BRAKES 4-4

1. Supplemental Restraint System “Airbag”

Airbag system wiring harness is routed near the ABS control module, ABS sensor and hydraulic control unit.

CAUTION:
● All Airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuit.
● Be careful not to damage Airbag system wiring harness when servicing the ABS control module, ABS sensor and hydraulic control unit.

2. Pre-inspection

Before performing diagnostics, check the following items which might affect ABS problems:

A: MECHANICAL INSPECTION

1. POWER SUPPLY

1) Measure battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V, or more
Specific gravity: Above 1.260

2) Check the condition of the main and other fuses, and harnesses and connectors. Also check for proper grounding.

2. BRAKE FLUID

1) Check brake fluid level.
2) Check brake fluid leakage.

3. BRAKE DRAG

Check brake drag. <Ref. to 4-4 [K100].>

4. BRAKE PAD AND ROTOR

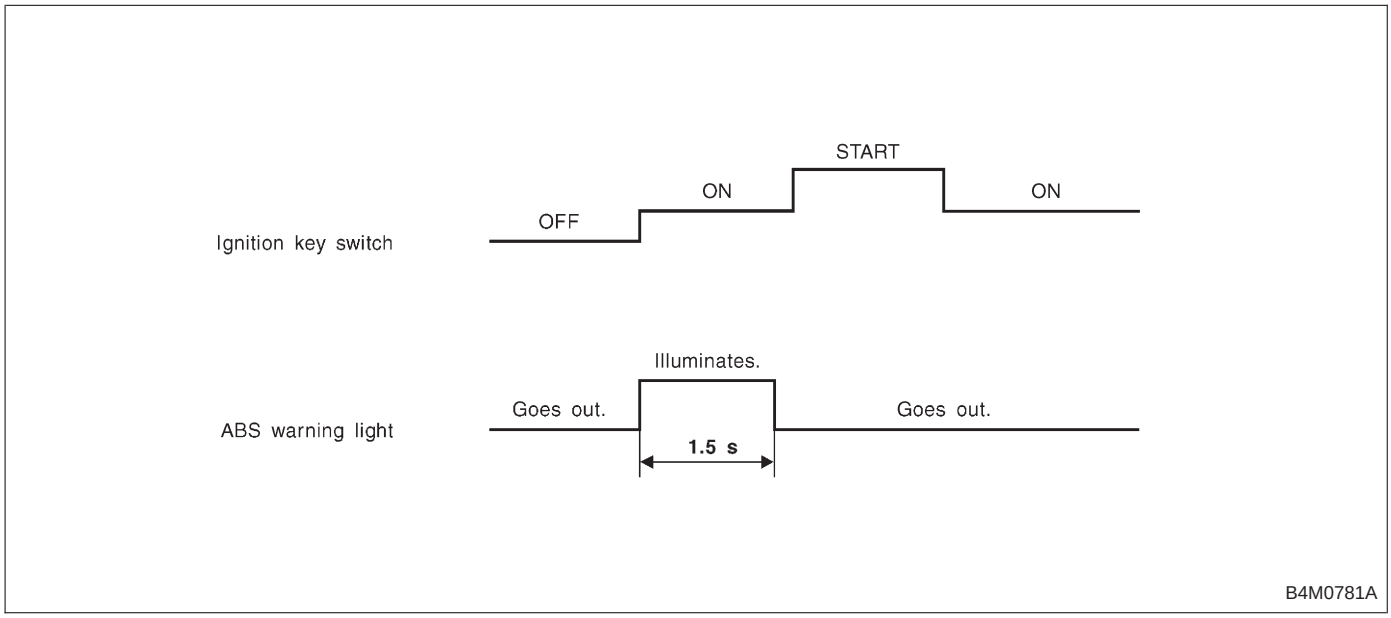
Check brake pad and rotor. <Ref. to 4-4 [K100].>

5. TIRE SPECIFICATIONS, TIRE WEAR AND AIR PRESSURE

Check tire specifications, tire wear and air pressure. <Ref. to 4-2 [S1A0], [S1B0].>

B: ELECTRICAL INSPECTION

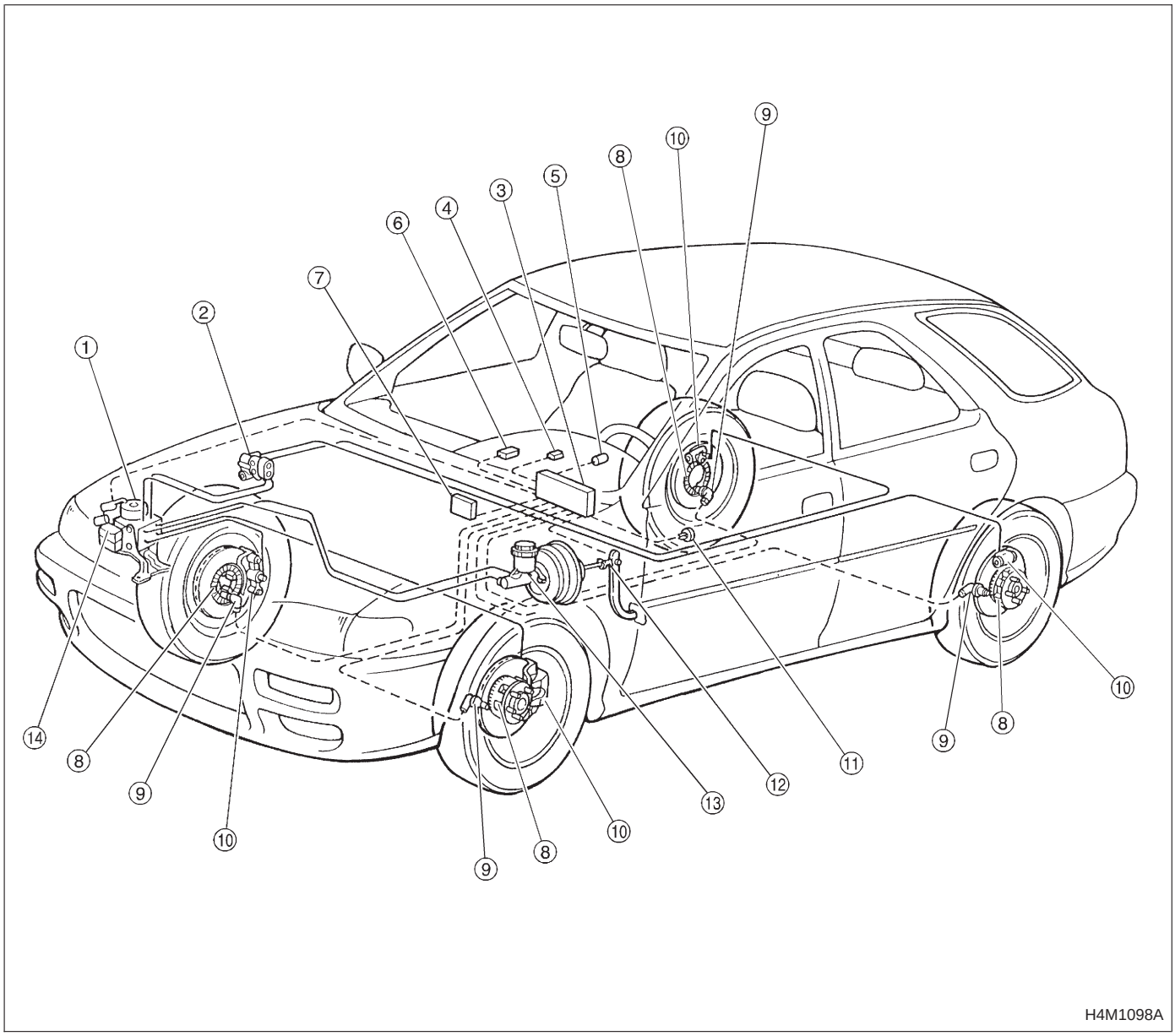
1. WARNING LIGHT ILLUMINATION PATTERN



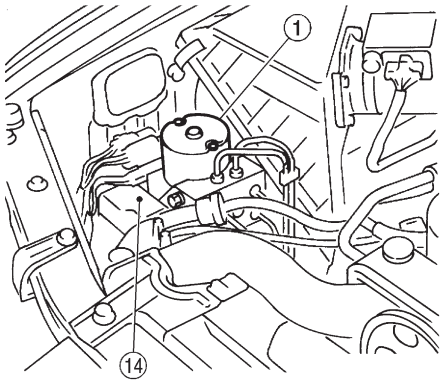
1) When the ABS warning light does not illuminate in accordance with this illumination pattern, there must be an electrical malfunction.
2) When the ABS warning light remains constantly OFF, repair the ABS warning light circuit or diagnosis circuit. <Ref. to 4-4 [T7A0].>

NOTE:
Even though the ABS warning light does not go out 1.5 seconds after it illuminates, the ABS system operates normally when the warning light goes out while driving at approximately 12 km/h (7 MPH). However, the Anti-lock brakes do not work while the ABS warning light is illuminated.

3. Electrical Components Location



① Hydraulic control unit (H/U)
② Proportioning valve
③ ABS control module (ABSCM)
④ ABS diagnosis connector
⑤ ABS warning light
⑥ Data link connector (for Subaru select monitor)
⑦ Transmission control module (only AT vehicle)
⑧ Tone wheel
⑨ ABS sensor
⑩ Wheel cylinder
⑪ G sensor (only AWD vehicle)
⑫ Brake switch
⑬ Master cylinder
⑭ Relay box



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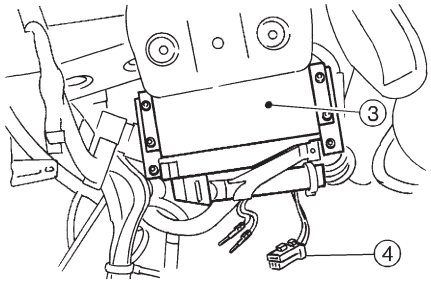
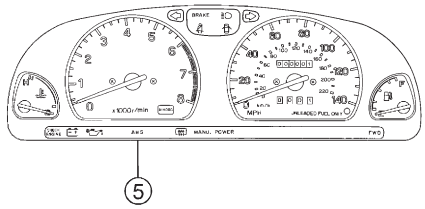
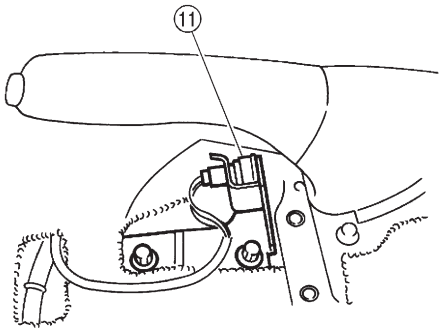


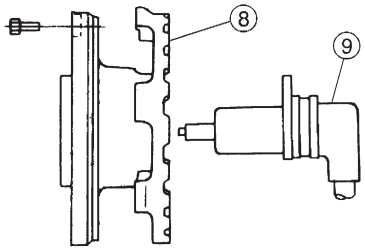
H4M1099A



H4M1100A



H4M1152A



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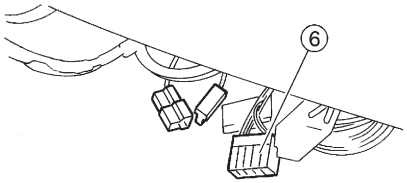

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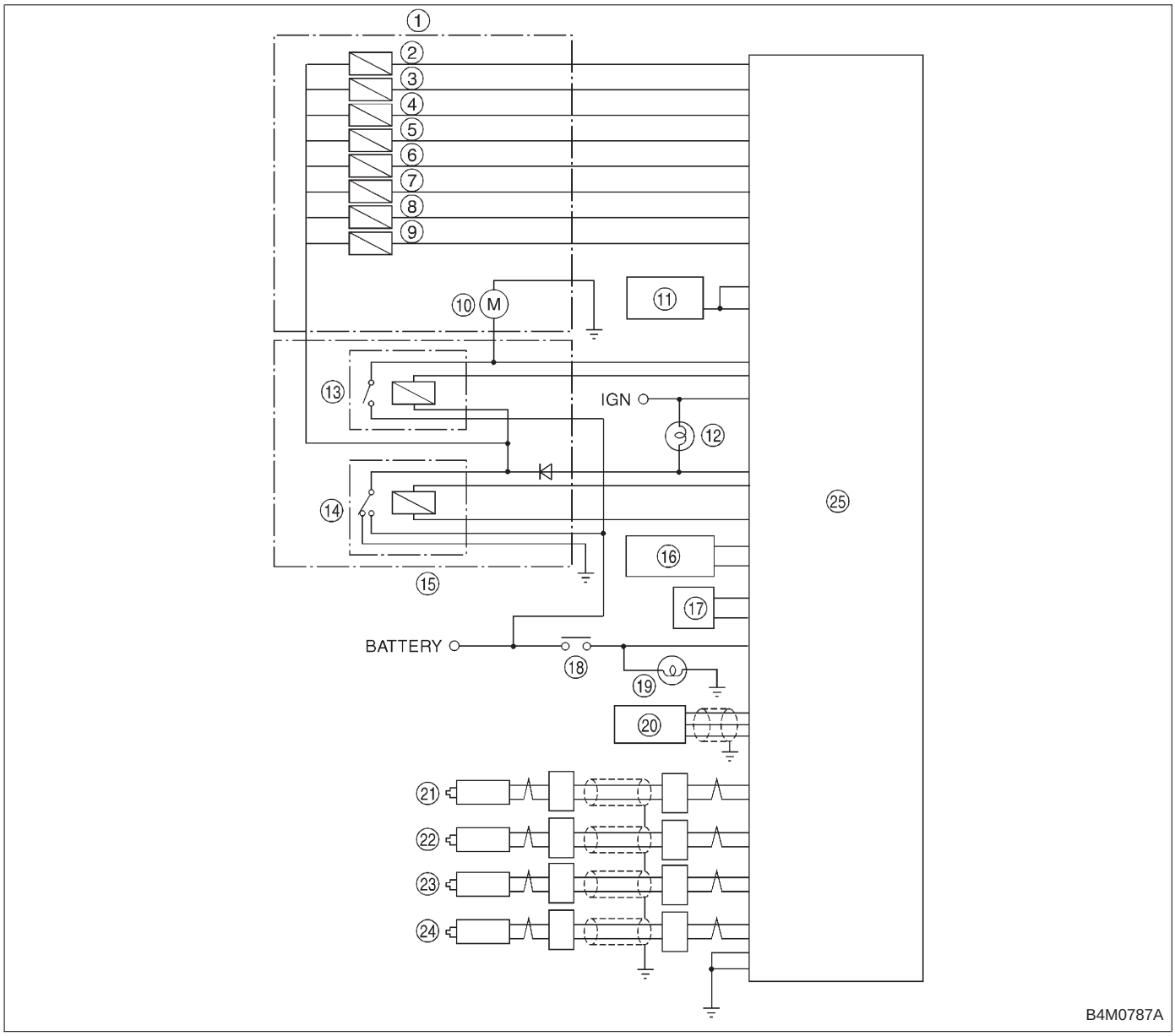
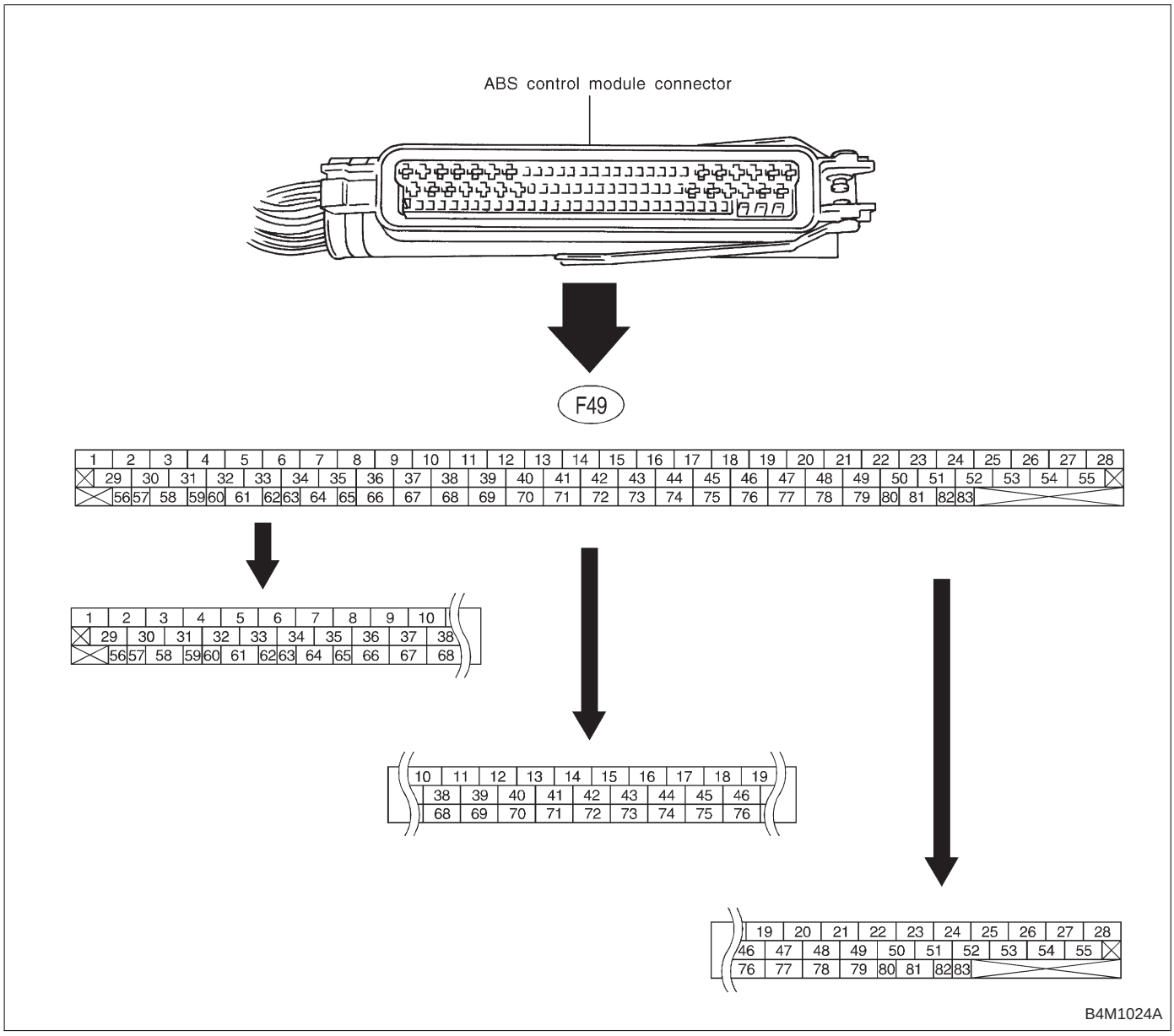
4. Schematic



① Hydraulic control unit (H/U)
② Front left inlet solenoid valve
③ Front left outlet solenoid valve
④ Front right inlet solenoid valve
⑤ Front right outlet solenoid valve
⑥ Rear left inlet solenoid valve
⑦ Rear left outlet solenoid valve
⑧ Rear right inlet solenoid valve
⑨ Rear right outlet solenoid valve
⑩ Motor
⑪ Transmission control module (only AT model)
⑫ ABS warning light
⑬ Motor relay
⑭ Valve relay
⑮ Relay box
⑯ Data link connector
⑰ ABS diagnosis connector
⑱ Stop light switch
⑲ Stop light
⑳ G sensor (only AWD model)
㉑ Front left ABS sensor
㉒ Front right ABS sensor
㉓ Rear left ABS sensor
㉔ Rear right ABS sensor
㉕ ABS control module (ABSCM)

5. Control Module I/O Signal

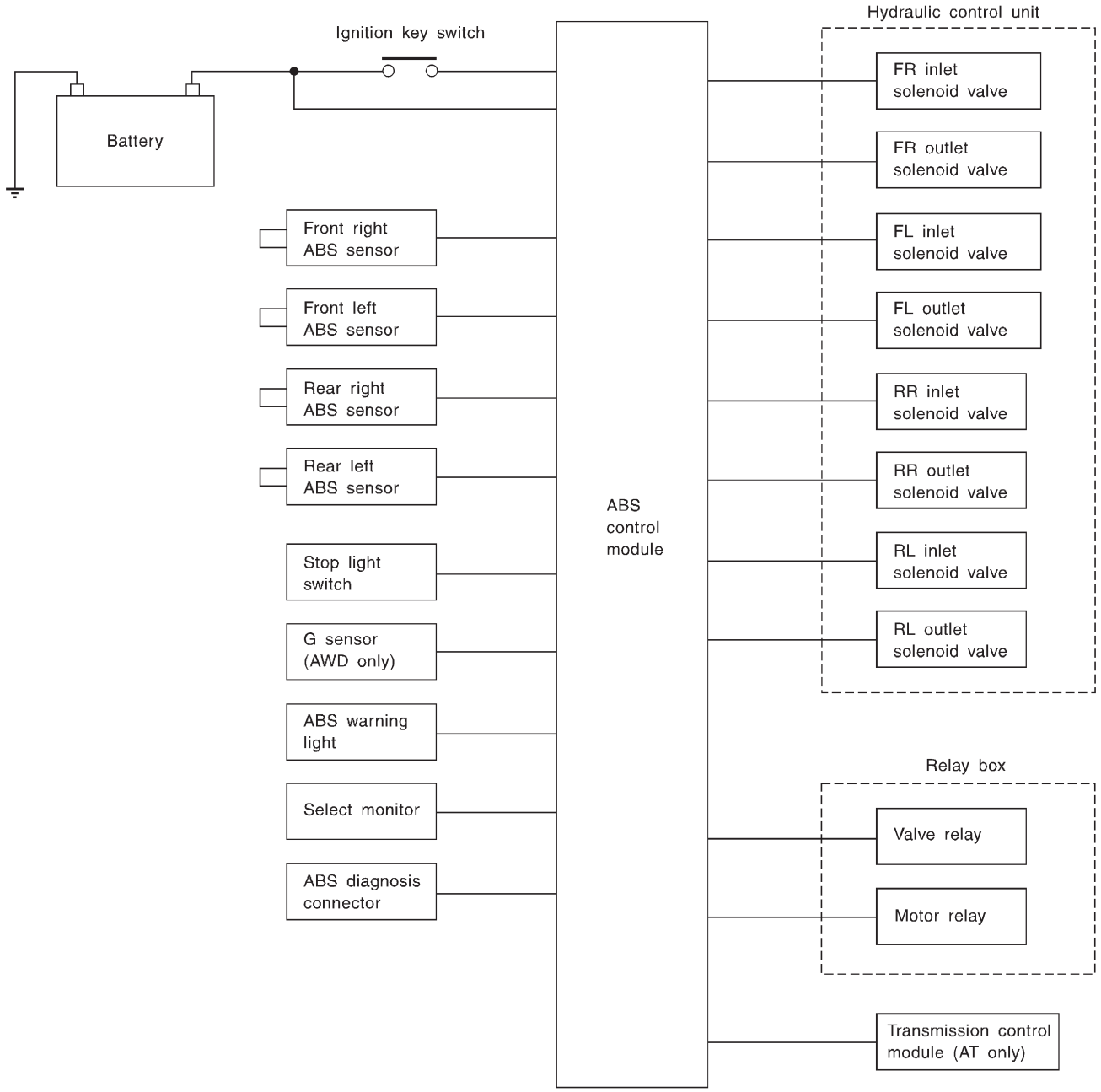
1. I/O SIGNAL VOLTAGE



NOTE:
The terminal numbers in the ABS control module connector are as shown in the figure.

Contents			Terminal No.	Input/Output signal Measured value and measuring conditions
ABS sensor (Wheel speed sensor)	Front left wheel		49—19	0.12 — 1 V (When it is 20 Hz.)
	Front right wheel		14—15	
	Rear left wheel		16—17	
	Rear right wheel		18—46	
Hydraulic control unit	Solenoid valve	Front left outlet	51—1	10 — 13 V when the valve is OFF and less than 1.5 V when the valve is ON.
		Front right outlet	3—1	
		Rear left outlet	4—1	
		Rear right outlet	50—1	
		Front left inlet	24—1	
		Front right inlet	30—1	
		Rear left inlet	31—1	
		Rear right inlet	23—1	
Relay box	Valve relay power supply		27—1	10 — 13 V when ignition switch is ON.
	Valve relay coil		47—1	Less than 1.5 V when ignition switch is ON.
	Motor relay coil		22—1	More than 10 V when the ABS control does not operate still and less than 1.5 V when ABS operates.
	Motor monitoring		10—1	Less than 1.5 V when the ABS control does not operate still and more than 10 V when ABS operates.
G sensor (AWD model only)	power supply		8—45	4.75 — 5.25 V
	ground		45	—
	output		7—45	2.3±0.2 V when vehicle is in horizontal position.
Stop light switch			36—1	Less than 1.5 V when the stop light is OFF and more than 4.5 V when the stop light is ON.
ABS warning light			54—1	Less than 1.5 V during 1.5 seconds when ignition switch is ON, and 10 — 14 V after 1.5 seconds.
AT ABS signal (AT model only)			12—1	Less than 1.5 V when the ABS control does not operate still and more than 5.5 V when ABS operates.
ABS operation signal monitor			39—1	Less than 1.5 V when the ABS control does not operate still and more than 5.5 V when ABS operates.
Select monitor	Data is received.		11—1	Less than 1.5 V when no data is received.
	Data is sent.		38—1	4.75 — 5.25 V when no data is sent.
ABS diagnosis connector	Terminal No. 1		5—1	10 — 14 V when ignition switch is ON.
	Terminal No. 2		13—1	10 — 14 V when ignition switch is ON.
Power supply			28—1	10 — 14 V when ignition switch is ON.
Grounding line			1	—
Grounding line			55	—

2. I/O SIGNAL DIAGRAM



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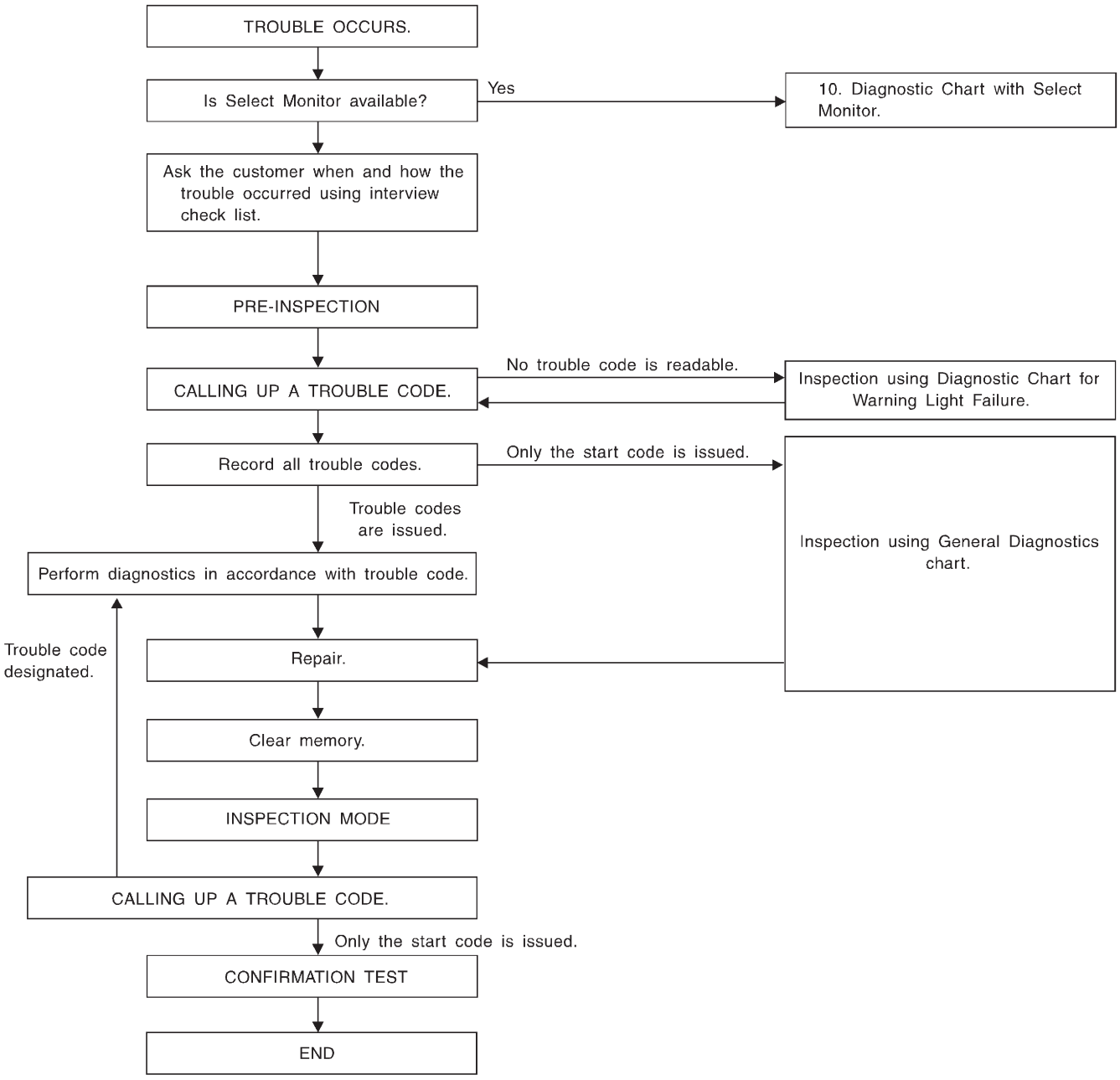
6. Diagnostics Chart for On-board Diagnosis System

A: BASIC DIAGNOSTICS PROCEDURE



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NOTE:
- To check harness for broken wires or short circuits, shake it while holding it or the connector.
- When ABS warning light illuminates, read and record trouble code indicated by ABS warning light.

B: CHECK LIST FOR INTERVIEW

Check the following items about the vehicle's state.

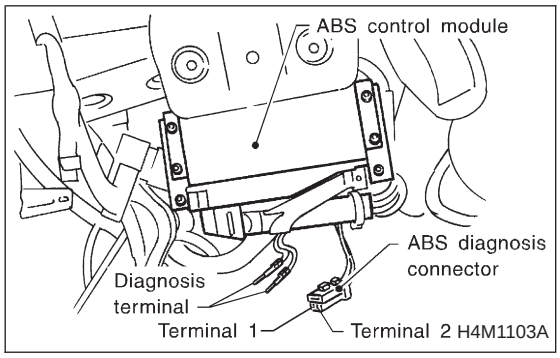
1. THE STATE OF THE ABS WARNING LIGHT			
ABS warning light comes on.	☐ Always ☐ Sometimes ☐ Only once ☐ Does not come on ● When /how long does it come on?:		
Ignition key position	☐ LOCK ☐ ACC ☐ ON (before starting engine) ☐ START ☐ On after starting (Engine is running) ☐ On after starting (Engine is stop)		
Timing	☐ Immediately after ignition is ON. ☐ Immediately after ignition starts.		
	☐ When advancing	km/h to	km/h
		MPH to	MPH
	☐ While traveling at a constant speed	km/h	MPH
	☐ When decelerating	km/h to	km/h
		MPH to	MPH
	☐When turning to right	Steering angle :	deg
		Steering time :	sec
	☐ When turning to left	Steering angle :	deg
		Steering time :	sec
	☐ When moving other electrical parts		
	● Parts name : ● Operating condition :		
2. SYMPTOMS			
ABS operating condition	☐ Performs no work.		
	☐ Operates only when abruptly applying brakes.	Vehicle speed :	km/h
			MPH
	● How to step on brake pedal :		
	a) Operating time :		sec
	b) Operating noise : ☐ Produce / ☐ Does not produce		
	● What kind of noise?	☐ Knock ☐ Gong gong ☐ Bong ☐ Buzz ☐ Gong gong buzz ☐ Others :	
	c) Reaction force of brake pedal		
		☐ Stick ☐ Press down once with a clunk ☐ Press and released ☐ Others :	

Behavior of vehicle	a) Directional stability cannot be obtained or steering arm refuses to work when applying brakes : ☐ Yes / ☐No	
	● When :	☐ Vehicle turns to right ☐ Vehicle turns to left ☐ Spins ☐ Others :
	b) Directional stability cannot be obtained or steering arm refuses to work when accelerating : ☐ Yes / ☐No	
	● When :	☐ Vehicle turns to right ☐ Vehicle turns to left ☐ Spins ☐ Others :
	c) Brakes are out of order : ☐ Yes / ☐No	
	● What :	☐ Braking distance is long ☐ Brakes lock or drag ☐ Pedal stroke is long ☐ Pedal sticks ☐ Others :
	d) Poor acceleration : ☐ Yes / ☐No	
	● What :	☐ Fails to accelerate ☐ Engine stalls ☐ Others :
	e) Occurrence of vibration : ☐ Yes / ☐No	
	● Where ● What kind :	
	f) Occurrence of abnormal noise : ☐ Yes / ☐No	
	● Where ● What kind :	
	g) Occurrence of other phenomena : ☐ Yes / ☐No	
	● What kind :	
3. CONDITIONS UNDER WHICH TROUBLE OCCURS		
Environment	a) Weather	☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Various/Others :
	b) Ambient temperature	F(°C)
	c) Road	☐ Urban area ☐ Suburbs ☐ Highway ☐ General road ☐ Ascending slope ☐ Descending slope ☐ Paved road ☐ Gravel road ☐ Muddy road ☐ Sandy place ☐ Others :
	d) Road surface	☐ Dry ☐ Wet ☐ New-fallen snow ☐ Compressed snow ☐ Frozen slope ☐ Others :

Condition	a) Brakes	Deceleration :	g
		☐ Continuous / ☐Intermittent	
	b) Accelerator	Acceleration :	g
		☐ Continuous / ☐ Intermittent	
	c) Vehicle speed	km/h	MPH
		☐ Advancing ☐ Accelerating ☐ Reducing speed ☐ Low speed ☐ Turning ☐ Others :	
	d) Tire inflation pressure	Front RH tire :	kPa
		Front LH tire :	kPa
		Rear RH tire :	kPa
		Rear LH tire :	kPa
	e) Degree of wear	Front RH tire :	
		Front LH tire :	
		Rear RH tire :	
		Rear LH tire :	
	f) Genuine parts are used. : ☐Yes / ☐No		
	g) Chain is passed around tires. : ☐Yes / ☐No		
	h) T tire is used. : ☐Yes / ☐No		
	i) Condition of suspension alignment :		
	j) Loading state :		
	k) Repair parts are used. : ☐Yes / ☐No		
	● What :		
	l) Others :		

C: INSPECTION MODE

Reproduce the condition under which the problem has occurred as much as possible.
Drive the vehicle at a speed more than 40 km/h (25 MPH) for at least one minute.



D: TROUBLE CODES

When on-board diagnosis of the ABS control module detects a problem, the information (up to a maximum of three) will be stored in the EEP ROM as a trouble code. When there are more than three, the most recent three will be stored. (Stored codes will stay in memory until they are cleared.)

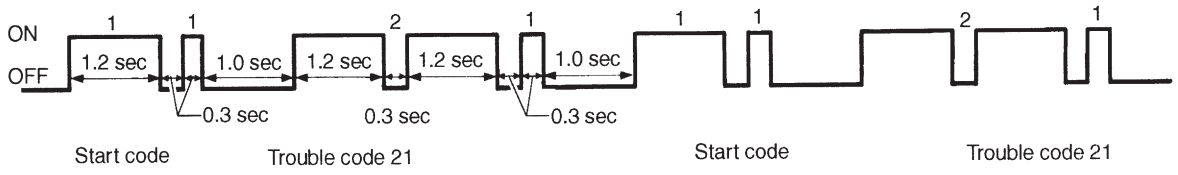
1. CALLING UP A TROUBLE CODE

1) Take out ABS diagnosis connector from side of driver's seat heater unit.
2) Turn ignition switch OFF.
3) Connect ABS diagnosis connector terminal 2 to diagnosis terminal.
4) Turn ignition switch ON.
5) ABS warning light is set in the diagnostic mode and blinks to identify trouble code.
6) After the start code (11) is shown, the trouble codes will be shown in order of the last information first.
These repeat for a maximum of 5 minutes.

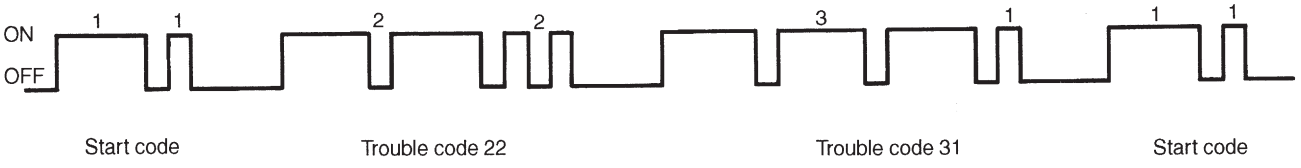
NOTE:
When there are no trouble codes in memory, only the start code (11) is shown.

Example of code indication

Trouble code: 21



Trouble code: 22, 31



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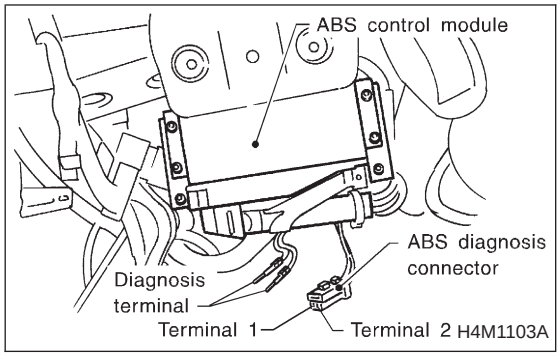
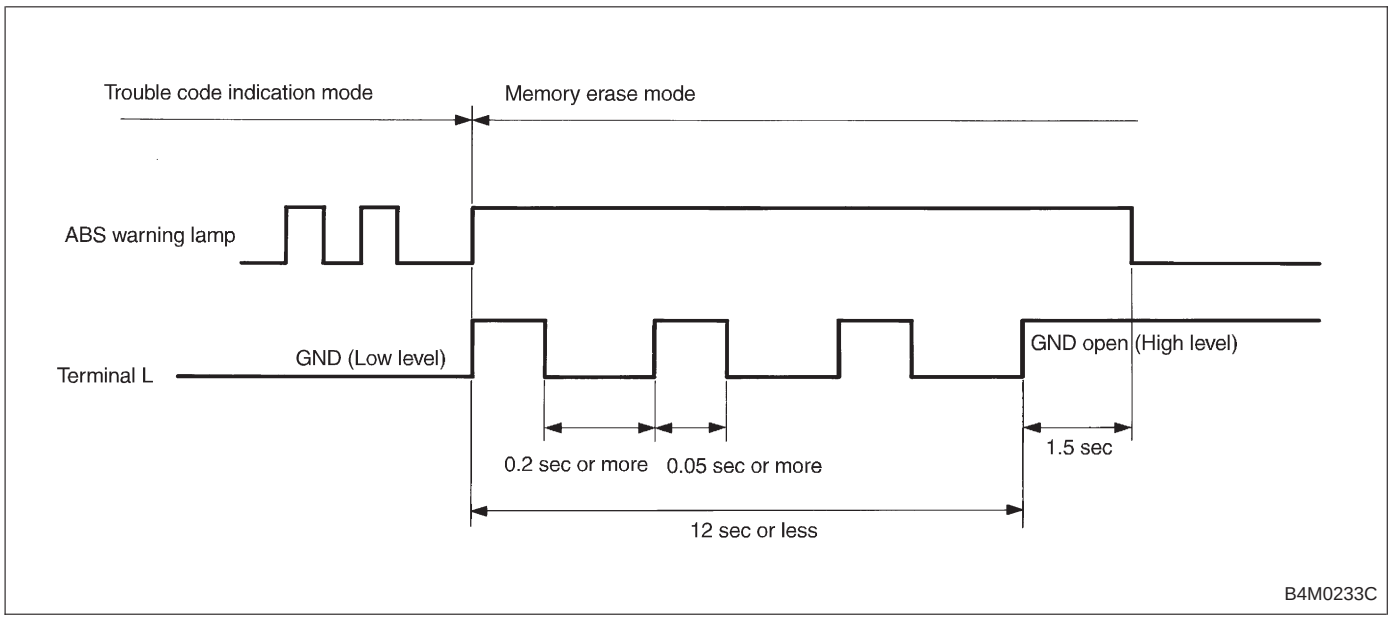


2. CLEARING MEMORY

1) After calling up a trouble code, disconnect ABS diagnosis connector terminal 2 from diagnosis terminal.
2) Repeat 3 times within approx. 12 seconds; connecting and disconnecting terminal 2 and diagnosis terminal for at least 0.05 seconds each time.



NOTE:
After diagnostics is completed, make sure to clear memory. Make sure only start code (11) is shown after memory is cleared.

7. Diagnostics Chart for ABS Warning Light Circuit and Diagnosis Circuit Failure

A: ABS WARNING LIGHT DOES NOT COME ON.

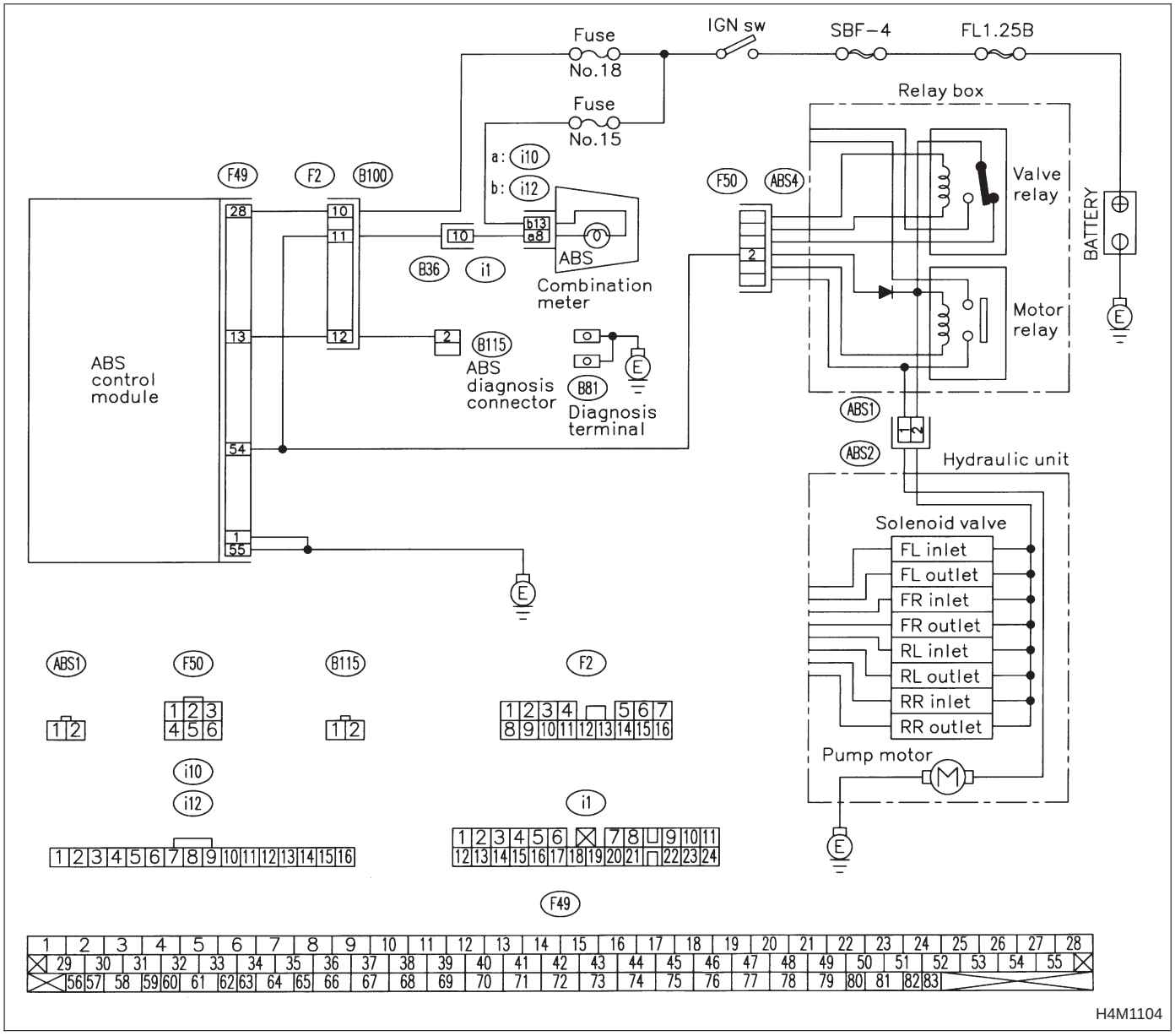
DIAGNOSIS:

- ABS warning light circuit is open or shorted.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



7A1	CHECK IF OTHER WARNING LIGHTS TURN ON.

Turn ignition switch to ON (engine OFF).

CHECK ***: Do other warning lights turn on?***

YES : Go to step **7A2.**

NO : Repair combination meter.

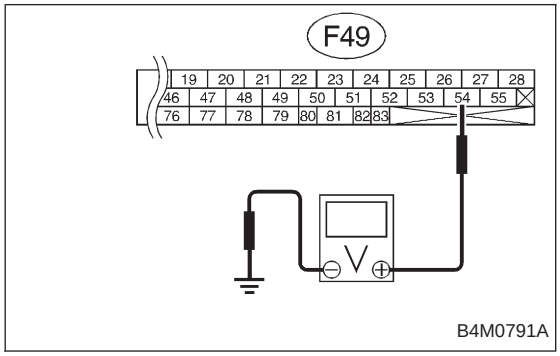
7A2	CHECK ABS WARNING LIGHT BULB.

1) Turn ignition switch to OFF.
2) Remove combination meter.
3) Remove ABS warning light bulb from combination meter.

CHECK ***: Is ABS warning light bulb OK?***

YES : Go to step **7A3.**

NO : Replace ABS warning light bulb.



7A3	CHECK WIRING HARNESS.

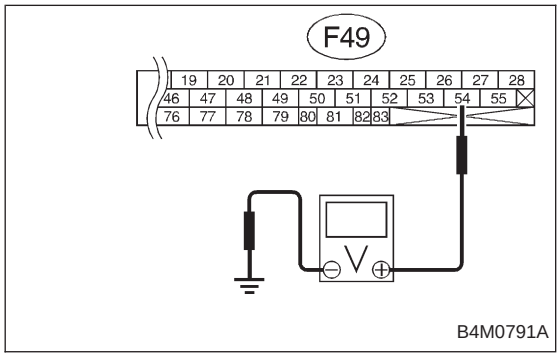
1) Disconnect connector from ABSCM.
2) Disconnect connector (F50) from relay box.
3) Turn ignition switch to ON.
4) Measure voltage between connector (F49) and chassis ground.

Connector & terminal
(F49) No. 54 (+) — Chassis ground (−):

CHECK ***: Is the voltage more than 10 V?***

YES : Go to step **7A4**.

NO : Repair broken wire in harness or connector.



7A4	CHECK WIRING HARNESS.

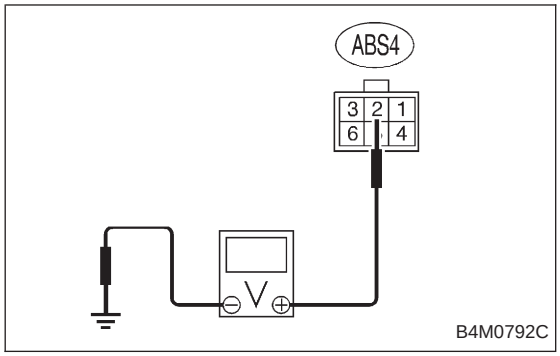
1) Turn ignition switch to OFF.
2) Measure voltage between ABSCM connector (F49) and chassis ground.

Connector & terminal
(F49) No. 54 (+) — Chassis ground (−):

CHECK ***: Is voltage less than 3 V?***

YES : Go to step **7A5**.

NO : Repair battery short of harness.

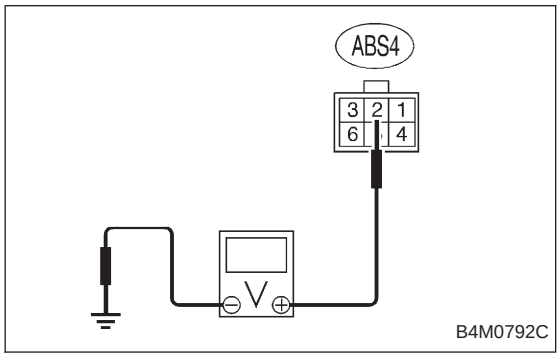


7A5	CHECK BATTERY SHORT OF RELAY BOX.

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

Connector & terminal
(ABS4) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **7A6**.
NO : Replace relay box.



7A6	CHECK BATTERY SHORT OF RELAY BOX.

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

Connector & terminal
(ABS4) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **7A7**.
NO : Replace relay box.

7A7	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connectors between combination meter and ABSCM? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Replace ABSCM.

B: ABS WARNING LIGHT DOES NOT GO OFF.

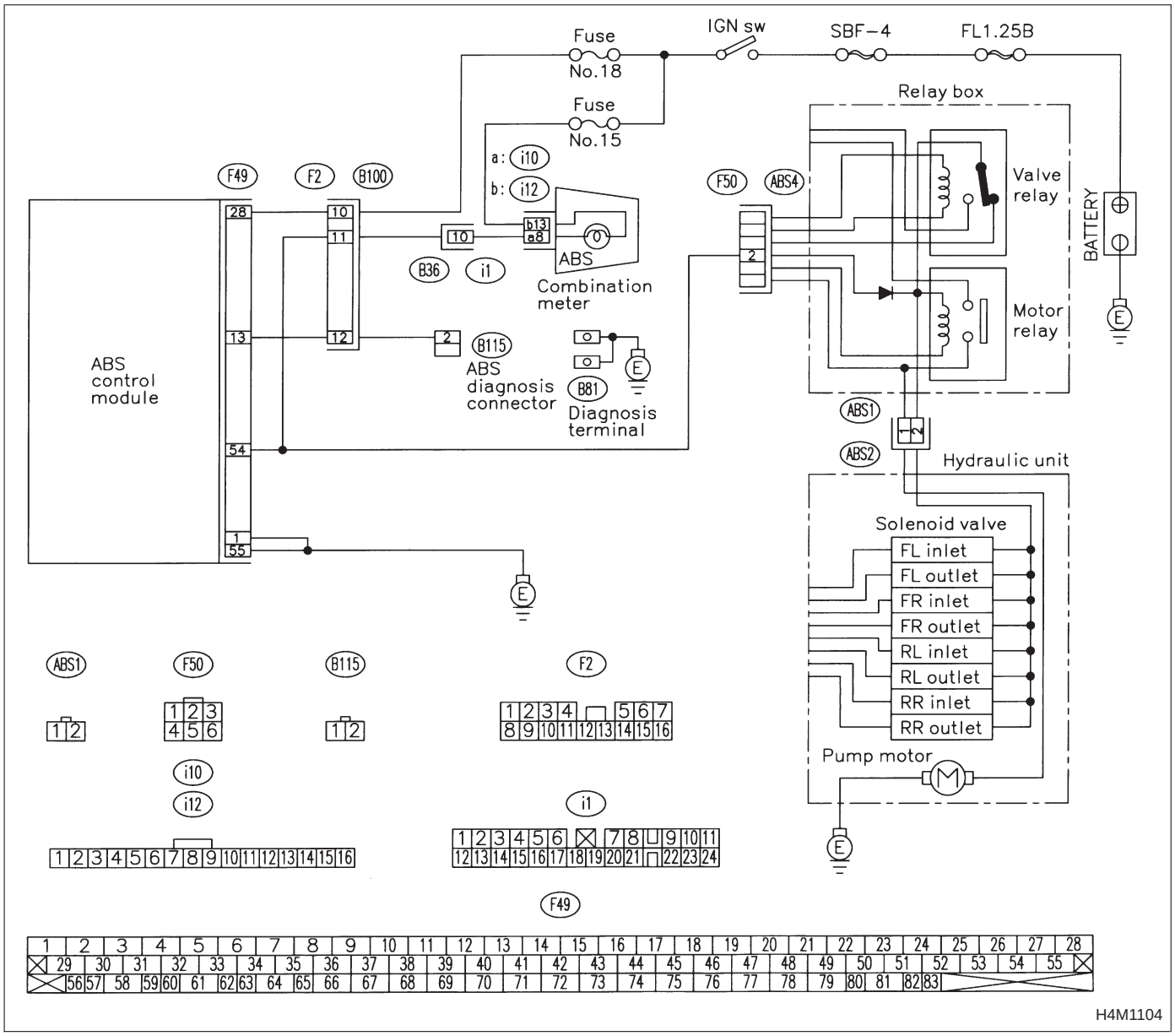
DIAGNOSIS:

- ABS warning light circuit is open or shorted.

TROUBLE SYMPTOM:

- When starting the engine and while ABS warning light is kept ON.

WIRING DIAGRAM:



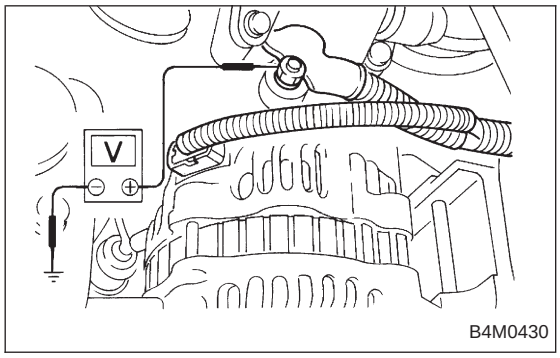
7B1	CHECK INSTALLATION OF ABSCM CONNECTOR.

Turn ignition switch to OFF.

CHECK ***: Is ABSCM connector inserted into ABSCM until the clamp locks onto it?***

YES : Go to step **7B2.**

NO : Insert ABSCM connector into ABSCM until the clamp locks onto it.



7B2	CHECK GENERATOR.

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

Terminal
Generator B terminal (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 and 15 V?***

YES : Go to step **7B3**.

NO : Repair generator.

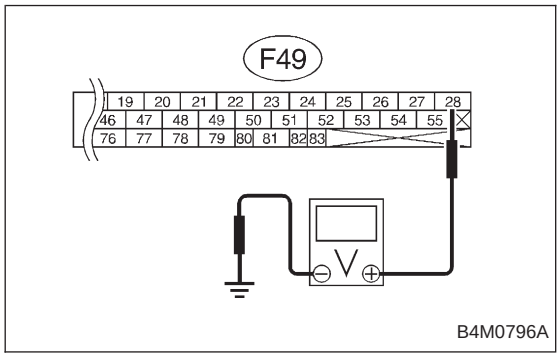
7B3	CHECK BATTERY TERMINAL.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact at battery terminal?***

YES : Repair battery terminal.

NO : Go to step **7B4**.



7B4	CHECK POWER SUPPLY OF ABSCM.

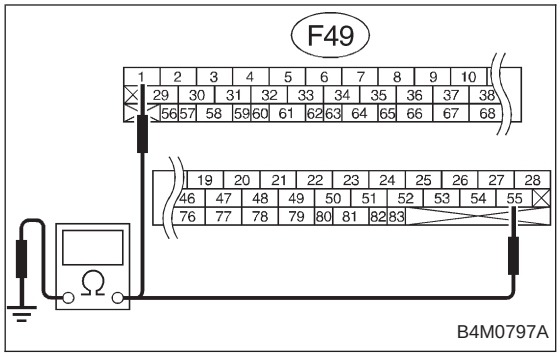
1) Disconnect connector from ABSCM.
2) Start engine.
3) Idle the engine.
4) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 28 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 and 15 V?***

YES : Go to step **7B5**.

NO : Repair ABSCM power supply circuit.



7B5	CHECK GROUND CIRCUIT OF ABSCM.

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

Connector & terminal
(F49) No. 1 — Chassis ground:
(F49) No. 55 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **7B6**.
NO : Repair ABSCM ground harness.

7B6	CHECK WIRING HARNESS.

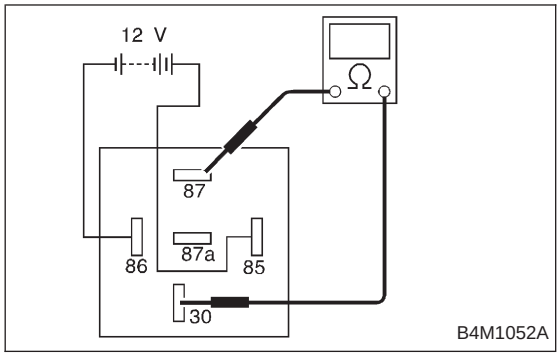
1) Disconnect connector (F50) from relay box.
2) Turn ignition switch to ON.

CHECK ***: Does the ABS warning light remain off?***
YES : Go to step **7B7**.
NO : Repair front wiring harness.

7B7	CHECK RELAY BOX.

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

CHECK ***: Does the ABS warning light remain off?***
YES : Go to step **7B8**.
NO : Repair relay box and check fuse.

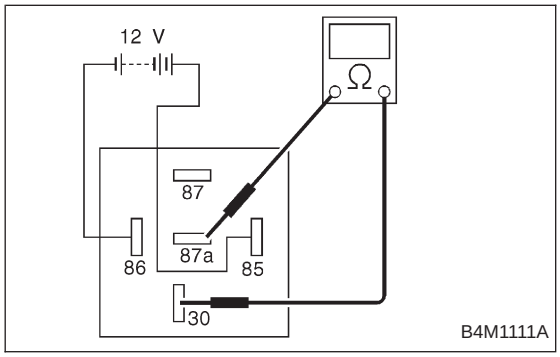


7B8	CHECK CONTACT POINT OF VALVE RELAY.

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

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **7B9**.
NO : Replace valve relay.

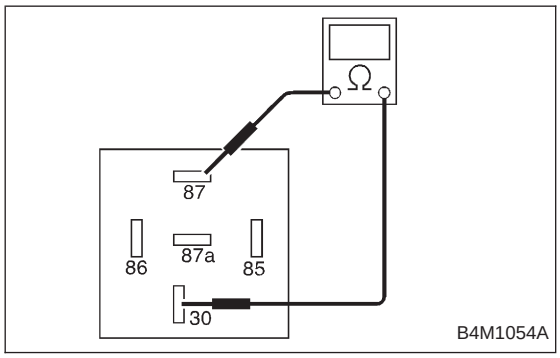


7B9	CHECK CONTACT POINT OF VALVE RELAY.

Measure resistance between valve relay terminals.

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

YES : Go to step **7B10**.
NO : Replace valve relay.

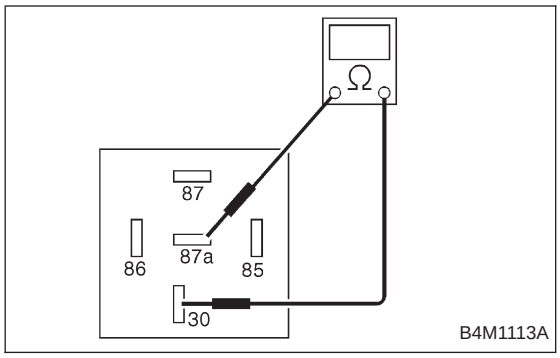


7B10	CHECK CONTACT POINT OF VALVE RELAY.

1) Disconnect battery from valve relay terminals.
2) Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **7B11**.
NO : Replace valve relay.



7B11	CHECK CONTACT POINT OF VALVE RELAY.

Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87a:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **7B12**.
NO : Replace valve relay.

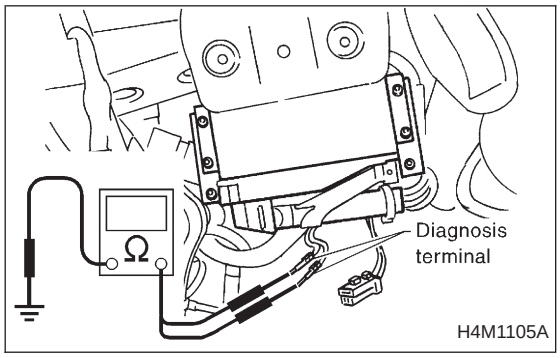
7B12	CHECK HYDRAULIC CONTROL UNIT.

1) Turn ignition switch to OFF.
2) Connect connector (ABS1) to hydraulic control unit.
3) Turn ignition switch to ON.

CHECK ***: Is the ABS warning light off?***

YES : Go to step **7B13**.

NO : Replace hydraulic control unit and check fuse No. 19.



7B13	CHECK DIAGNOSIS TERMINAL.

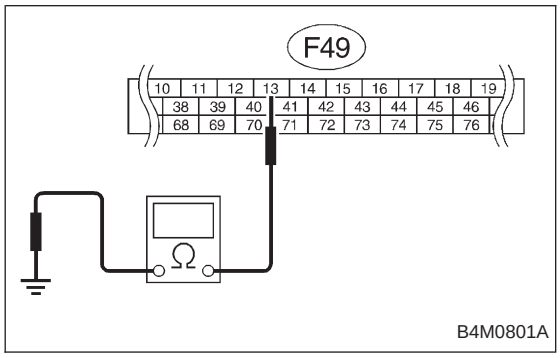
Measure resistance between diagnosis terminals (B81) and chassis ground.

Terminals
Diagnosis terminal (A) — Chassis ground:
Diagnosis terminal (B) — Chassis ground:

CHECK ***: Is the resistance less than 1 Ω?***

YES : Go to step **7B14**.

NO : Repair diagnosis terminal harness.



7B14	CHECK DIAGNOSIS LINE.

1) Turn ignition switch to OFF.
2) Connect diagnosis terminal to ABS diagnosis connector (B115) No. 2.
3) Disconnect connector from ABSCM.
4) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 13 — Chassis ground:

CHECK ***: Is the resistance less than 1 Ω?***

YES : Go to step **7B15**.

NO : Repair harness connector between ABSCM and ABS diagnosis connector.

7B15	CHECK POOR CONTACT IN ABSCM CONNECTOR.

CHECK ***: Is there poor contact in ABSCM connector? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Replace ABSCM.

C: TROUBLE CODE DOES NOT APPEAR.

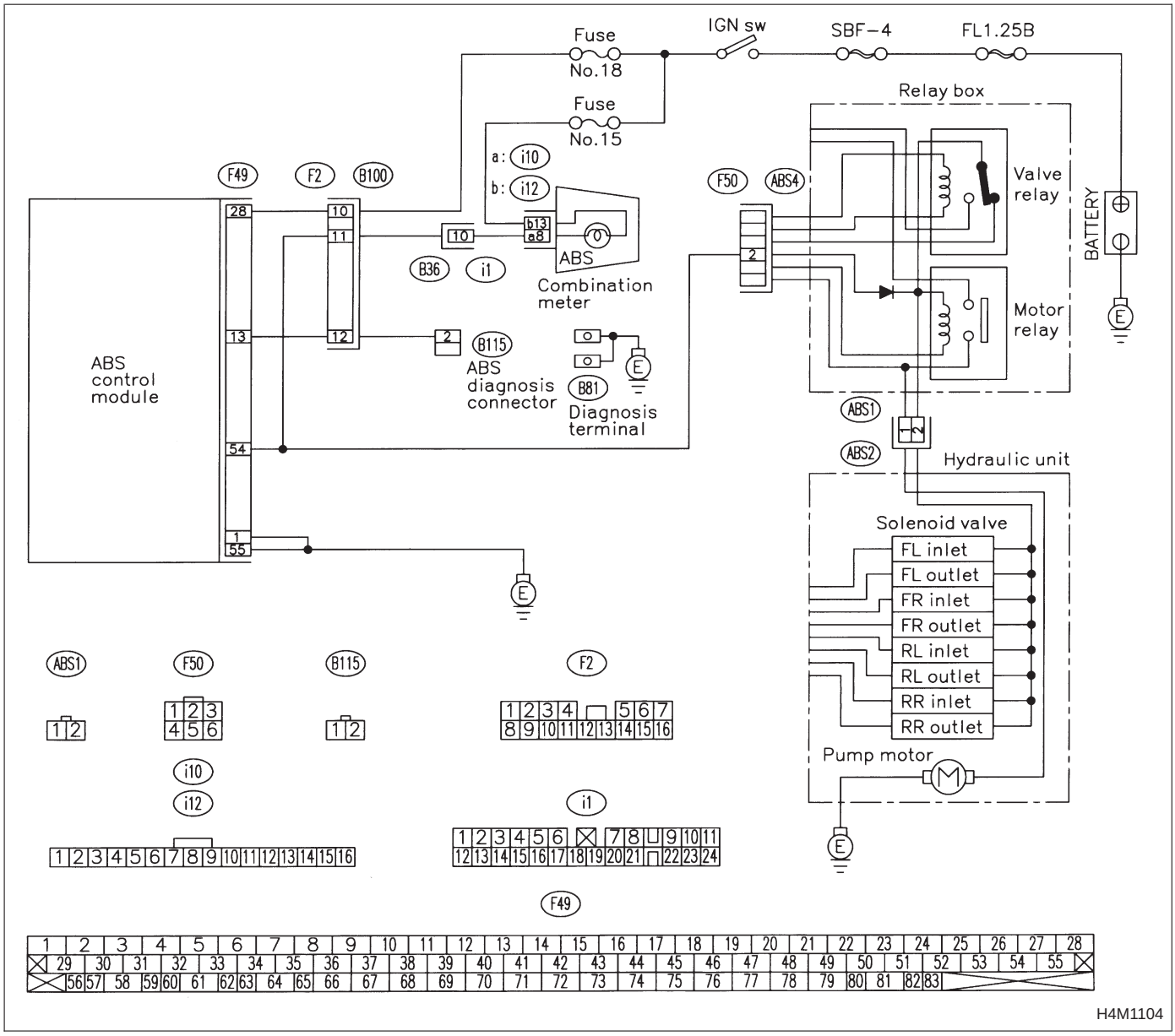
DIAGNOSIS:

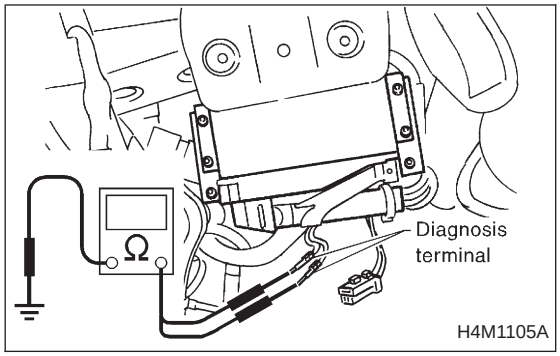
- Diagnosis circuit is open.

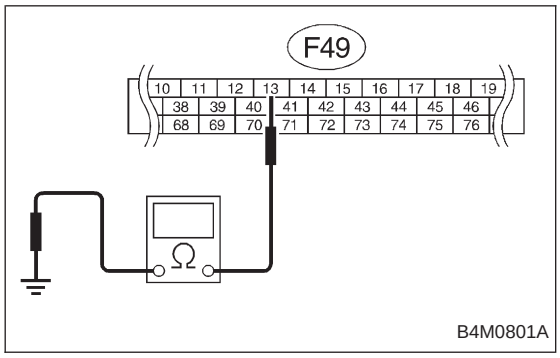
TROUBLE SYMPTOM:

- The ABS warning light turns on or off normally but the start code cannot be read out in the diagnostic mode.

WIRING DIAGRAM:







7C1	CHECK DIAGNOSIS TERMINAL.

Measure resistance between diagnosis terminals (B81) and chassis ground.

Terminals
Diagnosis terminal (A) — Chassis ground:
Diagnosis terminal (B) — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **7C2**.
NO : Repair diagnosis terminal harness.

7C2	CHECK DIAGNOSIS LINE.

1) Turn ignition switch to OFF.
2) Connect diagnosis terminal to ABS diagnosis connector (B115) No. 2.
3) Disconnect connector from ABSCM.
4) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 13 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **7C3**.
NO : Repair harness connector between ABSCM and ABS diagnosis connector.

7C3	CHECK POOR CONTACT IN ABSCM CONNECTOR.

CHECK ***: Is there poor contact in ABSCM connector? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Replace ABSCM.

8. Diagnostics Chart with Trouble Code by ABS Warning Light

A: LIST OF TROUBLE CODE

Trouble code	Contents of diagnosis		Ref. to 4-4
11	Start code ● Trouble code is shown after start code. ● Only start code is shown in normal condition.		—
21	Abnormal ABS sensor (Open circuit or input voltage too high)	Front right ABS sensor	[T8B0]
23		Front left ABS sensor	[T8C0]
25		Rear right ABS sensor	[T8D0]
27		Rear left ABS sensor	[T8E0]
22	Abnormal ABS sensor (Abnormal ABS sensor signal)	Front right ABS sensor	[T8F0]
24		Front left ABS sensor	[T8G0]
26		Rear right ABS sensor	[T8H0]
28		Rear left ABS sensor	[T8I0]
29		Any one of four	[T8J0]
31	Abnormal solenoid valve circuit(s) in hydraulic unit	Front right inlet valve	[T8K0]
32		Front right outlet valve	[T8O0]
33		Front left inlet valve	[T8L0]
34		Front left outlet valve	[T8P0]
35		Rear right inlet valve	[T8M0]
36		Rear right outlet valve	[T8Q0]
37		Rear left inlet valve	[T8N0]
38		Rear left outlet valve	[T8R0]
41	Abnormal ABS control module		[T8S0]
42	Source voltage is low.		[T8T0]
44	A combination of AT control abnormal		[T8U0]
46	Abnormal G sensor power supply voltage		[T8V0]
51	Abnormal valve relay		[T8W0]
52	Abnormal motor and/or motor relay		[T8X0]
54	Abnormal stop light switch		[T8Y0]
56	Abnormal G sensor output voltage		[T8Z0]

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

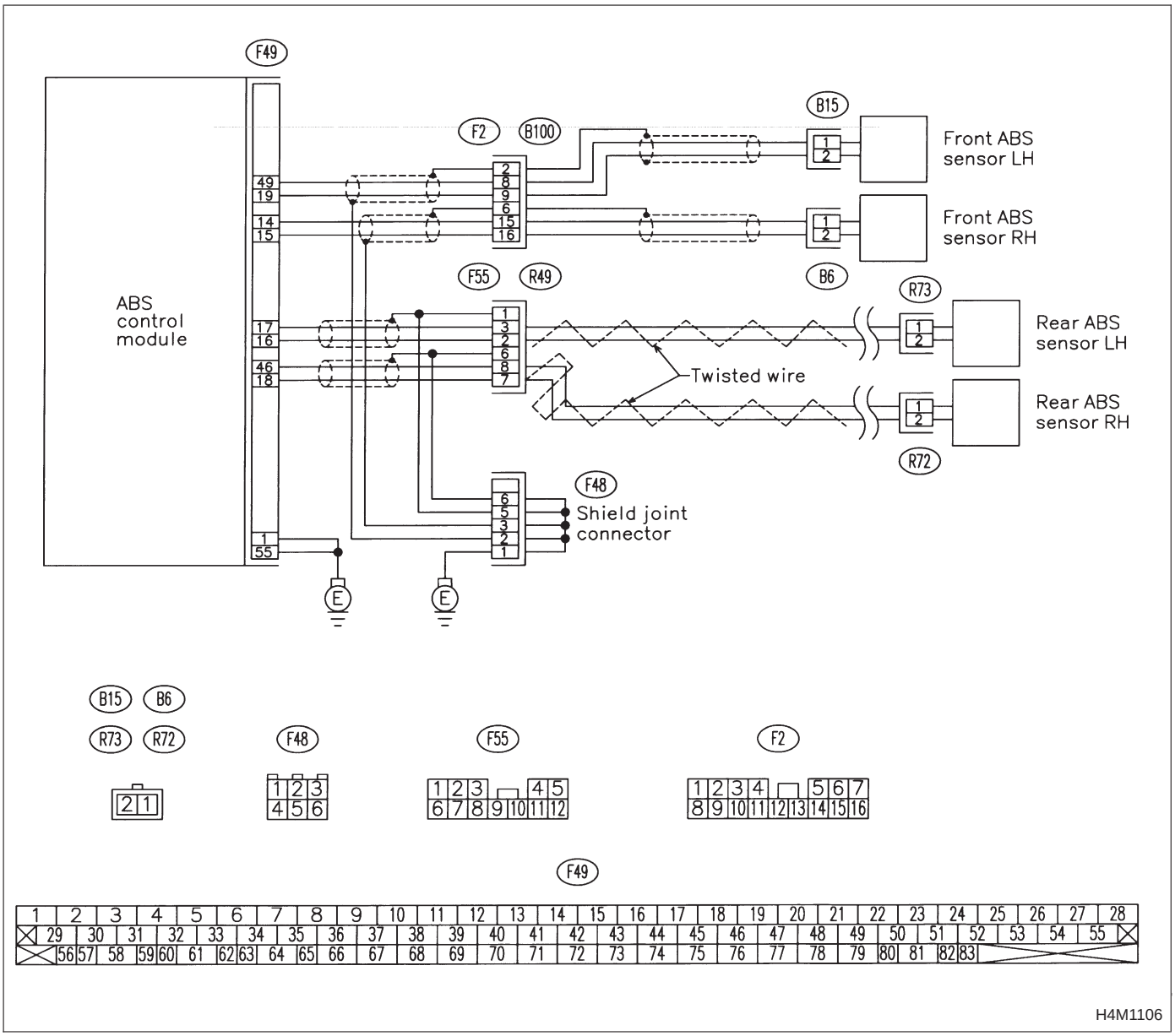
DIAGNOSIS:

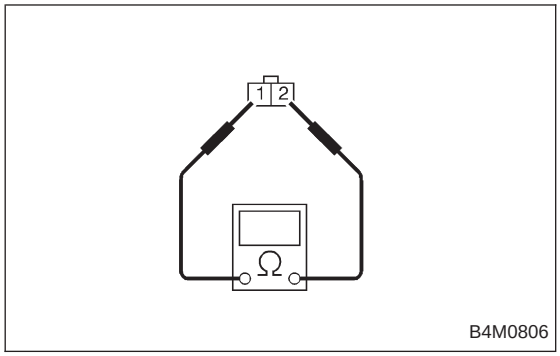
- Faulty ABS sensor (Broken wire, input voltage too high)
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



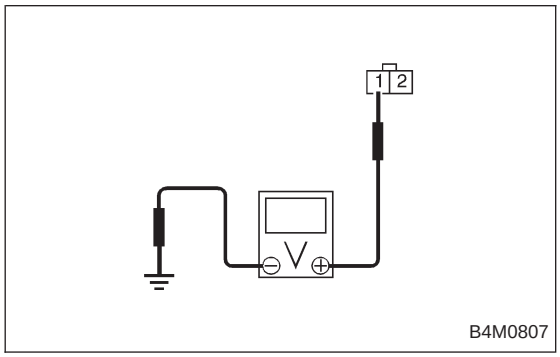


8E1	CHECK ABS SENSOR.

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

Terminal
Front RH No. 1 — No. 2:
Front LH No. 1 — No. 2:
Rear RH No. 1 — No. 2:
Rear LH No. 1 — No. 2:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***
YES : Go to step **8E2**.
NO : Replace ABS sensor.

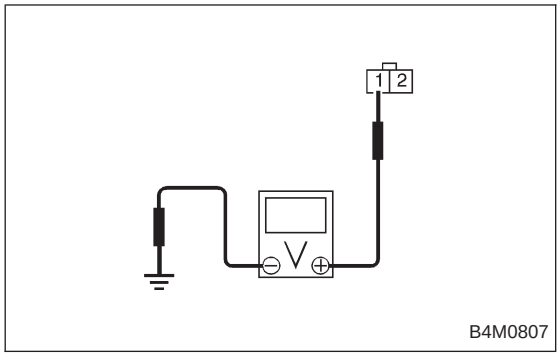


8E2	CHECK BATTERY SHORT OF ABS SENSOR.

1) Disconnect connector from ABSCM.
2) Measure voltage between ABS sensor and chassis ground.

Terminal
Front RH No. 1 (+) — Chassis ground (−):
Front LH No. 1 (+) — Chassis ground (−):
Rear RH No. 1 (+) — Chassis ground (−):
Rear LH No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8E3**.
NO : Replace ABS sensor.

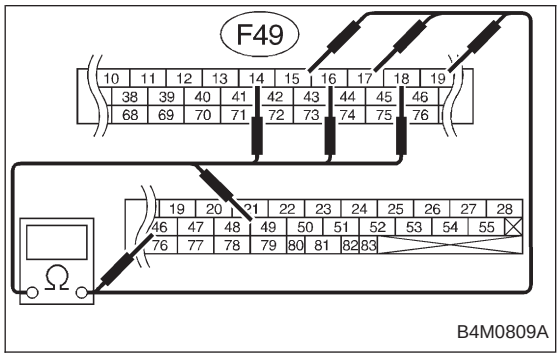


8E3	CHECK BATTERY SHORT OF ABS SENSOR.

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

Terminal
Front RH No. 1 (+) — Chassis ground (−):
Front LH No. 1 (+) — Chassis ground (−):
Rear RH No. 1 (+) — Chassis ground (−):
Rear LH No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8E4**.
NO : Replace ABS sensor.

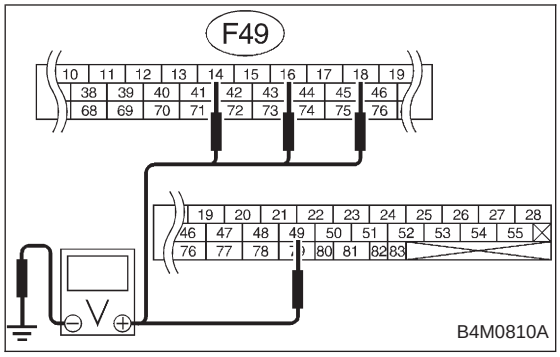


8E4	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

1) Turn ignition switch to OFF.
2) Connect connector to ABS sensor.
3) Measure resistance between ABSCM connector terminals.

Connector & terminal
Trouble code 21 / (F49) No. 14 — No. 15:
Trouble code 23 / (F49) No. 49 — No. 19:
Trouble code 25 / (F49) No. 18 — No. 46:
Trouble code 27 / (F49) No. 16 — No. 17:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***
YES : Go to step **8E5**.
NO : Repair harness/connector between ABSCM and ABS sensor.



8E5	CHECK BATTERY SHORT OF HARNESS.

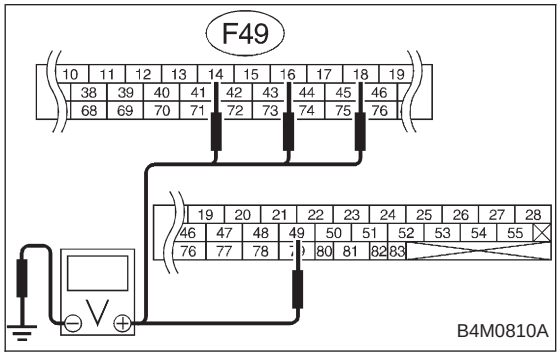
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 21 / (F49) No. 14 (+) — Chassis ground (−):
Trouble code 23 / (F49) No. 49 (+) — Chassis ground (−):
Trouble code 25 / (F49) No. 18 (+) — Chassis ground (−):
Trouble code 27 / (F49) No. 16 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

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

NO : Repair harness between ABSCM and ABS sensor.



8E6	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
Trouble code 21 / (F49) No. 14 (+) — Chassis ground (−):
Trouble code 23 / (F49) No. 49 (+) — Chassis ground (−):
Trouble code 25 / (F49) No. 18 (+) — Chassis ground (−):
Trouble code 27 / (F49) No. 16 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

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

NO : Repair harness between ABSCM and ABS sensor.

8E7	CHECK INSTALLATION OF ABS SENSOR.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)

CHECK ***: Are the ABS sensor installation bolts tightened securely?***

YES : Go to step **8E8**.

NO : Tighten ABS sensor installation bolts securely.

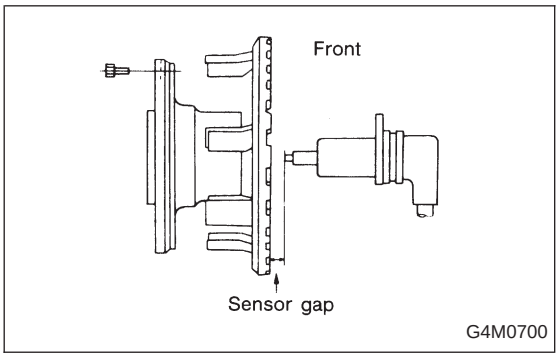
8E8	CHECK INSTALLATION OF TONE WHEEL.

Tightening torque:
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)

CHECK ***: Are the tone wheel installation bolts tightened securely?***

YES : Go to step **8E9**.

NO : Tighten tone wheel installation bolts securely.

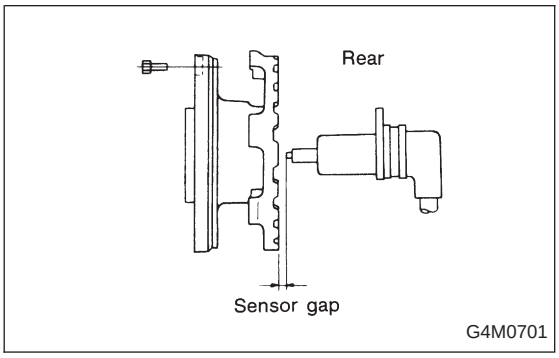


8E9	CHECK ABS SENSOR GAP.

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 step **8E10**.

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.

8E10	CHECK HUB RUNOUT.

Measure hub runout.

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

YES : Go to step **8E11**.

NO : Repair hub.

8E11	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and ABS sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **8E12**.

8E12	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 step **8E13**.

8E13	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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.

F: TROUBLE CODE 22 (FRONT RH)
G: TROUBLE CODE 24 (FRONT LH)
H: TROUBLE CODE 26 (REAR RH)
I: TROUBLE CODE 28 (REAR LH)
— ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) —

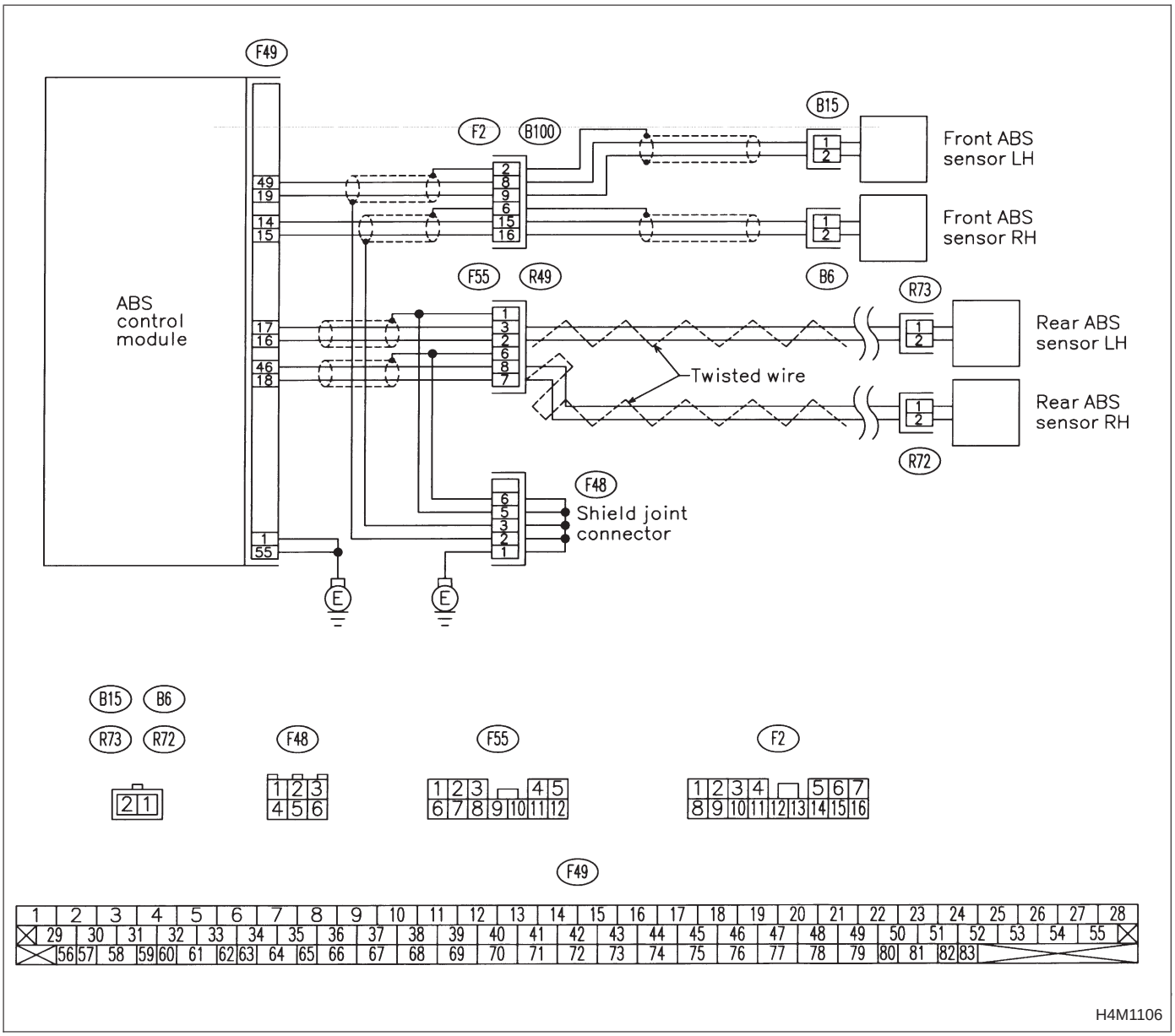
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



8I1	CHECK INSTALLATION OF ABS SENSOR.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)

CHECK ***: Are the ABS sensor installation bolts tightened securely?***

YES : Go to step **8I2**.

NO : Tighten ABS sensor installation bolts securely.

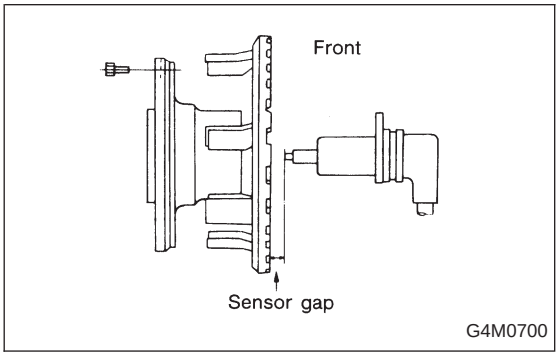
8I2	CHECK INSTALLATION OF TONE WHEEL.

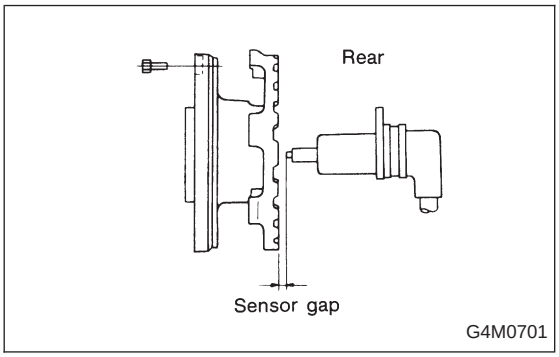
Tightening torque:
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)

CHECK ***: Are the tone wheel installation bolts tightened securely?***

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

NO : Tighten tone wheel installation bolts securely.





8I3	CHECK ABS SENSOR GAP.

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 step **8I4**.

NO : Adjust the gap.

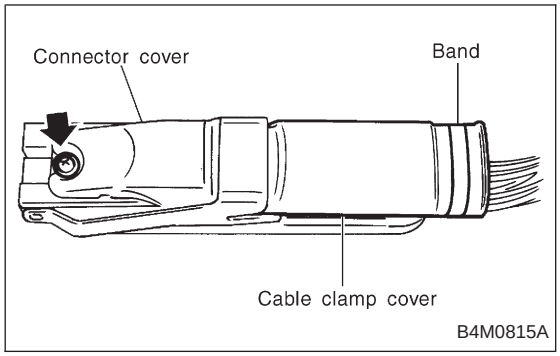
NOTE:
Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

8I4	CHECK OSCILLOSCOPE.

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

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

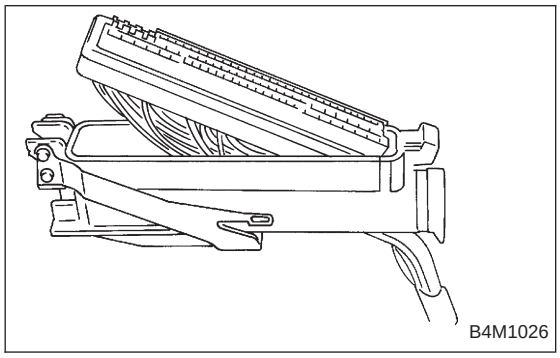
NO : Go to step **8I6**.



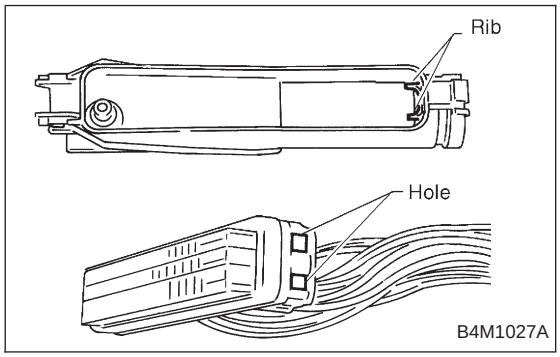
8I5	CHECK ABS SENSOR SIGNAL.

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

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

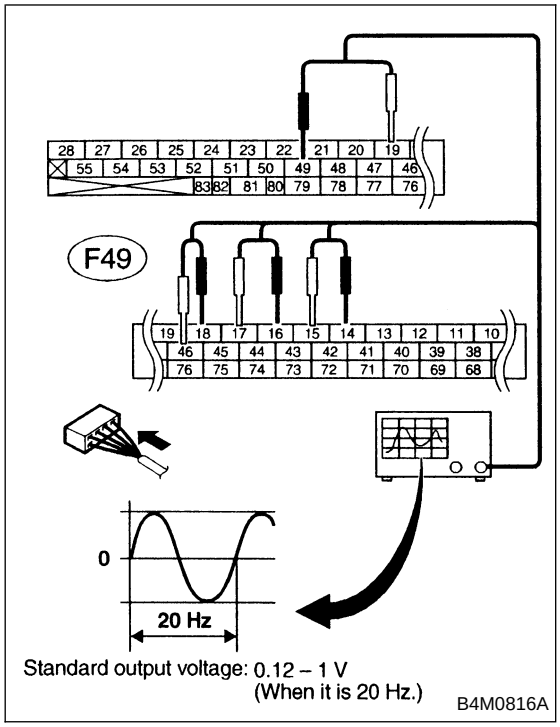


7) Remove connector cover.



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

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



11) Rotate wheels and measure voltage at specified frequency.

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

Connector & terminal
Trouble code 22 / (F49) No. 14 (+) — No. 15 (−):
Trouble code 24 / (F49) No. 49 (+) — No. 19 (−):
Trouble code 26 / (F49) No. 18 (+) — No. 46 (−):
Trouble code 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 **8I9**.
NO : Go to step **8I6**.

8I6	CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.

Remove disc rotor or drum 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 step **8I7**.

8I7	CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.

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

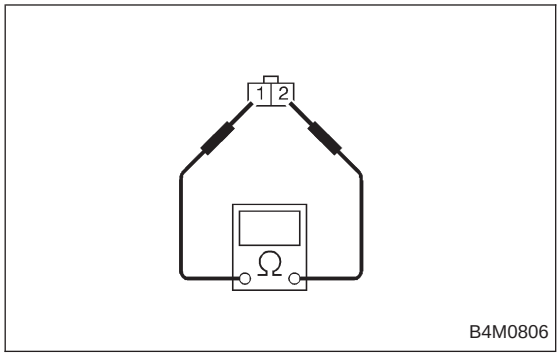
YES : Replace ABS sensor or tone wheel.
NO : Go to step **8I8**.

8I8	CHECK HUB RUNOUT.

Measure hub runout.

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

YES : Go to step **8I9**.
NO : Repair hub.

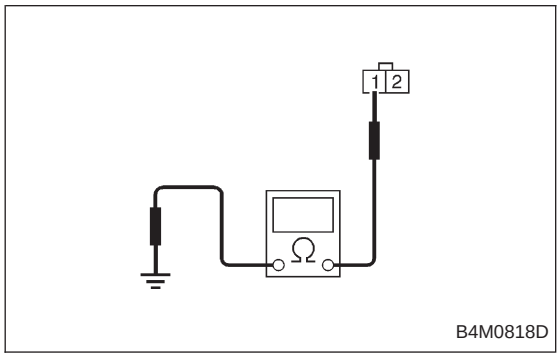


8I9	CHECK RESISTANCE OF ABS SENSOR.

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

Terminal
Front RH No. 1 — No. 2:
Front LH No. 1 — No. 2:
Rear RH No. 1 — No. 2:
Rear LH No. 1 — No. 2:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***
YES : Go to step **8I10**.
NO : Replace ABS sensor.

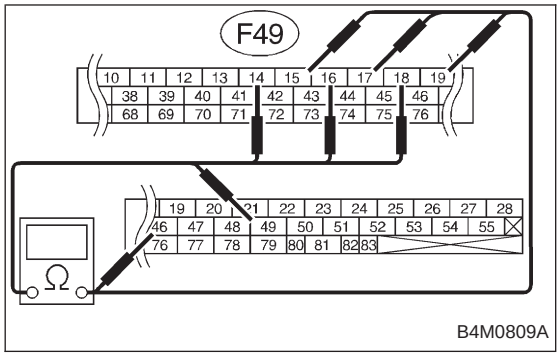


8I10	CHECK GROUND SHORT OF ABS SENSOR.

Measure resistance between ABS sensor and chassis ground.

Terminal
Front RH No. 1 — Chassis ground:
Front LH No. 1 — Chassis ground:
Rear RH No. 1 — Chassis ground:
Rear LH No. 1 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8I11**.
NO : Replace ABS sensor.

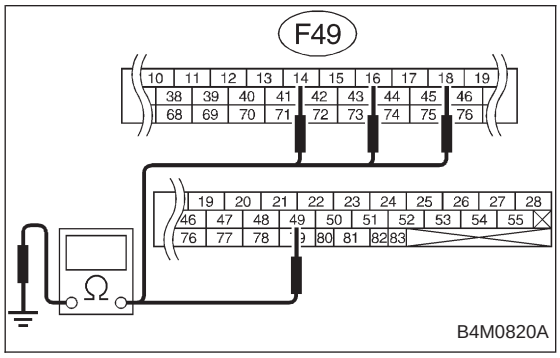


8I11	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

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

Connector & terminal
Trouble code 22 / (F49) No. 14 — No. 15:
Trouble code 24 / (F49) No. 49 — No. 19:
Trouble code 26 / (F49) No. 18 — No. 46:
Trouble code 28 / (F49) No. 16 — No. 17:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***
YES : Go to step **8I12**.
NO : Repair harness/connector between ABSCM and ABS sensor.

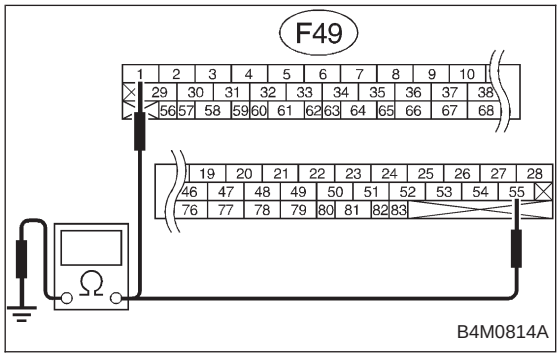


8I12	CHECK GROUND SHORT OF HARNESS.

Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 22 / (F49) No. 14 — Chassis ground:
Trouble code 24 / (F49) No. 49 — Chassis ground:
Trouble code 26 / (F49) No. 18 — Chassis ground:
Trouble code 28 / (F49) No. 16 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8I13**.
NO : Repair harness/connector between ABSCM and ABS sensor.



8I13	CHECK GROUND CIRCUIT OF ABSCM.

Measure resistance between ABSCM and chassis ground.

Connector & terminal
(F49) No. 1 — GND:
(F49) No. 55 — GND:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8I14**.
NO : Repair ABSCM ground harness.

8I14	CHECK POOR CONTACT IN CONNECTORS.

CHECK : ***Is there poor contact in connectors between ABSCM and ABS sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **8I15**.

8I15	CHECK SOURCES OF SIGNAL NOISE.

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

YES : Go to step **8I16**.

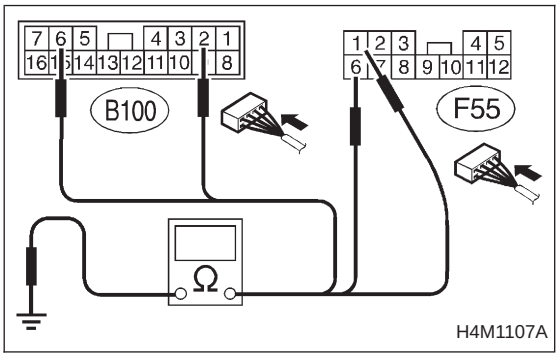
NO : Properly install the car telephone or the wireless transmitter.

8I16	CHECK SOURCES OF SIGNAL NOISE.

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 **8I17**.



8I17	CHECK SHIELD CIRCUIT.

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

Connector & terminal
Trouble code 22 / (B100) No. 6 — Chassis ground:
Trouble code 24 / (B100) No. 2 — Chassis ground:
Trouble code 26 / (F55) No. 6 — Chassis ground:
Trouble code 28 / (F55) No. 1 — Chassis ground:

CHECK : ***Is the resistance less than 0.5 Ω?***

YES : Go to step **8I18**.

NO : Repair shield harness.

8I18	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 step **8I19**.

8I19	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary noise interference.

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

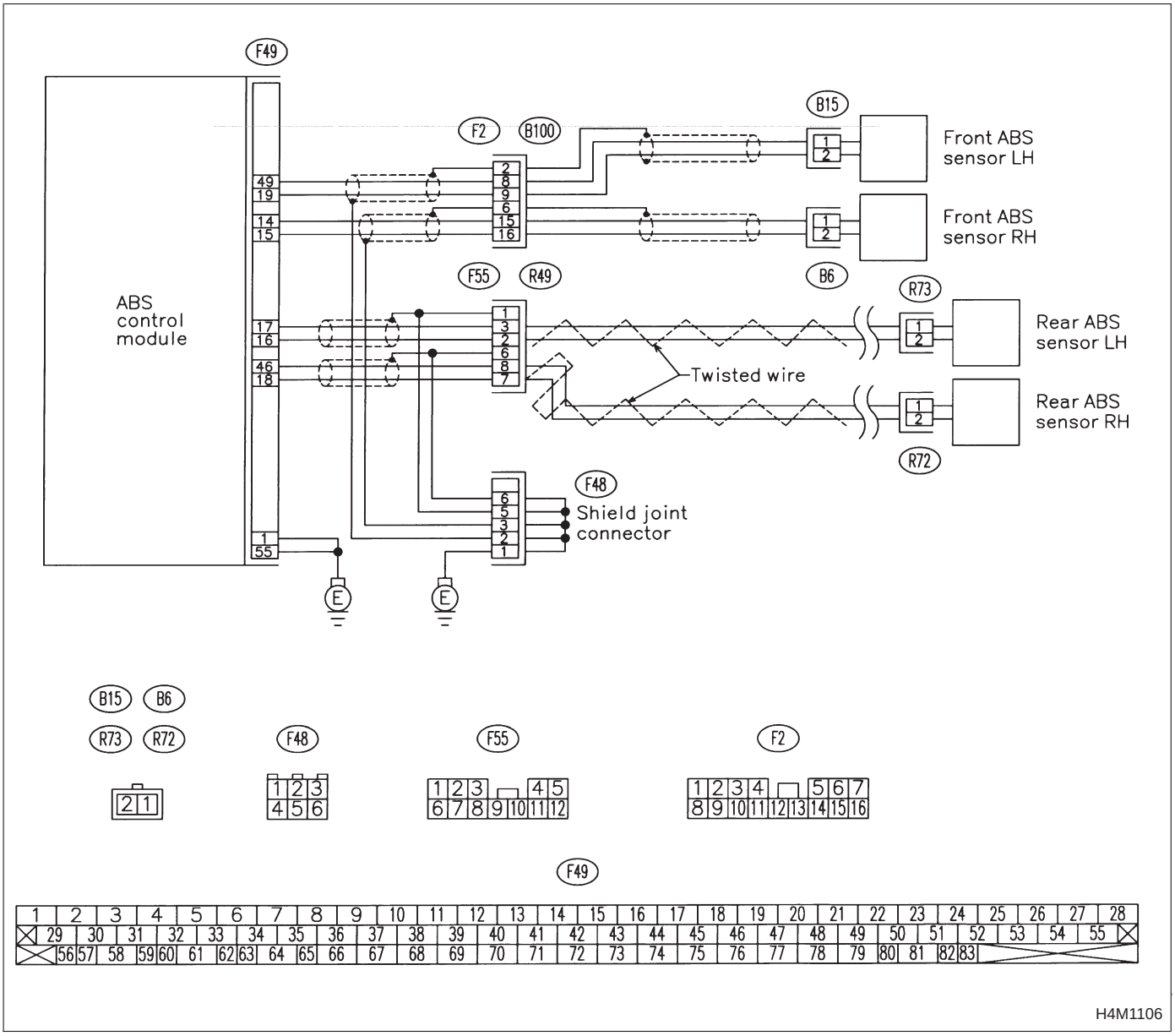
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



8J1	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 **8J2**.

8J2	CHECK TIRE SPECIFICATIONS.

CHECK ***: Are the tire specifications correct?***

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

NO : Replace tire.

8J3	CHECK WEAR OF TIRE.

CHECK ***: Is the tire worn excessively?***

YES : Replace tire.

NO : Go to step **8J4**.

8J4	CHECK TIRE PRESSURE.

CHECK ***: Is the tire pressure correct?***

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

NO : Adjust tire pressure.

8J5	CHECK INSTALLATION OF ABS SENSOR.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)

CHECK ***: Are the ABS sensor installation bolts tightened securely?***

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

NO : Tighten ABS sensor installation bolts securely.

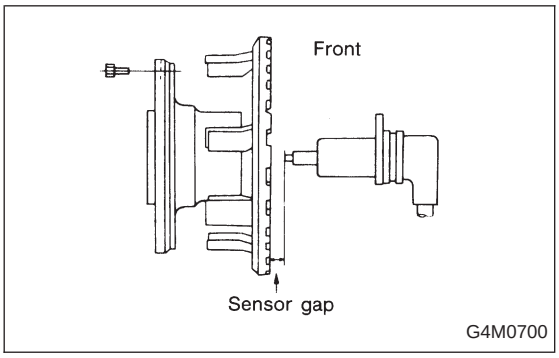
8J6	CHECK INSTALLATION OF TONE WHEEL.

Tightening torque:
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)

CHECK ***: Are the tone wheel installation bolts tightened securely?***

YES : Go to step **8J7**.

NO : Tighten tone wheel installation bolts securely.

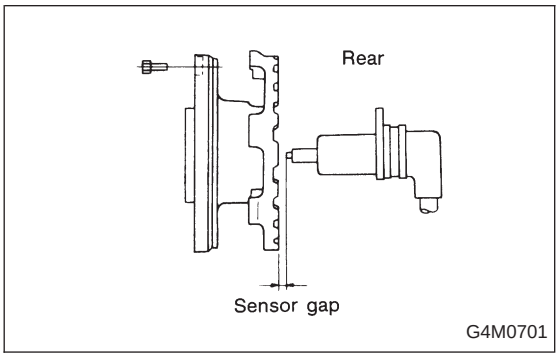


8J7	CHECK ABS SENSOR GAP.

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 step **8J8**.

NO : Adjust the gap.

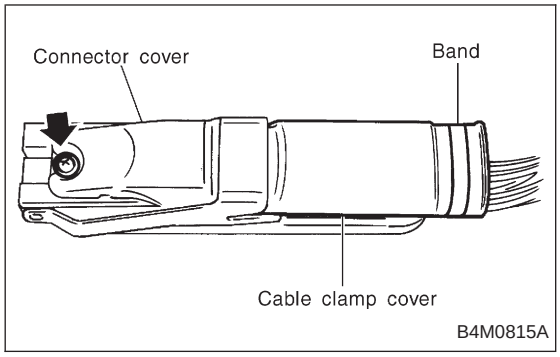
NOTE:
Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

8J8	CHECK OSCILLOSCOPE.

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

YES : Go to step **8J9**.

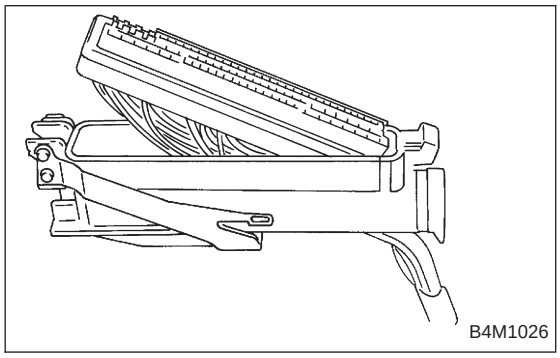
NO : Go to step **8J10**.



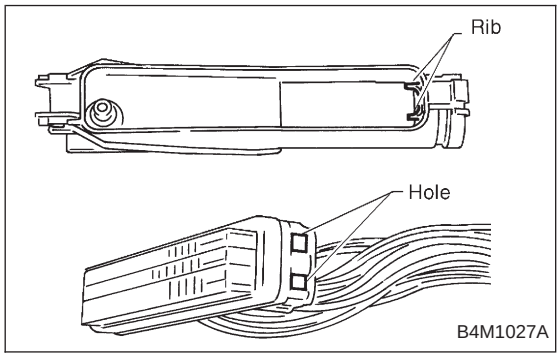
8J9	CHECK ABS SENSOR SIGNAL.

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

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

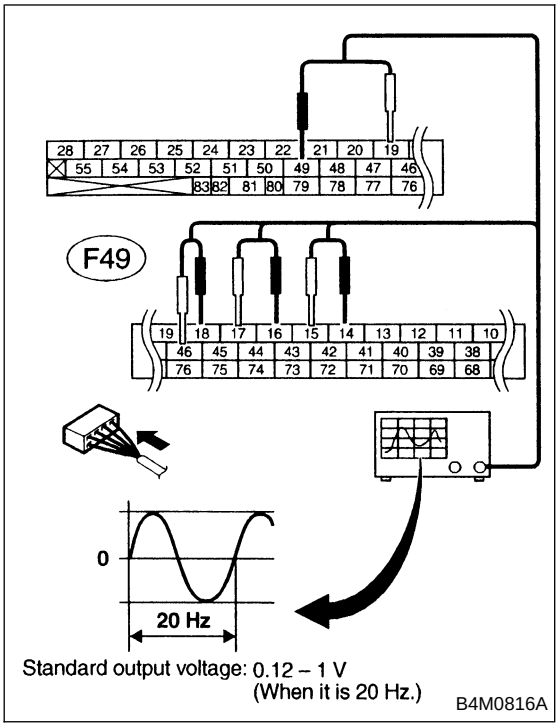


7) Remove connector cover.



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

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



11) Rotate wheels and measure voltage at specified frequency.

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

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 **8J13**.

NO : Go to step **8J10**.

8J10	CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.

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 step **8J11**.

8J11	CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.

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 step **8J12**.

8J12	CHECK HUB RUNOUT.

Measure hub runout.

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

YES : Go to step **8J13**.

NO : Repair hub.

8J13	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 step **8J14**.

8J14	**CHECK ANY OTHER TROUBLE CODES APPEARANCE.**

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

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

NO : A temporary poor contact.

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

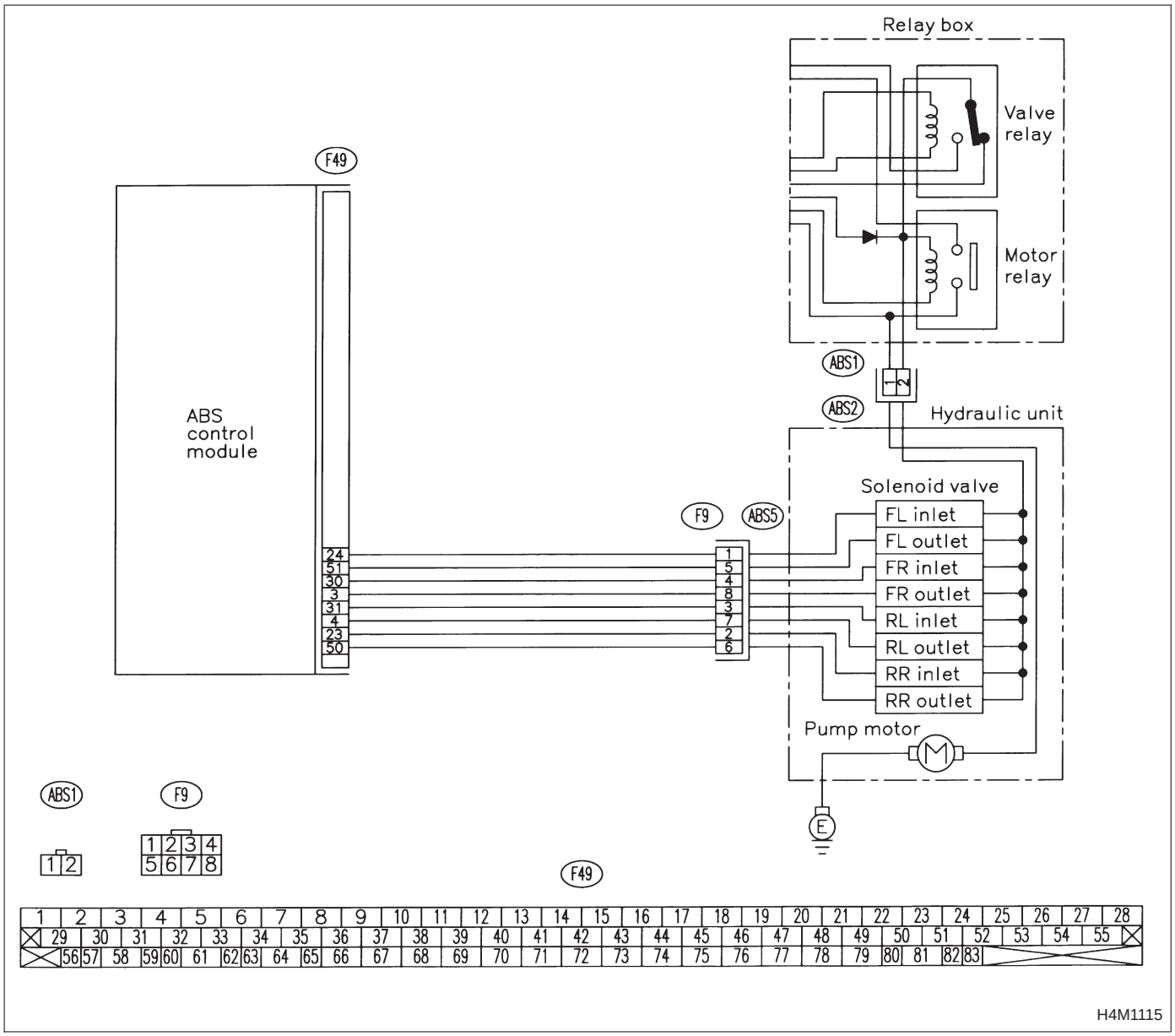
DIAGNOSIS:

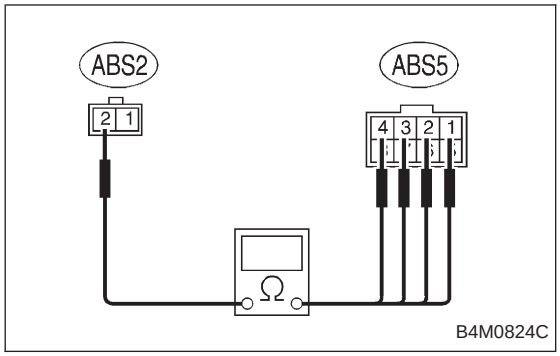
- Faulty harness/connector
- Faulty inlet solenoid valve in hydraulic unit

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



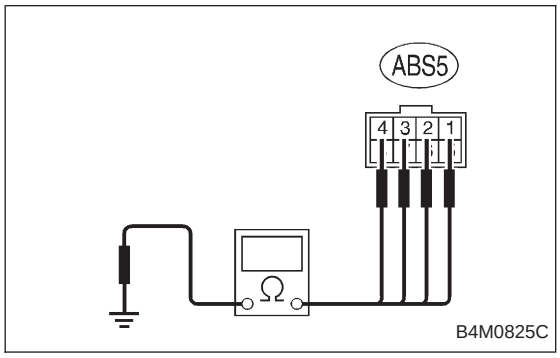


8N1	CHECK RESISTANCE OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 31 / (ABS5) No. 4 — (ABS2) No. 2:
Trouble code 33 / (ABS5) No. 1 — (ABS2) No. 2:
Trouble code 35 / (ABS5) No. 2 — (ABS2) No. 2:
Trouble code 37 / (ABS5) No. 3 — (ABS2) No. 2:

CHECK ***: Is the resistance between 7.8 and 9.2 Ω?***
YES : Go to step **8N2**.
NO : Replace hydraulic unit.

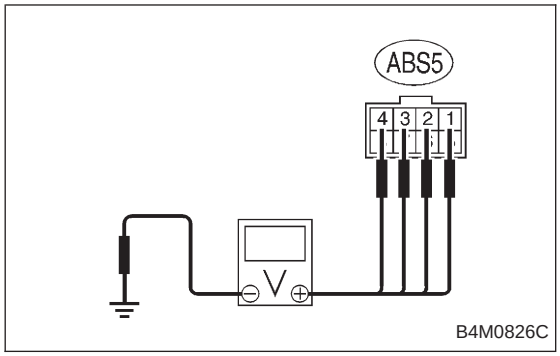


8N2	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 31 / (ABS5) No. 4 — Chassis ground:
Trouble code 33 / (ABS5) No. 1 — Chassis ground:
Trouble code 35 / (ABS5) No. 2 — Chassis ground:
Trouble code 37 / (ABS5) No. 3 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8N3**.
NO : Replace hydraulic unit.

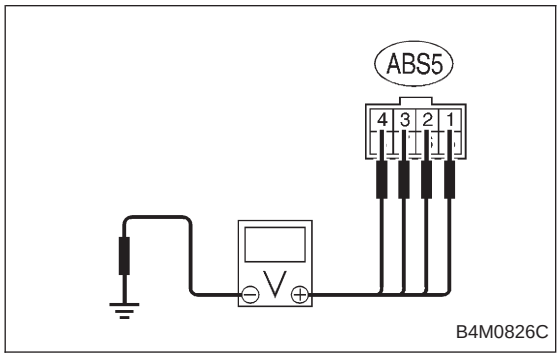


8N3	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Disconnect connector from ABSCM.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 31 / (ABS5) No. 4 (+) — Chassis ground (−):
Trouble code 33 / (ABS5) No. 1 (+) — Chassis ground (−):
Trouble code 35 / (ABS5) No. 2 (+) — Chassis ground (−):
Trouble code 37 / (ABS5) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8N4**.
NO : Replace hydraulic unit.

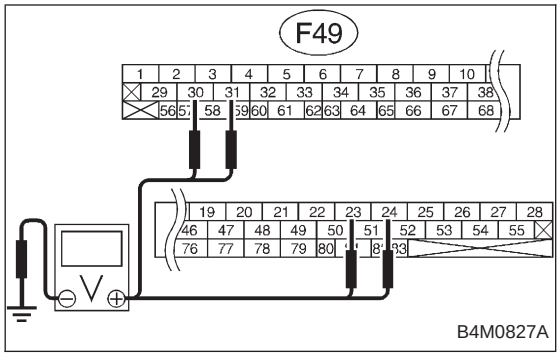


8N4	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 31 / (ABS5) No. 4 (+) — Chassis ground (−):
Trouble code 33 / (ABS5) No. 1 (+) — Chassis ground (−):
Trouble code 35 / (ABS5) No. 2 (+) — Chassis ground (−):
Trouble code 37 / (ABS5) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8N5**.
NO : Replace hydraulic unit.



8N5	CHECK BATTERY SHORT OF HARNESS.

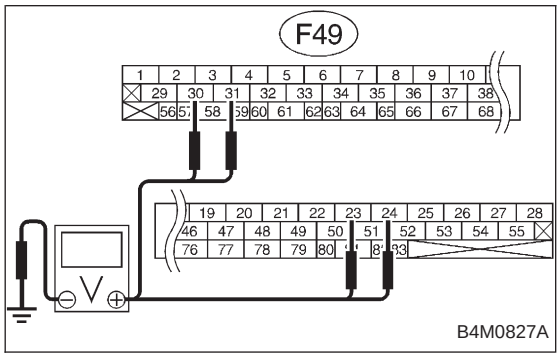
1) Turn ignition switch to OFF.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 31 / (F49) No. 30 (+) — Chassis ground (−):
Trouble code 33 / (F49) No. 24 (+) — Chassis ground (−):
Trouble code 35 / (F49) No. 23 (+) — Chassis ground (−):
Trouble code 37 / (F49) No. 31 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

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

NO : Repair harness between ABSCM and hydraulic unit.



8N6	CHECK BATTERY SHORT OF HARNESS.

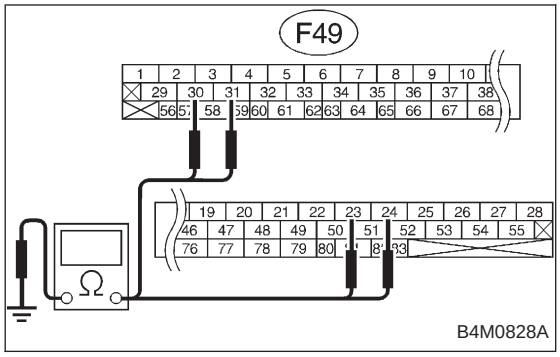
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 31 / (F49) No. 30 (+) — Chassis ground (−):
Trouble code 33 / (F49) No. 24 (+) — Chassis ground (−):
Trouble code 35 / (F49) No. 23 (+) — Chassis ground (−):
Trouble code 37 / (F49) No. 31 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

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

NO : Repair harness between ABSCM and hydraulic unit.

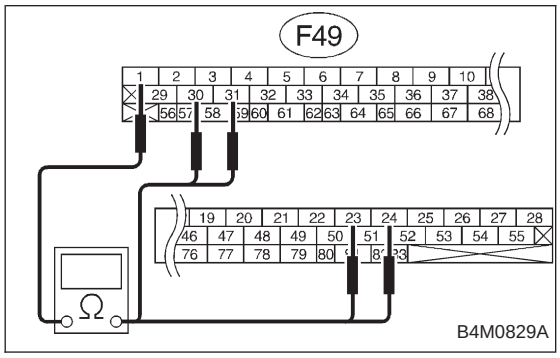


8N7	CHECK GROUND SHORT OF HARNESS.

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

Connector & terminal
Trouble code 31 / (F49) No. 30 — Chassis ground:
Trouble code 33 / (F49) No. 24 — Chassis ground:
Trouble code 35 / (F49) No. 23 — Chassis ground:
Trouble code 37 / (F49) No. 31 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8N8**.
NO : Repair harness between ABSCM and hydraulic unit.



8N8	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

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

Connector & terminal
Trouble code 31 / (F49) No. 30 — No. 1:
Trouble code 33 / (F49) No. 24 — No. 1:
Trouble code 35 / (F49) No. 23 — No. 1:
Trouble code 37 / (F49) No. 31 — No. 1:

CHECK ***: Is the resistance between 8.3 and 9.7 Ω?***
YES : Go to step **8N9**.
NO : Repair harness/connector between ABSCM and hydraulic unit.

8N9	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Go to step **8N10**.

8N10	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 step **8N11**.

8N11	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

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

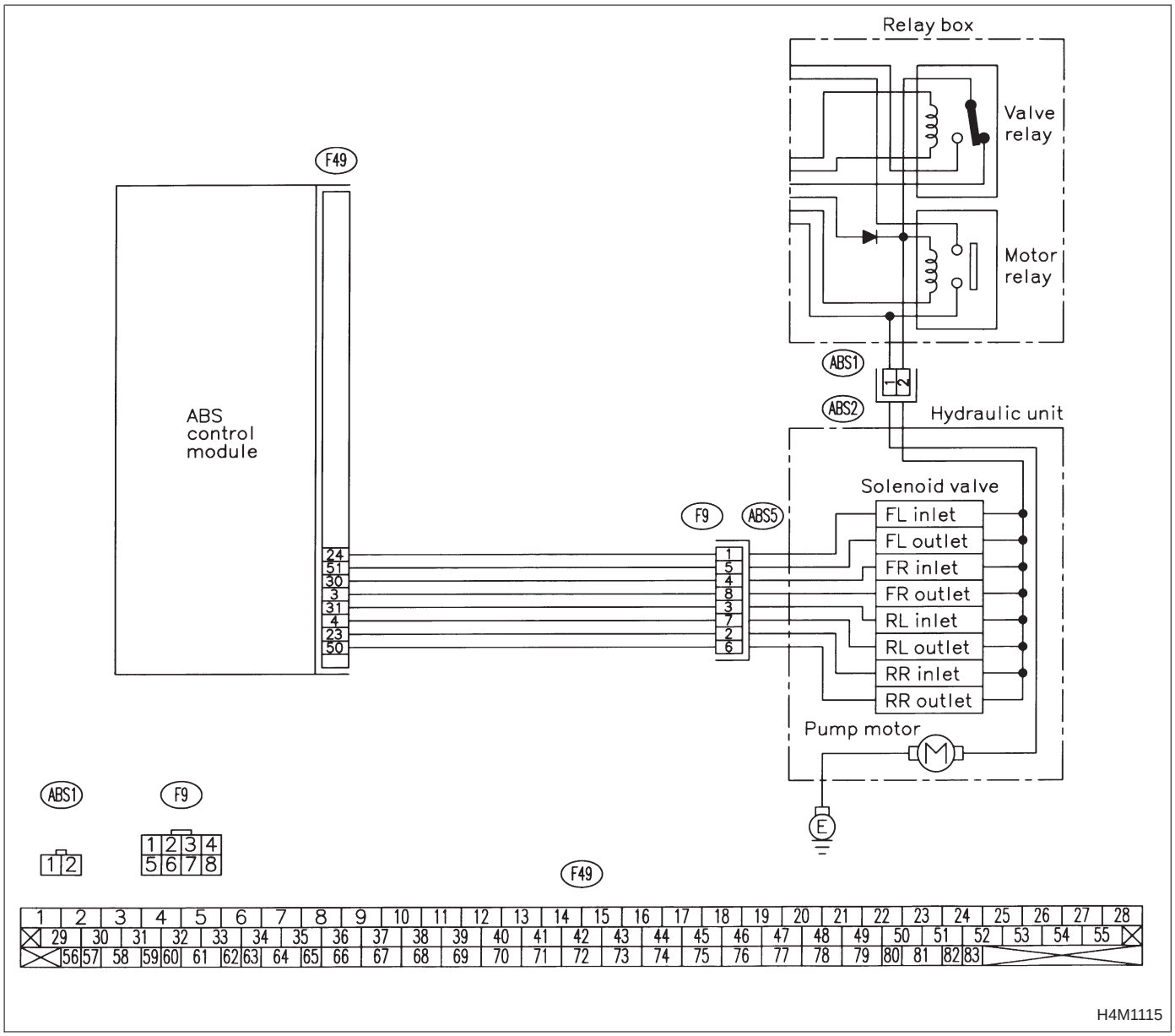
DIAGNOSIS:

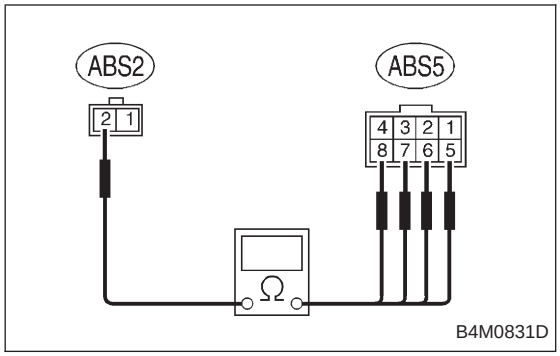
- Faulty harness/connector
- Faulty outlet solenoid valve in hydraulic unit

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



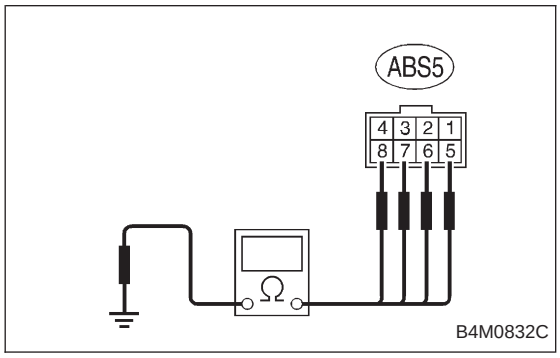


8R1	CHECK RESISTANCE OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 32 / (ABS5) No. 8 — (ABS2) No. 2:
Trouble code 34 / (ABS5) No. 5 — (ABS2) No. 2:
Trouble code 36 / (ABS5) No. 6 — (ABS2) No. 2:
Trouble code 38 / (ABS5) No. 7 — (ABS2) No. 2:

CHECK ***: Is the resistance between 3.8 and 4.8 Ω?***
YES : Go to step **8R2**.
NO : Replace hydraulic unit.

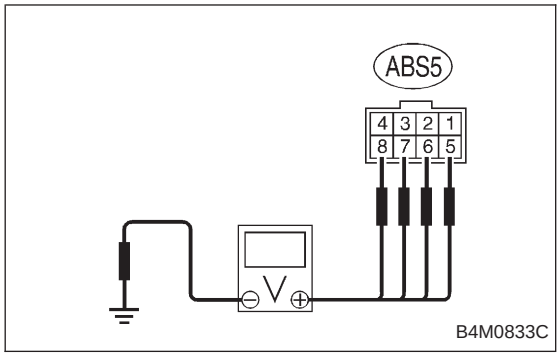


8R2	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 32 / (ABS5) No. 8 — Chassis ground:
Trouble code 34 / (ABS5) No. 5 — Chassis ground:
Trouble code 36 / (ABS5) No. 6 — Chassis ground:
Trouble code 38 / (ABS5) No. 7 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8R3**.
NO : Replace hydraulic unit.

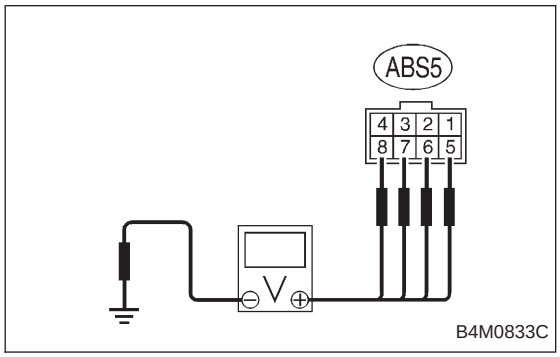


8R3	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Disconnect connector from ABSCM.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 32 / (ABS5) No. 8 (+) — Chassis ground (−):
Trouble code 34 / (ABS5) No. 5 (+) — Chassis ground (−):
Trouble code 36 / (ABS5) No. 6 (+) — Chassis ground (−):
Trouble code 38 / (ABS5) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8R4**.
NO : Replace hydraulic unit.

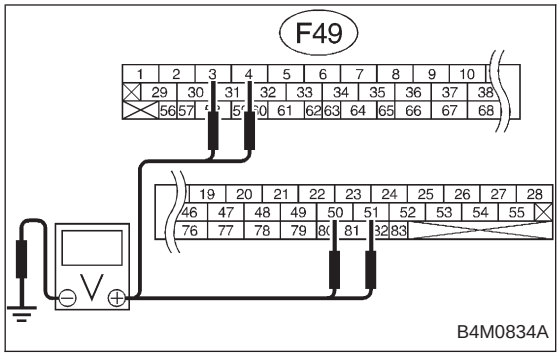


8R4	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 32 / (ABS5) No. 8 (+) — Chassis ground (−):
Trouble code 34 / (ABS5) No. 5 (+) — Chassis ground (−):
Trouble code 36 / (ABS5) No. 6 (+) — Chassis ground (−):
Trouble code 38 / (ABS5) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8R5**.
NO : Replace hydraulic unit.

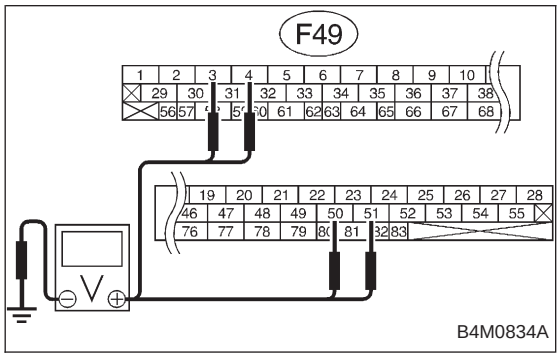


8R5	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 (+) — Chassis ground (−):
Trouble code 34 / (F49) No. 51 (+) — Chassis ground (−):
Trouble code 36 / (F49) No. 50 (+) — Chassis ground (−):
Trouble code 38 / (F49) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8R6**.
NO : Repair harness between ABSCM and hydraulic unit.

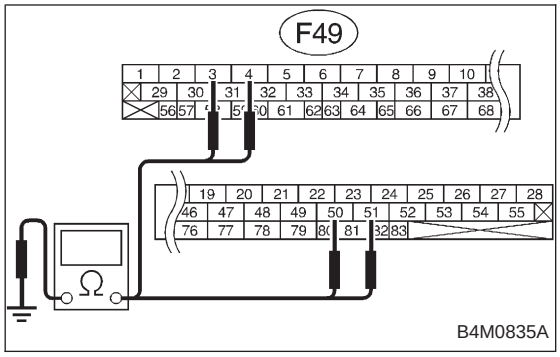


8R6	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 (+) — Chassis ground (−):
Trouble code 34 / (F49) No. 51 (+) — Chassis ground (−):
Trouble code 36 / (F49) No. 50 (+) — Chassis ground (−):
Trouble code 38 / (F49) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8R7**.
NO : Repair harness between ABSCM and hydraulic unit.

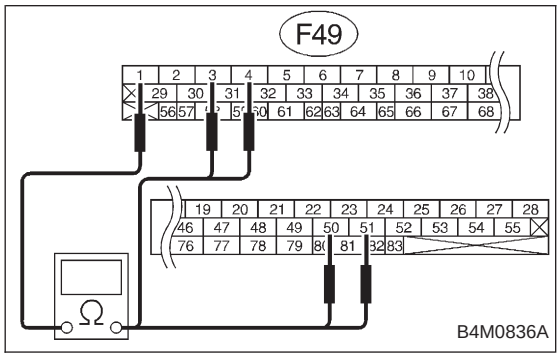


8R7	CHECK GROUND SHORT OF HARNESS.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 — Chassis ground:
Trouble code 34 / (F49) No. 51 — Chassis ground:
Trouble code 36 / (F49) No. 50 — Chassis ground:
Trouble code 38 / (F49) No. 4 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8R8**.
NO : Repair harness between ABSCM and hydraulic unit.



8R8	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 — No. 1:
Trouble code 34 / (F49) No. 51 — No. 1:
Trouble code 36 / (F49) No. 50 — No. 1:
Trouble code 38 / (F49) No. 4 — No. 1:

CHECK ***: Is the resistance between 4.3 and 5.3 Ω?***
YES : Go to step **8R9**.
NO : Repair harness/connector between ABSCM and hydraulic unit.

8R9	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Go to step **8R10**.

8R10	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 step **8R11**.

8R11	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

S: TROUBLE CODE 41
— ABNORMAL ABS CONTROL MODULE —

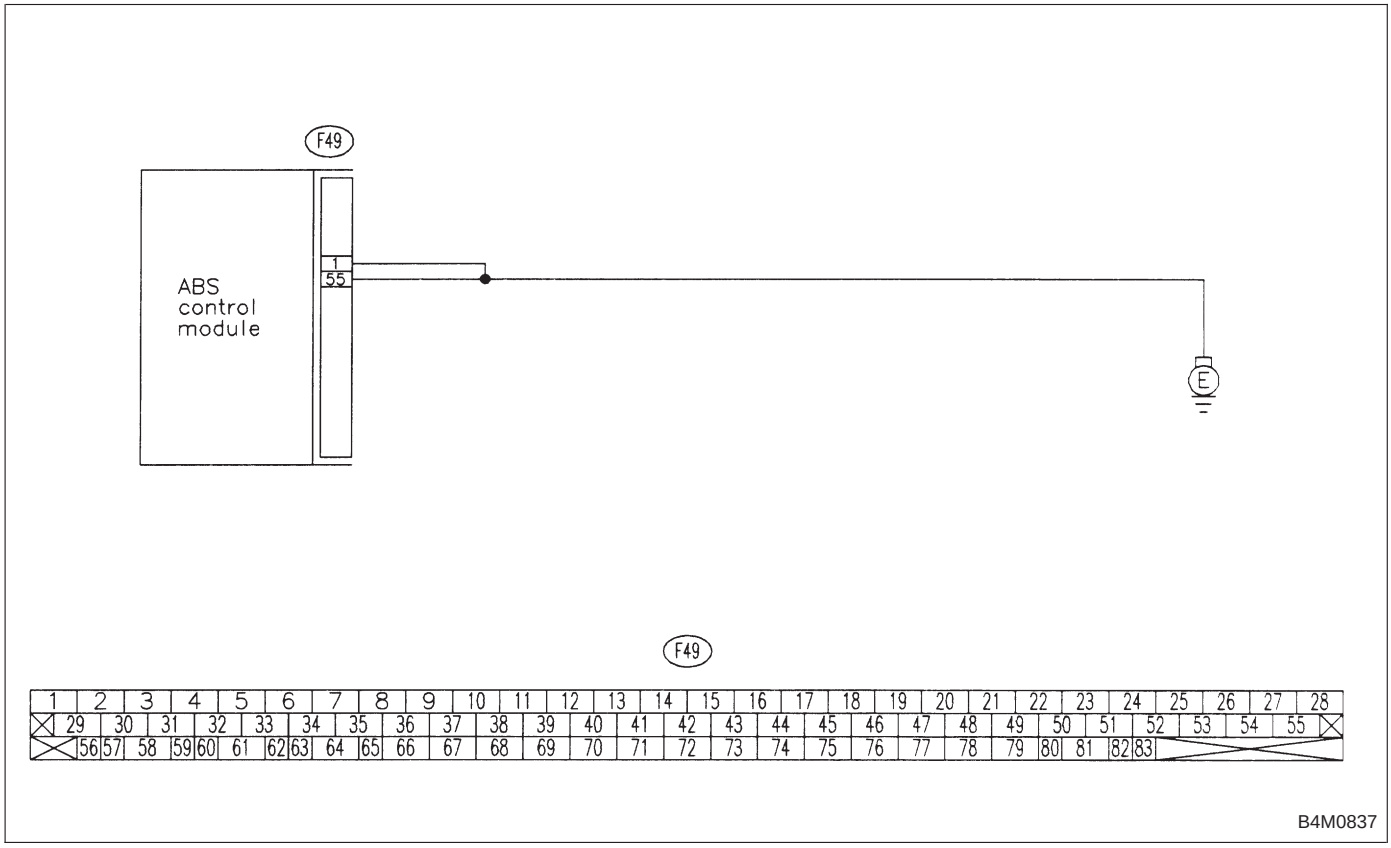
DIAGNOSIS:

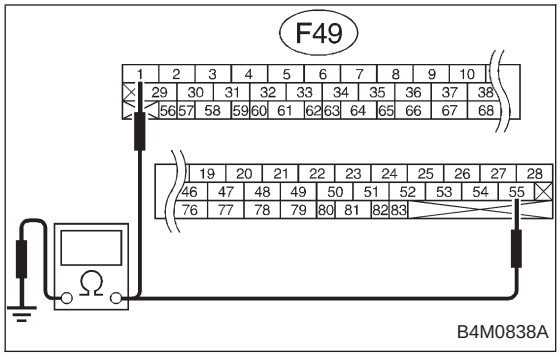
- Faulty ABSCM

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





8S1	CHECK GROUND CIRCUIT OF ABSCM.

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

Connector & terminal
(F49) No. 1 — Chassis ground:
(F49) No. 55 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8S2**.
NO : Repair ABSCM ground harness.

8S2	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between battery, ignition switch and ABSCM? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Go to step **8S3**.

8S3	CHECK SOURCES OF SIGNAL NOISE.

CHECK ***: Is the car telephone or the wireless transmitter properly installed?***
YES : Go to step **8S4**.
NO : Properly install the car telephone or the wireless transmitter.

8S4	CHECK SOURCES OF SIGNAL NOISE.

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 **8S5**.

8S5	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 step **8S6**.

8S6	**CHECK ANY OTHER TROUBLE CODES APPEARANCE.**

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

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

NO : A temporary poor contact.

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

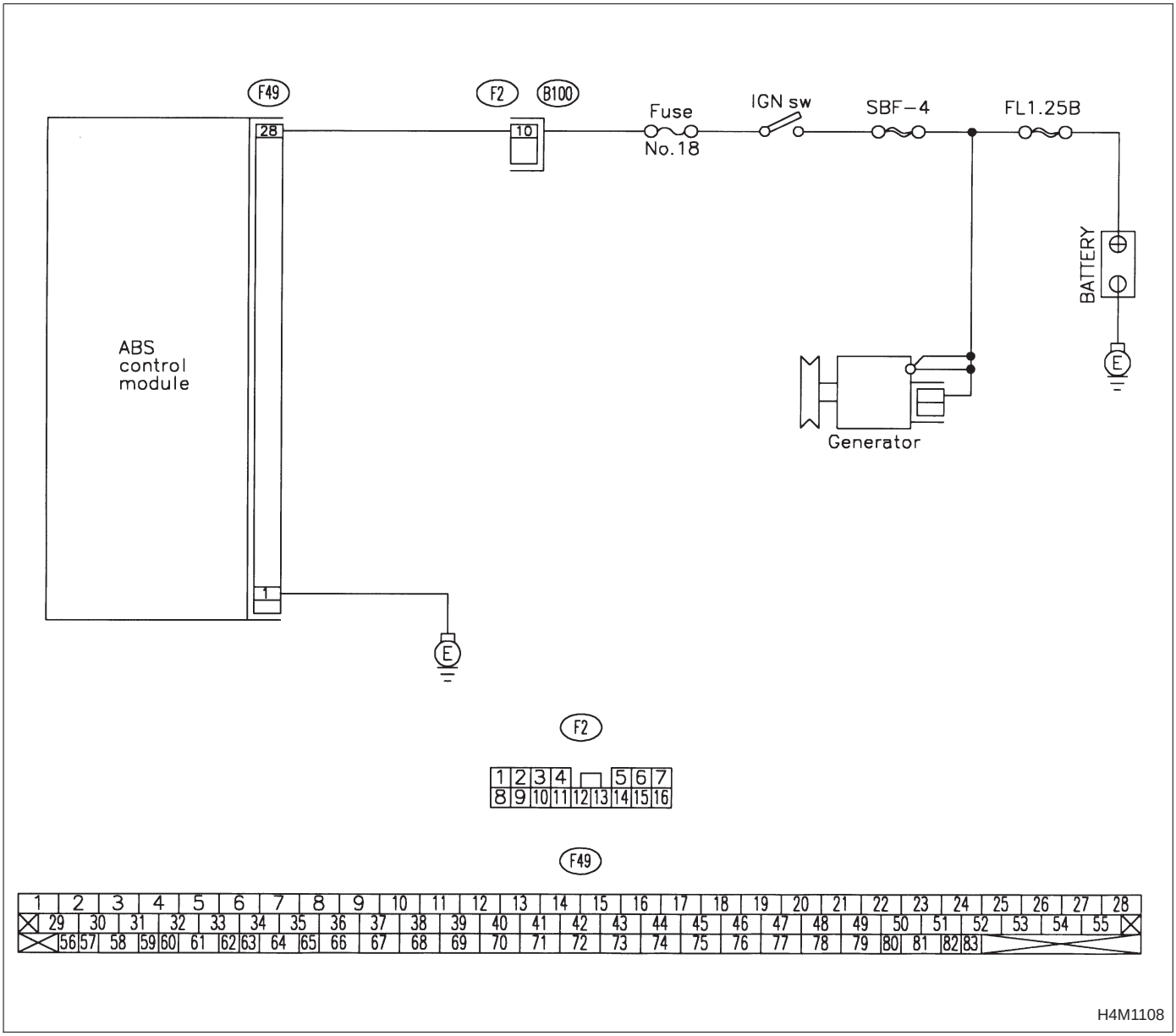
DIAGNOSIS:

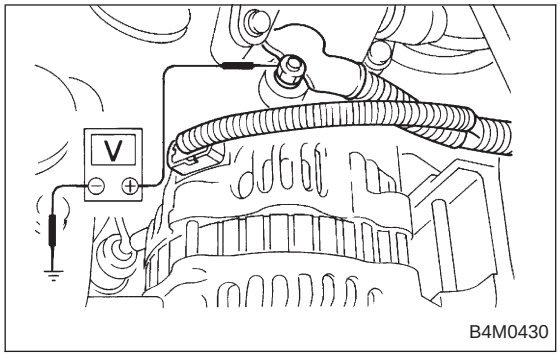
- Power source voltage of the ABSCM is low.

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





8T1	CHECK GENERATOR.

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

Terminal
Generator B terminal — Chassis ground:

CHECK ***: Is the voltage between 10 V and 15 V?***

YES : Go to step **8T2**.

NO : Repair generator.

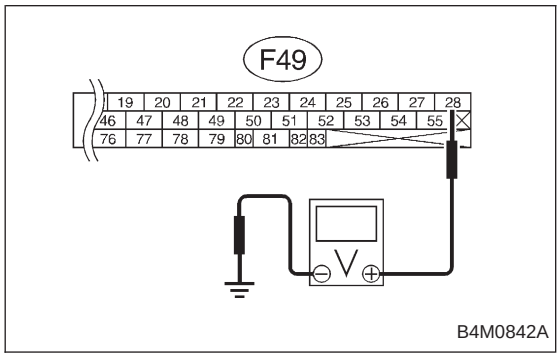
8T2	CHECK BATTERY TERMINAL.

Turn ignition switch to OFF.

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

YES : Go to step **8T3**.

NO : Tighten the clamp of terminal.



8T3	CHECK INPUT VOLTAGE OF ABSCM.

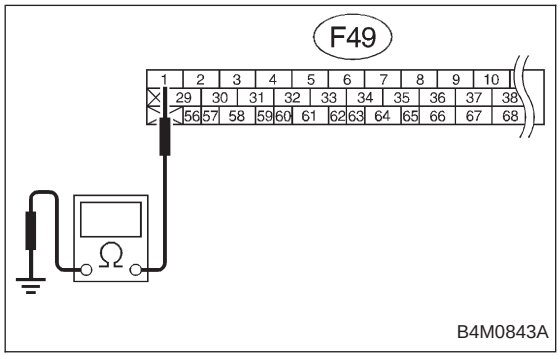
1) Disconnect connector from ABSCM.
2) Run the engine at idle.
3) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 28 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 15 V?***

YES : Go to step **8T4**.

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



8T4	CHECK GROUND CIRCUIT OF ABSCM.

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

Connector & terminal
(F49) No. 1 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **8T5**.

NO : Repair ABSCM ground harness.

8T5	CHECK POOR CONTACT IN CONNECTORS.

CHECK : ***Is there poor contact in connectors between generator, battery and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **8T6**.

8T6	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 step **8T7**.

8T7	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

U: TROUBLE CODE 44 — A COMBINATION OF AT CONTROL ABNORMAL —

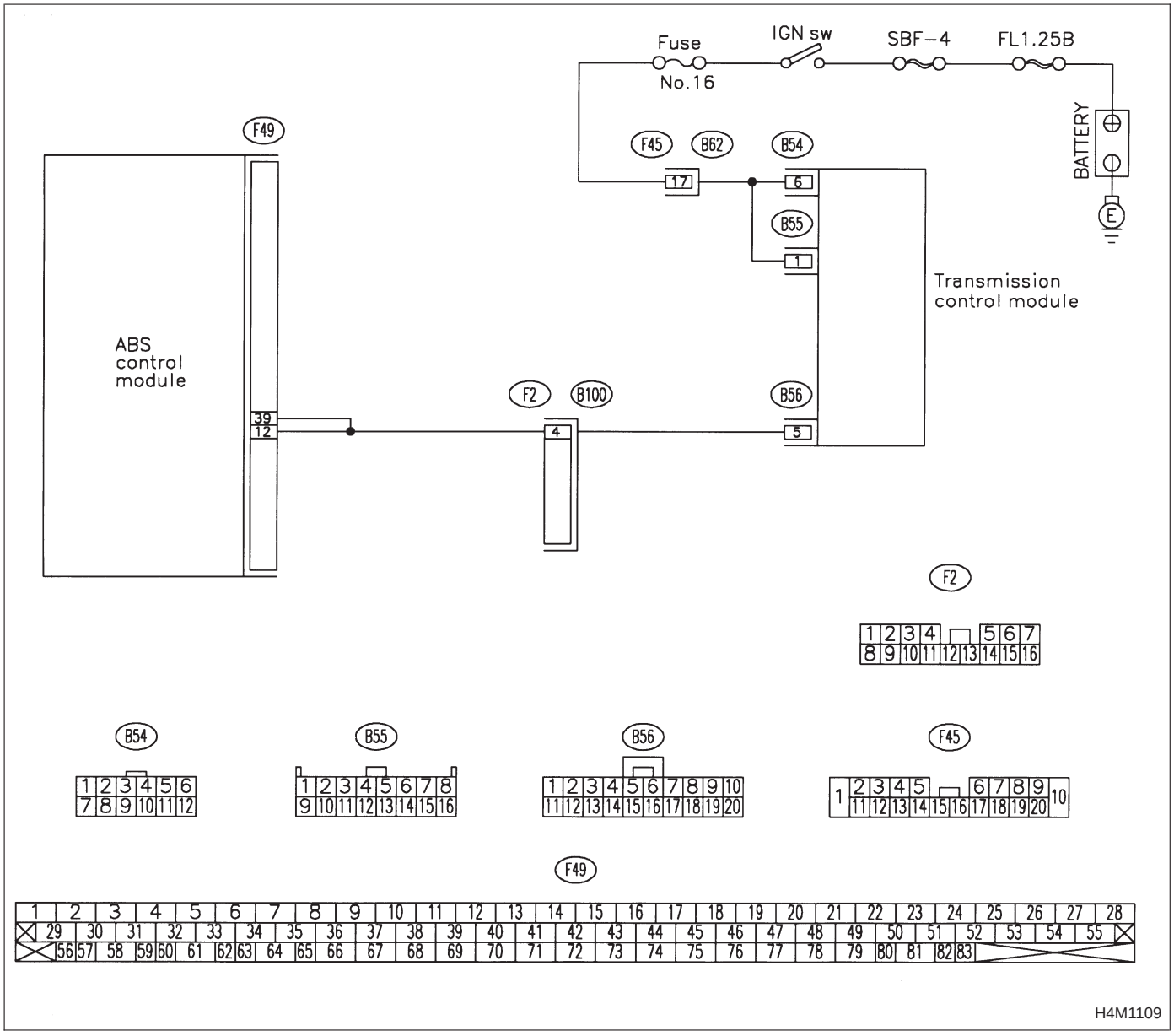
DIAGNOSIS:

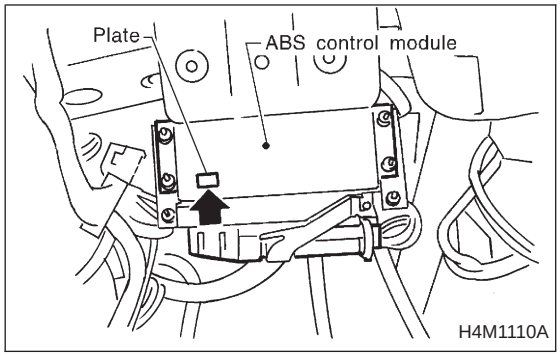
- Combination of AT control faults

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





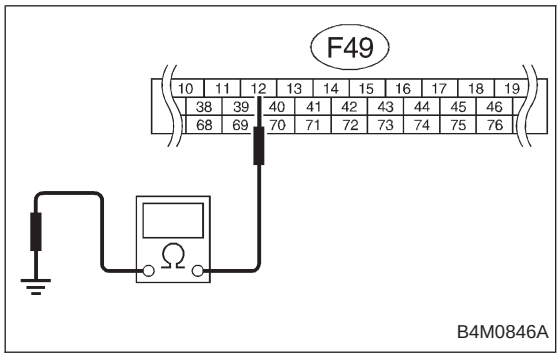
8U1	CHECK SPECIFICATIONS OF THE ABSCM.

Check specifications of the plate attached to the ABSCM.

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

YES : Replace ABSCM.

NO : Go to step **8U2**.



8U2	CHECK GROUND SHORT OF HARNESS.

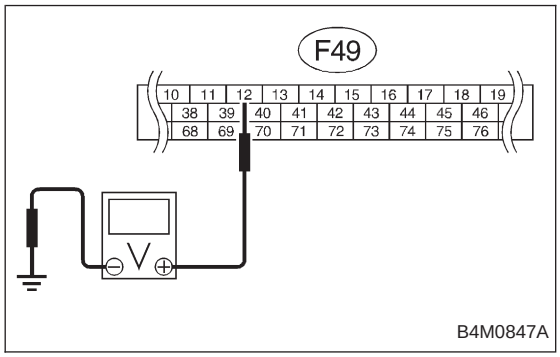
1) Turn ignition switch to OFF.
2) Disconnect two connectors from TCM.
3) Disconnect connector from ABSCM.
4) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8U3**.

NO : Repair harness between TCM and ABSCM.



8U3	CHECK BATTERY SHORT OF HARNESS.

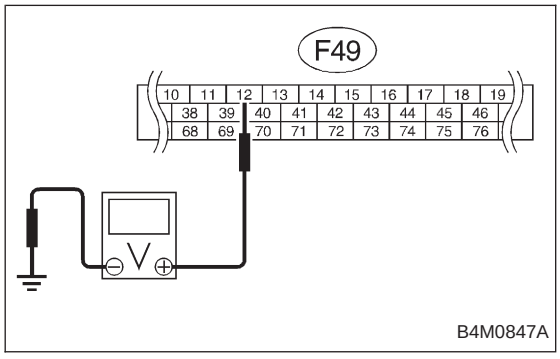
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8U4**.

NO : Repair harness between TCM and ABSCM.



8U4	CHECK BATTERY SHORT OF HARNESS.

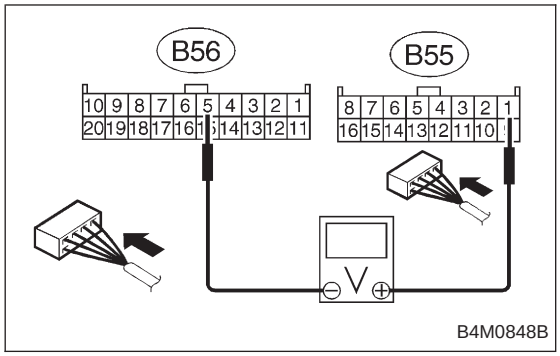
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8U5**.

NO : Repair harness between TCM and ABSCM.



8U5	CHECK TCM.

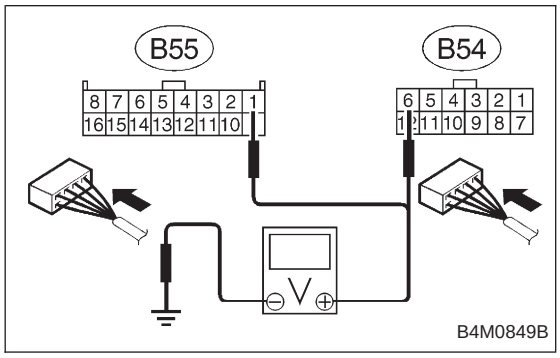
1) Turn ignition switch to OFF.
2) Connect all connectors to TCM.
3) Turn ignition switch to ON.
4) Measure voltage between TCM connector terminals.

Connector & terminal
(B55) No. 1 (+) — (B56) No. 5 (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **8U7**.

NO : Go to step **8U6**.



8U6	CHECK TCM.

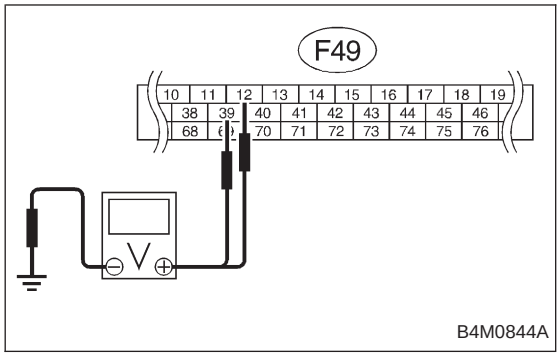
Measure voltage between TCM connector and chassis ground.

Connector & terminal
(B54) No. 6 (+) — Chassis ground (−):
(B55) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Replace TCM.

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



8U7	CHECK OPEN CIRCUIT OF HARNESS.

Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 (+) — Chassis ground (−):
(F49) No. 39 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***
YES : Go to step **8U8**.
NO : Repair harness/connector between TCM and ABSCM.

8U8	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between TCM and ABSCM? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Go to step **8U9**.

8U9	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 step **8U10**.

8U10	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

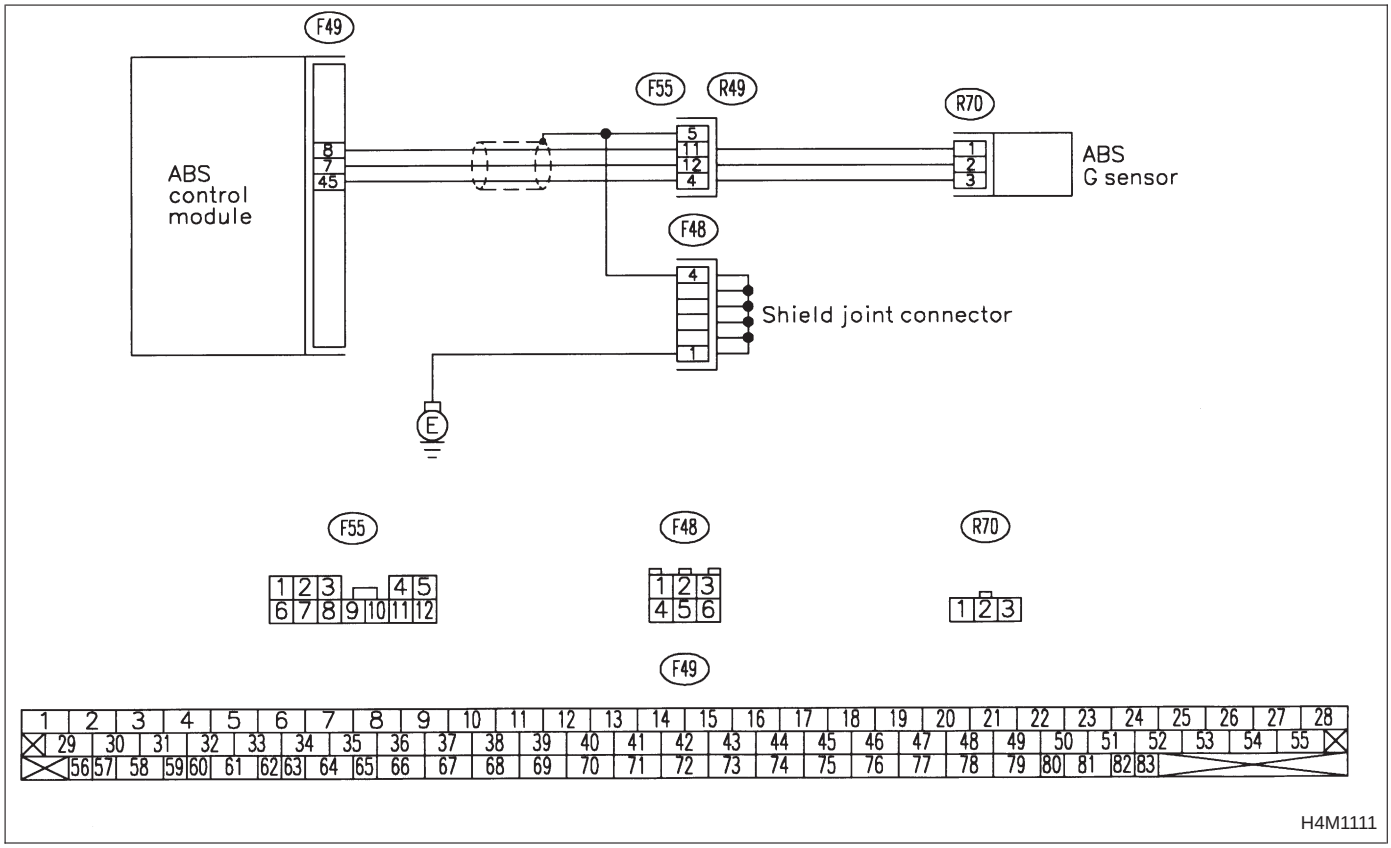
DIAGNOSIS:

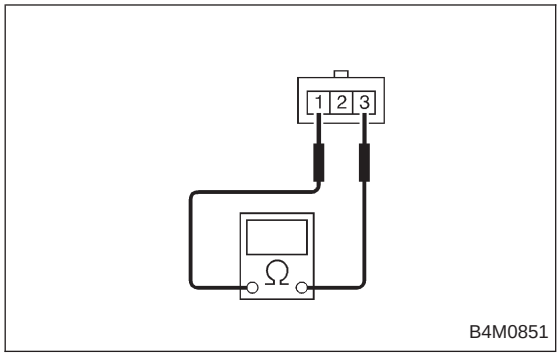
- Faulty G sensor power supply voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



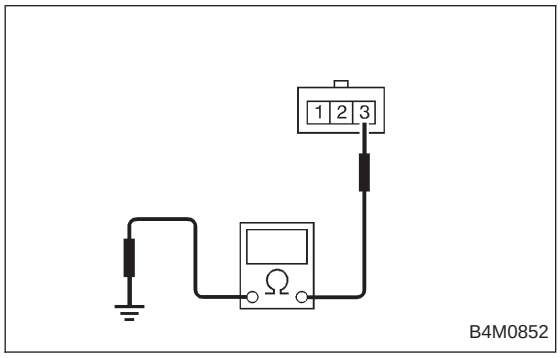


8V1	CHECK G SENSOR.

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

Terminal
No. 1 — No. 3:

CHECK ***: Is the resistance between 42 and 58 kΩ?***
YES : Go to step **8V2**.
NO : Replace G sensor.

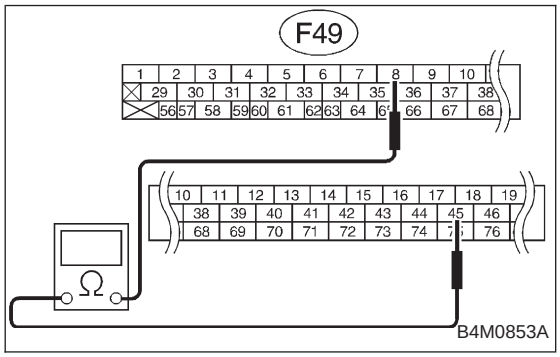


8V2	CHECK GROUND SHORT OF G SENSOR.

Measure resistance between G sensor and bracket.

Terminal
No. 3 — Bracket:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8V3**.
NO : Replace G sensor.

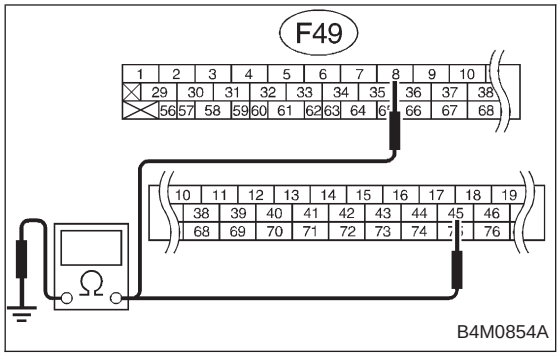


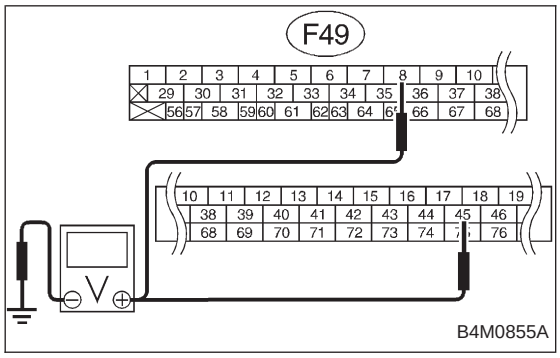
8V3	CHECK SHORT CIRCUIT IN HARNESS BETWEEN ABSCM AND G SENSOR.

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

Connector & terminal
(F49) No. 45 — No. 8:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8V4**.
NO : Repair harness between ABSCM and G sensor.





8V4	CHECK GROUND SHORT OF HARNESS.

Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 8 — Chassis ground:
(F49) No. 45 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8V5**.

NO : Repair harness between ABSCM and G sensor.

8V5	CHECK BATTERY SHORT OF HARNESS.

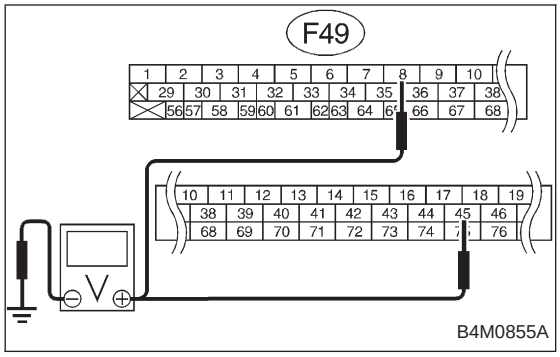
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 8 (+) — Chassis ground (−):
(F49) No. 45 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8V6**.

NO : Repair harness between ABSCM and G sensor.



8V6	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
(F49) No. 8 (+) — Chassis ground (−):
(F49) No. 45 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8V7**.
NO : Repair harness between ABSCM and chassis ground.

8V7	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Go to step **8V8**.

8V8	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 step **8V9**.

8V9	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

W: TROUBLE CODE 51
— ABNORMAL VALVE RELAY —

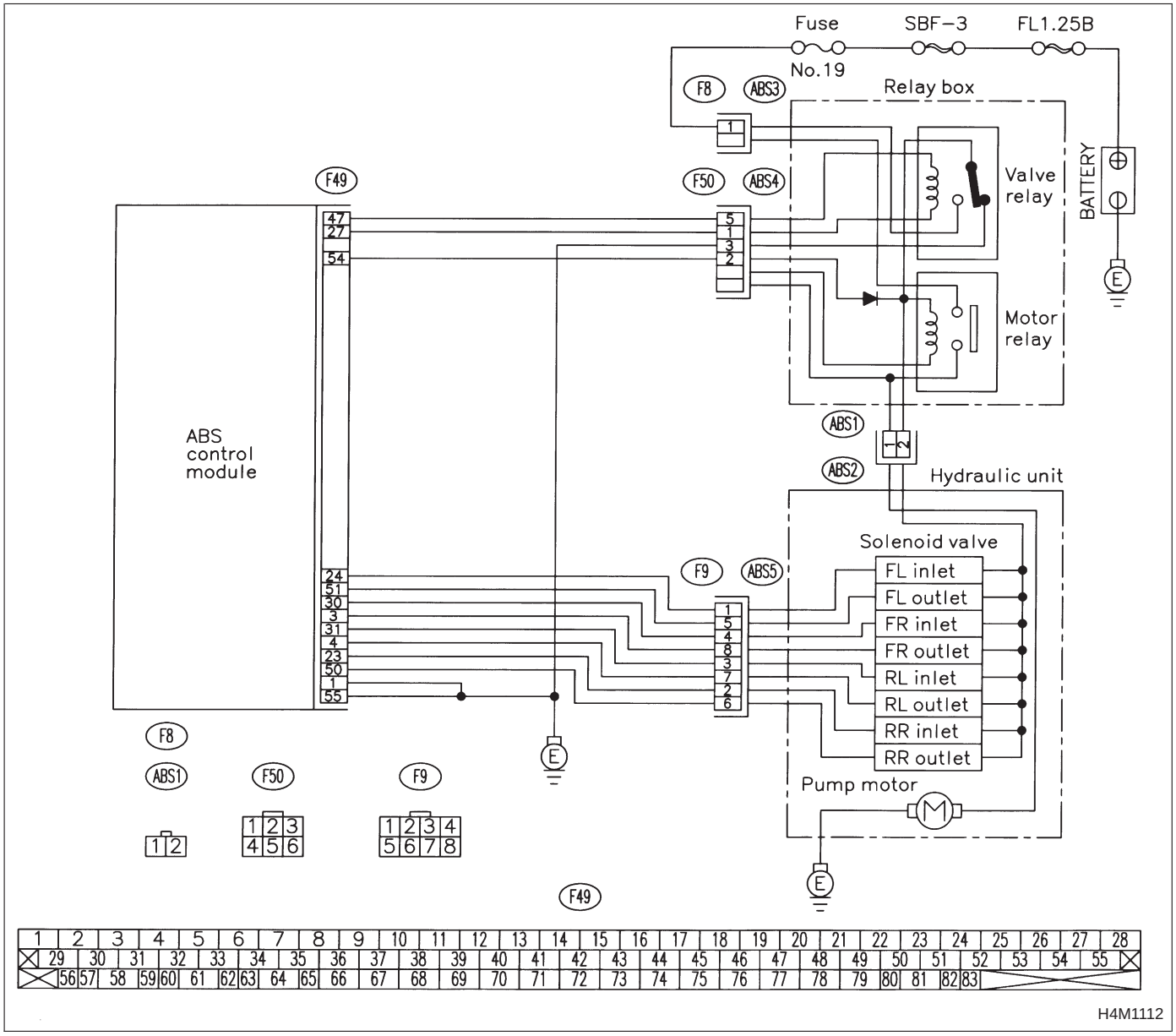
DIAGNOSIS:

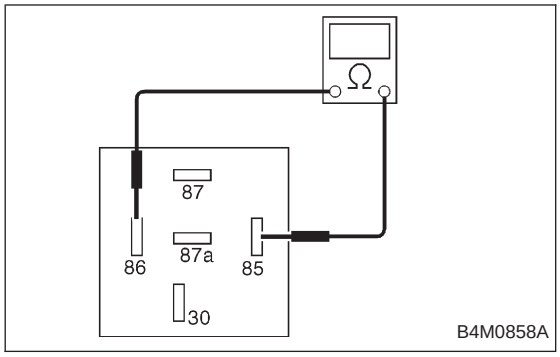
- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





8W1	CHECK RESISTANCE OF VALVE RELAY.

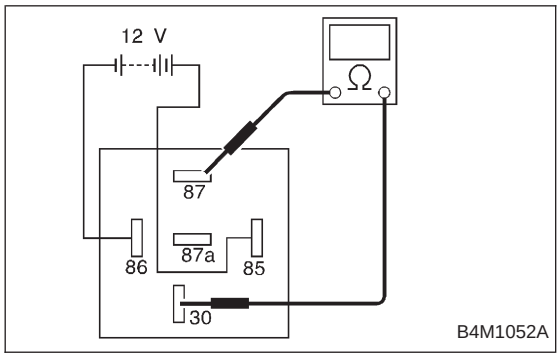
1) Turn ignition switch to OFF.
2) Remove valve relay from relay box.
3) Measure resistance between valve relay terminals.

Terminals
No. 85 — No. 86:

CHECK ***: Is the resistance between 93 and 113 Ω?***

YES : Go to step **8W2**.

NO : Replace valve relay.



8W2	CHECK CONTACT POINT OF VALVE RELAY.

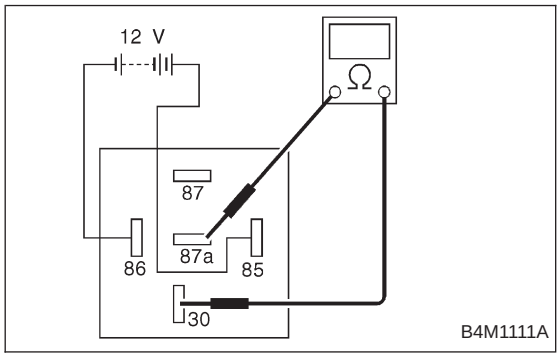
1) Connect battery to valve relay terminals No. 85 and No. 86.
2) Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **8W3**.

NO : Replace valve relay.



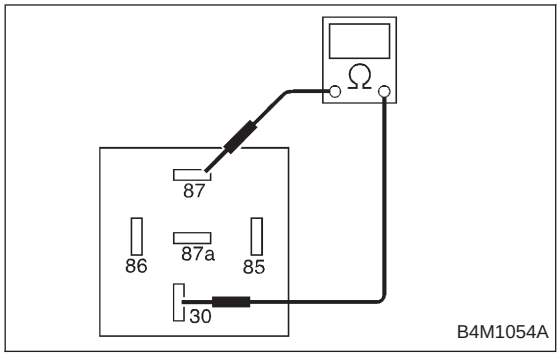
8W3	CHECK CONTACT POINT OF VALVE RELAY.

Measure resistance between valve relay terminals.

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

YES : Go to step **8W4**.

NO : Replace valve relay.



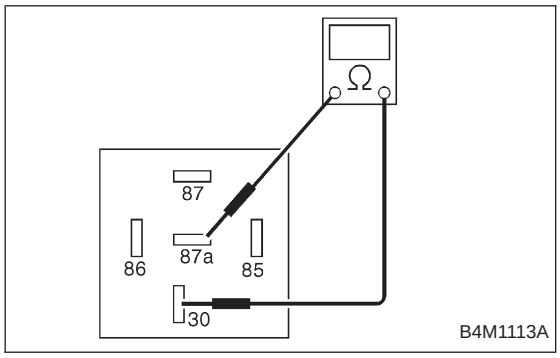
B4M1054A

8W4	CHECK CONTACT POINT OF VALVE RELAY.

1) Disconnect battery from valve relay terminals.
2) Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8W5**.
NO : Replace valve relay.



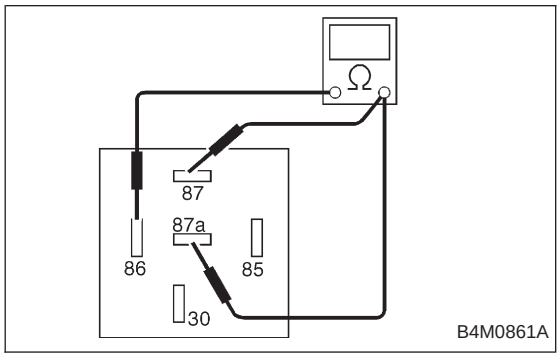
B4M1113A

8W5	CHECK CONTACT POINT OF VALVE RELAY.

Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87a:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8W6**.
NO : Replace valve relay.



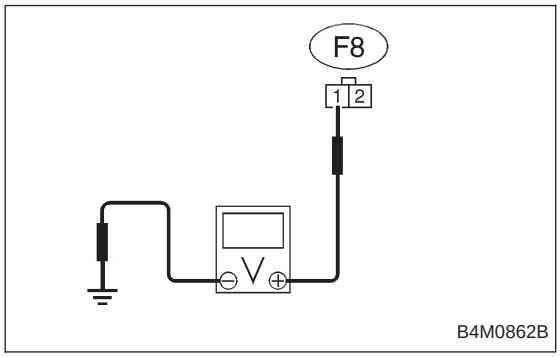
B4M0861A

8W6	CHECK SHORT OF VALVE RELAY.

Measure resistance between valve relay terminals.

Terminals
No. 86 — No. 87:
No. 86 — No. 87a:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8W7**.
NO : Replace valve relay.



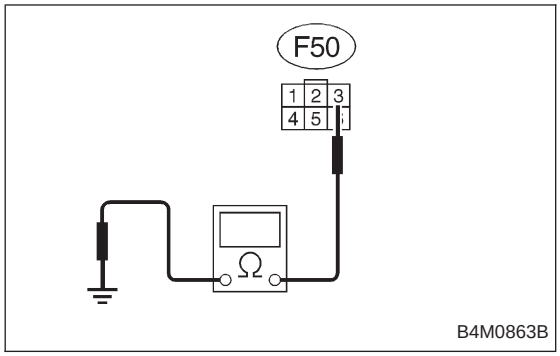
B4M0862B

8W7	CHECK POWER SUPPLY FOR VALVE RELAY.

1) Disconnect connector (F8) from relay box.
2) Turn ignition switch to ON.
3) Measure voltage between relay box connector and chassis ground.

Connector & terminal
(F8) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***
YES : Go to step **8W8**.
NO : Repair harness between battery and relay box connector. Check fuse No. 19.

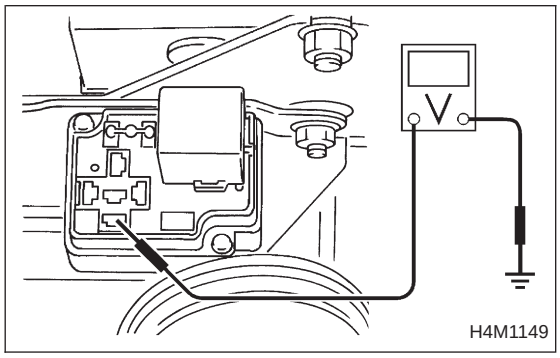


8W8	CHECK GROUND CIRCUIT OF RELAY BOX.

1) Turn ignition switch to OFF.
2) Disconnect connector (F50) from relay box.
3) Measure resistance between relay box connector and chassis ground.

Connector & terminal
(F50) No. 3 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8W9**.
NO : Repair relay box ground harness.

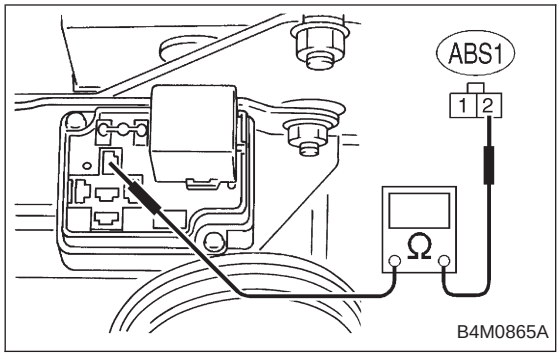


8W9	CHECK OPEN CIRCUIT AND GROUND SHORT IN POWER SUPPLY CIRCUIT OF RELAY BOX.

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

Connector & terminal
Valve relay installing point No. 87 — Chassis ground:

CHECK ***: Is the voltage between 10 V and 13 V?***
YES : Go to step **8W10**.
NO : Replace relay box and check fuse No. 19.

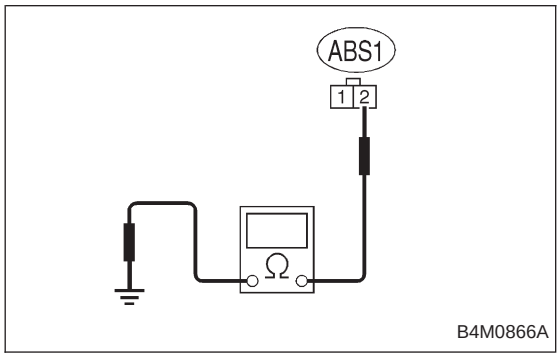


8W10	CHECK OPEN CIRCUIT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Turn ignition switch to OFF.
2) Measure resistance between hydraulic unit connector and valve relay installing point.

Connector & terminal
(ABS1) No. 2 — Valve relay installing point No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8W11**.
NO : Replace relay box.

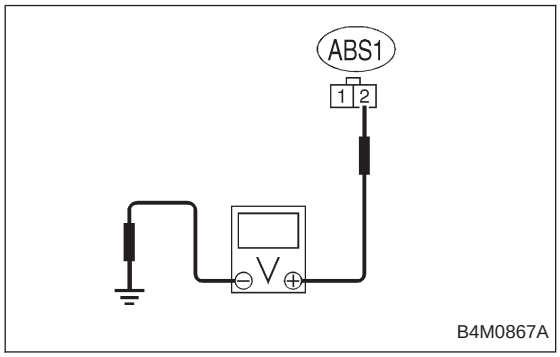


8W11	CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS1) No. 2 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8W12**.
NO : Replace relay box and check fuse SBF6.

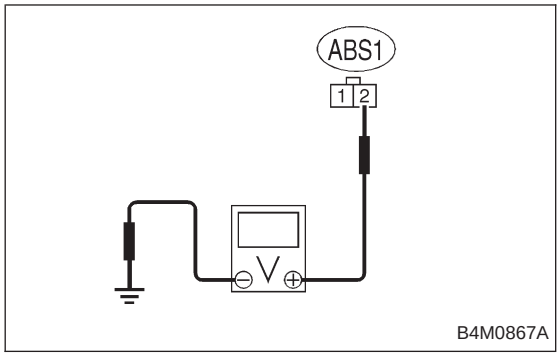


8W12	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS1) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8W13**.
NO : Replace relay box. Check fuse No. 19 and SBF6.



8W13	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

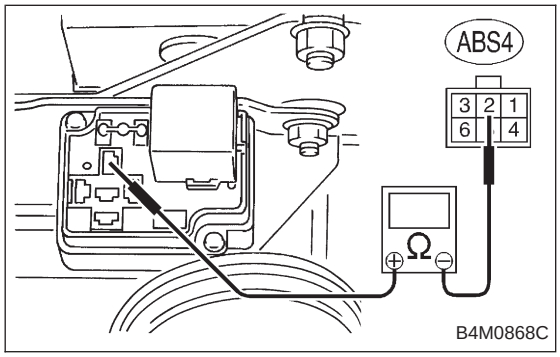
1) Turn ignition switch to ON.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS1) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W14**.

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



8W14	CHECK DIODE OF RELAY BOX.

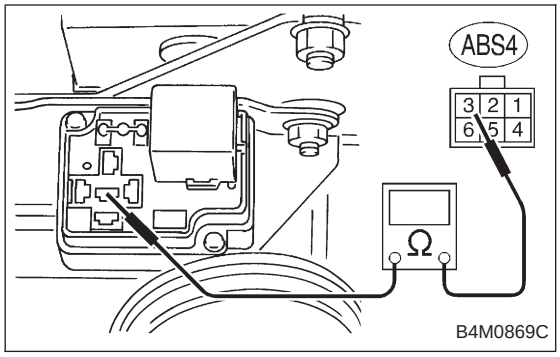
1) Turn ignition switch to OFF.
2) Measure resistance between relay box connector and valve relay installing point.

Connector & terminal
Valve relay installing point No. 30 (+) — (ABS4) No. 2 (−):

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8W15**.

NO : Replace relay box.



8W15	CHECK OPEN CIRCUIT IN GROUND CIRCUIT OF RELAY BOX.

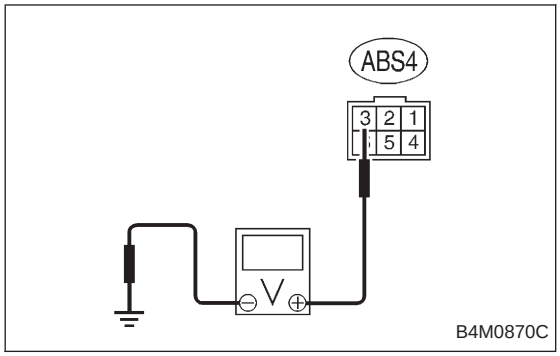
Measure resistance between relay box connector and valve relay installing point.

Connector & terminal
(ABS4) No. 3 — Valve relay installing point No. 87a:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **8W16**.

NO : Replace relay box.



8W16	CHECK BATTERY SHORT IN GROUND CIRCUIT OF RELAY BOX.

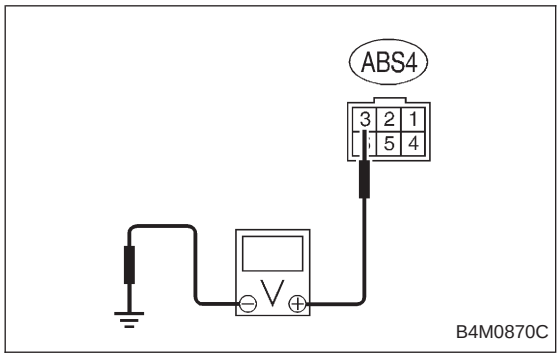
Measure voltage between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W17**.

NO : Replace relay box and check all fuses.



8W17	CHECK BATTERY SHORT IN GROUND CIRCUIT OF RELAY BOX.

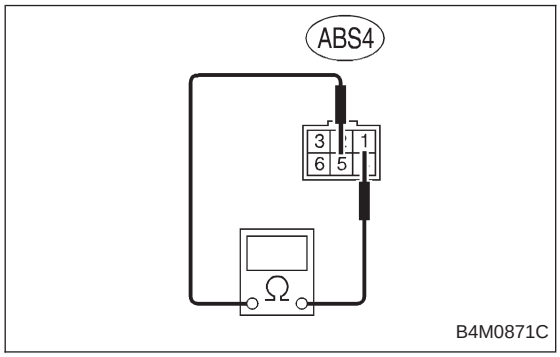
1) Turn ignition switch to ON.
2) Measure voltage between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W18**.

NO : Replace relay box and check all fuses.



8W18	CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.

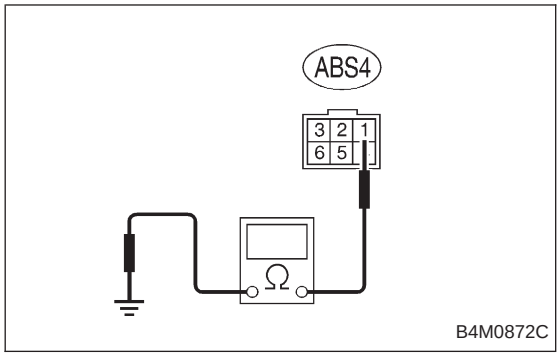
1) Turn ignition switch to OFF.
2) Install valve relay to relay box.
3) Measure resistance between relay box connector terminals.

Connector & terminal
(ABS4) No. 1 — No. 5:

CHECK ***: Is the resistance between 93 and 113 Ω?***

YES : Go to step **8W19**.

NO : Replace relay box.

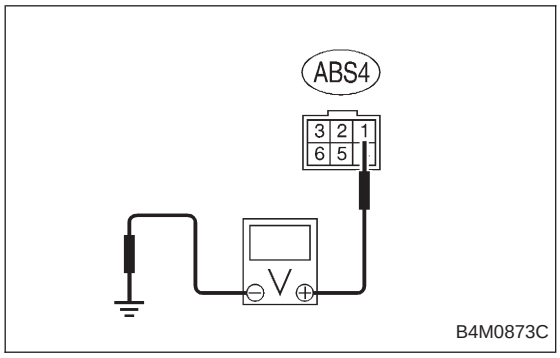


8W19	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure resistance between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 1 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8W20**.
NO : Replace relay box and check all fuses.

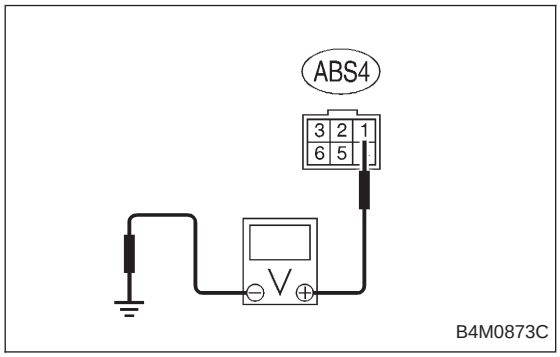


8W20	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure voltage between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8W21**.
NO : Replace relay box. Check fuse No. 19 and SBF45A.

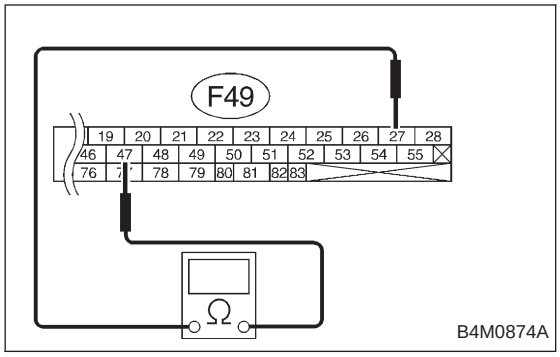


8W21	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS4) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8W22**.
NO : Replace relay box. Check fuse No. 19 and SBF45A.



8W22	CHECK OPEN CIRCUIT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

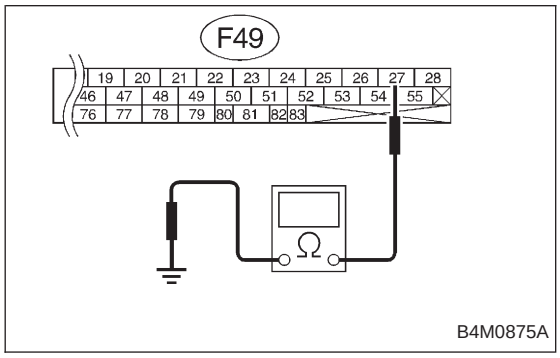
1) Turn ignition switch to OFF.
2) Connect connector (F50) to relay box.
3) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 27 — No. 47:

CHECK ***: Is the resistance between 93 and 113 Ω?***

YES : Go to step **8W23**.

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



8W23	CHECK GROUND SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

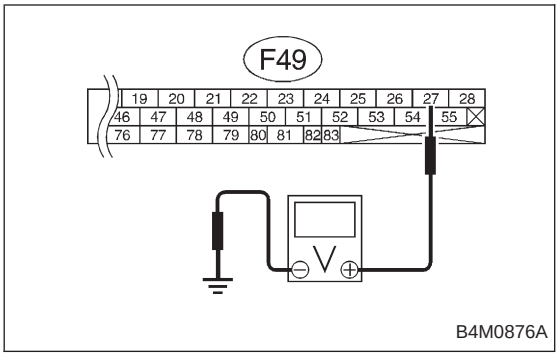
Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 27 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8W24**.

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



8W24	CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

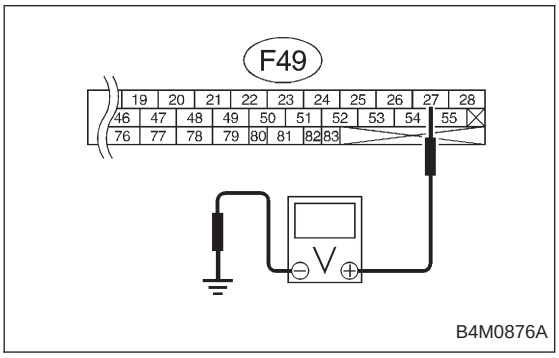
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 27 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W25**.

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



8W25	CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

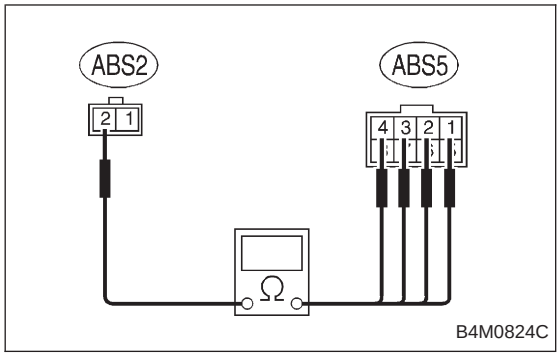
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 27 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W26**.

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

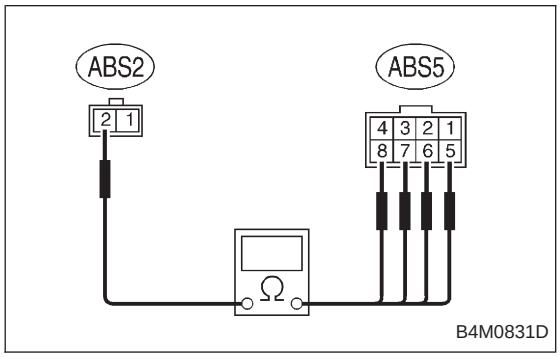


8W26	CHECK RESISTANCE OF INLET SOLENOID VALVE.

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

Connector & terminal
(ABS5) No. 4 — (ABS2) No. 2:
(ABS5) No. 1 — (ABS2) No. 2:
(ABS5) No. 2 — (ABS2) No. 2:
(ABS5) No. 3 — (ABS2) No. 2:

CHECK ***: Is the resistance between 7.8 and 9.2 Ω?***
YES : Go to step **8W27**.
NO : Replace hydraulic unit.

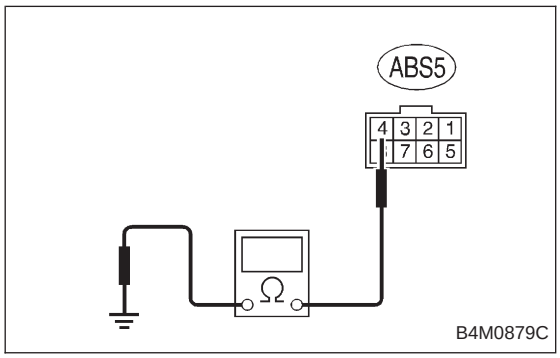


8W27	CHECK RESISTANCE OF OUTLET SOLENOID VALVE.

Measure resistance between hydraulic unit connector terminals.

Connector & terminal
(ABS5) No. 8 — (ABS2) No. 2:
(ABS5) No. 5 — (ABS2) No. 2:
(ABS5) No. 6 — (ABS2) No. 2:
(ABS5) No. 7 — (ABS2) No. 2:

CHECK ***: Is the resistance between 3.8 and 4.8 Ω?***
YES : Go to step **8W28**.
NO : Replace hydraulic unit.

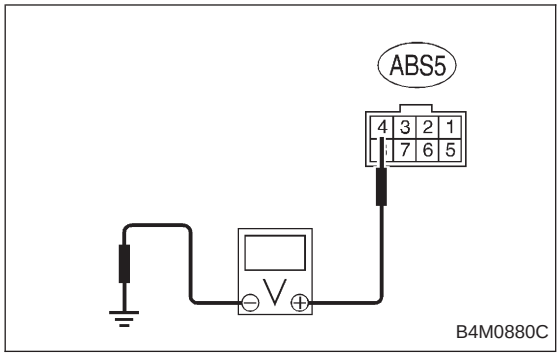


8W28	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8W29**.
NO : Replace hydraulic unit and check all fuses.



8W29	CHECK BATTERY SHORT OF SOLENOID VALVE.

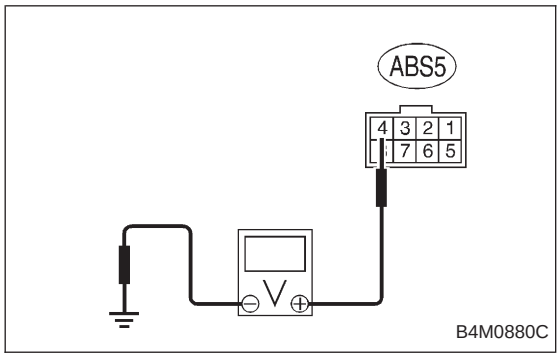
Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W30**.

NO : Replace hydraulic unit and check all fuses.



8W30	CHECK BATTERY SHORT OF SOLENOID VALVE.

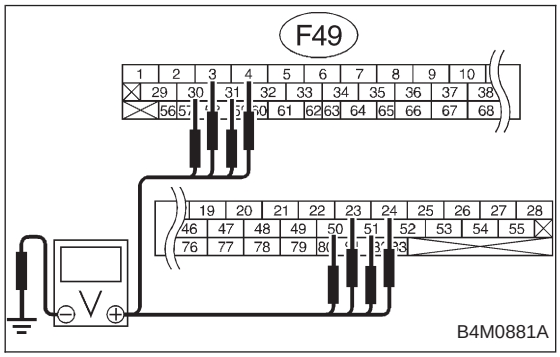
1) Turn ignition switch to ON.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W31**.

NO : Replace hydraulic unit and check all fuses.



8W31	CHECK BATTERY SHORT OF HARNESS.

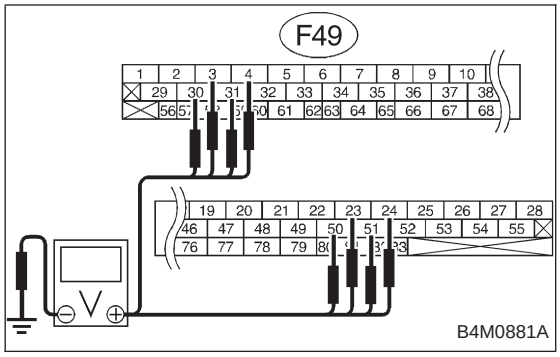
1) Turn ignition switch to OFF.
2) Disconnect connector from hydraulic unit.
3) Measure voltage between ABSCM connector and chassis ground.

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 (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W32**.

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



8W32	CHECK BATTERY SHORT OF HARNESS.

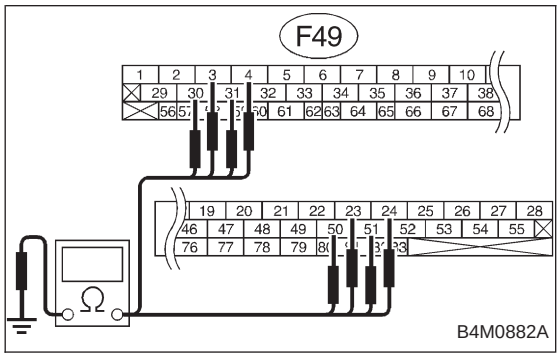
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

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 (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8W33**.

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



8W33	CHECK GROUND SHORT OF HARNESS.

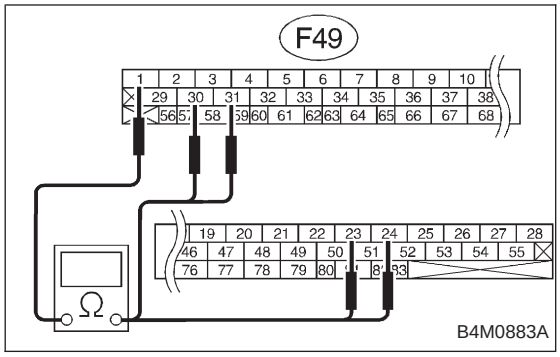
1) Turn ignition switch to OFF.
2) Measure resistance between ABSCM connector and chassis ground.

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:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8W34**.

NO : Repair harness between hydraulic unit and ABSCM.



8W34	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

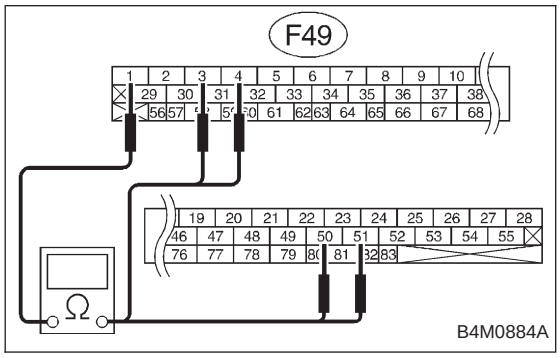
1) Connect connector to hydraulic unit.
2) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 30 — No. 1:
(F49) No. 24 — No. 1:
(F49) No. 23 — No. 1:
(F49) No. 31 — No. 1:

CHECK ***: Is the resistance between 8.3 and 9.7 Ω?***

YES : Go to step **8W35**.

NO : Repair harness/connector between hydraulic unit and ABSCM.



8W35	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 3 — No. 1:
(F49) No. 51 — No. 1:
(F49) No. 50 — No. 1:
(F49) No. 4 — No. 1:

CHECK ***: Is the resistance between 4.3 and 5.3 Ω?***

YES : Go to step **8W36**.

NO : Repair harness/connector between hydraulic unit and ABSCM.

8W36	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connector between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **8W37**.

8W37	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 step **8W38**.

8W38	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

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

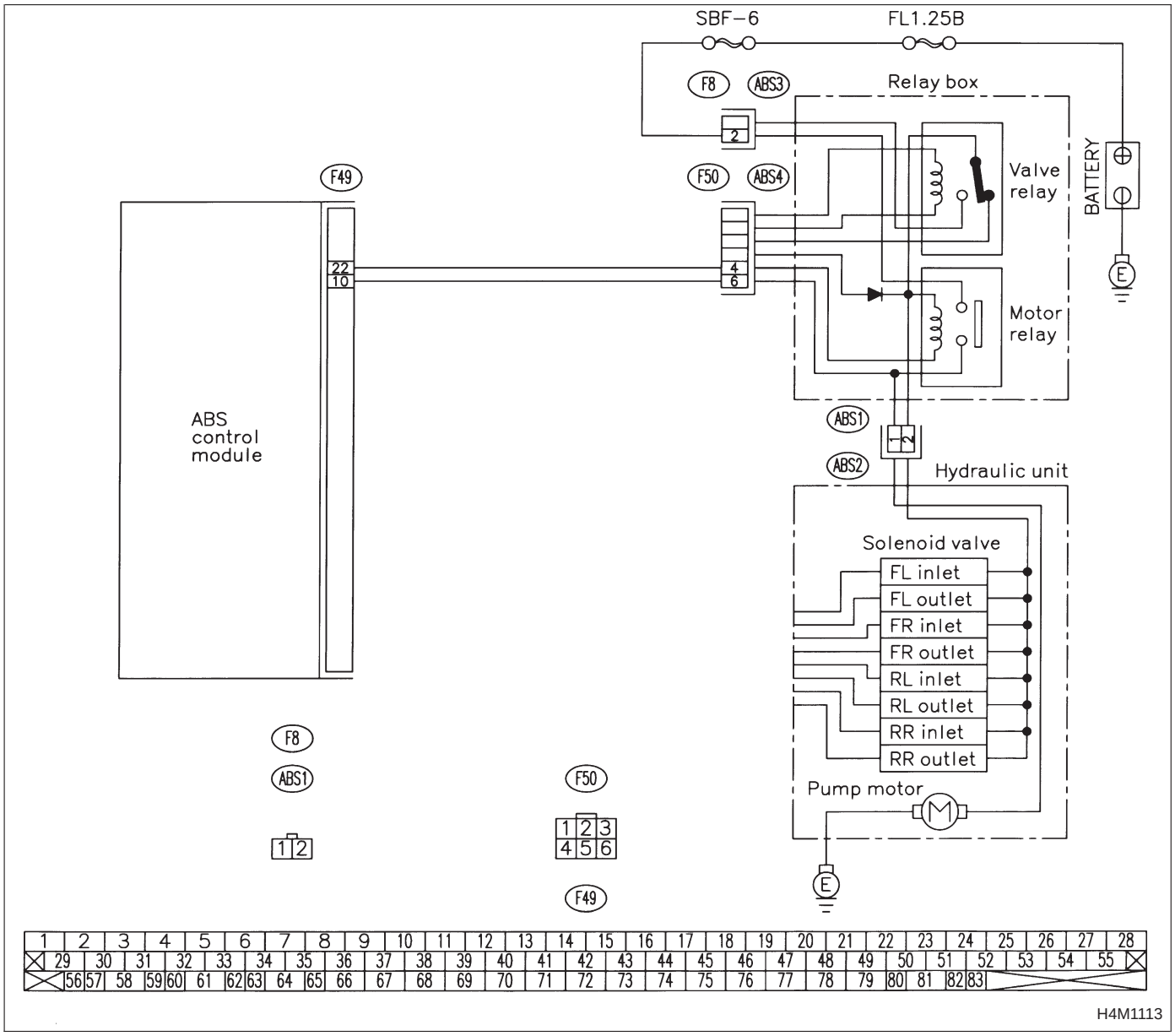
DIAGNOSIS:

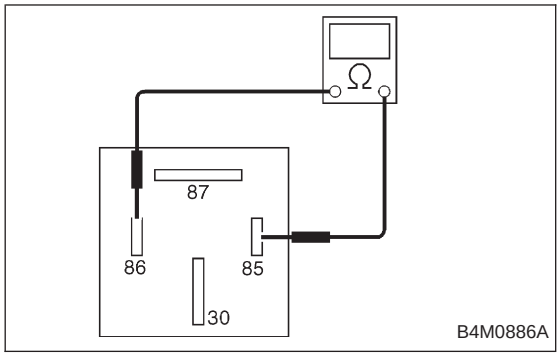
- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



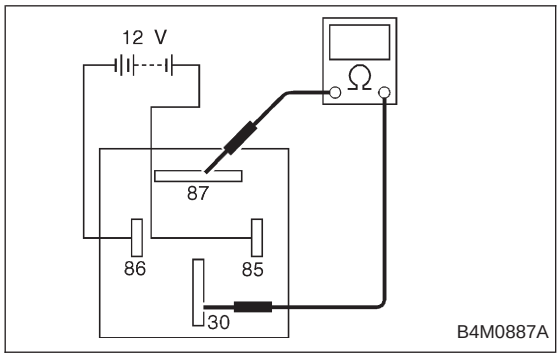


8X1	CHECK RESISTANCE OF MOTOR RELAY.

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

Terminals
No. 85 — No. 86:

CHECK ***: Is the resistance between 70 and 90 Ω?***
YES : Go to step **8X2**.
NO : Replace motor relay.

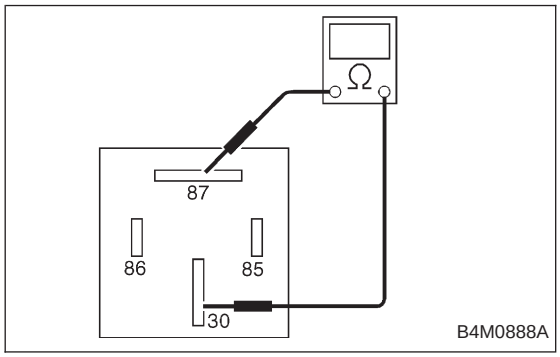


8X2	CHECK CONTACT POINT OF MOTOR RELAY.

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

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8X3**.
NO : Replace motor relay.

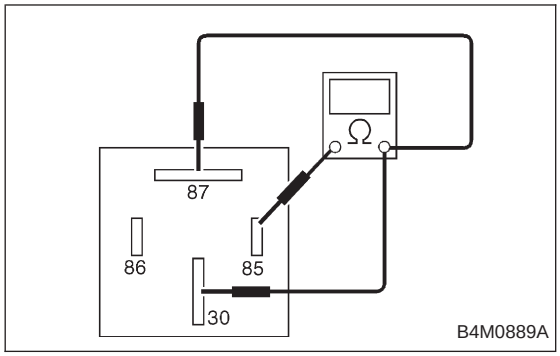


8X3	CHECK CONTACT POINT OF MOTOR RELAY.

1) Disconnect battery from motor relay terminals.
2) Measure resistance between motor relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8X4**.
NO : Replace motor relay.



8X4	CHECK SHORT OF MOTOR RELAY.

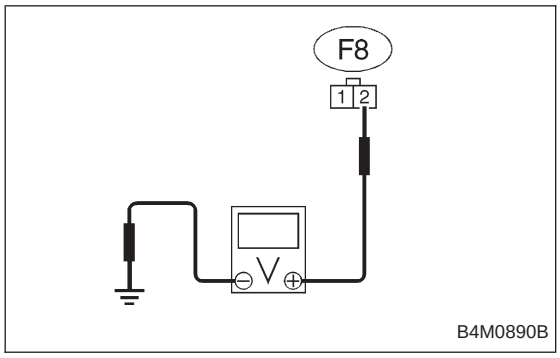
Measure resistance between motor relay terminals.

Terminals
No. 85 — No. 30:
No. 85 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8X5**.

NO : Replace motor relay.



8X5	CHECK INPUT VOLTAGE OF RELAY BOX.

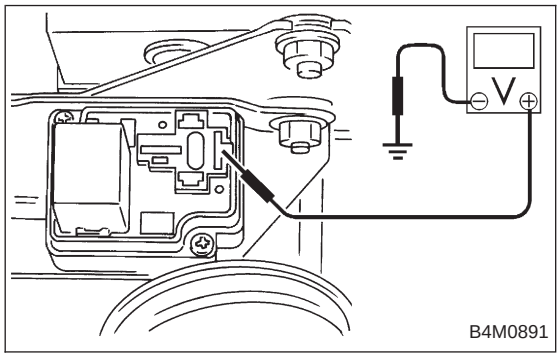
1) Disconnect connector (F8) from relay box.
2) Turn ignition switch to ON.
3) Measure voltage between relay box connector and chassis ground.

Connector & terminal
(F8) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **8X6**.

NO : Repair harness/connector between battery and relay box, and check fuse SBF6.



8X6	CHECK INPUT VOLTAGE OF MOTOR RELAY.

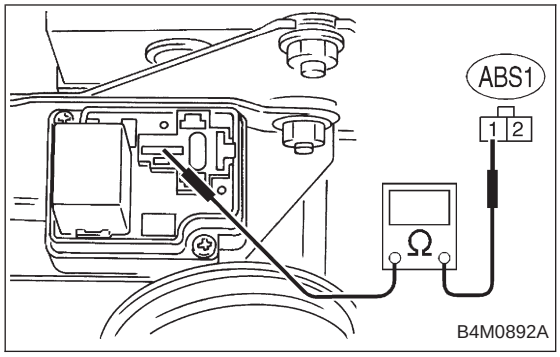
1) Turn ignition switch to OFF.
2) Connect connector (F8) to relay box.
3) Turn ignition switch to ON.
4) Measure voltage between relay box and chassis ground.

Connector & terminal
Relay installing point No. 87 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **8X7**.

NO : Replace relay box, and check fuse SBF6.

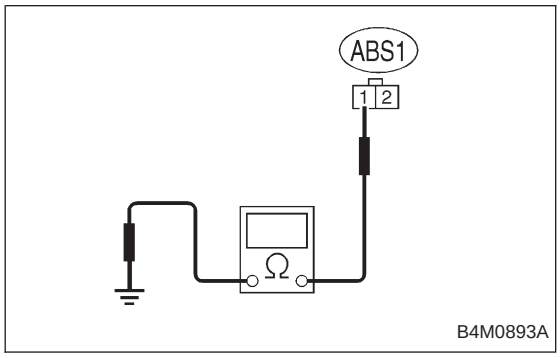


8X7	CHECK OPEN CIRCUIT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Turn ignition switch to OFF.
2) Disconnect connector (ABS1) from hydraulic unit.
3) Measure resistance between hydraulic unit and motor relay installing portion.

Connector & terminal
(ABS1) No. 1 — Motor relay installing portion No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8X8**.
NO : Replace relay box.

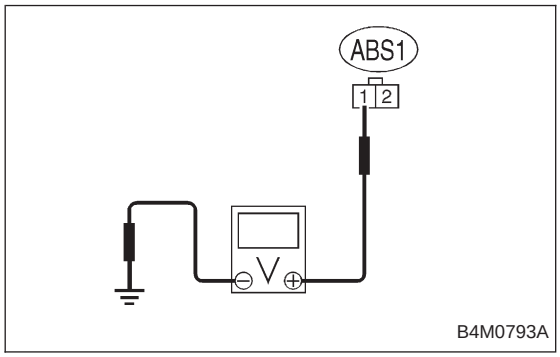


8X8	CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

Measure resistance between hydraulic unit and chassis ground.

Connector & terminal
(ABS1) No. 1 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8X9**.
NO : Replace relay box. Check fuse No. 19.

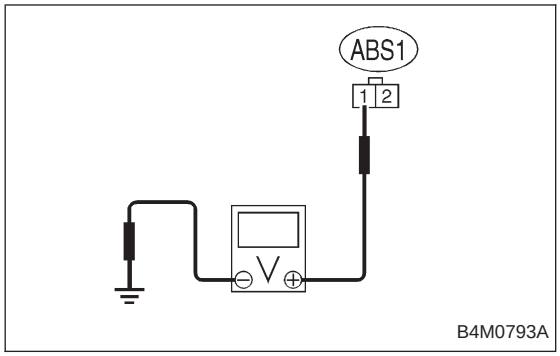


8X9	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(ABS1) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8X10**.
NO : Replace relay box.

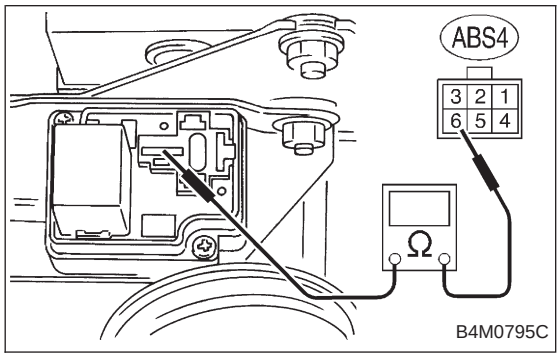


8X10	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS1) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8X11**.
NO : Replace relay box.

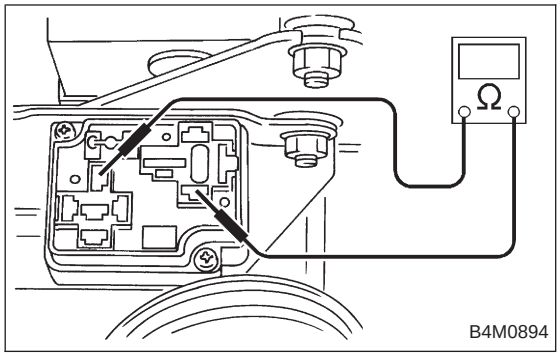


8X11	CHECK OPEN CIRCUIT IN MONITOR SYSTEM CIRCUIT OF RELAY BOX.

1) Turn ignition switch to OFF.
2) Disconnect connector (F50) from relay box.
3) Measure resistance between relay box connector and motor relay installing point.

Connector & terminal
(ABS4) No. 6 — Motor relay installing point No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8X12**.
NO : Replace relay box.

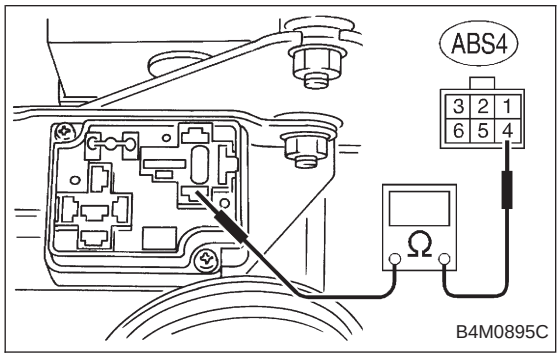


8X12	CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
Motor relay installing point No. 86 — Valve relay installing point No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8X13**.
NO : Replace relay box.

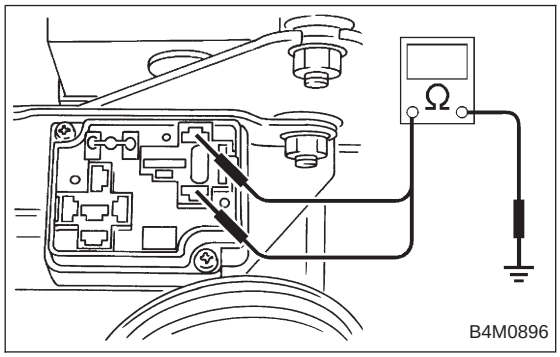


8X13	CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
Motor relay installing point No. 86 — (ABS4) No. 4:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8X14**.
NO : Replace relay box.

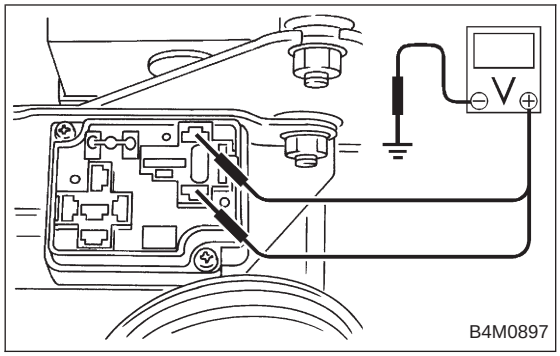


8X14	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure resistance between relay box and chassis ground.

Connector & terminal
Motor relay installing point No. 86 — Chassis ground:
Motor relay installing point No. 85 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **8X15**.
NO : Replace relay box. Check fuse No. 19.

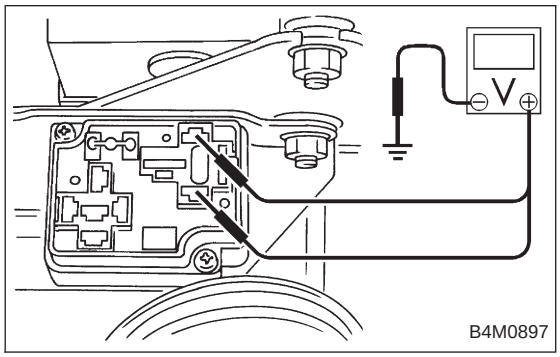


8X15	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure voltage between motor relay installing point and chassis ground.

Connector & terminal
Motor relay installing point (+) No. 86 — Chassis ground (−):
Motor relay installing point (+) No. 85 — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8X16**.
NO : Replace relay box and check all fuses.

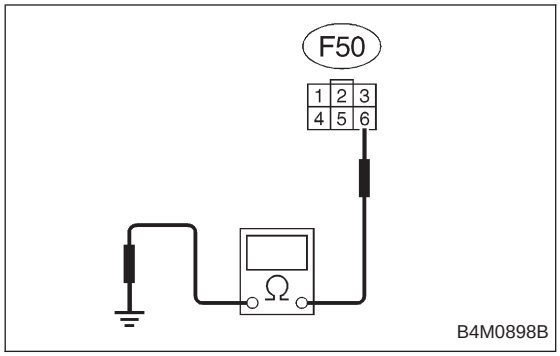


8X16	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
Motor relay installing point (+) No. 86 — Chassis ground:
Motor relay installing point (+) No. 85 — Chassis ground:

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8X17**.
NO : Replace relay box and check all fuses.



8X17	CHECK OPEN CIRCUIT IN MONITOR SYSTEM HARNESS.

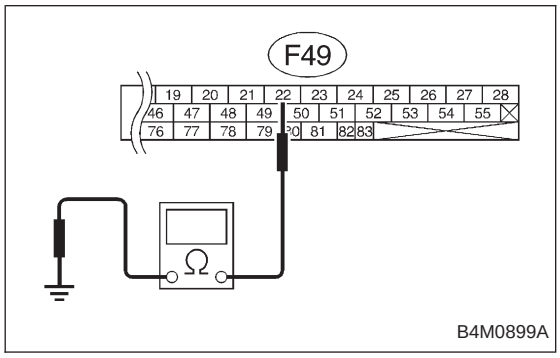
1) Turn ignition switch to OFF.
2) Connect between terminals No. 10 and No. 1 of ABSCM connector (F49) with a lead wire.
3) Measure resistance between relay box connector and chassis ground.

Connector & terminal
(F50) No. 6 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **8X18**.

NO : Repair harness/connector between ABSCM and relay box.



8X18	CHECK OPEN CIRCUIT IN RELAY CONTROL SYSTEM HARNESS.

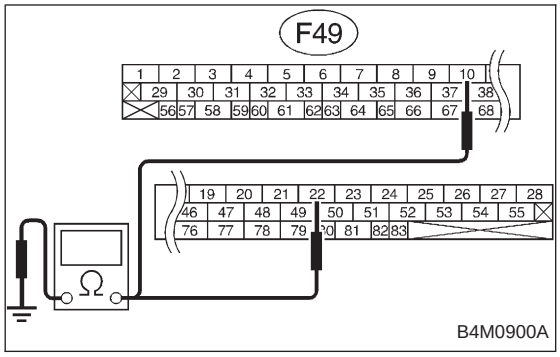
1) Connect valve relay and motor relay to relay box.
2) Connect connector (F50) to relay box.
3) Connect connector to hydraulic unit.
4) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 22 — Chassis ground:

CHECK ***: Is the resistance between 70 and 90 Ω?***

YES : Go to step **8X19**.

NO : Repair harness/connector between ABSCM and relay box.



8X19	CHECK GROUND SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

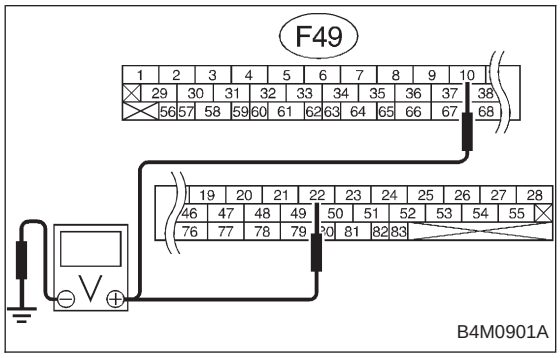
1) Disconnect connector (F50) from relay box.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 22 — Chassis ground:
(F49) No. 10 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8X20**.

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



8X20	CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

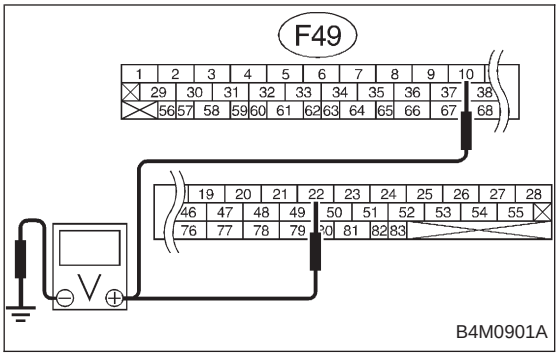
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 22 (+) — Chassis ground (−):
(F49) No. 10 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8X21**.

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

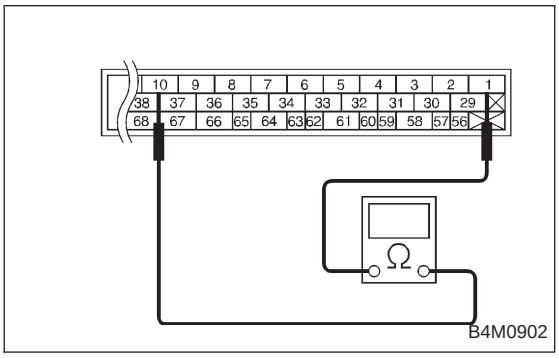


8X21	CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

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

Connector & terminal
(F49) No. 22 (+) — Chassis ground (−):
(F49) No. 10 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **8X22**.
NO : Repair harness between relay box and ABSCM. Check fuse SBF6.

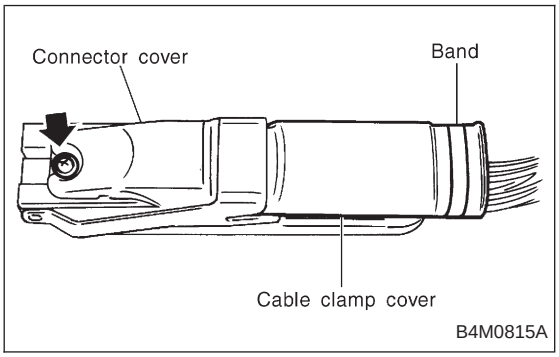


8X22	CHECK GROUND SHORT AT ABSCM MONITOR TERMINAL.

1) Turn ignition switch to OFF.
2) Measure resistance between ABSCM terminals.

Terminal
No. 10 — No. 1:

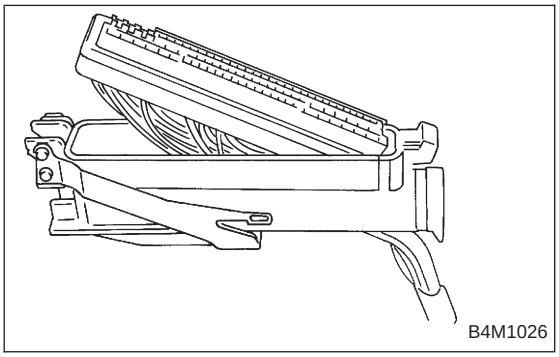
CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **8X23**.
NO : Replace ABSCM.



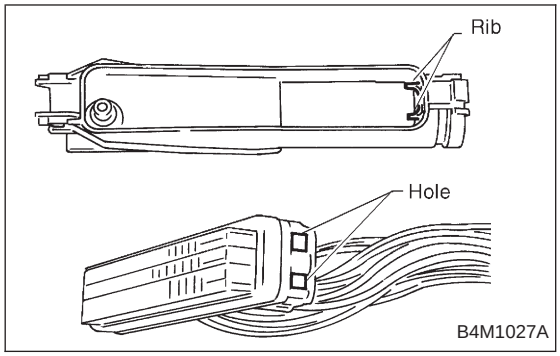
8X23	CHECK BATTERY SHORT IN ABSCM CONNECTOR TERMINAL.

1) Remove band.
2) Remove cable clamp cover.
3) Remove screws securing connector cover.

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

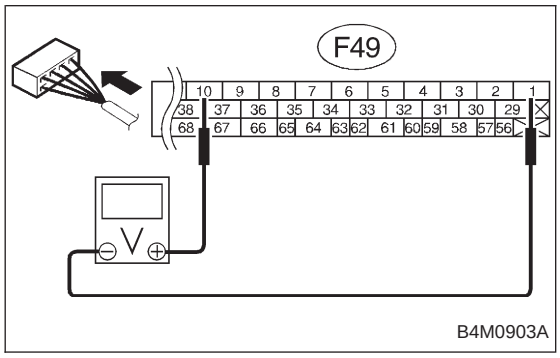


4) Remove connector cover.

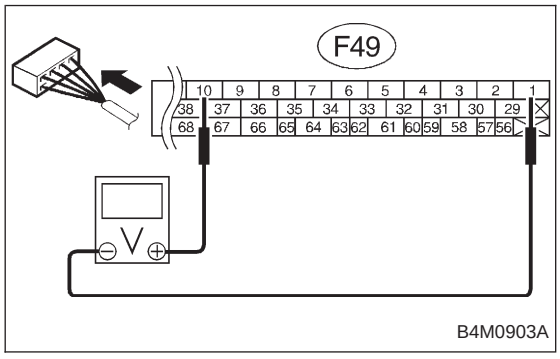


NOTE:
- To install, reverse above removal procedures.
- Align connector cover rib with connector hole before installation.

5) Connect all connectors.

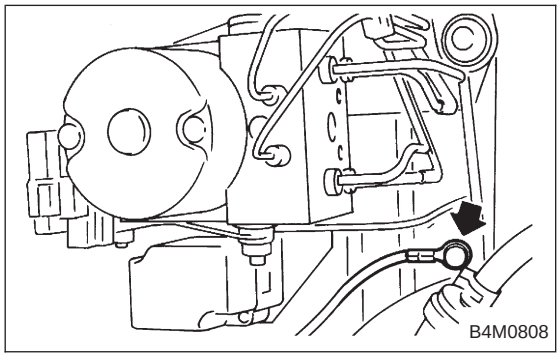


6) Measure voltage between ABSCM connector terminals.
Connector & terminal
(F49) No. 10 (+) — No. 1 (−):
CHECK ***: Is the voltage less than 2 V?***
YES : Go to step **8X24**.
NO : Replace ABSCM.



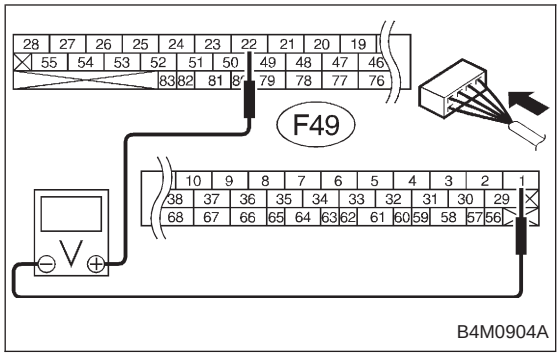
8X24	CHECK BATTERY SHORT IN ABSCM CONNECTOR TERMINAL.

1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector terminals.
Connector & terminal
(F49) No. 10 (+) — No. 1 (−):
CHECK ***: Is the voltage less than 2 V?***
YES : Go to step **8X25**.
NO : Replace ABSCM.



8X25	CHECK CONDITION OF MOTOR GROUND.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb):
CHECK ***: Is the motor ground terminal tightly clamped?***
YES : Go to step **8X26**.
NO : Tighten the clamp of motor ground terminal.



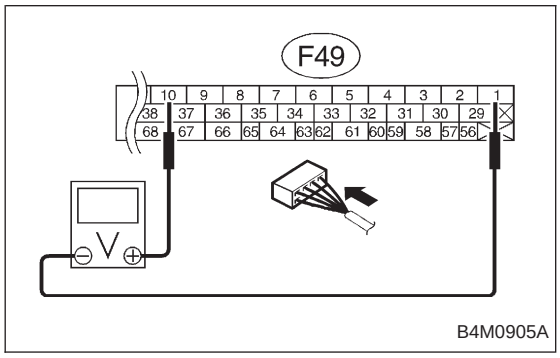
8X26	CHECK ABSCM MOTOR DRIVE TERMINAL.

1) Operate the check sequence. <Ref. to 4-4 [W12D0].>
2) Measure voltage between ABSCM connector terminals.

Connector & terminal
(F49) No. 22 (+) — No. 1 (−):

CHECK ***: Does the voltage drop from between 10 V and 13 V to less than 1.5 V, and rise to between 10 V and 13 V again when carrying out the check sequence?***

YES : Go to step **8X27**.
NO : Replace ABSCM.



8X27	CHECK MOTOR OPERATION.

1) Operate the check sequence. <Ref. to 4-4 [W12D0].>
2) Measure voltage between ABSCM connector terminals.

Connector & terminal
(F49) No. 10 (+) — No. 1 (−):

CHECK ***: Does the voltage raise from less than 1.5 V to between 10 V and 13 V, and return to less than 1.5 V again when carrying out the check sequence?***

YES : Go to step **8X28**.
NO : Replace hydraulic unit.

8X28	CHECK MOTOR OPERATION.

Operate the check sequence. <Ref. to 4-4 [W12D0].>

CHECK ***: Can motor revolution noise (buzz) be heard when carrying out the check sequence?***

YES : Go to step **8X29**.
NO : Replace hydraulic unit.

8X29	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connector between hydraulic unit, relay box and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.
NO : Go to step **8X30**.

8X30	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 step **8X31**.

8X31	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

Y: TROUBLE CODE 54
— ABNORMAL STOP LIGHT SWITCH —

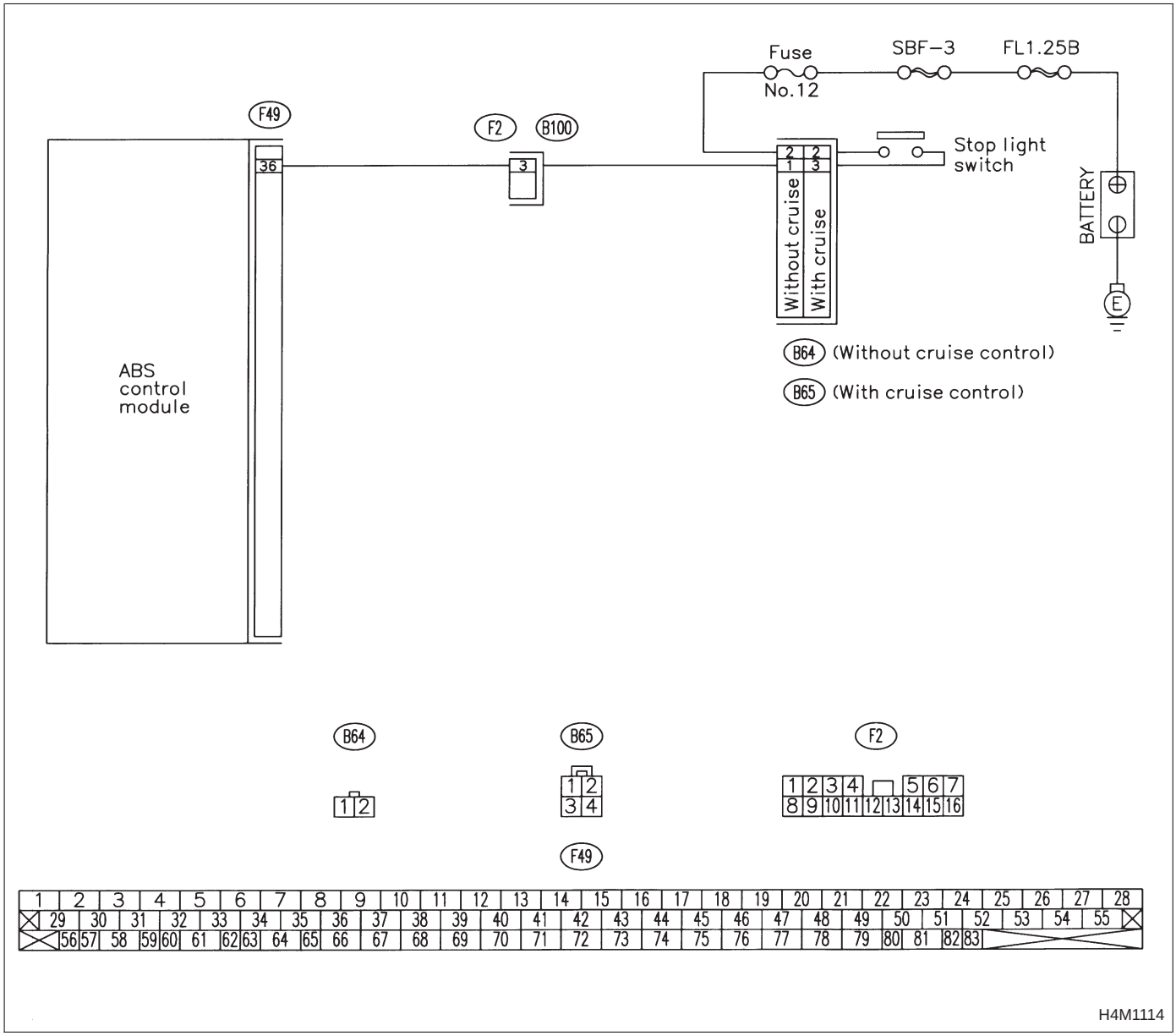
DIAGNOSIS:

- Faulty stop light switch

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



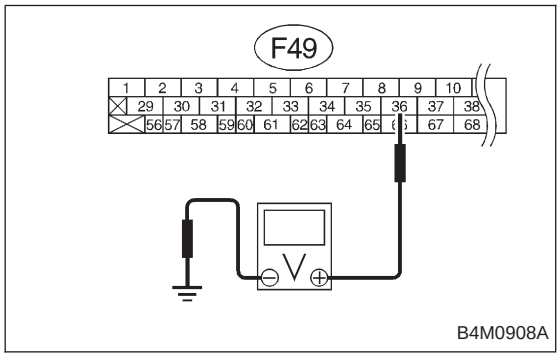
8Y1	CHECK STOP LIGHTS COME ON.

Depress the brake pedal.

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

YES : Go to step **8Y2.**

NO : Repair stop lights circuit.



8Y2	CHECK OPEN CIRCUIT IN 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.

Connector & terminal
(F49) No. 36 — Chassis ground:

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **8Y3**.

NO : Repair harness between stop light switch and ABSCM.

8Y3	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connector between stop light switch and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **8Y4**.

8Y4	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 step **8Y5**.

8Y5	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

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

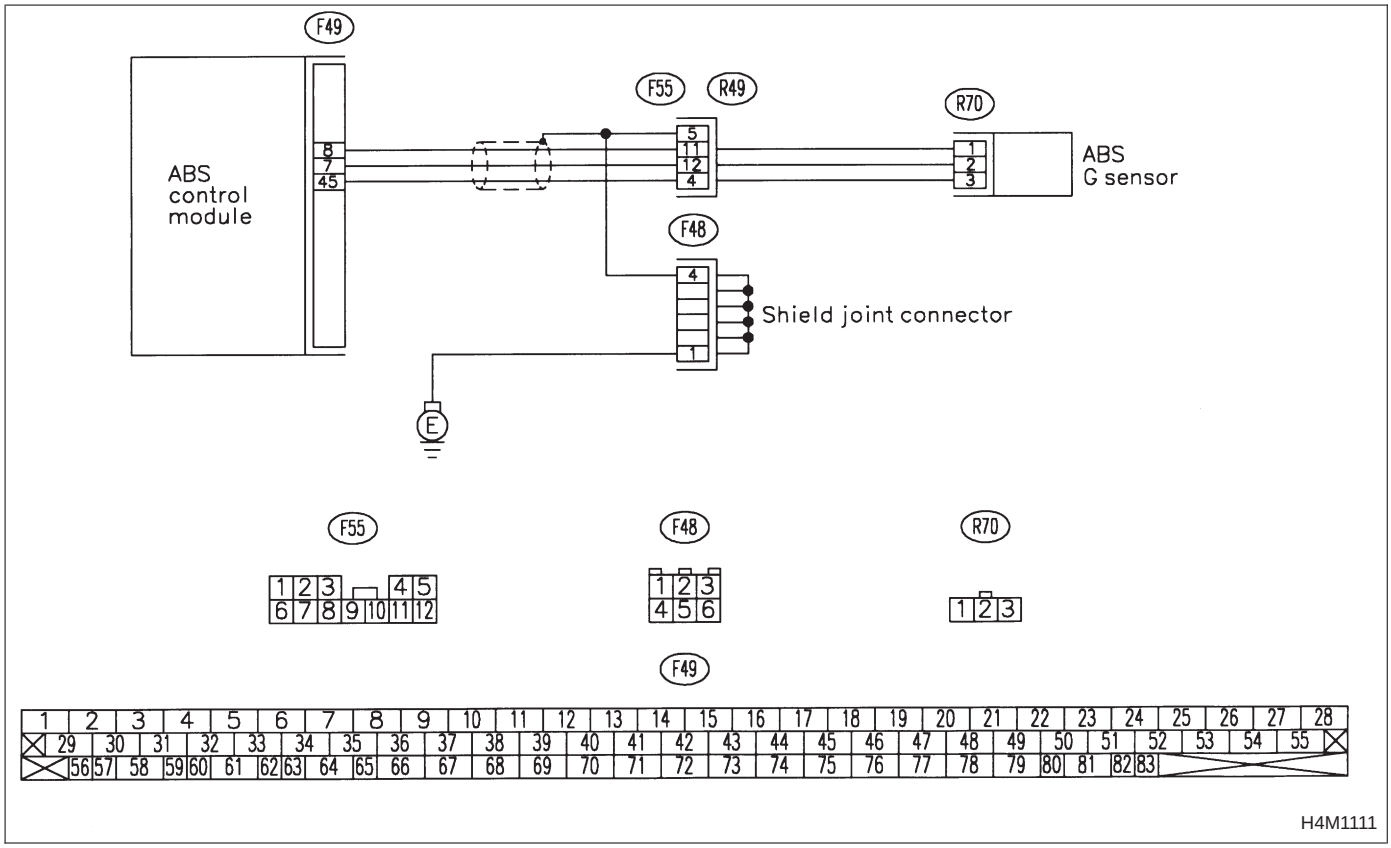
DIAGNOSIS:

- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:

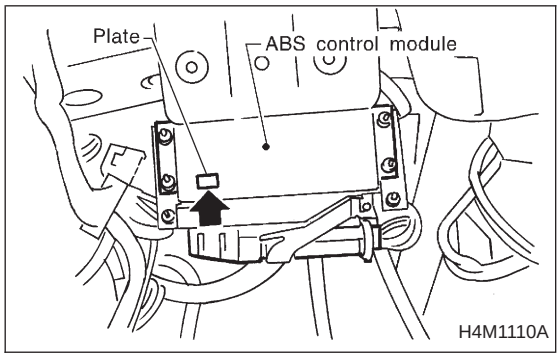


8Z1	CHECK ALL FOUR WHEELS FOR FREE TURNING.

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 **8Z2**.



8Z2	CHECK SPECIFICATIONS OF ABSCM.

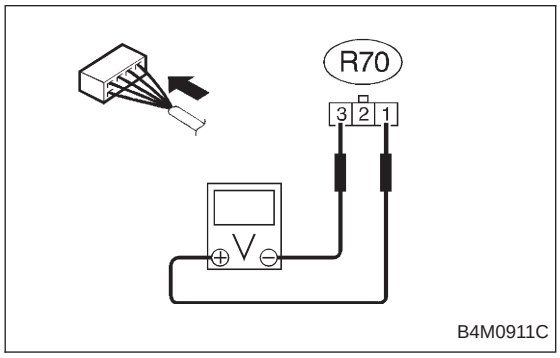
Check specifications of the plate attached to the ABSCM.

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

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

YES : Replace ABSCM.

NO : Go to step **8Z3**.



8Z3	CHECK INPUT VOLTAGE OF G SENSOR.

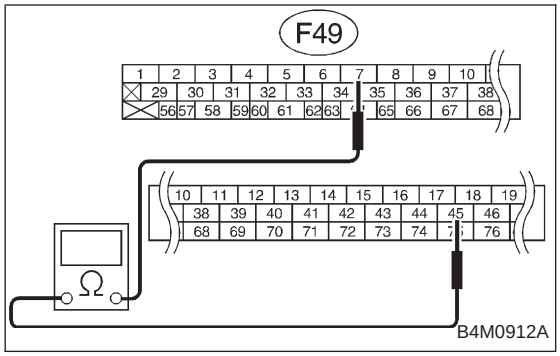
1) Turn ignition switch to OFF.
2) Remove console box.
3) Disconnect G sensor from body. (Do not disconnect connector.)
4) Turn ignition switch to ON.
5) Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 1 (+) — No. 3 (−):

CHECK : ***Is the voltage between 4.75 and 5.25 V?***

YES : Go to step **8Z4**.

NO : Repair harness/connector between G sensor and ABSCM.



8Z4	CHECK OPEN CIRCUIT IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

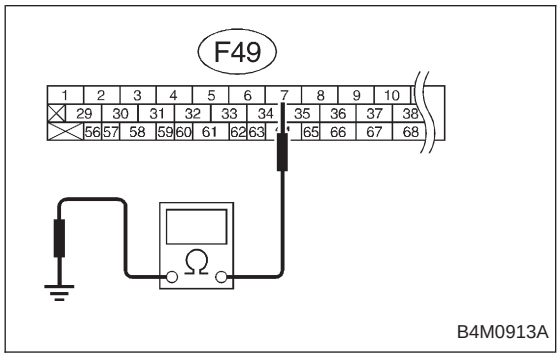
1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 7 — No. 45:

CHECK ***: Is the resistance between 4.3 and 4.9 kΩ?***

YES : Go to step **8Z5**.

NO : Repair harness/connector between G sensor and ABSCM.



8Z5	CHECK GROUND SHORT IN G SENSOR OUTPUT HARNESS.

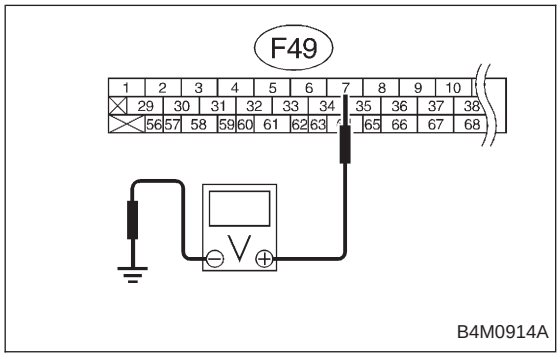
1) Disconnect connector from G sensor.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 7 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **8Z6**.

NO : Repair harness between G sensor and ABSCM.



8Z6	CHECK BATTERY SHORT OF HARNESS.

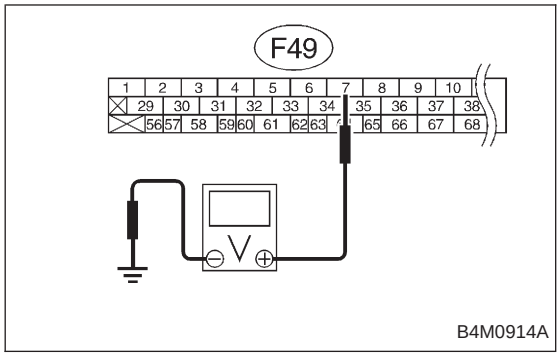
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8Z7**.

NO : Repair harness between G sensor and ABSCM.



8Z7	CHECK BATTERY SHORT OF HARNESS.

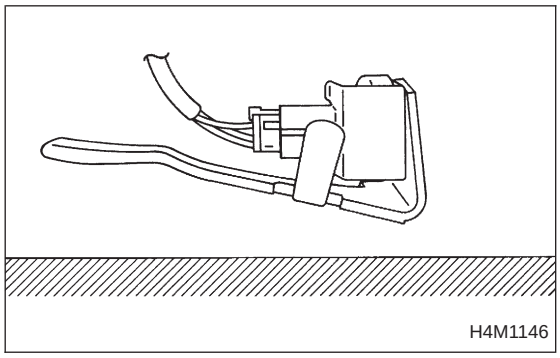
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **8Z8**.

NO : Repair harness between G sensor and ABSCM.



8Z8	CHECK G SENSOR.

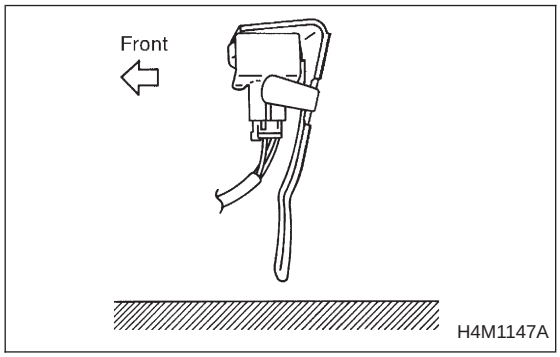
1) Turn ignition switch to OFF.
2) Remove G sensor from vehicle.
3) Connect connector to G sensor.
4) Connect connector to ABSCM.
5) Turn ignition switch to ON.
6) Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 2.1 and 2.4 V when G sensor is horizontal?***

YES : Go to step **8Z9**.

NO : Replace G sensor.



8Z9	CHECK G SENSOR.

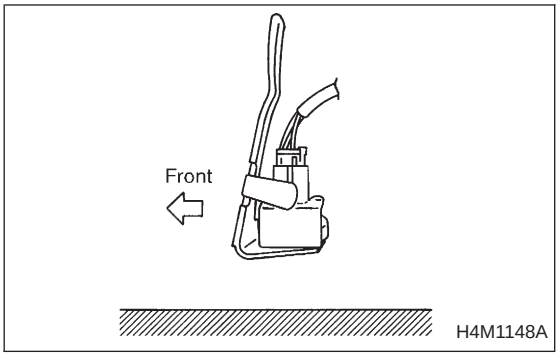
Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 3.7 and 4.1 V when G sensor is inclined forwards to 90°?***

YES : Go to step **8Z10**.

NO : Replace G sensor.



8Z10	CHECK G SENSOR.

Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 0.5 and 0.9 V when G sensor is inclined backwards to 90°?***

YES : Go to step **8Z11**.

NO : Replace G sensor.

8Z11	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connector between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **8Z12**.

8Z12	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.

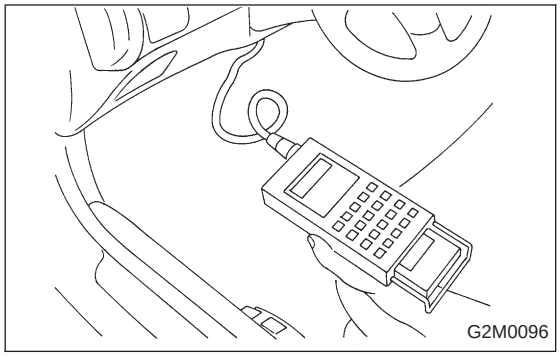
NO : Go to step **8Z13**.

8Z13	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



9. Select Monitor Function Mode

Applicable cartridge of select monitor: No. 498346200

A: LIST OF FUNCTION MODE

1. F MODE (ROM ID, ANALOG DATA ARE DISPLAYED.)

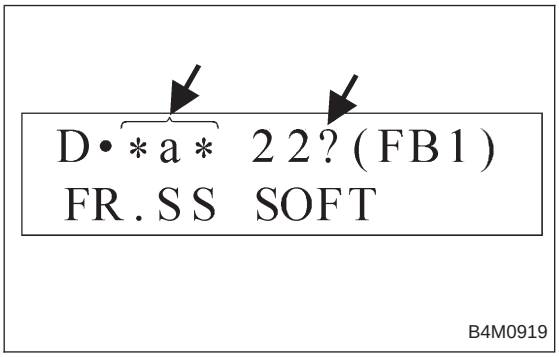
Function code		Measuring items	Contents to be monitored	Scroll	Ref. to 4-4
Code	Abbreviation				
F00	ROM ID	ECM identification	ROM ID number of ECM is read and enabled communication state is displayed.	Possible	[T9B0]
F01	FR	FR wheel speed (mile/h)	Wheel speed detected by the FR ABS sensor is displayed in mile/h.	Possible	[T9C0]
F02	FL	FL wheel speed (mile/h)	Wheel speed detected by the FL ABS sensor is displayed in mile/h.	Possible	[T9D0]
F03	RR	RR wheel speed (mile/h)	Wheel speed detected by the RR ABS sensor is displayed in mile/h.	Possible	[T9E0]
F04	RL	RL wheel speed (mile/h)	Wheel speed detected by the RL ABS sensor is displayed in mile/h.	Possible	[T9F0]
F05	FR	FR wheel speed (km/h)	Wheel speed detected by the FR ABS sensor is displayed in km/h.	Possible	[T9C0]
F06	FL	FL wheel speed (km/h)	Wheel speed detected by the FL ABS sensor is displayed in km/h.	Possible	[T9D0]
F07	RR	RR wheel speed (km/h)	Wheel speed detected by the RR ABS sensor is displayed in km/h.	Possible	[T9E0]
F08	RL	RL wheel speed (km/h)	Wheel speed detected by the RL ABS sensor is displayed in km/h.	Possible	[T9F0]
F09	BLS	Stop light switch monitor	Stop light switch monitor voltage is displayed.	Possible	[T9G0]
F10	G-SENS	G sensor output voltage (V)	Refers to vehicle acceleration detecting by the analog G sensor. It appears on the select monitor display in volts.	Possible	[T9H0]

2. FA MODE (ON/OFF DATA ARE DISPLAYED.)

Function code		Measuring items	Contents to be monitored	Scroll	Ref. to 4-4
Code	Abbreviation				
FA0	B1	Stop light switch	LED 1 comes on with the switch on (with the brake pedal down).	Possible	[T9I0]
	VR	Valve relay signal	LED 2 comes on with the valve relay off.		
	MR	Motor relay signal	LED 3 comes on with the motor on.		
	AT	AT ABS signal	LED 4 comes on when ABS control is on.		
	AW	ABS warning light	LED 6 comes on when the warning light is on.		
	VM	Valve relay monitor	LED 1 comes on with the valve relay off.		
	MM	Motor relay monitor	LED 8 comes on when the motor relay is on.		
	CM	CCM signal	LED 9 comes on when ABS control is on.		

3. FB MODE (TROUBLE CODES ARE DISPLAYED.)

Function code		Measuring items	Contents to be monitored	Scroll	Ref. to 4-4
Code	Abbreviation				
FB1	D·ALL	History of trouble codes is displayed.	A maximum of 3 trouble codes are displayed in order of occurrence.	Possible	[T10B0]
	D·NEW		The most recent trouble code appears on the select monitor display.		
	D·MID		The second most recent trouble code appears on the select monitor display.		
	D·OLD		The third most recent trouble code appears on the select monitor display.		



NOTE:
- If a particular trouble code is not properly stored in memory (due to a drop in ABSCM power supply, etc.) when a problem occurs, the trouble code, followed by a question mark "?", appears on the select monitor display. This shows it may be an unreliable reading.
- * a * refers to the troubles in order of occurrence (NEW. MID and OLD).

4. FC MODE (TROUBLE CODES ARE ERASED.)

Function code		Measuring items	Contents to be monitored	Scroll	Ref. to 4-4
Code	Abbreviation				
FC0	D·CLR	History of trouble codes is erased.	Function of clearing trouble code.	Possible	[T9J0]

5. FD MODE (ABS SEQUENCE CHECK MODE)

Function code		Measuring items	Contents to be monitored	Scroll	Ref. to 4-4
Code	Abbreviation				
FD1	A·CHK	ABS sequence control	Perform ABS sequence control by operating valve and pump motor sequentially.	Impossible	[W12D0]

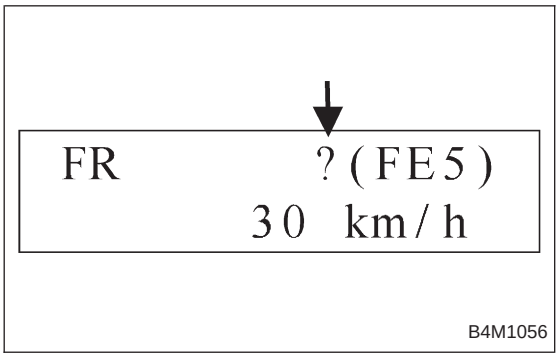
6. FE MODE (FREEZE FRAME DATA)

NOTE:

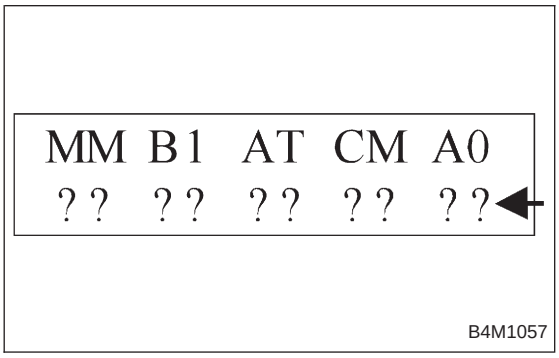
- Data stored at the time of trouble occurrence is shown on display.
- Each time trouble occurs, the latest information is stored in the freeze frame data in memory.

Function code		Measuring items	Contents to be monitored	Scroll	Ref. to 4-4
Code	Abbreviation				
FE1	FR	FR wheel speed (mile/h)	Wheel speed detected by the FR ABS sensor is displayed in mile/h.	Possible	[T9K0]
FE2	FL	FL wheel speed (mile/h)	Wheel speed detected by the FL ABS sensor is displayed in mile/h.	Possible	[T9L0]
FE3	RR	RR wheel speed (mile/h)	Wheel speed detected by the RR ABS sensor is displayed in mile/h.	Possible	[T9M0]
FE4	RL	RL wheel speed (mile/h)	Wheel speed detected by the RL ABS sensor is displayed in mile/h.	Possible	[T9N0]
FE5	FR	FR wheel speed (km/h)	Wheel speed detected by the FR ABS sensor is displayed in km/h.	Possible	[T9K0]
FE6	FL	FL wheel speed (km/h)	Wheel speed detected by the FL ABS sensor is displayed in km/h.	Possible	[T9L0]
FE7	RR	RR wheel speed (km/h)	Wheel speed detected by the RR ABS sensor is displayed in km/h.	Possible	[T9M0]
FE8	RL	RL wheel speed (km/h)	Wheel speed detected by the RL ABS sensor is displayed in km/h.	Possible	[T9N0]
FE13	POWER	ABSCM power supply voltage (V)	Power (in volts) supplied to ABSCM appears on the select monitor display.	Possible	[T9O0]
FE14	G-SENS	G sensor output voltage (V)	Refers to vehicle acceleration detected by the analog G sensor. It appears on the select monitor display in volts.	Possible	[T9P0]
FE15	MM	Motor relay monitor	LED 1 comes on when motor relay is on.	Possible	[T9Q0]
	B1	Stop light switch	LED 2 comes on with the stop light switch on (with the brake pedal depressed).		
	AT	AT ABS signal	LED 3 comes on when ABS control is on.		
	CM	CCM signal	LED 4 comes on when ABS control is on.		
	A0	ABS control	LED 5 comes on when ABS control is on.		
FE16	CODE	Trouble code	The most recent trouble code appears on select monitor display.	Possible	[T9R0]

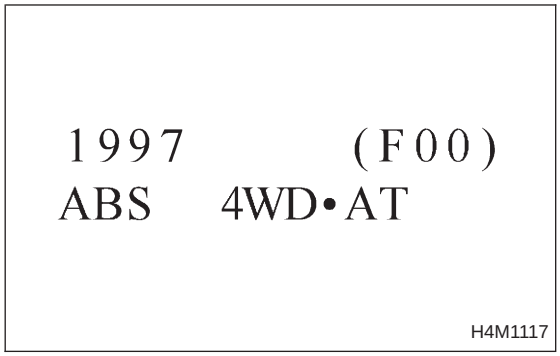
1) When a trouble code is not stored in memory, activating the FE mode causes the initial value to appear on the select monitor display.
- FE1 — 4: 159 mile/h
- FE5 — 8: 255 km/h
- FE13: 16.84 V
- FE14: 5.00 V
- FE15: The MM, B1 and A0 LEDs are on. The AT and CM LEDs are out.
- FE16: NO HISTORY OF OCCURED



2) If freeze frame data is not properly stored in memory (due to a drop in ABSCM power supply, etc.), a trouble code, preceded by a question mark "?", appears on the select monitor display. This shows it may be an unreliable reading.



3) When a trouble code is detected in the FE mode, a question mark "?" appears continuously on the select monitor display until the freeze frame data is stored in memory.



B: MODE F00 — ROM ID NUMBER (ROM) —

CONDITION:

Ignition switch ON

SPECIFIED DATA:

Presentation display

9B1	CHECK MESSAGE OF DISPLAY.

CHECK ***: Does display indicate message "Error 1"?***

YES : Repair loose or disconnect connector, or discontinued circuit in data link circuit.

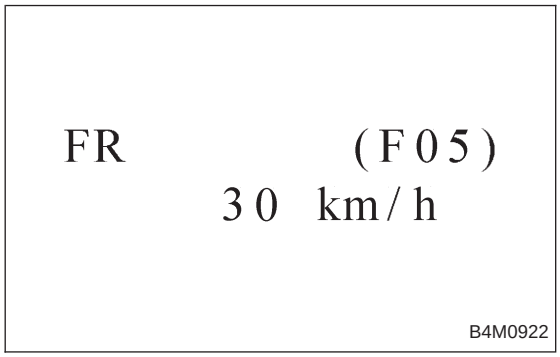
NO : Go to step **9B2**.

9B2	CHECK MESSAGE OF DISPLAY.

CHECK ***: Does display indicate message "Error 2"?***

YES : Repair poor contact of select monitor cartridge, or installation of different type select monitor cartridge.

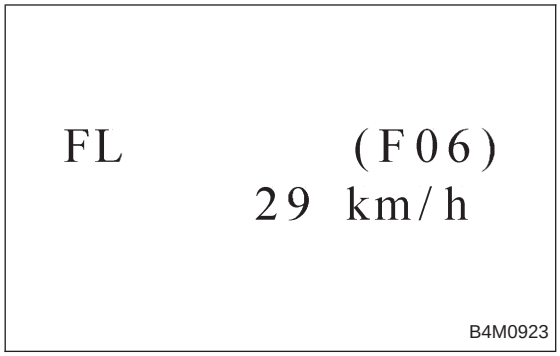
NO : Data link system is normal.



C: MODE F01 AND F05 — FRONT RIGHT WHEEL SPEED SIGNAL (FR) —

- Compare speedometer with monitor indications.
- F01: FR wheel speed is indicated in mile per hour (mile/h).
- F05: FR wheel speed is indicated in kilometer per hour (km/h).

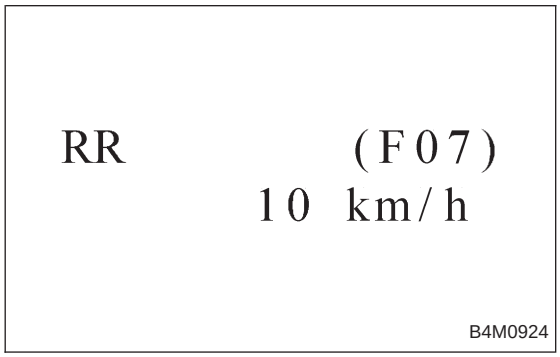
NOTE:
The monitor as shown, indicates that FR wheel speed is 30 km/h.



D: MODE F02 AND F06 — FRONT LEFT WHEEL SPEED SIGNAL (FL) —

- Compare speedometer with monitor indications.
- F02: FL wheel speed is indicated in mile per hour (mile/h).
- F06: FL wheel speed is indicated in kilometer per hour (km/h).

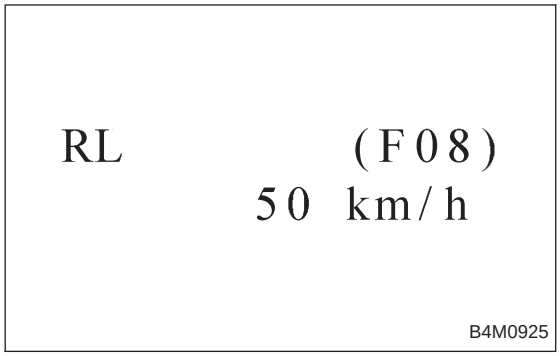
NOTE:
The monitor as shown, indicates that FL wheel speed is 29 km/h.



E: MODE F03 AND F07 — REAR RIGHT WHEEL SPEED SIGNAL (RR) —

- Compare speedometer with monitor indications.
- F03: RR wheel speed is indicated in mile per hour (mile/h).
- F07: RR wheel speed is indicated in kilometer per hour (km/h).

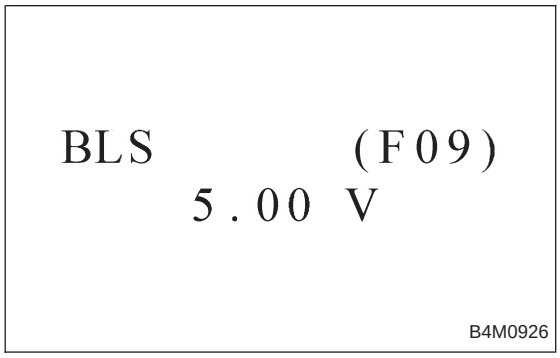
NOTE:
The monitor as shown, indicates that RR wheel speed is 10 km/h.



F: MODE F04 AND F08 — REAR LEFT WHEEL SPEED SIGNAL (RL) —

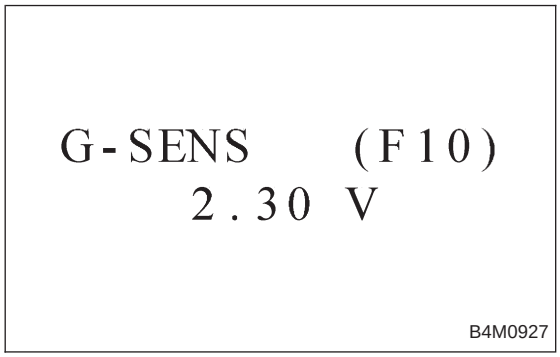
- Compare speedometer with monitor indications.
- F04: RL wheel speed is indicated in mile per hour (mile/h).
- F08: RL wheel speed is indicated in kilometer per hour (km/h).

NOTE:
The monitor as shown, indicates that RL wheel speed is 50 km/h.



G: MODE F09 — STOP LIGHT SWITCH MONITOR (BLS) —

- Stop light switch monitor voltage is displayed.

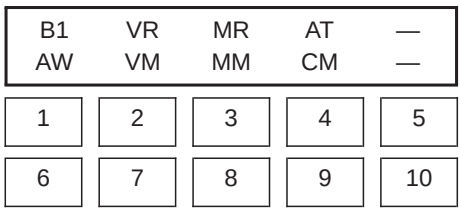


H: MODE F10 — G SENSOR OUTPUT VOLTAGE (G-SENS) —

- Refers to vehicle acceleration detecting by the analog G sensor. It appears on the select monitor display in volts.

NOTE:
Only AWD model

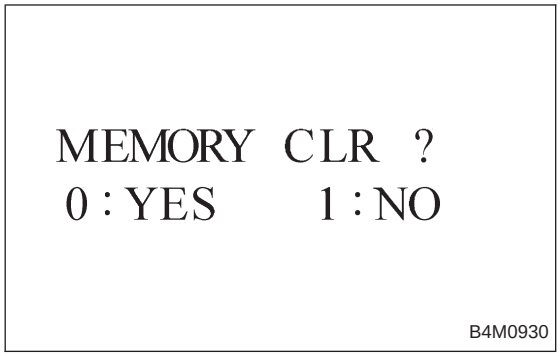
LED No.	Signal name	Display
1	Stop light switch	B1
2	Valve relay signal	VR
3	Motor relay signal	MR
4	AT ABS signal	AT
5	—	—
6	ABS warning light	AW
7	Valve relay monitor	VM
8	Motor relay monitor	MM
9	CCM signal	CM
10	—	—



I: MODE FA0
— ON ↔ OFF SIGNAL —

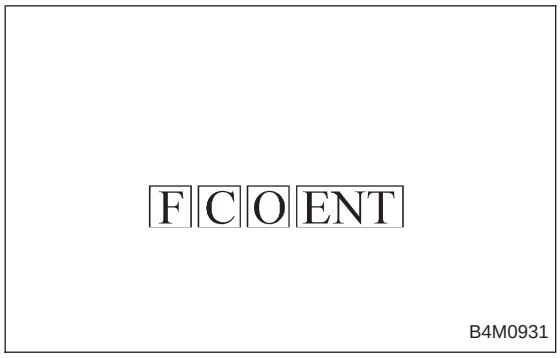
Requirement for LED “ON”

LED No. 1 Stop light switch is turned ON. (With brake pedal depressed.)
LED No. 2 Valve relay is turned OFF.
LED No. 3 Motor relay is turned ON.
LED No. 4 ABS control operates.
LED No. 6 ABS warning light is ON.
LED No. 7 Valve relay is turned OFF.
LED No. 8 Motor relay is turned ON.
LED No. 9 ABS control operates.

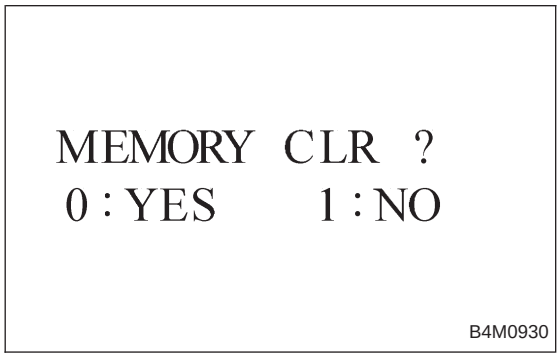


J: MODE FC0 — HISTORY OF TROUBLE CODES IS ERASED (D·CLR) —

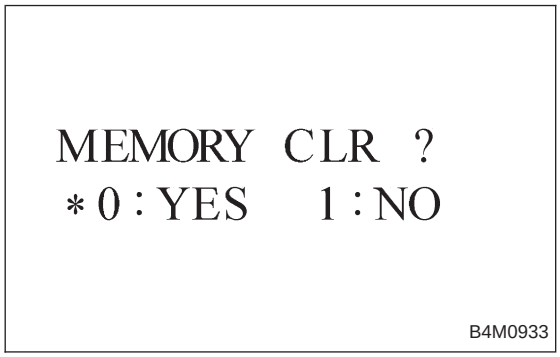
● Deletes the recorded trouble codes in ABS control module.



1) Press the function key [F] [C] [O] [ENT] in that order.

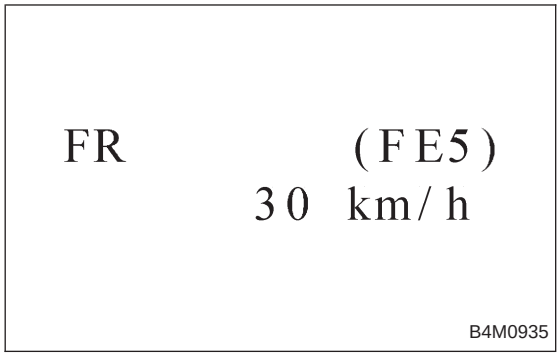


2) System indicates as shown.



3) Press the function key [0], to clear memories. The indication of ∗ is added to screen.

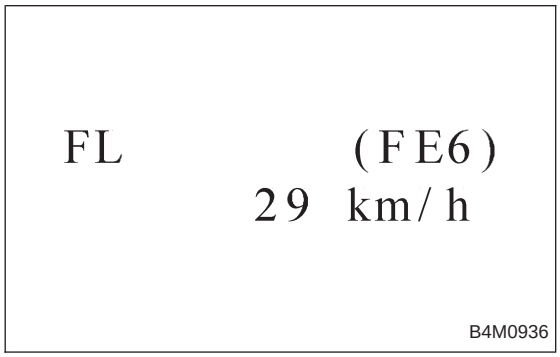
4) Press the function key [ENT]. System indicates as shown.
5) Turn ignition switch to OFF.



K: MODE FE1 AND FE5 — FRONT RIGHT WHEEL SPEED SIGNAL (FR) —

- The wheel speed is indicated at the time of malfunction.
- FE1: FR wheel speed is indicated in mile per hour (mile/h).
- FE5: FR wheel speed is indicated in kilometer per hour (km/h).

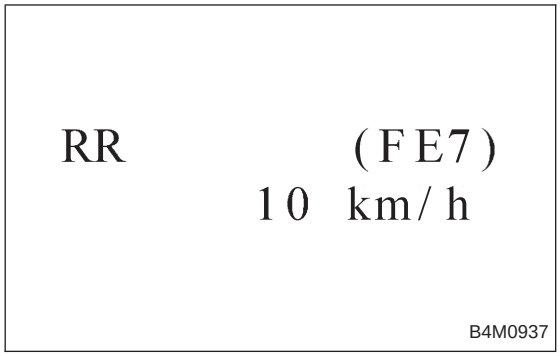
NOTE:
The monitor as shown, indicates that FR wheel speed is 30 km/h.



L: MODE FE2 AND FE6 — FRONT LEFT WHEEL SPEED SIGNAL (FL) —

- The wheel speed is indicated at the time of malfunction.
- FE2: FL wheel speed is indicated in mile per hour (mile/h).
- FE6: FL wheel speed is indicated in kilometer per hour (km/h).

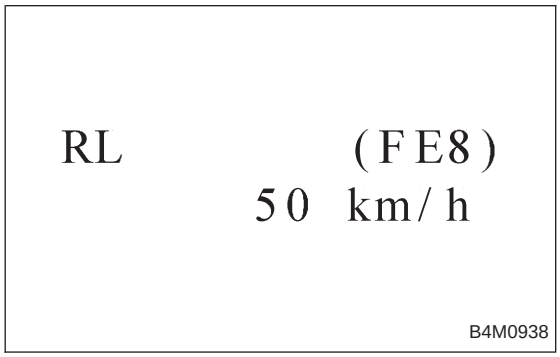
NOTE:
The monitor as shown, indicates that FL wheel speed is 29 km/h.



M: MODE FE3 AND FE7 — REAR RIGHT WHEEL SPEED SIGNAL (RR) —

- The wheel speed is indicated at the time of malfunction.
- FE3: RR wheel speed is indicated in mile per hour (mile/h).
- FE7: RR wheel speed is indicated in kilometer per hour (km/h).

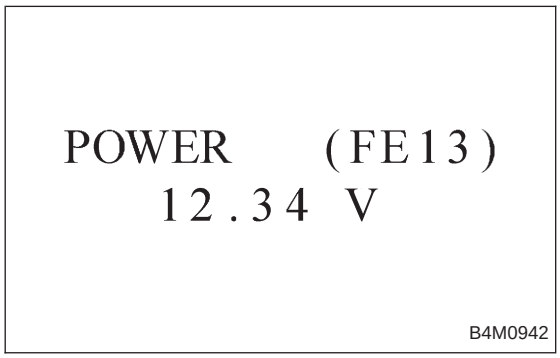
NOTE:
The monitor as shown, indicates that RR wheel speed is 10 km/h.



N: MODE FE4 AND FE8 — REAR LEFT WHEEL SPEED SIGNAL (RL) —

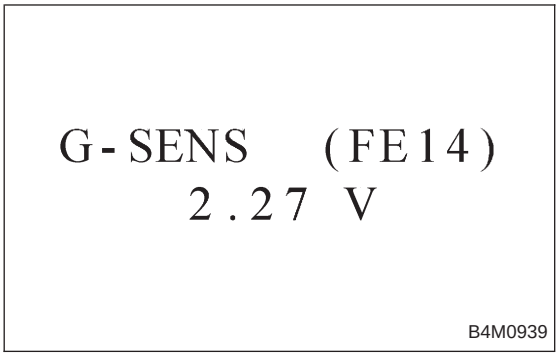
- The wheel speed is indicated at the time of malfunction.
- FE4: RL wheel speed is indicated in mile per hour (mile/h).
- FE8: RL wheel speed is indicated in kilometer per hour (km/h).

NOTE:
The monitor as shown, indicates that RL wheel speed is 50 km/h.



O: MODE FE13 — ABSCM POWER SUPPLY VOLTAGE (POWER) —

- ABSCM power supply voltage is indicated at the time of malfunction.

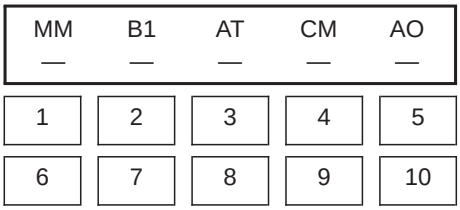


P: MODE FE14 — G SENSOR OUTPUT VOLTAGE (G-SENS) —

● Refers to vehicle acceleration detected by the analog G sensor at the time of malfunction. It appears on the select monitor display in volts.

NOTE:
Only AWD model

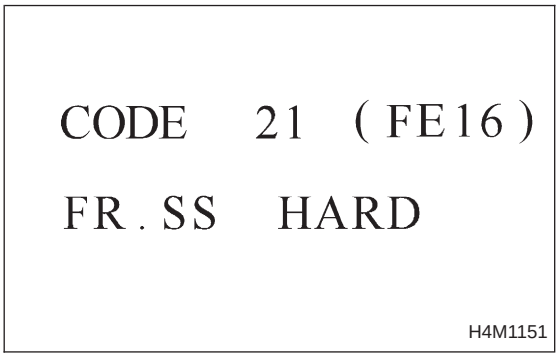
LED No.	Signal name	Display
1	Motor relay monitor	MM
2	Stop light switch	B1
3	AT ABS signal	AT
4	CCM signal	CM
5	ABS signal	AO
6	—	—
7	—	—
8	—	—
9	—	—
10	—	—



Q: MODE FE15 — ON ↔ OFF SIGNAL —

● ON or OFF is indicated at the time of malfunction.
● Requirement for LED “ON”

LED No. 1 Motor relay is turned ON.
LED No. 2 Stop light switch is turned ON. (With brake pedal depressed.)
LED No. 3 ABS control operates.
LED No. 4 ABS control operates.
LED No. 5 ABS control operates.



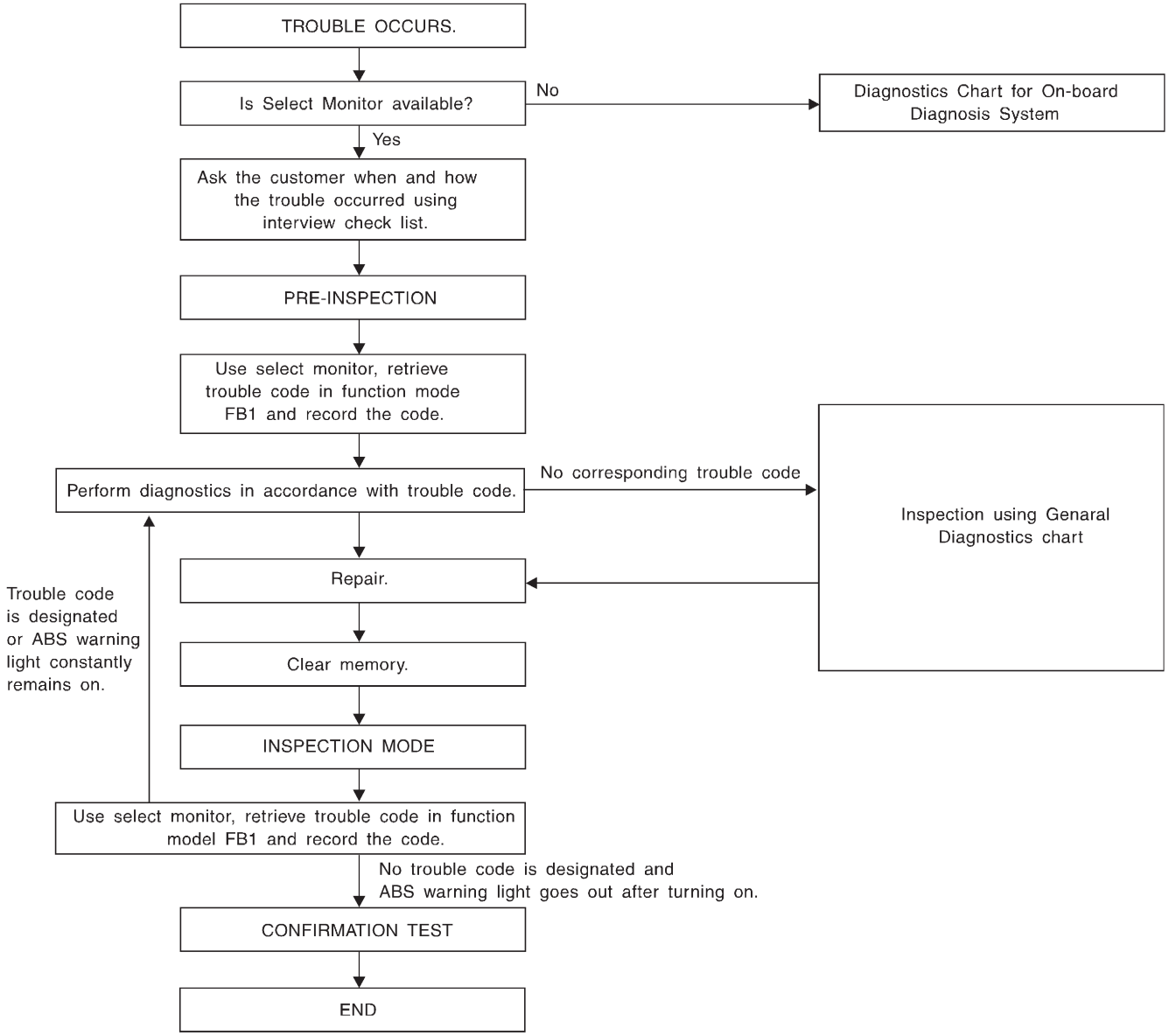
R: MODE FE16 — TROUBLE CODE (CODE) —

● When freeze frame data is stored in memory, trouble code appears on monitor.

NOTE:
The monitor as shown, indicates trouble code 21.

10. Diagnostics Chart with Select Monitor

A: BASIC DIAGNOSTIC CHART



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

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

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

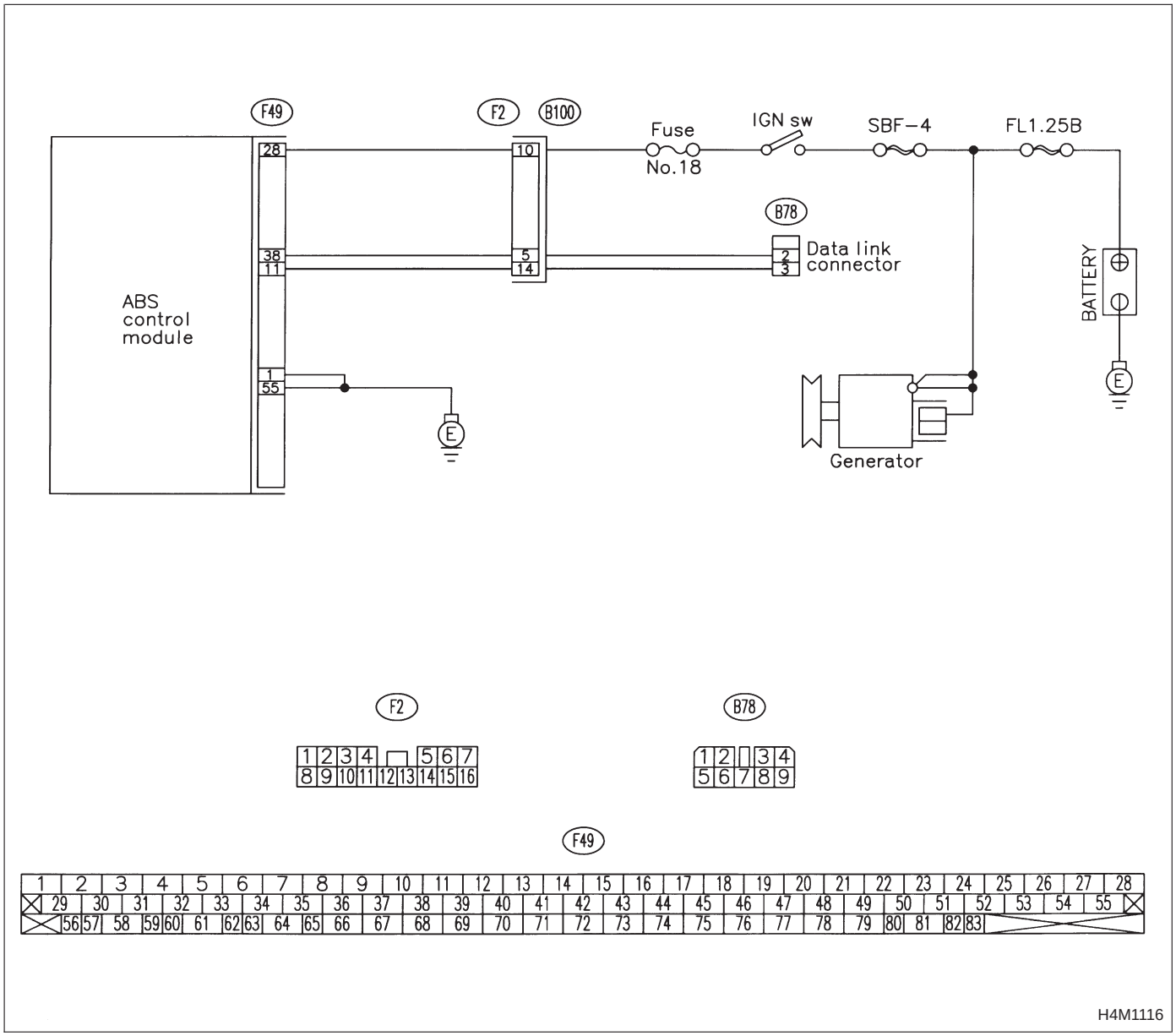
DIAGNOSIS:

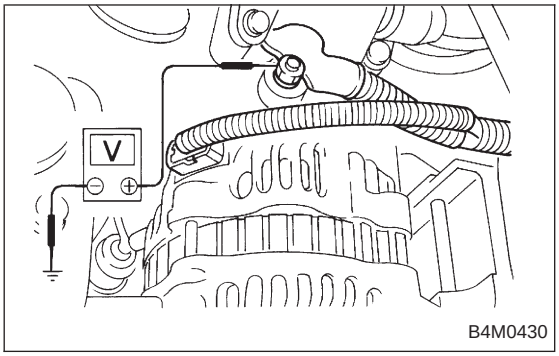
- Faulty harness connector

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





10C1	CHECK GENERATOR.

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

Terminal
Generator B terminal (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 and 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.

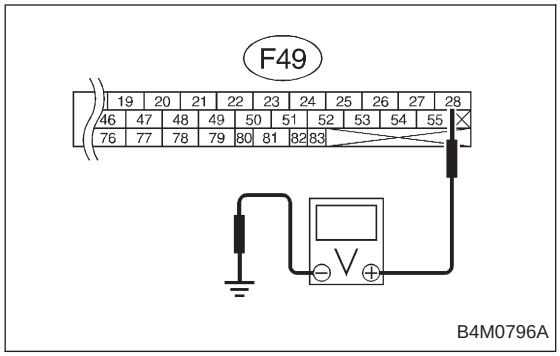
Using the select monitor, check whether communication to other system (such as engine, AT, etc.) can be executed normally.

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.

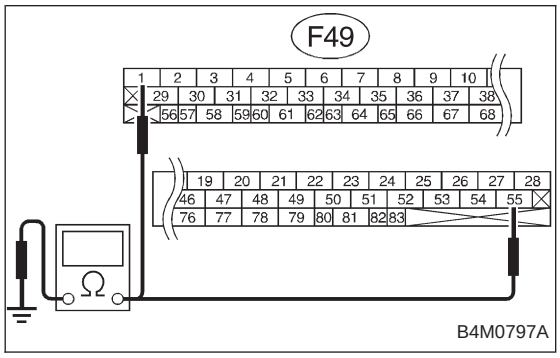
1) Disconnect connector from ABSCM.
2) Start engine.
3) Idle the engine.
4) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 28 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 and 15 V?***

YES : Go to step **10C6**.

NO : Repair ABSCM power supply circuit.



10C6	CHECK GROUND CIRCUIT OF ABSCM.

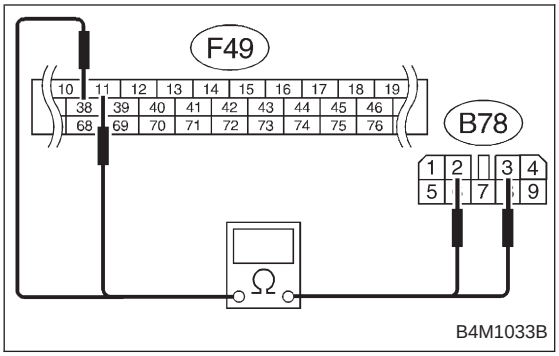
1) Turn ignition switch to OFF.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 1 — Chassis ground:
(F49) No. 55 — Chassis ground:

CHECK ***: Is the 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.

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

Connector & terminal
(F49) No. 11 — (B78) No. 3:
(F49) No. 38 — (B78) No. 2:

CHECK ***: Is the 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 CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and data link? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Replace ABSCM.

D•ALL 11 (FB1)
NO TROUBLE

B4M0944

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

DIAGNOSIS:

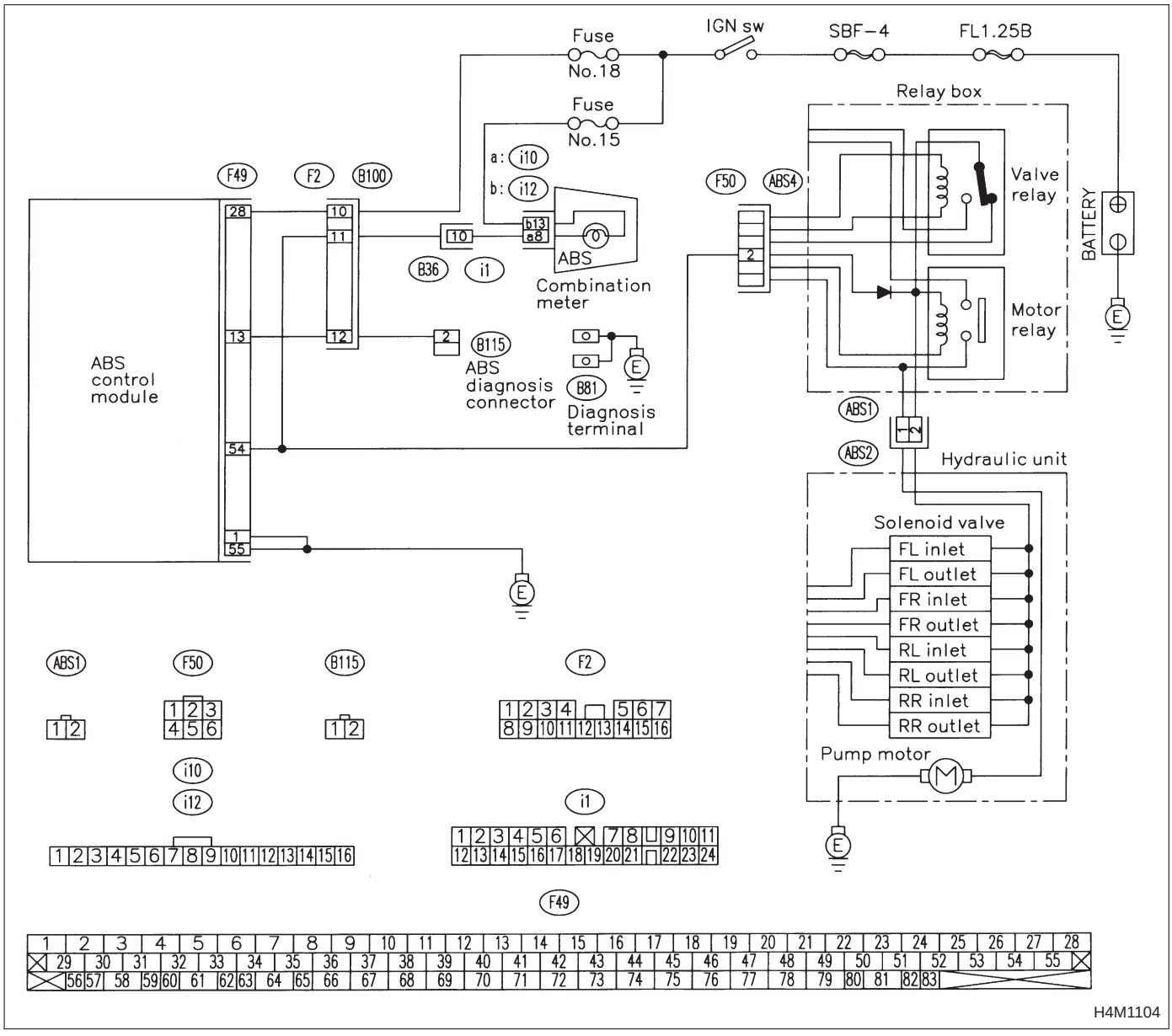
- ABS warning light circuit is shorted.

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.

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

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

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

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

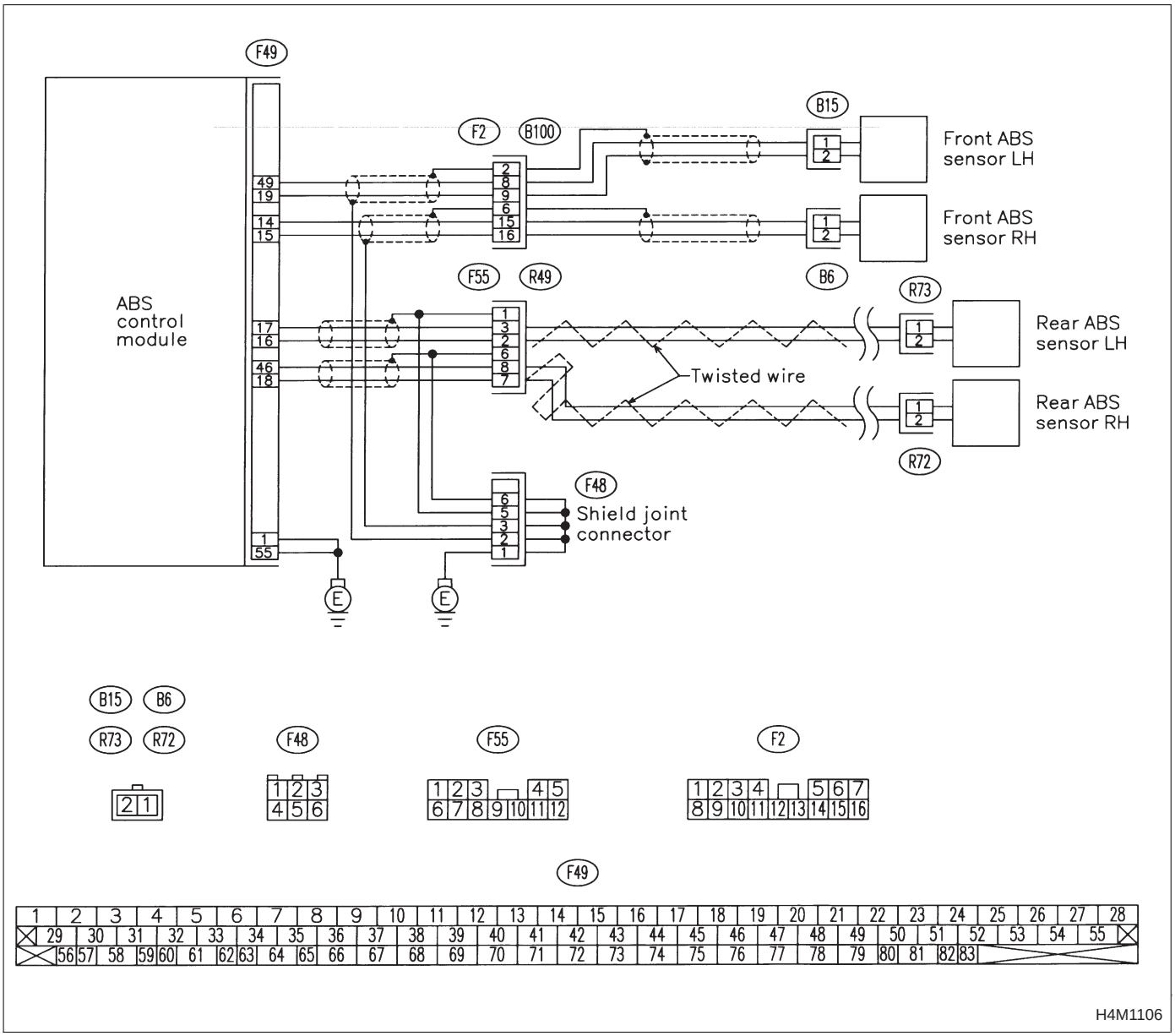
DIAGNOSIS:

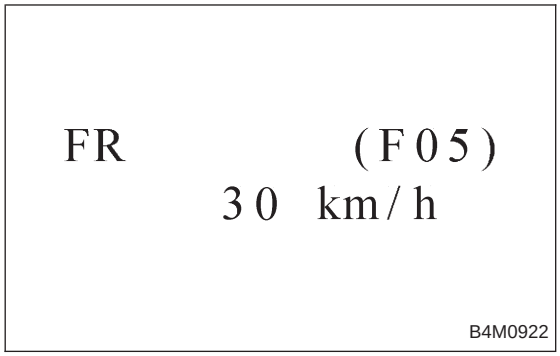
- Faulty ABS sensor (Broken wire, input voltage too high)
- Faulty harness connector

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 **10H9**.

10H2	CHECK INSTALLATION OF ABS SENSOR.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)

CHECK ***: Are the ABS sensor installation bolts tightened securely?***

YES : Go to step **10H3**.

NO : Tighten ABS sensor installation bolts securely.

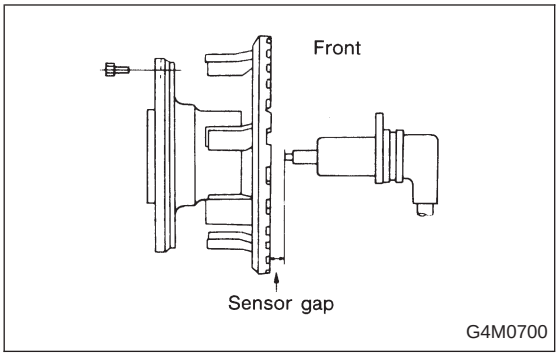
10H3	CHECK INSTALLATION OF TONE WHEEL.

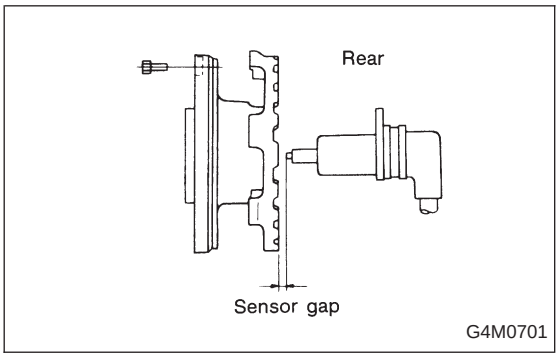
Tightening torque:
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)

CHECK ***: Are the tone wheel installation bolts tightened securely?***

YES : Go to step **10H4**.

NO : Tighten tone wheel installation bolts securely.





10H4	CHECK ABS SENSOR GAP.

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?***

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

YES : Go to step **10H5**.

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.

10H5	CHECK HUB RUNOUT.

Measure hub runout.

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

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

NO : Repair hub.

10H6	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connectors between ABSCM and ABS sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10H7**.

10H7	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 step **10H8**.

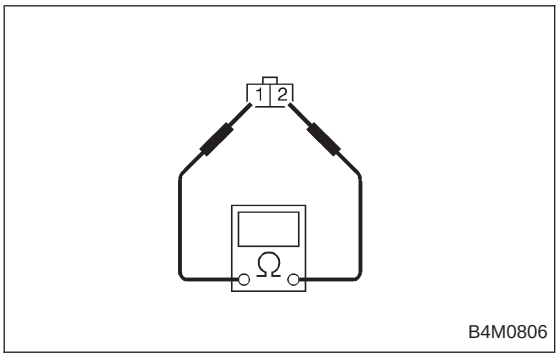
10H8	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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.



10H9	CHECK RESISTANCE OF ABS SENSOR.

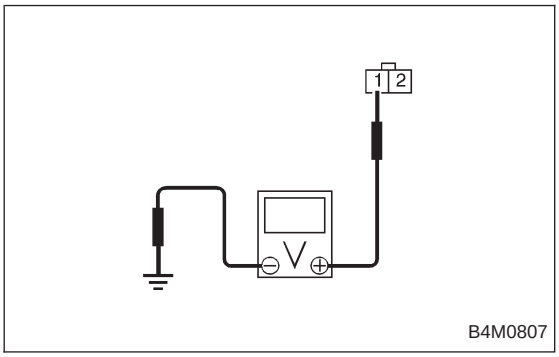
1) Turn ignition switch to OFF.
2) Disconnect connector from ABS sensor.
3) Measure resistance of ABS sensor connector terminals.

Terminal
Front RH No. 1 — No. 2:
Front LH No. 1 — No. 2:
Rear RH No. 1 — No. 2:
Rear LH No. 1 — No. 2:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***

YES : Go to step **10H10**.

NO : Replace ABS sensor.



10H10	CHECK BATTERY SHORT OF ABS SENSOR.

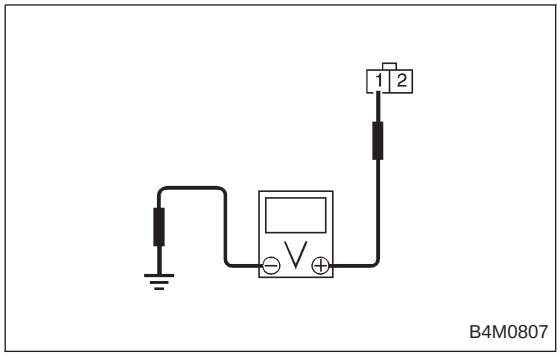
1) Disconnect connector from ABSCM.
2) Measure voltage between ABS sensor and chassis ground.

Terminal
Front RH No. 1 (+) — Chassis ground (−):
Front LH No. 1 (+) — Chassis ground (−):
Rear RH No. 1 (+) — Chassis ground (−):
Rear LH No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10H11**.

NO : Replace ABS sensor.

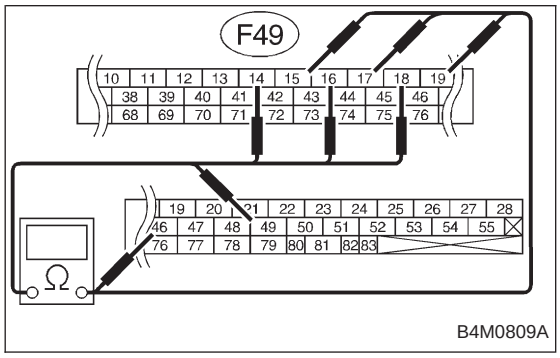


10H11	CHECK BATTERY SHORT OF ABS SENSOR.

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

Terminal
Front RH No. 1 (+) — Chassis ground (−):
Front LH No. 1 (+) — Chassis ground (−):
Rear RH No. 1 (+) — Chassis ground (−):
Rear LH No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10H12**.
NO : Replace ABS sensor.

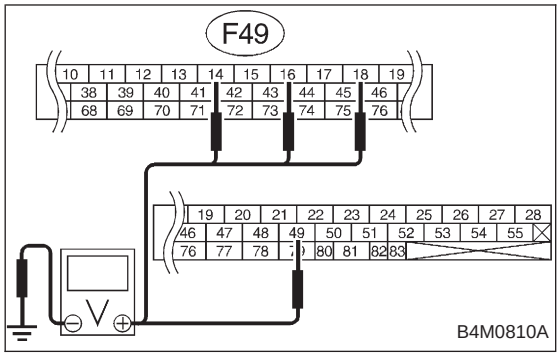


10H12	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

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

Connector & terminal
Trouble code 21 / (F49) No. 14 — No. 15:
Trouble code 23 / (F49) No. 49 — No. 19:
Trouble code 25 / (F49) No. 18 — No. 46:
Trouble code 27 / (F49) No. 16 — No. 17:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***
YES : Go to step **10H13**.
NO : Repair harness/connector between ABSCM and ABS sensor.



10H13	CHECK BATTERY SHORT OF HARNESS.

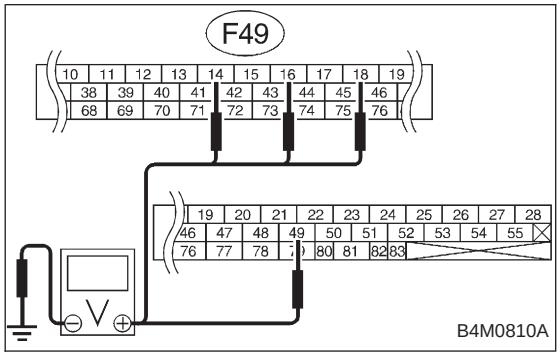
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 21 / (F49) No. 14 — Chassis ground:
Trouble code 23 / (F49) No. 49 — Chassis ground:
Trouble code 25 / (F49) No. 18 — Chassis ground:
Trouble code 27 / (F49) No. 16 — Chassis ground:

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10H14**.

NO : Repair harness between ABSCM and ABS sensor.



10H14	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
Trouble code 21 / (F49) No. 14 — Chassis ground:
Trouble code 23 / (F49) No. 49 — Chassis ground:
Trouble code 25 / (F49) No. 18 — Chassis ground:
Trouble code 27 / (F49) No. 16 — Chassis ground:

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10H15**.

NO : Repair harness between ABSCM and ABS sensor.

10H15	CHECK INSTALLATION OF ABS SENSOR.

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 step **10H16**.

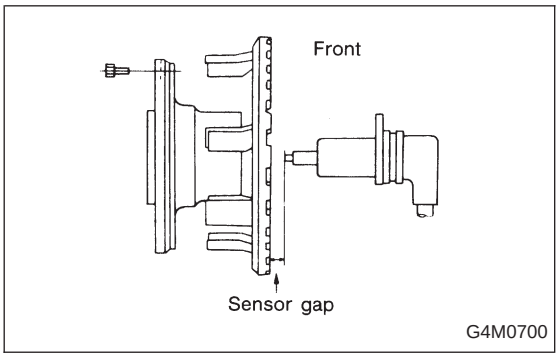
NO : Tighten ABS sensor installation bolts securely.

10H16	CHECK INSTALLATION OF TONE WHEEL.

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 step **10H17**.

NO : Tighten tone wheel installation bolts securely.

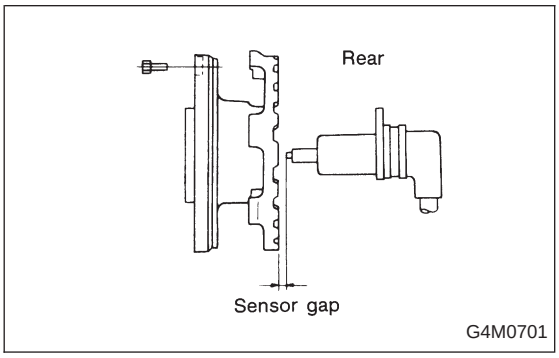


10H17	CHECK ABS SENSOR GAP.

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 step **10H18**.

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.

10H18	CHECK HUB RUNOUT.

Measure hub runout.

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

YES : Go to step **10H19**.

NO : Repair hub.

10H19	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK : ***Is there poor contact in connectors between ABSCM and ABS sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10H20**.

10H20	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 step **10H21**.

10H21	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

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

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

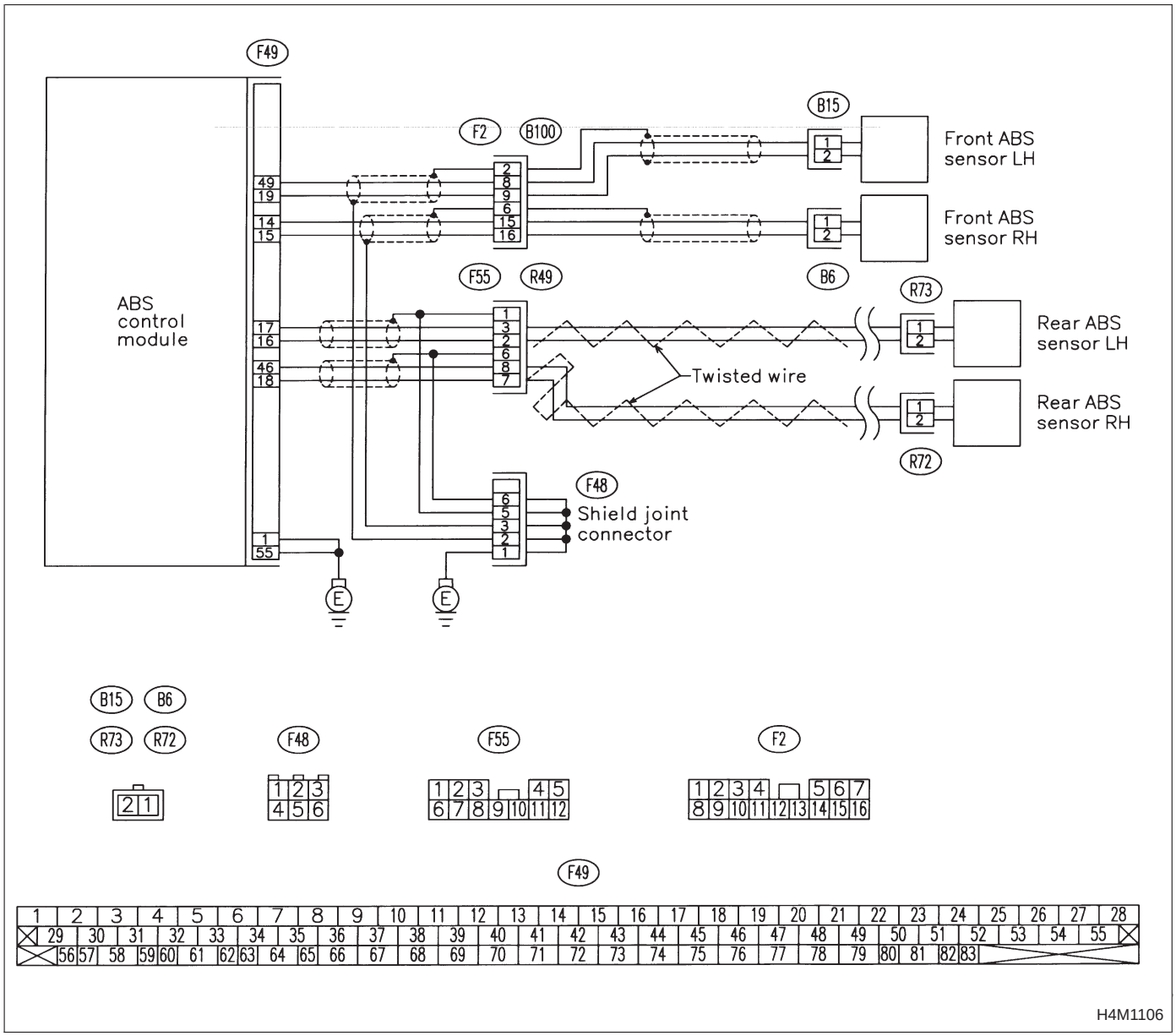
DIAGNOSIS:

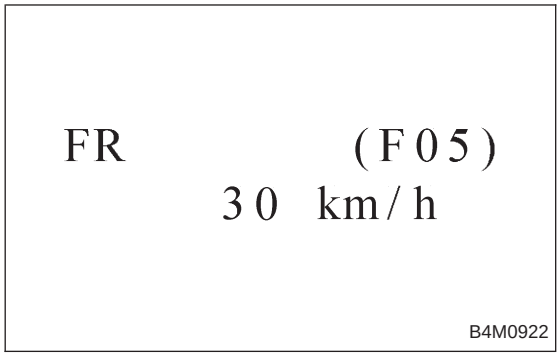
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty harness/connector

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 **10L8**.

10L2	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

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 step **10L4**.

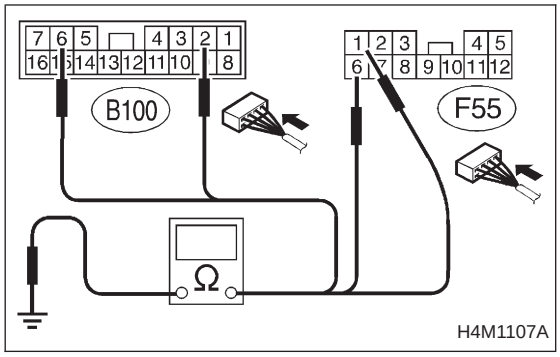
NO : Properly install the car telephone or the wireless transmitter.

10L4	CHECK SOURCES OF SIGNAL NOISE.

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 **10L5**.



10L5	CHECK SHIELD CIRCUIT.

1) Turn ignition switch to OFF.
2) Connect all connectors.
3) Measure resistance between shield connector and chassis ground.

Connector & terminal
Trouble code 22 / (B100) No. 6 — Chassis ground:
Trouble code 24 / (B100) No. 2 — Chassis ground:
Trouble code 26 / (F55) No. 6 — Chassis ground:
Trouble code 28 / (F55) No. 1 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10L6**.
NO : Repair shield harness.

10L6	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 step **10L7**.

10L7	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

10L8	CHECK INSTALLATION OF ABS SENSOR.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)

CHECK ***: Are the ABS sensor installation bolts tightened securely?***
YES : Go to step **10L9**.
NO : Tighten ABS sensor installation bolts securely.

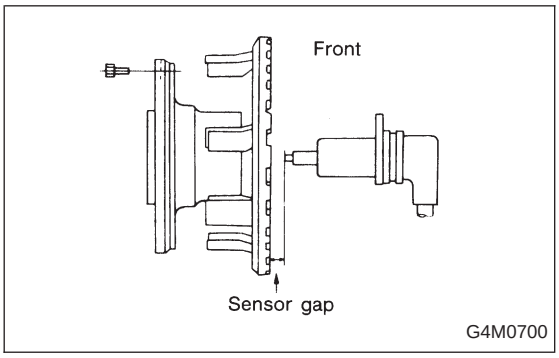
10L9	CHECK INSTALLATION OF TONE WHEEL.

Tightening torque:
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)

CHECK ***: Are the tone wheel installation bolts tightened securely?***

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

NO : Tighten tone wheel installation bolts securely.

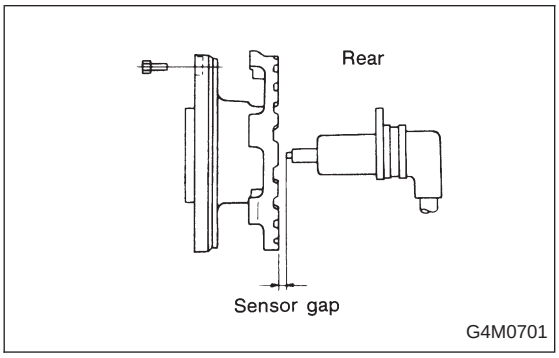


10L10	CHECK ABS SENSOR GAP.

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 step **10L11**.

NO : Adjust the gap.

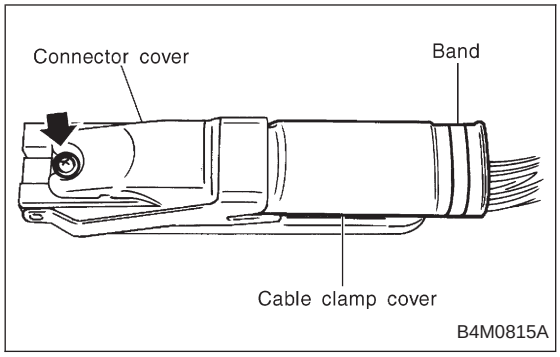
NOTE:
Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

10L11	CHECK OSCILLOSCOPE.

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

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

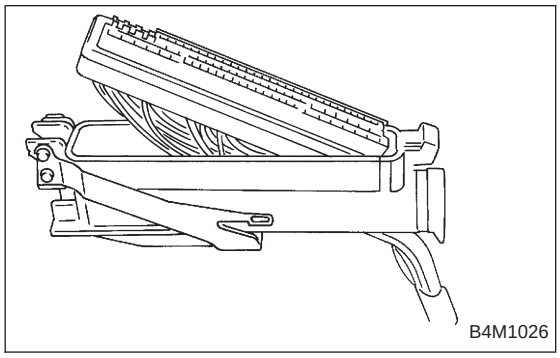
NO : Go to step **10L13**.



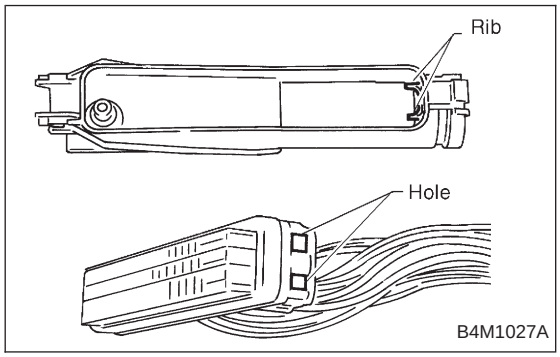
10L12	CHECK ABS SENSOR SIGNAL.

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

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

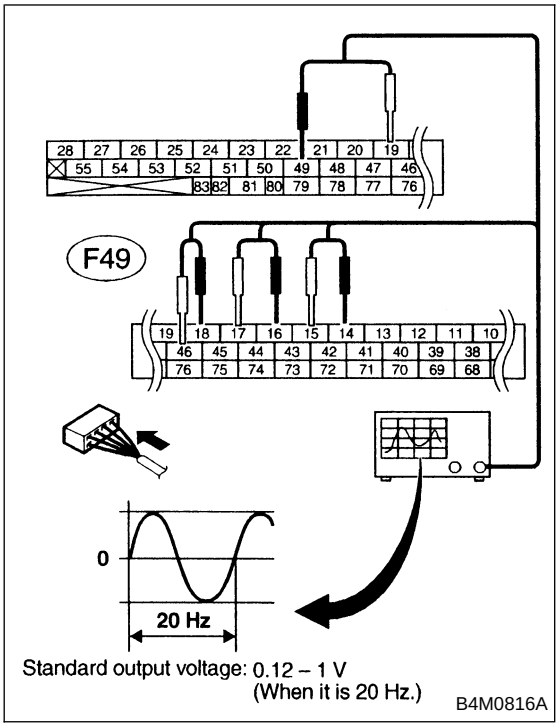


7) Remove connector cover.



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

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



11) Rotate wheels and measure voltage at specified frequency.

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

Connector & terminal
Trouble code 22 / (F49) No. 14 (+) — No. 15 (−):
Trouble code 24 / (F49) No. 49 (+) — No. 19 (−):
Trouble code 26 / (F49) No. 18 (+) — No. 46 (−):
Trouble code 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 **10L16**.
NO : Go to step **10L13**.

10L13	CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.

Remove disc rotor or drum 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 step **10L14**.

10L14	CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.

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

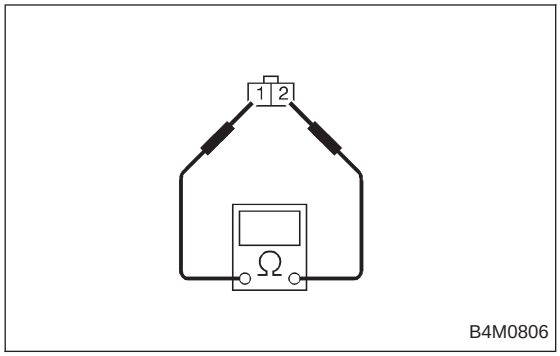
YES : Replace ABS sensor or tone wheel.
NO : Go to step **10L15**.

10L15	CHECK HUB RUNOUT.

Measure hub runout.

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

YES : Go to step **10L16**.
NO : Repair hub.

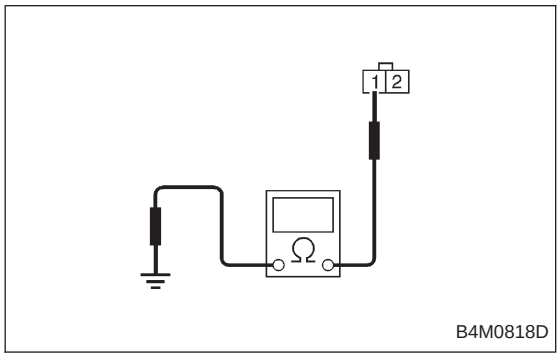


10L16	CHECK RESISTANCE OF ABS SENSOR.

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

Terminal
Front RH No. 1 — No. 2:
Front LH No. 1 — No. 2:
Rear RH No. 1 — No. 2:
Rear LH No. 1 — No. 2:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***
YES : Go to step **10L17**.
NO : Replace ABS sensor.

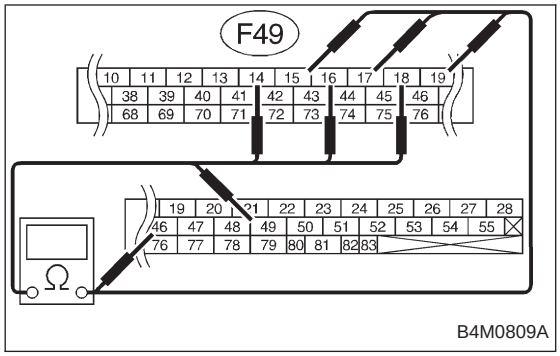


10L17	CHECK GROUND SHORT OF ABS SENSOR.

Measure resistance between ABS sensor and chassis ground.

Terminal
Front RH No. 1 — Chassis ground:
Front LH No. 1 — Chassis ground:
Rear RH No. 1 — Chassis ground:
Rear LH No. 1 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10L18**.
NO : Replace ABS sensor.



10L18	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND ABS SENSOR.

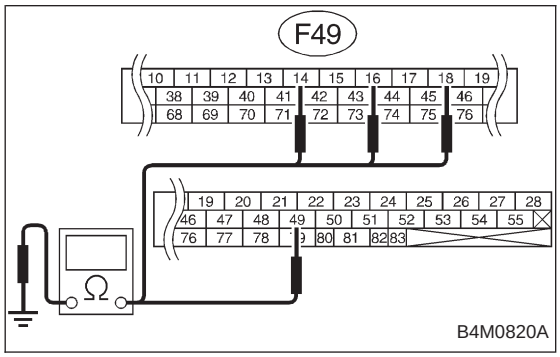
1) Connect connector to ABS sensor.
2) Disconnect connector from ABSCM.
3) Measure resistance at ABSCM connector terminals.

Connector & terminal
Trouble code 22 / (F49) No. 14 — No. 15:
Trouble code 24 / (F49) No. 49 — No. 69:
Trouble code 26 / (F49) No. 18 — No. 46:
Trouble code 28 / (F49) No. 16 — No. 17:

CHECK ***: Is the resistance between 0.8 and 1.2 kΩ?***

YES : Go to step **10L19**.

NO : Repair harness/connector between ABSCM and ABS sensor.



10L19	CHECK GROUND SHORT OF HARNESS.

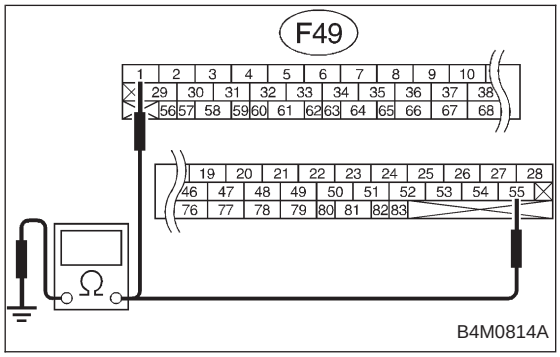
Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 22 / (F49) No. 14 — Chassis ground:
Trouble code 24 / (F49) No. 49 — Chassis ground:
Trouble code 26 / (F49) No. 18 — Chassis ground:
Trouble code 28 / (F49) No. 16 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10L20**.

NO : Repair harness between ABSCM and ABS sensor.



10L20	CHECK GROUND CIRCUIT OF ABSCM.

Measure resistance between ABSCM and chassis ground.

Connector & terminal
(F49) No. 1 — Chassis ground:
(F49) No. 55 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **10L21**.

NO : Repair ABSCM ground harness.

10L21	CHECK POOR CONTACT IN CONNECTORS.

CHECK : ***Is there poor contact in connectors between ABSCM and ABS sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10L22**.

10L22	CHECK SOURCES OF SIGNAL NOISE.

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

YES : Go to step **10L23**.

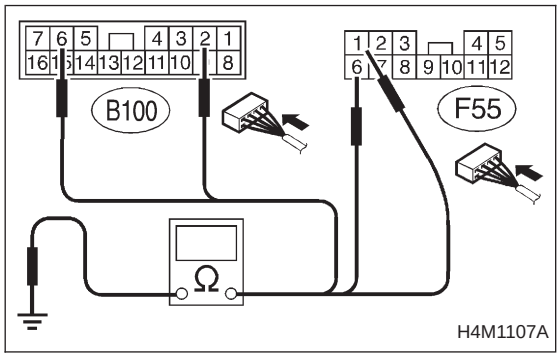
NO : Properly install the car telephone or the wireless transmitter.

10L23	CHECK SOURCES OF SIGNAL NOISE.

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 **10L24.**



10L24	CHECK SHIELD CIRCUIT.

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

Connector & terminal
Trouble code 22 / (B100) No. 6 — Chassis ground:
Trouble code 24 / (B100) No. 2 — Chassis ground:
Trouble code 26 / (F55) No. 6 — Chassis ground:
Trouble code 28 / (F55) No. 1 — Chassis ground:

CHECK : ***Is the resistance less than 0.5 Ω?***

YES : Go to step **10L25**.

NO : Repair shield harness.

10L25	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 step **10L26**.

10L26	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary noise interference.

D•NEW 29 (FB1)
EITHER. SS SOFT

B4M0952

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

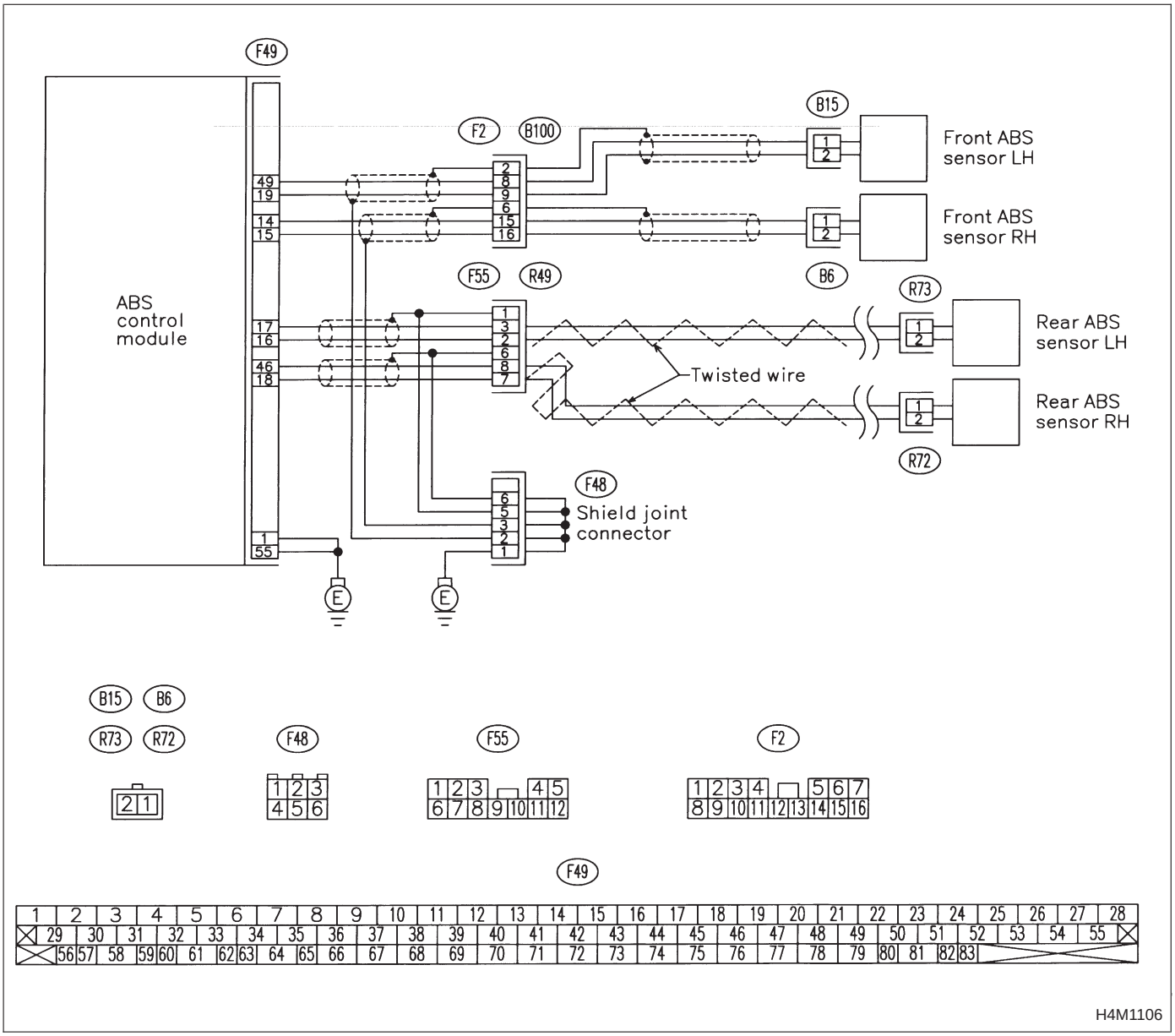
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1106

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 SPECIFICATIONS.

Turn ignition switch to OFF.

CHECK ***: Are the tire specifications correct?***

YES : Go to step **10M3**.

NO : Replace tire.

10M3	CHECK WEAR OF TIRE.

CHECK ***: Is the tire worn excessively?***

YES : Replace tire.

NO : Go to step **10M4**.

10M4	CHECK TIRE PRESSURE.

CHECK ***: Is the tire pressure correct?***

YES : Go to step **10M5**.

NO : Adjust tire pressure.

10M5	CHECK INSTALLATION OF ABS SENSOR.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)

CHECK ***: Are the ABS sensor installation bolts tightened securely?***

YES : Go to step **10M6**.

NO : Tighten ABS sensor installation bolts securely.

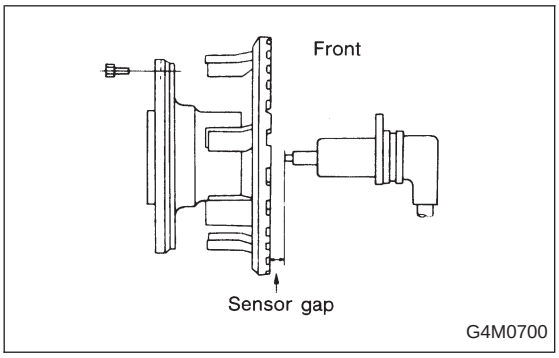
10M6	CHECK INSTALLATION OF TONE WHEEL.

Tightening torque:
13±3 N·m (1.3±0.3 kg-m, 9±2.2 ft-lb)

CHECK ***: Are the tone wheel installation bolts tightened securely?***

YES : Go to step **10M7**.

NO : Tighten tone wheel installation bolts securely.

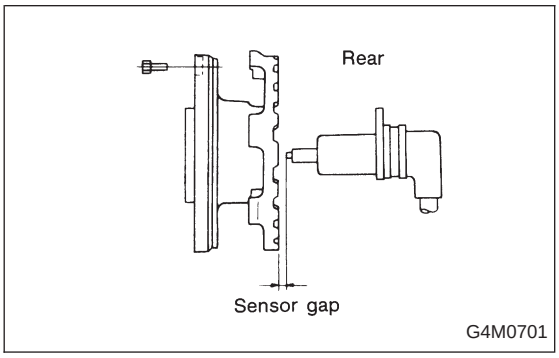


10M7	CHECK ABS SENSOR GAP.

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 step **10M8**.

NO : Adjust the gap.

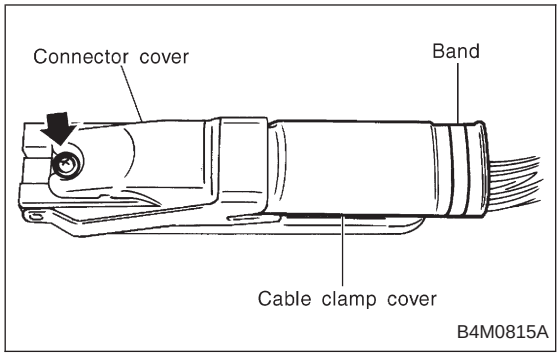
NOTE:
Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.

10M8	CHECK OSCILLOSCOPE.

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

YES : Go to step **10M9**.

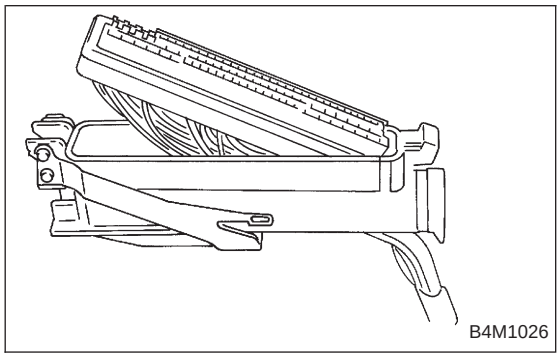
NO : Go to step **10M10**.



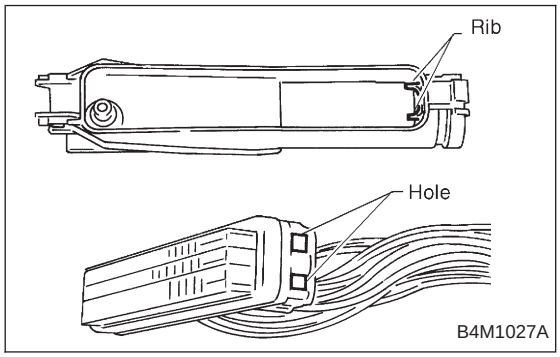
10M9	CHECK ABS SENSOR SIGNAL.

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

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

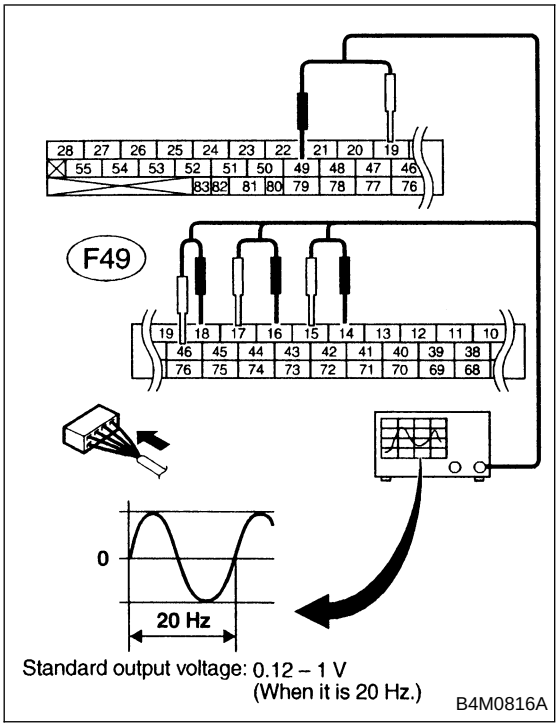


7) Remove connector cover.



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

8) Connect connector to ABS control module.
9) Connect the oscilloscope to the ABS control module connector.
10) Turn ignition switch ON.



11) Rotate wheels and measure voltage at specified frequency.

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

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 **10M13**.
NO : Go to step **10M10**.

10M10	CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.

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 step **10M11**.

10M11	CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.

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 step **10M12**.

10M12	CHECK HUB RUNOUT.

Measure hub runout.

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

YES : Go to step **10M13**.
NO : Repair hub.

10M13	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 step **10M14**.

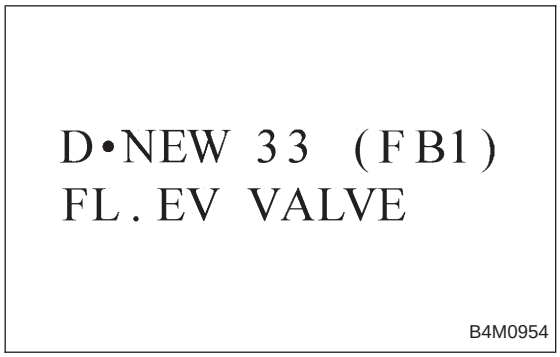
10M14	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

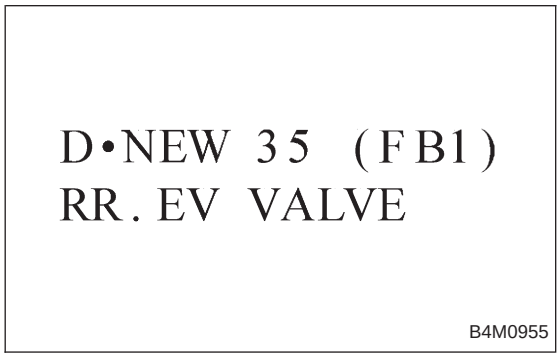
YES : Proceed with the diagnosis corresponding to the trouble code.

NO : A temporary poor contact.

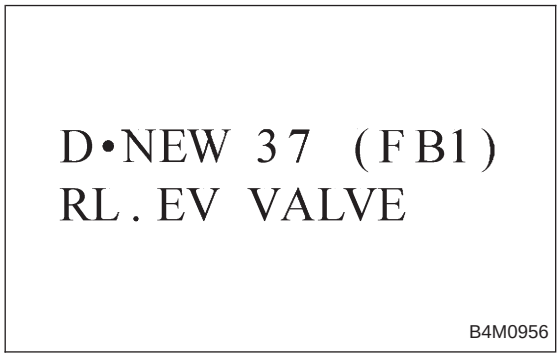
N: TROUBLE CODE 31 FR. EV VALVE — ABNORMAL FRONT RH INLET SOLENOID VALVE —



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



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



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

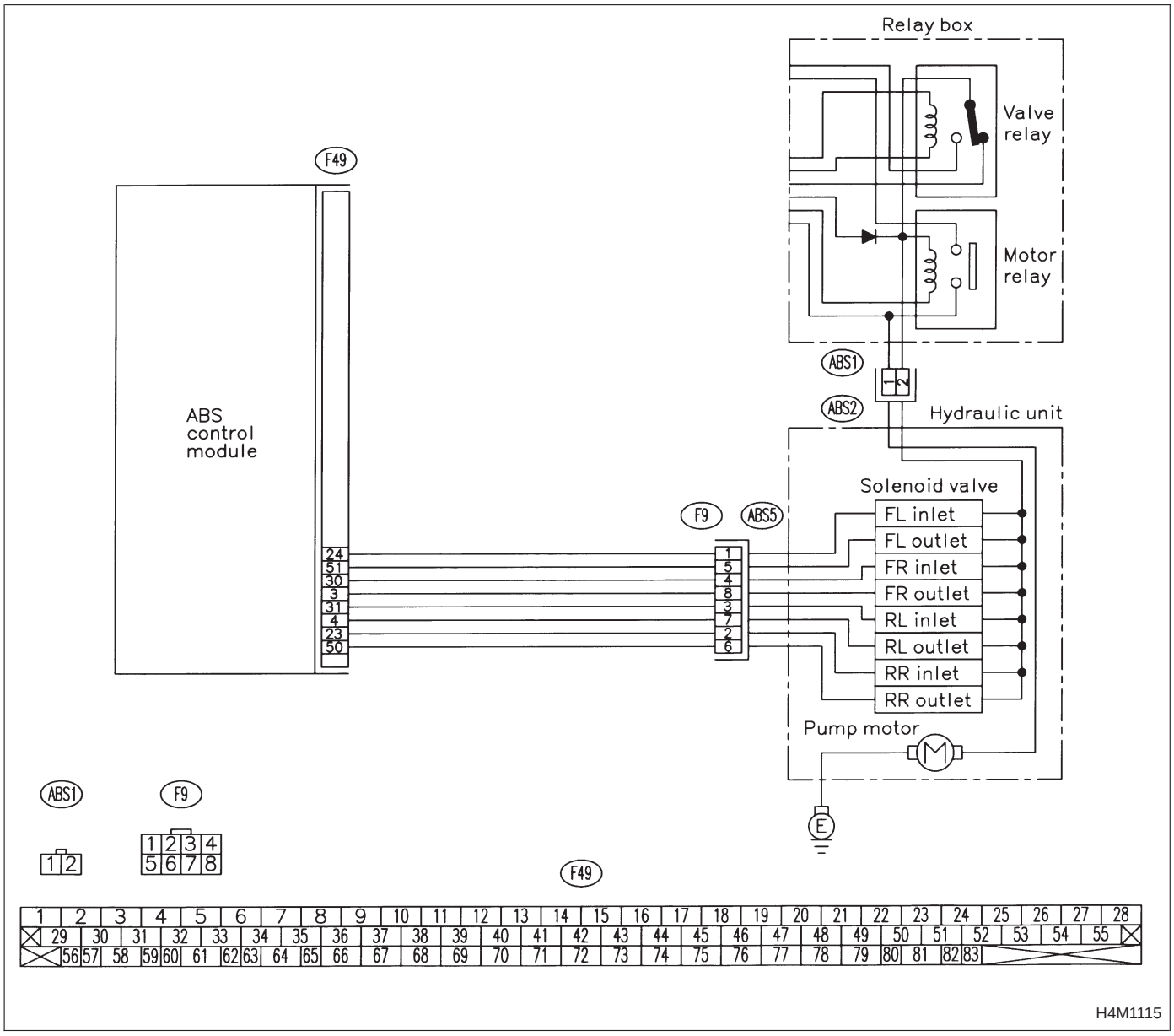
DIAGNOSIS:

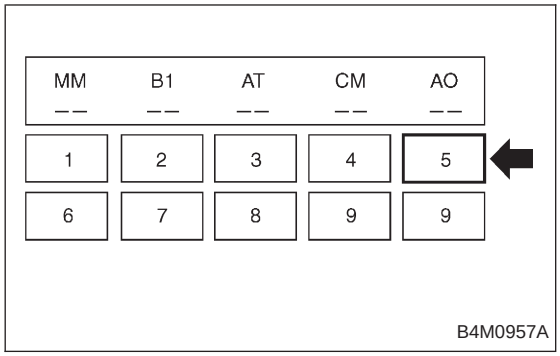
- Faulty harness/connector
- Faulty inlet solenoid valve in hydraulic unit

TROUBLE SYMPTOM:

- ABS does not operate.

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 **10Q15**.

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 step **10Q3**.

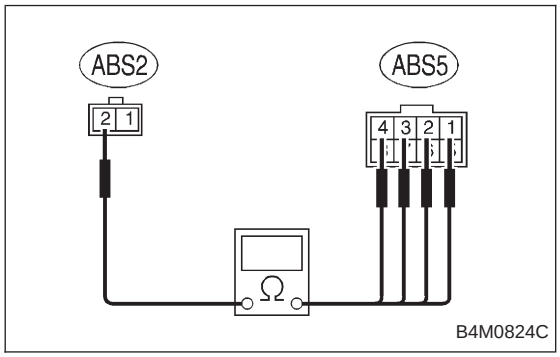
NO : Go to step **10Q15**.

10Q3	CHECK THE CONDITION WHEN THE TROUBLE OCCURRED.

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

YES : Go to step **10Q11**.

NO : Go to step **10Q4**.



10Q4	CHECK RESISTANCE OF SOLENOID VALVE.

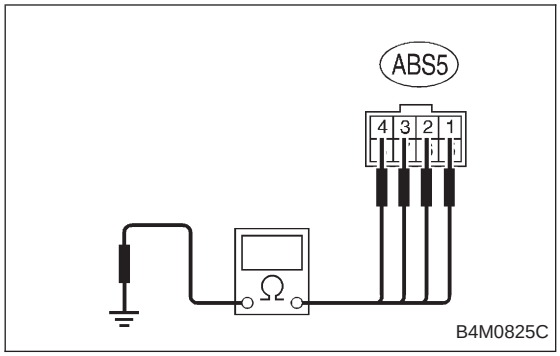
1) Turn ignition switch to OFF.
2) Disconnect two connectors (ABS1, F9) from hydraulic unit.
3) Measure resistance between hydraulic unit connector terminals.

Connector & terminal
Trouble code 31 / (ABS5) No. 4 — (ABS2) No. 2:
Trouble code 33 / (ABS5) No. 1 — (ABS2) No. 2:
Trouble code 35 / (ABS5) No. 2 — (ABS2) No. 2:
Trouble code 37 / (ABS5) No. 3 — (ABS2) No. 2:

CHECK : ***Is the resistance between 7.8 and 9.2 Ω?***

YES : Go to step **10Q5**.

NO : Replace hydraulic unit.



10Q5	CHECK GROUND SHORT OF SOLENOID VALVE.

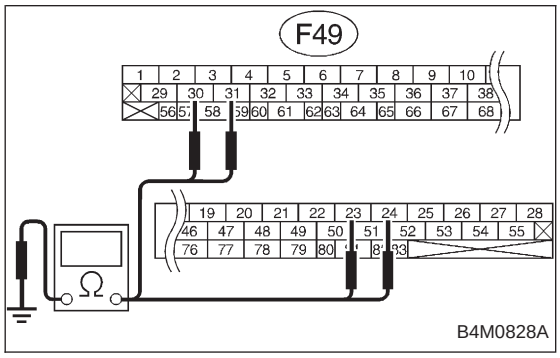
Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 31 / (ABS5) No. 4 — Chassis ground:
Trouble code 33 / (ABS5) No. 1 — Chassis ground:
Trouble code 35 / (ABS5) No. 2 — Chassis ground:
Trouble code 37 / (ABS5) No. 3 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10Q6**.

NO : Replace hydraulic unit.



10Q6	CHECK GROUND SHORT OF HARNESS.

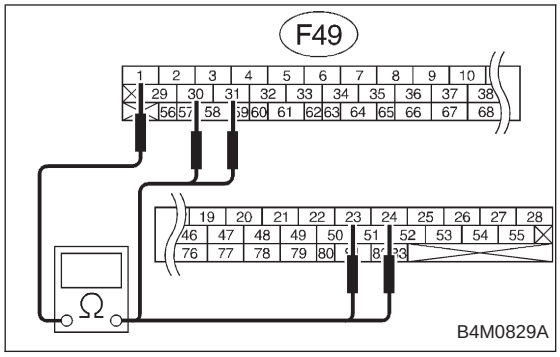
1) Disconnect connector from ABSCM.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 31 / (F49) No. 30 — Chassis ground:
Trouble code 33 / (F49) No. 24 — Chassis ground:
Trouble code 35 / (F49) No. 23 — Chassis ground:
Trouble code 37 / (F49) No. 31 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10Q7**.

NO : Repair harness between ABSCM and hydraulic unit.



10Q7	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

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

Connector & terminal
Trouble code 31 / (F49) No. 30 — No. 1:
Trouble code 33 / (F49) No. 24 — No. 1:
Trouble code 35 / (F49) No. 23 — No. 1:
Trouble code 37 / (F49) No. 31 — No. 1:

CHECK ***: Is the resistance between 8.3 and 9.7 Ω?***
YES : Go to step **10Q8**.
NO : Repair harness/connector between ABSCM and hydraulic unit.

10Q8	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Go to step **10Q9**.

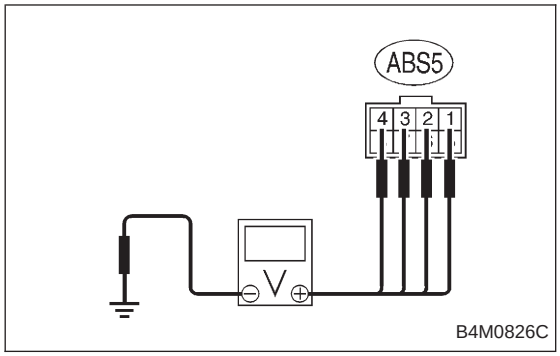
10Q9	CHECK ABSCM.

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 step **10Q10**.

10Q10	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

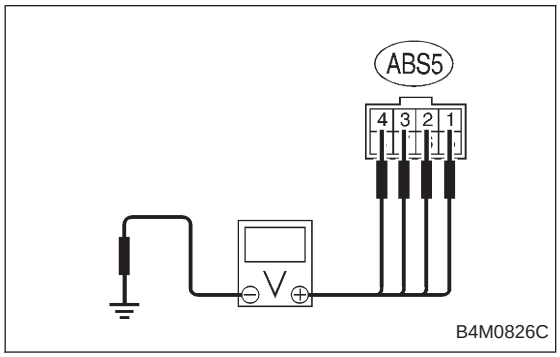


10Q11	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 31 / (ABS5) No. 4 (+) — Chassis ground (−):
Trouble code 33 / (ABS5) No. 1 (+) — Chassis ground (−):
Trouble code 35 / (ABS5) No. 2 (+) — Chassis ground (−):
Trouble code 37 / (ABS5) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10Q12**.
NO : Replace hydraulic unit.

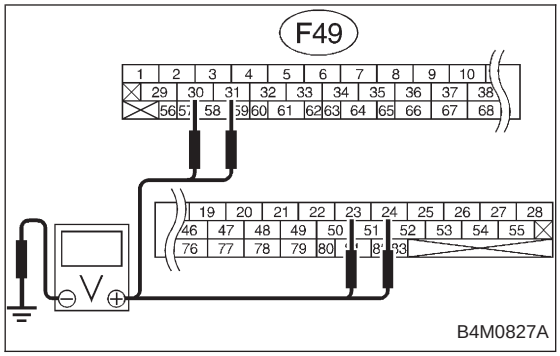


10Q12	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 31 / (ABS5) No. 4 (+) — Chassis ground (−):
Trouble code 33 / (ABS5) No. 1 (+) — Chassis ground (−):
Trouble code 35 / (ABS5) No. 2 (+) — Chassis ground (−):
Trouble code 37 / (ABS5) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10Q13**.
NO : Replace hydraulic unit.



10Q13	CHECK BATTERY SHORT OF HARNESS.

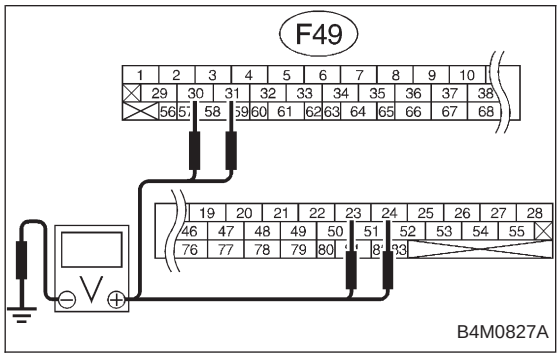
1) Turn ignition switch to OFF.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 31 / (F49) No. 30 (+) — Chassis ground (−):
Trouble code 33 / (F49) No. 24 (+) — Chassis ground (−):
Trouble code 35 / (F49) No. 23 (+) — Chassis ground (−):
Trouble code 37 / (F49) No. 31 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10Q14**.

NO : Repair harness between ABSCM and hydraulic unit.



10Q14	CHECK BATTERY SHORT OF HARNESS.

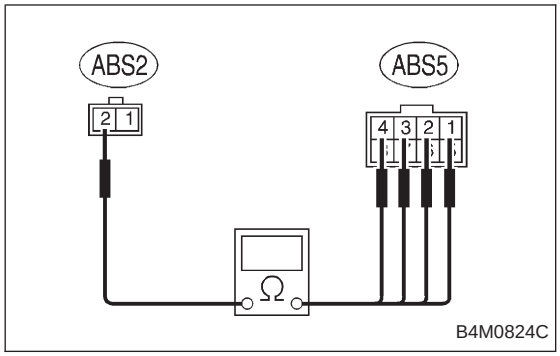
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 31 / (F49) No. 30 (+) — Chassis ground (−):
Trouble code 33 / (F49) No. 24 (+) — Chassis ground (−):
Trouble code 35 / (F49) No. 23 (+) — Chassis ground (−):
Trouble code 37 / (F49) No. 31 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Replace ABSCM.

NO : Repair harness between ABSCM and hydraulic unit.

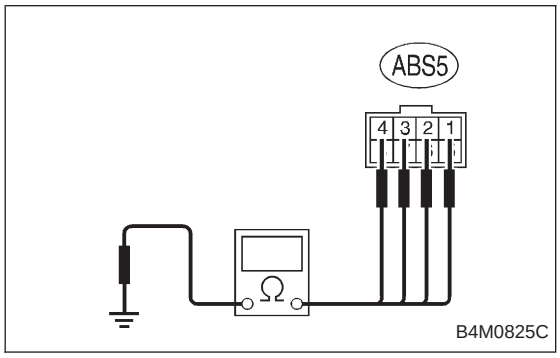


10Q15	CHECK RESISTANCE OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 31 / (ABS5) No. 4 — (ABS2) No. 2:
Trouble code 33 / (ABS5) No. 1 — (ABS2) No. 2:
Trouble code 35 / (ABS5) No. 2 — (ABS2) No. 2:
Trouble code 37 / (ABS5) No. 3 — (ABS2) No. 2:

CHECK ***: Is the resistance between 7.8 and 9.2 Ω?***
YES : Go to step **10Q16**.
NO : Replace hydraulic unit.

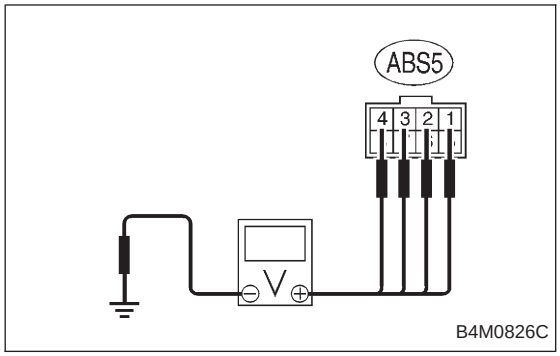


10Q16	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 31 / (ABS5) No. 4 — Chassis ground:
Trouble code 33 / (ABS5) No. 1 — Chassis ground:
Trouble code 35 / (ABS5) No. 2 — Chassis ground:
Trouble code 37 / (ABS5) No. 3 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10Q17**.
NO : Replace hydraulic unit.

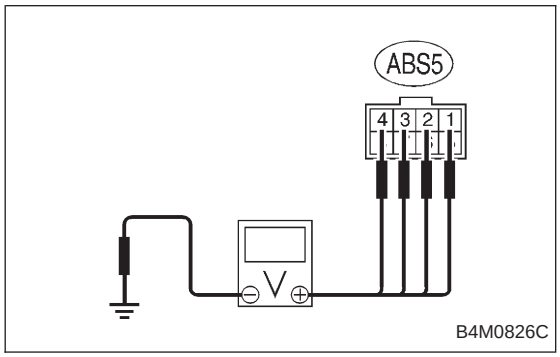


10Q17	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Disconnect connector from ABSCM.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 31 / (ABS5) No. 4 (+) — Chassis ground (−):
Trouble code 33 / (ABS5) No. 1 (+) — Chassis ground (−):
Trouble code 35 / (ABS5) No. 2 (+) — Chassis ground (−):
Trouble code 37 / (ABS5) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10Q18**.
NO : Replace hydraulic unit.

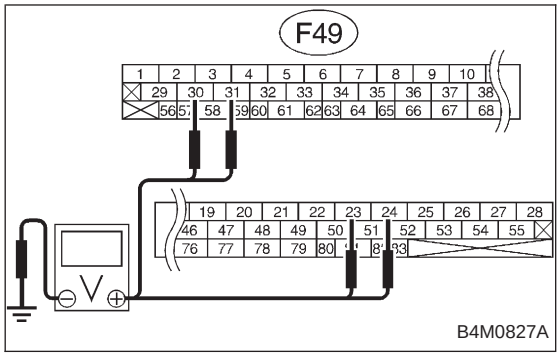


10Q18	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 31 / (ABS5) No. 4 (+) — Chassis ground (−):
Trouble code 33 / (ABS5) No. 1 (+) — Chassis ground (−):
Trouble code 35 / (ABS5) No. 2 (+) — Chassis ground (−):
Trouble code 37 / (ABS5) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10Q19**.
NO : Replace hydraulic unit.



10Q19	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
Trouble code 31 / (F49) No. 30 (+) — Chassis ground (−):
Trouble code 33 / (F49) No. 24 (+) — Chassis ground (−):
Trouble code 35 / (F49) No. 23 (+) — Chassis ground (−):
Trouble code 37 / (F49) No. 31 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10Q20**.

NO : Repair harness between ABSCM and hydraulic unit.

10Q20	CHECK BATTERY SHORT OF HARNESS.

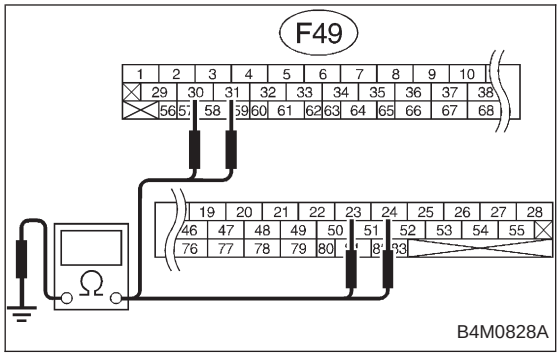
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 31 / (F49) No. 30 (+) — Chassis ground (−):
Trouble code 33 / (F49) No. 24 (+) — Chassis ground (−):
Trouble code 35 / (F49) No. 23 (+) — Chassis ground (−):
Trouble code 37 / (F49) No. 31 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10Q21**.

NO : Repair harness between ABSCM and hydraulic unit.



10Q21	CHECK GROUND SHORT OF HARNESS.

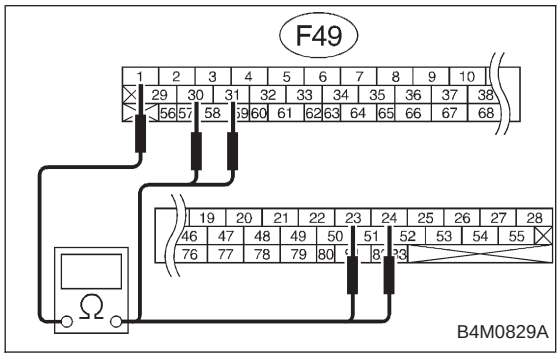
1) Turn ignition switch to OFF.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 31 / (F49) No. 30 — Chassis ground:
Trouble code 33 / (F49) No. 24 — Chassis ground:
Trouble code 35 / (F49) No. 23 — Chassis ground:
Trouble code 37 / (F49) No. 31 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10Q22**.

NO : Repair harness between ABSCM and hydraulic unit.



10Q22	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

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

Connector & terminal
Trouble code 31 / (F49) No. 30 — No. 1:
Trouble code 33 / (F49) No. 24 — No. 1:
Trouble code 35 / (F49) No. 23 — No. 1:
Trouble code 37 / (F49) No. 31 — No. 1:

CHECK ***: Is the resistance between 8.3 and 9.7 Ω?***

YES : Go to step **10Q23**.

NO : Repair harness/connector between ABSCM and hydraulic unit.

10Q23	CHECK POOR CONTACT IN CONNECTORS.

CHECK : ***Is there poor contact in connectors between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10Q24**.

10Q24	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.

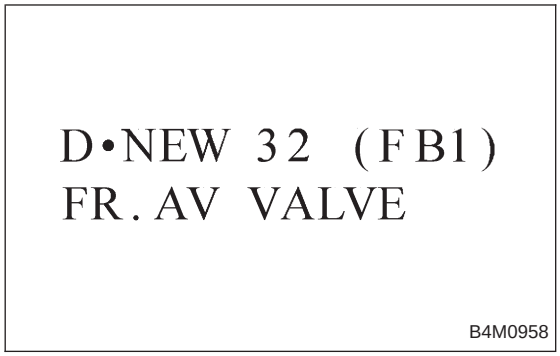
NO : Go to step **10Q25**.

10Q25	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

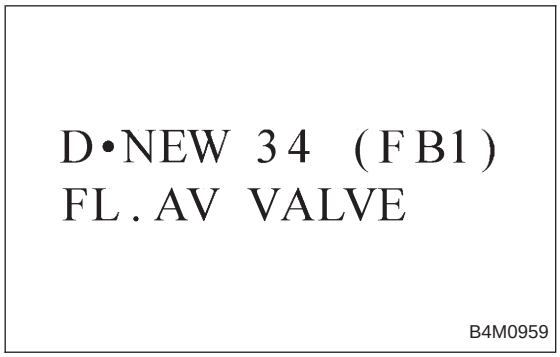
CHECK : ***Are other trouble codes being output?***

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

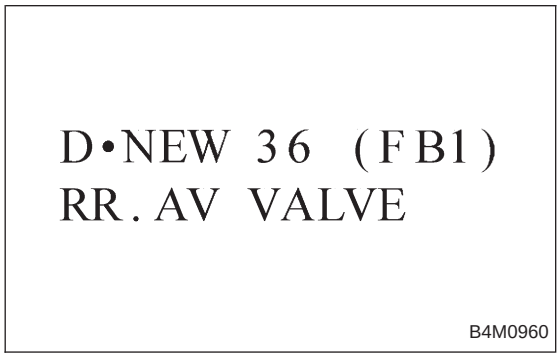
NO : A temporary poor contact.



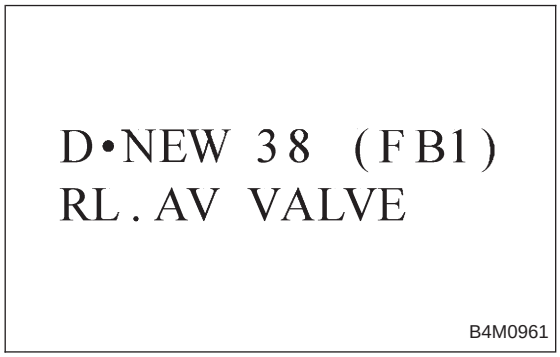
R: TROUBLE CODE 32 FR. AV VALVE — ABNORMAL FRONT RH OUTLET SOLENOID VALVE —



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



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



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

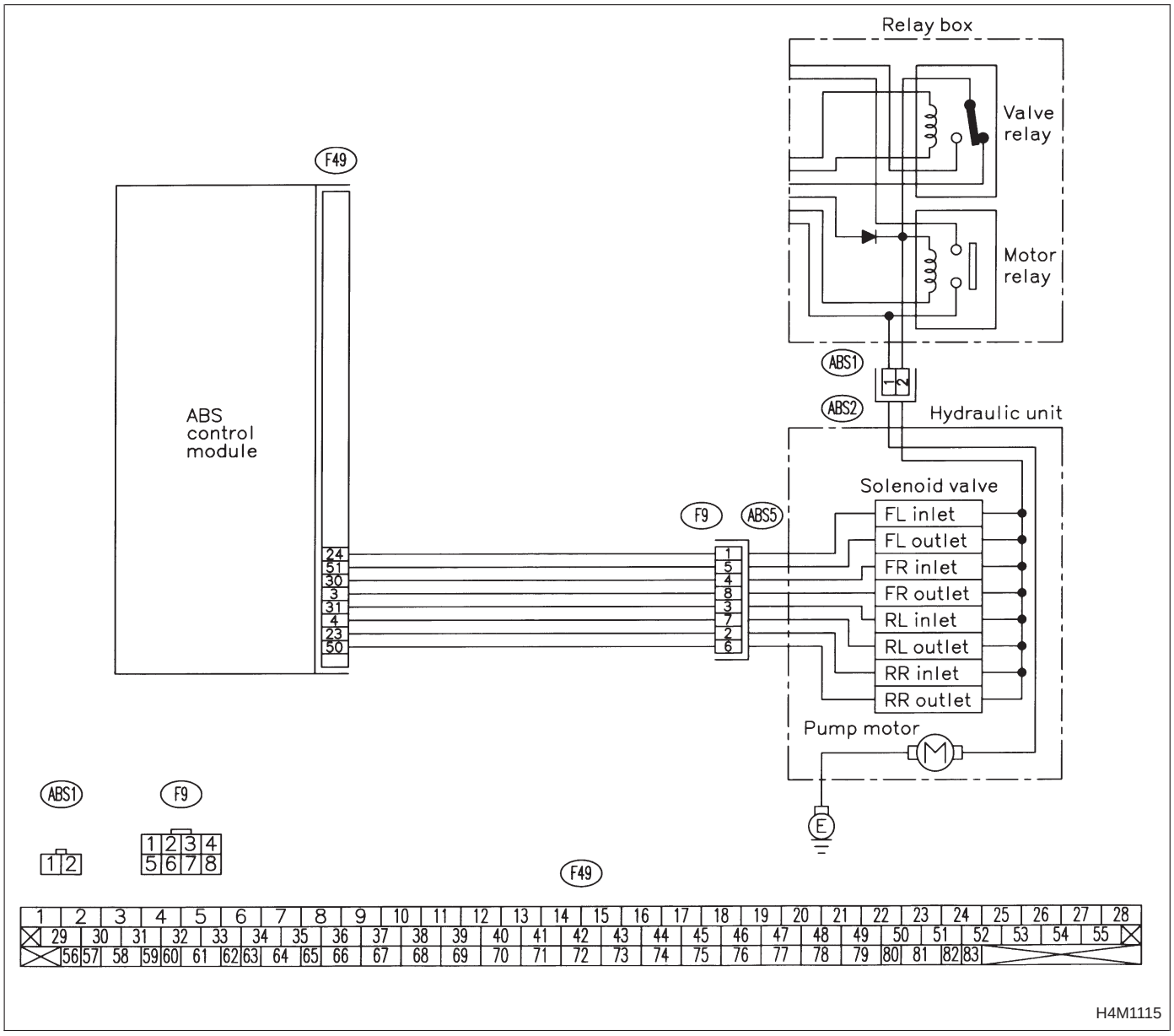
DIAGNOSIS:

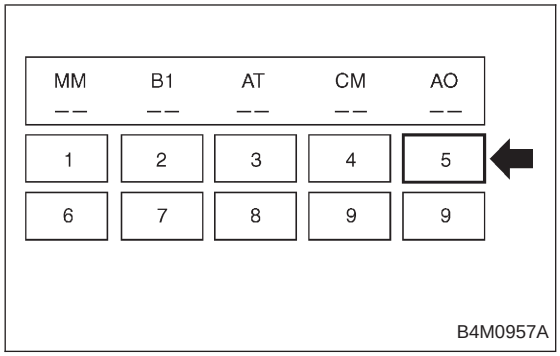
- Faulty harness/connector
- Faulty outlet solenoid valve in hydraulic unit

TROUBLE SYMPTOM:

- ABS does not operate.

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 **10U15**.

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 step **10U3**.

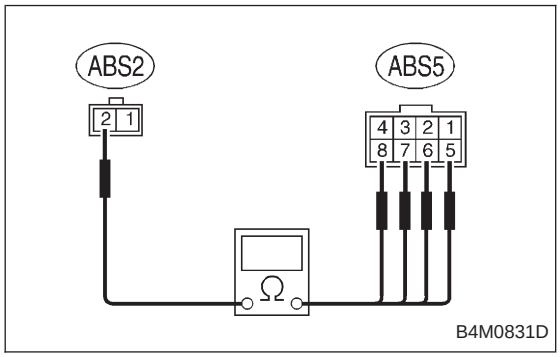
NO : Go to step **10U15**.

10U3	CHECK THE CONDITION WHEN THE TROUBLE OCCURRED.

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

YES : Go to step **10U11**.

NO : Go to step **10U4**.



10U4	CHECK RESISTANCE OF SOLENOID VALVE.

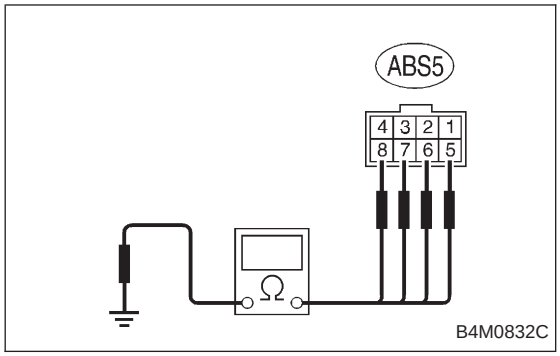
1) Turn ignition switch to OFF.
2) Disconnect two connectors (ABS1, F9) from hydraulic unit.
3) Measure resistance between hydraulic unit connector terminals.

Connector & terminal
Trouble code 32 / (ABS5) No. 8 — (ABS2) No. 2:
Trouble code 34 / (ABS5) No. 5 — (ABS2) No. 2:
Trouble code 36 / (ABS5) No. 6 — (ABS2) No. 2:
Trouble code 38 / (ABS5) No. 7 — (ABS2) No. 2:

CHECK : ***Is the resistance between 3.8 and 4.8 Ω?***

YES : Go to step **10U5**.

NO : Replace hydraulic unit.



10U5	CHECK GROUND SHORT OF SOLENOID VALVE.

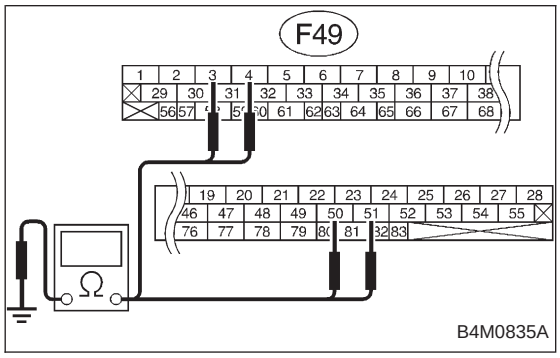
Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 32 / (ABS5) No. 8 — Chassis ground:
Trouble code 34 / (ABS5) No. 5 — Chassis ground:
Trouble code 36 / (ABS5) No. 6 — Chassis ground:
Trouble code 38 / (ABS5) No. 7 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10U6**.

NO : Replace hydraulic unit.



10U6	CHECK GROUND SHORT OF HARNESS.

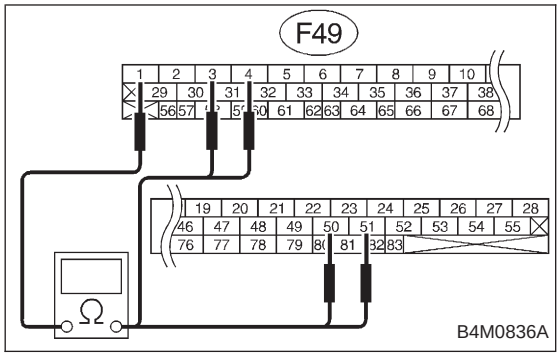
1) Disconnect connector from ABSCM.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 32 / (F49) No. 3 — Chassis ground:
Trouble code 34 / (F49) No. 51 — Chassis ground:
Trouble code 36 / (F49) No. 50 — Chassis ground:
Trouble code 38 / (F49) No. 4 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10U7**.

NO : Repair harness between ABSCM and hydraulic unit.



10U7	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 — No. 1:
Trouble code 34 / (F49) No. 51 — No. 1:
Trouble code 36 / (F49) No. 50 — No. 1:
Trouble code 38 / (F49) No. 4 — No. 1:

CHECK ***: Is the resistance between 4.3 and 5.3 Ω?***
YES : Go to step **10U8**.
NO : Repair harness/connector between ABSCM and hydraulic unit.

10U8	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***
YES : Repair connector.
NO : Go to step **10U9**.

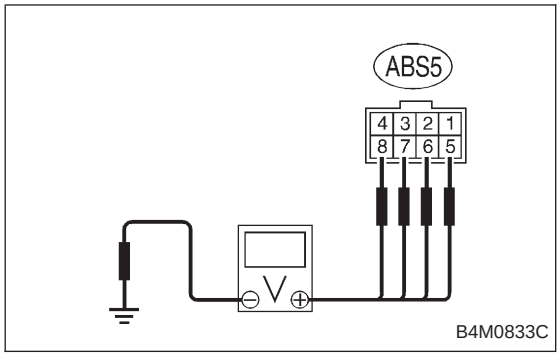
10U9	CHECK ABSCM.

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 step **10U10**.

10U10	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

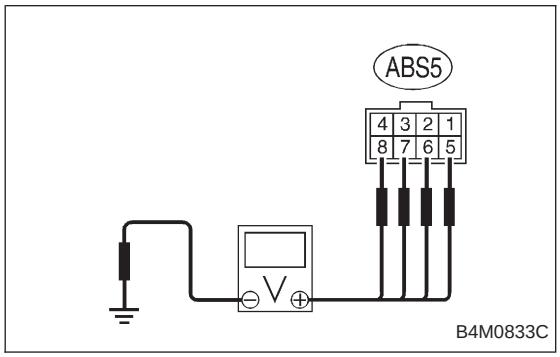


10U11	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 32 / (ABS5) No. 8 (+) — Chassis ground (−):
Trouble code 34 / (ABS5) No. 5 (+) — Chassis ground (−):
Trouble code 36 / (ABS5) No. 6 (+) — Chassis ground (−):
Trouble code 38 / (ABS5) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10U12**.
NO : Replace hydraulic unit.

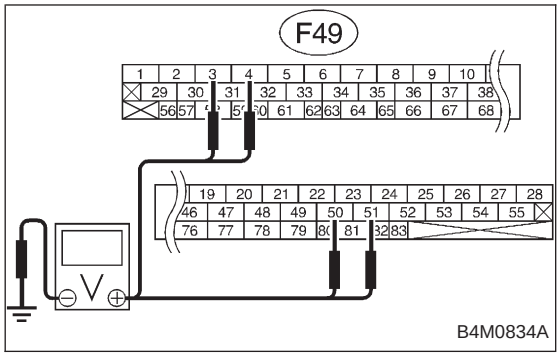


10U12	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 32 / (ABS5) No. 8 (+) — Chassis ground (−):
Trouble code 34 / (ABS5) No. 5 (+) — Chassis ground (−):
Trouble code 36 / (ABS5) No. 6 (+) — Chassis ground (−):
Trouble code 38 / (ABS5) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10U13**.
NO : Replace hydraulic unit.

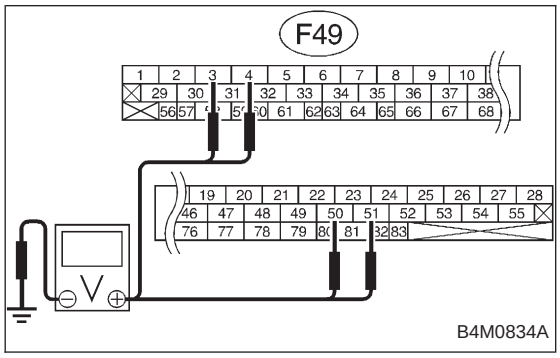


10U13	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 (+) — Chassis ground (−):
Trouble code 34 / (F49) No. 51 (+) — Chassis ground (−):
Trouble code 36 / (F49) No. 50 (+) — Chassis ground (−):
Trouble code 38 / (F49) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10U14**.
NO : Repair harness between ABSCM and hydraulic unit.

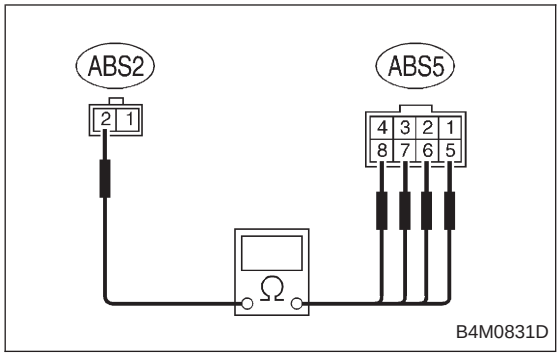


10U14	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 (+) — Chassis ground (−):
Trouble code 34 / (F49) No. 51 (+) — Chassis ground (−):
Trouble code 36 / (F49) No. 50 (+) — Chassis ground (−):
Trouble code 38 / (F49) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Replace ABSCM.
NO : Repair harness between ABSCM and hydraulic unit.

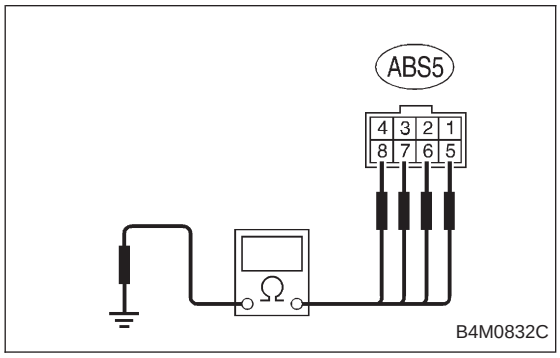


10U15	CHECK RESISTANCE OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 32 / (ABS5) No. 8 — (ABS2) No. 2:
Trouble code 34 / (ABS5) No. 5 — (ABS2) No. 2:
Trouble code 36 / (ABS5) No. 6 — (ABS2) No. 2:
Trouble code 38 / (ABS5) No. 7 — (ABS2) No. 2:

CHECK ***: Is the resistance between 3.8 and 4.8 Ω?***
YES : Go to step **10U16**.
NO : Replace hydraulic unit.

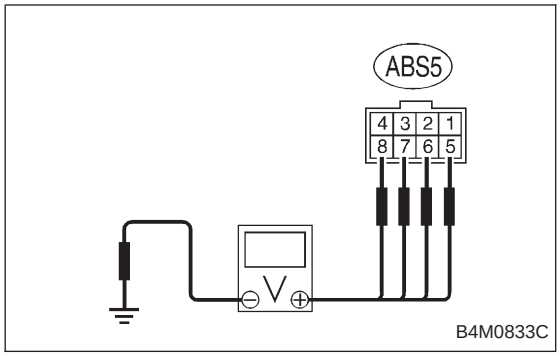


10U16	CHECK GROUND SHORT OF SOLENOID VALVE.

Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 32 / (ABS5) No. 8 — Chassis ground:
Trouble code 34 / (ABS5) No. 5 — Chassis ground:
Trouble code 36 / (ABS5) No. 6 — Chassis ground:
Trouble code 38 / (ABS5) No. 7 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10U17**.
NO : Replace hydraulic unit.

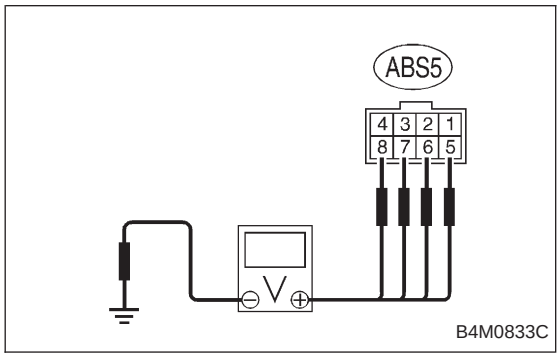


10U17	CHECK BATTERY SHORT OF SOLENOID VALVE.

1) Disconnect connector from ABSCM.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
Trouble code 32 / (ABS5) No. 8 (+) — Chassis ground (−):
Trouble code 34 / (ABS5) No. 5 (+) — Chassis ground (−):
Trouble code 36 / (ABS5) No. 6 (+) — Chassis ground (−):
Trouble code 38 / (ABS5) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10U18**.
NO : Replace hydraulic unit.

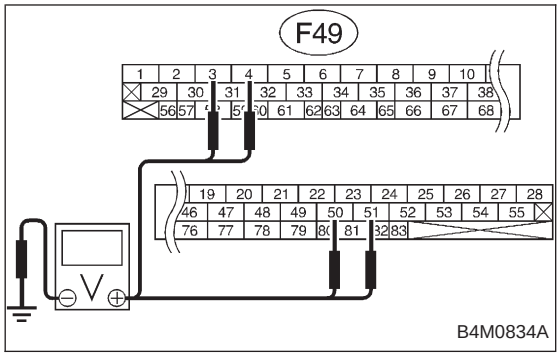


10U18	CHECK BATTERY SHORT OF SOLENOID VALVE.

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

Connector & terminal
Trouble code 32 / (ABS5) No. 8 (+) — Chassis ground (−):
Trouble code 34 / (ABS5) No. 5 (+) — Chassis ground (−):
Trouble code 36 / (ABS5) No. 6 (+) — Chassis ground (−):
Trouble code 38 / (ABS5) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10U19**.
NO : Replace hydraulic unit.



10U19	CHECK BATTERY SHORT OF HARNESS.

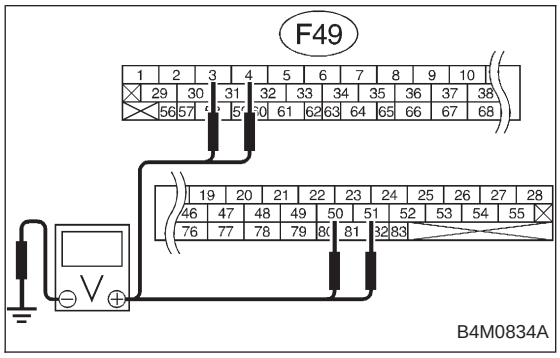
1) Turn ignition switch to OFF.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 32 / (F49) No. 3 (+) — Chassis ground (−):
Trouble code 34 / (F49) No. 51 (+) — Chassis ground (−):
Trouble code 36 / (F49) No. 50 (+) — Chassis ground (−):
Trouble code 38 / (F49) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10U20**.

NO : Repair harness between ABSCM and hydraulic unit.



10U20	CHECK BATTERY SHORT OF HARNESS.

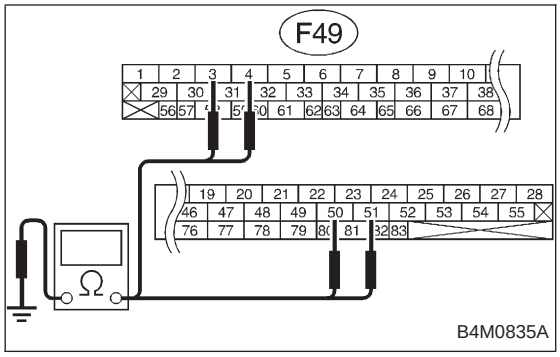
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 32 / (F49) No. 3 (+) — Chassis ground (−):
Trouble code 34 / (F49) No. 51 (+) — Chassis ground (−):
Trouble code 36 / (F49) No. 50 (+) — Chassis ground (−):
Trouble code 38 / (F49) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10U21**.

NO : Repair harness between ABSCM and hydraulic unit.



10U21	CHECK GROUND SHORT OF HARNESS.

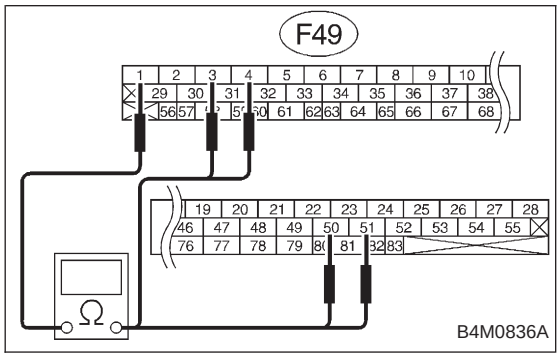
1) Turn ignition switch to OFF.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
Trouble code 32 / (F49) No. 3 — Chassis ground:
Trouble code 34 / (F49) No. 51 — Chassis ground:
Trouble code 36 / (F49) No. 50 — Chassis ground:
Trouble code 38 / (F49) No. 4 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10U22**.

NO : Repair harness between ABSCM and hydraulic unit.



10U22	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

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

Connector & terminal
Trouble code 32 / (F49) No. 3 — No. 1:
Trouble code 34 / (F49) No. 51 — No. 1:
Trouble code 36 / (F49) No. 50 — No. 1:
Trouble code 38 / (F49) No. 4 — No. 1:

CHECK ***: Is the resistance between 4.3 and 5.3 Ω?***

YES : Go to step **10U23**.

NO : Repair harness/connector between ABSCM and hydraulic unit.

10U23	CHECK POOR CONTACT IN CONNECTORS.

CHECK : ***Is there poor contact in connectors between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10U24**.

10U24	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.

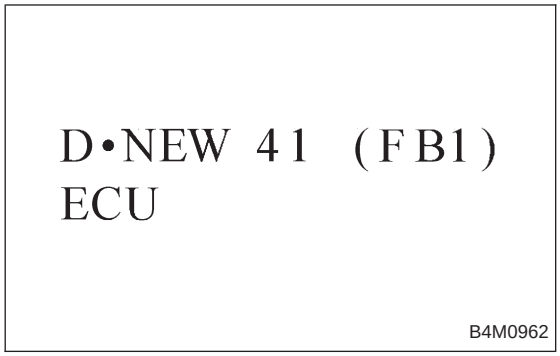
NO : Go to step **10U25**.

10U25	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



V: TROUBLE CODE 41 ECU — ABNORMAL ABS CONTROL MODULE —

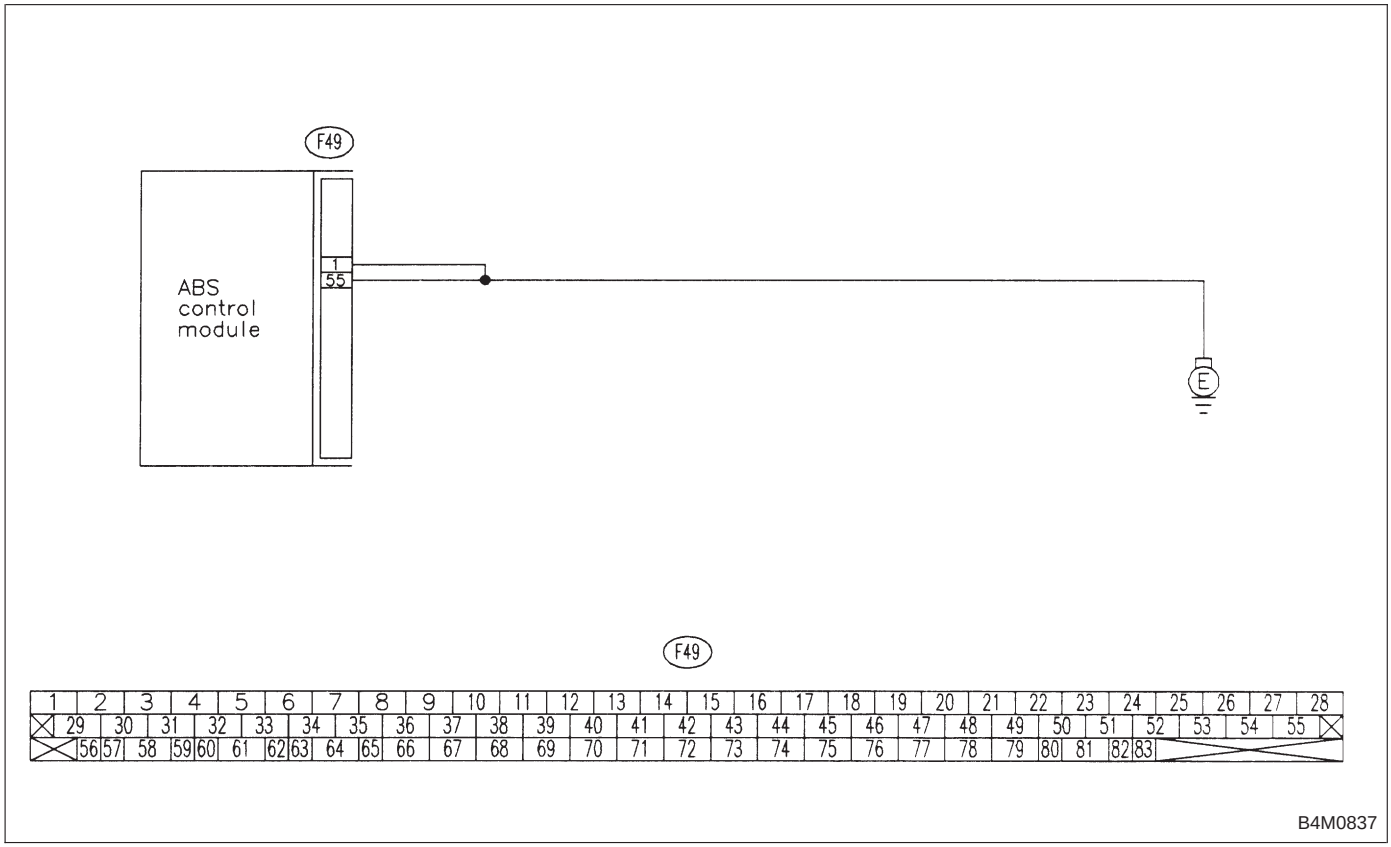
DIAGNOSIS:

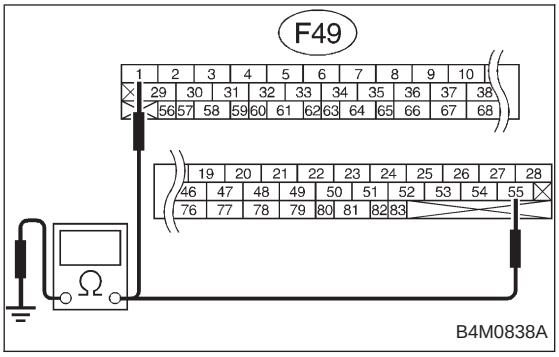
- Faulty ABSCM

TROUBLE SYMPTOM:

- ABS does not operate.

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.

Connector & terminal
(F49) No. 1 — Chassis ground:
(F49) No. 55 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10V2**.
NO : Repair ABSCM ground harness.

10V2	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between battery, ignition switch and ABSCM? <Ref. to FOREWORD [T3C1].>***
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 step **10V4**.
NO : Properly install the car telephone or the wireless transmitter.

10V4	CHECK SOURCES OF SIGNAL NOISE.

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 **10V5**.

10V5	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 step **10V6**.

10V6	**CHECK ANY OTHER TROUBLE CODES APPEARANCE.**

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

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

NO : A temporary poor contact.

D•NEW 42 (FB1)
LOW VOLTAGE

B4M0963

W: TROUBLE CODE 42 LOW VOLTAGE — SOURCE VOLTAGE IS LOW —

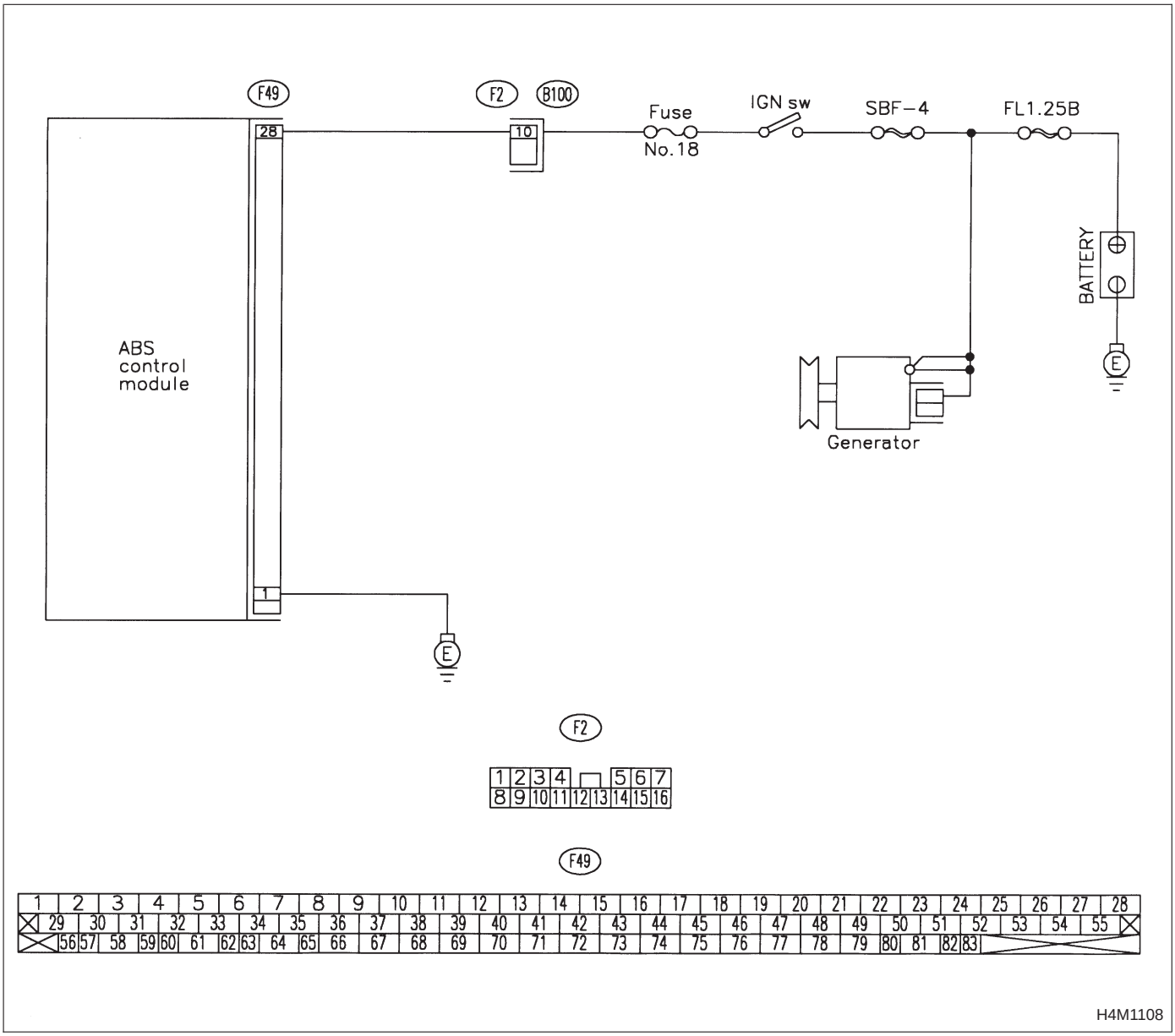
DIAGNOSIS:

- Power source voltage of the ABSCM is low.

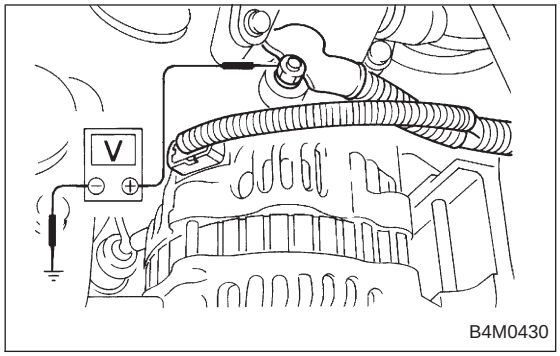
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1108



10W1	CHECK GENERATOR.

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

Terminal
Generator B terminal — Chassis ground:

CHECK ***: Is the voltage between 10 V and 15 V?***

YES : Go to step **10W2**.

NO : Repair generator.

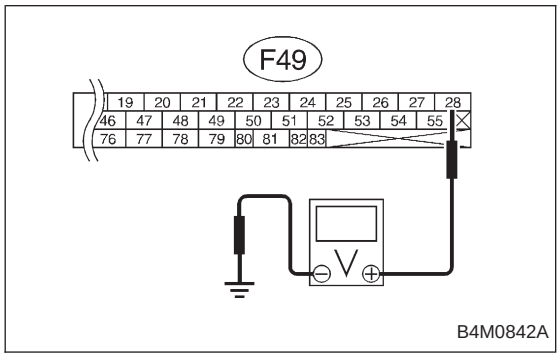
10W2	CHECK BATTERY TERMINAL.

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.

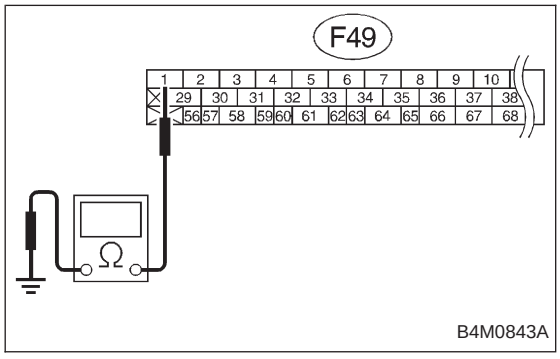
1) Disconnect connector from ABSCM.
2) Run the engine at idle.
3) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 28 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 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.

Connector & terminal
(F49) No. 1 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **10W5**.

NO : Repair ABSCM ground harness.

10W5	CHECK POOR CONTACT IN CONNECTORS.

CHECK : ***Is there poor contact in connectors between generator, battery and ABSCM? <Ref. to FOREWORD [T3C1].>***

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 step **10W7**.

10W7	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

D•NEW 44 (FB1)
CCM LINE

B4M0964

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

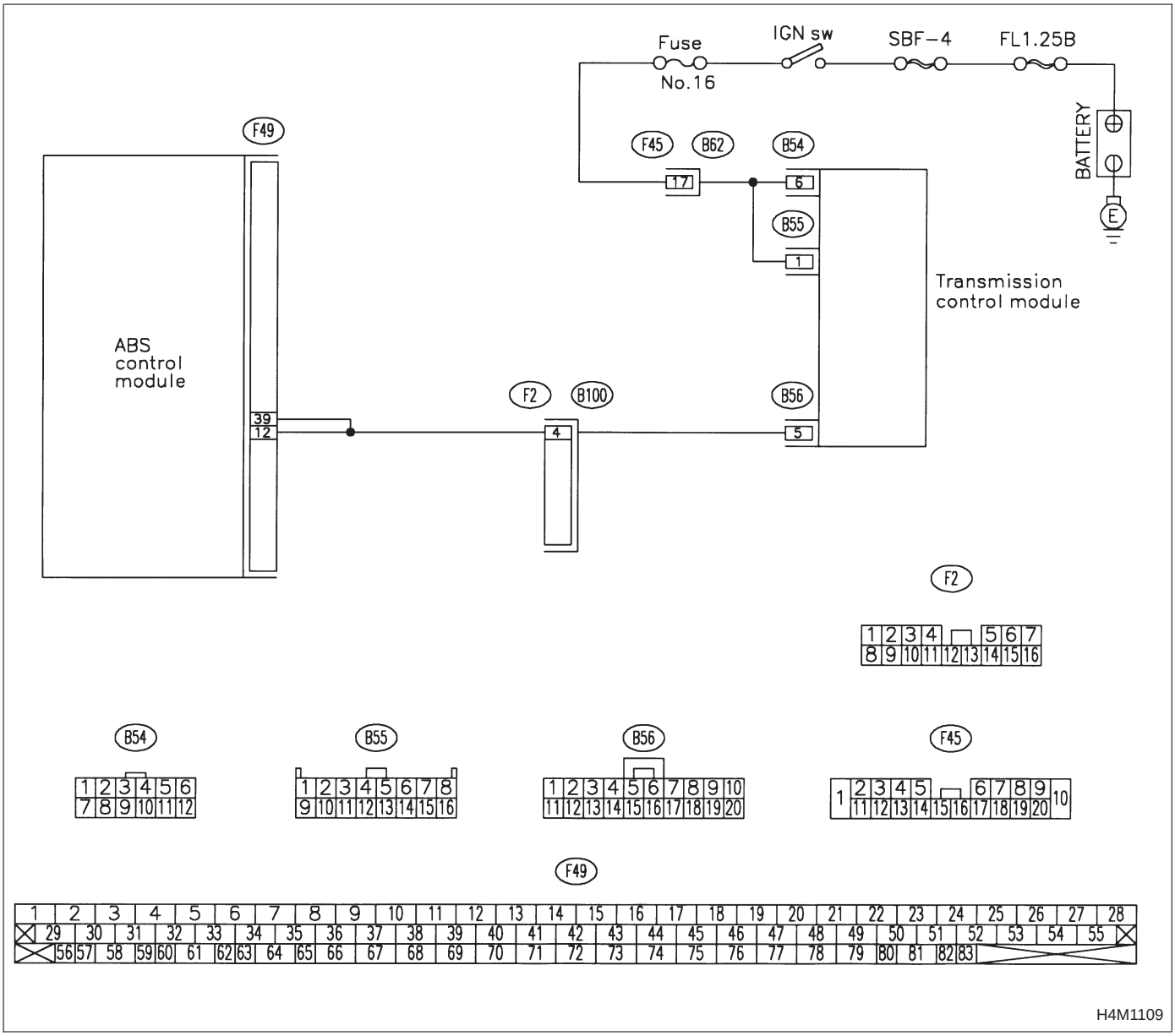
DIAGNOSIS:

- Combination of AT control faults

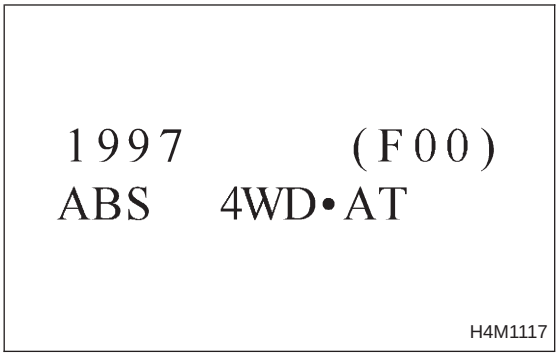
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1109



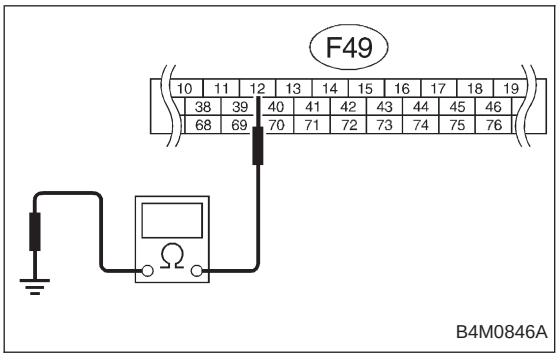
10X1	CHECK SPECIFICATIONS OF ABSCM USING SELECT MONITOR.

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.

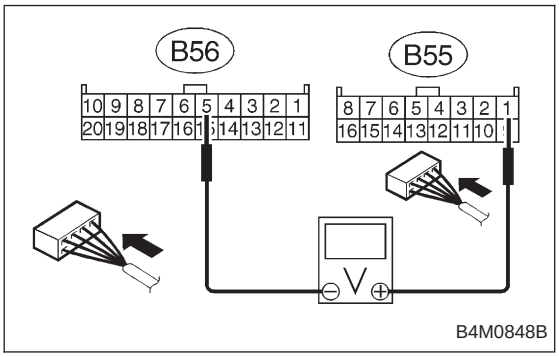
1) Turn ignition switch to OFF.
2) Disconnect two connectors from TCM.
3) Disconnect connector from ABSCM.
4) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10X3**.

NO : Repair harness between TCM and ABSCM.



10X3	CHECK TCM.

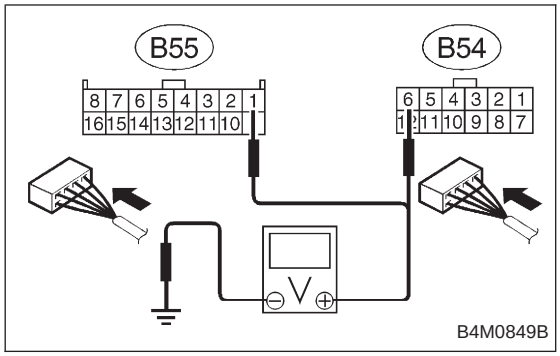
1) Connect all connectors to TCM.
2) Turn ignition switch to ON.
3) Measure voltage between TCM connector terminals.

Connector & terminal
(B55) No. 1 (+) — (B56) No. 5 (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **10X5**.

NO : Go to step **10X4**.



10X4	CHECK POWER SUPPLY FOR TCM.

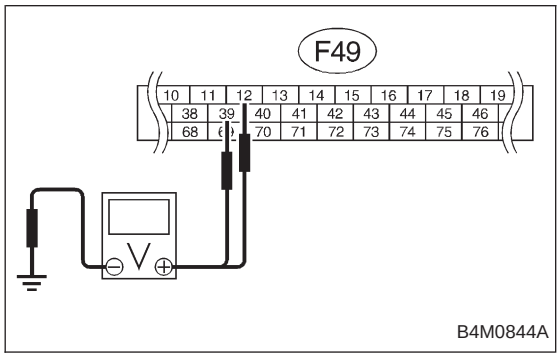
Measure voltage between TCM connector and chassis ground.

Connector & terminal
(B54) No. 6 (+) — Chassis ground (−):
(B55) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Replace TCM.

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



10X5	CHECK OPEN CIRCUIT OF HARNESS.

Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 (+) — Chassis ground (−):
(F49) No. 39 (+) — Chassis ground (−):

CHECK ***: Is the voltage more than 10 V?***

YES : Go to step **10X6**.

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

10X6	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between AT control module and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10X7**.

10X7	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 step **10X8**.

10X8	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

D•NEW 44 (FB1)
CCM OPEN

B4M0965

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

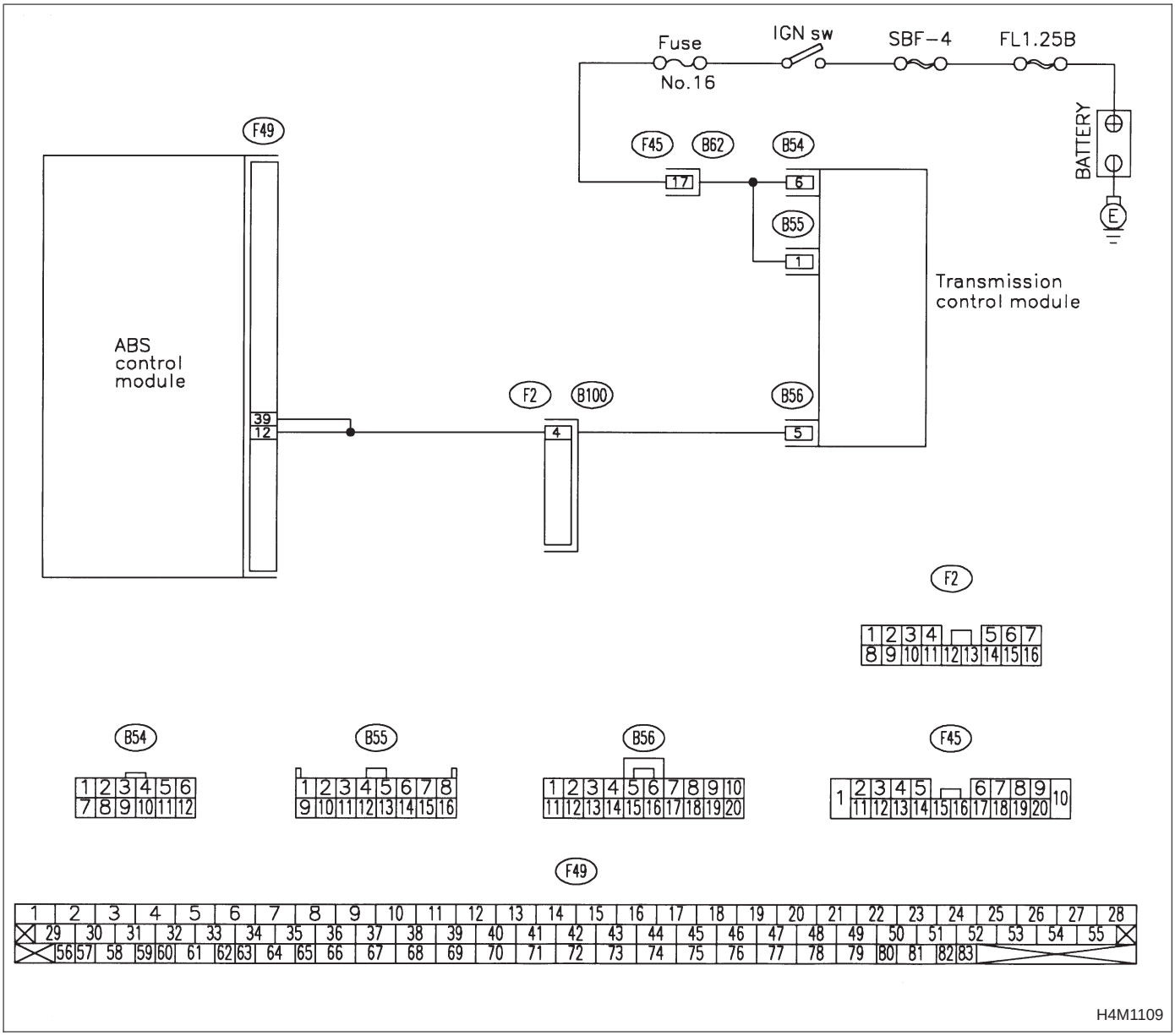
DIAGNOSIS:

- Combination of AT control faults

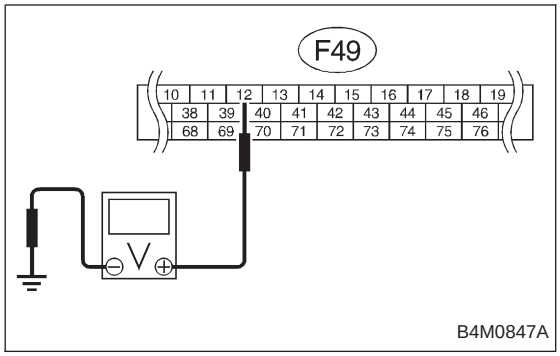
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1109



10Y1	CHECK BATTERY SHORT OF HARNESS.

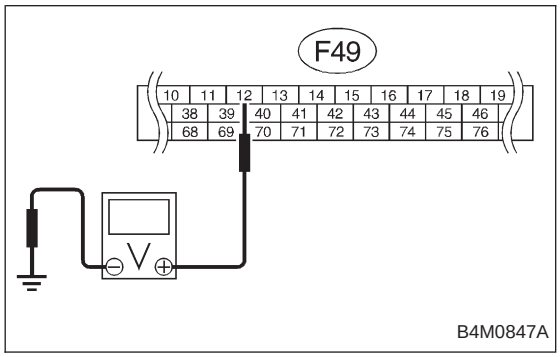
1) Turn ignition switch to OFF.
2) Disconnect two connectors from AT control module.
3) Disconnect connector from ABSCM.
4) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

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

NO : Repair harness between AT control module and ABSCM.



10Y2	CHECK BATTERY SHORT OF HARNESS.

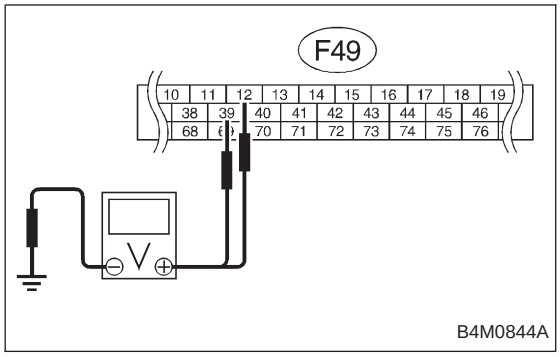
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10Y3**.

NO : Repair harness between AT control module and ABSCM.



10Y3	CHECK OPEN CIRCUIT OF HARNESS.

1) Turn ignition switch to OFF.
2) Connect all connectors to TCM.
3) Turn ignition switch to ON.
4) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 12 (+) — Chassis ground (−):
(F49) No. 39 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **10Y4**.

NO : Repair harness/connector between TCM and ABSCM.

10Y4	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connectors between AT control module and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10Y5**.

10Y5	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 step **10Y6**.

10Y6	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

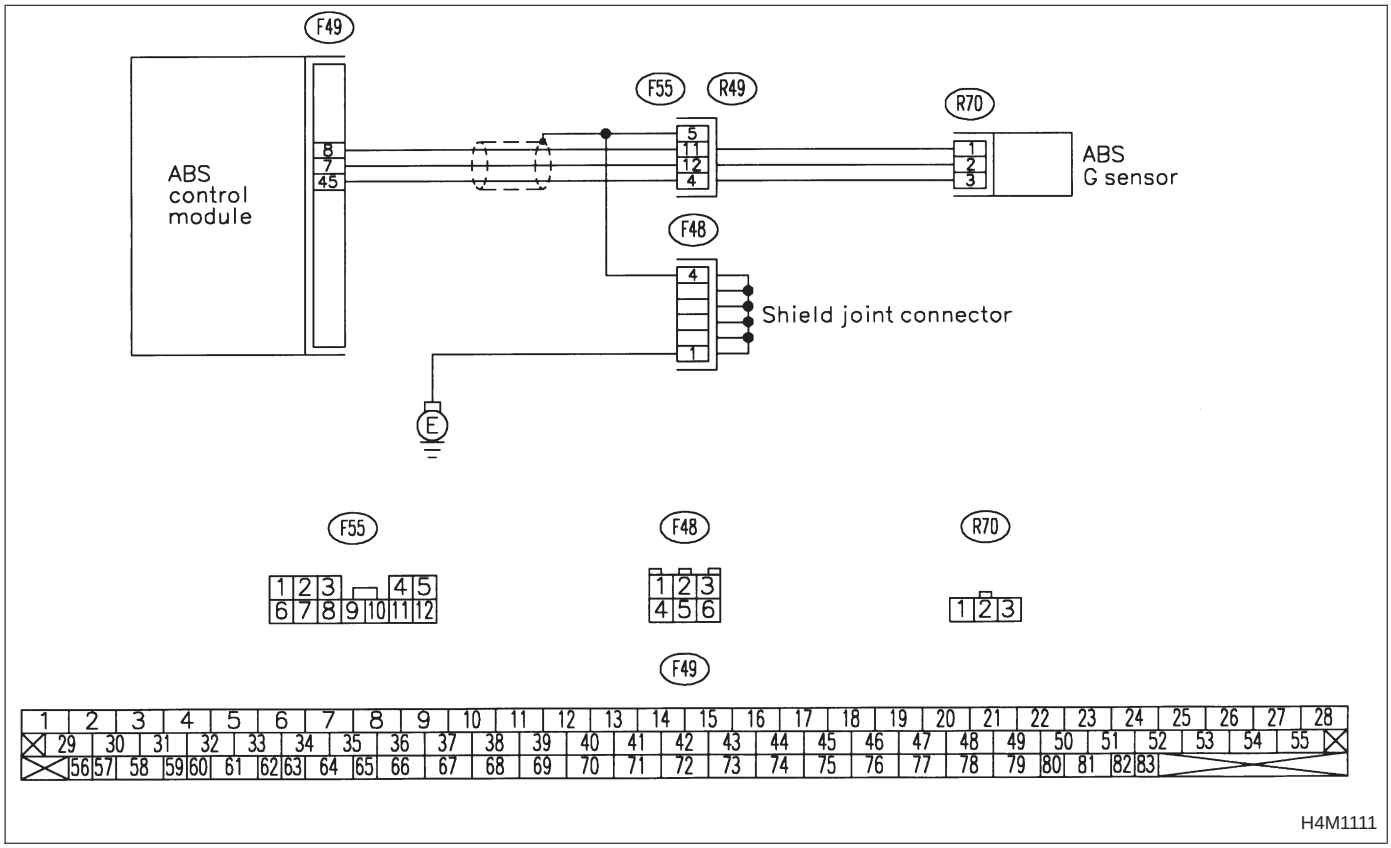
DIAGNOSIS:

- Faulty G sensor power supply voltage

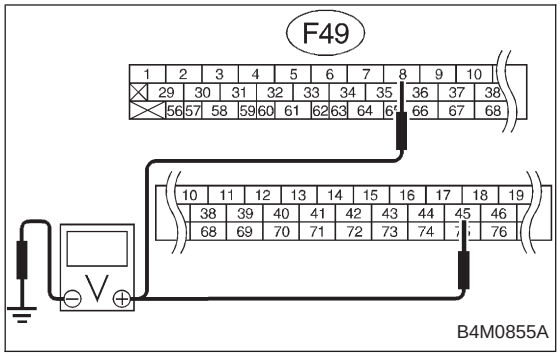
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1111



10Z1	CHECK BATTERY SHORT OF HARNESS.

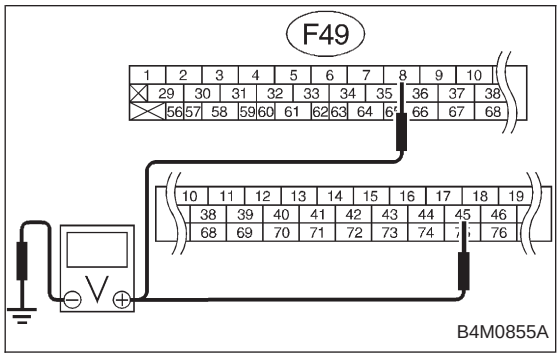
1) Turn ignition switch to OFF.
2) Remove console cover from console box.
3) Disconnect connector from G sensor.
4) Disconnect connector from ABSCM.
5) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 8 (+) — Chassis ground (−):
(F49) No. 45 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10Z2**.

NO : Repair harness between ABSCM and G sensor.



10Z2	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
(F49) No. 8 (+) — Chassis ground (−):
(F49) No. 45 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Replace ABSCM.

NO : Repair harness between ABSCM and chassis ground.

D•NEW 46 (FB1)
GS POWER LOW

B4M0967

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

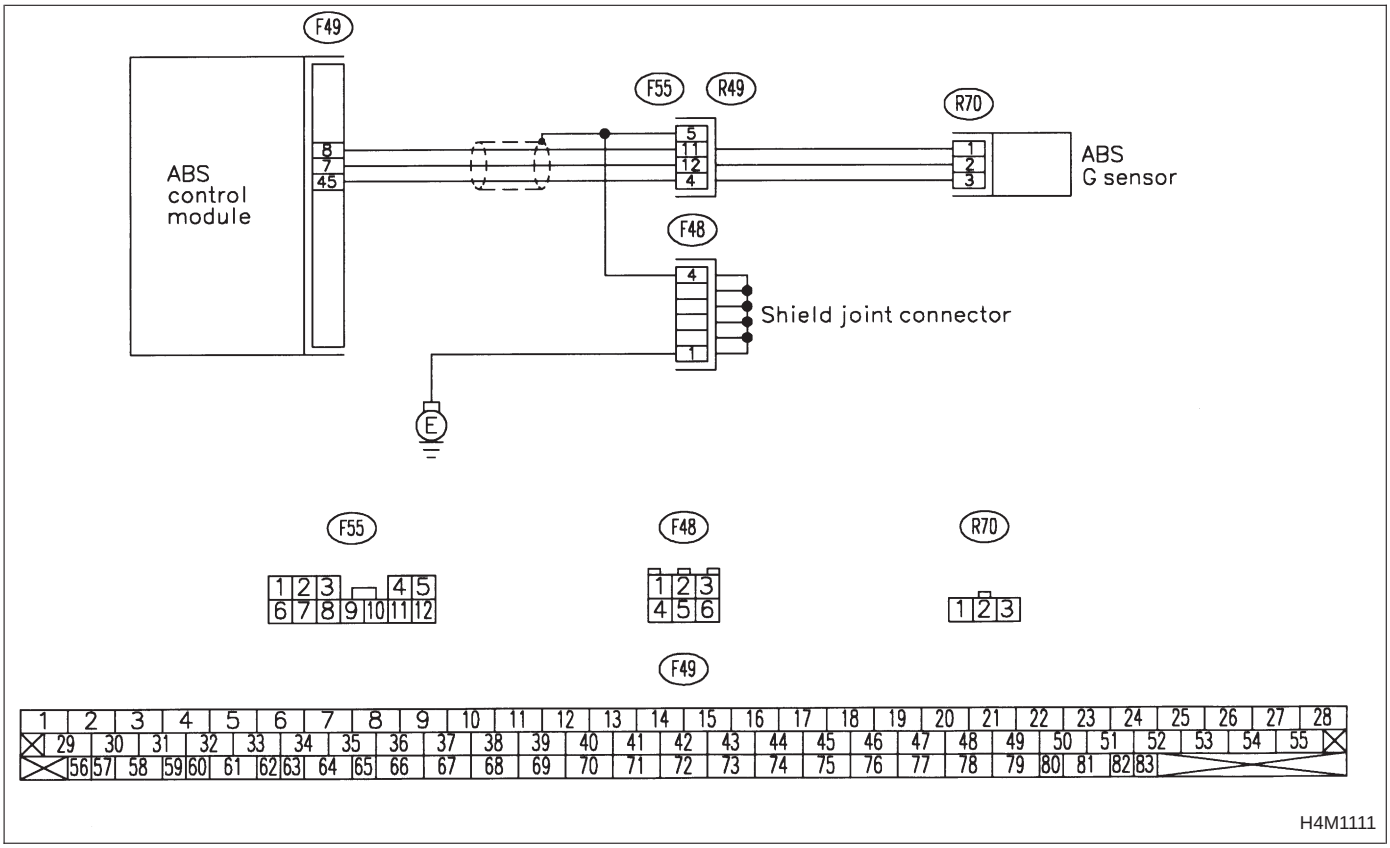
DIAGNOSIS:

- Faulty G sensor power supply voltage

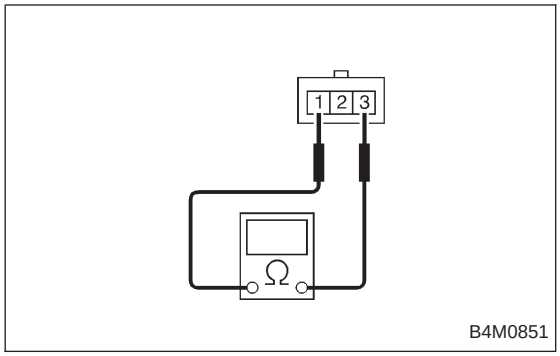
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1111



10AA1	CHECK G SENSOR.

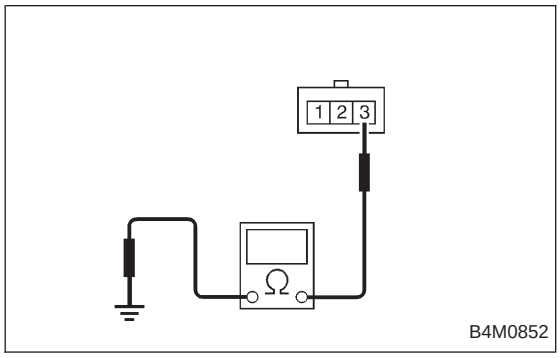
1) Turn ignition switch to OFF.
2) Remove console cover from console box.
3) Disconnect connector from G sensor.
4) Measure resistance of G sensor.

Terminal
No. 1 — No. 3:

CHECK ***: Is the resistance between 42 and 58 kΩ?***

YES : Go to step **10AA2**.

NO : Replace G sensor.



10AA2	CHECK GROUND SHORT OF G SENSOR.

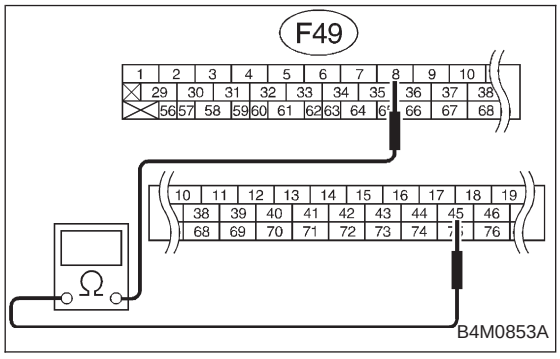
Measure resistance between G sensor and bracket.

Terminal
No. 3 — Bracket:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AA3**.

NO : Replace G sensor.



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

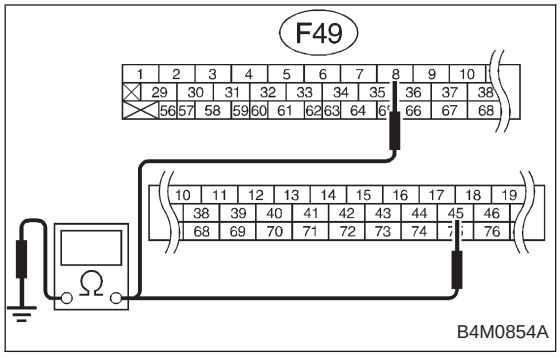
1) Disconnect connector from ABSCM.
2) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 45 — No. 8

CHECK ***: Is the 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.

Connector & terminal
(F49) No. 8 — Chassis ground:
(F49) No. 45 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AA5**.
NO : Repair harness between ABSCM and G sensor.

10AA5	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***
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 step **10AA7**.

10AA7	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

D•NEW 51 (FB1)
V.RELAY

B4M0968

AB: TROUBLE CODE 51 V. RELAY — ABNORMAL VALVE RELAY —

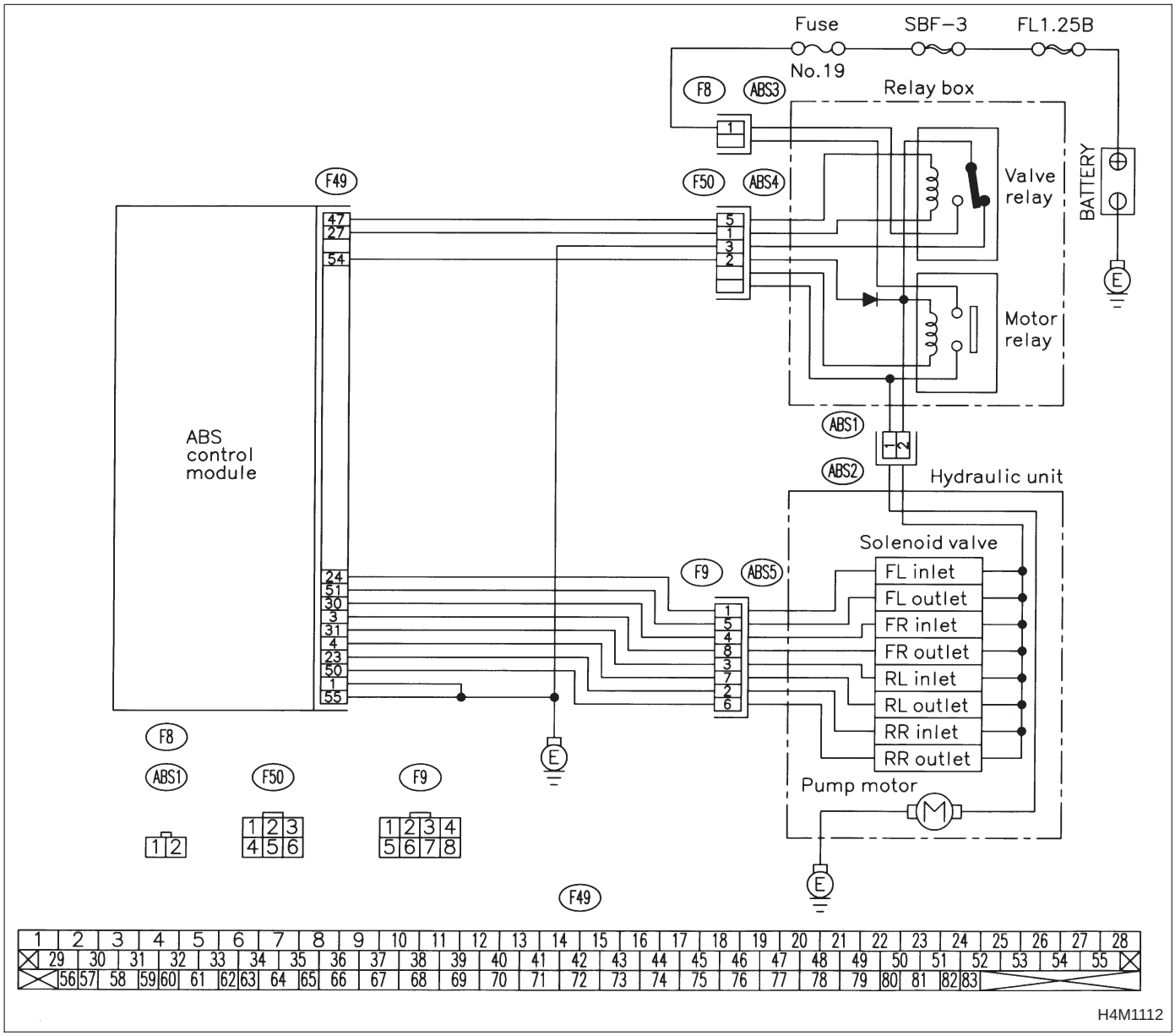
DIAGNOSIS:

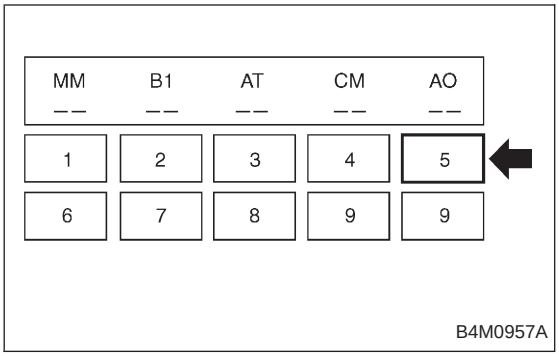
- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





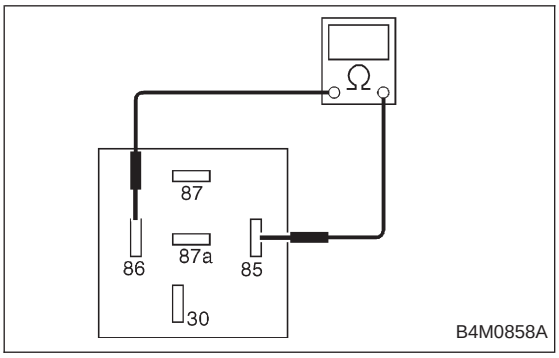
10AB1	CHECK FREEZE FRAME DATA.

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 **10AB32**.



10AB2	CHECK RESISTANCE OF VALVE RELAY.

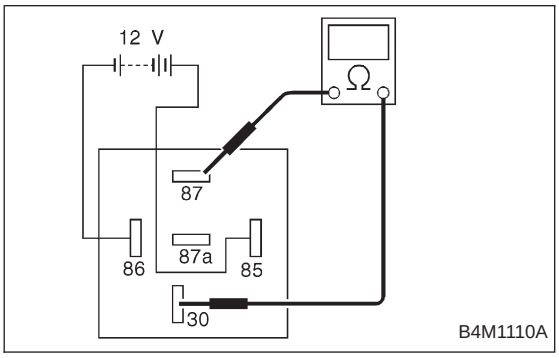
1) Turn ignition switch to OFF.
2) Remove valve relay from relay box.
3) Measure resistance between valve relay terminals.

Terminals
No. 85 — No. 86:

CHECK ***: Is the resistance between 93 and 113 Ω?***

YES : Go to step **10AB3**.

NO : Replace valve relay.



10AB3	CHECK CONTACT POINT OF VALVE RELAY.

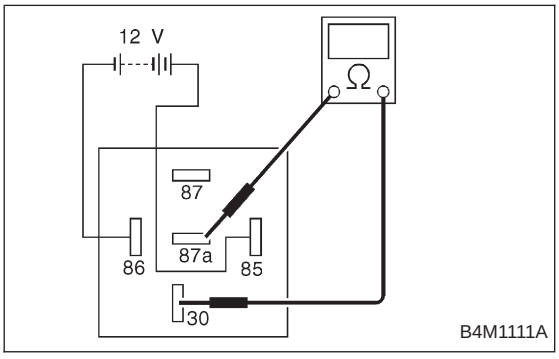
1) Connect battery to valve relay terminals No. 85 and No. 86.
2) Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***

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

NO : Replace valve relay.



10AB4	CHECK CONTACT POINT OF VALVE RELAY.

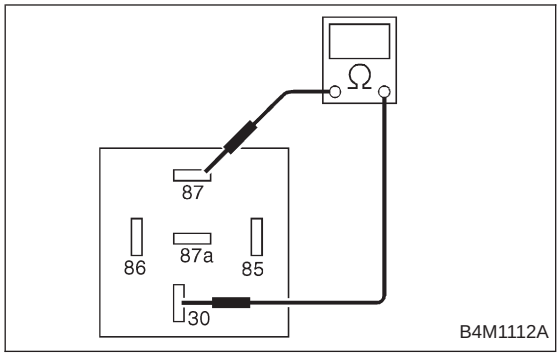
Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87a:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AB5**.

NO : Replace valve relay.



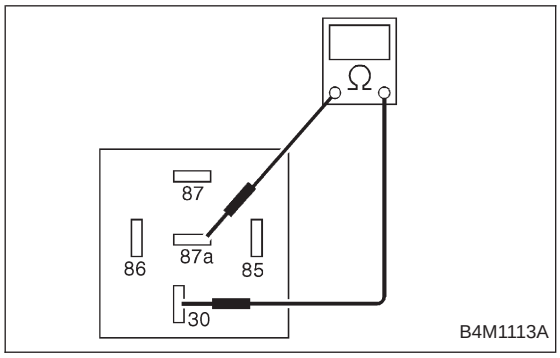
B4M1112A

10AB5	CHECK CONTACT POINT OF VALVE RELAY.

1) Disconnect battery from valve relay terminals.
2) Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AB6**.
NO : Replace valve relay.



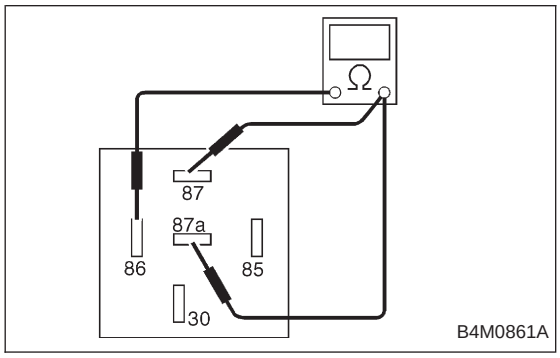
B4M1113A

10AB6	CHECK CONTACT POINT OF VALVE RELAY.

Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87a:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AB7**.
NO : Replace valve relay.



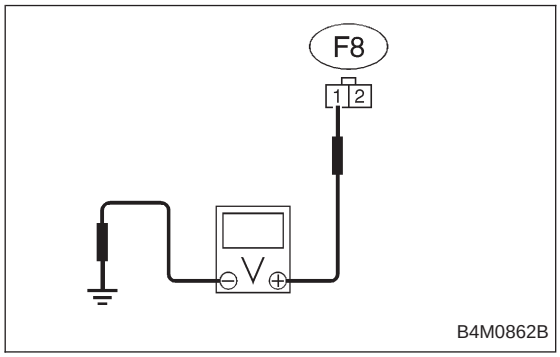
B4M0861A

10AB7	CHECK SHORT OF VALVE RELAY.

Measure resistance between valve relay terminals.

Terminals
No. 86 — No. 87:
No. 86 — No. 87a:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AB8**.
NO : Replace valve relay.



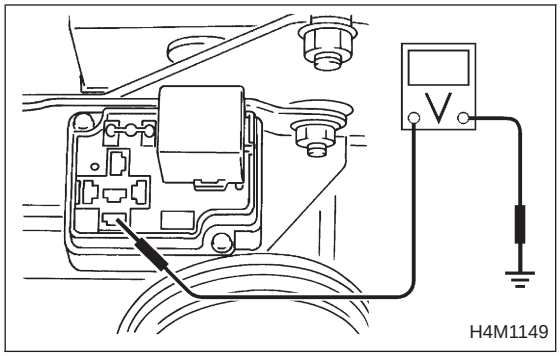
B4M0862B

10AB8	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.

Connector & terminal
(F8) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***
YES : Go to step **10AB9**.
NO : Repair harness connector between battery and relay box, and check fuse No. 19.



10AB9	CHECK OPEN AND GROUND SHORT CIRCUIT IN POWER SUPPLY CIRCUIT OF RELAY BOX.

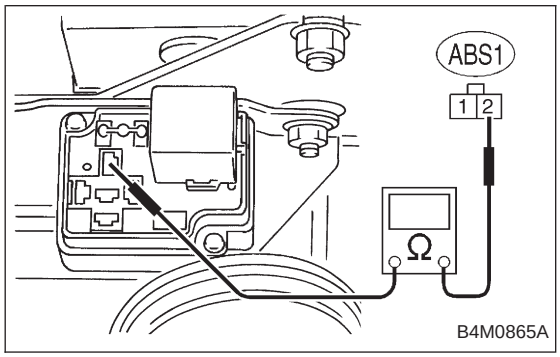
1) Disconnect connector (ABS1) from hydraulic unit.
2) Connect connector (F8) to relay box.
3) Disconnect connector (F50) from relay box.
4) Measure voltage of relay box.

Connector & terminal
Valve relay installing point No. 87 — Chassis ground:

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **10AB10**.

NO : Replace relay box, and check fuse No. 19.



10AB10	CHECK OPEN CIRCUIT IN CONTACT POINT CIRCUIT OF RELAY BOX.

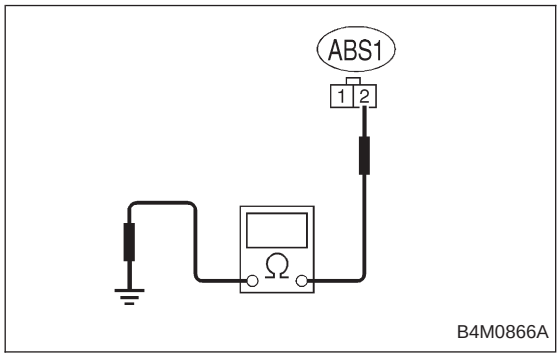
Measure resistance between hydraulic unit connector and valve relay installing point.

Connector & terminal
(ABS1) No. 2 — Valve relay installing point No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **10AB11**.

NO : Replace relay box.



10AB11	CHECK GROUND SHORT CIRCUIT IN CONTACT POINT CIRCUIT OF RELAY BOX.

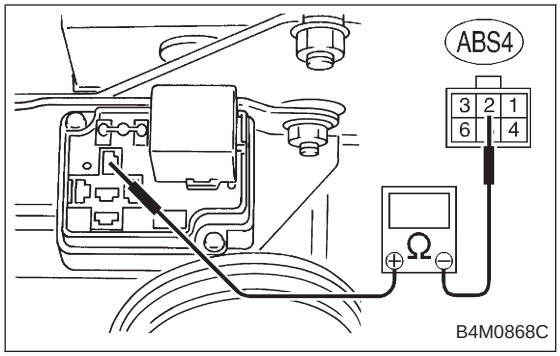
Measure resistance between relay box connector and chassis ground.

Connector & terminal
(ABS1) No. 2 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AB12**.

NO : Replace relay box, and check fuse SBF6.

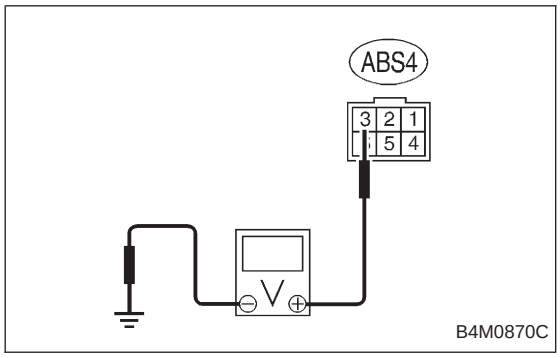


10AB12	CHECK DIODE OF RELAY BOX.

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

Connector & terminal
Valve relay installing point No. 30 (+) — (ABS4) No. 2 (−):

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AB13**.
NO : Replace relay box.

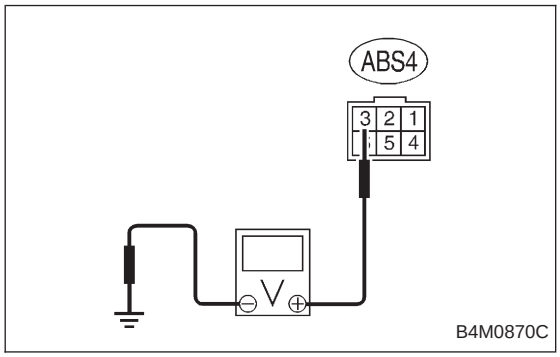


10AB13	CHECK BATTERY SHORT IN GROUND CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS4) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AB14**.
NO : Replace relay box, and check all fuses.

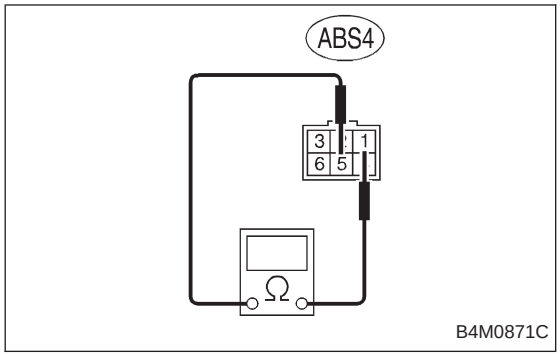


10AB14	CHECK BATTERY SHORT IN GROUND CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS4) No. 3 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AB15**.
NO : Replace relay box, and check all fuses.

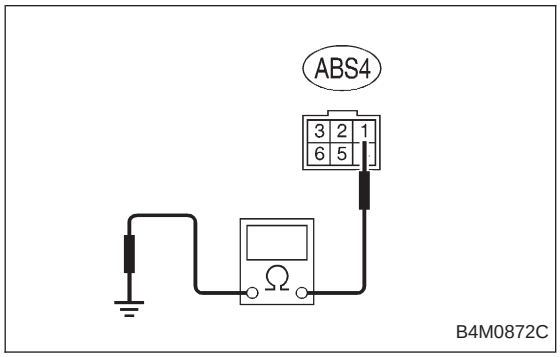


10AB15	CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS4) No. 1 — No. 5:

CHECK ***: Is the resistance between 93 and 113 Ω?***
YES : Go to step **10AB16**.
NO : Replace relay box.

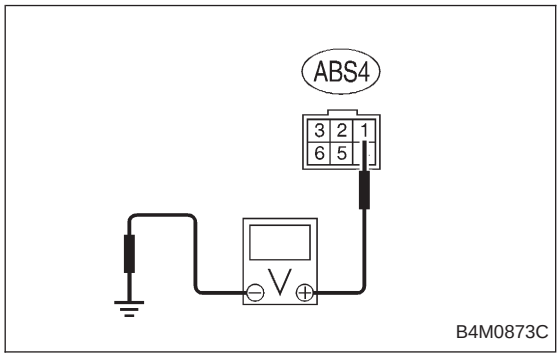


10AB16	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure resistance between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 1 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AB17**.
NO : Replace relay box, and check all fuses.

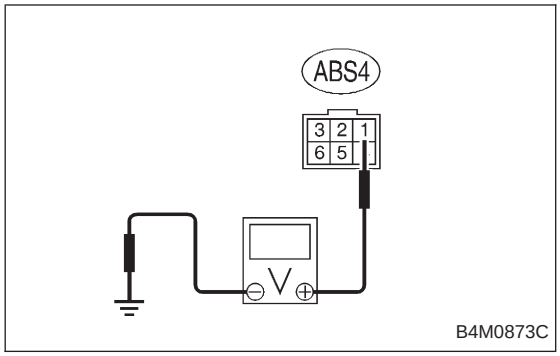


10AB17	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure voltage between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AB18**.
NO : Replace relay box, and check fuse No. 19 and SBF6.



10AB18	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

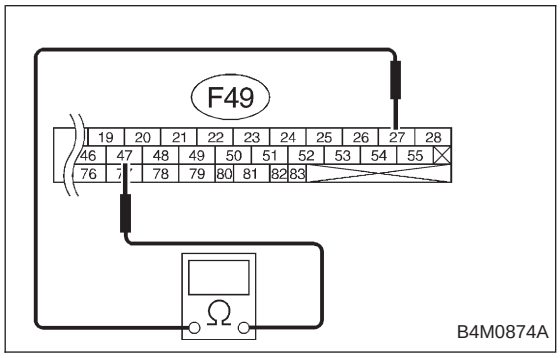
1) Turn ignition switch to ON.
2) Measure voltage between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AB19**.

NO : Replace relay box, and check fuse No. 19 and SBF6.



10AB19	CHECK OPEN CIRCUIT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

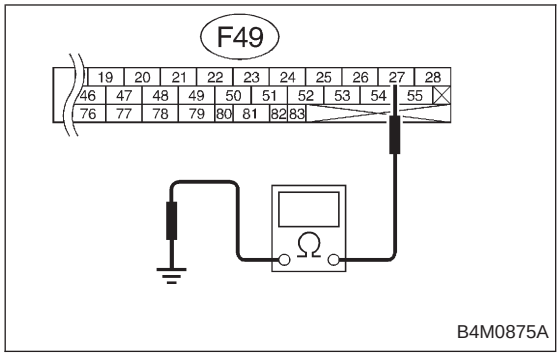
1) Turn ignition switch to OFF.
2) Connect connector (F50) to relay box.
3) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 27 — No. 47:

CHECK ***: Is the resistance between 93 and 113 Ω?***

YES : Go to step **10AB20**.

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

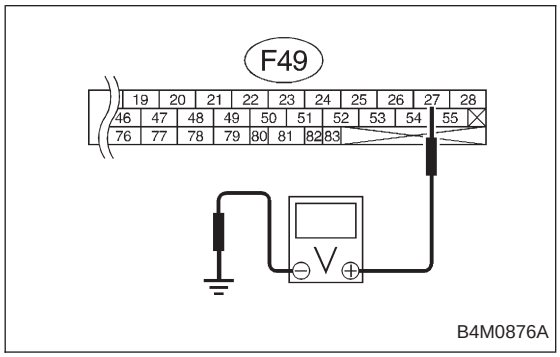


10AB20	CHECK GROUND SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

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

Connector & terminal
(F49) No. 27 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AB21**.
NO : Repair harness between ABSCM and relay box, and check fuse No. 18.

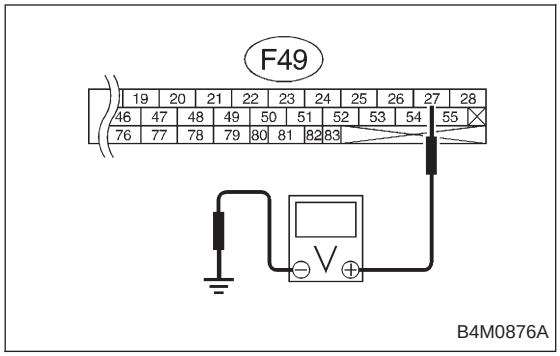


10AB21	CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

1) Connect connector (F50) to relay box.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 27 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AB22**.
NO : Repair harness between ABSCM and relay box, and check all fuses.



10AB22	CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

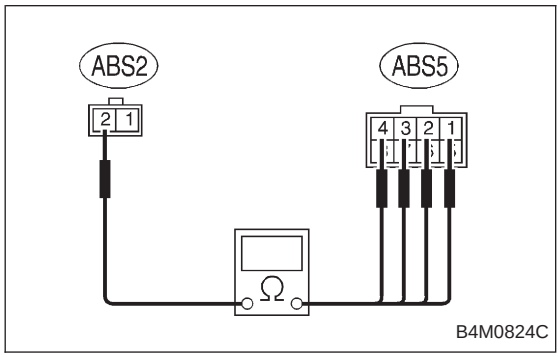
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 27 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AB23**.

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



10AB23	CHECK RESISTANCE OF INLET SOLENOID VALVE.

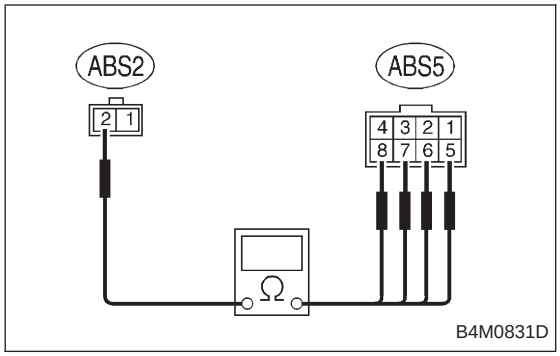
1) Turn ignition switch to OFF.
2) Disconnect connector from hydraulic unit.
3) Measure resistance between hydraulic unit connector terminals.

Connector & terminal
(ABS5) No. 4 — (ABS2) No. 2:
(ABS5) No. 1 — (ABS2) No. 2:
(ABS5) No. 2 — (ABS2) No. 2:
(ABS5) No. 3 — (ABS2) No. 2:

CHECK ***: Is the resistance between 7.8 and 9.2 Ω?***

YES : Go to step **10AB24**.

NO : Replace hydraulic unit.



10AB24	CHECK RESISTANCE OF OUTLET SOLENOID VALVE.

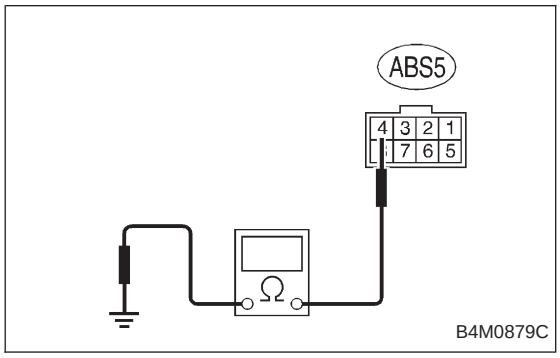
Measure resistance between hydraulic unit connector terminals.

Connector & terminal
(ABS5) No. 8 — (ABS2) No. 2:
(ABS5) No. 5 — (ABS2) No. 2:
(ABS5) No. 6 — (ABS2) No. 2:
(ABS5) No. 7 — (ABS2) No. 2:

CHECK ***: Is the resistance between 3.8 and 4.8 Ω?***

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

NO : Replace hydraulic unit.



10AB25	CHECK GROUND SHORT OF SOLENOID VALVE.

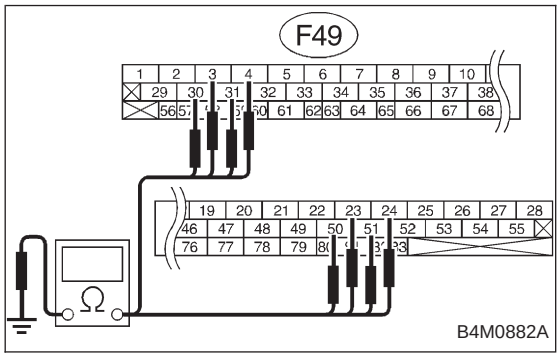
Measure resistance between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AB26**.

NO : Replace hydraulic unit, and check all fuses.



10AB26	CHECK GROUND SHORT OF HARNESS.

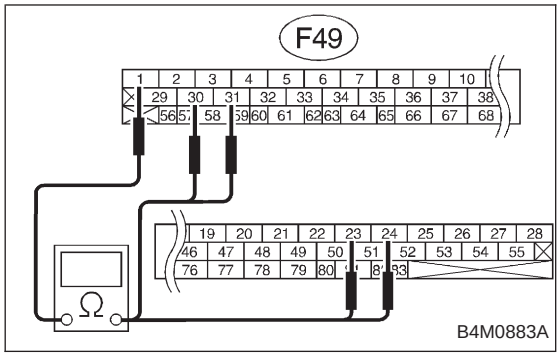
1) Disconnect connector from hydraulic unit.
2) Measure resistance between ABSCM connector and chassis ground.

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:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AB27**.

NO : Repair harness between hydraulic unit and ABSCM.



10AB27	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

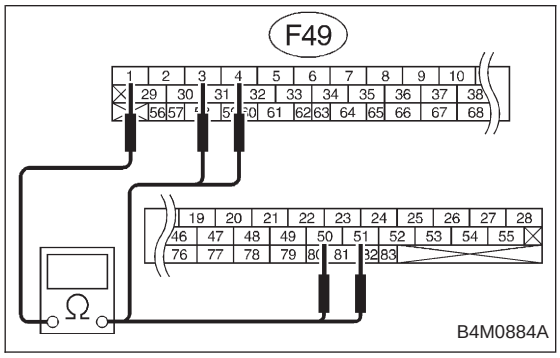
1) Connect connector to hydraulic unit.
2) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 30 — No. 1:
(F49) No. 24 — No. 1:
(F49) No. 23 — No. 1:
(F49) No. 31 — No. 1:

CHECK ***: Is the resistance between 8.3 and 9.7 Ω?***

YES : Go to step **10AB28**.

NO : Repair harness/connector between hydraulic unit and ABSCM.



10AB28	CHECK HARNESS/CONNECTOR BETWEEN ABSCM AND HYDRAULIC UNIT.

Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 3 — No. 1:
(F49) No. 51 — No. 1:
(F49) No. 50 — No. 1:
(F49) No. 4 — No. 1:

CHECK ***: Is the resistance between 4.3 and 5.3 Ω?***

YES : Go to step **10AB29**.

NO : Repair harness/connector between hydraulic unit and ABSCM.

10AB29	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connector between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10AB30**.

10AB30	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.

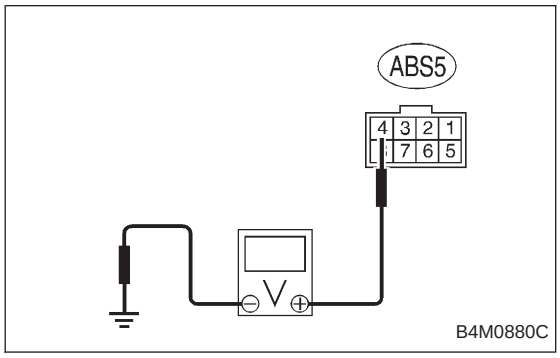
NO : Go to step **10AB31**.

10AB31	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



10AB32	CHECK BATTERY SHORT OF SOLENOID VALVE.

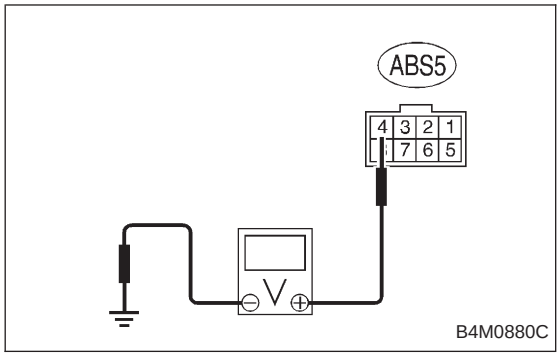
1) Turn ignition switch to OFF.
2) Disconnect connectors (ABS1, F9) from hydraulic unit.
3) Disconnect connector from ABSCM.
4) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AB33**.

NO : Replace hydraulic unit, and check all fuses.



10AB33	CHECK BATTERY SHORT OF SOLENOID VALVE.

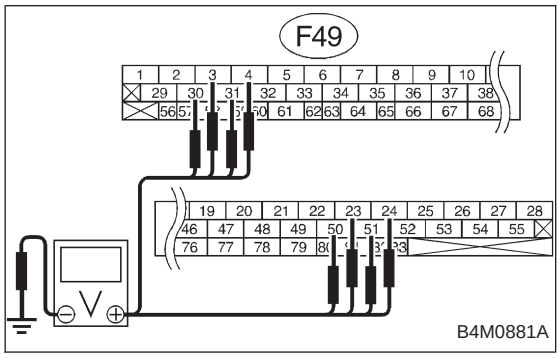
1) Turn ignition switch to ON.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AB34**.

NO : Replace hydraulic unit, and check all fuses.



10AB34	CHECK BATTERY SHORT OF HARNESS.

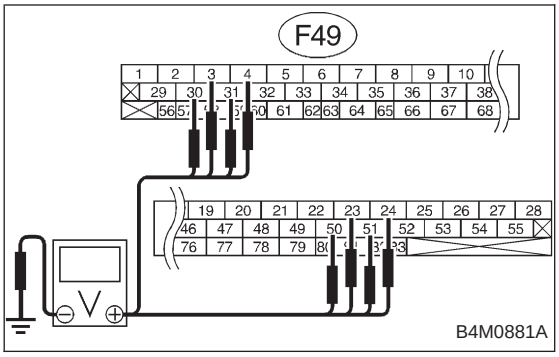
1) Turn ignition switch to OFF.
2) Measure voltage between ABSCM connector and chassis ground.

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 (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AB35**.

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



10AB35	CHECK BATTERY SHORT OF HARNESS.

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

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 (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AB36**.

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

10AB36	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 step **10AB37**.

10AB37	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

D•NEW 51 (FB1)
V.RELAY ON

B4M0802

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

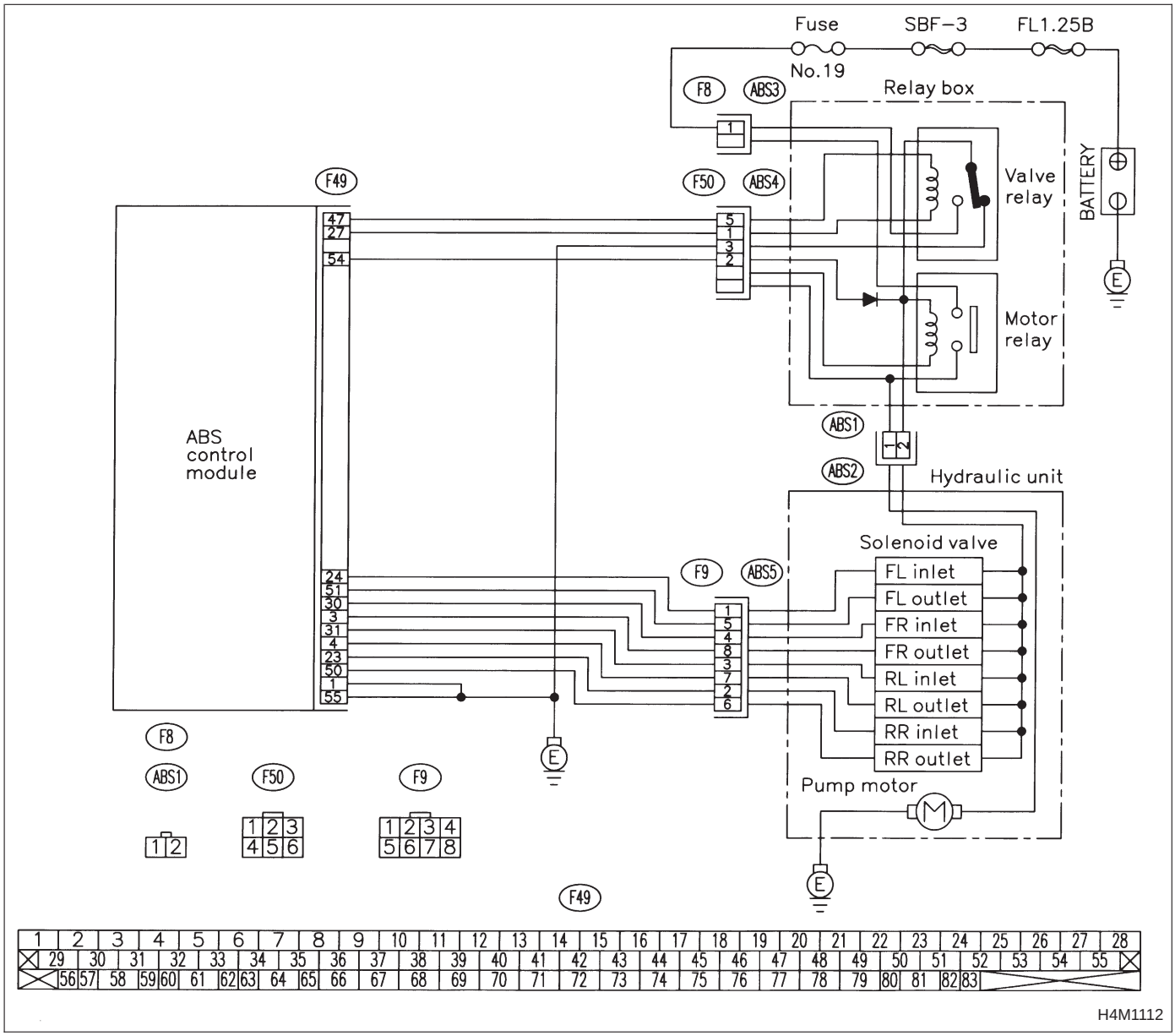
DIAGNOSIS:

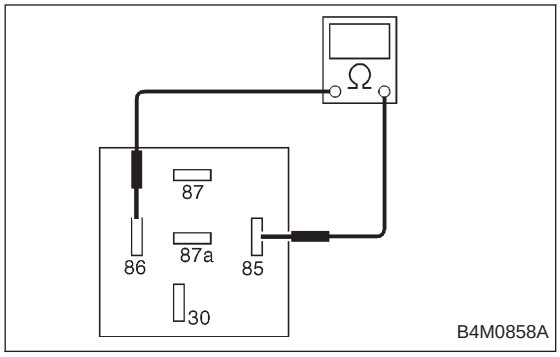
- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



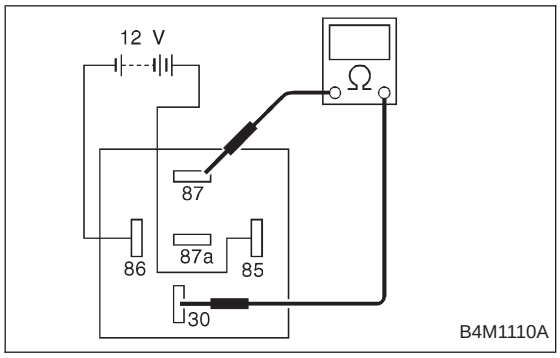


10AC1	CHECK RESISTANCE OF VALVE RELAY.

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

Terminals
No. 85 — No. 86:

CHECK ***: Is the resistance between 93 and 113 Ω?***
YES : Go to step **10AC2**.
NO : Replace valve relay.

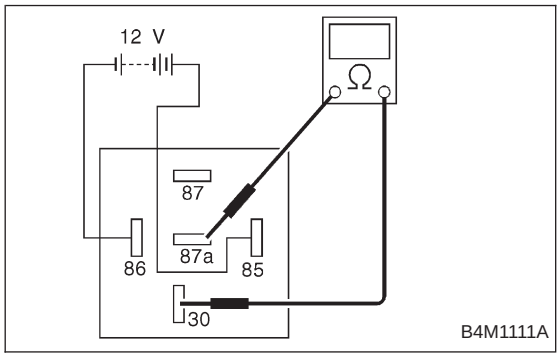


10AC2	CHECK CONTACT POINT OF VALVE RELAY.

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

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AC3**.
NO : Replace valve relay.

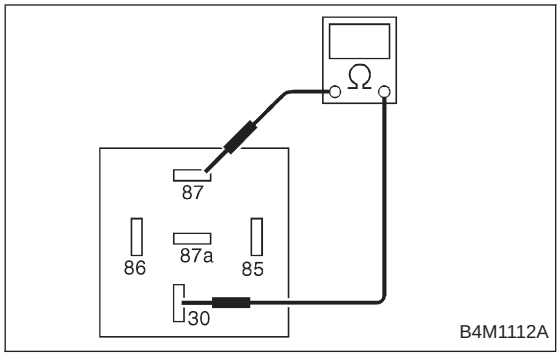


10AC3	CHECK CONTACT POINT OF VALVE RELAY.

Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87a:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AC4**.
NO : Replace valve relay.



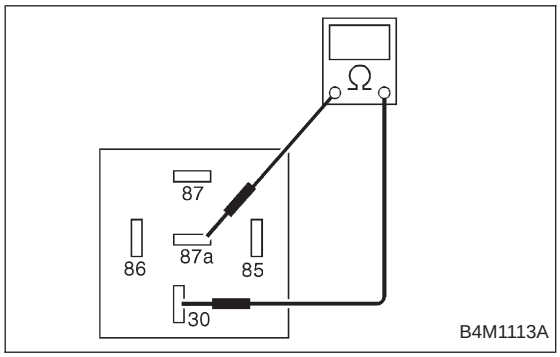
B4M1112A

10AC4	CHECK CONTACT POINT OF VALVE RELAY.

1) Disconnect battery from valve relay terminals.
2) Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AC5**.
NO : Replace valve relay.



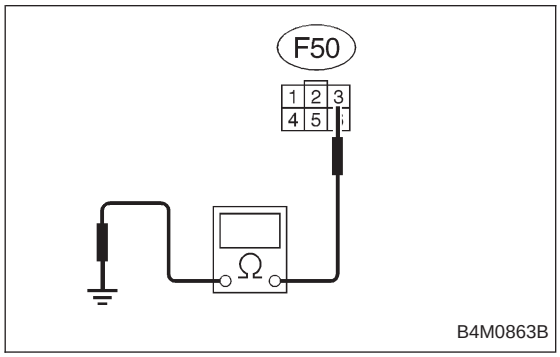
B4M1113A

10AC5	CHECK CONTACT POINT OF VALVE RELAY.

Measure resistance between valve relay terminals.

Terminals
No. 30 — No. 87a:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AC6**.
NO : Replace valve relay.



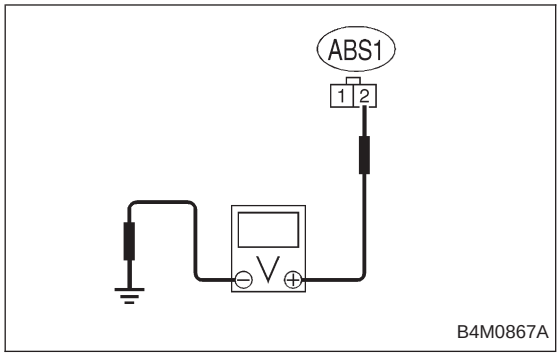
B4M0863B

10AC6	CHECK GROUND CIRCUIT OF RELAY BOX.

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

Connector & terminal
(F50) No. 3 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AC7**.
NO : Repair relay box ground harness.



10AC7	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

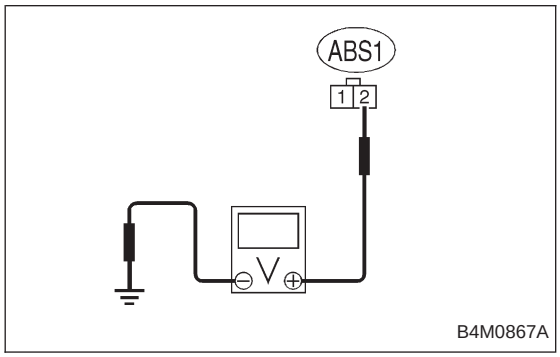
1) Disconnect connector from ABSCM.
2) Disconnect connector (ABS1) from hydraulic unit.
3) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS1) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AC8**.

NO : Replace relay box, and check fuse No. 19 and SBF6.



10AC8	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

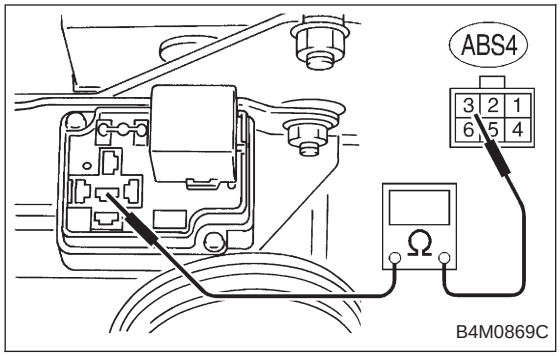
1) Turn ignition switch to ON.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS1) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

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

NO : Replace relay box, and check fuse No. 9 and SBF6.

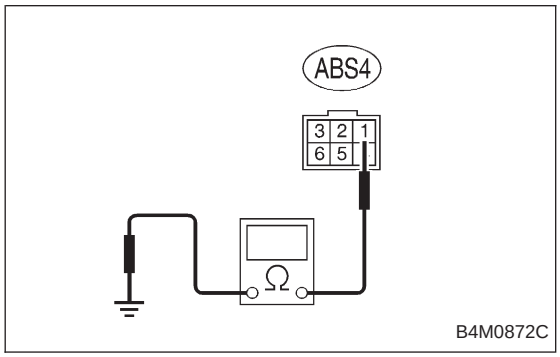


10AC9	CHECK OPEN CIRCUIT IN GROUND CIRCUIT OF RELAY BOX.

1) Turn ignition switch to OFF.
2) Measure resistance between relay box connector and valve relay installing point.

Connector & terminal
(ABS4) No. 3 — Valve relay installing point No. 87a:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AC10**.
NO : Replace relay box.

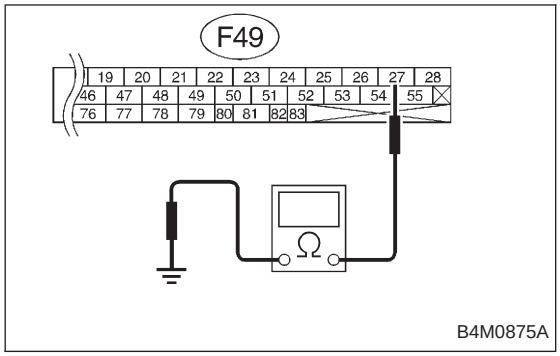


10AC10	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

1) Install valve relay to relay box.
2) Measure resistance between relay box connector and chassis ground.

Connector & terminal
(ABS4) No. 1 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AC11**.
NO : Replace relay box, and check all fuses.



10AC11	CHECK GROUND SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.

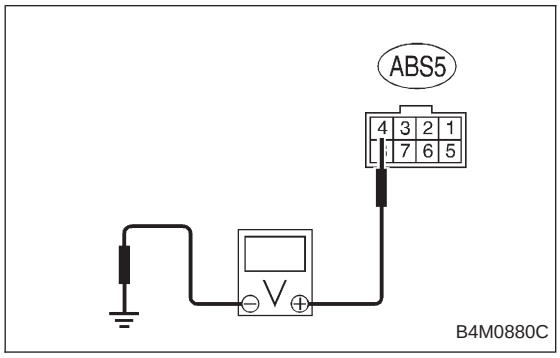
Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 27 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AC12**.

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



10AC12	CHECK BATTERY SHORT OF SOLENOID VALVE.

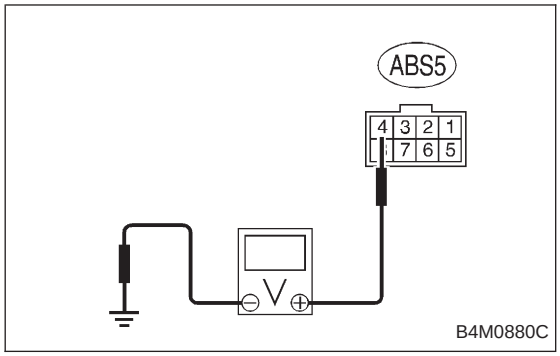
1) Disconnect connector (ABS1, F9) from hydraulic unit.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AC13**.

NO : Replace hydraulic unit, and check all fuses.



10AC13	CHECK BATTERY SHORT OF SOLENOID VALVE.

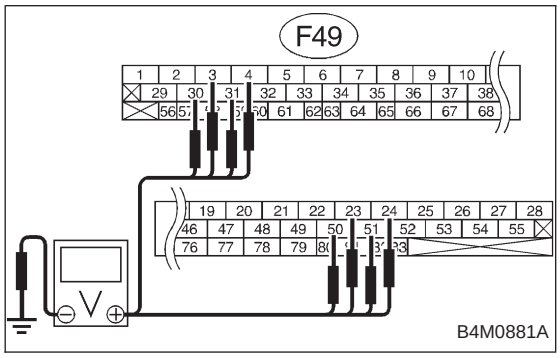
1) Turn ignition switch to ON.
2) Measure voltage between hydraulic unit connector and chassis ground.

Connector & terminal
(ABS5) No. 4 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AC14**.

NO : Replace hydraulic unit, and check all fuses.



10AC14	CHECK BATTERY SHORT OF HARNESS.

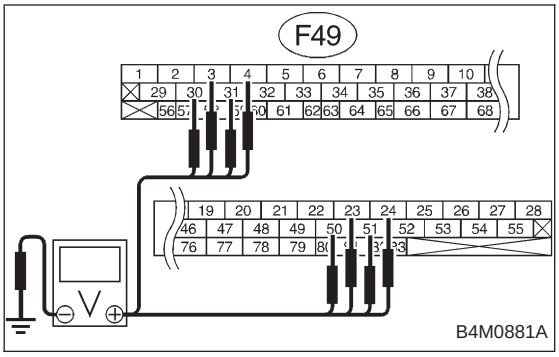
1) Turn ignition switch to OFF.
2) Disconnect connector from hydraulic unit.
3) Measure voltage between ABSCM connector and chassis ground.

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 (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AC15**.

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



10AC15	CHECK BATTERY SHORT OF HARNESS.

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

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 (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AC16**.

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

10AC16	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connectors between ABSCM and hydraulic unit? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10AC17**.

10AC17	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 step **10AC18**.

10AC18	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

D•NEW 52 (FB1)
M. RELAY OPEN

B4M0969

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

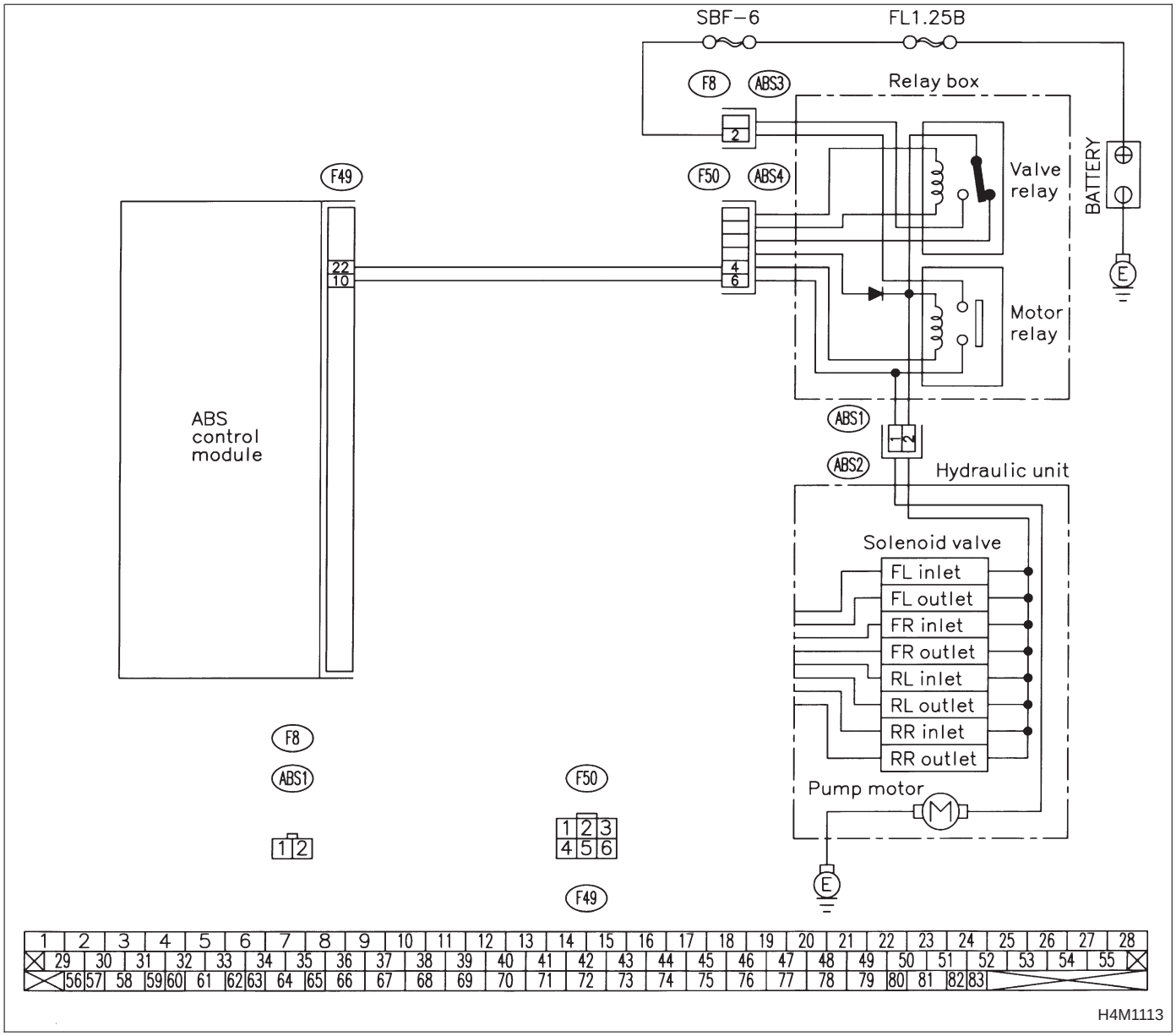
DIAGNOSIS:

- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



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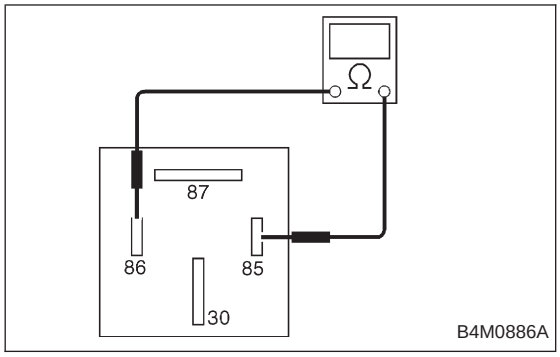
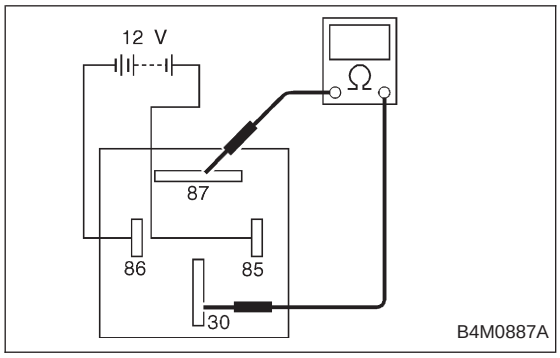


10AD1	CHECK RESISTANCE OF MOTOR RELAY.

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

Terminals
No. 85 — No. 86:

CHECK ***: Is the resistance between 70 and 90 Ω?***
YES : Go to step **10AD2**.
NO : Replace motor relay.

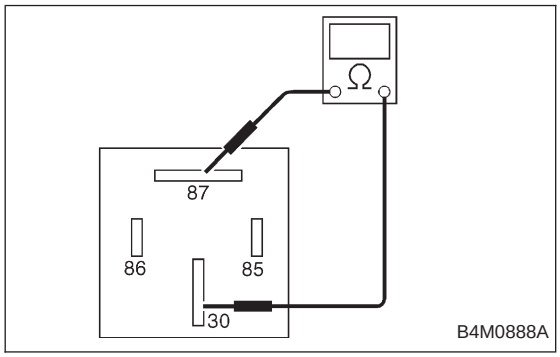


10AD2	CHECK CONTACT POINT OF MOTOR RELAY.

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

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AD3**.
NO : Replace motor relay.

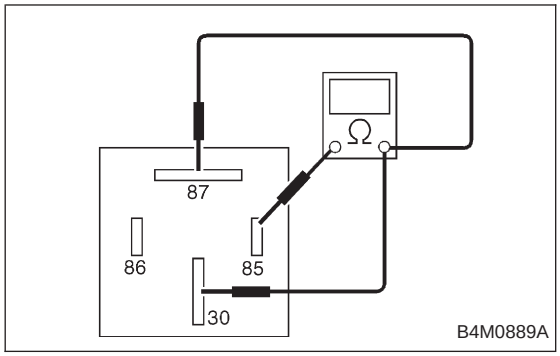


10AD3	CHECK CONTACT POINT OF MOTOR RELAY.

1) Disconnect battery from motor relay terminals.
2) Measure resistance between motor relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AD4**.
NO : Replace motor relay.



10AD4	CHECK SHORT OF MOTOR RELAY.

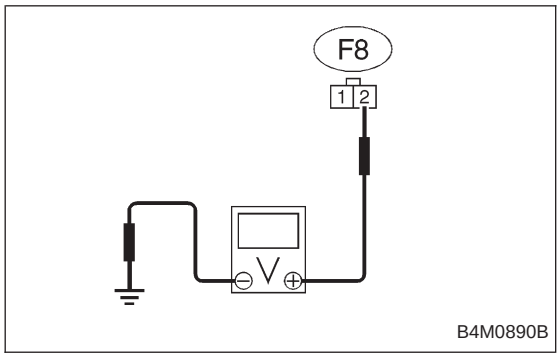
Measure resistance between motor relay terminals.

Terminals
No. 85 — No. 30:
No. 85 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AD5**.

NO : Replace motor relay.



10AD5	CHECK INPUT VOLTAGE OF RELAY BOX.

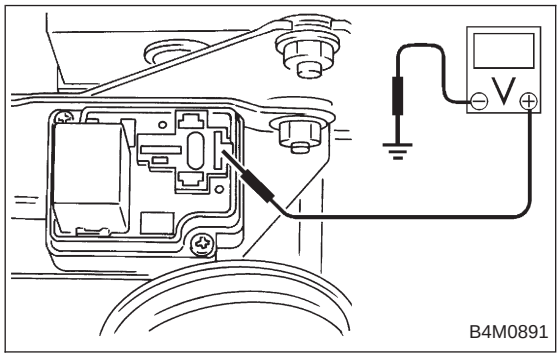
1) Disconnect connector (F8) from relay box.
2) Measure voltage between relay box connector and chassis ground.

Connector & terminal
(F8) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

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

NO : Repair harness/connector between battery and relay box, and check fuse SBF6.



10AD6	CHECK INPUT VOLTAGE OF MOTOR RELAY.

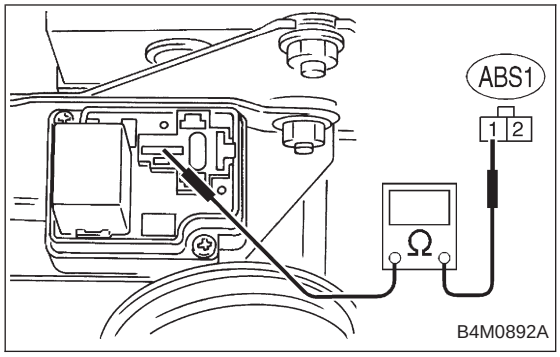
1) Connect connector (F8) to relay box.
2) Measure voltage between relay box and chassis ground.

Connector & terminal
Relay installing point No. 87 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **10AD7**.

NO : Replace relay box, and fuse SBF6.

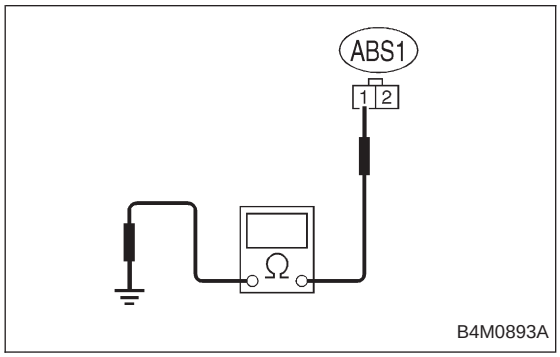


10AD7	CHECK OPEN CIRCUIT IN CONTACT POINT CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS1) No. 1 — Motor relay installing portion No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AD8**.
NO : Replace relay box.

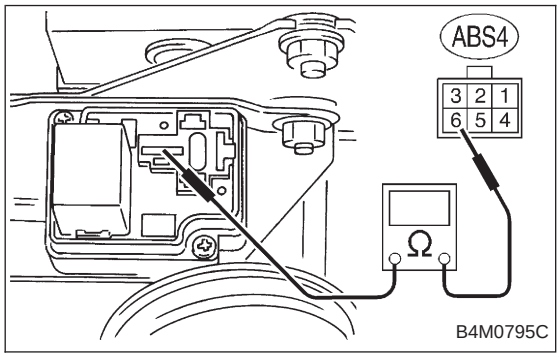


10AD8	CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

Measure resistance between hydraulic unit and chassis ground.

Connector & terminal
(ABS1) No. 1 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AD9**.
NO : Replace relay box, and check fuse No. 19.

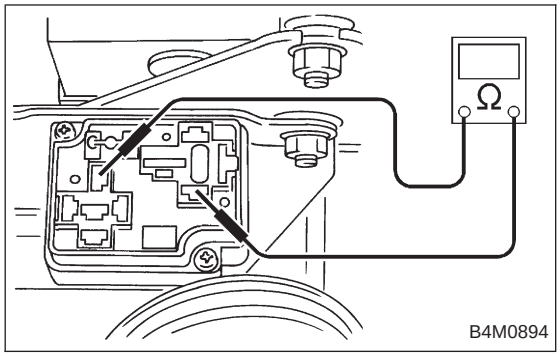


10AD9	CHECK OPEN CIRCUIT IN MONITOR SYSTEM CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS4) No. 6 — Motor relay installing point No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AD10**.
NO : Replace relay box.

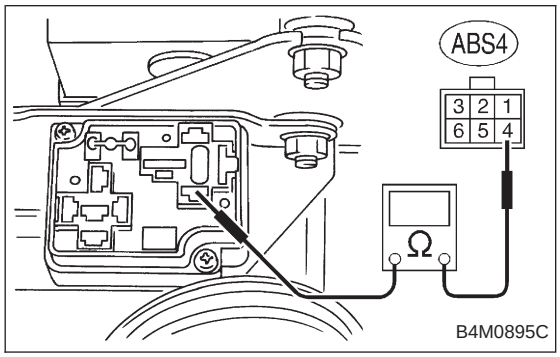


10AD10	CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
Motor relay installing point No. 86 — Valve relay installing point No. 30:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AD11**.
NO : Replace relay box.

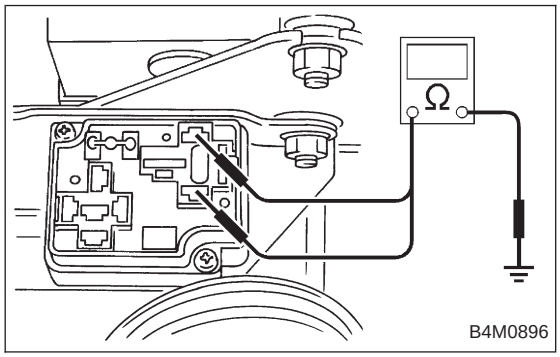


10AD11	CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
Motor relay installing point No. 86 — (ABS4) No. 4:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AD12**.
NO : Replace relay box.

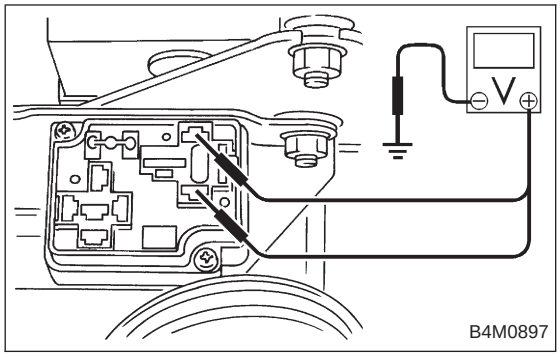


10AD12	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

Measure resistance between relay box and chassis ground.

Connector & terminal
Motor relay installing point No. 86 — Chassis ground:
Motor relay installing point No. 85 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AD13**.
NO : Replace relay box, and check fuse No. 19.

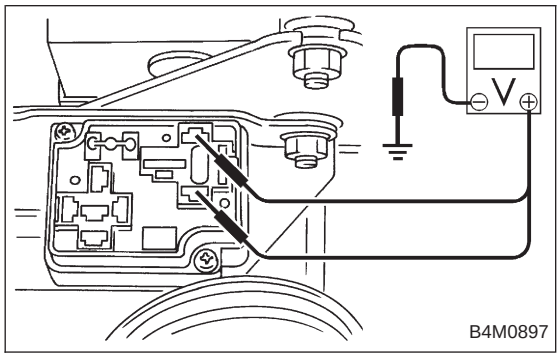


10AD13	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Measure voltage between motor relay installing point and chassis ground.

Connector & terminal
Motor relay installing point No. 85 (+) — Chassis ground (−):
Motor relay installing point No. 86 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AD14**.
NO : Replace relay box, and check all fuses.

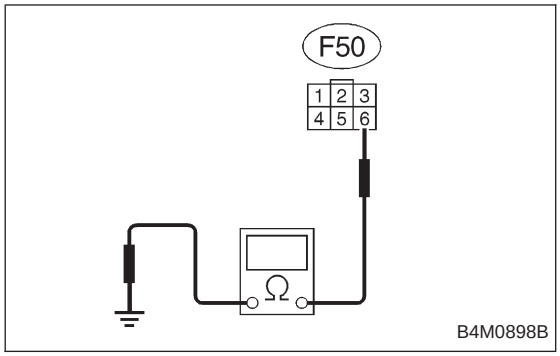


10AD14	CHECK BATTERY SHORT IN CONTROL CIRCUIT OF RELAY BOX.

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

Connector & terminal
Motor relay installing point No. 85 (+) — Chassis ground (−):
Motor relay installing point No. 86 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AD15**.
NO : Replace relay box, and check all fuses.



10AD15	CHECK OPEN CIRCUIT IN MONITOR SYSTEM HARNESS.

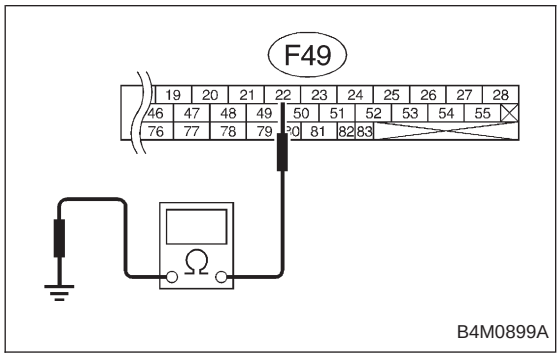
1) Turn ignition switch to OFF.
2) Connect between terminals No. 10 and No. 1 of ABSCM connector (F49) with a lead wire.
3) Measure resistance between relay box connector and chassis ground.

Connector & terminal
(F50) No. 6 — Chassis ground:

CHECK ***: Is the resistance less than 0.5 Ω?***

YES : Go to step **10AD16**.

NO : Repair harness/connector between ABSCM and relay box.



10AD16	CHECK OPEN CIRCUIT IN RELAY CONTROL SYSTEM HARNESS.

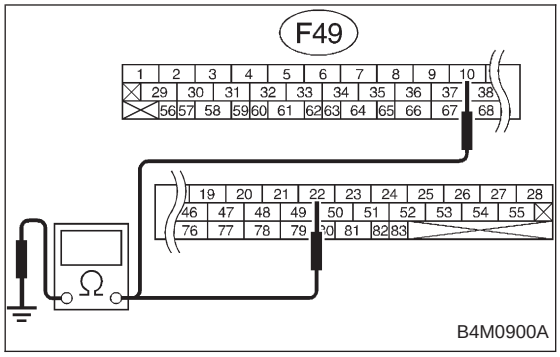
1) Connect valve relay and motor relay to relay box.
2) Connect connector (F50) to relay box.
3) Connect connector to hydraulic unit.
4) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 22 — Chassis ground:

CHECK ***: Is the resistance between 70 and 90 Ω?***

YES : Go to step **10AD17**.

NO : Repair harness/connector between ABSCM and relay box.



10AD17	CHECK GROUND SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

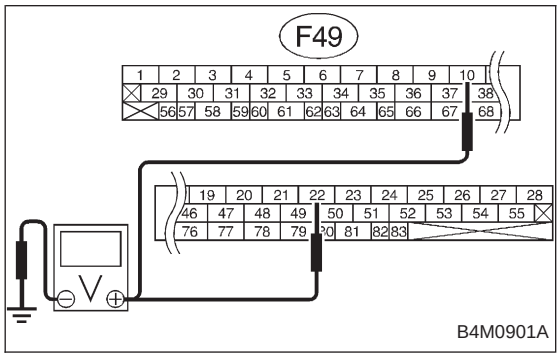
1) Disconnect connector (F50) from relay box.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 22 — Chassis ground:
(F49) No. 10 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AD18**.

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



10AD18	CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

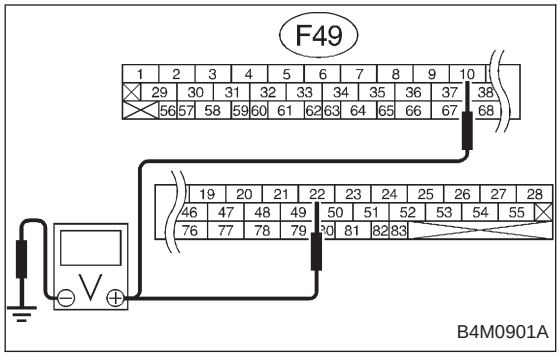
Measure voltage between ABSCM and chassis ground.

Connector & terminal
(F49) No. 22 (+) — Chassis ground (−):
(F49) No. 10 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AD19**.

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

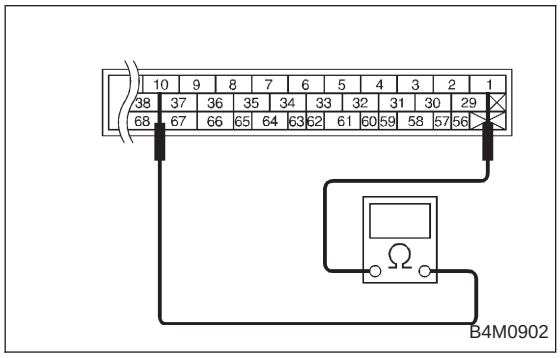


10AD19	CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

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

Connector & terminal
(F49) No. 22 (+) — Chassis ground (−):
(F49) No. 10 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AD20**.
NO : Repair harness between relay box and ABSCM, and check fuse SBF6.

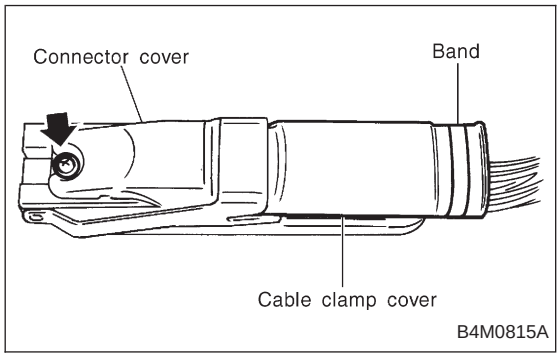


10AD20	CHECK GROUND SHORT AT ABSCM MONITOR TERMINAL.

1) Turn ignition switch to OFF.
2) Measure resistance between ABSCM terminals.

Terminal
No. 10 — No. 1:

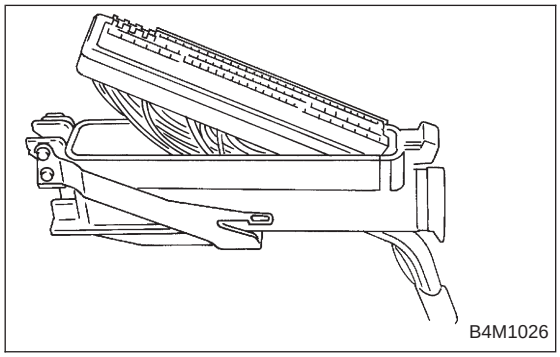
CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AD21**.
NO : Replace ABSCM.



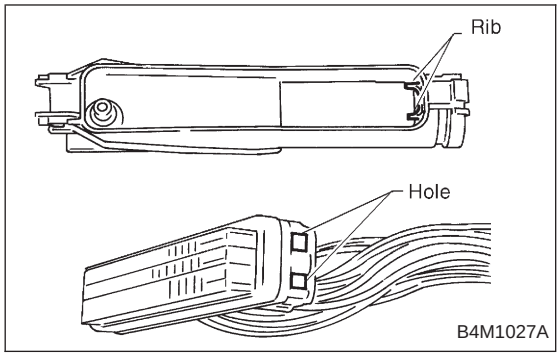
10AD21	CHECK ABSCM MOTOR DRIVE TERMINAL.

1) Disconnect connector cover from ABSCM connector.
2) Remove band.
3) Remove cable clamp cover.
4) Remove screws securing connector cover.

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

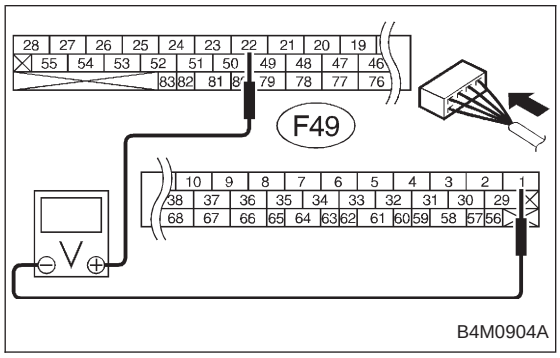


5) Remove connector cover.



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

6) Connect all connectors.



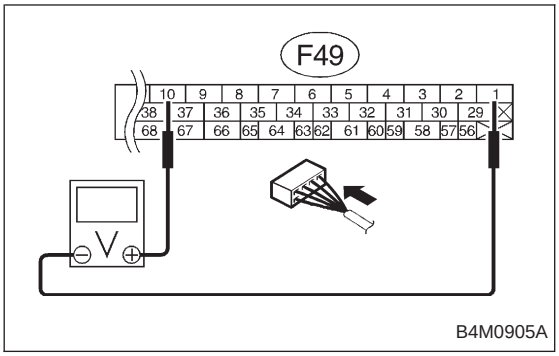
7) Measure voltage between ABSCM connector terminals.
8) Operate the check sequence. <Ref. to 4-4 [W12D0].>

Connector & terminals
(F49) No. 22 (+) — No. 1 (−):

CHECK ***: Does the voltage drop from between 10 V and 13 V to less than 1.5 V, and rise to between 10 V and 13 V again when carrying out the check sequence?***

YES : Go to step **10AD22**.

NO : Replace ABSCM.



10AD22	CHECK MOTOR OPERATION.

1) Measure voltage between ABSCM connector terminal.
2) Operate the check sequence. <Ref. to 4-4 [W12D0].>

Connector & terminals
(F49) No. 10 (+) — No. 1 (−):

CHECK ***: Does the voltage raise from less than 1.5 V to between 10 V and 13 V and return to less than 1.5 V again when carrying out the check sequence?***

YES : Go to step **10AD23**.
NO : Replace hydraulic unit.

10AD23	CHECK MOTOR OPERATION.

Operate the check sequence. <Ref. to 4-4 [W12D0].>

CHECK ***: Can motor revolution noise (buzz) be heard when carrying out the check sequence?***

YES : Go to step **10AD24**.
NO : Replace hydraulic unit.

10AD24	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connectors between hydraulic unit, relay box and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.
NO : Go to step **10AD25**.

10AD25	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 step **10AD26**.

10AD26	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

YES : Proceed with the diagnosis corresponding to the trouble code.
NO : A temporary poor contact.

D•NEW 52 (FB1)
M. RELAY ON

B4M0970

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

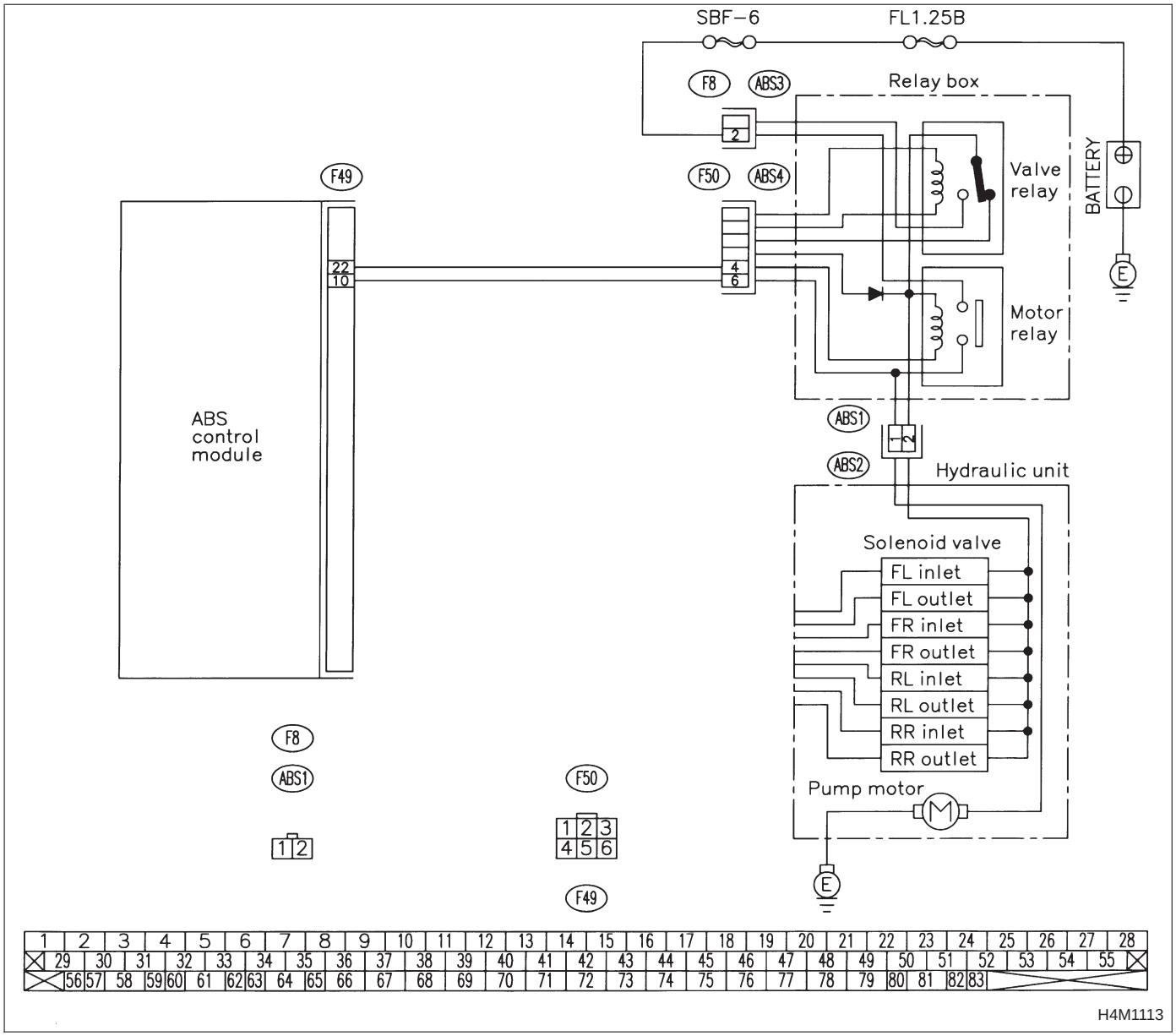
DIAGNOSIS:

- Faulty motor
- Faulty motor relay
- Faulty harness connector

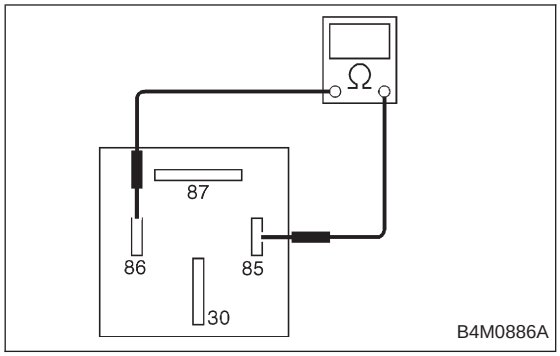
TROUBLE SYMPTOM:

- ABS does not operate.

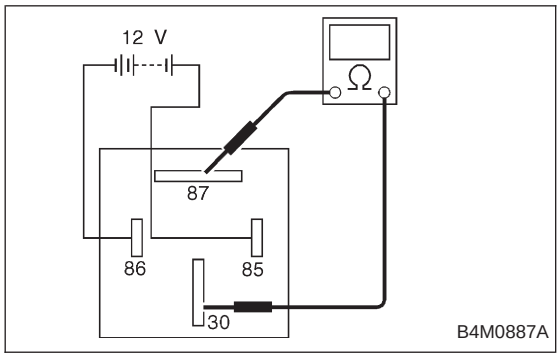
WIRING DIAGRAM:



H4M1113



B4M0886A



B4M0887A

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.

Terminals
No. 85 — No. 86:

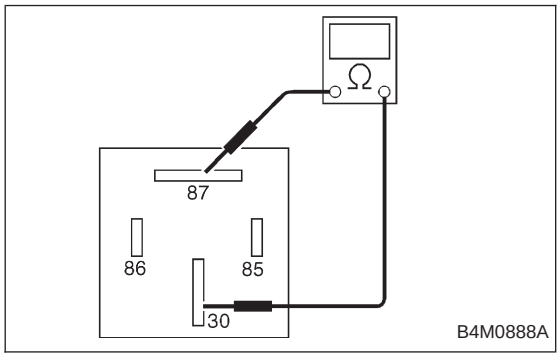
CHECK ***: Is the resistance between 70 and 90 Ω?***
YES : Go to step **10AE2**.
NO : Replace motor relay.

10AE2	CHECK CONTACT POINT OF MOTOR RELAY.

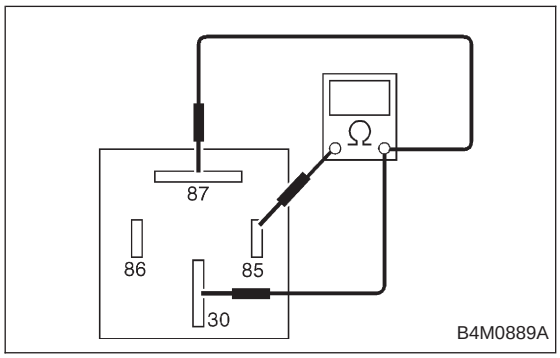
1) Connect battery to motor relay terminals No. 85 and No. 86.
2) Measure resistance between motor relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AE3**.
NO : Replace motor relay.



B4M0888A



B4M0889A

10AE3	CHECK CONTACT POINT OF MOTOR RELAY.

1) Disconnect battery from motor relay terminals.
2) Measure resistance between motor relay terminals.

Terminals
No. 30 — No. 87:

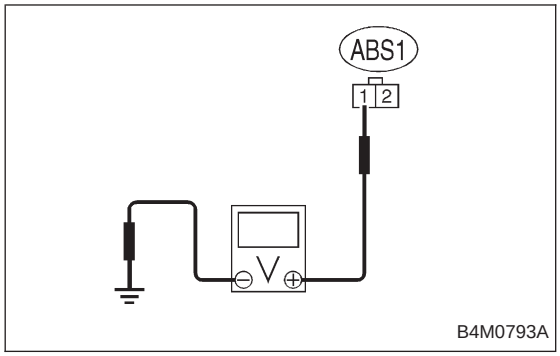
CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AE4**.
NO : Replace motor relay.

10AE4	CHECK SHORT OF MOTOR RELAY.

Measure resistance between motor relay terminals.

Terminals
No. 85 — No. 30:
No. 85 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AE5**.
NO : Replace motor relay.

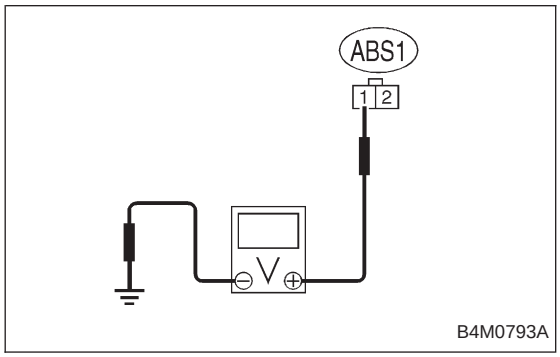


10AE5	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

1) Disconnect connector from ABSCM.
2) Disconnect connector (ABS1) from hydraulic unit.
3) Measure voltage between relay box connector and chassis ground.

Connector & terminal
(ABS1) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AE6**.
NO : Replace relay box.

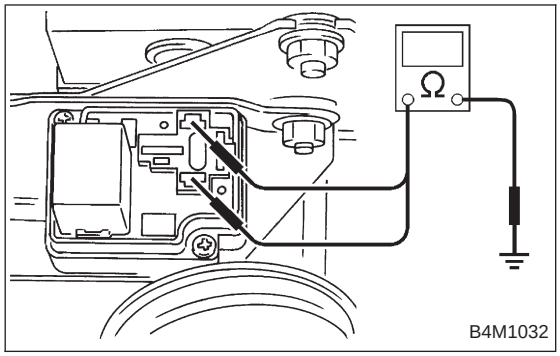


10AE6	CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.

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

Connector & terminal
(ABS1) No. 1 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***
YES : Go to step **10AE7**.
NO : Replace relay box.



10AE7	CHECK GROUND SHORT IN CONTROL CIRCUIT OF RELAY BOX.

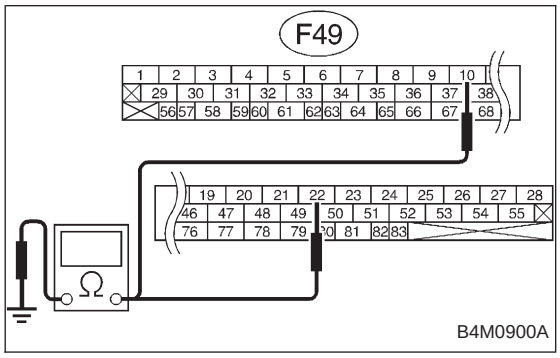
1) Turn ignition switch to OFF.
2) Disconnect connector (F50) from relay box.
3) Measure resistance between relay box and chassis ground.

Connector & terminal
Motor relay installing point No. 85 — Chassis ground:
Motor relay installing point No. 86 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AE8**.

NO : Replace relay box, and check fuse No. 19.



10AE8	CHECK GROUND SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

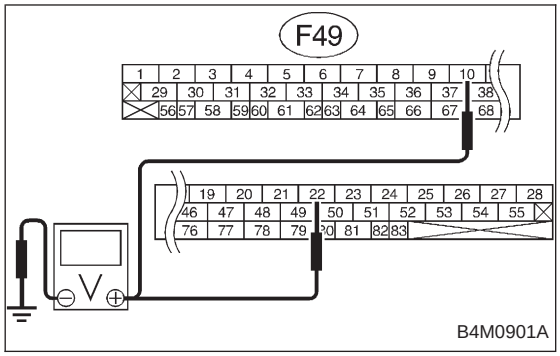
1) Disconnect connector (F49) from ABSCM.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 22 — Chassis ground:
(F49) No. 10 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

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

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



10AE9	CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

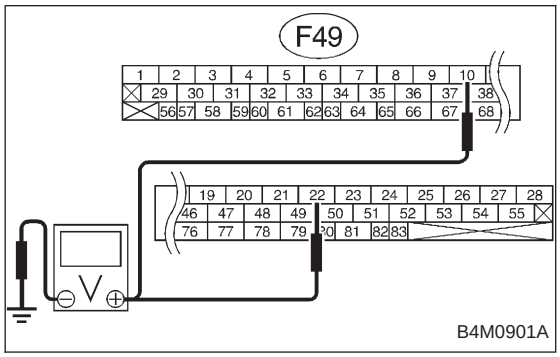
Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 22 (+) — Chassis ground (−):
(F49) No. 10 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AE10**.

NO : Repair harness between relay box and ABSCM connector, and check fuse SBF6.



10AE10	CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND ABSCM.

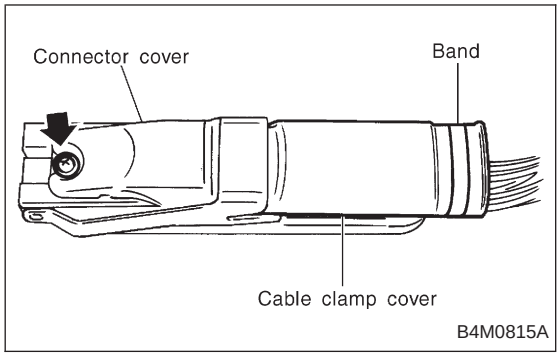
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector and chassis ground.

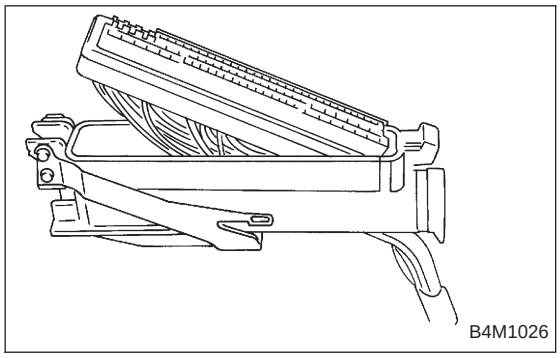
Connector & terminal
(F49) No. 22 (+) — Chassis ground (−):
(F49) No. 10 (+) — Chassis ground (−):

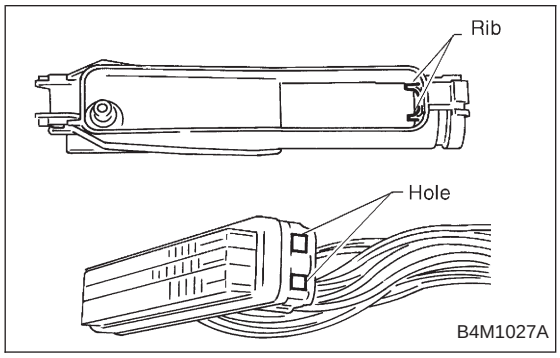
CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AE11**.

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







10AE11	CHECK BATTERY SHORT AT ABSCM MONITOR TERMINAL.

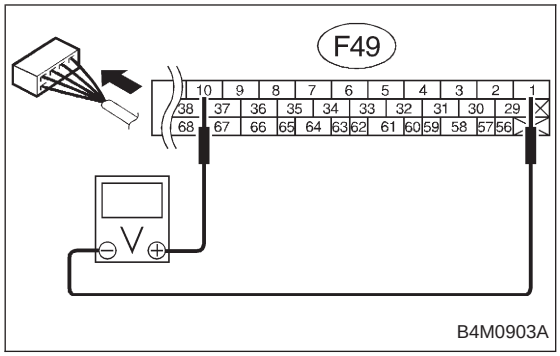
1) Turn ignition switch to OFF.
2) Disconnect connector from ABS control module.
3) Remove band.
4) Remove cable clamp cover.
5) Remove screws securing connector cover.

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

6) Remove connector cover.

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

7) Connect all connectors.



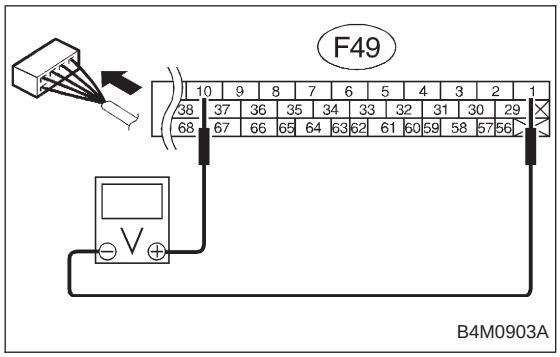
8) Measure voltage between ABSCM connector terminals.

Connector & terminal
(F49) No. 10 (+) — No. 1 (−):

CHECK ***: Is the voltage less than 2 V?***

YES : Go to step **10AE12**.

NO : Replace ABSCM.



10AE12	CHECK BATTERY SHORT AT ABSCM MONITOR TERMINAL.

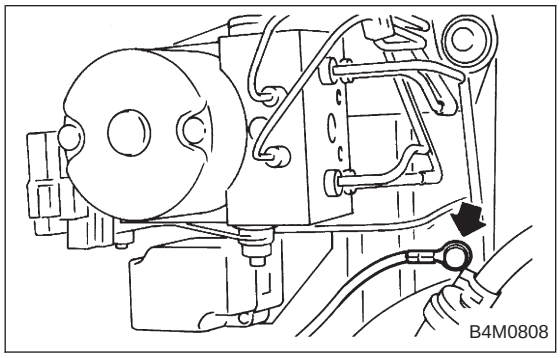
1) Turn ignition switch to ON.
2) Measure voltage between ABSCM connector terminals.

Connector & terminal
(F49) No. 10 (+) — No. 1 (−):

CHECK ***: Is the voltage less than 2 V?***

YES : Go to step **10AE13**.

NO : Replace ABSCM.



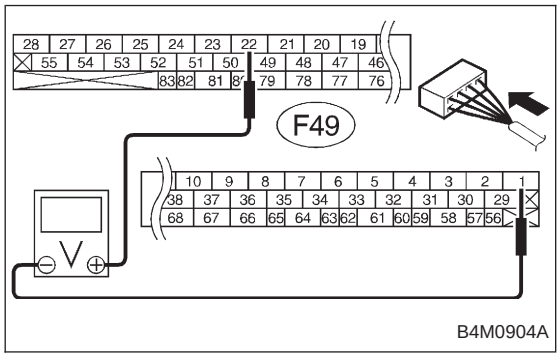
10AE13	CHECK MOTOR GROUND.

Turn ignition switch to OFF.

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 **10AE14**.

NO : Tighten the clamp of motor ground terminal.



10AE14	CHECK ABSCM MOTOR DRIVE TERMINAL.

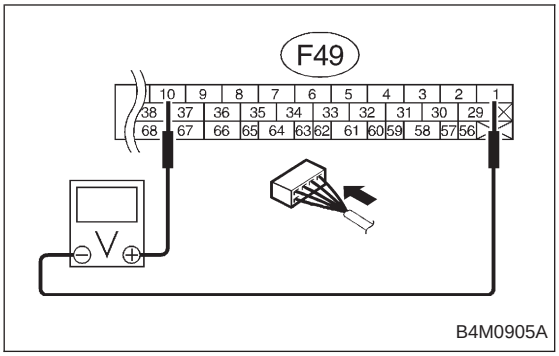
1) Measure voltage between ABSCM connector terminals.
2) Operate the check sequence. <Ref. to 4-4 [W12D0].>

Connector & terminals
(F49) No. 22 (+) — No. 1 (−):

CHECK ***: Does the voltage drop from between 10 V and 13 V to less than 1.5 V, and rise to between 10 V and 13 V again when carrying out the check sequence?***

YES : Go to step **10AE15**.

NO : Replace ABSCM.



10AE15	CHECK MOTOR OPERATION.

1) Measure voltage between ABSCM connector terminal.
2) Operate the check sequence. <Ref. to 4-4 [W12D0].>

Connector & terminals
(F49) No. 10 (+) — No. 1 (−):

CHECK ***: Does the voltage raise from less than 1.5 V to between 10 V and 13 V, and return to less than 1.5 V again when carrying out the check sequence?***

YES : Go to step **10AE16**.
NO : Replace hydraulic unit.

10AE16	CHECK MOTOR OPERATION.

Operate the check sequence. <Ref. to 4-4 [W12D0].>

CHECK ***: Can motor revolution noise (buzz) be heard when carrying out the check sequence?***

YES : Go to step **10AE17**.
NO : Replace hydraulic unit.

10AE17	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connector between hydraulic unit, relay box and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.
NO : Go to step **10AE18**.

10AE18	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 step **10AE19**.

10AE19	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

YES : Proceed with the diagnosis corresponding to the trouble code.
NO : A temporary poor contact.

D•NEW 52 (FB1)
MOTOR

B4M0971

AF: TROUBLE CODE 52 MOTOR — ABNORMAL MOTOR —

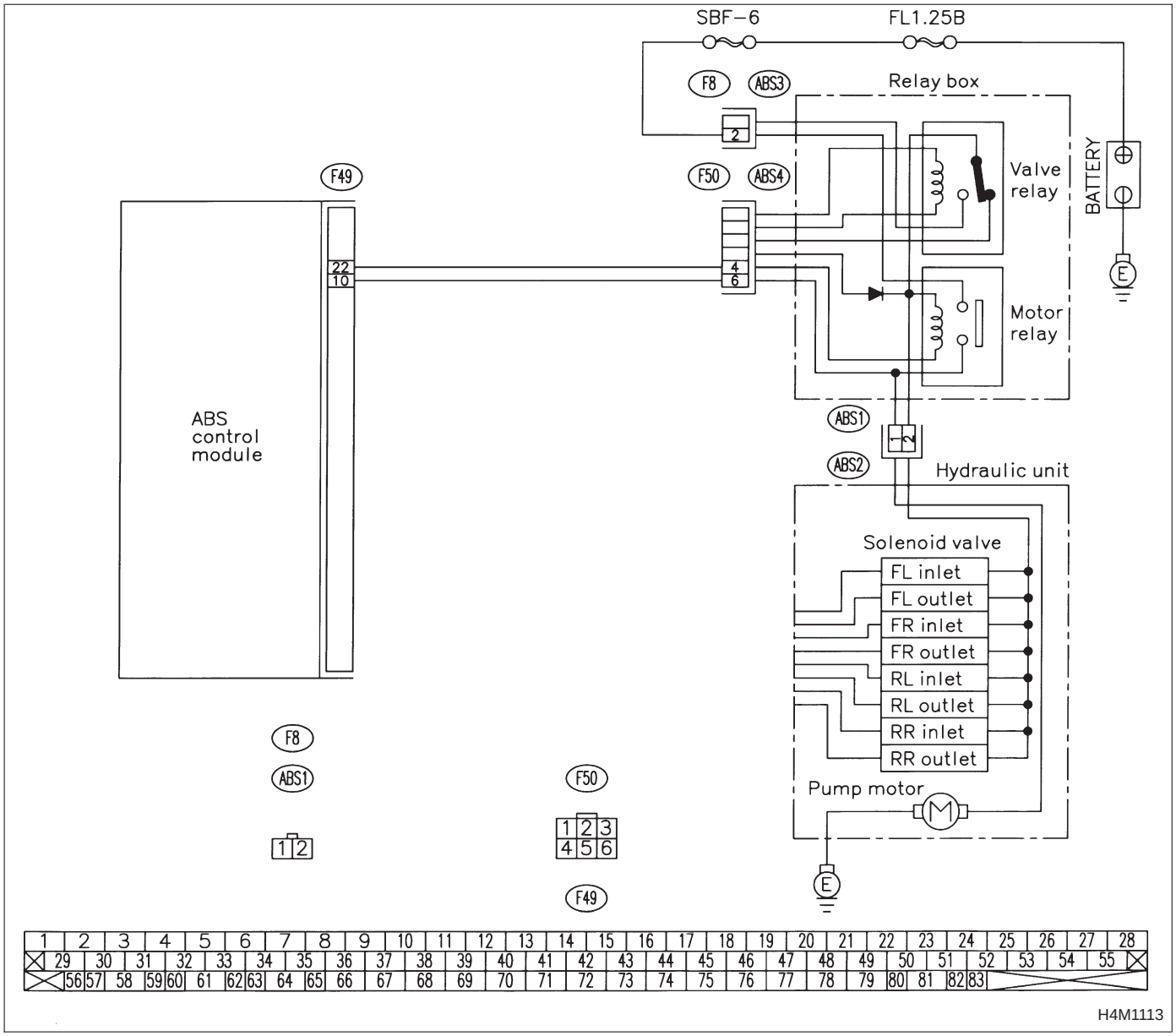
DIAGNOSIS:

- Faulty motor
- Faulty motor relay
- Faulty harness connector

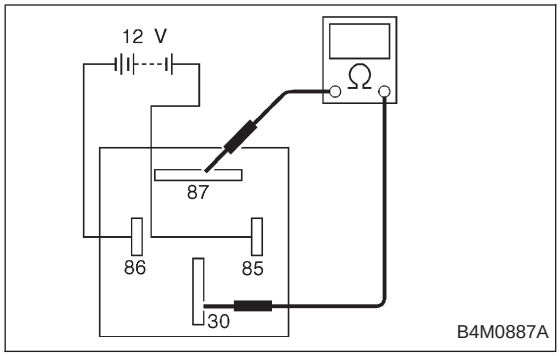
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1113

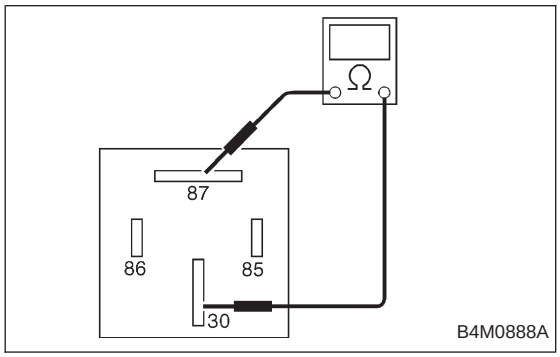


10AF1	CHECK CONTACT POINT OF MOTOR RELAY.

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.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance less than 0.5 Ω?***
YES : Go to step **10AF2**.
NO : Replace motor relay.

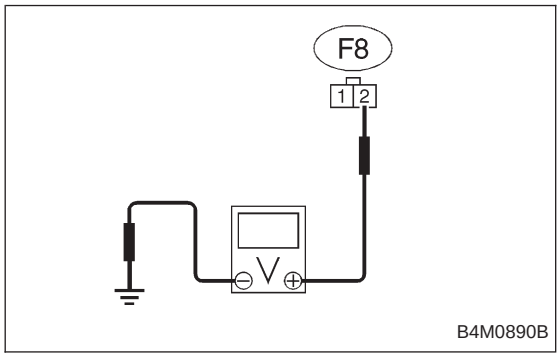


10AF2	CHECK CONTACT POINT OF MOTOR RELAY.

1) Disconnect battery from motor relay terminals.
2) Measure resistance between motor relay terminals.

Terminals
No. 30 — No. 87:

CHECK ***: Is the resistance more than 1 MΩ?***
YES : Go to step **10AF3**.
NO : Replace motor relay.

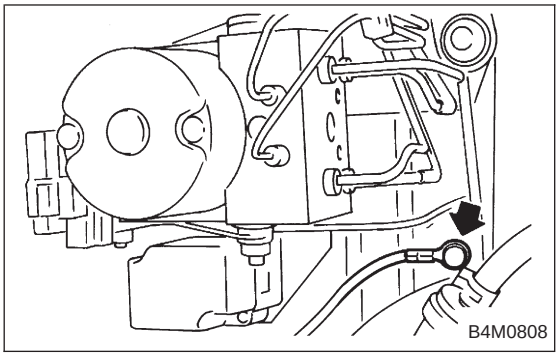


10AF3	CHECK INPUT VOLTAGE OF RELAY BOX.

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

Connector & terminal
(F8) No. 2 (+) — Chassis ground (−):

CHECK ***: Is the voltage between 10 V and 13 V?***
YES : Go to step **10AF4**.
NO : Repair harness/connector between battery and relay box, and check fuse SBF6.


B4M0808

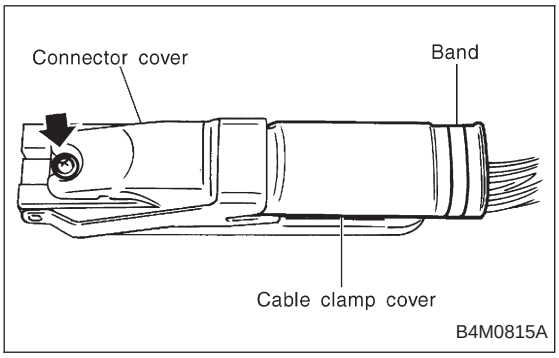
10AF4	CHECK MOTOR GROUND.

Tightening torque:
32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)

CHECK ***: Is the motor ground terminal tightly clamped?***

YES : Go to step **10AF5**.

NO : Tighten the clamp of motor ground terminal.

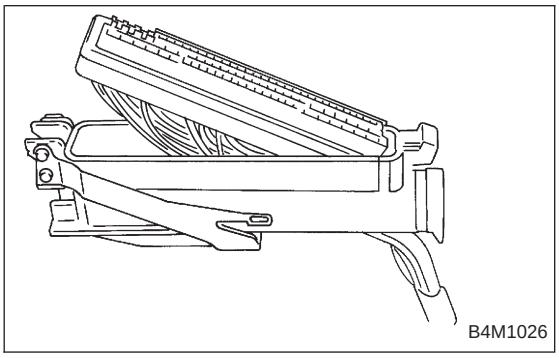


B4M0815A

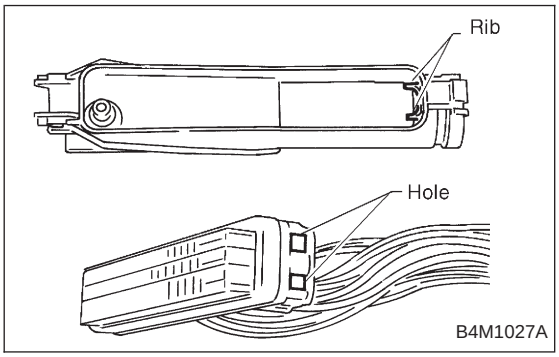
10AF5	CHECK MOTOR OPERATION.

1) Disconnect connector from ABS control module.
2) Remove band.
3) Remove cable clamp cover.
4) Remove screws securing connector cover.

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


B4M1026

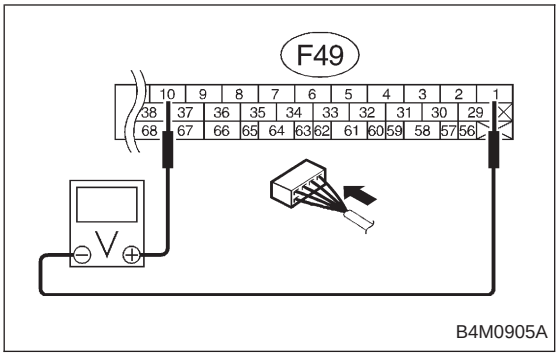
5) Remove connector cover.



B4M1027A

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

6) Connect connector to ABSCM.
7) Connect motor relay to relay box.
8) Connect all connectors.



9) Measure voltage between ABSCM connector terminal.
10) Operate the check sequence. <Ref. to 4-4 [W12D0].>

Connector & terminals
(F49) No. 10 (+) — No. 1 (−):

CHECK ***: Does the voltage raise from less than 1.5 V to between 10 V and 13 V, and return to less than 1.5 V again when carrying out the check sequence?***

YES : Go to step **10AF6**.
NO : Replace hydraulic unit.

10AF6	CHECK MOTOR OPERATION.

Operate the check sequence. <Ref. to 4-4 [W12D0].>

CHECK ***: Can motor revolution noise (buzz) be heard when carrying out the check sequence?***

YES : Go to step **10AF7**.
NO : Replace hydraulic unit.

10AF7	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connector between hydraulic unit, relay box and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.
NO : Go to step **10AF8**.

10AF8	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 step **10AF9**.

10AF9	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

YES : Proceed with the diagnosis corresponding to the trouble code.
NO : A temporary poor contact.

D•NEW 54 (FB1)
BLS

B4M0972

AG: TROUBLE CODE 54 BLS — ABNORMAL STOP LIGHT SWITCH —

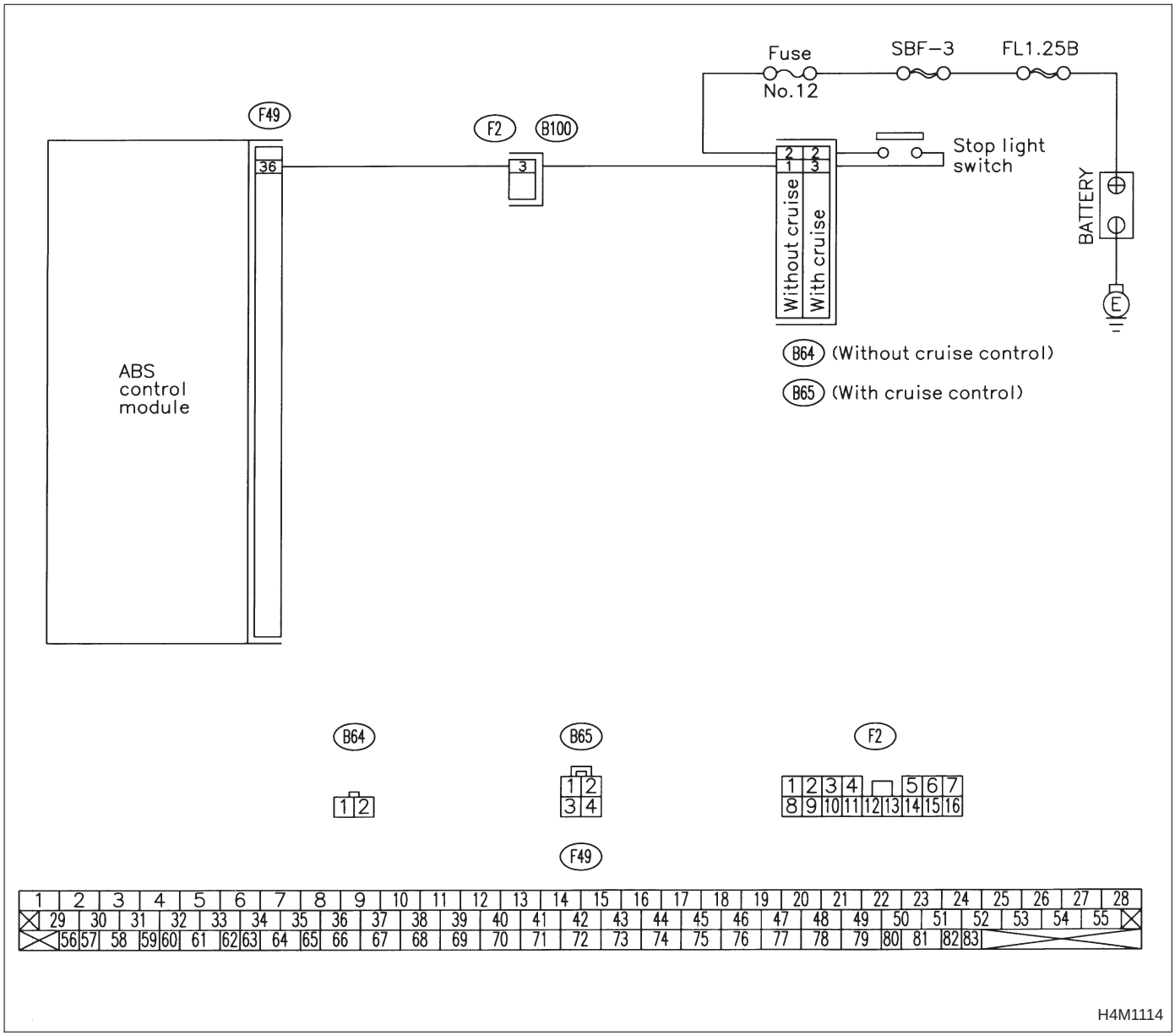
DIAGNOSIS:

- Faulty stop light switch

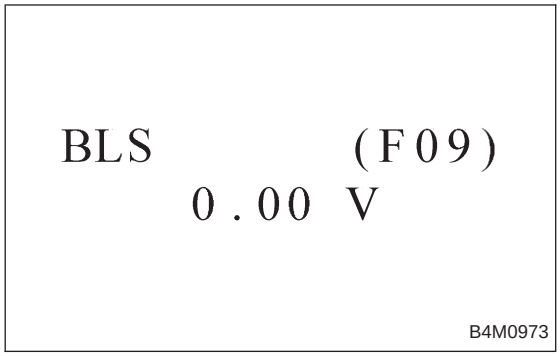
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1114

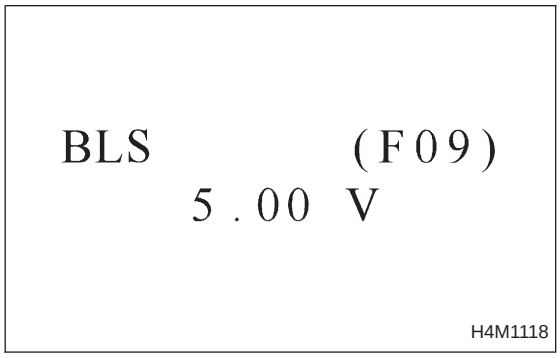


10AG1	CHECK OUTPUT OF STOP LIGHT SWITCH USING SELECT MONITOR.

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 step **10AG2**.
NO : Go to step **10AG3**.



10AG2	CHECK OUTPUT OF STOP LIGHT SWITCH USING SELECT MONITOR.

1) Release the brake pedal.
2) Read the stop light switch output on the select monitor display.

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

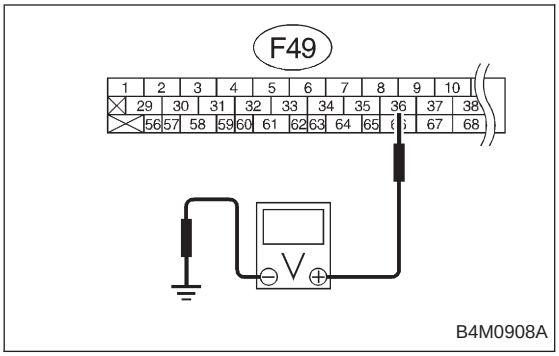
YES : Go to step **10AG5**.
NO : Go to step **10AG3**.

10AG3	CHECK IF STOP LIGHTS COME ON.

Depress the brake pedal.

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

YES : Go to step **10AG4**.
NO : Repair stop lights circuit.



10AG4	CHECK OPEN CIRCUIT IN 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.

Connector & terminal
(F49) No. 36 — Chassis ground:

CHECK ***: Is the voltage between 10 V and 13 V?***

YES : Go to step **10AG5**.

NO : Repair harness between stop light switch and ABSCM connector.

10AG5	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connector between stop light switch and ABSCM? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10AG6**.

10AG6	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 step **10AG7**.

10AG7	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

D•NEW 56 (FB1)
G SENSOR LINE

B4M0974

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

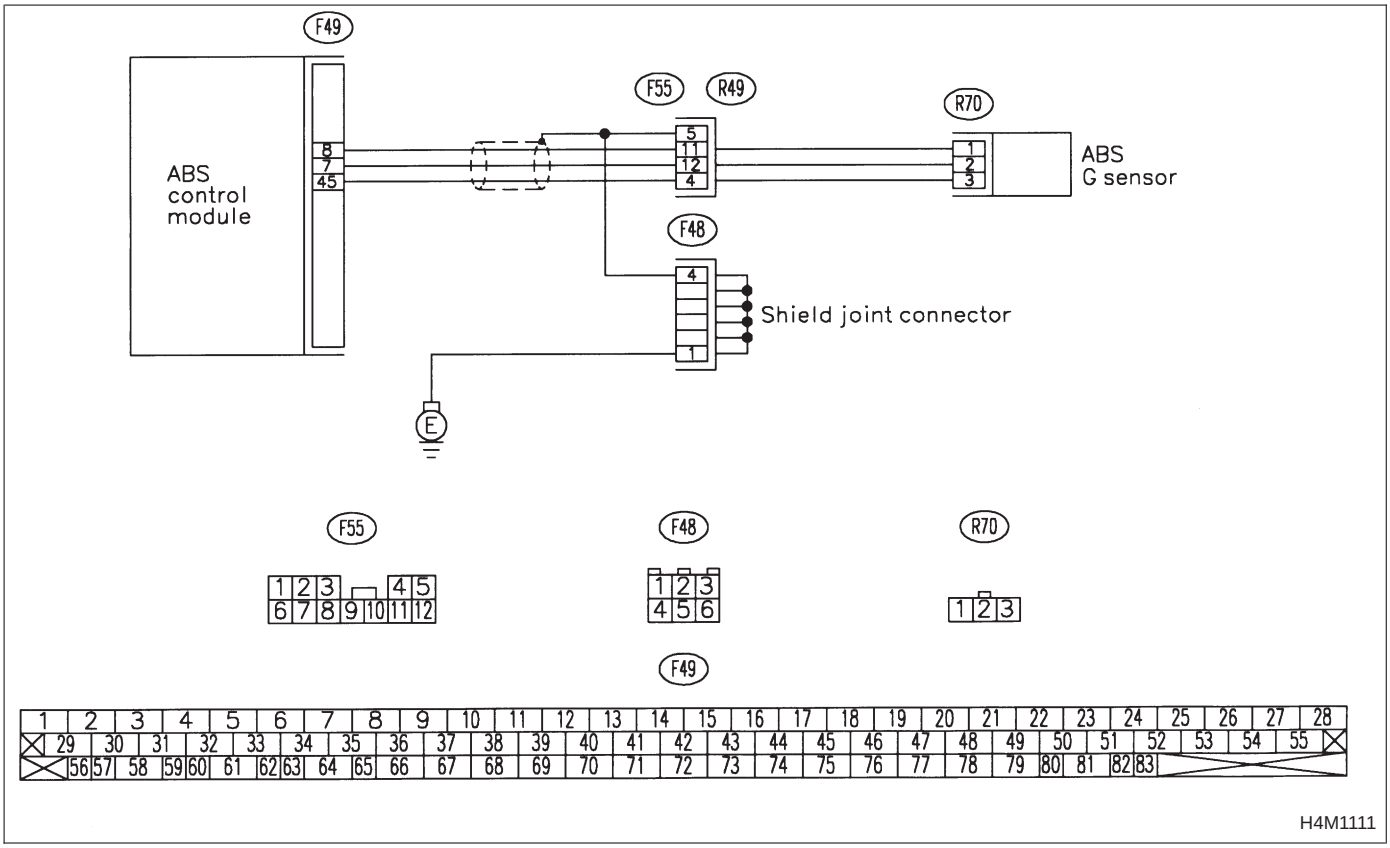
DIAGNOSIS:

- Faulty G sensor output voltage

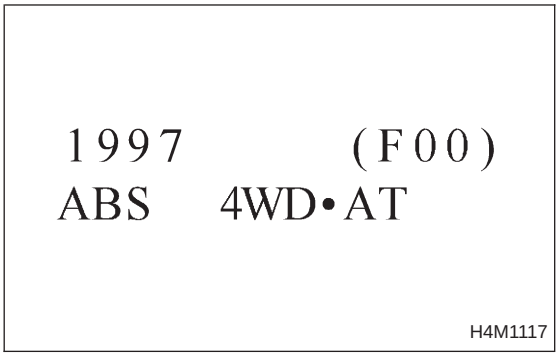
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



H4M1111

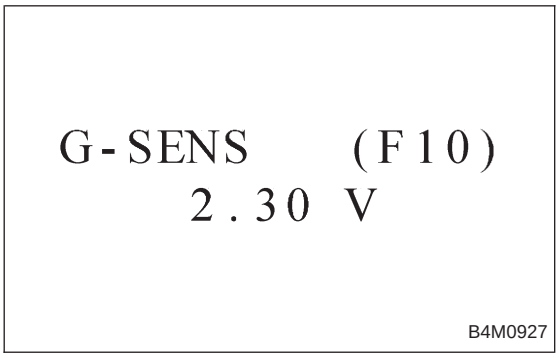


10AH1	CHECK SPECIFICATIONS OF ABSCM USING SELECT MONITOR.

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 between 2.1 and 2.5 V when the G sensor is in horizontal position?***

YES : Go to step **10AH3**.
NO : Go to step **10AH6**.

10AH3	CHECK POOR CONTACT IN CONNECTORS.

CHECK : ***Is there poor contact in connector between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***

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.

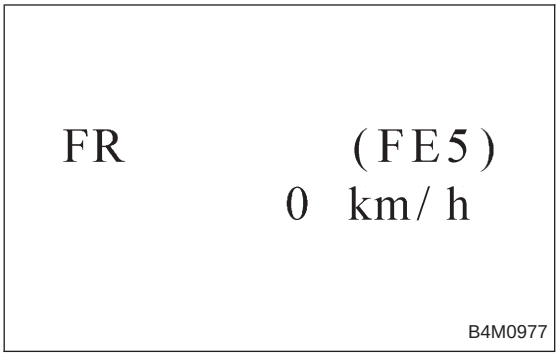
CHECK : ***Is the same trouble code as in the current diagnosis still being output?***

YES : Replace ABSCM.
NO : Go to step **10AH5**.

10AH5	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

YES : Proceed with the diagnosis corresponding to the trouble code.
NO : A temporary poor contact.



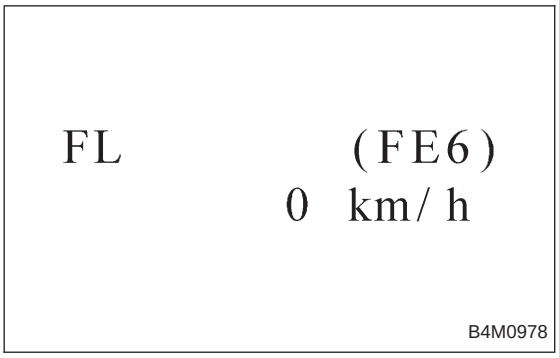
10AH6	CHECK FREEZE FRAME DATA.

1) Press [F], [E] and [5] on the select monitor.
2) Read the select monitor display.

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

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

NO : Go to step **10AH15**.



10AH7	CHECK FREEZE FRAME DATA.

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

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

YES : Go to step **10AH8**.

NO : Go to step **10AH15**.

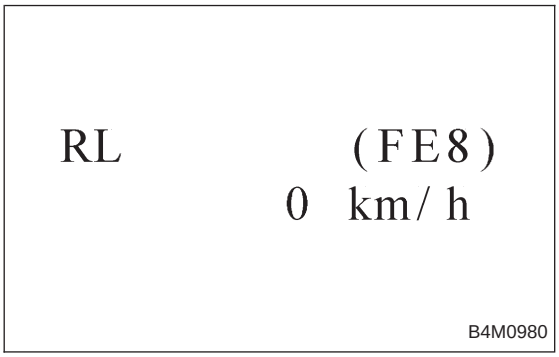
10AH8	CHECK FREEZE FRAME DATA.

1) Press the scroll key so that FE7 appears on the monitor display.
2) Read the select monitor display.

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

YES : Go to step **10AH9**.

NO : Go to step **10AH15**.



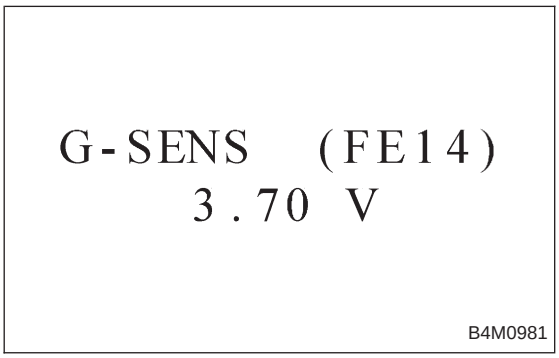
10AH9	CHECK FREEZE FRAME DATA.

1) Press the scroll key so that FE8 appears on the monitor display.
2) Read the select monitor display.

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

YES : Go to step **10AH10**.

NO : Go to step **10AH15**.



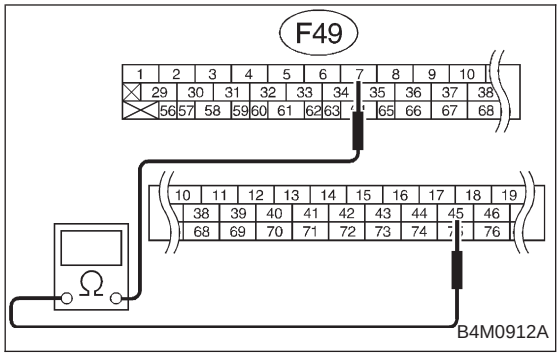
10AH10	CHECK FREEZE FRAME DATA.

1) Press the scroll key so that FE14 appears on the monitor display.
2) Read the select monitor display.

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

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

NO : Go to step **10AH15**.



10AH11	CHECK OPEN CIRCUIT 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.

Connector & terminal
(F49) No. 7 — No. 45:

CHECK ***: Is the resistance between 4.3 and 4.9 kΩ?***

YES : Go to step **10AH12**.

NO : Repair harness/connector between G sensor and ABSCM.

10AH12	CHECK POOR CONTACT IN CONNECTORS.

CHECK ***: Is there poor contact in connector between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10AH13**.

10AH13	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.

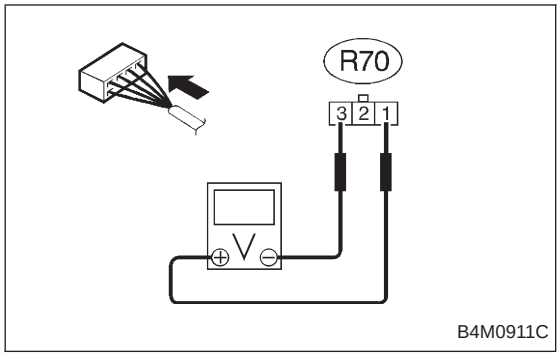
NO : Go to step **10AH14**.

10AH14	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



10AH15	CHECK INPUT VOLTAGE OF G SENSOR.

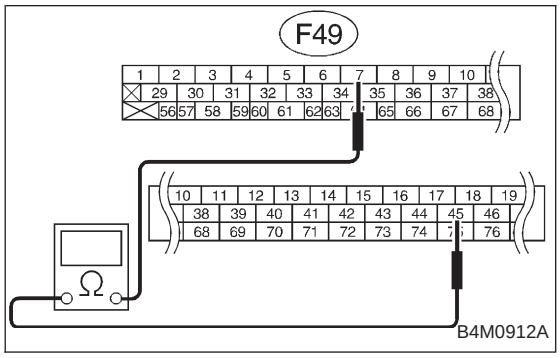
1) Turn ignition switch to OFF.
2) Remove console box.
3) Disconnect G sensor from body. (Do not disconnect connector.)
4) Turn ignition switch to ON.
5) Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 1 (+) — No. 3 (−):

CHECK ***: Is the voltage between 4.75 and 5.25 V?***

YES : Go to step **10AH16**.

NO : Repair harness/connector between G sensor and ABSCM.



10AH16	CHECK OPEN CIRCUIT IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

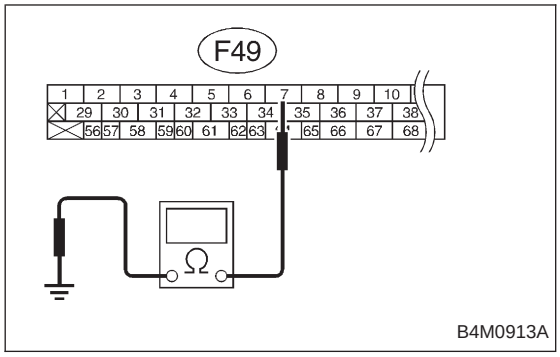
1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 7 — No. 45:

CHECK ***: Is the resistance between 4.3 and 4.9 kΩ?***

YES : Go to step **10AH17**.

NO : Repair harness/connector between G sensor and ABSCM.



10AH17	CHECK GROUND SHORT IN G SENSOR OUTPUT HARNESS.

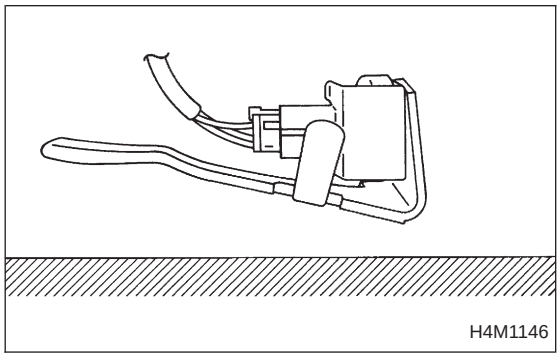
1) Disconnect connector from G sensor.
2) Measure resistance between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 7 — Chassis ground:

CHECK ***: Is the resistance more than 1 MΩ?***

YES : Go to step **10AH18**.

NO : Repair harness between G sensor and ABSCM.



10AH18	CHECK G SENSOR.

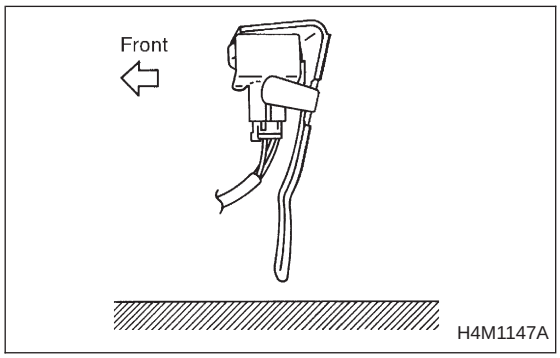
1) Connect connector to G sensor.
2) Connect connector to ABSCM.
3) Turn ignition switch to ON.
4) Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 2.1 and 2.5 V when G sensor is horizontal?***

YES : Go to step **10AH19**.

NO : Replace G sensor.



10AH19	CHECK G SENSOR.

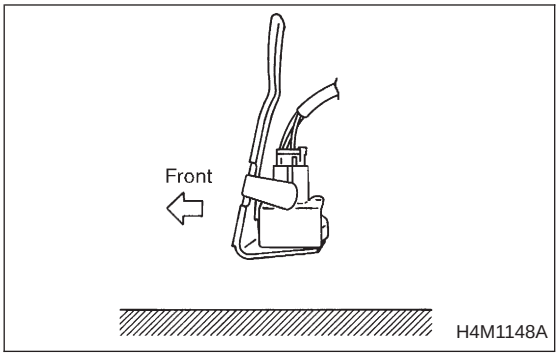
Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 3.7 and 4.1 V when G sensor is inclined forwards to 90°?***

YES : Go to step **10AH20**.

NO : Replace G sensor.



10AH20	CHECK G SENSOR.

Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 0.5 and 0.9 V when G sensor is inclined backwards to 90°?***

YES : Go to step **10AH21**.

NO : Replace G sensor.

10AH21	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK ***: Is there poor contact in connector between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10AH22**.

10AH22	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.

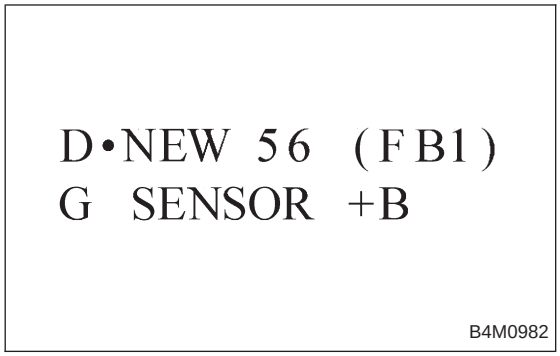
NO : Go to step **10AH23**.

10AH23	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



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

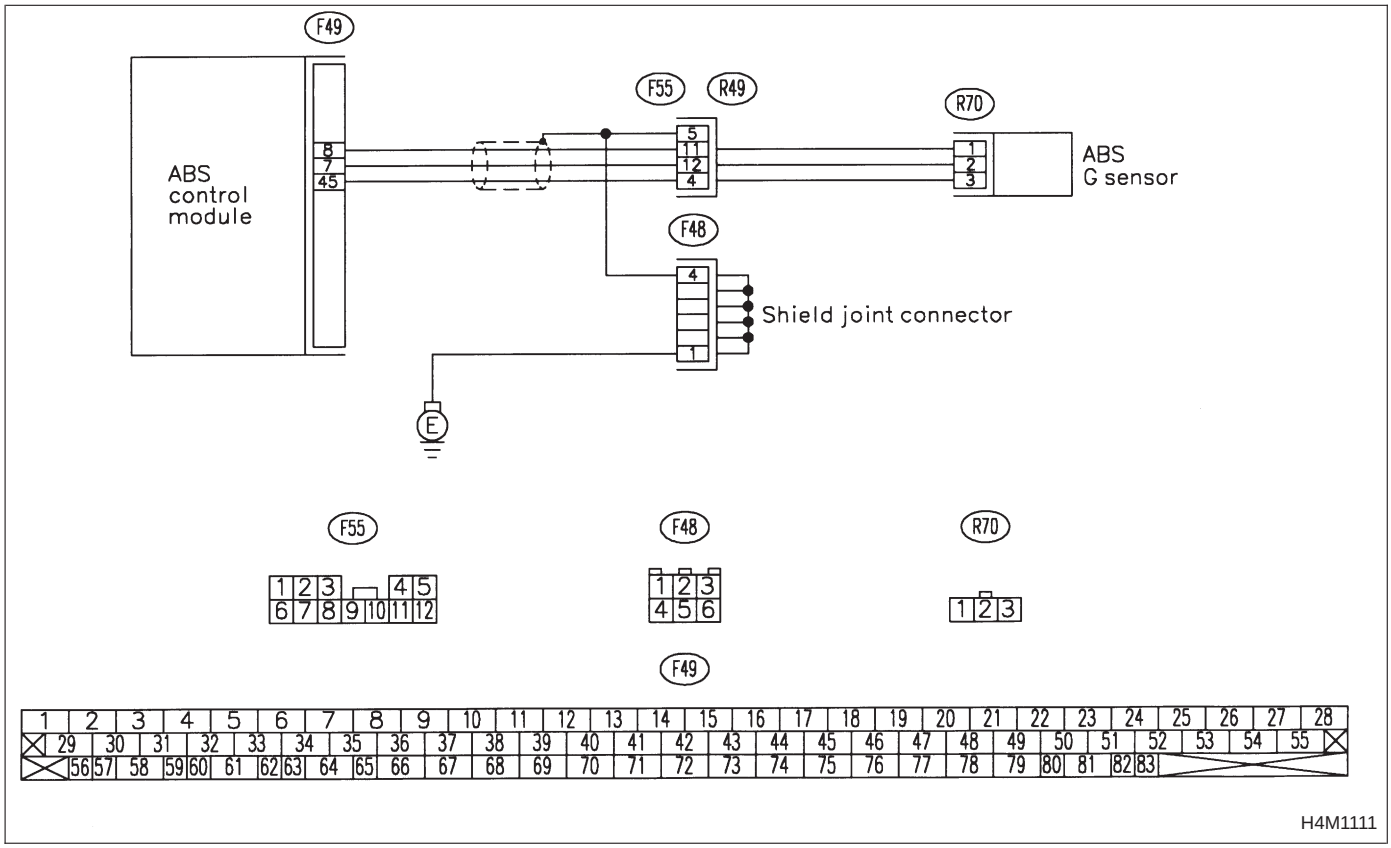
DIAGNOSIS:

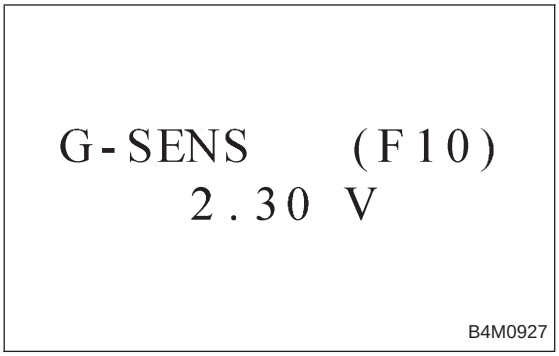
- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





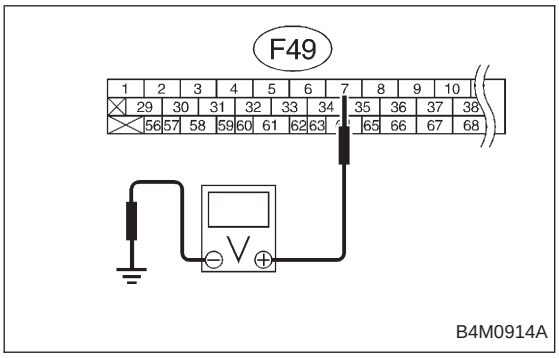
10AI1	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

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

CHECK ***: Is the indicated reading between 2.1 and 2.5 V when the G sensor is in horizontal position?***

YES : Replace ABSCM.

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



10AI2	CHECK BATTERY SHORT OF HARNESS.

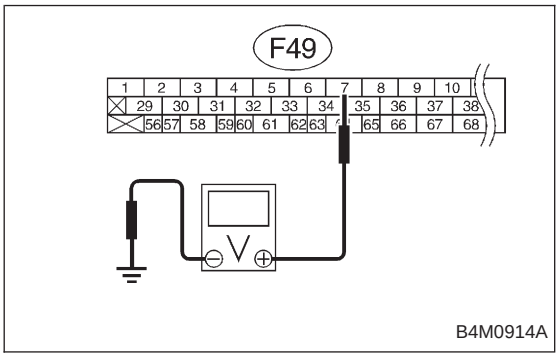
1) Turn ignition switch to OFF.
2) Remove console box.
3) Disconnect connector from G sensor.
4) Disconnect connector from ABSCM.
5) Measure voltage between ABSCM connector and chassis ground.

Connector & terminal
(F49) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

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

NO : Repair harness between G sensor and ABSCM.



10AI3	CHECK BATTERY SHORT OF HARNESS.

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

Connector & terminal
(F49) No. 7 (+) — Chassis ground (−):

CHECK ***: Is the voltage less than 1 V?***

YES : Go to step **10AI4**.

NO : Repair harness between G sensor and ABSCM.

10AI4	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 step **10AI5**.

10AI5	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

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

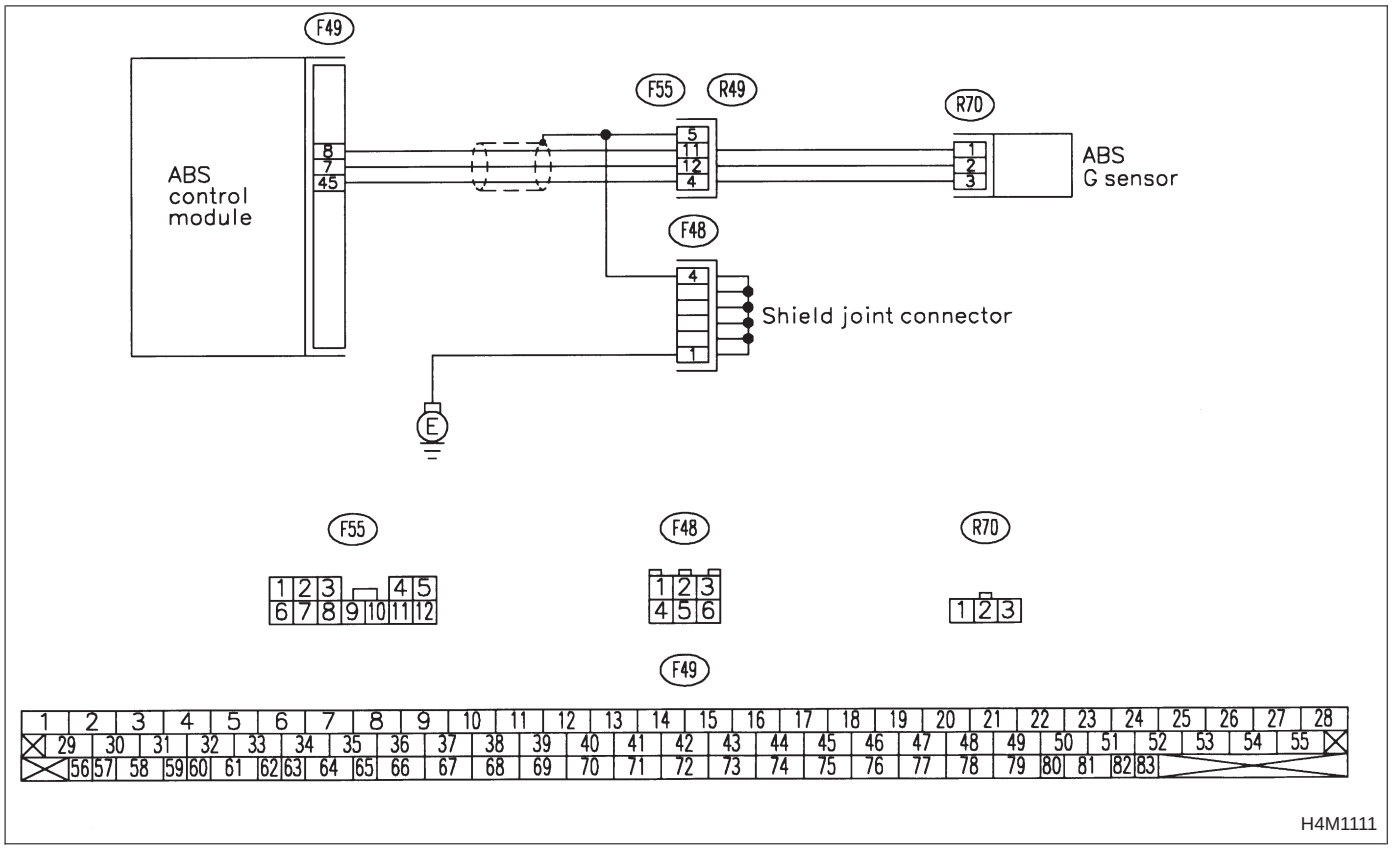
DIAGNOSIS:

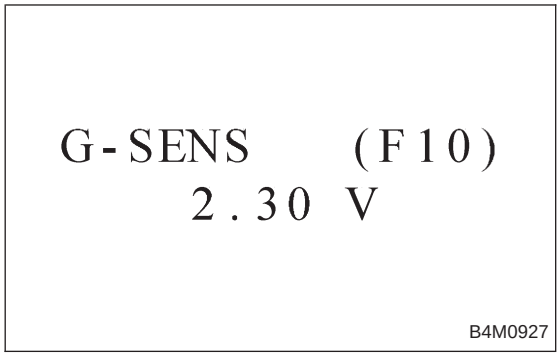
- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





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 **10AJ6**.

10AJ2	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK : ***Is there poor contact in connector between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***

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.

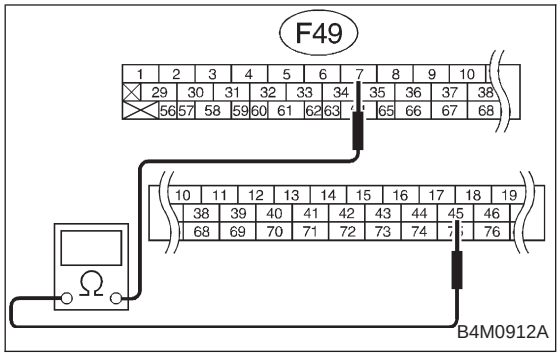
NO : Go to step **10AJ4**.

10AJ4	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



10AJ5	CHECK OPEN CIRCUIT IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

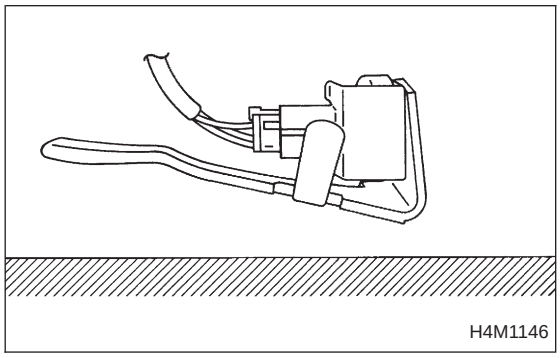
1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 7 — No. 45:

CHECK ***: Is the resistance between 4.3 and 4.9 kΩ?***

YES : Go to step **10AJ6**.

NO : Repair harness/connector between G sensor and ABSCM.



10AJ6	CHECK G SENSOR.

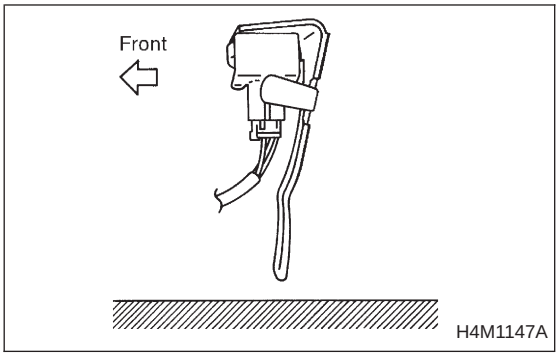
1) Remove console box.
2) Remove G sensor from vehicle.
3) Connect connector to G sensor.
4) Connect connector to ABSCM.
5) Turn ignition switch to ON.
6) Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 2.1 and 2.5 V when G sensor is horizontal?***

YES : Go to step **10AJ7**.

NO : Replace G sensor.



10AJ7	CHECK G SENSOR.

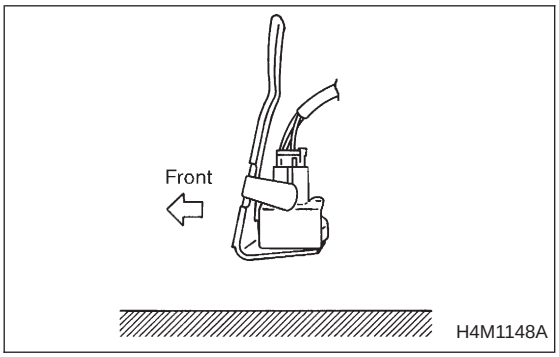
Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 3.7 and 4.1 V when G sensor is inclined forwards to 90°?***

YES : Go to step **10AJ8**.

NO : Replace G sensor.



10AJ8	CHECK G SENSOR.

Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 0.5 and 0.9 V when G sensor is inclined backwards to 90°?***

YES : Go to step **10AJ9**.

NO : Replace G sensor.

10AJ9	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.

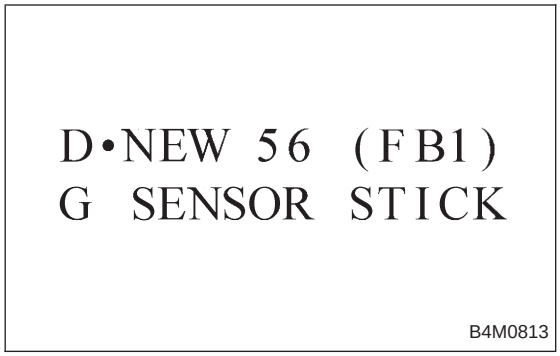
NO : Go to step **10AJ10**.

10AJ10	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



AK: TROUBLE CODE 56 G SENSOR STICK — G SENSOR OUTPUT IS STUCK —

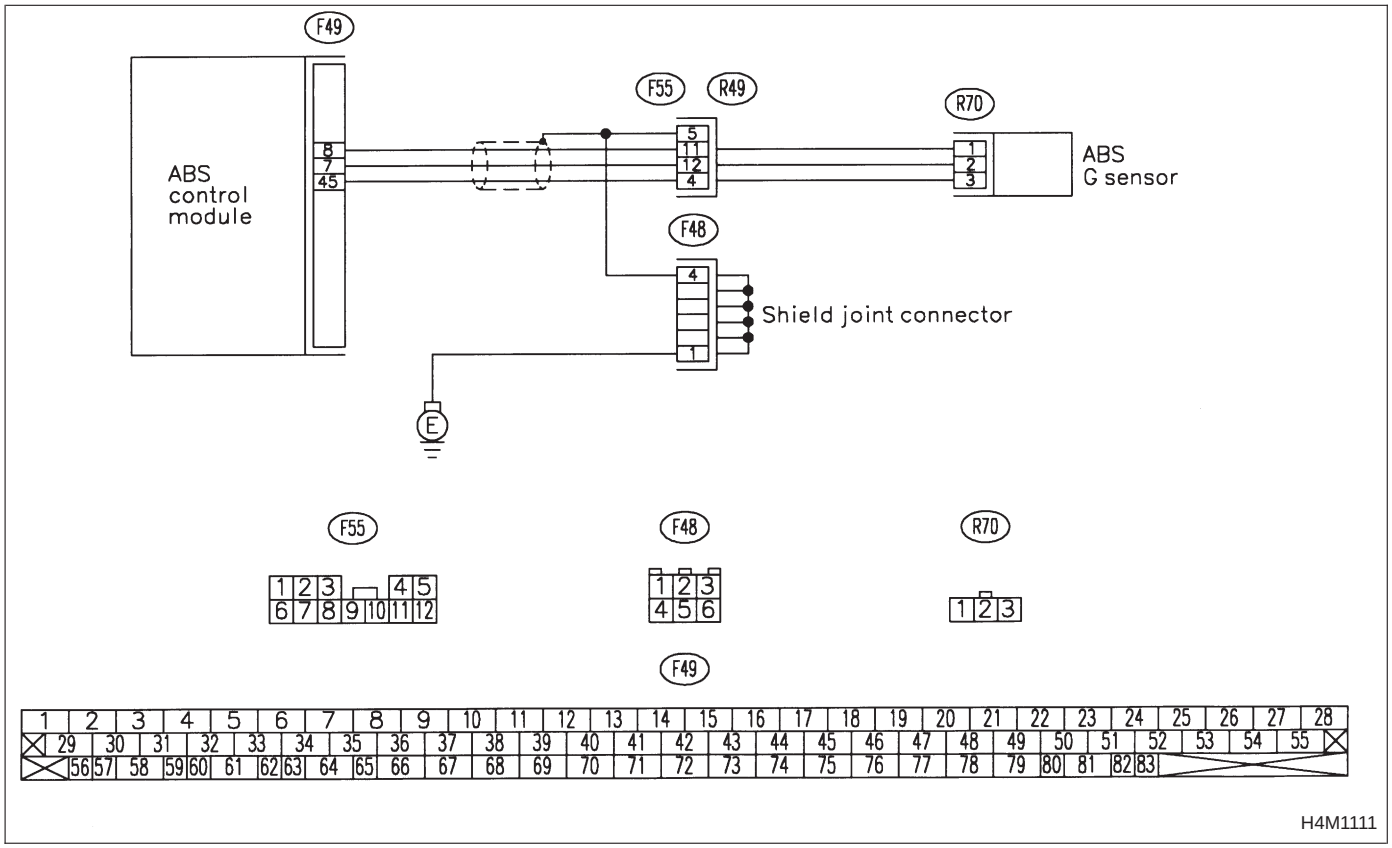
DIAGNOSIS:

- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:

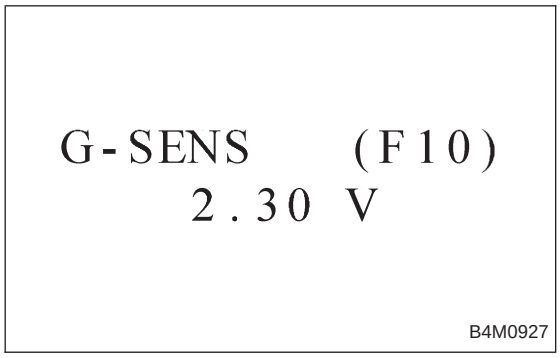


10AK1	CHECK ALL FOUR WHEELS FOR FREE TURNING.

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**.



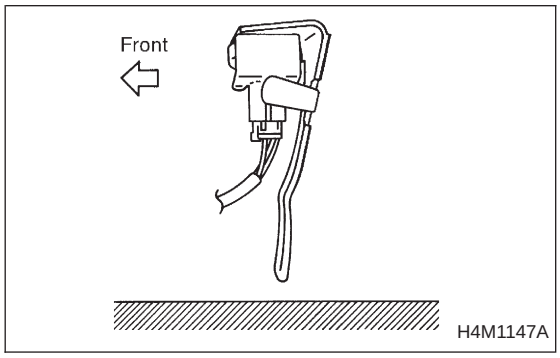
10AK2	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

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

CHECK : ***Is the indicated reading between 2.1 and 2.5 V when the vehicle is in horizontal position?***

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

NO : Go to step **10AK8**.



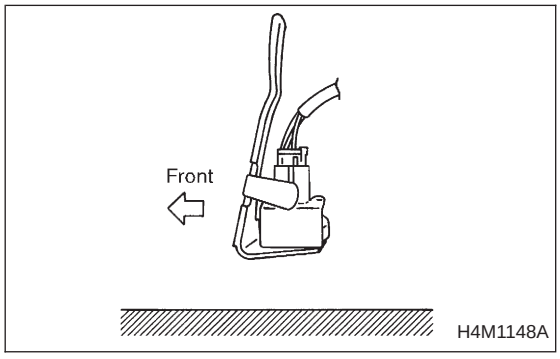
10AK3	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

1) Turn ignition switch to OFF.
2) Remove console box.
3) Remove G sensor from vehicle. (Do not disconnect connector.)
4) Turn ignition switch to ON.
5) Press [F], [1] and [0] on the select monitor.
6) Read the select monitor display.

CHECK : ***Is the indicated reading between 3.7 and 4.1 V when G sensor is inclined forwards to 90°?***

YES : Go to step **10AK4**.

NO : Replace G sensor.



10AK4	CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.

Read the select monitor display.

CHECK : ***Is the indicated reading between 0.5 and 0.9 V when G sensor is inclined backwards to 90°?***

YES : Go to step **10AK5**.

NO : Replace G sensor.

10AK5	CHECK POOR CONTACT IN CONNECTORS.

Turn ignition switch to OFF.

CHECK : ***Is there poor contact in connector between ABSCM and G sensor? <Ref. to FOREWORD [T3C1].>***

YES : Repair connector.

NO : Go to step **10AK6**.

10AK6	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.

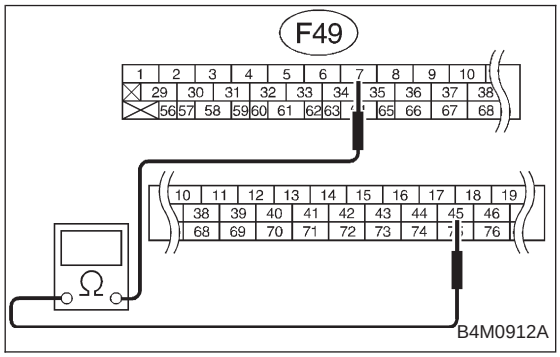
NO : Go to step **10AK7**.

10AK7	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.



10AK8	CHECK OPEN CIRCUIT IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.

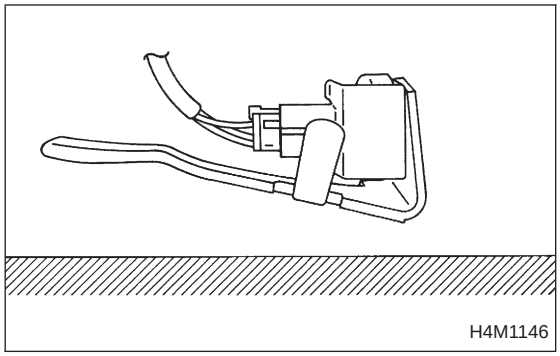
1) Turn ignition switch to OFF.
2) Disconnect connector from ABSCM.
3) Measure resistance between ABSCM connector terminals.

Connector & terminal
(F49) No. 7 — No. 45:

CHECK : ***Is the resistance between 4.3 and 4.9 kΩ?***

YES : Go to step **10AK9**.

NO : Repair harness/connector between G sensor and ABSCM.



10AK9	CHECK G SENSOR.

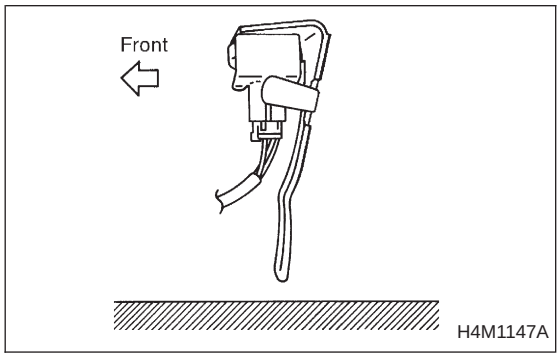
1) Remove console box.
2) Remove G sensor from vehicle.
3) Connect connector to G sensor.
4) Connect connector to ABSCM.
5) Turn ignition switch to ON.
6) Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 2.1 and 2.5 V when G sensor is horizontal?***

YES : Go to step **10AK10**.

NO : Replace G sensor.



10AK10	CHECK G SENSOR.

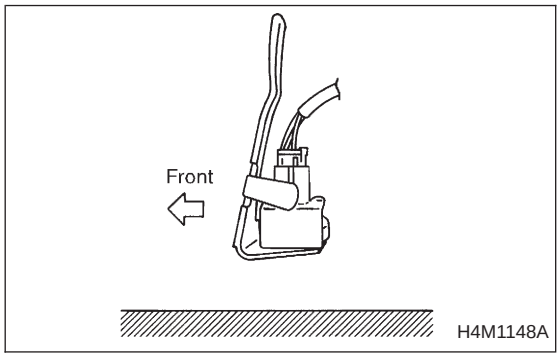
Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 3.7 and 4.1 V when G sensor is inclined forwards to 90°?***

YES : Go to step **10AK11**.

NO : Replace G sensor.



10AK11	CHECK G SENSOR.

Measure voltage between G sensor connector terminals.

Connector & terminal
(R70) No. 2 (+) — No. 1 (−):

CHECK ***: Is the voltage between 0.5 and 0.9 V when G sensor is inclined backwards to 90°?***

YES : Go to step **10AK12**.

NO : Replace G sensor.

10AK12	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 step **10AK13**.

10AK13	CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

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

NO : A temporary poor contact.

11. General Diagnostics Table

A: SYMPTOMS AND PROBABLE CAUSES

Symptom		Probable faulty units/parts
Vehicle instability during braking	Vehicle pulls to either side.	● Hydraulic unit (solenoid valve) ● ABS sensor ● Brake (caliper & piston, pads) ● Wheel alignment ● Tire specifications, tire wear and air pressures ● Incorrect wiring or piping connections ● Road surface (uneven, camber)
	Vehicle spins.	● Hydraulic unit (solenoid valve) ● ABS sensor ● Brake (pads) ● Tire specifications, tire wear and air pressures ● Incorrect wiring or piping connections
Poor braking	Long braking/stopping distance	● Hydraulic unit (solenoid valve) ● Brake (pads) ● Air in brake line ● Tire specifications, tire wear and air pressures ● Incorrect wiring or piping connections
	Wheel locks.	● Hydraulic unit (solenoid valve, motor) ● ABS sensor ● Incorrect wiring or piping connections
	Brake dragging	● Hydraulic unit (solenoid valve) ● ABS sensor ● Master cylinder ● Brake (caliper & piston) ● Parking brake ● Axle & wheels ● Brake pedal play
	Long brake pedal stroke	● Air in brake line ● Brake pedal play
	Vehicle pitching	● Suspension play or fatigue (reduced damping) ● Incorrect wiring or piping connections ● Road surface (uneven)
	Unstable or uneven braking	● Hydraulic unit (solenoid valve) ● ABS sensor ● Brake (caliper & piston, pads) ● Tire specifications, tire wear and air pressures ● Incorrect wiring or piping connections ● Road surface (uneven)
Vibration and/or noise (while driving on slippery roads)	Excessive pedal vibration	● Incorrect wiring or piping connections ● Road surface (uneven)
	Noise from hydraulic unit	● Hydraulic unit (mount bushing) ● ABS sensor ● Brake piping
	Noise from front of vehicle	● Hydraulic unit (mount bushing) ● ABS sensor ● Master cylinder ● Brake (caliper & piston, pads, rotor) ● Brake piping ● Brake booster & check valve ● Suspension play or fatigue
	Noise from rear of vehicle	● ABS sensor ● Brake (caliper & piston, pads, rotor) ● Parking brake ● Brake piping ● Suspension play or fatigue

B: CHECKING THE HYDRAULIC UNIT OPERATION

11B1	PREPARING THE BRAKE TESTER.

CHECK ***: Is the brake tester available?***

YES : CHECKING THE HYDRAULIC UNIT ABS OPERATION WITH BRAKE TESTER <Ref. to 4-4 [W12C2].>

NO : CHECKING THE HYDRAULIC UNIT ABS OPERATION BY PRESSURE GAUGE <Ref. to 4-4 [W12C1].>