8. Diagnostics Chart with Trouble Code

A: LIST OF TROUBLE CODE

Trouble code	Contents of diagnosis		Ref. to
11	Start code ● Trouble code is shown after start code. ● Only start code is shown in normal condition.		—
21	Abnormal ABS sensor (Open circuit or input voltage too high)	Front right ABS sensor	4-4c [T8B0]
23		Front left ABS sensor	
25		Rear right ABS sensor	
27		Rear left ABS sensor	
22	Abnormal ABS sensor (Abnormal ABS sensor signal)	Front right ABS sensor	4-4c [T8C0]
24		Front left ABS sensor	
26		Rear right ABS sensor	
28		Rear left ABS sensor	
29		Any one of four	4-4c [T8D0]
31	Abnormal solenoid valve circuit(s) in hydraulic unit	Front right inlet valve	4-4c [T8E0]
32		Front right outlet valve	4-4c [T8F0]
33		Front left inlet valve	4-4c [T8E0]
34		Front left outlet valve	4-4c [T8F0]
35		Rear right inlet valve	4-4c [T8E0]
36		Rear right outlet valve	4-4c [T8F0]
37		Rear left inlet valve	4-4c [T8E0]
38		Rear left outlet valve	4-4c [T8F0]
41	Abnormal ABS control module		4-4c [T8G0]
42	Source voltage is low.		4-4c [T8H0]
44	A combination of AT control abnormals		4-4c [T8I0]
46	Abnormal G sensor power supply voltage		4-4c [T8J0]
51	Abnormal valve relay		4-4c [T8K0]
52	Abnormal motor and/or motor relay		4-4c [T8L0]
54	Abnormal stop light switch		4-4c [T8M0]
56	Abnormal G sensor output voltage		4-4c [T8N0]

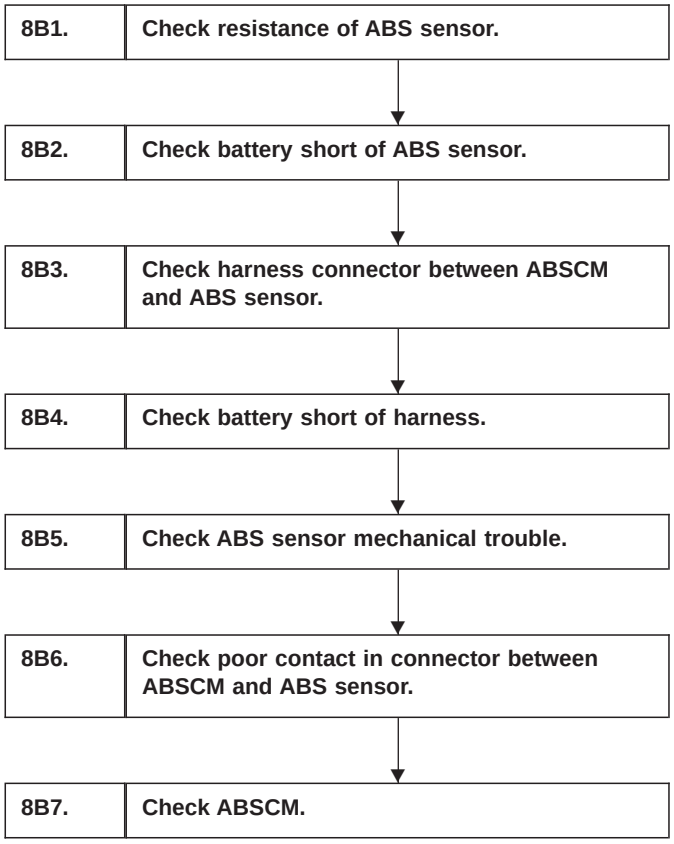
B: TROUBLE CODE 21 (FRONT RH) TROUBLE CODE 23 (FRONT LH) TROUBLE CODE 25 (REAR RH) TROUBLE CODE 27 (REAR LH) — ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) —

DIAGNOSIS:

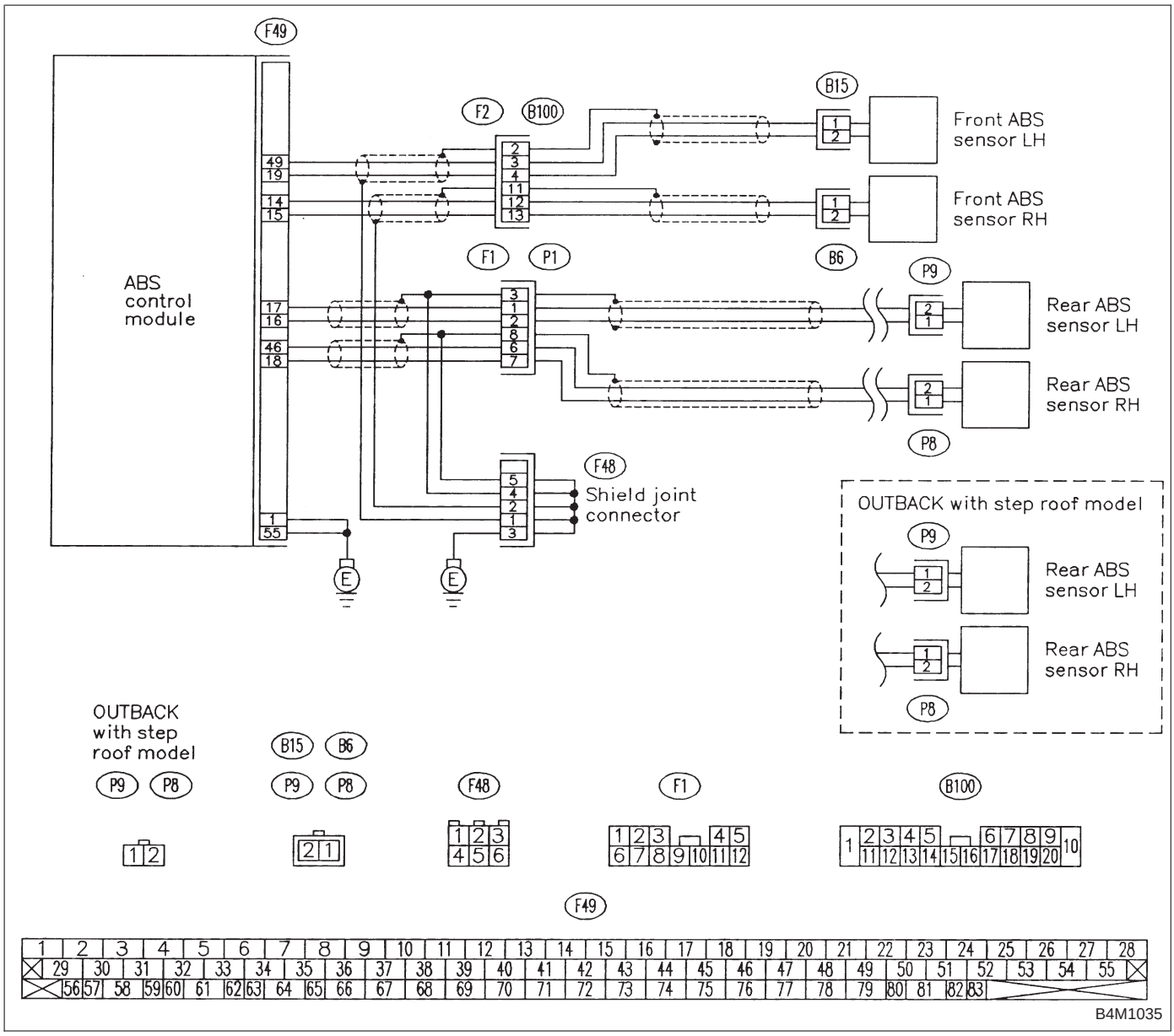
- Faulty ABS sensor (Broken wire, input voltage too high)
- Faulty harness connector

TROUBLE SYMPTOM:

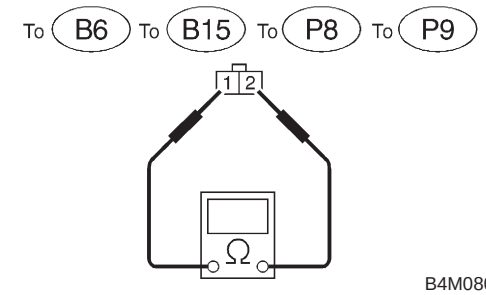
- ABS does not operate.



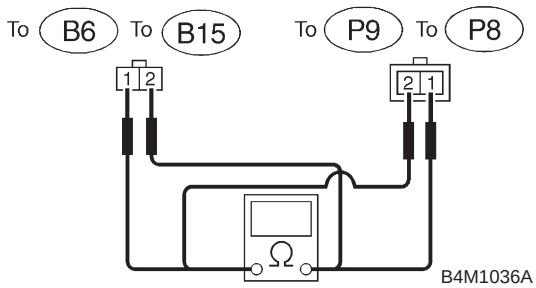
WIRING DIAGRAM:



Except OUTBACK with step roof model



OUTBACK with step roof model



8B1	CHECK RESISTANCE OF ABS SENSOR.

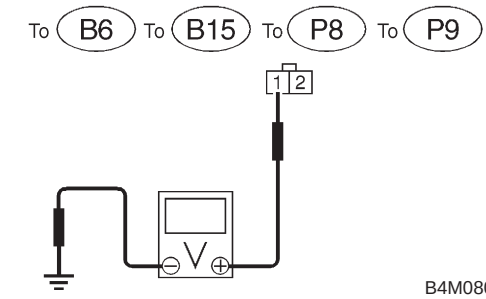
1) Turn ignition switch to OFF.
2) Disconnect connector from ABS sensor.
3) Measure resistance of ABS sensor connector terminals.

CHECK : ***Trouble code/Connector & terminal***
21/to (B6) No. 1 — No. 2
23/to (B15) No. 1 — No. 2
25/to (P8) No. 1 — No. 2
27/to (P9) No. 1 — No. 2
Is resistance 0.8 — 1.2 kΩ?

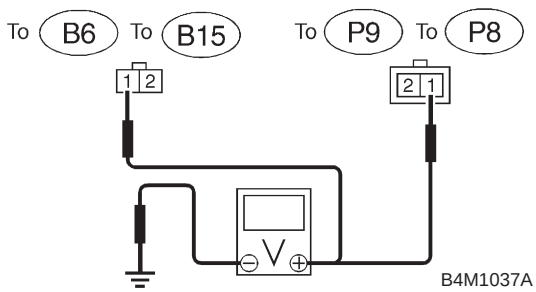
YES : Go to step **8B2.**

NO : Replace ABS sensor.

Except OUTBACK with step roof model



OUTBACK with step roof model



8B2	CHECK BATTERY SHORT OF ABS SENSOR.

1) Disconnect connector from ABSCM.
2) Turn ignition switch to ON.
3) Measure voltage between ABS sensor and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
21/to (B6) No. 1 (+) — Chassis ground (−)
23/to (B15) No. 1 (+) — Chassis ground (−)
25/to (P8) No. 1 (+) — Chassis ground (−)
27/to (P9) No. 1 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

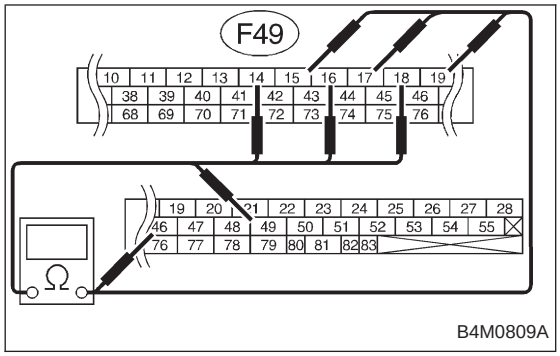
NO : Replace ABS sensor.

4) Turn ignition switch to OFF.
5) Measure voltage between ABS sensor and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
21/to (B6) No. 1 (+) — Chassis ground (−)
23/to (B15) No. 1 (+) — Chassis ground (−)
25/to (P8) No. 1 (+) — Chassis ground (−)
27/to (P9) No. 1 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8B3.**

NO : Replace ABS sensor.



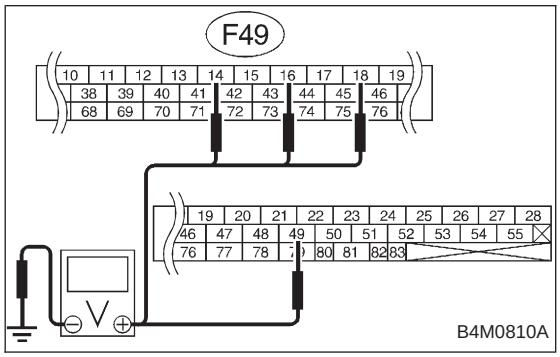
8B3	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

1) Connect connector to ABS sensor.
2) Measure resistance between ABSCM connector terminals.

CHECK : ***Trouble code/Connector & terminal***
21/(F49) No. 14 — No. 15
23/(F49) No. 49 — No. 19
25/(F49) No. 18 — No. 46
27/(F49) No. 16 — No. 17
Is resistance 0.8 — 1.2 kΩ?

YES : Go to step **8B4.**

NO : Repair harness connector between ABSCM and ABS sensor.



8B4	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
21/(F49) No. 14 (+) — Chassis ground (−)
23/(F49) No. 49 (+) — Chassis ground (−)
25/(F49) No. 18 (+) — Chassis ground (−)
27/(F49) No. 16 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

NO : Repair harness between ABSCM and ABS sensor.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
21/(F49) No. 14 (+) — Chassis ground (−)
23/(F49) No. 49 (+) — Chassis ground (−)
25/(F49) No. 18 (+) — Chassis ground (−)
27/(F49) No. 16 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8B5.**

NO : Repair harness between ABSCM and ABS sensor.

8B5	CHECK ABS SENSOR MECHANICAL TROUBLE.

CHECK : ***Tightening torque:***
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)
Are the ABS sensor installation bolts tightened securely?

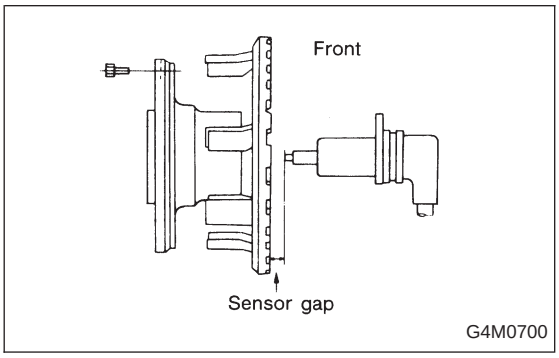
YES : Go to next CHECK .

NO : Tighten ABS sensor installation bolts securely.

CHECK : ***Tightening torque:***
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)
Are the tone wheel installation bolts tightened securely?

YES : Go to next step.

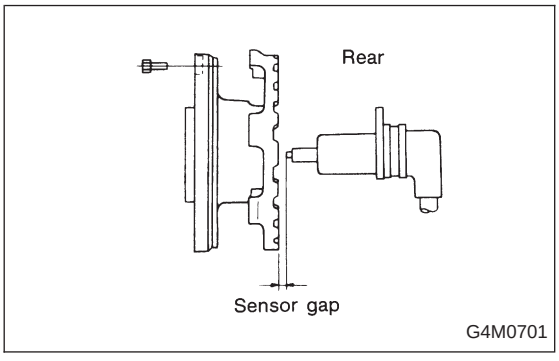
NO : Tighten tone wheel installation bolts securely.



1) Measure tone wheel-to-pole piece gap over entire perimeter of the wheel.

CHECK : ***Is the gap within the specifications shown in the following table?***

	Front wheel	Rear wheel
Specifications	0.9 — 1.4 mm (0.035 — 0.055 in)	0.7 — 1.2 mm (0.028 — 0.047 in)



YES : Go to next step.

NO : Adjust the gap.

NOTE:
Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

2) Measure hub runout.

CHECK : ***Is the runout less than 0.05 mm (0.0020 in)?***

YES : Go to step **8B6.**

NO : Repair hub.

8B6	**CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND ABS SENSOR.**

CHECK ***: Is there poor contact in connectors between ABSCM and ABS sensor?***

YES : Repair connector.

NO : Go to step **8B7.**

8B7	**CHECK ABSCM.**

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

NOTE:
Check harness and connectors between ABSCM and ABS sensor.

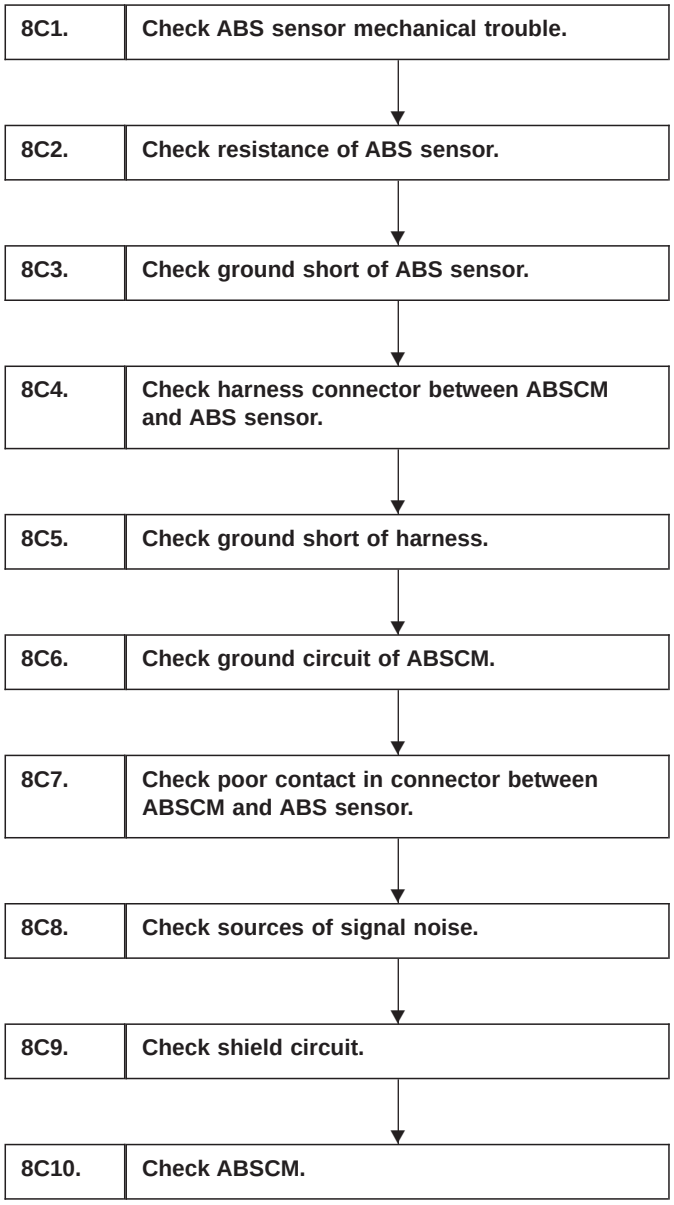
C: TROUBLE CODE 22 (FRONT RH) TROUBLE CODE 24 (FRONT LH) TROUBLE CODE 26 (REAR RH) TROUBLE CODE 28 (REAR LH) — ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) —

DIAGNOSIS:

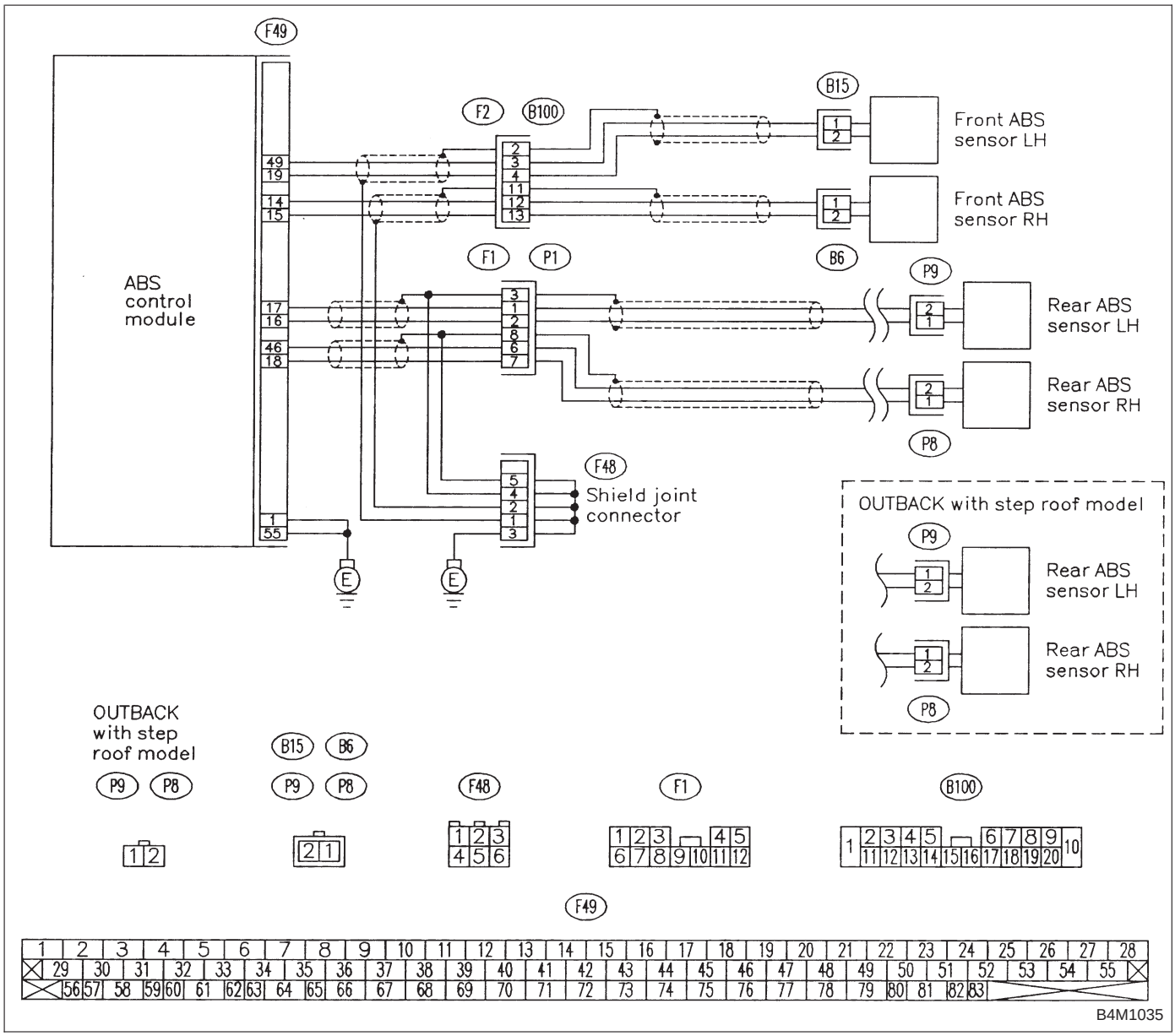
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty harness/connector

TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:



8C1	CHECK ABS SENSOR MECHANICAL TROUBLE.

CHECK : ***Tightening torque:***
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)
Are the ABS sensor installation bolts tightened securely?

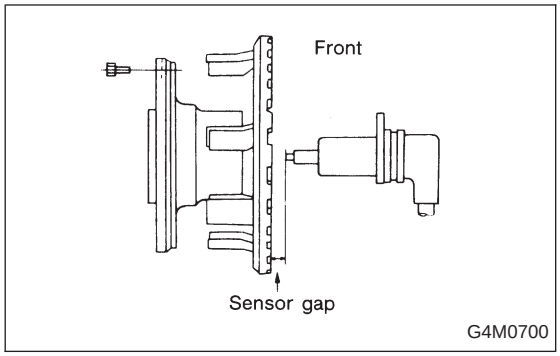
YES : Go to next CHECK .

NO : Tighten ABS sensor installation bolts securely.

CHECK : ***Tightening torque:***
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)
Are the tone wheel installation bolts tightened securely?

YES : Go to next step.

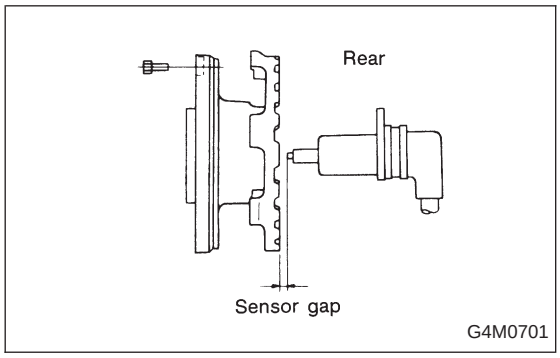
NO : Tighten tone wheel installation bolts securely.



1) Measure tone wheel to pole piece gap over entire perimeter of the wheel.

CHECK ***: Is the gap within the specifications shown in the following table?***

	Front wheel	Rear wheel
Specifications	0.9 — 1.4 mm (0.035 — 0.055 in)	0.7 — 1.2 mm (0.028 — 0.047 in)



YES : Go to next CHECK .

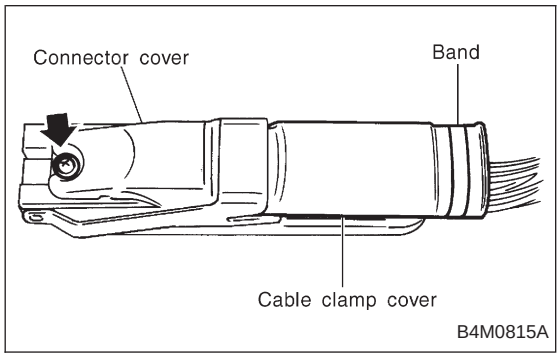
NO : Adjust the gap.

NOTE:
Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

CHECK ***: Is an oscilloscope available?***

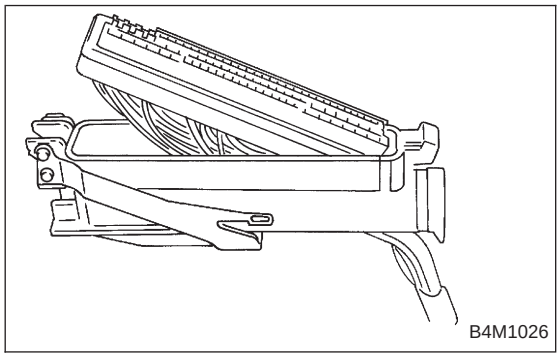
YES : Go to next step.

NO : Go to step 13).

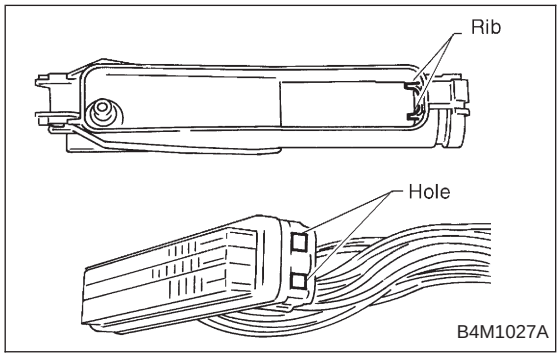


2) Raise all four wheels of ground.
3) Turn ignition switch OFF.
4) Disconnect connector from ABS control module.
5) Remove band.
6) Remove cable clamp cover.
7) Remove screws securing connector cover.

CAUTION:
Do not allow harness to catch on adjacent parts during installation.

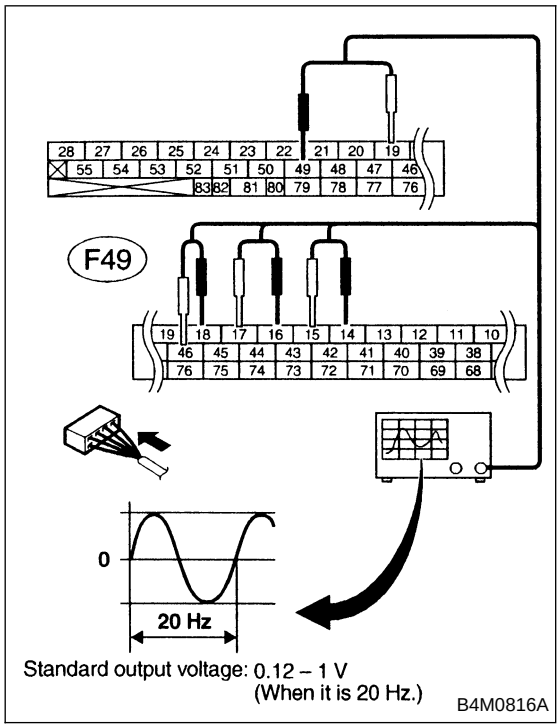


8) Remove connector cover.



NOTE:
- To install, reverse above removal procedures.
- Align connector cover rib with connector hole before installation.

9) Connect connector to ABS control module.
10) Connect the oscilloscope to the ABS control module connector in accordance with trouble code.
11) Turn ignition switch ON.



12) Rotate wheels and measure voltage at specified frequency.
NOTE:
When this inspection is completed, the ABS control module sometimes stores the trouble code 29.

TROUBLE CODE / Connector & terminal:
22 / (F49) No. 14 (+) — No. 15 (−)
24 / (F49) No. 49 (+) — No. 19 (−)
26 / (F49) No. 18 (+) — No. 46 (−)
28 / (F49) No. 16 (+) — No. 17 (−)
Specified voltage: 0.12 — 1 V (When it is 20 Hz.)

CHECK ***: Is oscilloscope pattern smooth, as shown in figure?***

YES : Go to step **8C2.**

NO : Go to next step.

13) Remove disc rotor from hub in accordance with trouble code.

CHECK ***: Is the ABS sensor pole piece or the tone wheel contaminated by dirt or other foreign matter?***

YES : Thoroughly remove dirt or other foreign matter.

NO : Go to next CHECK .

CHECK ***: Are there broken or damaged teeth in the ABS sensor pole piece or the tone wheel?***

YES : Replace ABS sensor or tone wheel.

NO : Go to next step.

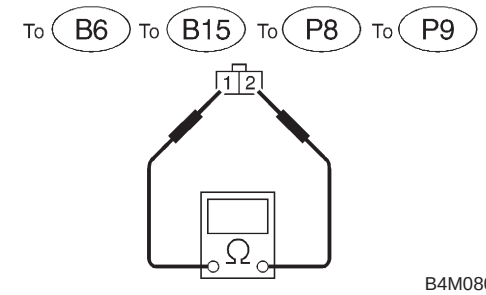
14) Measure hub runout.

CHECK ***: Is the runout less than 0.05 mm (0.0020 in)?***

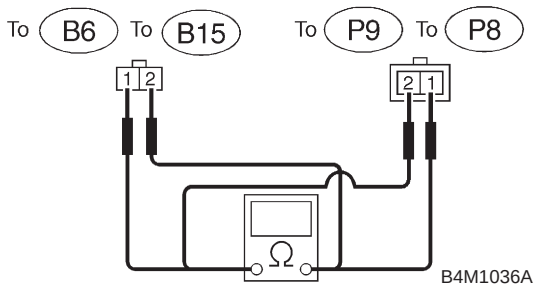
YES : Go to step **8C2.**

NO : Repair hub.

Except OUTBACK with step roof model



OUTBACK with step roof model



8C2	CHECK RESISTANCE OF ABS SENSOR.

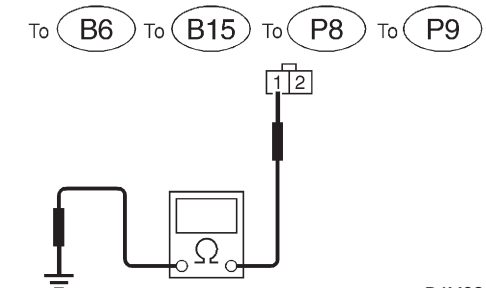
1) Turn ignition switch OFF.
2) Disconnect connector from ABS sensor.
3) Measure resistance between ABS sensor connector terminals.

CHECK : ***Trouble code/Connector & terminal***
22/to (B6) No. 1 — No. 2
24/to (B15) No. 1 — No. 2
26/to (P8) No. 1 — No. 2
28/to (P9) No. 1 — No. 2
Is resistance 0.8 — 1.2 kΩ?

YES : Go to step **8C3.**

NO : Replace ABS sensor.

Except OUTBACK with step roof model



8C3	CHECK GROUND SHORT OF ABS SENSOR.

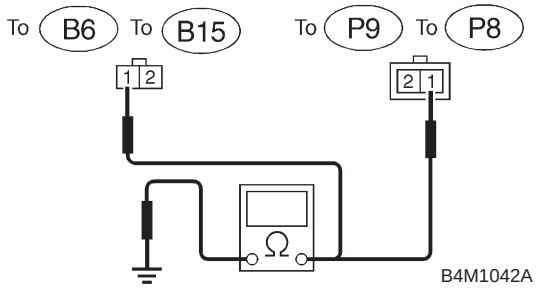
Measure resistance between ABS sensor and chassis ground.

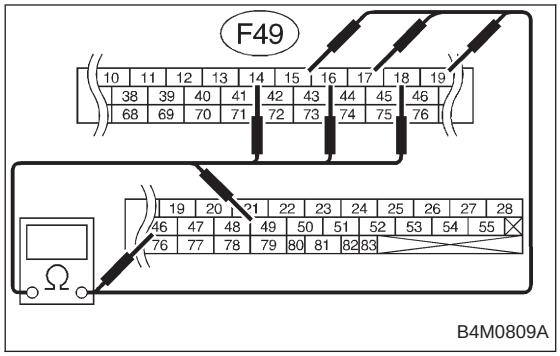
CHECK : ***Trouble code/Connector & terminal***
22/to (B6) No. 1 — Chassis ground
24/to (B15) No. 1 — Chassis ground
26/to (P8) No. 1 — Chassis ground
28/to (P9) No. 1 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8C4.**

NO : Replace ABS sensor.

OUTBACK with step roof model





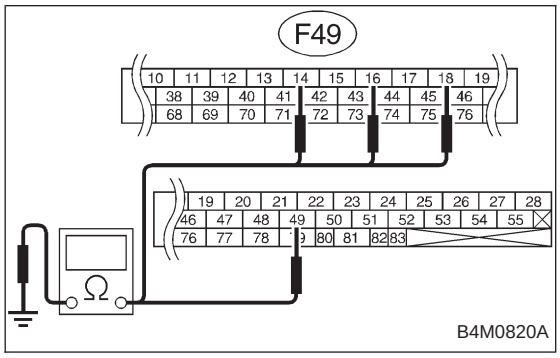
8C4	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

1) Connect connector to ABS sensor.
2) Disconnect connector from ABS control module.
3) Measure resistance at ABSCM connector terminals.

CHECK ***: Trouble code/Connector & terminal***
22/(F49) No. 14 — No. 15
24/(F49) No. 49 — No. 19
26/(F49) No. 18 — No. 46
28/(F49) No. 16 — No. 17
Is resistance 0.8 — 1.2 kΩ?

YES : Go to step **8C5.**

NO : Repair harness connector between ABSCM and ABS sensor.



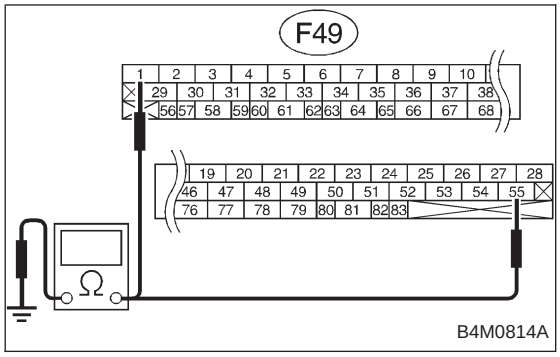
8C5	CHECK GROUND SHORT OF HARNESS.

Measure resistance between ABSCM connector and chassis ground.

CHECK ***: Trouble code/Connector & terminal***
22/(F49) No. 14 — Chassis ground
24/(F49) No. 49 — Chassis ground
26/(F49) No. 18 — Chassis ground
28/(F49) No. 16 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8C6.**

NO : Repair harness connector between ABSCM and ABS sensor.



8C6	CHECK GROUND CIRCUIT OF ABSCM.

Measure resistance between ABSCM and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 1 — GND
(F49) No. 55 — GND
Is resistance less than 0.5 Ω?

YES : Go to step **8C7.**

NO : Repair ABSCM ground harness.

8C7	CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

CHECK ***: Is there poor contact in connectors between ABSCM and ABS sensor?***

YES : Repair connector.

NO : Go to step **8C8.**

8C8	CHECK SOURCES OF SIGNAL NOISE.

CHECK ***: Is the car telephone or the wireless transmitter properly installed?***

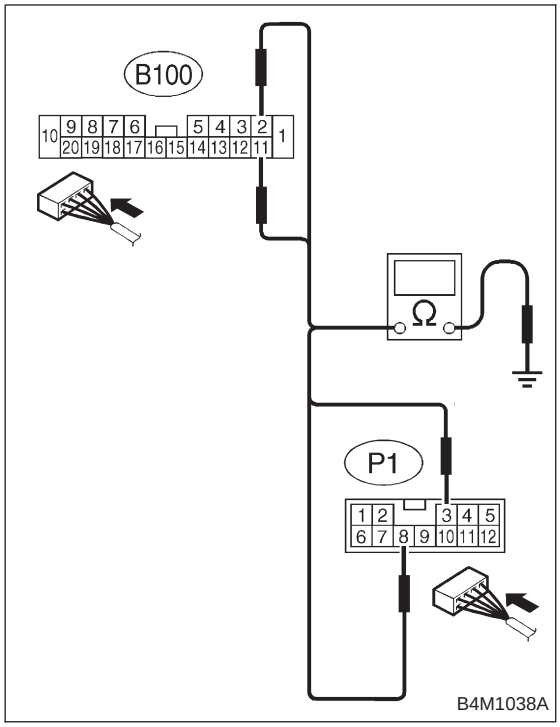
YES : Go to next CHECK .

NO : Properly install the car telephone or the wireless transmitter.

CHECK ***: Are noise sources (such as an antenna) installed near the sensor harness?***

YES : Install the noise sources apart from the sensor harness.

NO : Go to step **8C9.**



8C9	CHECK SHIELD CIRCUIT.

1) Connect all connectors.
2) Measure resistance between shield connector and chassis ground.

CHECK ***: Trouble code/Connector & terminal***
22/(B100) No. 11 — Chassis ground
24/(B100) No. 2 — Chassis ground
26/(P1) No. 8 — Chassis ground
28/(P1) No. 3 — Chassis ground
Is resistance less than 0.5 Ω?

YES : Go to step **8C10.**

NO : Repair shield harness.

8C10	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary noise interference.

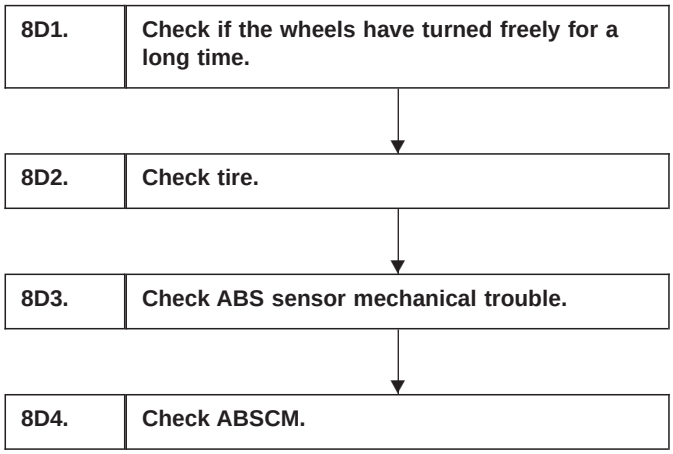
D: TROUBLE CODE 29 — ABNORMAL ABS SENSOR SIGNAL (ANY ONE OF FOUR) —

DIAGNOSIS:

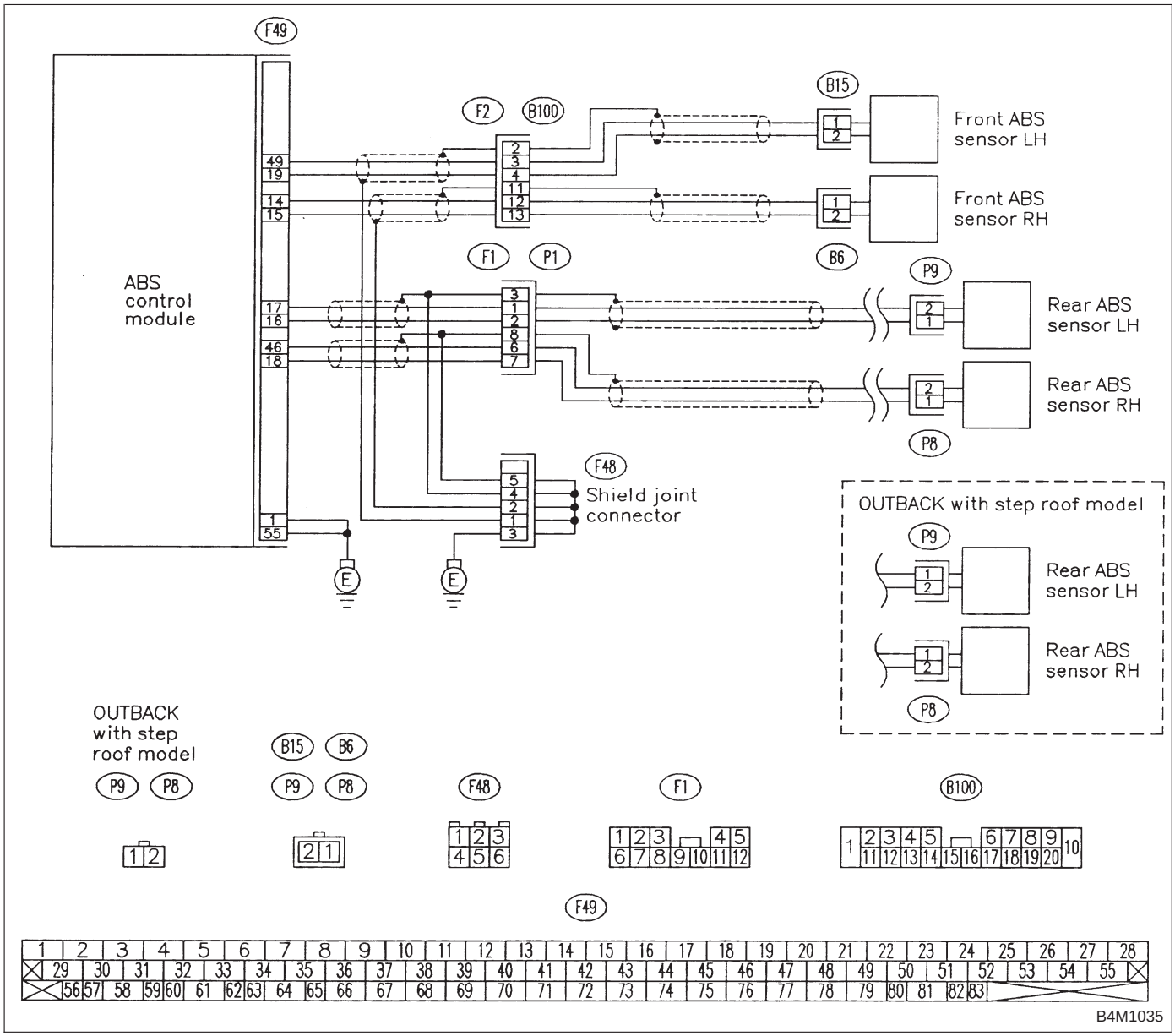
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty tone wheel
- Wheels turning freely for a long time

TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:



8D1	CHECK IF THE WHEELS HAVE TURNED FREELY FOR A LONG TIME.

CHECK : ***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 tire is not in contact with road surface.***

YES : The ABS is normal. Erase the trouble code.

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 trouble code may sometimes occur.

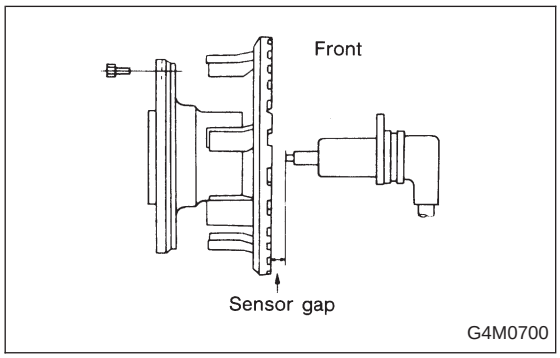
NO : Go to step **8D2.**

8D2	CHECK TIRE.

CHECK : ***Are the tire specifications correct?***
YES : Go to next CHECK .
NO : Replace tire.
CHECK : ***Is the tire worn excessively?***
YES : Replace tire.
NO : Go to next CHECK .
CHECK : ***Is the tire pressure correct?***
YES : Go to step **8D3.**
NO : Adjust tire pressure.

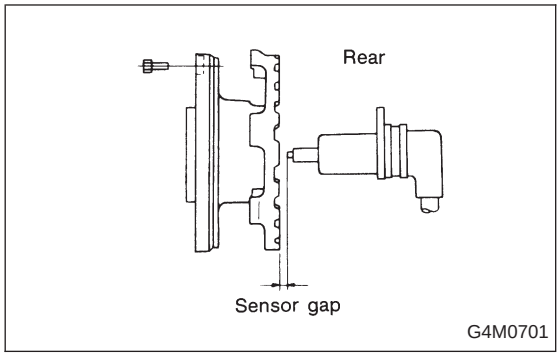
8D3	CHECK ABS SENSOR MECHANICAL TROUBLE.

CHECK : ***Tightening torque:***
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)
Are the ABS sensor installation bolts tightened securely?
YES : Go to next CHECK .
NO : Tighten ABS sensor installation bolts securely.
CHECK : ***Tightening torque:***
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)
Are the tone wheel installation bolts tightened securely?
YES : Go to next step.
NO : Tighten tone wheel installation bolts securely.



1) Measure tone wheel to pole piece gap over entire perimeter of the wheel.
CHECK : ***Is the gap within the specifications shown in the following table?***

	Front wheel	Rear wheel
Specifications	0.9 — 1.4 mm (0.035 — 0.055 in)	0.7 — 1.2 mm (0.028 — 0.047 in)

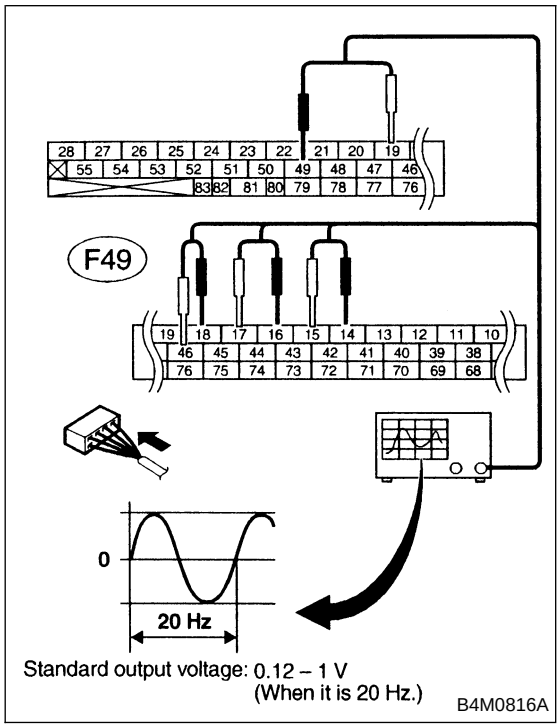


YES : Go to next CHECK .
NO : Adjust the gap.

NOTE:
Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

CHECK ***: Is an oscilloscope available?***
YES : Go to next step.
NO : Go to step 10).

2) Raise all four wheels of ground.
3) Turn ignition switch OFF.
4) Disconnect connector from ABS control module.
5) Disconnect connector cover from connector.
<Ref. to 4-4c [T8C1] steps 5) to 8).>
6) Connect connector to ABS control module.
7) Connect the oscilloscope to the ABS control module connector.
8) Turn ignition switch ON.



9) Rotate wheels and measure voltage at specified frequency.

NOTE:
When this inspection is completed, the ABS control module sometimes stores the trouble code 29.

TROUBLE CODE / Connector & terminal:
(F49) No. 14 (+) — No. 15 (−) (Front RH)
(F49) No. 49 (+) — No. 19 (−) (Front LH)
(F49) No. 18 (+) — No. 46 (−) (Rear RH)
(F49) No. 16 (+) — No. 17 (−) (Rear LH)
Specified voltage: 0.12 — 1 V (When it is 20 Hz.)

CHECK ***: Is oscilloscope pattern smooth, as shown in figure?***
YES : Go to step **8D4.**
NO : Go to next step.

10) Remove disc rotor from hub.

CHECK ***: Is the ABS sensor pole piece or the tone wheel contaminated by dirt or other foreign matter?***

YES : Thoroughly remove dirt or other foreign matter.

NO : Go to next CHECK .

CHECK ***: Are there broken or damaged teeth in the ABS sensor pole piece or the tone wheel?***

YES : Replace ABS sensor or tone wheel.

NO : Go to next step.

11) Measure hub runout.

CHECK ***: Is the runout less than 0.05 mm (0.0020 in)?***

YES : Go to step **8D4.**

NO : Repair hub.

8D4	CHECK ABSCM.

1) Turn ignition switch to OFF.
2) Connect all connectors.
3) Erase the memory.
4) Perform inspection mode.
5) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

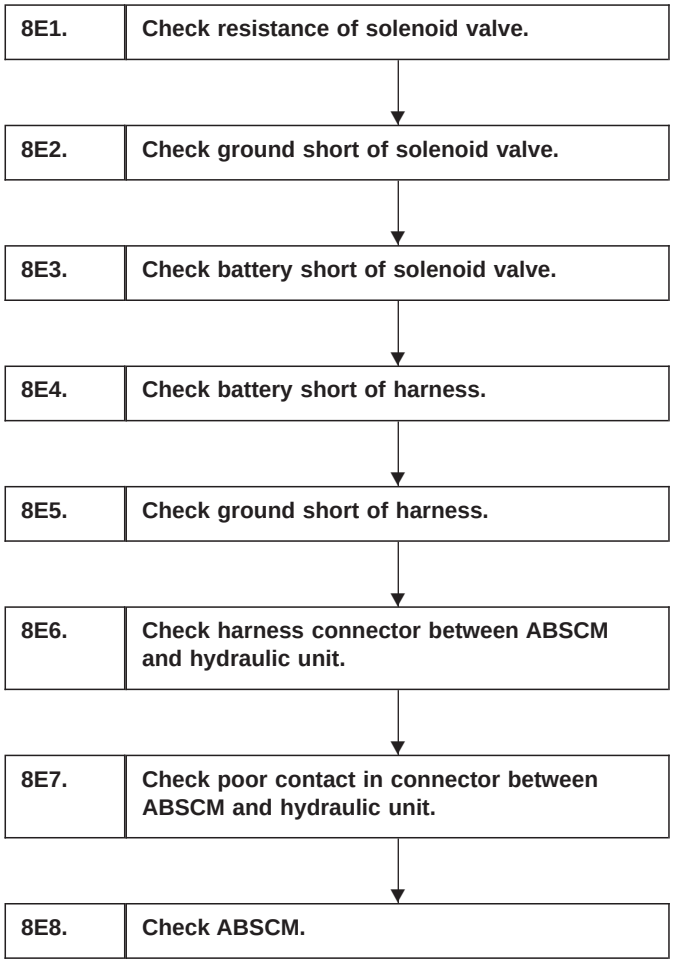
E: TROUBLE CODE 31 (FRONT RH) TROUBLE CODE 33 (FRONT LH) TROUBLE CODE 35 (REAR RH) TROUBLE CODE 37 (REAR LH) — ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN HYDRAULIC UNIT —

DIAGNOSIS:

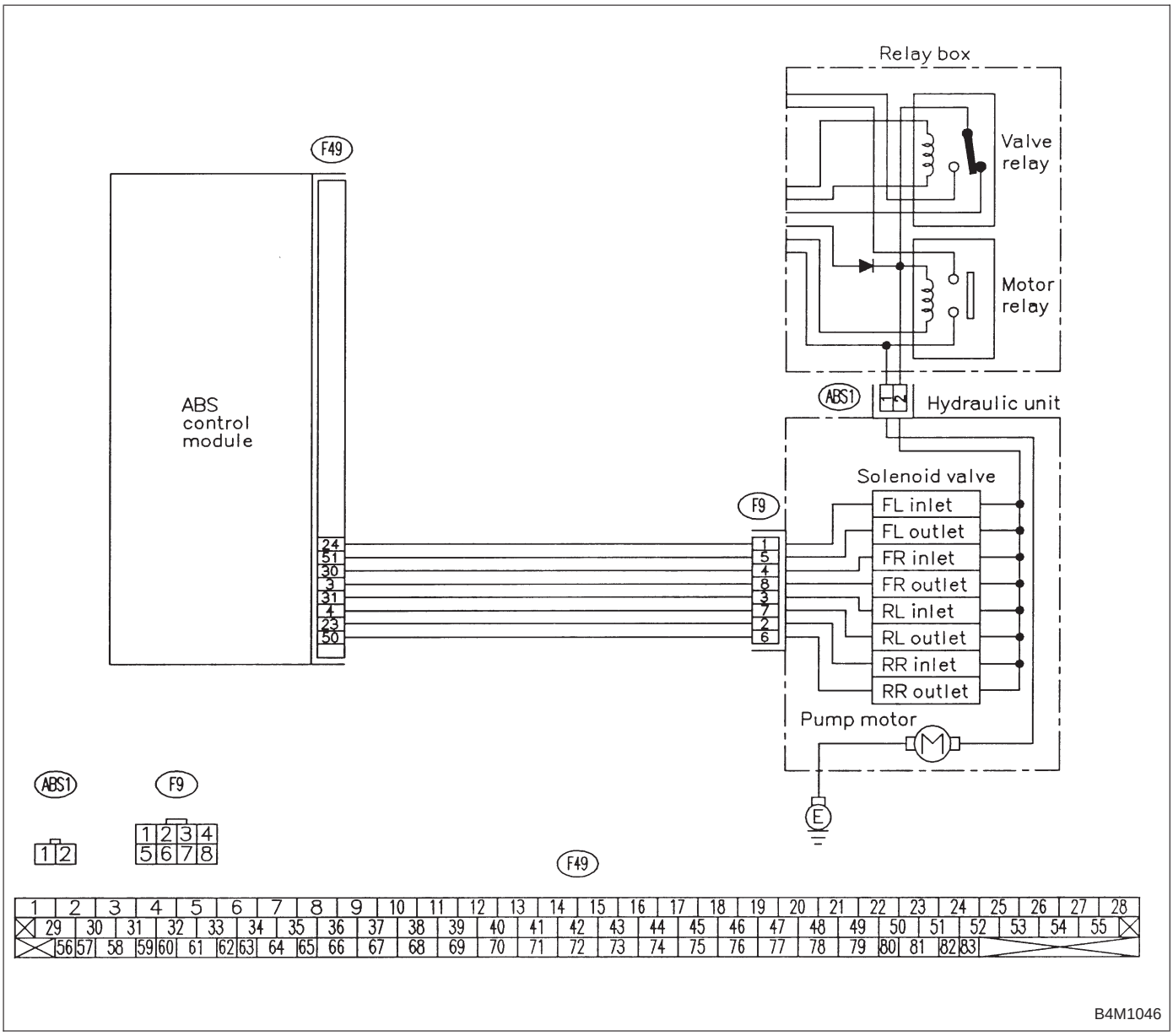
- Faulty harness/connector
- Faulty inlet solenoid valve in hydraulic unit

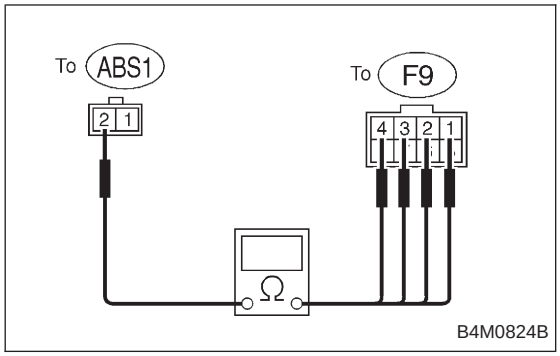
TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:





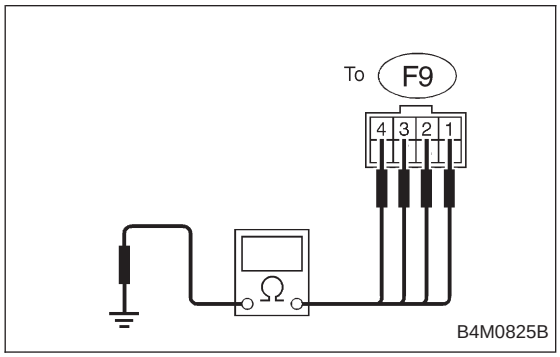
8E1	CHECK RESISTANCE OF SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Disconnect two connectors (ABS1, F9) from hydraulic unit.
3) Measure resistance between hydraulic unit connector terminals.

CHECK : ***Trouble code/Connector & terminal***
31/to (F9) No. 4 — to (ABS1) No. 2
33/to (F9) No. 1 — to (ABS1) No. 2
35/to (F9) No. 2 — to (ABS1) No. 2
37/to (F9) No. 3 — to (ABS1) No. 2
Is resistance 8.5±0.7 Ω?

YES : Go to step **8E2.**

NO : Replace hydraulic unit.



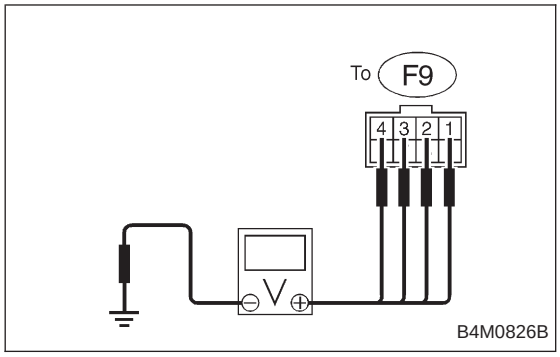
8E2	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
31/to (F9) No. 4 — Chassis ground
33/to (F9) No. 1 — Chassis ground
35/to (F9) No. 2 — Chassis ground
37/to (F9) No. 3 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8E3.**

NO : Replace hydraulic unit.



8E3	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Disconnect connector from ABSCM.
2) Turn ignition switch to ON.
3) Measure voltage between hydraulic unit connector and chassis ground.

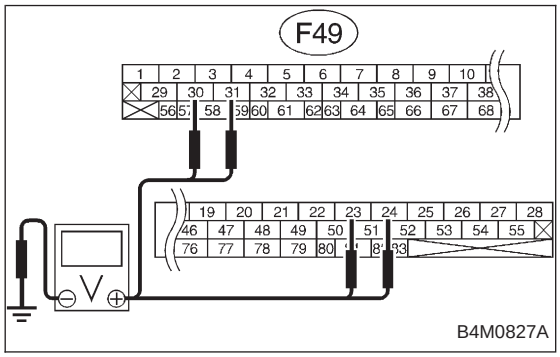
CHECK : ***Trouble code/Connector & terminal***
31/to (F9) No. 4 (+) — Chassis ground (−)
33/to (F9) No. 1 (+) — Chassis ground (−)
35/to (F9) No. 2 (+) — Chassis ground (−)
37/to (F9) No. 3 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.
NO : Replace hydraulic unit.

4) Turn ignition switch to OFF.
5) Measure voltage between hydraulic unit connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
31/to (F9) No. 4 (+) — Chassis ground (−)
33/to (F9) No. 1 (+) — Chassis ground (−)
35/to (F9) No. 2 (+) — Chassis ground (−)
37/to (F9) No. 3 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8E4.**
NO : Replace hydraulic unit.



8E4	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
31/(F49) No. 30 (+) — Chassis ground (−)
33/(F49) No. 24 (+) — Chassis ground (−)
35/(F49) No. 23 (+) — Chassis ground (−)
37/(F49) No. 31 (+) — Chassis ground (−)
Is voltage 0 V?

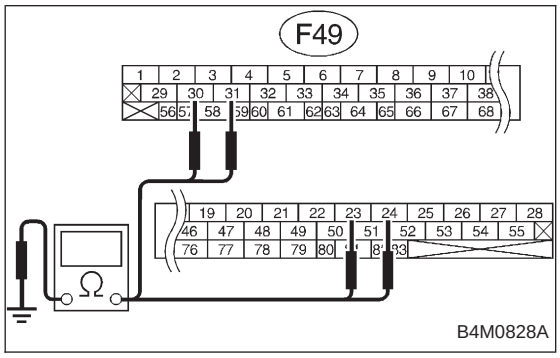
YES : Go to next step.
NO : Repair harness between ABSCM and hydraulic unit.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
31/(F49) No. 30 (+) — Chassis ground (−)
33/(F49) No. 24 (+) — Chassis ground (−)
35/(F49) No. 23 (+) — Chassis ground (−)
37/(F49) No. 31 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8E5.**

NO : Repair harness between ABSCM and hydraulic unit.



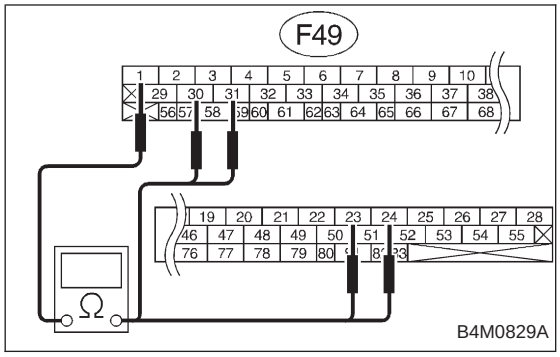
8E5	CHECK GROUND SHORT OF HARNESS.

Measure resistance between ABSCM connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
31/(F49) No. 30 — Chassis ground
33/(F49) No. 24 — Chassis ground
35/(F49) No. 23 — Chassis ground
37/(F49) No. 31 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8E6.**

NO : Repair harness between ABSCM and hydraulic unit.



8E6	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

1) Connect connector to hydraulic unit.
2) Measure resistance between ABSCM connector terminals.

CHECK ***: Trouble code/Connector & terminal***
31/(F49) No. 30 — No. 1
33/(F49) No. 24 — No. 1
35/(F49) No. 23 — No. 1
37/(F49) No. 31 — No. 1
Is resistance 9.0±0.7 Ω?

YES : Go to step **8E7.**

NO : Repair harness connector between ABSCM and hydraulic unit.

8E7	CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

CHECK ***: Is there poor contact in connectors between ABSCM and hydraulic unit?***

YES : Repair connector.

NO : Go to step **8E8.**

8E8	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

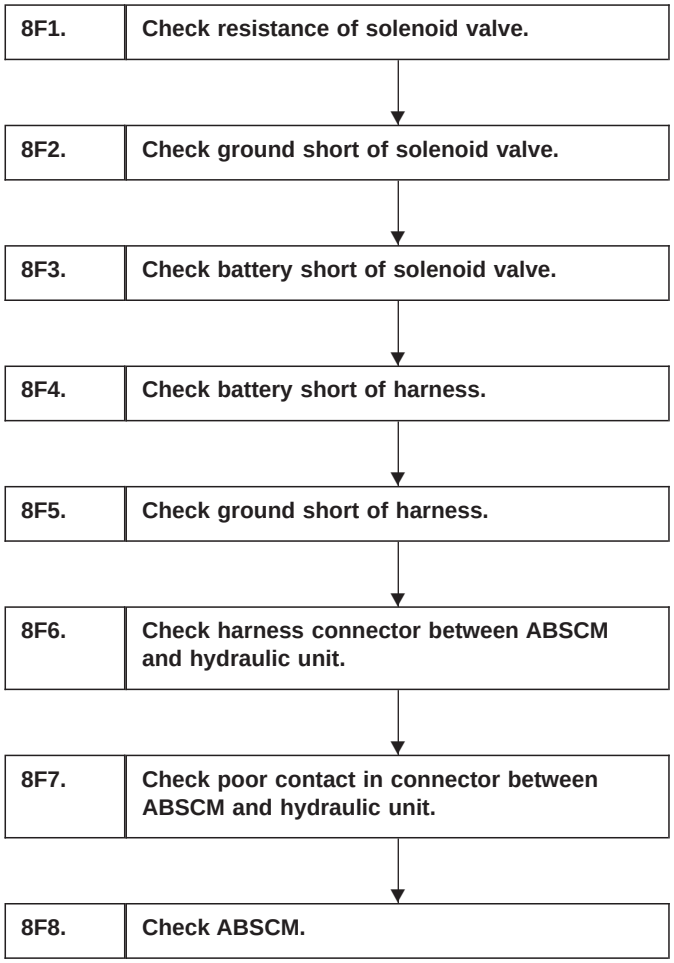
F: TROUBLE CODE 32 (FRONT RH) TROUBLE CODE 34 (FRONT LH) TROUBLE CODE 36 (REAR RH) TROUBLE CODE 38 (REAR LH) — ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN HYDRAULIC UNIT —

DIAGNOSIS:

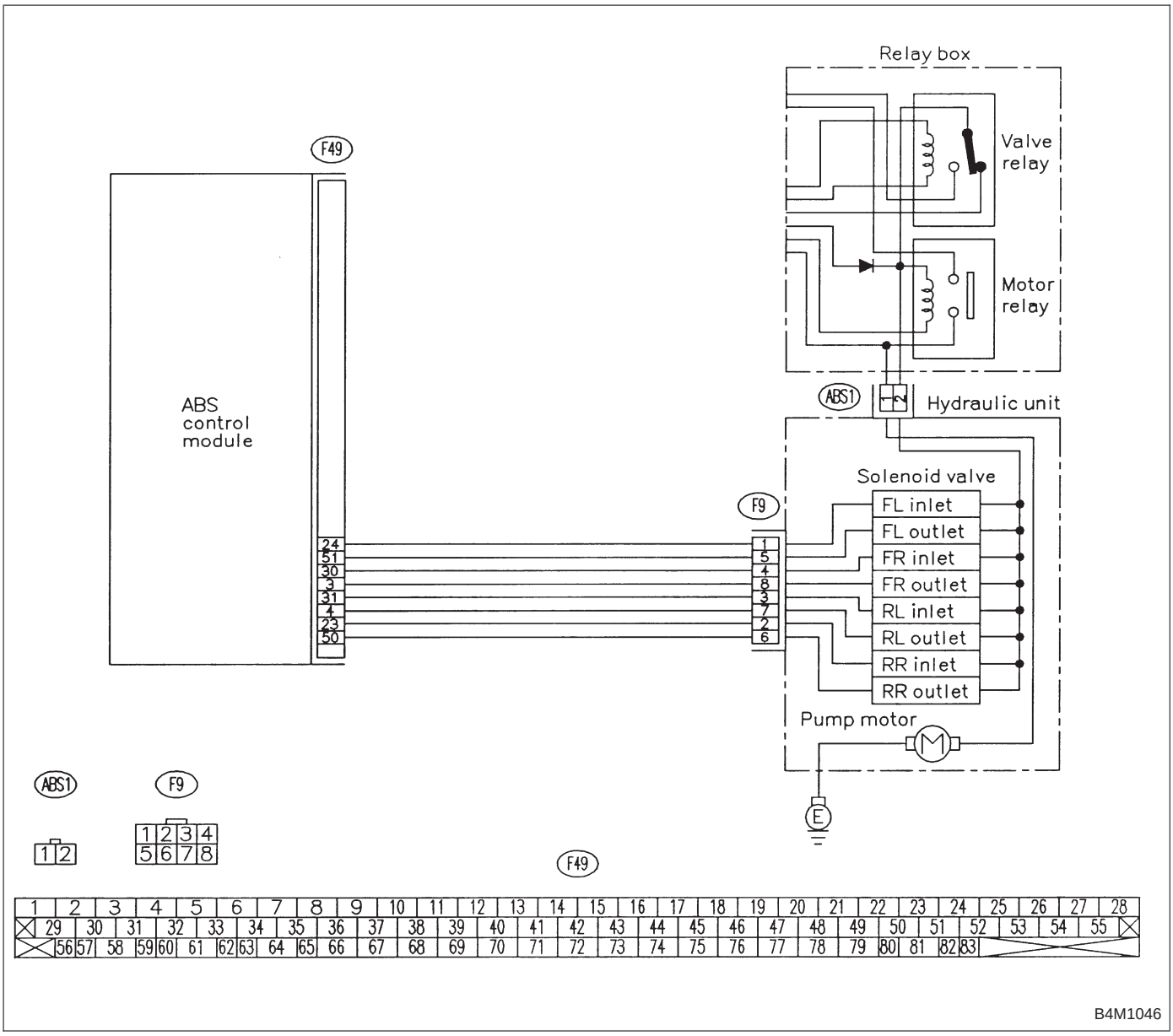
- Faulty harness/connector
- Faulty outlet solenoid valve in hydraulic unit

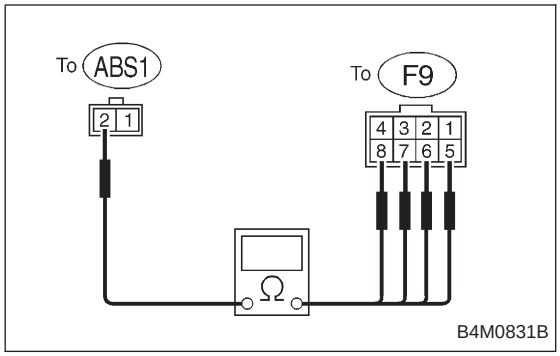
TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:





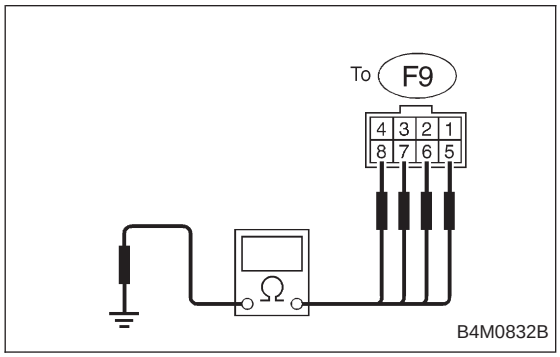
8F1	CHECK RESISTANCE OF SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Disconnect two connectors (ABS1, F9) from hydraulic unit.
3) Measure resistance between hydraulic unit connector terminals.

CHECK : ***Trouble code/Connector & terminal***
32/to (F9) No. 8 — to (ABS1) No. 2
34/to (F9) No. 5 — to (ABS1) No. 2
36/to (F9) No. 6 — to (ABS1) No. 2
38/to (F9) No. 7 — to (ABS1) No. 2
Is resistance 4.3±0.5 Ω?

YES : Go to step **8F2.**

NO : Replace hydraulic unit.



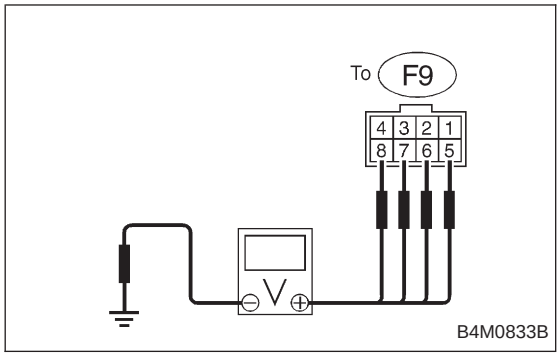
8F2	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
32/to (F9) No. 8 — Chassis ground
34/to (F9) No. 5 — Chassis ground
36/to (F9) No. 6 — Chassis ground
38/to (F9) No. 7 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8F3.**

NO : Replace hydraulic unit.



8F3	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Disconnect connector from ABSCM.
2) Turn ignition switch to ON.
3) Measure voltage between hydraulic unit connector and chassis ground.

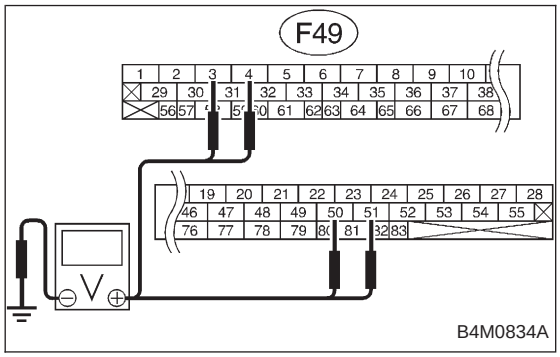
CHECK : ***Trouble code/Connector & terminal***
32/to (F9) No. 8 (+) — Chassis ground (−)
34/to (F9) No. 5 (+) — Chassis ground (−)
36/to (F9) No. 6 (+) — Chassis ground (−)
38/to (F9) No. 7 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.
NO : Replace hydraulic unit.

4) Turn ignition switch to OFF.
5) Measure voltage between hydraulic unit connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
32/to (F9) No. 8 (+) — Chassis ground (−)
34/to (F9) No. 5 (+) — Chassis ground (−)
36/to (F9) No. 6 (+) — Chassis ground (−)
38/to (F9) No. 7 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8F4.**
NO : Replace hydraulic unit.



8F4	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Trouble code/Connector & terminal***
32/(F49) No. 3 (+) — Chassis ground (−)
34/(F49) No. 51 (+) — Chassis ground (−)
36/(F49) No. 50 (+) — Chassis ground (−)
38/(F49) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

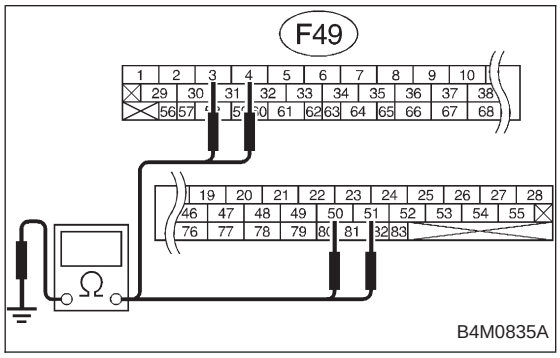
YES : Go to next step.
NO : Repair harness between ABSCM and hydraulic unit.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM connector and chassis ground.

CHECK ***: Trouble code/Connector & terminal***
32/(F49) No. 3 (+) — Chassis ground (−)
34/(F49) No. 51 (+) — Chassis ground (−)
36/(F49) No. 50 (+) — Chassis ground (−)
38/(F49) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8F5.**

NO : Repair harness between ABSCM and hydraulic unit.



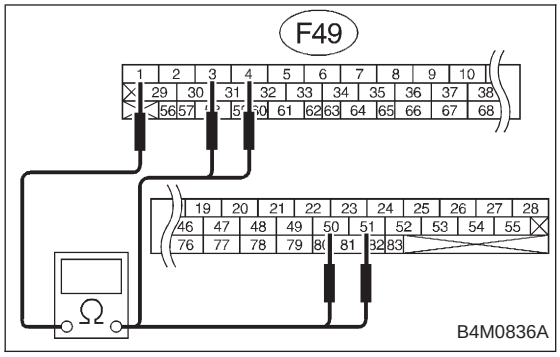
8F5	CHECK GROUND SHORT OF HARNESS.

Measure resistance between ABSCM connector and chassis ground.

CHECK ***: Trouble code/Connector & terminal***
32/(F49) No. 3 — Chassis ground
34/(F49) No. 51 — Chassis ground
36/(F49) No. 50 — Chassis ground
38/(F49) No. 4 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8F6.**

NO : Repair harness between ABSCM and hydraulic unit.



8F6	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

1) Connect connector to hydraulic unit.
2) Measure resistance between ABSCM connector terminals.

CHECK ***: Trouble code/Connector & terminal***
32/(F49) No. 3 — No. 1
34/(F49) No. 51 — No. 1
36/(F49) No. 50 — No. 1
38/(F49) No. 4 — No. 1
Is resistance 4.8±0.5 Ω?

YES : Go to step **8F7.**

NO : Repair harness connector between ABSCM and hydraulic unit.

8F7	CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

CHECK ***: Is there poor contact in connectors between ABSCM and hydraulic unit?***

YES : Repair connector.

NO : Go to step **8F8.**

8F8	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

G: TROUBLE CODE 41
— ABNORMAL ABS CONTROL MODULE —

DIAGNOSIS:

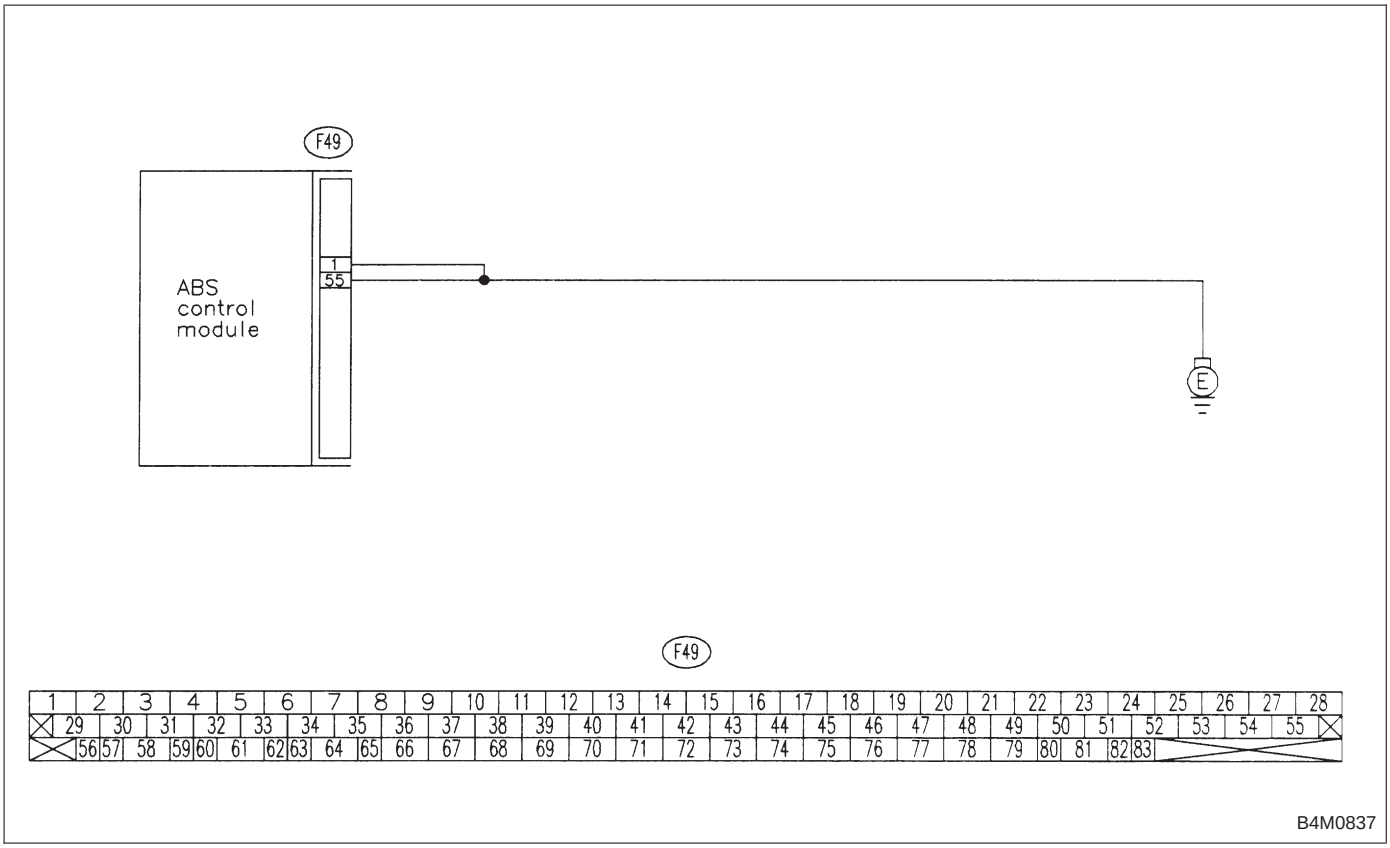
- Faulty ABSCM

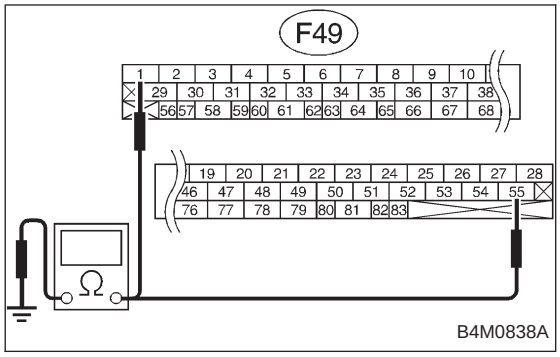
TROUBLE SYMPTOM:

- ABS does not operate.

8G1.	Check ground circuit of ABSCM.
↓	
8G2.	Check poor contact in connector between battery, ignition switch and ABSCM.
↓	
8G3.	Check sources of signal noise.
↓	
8G4.	Check ABSCM.

WIRING DIAGRAM:





8G1	CHECK GROUND CIRCUIT OF ABSCM.

1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Measure resistance between ABSCM and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 1 — Chassis ground
(F49) No. 55 — Chassis ground
Is resistance less than 0.5 Ω?

YES : Go to step **8G2.**

NO : Repair ABSCM ground harness.

8G2	CHECK POOR CONTACT IN CONNECTORS BETWEEN BATTERY, IGNITION SWITCH AND ABSCM.

CHECK : ***Is there poor contact in connectors between battery, ignition switch and ABSCM?***

YES : Repair connector.

NO : Go to step **8G3.**

8G3	CHECK SOURCES OF SIGNAL NOISE.

CHECK : ***Is the car telephone or the wireless transmitter properly installed?***

YES : Go to next CHECK .

NO : Properly install the car telephone or the wireless transmitter.

CHECK : ***Are noise sources (such as an antenna) installed near the sensor harness?***

YES : Install the noise sources apart from the sensor harness.

NO : Go to step **8G4.**

8G4	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

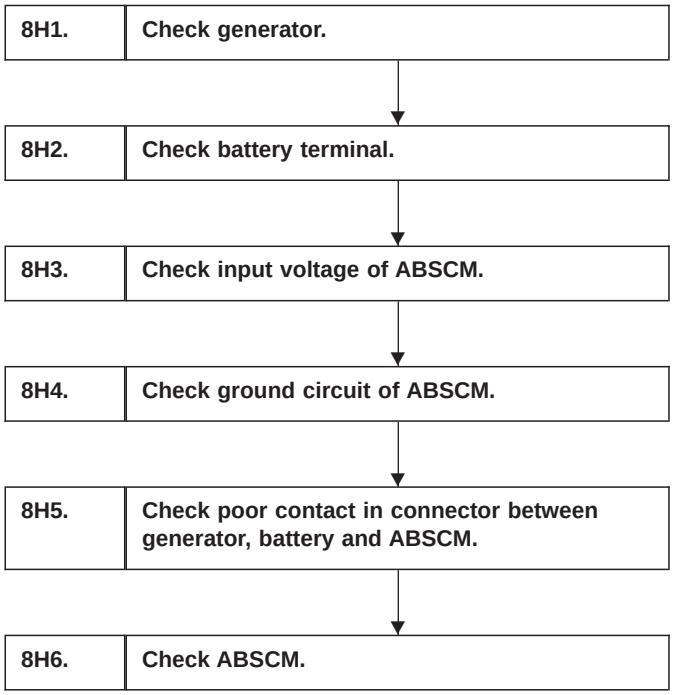
H: TROUBLE CODE 42 — SOURCE VOLTAGE IS LOW. —

DIAGNOSIS:

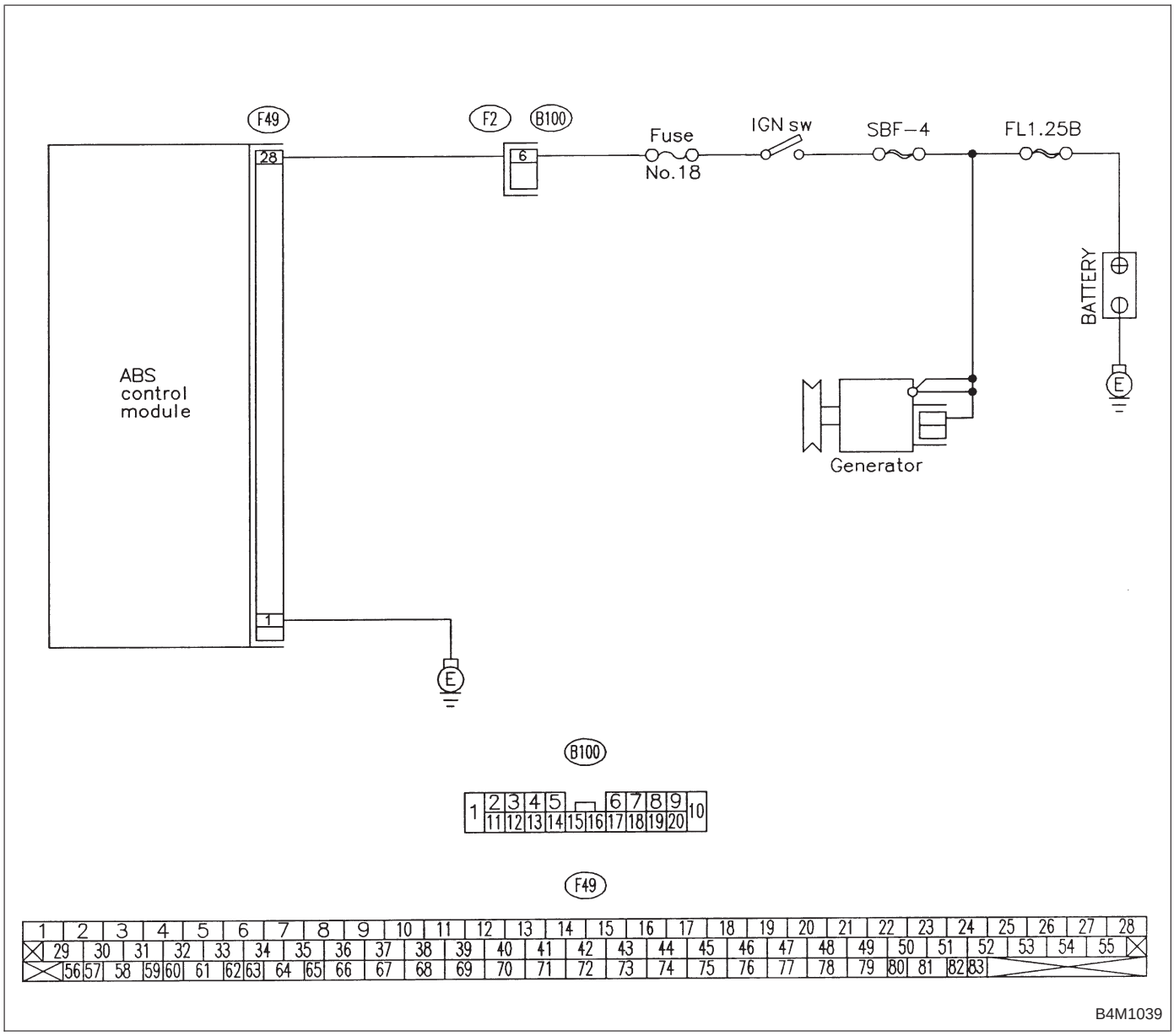
- Power source voltage of the ABSCM is low.

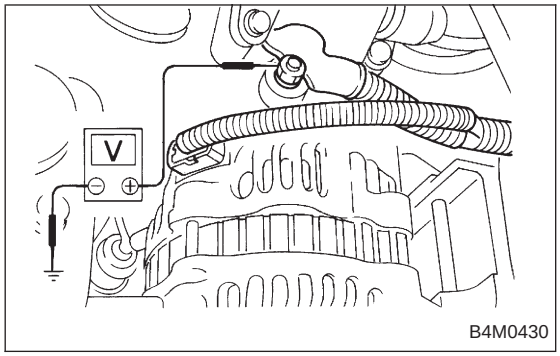
TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:





8H1	CHECK GENERATOR.

1) Start engine.
2) Idling after warm-up.
3) Measure voltage between generator B terminal and chassis ground.

CHECK : ***Terminal***
Generator B terminal — Chassis ground
Is voltage 10 — 15 V?

YES : Go to step **8H2.**

NO : Repair generator.

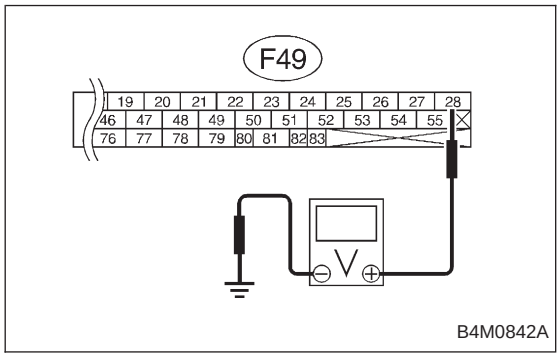
8H2	CHECK BATTERY TERMINAL.

Turn ignition switch to OFF.

CHECK : ***Are the positive and negative battery terminals tightly clamped?***

YES : Go to step **8H3.**

NO : Tighten the clamp of terminal.



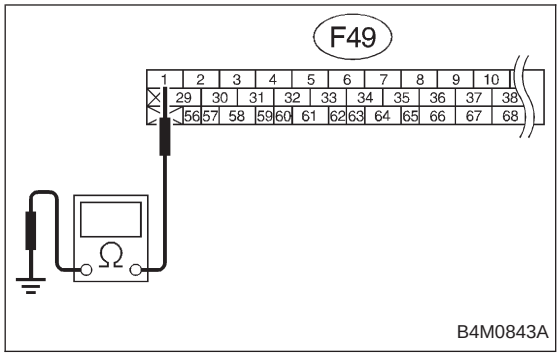
8H3	CHECK INPUT VOLTAGE OF ABSCM.

1) Disconnect connector from ABSCM.
2) Run the engine at idle.
3) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 28 (+) — Chassis ground (−)
Is voltage 10 — 15 V?

YES : Go to step **8H4.**

NO : Repair harness connector between battery, ignition switch and ABSCM.



8H4	CHECK GROUND CIRCUIT OF ABSCM.

1) Turn ignition switch to OFF.
2) Measure resistance between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal (F49) No. 1 — Chassis ground Is resistance less than 0.5 Ω?***

YES : Go to step **8H5.**

NO : Repair ABSCM ground harness.

8H5	CHECK POOR CONTACT IN CONNECTOR BETWEEN GENERATOR, BATTERY AND ABSCM.

CHECK ***: Is there poor contact in connectors between generator, battery and ABSCM?***

YES : Repair connector.

NO : Go to step **8H6.**

8H6	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

I: TROUBLE CODE 44 — A COMBINATION OF AT CONTROL ABNORMALS —

DIAGNOSIS:

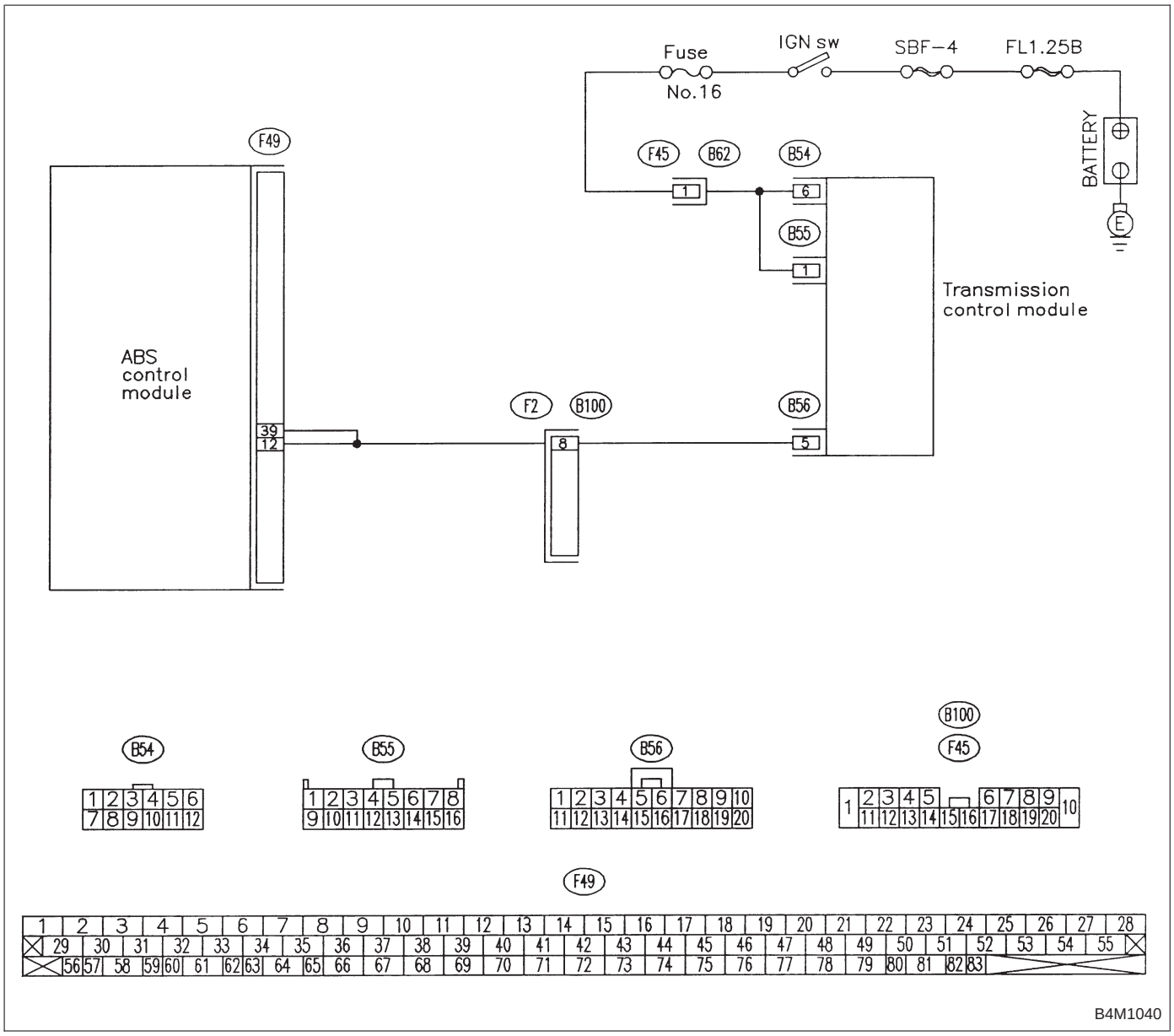
- Combination of AT control faults

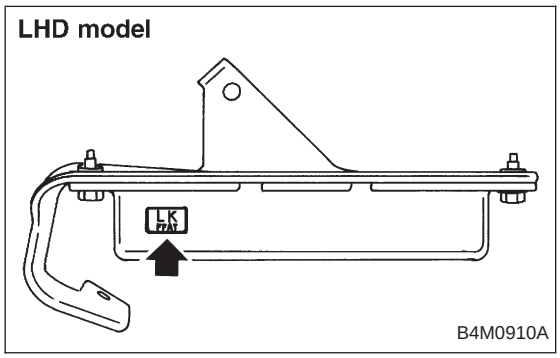
TROUBLE SYMPTOM:

- ABS does not operate.

8I1.	**Check specifications of the ABSCM.**
8I2.	**Check ground short of harness.**
8I3.	**Check battery short of harness.**
8I4.	**Check AT control module.**
8I5.	**Check open circuit of harness.**
8I6.	**Check poor contact in connector between AT control module and ABSCM.**
8I7.	**Check ABSCM.**

WIRING DIAGRAM:





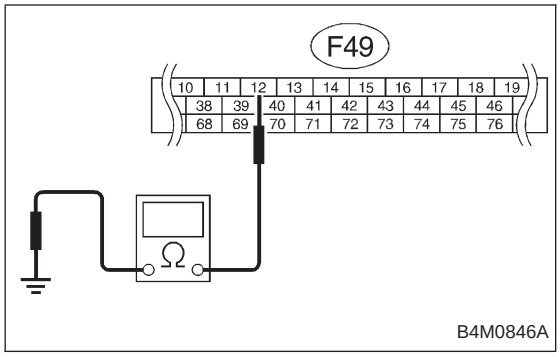
8I1	**CHECK SPECIFICATIONS OF THE ABSCM.**

Check specifications of the plate attached to the ABSCM.

CHECK ***: Is an ABSCM for AT model installed on a MT model?***

YES : Replace ABSCM.

NO : Go to step **8I2.**



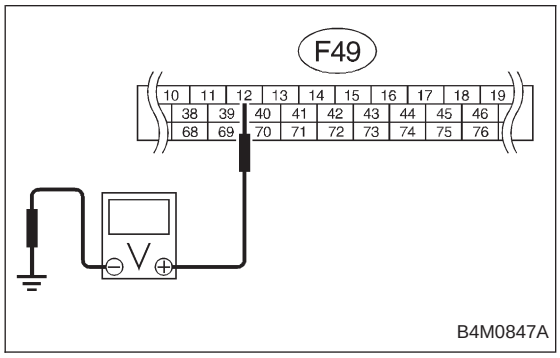
8I2	CHECK GROUND SHORT OF HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect two connectors from AT control module.
3) Disconnect connector from ABSCM.
4) Measure resistance between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 12 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8I3.**

NO : Repair harness between AT control module and ABSCM.



8I3	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 12 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

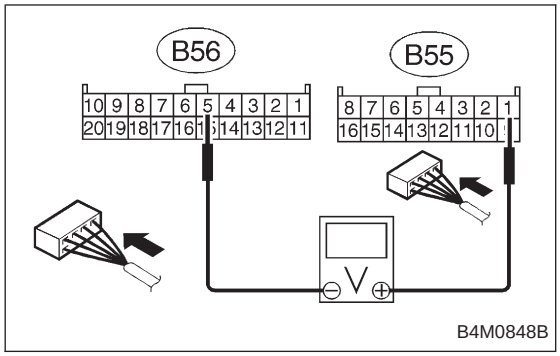
NO : Repair harness between AT control module and ABSCM.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 12 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8I4.**

NO : Repair harness between AT control module and ABSCM.



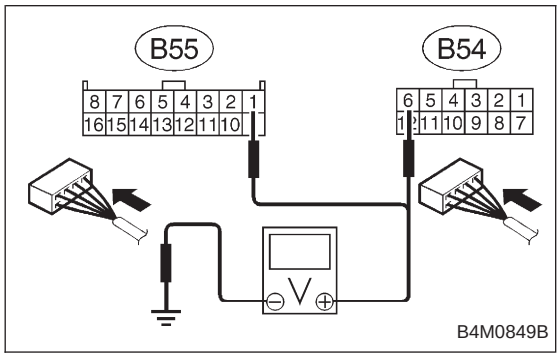
8I4	CHECK AT CONTROL MODULE.

1) Connect all connectors to AT control module.
2) Turn ignition switch to ON.
3) Measure voltage between AT control module connector terminals.

CHECK : ***Connector & terminal***
(B55) No. 1 (+) — (B56) No. 5 (−)
Is voltage 10 — 13 V?

YES : Go to step **8I5.**

NO : Go to next step.

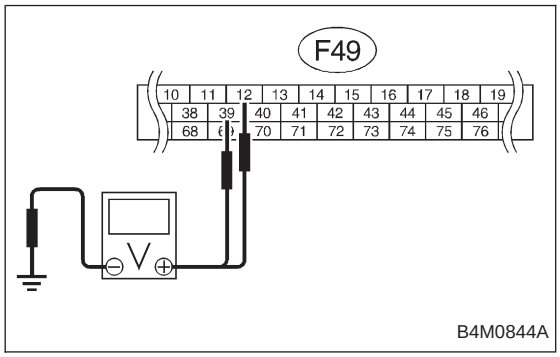


4) Measure voltage between AT control module connector and chassis ground.

CHECK : ***Connector & terminal***
(B54) No. 6 (+) — Chassis ground (−)
(B55) No. 1 (+) — Chassis ground (−)
Is voltage 10 — 13 V?

YES : Replace AT control module.

NO : Repair harness connector between battery, ignition switch and AT control module.



8I5	CHECK OPEN CIRCUIT OF HARNESS.

Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 12 (+) — Chassis ground (−)
(F49) No. 39 (+) — Chassis ground (−)
Is voltage 10 — 13 V?

YES : Go to step **8I6.**

NO : Repair harness connector between AT control module and ABSCM.

8I6	**CHECK POOR CONTACT IN CONNECTOR BETWEEN AT CONTROL MODULE AND ABSCM.**

CHECK ***: Is there poor contact in connectors between AT control module and ABSCM?***

YES : Repair connector.

NO : Go to step **8I7.**

8I7	**CHECK ABSCM.**

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

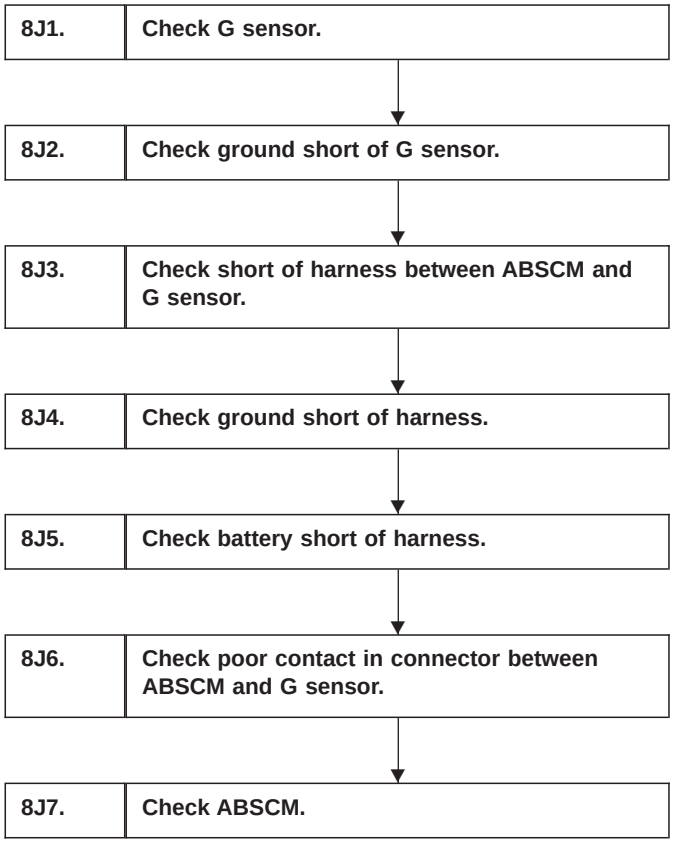
J: TROUBLE CODE 46 — ABNORMAL G SENSOR POWER SUPPLY VOLTAGE —

DIAGNOSIS:

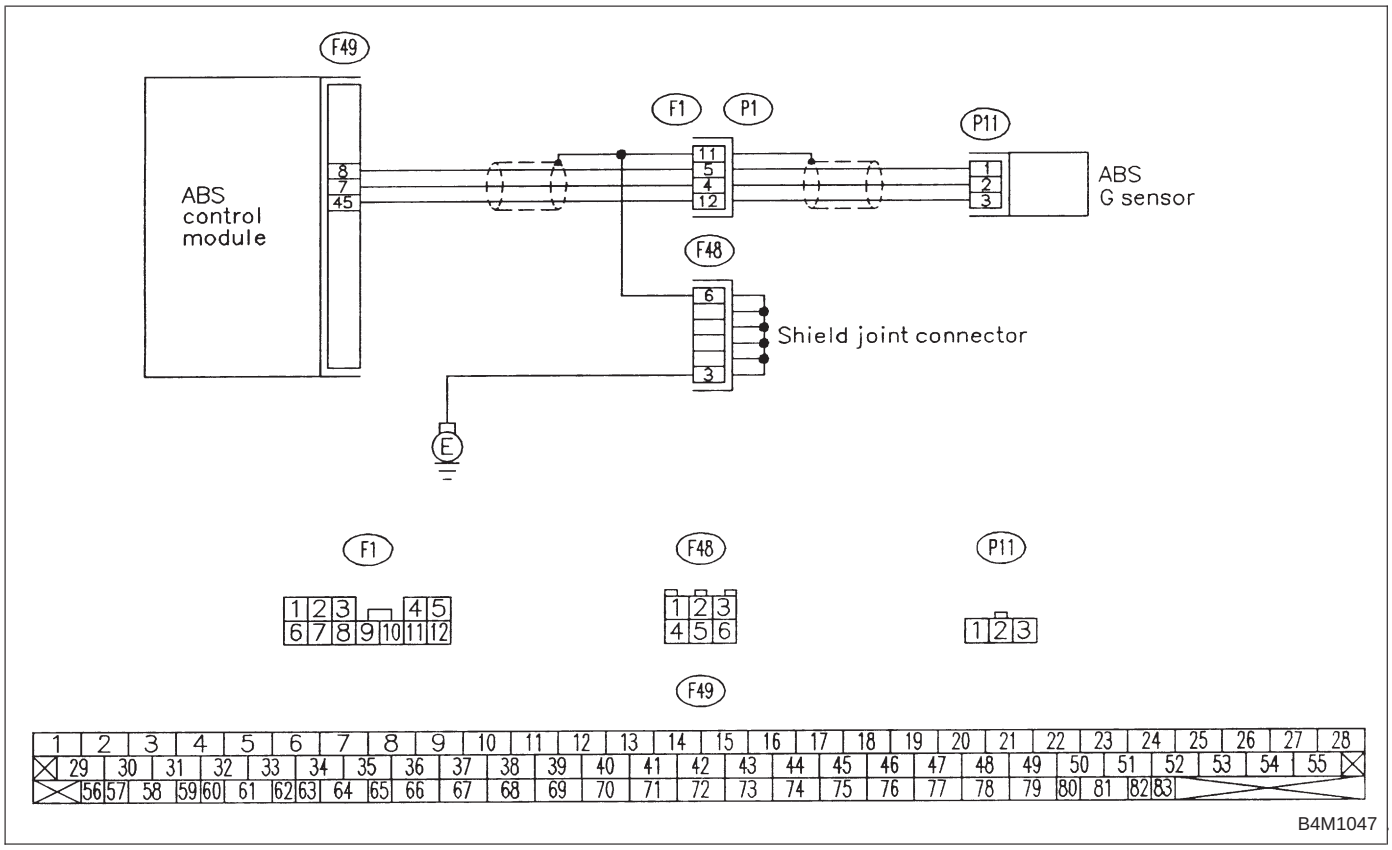
- Faulty G sensor power supply voltage

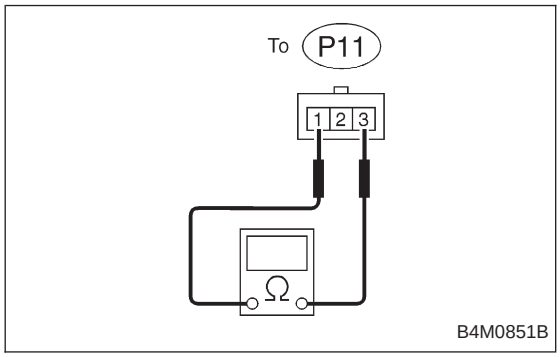
TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:





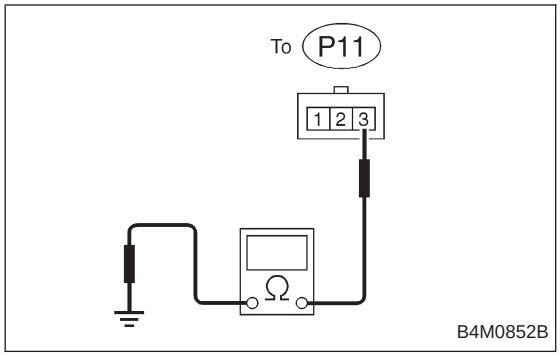
8J1	CHECK G SENSOR.

1) Turn ignition switch to OFF.
2) Remove console box.
3) Disconnect connector from G sensor.
4) Measure resistance of G sensor.

CHECK ***: Connector & terminal To (P11) No. 1 — No. 3 Is resistance 50±8 kΩ?***

YES : Go to step **8J2.**

NO : Replace G sensor.



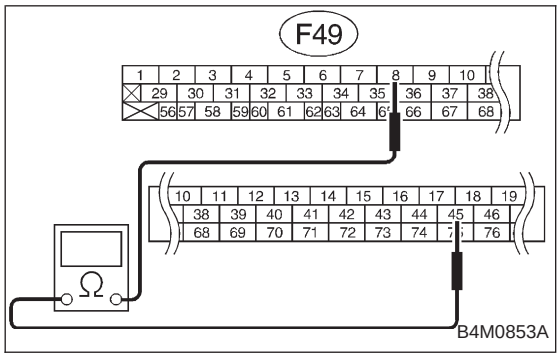
8J2	CHECK GROUND SHORT OF G SENSOR.

Measure resistance between G sensor and bracket.

CHECK : ***Connector & terminal***
To (P11) No. 3 — Bracket
Is resistance more than 1 MΩ?

YES : Go to step **8J3.**

NO : Replace G sensor.



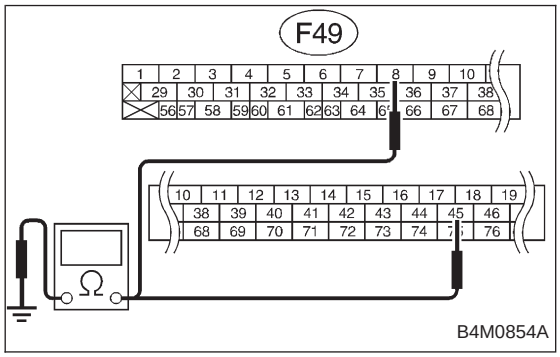
8J3	CHECK SHORT OF HARNESS BETWEEN ABSCM AND G SENSOR.

1) Disconnect connector from ABSCM.
2) Measure resistance between ABSCM connector terminals.

CHECK : ***Connector & terminal***
(F49) No. 45 — No. 8
Is resistance more than 1 MΩ?

YES : Go to step **8J4.**

NO : Repair harness between ABSCM and G sensor.



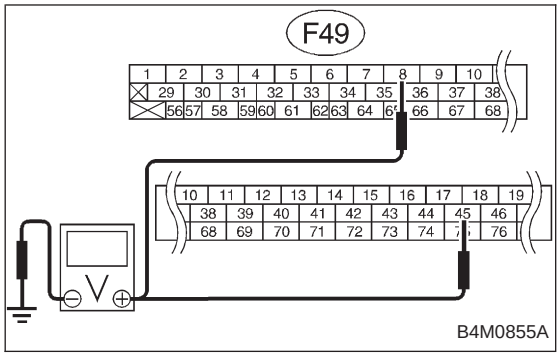
8J4	CHECK GROUND SHORT OF HARNESS.

Measure resistance between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 8 — Chassis ground
(F49) No. 45 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8J5.**

NO : Repair harness between ABSCM and G sensor.



8J5	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 8 (+) — Chassis ground (−)
(F49) No. 45 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

NO : Repair harness between ABSCM and G sensor.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 8 (+) — Chassis ground (−)
(F49) No. 45 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8J6.**

NO : Repair harness between ABSCM and chassis ground.

8J6	CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND G SENSOR.

CHECK : ***Is there poor contact in connectors between ABSCM and G sensor?***

YES : Repair connector.

NO : Go to step **8J7.**

8J7	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK : ***Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK : ***Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

K: TROUBLE CODE 51 — ABNORMAL VALVE RELAY —

DIAGNOSIS:

- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

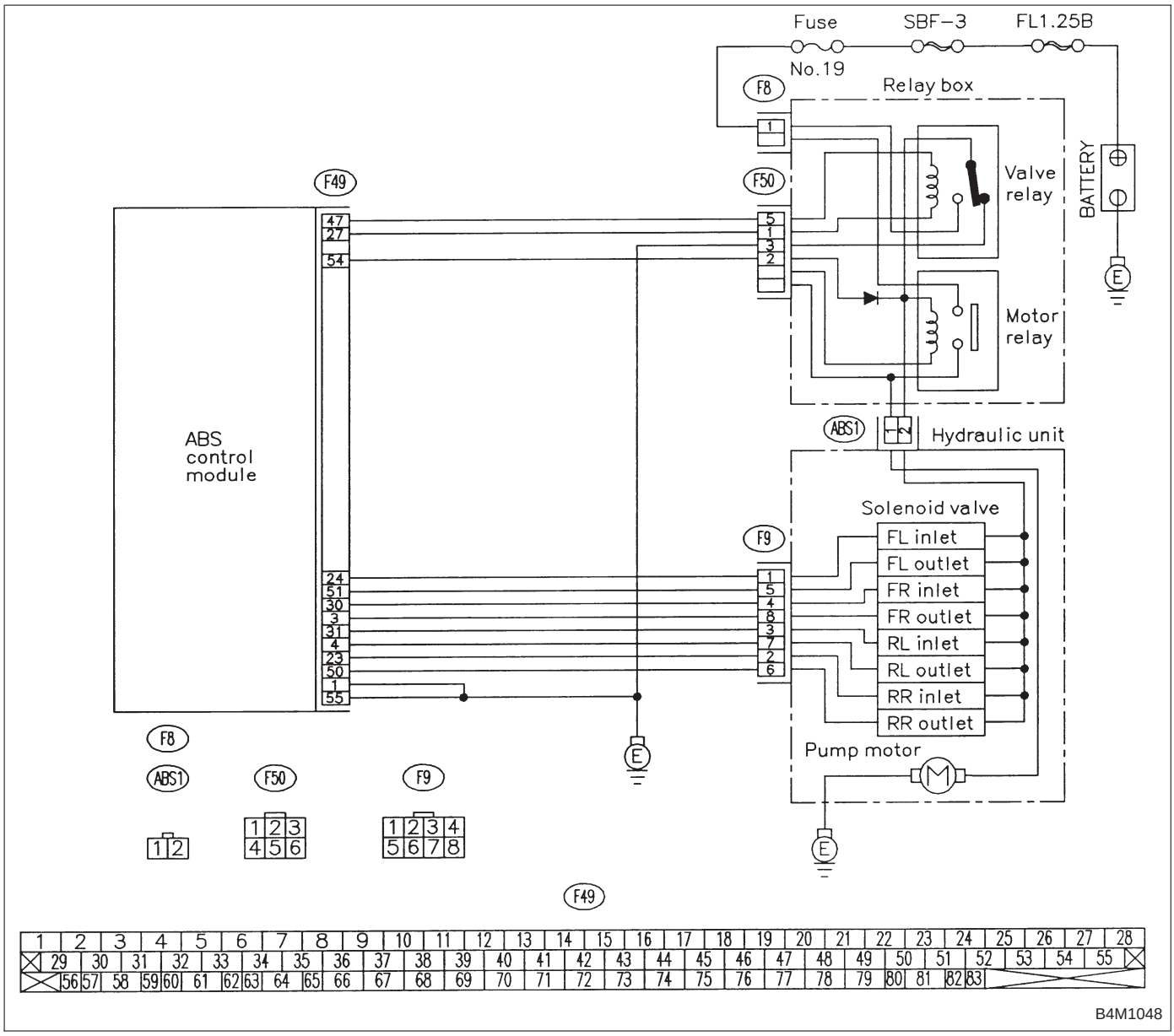
8K1.	Check resistance of valve relay.
8K2.	Check contact point of valve relay.
8K3.	Check short of valve relay.
8K4.	Check power supply voltage at valve relay contact point.
8K5.	Check ground circuit of relay box.
8K6.	Check broken wire and ground short in power supply circuit of relay box.
8K7.	Check broken wire in contact point circuit of relay box.
8K8.	Check ground short in contact point circuit of relay box.
8K9.	Check battery short in contact point circuit of relay box.
8K10.	Check diode of relay box.
8K11.	Check broken wire in ground circuit of relay box.
8K12.	Check battery short in ground circuit of relay box.
8K13.	Check broken wire in control circuit of relay box.
8K14.	Check ground short in control circuit of relay box.
8K15.	Check battery short in control circuit of relay box.

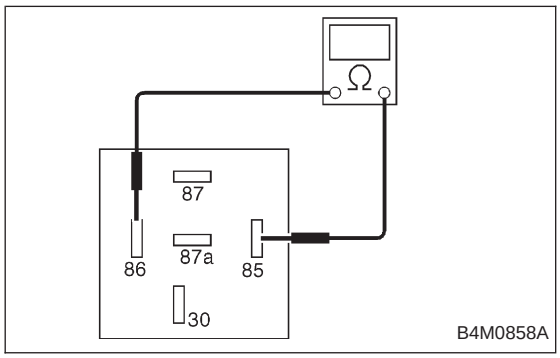
Continues to next page.

From the former page.

8K16.	Check broken wire in control system harness of valve relay.
8K17.	Check ground short in control system harness of valve relay.
8K18.	Check battery short in control system harness of valve relay.
8K19.	Check resistance of inlet solenoid valve.
8K20.	Check resistance of outlet solenoid valve.
8K21.	Check ground short of solenoid valve.
8K22.	Check battery short of solenoid valve.
8K23.	Check battery short of harness.
8K24.	Check ground short of harness.
8K25.	Check harness connector between ABSCM and hydraulic unit.
8K26.	Check poor contact in connector between ABSCM and hydraulic unit.
8K27.	Check ABSCM.

WIRING DIAGRAM:





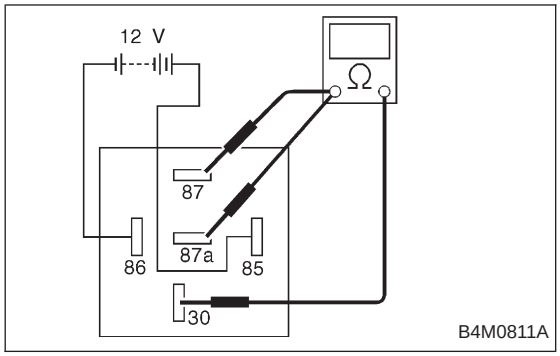
8K1	CHECK RESISTANCE OF VALVE RELAY.

1) Turn ignition switch to OFF.
2) Remove valve relay from relay box.
3) Measure resistance between valve relay terminals.

CHECK : ***Terminals***
No. 85 — No. 86
Is resistance 103±10 Ω?

YES : Go to step **8K2.**

NO : Replace valve relay.



8K2	CHECK CONTACT POINT OF VALVE RELAY.

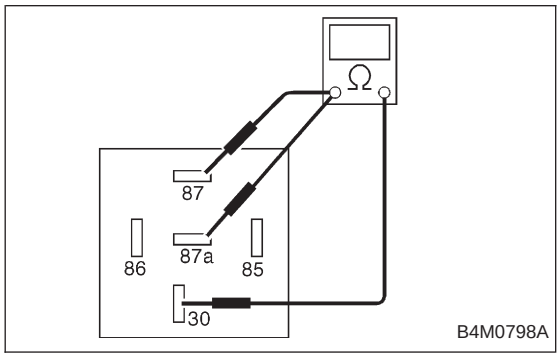
1) Connect battery to valve relay terminals No. 85 and No. 86.
2) Measure resistance between valve relay terminals.

CHECK : ***Terminals***
No. 30 — No. 87
Is resistance less than 0.5 Ω?

YES : Go to next CHECK .
NO : Replace valve relay.

CHECK : ***Terminals***
No. 30 — No. 87a
Is resistance more than 1 MΩ?

YES : Go to next step.
NO : Replace valve relay.



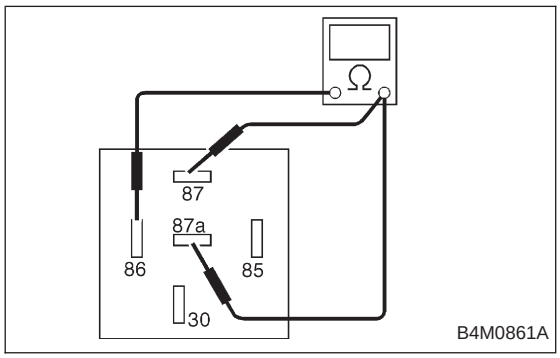
3) Disconnect battery from valve relay terminals.
4) Measure resistance between valve relay terminals.

CHECK : ***Terminals***
No. 30 — No. 87
Is resistance more than 1 MΩ?

YES : Go to next CHECK .
NO : Replace valve relay.

CHECK : ***Terminals***
No. 30 — No. 87a
Is resistance less than 0.5 Ω?

YES : Go to step **8K3.**
NO : Replace valve relay.

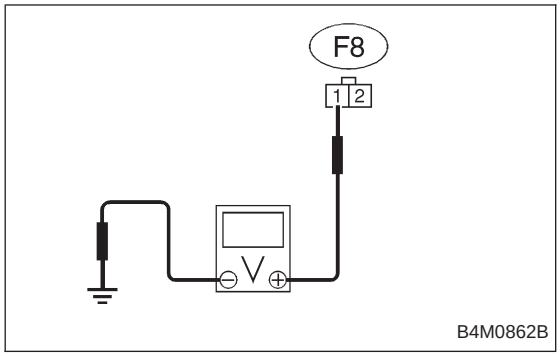


8K3	CHECK SHORT OF VALVE RELAY.

Measure resistance between valve relay terminals.

CHECK : ***Terminals***
No. 86 — No. 87
No. 86 — No. 87a
Is resistance more than 1 MΩ?

YES : Go to step **8K4.**
NO : Replace valve relay.



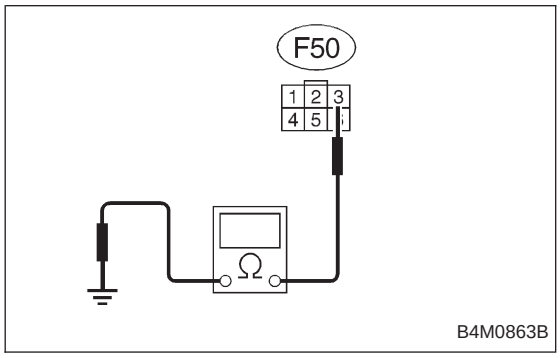
8K4	CHECK POWER SUPPLY VOLTAGE AT VALVE RELAY CONTACT POINT.

1) Disconnect connector (F8) from relay box.
2) Measure voltage between relay box connector and chassis ground.

CHECK ***: Connector & terminal***
(F8) No. 1 (+) — Chassis ground (−)
Is voltage 10 — 13 V?

YES : Go to step **8K5.**

NO : Repair harness connector between battery and relay box. Check fuse No. 19.



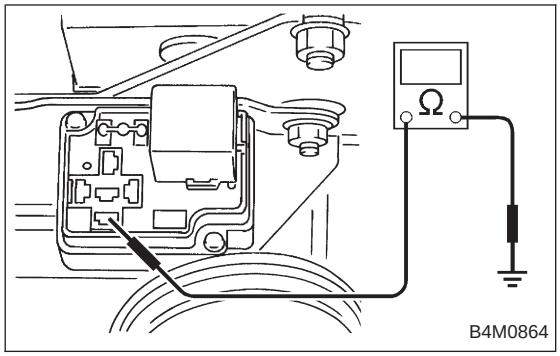
8K5	CHECK GROUND CIRCUIT OF RELAY BOX.

1) Disconnect connector (F50) from relay box.
2) Measure resistance between relay box connector and chassis ground.

CHECK ***: Connector & terminal***
(F50) No. 3 — Chassis ground
Is resistance less than 0.5 Ω?

YES : Go to step **8K6.**

NO : Repair relay box ground harness.



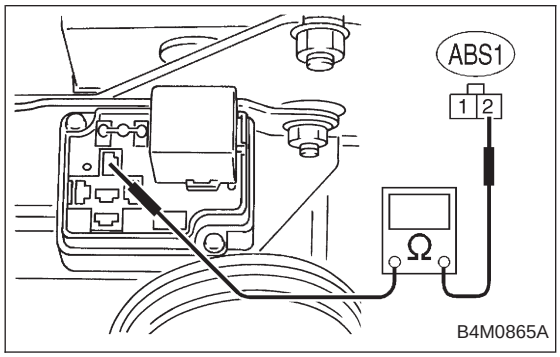
8K6	CHECK BROKEN WIRE AND GROUND SHORT IN POWER SUPPLY CIRCUIT OF RELAY BOX.

1) Disconnect connector (ABS1) from hydraulic unit.
2) Connect connector (F8) to relay box.
3) Measure voltage of relay box.

CHECK ***: Connector & terminal***
Valve relay installing point No. 87 — Chassis ground
Is voltage 10 — 13 V?

YES : Go to step **8K7.**

NO : Replace relay box. Check fuse No. 19.



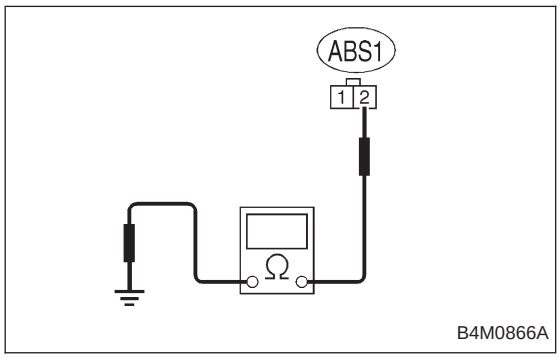
8K7	CHECK BROKEN WIRE IN CONTACT POINT CIRCUIT OF RELAY BOX.

Measure resistance between hydraulic unit connector and valve relay installing point.

CHECK ***: Connector & terminal***
(ABS1) No. 2 — Valve relay installing point No. 30
Is resistance less than 0.5 Ω?

YES : Go to step **8K8.**

NO : Replace relay box.



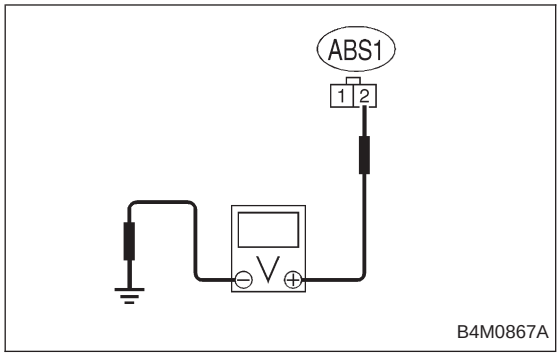
8K8	CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

Measure resistance between hydraulic unit connector and chassis ground.

CHECK ***: Connector & terminal***
(ABS1) No. 2 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8K9.**

NO : Replace relay box. Check fuse SBF6.



8K9	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Turn ignition switch to ON.
3) Measure voltage between hydraulic unit connector and chassis ground.

CHECK : ***Connector & terminal***
(ABS1) No. 2 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

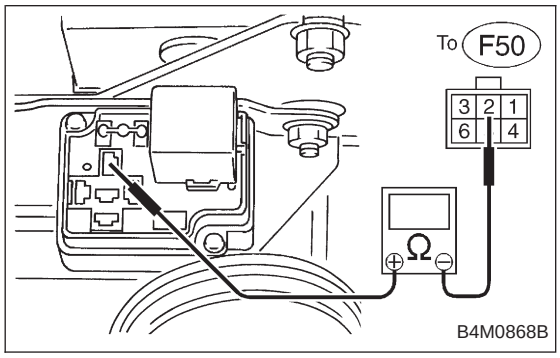
NO : Replace relay box. Check fuse No. 19 and SBF6.

4) Turn ignition switch to OFF.
5) Measure voltage between hydraulic unit connector and chassis ground.

CHECK : ***Connector & terminal***
(ABS1) No. 2 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8K10.**

NO : Replace relay box. Check fuse No. 19 and SBF6.



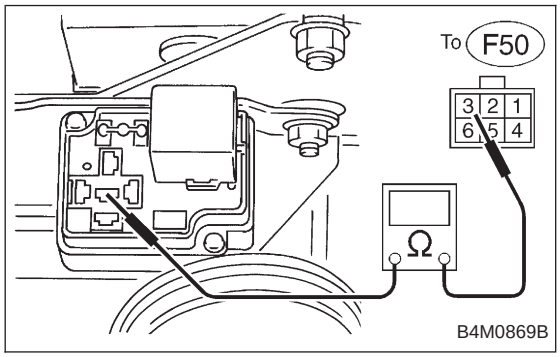
8K10	CHECK DIODE OF RELAY BOX.

Measure resistance between relay box connector and valve relay installing point.

CHECK : ***Connector & terminal***
Valve relay installing point No. 30 (+) — To (F50) No. 2 (−)
Is resistance more than 1 MΩ?

YES : Go to step **8K11.**

NO : Replace relay box.



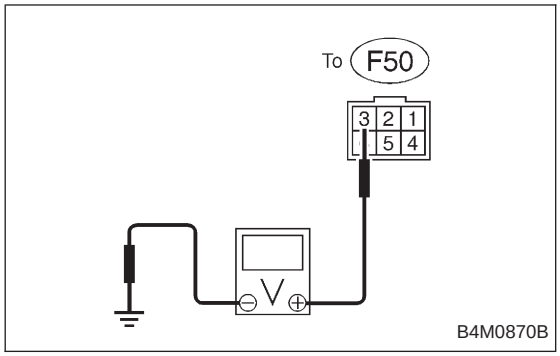
8K11	CHECK BROKEN WIRE IN GROUND CIRCUIT OF RELAY BOX.

Measure resistance between relay box connector and valve relay installing point.

CHECK : ***Connector & terminal***
To (F50) No. 3 — Valve relay installing point No. 87a
Is resistance less than 0.5 Ω?

YES : Go to step **8K12.**

NO : Replace relay box.



8K12	CHECK BATTERY SHORT IN GROUND CIRCUIT OF RELAY BOX.

1) Turn ignition switch to ON.
2) Measure voltage between relay box connector and chassis ground.

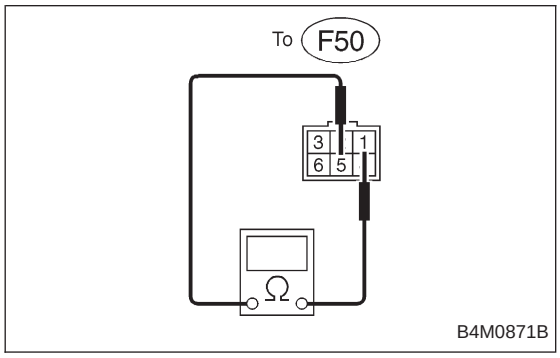
CHECK : ***Connector & terminal***
To (F50) No. 3 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.
NO : Replace relay box and check all fuses.

3) Turn ignition switch to OFF.
4) Measure voltage between relay box connector and chassis ground.

CHECK : ***Connector & terminal***
To (F50) No. 3 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8K13.**
NO : Replace relay box and check all fuses.

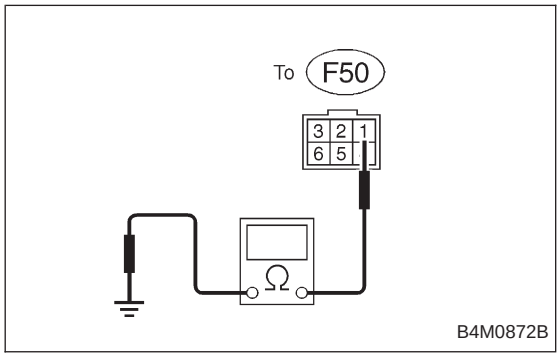


8K13	CHECK BROKEN WIRE IN CONTROL CIRCUIT OF RELAY BOX.

1) Install valve relay to relay box.
2) Measure resistance between relay box connector terminals.

CHECK : ***Connector & terminal***
To (F50) No. 1 — No. 5
Is resistance 103±10 Ω?

YES : Go to step **8K14.**
NO : Replace relay box.

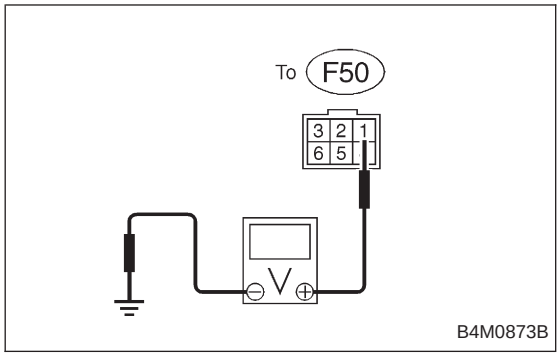


8K14	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure resistance between relay box connector and chassis ground.

CHECK : ***Connector & terminal***
To (F50) No. 1 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8K15.**
NO : Replace relay box and check all fuses.



8K15	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

1) Turn ignition switch to ON.
2) Measure voltage between relay box connector and chassis ground.

CHECK : ***Connector & terminal***
To (F50) No. 1 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

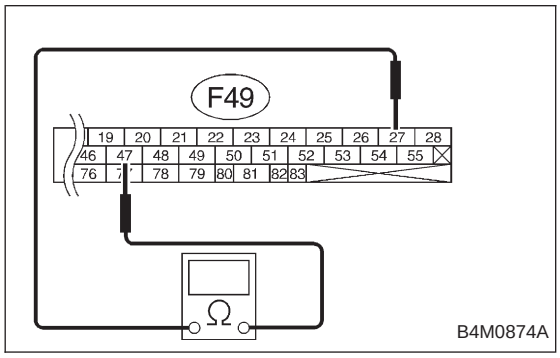
NO : Replace relay box. Check fuse No. 19 and SBF45A.

3) Turn ignition switch to OFF.
4) Measure voltage between relay box connector and chassis ground.

CHECK : ***Connector & terminal***
To (F50) No. 1 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8K16.**

NO : Replace relay box. Check fuse No. 19 and SBF45A.



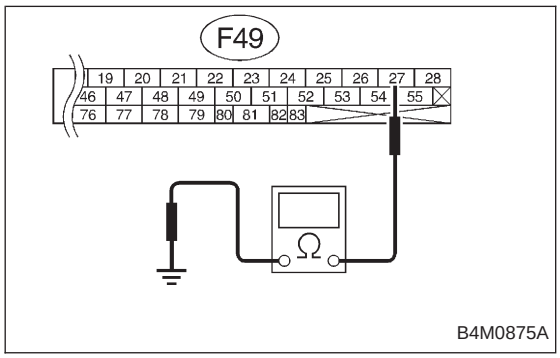
8K16	CHECK BROKEN WIRE IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

1) Connect connector (F50) to relay box.
2) Measure resistance between ABSCM connector terminals.

CHECK : ***Connector & terminal***
(F49) No. 27 — No. 47
Is resistance 103±10 Ω?

YES : Go to step **8K17.**

NO : Repair harness between ABSCM and relay box. Check fuse No. 18.



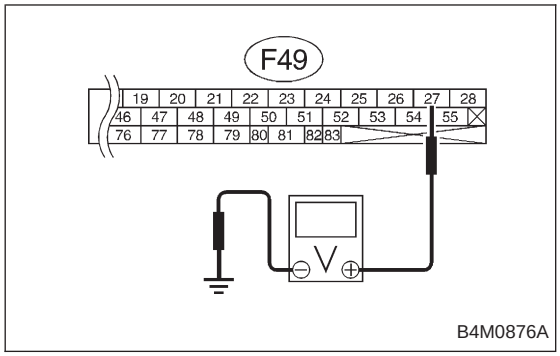
8K17	CHECK GROUND SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

Measure resistance between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 27 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8K18.**

NO : Repair harness between ABSCM and relay box. Check fuse No. 18.



8K18	CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 27 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

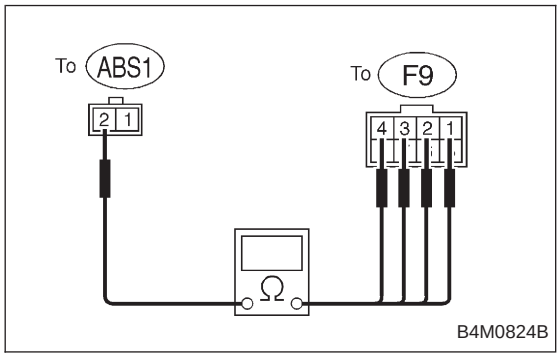
NO : Repair harness between ABSCM and relay box and check all fuses.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 27 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8K19.**

NO : Repair harness between ABSCM and relay box and check all fuses.



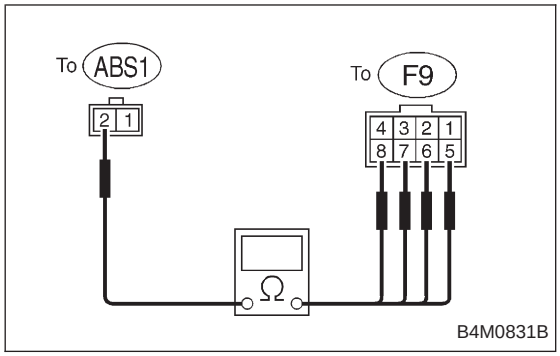
8K19	CHECK RESISTANCE OF INLET SOLENOID VALVE.

1) Disconnect connector from hydraulic unit.
2) Measure resistance between hydraulic unit connector terminals.

CHECK : ***Connector & terminal***
To (F9) No. 4 — to (ABS1) No. 2
To (F9) No. 1 — to (ABS1) No. 2
To (F9) No. 2 — to (ABS1) No. 2
To (F9) No. 3 — to (ABS1) No. 2
Is resistance 8.5±0.7 Ω?

YES : Go to step **8K20.**

NO : Replace hydraulic unit.



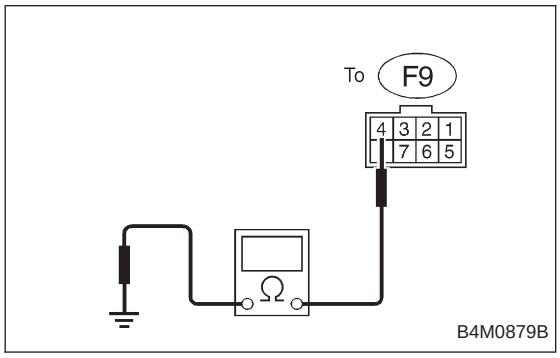
8K20	CHECK RESISTANCE OF OUTLET SOLENOID VALVE.

Measure resistance between hydraulic unit connector terminals.

CHECK : ***Connector & terminal***
To (F9) No. 8 — to (ABS1) No. 2
To (F9) No. 5 — to (ABS1) No. 2
To (F9) No. 6 — to (ABS1) No. 2
To (F9) No. 7 — to (ABS1) No. 2
Is resistance 4.3±0.5 Ω?

YES : Go to step **8K21.**

NO : Replace hydraulic unit.



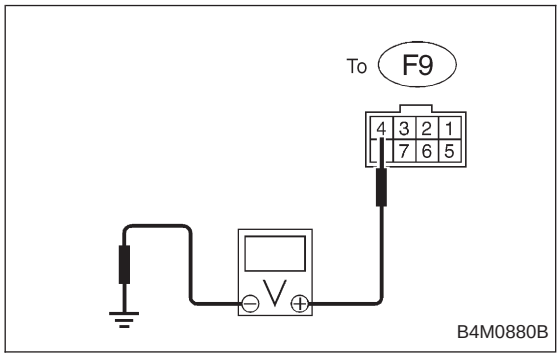
8K21	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

CHECK : ***Connector & terminal***
To (F9) No. 4 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8K22.**

NO : Replace hydraulic unit and check all fuses.



8K22	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Turn ignition switch to ON.
2) Measure voltage between hydraulic unit connector and chassis ground.

CHECK : ***Connector & terminal***
To (F9) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

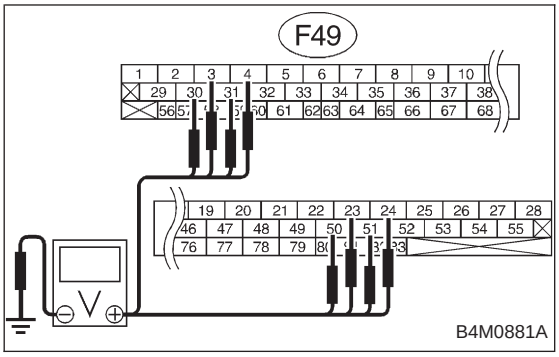
NO : Replace hydraulic unit and check all fuses.

3) Turn ignition switch to OFF.
4) Measure voltage between hydraulic unit connector and chassis ground.

CHECK : ***Connector & terminal***
To (F9) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8K23.**

NO : Replace hydraulic unit and check all fuses.



8K23	CHECK BATTERY SHORT OF HARNESS.

1) Disconnect connector from hydraulic unit.
2) Turn ignition switch to ON.
3) Measure voltage between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 30 (+) — Chassis ground (−)
(F49) No. 24 (+) — Chassis ground (−)
(F49) No. 23 (+) — Chassis ground (−)
(F49) No. 31 (+) — Chassis ground (−)
(F49) No. 3 (+) — Chassis ground (−)
(F49) No. 51 (+) — Chassis ground (−)
(F49) No. 50 (+) — Chassis ground (−)
(F49) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

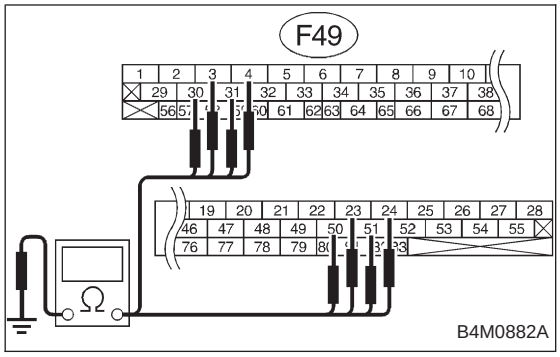
NO : Repair harness between hydraulic unit and ABSCM and check all fuses.

4) Turn ignition switch to OFF.
5) Measure voltage between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 30 (+) — Chassis ground (−)
(F49) No. 24 (+) — Chassis ground (−)
(F49) No. 23 (+) — Chassis ground (−)
(F49) No. 31 (+) — Chassis ground (−)
(F49) No. 3 (+) — Chassis ground (−)
(F49) No. 51 (+) — Chassis ground (−)
(F49) No. 50 (+) — Chassis ground (−)
(F49) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8K24.**

NO : Repair harness between hydraulic unit and ABSCM and check all fuses.



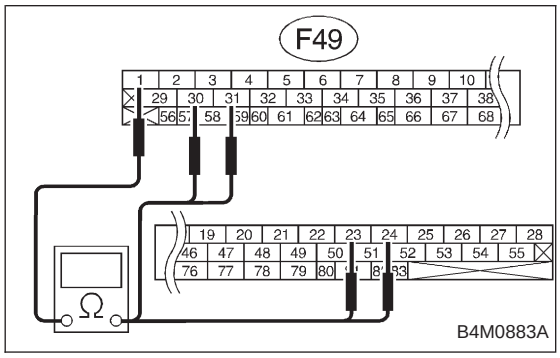
8K24	CHECK GROUND SHORT OF HARNESS.

Measure resistance between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 30 — Chassis ground
(F49) No. 24 — Chassis ground
(F49) No. 23 — Chassis ground
(F49) No. 31 — Chassis ground
(F49) No. 3 — Chassis ground
(F49) No. 51 — Chassis ground
(F49) No. 50 — Chassis ground
(F49) No. 4 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8K25.**

NO : Repair harness between hydraulic unit and ABSCM.



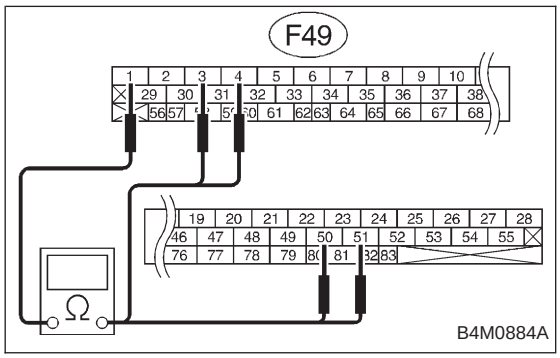
8K25	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

1) Connect connector to hydraulic unit.
2) Measure resistance between ABSCM connector terminals.

CHECK ***: Connector & terminal***
(F49) No. 30 — No. 1
(F49) No. 24 — No. 1
(F49) No. 23 — No. 1
(F49) No. 31 — No. 1
Is resistance 9.0±0.7 Ω?

YES : Go to next CHECK .

NO : Repair harness connector between hydraulic unit and ABSCM.



CHECK ***: Connector & terminal***
(F49) No. 3 — No. 1
(F49) No. 51 — No. 1
(F49) No. 50 — No. 1
(F49) No. 4 — No. 1
Is resistance 4.8±0.5 Ω?

YES : Go to step **8K26.**

NO : Repair harness connector between hydraulic unit and ABSCM.

8K26	**CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.**

CHECK ***: Is there poor contact in connector between ABSCM and hydraulic unit?***

YES : Repair connector.

NO : Go to step **8K27.**

8K27	**CHECK ABSCM.**

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

L: TROUBLE CODE 52 — ABNORMAL MOTOR AND/OR MOTOR RELAY —

DIAGNOSIS:

- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

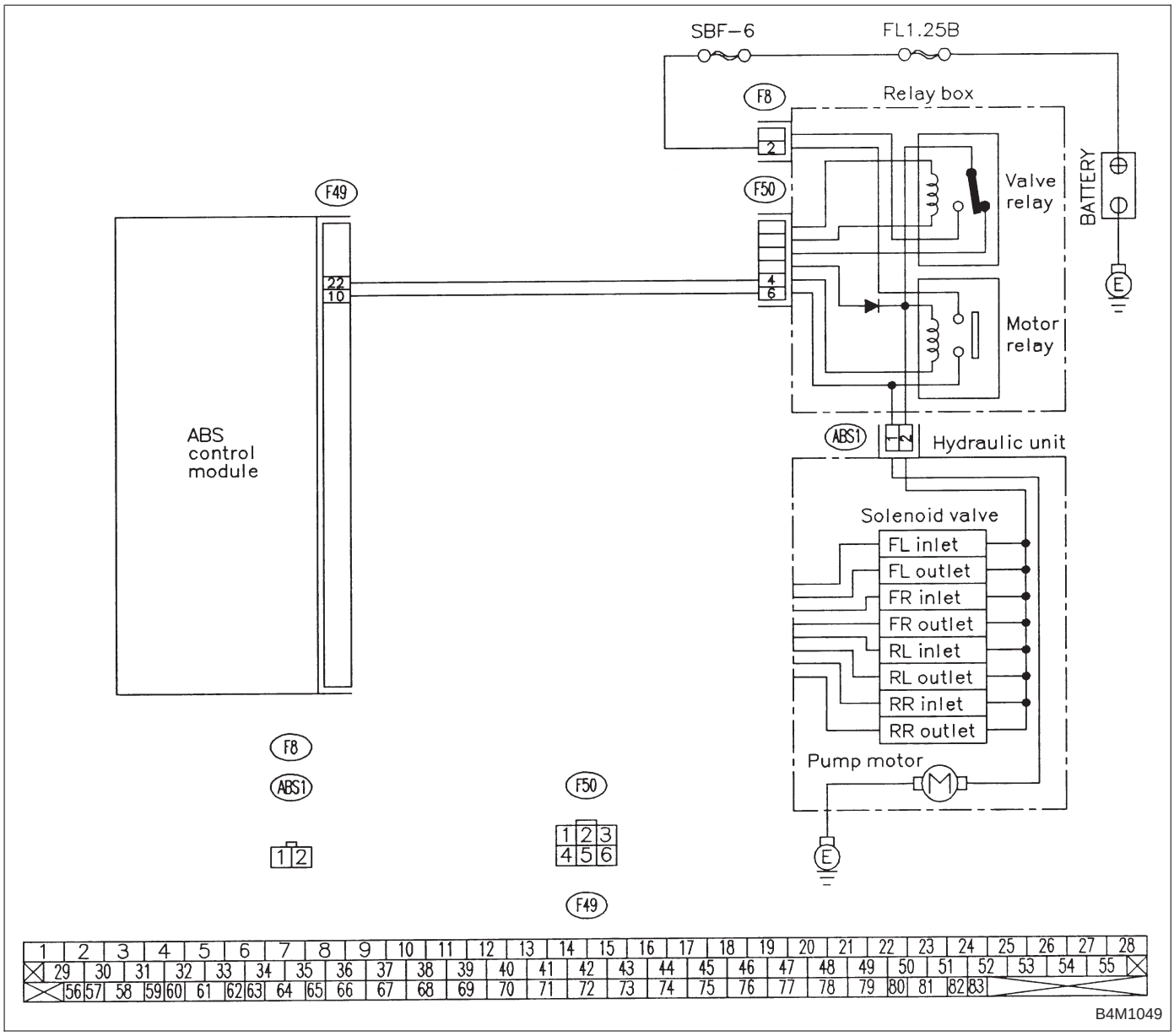
8L1.	Check resistance of motor relay.
8L2.	Check contact point of motor relay.
8L3.	Check short of motor relay.
8L4.	Check input voltage of relay box.
8L5.	Check input voltage of motor relay.
8L6.	Check broken wire in contact point circuit of relay box.
8L7.	Check ground short in contact point circuit of relay box.
8L8.	Check battery short in contact point circuit of relay box.
8L9.	Check broken wire in monitor system circuit of relay box.
8L10.	Check broken wire in control circuit of relay box.
8L11.	Check ground short in control circuit of relay box.
8L12.	Check battery short in control circuit of relay box.
8L13.	Check broken wire in monitor system harness.
8L14.	Check broken wire in relay control system harness.
8L15.	Check ground short between relay box and ABSCM.

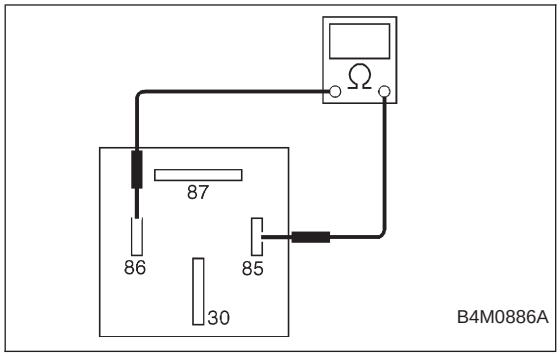
Continues to next page.

From the former page.

8L16.	Check battery short between relay box and ABSCM.
8L17.	Check ground short at ABSCM monitor terminal.
8L18.	Check battery short at ABSCM monitor terminal.
8L19.	Check motor ground.
8L20.	Check ABSCM motor drive terminal.
8L21.	Check motor operation.
8L22.	Check poor contact in connector between hydraulic unit, relay box and ABSCM.
8L23.	Check ABSCM.

WIRING DIAGRAM:





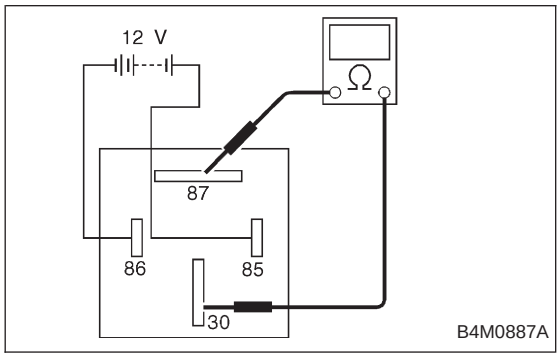
8L1	CHECK RESISTANCE OF MOTOR RELAY.

1) Turn ignition switch to OFF.
2) Remove motor relay from relay box.
3) Measure resistance between motor relay terminals.

CHECK ***: Terminals***
No. 85 — No. 86
Is resistance 80±10 Ω?

YES : Go to step **8L2.**

NO : Replace motor relay.



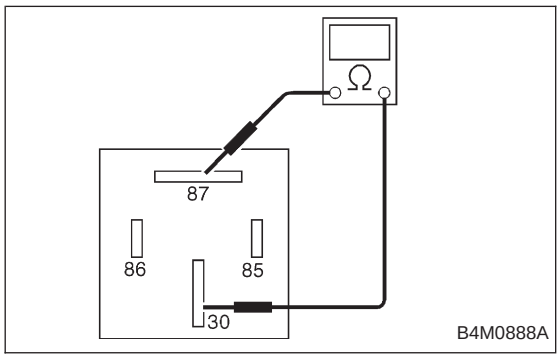
8L2	CHECK CONTACT POINT OF MOTOR RELAY.

1) Connect battery to motor relay terminals No. 85 and No. 86.
2) Measure resistance between motor relay terminals.

CHECK ***: Terminals***
No. 30 — No. 87
Is resistance less than 0.5 Ω?

YES : Go to next step.

NO : Replace motor relay.

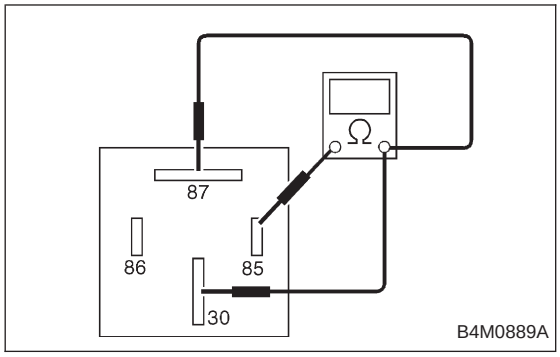


3) Disconnect battery from motor relay terminals.
4) Measure resistance between motor relay terminals.

CHECK ***: Terminals***
No. 30 — No. 87
Is resistance more than 1 MΩ?

YES : Go to step **8L3.**

NO : Replace motor relay.



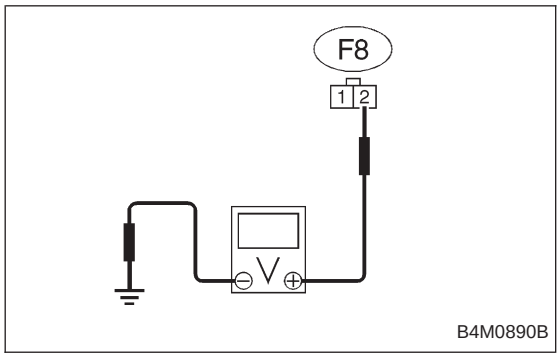
8L3	CHECK SHORT OF MOTOR RELAY.

Measure resistance between motor relay terminals.

CHECK : ***Terminals***
No. 85 — No. 30
No. 85 — No. 87
Is resistance more than 1 MΩ?

YES : Go to step **8L4.**

NO : Replace motor relay.



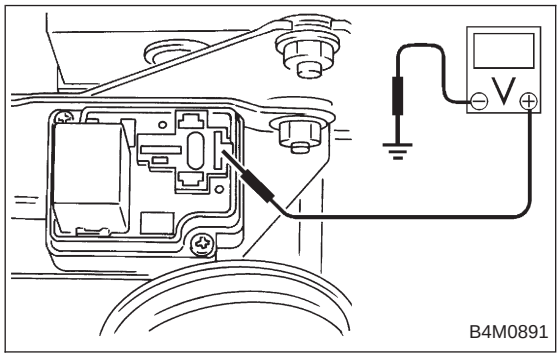
8L4	CHECK INPUT VOLTAGE OF RELAY BOX.

1) Disconnect connector (F8) from relay box.
2) Measure voltage between relay box connector and chassis ground.

CHECK : ***Connector & terminal***
(F8) No. 2 (+) — Chassis ground (−)
Is voltage 10 — 13 V?

YES : Go to step **8L5.**

NO : Repair harness connector between battery and relay box. Check fuse SBF6.



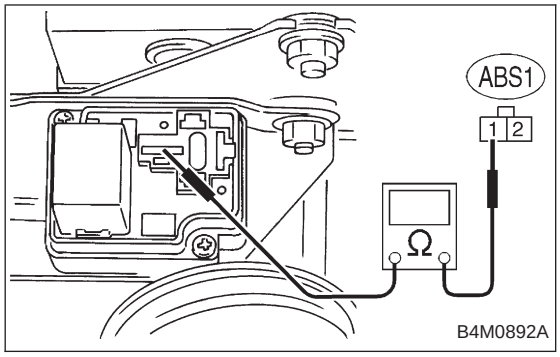
8L5	CHECK INPUT VOLTAGE OF MOTOR RELAY.

1) Connect connector (F8) to relay box.
2) Measure voltage between relay box and chassis ground.

CHECK : ***Connector & terminal***
Relay installing point No. 87 (+) — Chassis ground (−)
Is voltage more than 10 V?

YES : Go to step **8L6.**

NO : Replace relay box. Check fuse SBF6.



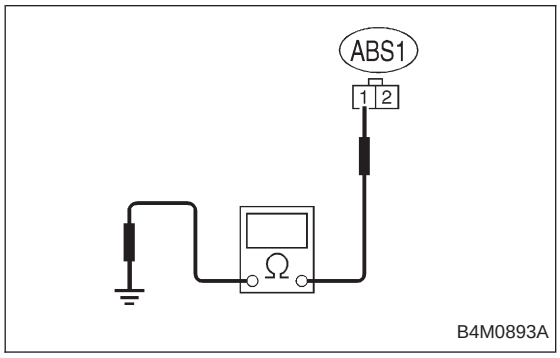
8L6	CHECK BROKEN WIRE IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector (ABS1) from hydraulic unit.
2) Measure resistance between hydraulic unit and motor relay installing portion.

CHECK : ***Connector & terminal***
(ABS1) No. 1 — Motor relay installing portion No. 30
Is resistance less than 0.5 Ω?

YES : Go to step **8L7.**

NO : Replace relay box.



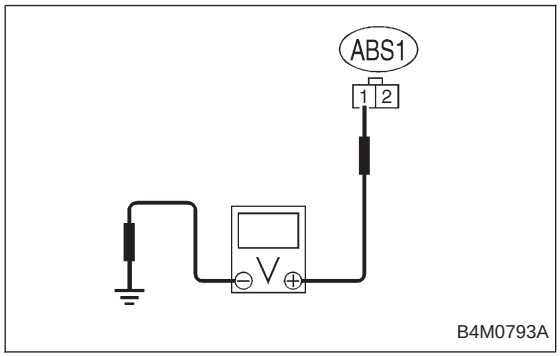
8L7	CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

Measure resistance between hydraulic unit and chassis ground.

CHECK : ***Connector & terminal***
(ABS1) No. 1 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8L8.**

NO : Replace relay box. Check fuse No. 19.



8L8	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Turn ignition switch to ON.
3) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(ABS1) No. 1 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

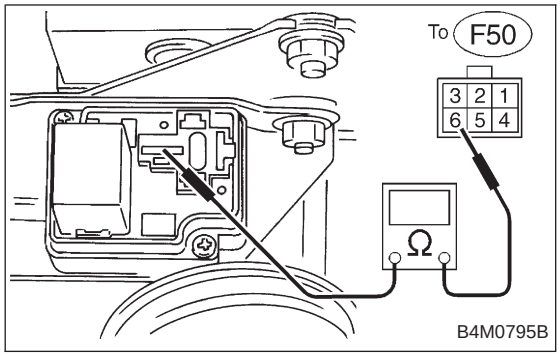
NO : Replace relay box.

4) Turn ignition switch to OFF.
5) Measure voltage between ABSCM connector and chassis ground.

CHECK : ***Connector & terminal***
(ABS1) No. 1 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8L9.**

NO : Replace relay box.



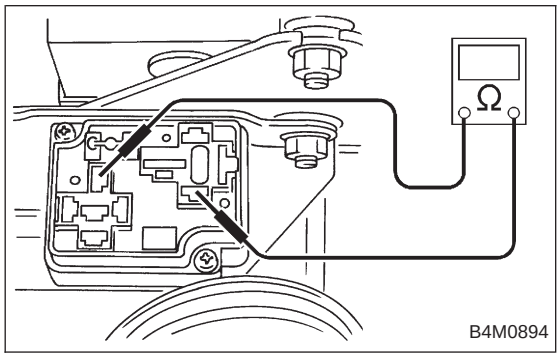
8L9	CHECK BROKEN WIRE IN MONITOR SYSTEM CIRCUIT OF RELAY BOX.

1) Disconnect connector (F50) from relay box.
2) Measure resistance between relay box connector and motor relay installing point.

CHECK : ***Connector & terminal***
To (F50) No. 6 — Motor relay installing point No. 30
Is resistance less than 0.5 Ω?

YES : Go to step **8L10.**

NO : Replace relay box.



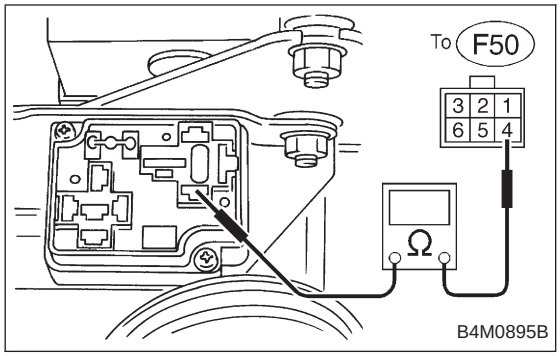
8L10	CHECK BROKEN WIRE IN CONTROL CIRCUIT OF RELAY BOX.

1) Remove valve relay from relay box.
2) Measure resistance between motor relay installing point and valve relay installing point.

CHECK : ***Connector & terminal***
Motor relay installing point No. 86 — Valve relay installing point No. 30
Is resistance less than 0.5 Ω?

YES : Go to next step.

NO : Replace relay box.

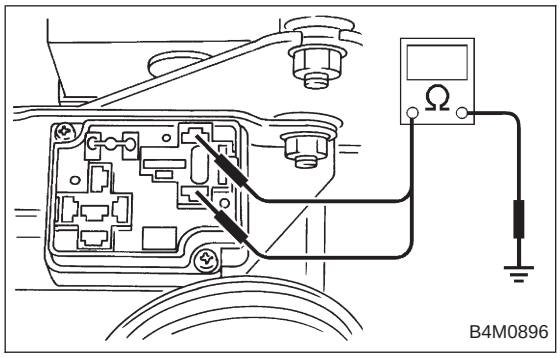


3) Measure resistance between motor relay installing point and relay box connector.

CHECK : ***Connector & terminal***
Motor relay installing point No. 86 — To (F50) No. 4
Is resistance less than 0.5 Ω?

YES : Go to step **8L11.**

NO : Replace relay box.



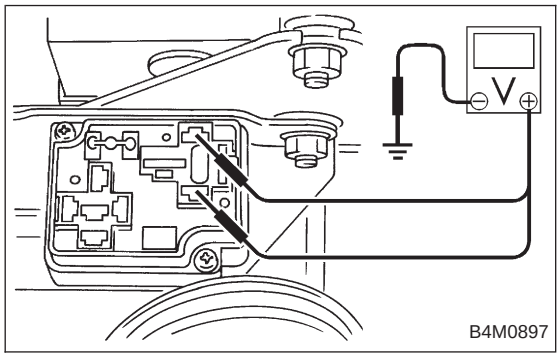
8L11	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure resistance between relay box and chassis ground.

CHECK : ***Connector & terminal***
Motor relay installing point No. 86 — Chassis ground
Motor relay installing point No. 85 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8L12.**

NO : Replace relay box. Check fuse No. 19.



8L12	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

1) Turn ignition switch to ON.
2) Measure voltage between motor relay installing point and chassis ground.

CHECK : ***Connector & terminal***
Motor relay installing point (+) No. 86 — Chassis ground (−)
Motor relay installing point (+) No. 85 — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

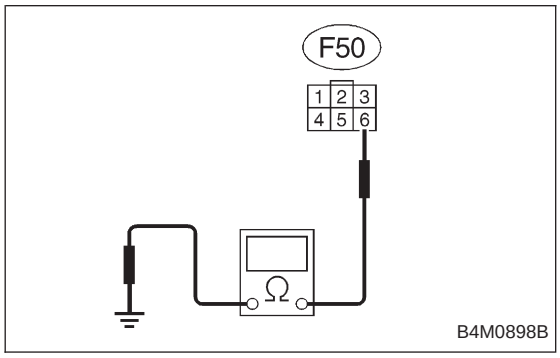
NO : Replace relay box and check all fuses.

3) Turn ignition switch to OFF.
4) Measure voltage between motor relay installing point and chassis ground.

CHECK ***: Connector & terminal***
Motor relay installing point (+) No. 86 — Chassis ground
Motor relay installing point (+) No. 85 — Chassis ground
Is voltage 0 V?

YES : Go to step **8L13.**

NO : Replace relay box and check all fuses.



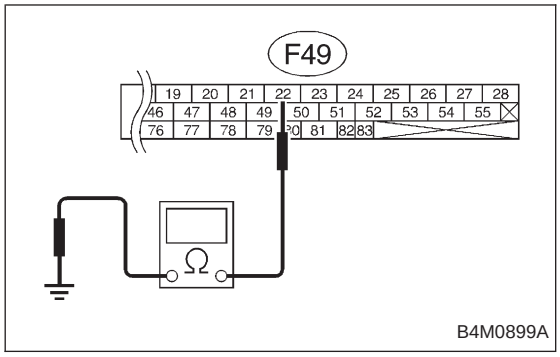
8L13	CHECK BROKEN WIRE IN MONITOR SYSTEM HARNESS.

1) Connect between terminals No. 10 and No. 1 of ABSCM connector (F49) with a lead wire.
2) Measure resistance between relay box connector and chassis ground.

CHECK ***: Connector & terminal***
(F50) No. 6 — Chassis ground
Is resistance less than 0.5 Ω?

YES : Go to step **8L14.**

NO : Repair harness connector between ABSCM and relay box.



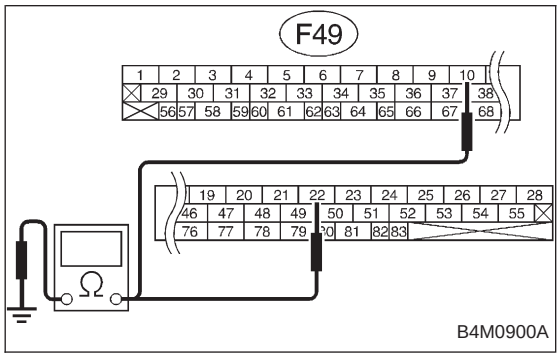
8L14	CHECK BROKEN WIRE IN RELAY CONTROL SYSTEM HARNESS.

1) Connect valve relay and motor relay to relay box.
2) Connect connector (F50) to relay box.
3) Connect connector to hydraulic unit.
4) Measure resistance between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 22 — Chassis ground
Is resistance 80±10 Ω?

YES : Go to step **8L15.**

NO : Repair harness connector between ABSCM and relay box.



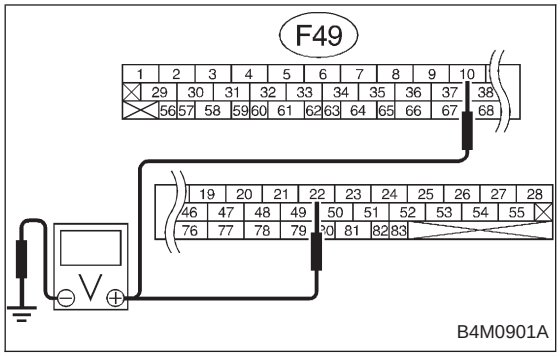
8L15	CHECK GROUND SHORT BETWEEN RELAY BOX AND ABSCM.

1) Disconnect connector (F50) from relay box.
2) Measure resistance between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 22 — Chassis ground
(F49) No. 10 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8L16.**

NO : Repair harness between ABSCM and relay box. Check fuse No. 19 and SBF6.



8L16	CHECK BATTERY SHORT BETWEEN RELAY BOX AND ABSCM.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM and chassis ground.

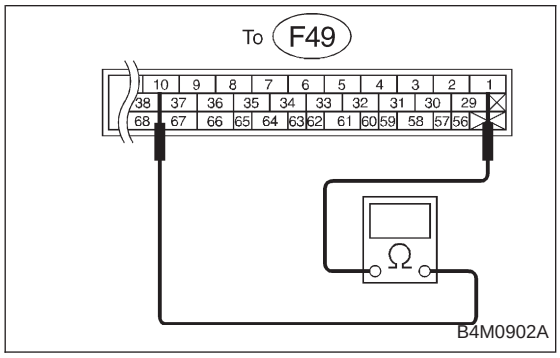
CHECK : ***Connector & terminal***
(F49) No. 22 (+) — Chassis ground (−)
(F49) No. 10 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.
NO : Repair harness between relay box and ABSCM. Check fuse SBF6.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM and chassis ground.

CHECK : ***Connector & terminal***
(F49) No. 22 (+) — Chassis ground (−)
(F49) No. 10 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8L17.**
NO : Repair harness between relay box and ABSCM. Check fuse SBF6.

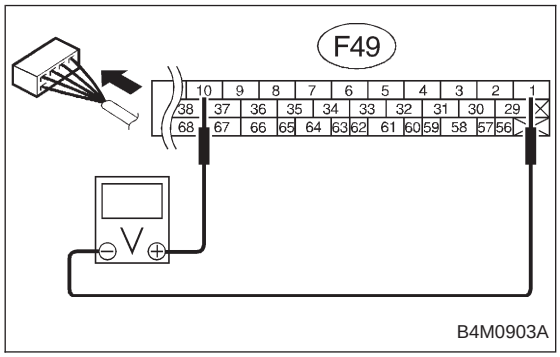


8L17	CHECK GROUND SHORT AT ABSCM MONITOR TERMINAL.

Measure resistance between ABSCM terminals.

CHECK : ***Connector & terminal***
To (F49) No. 10 — No. 1
Is resistance less than 0.5 Ω?

YES : Go to step **8L18.**
NO : Replace ABSCM.



8L18	CHECK BATTERY SHORT AT ABSCM MONITOR TERMINAL.

1) Disconnect connector cover from ABSCM connector. <Ref. to 4-4c [T8C1] steps 5) to 8).>
2) Connect all connectors.
3) Turn ignition switch to ON.
4) Measure voltage between ABSCM connector terminals.

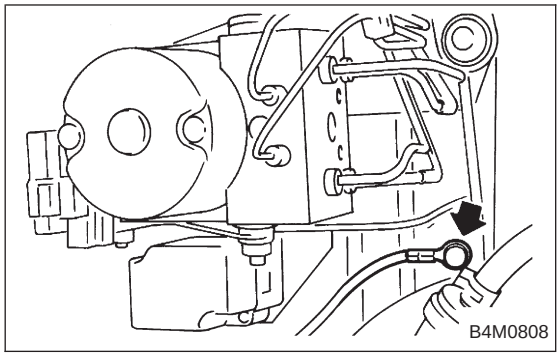
CHECK : ***Connector & terminal***
(F49) No. 10 (+) — No. 1 (−)
Is voltage less than 2 V?

YES : Go to next step.
NO : Replace ABSCM.

5) Turn ignition switch to OFF.
6) Measure voltage between ABSCM connector terminals.

CHECK : ***Connector & terminal***
(F49) No. 10 (+) — No. 1 (−)
Is voltage less than 2 V?

YES : Go to step **8L19.**
NO : Replace ABSCM.

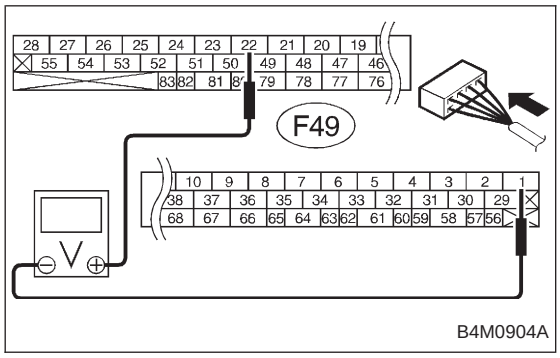

B4M0808

8L19	CHECK MOTOR GROUND.

CHECK : ***Tightening torque: 32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb) Is the motor ground terminal tightly clamped?***

YES : Go to step **8L20.**

NO : Tighten the clamp of motor ground terminal.



B4M0904A

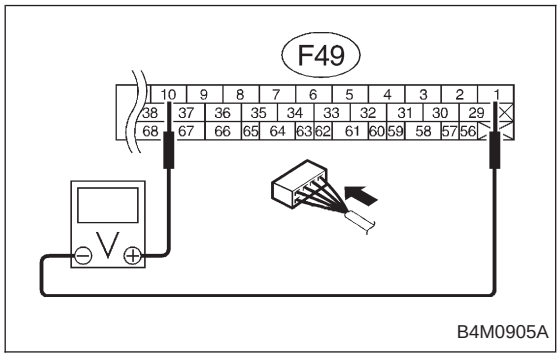
8L20	CHECK ABSCM MOTOR DRIVE TERMINAL.

1) Measure voltage between ABSCM connector terminals.
2) Operate the check sequence. <Ref. to 4-4 [W22D1].>

CHECK : ***Connector & terminal (F49) No. 22 (+) — No. 1 (−) Does the voltage drop from 10 — 13 V to less than 1.5 V, and rise to 10 — 13 V again when carrying out the check sequence?***

YES : Go to step **8L21.**

NO : Replace ABSCM.



B4M0905A

8L21	CHECK MOTOR OPERATION.

1) Measure voltage between ABSCM connector terminals.
2) Operate the check sequence. <Ref. to 4-4 [W22D1].>

CHECK : ***Connector & terminal (F49) No. 10 (+) — No. 1 (−) Does the voltage raise from less than 1.5 V to 10 — 13 V, and return to less than 1.5 V again when carrying out the check sequence? Can motor revolution noise (buzz) be heard when carrying out the check sequence?***

YES : Go to step **8L22.**

NO : Replace hydraulic unit.

8L22	**CHECK POOR CONTACT IN CONNECTOR BETWEEN HYDRAULIC UNIT, RELAY BOX AND ABSCM.**

CHECK ***: Is there poor contact in connector between hydraulic unit, relay box and ABSCM?***

YES : Repair connector.

NO : Go to step **8L23.**

8L23	**CHECK ABSCM.**

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

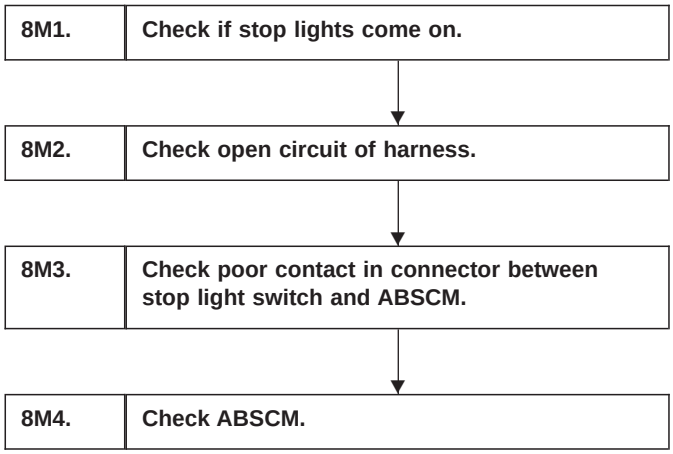
M: TROUBLE CODE 54 — ABNORMAL STOP LIGHT SWITCH —

DIAGNOSIS:

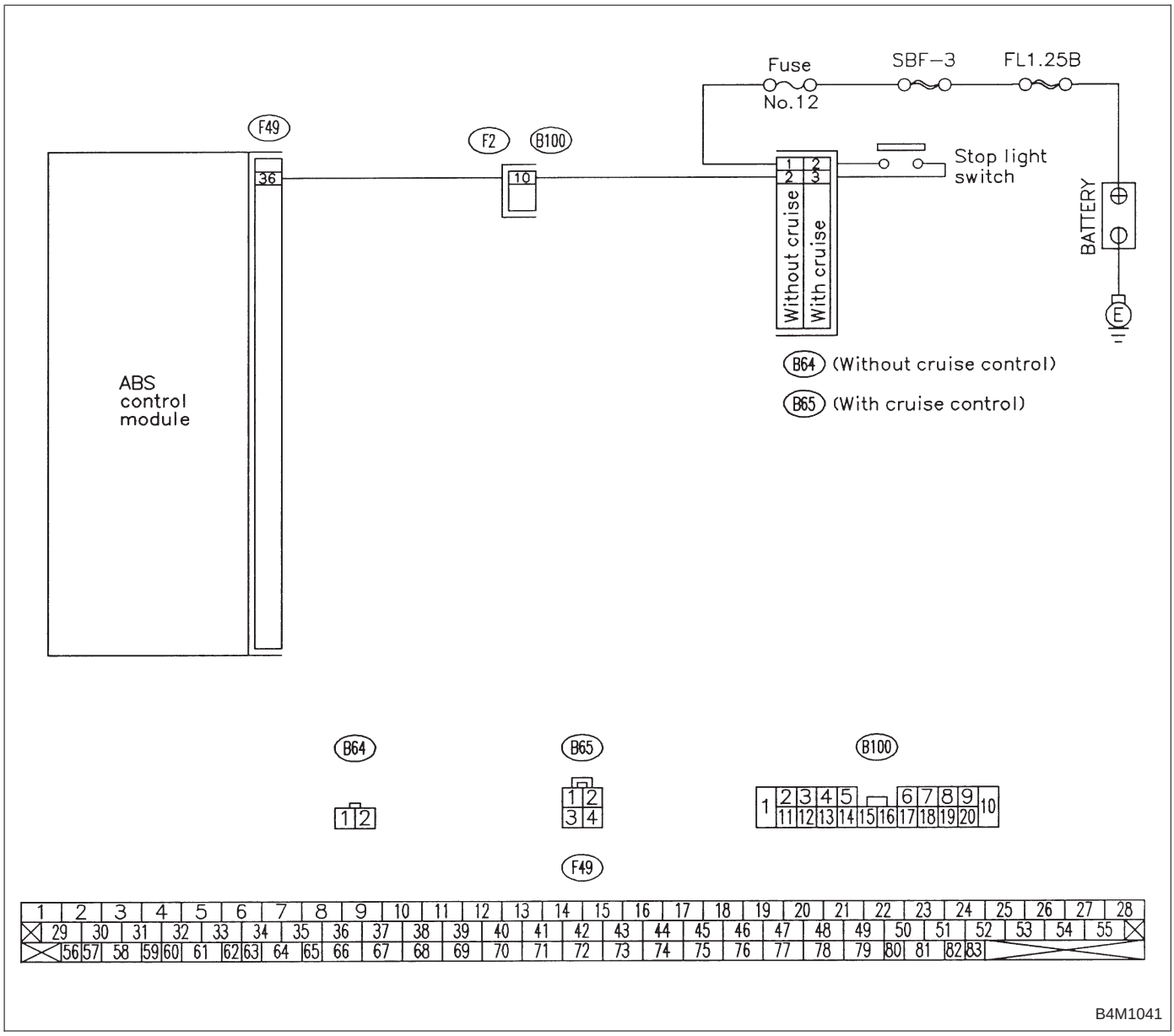
- Faulty stop light switch

TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:



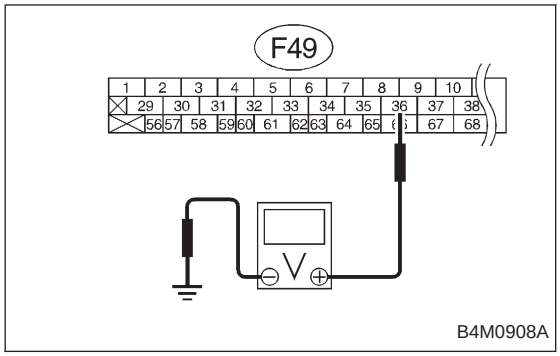
8M1	CHECK IF STOP LIGHTS COME ON.

Depress the brake pedal.

CHECK ***: Do stop lights turn on?***

YES : Go to step **8M2.**

NO : Repair stop lights circuit.



8M2	CHECK OPEN CIRCUIT OF HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Depress brake pedal.
4) Measure voltage between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal (F49) No. 36 — Chassis ground Is voltage 10 — 13 V?***

YES : Go to step **8M3.**

NO : Repair harness between stop light switch and ABSCM.

8M3	CHECK POOR CONTACT IN CONNECTOR BETWEEN STOP LIGHT SWITCH AND ABSCM.

CHECK ***: Is there poor contact in connector between stop light switch and ABSCM?***

YES : Repair connector.

NO : Go to step **8M4.**

8M4	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

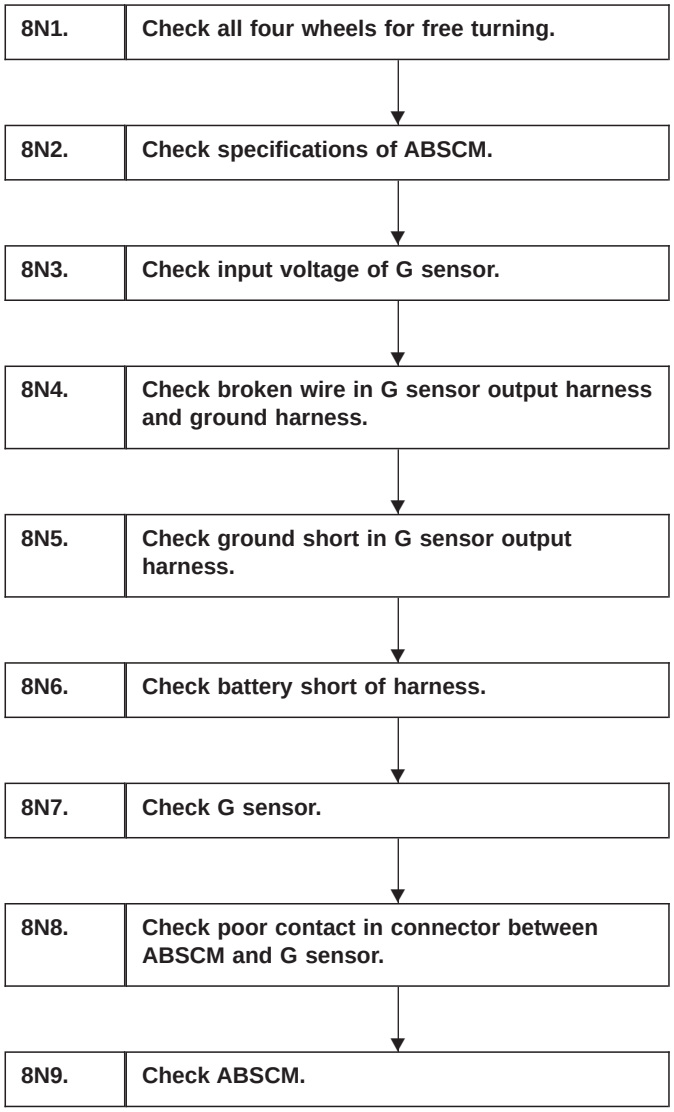
N: TROUBLE CODE 56 — ABNORMAL G SENSOR OUTPUT VOLTAGE —

DIAGNOSIS:

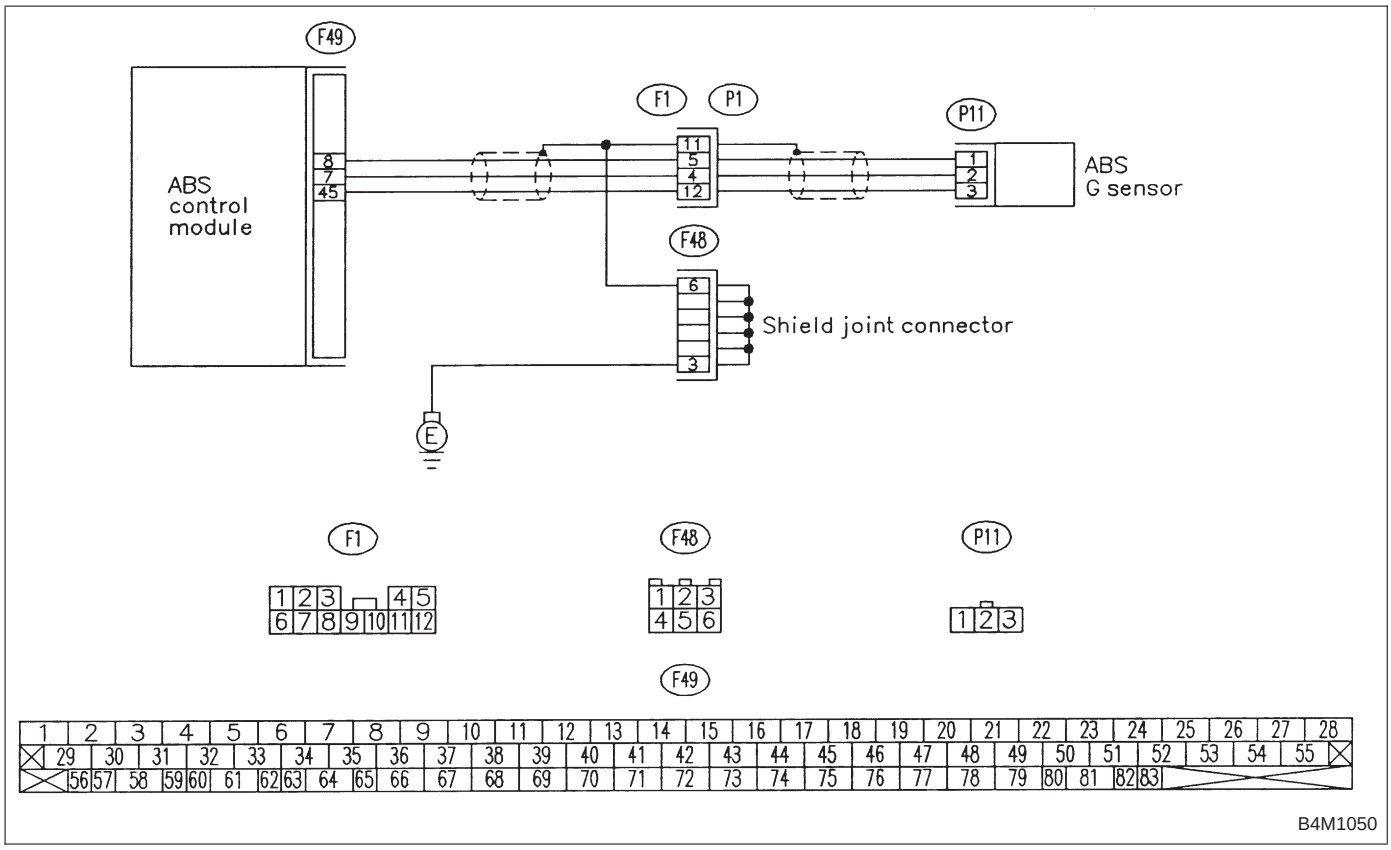
- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:



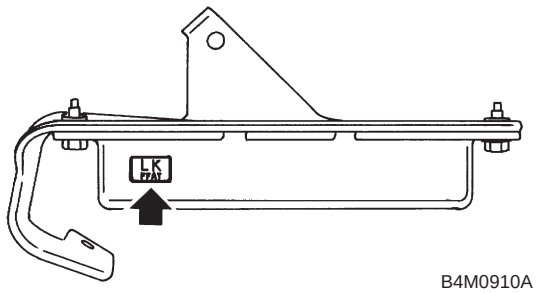
8N1	CHECK ALL FOUR WHEELS FOR FREE TURNING.

CHECK : ***Have the wheels been turned freely such as when the vehicle is lifted up, or operated on a rolling road?***

YES : The ABS is normal. Erase the trouble code.

NO : Go to step **8N2.**

LHD model



8N2	CHECK SPECIFICATIONS OF ABSCM.

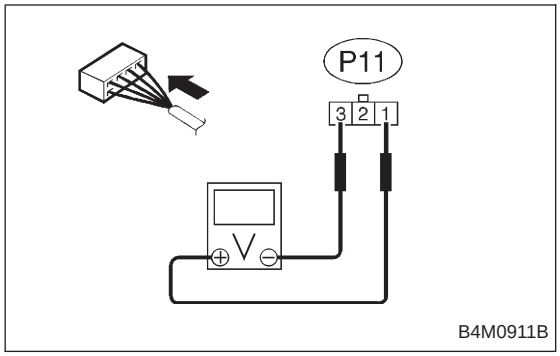
Check specifications of the plate attached to the ABSCM.

CHECK : ***Is an ABSCM for 4WD model installed on a FWD model?***

CAUTION:
Be sure to turn ignition switch to OFF when removing ABSCM.

YES : Replace ABSCM.

NO : Go to step **8N3.**



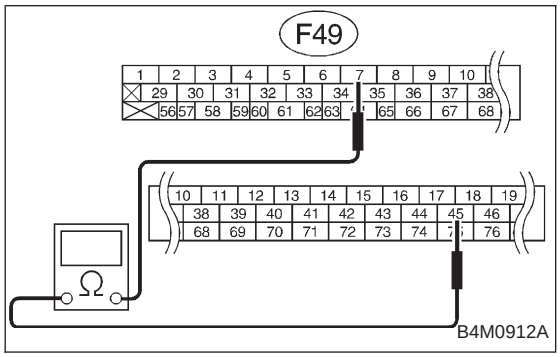
8N3	CHECK INPUT VOLTAGE OF G SENSOR.

1) Turn ignition switch to OFF.
2) Remove console box.
3) Disconnect G sensor from body. (Do not disconnect connector.)
4) Turn ignition switch to ON.
5) Measure voltage between G sensor connector terminals.

CHECK : ***Connector & terminal***
(P11) No. 1 (+) — No. 3 (−)
Is voltage 5±0.25 V?

YES : Go to step **8N4.**

NO : Repair harness connector between G sensor and ABSCM.



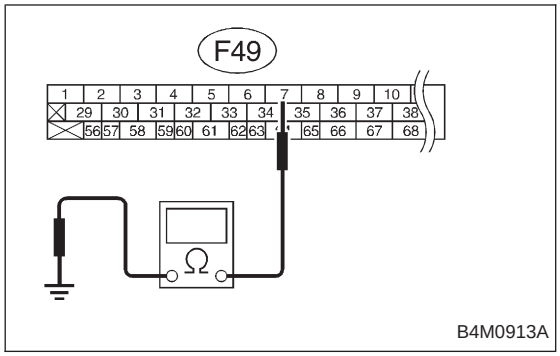
8N4	CHECK BROKEN WIRE IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Measure resistance between ABSCM connector terminals.

CHECK : ***Connector & terminal***
(F49) No. 7 — No. 45
Is resistance 4.6±0.3 kΩ?

YES : Go to step **8N5.**

NO : Repair harness between G sensor and ABSCM.



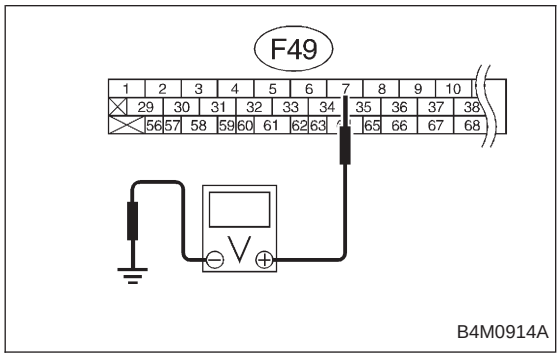
8N5	CHECK GROUND SHORT IN G SENSOR OUTPUT HARNESS.

1) Disconnect connector from G sensor.
2) Measure resistance between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 7 — Chassis ground
Is resistance more than 1 MΩ?

YES : Go to step **8N6.**

NO : Repair harness between G sensor and ABSCM.



8N6	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 7 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

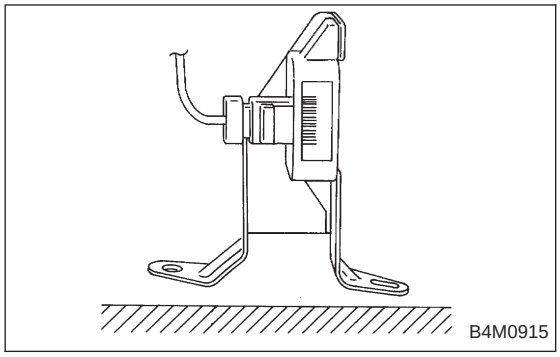
NO : Repair harness between G sensor and ABSCM.

3) Turn ignition switch to OFF.
4) Measure voltage between ABSCM connector and chassis ground.

CHECK ***: Connector & terminal***
(F49) No. 7 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **8N7.**

NO : Repair harness between G sensor and ABSCM.



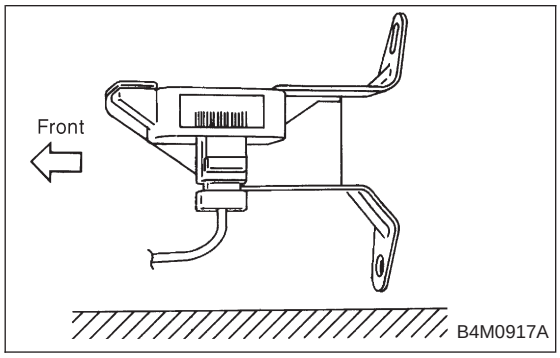
8N7	CHECK G SENSOR.

1) Remove G sensor from vehicle.
2) Connect connector to G sensor.
3) Connect connector to ABSCM.
4) Turn ignition switch to ON.
5) Measure voltage between G sensor connector terminals.

CHECK : ***Connector & terminal (P11) No. 2 (+) — No. 1 (−) Is voltage 2.3±0.2 V when G sensor is horizontal?***

YES : Go to next CHECK .

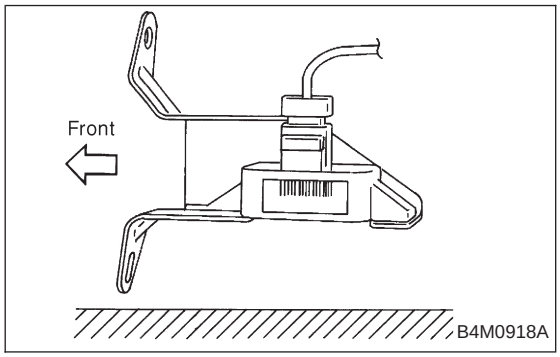
NO : Replace G sensor.



CHECK : ***Connector & terminal (P11) No. 2 (+) — No. 1 (−) Is voltage 3.9±0.2 V when G sensor is inclined forwards to 90°?***

YES : Go to next CHECK .

NO : Replace G sensor.



CHECK : ***Connector & terminal (P11) No. 2 (+) — No. 1 (−) Is voltage 0.7±0.2 V when G sensor is inclined backwards to 90°?***

YES : Go to step **8N8.**

NO : Replace G sensor.

8N8	CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND G SENSOR.

CHECK : ***Is there poor contact in connector between ABSCM and G sensor?***

YES : Repair connector.

NO : Go to step **8N9.**

8N9	CHECK ABSCM.

1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.

NO : Go to next CHECK .

CHECK ***: Are other trouble codes being output?***

YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.