

**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.

<b>CONTROL SYSTEMS</b>	<b>CS</b>
<b>AUTOMATIC TRANSMISSION</b>	<b>4AT</b>
<b>AUTOMATIC TRANSMISSION (DIAGNOSTICS)</b>	<b>4AT(diag)</b>
<b>AUTOMATIC TRANSMISSION</b>	<b>5AT</b>
<b>AUTOMATIC TRANSMISSION (DIAGNOSTICS)</b>	<b>5AT(diag)</b>
<b>MANUAL TRANSMISSION AND DIFFERENTIAL</b>	<b>5MT</b>
<b>CLUTCH SYSTEM</b>	<b>CL</b>

# AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## *4AT(diag)*

---

	<b>Page</b>
1. Basic Diagnostic Procedure .....	2
2. Check List for Interview .....	4
3. General Description .....	5
4. Electrical Component Location .....	7
5. Transmission Control Module (TCM) I/O Signal .....	14
6. Subaru Select Monitor .....	17
7. Read Diagnostic Trouble Code (DTC) .....	20
8. Inspection Mode .....	21
9. Clear Memory Mode .....	22
10. SPORT Indicator Light Display .....	23
11. Diagnostic Procedure for Select Monitor Communication .....	27
12. List of Diagnostic Trouble Code (DTC) .....	32
13. Diagnostic Procedure with Diagnostic Trouble Code (DTC) .....	34
14. Diagnostic Procedure without Diagnostic Trouble Code (DTC) .....	123
15. Diagnostics with Phenomenon .....	138

# Basic Diagnostic Procedure

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### 1. Basic Diagnostic Procedure

#### A: PROCEDURE

Step	Check	Yes	No
<b>1 CHECK PRE-INSPECTION.</b> 1) Ask the customer when and how the trouble occurred using the interview checklist. <Ref. to 4AT(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"> <li>• General inspection &lt;Ref. to 4AT(diag)-5, INSPECTION, General Description.&gt;</li> <li>• Disconnection of harness connector</li> <li>• Visual check for harness damage</li> <li>• Oil Leaking</li> <li>• Stall speed test &lt;Ref. to 4AT-35, Stall Test.&gt;</li> <li>• Line pressure test &lt;Ref. to 4AT-38, Line Pressure Test.&gt;</li> <li>• Transfer clutch pressure test &lt;Ref. to 4AT-39, Transfer Clutch Pressure Test.&gt;</li> <li>• Time lag test &lt;Ref. to 4AT-37, Time Lag Test.&gt;</li> <li>• Road test &lt;Ref. to 4AT-34, Road Test.&gt;</li> <li>• Inhibitor switch &lt;Ref. to 4AT-52, Inhibitor Switch.&gt;</li> </ul>	Is the unit that might influence the AT problem normal?	Go to step 2.	Repair or replace each item.
<b>2 CHECK SPORT INDICATOR LIGHT.</b> After starting the engine, wait for at least 2 seconds.	Does the SPORT indicator light blink?	Go to step 4.	Go to step 3.
<b>3 CHECK SPORT INDICATOR LIGHT.</b> 1) Turn the ignition switch to OFF. 2) Check the SPORT indicator light. <Ref. to 4AT(diag)-24, INSPECTION, SPORT Indicator Light Display.> 3) After the ignition switch is turned to "ON", wait for at least 2 seconds. 4) Start the engine.	Does the SPORT indicator light blink?	Go to step 4.	Go to step 5.
<b>4 CHECK INDICATION OF DTC.</b> Display DTC. NOTE: If the communication function of Subaru Select Monitor cannot be executed normally, check communication circuit. <Ref. to 4AT(diag)-27, 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.
<b>5 PERFORM GENERAL DIAGNOSTICS.</b> 1) Inspect using "Diagnostic Procedure without Diagnostic Trouble Code (DTC)". <Ref. to 4AT(diag)-123, Diagnostic Procedure without Diagnostic Trouble Code (DTC).> 2) Inspect using "General Diagnostic Chart". <Ref. to 4AT(diag)-138, Diagnostics with Phenomenon.> 3) Perform the inspection mode. <Ref. to 4AT(diag)-21, Inspection Mode.> 4) Display DTC.	Is DTC displayed?	Go to step 6.	Finish the diagnosis.

# Basic Diagnostic Procedure

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>6</b>      <b>PERFORM DIAGNOSIS.</b> 1) Inspect using the "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". &lt;Ref. to 4AT(diag)-34, Diagnostic Procedure with Diagnostic Trouble Code (DTC).&gt;  NOTE: For DTC table, refer to "List of Diagnostic Trouble Code (DTC)". &lt;Ref. to 4AT(diag)-32, List of Diagnostic Trouble Code (DTC).&gt; 2) Repair the trouble cause. 3) Perform the clear memory mode. 4) Perform the inspection mode. &lt;Ref. to 4AT(diag)-21, Inspection Mode.&gt; 5) Display DTC.</p>	Is DTC displayed?	Inspect using "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to 4AT(diag)-34, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Finish the diagnosis.



# General Description

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### 3. General Description

#### A: CAUTION

##### • SUPPLEMENTAL RESTRAINT SYSTEM "AIRBAG"

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 or 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 of more than 0.65 mm (0.026 in) diameter.

#### B: INSPECTION

##### 1. BATTERY

Measure the battery voltage and specific gravity of electrolyte.

**Standard voltage: 12 V or more**

**Specific gravity: More than 1.260**

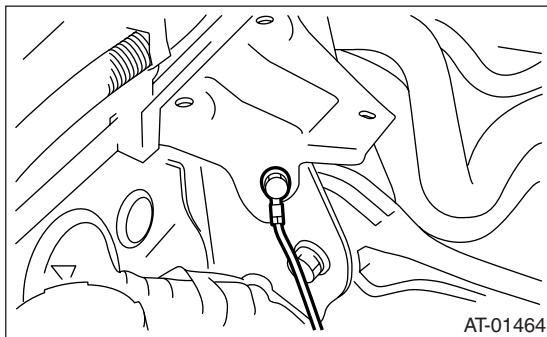
##### 2. TRANSMISSION GROUND

Make sure that the ground terminal bolt is tightened securely.

- Chassis side

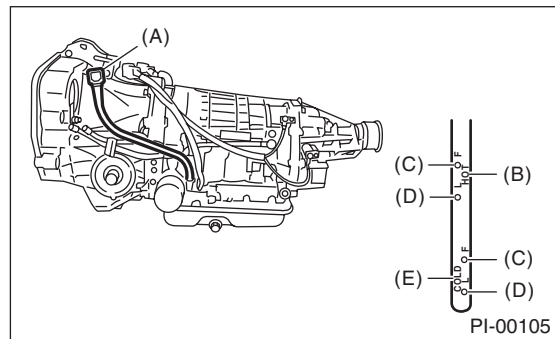
**Tightening torque:**

**13 N·m (1.3 kgf·m, 9.4 ft·lb)**



##### 3. ATF LEVEL

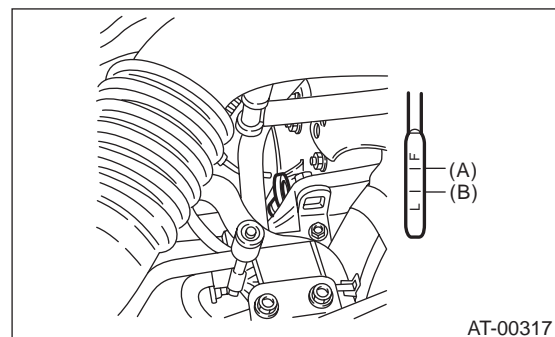
Make sure that ATF level is within the specification. <Ref. to 4AT-31, INSPECTION, Automatic Transmission Fluid.>



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

##### 4. FRONT DIFFERENTIAL OIL LEVEL

Make sure the front differential oil level is within the specification. <Ref. to 4AT-33, INSPECTION, Differential Gear Oil.>



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

## General Description

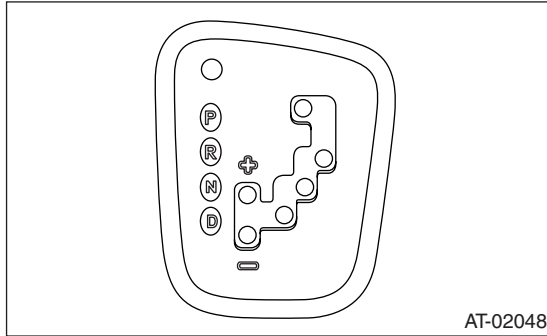
### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

#### 5. OPERATION OF SHIFT SELECT LEVER

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

**WARNING:**

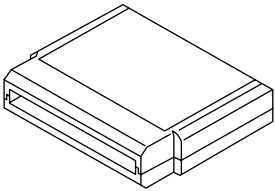

**Stop the engine while checking operation of the selector lever.**



AT-02048

#### C: PREPARATION TOOL

##### 1. SPECIAL TOOL

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

##### 2. GENERAL TOOL

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

# Electrical Component Location

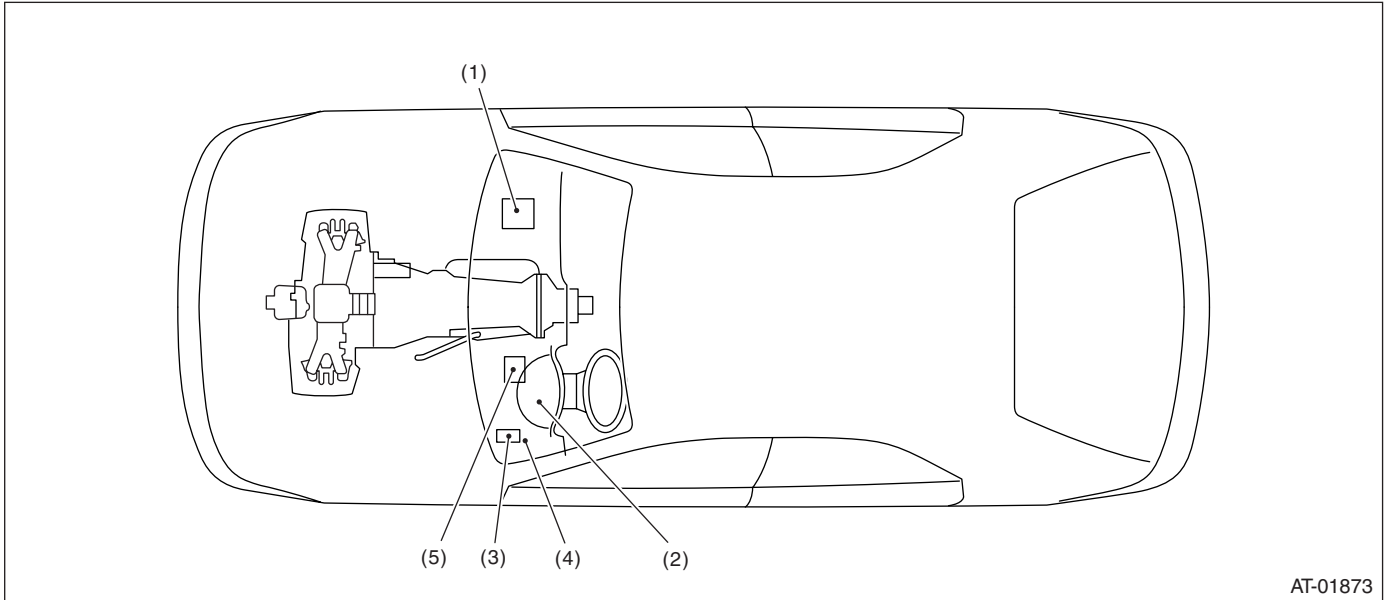
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## 4. Electrical Component Location

### A: LOCATION

#### 1. CONTROL MODULE

- LHD model

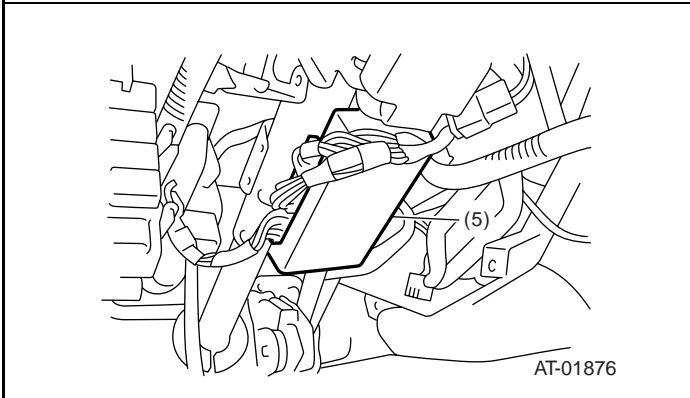
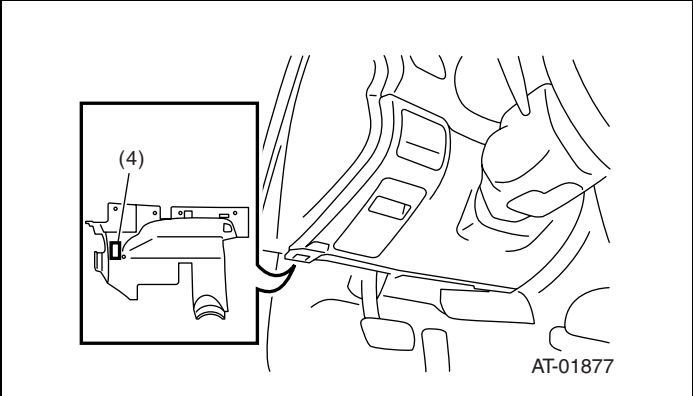
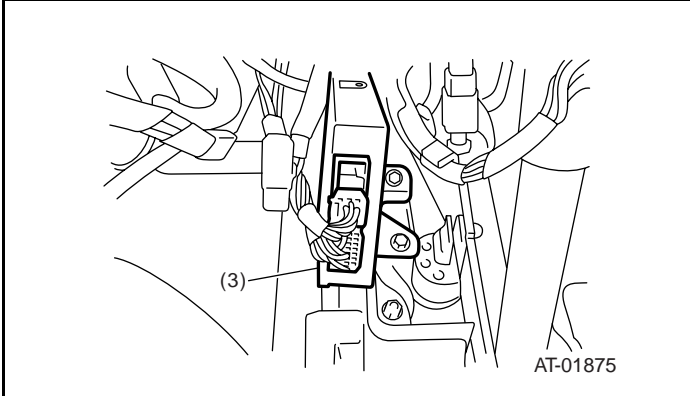
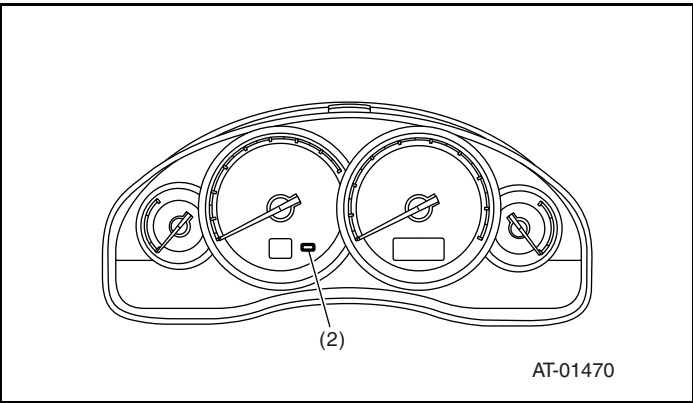
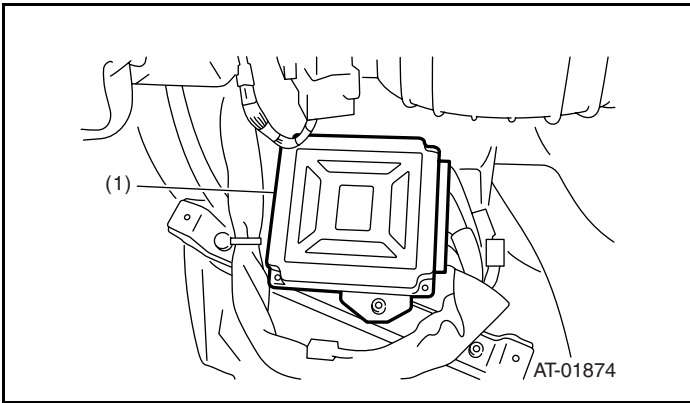


AT-01873

- |  |                                       |                          |
|--|---------------------------------------|--------------------------|
| (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

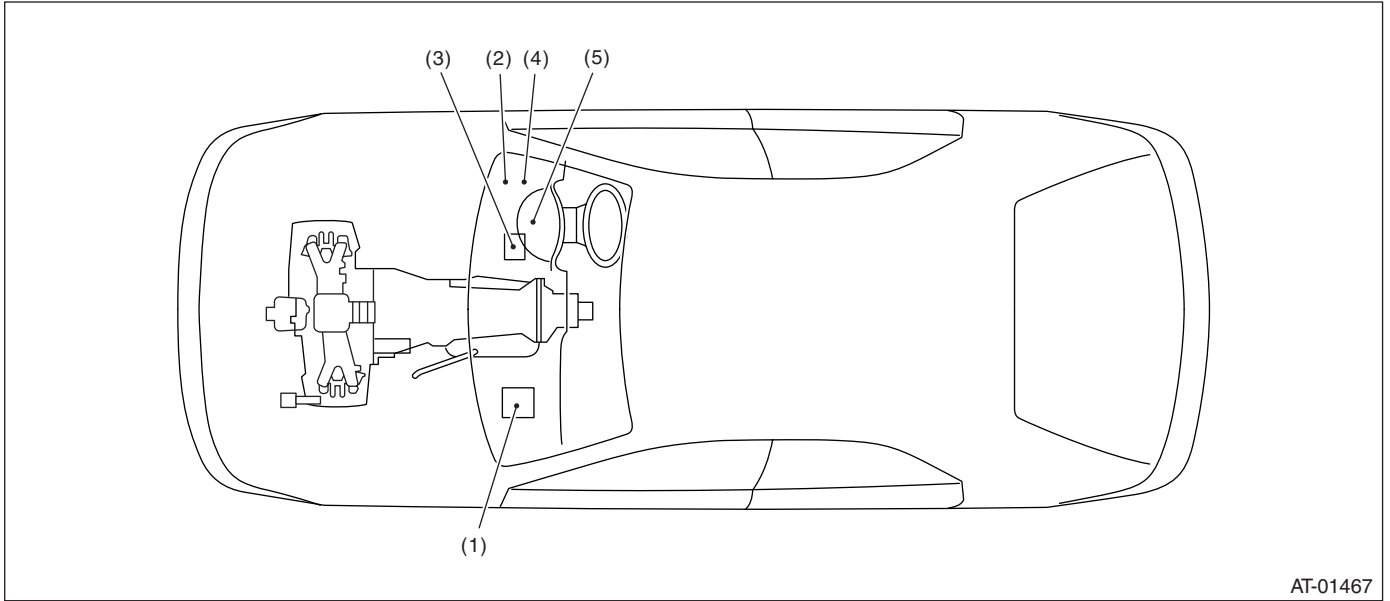
## AUTOMATIC TRANSMISSION (DIAGNOSTICS)



# Electrical Component Location

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model

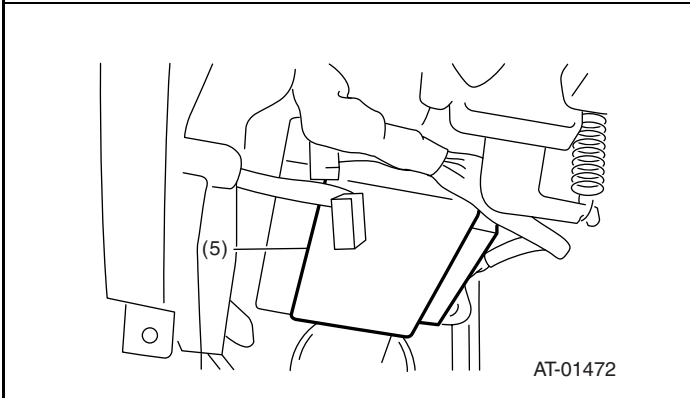
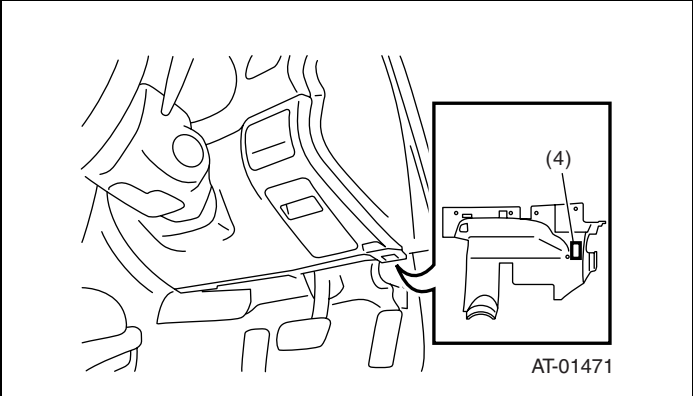
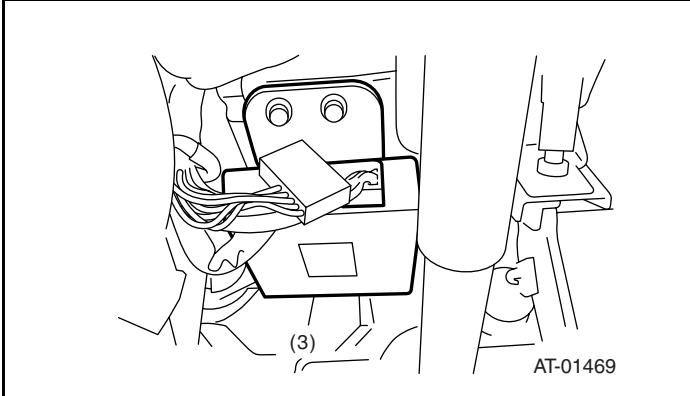
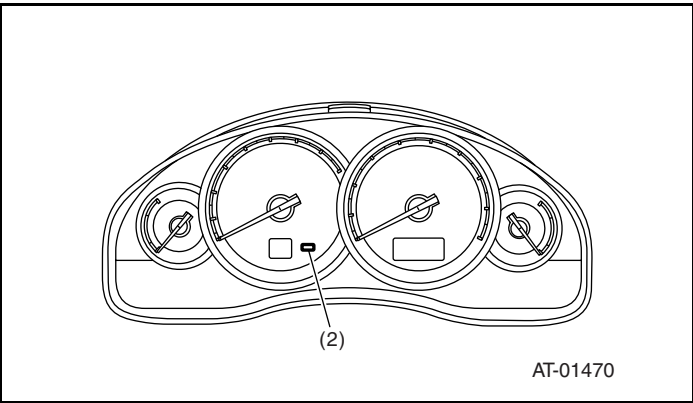
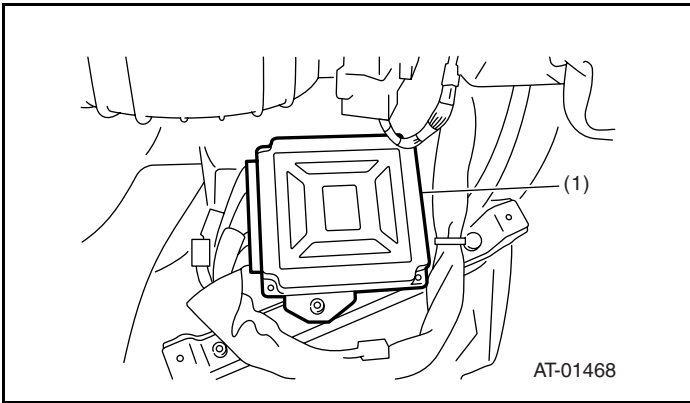


AT-01467

- |  |                                       |                          |
|--|---------------------------------------|--------------------------|
| (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)

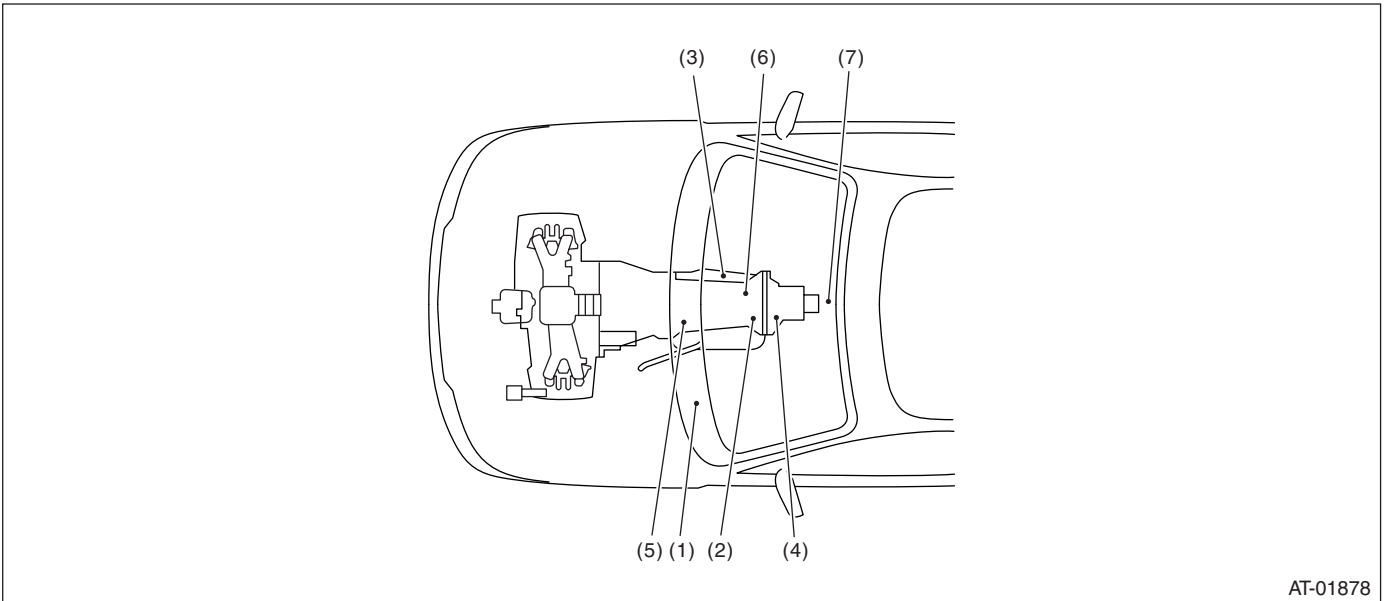


# Electrical Component Location

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

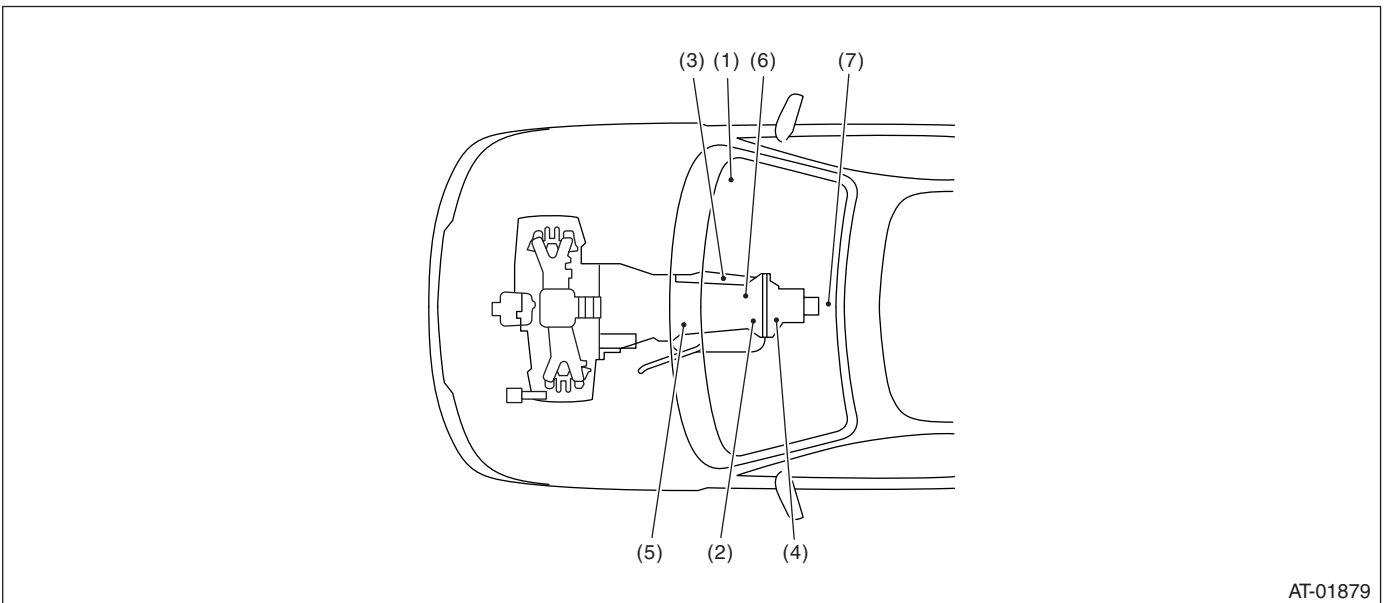
## 2. SENSOR

- LHD model



AT-01878

- RHD model

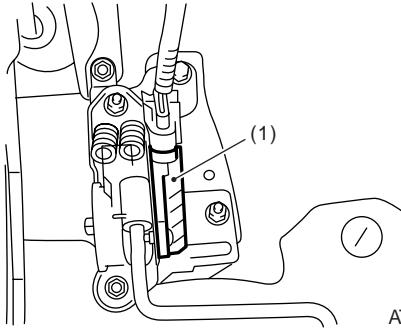
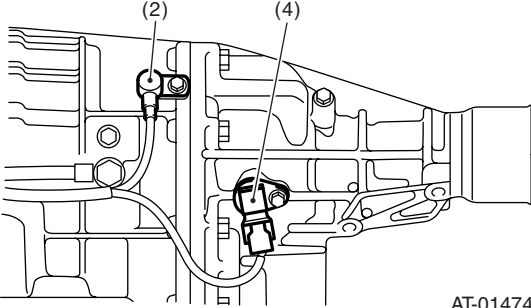
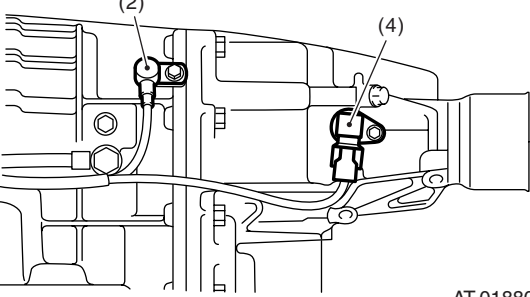
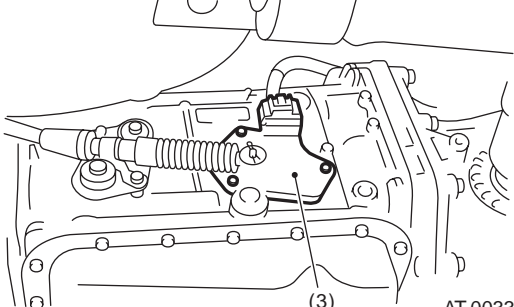
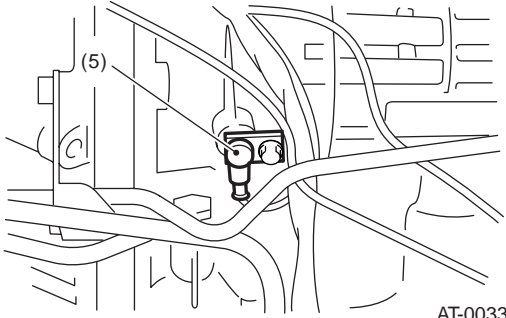
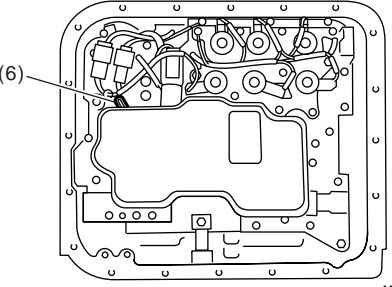
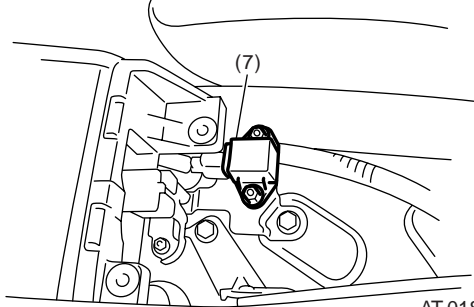
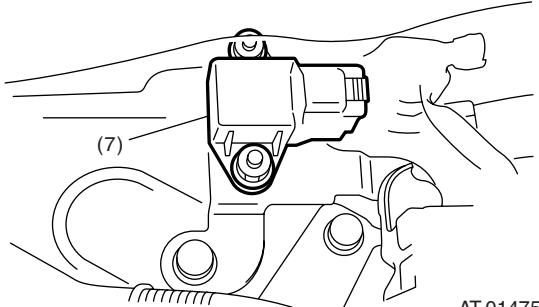


AT-01879

- |                                |   |                            |
|--------------------------------|---|----------------------------|
| (1) Throttle position sensor   | (4) Rear vehicle speed sensor             | (6) ATF temperature sensor |
| (2) Front vehicle speed sensor | (5) Torque converter turbine speed sensor | (7) Lateral G sensor       |
| (3) Inhibitor switch           |   |                            |

# Electrical Component Location

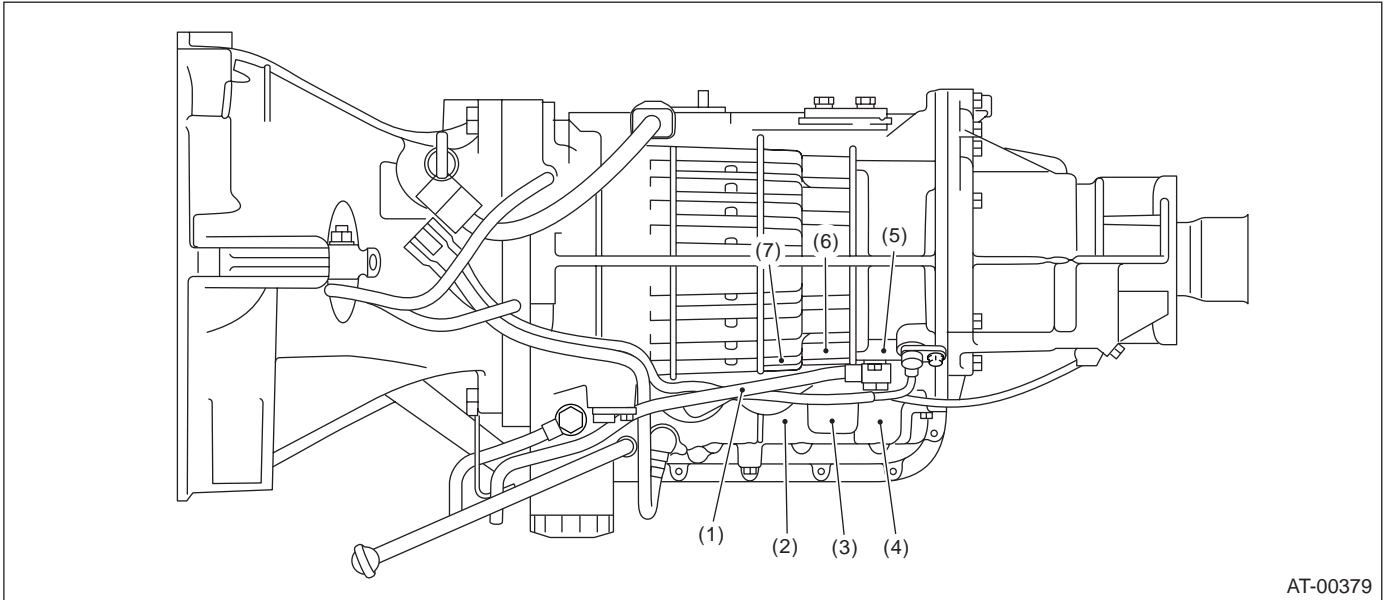
## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

 <p>AT-00375</p>	<p>Model without vehicle dynamics control (VDC)</p>  <p>AT-01474</p>
<p>Model with vehicle dynamics control (VDC)</p>  <p>AT-01880</p>	 <p>AT-00330</p>
 <p>AT-00331</p>	 <p>AT-00378</p>
<p>LHD model</p>  <p>AT-01882</p>	<p>RHD model</p>  <p>AT-01475</p>

# Electrical Component Location

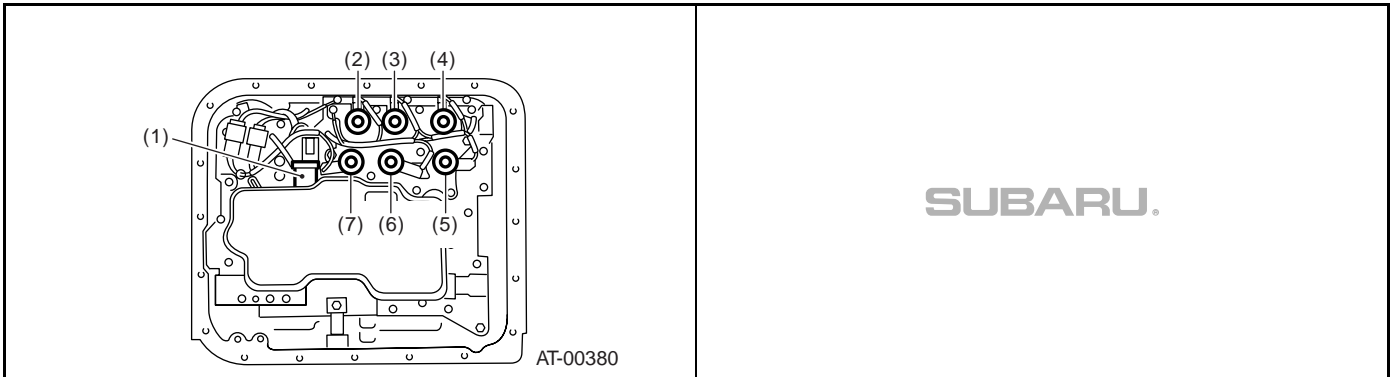
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## 3. SOLENOID



AT-00379

- |                                   |                                 |                           |
|-----------------------------------|---------------------------------|---------------------------|
| (1) Line pressure linear solenoid | (4) Low & reverse duty solenoid | (7) Lock-up duty solenoid |
| (2) High clutch duty solenoid     | (5) Low clutch duty solenoid    |                           |
| (3) 2-4 brake duty solenoid       | (6) Transfer duty solenoid      |                           |



AT-00380

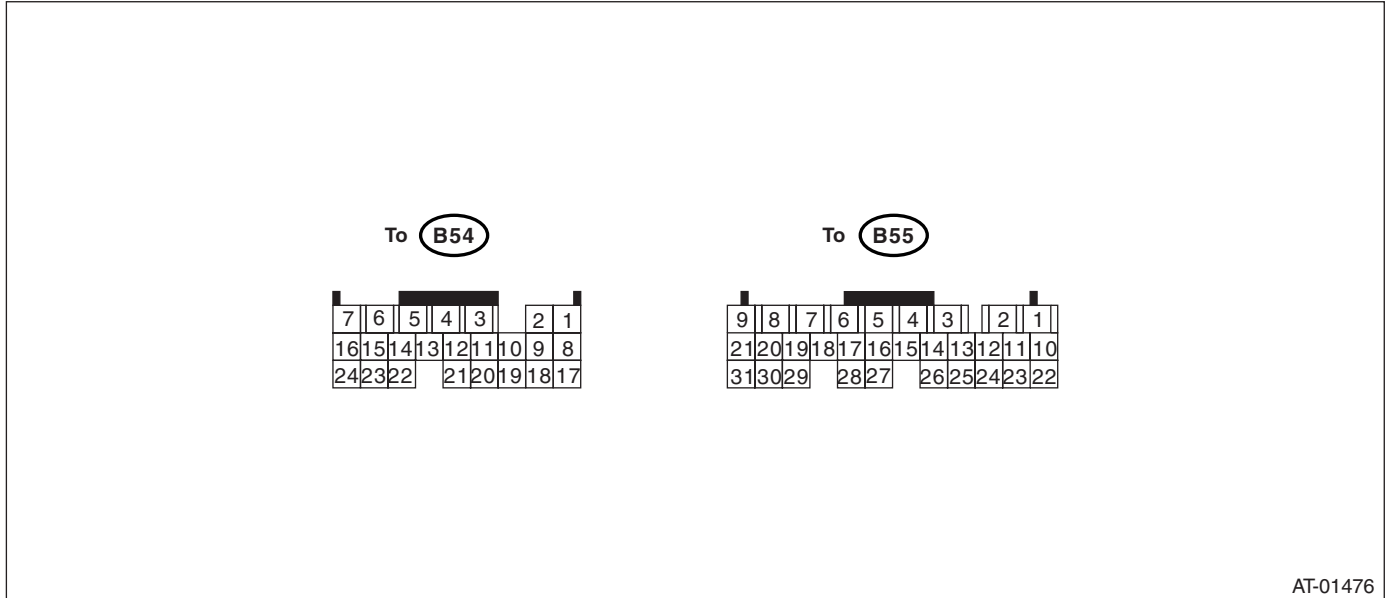
**SUBARU.**

# Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

### A: ELECTRICAL SPECIFICATION



AT-01476

Check with ignition switch ON.						
Item	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to chassis ground ( $\Omega$ )	
Back-up power supply	B55	27	Ignition switch OFF	10 — 13	—	
		28				
		29				
ACC power supply	B55	16	Ignition switch ACC	10 — 13	—	
Ignition power supply	B55	21	Ignition switch ON (with engine OFF)	10 — 13	—	
		31				
Inhibitor switch	"P" range switch	B54	5	Selector lever in "P" range	Less than 1	—
				Select lever in any other than "P" range (except "N" range)	More than 8	
	"N" range switch	B54	22	Selector lever in "N" range	Less than 1	—
				Select lever in any other than "N" range	More than 8	
	"R" range switch	B54	14	Selector lever in "R" range	Less than 1	—
				Select lever in any other than "R" range	More than 8	
	"D" range switch	B54	4	Selector lever in "D" range	Less than 1	—
				Select lever in any other than "D" range	More than 8	
Accelerator pedal position sensor	B54	19	Throttle fully closed.	More than 0.2	—	
			Throttle fully open.	4.6 or less		
Accelerator pedal position sensor power supply	B54	10	Ignition switch ON (with engine OFF)	4.6 — 5.4	—	
ATF temperature sensor	B54	21	ATF temperature 20°C (68°F)	3.5 — 4.3	3.9 k — 4.7 k	
			ATF temperature 80°C (176°F)	1.5 — 1.9	500 — 600	
Rear vehicle speed sensor	B54	24	Vehicle speed at least 20 km/h (12 MPH)	More than 2 (AC range)	—	

# Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Check with ignition switch ON.					
Item	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to chassis ground ( $\Omega$ )
Front vehicle speed sensor	B54	6	Vehicle stopped	0	450 — 750
			Vehicle speed at least 20 km/h (12 MPH)	More than 1 (AC range)	
Torque converter turbine speed sensor	B54	7	Engine idling after warm-up ("D" range)	0	450 — 750
			Engine idling after warm-up ("N" range)	More than 1 (AC range)	
Engine speed signal	B54	13	Ignition switch ON (with engine OFF)	Less than 1	—
			Ignition switch ON (engine ON)	More than 5 (AC range)	
Line pressure linear solenoid	B54	20	Ignition switch ON (with engine OFF) Throttle fully closed in "R" range after warm-up.	3.7 — 7.5	4.0 — 8.0
			Ignition switch ON (with engine OFF) Throttle fully open in "R" range after warm-up.	1.0 — 5.1	
Lock-up duty solenoid	B55	5	When lock up occurs.	More than 10.5	2.0 — 6.0
			When lock up is released.	Less than 1	
Transfer duty solenoid	B55	4	"P" or "N" range	Less than 1	2.0 — 6.0
			1st gear	1.7 — 4.0	
2-4 brake duty solenoid	B55	6	"P" or "N" range	More than 10.5	2.0 — 6.0
			2nd or 4th gear	Less than 1	
High clutch duty solenoid	B55	8	3rd or 4th gear	Less than 1	2.0 — 6.0
			"P" or "N" range	More than 10.5	
Low clutch duty solenoid	B55	9	1st or 2nd gear	Less than 1	2.0 — 6.0
			"P" or "N" range	More than 10.5	
Low & reverse duty solenoid	B55	7	"P" or "N" range	More than 10.5	2.0 — 6.0
			Driving at 1st on manual mode (15 km/h (9.3 MPH) or more)	5 — 10	
Front vehicle speed sensor ground	B54	15	—	0	Less than 1
Rear vehicle speed sensor ground	B54	24	—	0	Less than 1
Torque converter turbine speed sensor ground	B54	16	—	0	Less than 1
System ground circuit	B54	17	—	0	Less than 1
	B55	2			
	B55	3			
	B54	8			
Sensor ground line 3	B55	19	—	0	Less than 1
Sensor ground line 4	B54	9	—	0	Less than 1
Range lock signal	B55	18	Vehicle speed in "D" range 0 km/h (0 MPH)	More than 10.5	7 — 18
			Vehicle speed in "D" range 20 km/h (12 MPH)	Less than 1	
Data link signal (Subaru Select Monitor)	B55	12	—	—	—

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

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Check with ignition switch ON.					
Item	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to chassis ground ( $\Omega$ )
CAN communication signal (+)	B54	3	Ignition switch ON	Pulse signal	—
CAN communication signal (-)	B54	12	Ignition switch ON	Pulse signal	—
FWD switch	B55	17	Fuse removed	10.5 or more	—
			Fuse installed	1 or less	
Lateral G sensor	B54	11	Ignition switch ON (Lateral G sensor in horizontal position)	2.0 — 3.0	—
Lateral G sensor power supply	B54	2	Ignition switch ON	4.75 — 5.25	—

# Subaru Select Monitor

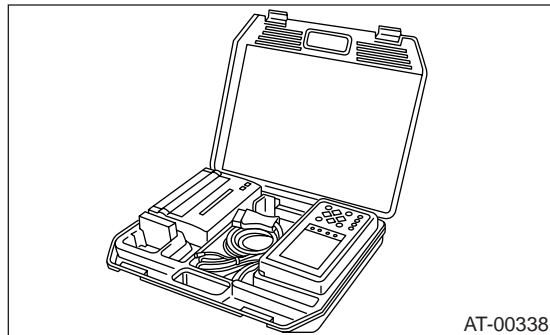
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## 6. Subaru Select Monitor

### A: OPERATION

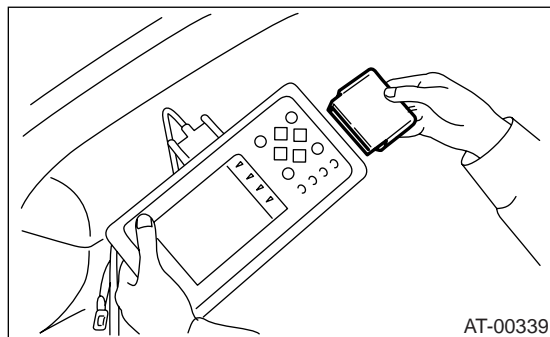
#### 1. READ DIAGNOSTIC TROUBLE CODE (DTC)

1) Prepare the Subaru Select Monitor kit.



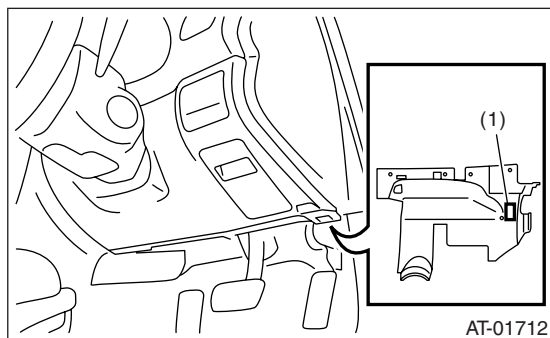
2) Connect the diagnosis cable to Subaru Select Monitor.

3) Insert the cartridge to Subaru Select Monitor.  
<Ref. to 4AT(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 instrument panel (on the driver's side).



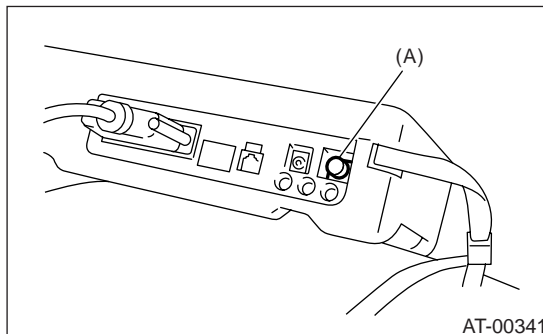
(1) Data link connector

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

NOTE:

Do not connect scan tools except for Subaru Select Monitor.

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



(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 DTC, refer to the List of Diagnostic Trouble Code (DTC). <Ref. to 4AT(diag)-32, 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
Battery voltage	Battery Voltage	V
Rear vehicle speed sensor signal	Rear Wheel Speed	km/h or MPH
Front vehicle speed sensor signal	Front Wheel Speed	km/h or MPH
Engine speed signal	Engine speed	rpm
Automatic transmission fluid temperature signal	ATF Temp.	°C or °F
Accelerator pedal position sensor	Throttle Sensor Voltage	V
Gear position	Gear position	—
Line pressure control duty ratio	Line pressure duty	%
Lock up clutch control duty ratio	L/U Duty	%
Transfer clutch control duty ratio	AWD duty	%
Accelerator pedal position sensor power supply	Throttle sensor power supply	V
Torque converter turbine speed signal	Turbine Revolution Speed	rpm
2-4 Brake timing pressure control duty ratio	2-4 B Pressure Duty	%
Low clutch duty ratio	L/C Duty	%
High clutch duty ratio	H/C Duty	%
Low & reverse brake duty ratio	L&R/B Duty	%
Throttle position	Throttle opening angle	%
FWD switch signal	FWD SW	ON or OFF
Stop light switch signal	Stop Light SW	ON or OFF
Anti lock brake system signal	ABS signal	ON or OFF
Parking range signal	P range	ON or OFF
Neutral range signal	N range	ON or OFF
Reverse range signal	R Range	ON or OFF
Drive range signal	D Range	ON or OFF
Automatic transmission diagnosis light output signal	Diagnosis Lamp	ON or OFF
Cruise control signal	Cruise control signal	ON or OFF
AT OIL TEMP warning light	ATF Temperature Lamp	ON or OFF
Up-shift signal	UP SW	ON or OFF
Down shift signal	Down SW	ON or OFF
Tip signal	Tip mode SW	ON or OFF
Shift lock solenoid signal	Shift lock solenoid	ON or OFF
Lateral G sensor	Lateral G sensor	V

**NOTE:**

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

### 3. CLEAR MEMORY MODE

- 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 {Clear Memory} and press the [YES] key.

#### NOTE:

When {Clear Memory 2} is selected and executed, DTC and learned control memory is cleared. If Clear Memory 2 has been performed, execute the learning control. <Ref. to 4AT(diag)-19, FACILITATION OF LEARNING CONTROL, OPERATION, Subaru Select Monitor.>

### 4. FACILITATION OF LEARNING CONTROL

- 1) Shift the select lever to “P” range, and apply parking brake.
- 2) Lift-up the vehicle.
- 3) Connect the Subaru Select Monitor to data link connector, and then turn the ignition switch to ON.
- 4) Perform the {Clear Memory 2} using Subaru Select Monitor. <Ref. to 4AT(diag)-19, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.>
- 5) Using Subaru Select Monitor, check that the DTC is not output. <Ref. to 4AT(diag)-17, READ DIAGNOSTIC TROUBLE CODE (DTC), OPERATION, Subaru Select Monitor.>
- 6) Warm-up the engine until the ATF temperature which is displayed on the Subaru Select Monitor reaches 60 — 90°C (140 — 194°F). <Ref. to 4AT(diag)-17, READ CURRENT DATA, OPERATION, Subaru Select Monitor.>
- 7) Shift the select lever to “R” range.
- 8) Turn all switches including headlight, air conditioner, seat heater, rear defogger and etc. to OFF.
- 9) Wait for 30 seconds with turning ignition key to OFF until ACC goes OFF.
- 10) Depress the brake pedal fully until the facilitation of learning control is completed when the “Communication Failed!” is displayed on Subaru Select Monitor.
- 11) Turn the ignition switch to ON.
- 12) Check that the Subaru Select Monitor is returned to normal operation.
- 13) Shift the select lever to “P” range, and then wait for more than 3 seconds.
- 14) Shift the select lever to “R” range, and then wait for more than 3 seconds.

- 15) Shift the select lever to “N” range, and then wait for more than 3 seconds.
- 16) Shift the select lever to “D” range, and then wait for more than 3 seconds.
- 17) Shift the select lever to “N” range, and then wait for more than 3 seconds.
- 18) Slowly depress the accelerator pedal fully.
- 19) Slowly release the accelerator pedal fully.
- 20) Start the engine, and idle it.
- 21) Shift the select lever to “D” range.
- 22) Start the facilitation of learning control. At this time, the SPORT indicator light in the combination meter start blinking at 2 Hz. When the SPORT indicator light does not blink, turn the ignition switch to OFF and repeat the procedures from step 4). When the SPORT indicator light stop blinking at 2 Hz and goes OFF, facilitation of learning control is completed.

#### NOTE:

When blinking of SPORT indicator light changes from 2 Hz to 4 Hz during facilitation of learning control, repeat the procedure from step 4).

- 23) Shift the select lever to “N” range, and then turn the ignition switch to OFF.
- 24) Shift the select lever to “P” range to complete the facilitation of learning control.

## Read Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

---

### 7. Read Diagnostic Trouble Code (DTC)

#### A: OPERATION

Refer to “Subaru Select Monitor” for information about how to display DTC. <Ref. to 4AT(diag)-17, OPERATION, Subaru Select Monitor.>

For details concerning DTCs, refer to “List of Diagnostic Trouble Code (DTC)”. <Ref. to 4AT(diag)-32, List of Diagnostic Trouble Code (DTC).>

#### 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 at 60 km/h (37 MPH) for at least 10 seconds.
- 2) Drive the vehicle with manual mode.

## Clear Memory Mode

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

---

### 9. Clear Memory Mode

#### A: OPERATION

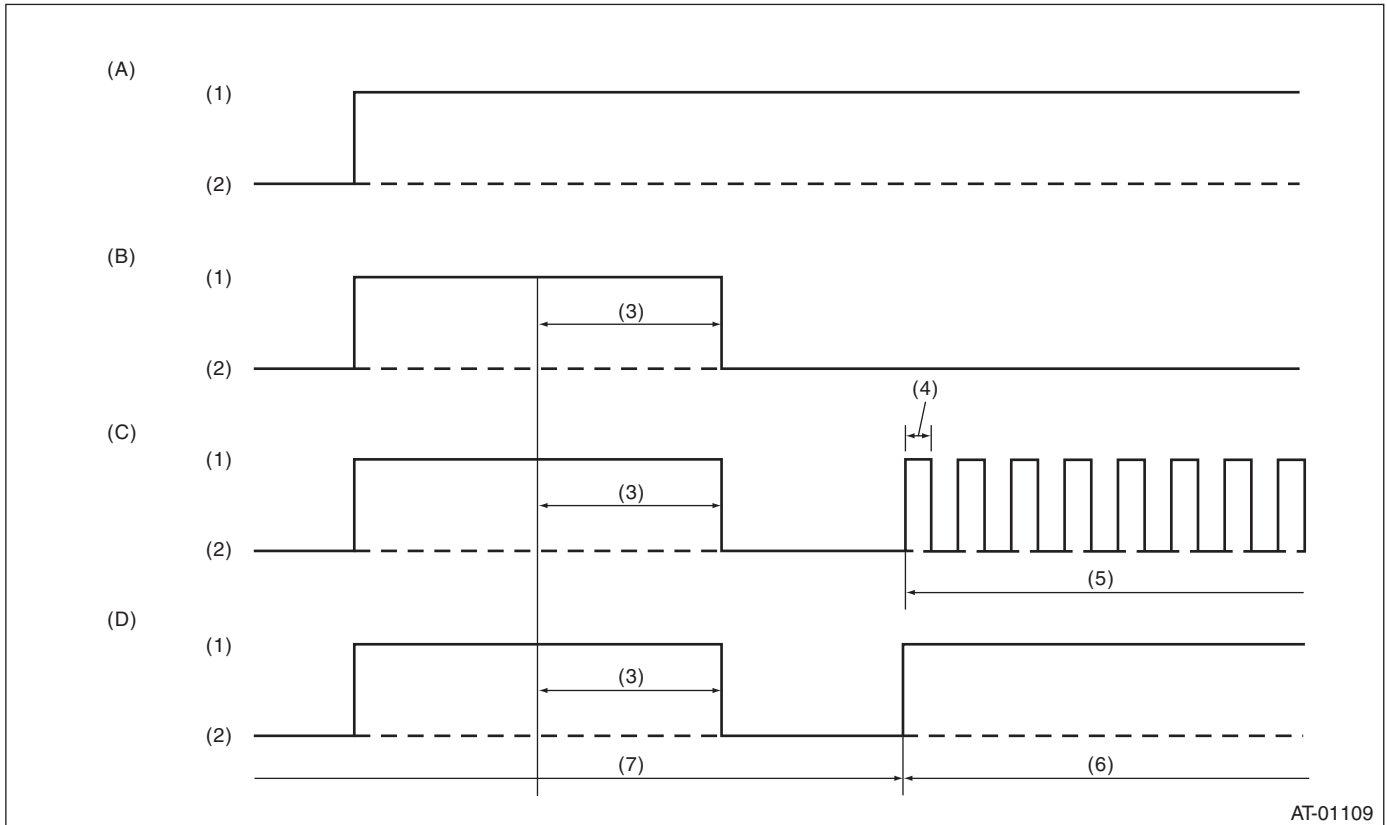
Refer to “Subaru Select Monitor” for information about how to clear DTC.

<Ref. to 4AT(diag)-19, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.>

## 10.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 Subaru Select Monitor. Indicator light signal patterns are as shown in the figure.



AT-01109

(A) Ignition switch (Engine OFF)

(C) Faulty (Engine ON)

(D) Normal (SPORT mode ON)

(B) Normal (Engine ON)

(1) ON

(4) 0.25 seconds

(7) SPORT mode OFF

(2) OFF

(5) Blink

(3) 2 seconds

(6) SPORT mode ON

Perform the inspection when the SPORT indicator light does not operate correctly. <Ref. to 4AT(diag)-24, INSPECTION, SPORT Indicator Light Display.>

# SPORT Indicator Light Display

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## B: INSPECTION

### DIAGNOSIS:

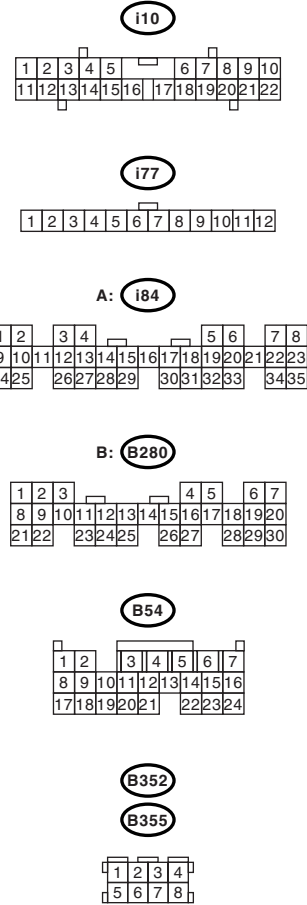
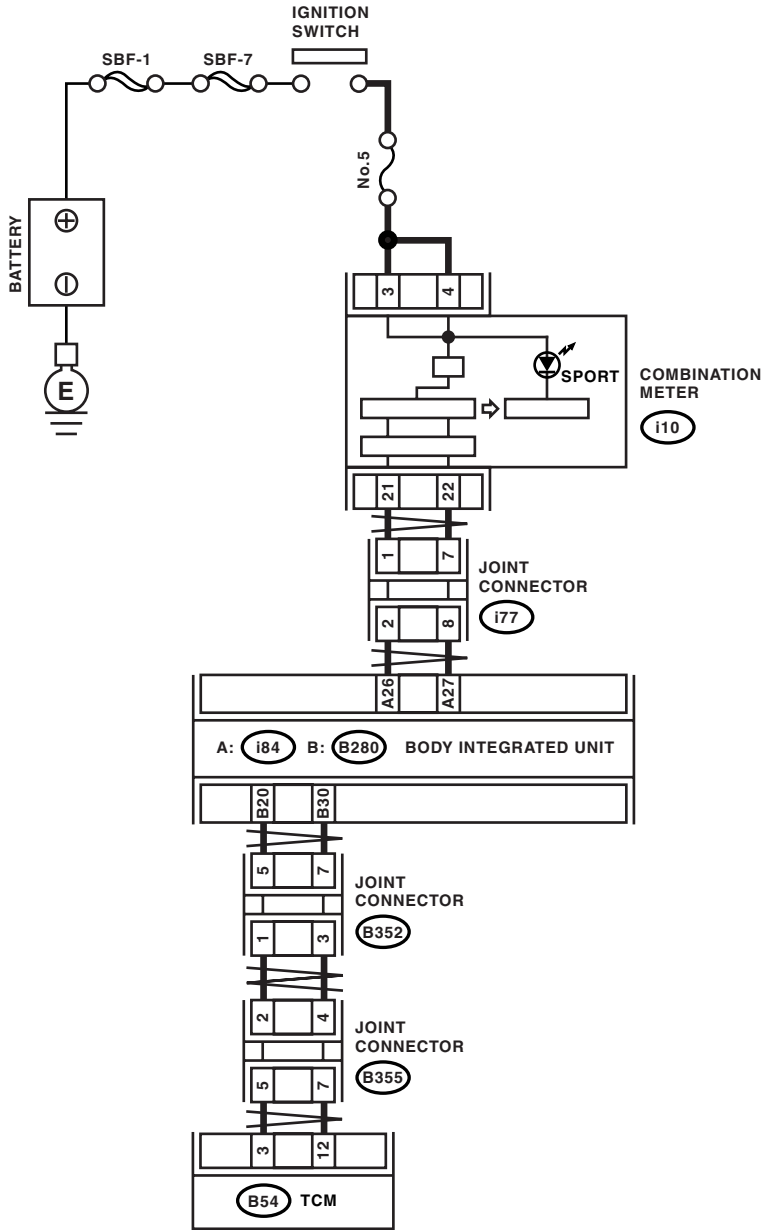
SPORT indicator light circuit is open or shorted.

### TROUBLE SYMPTOM:

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

### WIRING DIAGRAM:

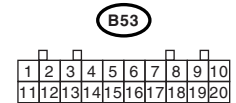
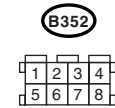
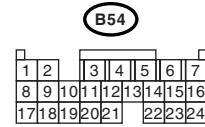
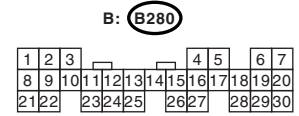
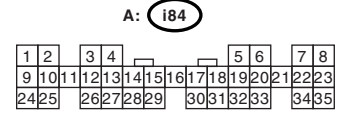
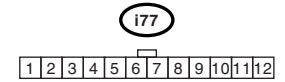
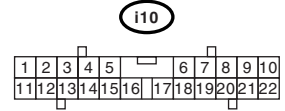
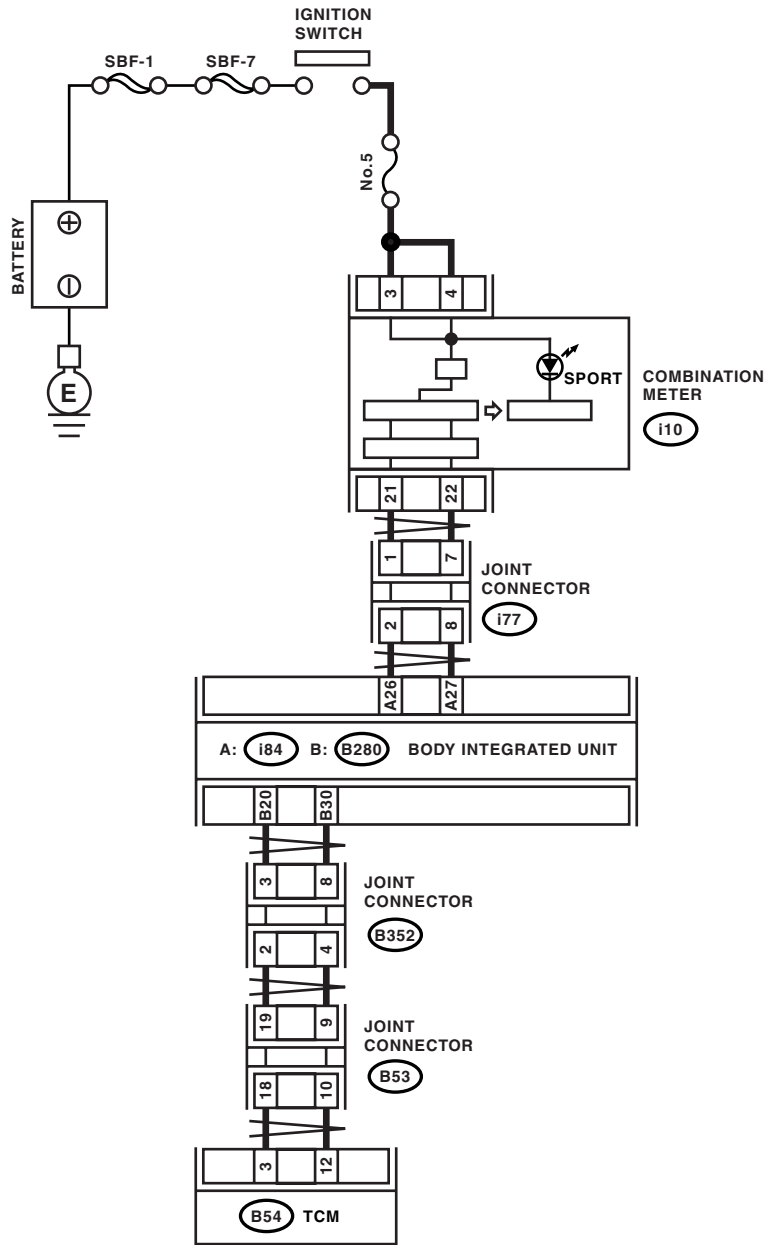
- LHD model



# SPORT Indicator Light Display

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



AT-01884

## SPORT Indicator Light Display

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No	
1	<b>CHECK SPORT INDICATOR LIGHT.</b> Turn the ignition switch to ON.	Does the SPORT indicator light illuminate?	Go to step 2.	Perform the self-diagnosis of combination meter.
2	<b>CHECK SPORT INDICATOR LIGHT.</b> 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	<b>CHECK SPORT INDICATOR LIGHT.</b> Start the engine.	Does the SPORT indicator light go off?	Normal. Return to Basic Diagnostic Procedure. <Ref. to 4AT(diag)-2, Basic Diagnostic Procedure.>	Go to step 7.
4	<b>CHECK SUBARU SELECT MONITOR COMMUNICATION.</b> 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 power supply ground circuit of TCM and Subaru Select Monitor communication. <Ref. to 4AT(diag)-27, Diagnostic Procedure for Select Monitor Communication.>
5	<b>CHECK TCM.</b> Display the current data of TCM using Subaru Select Monitor.	Is the "Diagnosis light" output signal "ON"?	Go to step 6.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
6	<b>CHECK BODY INTEGRATED UNIT.</b> Display the current data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is the "SPORT light" input signal "Illuminate"?	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	<b>CHECK TCM.</b> 1) Start the engine. 2) Display the current data of TCM using Subaru Select Monitor. <Ref. to 4AT(diag)-17, OPERATION, Subaru Select Monitor.>	Is the "Diagnosis light" output signal "ON"?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 8.
8	<b>CHECK BODY INTEGRATED UNIT.</b> Display the current data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is the "SPORT light" input signal "Illuminate"?	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.>

# Diagnostic Procedure for Select Monitor Communication

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## 11. Diagnostic Procedure for Select Monitor Communication

### A: COMMUNICATION FOR INITIALIZING IMPOSSIBLE

#### DIAGNOSIS:

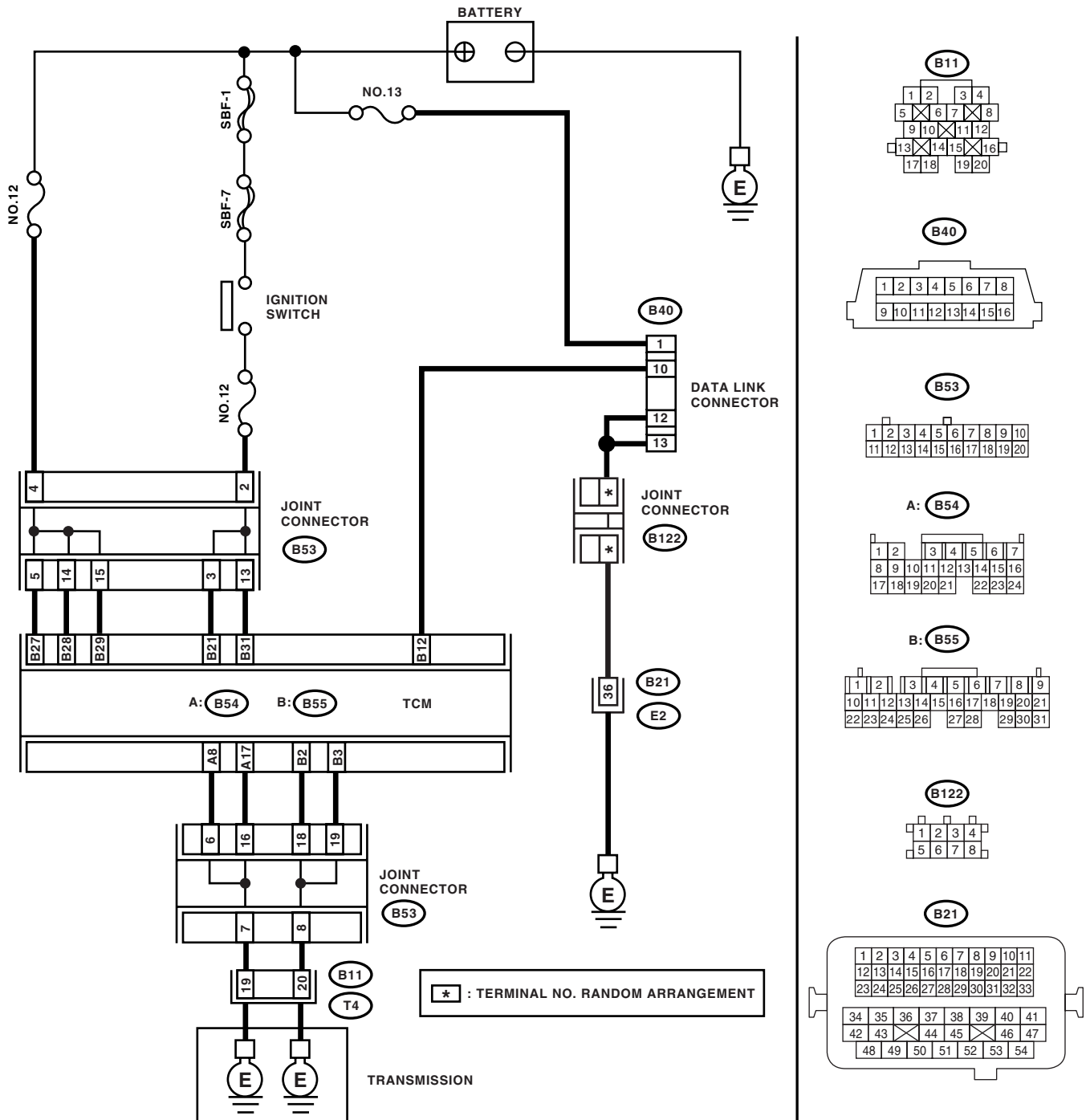
Faulty harness connector

#### TROUBLE SYMPTOM:

Subaru Select Monitor communication failure

#### WIRING DIAGRAM:

- LHD model

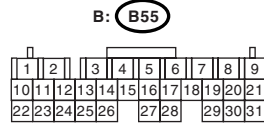
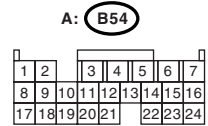
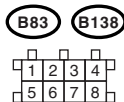
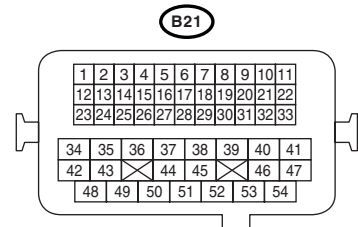
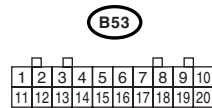
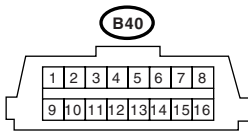
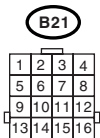
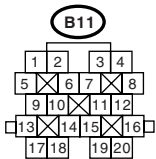
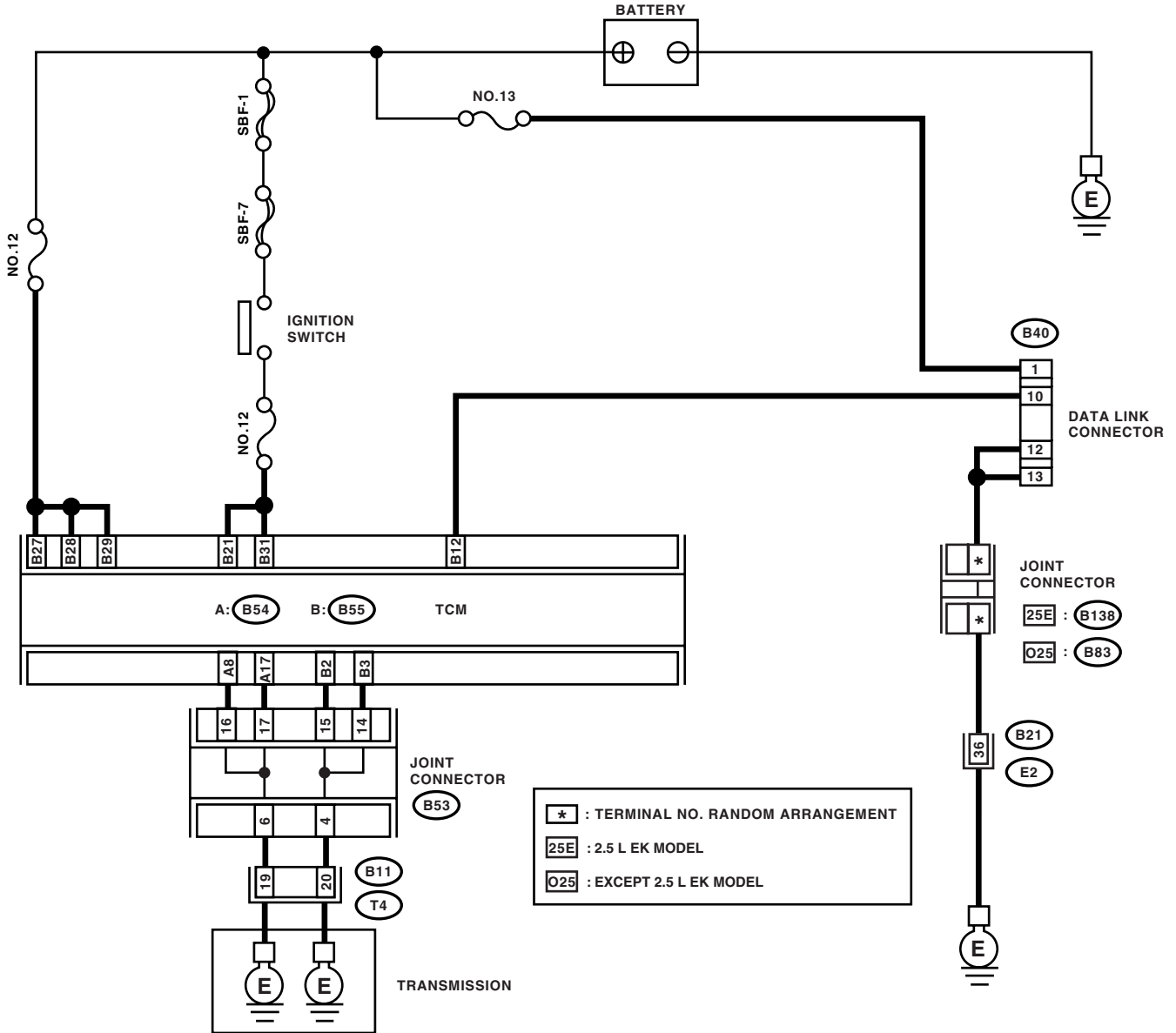


AT-01885

# Diagnostic Procedure for Select Monitor Communication

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



AT-01886

# Diagnostic Procedure for Select Monitor Communication

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>1 CHECK SUBARU SELECT MONITOR POWER SUPPLY CIRCUIT.</b> Measure the voltage between data link connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B40) No. 1 (+) — Chassis ground (-):</b></p>	Is the voltage more than 10 V?	Go to step 2.	Repair the harness connector and connector between battery and data link connector, and poor contact in coupling connector.
<p><b>2 CHECK SUBARU SELECT MONITOR GROUND CIRCUIT.</b> 1) Disconnect the connectors from ECM. 2) Measure the resistance of harness connector between data link connector and ECM. <b>Connector &amp; terminal</b> <b>(B40) No. 12 — Chassis ground:</b></p>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit in harness between data link connector and ECM.
<p><b>3 CHECK SUBARU SELECT MONITOR GROUND CIRCUIT.</b> Measure the resistance of harness connector between data link connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B40) No. 12 — Chassis ground:</b> <b>(B40) No. 13 — Chassis ground:</b></p>	Is the resistance more than 1 $M\Omega$ ?	Go to step 4.	Repair the short circuit in harness between data link connector and ground terminal.
<p><b>4 CHECK ENGINE GROUND CIRCUIT.</b> Check engine ground circuit. &lt;Ref. to 4AT(diag)-92, DTC P1708 THROTTLE POSITION SENSOR CIRCUIT LOW INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).&gt;</p>	Is the engine ground circuit normal?	Go to step 5.	Repair the ground circuit of ECM.
<p><b>5 CHECK COMMUNICATION OF SUBARU SELECT MONITOR.</b> 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check whether communication to transmission systems can be executed normally.</p>	Are the name of system displayed on Subaru Select Monitor?	Go to step 10.	Go to step 6.
<p><b>6 CHECK COMMUNICATION OF SUBARU SELECT MONITOR.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the TCM connector. 3) Check whether communication to engine systems can be executed normally.</p>	Are the name of system displayed on Subaru Select Monitor?	Go to step 8.	Go to step 7.
<p><b>7 CHECK COMMUNICATION OF SUBARU SELECT MONITOR.</b> 1) Turn the ignition switch to OFF. 2) Connect the TCM connector. 3) Disconnect the ECM connector. 4) Check whether communication to transmission systems can be executed normally.</p>	Are the name of system displayed on Subaru Select Monitor?	Inspect the ECM.	Go to step 8.
<p><b>8 CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL UNIT AND DATA LINK CONNECTOR.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the TCM and ECM connector. 3) Measure the resistance between TCM connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B40) No. 10 — Chassis ground:</b></p>	Is the resistance more than 1 $M\Omega$ ?	Go to step 9.	Check harness and connector between each control unit and data link connector.

# Diagnostic Procedure for Select Monitor Communication

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>9 CHECK OUTPUT SIGNAL FOR TCM.</b> 1) Turn the ignition switch to ON. 2) Measure the voltage between TCM and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B40) No. 10 (+) — Chassis ground (-):</b></i>	Is the voltage more than 1 V?	Check harness and connector between each control unit and data link connector.	Go to step 10.
<b>10 CHECK HARNESS CONNECTOR BETWEEN TCM AND DATA LINK CONNECTOR.</b> Measure the resistance between TCM connector and data link connector. <i><b>Connector &amp; terminal</b></i> <i><b>(B55) No. 12 — (B40) No. 10:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 11.	Repair the harness and connector between TCM and data link connector.
<b>11 CHECK INSTALLATION OF TCM CONNECTOR.</b> Turn the ignition switch to OFF.	Is TCM connector inserted into TCM?	Go to step 12.	Connect the TCM connector to TCM.
<b>12 CHECK TRANSMISSION HARNESS CONNECTOR.</b>	Is the transmission harness connector connected to bulk-head harness connector?	Go to step 13.	Connect the bulk-head harness connector to transmission harness connector.
<b>13 CHECK POOR CONTACT IN CONNECTORS.</b>	Is there poor contact in control unit power supply and data link connector?	Repair the poor contact.	Go to step 14.
<b>14 CHECK POWER SUPPLY OF TCM.</b> 1) Disconnect the connector from TCM. 2) Turn the ignition switch to ON. 3) Measure the voltage between TCM connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B55) No. 27 (+) — Chassis ground (-):</b></i> <i><b>(B55) No. 28 (+) — Chassis ground (-):</b></i> <i><b>(B55) No. 29 (+) — Chassis ground (-):</b></i>	Is the voltage 10 — 13 V?	Go to step 16.	Go to step 15.
<b>15 CHECK FUSE (No. 12).</b> 1) Turn the ignition switch to OFF. 2) Remove the fuse (No. 12).	Is the fuse (No. 12) blown?	Replace the fuse (No. 12). If the replaced fuse (No. 12) 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.
<b>16 CHECK IGNITION POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to ON (engine OFF). 2) Measure the ignition power supply voltage between TCM connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B56) No. 21 (+) — Chassis ground (-):</b></i> <i><b>(B56) No. 31 (+) — Chassis ground (-):</b></i>	Is the voltage 10 — 13 V?	Go to step 18.	Go to step 17.
<b>17 CHECK FUSE (No. 12).</b> Remove the fuse (No. 12).	Is the fuse (No. 12) blown?	Replace the fuse (No. 12). If the replaced fuse (No. 12) 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 connector.

# Diagnostic Procedure for Select Monitor Communication

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>18 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector &amp; terminal</i> (B54) No. 8 — (B11) No. 19: (B54) No. 17 — (B11) No. 19: (B55) No. 2 — (B11) No. 20: (B55) No. 3 — (B11) No. 20:	Is the resistance less than 1 $\Omega$ ?	Go to step 19.	Repair the open circuit in harness between TCM and transmission harness connector, and poor contact in connector.
<b>19 CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND TRANSMISSION GROUND.</b> Measure the resistance of harness between transmission and transmission ground. <i>Connector &amp; terminal</i> (T4) No. 19 — Transmission ground: (T4) No. 20 — Transmission ground:	Is the resistance less than 1 $\Omega$ ?	Go to step 20.	Repair the open circuit in harness between transmission and transmission ground.
<b>20 CHECK POOR CONTACT IN CONNECTORS.</b>	Is there poor contact in TCM power supply, ground and data link connector?	Repair the connector.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

## List of Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### 12. List of Diagnostic Trouble Code (DTC)

#### A: LIST

DTC	Item	Content of diagnosis	Reference target
P0705	Transmission Range Sensor Circuit (PRNDL INPUT)	Inhibitor switch malfunction short circuit	<Ref. to 4AT(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 is faulty or input signal circuit is open.	<Ref. to 4AT(diag)-42, 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 is faulty or input signal circuit is shorted.	<Ref. to 4AT(diag)-45, DTC P0713 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0715	Torque Converter Turbine Speed Signal Circuit Malfunction	Torque converter turbine speed sensor malfunction, short input signal circuit	<Ref. to 4AT(diag)-48, 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	<Ref. to 4AT(diag)-50, DTC P0719 TORQUE CONVERTER/BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0720	AT Vehicle Speed Sensor Circuit Malfunction	Front vehicle speed sensor malfunction, open or short input signal circuit	<Ref. to 4AT(diag)-53, 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 input signal circuit	<Ref. to 4AT(diag)-56, DTC P0724 TORQUE CONVERTER/BRAKE SWITCH "B" CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0725	Engine Speed Input Circuit Malfunction	Open or short engine speed output signal circuit	<Ref. to 4AT(diag)-59, DTC P0725 ENGINE SPEED INPUT CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0731	Gear 1 Incorrect Ratio	Vehicle sensor, torque converter turbine speed sensor, or control valve malfunction	<Ref. to 4AT(diag)-61, DTC P0731 GEAR 1 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0732	Gear 2 Incorrect Ratio	Vehicle sensor, torque converter turbine speed sensor, or control valve malfunction	<Ref. to 4AT(diag)-61, DTC P0732 GEAR 2 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0733	Gear 3 Incorrect Ratio	Vehicle sensor, torque converter turbine speed sensor, or control valve malfunction	<Ref. to 4AT(diag)-61, DTC P0733 GEAR 3 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0734	Gear 4 Incorrect Ratio	Vehicle sensor, torque converter turbine speed sensor, or control valve malfunction	<Ref. to 4AT(diag)-61, DTC P0734 GEAR 4 INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0736	Reverse Incorrect Ratio	Vehicle sensor, torque converter turbine speed sensor, or control valve malfunction	<Ref. to 4AT(diag)-62, 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 4AT(diag)-64, DTC P0741 TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0743	Torque Converter Clutch Circuit Electrical	Lock-up solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-65, DTC P0743 TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## List of Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

DTC	Item	Content of diagnosis	Reference target
P0748	Pressure Control Solenoid "A" Electrical	Line pressure linear solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-68, DTC P0748 PRESSURE CONTROL SOLENOID "A" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0753	Shift Solenoid "A" Electrical	Low clutch duty solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-71, DTC P0753 SHIFT SOLENOID "A" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0758	Shift Solenoid "B" Electrical	2-4 brake duty solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-74, DTC P0758 SHIFT SOLENOID "B" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0763	Shift Solenoid "C" Electrical	High clutch duty solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-77, DTC P0763 SHIFT SOLENOID "C" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0768	Shift Solenoid "D" Electrical	Low & reverse clutch duty solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-80, DTC P0768 SHIFT SOLENOID "D" ELECTRICAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P0801	Reverse Inhibit Control Circuit	Range lock solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-83, DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1706	AT Vehicle Speed Sensor Circuit Malfunction (Rear Wheel)	Rear vehicle speed sensor is faulty or input signal circuit is open or shorted.	<Ref. to 4AT(diag)-86, DTC P1706 AT VEHICLE SPEED SENSOR CIRCUIT MALFUNCTION (REAR WHEEL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1707	AT AWD Solenoid Valve	Transfer duty solenoid is faulty or output signal circuit is open or shorted.	<Ref. to 4AT(diag)-89, DTC P1707 AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1708	Throttle Position Sensor Circuit Low Input	Accelerator pedal position sensor is faulty or input signal circuit is open.	<Ref. to 4AT(diag)-92, DTC P1708 THROTTLE POSITION SENSOR CIRCUIT LOW INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1709	Throttle Position Sensor Circuit High Input	Accelerator pedal position sensor is faulty or input signal circuit is shorted.	<Ref. to 4AT(diag)-98, DTC P1709 THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1714	Throttle Position Sensor Power Supply Circuit	Accelerator pedal position sensor is faulty or input signal circuit is open or shorted.	<Ref. to 4AT(diag)-104, DTC P1714 THROTTLE POSITION SENSOR POWER SUPPLY CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1718	CAN Communication Circuit	CAN communication circuit is open or shorted.	<Ref. to 4AT(diag)-109, DTC P1718 CAN COMMUNICATION CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1760	Lateral Acceleration Sensor Performance Problem	Lateral G sensor is faulty.	<Ref. to 4AT(diag)-110, 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 4AT(diag)-113, 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 4AT(diag)-116, DTC P1762 LATERAL ACCELERATION SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1817	Sports Mode Switch Circuit	manual mode switch is faulty or input signal circuit is open or shorted.	<Ref. to 4AT(diag)-119, DTC P1817 SPORTS MODE SWITCH CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## **Diagnostic Procedure with Diagnostic Trouble Code (DTC)**

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

---

### **13. Diagnostic Procedure with Diagnostic Trouble Code (DTC)**

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

##### **DTC DETECTING CONDITION:**

- Inhibitor switch is faulty.
- More than 2 range signal is input.

##### **TROUBLE SYMPTOM:**

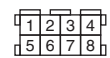
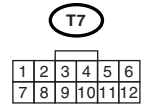
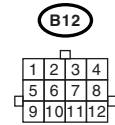
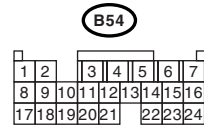
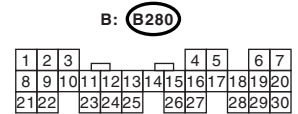
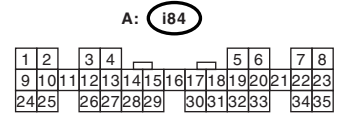
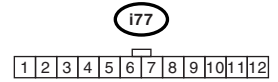
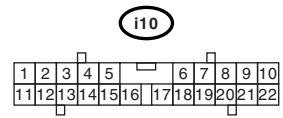
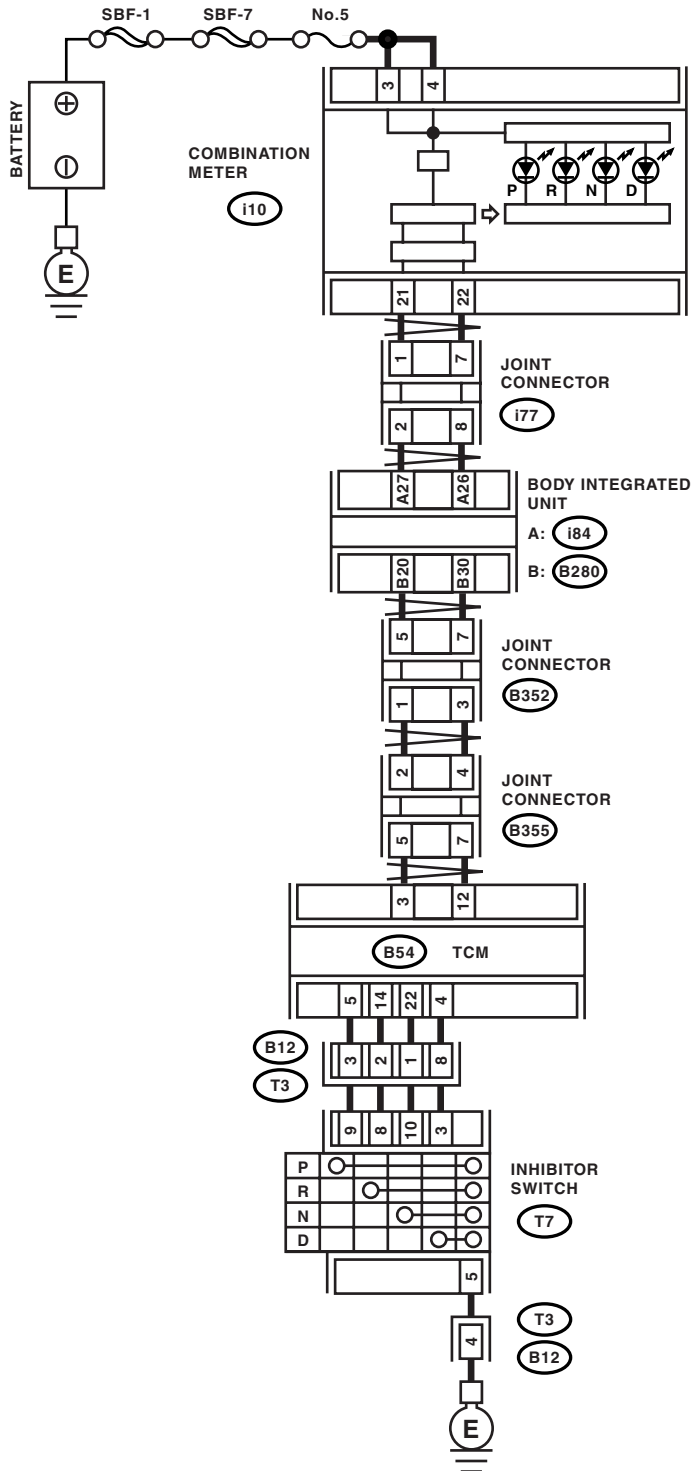
- Shift characteristics are erroneous.
- Range position of select lever and AT select lever position indicator light on the combination meter is not matched.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### WIRING DIAGRAM:

- LHD model

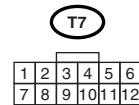
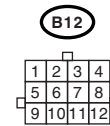
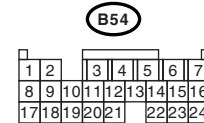
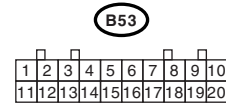
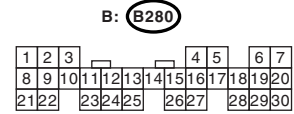
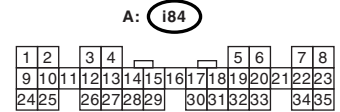
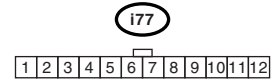
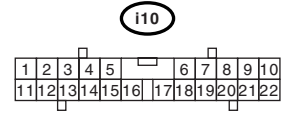
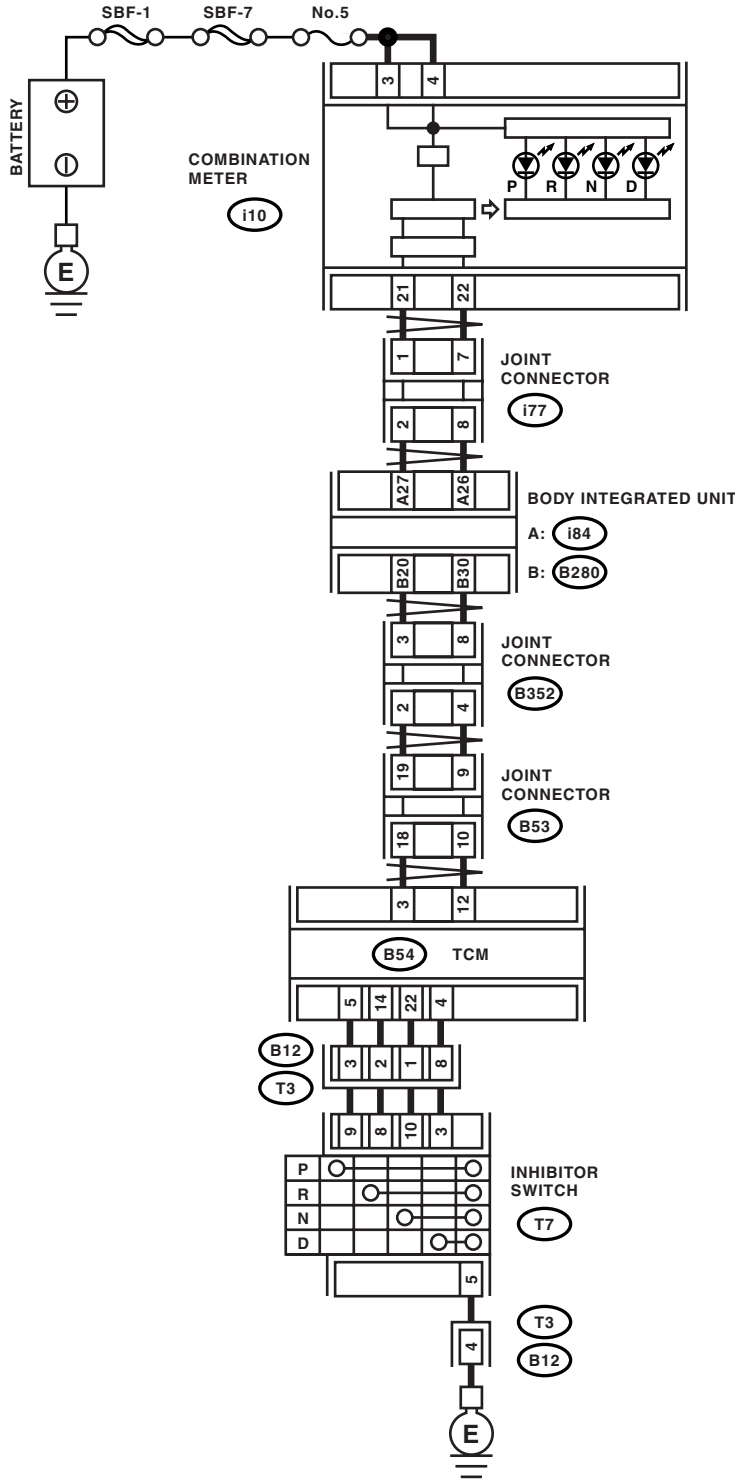


AT-01888

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



AT-02356

Step	Check	Yes	No
1	<b>CHECK INDICATOR LIGHT.</b> 1) Turn the ignition switch to ON. 2) Shift the select lever to "P" range.	Go to step 2.	Go to step 12.
2	<b>CHECK INDICATOR LIGHT.</b>	Go to step 26.	Go to step 3.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>3</b>	<b>CHECK INDICATOR LIGHT.</b>	Go to step <b>33</b> .	Go to step <b>4</b> .
<b>4</b>	<b>CHECK INDICATOR LIGHT.</b>	Go to step <b>40</b> .	Go to step <b>5</b> .
<b>5</b>	<b>CHECK "P" RANGE SWITCH.</b> 1) Connect the Subaru Select Monitor to data link connector. 2) Shift the select lever to "R" range.	Go to step <b>19</b> .	Go to step <b>6</b> .
<b>6</b>	<b>CHECK INDICATOR LIGHT.</b>	Go to step <b>8</b> .	Go to step <b>7</b> .
<b>7</b>	<b>CHECK "R" RANGE SWITCH.</b>	Go to step <b>23</b> .	Go to step <b>20</b> .
<b>8</b>	<b>CHECK INDICATOR LIGHT.</b> Shift the select lever to the "N" range.	Go to step <b>10</b> .	Go to step <b>9</b> .
<b>9</b>	<b>CHECK "N" RANGE SWITCH.</b>	Go to step <b>30</b> .	Go to step <b>27</b> .
<b>10</b>	<b>CHECK INDICATOR LIGHT.</b> Shift the select lever to "D" range.	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step <b>11</b> .
<b>11</b>	<b>CHECK "D" RANGE SWITCH.</b>	Go to step <b>37</b> .	Go to step <b>34</b> .
<b>12</b>	<b>CHECK HARNESS CONNECTOR BETWEEN INHIBITOR SWITCH AND CHASSIS GROUND.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from inhibitor switch. 3) Measure the resistance of harness between inhibitor switch and chassis ground. <b>Connector &amp; terminal</b> <b>(T7) No. 5 — Chassis ground:</b>	Go to step <b>13</b> .	Repair the open circuit in harness between inhibitor switch connector and chassis ground, and poor contact in coupling connector.
<b>13</b>	<b>CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. <b>Connector &amp; terminal</b> <b>(B54) No. 5 — (T7) No. 9:</b>	Go to step <b>14</b> .	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>14 CHECK INPUT SIGNAL FOR TCM.</b> 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Shift the select lever to "P" range. 5) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 5 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step 15.	Go to step 41.
<b>15 CHECK INPUT SIGNAL FOR TCM.</b> 1) Shift the select lever to any range other than "P". 2) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 5 (+) — Chassis ground (-):</b>	Is the voltage more than 8 V?	Go to step 41.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>16 CHECK BODY INTEGRATED UNIT.</b> Read the data of the inhibitor switch from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "7" displayed?	Go to step 17.	Check the body integrated unit.
<b>17 CHECK BODY INTEGRATED UNIT.</b> Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step 18.
<b>18 CHECK COMBINATION METER.</b> Check the "P" range indicator light. <Ref. to IDI-3, INSPECTION, Combination Meter System.>	Is the "P" range indicator light OK?	Go to step 41.	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.>
<b>19 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 5 — Chassis ground:</b>	Is the resistance less than 1 M $\Omega$ ?	Go to step 42.	Repair the ground short circuit in "P" range circuit.
<b>20 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. <b>Connector &amp; terminal</b> <b>(B54) No. 14 — (T7) No. 8:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 21.	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
<b>21 CHECK INPUT SIGNAL FOR TCM.</b> 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Shift the select lever to "R" range. 5) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 14 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step 22.	Go to step 41.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>22 CHECK INPUT SIGNAL FOR TCM.</b> 1) Shift the select lever to other than "R" range. 2) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 14 (+) — Chassis ground (-):</b>	Is the voltage more than 8 V?	Go to step 41.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>23 CHECK BODY INTEGRATED UNIT.</b> Read the data of shift position from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "6" displayed?	Go to step 24.	Check the body integrated unit.
<b>24 CHECK BODY INTEGRATED UNIT.</b> Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step 25.
<b>25 CHECK COMBINATION METER.</b> Check the "R" range indicator light. <Ref. to IDI-3, INSPECTION, Combination Meter System.>	Is the "R" range indicator light OK?	Go to step 41.	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.>
<b>26 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 14 — Chassis ground:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 41.	Repair the ground short circuit in "R" range circuit.
<b>27 CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. <b>Connector &amp; terminal</b> <b>(B54) No. 22 — (T7) No. 10:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 28.	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
<b>28 CHECK INPUT SIGNAL FOR TCM.</b> 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Shift the select lever to "N" range. 5) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 22 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step 29.	Go to step 41.
<b>29 CHECK INPUT SIGNAL FOR TCM.</b> 1) Shift the select lever to other than "N" range. 2) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 22 (+) — Chassis ground (-):</b>	Is the voltage more than 8 V?	Go to step 41.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>30 CHECK BODY INTEGRATED UNIT.</b> Read the data of shift position from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "5" displayed?	Go to step 31.	Check the body integrated unit.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>31</b> <b>CHECK BODY INTEGRATED UNIT.</b> Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step <b>32</b> .
<b>32</b> <b>CHECK COMBINATION METER.</b> Check the "N" range indicator light. <Ref. to IDI-3, INSPECTION, Combination Meter System.>	Is the "N" range indicator light OK?	Go to step <b>41</b> .	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.>
<b>33</b> <b>CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 22 — Chassis ground:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step <b>41</b> .	Repair the ground short circuit in "N" range circuit.
<b>34</b> <b>CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and inhibitor switch. 3) Measure the resistance of harness between TCM and inhibitor switch connector. <b>Connector &amp; terminal</b> <b>(B54) No. 4 — (T7) No. 3:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step <b>35</b> .	Repair the open circuit in harness between TCM and inhibitor switch connector, and poor contact in coupling connector.
<b>35</b> <b>CHECK INPUT SIGNAL FOR TCM.</b> 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM and inhibitor switch. 3) Turn the ignition switch to ON. 4) Shift the select lever to "D" range. 5) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 4 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step <b>36</b> .	Go to step <b>41</b> .
<b>36</b> <b>CHECK INPUT SIGNAL FOR TCM.</b> 1) Shift the select lever to other than "D" range. 2) Measure the voltage between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 4 (+) — Chassis ground (-):</b>	Is the voltage more than 8 V?	Go to step <b>41</b> .	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>37</b> <b>CHECK BODY INTEGRATED UNIT.</b> Read the data of inhibitor switch from Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is "4" displayed?	Go to step <b>38</b> .	Check the body integrated unit.
<b>38</b> <b>CHECK BODY INTEGRATED UNIT.</b> Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to the DTC.	Go to step <b>39</b> .
<b>39</b> <b>CHECK COMBINATION METER.</b> Check the "D" range indicator light. <Ref. to IDI-3, INSPECTION, Combination Meter System.>	Is the "D" range indicator light OK?	Go to step <b>41</b> .	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>40</b> <b>CHECK HARNESS CONNECTOR BETWEEN TCM AND INHIBITOR SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from TCM, inhibitor switch and combination meter. 3) Measure the resistance of harness between TCM connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B55) No. 4 — Chassis ground:</b>	Is the resistance more than 1 MΩ?	Go to step <b>41</b> .	Repair the ground short circuit in "D" range circuit.
<b>41</b> <b>CHECK POOR CONTACT.</b>	Is there poor contact in inhibitor switch circuit?	Repair the poor contact.	Go to step <b>42</b> .
<b>42</b> <b>CHECK INHIBITOR SWITCH.</b>	Is the inhibitor switch in normal position?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Adjust inhibitor switch and select cable. <Ref. to 4AT-52, Inhibitor Switch.> and <Ref. to CS-12, Select Cable.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### B: DTC P0712 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT LOW INPUT

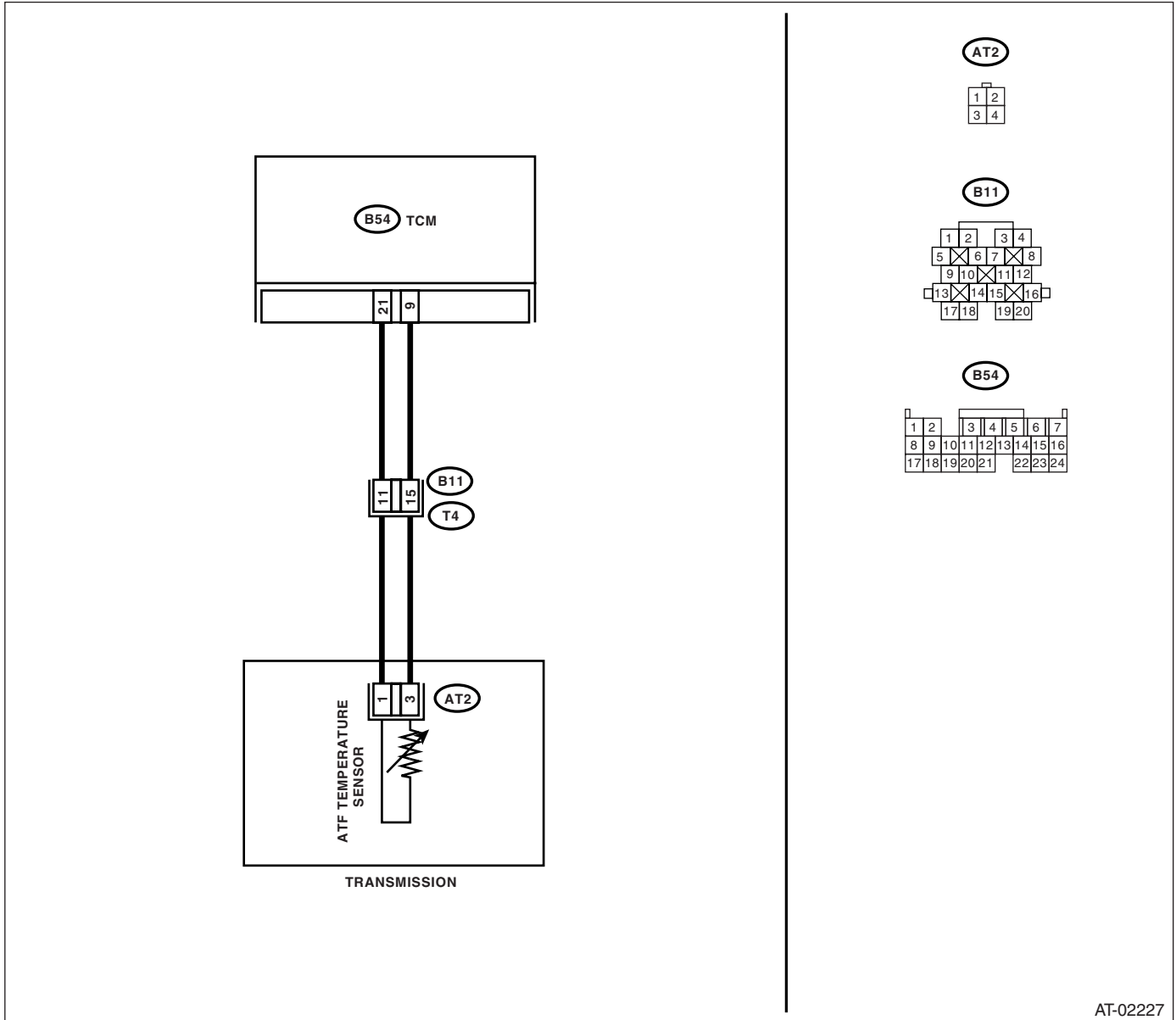
#### DTC DETECTING CONDITION:

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

#### TROUBLE SYMPTOM:

Excessive shift shock

#### WIRING DIAGRAM:



AT-02227

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector &amp; terminal</i> <i>(B54) No. 21 — (B11) No. 11:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.</b> Measure the resistance of harness between TCM and transmission connector. <i>Connector &amp; terminal</i> <i>(B54) No. 9 — (B11) No. 15:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit in harness between TCM and transmission connector.
<b>3 CHECK ATF TEMPERATURE SENSOR.</b> 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. <i>Connector &amp; terminal</i> <i>(T4) No. 11 — No. 15:</i>	Is the resistance 500 — 600 $\Omega$ ?	Go to step 4.	Go to step 7.
<b>4 CHECK ATF TEMPERATURE SENSOR.</b> Measure the resistance between transmission connector terminals. <i>Connector &amp; terminal</i> <i>(T4) No. 11 — No. 15:</i>	Does the resistance value increase while the ATF temperature decreases?	Go to step 5.	Go to step 7.
<b>5 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connector to transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON (engine OFF). 4) Read the data of ATF temperature using Subaru Select Monitor.	Does the ATF temperature gradually decrease?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or contact in the ATF temperature sensor and transmission connector.	Go to step 6.
<b>6 CHECK POOR CONTACT.</b>	Is there poor contact in ATF temperature sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>7</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</b></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 support with rigid racks.</p> <p>NOTE:                      Raise all wheels off floor.</p> <p>5) Drain the ATF.</p> <p><b>CAUTION:</b>  <b>Do not drain the ATF until it cools down.</b></p> <p>6) Remove the oil pan, and disconnect the connector from control valve.                      7) Measure the resistance of harness between ATF temperature sensor and transmission connector.</p> <p><b>Connector &amp; terminal</b>  <b>(T4) No. 11 — (AT2) No. 1:</b></p>	<p>Is the resistance less than 1 <math>\Omega</math>?</p>	<p>Go to step <b>8</b>.</p>	<p>Repair the open circuit in harness between ATF temperature sensor and transmission connector.</p>
<p><b>8</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</b></p> <p>Measure the resistance of harness between ATF temperature sensor and transmission connector.</p> <p><b>Connector &amp; terminal</b>  <b>(T4) No. 15 — (AT2) No. 3:</b></p>	<p>Is the resistance less than 1 <math>\Omega</math>?</p>	<p>Go to step <b>9</b>.</p>	<p>Repair the open circuit in harness between ATF temperature sensor and transmission connector.</p>
<p><b>9</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</b></p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p><b>Connector &amp; terminal</b>  <b>(T4) No. 11 — Transmission ground:</b></p>	<p>Is the resistance more than 1 <math>M\Omega</math>?</p>	<p>Go to step <b>10</b>.</p>	<p>Repair the short circuit in harness between ATF temperature sensor and transmission connector.</p>
<p><b>10</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND ATF TEMPERATURE SENSOR.</b></p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p><b>Connector &amp; terminal</b>  <b>(T4) No. 15 — Transmission ground:</b></p>	<p>Is the resistance more than 1 <math>M\Omega</math>?</p>	<p>Replace the control valve body.                      &lt;Ref. to 4AT-60, Control Valve Body.&gt;</p>	<p>Repair the short circuit in harness between ATF temperature sensor and transmission connector.</p>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## C: DTC P0713 TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT HIGH INPUT

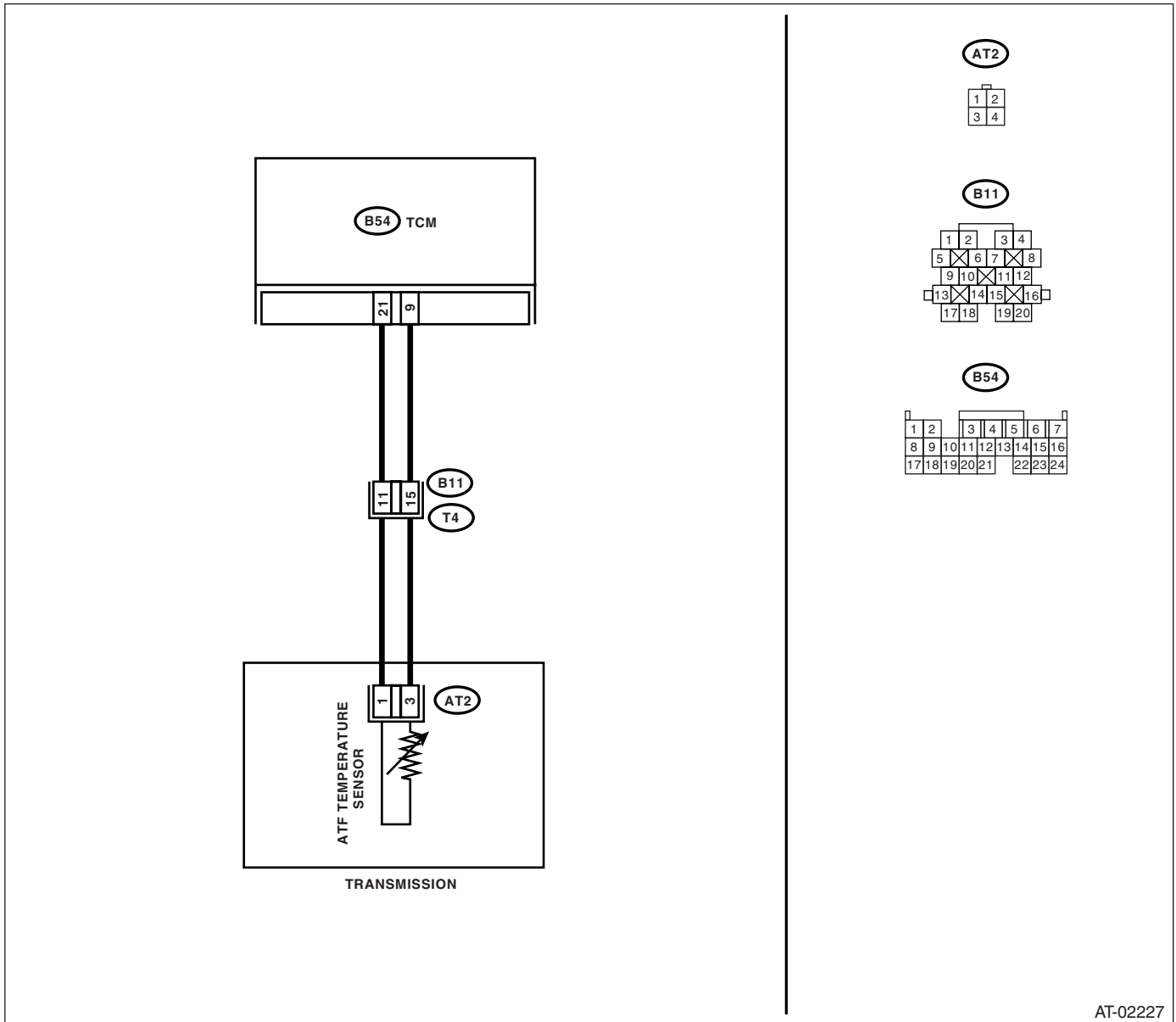
### DTC DETECTING CONDITION:

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

### TROUBLE SYMPTOM:

Excessive shift shock

### WIRING DIAGRAM:



AT-02227

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. <i>Connector &amp; terminal</i> <i>(B54) No. 21 — No. 9:</i>	Is the resistance more than 500 Ω?	Go to step 2.	Go to step 4.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.</b> Measure the resistance of harness between TCM connector and chassis ground. <i>Connector &amp; terminal</i> <i>(B54) No. 21 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Go to step 3.	Go to step 4.
<b>3 CHECK HARNESS.</b> Measure the resistance between TCM connector terminals while shaking the harness. <i>Connector &amp; terminal</i> <i>(B54) No. 21 — No. 9:</i>	Does the resistance change?	Go to step 4.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>4 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Measure the resistance of harness between TCM connector and chassis ground. <i>Connector &amp; terminal</i> <i>(B54) No. 21 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Go to step 5.	Repair the short circuit in harness between TCM and transmission harness.
<b>5 CHECK HARNESS CONNECTOR BETWEEN TCM AND ATF TEMPERATURE SENSOR.</b> Measure the resistance of harness between TCM connector and chassis ground. <i>Connector &amp; terminal</i> <i>(B54) No. 9 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Go to step 6.	Repair the short circuit in harness between TCM and transmission harness.
<b>6 CHECK ATF TEMPERATURE SENSOR.</b> Measure the resistance between transmission connector terminals. <i>Connector &amp; terminal</i> <i>(T4) No. 11 — No. 15:</i>	Is the resistance more than 500 Ω?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary short circuit of connector or harness may be the cause. Repair the harness or connector.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>7</b> <b>CHECK TRANSMISSION HARNESS.</b> 1) Lift-up the vehicle and place it on rigid racks. 2) Drain the ATF. NOTE: Do not drain the ATF until it cools down. 3) Remove the oil pan. 4) Disconnect the harness connector from control valve. 5) Measure the resistance between ATF temperature sensor connector terminals 6) Measure the resistance between transmission connector and transmission ground. <b>Connector &amp; terminal</b> <b>(T4) No. 11 — Transmission ground:</b>	Is the resistance more than 1 MΩ?	Go to step 8.	Replace the transmission harness.
<b>8</b> <b>CHECK TRANSMISSION HARNESS.</b> Measure the resistance between transmission connector and transmission ground, <b>Connector &amp; terminal</b> <b>(T4) No. 15 — Transmission ground:</b>	Is the resistance more than 1 MΩ?	Go to step 9.	Replace the transmission harness.
<b>9</b> <b>CHECK ATF TEMPERATURE SENSOR.</b> Measure the resistance between control valve connector terminals <b>Terminal</b> <b>No. 1 — No. 3:</b>	Is the resistance more than 500 Ω?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary short circuit of connector or harness may be the cause. Repair the harness or connector.	Replace the control valve body. <Ref. to 4AT-60, Control Valve Body.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### D: DTC P0715 INPUT/TURBINE SPEED SENSOR CIRCUIT

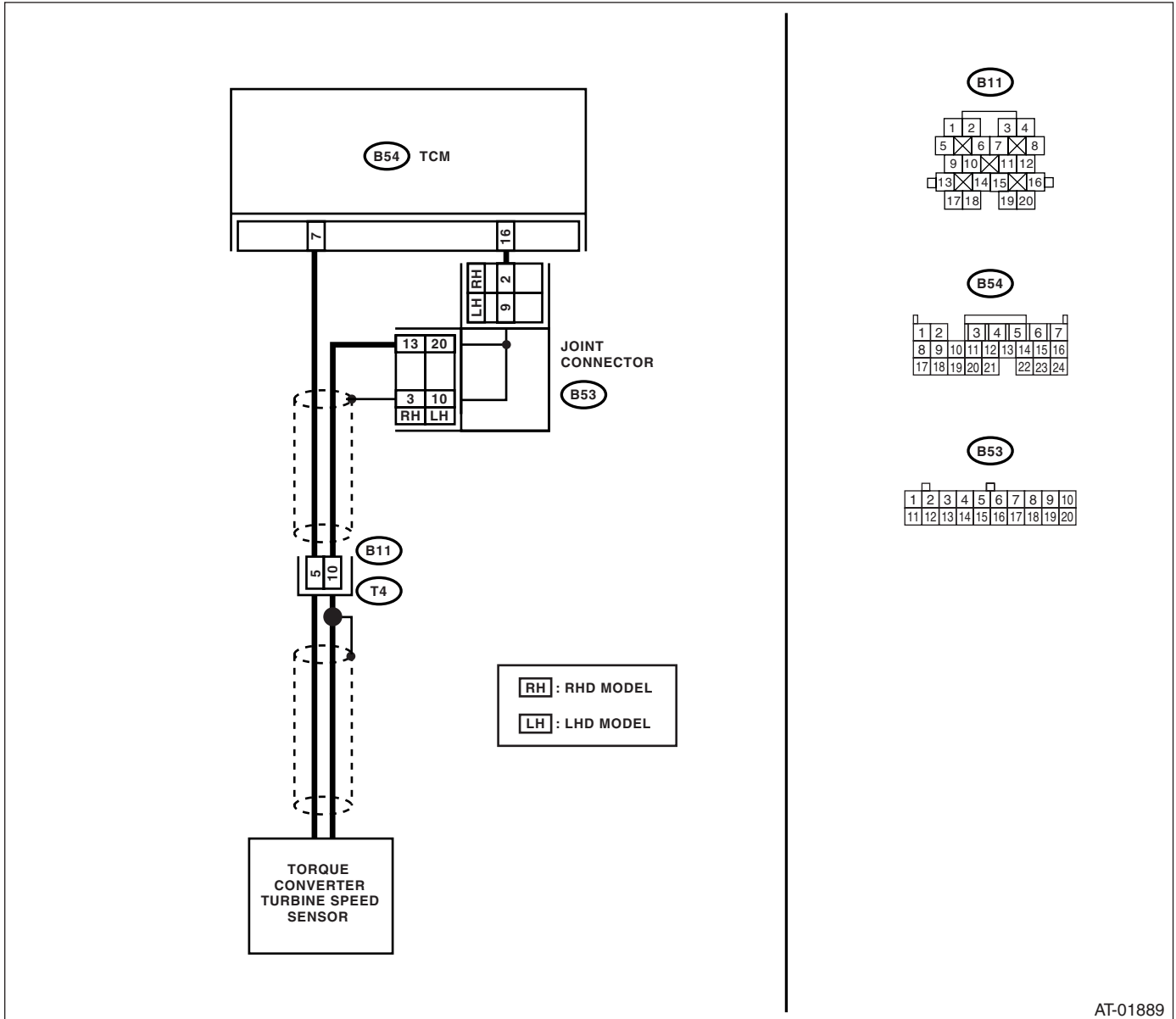
#### DTC DETECTING CONDITION:

Input signal circuit of TCM is open or shorted.

#### TROUBLE SYMPTOM:

Excessive shift shock

#### WIRING DIAGRAM:



AT-01889

Step	Check	Yes	No
<b>1</b> <b>CHECK TORQUE CONVERTER TURBINE SPEED SENSOR.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission. 3) Measure the resistance between transmission connector receptacle's terminals. <b>Connector &amp; terminal</b> <b>(T4) No. 5 — No. 10:</b>	Is the resistance 450 — 650 Ω?	Go to step 2.	Replace the torque converter turbine speed sensor. <Ref. to 4AT-59, Torque Converter Turbine Speed Sensor.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM and transmission connector. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 7 — (B11) No. 5:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit in harness between TCM and transmission connector.
<b>3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM and transmission connector. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 16 — (B11) No. 10:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Repair the open circuit in harness between TCM and transmission connector, and poor contact in connector.
<b>4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 16 — Chassis ground:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Go to step 5.	Repair the short circuit in harness between TCM and transmission connector.
<b>5 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 7 — Chassis ground:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Go to step 6.	Repair the short circuit in harness between TCM and transmission connector, and poor contact in connector.
<b>6 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON, and the Subaru Select Monitor switch to ON. 4) Start the engine. 5) Shift the select lever to "P" or "N" range. 6) Read the data of turbine speed using Subaru Select Monitor. • Compare the tachometer with Subaru Select Monitor indications.	Is the revolution value same as the tachometer reading shown on the combination meter?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step 7.
<b>7 CHECK POOR CONTACT.</b>	Is there poor contact in torque converter turbine speed sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

#### DTC DETECTING CONDITION:

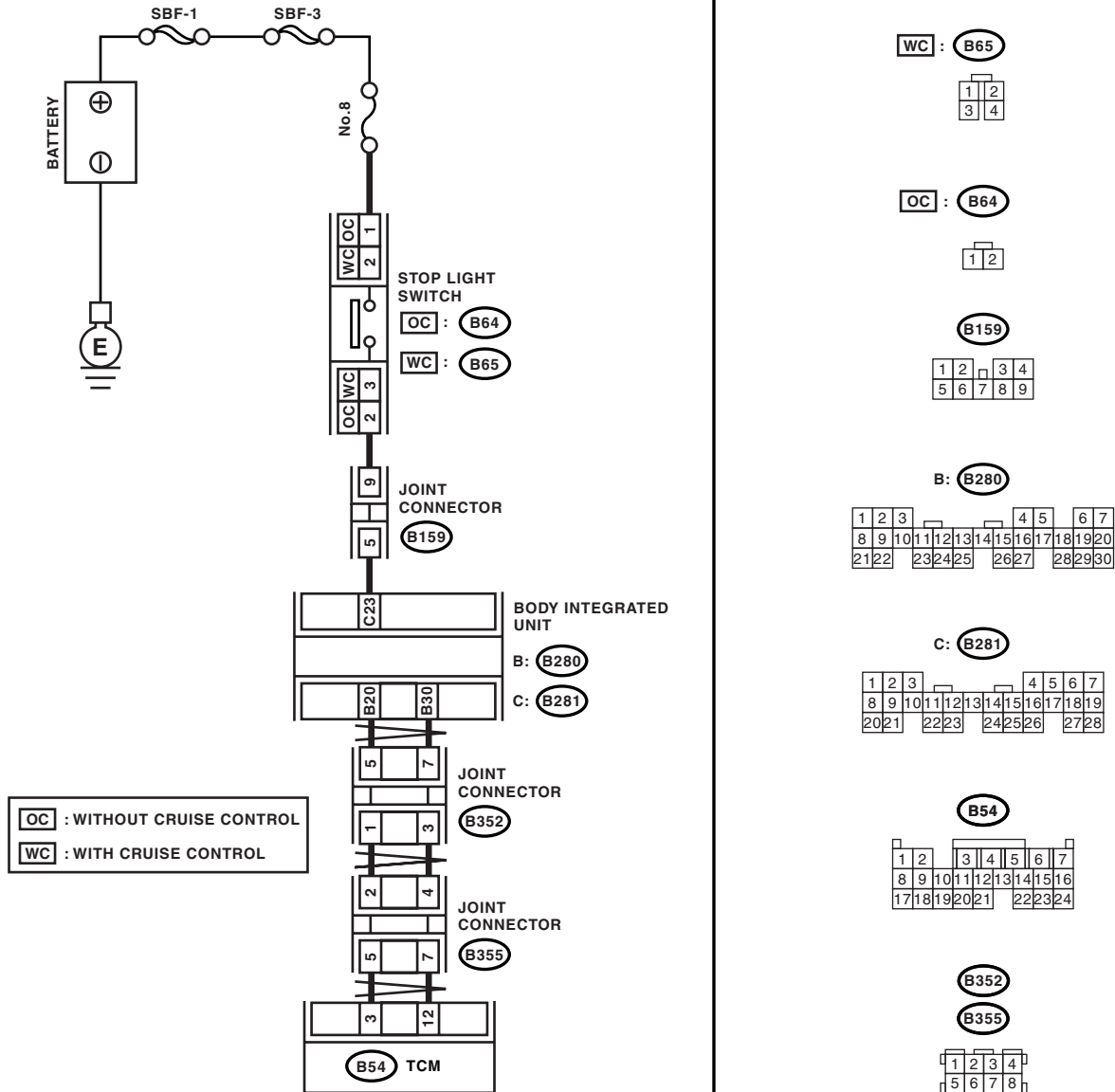
Brake switch malfunction, open input signal circuit

#### TROUBLE SYMPTOM:

- Gear is not shifted down when driving a down hill.
- The neutral control does not operate.

#### WIRING DIAGRAM:

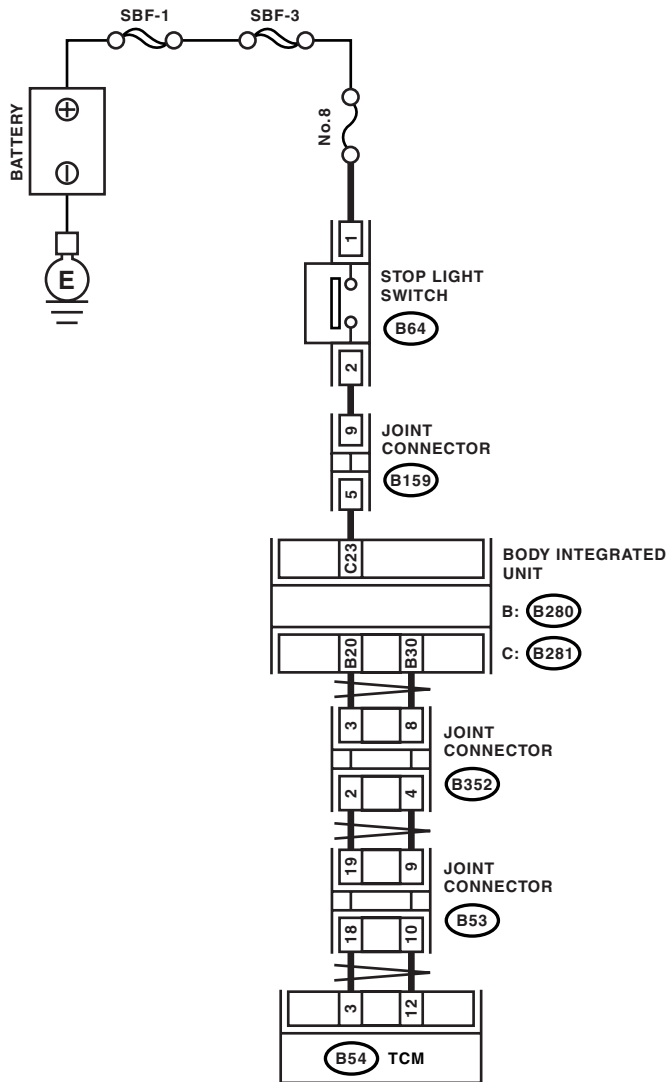
- LHD model



# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

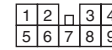
- RHD model



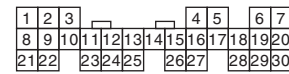
**B64**



**B159**



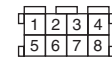
**B: B280**



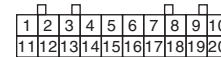
**C: B281**



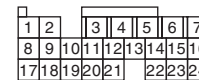
**B352**



**B53**



**B54**



AT-02357

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No	
1	<b>CHECK DTC.</b>	Does the DTC of CAN communication appear in the on-board diagnostics test mode?	Perform the diagnosis according to DTC.	Go to step 2.
2	<b>CHECK BODY INTEGRATED UNIT.</b> 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 ON displayed?	Go to step 3.	Go to step 4.
3	<b>CHECK TCM.</b> Read the data of brake pedal switch using Subaru Select Monitor. <Ref. to 4AT(diag)-17, OPERATION, Subaru Select Monitor.>	Is ON displayed?	A temporary poor contact of connector or harness may be the cause. Check the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
4	<b>CHECK BODY INTEGRATED UNIT INPUT SIGNAL.</b> 1) Depress the brake pedal. 2) Disconnect the connector from body integrated unit. 3) Measure the voltage of harness between body integrated unit and stop light switch. <b>Connector &amp; terminal</b> <b>(B281) No. 23 (+) — Chassis ground (-):</b>	Is the voltage more than 10 V?	Go to step 7.	Go to step 5.
5	<b>CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH.</b> 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. <b>Connector &amp; terminal</b> <b>Model with cruise control</b> <b>(B281) No. 23 — (B65) No. 3:</b> <b>Model without cruise control</b> <b>(B281) No. 23 — (B64) No. 2:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 6.	Repair the open circuit of harness between the body integrated unit and stop light switch.
6	<b>CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH.</b> Measure the resistance of harness between body integrated unit and stop light switch. <b>Connector &amp; terminal</b> <b>(B281) No. 23 — Chassis ground:</b>	Is the resistance more than 1 $M\Omega$ ?	Go to step 7.	Repair the short circuit of harness between the body integrated unit and stop light switch.
7	<b>CHECK POOR CONTACT.</b>	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

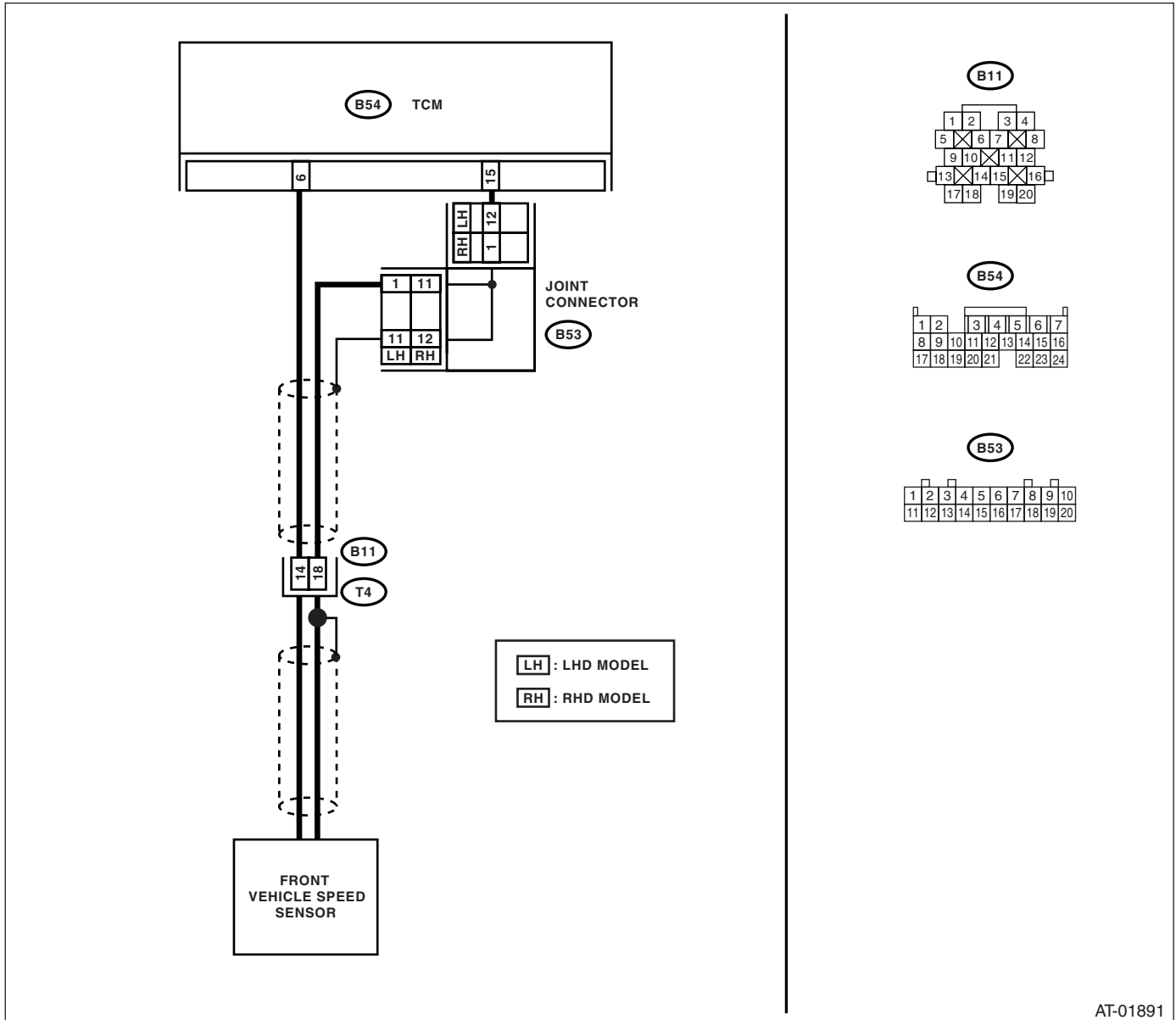
### DTC DETECTING CONDITION:

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

### TROUBLE SYMPTOM:

- The neutral control does not operate.
- The slip lock up control does not operate.
- Poor driving performance

### WIRING DIAGRAM:



AT-01891

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <b>Connector &amp; terminal</b> <b>(B54) No. 6 — (B11) No. 14:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM and transmission connector. <b>Connector &amp; terminal</b> <b>(B54) No. 15 — (B11) No. 18:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit in harness between TCM and transmission connector, and poor contact in coupling connector.
<b>3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM and transmission connector. <b>Connector &amp; terminal</b> <b>(B54) No. 6 — Chassis ground:</b>	Is the resistance more than 1 $M\Omega$ ?	Go to step 4.	Repair the short circuit in harness between TCM and transmission connector.
<b>4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM and transmission connector. <b>Connector &amp; terminal</b> <b>(B54) No. 15 — Chassis ground:</b>	Is the resistance more than 1 $M\Omega$ ?	Go to step 5.	Repair the short circuit in harness between TCM and transmission connector, and poor contact in coupling connector.
<b>5 CHECK FRONT VEHICLE SPEED SENSOR.</b> Measure the resistance between transmission connector receptacle's terminals. <b>Connector &amp; terminal</b> <b>(T4) No. 14 — No. 18:</b>	Is the resistance 450 — 650 $\Omega$ ?	Go to step 6.	Replace the front vehicle speed sensor. <Ref. to 4AT-55, Front Vehicle Speed Sensor.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>6</b>     <b>CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</b></p> <p>1) Connect all the connectors.                  2) Connect the Subaru Select Monitor to data link connector.                  3) Lift-up the vehicle and support with rigid racks.</p> <p><b>NOTE:</b>                  Raise all wheels off floor.</p> <p>4) Turn the ignition switch to ON, and Subaru Select Monitor switch to ON.                  5) Start the engine.                  6) Read the data of vehicle speed using Subaru Select Monitor.</p> <ul style="list-style-type: none"> <li>• Compare the speedometer with Subaru Select Monitor indications.</li> <li>• Vehicle speed is indicated either in "km/h" or "MPH".</li> </ul> <p>7) Slowly increase the vehicle speed to 60 km/h (37 MPH).</p> <p><b>NOTE:</b>                  The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p>	<p>Does the speedometer indication increase as the Subaru Select Monitor data increases?</p>	<p>Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness in the front vehicle speed sensor circuit.</p>	<p>Go to step 7.</p>
<p><b>7</b>     <b>CHECK POOR CONTACT.</b></p>	<p>Is there poor contact in front vehicle speed sensor circuit?</p>	<p>Repair the poor contact.</p>	<p>Replace the TCM. &lt;Ref. to 4AT-65, Transmission Control Module (TCM).&gt;</p>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

#### DTC DETECTING CONDITION:

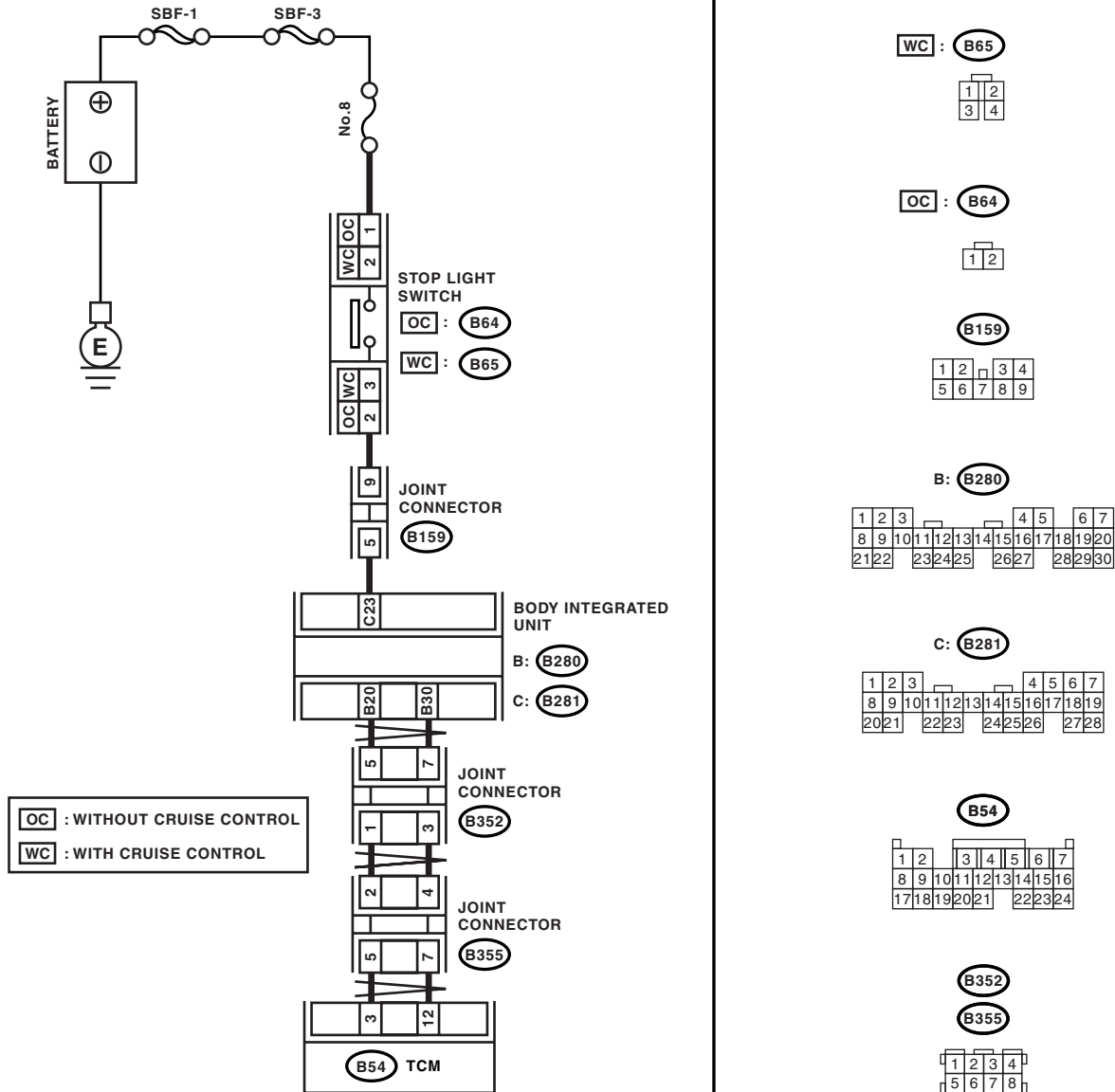
Brake switch malfunction, open input signal circuit

#### TROUBLE SYMPTOM:

- Gear is not shifted down when driving a down hill.
- The neutral control does not operate.

#### WIRING DIAGRAM:

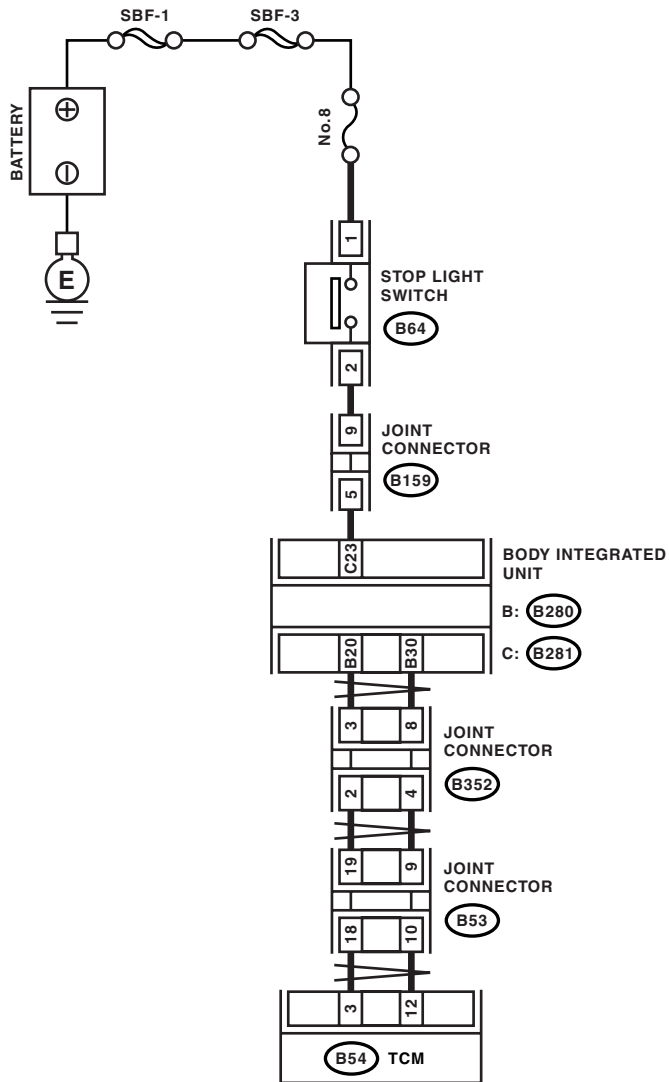
- LHD model



# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

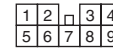
- RHD model



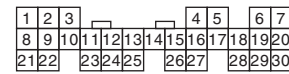
B64



B159



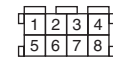
B: B280



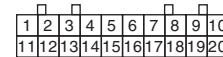
C: B281



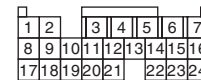
B352



B53



B54



AT-02357

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No	
<b>1</b>	<b>CHECK DTC.</b>	Does the DTC of CAN communication appear in the on-board diagnostics test mode?	Perform the diagnosis according to DTC.	Go to step 2.
<b>2</b>	<b>CHECK BODY INTEGRATED UNIT.</b> 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 4AT(diag)-17, OPERATION, Subaru Select Monitor.>	Is OFF displayed?	Go to step 3.	Go to step 4.
<b>3</b>	<b>CHECK TCM.</b> Read the data of brake pedal switch using Subaru Select Monitor. <Ref. to 4AT(diag)-17, 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 4AT-65, Transmission Control Module (TCM).>
<b>4</b>	<b>CHECK BODY INTEGRATED UNIT INPUT SIGNAL.</b> 1) Disconnect harness connector of body integrated unit. 2) Measure the voltage of harness between body integrated unit and stop light switch. <b>Connector &amp; terminal</b> <b>(B281) No. 23 (+) — Chassis ground (-):</b>	Is the voltage more than 10 V?	Go to step 5.	Go to step 7.
<b>5</b>	<b>CHECK STOP LIGHT SWITCH.</b> 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. <b>Terminals</b> <b>MODEL WITH CRUISE CONTROL</b> <b>No. 2 — No. 3:</b> <b>MODEL WITHOUT CRUISE CONTROL</b> <b>No. 1 — No. 2:</b>	Is the resistance more than 1 MΩ?	Go to step 6.	Replace the stop light switch.
<b>6</b>	<b>CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND STOP LIGHT SWITCH.</b> 1) Turn the ignition switch to ON. 2) Measure the voltage of harness between body integrated unit and chassis ground. <b>Connector &amp; terminal</b> <b>(B281) No. 23 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step 7.	Repair the short circuit in harness between TCM and stop light switch.
<b>7</b>	<b>CHECK POOR CONTACT.</b>	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

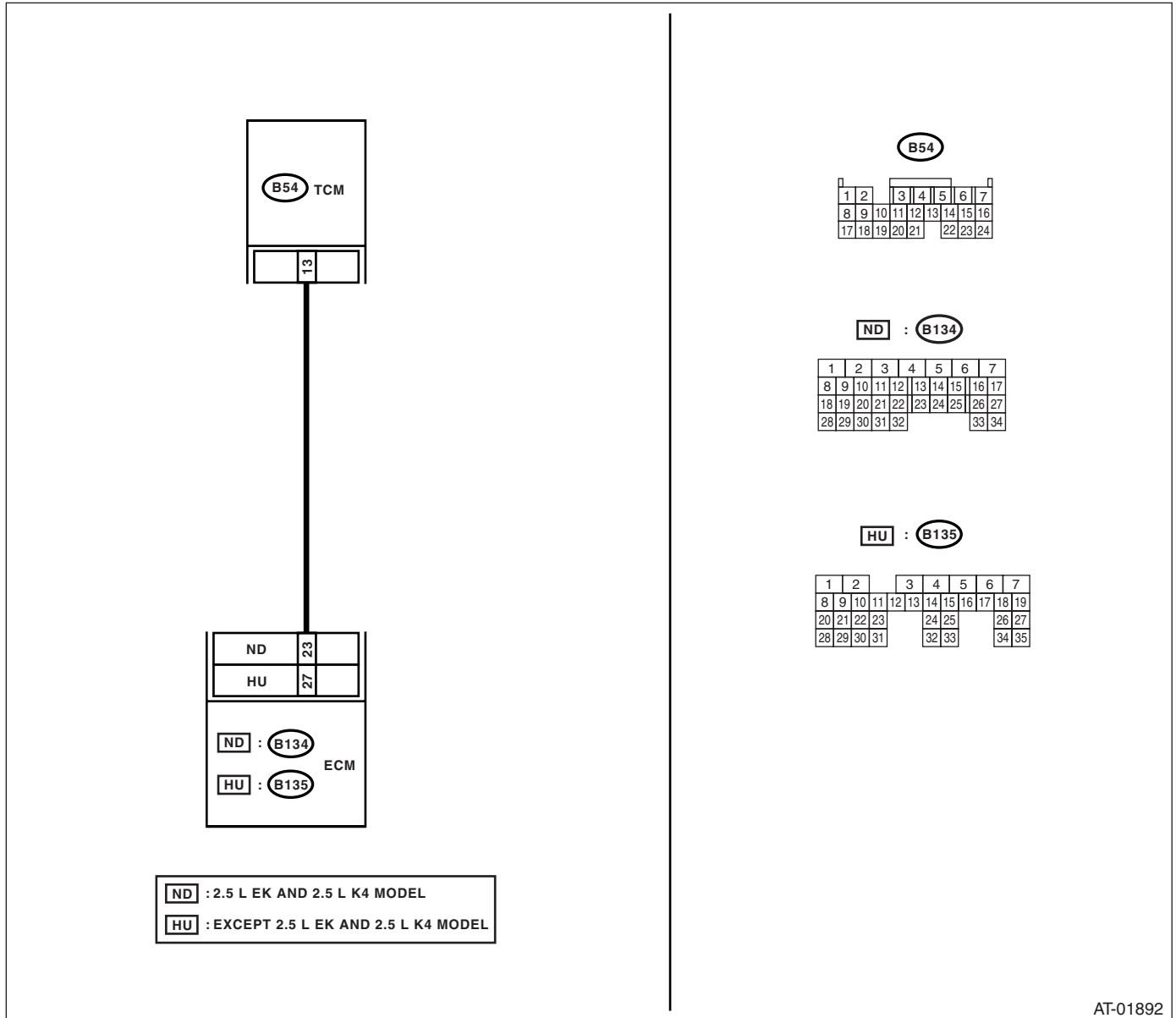
### DTC DETECTING CONDITION:

Engine speed input signal circuit is open or shorted.

### TROUBLE SYMPTOM:

- No lock-up occurs. (After engine is warmed-up)
- SPORT indicator light remains on when the vehicle speed is "0".

### WIRING DIAGRAM:



AT-01892

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and ECM. 3) Measure the resistance of harness between TCM and ECM. <b>Connector &amp; terminal</b> <b>2.5 L EK and 2.5 L K4 model</b> <b>(B54) No. 13 — (B134) No. 23:</b> <b>Except for 2.5 L EK and 2.5 L K4 model</b> <b>(B54) No. 13 — (B135) No. 27:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and ECM connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.</b> Measure the resistance of harness between TCM connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B54) No. 13 — Chassis ground:</b>	Is the resistance more than 1 $M\Omega$ ?	Go to step 3.	Repair the short circuit in harness between TCM and ECM connector.
<b>3 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connectors to TCM and ECM. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine, and turn the Subaru Select Monitor switch to ON. 4) Run the engine at idle. 5) Read the data of engine speed using Subaru Select Monitor. • Display shows the engine speed signal value sent from ECM.	Is the revolution value same as the tachometer reading shown on the combination meter?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in the TCM and ECM.	Go to step 4.
<b>4 CHECK POOR CONTACT.</b>	Is there poor contact in engine speed signal circuit?	Repair the poor contact.	Go to step 5.
<b>5 CONFIRM DTC P0725.</b> Replace the ECM with a new one.	Does the DTC appear again, after the memory has been cleared?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Replace the ECM.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

---

### **I: DTC P0731 GEAR 1 INCORRECT RATIO**

**NOTE:**

Refer to DTC P0736 for diagnostic procedure. <Ref. to 4AT(diag)-62, 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 4AT(diag)-62, 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 4AT(diag)-62, 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 4AT(diag)-62, DTC P0736 REVERSE INCORRECT RATIO, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## M: DTC P0736 REVERSE INCORRECT RATIO

### DTC DETECTING CONDITION:

Vehicle sensor, torque converter 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.

Step	Check	Yes	No
1	<b>PREPARE SUBARU SELECT MONITOR.</b>	Go to step 2.	Go to step 5.
2	<b>CHECK ACCELERATOR PEDAL POSITION SENSOR.</b> 1) Connect the Subaru Select Monitor to data link connector. 2) Turn the ignition switch to ON. 3) Read the value of accelerator pedal position sensor on Subaru Select Monitor display.	Go to step 3.	Check the accelerator position sensor circuit. <Ref. to 4AT(diag)-92, DTC P1708 THROTTLE POSITION SENSOR CIRCUIT LOW INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
3	<b>CHECK FRONT VEHICLE SPEED SENSOR.</b> 1) Lift-up the vehicle and support with rigid racks. 2) Start the engine. 3) Shift the select lever to "D" range and slowly increase vehicle speed.  NOTE: The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.> <Ref. to VDC(diag)-24, Clear Memory Mode.>	Go to step 4.	Check the front vehicle speed sensor circuit.
4	<b>CHECK TORQUE CONVERTER TURBINE SPEED SENSOR.</b> 1) Shift the select lever to "P" or "N" range. 2) Idle the engine.	There are malfunctions in TCM, TCM connector poor contact, or transmission assembly mechanical malfunction.	Check the torque converter turbine speed sensor circuit.
5	<b>CHECK ACCELERATOR PEDAL POSITION SENSOR.</b> 1) Turn the ignition switch to ON. 2) Fully close the throttle. 3) Measure the voltage between TCM and chassis ground.  <b>Connector &amp; terminal</b> <b>(B54) No. 19 (+) — Chassis ground (-):</b>	Go to step 6.	Check the accelerator pedal position sensor circuit. <Ref. to 4AT(diag)-92, DTC P1708 THROTTLE POSITION SENSOR CIRCUIT LOW INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>6</b>      <b>CHECK ACCELERATOR PEDAL POSITION SENSOR.</b>            1) Fully open the throttle.            2) Measure the voltage between TCM and chassis ground.  <b>Connector &amp; terminal</b>  <b>(B54) No. 19 (+) — Chassis ground (-):</b></p>	<p>Is the voltage 3.3 — 4.6 V?</p>	<p>Go to step 7.</p>	<p>Check the accelerator pedal position sensor circuit.            &lt;Ref. to 4AT(diag)-92, DTC P1708 THROTTLE POSITION SENSOR CIRCUIT LOW INPUT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).&gt;</p>
<p><b>7</b>      <b>CHECK FRONT VEHICLE SPEED SENSOR.</b>            Diagnose according to DTC P0720 procedure.</p>	<p>Is the front vehicle speed sensor OK?</p>	<p>Go to step 8.</p>	<p>Repair or replace the front vehicle speed sensor circuit.</p>
<p><b>8</b>      <b>CHECK TORQUE CONVERTER TURBINE SPEED SENSOR.</b>            Diagnose according to DTC P0715 procedure.</p>	<p>Is the torque converter turbine speed sensor OK?</p>	<p>There are malfunctions in TCM, TCM connector poor contact, or transmission assembly mechanical malfunction.</p>	<p>Repair or replace the torque converter turbine speed sensor circuit.</p>

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### N: 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.

Step	Check	Yes	No
<b>1</b> <b>CHECK LOCK-UP DUTY SOLENOID CIRCUIT.</b> Diagnose according to DTC P0743 procedure.	Is there any trouble?	Repair or replace the lock-up duty solenoid circuit.	Go to step <b>2</b> .
<b>2</b> <b>CHECK INHIBITOR SWITCH CIRCUIT.</b> Diagnose according to DTC P0705 procedure.	Is there any trouble?	Repair or replace the inhibitor switch circuit.	Go to step <b>3</b> .
<b>3</b> <b>CHECK STOP LIGHT SWITCH CIRCUIT.</b> Diagnose according to DTC P0719 and P0724 procedure.	Is there any trouble?	Repair or replace the stop light switch circuit.	Go to step <b>4</b> .
<b>4</b> <b>CHECK ATF TEMPERATURE SENSOR CIRCUIT.</b> Diagnose according to DTC P0712 and P0713 procedure.	Is there any trouble?	Repair or replace the ATF temperature sensor circuit.	Go to step <b>5</b> .
<b>5</b> <b>PREPARE SUBARU SELECT MONITOR.</b>	Do you have a Subaru Select Monitor?	Go to step <b>6</b> .	Go to step <b>9</b> .
<b>6</b> <b>CHECK ACCELERATOR PEDAL POSITION SENSOR.</b> 1) Connect the Subaru Select Monitor to data link connector. 2) Turn the ignition switch to ON. 3) Read the value of accelerator pedal position sensor on Subaru Select Monitor display.	Does the value of accelerator pedal position sensor change from 0% to 100% smoothly when throttle was operated from fully closing to fully opening?	Go to step <b>7</b> .	Check the accelerator pedal position sensor circuit.
<b>7</b> <b>CHECK TORQUE CONVERTER TURBINE SPEED SENSOR.</b> 1) Shift the select lever to "P" or "N" range. 2) Idle the engine.	Does the turbine revolution displayed by Subaru Select Monitor almost correspond with engine revolution indicated by tachometer?	Go to step <b>8</b> .	Check the torque converter turbine speed sensor circuit.
<b>8</b> <b>CHECK ENGINE SPEED SIGNAL.</b> Idle the engine.	Does the turbine revolution displayed by Subaru Select Monitor almost correspond with engine revolution indicated by tachometer?	There is transmission assembly mechanical malfunction.	Check the engine speed signal circuit.
<b>9</b> <b>CHECK ACCELERATOR PEDAL POSITION SENSOR.</b> Diagnose according to DTC P1708, P1709, P1714 procedure.	Is there any trouble?	Go to step <b>10</b> .	Repair or replace the accelerator pedal position sensor circuit.
<b>10</b> <b>CHECK TORQUE CONVERTER TURBINE SPEED SENSOR.</b> Diagnose according to DTC P0715 procedure.	Is there any trouble?	Go to step <b>11</b> .	Repair or replace the torque converter turbine speed sensor circuit.
<b>11</b> <b>CHECK ENGINE SPEED SIGNAL.</b> Diagnose according to DTC P0725 procedure.	Is there any trouble?	Repair or replace the engine speed input circuit.	There is transmission assembly mechanical malfunction.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## O: DTC P0743 TORQUE CONVERTER CLUTCH CIRCUIT ELECTRICAL

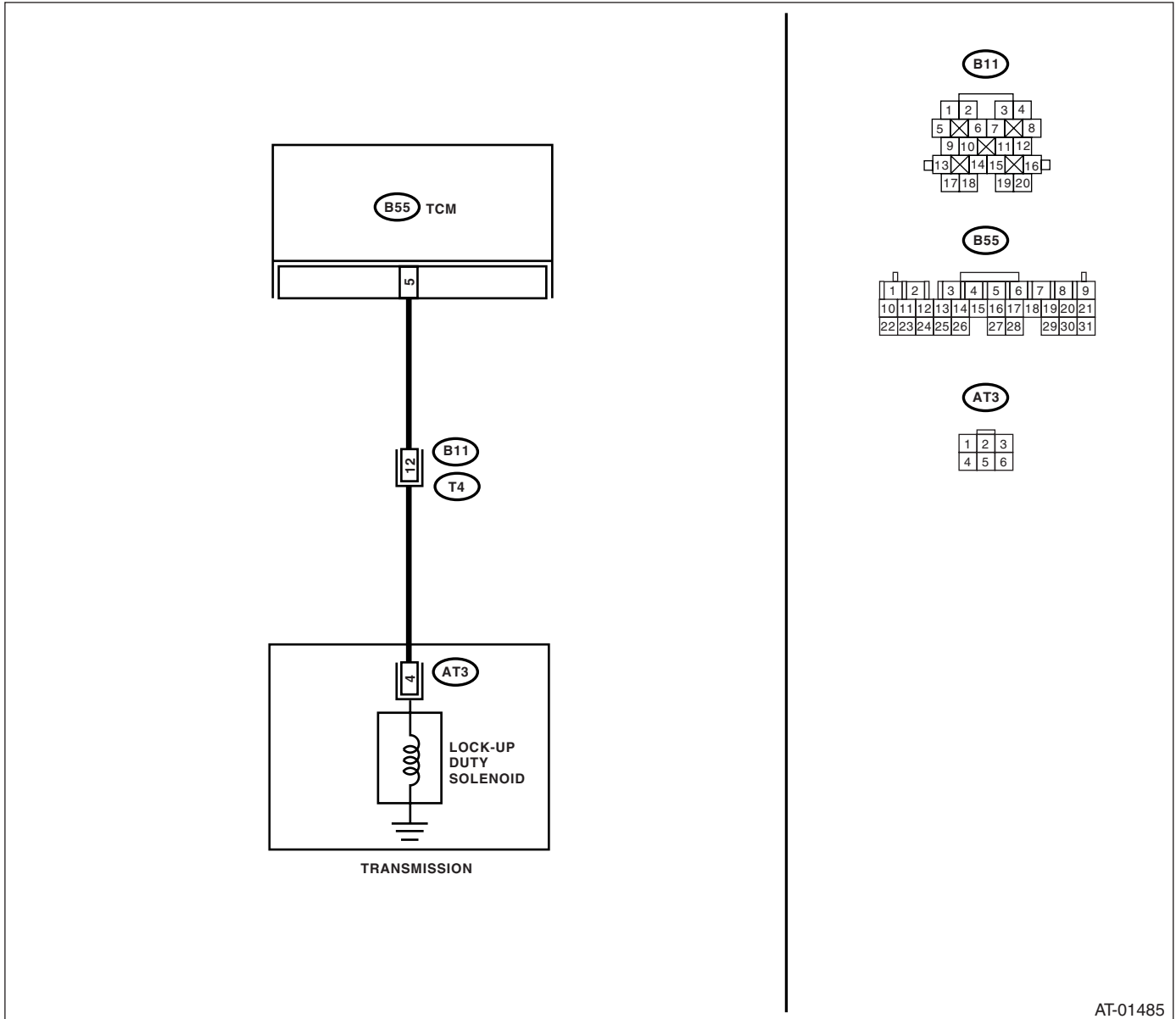
### DTC DETECTING CONDITION:

Output signal circuit of lock-up duty solenoid is open or shorted.

### TROUBLE SYMPTOM:

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

### WIRING DIAGRAM:



AT-01485

Step	Check	Yes	No	
1	CHECK DTC.	Do multiple DTC appear in the on-board diagnostics test mode?	Go to another DTC.	Go to step 2.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <b>Connector &amp; terminal</b> <b>(B55) No. 5 — (B11) No. 12:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit in harness between TCM and transmission connector.
<b>3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness connector between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B55) No. 5 — Chassis ground:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 4.	Repair the short circuit in harness between TCM and transmission connector.
<b>4 CHECK LOCK-UP DUTY SOLENOID.</b> Measure the resistance between transmission connector receptacle's terminals. <b>Connector &amp; terminal</b> <b>(T4) No. 12 — No. 19:</b>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 5.	Go to step 8.
<b>5 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connectors to TCM and transmission. 2) Lift-up the vehicle and support with rigid racks. NOTE: Raise all wheels off floor. 3) Connect the Subaru Select Monitor to data link connector. 4) Start the engine, and turn the Subaru Select Monitor switch to ON. 5) Start the engine and warm-up the engine until the ATF temperature is above 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. 6) Read the data of lock-up duty solenoid using Subaru Select Monitor. • Lock-up duty solenoid is indicated in "%". 7) Shift the select lever to "D", and slowly increase vehicle speed to 60 km/h (37 MPH). NOTE: The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-27, Clear Memory Mode.> <Ref. to VDC(diag)-24, Clear Memory Mode.>	Is the value 95%?	Go to step 6.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>6 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b> Return the engine to idling speed, shift the select lever to "N" range and read data.</p> <p><b>NOTE:</b> The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p>	Is the value 5%?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step 7.
<p><b>7 CHECK POOR CONTACT.</b></p>	Is there poor contact in lock-up duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<p><b>8 CHECK LOCK-UP DUTY SOLENOID (IN TRANSMISSION).</b> 1) Disconnect the transmission connector. 2) Drain the ATF.</p> <p><b>CAUTION:</b> <b>Do not drain the ATF until it cools down.</b> 3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance between lock-up duty solenoid and transmission ground.</p> <p><b>Connector &amp; terminal</b> <b>(AT3) No. 4 — Transmission ground:</b></p>	Is the resistance 2.0 — 6.0 Ω?	Go to step 9.	Replace the control valve body. <Ref. to 4AT-60, Control Valve Body.>
<p><b>9 CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION.</b> Measure the resistance of harness between lock-up duty solenoid and transmission connector.</p> <p><b>Connector &amp; terminal</b> <b>(T4) No. 12 — (AT3) No. 4:</b></p>	Is the resistance less than 1 Ω?	Go to step 10.	Repair the open circuit in harness between TCM and transmission connector.
<p><b>10 CHECK HARNESS CONNECTOR BETWEEN LOCK-UP DUTY SOLENOID AND TRANSMISSION.</b> Measure the resistance of harness between transmission connector and transmission ground.</p> <p><b>Connector &amp; terminal</b> <b>(T4) No. 12 — Transmission ground:</b></p>	Is the resistance more than 1 MΩ?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in lock-up duty solenoid and transmission.	Repair the short circuit in harness between lock-up duty solenoid and transmission connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### P: DTC P0748 PRESSURE CONTROL SOLENOID "A" ELECTRICAL

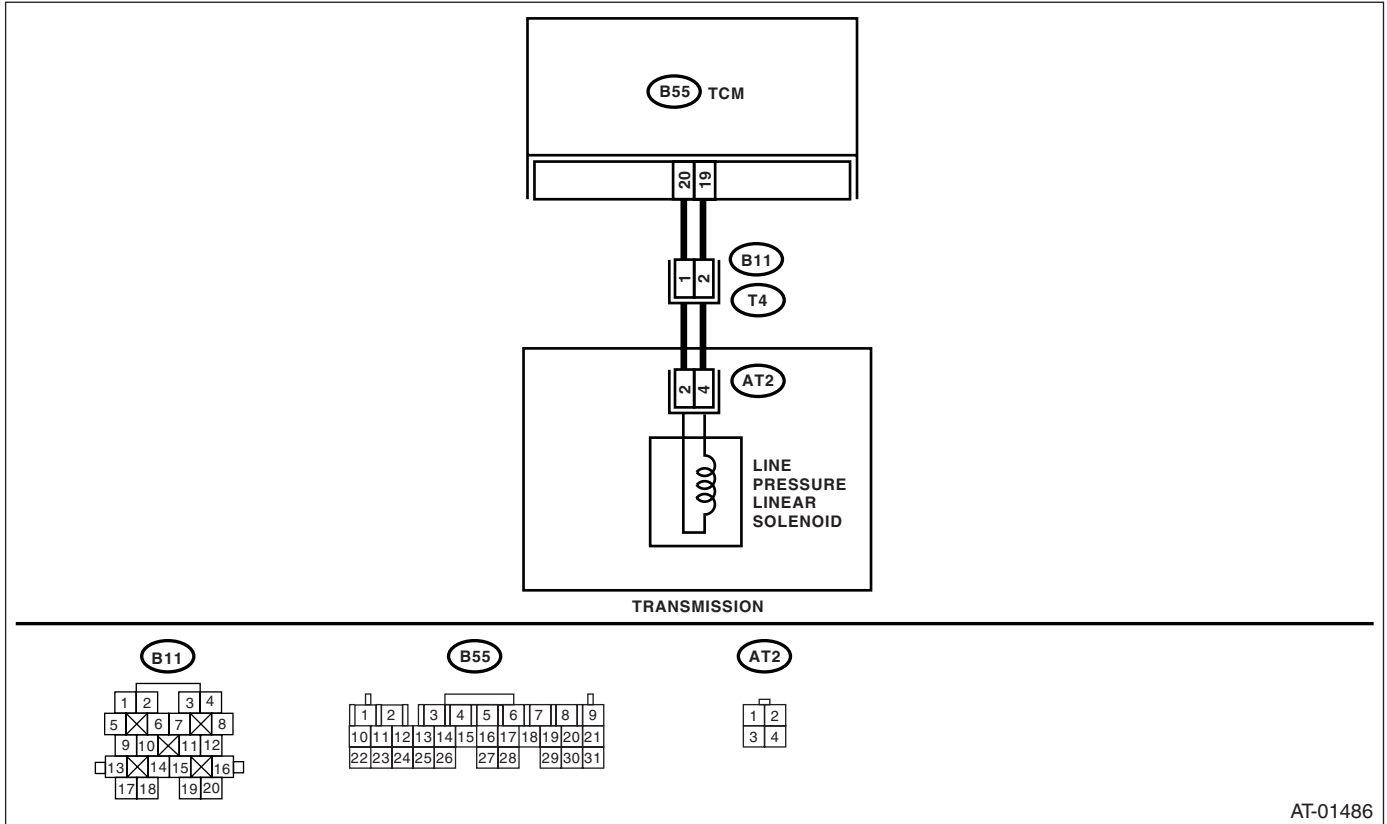
#### DTC DETECTING CONDITION:

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

#### TROUBLE SYMPTOM:

Excessive shift shock

#### WIRING DIAGRAM:



AT-01486

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector &amp; terminal</i> (B55) No. 19 — (B11) No. 2: (B55) No. 20 — (B11) No. 1:	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.</b> Measure the resistance of harness between TCM connector and chassis ground. <i>Connector &amp; terminal</i> (B55) No. 19 — Chassis ground: (B55) No. 20 — 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.
<b>3 CHECK LINE PRESSURE LINEAR SOLENOID.</b> Measure the resistance between transmission connector receptacle's terminals. <i>Connector &amp; terminal</i> (T4) No. 1 — No. 2:	Is the resistance 4 — 8 $\Omega$ ?	Go to step 4.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>4</b></p> <p><b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b></p> <p>1) Connect the connectors to TCM and transmission.</p> <p>2) Connect the Subaru Select Monitor to data link connector.</p> <p>3) Start the engine, and turn the Subaru Select Monitor switch to ON.</p> <p>4) Warm-up the transmission until the ATF temperature exceeds approx. 80°C (176°F).</p> <p><b>NOTE:</b> If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature.</p> <p>5) Stop the engine and turn the ignition switch to ON (engine OFF).</p> <p>6) Shift the select lever to "R" range.</p> <p>7) Read the data of line pressure linear solenoid using Subaru Select Monitor.</p> <ul style="list-style-type: none"> <li>• Line pressure linear solenoid is indicated in "%".</li> </ul> <p>8) Fully close the throttle.</p>	Is the value 45 — 50%?	Go to step 5.	Go to step 6.
<p><b>5</b></p> <p><b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b></p> <p>Fully open the throttle.</p>	Is the value 20 — 40%?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in transmission.	Go to step 6.
<p><b>6</b></p> <p><b>CHECK POOR CONTACT.</b></p>	Is there poor contact in line pressure linear solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<p><b>7</b></p> <p><b>CHECK LINE PRESSURE LINEAR SOLENOID (IN TRANSMISSION).</b></p> <p>1) Remove the transmission connector from bracket.</p> <p>2) Drain the ATF.</p> <p><b>CAUTION:</b> <b>Do not drain the ATF until it cools down.</b></p> <p>3) Remove the oil pan, and disconnect the connector from control valve body.</p> <p>4) Measure the resistance between line pressure linear solenoid connector terminals.</p> <p><b>Connector &amp; terminal</b> <b>(AT2) No. 2 — No. 4:</b></p>	Is the resistance 4 — 8 Ω?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-60, Control Valve Body.>

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>8</b>      <b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE LINEAR SOLENOID.</b>                      Measure the resistance of harness between line pressure linear solenoid and transmission connector.  <i>Connector &amp; terminal</i>                      (T4) No. 2 — (AT2) No. 4:                      (T4) No. 1 — (AT2) No. 2:</p>	Is the resistance less than 1 $\Omega$ ?	Go to step 9.	Repair the open circuit in harness between line pressure linear solenoid and transmission connector.
<p><b>9</b>      <b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LINE PRESSURE LINEAR SOLENOID.</b>                      Measure the resistance of harness between transmission connector and transmission ground.  <i>Connector &amp; terminal</i>                      (T4) No. 1 — Transmission ground:                      (T4) No. 2 — Transmission ground:</p>	Is the resistance more than 1 M $\Omega$ ?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in line pressure linear solenoid and transmission.	Repair the short circuit in harness between line pressure linear solenoid and transmission connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## Q: DTC P0753 SHIFT SOLENOID "A" ELECTRICAL

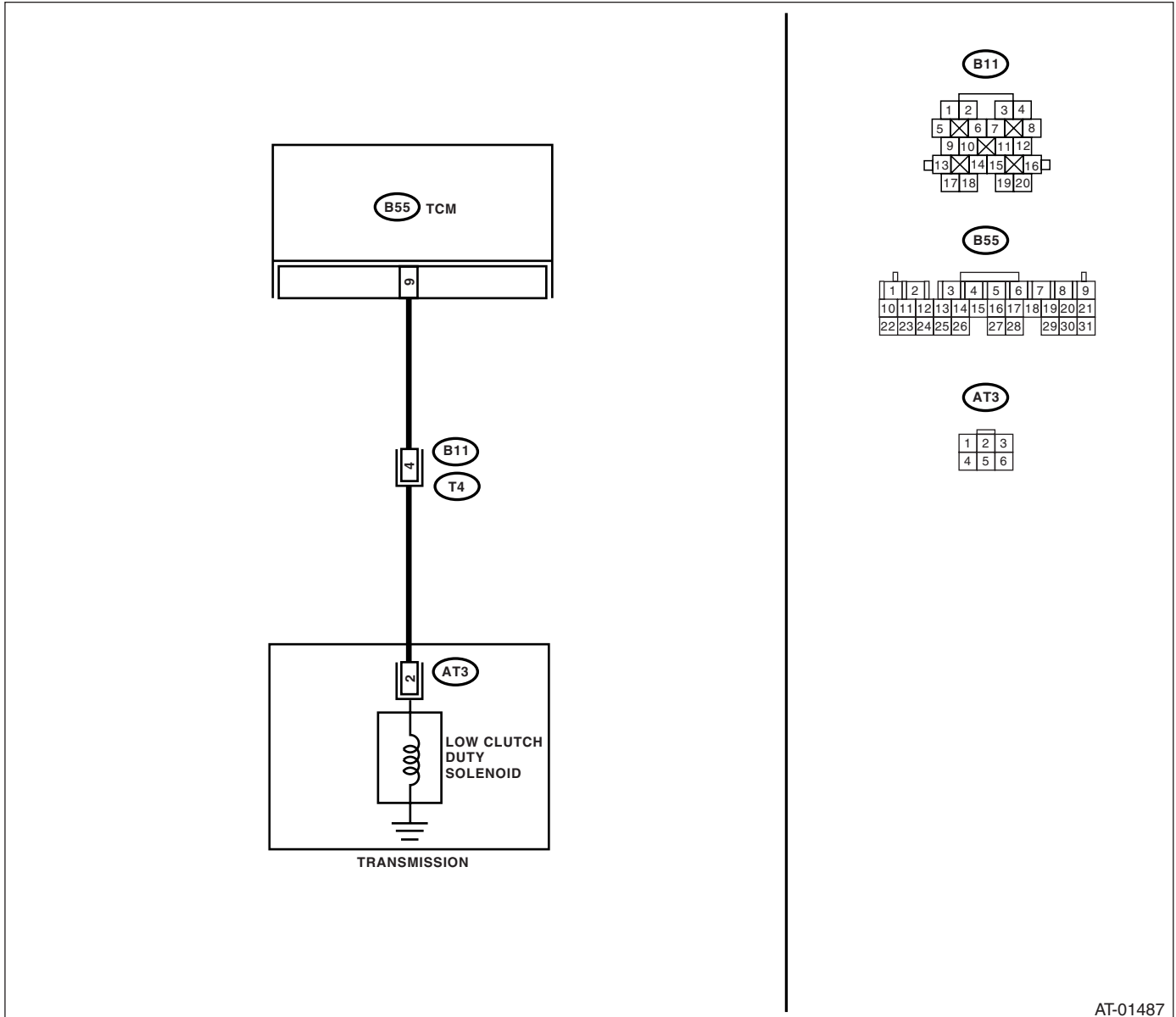
### DTC DETECTING CONDITION:

Output signal circuit of low clutch duty solenoid is open or shorted.

### TROUBLE SYMPTOM:

Excessive shift shock

### WIRING DIAGRAM:



AT-01487

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector &amp; terminal (B55) No. 9 — (B11) No. 4:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM connector and transmission ground. <i>Connector &amp; terminal (B55) 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 and transmission connector.
<b>3 CHECK LOW CLUTCH DUTY SOLENOID.</b> Measure the resistance between transmission connector terminals. <i>Connector &amp; terminal (T4) No. 4 — No. 20:</i>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 4.	Go to step 7.
<b>4 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine, and turn the Subaru Select Monitor switch to ON. 4) Warm-up the transmission until the ATF temperature exceed approx. 80°C (176°F). NOTE: If the ambient temperature is below 0°C (32°F), drive the vehicle until ATF reaches its operating temperature. 5) Stop the engine and turn the ignition switch to ON (engine OFF). 6) Shift the select lever to "P" or "N" range, and depress the accelerator pedal. 7) Read the data of low clutch duty solenoid using Subaru Select Monitor. • Low clutch duty solenoid is indicated in "%".	Is the value 100%?	Go to step 5.	Go to step 6.
<b>5 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b> 1) Turn the ignition switch to ON (engine OFF). 2) Shift the select lever to "D" range. 3) Read the data of low clutch duty solenoid.	Is the value 0%?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in transmission.	Go to step 6.
<b>6 CHECK POOR CONTACT.</b>	Is there poor contact in low clutch duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>7</b>     <b>CHECK LOW CLUTCH DUTY SOLENOID (IN TRANSMISSION).</b>            1) Remove the transmission connector from bracket.            2) Drain the ATF.</p> <p><b>CAUTION:</b>  <b>Do not drain the ATF until it cools down.</b></p> <p>3) Remove the oil pan, and disconnect the connector from control valve body.            4) Measure the resistance between low clutch duty solenoid connector and transmission ground.</p> <p><b>Connector &amp; terminal</b>  <b>(AT3) No. 2 — Transmission ground:</b></p>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-60, Control Valve Body.>
<p><b>8</b>     <b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW CLUTCH DUTY SOLENOID.</b>            Measure the resistance of harness between low clutch duty solenoid and transmission connector.</p> <p><b>Connector &amp; terminal</b>  <b>(T4) No. 4 — (AT3) No. 2:</b></p>	Is the resistance less than 1 $\Omega$ ?	Go to step 9.	Repair the open circuit in harness between low clutch duty solenoid and transmission connector.
<p><b>9</b>     <b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW CLUTCH DUTY SOLENOID.</b>            Measure the resistance of harness between transmission connector and transmission ground.</p> <p><b>Connector &amp; terminal</b>  <b>(T4) No. 4 — Transmission ground:</b></p>	Is the resistance more than 1 M $\Omega$ ?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in low clutch duty solenoid and transmission.	Repair the short circuit of harness between low clutch duty solenoid and transmission connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### R: DTC P0758 SHIFT SOLENOID "B" ELECTRICAL

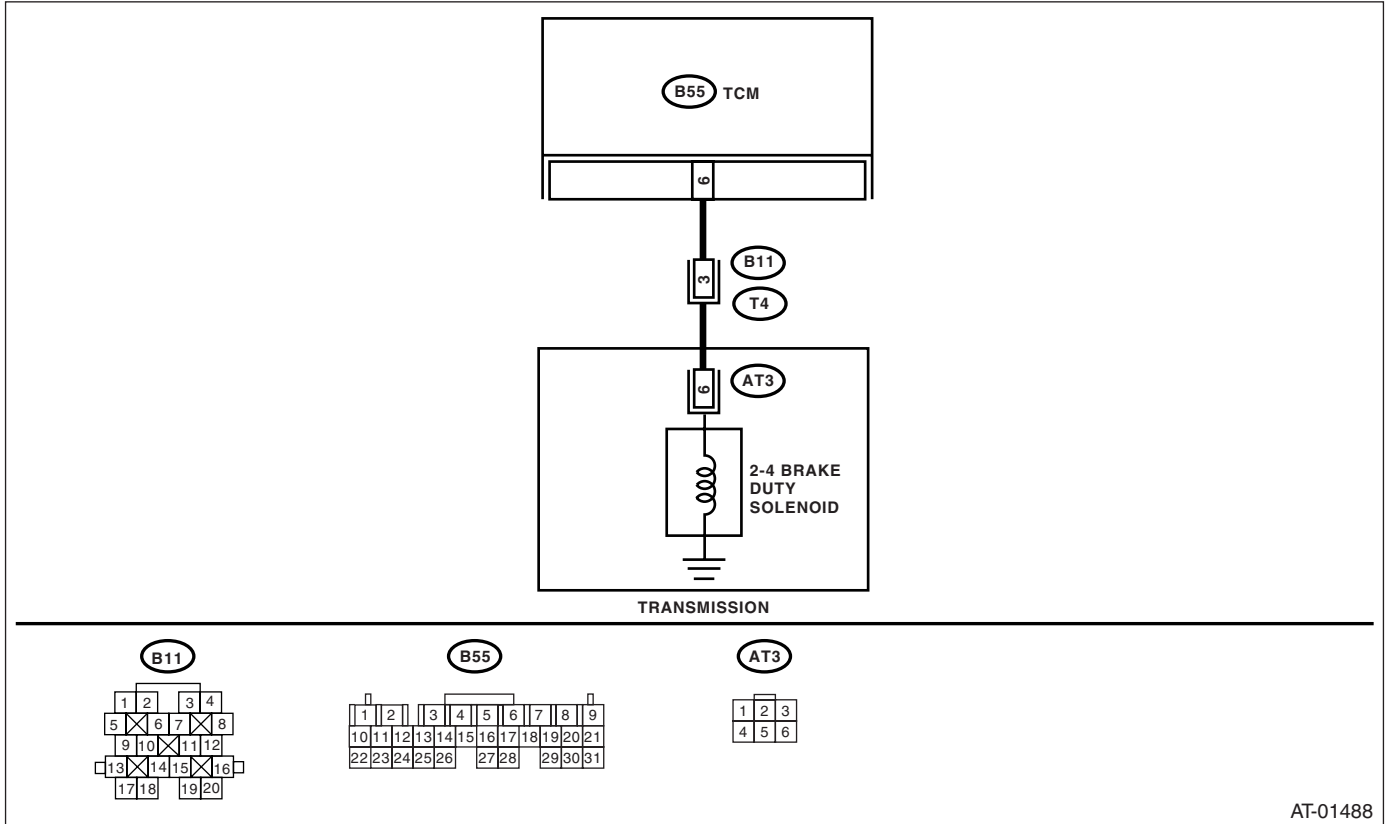
#### DTC DETECTING CONDITION:

Output signal circuit of 2-4 brake duty solenoid is open or shorted.

#### TROUBLE SYMPTOM:

Excessive shift shock

#### WIRING DIAGRAM:



AT-01488

Step	Check	Yes	No
<b>1</b> <b>CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector &amp; terminal</i> <i>(B55) No. 6 — (B11) No. 3:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2</b> <b>CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.</b> Measure the resistance of harness between TCM connector and chassis ground. <i>Connector &amp; terminal</i> <i>(B55) 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.
<b>3</b> <b>CHECK 2-4 BRAKE DUTY SOLENOID.</b> Measure the resistance between transmission connector terminals. <i>Connector &amp; terminal</i> <i>(T4) No. 3 — No. 20:</i>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 4.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>4</b></p> <p><b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b></p> <p>1) Connect all the connectors.                      2) Connect the Subaru Select Monitor to data link connector.                      3) Start the engine, and turn the Subaru Select Monitor switch to ON.                      4) Warm-up the transmission until the ATF temperature exceed approx. 80°C (176°F).</p> <p><b>NOTE:</b>                      If the ambient temperature is below 0°C (32°F), drive the vehicle until the ATF reaches its operating temperature.</p> <p>5) Stop the engine and turn the ignition switch to ON (engine OFF).                      6) Shift the select lever to "N" range, and depress the accelerator pedal.                      7) Read the data of 2-4 brake duty solenoid using Subaru Select Monitor.</p> <ul style="list-style-type: none"> <li>• 2-4 brake duty solenoid is indicated in "%".</li> </ul>	Is the value 100%?	Go to step 5.	Go to step 6.
<p><b>5</b></p> <p><b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b>                      Shift the select lever to 2nd on manual mode.</p>	Is the value 0%?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step 6.
<p><b>6</b></p> <p><b>CHECK POOR CONTACT.</b></p>	Is there poor contact in 2-4 brake duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<p><b>7</b></p> <p><b>CHECK 2-4 BRAKE DUTY SOLENOID (IN TRANSMISSION).</b></p> <p>1) Remove the transmission connector from bracket.                      2) Drain the ATF.</p> <p><b>CAUTION:</b>  <b>Do not drain the ATF until it cools down.</b></p> <p>3) Remove the oil pan, and disconnect the connector from 2-4 brake duty solenoid.                      4) Measure the resistance of harness between 2-4 brake duty solenoid connector and transmission ground.</p> <p><b>Connector &amp; terminal</b>  <b>(AT3) No. 6 — Transmission ground:</b></p>	Is the resistance 2.0 — 6.0 Ω?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-60, Control Valve Body.>

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>8</b> <b>CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE DUTY SOLENOID AND TRANSMISSION.</b> Measure the resistance of harness between 2-4 brake duty solenoid and transmission connector. <i>Connector &amp; terminal</i> <i>(T4) No. 3 — (AT12) No. 6:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 9.	Repair the open circuit in harness between 2-4 brake duty solenoid and transmission connector.
<b>9</b> <b>CHECK HARNESS CONNECTOR BETWEEN 2-4 BRAKE DUTY SOLENOID AND TRANSMISSION.</b> Measure the resistance of harness between transmission connector and transmission ground. <i>Connector &amp; terminal</i> <i>(T4) No. 3 — Transmission ground:</i>	Is the resistance more than 1 $M\Omega$ ?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in 2-4 brake duty solenoid and transmission.	Repair the short circuit in harness between 2-4 brake duty solenoid and transmission connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## S: DTC P0763 SHIFT SOLENOID "C" ELECTRICAL

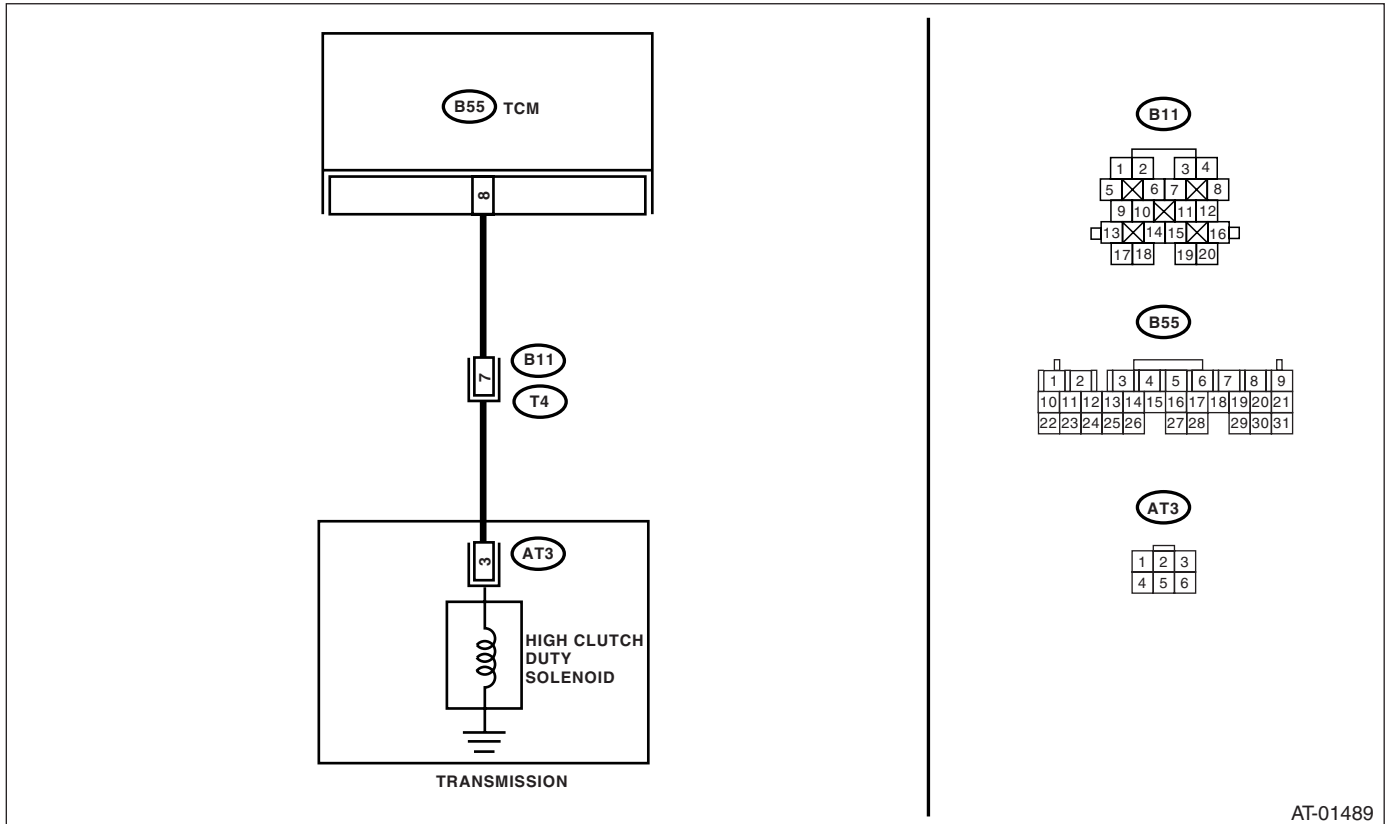
### DTC DETECTING CONDITION:

Output signal circuit of high clutch duty solenoid is open or shorted.

### TROUBLE SYMPTOM:

Excessive shift shock

### WIRING DIAGRAM:



AT-01489

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <b>Connector &amp; terminal</b> <b>(B55) No. 8 — (B11) No. 7:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness connector between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B55) No. 8 — Chassis ground:</b>	Is the resistance more than 1 $M\Omega$ ?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
<b>3 CHECK HIGH CLUTCH DUTY SOLENOID.</b> Measure the resistance between transmission connector receptacle's terminals. <b>Connector &amp; terminal</b> <b>(T4) No. 7 — No. 20:</b>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 4.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>4</b>      <b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b></p> <p>1) Connect the connectors to TCM and transmission.</p> <p>2) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE: Raise all wheels off floor.</p> <p>3) Connect the Subaru Select Monitor to data link connector.</p> <p>4) Start the engine, and turn the Subaru Select Monitor switch to ON.</p> <p>5) Start the engine and warm-up the engine until the ATF temperature is above 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>6) Read the data of high clutch duty solenoid using Subaru Select Monitor.</p> <ul style="list-style-type: none"> <li>• High clutch duty solenoid is indicated in “%”.</li> </ul> <p>7) Shift the select lever to “D”, and slowly increase vehicle speed at 3rd or 4th to measure.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p>	Is the value 0%?	Go to step 5.	Go to step 6.
<p><b>5</b>      <b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b></p> <p>Return the engine to idling speed and shift the select lever to “N” range.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p>	Is the value 100%?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step 6.
<p><b>6</b>      <b>CHECK POOR CONTACT.</b></p>	Is there poor contact in high clutch duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>7</b></p> <p><b>CHECK HIGH CLUTCH DUTY SOLENOID (IN TRANSMISSION).</b></p> <p>1) Remove the transmission connector from bracket. 2) Drain the ATF.</p> <p><b>CAUTION:</b> <b>Do not drain the ATF until it cools down.</b></p> <p>3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance between high clutch duty solenoid connector and transmission ground.</p> <p><b>Connector &amp; terminal</b> <b>(AT3) No. 3 — Transmission ground:</b></p>	<p>Is the resistance 2.0 — 6.0 <math>\Omega</math>?</p>	<p>Go to step 8.</p>	<p>Replace the control valve body. &lt;Ref. to 4AT-60, Control Valve Body.&gt;</p>
<p><b>8</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN HIGH CLUTCH DUTY SOLENOID AND TRANSMISSION.</b></p> <p>Measure the resistance of harness between high clutch duty solenoid and transmission connector.</p> <p><b>Connector &amp; terminal</b> <b>(T4) No. 7 — (AT3) No. 3:</b></p>	<p>Is the resistance less than 1 <math>\Omega</math>?</p>	<p>Go to step 9.</p>	<p>Repair the open circuit in harness between TCM and transmission connector.</p>
<p><b>9</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN HIGH CLUTCH DUTY SOLENOID AND TRANSMISSION.</b></p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p><b>Connector &amp; terminal</b> <b>(T4) No. 7 — Transmission ground:</b></p>	<p>Is the resistance more than 1 M<math>\Omega</math>?</p>	<p>Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in high clutch duty solenoid and transmission.</p>	<p>Repair the short circuit of harness between high clutch duty solenoid and transmission connector.</p>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### T: DTC P0768 SHIFT SOLENOID "D" ELECTRICAL

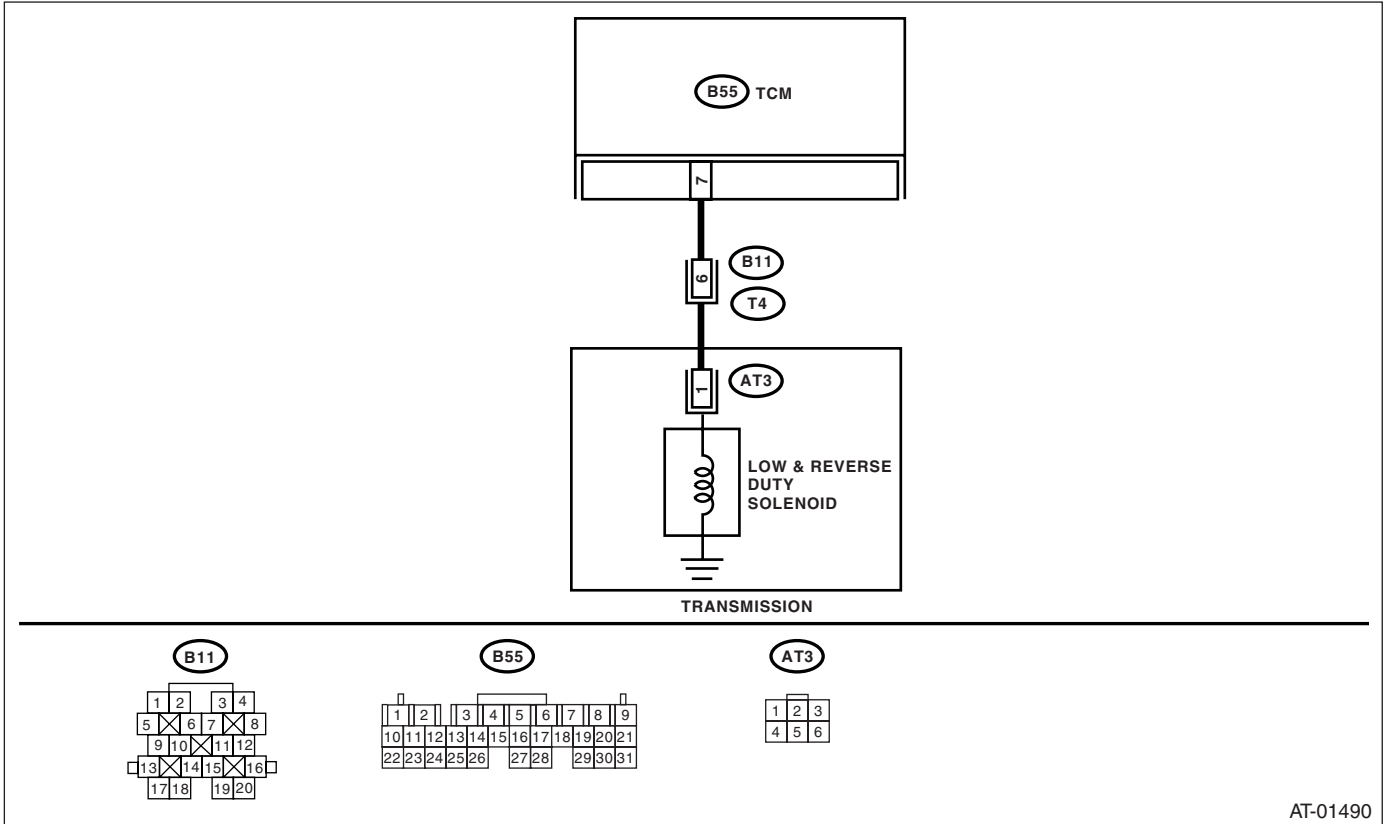
#### DTC DETECTING CONDITION:

The output signal circuit of low & reverse duty solenoid is open or shorted.

#### TROUBLE SYMPTOM:

Gear is not changed.

#### WIRING DIAGRAM:



AT-01490

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from transmission and TCM. 3) Measure the resistance of harness between TCM and transmission connector. <i>Connector &amp; terminal (B55) No. 7 — (B11) No. 6:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND CHASSIS GROUND.</b> Measure the resistance of harness between TCM connector and chassis ground. <i>Connector &amp; terminal (B55) No. 7 — 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.
<b>3 CHECK LOW &amp; REVERSE DUTY SOLENOID.</b> Measure the resistance between transmission connector terminals. <i>Connector &amp; terminal (T4) No. 6 — No. 20:</i>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 4.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>4</b>      <b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b></p> <p>1) Connect all the connectors.                      2) Connect the Subaru Select Monitor to data link connector.                      3) Start the engine, and turn the Subaru Select Monitor switch to ON.                      4) Warm-up the transmission until the ATF temperature is above 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>5) Stop the engine and turn the ignition switch to ON (engine OFF).                      6) Shift the select lever to the "N" range.                      7) Read the data of low &amp; reverse duty solenoid using Subaru Select Monitor.</p> <ul style="list-style-type: none"> <li>• Low &amp; reverse duty solenoid is indicated in "%".</li> </ul>	Is the value 100%?	Go to step 5.	Go to step 6.
<p><b>5</b>      <b>CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b></p> <p>1) Lift-up the vehicle and support with rigid racks.</p> <p>NOTE:                      Raise all wheels off floor.</p> <p>2) Shift the select lever to manual mode, and then hold it on 1st. Slowly increase the vehicle speed up to 15 km/h (9 MPH), and then return the accelerator pedal.</p> <p>NOTE:                      The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p> <p>3) Read the data of low &amp; reverse duty solenoid.</p>	Is the value 55%?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step 6.
<p><b>6</b>      <b>CHECK POOR CONTACT.</b></p>	Is there poor contact in low & reverse duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>7</b></p> <p><b>CHECK LOW &amp; REVERSE DUTY SOLENOID (IN TRANSMISSION).</b></p> <p>1) Remove the transmission connector from bracket. 2) Drain the ATF.</p> <p><b>CAUTION:</b> <b>Do not drain the ATF until it cools down.</b></p> <p>3) Remove the oil pan, and disconnect the connector from control valve body. 4) Measure the resistance between low &amp; reverse duty solenoid connector and transmission ground.</p> <p><b>Connector &amp; terminal</b> <b>(AT3) No. 1 — Transmission ground:</b></p>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-60, Control Valve Body.>
<p><b>8</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW &amp; REVERSE DUTY SOLENOID.</b></p> <p>Measure the resistance of harness between low &amp; reverse duty solenoid and transmission connector.</p> <p><b>Connector &amp; terminal</b> <b>(T4) No. 6 — (AT3) No. 1:</b></p>	Is the resistance less than 1 $\Omega$ ?	Go to step 9.	Repair the open circuit in harness between low & reverse duty solenoid and transmission connector.
<p><b>9</b></p> <p><b>CHECK HARNESS CONNECTOR BETWEEN TRANSMISSION AND LOW &amp; REVERSE DUTY SOLENOID.</b></p> <p>Measure the resistance of harness between transmission connector and transmission ground.</p> <p><b>Connector &amp; terminal</b> <b>(T4) No. 6 — Transmission ground:</b></p>	Is the resistance more than 1 M $\Omega$ ?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in low & reverse duty solenoid and transmission.	Repair the short circuit in harness between low & reverse brake solenoid and transmission connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## U: DTC P0801 REVERSE INHIBIT CONTROL CIRCUIT

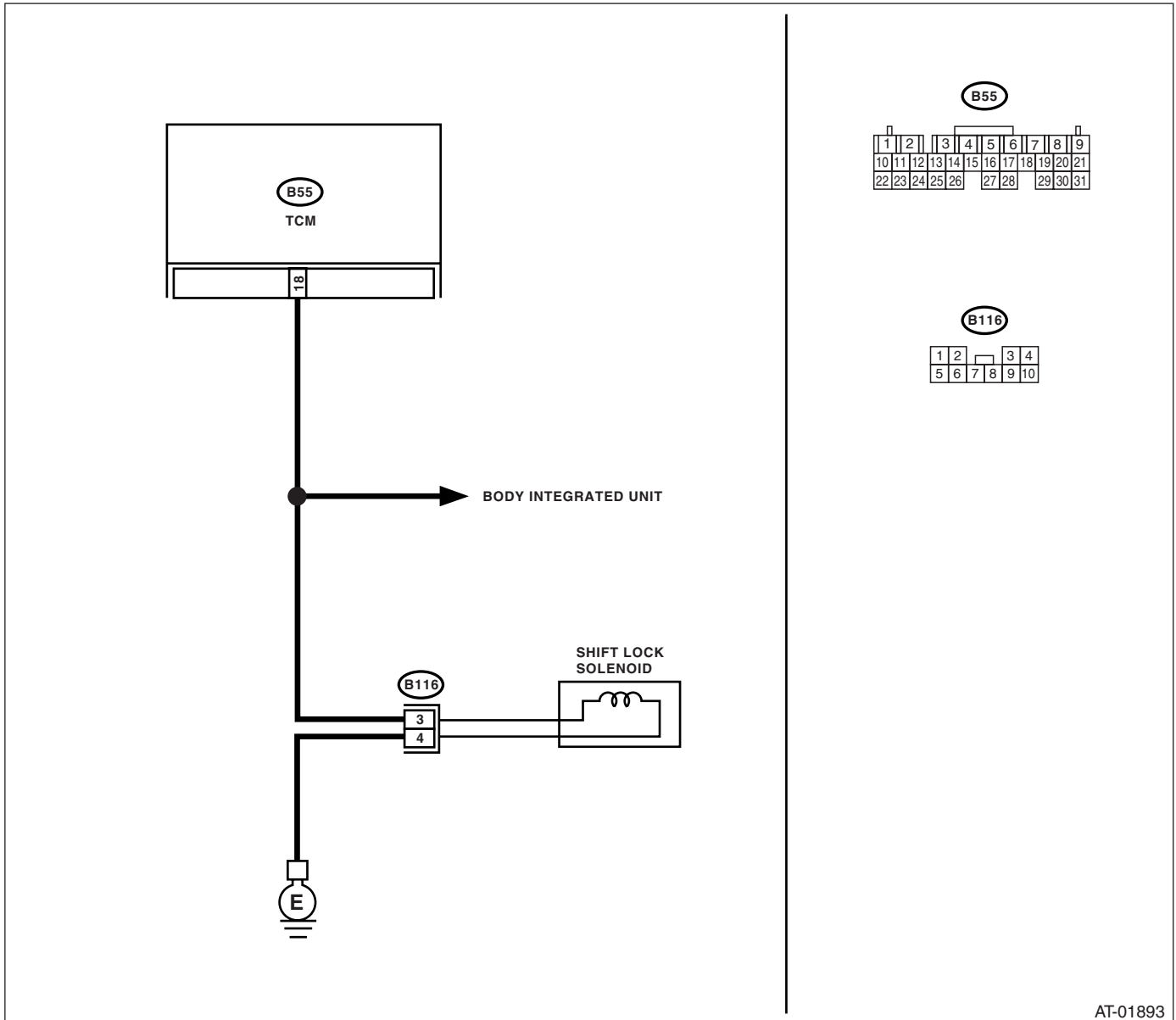
### DTC DETECTING CONDITION:

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 cannot be shifted from "N" range to "R" range.

### WIRING DIAGRAM:



AT-01893

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID.</b></p> <p>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.</p> <p><b>Connector &amp; terminal</b> <b>(B55) No. 18 — (B116) No. 3:</b></p>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and shift lock solenoid connector.
<p><b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND SHIFT LOCK SOLENOID.</b></p> <p>Measure the resistance of harness between TCM and chassis ground.</p> <p><b>Connector &amp; terminal</b> <b>(B55) No. 18 — Chassis ground:</b></p>	Is the resistance more than 1 M $\Omega$ ?	Go to step 3.	Repair the short circuit in harness between TCM and shift lock solenoid connector.
<p><b>3 CHECK HARNESS BETWEEN SHIFT LOCK SOLENOID AND CHASSIS GROUND TERMINAL.</b></p> <p>Measure the resistance of harness between shift lock solenoid and chassis ground.</p> <p><b>Connector &amp; terminal</b> <b>(B116) No. 4 — Chassis ground:</b></p>	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Repair the open circuit in harness between chassis ground and shift lock solenoid connector.
<p><b>4 CHECK SHIFT LOCK SOLENOID.</b></p> <p>Measure the resistance of shift lock solenoid terminals.</p> <p><b>Connector &amp; terminal</b> <b>(B116) No. 3 — No. 4:</b></p>	Is the resistance 12 — 18 $\Omega$ ?	Go to step 5.	Replace the shift lock solenoid.
<p><b>5 CHECK OUTPUT SIGNAL FOR TCM.</b></p> <p>1) Connect all the connectors. 2) Turn the ignition switch to ON. 3) Shift the select lever to "D" range. 4) Measure the voltage between TCM and chassis ground.</p> <p><b>Connector &amp; terminal</b> <b>(B55) No. 18 (+) — Chassis ground (-):</b></p>	Is the voltage more than 10.5 V?	Go to step 6.	Go to step 7.
<p><b>6 CHECK OUTPUT SIGNAL FOR TCM.</b></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. 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 or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p> <p>4) Measure the voltage between TCM and chassis ground.</p> <p><b>Connector &amp; terminal</b> <b>(B55) No. 18 (+) — Chassis ground (-):</b></p>	Is the voltage less than 1 V?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in reverse inhibitor control circuit.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

	Step	Check	Yes	No
7	CHECK POOR CONTACT.	Is there poor contact in the reverse inhibitor control circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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

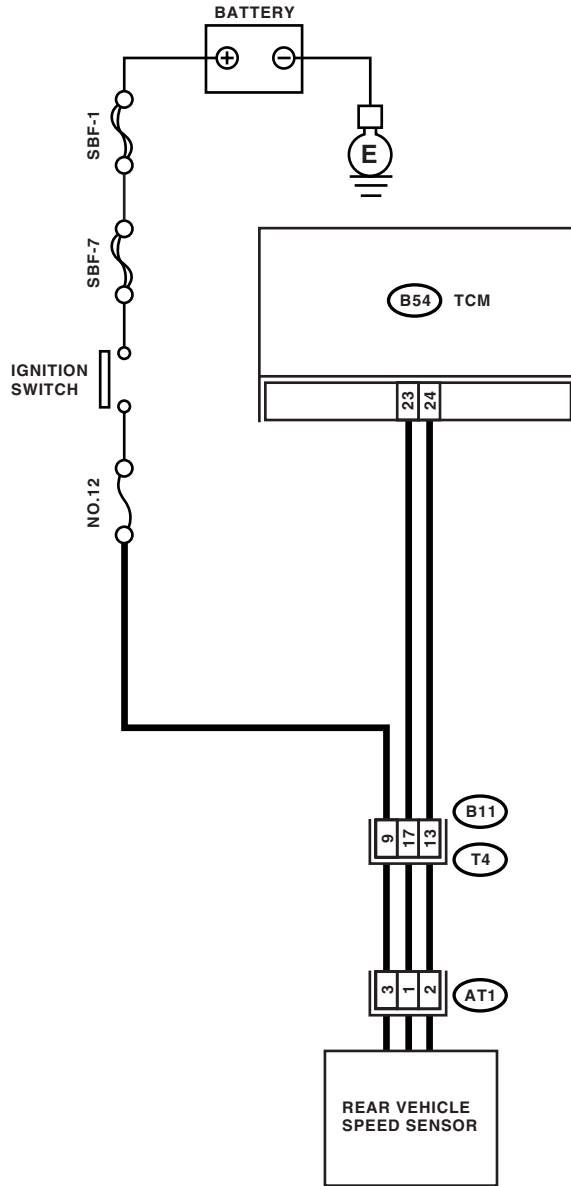
### DTC DETECTING CONDITION:

Input signal circuit of TCM is open or shorted.

### TROUBLE SYMPTOM:

No lock-up or occurring tight corner braking phenomenon

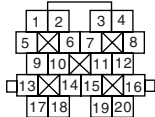
### WIRING DIAGRAM:



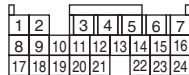
(AT1)



(B11)



(B54)



AT-01492

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK IGNITION POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from rear vehicle speed sensor. Turn the ignition switch to ON. 3) Measure the ignition power supply voltage between rear vehicle speed sensor connector and transmission ground. <i><b>Connector &amp; terminal</b></i> <i><b>(AT1) No. 3 (+) — Transmission ground (-):</b></i>	Is the voltage more than 10 V?	Go to step 2.	Check the harness between rear vehicle speed sensor and battery for open circuit, short or poor contact. Repair the harness if required.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between TCM and rear vehicle speed sensor connector. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 23 — (AT1) No. 1:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit or poor contact of connector in harness between TCM and rear vehicle speed sensor connector.
<b>3 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM and rear vehicle speed sensor connector. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 24 — (AT1) No. 2:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Repair the open circuit or poor contact of connector in harness between TCM and rear vehicle speed sensor connector.
<b>4 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 23 — Chassis ground:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Go to step 5.	Repair the short circuit in harness between TCM and rear vehicle speed sensor connector.
<b>5 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance of harness between TCM connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 24 — Chassis ground:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Go to step 6.	Repair the short circuit in harness between TCM and rear vehicle speed sensor connector.
<b>6 PREPARE OSCILLOSCOPE.</b>	Do you have an oscilloscope?	Go to step 8.	Go to step 7.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>7 CHECK INPUT SIGNAL FOR TCM.</b></p> <p>1) Connect the connectors to TCM and transmission.</p> <p>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 vehicle in 20 km/h (12 MPH) condition.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p> <p>4) Measure the AC voltage between TCM connector terminals.</p> <p><b>Connector &amp; terminal</b> <b>(B54) No. 24 (+) — No. 23 (-):</b></p>	Is the voltage approx. 5 V?	Go to step 9.	Replace the rear vehicle speed sensor.
<p><b>8 CHECK INPUT SIGNAL FOR TCM USING OSCILLOSCOPE.</b></p> <p>1) Connect the connectors to TCM and transmission.</p> <p>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><b>Connector &amp; terminal</b> <b>Positive probe; (B54) No. 24:</b> <b>Ground lead; (B54) No. 23:</b></p> <p>4) Start the engine and set vehicle in 20 km/h (12 MPH) condition.</p> <p>NOTE: The speed difference between front and rear wheels may light the ABS warning light or VDC warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure or VDC memory clearance procedure of on-board diagnostics system. &lt;Ref. to ABS(diag)-27, Clear Memory Mode.&gt; &lt;Ref. to VDC(diag)-24, Clear Memory Mode.&gt;</p> <p>5) Measure the signal voltage indicated on oscilloscope.</p>	Is the pulse voltage approx. 5 V?	Go to step 9.	Replace the rear vehicle speed sensor.
<p><b>9 CHECK POOR CONTACT.</b></p>	Is there poor contact in rear vehicle speed sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## W: DTC P1707 AT AWD SOLENOID VALVE CIRCUIT MALFUNCTION

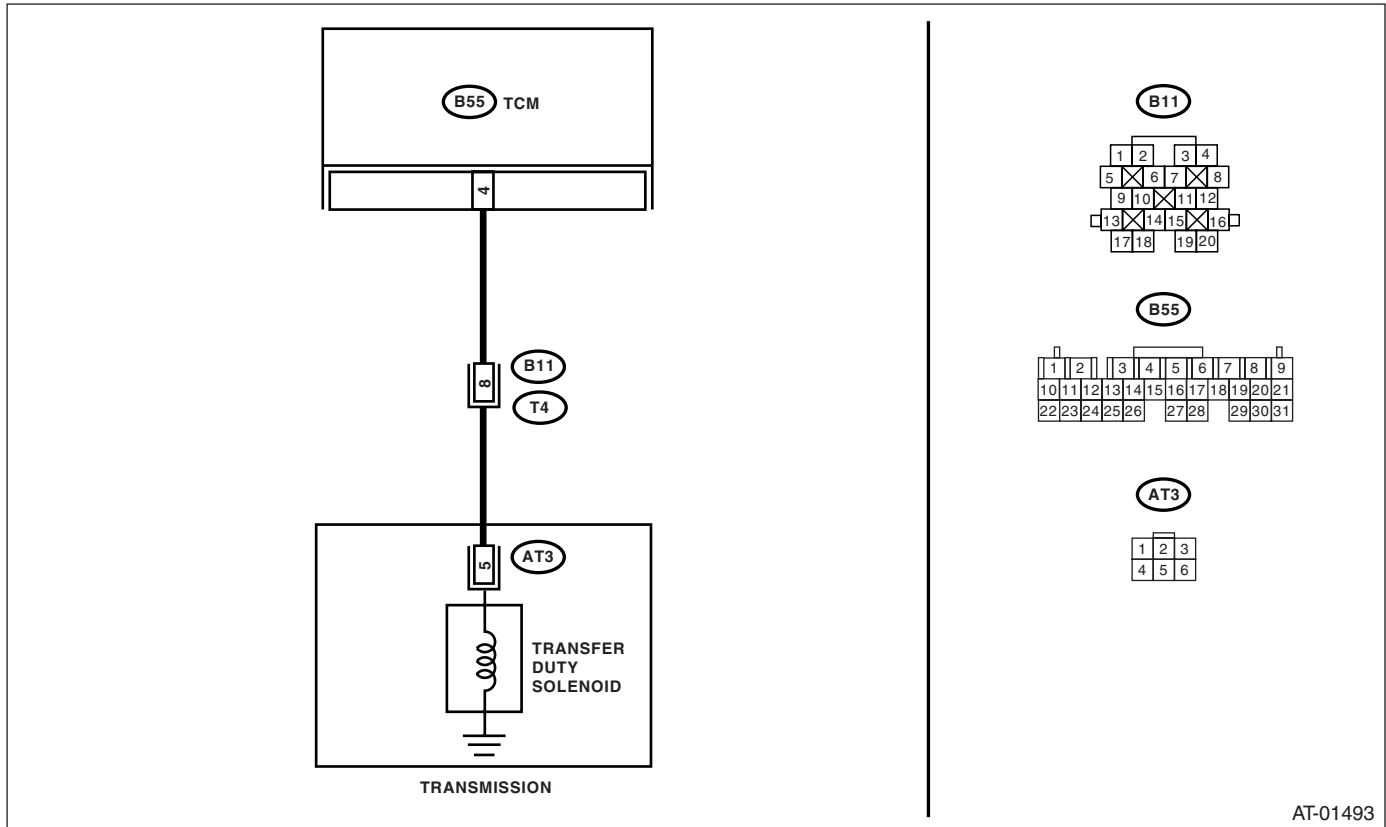
### DTC DETECTING CONDITION:

Output signal circuit of transfer duty solenoid is open or shorted.

### TROUBLE SYMPTOM:

- Tight corner braking phenomenon is occurred.
- Front wheel slips on the slippery road.

### WIRING DIAGRAM:



AT-01493

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM and transmission. 3) Measure the resistance of harness between TCM and transmission connector. <b>Connector &amp; terminal</b> <b>(B55) No. 4 — (B11) No. 8:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and transmission connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND TRANSMISSION.</b> Measure the resistance harness connector between TCM and chassis ground. <b>Connector &amp; terminal</b> <b>(B55) No. 4 — Chassis ground:</b>	Is the resistance more than 1 $M\Omega$ ?	Go to step 3.	Repair the short circuit in harness between TCM and transmission connector.
<b>3 CHECK TRANSFER DUTY SOLENOID.</b> Measure the resistance between transmission connector and transmission terminals. <b>Connector &amp; terminal</b> <b>(T4) No. 8 — No. 20:</b>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 4.	Go to step 7.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>4 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connectors to TCM and transmission. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON (engine OFF) and Subaru Select Monitor switch to ON. 4) Shift the select lever to "N" range, and fully close the throttle pedal. (Vehicle speed is 0 km/h (0 MPH)) 5) Read the data of transfer duty solenoid using Subaru Select Monitor. • Transfer duty solenoid is indicated in "%".	Is the value approx. 5%?	Go to step 5.	Go to step 6.
<b>5 CHECK OUTPUT SIGNAL EMITTED FROM TCM USING SUBARU SELECT MONITOR.</b> 1) Shift the select lever to "D" range. 2) Read the data of transfer duty solenoid using Subaru Select Monitor. • Transfer duty solenoid is indicated in "%".	Is the value 18 — 35%?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in TCM and transmission.	Go to step 6.
<b>6 CHECK POOR CONTACT.</b>	Is there poor contact in transfer duty solenoid circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>7 CHECK TRANSFER DUTY SOLENOID (IN TRANSMISSION).</b> 1) Lift-up the vehicle and support with rigid racks. NOTE: Raise all wheels off floor. 2) Drain the ATF. CAUTION: <b>Do not drain the ATF until it cools down.</b> 3) Remove the extension case, and disconnect the connector from transfer duty solenoid. 4) Measure the resistance between transfer duty solenoid connector and transmission ground. <i>Connector &amp; terminal</i> <i>(AT3) No. 5 — Transmission ground:</i>	Is the resistance 2.0 — 6.0 $\Omega$ ?	Go to step 8.	Replace the control valve body. <Ref. to 4AT-60, Control Valve Body.>
<b>8 CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION.</b> Measure the resistance of harness between transfer duty solenoid and transmission connector. <i>Connector &amp; terminal</i> <i>(T4) No. 8 — (AT3) No. 5:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 9.	Repair the open circuit in harness between transfer duty solenoid and transmission connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

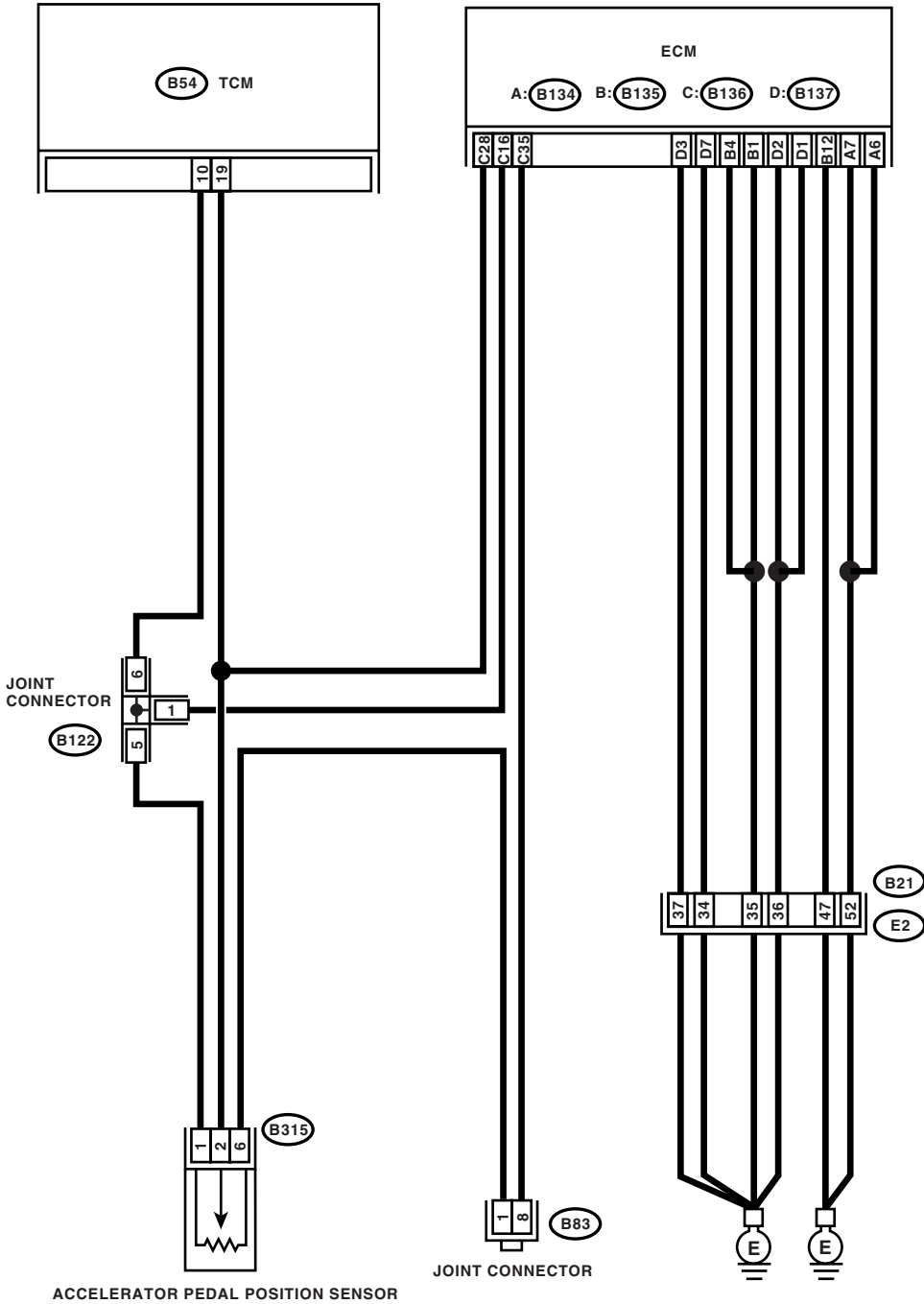
Step	Check	Yes	No
<p><b>9</b>    <b>CHECK HARNESS CONNECTOR BETWEEN TRANSFER DUTY SOLENOID AND TRANSMISSION.</b> Measure the resistance of harness between transmission connector and transmission ground. <b>Connector &amp; terminal</b> <b>(T4) No. 8 — Transmission ground:</b></p>	<p>Is the resistance more than 1 M<math>\Omega</math>?</p>	<p>Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or poor contact in the transfer duty solenoid and transmission.</p>	<p>Repair the short circuit in harness between transfer duty solenoid and transmission connector.</p>



# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.5 L EC, K4 model



A: B134

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	31	32				33	34

B: B135

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	31		32	33		34	35		

C: B136

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			31	32	33	34	35		

D: B137

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	31	

B54

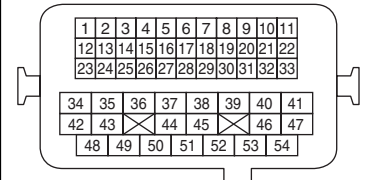
1	2		3	4	5	6	7	
8	9	10	11	12	13	14	15	16
17	18	19	20	21		22	23	24

B83

B122

1	2	3	4
5	6	7	8

B21



B315

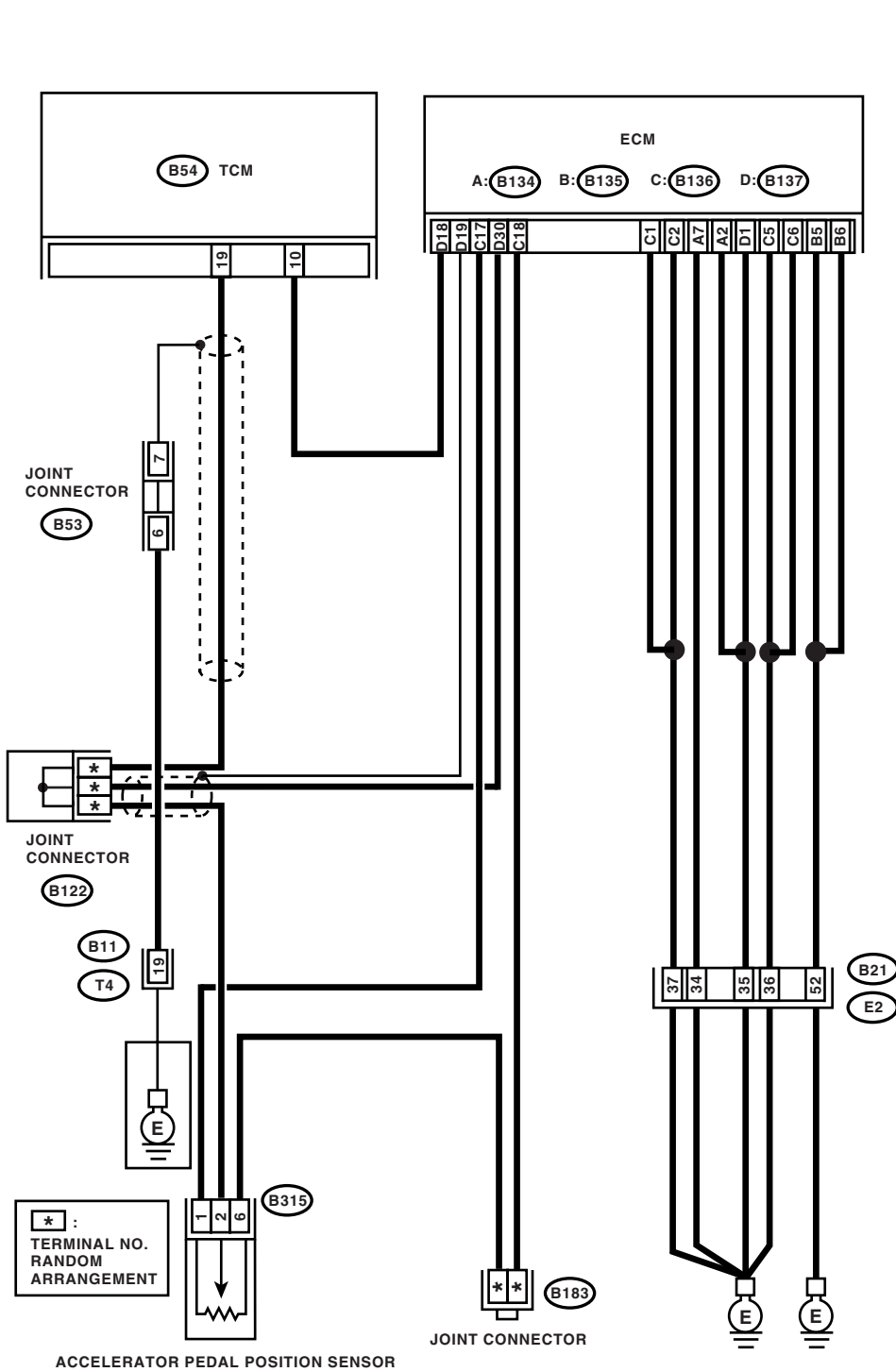
1	2	3	4	5	6
---	---	---	---	---	---

AT-02370

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.0 L RHD and 2.5 L KA model



A: B134

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	31	32				33	34

B: B135

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	31	32	33	34	35				

C: B136

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				31	32	33	34	35

D: B137

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	31				

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	

B183

B122

1	2	3	4
5	6	7	8

B21

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	31	32	33
34	35	36	37	38	39	40	41			
42	43	44	45	46	47					
48	49	50	51	52	53	54				

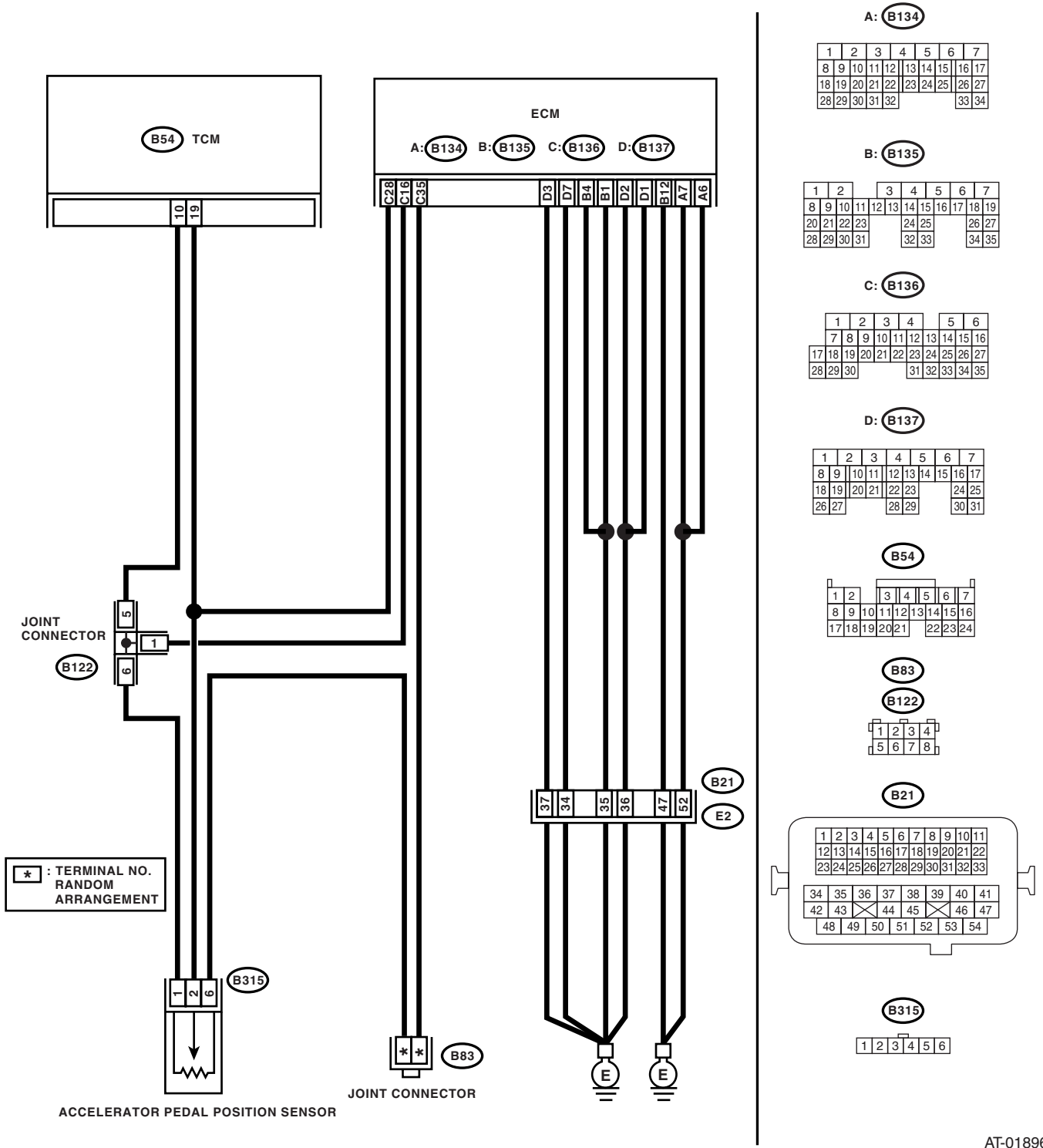
B315

1	2	3	4	5	6
---	---	---	---	---	---

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.5 L EK model



AT-01896

Step	Check	Yes	No
1	<b>CHECK ENGINE GROUND TERMINALS.</b> Have engine ground terminals been tightened securely?	Go to step 2.	Tighten the engine ground terminals.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>2</b>     <b>CHECK GROUND CIRCUIT FOR ECM.</b>            1) Turn the ignition switch to OFF.            2) Disconnect the connector from ECM.            3) Measure the resistance of harness between ECM and engine ground.</p> <p><b>Connector &amp; terminal</b>  <b>2.0 L model and 2.5 L KS, KA model</b>            (B134) No. 2 — Engine ground:            (B134) No. 7 — Engine ground:            (B135) No. 5 — Engine ground:            (B135) No. 6 — Engine ground:            (B136) No. 1 — Engine ground:            (B136) No. 2 — Engine ground:            (B136) No. 5 — Engine ground:            (B136) No. 6 — Engine ground:            (B137) No. 1 — Engine ground:  <b>2.5 L EC, EK, K4 model</b>            (B134) No. 7 — Engine ground:            (B134) No. 6 — Engine ground:            (B135) No. 1 — Engine ground:            (B135) No. 12 — Engine ground:            (B137) No. 1 — Engine ground:            (B137) No. 2 — Engine ground:            (B137) No. 3 — Engine ground:            (B137) No. 7 — Engine ground:</p>	Is the resistance less than 5 $\Omega$ ?	Go to step 3.	Repair the open circuit in harness between ECM connector and engine grounding terminal.
<p><b>3</b>     <b>CHECK ACCELERATOR PEDAL POSITION SENSOR.</b>            1) Disconnect the connectors from accelerator pedal position sensor.            2) Measure the resistance between accelerator pedal position sensor connector receptacle's terminals.</p> <p><b>Connector &amp; terminal</b>  <b>No. 1 — No. 6:</b></p>	Is the resistance 0.75 — 3.15 k $\Omega$ ?	Go to step 4.	Replace the accelerator pedal position sensor.
<p><b>4</b>     <b>CHECK ACCELERATOR PEDAL POSITION SENSOR.</b>            Measure the resistance between accelerator pedal position sensor connector receptacle's terminals.</p> <p><b>Connector &amp; terminal</b>  <b>No. 6 — No. 2:</b></p>	Is the resistance 0.15 — 0.63 k $\Omega$ ?	Go to step 5.	Replace the accelerator pedal position sensor.
<p><b>5</b>     <b>CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR.</b>            1) Disconnect the connector from TCM.            2) Measure the resistance of harness between TCM and accelerator pedal position sensor connector.</p> <p><b>Connector &amp; terminal</b>  <b>(B54) No. 19 — (B315) No. 2:</b></p>	Is the resistance less than 1 $\Omega$ ?	Go to step 6.	Repair the open circuit in harness between TCM and accelerator pedal position sensor connector, and poor contact in coupling connector.
<p><b>6</b>     <b>CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR.</b>            Measure the resistance of harness between TCM connector and chassis ground.</p> <p><b>Connector &amp; terminal</b>  <b>(B54) No. 19 — Chassis ground:</b></p>	Is the resistance more than 1 M $\Omega$ ?	Go to step 7.	Repair the short circuit in harness between TCM and accelerator pedal position sensor connector.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>7 CHECK HARNESS CONNECTOR BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR.</b> 1) Remove the connector from ECM. 2) Measure the resistance of harness between the accelerator pedal position sensor connector and chassis ground. <i>Connector &amp; terminal (B315) No. 6 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Go to step 8.	Repair the short circuit in harness between ECM and accelerator pedal position sensor.
<b>8 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connectors to TCM, accelerator pedal position sensor, and ECM. 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) Fully close the throttle. 6) Read the data of accelerator pedal position sensor using Subaru Select Monitor. • Accelerator pedal position sensor input signal is indicated.	Is the voltage more than 0.2 V?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in accelerator pedal position sensor circuit.	Go to step 9.
<b>9 CHECK POOR CONTACT.</b>	Is there poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### Y: DTC P1709 THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT

#### DTC DETECTING CONDITION:

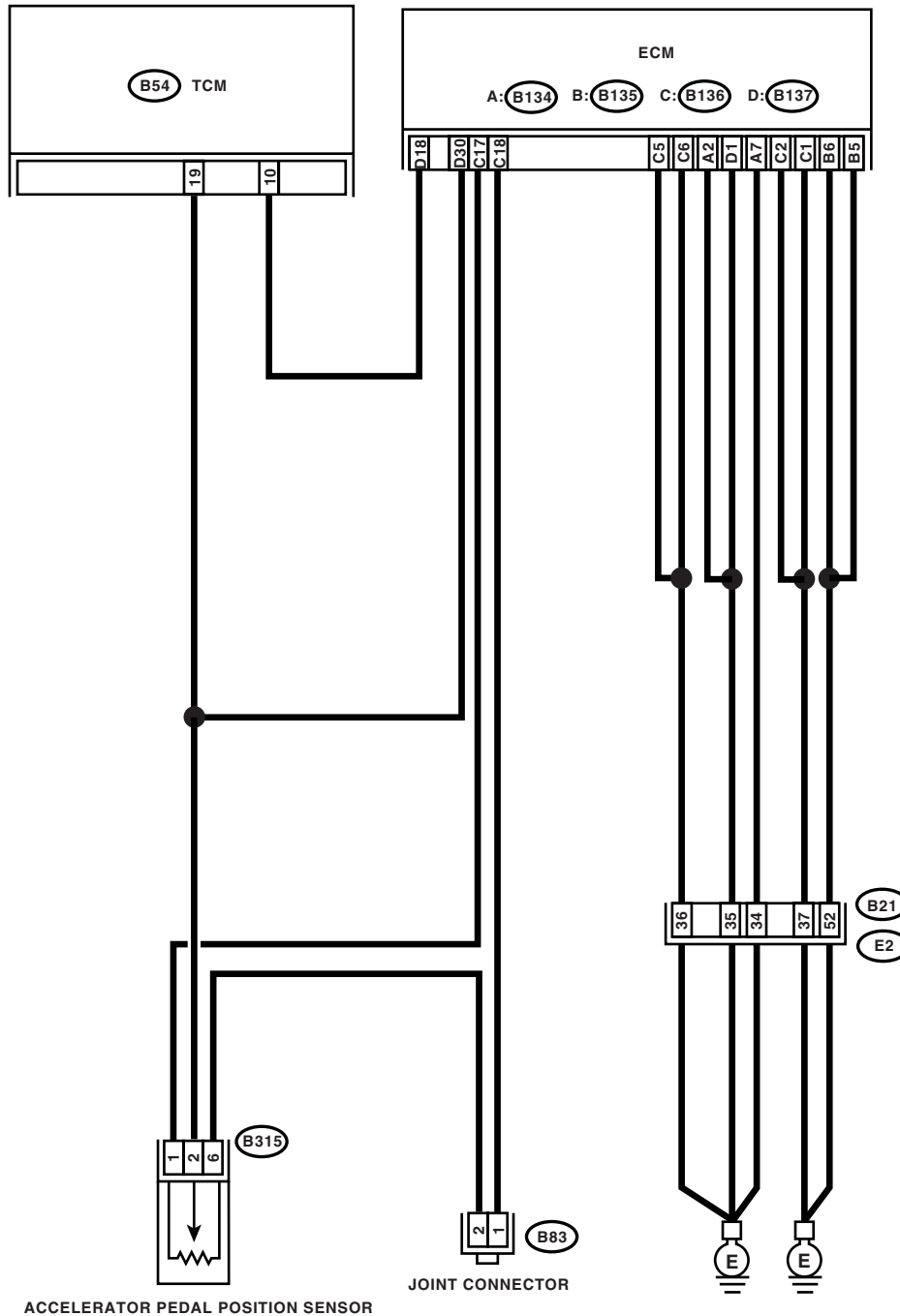
The input signal circuit of accelerator pedal position sensor is shorted.

#### TROUBLE SYMPTOM:

- Shift point is too high or too low.
- Excessive shift shock
- Tight corner braking phenomenon is occurred.

#### WIRING DIAGRAM:

- 2.0 L LHD and 2.5 L KS model



A: B134

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	31	32	33	34	

B: B135

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	31	32	33	34	35

C: B136

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
31	32	33	34	35	

D: B137

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	31	32	33	34	35

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	25	26	27	28
29	30	31	32	33	34	35

B83

1	2	3	4
5	6	7	8

B21

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	31	32	33
34	35	36	37	38	39	40	41	42	43	44
45	46	47	48	49	50	51	52	53	54	55

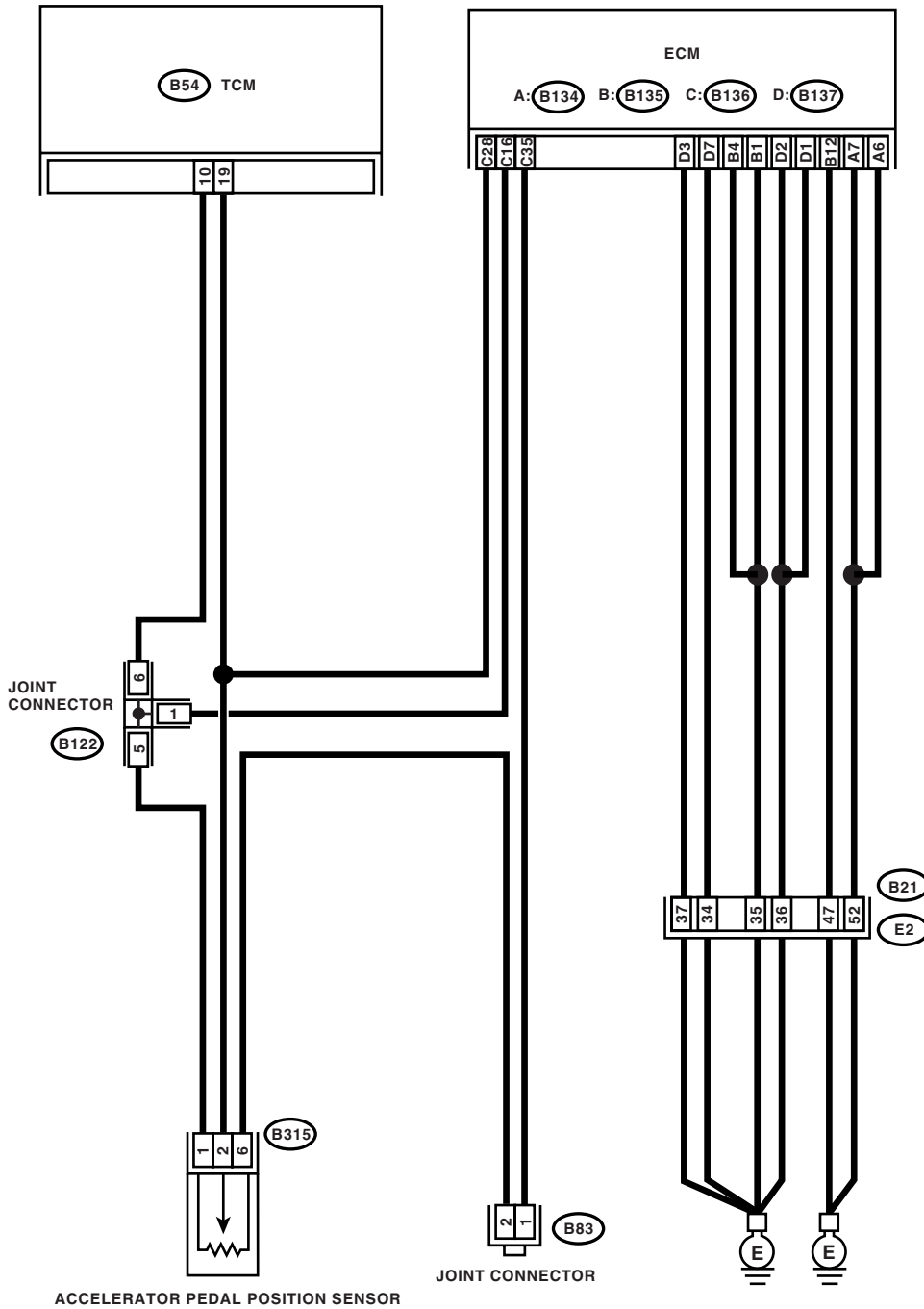
B315

1	2	3	4	5	6
---	---	---	---	---	---

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.5 L EC, K4 model



A: **B134**

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	31	32				33	34

B: **B135**

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	31	32	33	34	35				

C: **B136**

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			31	32	33	34	35	

D: **B137**

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	31				

**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	

**B83**

**B122**

1	2	3	4
5	6	7	8

**B21**

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	31	32	33
34	35	36	37	38	39	40	41			
42	43	44	45	46	47					
48	49	50	51	52	53	54				

**B315**

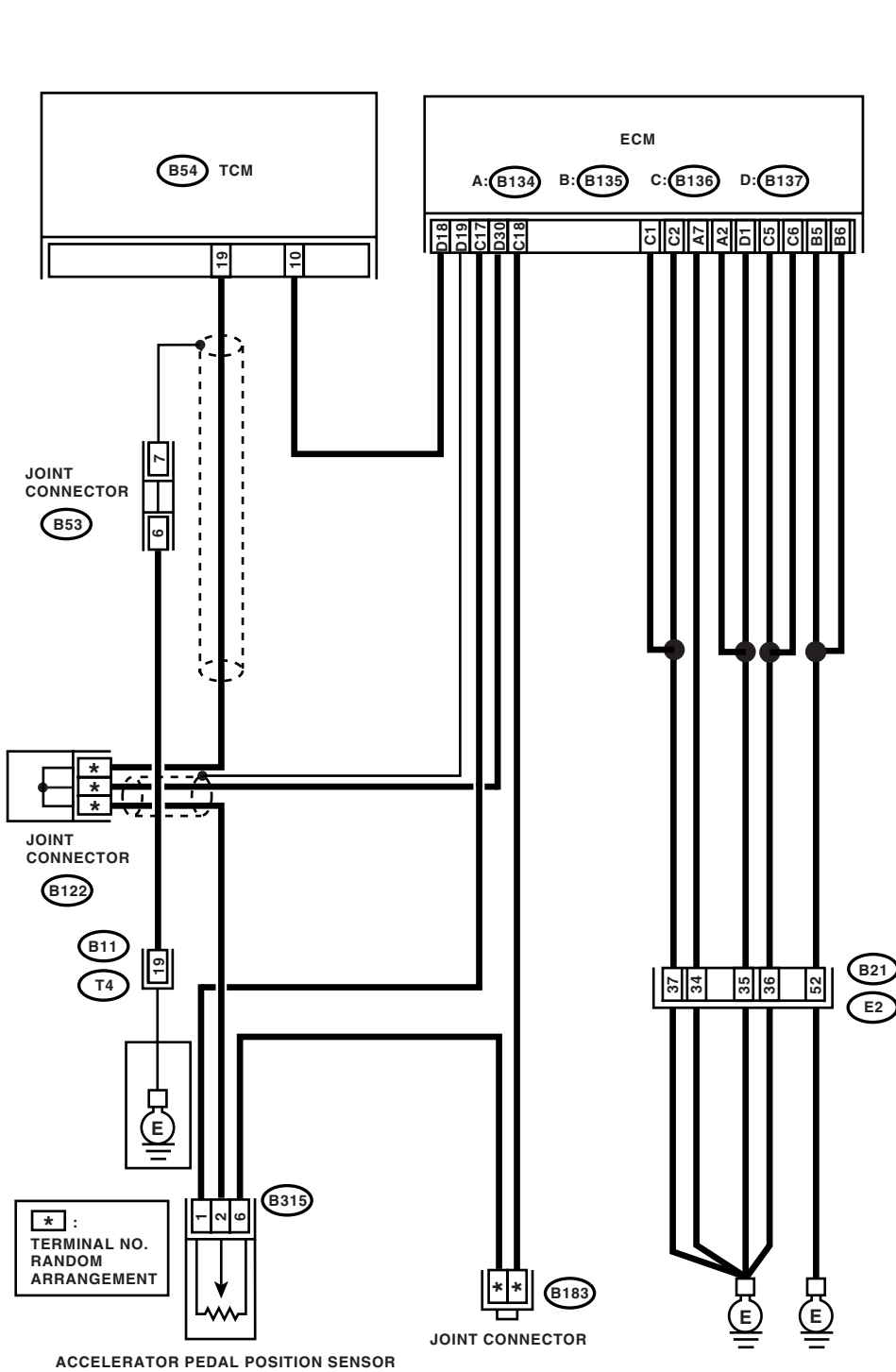
1	2	3	4	5	6
---	---	---	---	---	---

AT-01494

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.0 L RHD and 2.5 L KA model



A: B134

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	31	32				33	34

B: B135

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	31	32	33	34	35				

C: B136

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		31	32	33	34	35		

D: B137

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	31				

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	

B183

B122

1	2	3	4
5	6	7	8

B21

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	31	32	33
34	35	36	37	38	39	40	41			
42	43	44	45	46	47					
48	49	50	51	52	53	54				

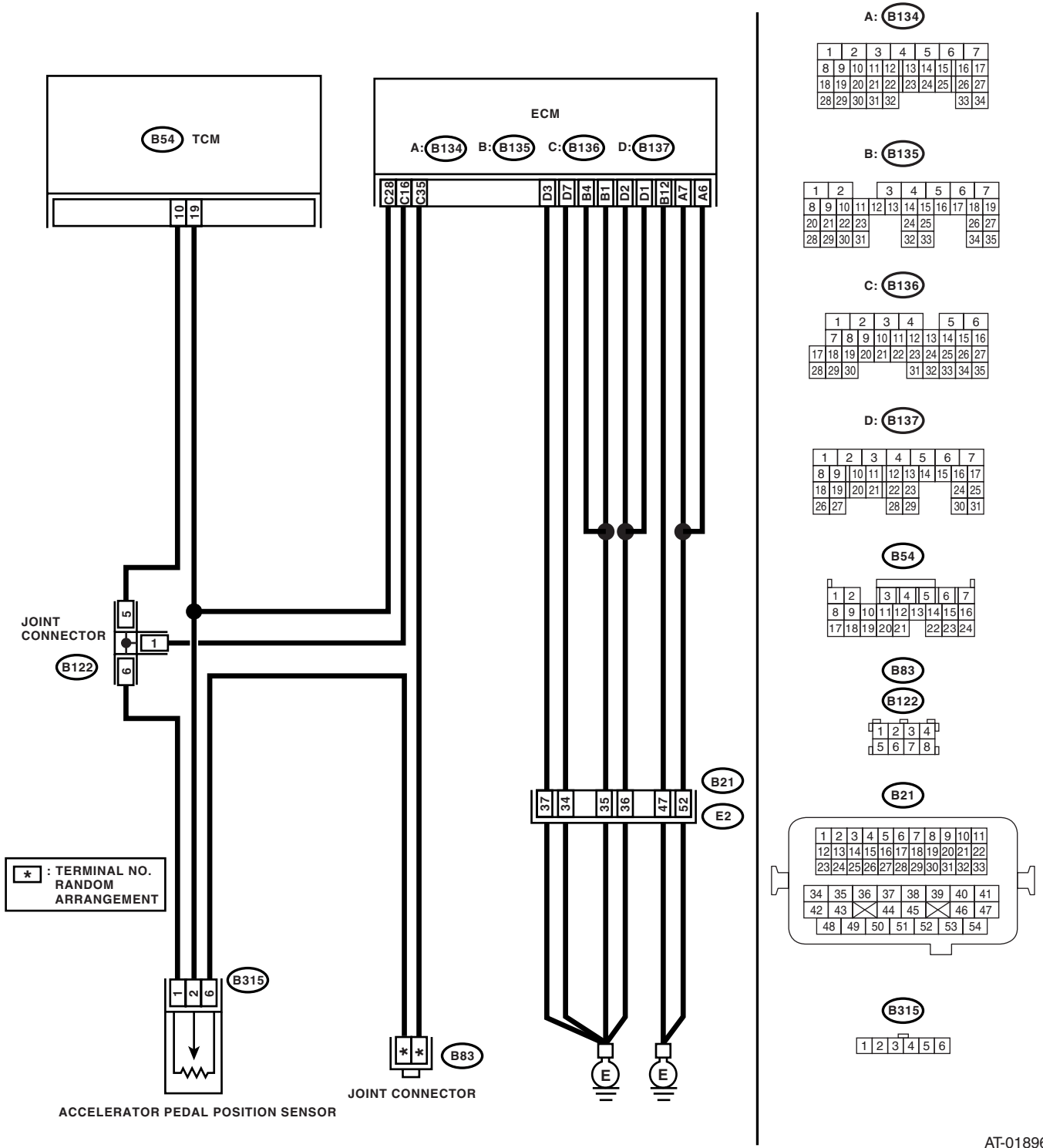
B315

1	2	3	4	5	6
---	---	---	---	---	---

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.5 L EK model



AT-01896

Step	Check	Yes	No
1	<b>CHECK ENGINE GROUND TERMINALS.</b> Have engine ground terminals been tightened securely?	Go to step 2.	Tighten the engine ground terminals.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>2 CHECK GROUND CIRCUIT FOR ECM.</b></p> <p>1) Turn the ignition switch to OFF.                      2) Disconnect the connector from ECM.                      3) Measure the resistance of harness between ECM and engine ground.</p> <p><b>Connector &amp; terminal</b>  <b>2.0 L model and 2.5 L KS, KA model</b>                      (B134) No. 2 — Engine ground:                      (B134) No. 7 — Engine ground:                      (B135) No. 5 — Engine ground:                      (B135) No. 6 — Engine ground:                      (B136) No. 1 — Engine ground:                      (B136) No. 2 — Engine ground:                      (B136) No. 5 — Engine ground:                      (B136) No. 6 — Engine ground:                      (B137) No. 1 — Engine ground:  <b>2.5 L EC, EK, K4 model</b>                      (B134) No. 7 — Engine ground:                      (B134) No. 6 — Engine ground:                      (B135) No. 1 — Engine ground:                      (B135) No. 12 — Engine ground:                      (B137) No. 1 — Engine ground:                      (B137) No. 2 — Engine ground:                      (B137) No. 3 — Engine ground:                      (B137) No. 7 — Engine ground:</p>	<p>Is the resistance less than 5 <math>\Omega</math>?</p>	<p>Go to step 3.</p>	<p>Repair the open circuit in harness between ECM connector and engine grounding terminal.</p>
<p><b>3 CHECK ACCELERATOR PEDAL POSITION SENSOR.</b></p> <p>1) Disconnect the connectors from accelerator pedal position sensor.                      2) Measure the resistance between accelerator pedal position sensor connector receptacle's terminals.</p> <p><b>Connector &amp; terminal</b>  <b>No. 1 — No. 6:</b></p>	<p>Is the resistance 0.75 — 3.15 k<math>\Omega</math>?</p>	<p>Go to step 4.</p>	<p>Replace the accelerator pedal position sensor.</p>
<p><b>4 CHECK ACCELERATOR PEDAL POSITION SENSOR.</b></p> <p>Measure the resistance between accelerator pedal position sensor connector receptacle's terminals.</p> <p><b>Connector &amp; terminal</b>  <b>No. 2 — No. 6:</b></p>	<p>Is the resistance 0.15 — 0.63 k<math>\Omega</math>?</p>	<p>Go to step 5.</p>	<p>Replace the accelerator pedal position sensor.</p>
<p><b>5 CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR.</b></p> <p>1) Disconnect the connector from TCM.                      2) Measure the resistance of harness between TCM connector and chassis ground.</p> <p><b>Connector &amp; terminal</b>  <b>(B54) No. 19 — Chassis ground:</b></p>	<p>Is the resistance more than 1 M<math>\Omega</math>?</p>	<p>Go to step 6.</p>	<p>Repair the short circuit in harness between TCM and accelerator pedal position sensor connector.</p>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>6 CHECK HARNESS CONNECTOR BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR.</b> 1) Remove the connector from ECM. 2) Measure the resistance of harness between ECM connector and accelerator pedal position sensor connector. <b>Connector &amp; terminal</b> <i>2.0 L model and 2.5 L KS, KA model (B135) No. 6 — (B136) No. 18:</i> <i>2.5 L EC, EK, K4 model (B135) No. 6 — (B136) No. 35:</i>	Is the resistance less than 1 $\Omega$ ?	Go to step 7.	Repair the open circuit in harness between ECM and accelerator pedal position sensor.
<b>7 CHECK INPUT SIGNAL FOR TCM USING SUBARU SELECT MONITOR.</b> 1) Connect the connectors to TCM, accelerator pedal position sensor and ECM. 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) Fully open the throttle. 6) Read the data of accelerator pedal position sensor using Subaru Select Monitor. <ul style="list-style-type: none"> <li>• Accelerator pedal position sensor input signal is indicated.</li> </ul>	Is the voltage less than 4.6 V?	Go to step 8.	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in accelerator pedal position sensor circuit.
<b>8 CHECK POOR CONTACT.</b>	Is there poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## Z: DTC P1714 THROTTLE POSITION SENSOR POWER SUPPLY CIRCUIT

### DTC DETECTING CONDITION:

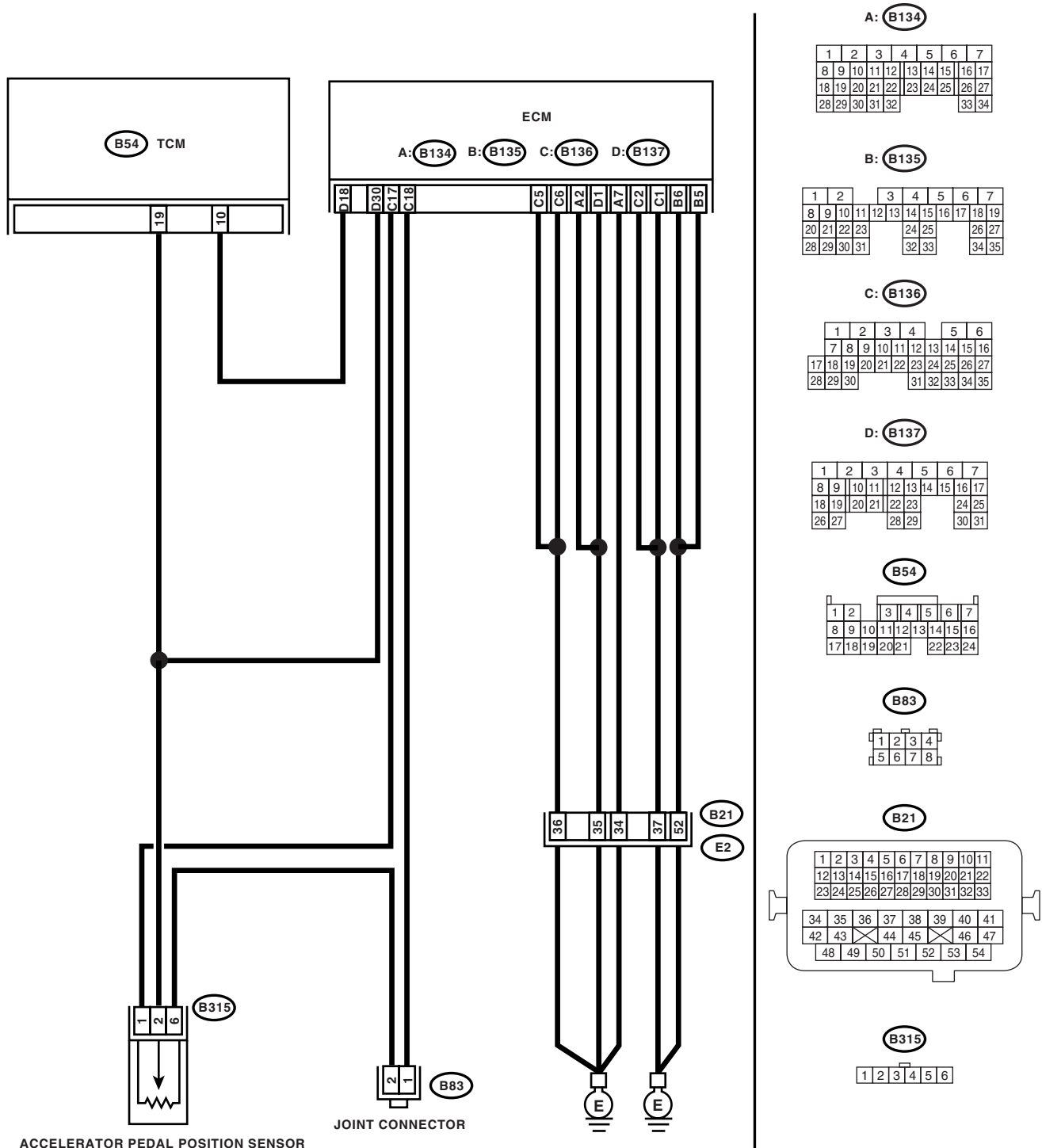
The power supply circuit of accelerator pedal position sensor is open or shorted.

### TROUBLE SYMPTOM:

- Shift point is too high or too low.
- Excessive shift shock
- Tight corner braking phenomenon is occurred.

### WIRING DIAGRAM:

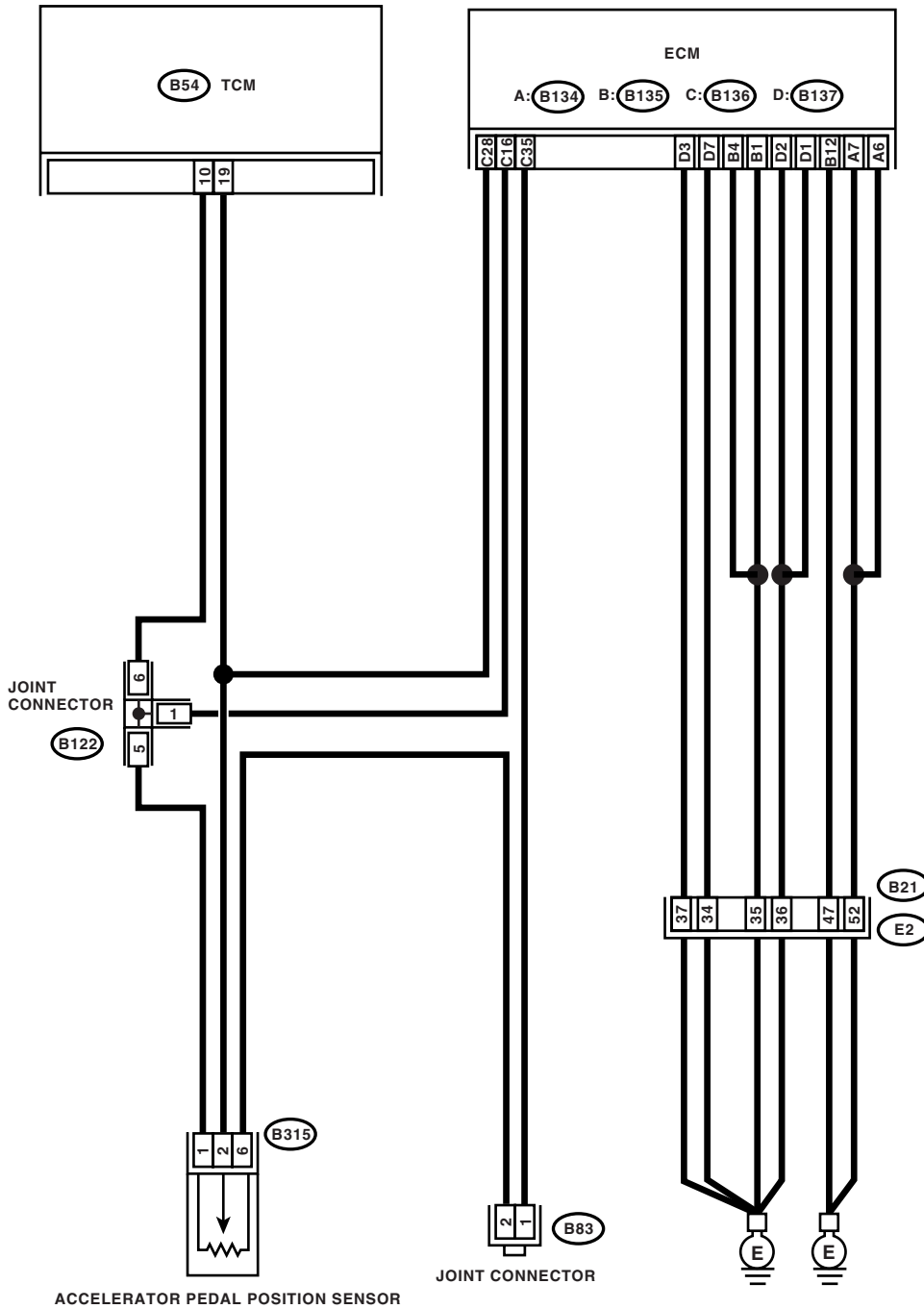
- 2.0 L LHD and 2.5 L KS model



# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.5 L EC, K4 model



A: **B134**

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	31	32	33	34	

B: **B135**

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	31	32	33	34	35

C: **B136**

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
31	32	33	34	35	

D: **B137**

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	31	32	33	34	35

**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	25	26	27	28
29	30	31	32	33	34	35

**B83**

**B122**

1	2	3	4
5	6	7	8

**B21**

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	31	32	33
34	35	36	37	38	39	40	41	42	43	44
45	46	47	48	49	50	51	52	53	54	55

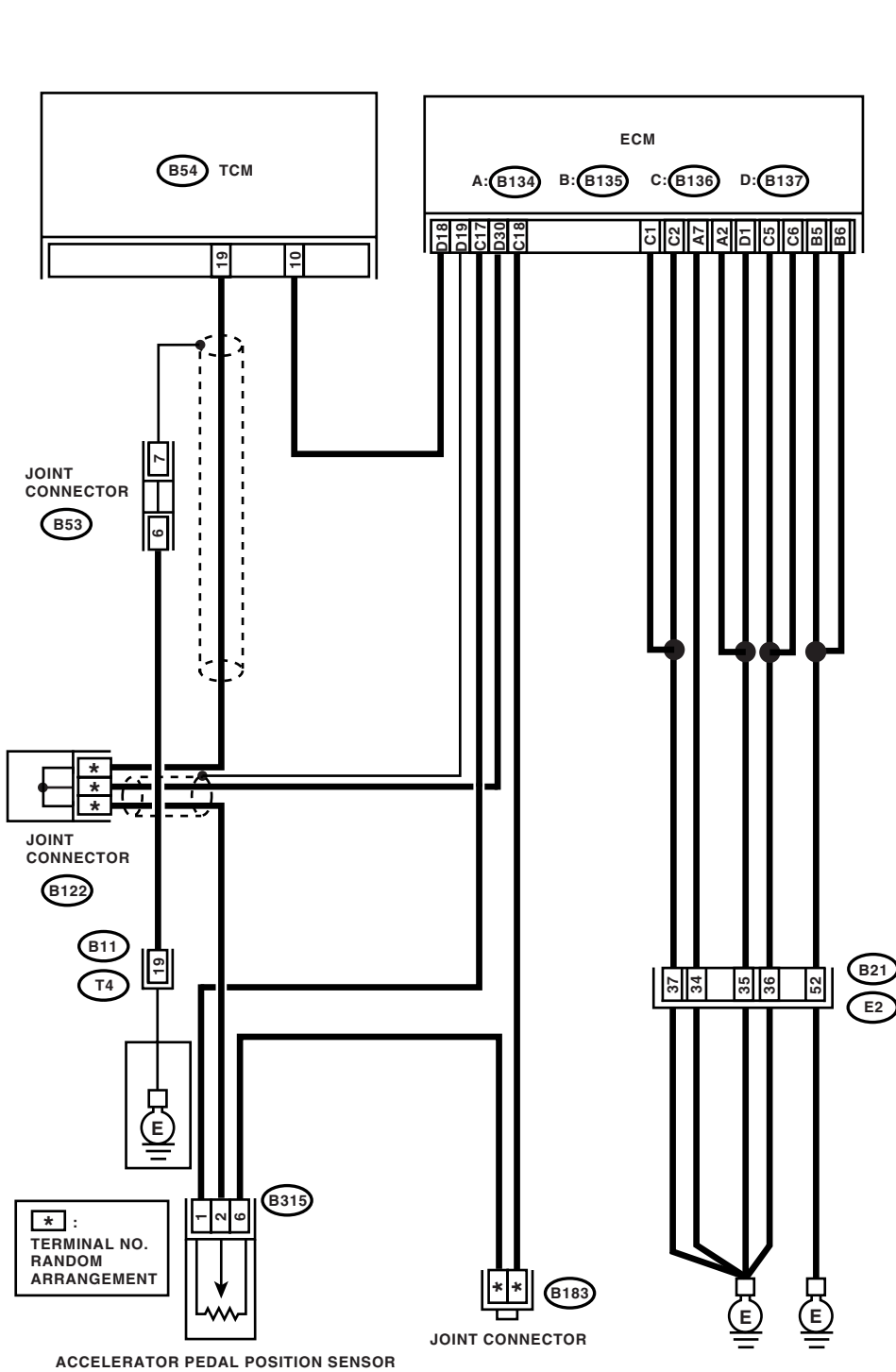
**B315**

1	2	3	4	5	6
---	---	---	---	---	---

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.0 L RHD and 2.5 L KA model



A: B134

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	31	32				33	34

B: B135

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	31	32	33	34	35				

C: B136

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				31	32	33	34	35

D: B137

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	31				

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	

B183

B122

1	2	3	4
5	6	7	8

B21

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	31	32	33
34	35	36	37	38	39	40	41			
42	43	44	45	46	47					
48	49	50	51	52	53	54				

B315

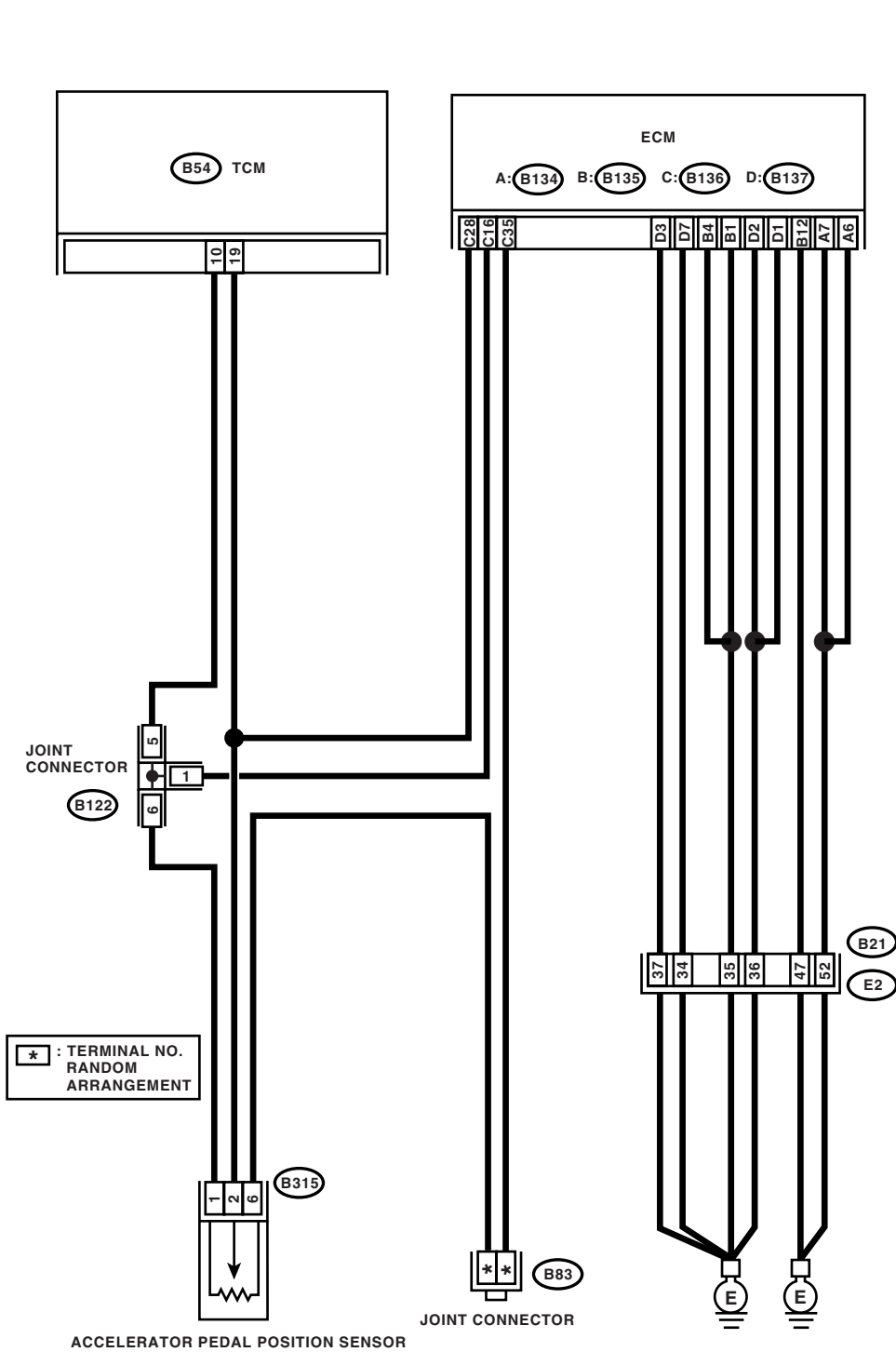
1	2	3	4	5	6
---	---	---	---	---	---

AT-01895

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- 2.5 L EK model



A: **B134**

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	31	32				33	34

B: **B135**

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	31		32	33		34	35		

C: **B136**

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			31	32	33	34	35		

D: **B137**

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	31		

**B54**

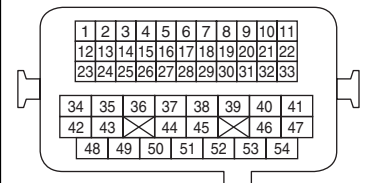
1	2		3	4	5	6	7		
8	9	10	11	12	13	14	15	16	17
17	18	19	20	21		22	23	24	

**B83**

**B122**

1	2	3	4
5	6	7	8

**B21**



**B315**

1	2	3	4	5	6
---	---	---	---	---	---

AT-01896

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR.</b> 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between TCM and accelerator pedal position sensor connector. <i><b>Connector &amp; terminal</b></i> <i><b>2.0 L model and 2.5 L KS, KA model (B54) No. 10 — (B137) No. 18:</b></i> <i><b>2.5 L EC, EK, K4 model (B54) No. 10 — (B315) No. 1:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit in harness between TCM and accelerator pedal position sensor connector, and poor contact in coupling connector.
<b>2 CHECK HARNESS CONNECTOR BETWEEN TCM AND ACCELERATOR PEDAL POSITION SENSOR.</b> Measure the resistance of harness between TCM connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 10 — Chassis ground:</b></i>	Is the resistance more than 1 $M\Omega$ ?	Go to step 3.	Repair the short circuit in harness between TCM and accelerator pedal position sensor connector.
<b>3 CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.</b> 1) Connect all the connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage of harness between TCM and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B54) No. 10 (+) — Chassis ground (-):</b></i>	Is the voltage 4.6 — 5.4 V?	Go to step 4.	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the harness or connector in accelerator pedal position sensor circuit.
<b>4 CHECK POOR CONTACT.</b>	Is there poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

## **Diagnostic Procedure with Diagnostic Trouble Code (DTC)**

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

---

### **AA:DTC P1718 CAN COMMUNICATION CIRCUIT**

**NOTE:**

Refer to "Body Integrated Unit" for diagnosis of P1718. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

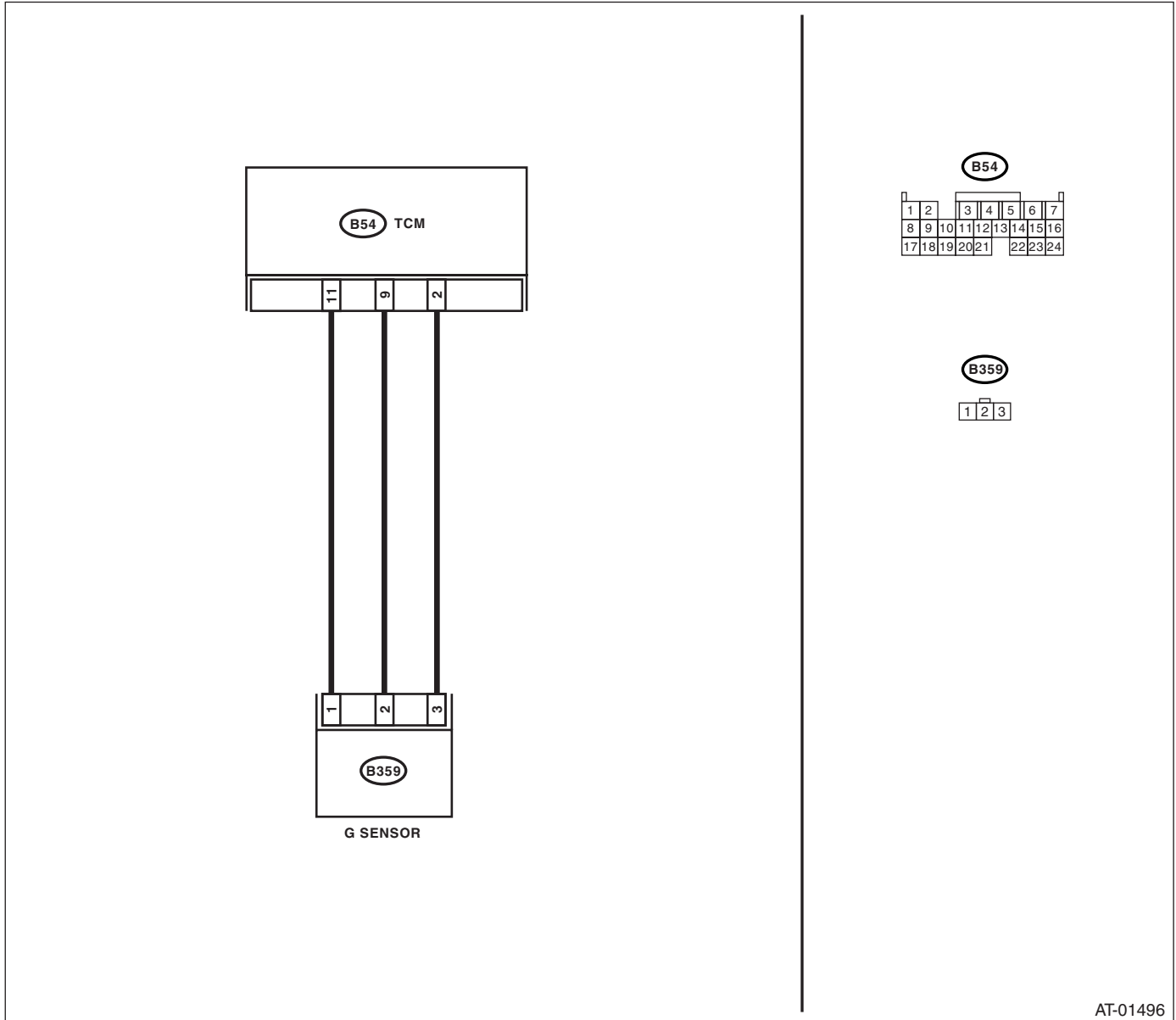
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## AB:DTC P1760 LATERAL ACCELERATION SENSOR PERFORMANCE PROBLEM

### DTC DETECTING CONDITION:

Faulty lateral G sensor output voltage

### WIRING DIAGRAM:



AT-01496

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR.</b> 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the Subaru Select Monitor display.	Is the reading on display 2.3 — 2.7 V when the vehicle is on a level?	Go to step 2.	Go to step 7.
<b>2 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR.</b> 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 4AT-66, Lateral G Sensor.>
<b>3 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR.</b> 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 4AT-66, Lateral G Sensor.>
<b>4 CHECK POOR CONTACT IN CONNECTOR.</b> 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.
<b>5 CHECK ABSCM&amp;H/U.</b> 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC still output?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 6.
<b>6 CHECK OTHER DTC DETECTION.</b>	Is any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.
<b>7 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. <b>Connector &amp; terminal</b> <b>(B54) No. 2 — No. 9:</b>	Is the resistance 5.0 — 6.0 kΩ?	Go to step 8.	Repair the harness connector between lateral G sensor and TCM.
<b>8 CHECK LATERAL G SENSOR.</b> 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. <b>Connector &amp; terminal</b> <b>(B359) No. 3 (+) — No. 2 (-):</b>	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 4AT-66, Lateral G Sensor.>
<b>9 CHECK LATERAL G SENSOR.</b> Measure the voltage between lateral G sensor connector terminals. <b>Connector &amp; terminal</b> <b>(B359) No. 3 (+) — No. 2 (-):</b>	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 4AT-66, Lateral G Sensor.>
<b>10 CHECK LATERAL G SENSOR.</b> Measure the voltage between lateral G sensor connector terminals. <b>Connector &amp; terminal</b> <b>(B359) No. 3 (+) — No. 2 (-):</b>	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 4AT-66, Lateral G Sensor.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>11</b> <b>CHECK ABSCM&amp;H/U.</b> 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 still output?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step <b>12</b> .
<b>12</b> <b>CHECK OTHER DTC DETECTION.</b>	Is any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

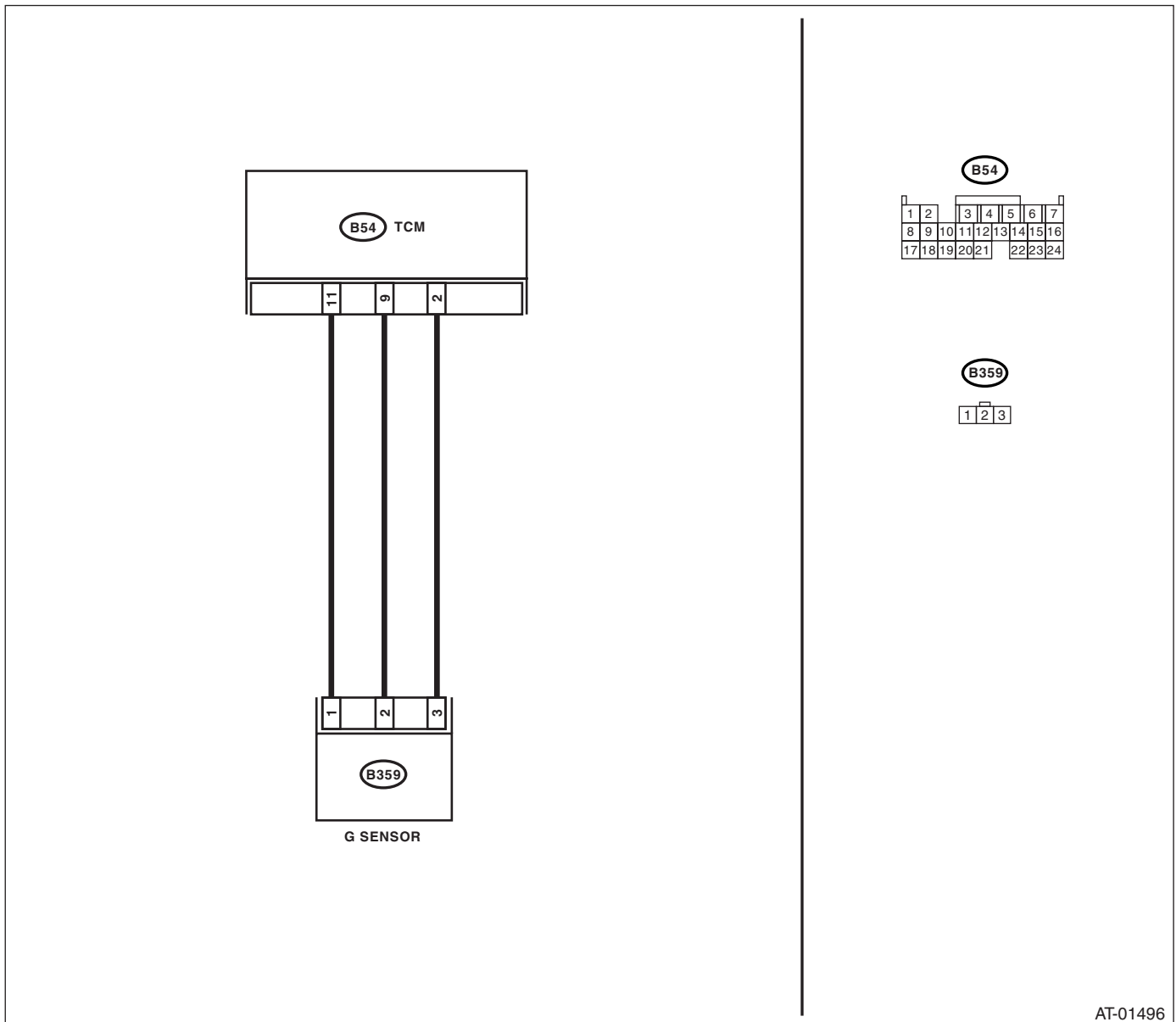
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## AC:DTC P1761 LATERAL ACCELERATION SENSOR CIRCUIT LOW

### DTC DETECTING CONDITION:

Faulty lateral G sensor output voltage

### WIRING DIAGRAM:



AT-01496

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR.</b> 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.
<b>2 CHECK POOR CONTACT IN CONNECTOR.</b> Turn the ignition switch to OFF.	Is there poor contact in the connector between TCM and the lateral G sensor?	Repair the connector.	Go to step 3.
<b>3 CHECK TCM.</b> 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC still output?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 4.
<b>4 CHECK OTHER DTC DETECTION.</b>	Is any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.
<b>5 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. <i>Connector &amp; terminal (B54) No. 2 — No. 9:</i>	Is the resistance 5.0 — 6.0 k $\Omega$ ?	Go to step 6.	Repair the harness connector between lateral G sensor and TCM.
<b>6 CHECK GROUND SHORT OF HARNESS.</b> Measure the resistance between TCM connector and chassis ground. <i>Connector &amp; terminal (B54) No. 9 — Chassis ground:</i>	Is the resistance more than 1 M $\Omega$ ?	Go to step 7.	Repair the harness between lateral G sensor and TCM. Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>7 CHECK LATERAL G SENSOR.</b> 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 &amp; terminal (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 4AT-66, Lateral G Sensor.>
<b>8 CHECK LATERAL G SENSOR.</b> Measure the voltage between lateral G sensor connector terminals. <i>Connector &amp; terminal (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 4AT-66, Lateral G Sensor.>
<b>9 CHECK LATERAL G SENSOR.</b> Measure the voltage between lateral G sensor connector terminals. <i>Connector &amp; terminal (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 4AT-66, Lateral G Sensor.>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>10</b> <b>CHECK TCM.</b> 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 still output?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 11.
<b>11</b> <b>CHECK OTHER DTC DETECTION.</b>	Is any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

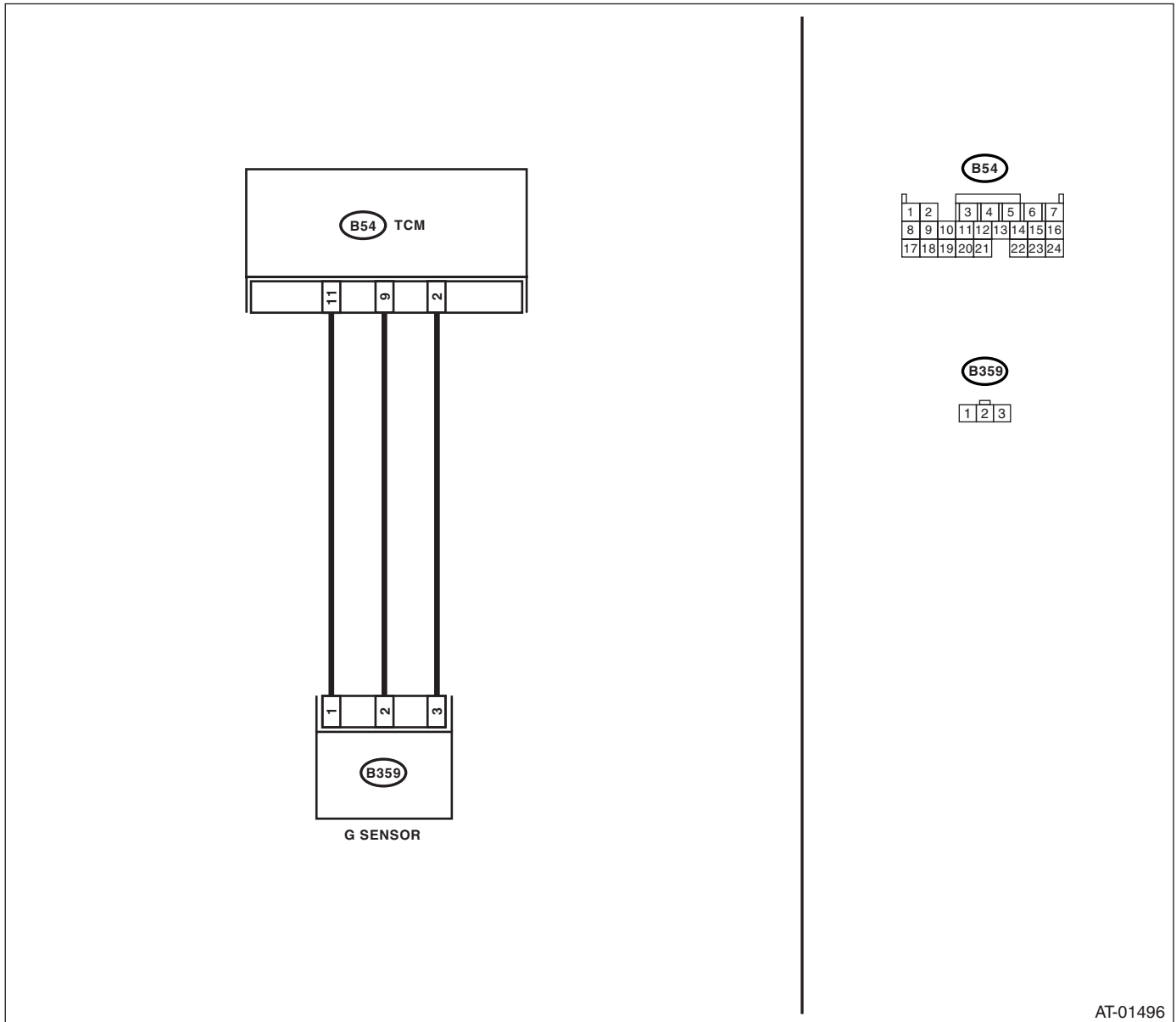
AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## AD:DTC P1762 LATERAL ACCELERATION SENSOR CIRCUIT HIGH

### DTC DETECTING CONDITION:

Faulty lateral G sensor output voltage

### WIRING DIAGRAM:



AT-01496

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR.</b> 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 between 2.3 and 2.7 V when the lateral G sensor is in horizontal position?	Go to step 2.	Go to step 5.
<b>2 CHECK POOR CONTACT IN CONNECTOR.</b>	Is there poor contact in the connector between TCM and lateral G sensor?	Repair the connector.	Go to step 3.
<b>3 CHECK ABSCM&amp;H/U.</b> 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC still output?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 4.
<b>4 CHECK OTHER DTC DETECTION.</b>	Is any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.
<b>5 CHECK CONDITIONAL INFORMATION WHEN FAULTY.</b> Read the lateral G sensor output on Subaru Select Monitor display.	Is the reading on monitor display 4.65 V or more?	Go to step 6.	Go to step 12.
<b>6 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. <i>Connector &amp; terminal (B54) No. 2 — No. 9:</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.
<b>7 CHECK BATTERY SHORT OF HARNESS.</b> 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 &amp; terminal (B54) No. 2 (+) — Chassis ground (-):</i>	Is the voltage less than 1 V?	Go to step 8.	Repair the harness between lateral G sensor and TCM.
<b>8 CHECK BATTERY SHORT OF HARNESS.</b> 1) Turn the ignition switch to ON. 2) Measure the voltage between TCM connector and chassis ground. <i>Connector &amp; terminal (B54) No. 2 (+) — Chassis ground (-):</i>	Is the voltage less than 1 V?	Go to step 9.	Repair the harness between lateral G sensor and TCM.
<b>9 CHECK POOR CONTACT IN CONNECTOR.</b>	Is there poor contact in connector between TCM and lateral G sensor?	Repair the connector.	Go to step 10.
<b>10 CHECK TCM.</b> 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC still output?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 11.
<b>11 CHECK OTHER DTC DETECTION.</b>	Is any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>12 CHECK INPUT VOLTAGE OF LATERAL G SENSOR.</b> 1) Turn the ignition switch to OFF. 2) Remove the console box. 3) Remove the lateral G sensor from vehicle. (Do not disconnect the connector.) 4) Turn the ignition switch to ON. 5) Measure the voltage between lateral G sensor connector terminals. <b>Connector &amp; terminal</b> <b>(B359) No. 1 (+) — No. 2 (-):</b>	Is the voltage 4.75 — 5.25 V?	Go to step 13.	Repair the harness connector between lateral G sensor and TCM.
<b>13 CHECK OPEN CIRCUIT IN LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance between TCM connector terminals. <b>Connector &amp; terminal</b> <b>(B54) No. 2 — No. 9:</b>	Is the resistance 5.0 — 5.6 kΩ?	Go to step 14.	Repair the harness connector between lateral G sensor and TCM.
<b>14 CHECK LATERAL G SENSOR.</b> 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. <b>Connector &amp; terminal</b> <b>(B359) No. 3 (+) — No. 2 (-):</b>	Is the voltage 2.3 — 2.7 V when lateral G sensor is in horizontal?	Go to step 15.	Replace the lateral G sensor. <Ref. to 4AT-66, Lateral G Sensor.>
<b>15 CHECK LATERAL G SENSOR.</b> Measure the voltage between lateral G sensor connector terminals. <b>Connector &amp; terminal</b> <b>(B359) No. 3 (+) — No. 2 (-):</b>	Is the voltage 3.3 — 4.3 V when lateral G sensor is inclined to the right to 90°?	Go to step 16.	Replace the lateral G sensor. <Ref. to 4AT-66, Lateral G Sensor.>
<b>16 CHECK LATERAL G SENSOR.</b> Measure the voltage between lateral G sensor connector terminals. <b>Connector &amp; terminal</b> <b>(B359) No. 3 (+) — No. 2 (-):</b>	Is the voltage 0.7 — 1.7 V when lateral G sensor is inclined to the left to 90°?	Go to step 17.	Replace the lateral G sensor. <Ref. to 4AT-66, Lateral G Sensor.>
<b>17 CHECK POOR CONTACT IN CONNECTOR.</b> Turn the ignition switch to OFF.	Is there poor contact in connector between TCM and lateral G sensor?	Repair the connector.	Go to step 18.
<b>18 CHECK ABSCM&amp;H/U.</b> 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC still output?	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 19.
<b>19 CHECK OTHER DTC DETECTION.</b>	Is any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## AE:DTC P1817 SPORTS MODE SWITCH CIRCUIT

### DTC DETECTING CONDITION:

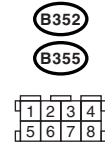
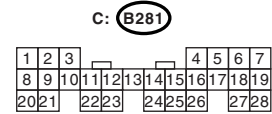
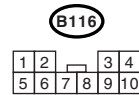
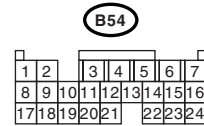
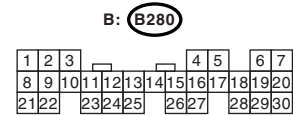
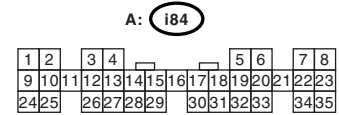
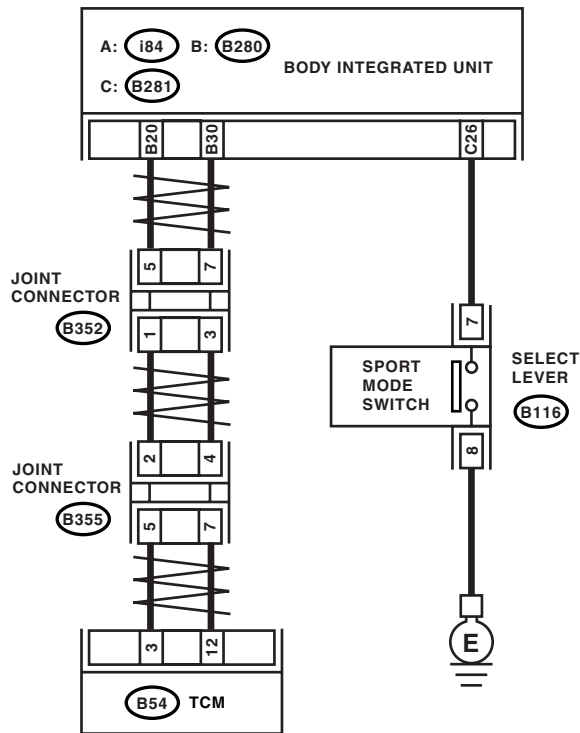
Input signal circuit of SPORT shift switch is open or shorted.

### TROUBLE SYMPTOM:

- The manual mode is not engaged.
- The SPORT indicator light does not illuminate.
- No SPORT mode occurs.

### WIRING DIAGRAM:

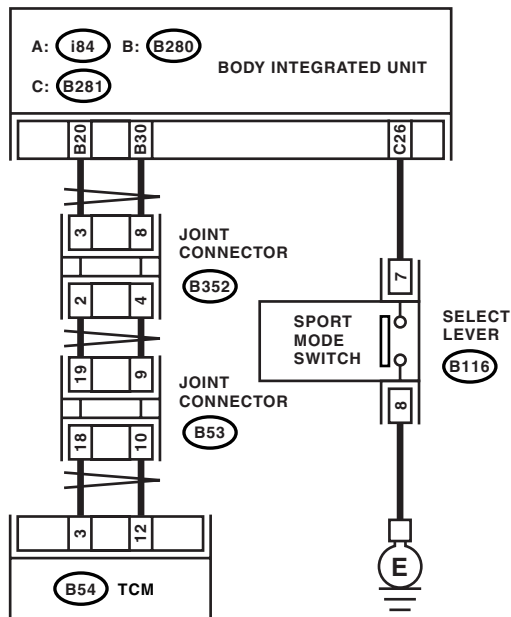
- LHD model



# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



A: i84

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	31	32
33	34	35					

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	31	32	33	34	35

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				

B116

1	2	3	4
5	6	7	8
9	10		

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

B352

1	2	3	4
5	6	7	8

B53

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

AT-02200

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK BODY INTEGRATED UNIT.</b> 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.
<b>2 CHECK INPUT SIGNAL TO BODY INTEGRATED UNIT.</b> 1) Shift the select lever to "P" range. 2) Read the Tiptronic Mode Switch data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is the OFF displayed?	Go to step 3.	Go to step 7.
<b>3 CHECK INPUT SIGNAL TO BODY INTEGRATED UNIT.</b> 1) Shift the select lever from "P" to "D" range. 2) Read the Tiptronic Mode Switch data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is the indication per range OFF?	Go to step 4.	Replace the select lever assembly. <Ref. to CS-7, Select Lever.>
<b>4 CHECK INPUT SIGNAL TO BODY INTEGRATED UNIT.</b> 1) Shift the select lever to SPORT mode. 2) Shift the select lever to any other than "D" range. 3) Read the Tiptronic Mode Switch data of body integrated unit using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is the OFF displayed?	Go to step 5.	Replace the select lever assembly. <Ref. to CS-7, Select Lever.>
<b>5 CHECK INHIBITOR SWITCH.</b> Shift the select lever from "P" to "D" range.	Is the indication of range position indicator light in combination meter synchronized with position of select lever?	Go to step 6.	Adjust the inhibitor switch and select cable. <Ref. to 4AT-52, ADJUSTMENT, Inhibitor Switch.> <Ref. to CS-15, ADJUSTMENT, Select Cable.>
<b>6 CHECK INPUT SIGNAL TO TCM.</b> 1) Shift the select lever from "P" to "D" range. 2) Read the Tiptronic Mode Switch data of TCM unit using Subaru Select Monitor. <Ref. to 4AT(diag)-17, OPERATION, Subaru Select Monitor.>	Is the indication per range OFF?	Even if the SPORT indicator light is blinking, the circuit has returned to normal condition at this time. A temporary short circuit of connector or harness may be the cause. Repair the harness or connector.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>7</b> <b>CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from body integrated unit and select lever. 3) Measure the resistance of body integrated unit and chassis ground. <b>Connector &amp; terminal</b> <b>(B281) No. 26 — Chassis ground:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 8.	Repair the short circuit in harness between body integrated unit and SPORT shift switch.
<b>8</b> <b>CHECK SPORT SHIFT SWITCH.</b> 1) Shift the select lever to "P" range. 2) Measure the resistance of SPORT shift switch connector terminals. <b>Terminals</b> <b>No. 7 — No. 8</b>	Is the resistance more than 1 M $\Omega$ ?	Check the body integrated unit.	Replace the select lever assembly. <Ref. to CS-7, Select Lever.>

## 14. Diagnostic Procedure without Diagnostic Trouble Code (DTC)

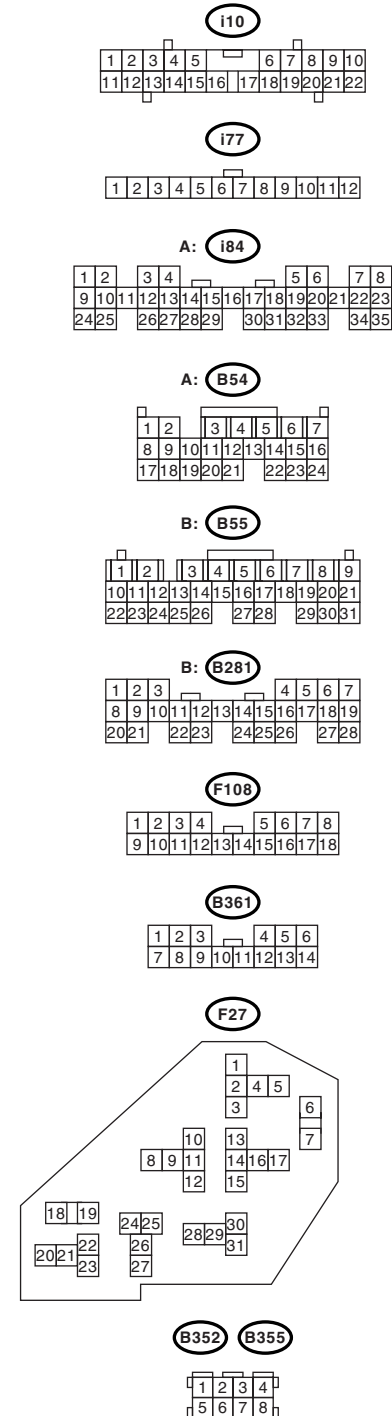
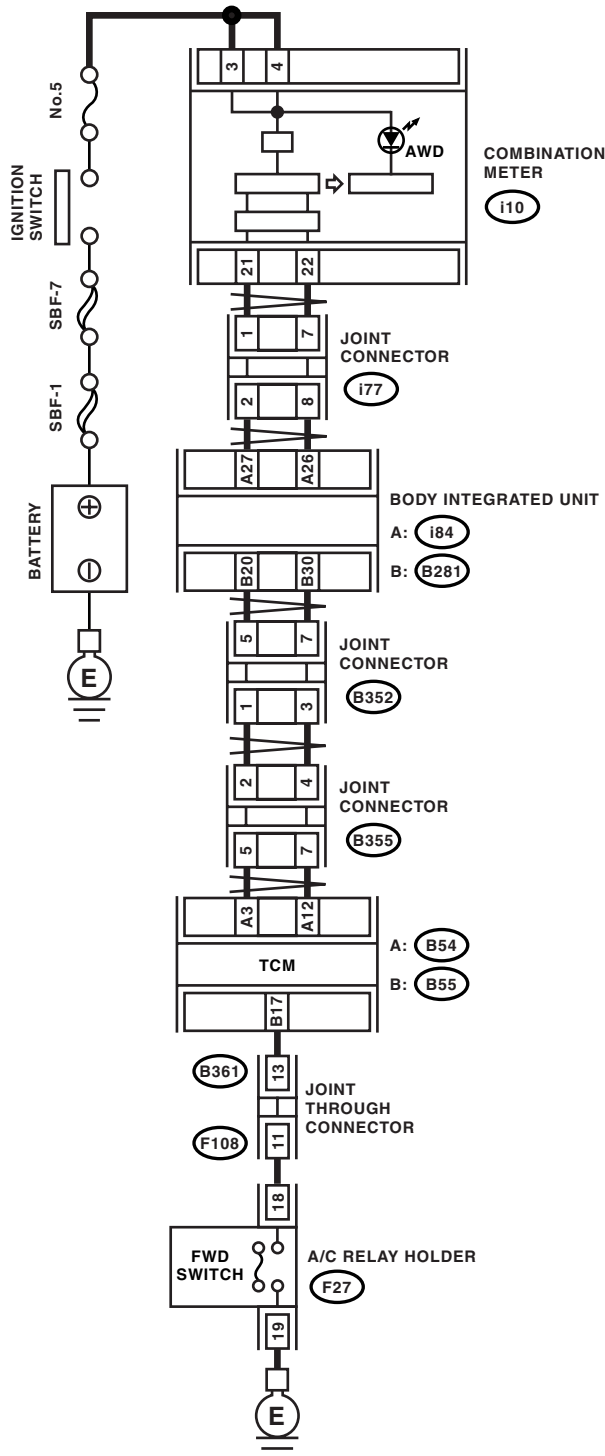
### A: CHECK FWD SWITCH

#### DIAGNOSIS:

- The LED does not come on even if FWD switch is ON.
- The FWD signal circuit is open or shorted.

#### WIRING DIAGRAM:

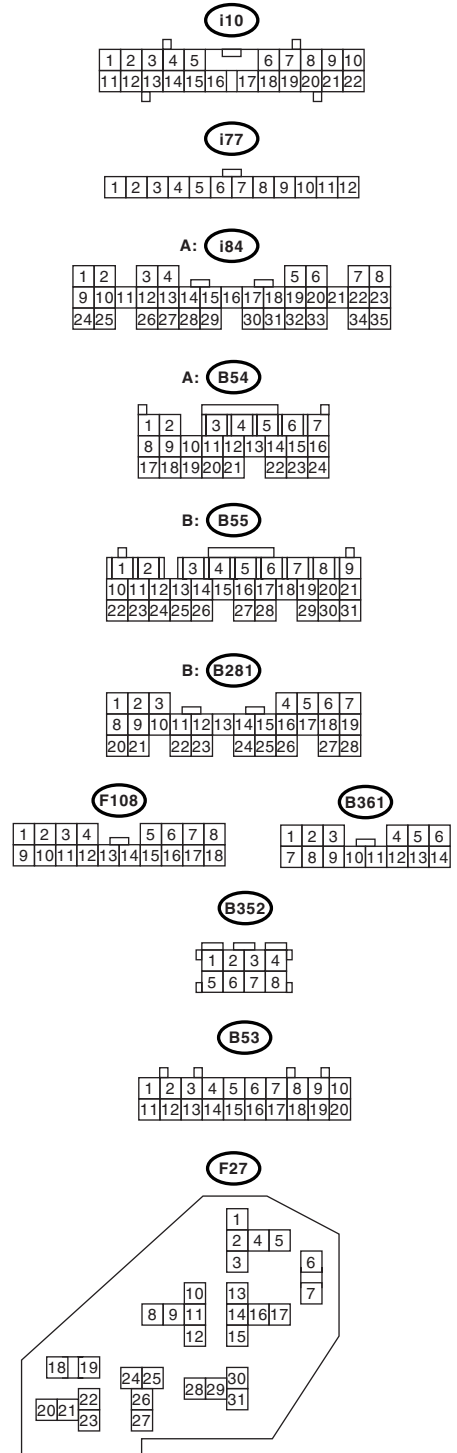
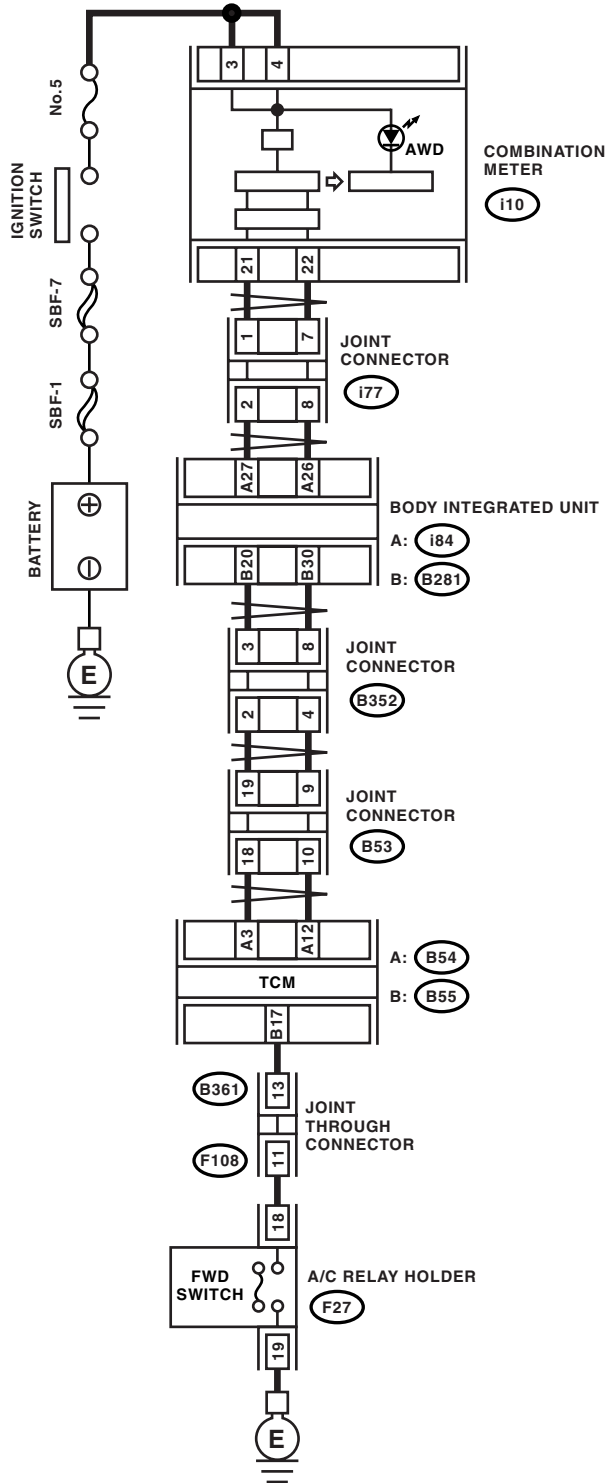
- LHD model



# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



AT-02201

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No	
1	<b>CONFIRM EQUIPMENT OF VEHICLE.</b>	Is the vehicle equipped with VDC?	Go to INSPECTION FOR SPORT SHIFT SWITCH. <Ref. to 4AT(diag)-127, CHECK SPORT SHIFT SWITCH, Diagnostic Procedure without Diagnostic Trouble Code (DTC).>	Go to step 2.
2	<b>CHECK SPARE FUSE.</b>	Is the spare fuse OK?	Go to step 3.	Replace the fuse.
3	<b>CHECK FWD SWITCH.</b> Connect the Subaru Select Monitor to data link connector.	When the fuse is inserted to FWD switch, does the LED light up?	Go to step 4.	Go to step 5.
4	<b>CHECK COMBINATION METER.</b>	Does the AWD warning light illuminate?	Go to INSPECTION FOR SPORT SHIFT SWITCH. <Ref. to 4AT(diag)-127, CHECK SPORT SHIFT SWITCH, Diagnostic Procedure without Diagnostic Trouble Code (DTC).>	Go to step 10.
5	<b>CHECK HARNESS CONNECTOR BETWEEN TCM AND FWD SWITCH.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from TCM. 3) Measure the resistance of harness between TCM and FWD switch connector. <b>Connector &amp; terminal</b> <b>(B55) No. 17 — (F27) No. 18:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 6.	Repair the open circuit in harness between TCM and FWD switch connector.
6	<b>CHECK HARNESS CONNECTOR BETWEEN FWD SWITCH AND CHASSIS GROUND.</b> Measure the resistance of harness between FWD switch and chassis ground. <b>Connector &amp; terminal</b> <b>(F27) No. 19 — Chassis ground:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 7.	Repair the open circuit in harness between FWD switch connector and chassis ground.
7	<b>CHECK HARNESS CONNECTOR BETWEEN TCM AND FWD SWITCH.</b> Measure the resistance of harness connector between TCM and body to make sure that circuit does not short. <b>Connector &amp; terminal</b> <b>(B55) No. 17 — Chassis ground:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 8.	Repair the short circuit in harness between TCM and FWD switch connector.
8	<b>CHECK INPUT SIGNAL FOR TCM.</b> 1) Turn the ignition switch to OFF. 2) Connect the connector to TCM. 3) Turn the ignition switch to ON. 4) Measure the signal voltage for TCM while installing the fuse to FWD switch connector. <b>Connector &amp; terminal</b> <b>(B55) No. 17 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step 9.	Go to step 11.

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>9</b> <b>CHECK INPUT SIGNAL FOR TCM.</b> Measure the signal voltage for TCM while removing the fuse from FWD switch connector. <b>Connector &amp; terminal</b> <b>(B55) No. 17 (+) — Chassis ground (-):</b>	Is the voltage more than 10.5 V?	Go to step <b>10</b> .	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>10</b> <b>CHECK BODY INTEGRATED UNIT.</b> Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step <b>11</b> .
<b>11</b> <b>CHECK COMBINATION METER.</b> Check the AWD warning light. <Ref. to IDI-3, INSPECTION, Combination Meter System.>	Is the AWD warning light OK?	Go to step <b>12</b> .	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.>
<b>12</b> <b>CHECK POOR CONTACT.</b>	Is there poor contact in FWD switch circuit?	Repair the poor contact.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## B: CHECK SPORT SHIFT SWITCH

### DIAGNOSIS:

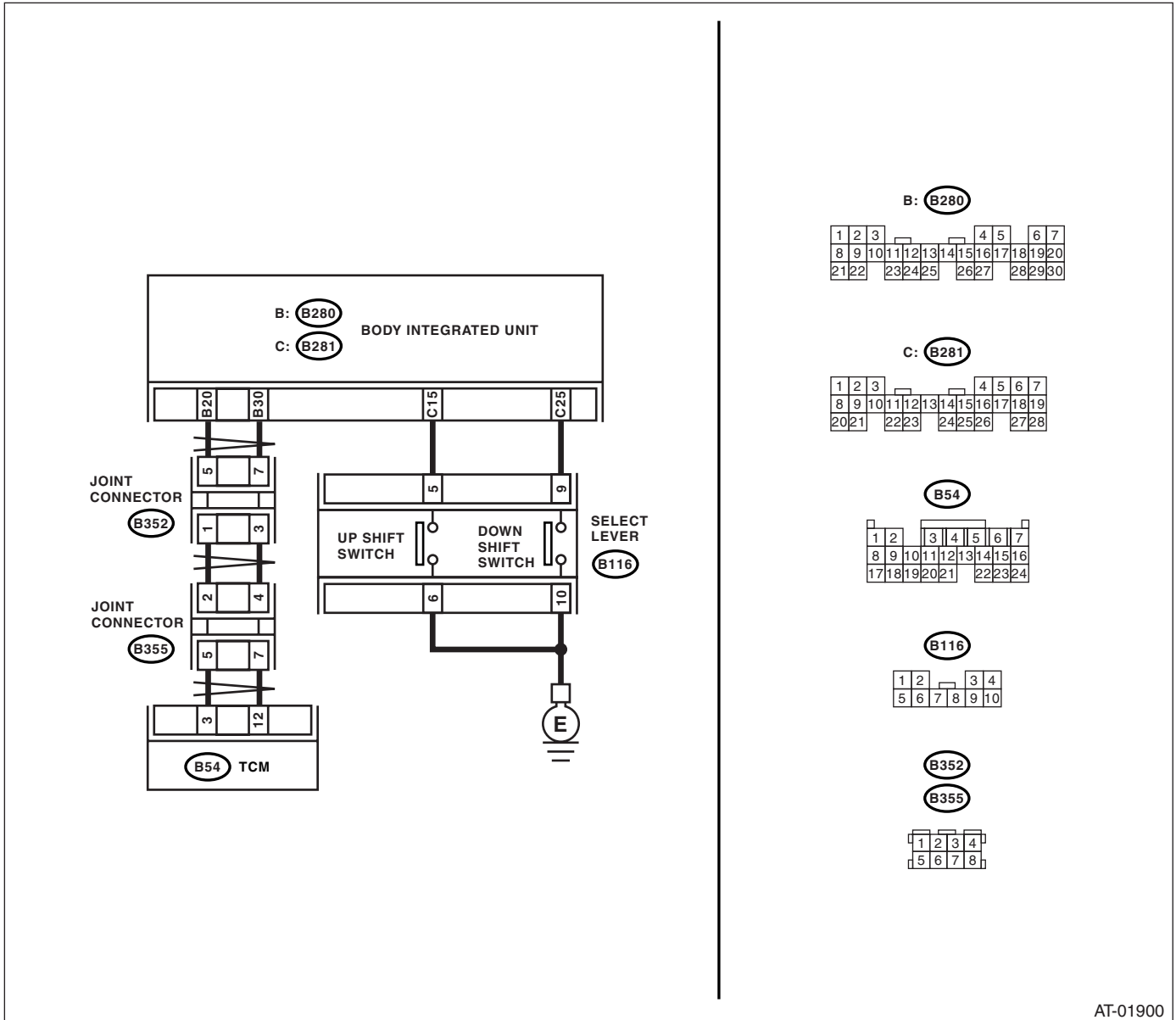
Input signal circuit of SPORT shift switch is open or shorted.

### TROUBLE SYMPTOM:

Does not shift gears in manual mode.

### WIRING DIAGRAM:

- LHD model

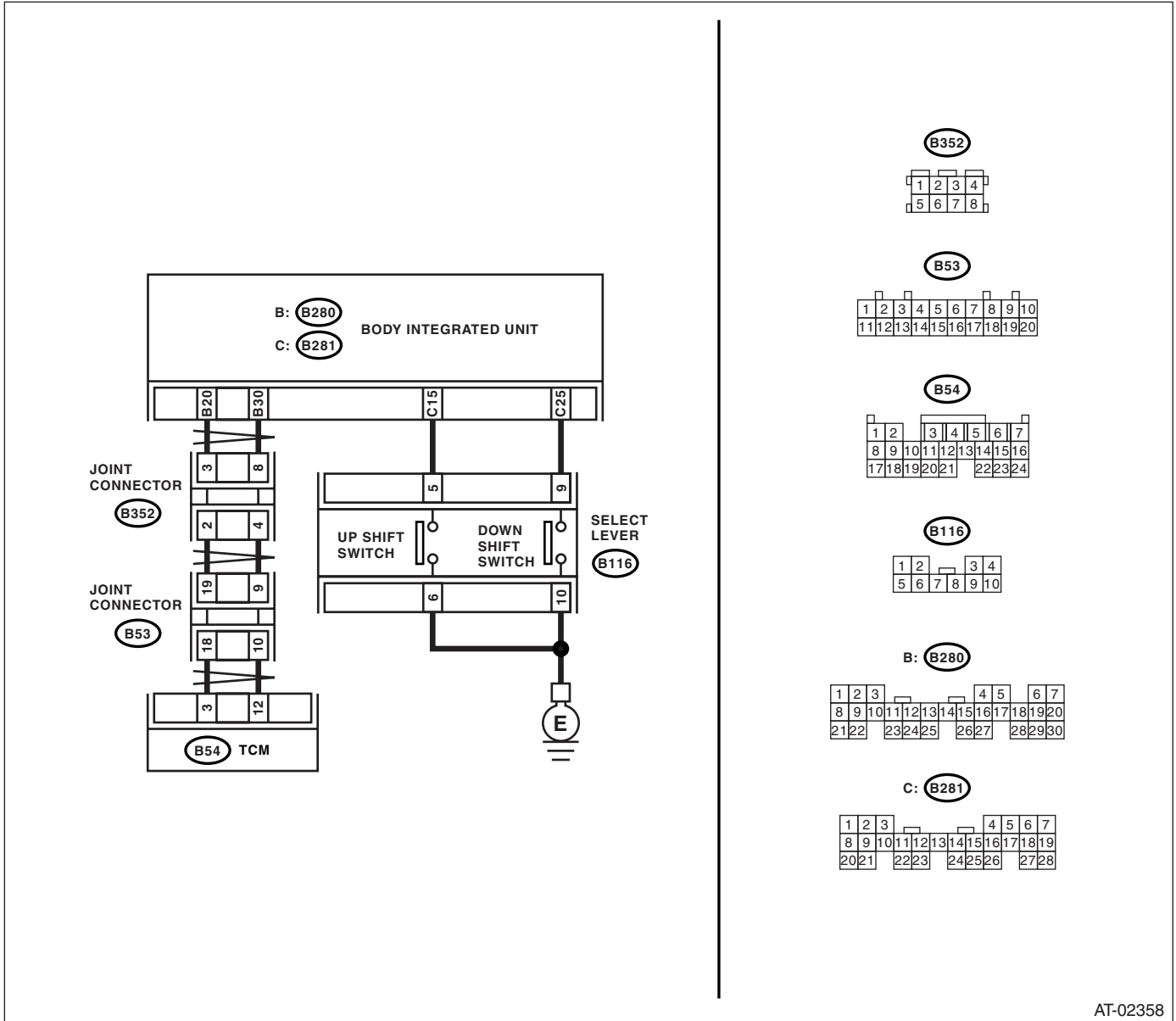


AT-01900

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



AT-02358

Step	Check	Yes	No
<b>1 CHECK SPORT SHIFT SWITCH.</b> 1) Shift the select lever to manual mode. 2) Shift and hold the select lever to up side.	Does the LED light up?	Go to step 2.	Go to step 3.
<b>2 CHECK SPORT SHIFT SWITCH.</b> Shift and hold the select lever to down side.	Does the LED light up?	Go to the procedure "INSPECTION FOR SPORT SHIFT INDICATOR LIGHT". <Ref. to 4AT(diag)-132, CHECK SPORT SHIFT INDICATOR, Diagnostic Procedure without Diagnostic Trouble Code (DTC).>	Go to step 12.

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>3 CHECK BODY INTEGRATED UNIT.</b> 1) Turn the ignition switch to ON. 2) Shift and hold the select lever to up side. 3) Read the data of up-shift switch using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is ON displayed?	Go to step 4.	Go to step 5.
<b>4 CHECK BODY INTEGRATED UNIT.</b> Check the DTC of body integrated unit. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Check the TCM.
<b>5 CHECK SPORT SHIFT SWITCH GROUND CIRCUIT.</b> 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. <b>Connector &amp; terminal</b> <b>(B116) No. 6 — Chassis ground:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 6.	Repair the open circuit in harness between SPORT shift switch and chassis ground.
<b>6 CHECK SPORT SHIFT SWITCH.</b> Measure the resistance between SPORT shift switch terminals. <b>Connector &amp; terminal</b> <b>(B116) No. 6 — No. 5:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 7.	Replace the guide plate assembly.
<b>7 CHECK SPORT SHIFT SWITCH.</b> 1) Shift and hold the select lever to up side. 2) Measure the resistance between SPORT shift switch terminals. <b>Connector &amp; terminal</b> <b>(B116) No. 6 — No. 5:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 8.	Replace the guide plate assembly.
<b>8 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH.</b> 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of harness between body integrated unit and SPORT shift switch connector. <b>Connector &amp; terminal</b> <b>(B116) No. 5 — (B281) No. 15:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 9.	Repair the open circuit in harness between SPORT shift switch connector and TCM connector, or poor contact in coupling connector.
<b>9 CHECK HARNESS CONNECTOR BETWEEN TCM AND SPORT SHIFT SWITCH.</b> Measure the resistance of harness between SPORT shift switch connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B116) No. 5 — Chassis ground:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 10.	Repair the short circuit in harness between SPORT shift switch connector and TCM connector.
<b>10 CHECK INPUT SIGNAL TO BODY INTEGRATED UNIT.</b> 1) Connect all the connectors. 2) Turn the ignition switch to ON (engine OFF). 3) Check the signal voltage for body integrated unit. <b>Connector &amp; terminal</b> <b>(B281) No. 15 (+) — Chassis ground (-):</b>	Is the voltage 1.5 — 8 V?	Go to step 11.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>

## Diagnostic Procedure without Diagnostic Trouble Code (DTC)

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>11 CHECK INPUT SIGNAL TO BODY INTEGRATED UNIT.</b> 1) Shift and hold the select lever to up side. 2) Check the signal voltage for body integrated unit. <b>Connector &amp; terminal</b> <b>(B281) No. 15 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step 12.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>12 CHECK BODY INTEGRATED UNIT.</b> 1) Turn the ignition switch to ON. 2) Shift and hold the select lever to down side. 3) Read the data of up-shift switch using Subaru Select Monitor. <Ref. to LAN(diag)-14, OPERATION, Subaru Select Monitor.>	Is ON displayed?	Go to step 13.	Go to step 14.
<b>13 CHECK BODY INTEGRATED UNIT.</b> Check the DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Check the TCM.
<b>14 CHECK SPORT SHIFT SWITCH CIRCUIT.</b> 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. <b>Connector &amp; terminal</b> <b>(B116) No. 10 (+) — Chassis ground (-):</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 15.	Repair the open circuit in harness between SPORT shift switch and chassis ground.
<b>15 CHECK SPORT SHIFT SWITCH.</b> Measure the resistance between SPORT shift switch terminals. <b>Connector &amp; terminal</b> <b>(B116) No. 10 — No. 9:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 16.	Replace the guide plate assembly.
<b>16 CHECK SPORT SHIFT SWITCH.</b> 1) Shift and hold the select lever to down side. 2) Measure the resistance between SPORT shift switch terminals. <b>Connector &amp; terminal</b> <b>(B116) No. 10 — No. 9:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 17.	Replace the guide plate assembly.
<b>17 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH.</b> 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of harness between body integrated unit and SPORT shift switch connector. <b>Connector &amp; terminal</b> <b>(B116) No. 9 — (B281) No. 25:</b>	Is the resistance less than 1 $\Omega$ ?	Go to step 18.	Repair the open circuit in harness between SPORT shift switch connector and TCM connector, or poor contact in coupling connector.
<b>18 CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND SPORT SHIFT SWITCH.</b> Measure the resistance of harness between SPORT shift switch connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B116) No. 9 — Chassis ground:</b>	Is the resistance more than 1 M $\Omega$ ?	Go to step 19.	Repair the short circuit in harness between SPORT shift switch connector and TCM connector.

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>19</b> <b>CHECK THE INPUT SIGNAL TO BODY INTEGRATED UNIT.</b> 1) Connect all the connectors. 2) Turn the ignition switch to ON (engine OFF). 3) Check the signal voltage for body integrated unit. <b>Connector &amp; terminal</b> <b>(B281) No. 25 (+) — Chassis ground (-):</b>	Is the voltage 1.5 — 8 V?	Go to step <b>20</b> .	Go to step <b>21</b> .
<b>20</b> <b>CHECK THE INPUT SIGNAL TO BODY INTEGRATED UNIT.</b> 1) Shift and hold the select lever to up side. 2) Check the signal voltage for body integrated unit. <b>Connector &amp; terminal</b> <b>(B281) No. 25 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step <b>21</b> .	Replace the body integrated unit. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>21</b> <b>CHECK POOR CONTACT.</b>	Is there poor contact in SPORT shift switch circuit?	Repair the poor contact.	A temporary poor contact of SPORT shift switch connector or harness.

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### C: CHECK SPORT SHIFT INDICATOR

#### DIAGNOSIS:

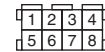
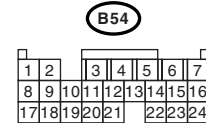
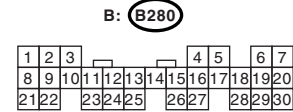
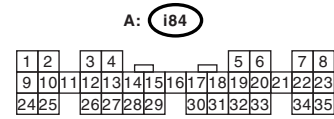
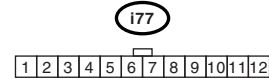
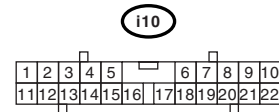
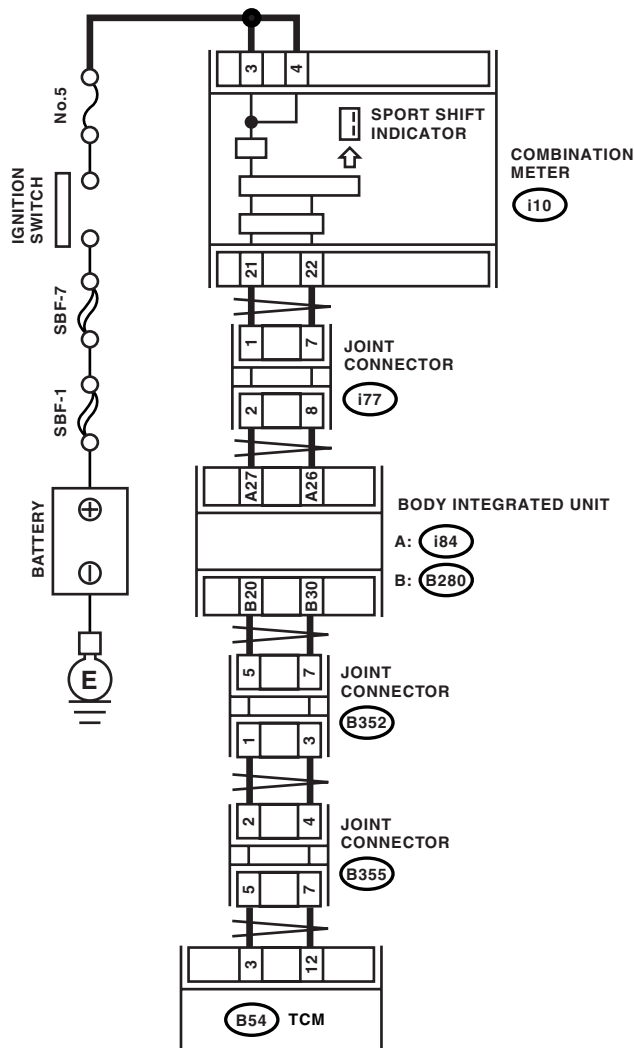
Output signal circuit of SPORT shift indicator is open or shorted.

#### TROUBLE SYMPTOM:

- SPORT shift indicator does not display or remains displayed.
- SPORT shift indicator display does not change.

#### WIRING DIAGRAM:

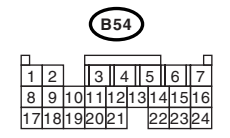
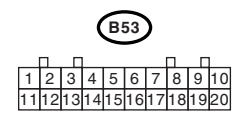
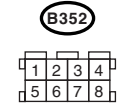
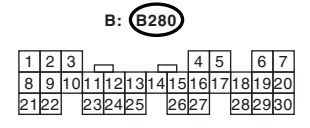
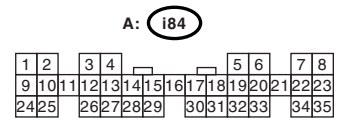
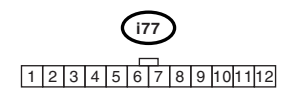
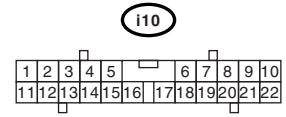
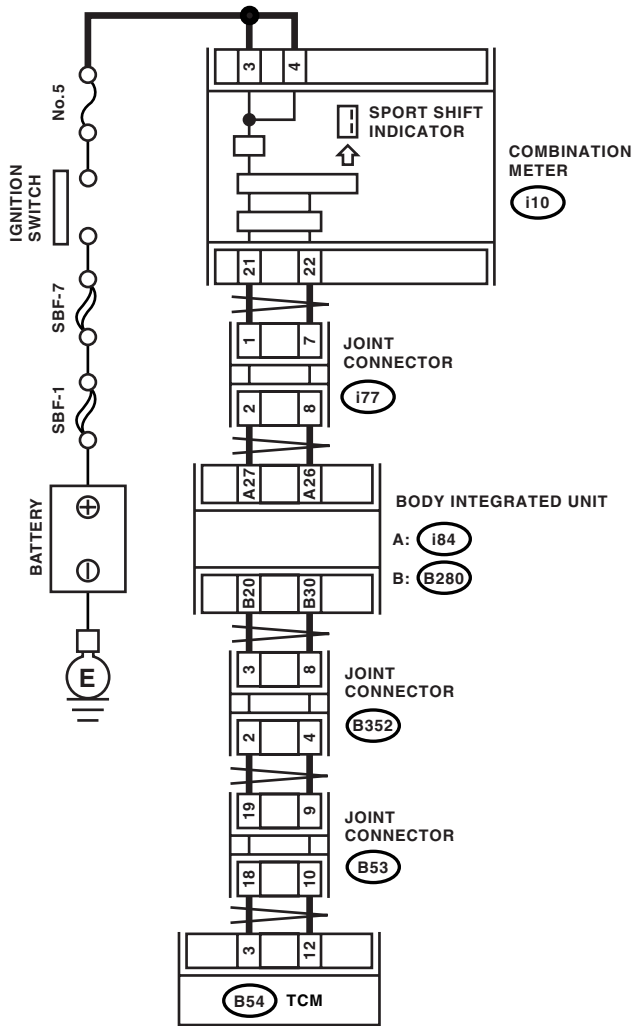
- LHD model



# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



AT-02359

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK BODY INTEGRATED UNIT.</b> Check DTC of body integrated unit.	Is DTC of CAN communication displayed?	Perform the diagnosis according to DTC.	Go to step 2.
<b>2 CHECK TCM.</b> 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 Subaru Select Monitor switch to ON. 5) Shift the select lever to manual mode side. 6) Read the data of gear position using Subaru Select Monitor.	Is the gear position 1?	Go to step 3.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>3 CHECK TCM.</b> 1) Up-shift the select lever. 2) Read the data of gear position using Subaru Select Monitor.	Is the gear position 2?	Go to step 4.	Replace the TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>
<b>4 CHECK BODY INTEGRATED UNIT.</b> Read the data of SPORT shift gear position using Subaru Select Monitor.	Is the SPORT shift gear position 2?	Go to step 5.	Check the body integrated unit.
<b>5 CHECK COMBINATION METER.</b> <Ref. to IDI-3, INSPECTION, Combination Meter System.>	Is the SPORT shift indicator OK?	Check the buzzer. <Ref. to 4AT(diag)-138, Diagnostics with Phenomenon.>	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.>

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## D: CHECK BUZZER

### DIAGNOSIS:

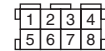
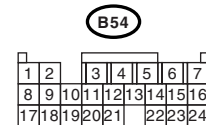
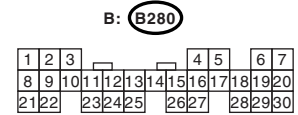
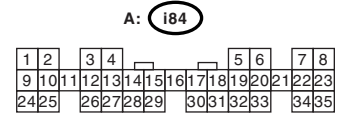
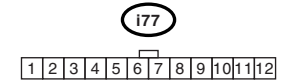
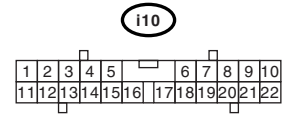
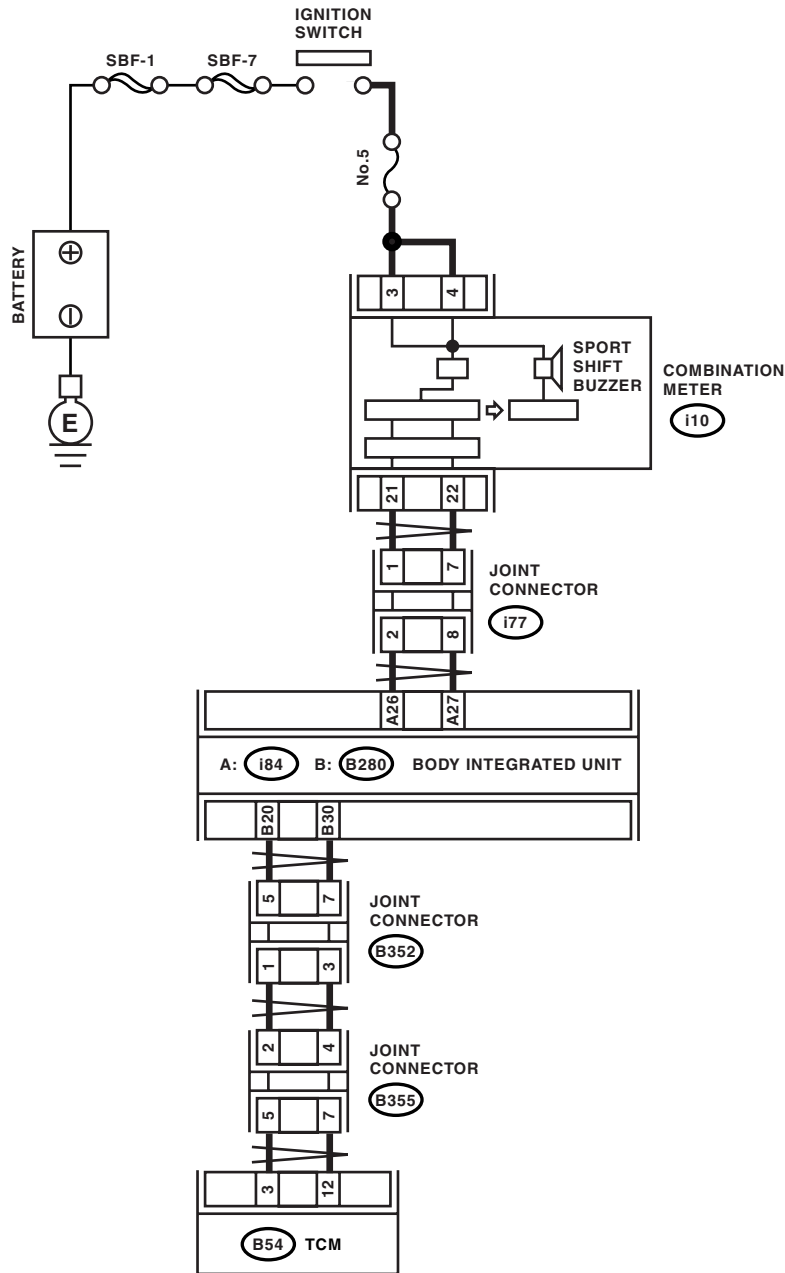
Output signal circuit of buzzer is open or shorted.

### TROUBLE SYMPTOM:

Buzzer remains sounded.

### WIRING DIAGRAM:

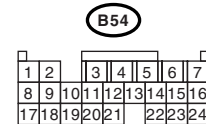
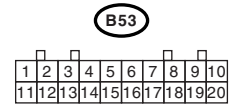
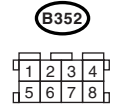
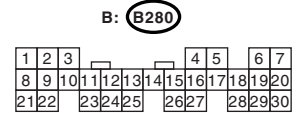
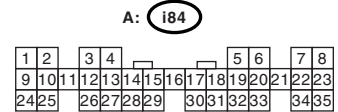
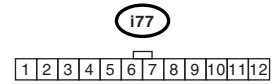
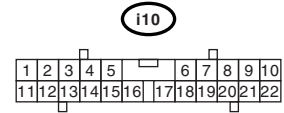
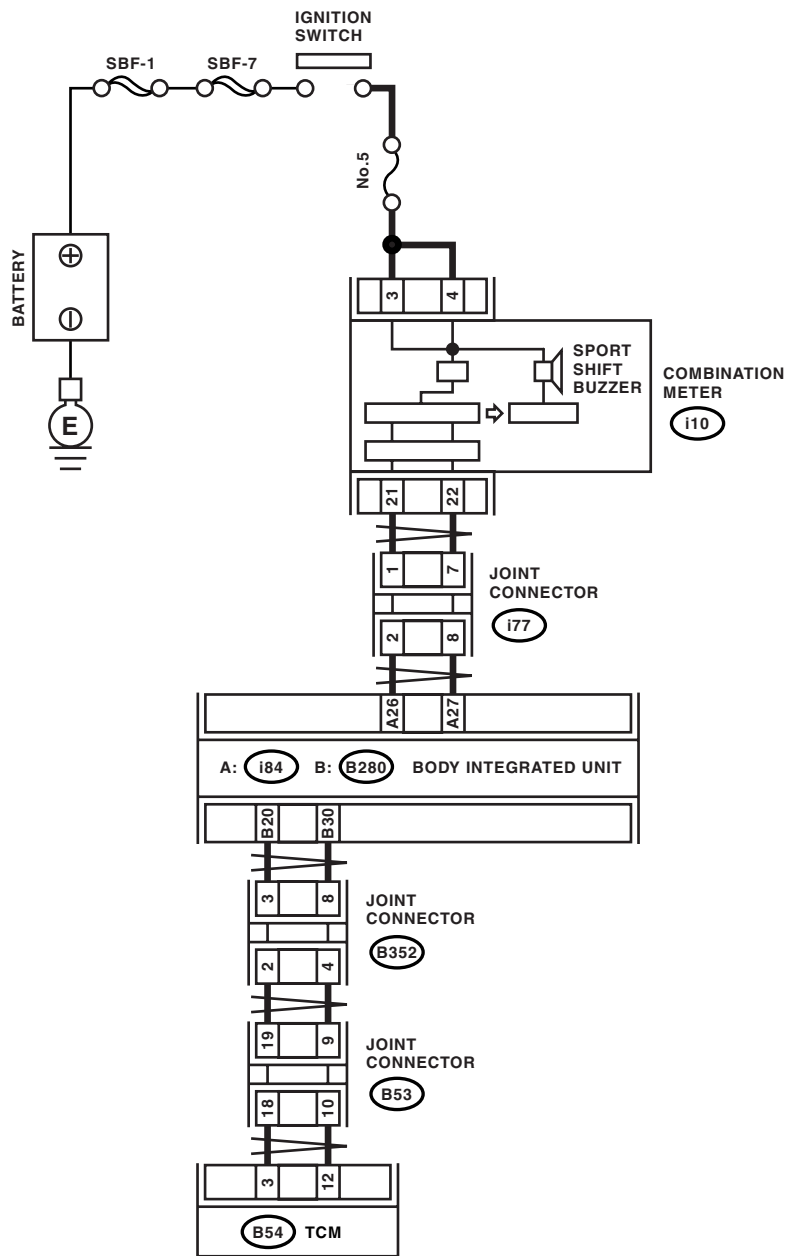
- LHD model



# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

- RHD model



AT-02360

# Diagnostic Procedure without Diagnostic Trouble Code (DTC)

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Step	Check	Yes	No
<b>1</b> <b>CHECK BODY INTEGRATED UNIT.</b> 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 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 TCM. <Ref. to 4AT-65, Transmission Control Module (TCM).>	Go to step 2.
<b>2</b> <b>CHECK COMBINATION METER.</b> <Ref. to IDI-3, INSPECTION, Combination Meter System.>	Is the buzzer OK?	Perform Diagnostics with Phenomenon. <Ref. to 4AT(diag)-138, Diagnostics with Phenomenon.>	Replace the combination meter assembly. <Ref. to IDI-16, Combination Meter Assembly.>

## Diagnostics with Phenomenon

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### 15. Diagnostics with Phenomenon

#### A: INSPECTION

Symptom	Problem parts
Starter does not operate when select lever is in "P" or "N" range. Starter operates when select lever is in "R" or "D" range.	<ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• Select cable</li> <li>• Select lever</li> <li>• Starter motor and harness</li> </ul>
Abnormal noise when select lever is in "P" or "N".	<ul style="list-style-type: none"> <li>• Strainer</li> <li>• Transfer duty solenoid</li> <li>• Oil pump</li> <li>• Drive plate</li> <li>• ATF level too high or too low</li> </ul>
Hissing noise occurs during standing start.	<ul style="list-style-type: none"> <li>• Strainer</li> <li>• ATF level too high or too low</li> </ul>
Noise occurs while driving in "D1".	<ul style="list-style-type: none"> <li>• Final gear</li> <li>• Planetary gear</li> <li>• Reduction gear</li> <li>• Differential gear oil level too high or too low</li> </ul>
Noise occurs while driving in "D2".	
Noise occurs while driving in "D3".	<ul style="list-style-type: none"> <li>• Final gear</li> <li>• Low &amp; reverse brake</li> <li>• Reduction gear</li> <li>• Differential gear oil level too high or too low</li> </ul>
Noise occurs while driving in "D4".	<ul style="list-style-type: none"> <li>• Final gear</li> <li>• Low &amp; reverse brake</li> <li>• Planetary gear</li> <li>• Reduction gear</li> <li>• Differential gear oil level too high or too low</li> </ul>
Vehicle moves when select lever is in "N".	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Low clutch</li> </ul>
Shock occurs when select lever is shifted from "N" to "D" range.	<ul style="list-style-type: none"> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Low clutch duty solenoid</li> <li>• Low clutch</li> <li>• TCM</li> <li>• Harness</li> <li>• Control valve</li> <li>• ATF deterioration</li> </ul>
Excessive time lag occurs when select lever is shifted from "N" to "D" range.	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low clutch</li> <li>• Line pressure linear solenoid</li> <li>• Seal ring</li> <li>• Front gasket of transmission case</li> </ul>
Shock occurs when select lever is shifted from "N" to "R" range.	<ul style="list-style-type: none"> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• TCM</li> <li>• Harness</li> <li>• Control valve</li> <li>• ATF deterioration</li> </ul>
Excessive time lag occurs when select lever is shifted from "N" to "R" range.	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low &amp; reverse clutch</li> <li>• Reverse clutch</li> <li>• Line pressure linear solenoid</li> <li>• Seal ring</li> <li>• Front gasket of transmission case</li> </ul>

# Diagnostics with Phenomenon

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Symptom	Problem parts
Vehicle does not start in any shift range. (Engine stalls)	<ul style="list-style-type: none"> <li>• Parking brake mechanism</li> <li>• Planetary gear</li> </ul>
Vehicle does not start in any shift range. (Engine operates)	<ul style="list-style-type: none"> <li>• Strainer</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• Drive pinion</li> <li>• Hypoid gear</li> <li>• Axle shaft</li> <li>• Differential gear</li> <li>• Oil pump</li> <li>• Input shaft</li> <li>• Output shaft</li> <li>• Planetary gear</li> <li>• Drive plate</li> <li>• ATF level too low.</li> <li>• Front gasket of transmission case</li> </ul>
Vehicle does not start in "R" range only. (Engine operates)	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• Low &amp; reverse clutch</li> <li>• Reverse clutch</li> </ul>
Vehicle does not start in "R" range only. (Engine stalls)	<ul style="list-style-type: none"> <li>• Low clutch</li> <li>• 2-4 brake</li> <li>• Planetary gear</li> <li>• Parking brake mechanism</li> </ul>
Vehicle does not start in "D" range. (Engine operates)	<ul style="list-style-type: none"> <li>• Low clutch</li> <li>• One-way clutch</li> </ul>
Vehicle does not start in "D" range. (Engine stalls)	<ul style="list-style-type: none"> <li>• Reverse clutch</li> </ul>
Vehicle does not start in "R" range only. (Engine operates)	<ul style="list-style-type: none"> <li>• Control valve</li> </ul>
Acceleration during standing start is poor. (High rpm stall)	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low clutch</li> <li>• Reverse clutch</li> <li>• ATF level too low.</li> <li>• ATF deterioration</li> <li>• Front gasket of transmission case</li> <li>• Differential gear oil level too high or too low</li> </ul>
Acceleration during standing start is poor. (Low rpm stall)	<ul style="list-style-type: none"> <li>• Oil pump</li> <li>• Torque converter one-way clutch</li> <li>• Engine performance</li> </ul>
Acceleration is poor when select lever is in "D" range. (Normal rpm stall)	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Planetary gear</li> </ul>
Acceleration is poor when select lever is in "R" range. (Normal rpm stall)	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Planetary gear</li> </ul>
No shift occurs from 1st to 2nd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Rear vehicle speed sensor</li> <li>• Front vehicle speed sensor</li> <li>• Throttle position sensor</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>
No shift occurs from 2nd to 3rd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Control valve</li> <li>• High clutch</li> </ul>

## Diagnostics with Phenomenon

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Symptom	Problem parts
No shift occurs from 3rd to 4th gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>
Engine brake is not effected when select lever is shifted from 4th gear to 3rd gear.	<ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• Control valve</li> </ul>
Engine brake is not effected when select lever is shifted from 3rd gear to 2nd gear.	<ul style="list-style-type: none"> <li>• Control valve</li> </ul>
Engine brake is not effected when select lever is shifted from 2nd gear to 1st gear.	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low &amp; reverse brake</li> </ul>
Shift characteristics are erroneous.	<ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Rear vehicle speed sensor</li> <li>• Throttle position sensor</li> <li>• Control valve</li> <li>• Ground</li> </ul>
No lock-up occurs.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• Lock-up facing</li> <li>• Engine speed signal</li> </ul>
Parking brake is not effected.	<ul style="list-style-type: none"> <li>• Select cable</li> </ul>
Shift lever cannot be moved or is hard to move from "P" range.	<ul style="list-style-type: none"> <li>• Select lever</li> <li>• Parking mechanism</li> </ul>
ATF spurts out.	<ul style="list-style-type: none"> <li>• ATF level too high.</li> </ul>
Differential oil spurts out.	<ul style="list-style-type: none"> <li>• Differential gear oil level too high.</li> </ul>
Differential oil level changes excessively.	<ul style="list-style-type: none"> <li>• Seal pipe</li> <li>• Double oil seal</li> </ul>
Odor is produced from ATF supply pipe.	<ul style="list-style-type: none"> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Low &amp; reverse clutch</li> <li>• Reverse clutch</li> <li>• Lock-up facing</li> <li>• ATF deterioration</li> </ul>
Shock occurs from 1st to 2nd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> <li>• Low &amp; reverse duty solenoid</li> </ul>
Slippage occurs from 1st to 2nd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>

## Diagnostics with Phenomenon

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Symptom	Problem parts
Shock occurs from 2nd to 3rd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Low &amp; reverse duty solenoid</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> <li>• High clutch duty solenoid</li> </ul>
Slippage occurs from 2nd to 3rd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Low &amp; reverse duty solenoid</li> </ul>
Shock occurs from 3rd to 4th gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• Low clutch duty solenoid</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> </ul>
Slippage occurs from 3rd to 4th gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>
Shock occurs when select lever is shifted from 3rd gear to 2nd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• 2-4 brake duty solenoid</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• High clutch duty solenoid</li> </ul>
Shock occurs when select lever is shifted from 2nd gear to 1st gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• Low &amp; reverse clutch</li> <li>• ATF deterioration</li> <li>• 2-4 brake duty solenoid</li> <li>• Low &amp; reverse brake duty solenoid</li> </ul>

## Diagnostics with Phenomenon

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Symptom	Problem parts
Shock occurs when accelerator pedal is released at medium speeds.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure linear solenoid</li> <li>• Control valve</li> <li>• Lock-up damper</li> <li>• Engine performance</li> </ul>
Vibration occurs during straight-forward operation.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Lock-up duty solenoid</li> <li>• Lock-up facing</li> <li>• Lock-up damper</li> </ul>
Vibration occurs during turns. (tight corner braking phenomenon)	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Rear vehicle speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer duty solenoid</li> <li>• ATF deterioration</li> <li>• Harness</li> </ul>
Front wheel slippage occurs during standing starts.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer pipe</li> <li>• Transfer duty solenoid</li> </ul>
Vehicle is not set in FWD mode.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer duty solenoid</li> </ul>
Select lever is hard to move.	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Detent spring</li> <li>• Manual plate</li> </ul>
Select lever is excessively hard to move. (Unreasonable resistance)	<ul style="list-style-type: none"> <li>• Detent spring</li> <li>• Manual plate</li> </ul>
Select lever slips out of operation during acceleration or while driving on rough terrain.	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Detent spring</li> <li>• Manual plate</li> </ul>
Manual mode is not engaged.	<ul style="list-style-type: none"> <li>• SPORT shift switch</li> <li>• TCM</li> <li>• Body integrated unit</li> </ul>
Gear does not change though the select lever is operated in manual mode.	<ul style="list-style-type: none"> <li>• Up shift switch</li> <li>• Down shift switch</li> <li>• TCM</li> <li>• Body integrated unit</li> </ul>