> <i>(T7) No. 1 — Transmission ground:</i> | Is the resistance less than 1 Ω ? | Go to step 14. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 14 CHECK HARNESS CONNECTOR BETWEEN CONTROL VALVE BODY AND VEHICLE SPEED SENSOR. Measure the resistance of harness between control valve body connector and transmission ground. <i>Connector & terminal</i> <i>(T5) No. 15 — Transmission ground:</i> <i>(T5) No. 14 — Transmission ground:</i> | Is the resistance more than 1 $M\Omega$? | Replace the vehicle speed sensor. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

G: DTC P0724 TORQUE CONVERTER/BRAKE SWITCH "B" CIRCUIT HIGH

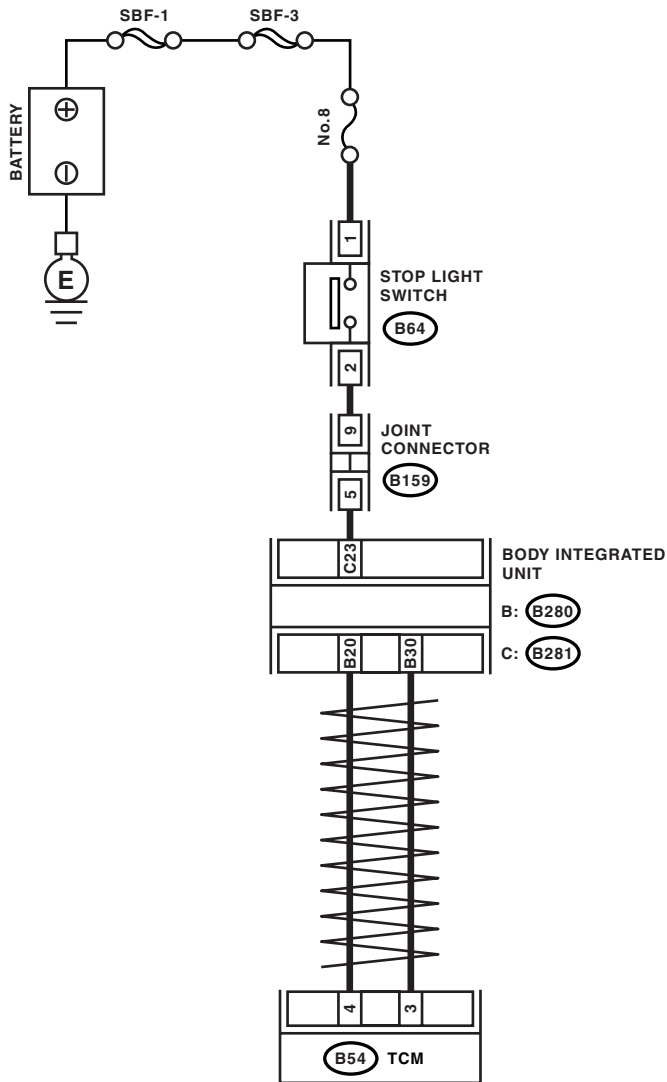
DTC DETECTING CONDITION:

Brake switch malfunction, open input signal circuit

TROUBLE SYMPTOM:

Gear is not shifted down when climbing a hill.

WIRING DIAGRAM:



C: B281

| | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | | | | |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | | | |

B64

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|---|---|
| 1 | 2 |
|---|---|

B159

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | |
| 5 | 6 | 7 | 8 | 9 |

B: B280

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

B54

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | | | 22 | 23 | 24 | |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No | |
|----------|--|--|--|--|
| 1 | CHECK DTC. | Is any of following DTC detected? <ul style="list-style-type: none"> • AT CAN Communication Circuit • Output Speed Sensor Circuit • AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel) | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | CHECK BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON. (engine OFF) 4) Turn the Subaru Select Monitor switch to ON. 5) Read the data of brake pedal switch using Subaru Select Monitor. <Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.> | Is OFF displayed? | Go to step 3. | Go to step 4. |
| 3 | CHECK TCM. Read the data of brake pedal switch using Subaru Select Monitor. <Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.> | Is OFF displayed? | A temporary poor contact of connector or harness may be the cause. Check the poor contact. | Replace the TCM <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 4 | CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Disconnect the connector from body integrated unit. 2) Measure the voltage between body integrated unit connector and chassis ground. Connector & terminal (B281) No. 23 (+) — Chassis ground (-): | Is the voltage more than 10 V? | Go to step 5. | Go to step 7. |
| 5 | CHECK STOP LIGHT SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from stop light switch. 3) Measure the resistance of harness between stop light switch connectors. Terminals No. 1 — No. 2: | Is the resistance more than 1 MΩ? | Go to step 6. | Replace stop light switch. |
| 6 | CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH. 1) Turn the ignition switch to ON. 2) Measure the voltage of harness between the body integrated unit connector and chassis ground. Connector & terminal (B281) No. 23 (+) — Chassis ground (-): | Is the voltage less than 1 V? | Go to step 7. | Repair the short circuit in harness between TCM and stop light switch. |
| 7 | CHECK POOR CONTACT. | Is there poor contact in input signal of brake switch? | Repair the poor contact. | Check the body integrated unit. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

H: DTC P0725 ENGINE SPEED INPUT CIRCUIT

DTC DETECTING CONDITION:

Information of engine speed is not correctly received from ECM.

TROUBLE SYMPTOM:

No lock-up (after engine warm-up).

| Step | Check | Yes | No |
|-------------------------------|--|---|--|
| 1 CHECK DTC OF ECM. | Is DTC of AT CAN communication circuit detected? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 CHECK DTC OF TCM. | Is DTC of AT CAN communication circuit detected? | Perform the diagnosis according to DTC. | Go to step 3. |
| 3 CHECK DTC OF TCM. | Is any of following DTC detected? • Output Speed Sensor Circuit • AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel) | Perform the diagnosis according to DTC. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

I: DTC P0731 GEAR 1 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-59, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

J: DTC P0732 GEAR 2 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-59, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC P0733 GEAR 3 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-59, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

L: DTC P0734 GEAR 4 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-59, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

M: DTC P0735 GEAR 5 INCORRECT RATIO

NOTE:

Refer to DTC P0736 for diagnostic procedure. <Ref. to 5AT(diag)-59, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

N: DTC P0736 REVERSE INCORRECT RATIO

DTC DETECTING CONDITION:

Vehicle speed sensor, turbine speed sensor or control valve malfunction

TROUBLE SYMPTOM:

- Shift point is too high or too low.
- Excessive shift shock.
- Tight corner braking phenomenon is occurred.
- Gear is not shifted to reverse.
- Gear position is held by fail safe function.
- Vehicle does not run.

| Step | Check | Yes | No | |
|------|---|--|--|--|
| 1 | CHECK DTC OF TCM. | Is any of following DTC detected? <ul style="list-style-type: none"> • AT CAN Communication Circuit • Engine Speed Input Circuit Range/Performance • Input/Turbine Speed Sensor Circuit • Torque Converter Turbine 2 Speed Signal Circuit 2 Malfunction • Output Speed Sensor Circuit • AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel) • Transmission Range Sensor Circuit (PRNDL Input) • PVIGN Power Supply Circuit (Low) | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 3. | Go to step 7. |
| 3 | CHECK ENGINE SPEED. Compare the meter with Subaru Select Monitor indications. | Is the indication of Subaru Select Monitor and meter matches? | Go to step 4. | Perform the diagnosis according to DTC P0725. |
| 4 | CHECK TURBINE SPEED SENSOR. Check the indication of Subaru Select Monitor. | Is the indication changes according to acceleration, braking and shifting? | Go to step 5. | Perform the diagnosis according to DTC P0715, P1710. |
| 5 | CHECK FRONT AND REAR VEHICLE SPEED SENSOR. | Is the indication of Subaru Select Monitor and meter matches? | Go to step 6. | Perform the diagnosis according to DTC P0720, P1706. |
| 6 | CHECK INHIBITOR SWITCH. | Is the indication of Subaru Select Monitor and meter matches? | Go to step 7. | Perform the diagnosis according to DTC P0705. |
| 7 | CHECK AFTER REPAIR. | Is DTC displayed? | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> | Temporary poor contact occurs. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

O: DTC P0741 TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE OR STUCK OFF

DTC DETECTING CONDITION:

- Lock up clutch malfunction
- Locking of bulb

TROUBLE SYMPTOM:

No lock-up occurs. (After engine is warmed-up)

| Step | Check | Yes | No | |
|----------|--|--|---|--|
| 1 | CHECK DTC OF TCM. | Is any of following DTC detected? <ul style="list-style-type: none"> • AT CAN Communication Circuit • Engine Speed Input Circuit • Input/Turbine Speed Sensor Circuit • Torque Converter Turbine 2 Speed Signal Circuit 2 Malfunction | Perform the diagnosis according to each DTC. | Go to step 2. |
| 2 | CHECK DTC OF TCM. 1) Perform the clear memory mode. <Ref. to 5AT(diag)-18, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.> 2) Read DTC. | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step 3. |
| 3 | CHECK INHIBITOR SWITCH CIRCUIT. Diagnose according to DTC P0705 procedure. | Is there any trouble? | Repair or replace the inhibitor switch circuit. | Go to step 4. |
| 4 | CHECK STOP LIGHT SWITCH CIRCUIT. Diagnose according to DTC P0719 and P0724 procedure. | Is there any trouble? | Repair or replace the stop light switch circuit. | Go to step 5. |
| 5 | CHECK ATF TEMPERATURE SENSOR CIRCUIT. Diagnose according to DTC P0712, P0713, P1716 and P1717 procedure. | Is there any trouble? | Repair or replace the ATF temperature sensor circuit. | There are malfunctions in TCM, TCM connector poor contact or transmission assembly mechanical malfunction. |

P: DTC P0743 TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL

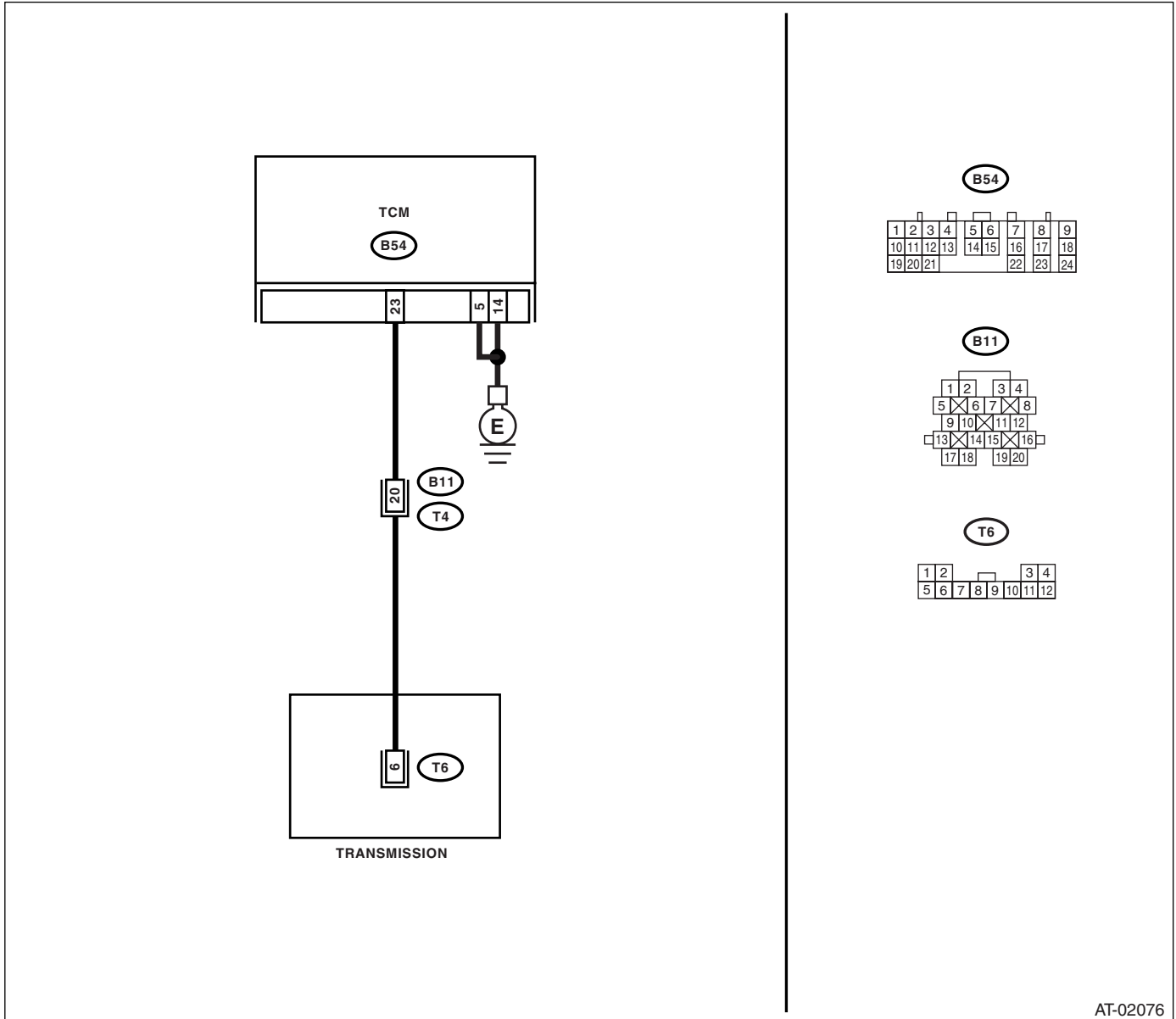
DTC DETECTING CONDITION:

The output signal circuit of lock up solenoid is open or shorted.

TROUBLE SYMPTOM:

No lock-up (after engine warm-up).

WIRING DIAGRAM:



AT-02076

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> (B54) No. 23 — (B11) No. 20: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM connector and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> (B54) No. 23 — Chassis ground: | Is the resistance more than 1 M Ω ? | Go to step 3. | Repair the short circuit in harness between TCM connector and transmission connector. |
| 3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. <i>Connector & terminal</i> (T4) No. 20 — (T6) No. 6: | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| 4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. Measure the resistance between chassis ground and control valve body connector. <i>Connector & terminal</i> (T6) No. 6 — Chassis ground: | Is the resistance more than 1 M Ω ? | Go to step 5. | Repair the short circuit in harness between control valve body connector and transmission ground. |
| 5 CHECK LOCK-UP SOLENOID. Measure the resistance between transmission ground and control valve body connector. <i>Connector & terminal</i> (T6) No. 6 — Transmission ground: | Is the resistance 3 — 9 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 6 CHECK POOR CONTACT. Check that there are no poor contact in TCM connector, transmission connector and control valve body connector. | Is there any loosing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |
| 7 CHECK AFTER REPAIR. 1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Q: DTC P0748 PRESSURE CONTROL SOLENOID "A" ELECTRICAL

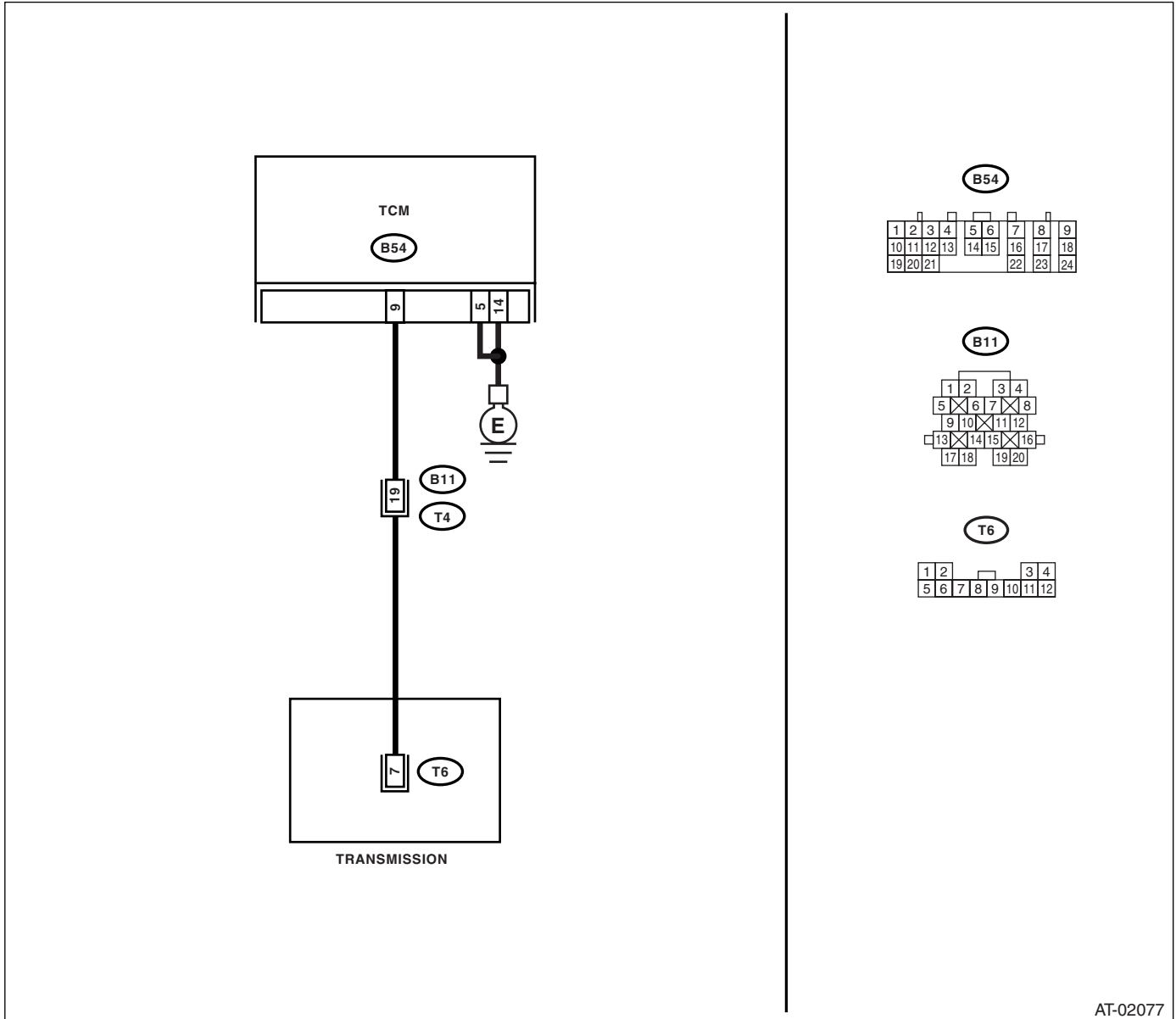
DTC DETECTING CONDITION:

Output signal circuit of line pressure solenoid is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-02077

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>(B54) No. 9 — (B11) No. 19:</i> <i>(B54) No. 5 — Chassis ground:</i> <i>(B54) No. 14 — Chassis ground:</i> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM connector and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure the resistance between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 9 — Chassis ground:</i> | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM connector and transmission connector. |
| 3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. <i>Connector & terminal</i> <i>(T4) No. 19 — (T6) No. 7:</i> | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| 4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. Measure the resistance between transmission ground and control valve body connector. <i>Connector & terminal</i> <i>(T6) No. 7 — Chassis ground:</i> | Is the resistance more than 1 $M\Omega$? | Go to step 5. | Repair the short circuit in harness between control valve body connector and transmission ground. |
| 5 CHECK LINE PRESSURE SOLENOID. Measure the resistance between transmission ground and control valve body connector. <i>Connector & terminal</i> <i>(T6) No. 7 — Transmission ground:</i> | Is the resistance 3 — 9 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 6 CHECK POOR CONTACT. Check that there are no poor contact in TCM connector, transmission connector and control valve body connector. | Is there any loosing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |
| 7 CHECK AFTER REPAIR. 1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

R: DTC P0751 SHIFT SOLENOID "A" PERFORMANCE OR STUCK OFF

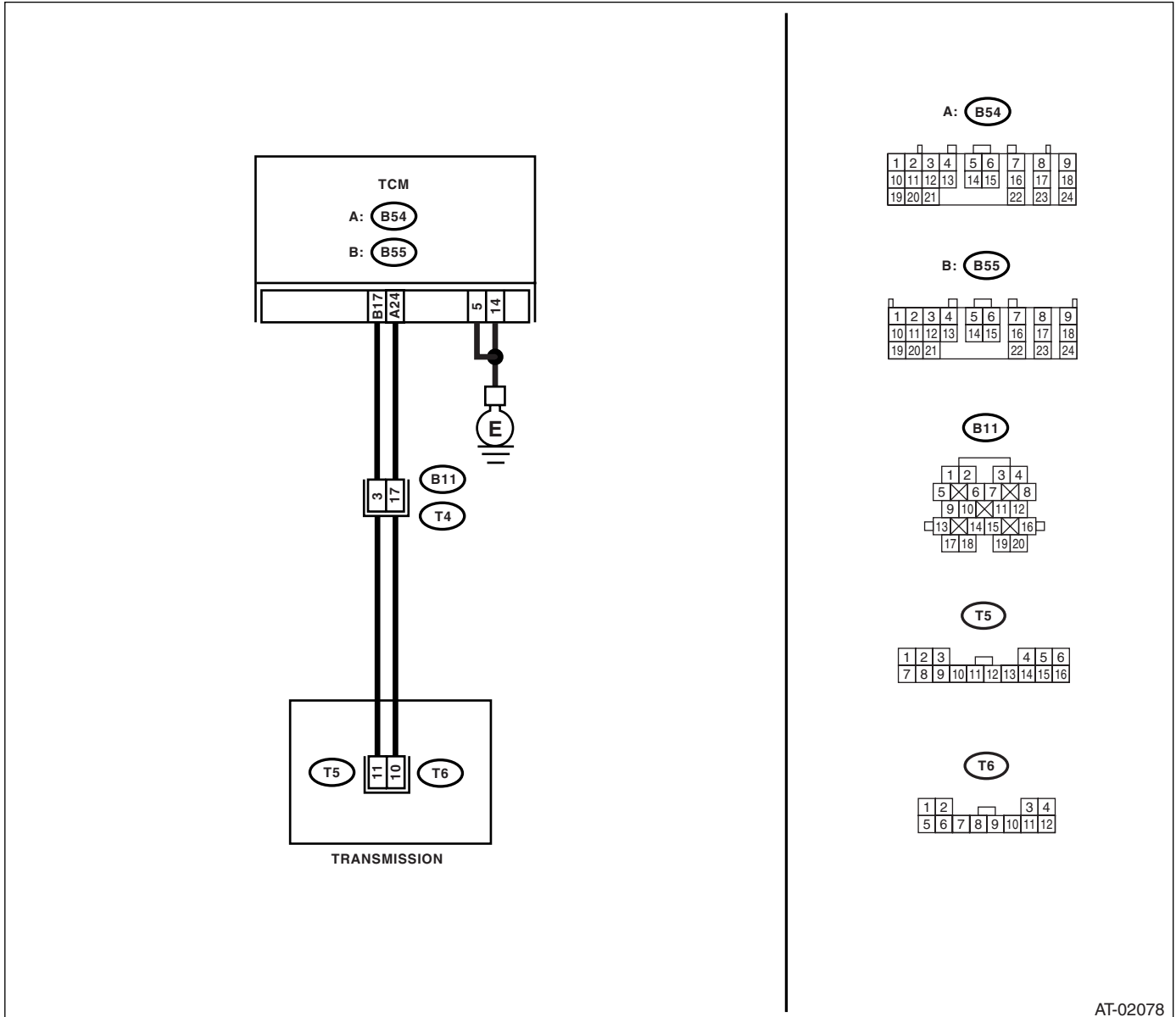
DTC DETECTING CONDITION:

Output signal of front brake solenoid does not match with oil pressure.

TROUBLE SYMPTOM:

Locked to 4th or 5th gear.

WIRING DIAGRAM:



AT-02078

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|---|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B54) No. 24 — (B11) No. 17: (B55) No. 17 — (B11) No. 3: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure resistance of harness between TCM connector and chassis ground. Connector & terminal (B54) No. 24 — Chassis ground: (B55) No. 17 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM and transmission connector. |
| 3 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 4. | Go to step 7. |
| 4 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all the connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Check input signal of Fr/B oil pressure SW. | Is OFF displayed? | Go to step 5. | Go to step 11. |
| 5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 4th speed with checking current gear position using Subaru Select Monitor. 4) Check input signal of Fr/B oil pressure SW. | Is OFF displayed? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 1st speed with checking current gear position using Subaru Select Monitor. 4) Check input signal of Fr/B oil pressure SW. | Is the ON displayed? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness in the solenoid output and oil pressure SW input. | Go to step 10. |
| 7 CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER. 1) Connect all the connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Measure the voltage of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 17 (+) — Chassis ground (-): | Is the voltage 10 — 13 V? | Go to step 8. | Go to step 11. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|--|---|
| <p>8</p> <p>CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 4th speed of manual mode with checking indication of gear position in combination meter.</p> <p>NOTE: Read the value of gear position indication after the shifting is completed (approx. 2 seconds later from shifting).</p> <p>4) Measure the voltage between TCM connector and chassis ground.</p> <p>Connector & terminal (B55) No. 17 (+) — Chassis ground (-):</p> | <p>Is the voltage 10 — 13 V?</p> | <p>Go to step 9.</p> | <p>Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.></p> |
| <p>9</p> <p>CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 1st speed of manual mode with checking indication of gear position in combination meter.</p> <p>NOTE: Read the value of gear position indication after the shifting is completed (approx. 2 seconds later from shifting).</p> <p>4) Measure the voltage of harness between TCM connector and chassis ground.</p> <p>Connector & terminal (B55) No. 17 (+) — Chassis ground (-):</p> | <p>Is the voltage less than 1.5 V?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness in the solenoid output and oil pressure SW input.</p> | <p>Go to step 10.</p> |
| <p>10</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (B11) No. 17 — (T6) No. 10: (B11) No. 3 — (T6) No. 11:</p> | <p>Is the resistance less than 1 Ω?</p> | <p>Replace the transmission assembly. <Ref. to 5AT-38, Automatic Transmission Assembly.></p> | <p>Repair the open circuit in harness between control valve body connector and transmission connector.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|-----------------------------------|--|--|
| 11 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission ground and control valve body connector. Connector & terminal <i>(T6) No. 10 — Transmission ground:</i> <i>(T5) No. 11 — Transmission ground:</i> | Is the resistance more than 1 MΩ? | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> | Repair the short circuit in harness between control valve body connector and transmission connector. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

S: DTC P0753 SHIFT SOLENOID "A" ELECTRICAL

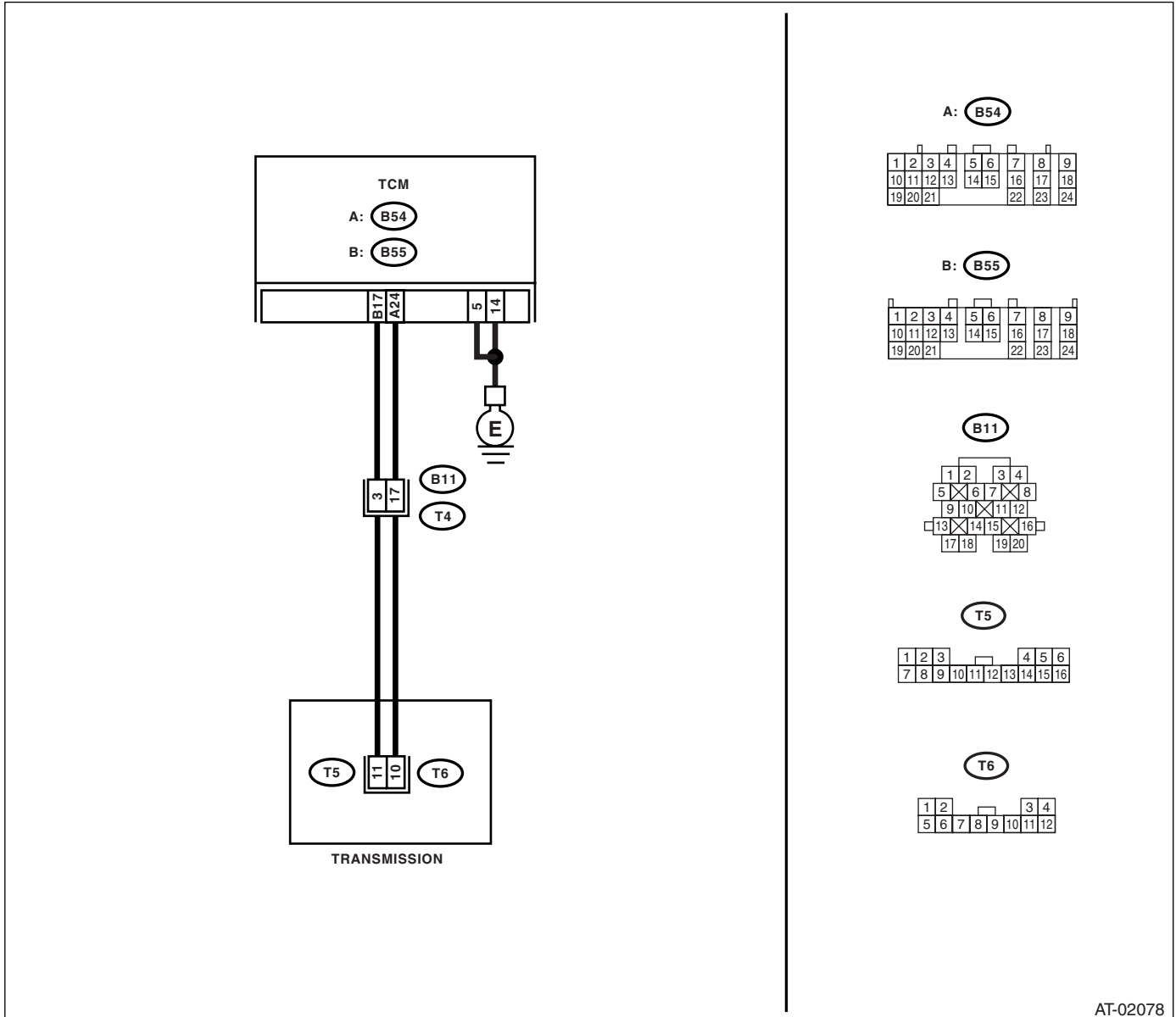
DTC DETECTING CONDITION:

Output signal circuit of front brake solenoid is open or shorted.

TROUBLE SYMPTOM:

Locked to 4th or 5th gear.

WIRING DIAGRAM:



AT-02078

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--------------------------|---|
| <p>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector.</p> <p>Connector & terminal (B54) No. 24 — (B11) No. 17: (B55) No. 17 — (B11) No. 3: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground:</p> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM connector and transmission connector. |
| <p>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.</p> <p>Measure resistance of harness between TCM connector and chassis ground.</p> <p>Connector & terminal (B54) No. 24 — Chassis ground: (B55) No. 17 — Chassis ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM connector and transmission connector. |
| <p>3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T4) No. 17 — (T6) No. 9: (T4) No. 3 — (T5) No. 11:</p> | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| <p>4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>Measure the resistance between transmission ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 9 — Transmission ground: (T5) No. 11 — Transmission ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 5. | Repair the short circuit in harness between control valve body and transmission connector. |
| <p>5 CHECK FRONT BRAKE SOLENOID.</p> <p>Measure the resistance between transmission ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 9 — Transmission ground:</p> | Is the resistance 3 — 9 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| <p>6 CHECK POOR CONTACT.</p> <p>Check that there are no poor contact in TCM connector, transmission connector and control valve body connector.</p> | Is there any loosing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| | Step | Check | Yes | No |
|---|--|-------------------|---|---|
| 7 | CHECK AFTER REPAIR. 1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

T: DTC P0756 SHIFT SOLENOID "B" PERFORMANCE OR STUCK OFF

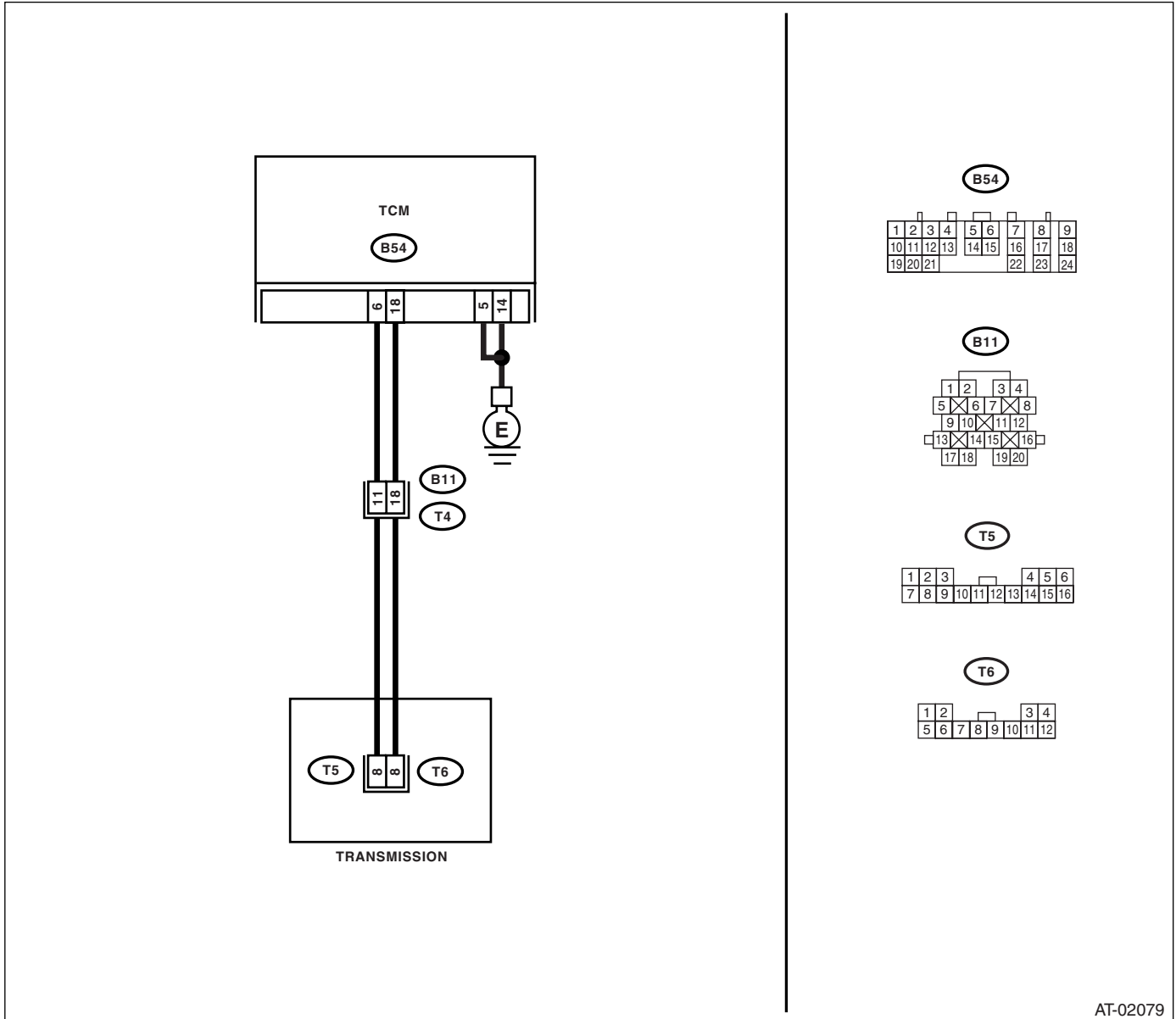
DTC DETECTING CONDITION:

Output signal value of input clutch solenoid and oil pressure does not match.

TROUBLE SYMPTOM:

Locked to 4th gear.

WIRING DIAGRAM:



AT-02079

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|---|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B54) No. 18 — (B11) No. 18: (B54) No. 6 — (B11) No. 11: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure resistance of harness between TCM connector and chassis ground. Connector & terminal (B54) No. 18 — Chassis ground: (B54) No. 6 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM and transmission connector. |
| 3 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all the connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Check input signal of I/C oil pressure SW. | Is OFF displayed? | Go to step 4. | Go to step 7. |
| 4 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to "D" range and brake ON (1st) with checking current gear position using Subaru Select Monitor. 4) Check input signal of I/C oil pressure SW. | Is OFF displayed? | Go to step 5. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Drive the vehicle on 4th speed of "D" range with checking current gear position using Subaru Select Monitor. 4) Check input signal of I/C oil pressure SW. | Is the ON displayed? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness in the solenoid output and oil pressure SW input. | Go to step 6. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|---|
| <p>6</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. <p>Connector & terminal (T4) No. 18 — (T6) No. 8: (T4) No. 11 — (T5) No. 8:</p> | <p>Is the resistance less than 1 Ω?</p> | <p>Replace the transmission assembly. <Ref. to 5AT-38, Automatic Transmission Assembly.></p> | <p>Repair the open circuit in harness between control valve body connector and transmission connector.</p> |
| <p>7</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission ground and control valve body connector. <p>Connector & terminal (T4) No. 18 — Transmission ground: (T4) No. 11 — Transmission ground:</p> | <p>Is the resistance more than 1 $M\Omega$?</p> | <p>Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.></p> | <p>Repair the short circuit in harness between control valve body connector and transmission connector.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

U: DTC P0758 SHIFT SOLENOID "B" ELECTRICAL

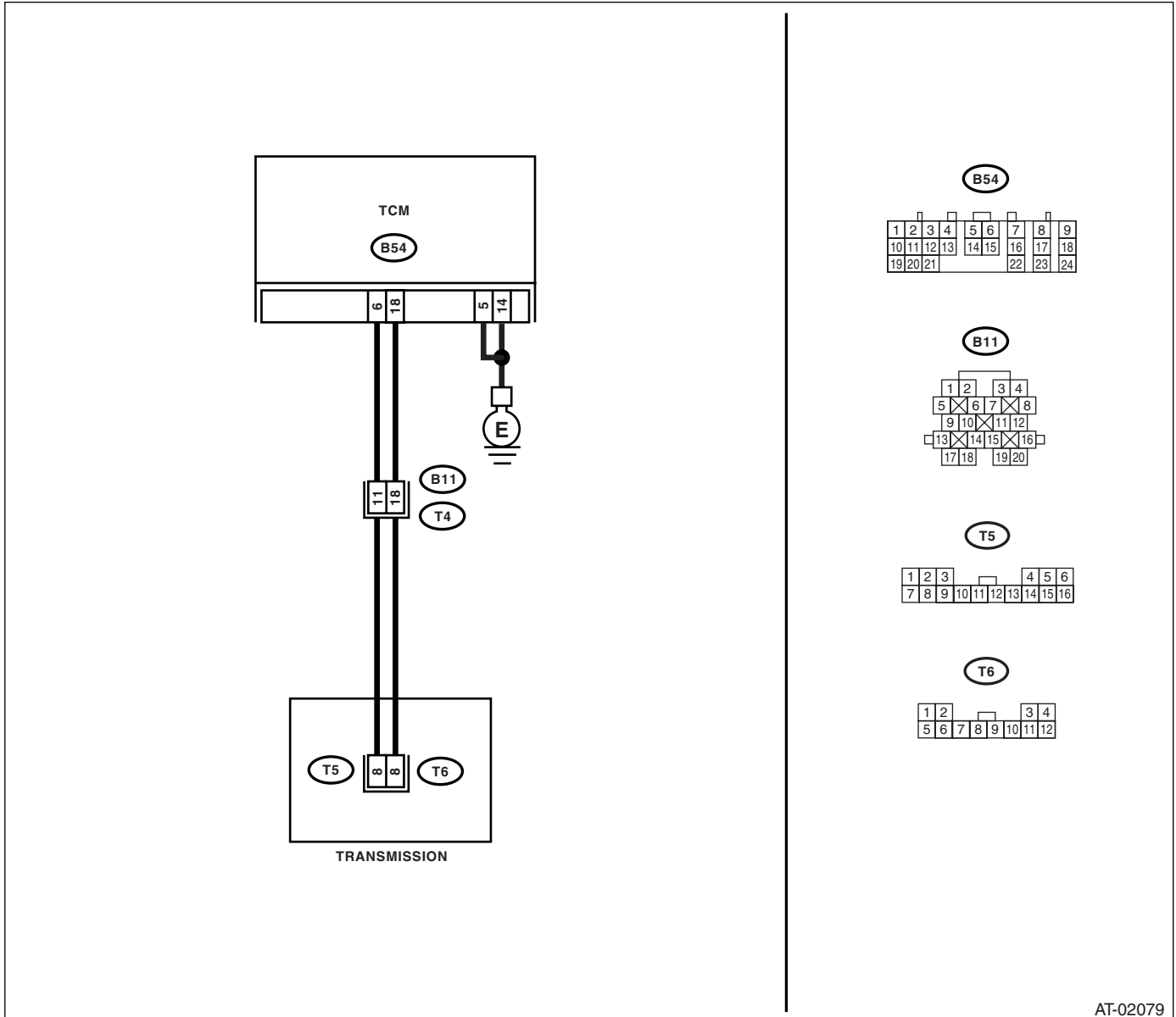
DTC DETECTING CONDITION:

Output signal circuit of input clutch solenoid is open or shorted.

TROUBLE SYMPTOM:

Locked to 4th gear.

WIRING DIAGRAM:



AT-02079

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|--------------------------|--|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal <i>(B54) No. 18 — (B11) No. 18:</i> <i>(B54) No. 6 — (B11) No. 11:</i> <i>(B54) No. 5 — Chassis ground:</i> <i>(B54) No. 14 — Chassis ground:</i> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND BODY HARNESS. Measure resistance of harness between TCM connector and body harness. Connector & terminal <i>(B54) No. 18 — Chassis ground:</i> <i>(B54) No. 6 — Chassis ground:</i> | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM and transmission connector. |
| 3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. Connector & terminal <i>(T4) No. 18 — (T6) No. 8:</i> <i>(T4) No. 11 — (T5) No. 8:</i> | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| 4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. Measure the resistance between chassis ground and control valve body connector. Connector & terminal <i>(T6) No. 8 — Chassis ground:</i> <i>(T5) No. 8 — Chassis ground:</i> | Is the resistance more than 1 $M\Omega$? | Go to step 5. | Repair the short circuit in harness between control valve body connector and transmission connector. |
| 5 CHECK INPUT CLUTCH SOLENOID. Measure the resistance between transmission ground and control valve body connector. Connector & terminal <i>(T6) No. 8 — Transmission ground:</i> | Is the resistance 3 — 9 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 6 CHECK POOR CONTACT. Check that there are no poor contact in TCM connector, transmission connector and control valve body connector. | Is there any losing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| | Step | Check | Yes | No |
|---|--|-------------------|--|---|
| 7 | CHECK AFTER REPAIR. 1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

V: DTC P0761 SHIFT SOLENOID "C" PERFORMANCE OR STUCK OFF

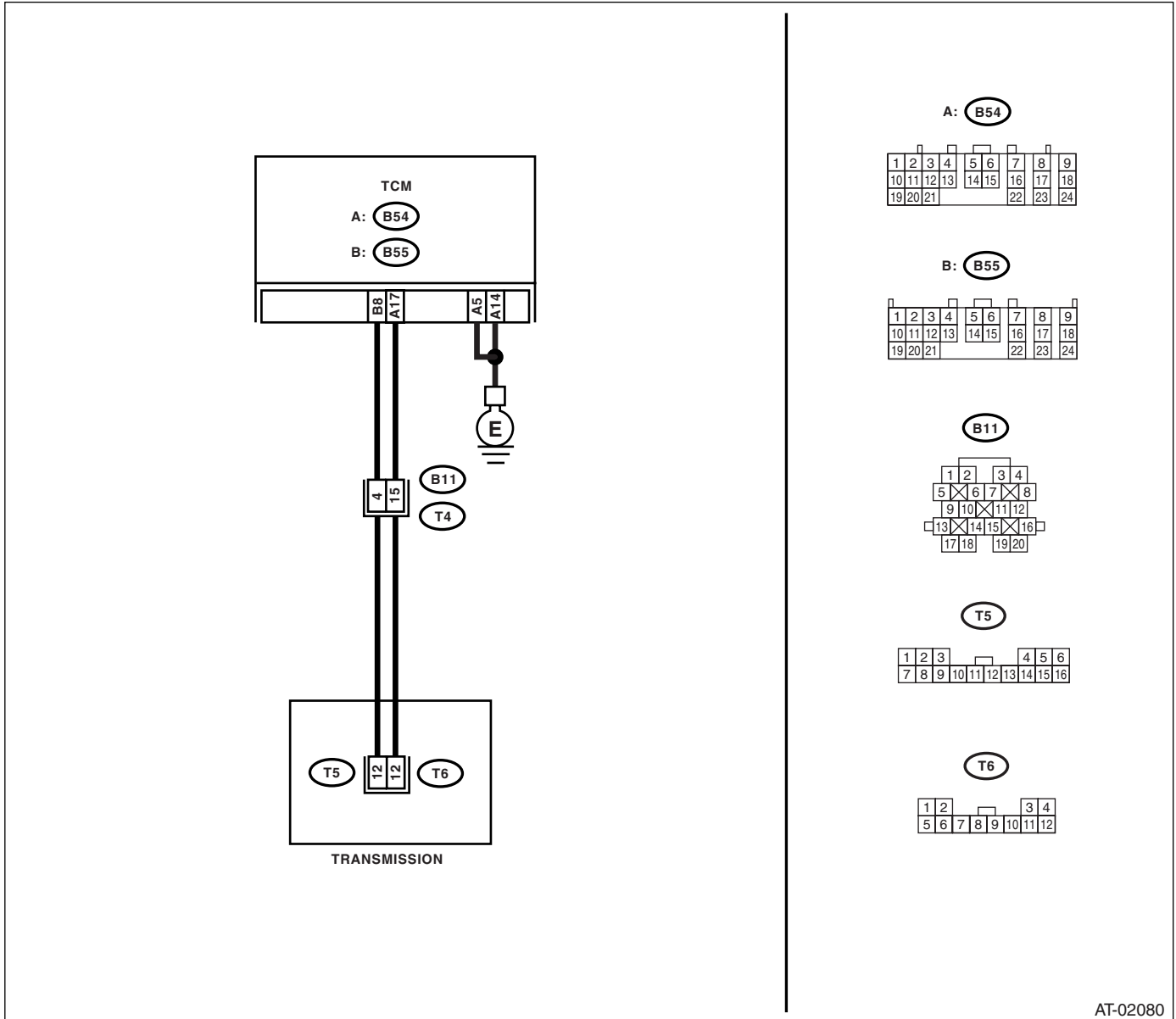
DTC DETECTING CONDITION:

Output signal value of high & low reverse clutch solenoid and oil pressure does not match.

TROUBLE SYMPTOM:

Locked to 4th gear.

WIRING DIAGRAM:



AT-02080

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|---|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> (B54) No. 17 — (B11) No. 15: (B55) No. 8 — (B11) No. 4: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> (B54) No. 17 — Chassis ground: (B55) No. 8 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM and transmission connector. |
| 3 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 4. | Go to step 7. |
| 4 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all the connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Check input signal of H&LR/C oil pressure SW. | Is OFF displayed? | Go to step 5. | Go to step 11. |
| 5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Drive the vehicle on 2nd speed of "D" range with checking current gear position using Subaru Select Monitor. 4) Check input signal of H&LR/C oil pressure SW. | Is OFF displayed? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to "D" range and brake ON (1st) with checking current gear position using Subaru Select Monitor. 4) Check input signal of H&LR/C oil pressure SW. | Is the ON displayed? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness in the solenoid output and oil pressure SW input. | Go to step 10. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|---|
| <p>7</p> <p>CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Connect all the connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Measure the voltage between TCM connector and chassis ground.</p> <p>Connector & terminal (B55) No. 8 (+) — Chassis ground (-):</p> | Is the voltage 10 — 13 V? | Go to step 8. | Go to step 11. |
| <p>8</p> <p>CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 2nd speed of manual mode with checking indication of gear position in combination meter.</p> <p>NOTE: Read the value of gear position indication after the shifting is completed (approx. 2 seconds later from shifting).</p> <p>4) Measure the voltage between TCM connector and chassis ground.</p> <p>Connector & terminal (B55) No. 8 (+) — Chassis ground (-):</p> | Is the voltage 10 — 13 V? | Go to step 9. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| <p>9</p> <p>CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 1st speed of manual mode with checking indication of gear position in combination meter.</p> <p>NOTE: Read the value of gear position indication after the shifting is completed (approx. 2 seconds later from shifting).</p> <p>4) Measure the voltage between TCM connector and chassis ground.</p> <p>Connector & terminal (B55) No. 8 (+) — Chassis ground (-):</p> | Is the voltage less than 1.5 V? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness in the solenoid output and oil pressure SW input. | Go to step 10. |
| <p>10</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T4) No. 15 — (T6) No. 12: (T4) No. 4 — (T5) No. 12:</p> | Is the resistance less than 1 Ω ? | Replace the transmission assembly. <Ref. to 5AT-38, Automatic Transmission Assembly.> | Repair the open circuit in harness between control valve body connector and transmission connector. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|---|
| <p>11 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <ol style="list-style-type: none">1) Turn the ignition switch to OFF.2) Disconnect the connector from transmission.3) Remove the transmission connector from bracket.4) Lift-up the vehicle and place it on rigid racks.5) Drain the ATF.6) Remove the oil pan, and disconnect the control valve body connector.7) Measure the resistance between transmission ground and control valve body connector. <p>Connector & terminal (T4) No. 15 — Transmission ground: (T4) No. 4 — Transmission ground:</p> | <p>Is the resistance more than 1 MΩ?</p> | <p>Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.></p> | <p>Repair the short circuit in harness between control valve body connector and transmission connector.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

W: DTC P0763 SHIFT SOLENOID "C" ELECTRICAL

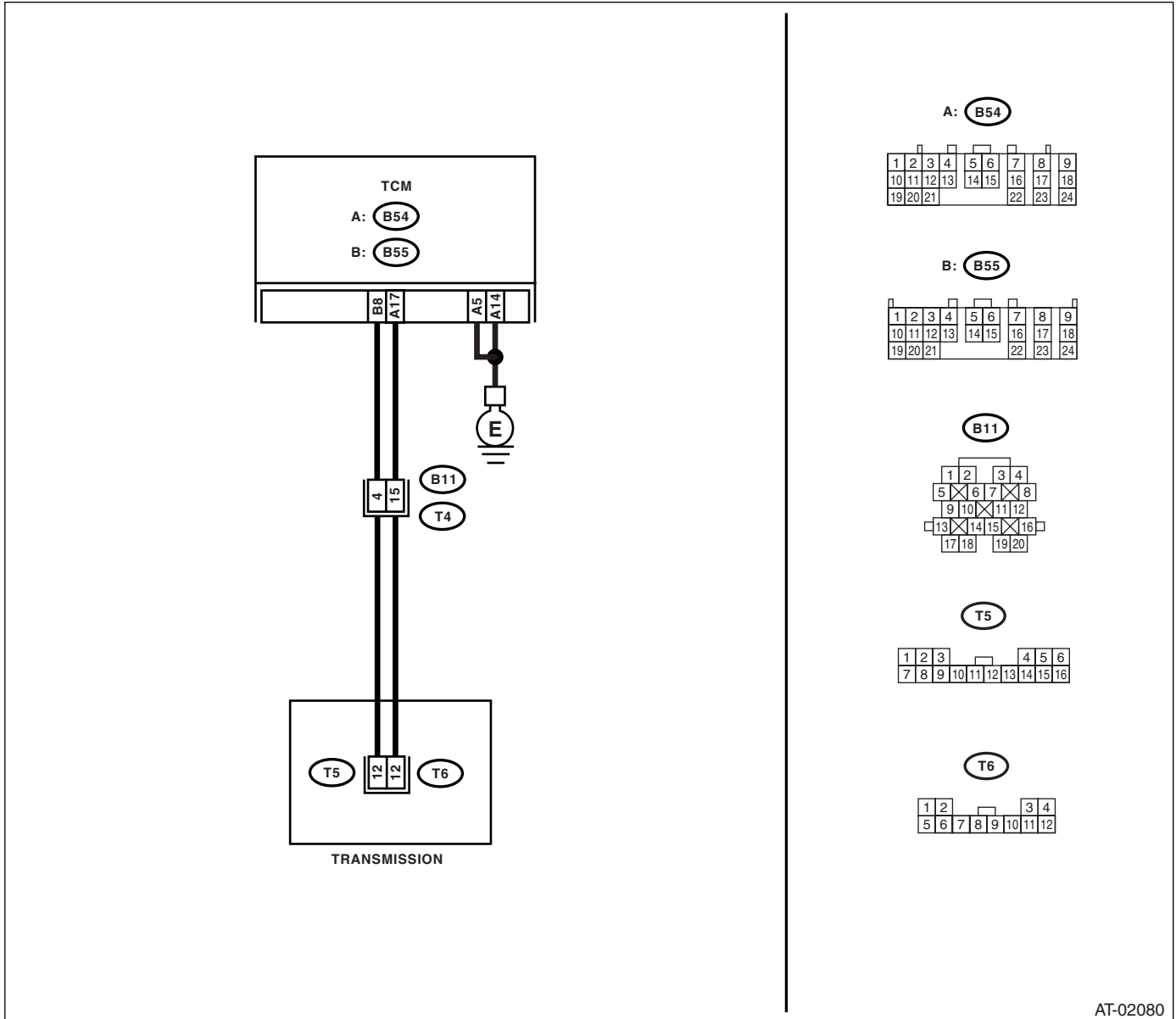
DTC DETECTING CONDITION:

Output signal circuit of high & low reverse clutch solenoid is open or shorted.

TROUBLE SYMPTOM:

Locked to 4th gear.

WIRING DIAGRAM:



AT-02080

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|--------------------------|---|
| <p>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector.</p> <p>Connector & terminal (B54) No. 17 — (B11) No. 15: (B55) No. 8 — (B11) No. 4: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground:</p> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM connector and transmission connector. |
| <p>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.</p> <p>Measure resistance of harness between TCM connector and chassis ground.</p> <p>Connector & terminal (B54) No. 17 — Chassis ground: (B55) No. 8 — Chassis ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM connector and transmission connector. |
| <p>3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T4) No. 15 — (T6) No. 12: (T4) No. 4 — (T5) No. 12:</p> | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| <p>4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>Measure the resistance of harness connector between control valve body connector and chassis ground.</p> <p>Connector & terminal (T6) No. 12 — Chassis ground: (T5) No. 12 — Chassis ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 5. | Repair the open circuit in harness between control valve body connector and transmission ground. |
| <p>5 CHECK HIGH & LOW REVERSE CLUTCH SOLENOID.</p> <p>Measure the resistance between transmission ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 12 — Transmission ground:</p> | Is the resistance 3 — 9 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| <p>6 CHECK POOR CONTACT.</p> <p>Check that there are no poor contact in TCM connector, transmission connector and control valve body connector.</p> | Is there any losing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| | Step | Check | Yes | No |
|---|--|-------------------|---|---|
| 7 | CHECK AFTER REPAIR. 1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

X: DTC P0766 SHIFT SOLENOID "D" PERFORMANCE OR STUCK OFF

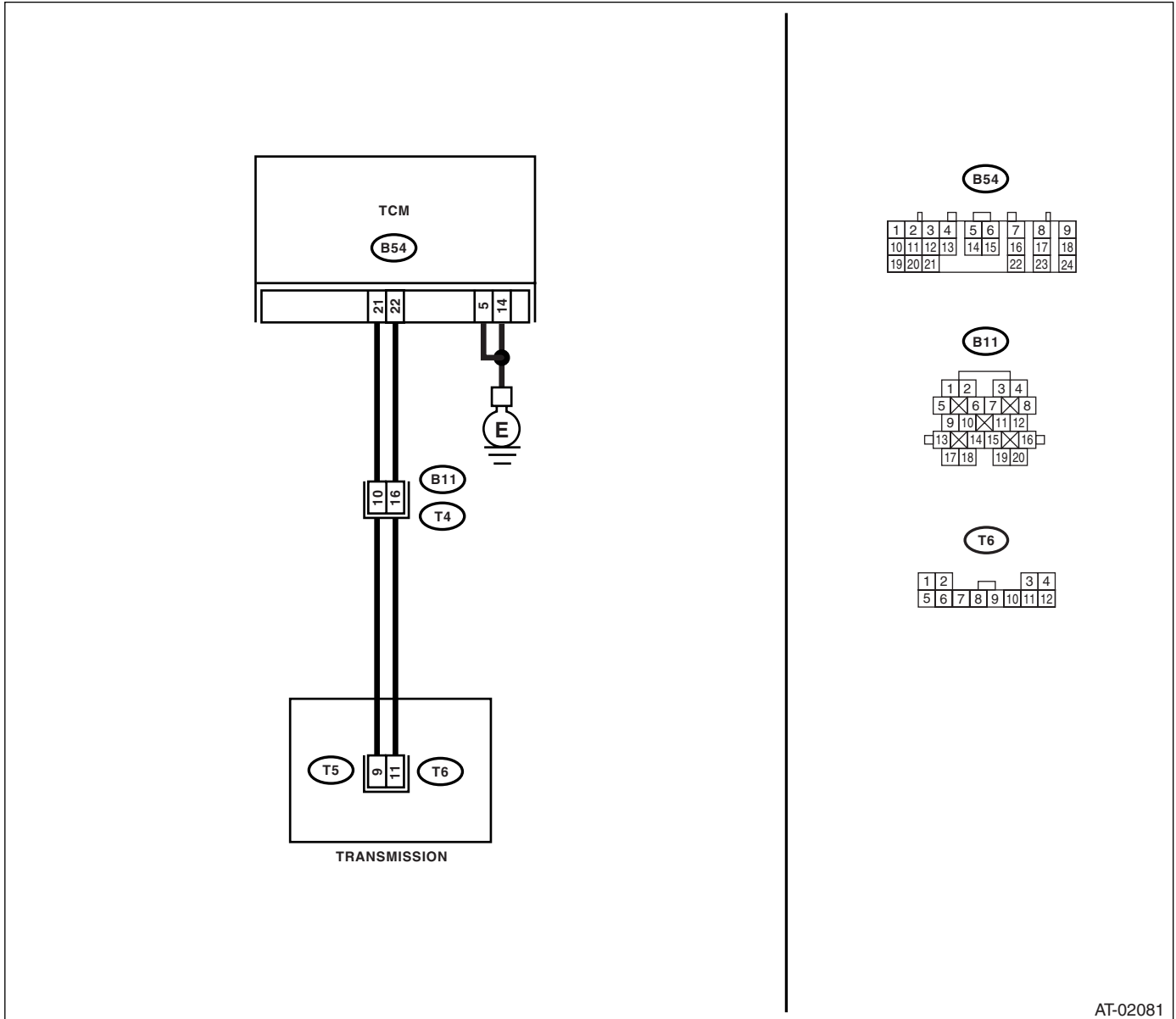
DTC DETECTING CONDITION:

Output signal value of direct clutch solenoid and oil pressure does not match.

TROUBLE SYMPTOM:

Locked to 4th gear.

WIRING DIAGRAM:



AT-02081

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|---|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> (B54) No. 22 — (B11) No. 16: (B54) No. 21 — (B11) No. 10: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND BODY HARNESS. Measure resistance of harness between TCM connector and body harness. <i>Connector & terminal</i> (B54) No. 22 — Chassis ground: (B54) No. 21 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM and transmission connector. |
| 3 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all the connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Check input signal of D/C oil pressure SW. | Is OFF displayed? | Go to step 4. | Go to step 7. |
| 4 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to "D" range and brake ON (1st) with checking current gear position using Subaru Select Monitor. 4) Check input signal of D/C oil pressure SW. | Is OFF displayed? | Go to step 5. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 2nd speed of manual mode and brake ON with checking current gear position using Subaru Select Monitor. 4) Check input signal of D/C oil pressure SW. | Is the ON displayed? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness in the solenoid output and oil pressure SW input. | Go to step 6. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|---|---|
| <p>6</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T4) No. 16 — (T6) No. 10: (T4) No. 10 — (T5) No. 9:</p> | <p>Is the resistance less than 1 Ω?</p> | <p>Replace the transmission assembly. <Ref. to 5AT-38, Automatic Transmission Assembly.></p> | <p>Repair the open circuit in harness between control valve body connector and transmission connector.</p> |
| <p>7</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between chassis ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 10 — Chassis ground: (T5) No. 9 — Chassis ground:</p> | <p>Is the resistance more than 1 $M\Omega$?</p> | <p>Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.></p> | <p>Repair the short circuit in harness between control valve body connector and transmission connector.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Y: DTC P0768 SHIFT SOLENOID "D" ELECTRICAL

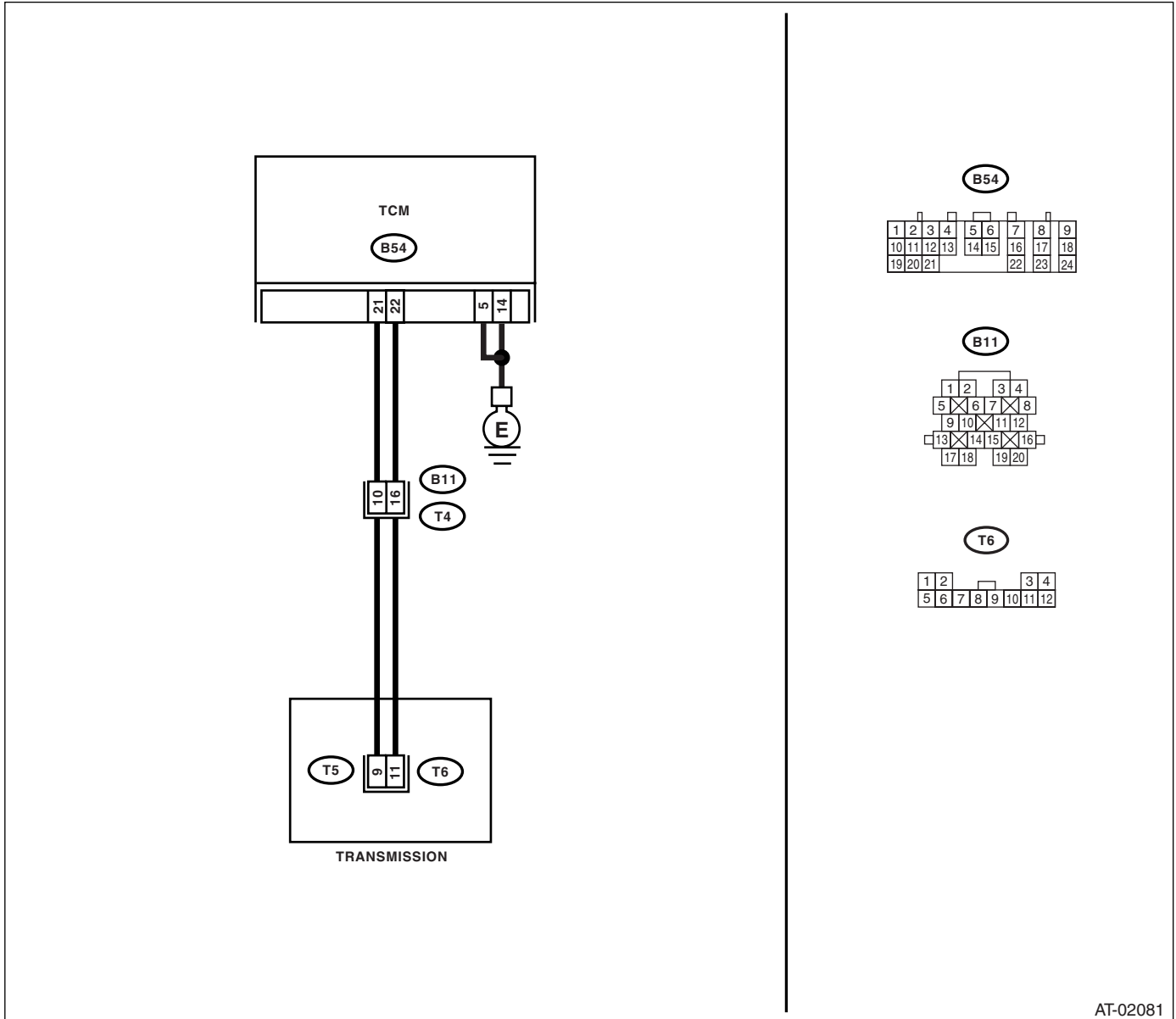
DTC DETECTING CONDITION:

The output signal circuit of direct clutch solenoid is open or shorted.

TROUBLE SYMPTOM:

Locked to 4th gear.

WIRING DIAGRAM:



AT-02081

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|--------------------------|---|
| <p>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector.</p> <p>Connector & terminal (B54) No. 22 — (B11) No. 16: (B54) No. 21 — (B11) No. 10: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground:</p> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM connector and transmission connector. |
| <p>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.</p> <p>Measure resistance of harness between TCM connector and chassis ground.</p> <p>Connector & terminal (B54) No. 22 — Chassis ground: (B54) No. 21 — Chassis ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM connector and transmission connector. |
| <p>3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T4) No. 16 — (T6) No. 10: (T4) No. 10 — (T5) No. 9:</p> | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| <p>4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>Measure the resistance between chassis ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 10 — Chassis ground: (T5) No. 9 — Chassis ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 5. | Repair the short circuit in harness between control valve body connector and transmission ground. |
| <p>5 CHECK DIRECT CLUTCH SOLENOID.</p> <p>Measure the resistance of harness connector between control valve body connector and transmission ground.</p> <p>Connector & terminal (T6) No. 10 — Transmission ground:</p> | Is the resistance 3 — 9 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| <p>6 CHECK POOR CONTACT.</p> <p>Check that there are no poor contact in TCM connector, transmission connector and control valve body connector.</p> | Is there any losing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| | Step | Check | Yes | No |
|---|--|-------------------|--|---|
| 7 | CHECK AFTER REPAIR. 1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Z: DTC P0771 SHIFT SOLENOID "E" PERFORMANCE OR STUCK OFF

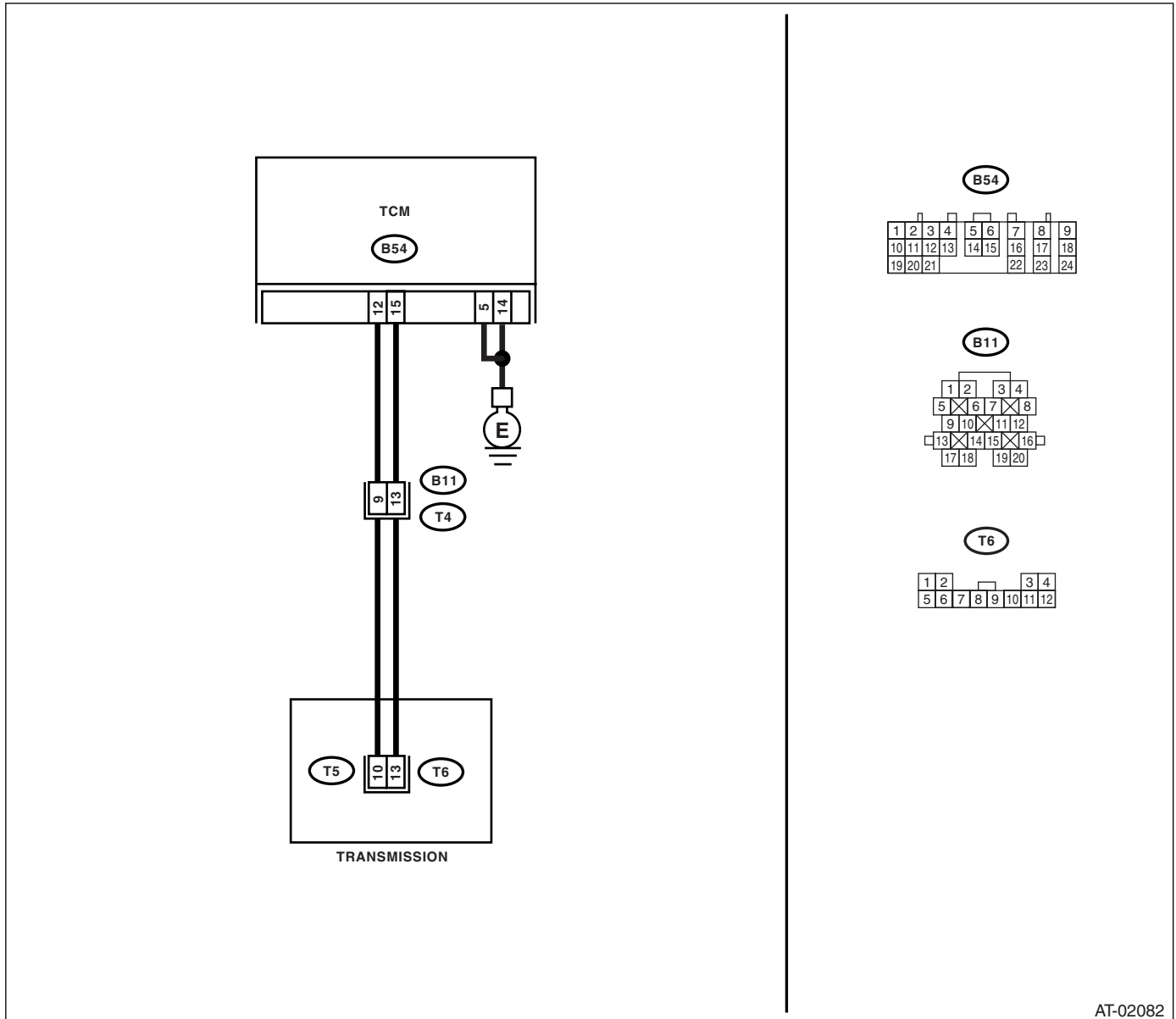
DTC DETECTING CONDITION:

Output signal value of low coast brake solenoid and oil pressure does not match.

TROUBLE SYMPTOM:

- Locked to 2nd gear.
- Engine brake does not function at 1st or 2nd of manual mode.

WIRING DIAGRAM:



AT-02082

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|---|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B54) No. 15 — (B11) No. 13: (B54) No. 12 — (B11) No. 9: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND. Measure the resistance between TCM connector and chassis ground. Connector & terminal (B54) No. 15 — Chassis ground: (B54) No. 12 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM and transmission connector. |
| 3 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect all the connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Check input signal of LC/B oil pressure SW. | Is OFF displayed? | Go to step 4. | Go to step 7. |
| 4 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Shift to 3rd speed with checking current gear position using Subaru Select Monitor. 4) Check input signal of LC/B oil pressure SW. | Is OFF displayed? | Go to step 5. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| 5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Turn the ignition switch to ON. (engine ON) 3) Drive the vehicle on 2nd speed of manual mode 15 km/h (9 MPH) with checking current gear position using Subaru Select Monitor. 4) Check input signal of LC/B oil pressure SW. | Is the ON displayed? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair the poor contact of harness in the solenoid output and oil pressure SW input. | Go to step 6. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|---|
| <p>6</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. <p>Connector & terminal (T4) No. 13 — (T6) No. 13: (T4) No. 9 — (T5) No. 10:</p> | <p>Is the resistance less than 1 Ω?</p> | <p>Replace the transmission assembly. <Ref. to 5AT-38, Automatic Transmission Assembly.></p> | <p>Repair the open circuit in harness between control valve body connector and transmission connector.</p> |
| <p>7</p> <p>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <ol style="list-style-type: none"> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between chassis ground and control valve body connector. <p>Connector & terminal (T6) No. 13 — Chassis ground: (T5) No. 10 — Chassis ground:</p> | <p>Is the resistance more than 1 $M\Omega$?</p> | <p>Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.></p> | <p>Repair the short circuit in harness between control valve body connector and transmission connector.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AA:DTC P0773 SHIFT SOLENOID "E" ELECTRICAL

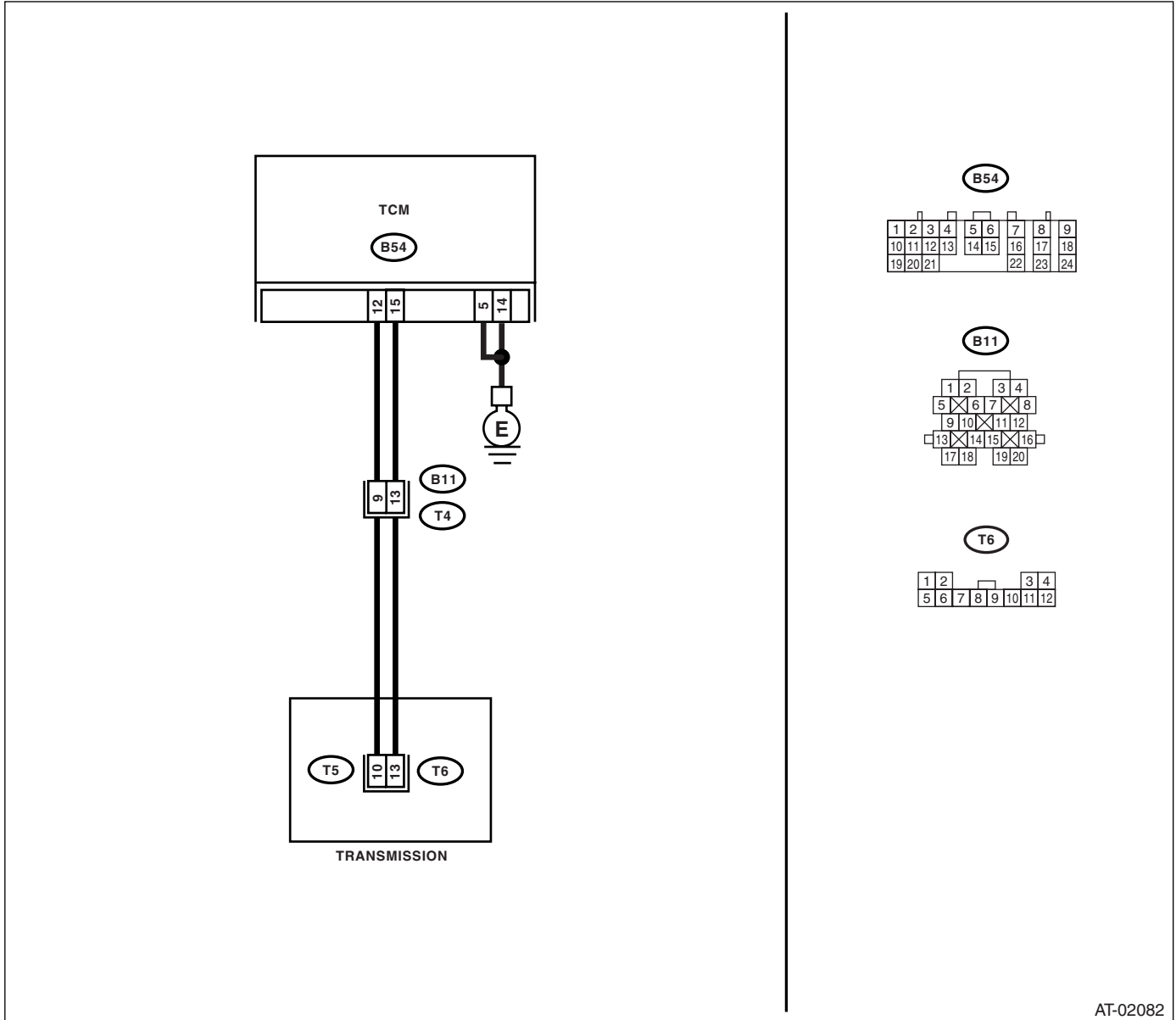
DTC DETECTING CONDITION:

Output signal circuit of low coast brake solenoid is open or shorted.

TROUBLE SYMPTOM:

- Locked to 2nd gear.
- Engine brake does not function at 1st or 2nd of manual mode.

WIRING DIAGRAM:



AT-02082

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|--------------------------|---|
| <p>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector.</p> <p>Connector & terminal (B54) No. 15 — (B11) No. 13: (B54) No. 12 — (B11) No. 9: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground:</p> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM connector and transmission connector. |
| <p>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND BODY HARNESS.</p> <p>Measure resistance of harness between TCM connector and body harness.</p> <p>Connector & terminal (B54) No. 15 — Chassis ground: (B54) No. 12 — Chassis ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM connector and transmission connector. |
| <p>3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T4) No. 13 — (T6) No. 13: (T4) No. 9 — (T5) No. 10:</p> | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| <p>4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>Measure the resistance between chassis ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 13 — Chassis ground: (T5) No. 10 — Chassis ground:</p> | Is the resistance more than 1 $M\Omega$? | Go to step 5. | Repair the short circuit in harness between control valve body connector and transmission ground. |
| <p>5 CHECK LOW COAST BRAKE SOLENOID.</p> <p>Measure the resistance of harness connector between control valve body connector and transmission ground.</p> <p>Connector & terminal (T6) No. 13 — Transmission ground:</p> | Is the resistance between 5 — 17 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| <p>6 CHECK POOR CONTACT.</p> <p>Check that there are no poor contact in TCM connector, transmission connector and control valve body connector.</p> | Is there any losing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| | Step | Check | Yes | No |
|---|--|-------------------|---|---|
| 7 | CHECK AFTER REPAIR. 1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty. | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AB:DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT

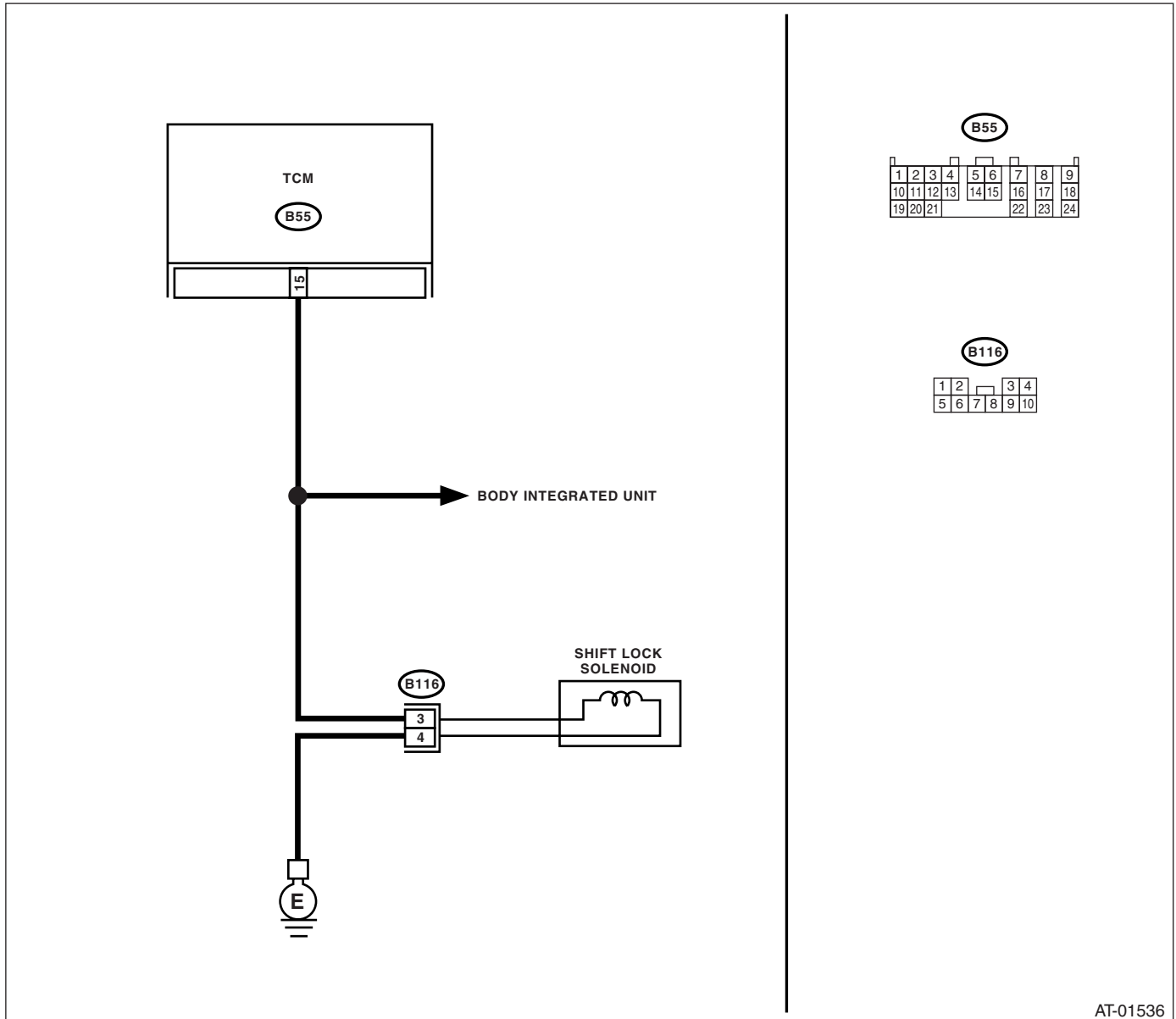
DTC DETECTING CONDITION:

Shift lock solenoid malfunction, open or short reverse inhibitor control circuit

TROUBLE SYMPTOM:

- Gear is shifted from "N" range to "R" range during driving at 20 km/h (12 MPH) or more.
- Gear can not be shifted from "N" range to "R" range though the vehicle is parked.

WIRING DIAGRAM:



AT-01536

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|--|
| 1 CHECK FUSE (No. 32). 1) Turn the ignition switch to OFF. 2) Remove the fuse (No. 32). | Is the fuse (No. 32) blown out? | Replace the fuse (No. 32). If the replaced fuse has blown out easily, repair the short circuit in harness between fuse (No. 32) and TCM. | Go to step 2. |
| 2 CHECK OUTPUT SIGNAL OF TCM. 1) Turn the ignition switch to ON. 2) With the brake pedal depressed, shift the select lever to "D" range. 3) Measure the voltage between TCM and chassis ground. Connector & terminal (B55) No. 15 (+) — Chassis ground (-): | Is the voltage more than 10.5 V? | Go to step 3. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 3 CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and shift lock solenoid. 3) Measure the resistance of harness between TCM and shift lock solenoid connector. Connector & terminal (B55) No. 15 — (B116) No. 3: | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between TCM and shift lock solenoid connector. |
| 4 CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID. Measure the voltage of harness between TCM and chassis ground. Connector & terminal (B55) No. 15 — Chassis ground: | Is the resistance more than 1 M Ω ? | Go to step 5. | Repair the short circuit in harness between TCM and shift lock solenoid connector. |
| 5 CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND TERMINAL. Measure the resistance of harness between shift lock solenoid and chassis ground. Connector & terminal (B116) No. 4 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 6. | Repair the open circuit in harness between chassis ground and shift lock solenoid connector. |
| 6 CHECK SHIFT LOCK SOLENOID. Measure the resistance of shift lock solenoid terminals. Connector & terminal (B116) No. 3 — No. 4: | Is the resistance 7 — 21 Ω ? | Go to step 7. | Replace the shift lock solenoid. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|--|
| <p>7</p> <p>CHECK OUTPUT SIGNAL OF TCM.</p> <p>1) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>2) Start the engine.</p> <p>3) Shift the select lever to "D" range and slowly increase vehicle speed to 20 km/h (12 MPH).</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> <p>4) Measure the voltage between TCM and chassis ground.</p> <p>Connector & terminal (B55) No. 15 (+) — Chassis ground (-):</p> | <p>Is the voltage less than 1 V?</p> | <p>Even if the SPORT indicator lights up, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair harness or connector in reverse inhibitor control circuit.</p> | <p>Go to step 8.</p> |
| <p>8</p> <p>CHECK POOR CONTACT.</p> | <p>Is there poor contact in the reverse inhibitor control circuit?</p> | <p>Repair the poor contact.</p> | <p>Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).></p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AC:DTC P0817 STARTER DISABLE CIRCUIT

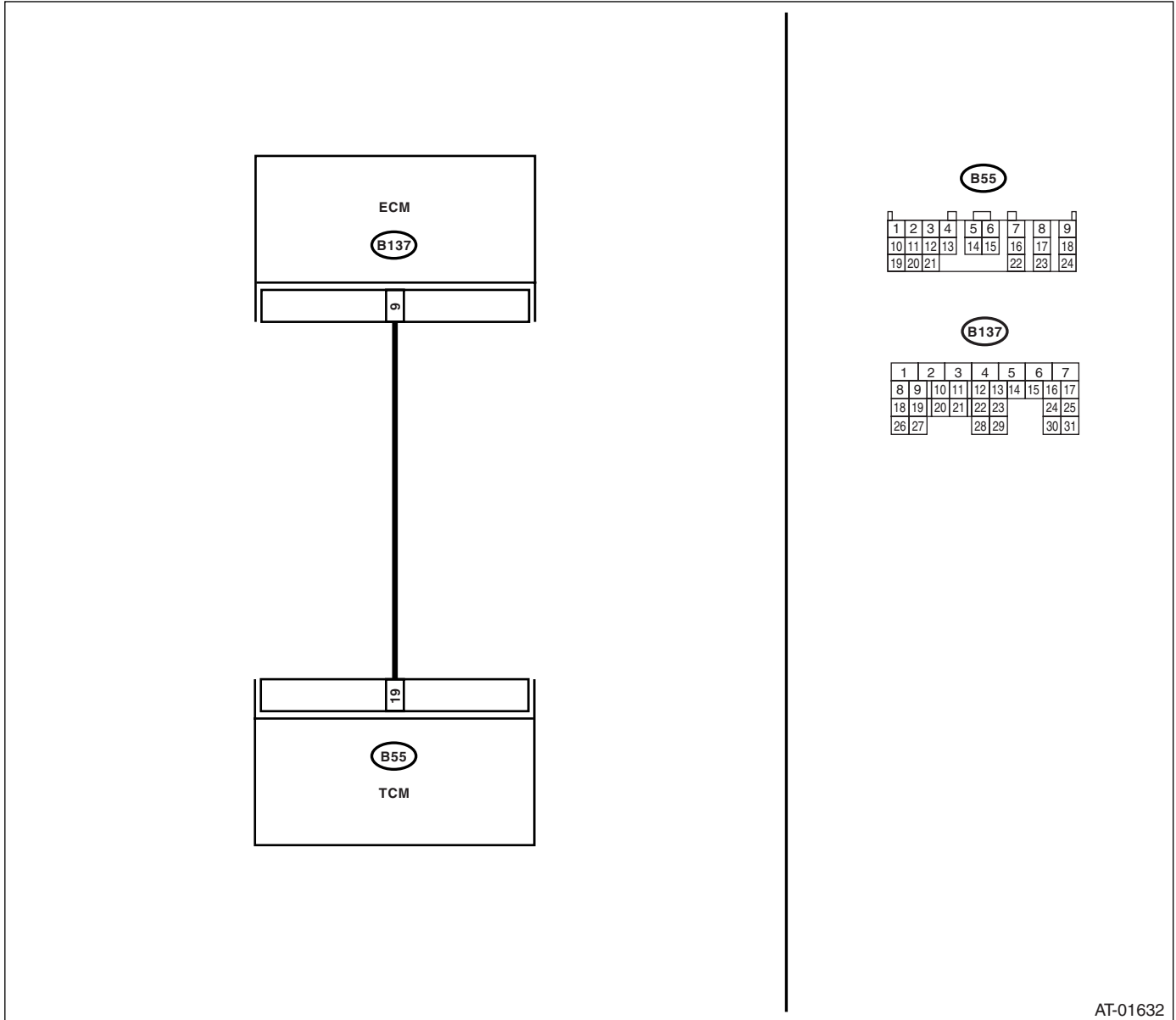
DTC DETECTING CONDITION:

Open or short in P/N signal output circuit

TROUBLE SYMPTOM:

- Engine can be started on other than "P" or "N" range
- Engine can not be started on "P" or "N" range

WIRING DIAGRAM:



AT-01632

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No | |
|----------|--|--|---|--|
| 1 | CHECK DTC OF TCM. | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) circuit detected? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | CHECK ECM. | Is the communication between Subaru Select Monitor and ECM normal? | Go to step 3. | Perform the diagnosis according to DTC concerning ECM. |
| 3 | CHECK FUSE (No. 32). 1) Turn the ignition switch to OFF. 2) Remove the fuse. | Is the fuse (No. 32) blown out? | Replace the fuse (No. 32). If the replaced fuse (No. 32) has blown out easily, repair the short circuit in harness between fuse (No. 32) and TCM. | Go to step 4. |
| 4 | CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. Connector & terminal (B55) No. 19 — (B137) No. 9: | Is the resistance less than 1 Ω ? | Go to step 5. | Repair the open circuit in harness between TCM and transmission connector, and poor contact in coupling connector. |
| 5 | CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 19 — Chassis ground: | Is the resistance more than 1 $M\Omega$? | Go to step 6. | Repair the short circuit in harness between transmission connector and chassis ground. |
| 6 | CHECK TCM OUTPUT SIGNAL. 1) Connect the TCM and ECM connector. 2) Turn the ignition switch to ON. (engine OFF) 3) Shift the select lever to "P" range. 4) Measure the voltage between TCM connector and chassis ground. Connector & terminal (B55) No. 19 (+) — Chassis ground (-): | Is the voltage more than 10 V? | Go to step 7. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 7 | CHECK TCM OUTPUT SIGNAL. 1) Shift the select lever to "D" range. 2) Measure the voltage between TCM connector and chassis ground. Connector & terminal (B55) No. 19 (+) — Chassis ground (-): | Is the voltage less than 1 V? | Go to step 8. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 8 | CHECK POOR CONTACT. | Is there any open or poor contact of connector (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Check neutral circuit inside the ECM. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AD:DTC P0882 TCM POWER INPUT SIGNAL LOW

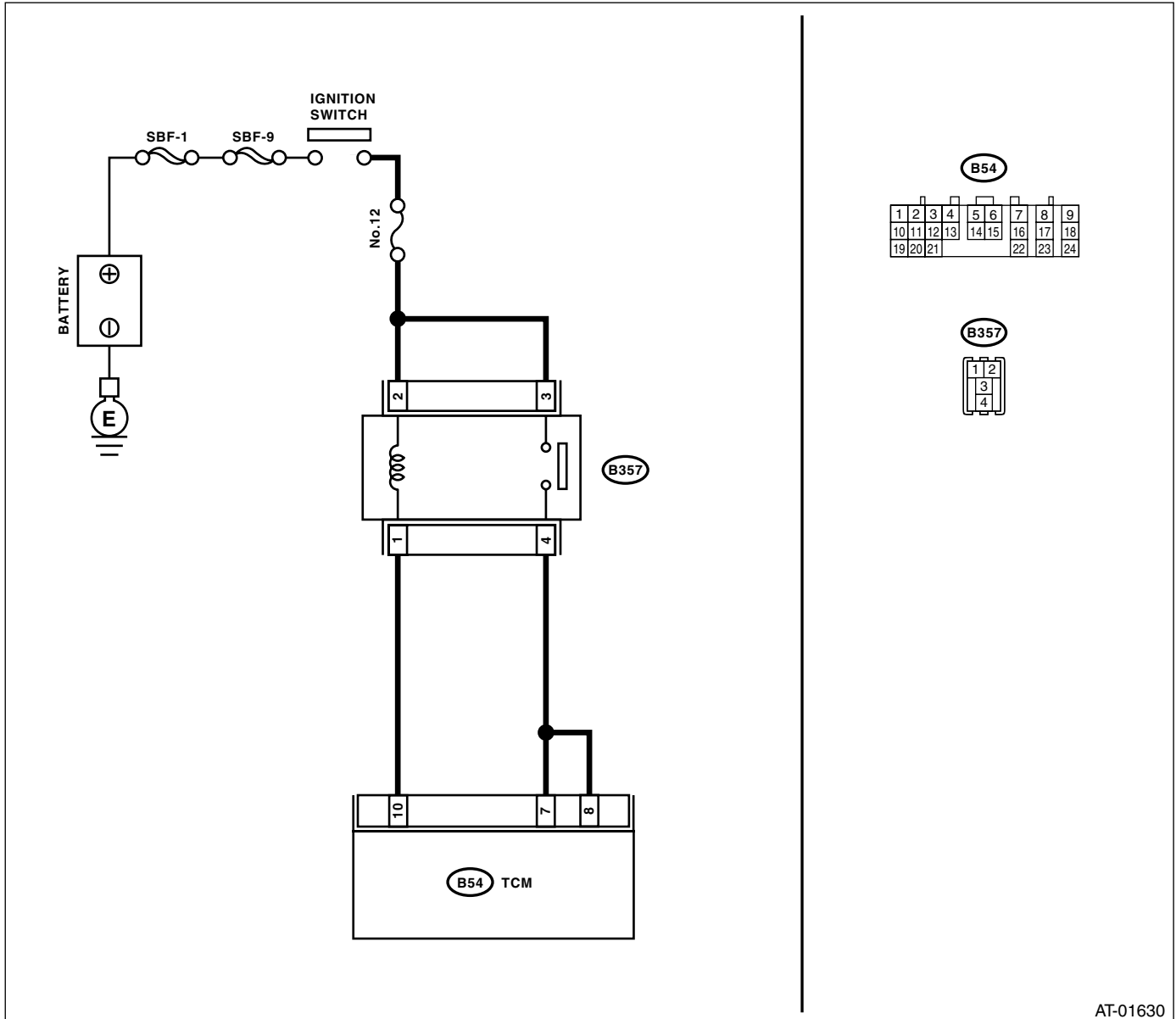
DTC DETECTING CONDITION:

Malfunction of PVIGN power supply relay or open, short circuit of PVIGN power supply circuit.

TROUBLE SYMPTOM:

Gear is not changed.

WIRING DIAGRAM:



AT-01630

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|---|---|
| 1 CHECK FUSE. 1) Turn the ignition switch to OFF. 2) Remove the SBF 1, SBF 2 and fuse (No. 12), and then check those are not blown out. | Is the fuse blown out? | Replace the fuse. If the replaced fuse has blown out easily, repair the short circuit in harness of each fuse. | Go to step 2. |
| 2 CHECK INPUT VOLTAGE FOR PVIGN RELAY. Measure the voltage between PVIGN relay and chassis ground. <i>Connector & terminal</i> (B357) No. 2 (+) — Chassis ground (-): (B357) No. 3 (+) — Chassis ground (-): | Is the voltage 10 — 13 V? | Go to step 3. | Check open circuit in harness between fuse (No. 12) and PVIGN relay. |
| 3 CHECK HARNESS BETWEEN PVIGN RELAY OF TCM. Measure the resistance between TCM connector and PVIGN relay connector. <i>Connector & terminal</i> (B54) No. 10 — (B357) No. 1: (B54) No. 7 — (B357) No. 4: (B54) No. 8 — (B357) No. 4: | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit of harness. |
| 4 CHECK PVIGN POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal</i> (B54) No. 7 (+) — Chassis ground (-): (B54) No. 8 (+) — Chassis ground (-): | Is the voltage 10 — 13 V? | Temporary poor contact. Recheck the harness between TCM and relay. (Lightly move the harness and check that the open or short circuit is not occurred.) | Go to step 5. |
| 5 CHECK PVIGN RELAY OUTPUT OF TCM. Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal</i> (B55) No. 11 (+) — Chassis ground (-): | Is the voltage less than 1.5 V? | Replace the PVIGN relay. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AE:DTC P0957 BACKUP LIGHT RELAY CIRCUIT LOW

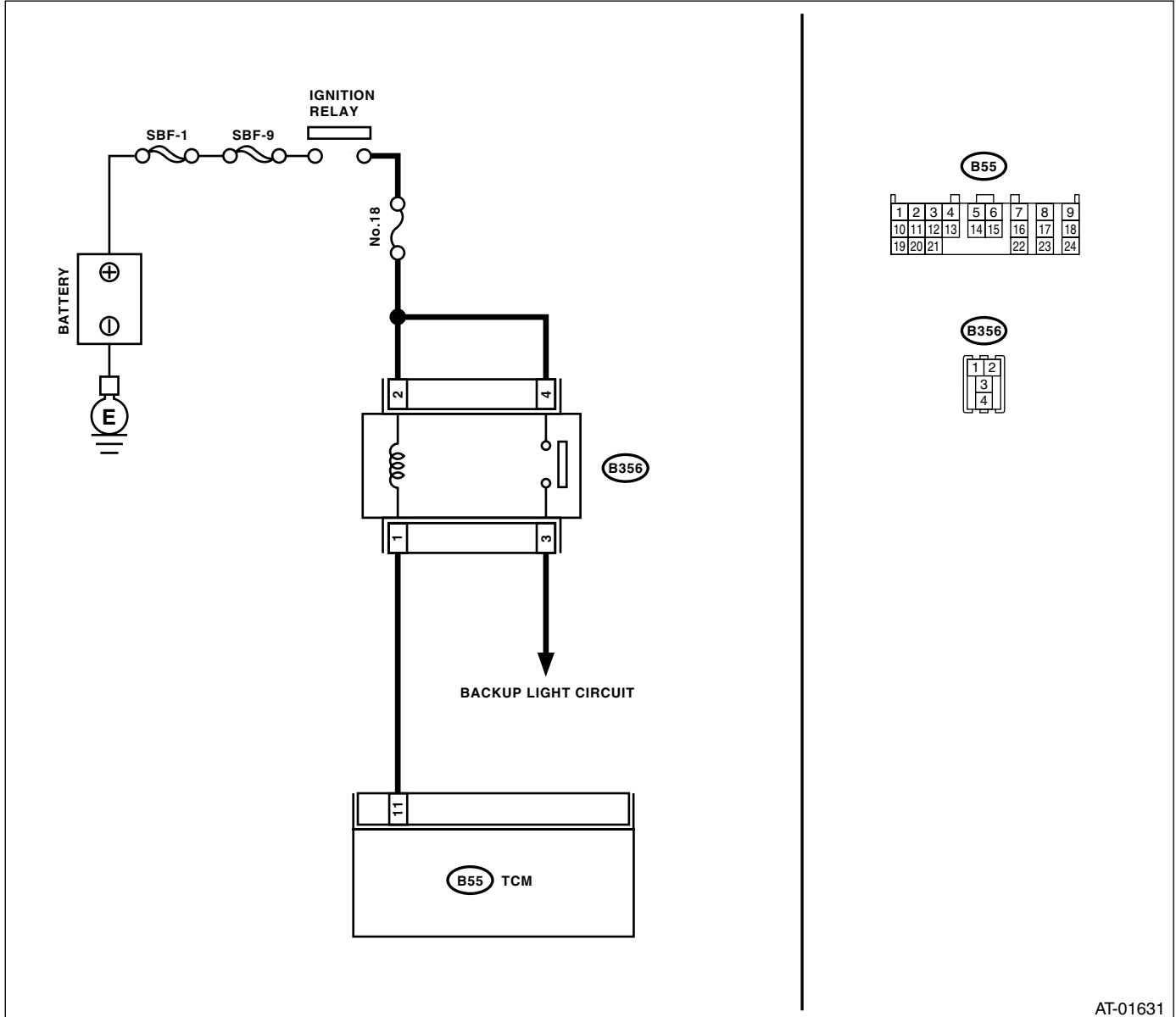
DTC DETECTING CONDITION:

Short circuit of back-up light relay output circuit

TROUBLE SYMPTOM:

Back-up light does not illuminate in "R" range.

WIRING DIAGRAM:



AT-01631

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No | |
|----------|--|---|---|--|
| 1 | CHECK DTC OF TCM. | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) circuit detected? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | CHECK HARNESS CONNECTOR BETWEEN TCM AND BACK-UP LIGHT RELAY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and backup light relay. 3) Measure the resistance of harness between TCM and backup light relay connector. <i>Connector & terminal (B55) No. 11 — (B356) No. 1:</i> | Is the resistance less than 1 Ω ? | Go to step 3. | Repair the open circuit in harness between TCM and transmission connector, and poor contact in coupling connector. |
| 3 | CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal (B55) No. 11 — Chassis ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 4. | Repair the short circuit in harness between TCM and transmission connector. |
| 4 | CHECK TCM OUTPUT SIGNAL. 1) Turn the ignition switch to ON. (engine OFF) 2) Shift the select lever to "P" range. | Is the voltage more than 10 V? | Go to step 5. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 5 | CHECK TCM OUTPUT SIGNAL. Shift the select lever to "R" range. | Is the voltage less than 1 V? | Go to step 6. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 6 | CHECK INPUT VOLTAGE FOR BACKUP LIGHT RELAY. Measure the voltage between back-up light relay and chassis ground. | Is the voltage 10 — 13 V? | Replace the back-up light relay. | Check open or short circuit in harness between fuse (No. 18) and backup light relay. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AF:DTC P0958 BACKUP LIGHT RELAY CIRCUIT HIGH

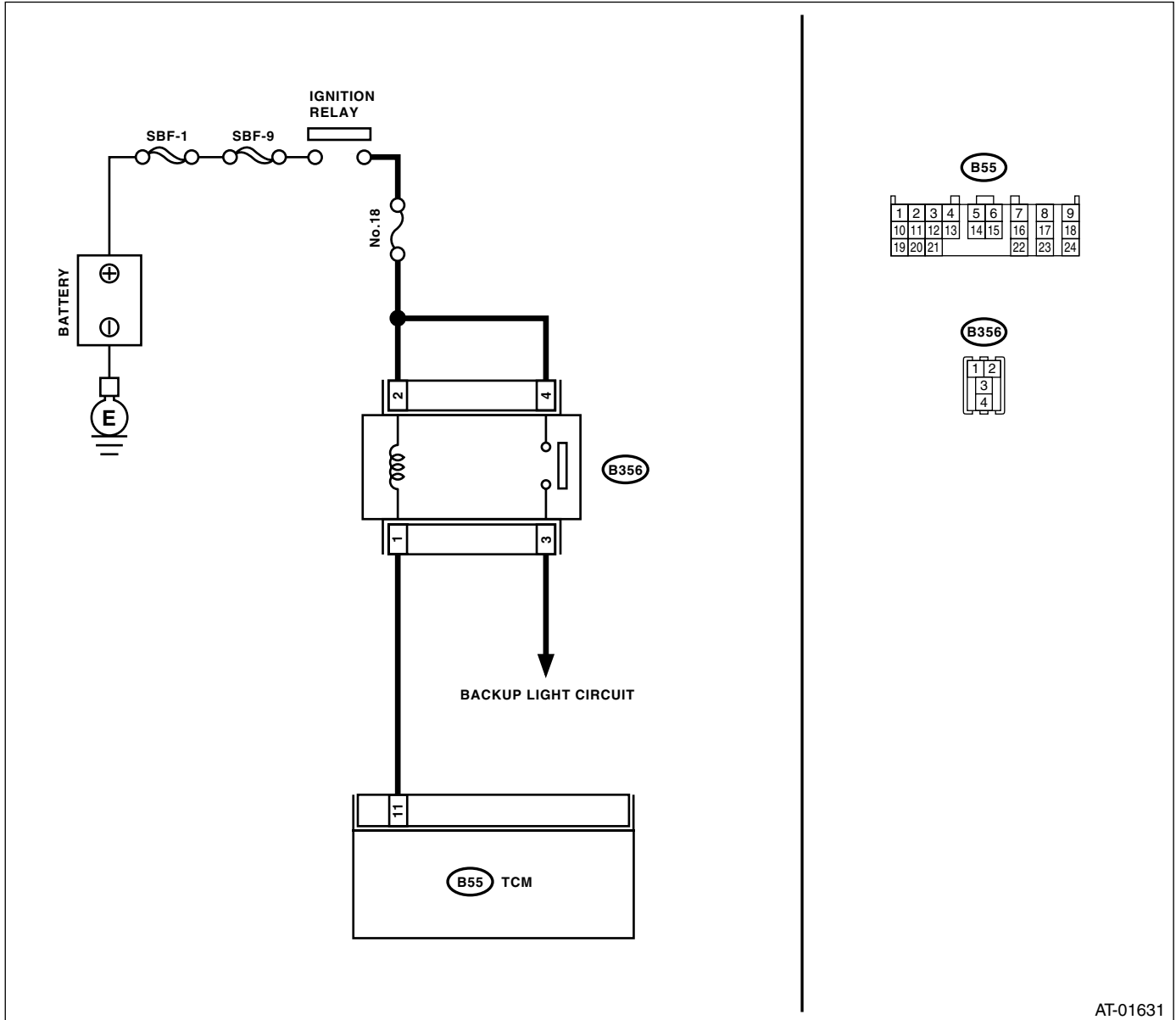
DTC DETECTING CONDITION:

Back-up light relay malfunction, or open/short circuit in back-up light relay output circuit

TROUBLE SYMPTOM:

- Back-up light does not illuminate in "R" range.
- Back-up light always illuminate in other than "R" range.

WIRING DIAGRAM:



AT-01631

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No | |
|----------|--|---|---|--|
| 1 | CHECK DTC OF TCM. | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) circuit detected? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | CHECK HARNESS CONNECTOR BETWEEN TCM AND BACK-UP LIGHT RELAY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and back-up light relay. 3) Measure the resistance of harness between TCM and back-up light relay connector. Connector & terminal (B55) No. 11 — (B356) No. 1: | Is the resistance less than 1 Ω ? | Go to step 3. | Repair the open circuit in harness between TCM and transmission connector, and poor contact in coupling connector. |
| 3 | CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal (B55) No. 11 — Chassis ground: | Is the resistance more than 1 M Ω ? | Go to step 4. | Repair the short circuit in harness between TCM and transmission connector. |
| 4 | CHECK TCM OUTPUT SIGNAL. 1) Turn the ignition switch to ON. (engine OFF) 2) Shift the select lever to "P" range. | Is the voltage more than 10 V? | Go to step 5. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 5 | CHECK TCM OUTPUT SIGNAL. Shift the select lever to "R" range. | Is the voltage less than 1 V? | Go to step 6. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 6 | CHECK INPUT VOLTAGE FOR BACK-UP LIGHT RELAY. Measure the voltage between back-up light relay and chassis ground. | Is the voltage 10 — 13 V? | Replace the back-up light relay. | Check open or short circuit in harness between fuse (No. 18) and backup light relay. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AG:DTC P1601 TCM COMMUNICATION MALFUNCTION

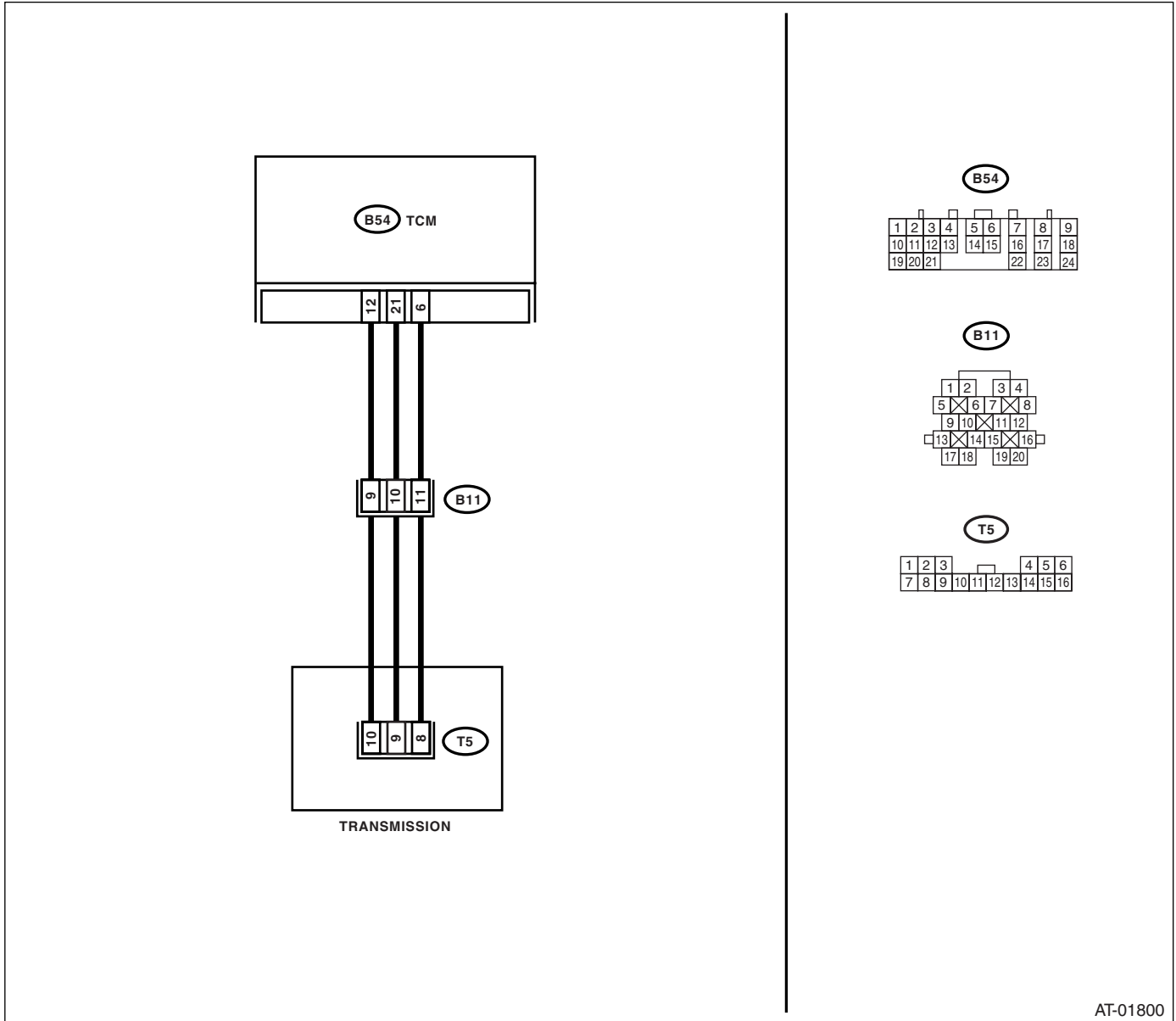
DTC DETECTING CONDITION:

Communication does not complete between control valve memory box.

TROUBLE SYMPTOM:

Shifting quality malfunction

WIRING DIAGRAM:



AT-01800

| Step | Check | Yes | No |
|------|--|---|----------------------|
| 1 | CHECK POOR CONTACT OF TRANSMISSION CONNECTOR. Check loose connection on TCM connector (B54). | Go to step 2. | Connect it securely. |
| 2 | CHECK DTC OF TCM. | Perform the diagnosis according to DTC. | Go to step 3. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--------------------------|--|
| 3 CHECK TCM OUTPUT SIGNAL. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 16 (+) — Chassis ground (-):</i> | Is the voltage 10 — 13 V? | Go to step 4. | Go to step 5. |
| 4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>(B54) No. 12 — (B11) No. 9:</i> <i>(B54) No. 21 — (B11) No. 10:</i> <i>(B54) No. 6 — (B11) No. 11:</i> | Is the resistance less than 1 Ω ? | Go to step 5. | Repair the open circuit in harness between TCM and transmission connector, and poor contact in coupling connector. |
| 5 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 12 — Chassis ground:</i> <i>(B54) No. 21 — Chassis ground:</i> <i>(B54) No. 6 — Chassis ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 6. | Repair the short circuit in harness between TCM and transmission connector. |
| 6 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION CONNECTOR AND CONTROL VALVE BODY CONNECTOR. Measure the resistance between transmission connector and control valve body connector. <i>Connector & terminal</i> <i>(B54) No. 9 — (T5) No. 10:</i> <i>(B54) No. 10 — (T5) No. 9:</i> <i>(B54) No. 11 — (T5) No. 8:</i> | Is the resistance less than 1 Ω ? | Go to step 7. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| 7 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION CONNECTOR AND CONTROL VALVE BODY CONNECTOR. Measure the resistance between transmission connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 9 — Chassis ground:</i> <i>(B54) No. 10 — Chassis ground:</i> <i>(B54) No. 11 — Chassis ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 8. | Repair the short circuit in harness between control valve body connector and transmission connector. |
| 8 CHECK POOR CONTACT. NOTE: Data communication malfunction is detected when the malfunction occurred on inspection area above while transmission assembly is replacing or "Clear Memory 2" is performing. When the repair is performed with following diagnosis above, perform the "Clear Memory 2", and then recheck that the DTC of TCM data communication malfunction is not detected. | Is there any open or poor contact of connector (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Replace the transmission assembly. <Ref. to 5AT-38, Automatic Transmission Assembly.> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AH:DTC P1706 AT VEHICLE SPEED SENSOR CIRCUIT MALFUNCTION (REAR WHEEL)

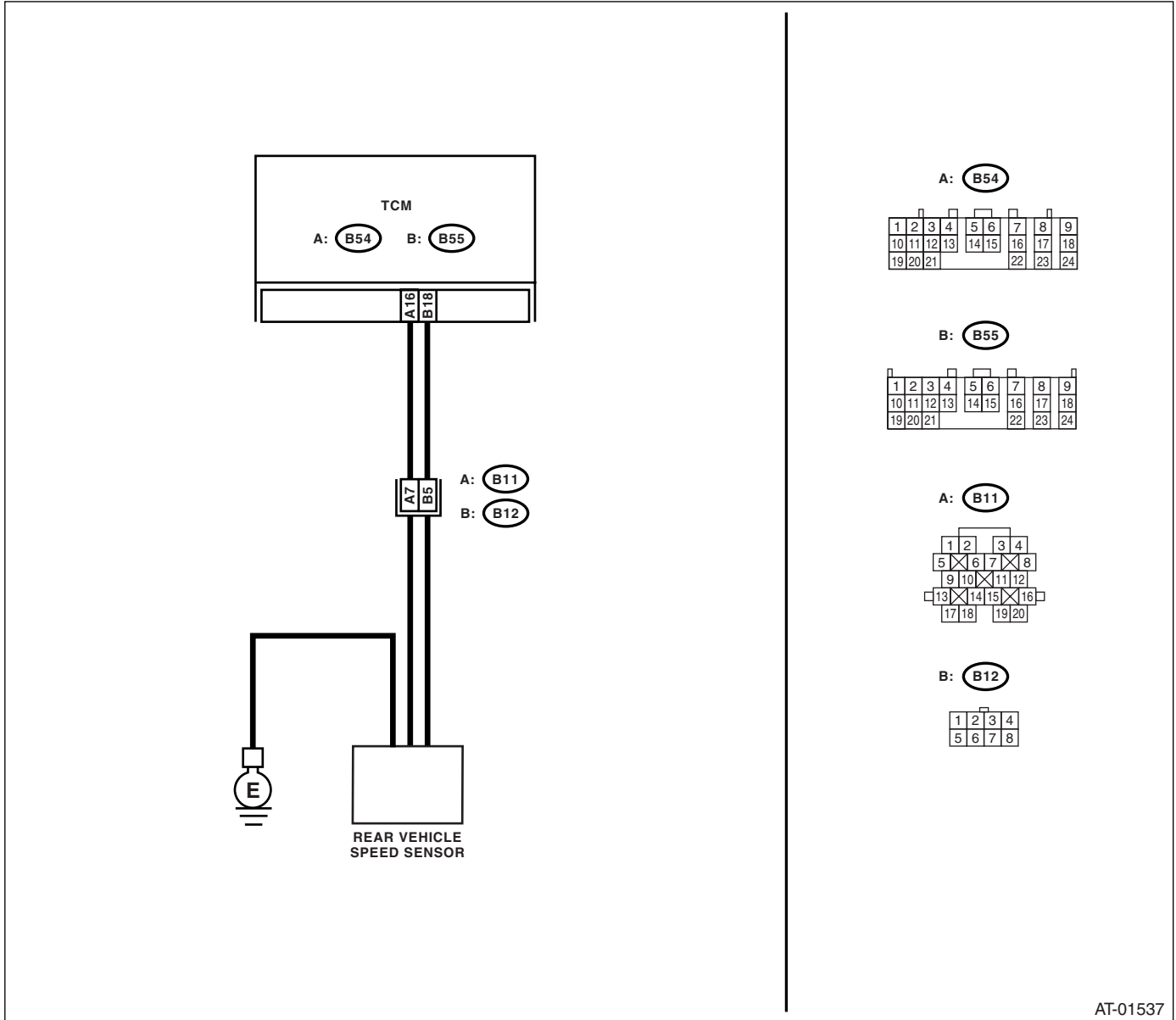
DTC DETECTING CONDITION:

Input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

- Shifting quality malfunction
- Tight corner braking phenomenon is occurred.

WIRING DIAGRAM:



AT-01537

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|--|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> <i>(B54) No. 16 — (B11) No. 7:</i> <i>(B55) No. 18 — (B12) No. 5:</i> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 16 — Chassis ground:</i> <i>(B55) No. 18 — Chassis ground:</i> | Is the resistance more than 1 $M\Omega$? | Go to step 3. | Repair the short circuit in harness between TCM and chassis ground. |
| 3 CHECK TCM POWER SUPPLY OUTPUT. 1) Connect the connector to TCM. (Transmission connector is disconnected) 2) Turn the ignition switch to ON. (engine OFF) 3) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 16 (+) — Chassis ground (-):</i> | Is the voltage 10 — 13 V? | Go to step 4. | Go to step 5. |
| 4 CHECK TURBINE SPEED SENSOR INPUT CIRCUIT OF TCM. Measure the voltage between TCM connector terminals. <i>Connector & terminal</i> <i>(B55) No. 18 (+) — (B54) No. 19 (-):</i> | Is the voltage 4 — 6 V? | Go to step 6. | Go to step 5. |
| 5 CHECK TCM I/O SIGNAL. Check TCM I/O signal of power supply, ground and PVIGN power supply relay. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is TCM I/O signal OK? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Repair the open or short circuit for power supply and ground. Perform the diagnosis according to DTC for PVIGN power supply relay. |
| 6 CHECK HARNESS ASSEMBLY (TURBINE SPEED SENSOR GROUND). Check the installing condition of ground connecting harness (used for both of turbine speed sensor 1, rear vehicle speed sensor). | Is the ground connecting harness installed to transmission body correctly, or the harness and connector terminals not damaged? | Go to step 7. | When the poor installation of ground connecting harness, install it securely. Replace the transmission assembly when the harness is damaged. <Ref. to 5AT-38, Automatic Transmission Assembly.> |
| 7 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 9. | Go to step 8. |
| 8 PREPARE OSCILLOSCOPE. | Do you have an oscilloscope? | Go to step 10. | Go to step 11. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|--|
| <p>9 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Start the engine, and drive the vehicle. 4) Read the current data of front wheel speed using Subaru Select Monitor. <Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.></p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Does the value of the front wheel speed depending on the acceleration and deceleration of the vehicle?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair harness or contact in the ATF temperature sensor and transmission connector.</p> | <p>Replace the transmission harness.</p> |
| <p>10 CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Set the oscilloscope to TCM connector terminals.</p> <p>Connector & terminal Positive probe; (B55) No. 18: Ground lead; (B54) No. 19:</p> <p>4) Start the engine, and drive the vehicle. 5) Display the pulse signal of turbine speed sensor 1 to oscilloscope, and measure the frequency.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Is the frequency of measured waveform (pulse wave) changed depending on the acceleration and deceleration of the vehicle?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair harness or contact in the ATF temperature sensor and transmission connector.</p> | <p>Replace the transmission harness.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|---|--|
| <p>11 CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Start the engine, and drive the vehicle. 4) Measure the voltage between TCM terminals.</p> <p>Connector & terminal (B55) No. 7 (+) — (B54) No. 19 (-):</p> <p>5) Stop the vehicle, and shift the select lever to "P" range. 6) Measure the voltage between TCM terminals.</p> <p>Connector & terminal (B55) No. 7 (+) — (B54) No. 19 (-):</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Does the voltage change within the range of 2 — 3 V when vehicle is driving? Is the voltage less than 0.5 V or more than 4.5 V constantly when the vehicle is parked with "P" range?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause.</p> <p>Repair harness or contact in the ATF temperature sensor and transmission connector.</p> | <p>Replace the transmission harness.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AI: DTC P1707 AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION

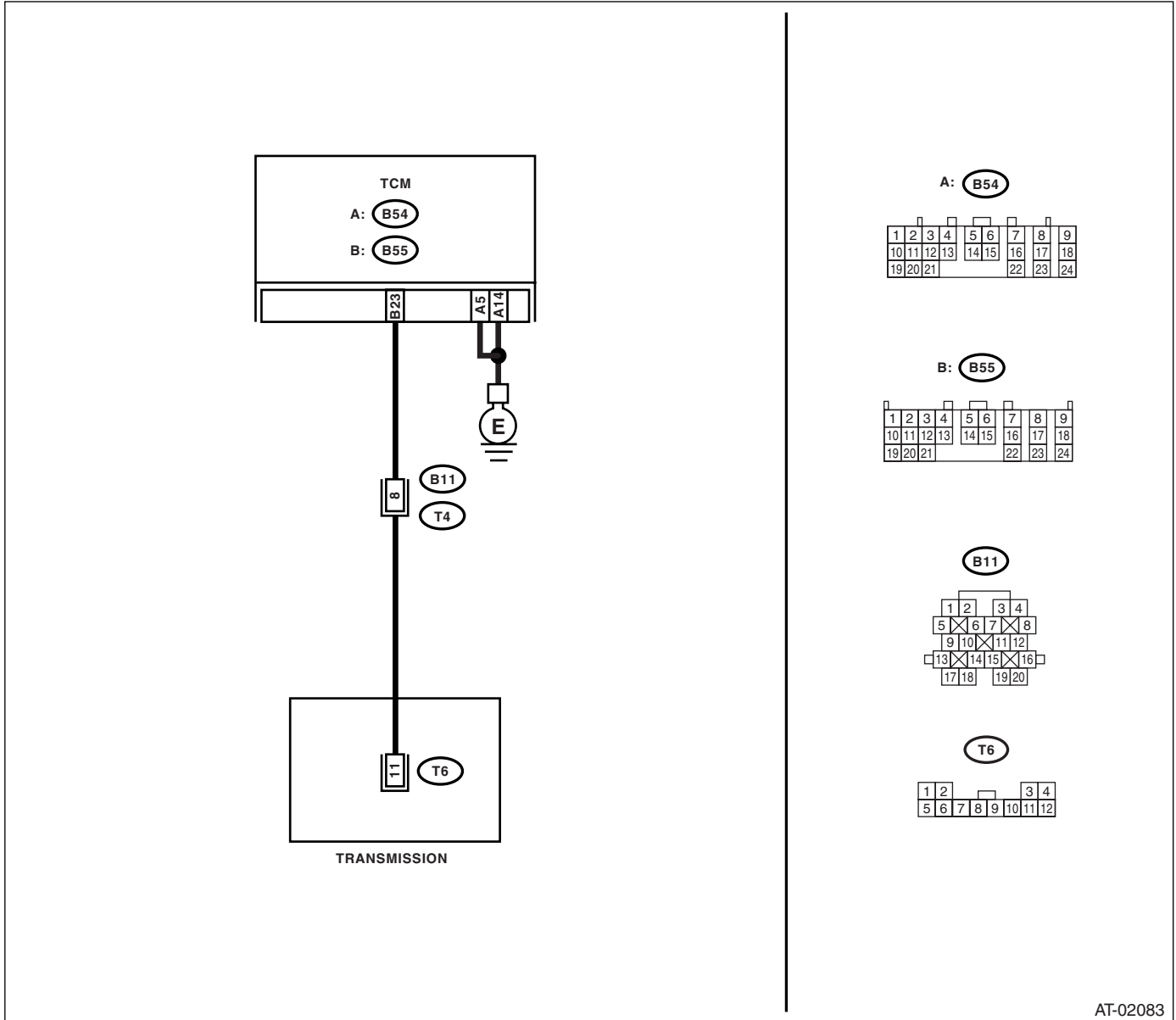
DTC DETECTING CONDITION:

Output signal circuit of transfer solenoid is open or shorted.

TROUBLE SYMPTOM:

- Tight corner braking phenomenon is occurred.
- Drivability getting worse.

WIRING DIAGRAM:



AT-02083

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|---|
| <p>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector.</p> <p>Connector & terminal (B55) No. 23 — (B11) No. 8: (B54) No. 5 — Chassis ground: (B54) No. 14 — Chassis ground:</p> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM connector and transmission connector. |
| <p>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.</p> <p>Measure resistance of harness between TCM connector and chassis ground.</p> <p>Connector & terminal (B55) No. 23 — Chassis ground:</p> | Is the resistance more than 1 M Ω ? | Go to step 3. | Repair the short circuit in harness between TCM connector and transmission connector. |
| <p>3 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. 5) Drain the ATF. 6) Remove the oil pan, and disconnect the control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T4) No. 8 — (T6) No. 11:</p> | Is the resistance less than 1 Ω ? | Go to step 4. | Repair the open circuit in harness between control valve body connector and transmission connector. |
| <p>4 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>Measure the resistance between transmission ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 11 — Transmission ground:</p> | Is the resistance more than 1 M Ω ? | Go to step 5. | Repair the short circuit in harness between control valve body connector and transmission ground. |
| <p>5 AWD SOLENOID CURRENT.</p> <p>Measure the resistance between transmission ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 11 — Transmission ground:</p> | Is the resistance 3 — 9 Ω ? | Go to step 6. | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> |
| <p>6 CHECK POOR CONTACT.</p> <p>Check that there are no poor contact in TCM connector, transmission connector and control valve body connector.</p> | Is there any loosing terminal, entering foreign matter, damaging connector body? | Repair the poor contact. | Go to step 7. |
| <p>7 CHECK AFTER REPAIR.</p> <p>1) Perform the clear memory mode. 2) Drive for a while, read the DTC, and verify that there is no faulty.</p> | Is DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Temporary poor contact or open circuit occurs. Recheck that the harness connector has no faulty. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AJ:DTC P1710 TORQUE CONVERTER TURBINE 2 SPEED SIGNAL CIRCUIT 2 MALFUNCTION

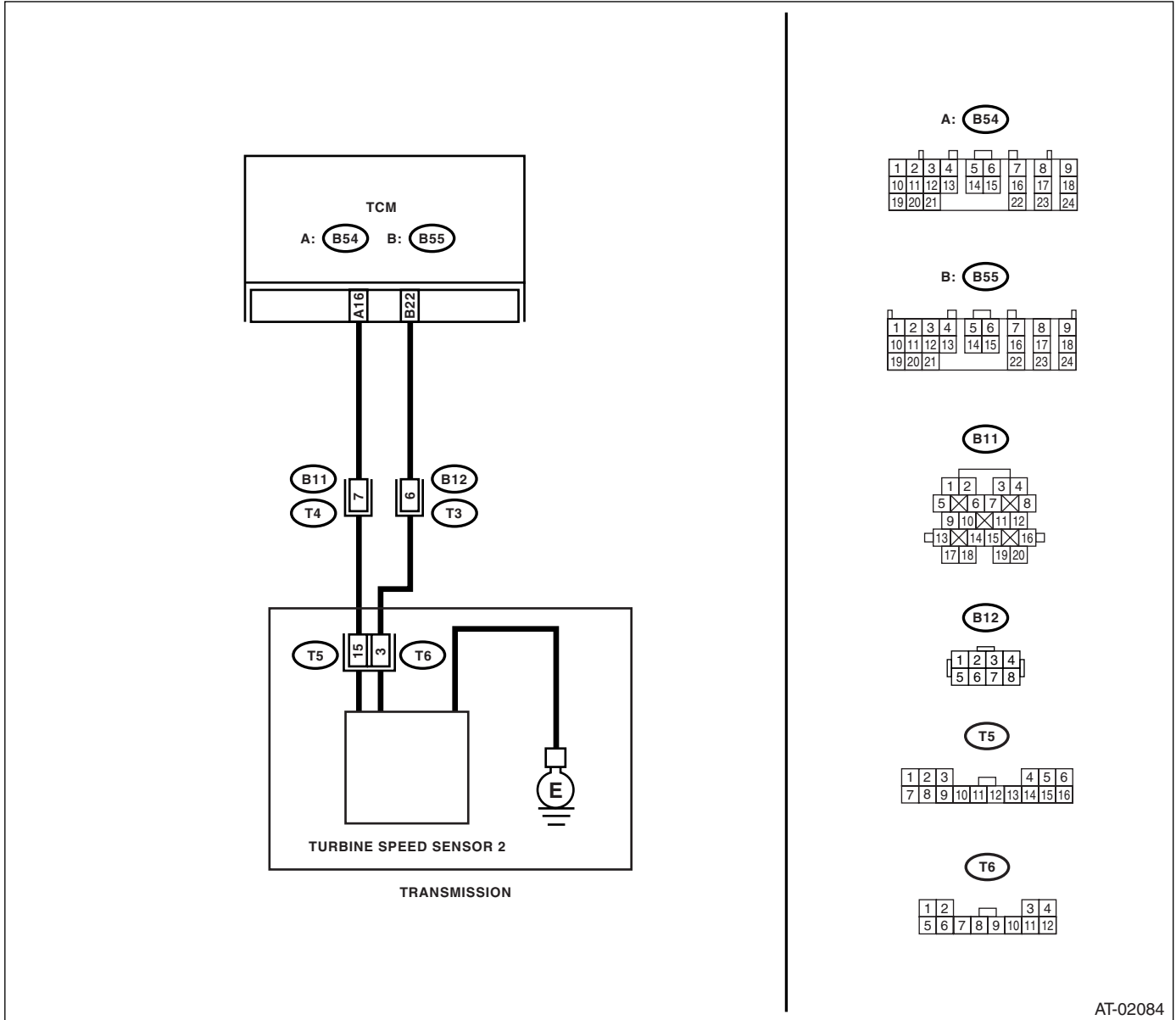
DTC DETECTING CONDITION:

Input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

- Excessive shift shock.
- Does not shift to 5th

WIRING DIAGRAM:



AT-02084

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|--|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector & terminal</i> (B55) No. 22 — (B12) No. 6: (B54) No. 16 — (B11) No. 7: | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| 2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. Measure the resistance of harness between TCM connector and chassis ground. <i>Connector & terminal</i> (B55) No. 22 — Chassis ground: (B54) No. 16 — Chassis ground: | Is the resistance more than 1 M Ω ? | Go to step 3. | Repair the short circuit in harness between TCM and transmission connector. |
| 3 CHECK TCM POWER SUPPLY OUTPUT. 1) Connect the connector to TCM. (Transmission connector is disconnected) 2) Turn the ignition switch to ON. (engine OFF) 3) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal</i> (B54) No. 16 (+) — (B54) No. 19 (-): | Is the voltage 10 — 13 V? | Go to step 4. | Go to step 5. |
| 4 CHECK TURBINE SPEED SENSOR INPUT CIRCUIT OF TCM. Measure the voltage between TCM connector terminals. <i>Connector & terminal</i> (B55) No. 22 (+) — (B54) No. 19 (-): | Is the voltage 4 — 6 V? | Go to step 6. | Go to step 5. |
| 5 CHECK TCM I/O SIGNAL. Check TCM I/O signal of power supply, ground and PVIGN power supply relay. <Ref. to 5AT(diag)-12, ELECTRICAL SPECIFICATION, Transmission Control Module (TCM) I/O Signal.> | Is I/O signal OK? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Repair the open or short circuit for power supply and ground. Perform the diagnosis according to DTC for PVIGN power supply relay. |
| 6 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 8. | Go to step 7. |
| 7 PREPARE OSCILLOSCOPE. | Do you have an oscilloscope? | Go to step 9. | Go to step 10. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|-----------------------|
| <p>8 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Start the engine, and set the vehicle in 1st speed driving condition of manual mode. 4) Read the current data of torque converter turbine speed 2 using the Subaru Select Monitor. <Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.></p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Does the value of the turbine speed sensor 2 change depending on the acceleration, deceleration and shifting gear of the vehicle?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact in harness of turbine speed sensor 2 and transmission connector.</p> | <p>Go to step 11.</p> |
| <p>9 CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Set the oscilloscope to TCM connector terminals.</p> <p>Connector & terminal Positive probe; (B55) No. 22: Ground lead; (B54) No. 19:</p> <p>4) Start the engine, and set the vehicle in 1st speed driving condition of manual mode. 5) Display the pulse signal of turbine speed sensor 1 to oscilloscope, and measure the frequency.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Is the frequency of measured waveform (pulse wave) changed depending on the acceleration and deceleration of the vehicle?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact in harness of turbine speed sensor 2 and transmission connector.</p> | <p>Go to step 11.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|---|--|
| <p>10 CHECK INPUT SIGNAL FOR TCM USING CIRCUIT TESTER.</p> <p>1) Connect all the connectors. 2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Start the engine, and set the vehicle in 1st speed driving condition of manual mode. 4) Measure the voltage between TCM terminals.</p> <p>Connector & terminal (B55) No. 22 (+) — (B54) No. 19 (-):</p> <p>5) Stop the vehicle, and shift the select lever to "P" range. 6) Measure the voltage between TCM terminals.</p> <p>Connector & terminal (B55) No. 22 (+) — (B54) No. 19 (-):</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.></p> | <p>Does the voltage change within the range of 2 — 3 V when vehicle is driving? Is the voltage less than 0.5 V or more than 4.5 V constantly when the vehicle is parked with "P" range?</p> | <p>Even if the SPORT indicator lights blinks, the system is in normal condition.</p> <p>A temporary poor contact of connector or harness may be the cause. Repair the poor contact in harness of turbine speed sensor 2 and transmission connector.</p> | <p>Go to step 11.</p> |
| <p>11 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>5) Drain the ATF.</p> <p>CAUTION: Do not drain the ATF until it cools down.</p> <p>6) Remove the oil pan, and disconnect the connector from control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector.</p> <p>Connector & terminal (T3) No. 6 — (T6) No. 3: (T4) No. 7 — (T5) No. 15:</p> | <p>Is the resistance less than 1 Ω?</p> | <p>Go to step 12.</p> | <p>Repair the open circuit in harness between control valve body connector and transmission connector.</p> |
| <p>12 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY.</p> <p>Measure the resistance between transmission ground and control valve body connector.</p> <p>Connector & terminal (T6) No. 3 — Transmission ground: (T5) No. 15 — Transmission ground:</p> | <p>Is the resistance more than 1 MΩ?</p> | <p>Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.></p> | <p>Repair the short circuit in harness between transmission connector and transmission ground.</p> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AK:DTC P1716 ATF TEMP. SENSOR 2 CIRCUIT LOW

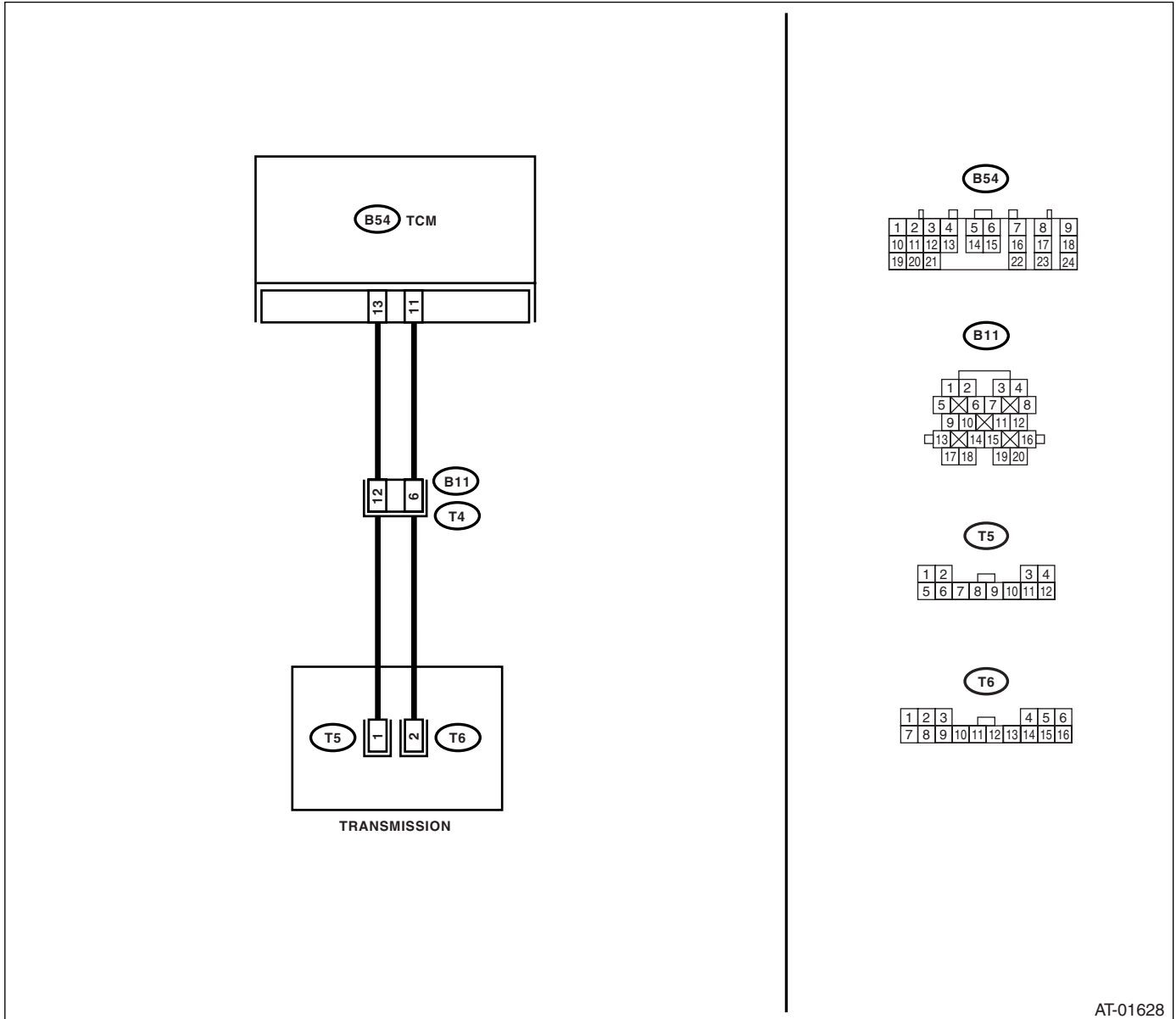
DTC DETECTING CONDITION:

Input signal circuit of TCM to ATF temperature sensor 2 is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01628

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|--|--|
| <p>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</p> <p>1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector.</p> <p>Connector & terminal (B54) No. 13 — (B11) No. 12: (B54) No. 11 — (B11) No. 6:</p> | Is the resistance less than 1 Ω ? | Go to step 2. | Repair the open circuit in harness between TCM and transmission connector. |
| <p>2 CHECK ATF TEMPERATURE SENSOR.</p> <p>1) Turn the ignition switch to OFF. 2) Connect the connectors to transmission and TCM. 3) Turn the ignition switch to ON and start engine. 4) Warm-up the transmission until the ATF temperature reaches to 80°C (176°F).</p> <p>NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature.</p> <p>5) Disconnect the connector from transmission. 6) Measure the resistance between transmission connector terminals.</p> <p>Connector & terminal (T4) No. 6 — (T4) No. 12:</p> | Is the resistance 300 — 700 Ω ? | Go to step 3. | Go to step 7. |
| <p>3 CHECK ATF TEMPERATURE SENSOR.</p> <p>Measure the resistance between transmission connector terminals.</p> <p>Connector & terminal (T4) No. 6 — (T4) No. 12:</p> | Does the resistance value increase while the ATF temperature decreases? | Go to step 4. | Go to step 7. |
| <p>4 PREPARE SUBARU SELECT MONITOR.</p> | Do you have a Subaru Select Monitor? | Go to step 6. | Go to step 5. |
| <p>5 CHECK INPUT SIGNAL FOR TCM.</p> <p>1) Connect the connector to transmission. 2) Warm-up the transmission until the ATF temperature is approx. 80°C (176°F).</p> <p>NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature.</p> <p>3) Measure the voltage between TCM connector terminals.</p> <p>Connector & terminal (B54) No. 11 (+) — (B54) No. 13 (-):</p> | Is the voltage 0.4 — 0.9 V? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair harness or contact in the ATF temperature sensor and transmission connector. | Go to step 8. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|---|
| 6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connector. 2) Turn the ignition switch to ON. (engine OFF) 3) Read the ATF temperature using Subaru Select Monitor. | Does the ATF temperature gradually decrease? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair harness or contact in the ATF temperature sensor and transmission connector. | Go to step 8. |
| 7 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. NOTE: Raise all wheels off floor. 5) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 6) Remove the oil pan, and disconnect the connector from control valve body connector. 7) Measure the resistance between transmission connector and control valve body connector. <i>Connector & terminal</i> <i>(T4) No. 12 — (T5) No. 1:</i> <i>(T4) No. 6 — (T6) No. 2:</i> | Is the resistance less than 1 Ω ? | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> | Repair the open circuit in harness between control valve body connector and transmission connector. |
| 8 CHECK POOR CONTACT. Check poor contact of ATF temperature sensor 1 circuit. | Is there poor contact? | Repair the poor contact. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AL:DTC P1717 ATF TEMP. SENSOR 2 CIRCUIT HIGH

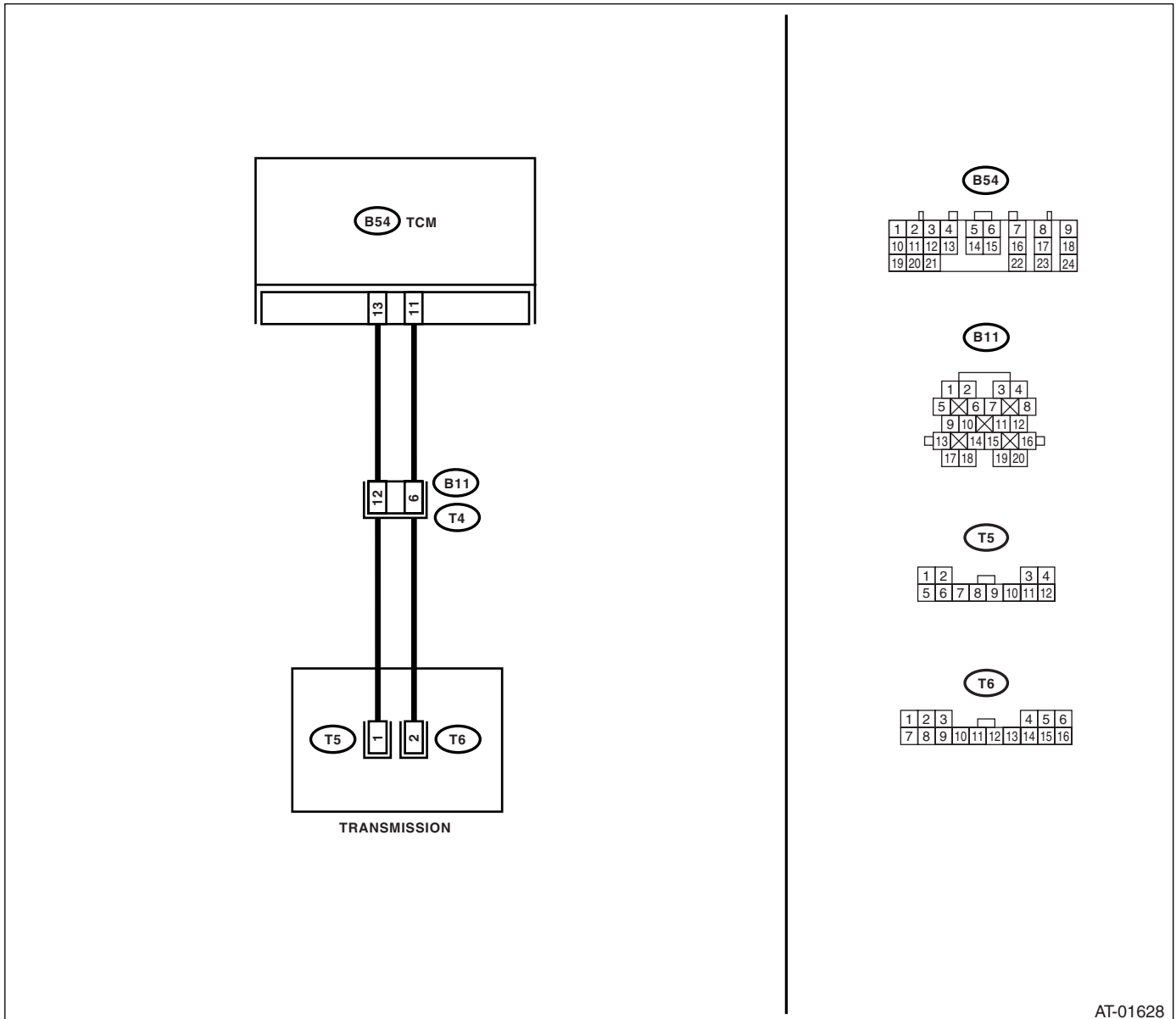
DTC DETECTING CONDITION:

Input signal circuit of TCM to ATF temperature sensor 2 is open or shorted.

TROUBLE SYMPTOM:

Excessive shift shock.

WIRING DIAGRAM:



AT-01628

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|--|---|
| 1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM and transmission. 3) Measure the resistance of harness between TCM connector and chassis ground. Connector & terminal (B54) No. 13 — (B11) No. 12: (B54) No. 11 — (B11) No. 6: | Is the resistance more than 1 M Ω ? | Go to step 2. | Repair the short circuit in harness between TCM and transmission connector. |
| 2 CHECK ATF TEMPERATURE SENSOR. 1) Turn the ignition switch to OFF. 2) Connect the connectors to transmission and TCM. 3) Turn the ignition switch to ON and start engine. 4) Warm-up the transmission until the ATF temperature reaches to 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 5) Disconnect the connector from transmission. 6) Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 6 — (T4) No. 12: | Is the resistance 300 — 700 Ω ? | Go to step 3. | Go to step 7. |
| 3 CHECK ATF TEMPERATURE SENSOR. Measure the resistance between transmission connector terminals. Connector & terminal (T4) No. 6 — (T4) No. 12: | Does the resistance value increase while the ATF temperature decreases? | Go to step 4. | Go to step 7. |
| 4 PREPARE SUBARU SELECT MONITOR. | Do you have a Subaru Select Monitor? | Go to step 6. | Go to step 5. |
| 5 CHECK INPUT SIGNAL FOR TCM. 1) Connect the connector to transmission. 2) Warm-up the transmission until the ATF temperature is approx. 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature. 3) Measure the voltage between TCM connector terminals. Connector & terminal (B54) No. 11 (+) — (B54) No. 13 (-): | Is the voltage 0.4 — 0.9 V? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair harness or contact in the ATF temperature sensor and transmission connector. | Go to step 8. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--|--|
| 6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR. 1) Connect the connector. 2) Turn the ignition switch to ON. (engine OFF) 3) Read the ATF temperature using Subaru Select Monitor. | Does the ATF temperature gradually decrease? | Even if the SPORT indicator lights blinks, the system is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair harness or contact in the ATF temperature sensor and transmission connector. | Go to step 8. |
| 7 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND CONTROL VALVE BODY. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Remove the transmission connector from bracket. 4) Lift-up the vehicle and place it on rigid racks. NOTE: Raise all wheels off floor. 5) Drain the ATF. CAUTION: Do not drain the ATF until it cools down. 6) Remove the oil pan, and disconnect the connector from control valve body connector. 7) Measure the resistance between transmission ground and control valve body connector. Connector & terminal <i>(T5) No. 1 — Chassis ground:</i> <i>(T6) No. 2 — Chassis ground:</i> | Is the resistance more than 1 MΩ? | Replace the control valve body. <Ref. to 5AT-58, Control Valve Body.> | Repair the short circuit in harness between control valve body connector and transmission connector. |
| 8 CHECK POOR CONTACT. Check poor contact of ATF temperature sensor 1 circuit. | Is there poor contact? | Repair the poor contact. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

AM:DTC P1718 AT CAN COMMUNICATION CIRCUIT

NOTE:

For DTC P1718 AT CAN Communication circuit, Refer to "LAN System". <Ref. to LAN(diag)-14, READ DIAGNOSTIC TROUBLE CODE (DTC), OPERATION, Subaru Select Monitor.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

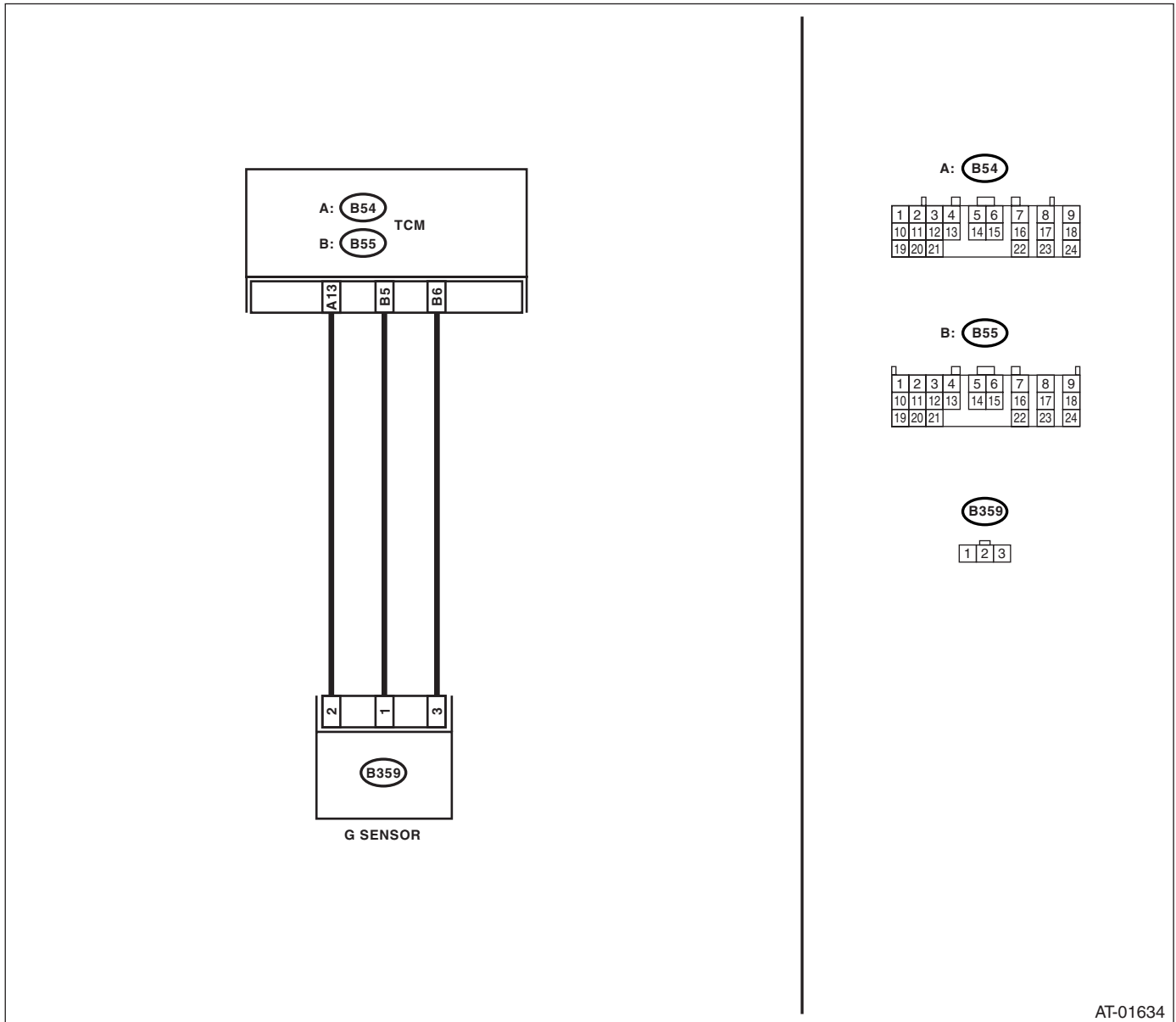
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AN:DTC P1760 LATERAL ACCELERATION SENSOR PERFORMANCE PROBLEM

DTC DETECTING CONDITION:

Faulty lateral G sensor output voltage

WIRING DIAGRAM:



AT-01634

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|--|--|
| 1 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the Subaru Select Monitor display. | Is the value on the monitor display 2.3 — 2.7 V when the vehicle is on a level? | Go to step 2. | Go to step 7. |
| 2 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Remove the console box. 3) Remove the lateral G sensor from vehicle. (Do not disconnect connector.) 4) Turn the ignition switch to ON. 5) Select {Current Data Display & Save} in Subaru Select Monitor. 6) Read the Subaru Select Monitor display. | Is the value on the monitor display 3.3 — 4.3 V when lateral G sensor is inclined to the right to 90°? | Go to step 3. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 3 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR. Read the Subaru Select Monitor display. | Is the value on the monitor display 0.7 — 1.7 V when lateral G sensor is inclined to the left to 90°? | Go to step 4. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 4 CHECK POOR CONTACT IN CONNECTOR. Turn the ignition switch to OFF. | Is there poor contact in connector between TCM and the lateral G sensor? | Repair the connector. | Go to step 5. |
| 5 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC. | Is the same DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 6. |
| 6 CHECK OTHER DTC DETECTION. | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Temporary poor contact occurs. |
| 7 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. Connector & terminal (B54) No. 13 — (B55) No. 6: | Is the resistance 5.0 — 6.0 kΩ? | Go to step 8. | Repair the harness connector between lateral G sensor and TCM. |
| 8 CHECK LATERAL G SENSOR. 1) Remove the console box. 2) Remove the lateral G sensor from vehicle. 3) Connect the connector to lateral G sensor. 4) Connect the connector to ABSCM&H/U. 5) Turn the ignition switch to ON. 6) Measure the voltage between lateral G sensor connector terminals. Connector & terminal (B359) No. 3 (+) — No. 2 (-): | Is the voltage 2.3 — 2.7 V when the lateral G sensor is horizontal? | Go to step 9. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 9 CHECK LATERAL G SENSOR. Measure the voltage between lateral G sensor connector terminals. Connector & terminal (B359) No. 3 (+) — No. 2 (-): | Is the voltage 3.3 — 4.3 V when lateral G sensor is inclined to the right to 90°? | Go to step 10. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 10 CHECK LATERAL G SENSOR. Measure the voltage between lateral G sensor connector terminals. Connector & terminal (B359) No. 3 (+) — No. 2 (-): | Is the voltage 0.7 — 1.7 V when lateral G sensor is inclined to the left to 90°? | Go to step 11. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|-----------------------------|---|--------------------------------|
| 11 CHECK ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the inspection mode. 5) Read the DTC. | Is the same DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 12 . |
| 12 CHECK OTHER DTC DETECTION. | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Temporary poor contact occurs. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

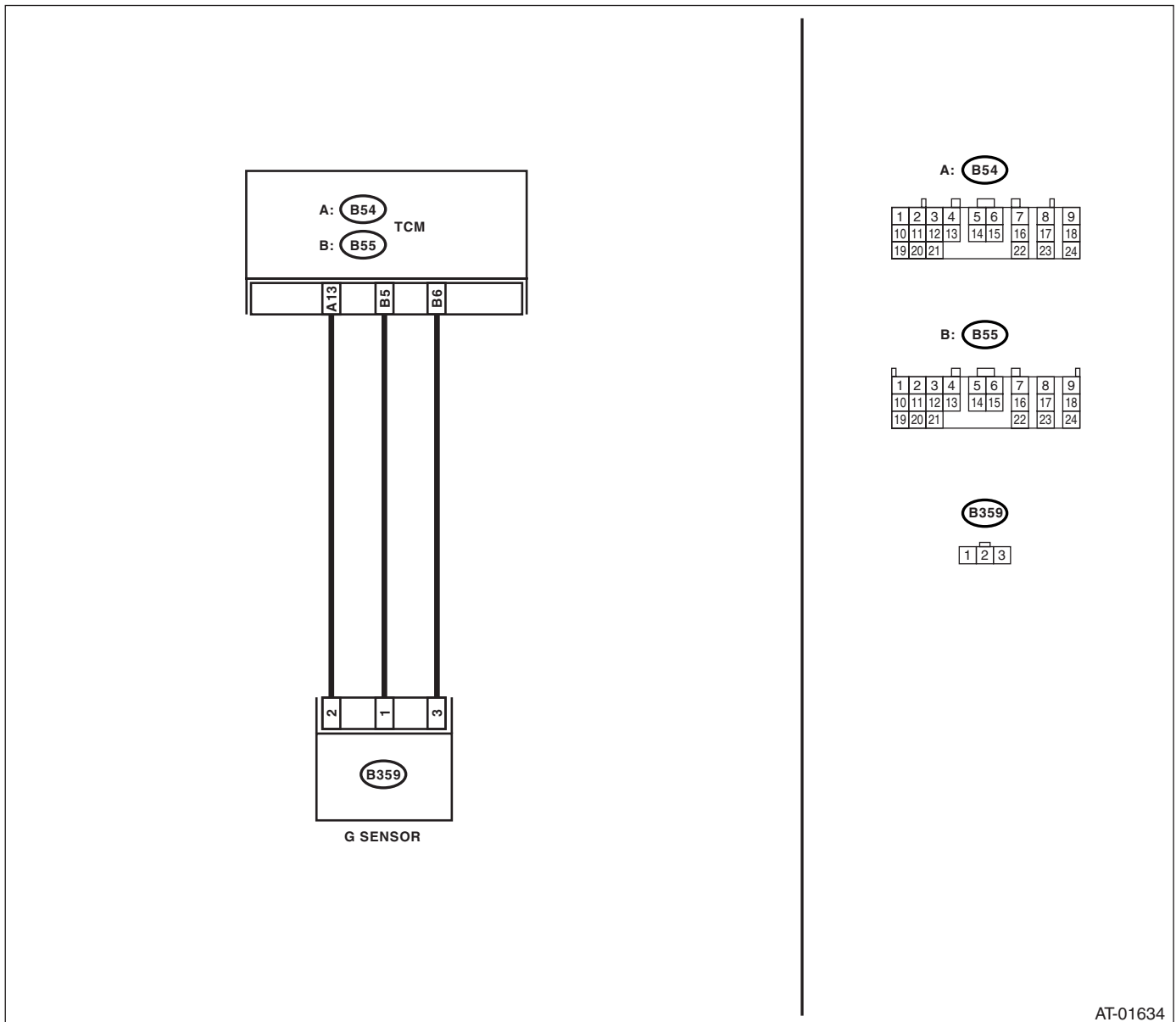
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AO:DTC P1761 LATERAL ACCELERATION SENSOR CIRCUIT LOW

DTC DETECTING CONDITION:

Faulty lateral G sensor output voltage

WIRING DIAGRAM:



AT-01634

| Step | Check | Yes | No |
|------|--|--|--|
| 1 | CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the lateral G sensor output on the Subaru Select Monitor display. | Is the value on the monitor display 2.3 — 2.7 V when the lateral G sensor is in horizontal position? | Go to step 2. Go to step 6. |
| 2 | CHECK POOR CONTACT IN CONNECTOR. Turn the ignition switch to OFF. | Is there poor contact in connector between TCM and the lateral G sensor? | Repair the connector. Go to step 3. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|--|--|
| 3 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC. | Is the same DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 4. |
| 4 CHECK OTHER DTC DETECTION. | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Temporary poor contact occurs. |
| 5 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. <i>Connector & terminal</i> <i>(B54) No. 13 — (B55) No. 6:</i> | Is the resistance 5.0 — 6.0 kΩ? | Go to step 6. | Repair the harness connector between lateral G sensor and TCM. |
| 6 CHECK GROUND SHORT OF HARNESS. Measure the resistance between TCM connector and chassis ground. <i>Connector & terminal</i> <i>(B54) No. 13 — Chassis ground:</i> | Is the resistance more than 1 MΩ? | Go to step 7. | Repair the harness between lateral G sensor and TCM. Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 7 CHECK LATERAL G SENSOR. 1) Remove the console box. 2) Remove the lateral G sensor from vehicle. 3) Connect the connector to lateral G sensor. 4) Connect the connector to the TCM. 5) Turn the ignition switch to ON. 6) Measure the voltage between lateral G sensor connector terminals. <i>Connector & terminal</i> <i>(B359) No. 3 (+) — No. 2 (-):</i> | Is the voltage 2.3 — 2.7 V when the lateral G sensor is horizontal? | Go to step 8. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 8 CHECK LATERAL G SENSOR. Measure the voltage between lateral G sensor connector terminals. <i>Connector & terminal</i> <i>(B359) No. 3 (+) — No. 2 (-):</i> | Is the voltage 3.3 — 4.3 V when lateral G sensor is inclined to the right to 90°? | Go to step 9. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 9 CHECK LATERAL G SENSOR. Measure the voltage between lateral G sensor connector terminals. <i>Connector & terminal</i> <i>(B359) No. 3 (+) — No. 2 (-):</i> | Is the voltage 0.7 — 1.7 V when lateral G sensor is inclined to the left to 90°? | Go to step 10. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 10 CHECK TCM. 1) Turn the ignition switch to OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the inspection mode. 5) Read the DTC. | Is the same DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 11. |
| 11 CHECK OTHER DTC DETECTION. | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Temporary poor contact occurs. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

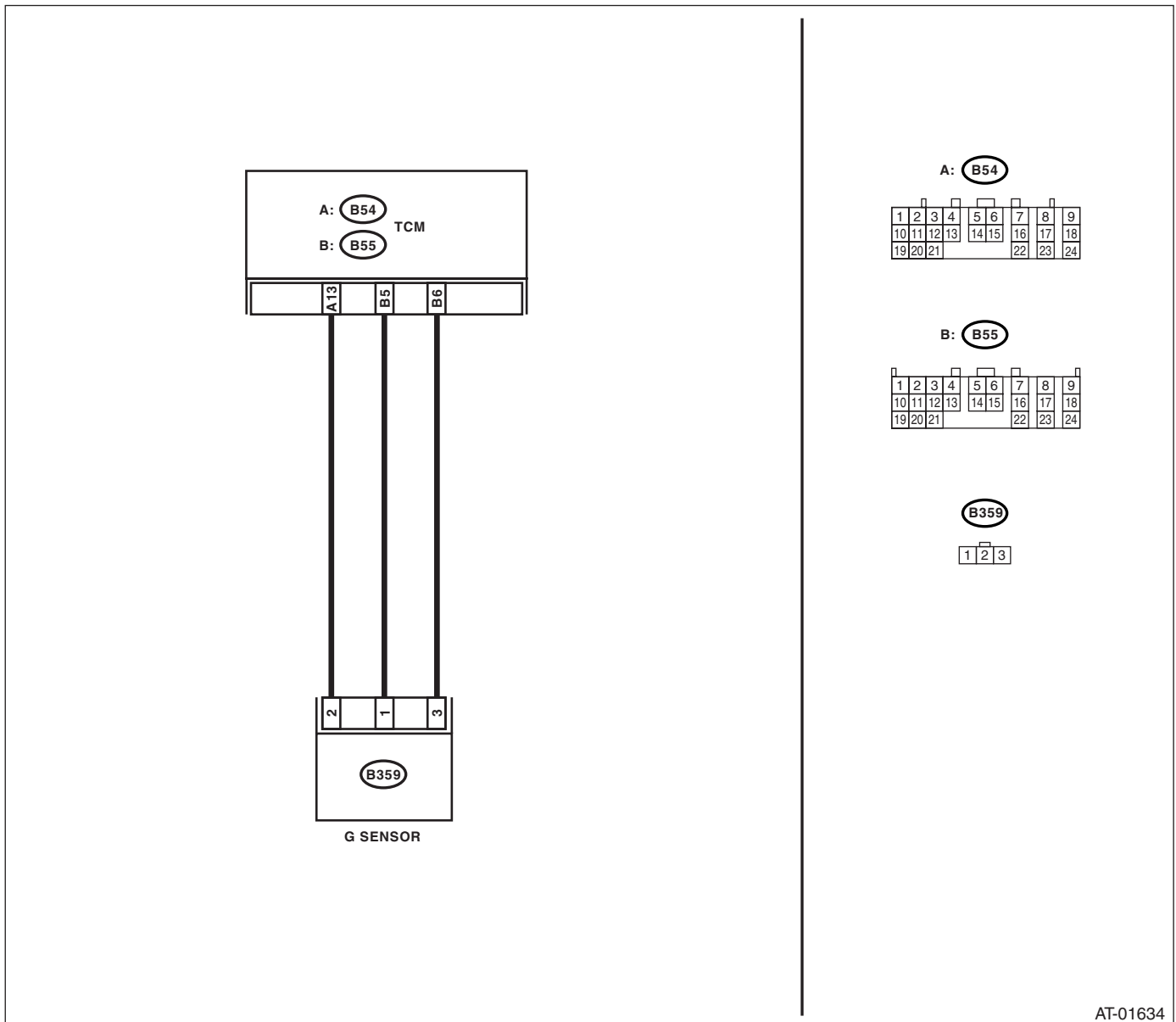
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AP:DTC P1762 LATERAL ACCELERATION SENSOR CIRCUIT HIGH

DTC DETECTING CONDITION:

Faulty lateral G sensor output voltage

WIRING DIAGRAM:



AT-01634

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|--|
| 1 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the lateral G sensor output on the Subaru Select Monitor display. | Is the value on the monitor display 2.3 — 2.7 V when the lateral G sensor is in horizontal position? | Go to step 2. | Go to step 5. |
| 2 CHECK POOR CONTACT IN CONNECTOR. | Is there poor contact in connector between TCM and the lateral G sensor? | Repair the connector. | Go to step 3. |
| 3 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC. | Is the same DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 4. |
| 4 CHECK OTHER DTC DETECTION. | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Temporary poor contact occurs. |
| 5 CHECK CONDITIONAL INFORMATION WHEN FAULTY. Read the lateral G sensor output on the Subaru Select Monitor display. | Is the reading indicated on monitor display 4.65 V or more? | Go to step 6. | Go to step 12. |
| 6 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. <i>Connector & terminal (B55) No. 5 — No. 1:</i> | Is the resistance 4.3 — 4.9 kΩ? | Go to step 7. | Repair the harness connector between lateral G sensor and ABSCM&H/U. |
| 7 CHECK BATTERY SHORT OF HARNESS. 1) Turn the ignition switch to OFF. 2) Remove the console box. 3) Disconnect the connector from lateral G sensor. 4) Disconnect the connector from TCM. 5) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal (B55) No. 6 (+) — Chassis ground (-):</i> | Is the voltage less than 1 V? | Go to step 8. | Repair the harness between lateral G sensor and TCM. |
| 8 CHECK BATTERY SHORT OF HARNESS. 1) Turn the ignition switch to ON. 2) Measure the voltage between TCM connector and chassis ground. <i>Connector & terminal (B55) No. 6 (+) — Chassis ground (-):</i> | Is the voltage less than 1 V? | Go to step 9. | Repair the harness between lateral G sensor and TCM. |
| 9 CHECK POOR CONTACT IN CONNECTOR. | Is there poor contact in connector between TCM and the lateral G sensor? | Repair the connector. | Go to step 10. |
| 10 CHECK TCM. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC. | Is the same DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 11. |
| 11 CHECK OTHER DTC DETECTION. | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Temporary poor contact occurs. |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|---|--|--|
| 12 CHECK INPUT VOLTAGE OF LATERAL G SENSOR. 1) Turn the ignition switch to OFF. 2) Remove the console box. 3) Remove the lateral G sensor from vehicle. (Do not disconnect connector.) 4) Turn the ignition switch to ON. 5) Measure the voltage between lateral G sensor connector terminals. Connector & terminal (B359) No. 1 (+) — No. 2 (-): | Is the voltage 4.75 — 5.25 V? | Go to step 13. | Repair the harness connector between lateral G sensor and TCM. |
| 13 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. Connector & terminal (B55) No. 5 — No. 6: | Is the resistance 5.0 — 5.6 kΩ? | Go to step 14. | Repair the harness connector between lateral G sensor and TCM. |
| 14 CHECK LATERAL G SENSOR. 1) Connect the connector to lateral G sensor. 2) Connect the connector to the TCM. 3) Turn the ignition switch to ON. 4) Measure the voltage between lateral G sensor connector terminals. Connector & terminal (B359) No. 3 (+) — No. 2 (-): | Is the voltage 2.1 — 2.5 V when the lateral G sensor is horizontal? | Go to step 15. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 15 CHECK LATERAL G SENSOR. Measure the voltage between lateral G sensor connector terminals. Connector & terminal (B359) No. 3 (+) — No. 2 (-): | Is the voltage 3.3 — 3.7 V when lateral G sensor is inclined to the right to 90°? | Go to step 16. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 16 CHECK LATERAL G SENSOR. Measure the voltage between lateral G sensor connector terminals. Connector & terminal (B359) No. 3 (+) — No. 2 (-): | Is the voltage 0.5 — 0.9 V when lateral G sensor is inclined to the left to 90°? | Go to step 17. | Replace the lateral G sensor. <Ref. to 5AT-63, Lateral G Sensor.> |
| 17 CHECK POOR CONTACT IN CONNECTOR. Turn the ignition switch to OFF. | Is there poor contact in connector between TCM and the lateral G sensor? | Repair the connector. | Go to step 18. |
| 18 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC. | Is the same DTC displayed? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 19. |
| 19 CHECK OTHER DTC DETECTION. | Is any other DTC displayed? | Perform the diagnosis according to DTC. | Temporary poor contact occurs. |

AQ:DTC P1798 GEAR 1 ENGINE BRAKE

NOTE:

Refer to DTC P0773 for diagnostic procedure. <Ref. to 5AT(diag)-94, DTC P0773 SHIFT SOLENOID “E” ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AR:DTC P1799 INTERLOCK

DTC DETECTING CONDITION:

Perform the interlock judgment when the oil pressure switch pattern detect the specified interlock patterns for more than 2 seconds other than shifting.

TROUBLE SYMPTOM:

Locked to 2nd, 4th or 5th gear.

| | Step | Check | Yes | No |
|---|---------------------|--|---|--|
| 1 | CHECK DTC OF TCM. | Is DTC of oil pressure switch detected? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | CHECK DTC OF TCM. | Is the DTC related to solenoid function or solenoid circuit detected? | Perform the diagnosis according to DTC. | Go to step 3. |
| 3 | CHECK POOR CONTACT. | Is there any open or poor contact of connector (loosing terminal, entering foreign matter, damaging connector body)? | Repair the poor contact. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

AS:DTC P1817 SPORTS MODE SWITCH CIRCUIT (MANUAL SWITCH)

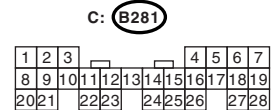
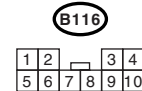
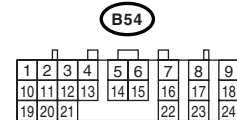
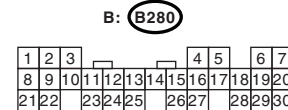
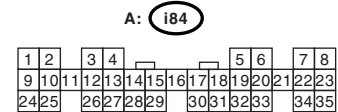
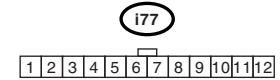
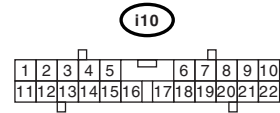
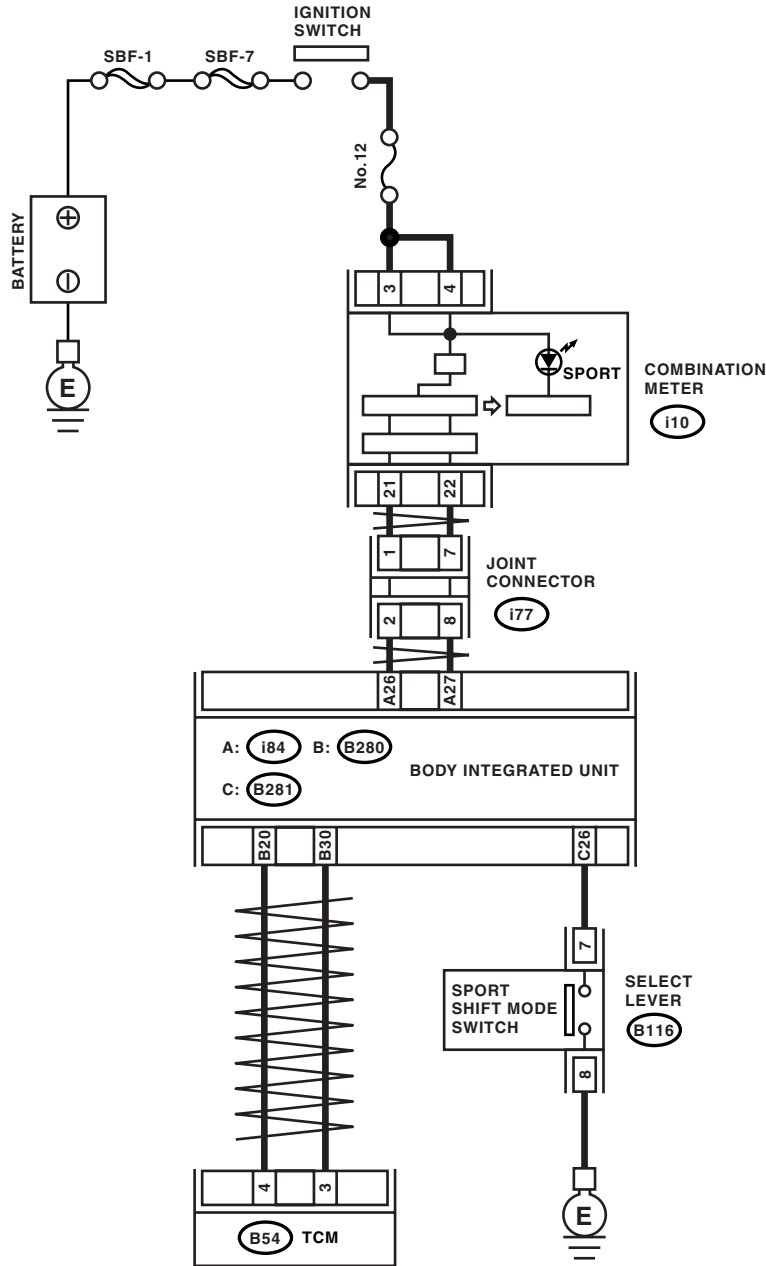
DTC DETECTING CONDITION:

Input signal circuit of SPORT shift switch is open or shorted.

TROUBLE SYMPTOM:

- Can not set to manual mode.
- "SPORT" light illuminates when shifting to "N" → "D" range.

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|---|--|
| 1 CHECK BODY INTEGRATED UNIT. 1) Connect the Subaru Select Monitor to data link connector. 2) Turn the ignition switch to ON. (engine OFF) 3) Read the DTC of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Is DTC displayed? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Shift the select lever to "P" range. 2) Read the TIP mode SW data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Is OFF displayed? | Go to step 3. | Go to step 7. |
| 3 CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Shift the select lever from "P" to "D" range. 2) Read the TIP mode SW data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Is the indication on each range OFF? | Go to step 4. | Replace the select lever assembly. <Ref. to CS-7, Select Lever.> |
| 4 CHECK BODY INTEGRATED UNIT INPUT SIGNAL. 1) Shift the select lever to manual mode. 2) Shift the select lever to other than "D" range. 3) Read the TIP mode SW data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.> | Is OFF displayed? | Go to step 5. | Replace the select lever assembly. <Ref. to CS-7, Select Lever.> |
| 5 CHECK DTC OF TCM. | Is DTC of Transmission Range Sensor Circuit (PRNDL Input) and AT CAN communication circuit displayed? | Perform the diagnosis according to each DTC. | Go to step 6. |
| 6 CHECK TCM INPUT SIGNAL. 1) Shift the select lever from "P" to "D" range. 2) Read the TIP mode SW data of TCM using Subaru Select Monitor. <Ref. to 5AT(diag)-16, OPERATION, Subaru Select Monitor.> | Is the indication on each range OFF? | Even if the SPORT indicator lights blinks, the circuit is in normal condition. A temporary poor contact of connector or harness may be the cause. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 7 CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect harness connector from body integrated unit and select lever. 3) Measure the harness resistance between the body integrated unit and chassis ground. Connector & terminal (B281) No. 26 — Chassis ground: | Is the resistance more than 1 MΩ? | Go to step 8. | Repair the short circuit of harness between the body integrated unit and SPORT shift switch. |
| 8 CHECK SPORT SHIFT SWITCH. 1) Shift the select lever to "P" range. 2) Measure the resistance between harness connector terminals of SPORT shift switch. Terminals (B116) No. 7 — No. 8: | Is the resistance more than 1 MΩ? | Check the body integrated unit. | Replace the select lever assembly. <Ref. to CS-7, Select Lever.> |

AT:DTC P1840 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH A CIRCUIT

DTC DETECTING CONDITION:

Front brake oil pressure switch malfunction.

TROUBLE SYMPTOM:

Excessive shift shock

NOTE:

Refer to DTC P0751 for diagnostic procedure. <Ref. to 5AT(diag)-65, DTC P0751 SHIFT SOLENOID "A" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AU:DTC P1841 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH B CIRCUIT

DTC DETECTING CONDITION:

Low coast brake oil pressure switch malfunction.

TROUBLE SYMPTOM:

Excessive shift shock

NOTE:

Refer to DTC P0771 for diagnostic procedure. <Ref. to 5AT(diag)-91, DTC P0771 SHIFT SOLENOID "E" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AV:DTC P1842 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH C CIRCUIT

DTC DETECTING CONDITION:

Input clutch oil pressure switch malfunction.

TROUBLE SYMPTOM:

Excessive shift shock.

NOTE:

Refer to DTC P0756 for diagnostic procedure. <Ref. to 5AT(diag)-72, DTC P0756 SHIFT SOLENOID "B" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AW:DTC P1843 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH D CIRCUIT

DTC DETECTING CONDITION:

Direct clutch oil pressure switch malfunction.

TROUBLE SYMPTOM:

Excessive shift shock.

NOTE:

Refer to DTC P0766 for diagnostic procedure. <Ref. to 5AT(diag)-85, DTC P0766 SHIFT SOLENOID "D" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AX:DTC P1844 TRANSMISSION FLUID PRESSURE SENSOR/SWITCH E CIRCUIT

DTC DETECTING CONDITION:

High & low reverse clutch oil pressure switch malfunction.

TROUBLE SYMPTOM:

Excessive shift shock.

NOTE:

Refer to DTC P0761 for diagnostic procedure. <Ref. to 5AT(diag)-78, DTC P0761 SHIFT SOLENOID "C" PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

15. Diagnostic Procedure without Diagnostic Trouble Code (DTC)

A: CHECK SPORT SHIFT SWITCH

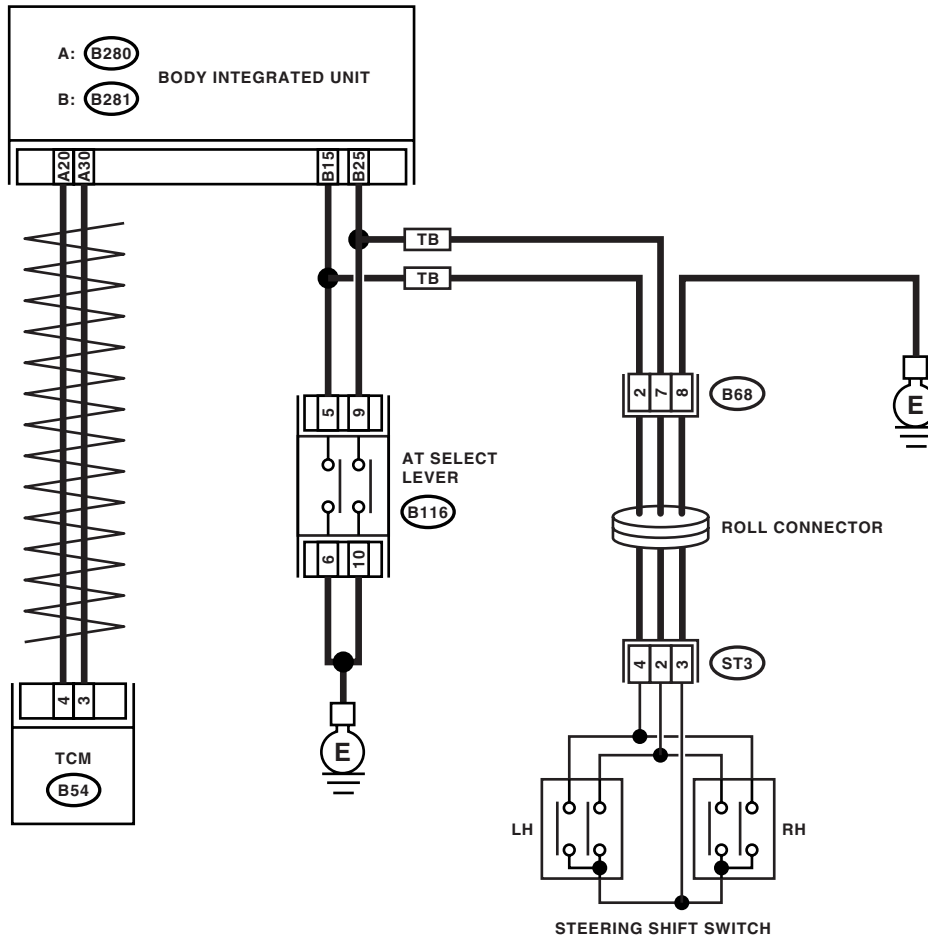
DIAGNOSIS:

Input signal circuit of SPORT shift switch is open or shorted.

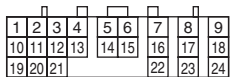
TROUBLE SYMPTOM:

Does not shift on manual mode.

WIRING DIAGRAM:



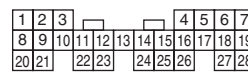
B54



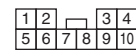
A: B280



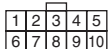
B: B281



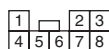
B116



ST3



B68



Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|---|---|
| 1 CHECK BODY INTEGRATED UNIT. 1) Perform the ON/OFF operation on SPORT shift switch. 2) Read the data of SPORT shift switch signal using Subaru Select Monitor. | Both ON/OFF can be detected normally? | Go to step 2. | Go to step 7. |
| 2 CHECK DTC OF BODY INTEGRATED UNIT. | Is DTC of CAN detected? | Perform the diagnosis according to DTC. | Go to step 3. |
| 3 CHECK TCM. 1) Perform the ON/OFF operation on SPORT shift switch. 2) Read the data of SPORT shift switch signal using Subaru Select Monitor. | Both ON/OFF can be detected normally? | Go to step 4. | Go to step 5. |
| 4 CHECK TIP INDICATOR ON COMBINATION METER. | Is the TIP indicator OK? | Go to step 6. | Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.> |
| 5 CHECK DTC OF TCM. | Is DTC of CAN detected? | Perform the diagnosis according to DTC. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 6 CHECK DTC OF METER. | Is DTC of CAN detected? | Perform the diagnosis according to DTC. | Replace the meter. |
| 7 CHECK SPORT SHIFT SWITCH GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from SPORT shift switch. 3) Measure the resistance of harness between SPORT shift switch connector and chassis ground. Connector & terminal (B116) No. 6 — Chassis ground: | Is the resistance less than 1 Ω ? | Go to step 8. | Repair the open circuit in harness between SPORT shift switch and chassis ground. |
| 8 CHECK SPORT SHIFT SWITCH. Measure the resistance between the SPORT shift switch terminals. Connector & terminal (B116) No. 6 — No. 5: | Is the resistance more than 1 M Ω ? | Go to step 9. | Replace the guide plate assembly. |
| 9 CHECK SPORT SHIFT SWITCH. 1) Shift the select lever to manual mode. 2) Measure the resistance between the SPORT shift switch terminals. Connector & terminal (B116) No. 6 — No. 5: | Is the resistance less than 1 Ω ? | Go to step 10. | Replace the guide plate assembly. |
| 10 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of harness between the body integrated unit and SPORT shift switch connector. Connector & terminal (B116) No. 5 — (B281) No. 15: | Is the resistance less than 1 Ω ? | Go to step 11. | Repair the open circuit in harness between SPORT shift switch connector and TCM connector, or poor contact in coupling connector. |

Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|--|----------------|--|
| 11 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of harness between SPORT shift switch connector and chassis ground. <i>Connector & terminal</i> <i>(B116) No. 5 — Chassis ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 12. | Repair the short circuit in harness between SPORT shift switch connector and TCM connector. |
| 12 CHECK INPUT SIGNAL FOR TCM. 1) Connect all the connectors. 2) Turn the ignition switch to ON (engine OFF). 3) Measure the signal voltage for TCM. <i>Connector & terminal</i> <i>(B281) No. 15 (+) — Chassis ground (-):</i> | Is the voltage more than 9 V? | Go to step 13. | Replace the body integrated unit. <Ref. to SL-46, Body Integrated Unit.> |
| 13 CHECK INPUT SIGNAL FOR TCM. 1) Shift and hold the select lever to up side. 2) Measure the signal voltage for TCM. <i>Connector & terminal</i> <i>(B281) No. 15 (+) — Chassis ground (-):</i> | Is the voltage less than 1 V? | Go to step 26. | Replace the body integrated unit. <Ref. to SL-46, Body Integrated Unit.> |
| 14 CHECK SPORT SHIFT SWITCH GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from SPORT shift switch. 3) Measure the resistance of harness between SPORT shift switch connector and chassis ground. <i>Connector & terminal</i> <i>(B116) No. 10 — Chassis ground:</i> | Is the resistance less than 1 Ω ? | Go to step 15. | Repair the open circuit in harness between SPORT shift switch and chassis ground. |
| 15 CHECK SPORT SHIFT SWITCH. Measure the resistance between the SPORT shift switch terminals. <i>Connector & terminal</i> <i>(B116) No. 10 — No. 9:</i> | Is the resistance more than 1 M Ω ? | Go to step 16. | Replace the guide plate assembly. |
| 16 CHECK SPORT SHIFT SWITCH. 1) Shift the select lever to manual mode. 2) Measure the resistance between the SPORT shift switch terminals. <i>Connector & terminal</i> <i>(B116) No. 10 — No. 9:</i> | Is the resistance less than 1 Ω ? | Go to step 17. | Replace the guide plate assembly. |
| 17 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of harness between the body integrated unit and SPORT shift switch connector. <i>Connector & terminal</i> <i>(B116) No. 9 — (B281) No. 25:</i> | Is the resistance less than 1 Ω ? | Go to step 18. | Repair the open circuit in harness between SPORT shift switch connector and body integrated unit connector, or poor contact in coupling connector. |

Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|----------------|--|
| 18 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH. 1) Disconnect the steering roll connector. 2) Measure the resistance of harness between SPORT shift switch connector and chassis ground. <i>Connector & terminal</i> <i>(B116) No. 9 — Chassis ground:</i> | Is the resistance more than 1 M Ω ? | Go to step 19. | Repair the short circuit of harness between the SPORT shift switch connector and body integrated unit connector. |
| 19 CHECK THE INPUT SIGNAL TO BODY INTEGRATED UNIT. 1) Connect all the connectors. 2) Turn the ignition switch to ON (engine OFF). 3) Check the signal voltage for body integrated unit. <i>Connector & terminal</i> <i>(B281) No. 25 (+) — Chassis ground (-):</i> | Is the voltage more than 9 V? | Go to step 20. | Replace the body integrated unit. <Ref. to SL-46, Body Integrated Unit.> |
| 20 CHECK THE INPUT SIGNAL TO BODY INTEGRATED UNIT. 1) Shift and hold the select lever to up side. 2) Check the signal voltage for body integrated unit. <i>Connector & terminal</i> <i>(B281) No. 25 (+) — Chassis ground (-):</i> | Is the voltage less than 1 V? | Go to step 26. | Replace the body integrated unit. <Ref. to SL-46, Body Integrated Unit.> |
| 21 CHECK STEERING SHIFT SWITCH GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from steering roll connector. 3) Measure the resistance of harness between steering roll connector and chassis ground. <i>Connector & terminal</i> <i>(ST3) No. 3 — Chassis ground:</i> | Is the resistance less than 1 Ω ? | Go to step 22. | Repair the open circuit in harness between steering roll connector and chassis ground. |
| 22 CHECK STEERING SHIFT SWITCH. Measure the resistance between steering roll connector terminals. <i>Connector & terminal</i> <i>(ST3) No. 1 — No. 3:</i> | Is the resistance more than 1 M Ω ? | Go to step 23. | Replace the steering roll connector or steering shift switch. Or repair the poor contact in connector. |
| 23 CHECK STEERING SHIFT SWITCH. 1) Press and hold the steering shift switch to + side. 2) Measure the resistance between the steering shift switch terminals. <i>Connector & terminal</i> <i>(ST3) No. 1 — No. 3:</i> | Is the resistance less than 1 Ω ? | Go to step 24. | Replace the steering roll connector or steering shift switch. Or repair the poor contact in connector. |
| 24 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STEERING ROLL CONNECTOR. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of harness between the body integrated unit connector and steering roll connector. <i>Connector & terminal</i> <i>(B281) No. 15 — (B68) No. 2:</i> | Is the resistance less than 1 Ω ? | Go to step 25. | Repair the open circuit in harness between body integrated unit connector and steering roll connector, or poor contact in connector. |

Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|---|--|--------------------------|--|
| 25 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STEERING ROLL CONNECTOR. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of harness between the body integrated unit connector and steering roll connector. Connector & terminal (B281) No. 25 — (B68) No. 6: | Is the resistance less than 1 Ω ? | Go to step 26 . | Repair the open circuit in harness between body integrated unit connector and steering roll connector, or poor contact in connector. |
| 26 CHECK POOR CONTACT. | Is there poor contact in SPORT shift switch circuit? | Repair the poor contact. | A temporary poor contact of SPORT shift switch connector or harness |

B: CHECK SPORT SHIFT INDICATOR LIGHT

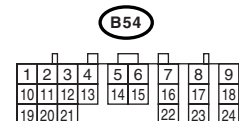
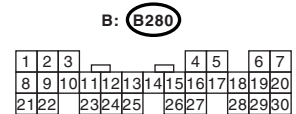
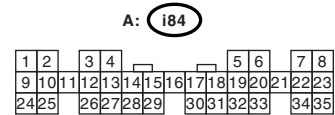
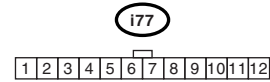
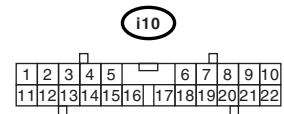
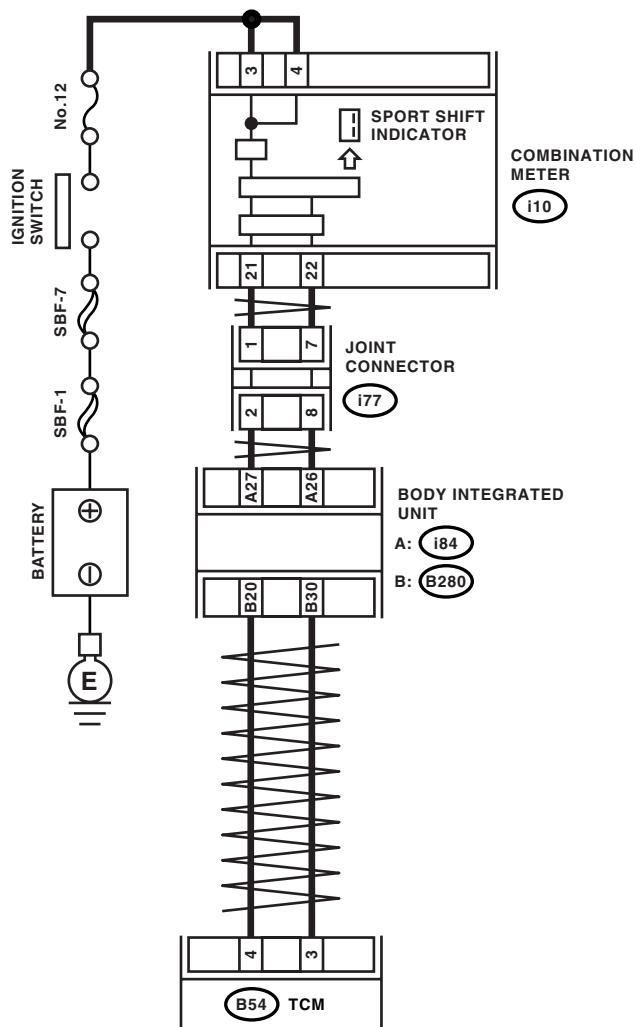
DIAGNOSIS:

Output signal circuit of SPORT shift indicator light is open or shorted.

TROUBLE SYMPTOM:

- SPORT shift indicator light does not illuminate or remains illuminated.
- SPORT shift indicator light display does not change.

WIRING DIAGRAM:



Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No |
|--|---|---|---|
| 1 CHECK BODY INTEGRATED UNIT. Check DTC of body integrated unit. | Is DTC of AT CAN communication circuit displayed? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 CHECK TCM. Check DTC of TCM. | Is DTC of AT CAN communication circuit displayed? | Perform the diagnosis according to DTC. | Go to step 3. |
| 3 CHECK TCM. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON. (engine OFF) 4) Turn the Subaru Select Monitor switch to ON. 5) Shift the select lever to manual mode side, and then shift down the select lever. 6) Read the indicator. | Is gear position 1 and "▲" displayed? | Go to step 4. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 4 CHECK TCM. 1) Shift up the select lever. 2) Read the indicator. | Is gear position 2 and "▼" displayed? | Go to step 5. | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> |
| 5 CHECK BODY INTEGRATED UNIT. Read the data of gear position using Subaru Select Monitor. | Is SPORT shift gear position 2? | Refer to "General Diagnostic Table". <Ref. to 5AT(diag)-147, General Diagnostic Table.> | Check the body integrated unit. <Ref. to SL-46, Body Integrated Unit.> |
| 6 CHECK COMBINATION METER. | Is the SPORT shift indicator OK? | Refer to "General Diagnostic Table". <Ref. to 5AT(diag)-147, General Diagnostic Table.> | Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.> |

Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

C: CHECK BUZZER

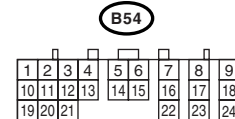
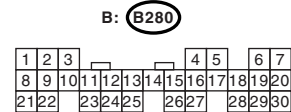
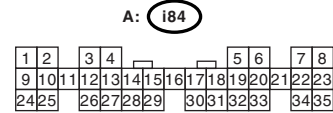
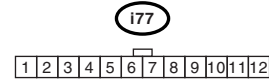
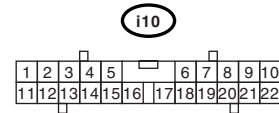
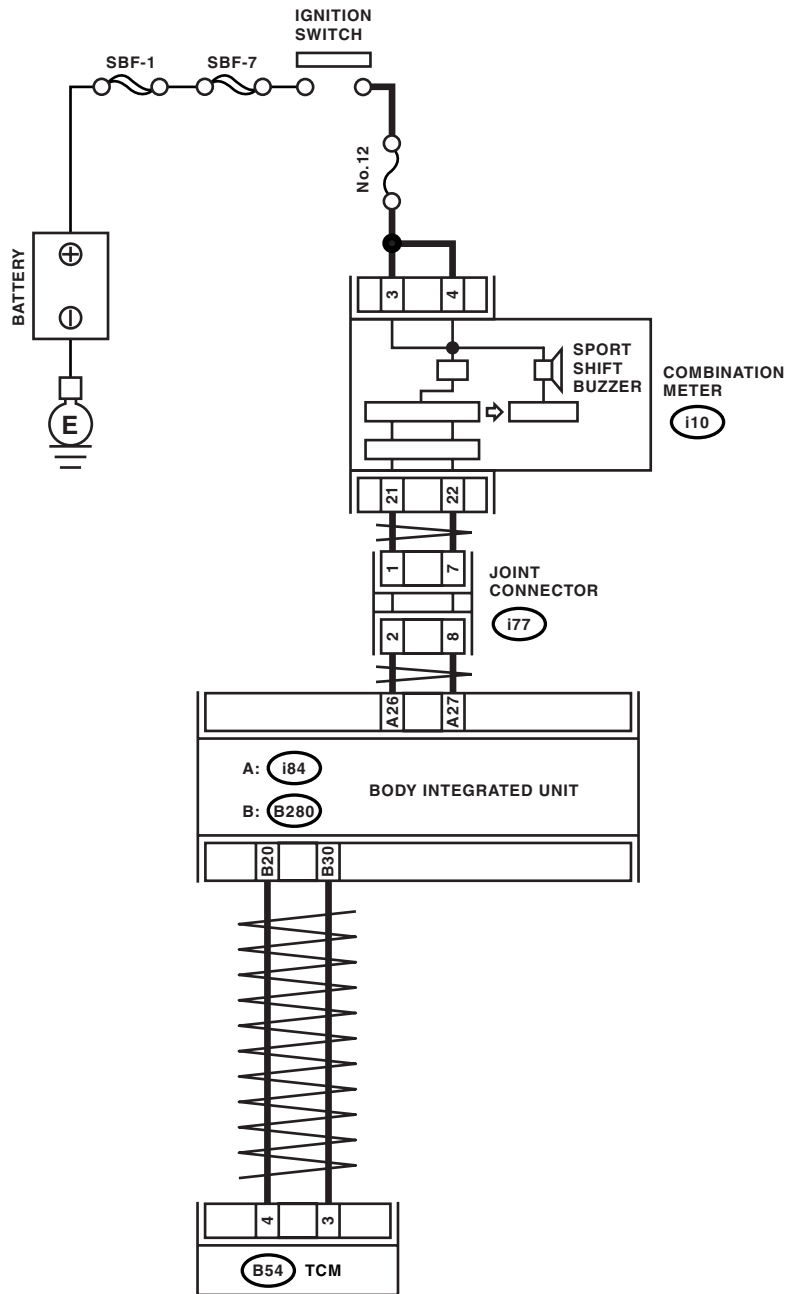
DIAGNOSIS:

Output signal circuit of buzzer is open or shorted.

TROUBLE SYMPTOM:

Buzzer remains beeping.

WIRING DIAGRAM:



Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Step | Check | Yes | No | |
|------|--|---|--|---|
| 1 | CHECK BODY INTEGRATED UNIT. Check DTC of body integrated unit. | Is DTC of CAN communication displayed? | Perform the diagnosis according to DTC. | Go to step 2. |
| 2 | CHECK TCM. Check DTC of TCM. | Is DTC of CAN communication displayed? | Perform the diagnosis according to DTC. | Go to step 5. |
| 3 | CHECK BUZZER STOP. Disconnect the connector (B54). | Does the buzzer stop? | Replace the TCM. <Ref. to 5AT-61, Transmission Control Module (TCM).> | Go to step 4. |
| 4 | CHECK BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON. (engine OFF) 4) Turn the Subaru Select Monitor switch to ON. 5) Read the data of SPORT shift buzzer using Subaru Select Monitor. | Is the SPORT shift buzzer display "ON"? | Replace the body integrated unit. <Ref. to SL-46, Body Integrated Unit.> | Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.> |
| 5 | CHECK COMBINATION METER. | Is the buzzer OK? | Refer to "General Diagnostic Table". <Ref. to 5AT(diag)-147, General Diagnostic Table.> | Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.> |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

16. General Diagnostic Table

A: INSPECTION

| Symptom | Problem parts |
|--|---|
| Shifting vehicle speed is low on "D" range. | <ul style="list-style-type: none"> • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Accelerator pedal position sensor • Throttle position sensor • ATF temperature sensor • CAN communication signal |
| Shifting vehicle speed is high on "D" range. | <ul style="list-style-type: none"> • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal • Brake switch signal • Lateral G sensor • ATF temperature sensor |
| Excessive shock. ("N" → "D" range) | <ul style="list-style-type: none"> • Engine idle speed • Engine speed signal • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • ATF temperature sensor • Oil pressure switch 1 and Front brake solenoid valve • CAN communication signal • Fluid level and condition • TCM power supply • PVIGN relay |
| Excessive shift shock on 1st of "D" range → 2nd of "D" range or "1st of manual mode" → "2nd of manual mode". | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • Oil pressure switch 4 and Direct clutch solenoid valve • CAN communication signal • Engine speed signal • Turbine speed sensor • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Fluid level and condition |
| Excessive shift shock on 2nd of "D" range → 3rd of "D" range or "2nd of manual mode" → "3rd of manual mode". | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • Oil pressure switch 5 and High & low reverse clutch solenoid valve • CAN communication signal • Engine speed signal • Turbine speed sensor • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Fluid level and condition |
| Excessive shift shock on 3rd of "D" range → 4th of "D" range or "3rd of manual mode" → "4th of manual mode". | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • Oil pressure switch 3 and Input clutch solenoid valve • CAN communication signal • Engine speed signal • Turbine speed sensor • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Fluid level and condition |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom | Problem parts |
|--|--|
| Excessive shift shock on 4th of "D" range → 5th of "D" range or "4th of manual mode" → "5th of manual mode". | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • Oil pressure switch 1 and Front brake solenoid valve • CAN communication signal • Engine speed signal • Turbine speed sensor • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Fluid level and condition |
| Excessive shock at kick down. | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • CAN communication signal • Engine speed signal • Turbine speed sensor • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Fluid level and condition |
| Excessive shock at shift up. | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • Engine speed signal • CAN communication signal • Turbine speed sensor • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Fluid level and condition |
| Excessive shock at lock up. | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • Engine speed signal • CAN communication signal • Turbine speed sensor • Lock up solenoid valve • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Fluid level and condition |
| Excessive shock at engine brake. | <ul style="list-style-type: none"> • Accelerator pedal position sensor • Throttle position sensor • Control cable adjustment • CAN communication signal • Fluid level and condition • Line pressure • Low coast brake solenoid valve |
| Judder is occurred at lock up. | <ul style="list-style-type: none"> • Fluid level and condition • Engine speed signal • Turbine speed sensor • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Accelerator pedal position sensor • Throttle position sensor • Lock up solenoid valve • ATF temperature sensor 1 and 2 |
| Noise at "R", "N" and "D" range. | <ul style="list-style-type: none"> • Fluid level and condition • Engine speed signal • ATF temperature sensor 1 and 2 |
| Hold at "D" range or 1st on manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Direct clutch solenoid valve • Line pressure • Up switch signal • CAN communication signal • Accelerator pedal position sensor |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom | Problem parts |
|---|--|
| Hold at "D" range or 2nd on manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Low coast brake solenoid valve • Line pressure • Up switch signal • Down switch signal • CAN communication signal • Accelerator pedal position sensor |
| Hold at "D" range or 3rd on manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Line pressure • Up switch signal • Down switch signal • CAN communication signal • Accelerator pedal position sensor |
| Hold at "D" range or 4th on manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 3 and Input clutch solenoid valve • Oil pressure switch 4 and Direct clutch solenoid valve • Oil pressure switch 5 and High & low reverse clutch solenoid valve • Low coast brake solenoid valve • Front brake solenoid valve • Line pressure • Up switch signal • Down switch signal • CAN communication signal • Accelerator pedal position sensor • TCM power supply • PVIGN relay |
| Hold at "D" range or 5th on manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 1 and Front brake solenoid valve • Line pressure • Down switch signal • CAN communication signal • Accelerator pedal position sensor |
| Gear does not shift 1st of "D" range → 2nd of "D" range or "1st of manual mode" → "2nd of manual mode". | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • Up switch • CAN communication signal • Accelerator pedal position sensor |
| Gear does not shift 2nd of "D" range → 3rd of "D" range or "2nd of manual mode" → "3rd of manual mode". | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 5 and High & low reverse clutch solenoid valve • Line pressure • Up switch signal • CAN communication signal • Accelerator pedal position sensor |
| Gear does not shift 3rd of "D" range → 4th of "D" range or "3rd of manual mode" → "4th of manual mode". | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 3 and Input clutch solenoid valve • Oil pressure switch 1 and Front brake solenoid valve • Line pressure • Up switch signal • CAN communication signal • Accelerator pedal position sensor |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom | Problem parts |
|--|--|
| Gear does not shift 4th of "D" range → 5th of "D" range or "4th of manual mode" → "5th of manual mode". | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 1 and Front brake solenoid valve • Oil pressure switch 4 and Direct clutch solenoid valve • Turbine speed sensor • ATF temperature sensor • Line pressure • Up switch signal • CAN communication signal • Accelerator pedal position sensor |
| Gear does not shift down to 4th on "D" range or manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 1 and Front brake solenoid valve • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • Down switch signal • CAN communication signal • Accelerator pedal position sensor |
| Gear does not shift down to 3rd on "D" range or manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 3 and Input clutch solenoid valve • Oil pressure switch 1 and Front brake solenoid valve • Line pressure • Down switch signal • CAN communication signal • Accelerator pedal position sensor • TCM power supply • PVIGN relay |
| Gear does not shift down to 2nd on "D" range or manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 5 and High & low reverse clutch solenoid • Line pressure • Down switch signal • CAN communication signal • Accelerator pedal position sensor |
| Gear does not shift down to 1st on "D" range or manual mode. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • Down switch signal • CAN communication signal • Accelerator pedal position sensor |
| No lock-up occurs. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Engine speed signal • Turbine speed sensor • Lock up solenoid valve • CAN communication signal • ATF temperature sensor 1 and 2 • Accelerator pedal position sensor • Brake switch signal • Range signal |
| No shift shock occurred when shifting 1st of "D" range → 2nd of "D" range or "1st of manual mode" → "2nd of manual mode". Or clutch slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • CAN communication signal |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom | Problem parts |
|--|--|
| No shift shock occurred when shifting 2nd of "D" range → 3rd of "D" range or "2nd of manual mode" → "3rd of manual mode". Or clutch slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 5 and High & low reverse clutch solenoid valve • Line pressure • CAN communication signal |
| No shift shock occurred when shifting 3rd of "D" range → 4th of "D" range or "3rd of manual mode" → "4th of manual mode". Or clutch slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 3 and Input clutch solenoid valve • Oil pressure switch 1 and Front brake solenoid valve • Line pressure • CAN communication signal |
| No shift shock occurred when shifting 4th of "D" range → 5th of "D" range or "4th of manual mode" → "5th of manual mode". Or clutch slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 1 and Front brake solenoid valve • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • Accelerator pedal position sensor • Throttle position sensor |
| Engine skids when shifting 5th of "D" range → 4th of "D" range or "5th of manual mode" → "4th of manual mode". Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 1 and Front brake solenoid valve • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • Accelerator pedal position sensor • Throttle position sensor |
| Engine skids when shifting 4th of "D" range → 3rd of "D" range or "4th of manual mode" → "3rd of manual mode". Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 3 and Input clutch solenoid valve • Oil pressure switch 1 and Front brake solenoid valve • Line pressure • Accelerator pedal position sensor • Throttle position sensor |
| Engine skids when shifting 3rd of "D" range → 2nd of "D" range or "3rd of manual mode" → "2nd of manual mode". Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 5 and High & low reverse clutch solenoid valve • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • Accelerator pedal position sensor • Throttle position sensor |
| Engine skids when shifting 2nd of "D" range → 1st of "D" range or "2nd of manual mode" → "1st of manual mode". Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Vehicle speed sensor 1 and Vehicle speed sensor 2 • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure • Accelerator pedal position sensor • Throttle position sensor |
| Engine brake does not function at 5th → 4th of manual mode. | <ul style="list-style-type: none"> • Inhibitor switch • Fluid level and condition • Control cable adjustment • Manual mode switch • Oil pressure switch 1 • Down switch signal |
| Engine brake does not function at 4th → 3rd of manual mode. | <ul style="list-style-type: none"> • Inhibitor switch • Fluid level and condition • Control cable adjustment • Manual mode switch • Oil pressure switch 1 and Oil pressure switch 3 • Down switch signal |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom | Problem parts |
|--|--|
| Engine brake does not function at 3rd → 2nd of manual mode. | <ul style="list-style-type: none"> • Inhibitor switch • Fluid level and condition • Control cable adjustment • Manual mode switch • Oil pressure switch 5 • Low coast brake solenoid valve |
| Engine brake does not function at 2nd → 1st of manual mode. | <ul style="list-style-type: none"> • Inhibitor switch • Fluid level and condition • Control cable adjustment • Manual mode switch • Oil pressure switch 4 • Low coast brake solenoid valve |
| Excessive acceleration failure on “D” range. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal • Inhibitor switch • Control cable adjustment • Vehicle speed sensor 1, 2 |
| Excessive acceleration failure on “R” range. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • Oil pressure switch 5 and High & low reverse clutch solenoid valve • CAN communication signal • Inhibitor switch • Control cable adjustment • Vehicle speed sensor 1, 2 |
| Engine skids when start driving (1st) the vehicle. Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal |
| Engine skids when driving at 2nd. Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal • Oil pressure switch 4 and Direct clutch solenoid valve |
| Engine skids when driving at 3rd. Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal • Oil pressure switch 5 and High & low reverse clutch solenoid valve |
| Engine skids when driving at 4th. Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal • Oil pressure switch 3 and Input clutch solenoid valve |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom | Problem parts |
|--|---|
| 5Engine skids when driving 5th. Or slipping occurred. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal • Oil pressure switch 1 and Front brake solenoid valve |
| Slip at lock up. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Engine speed signal • Turbine speed sensor • Lock up solenoid valve • CAN communication signal |
| Maximum vehicle speed is low. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Accelerator pedal position sensor • Throttle position sensor • CAN communication signal • Direct clutch solenoid valve • Vehicle speed sensor 1 and 2 |
| There is completely no creep. | <ul style="list-style-type: none"> • Fluid level and condition • Engine speed signal • CAN communication signal • Oil pressure switch 4 and Direct clutch solenoid valve • Line pressure |
| Excessive large creep. | <ul style="list-style-type: none"> • Engine speed signal • CAN communication signal • Oil pressure switch 4 |
| Vehicle cannot be parking condition on "P" range. Parking condition is not released though shifting to other ranges. | <ul style="list-style-type: none"> • Inhibitor switch • Control cable adjustment |
| Vehicle can drive on "P" range. | <ul style="list-style-type: none"> • Inhibitor switch • Fluid level and condition • Control cable adjustment • Line pressure |
| Vehicle can drive on "N" range. | <ul style="list-style-type: none"> • Inhibitor switch • Fluid level and condition • Control cable adjustment • Line pressure |
| Vehicle cannot drive at any range. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Inhibitor switch • Control cable adjustment • Loosing or damaging of propeller shaft. • Loosing or damaging of drive shaft. |
| Vehicle cannot drive on "D" range. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Inhibitor switch • Control cable adjustment • Loosing or damaging of propeller shaft. • Loosing or damaging of drive shaft. |
| Vehicle cannot drive on "R" range. | <ul style="list-style-type: none"> • Fluid level and condition • Line pressure • Inhibitor switch • Control cable adjustment • Loosing or damaging of propeller shaft. • Loosing or damaging of drive shaft. |

General Diagnostic Table

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom | Problem parts |
|---|---|
| Engine cannot start on "P" or "N" range | <ul style="list-style-type: none">• Key switch and Starter• Control cable adjustment• Inhibitor switch• CAN communication line• TCM |
| Engine start other than "P" or "N" range | <ul style="list-style-type: none">• Key switch and Starter• Control cable adjustment• Inhibitor switch• TCM |
| Engine stalls. | <ul style="list-style-type: none">• Fluid level and condition• Engine speed signal• Turbine speed sensor• Lock up solenoid valve• Line pressure |
| Engine stalls when shifting to "N" → "D" and "R" range. | <ul style="list-style-type: none">• Fluid level and condition• Engine speed signal• Turbine speed sensor• Lock up solenoid valve• Line pressure |