

### 7. Diagnostic Chart with Trouble Code

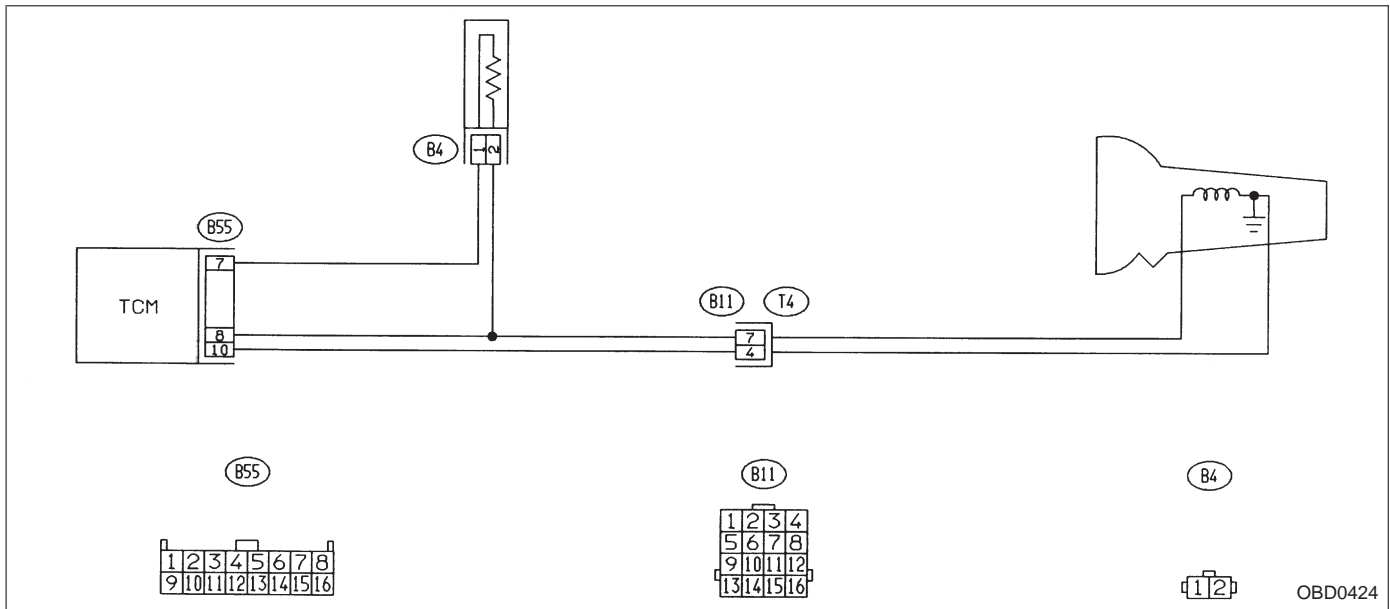
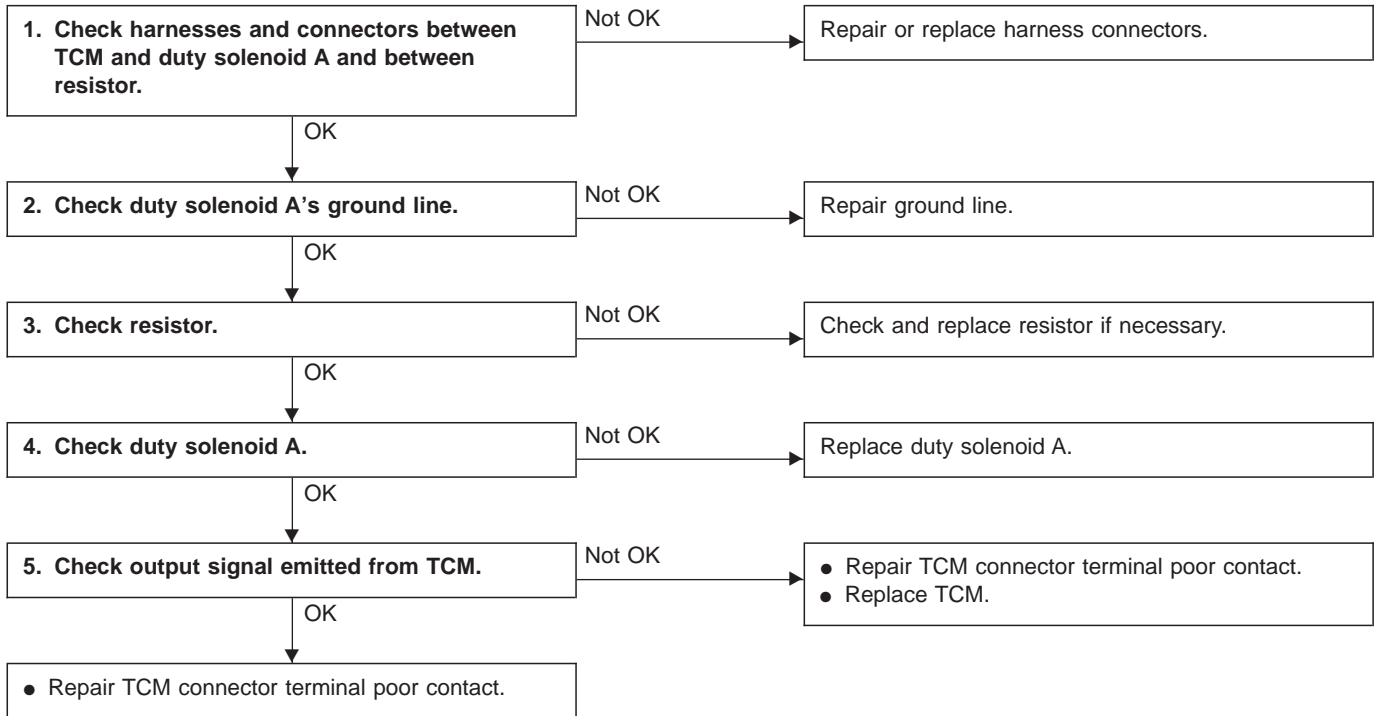
#### A: TROUBLE CODE 11 — DUTY SOLENOID A —

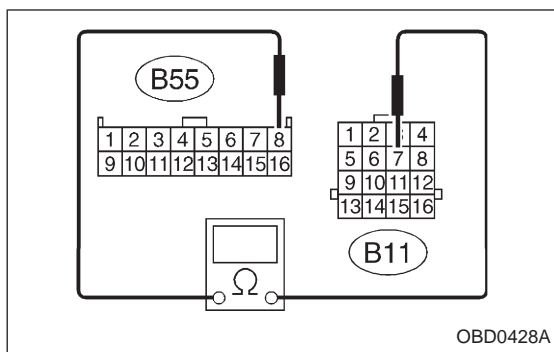
**DIAGNOSIS:**

Output signal circuit of duty solenoid A or resistor is open or shorted.

**TROUBLE SYMPTOM:**

Excessive shift shock

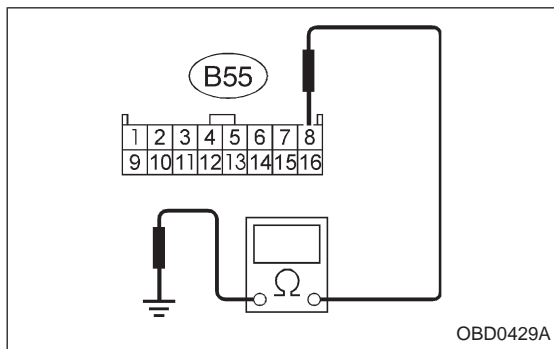




**1. CHECK HARNESSES AND CONNECTORS BETWEEN TCM AND DUTY SOLENOID A AND BETWEEN RESISTOR.**

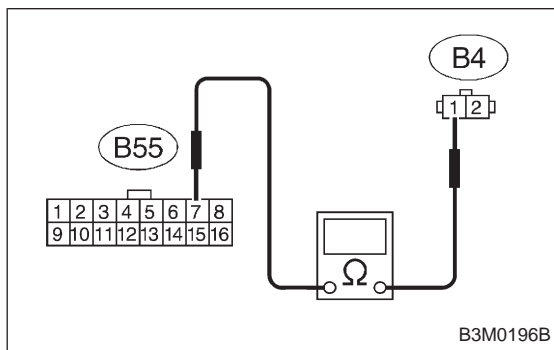
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM, transmission and resistor.
- 3) Measure resistance of harness connector between TCM and transmission.

**Connector & terminal / Specified resistance:**  
**(B55) No. 8 — (B11) No. 7 / 1 Ω, or less**



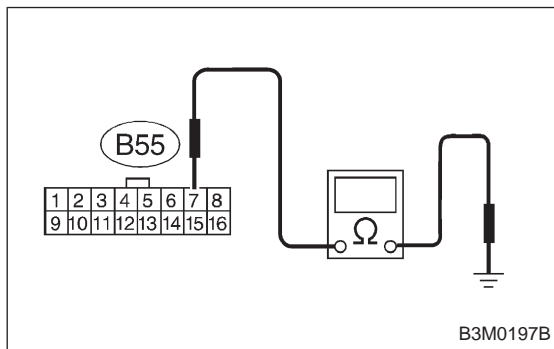
- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**  
**(B55) No. 8 — Body / 1 MΩ, or more**



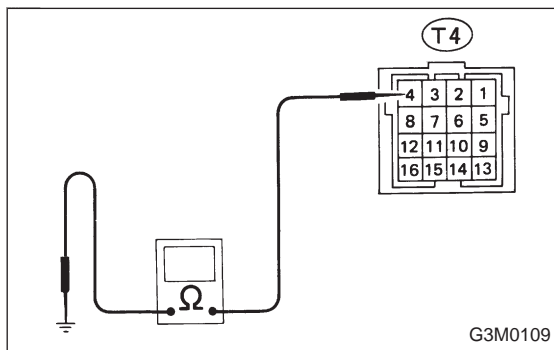
- 5) Measure resistance of harness connector between TCM and resistor connector.

**Connector & terminal / Specified resistance:**  
**(B55) No. 7 — (B4) No. 1 / 1 Ω, or less**



- 6) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

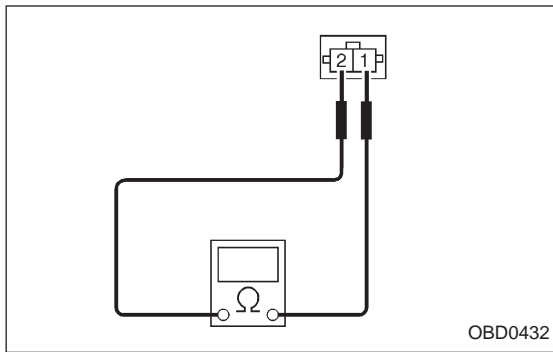
**Connector & terminal / Specified resistance:**  
**(B55) No. 7 — Body / 1 MΩ, or more**



**2. CHECK DUTY SOLENOID A's GROUND LINE.**

Measure resistance between transmission connector receptacle (on transmission) and transmission case.

**Connector & terminal / Specified resistance:**  
**(T4) No. 4 — Transmission / 1 Ω, or less**

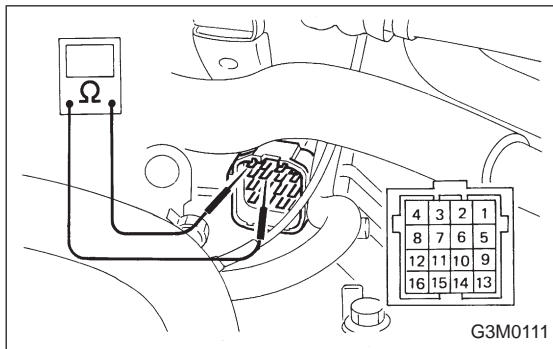


**3. CHECK RESISTOR.**

Measure resistance between resistor terminals.

**Specified resistance:**

**(B4) No. 1 — No. 2 / 9 — 15 Ω**

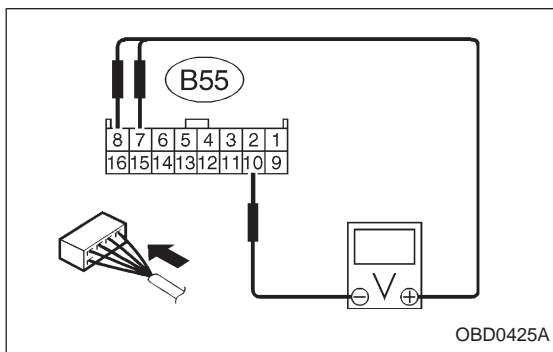


**4. CHECK DUTY SOLENOID A.**

Measure resistance between transmission connector receptacle (on transmission) terminals.

**Connector & terminal / Specified resistance:**

**(T4) No. 7 — No. 4 / 1.5 — 4.5 Ω**



**5. CHECK OUTPUT SIGNAL EMITTED FROM TCM.**

- 1) Connect connectors to TCM, transmission and resistor.
- 2) Start and warm-up the engine and transmission.
- 3) Ignition switch ON (Engine OFF).
- 4) Move selector lever to "N".
- 5) Measure voltage between TCM connector and body while opening and closing throttle position sensor.

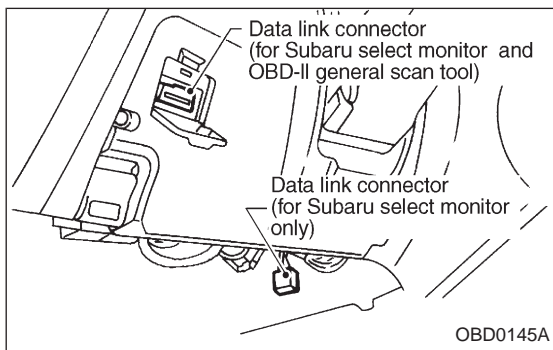
**Connector & terminal / Specified voltage:**

**(B55) No. 8 — No. 10 / 1.5 — 4.0 V (Throttle is fully closed.)**

**(B55) No. 8 — No. 10 / 1 V, or less (Throttle is fully open.)**

**(B55) No. 7 — No. 10 / 5 — 14 V (Throttle is fully closed.)**

**(B55) No. 7 — No. 10 / 1 V, or less (Throttle is fully open.)**



● **Using Subaru select monitor:**

- (1) Connect connectors to TCM, transmission and resistor.
- (2) Turn ignition switch to OFF.
- (3) Connect the Subaru select monitor to data link connector.
- (4) Turn ignition switch to ON and Subaru select monitor switch to ON.

PLDTY (F11)

100%

OBD0427

- (5) Start and warm-up the engine and transmission.
- (6) Stop the engine and turn ignition switch to ON (Engine OFF).
- (7) Move selector lever to "N".
- (8) Read data on Subaru select monitor.
- (9) Designate mode using function key.

**Function mode: F11**

**SPECIFIED DATA:**

- 100% (Throttle is fully closed.)
- 15% (Throttle is fully open.)

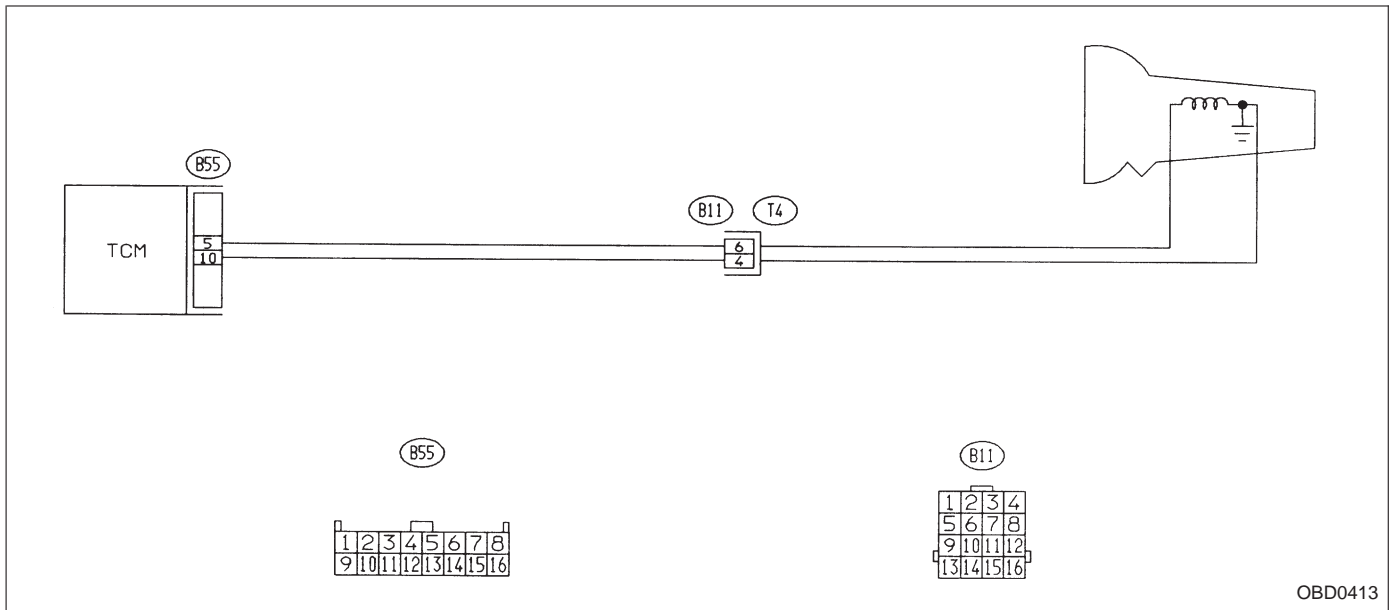
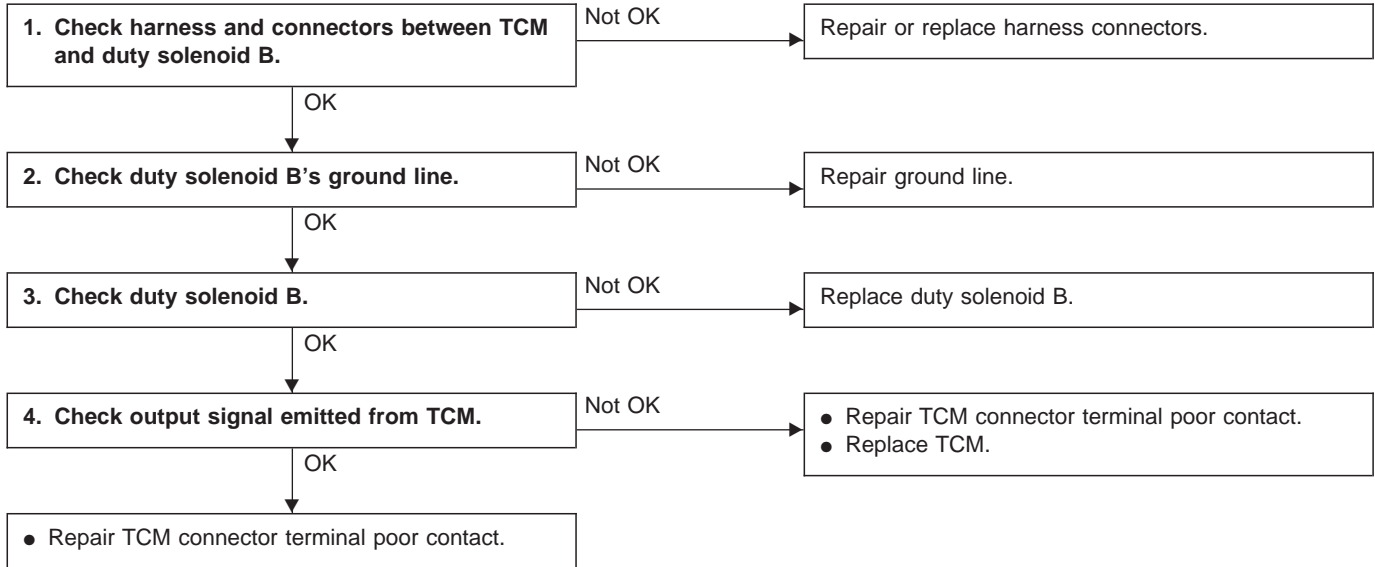
**B: TROUBLE CODE 12  
— DUTY SOLENOID B —**

**DIAGNOSIS:**

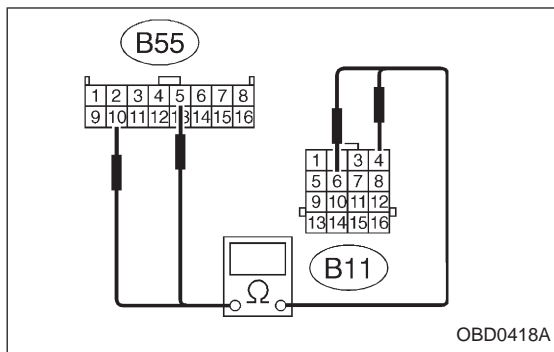
Output signal circuit of duty solenoid B is open or shorted.

**TROUBLE SYMPTOM:**

No “locking-up” (after engine warm-up)



OBD0413



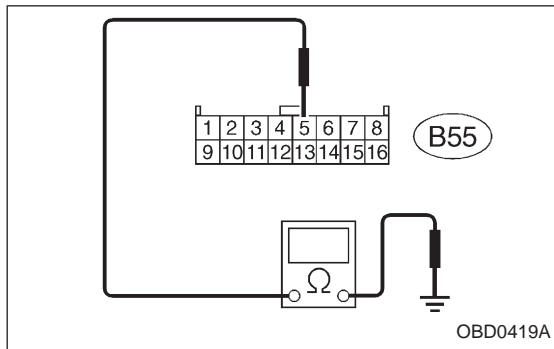
### 1. CHECK HARNESS AND CONNECTORS BETWEEN TCM AND DUTY SOLENOID B.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission connector.

**Connector & terminal / Specified resistance:**

(B55) No. 5 — (B11) No. 6 / 1  $\Omega$ , or less

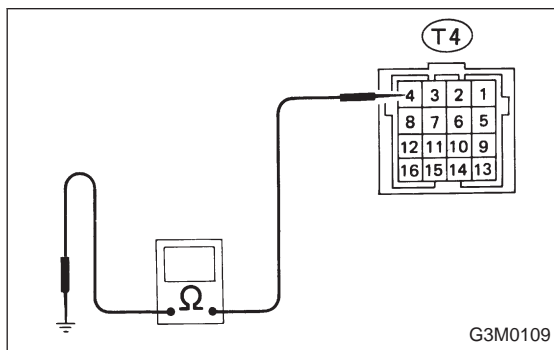
(B55) No. 10 — (B11) No. 4 / 1  $\Omega$ , or less



- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**

(B55) No. 5 — Body / 1 M $\Omega$ , or more

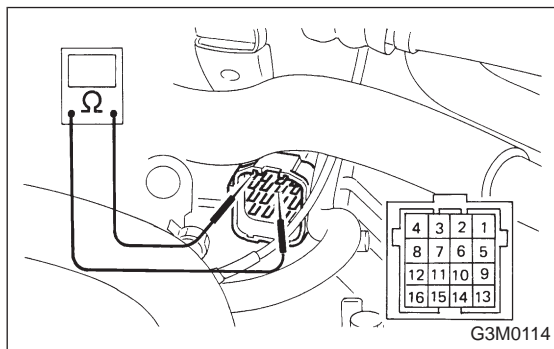


### 2. CHECK DUTY SOLENOID B's GROUND LINE.

Measure resistance between transmission connector receptacle and transmission case.

**Connector & terminal / Specified resistance:**

(T4) No. 4 — Transmission / 1  $\Omega$ , or less

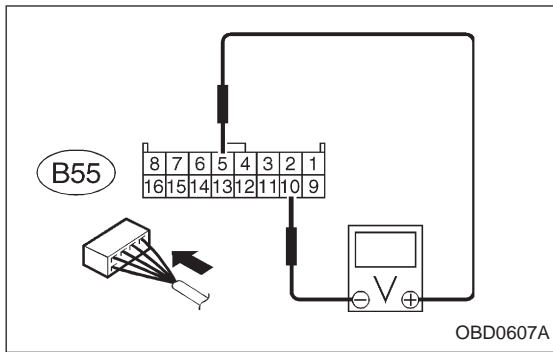


### 3. CHECK DUTY SOLENOID B.

Measure resistance between transmission connector receptacle's terminals.

**Connector & terminal / Specified resistance:**

(T4) No. 6 — No. 4 / 9 — 17  $\Omega$



**4. CHECK OUTPUT SIGNAL EMITTED FROM TCM.**

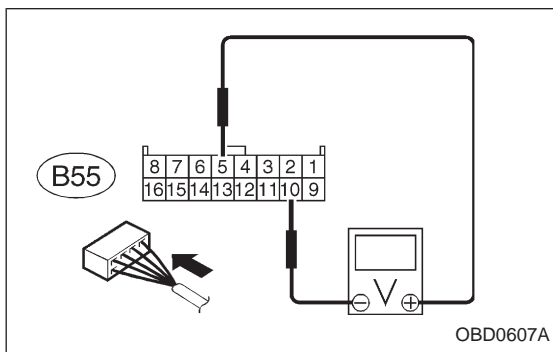
- 1) Connect connectors to TCM and transmission.
- 2) Lift-up the vehicle or set the vehicle on free roller.

**CAUTION:**

**On AWD models, raise all wheels off floor.**

- 3) Start and warm-up the engine and transmission.
- 4) Push the TCS OFF switch to ON. (With TCS models)
- 5) Move selector lever to "D" and slowly increase vehicle speed to 75 km/h (47 MPH).
- 6) Measure voltage between TCM connector terminals.

**Connector & terminal / Specified voltage:**  
**(B55) No. 5 — No. 10 / 8.5 V, or more (when wheels are locked-up.)**

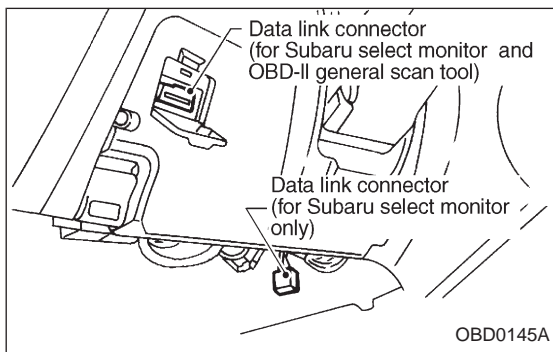


- 7) Return the engine to idling speed and move selector lever to "N".
- 8) Measure voltage between TCM connector terminals.

**Connector & terminal / Specified voltage:**  
**(B55) No. 5 — No. 10 / 0.5 V, or less**

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.  
 <Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>



● **Using Subaru select monitor:**

- (1) Connect connectors to TCM and transmission.
- (2) Lift-up the vehicle or set the vehicle on free roller.

**CAUTION:**

**On AWD models, raise all wheels off floor.**

- (3) Turn ignition switch to OFF.
- (4) Connect the Subaru select monitor to data link connector.
- (5) Turn ignition switch to ON and Subaru select monitor switch to ON.

LUPTY	(F12)
5 %	
	OBD0417

- (6) Start and warm-up the engine and transmission.
- (7) Push the TCS OFF switch to ON. (With TCS models)
- (8) Designate mode using function key.

**Function mode: F12**

- (9) Move selector lever to "D" and slowly increase vehicle speed to 75 km/h (47 MPH).
- (10) Read data on Subaru select monitor.

**SPECIFIED DATA:**

- **95% (Wheel locked-up)**
- **5% (Released)**

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>



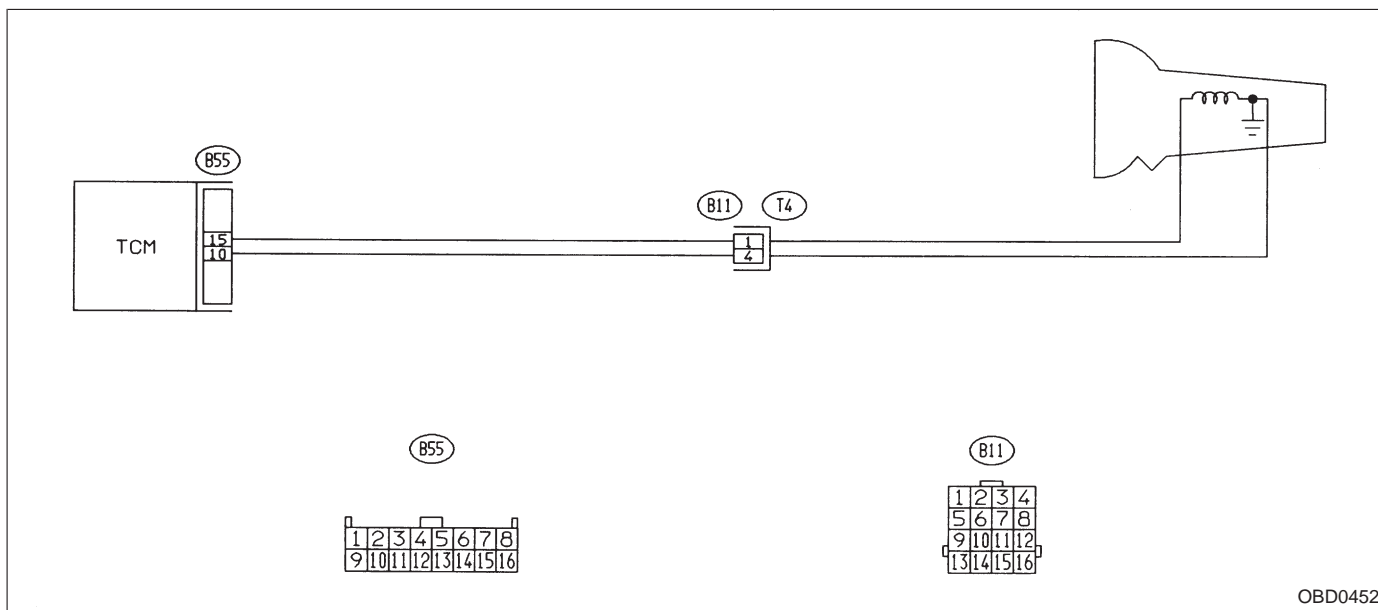
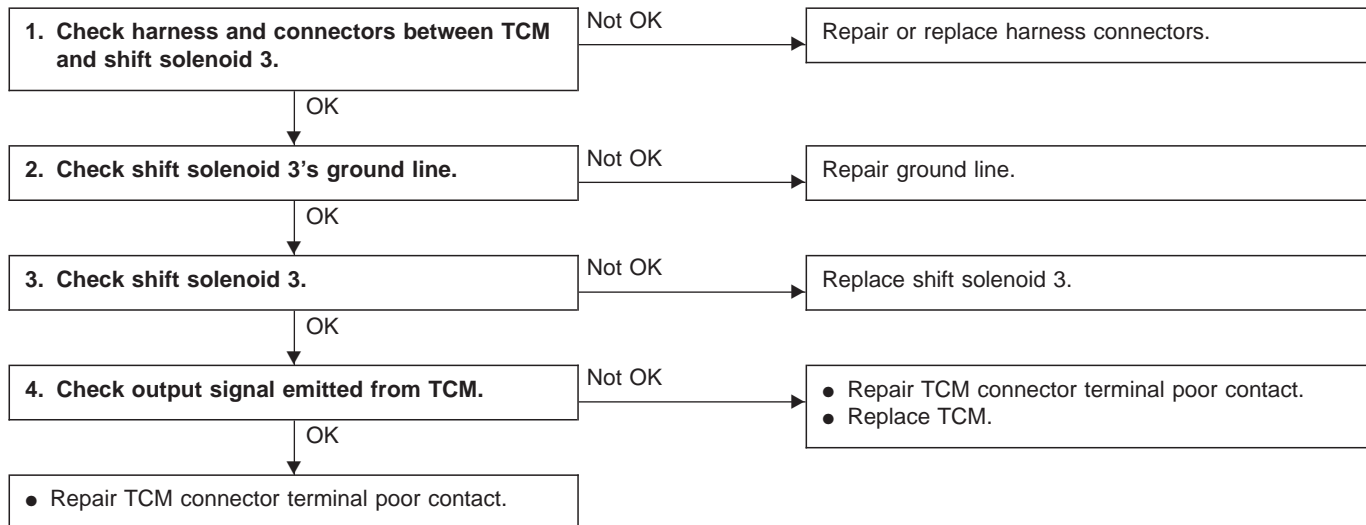
**C: TROUBLE CODE 13  
— SHIFT SOLENOID 3 —**

**DIAGNOSIS:**

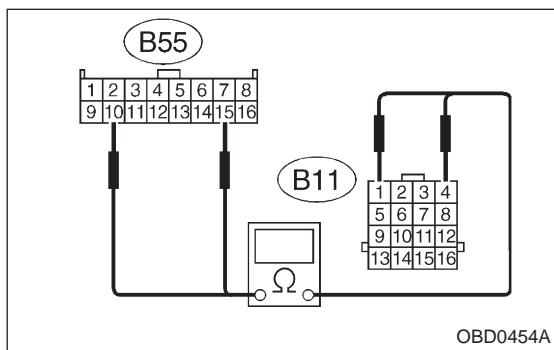
Output signal circuit of shift solenoid 3 is open or shorted.

**TROUBLE SYMPTOM:**

Ineffective engine brake with shift lever in “3”



OBD0452



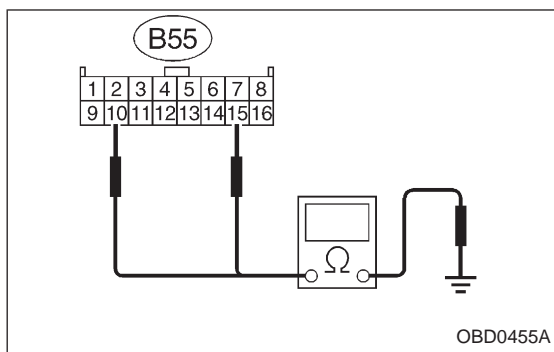
OBD0454A

**1. CHECK HARNESS AND CONNECTORS BETWEEN TCM AND SHIFT SOLENOID 3.**

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission connector.

**Connector & terminal / Specified resistance:**

- (B55) No. 15 — (B11) No. 1 / 1 Ω, or less
- (B55) No. 10 — (B11) No. 4 / 1 Ω, or less

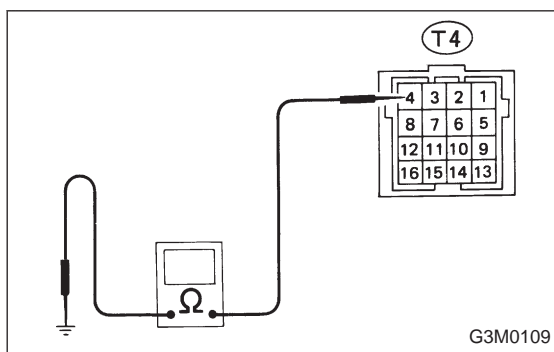


4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**

(B55) No. 15 — Body / 1 MΩ, or more

(B55) No. 10 — Body / 1 MΩ, or more

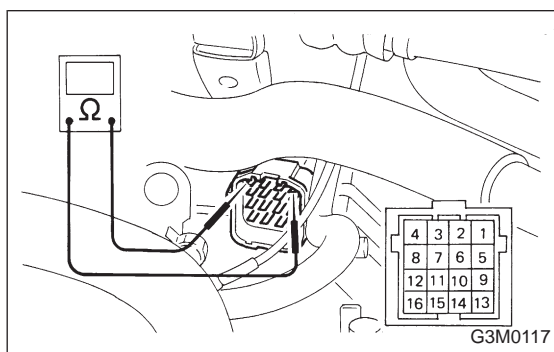


**2. CHECK SHIFT SOLENOID 3's GROUND LINE.**

Measure resistance between transmission connector receptacle and transmission case.

**Connector & terminal / Specified resistance:**

(T4) No. 4 — Transmission / 1 Ω, or less

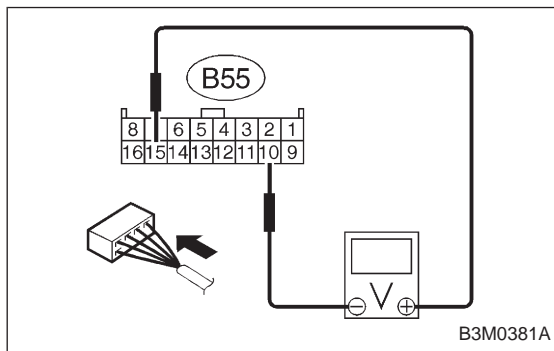


**3. CHECK SHIFT SOLENOID 3.**

Measure resistance between transmission connector receptacle's terminals.

**Connector & terminal / Specified resistance:**

(T4) No. 1 — No. 4 / 20 — 32 Ω



**4. CHECK OUTPUT SIGNAL EMITTED FROM TCM.**

- 1) Connect connectors to TCM and transmission.
- 2) Lift-up or raise the vehicle and support with safety stands.

**CAUTION:**

**On AWD models, raise all wheels off ground.**

- 3) Start and warm-up the engine and transmission.
- 4) Idle the engine.
- 5) Move selector lever to "D".
- 6) Measure voltage between TCM connector terminals.

**Connector & terminal / Specified voltage:**

(B55) No. 15 — No. 10 / 9 V, or more

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>

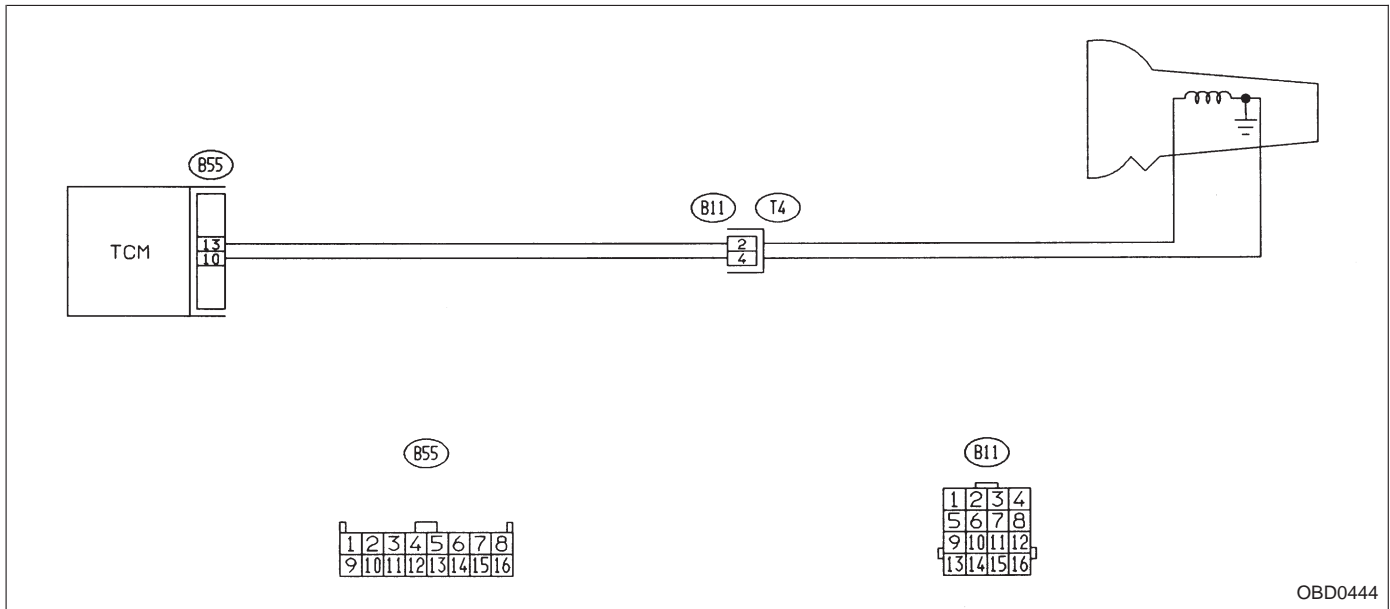
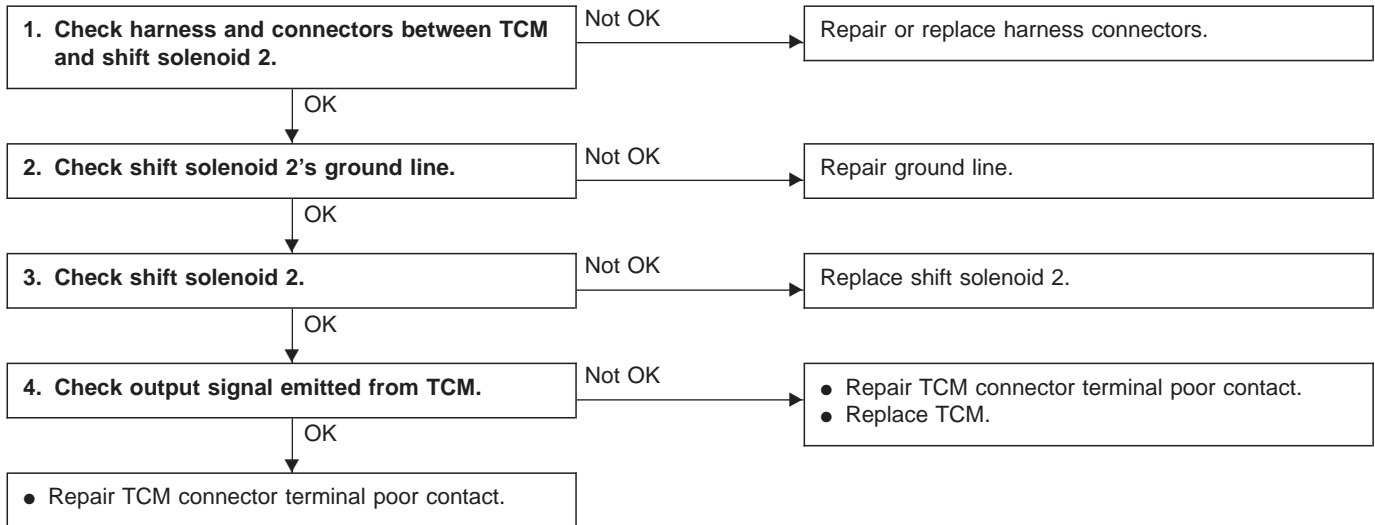
**D: TROUBLE CODE 14**  
**— SHIFT SOLENOID 2 —**

**DIAGNOSIS:**

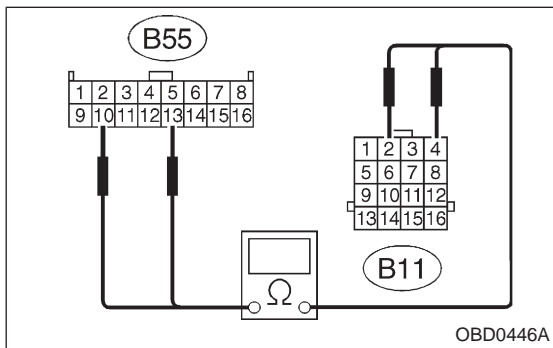
Output signal circuit of shift solenoid 2 is open or shorted.

**TROUBLE SYMPTOM:**

No shift



OBD0444



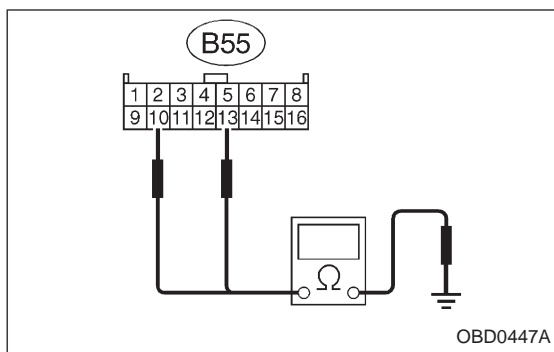
OBD0446A

**1. CHECK HARNESS AND CONNECTORS BETWEEN TCM AND SHIFT SOLENOID 2.**

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission connector.

**Connector & terminal / Specified resistance:**

- (B55) No. 13 — (B11) No. 2 / 1 Ω, or less
- (B55) No. 10 — (B11) No. 4 / 1 Ω, or less

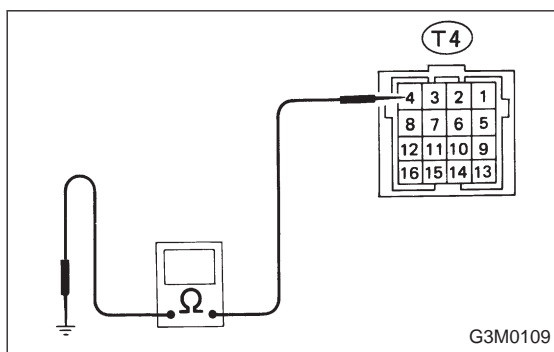


4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**

(B55) No. 13 — Body / 1 MΩ, or more

(B55) No. 10 — Body / 1 MΩ, or more

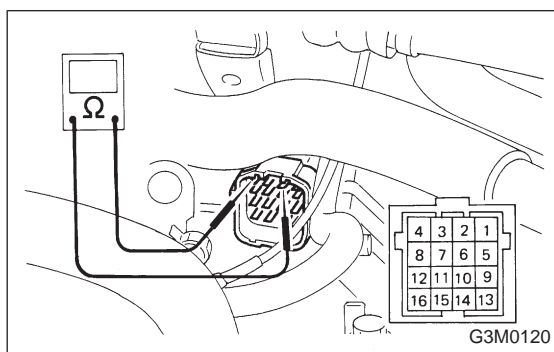


**2. CHECK SHIFT SOLENOID 2's GROUND LINE.**

Measure resistance between transmission connector receptacle and transmission case.

**Connector & terminal / Specified resistance:**

(T4) No. 4 — Transmission / 1 Ω, or less

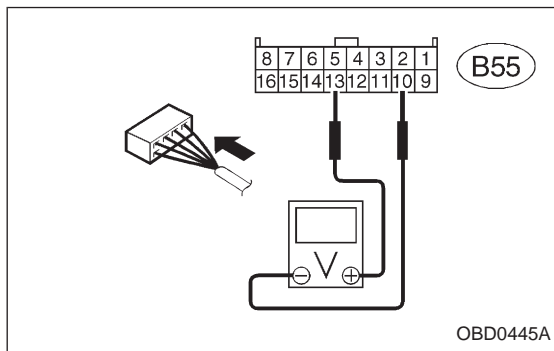


**3. CHECK SHIFT SOLENOID 2.**

Measure resistance between transmission connector receptacle's terminals.

**Connector & terminal / Specified resistance:**

(T4) No. 2 — No. 4 / 20 — 32 Ω



**4. CHECK OUTPUT SIGNAL EMITTED FROM TCM.**

- 1) Connect connectors to TCM and transmission.
- 2) Lift-up or raise the vehicle and support with safety stands.

**CAUTION:**

**On AWD models, raise all wheels off ground.**

- 3) Start and warm-up the engine and transmission.
- 4) Idle the engine.
- 5) Move selector lever to "D".
- 6) Measure voltage between TCM connector terminals.

**Connector & terminal / Specified voltage:**

(B55) No. 13 — No. 10 / 9 V, or more

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>

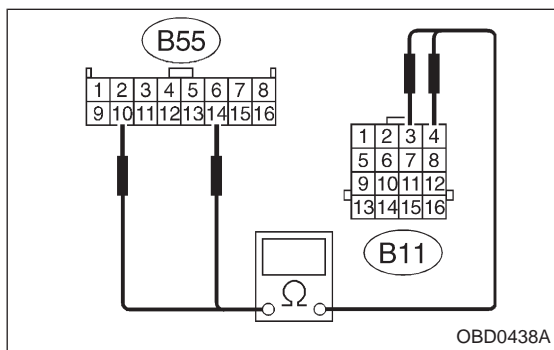
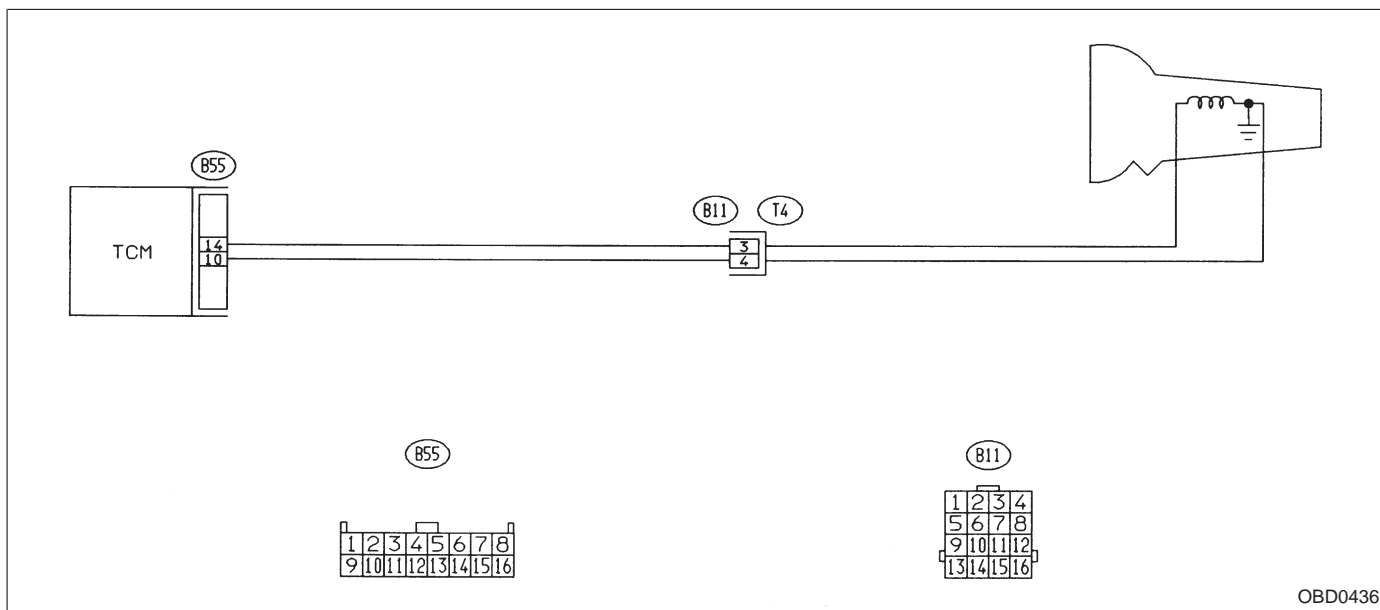
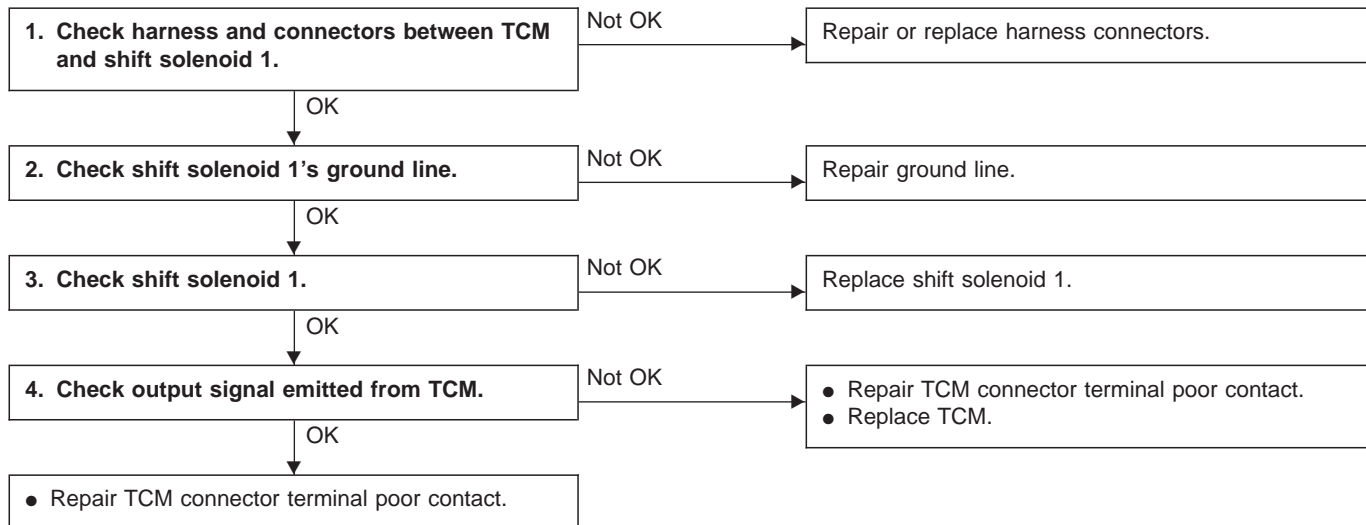
**E: TROUBLE CODE 15  
— SHIFT SOLENOID 1 —**

**DIAGNOSIS:**

Output signal circuit of shift solenoid 1 is open or shorted.

**TROUBLE SYMPTOM:**

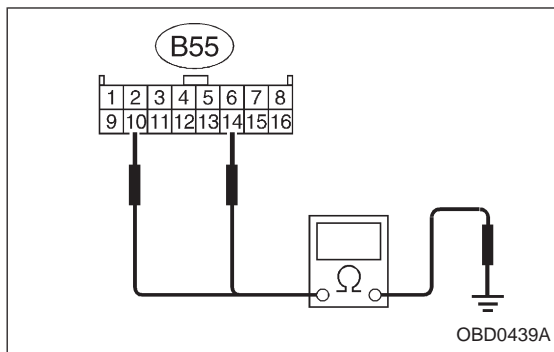
No shift



**1. CHECK HARNESS AND CONNECTORS BETWEEN TCM AND SHIFT SOLENOID 1.**

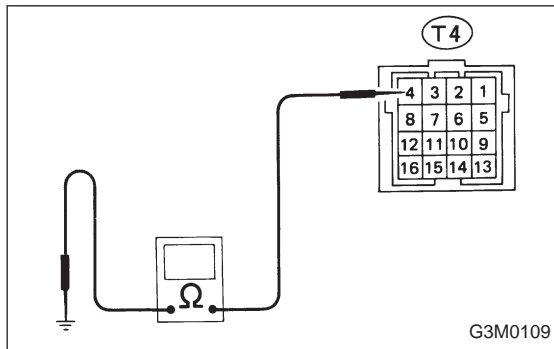
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission connector.

**Connector & terminal / Specified resistance:**  
**(B55) No. 14 — (B11) No. 3 / 1 Ω, or less**  
**(B55) No. 10 — (B11) No. 4 / 1 Ω, or less**



4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

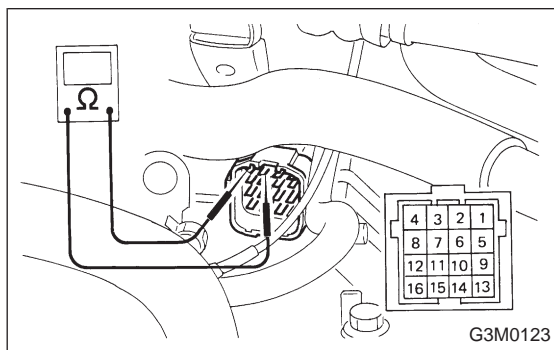
**Connector & terminal / Specified resistance:**  
**(B55) No. 14 — Body / 1 M $\Omega$ , or more**  
**(B55) No. 10 — Body / 1 M $\Omega$ , or more**



## 2. CHECK SHIFT SOLENOID 1's GROUND LINE.

Measure resistance between transmission connector receptacle and transmission case.

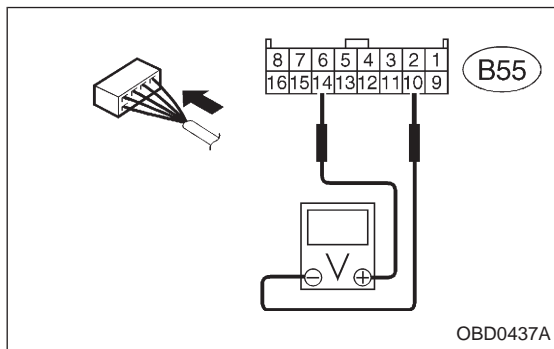
**Connector & terminal / Specified resistance:**  
**(T4) No. 4 — Transmission / 1  $\Omega$ , or less**



## 3. CHECK SHIFT SOLENOID 1.

Measure resistance between transmission connector receptacle's terminals.

**Connector & terminal / Specified resistance:**  
**(T4) No. 3 — No. 4 / 20 — 32  $\Omega$**



## 4. CHECK OUTPUT SIGNAL EMITTED FROM TCM.

- 1) Connect connectors to TCM and transmission.
- 2) Lift-up or raise the vehicle and support with safety stands.

### CAUTION:

**On AWD models, raise all wheels off ground.**

- 3) Start and warm-up the engine and transmission.
- 4) Idle the engine.
- 5) Move selector lever to "D".
- 6) Measure voltage between TCM connector terminals.

**Connector & terminal / Specified voltage:**  
**(B55) No. 14 — No. 10 / 9 V, or more**

### NOTE:

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>

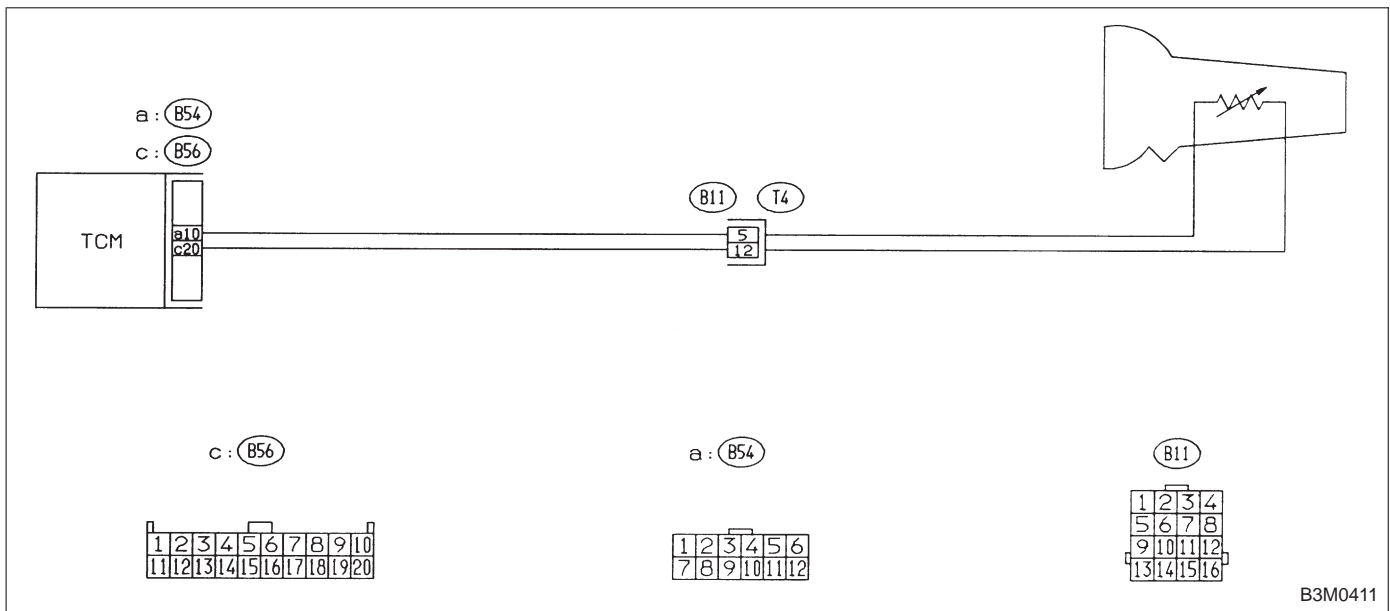
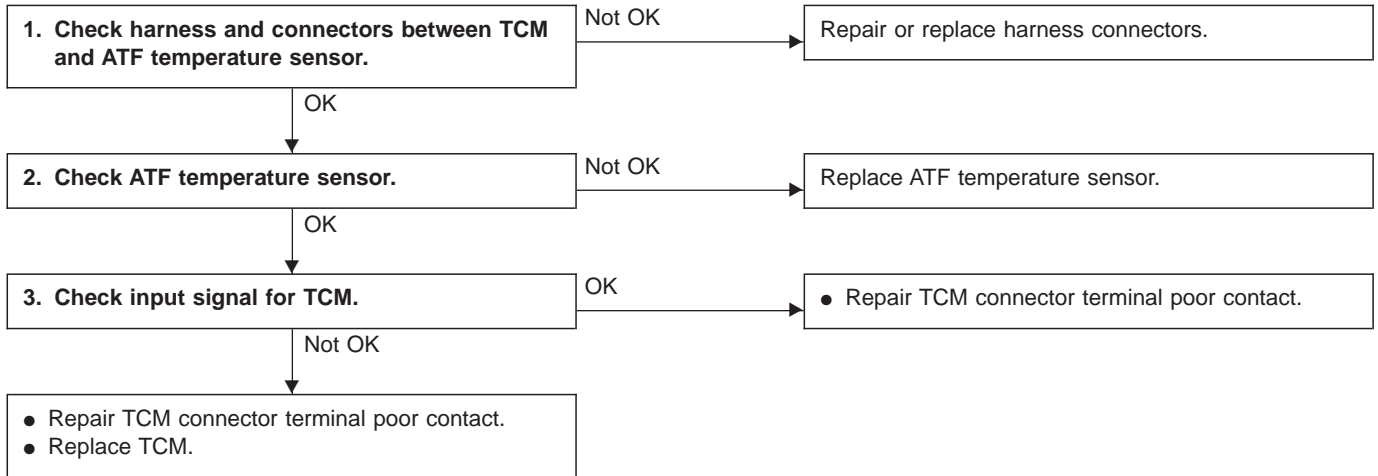
**F: TROUBLE CODE 21  
— ATF TEMPERATURE SENSOR —**

**DIAGNOSIS:**

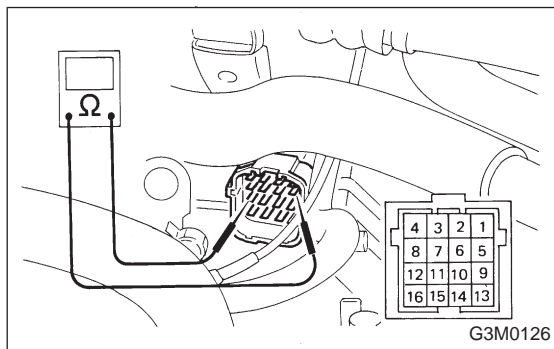
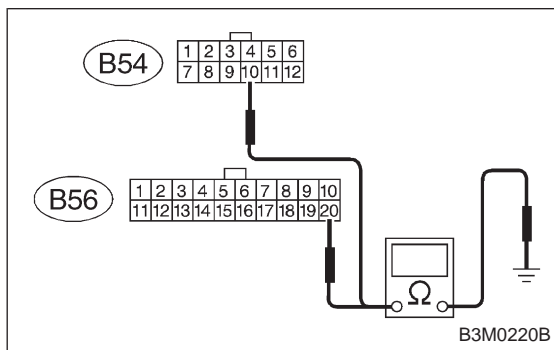
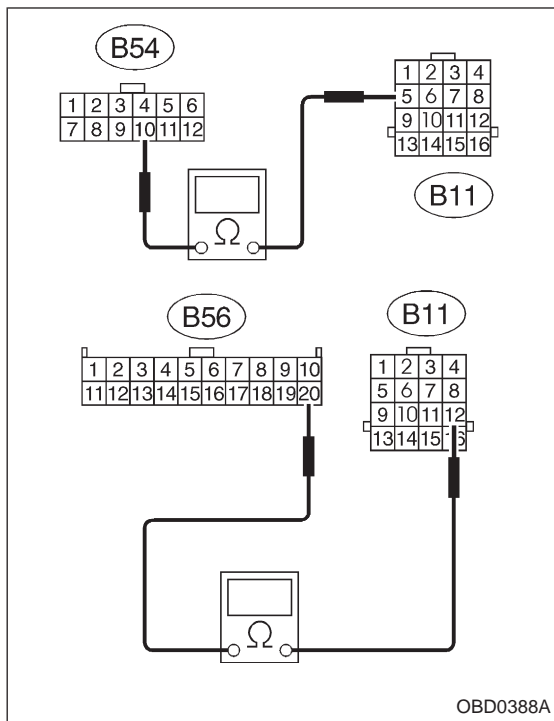
Input signal circuit of TCM to ATF temperature sensor is open or shorted.

**TROUBLE SYMPTOM:**

Excessive shift shock



B3M0411



### 1. CHECK HARNESS AND CONNECTORS BETWEEN TCM AND ATF TEMPERATURE SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission connector.

#### **Connector & terminal / Specified resistance:**

(B54) No. 10 — (B11) No. 5 / 1 Ω, or less

(B56) No. 20 — (B11) No. 12 / 1 Ω, or less

- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

#### **Connector & terminal / Specified resistance:**

(B54) No. 10 — Body / 1 MΩ, or more

(B56) No. 20 — Body / 1 MΩ, or more

### 2. CHECK ATF TEMPERATURE SENSOR.

- 1) Measure resistance between transmission connector receptacle's terminals.

#### **Connector & terminal / Specified resistance:**

(T4) No. 5 — No. 12 /

2.1 — 2.9 kΩ [ATF temperature: 20°C (68°F)]

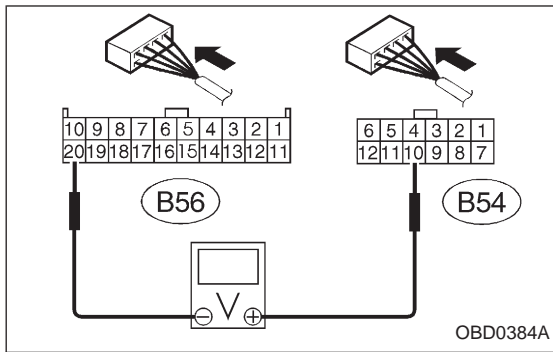
- 2) Connect connectors to transmission and TCM.
- 3) Start and warm-up the engine until ATF temperature has increased.
- 4) Stop the engine and disconnect connector from transmission.
- 5) Measure resistance between transmission connector receptacle's terminals.

#### **Connector & terminal / Specified resistance:**

(T4) No. 5 — No. 12 /

275 — 375 Ω [ATF temperature: 80°C (176°F)]



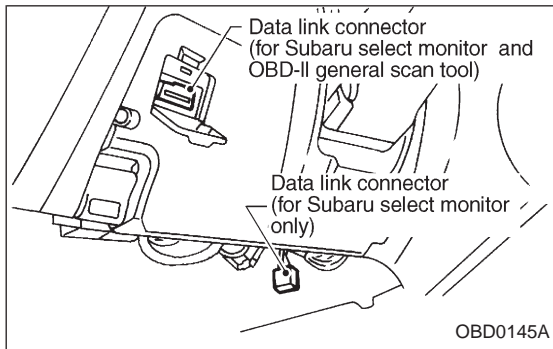


**3. CHECK INPUT SIGNAL FOR TCM.**

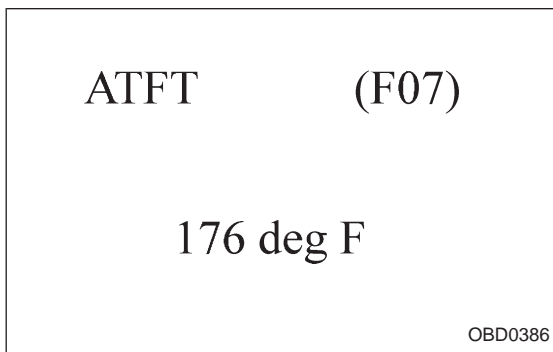
- 1) Turn ignition switch ON (with engine OFF) and measure signal voltage input of TCM.
- 2) Start and warm-up the engine. Measure signal voltage input of TCM.

**Connector & terminal / Specified voltage:**

**(B54) No. 10 — (B56) No. 20 /**  
**3.45±0.55 V [ATF temperature: 20°C (68°F)]**  
**1.2±0.2 V [ATF temperature: 80°C (176°F)]**



- Using Subaru select monitor:
  - (1) Turn ignition switch to OFF.
  - (2) Connect the Subaru select monitor to data link connector.
  - (3) Turn ignition switch to ON and Subaru select monitor switch to ON.

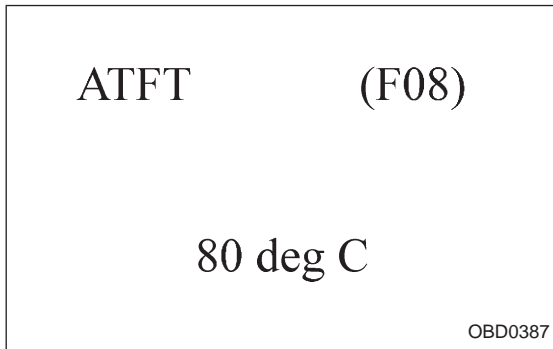


- (4) Start and warm-up the engine.
- (5) Read data on Subaru select monitor.
- (6) Designate mode using function key.

**Function mode: F07 or F08**

**SPECIFIED DATA:**

- F07:**
- Ambient temperature: ±50 deg F
  - ATF temperature: 158 — 230 deg F
  - Open harness: 176 deg F
  - Shorted harness: 320 deg F
- F08:**
- Ambient temperature: ±10 deg C
  - ATF temperature: 70 — 110 deg C
  - Open harness: 80 deg C
  - Shorted harness: 160 deg C

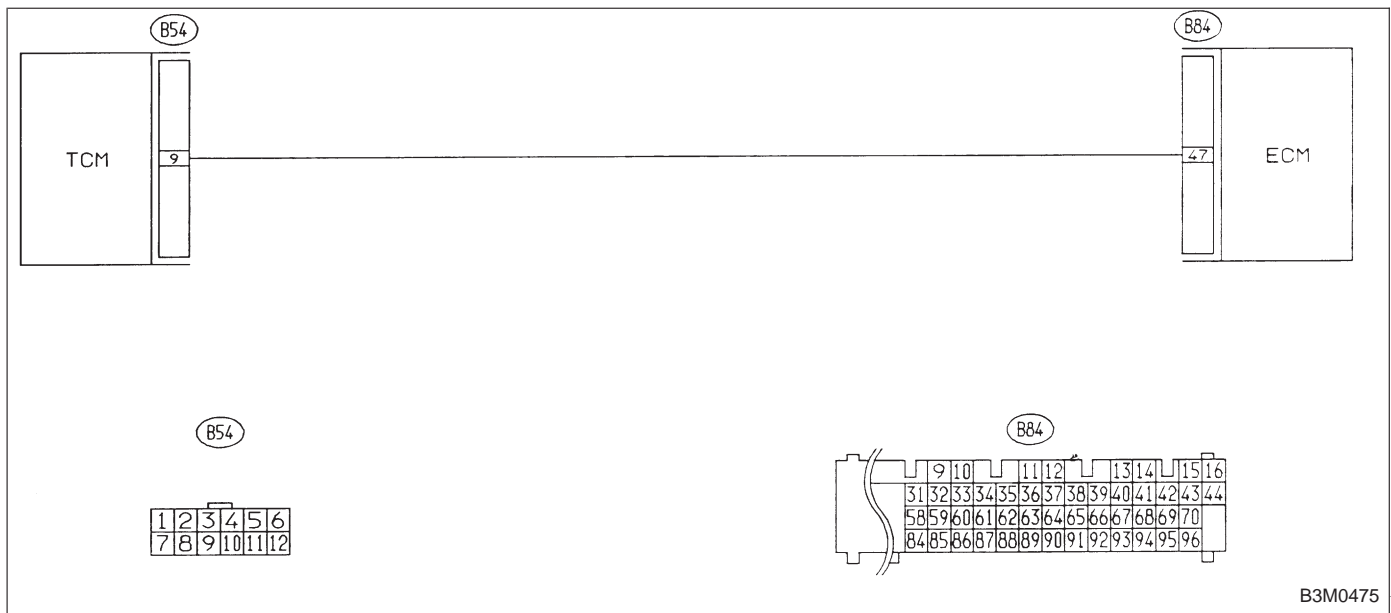
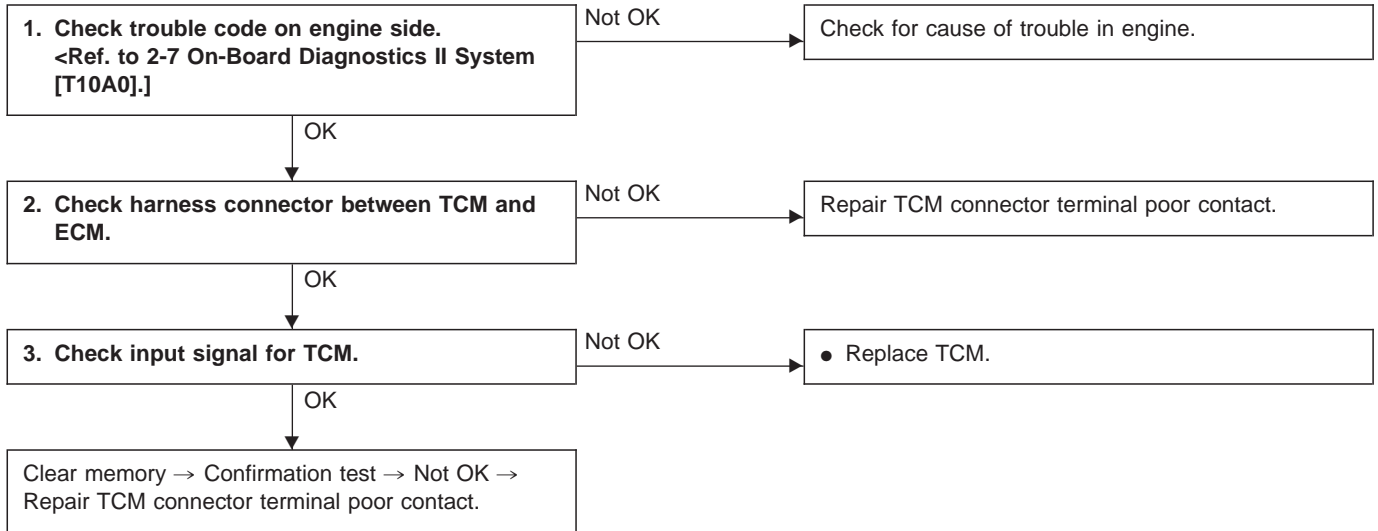


- F07: ATF temperature is indicated in “deg F”.
- F08: ATF temperature is indicated in “deg C”.

**G: TROUBLE CODE 22  
— MASS AIR FLOW SIGNAL —**

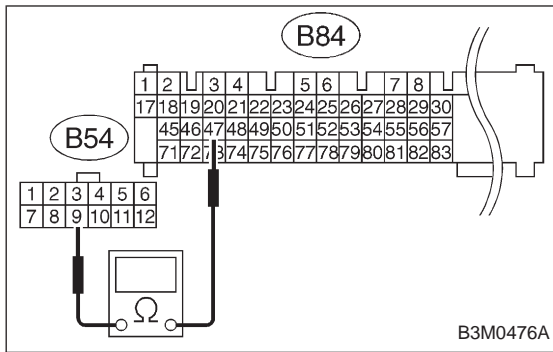
**DIAGNOSIS:**

Input signal circuit of TCM from ECM is open or shorted.



**1. CHECK TROUBLE CODE ON ENGINE SIDE.**

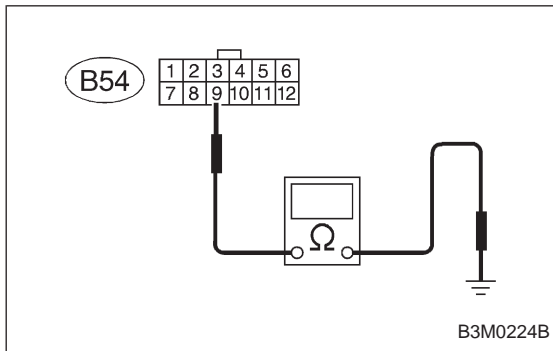
Using Subaru select monitor or OBD-general scan tool, check trouble code of mass air flow sensor on engine side.



**2. CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.**

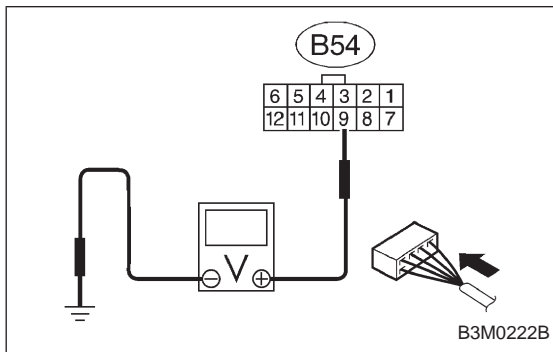
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and ECM.
- 3) Measure resistance of harness connector between TCM and ECM.

**Connector & terminal / Specified resistance:**  
**(B54) No. 9 — (B84) No. 47 / 1 Ω, or less**



- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

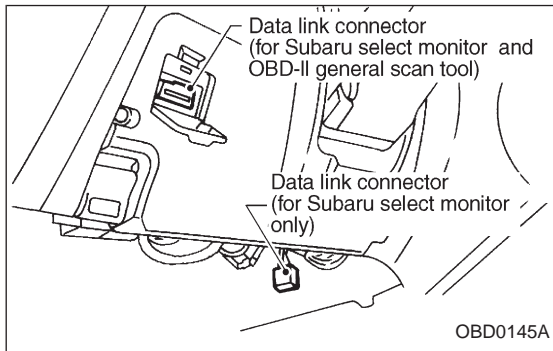
**Connector & terminal / Specified resistance:**  
**(B54) No. 9 — Body / 1 MΩ, or more**



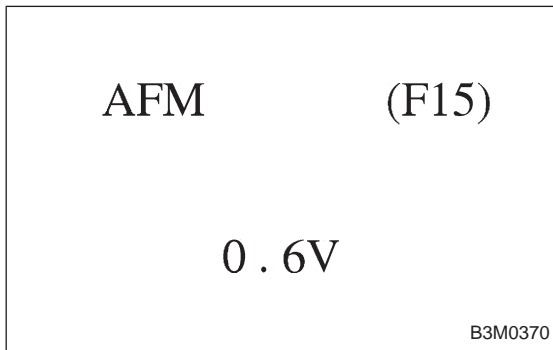
**3. CHECK INPUT SIGNAL FOR TCM.**

- 1) Connect connectors to TCM and ECM.
- 2) Start the engine. (engine idling after warm-up)
- 3) Measure signal voltage between TCM connector terminal and body.

**Connector & terminal / Specified voltage:**  
**Engine warm-up;**  
**(B54) No. 9 — Body / 0.5 — 1.22 V**



- Using Subaru select monitor:
  - (1) Connect connectors to TCM and ECM.
  - (2) Turn ignition switch to OFF.
  - (3) Connect the Subaru select monitor to data link connector.
  - (4) Turn ignition switch to ON and Subaru select monitor switch to ON.
  - (5) Start and warm-up the engine.



- (6) Read data on Subaru select monitor.
- (7) Designate mode using function key.

**Function mode: F15**

**SPECIFIED DATA:**

**0.5 — 1.22 V (Engine warm-up)**

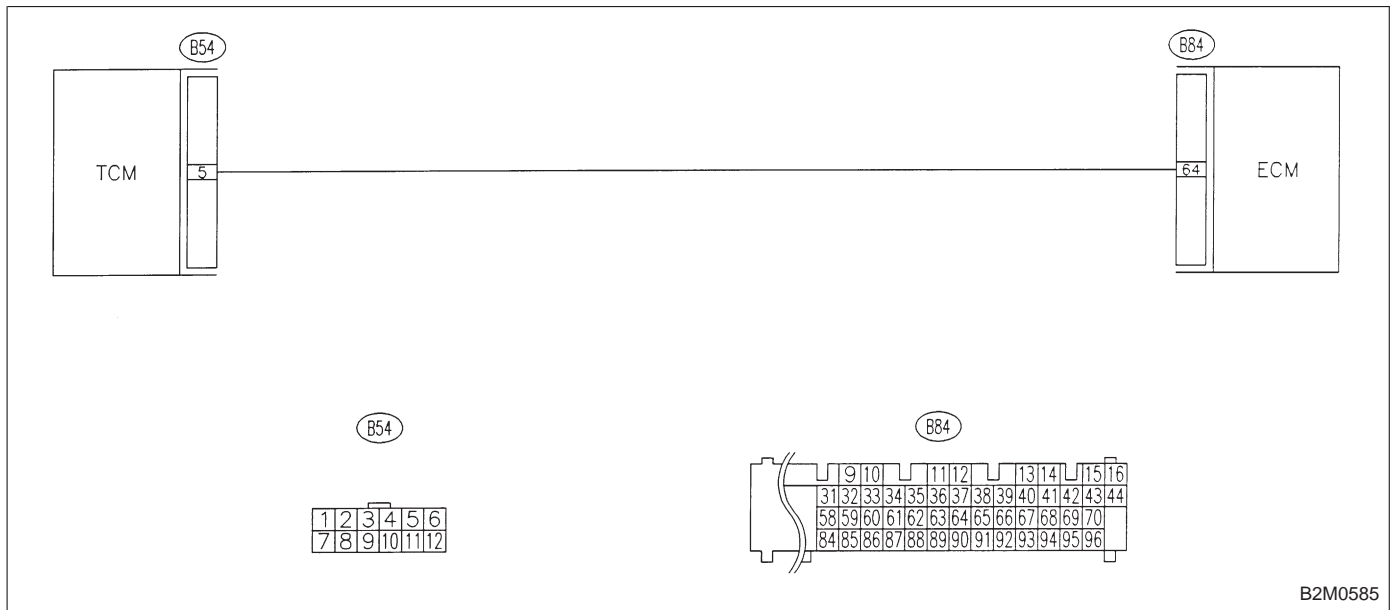
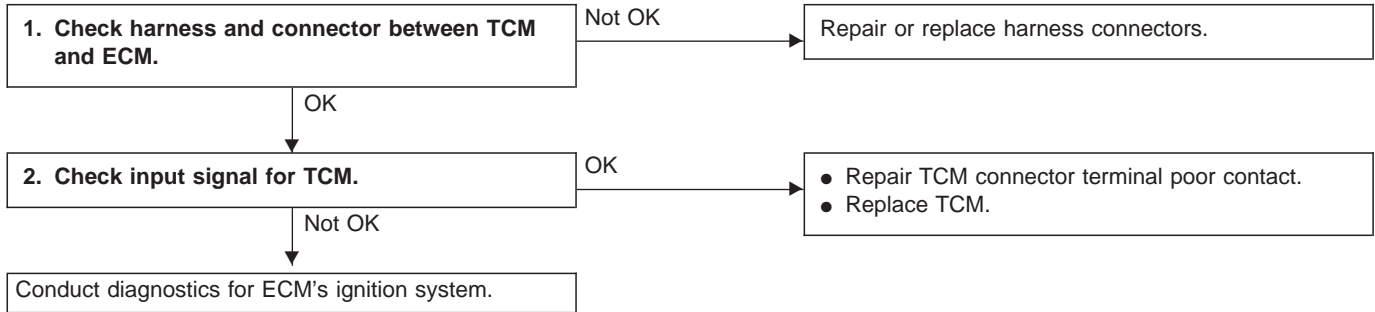
**H: TROUBLE CODE 23  
— ENGINE SPEED SIGNAL —**

**DIAGNOSIS:**

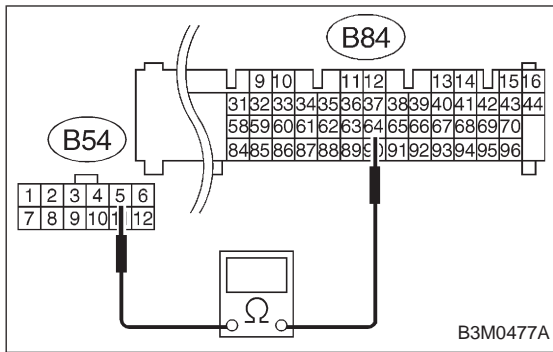
Engine speed input signal circuit is open or shorted.

**TROUBLE SYMPTOM:**

- No lock-up (after engine warm-up)
- AT OIL TEMP indicator remains on when vehicle speed is "0".



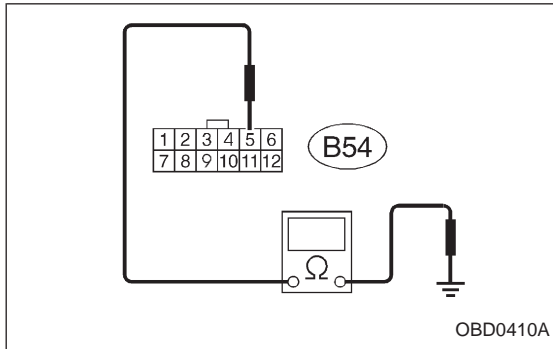
B2M0585



**1. CHECK HARNESS AND CONNECTOR BETWEEN TCM AND ECM.**

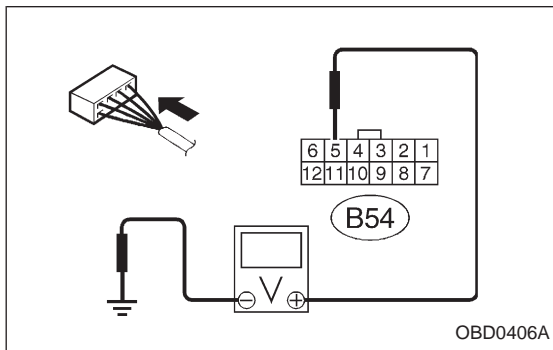
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and ECM.
- 3) Measure resistance of harness connector between TCM and ECM.

**Connector & terminal / Specified resistance:**  
**(B54) No. 5 — (B84) No. 64 / 1 Ω, or less**



- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

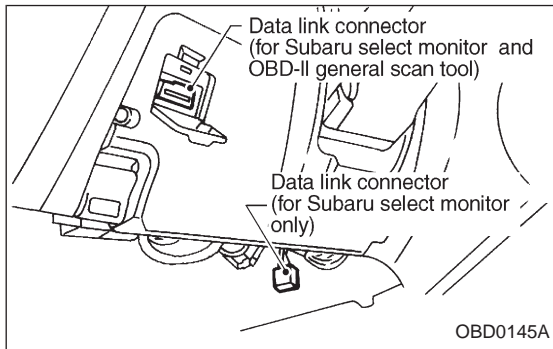
**Connector & terminal / Specified resistance:**  
**(B54) No. 5 — Body / 1 MΩ, or more**



**2. CHECK INPUT SIGNAL FOR TCM.**

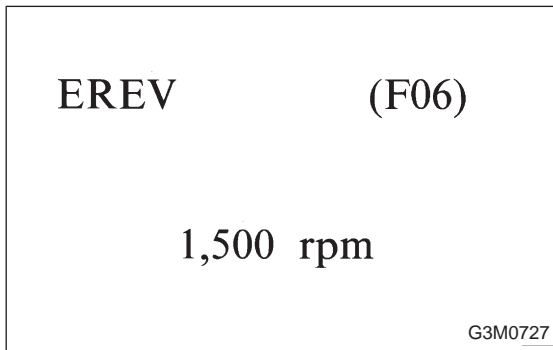
- 1) Connect connectors to ECM and TCM.
- 2) Turn ignition switch ON (with engine OFF).
- 3) Measure signal voltage for TCM.

**Connector & terminal / Specified voltage:**  
**(B54) No. 5 — Body / 10.5 V, or more**



● Using Subaru select monitor:

- (1) Connect connectors to ECM and TCM.
- (2) Turn ignition switch to OFF.
- (3) Connect the Subaru select monitor to data link connector.
- (4) Turn ignition switch to ON and Subaru select monitor switch to ON.



- (5) Start and warm-up the engine.
- (6) Operate at constant engine speed.
- (7) Read data on Subaru select monitor.
- (8) Designate mode using function key.

**Function mode: F06**

**SPECIFIED DATA:**

**Same as tachometer reading (in combination meter)**

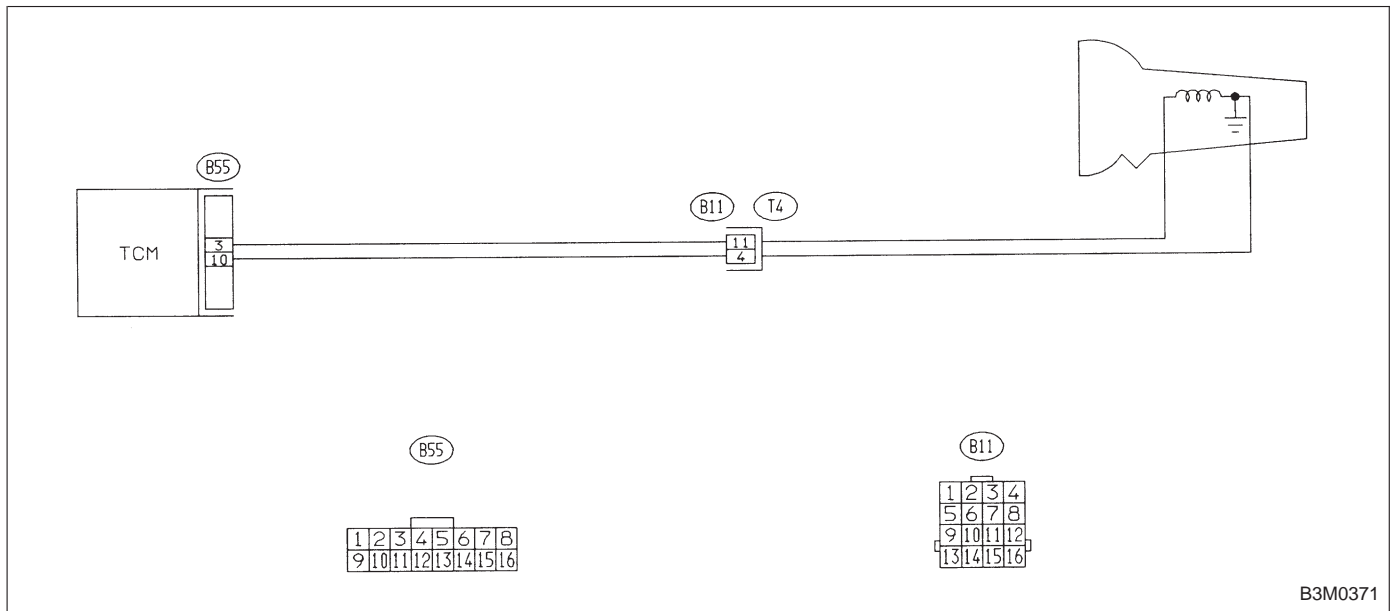
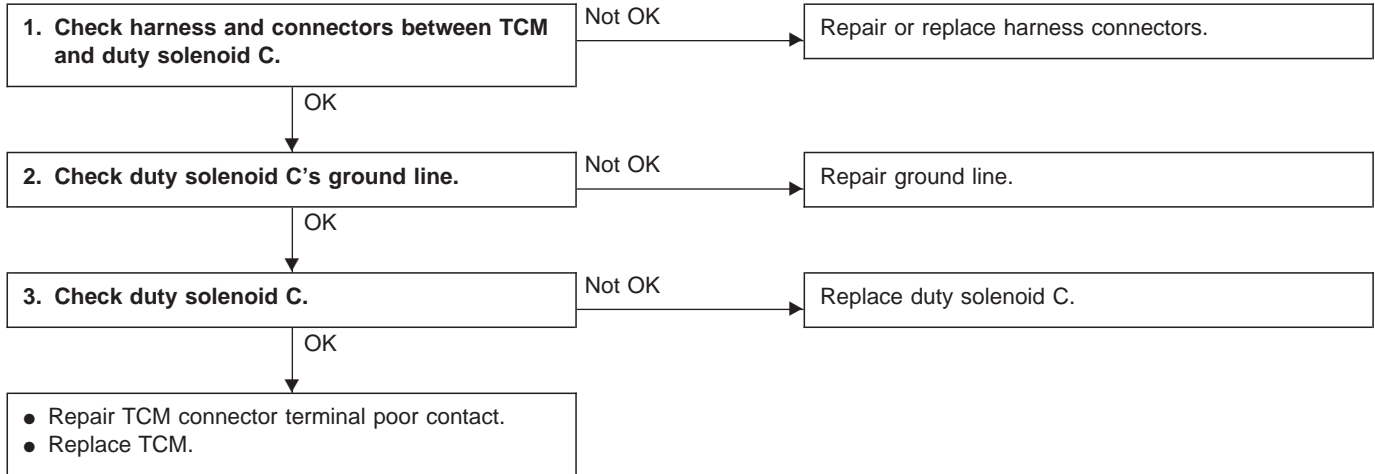
**I: TROUBLE CODE 24  
— DUTY SOLENOID C —**

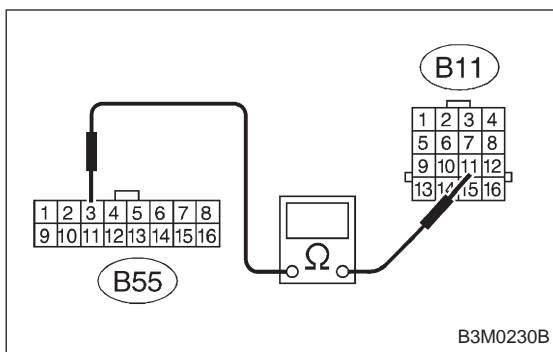
**DIAGNOSIS:**

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

**TROUBLE SYMPTOM:**

Excessive “braking” in tight corners

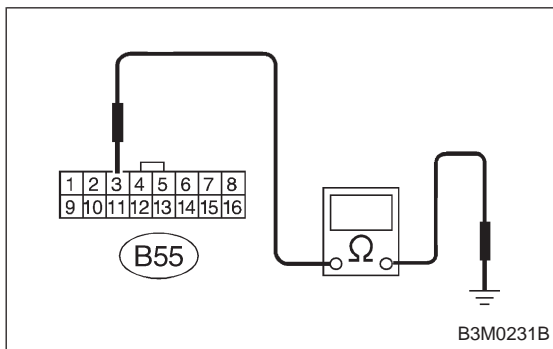




**1. CHECK HARNESS AND CONNECTORS BETWEEN TCM AND DUTY SOLENOID C.**

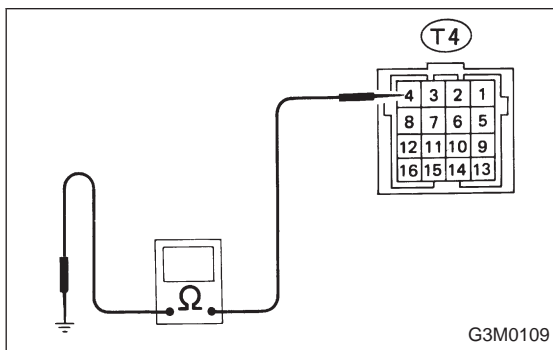
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission.

**Connector & terminal / Specified resistance:**  
**(B55) No. 3 — (B11) No. 11 / 1 Ω, or less**



- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

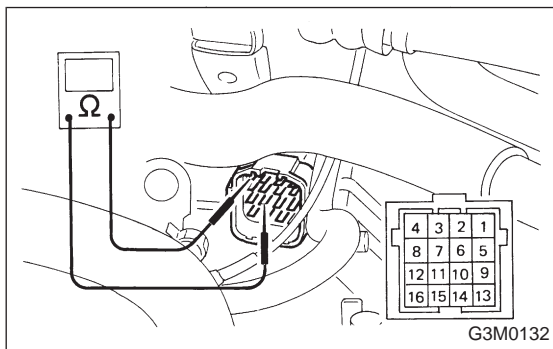
**Connector & terminal / Specified resistance:**  
**(B55) No. 3 — Body / 1 MΩ, or more**



**2. CHECK DUTY SOLENOID C's GROUND LINE.**

Measure resistance between transmission connector receptacle and transmission case.

**Connector & terminal / Specified resistance:**  
**(T4) No. 4 — Transmission / 1 Ω, or less**



**3. CHECK DUTY SOLENOID C.**

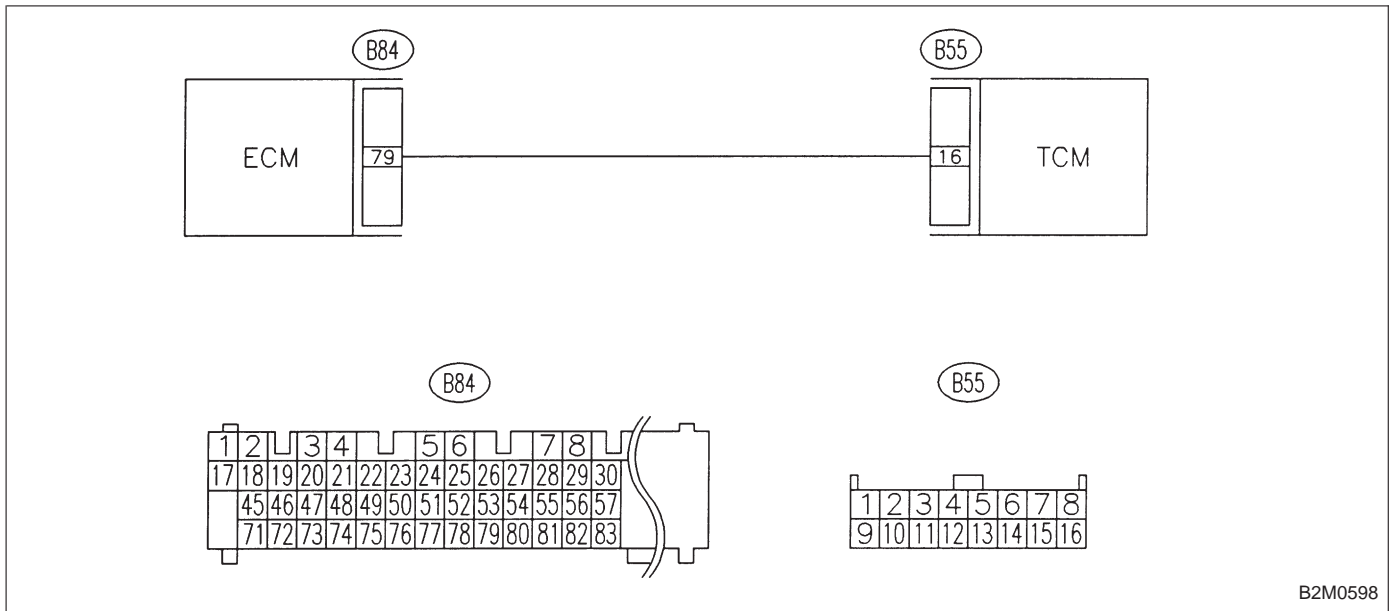
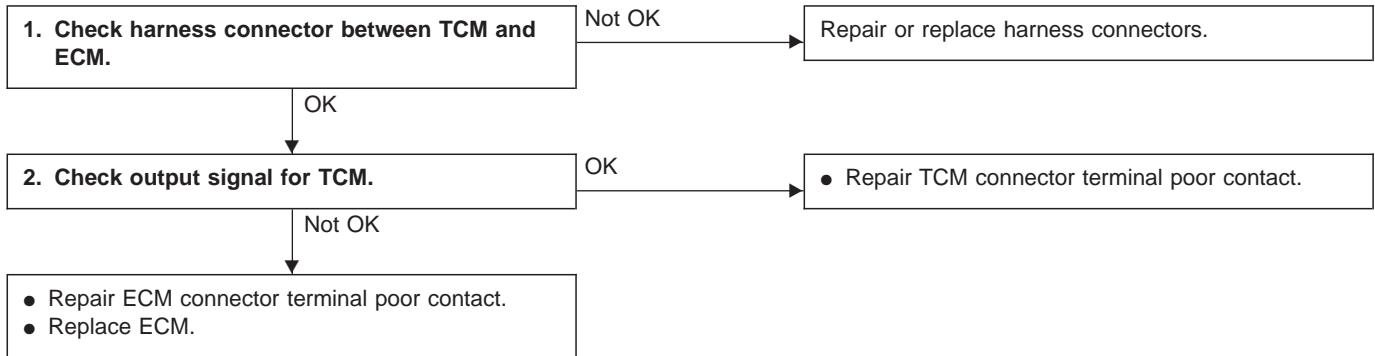
Measure resistance between transmission connector receptacle's terminals.

**Connector & terminal / Specified resistance:**  
**(T4) No. 11 — No. 4 / 9 — 17 Ω**

**J: TROUBLE CODE 25  
— TORQUE CONTROL SIGNAL —**

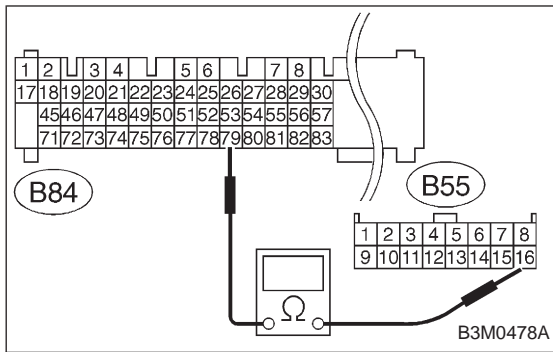
**DIAGNOSIS:**

- Torque control signal is not emitted from TCM.
- The signal circuit is open or shorted.



B2M0598

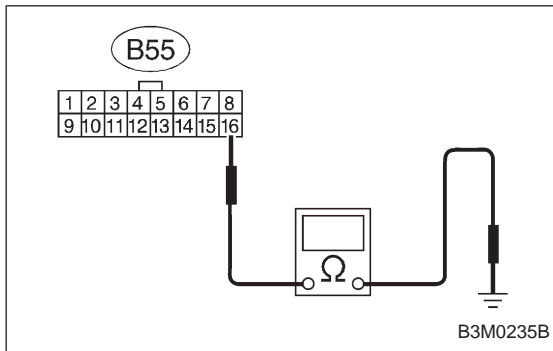




**1. CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.**

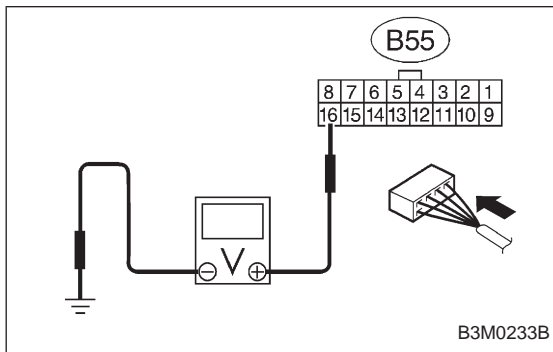
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and ECM.
- 3) Measure resistance of harness connector between TCM and ECM.

**Connector & terminal / Specified resistance:**  
**(B55) No. 16 — (B84) No. 79 / 1 Ω, or less**



- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**  
**(B55) No. 16 — Body / 1 MΩ, or more**



**2. CHECK OUTPUT SIGNAL FOR TCM.**

- 1) Connect connectors to TCM and ECM.
- 2) Turn ignition switch to ON.
- 3) Measure signal voltage between TCM connector terminal and body.

**Connector & terminal / Specified voltage:**  
**(B55) No. 16 — Body / 5±1 V**

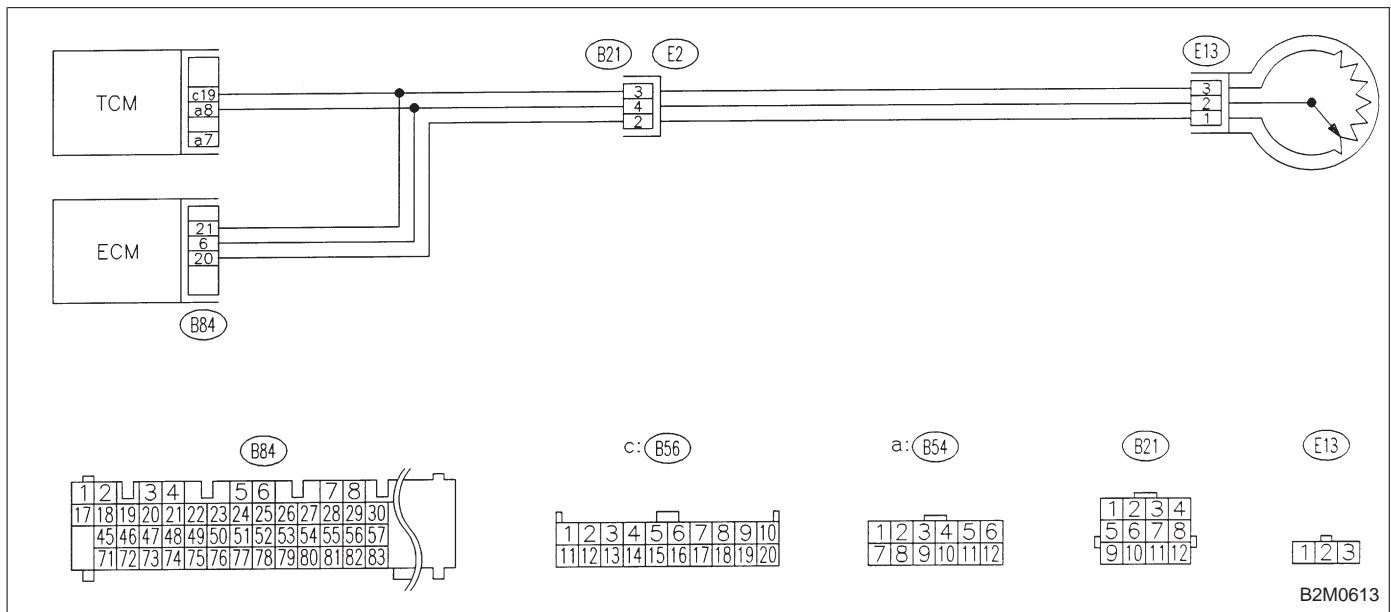
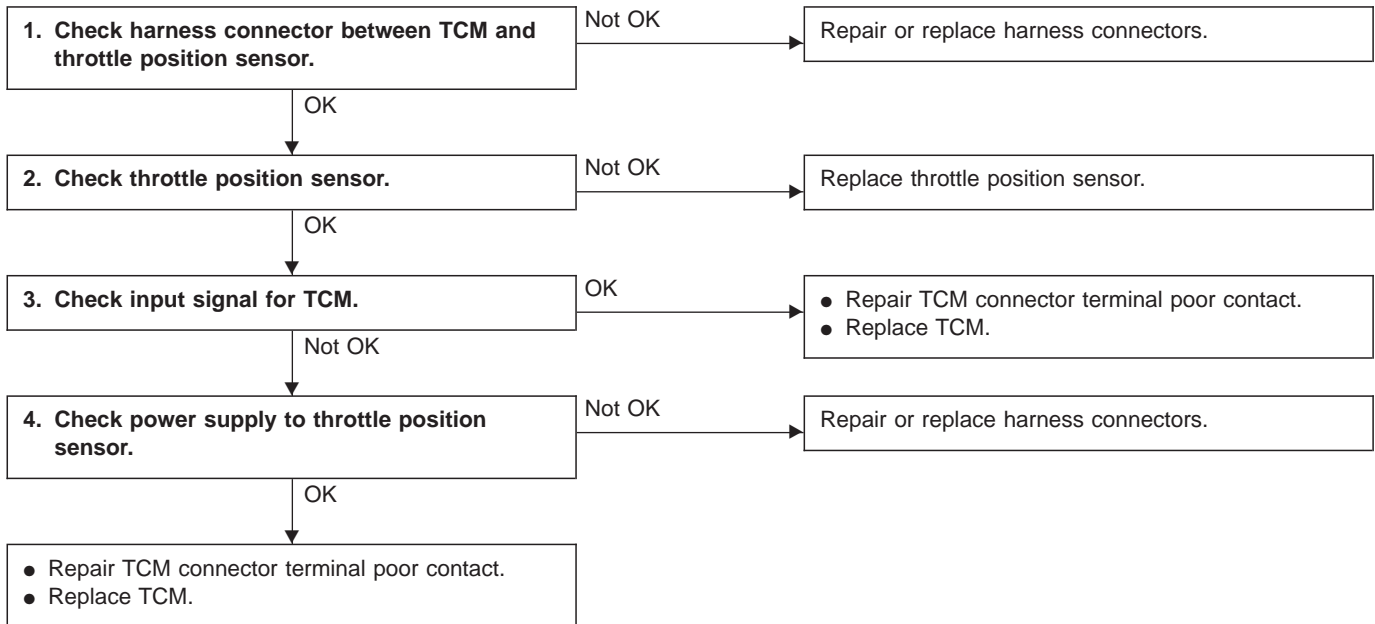
**K: TROUBLE CODE 31  
— THROTTLE POSITION SENSOR —**

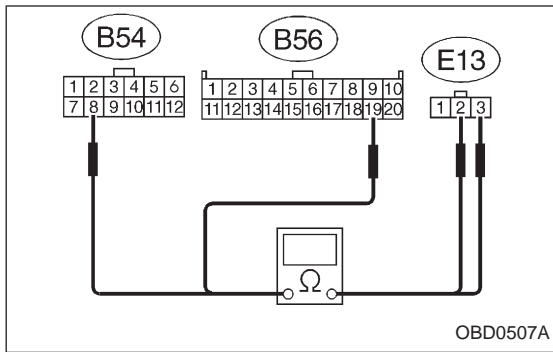
**DIAGNOSIS:**

Input signal circuit of throttle position sensor is open or shorted.

**TROUBLE SYMPTOM:**

Shift point too high or too low; engine brake not effected in "3" range; excessive shift shock; excessive tight corner "braking"

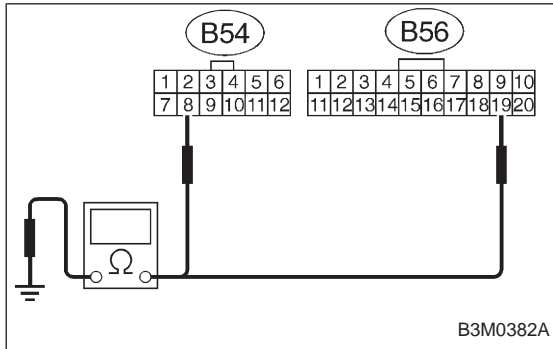




**1. CHECK HARNESS CONNECTOR BETWEEN TCM AND THROTTLE POSITION SENSOR.**

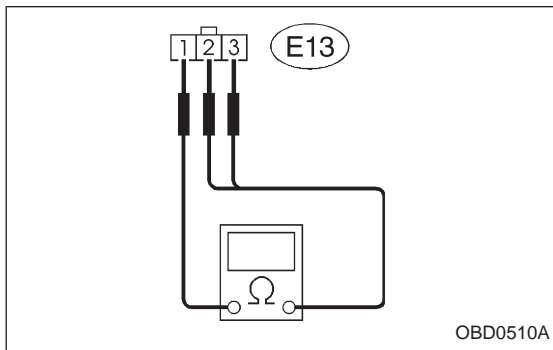
- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from TCM and throttle position sensor.
- 3) Measure resistance of harness connector between TCM and throttle position sensor.

**Connector & terminal / Specified resistance:**  
**(B54) No. 8 — (E13) No. 2 / 1 Ω, or less**  
**(B56) No. 19 — (E13) No. 3 / 1 Ω, or less**



- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

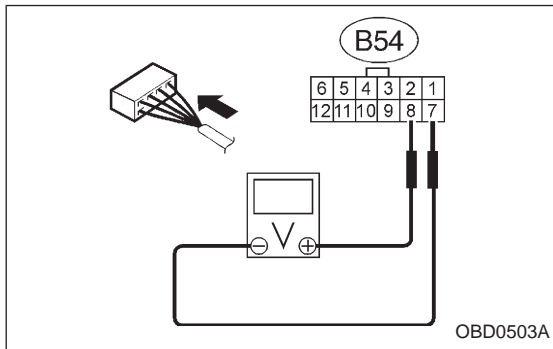
**Connector & terminal / Specified resistance:**  
**(B54) No. 8 — Body / 1 MΩ, or more**  
**(B56) No. 19 — Body / 1 MΩ, or more**



**2. CHECK THROTTLE POSITION SENSOR.**

Measure resistance between throttle position sensor terminals.

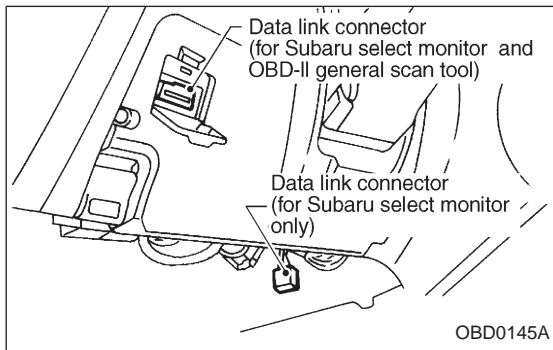
**Terminals / Specified resistance:**  
**(E13) No. 1 — No. 2 / 0.3 — 0.7 kΩ**  
**(Throttle fully closed.)**  
**3 — 6 kΩ**  
**(Throttle fully open.)**  
**(E13) No. 1 — No. 3 / 3.5 — 6.5 kΩ**



**3. CHECK INPUT SIGNAL FOR TCM.**

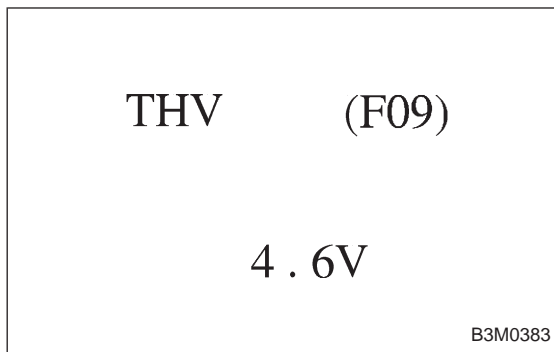
- 1) Connect connectors to TCM and throttle position sensor.
- 2) Turn ignition switch ON (with engine OFF).
- 3) Measure signal voltage input emitted from throttle position sensor with accelerator pedal fully depressed.

**Connector & terminal / Specified voltage:**  
**(B54) No. 8 — No. 7 /**  
**0.5±0.2 V (Throttle fully closed.)**  
**4.6±0.3 V (Throttle fully open.)**



● Using Subaru select monitor:

- (1) Connect connectors to TCM and throttle position sensor.
- (2) Turn ignition switch to OFF.
- (3) Connect the Subaru select monitor to data link connector.
- (4) Turn ignition switch to ON and Subaru select monitor switch to ON.



- (5) Designate mode using function key.
- (6) Read data on Subaru select monitor.

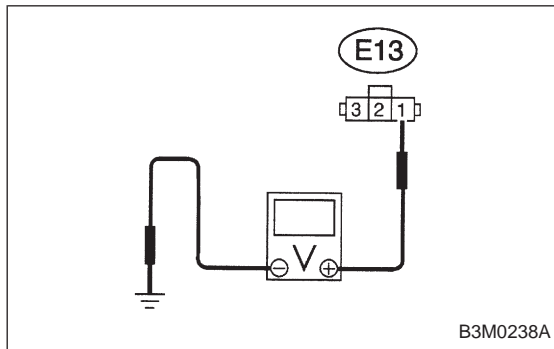
**Function mode: F09**

**SPECIFIED DATA:**

**0.5±0.2 V (Throttle fully closed.)**

**4.6±0.3 V (Throttle fully open.)**

**[Must be changed correspondingly with accelerator pedal operation (from "released" to "depressed" position).]**

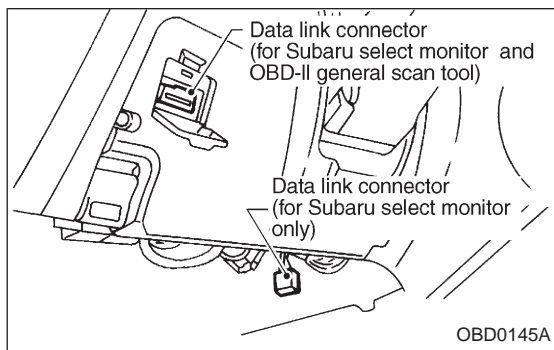


#### 4. CHECK POWER SUPPLY TO THROTTLE POSITION SENSOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from throttle position sensor.
- 3) Turn ignition switch to ON.
- 4) Measure power supply voltage to throttle position sensor.

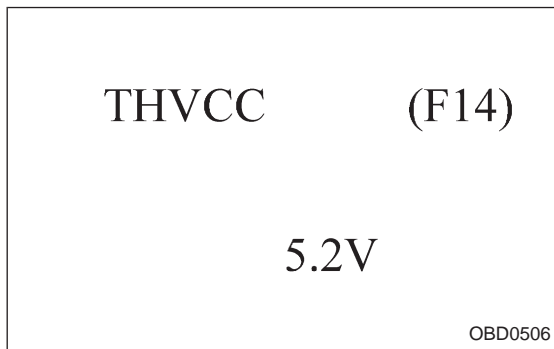
**Connector & terminal / Specified voltage:**

**(E13) No. 1 — Body / 5.12±0.1 V**



- Using Subaru select monitor:

- (1) Turn ignition switch to OFF.
- (2) Connect the Subaru select monitor to data link connector.
- (3) Turn ignition switch to ON and Subaru select monitor switch to ON.



- (4) Designate mode using function key.
- (5) Read data on Subaru select monitor.

**Function mode: F14**

**SPECIFIED DATA:**

**5.12±0.1 V**

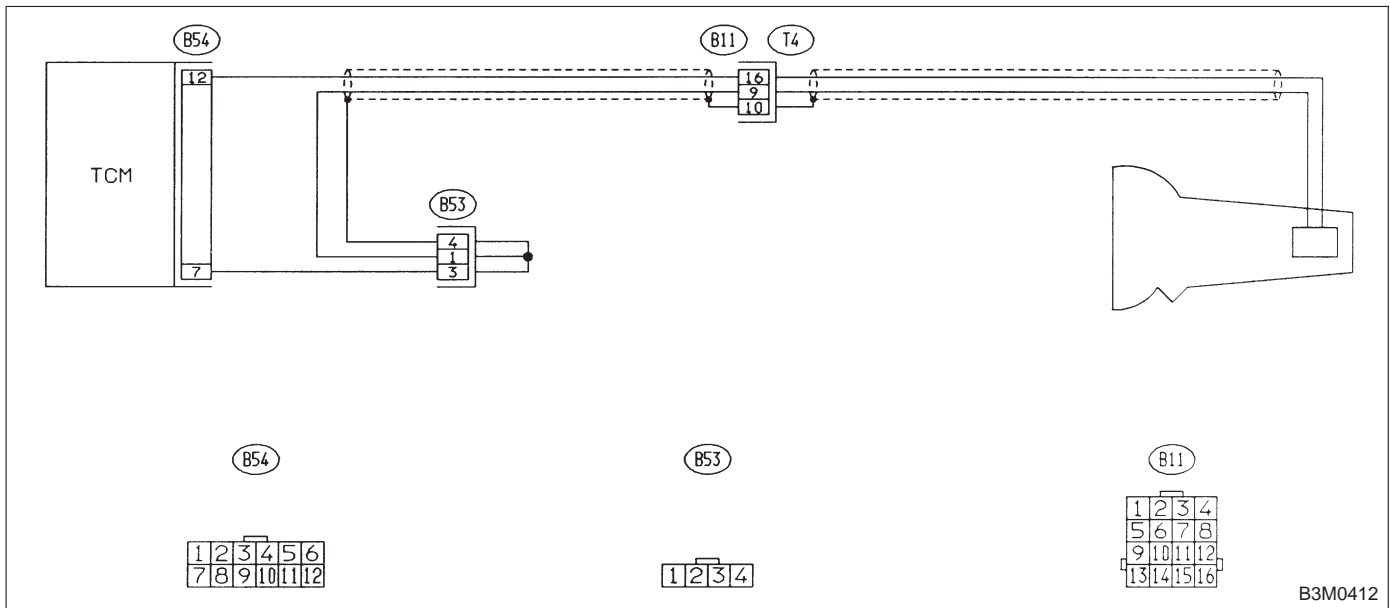
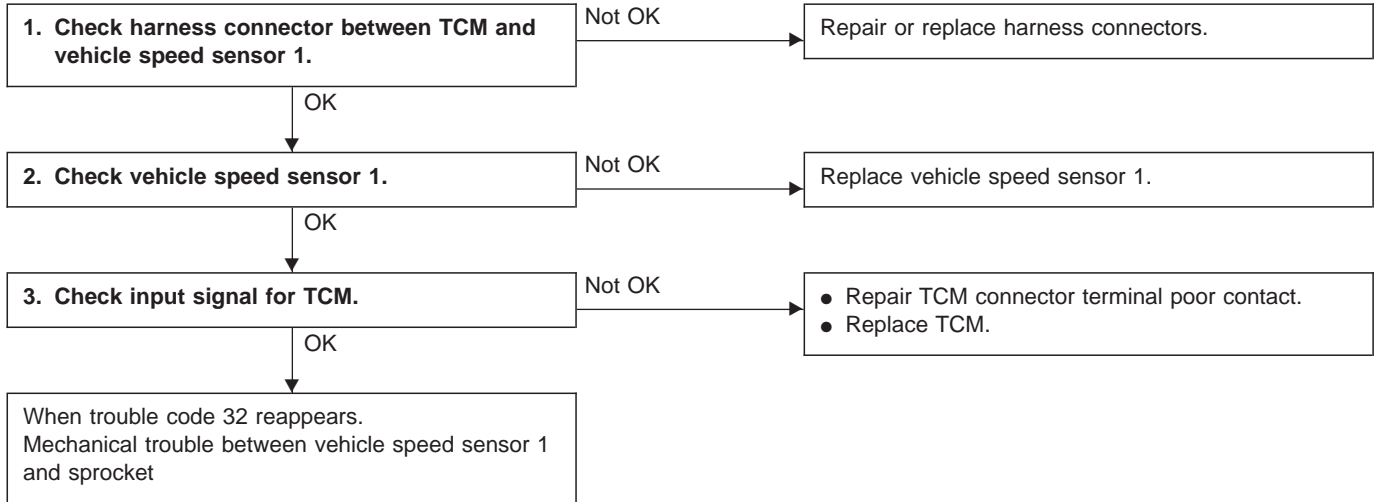
**L: TROUBLE CODE 32  
— VEHICLE SPEED SENSOR 1 —**

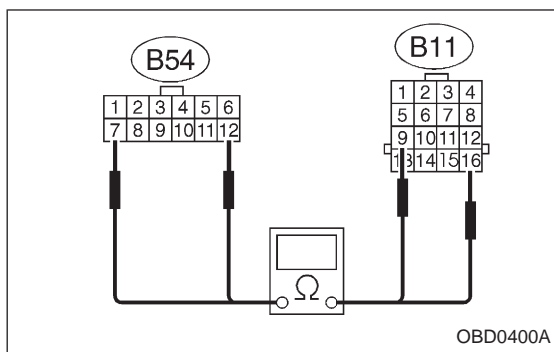
**DIAGNOSIS:**

Input signal circuit of TCM is open or shorted.

**TROUBLE SYMPTOM:**

No locking-up or excessive tight corner “braking”





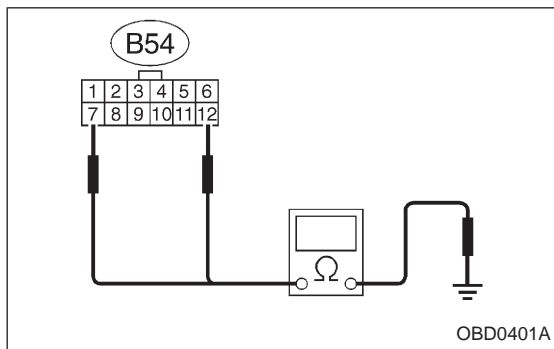
### 1. CHECK HARNESS CONNECTOR BETWEEN TCM AND VEHICLE SPEED SENSOR 1.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission connector.

**Connector & terminal / Specified resistance:**

(B54) No. 12 — (B11) No. 16 / 1  $\Omega$ , or less

(B54) No. 7 — (B11) No. 9 / 1  $\Omega$ , or less

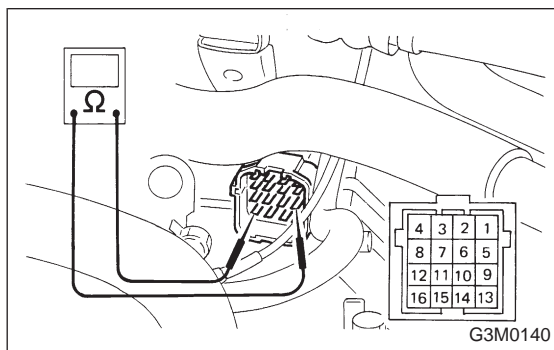


- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**

(B54) No. 7 — Body / 1 M $\Omega$ , or more

(B54) No. 12 — Body / 1 M $\Omega$ , or more

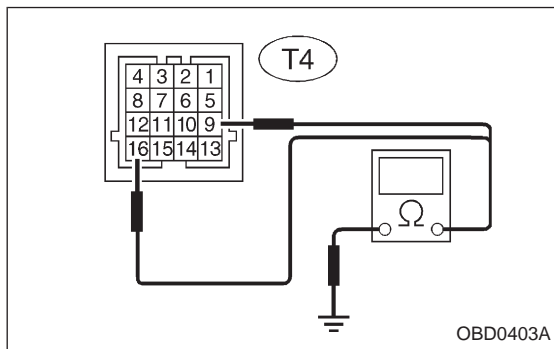


### 2. CHECK VEHICLE SPEED SENSOR 1.

- 1) Measure resistance between transmission connector receptacle's terminals.

**Connector & terminal / Specified resistance:**

(T4) No. 16 — No. 9 / 450 — 720  $\Omega$

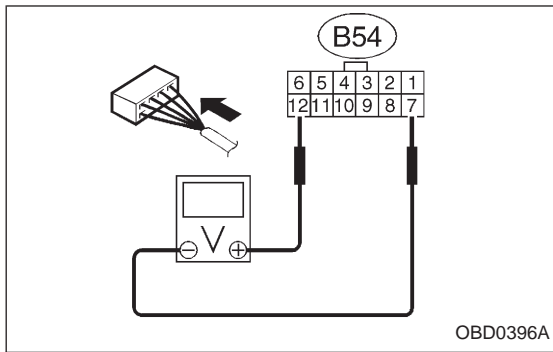


- 2) Measure resistance of harness connector between transmission connector and transmission case to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**

(T4) No. 16 — Transmission / 1 M $\Omega$ , or more

(T4) No. 9 — Transmission / 1 M $\Omega$ , or more



**3. CHECK INPUT SIGNAL FOR TCM.**

- 1) Connect connectors to TCM and transmission.
- 2) Lift-up or raise the vehicle and place safety stands.

**CAUTION:**

**On AWD models, raise all wheels off floor.**

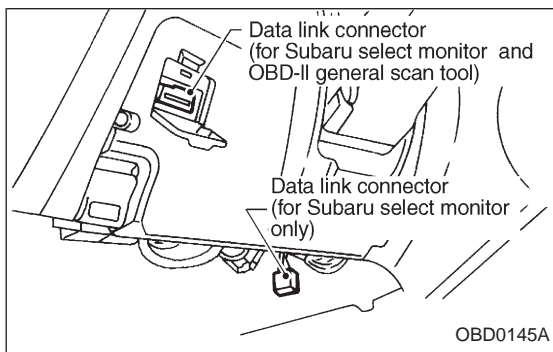
- 3) Push the TCS OFF switch to ON. (With TCS models)
- 4) Start the engine and set vehicle in 20 km/h (12 MPH) condition.
- 5) Measure voltage between TCM connector terminals.

**Connector & terminal / Specified voltage:**  
**(B54) No. 12 — No. 7 / AC 1 V, or more**

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>



● Using Subaru select monitor:

- (1) Connect connectors to TCM and transmission.
- (2) Turn ignition switch to OFF.
- (3) Connect the Subaru select monitor to data link connector.
- (4) Lift-up or raise the vehicle and place safety stands.

**CAUTION:**

**On AWD models, raise all wheels off floor.**

- (5) Turn ignition switch to ON and Subaru select monitor switch to ON.
- (6) Push the TCS OFF switch to ON. (With TCS models)
- (7) Start the engine and operate at constant speed.
- (8) Read data on Subaru select monitor.
- (9) Designate mode using function key.

**Function mode: F02 or F03**

**SPECIFIED DATA:**

- F02: Compare speedometer with monitor indications.**
- F03: Compare speedometer with monitor indications.**

VSP1 ( F02 )

18 m/h

B3M0413

VSP1 (F03)

15 km/h

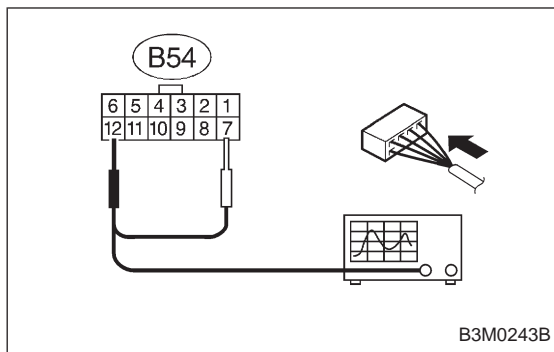
OBD0399

- F02: Vehicle speed is indicated in “m/h”.
- F03: Vehicle speed is indicated in “km/h”.

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>



- Using oscilloscope:
  - (1) Connect connectors to TCM and transmission.
  - (2) Lift-up the vehicle and place safety stands.

**WARNING:**

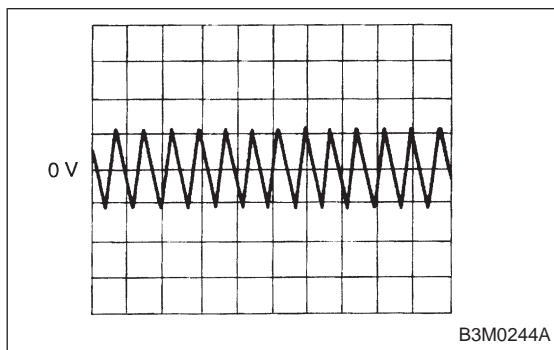
**On AWD models, make sure that all wheels are raised off floor.**

- (3) Set oscilloscope to TCM connector terminals.

**Connector & terminals:**

**Positive probe; (B54) No. 12**

**Earth lead; (B54) No. 7**



- (4) Push the TCS OFF switch to ON. (With TCS models)
- (5) Start the engine, and set vehicle in 20 km/h (12 MPH) condition.
- (6) Measure signal voltage indicated on oscilloscope.

**Specified voltage: AC 1 V, or more****NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>



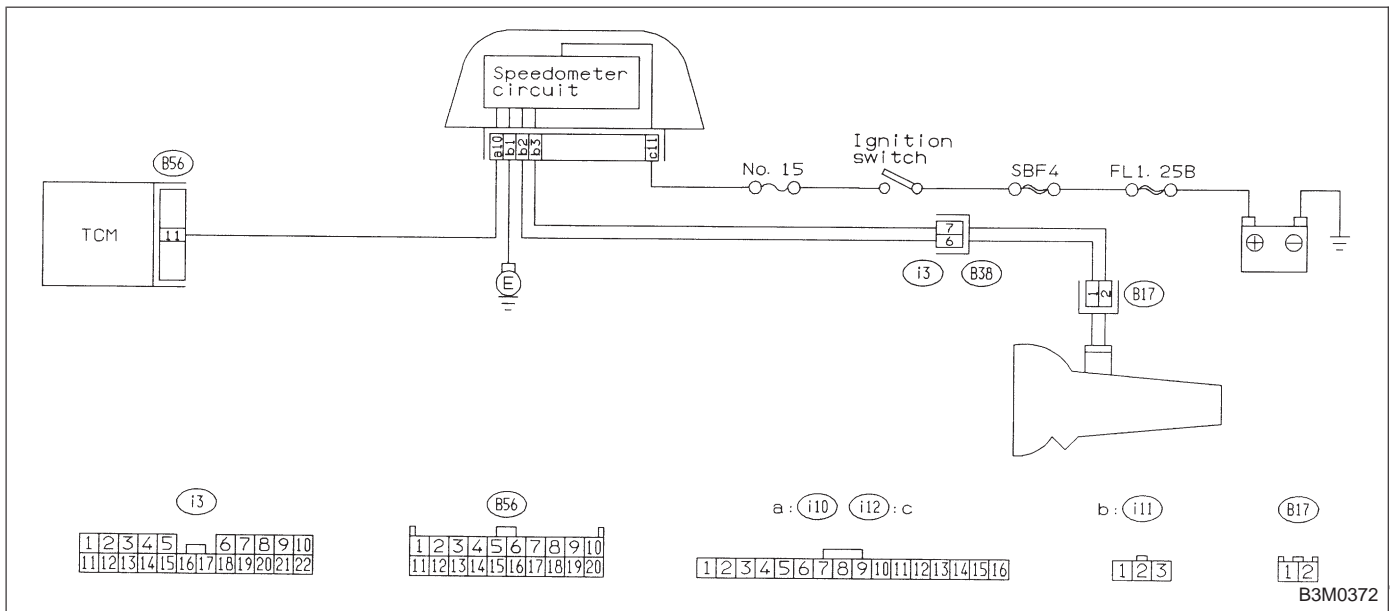
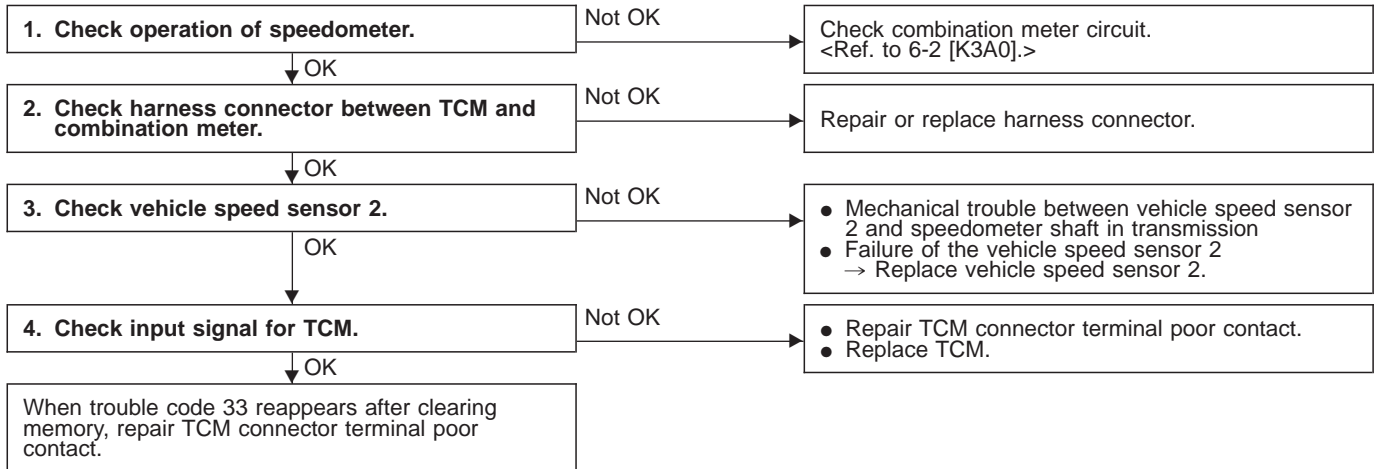
**M: TROUBLE CODE 33  
— VEHICLE SPEED SENSOR 2 —**

**DIAGNOSIS:**

- The vehicle speed signal is abnormal.
- The circuit in combination meter is faulty.
- The harness connector between TCM and vehicle speed sensor is in short or open.

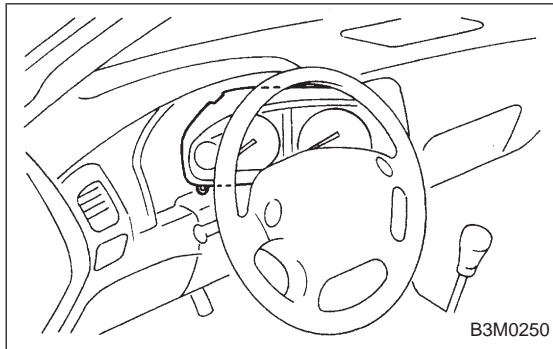
**TROUBLE SYMPTOM:**

- Erroneous idling
- Engine stalls.
- Poor driving performance

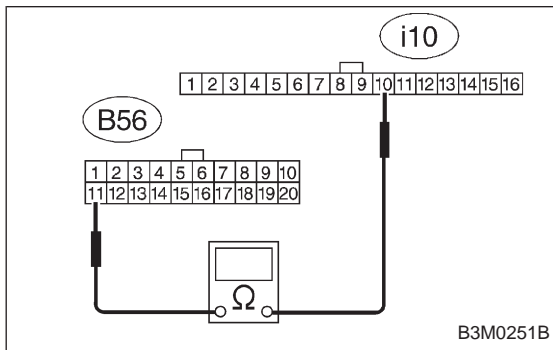


**1. CHECK OPERATION OF SPEEDOMETER.**

Make sure that speedometer indicates the vehicle speed by driving the vehicle.

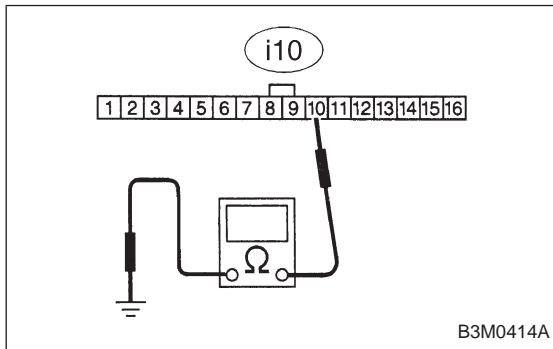
**2. CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER.**

- 1) Turn ignition switch to OFF.
- 2) Remove combination meter.



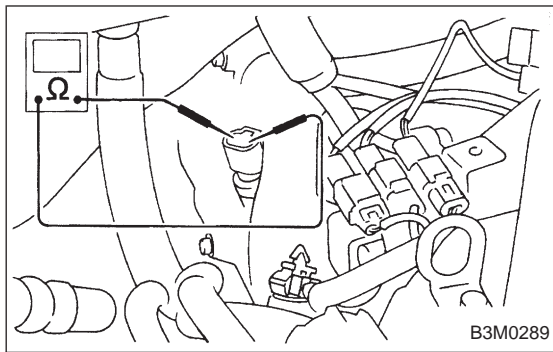
- 3) Disconnect connectors from TCM.
- 4) Measure resistance of harness connector between TCM and combination meter.

**Connector & terminal / Specified resistance:**  
**(B56) No. 11 — (i10) No. 10 / 1 Ω, or less**



- 5) Measure resistance of harness connector between combination meter and body to make sure that circuit does not short.

**Connector & terminal / Specified resistance:**  
**(i10) No. 10 — Body / 1 MΩ, or more**



**3. CHECK VEHICLE SPEED SENSOR 2.**

- 1) Install combination meter.
- 2) Connect connector to TCM.
- 3) Lift-up the vehicle and place safety stand.

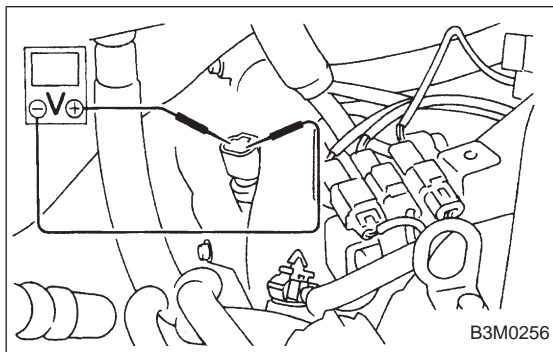
**CAUTION:**

**On AWD models, raise all wheels off floor.**

- 4) Disconnect connector from vehicle speed sensor 2.
- 5) Measure resistance between terminals of vehicle speed sensor 2.

**Terminals / Specified resistance:**

- (B17) No. 1 — No. 2 / 350 — 450 Ω
- No. 1 — Body / 1 MΩ, or more
- No. 2 — Body / 1 MΩ, or more



- 6) Push the TCS OFF switch to ON. (With TCS models)
- 7) Start the engine and set vehicle in 20 km/h (12 MPH) condition.
- 8) Measure output signal of vehicle speed sensor 2.

**WARNING:**

**Be careful not to be caught up by the running wheels.**

- 9) Using a voltage meter; measure voltage between terminals of vehicle speed sensor 2.

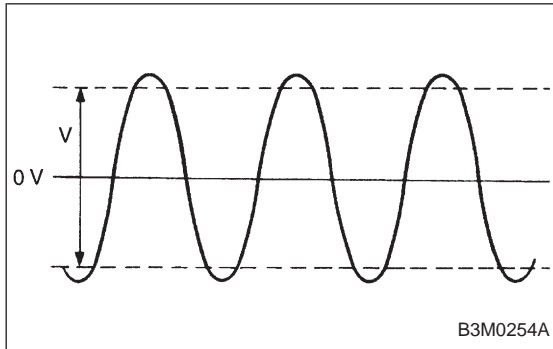
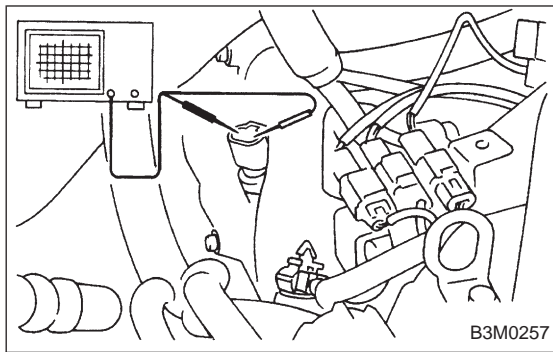
**Terminals / Specified voltage:**

- (B17) No. 1 — No. 2 / AC 2 V, or more

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>



- Using oscilloscope:
  - (1) Install combination meter.
  - (2) Connect connector to TCM.
  - (3) Lift-up the vehicle and place safety stand.

**WARNING:**

**On AWD models, make sure that all wheels are raised off floor.**

- (4) Set oscilloscope to vehicle speed sensor 2.

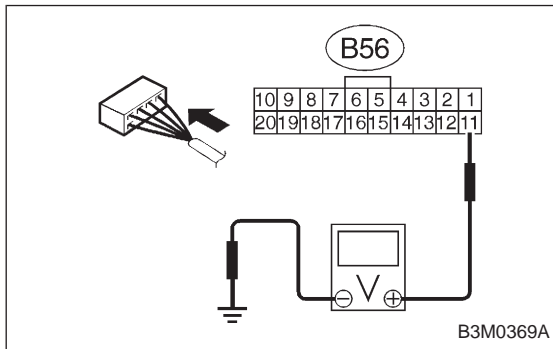
**Connector & terminal / No. 1 — No. 2**

- (5) Push the TCS OFF switch to ON. (With TCS models)
- (6) Start the engine, and drive the wheels slowly.
- (7) Measure signal voltage indicated on oscilloscope.

**Specified voltage: AC 2 V, or more****NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>

**4. CHECK INPUT SIGNAL FOR TCM.**

- 1) Connect connector to vehicle speed sensor 2.
- 2) Lift-up the vehicle or set the vehicle on free roller.

**CAUTION:**

**On AWD models, raise all wheels off floor.**

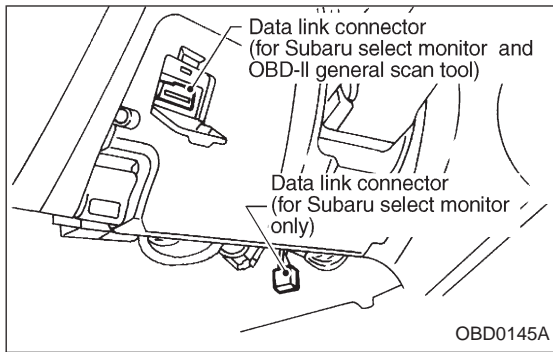
- 3) Push the TCS OFF switch to ON. (With TCS models)
- 4) Start the engine, and drive the wheels slowly.
- 5) Measure voltage between TCM and body.

**Connector & terminal / Specified voltage:**  
**(B56) No. 11 — Body / Less than 1 ↔ more than 9 V**

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>

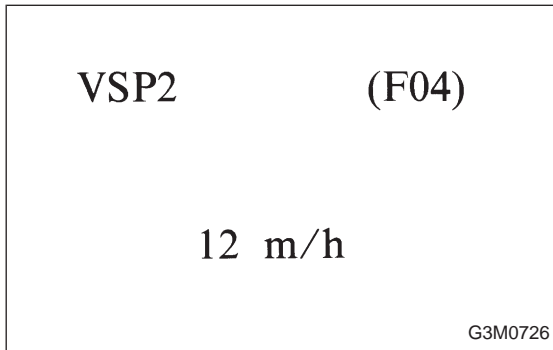


- Using Subaru select monitor:
  - (1) Install combination meter.
  - (2) Connect connectors to TCM and vehicle speed sensor 2.
  - (3) Lift-up the vehicle or set the vehicle on free roller.
  - (4) Turn ignition switch to OFF.
  - (5) Connect the Subaru select monitor to data link connector.
  - (6) Turn ignition switch to ON and Subaru select monitor switch to ON.

**CAUTION:**

**On AWD models, raise all wheels off floor.**

- (7) Push the TCS OFF switch to ON. (With TCS models)



- (8) Start the engine, and drive the wheels.
- (9) Read data on Subaru select monitor.
- (10) Designate mode using function key.

**Function mode: F04 or F05**

**SPECIFIED DATA:**

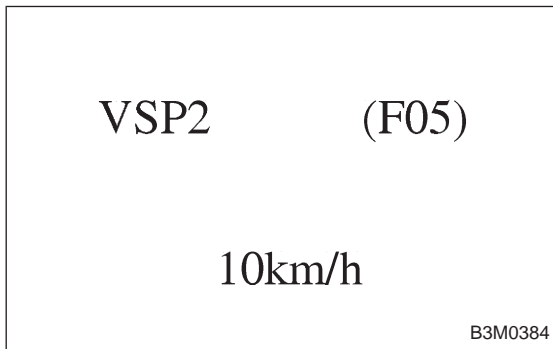
**Compare speedometer with select monitor indications.**

- F04: Vehicle speed is indicated in mile per hour (MPH).
- F05: Vehicle speed is indicated in kilometer per hour (km/h).

**NOTE:**

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>



- Using oscilloscope:

- (1) Connect connector to vehicle speed sensor 2.
- (2) Lift-up the vehicle or set the vehicle on free rollers.

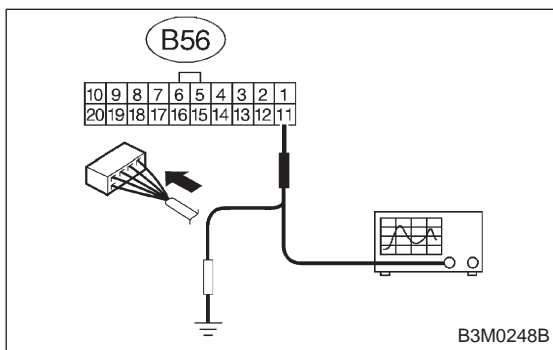
**CAUTION:**

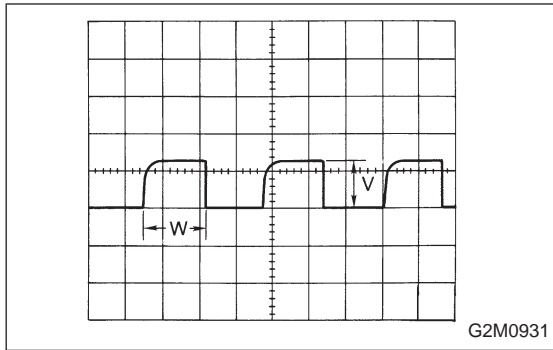
**On AWD models, raise all wheels off floor.**

- (3) Set oscilloscope to TCM connector terminals.

**Connector & terminals:**

**Positive probe; (B56) No. 11**  
**Earth lead; Body**





- (4) Push the TCS OFF switch to ON. (with TCS models)
- (5) Start the engine.
- (6) Shift on the gear position, and keep the vehicle speed at constant.
- (7) Measure signal voltage.

**Specified voltage: 2 V, or more**

NOTE:

If vehicle speed increases, the width of amplitude (W) decreases.

NOTE:

The speed difference between front and rear wheels may light either the ABS or the ABS/TCS warning light, but this indicates no malfunctions. When AT control diagnosis is finished, perform the ABS or the ABS/TCS memory clearance procedure of self-diagnosis system.

<Ref. to 4-4b [T6D2] or [T9K0], or 4-4c [T6D2] or [T9J0].>