

7. Diagnostic Chart with Trouble Code

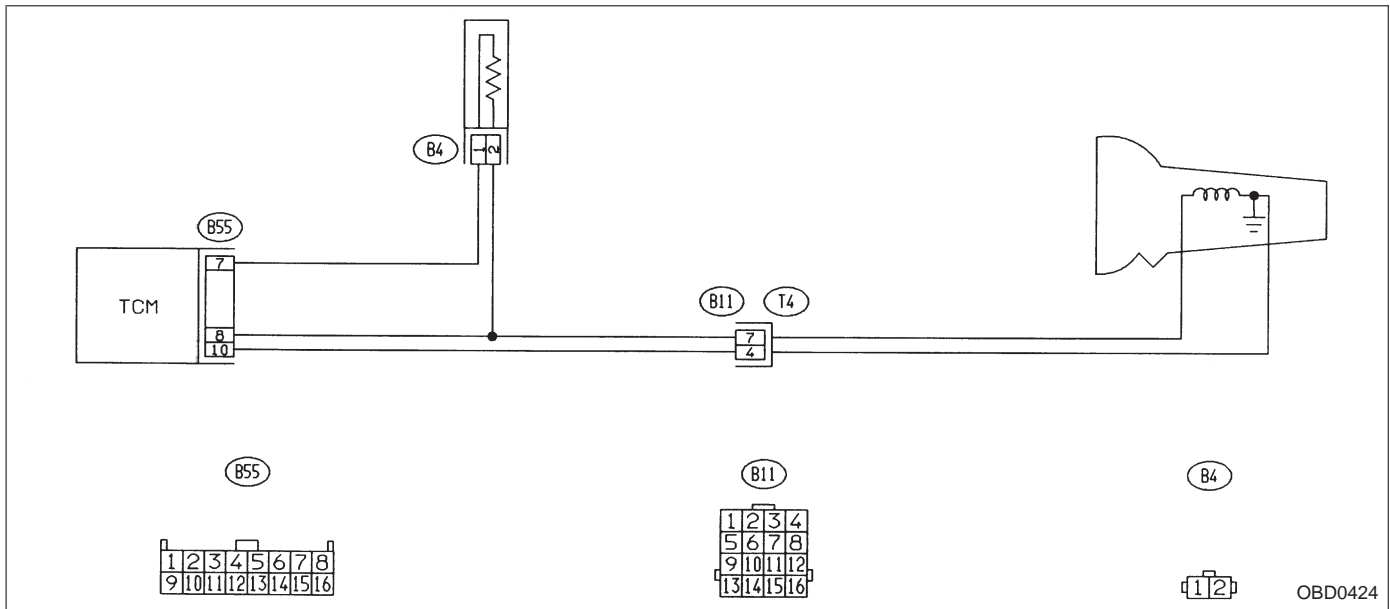
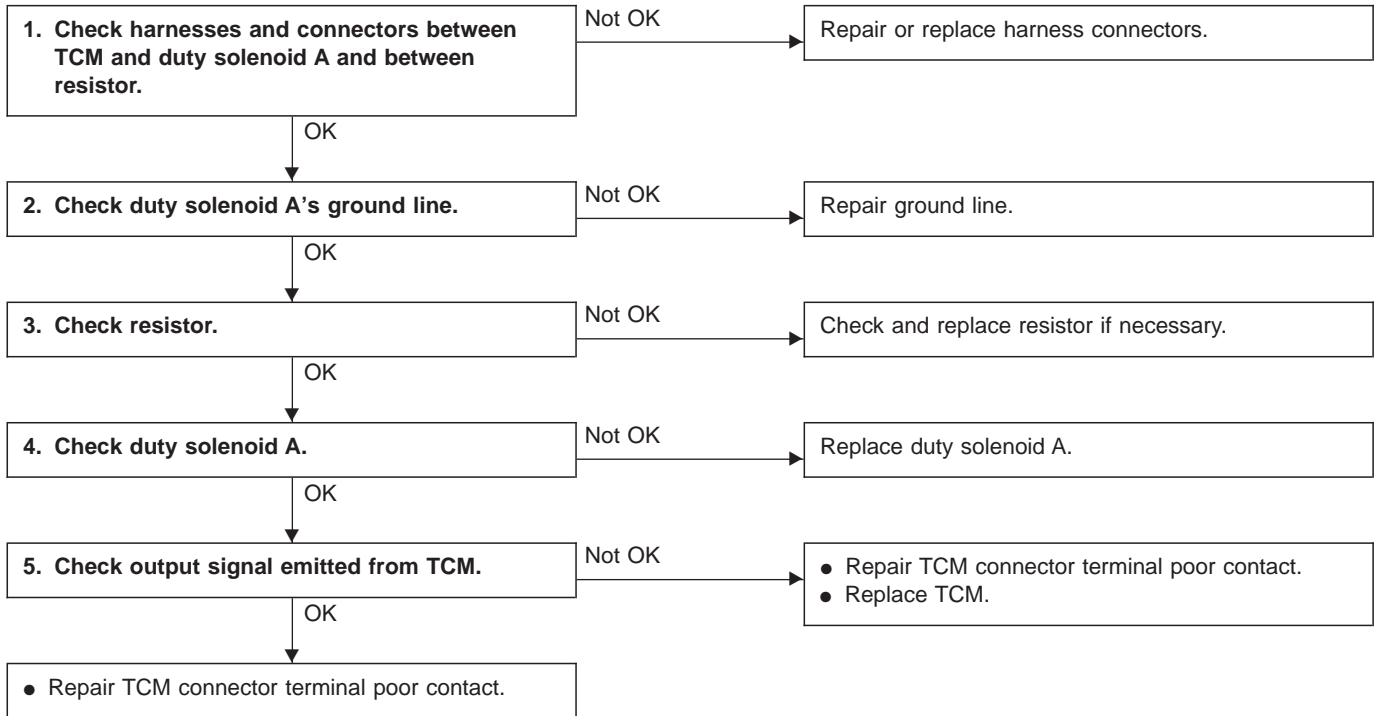
A: TROUBLE CODE 11 — DUTY SOLENOID A —

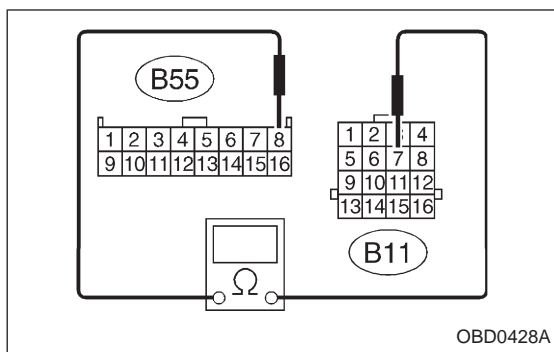
DIAGNOSIS:

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

TROUBLE SYMPTOM:

Excessive shift shock

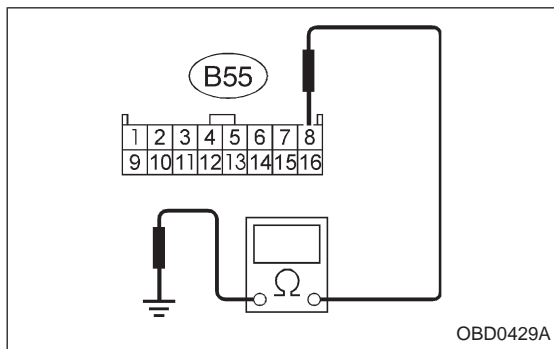




1. CHECK HARNESES AND CONNECTORS BETWEEN TCM AND DUTY SOLENOID A AND BETWEEN RESISTOR.

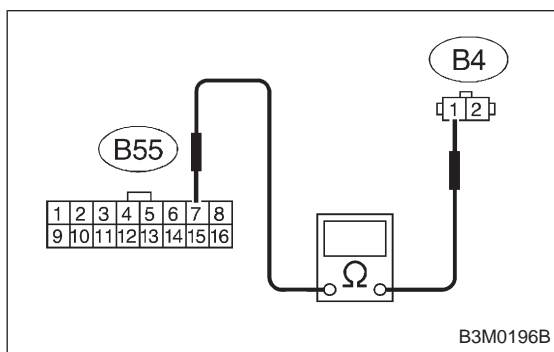
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM, transmission and resistor.
- 3) Measure resistance of harness connector between TCM and transmission.

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



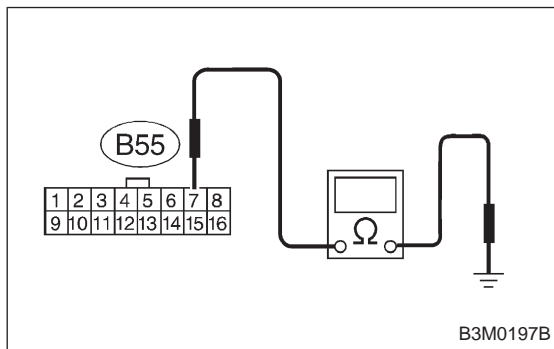
- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

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



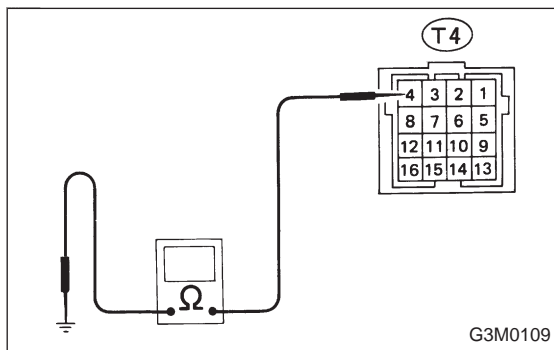
- 5) Measure resistance of harness connector between TCM and resistor connector.

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.

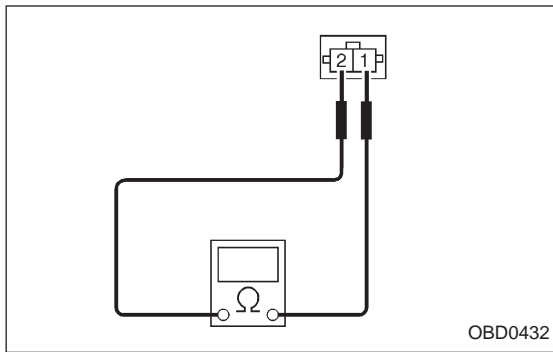
Connector & terminal / Specified resistance:
(B55) No. 7 — Body / 1 MΩ, or more



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

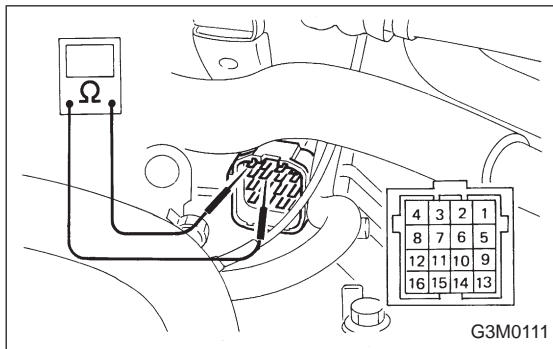


3. CHECK RESISTOR.

Measure resistance between resistor terminals.

Specified resistance:

(B4) No. 1 — No. 2 / 9 — 15 Ω

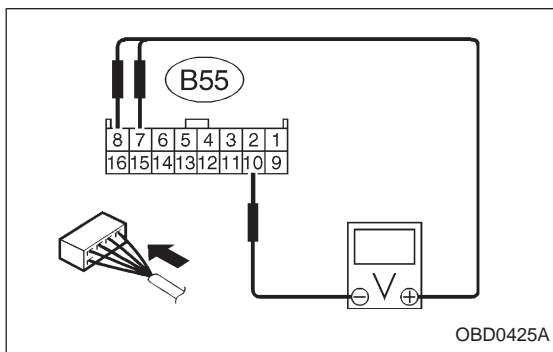


4. CHECK DUTY SOLENOID A.

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.

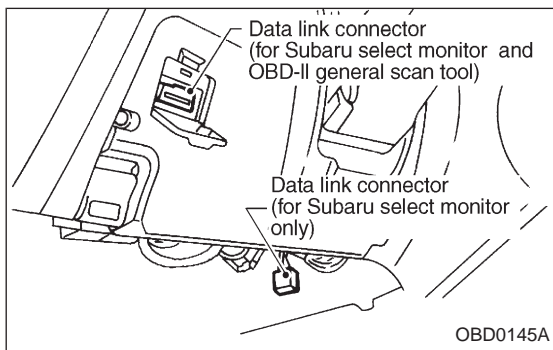
Connector & terminal / Specified resistance:

(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.)

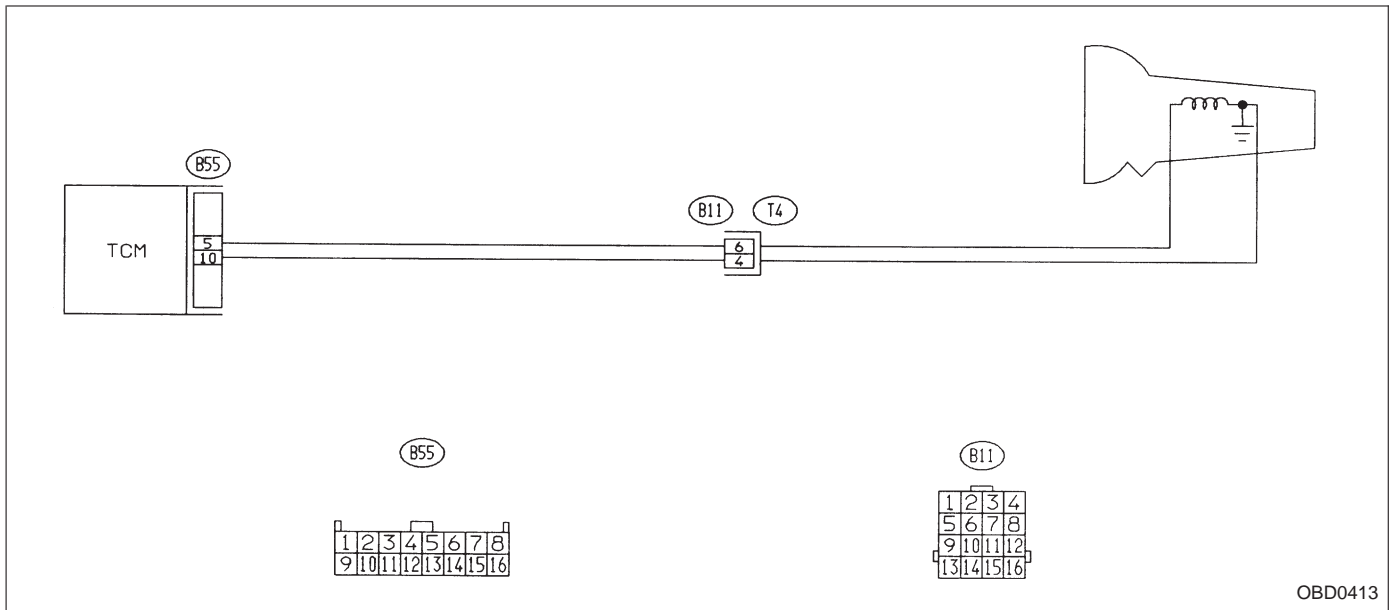
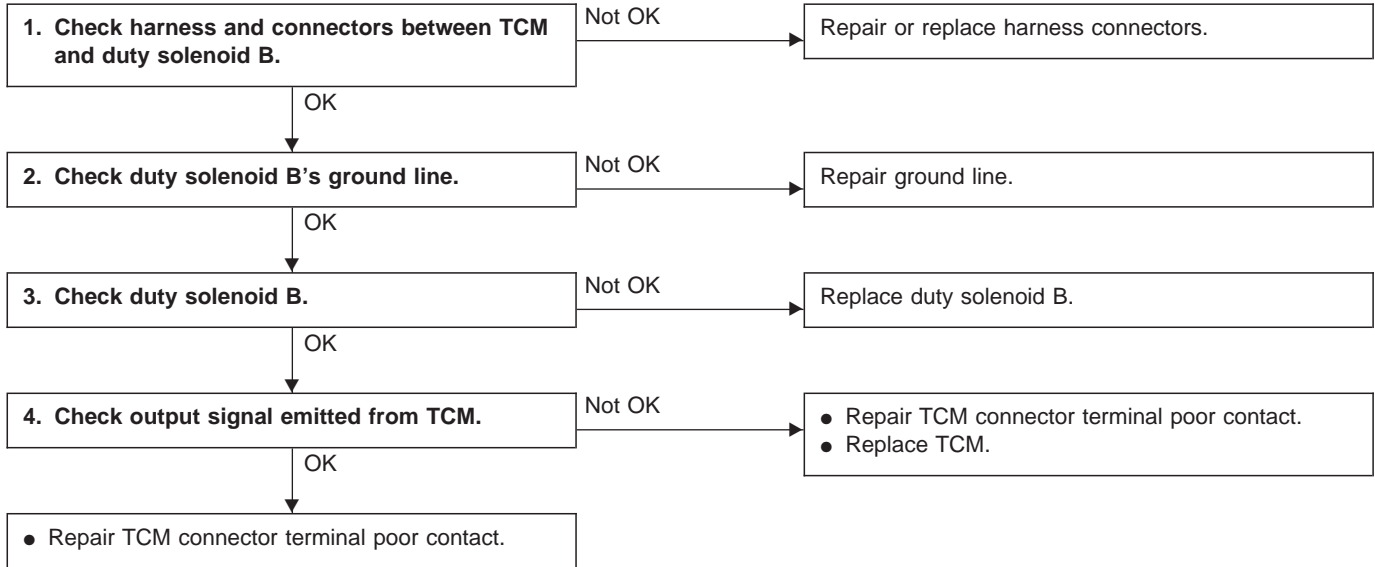
**B: TROUBLE CODE 12
— DUTY SOLENOID B —**

DIAGNOSIS:

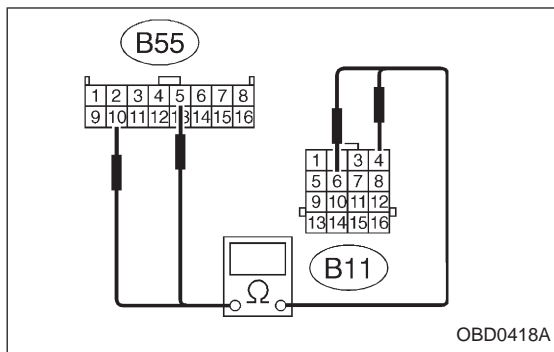
Output signal circuit of duty solenoid B is open or shorted.

TROUBLE SYMPTOM:

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



OBD0413



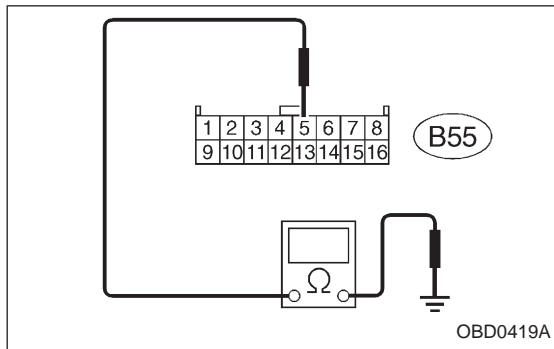
1. CHECK HARNESS AND CONNECTORS BETWEEN TCM AND DUTY SOLENOID B.

- 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 Ω , or less

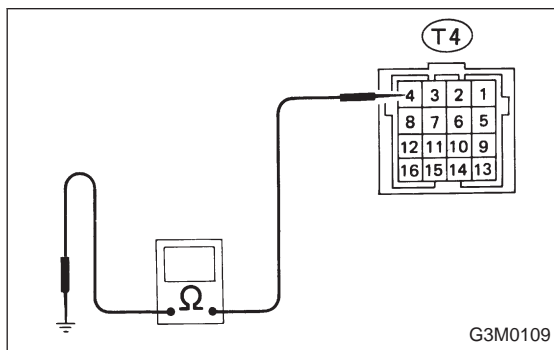
(B55) No. 10 — (B11) No. 4 / 1 Ω , or less



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

Connector & terminal / Specified resistance:

(B55) No. 5 — Body / 1 M Ω , or more

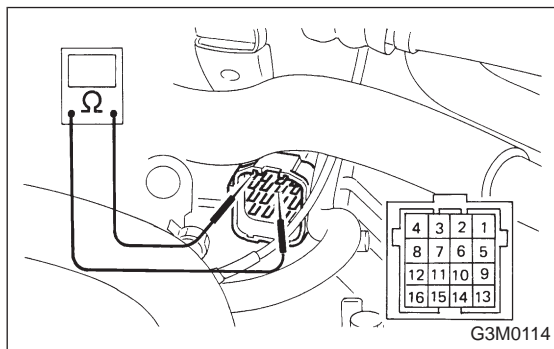


2. CHECK DUTY SOLENOID B's GROUND LINE.

Measure resistance between transmission connector receptacle and transmission case.

Connector & terminal / Specified resistance:

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

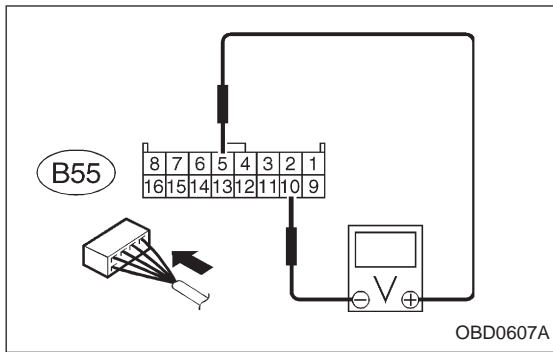


3. CHECK DUTY SOLENOID B.

Measure resistance between transmission connector receptacle's terminals.

Connector & terminal / Specified resistance:

(T4) No. 6 — No. 4 / 9 — 17 Ω



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.

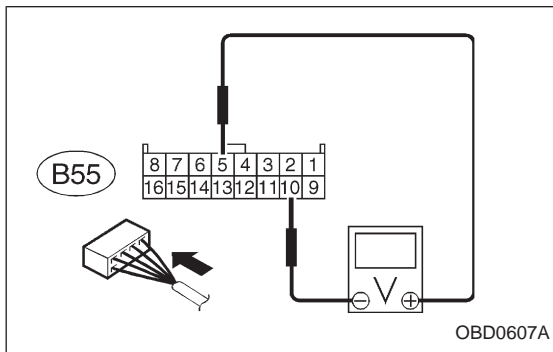
CAUTION:

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.

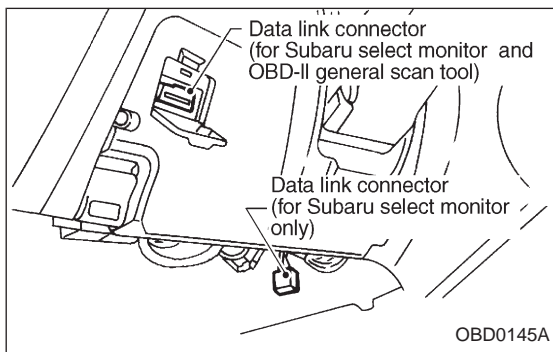
Connector & terminal / Specified voltage:

(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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>



● **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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>

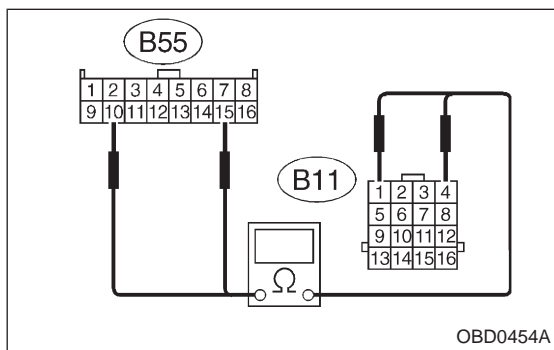
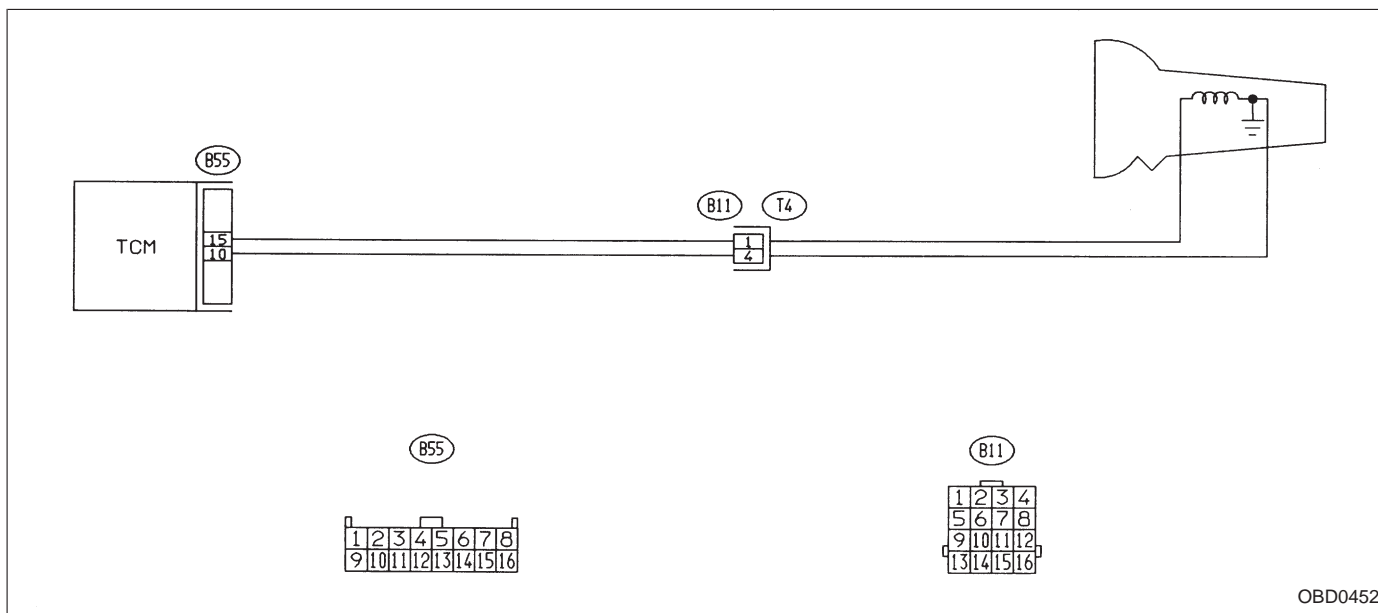
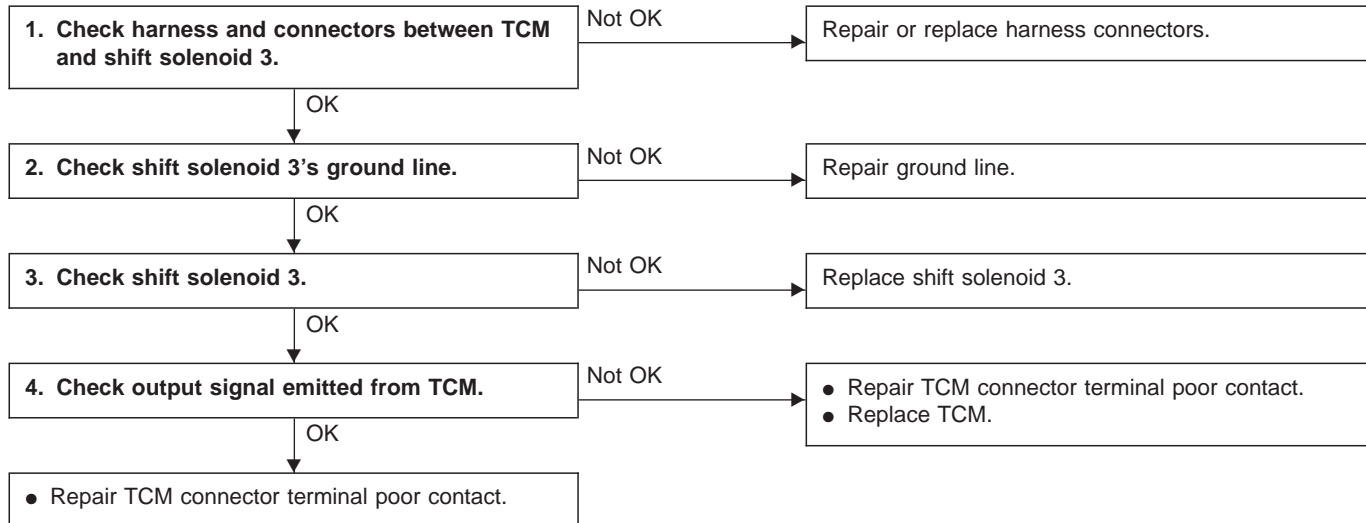
**C: TROUBLE CODE 13
— SHIFT SOLENOID 3 —**

DIAGNOSIS:

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

TROUBLE SYMPTOM:

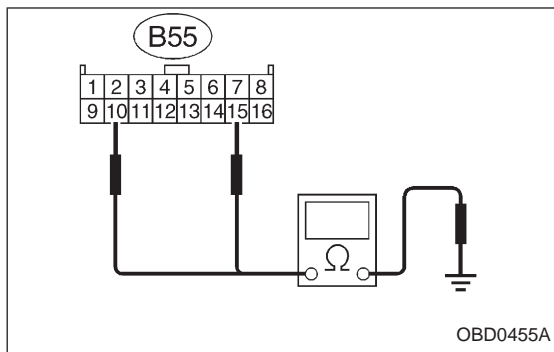
Ineffective engine brake with shift lever in “3”



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

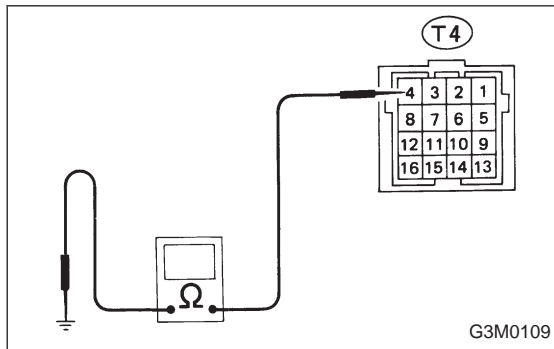


4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

Connector & terminal / Specified resistance:

(B55) No. 15 — Body / 1 M Ω , or more

(B55) No. 10 — Body / 1 M Ω , or more

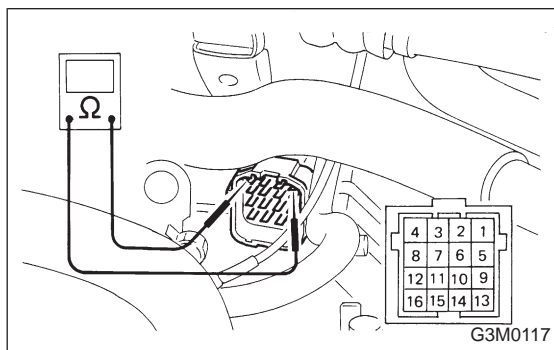


2. CHECK SHIFT SOLENOID 3's GROUND LINE.

Measure resistance between transmission connector receptacle and transmission case.

Connector & terminal / Specified resistance:

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

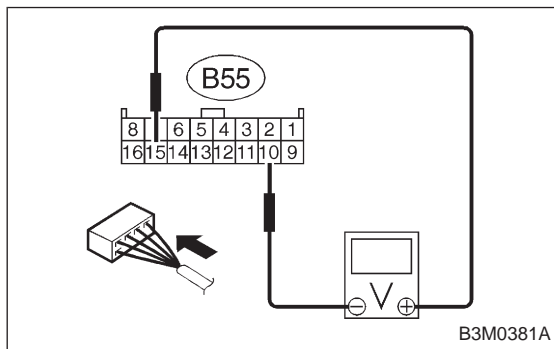


3. CHECK SHIFT SOLENOID 3.

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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>

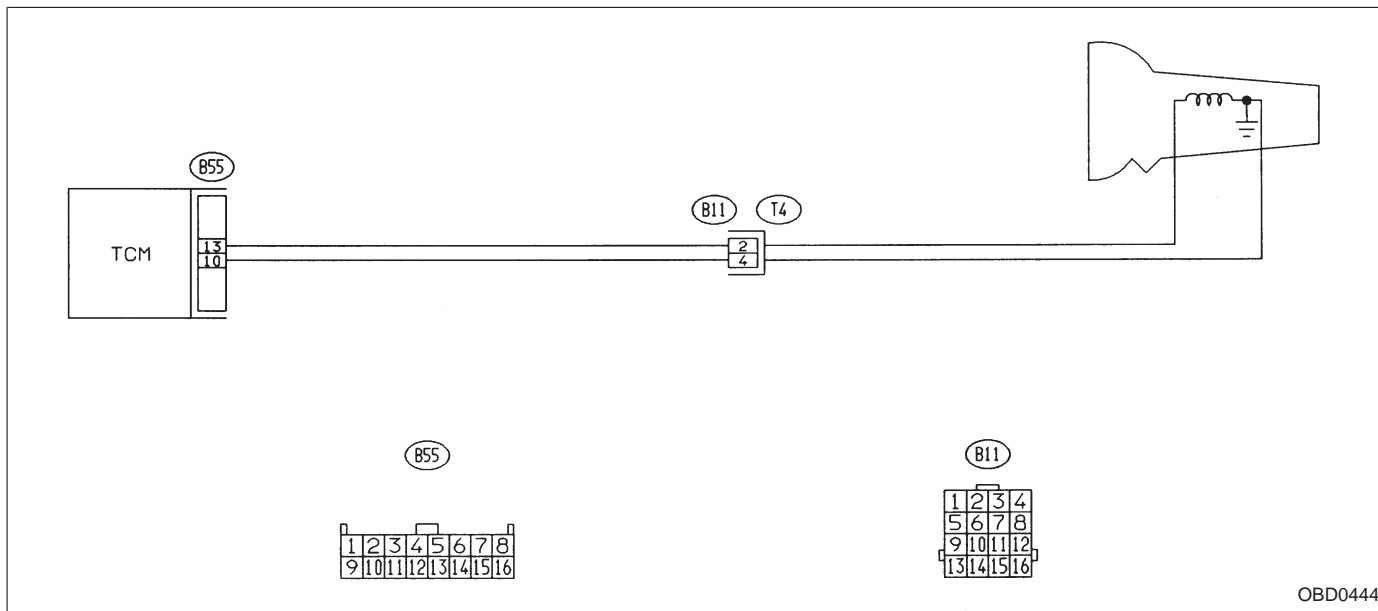
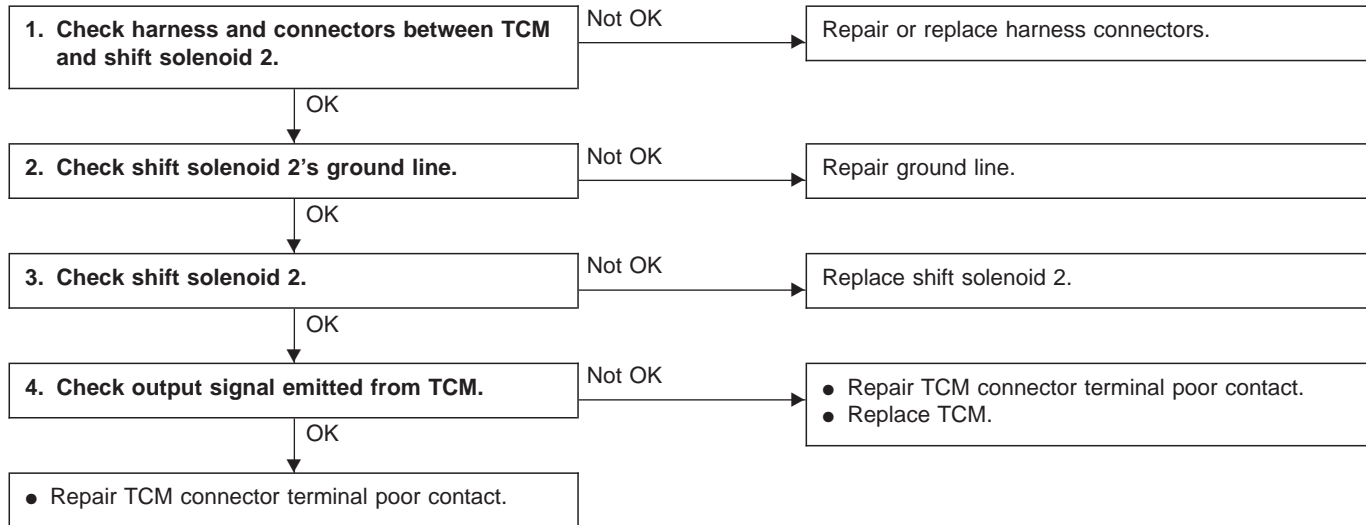
D: TROUBLE CODE 14
— SHIFT SOLENOID 2 —

DIAGNOSIS:

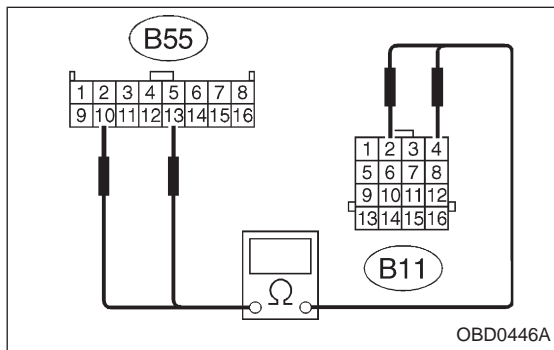
Output signal circuit of shift solenoid 2 is open or shorted.

TROUBLE SYMPTOM:

No shift



OBD0444



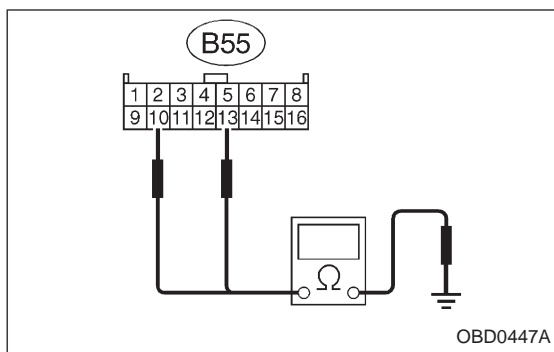
OBD0446A

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

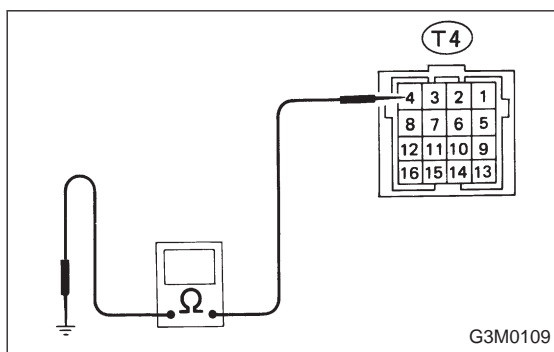


4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

Connector & terminal / Specified resistance:

(B55) No. 13 — Body / 1 M Ω , or more

(B55) No. 10 — Body / 1 M Ω , or more

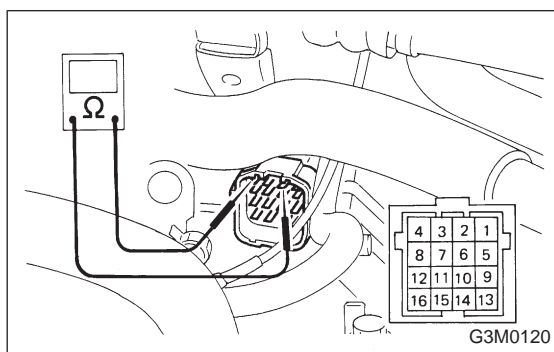


2. CHECK SHIFT SOLENOID 2's GROUND LINE.

Measure resistance between transmission connector receptacle and transmission case.

Connector & terminal / Specified resistance:

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

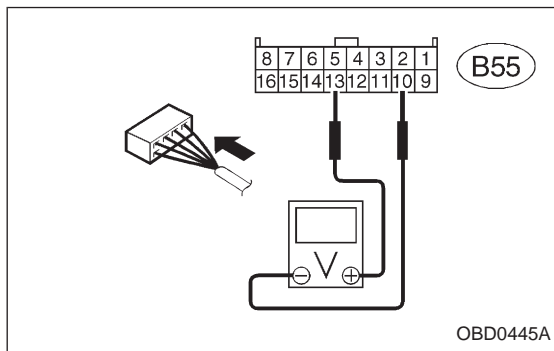


3. CHECK SHIFT SOLENOID 2.

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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>

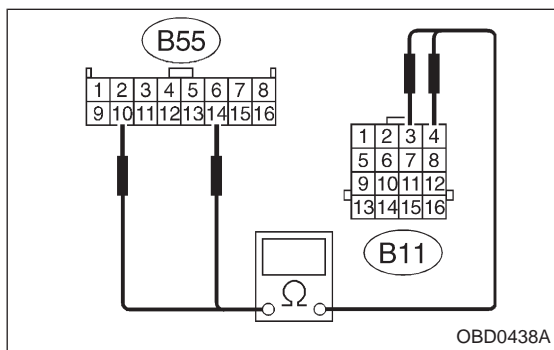
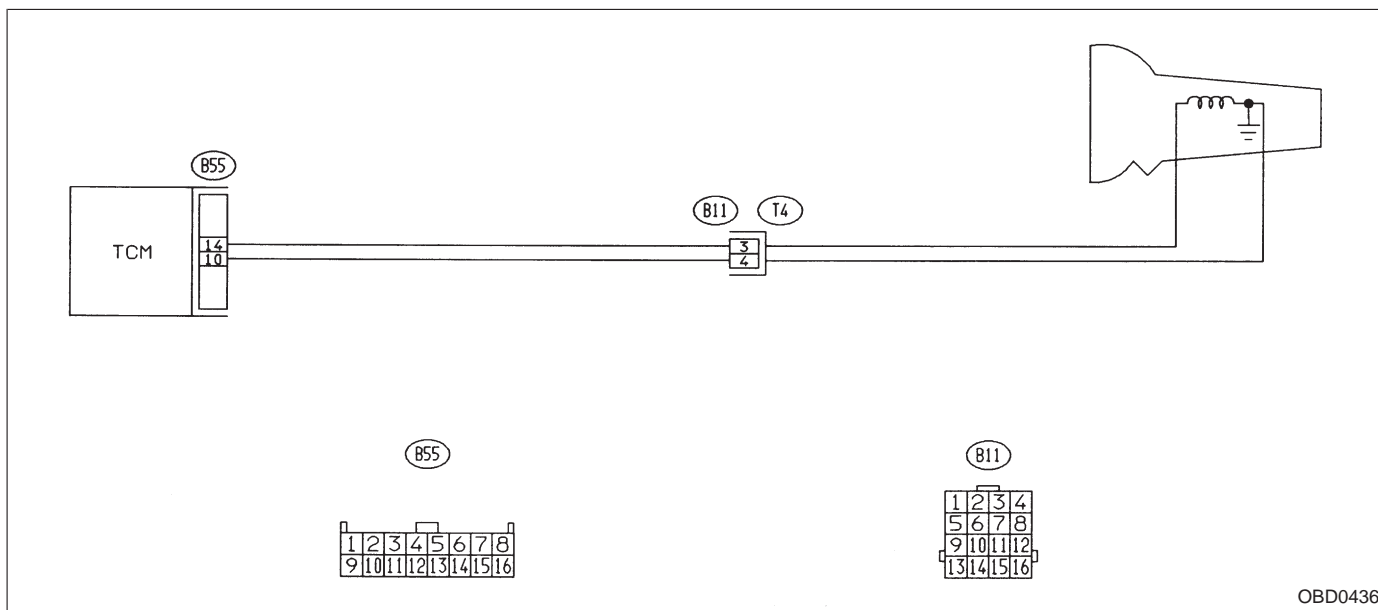
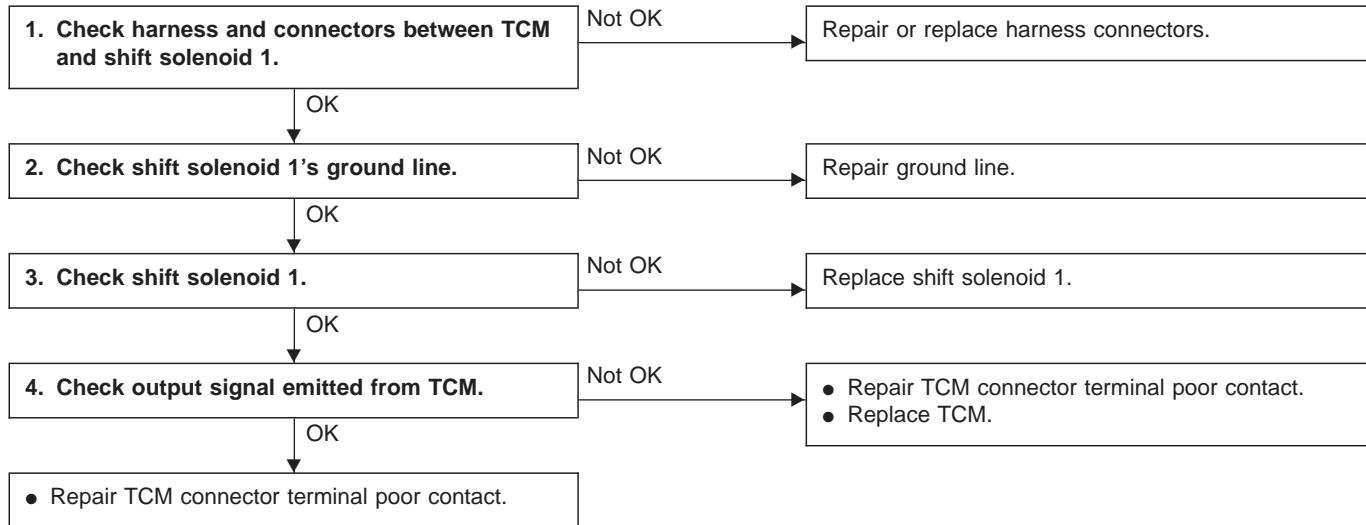
**E: TROUBLE CODE 15
— SHIFT SOLENOID 1 —**

DIAGNOSIS:

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

TROUBLE SYMPTOM:

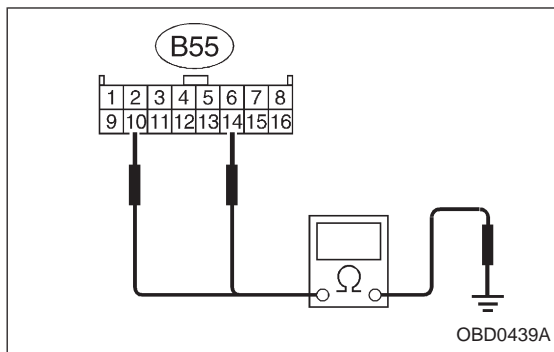
No shift



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

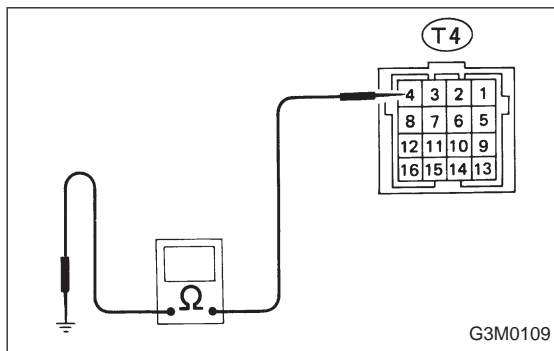
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission connector.

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.

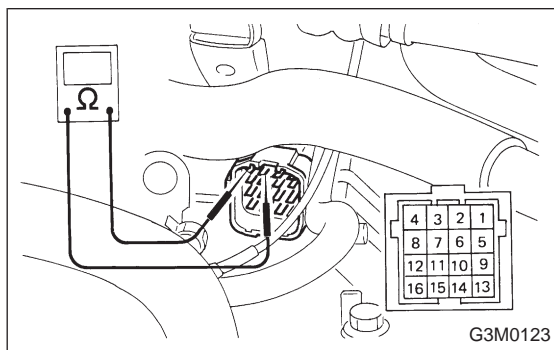
Connector & terminal / Specified resistance:
 (B55) No. 14 — Body / 1 M Ω , or more
 (B55) No. 10 — Body / 1 M Ω , or more



2. CHECK SHIFT SOLENOID 1's GROUND LINE.

Measure resistance between transmission connector receptacle and transmission case.

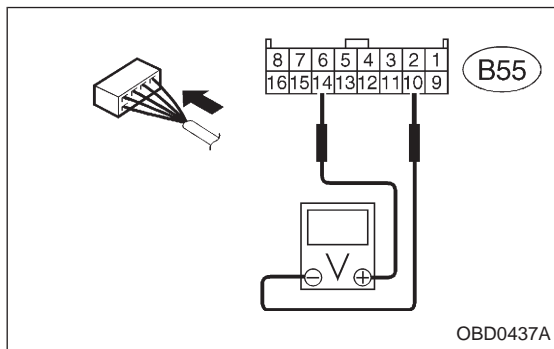
Connector & terminal / Specified resistance:
 (T4) No. 4 — Transmission / 1 Ω , or less



3. CHECK SHIFT SOLENOID 1.

Measure resistance between transmission connector receptacle's terminals.

Connector & terminal / Specified resistance:
 (T4) No. 3 — No. 4 / 20 — 32 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. 14 — No. 10 / 9 V, or more

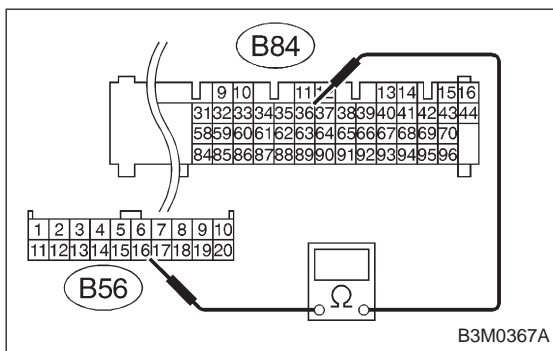
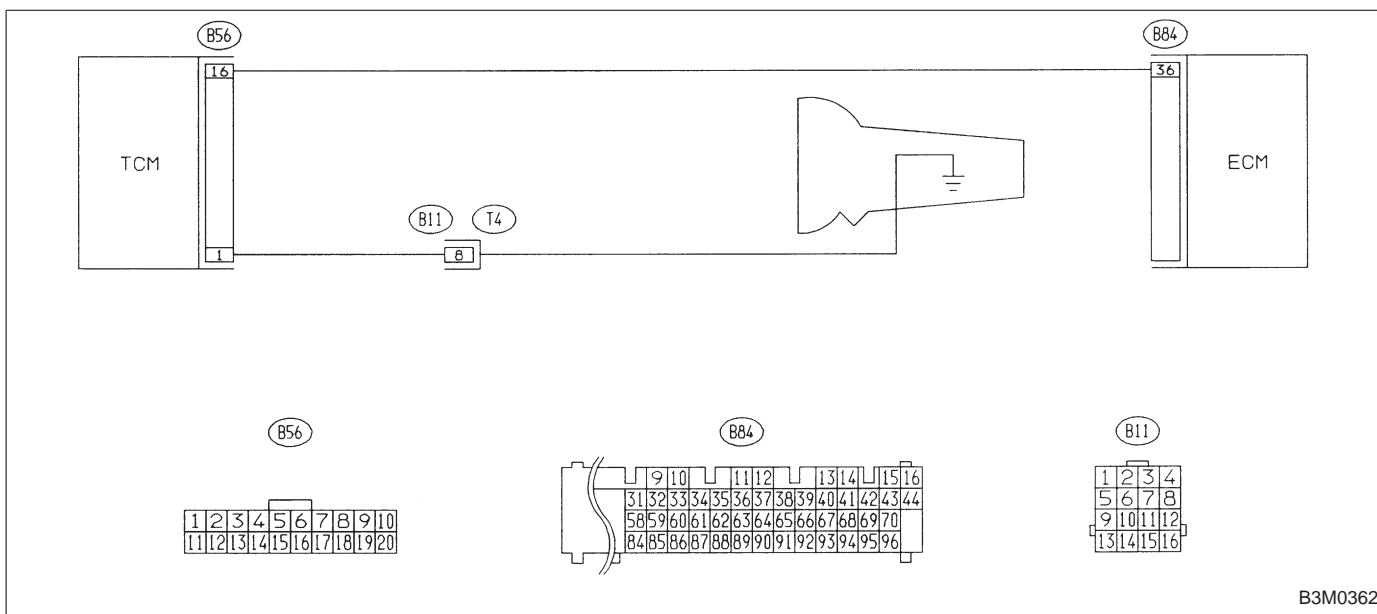
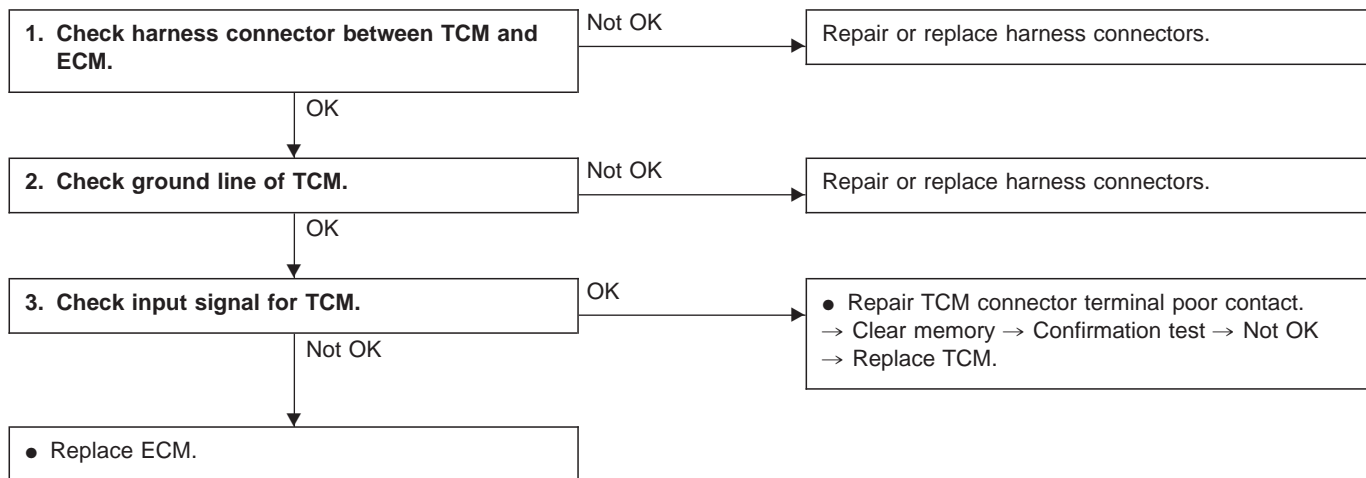
NOTE:

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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>

**F: TROUBLE CODE 16
— TORQUE CONTROL CUT SIGNAL —
DIAGNOSIS:**

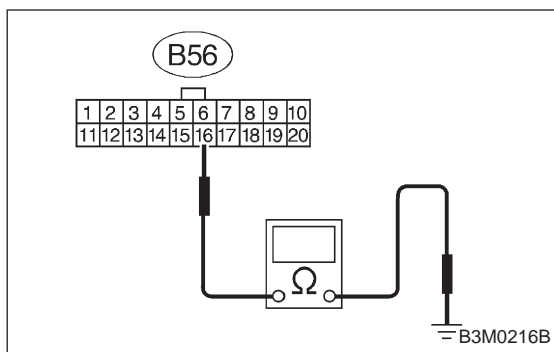
- Torque control cut signal is not emitted from ECM.
- The signal circuit is open or shorted.



1. CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.

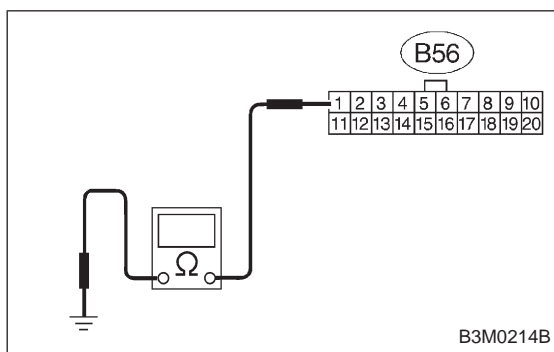
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from ECM and TCM.
- 3) Measure resistance of harness connector between TCM and ECM.

Connector & terminal / Specified resistance:
(B56) No. 16 — (B84) No. 36/ 1 Ω, or less



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

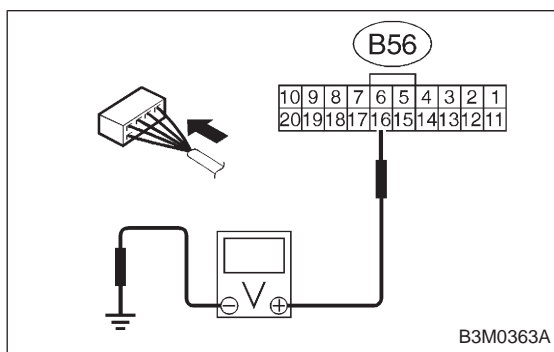
Connector & terminal / Specified resistance:
(B56) No. 16 — Body / 1 MΩ, or more



2. CHECK GROUND LINE OF TCM.

Measure resistance of harness connector between TCM and body.

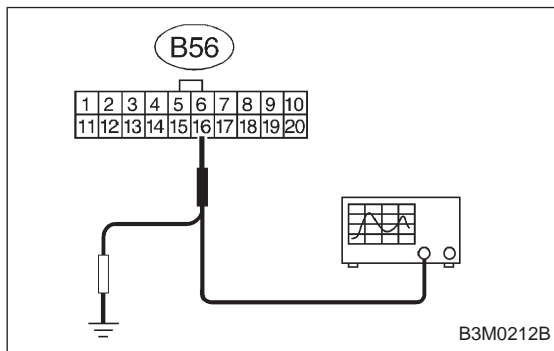
Connector & terminal / Specified resistance:
(B56) No. 1 — Body / 1 Ω, or less



3. CHECK INPUT SIGNAL FOR TCM.

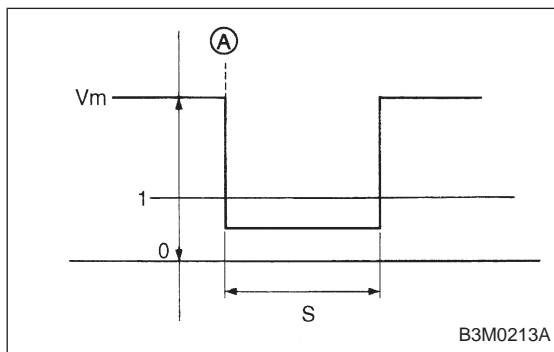
- 1) Connect connectors to ECM and TCM.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between TCM and body.

Connector & terminal / Specified voltage:
(B56) No. 16 — Body / 6 — 9 V



- Using oscilloscope:
 - (1) Connect connectors to ECM and TCM.
 - (2) Set oscilloscope to TCM connector terminals.

Connector & terminals:
Positive probe; (B56) No. 16
Earth lead; Body



(3) Measure voltage while starting the engine.

CAUTION:
Make sure that signal voltage is below 1 V for one second after starting the engine (point (A)).

Vm: 6 — 9 V
S: 1 second

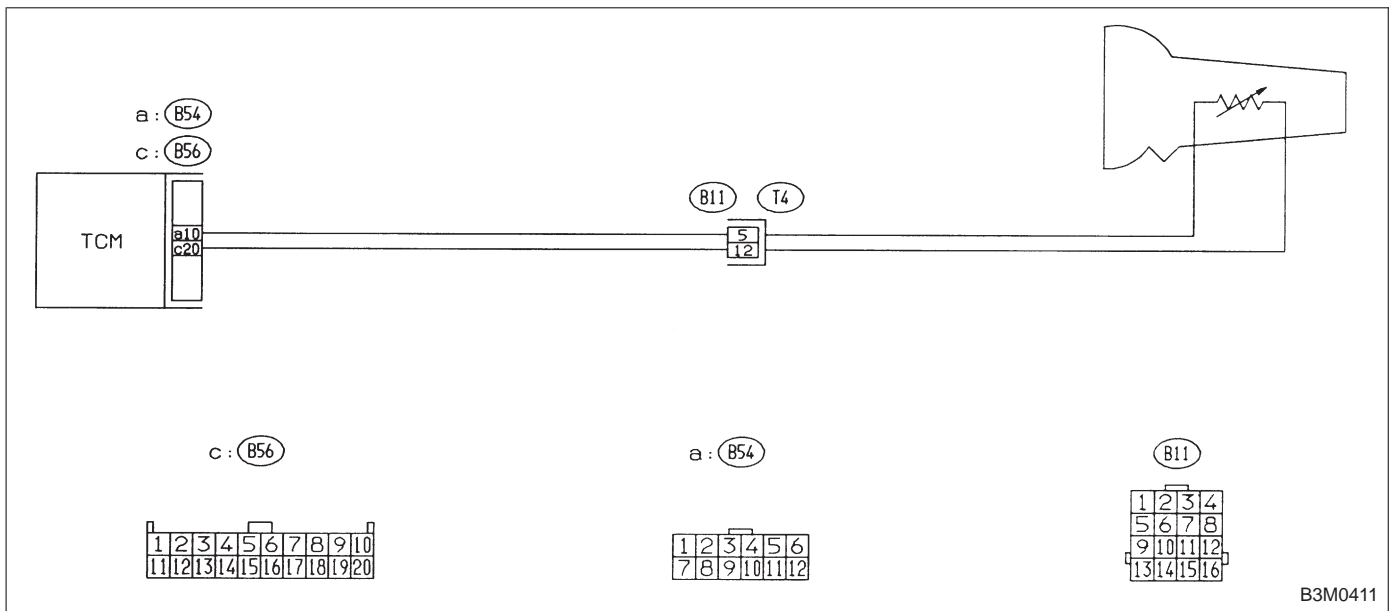
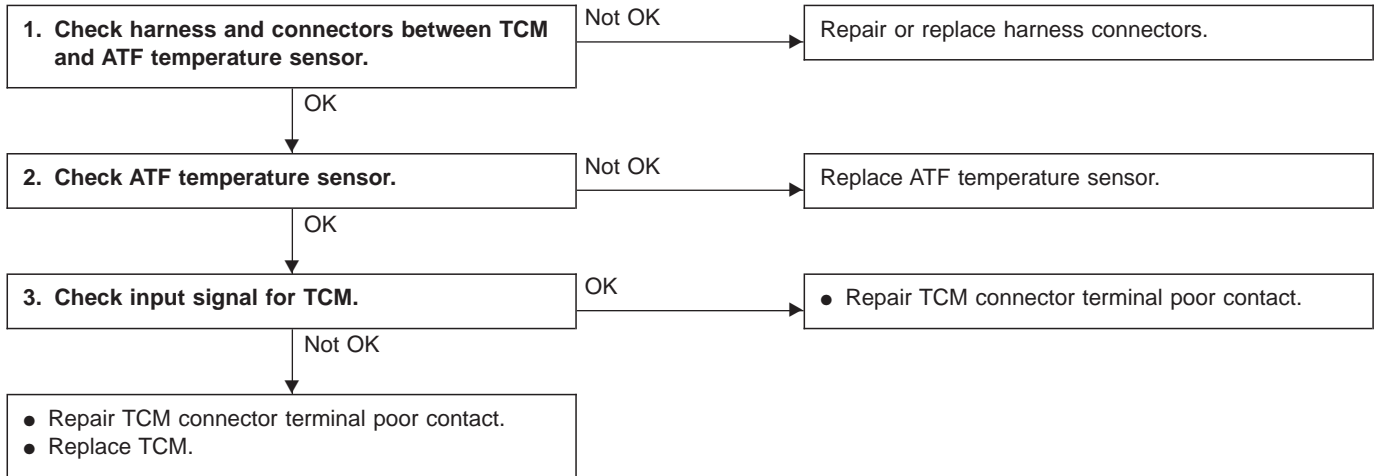
**G: TROUBLE CODE 21
— ATF TEMPERATURE SENSOR —**

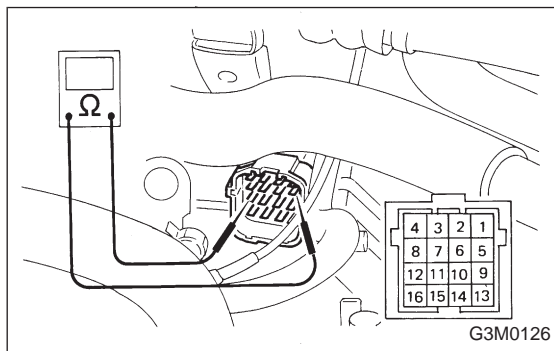
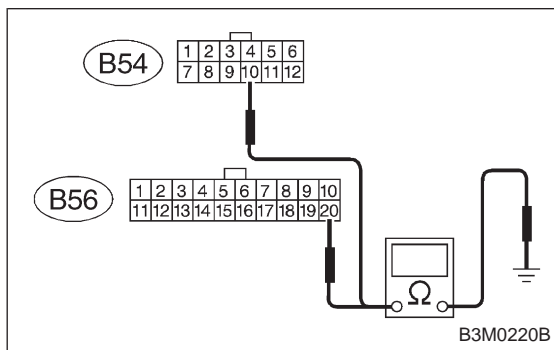
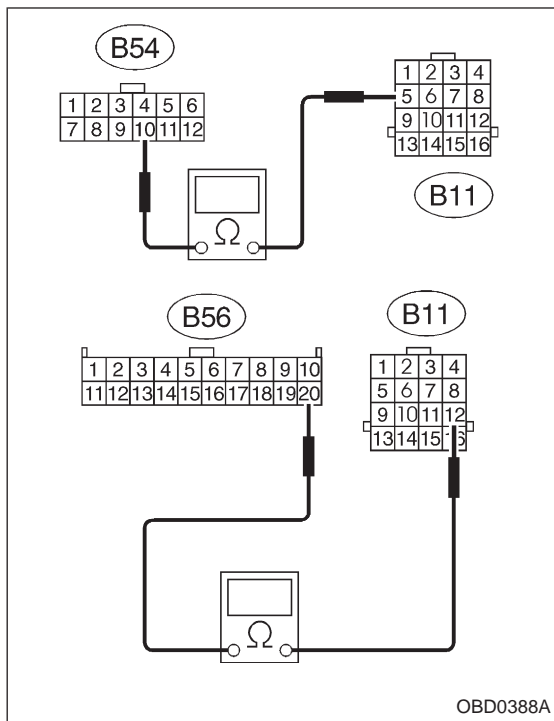
DIAGNOSIS:

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

TROUBLE SYMPTOM:

Excessive shift shock





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 voltage:

(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 /

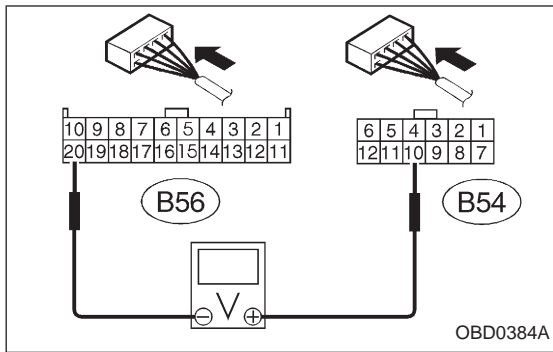
2.1 — 2.9 kΩ [ATF temperature: 20°C (68°F)]

- 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)]

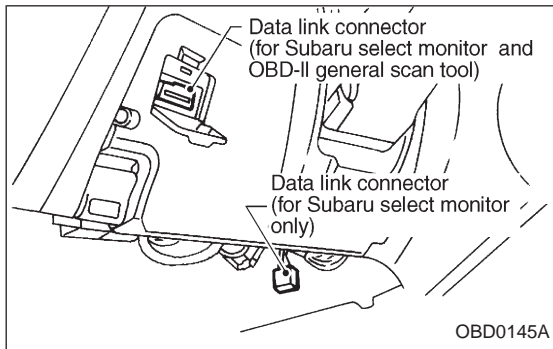


3. CHECK INPUT SIGNAL FOR TCM.

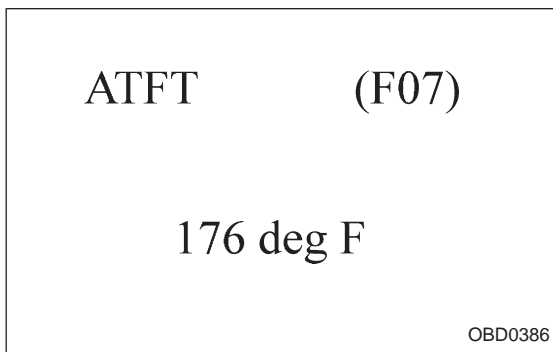
- 1) Turn ignition switch ON (with engine OFF) and measure signal voltage input of TCM.
- 2) Start and warm-up the engine. Measure signal voltage input of TCM.

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.

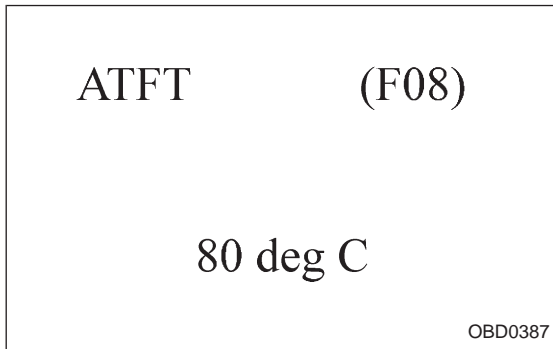


- (4) Start and warm-up the engine.
- (5) Read data on Subaru select monitor.
- (6) Designate mode using function key.

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

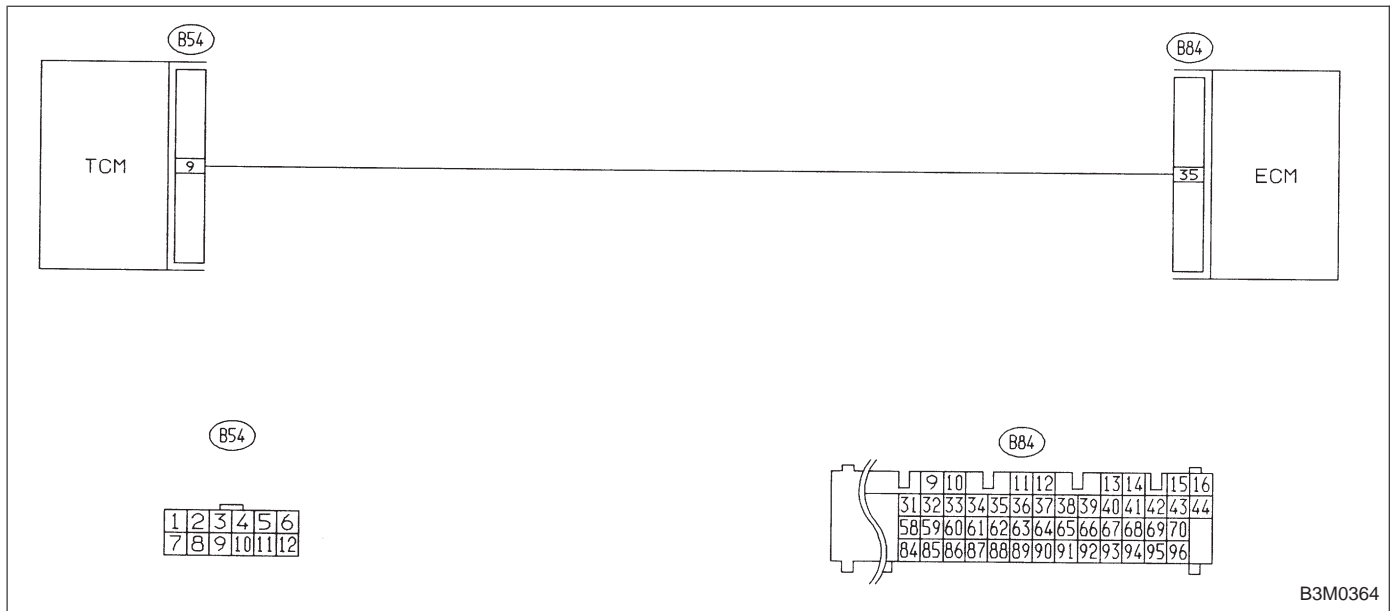
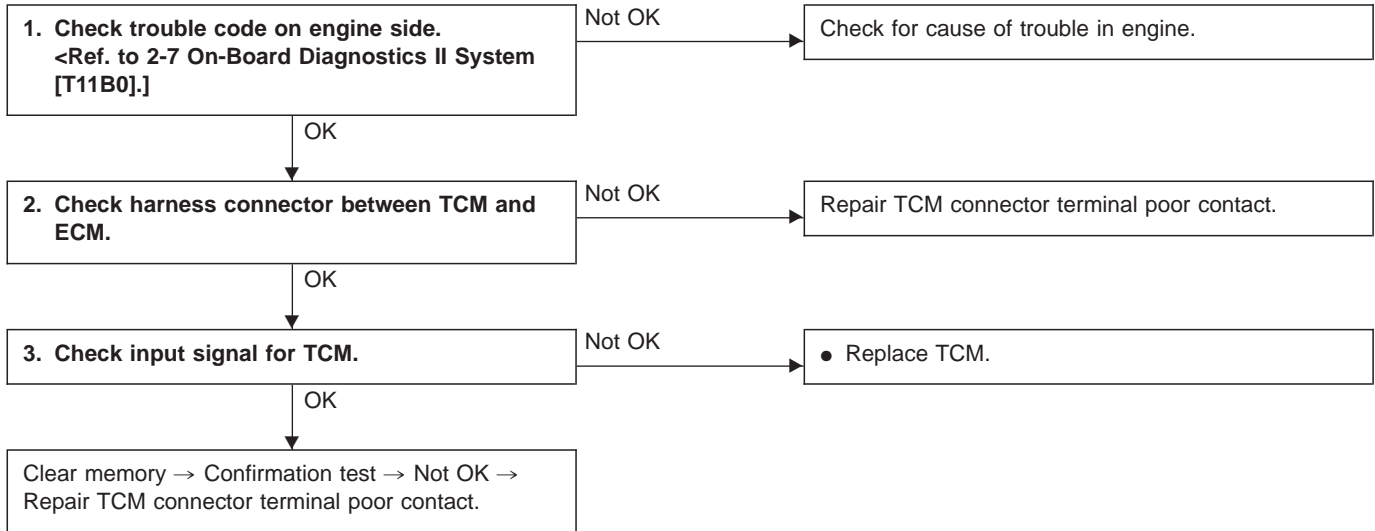


- F07: ATF temperature is indicated in “deg F”.
- F08: ATF temperature is indicated in “deg C”.

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

DIAGNOSIS:

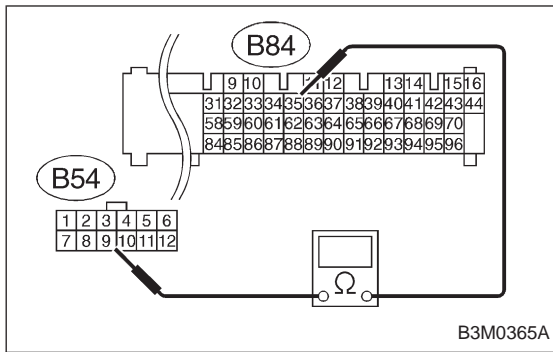
Input signal circuit of TCM from ECM is open or shorted.



B3M0364

1. CHECK TROUBLE CODE ON ENGINE SIDE.

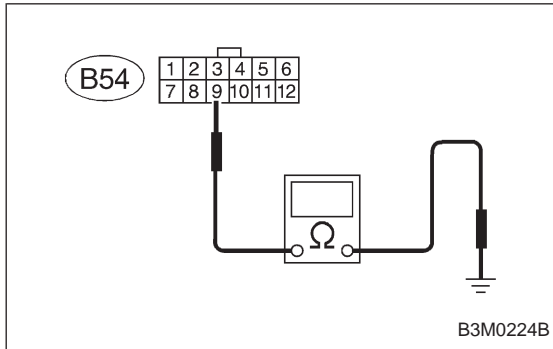
Using Subaru select monitor or OBD-general scan tool, check trouble code of mass air flow sensor on engine side.



2. CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.

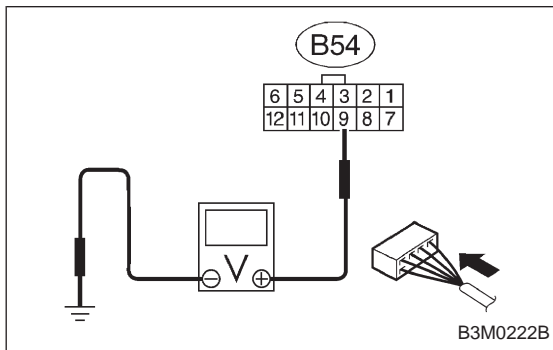
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and ECM.
- 3) Measure resistance of harness connector between TCM and ECM.

Connector & terminal / Specified resistance:
(B54) No. 9 — (B84) No. 35 / 1 Ω, or less



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

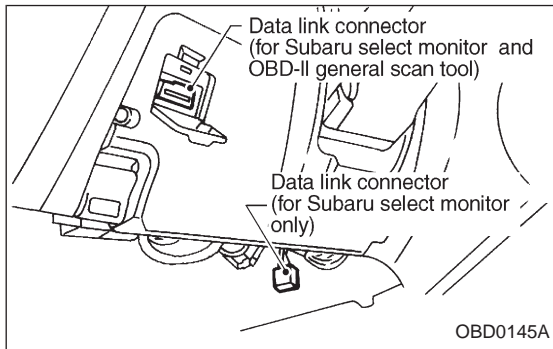
Connector & terminal / Specified resistance:
(B54) No. 9 — Body / 1 MΩ, or more



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 — 1.2 V



● Using Subaru select monitor:

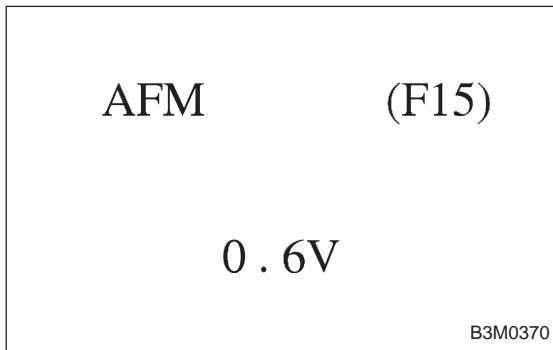
- (1) Connect connectors to TCM and ECM.
- (2) Turn ignition switch to OFF.
- (3) Connect the Subaru select monitor to data link connector.
- (4) Turn ignition switch to ON and Subaru select monitor switch to ON.
- (5) Start and warm-up the engine.

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

Function mode: F15

SPECIFIED DATA:

0.5 — 1.2 V (Engine warm-up)



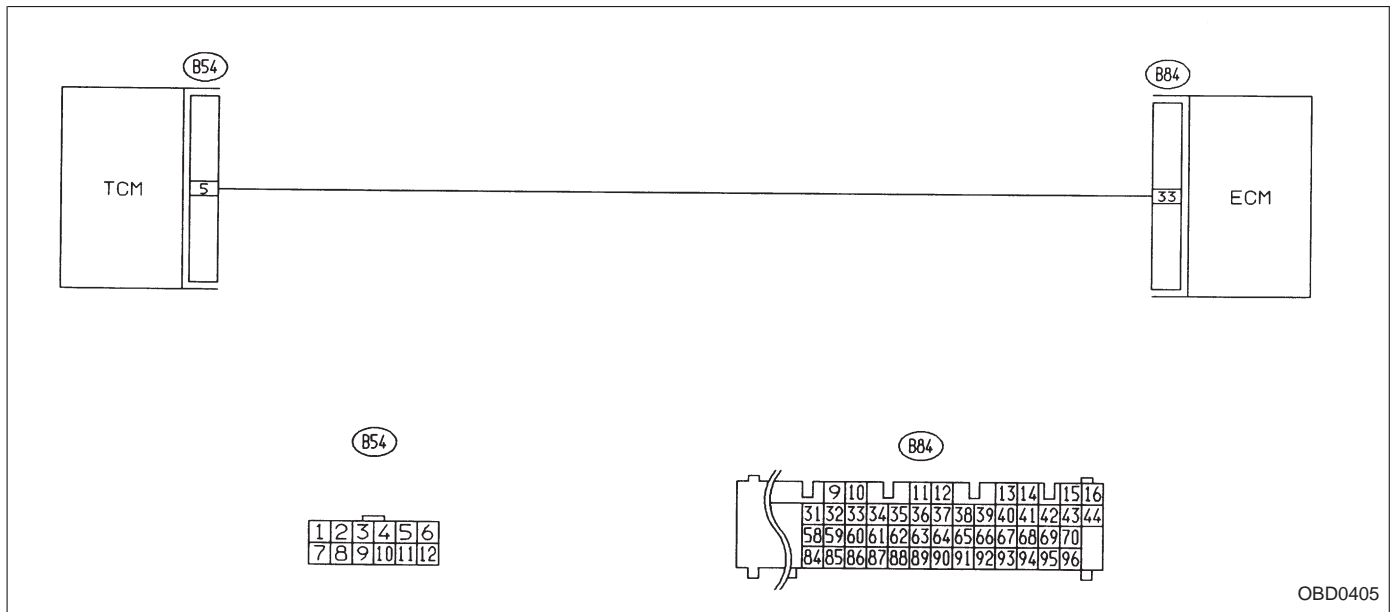
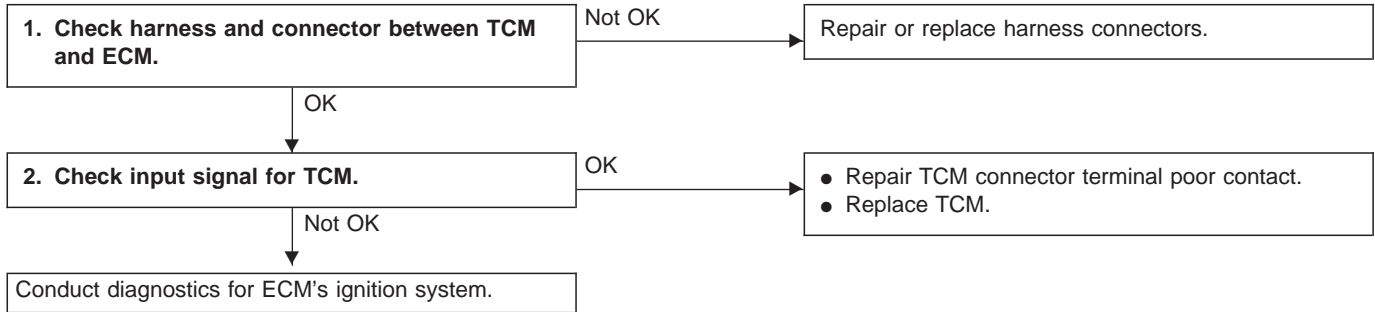
**I: TROUBLE CODE 23
— ENGINE SPEED SIGNAL —**

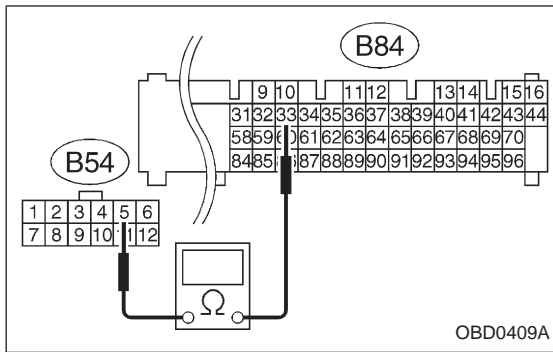
DIAGNOSIS:

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".

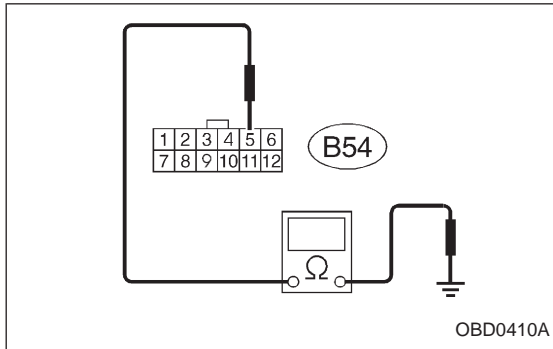




1. CHECK HARNESS AND CONNECTOR BETWEEN TCM AND ECM.

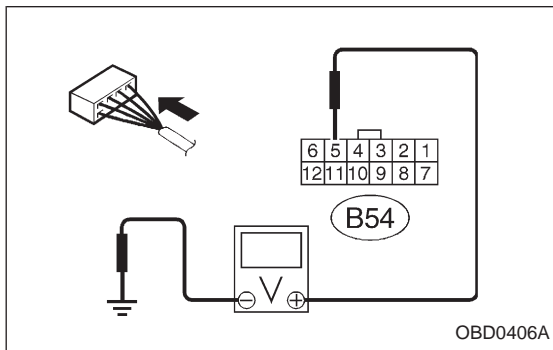
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and ECM.
- 3) Measure resistance of harness connector between TCM and ECM.

Connector & terminal / Specified resistance:
(B54) No. 5 — (B84) No. 33 / 1 Ω, or less



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

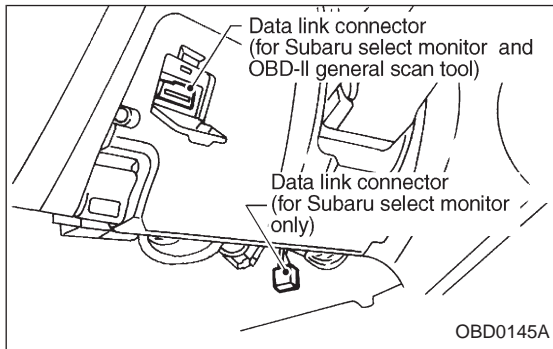
Connector & terminal / Specified resistance:
(B54) No. 5 — Body / 1 MΩ, or more



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.

EREV (F06)

1,500 rpm

G3M0727

- (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)

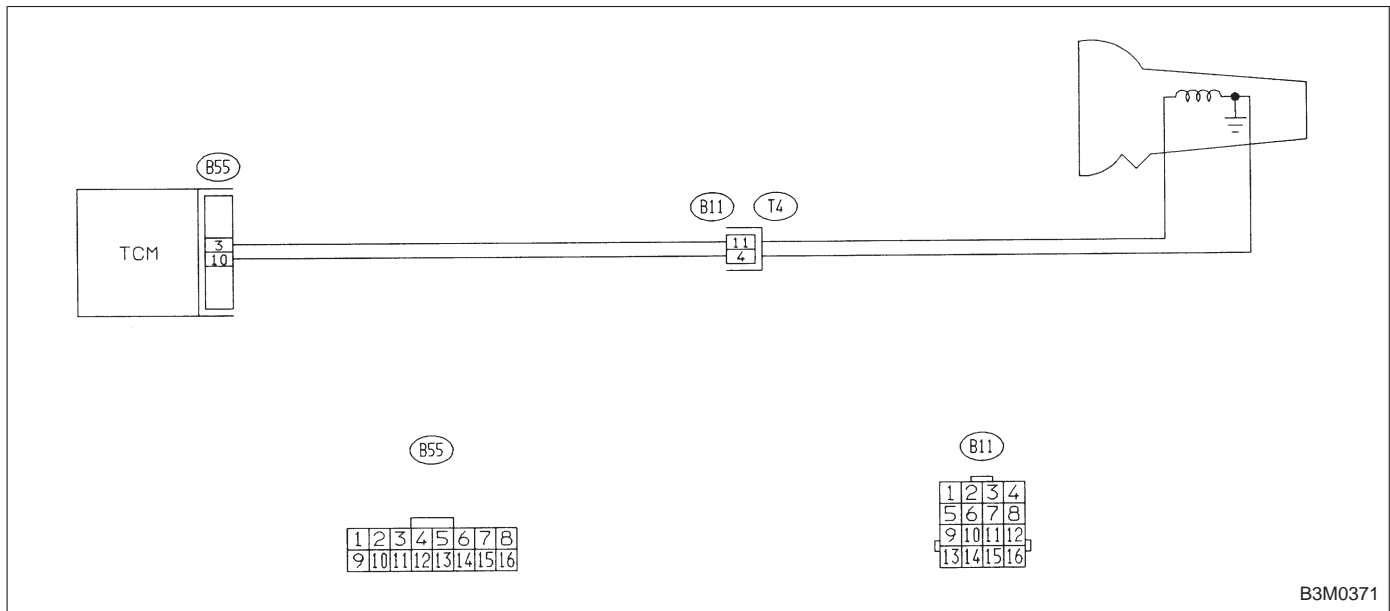
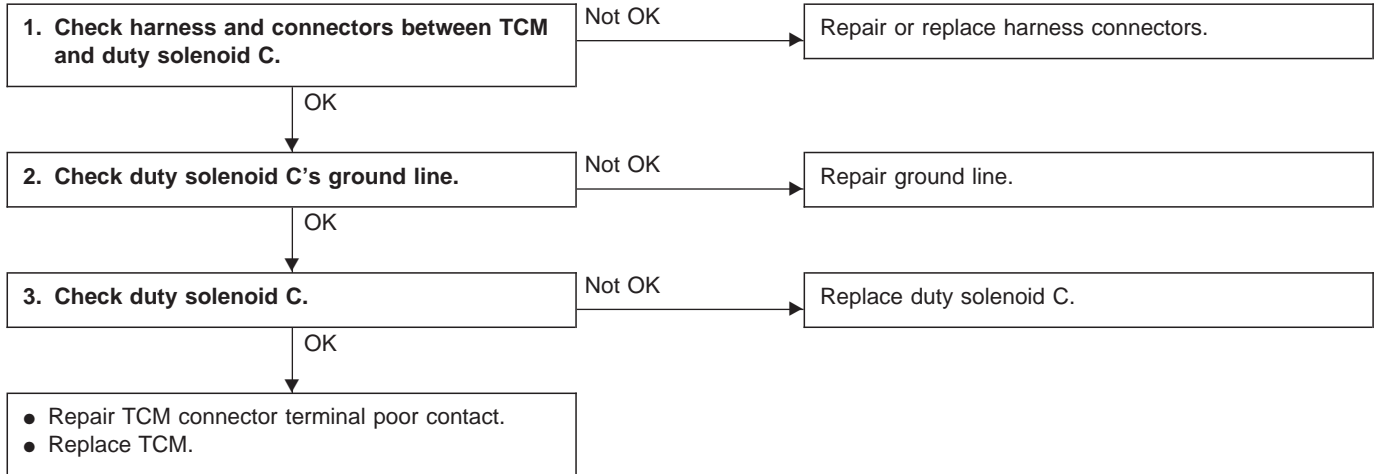
**J: TROUBLE CODE 24
— DUTY SOLENOID C —**

DIAGNOSIS:

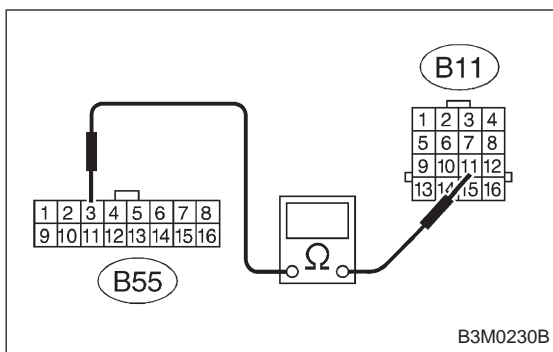
Output signal circuit of duty solenoid C is open or shorted.

TROUBLE SYMPTOM:

Excessive “braking” in tight corners



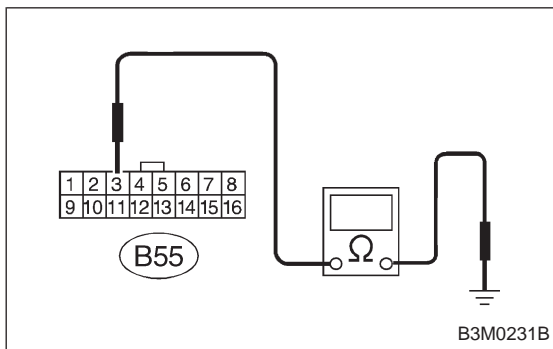
B3M0371



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

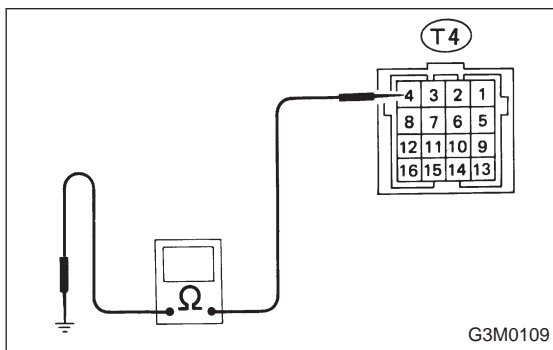
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and transmission.
- 3) Measure resistance of harness connector between TCM and transmission.

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.

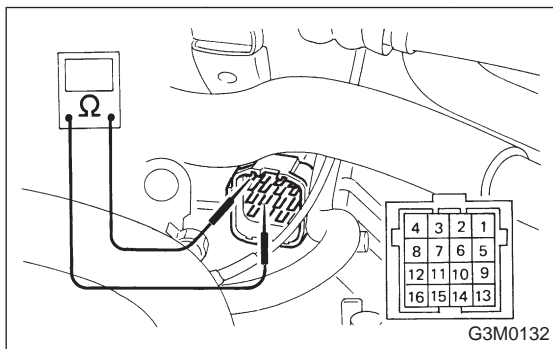
Connector & terminal / Specified resistance:
(B55) No. 3 — Body / 1 MΩ, or more



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.

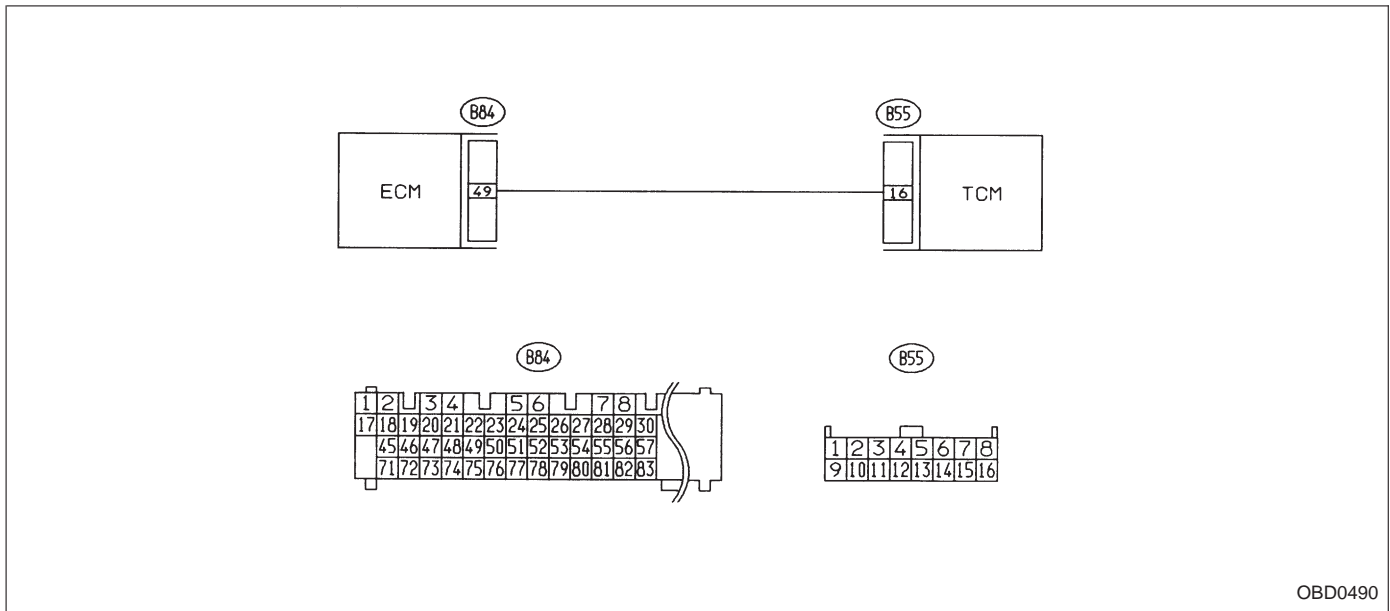
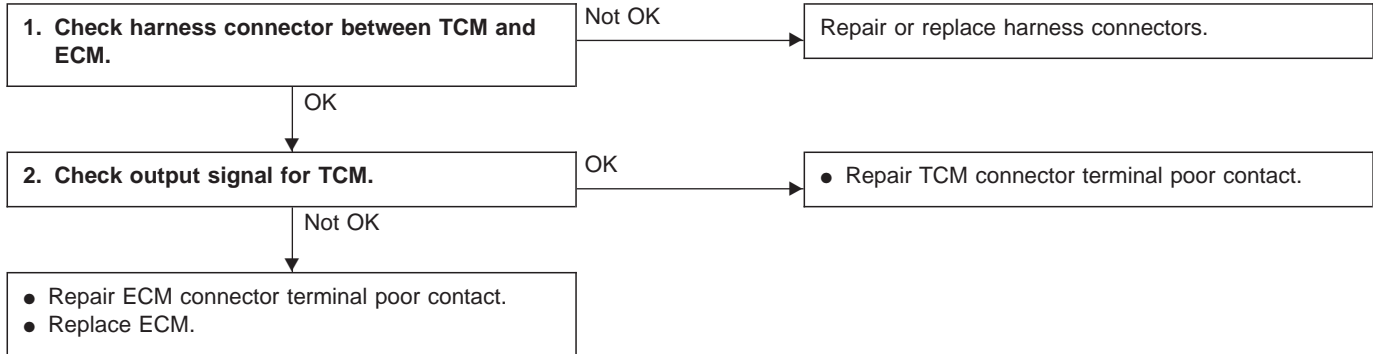
Measure resistance between transmission connector receptacle's terminals.

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

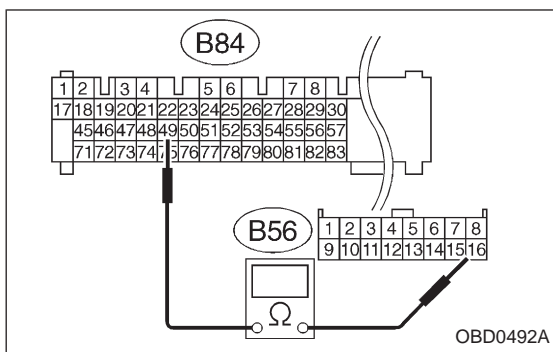
**K: TROUBLE CODE 25
— TORQUE CONTROL SIGNAL —**

DIAGNOSIS:

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



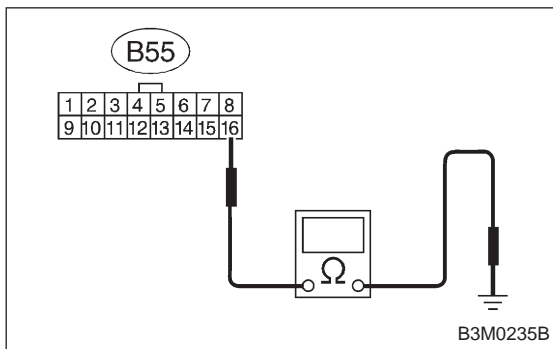
OBD0490



1. CHECK HARNESS CONNECTOR BETWEEN TCM AND ECM.

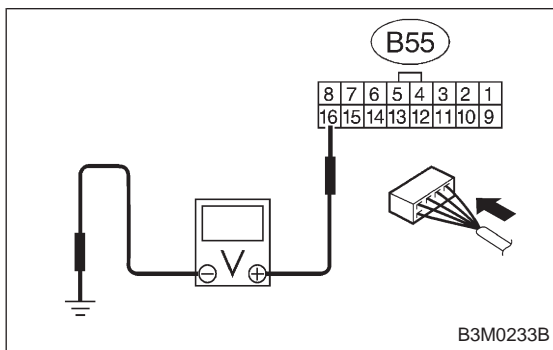
- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from TCM and ECM.
- 3) Measure resistance of harness connector between TCM and ECM.

Connector & terminal / Specified resistance:
(B55) No. 16 — (B84) No. 49 / 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

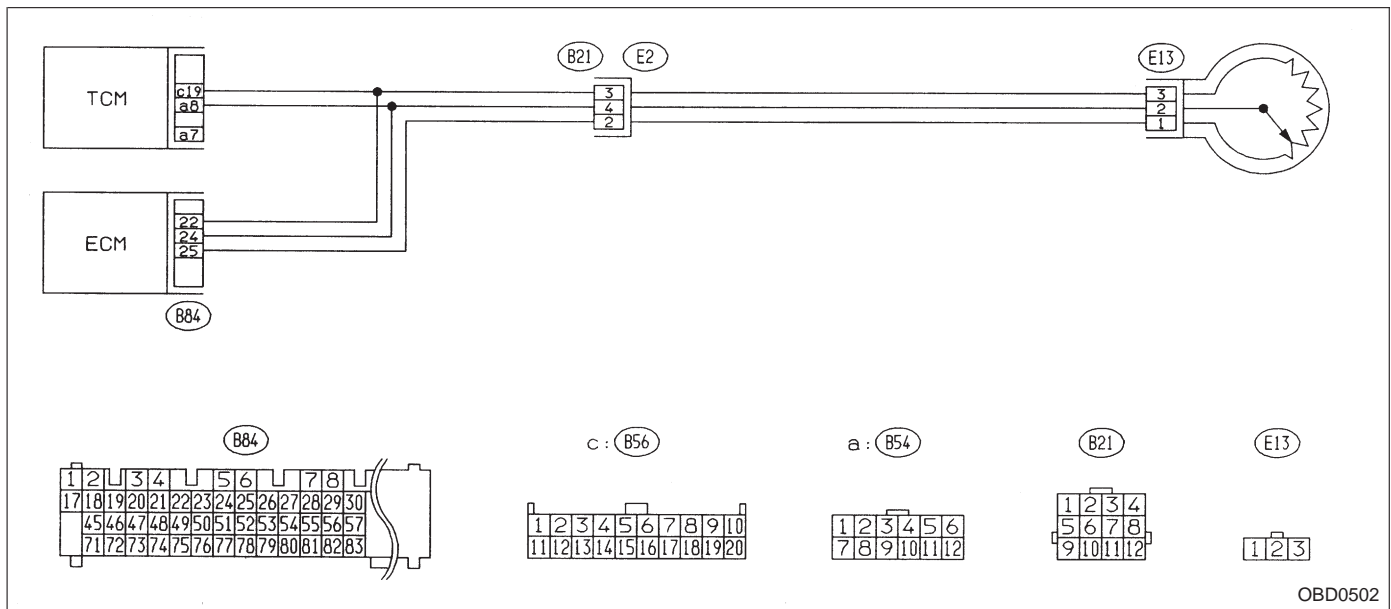
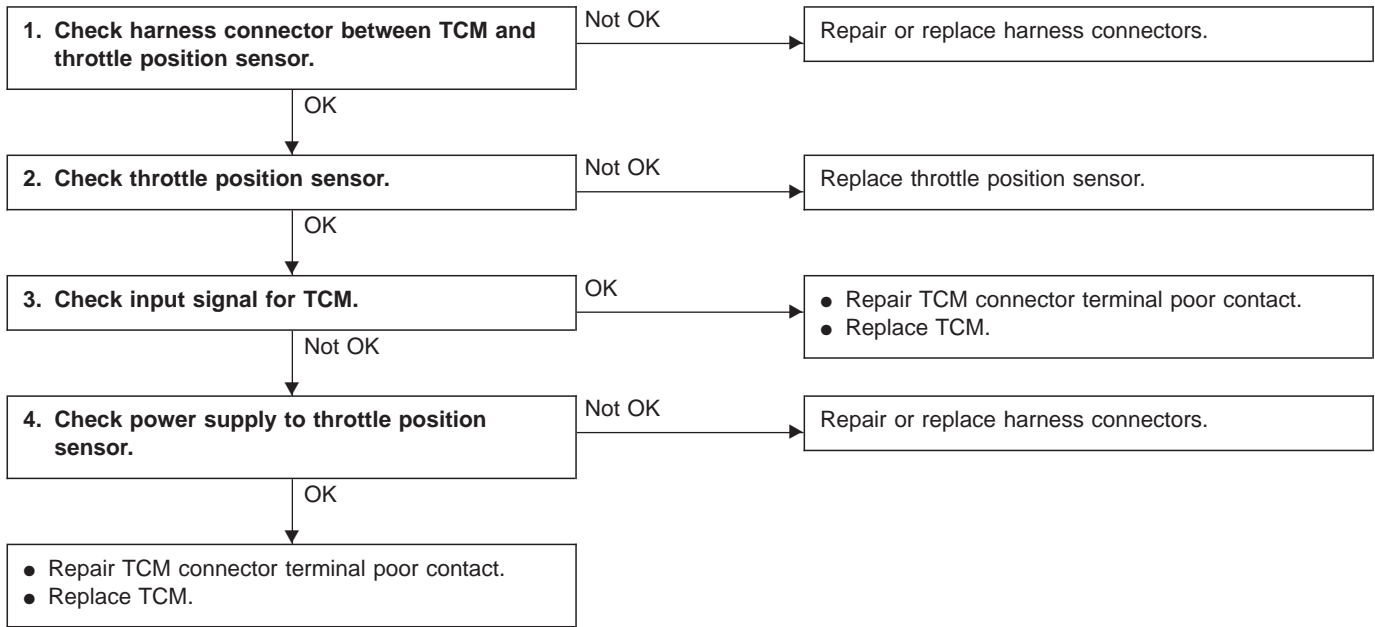
**L: TROUBLE CODE 31
— THROTTLE POSITION SENSOR —**

DIAGNOSIS:

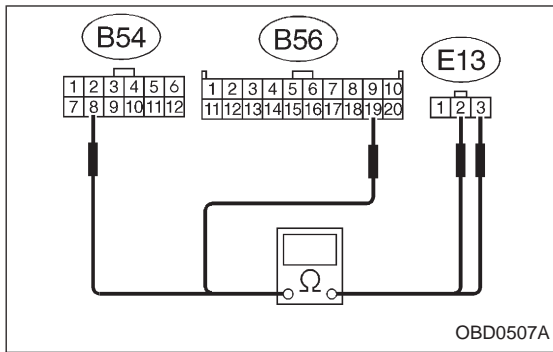
Input signal circuit of throttle position sensor is open or shorted.

TROUBLE SYMPTOM:

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



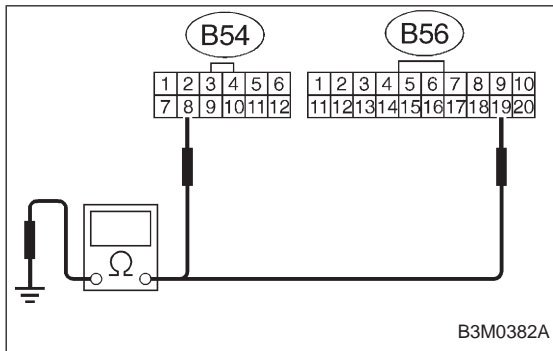
OBD0502



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

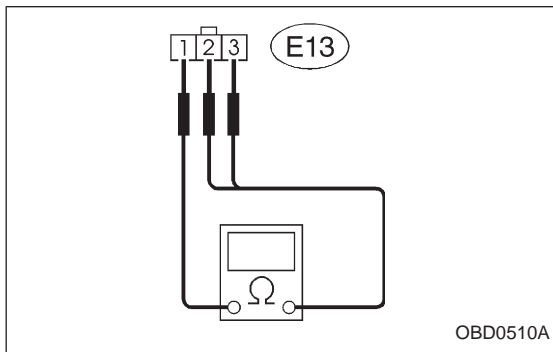
- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from TCM and throttle position sensor.
- 3) Measure resistance of harness connector between TCM and throttle position sensor.

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.

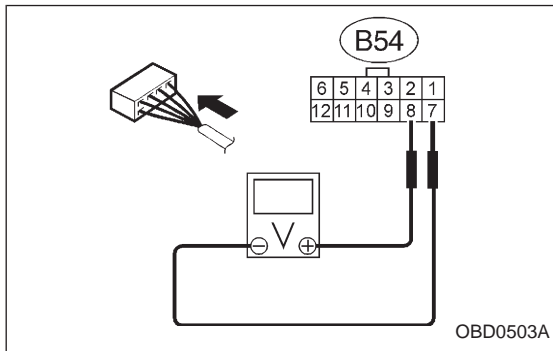
Connector & terminal / Specified resistance:
(B54) No. 8 — Body / 1 MΩ, or more
(B56) No. 19 — Body / 1 MΩ, or more



2. CHECK THROTTLE POSITION SENSOR.

Measure resistance between throttle position sensor terminals.

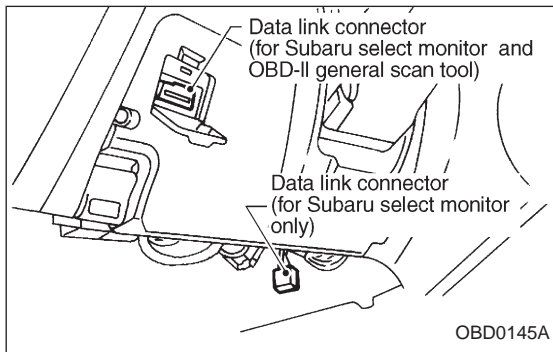
Terminals / Specified resistance:
(E13) No. 1 — No. 2 / 0.3 — 0.7 kΩ
(Throttle fully closed.)
3 — 6 kΩ
(Throttle fully open.)
(E13) No. 1 — No. 3 / 3.5 — 6.5 kΩ



3. CHECK INPUT SIGNAL FOR TCM.

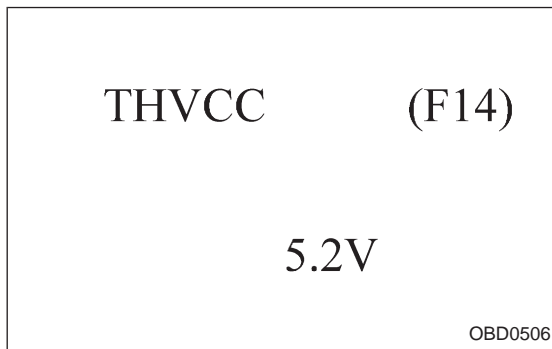
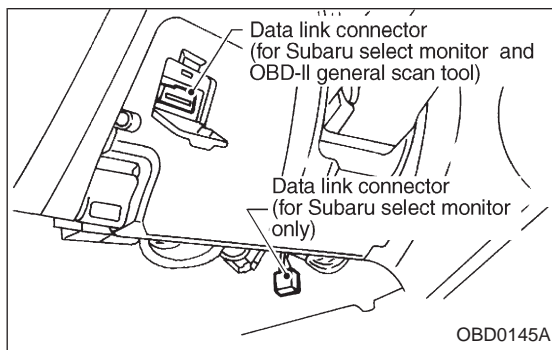
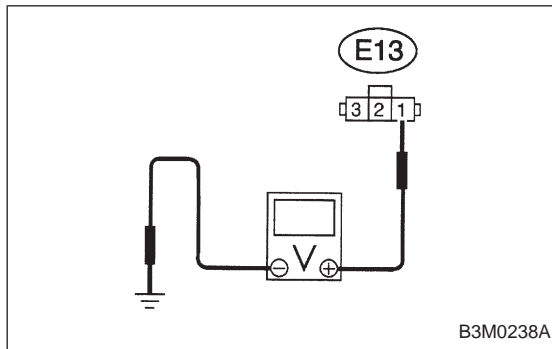
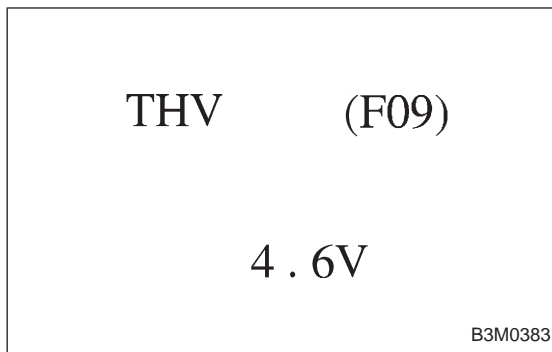
- 1) Connect connectors to TCM and throttle position sensor.
- 2) Turn ignition switch ON (with engine OFF).
- 3) Measure signal voltage input emitted from throttle position sensor with accelerator pedal fully depressed.

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

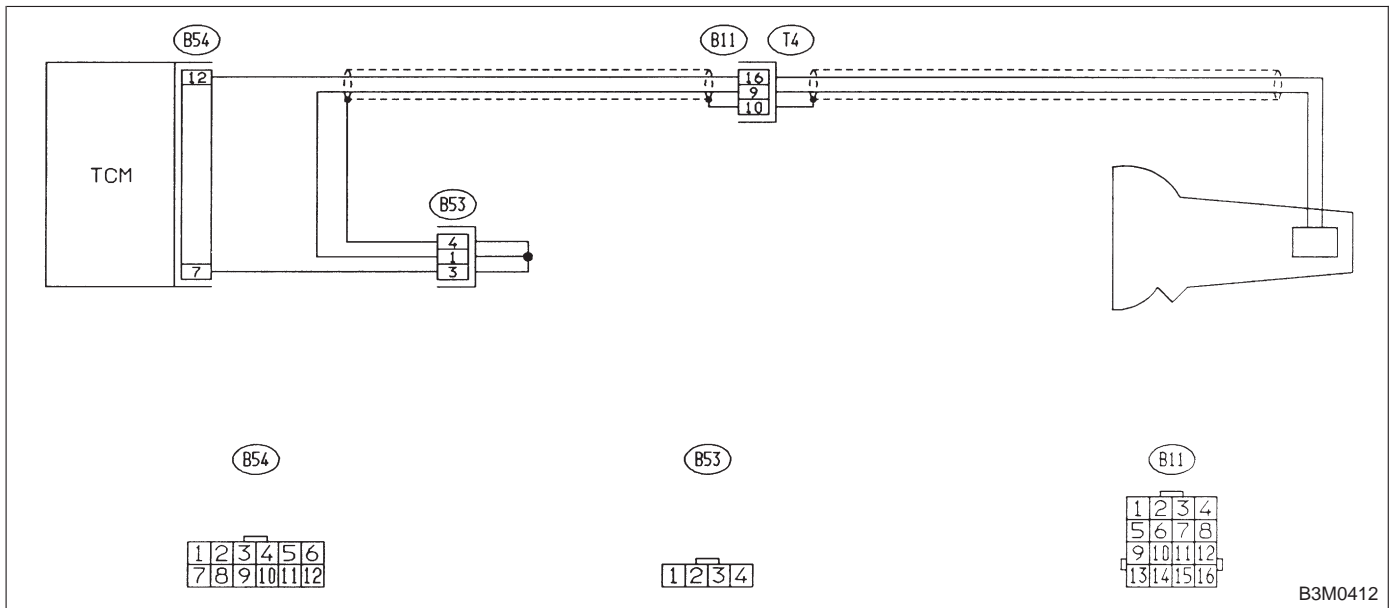
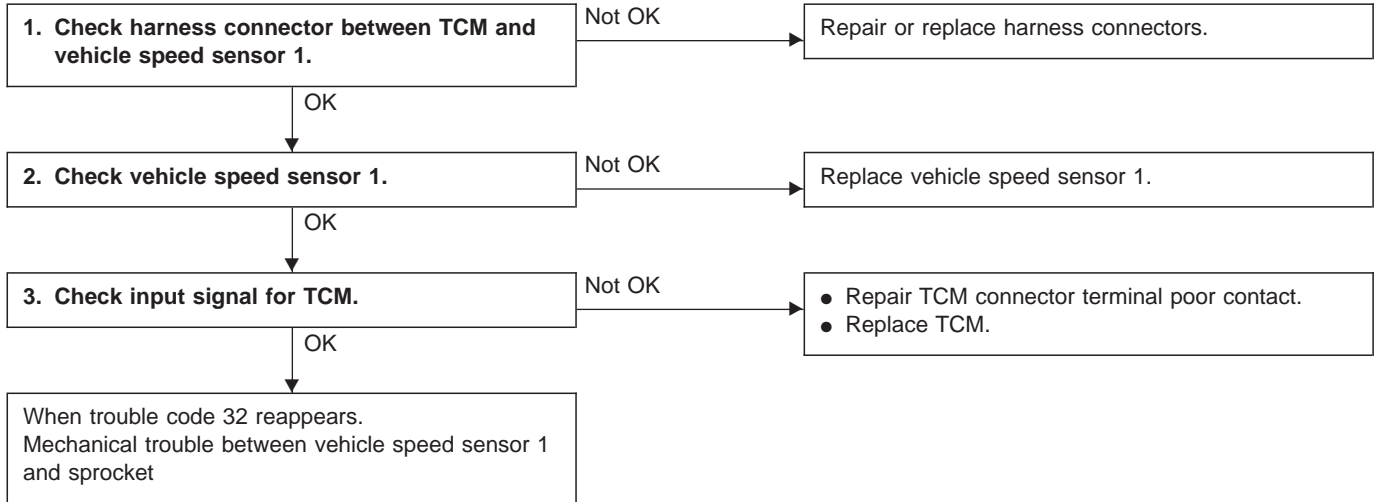
**M: TROUBLE CODE 32
— VEHICLE SPEED SENSOR 1 —**

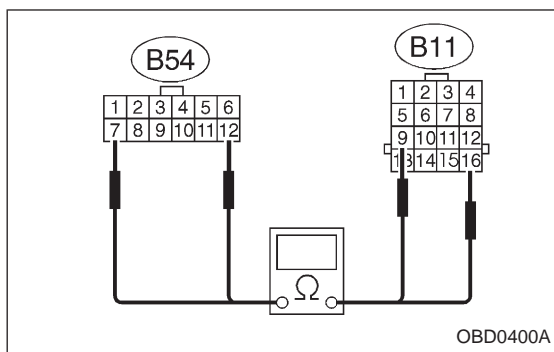
DIAGNOSIS:

Input signal circuit of TCM is open or shorted.

TROUBLE SYMPTOM:

No locking-up or excessive tight corner “braking”





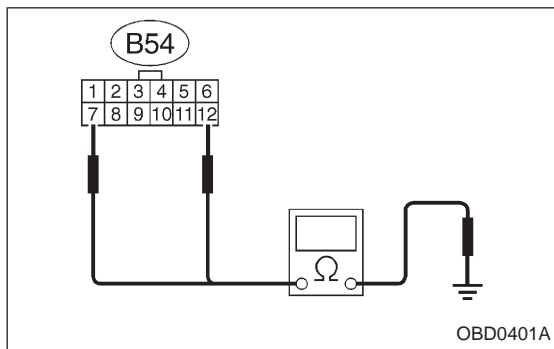
1. CHECK HARNESS CONNECTOR BETWEEN TCM AND VEHICLE SPEED SENSOR 1.

- 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 Ω , or less

(B54) No. 7 — (B11) No. 9 / 1 Ω , or less

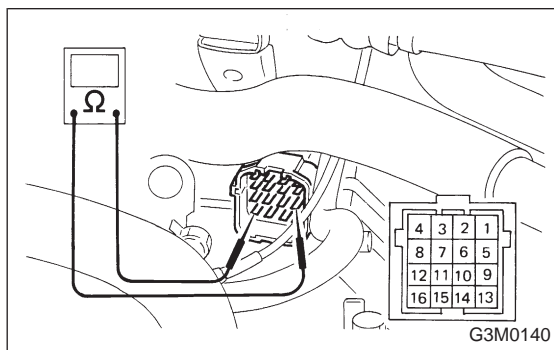


- 4) Measure resistance of harness connector between TCM and body to make sure that circuit does not short.

Connector & terminal / Specified resistance:

(B54) No. 7 — Body / 1 M Ω , or more

(B54) No. 12 — Body / 1 M Ω , or more

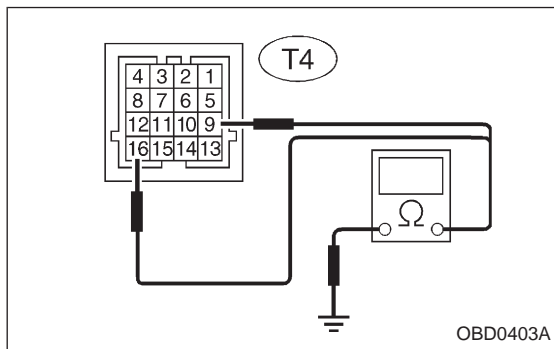


2. CHECK VEHICLE SPEED SENSOR 1.

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

Connector & terminal / Specified resistance:

(T4) No. 16 — No. 9 / 450 — 720 Ω

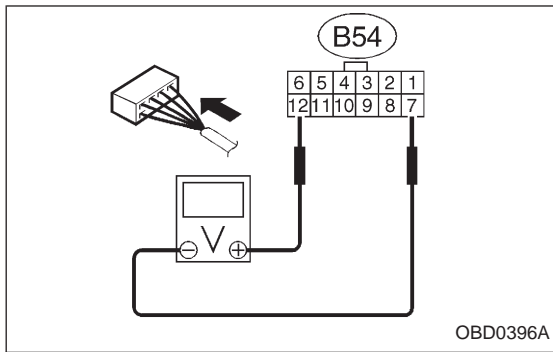


- 2) Measure resistance of harness connector between transmission connector and transmission case to make sure that circuit does not short.

Connector & terminal / Specified resistance:

(T4) No. 16 — Transmission / 1 M Ω , or more

(T4) No. 9 — Transmission / 1 M Ω , 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.

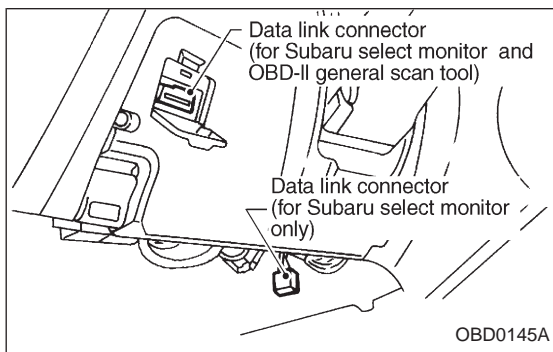
- 3) Push the TCS OFF switch to ON. (With TCS models)
- 4) Start the engine and set vehicle in 20 km/h (12 MPH) condition.
- 5) Measure voltage between TCM connector terminals.

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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>



● 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:

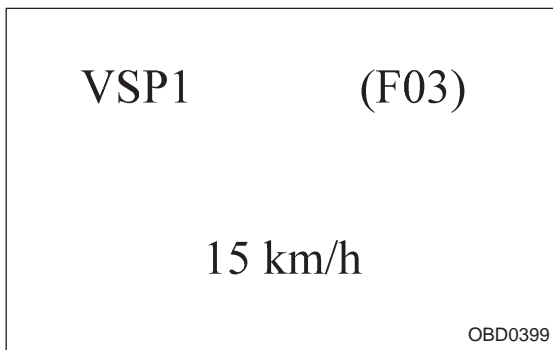
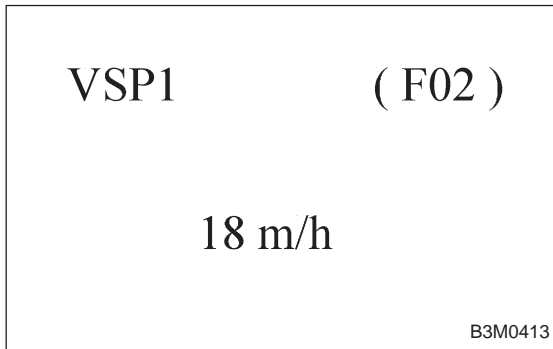
- F02: Compare speedometer with monitor indications.**
- F03: Compare speedometer with monitor indications.**

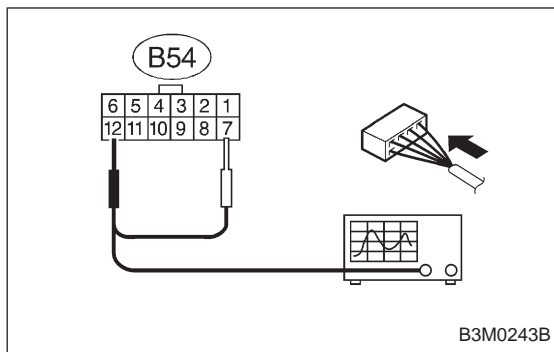
- F02: Vehicle speed is indicated in “m/h”.
- F03: Vehicle speed is indicated in “km/h”.

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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>





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

WARNING:

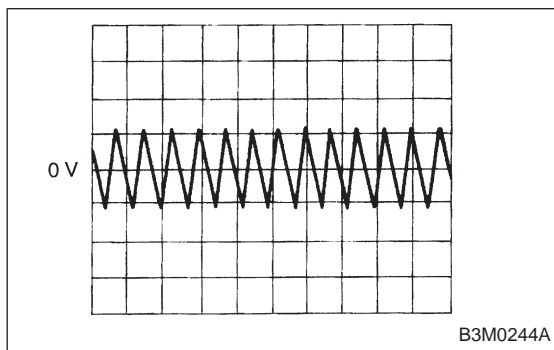
On AWD models, make sure that all wheels are raised off floor.

- (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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>

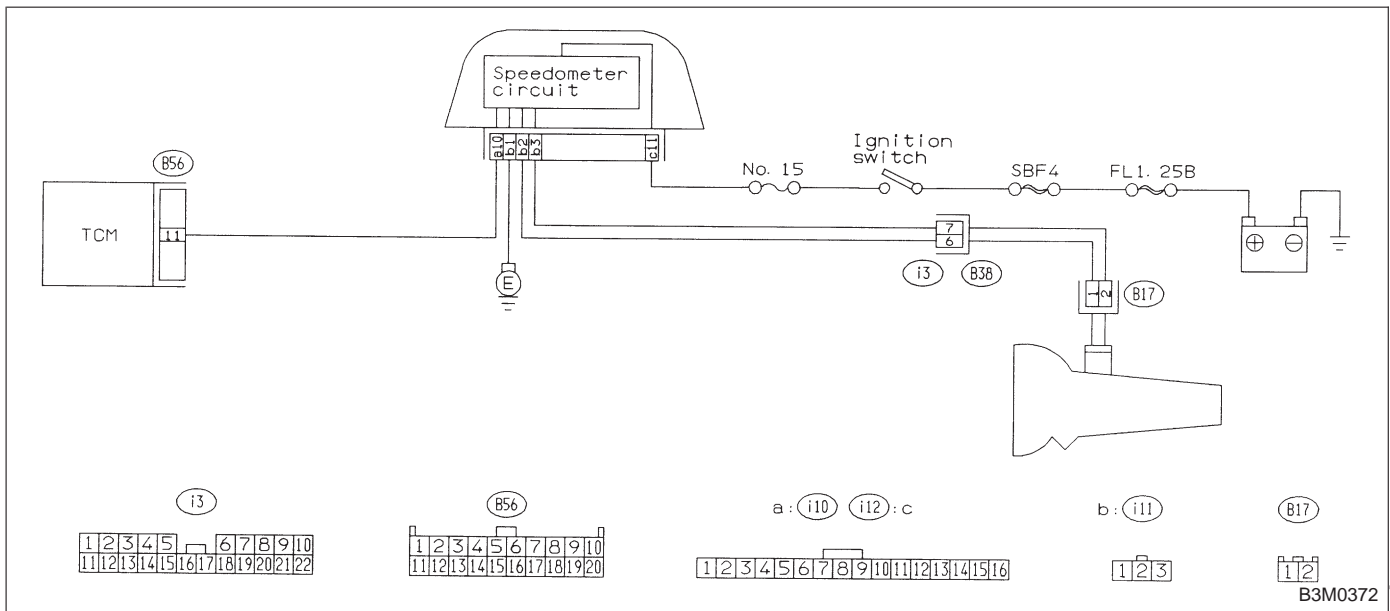
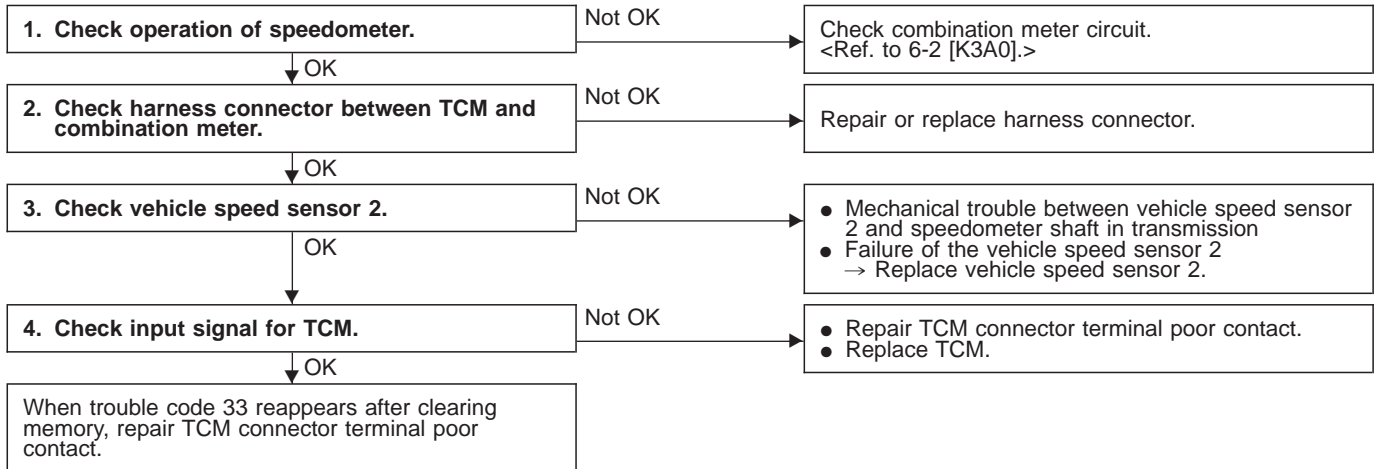
**N: TROUBLE CODE 33
— VEHICLE SPEED SENSOR 2 —**

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.

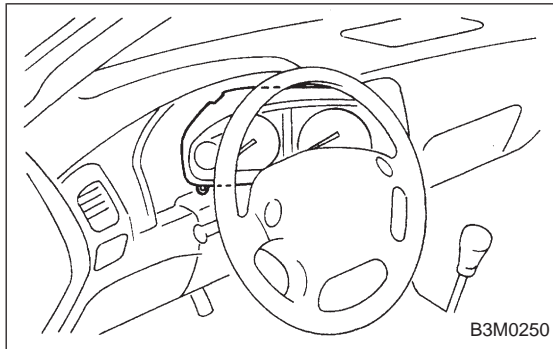
TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

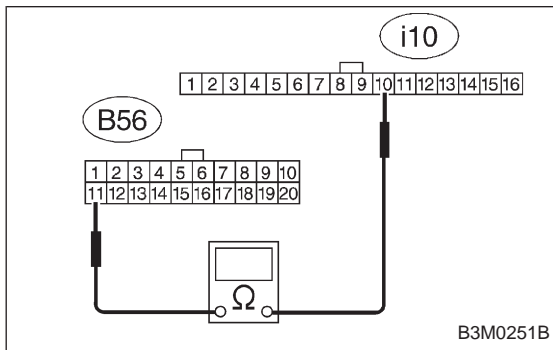


1. CHECK OPERATION OF SPEEDOMETER.

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

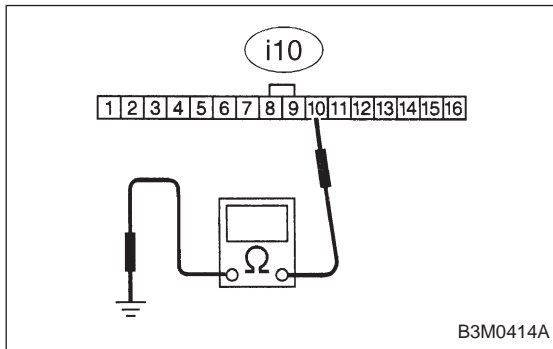
**2. CHECK HARNESS CONNECTOR BETWEEN TCM AND COMBINATION METER.**

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



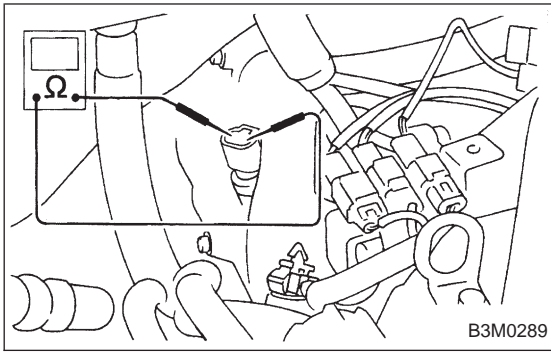
- 3) Disconnect connectors from TCM.
- 4) Measure resistance of harness connector between TCM and combination meter.

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.

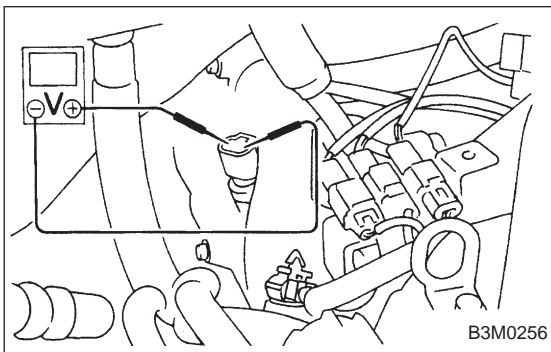
CAUTION:

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.

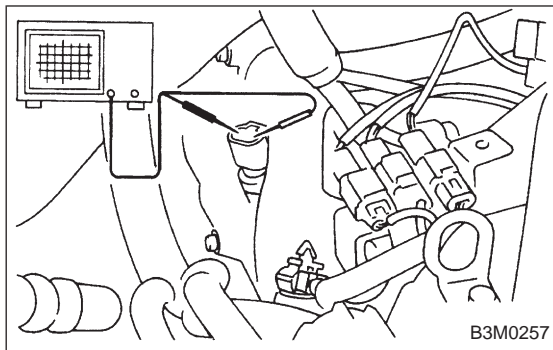
Terminals / Specified voltage:

- (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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>



- 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.

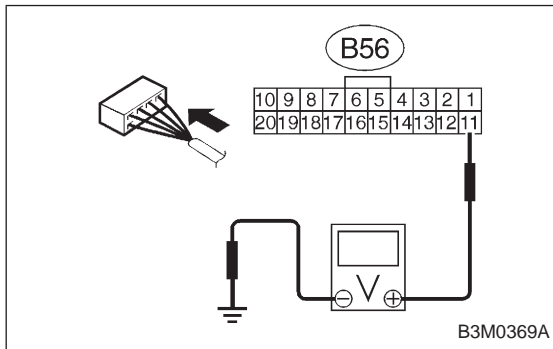
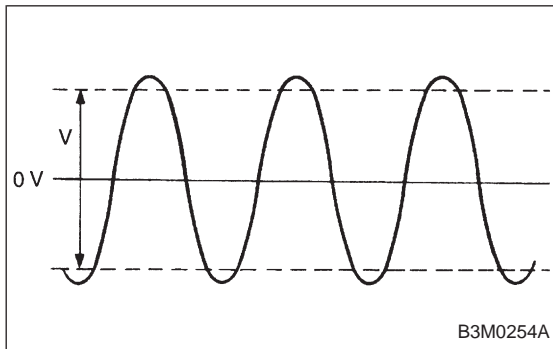
Connector & terminal / No. 1 — No. 2

- (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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>

**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.

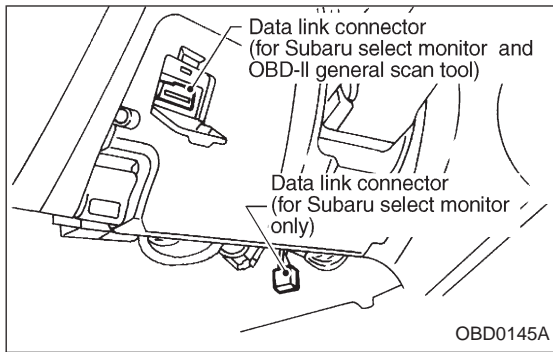
- 3) Push the TCS OFF switch to ON. (With TCS models)
- 4) Start the engine, and drive the wheels slowly.
- 5) Measure voltage between TCM and body.

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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>

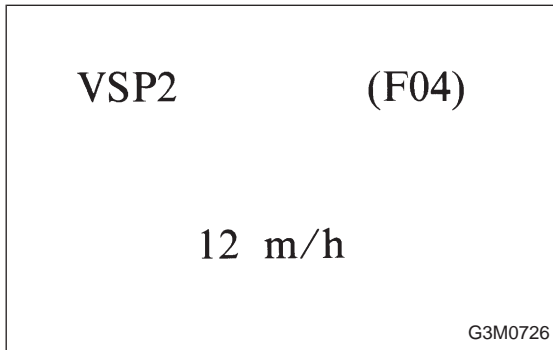


- Using Subaru select monitor:
 - (1) Install combination meter.
 - (2) Connect connectors to TCM and vehicle speed sensor 2.
 - (3) Lift-up the vehicle or set the vehicle on free roller.
 - (4) Turn ignition switch to OFF.
 - (5) Connect the Subaru select monitor to data link connector.
 - (6) Turn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

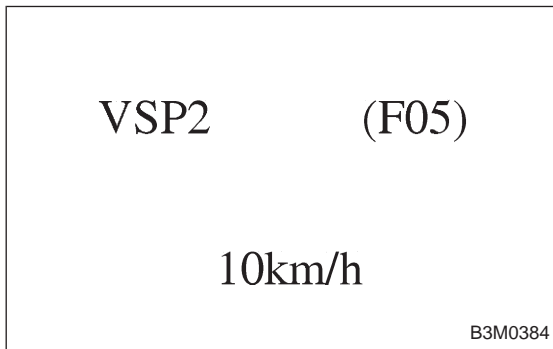
Compare speedometer with select monitor indications.

- 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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>



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

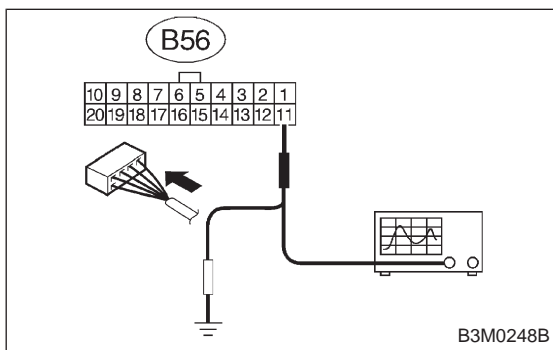
CAUTION:

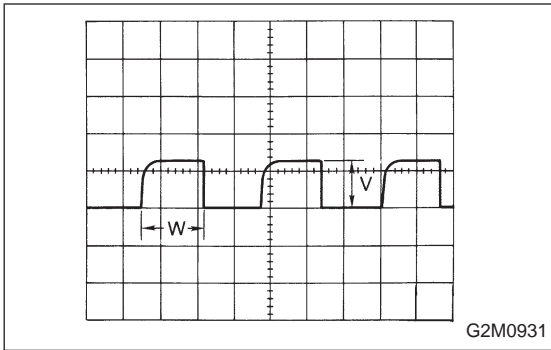
On AWD models, raise all wheels off floor.

- (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 4-4a [T6C2], or 4-4b [T6D2], [T9K0].>