TRANSMISSION SECTION

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

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

FUJI HEAVY INDUSTRIES LTD. G1870GE4

MANUAL TRANSMISSION AND DIFFERENTIAL (DIAGNOSTICS)

6MT(diag)

1. Basic Diagnostics Procedure

A: PROCEDURE

	Step	Check	Yes	No
1	**CHECK PRE-INSPECTION.** 1)Ask the customer when and how trouble occurred using the interview check list. <Ref. to 6MT(diag)-3, Check List for Interview.> 2)Before performing diagnosis, inspect the unit which might influence the driver's control center differential. <Ref. to 6MT(diag)-4, INSPECTION, General Information.>	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)-19, READ STORED DIAGNOSTIC TROUBLE CODE (DTC) WITHOUT SUBARU SELECT MONITOR, OPERATION, Read Diagnostic Trouble Code (DTC).> NOTE: For DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-24, List of Diagnostic Trouble Code (DTC).>	Is the DTC called up?	Go to step **3.** NOTE: Record all DTC (Include: normal code).	Inspect using "Can not calling up DTC". NOTE: After the inspection, read the DTC again. <Ref. to 6MT(diag)-19, READ STORED DIAGNOSTIC TROUBLE CODE (DTC) WITHOUT SUBARU SELECT MONITOR, OPERATION, Read Diagnostic Trouble Code (DTC).>
3	**Perform the diagnosis.** 1)Inspect and repair the all DTC using "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-26, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> NOTE: For DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-24, List of Diagnostic Trouble Code (DTC).> 2)Perform the inspection mode. <Ref. to 6MT(diag)-21, Inspection Mode.>	Is the DTC displayed?	Record all DTC, and inspect using "Diagnostic Procedure with Diagnostic Trouble Code (DTC)" <Ref. to 6MT(diag)-26, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Repeat "PERFORM THE DIAGNOSIS" until normal code called up.	Inspect using "General Diagnostic Table".

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	❑ Continuous ❑ Intermittent (times a day)		
Weather	❑ Fine ❑ Cloudy ❑ Rainy ❑ Snowy ❑ Various/Others ( )		
Place	❑ High ❑ Suburbs ❑ Inner city ❑ Uphill ❑ Rough road ❑ Others ( )		
Outdoor temperature	❑ Hot ❑ Warm ❑ Cool ❑ Cold		
Vehicle speed			km/h (MPH)
Driver's control center differential indicator lamp	❑ Flashing	❑ Except flashing	
Driving condition	❑ Not affected ❑ While decelerating	❑ At starting ❑ While accelerating	❑ While turning (❑ RH / ❑ LH) ❑ While cruising
Symptoms	❑ No change to AUTO or MANUAL		
	❑ No change of front and rear torque distribution		
	❑ No change to differential free		
	❑ No change to differential lock		
	❑ Tight cornering condition is occurred in AUTO or MANUAL mode with differential free		
	❑ Noise or vibration		
	❑ Others ( )		

3. General Information

A: CAUTION

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

CAUTION:
• All airbag system wiring harness and 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 ECM 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.

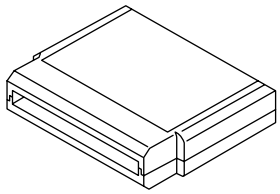
Standard of voltage: More than 12 V

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
 ST24082AA230	24082AA230	CARTRIDGE	Troubleshooting for electrical system.
 ST22771AA030	22771AA030	SUBARU SELECT MONITOR KIT	Troubleshooting for electrical system. • English: 22771AA030 (Without printer) • German: 22771AA070 (Without printer) • French: 22771AA080 (Without printer) • Spanish: 22771AA090 (Without printer)

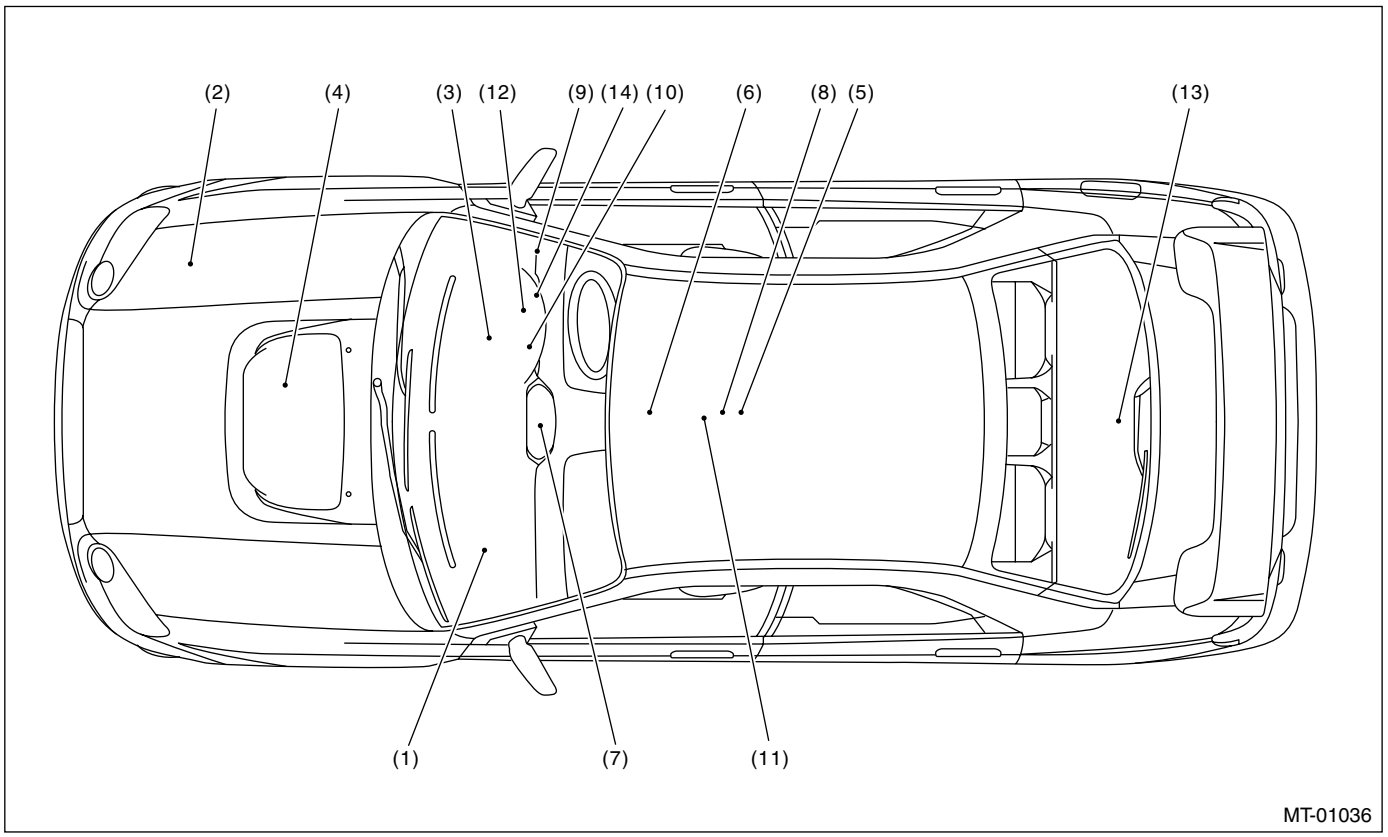
2. GENERAL TOOL

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

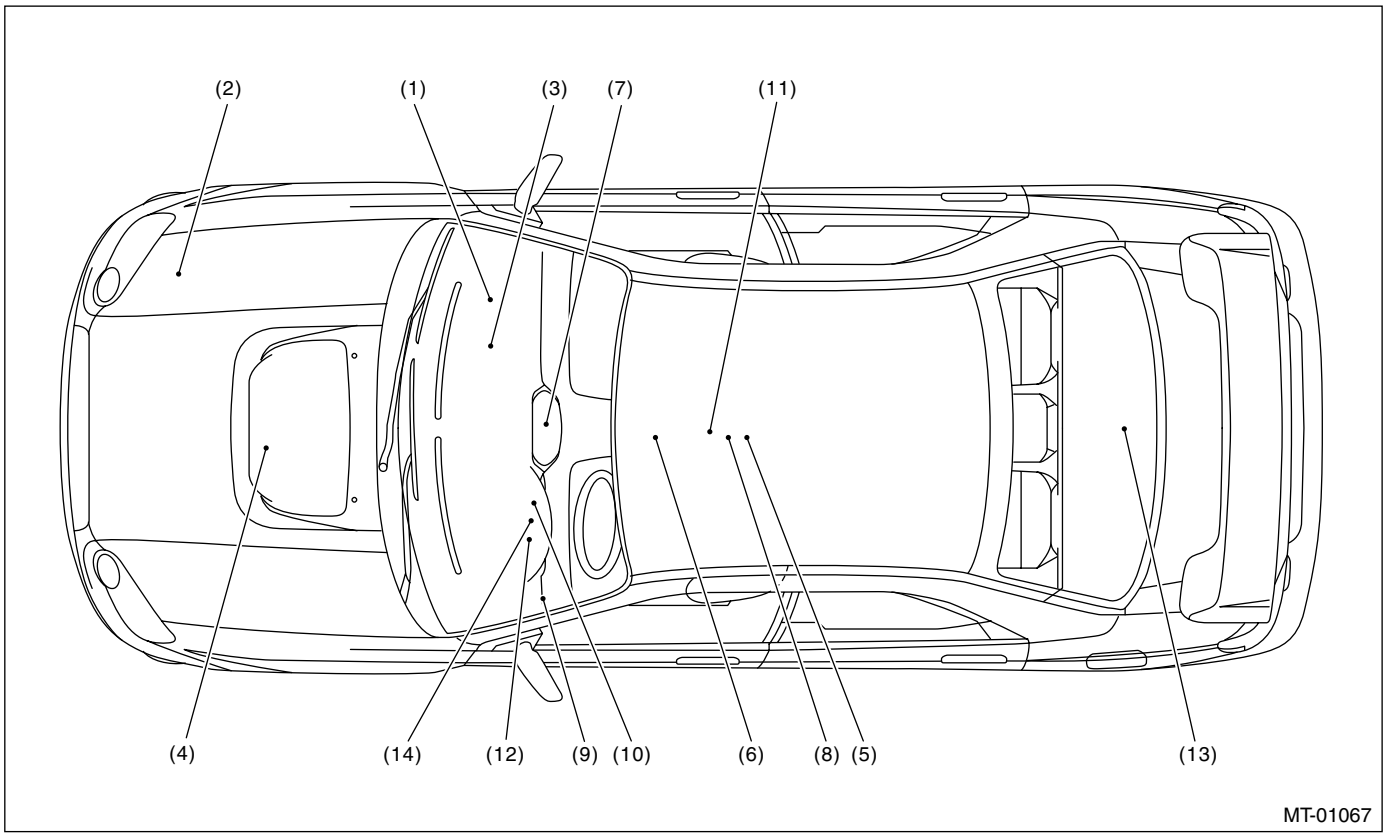
4. Electrical Component Location

A: POSITION

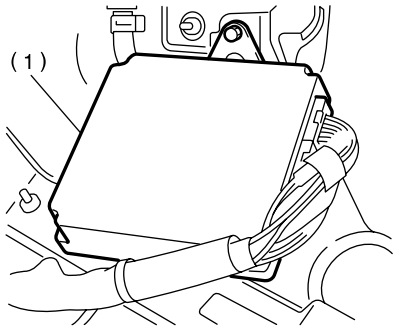
- RHD model



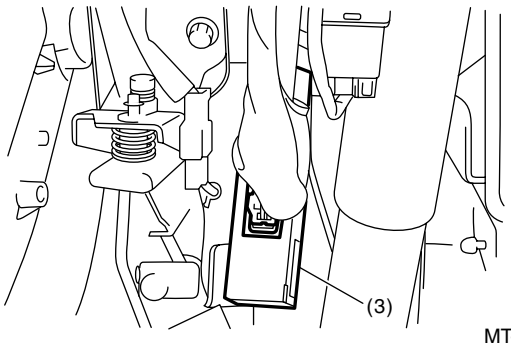
- LHD model



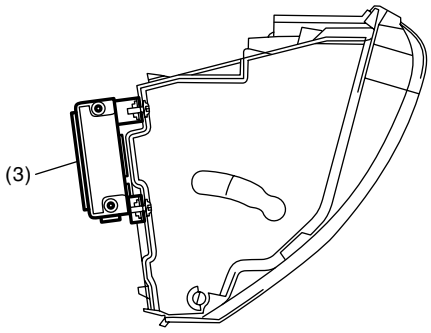
(1) Engine control module (ECM)
(2) ABS control module & hydraulic control unit (ABSCM&H/U)
(3) Driver's control center differential control module
(4) Throttle position sensor
(5) Lateral G sensor
(6) Center differential control dial
(7) Center differential
(8) Manual mode switch
(9) Driver's control center differential relay
(10) Driver's control center differential indicator (driver's control center differential diagnostic indicator)
(11) Parking brake switch
(12) Brake light switch
(13) Rear differential oil temperature sensor
(14) Data link connector (For Subaru Select Monitor)



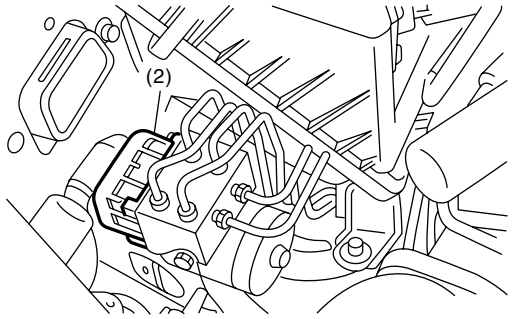
RHD model



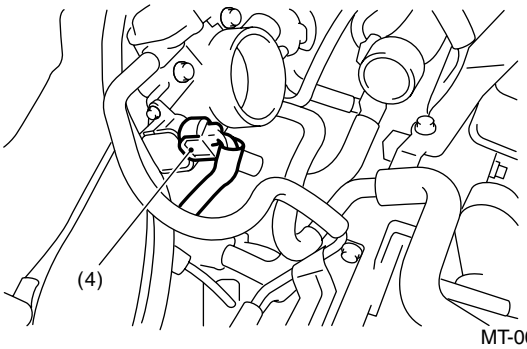
LHD model



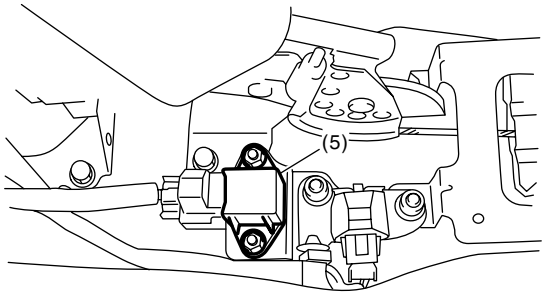
MT-00957



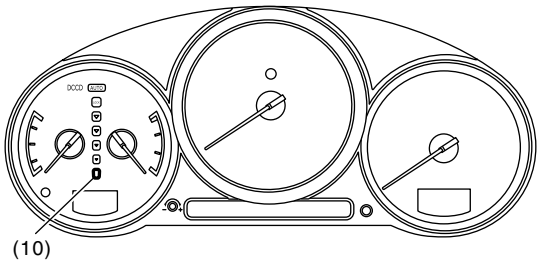
MT-00852



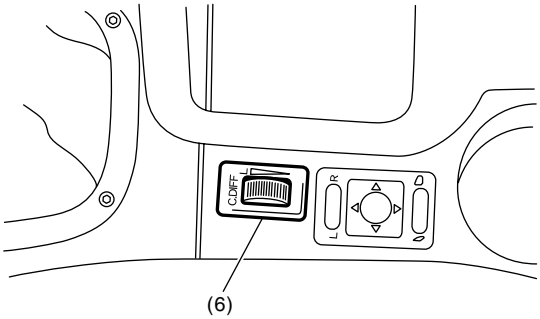
MT-00854



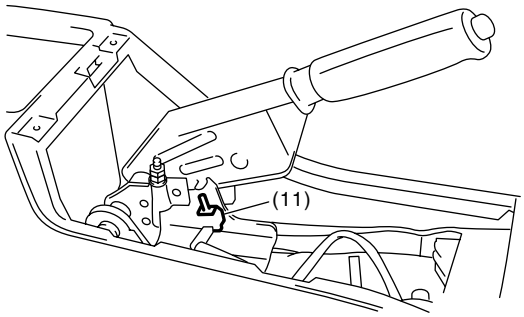
MT-00855



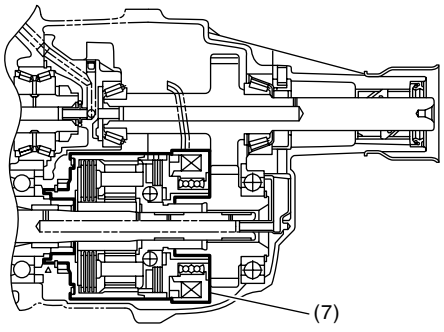
MT-00860



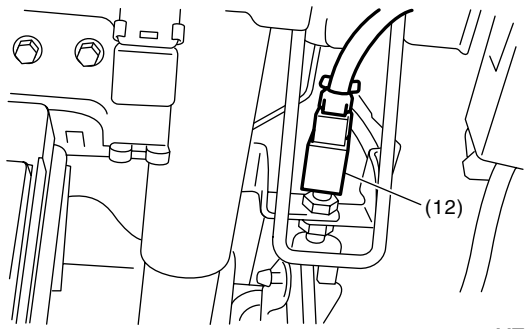
MT-00856



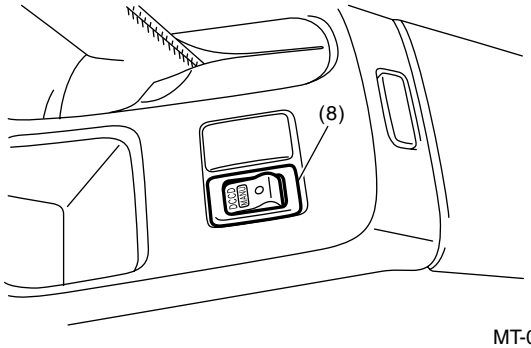
MT-00861



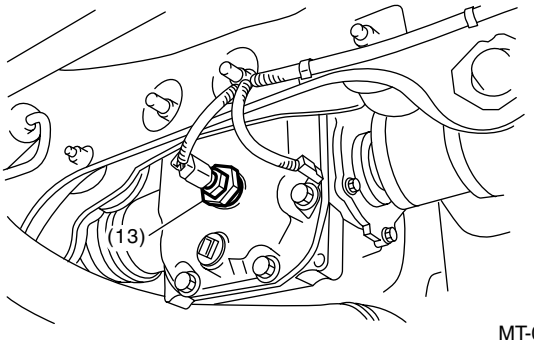
MT-00857



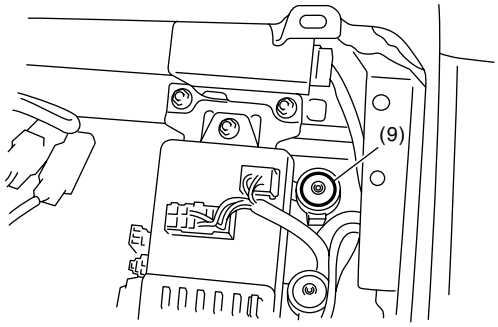
MT-00862



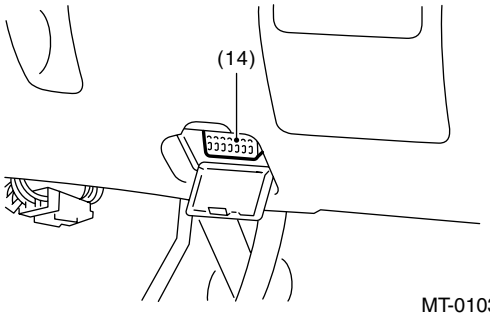
MT-00858



MT-00863



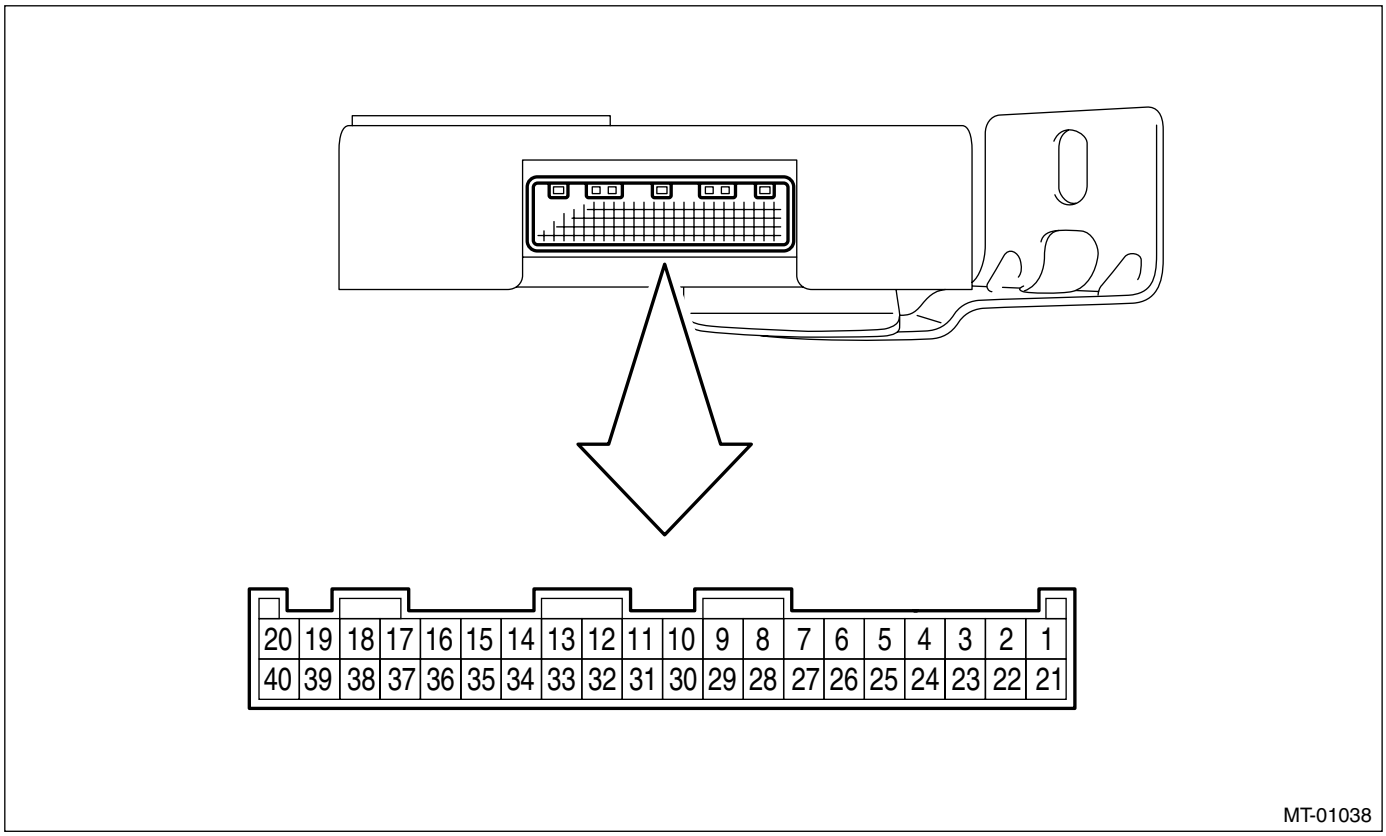
MT-00859



MT-01035

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

A: ELECTRICAL SPECIFICATION

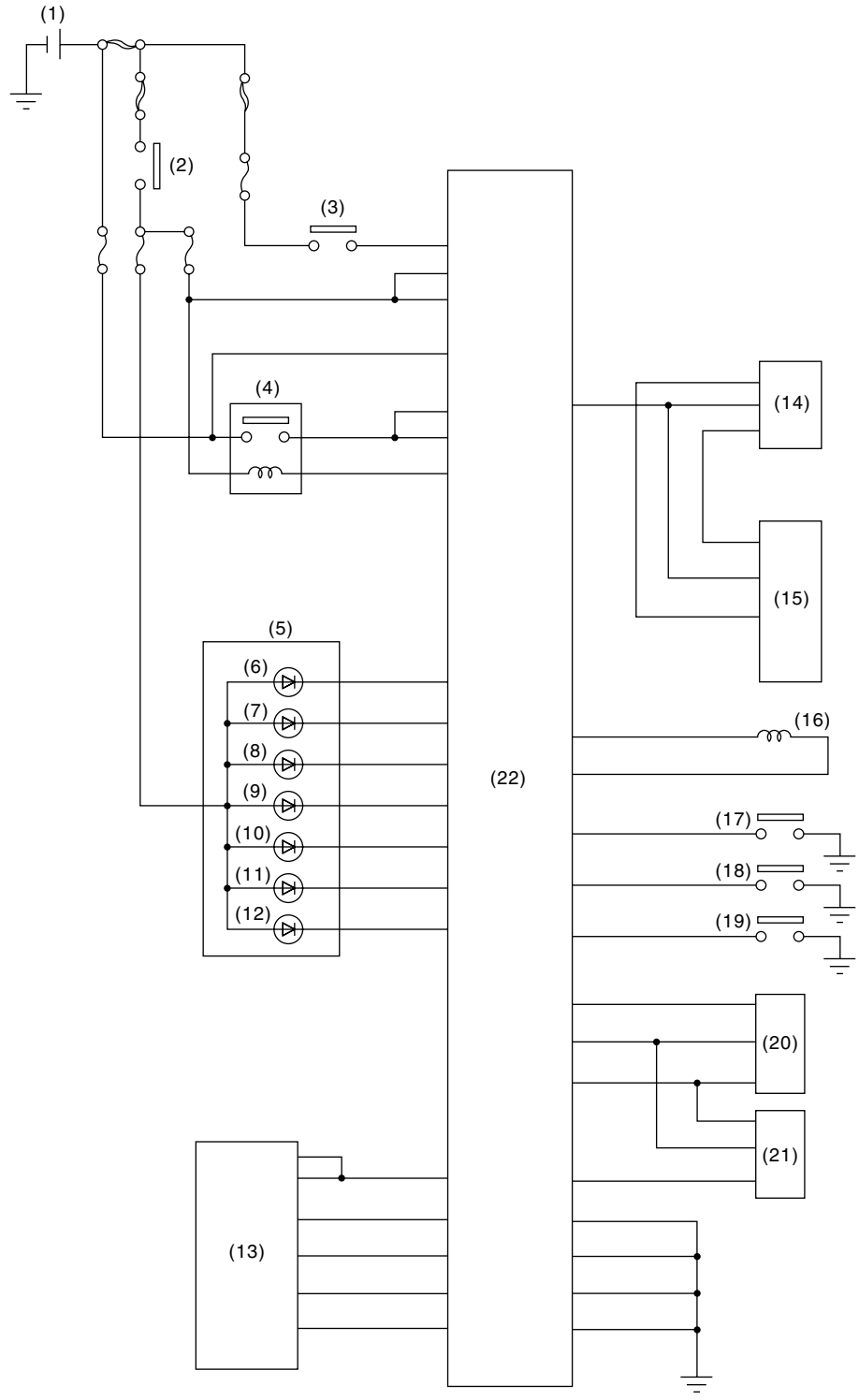


Check with ignition switch ON.				
Content	Terminal No.	Measuring conditions	Voltage (V)	To body resistance (ohm)
Back-up power supply	17	Ignition switch ON or OFF	10 — 13	—
Ignition power supply	15	Ignition switch ON (engine OFF)	10 — 13	—
	16			—
Driver's control center differential power supply	18			—
	19			—
Driver's control relay	21	Ignition switch ON	Less than 1	—
Throttle position sensor	32	Throttle is fully closed.	0.4 — 0.8	—
		Throttle is fully open.	3.9 — 4.1	
Center differential control dial power supply	13	Ignition switch ON	Approx. 5	—
Center differential control dial ground line	34	Ignition switch ON	0	—
Center differential control dial input signal	12	When differential is locked	Approx. 5	—
		When differential is free	Less than 0.5	
Lateral G sensor	33	Ignition switch ON (When lateral G sensor is horizontal)	2.3 — 2.7	—
Driver's control center differential output	20	When differential is locked (When driver's control center differential indicator light is in differential lock)	6.0 — 7.0	1.0 — 2.0 (between connector terminals)
		When differential is free (When parking brake is applied)	Less than 0.5	
Driver's control center differential ground line	40	When differential is free	Less than 0.5	

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

Check with ignition switch ON.				
Content	Terminal No.	Measuring conditions	Voltage (V)	To body resistance (ohm)
Parking brake switch	11	When parking brake is applied	Less than 0.4	—
		When parking brake is released	More than 8	
Driver's control center differential indicator light (Lock ratio 0%)	4	When illuminates	Less than 1	—
		When turned off	More than 8	
Driver's control center differential indicator light (Lock ratio 15%)	3	When illuminates	Less than 1	—
		When turned off	More than 8	
Driver's control center differential indicator light (Lock ratio 35%)	2	When illuminates	Less than 1	—
		When turned off	More than 8	
Driver's control center differential indicator light (Lock ratio 65%)	1	When illuminates	Less than 1	—
		When turned off	More than 8	
Driver's control center differential indicator light (Lock ratio 85%)	24	When illuminates	Less than 1	—
		When turned off	More than 8	
Driver's control center differential indicator light (Lock ratio 100%)	23	When illuminates	Less than 1	—
		When turned off	More than 8	
AUTO indicator light	22	When illuminates	Less than 1	—
		When turned off	More than 8	
ABSCM&H/U	10	When ABS control operates	Less than 1	—
		When ABS control does not operate	More than 8	
Rear LH ABS wheel speed sensor signal	26	When stopped	Less than 1	—
		When driving	Less than 1 ←→ More than 8	
Rear RH ABS wheel speed sensor signal	27	When stopped	Less than 1	—
		When driving	Less than 1 ←→ More than 8	
Front LH ABS wheel speed sensor signal	28	When stopped	Less than 1	—
		When driving	Less than 1 ←→ More than 8	
Front RH ABS wheel speed sensor signal	29	When stopped	Less than 1	—
		When driving	Less than 1 ←→ More than 8	
Stop light switch	9	Brake pedal depressed.	More than 8	—
		Brake pedal released.	Less than 1	
Rear differential oil temperature sensor	7	Rear differential oil temperature sensor OFF	More than 8	—
		Rear differential oil temperature sensor ON	Less than 0.4	
Manual mode switch	8	Switch is released	More than 4.3	—
		Switch is depressed	Less than 0.1	
Data link signal (Subaru Select Monitor)	5	—	—	—
	6			—
Driver's control center differential control module ground line	36	—	0	—
	37			—
	38			—
	39			—

B: WIRING DIAGRAM



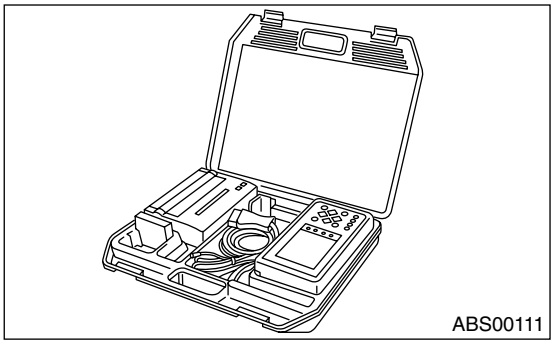
(1) Battery
(2) Ignition relay
(3) Stop light switch
(4) Driver's control center differential relay
(5) Combination Meter
(6) Driver's control center differential indicator light (Lock ratio 0%)
(7) Driver's control center differential indicator light (Lock ratio 15%)
(8) Driver's control center differential indicator light (Lock ratio 35%)
(9) Driver's control center differential indicator light (Lock ratio 65%)
(10) Driver's control center differential indicator light (Lock ratio 85%)
(11) Driver's control center differential indicator light (Lock ratio 100%)
(12) AUTO indicator light
(13) ABS control module & hydraulic control unit (ABSCM&H/U)
(14) Throttle position sensor
(15) Engine control module (ECM)
(16) Driver's control center differential
(17) Parking brake switch
(18) Manual mode switch
(19) Rear differential oil temperature sensor
(20) Center differential control dial
(21) Lateral G sensor
(22) Driver's control center differential control module

6. Subaru Select Monitor

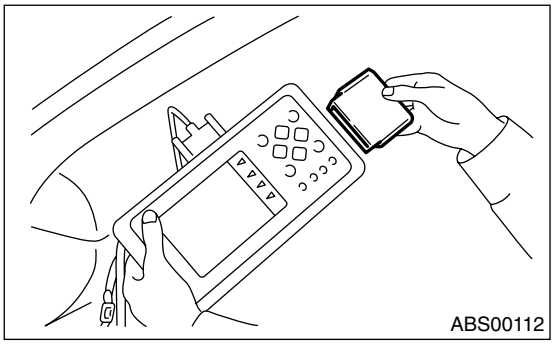
A: OPERATION

1. READ DIAGNOSTIC TROUBLE CODE (DTC)

1) Prepare the Subaru Select Monitor kit. <Ref. to 6MT(diag)-4, SPECIAL TOOL, PREPARATION TOOL, General Information.>

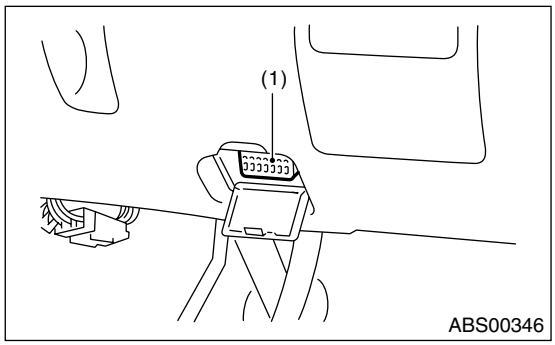


2) Connect the diagnosis cable to Subaru Select Monitor.
3) Insert the cartridge to Subaru Select Monitor. <Ref. to 6MT(diag)-4, SPECIAL TOOL, PREPARATION TOOL, General Information.>



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).

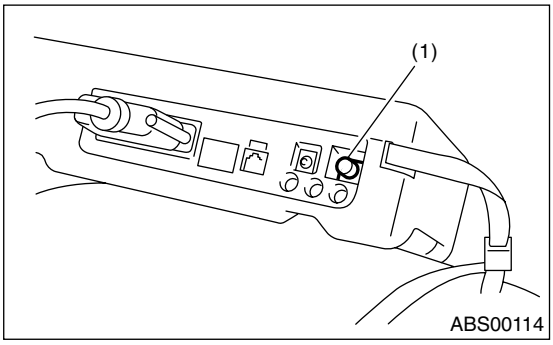


(1) Data link connector

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

CAUTION:
Do not connect the scan tools except for Subaru Select Monitor.

5) Turn the ignition switch to ON (engine OFF) and turn the Subaru Select Monitor 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)-24, List of Diagnostic Trouble Code (DTC).>
• DTCs are displayed in detected order.
• If a particular DTC is not properly stored in memory (due to a drop in driver's control center differential control module power supply, etc.) on the occurrence of a problem, the DTC which is suffixed with a question mark "?" appears on the Subaru Select Monitor display. This shows it may be an unreliable reading.

10) If transmission and Subaru Select Monitor cannot communicate, check the communication circuit. <Ref. to 6MT(diag)-16, 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.

12) When DTC is not displayed, check the communication circuit. <Ref. to 6MT(diag)-16, INSPECTION, Subaru Select Monitor.>

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
Throttle Voltage	Throttle voltage is displayed.	V
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
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

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

3. CLEAR MEMORY MODE

1) On the «Main Menu» display screen, select the {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
Clear memory?	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

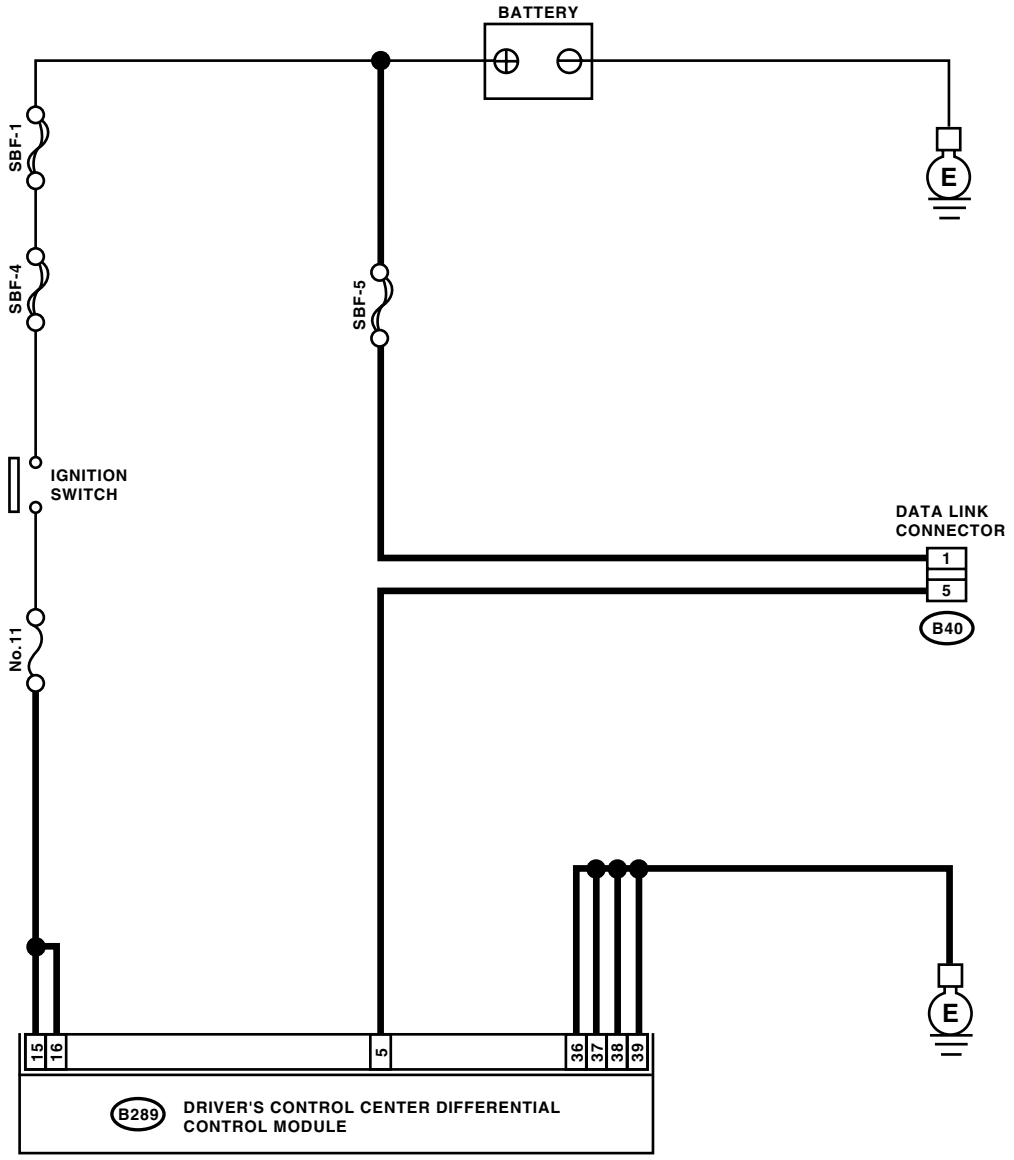
NOTE:
• Data stored at the time of trouble occurrence is shown on display.
• Each time trouble occurs, the latest information is stored in the freeze frame data in memory.
• Freeze frame data will be memorized up to seven.
• If a Freeze Frame Data is not properly stored in memory (due to a drop in driver’s control center differential control module power supply, etc.), the DTC which is suffixed with a question mark “?” appears on the Subaru Select Monitor display. This shows it may be an unreliable reading.

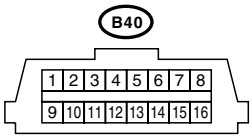
Code	Display	Contents to be monitored
P1870	FR Wheel Speed Sensor Signal	Signal detected by front ABS wheel speed sensor RH is displayed.
P1871	FL Wheel Speed Sensor Signal	Signal detected by front ABS wheel speed sensor LH is displayed.
P1872	RR Wheel Speed Sensor Signal	Signal detected by rear ABS wheel speed sensor RH is displayed.
P1873	RL Wheel Speed Sensor Signal	Signal detected by rear ABS wheel speed sensor LH is displayed.
P1700	Throttle Position Sensor Circuit Malfunction for AT	Condition of throttle position sensor circuit is displayed.
P1875	Center Differential Circuit	Condition of center differential circuit is displayed.
P1759	Lateral Acceleration Sensor Circuit	Condition of lateral G sensor circuit is displayed.

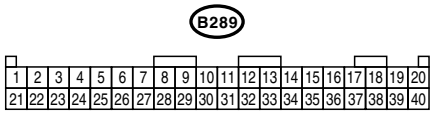
B: INSPECTION

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:







MT-01037

	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 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 **8.**	Go to step **5.**
5	**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)-5, POSITION, Electrical Component Location.>	Go to step **6.**
6	**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 and ECM. 3)Measure the resistance between data link connector and chassis ground. ***Connector & terminal*** ***(B40) No. 5 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **7.**	Repair harness and connector between each control module and data link connector.
7	**CHECK OUTPUT SIGNAL FOR DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** 1)Turn the ignition switch to ON. 2)Measure the voltage between driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B40) No. 5 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **8.**	Repair harness and connector between each control module and data link connector.
8	**CHECK HARNESS CONNECTOR BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND DATA LINK CONNECTOR.** Measure the resistance between driver's control center differential control module connector and data link connector. ***Connector & terminal*** ***(B289) No. 5 — (B40) No. 5:***	Is the resistance less than 1 Ω?	Go to step **9.**	Repair harness and connector between driver's control center differential control module and data link connector.

	Step	Check	Yes	No
9	**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 **10.**	Insert driver's control center differential control module connector into driver's control center differential control module.
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. ***Connector & terminal*** ***(B289) No. 15 (+) — Chassis ground (–):*** ***(B289) No. 16 (+) — Chassis ground (–):***	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)Disconnect the connector from driver's control center differential control module. 3)Measure the resistance of harness between driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 36 — Chassis ground:*** ***(B289) No. 37 — Chassis ground:*** ***(B289) No. 38 — Chassis ground:*** ***(B289) No. 39 — Chassis ground:***	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 only. <Ref. to 6MT(diag)-5, POSITION, Electrical Component Location.>

7. Read Diagnostic Trouble Code (DTC)

A: OPERATION

1. READ STORED DIAGNOSTIC TROUBLE CODE (DTC) WITHOUT SUBARU SELECT MONITOR

1) Securely apply the parking brake.
2) Turn the ignition switch to ON.
3) Set the driver's control dial to differential lock or differential free.
4) Hold the accelerator pedal depressed fully.

NOTE:
Hold the accelerator pedal depressed fully until reading of DTC is completed.

5) Set the driver's control dial to differential lock and differential free for ten times each.

NOTE:
• Repeat the step from the beginning when DTC is not displayed or diagnostic indicator light does not blink.
• Refer to "HOW TO READ DIAGNOSTIC TROUBLE CODE (DTC)" for reading DTC. <Ref. to 6MT(diag)-20, HOW TO READ DIAGNOSTIC TROUBLE CODE (DTC), OPERATION, Read Diagnostic Trouble Code (DTC).>

2. READ SELF-DIAGNOSIS DIAGNOSTIC TROUBLE CODE (DTC) WITHOUT SUBARU SELECT MONITOR

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. (For the model without manual mode switch, only turn the ignition switch to ON.)
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.

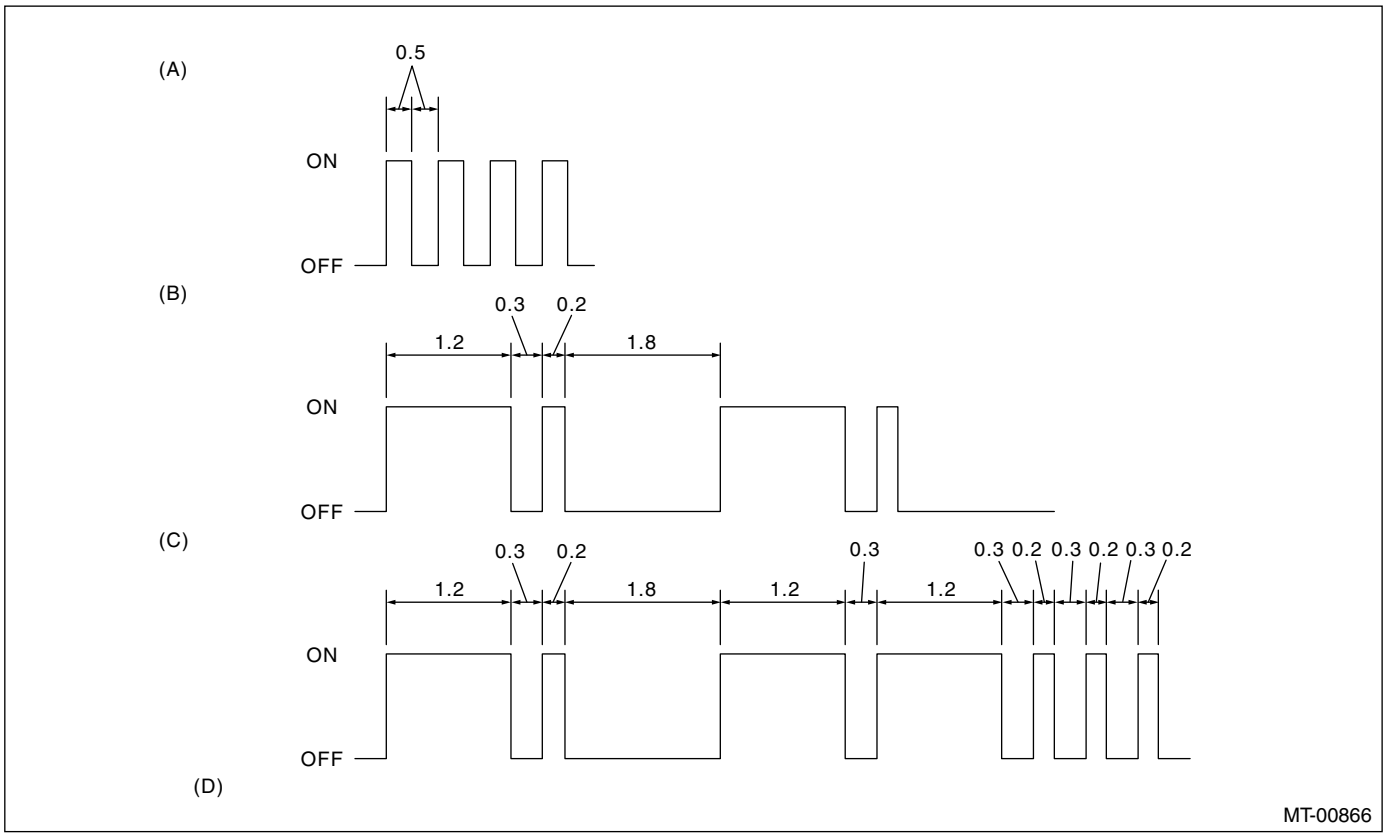
NOTE:
• ABS wheel speed sensor DTC is displayed. Do not judge it as a problem. Perform the inspection mode.
• Repeat the step from the beginning when DTC is not displayed or diagnostic indicator light does not blink.
• Refer to "HOW TO READ DIAGNOSTIC TROUBLE CODE (DTC)" for reading DTC. <Ref. to 6MT(diag)-20, HOW TO READ DIAGNOSTIC TROUBLE CODE (DTC), OPERATION, Read Diagnostic Trouble Code (DTC).>

3. WITH SUBARU SELECT MONITOR

Detail procedure for reading DTC, refer to "SUBARU SELECT MONITOR". <Ref. to 6MT(diag)-13, Subaru Select Monitor.>

4. 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.



(A) Normal code
(B) DTC 11
(C) DTC 11 and 23
(D) Unit: Seconds

NOTE:
• The codes which are memorized in control module as previous DTC by occurring the trouble in the past, and the codes which are appeared to inform the trouble to driver in normal driving condition; are only "11", "12", "13", "14", "21", "22" and "23".
• For details of DTC, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to 6MT(diag)-24, List of Diagnostic Trouble Code (DTC).>

8. Inspection Mode

A: OPERATION

NOTE:
Perform this operation with vehicle stopped. (Model without manual mode switch)

WARNING:
Observe the road traffic law.

1) Call up the Self-diagnosis diagnostic trouble code (DTC). <Ref. to 6MT(diag)-19, READ SELF-DIAGNOSIS DIAGNOSTIC TROUBLE CODE (DTC) WITHOUT SUBARU SELECT MONITOR, OPERATION, Read Diagnostic Trouble Code (DTC).>
2) Start the engine.
3) Apply the parking brake.
4) Depress the brake pedal. (Model with manual mode switch)
5) Operate the Manual mode switch once or more, and then set to Manual mode. (Model with manual mode switch)
6) 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.
7) Drive the vehicle in 15 km/h (9 MPH) for more than 5 sec. (Model with manual mode switch)

9. Clear Memory Mode

A: OPERATION

1. WITHOUT SUBARU SELECT MONITOR

Stored DTC is cleared when ignition switch turns on next time, if there is no malfunction on each I/O signal at the time when finishing inspection mode after calling up the Self-diagnosis DTC (all Self-diagnosis DTC is cleared).

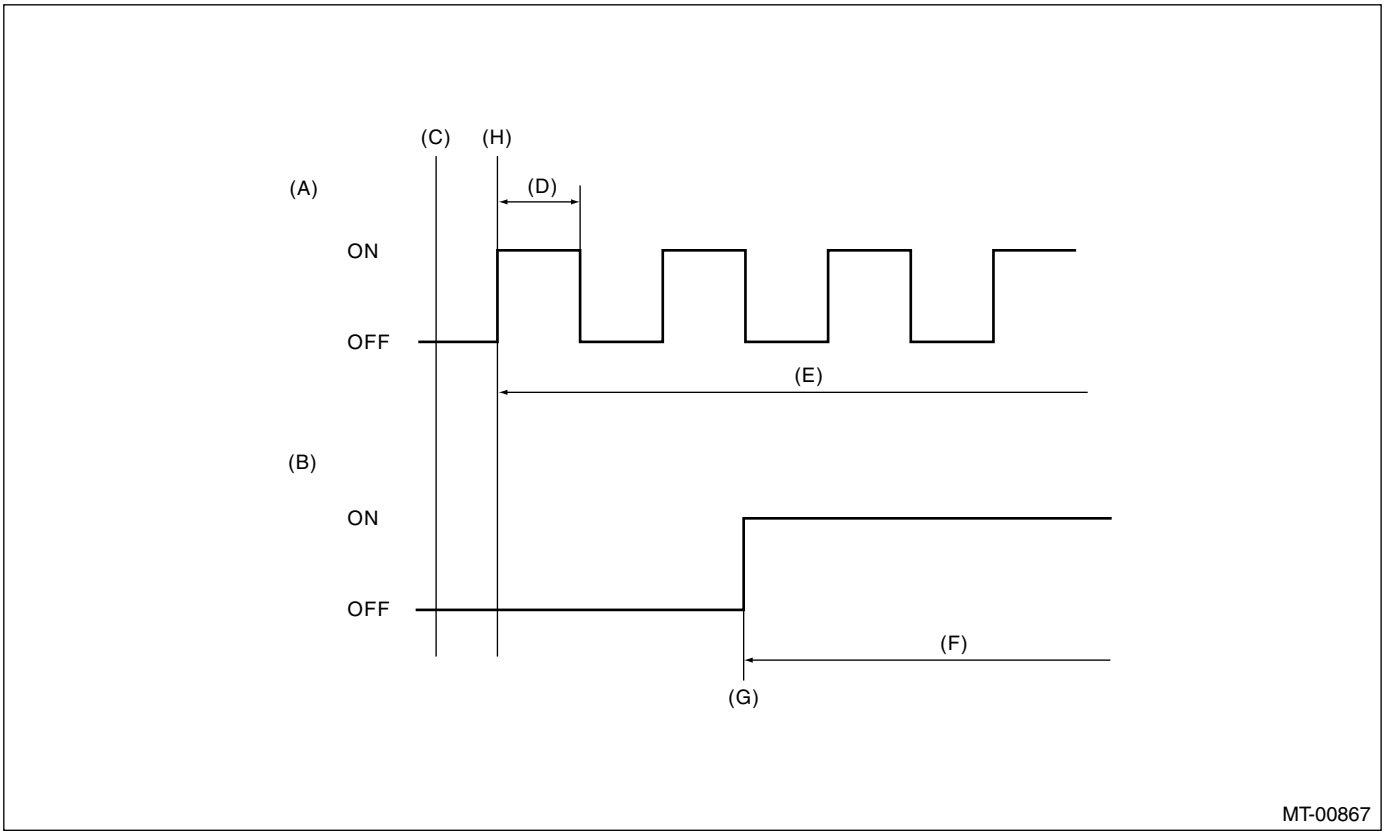
2. WITH SUBARU SELECT MONITOR

Detail procedure for clearing DTC, refer to “SUBARU SELECT MONITOR”. <Ref. to 6MT(diag)-13, Subaru Select Monitor.>

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.



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

11.List of Diagnostic Trouble Code (DTC)

A: LIST

DTC		Item	Content of diagnosis	Index
Meter (Indicator light)	Subaru Select Monitor			
—	—	Diagnosis indicator light, Center differential control dial, Parking brake switch, Throttle position sensor	Diagnosis indicator light does not illuminate. Can not calling up the DTC.	<Ref. to 6MT(diag)-26, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
—	—	Rear differential gear oil temperature sensor	Diagnosis indicator light blinks at 2 Hz, but driver's control center differential does not operate.	<Ref. to 6MT(diag)-31, CHECK REAR DIFFERENTIAL OIL TEMPERATURE SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
11*	P1870*	Front ABS wheel speed sensor RH	Open or short circuit in front ABS wheel speed sensor RH circuit	<Ref. to 6MT(diag)-34, DTC 11 FRONT ABS WHEEL SPEED SENSOR RH SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
12*	P1871*	Front ABS wheel speed sensor LH	Open or short circuit in front ABS wheel speed sensor LH circuit	<Ref. to 6MT(diag)-37, DTC 12 FRONT ABS WHEEL SPEED SENSOR LH SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
13*	P1872*	Rear ABS wheel speed sensor RH	Open or short circuit in rear ABS wheel speed sensor RH circuit	<Ref. to 6MT(diag)-40, DTC 13 REAR ABS WHEEL SPEED SENSOR RH SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
14*	P1873*	Rear ABS wheel speed sensor LH	Open or short circuit in rear ABS wheel speed sensor LH circuit	<Ref. to 6MT(diag)-43, DTC 14 REAR ABS WHEEL SPEED SENSOR LH SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
21	P1700	Throttle position sensor	Open or short circuit in throttle position sensor circuit	<Ref. to 6MT(diag)-46, DTC 21 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
22*	P1759*	Lateral G sensor	Open or short circuit in lateral G sensor circuit	<Ref. to 6MT(diag)-49, DTC 22 LATERAL G SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
23	P1875	Driver's control center differential output	Open or short circuit in driver's control center differential output circuit	<Ref. to 6MT(diag)-51, DTC 23 CHECK CENTER DIFFERENTIAL., Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
24	—	Center differential control dial	Open or short circuit in center differential control dial circuit	<Ref. to 6MT(diag)-53, DTC 24 CHECK CENTER DIFFERENTIAL CONTROL DIAL., Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
31*	—	Manual mode switch	Open or short circuit in manual mode switch circuit	<Ref. to 6MT(diag)-55, DTC 31 MANUAL MODE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
32	—	Parking brake switch	Open or short circuit in parking brake switch circuit	<Ref. to 6MT(diag)-59, DTC 32 CHECK PARKING BRAKE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
33*	—	Brake switch	Open or short circuit in brake switch circuit	<Ref. to 6MT(diag)-61, DTC 33 STOP LIGHT SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

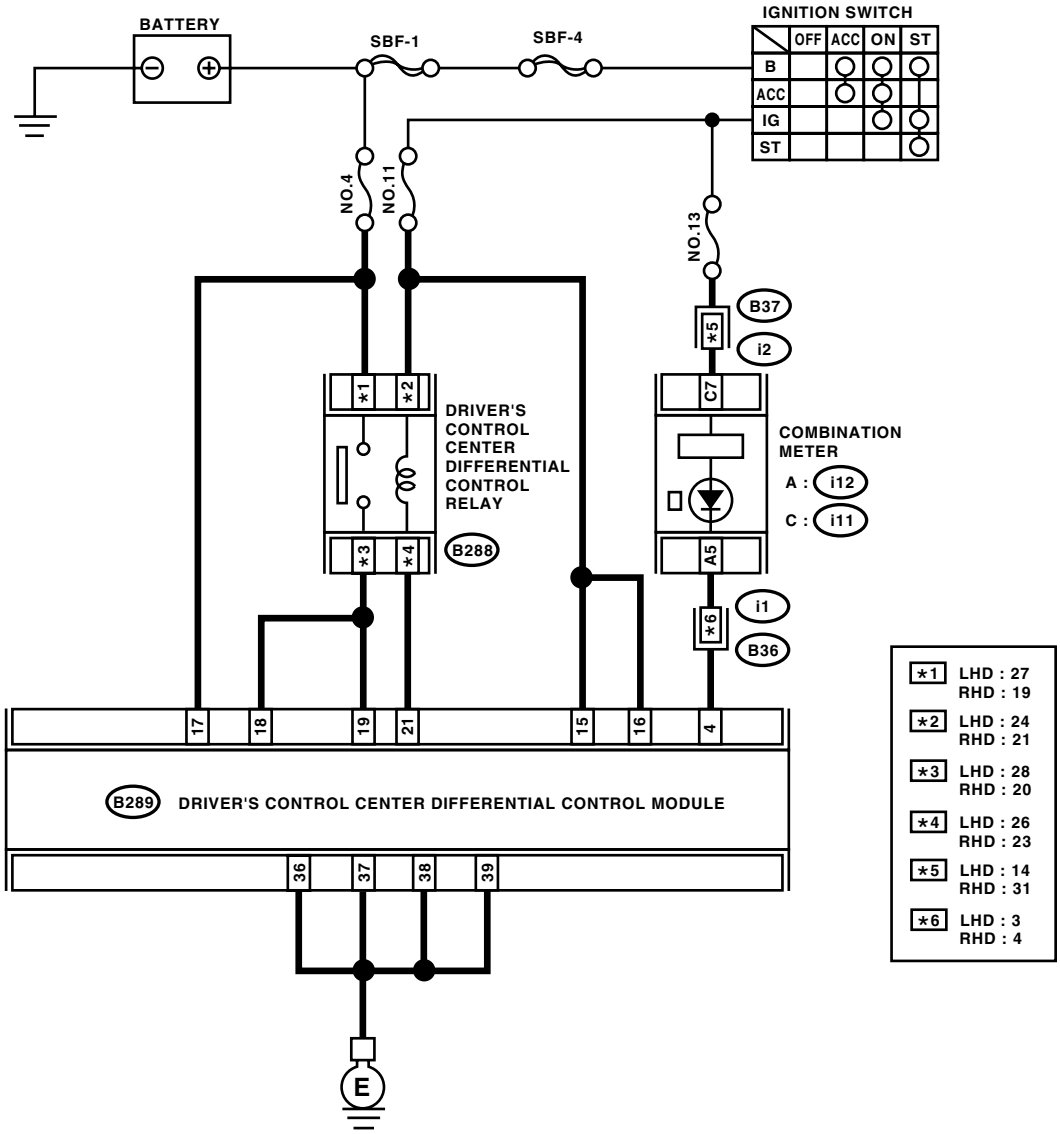
DTC		Item	Content of diagnosis	Index
Meter (Indicator light)	Subaru Select Monitor			
34*	—	ABS switch	Open or short circuit in ABS switch circuit	<Ref. to 6MT(diag)-63, DTC 34 ABS SWITCH SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

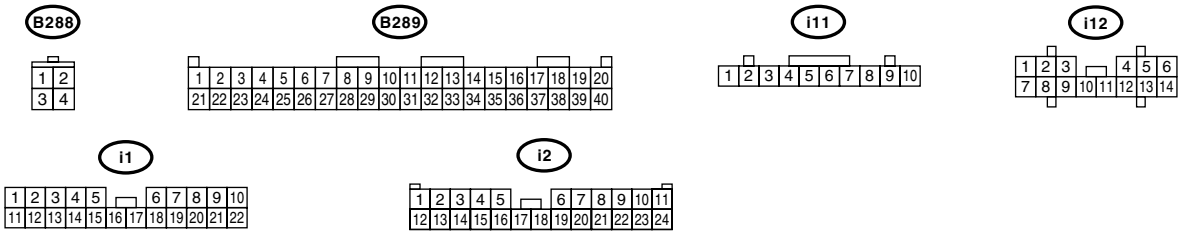
*: Model with manual mode switch

12.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC CANNOT BE CALLED UP

WIRING DIAGRAM:





MT-01053

	Step	Check	Yes	No
1	**CHECK THE VEHICLE SPECIFICATION.**	Does the vehicle have manual mode switch?	Go to step **2.**	Go to step **3.**
2	**CHECK THE AUTO INDICATOR LIGHT.** Turn the ignition switch to ON.	Does the AUTO indicator light illuminate?	Go to step **16.**	Go to step **4.**
3	**CHECK THE DRIVER'S CONTROL CENTER DIFFERENTIAL INDICATOR LIGHT.** Turn the ignition switch to ON.	Does the driver's control center differential indicator light illuminate according to center differential control dial?	Go to step **17.**	Go to step **4.**
4	**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*** ***(B289) No. 36 — Chassis ground:*** ***(B289) No. 37 — Chassis ground:*** ***(B289) No. 38 — Chassis ground:*** ***(B289) No. 39 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **5.**	Repair the open circuit of driver's control center differential control module ground circuit.
5	**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 **6.**
6	**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 **7.**
7	**CHECK POWER SUPPLY CIRCUIT OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** Measure the voltage between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 17 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **8.**	Repair the open circuit in harness between fuse (No. 4) and driver's control center differential control module, or fuse (No. 4) and battery.

	Step	Check	Yes	No
8	**CHECK POWER SUPPLY CIRCUIT OF DRIVER'S CONTROL CENTER DIFFERENTIAL RELAY.** 1)Disconnect the harness connector of driver's control center differential relay. 2)Measure the voltage between driver's control center differential relay harness connector and chassis ground. ***Connector & terminal*** ***LHD: (B288) No. 27 (+) — Chassis ground (–):*** ***RHD: (B288) No. 19 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **9.**	Repair the open circuit between fuse (No. 4) and driver's control center differential relay.
9	**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*** ***(B289) No. 15 (+) — Chassis ground (–):*** ***(B289) No. 16 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **10.**	Repair the open circuit in harness between fuse (No. 11) and driver's control center differential control module, or fuse (No. 11) and battery.
10	**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. ***Connector & terminal*** ***LHD: (B288) No. 24 (+) — Chassis ground (–):*** ***RHD: (B288) No. 21 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **11.**	Repair the open circuit between fuse (No. 11) and driver's control center differential control module.
11	**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 driver's control relay harness connector. ***Connector & terminal*** ***LHD*** ***(B289) No. 18 — (B288) No. 28:*** ***(B289) No. 19 — (B288) No. 28:*** ***(B289) No. 21 — (B288) No. 26:*** ***RHD*** ***(B289) No. 18 — (B288) No. 20:*** ***(B289) No. 19 — (B288) No. 20:*** ***(B289) No. 21 — (B288) No. 23:***	Is the resistance less than 1 Ω?	Go to step **12.**	Repair the open circuit between driver's control center differential control module harness connector and driver's control relay harness connector.

	Step	Check	Yes	No
12	**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*** ***(B289) No. 18 — Chassis ground:*** ***(B289) No. 19 — Chassis ground:*** ***(B289) No. 21 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **13.**	Repair the short circuit between driver's control center differential control module harness connector and driver's control relay harness connector.
13	**CHECK DRIVER'S CONTROL RELAY.** Measure the resistance between driver's control relay terminals. ***Terminals*** ***LHD: No. 27 — No. 28:*** ***RHD: No. 19 — No. 20:***	Is the resistance more than 1 MΩ?	Go to step **14.**	Replace the driver's control relay.
14	**CHECK DRIVER'S CONTROL RELAY.** Connect the terminal No. 3 to battery positive side, and terminal No.1 to battery negative side, and then measure the resistance between driver's control relay terminals. ***Terminals*** ***LHD: No. 27 — No. 28:*** ***RHD: No. 19 — No. 20:***	Is the resistance less than 1 Ω?	Go to step **15.**	Replace the driver's control relay.
15	**CHECK IGNITION POWER SUPPLY CIRCUIT OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** 1)Connect all connectors. 2)Turn the ignition switch to ON. (engine OFF) 3)Measure the voltage between driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 18 (+) — Chassis ground (–):*** ***(B289) No. 19 (+) — Chassis ground (–):*** ***(B289) No. 21 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **16.**	Go to step **25.**
16	**CHECK MANUAL MODE SWITCH.** Push the manual mode switch to enter the manual mode.	Is the manual mode obtained?	Go to step **17.**	Repair the switch. <Ref. to 6MT(diag)-55, DTC 31 MANUAL MODE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
17	**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 **19.**	Go to step **18.**
18	**CHECK THE CENTER DIFFERENTIAL CONTROL DIAL** <Ref. to 6MT(diag)-53, 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 **19.**	Repair it.
19	**CHECK THE PARKING BRAKE SWITCH** <Ref. to 6MT(diag)-59, DTC 32 CHECK PARKING BRAKE SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is the parking brake switch circuit normal?	Go to step **20.**	Repair it.

	Step	Check	Yes	No
20	**CHECK THE THROTTLE SENSOR** <Ref. to 6MT(diag)-46, DTC 21 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is the throttle sensor circuit normal?	Go to step **21.**	Repair it.
21	**READ THE DTC** Read the DTC. <Ref. to 6MT(diag)-19, 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 Diagnostics Procedure.>	Go to step **22.**
22	**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. ***Connector & terminal*** ***(i12) No. 5 — Chassis ground:***	Does the lowest light of driver's control center differential indicator illuminate?	Go to step **23.**	Check the combination meter.
23	**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. ***Connector & terminal*** ***(i12) No. 5 — (B289) No. 4:***	Is the resistance less than 1 Ω?	Go to step **24.**	Repair the open circuit and connector of harness between combination meter harness connector and driver's control center differential control module harness connector.
24	**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. ***Connector & terminal*** ***(B289) No. 4 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **25.**	Repair the open circuit and connector of harness between combination meter harness connector and driver's control center differential control module harness connector.
25	**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.

B: CHECK REAR DIFFERENTIAL OIL TEMPERATURE SENSOR

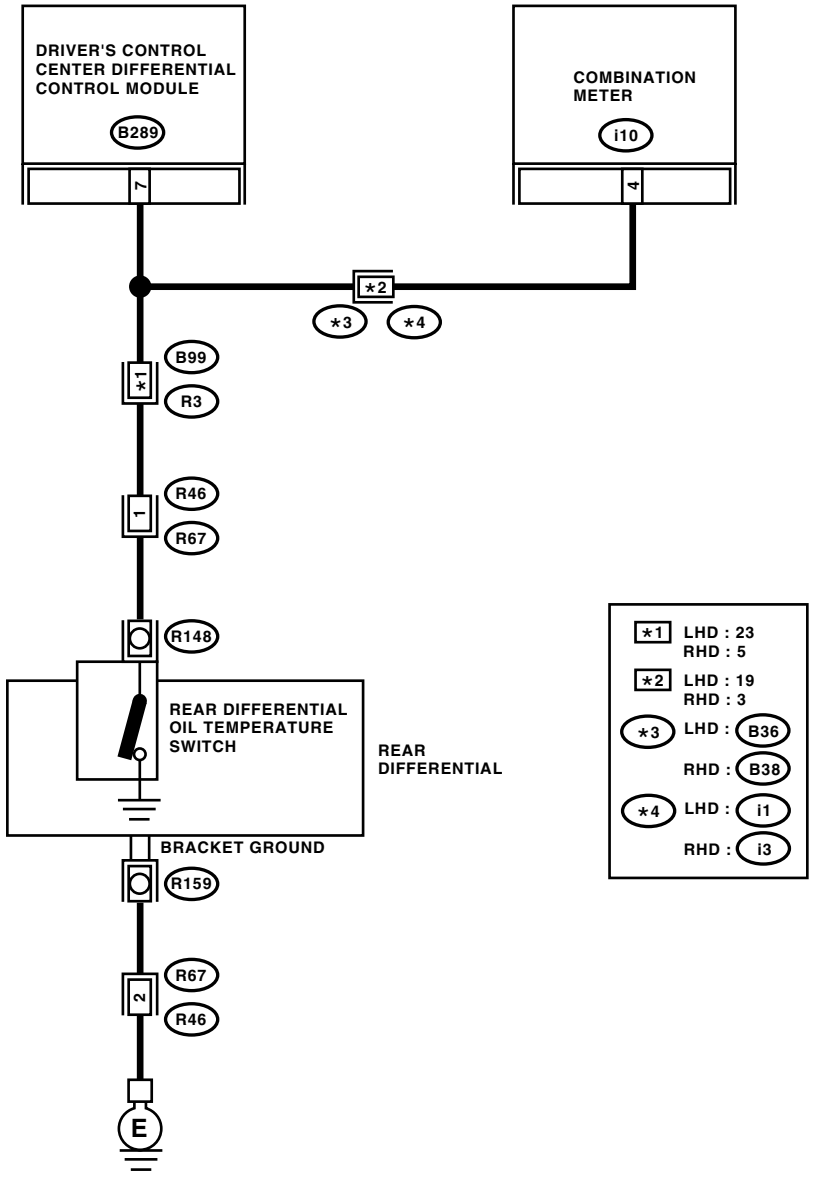
DIAGNOSIS:

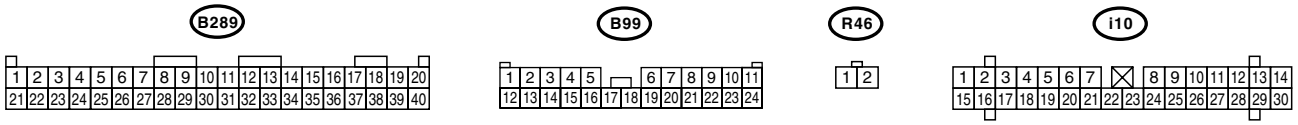
Input signal circuit of rear differential oil temperature sensor is open or shorted.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





MT-01054

	Step	Check	Yes	No
1	**CHECK REAR DIFFERENTIAL OIL TEMPERATURE SENSOR 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 power supply voltage of rear differential oil temperature sensor. ***Connector & terminal*** ***(B289) No. 7 (+) — Chassis ground (–):***	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)Measure the resistance between combination meter and driver's control center differential control module harness connector. ***Connector & terminal*** ***(B289) No. 7 — (i10) No. 4:***	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.** 1)Disconnect the connector from the rear differential oil temperature switch. 2)Measure the resistance between driver's control center differential control module harness connector and rear differential oil temperature switch harness connector. ***Connector & terminal*** ***(B289) No. 7 — (R148) No. 1:***	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 SENSOR GROUND CIRCUIT.** 1)Disconnect the harness connector from bracket ground of rear differential. 2)Measure the resistance between the rear differential oil temperature ground connector and chassis ground. ***Terminals*** ***(R159) No. 1 — Chassis ground:***	Is the resistance more than 1 MΩ?	Repair the open circuit of rear differential oil temperature sensor ground circuit and poor contact of harness connector.	Go to step **5.**
5	**CHECK REAR DIFFERENTIAL OIL TEMPERATURE SENSOR.** Measure the resistance between rear differential oil temperature sensor terminal and rear differential oil temperature sensor body. ***Terminals*** ***No. 1 — Rear differential oil temperature sensor body:***	Is the resistance less than 1 Ω?	Go to step **6.**	Replace the rear differential oil temperature sensor.
6	**CHECK REAR DIFFERENTIAL OIL TEMPERATURE SENSOR WARNING LIGHT.** 1)Turn the ignition switch to ON. 2)Short between the combination meter harness connector and chassis ground. ***Terminals*** ***No. 4 (+) — Chassis ground (–):***	Does the rear differential oil temperature sensor warning light turn OFF?	Go to step **7.**	Replace the combination meter.

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 11 FRONT ABS WHEEL SPEED SENSOR RH SIGNAL

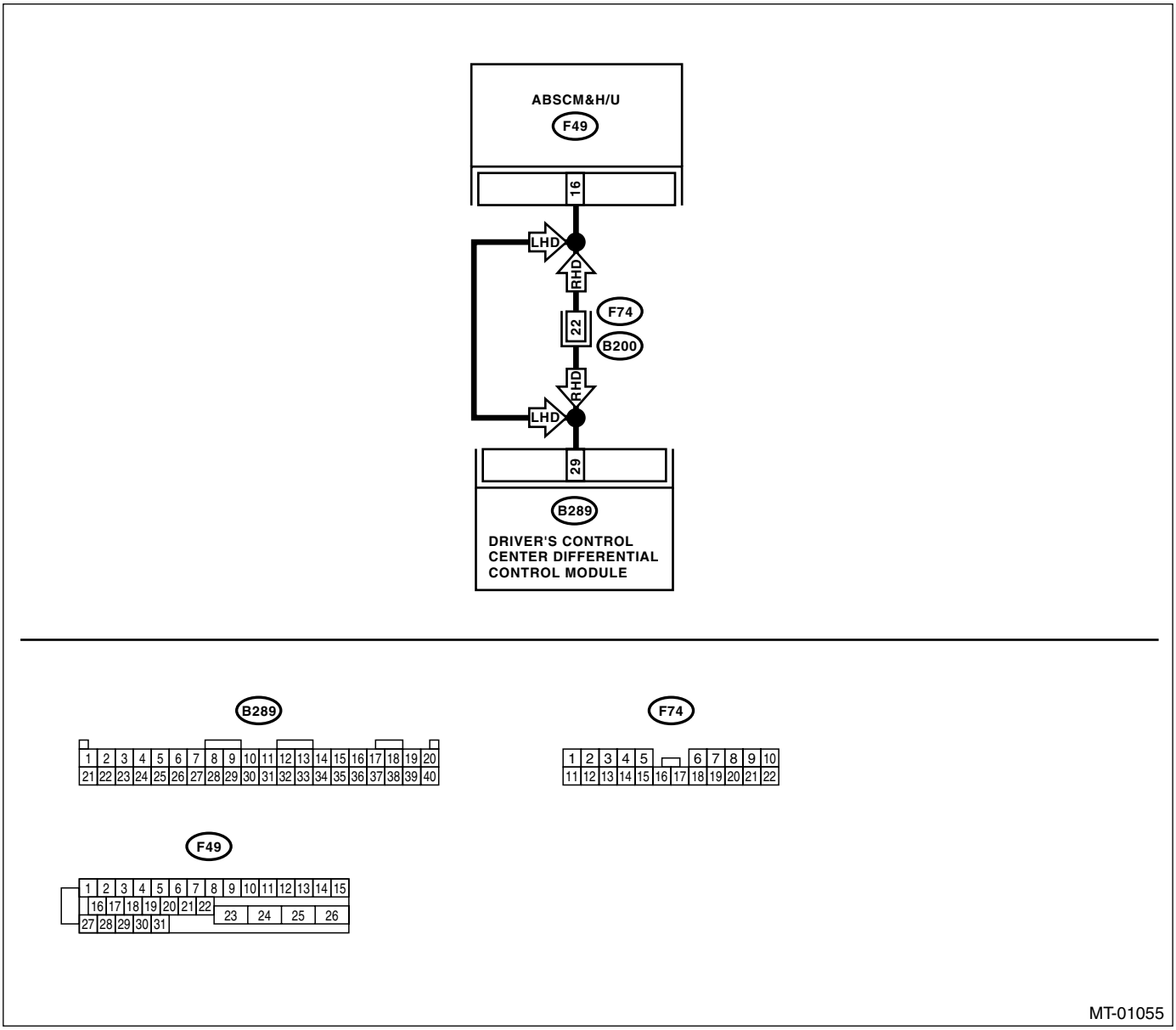
DIAGNOSIS:

Front ABS wheel speed sensor RH signal circuit is open or shorted.

TROUBLE SYMPTOM:

Tight corner braking condition occurs.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK ABSCM&H/U.**	Is the DTC of front ABS wheel speed sensor RH displayed on ABS self diagnosis test mode?	Check with referring to DTC section of ABS. <Ref. to ABS(diag)-23, LIST, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module and ABSCM&H/U. 3)Measure the resistance of harness between driver's control center differential control module and ABSCM&H/U harness connector. ***Connector & terminal*** ***(B289) No. 29 — (F49) No. 16:***	Is the resistance less than 1 Ω?	Go to step **3.**	Repair the open harness between driver's control center differential control module and ABSCM&H/U.
3	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** Measure the resistance of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 29 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **4.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
4	**CHECK BATTERY SHORT OF HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Connect all the harness connectors. 2)Turn the ignition switch to ON. 3)Measure the voltage of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 29 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **5.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
5	**CHECK ABS WHEEL SPEED SENSOR SIGNAL.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module. 3)Lift-up the vehicle and place safety stands. NOTE: Raise all wheels off floor. 4)Connect the oscilloscope to terminal of driver's control center differential control module connector. ***Connector & terminal*** ***Positive probe; (B289) No. 29:*** ***Ground lead; (B289) No. 36:*** 5)Start the engine, and drive the wheels slowly. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-21, Clear Memory Mode.> 6)Measure the signal voltage indicated on oscilloscope.	Is the voltage less than 1 V ←→ more than 8 V?	Go to step **6.**	Check the ABSCM&H/U.

Step		Check	Yes	No
6	**CHECK POOR CONTACT IN HARNESS CONNECTORS.**	Is there any poor contact in harness connector?	Repair the poor contact.	Replace the driver's control center differential control module.

D: DTC 12 FRONT ABS WHEEL SPEED SENSOR LH SIGNAL

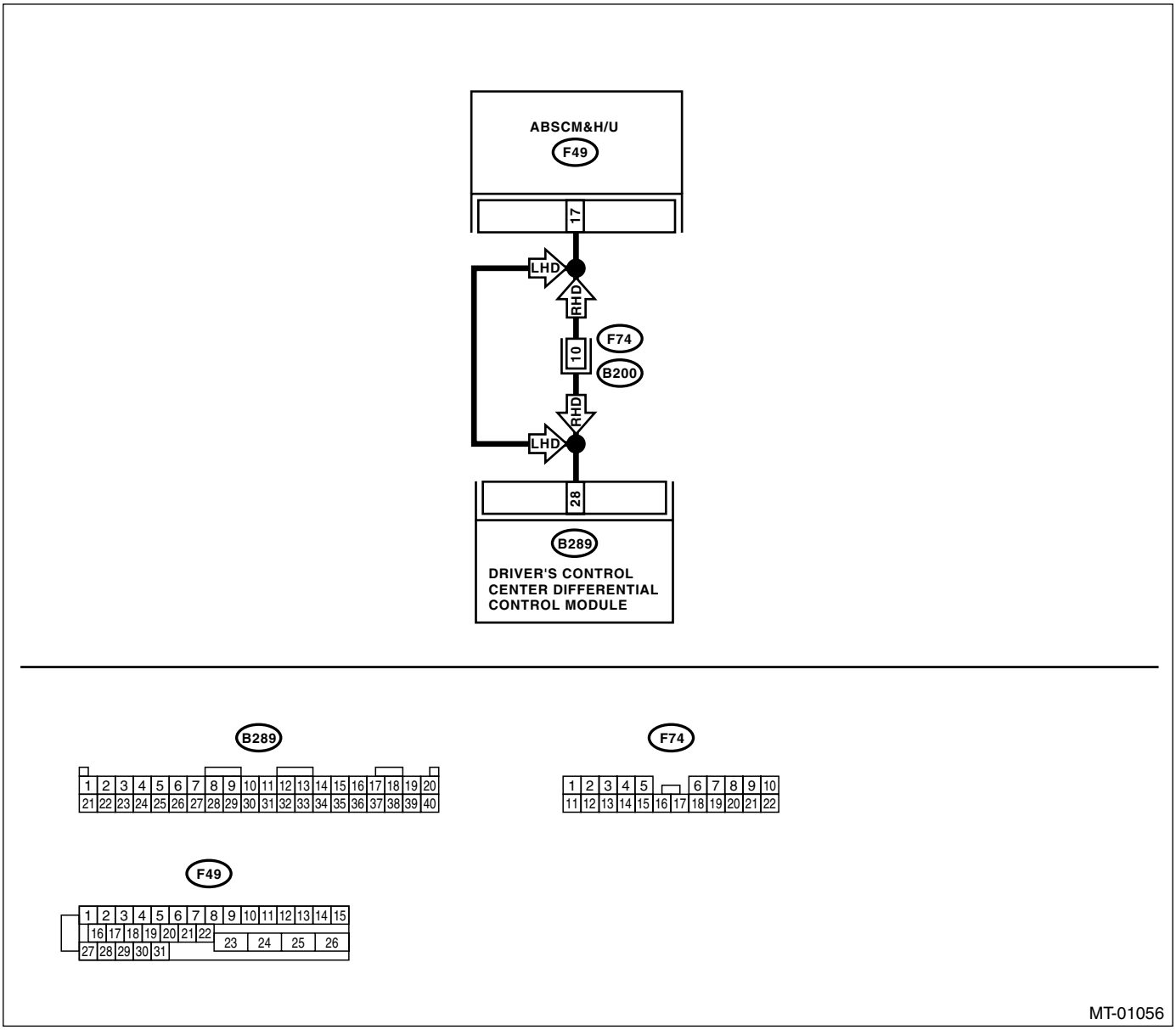
DIAGNOSIS:

Front ABS wheel speed sensor LH signal circuit is open or shorted.

TROUBLE SYMPTOM:

Tight corner braking condition occurs.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK ABSCM&H/U.**	Is the DTC of front ABS wheel speed sensor LH displayed on ABS self diagnosis test mode?	Check with referring to DTC section of ABS. <Ref. to ABS(diag)-23, LIST, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module and ABSCM&H/U. 3)Measure the resistance of harness between driver's control center differential control module and ABSCM&H/U harness connector. ***Connector & terminal*** ***(B289) No. 28 — (F49) No. 17:***	Is the resistance less than 1 Ω?	Go to step **3.**	Repair the open harness between driver's control center differential control module and ABSCM&H/U.
3	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** Measure the resistance of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 28 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **4.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
4	**CHECK BATTERY SHORT OF HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Connect all the harness connectors. 2)Turn the ignition switch to ON. 3)Measure the voltage of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 28 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **5.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
5	**CHECK ABS WHEEL SPEED SENSOR SIGNAL.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module. 3)Lift-up the vehicle and place safety stands. NOTE: Raise all wheels off floor. 4)Connect the oscilloscope to terminal of driver's control center differential control module connector. ***Connector & terminal*** ***Positive probe; (B289) No. 28:*** ***Ground lead; (B289) No. 36:*** 5)Start the engine, and drive the wheels slowly. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-21, Clear Memory Mode.> 6)Measure the signal voltage indicated on oscilloscope.	Is the voltage less than 1 V ←→ more than 8 V?	Go to step **6.**	Check the ABSCM&H/U.

Step		Check	Yes	No
6	**CHECK POOR CONTACT IN HARNESS CONNECTORS.**	Is there any poor contact in harness connector?	Repair the poor contact.	Replace the driver's control center differential control module.

E: DTC 13 REAR ABS WHEEL SPEED SENSOR RH SIGNAL

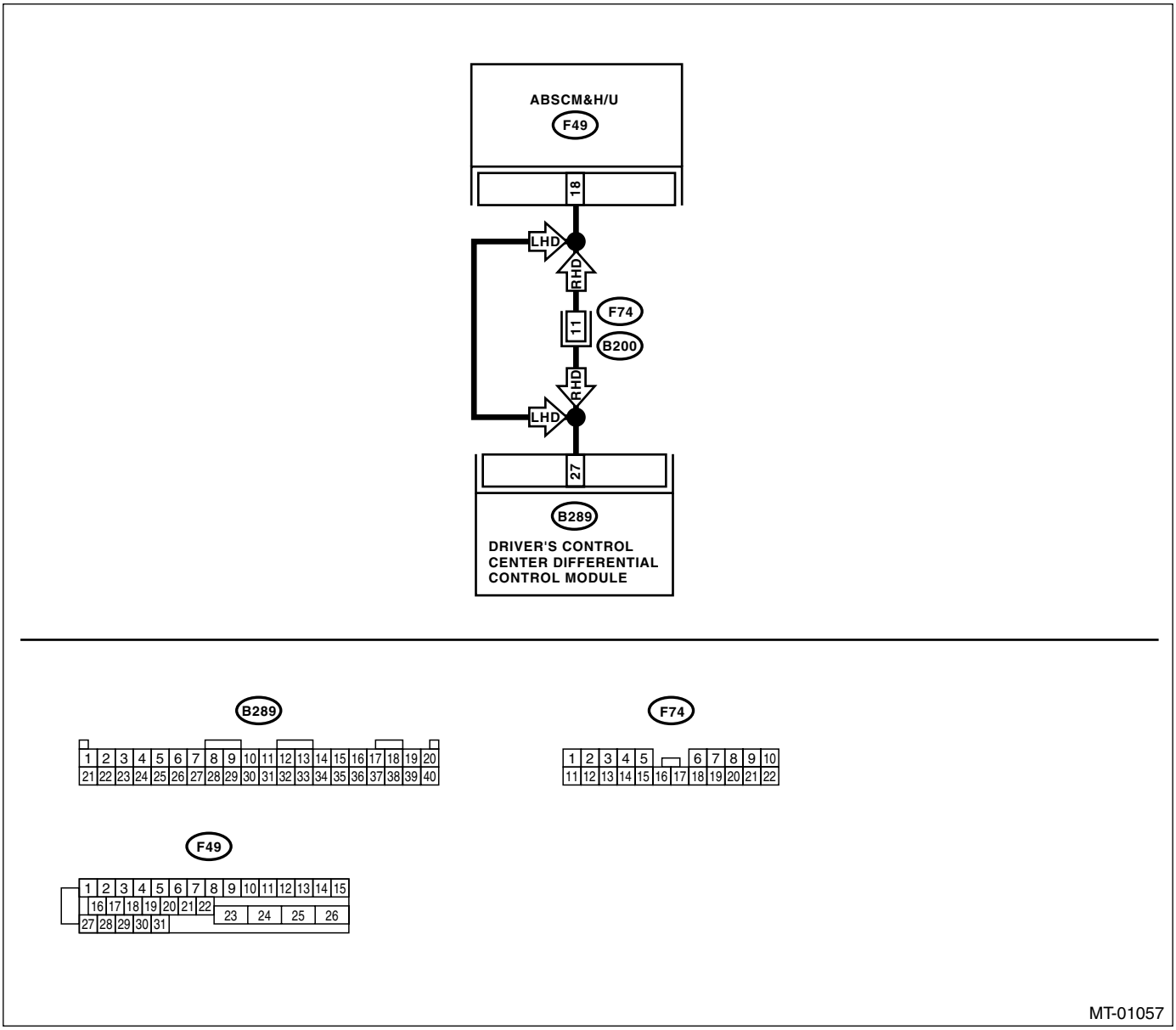
DIAGNOSIS:

Rear ABS wheel speed sensor RH signal circuit is open or shorted.

TROUBLE SYMPTOM:

Tight corner braking condition occurs.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK ABSCM&H/U.**	Is the DTC of rear ABS wheel speed sensor RH displayed on ABS self diagnosis test mode?	Check with referring to DTC section of ABS. <Ref. to ABS(diag)-23, LIST, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module and ABSCM&H/U. 3)Measure the resistance of harness between driver's control center differential control module and ABSCM&H/U harness connector. ***Connector & terminal*** ***(B289) No. 27 — (F49) No. 18:***	Is the resistance less than 1 Ω?	Go to step **3.**	Repair the open harness between driver's control center differential control module and ABSCM&H/U.
3	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** Measure the resistance of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 27 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **4.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
4	**CHECK BATTERY SHORT OF HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Connect all the harness connectors. 2)Turn the ignition switch to ON. 3)Measure the voltage of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 27 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **5.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
5	**CHECK ABS WHEEL SPEED SENSOR SIGNAL.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module. 3)Lift-up the vehicle and place safety stands. NOTE: Raise all wheels off floor. 4)Connect the oscilloscope to terminal of driver's control center differential control module connector. ***Connector & terminal*** ***Positive probe; (B289) No. 27:*** ***Ground lead; (B289) No. 36:*** 5)Start the engine, and drive the wheels slowly. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-21, Clear Memory Mode.> 6)Measure the signal voltage indicated on oscilloscope.	Is the voltage less than 1 V ←→ more than 8 V?	Go to step **6.**	Check the ABSCM&H/U.

Step		Check	Yes	No
6	**CHECK POOR CONTACT IN HARNESS CONNECTORS.**	Is there any poor contact in harness connector?	Repair the poor contact.	Replace the driver's control center differential control module.

F: DTC 14 REAR ABS WHEEL SPEED SENSOR LH SIGNAL

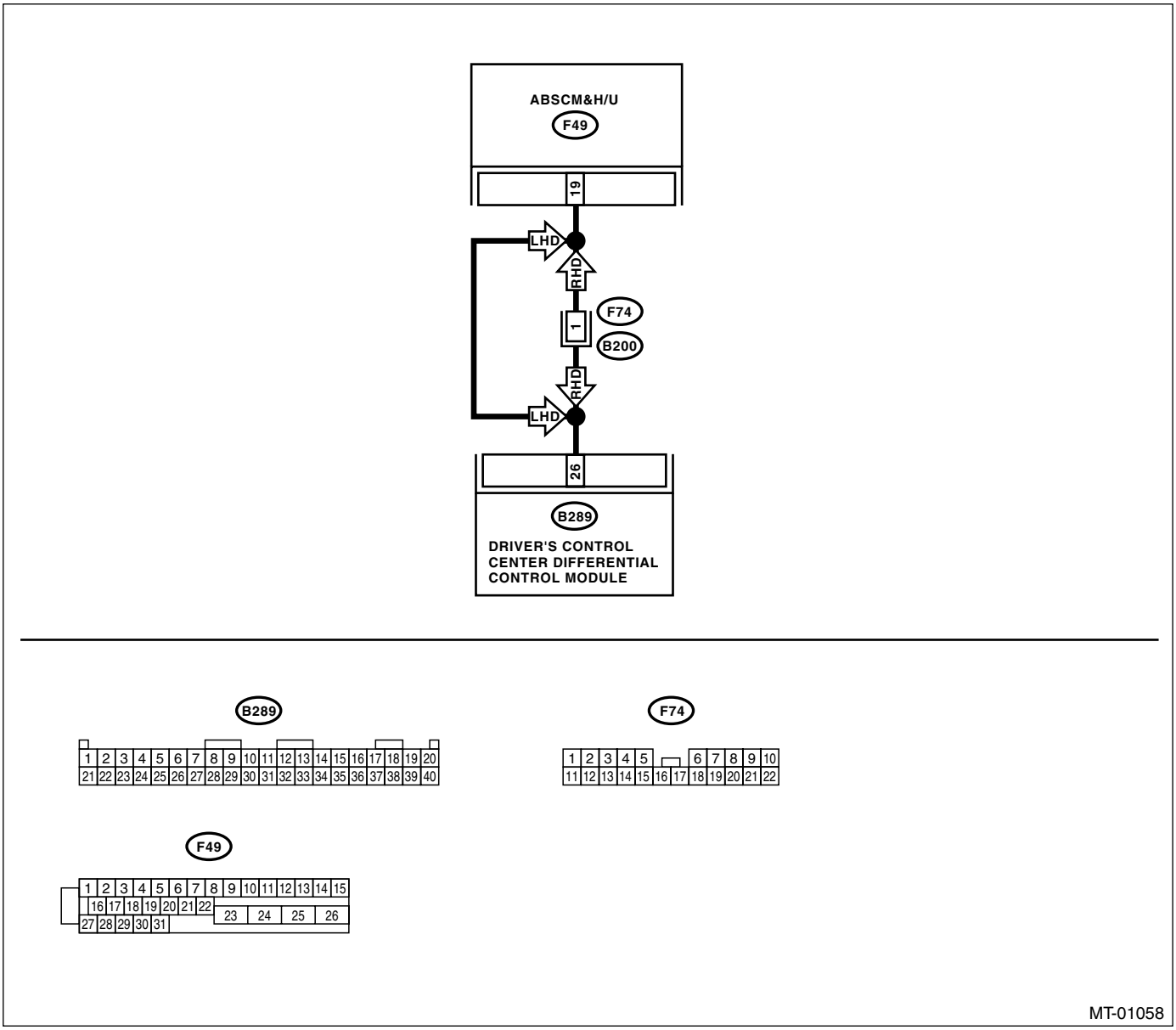
DIAGNOSIS:

Rear ABS wheel speed sensor LH signal circuit is open or shorted.

TROUBLE SYMPTOM:

Tight corner braking condition occurs.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK ABSCM&H/U.**	Is the DTC of rear ABS wheel speed sensor LH displayed on ABS self diagnosis test mode?	Check with referring to DTC section of ABS. <Ref. to ABS(diag)-23, LIST, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module and ABSCM&H/U. 3)Measure the resistance of harness between driver's control center differential control module and ABSCM&H/U harness connector. ***Connector & terminal*** ***(B289) No. 26 — (F49) No. 19:***	Is the resistance less than 1 Ω?	Go to step **3.**	Repair the open harness between driver's control center differential control module and ABSCM&H/U.
3	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** Measure the resistance of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 26 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **4.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
4	**CHECK BATTERY SHORT OF HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Connect all the harness connectors. 2)Turn the ignition switch to ON. 3)Measure the voltage of harness between harness connector of driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 26 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **5.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.
5	**CHECK ABS WHEEL SPEED SENSOR SIGNAL.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module. 3)Lift-up the vehicle and place safety stands. NOTE: Raise all wheels off floor. 4)Connect the oscilloscope to terminal of driver's control center differential control module connector. ***Connector & terminal*** ***Positive probe; (B289) No. 26:*** ***Ground lead; (B289) No. 36:*** 5)Start the engine, and drive the wheels slowly. NOTE: The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunction. When AT control diagnosis is finished, perform the ABS memory clearance procedure of on-board diagnostics system. <Ref. to ABS(diag)-21, Clear Memory Mode.> 6)Measure the signal voltage indicated on oscilloscope.	Is the voltage less than 1 V ←→ more than 8 V?	Go to step **6.**	Check the ABSCM&H/U.

Step		Check	Yes	No
6	**CHECK POOR CONTACT IN HARNESS CONNECTORS.**	Is there any poor contact in harness connector?	Repair the poor contact.	Replace the driver's control center differential control module.

G: DTC 21 THROTTLE POSITION SENSOR

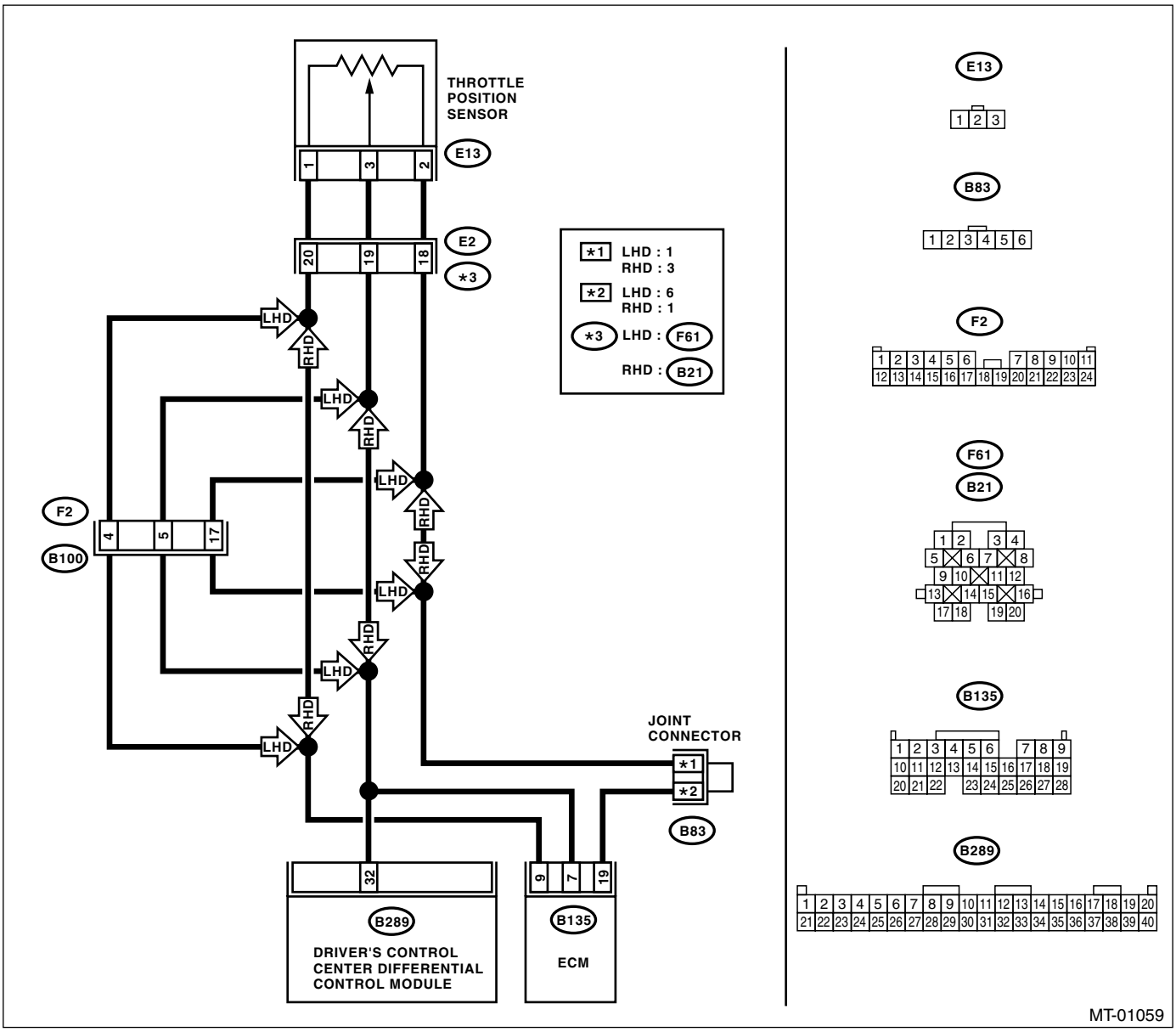
DIAGNOSIS:

The throttle position sensor input signal circuit is open or shorted.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



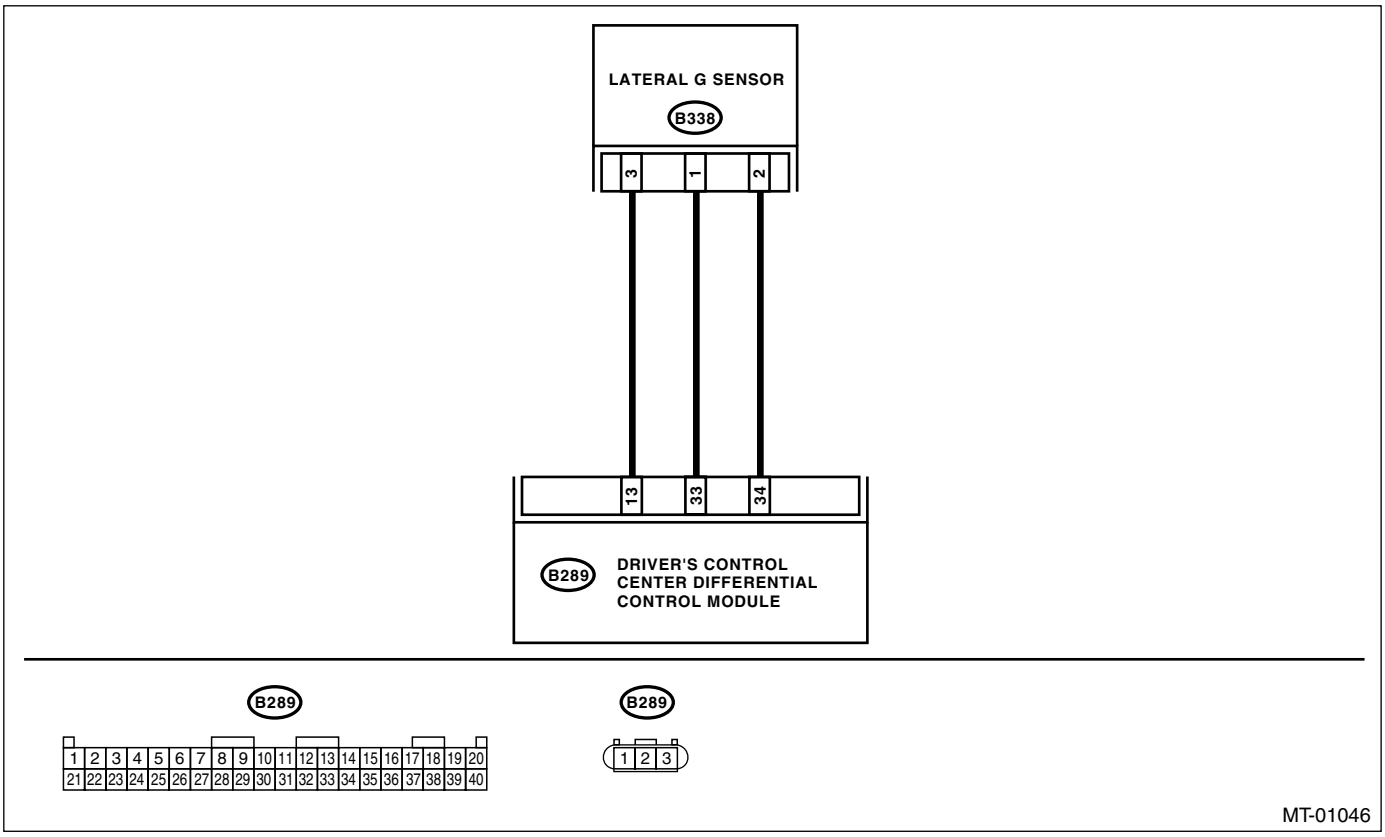
Step	Check	Yes	No
1 **CHECK DTC.**	Is the DTC of throttle position sensor displayed on engine self diagnosis test mode?	Check with referring to DTC section of engine. <Ref. to EN(H4DOTC)(diag)-74, LIST, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**

	Step	Check	Yes	No
2	**CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND THROTTLE POSITION SENSOR.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module and throttle position sensor. 3)Measure the resistance of harness between driver's control center differential control module harness connector and throttle position sensor. ***Connector & terminal*** ***(B289) No. 32 — (E13) No. 3:***	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 throttle position sensor.
3	**CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ECM.** 1)Disconnect the harness connector of ECM. 2)Measure the resistance of harness between driver's control center differential control module harness connector and ECM harness connector. ***Connector & terminal*** ***(B289) No. 32 — (B135) No. 7:***	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 THROTTLE POSITION SENSOR.** Measure the resistance of harness between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 32 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **5.**	Repair the short circuit of harness between driver's control center differential control module and throttle position sensor and ECM.
5	**CHECK INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** 1)Connect the connectors to driver's control center differential control module and throttle position sensor. 2)Turn the ignition switch to ON (engine OFF). 3)Throttle is fully closed. 4)Measure the voltage between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 32 (+) — Chassis ground (–):***	Is the voltage 0.4 — 0.8 V?	Go to step **6.**	Go to step **7.**
6	**CHECK INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** 1)Throttle is fully open. 2)Measure the voltage between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 32 (+) — Chassis ground (–):***	Is the voltage 3.9 — 4.1 V?	Go to step **8.**	Go to step **7.**
7	**CHECK THE POOR CONTACT.**	Is there any poor contact in throttle position sensor circuit?	Repair the poor contact.	Replace the driver's control center differential control module.

Step		Check	Yes	No
8	CHECK THE POOR CONTACT.	Is there any poor contact in throttle position sensor circuit?	Repair the poor contact.	Check the ECM.

H: DTC 22 LATERAL G SENSOR

DIAGNOSIS:
The lateral G sensor input signal circuit is open or shorted.
TROUBLE SYMPTOM:
Handling tends to understeer at high speed cornering.
WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE CONNECTOR AND LATERAL G SENSOR CONNECTOR.** 1)Turn the ignition switch to OFF. 2)Disconnect the connector from driver's control center differential control module and lateral G sensor. 3)Measure the resistance of harness between driver's control center differential control module connector and lateral G sensor connector. ***Connector & terminal*** ***(B289) No. 33 — (B338) No. 1:*** ***(B289) No. 34 — (B338) No. 2:*** ***(B289) No. 13 — (B338) No. 3:***	Is the resistance less than 1 Ω?	Go to step **2.**	Repair the open harness between driver's control center differential control module connector and lateral G sensor connector.

	Step	Check	Yes	No
2	**CHECK THE HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE CONNECTOR AND LATERAL G SENSOR CONNECTOR.** Measure the resistance between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 33 — Chassis ground:*** ***(B289) No. 34 — Chassis ground:*** ***(B289) No. 13 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **3.**	Repair the short of harness between driver's control center differential control module connector and lateral G sensor connector.
3	**CHECK THE LATERAL G SENSOR.** 1)Remove the lateral G sensor from body. 2)Connect the connector to 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 lateral G sensor terminals when the lateral G sensor is horizontal. ***Connector & terminal*** ***(B338) No. 1 (+) — No. 2 (–):***	Is the voltage 2.3 — 2.7 V?	Go to step **4.**	Replace the lateral G sensor.
4	**CHECK THE G SENSOR.** Measure the voltage between lateral G sensor terminals when the lateral G sensor connector is tilted 90° to right. ***Connector & terminal*** ***(B338) No. 1 (+) — No. 2 (–):***	Is the voltage 3.5 — 4.1 V?	Go to step **5.**	Replace the lateral G sensor.
5	**CHECK THE G SENSOR.** Measure the voltage between lateral G sensor terminals when lateral G sensor connector is tilted 90° to left. ***Connector & terminal*** ***(B338) No. 1 (+) — No. 2 (–):***	Is the voltage 0.8 — 1.5 V?	Go to step **6.**	Replace the lateral G sensor.
6	**CHECK THE POOR CONTACT OF CONNECTOR.**	Is there any poor contact in connector between driver's control center differential control module and lateral G sensor?	Repair the poor contact.	Replace the driver's control center differential control module.

I: DTC 23 CHECK CENTER DIFFERENTIAL.

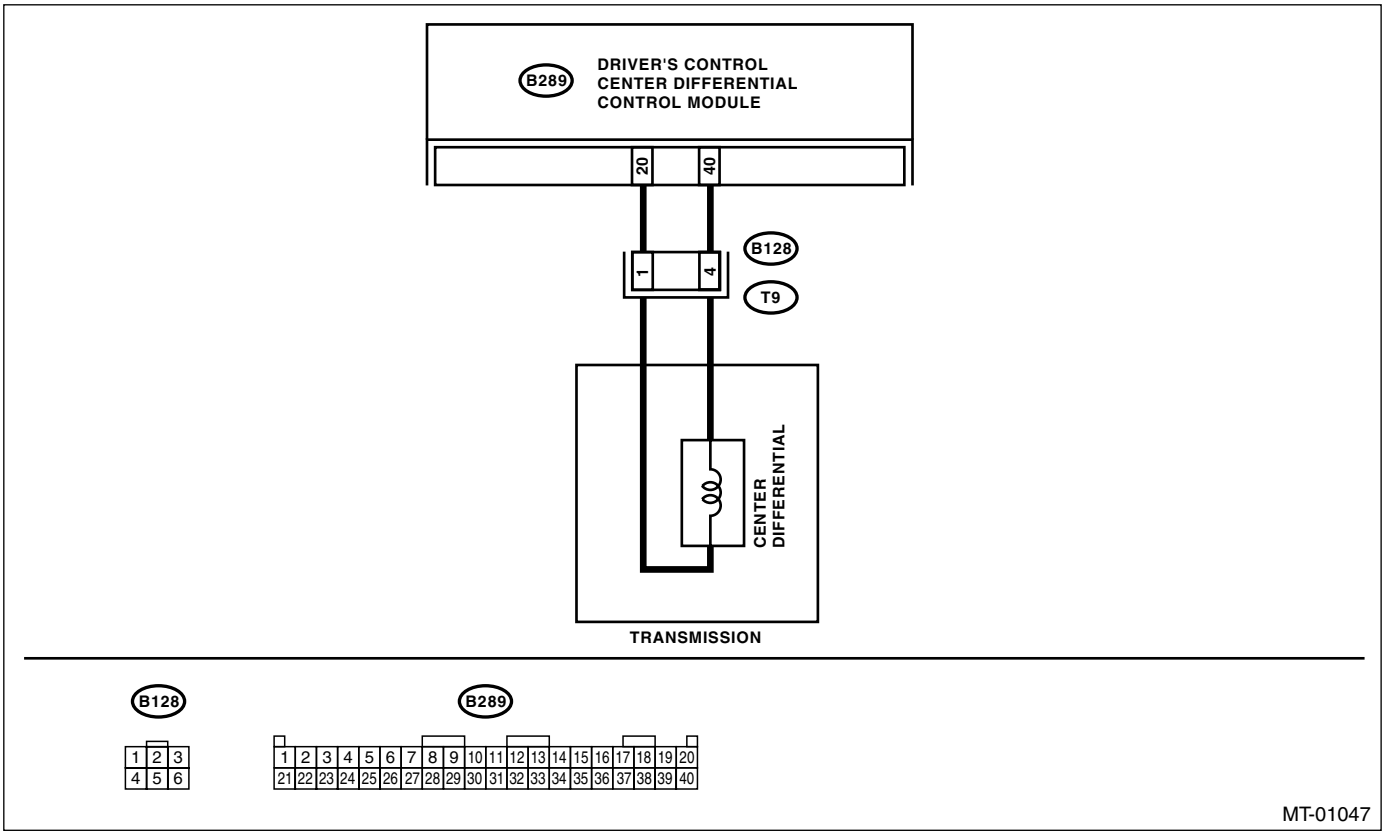
DIAGNOSIS:

Output signal circuit of center differential is open or shorted.

TROUBLE SYMPTOM:

- Center differential does not operate.
- Lock ratio of center differential does not operate, or malfunction occurs.
- Tight corner braking condition occurs.
- Handling tends to oversteer.

WIRING DIAGRAM:



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*** ***(B289) No. 20 — (B128) No. 1:*** ***(B289) No. 40 — (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.

	Step	Check	Yes	No
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*** ***(B289) No. 20 — Chassis ground:*** ***(B289) No. 40 — Chassis ground:***	Is the resistance more than 1 MΩ?	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. ***Terminals*** ***(T9) No. 1 — No. 4:***	Is the resistance 1.0 — 2.0 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 center differential control dial to differential lock. 5)Measure the voltage between driver's control center differential control module and harness connector. ***Connector & terminal*** ***(B289) No. 20 (+) — (B289) No. 40 (–):***	Is the voltage 6.0 — 7.0 V?	Go to step **5.**	Check the power supply circuit. <Ref. to 6MT(diag)-26, DTC CANNOT BE CALLED UP, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
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. ***Connector & terminal*** ***(B289) No. 20 (+) — (B289) No. 40 (–):***	Does the voltage change smoothly?	Circuit is already returned to normal condition this time though the indicator light blinks. 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.	Repair the power supply circuit. <Ref. to 6MT(diag)-26, DTC CANNOT BE CALLED UP, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

J: DTC 24 CHECK CENTER DIFFERENTIAL CONTROL DIAL.

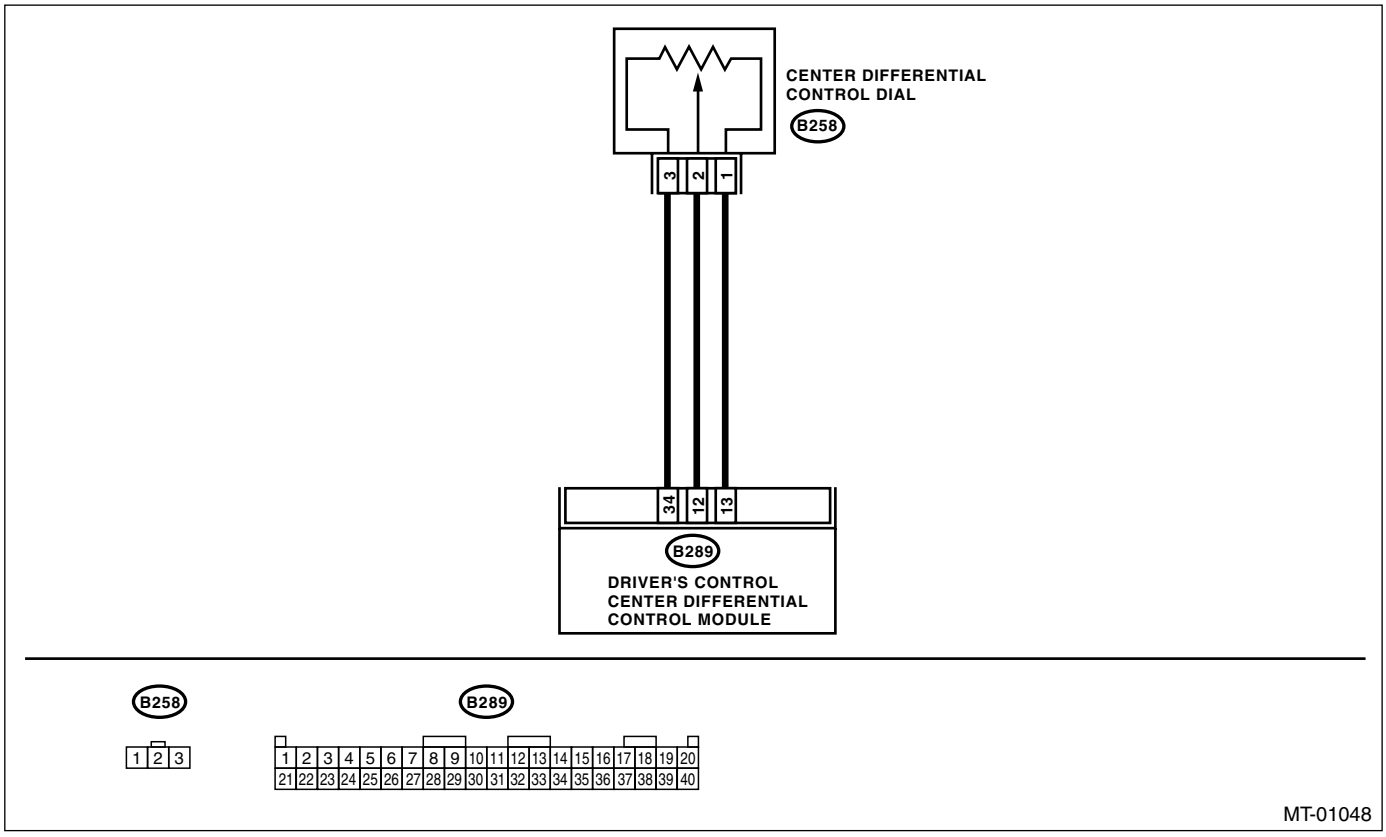
DIAGNOSIS:

Input signal circuit of center differential control dial 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*** ***(B258) No. 1 — (B289) No. 13:*** ***(B258) No. 2 — (B289) No. 12:*** ***(B258) No. 3 — (B289) No. 34:***	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.

	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*** ***(B289) No. 13 — Chassis ground:*** ***(B289) No. 12 — Chassis ground:*** ***(B289) No. 34 — Chassis ground:***	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*** ***No. 1 — No. 3:***	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*** ***No. 1 — No. 2:***	Dose 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)Set the manual mode switch to manual mode. 4)Measure the voltage between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 13 (+) — (B289) No. 34 (–):***	Is the voltage approx. 5 V?	Go to step **6.**	Replace the driver's control center differential control module.
6	**CHECK POOR CONTACT IN HARNESS CONNECTORS.**	Is there any poor contact in harness connector of center differential control dial circuit?	Repair the poor contact of harness connector.	Replace the driver's control center differential control module.

K: DTC 31 MANUAL MODE SWITCH

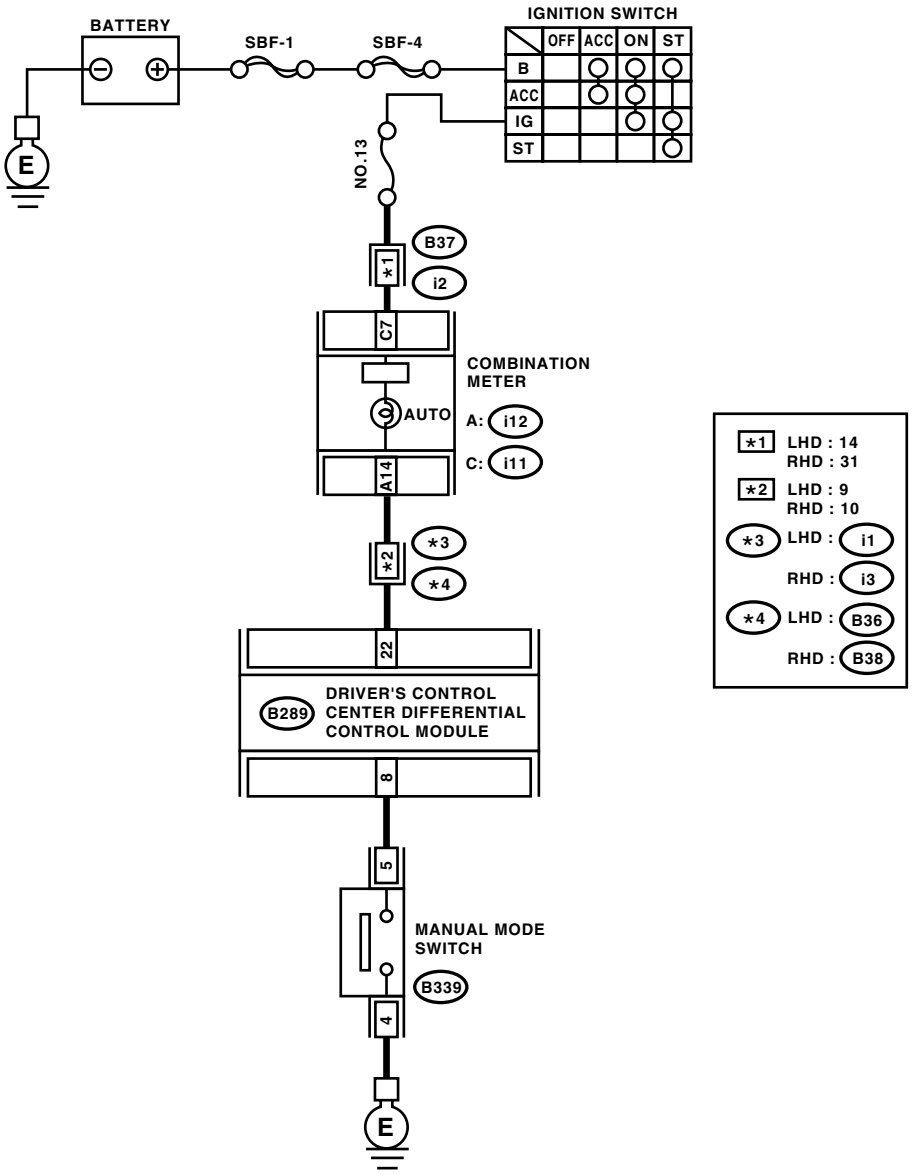
DIAGNOSIS:

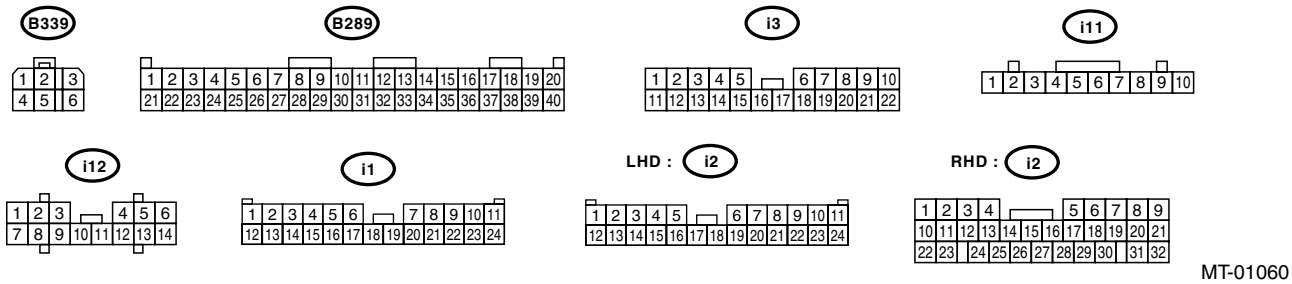
Input signal circuit of manual mode switch circuit is open or shorted.

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-01060

	Step	Check	Yes	No
1	**CHECK OPERATION OF MANUAL MODE SWITCH.** Set the manual mode switch to auto mode.	Does the AUTO indicator light in combination meter illuminate?	Go to step **8.**	Go to step **2.**
2	**CHECK AUTO INDICATOR LIGHT.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module. 3)Turn the ignition switch to ON. (Engine OFF) 4)Short between the driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 22 — Chassis ground:***	Does the AUTO indicator light in combination meter illuminate?	Go to step **8.**	Go to step **3.**
3	**CHECK POWER SUPPLY OF COMBINATION METER.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of combination meter. 3)Turn the ignition switch to ON. (engine OFF) 4)Measure the voltage between combination meter harness connector and chassis ground. ***Connector & terminal*** ***(i11) No. 7 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **4.**	Check and repair the open and short of harness between battery and combination meter, and poor contact of harness connector.
4	**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 of combination meter. 3)Measure the resistance between combination meter harness connector and driver's control center differential control module harness connector. ***Connector & terminal*** ***(i12) No. 14 — (B289) No. 22:***	Is the resistance less than 1 Ω?	Go to step **5.**	Repair the open circuit of harness between combination meter harness connector and driver's control center differential control module harness connector, and poor contact of harness connector.
5	**CHECK THE HARNESS BETWEEN COMBINATION METER AND DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** Measure the resistance between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 22 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **6.**	Repair the short circuit of harness between combination meter harness connector and driver's control center differential control module harness connector.
6	**CHECK HARNESS CONNECTOR POOR CONTACT.**	Is there any poor contact in the circuit between combination meter and driver's control module?	Repair the poor contact.	Go to step **7.**
7	**CHECK AUTO INDICATOR LIGHT.** 1)Connect the harness connector of combination meter. 2)Short between the driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 22 — Chassis ground:***	Does the AUTO indicator light light up?	Replace the driver's control center differential control module.	Replace the combination meter.

	Step	Check	Yes	No
8	**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. ***Connector & terminal*** ***(B339) No. 4 — Chassis ground:***	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 **9.**
9	**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. ***Connector & terminal*** ***(B289) No. 8 — (B339) No. 5:***	Is the resistance less than 1 Ω?	Go to step **10.**	Repair the open circuit of harness between driver's control center differential control module and manual mode switch.
10	**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. ***Connector & terminal*** ***(B289) No. 8 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **11.**	Repair the short circuit of harness between driver's control center differential control module and manual mode switch.
11	**CHECK THE MANUAL MODE SWITCH.** 1)Remove the manual mode switch. 2)Measure the resistance of between manual mode switch connectors. ***Terminals*** ***No. 4 — No. 5:***	Is the resistance more than 1 MΩ?	Go to step **12.**	Replace the manual mode switch.
12	**CHECK THE MANUAL MODE SWITCH.** 1)Keep depressing the manual mode switch. 2)Measure the resistance of between manual mode switch connectors. ***Terminals*** ***No. 4 — No. 5:***	Is the resistance less than 1 Ω?	Go to step **13.**	Replace the manual mode switch.
13	**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)Turn the ignition switch to ON. (engine OFF) 4)Measure the voltage between driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 8 (+) — Chassis ground (–):***	Is the voltage more than 4.3 V?	Go to step **14.**	Replace the driver's control center differential control module.

	Step	Check	Yes	No
14	**CHECK THE INPUT SIGNAL OF DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** 1)Keep depressing the manual mode switch. 2)Measure the voltage between driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 8 (+) — Chassis ground (–):***	Is the voltage less than 0.1 V?	Go to step **15.**	Replace the driver's control center differential control module.
15	**CHECK POOR CONTACT IN HARNESS CONNECTOR.**	Is there any poor contact in manual mode switch circuit?	Repair the poor contact.	Replace the driver's control center differential control module.

L: DTC 32 CHECK PARKING BRAKE SWITCH

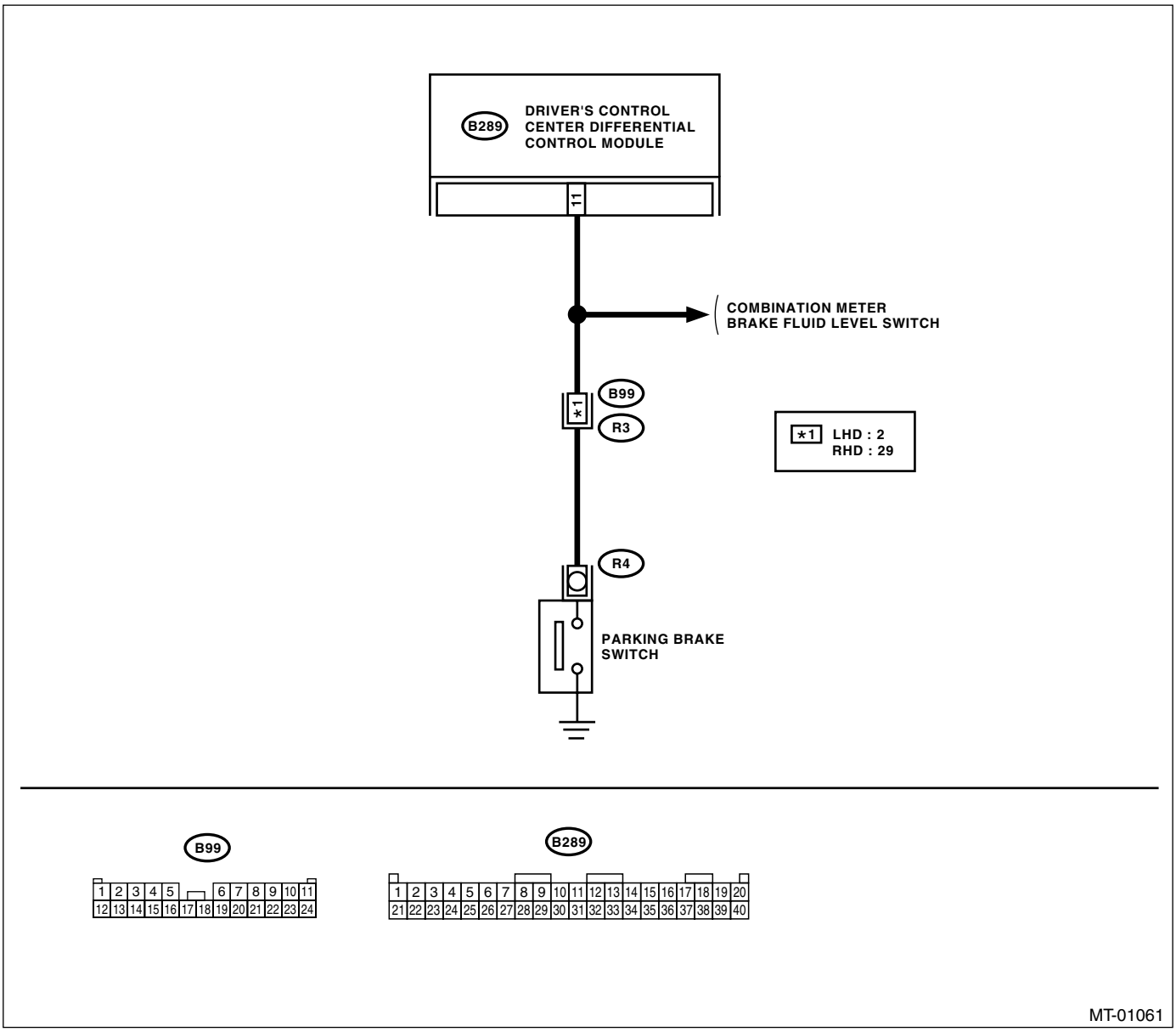
DIAGNOSIS:

Input signal circuit of parking brake switch 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:

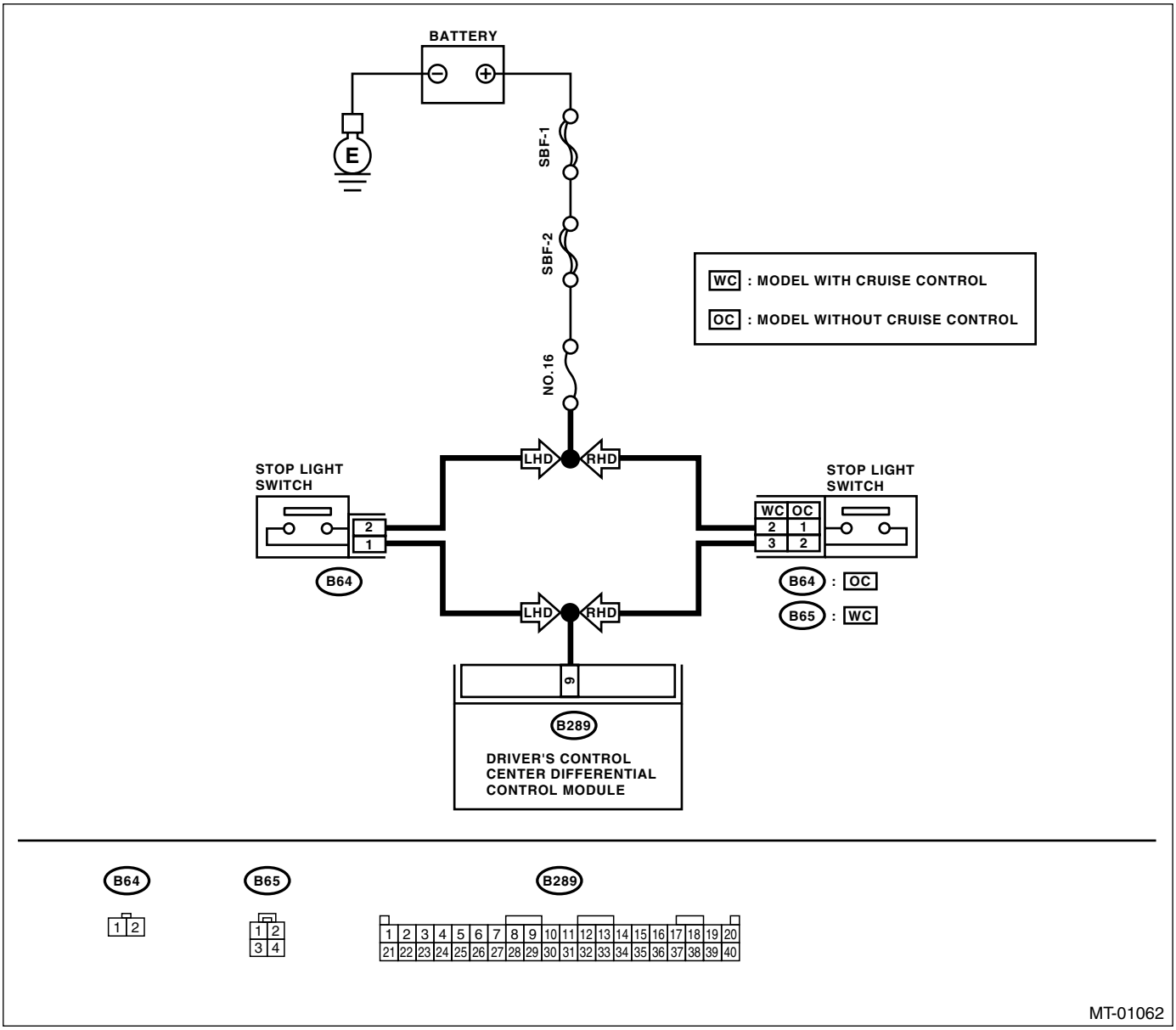


Step		Check	Yes	No
1	**CHECK THE PARKING BRAKE SWITCH CIRCUIT.** 1)Turn the ignition switch to ON. 2)Start the engine. 3)Apply the parking brake.	Does the parking brake warning light illuminate?	Go to step **2.**	Check the parking pilot & brake fluid warning light circuit.
2	**CHECK THE PARKING BRAKE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

	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 and parking brake switch. 3)Measure the resistance of harness between driver's control center differential control module and parking brake switch. ***Connector & terminal*** ***(B289) No. 11 — (R4) No. 1:***	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. ***Connector & terminal*** ***(B289) No. 11 — Chassis ground:***	Is the resistance more than 1 MΩ?	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)Disconnect the harness connector of combination meter. 3)Turn the ignition switch to ON. 4)Release the parking brake. 5)Measure the voltage between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 11 (+) — Chassis ground (–):***	Is the voltage more than 8 V?	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)Measure the voltage between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 11 (+) — Chassis ground (–):***	Is the voltage less than 0.4 V?	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.	Replace the driver's control center differential control module.

M: DTC 33 STOP LIGHT SWITCH

DIAGNOSIS:
Open or short circuit in stop light switch circuit.
TROUBLE SYMPTOM:
Wheels are locked while the ABS operates.
WIRING DIAGRAM:



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.**

	Step	Check	Yes	No
2	**CHECK INPUT SIGNAL OF STOP LIGHT SWITCH AND 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)Set the brake pedal depressed. 4)Measure the voltage between driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 9 (+) — Chassis ground (–):***	Is the voltage more than 8 V?	Go to step **3.**	Repair the open or short circuit of harness between driver's control center differential control module and stop light switch.
3	**CHECK POOR CONTACT.**	Is there any poor contact?	Repair the poor contact.	Replace the driver's control center differential control module.

N: DTC 34 ABS SWITCH SIGNAL

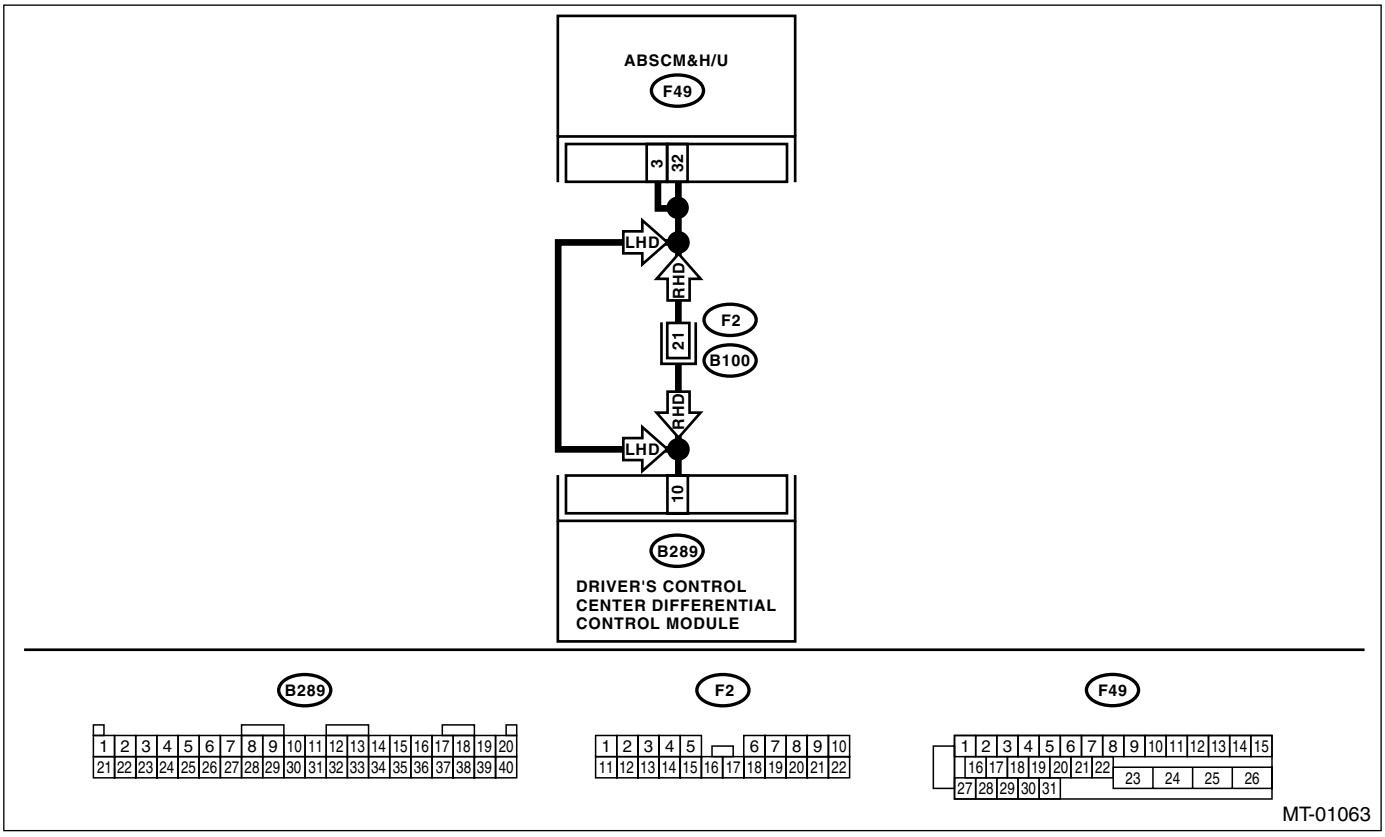
DIAGNOSIS:

Open or short in combination signal circuit of driver's control center differential control.

TROUBLE SYMPTOM:

- ABS warning light illuminates.
- Wheels are locked while the ABS operates.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK DTC.**	Is DTC code displayed during ABS self-diagnosis test mode?	Check according to ABS DTC.	Go to step **2.**
2	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** 1)Turn the ignition switch to OFF. 2)Disconnect the harness connector of driver's control center differential control module and ABSCM&H/U. 3)Measure the resistance of harness between driver's control center differential control module and ABSCM&H/U harness connector. ***Connector & terminal*** ***(B289) No. 10 — (F49) No. 31:*** ***(B289) No. 10 — (F49) No. 3:***	Is the resistance less than 1 Ω?	Go to step **3.**	Repair the open circuit of harness connector between driver's control center differential control module and ABSCM&H/U, and poor contact of harness connector.
3	**CHECK HARNESS BETWEEN DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE AND ABSCM&H/U.** Measure the resistance between driver's control center differential control module and chassis ground. ***Connector & terminal*** ***(B289) No. 10 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **4.**	Repair the short of harness between driver's control center differential control module and ABSCM&H/U.

	Step	Check	Yes	No
4	**CHECK THE DRIVER'S CONTROL CENTER DIFFERENTIAL CONTROL MODULE.** 1)Connect driver's control center differential control module connector. 2)Turn the ignition switch to ON. 3)Measure the voltage between driver's control center differential control module harness connector and chassis ground. ***Connector & terminal*** ***(B289) No. 10 (+) — Chassis ground (–):***	Is the voltage more than 8 V?	Go to step **5.**	Replace the driver's control center differential control module.
5	**CHECK POOR CONTACT IN HARNESS CONNECTOR.**	Is there any poor contact in combination circuit of driver's control center differential control?	Repair the poor contact.	Check the ABSCM&H/U.

13.General Diagnostic Table

A: INSPECTION

Symptom	Abnormal units/parts
Tight cornering condition	• ABSCM&H/U • ABS wheel speed sensor • Throttle position sensor • ECM • Center differential • Center differential control dial • Manual mode switch • Driver's control center differential control module
Tendency to oversteer	• Throttle position sensor • ECM • Center differential • Center differential control dial • Manual mode switch • Driver's control center differential relay • Rear differential oil temperature switch • Driver's control center differential control module • Tire/Wheel
Tendency to understeer at high speed cornering	• Lateral G sensor • Center differential
No change in the center differential torque character	• 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	• 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	• Center differential control dial • Combination meter • Driver's control center differential control module
No change to AUTO or MANUAL	• Manual mode switch • Combination meter • Driver's control center differential control module
AUTO indicator light does not illuminate	• Manual mode switch • Combination meter • Driver's control center differential control module
Differential does not become free, or stays free	• Parking brake switch • Center differential control dial • Driver's control center differential relay • Manual mode switch • Tire/Wheel • Rear differential • Center differential • Rear differential oil temperature sensor • Driver's control center differential control module
Wheel lock at ABS operation	• ABSCM&H/U • Stop light switch • Driver's control center differential control module
Differential does not become lock, or stays lock	• Driver's control center differential relay • ABSCM&H/U • ABS wheel speed sensor • Throttle position sensor • ECM • Center differential • Center differential control dial • Manual mode switch • Driver's control center differential control module