ABS (DIAGNOSTICS)

12. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC 21 ABS WHEEL SPEED FR MALFUNCTION SENSOR (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

NOTE:

Refer to DTC 27 for diagnostic procedure. <Ref. to ABS(diag)-38, DTC 27 ABS WHEEL SPEED SENSOR RL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

B: DTC 23 ABS WHEEL SPEED SENSOR FL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

NOTE:

Refer to DTC 27 for diagnostic procedure. <Ref. to ABS(diag)-38, DTC 27 ABS WHEEL SPEED SENSOR RL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

C: DTC 25 ABS WHEEL SPEED SENSOR RR MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

NOTE:

Refer to DTC 27 for diagnostic procedure. <Ref. to ABS(diag)-38, DTC 27 ABS WHEEL SPEED SENSOR RL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

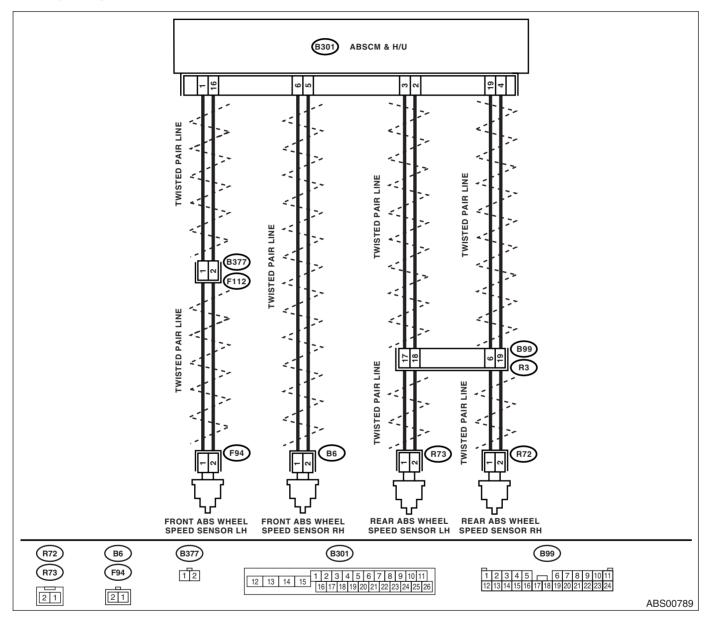
D: DTC 27 ABS WHEEL SPEED SENSOR RL MALFUNCTION (BROKEN WIRE, INPUT VOLTAGE TOO HIGH)

DTC DETECTING CONDITION:

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

TROUBLE SYMPTOM:

ABS does not operate.



	Step	Check	Yes	No
SEN TOF 1) S Sub- 2) F corre	R. Select {Current Data Display & Save} in aru Select Monitor.	Does the speed indicated on the display change in response to the speedometer reading during acceleration or deceler- ation when the steering wheel is in the straight-ahead posi- tion?	Go to step 2.	Go to step 8.

	Step	Check	Yes	No
2	CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.	Is the ABS wheel speed sensor installation bolt tightened to 33 N·m (3.3 kgf-m, 24 ft-lb)?	Go to step 3.	Tighten the ABS wheel speed sensor installation bolts.
3	CHECK ABS WHEEL SPEED SENSOR GAP. Measure the gap between the ABS wheel speed sensor protrusion and tone wheel.	Is the gap within the following? Front wheel: 0.3 — 0.8 mm (0.012 — 0.031 in); Rear wheel: 0.7 — 1.2 mm (0.028 — 0.047 in)	Go to step 4.	Adjust the gap. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace the worn sensor or worn tone wheel.
4	CHECK TONE WHEEL RUNOUT. Measure the tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step 5.	Replace the tone wheel. Front: <ref. to ABS-20, Front Tone Wheel.>Rear: <ref. abs-21,<br="" to="">Rear Tone Wheel.></ref.></ref.
5	CHECK POOR CONTACT OF CONNECTOR. Turn the ignition switch OFF.	Is there poor contact in con- nectors between ABSCM&H/U and ABS wheel speed sensor?	Repair the connector.	Go to step 6.
6	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC still output?	Replace the ABSCM only. <ref. abs-6,<br="" to="">ABS Control Mod- ule and Hydraulic Control Unit (ABSCM&H/U).></ref.>	Go to step 7.
7	CHECK OTHER DTC DETECTION.	Is there any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs. NOTE: Check the harness and connector between ABSCM&H/U and ABS wheel speed sensor.
8	CHECK ABS WHEEL SPEED SENSOR. 1) Turn the ignition switch OFF. 2) Disconnect the connector from the ABS wheel speed sensor. 3) Measure the resistance of ABS wheel speed sensor terminals while shaking the harness lightly. Terminals Front RH No. 1 — No. 2: Front LH No. 1 — No. 2: Rear RH No. 1 — No. 2: Rear LH No. 1 — No. 2:	Is the resistance within the following? Front: 1 — 1.5 k Ω 1.025 — 1.265 k Ω	Go to step 9.	Replace the ABS wheel speed sen- sor. Front: <ref. to<br="">ABS-14, Front ABS Wheel Speed Sensor.> <ref. to<br="">ABS-17, Rear ABS Wheel Speed Sensor.></ref.></ref.>

	Step	Check	Yes	No
9	CHECK BATTERY SHORT OF ABS WHEEL SPEED SENSOR.	Is the voltage less than 1 V?	Go to step 10.	Replace the ABS wheel speed sen-
	Disconnect the ABSCM&H/U connectors.			sor. Front: <ref. td="" to<=""></ref.>
	Measure the voltage between ABS wheel			ABS-14, Front
	,			ABS Wheel Speed
	speed sensor and chassis ground. Terminals			Sensor.> Rear:
	Front RH No. 1 (+) — Chassis ground (-):			<ref. abs-17,<="" td="" to=""></ref.>
	Front LH No. 1 (+) — Chassis ground (-):			Rear ABS Wheel
	Rear RH No. 1 (+) — Chassis ground (-):			Speed Sensor.>
10	Rear LH No. 1 (+) — Chassis ground (-):	1-4	0-1114	Davida a a Mara ADO
10	CHECK BATTERY SHORT OF ABS WHEEL SPEED SENSOR.	Is the voltage less than 1 V?	Go to step 11.	Replace the ABS
				wheel speed sen-
	Turn the ignition switch ON.			sor. Front: <ref. td="" to<=""></ref.>
	2) Measure the voltage between ABS wheel			ABS-14, Front
	speed sensor and chassis ground.			ABS Wheel Speed
	Terminals			Sensor.> Rear:
	Front RH No. 1 (+) — Chassis ground (–):			<ref. abs-17,<="" td="" to=""></ref.>
	Front LH No. 1 (+) — Chassis ground (–):			Rear ABS Wheel
	Rear RH No. 1 (+) — Chassis ground (-):			Speed Sensor.>
	Rear LH No. 1 (+) — Chassis ground (-):			
11		Is the resistance within the fol-	Go to step 12.	Repair the har-
	ABSCM&H/U AND ABS WHEEL SPEED	lowing? Front: 1 — 1.5 k Ω		ness connector
	SENSOR.	Rear: 1.025 — 1.265 kΩ		between
	Turn the ignition switch OFF.			ABSCM&H/U and
	2) Connect the connector to the ABS wheel			ABS wheel speed
	speed sensor.			sensor.
	Measure the resistance between			
	ABSCU&H/U connector terminals.			
	Connector & terminal			
	DTC 21; (B301) No. 6 — No. 5:			
	DTC 23; (B301) No. 1 — No. 16:			
	DTC 25; (B301) No. 19 — No. 4:			
	DTC 27; (B301) No. 3 — No. 2:			
12	CHECK BATTERY SHORT OF HARNESS.	Is the voltage less than 1 V?	Go to step 13.	Repair the har-
	Measure the voltage between ABSCM&H/U			ness between
	connector and chassis ground.			ABSCM&H/U and
	Connector & terminal			ABS wheel speed
	DTC 21; (B301) No. 6 (+) — Chassis			sensor.
	ground (–):			
	DTC 23; (B301) No. 1 (+) — Chassis			
	ground (–):			
	DTC 25; (B301) No. 19 (+) — Chassis			
	ground (–):			
	DTC 27; (B301) No. 3 (+) — Chassis			
	ground (–):		_	
13	CHECK BATTERY SHORT OF HARNESS.	Is the voltage less than 1 V?	Go to step 14.	Repair the har-
	1) Turn the ignition switch ON.			ness between
	2) Measure the voltage between ABSCM&H/			ABSCM&H/U and
	U connector and chassis ground.			ABS wheel speed
	Connector & terminal			sensor.
	DTC 21; (B301) No. 6 (+) — Chassis			
	ground (–):			
	DTC 23; (B301) No. 1 (+) — Chassis			
	ground (–):			
	DTC 25; (B301) No. 19 (+) — Chassis			
	ground (–):			
	DTC 27; (B301) No. 3 (+) — Chassis			
	ground (–):			

	Step	Check	Yes	No
14	CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.	Is the ABS wheel speed sensor installation bolt tightened to 33 N·m (3.3 kgf-m, 24 ft-lb)?	Go to step 15.	Tighten the ABS wheel speed sensor installation bolts.
15	CHECK ABS WHEEL SPEED SENSOR GAP. Measure the gap between the ABS wheel speed sensor protrusion and tone wheel.	Is the gap within the following? Front wheel: 0.3 — 0.8 mm (0.012 — 0.031 in); Rear wheel: 0.7 — 1.2 mm (0.028 — 0.047 in)	Go to step 16.	Adjust the gap. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace the worn sensor or worn tone wheel.
16	CHECK TONE WHEEL RUNOUT. Measure the tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step 17.	Replace the tone wheel. Front: <ref. to ABS-20, Front Tone Wheel.> Rear: <ref. to<br="">ABS-21, Rear Tone Wheel.></ref.></ref.
17	CHECK GROUND SHORT OF ABS WHEEL SPEED SENSOR. 1) Turn the ignition switch ON. 2) Measure the resistance between ABS wheel speed sensor and chassis ground. Terminals Front RH No. 1 — Chassis ground: Front LH No. 1 — Chassis ground: Rear RH No. 1 — Chassis ground: Rear LH No. 1 — Chassis ground:	Is the resistance more than 1 $M\Omega$?	Go to step 18.	Replace the ABSCM&H/U and ABS wheel speed sensor. Front: <ref. abs="" abs-14,="" front="" sensor.="" speed="" to="" wheel=""> Rear: <ref. abs="" abs-17,="" rear="" sensor.="" speed="" to="" wheel=""> and <ref. (abscm&h="" abs="" abs-6,="" and="" control="" hydraulic="" module="" to="" u).="" unit=""></ref.></ref.></ref.>
18	CHECK GROUND SHORT OF HARNESS. 1) Turn the ignition switch OFF. 2) Connect the connector to the ABS wheel speed sensor. 3) Measure the resistance between ABSCM&H/U connectors and chassis ground. Connector & terminal DTC 21; (B301) No. 6 — Chassis ground: DTC 23; (B301) No. 1 — Chassis ground: DTC 25; (B301) No. 19 — Chassis ground: DTC 27; (B301) No. 3 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 19.	Repair the harness between ABSCM&H/U and ABS wheel speed sensor. Replace the ABSCM&H/U. <ref. (abscm&h="" abs="" abs-6,="" and="" control="" hydraulic="" module="" to="" u).="" unit=""></ref.>
19	CHECK POOR CONTACT OF CONNECTOR.	Is there poor contact in con- nectors between ABSCM&H/U and ABS wheel speed sensor?	Repair the con- nector.	Go to step 20.
20	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC still output?	Replace the ABSCM only.	Go to step 21.

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	Step	Check	Yes	No
21	CHECK OTHER DTC DETECTION.	Is there any other DTC detected?		Temporary poor contact occurs. NOTE: Check the harness and connector between ABSCM&H/U and ABS wheel speed sensor.

E: DTC 22 ABS WHEEL SPEED SENSOR FR MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

NOTE:

Refer to DTC 28 for diagnostic procedure. <Ref. to ABS(diag)-43, DTC 28 ABS WHEEL SPEED SENSOR RL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

F: DTC 24 ABS WHEEL SPEED SENSOR FL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

NOTE:

Refer to DTC 28 for diagnostic procedure. <Ref. to ABS(diag)-43, DTC 28 ABS WHEEL SPEED SENSOR RL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

G: DTC 26 ABS WHEEL SPEED SENSOR RR MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

NOTE:

Refer to DTC 28 for diagnostic procedure. <Ref. to ABS(diag)-43, DTC 28 ABS WHEEL SPEED SENSOR RL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

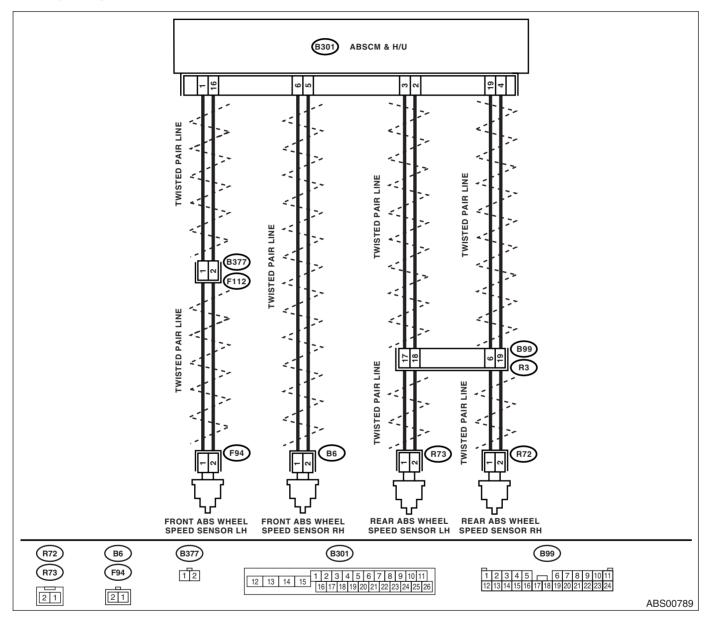
H: DTC 28 ABS WHEEL SPEED SENSOR RL MALFUNCTION (ABS WHEEL SPEED SENSOR ABNORMAL SIGNAL)

DTC DETECTING CONDITION:

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

TROUBLE SYMPTOM:

ABS does not operate.



Step	Check	Yes	No
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 system in Subaru Select Monitor display mode.	Does the speed indicated on the display change in response to the speedometer reading during acceleration or deceler- ation when the steering wheel is in the straight-ahead posi- tion?	Go to step 2.	Go to step 7.

	Step	Check	Yes	No
2	CHECK POOR CONTACT OF CONNECTOR.		Repair the con-	Go to step 3.
<u> </u>	Turn the ignition switch OFF.	nectors between ABSCM&H/U	nector.	GIO TO GIOP CI
	ŭ	and ABS wheel speed sensor?		
3	CHECK CAUSE OF SIGNAL NOISE.	Is the car telephone or the	Go to step 4.	Install the car
		radio properly installed?		phone or radio
				properly.
4	CHECK CAUSE OF SIGNAL NOISE.	Is there a noise source (such	Install the noise	Go to step 5.
		as an antenna) installed near	source apart from	
		the sensor harness?	the sensor har-	
			ness.	
5	CHECK ABSCM&H/U.	Is the same DTC still output?	Replace the	Go to step 6.
	1) Connect all connectors.		ABSCM only.	
	2) Erase the memory.3) Perform the Inspection Mode.		<ref. abs-6,<br="" to="">ABS Control Mod-</ref.>	
	4) Read the DTC.		ule and Hydraulic	
	4) Head the DTG.		Control Unit	
			(ABSCM&H/U).>	
6	CHECK OTHER DTC DETECTION.	Is there any other DTC	Perform the diag-	It results from a
	Die beiebiien	detected?	nosis according to	temporary noise
			DTC.	interference.
7	CHECK INSTALLATION OF ABS WHEEL	Is the ABS wheel speed sen-	Go to step 8.	Tighten the ABS
	SPEED SENSOR.	sor installation bolt tightened to	'	wheel speed sen-
		33 N·m (3.3 kgf-m, 24 ft-lb)?		sor installation
				bolts.
8	CHECK ABS WHEEL SPEED SENSOR GAP.	Is the gap within the following?	Go to step 9.	Adjust the gap.
	Measure the gap between the ABS wheel	Front wheel: 0.3 — 0.8 mm		NOTE:
	speed sensor protrusion and tone wheel.	(0.012 — 0.031 in)		Adjust the gap us-
		Rear wheel: 0.7 — 1.2 mm		ing spacers (Part
		(0.028 — 0.047 in)		No. 26755AA000).
				If spacers cannot
				correct the gap, re-
				place the worn
				sensor or worn tone wheel.
9	PREPARE OSCILLOSCOPE.	Is an oscilloscope available?	Go to step 10.	Go to step 11.
10	CHECK ABS WHEEL SPEED SENSOR SIG-	Is the oscilloscope pattern the	Go to step 14.	Go to step 11.
10	NAL.	same voltage as shown in the	do to step 14.	do to step 11.
	1) Lift up the vehicle.	table? <ref. abs(diag)-12,<="" th="" to=""><th></th><th></th></ref.>		
	2) Turn the ignition switch OFF.	ELECTRICAL SPECIFICA-		
	3) Connect the oscilloscope to the connector.	TION, Control Module I/O Sig-		
	4) Turn the ignition switch ON.	nal.>		
	5) Start the wheel, and measure the voltage at			
	the specified frequency. <ref. abs(diag)-12,<="" th="" to=""><th></th><th></th><th></th></ref.>			
	ELECTRICAL SPECIFICATION, Control Mod-			
	ule I/O Signal.>			
	NOTE:			
	When this inspection is completed, ABSCM&H/			
	U may record DTC 29 or DTC 56.			
	Connector & terminal DTC 22; (B6) No. 1 (+) — No. 2 (–):			
	DTC 22; (B6) No. 1 (+) — No. 2 (-): DTC 24; (F94) No. 1 (+) — No. 2 (-):			
	DTC 24, (F94) No. 1 (+) — No. 2 (-). DTC 26; (B99) No. 6 (+) — No. 19 (-):			
	DTC 28; (B99) No. 18 (+) — No. 17 (-):			
11	CHECK CONTAMINATION OF ABS WHEEL	Is the ABS wheel speed sen-	Thoroughly	Go to step 12.
l	SPEED SENSOR OR TONE WHEEL.	sor piece or the tone wheel	remove dirt or	GO TO STOP 12.
	Remove the disc rotor or drum from the hub	contaminated by dirt or other	other foreign mat-	
	according to the DTC.	foreign matter?	ter.	
	· -	1	t .	l .

	Step	Check	Yes	No
12	CHECK FOR DAMAGE OF THE ABS WHEEL SPEED SENSOR OR TONE WHEEL. CHECK TONE WHEEL RUNOUT.	Is there damage in the protrusion of the ABS wheel speed sensor or the tone wheel?	Go to step 13. Go to step 14.	Replace the ABS wheel speed sen- sor or tone wheel. Front: <ref. abs="" abs-14,="" front="" sensor.="" speed="" to="" wheel=""> Rear: <ref. abs="" abs-17,="" rear="" sen-="" sor.="" speed="" to="" wheel=""> and front: <ref. abs-20,="" front="" to="" tone="" wheel.=""> Rear: <ref. abs-21,="" rear="" to="" tone="" wheel.=""> Replace the tone</ref.></ref.></ref.></ref.>
13	Measure the tone wheel runout.	mm (0.0020 in)?	Go to step 14.	wheel. Front: <ref. abs-20,="" front="" to="" tone="" wheel.=""> Rear: <ref. abs-21,="" rear="" to="" tone="" wheel.=""></ref.></ref.>
14	CHECK RESISTANCE OF THE ABS WHEEL SPEED SENSOR. 1) Turn the ignition switch OFF. 2) Disconnect the connector from the ABS wheel speed sensor. 3) Measure the resistance of the ABS wheel speed sensor connector terminals by shaking the harness lightly. Connector & terminal Front RH No. 1 — No. 2: Front LH No. 1 — No. 2: Rear RH No. 1 — No. 2: Rear LH No. 1 — No. 2:	Is the resistance within the following? Front: 1 — 1.5 k Ω Rear: 1.025 — 1.265 k Ω	Go to step 15.	Replace the ABS wheel speed sen- sor. Front: <ref. to<br="">ABS-14, Front ABS Wheel Speed Sensor.> Rear: <ref. abs-17,<br="" to="">Rear ABS Wheel Speed Sensor.></ref.></ref.>
15	CHECK GROUND SHORT OF ABS WHEEL SPEED SENSOR. Measure the resistance between ABS wheel speed sensor and chassis ground. Connector & terminal Front RH No. 1 — Chassis ground: Front LH No. 1 — Chassis ground: Rear RH No. 1 — Chassis ground: Rear LH No. 1 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 16.	Replace the ABS wheel speed sen- sor. Front: <ref. to<br="">ABS-14, Front ABS Wheel Speed Sensor.> Rear: <ref. abs-17,<br="" to="">Rear ABS Wheel Speed Sensor.></ref.></ref.>
16	CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND ABS WHEEL SPEED SENSOR. 1) Connect the connector to the ABS wheel speed sensor. 2) Disconnect the ABSCM&H/U connectors. 3) Measure the resistance between ABSCM&H/U connector terminals. Connector & terminal DTC 22; (B301) No. 6 — No. 5: DTC 24; (B301) No. 1 — No. 16: DTC 26; (B301) No. 19 — No. 4: DTC 28; (B301) No. 3 — No. 2:	Is the resistance within the following? Front: 1 — 1.5 k Ω Rear: 1.025 — 1.265 k Ω	Go to step 17.	Repair the har- ness connector between ABSCM&H/U and ABS wheel speed sensor.

	Step	Check	Yes	No
17	CHECK GROUND SHORT OF HARNESS.	Is the resistance more than 1	Go to step 18.	Repair the har-
	Measure the resistance between the ABSCM&H/U connector and chassis ground. Connector & terminal DTC 22; (B301) No. 6 — Chassis ground: DTC 24; (B301) No. 1 — Chassis ground: DTC 26; (B301) No. 19 — Chassis ground: DTC 28; (B301) No. 3 — Chassis ground:	$M\Omega$?	Go to step 16.	ness connector between ABSCM&H/U and ABS wheel speed sensor.
18	CHECK THE ABSCM&H/U GROUND CIR- CUIT. Measure the resistance between the ABSCM&H/U and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 19.	Repair the ABSCM&H/U ground harness.
19	CHECK POOR CONTACT OF CONNECTOR.	nectors between ABSCM&H/U and ABS wheel speed sensor?	Repair the con- nector.	Go to step 20.
20	CHECK CAUSE OF SIGNAL NOISE.	Is the car telephone or the radio properly installed?	Go to step 21.	Install the car phone or radio properly.
21	CHECK CAUSE OF SIGNAL NOISE.	Is there a noise source (such as an antenna) installed near the sensor harness?	Install the noise source apart from the sensor harness.	Go to step 22.
22	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC still output?	Replace the ABSCM only. <ref. abs-6,<br="" to="">ABS Control Mod- ule and Hydraulic Control Unit (ABSCM&H/U).></ref.>	Go to step 23.
23	CHECK OTHER DTC DETECTION.	Is there any other DTC detected?	Perform the diagnosis according to DTC.	It results from a temporary noise interference. NOTE: Though the ABS warning light remains on at this time, this is normal. Drive the vehicle at more than 12 km/h (7.46 MPH) in order to turn ABS warning light off. Be sure to drive the vehicle and check that the warning light goes off.

I: DTC 29 ABS WHEEL SPEED SENSOR SIGNAL MALFUNCTION IN ONE OF FOUR WHEELS

DTC DETECTING CONDITION:

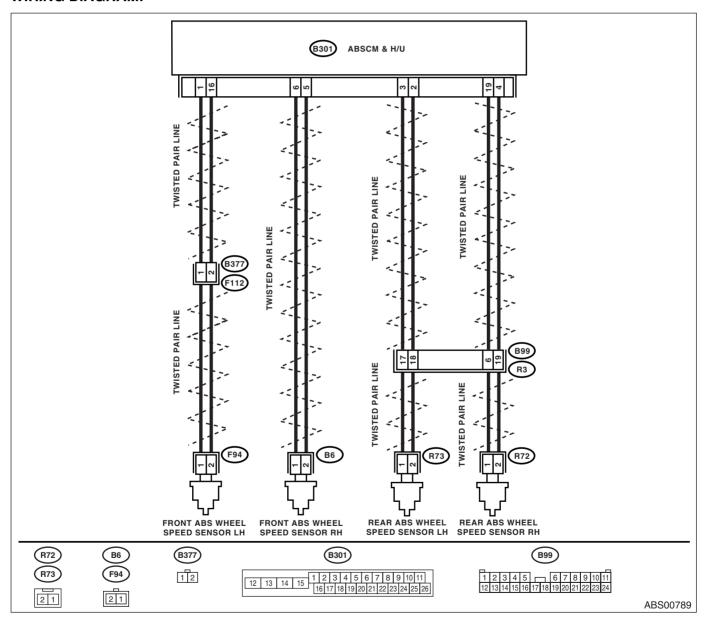
- Defective ABS wheel speed sensor signal (noise, abnormal signal, etc.)
- · Defective magnetic encoder
- When a wheel is turned freely for a long time

TROUBLE SYMPTOM:

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

NOTE:

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



	Step	Check	Yes	No
1	WHETHER A WHEEL TURNED FREELY OR NOT	Did the wheels turn 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?	ABS is normal. Erase the memory. NOTE: This diagnostic trouble code may sometimes occur if the wheels turn freely for a long time, for example when the vehicle is towed or jackedup, or when steering wheel is continuously turned all the way.	Go to step 2.
2	CHECK TIRE SPECIFICATIONS.	Are the tire specifications cor-	Go to step 3.	Replace the tire.
2	Turn the ignition switch OFF. CHECK WEAR OF TIRE.	rect?	Donland the tire	Co to oton 4
3 4	CHECK WEAR OF TIRE. CHECK TIRE PRESSURE.	Is the tire worn excessively? Is the tire pressure correct?	Replace the tire. Go to step 5 .	Go to step 4 . Adjust the tire
		no the the procedure correct.	do to otop c.	pressure.
5	CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.	Is the ABS wheel speed sensor installation bolt tightened to 33 N·m (3.3 kgf-m, 24 ft-lb)?	Go to step 6.	Tighten the ABS wheel speed sensor installation bolts.
6	Measure the gap between the ABS wheel speed sensor protrusion and tone wheel.	Is the gap within the following? Front wheel: 0.3 — 0.8 mm (0.012 — 0.031 in); Rear wheel: 0.7 — 1.2 mm (0.028 — 0.047 in)	Go to step 7.	Adjust the gap. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace the worn sensor or worn tone wheel.
7	PREPARE OSCILLOSCOPE.	Is an oscilloscope available?	Go to step 8.	Go to step 9.
8	CHECK ABS WHEEL SPEED SENSOR SIGNAL. 1) Lift up the vehicle. 2) Turn the ignition switch OFF. 3) Connect the oscilloscope according to the DTC. 4) Turn the ignition switch ON. 5) Start the wheel, and measure the voltage at the specified frequency. <ref. abs(diag)-12,="" control="" electrical="" i="" module="" o="" signal.="" specification,="" to=""> NOTE: When this inspection is completed, ABSCM&H/U may record DTC 29. Connector & terminal Front RH (B6) No. 1 (+) — No. 2 (-): Front LH (F94) No. 1 (+) — No. 2 (-): Rear RH (B99) No. 6 (+) — No. 19 (-): Rear RH (B99) No. 17 (+) — No. 18 (-):</ref.>	Is the oscilloscope pattern the same voltage as shown in the table? <ref. abs(diag)-12,="" control="" electrical="" i="" module="" o="" signal.="" specifica-tion,="" to=""></ref.>	Go to step 12.	Go to step 9.
9	CHECK CONTAMINATION OF ABS WHEEL SPEED SENSOR OR TONE WHEEL. Remove the disc rotor or drum from the hub.	Is the ABS wheel speed sen- sor piece or the tone wheel contaminated by dirt or other foreign matter?	Thoroughly remove dirt or other foreign matter.	Go to step 10.

	Step	Check	Yes	No
10	CHECK FOR DAMAGE OF THE ABS WHEEL SPEED SENSOR OR TONE WHEEL.	Are there cracked or damaged teeth in the protrusion of the ABS wheel speed sensor or the tone wheel?	Replace the ABS wheel speed sensor or tone wheel. Front: <ref. abs="" abs-14,="" front="" sensor.="" speed="" to="" wheel=""> Rear: <ref. abs="" abs-17,="" rear="" sensor.="" speed="" to="" wheel=""> and front: <ref. abs-20,="" front="" to="" tone="" wheel.=""> Rear: <ref. abs-21,="" rear="" to="" tone="" wheel.=""></ref.></ref.></ref.></ref.>	Go to step 11.
11	CHECK TONE WHEEL RUNOUT. Measure the tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step 12.	Replace the tone wheel. Front: <ref. to ABS-20, Front Tone Wheel.> Rear: <ref. to<br="">ABS-21, Rear Tone Wheel.></ref.></ref.
12	CHECK ABSCM&H/U. 1) Turn the ignition switch OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	Is the same DTC still output?	Replace the ABSCM only. <ref. abs-6,<br="" to="">ABS Control Mod- ule and Hydraulic Control Unit (ABSCM&H/U).></ref.>	Go to step 13.
13	CHECK OTHER DTC DETECTION.	Is there any other DTC detected?	Perform the diagnosis according to DTC.	Temporary poor contact occurs.

J: DTC 31 FRONT INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

Refer to DTC 38 for diagnostic procedure. <Ref. to ABS(diag)-51, DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC 32 FRONT OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

Refer to DTC 38 for diagnostic procedure. <Ref. to ABS(diag)-51, DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

L: DTC 33 FRONT INLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

Refer to DTC 38 for diagnostic procedure. <Ref. to ABS(diag)-51, DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

M: DTC 34 FRONT OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

Refer to DTC 38 for diagnostic procedure. <Ref. to ABS(diag)-51, DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

N: DTC 35 REAR INLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

Refer to DTC 38 for diagnostic procedure. <Ref. to ABS(diag)-51, DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

O: DTC 36 REAR OUTLET SOLENOID VALVE RH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

Refer to DTC 38 for diagnostic procedure. <Ref. to ABS(diag)-51, DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

P: DTC 37 REAR INLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

NOTE:

Refer to DTC 38 for diagnostic procedure. <Ref. to ABS(diag)-51, DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Q: DTC 38 REAR OUTLET SOLENOID VALVE LH MALFUNCTION IN ABS CONTROL MODULE AND HYDRAULIC CONTROL UNIT (ABSCM&H/U)

DTC DETECTING CONDITION:

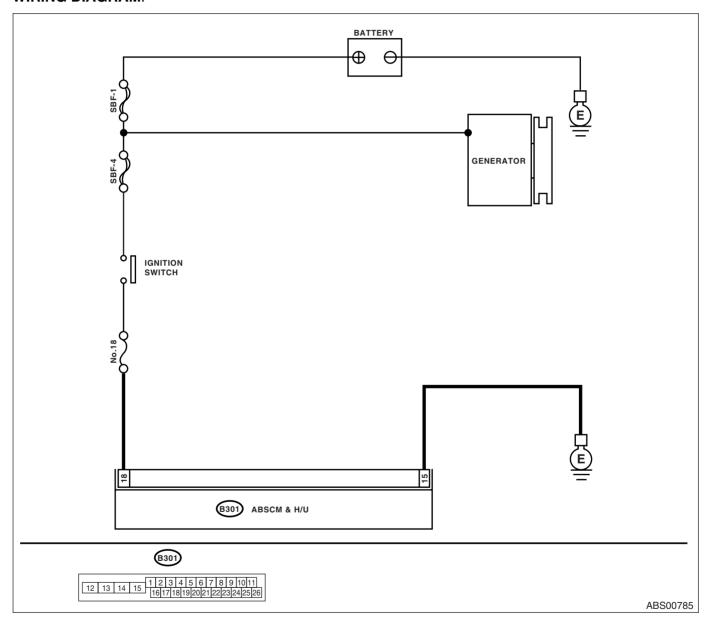
- Defective harness connector
- Defective inlet solenoid valve or outlet solenoid valve in ABSCM&H/U

TROUBLE SYMPTOM:

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

NOTE:

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



	01:	0		
	Step	Check	Yes	No
1	CHECK INPUT VOLTAGE OF ABSCM&H/U.	Is the voltage 10 — 15 V?	Go to step 2.	Repair the
	1) Turn the ignition switch OFF.			ABSCM&H/U
	2) Disconnect the ABSCM&H/U connectors.			power circuit.
	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 (–):			
2	CHECK THE ABSCM&H/U GROUND CIR-	Is the resistance less than 0.5	Go to step 3.	Repair the
	CUIT.	Ω?		ABSCM&H/U
	 Turn the ignition switch OFF. 			ground harness.
	Measure the resistance between the			
	ABSCM&H/U connector and chassis ground.			
	Connector & terminal			
	(B301) No. 15 — Chassis ground:			
3	CHECK POOR CONTACT OF CONNECTOR.	•	Repair the con-	Go to step 4.
		nector between generator, bat-	nector.	
		tery and ABSCM&H/U?		
4	CHECK ABSCM&H/U.	Is the same DTC displayed?	Replace the	Go to step 5.
	 Connect all connectors. 		ABSCM&H/U.	
	Erase the memory.		<ref. abs-6,<="" th="" to=""><th></th></ref.>	
	Perform the Inspection Mode.		ABS Control Mod-	
	Read the DTC.		ule and Hydraulic	
			Control Unit	
			(ABSCM&H/U).>	
5	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC dis-	Check DTC using	Temporary poor
		played?	"List of Diagnostic	contact occurs.
			Trouble Code	
			(DTC)". <ref. th="" to<=""><th></th></ref.>	
			ABS(diag)-35, List	
			of Diagnostic Trou-	
			ble Code (DTC).>	

R: DTC 41 ABS CONTROL MODULE MALFUNCTION

DTC DETECTING CONDITION:

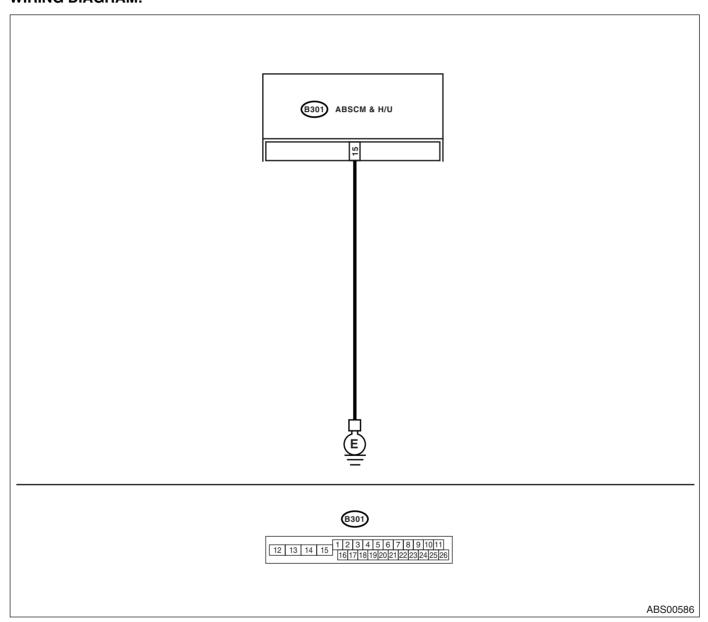
Defective ABSCM&H/U

TROUBLE SYMPTOM:

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

NOTF:

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



	Step	Check	Yes	No
1	CHECK THE ABSCM&H/U GROUND CIRCUIT. 1) Turn the ignition switch OFF. 2) Disconnect the ABSCM&H/U connectors. 3) Measure the resistance between the ABSCM&H/U and chassis ground. Connector & terminal (B301) No. 15 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 2.	Repair the ABSCM&H/U ground harness.
2	CHECK POOR CONTACT OF CONNECTOR.	Is there poor contact of the connector between the battery, ignition switch and ABSCM&H/U?	Repair the connector.	Go to step 3.
3	CHECK CAUSE 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 CAUSE OF SIGNAL NOISE.	Is there a noise source (such as an antenna) installed near the sensor harness?	Install the noise source apart from the sensor harness.	Go to step 5.
5	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <ref. abs-7,<br="" to="">REPLACEMENT, ABS Control Mod- ule and Hydraulic Control Unit (ABSCM&H/U).></ref.>	Go to step 6.
6	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" abs(diag)-35,="" ble="" code="" diagnostic="" list="" of="" to="" trou-=""></ref.>	Temporary poor contact occurs.

S: DTC 42 POWER VOLTAGE MALFUNCTION

DTC DETECTING CONDITION:

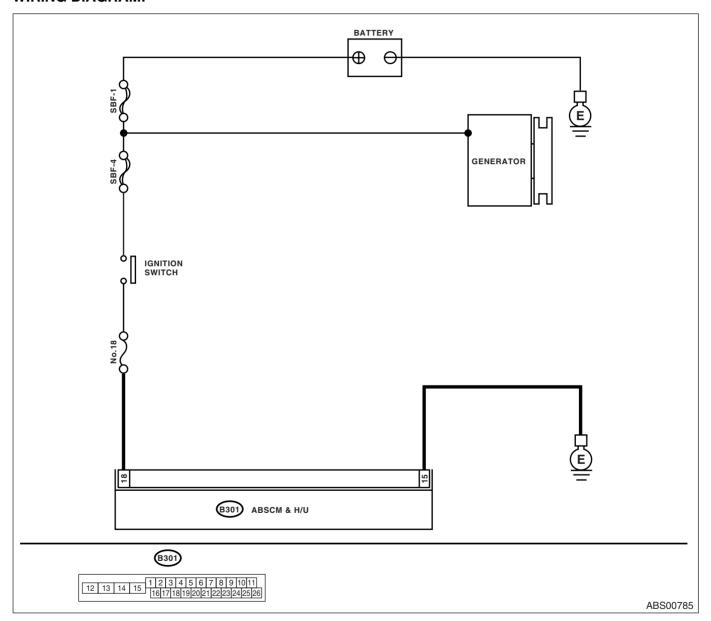
Power supply voltage of the ABSCM&H/U is too low or too high.

TROUBLE SYMPTOM:

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

NOTE

If EBD does not operate, the brake warning light illuminates in addition to ABS warning light. Both warning lights go off if voltage returns.



	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 terminal B 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 OFF.	Are the positive and negative battery terminals tightened securely?	Go to step 3.	Tighten the terminal.
3	CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Disconnect the ABSCM&H/U connectors. 2) Run the engine at idle. 3) Operate devices such as headlights, air conditioner, defogger, etc. which produce an electrical load. 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 THE ABSCM&H/U GROUND CIRCUIT. 1) Turn the ignition switch OFF. 2) Measure the resistance between the 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 OF CONNECTOR.	Is there poor contact in con- nector between generator, bat- tery and ABSCM&H/U?	Repair the connector.	Go to step 6.
6	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <ref. (abscm&h="" abs="" abs-7,="" and="" control="" hydraulic="" module="" replacement,="" to="" u).="" unit=""></ref.>	Go to step 7.
7	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC dis- played?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. to<br="">ABS(diag)-35, List of Diagnostic Trou- ble Code (DTC).></ref.>	Temporary poor contact occurs.

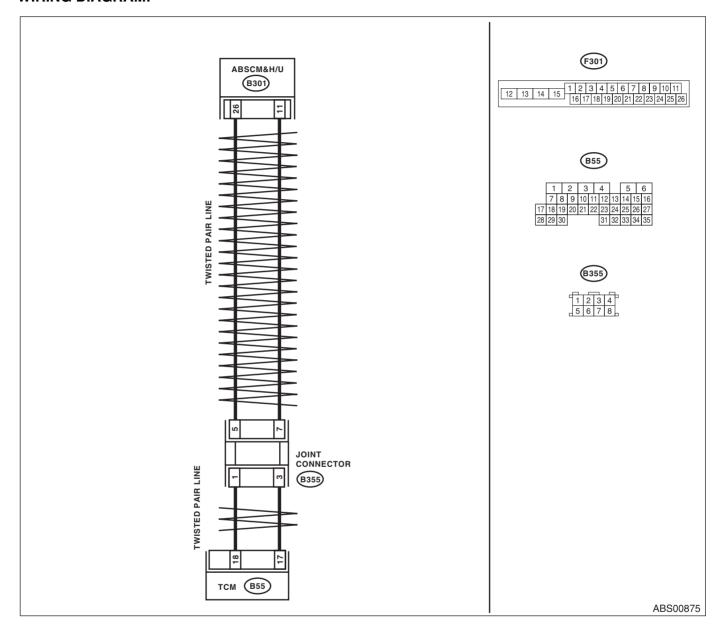
T: DTC 47 IMPROPER CAN COMMUNICATION

DTC DETECTING CONDITION:

CAN communication line is damaged or circuit is shorted.

TROUBLE SYMPTOM:

Tight corner braking phenomenon occurs.



	Step	Check	Yes	No
1	CHECK HARNESS CONNECTOR BETWEEN	Is the resistance less than 0.5	Go to step 2.	Repair or replace
	ABSCM&H/U AND TCM.	Ω ?		the harness con-
	 Turn the ignition switch to OFF. 			nector between
	2) Disconnect the ABSCM&H/U connectors			ABSCM&H/U and
	and TCM connectors.			TCM.
	3) Measure the resistance of the harness con-			
	nector between ABSCM&H/U and TCM.			
	Connector & terminal			
	(B301) No. 26 — (B55) No. 18:			
	(B301) No. 11 — (B55) No. 17:			

	Step	Check	Yes	No
2	CHECK HARNESS CONNECTOR BETWEEN	Is the resistance more than 1	Go to step 3.	Repair or replace
	ABSCM&H/U AND TCM FOR GROUND	$M\Omega$?		the harness con- nector between
	SHORT. 1) Measure the resistance between the			ABSCM&H/U and
	ABSCM&H/U connector and chassis ground.			TCM.
	Connector & terminal			TOW.
	(B301) No. 26 — Chassis ground:			
	(B301) No. 11 — Chassis ground:			
3		Is the voltage less than 1.0 V?	Go to step 4.	Repair or replace
	ABSCM&H/U AND TCM FOR BATTERY			the harness con-
	SHORT.			nector between
	 Turn the ignition switch to ON. Measure the voltage between ABSCM&H/U 			ABSCM&H/U and TCM.
	connector and chassis ground.			T CIVI.
	Connector & terminal			
	(B301) No. 26 (+) — Chassis ground (-):			
	(B301) No. 11 (+) — Chassis ground (–):			
4	CHECK ABSCM&H/U.	Is the resistance 120 \pm 6 Ω ?	Go to step 6.	Go to step 5.
	1) Turn the ignition switch to OFF.			
	2) Connect the connector to ABSCM&H/U.			
	Measure the resistance between TCM con- nector terminals.			
	nector terminals. Connector & terminal			
	(B55) No. 17 — (B55) No. 18:			
5	CHECK ABSCM&H/U CONNECTOR FOR	Is there poor contact?	Repair the poor	Replace the
	POOR CONTACT.	To acceptance	contact of	ABSCM only.
			ABSCM&H/U con-	
			nector.	REPLACEMENT,
				ABS Control Mod-
				ule and Hydraulic
				Control Unit (ABSCM&H/U).>
6	CHECK TCM.	Is the resistance 120 \pm 6 Ω ?	Go to step 8.	Go to step 7 .
	Connect the connector to TCM.	10 110 10010141100 12020 11.	Go to stop G.	
	2) Disconnect the ABSCM&H/U connectors.			
	3) Measure the resistance between the			
	ABSCM&H/U connector terminals.			
	Connector & terminal			
7	(B301) No. 11 — No. 26: CHECK POOR CONTACT OF TCM CONNEC-	In there near centert?	Donoir the near	Replace the TCM.
7	TORS.	ns there poor contact?	Repair the poor contact of TCM	<ref. 4at-64,<="" th="" to=""></ref.>
	10110.		connector.	Transmission Con-
				trol Module
				(TCM).>
8	CHECK DTC DETECTION.	Is DTC 47 is detected?	Replace the	Go to step 9.
			ABSCM only.	
			<ref. abs-7,<="" th="" to=""><th></th></ref.>	
			REPLACEMENT,	
			ABS Control Mod- ule and Hydraulic	
			Control Unit	
			(ABSCM&H/U).>	
9	CHECK IF TCM SYSTEM DTC P1718 IS DE-	Is DTC P1718 detected?	Replace the TCM.	Replace the
	TECTED.		<ref. 4at-64,<="" th="" to=""><th>ABSCM only.</th></ref.>	ABSCM only.
			REMOVAL, Trans-	<ref. abs-7,<="" th="" to=""></ref.>
			mission Control	REPLACEMENT,
			Module (TCM).>	ABS Control Mod-
				ule and Hydraulic
				Control Unit
I			I	(ABSCM&H/U).>

T: DTC 51 VALVE RELAY MALFUNCTION

DTC DETECTING CONDITION:

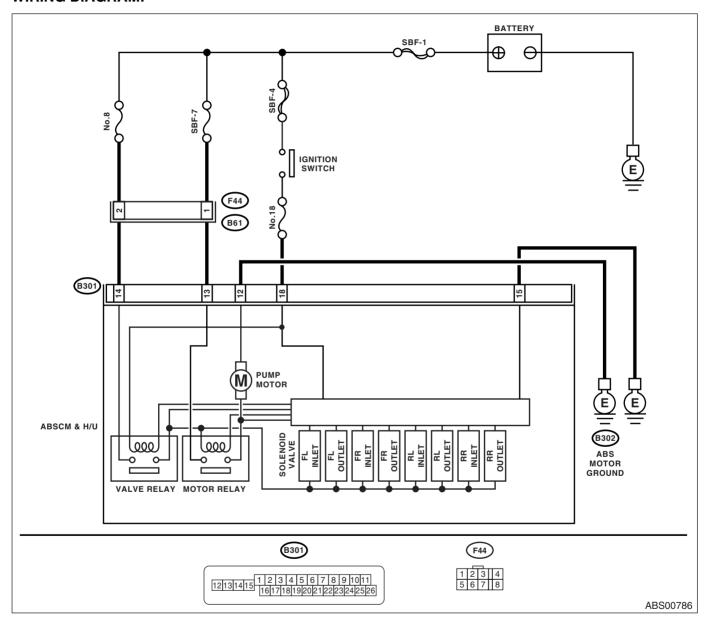
Defective valve relay

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.



	Step	Check	Yes	No
1	CHECK INPUT VOLTAGE OF ABSCM&H/U. 1) Turn the ignition switch OFF. 2) Disconnect the ABSCM&H/U connectors. 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 har- ness connector between battery and ABSCM&H/U.
2	CHECK THE ABSCM&H/U GROUND CIRCUIT. 1) Turn the ignition switch OFF. 2) Measure the resistance between the 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 the ABSCM&H/U terminals. Terminals No. 14 — No. 15:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 4.	Replace the ABSCM only. <ref. (abscm&h="" abs="" abs-7,="" and="" control="" hydraulic="" module="" replacement,="" to="" u).="" unit=""></ref.>
4	CHECK POOR CONTACT OF CONNECTOR.	Is there poor contact in con- nector between generator, bat- tery and ABSCM&H/U?	Repair the con- nector.	Go to step 5.
5	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <ref. (abscm&h="" abs="" abs-7,="" and="" control="" hydraulic="" module="" replacement,="" to="" u).="" unit=""></ref.>	Go to step 6.
6	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC dis- played?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. to<br="">ABS(diag)-35, List of Diagnostic Trou- ble Code (DTC).></ref.>	Temporary poor contact occurs.

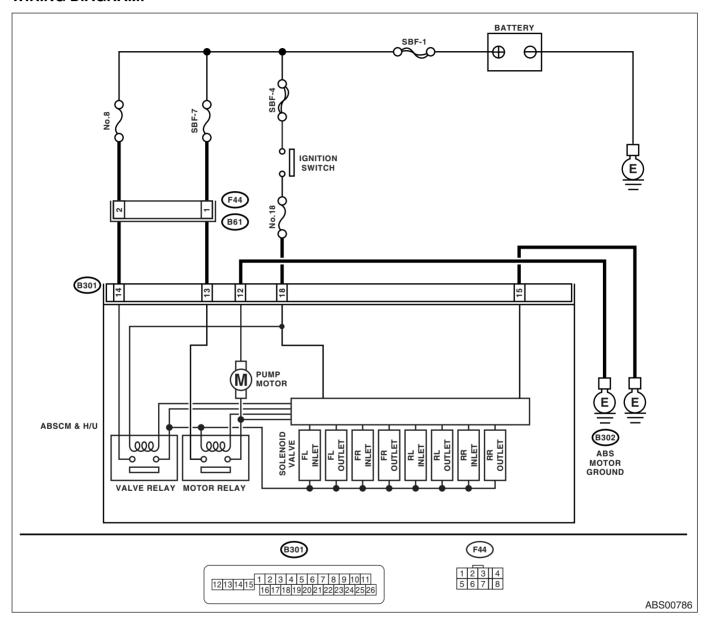
U: DTC 52 MOTOR/MOTOR RELAY MALFUNCTION

DTC DETECTING CONDITION:

- · Defective motor
- Defective motor relay
- · Defective harness connector

TROUBLE SYMPTOM:

ABS does not operate.



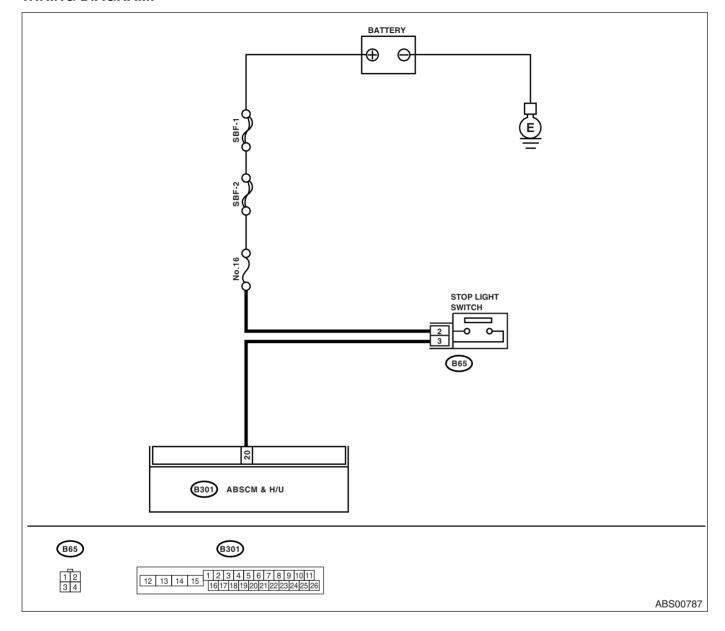
	Step	Check	Yes	No
1	CHECK LOOSENESS OF GROUND BOLT.	Is the ground bolt loose?	Tighten the bolt to	Go to step 2.
	Check for looseness in the ABSCM&H/U motor		13 N⋅m (1.3 kgf-m,	
	ground bolt (B302).		9.4 ft-lb) torque.	

	Step	Check	Yes	No
2	CHECK INPUT VOLTAGE OF ABSCM&H/U.	Is the voltage 10 — 15 V?	Go to step 3.	Repair the har-
	 Turn the ignition switch OFF. 			ness connector
	Disconnect the ABSCM&H/U connectors.			between battery
	Turn the ignition switch ON.			and ABSCM&H/U.
	4) Measure the voltage between ABSCM&H/			
	U connector and chassis ground.			
	Connector & terminal			
	(B301) No. 13 (+) — Chassis ground (–):			
3	CHECK GROUND CIRCUIT OF MOTOR.	Is the resistance less than 0.5	Go to step 4.	Repair the
	1) Turn the ignition switch OFF.	Ω?		ABSCM&H/U
	2) Measure the resistance between the			ground harness.
	ABSCM&H/U connector and chassis ground.			
	Connector & terminal			
	(B301) No. 12 — Chassis ground:			
4	CHECK INPUT VOLTAGE OF ABSCM&H/U.	Is the voltage 10 — 15 V?	Go to step 5.	Repair the har-
	1) Run the engine at idle.			ness connector
	2) Measure the voltage between ABSCM&H/			between battery,
	U connector and chassis ground.			ignition switch and
	Connector & terminal			ABSCM&H/U.
_	(B301) No. 18 (+) — Chassis ground (−):			
5	CHECK OF THE ABSCM&H/U GROUND CIR-		Go to step 6.	Repair the
	CUIT.	Ω?		ABSCM&H/U
	1) Turn the ignition switch OFF.			ground harness.
	2) Measure the resistance between the			
	ABSCM&H/U connector and chassis ground.			
	Connector & terminal			
6	(B301) No. 15 — Chassis ground: CHECK POOR CONTACT OF CONNECTOR.	la thara page contact in con	Danair the can	Co to stop 7
6	Turn the ignition switch OFF.	Is there poor contact in con- nector between generator, bat-	Repair the con- nector.	Go to step 7.
	furit the ignition switch of t.	tery and ABSCM&H/U?	nector.	
7	CHECK ABSCM&H/U.	Is the same DTC displayed?	Replace the	Go to step 8.
l '	Connect all connectors.	listife same bit o displayed:	ABSCM&H/U.	Go to step o .
	Erase the memory.		<ref. abs-6,<="" th="" to=""><th></th></ref.>	
	3) Perform the Inspection Mode.		ABS Control Mod-	
	4) Read the DTC.		ule and Hydraulic	
	i) Hour the Bro.		Control Unit	
			(ABSCM&H/U).>	
8	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC dis-	Check DTC using	Temporary poor
	CLONG, AND TO THE PARTY OF LATE	played?	•	contact occurs.
		piayou.	Trouble Code	NOTE:
			(DTC)". <ref. th="" to<=""><th>Though the ABS</th></ref.>	Though the ABS
				warning light re-
				mains on at this
			-	time, this is nor-
			(5.0).	mal. Drive the ve-
				hicle at more than
				12 km/h (7 MPH) in
				order to turn ABS
				warning light off.
				Be sure to drive
				the vehicle and
				check that the
				warning light goes
				off.
			l	J

V: DTC 54 FAULTY STOP LIGHT SWITCH

DTC DETECTING CONDITION:

Defective stop light switch



	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 screen?	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 screen?	Go to step 5.	Go to step 3.

	Step	Check	Yes	No
3	CHECK IF STOP LIGHTS COME ON.	Does the stop light illuminate?	Go to step 4.	Repair the stop
	Depress the brake pedal.			light circuit.
4	CHECK OPEN CIRCUIT IN HARNESS. 1) Turn the ignition switch OFF. 2) Disconnect the ABSCM&H/U connectors. 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 the har- ness between stop light switch and ABSCM&H/U con- nector.
5	CHECK POOR CONTACT OF CONNECTOR.	Is there poor contact in the connector between stop light switch and ABSCM&H/U?	Go to step 6.	Repair the con- nector.
6	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <ref. abs-7,<br="" to="">REPLACEMENT, ABS Control Mod- ule and Hydraulic Control Unit (ABSCM&H/U).></ref.>	Go to step 7.
7	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC dis- played?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. to<br="">ABS(diag)-35, List of Diagnostic Trou- ble Code (DTC).></ref.>	

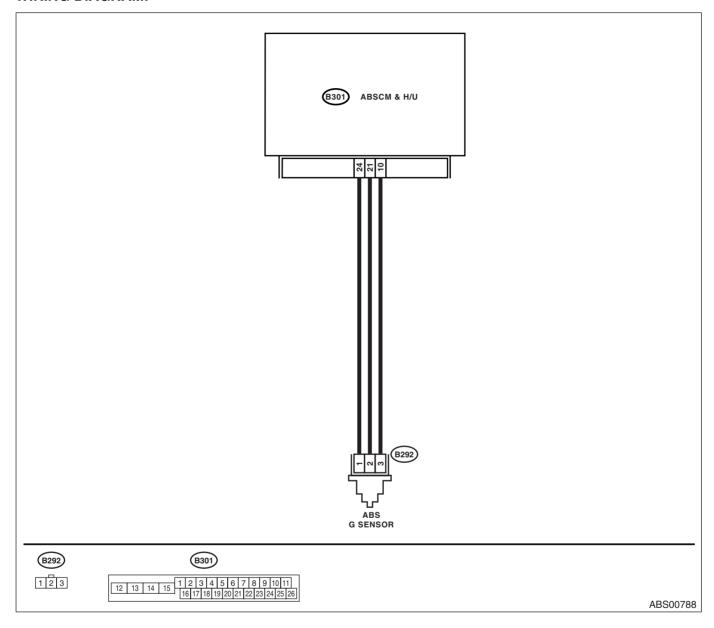
W: DTC 56 G SENSOR OUTPUT VOLTAGE OR OUTPUT SIGNAL MALFUNCTION

DTC DETECTING CONDITION:

Defective G sensor

TROUBLE SYMPTOM:

ABS does not operate.



	Step	Check	Yes	No
1	WHETHER A WHEEL TURNED FREELY OR NOT		ABS is normal. Erase the memory.	Go to step 2.
2		Is the reading indicated on dis- play -1.2 — 1.2 m/s when the G sensor is horizontal?	Go to step 3.	Go to step 6.

	Step	Check	Yes	No
3	CHECK POOR CONTACT OF CONNECTOR.	Is there poor contact in con- nectors between ABSCM&H/U and G sensor?	Repair the connector.	Go to step 4.
4	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <ref. (abscm&h="" abs="" abs-7,="" and="" control="" hydraulic="" module="" replacement,="" to="" u).="" unit=""></ref.>	Go to step 5.
5	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. to<br="">ABS(diag)-35, List of Diagnostic Trou- ble Code (DTC).></ref.>	Temporary poor contact occurs.
6	CHECK INPUT VOLTAGE OF G SENSOR. 1) Turn the ignition switch OFF. 2) Remove the console box. 3) Remove the G sensor from vehicle. (Do not disconnect the connector.) 4) Turn the ignition switch 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 7.	Repair the har- ness connector between the G sensor and ABSCM&H/U.
7		Is the resistance between 3.6 and 3.8 k Ω ?	Go to step 8.	Repair the har- ness connector between the G sensor and ABSCM&H/U.
8	CHECK GROUND SHORT IN G SENSOR OUTPUT HARNESS. 1) Disconnect the connector from G sensor. 2) Measure the resistance between the ABSCM&H/U connector and chassis ground. Connector & terminal (B301) No. 21 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 9.	Repair the har- ness between the G sensor and ABSCM&H/U.
9	CHECK G SENSOR. 1) Connect the connector to G sensor. 2) Connect the connector to ABSCM&H/U. 3) Turn the ignition switch 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 in horizontal position?	Go to step 10.	Replace the G sensor. <ref. to<br="">ABS-22, G Sen- sor.></ref.>
10	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 the G sensor is inclined forward to 90°?	Go to step 11.	Replace the G sensor. <ref. to<br="">ABS-22, G Sen- sor.></ref.>

	Step	Check	Yes	No
11	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 back 90°?	Go to step 12.	Replace the G sensor. <ref. to<br="">ABS-22, G Sen- sor.></ref.>
12	CHECK POOR CONTACT OF CONNECTOR. Turn the ignition switch OFF.	Is there poor contact in connectors between ABSCM&H/U and G sensor?	Repair the con- nector.	Go to step 13.
13	CHECK ABSCM&H/U. 1) Connect all connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the ABSCM only. <ref. abs-7,<br="" to="">REPLACEMENT, ABS Control Mod- ule and Hydraulic Control Unit (ABSCM&H/U).></ref.>	Go to step 14.
14	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC dis- played?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" abs(diag)-35,="" ble="" code="" diagnostic="" list="" of="" to="" trou-=""></ref.>	Temporary poor contact occurs.