

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Basic Diagnostic Procedure

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

Step	Check	Yes	No
1 CHECK PRE-INSPECTION. 1) Ask the customer when and how trouble occurred using the check list for interview. <Ref. to 6MT(diag)-4, Check List for Interview.> 2) Before performing diagnosis, inspect the unit which might influence the driver's control center differential. <Ref. to 6MT(diag)-5, INSPECTION, General Description.>	Is unit that might influence the driver's control center differential problem normal?	Go to step 2.	Repair the faulty unit.
2 CALLING UP THE DTC. Check the DTC. <Ref. to 6MT(diag)-20, WITH SUBARU SELECT MONITOR, OPERATION, Read Diagnostic Trouble Code (DTC).> NOTE: <ul style="list-style-type: none">• For DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-25, List of Diagnostic Trouble Code (DTC).>• If the communication function of the Subaru Select Monitor cannot be executed normally, check the communication circuit.	Is the DTC called up?	Go to step 3. NOTE: Record all DTC.	Go to step 4.
3 PERFORM THE DIAGNOSIS. 1) Inspect and repair the all DTC using "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-27, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> NOTE: For DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-25, List of Diagnostic Trouble Code (DTC).> 2) Start the engine. 3) Read the DTC using Subaru Select Monitor. <Ref. to 6MT(diag)-20, WITH SUBARU SELECT MONITOR, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is the DTC displayed?	Record all DTC, and inspect using "Diagnostic Procedure with Diagnostic Trouble Code (DTC)" <Ref. to 6MT(diag)-27, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Repeat "PERFORM THE DIAGNOSIS" until any DTC is not displayed.	Go to step 4.
4 READ THE DTC WITH COMBINATION METER. Check DTC with combination meter. <Ref. to 6MT(diag)-20, READ DIAGNOSTIC TROUBLE CODE (DTC) WITH DIAGNOSTIC INDICATOR LIGHT., OPERATION, Read Diagnostic Trouble Code (DTC).> NOTE: For details concerning DTCs refer to the "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-25, List of Diagnostic Trouble Code (DTC).>	Is the DTC called up?	Go to step 5. NOTE: Record all DTC.	Inspect using "Cannot calling up DTC". <Ref. to 6MT(diag)-27, DTC CANNOT BE CALLED UP, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> NOTE: After the inspection, read the DTC again.

Basic Diagnostic Procedure

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Step	Check	Yes	No
5 PERFORM THE DIAGNOSIS. 1) Inspect and repair the all DTC using "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-27, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> NOTE: For DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-25, List of Diagnostic Trouble Code (DTC).> 2) Perform the inspection mode. <Ref. to 6MT(diag)-22, Inspection Mode.>	Is the DTC displayed?	Record all DTC, and inspect using "Diagnostic Procedure with Diagnostic Trouble Code (DTC)" <Ref. to 6MT(diag)-27, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Repeat "PERFORM THE DIAGNOSIS" until any DTC is not displayed.	Inspect using "General Diagnostic Table".

Check List for Interview

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2. Check List for Interview

A: CHECK

Check the following items when problem has occurred.

NOTE:

Use copies of this page for interviewing customers.

Customer's name			
Date of purchase			
Date of repair			
Trans. model	TRANSMISSION	VIN	
Odometer reading	km or miles		
Frequency	<input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent (times a day)		
Weather	<input type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy <input type="checkbox"/> Snowy <input type="checkbox"/> Various/Others ()		
Place	<input type="checkbox"/> High <input type="checkbox"/> Suburbs <input type="checkbox"/> Inner city <input type="checkbox"/> Uphill <input type="checkbox"/> Rough road <input type="checkbox"/> Others ()		
Outdoor temperature	<input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold		
Vehicle speed	km/h (MPH)		
Driver's control center differential indicator light	<input type="checkbox"/> Flashing		<input type="checkbox"/> Except flashing
Driving condition	<input type="checkbox"/> Not affected <input type="checkbox"/> While decelerating	<input type="checkbox"/> At starting <input type="checkbox"/> While accelerating	<input type="checkbox"/> While turning (<input type="checkbox"/> RH / <input type="checkbox"/> LH) <input type="checkbox"/> While cruising
Symptoms	<input type="checkbox"/> No change to AUTO or MANUAL <input type="checkbox"/> No change of front and rear torque distribution <input type="checkbox"/> No change to differential free <input type="checkbox"/> No change to differential lock <input type="checkbox"/> Tight cornering condition is occurred in AUTO or MANUAL mode with differential free <input type="checkbox"/> Noise or vibration <input type="checkbox"/> Others ()		

General Description

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3. General Description

A: CAUTION

Supplemental restraint system airbag wiring harness is routed near the driver's control center differential control module.

CAUTION:

- All airbag system connectors are colored yellow. Do not use the electrical test equipment on these circuits.
- Be careful not to damage the airbag system wiring harness when performing diagnostics and servicing the driver's control center differential control module.

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

B: INSPECTION

1. POWER SUPPLY

- 1) Measure battery voltage and specific gravity of electrolyte.

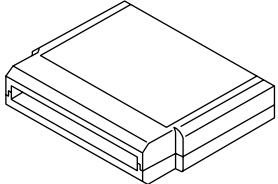
Standard of voltage: More than 12 V

Standard of gravity: More than 1.260

- 2) Check the condition of fuse.
- 3) Check the condition of harness and harness connector.

C: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
	18482AA010 (Newly adopted tool) ST18482AA010	CARTRIDGE	Troubleshooting for electrical system.
	22771AA030 ST22771AA030	SUBARU SELECT MONITOR KIT	Troubleshooting for electrical system.

2. GENERAL TOOL

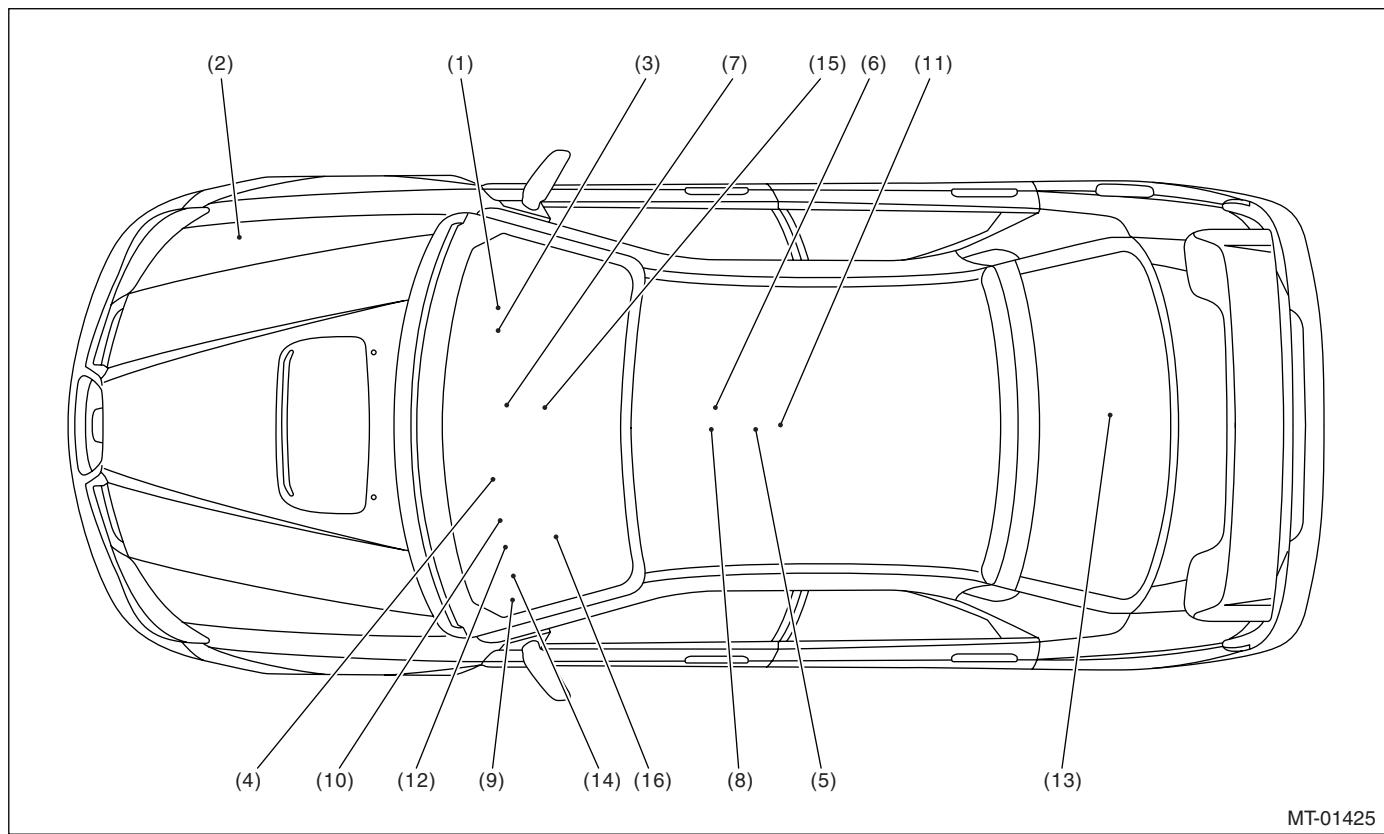
TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and ampere.
Oscilloscope	Used for measuring sensor.

Electrical Component Location

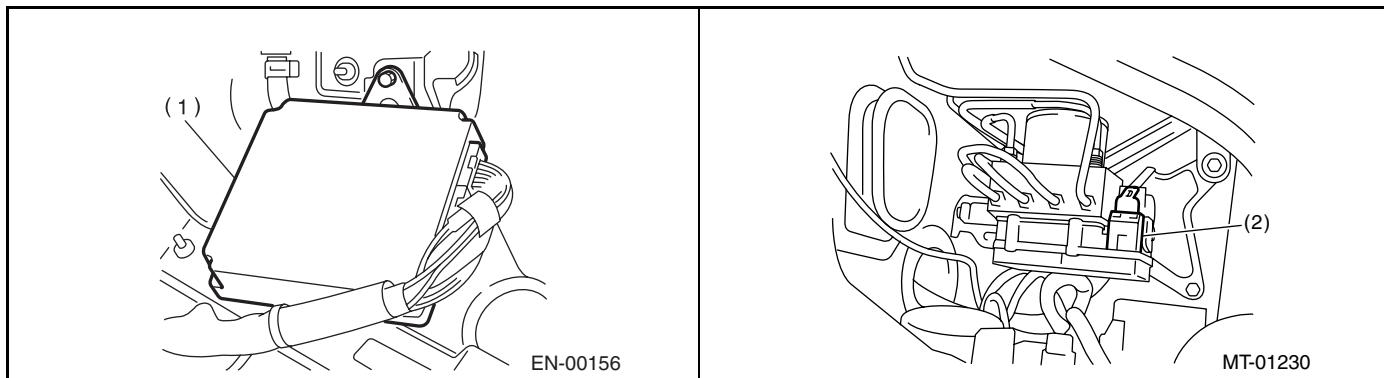
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4. Electrical Component Location

A: LOCATION

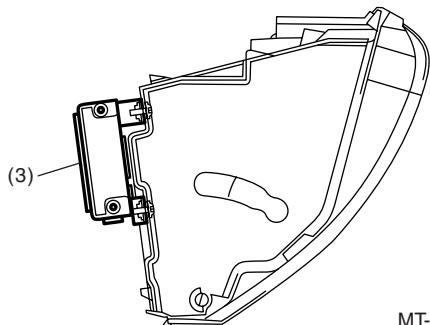


- | | | |
|---|---|---|
| (1) Engine control module (ECM) | (7) Center differential | (11) Parking brake switch |
| (2) ABS control module & hydraulic control unit (ABSCM&H/U) | (8) Manual mode switch | (12) Brake light switch |
| (3) Driver's control center differential control module | (9) Driver's control center differential relay | (13) Rear differential oil temperature switch |
| (4) Accelerator pedal position sensor | (10) Driver's control center differential indicator light (driver's control center differential diagnostic indicator light) | (14) Data link connector |
| (5) Yaw rate & lateral G sensor | | (15) Neutral position switch |
| (6) Center differential control dial | | (16) Steering angle sensor |

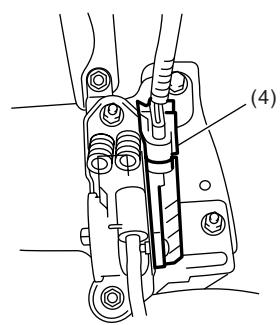


Electrical Component Location

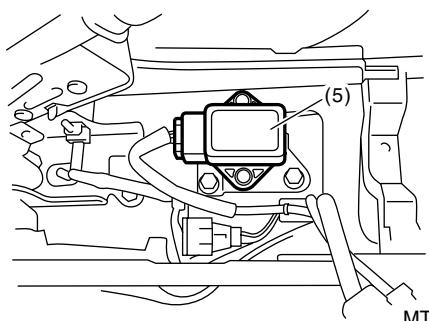
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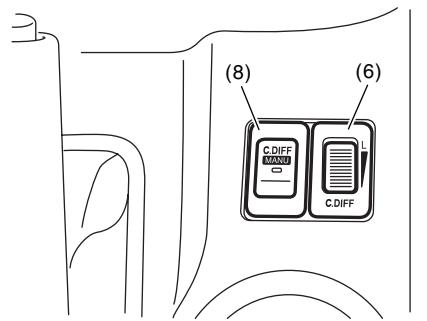
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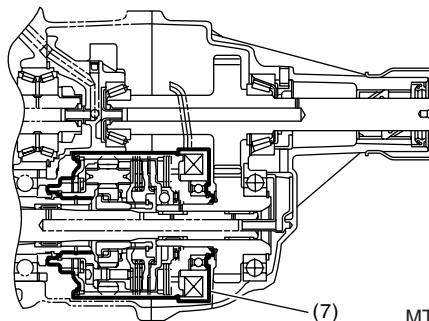
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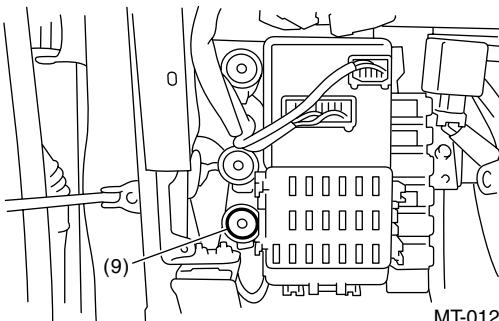
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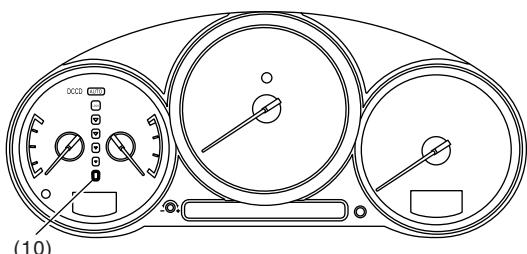
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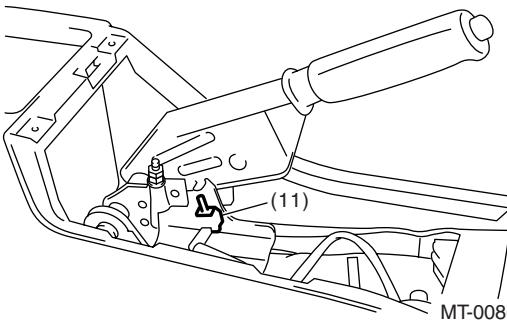
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MT-01233



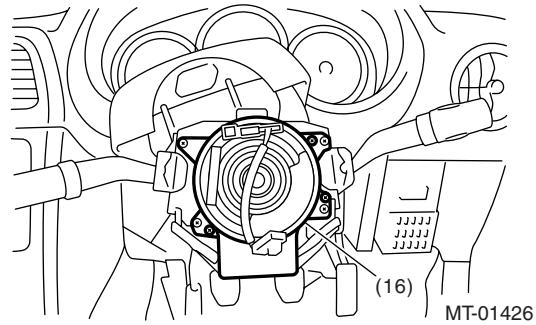
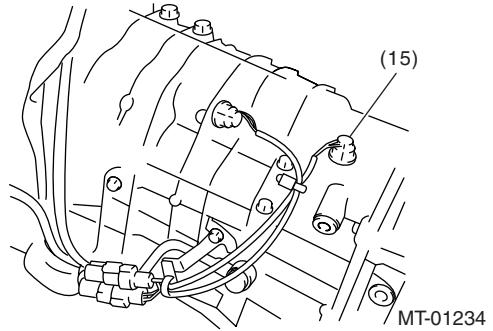
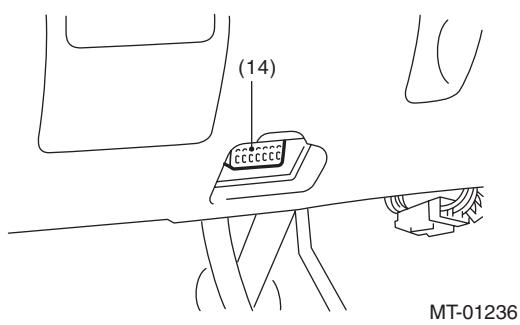
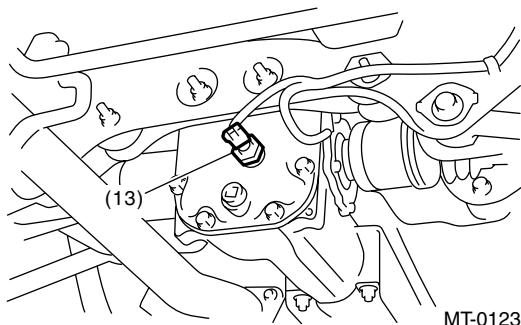
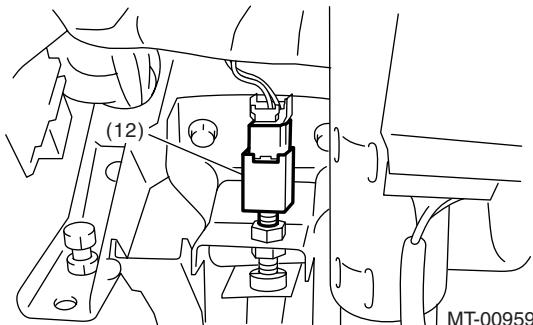
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Electrical Component Location

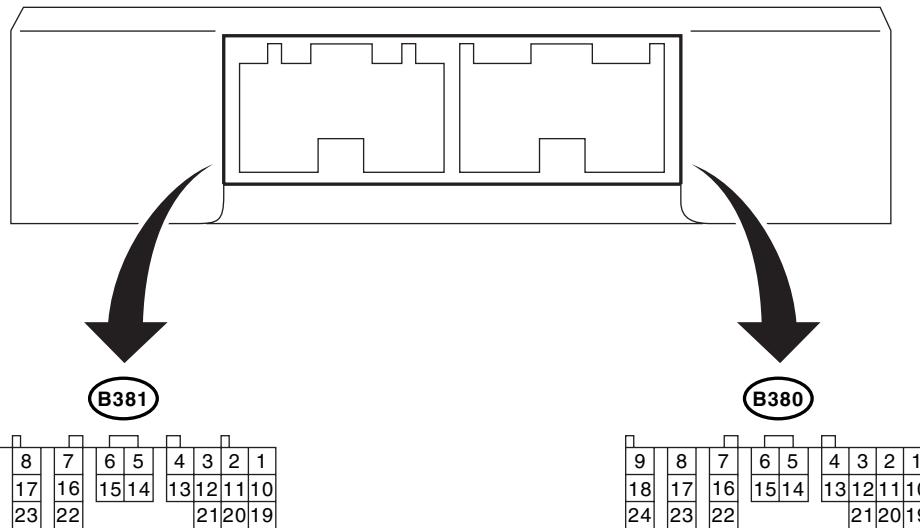
MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)



SUBARU.

5. Driver's Control Center Differential Control Module I/O Signal

A: ELECTRICAL SPECIFICATION



MT-01237

Check with ignition switch ON.					
Item	Measurement terminal (Connector & terminal No.)		Measuring conditions	Voltage (V)	Resistance (Ω)
	Positive terminal	Ground terminal			
Back-up power supply	(B381) No. 17	Chassis ground	—	10 — 13	—
Ignition power supply	(B381) No. 5	Chassis ground	Ignition switch ON (engine OFF)	10 — 13	—
	(B381) No. 6	Chassis ground			
Driver's control center differential power supply	(B381) No. 7	Chassis ground	Ignition switch ON (engine OFF)	10 — 13	—
	(B381) No. 8				—
Driver's control relay	(B381) No. 10	Chassis ground	Ignition switch ON (engine OFF)	Less than 1	—
Accelerator pedal position sen- sor	(B380) No. 2	Chassis ground	Accelerator pedal is released.	0.3 — 0.8	—
			Accelerator pedal is fully depressed.	2.8 — 4.7	—
Center differential control dial power supply	(B380) No. 23	(B381) No. 14	Ignition switch ON (engine OFF)	Approx. 5	—
Center differential control dial ground	(B381) No. 14	Chassis ground	—	—	—
Center differential control dial input signal	(B380) No. 3	(B381) No. 14	When differential is locked	Approx. 5	—
			When differential is free	Less than 0.5	—

Driver's Control Center Differential Control Module I/O Signal

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

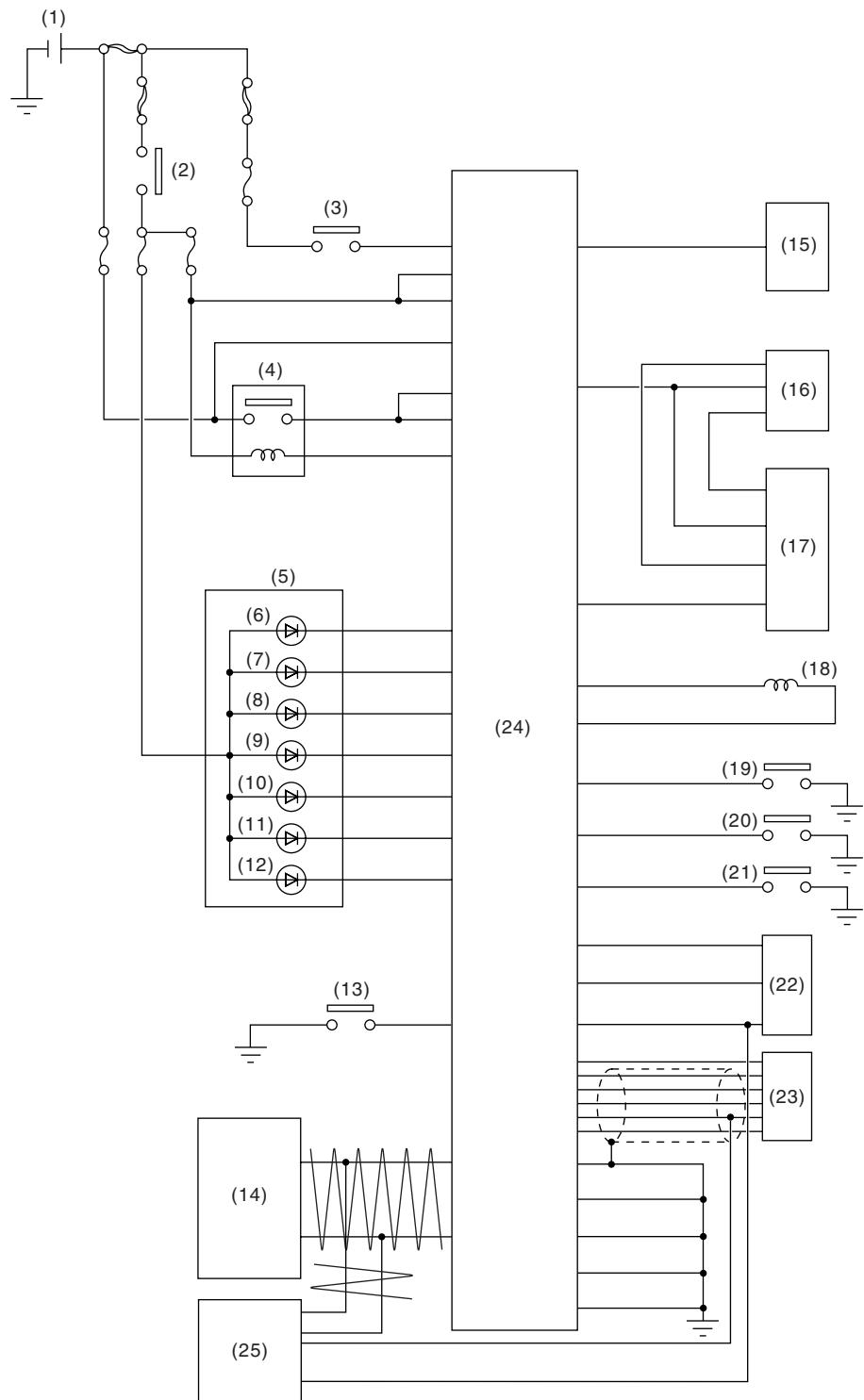
Check with ignition switch ON.					Resistance (Ω)	
Item	Measurement terminal (Connector & terminal No.)		Measuring conditions	Voltage (V)		
	Positive terminal	Ground terminal				
Driver's control center differential output	(B381) No. 9	(B381) No. 24	When differential is locked (When driver's control center differential indicator light is in differential lock)	7.0 — 9.0	1.2 — 2.5	
			When differential is free (When parking brake is applied)	Less than 0.5		
Driver's control center differential ground	(B381) No. 24	Chassis ground	When differential is free	Less than 0.5	—	
Parking brake switch	(B380) No. 5	Chassis ground	When parking brake is applied.	Less than 0.4	—	
			When parking brake is released.	8 or more		
Driver's control center differential indicator light (Lock ratio 0%)	(B381) No. 4	Chassis ground	When illuminates	Less than 1	—	
			When turned off	8 or more		
Driver's control center differential indicator light (Lock ratio 15%)	(B381) No. 3	Chassis ground	When illuminates	Less than 1	—	
			When turned off	8 or more		
Driver's control center differential indicator light (Lock ratio 35%)	(B381) No. 2	Chassis ground	When illuminates	Less than 1	—	
			When turned off	8 or more		
Driver's control center differential indicator light (Lock ratio 65%)	(B381) No. 1	Chassis ground	When illuminates	Less than 1	—	
			When turned off	8 or more		
Driver's control center differential indicator light (Lock ratio 85%)	(B381) No. 13	Chassis ground	When illuminates	Less than 1	—	
			When turned off	8 or more		
Driver's control center differential indicator light (Lock ratio 100%)	(B381) No. 12	Chassis ground	When illuminates	Less than 1	—	
			When turned off	8 or more		
AUTO indicator light	(B381) No. 11	Chassis ground	When illuminates	Less than 1	—	
			When turned off	8 or more		
Stop light switch	(B380) No. 4	Chassis ground	When brake pedal is depressed.	8 or more	—	
			When brake pedal is released.	Less than 1		
Rear differential oil temperature switch	(B380) No. 14	Chassis ground	Rear differential switch ON	8 or more	—	
			Rear differential switch OFF	Less than 0.4		
Manual mode switch	(B380) No. 13	Chassis ground	Switch is released	4.3 or more	—	
			When throttle fully opens	Less than 0.1		
Data link signal (Subaru Select Monitor)	(B380) No. 9	Chassis ground	—	—	—	
CAN communication signal (+)	(B380) No. 18	Chassis ground	Ignition switch ON	Pulse signal	—	
CAN communication signal (-)	(B380) No. 24	Chassis ground	Ignition switch ON	Pulse signal	—	
Neutral position switch	(B380) No. 15	Chassis ground	When neutral	Less than 1	—	
			Except neutral	8 or more		
Engine speed signal	(B380) No. 6	Chassis ground	Ignition switch ON (engine OFF)	Less than 1	—	
			Ignition switch ON (idling)	5 or more (AC range)		

Driver's Control Center Differential Control Module I/O Signal

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Check with ignition switch ON.						Resistance (Ω)	
Item		Measurement terminal (Connector & terminal No.)		Measuring conditions	Voltage (V)		
		Positive terminal	Ground terminal				
Yaw rate & lateral G sensor	Input (Lateral G sensor)	(B380) No. 1	(B380) No. 11	Ignition switch ON (When vehicle on the level)	2.35 — 2.65	—	
	Power supply output	(B380) No. 22	(B380) No. 11	Ignition switch ON	8 or more	—	
	Input (Yaw rate sensor)	(B380) No. 10	(B380) No. 11	Ignition switch ON (engine OFF, vehicle parked, ABS in normal condition)	Waveform <Ref. to 6MT(diag)-13, WAVEFORM, MEASUREMENT, Driver's Control Center Differential Control Module I/ O Signal.>	—	
	Specification (Yaw rate sen- sor)	(B380) No. 19	(B380) No. 11	Ignition switch ON	2.1 — 2.9	—	
	Test	(B380) No. 21	(B380) No. 11	Ignition switch ON (engine OFF, vehicle parked, ABS in normal condition)	Waveform <Ref. to 6MT(diag)-13, WAVEFORM, MEASUREMENT, Driver's Control Center Differential Control Module I/ O Signal.>	—	
	Ground	(B380) No. 11	Chassis ground	—	—	—	
Steering angle sensor power supply		(B380) No. 22	(B381) No. 14	Ignition switch ON	8 or more	—	
Steering angle sensor ground		(B381) No. 14	Chassis ground	—	—	—	
System ground circuit		(B380) No. 20	Chassis ground	—	0	Less than 1	
		(B381) No. 15	Chassis ground				
		(B381) No. 16	Chassis ground				
		(B381) No. 22	Chassis ground				
		(B381) No. 23	Chassis ground				

B: WIRING DIAGRAM



MT-01471

Driver's Control Center Differential Control Module I/O Signal

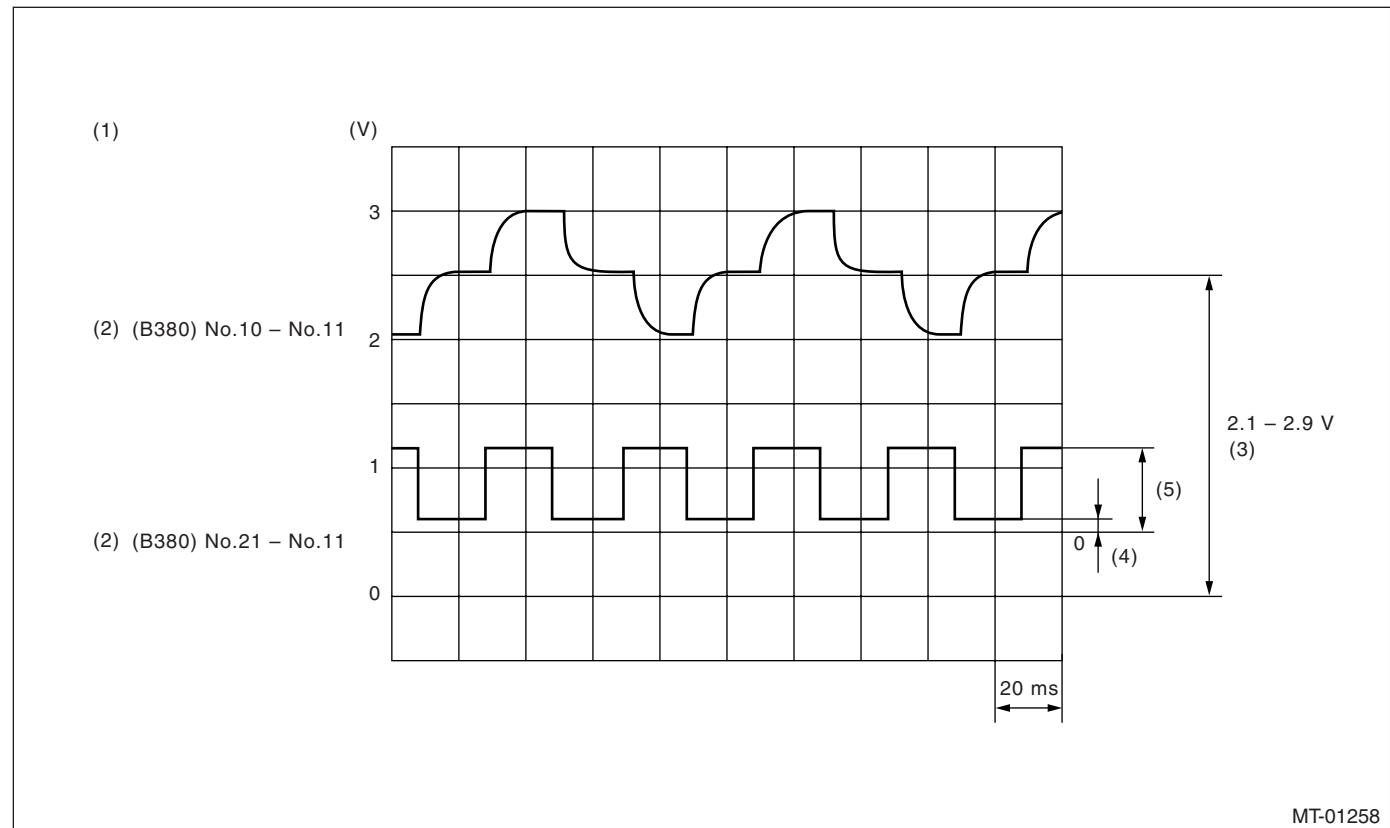
MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

- | | | |
|---|---|--|
| (1) Battery | (9) Driver's control center differential indicator light (Lock ratio 65%) | (17) Engine control module (ECM) |
| (2) Ignition relay | (10) Driver's control center differential indicator light (Lock ratio 85%) | (18) Driver's control center differential |
| (3) Stop light switch | (11) Driver's control center differential indicator light (Lock ratio 100%) | (19) Parking brake switch |
| (4) Driver's control center differential relay | (12) AUTO indicator light | (20) Manual mode switch |
| (5) Combination meter | (13) Neutral position switch | (21) Rear differential oil temperature switch |
| (6) Driver's control center differential indicator light (Lock ratio 0%) | (14) ABS control module & hydraulic control unit (ABSCM&H/U) | (22) Center differential control dial |
| (7) Driver's control center differential indicator light (Lock ratio 15%) | (15) Data link connector | (23) Yaw rate & lateral G sensor |
| (8) Driver's control center differential indicator light (Lock ratio 35%) | (16) Accelerator pedal position sensor | (24) Driver's control center differential control module |
| | | (25) Steering angle sensor |

C: MEASUREMENT

Measure input and output signal voltage.

1. WAVEFORM



- (1) Yaw rate sensor
 (2) Terminal No.

- (3) Vehicle is at a standstill. (engine OFF, ABS is in normal condition)

- (4) Less than 1 V
 (5) Approx. 6 V

MT-01258

Subaru Select Monitor

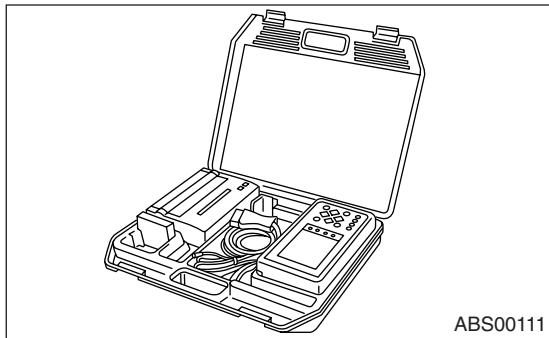
MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

6. Subaru Select Monitor

A: OPERATION

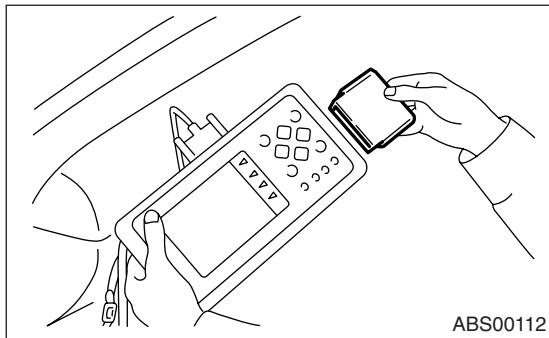
1. READ DIAGNOSTIC TROUBLE CODE (DTC)

1) Prepare the Subaru Select Monitor kit. <Ref. to 6MT(diag)-5, SPECIAL TOOL, PREPARATION TOOL, General Description.>



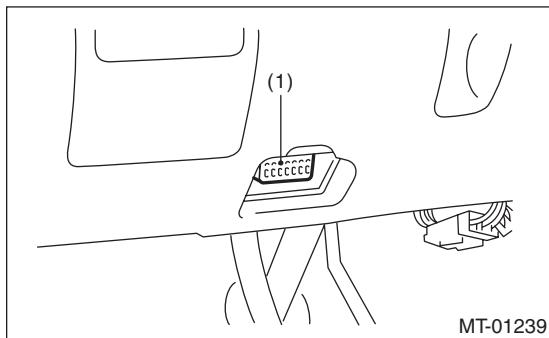
2) Connect the diagnosis cable to Subaru Select Monitor.

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



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

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



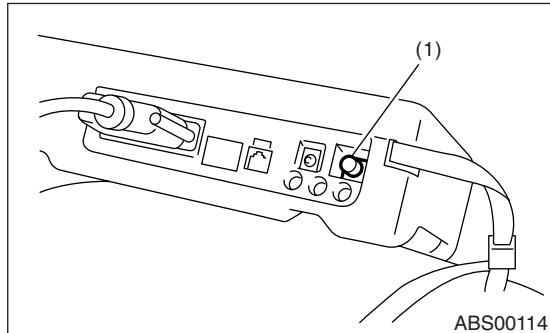
(1) Data link connector

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

CAUTION:

Do not connect the scan tools except for Subaru Select Monitor or general scan tool.

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



(1) Power switch

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

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

8) Press the [YES] key after the {Center Differential Control} is displayed.

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

NOTE:

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

- For details concerning DTCs, refer to the "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-25, List of Diagnostic Trouble Code (DTC).>

10) If transmission and Subaru Select Monitor cannot communicate, check the communication circuit. <Ref. to 6MT(diag)-17, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.>

11) On the «Check DTC» display screen, select the {Latest Code} or {Memory Code} and press the [Yes] key.

Display	Contents to be monitored
Latest	Indicate the latest DTC on the Subaru Select Monitor display.
Memory Code	Indicate the latest DTC in previous trouble on the Subaru Select Monitor display.

Subaru Select Monitor

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2. READ CURRENT DATA

- 1) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Transmission} and press the [YES] key.
- 3) Press the [YES] key after the {Center Differential Control} is displayed.
- 4) On the «Transmission Diagnosis» screen, select the {Current Data Display/Save}, and then press the [YES] key.
- 5) On the «Data Display Menu» screen, select the data display style and press the [YES] key.
- 6) Using a scroll key, move the display screen up or down until necessary data is shown.
 - A list of the support data is shown in the following table.

Display	Contents to be monitored	Unit of measure
Lateral G Sensor	Lateral G sensor voltage is displayed.	V
Center Differential Switch Voltage	Center differential switch voltage is displayed.	V
Center Differential Actual Current	Actual current of center differential is displayed.	A
Center Differential Set Current	Set current of center differential is displayed.	A
FR Wheel Speed	Wheel speed detected by front ABS wheel speed sensor RH is displayed.	km/h or MPH
FL Wheel Speed	Wheel speed detected by front ABS wheel speed sensor LH is displayed.	km/h or MPH
RR Wheel Speed	Wheel speed detected by rear ABS wheel speed sensor RH is displayed.	km/h or MPH
RL Wheel Speed	Wheel speed detected by rear ABS wheel speed sensor LH is displayed.	km/h or MPH
Sub-Accelerator Sensor	Accelerator pedal position sensor voltage is displayed.	V
Yaw rate sensor voltage	Voltage detected by yaw rate sensor is displayed.	V
Yaw rate & G sensor ref. V	Reference voltage of yaw rate & lateral G sensor is displayed.	V
Steering Angle Sensor	Steering angle is displayed.	deg
Engine Speed	Current engine speed is displayed.	rpm
ABS Signal	ON/OFF of ABS signal is displayed.	ON or OFF
Stop Light SW	ON/OFF of stop light switch is displayed.	ON or OFF
Rear differential Oil Temperature SW	ON/OFF of rear differential oil temperature switch is displayed.	ON or OFF
Module Identification Signal	ON/OFF of module identification signal is displayed.	ON or OFF
Center Differential Light 1	ON/OFF of center differential light 1 is displayed.	ON or OFF
Center Differential Light 2	ON/OFF of center differential light 2 is displayed.	ON or OFF
Center Differential Light 3	ON/OFF of center differential light 3 is displayed.	ON or OFF
Center Differential Light 4	ON/OFF of center differential light 4 is displayed.	ON or OFF
Center Differential Light 5	ON/OFF of center differential light 5 is displayed.	ON or OFF
Center Differential Light 6	ON/OFF of center differential light 6 is displayed.	ON or OFF
Parking SW	ON/OFF of parking switch is displayed.	ON or OFF
Center Differential Relay	ON/OFF of center differential relay is displayed.	ON or OFF
AUTO/MANUAL Mode Change SW	ON/OFF of AUTO/MANUAL mode change switch is displayed.	ON or OFF
AUTO Mode Light	ON/OFF of AUTO mode light is displayed.	ON or OFF
Neutral Switch	Neutral switch condition (neutral/except neutral) is displayed.	ON or OFF

NOTE:

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

Subaru Select Monitor

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3. CLEAR MEMORY MODE

- 1) On the «Main Menu» display screen, select the {2. Each System Check} and press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Transmission} and press the [YES] key.
- 3) Press the [YES] key after the {Center Differential Control} is displayed.
- 4) On the «Transmission Diagnosis» display screen, select the {Clear Memory} and press the [YES] key.

Display	Contents to be monitored
Is a memory clearance performed?	Function of clearing DTC.

- 5) When “Done” and “Turn ignition switch OFF” are shown on the display screen, turn the Subaru Select Monitor and ignition switch to OFF.

NOTE:

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

4. FREEZE FRAME DATA

NOTE:

- Data stored at the time of trouble occurrence is shown on display.
- Each time trouble occurs, the latest information is stored in the freeze frame data in memory.
- Freeze frame data will be memorized up to nine.

DTC	Content	Contents be monitored
P1521	Brake switch circuit range	Brake switch circuit condition is displayed.
P1720	DCCD CAN system circuit	CAN communication circuit condition is displayed.
P1721	DCCD engine rpm signal system	Engine speed signal circuit condition is displayed.
P1759	Lateral G sensor	Lateral G sensor circuit condition is displayed.
P1764	Yaw rate sensor system circuit	Yaw rate & lateral G sensor circuit condition is displayed.
P1765	Yaw rate side G sensor reference system circuit	Yaw rate & lateral G sensor reference circuit condition is displayed.
P1767	DCCD steering angle sensor	Steering angle circuit condition is displayed.
P1875	Center differential	Center differential circuit condition is displayed.
P2125	Accelerator pedal position sensor	Accelerator pedal position sensor circuit condition is displayed.

B: INSPECTION

1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

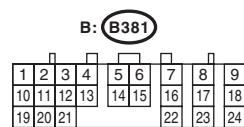
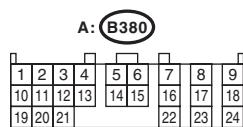
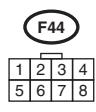
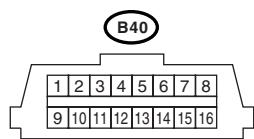
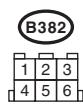
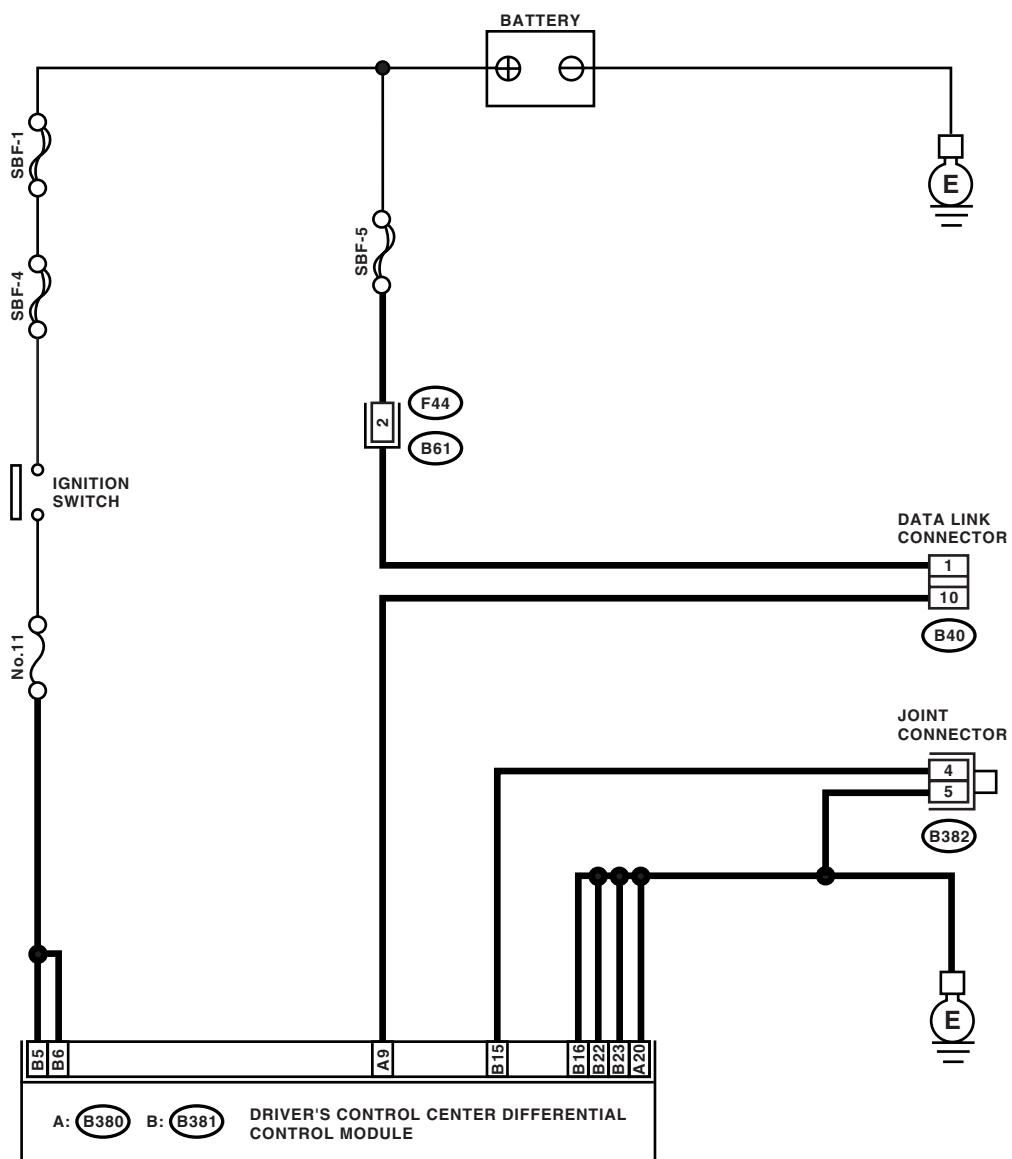
DETECTING CONDITION:

Faulty harness connector.

TROUBLE SYMPTOM:

Communication is impossible between driver's control center differential control module and Subaru Select Monitor.

WIRING DIAGRAM:



Subaru Select Monitor

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK IGNITION SWITCH.	Does the ignition switch turn to ON?	Go to step 2.	Turn the ignition switch to ON, and select transmission mode using Subaru Select Monitor.
2 CHECK BATTERY. 1) Turn the ignition switch to OFF. 2) Measure the battery voltage.	Is the voltage more than 10 V?	Go to step 3.	Charge or replace the battery.
3 CHECK BATTERY TERMINAL.	Is there poor contact at battery terminal?	Repair or tighten the battery terminal.	Go to step 4.
4 CHECK INSTALLATION OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE CONNECTOR. Turn the ignition switch to OFF.	Is the driver's control center differential control module connector inserted into driver's control center differential control module until it is locked by clamps?	Go to step 5.	Insert driver's control center differential control module connector into driver's control center differential control module.
5 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to ON. 2) Using Subaru Select Monitor, check whether communication to other system can be executed normally.	Is the system name displayed on Subaru Select Monitor?	Go to step 9.	Go to step 6.
6 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to OFF. 2) Disconnect the driver's control center differential control module connector. 3) Turn the ignition switch to ON. 4) Check whether communication to other systems can be executed normally.	Is the system name displayed on Subaru Select Monitor?	Replace driver's control center differential control module. <Ref. to 6MT(diag)-6, LOCATION, Electrical Component Location.>	Go to step 7.
7 CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND DATA LINK CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect driver's control center differential control module connector, ECM connector and ABSCM connector. 3) Measure the resistance between data link connector and chassis ground. <i>Connector & terminal (B40) No. 10 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Go to step 8.	Repair harness and connector between each control module and data link connector.
8 CHECK OUTPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to ON. 2) Measure the voltage between data link connector and chassis ground. <i>Connector & terminal (B40) No. 5 (+) — Chassis ground (-):</i>	Is the voltage less than 1 V?	Go to step 9.	Repair harness and connector between each control module and data link connector.

Subaru Select Monitor

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
9 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND DATA LINK CONNECTOR. 1) Turn the ignition switch OFF. 2) Disconnect the driver's control center differential control module connector. 3) Measure the resistance between driver's control center differential control module connector and data link connector. <i>Connector & terminal</i> <i>(B380) No. 9 — (B40) No. 10:</i>	Is the resistance less than 1 Ω ?	Go to step 10 .	Repair harness and connector between driver's control center differential control module and data link connector.
10 CHECK POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the ignition power supply voltage between driver's control center differential control module connector and chassis ground. <i>Connector & terminal</i> <i>(B381) No. 15 (+) — Chassis ground (-):</i> <i>(B381) No. 16 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 11 .	Repair open circuit in harness between driver's control center differential control module and battery.
11 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between driver's control center differential control module and chassis ground. <i>Connector & terminal</i> <i>(B380) No. 20 — Chassis ground:</i> <i>(B381) No. 15 — Chassis ground:</i> <i>(B381) No. 16 — Chassis ground:</i> <i>(B381) No. 22 — Chassis ground:</i> <i>(B381) No. 23 — Chassis ground:</i>	Is the resistance less than 1 Ω ?	Go to step 12 .	Repair open circuit in harness between driver's control center differential control module and inhibitor side connector, and poor contact in coupling connector.
12 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in control module power supply, ground circuit and data link connector?	Repair the connector.	Replace the driver's control center differential control module. <Ref. to 6MT(diag)-6, LOCATION, Electrical Component Location.>

7. Read Diagnostic Trouble Code (DTC)

A: OPERATION

1. READ DIAGNOSTIC TROUBLE CODE (DTC) WITH DIAGNOSTIC INDICATOR LIGHT.

NOTE:

Perform the following step 4) to 8) within 30 sec.

- 1) Securely apply the parking brake.
- 2) Set the center differential control dial to differential free.
- 3) Start the engine.
- 4) Set the center differential control dial to differential lock.
- 5) Release the parking brake.
- 6) Set the center differential control dial to differential free.
- 7) Securely apply the parking brake.
- 8) Repeat the step 4) to 7) for twice.

NOTE:

Repeat the step from the beginning when diagnostic indicator light does not blink.

- 9) Execute inspection mode. <Ref. to 6MT(diag)-22, Inspection Mode.>

NOTE:

Refer to "HOW TO READ DIAGNOSTIC TROUBLE CODE (DTC)" for reading DTC. <Ref. to 6MT(diag)-21, HOW TO READ DIAGNOSTIC TROUBLE CODE (DTC), OPERATION, Read Diagnostic Trouble Code (DTC).>

2. WITH SUBARU SELECT MONITOR

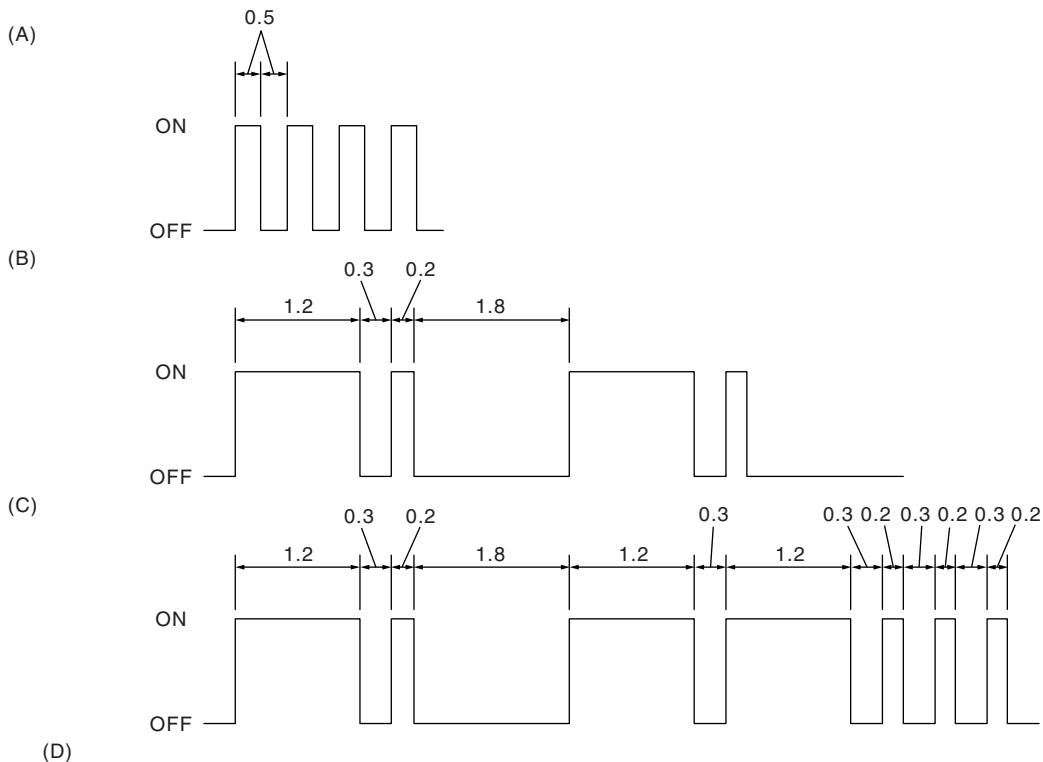
Detail procedure for reading DTC, refer to "SUBARU SELECT MONITOR". <Ref. to 6MT(diag)-14, Subaru Select Monitor.>

Read Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

3. HOW TO READ DIAGNOSTIC TROUBLE CODE (DTC)

DTC for faulty part is indicated by blinking of driver's control center differential indicator. Long blink (1.2 sec.) means ten's place, short blink (0.2 sec.) means one's place.



MT-00866

(A) Normal code

(B) DTC 11

(C) DTC 11 and 23

(D) Unit: Seconds

NOTE:

- The codes which are memorized in control module, and the codes which are appeared to inform the trouble to driver in normal driving condition are only nine; "21", "22", "23", "25", "26", "27", "28", "29" and "33".
- For details of DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-25, List of Diagnostic Trouble Code (DTC).>

8. Inspection Mode

A: PROCEDURE

WARNING:

Observe the road traffic law.

- 1) Call up the Self-diagnosis diagnostic trouble code (DTC). <Ref. to 6MT(diag)-20, READ DIAGNOSTIC TROUBLE CODE (DTC) WITH DIAGNOSTIC INDICATOR LIGHT., OPERATION, Read Diagnostic Trouble Code (DTC).>
- 2) A brake pedal is stepped on and a brake pedal is returned.
- 3) Operate the Manual mode switch once or more, and then set to Manual mode.
- 4) Turn the center differential control dial to differential lock and differential free for once, and turn it to differential lock, and then wait three seconds.
- 5) With the vehicle parked, shift the gear position to 1st then neutral.

9. Clear Memory Mode

A: OPERATION

Detail procedure for clearing DTCs, refer to “SUB-ARU SELECT MONITOR”. <Ref. to 6MT(diag)-14, Subaru Select Monitor.>

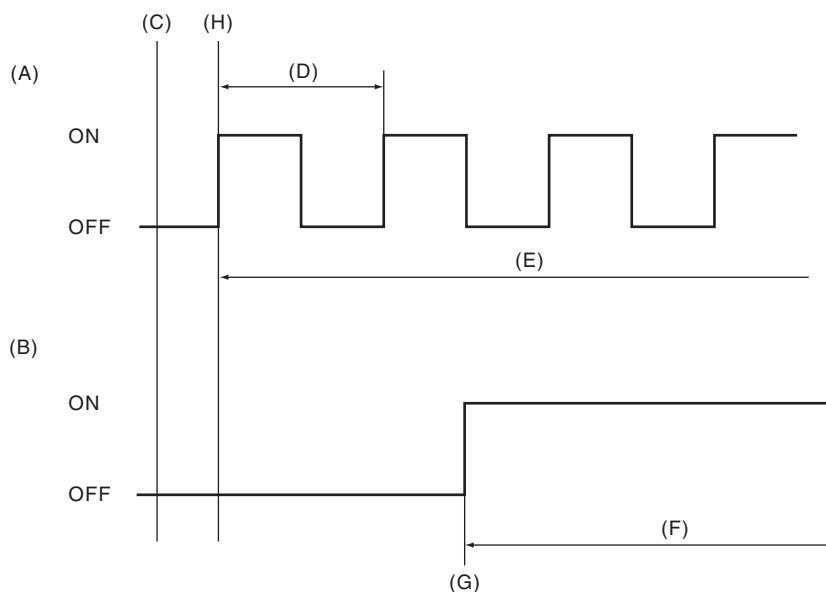
Driver's Control Center Differential Indicator Light Display

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

10. Driver's Control Center Differential Indicator Light Display

A: INSPECTION

When the malfunction occurs on part or unit, the control module performs self diagnosis and driver's control center differential indicator light (at the bottom differential free light) keep blinking until detect the malfunction and the ignition switch is turned to OFF. Faulty part or unit can be identified by calling up DTC. Indicator display is as shown in the figure.



MT-01241

- | | | |
|------------------------|--|--|
| (A) Faulty | (E) Blink | (G) Set manual mode dial to differential free position |
| (B) Normal | (F) Driver's control center differential indicator light illuminates | (H) Malfunction is detected |
| (C) Ignition switch ON | | |
| (D) 1 sec. | | |

List of Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

11. List of Diagnostic Trouble Code (DTC)

A: LIST

1. SUBARU SELECT MONITOR DISPLAY

DTC	Content	Content of diagnosis	Index
P1521	Brake Switch Circuit Range	Stop light switch circuit is open or shorted.	<Ref. to 6MT(diag)-33, DTC P1521 BRAKE SWITCH CIRCUIT RANGE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1720	DCCD CAN system circuit	CAN communication system circuit is open or shorted.	<Ref. to 6MT(diag)-35, DTC P1720 DCCD CAN SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1721	DCCD engine rpm signal system circuit	Engine speed signal system circuit is open or shorted.	<Ref. to 6MT(diag)-37, DTC P1721 DCCD ENGINE RPM SIGNAL SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1759	Lateral Acceleration Sensor Circuit	Lateral G sensor circuit is open or shorted.	<Ref. to 6MT(diag)-40, DTC P1759 LATERAL ACCELERATION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1764	Yaw rate sensor system circuit	Yaw rate & lateral G sensor circuit is open, shorted or stuck.	<Ref. to 6MT(diag)-43, DTC P1764 YAW RATE SENSOR SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1765	Yaw rate side G sensor reference system circuit	Yaw rate & lateral G sensor reference circuit is open or shorted.	<Ref. to 6MT(diag)-47, DTC P1765 YAW RATE SIDE G SENSOR REFERENCE SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1767	DCCD Steering Angle Sensor	Steering angle sensor circuit is open or shorted, or communication error.	<Ref. to 6MT(diag)-50, DTC P1767 DCCD STEERING ANGLE SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1875	Circuit of Center Diff.	Driver's control center differential circuit is open or shorted.	<Ref. to 6MT(diag)-52, DTC P1875 CIRCUIT OF CENTER DIFF., Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P2125	Accelerator Position Sensor E	Accelerator pedal position sensor circuit is open or shorted.	<Ref. to 6MT(diag)-58, DTC P2125 ACCELERATOR POSITION SENSOR E, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

2. COMBINATION METER INDICATOR LIGHT

DTC	Content	Content of diagnosis	Index
21	Accelerator Position Sensor E	Accelerator pedal position sensor circuit is open or shorted.	<Ref. to 6MT(diag)-58, DTC P2125 ACCELERATOR POSITION SENSOR E, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
22	Lateral Acceleration Sensor Circuit	Lateral G sensor circuit is open or shorted.	<Ref. to 6MT(diag)-40, DTC P1759 LATERAL ACCELERATION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
23	Circuit of Center Diff.	Driver's control center differential circuit is open or shorted.	<Ref. to 6MT(diag)-52, DTC P1875 CIRCUIT OF CENTER DIFF., Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
24	Check Center Differential Control Dial	Center differential control dial circuit is open or shorted.	<Ref. to 6MT(diag)-61, DTC 24 CHECK CENTER DIFFERENTIAL CONTROL DIAL., Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
25	DCCD CAN system circuit	CAN communication system circuit is open or shorted.	<Ref. to 6MT(diag)-35, DTC P1720 DCCD CAN SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

List of Diagnostic Trouble Code (DTC)

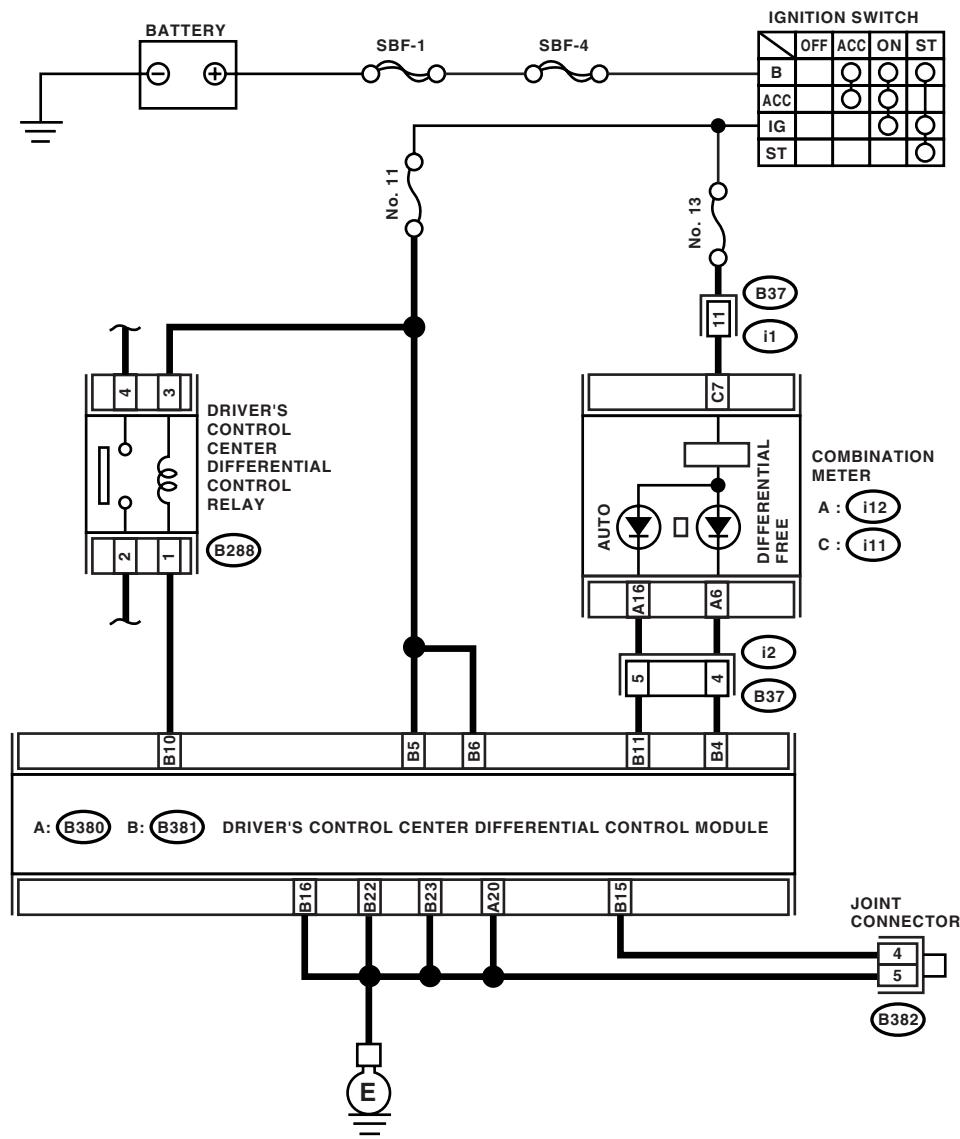
MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

DTC	Content	Content of diagnosis	Index
26	DCCD engine rpm signal system	Engine speed signal system circuit is open or shorted.	<Ref. to 6MT(diag)-37, DTC P1721 DCCD ENGINE RPM SIGNAL SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
27	Yaw rate side G sensor reference system circuit	Yaw rate & lateral G sensor reference circuit is open or shorted.	<Ref. to 6MT(diag)-47, DTC P1765 YAW RATE SIDE G SENSOR REFERENCE SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
28	Yaw rate sensor system circuit	Yaw rate & lateral G sensor circuit is open, shorted or stuck.	<Ref. to 6MT(diag)-43, DTC P1764 YAW RATE SENSOR SYSTEM CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
29	DCCD Steering Angle Sensor	Steering angle sensor circuit is open or shorted, or communication error.	<Ref. to 6MT(diag)-50, DTC P1767 DCCD STEERING ANGLE SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
31	Manual mode switch	Manual mode switch circuit is open or shorted.	<Ref. to 6MT(diag)-64, DTC 31 MANUAL MODE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
32	Check Parking Brake Switch	Parking brake switch circuit is open or shorted.	<Ref. to 6MT(diag)-67, DTC 32 CHECK PARKING BRAKE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
33	Brake Switch Circuit Range	Brake switch circuit is open or shorted.	<Ref. to 6MT(diag)-33, DTC P1521 BRAKE SWITCH CIRCUIT RANGE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
37	Neutral position switch	Neutral position switch circuit is open or shorted.	<Ref. to 6MT(diag)-69, DTC 37 NEUTRAL POSITION SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

12. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC CANNOT BE CALLED UP

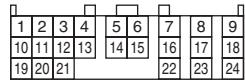
WIRING DIAGRAM:



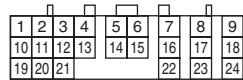
(B288)



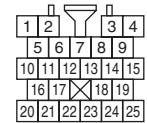
A: (B380)



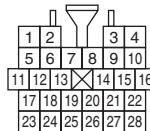
B: (B381)



(B37)



i1



MT-01242

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK THE AUTO INDICATOR LIGHT. Turn the ignition switch to ON.	Does the AUTO indicator light illuminate?	Go to step 5.	Go to step 2.
2 CHECK THE GROUND CIRCUIT OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Disconnect the connector of driver's control center differential control module. 3) Measure the resistance between driver's control center differential control module harness connector and chassis ground. Connector & terminal <i>(B380) No. 20 — Chassis ground:</i> <i>(B381) No. 15 — Chassis ground:</i> <i>(B381) No. 16 — Chassis ground:</i> <i>(B381) No. 22 — Chassis ground:</i> <i>(B381) No. 23 — Chassis ground:</i>	Is the resistance less than 1 Ω?	Go to step 3.	Repair the open circuit of driver's control center differential control module ground circuit.
3 CHECK FUSE (No. 11). Remove the fuse (No. 11).	Is the fuse (No. 11) is blown out?	Replace fuse (No. 11). If the replaced fuse (No. 11) is blown out easily, repair short circuit in harness between fuse (No. 11) and driver's control center differential control module.	Go to step 4.
4 CHECK IGNITION POWER SUPPLY CIRCUIT OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the voltage between driver's control center differential control module and chassis ground. Connector & terminal <i>(B381) No. 5 (+) — Chassis ground (-):</i> <i>(B381) No. 6 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 5.	Repair the open circuit in harness between fuse (No. 11) and driver's control center differential control module, or fuse (No. 11) and battery.
5 CHECK MANUAL MODE SWITCH. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Push the manual mode switch to enter the manual mode.	Is the manual mode obtained?	Go to step 6.	Repair the switch. <Ref. to 6MT(diag)-64, DTC 31 MANUAL MODE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
6 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL INDICATOR LIGHT. Operate the center differential control dial.	Does the center differential indicator light illuminate according to center differential control dial?	Go to step 8.	Go to step 7.
7 CHECK THE CENTER DIFFERENTIAL CONTROL DIAL <Ref. to 6MT(diag)-61, DTC 24 CHECK CENTER DIFFERENTIAL CONTROL DIAL., Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is the center differential control dial circuit normal?	Go to step 8.	Repair it.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
8 CHECK THE PARKING BRAKE SWITCH <Ref. to 6MT(diag)-67, DTC 32 CHECK PARKING BRAKE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is the parking brake switch circuit normal?	Go to step 9.	Repair it.
9 READ THE DTC. Read the DTC. <Ref. to 6MT(diag)-20, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is the DTC called up?	Go back to the Basic Diagnostic Procedure. <Ref. to 6MT(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>	Go to step 10.
10 CHECK THE DRIVER'S CONTROL CENTER DIFFERENTIAL INDICATOR LIGHT. 1) Turn the ignition switch to OFF. 2) Disconnect harness connector from combination meter. 3) Turn the ignition switch to ON. (engine OFF) 4) Short between the combination meter harness connector and chassis ground. <i>Connector & terminal</i> <i>(i12) No. 6 — Chassis ground:</i>	Does the lowest light of driver's control center differential indicator illuminate?	Go to step 11.	Check the combination meter.
11 CHECK THE HARNESS BETWEEN COMBINATION METER AND DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from driver's control center differential control module. 3) Measure the resistance of harness between combination meter harness connector and driver's control center differential control module harness connector. <i>Connector & terminal</i> <i>(i12) No. 6 — (B381) No. 4:</i>	Is the resistance less than 1 Ω ?	Go to step 12.	Repair the open circuit and connector of harness between combination meter harness connector and driver's control center differential control module harness connector.
12 CHECK THE HARNESS BETWEEN COMBINATION METER AND DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. Measure the resistance of harness between driver's control center differential control module harness connector and chassis ground. <i>Connector & terminal</i> <i>(B381) No. 4 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 13.	Repair the short of harness between combination meter harness connector and driver's control center differential control module harness connector.
13 CHECK THE POOR CONTACT IN HARNESS CONNECTOR	Is there any poor contact in harness connectors of each circuit?	Repair the poor contact.	Replace the driver's control center differential control module.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

B: CHECK REAR DIFFERENTIAL OIL TEMPERATURE SWITCH

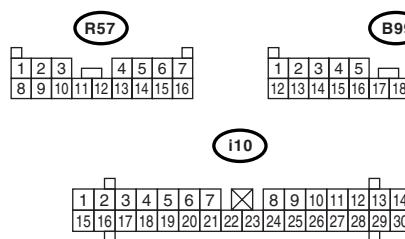
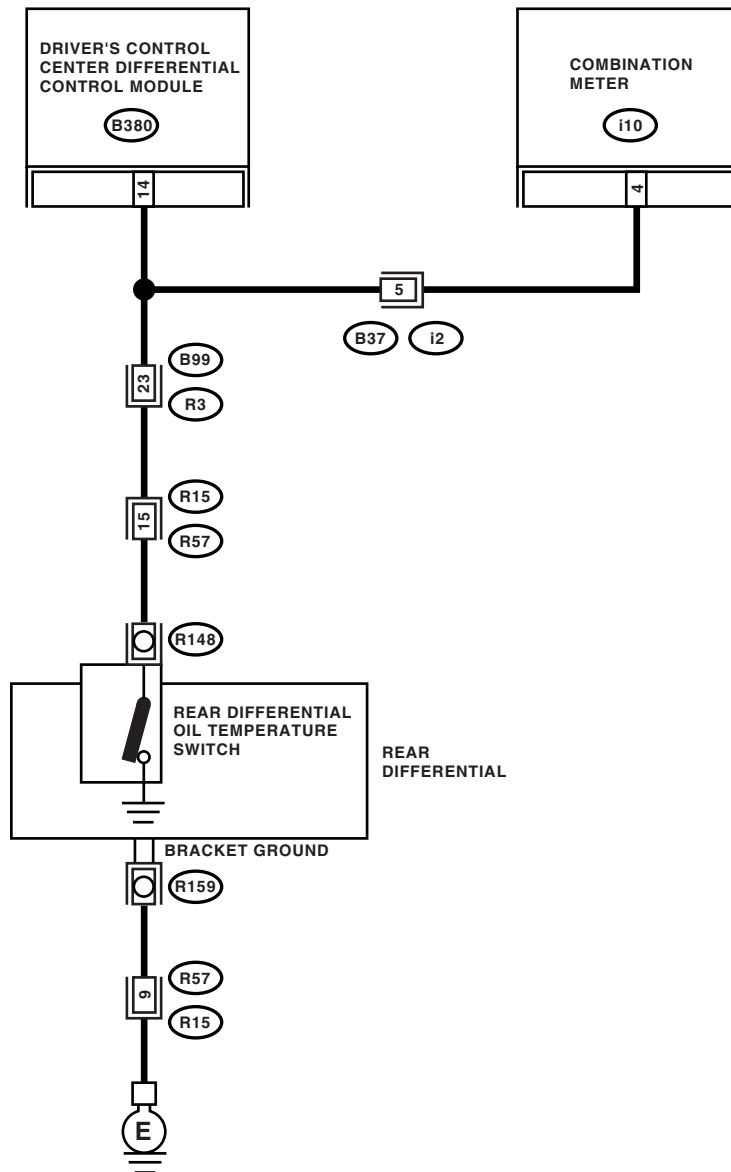
DIAGNOSIS:

Input signal circuit of rear differential oil temperature switch is open or shorted.

TROUBLE SYMPTOM:

- Center differential stays free.
- Handling tends to oversteer.
- Rear differential oil temperature switch warning light illuminates.

WIRING DIAGRAM:



MT-01253

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK REAR DIFFERENTIAL OIL TEMPERATURE SWITCH WARNING LIGHT CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector of driver's control center differential control module harness connector. 3) Turn the ignition switch to ON. (engine OFF) 4) Measure the voltage of rear differential oil temperature switch. <i>Connector & terminal (B380) No. 14 (+) — Chassis ground (-):</i>	Is the voltage less than 0.4 V?	Go to step 7.	Go to step 2.
2 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND COMBINATION METER. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from the combination meter. 3) Disconnect the connector from the rear differential oil temperature switch. 4) Measure the resistance between combination meter and driver's control center differential control module harness connector. <i>Connector & terminal (B380) No. 14 — (i10) No. 4:</i>	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit between driver's control center differential control module and combination meter.
3 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND REAR DIFFERENTIAL OIL TEMPERATURE SWITCH. Measure the resistance between driver's control center differential control module harness connector and rear differential oil temperature switch harness connector. <i>Connector & terminal (B380) No. 14 — (R148) No. 1:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit between driver's control center differential control module and rear differential oil temperature switch.
4 CHECK REAR DIFFERENTIAL OIL TEMPERATURE SWITCH GROUND CIRCUIT. 1) Disconnect the harness connector from bracket ground of rear differential. 2) Measure the resistance between the rear differential oil temperature switch ground harness connector and chassis ground. <i>Connector & terminals (R159) No. 1 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Repair the open circuit of rear differential oil temperature switch ground circuit and poor contact of harness connector.	Go to step 5.
5 CHECK REAR DIFFERENTIAL OIL TEMPERATURE SWITCH. Measure the resistance between rear differential oil temperature switch terminal and rear differential oil temperature switch body. <i>Terminals No. 1 — Rear differential oil temperature switch body:</i>	Is the resistance less than 1 Ω ?	Go to step 6.	Replace the rear differential oil temperature switch.
6 CHECK REAR DIFFERENTIAL OIL TEMPERATURE SWITCH WARNING LIGHT. 1) Turn the ignition switch to ON. 2) Short between the combination meter harness connector and chassis ground. <i>Connector & Terminals (i10) No. 4 (+) — Chassis ground (-):</i>	Does the rear differential oil temperature switch warning light turn OFF?	Go to step 7.	Replace the combination meter.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK POOR CONTACT.	Is there any poor contact in the circuit of rear differential oil temperature switch?	Repair the poor contact.	Replace the driver's control center differential control module.

C: DTC P1521 BRAKE SWITCH CIRCUIT RANGE

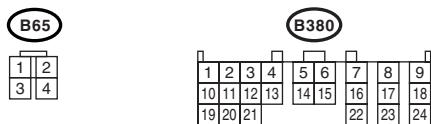
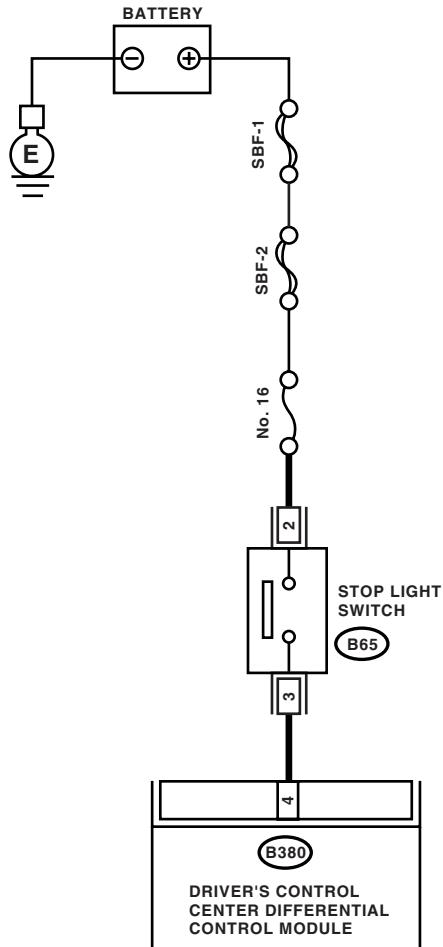
DIAGNOSIS:

Open or short circuit in stop light switch circuit

TROUBLE SYMPTOM:

Wheels are locked while the ABS operates.

WIRING DIAGRAM:



MT-01251

Step	Check	Yes	No
1 CHECK DTC.	Is the stop light switch related DTC displayed during ABS self-diagnosis test mode?	Check according to ABS DTC.	Go to step 2.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
2 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON, and Subaru Select Monitor power switch to ON. 4) Read the data of "Stop Light Switch" using Subaru Select Monitor.	Is the "OFF" displayed?	Go to step 3.	Replace the driver's control center differential control module.
3 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Depress the brake pedal and hold it. 2) Read the data of "Stop Light Switch" using Subaru Select Monitor.	Is the "ON" displayed?	Go to step 6.	Go to step 4.
4 CHECK INPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector of driver's control center differential control module. 3) Depress the brake pedal and hold it. 4) Measure the voltage between driver's control center differential control module and chassis ground. <i>Connector & terminal (B380) No. 4 (+) — Chassis ground (-):</i>	Is the voltage more than 8 V?	Go to step 5.	Repair the open circuit in harness between driver's control center differential control module and stop light switch.
5 CHECK POOR CONTACT.	Is there poor contact in stop light switch circuit?	Repair the poor contact in harness connector.	Go to step 6.
6 CHECK DTC. Read the DTC from combination meter. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is the DTC 33 displayed?	Replace the driver's control center differential control module.	Go to step 7.
7 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than 33 displayed?	Perform the diagnosis according to DTC.	Stop light switch circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module and stop light switch.

D: DTC P1720 DCCD CAN SYSTEM CIRCUIT

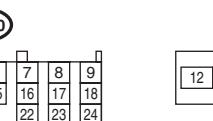
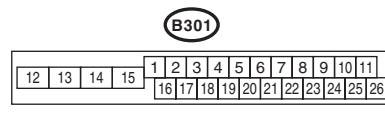
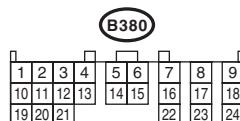
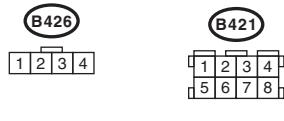
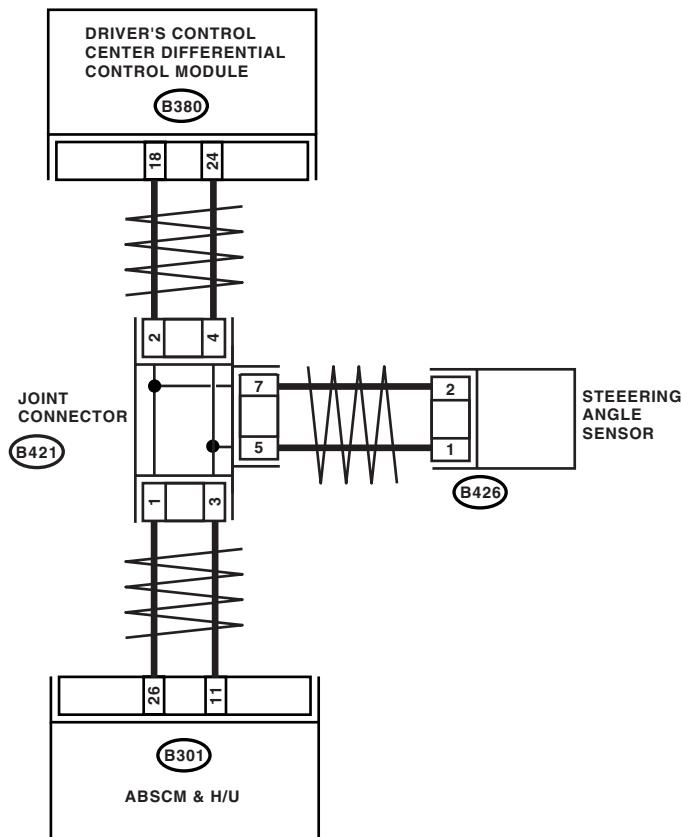
DIAGNOSIS:

Open or short circuit in CAN communication circuit

TROUBLE SYMPTOM:

- Tight corner braking phenomenon is occurred.
- ABS does not operate.
- ABS warning light illuminates.

WIRING DIAGRAM:



MT-01428

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from driver's control center differential control module and ABSCM&H/U. 3) Measure the resistance of harness connector between driver's control center differential control module and ABSCM&H/U. <i>Connector & terminal</i> <i>(B380) No. 18 — (B301) No. 26:</i> <i>(B380) No. 24 — (B301) No. 11:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between driver's control center differential control module and ABSCM&H/U.
2 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM. 1) Disconnect the connector from steering from steering angle sensor. 2) Measure the resistance between driver's control center differential control module and chassis ground. <i>Connector & terminal</i> <i>(B380) No. 18 — Chassis ground:</i> <i>(B380) No. 24 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between driver's control center differential control module and ABSCM&H/U.
3 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM. 1) Turn the ignition switch to ON. 2) Measure the voltage between driver's control center differential control module connector and chassis ground. <i>Connector & terminal</i> <i>(B380) No. 18 (+) — Chassis ground (-):</i> <i>(B380) No. 24 (+) — Chassis ground (-):</i>	Is the voltage less than 1 V?	Go to step 4.	Repair the short circuit in harness between driver's control center differential control module and ABSCM&H/U.
4 CHECK POOR CONTACT.	Is there poor contact in CAN communication circuit?	Repair the poor contact.	Go to step 5.
5 CHECK STEERING ANGLE SENSOR. 1) Turn the ignition switch to OFF. 2) Connect the connectors of ABSCM and driver's control center differential control module. 3) Start the engine. 4) Read the DTC.	Is DTC P1720 displayed?	Go to step 6.	Replace the steering angle sensor. <Ref. to 6MT-127, Steering Angle Sensor.>
6 CHECK ABSCM. 1) Turn the ignition switch to OFF. 2) Connect all the connectors. 3) Clear DTCs. 4) Read the DTC.	Is the DTC of CAN communication circuit displayed on ABSCM?	Replace the driver's control center differential control module. <Ref. to 6MT-126, Driver's Control Center Differential Control Module.>	Check ABSCM.

E: DTC P1721 DCCD ENGINE RPM SIGNAL SYSTEM CIRCUIT

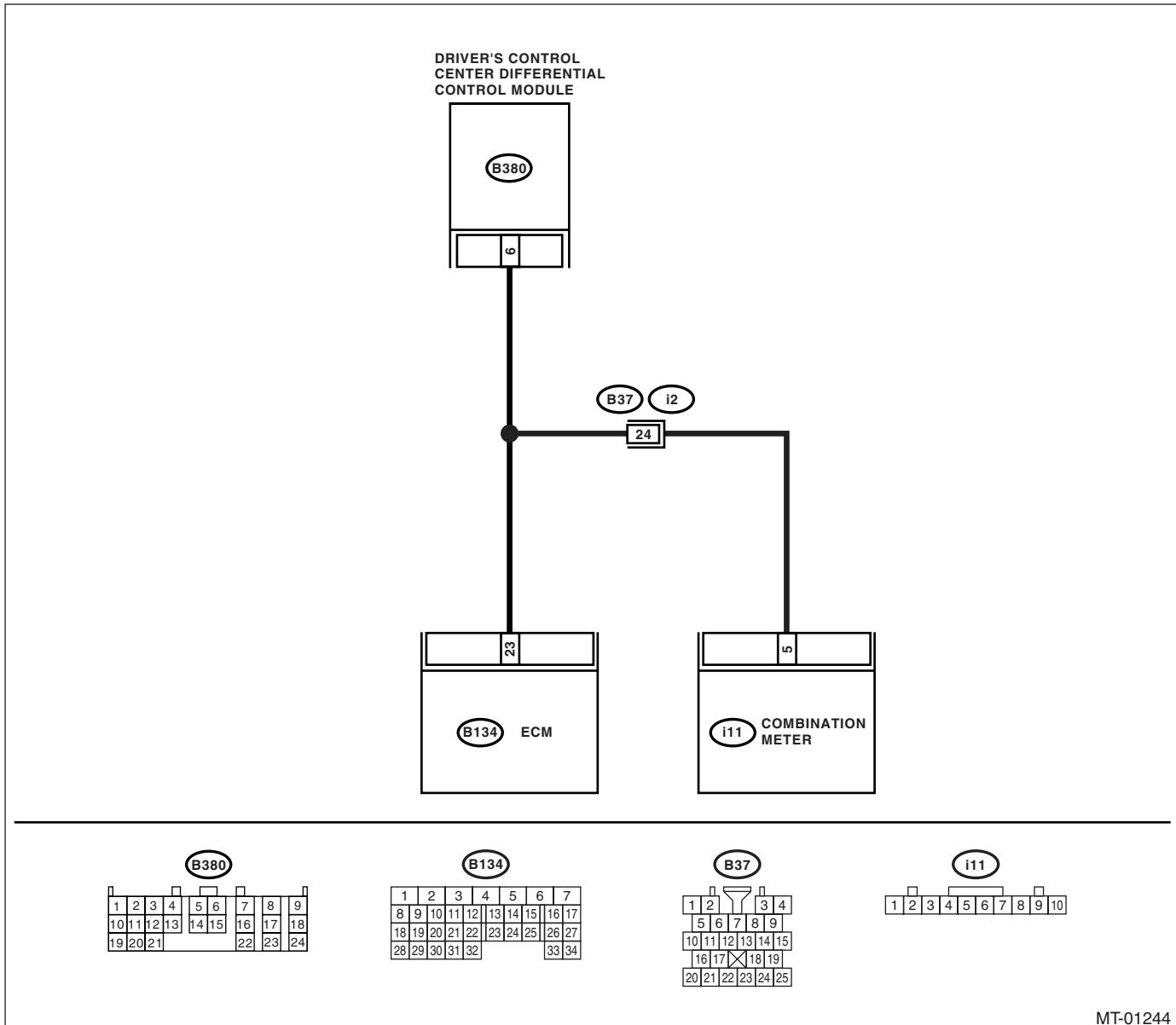
DIAGNOSIS:

Open or short in DCCD engine speed output signal circuit

TROUBLE SYMPTOM:

The tendency of oversteer occurred when high speed cornering.

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from driver's control center differential control module, Combination Meter and ECM. 3) Measure the resistance of harness connector between driver's control center differential control module and ECM. <i>Connector & terminal (B380) No. 6 — (B134) No. 23:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between driver's control center differential control module and ECM.
2 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ECM. Measure the resistance between driver's control center differential control module and chassis ground. <i>Connector & terminal (B380) No. 6 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between driver's control center differential control module and ECM.
3 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ECM. 1) Turn the ignition switch to ON. 2) Measure the resistance between driver's control center differential control module and chassis ground. <i>Connector & terminal (B380) No. 6 (+) — Chassis ground (-):</i>	Is the voltage less than 1 V?	Go to step 4.	Repair the short circuit in harness between driver's control center differential control module and ECM.
4 CHECK INPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Start the engine and let it idle.	Does the tachometer in the combination meter operate?	Go to step 5.	Check ECM.
5 CHECK INPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Start the engine and Subaru Select Monitor power switch to ON. 4) Idle the engine. 5) Read the data of engine speed using Subaru Select Monitor.	Is the revolution value about the same as tachometer reading shown in the combination meter?	Go to step 7.	Go to step 6.
6 CHECK POOR CONTACT.	Is there poor contact in engine speed signal circuit?	Repair the poor contact.	Go to step 7.
7 CHECK DTC. Perform the inspection mode and read DTC.	Is the DTC 26 displayed?	Replace the driver's control center differential control module. <Ref. to 6MT-126, Driver's Control Center Differential Control Module.>	Go to step 8.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
8 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than 26 displayed?	Perform the diagnosis according to DTC.	Even if the center differential indicator light (differential free position) blinks, the circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module and ECM.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

F: DTC P1759 LATERAL ACCELERATION SENSOR CIRCUIT

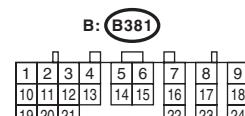
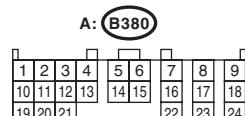
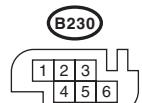
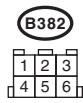
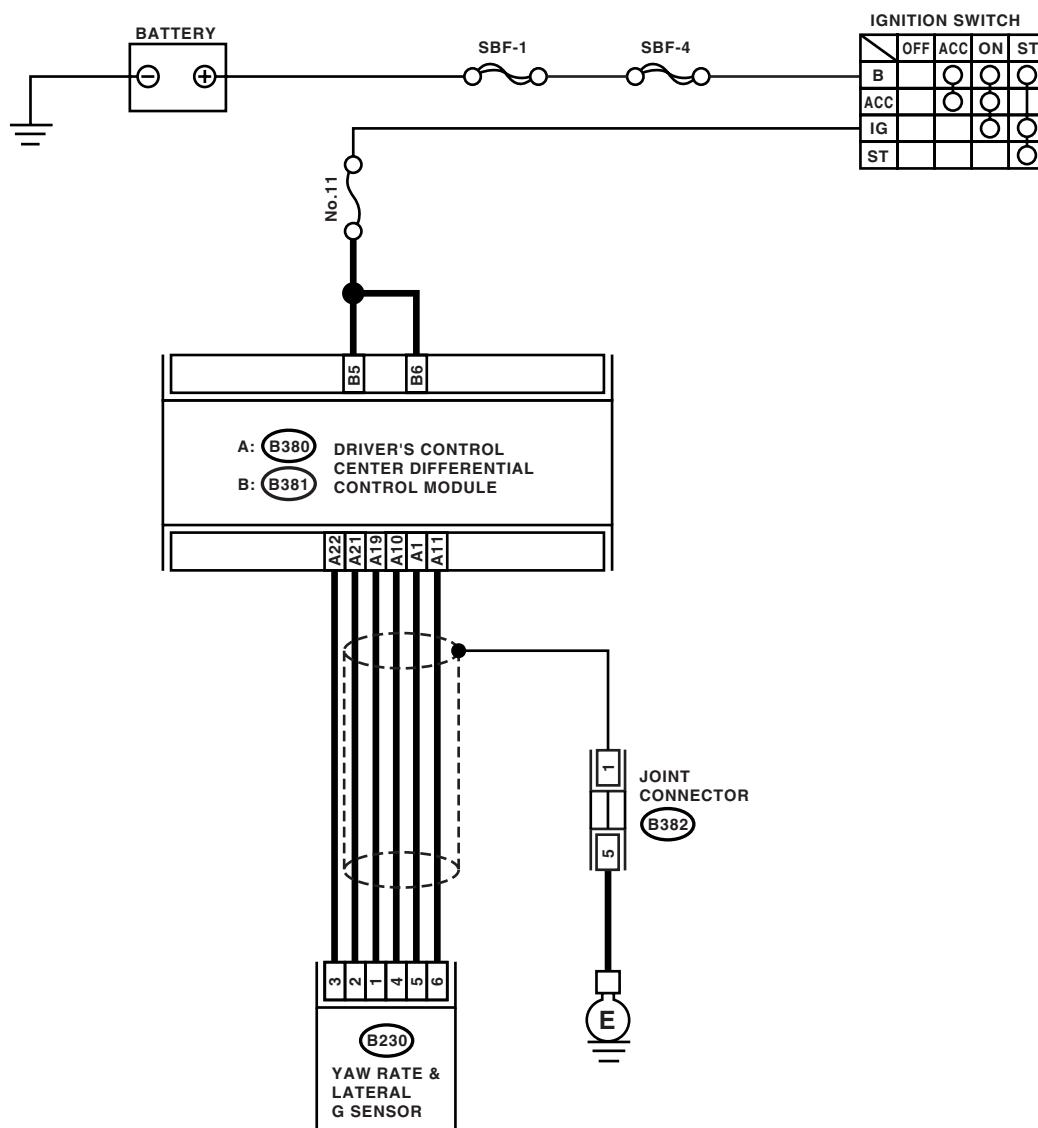
DIAGNOSIS:

Open or short in yaw rate & lateral G sensor circuit

TROUBLE SYMPTOM:

The tendency of understeer occurred when high speed cornering.

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK YAW RATE & LATERAL G SENSOR VOLTAGE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from yaw rate & lateral G sensor. 3) Turn the ignition switch to ON. (engine OFF) 4) Measure the voltage between yaw rate & lateral G sensor harness connector and Chassis ground (-). <i>Connector & terminal</i> <i>(B230) No. 3 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Go to step 4.	Go to step 2.
2 CHECK OUTPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. Measure the voltage between driver's control center differential control module and chassis ground. <i>Connector & terminal</i> <i>(B380) No. 22 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.	Go to step 3.
3 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE POWER SUPPLY VOLTAGE. Measure the voltage between driver's control center differential control module harness connector and chassis ground. <i>Connector & terminal</i> <i>(B381) No. 5 (+) — Chassis ground (-):</i> <i>(B381) No. 6 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Go to step 11.	Check the harness connectors between driver's control center differential control module power supply circuit, battery and driver's control center differential control module, and replace or charge the battery.
4 CHECK YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from driver's control center differential control module. 3) Measure the resistance between driver's control center differential control module and yaw rate & lateral G sensor. <i>Connector & terminal</i> <i>(B380) No. 10 — (B230) No. 4:</i>	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
5 CHECK YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. Measure the resistance between driver's control center differential control module connector and Chassis ground (-). <i>Connector & terminal</i> <i>(B380) No. 10 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 6.	Repair the short circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
6 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND YAW RATE & LATERAL G SENSOR. Measure the resistance between driver's control center differential control module and yaw rate & lateral G sensor. <i>Connector & terminal</i> <i>(B380) No. 1 — (B230) No. 5:</i>	Is the resistance less than 1 Ω ?	Go to step 7.	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND YAW RATE & LATERAL G SENSOR. Measure the resistance between driver's control center differential control module harness connector and Chassis ground (–). Connector & terminal (B380) No. 1 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 8.	Repair the short circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
8 CHECK YAW RATE & LATERAL G SENSOR. 1) Remove the yaw rate & lateral G sensor from body. 2) Connect the connector to yaw rate & lateral G sensor. 3) Connect the connector to driver's control center differential control module. 4) Turn the ignition switch to ON. 5) Measure the voltage between yaw rate & lateral G sensor terminals when the yaw rate & lateral G sensor is horizontal. Connector & terminal (B230) No. 5 (+) — No. 6 (–):	Is the voltage 2.35 — 2.65 V?	Go to step 9.	Replace the yaw rate & lateral G sensor.
9 CHECK YAW RATE & LATERAL G SENSOR. Measure the voltage between yaw rate & lateral G sensor terminals when the yaw rate & lateral G sensor connector is tilted 90° to right. Connector & terminal (B230) No. 5 (+) — No. 6 (–):	Is the voltage 3.3 — 3.7 V?	Go to step 10.	Replace the yaw rate & lateral G sensor.
10 CHECK YAW RATE & LATERAL G SENSOR. Measure the voltage between yaw rate & lateral G sensor terminals when the yaw rate & lateral G sensor connector is tilted 90° to left. Connector & terminal (B230) No. 5 (+) — No. 6 (–):	Is the voltage 1.3 — 1.7 V?	Go to step 11.	Replace the yaw rate & lateral G sensor.
11 CHECK POOR CONTACT.	Is there poor contact in lateral G sensor circuit?	Repair the poor contact.	Go to step 12.
12 CHECK DTC. 1) Perform the "clear memory". <Ref. to 6MT(diag)-23, Clear Memory Mode.> 2) Start the engine. 3) Read the DTC using Subaru Select Monitor. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is the DTC P1759 displayed?	Replace the driver's control center differential control module.	Go to step 13.
13 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than P1759 displayed?	Perform the diagnosis according to DTC.	Lateral G sensor circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module and yaw rate & lateral G sensor.

G: DTC P1764 YAW RATE SENSOR SYSTEM CIRCUIT

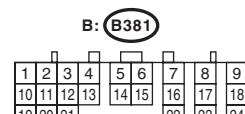
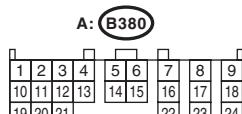
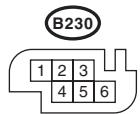
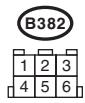
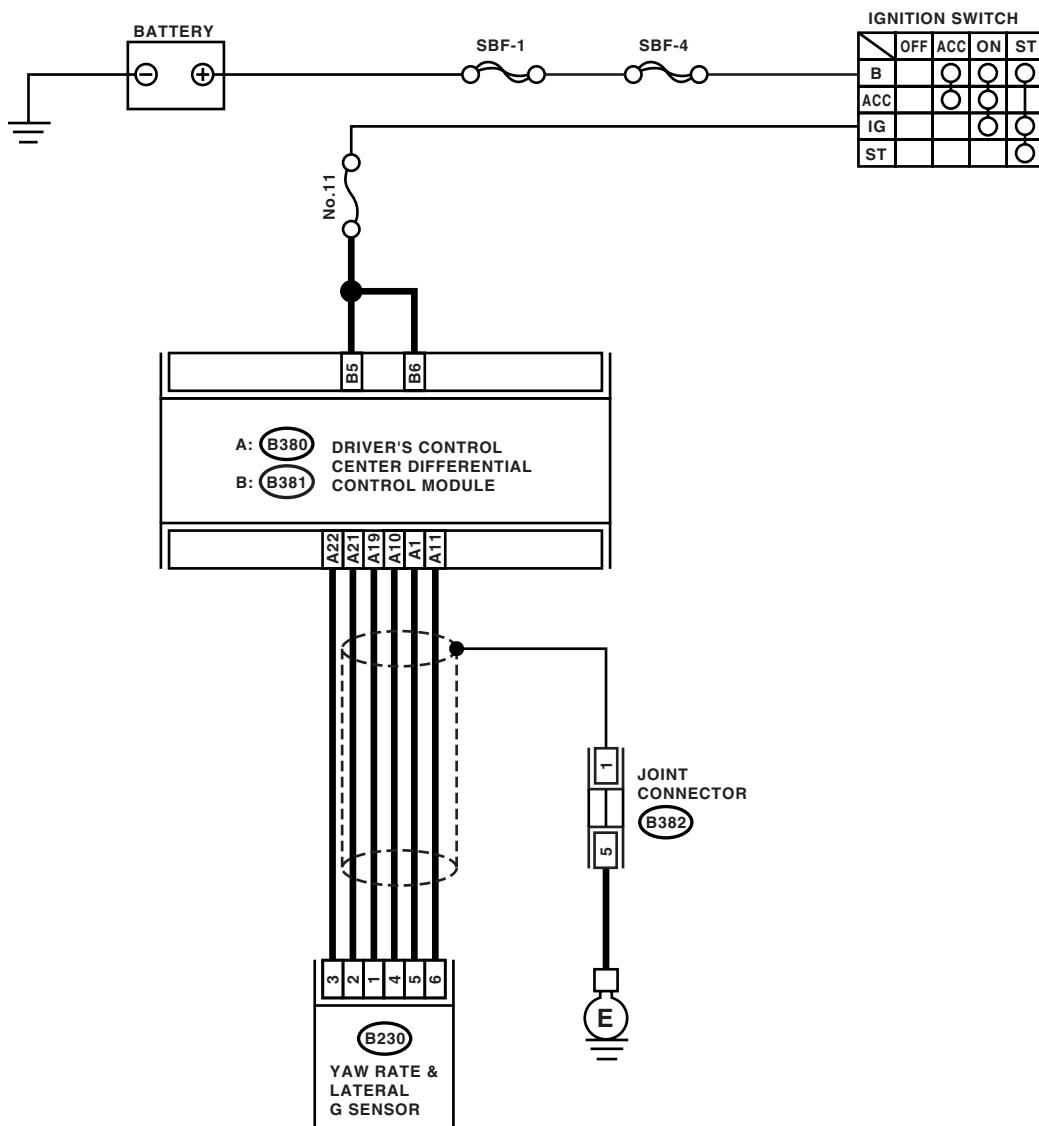
DIAGNOSIS:

Yaw rate & lateral G sensor circuit is open, shorted or stuck.

TROUBLE SYMPTOM:

The tendency of understeer occurred when high speed cornering.

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK YAW RATE & LATERAL G SENSOR POWER SUPPLY. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from yaw rate & lateral G sensor. 3) Turn the ignition switch to ON. (engine OFF) 4) Measure the voltage between yaw rate & lateral G sensor and chassis ground. <i>Connector & terminal (B230) No. 3 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Go to step 4.	Go to step 2.
2 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE POWER SUPPLY OUTPUT. Measure the resistance between driver's control center differential control module and chassis ground. <i>Connector & terminal (B380) No. 22 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.	Go to step 3.
3 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE POWER SUPPLY VOLTAGE. Measure the voltage between driver's control center differential control module harness connector and chassis ground. <i>Connector & terminal (B381) No. 5 (+) — Chassis ground (-): (B381) No. 6 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Go to step 10.	Check the harness connectors between driver's control center differential control module power supply circuit, battery and driver's control center differential control module, and replace or charge the battery.
4 CHECK YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from driver's control center differential control module. 3) Measure the resistance between driver's control center differential control module and yaw rate & lateral G sensor. <i>Connector & terminal (B380) No. 11 — (B230) No. 6:</i>	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
5 CHECK YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. Measure the resistance between driver's control center differential control module and chassis ground. <i>Connector & terminal (B380) No. 11 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 6.	Repair the short circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
6 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. Measure the resistance between driver's control center differential control module and yaw rate & lateral G sensor. <i>Connector & terminal (B380) No. 10 — (B230) No. 4:</i>	Is the resistance less than 1 Ω ?	Go to step 7.	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. Measure the resistance between driver's control center differential control module and chassis ground. Connector & terminal (B380) No. 10 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 8 .	Repair the short circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
8 CHECK INPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Connect all the connectors. 2) Connect the Subaru Select Monitor to vehicle. 3) Turn the ignition switch to ON. 4) Turn the Subaru Select Monitor power switch to ON. 5) Read the data of "Yaw rate sensor signal" using Subaru Select Monitor. <Ref. to 6MT(diag)-14, OPERATION, Subaru Select Monitor.>	Is the voltage of 2.0 V → 2.5 V → 3.0 V displayed?	Go to step 12 .	Go to step 9 .
9 CHECK OUTPUT SIGNAL OF YAW RATE & LATERAL G SENSOR. 1) Turn the ignition switch to OFF. 2) Check the oscilloscope signal pattern between driver's control center differential control module connector terminals. Connector & terminal Positive test lead: (B380) No. 10 Negative lead: (B380) No. 20 3) Turn the ignition switch to ON.	Is the oscilloscope pattern the same waveform as shown in the figure? <Ref. to 6MT(diag)-13, WAVEFORM, MEASUREMENT, Driver's Control Center Differential Control Module I/O Signal.>	Go to step 10 .	Replace the driver's control center differential control module.
10 CHECK OUTPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Check the oscilloscope signal pattern between driver's control center differential control module connector terminals. Connector & terminal Positive lead: (B380) No. 19 Negative lead: (B380) No. 20 3) Turn the ignition switch to ON.	Is the oscilloscope pattern the same waveform as shown in the figure? <Ref. to 6MT(diag)-13, WAVEFORM, MEASUREMENT, Driver's Control Center Differential Control Module I/O Signal.>	Go to step 11 .	Replace the yaw rate & lateral G sensor.
11 CHECK POOR CONTACT.	Is there poor contact in yaw rate sensor circuit?	Repair the poor contact.	Go to step 12 .
12 CHECK DTC. 1) Perform the "clear memory". <Ref. to 6MT(diag)-23, Clear Memory Mode.> 2) Start the engine. 3) Read the DTC using Subaru Select Monitor. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is the DTC P1764 displayed?	Replace the driver's control center differential control module.	Go to step 13 .

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
13 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than P1764 displayed?	Perform the diagnosis according to DTC.	Yaw rate sensor circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module and yaw rate & lateral G sensor.

H: DTC P1765 YAW RATE SIDE G SENSOR REFERENCE SYSTEM CIRCUIT

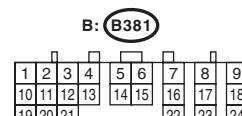
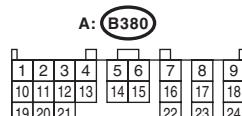
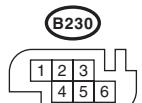
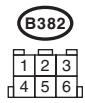
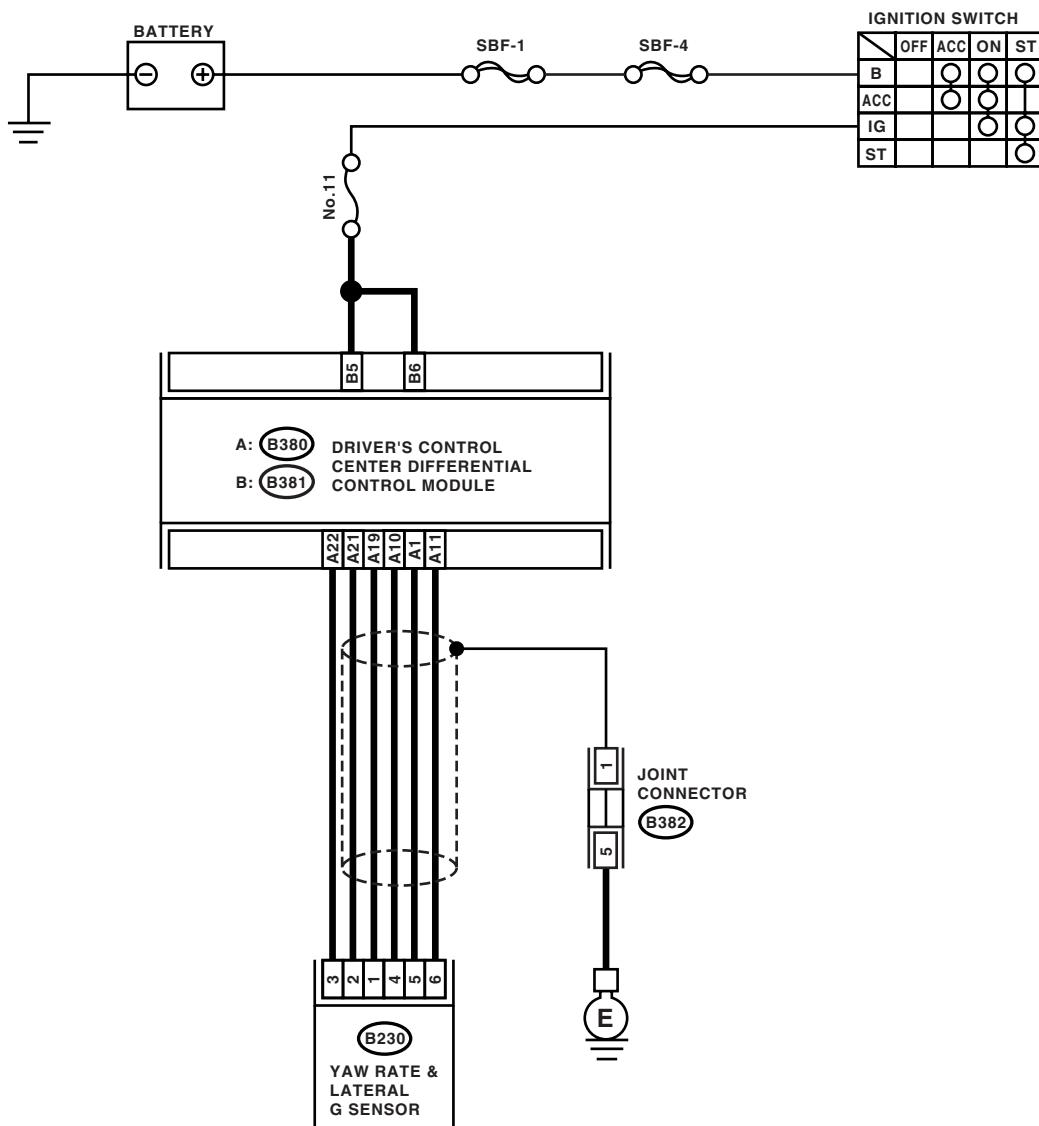
DIAGNOSIS:

Open or short in yaw rate & lateral G sensor reference circuit

TROUBLE SYMPTOM:

The tendency of understeer occurred when high speed cornering.

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK YAW RATE & LATERAL G SENSOR VOLTAGE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from yaw rate & lateral G sensor. 3) Turn the ignition switch to ON. (engine OFF) 4) Measure the voltage between yaw rate & lateral G sensor harness connector and chassis ground (-). <i>Connector & terminal</i> <i>(B230) No. 3 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Go to step 4.	Go to step 2.
2 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE VOLTAGE. Measure the voltage between driver's control center differential control module harness connector and chassis ground (-). <i>Connector & terminal</i> <i>(B380) No. 22 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.	Go to step 3.
3 CHECK DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE POWER SUPPLY VOLTAGE. Measure the voltage between driver's control center differential control module harness connector and chassis ground. <i>Connector & terminal</i> <i>(B381) No. 5 (+) — Chassis ground (-):</i> <i>(B381) No. 6 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Go to step 10.	Check the harness connectors between driver's control center differential control module power supply circuit, battery and driver's control center differential control module, and replace or charge the battery.
4 CHECK YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from driver's control center differential control module. 3) Measure the resistance between driver's control center differential control module harness connector and yaw rate & lateral G sensor. <i>Connector & terminal</i> <i>(B380) No. 11 — (B230) No. 6:</i>	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
5 CHECK YAW RATE & LATERAL G SENSOR GROUND CIRCUIT. Measure the resistance between driver's control center differential control module harness connector and Chassis ground (-). <i>Connector & terminal</i> <i>(B380) No. 11 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 6.	Repair the short circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
6 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND YAW RATE & LATERAL G SENSOR. Measure the resistance between driver's control center differential control module harness connector and yaw rate & lateral G sensor. <i>Connector & terminal</i> (B380) No. 19 — (B230) No. 1:	Is the resistance less than 1 Ω ?	Go to step 7.	Repair the open circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
7 CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND YAW RATE & LATERAL G SENSOR. Measure the resistance between driver's control center differential control module harness connector and Chassis ground (-). <i>Connector & terminal</i> (B380) No. 19 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 8.	Repair the short circuit in harness between driver's control center differential control module and yaw rate & lateral G sensor.
8 CHECK LATERAL G SENSOR. 1) Turn the ignition switch to OFF. 2) Connect all the connectors. 3) Connect the Subaru Select Monitor to data link connector. 4) Turn the ignition switch to ON, and Subaru Select Monitor power switch to ON. Read the data of "Yaw rate & lateral G sensor" using Subaru Select Monitor. <Ref. to 6MT(diag)-15, READ CURRENT DATA, OPERATION, Subaru Select Monitor.>	Is the data 2.1 — 2.9?	Go to step 11.	Go to step 9.
9 CHECK YAW RATE & LATERAL G SENSOR. Measure the driver's control center differential control module harness connector voltage. <i>Connector & terminal</i> (B380) No. 19 (+) — No. 20 (-):	Is the voltage 2.1 — 2.9 V?	Go to step 10.	Replace the yaw rate & lateral G sensor.
10 CHECK POOR CONTACT.	Is there poor contact in yaw rate & lateral G sensor reference circuit?	Repair the poor contact.	Go to step 11.
11 CHECK DTC. 1) Perform the "clear memory". <Ref. to 6MT(diag)-23, Clear Memory Mode.> 2) Start the engine. 3) Read the DTC. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is the DTC P1765 displayed?	Replace the driver's control center differential control module.	Go to step 12.
12 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than P1765 displayed?	Perform the diagnosis according to DTC.	Lateral G sensor circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module and yaw rate & lateral G sensor.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

I: DTC P1767 DCCD STEERING ANGLE SENSOR

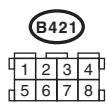
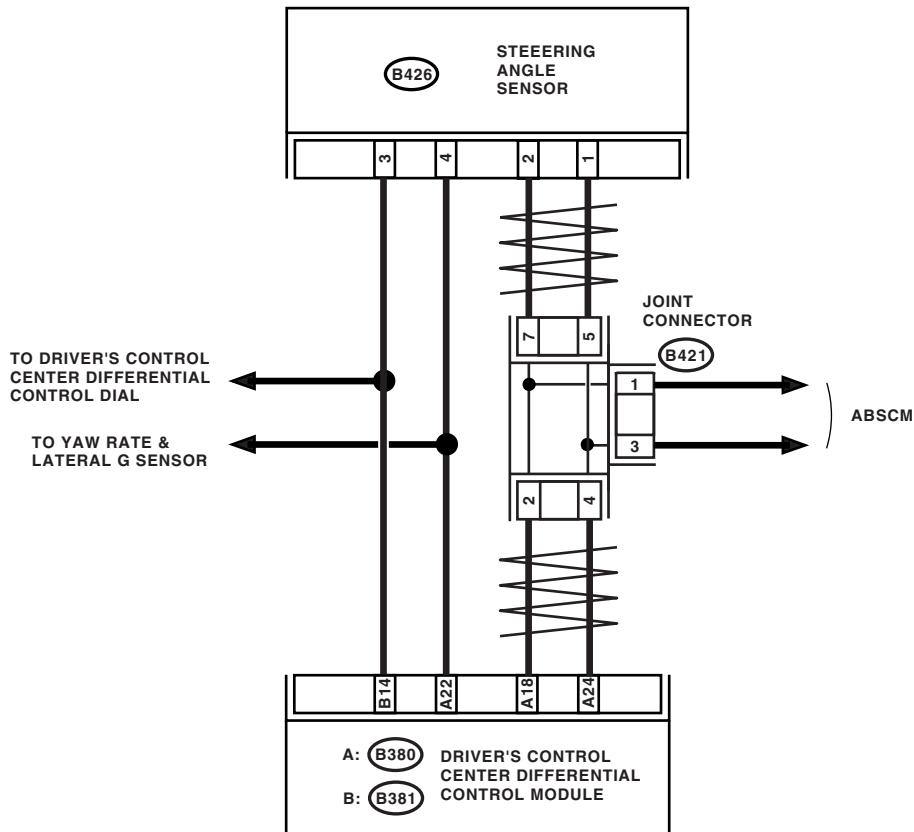
DIAGNOSIS:

Steering angle sensor circuit is open or shorted, or communication error.

TROUBLE SYMPTOM:

Tight corner braking phenomenon is occurred.

WIRING DIAGRAM:

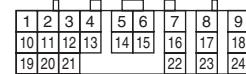


A: B380

DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE

B: B381

B: B381



MT-01431

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK DTC.	Is DTC P1720 displayed?	Perform the diagnosis according to DTC.	Go to step 2.
2 CHECK POWER SUPPLY FOR STEERING ANGLE SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from steering angle sensor. 3) Turn the ignition switch to ON. (Engine OFF) 4) Measure the voltage between steering angle sensor and chassis ground. <i>Connector & terminal</i> <i>(B426) No. 4 (+) — Chassis ground (-):</i>	Is the voltage more than 12 V?	Go to step 3.	Repair the open circuit of harness between steering angle sensor and driver's control center differential control module.
3 CHECK GROUND CIRCUIT OF STEERING ANGLE SENSOR. Measure the resistance between steering angle sensor and chassis ground. <i>Connector & terminal</i> <i>(B426) No. 3 — Chassis ground:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness between steering angle sensor and driver's control center differential control module.
4 CHECK HARNESS BETWEEN STEERING ANGLE SENSOR AND DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. Measure the resistance between steering angle sensor and driver's control center differential control module. <i>Connector & terminal</i> <i>(B426) No. 2 — (B380) No. 18:</i> <i>(B426) No. 1 — (B380) No. 24:</i>	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit of harness between steering angle sensor and driver's control center differential control module.
5 CHECK INPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL. 1) Connect all the connectors. 2) Connect the Subaru Select Monitor to the vehicle. 3) Turn the ignition switch to ON. (Engine OFF) 4) Read the data "deg" of steering angle sensor using Subaru Select Monitor. <Ref. to 6MT(diag)-14, OPERATION, Subaru Select Monitor.>	Does the value on the Subaru Select Monitor vary in accordance with steering wheel turning angle when turning it to the right or left?	Go to step 6.	Go to step 8.
6 CHECK POOR CONTACT.	Is there poor contact in steering angle sensor circuit?	Repair the poor contact.	Go to step 7.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK DTC. 1) Turn the ignition switch to OFF. 2) Erase the memory. 3) Start the engine. 4) Read the DTC.	Is DTC P1767 displayed?	Go to step 8 .	Even if the center differential indicator light (differential free position) is blinking, the circuit has returned to normal condition at this time. A temporary poor contact of connector or harness may be the cause. Repair the connector or harness between driver's control center differential control module and steering angle sensor.
8 CHECK DTC. 1) Turn the ignition switch to OFF. 2) Replace the steering angle sensor. <Ref. to 6MT-127, Steering Angle Sensor.> 3) Erase the memory. 4) Start the engine. 5) Read the DTC.	Is DTC P1767 displayed?	Replace the driver's control center differential control module.	Go to step 9 .
9 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than P1767 displayed?	Perform the diagnosis according to DTC.	The original steering angle sensor is faulty.

J: DTC P1875 CIRCUIT OF CENTER DIFF.

DIAGNOSIS:

Driver's control center differential circuit is open or shorted.

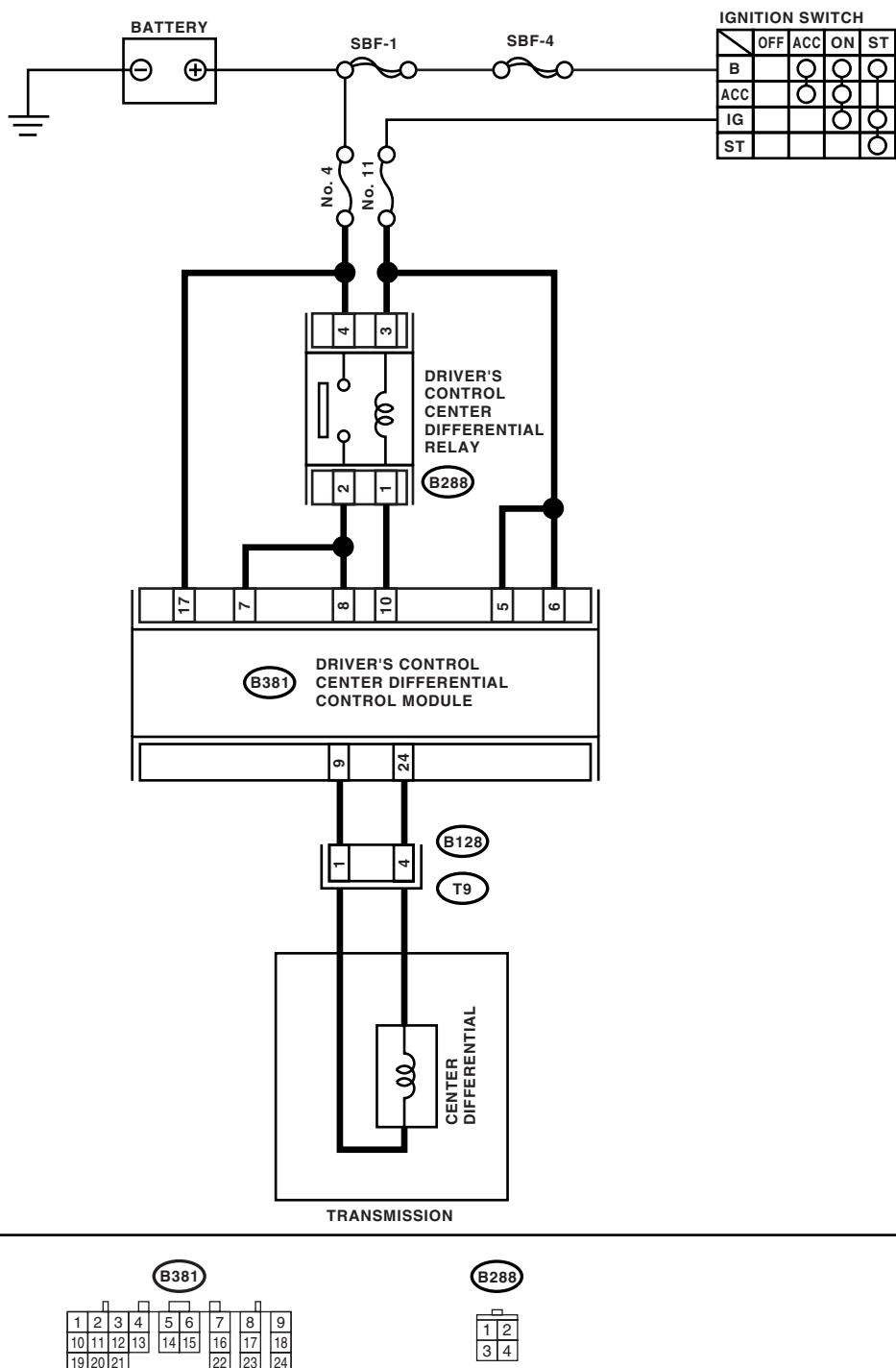
TROUBLE SYMPTOM:

- Center differential does not operate.
- Lock ratio of center differential does not variation, or malfunction occurs.
- Tight corner braking condition occurs.
- Handling tends to oversteer.
- The tendency of understeer occurred when high speed cornering.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

WIRING DIAGRAM:



MT-01246

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND TRANSMISSION HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector of driver's control center differential control module. 3) Disconnect the transmission harness connector and bulk harness connector. 4) Measure the resistance of harness between driver's control center differential control module harness connector and transmission harness connector. Connector & terminal (B381) No. 9 — (B128) No. 1: (B381) No. 24 — (B128) No. 4:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit of bulk harness between driver's control center differential control module and transmission harness.
2 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND TRANSMISSION HARNESS. Measure the resistance between driver's control center differential control module harness connector and chassis ground. Connector & terminal (B381) No. 9 — Chassis ground: (B381) No. 24 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit of bulk harness between driver's control center differential control module and transmission harness.
3 CHECK THE CENTER DIFFERENTIAL. Measure the resistance between transmission harness connector terminals. Connector & terminals (T9) No. 1 — No. 4:	Is the resistance 1.2 — 2.5 Ω ?	Go to step 4.	Replace the center differential.
4 CHECK THE OUTPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Connect all the harness connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Release the parking brake. 4) Set the driver's control center differential to manual mode by pressing manual mode switch. 5) Set the center differential control dial to differential lock. 6) Measure the voltage between driver's control center differential control module and harness connector. Connector & terminal (B381) No. 9 (+) — (B381) No. 24 (-):	Is the voltage 7.0 — 9.0 V?	Go to step 5.	Go to step 6.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
5 CHECK THE OUTPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the center differential control dial from differential lock to differential free position. 2) Measure the voltage between driver's control center differential control module and harness connector. <i>Connector & terminal</i> <i>(B381) No. 9 (+) — (B381) No. 24 (-):</i>	Does the voltage change smoothly?	Circuit is in normal condition this time though the indicator blink illuminates. A temporary poor connector or harness may be the case. Repair the poor contact in connector or harness of driver's control center differential control module and transmission harness. Check the poor contact in power supply circuit, too.	Go to step 6.
6 CHECK FUSE (No. 4). Remove the fuse (No. 4).	Is the fuse (No. 4) is blown out?	Replace fuse (No. 4). If the replaced fuse (No. 4) is blown out easily, repair short circuit in harness between fuse (No. 4) and driver's control center differential control module.	Go to step 7.
7 CHECK POWER SUPPLY CIRCUIT OF DRIVER'S CONTROL CENTER DIFFERENTIAL RELAY. 1) Fuse installation. 2) Disconnect the harness connector of driver's control center differential relay. 3) Measure the voltage between driver's control center differential relay harness connector and chassis ground. <i>Connector & terminal</i> <i>(B288) No. 4 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 8.	Repair the open or short circuit between fuse (No. 4) and driver's control center differential relay, battery.
8 CHECK IGNITION POWER SUPPLY CIRCUIT OF DRIVER'S CONTROL CENTER DIFFERENTIAL RELAY. Measure the voltage between driver's control center differential relay and chassis ground. <i>Connector & terminal</i> <i>(B288) No. 3 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 9.	Repair the open circuit between fuse (No. 11) and driver's control center differential control module.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
9 CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND DRIVER'S CONTROL RELAY. 1) Turn the ignition switch to OFF. 2) Disconnect the driver's control center differential control unit connector. 3) Measure the resistance of harness between driver's control center differential control module harness connector and driver's control relay harness connector. Connector & terminal (B381) No. 18 — (B288) No. 2: (B381) No. 19 — (B288) No. 2: (B381) No. 21 — (B288) No. 1:	Is the resistance less than 1 Ω ?	Go to step 10.	Repair the open circuit between driver's control center differential control module harness connector and driver's control relay harness connector.
10 CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND DRIVER'S CONTROL RELAY. Measure the resistance of harness between driver's control center differential control module harness connector and chassis ground. Connector & terminal (B381) No. 7 — Chassis ground: (B381) No. 8 — Chassis ground: (B381) No. 10 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 11.	Repair the short circuit between driver's control center differential control module harness connector and driver's control relay, battery harness connector.
11 CHECK DRIVER'S CONTROL RELAY. Measure the resistance between driver's control relay terminals. Terminals No. 4 — No. 2:	Is the resistance more than 1 $M\Omega$?	Go to step 12.	Replace the driver's control relay.
12 CHECK DRIVER'S CONTROL RELAY. Connect the battery positive lead to terminal No. 3 and battery negative lead to terminal No. 1, and then measure the resistance between driver's control relay terminals. Terminals No. 4 — No. 2:	Is the resistance less than 1 Ω ?	Go to step 13.	Replace the driver's control relay.
13 CHECK IGNITION POWER SUPPLY CIRCUIT FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL UNIT. 1) Connect all the connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between driver's control center differential control unit and chassis ground. Connector & terminal (B381) No. 10 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 14.	Go to step 16.
14 CHECK IGNITION POWER SUPPLY CIRCUIT FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL UNIT. Measure the voltage between driver's control center differential control unit and chassis ground. Connector & terminal (B381) No. 7 (+) — Chassis ground (-): (B381) No. 8 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 15.	Go to step 16.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
15 CHECK CENTER DIFFERENTIAL. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to the data link connector. 3) Turn the ignition switch and Subaru Select Monitor power switch to ON. 4) Set the driver's control center differential to manual mode by pressing manual mode switch. 5) Release the parking brake. 6) Set the center differential control dial to lock position. 7) Read the data of "center differential indicator current" and "center differential actual current" using Subaru Select Monitor.	Are both of the "center differential indicator current" and "center differential actual current" approx. 3.6 — 4.0 A?	Go to step 16 .	Go to step 17 .
16 CHECK CENTER DIFFERENTIAL. 1) Operate the center differential control dial so that the "2A" is displayed for "center differential indicator current" on the Subaru Select Monitor. 2) Read the data of "center differential actual current" using Subaru Select Monitor.	Is the "center differential actual current" almost same as "center differential indicator current"?	Go to step 18 .	Go to step 17 .
17 CHECK POOR CONTACT IN HARNESS CONNECTOR.	Is there poor contact in harness connector?	Repair the poor contact.	Go to step 18 .
18 CHECK DTC. 1) Erase the memory. <Ref. to 6MT(diag)-23, Clear Memory Mode.> 2) Read the DTC using Subaru Select Monitor. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is P1875 displayed?	Replace the driver's control center differential control unit.	Go to step 19 .
19 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than P1875 displayed?	Diagnose according to DTC.	The center differential circuit is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair harness or connector in driver's control center differential circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

K: DTC P2125 ACCELERATOR POSITION SENSOR E

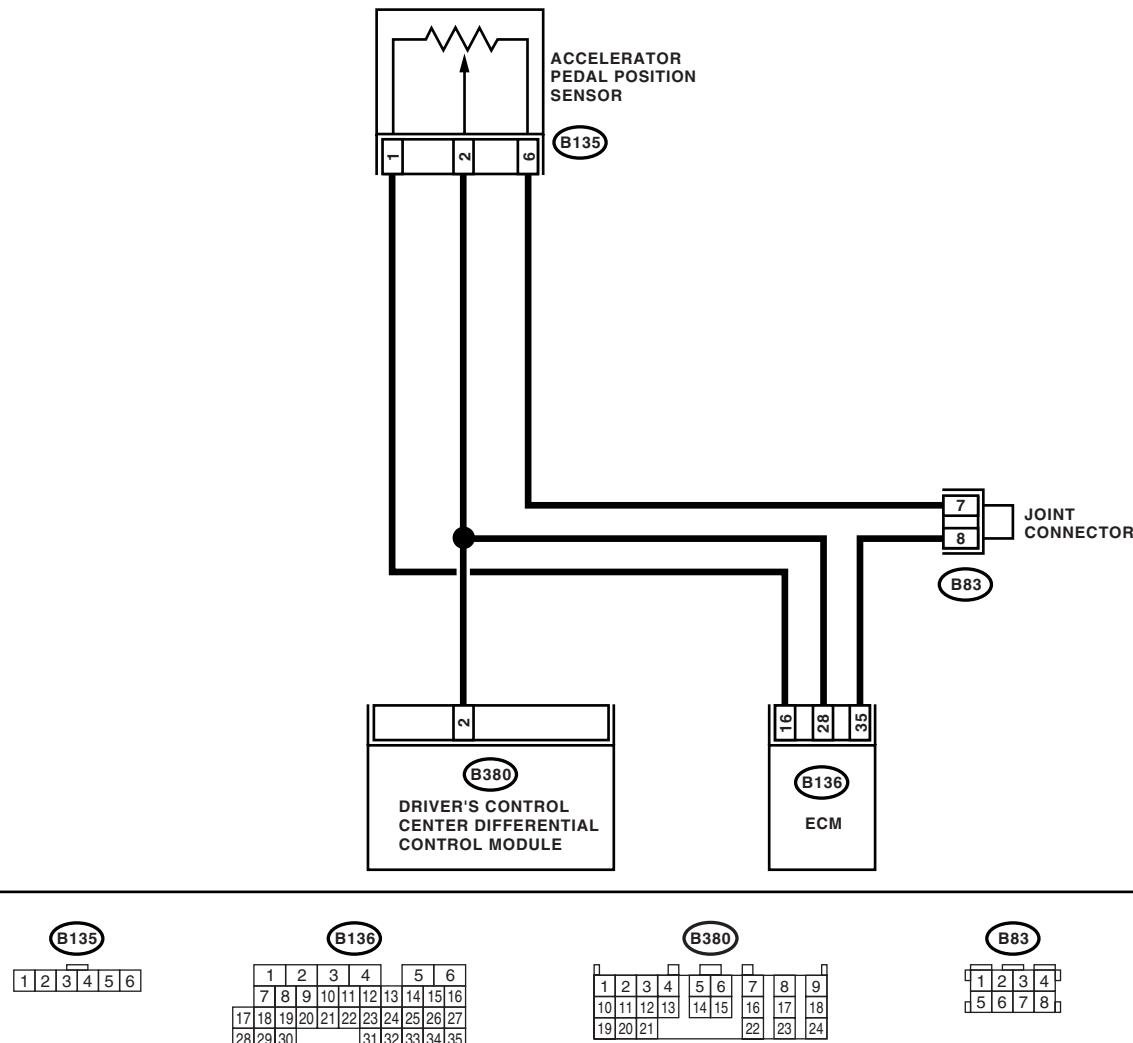
DIAGNOSIS:

The accelerator pedal position sensor circuit is open or shorted.

TROUBLE SYMPTOM:

- Tight corner braking condition occurs.
- Handling tends to oversteer.

WIRING DIAGRAM:



MT-01456

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK DTC.	Is the DTC displayed on engine self diagnosis test mode?	Check with referring to DTC section of engine. <Ref. to EN(H4DOTC)(diag)-74, LIST, List of Diagnostic Trouble Code (DTC).>	Go to step 2.
2 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ACCELERATOR PEDAL POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector of driver's control center differential control module, ECM and accelerator pedal position sensor. 3) Measure the resistance of harness between driver's control center differential control module harness connector and accelerator pedal position sensor. <i>Connector & terminal (B380) No. 2 — (B135) No. 2:</i>	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between driver's control center differential control module and accelerator pedal position sensor.
3 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ECM. Measure the resistance of harness between driver's control center differential control module harness connector and ECM harness connector. <i>Connector & terminal (B380) No. 2 — (B136) No. 28:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness between driver's control center differential control module and ECM.
4 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of harness between driver's control center differential control module harness connector and chassis ground. <i>Connector & terminal (B380) No. 2 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 5.	Repair the short circuit of harness between driver's control center differential control module and accelerator pedal position sensor and ECM.
5 CHECK INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Connect all connectors. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON (engine OFF), and Subaru Select Monitor switch to ON. 4) Read the data of sub accelerator sensor signal using Subaru Select Monitor. Check the measured value is within specification without depressing the accelerator pedal.	Is the voltage 0.3 — 1.8 V?	Go to step 6.	Go to step 7.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
6 CHECK INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Fully depress the accelerator pedal. 2) Read the data of sub accelerator sensor signal using Subaru Select Monitor. Check the measured value is within specification the accelerator pedal depressed.	Is the data 2.8 — 4.7 V?	Go to step 10 .	Go to step 7 .
7 CHECK ACCELERATOR PEDAL POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector of accelerator pedal position sensor. 3) Measure the resistance of accelerator pedal position sensor. <i>Terminal No. 1 — No. 6:</i>	Is the resistance 0.75 k — 3.15 k Ω ?	Go to step 8 .	Replace the accelerator pedal position sensor.
8 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor. <i>Terminal No. 2 — No. 6:</i>	Is the resistance 0.15 k — 0.63 k Ω ?	Go to step 9 .	Replace the accelerator pedal position sensor.
9 CHECK THE POOR CONTACT.	Is there any poor contact in accelerator pedal position sensor circuit?	Repair the poor contact.	Go to step 10 .
10 CHECK DTC. 1) Perform the "clear memory". <Ref. to 6MT(diag)-23, Clear Memory Mode.> 2) Read the DTC using Subaru Select Monitor. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is the DTC P2125 displayed?	Replace the driver's control center differential control module.	Go to step 11 .
11 CHECK FOR OTHER DTC ON DISPLAY.	Is there any DTC other than P2125 displayed?	Perform the diagnosis according to DTC.	Accelerator pedal position sensor circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module, accelerator pedal position sensor and ECM.

L: DTC 24 CHECK CENTER DIFFERENTIAL CONTROL DIAL.

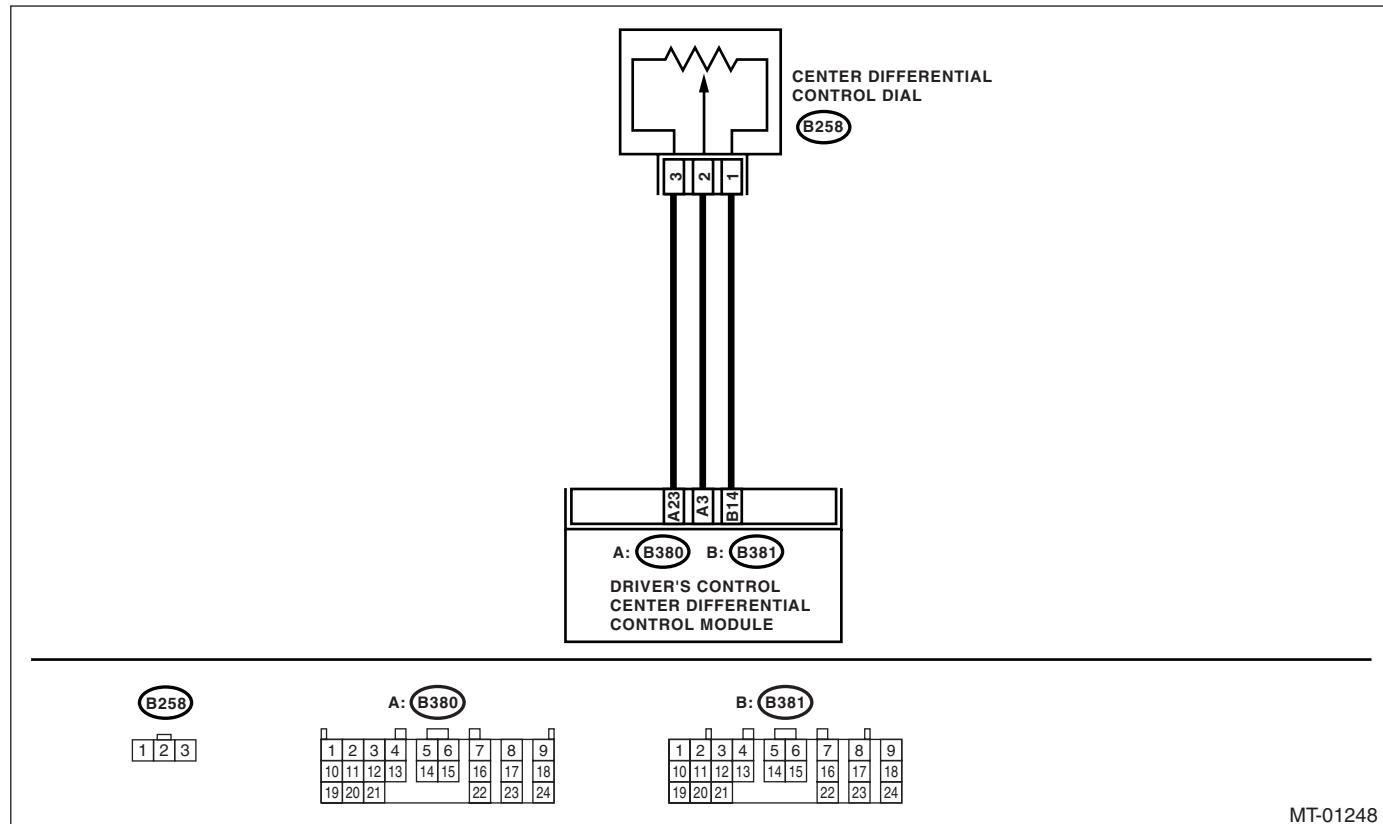
DIAGNOSIS:

Center differential control dial circuit is open or shorted.

TROUBLE SYMPTOM:

- Indicator light does not operate though setting the center differential control dial.
- Torque characteristics do not change.

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND CENTER DIFFERENTIAL CONTROL DIAL. 1) Turn the ignition switch to OFF. 2) Disconnect the connector of driver's control center differential control module and center differential control dial. 3) Measure the resistance of harness between driver's control center differential control module and center differential control dial harness connector. Connector & terminal (B380) No. 3 — (B258) No. 2: (B380) No. 23 — (B258) No. 3: (B381) No. 14 — (B258) No. 1:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit between driver's control center differential control module and center differential control dial.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
2 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND CENTER DIFFERENTIAL CONTROL DIAL. Measure the resistance between driver's control center differential control module harness connector and chassis ground. Connector & terminal <i>(B380) No. 3 — Chassis ground:</i> <i>(B380) No. 23 — Chassis ground:</i> <i>(B381) No. 14 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Go to step 3.	Repair the short circuit between driver's control center differential control module and center differential control dial.
3 CHECK THE CENTER DIFFERENTIAL CONTROL DIAL. 1) Remove the center differential control dial. 2) Measure the resistance between center differential control dial connectors. Terminals <i>No. 1 — No. 3:</i>	Is the resistance 7.5 — 12.5 kΩ?	Go to step 4.	Replace the driver's control dial.
4 CHECK THE CENTER DIFFERENTIAL CONTROL DIAL. Measure the resistance between center differential control dial connectors. Terminals <i>No. 1 — No. 2:</i>	Does the resistance change smoothly when setting the dial from differential lock to differential free?	Go to step 5.	Replace the center differential control dial.
5 CHECK THE OUTPUT POWER SUPPLY OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Connect all the harness connectors. 2) Turn the ignition switch to ON. (engine OFF) 3) Measure the voltage driver's control center differential control module harness connector. Connector & terminal <i>(B380) No. 23 (+) — (B381) No. 14 (-)</i>	Is the voltage approx. 5 V?	Go to step 6.	Replace the driver's control center differential control module.
6 CHECK INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON (engine OFF), and Subaru Select Monitor power switch to ON. 4) Read the data of "Voltage C-diff. SW" using Subaru Select Monitor.	Does the voltage decrease from 5 V to 0 V smoothly when setting the dial from differential lock to differential free?	Go to step 7.	Replace the driver's control center differential control module.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK POOR CONTACT.	Is there poor contact in center differential control dial circuit?	Repair the poor contact.	Center differential control dial circuit is in normal condition. A temporary poor contact of connector or harness is the cause of trouble. Repair the harness or connector between driver's control center differential control module and center differential control dial.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

M: DTC 31 MANUAL MODE SWITCH

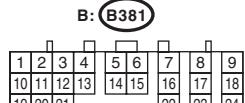
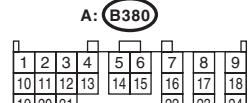
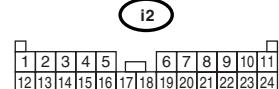
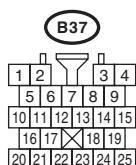
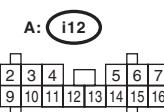
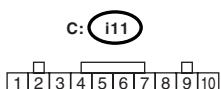
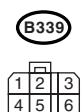
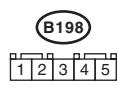
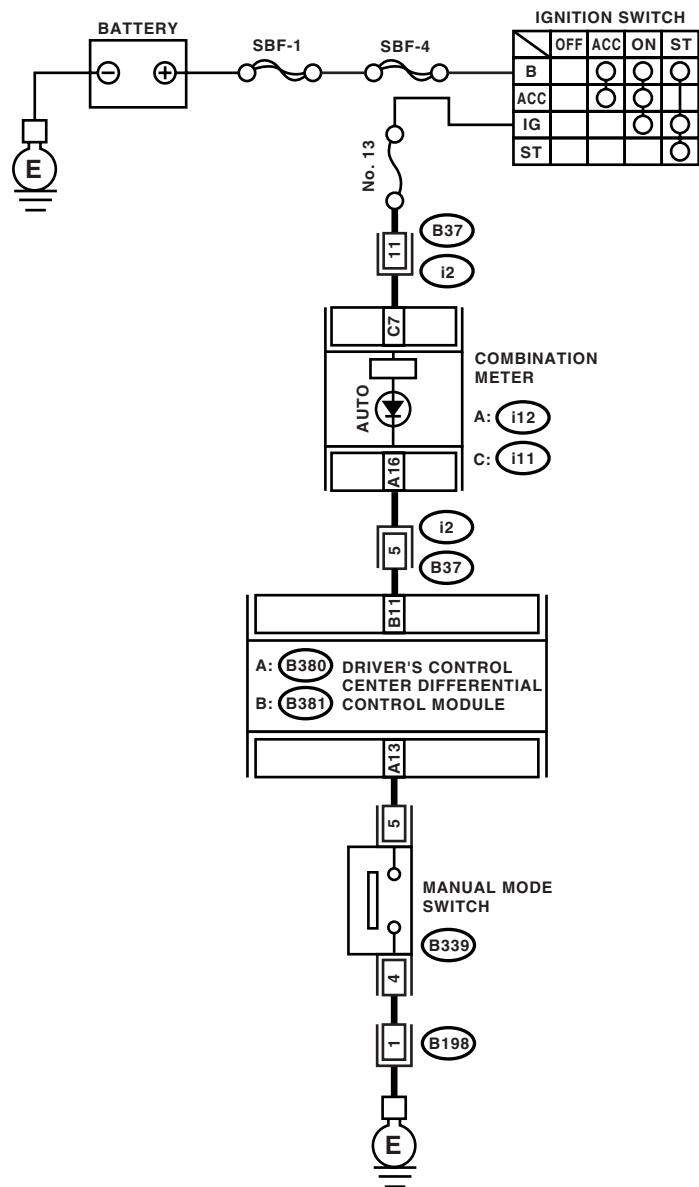
DIAGNOSIS:

Manual mode switch circuit is open or shorted.

TROUBLE SYMPTOM:

- Driver's control center differential can not be manual mode. Or can not be auto mode.
- AUTO indicator does not illuminate, or does not go off.

WIRING DIAGRAM:



MT-01249

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK GROUND CIRCUIT OF MANUAL MODE SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the manual mode switch connector. 3) Measure the resistance between manual mode switch harness connector and chassis ground. <i>Connector & terminal (B339) No. 4 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Repair the open circuit of harness between manual mode switch harness connector and chassis ground. Go to step 2.	
2 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND MANUAL MODE SWITCH. 1) Disconnect the driver's control center differential control module harness connector. 2) Measure the resistance of harness between driver's control center differential control module and manual mode switch. <i>Connector & terminal (B380) No. 13 — (B339) No. 5:</i>	Is the resistance less than 1 Ω?	Go to step 3.	Repair the open circuit of harness between driver's control center differential control module and manual mode switch.
3 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND MANUAL MODE SWITCH. Measure the resistance of harness between driver's control center differential control module and chassis ground. <i>Connector & terminal (B380) No. 13 — Chassis ground:</i>	Is the resistance more than 1 MΩ?	Go to step 4.	Repair the short circuit of harness between driver's control center differential control module and manual mode switch.
4 CHECK THE MANUAL MODE SWITCH. 1) Remove the manual mode switch. 2) Measure the resistance of between manual mode switch connectors. <i>Terminals No. 4 — No. 5:</i>	Is the resistance more than 1 MΩ?	Go to step 5.	Replace the manual mode switch.
5 CHECK THE MANUAL MODE SWITCH. 1) Keep depressing the manual mode switch. 2) Measure the resistance of between manual mode switch connectors. <i>Terminals No. 4 — No. 5:</i>	Is the resistance less than 1 Ω?	Go to step 6.	Replace the manual mode switch.
6 CHECK THE INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Install the manual mode switch. 2) Connect the harness connector of driver's control center differential control module. 3) Connect the Subaru Select Monitor to data link connector. 4) Turn the ignition switch to ON. (engine OFF) 5) Turn the Subaru Select Monitor power switch to ON. 6) Read the data of AUTO/MANUAL mode switch signal using Subaru Select Monitor.	Is the data OFF?	Go to step 7.	Go to step 8.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK THE INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Keep depressing the manual mode switch. 2) Read the data of AUTO/MANUAL mode switch signal using Subaru Select Monitor.	Is the data ON?	Go to step 9 .	Go to step 8 .
8 CHECK POOR CONTACT IN HARNESS CONNECTOR.	Is there any poor contact in manual mode switch circuit?	Repair the poor contact.	Go to step 9 .
9 CHECK DTC. Read the DTC from combination meter. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is the DTC 31 displayed?	Replace the driver's control center differential control module.	Go to step 10 .
10 CHECK FOR OTHER DTC.	Is there any DTC other than 31 displayed?	Perform the diagnosis according to DTC.	Center differential control dial circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module, manual mode switch and chassis ground.

N: DTC 32 CHECK PARKING BRAKE SWITCH

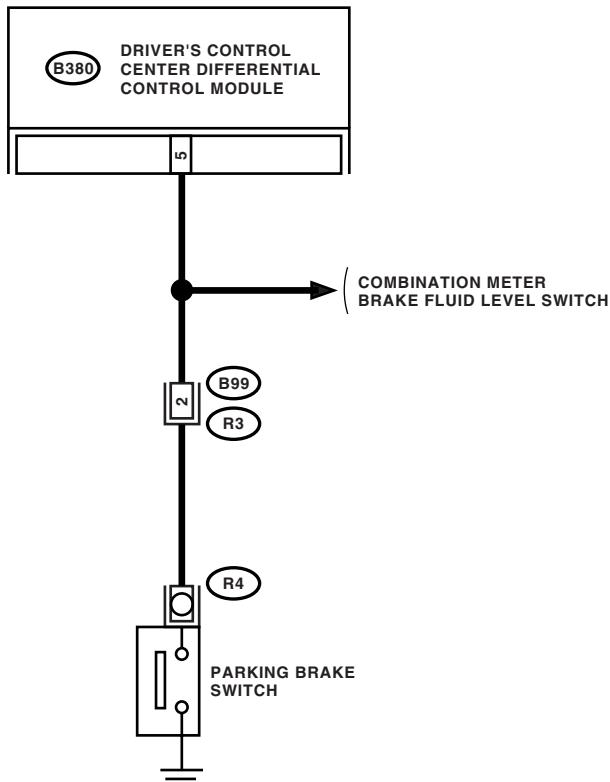
DIAGNOSIS:

Parking brake switch circuit is open or shorted.

TROUBLE SYMPTOM:

- Differential does not tend to be free though apply the parking brake.
- Differential stays free by releasing the parking brake.

WIRING DIAGRAM:



MT-01250

Step	Check	Yes	No
1 CHECK THE PARKING BRAKE SWITCH CIRCUIT. 1) Turn the ignition switch to ON. 2) Start the engine. 3) Apply the parking brake.	Does the parking brake warning light illuminate?	Go to step 2.	Check the parking pilot & brake fluid warning light circuit.
2 CHECK THE PARKING BRAKE SWITCH CIRCUIT. Release the parking brake.	Does the parking brake warning light turn OFF?	Go to step 3.	Check the brake fluid level, parking pilot & brake fluid level warning light circuit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND PARKING BRAKE SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector of driver's control center differential control module, combination meter and parking brake switch. 3) Measure the resistance of harness between driver's control center differential control module and parking brake switch. <i>Connector & terminal (B380) No. 5 — (R4) No. 1:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness and poor contact of connector.
4 CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND PARKING BRAKE SWITCH. Measure the resistance between driver's control center differential control module harness connector and chassis ground. <i>Connector & terminal (B380) No. 5 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 5.	Repair the short circuit of harness.
5 CHECK THE INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Connect all the harness connectors. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON, and Subaru Select Monitor power switch to ON. 4) Release the parking brake. 5) Read the data of "Parking Position Switch" using subaru Select Monitor.	Is the data OFF?	Go to step 6.	Replace the driver's control center differential control module.
6 CHECK THE INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Apply the parking brake. 2) Read the data of "Parking Position Switch" using subaru Select Monitor.	Is the data ON?	Go to step 7.	Replace the driver's control center differential control module.
7 CHECK POOR CONTACT IN HARNESS CONNECTOR.	Is there any poor contact in harness connector of parking brake circuit?	Repair the poor contact of harness connector.	The parking brake switch circuit is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair harness or connector between driver's control center differential control module, brake fluid level switch, ABS unit, combination meter and parking brake switch. Also, check the brake fluid level.

O: DTC 37 NEUTRAL POSITION SWITCH

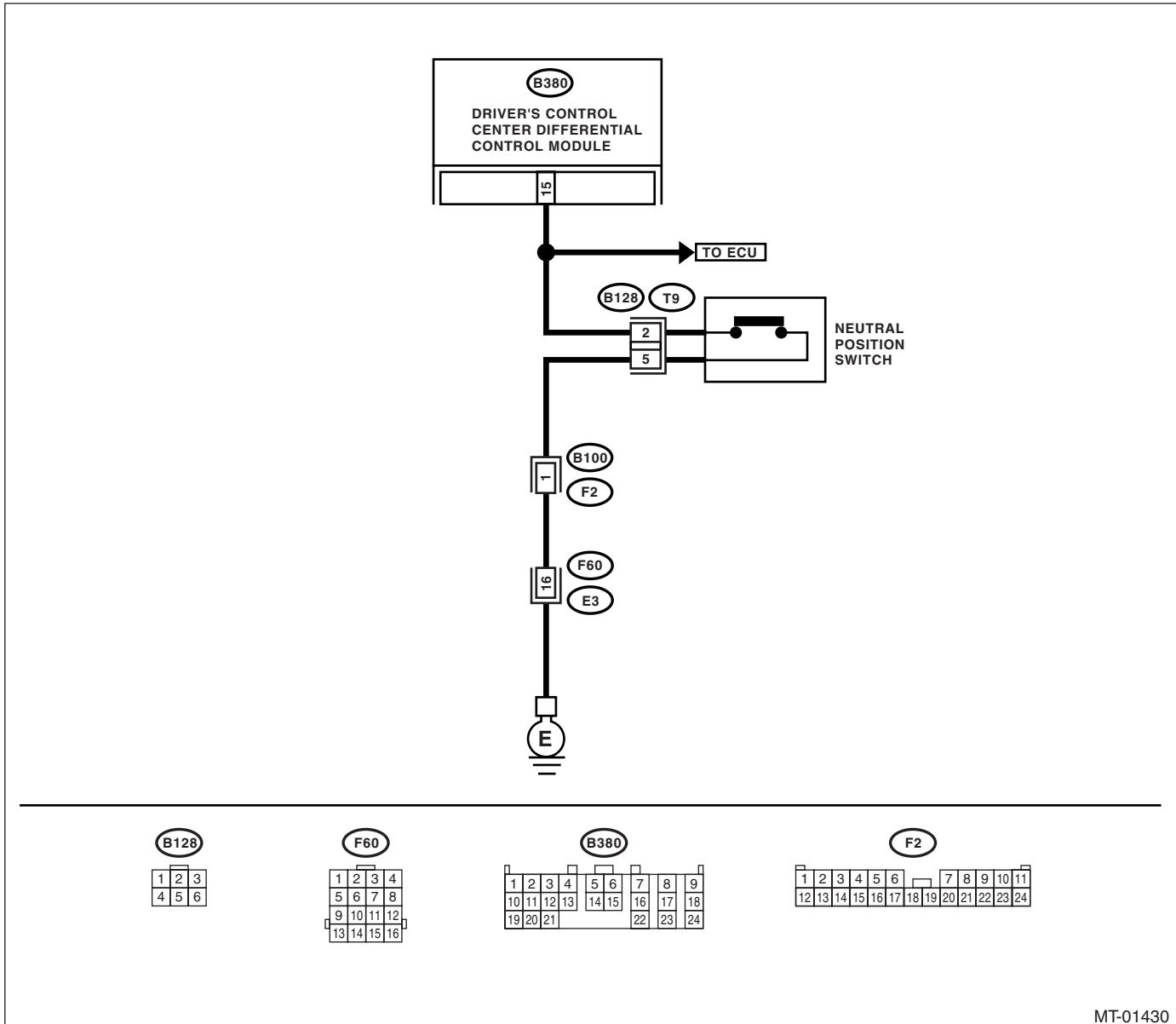
DIAGNOSIS:

Open or short in neutral position switch circuit

TROUBLE SYMPTOM:

- Handling tends to oversteer.
- The tendency of understeer occurred when high speed cornering.

WIRING DIAGRAM:



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND NEUTRAL POSITION SWITCH. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from driver's control center differential control module, ECM and in neutral position switch. 3) Measure the resistance between driver's control center differential control module and neutral position switch. <i>Connector & terminal (B380) No. 15 — (B128) No. 2:</i>	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit in harness between neutral position switch connector and Engine ground (-).
2 CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND NEUTRAL POSITION SWITCH. Measure the resistance between driver's control center differential control module connector and Chassis ground (-). <i>Connector & terminal (B380) No. 15 — Chassis ground:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair the short circuit in harness between neutral position switch and driver's control center differential control unit.
3 CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ENGINE GROUND. Measure the resistance between neutral position switch connector and Engine ground (-). <i>Connector & terminal (B128) No. 5 — Engine ground:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit in harness between neutral position switch connector and Engine ground (-).
4 CHECK NEUTRAL POSITION SWITCH. 1) Move the shift lever to "N". 2) Measure the resistance between transmission harness connector terminals. <i>Connector & terminal (T9) No. 2 — No. 5:</i>	Is the resistance less than 1 Ω ?	Go to step 5.	Replace the neutral position switch.
5 CHECK NEUTRAL POSITION SWITCH. 1) Move the shift lever to other than "N". 2) Measure the resistance between transmission harness connector terminals. <i>Connector & terminal (T9) No. 2 — No. 5:</i>	Is the resistance more than 1 $M\Omega$?	Go to step 6.	Replace the neutral position switch.
6 CHECK INPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Connect all the connectors. 2) Turn the ignition switch to ON. 3) Subaru Select Monitor switch to ON. 4) Move the shift lever to "N". 5) Read the data of "Neutral switch" using Subaru Select Monitor.	Is the "ON" displayed?	Go to step 7.	Go to step 8.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK INPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE. 1) Move the shift lever to other than "N". 2) Read the data of "Neutral switch" using Subaru Select Monitor.	Is the "OFF" displayed?	Neutral switch circuit is in normal condition. Temporary poor contact occurs. Repair the harness or connector between driver's control center differential control module, neutral switch and ECM.	Go to step 8 .
8 CHECK POOR CONTACT.	Is there any poor contact in neutral position switch circuit?	Repair the poor contact.	Go to step 9 .
9 CHECK DTC. Read the DTC from combination meter. <Ref. to 6MT(diag)-20, Read Diagnostic Trouble Code (DTC).>	Is DTC 37 displayed?	Replace the driver's control center differential control unit.	Go to step 10 .
10 CHECK FOR OTHER DTC.	Is any DTC except DTC 37 displayed?	Diagnose according to DTC.	The neutral position switch circuit is in normal condition. A temporary poor contact of connector or harness may be the cause. Repair harness or connector in neutral position switch circuit.

General Diagnostic Table

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

13. General Diagnostic Table

A: INSPECTION

Symptom	Abnormal units/parts
Tight cornering condition	<ul style="list-style-type: none"> • ABS/SCM&H/U • ABS wheel speed sensor • Yaw rate & lateral G sensor • CAN communication signal • Steering angle sensor • Center differential • Center differential control dial • Manual mode switch • Tire/Wheel • Driver's control center differential control module
Tendency to oversteer	<ul style="list-style-type: none"> • Accelerator pedal position sensor • ECM • Center differential control dial • Manual mode switch • Tire/Wheel • Driver's control center differential control module • Center differential • Driver's control center differential relay • Rear differential oil temperature switch • Neutral position switch • Steering angle sensor
Tendency to understeer at high speed cornering	<ul style="list-style-type: none"> • ABS/SCM • ABS wheel speed sensor • CAN communication signal • Accelerator pedal position sensor • Yaw rate & lateral G sensor • Center differential • ECM • Engine speed signal • Neutral position switch • Steering angle sensor
No change in the center differential torque character	<ul style="list-style-type: none"> • Center differential control dial • Driver's control center differential relay • Center differential • Driver's control center differential control module
Driver's control center differential indicator does not operate	<ul style="list-style-type: none"> • Combination meter • Driver's control center differential control module
Driver's control center differential indicator does not operate though setting the center differential control dial	<ul style="list-style-type: none"> • Center differential control dial • Combination meter • Driver's control center differential control module
No change to AUTO or MANUAL	<ul style="list-style-type: none"> • Manual mode switch • Combination meter • Driver's control center differential control module
AUTO indicator light does not illuminate	<ul style="list-style-type: none"> • Manual mode switch • Combination meter • Driver's control center differential control module
Differential does not become free, or stays free	<ul style="list-style-type: none"> • Parking brake switch • Center differential • Manual mode switch • Center differential control dial • Rear differential • Tire/Wheel • Driver's control center differential relay • Rear differential oil temperature switch • Driver's control center differential control module

General Diagnostic Table

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

Symptom	Abnormal units/parts
ABS does not operation	<ul style="list-style-type: none">• ABSCM&H/U• CAN communication signal• Stop light switch• Driver's control center differential control module
Differential does not become lock, or stays lock	<ul style="list-style-type: none">• ABSCM&H/U• ABS wheel speed sensor• CAN communication signal• Center differential• Center differential control dial• Manual mode switch• Tire/Wheel• Driver's control center differential control module• Driver's control center differential relay

General Diagnostic Table

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)
