

CHASSIS 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.

FRONT SUSPENSION	FS
REAR SUSPENSION	RS
WHEEL AND TIRE SYSTEM	WT
DIFFERENTIALS	DI
TRANSFER CASE	TC
DRIVE SHAFT SYSTEM	DS
ABS	ABS
ABS (DIAGNOSTICS)	ABS(diag)
VEHICLE DYNAMICS CONTROL (VDC)	VDC
VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)	VDC(diag)
BRAKE	BR
PARKING BRAKE	PB
POWER ASSISTED SYSTEM (POWER STEERING)	PS

ABS (DIAGNOSTICS)

ABS(diag)

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Basic Diagnostic Procedure

ABS (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

CAUTION:

Remove foreign matters (dust, water, oil, etc.) from the ABSCM&H/U connector during removal and installation.

NOTE:

- To check harness for broken wires or short circuits, shake trouble spot or connector.
- Refer to "Check List for Interview". <Ref. to ABS(diag)-4, Check List for Interview.>

Step	Check	Yes	No
1 CHECK PRE-INSPECTION. 1) Ask the customer when and how the trouble occurred using interview checklist. <Ref. to ABS(diag)-4, Check List for Interview.> 2) Before performing diagnostics, check the component which might affect ABS problems. <Ref. to ABS(diag)-8, INSPECTION, General Description.>	Is the component that might influence the ABS problem normal?	Go to step 2.	Repair or replace each unit.
2 CHECK INDICATION OF DTC ON SCREEN. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON and Subaru Select Monitor to ON. NOTE: If the communication function of the Subaru Select Monitor cannot be executed normally, check the communication circuit. <Ref. to ABS(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.> 4) Read the DTC. <Ref. to ABS(diag)-25, OPERATION, Read Diagnostic Trouble Code (DTC).> 5) Record all DTCs and Freeze Frame Data.	Is DTC displayed?	Go to step 4.	Go to step 3.
3 PERFORM THE GENERAL DIAGNOSTICS. 1) Inspect using "General Diagnostic Table". <Ref. to ABS(diag)-82, General Diagnostic Table.> 2) Perform clear memory mode. <Ref. to ABS(diag)-17, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.> 3) Perform the inspection mode. <Ref. to ABS(diag)-26, Inspection Mode.> 4) Read the DTC. <Ref. to ABS(diag)-15, READ DIAGNOSTIC TROUBLE CODE (DTC), OPERATION, Subaru Select Monitor.> Check the DTC does not displayed.	Does the ABS warning light go off after turning the ignition switch to ON?	Finish the diagnosis.	Check in accordance with "Diagnostic Procedure for ABS". <Ref. to ABS(diag)-21, WITHOUT DTC, INSPECTION, Subaru Select Monitor.>

Basic Diagnostic Procedure

ABS (DIAGNOSTICS)

Step	Check	Yes	No
4 PERFORM THE DIAGNOSIS. 1) Refer to the "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, LIST, List of Diagnostic Trouble Code (DTC).> 2) Fix the wrong part. 3) Perform clear memory mode. <Ref. to ABS(diag)-17, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.> 4) Perform the inspection mode. <Ref. to ABS(diag)-26, Inspection Mode.> 5) Read the DTC. <Ref. to ABS(diag)-15, READ DIAGNOSTIC TROUBLE CODE (DTC), OPERATION, Subaru Select Monitor.>	Is DTC displayed?	Repeat step 1 to 4 until DTC is not shown.	Finish the diagnosis.

Check List for Interview

ABS (DIAGNOSTICS)

2. Check List for Interview

A: CHECK

Check the following items about the vehicle's state.

1. STATE OF ABS WARNING LIGHT

ABS warning light comes on.	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Only once <input type="checkbox"/> Not come on • When / how long does it come on?		
Ignition key position	<input type="checkbox"/> LOCK <input type="checkbox"/> ACC <input type="checkbox"/> ON (before starting engine) <input type="checkbox"/> START <input type="checkbox"/> ON (after Engine starting, engine is running) <input type="checkbox"/> ON (after Engine starting, engine is at a standstill)		
Timing	<input type="checkbox"/> Immediately after turning the ignition to ON <input type="checkbox"/> Immediately after turning the ignition to START		
	<input type="checkbox"/> When accelerating	—	km/h
		—	MPH
	<input type="checkbox"/> When driving at a constant speed	km/h	MPH
	<input type="checkbox"/> When decelerating	—	km/h
		—	MPH
	<input type="checkbox"/> When turning to the right	Steering angle:	deg
		Steering time:	Sec.
	<input type="checkbox"/> When turning to the left	Steering angle:	deg
		Steering time:	Sec.
<input type="checkbox"/> When operating other electrical parts • Parts name: • Operating condition:			

2. STATE OF BRAKE WARNING LIGHT

Brake warning light comes on.	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Only once <input type="checkbox"/> Not come on <input type="checkbox"/> When pulling the parking brake lever up. <input type="checkbox"/> When releasing the parking brake lever down. • When / how long does it come on?		
Ignition key position	<input type="checkbox"/> LOCK <input type="checkbox"/> ACC <input type="checkbox"/> ON (before starting engine) <input type="checkbox"/> START <input type="checkbox"/> ON (after Engine starting, engine is running) <input type="checkbox"/> ON (after Engine starting, engine is at a standstill)		

Check List for Interview

ABS (DIAGNOSTICS)

Timing	<input type="checkbox"/> Immediately after turning the ignition to ON <input type="checkbox"/> Immediately after turning the ignition to START		
	<input type="checkbox"/> When accelerating	—	km/h
		—	MPH
	<input type="checkbox"/> When driving at a constant speed	km/h	MPH
	<input type="checkbox"/> When decelerating	—	km/h
		—	MPH
	<input type="checkbox"/> When turning to the right	Steering angle:	deg
		Steering time:	Sec.
	<input type="checkbox"/> When turning to the left	Steering angle:	deg
		Steering time:	Sec.
<input type="checkbox"/> When operating other electrical parts • Parts name: • Operating condition:			

3. SYMPTOMS

ABS operating condition	<input type="checkbox"/> Does not move.		
	<input type="checkbox"/> Operates only when applying an abrupt brake.	Vehicle speed:	km/h
			MPH
	• How to step on brake pedal:		
	a) Operating time:		Sec.
	b) Operating noise: <input type="checkbox"/> Occurs. / <input type="checkbox"/> Does not occur.		
	• What kind of noise?	<input type="checkbox"/> Knocking <input type="checkbox"/> Gong gong <input type="checkbox"/> Bong <input type="checkbox"/> Buzz <input type="checkbox"/> Gong gong buzz <input type="checkbox"/> Others:	
	c) Reaction force of brake pedal		
	<input type="checkbox"/> Stick <input type="checkbox"/> Weak pedal resistance <input type="checkbox"/> Strong pedal resistance <input type="checkbox"/> Others:		

Check List for Interview

ABS (DIAGNOSTICS)

Behavior of vehicle	a) Directional stability cannot be obtained or the steering refuses to work when applying brakes: <input type="checkbox"/> Yes / <input type="checkbox"/> No	
	• When:	<input type="checkbox"/> When turning to the right <input type="checkbox"/> When turning to the left <input type="checkbox"/> When spinning <input type="checkbox"/> Others:
	a) Directional stability cannot be obtained or the steering refuses to work when accelerating: <input type="checkbox"/> Yes / <input type="checkbox"/> No	
	• When:	<input type="checkbox"/> When turning to the right <input type="checkbox"/> When turning to the left <input type="checkbox"/> When spinning <input type="checkbox"/> Others:
	c) Poor brake performance: <input type="checkbox"/> Yes / <input type="checkbox"/> No	
	• What kind:	<input type="checkbox"/> Long braking/stopping distance <input type="checkbox"/> Brakes lock or drag <input type="checkbox"/> Long pedal stroke <input type="checkbox"/> Pedal sticks. <input type="checkbox"/> Others:
	d) Poor acceleration: <input type="checkbox"/> Yes / <input type="checkbox"/> No	
	• What kind:	<input type="checkbox"/> Not accelerate <input type="checkbox"/> Engine stalls. <input type="checkbox"/> Others:
	e) Occurrence of vibration: <input type="checkbox"/> Yes / <input type="checkbox"/> No	
	• Where	
	• What kind:	
	f) Occurrence of noise: <input type="checkbox"/> Yes / <input type="checkbox"/> No	
	• Where	
• What kind:		
g) Other troubles occurred: <input type="checkbox"/> Yes / <input type="checkbox"/> No		
• What kind:		

4. CONDITIONS UNDER WHICH TROUBLE OCCURS

Environment	a) Weather	<input type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy <input type="checkbox"/> Snowy <input type="checkbox"/> Others:
	b) Ambient temperature	°C (°F)
	c) Road	<input type="checkbox"/> Inner city <input type="checkbox"/> Suburbs <input type="checkbox"/> Highway <input type="checkbox"/> Local street <input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input type="checkbox"/> Paved road <input type="checkbox"/> Gravel road <input type="checkbox"/> Muddy road <input type="checkbox"/> Sandy place <input type="checkbox"/> Others:
	d) Road surface	<input type="checkbox"/> Dried <input type="checkbox"/> Wet <input type="checkbox"/> Covered with fresh snow <input type="checkbox"/> Covered with hardened snow <input type="checkbox"/> Frozen slope <input type="checkbox"/> Others:

Check List for Interview

ABS (DIAGNOSTICS)

Condition	a) Brakes	Deceleration: G		
		<input type="checkbox"/> Intermittent / <input type="checkbox"/> Temporary		
	b) Accelerator	Acceleration: G		
		<input type="checkbox"/> Intermittent / <input type="checkbox"/> Temporary		
	c) Vehicle speed	km/h	MPH	
		<input type="checkbox"/> Advancing <input type="checkbox"/> When accelerating <input type="checkbox"/> When decelerating <input type="checkbox"/> At low speed <input type="checkbox"/> When turning <input type="checkbox"/> Others:		
	d) Tire inflation pressure	Front RH tire:	kPa	
		Front LH tire:	kPa	
		Rear RH tire:	kPa	
		Rear LH tire:	kPa	
	e) Degree of wear	Front RH tire:		
		Front LH tire:		
		Rear RH tire:		
		Rear LH tire:		
	f) Genuine parts are used.:	<input type="checkbox"/> Yes / <input type="checkbox"/> No		
	g) Tire chain is attached.:	<input type="checkbox"/> Yes / <input type="checkbox"/> No		
	h) T-type tire is used.:	<input type="checkbox"/> Yes / <input type="checkbox"/> No		
	i) Condition of suspension alignment:			
	j) Loading state:			
	k) Repair parts are used.:	<input type="checkbox"/> Yes / <input type="checkbox"/> No		
• Contents:				
l) Others:				

3. General Description

A: CAUTION

1. SUPPLEMENTAL RESTRAINT SYSTEM “AIRBAG”

Airbag system wiring harness is routed near the ABS wheel speed sensor and ABSCM&H/U.

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 servicing the ABS wheel speed sensor and ABSCM&H/U.

B: INSPECTION

Before performing diagnosis, check the following items which might affect ABS problems.

1. BATTERY

Measure battery voltage and check electrolyte.

Standard voltage: 12 V or more

Specific gravity: More than 1.260

2. BRAKE FLUID

- 1) Check the brake fluid level.
- 2) Check the brake fluid for leaks.

3. HYDRAULIC UNIT

Check the hydraulic unit.

- With brake tester <Ref. to ABS-8, CHECKING THE HYDRAULIC UNIT ABS OPERATION WITH BRAKE TESTER, INSPECTION, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
- Without brake tester <Ref. to ABS-7, CHECKING THE HYDRAULIC UNIT ABS OPERATION BY PRESSURE GAUGE, INSPECTION, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

4. BRAKE DRAG

Check for brake drag.

5. BRAKE PAD AND ROTOR

Check the brake pad and rotor.

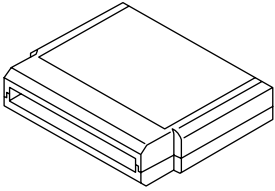

- FRONT <Ref. to BR-18, INSPECTION, Front Brake Pad.> <Ref. to BR-19, INSPECTION, Front Disc Rotor.>
- REAR <Ref. to BR-25, INSPECTION, Rear Brake Pad.> <Ref. to BR-26, INSPECTION, Rear Disc Rotor.>

6. TIRE

Check the tire specifications, tire wear and air pressure. <Ref. to WT-2, SPECIFICATION, General Description.>

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. <ul style="list-style-type: none"> • English: 22771AA030 (Without printer) • German: 22771AA070 (Without printer) • French: 22771AA080 (Without printer) • Spanish: 22771AA090 (Without printer)

2. GENERAL TOOL

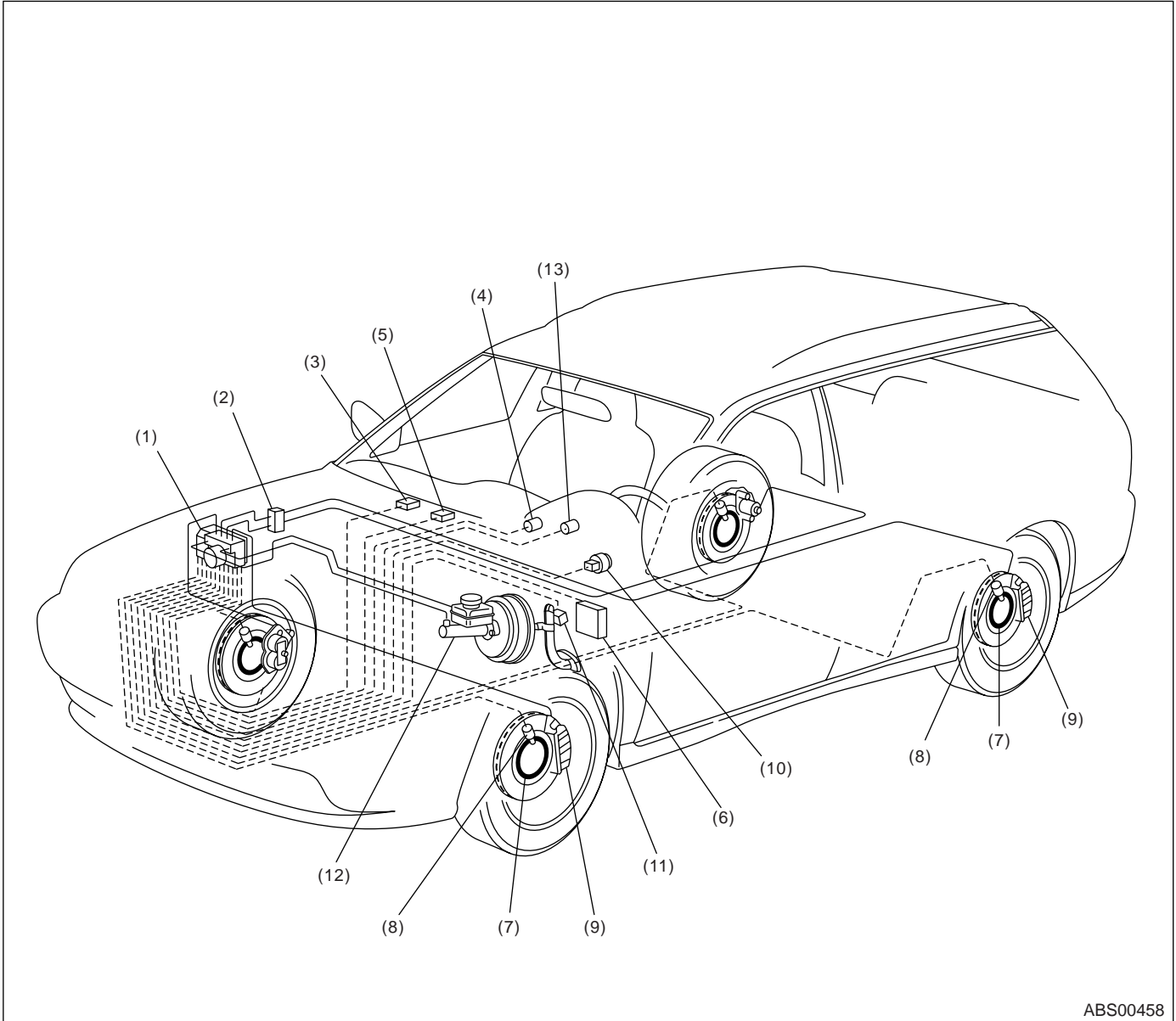
TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and ampere.
Oscilloscope	Used for measuring sensor.

Electrical Component Location

ABS (DIAGNOSTICS)

4. Electrical Component Location

A: LOCATION

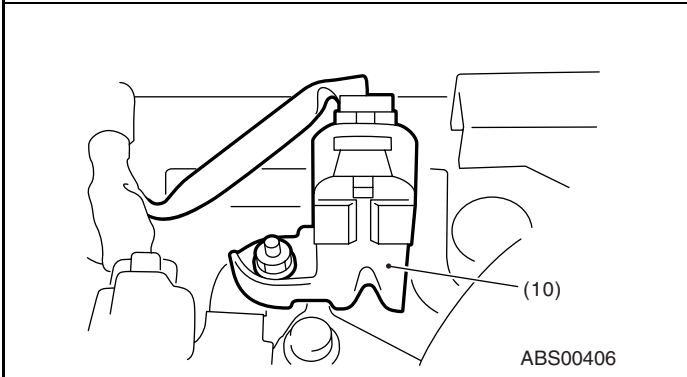
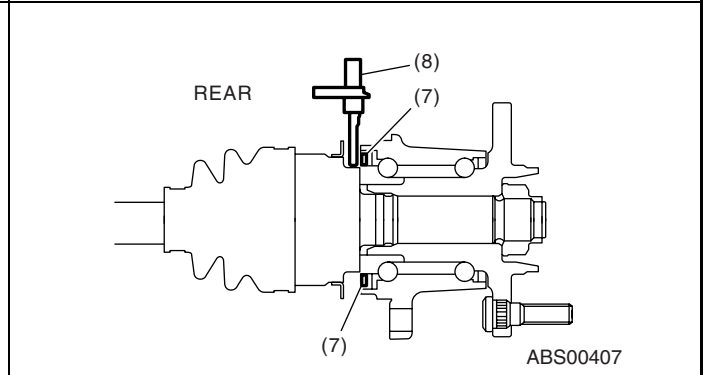
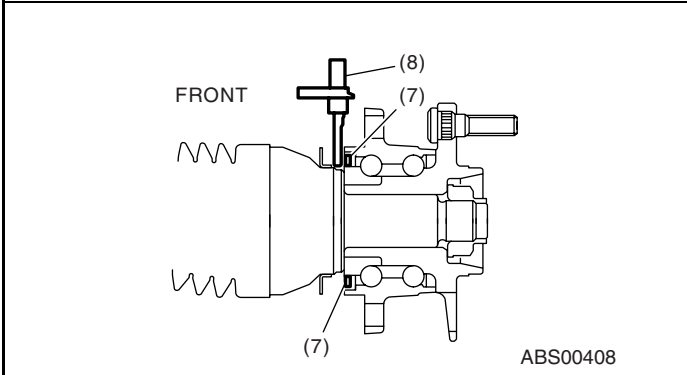
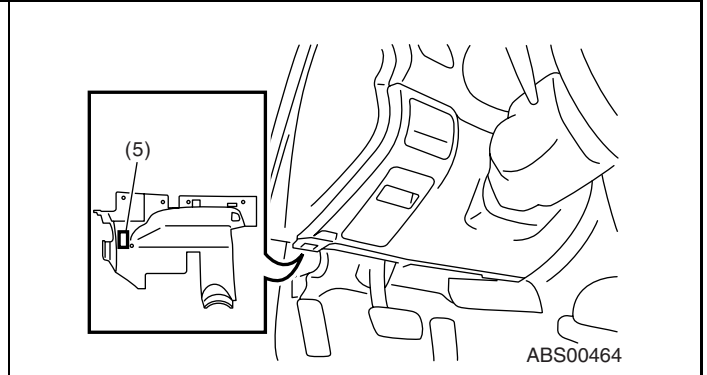
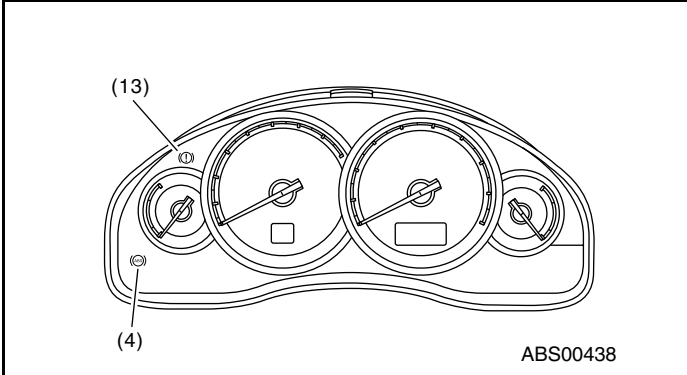
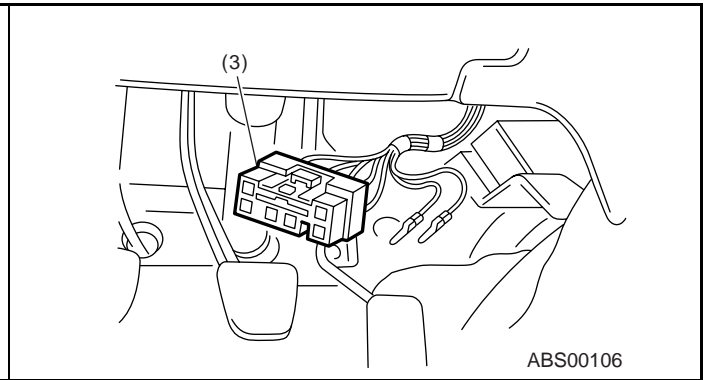
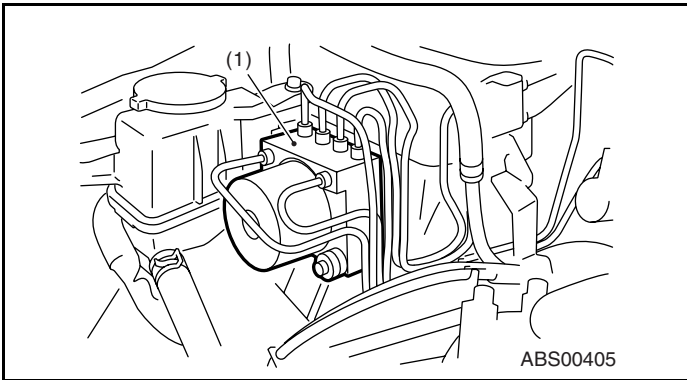


ABS00458

- | | | |
|---|---|----------------------------------|
| (1) ABS control module and hydraulic control unit (ABSCM&H/U) | (5) Data link connector (For Subaru Select Monitor) | (9) Caliper body |
| (2) Two-way connector | (6) Transmission control module (TCM) (AT model) | (10) G sensor |
| (3) Diagnosis connector (Used for ABS sequence control.) | (7) Magnetic encoder seal | (11) Stop light switch |
| (4) ABS warning light | (8) ABS wheel speed sensor | (12) Master cylinder |
| | | (13) Brake and EBD warning light |

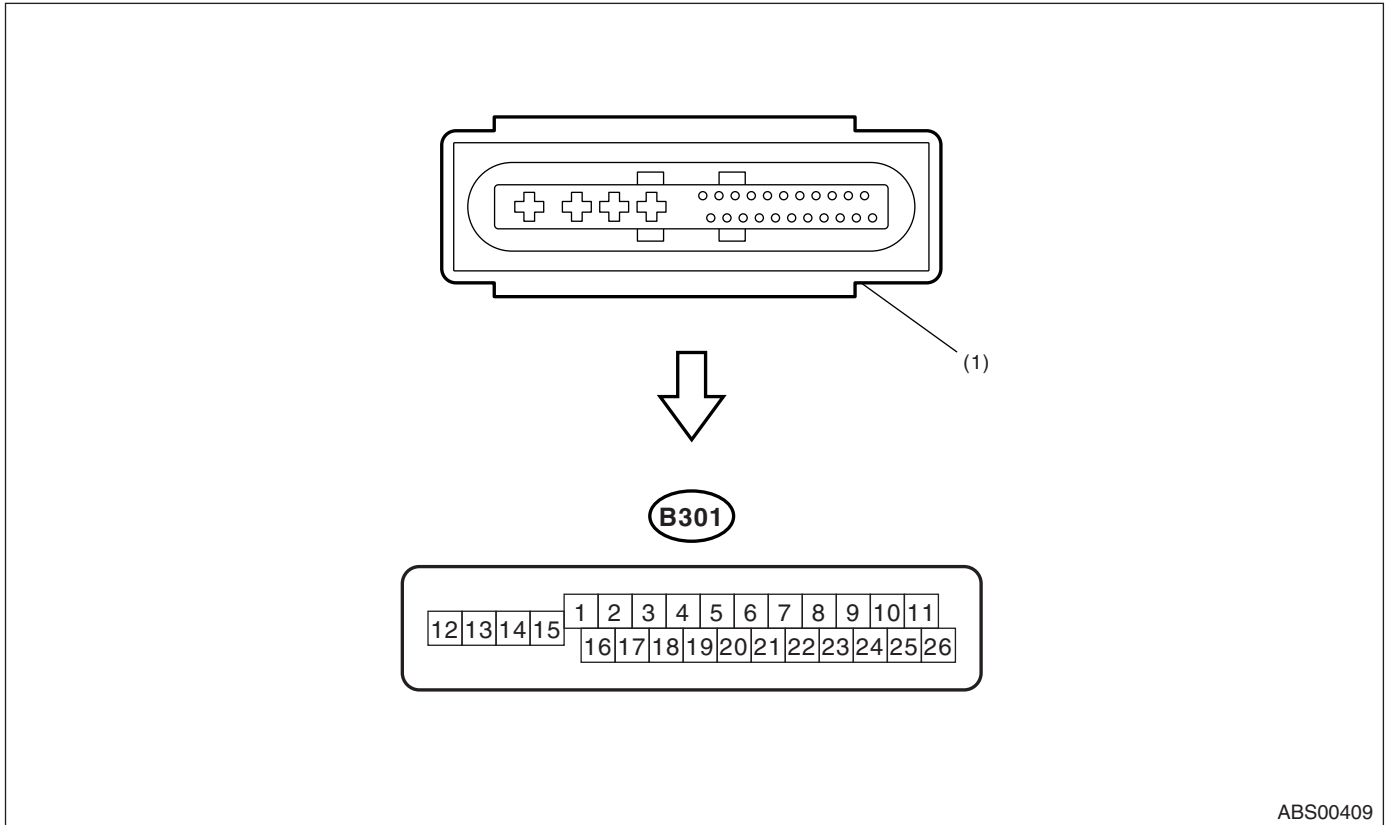
Electrical Component Location

ABS (DIAGNOSTICS)



5. Control Module I/O Signal

A: ELECTRICAL SPECIFICATION



ABS00409

(1) ABS control module and hydraulic control unit (ABSCM&H/U) connector

NOTE:

- Terminal numbers in ABSCM&H/U connector are as shown in the figure.
- ABS warning light is illuminated when the connector is removed from ABSCM&H/U.

Control Module I/O Signal

ABS (DIAGNOSTICS)

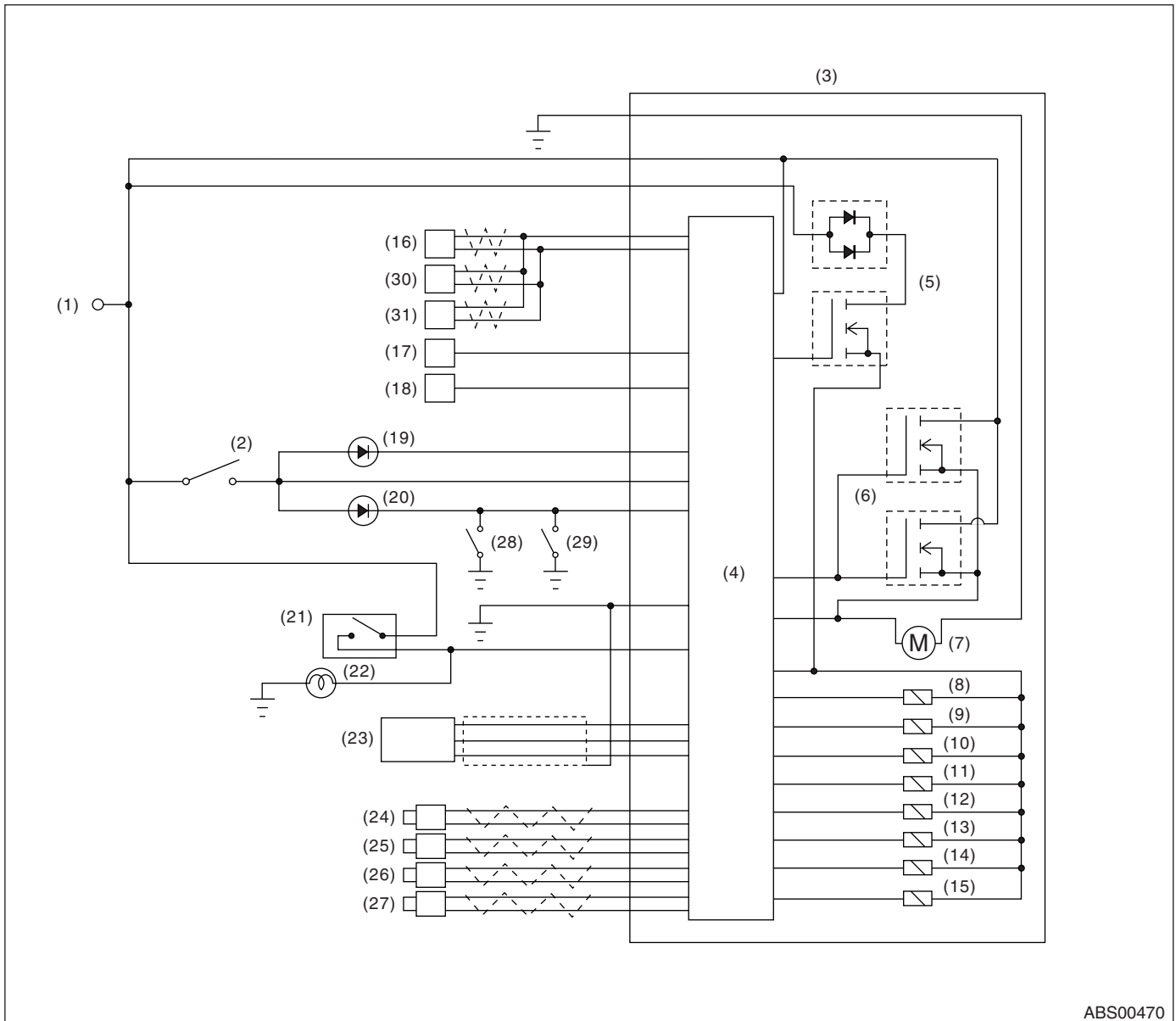
Description			Terminal No. (+) — (-)	Input/Output signal
				Measured value and measuring conditions
ABS wheel speed sensor (Wheel speed sensor)	Front LH wheel	Power supply	16 — 15	4.5 — 16.5 V
		Signal	1	5.9 — 16.8 mA: Rectangle waveform
	Front RH wheel	Power supply	5 — 15	4.5 — 16.5 V
		Signal	6	5.9 — 16.8 mA: Rectangle waveform
	Rear LH wheel	Power supply	2 — 15	4.5 — 16.5 V
		Signal	17	5.9 — 16.8 mA: Rectangle waveform
	Rear RH wheel	Power supply	3 — 15	4.5 — 16.5 V
		Signal	4	5.9 — 16.8 mA: Rectangle waveform
CAN communication line (+)			26	2.5 — 1.5 V pulse signal
CAN communication line (-)			11	3.5 — 2.5 V pulse signal
Valve relay power supply *1			14 — 15	10 — 15 V
Motor relay power supply *1			13 — 15	10 — 15 V
G sensor	Power supply		24 — 10	4.75 — 5.25 V
	Ground		10	—
	Output		21 — 10	2.1 — 2.5 V when the vehicle is on a level surface
Stop light switch *1			20 — 15	Less than 1.5 V when the stop light is OFF; otherwise, 10 — 15 V when the stop light is ON.
ABS warning light			22 — 15	After turning the ignition switch to ON, 10 — 15 V during 1.5 seconds and less than 1.5 V after 1.5 seconds passed.
Brake warning light (EBD warning light)			8 — 15	After turning the ignition switch to ON, 10 — 15 V during 1.5 seconds and less than 1.5 V after 1.5 seconds passed.
Subaru Select Monitor			7 — 15	Less than 1.5 V when no data is received. 0 ↔ 12 V pulse (in communication)
ABS diagnosis connector			25 — 15	When the ignition switch is ON, 10 — 15 V.
Power supply *1			18 — 15	When the ignition switch is ON, 10 — 15 V.
Grounding line			15	—
Vehicle speed output signal			23 — 15	0 ↔ 5 V pulse

*1: Measure the I/O signal voltage after removing the connector from the ABSCM&H/U terminal.

Control Module I/O Signal

ABS (DIAGNOSTICS)

B: WIRING DIAGRAM



ABS00470

- | | | |
|---|------------------------------------|--|
| (1) Battery | (12) Rear inlet solenoid valve LH | (24) Front ABS wheel speed sensor LH |
| (2) Ignition switch | (13) Rear outlet solenoid valve LH | (25) Front ABS wheel speed sensor RH |
| (3) ABS control module and hydraulic control unit (ABSCM&H/U) | (14) Rear inlet solenoid valve RH | (26) Rear ABS wheel speed sensor LH |
| (4) ABS control module | (15) Rear outlet solenoid valve RH | (27) Rear ABS wheel speed sensor RH |
| (5) Valve relay | (16) Body integrated unit | (28) Parking brake switch |
| (6) Motor relay | (17) Diagnosis connector | (29) Brake fluid level switch |
| (7) Motor | (18) Data link connector | (30) Engine control module (ECM) |
| (8) Front inlet solenoid valve LH | (19) ABS warning light | (31) Transmission control module (TCM) |
| (9) Front outlet solenoid valve LH | (20) Brake warning light | |
| (10) Front inlet solenoid valve RH | (21) Stop light switch | |
| (11) Front outlet solenoid valve RH | (22) Stop light | |
| | (23) G sensor | |

6. Subaru Select Monitor

A: OPERATION

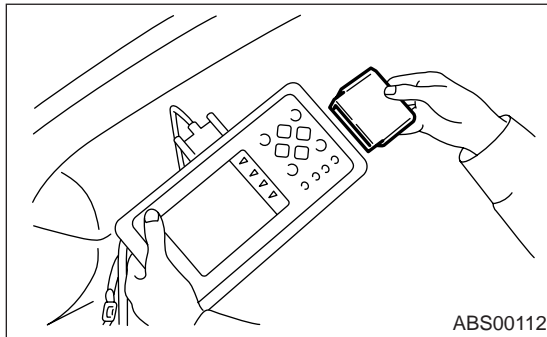
1. READ DIAGNOSTIC TROUBLE CODE (DTC)

1) Prepare the Subaru Select Monitor kit. <Ref. to ABS(diag)-9, SPECIAL TOOL, PREPARATION TOOL, General Description.>



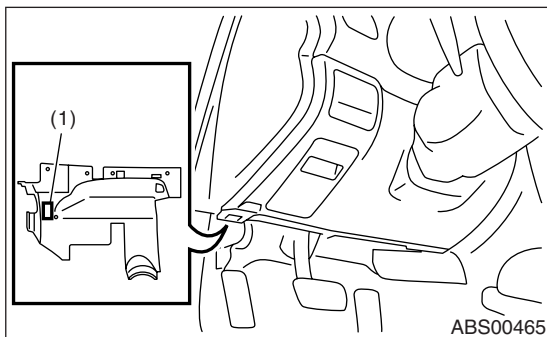
2) Connect the diagnosis cable to Subaru Select Monitor.

3) Insert the cartridge to Subaru Select Monitor. <Ref. to ABS(diag)-9, SPECIAL TOOL, PREPARATION TOOL, General Description.>



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

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



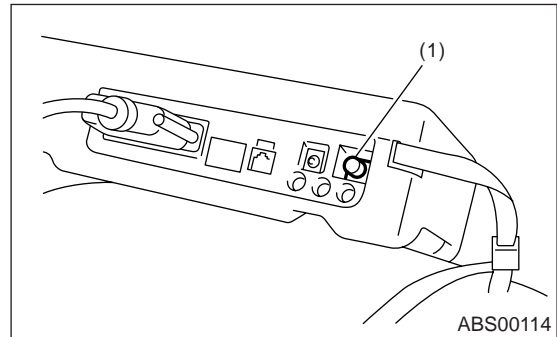
(1) Data link connector

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

CAUTION:

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

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 {Brake Control} and press the [YES] key.

8) Press the [YES] key after the {ABS} is displayed.

9) On the «ABS 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 ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>

- DTCs are displayed up to three in detected order.

- If a particular DTC is not properly stored in memory (due to a drop in ABSCM&H/U 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 ABS and Subaru Select Monitor cannot communicate, check the communication circuit. <Ref. to ABS(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.>

Subaru Select Monitor

ABS (DIAGNOSTICS)

11) When DTC is not displayed, check the meter circuit or CAN communication circuit. <Ref. to ABS(diag)-21, WITHOUT DTC, INSPECTION, Subaru Select Monitor.>

Display	Contents to be monitored
Current	Indicate the latest DTC on the Subaru Select Monitor display.
Old	Indicate the latest DTC in previous trouble on the Subaru Select Monitor display.
Older	Indicate the latest DTC in second previous trouble on the Subaru Select Monitor display.
Before 3	Indicate the latest DTC in third previous trouble on the Subaru Select Monitor display.

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 {Brake Control} and press the [YES] key.
- 3) Press the [YES] key after the {ABS} is displayed.
- 4) On the «Brake Control 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
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
BLS Signal	Brake ON/OFF is displayed.	ON or OFF
G Sensor	Vehicle acceleration detected by analog G sensor is displayed.	m/s (m/s ²)
Valve Relay Signal	Valve relay operation signal is displayed.	ON or OFF
ABS Warning Light	ON operation of the ABS warning light is displayed.	ON or OFF
EBD Warning Light	ON operation of the EBD warning light is displayed.	ON or OFF
Motor Relay Monitor	Motor relay monitor voltage is displayed.	V
IG power supply voltage	Voltage supplied to ABSCM&H/U is displayed.	V
ABS Control Flag	ABS control condition is displayed.	ON or OFF
ABS OK B Signal	ABS system normal/abnormal is displayed.	OK or NG

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 {Brake Control} and press the [YES] key.
- 3) Press the [YES] key after the {ABS} is displayed.
- 4) On the «Brake Control 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. ABS SEQUENCE CONTROL

Display	Contents to be monitored	Index No.
ABS sequence control	Operate the valve and pump motor continuously to perform the ABS sequence control.	<Ref. to ABS-10, ABS Sequence Control.>

5. 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 three.
- If a Freeze Frame Data is not properly stored in memory (due to a drop in ABS 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.

Display	Contents to be monitored
FR Wheel	Wheel speed detected by the Front ABS wheel speed sensor RH is displayed in km/h or MPH.
FL Wheel	Wheel speed detected by the Front ABS wheel speed sensor LH is displayed in km/h or MPH.
RR Wheel	Wheel speed detected by the Rear ABS wheel speed sensor RH is displayed in km/h or MPH.
RL Wheel	Wheel speed detected by the Rear ABS wheel speed sensor LH is displayed in km/h or MPH.

Display	Contents to be monitored
IG power supply voltage	Voltage supplied (V) to ABSCM&H/U is displayed.
G Sensor	Vehicle acceleration detected by analog G sensor is displayed.
Motor relay monitor	Motor relay condition is displayed.
BLS Signal	Brake ON/OFF is displayed.
Vehicle speed	Vehicle speed calculated by ABS control module is displayed.
ABS Control Flag	ABS control condition is displayed.
Power Supply Failure	Whether abnormal voltage occurred or not is displayed during malfunction.

Subaru Select Monitor

ABS (DIAGNOSTICS)

B: INSPECTION

1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

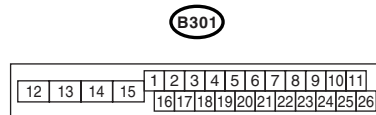
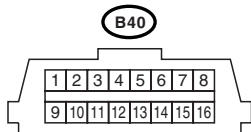
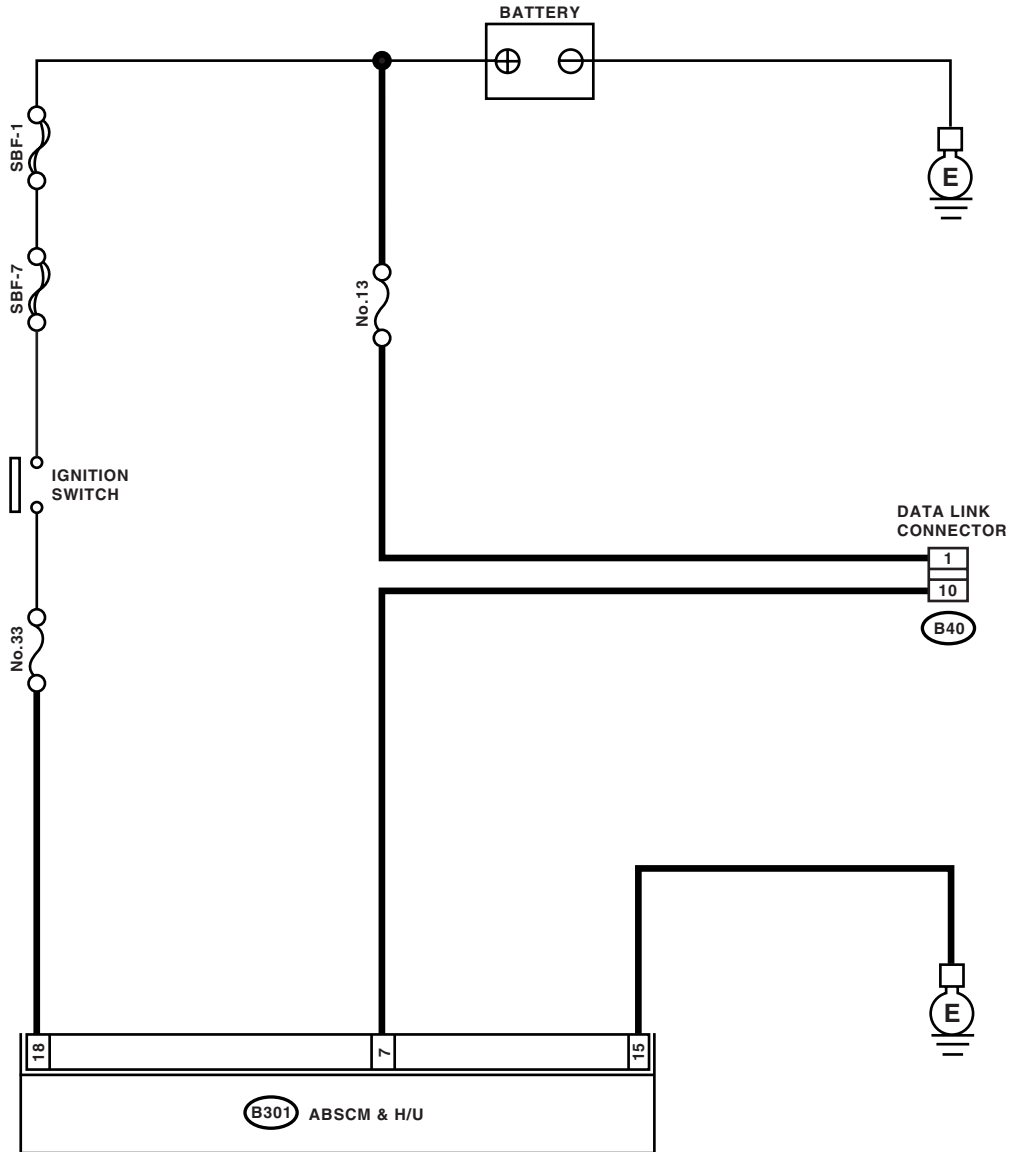
DETECTING CONDITION:

Defective harness connector

TROUBLE SYMPTOM:

Communication is impossible between ABS and Subaru Select Monitor.

WIRING DIAGRAM:



Subaru Select Monitor

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1	CHECK IGNITION SWITCH.	Go to step 2.	Turn the ignition switch to ON, and select ABS mode using Subaru Select Monitor.
2	CHECK BATTERY. 1) Turn the ignition switch to OFF. 2) Measure the battery voltage.	Go to step 3.	Charge or replace the battery.
3	CHECK 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.	Go to step 8.	Go to step 5.
5	CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to OFF. 2) Disconnect the ABSCM&H/U connector. 3) Turn the ignition switch to ON. 4) Check whether communication to other systems can be executed normally.	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	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 ABSCM&H/U, ECM and TCM. 3) Measure the resistance between data link connector and chassis ground. Connector & terminal (B40) No. 10 — Chassis ground:	Go to step 7.	Repair the harness and connector between each control module and data link connector.
7	CHECK OUTPUT SIGNAL FOR ABSCM&H/U. 1) Turn the ignition switch to ON. 2) Measure the voltage between ABSCM&H/U and chassis ground. Connector & terminal (B40) No. 10 (+) — Chassis ground (-):	Go to step 8.	Repair the harness and connector between each control module and data link connector.
8	CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND DATA LINK CONNECTOR. Measure the resistance between ABSCM&H/U connector and data link connector. Connector & terminal (B301) No. 7 — (B40) No. 10:	Go to step 9.	Repair the harness and connector between ABSCM&H/U and data link connector.
9	CHECK INSTALLATION OF ABSCM&H/U CONNECTOR. Turn the ignition switch to OFF.	Go to step 10.	Insert ABSCM&H/U connector into ABSCM&H/U.
10	CHECK POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the ignition power supply voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 18 (+) — Chassis ground (-):	Go to step 11.	Repair the open circuit in harness between ABSCM&H/U and battery.

Subaru Select Monitor

ABS (DIAGNOSTICS)

Step	Check	Yes	No
11 CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Measure the resistance of harness between ABSCM&H/U and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 12 .	Repair the open circuit in harness between ABSCM&H/U 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 ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

2. WITHOUT DTC

DETECTING CONDITION:

- Defective combination meter
- Open in harness

TROUBLE SYMPTOM:

- ABS warning light does not go off.
- “NO TROUBLE CODE” will be displayed on the Subaru Select Monitor.

NOTE:

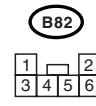
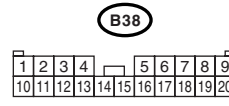
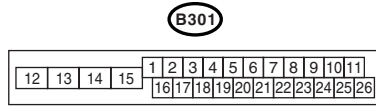
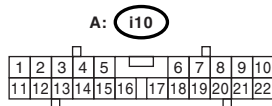
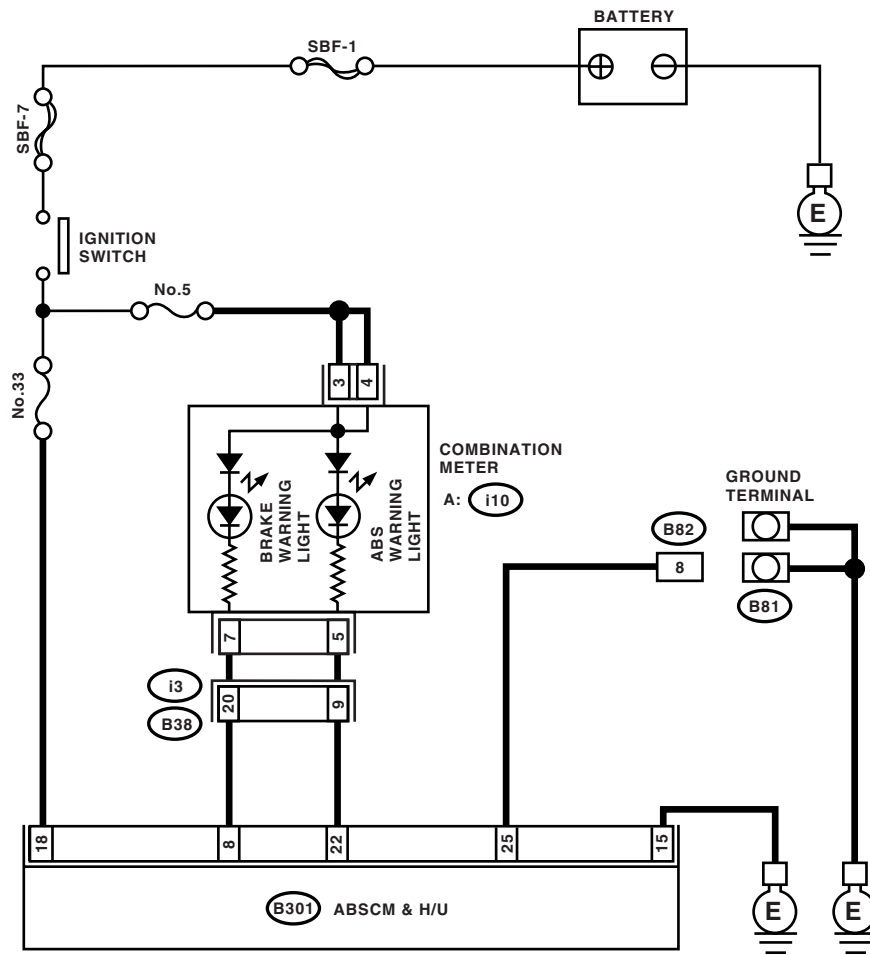
When the ABS warning light is OFF and “NO TROUBLE CODE” is displayed on Subaru Select Monitor, the system is in normal condition.

Subaru Select Monitor

ABS (DIAGNOSTICS)

WIRING DIAGRAM:

- LHD model

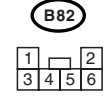
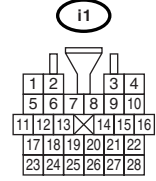
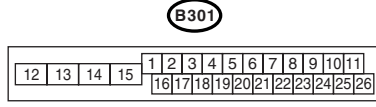
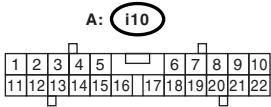
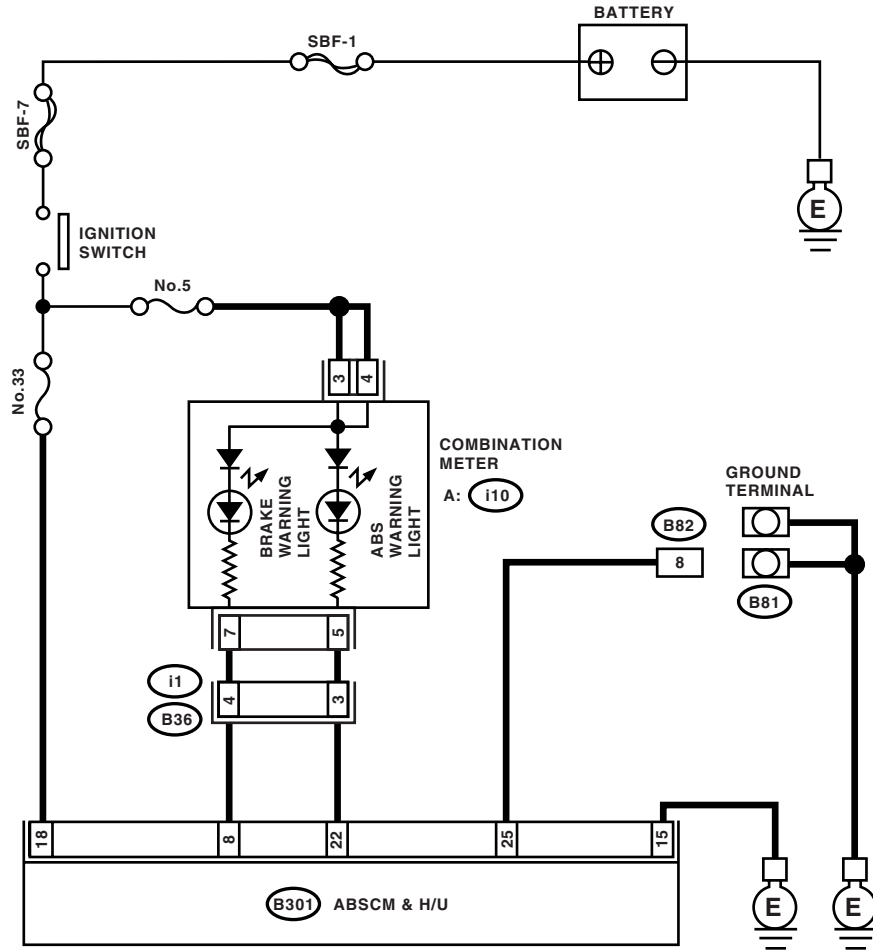


ABS00459

Subaru Select Monitor

ABS (DIAGNOSTICS)

- RHD model



ABS00440

Subaru Select Monitor

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 DATA CHECK SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the condition of "ABS warning light".	Is "ON" indicated?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 2.
2 CHECK WIRING HARNESS. Measure the resistance between ABSCM connector and combination meter connector. Connector & terminal <i>(i10) No. 5 — (B301) No. 22:</i>	Is the resistance less than 0.5 Ω?	Go to step 3.	Repair the harness and connector between ABSCM&H/U and combination meter connector.
3 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in ABSCM connector and combination meter connector?	Repair the connector.	Check the combination meter.

7. Read Diagnostic Trouble Code (DTC)

A: OPERATION

For details about reading of DTCs, refer to "Subaru Select Monitor". <Ref. to ABS(diag)-15, Subaru Select Monitor.>

8. Inspection Mode

A: PROCEDURE

Reproduce the malfunction occurrence condition as possible.

Drive the vehicle at a speed more than 40 km/h (25 MPH) for at least one minute.

9. Clear Memory Mode

A: OPERATION

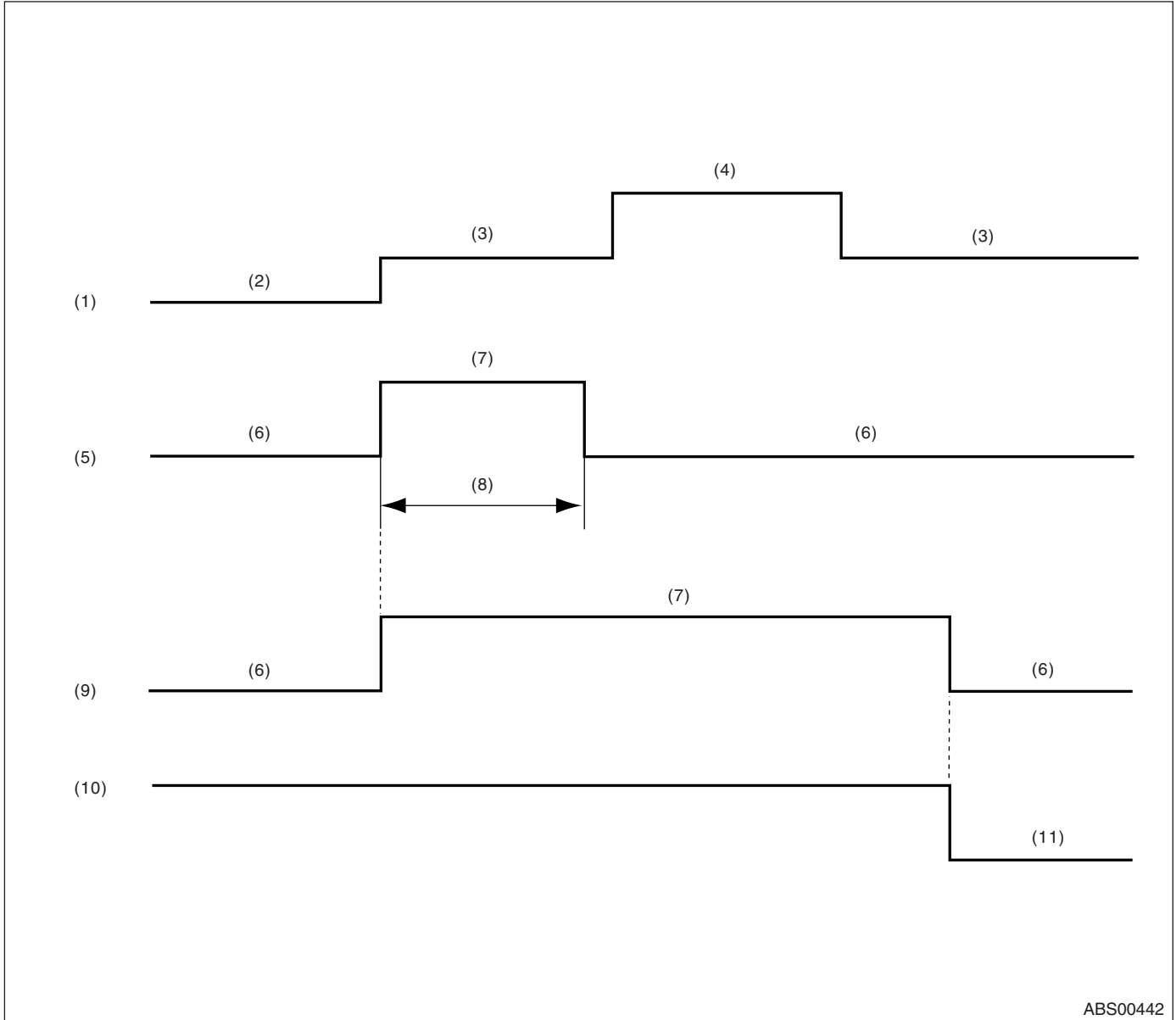
For details concerning DTC clear operation, refer to "Subaru Select Monitor". <Ref. to ABS(diag)-15, Subaru Select Monitor.>

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

10. ABS Warning Light / Brake Warning Light Illumination Pattern

A: INSPECTION



ABS00442

(1) Ignition switch
(2) OFF
(3) ON
(4) Start

(5) ABS warning light
(6) Light OFF
(7) Light ON
(8) 1.5 seconds

(9) Brake warning light (EBD warning light)
(10) Parking brake
(11) Released

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

- 1) When the ABS warning light and brake warning light do not illuminate in accordance with this illumination pattern, there must be an electrical malfunction.
- 2) When ABS warning light remains constantly OFF, check the combination meter circuit. <Ref. to ABS(diag)-30, ABS WARNING LIGHT DOES NOT COME ON, ABS Warning Light / Brake Warning Light Illumination Pattern.>
- 3) When ABS warning light does not go off, check the combination meter circuit. <Ref. to ABS(diag)-33, ABS WARNING LIGHT DOES NOT GO OFF, ABS Warning Light / Brake Warning Light Illumination Pattern.>
- 4) When brake warning light does not go off, check the brake warning light circuit, combination meter circuit. <Ref. to ABS(diag)-36, BRAKE WARNING LIGHT DOES NOT GO OFF, ABS Warning Light / Brake Warning Light Illumination Pattern.>

NOTE:

Even though the ABS warning light does not go off after 1.5 seconds from ABS warning light illumination, the ABS function operates normally when the warning light goes off while driving at approximately 12km/h (7 MPH). However, the ABS function does not operate while the ABS warning light is illuminated.

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

B: ABS WARNING LIGHT DOES NOT COME ON

DETECTING CONDITION:

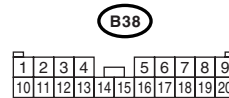
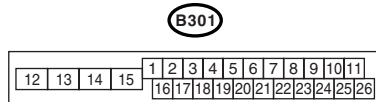
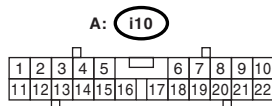
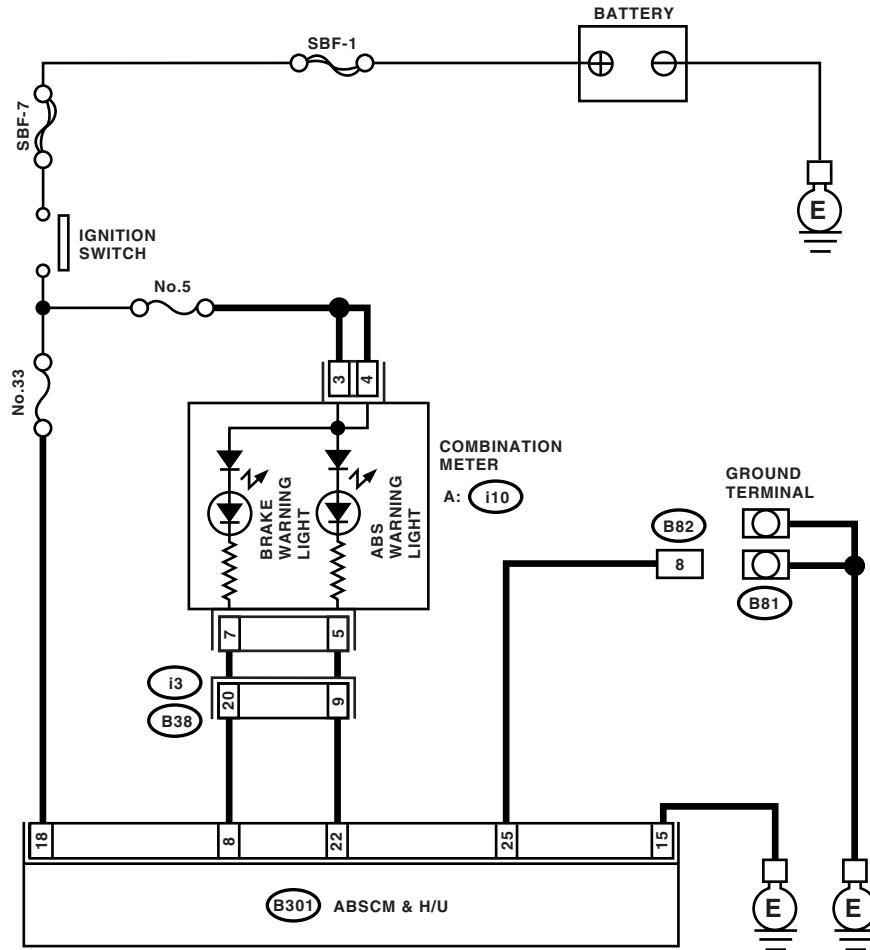
- Defective combination meter
- Defective harness

TROUBLE SYMPTOM:

When the ignition switch is turned to ON (engine OFF), ABS warning light does not come on.

WIRING DIAGRAM:

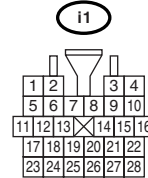
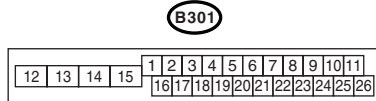
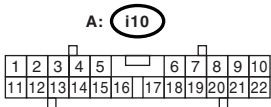
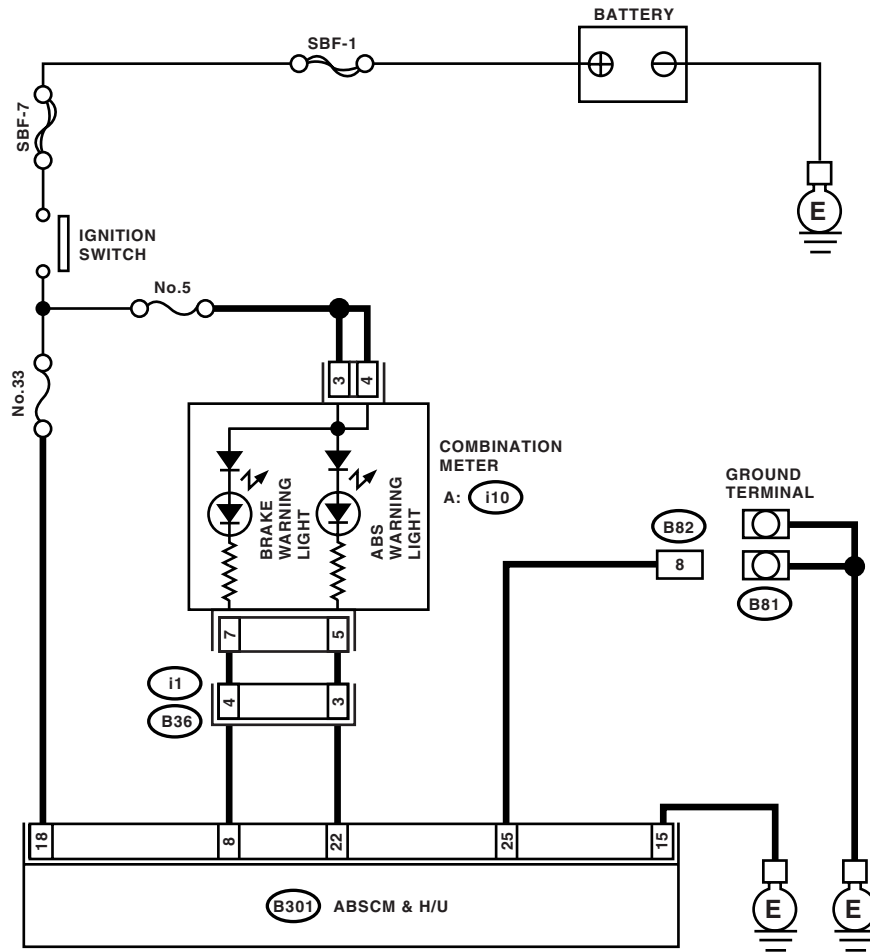
- LHD model



ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

- RHD model



ABS00440

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK ILLUMINATION OF OTHER LIGHTS. Turn the ignition switch to ON. (engine OFF)	Do other warning lights illuminate?	Go to step 2.	Check the combination meter.
2 READ DTC. Read the DTC. <Ref. to ABS(diag)-25, Read Diagnostic Trouble Code (DTC).>	Is DTC displayed?	Perform the diagnosis according to DTC.	Go to step 3.
3 CHECK GROUND SHORT OF HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector (B301) from ABSCM&H/U. 3) Disconnect the connector (i10) from the combination meter. 4) Measure the resistance between ABSCM connector and chassis ground. Connector & terminal (B301) No. 22 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair the harness and connector between ABSCM&H/U and combination meter connector.
4 CHECK ABSCM. 1) Connect the connector (B301) to the ABSCM&H/U. 2) Turn the ignition to ON. 3) Immediately after turning ignition switch to ON (within 1.5 seconds), measure the resistance of harness between the combination meter connector and chassis ground. Connector & terminal (i10) No. 5 — Chassis ground:	Is the resistance more than 1 MΩ?	Check the combination meter.	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

C: ABS WARNING LIGHT DOES NOT GO OFF

DETECTING CONDITION:

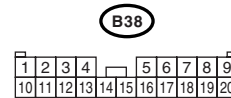
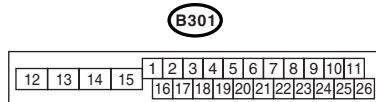
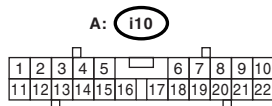
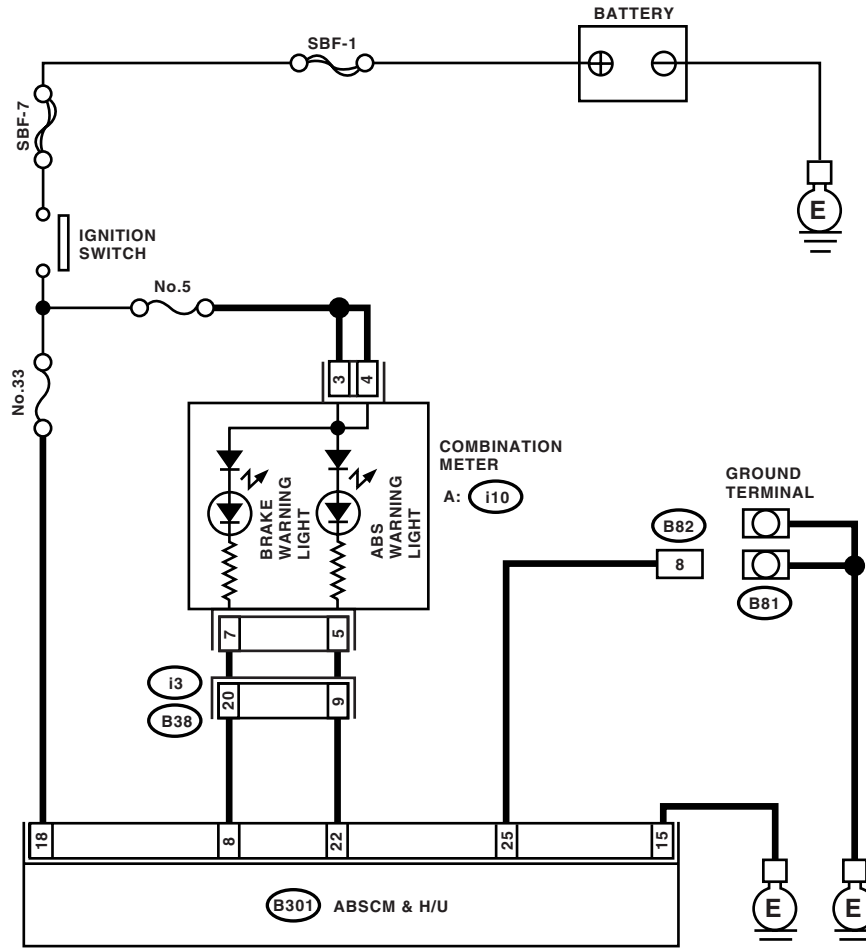
- Defective combination meter
- Open in harness

TROUBLE SYMPTOM:

When starting the engine, the ABS warning light is kept on.

WIRING DIAGRAM:

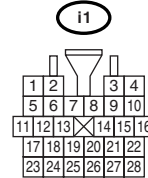
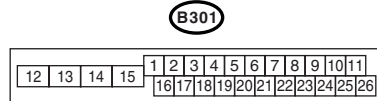
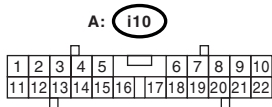
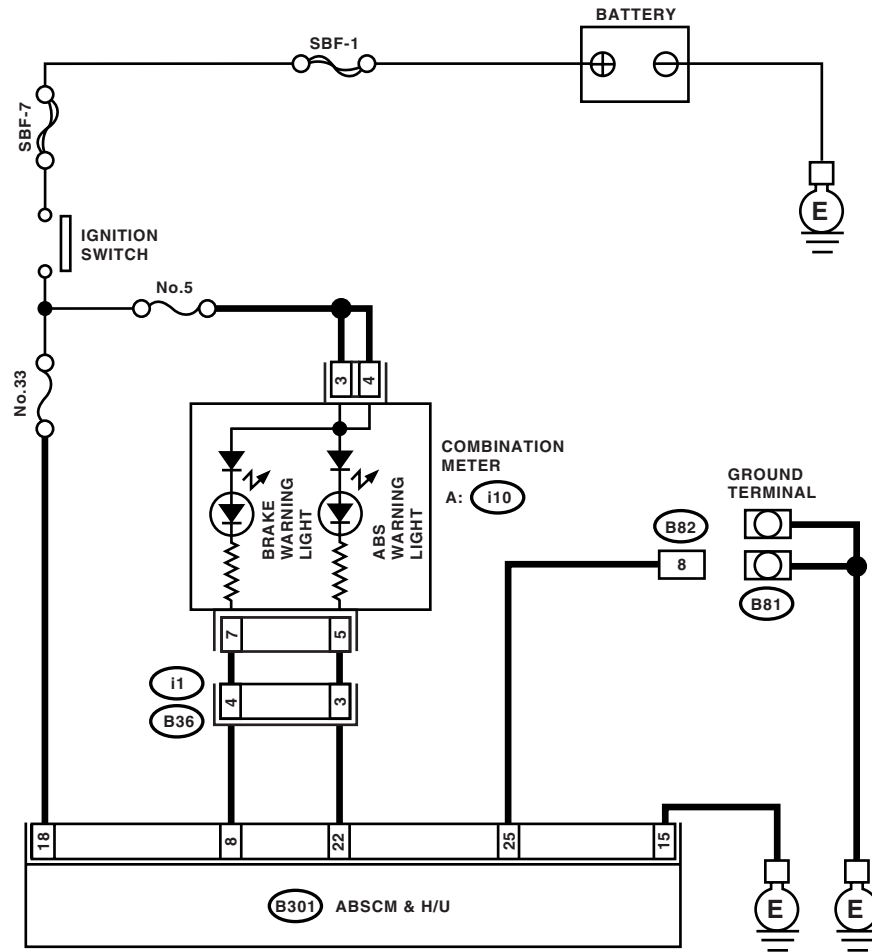
- LHD model



ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

- RHD model



ABS00440

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 READ DTC. Read the DTC. <Ref. to ABS(diag)-25, Read Diagnostic Trouble Code (DTC).>	Is DTC displayed?	Perform the diagnosis according to DTC.	Go to step 2.
2 CHECK WIRING HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector (B301) from ABSCM&H/U. 3) Disconnect the connector (i10) from the combination meter. 4) Measure the resistance between ABSCM connector and combination meter connector. Connector & terminal (B301) No. 22 — (i10) No. 5:	Is the resistance less than 0.5 Ω ?	Go to step 3.	Repair the harness and connector between ABSCM&H/U and combination meter connector.
3 CHECK POOR CONTACT IN CONNECTOR. Check poor contact in all connectors.	Is there poor contact?	Repair the connector.	Go to step 4.
4 CHECK ABSCM. 1) Connect the connector (B301) to the ABSCM&H/U. 2) Turn the ignition switch to ON. 3) Measure the resistance between combination meter connector and chassis ground. Connector & terminal (i10) No. 5 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Check the combination meter.	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

D: BRAKE WARNING LIGHT DOES NOT GO OFF

DETECTING CONDITION:

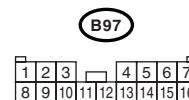
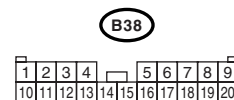
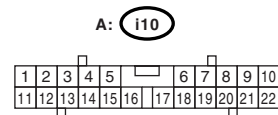
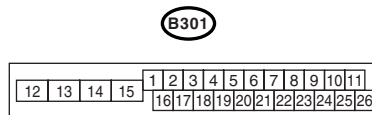
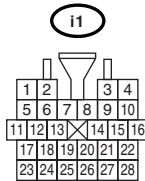
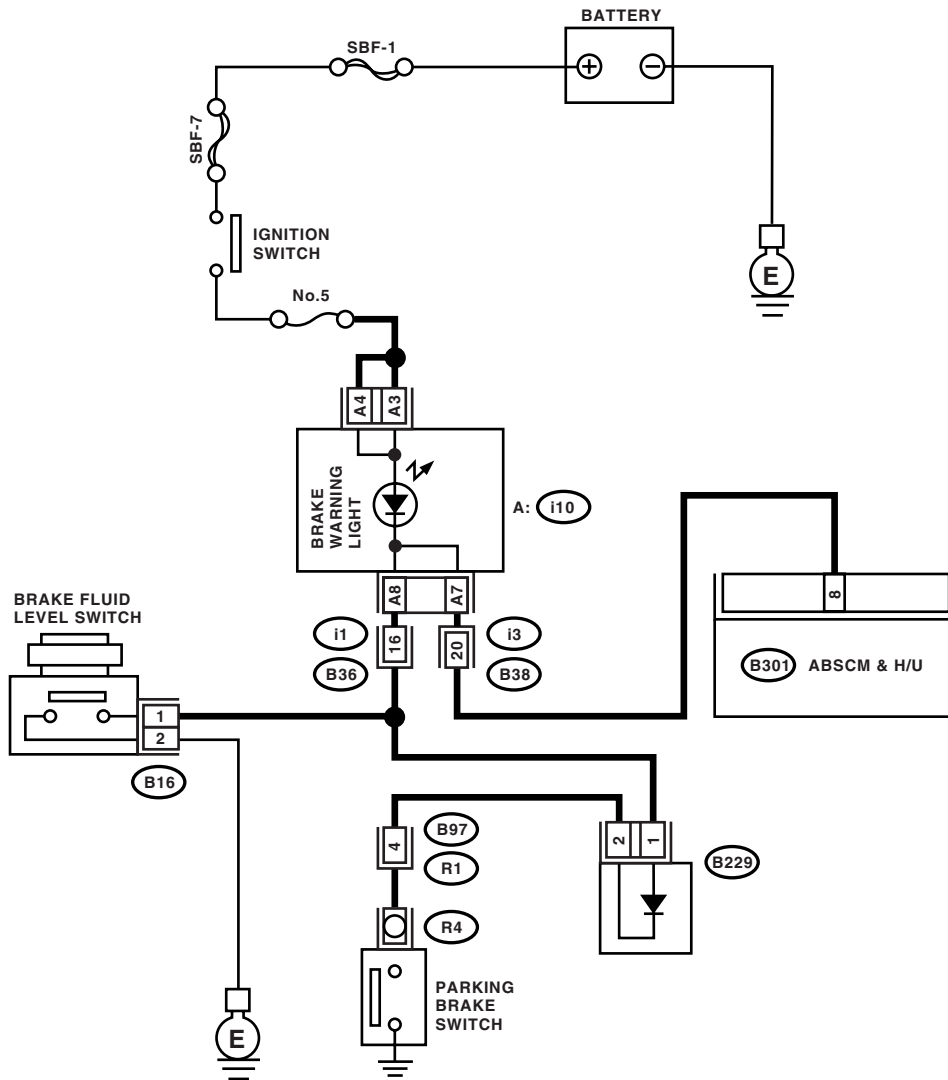
- Brake warning light circuit is shorted.
- Defective sensor/connector

TROUBLE SYMPTOM:

After starting the engine, the brake warning light is kept on though the parking lever is released.

WIRING DIAGRAM:

- LHD model

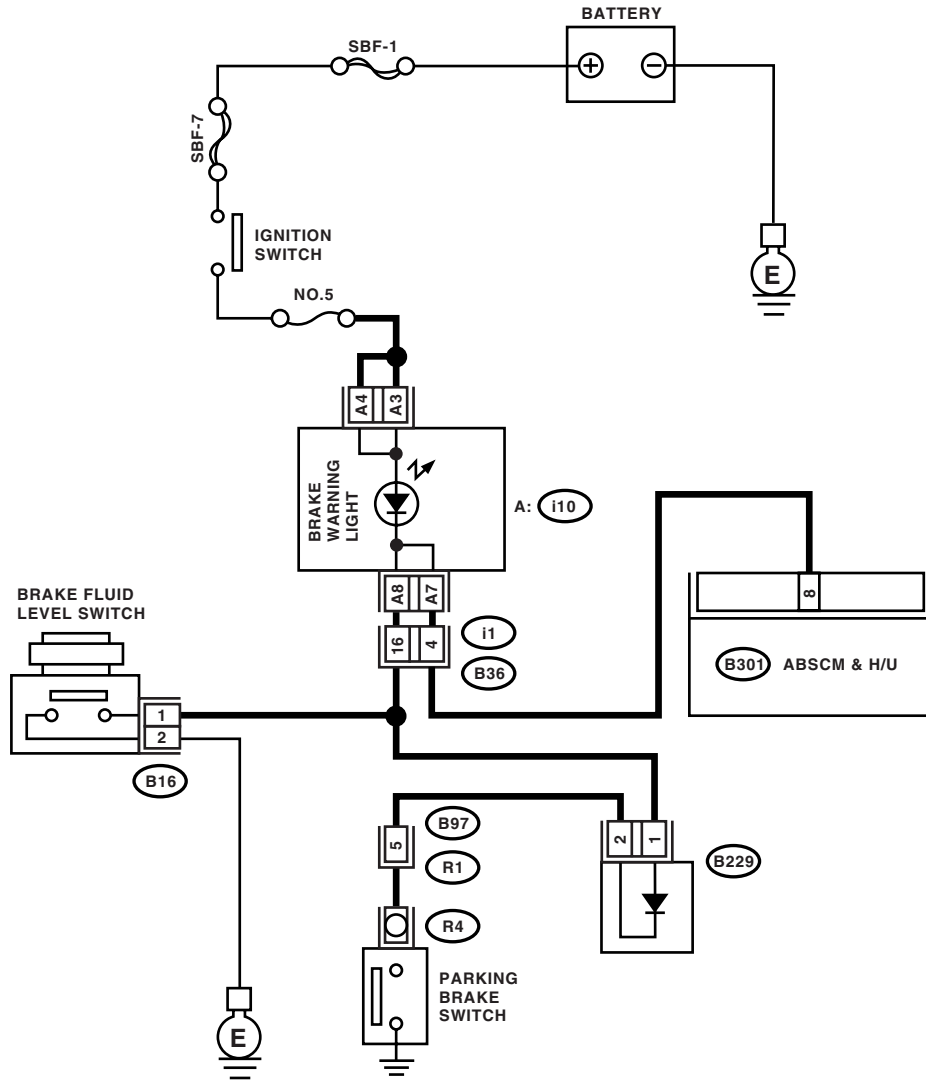


ABS00460

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

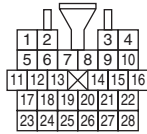
- RHD model



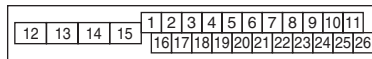
(B16)



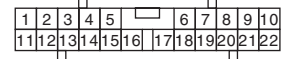
(i1)



(B301)



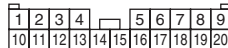
A: (i10)



(B229)



(B97)



ABS00412

ABS Warning Light / Brake Warning Light Illumination Pattern

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK INSTALLATION OF ABSCM&H/U CONNECTOR. 1) Turn the ignition switch to OFF. 2) Check that the ABSCM&H/U connector is inserted to ABSCM&H/U until the clamp locks onto it.	Is the connector correctly inserted?	Go to step 2.	Insert the ABSCM&H/U connector until the clamp locks onto it.
2 READ DTC. Read the DTC. <Ref. to ABS(diag)-25, Read Diagnostic Trouble Code (DTC).>	Is DTC displayed?	Perform the diagnosis according to DTC.	Go to step 3.
3 CHECK THE BRAKE FLUID AMOUNT. Check the amount of brake fluid in the reservoir tank of master cylinder.	Is the amount of brake fluid between the lines of MAX and MIN?	Go to step 4.	Replenish brake fluid to the specified value.
4 CHECK BRAKE FLUID LEVEL SWITCH. 1) Disconnect the level switch connector (B16) from master cylinder. 2) Measure the resistance of master cylinder terminals. Terminals No. 1 — No. 2:	Is the resistance more than 1 MΩ?	Go to step 5.	Replace the master cylinder.
5 CHECK PARKING BRAKE SWITCH. 1) Disconnect the connector (R4) from parking brake switch. 2) Release the parking brake. 3) Measure the resistance between parking brake switch terminal and chassis ground.	Is the resistance more than 1 MΩ?	Go to step 6.	Replace the parking brake switch.
6 CHECK GROUND SHORT OF HARNESS. 1) Disconnect the connector (i10) from combination meter. 2) Measure the resistance between combination meter connector and chassis ground. Connector & terminal (i10) No. 8 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 7.	Repair the harness connector between combination meter and parking brake switch.
7 CHECK HARNESS. 1) Disconnect the connector (B301) from ABSCM&H/U. 2) Disconnect the connector (i10) from the combination meter. 3) Measure the resistance between ABSCM&H/U connector and combination meter connector. Connector & terminal (B301) No. 8 — (i10) No. 7:	Is the resistance less than 0.5 Ω?	Go to step 8.	Repair harness between ABSCM&H/U and combination meter connector.
8 CHECK POOR CONTACT IN CONNECTOR. Check poor contact in all connectors.	Is there poor contact?	Repair the connector.	Go to step 9.
9 CHECK ABSCM. 1) Connect the connector to the ABSCM&H/U. 2) Turn the ignition switch to ON. 3) Measure the resistance between combination meter connector and chassis ground. Connector & terminal (i10) No. 7 — Chassis ground:	Is the resistance less than 0.5 Ω?	Check the combination meter.	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

11. List of Diagnostic Trouble Code (DTC)

A: LIST

DTC	Content of diagnosis		Display	Reference target
C0101	ABS wheel speed sensor malfunction (Broken wire, short)	Rear ABS wheel speed sensor RH	Rear Right ABS Sensor Circuit Open or Shorted Battery	<Ref. to ABS(diag)-42, DTC C0101 ABS WHEEL SPEED SENSOR RR MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0102		Rear ABS wheel speed sensor LH	Rear Left ABS Sensor Circuit Open or Shorted Battery	<Ref. to ABS(diag)-42, DTC C0102 ABS WHEEL SPEED SENSOR RL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0103		Front ABS wheel speed sensor RH	Front Right ABS Sensor Circuit Open or Shorted Battery	<Ref. to ABS(diag)-42, DTC C0103 ABS WHEEL SPEED SENSOR FR MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0104		Front ABS wheel speed sensor LH	Front Left ABS Sensor Circuit Open or Shorted Battery	<Ref. to ABS(diag)-43, DTC C0104 ABS WHEEL SPEED SENSOR FL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0105	ABS wheel speed sensor malfunction (ABS wheel speed sensor abnormal signal)	Abnormal signal of rear ABS wheel speed sensor RH	Rear Right ABS Sensor Signal	<Ref. to ABS(diag)-46, DTC C0105 ABS WHEEL SPEED SENSOR RR MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0106		Abnormal signal of rear ABS wheel speed sensor LH	Rear Left ABS Sensor Signal	<Ref. to ABS(diag)-46, DTC C0106 ABS WHEEL SPEED SENSOR RL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0107		Abnormal signal of front ABS wheel speed sensor RH	Front Right ABS Sensor Signal	<Ref. to ABS(diag)-46, DTC C0107 ABS WHEEL SPEED SENSOR FR MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0108		Abnormal signal of front ABS wheel speed sensor LH	Front Left ABS Sensor Signal	<Ref. to ABS(diag)-47, DTC C0108 ABS WHEEL SPEED SENSOR FL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0109	Power voltage malfunction		Power Supply Voltage Failure	<Ref. to ABS(diag)-65, DTC C0109 POWER VOLTAGE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0110	ABS control module malfunction		ECM	<Ref. to ABS(diag)-63, DTC C0110 ABS CONTROL MODULE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0111	Motor/motor relay on failure		Motor and Motor Relay	<Ref. to ABS(diag)-71, DTC C0111 MOTOR/MOTOR RELAY MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0114	Valve relay on failure		Valve Relay	<Ref. to ABS(diag)-69, DTC C0114 VALVE RELAY MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

List of Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

DTC	Content of diagnosis		Display	Reference target
C0115	ABS wheel speed sensor malfunction (ABS wheel speed sensor abnormal signal)	Abnormal ABS wheel speed sensor on any one of four sensors	Any One of Four ABS Sensors Signal	<Ref. to ABS(diag)-51, DTC C0115 ABS WHEEL SPEED SENSOR SIGNAL MALFUNCTION IN ONE OF FOUR WHEELS, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0116	Stop light switch signal circuit malfunction		Brake Light Switch	<Ref. to ABS(diag)-74, DTC C0116 FAULTY STOP LIGHT SWITCH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0118	Faulty G sensor output voltage		G Sensor Failure	<Ref. to ABS(diag)-76, DTC C0118 G SENSOR OUTPUT VOLTAGE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0119	Abnormal G sensor output voltage		G Sensor Signal	<Ref. to ABS(diag)-79, DTC C0119 G SENSOR OUTPUT VOLTAGE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0120	Inlet valve malfunction in hydraulic unit	Front inlet valve LH	FL Hold Valve malfunction	<Ref. to ABS(diag)-55, DTC C0120 FRONT INLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0121	Outlet valve malfunction in hydraulic unit	Front outlet valve LH	FL Pressure Reducing Valve malfunction	<Ref. to ABS(diag)-59, DTC C0121 FRONT OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0122	Inlet valve malfunction in hydraulic unit	Front inlet valve RH	FR Hold Valve malfunction	<Ref. to ABS(diag)-55, DTC C0122 FRONT INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0123	Outlet valve malfunction in hydraulic unit	Front outlet valve RH	FR Pressure Reducing Valve malfunction	<Ref. to ABS(diag)-59, DTC C0123 FRONT OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0124	Inlet valve malfunction in hydraulic unit	Rear inlet valve LH	RL Hold Valve malfunction	<Ref. to ABS(diag)-55, DTC C0124 REAR INLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0125	Outlet valve malfunction in hydraulic unit	Rear outlet valve LH	RL Pressure Reducing Valve malfunction	<Ref. to ABS(diag)-59, DTC C0125 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0126	Inlet valve malfunction in hydraulic unit	Rear inlet valve RH	RR Hold Valve malfunction	<Ref. to ABS(diag)-56, DTC C0126 REAR INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

List of Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

DTC	Content of diagnosis		Display	Reference target
C0127	Outlet valve malfunction in hydraulic unit	Rear outlet valve RH	RR Pressure Reducing Valve malfunction	<Ref. to ABS(diag)-60, DTC C0127 REAR OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C0140	CAN communication malfunction		Improper CAN communication	<Ref. to ABS(diag)-68, DTC C0140 CAN COMMUNICATION MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

12. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC C0101 ABS WHEEL SPEED SENSOR RR MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

NOTE:

For the diagnostic procedure, refer to DTC C0104. <Ref. to ABS(diag)-43, DTC C0104 ABS WHEEL SPEED SENSOR FL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

B: DTC C0102 ABS WHEEL SPEED SENSOR RL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

NOTE:

For the diagnostic procedure, refer to DTC C0104. <Ref. to ABS(diag)-43, DTC C0104 ABS WHEEL SPEED SENSOR FL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

C: DTC C0103 ABS WHEEL SPEED SENSOR FR MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

NOTE:

For the diagnostic procedure, refer to DTC C0104. <Ref. to ABS(diag)-43, DTC C0104 ABS WHEEL SPEED SENSOR FL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

D: DTC C0104 ABS WHEEL SPEED SENSOR FL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

DTC DETECTING CONDITION:

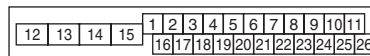
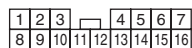
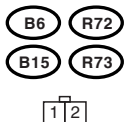
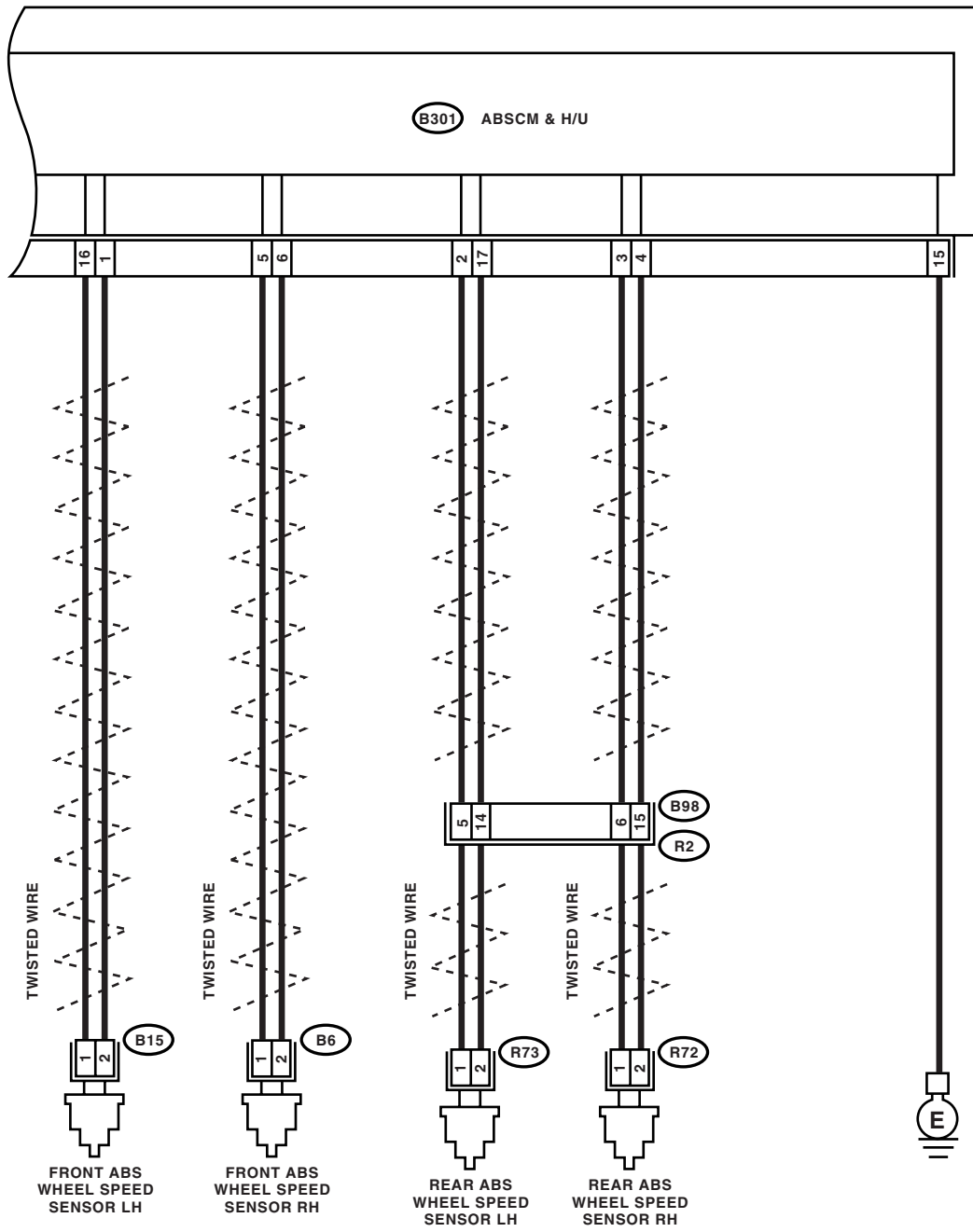
- Defective ABS wheel speed sensor (broken wire, input voltage too high)
- Defective harness connector

TROUBLE SYMPTOM:

ABS does not operate.

WIRING DIAGRAM:

- LHD model

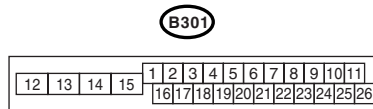
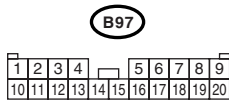
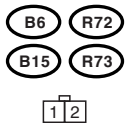
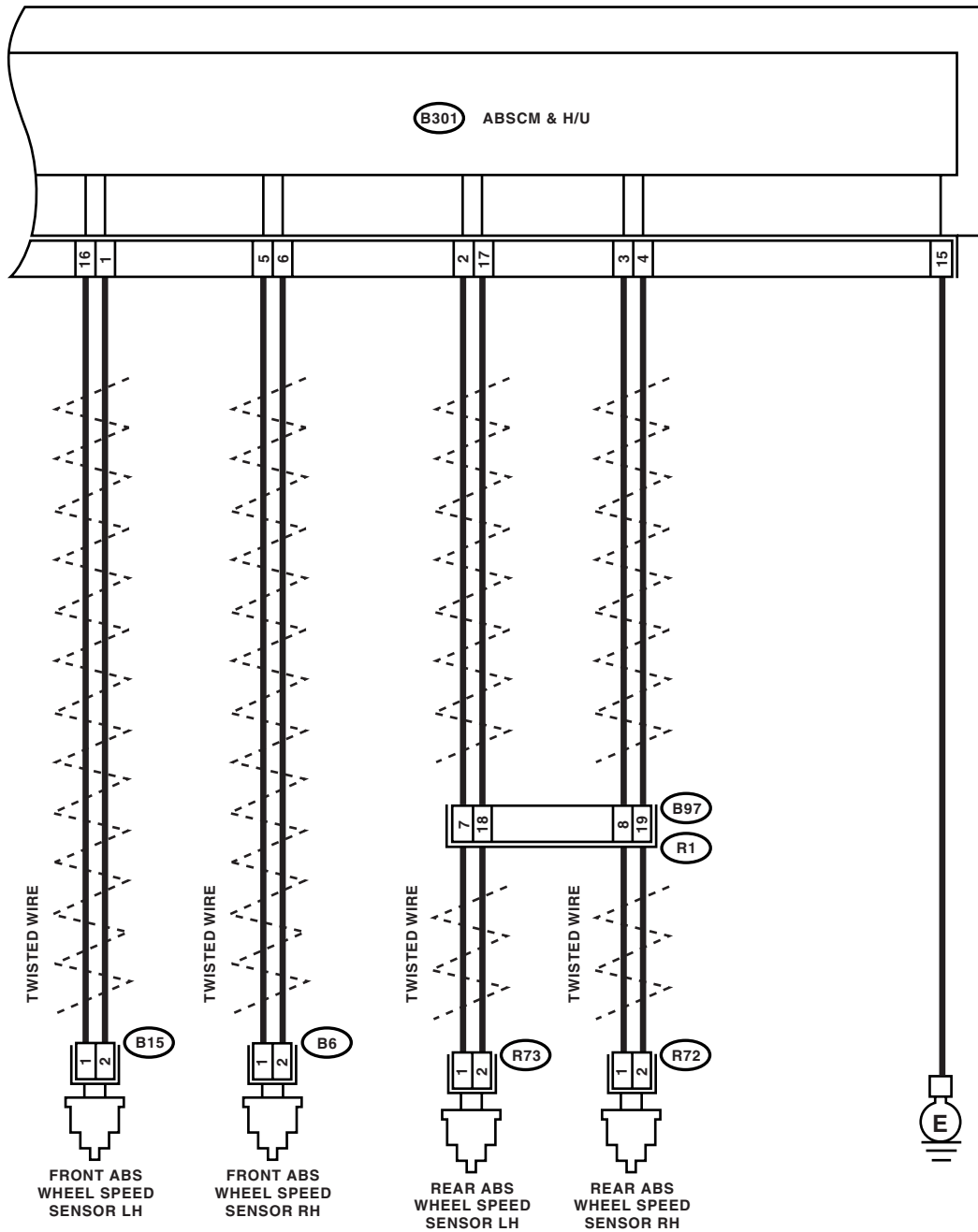


ABS00461

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

- RHD model



ABS00413

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK POOR CONTACT IN CONNECTOR. Check the poor contact between ABSCM&H/U and ABS wheel speed sensor.	Is there poor contact?	Repair the connector.	Go to step 2.
2 CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND ABS WHEEL SPEED SENSOR. 1) Disconnect the connector (B301) from ABSCM&H/U. 2) Disconnect the connector from ABS wheel speed sensor. 3) Measure the resistance between ABSCM&H/U connector and ABS wheel speed sensor connector. <i>Connector & terminal</i> <i>DTC C0101</i> (B301) No. 3 — (R72) No. 1: (B301) No. 4 — (R72) No. 2: <i>DTC C0102</i> (B301) No. 2 — (R73) No. 1: (B301) No. 17 — (R73) No. 2: <i>DTC C0103</i> (B301) No. 5 — (B6) No. 1: (B301) No. 6 — (B6) No. 2: <i>DTC C0104</i> (B301) No. 16 — (B15) No. 1: (B301) No. 1 — (B15) No. 2:	Is the resistance less than 0.5 Ω?	Go to step 3.	Repair the harness connector between ABSCM&H/U and ABS wheel speed sensor.
3 CHECK GROUND SHORT OF HARNESS. Measure the resistance between ABSCM&H/U connector and chassis ground. <i>Connector & terminal</i> <i>DTC C0101</i> (B301) No. 4 — Chassis ground: <i>DTC C0102</i> (B301) No. 17 — Chassis ground: <i>DTC C0103</i> (B301) No. 6 — Chassis ground: <i>DTC C0104</i> (B301) No. 1 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair the harness connector between ABSCM&H/U and ABS wheel speed sensor.
4 CHECK ABS WHEEL SPEED SENSOR POWER SUPPLY CIRCUIT. 1) Connect the ABSCM&H/U connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between ABS wheel speed sensor connector and chassis ground. <i>Connector & terminal</i> <i>DTC C0101</i> (R72) No. 1 — Chassis ground (-): <i>DTC C0102</i> (R73) No. 1 — Chassis ground (-): <i>DTC C0103</i> (B6) No. 1 (+) — Chassis ground (-): <i>DTC C0104</i> (B15) No. 1 (+) — Chassis ground (-):	Is the voltage 5 — 16 V?	Go to step 6.	Go to step 5.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
5 CHECK ABSCM&H/U POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the ABSCM&H/U connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 18 (+) — (B301) No. 15 (-):	Is the voltage 10 — 15 V?	Go to step 7.	Check the generator, battery, ABSCM&H/U power circuit.
6 CHECK ABS WHEEL SPEED SENSOR SIGNAL. 1) Install the ABS wheel speed sensor. 2) Prepare an oscilloscope. 3) Check ABS wheel speed sensor. <Ref. to ABS-13, ABS WHEEL SPEED SENSOR, INSPECTION, Front ABS Wheel Speed Sensor.>	Is the pattern the same waveform as shown in the figure?	Go to step 7.	Replace the speed sensor.
7 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. <Ref. to ABS(diag)-17, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.> 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 8.
8 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Perform the diagnosis according to DTC.	It results from a temporary noise interference.

E: DTC C0105 ABS WHEEL SPEED SENSOR RR MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

NOTE:

For the diagnostic procedure, refer to DTC C0108. <Ref. to ABS(diag)-47, DTC C0108 ABS WHEEL SPEED SENSOR FL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

F: DTC C0106 ABS WHEEL SPEED SENSOR RL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

NOTE:

For the diagnostic procedure, refer to DTC C0108. <Ref. to ABS(diag)-47, DTC C0108 ABS WHEEL SPEED SENSOR FL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

G: DTC C0107 ABS WHEEL SPEED SENSOR FR MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

NOTE:

For the diagnostic procedure, refer to DTC C0108. <Ref. to ABS(diag)-47, DTC C0108 ABS WHEEL SPEED SENSOR FL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

H: DTC C0108 ABS WHEEL SPEED SENSOR FL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

DTC DETECTING CONDITION:

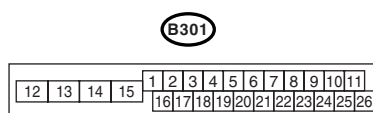
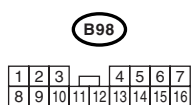
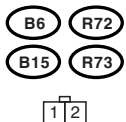
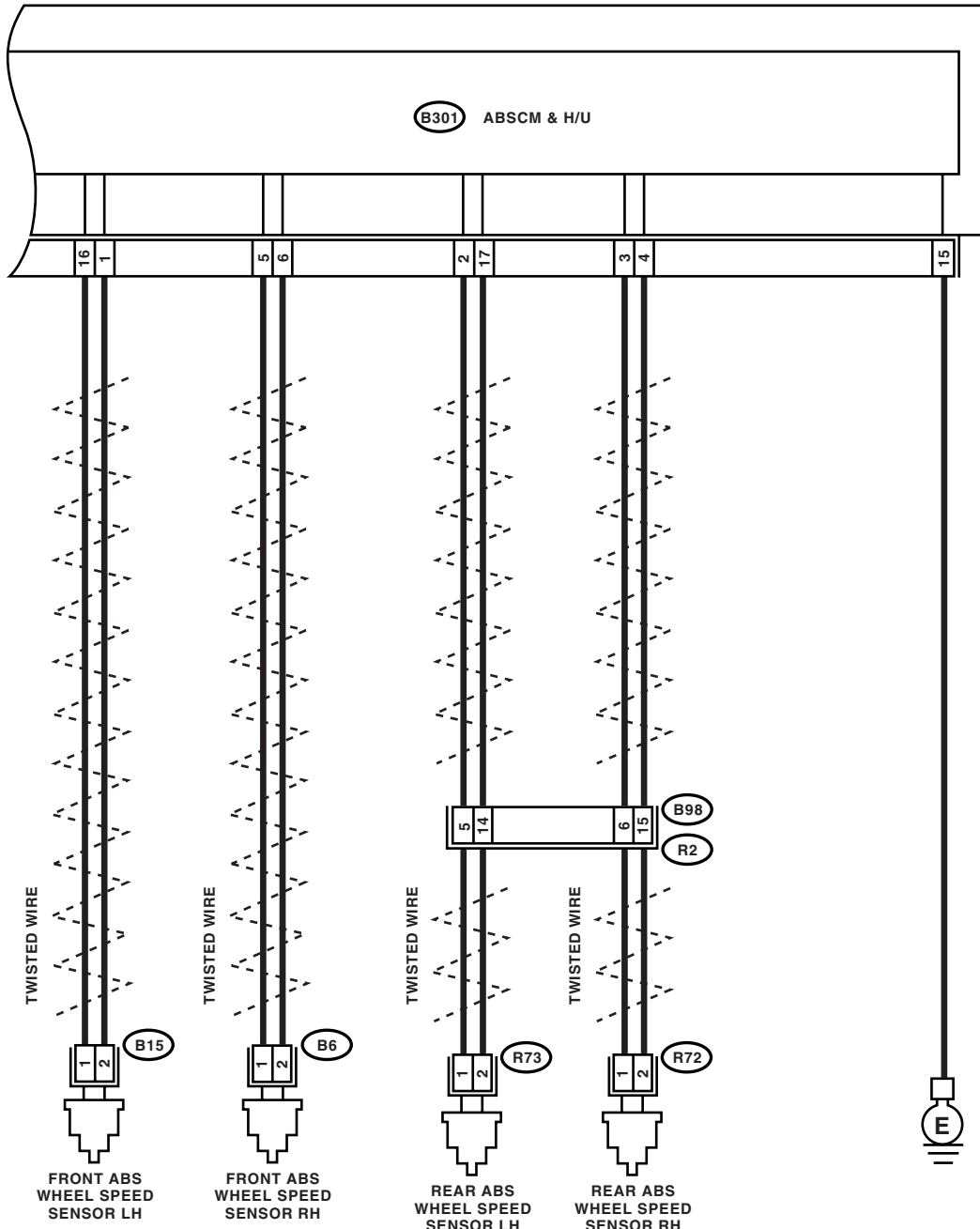
- Defective ABS wheel speed sensor signal (noise, abnormal signal, etc.)
- Defective harness connector

TROUBLE SYMPTOM:

ABS does not operate.

WIRING DIAGRAM:

- LHD model

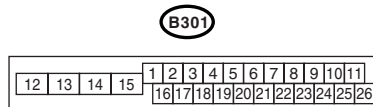
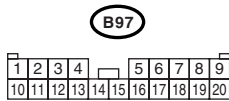
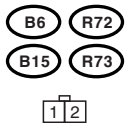
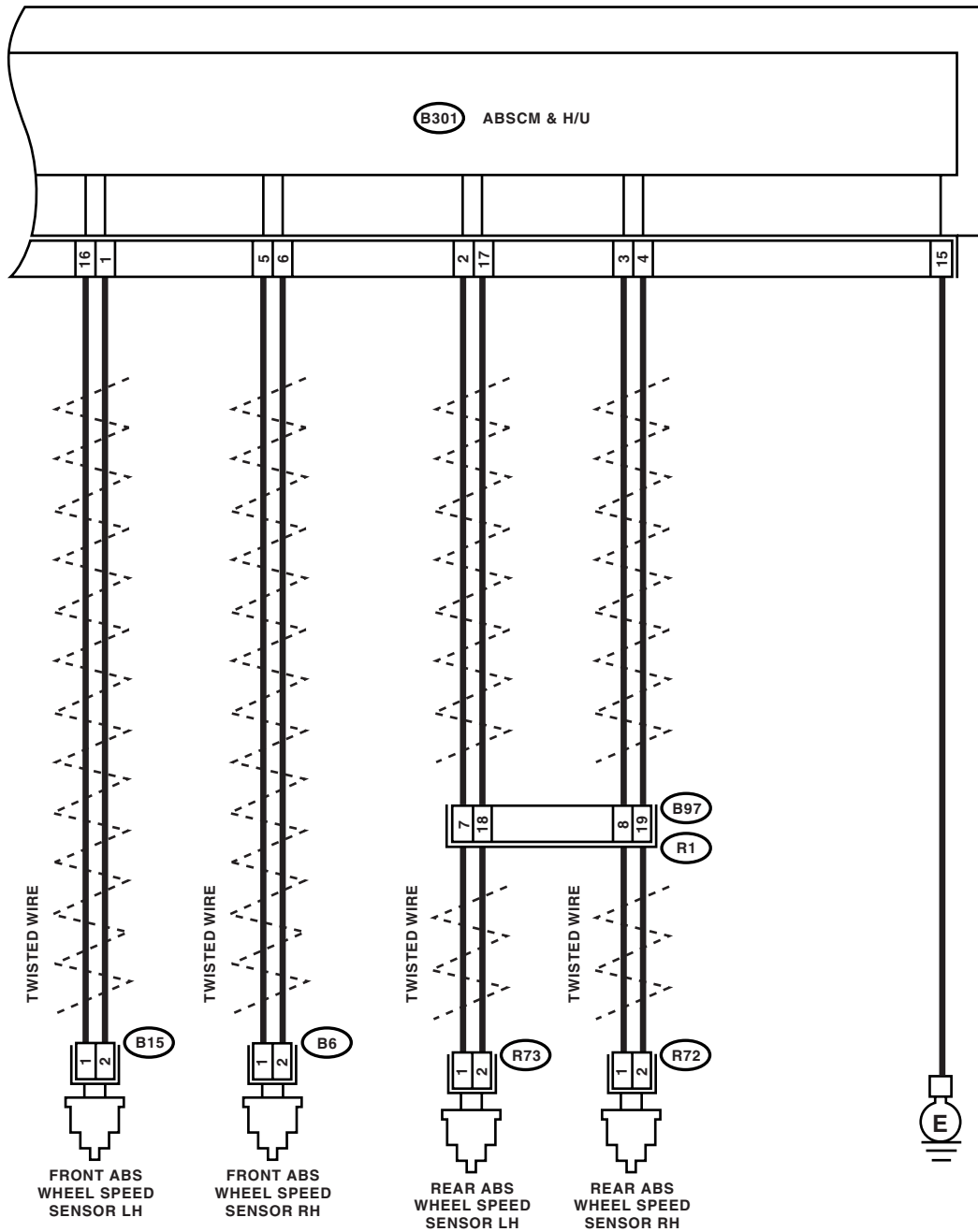


ABS00461

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

- RHD model



ABS00413

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No	
1	CHECK OUTPUT OF ABS WHEEL SPEED SENSOR USING SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the ABS wheel speed sensor output corresponding to the faulty wheel in Subaru Select Monitor data display mode.	Does the speed indicated on the display change in response to the speedometer reading during acceleration/deceleration when the steering wheel is in the straight-ahead position?	Go to step 2.	Go to step 7.
2	CHECK POOR CONTACT IN CONNECTOR. Turn the ignition switch to OFF.	Is there poor contact in connectors between ABSCM&H/U and ABS wheel speed sensor?	Repair the connector.	Go to step 3.
3	CHECK SOURCES OF SIGNAL NOISE. Make sure the car phone, radio wave device like radio and etc., electric components are installed correctly.	Is the car phone, radio wave device like radio and etc., electric components installed correctly?	Go to step 4.	Install the radio wave device and electric components properly.
4	CHECK SOURCES OF SIGNAL NOISE. Check that the noise sources are (such as an antenna) installed near the sensor harness.	Is the noise sources installed?	Install the noise sources apart from the sensor harness.	Go to step 5.
5	CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. <Ref. to ABS(diag)-17, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.> 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 6.
6	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Perform the diagnosis according to DTC.	It results from a temporary noise interference.
7	CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.	Is the ABS wheel speed sensor installation bolt tightened 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)?	Go to step 8.	Tighten the ABS wheel speed sensor installation bolts.
8	CHECK ABS WHEEL SPEED SENSOR SIGNAL. 1) Install the ABS wheel speed sensor. 2) Prepare an oscilloscope. 3) Check ABS wheel speed sensor. <Ref. to ABS-13, ABS WHEEL SPEED SENSOR, INSPECTION, Front ABS Wheel Speed Sensor.>	Does the oscilloscope indicate the waveform pattern like shown in the figure when the tire is slowly turned? Does the oscilloscope indication repeat the waveform pattern like shown in the figure when the tire is slowly turned in equal speed for more one rotation?	Go to step 10.	Go to step 9.
9	CHECK ABS WHEEL SPEED SENSOR AND MAGNETIC ENCODER.	Is there foreign particles, breakage or damage in the pole piece of ABS wheel speed sensor or magnetic encoder?	Remove dirt completely. Replace the ABS wheel speed sensor or magnetic encoder as a unit with hub unit bearing when it is broken or damaged.	Go to step 10.
10	CHECK SOURCES OF SIGNAL NOISE. Make sure the car phone, radio wave device like CB and etc., electric components are installed correctly.	Is the car phone, radio wave device like radio and etc., electric components installed correctly?	Go to step 11.	Install the radio wave device and electric components properly.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
11 CHECK SOURCES OF SIGNAL NOISE. Check if the noise sources are (such as an antenna) installed near the sensor harness.	Are noise sources installed?	Go to step 12 .	Install the noise sources apart from the sensor harness.
12 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. <Ref. to ABS(diag)-17, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.> 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 13 .
13 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Perform the diagnosis according to DTC.	It results from a temporary noise interference. NOTE: Though ABS warning light remains to illuminate at this time, it is normal. Drive the vehicle at more than 12 km/h (7 MPH) in order to make ABS warning light go off. Be sure to drive the vehicle and check the warning light goes off.

I: DTC C0115 ABS WHEEL SPEED SENSOR SIGNAL MALFUNCTION IN ONE OF FOUR WHEELS

DTC DETECTING CONDITION:

- Defective ABS wheel speed sensor signal (noise, abnormal signal, etc.)
- Defective magnetic encoder
- When a wheel is turned freely for a long time

TROUBLE SYMPTOM:

- ABS does not operate.
- EBD does not operate.

NOTE:

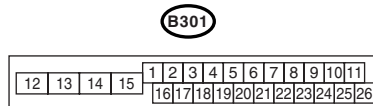
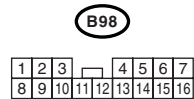
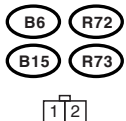
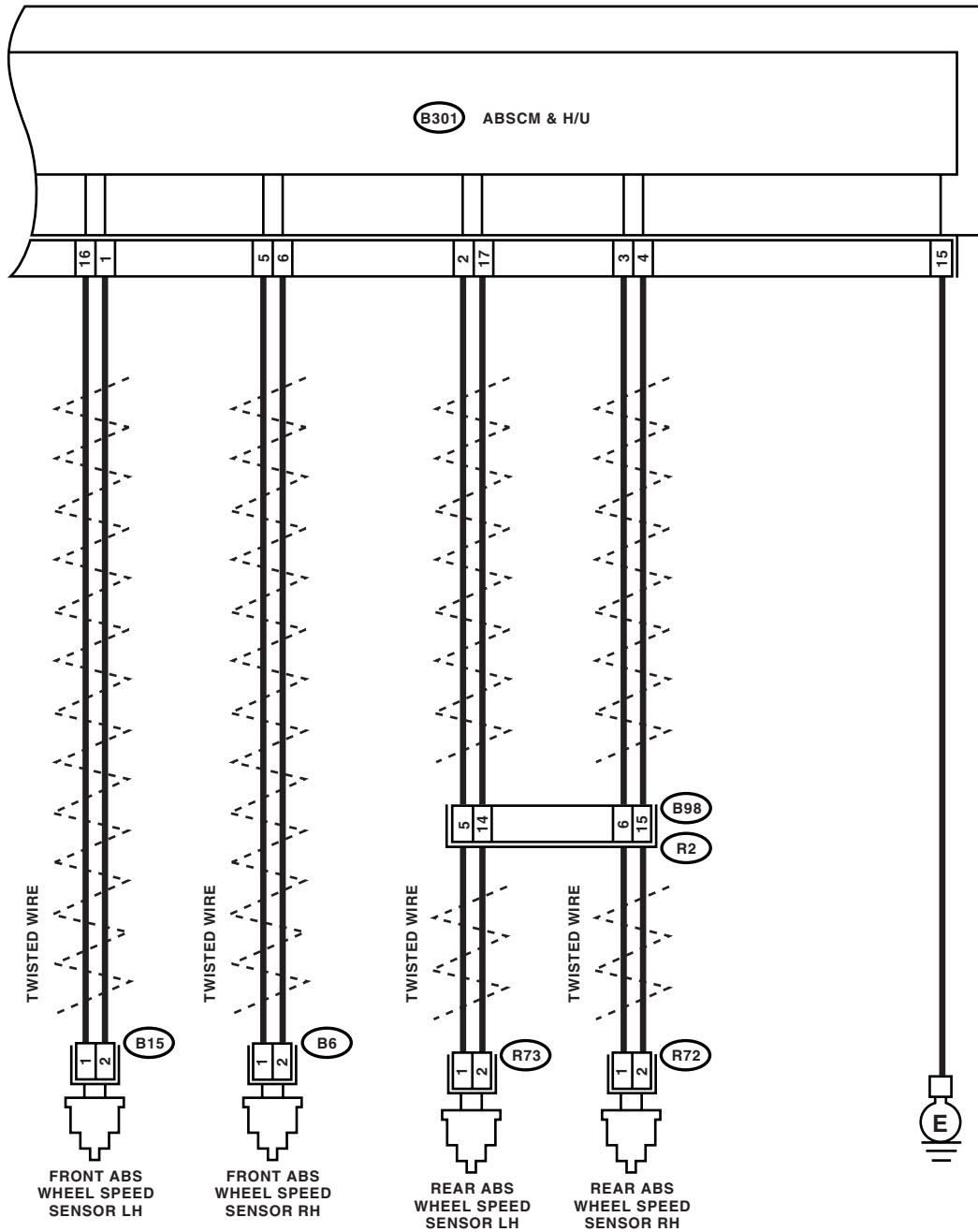
Brake warning light comes on as well as ABS warning light.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

WIRING DIAGRAM:

- LHD model

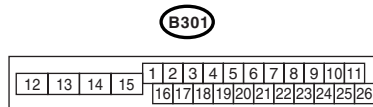
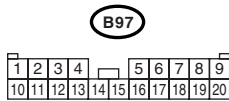
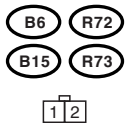
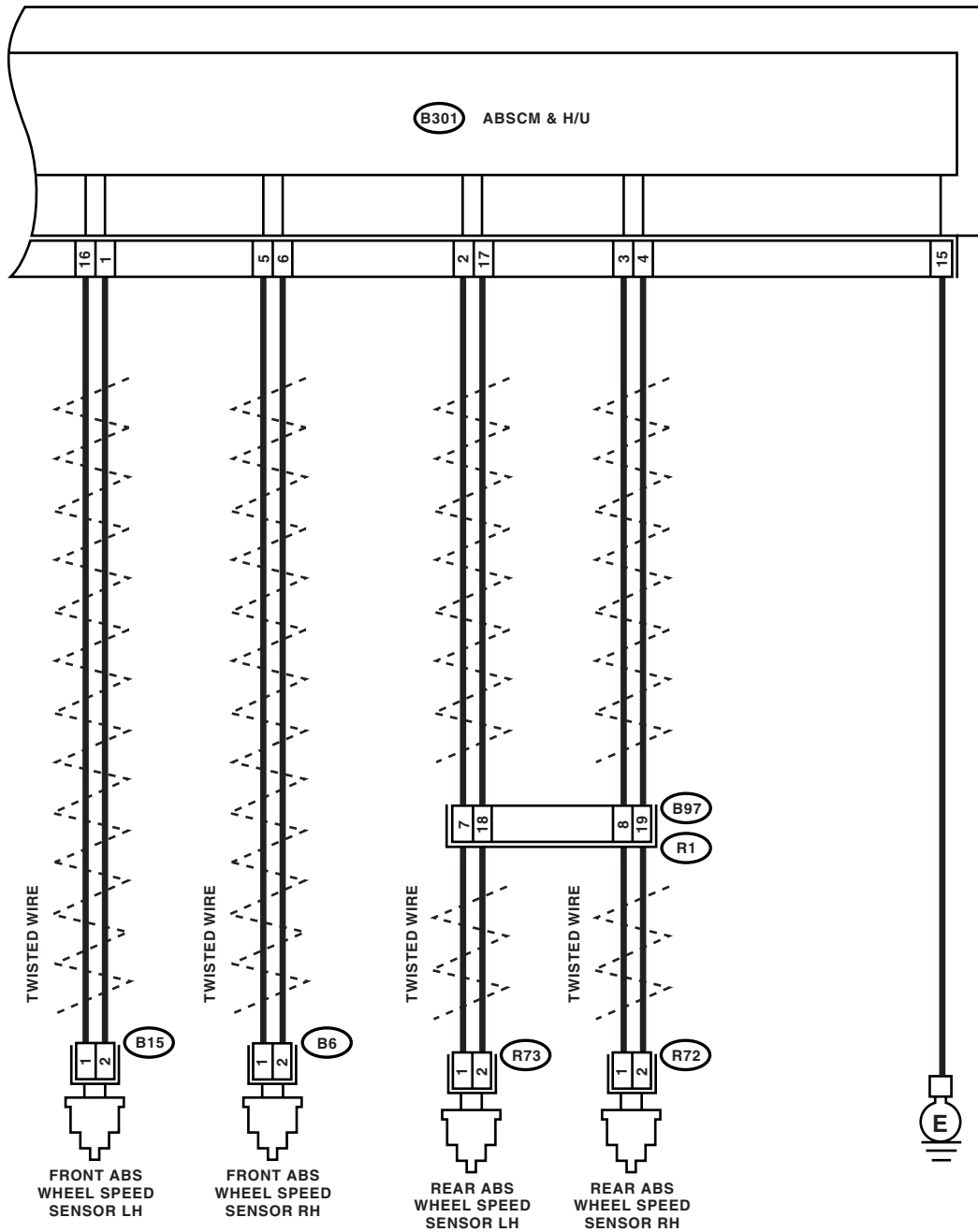


ABS00461

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

- RHD model



ABS00413

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 WHETHER A WHEEL TURNED FREELY OR NOT. Check if the wheels have been turned freely for more than one minute, such as when the vehicle is jacked-up, under full-lock cornering or when the wheels are not in contact with road surface.	Did the wheels turn freely?	ABS is normal. Erase the memory. NOTE: When the wheels turn freely for a long time, such as when the vehicle is towed or jacked-up, or when steering wheel is continuously turned all the way, this diagnostic trouble code may sometimes occur.	Go to step 2.
2 CHECK TIRE SPECIFICATIONS. Turn the ignition switch to OFF.	Are the tire specifications correct?	Go to step 3.	Replace the tire.
3 CHECK WEAR OF TIRE.	Is the tire worn excessively?	Replace the tire.	Go to step 4.
4 CHECK TIRE INFLATION PRESSURE.	Is the tire pressure correct?	Go to step 5.	Adjust the tire pressure.
5 CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.	Is the ABS wheel speed sensor installation bolt tightened 7.5 N·m (0.76 kgf-m, 5.5 ft-lb)? (four of them)	Go to step 6.	Tighten the ABS wheel speed sensor installation bolts.
6 CHECK ABS WHEEL SPEED SENSOR SIGNAL. 1) Install the ABS wheel speed sensor. 2) Prepare an oscilloscope. 3) Check ABS wheel speed sensor. <Ref. to ABS-13, ABS WHEEL SPEED SENSOR, INSPECTION, Front ABS Wheel Speed Sensor.>	Does the oscilloscope indicate the waveform pattern like shown in the figure when the tire is slowly turned? Does the oscilloscope indication repeat the waveform pattern like shown in the figure when the tire is slowly turned in equal speed for more one rotation?	Go to step 8.	Go to step 7.
7 CHECK ABS WHEEL SPEED SENSOR AND MAGNETIC ENCODER.	Is there foreign particles, breakage or damage in the pole piece of ABS wheel speed sensor or magnetic encoder?	Remove dirt completely. Replace the ABS wheel speed sensor or magnetic encoder as a unit with hub unit bearing when it is broken or damaged.	Go to step 8.
8 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. <Ref. to ABS(diag)-17, CLEAR MEMORY MODE, OPERATION, Subaru Select Monitor.> 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 9.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
9 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Perform the diagnosis according to DTC.	It results from a temporary noise interference. NOTE: Though ABS warning light remains to illuminate at this time, it is normal. Drive the vehicle at more than 12 km/h (7 MPH) in order to make ABS warning light go off. Be sure to drive the vehicle and check the warning light goes off.

J: DTC C0120 FRONT INLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

For the diagnostic procedure, refer to DTC C0126. <Ref. to ABS(diag)-56, DTC C0126 REAR INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC C0122 FRONT INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

For the diagnostic procedure, refer to DTC C0126. <Ref. to ABS(diag)-56, DTC C0126 REAR INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

L: DTC C0124 REAR INLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

For the diagnostic procedure, refer to DTC C0126. <Ref. to ABS(diag)-56, DTC C0126 REAR INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

M: DTC C0126 REAR INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

DTC DETECTING CONDITION:

- Defective harness connector
- Defective inlet solenoid valve in ABSCM&H/U

TROUBLE SYMPTOM:

- ABS does not operate.
- EBD does not operate.

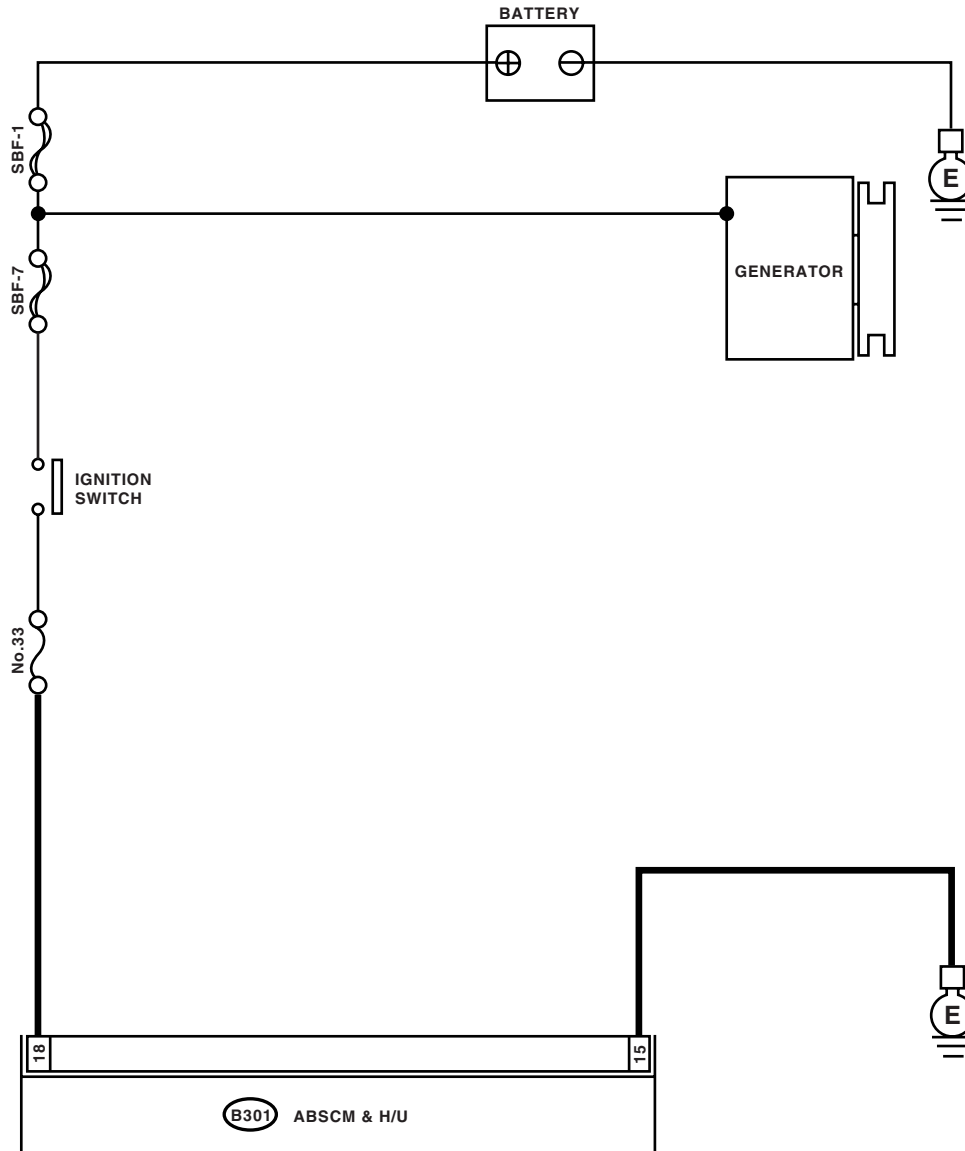
NOTE:

Brake warning light comes on as well as ABS warning light.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

WIRING DIAGRAM:



(B301)

12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
				16	17	18	19	20	21	22	23	24	25	26

ABS00414

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Run the engine at idle. 4) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 18 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 2.	Repair the ABSCM&H/U power circuit.
2 CHECK GROUND CIRCUIT OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 3.	Repair the ABSCM&H/U ground harness.
3 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in connector between generator, battery and ABSCM&H/U?	Repair the connector.	Go to step 4.
4 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 5.
5 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

N: DTC C0121 FRONT OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

For the diagnostic procedure, refer to DTC C0127. <Ref. to ABS(diag)-60, DTC C0127 REAR OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

O: DTC C0123 FRONT OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

For the diagnostic procedure, refer to DTC C0127. <Ref. to ABS(diag)-60, DTC C0127 REAR OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

P: DTC C0125 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

For the diagnostic procedure, refer to DTC C0127. <Ref. to ABS(diag)-60, DTC C0127 REAR OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Q: DTC C0127 REAR OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

DTC DETECTING CONDITION:

- Defective harness connector
- Defective outlet solenoid valve in ABSCM&H/U

TROUBLE SYMPTOM:

- ABS does not operate.
- EBD does not operate.

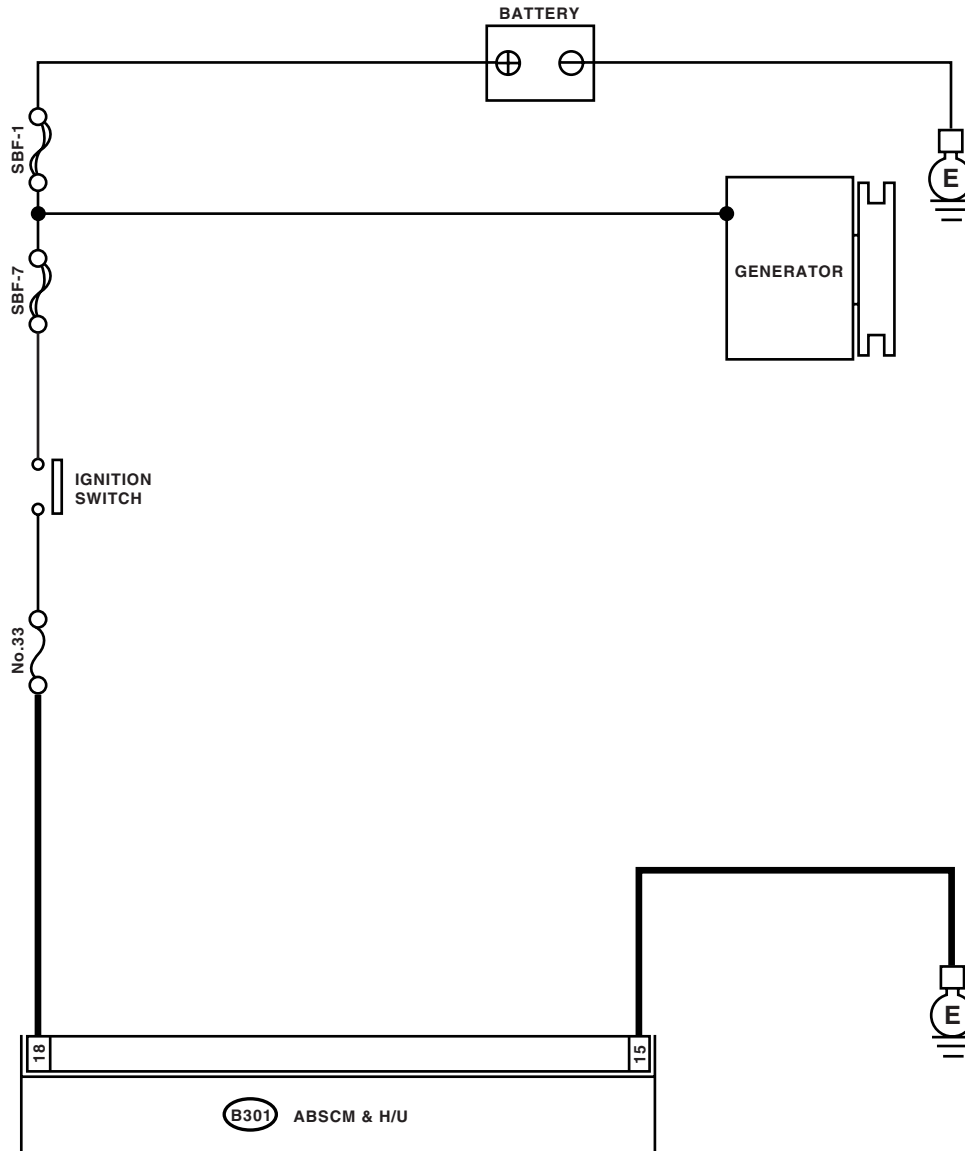
NOTE:

Brake warning light comes on as well as ABS warning light.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

WIRING DIAGRAM:



B301

12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
				16	17	18	19	20	21	22	23	24	25	26

ABS00414

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Run the engine at idle. 4) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 18 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 2.	Repair the ABSCM&H/U power circuit.
2 CHECK GROUND CIRCUIT OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 3.	Repair the ABSCM&H/U ground harness.
3 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in connector between generator, battery and ABSCM&H/U?	Repair the connector.	Go to step 4.
4 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 5.
5 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

R: DTC C0110 ABS CONTROL MODULE MALFUNCTION

DTC DETECTING CONDITION:

Defective ABSCM&H/U

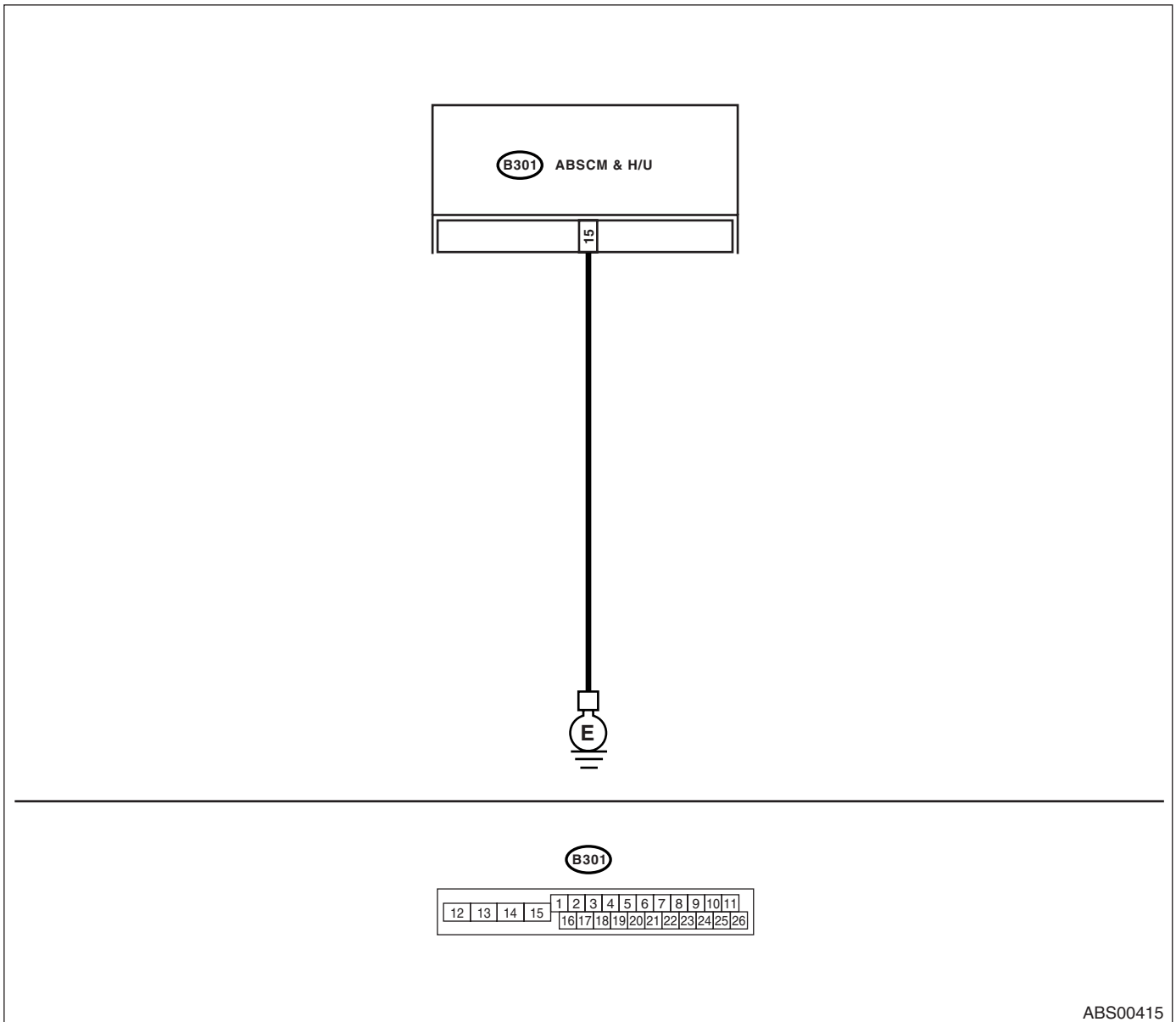
TROUBLE SYMPTOM:

- ABS does not operate.
- EBD does not operate.

NOTE:

Brake warning light comes on as well as ABS warning light.

WIRING DIAGRAM:



ABS00415

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK GROUND CIRCUIT OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Measure the resistance between ABSCM&H/U and chassis ground. <i>Connector & terminal</i> <i>(B301) No. 15 — Chassis ground:</i>	Is the resistance less than 0.5 Ω ?	Go to step 2.	Repair the ABSCM&H/U ground harness.
2 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in connectors between battery, ignition switch and ABSCM&H/U?	Repair the connector.	Go to step 3.
3 CHECK SOURCES OF SIGNAL NOISE.	Is the car telephone or the radio properly installed?	Go to step 4.	Properly install the car telephone or the wireless transmitter.
4 CHECK SOURCES OF SIGNAL NOISE.	Are noise sources (such as an antenna) installed near the sensor harness?	Install the noise sources apart from the sensor harness.	Go to step 5.
5 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 6.
6 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

S: DTC C0109 POWER VOLTAGE MALFUNCTION

DTC DETECTING CONDITION:

Power voltage of the ABSCM&H/U is too low or too high.

TROUBLE SYMPTOM:

- ABS does not operate.
- EBD may not operate.

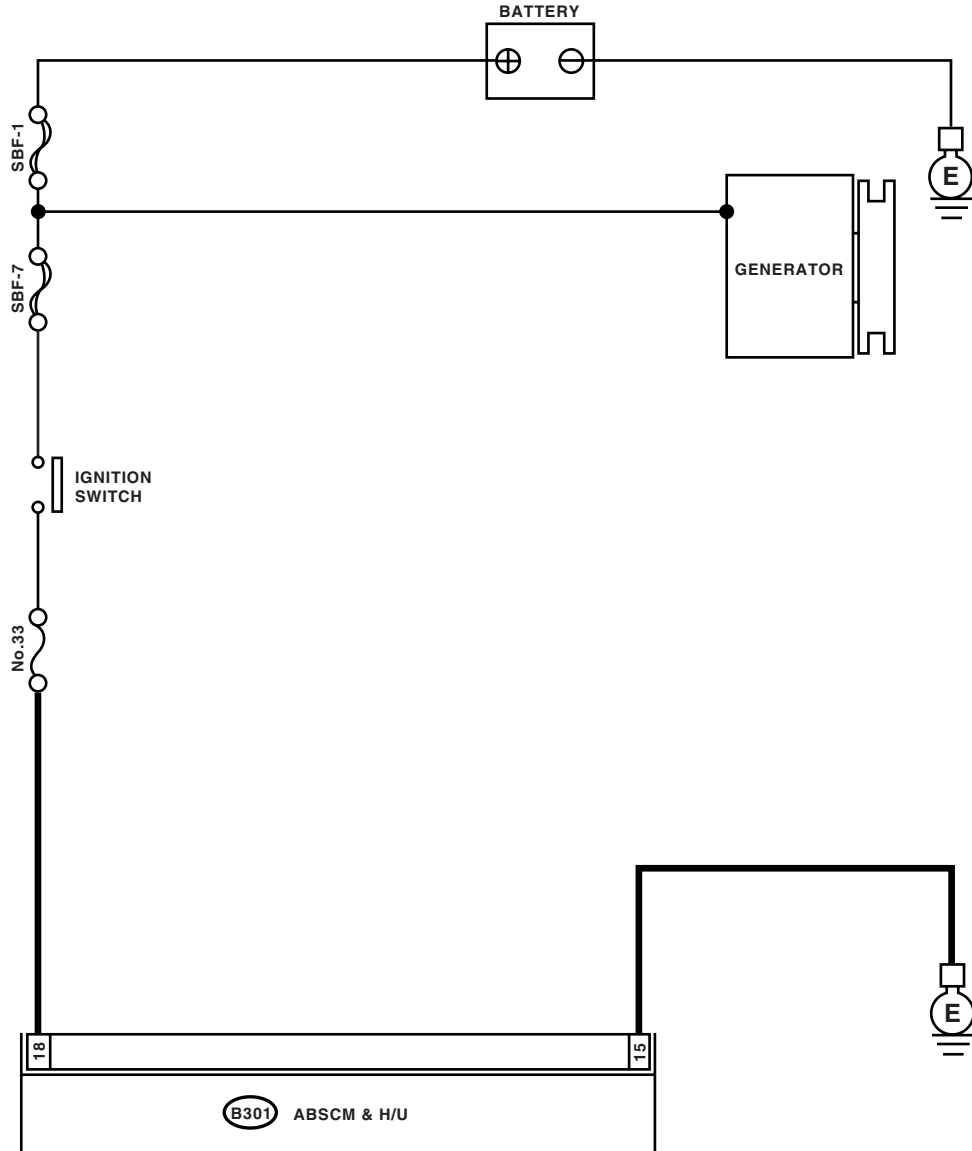
NOTE:

If EBD does not operate, brake warning light comes on as well as ABS warning light. Both warning lights go off if voltage returns.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

WIRING DIAGRAM:



B301

12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
				16	17	18	19	20	21	22	23	24	25	26

ABS00414

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK GENERATOR. 1) Start the engine. 2) Run the engine at idle after warming up. 3) Measure the voltage between generator B terminal and chassis ground. Terminals Generator B terminal (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 2.	Repair the generator.
2 CHECK BATTERY TERMINAL. Turn the ignition switch to OFF.	Are the positive and negative battery terminals clamped tightly?	Go to step 3.	Tighten the terminal.
3 CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Disconnect the connector from ABSCM&H/U. 2) Run the engine at idle. 3) Operate the devices such as headlights, air conditioner, defogger, etc. which produce much electrical loading. 4) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 18 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 4.	Repair the ABSCM&H/U power circuit.
4 CHECK GROUND CIRCUIT OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 5.	Repair the ABSCM&H/U ground harness.
5 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in connector between generator, battery and ABSCM&H/U?	Repair the connector.	Go to step 6.
6 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 7.
7 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

T: DTC C0140 CAN COMMUNICATION MALFUNCTION

DTC DETECTING CONDITION:

Defective CAN communication

TROUBLE SYMPTOM:

Possibly the vehicle speed cannot output on CAN.

	Step	Check	Yes	No
1	CHECK LAN SYSTEM. Perform the diagnosis for LAN system. <Ref. to LAN(diag)-24, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is there any fault in LAN system?	Repair it according to DTC of LAN system.	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

U: DTC C0114 VALVE RELAY MALFUNCTION

DTC DETECTING CONDITION:

Defective valve relay

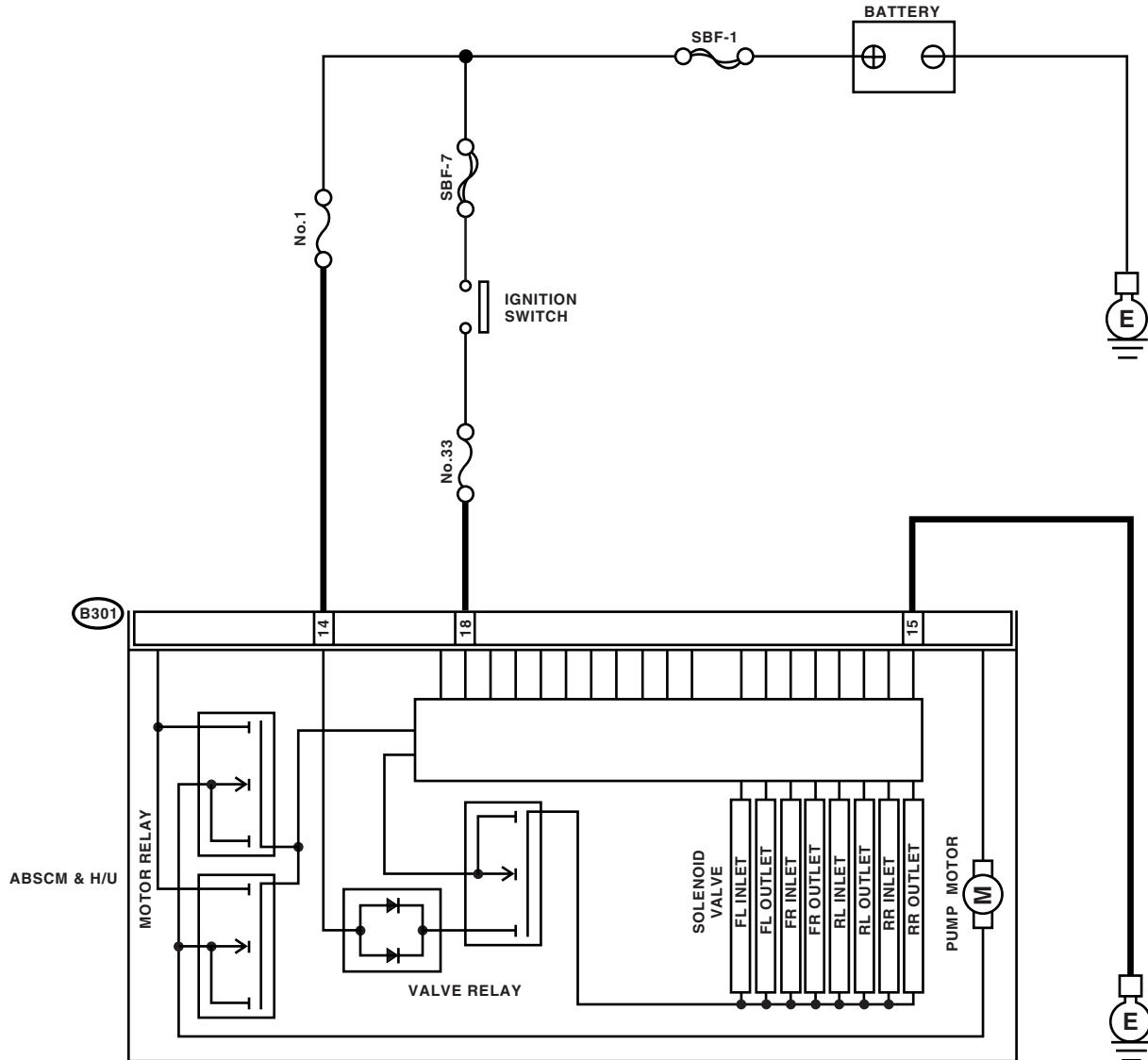
TROUBLE SYMPTOM:

- ABS does not operate.
- EBD does not operate depending on the trouble contents.

NOTE:

Brake warning light comes on as well as ABS warning light when EBD does not operate.

WIRING DIAGRAM:



(B301)

12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
16	17	18	19	20	21	22	23	24	25	26				

ABS00416

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Run the engine at idle. 4) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 18 (+) — Chassis ground (-): (B301) No. 14 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 2.	Repair the harness connector between battery and ABSCM&H/U.
2 CHECK GROUND CIRCUIT OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 3.	Repair the ABSCM&H/U ground harness.
3 CHECK VALVE RELAY IN ABSCM&H/U. Measure the resistance between ABSCM&H/U terminals. Terminals No. 14 — No. 15:	Is the resistance more than 1 M Ω ?	Go to step 4.	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
4 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in connector between generator, battery and ABSCM&H/U?	Repair the connector.	Go to step 5.
5 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 6.
6 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

V: DTC C0111 MOTOR/MOTOR RELAY MALFUNCTION

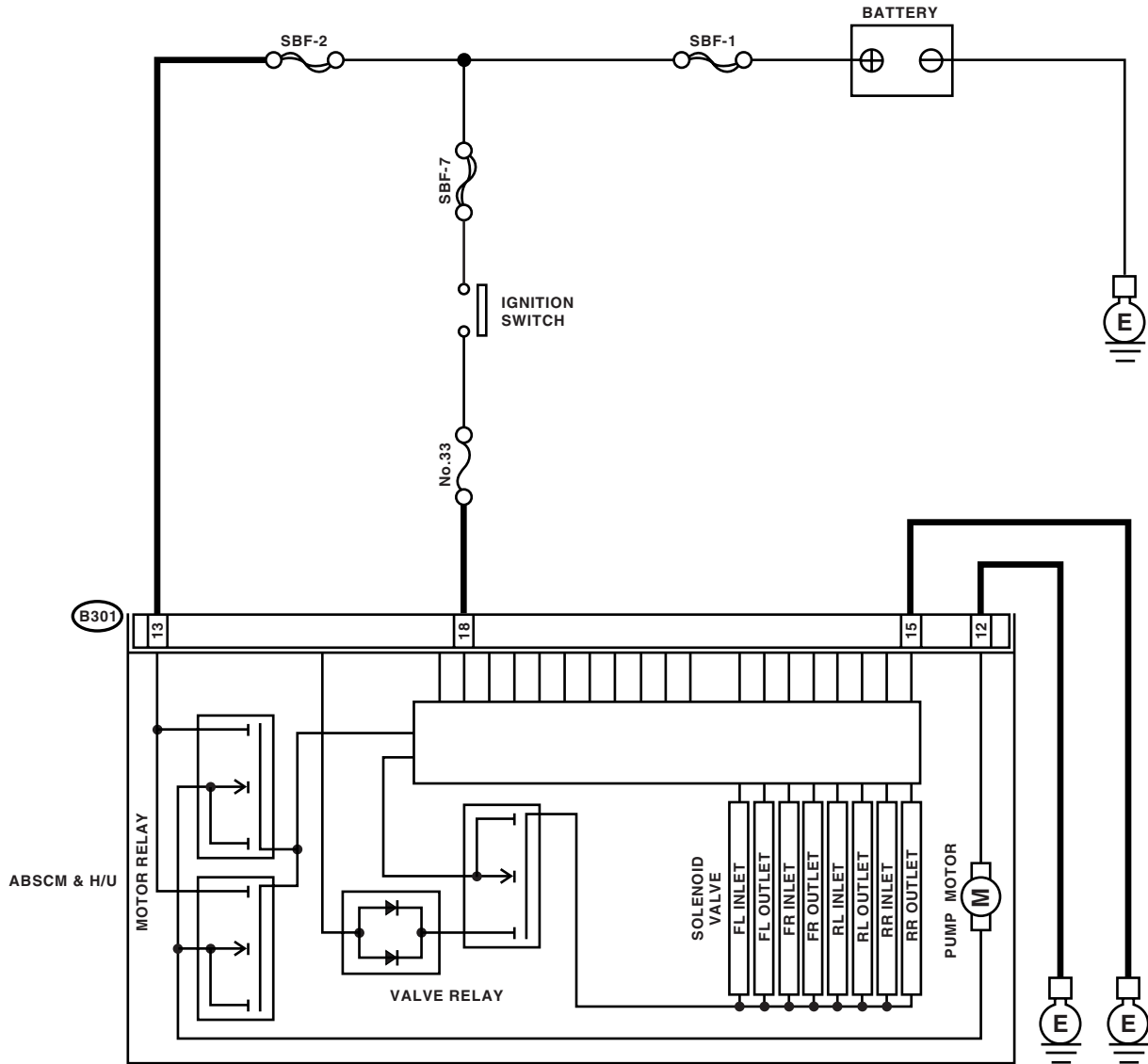
DTC DETECTING CONDITION:

- Defective motor
- Defective motor relay
- Defective harness connector

TROUBLE SYMPTOM:

ABS does not operate.

WIRING DIAGRAM:



(B301)

12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
				16	17	18	19	20	21	22	23	24	25	26

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Turn the ignition switch to ON. 4) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 13 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 2.	Repair the harness connector between battery and ABSCM&H/U.
2 CHECK GROUND CIRCUIT OF MOTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 12 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 3.	Repair the ABSCM&H/U ground harness.
3 CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Run the engine at idle. 2) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 18 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 4.	Repair the harness connector between battery, ignition switch and ABSCM&H/U.
4 CHECK GROUND CIRCUIT OF ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 5.	Repair the ABSCM&H/U ground harness.
5 CHECK MOTOR OPERATION. Operate the ABS sequence control. <Ref. to ABS-10, ABS Sequence Control.> NOTE: Use the diagnosis connector to operate the ABS sequence control.	Can the motor revolution noise (buzz) be heard when carrying out the ABS sequence control?	Go to step 6.	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
6 CHECK POOR CONTACT IN CONNECTOR. Turn the ignition switch to OFF.	Is there poor contact in connector between generator, battery and ABSCM&H/U?	Repair the connector.	Go to step 7.
7 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 8.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
8 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs. NOTE: Though ABS warning light remains to illuminate at this time, it is normal. Drive the vehicle at more than 12 km/h (7 MPH) in order to make ABS warning light go off. Be sure to drive the vehicle and check the warning light goes off.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

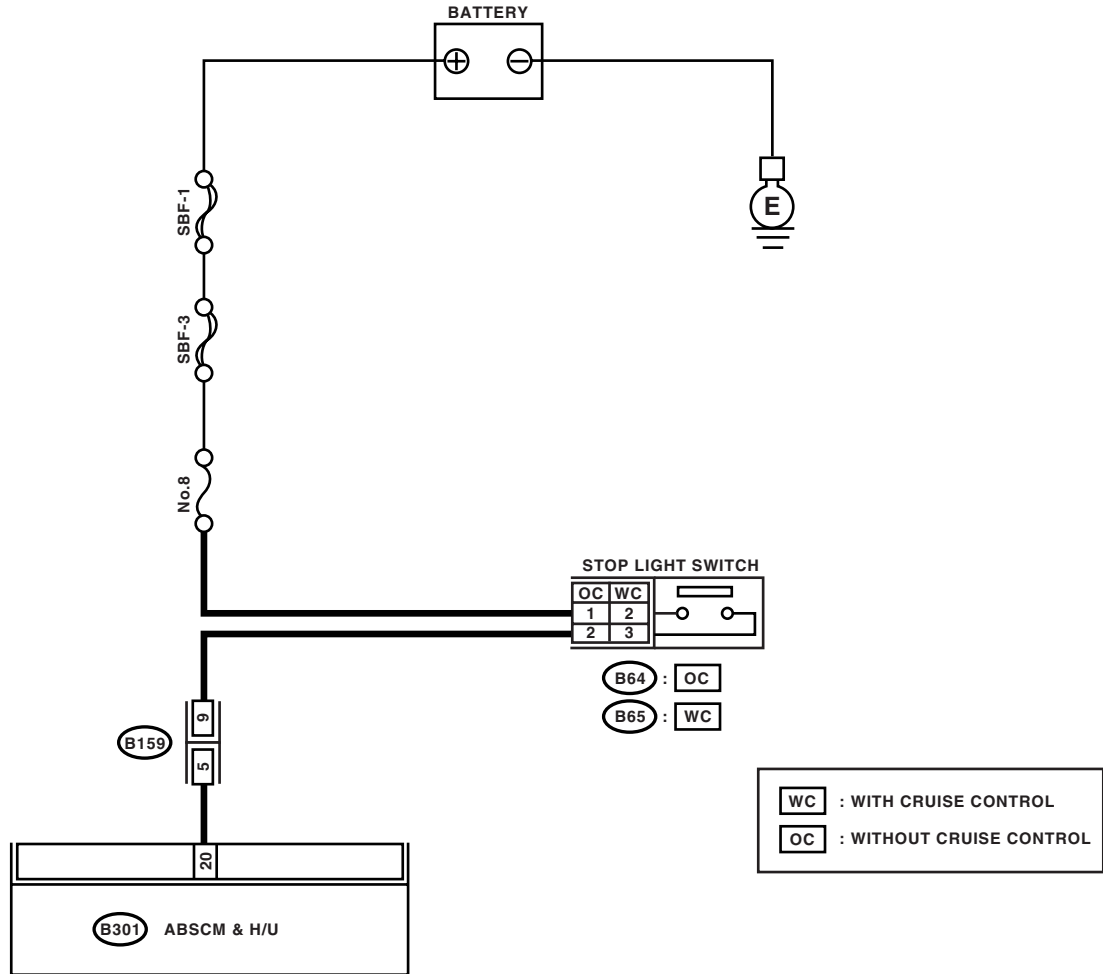
ABS (DIAGNOSTICS)

W: DTC C0116 FAULTY STOP LIGHT SWITCH

DTC DETECTING CONDITION:

Defective stop light switch

WIRING DIAGRAM:



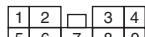
(B64)



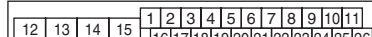
(B65)



(B159)



(B301)



ABS00462

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK OUTPUT OF STOP LIGHT SWITCH USING SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Release the brake pedal. 3) Read the stop light switch signal in Subaru Select Monitor.	Is "OFF" displayed on the display?	Go to step 2.	Go to step 3.
2 CHECK OUTPUT OF STOP LIGHT SWITCH USING SUBARU SELECT MONITOR. 1) Depress the brake pedal. 2) Read the stop light switch output in Subaru Select Monitor.	Is "ON" displayed on the display?	Go to step 5.	Go to step 3.
3 CHECK IF STOP LIGHTS COME ON. Depress the brake pedal.	Does the stop light illuminate?	Go to step 4.	Repair the stop lights circuit.
4 CHECK OPEN CIRCUIT IN HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Depress the brake pedal. 4) Measure the voltage between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 20 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 5.	Repair harness between stop light switch and ABSCM&H/U connector.
5 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in connector between stop light switch and ABSCM&H/U?	Go to step 6.	Repair the connector.
6 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 7.
7 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

X: DTC C0118 G SENSOR OUTPUT VOLTAGE MALFUNCTION

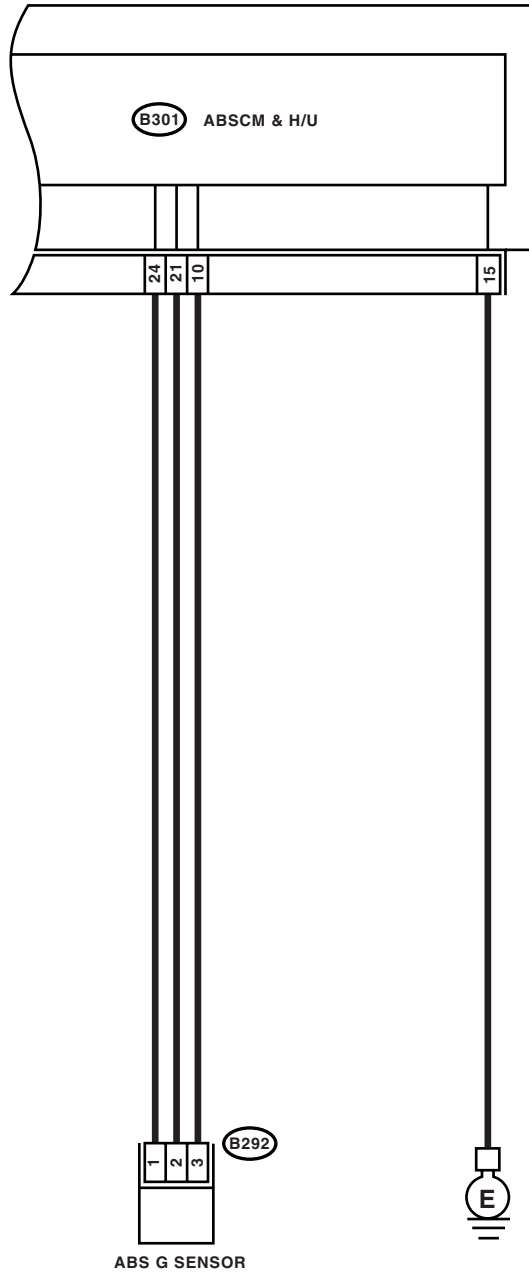
DTC DETECTING CONDITION:

Defective G sensor

TROUBLE SYMPTOM:

ABS does not operate.

WIRING DIAGRAM:



B292

1 2 3

B301

12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
				16	17	18	19	20	21	22	23	24	25	26

ABS00419

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK OUTPUT OF G SENSOR USING SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the G sensor output on Subaru Select Monitor.	Is the reading indicated on display -1.2 — 1.2 m/s when G sensor is horizontal?	Go to step 2.	Go to step 5.
2 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair the connector.	Go to step 3.
3 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 4.
4 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.
5 CHECK INPUT VOLTAGE OF G SENSOR. 1) Turn the ignition switch to OFF. 2) Remove the console box. 3) Remove the G sensor from vehicle. (Do not disconnect connector.) 4) Turn the ignition switch to ON. 5) Measure the voltage between G sensor connector terminals. Connector & terminal (B292) No. 1 (+) — No. 3 (-):	Is the voltage 4.75 — 5.25 V?	Go to step 6.	Repair the harness connector between G sensor and ABSCM&H/U.
6 CHECK OPEN CIRCUIT IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Measure the resistance between ABSCM&H/U connector terminals. Connector & terminal (B301) No. 21 — No. 10:	Is the resistance 1.8 — 2.4 k Ω ?	Go to step 7.	Repair the harness connector between G sensor and ABSCM&H/U.
7 CHECK GROUND SHORT IN G SENSOR OUTPUT HARNESS. 1) Disconnect the connector from G sensor. 2) Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 21 — Chassis ground:	Is the resistance more than 1 M Ω ?	Go to step 8.	Repair the harness between G sensor and ABSCM&H/U.
8 CHECK G SENSOR. 1) Connect the connector to G sensor. 2) Connect the connector to ABSCM&H/U. 3) Turn the ignition switch to ON. 4) Measure the voltage between G sensor connector terminals. Connector & terminal (B292) No. 2 (+) — No. 3 (-):	Is the voltage 2.1 — 2.5 V when G sensor is on a level?	Go to step 9.	Replace G sensor. <Ref. to ABS-18, G Sensor.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
9 CHECK G SENSOR. Measure the voltage between G sensor connector terminals. Connector & terminal (B292) No. 2 (+) — No. 3 (-):	Is the voltage 3.6 — 4.1 V when G sensor is inclined forwards to 90°?	Go to step 10.	Replace G sensor. <Ref. to ABS-18, G Sensor.>
10 CHECK G SENSOR. Measure the voltage between G sensor connector terminals. Connector & terminal (B292) No. 2 (+) — No. 3 (-):	Is the voltage 0.5 — 1.0 V when G sensor is inclined backward to 90°?	Go to step 11.	Replace G sensor. <Ref. to ABS-18, G Sensor.>
11 CHECK POOR CONTACT IN CONNECTOR. Turn the ignition switch to OFF.	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair the connector.	Go to step 12.
12 CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 13.
13 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

Y: DTC C0119 G SENSOR OUTPUT VOLTAGE MALFUNCTION

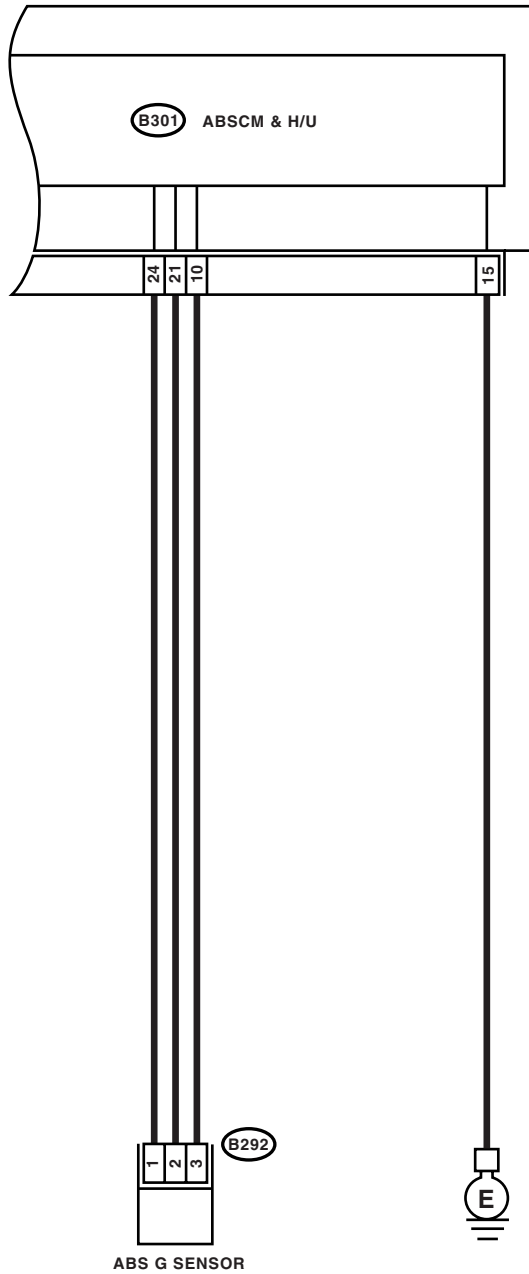
DTC DETECTING CONDITION:

Defective G sensor output signal

TROUBLE SYMPTOM:

ABS does not operate.

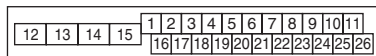
WIRING DIAGRAM:



(B292)



(B301)



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
1	WHETHER A WHEEL TURNED FREELY OR NOT.	ABS is normal. Erase the memory.	Go to step 2.
2	CHECK OUTPUT OF G SENSOR USING SUBARU SELECT MONITOR. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the Subaru Select Monitor display.	Go to step 3.	Go to step 8.
3	CHECK OUTPUT OF G SENSOR USING SUBARU SELECT MONITOR. 1) Turn the ignition switch to OFF. 2) Remove the console box. 3) Remove the G sensor from vehicle. (Do not disconnect connector.) 4) Turn the ignition switch to ON. 5) Select {Current Data Display & Save} in Subaru Select Monitor. 6) Read the Subaru Select Monitor display.	Go to step 4.	Replace G sensor. <Ref. to ABS-18, G Sensor.>
4	CHECK OUTPUT OF G SENSOR USING SUBARU SELECT MONITOR. Read the Subaru Select Monitor display.	Go to step 5.	Replace G sensor. <Ref. to ABS-18, G Sensor.>
5	CHECK POOR CONTACT IN CONNECTOR. Turn the ignition switch to OFF.	Repair the connector.	Go to step 6.
6	CHECK ABSCM&H/U. 1) Connect all the connectors. 2) Erase the memory. 3) Perform the inspection mode. 4) Read the DTC.	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 7.
7	CHECK ANY OTHER DTC ON DISPLAY.	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.
8	CHECK OPEN CIRCUIT IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ABSCM&H/U. 3) Measure the resistance between ABSCM&H/U connector terminals. Connector & terminal (B301) No. 21 — No. 10:	Go to step 9.	Repair the harness connector between G sensor and ABSCM&H/U.
9	CHECK GROUND SHORT OF HARNESS. Measure the resistance between ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 21 — Chassis ground:	Go to step 10.	Repair the harness connector between G sensor and ABSCM&H/U.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ABS (DIAGNOSTICS)

Step	Check	Yes	No
10 CHECK G SENSOR. 1) Remove the console box. 2) Remove the G sensor from vehicle. 3) Connect the connector to G sensor. 4) Connect the connector to ABSCM&H/U. 5) Turn the ignition switch to ON. 6) Measure the voltage between G sensor connector terminals. <i>Connector & terminal</i> <i>(B292) No. 2 (+) — No. 3 (-):</i>	Is the voltage 2.1 — 2.5 V when G sensor is on a level?	Go to step 11.	Replace G sensor. <Ref. to ABS-18, G Sensor.>
11 CHECK G SENSOR. Measure the voltage between G sensor connector terminals. <i>Connector & terminal</i> <i>(B292) No. 2 (+) — No. 3 (-):</i>	Is the voltage 3.6 — 4.1 V when G sensor is inclined forwards to 90°?	Go to step 12.	Replace G sensor. <Ref. to ABS-18, G Sensor.>
12 CHECK G SENSOR. Measure the voltage between G sensor connector terminals. <i>Connector & terminal</i> <i>(B292) No. 2 (+) — No. 3 (-):</i>	Is the voltage 0.5 — 1.0 V when G sensor is inclined backward to 90°?	Go to step 13.	Replace G sensor. <Ref. to ABS-18, G Sensor.>
13 CHECK ABSCM&H/U. 1) Turn the ignition switch to OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the inspection mode. 5) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step 14.
14 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-39, List of Diagnostic Trouble Code (DTC).>	Temporary poor contact occurs.

General Diagnostic Table

ABS (DIAGNOSTICS)

13. General Diagnostic Table

A: INSPECTION

Symptom		Problem parts
Vehicle instability during braking	Vehicle is pulled to either right or left side.	<ul style="list-style-type: none"> • ABSCM&H/U (solenoid valve) • ABS wheel speed sensor • Brake (caliper, piston and pads) • Wheel Alignment • Tire specifications, tire wear and air pressures • Incorrect wiring or piping connections • Road surface (uneven, camber)
	Vehicle spins.	<ul style="list-style-type: none"> • ABSCM&H/U (solenoid valve) • ABS wheel speed sensor • Brake (pads) • Tire specifications, tire wear and air pressures • Incorrect wiring or piping connections
Poor brake performance	Long braking/stopping distance	<ul style="list-style-type: none"> • ABSCM&H/U (solenoid valve) • Brake (pads) • Air in brake line • Tire specifications, tire wear and air pressures • Incorrect wiring or piping connections
	Wheel locks.	<ul style="list-style-type: none"> • ABSCM&H/U (solenoid valve, motor) • ABS wheel speed sensor • Incorrect wiring or piping connections
	Brake drag	<ul style="list-style-type: none"> • ABSCM&H/U (solenoid valve) • ABS wheel speed sensor • Master cylinder • Brake (caliper and piston) • Parking Brake • Axle and wheels • Brake pedal play
	Long brake pedal stroke	<ul style="list-style-type: none"> • Air in brake line • Brake pedal play
	Vehicle vertical pitching	<ul style="list-style-type: none"> • Suspension play or fatigue (reduced damping) • Incorrect wiring or piping connections • Road surface (uneven)
	Unstable or uneven braking	<ul style="list-style-type: none"> • ABSCM&H/U (solenoid valve) • ABS wheel speed sensor • Brake (caliper, piston and pads) • Tire specifications, tire wear and air pressures • Incorrect wiring or piping connections • Road surface (uneven)
	Excessive pedal vibration	<ul style="list-style-type: none"> • Incorrect wiring or piping connections • Road surface (uneven)
Vibration and/or noise (while driving on slippery roads)	Noise from ABSCM&H/U	<ul style="list-style-type: none"> • ABSCM&H/U (mount bushing) • ABS wheel speed sensor • Brake line
	Noise from front of vehicle	<ul style="list-style-type: none"> • ABSCM&H/U (mount bushing) • ABS wheel speed sensor • Master cylinder • Brake (caliper, piston, pads and rotor) • Brake line • Brake booster and check valve • Suspension play or fatigue
	Noise from rear of vehicle	<ul style="list-style-type: none"> • ABS wheel speed sensor • Brake (caliper, piston, pads and rotor) • Parking Brake • Brake line • Suspension play or fatigue