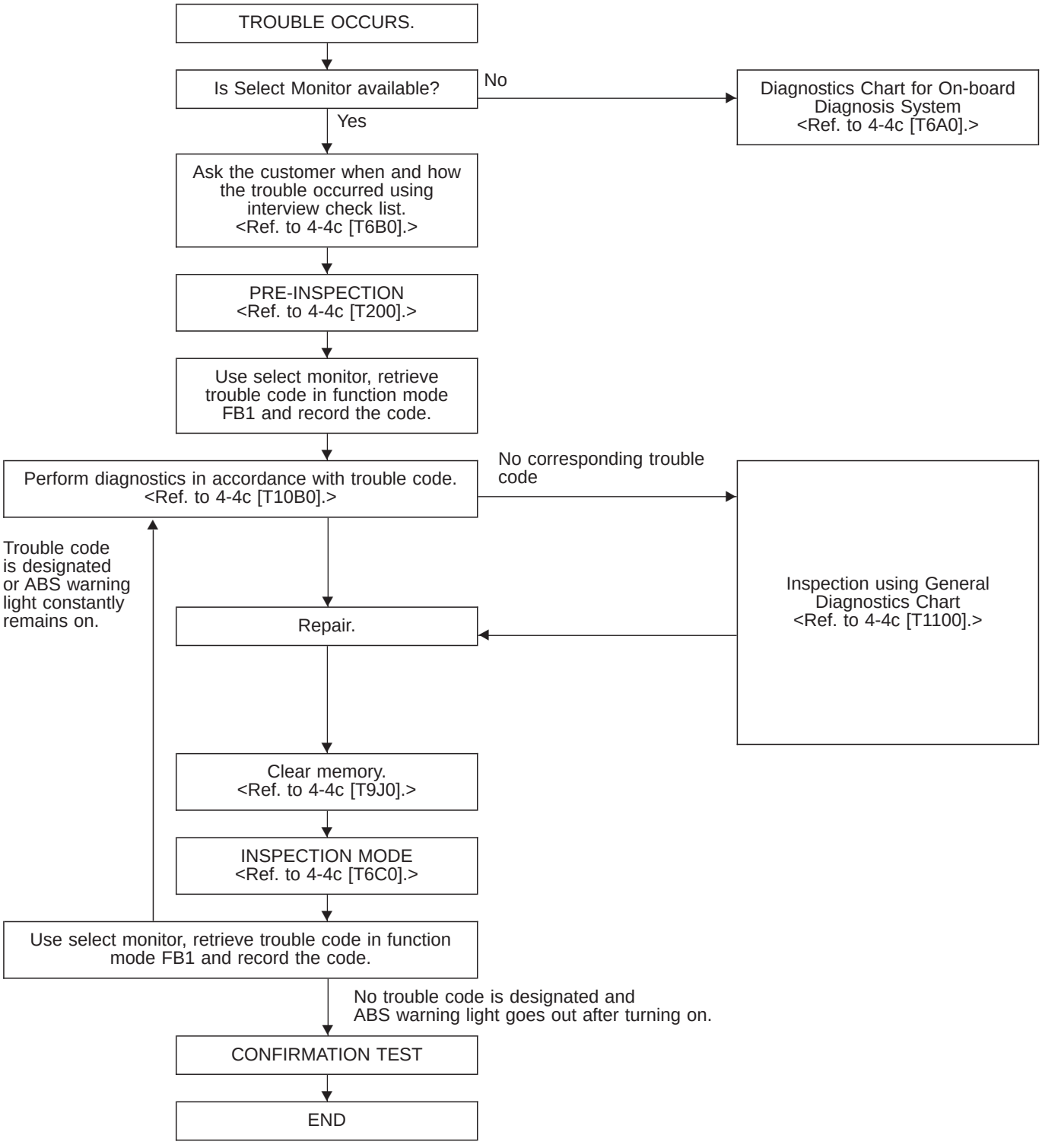
10. Diagnostics Chart with Select Monitor

A: BASIC DIAGNOSTIC CHART



NOTE:
To check harness for broken wires or short circuits, shake it while holding it or the connector.

B: LIST OF TROUBLE CODE

Code	Display screen (FB1)	Contents of diagnosis	Ref. to
—	ERROR 3 (1)	Select monitor communication failure	4-4c [T10C0]
11	NO TROUBLE	Although no trouble appears on the select monitor display, the ABS warning light remains on.	4-4c [T10D0]
21	FR. SS HARD	Open circuit or input voltage too high of FR sensor	4-4c [T10E0]
22	FR. SS SOFT	Abnormal ABS sensor signal of FR sensor	4-4c [T10I0]
23	FL. SS HARD	Open circuit or input voltage too high of FL sensor	4-4c [T10F0]
24	FL. SS SOFT	Abnormal ABS sensor signal of FL sensor	4-4c [T10J0]
25	RR. SS HARD	Open circuit or input voltage too high of RR sensor	4-4c [T10G0]
26	RR. SS SOFT	Abnormal ABS sensor signal of RR sensor	4-4c [T10K0]
27	RL. SS HARD	Open circuit or input voltage too high of RL sensor	4-4c [T10H0]
28	RL. SS SOFT	Abnormal ABS sensor signal of RL sensor	4-4c [T10L0]
29	EITHER. SS SOFT	Abnormal ABS sensor signal (any one of four)	4-4c [T10M0]
31	FR. EV VALVE	Abnormal FR inlet valve	4-4c [T10N0]
32	FR. AV VALVE	Abnormal FR outlet valve	4-4c [T10R0]
33	FL. EV VALVE	Abnormal FL inlet valve	4-4c [T10O0]
34	FL. AV VALVE	Abnormal FL outlet valve	4-4c [T10S0]
35	RR. EV VALVE	Abnormal RR inlet valve	4-4c [T10P0]
36	RR. AV VALVE	Abnormal RR outlet valve	4-4c [T10T0]
37	RL. EV VALVE	Abnormal RL inlet valve	4-4c [T10Q0]
38	RL. AV VALVE	Abnormal RL outlet valve	4-4c [T10U0]
41	ECU	Abnormal ABSCM	4-4c [T10V0]
42	LOW VOLTAGE	Source voltage is low.	4-4c [T10W0]
44	CCM LINE	A combination of AT control abnormals (ABS not in control)	4-4c [T10X0]
	CCM OPEN	A combination of AT control abnormals (ABS in control)	4-4c [T10Y0]
46	GS POWER OVER	G sensor line voltage too high	4-4c [T10Z0]
	GS POWER LOW	G sensor line voltage too low	4-4c [T10AA0]
51	V. RELAY	Abnormal valve relay	4-4c [T10AB0]
	V. RELAY ON	Valve relay ON failure	4-4c [T10AC0]
52	M. RELAY OPEN	Open circuit of motor relay	4-4c [T10AD0]
	M. RELAY ON	Motor relay ON failure	4-4c [T10AE0]
	MOTOR	Abnormal motor	4-4c [T10AF0]
54	BLS	Abnormal stop light switch	4-4c [T10AG0]
56	G SENSOR LINE	Open or short circuit of G sensor	4-4c [T10AH0]
	G SENSOR +B	Battery short of G sensor	4-4c [T10AI0]
	G SENSOR Hμ	Abnormal G sensor high μ output	4-4c [T10AJ0]
	G SENSOR STICK	G sensor output is stuck.	4-4c [T10AK0]

NOTE:
High μ means high friction coefficient against road surface.

C: ERROR 3 (1) — SELECT MONITOR COMMUNICATION FAILURE —

DIAGNOSIS:

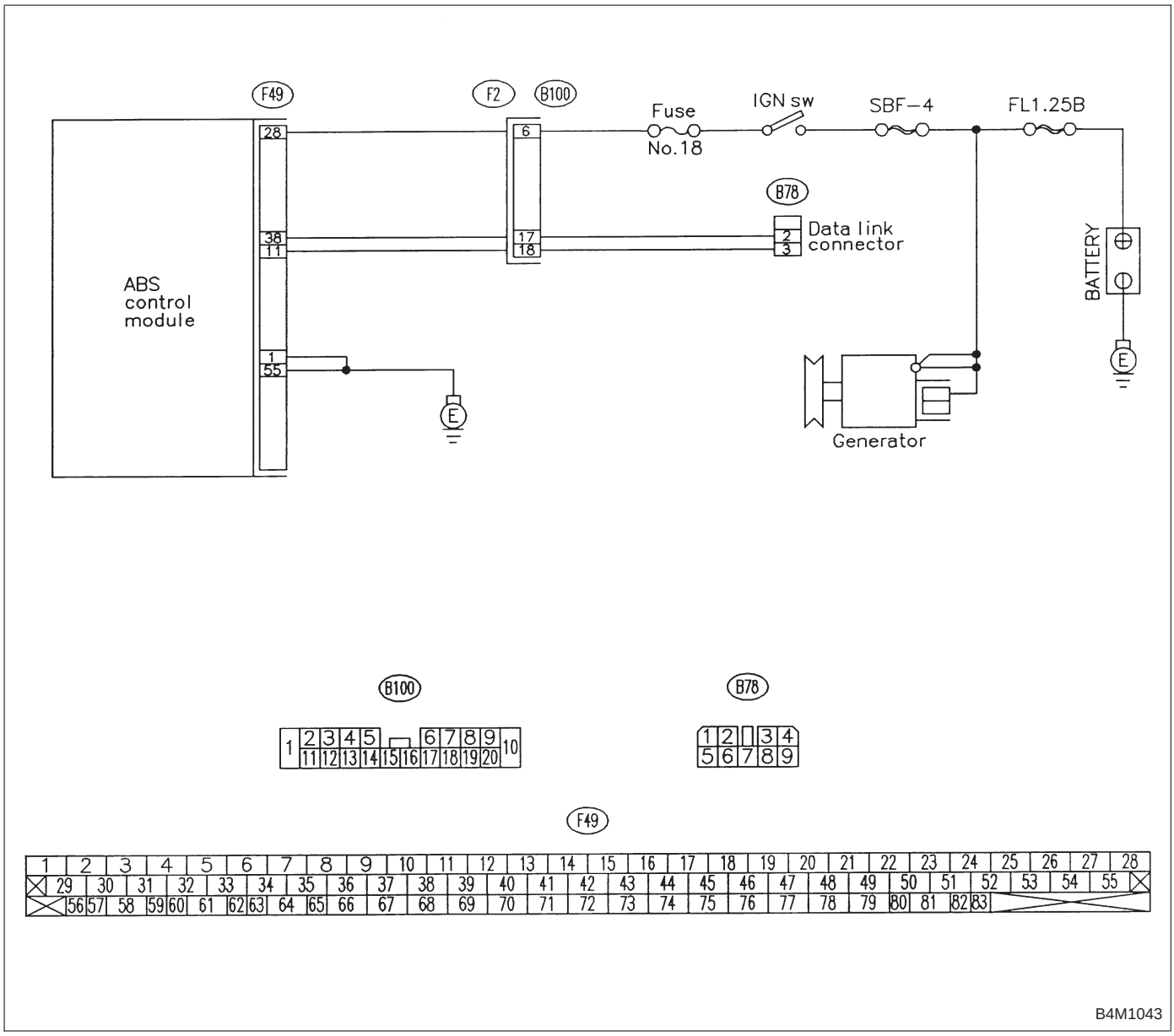
- Faulty harness connector

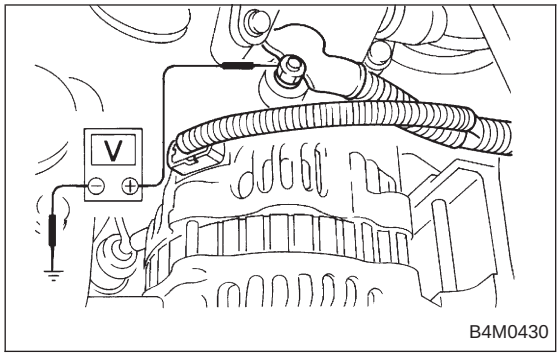
TROUBLE SYMPTOM:

- ABS warning light remains on.
- ERROR 3 or 1 appears on the select monitor display.

10C1.	**Check generator.**
10C2.	**Check battery terminal.**
10C3.	**Check communication of select monitor.**
10C4.	**Check installation of ABSCM connector.**
10C5.	**Check power supply of ABSCM.**
10C6.	**Check ground circuit of ABSCM.**
10C7.	**Check harness connector between ABSCM and data link connector.**
10C8.	**Check poor contact in connector between ABSCM and data link connector.**

WIRING DIAGRAM:





10C1	CHECK GENERATOR.

1) Start the engine.
2) Idle the engine.
3) Measure voltage between generator and chassis ground.

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

YES : Go to step **10C2.**
NO : Repair generator.

10C2	CHECK BATTERY TERMINAL.

Turn ignition switch to OFF.

CHECK : ***Is there poor contact at battery terminal?***
YES : Repair battery terminal.
NO : Go to step **10C3.**

10C3	CHECK COMMUNICATION OF SELECT MONITOR.

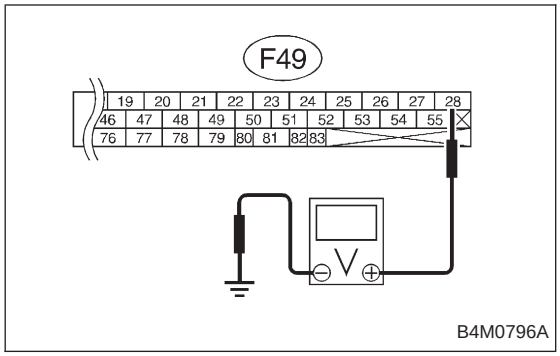
Using the select monitor, check whether communication to other system (such as engine, AT, etc.) can be executed normally.

CHECK : ***Are the name and year of the system displayed on the select monitor?***
YES : Go to step **10C4.**
NO : Repair select monitor communication cable and connector.

10C4	CHECK INSTALLATION OF ABSCM CONNECTOR.

Turn ignition switch to OFF.

CHECK : ***Is ABSCM connector inserted into ABSCM until the clamp locks onto it?***
YES : Go to step **10C5.**
NO : Insert ABSCM connector into ABSCM until the clamp locks onto it.



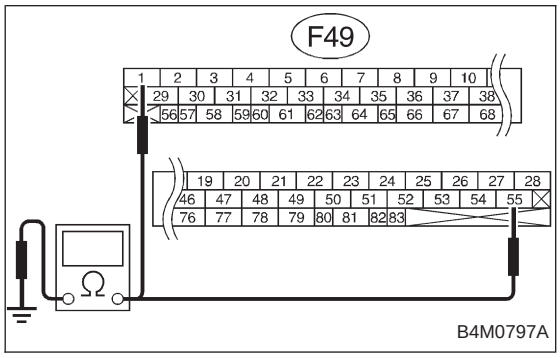
10C5	CHECK POWER SUPPLY OF ABSCM.

1) Disconnect connector from ABSCM.
2) Start engine.
3) Idle the engine.
4) 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 **10C6.**

NO : Repair ABSCM power supply circuit.



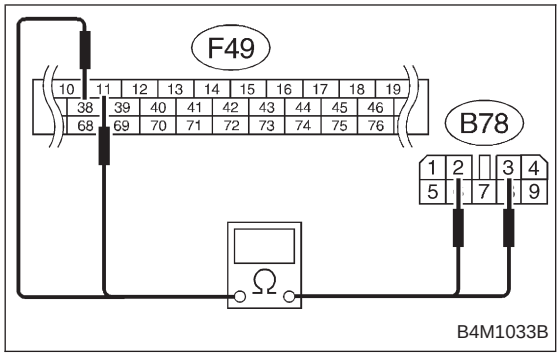
10C6	CHECK GROUND CIRCUIT OF ABSCM.

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

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

YES : Repair harness/connector between ABSCM and select monitor.

NO : Go to step **10C7.**



10C7	**CHECK HARNESS CONNECTOR BETWEEN ABSCM AND DATA LINK CONNECTOR.**

1) Turn ignition switch OFF.
2) Measure resistance between ABSCM connector and data link connector.

CHECK ***: Connector & terminal***
(F49) No. 11 — (B78) No. 3
(F49) No. 38 — (B78) No. 2
Is resistance less than 0.5 Ω?

YES : Repair harness and connector between ABSCM and data link connector.

NO : Go to step **10C8.**

10C8	**CHECK POOR CONTACT IN CONNECTOR BETWEEN ABSCM AND DATA LINK CONNECTOR.**

CHECK ***: Is there poor contact in connectors between ABSCM and data link connector?***

YES : Repair connector.

NO : Replace ABSCM.

D: NO TROUBLE
— ALTHOUGH NO TROUBLE APPEARS ON THE SELECT MONITOR DISPLAY, THE ABS WARNING LIGHT REMAINS ON. —

DIAGNOSIS:

- ABS warning light circuit is shorted.

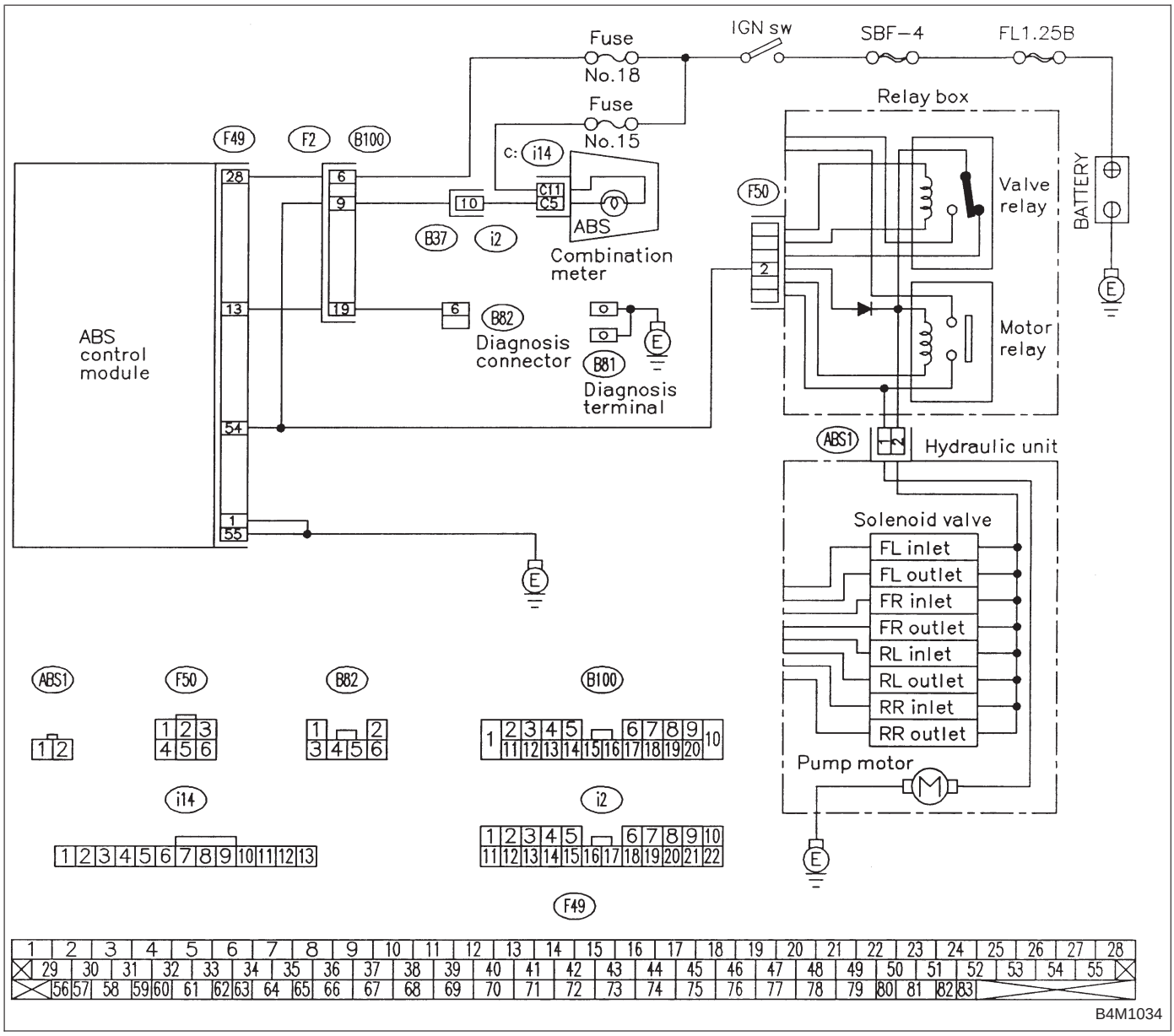
TROUBLE SYMPTOM:

- ABS warning light remains on.
- NO TROUBLE displayed on the select monitor.

NOTE:
When the ABS warning light is OFF and “NO TROUBLE” is displayed on the select monitor, the system is in normal condition.

10D1.	**Check ground short of harness.**
↓	
10D2.	**Check ground short of relay box.**

WIRING DIAGRAM:



10D1	CHECK GROUND SHORT OF HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Disconnect connector (F50) from relay box.
4) Turn ignition switch to ON.

CHECK ***: Does the ABS warning light remain OFF?***

YES : Go to step **10D2.**

NO : Repair harness between ABSCM, relay box ABS warning light.

10D2	CHECK GROUND SHORT OF RELAY BOX.

1) Turn ignition switch to OFF.
2) Connect connector (F50) to relay box.
3) Disconnect connector (ABS1) from hydraulic unit.
4) Remove valve relay from relay box.
5) Turn ignition switch to ON.

CHECK ***: Does the ABS warning light remain OFF?***

YES : Replace ABSCM.

NO : Replace relay box.

E: 21 FR. SS HARD
— ABNORMAL FRONT RH ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) —

F: 23 FL. SS HARD
— ABNORMAL FRONT LH ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) —

G: 25 RR. SS HARD
— ABNORMAL REAR RH ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) —

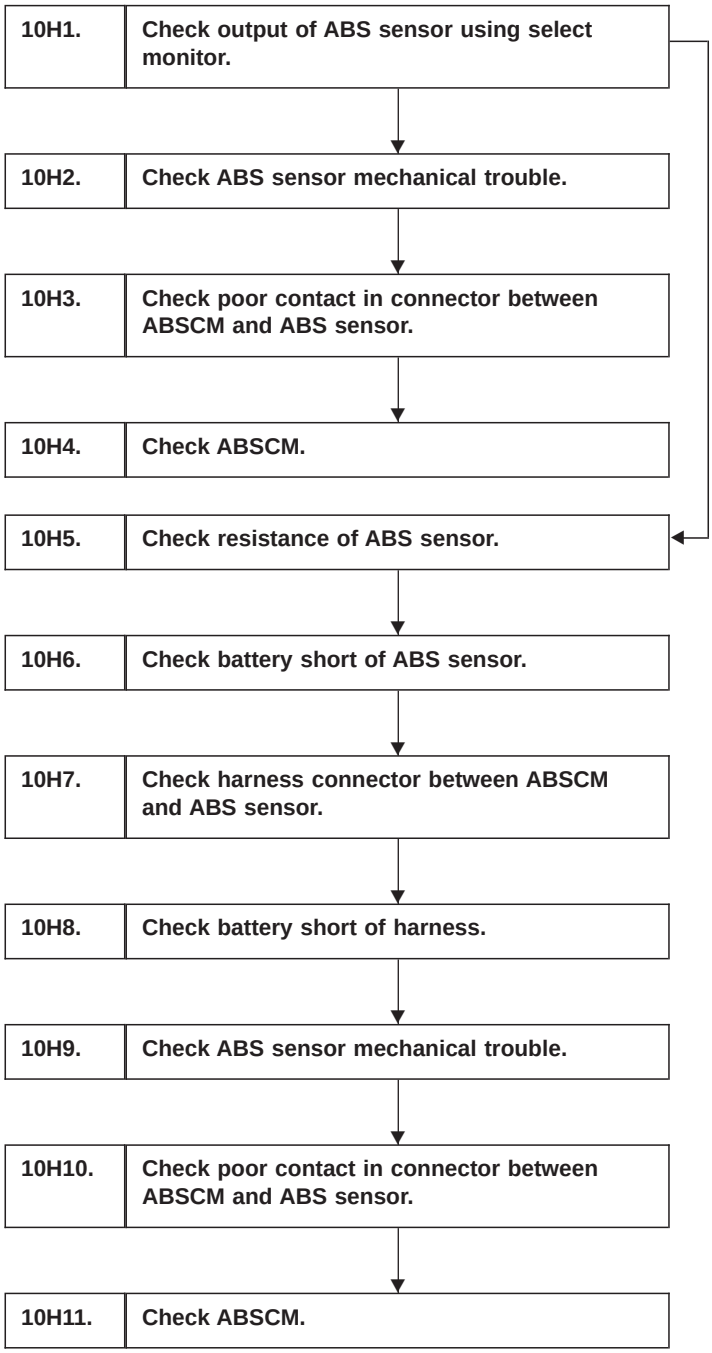
H: 27 RL. SS HARD
— ABNORMAL REAR LH ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) —

DIAGNOSIS:

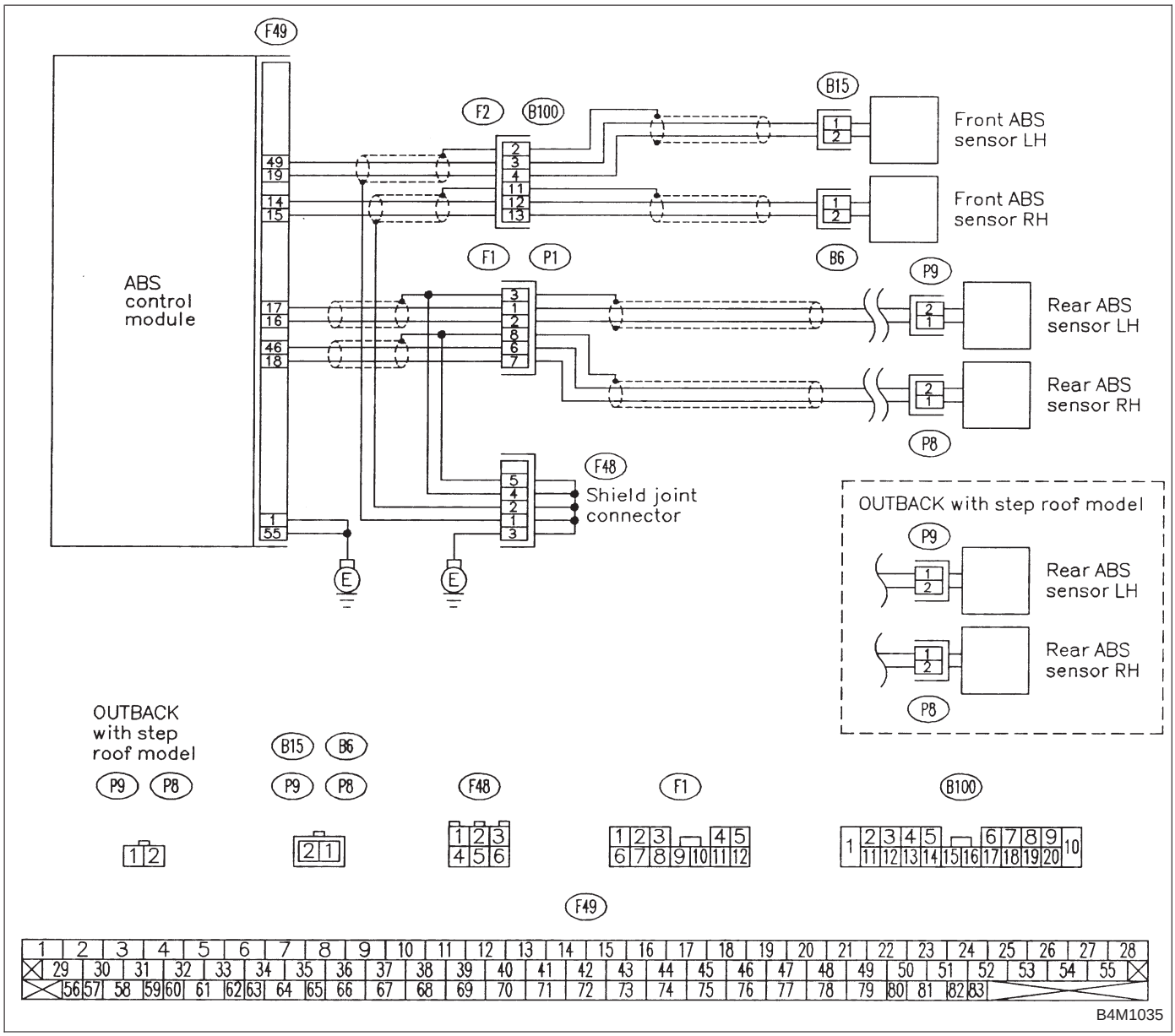
- Faulty ABS sensor (Broken wire, input voltage too high)
- Faulty harness connector

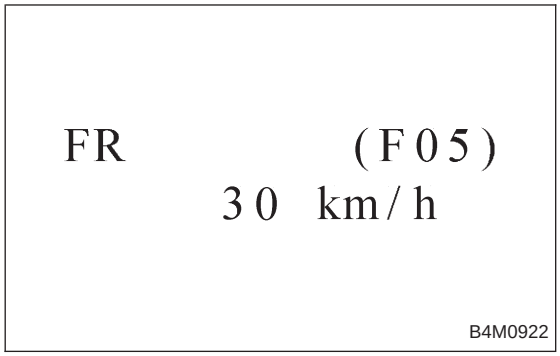
TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:





10H1	CHECK OUTPUT OF ABS SENSOR USING SELECT MONITOR.

Read the ABS sensor output corresponding to the faulty system in the select monitor function mode.

NOTE:
The select monitor display shows that the front right wheel is rotating at 30 km/h.

CHECK ***: Does the speed indicated on the display change in response to the speedometer reading during acceleration/deceleration when the steering wheel is in the straight-ahead position?***

YES : Go to step **10H2.**

NO : Go to step **10H5.**

10H2	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?

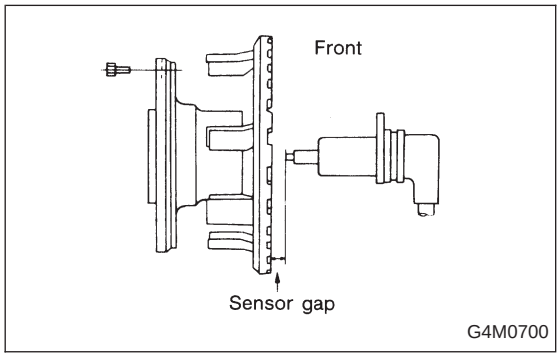
YES : Go to next CHECK .

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.

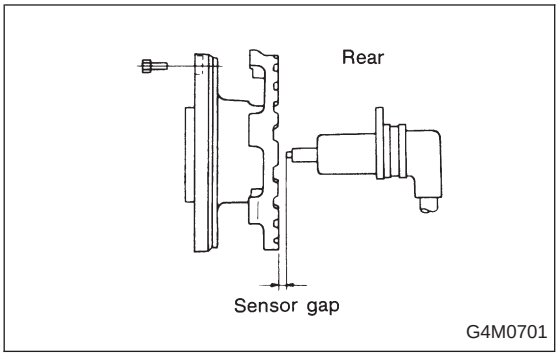
NO : Tighten tone wheel installation bolts securely.



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 **10H3.**
NO : Repair hub.

10H3	**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 **10H4.**

10H4	**CHECK ABSCM.**

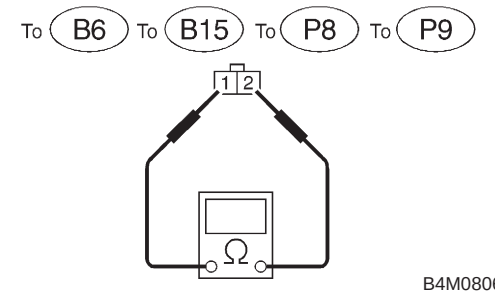
1) Connect all connectors.
2) Erase the memory.
3) Perform inspection mode.
4) Read out the trouble code.

CHECK ***: Is the same trouble code as in the current diagnosis still being output?***
YES : Replace ABSCM.
NO : Go to next CHECK .

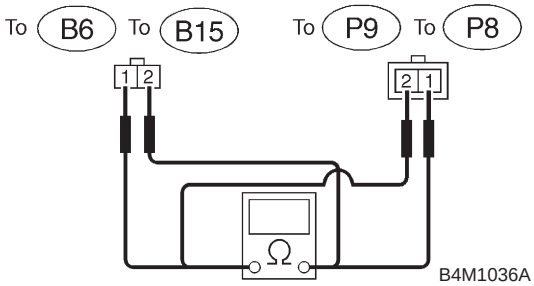
CHECK ***: Are other trouble codes being output?***
YES : Proceed with the diagnosis corresponding to the trouble code.
NO : A temporary poor contact.

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

Except OUTBACK with step roof model



OUTBACK with step roof model



10H5	CHECK RESISTANCE OF ABS SENSOR.

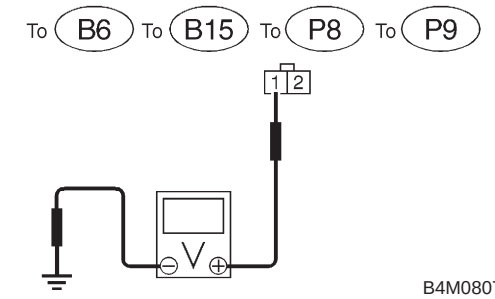
1) Turn ignition switch to OFF.
2) Disconnect connector from ABS sensor.
3) Measure resistance of ABS sensor connector terminals.

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?

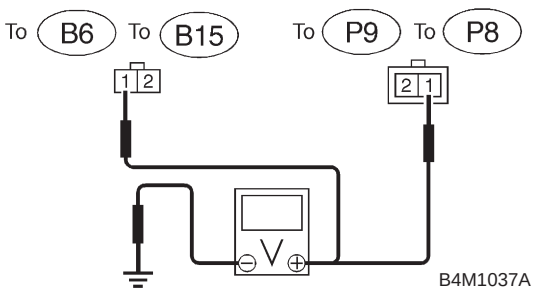
YES : Go to step **10H6.**

NO : Replace ABS sensor.

Except OUTBACK with step roof model



OUTBACK with step roof model



10H6	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.

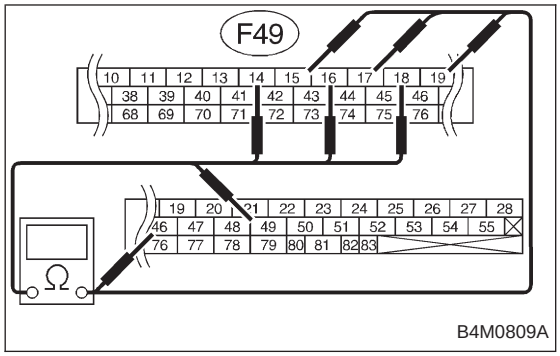
NO : Replace ABS sensor.

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 **10H7.**

NO : Replace ABS sensor.



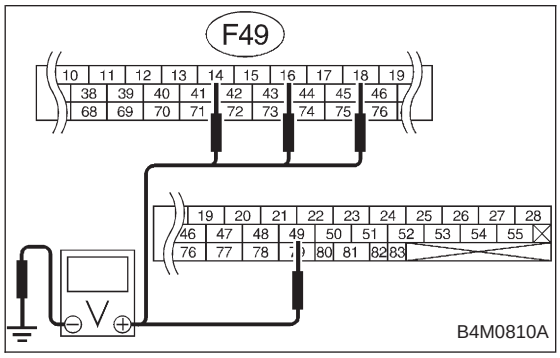
10H7	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

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 **10H8.**

NO : Repair harness connector between ABSCM and ABS sensor.



10H8	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 **10H9.**

NO : Repair harness between ABSCM and ABS sensor.

10H9	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?

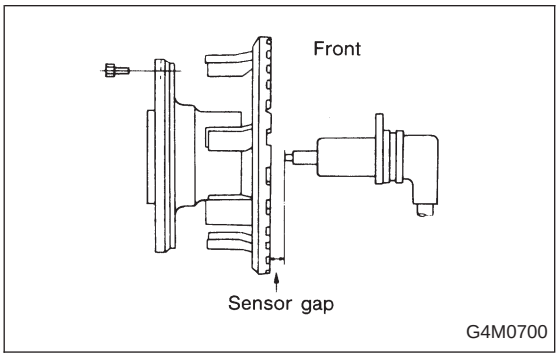
YES : Go to next CHECK .

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.

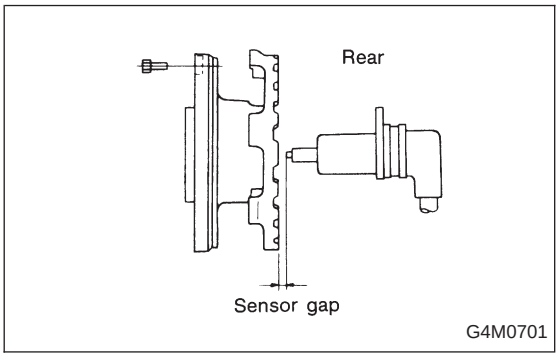
NO : Tighten tone wheel installation bolts securely.



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 **10H10.**

NO : Repair hub.

10H10	**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 **10H11.**

10H11	**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.

I: 22 FR. SS SOFT
— ABNORMAL FRONT RH ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) —

J: 24 FL. SS SOFT
— ABNORMAL FRONT LH ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) —

K: 26 RR. SS SOFT
— ABNORMAL REAR RH ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) —

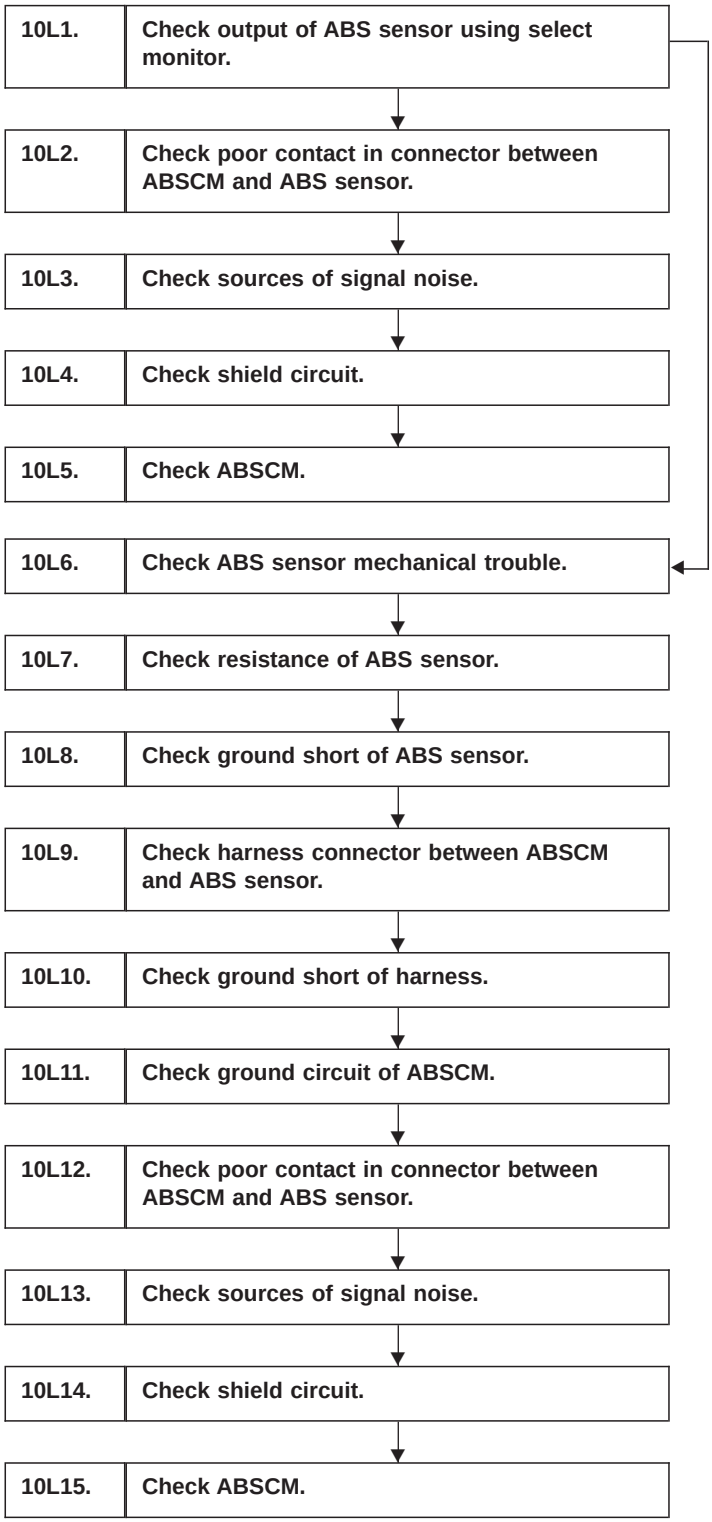
L: 28 RL. SS SOFT
— ABNORMAL REAR LH ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) —

DIAGNOSIS:

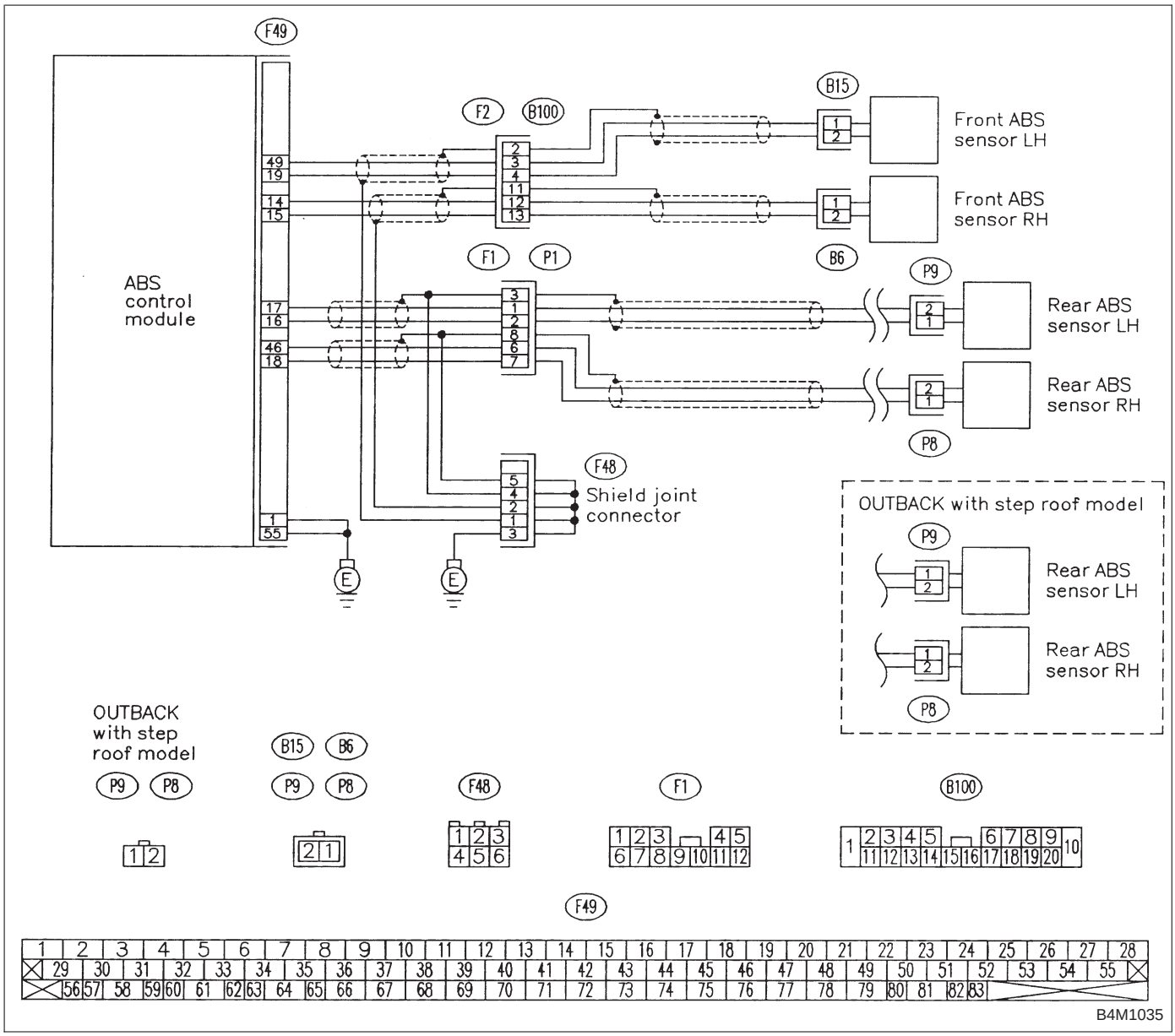
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty harness/connector

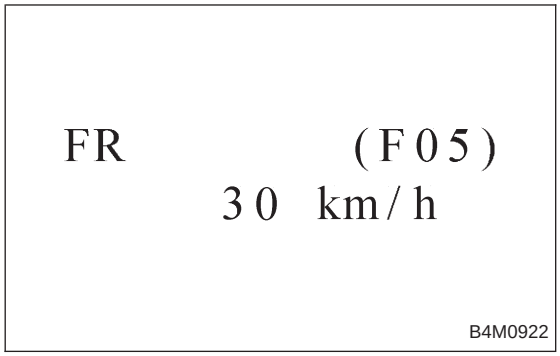
TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:





10L1	CHECK OUTPUT OF ABS SENSOR USING SELECT MONITOR.

Read the ABS sensor output corresponding to the faulty system in the select monitor function mode.

NOTE:
The select monitor display shows that the front right wheel is rotating at 30 km/h.

CHECK ***: Does the speed indicated on the display change in response to the speedometer reading during acceleration/deceleration when the steering wheel is in the straight-ahead position?***

YES : Go to step **10L2.**

NO : Go to step **10L3.**

10L2	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 **10L3.**

10L3	CHECK SOURCES OF SIGNAL NOISE.

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

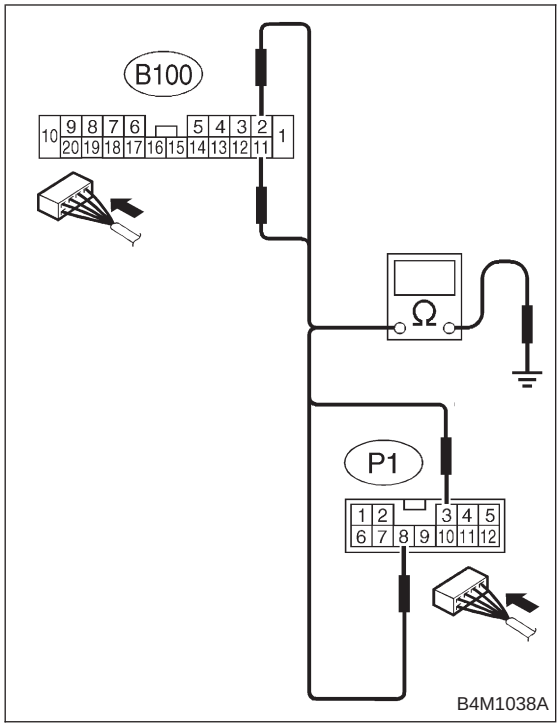
YES : Go to next CHECK .

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 **10L4.**



10L4	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 **10L5.**

NO : Repair shield harness.

10L5	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.

10L6	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?

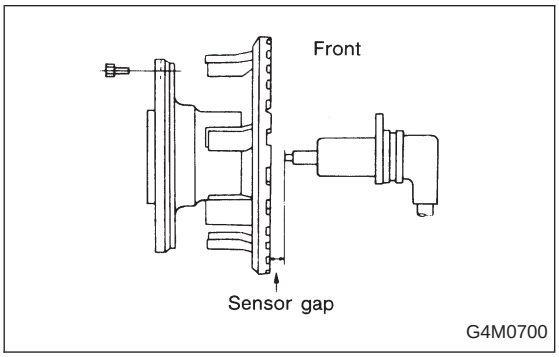
YES : Go to next CHECK .

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.

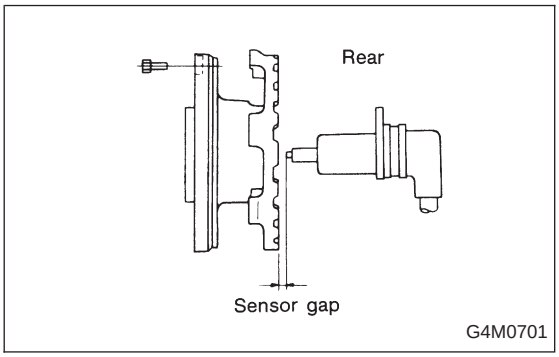
NO : Tighten tone wheel installation bolts securely.



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.

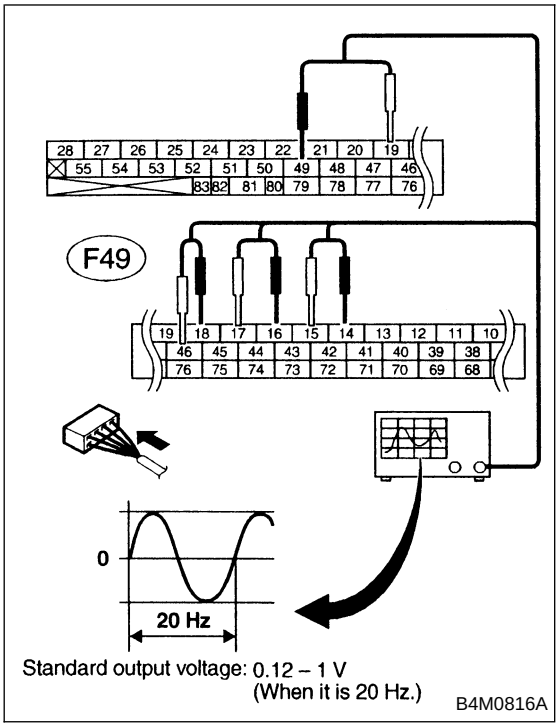
NOTE:
Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

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 in accordance with trouble code.
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:
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 **10L7.**

NO : Go to next step.

10) 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.

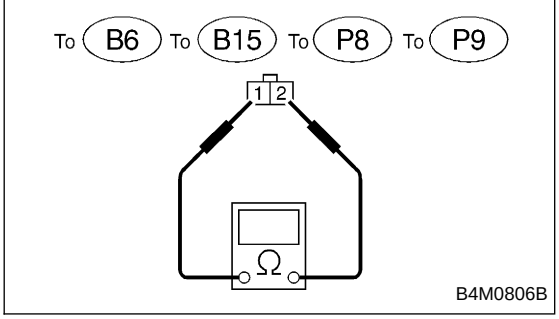
11) Measure hub runout.

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

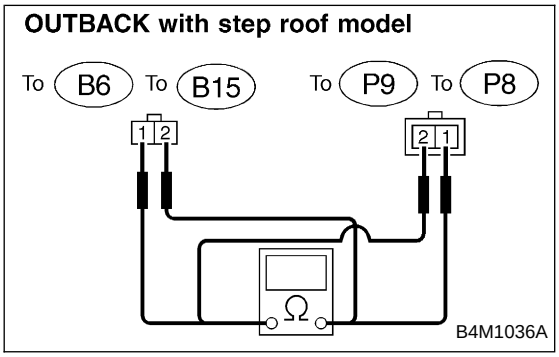
YES : Go to step **10L7.**

NO : Repair hub.

Except OUTBACK with step roof model



OUTBACK with step roof model



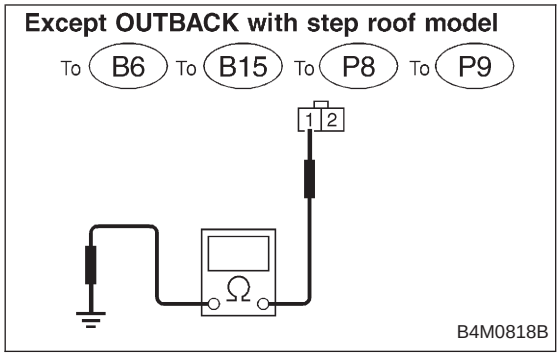
10L7	CHECK RESISTANCE OF ABS SENSOR.

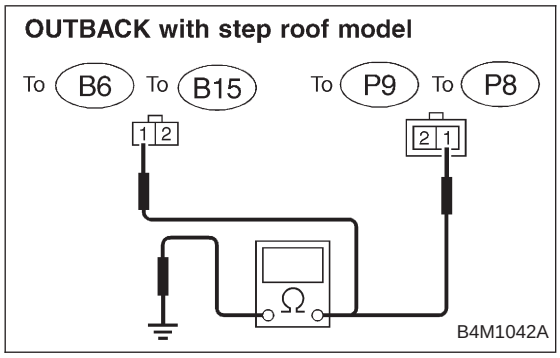
1) Turn ignition switch OFF.
2) Disconnect connector from ABS sensor.
3) Measure resistance between ABS sensor connector terminals.

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 **10L8.**

NO : Replace ABS sensor.





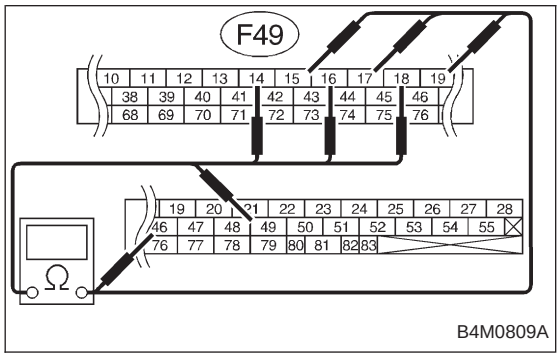
10L8	CHECK GROUND SHORT OF ABS SENSOR.

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 **10L9.**

NO : Replace ABS sensor.



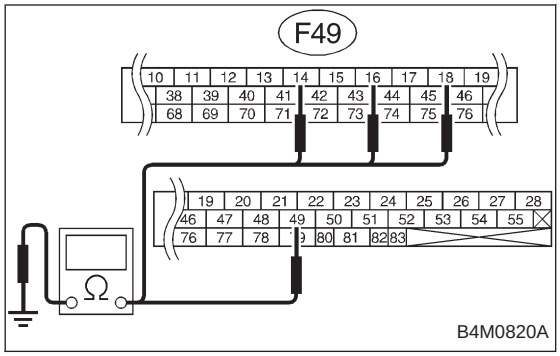
10L9	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

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

CHECK : ***Trouble code/Connector & terminal***
22/(F49) No. 14 — No. 15
24/(F49) No. 49 — No. 69
26/(F49) No. 18 — No. 46
28/(F49) No. 16 — No. 17
Is resistance 0.8 — 1.2 kΩ?

YES : Go to step **10L10.**

NO : Repair harness connector between ABSCM and ABS sensor.



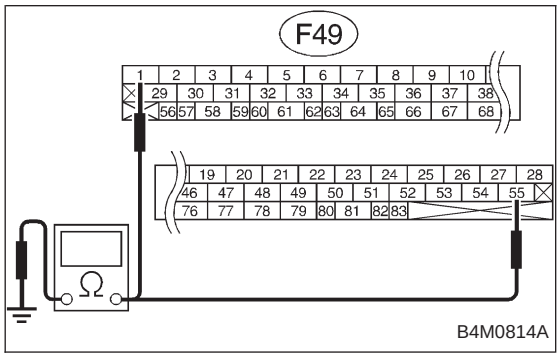
10L10	CHECK GROUND SHORT OF HARNESS.

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 **10L11.**

NO : Repair harness connector between ABSCM and ABS sensor.



10L11	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 — GND
(F49) No. 55 — GND
Is resistance less than 0.5 Ω?

YES : Go to step **10L12.**

NO : Repair ABSCM ground harness.

10L12	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 **10L13.**

10L13	CHECK SOURCES OF SIGNAL NOISE.

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

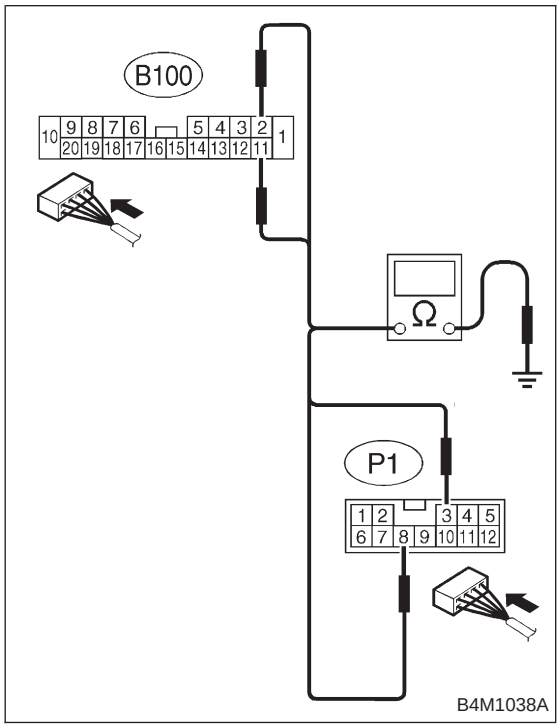
YES : Go to next CHECK .

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 **10L14.**



10L14	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 **10L15.**

NO : Repair shield harness.

10L15	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.

M: 29 EITHER. SS SOFT — ABNORMAL ABS SENSOR SIGNAL (ANY ONE OF FOUR) —

DIAGNOSIS:

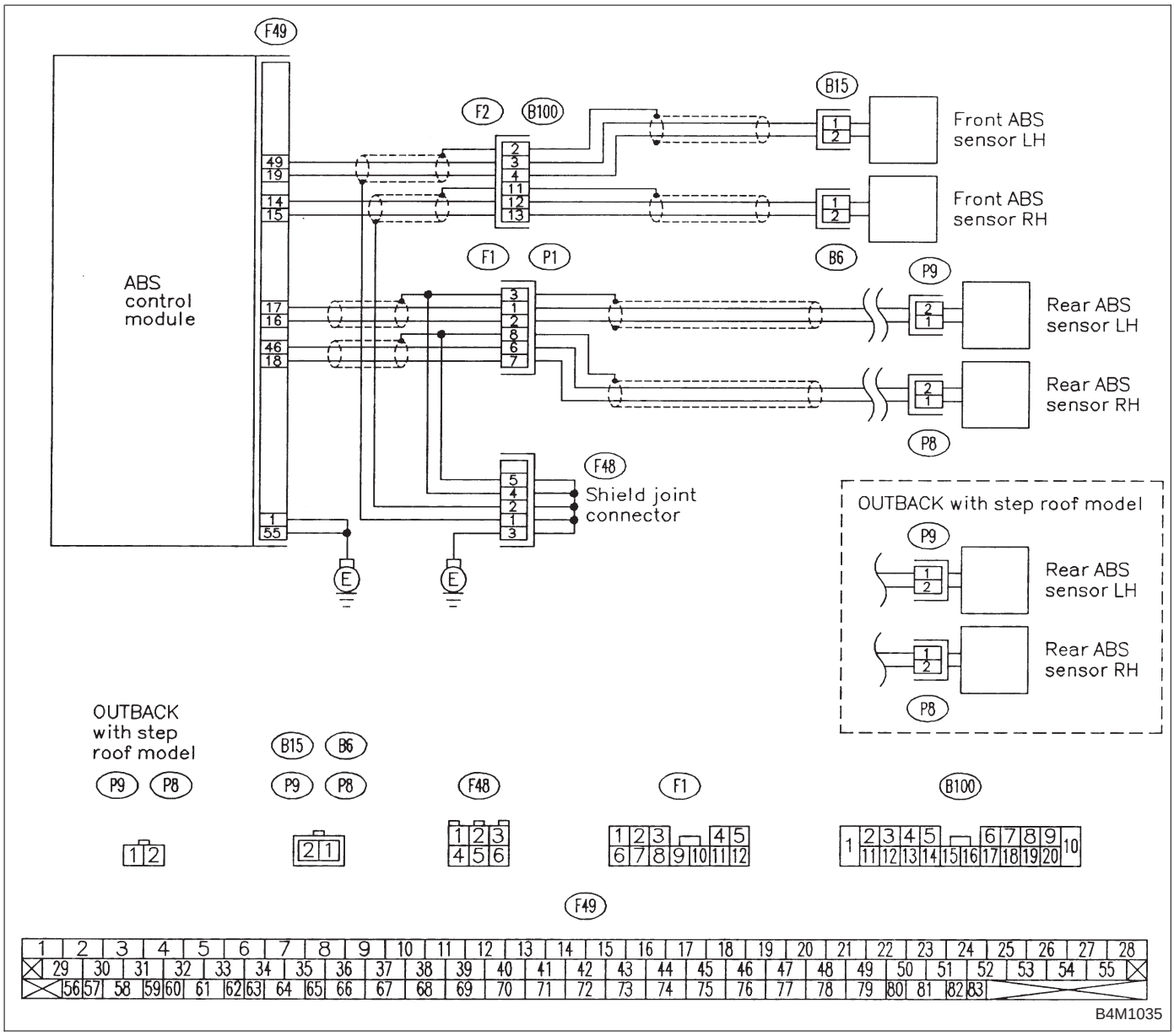
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty tone wheel
- Wheels turning freely for a long time

TROUBLE SYMPTOM:

- ABS does not operate.

10M1.	**Check if the wheels have turned freely for a long time.**
↓	
10M2.	**Check tire.**
↓	
10M3.	**Check ABS sensor mechanical trouble.**
↓	
10M4.	**Check ABSCM.**

WIRING DIAGRAM:



10M1	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.

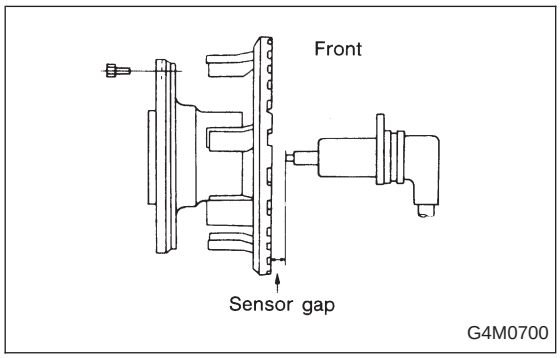
NO : Go to step **10M2.**

10M2	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 **10M3.**
NO : Adjust tire pressure.

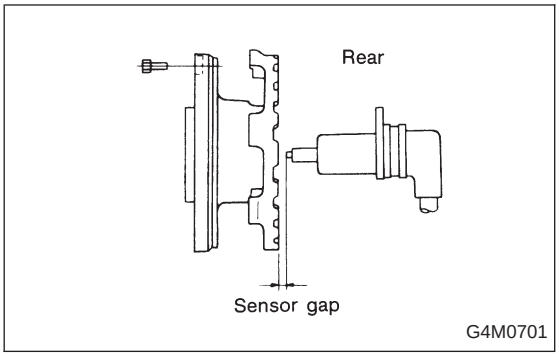
10M3	CHECK ABS SENSOR MECHANICAL TROUBLE.

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 ABS sensor installation bolts tightened securely?
YES : Go to next step.
NO : Tighten ABS sensor 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)

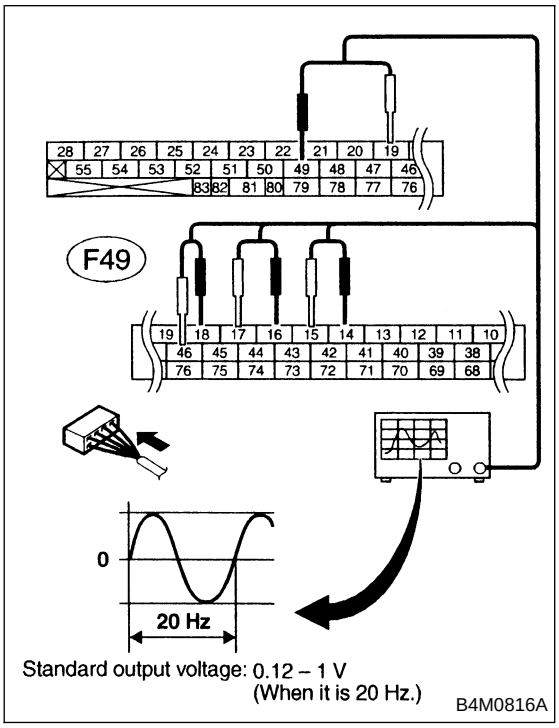


YES : Go to next CHECK .
NO : Adjust the gap.

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 **10M4.**
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 **10M4.**

NO : Repair hub.

10M4	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.

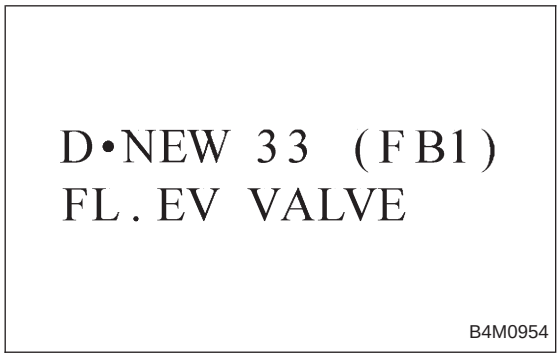
NO : Go to next CHECK .

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

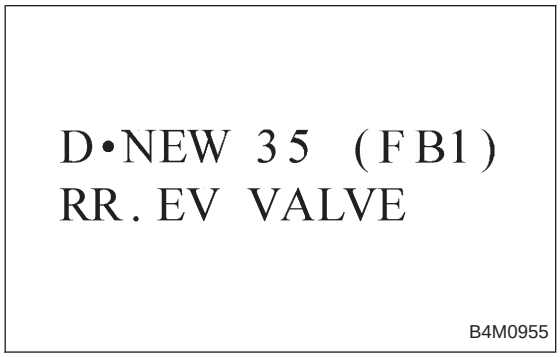
YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

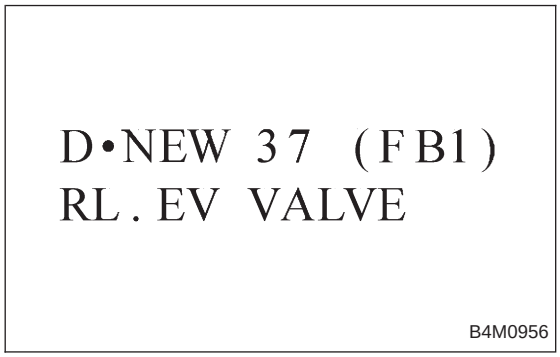
N: 31 FR. EV VALVE
— ABNORMAL FRONT RH INLET SOLENOID VALVE —



O: 33 FL. EV VALVE
— ABNORMAL FRONT LH INLET SOLENOID VALVE —



P: 35 RR. EV VALVE
— ABNORMAL REAR RH INLET SOLENOID VALVE —



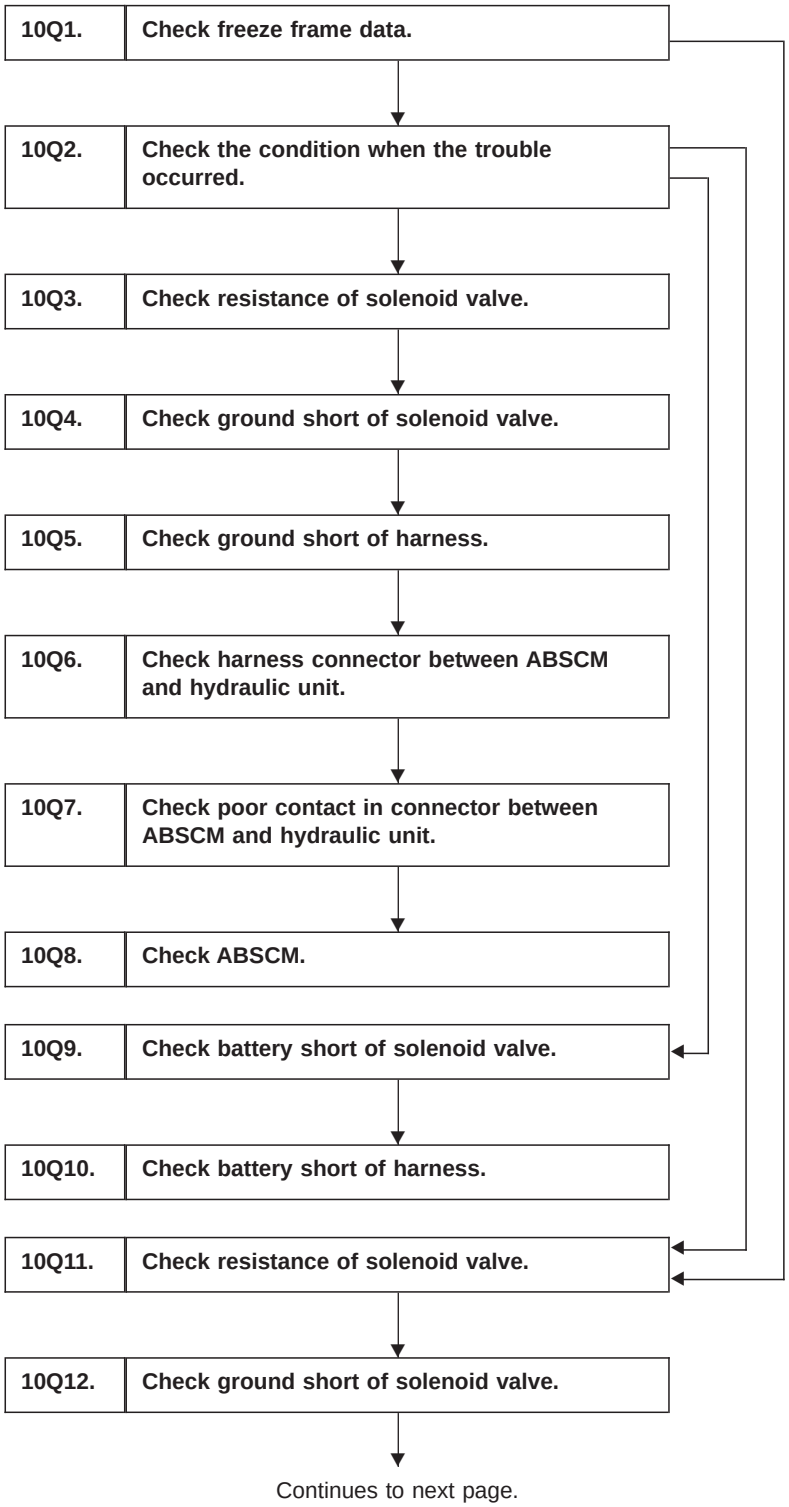
Q: 37 RL. EV VALVE
— ABNORMAL REAR LH INLET SOLENOID VALVE —

DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

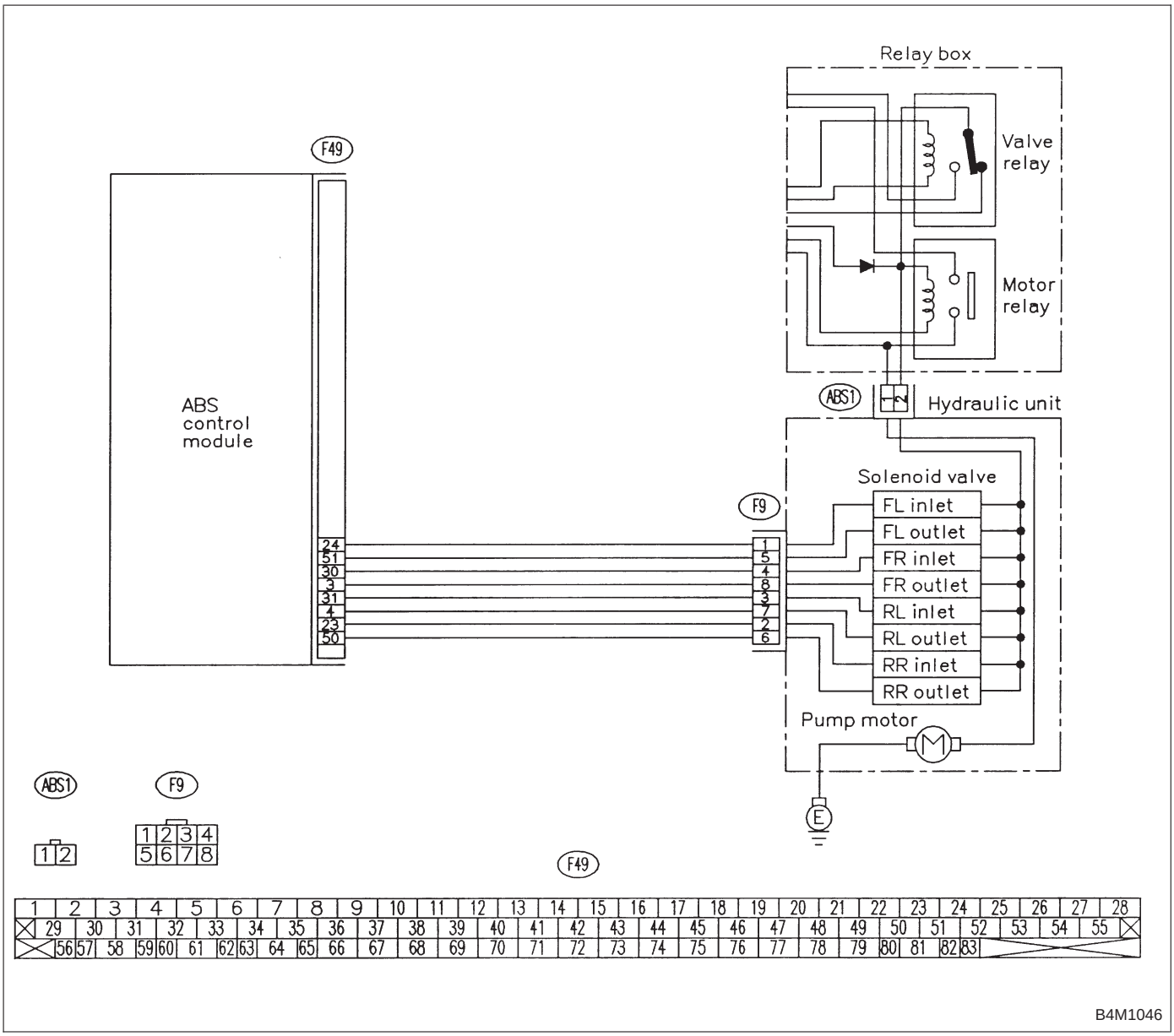


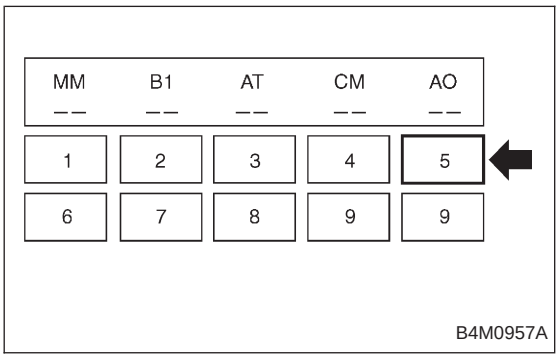
Continues to next page.

From the former page.

10Q13.	**Check battery short of solenoid valve.**
10Q14.	**Check battery short of harness.**
10Q15.	**Check ground short of harness.**
10Q16.	**Check harness connector between ABSCM and hydraulic unit.**
10Q17.	**Check poor contact in connector between ABSCM and hydraulic unit.**
10Q18.	**Check ABSCM.**

WIRING DIAGRAM:





10Q1	CHECK FREEZE FRAME DATA.

Press F , E , 1 and 5 on the select monitor.

CHECK ***: Is the select monitor LED 5 off? Was the ABS inactive when the problem occurred?***

YES : Go to step **10Q2.**

NO : Go to step **10Q11.**

10Q2	CHECK THE CONDITION WHEN THE TROUBLE OCCURRED.

Ask the vehicle owner about driving conditions when the trouble occurred. Attempt to duplicate the conditions.

CHECK ***: Is the trouble immediately apparent?***

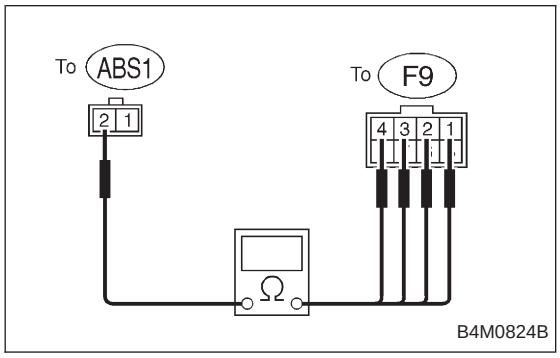
YES : Go to next CHECK .

NO : Go to step 11.

CHECK ***: Did the trouble occur immediately after engine starting or during standing starts?***

YES : Go to step **10Q9.**

NO : Go to step **10Q3.**



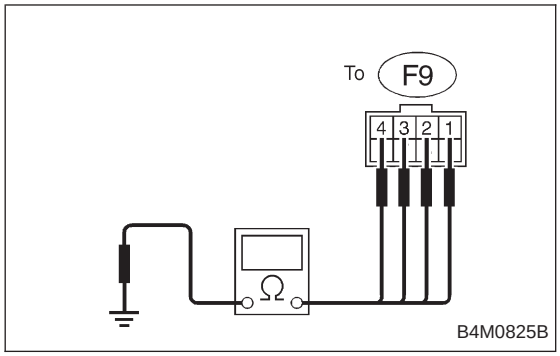
10Q3	CHECK RESISTANCE OF SOLENOID VALVE.

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 **10Q4.**

NO : Replace hydraulic unit.



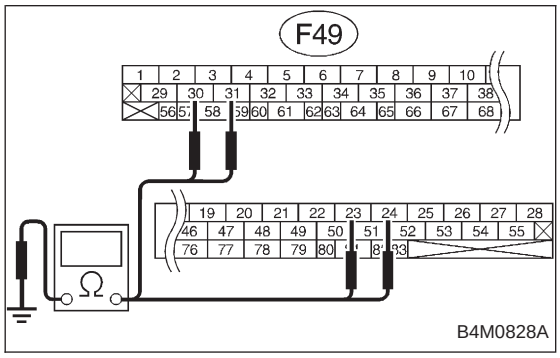
10Q4	CHECK GROUND SHORT OF SOLENOID VALVE.

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 **10Q5.**

NO : Replace hydraulic unit.



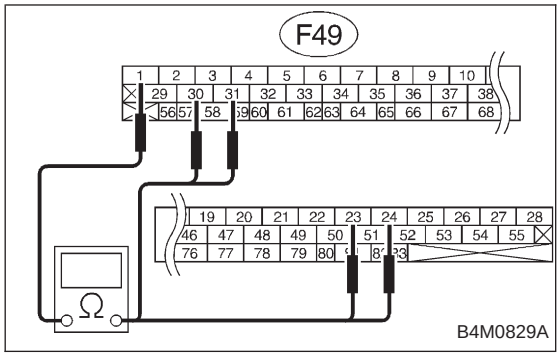
10Q5	CHECK GROUND SHORT OF HARNESS.

1) Disconnect connector from ABSCM.
2) 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 **10Q6.**

NO : Repair harness between ABSCM and hydraulic unit.



10Q6	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 **10Q7.**

NO : Repair harness connector between ABSCM and hydraulic unit.

10Q7	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 **10Q8.**

10Q8	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?***

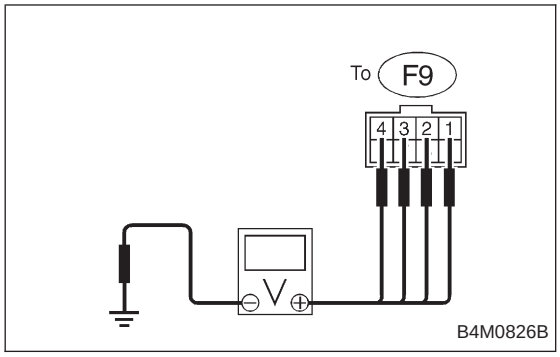
YES : Replace ABSCM.

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.



10Q9	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Disconnect two connectors (ABS1, F9) from hydraulic unit.
3) Disconnect connector from ABSCM.
4) Turn ignition switch to ON.
5) Measure voltage between hydraulic unit connector and chassis ground.

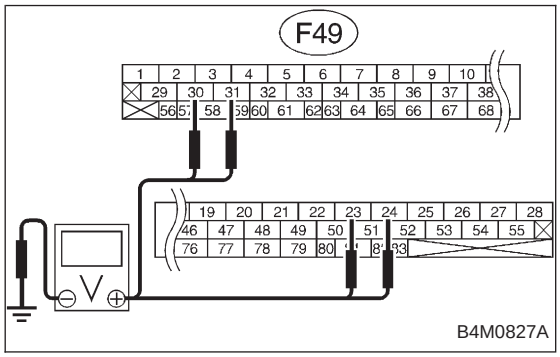
CHECK : ***Trouble code/Connector & terminal***
31/to (F9) No. 4 (+) — Chassis ground (−)
33/to (F9) No. 1 (+) — Chassis ground (−)
35/to (F9) No. 2 (+) — Chassis ground (−)
37/to (F9) No. 3 (+) — Chassis ground (−)
Is voltage 0 V?

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

6) Turn ignition switch to OFF.
7) 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 **10Q10.**
NO : Replace hydraulic unit.



10Q10	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?

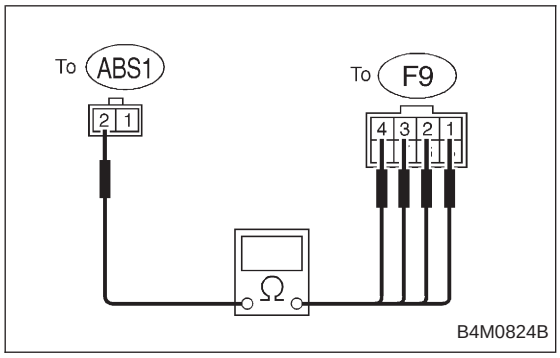
YES : Go to next step.
NO : Repair harness between ABSCM and hydraulic unit.

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 : Replace ABSCM.

NO : Repair harness between ABSCM and hydraulic unit.



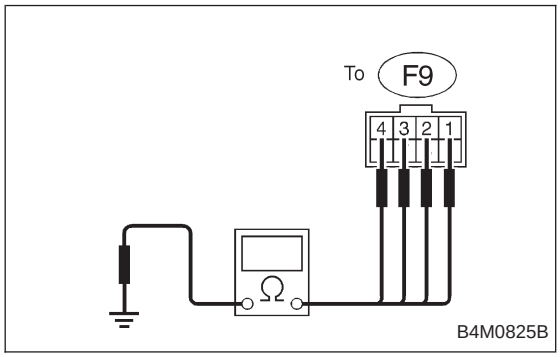
10Q11	CHECK RESISTANCE OF SOLENOID VALVE.

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 **10Q12.**

NO : Replace hydraulic unit.



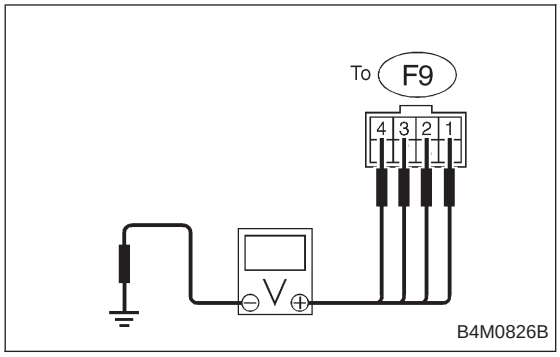
10Q12	CHECK GROUND SHORT OF SOLENOID VALVE.

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 **10Q13.**

NO : Replace hydraulic unit.



10Q13	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.

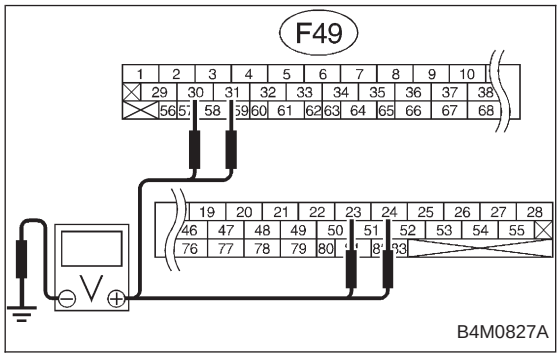
CHECK : ***Trouble code/Connector & terminal***
31/to (F9) No. 4 (+) — Chassis ground (−)
33/to (F9) No. 1 (+) — Chassis ground (−)
35/to (F9) No. 2 (+) — Chassis ground (−)
37/to (F9) No. 3 (+) — Chassis ground (−)
Is voltage 0 V?

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 **10Q14.**
NO : Replace hydraulic unit.



10Q14	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?

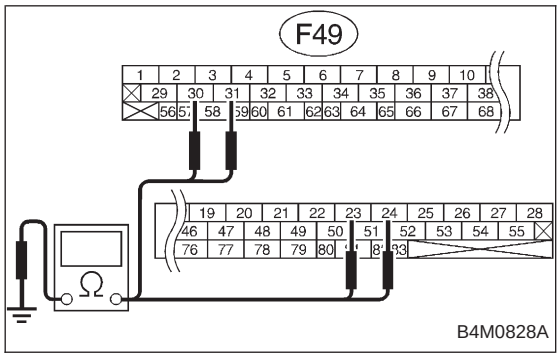
YES : Go to next step.
NO : Repair harness between ABSCM and hydraulic unit.

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 **10Q15.**

NO : Repair harness between ABSCM and hydraulic unit.



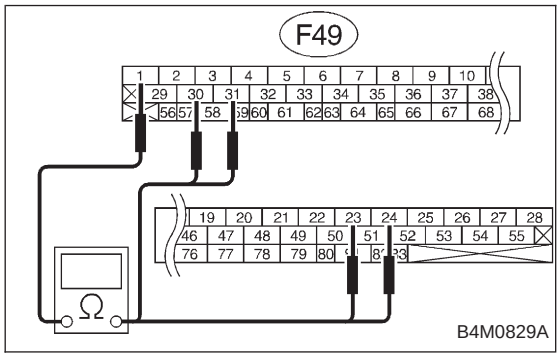
10Q15	CHECK GROUND SHORT OF HARNESS.

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 **10Q16.**

NO : Repair harness between ABSCM and hydraulic unit.



10Q16	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 **10Q17.**

NO : Repair harness connector between ABSCM and hydraulic unit.

10Q17	**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 **10Q18.**

10Q18	**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?***

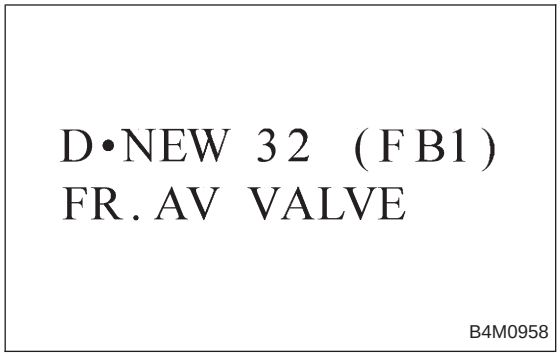
YES : Replace ABSCM.

NO : Go to next CHECK .

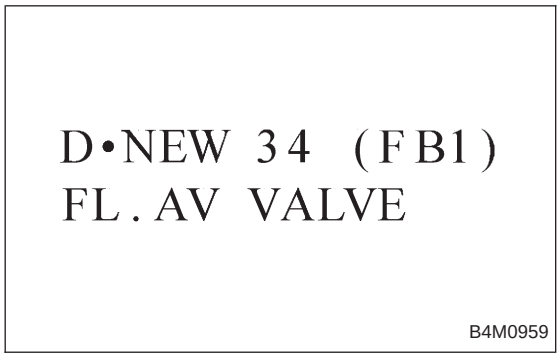
CHECK : ***Are other trouble codes being output?***

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

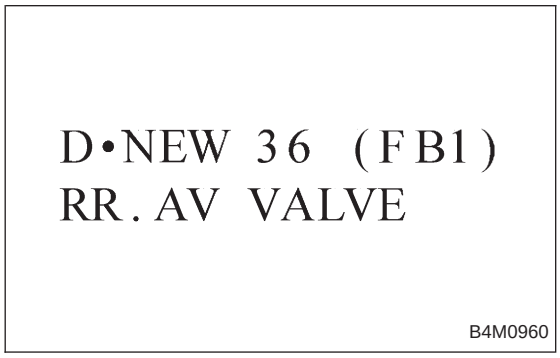
NO : A temporary poor contact.



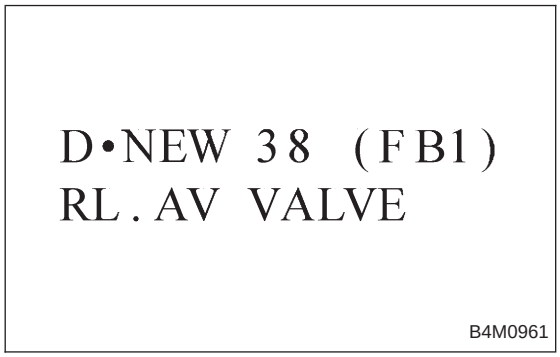
R: 32 FR. AV VALVE
— ABNORMAL FRONT RH OUTLET SOLENOID VALVE —



S: 34 FL. AV VALVE
— ABNORMAL FRONT LH OUTLET SOLENOID VALVE —



T: 36 RR. AV VALVE
— ABNORMAL REAR RH OUTLET SOLENOID VALVE —



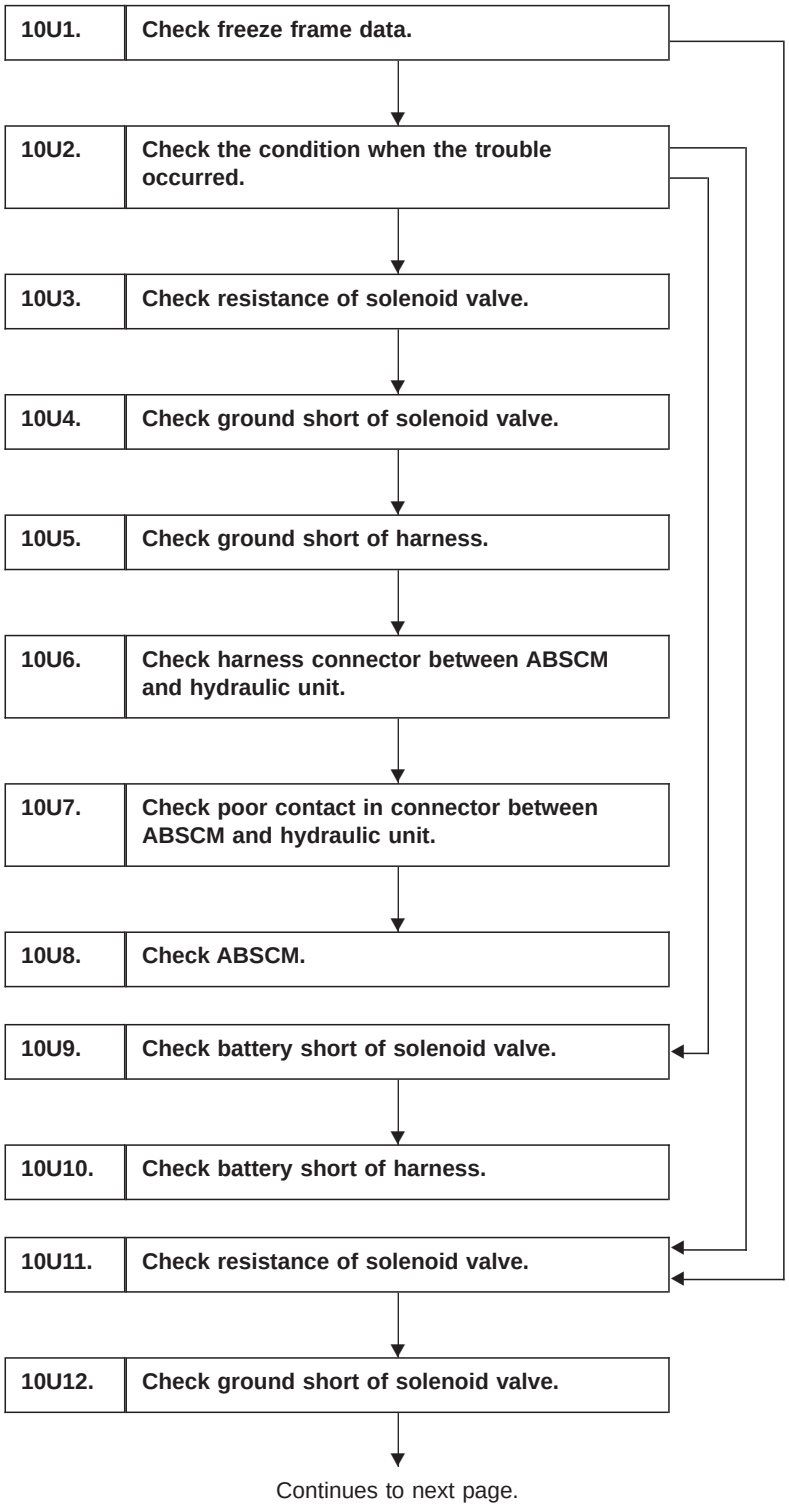
U: 38 RL. AV VALVE
— ABNORMAL REAR LH OUTLET SOLENOID VALVE —

DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

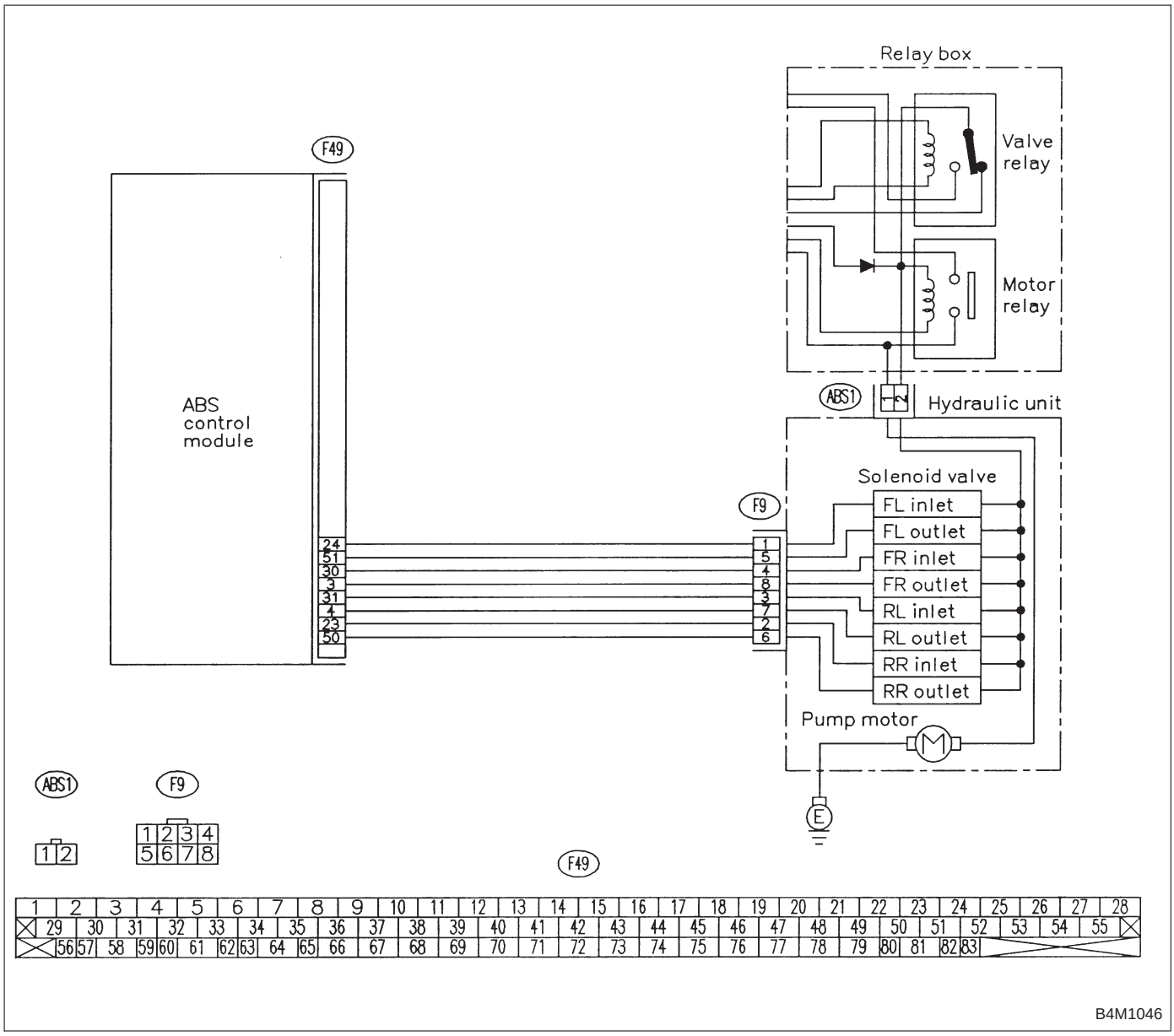


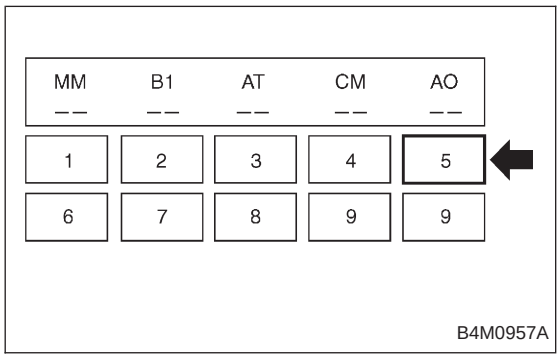
Continues to next page.

From the former page.

10U13.	**Check battery short of solenoid valve.**
10U14.	**Check battery short of harness.**
10U15.	**Check ground short of harness.**
10U16.	**Check harness connector between ABSCM and hydraulic unit.**
10U17.	**Check poor contact in connector between ABSCM and hydraulic unit.**
10U18.	**Check ABSCM.**

WIRING DIAGRAM:





10U1	CHECK FREEZE FRAME DATA.

Press F , E , 1 and 5 on the select monitor.

CHECK ***: Is the select monitor LED 5 off? Was the ABS inactive when the problem occurred?***

YES : Go to step **10U2.**

NO : Go to step **10U11.**

10U2	CHECK THE CONDITION WHEN THE TROUBLE OCCURRED.

Ask the vehicle owner about driving conditions when the trouble occurred. Attempt to duplicate the conditions.

CHECK ***: Is the trouble immediately apparent?***

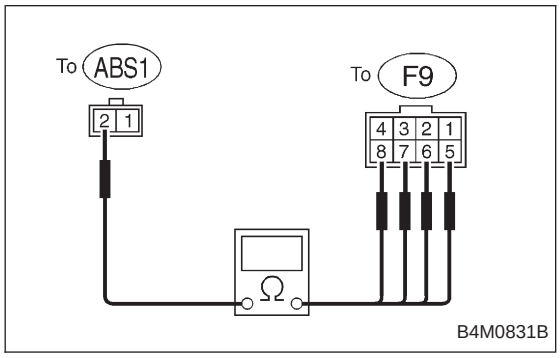
YES : Go to next CHECK .

NO : Go to step **10U11.**

CHECK ***: Did the trouble occur immediately after engine starting or during standing starts?***

YES : Go to step **10U9.**

NO : Go to step **10U3.**



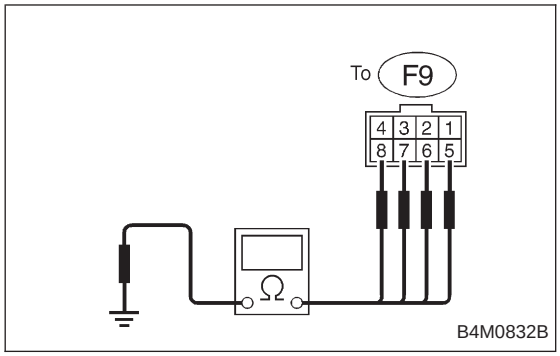
10U3	CHECK RESISTANCE OF SOLENOID VALVE.

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 **10U4.**

NO : Replace hydraulic unit.



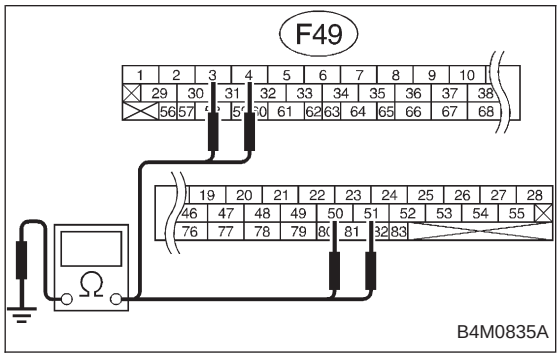
10U4	CHECK GROUND SHORT OF SOLENOID VALVE.

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 **10U5.**

NO : Replace hydraulic unit.



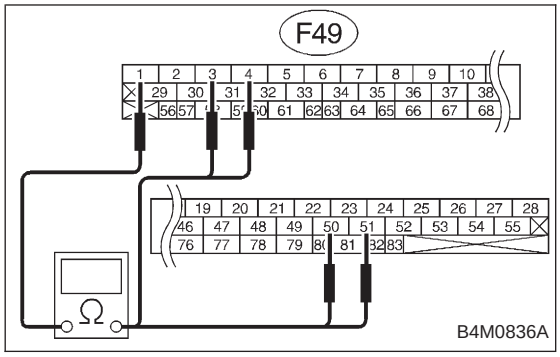
10U5	CHECK GROUND SHORT OF HARNESS.

1) Disconnect connector from ABSCM.
2) 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 **10U6.**

NO : Repair harness between ABSCM and hydraulic unit.



10U6	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 **10U7.**

NO : Repair harness connector between ABSCM and hydraulic unit.

10U7	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 **10U8.**

10U8	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?***

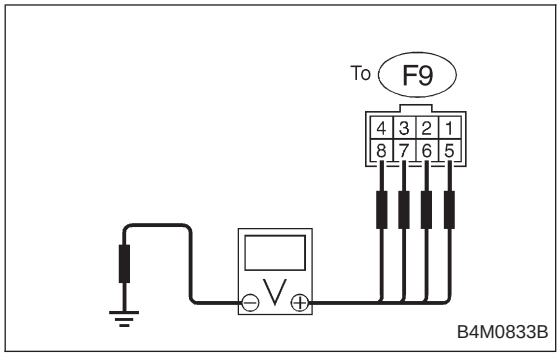
YES : Replace ABSCM.

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.



10U9	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Disconnect two connectors (ABS1, F9) from hydraulic unit.
3) Disconnect connector from ABSCM.
4) Turn ignition switch to ON.
5) Measure voltage between hydraulic unit connector and chassis ground.

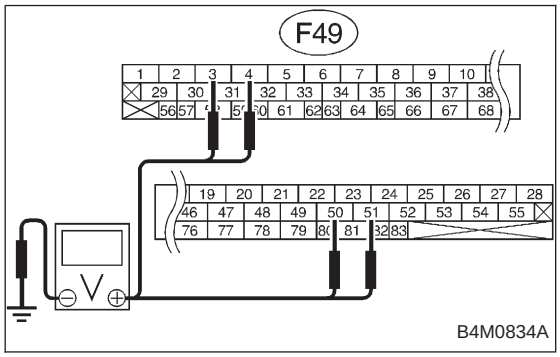
CHECK : ***Trouble code/Connector & terminal***
32/to (F9) No. 8 (+) — Chassis ground (−)
34/to (F9) No. 5 (+) — Chassis ground (−)
36/to (F9) No. 6 (+) — Chassis ground (−)
38/to (F9) No. 7 (+) — Chassis ground (−)
Is voltage 0 V?

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

6) Turn ignition switch to OFF.
7) 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 **10U10.**
NO : Replace hydraulic unit.



10U10	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?

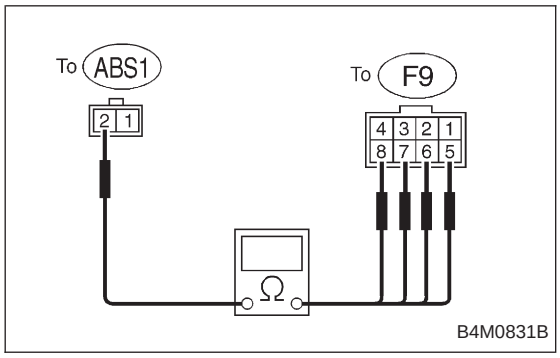
YES : Go to next step.
NO : Repair harness between ABSCM and hydraulic unit.

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 : Replace ABSCM.

NO : Repair harness between ABSCM and hydraulic unit.



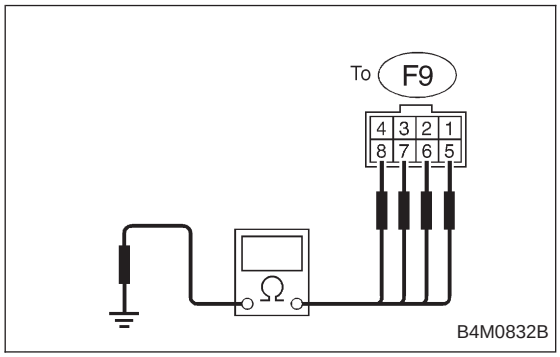
10U11	CHECK RESISTANCE OF SOLENOID VALVE.

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 **10U12.**

NO : Replace hydraulic unit.



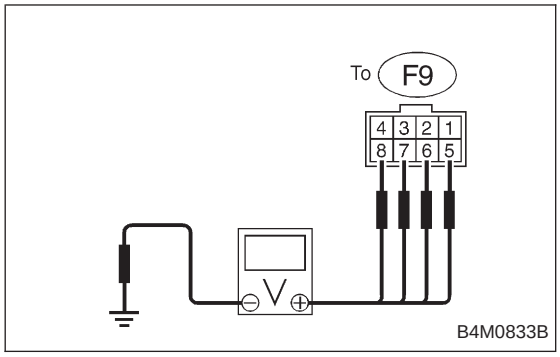
10U12	CHECK GROUND SHORT OF SOLENOID VALVE.

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 **10U13.**

NO : Replace hydraulic unit.



10U13	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.

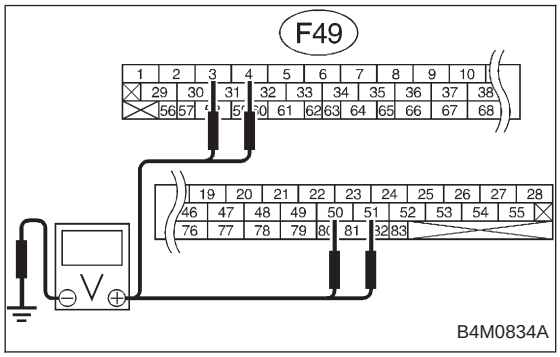
CHECK : ***Trouble code/Connector & terminal***
32/to (F9) No. 8 (+) — Chassis ground (−)
34/to (F9) No. 5 (+) — Chassis ground (−)
36/to (F9) No. 6 (+) — Chassis ground (−)
38/to (F9) No. 7 (+) — Chassis ground (−)
Is voltage 0 V?

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 **10U14.**
NO : Replace hydraulic unit.



10U14	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?

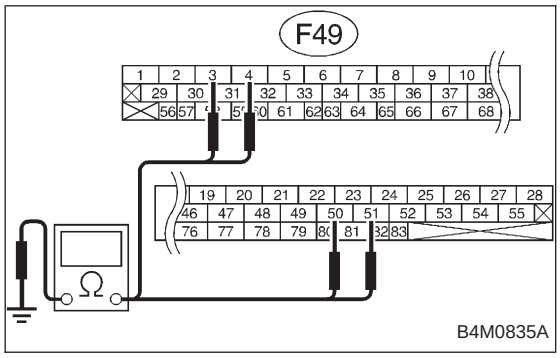
YES : Go to next step.
NO : Repair harness between ABSCM and hydraulic unit.

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 **10U15.**

NO : Repair harness between ABSCM and hydraulic unit.



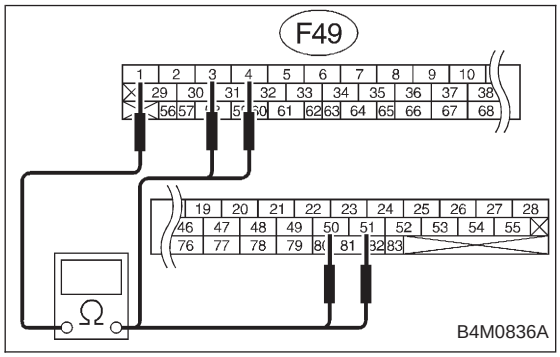
10U15	CHECK GROUND SHORT OF HARNESS.

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 **10U16.**

NO : Repair harness between ABSCM and hydraulic unit.



10U16	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 **10U17.**

NO : Repair harness connector between ABSCM and hydraulic unit.

10U17	**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 **10U18.**

10U18	**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?***

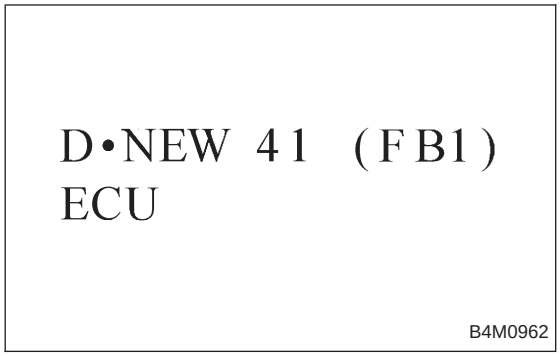
YES : Replace ABSCM.

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.



V: 41 ECU
— ABNORMAL ABS CONTROL MODULE —

DIAGNOSIS:

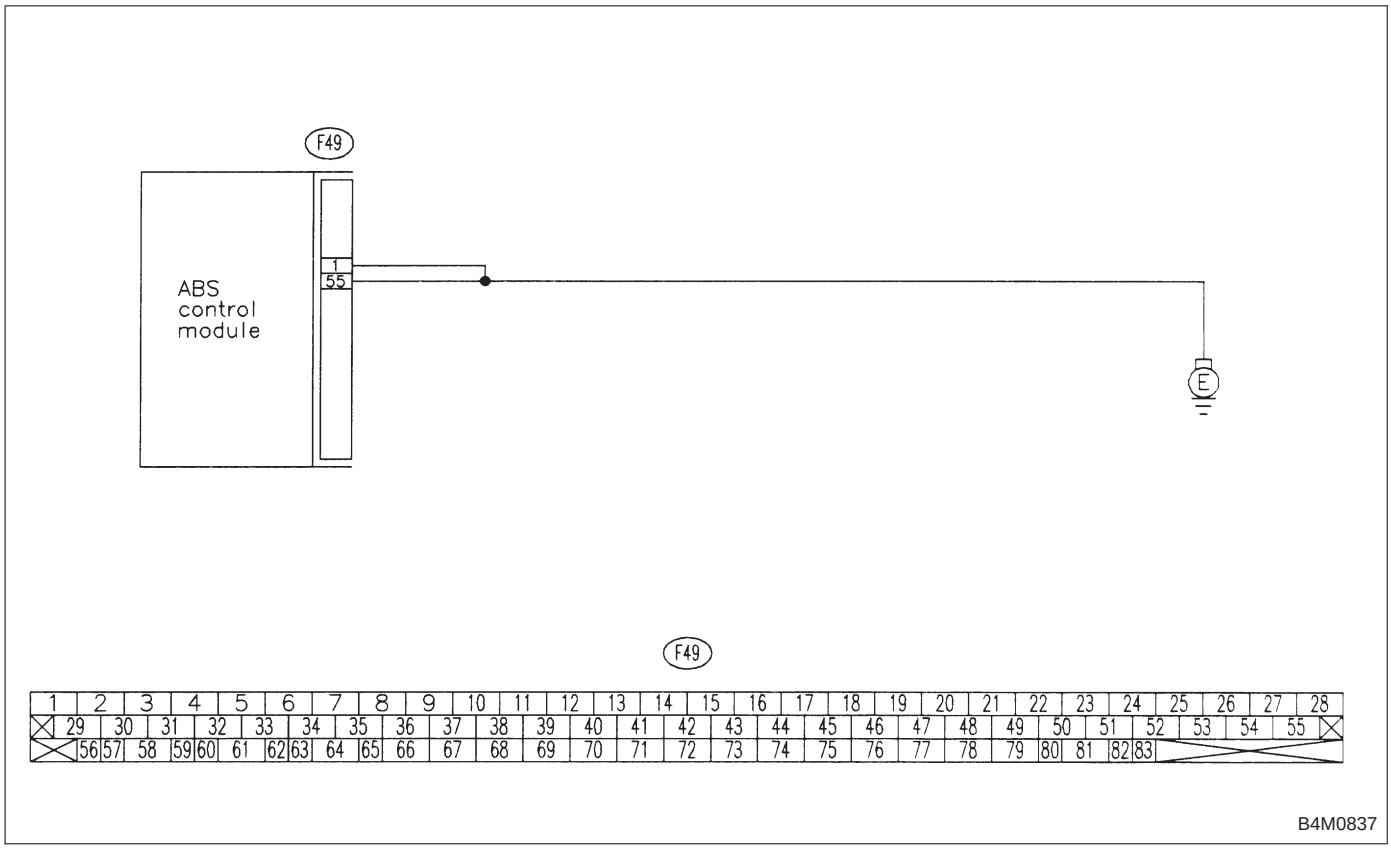
- Faulty ABSCM

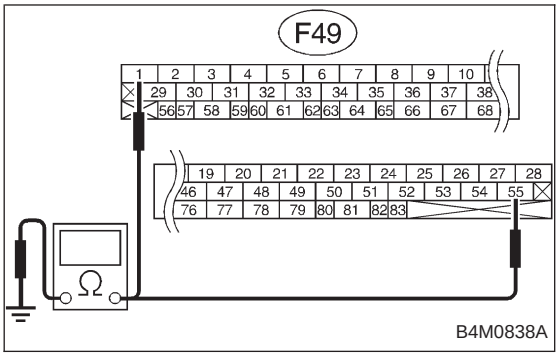
TROUBLE SYMPTOM:

- ABS does not operate.

10V1.	**Check ground circuit of ABSCM.**
↓	
10V2.	**Check poor contact in connector between battery, ignition switch and ABSCM.**
↓	
10V3.	**Check sources of signal noise.**
↓	
10V4.	**Check ABSCM.**

WIRING DIAGRAM:





10V1	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 **10V2.**

NO : Repair ABSCM ground harness.

10V2	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 **10V3.**

10V3	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 **10V4.**

10V4	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?***

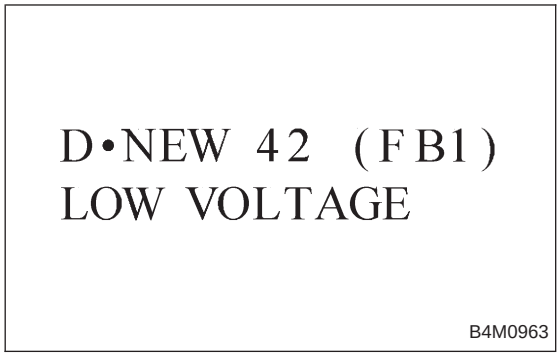
YES : Replace ABSCM.

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.



W: 42 LOW VOLTAGE — SOURCE VOLTAGE IS LOW. —

DIAGNOSIS:

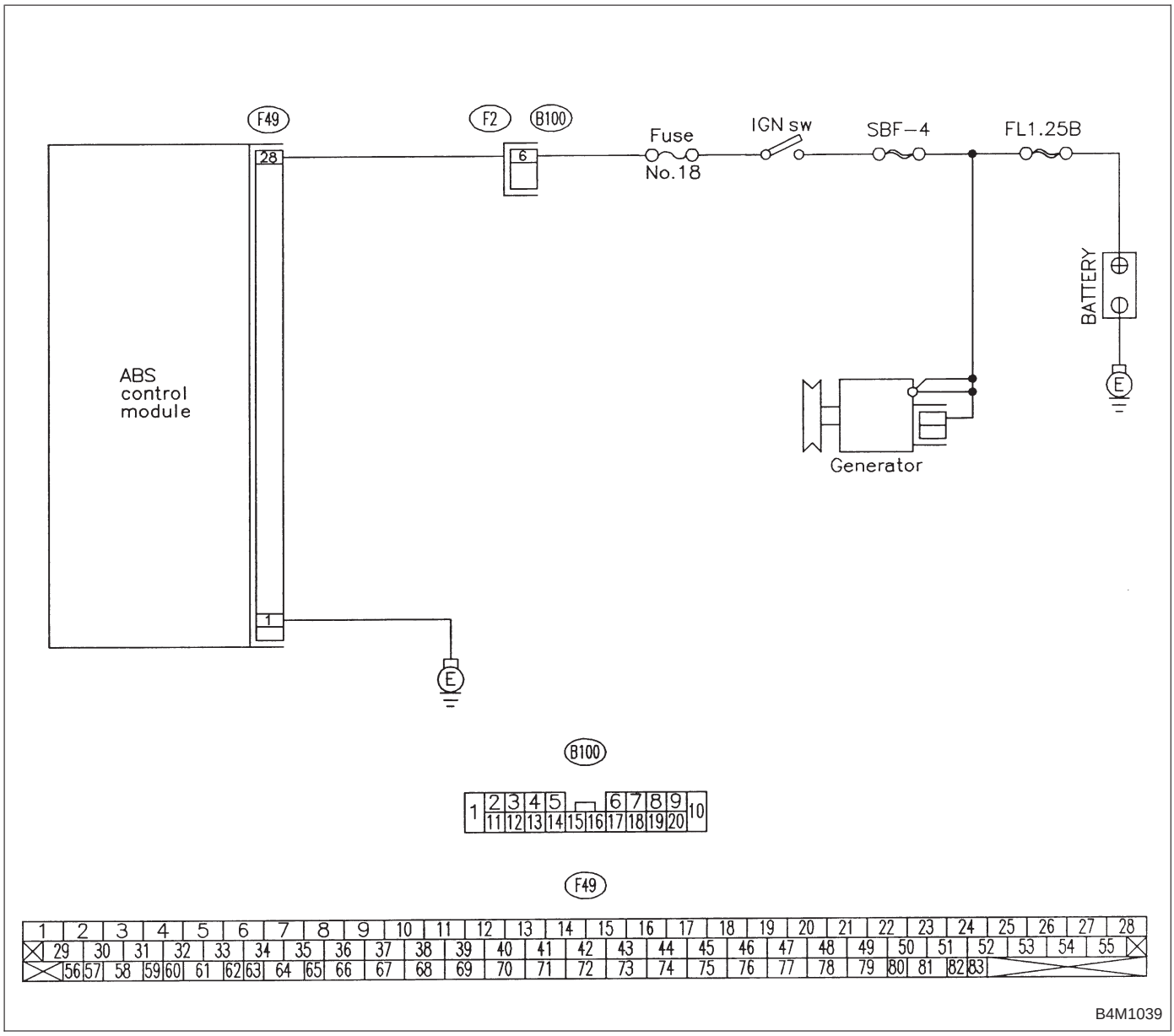
- Power source voltage of the ABSCM is low.

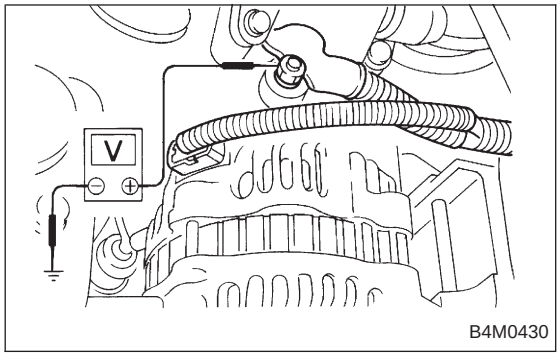
TROUBLE SYMPTOM:

- ABS does not operate.

10W1.	**Check generator.**
10W2.	**Check battery terminal.**
10W3.	**Check input voltage of ABSCM.**
10W4.	**Check ground circuit of ABSCM.**
10W5.	**Check poor contact in connector between generator, battery and ABSCM.**
10W6.	**Check ABSCM.**

WIRING DIAGRAM:





10W1	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 **10W2.**

NO : Repair generator.

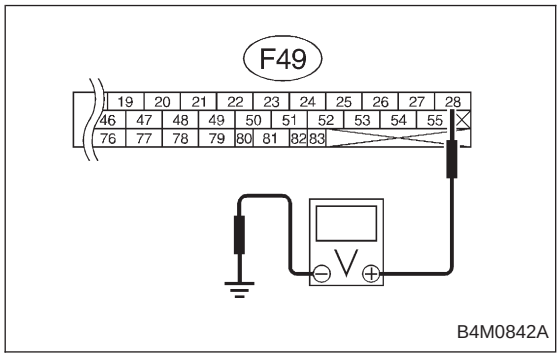
10W2	CHECK BATTERY TERMINAL.

Turn ignition switch to OFF.

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

YES : Go to step **10W3.**

NO : Tighten the clamp of terminal.



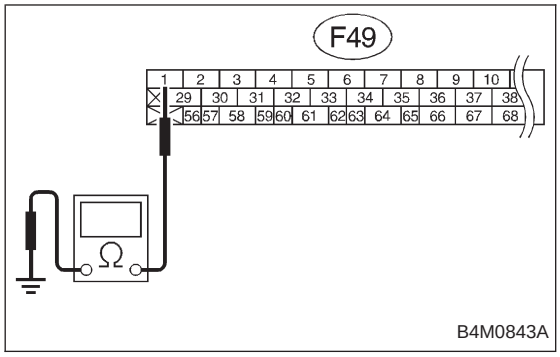
10W3	CHECK INPUT VOLTAGE OF ABSCM.

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 **10W4.**

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



10W4	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 **10W5.**

NO : Repair ABSCM ground harness.

10W5	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 **10W6.**

10W6	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.

X: 44 CCM LINE — A COMBINATION OF AT CONTROL ABNORMALS —

DIAGNOSIS:

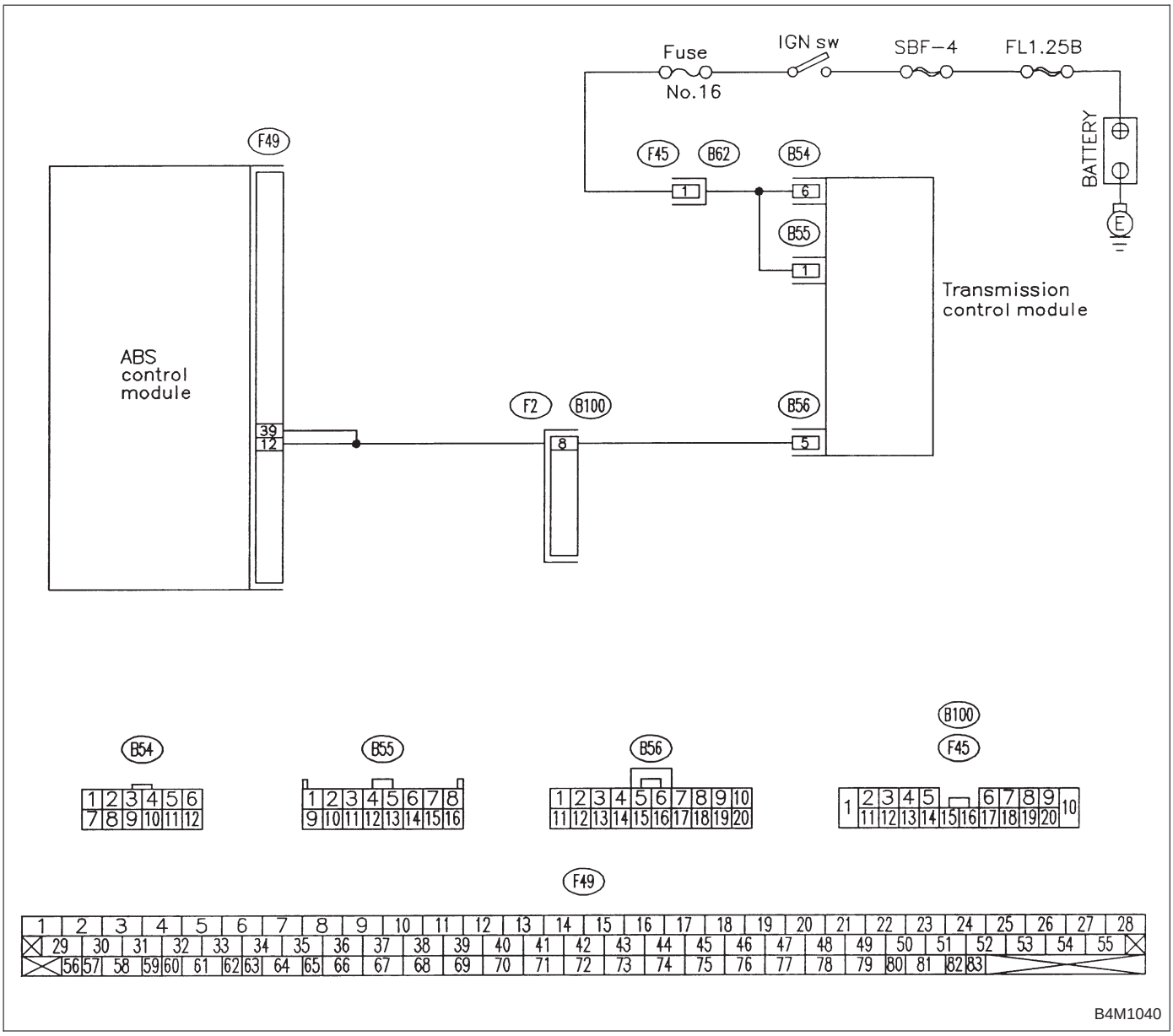
- Combination of AT control faults

TROUBLE SYMPTOM:

- ABS does not operate.

10X1.	**Check specifications of ABSCM using select monitor.**
↓	
10X2.	**Check ground short of harness.**
↓	
10X3.	**Check AT control module.**
↓	
10X4.	**Check open circuit of harness.**
↓	
10X5.	**Check poor contact in connector between AT control module and ABSCM.**
↓	
10X6.	**Check ABSCM.**

WIRING DIAGRAM:



1996 (F00)
ABS 4WD•AT

B4M0921

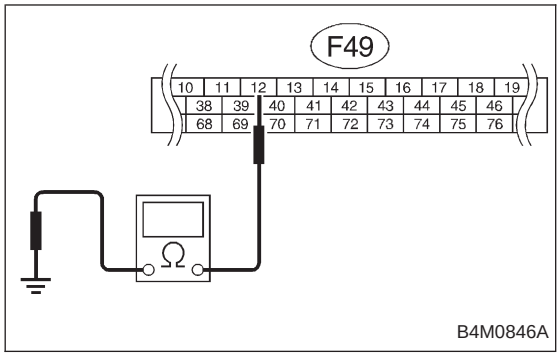
10X1	CHECK SPECIFICATIONS OF ABSCM USING SELECT MONITOR.

1) Press F , 0 and 0 on the select monitor.
2) Read the select monitor display.

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

YES : Replace ABSCM.

NO : Go to step **10X2.**



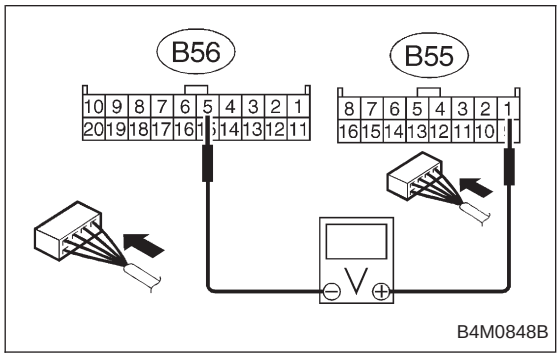
10X2	CHECK GROUND SHORT OF HARNESS.

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 **10X3.**

NO : Repair harness between AT control module and ABSCM.



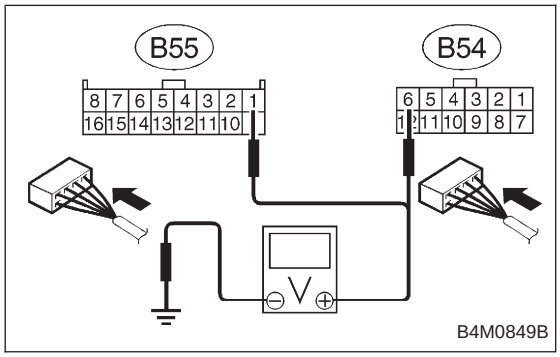
10X3	CHECK AT CONTROL MODULE.

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 **10X4.**

NO : Go to next step.

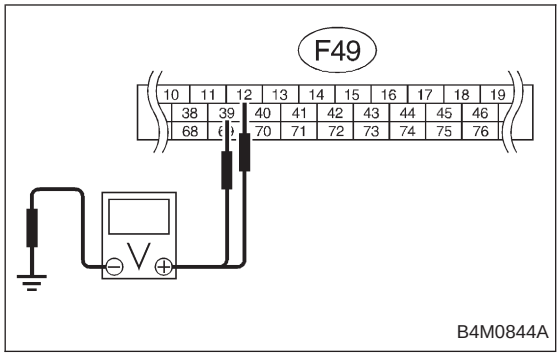


4) Measure voltage between AT control module connector and chassis ground.

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.



10X4	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 **10X5.**

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

10X5	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 **10X6.**

10X6	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.

Y: 44 CCM OPEN — A COMBINATION OF AT CONTROL ABNORMALS —

DIAGNOSIS:

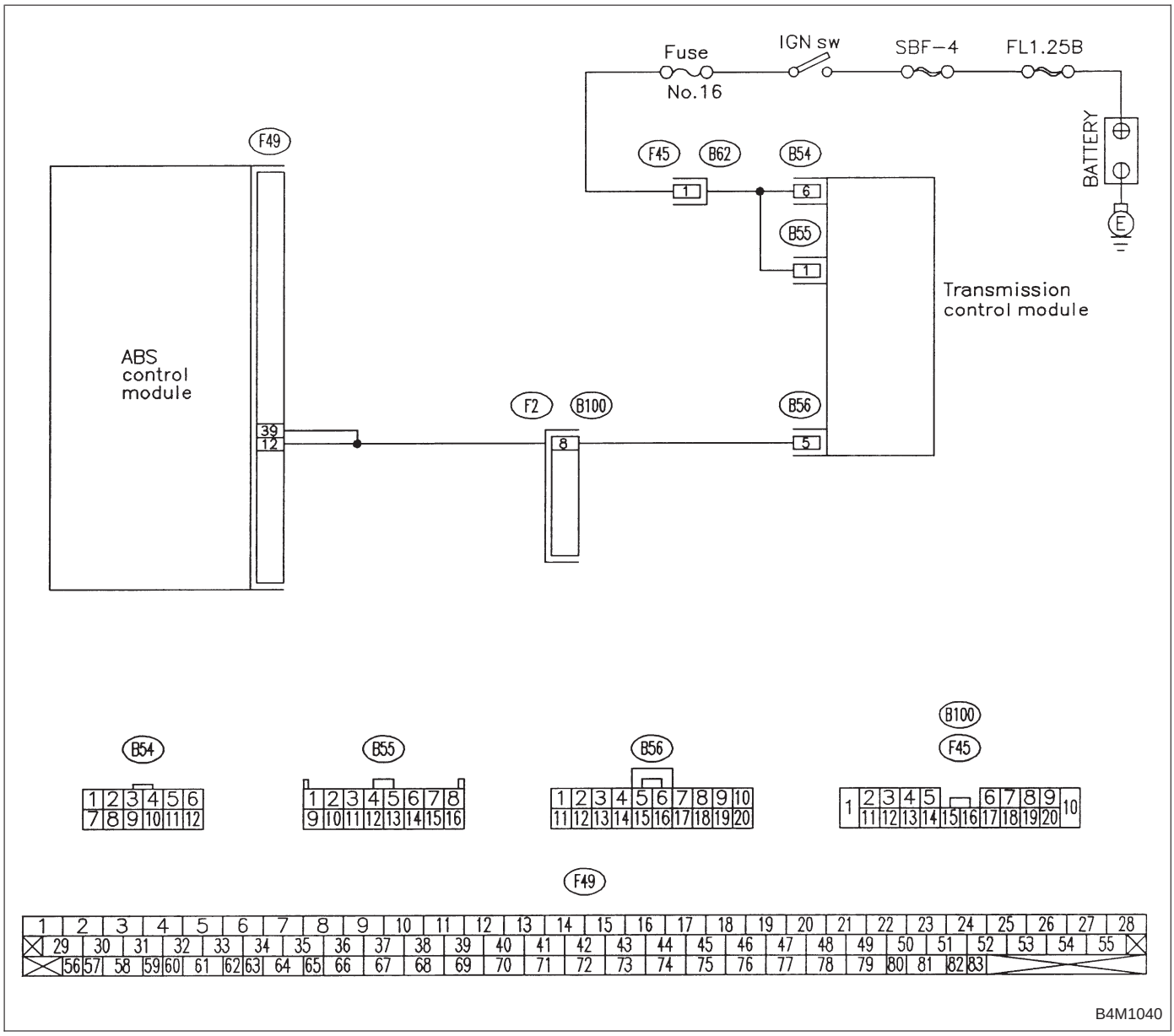
- Combination of AT control faults

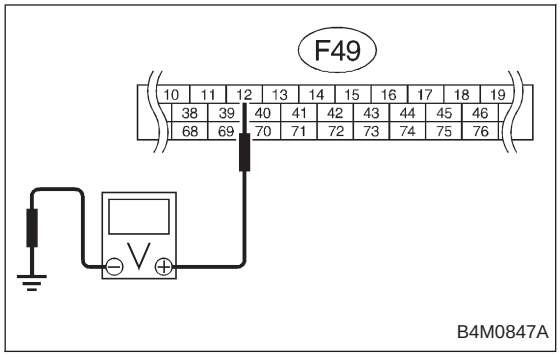
TROUBLE SYMPTOM:

- ABS does not operate.

10Y1.	**Check battery short of harness.**
10Y2.	**Check open circuit of harness.**
10Y3.	**Check poor contact in connector between AT control module and ABSCM.**
10Y4.	**Check ABSCM.**

WIRING DIAGRAM:





10Y1	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to OFF.
2) Disconnect two connectors from AT control module.
3) Disconnect connector from ABSCM.
4) Turn ignition switch to ON.
5) 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.

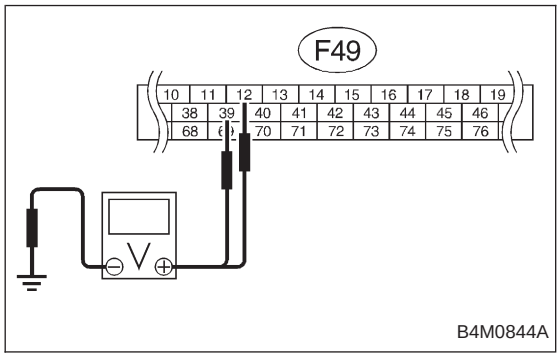
NO : Repair harness between AT control module and ABSCM.

6) Turn ignition switch to OFF.
7) Measure voltage between ABSCM connector and chassis ground.

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

YES : Go to step **10Y2.**

NO : Repair harness between AT control module and ABSCM.



10Y2	CHECK OPEN CIRCUIT OF HARNESS.

1) Connect all connectors to AT control module.
2) Turn ignition switch to ON.
3) 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 **10Y3.**

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

10Y3	**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 **10Y4.**

10Y4	**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.

D•NEW 46 (FB1)
GS POWER OVER

B4M0966

Z: 46 GS POWER OVER — G SENSOR LINE VOLTAGE TOO HIGH —

DIAGNOSIS:

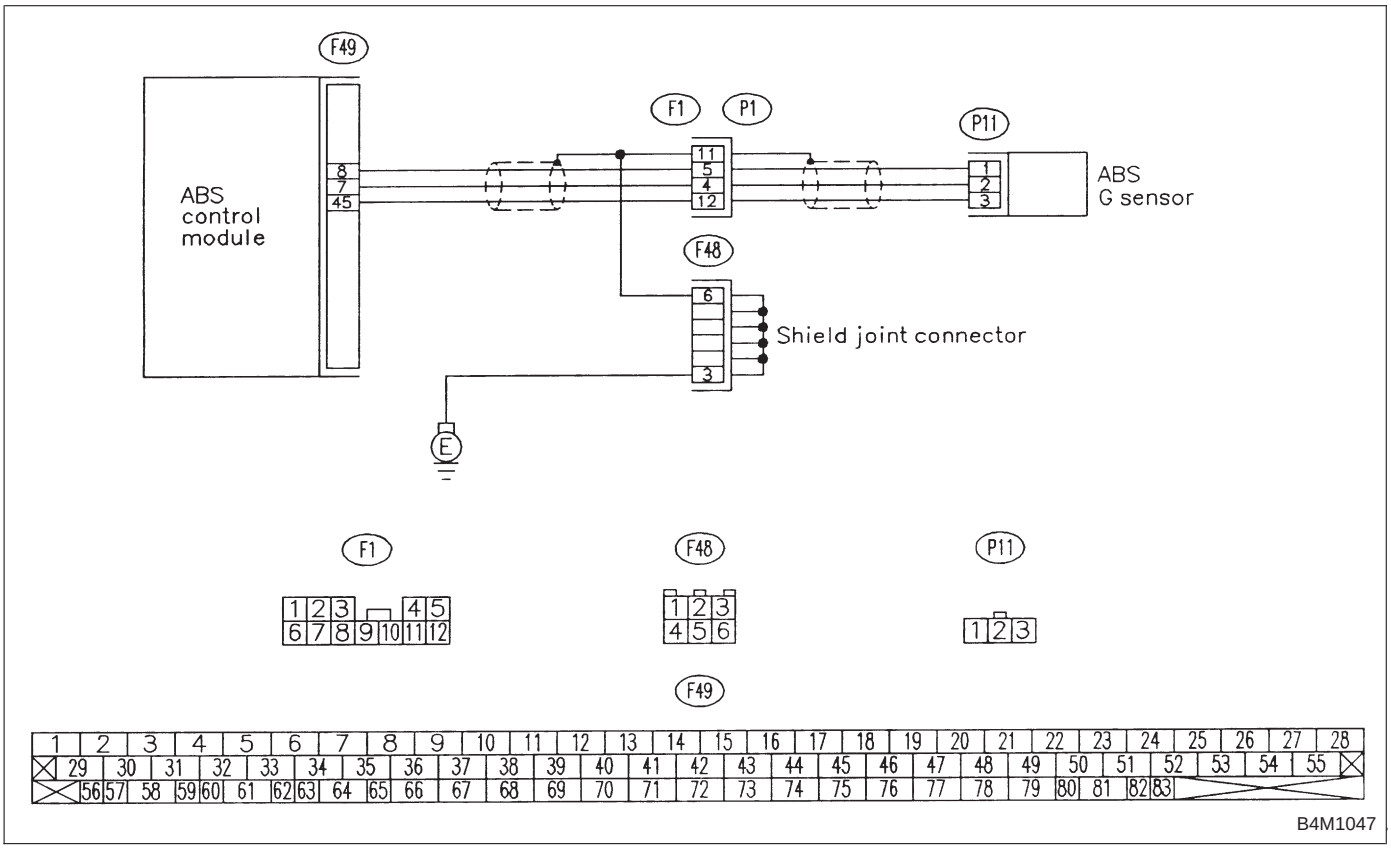
- Faulty G sensor power supply voltage

TROUBLE SYMPTOM:

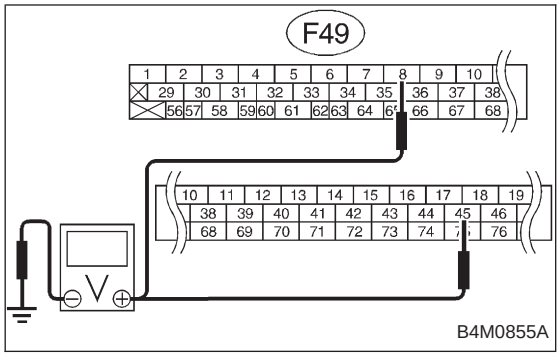
- ABS does not operate.

10Z1.	**Check battery short of harness.**

WIRING DIAGRAM:



B4M1047



10Z1	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to OFF.
2) Remove console cover from console box.
3) Disconnect connector from G sensor.
4) Disconnect connector from ABSCM.
5) Turn ignition switch to ON.
6) 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.

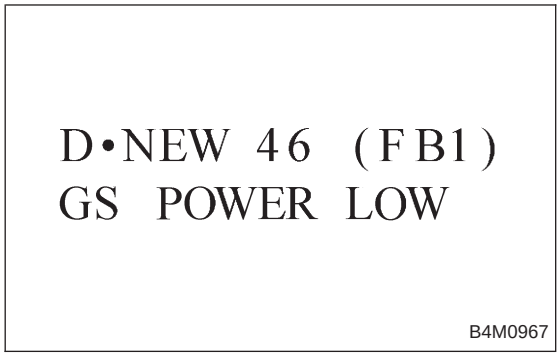
NO : Repair harness between ABSCM and G sensor.

7) Turn ignition switch to OFF.
8) 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 : Replace ABSCM.

NO : Repair harness between ABSCM and chassis ground.



AA: 46 GS POWER LOW — G SENSOR LINE VOLTAGE TOO LOW —

DIAGNOSIS:

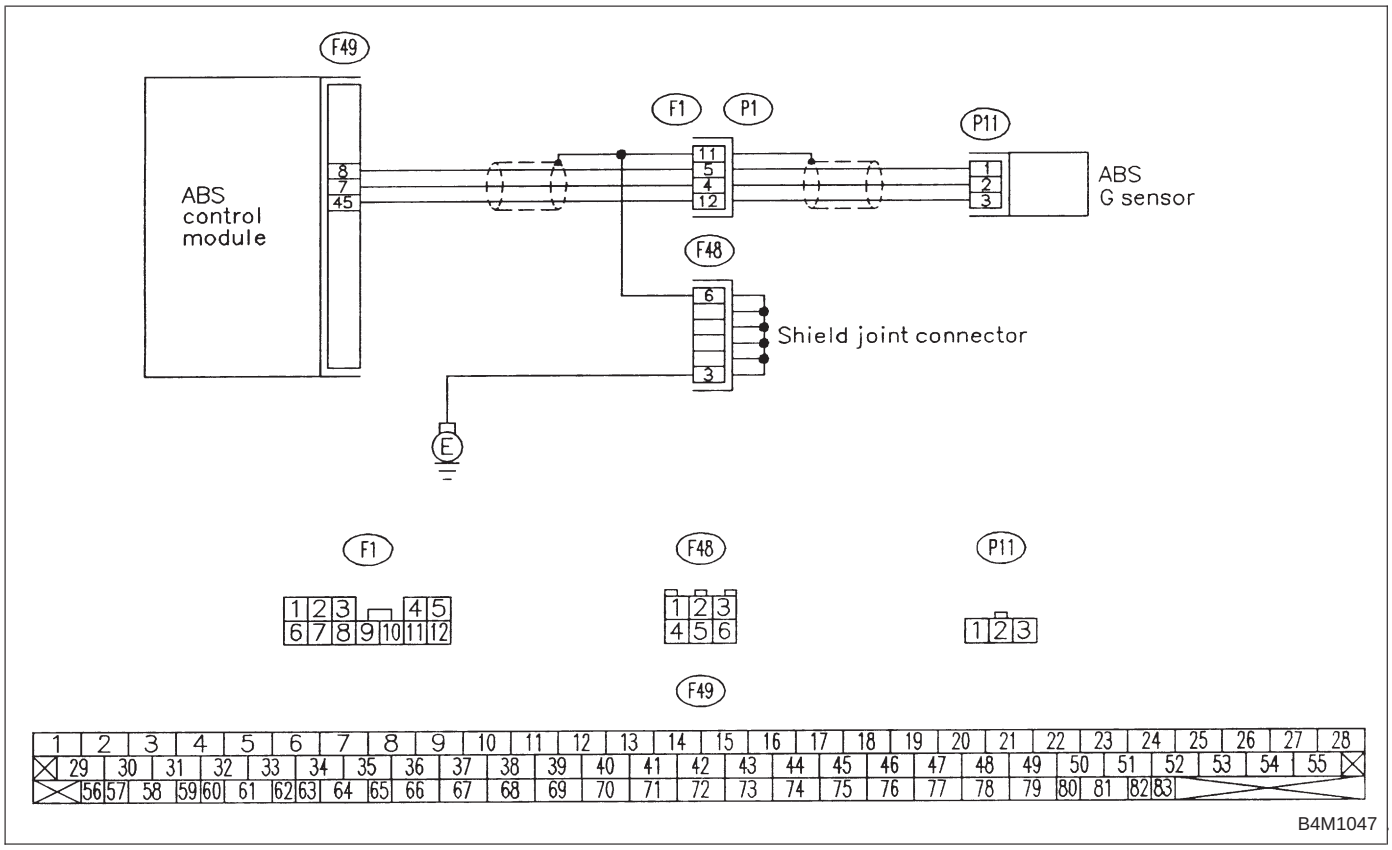
- Faulty G sensor power supply voltage

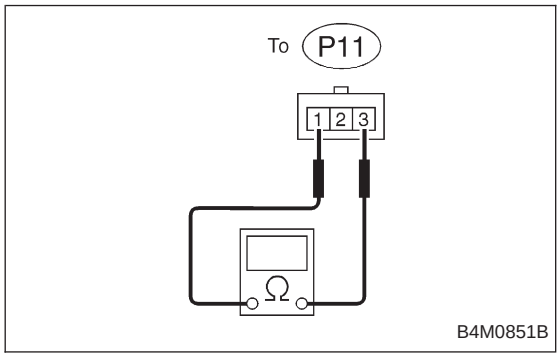
TROUBLE SYMPTOM:

- ABS does not operate.

10AA1.	**Check G sensor.**
10AA2.	**Check ground short of G sensor.**
10AA3.	**Check short of harness between ABSCM and G sensor.**
10AA4.	**Check ground short of harness.**
10AA5.	**Check poor contact in connector between ABSCM and G sensor.**
10AA6.	**Check ABSCM.**

WIRING DIAGRAM:





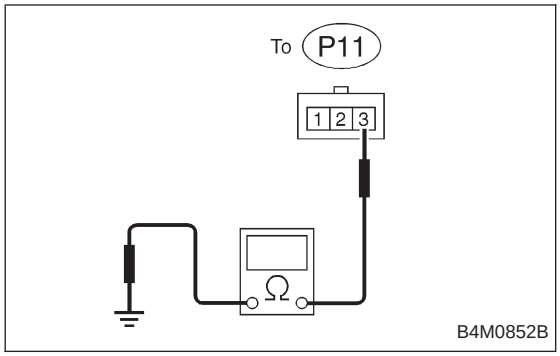
10AA1	CHECK G SENSOR.

1) Turn ignition switch to OFF.
2) Remove console cover from 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 **10AA2.**

NO : Replace G sensor.



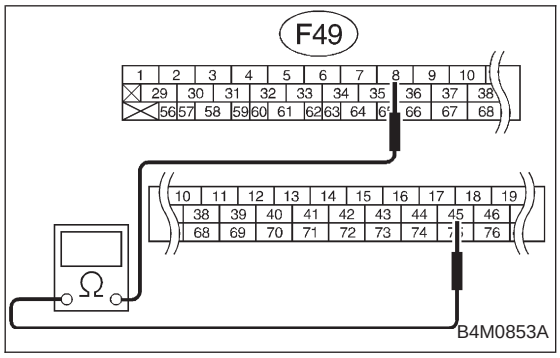
10AA2	CHECK GROUND SHORT OF G SENSOR.

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 **10AA3.**

NO : Replace G sensor.



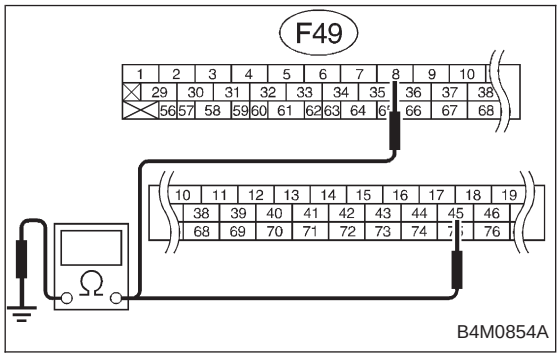
10AA3	CHECK SHORT OF HARNESS BETWEEN ABSCM AND G SENSOR.

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 **10AA4.**

NO : Repair harness between ABSCM and G sensor.



10AA4	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 **10AA5.**

NO : Repair harness between ABSCM and G sensor.

10AA5	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 **10AA6.**

10AA6	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.

AB: 51 V. RELAY
— ABNORMAL VALVE RELAY —

DIAGNOSIS:

- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

10AB1.	Check freeze frame data.
10AB2.	Check resistance of valve relay.
10AB3.	Check contact point of valve relay.
10AB4.	Check short of valve relay.
10AB5.	Check power supply voltage at valve relay contact point.
10AB6.	Check broken wire and ground short in power supply circuit of relay box.
10AB7.	Check broken wire in contact point circuit of relay box.
10AB8.	Check ground short in contact point circuit of relay box.
10AB9.	Check diode of relay box.
10AB10.	Check battery short in ground circuit of relay box.
10AB11.	Check broken wire in control circuit of relay box.
10AB12.	Check ground short in control circuit of relay box.
10AB13.	Check battery short in control circuit of relay box.

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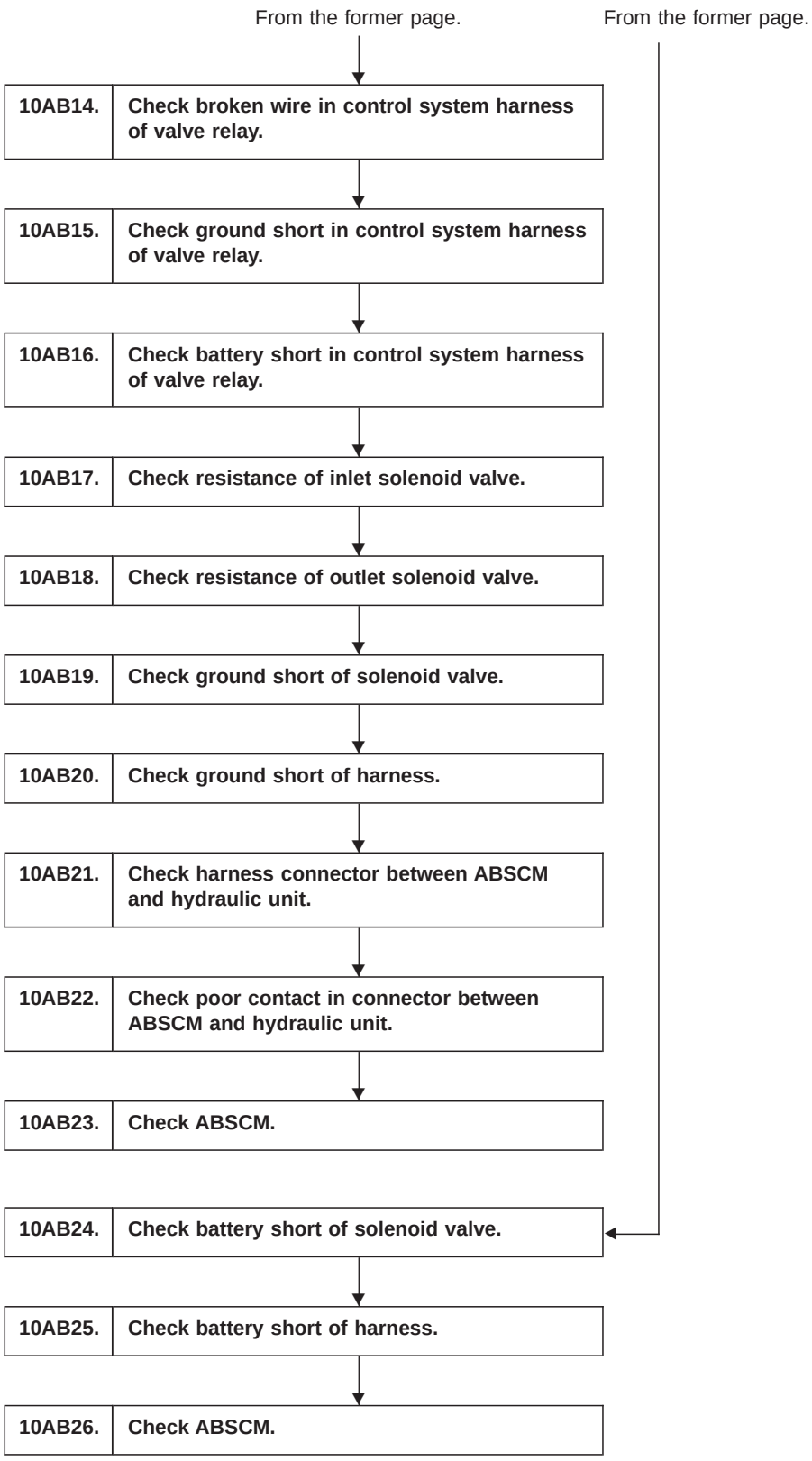
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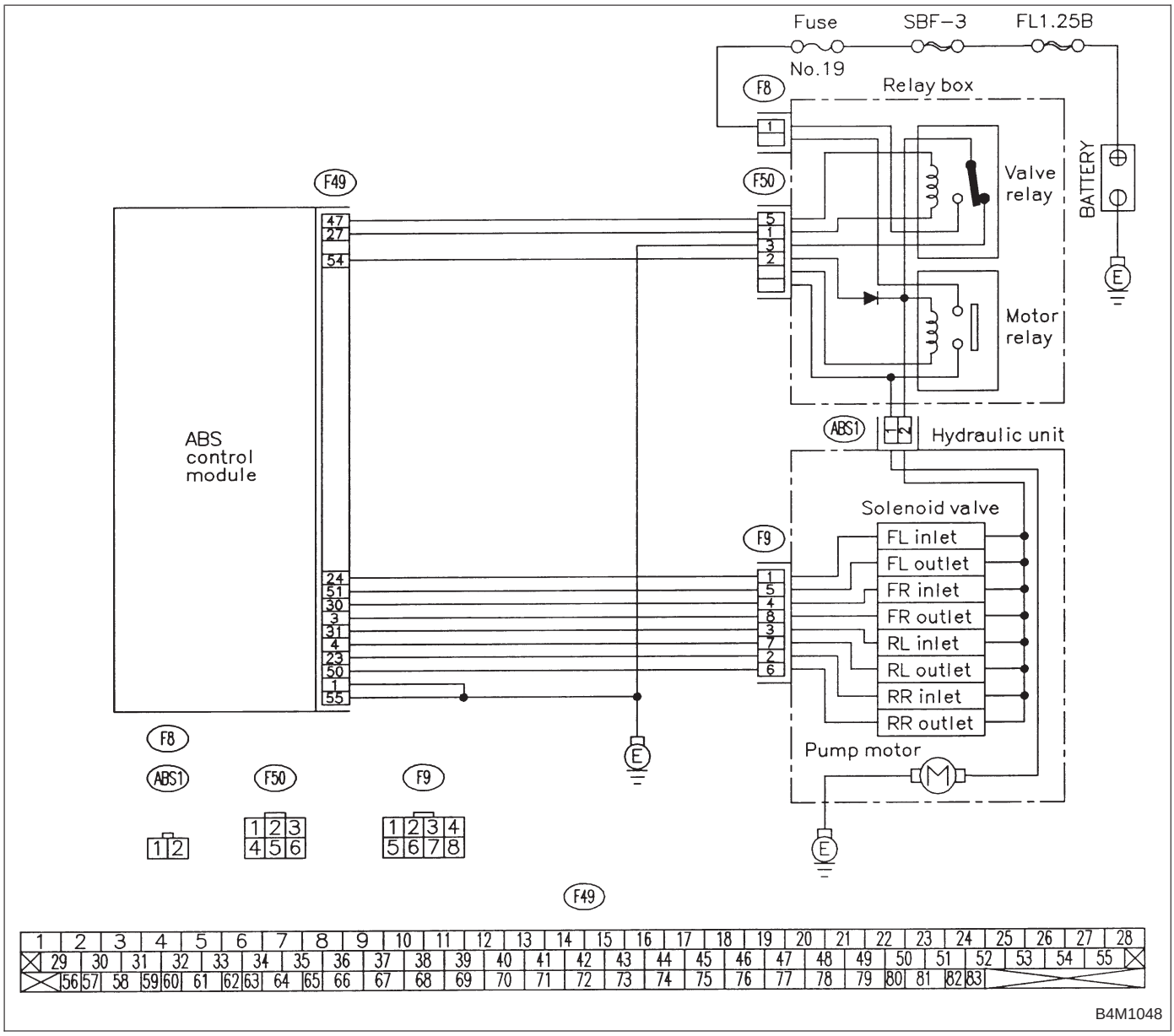
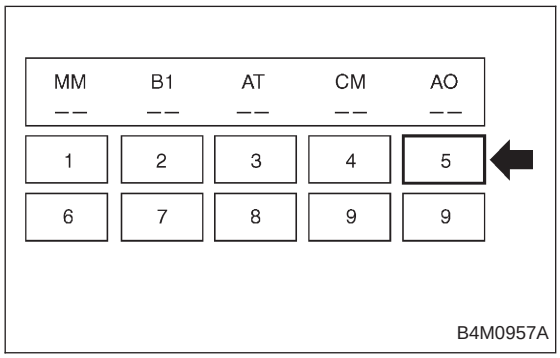
From the former page.
10AB14.
Check broken wire in control system harness of valve relay.
10AB15.
Check ground short in control system harness of valve relay.
10AB16.
Check battery short in control system harness of valve relay.
10AB17.
Check resistance of inlet solenoid valve.
10AB18.
Check resistance of outlet solenoid valve.
10AB19.
Check ground short of solenoid valve.
10AB20.
Check ground short of harness.
10AB21.
Check harness connector between ABSCM and hydraulic unit.
10AB22.
Check poor contact in connector between ABSCM and hydraulic unit.
10AB23.
Check ABSCM.
10AB24.
Check battery short of solenoid valve.
10AB25.
Check battery short of harness.
10AB26.
Check ABSCM.

WIRING DIAGRAM:





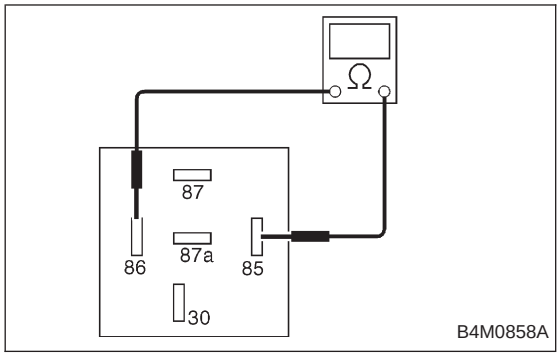
10AB1	CHECK FREEZE FRAME DATA.

Press [F], [E], [1] and [5] on the select monitor.

CHECK ***: Is the select monitor LED 5 off? Was the ABS inactive when the problem occurred?***

YES : Go to step **10AB2.**

NO : Go to step **10AB24.**



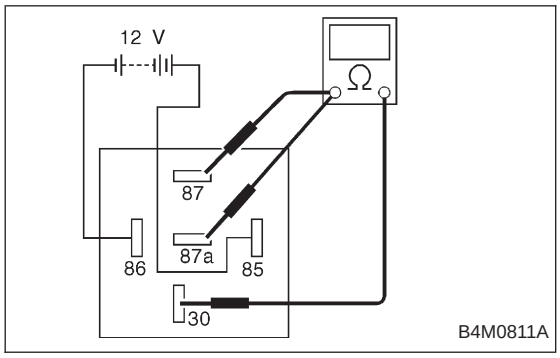
10AB2	CHECK RESISTANCE OF VALVE RELAY.

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 **10AB3.**

NO : Replace valve relay.



10AB3	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?

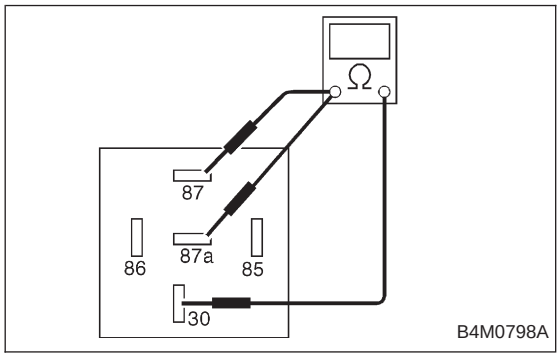
YES : Go to next CHECK .

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?

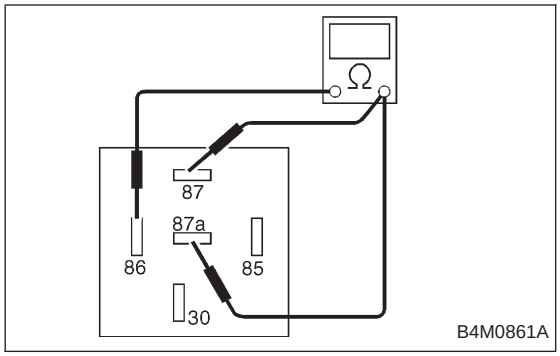
YES : Go to next CHECK .

NO : Replace valve relay.

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

YES : Go to step **10AB4.**

NO : Replace valve relay.



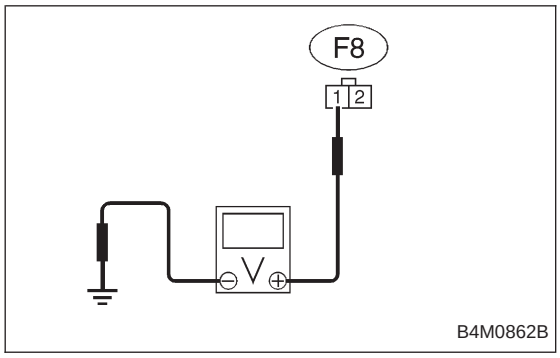
10AB4	CHECK SHORT OF VALVE RELAY.

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 **10AB5.**

NO : Replace valve relay.



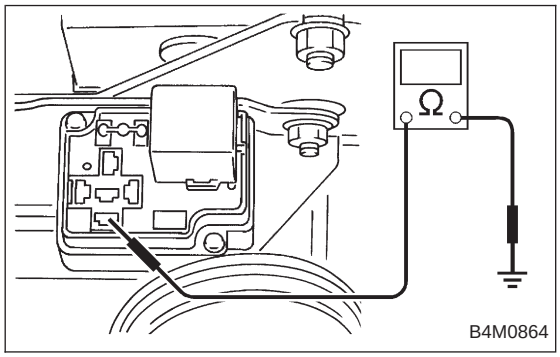
10AB5	CHECK POWER SUPPLY VOLTAGE AT VALVE RELAY CONTACT POINT.

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 **10AB6.**

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



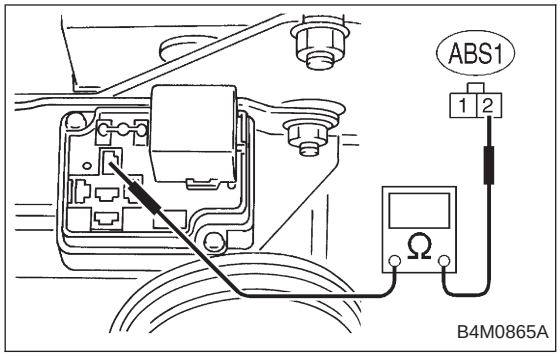
10AB6	CHECK BROKEN WIRE AND GROUND SHORT IN POWER SUPPLY CIRCUIT OF RELAY BOX.

1) Disconnect connector (ABS1) from hydraulic unit.
2) Connect connector (F8) to relay box.
3) Disconnect connector (F50) from relay box.
4) 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 **10AB7.**

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



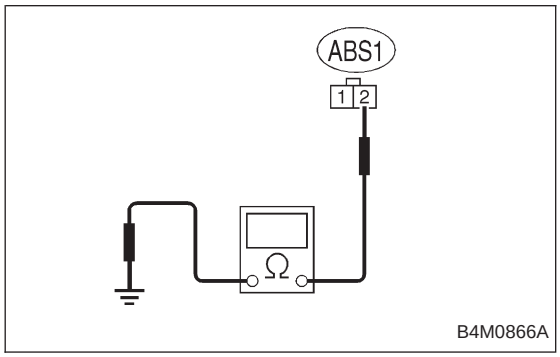
10AB7	CHECK BROKEN WIRE IN CONTACT POINT CIRCUIT OF RELAY BOX.

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 **10AB8.**

NO : Replace relay box.



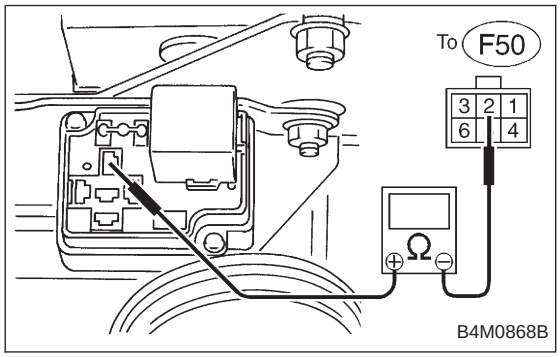
10AB8	CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

Measure resistance between relay box connector and chassis ground.

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

YES : Go to step **10AB9.**

NO : Replace relay box. Check fuse SBF6.



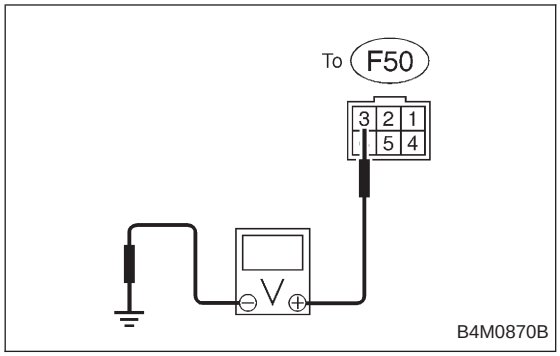
10AB9	CHECK DIODE OF RELAY BOX.

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 **10AB10.**

NO : Replace relay box.



10AB10	CHECK BATTERY SHORT IN GROUND CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Turn ignition switch to ON.
3) 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.

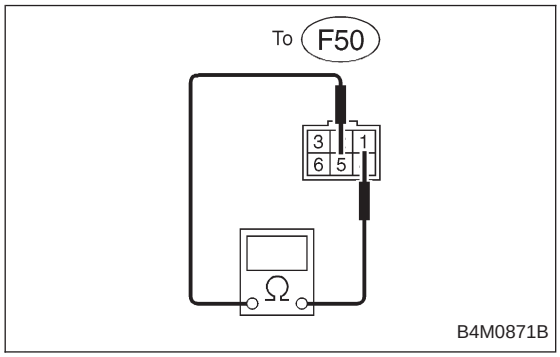
NO : Replace relay box and check all fuses.

4) Turn ignition switch to OFF.
5) 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 **10AB11.**

NO : Replace relay box and check all fuses.



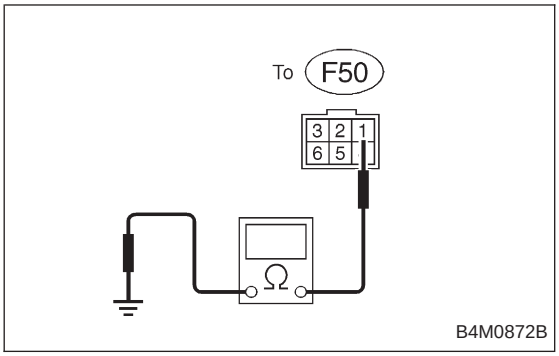
10AB11	CHECK BROKEN WIRE IN CONTROL CIRCUIT OF RELAY BOX.

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 **10AB12.**

NO : Replace relay box.



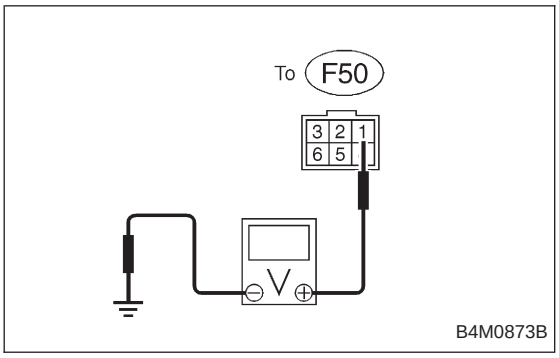
10AB12	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

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 **10AB13.**

NO : Replace relay box and check all fuses.



10AB13	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.

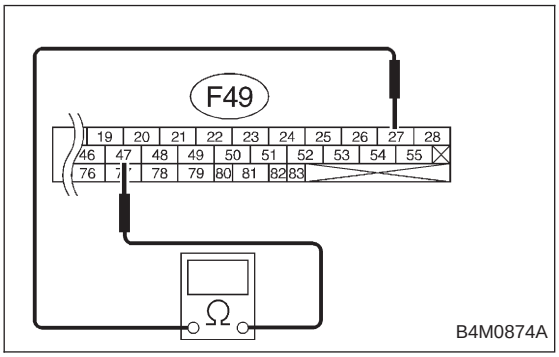
NO : Replace relay box. Check fuse No. 19 and SBF6.

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 **10AB14.**

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



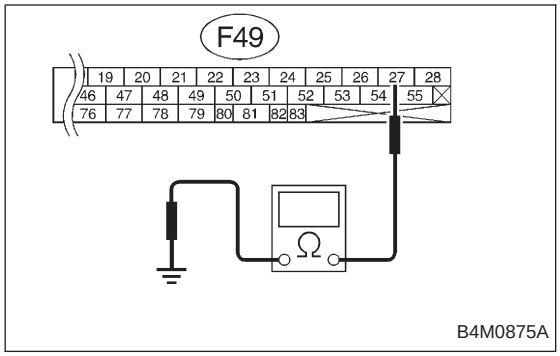
10AB14	CHECK BROKEN WIRE IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

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 **10AB15.**

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



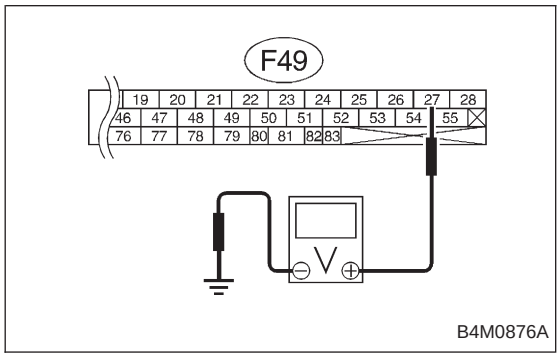
10AB15	CHECK GROUND SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

1) Disconnect connector (F50) from relay box.
2) 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 **10AB16.**

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



10AB16	CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

1) Connect connector (F50) to relay box.
2) Turn ignition switch to ON.
3) 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.

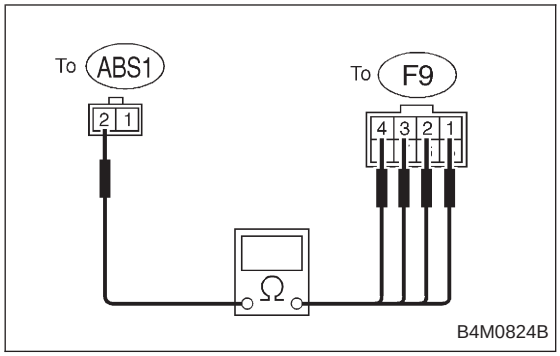
NO : Repair harness between ABSCM and relay box and check all fuses.

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

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

YES : Go to step **10AB17.**

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



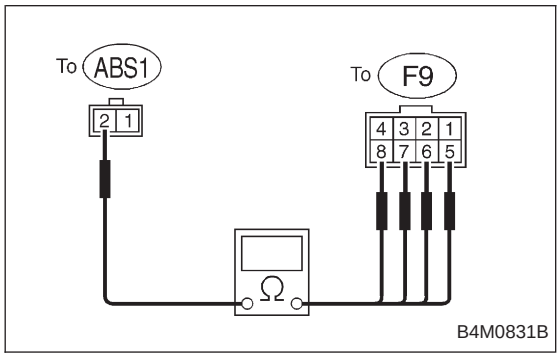
10AB17	CHECK RESISTANCE OF INLET SOLENOID VALVE.

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 **10AB18.**

NO : Replace hydraulic unit.



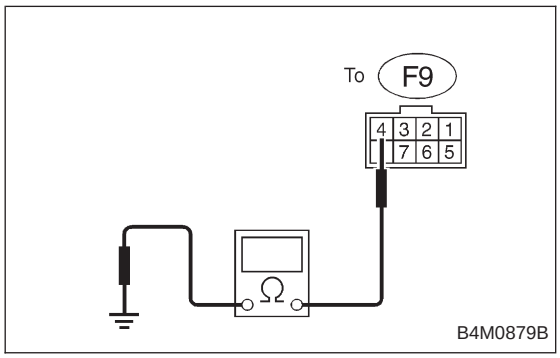
10AB18	CHECK RESISTANCE OF OUTLET SOLENOID VALVE.

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 **10AB19.**

NO : Replace hydraulic unit.



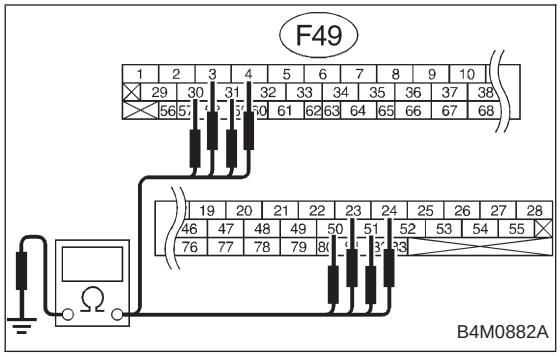
10AB19	CHECK GROUND SHORT OF SOLENOID VALVE.

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 **10AB20.**

NO : Replace hydraulic unit and check all fuses.



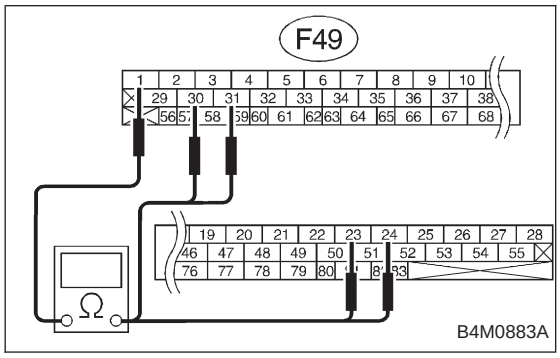
10AB20	CHECK GROUND SHORT OF HARNESS.

1) Disconnect connector from hydraulic unit.
2) 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 **10AB21.**

NO : Repair harness between hydraulic unit and ABSCM.



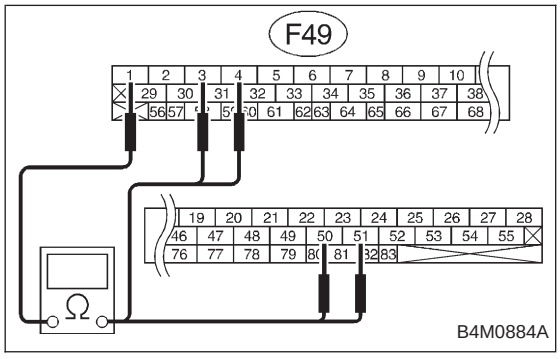
10AB21	CHECK HARNESS CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

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 **10AB22.**

NO : Repair harness connector between hydraulic unit and ABSCM.

10AB22	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 **10AB23.**

10AB23	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?***

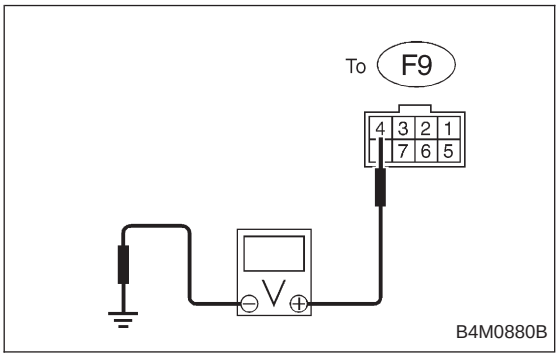
YES : Replace ABSCM.

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.



10AB24	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Disconnect connectors (ABS1, F9) from hydraulic unit.
3) Disconnect connector from ABSCM.
4) Turn ignition switch to ON.
5) 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.

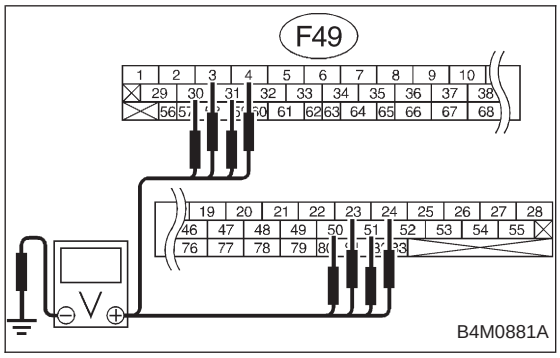
NO : Replace hydraulic unit and check all fuses.

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

CHECK : ***Connector & terminal***
To (F63) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **10AB25.**

NO : Replace hydraulic unit and check all fuses.



10AB25 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. 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.

3) Turn ignition switch to OFF.
4) 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 **10AB26.**

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

10AB26	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.

AC: 51 V. RELAY ON — VALVE RELAY ON FAILURE —

DIAGNOSIS:

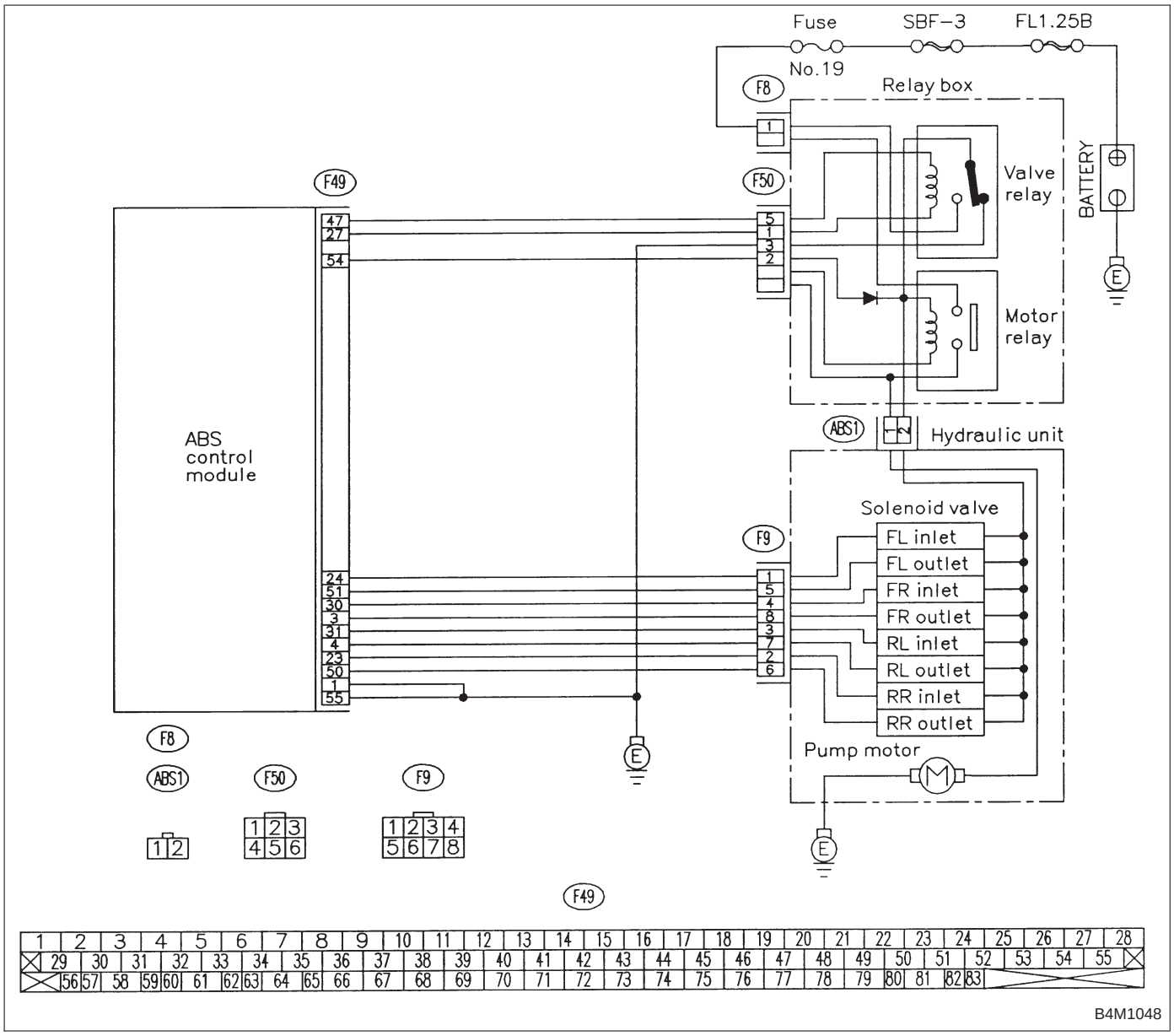
- Faulty valve relay

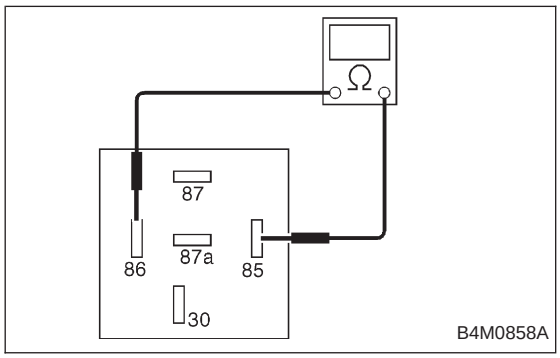
TROUBLE SYMPTOM:

- ABS does not operate.

10AC1.	**Check resistance of valve relay.**
10AC2.	**Check contact point of valve relay.**
10AC3.	**Check ground circuit of relay box.**
10AC4.	**Check battery short in contact point circuit of relay box.**
10AC5.	**Check broken wire in ground circuit of relay box.**
10AC6.	**Check ground short in control circuit of relay box.**
10AC7.	**Check ground short in control system harness of valve relay.**
10AC8.	**Check battery short of solenoid valve.**
10AC9.	**Check battery short of harness.**
10AC10.	**Check poor contact in connector between ABSCM and hydraulic unit.**
10AC11.	**Check ABSCM.**

WIRING DIAGRAM:





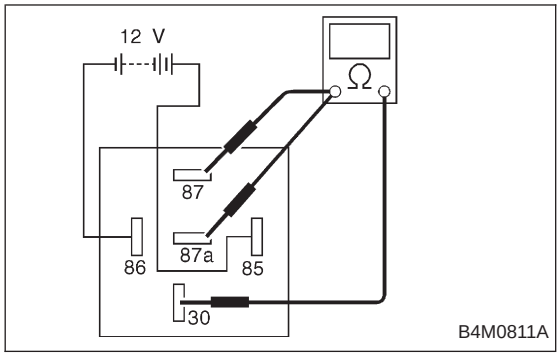
10AC1	CHECK RESISTANCE OF VALVE RELAY.

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 **10AC2.**

NO : Replace valve relay.



10AC2	CHECK CONTACT POINT OF VALVE RELAY.

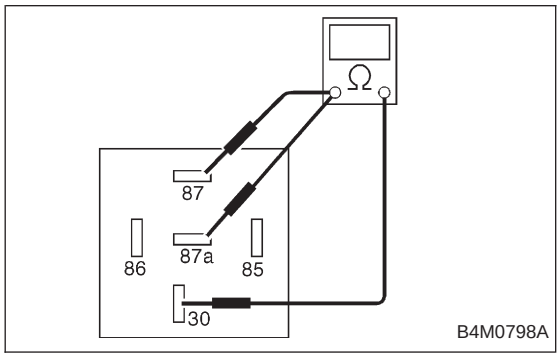
1) Connect battery to valve relay terminals No. 85 and No. 86.
2) Measure resistance between valve relay terminals.

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.



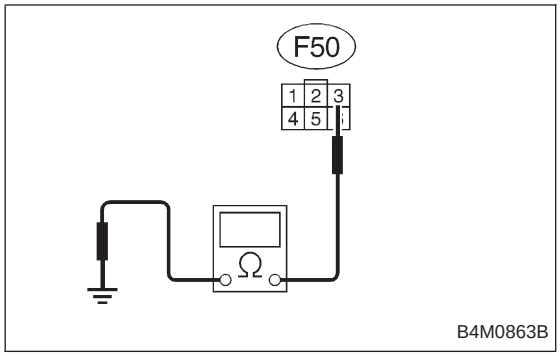
3) Disconnect battery from valve relay terminals.
4) Measure resistance between valve relay terminals.

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 **10AC3.**
NO : Replace valve relay.



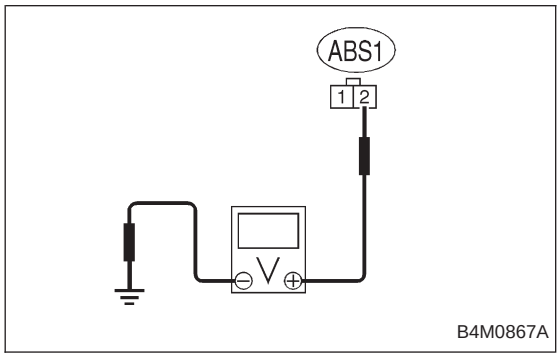
10AC3	CHECK GROUND CIRCUIT OF RELAY BOX.

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 **10AC4.**

NO : Repair relay box ground harness.



10AC4	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Disconnect connector (ABS1) from hydraulic unit.
3) Turn ignition switch to ON.
4) 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.

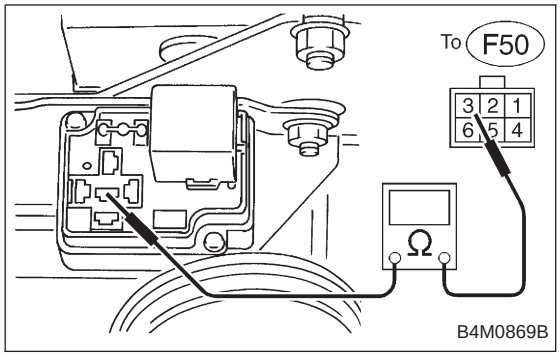
NO : Replace relay box. Check fuse No. 19 and SBF6.

5) Turn ignition switch to OFF.
6) 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 **10AC5.**

NO : Replace relay box. Check fuse No. 9 and SBF6.



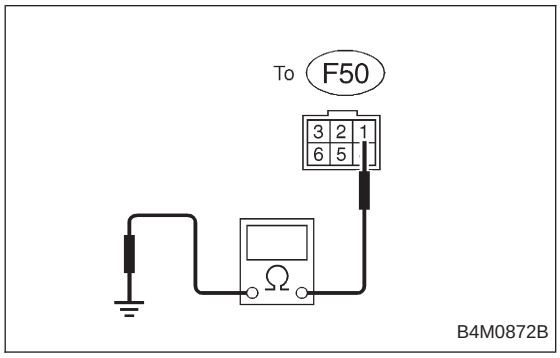
10AC5	CHECK BROKEN WIRE IN GROUND CIRCUIT OF RELAY BOX.

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 **10AC6.**

NO : Replace relay box.



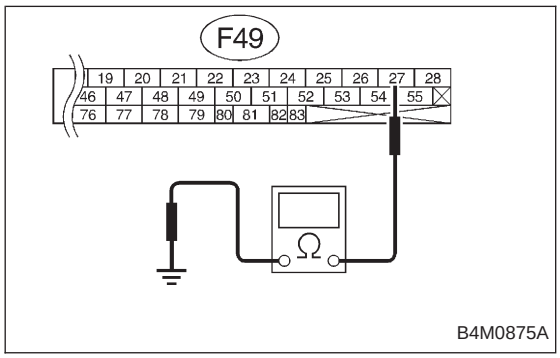
10AC6	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

1) Install valve relay to relay box.
2) 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 **10AC7.**

NO : Replace relay box and check all fuses.



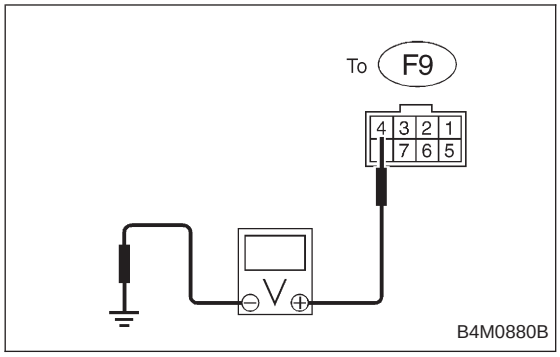
10AC7	CHECK GROUND SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

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 **10AC8.**

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



10AC8	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Disconnect connector (ABS1, F9) from hydraulic unit.
2) Turn ignition switch to ON.
3) Measure voltage between hydraulic unit connector and chassis ground.

CHECK : ***Connector & terminal***
To (F63) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to next step.

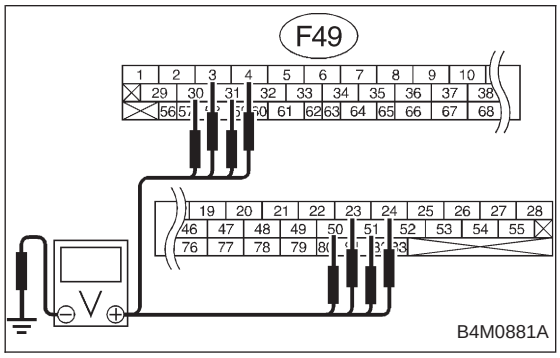
NO : Replace hydraulic unit and check all fuses.

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

CHECK : ***Connector & terminal***
To (F63) No. 4 (+) — Chassis ground (−)
Is voltage 0 V?

YES : Go to step **10AC9.**

NO : Replace hydraulic unit and check all fuses.



10AC9	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 **10AC10.**

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

10AC10	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 **10AC11.**

10AC11	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.

AD: 52 M. RELAY OPEN
— OPEN CIRCUIT OF MOTOR RELAY —

DIAGNOSIS:

- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

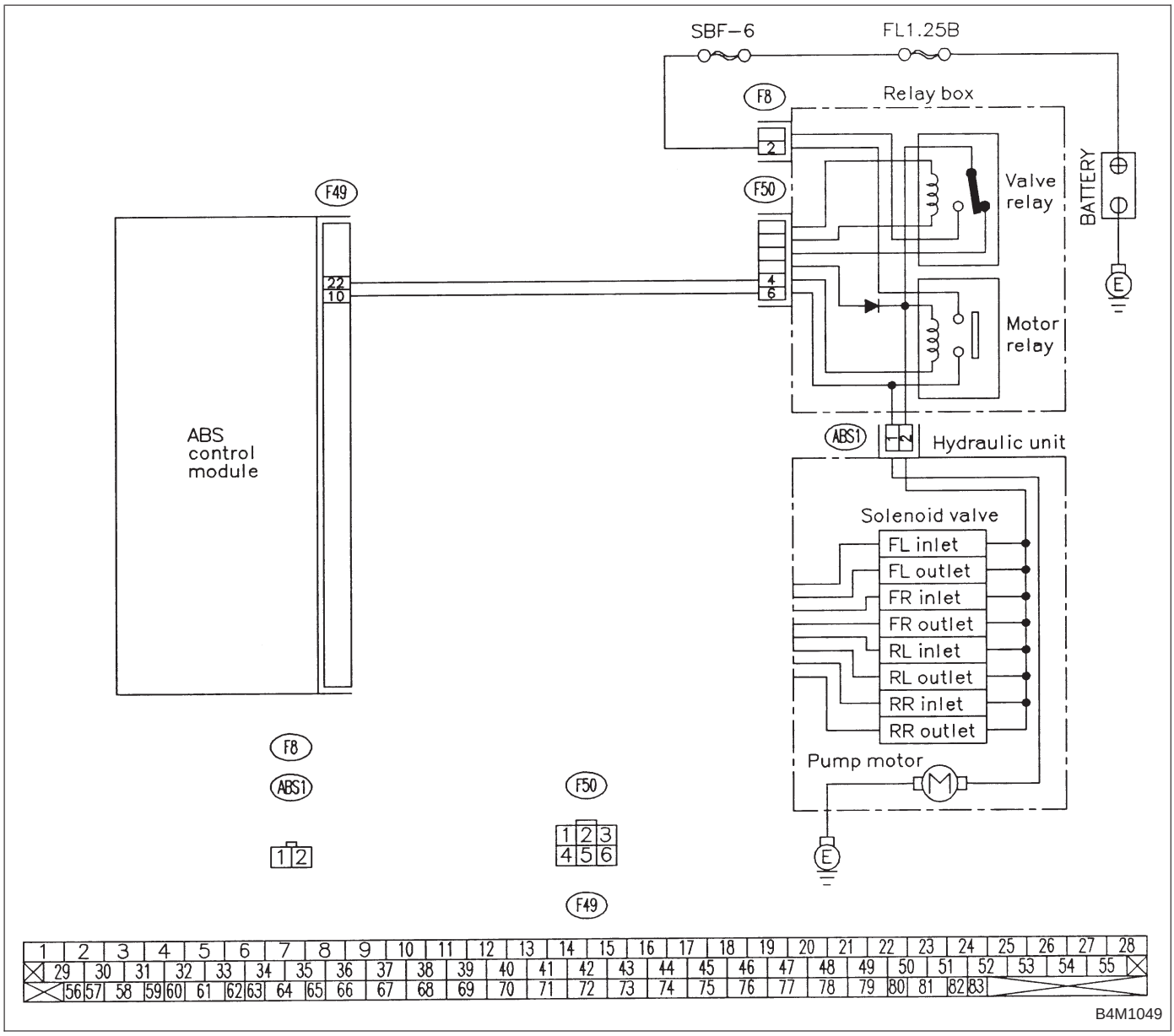
10AD1.	**Check resistance of motor relay.**
10AD2.	**Check contact point of motor relay.**
10AD3.	**Check short of motor relay.**
10AD4.	**Check input voltage of relay box.**
10AD5.	**Check input voltage of motor relay.**
10AD6.	**Check broken wire in contact point circuit of relay box.**
10AD7.	**Check ground short in contact point circuit of relay box.**
10AD8.	**Check broken wire in monitor system circuit of relay box.**
10AD9.	**Check broken wire in control circuit of relay box.**
10AD10.	**Check ground short in control circuit of relay box.**
10AD11.	**Check battery short in control circuit of relay box.**
10AD12.	**Check broken wire in monitor system harness.**
10AD13.	**Check broken wire in relay control system harness.**
10AD14.	**Check ground short between relay box and ABSCM.**

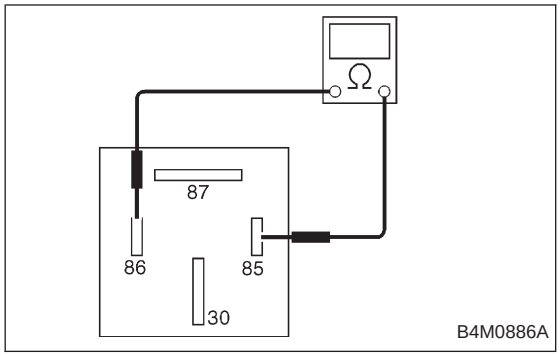
Continues to next page.

From the former page.

10AD15.	**Check battery short between relay box and ABSCM.**
10AD16.	**Check ground short at ABSCM monitor terminal.**
10AD17.	**Check ABSCM motor drive terminal.**
10AD18.	**Check motor operation.**
10AD19.	**Check poor contact in connector between hydraulic unit, relay box and ABSCM.**
10AD20.	**Check ABSCM.**

WIRING DIAGRAM:





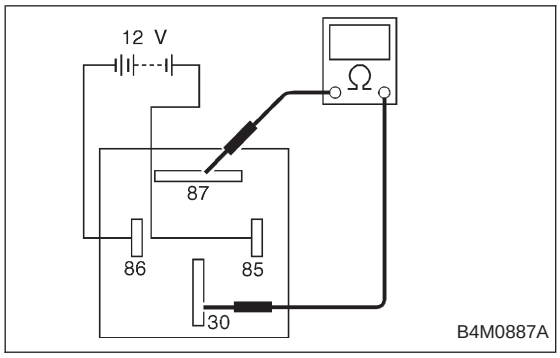
10AD1	CHECK RESISTANCE OF MOTOR RELAY.

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 **10AD2.**

NO : Replace motor relay.



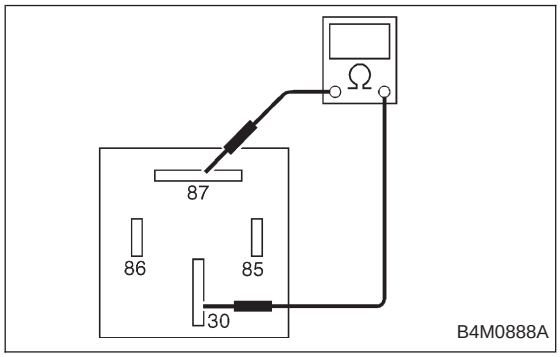
10AD2	CHECK CONTACT POINT OF MOTOR RELAY.

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.

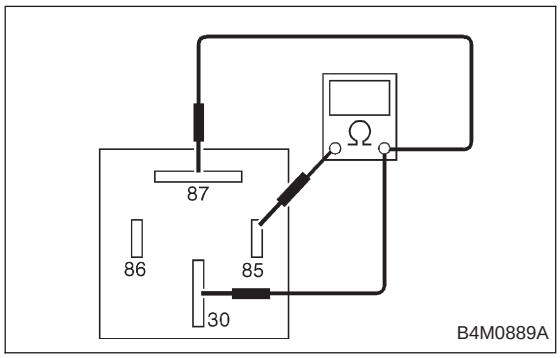


3) Disconnect battery from motor relay terminals.
4) Measure resistance between motor relay terminals.

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

YES : Go to step **10AD3.**

NO : Replace motor relay.



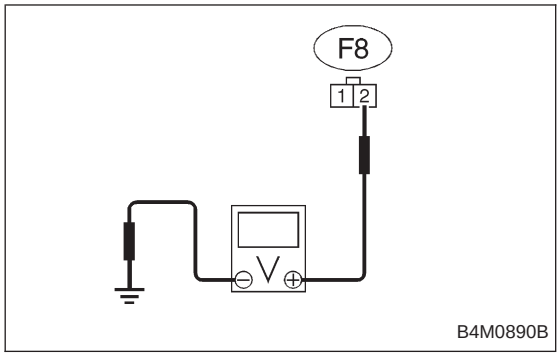
10AD3	CHECK SHORT OF MOTOR RELAY.

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 **10AD4.**

NO : Replace motor relay.



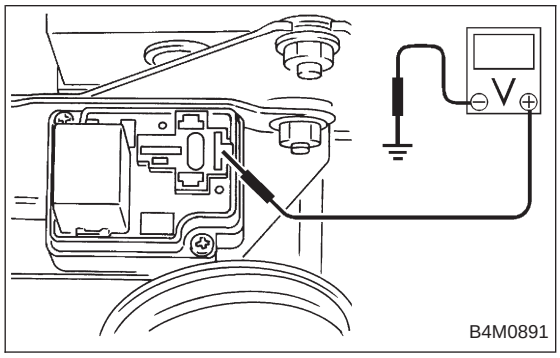
10AD4	CHECK INPUT VOLTAGE OF RELAY BOX.

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 **10AD5.**

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



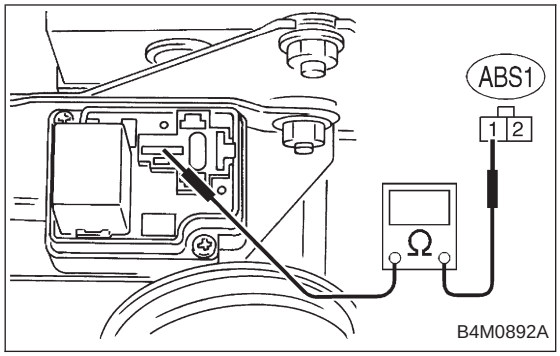
10AD5	CHECK INPUT VOLTAGE OF MOTOR RELAY.

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 10 — 13 V?

YES : Go to step **10AD6.**

NO : Replace relay box and fuse SBF6.



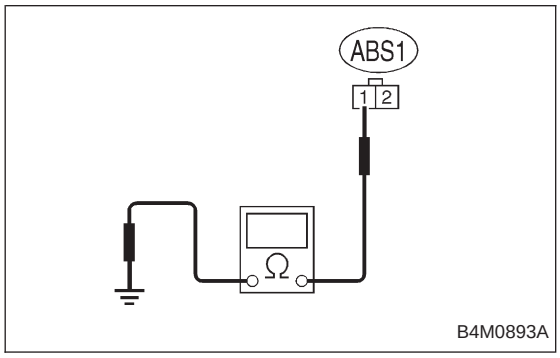
10AD6	CHECK BROKEN WIRE IN CONTACT POINT CIRCUIT OF RELAY BOX.

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 **10AD7.**

NO : Replace relay box.



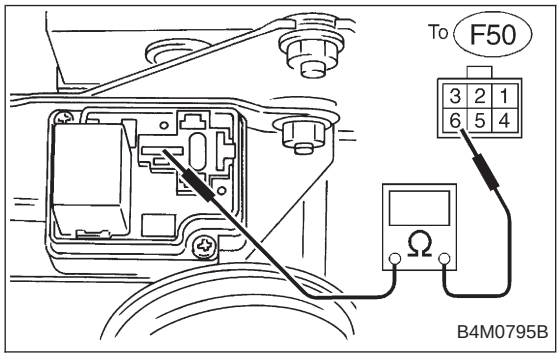
10AD7	CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

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 **10AD8.**

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



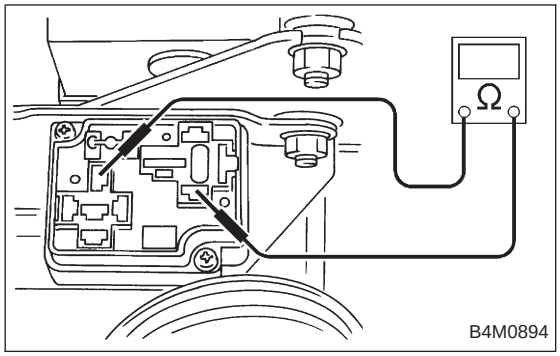
10AD8	CHECK BROKEN WIRE IN MONITOR SYSTEM CIRCUIT OF RELAY BOX.

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 **10AD9.**

NO : Replace relay box.

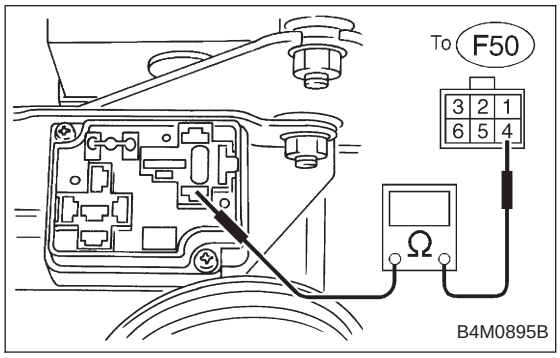


10AD9	CHECK BROKEN WIRE IN CONTROL CIRCUIT OF RELAY BOX.

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?

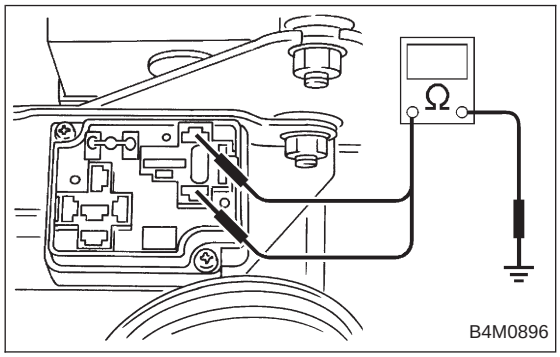
YES : Go to next step.
NO : Replace relay box.



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 **10AD10.**
NO : Replace relay box.

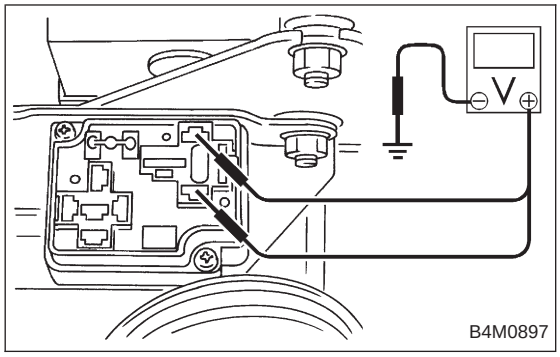


10AD10	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

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 **10AD11.**
NO : Replace relay box. Check fuse No. 19.



10AD11	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

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

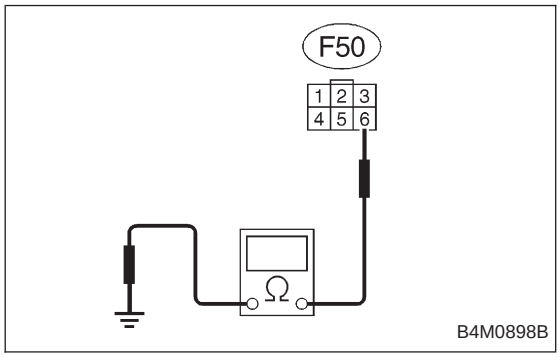
CHECK : ***Connector & terminal***
Motor relay installing point No. 85 (+) — Chassis ground (−)
Motor relay installing point No. 86 (+) — Chassis ground (−).
Is voltage 0 V?

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

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

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

YES : Go to step **10AD12.**
NO : Replace relay box and check all fuses.

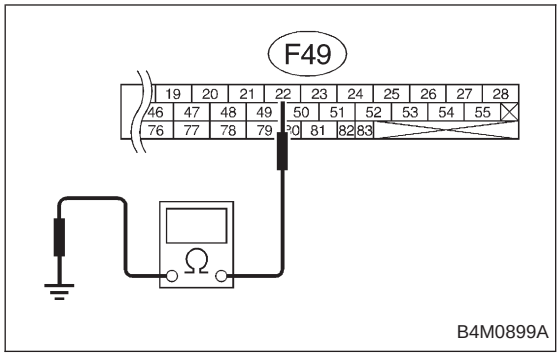


10AD12	CHECK BROKEN WIRE IN MONITOR SYSTEM HARNESS.

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 **10AD13.**
NO : Repair harness connector between ABSCM and relay box.



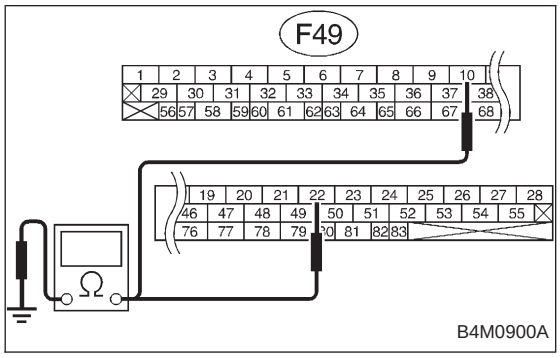
10AD13	CHECK BROKEN WIRE IN RELAY CONTROL SYSTEM HARNESS.

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 **10AD14.**

NO : Repair harness connector between ABSCM and relay box.



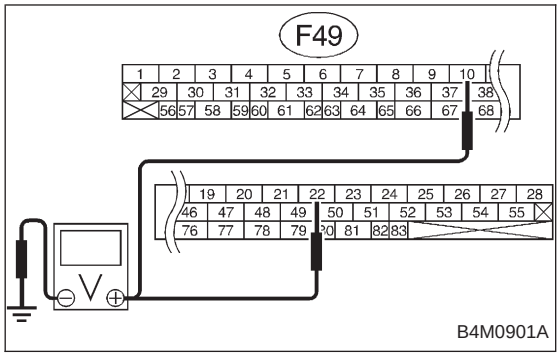
10AD14	CHECK GROUND SHORT BETWEEN RELAY BOX AND ABSCM.

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 **10AD15.**

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



10AD15	CHECK BATTERY SHORT BETWEEN RELAY BOX AND ABSCM.

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

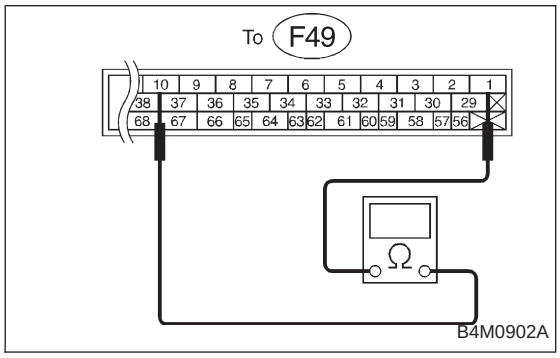
CHECK : ***Connector & terminal***
(F49) No. 22 (+) — Chassis ground (−)
(F49) No. 10 (+) — Chassis ground (−)
Is voltage 0 V?

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 **10AD16.**
NO : Repair harness between relay box and ABSCM. Check fuse SBF6.

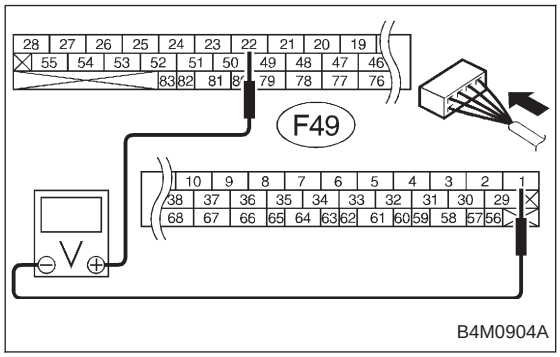


10AD16	CHECK GROUND SHORT AT ABSCM MONITOR TERMINAL.

Measure resistance between ABSCM terminals.

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

YES : Go to step **10AD17.**
NO : Replace ABSCM.

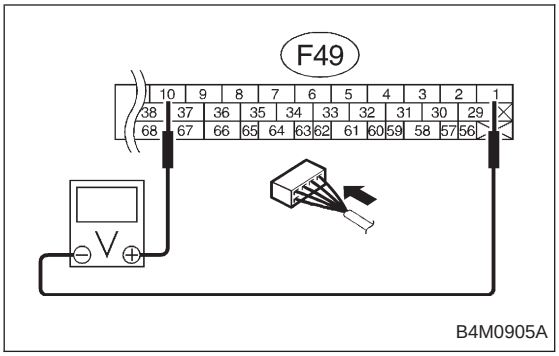


10AD17	CHECK ABSCM MOTOR DRIVE TERMINAL.

1) Disconnect connector cover from ABSCM connector. <Ref. to 4-4c [T8C3] steps 5) to 8).>
2) Connect all connectors.
3) Measure voltage between ABSCM connector terminals.
4) Operate the check sequence. <Ref. to 4-4 [W22D1].>

CHECK : ***Connector & terminals***
(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 **10AD18.**
NO : Replace ABSCM.



10AD18	CHECK MOTOR OPERATION.

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

CHECK ***: Connector & terminals (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 **10AD19.**

NO : Replace hydraulic unit.

10AD19	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 **10AD20.**

10AD20	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.

AE: 52 M. RELAY ON
— MOTOR RELAY ON FAILURE —

DIAGNOSIS:

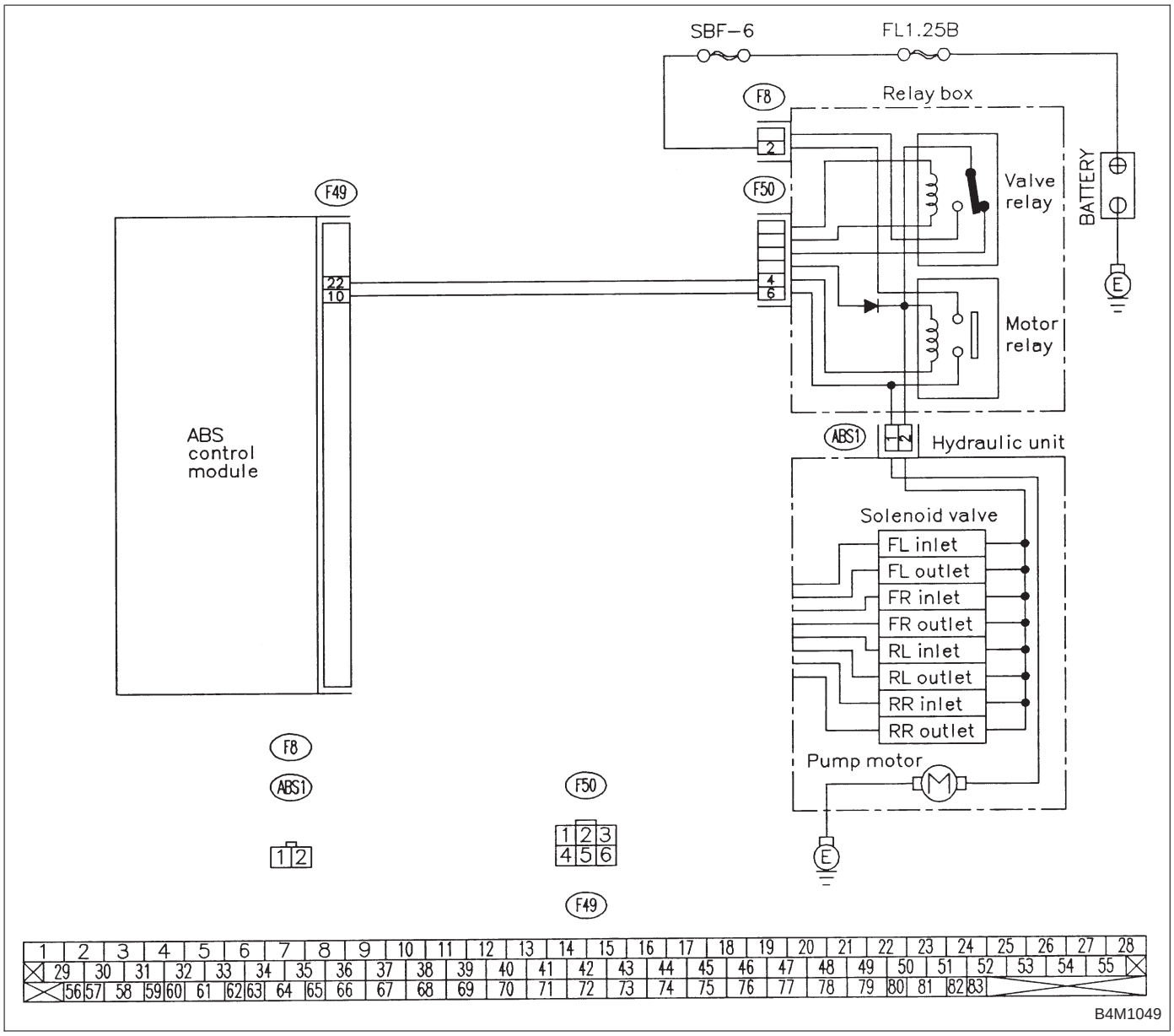
- Faulty motor
- Faulty motor relay
- Faulty harness connector

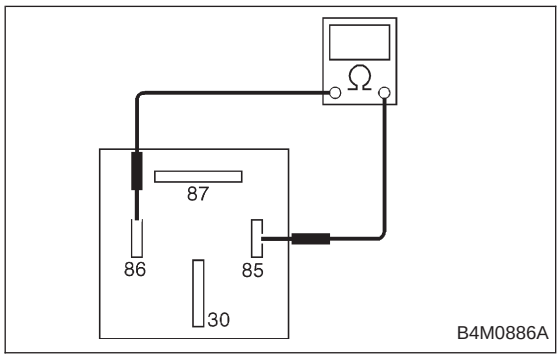
TROUBLE SYMPTOM:

- ABS does not operate.

10AE1.	**Check resistance of motor relay.**
10AE2.	**Check contact point of motor relay.**
10AE3.	**Check short of motor relay.**
10AE4.	**Check battery short in contact point circuit of relay box.**
10AE5.	**Check ground short in control circuit of relay box.**
10AE6.	**Check ground short between relay box and ABSCM.**
10AE7.	**Check battery short between relay box and ABSCM.**
10AE8.	**Check battery short at ABSCM monitor terminal.**
10AE9.	**Check motor ground.**
10AE10.	**Check ABSCM motor drive terminal.**
10AE11.	**Check motor operation.**
10AE12.	**Check poor contact in connector between hydraulic unit, relay box and ABSCM.**
10AE13.	**Check ABSCM.**

WIRING DIAGRAM:





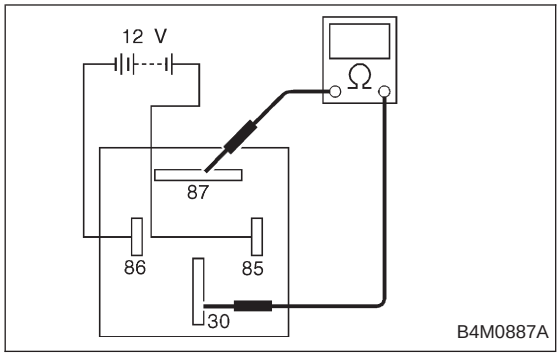
10AE1	CHECK RESISTANCE OF MOTOR RELAY.

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 **10AE2.**

NO : Replace motor relay.

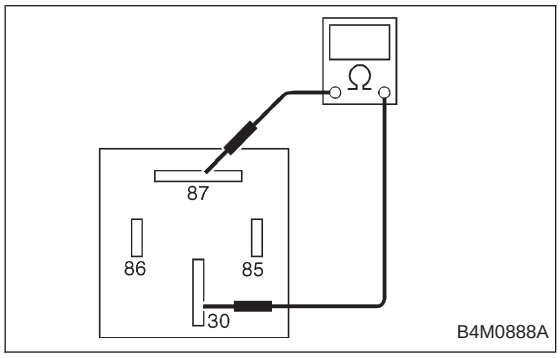


10AE2	CHECK CONTACT POINT OF MOTOR RELAY.

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?

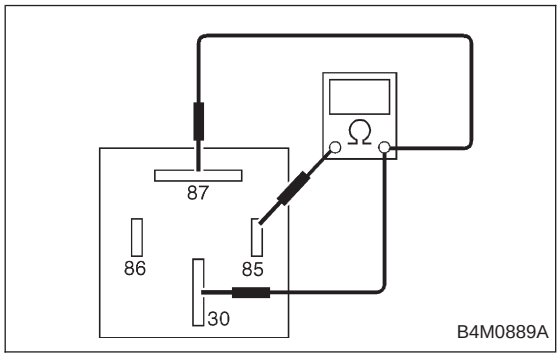
YES : Go to next step.
NO : Replace motor relay.



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 **10AE3.**
NO : Replace motor relay.

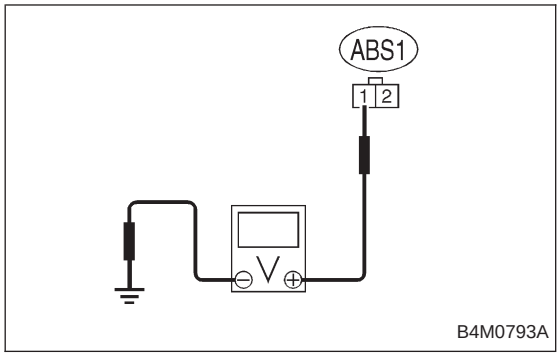


10AE3	CHECK SHORT OF MOTOR RELAY.

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 **10AE4.**
NO : Replace motor relay.



10AE4	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Disconnect connector (ABS1) from hydraulic unit.
3) Turn ignition switch to ON.
4) Measure voltage between relay box connector and chassis ground.

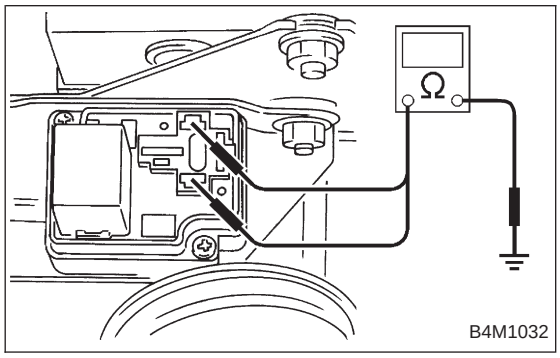
CHECK : ***Connector & terminal***
(ABS1) No. 1 (+) — Chassis ground (−)
Is voltage 0 V?

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

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

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

YES : Go to step **10AE5.**
NO : Replace relay box.

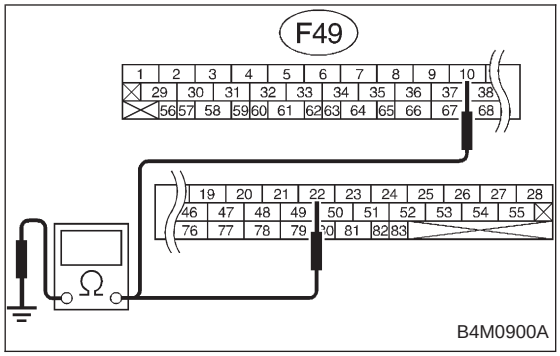


10AE5	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

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

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

YES : Go to step **10AE6.**
NO : Replace relay box. Check fuse No. 19.



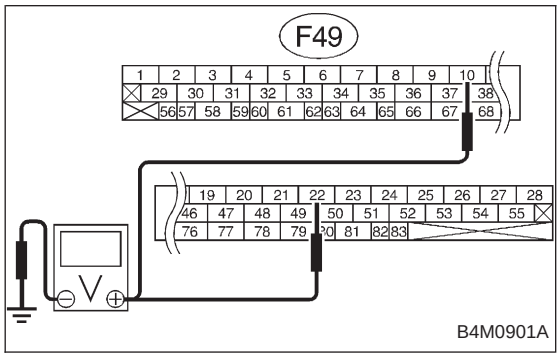
10AE6	CHECK GROUND SHORT BETWEEN RELAY BOX AND ABSCM.

1) Disconnect connector (F49) from ABSCM.
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 **10AE7.**

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



10AE7	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.

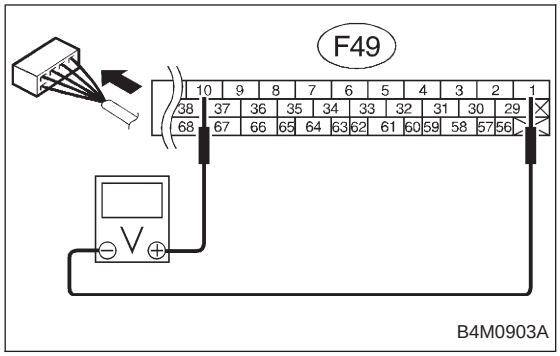
NO : Repair harness between relay box and ABSCM. Check fuse SBF6.

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 **10AE8.**

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



10AE8	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.

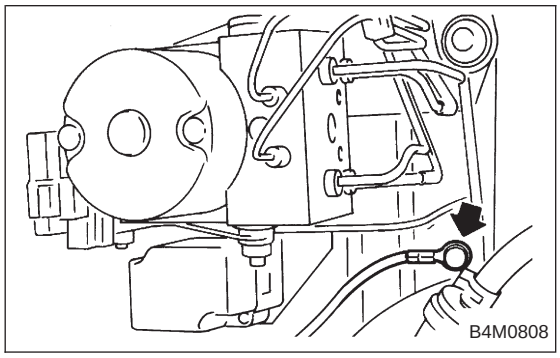
NO : Replace ABSCM.

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

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

YES : Go to step **10AE9.**

NO : Replace ABSCM.

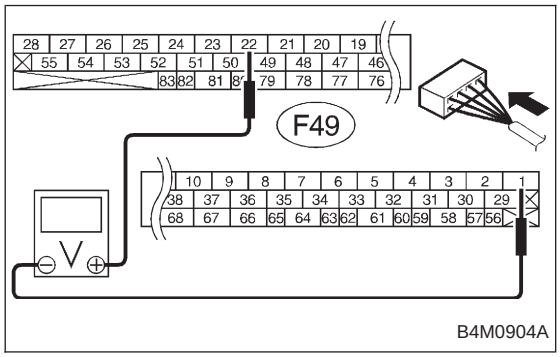


10AE9	CHECK MOTOR GROUND.

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 **10AE10.**

NO : Tighten the clamp of motor ground terminal.



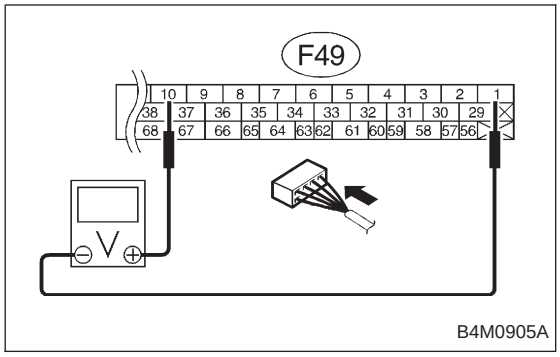
10AE10	CHECK ABSCM MOTOR DRIVE TERMINAL.

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

CHECK ***: Connector & terminals (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 **10AE11.**

NO : Replace ABSCM.



10AE11	CHECK MOTOR OPERATION.

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

CHECK ***: Connector & terminals (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 **10AE12.**

NO : Replace hydraulic unit.

10AE12	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 **10AE13.**

10AE13	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.

AF: 52 MOTOR — ABNORMAL MOTOR —

DIAGNOSIS:

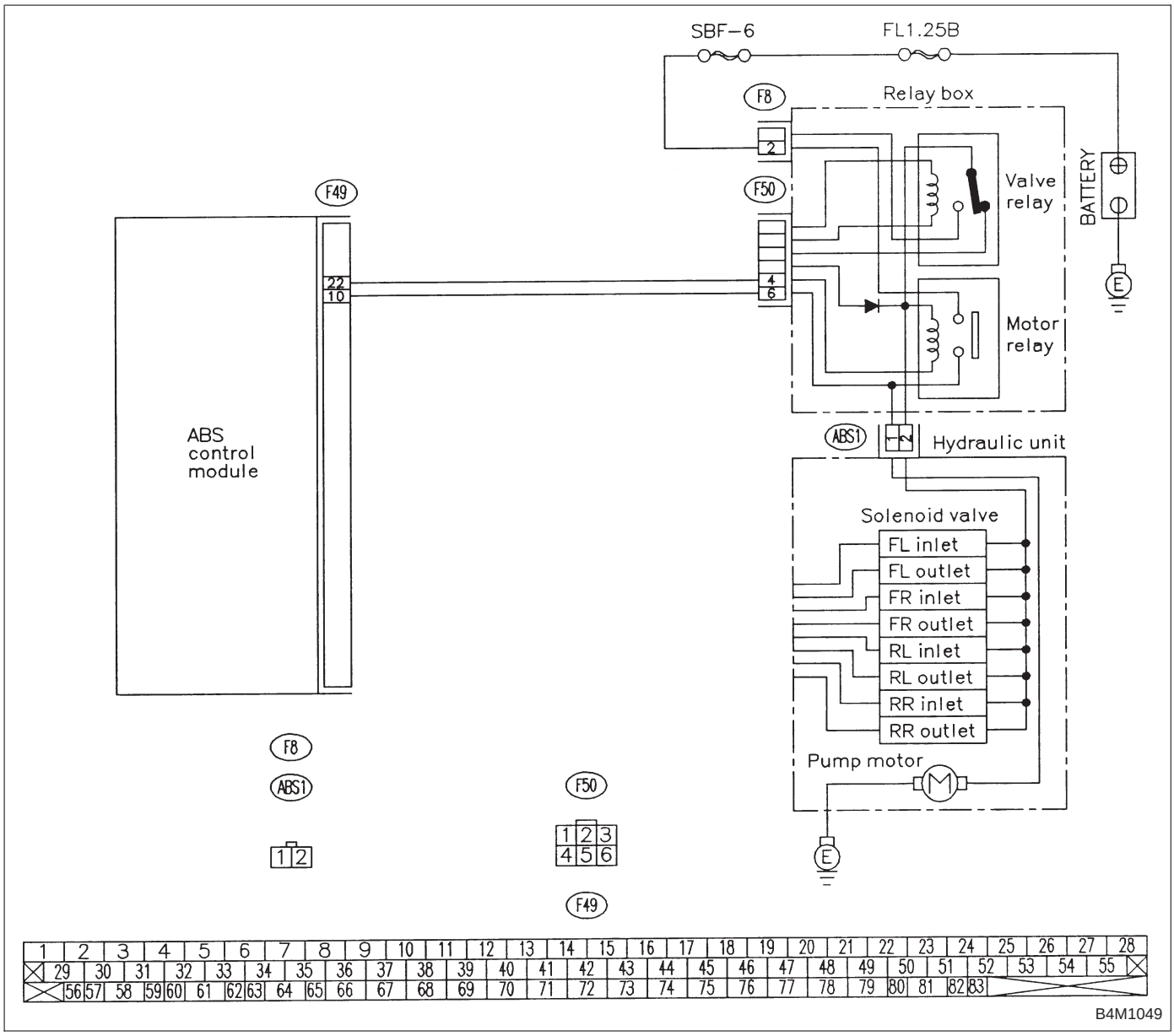
- Faulty motor
- Faulty motor relay
- Faulty harness connector

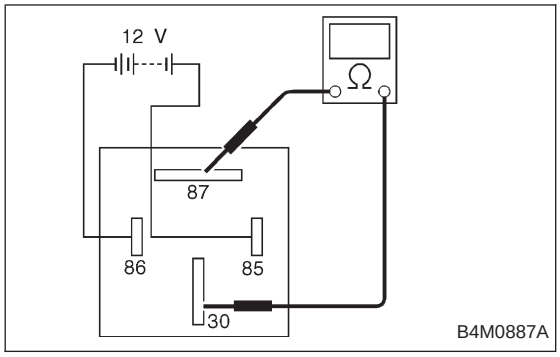
TROUBLE SYMPTOM:

- ABS does not operate.

10AF1.	**Check contact point of motor relay.**
10AF2.	**Check input voltage of relay box.**
10AF3.	**Check motor ground.**
10AF4.	**Check motor operation.**
10AF5.	**Check poor contact in connector between hydraulic unit, relay box and ABSCM.**
10AF6.	**Check ABSCM.**

WIRING DIAGRAM:



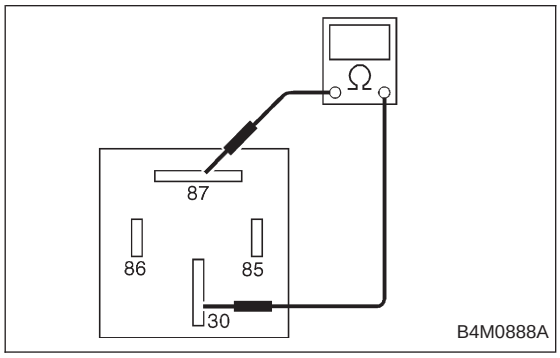


10AF1	CHECK CONTACT POINT OF MOTOR RELAY.

1) Turn ignition switch to OFF.
2) Remove motor relay from relay box.
3) Connect battery to motor relay terminals No. 85 and No. 86.
4) Measure resistance between motor relay terminals.

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

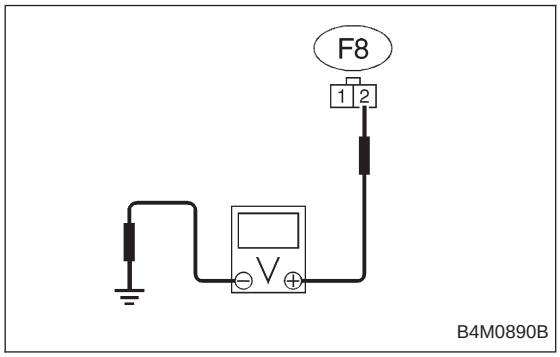
YES : Go to next step.
NO : Replace motor relay.



5) Disconnect battery from motor relay terminals.
6) Measure resistance between motor relay terminals.

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

YES : Go to step **10AF2.**
NO : Replace motor relay.

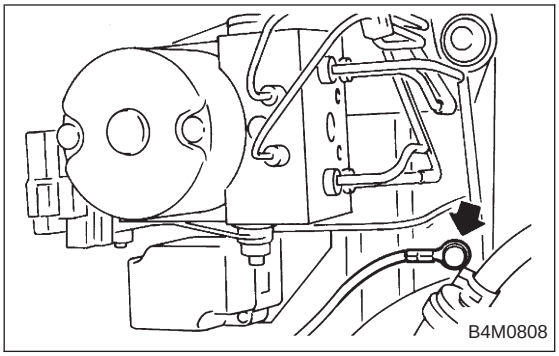


10AF2	CHECK INPUT VOLTAGE OF RELAY BOX.

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 **10AF3.**
NO : Repair harness connector between battery and relay box. Check fuse SBF6.

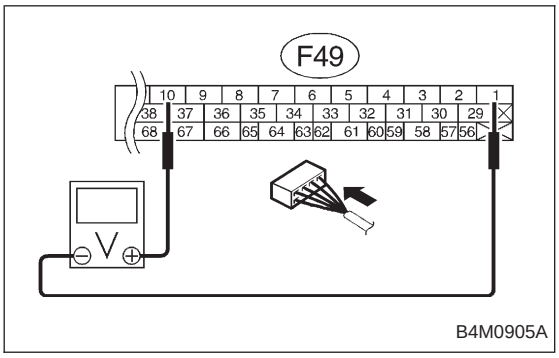


10AF3	CHECK MOTOR GROUND.

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 **10AF4.**

NO : Tighten the clamp of motor ground terminal.



10AF4	CHECK MOTOR OPERATION.

1) Disconnect connector (F49) from ABSCM.
2) Disconnect connector cover from ABSCM connector (F49). <Ref. to 4-4c [T8C1] steps 5) to 8).>
3) Connect connector (F49) to ABSCM.
4) Connect motor relay to relay box.
5) Connect all connectors.
6) Measure voltage between ABSCM connector terminal.
7) Operate the check sequence. <Ref. to 4-4 [W22D1].>

CHECK : ***Connector & terminals***
(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 **10AF5.**

NO : Replace hydraulic unit.

10AF5	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 **10AF6.**

10AF6	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.

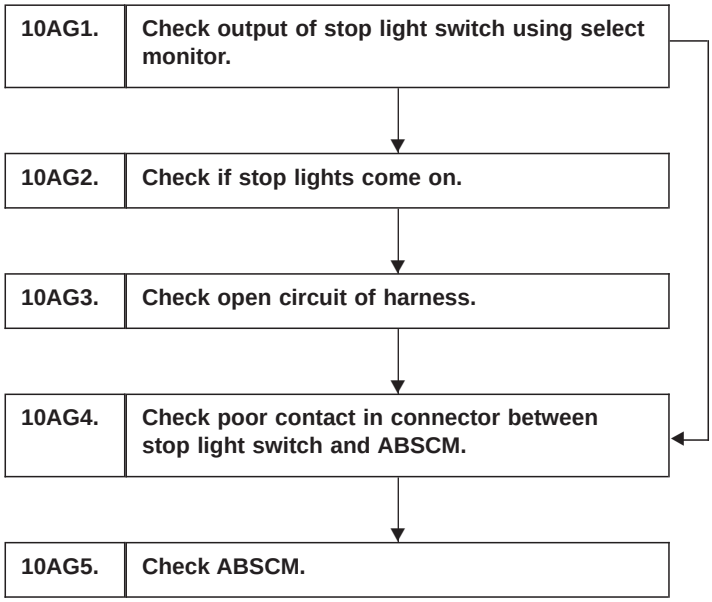
AG: 54 BLS
— ABNORMAL STOP LIGHT SWITCH —

DIAGNOSIS:

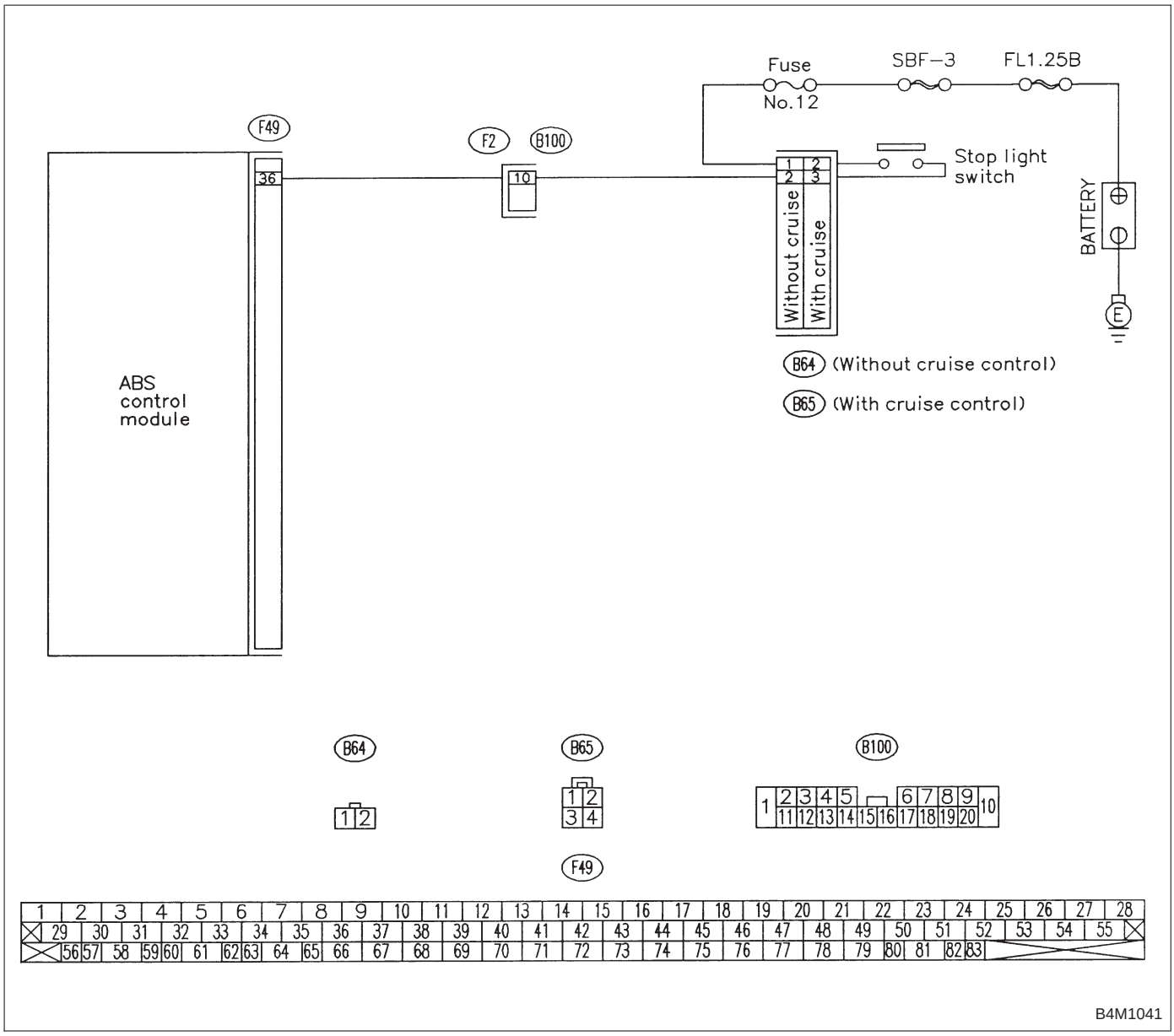
- Faulty stop light switch

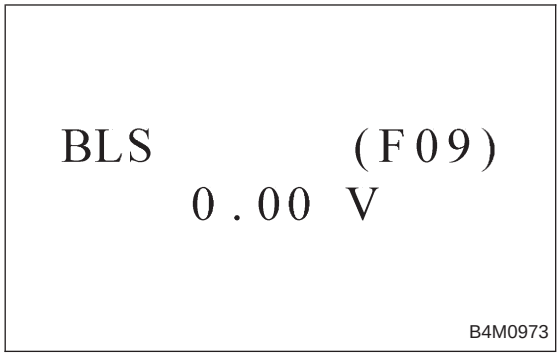
TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:





10AG1	CHECK OUTPUT OF STOP LIGHT SWITCH USING SELECT MONITOR.

1) Press F , 0 and 9 on the select monitor.
2) Depress the brake pedal.
3) Read the stop light switch output on the select monitor display.

CHECK ***: Is the reading indicated on monitor display less than 1.5 V?***

YES : Go to next step.

NO : Go to step **10AG1.**

4) Release the brake pedal.
5) Read the stop light switch output on the select monitor display.

CHECK ***: Is the reading indicated on monitor display greater than 4.5 V?***

YES : Go to step **10AG4.**

NO : Go to step **10AG2.**

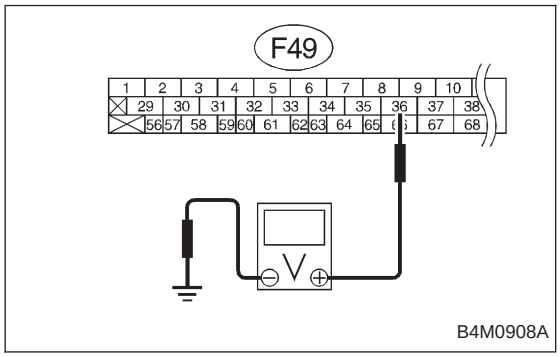
10AG2	CHECK IF STOP LIGHTS COME ON.

Depress the brake pedal.

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

YES : Go to step **10AG3.**

NO : Repair stop lights circuit.



10AG3	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 **10AG4.**

NO : Repair harness between stop light switch and ABSCM.

10AG4	**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 **10AG5.**

10AG5	**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?***

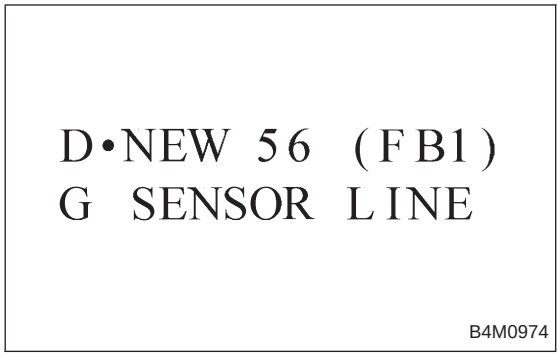
YES : Replace ABSCM.

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.



AH: 56 G SENSOR LINE — OPEN OR SHORT CIRCUIT OF G SENSOR —

DIAGNOSIS:

- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

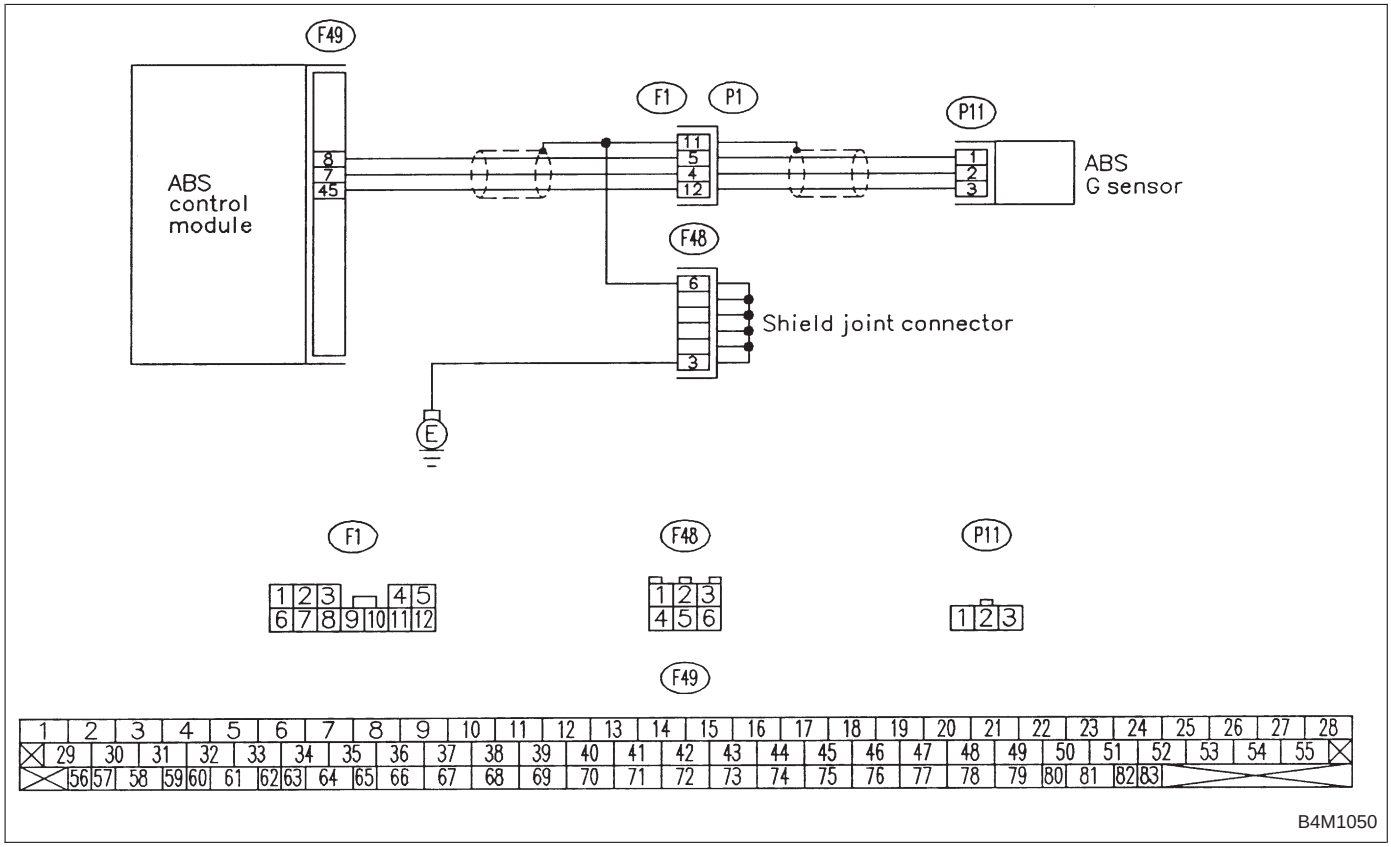
10AH1.	Check specifications of ABSCM using select monitor.
10AH2.	Check output of G sensor using select monitor.
10AH3.	Check poor contact in connector between ABSCM and G sensor.
10AH4.	Check ABSCM.
10AH5.	Check freeze frame data.
10AH6.	Check broken wire in G sensor output harness and ground harness.
10AH7.	Check poor contact in connector between ABSCM and G sensor.
10AH8.	Check ABSCM.
10AH9.	Check input voltage of G sensor.
10AH10.	Check broken wire in G sensor output harness and ground harness.

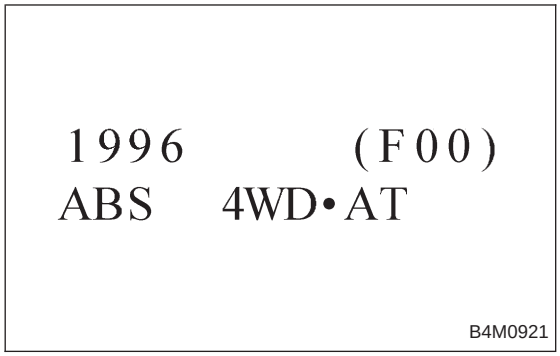
Continues to next page.

From the former page.

10AH11.	**Check ground short in G sensor output harness.**
10AH12.	**Check G sensor.**
10AH13.	**Check poor contact in connector between ABSCM and G sensor.**
10AH14.	**Check ABSCM.**

WIRING DIAGRAM:





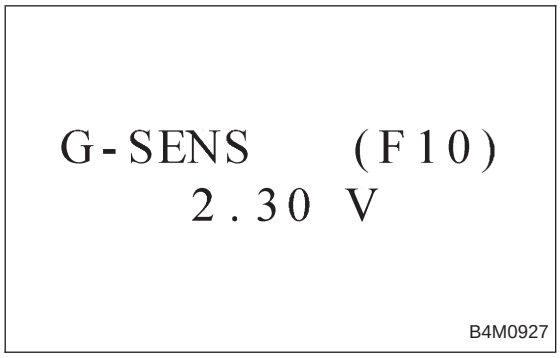
10AH1	CHECK SPECIFICATIONS OF ABSCM USING SELECT MONITOR.

1) Press F , 0 and 0 on the select monitor.
2) Read the select monitor display.

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

YES : Replace ABSCM.

NO : Go to step **10AH2.**



10AH2	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

1) Press F , 1 and 0 on the select monitor.
2) Read the select monitor display.

CHECK ***: Is the indicated reading 2.3±0.2 V when the G sensor is in horizontal position?***

YES : Go to step **10AH3.**

NO : Go to step **10AH5.**

10AH3	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 **10AH4.**

10AH4	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.

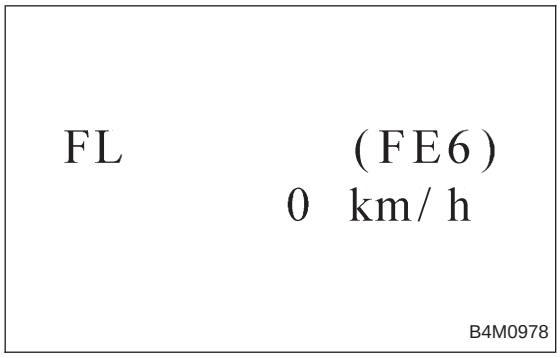
10AH5	CHECK FREEZE FRAME DATA.

1) Press F , E and 5 on the select monitor.

CHECK : ***Is the reading indicated on monitor display 0 km?***

YES : Go to next step.

NO : Go to step **10AH9.**



2) Press the scroll key so that FE6 appears on the monitor display.

CHECK : ***Is the reading indicated on monitor display 0 km?***

YES : Go to next step.

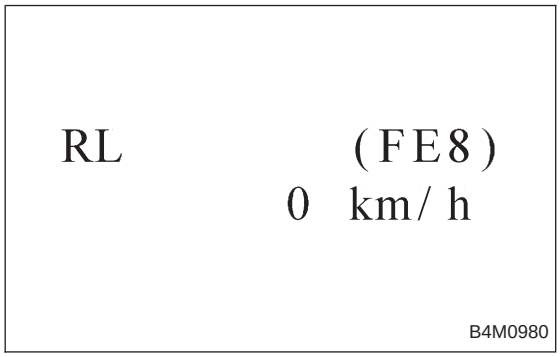
NO : Go to step **10AH9.**

3) Press the scroll key so that FE7 appears on the monitor display.

CHECK : ***Is the reading indicated on monitor display 0 km?***

YES : Go to next step.

NO : Go to step **10AH9.**

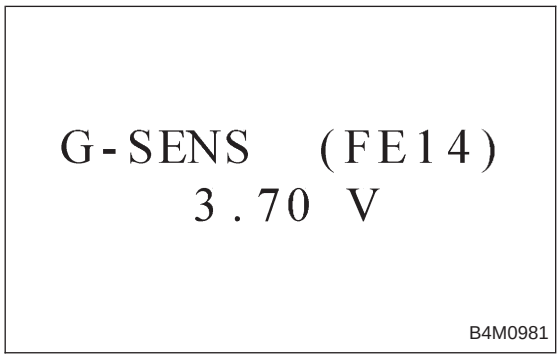


4) Press the scroll key so that FE8 appears on the monitor display.

CHECK : ***Is the reading indicated on monitor display 0 km?***

YES : Go to next step.

NO : Go to step **10AH9.**

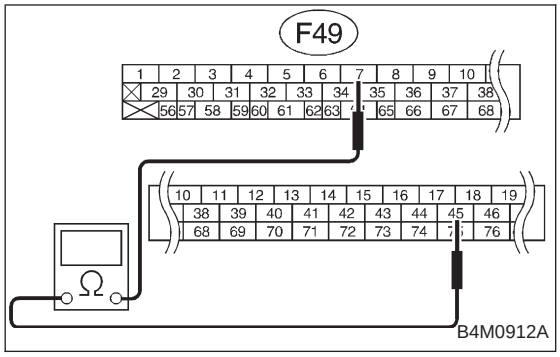


5) Press the scroll key so that FE14 appears on the monitor display.

CHECK : ***Is the reading indicated on monitor display greater than 3.65 V?***

YES : Go to step **10AH6.**

NO : Go to step **10AH9.**



10AH6	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 (P49) No. 7 — No. 45 Is resistance 4.6±0.3 kΩ?***

YES : Go to step **10AH7.**

NO : Repair harness between G sensor and ABSCM.

10AH7	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 **10AH8.**

10AH8	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?***

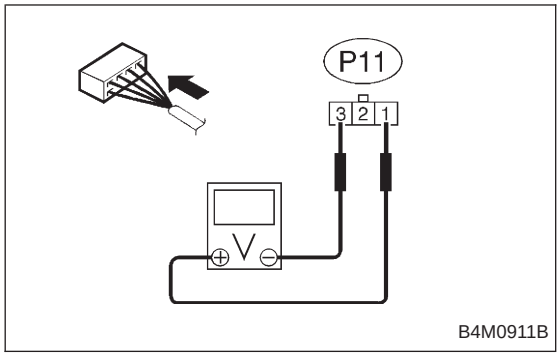
YES : Replace ABSCM.

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.



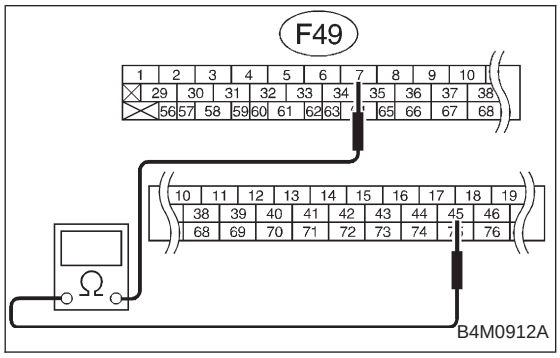
10AH9	CHECK INPUT VOLTAGE OF G SENSOR.

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 **10AH10.**

NO : Repair harness connector between G sensor and ABSCM.



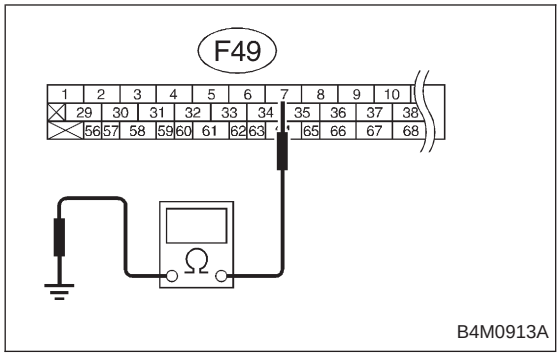
10AH10	CHECK BROKEN WIRE IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

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

CHECK ***: Connector & terminal***
(P49) No. 7 — No. 45
Is resistance 4.6±0.3 kΩ?

YES : Go to step **10AH11.**

NO : Repair harness between G sensor and ABSCM.



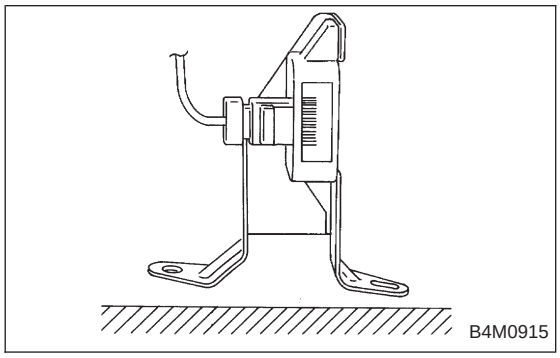
10AH11	CHECK GROUND SHORT IN G SENSOR OUTPUT HARNESS.

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 **10AH12.**

NO : Repair harness between G sensor and ABSCM.



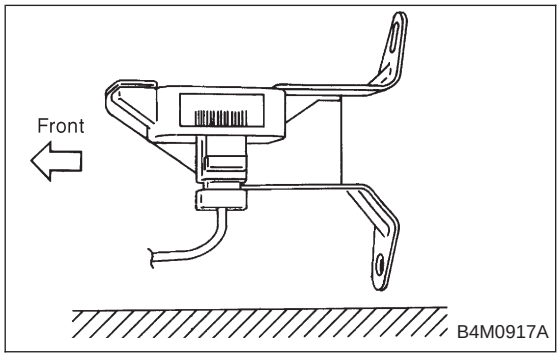
10AH12	CHECK G SENSOR.

1) Connect connector to G sensor.
2) Connect connector to ABSCM.
3) Turn ignition switch to ON.
4) 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 .

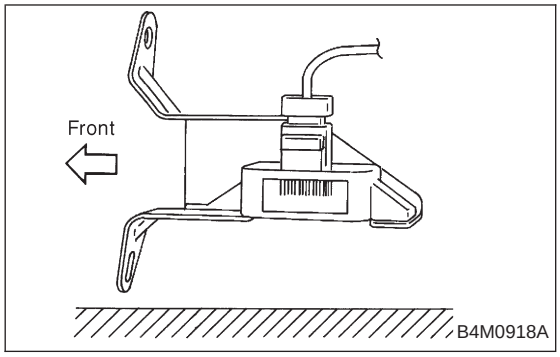
NO : Replace G sensor.



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 **10AH13.**

NO : Replace G sensor.

10AH13	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 **10AH14.**

10AH14	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?***

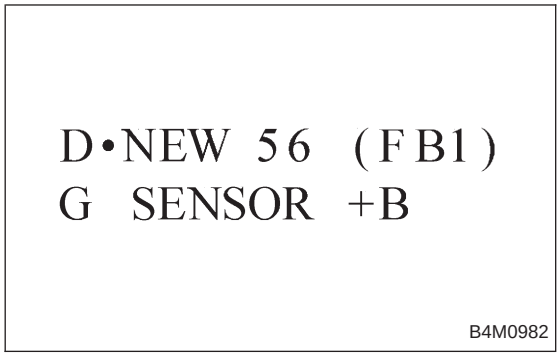
YES : Replace ABSCM.

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.



AI: 56 G SENSOR +B — BATTERY SHORT OF G SENSOR —

DIAGNOSIS:

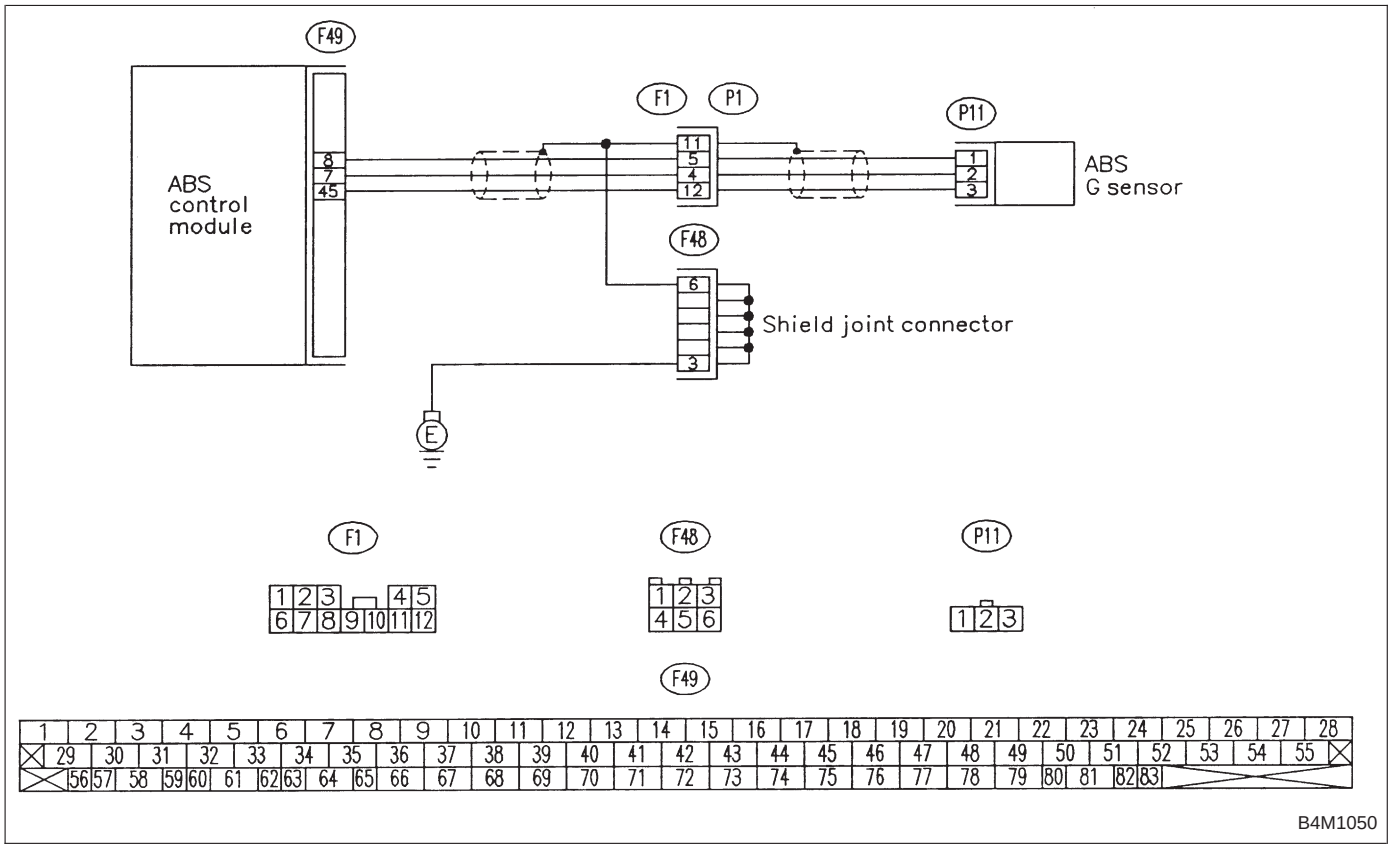
- Faulty G sensor output voltage

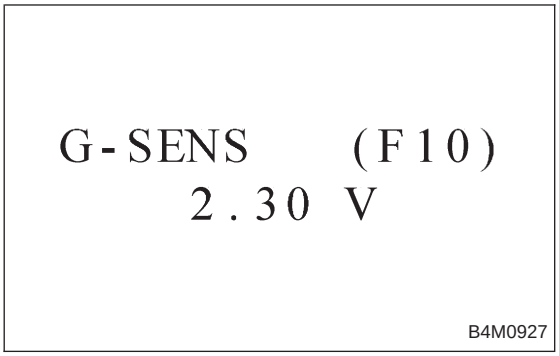
TROUBLE SYMPTOM:

- ABS does not operate.

10AI1.	**Check output of G sensor using select monitor.**
↓	
10AI2.	**Check battery short of harness.**
↓	
10AI3.	**Check ABSCM.**

WIRING DIAGRAM:





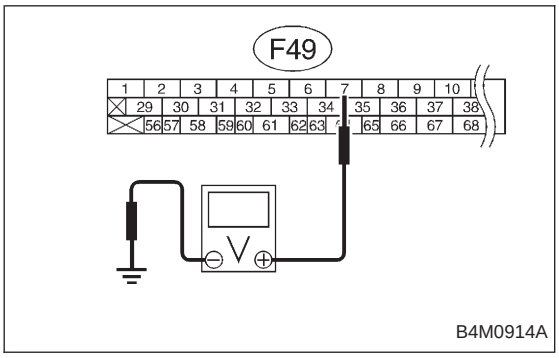
10AI1	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

1) Press F , 1 and 0 on the select monitor.
2) Read the select monitor display.

CHECK : ***Is the indicated reading 2.3±0.2 V when the G sensor is in horizontal position?***

YES : Replace ABSCM.

NO : Go to step **10AI2.**



10AI2	CHECK BATTERY SHORT OF HARNESS.

1) Turn ignition switch to OFF.
2) Remove console box.
3) Disconnect connector from G sensor.
4) Disconnect connector from ABSCM.
5) Turn ignition switch to ON.
6) 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.

7) Turn ignition switch to OFF.
8) Measure voltage between ABSCM connector and chassis ground.

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

YES : Go to step **10AI3.**

NO : Repair harness between G sensor and ABSCM.

10AI3	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.

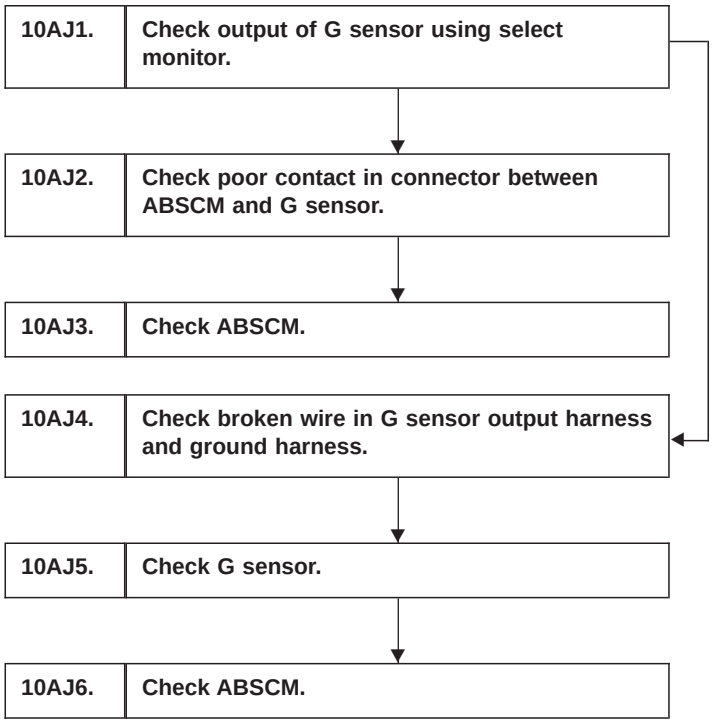
AJ: 56 G SENSOR Hμ — ABNORMAL G SENSOR HIGH μ OUTPUT —

DIAGNOSIS:

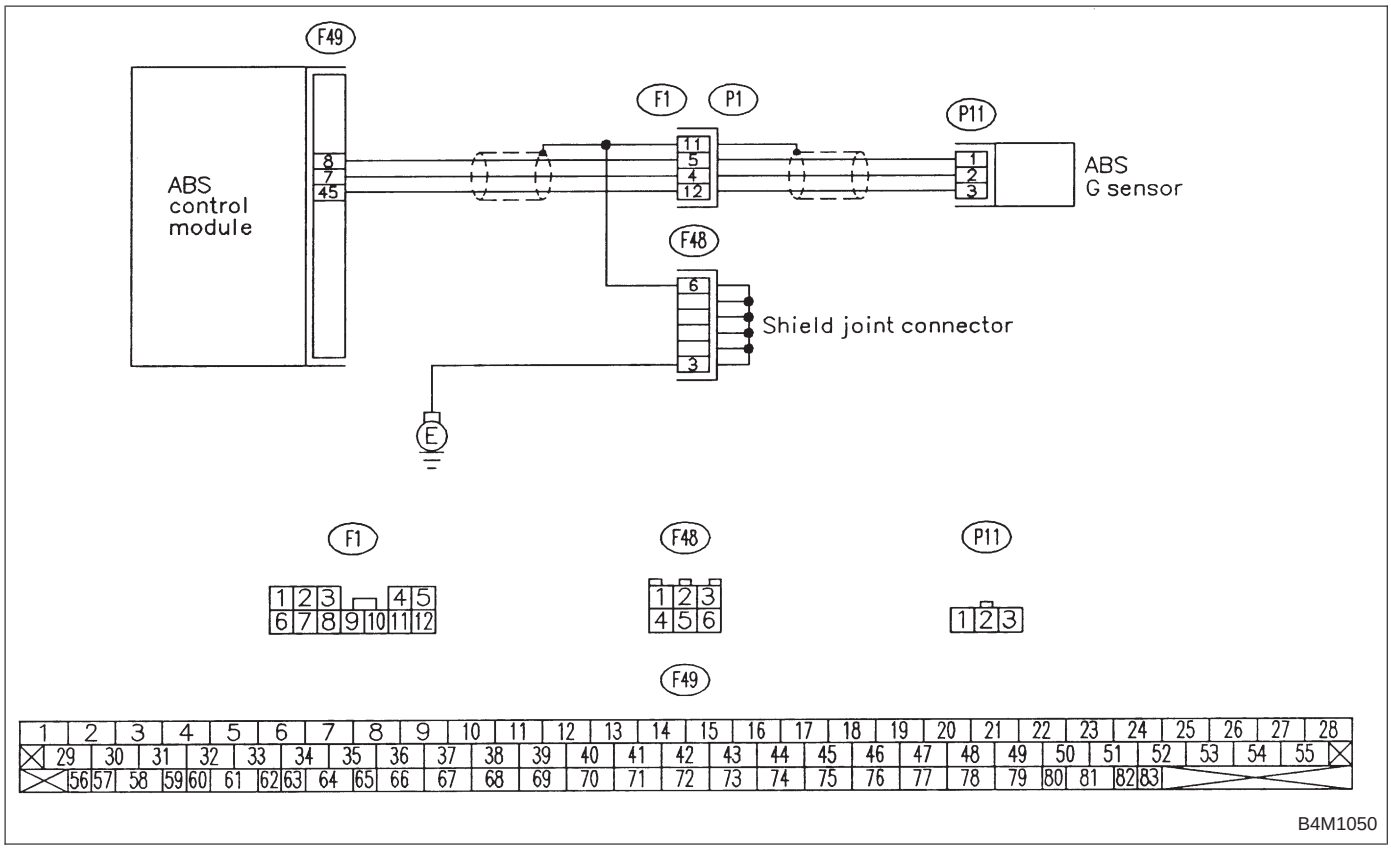
- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:



G-SENS (F10)
2.30 V

B4M0927

10AJ1	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

1) Press [F], [1] and [0] on the select monitor.
2) Read the select monitor display.

CHECK : ***Is the indicated reading 2.3±0.2 V when the G sensor is in horizontal position?***

YES : Go to step **10AJ2.**

NO : Go to step **10AJ5.**

10AJ2	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 **10AJ3.**

10AJ3	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?***

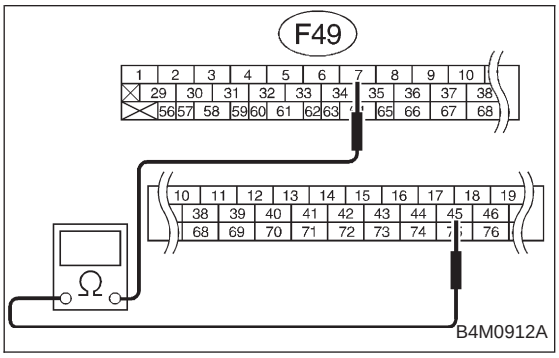
YES : Replace ABSCM.

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.



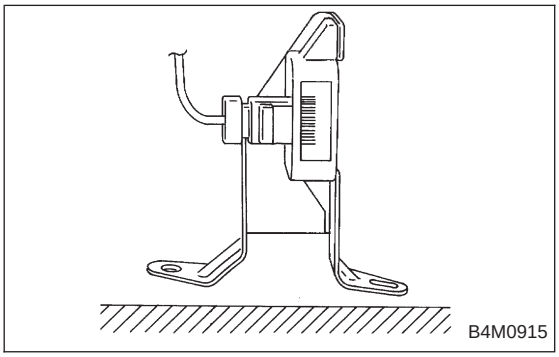
10AJ4	CHECK BROKEN WIRE IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

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 **10AJ5.**

NO : Repair harness between G sensor and ABSCM.



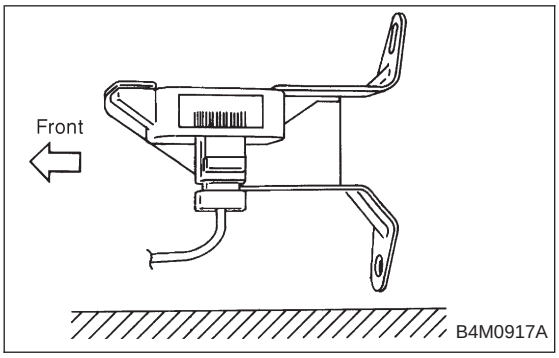
10AJ5	CHECK G SENSOR.

1) Remove console box.
2) Remove G sensor from vehicle.
3) Connect connector to G sensor.
4) Connect connector to ABSCM.
5) Turn ignition switch to ON.
6) 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 .

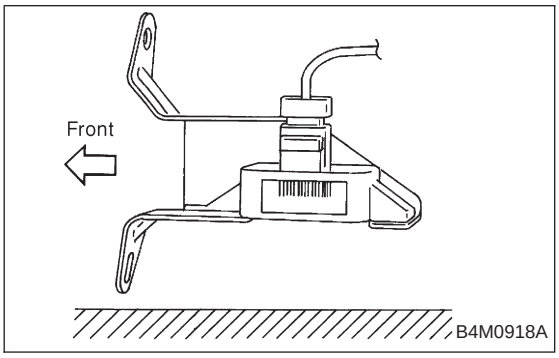
NO : Replace G sensor.



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 **10AJ6.**

NO : Replace G sensor.

10AJ6	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?***

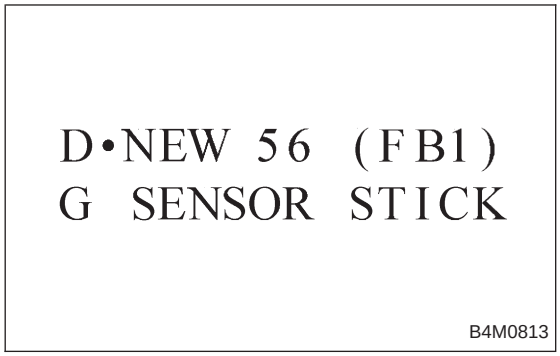
YES : Replace ABSCM.

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.



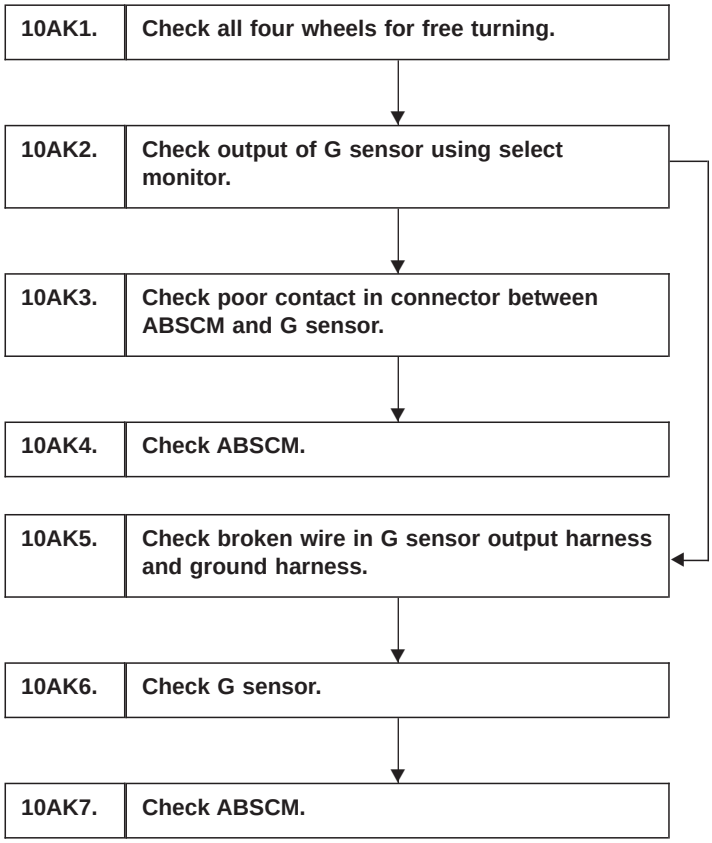
AK: 56 G SENSOR STICK — G SENSOR OUTPUT IS STUCK. —

DIAGNOSIS:

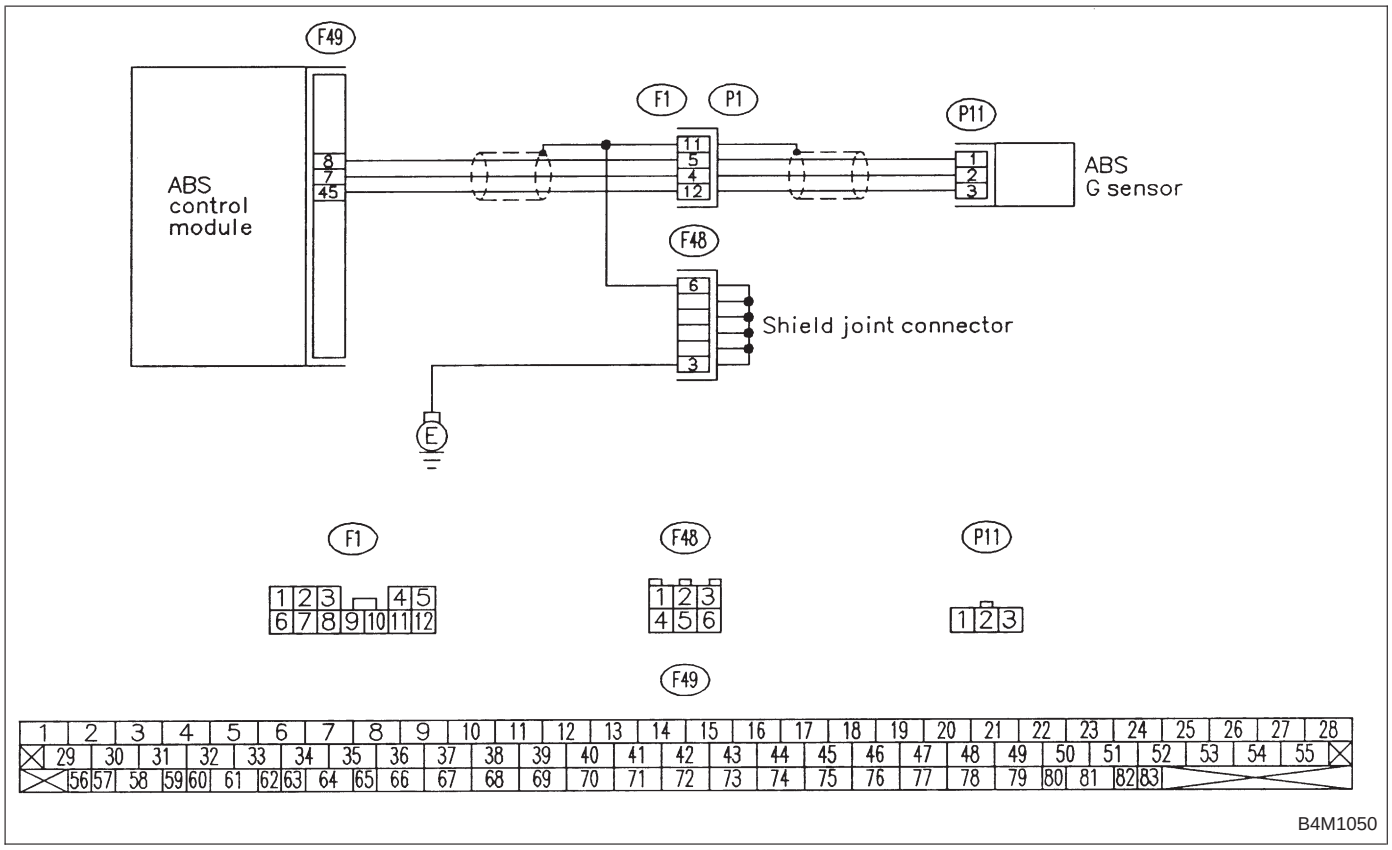
- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.



WIRING DIAGRAM:

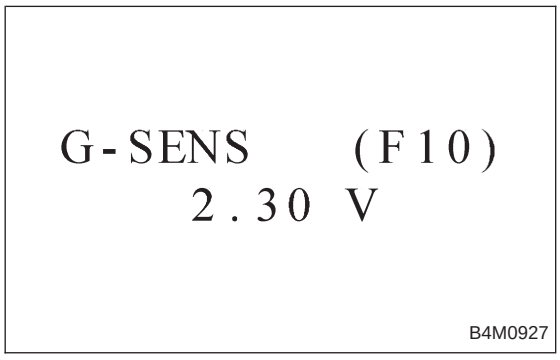


10AK1	CHECK ALL FOUR WHEELS FOR FREE TURNING.

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 **10AK2.**



10AK2	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

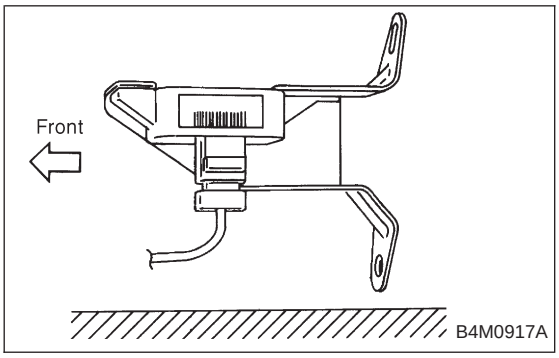
1) Press F , 1 and 0 on the select monitor.
2) Read the select monitor display.

CHECK : ***Is the indicated reading 2.3±0.2 V when the vehicle is in horizontal position?***

YES : Go to next step.

NO : Go to step **10AK5.**

3) Remove console box.
4) Remove G sensor from vehicle. (Do not disconnect connector.)

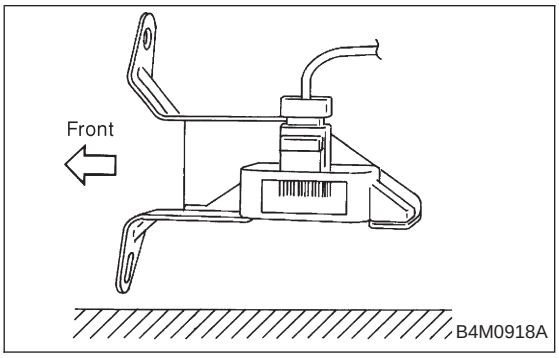


5) Read the select monitor display.

CHECK ***: Is the indicated reading 3.9±0.2 V when G sensor is inclined forwards to 90°?***

YES : Go to next CHECK .

NO : Replace G sensor.



CHECK ***: Is the indicated reading 0.7±0.2 V when G sensor is inclined backwards to 90°?***

YES : Go to step **10AK3.**

NO : Replace G sensor.

10AK3	**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 **10AK4.**

10AK4	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?***

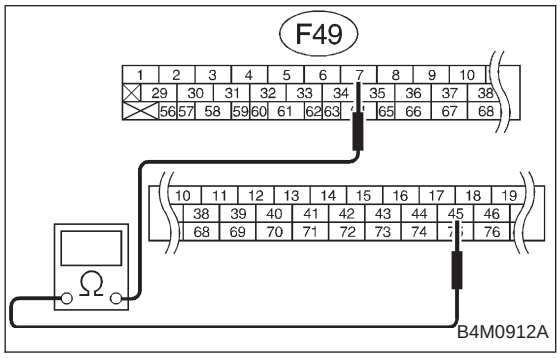
YES : Replace ABSCM.

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.



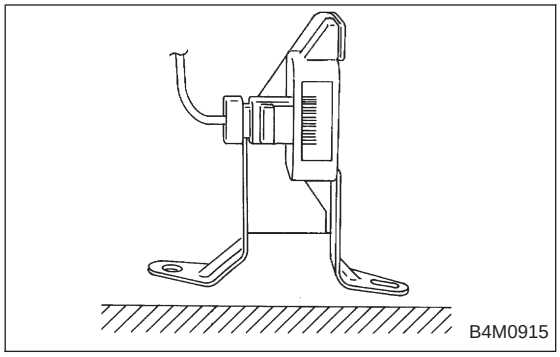
10AK5	CHECK BROKEN WIRE IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

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 **10AK6.**

NO : Repair harness between G sensor and ABSCM.



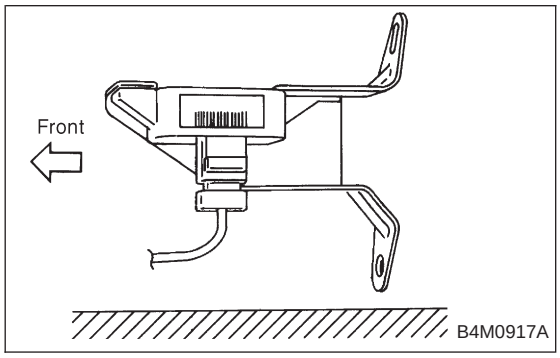
10AK6	CHECK G SENSOR.

1) Remove console box.
2) Remove G sensor from vehicle.
3) Connect connector to G sensor.
4) Connect connector to ABSCM.
5) Turn ignition switch to ON.
6) 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 .

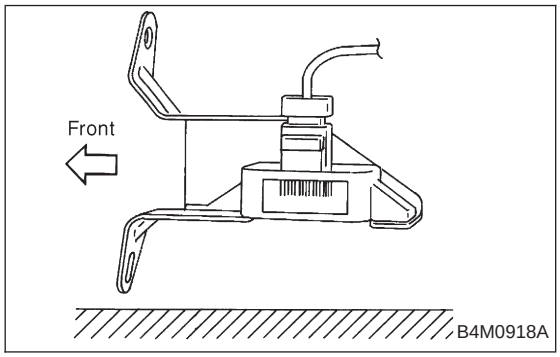
NO : Replace G sensor.



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 **10AK7.**

NO : Replace G sensor.

10AK7	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.