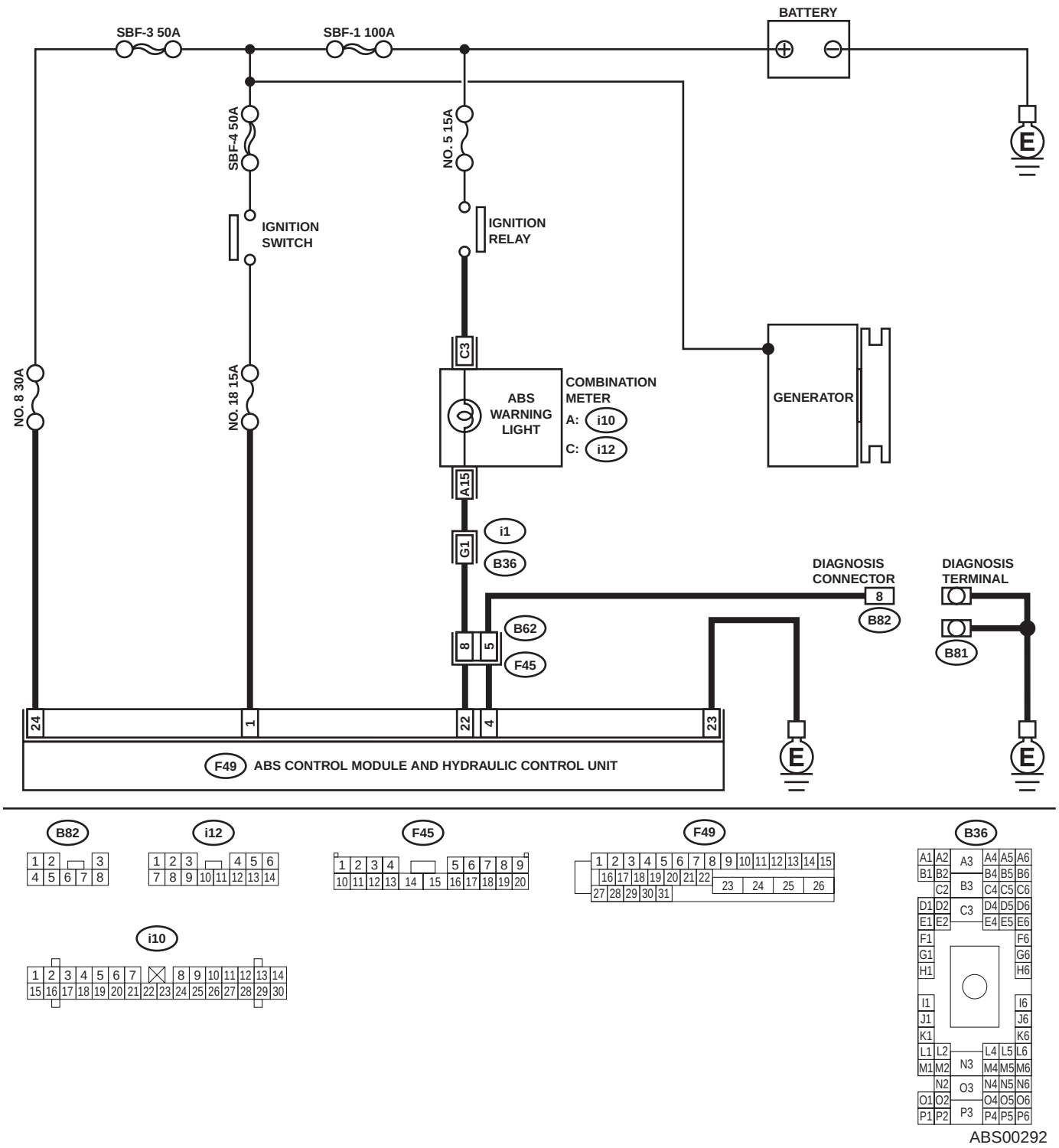
12.Diagnostics Chart with Diagnosis Connector

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:



ABS00292

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK IF OTHER WARNING LIGHTS TURN ON.** Turn ignition switch to ON (engine OFF). Do other warning lights turn on?	Other warning light turns on.	Go to step **2.**	Repair combination meter. -<Ref. to IDI-12, Combination Meter Assembly.>
2	**CHECK ABS WARNING LIGHT BULB.** 1) Turn ignition switch to OFF. 2) Remove combination meter. 3) Remove ABS warning light bulb from combination meter. Is ABS warning light bulb OK?	OK.	Go to step **3.**	Replace ABS warning light bulb. <Ref. to IDI-12, Combination Meter Assembly.>
3	**CHECK BATTERY SHORT OF ABS WARNING LIGHT HARNESS.** 1) Disconnect connector (B62) from connector (F45). 2) Measure voltage between connector (B62) and chassis ground. ***Connector & terminal*** ***(B62) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	3 V	Go to step **4.**	Repair warning light harness.
4	**CHECK BATTERY SHORT OF ABS WARNING LIGHT HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between connector (B62) and chassis ground. ***Connector & terminal*** ***(B62) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	3 V	Go to step **5.**	Repair warning light harness.
5	**CHECK WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Install ABS warning light bulb from combination meter. 3) Install combination meter. 4) Turn ignition switch to ON. 5) Measure voltage between connector (B62) and chassis ground. ***Connector & terminal*** ***(B62) No. 8 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **6.**	Repair wiring harness.
6	**CHECK BATTERY SHORT OF ABS WARNING LIGHT HARNESS.** 1) Turn ignition switch to OFF. 2) Measure voltage between connector (F45) and chassis ground. ***Connector & terminal*** ***(F45) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	3 V	Go to step **7.**	Repair wiring harness.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK BATTERY SHORT OF ABS WARNING LIGHT HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between connector (F45) and chassis ground. ***Connector & terminal*** ***(F45) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	3 V	Go to step **8.**	Repair wiring harness.
8	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** Measure resistance between ABSCM&H/U and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — GND:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **9.**	Repair ABSCM&H/U ground harness.
9	**CHECK WIRING HARNESS.** Measure resistance between connector (F45) and chassis ground. ***Connector & terminal*** ***(F45) No. 8 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **10.**	Repair harness/ connector.
10	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF. Is there poor contact in connectors between combination meter and ABSCM&H/U?	There is no poor contact.	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Repair connector.

Vehicle-id:
SIE-id::A:ABS Warning Light Does Not Come On.
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

MEMO:

Vehicle-id:
SIE-id::A: ABS Warning Light Does Not Come On.
~

B: ABS WARNING LIGHT DOES NOT GO OFF.

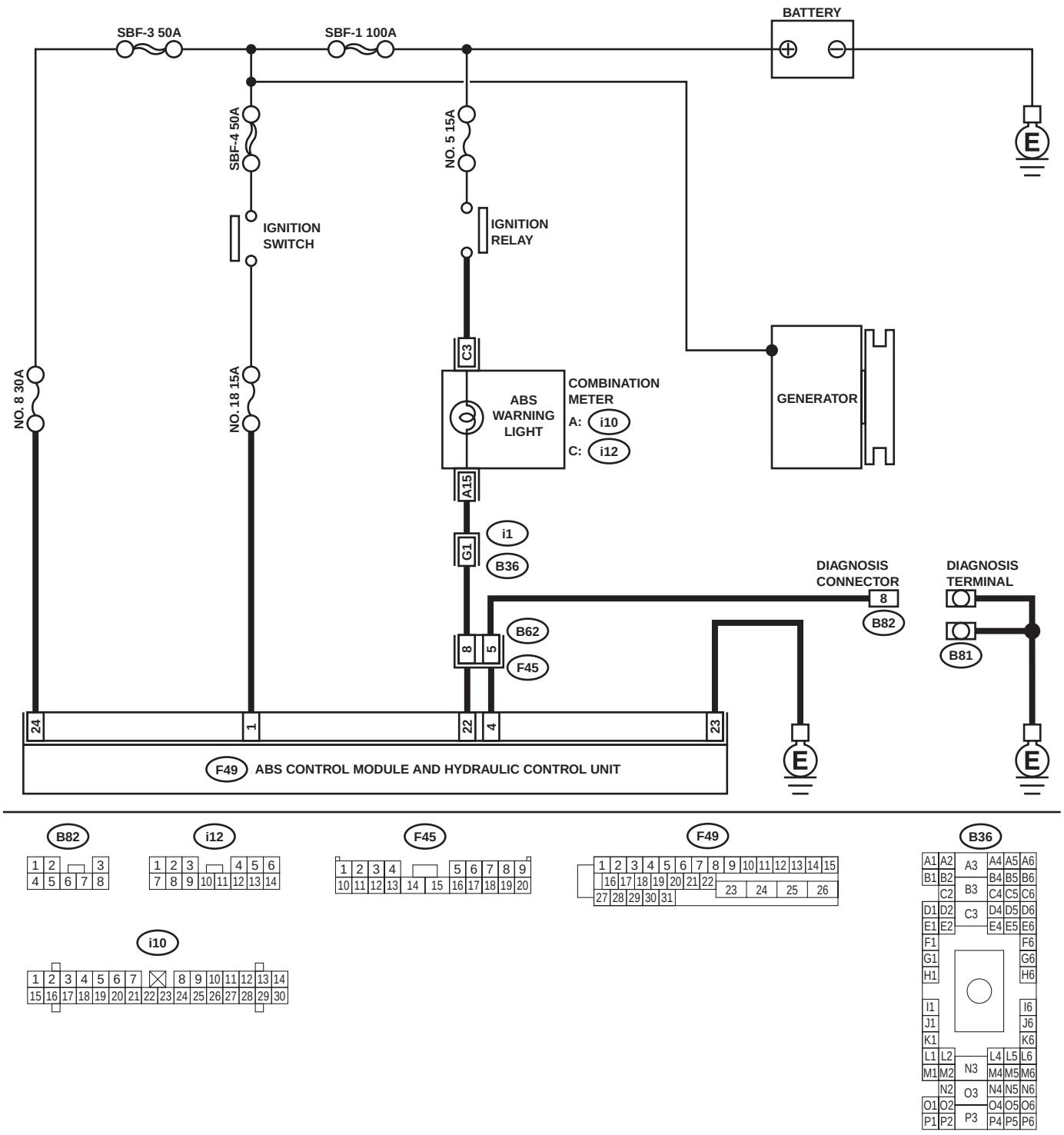
DIAGNOSIS:

- ABS warning light circuit is open or shorted.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



ABS00292

Vehicle-id:
SIE-id::B: ABS Warning Light Does Not Go Off.
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK INSTALLATION OF ABSCM&H/U CONNECTOR.** Turn ignition switch to OFF. Is ABSCM&H/U connector inserted into ABSCM until the clamp locks onto it?	Connector is locked securely.	Go to step **2.**	Insert ABSCM&H/U connector into ABSCM&H/U until the clamp locks onto it.
2	**CHECK DIAGNOSIS TERMINAL.** Measure resistance between diagnosis terminals (B81) and chassis ground. ***Terminals*** ***Diagnosis terminal (A) — Chassis ground:*** ***Diagnosis terminal (B) — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair diagnosis terminal harness.
3	**CHECK DIAGNOSIS LINE.** 1) Turn ignition switch to OFF. 2) Connect diagnosis terminal (B81) to diagnosis connector (B82) No. 8. 3) Disconnect connector from ABSCM&H/U. 4) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 4 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **4.**	Repair harness connector between ABSCM&H/U and diagnosis connector.
4	**CHECK GENERATOR.** 1) Start the engine. 2) Idle the engine. 3) Measure voltage between generator and chassis ground. ***Terminal*** ***Generator B terminal (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **5.**	Repair generator. H4 engine model: <Ref. to SC(H4SO)-15, Generator.> H6 engine model: <Ref. to SC(H6DO)-14, Generator.>
5	**CHECK BATTERY TERMINAL.** Turn ignition switch to OFF. Is there poor contact at battery terminal?	There is no poor contact.	Go to step **6.**	Repair battery terminal.
6	**CHECK POWER SUPPLY OF ABSCM.** 1) Disconnect connector from ABSCM&H/U. 2) Start engine. 3) Idle the engine. 4) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 1 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **7.**	Repair ABSCM&H/U power supply circuit.
7	**CHECK WIRING HARNESS.** 1) Disconnect connector (F45) from connector (B62). 2) Turn ignition switch to ON. Does the ABS warning light turn on?	ABS warning light remains off.	Go to step **8.**	Repair front wiring harness.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
8	**CHECK ABSCM&H/U TERMINAL.** 1) Turn ignition switch to OFF. 2) Check for damage at the ABSCM&H/U terminal. Is the any damage on termianl?	There is no damage on terminal.	Go to step **9.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
9	**CHECK ABSCM&H/U.** Measure resistance between ABSCM&H/U terminals. ***Terminal*** ***No. 22 — No. 23:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **10.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
10	**CHECK WIRING HARNESS.** Measure resistance between connector (F45) and chassis ground. ***Connector & terminal*** ***(F45) No. 8 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **11.**	Repair harness.
11	**CHECK WIRING HARNESS.** 1) Connect connector to ABSCM&H/U. 2) Measure resistance between connector (F45) and chassis ground. ***Connector & terminal*** ***(F45) No. 8 — Chassis ground:*** Is the measured value within the specified range?	1 MΩ	Go to step **12.**	Repair harness.
12	**CHECK POOR CONTACT IN ABSCM&H/U CONNECTOR.** Is there poor contact in ABSCM&H/U connector?	There is no poor contact.	Repair connector.	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

MEMO:

Vehicle-id:
SIE-id::B:ABS Warning Light Does Not Go Off.
~

C: DIAGNOSTIC TROUBLE CODE (DTC) DOES NOT APPEAR.

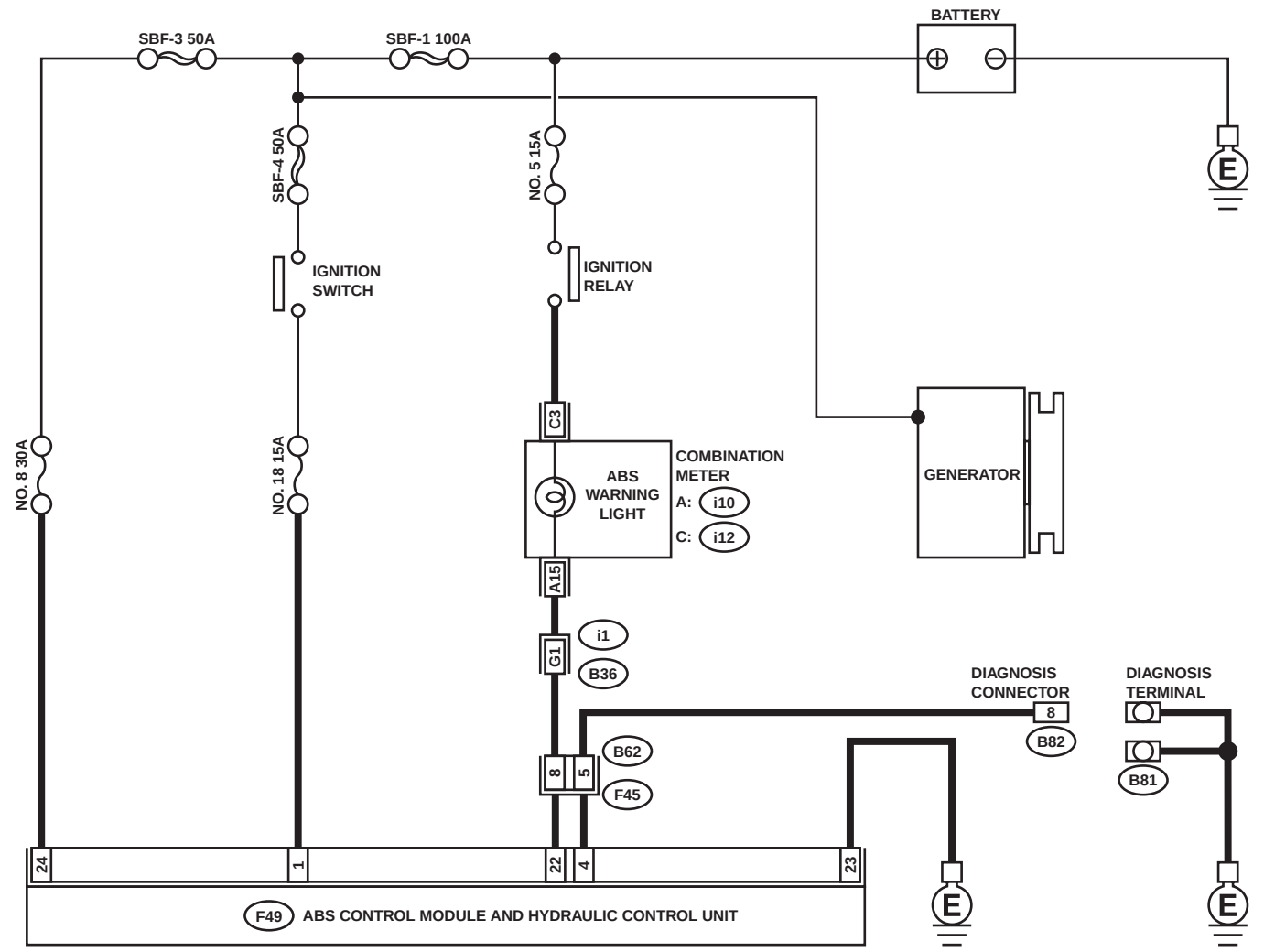
DIAGNOSIS:

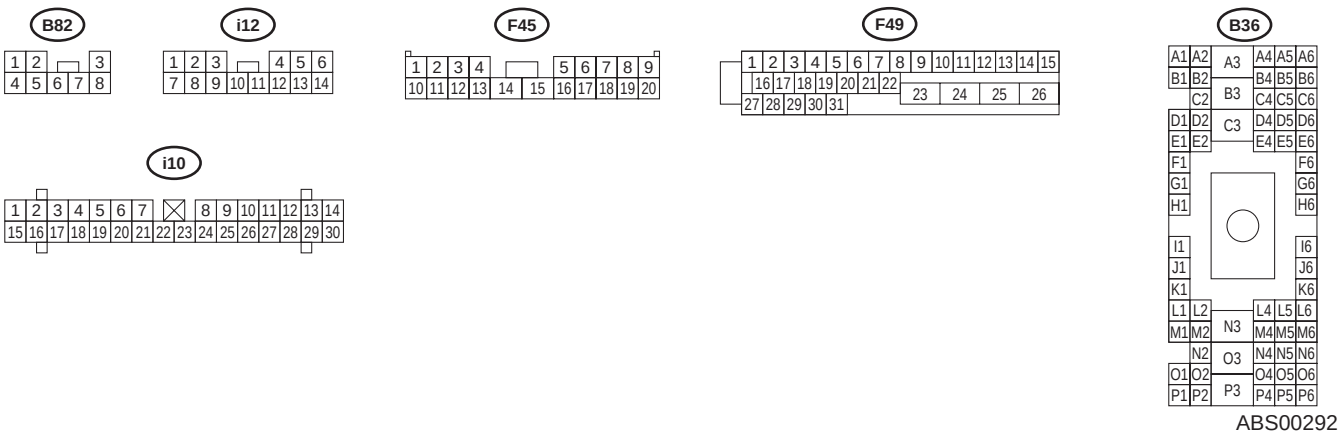
- Diagnosis circuit is open.

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:





ABS00292

	Step	Value	Yes	No
1	**CHECK DIAGNOSIS TERMINAL.** 1) Turn ignition switch to OFF. 2) Measure resistance between diagnosis terminals (B81) and chassis ground. ***Terminals*** ***Diagnosis terminal (A) — Chassis ground:*** ***Diagnosis terminal (B) — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **2.**	Repair diagnosis terminal harness.
2	**CHECK DIAGNOSIS LINE.** 1) Turn ignition switch to OFF. 2) Connect diagnosis terminal (B81) to diagnosis connector (B82) No. 8. 3) Disconnect connector from ABSCM&H/U. 4) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 4 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair harness connector between ABSCM&H/U and diagnosis connector.
3	**CHECK POOR CONTACT IN ABSCM&H/U CONNECTOR.** Is there poor contact in ABSCM&H/U connector?	There is no poor contact.	Repair connector.	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

D: DTC 21 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (FRONT RH)

NOTE:
For the diagnostic procedure, refer to DTC 27. <Ref. to ABS-40, DTC 27 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

E: DTC 23 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (FRONT LH)

NOTE:
For the diagnostic procedure, refer to DTC 27. <Ref. to ABS-40, DTC 27 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

F: DTC 25 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR RH)

NOTE:
For the diagnostic procedure, refer to DTC 27. <Ref. to ABS-40, DTC 27 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

Vehicle-id:
SIE-id::D:DTC 21 Abnormal ABS Sensor (Open Circuit or Input Voltage Too High) (Front RH)
~

MEMO:

Vehicle-id:
SIE-id::F: DTC 25 Abnormal ABS Sensor (Open Circuit or Input Voltage Too High) (Rear RH)
～

G: DTC 27 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR LH)

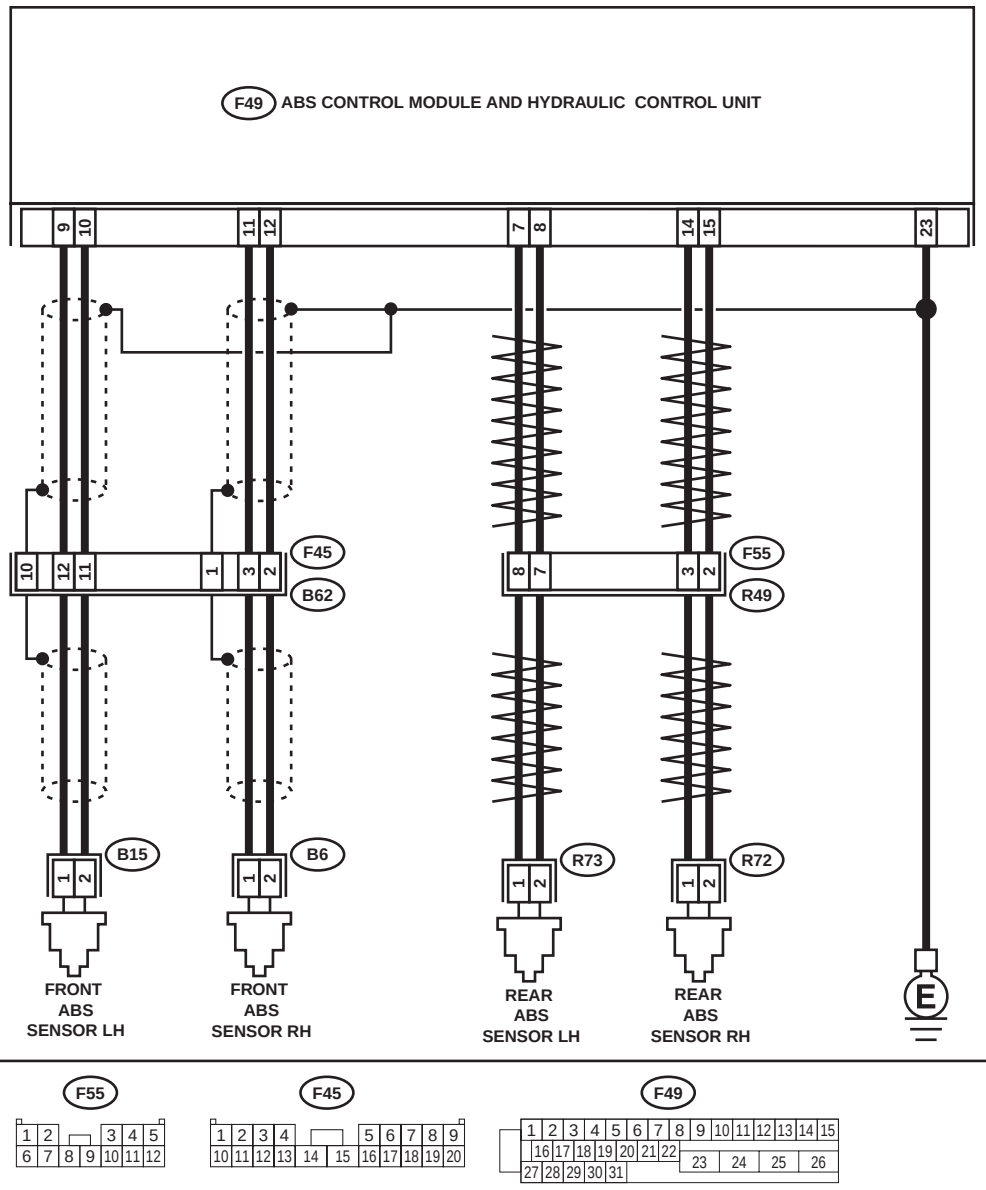
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00293

Vehicle-id:
SIE-id::G:DTC 27 Abnormal ABS Sensor (Open Circuit or Input Voltage Too High) (Rear LH)
～

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**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:*** Is the measured value within the specified range?	1 - 1.5 kΩ	Go to step **2.**	Replace ABS sensor. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.>
2	**CHECK BATTERY SHORT OF ABS SENSOR.** 1) Disconnect connector from ABSCM&H/U. 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 (–):*** Is the measured value less than the specified value?	1 V	Go to step **3.**	Replace ABS sensor. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.>
3	**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 (–):*** Is the measured value less than the specified value?	1 V	Go to step **4.**	Replace ABS sensor. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.>
4	**CHECK HARNESS/CONNECTOR BETWEEN ABSCM&H/U AND ABS SENSOR.** 1) Turn ignition switch to OFF. 2) Connect connector to ABS sensor. 3) Measure resistance between ABSCM&H/U connector terminals. ***Connector & terminal*** ***DTC 21 / (F49) No. 11 — No. 12:*** ***DTC 23 / (F49) No. 9 — No. 10:*** ***DTC 25 / (F49) No. 14 — No. 15:*** ***DTC 27 / (F49) No. 7 — No. 8:*** Is the measured value within the specified range?	1 - 1.5 kΩ	Go to step **5.**	Repair harness/ connector between ABSCM&H/U and ABS sensor.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
5	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***DTC 21 / (F49) No. 11 (+) — Chassis ground (–):*** ***DTC 23 / (F49) No. 9 (+) — Chassis ground (–):*** ***DTC 25 / (F49) No. 14 (+) — Chassis ground (–):*** ***DTC 27 / (F49) No. 7 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **6.**	Repair harness between ABSCM&H/U and ABS sensor.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***DTC 21 / (F49) No. 11 (+) — Chassis ground (–):*** ***DTC 23 / (F49) No. 9 (+) — Chassis ground (–):*** ***DTC 25 / (F49) No. 14 (+) — Chassis ground (–):*** ***DTC 27 / (F49) No. 7 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **7.**	Repair harness between ABSCM&H/U and ABS sensor.
7	**CHECK INSTALLATION OF ABS SENSOR.** Turn ignition switch to OFF. Are the ABS sensor installation bolts tightened with the specified torque?	32 N·m (3.3 kgf-m, 24 ft-lb)	Go to step **8.**	Tighten ABS sensor installation bolts securely.
8	**CHECK ABS SENSOR GAP.** Measure tone wheel to ABS sensor piece gap over entire perimeter of the wheel. Is the measured value within the specified range?	Front wheel 0.3 — 0.8 mm (0.012 — 0.031 in) and Rear wheel 0.44 — 0.94 mm (0.0173 — 0.0370 in)	Go to step **9.**	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.
9	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout. Is the measured value less than the specified value?	0.05 mm (0.0020 in)	Go to step **10.**	Replace tone wheel. Front: <Ref. to ABS-19, Front Tone Wheel.> Rear: <Ref. to ABS-20, Rear Tone Wheel.>

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
10	**CHECK GROUND SHORT OF ABS SENSOR.** 1) Turn ignition switch to ON. 2) 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:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **11.**	Replace ABS sensor and ABSCM&H/U. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.> and <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
11	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Connect connector to ABS sensor. 3) Measure resistance between ABSCM&H/U connector terminal and chassis ground. ***Connector & terminal*** ***DTC 21 / (F49) No. 11 — Chassis ground:*** ***DTC 23 / (F49) No. 9 — Chassis ground:*** ***DTC 25 / (F49) No. 14 — Chassis ground:*** ***DTC 27 / (F49) No. 7 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **12.**	Repair harness between ABSCM&H/U and ABS sensor. Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
12	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between ABSCM&H/U and ABS sensor?	There is no poor contact.	Go to step **13.**	Repair connector.
13	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **14.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
14	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact. NOTE: Check harness and connectors between ABSCM&H/U and ABS sensor.	Proceed with the diagnosis corresponding to the DTC.

H: DTC 22 ABNORMAL ABS SENSOR (FRONT RH)

NOTE:
For the diagnostic procedure, refer to DTC 28. <Ref. to ABS-46, DTC 28 ABNORMAL ABS SENSOR (REAR LH), Diagnostics Chart with Diagnosis Connector.>

I: DTC 24 ABNORMAL ABS SENSOR (FRONT LH)

NOTE:
For the diagnostic procedure, refer to DTC 28. <Ref. to ABS-46, DTC 28 ABNORMAL ABS SENSOR (REAR LH), Diagnostics Chart with Diagnosis Connector.>

J: DTC 26 ABNORMAL ABS SENSOR (REAR RH)

NOTE:
For the diagnostic procedure, refer to DTC 28. <Ref. to ABS-46, DTC 28 ABNORMAL ABS SENSOR (REAR LH), Diagnostics Chart with Diagnosis Connector.>

Vehicle-id:
SIE-id::H:DTC 22 Abnormal ABS Sensor (Front RH)
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

MEMO:

Vehicle-id:
SIE-id::J:DTC 26 Abnormal ABS Sensor (Rear RH)
～

K: DTC 28 ABNORMAL ABS SENSOR (REAR LH)

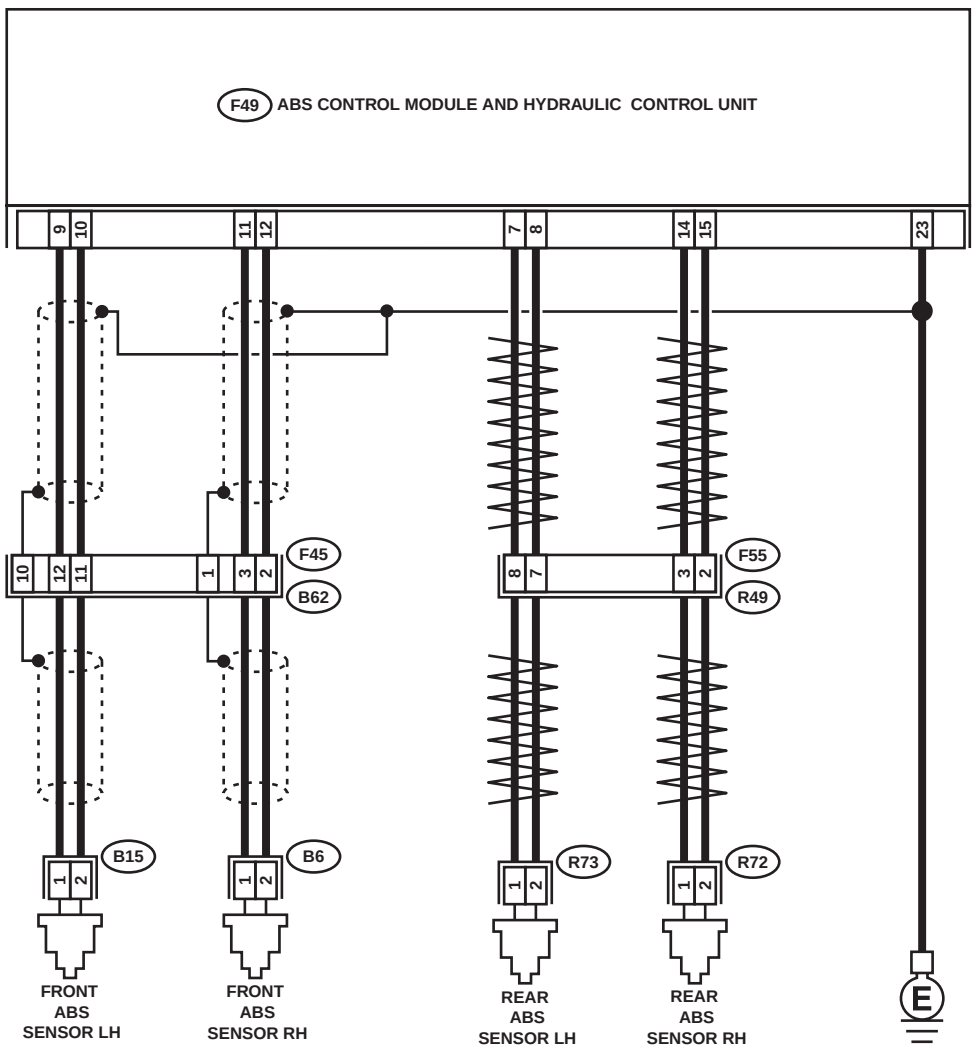
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00293

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK INSTALLATION OF ABS SENSOR.** Turn ignition switch to OFF. Are the ABS sensor installation bolts tightened with the specified torque?	32±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)	Go to step **2.**	Tighten ABS sensor installation bolts securely.
2	**CHECK ABS SENSOR GAP.** Measure tone wheel to ABS sensor piece gap over entire perimeter of the wheel. Is the measured value within the specified range?	Front wheel 0.3 — 0.8 mm (0.012 — 0.031 in) and Rear wheel 0.44 — 0.94 mm (0.0173 — 0.0370 in)	Go to step **3.**	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.
3	**PREPARE OSCILLOSCOPE.** Is an oscilloscope available?	Available.	Go to step **4.**	Go to step **5.**
4	**CHECK ABS SENSOR SIGNAL.** 1) Lift-up the vehicle. 2) Turn ignition switch OFF. 3) Connect the oscilloscope to the connector. 4) Turn ignition switch ON. 5) Rotate wheels and measure voltage at specified frequency. <Ref. to ABS-15, WAVEFORM, Control Module I/O Signal.> NOTE: When this inspection is completed, the ABS control module sometimes stores the trouble code 29. ***Connector & terminal*** ***DTC 22 / (B62) No. 3 (+) — No. 2 (–):*** ***DTC 24 / (B62) No. 12 (+) — No. 11 (–):*** ***DTC 26 / (F55) No. 3 (+) — No. 2 (–):*** ***DTC 28 / (F55) No. 8 (+) — No. 7 (–):*** Is the measured value same as the specified value?	Oscilloscope pattern is as in figure.	Go to step **8.**	Go to step **7.**
5	**CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.** Remove disc rotor or drum from hub in accordance with trouble code. Is the ABS sensor piece or the tone wheel contaminated by mud or other foreign matter?	ABS sensor piece or the tone wheel is not contaminated.	Go to step **6.**	Thoroughly remove mud or other foreign matter.
6	**CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.** Are there broken or damaged in the ABS sensor piece or the tone wheel?	Not broken or damaged.	Go to step **7.**	Replace ABS sensor or tone wheel. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.> and Front: <Ref. to ABS-19, Front Tone Wheel.> Rear: <Ref. to ABS-20, Rear Tone Wheel.>

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout. Is the measured value less than the specified value?	0.05 mm (0.0020 in)	Go to step **8.**	Replace tone wheel. Front: <Ref. to ABS-19, Front Tone Wheel.> Rear: <Ref. to ABS-20, Rear Tone Wheel.>
8	**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:*** Is the measured value within the specified range?	1 - 1.5 kΩ	Go to step **9.**	Replace ABS sensor. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.>
9	**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:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **10.**	Replace ABS sensor. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.>
10	**CHECK HARNESS/CONNECTOR BETWEEN ABSCM&H/U AND ABS SENSOR.** 1) Connect connector to ABS sensor. 2) Disconnect connector from ABSCM&H/U. 3) Measure resistance at ABSCM&H/U connector terminals. ***Connector & terminal*** ***DTC 22 / (F49) No. 11 — No. 12:*** ***DTC 24 / (F49) No. 9 — No. 10:*** ***DTC 26 / (F49) No. 14 — No. 15:*** ***DTC 28 / (F49) No. 7 — No. 8:*** Is the measured value within the specified range?	1 - 1.5 kΩ	Go to step **11.**	Repair harness/ connector between ABSCM&H/U and ABS sensor.
11	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***DTC 22 / (F49) No. 11 — Chassis ground:*** ***DTC 24 / (F49) No. 9 — Chassis ground:*** ***DTC 26 / (F49) No. 14 — Chassis ground:*** ***DTC 28 / (F49) No. 7 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **12.**	Repair harness/ connector between ABSCM&H/U and ABS sensor.

	Step	Value	Yes	No
12	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** Measure resistance between ABSCM&H/U and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — GND:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **13.**	Repair ABSCM&H/U ground harness.
13	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between ABSCM&H/U and ABS sensor?	There is no poor contact.	Go to step **14.**	Repair connector.
14	**CHECK SOURCES OF SIGNAL NOISE.** Is the car telephone or the wireless transmitter properly installed?	Installed properly.	Go to step **15.**	Properly install the car telephone or the wireless transmitter.
15	**CHECK SOURCES OF SIGNAL NOISE.** Are noise sources (such as an antenna) installed near the sensor harness?	Noise source is not installed near the sensor harness.	Go to step **16.**	Install the noise sources apart from the sensor harness.
16	**CHECK SHIELD CIRCUIT.** 1) Connect all connectors. 2) Measure resistance between shield connector and chassis ground. ***Connector & terminal*** ***DTC 22 / (B62) No. 1 — Chassis ground:*** ***DTC 24 / (B62) No. 10 — Chassis ground:*** NOTE: For the **DTC 26** and **28**: Go to step **17.** Is the measured value less than the specified value?	0.5 Ω	Go to step **17.**	Repair shield harness.
17	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **18.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
18	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary noise interference.	Proceed with the diagnosis corresponding to the DTC.

L: DTC 29 ABNORMAL ABS SENSOR SIGNAL (ANY ONE OF FOUR)

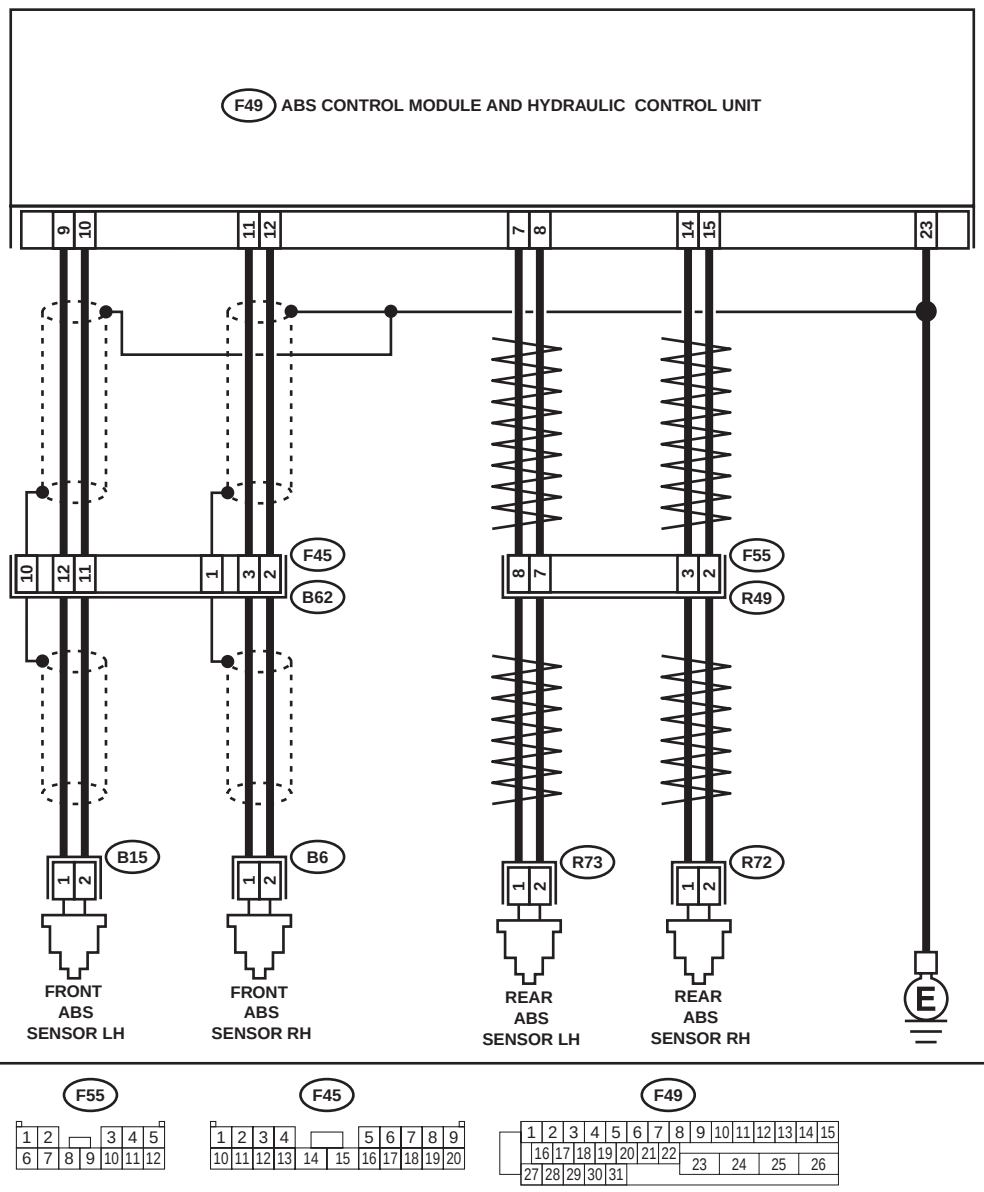
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00293

Vehicle-id:
SIE-id::L:DTC 29 Abnormal ABS Sensor Signal (Any One of Four)
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK IF THE WHEELS HAVE TURNED FREELY.** 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.	Wheels have not turned freely.	Go to step **2.**	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. The ABS is normal. Erase the DTC.
2	**CHECK TIRE SPECIFICATIONS.** Turn ignition switch to OFF. Are the tire specifications correct?	Correct specification.	Go to step **3.**	Replace tire.
3	**CHECK WEAR OF TIRE.** Is the tire worn excessively?	Not worn excessively.	Go to step **4.**	Replace tire.
4	**CHECK TIRE PRESSURE.** Is the tire pressure correct?	Correct tire pressure.	Go to step **5.**	Adjust tire pressure.
5	**CHECK INSTALLATION OF ABS SENSOR.** ***Tightening torque:*** Are the ABS sensor installation bolts tightened with the specified torque?	32±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)	Go to step **6.**	Tighten ABS sensor installation bolts.
6	**CHECK ABS SENSOR GAP.** Measure tone wheel to ABS sensor piece gap over entire perimeter of the wheel. Is the measured value within the specified range?	Front wheel 0.3 — 0.8 mm (0.012 — 0.031 in) and Rear wheel 0.44 — 0.94 mm (0.0173 — 0.0370 in)	Go to step **7.**	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.
7	**PREPARE OSCILLOSCOPE.** Is an oscilloscope available?	Available.	Go to step **8.**	Go to step **9.**
8	**CHECK ABS SENSOR SIGNAL.** 1) Lift up the vehicle. 2) Turn ignition switch OFF. 3) Connect the oscilloscope to the connector. 4) Turn ignition switch ON. 5) Rotate wheels and measure voltage at specified frequency. <Ref. to ABS-15, WAVEFORM, Control Module I/O Signal.> NOTE: When this inspection is completed, the ABSCM&H/U sometimes stores the DTC 29. ***Connector & terminal*** ***(B62) No. 3 (+) — No. 2 (–) (Front RH):*** ***(B62) No. 12 (+) — No. 11 (–) (Front LH):*** ***(F55) No. 3 (+) — No. 2 (–) (Rear RH):*** ***(F55) No. 8 (+) — No. 7 (–) (Rear LH):*** Is the measured value same with the specified value?	Oscilloscope pattern is as shown in figure.	Go to step **12.**	Go to step **9.**

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
9	**CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.** Remove disc rotor from hub. Is the ABS sensor piece or the tone wheel contaminated by dirt or other foreign matter?	ABS sensor piece or the tone wheel is not contaminated.	Go to step **10.**	Thoroughly remove dirt or other foreign matter.
10	**CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.** Are there broken or damaged teeth in the ABS sensor piece or the tone wheel?	Not broken or damaged.	Go to step **11.**	Replace ABS sensor or tone wheel. Front: <Ref. to ABS-12, Front ABS Sensor.> Rear: <Ref. to ABS-15, Rear ABS Sensor.> and Front: <Ref. to ABS-19, Front Tone Wheel.> Rear: <Ref. to ABS-20, Rear Tone Wheel.>
11	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout. Is the measured value less than the specified value?	0.05 mm (0.0020 in)	Go to step **12.**	Replace tone wheel. Front: <Ref. to ABS-19, Front Tone Wheel.> Rear: <Ref. to ABS-20, Rear Tone Wheel.>
12	**CHECK ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **13.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
13	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

M: DTC 31 ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (FRONT RH)

NOTE:
For the diagnostic procedure, refer to DTC 37. <Ref. to ABS-54, DTC 37 ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH), Diagnostics Chart with Diagnosis Connector.>

N: DTC 33 ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (FRONT LH)

NOTE:
For the diagnostic procedure, refer to DTC 37. <Ref. to ABS-54, DTC 37 ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH), Diagnostics Chart with Diagnosis Connector.>

O: DTC 35 ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR RH)

NOTE:
For the diagnostic procedure, refer to DTC 37. <Ref. to ABS-54, DTC 37 ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH), Diagnostics Chart with Diagnosis Connector.>

Vehicle-id:
SIE-id::M:DTC 31 Abnormal Inlet Solenoid Valve Circuit(s) in ABSCM&H/U (Front RH)
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P: DTC 37 ABNORMAL INLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH)

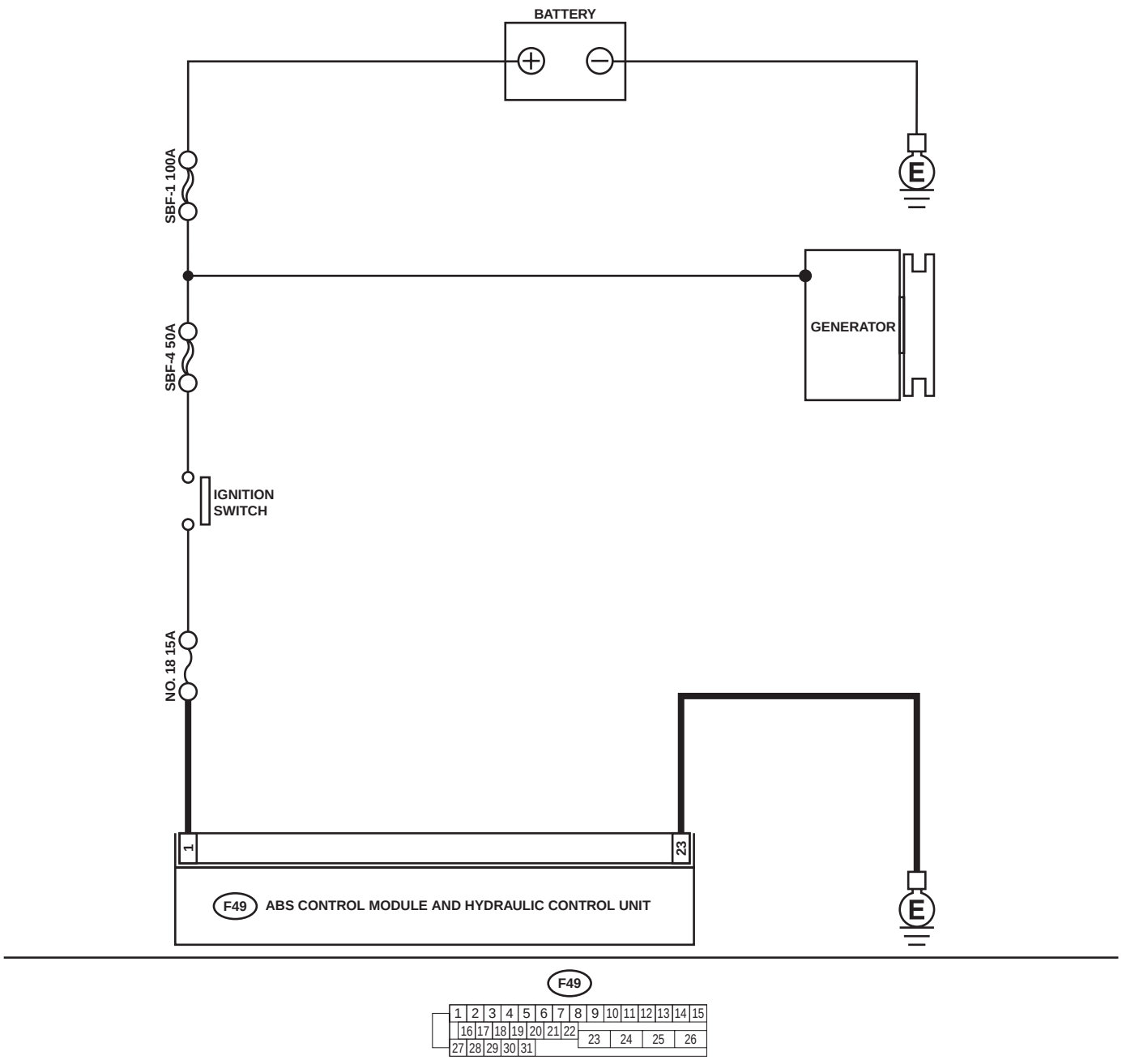
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00294

Vehicle-id:
SIE-id::P:DTC 37 Abnormal Inlet Solenoid Valve Circuit(s) in ABSCM&H/U (Rear LH)
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	Step	Value	Yes	No
1	**CHECK INPUT VOLTAGE OF ABSCM&H/U.** 1) Disconnect connector from ABSCM&H/U. 2) Run the engine at idle. 3) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 1 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **2.**	Repair harness connector between battery, ignition switch and ABSCM&H/U.
2	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair ABSCM&H/U ground harness.
3	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between generator, battery and ABSCM&H/U?	There is no poor contact.	Go to step **4.**	Repair connector.
4	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **5.**	Rece ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
5	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

Vehicle-id:
SIE-id::P:DTC 37 Abnormal Inlet Solenoid Valve Circuit(s) in ABSCM&H/U (Rear LH)
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Q: DTC 32 ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (FRONT RH)

NOTE:
For the diagnostic procedure, refer to DTC 38. <Ref. to ABS-58, DTC 38 ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH), Diagnostics Chart with Diagnosis Connector.>

R: DTC 34 ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (FRONT LH)

NOTE:
For the diagnostic procedure, refer to DTC 38. <Ref. to ABS-58, DTC 38 ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH), Diagnostics Chart with Diagnosis Connector.>

S: DTC 36 ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR RH)

NOTE:
For the diagnostic procedure, refer to DTC 38. <Ref. to ABS-58, DTC 38 ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH), Diagnostics Chart with Diagnosis Connector.>

Vehicle-id:
SIE-id::Q: DTC 32 Abnormal Outlet Solenoid Valve Circuit(s) in ABSCM&H/U (Front RH)
～

MEMO:

Vehicle-id:
SIE-id::S:DTC 36 Abnormal Outlet Solenoid Valve Circuit(s) in ABSCM&H/U (Rear RH)
～

T: DTC 38 ABNORMAL OUTLET SOLENOID VALVE CIRCUIT(S) IN ABSCM&H/U (REAR LH)

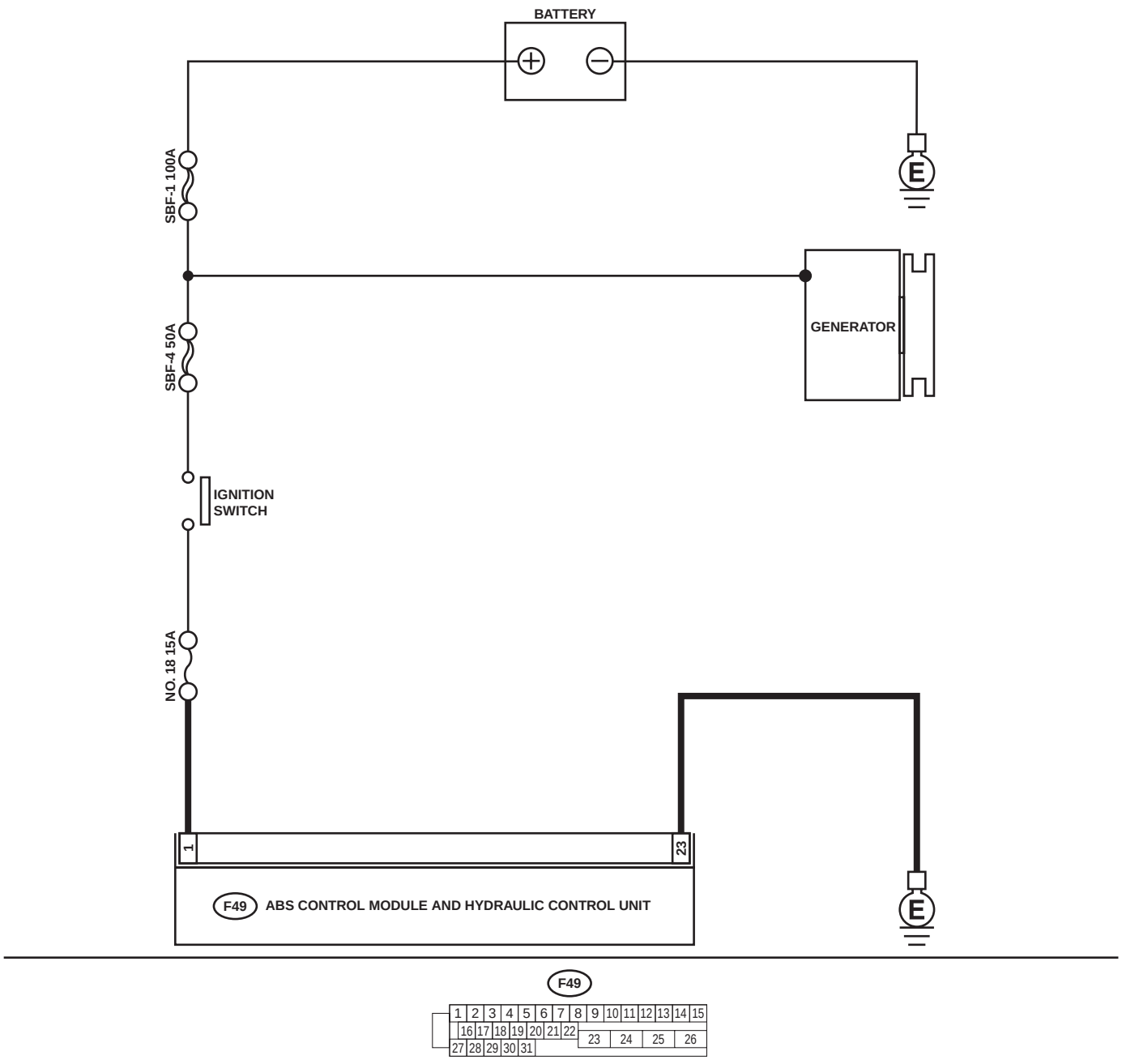
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00294

Vehicle-id:
SIE-id::T: DTC 38 Abnormal Outlet Solenoid Valve Circuit(s) in ABSCM&H/U (Rear LH)
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK INPUT VOLTAGE OF ABSCM&H/U.** 1) Disconnect connector from ABSCM&H/U. 2) Run the engine at idle. 3) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 1 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 and 15 V	Go to step **2.**	Repair harness connector between battery, ignition switch and ABSCM&H/U.
2	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair ABSCM&H/U ground harness.
3	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between generator, battery and ABSCM&H/U?	There is no poor contact.	Go to step **4.**	Repair connector.
4	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **5.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
5	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

Vehicle-id:
SIE-id::T:DTC 38 Abnormal Outlet Solenoid Valve Circuit(s) in ABSCM&H/U (Rear LH)
～

U: DTC 41 ABNORMAL ABS CONTROL MODULE

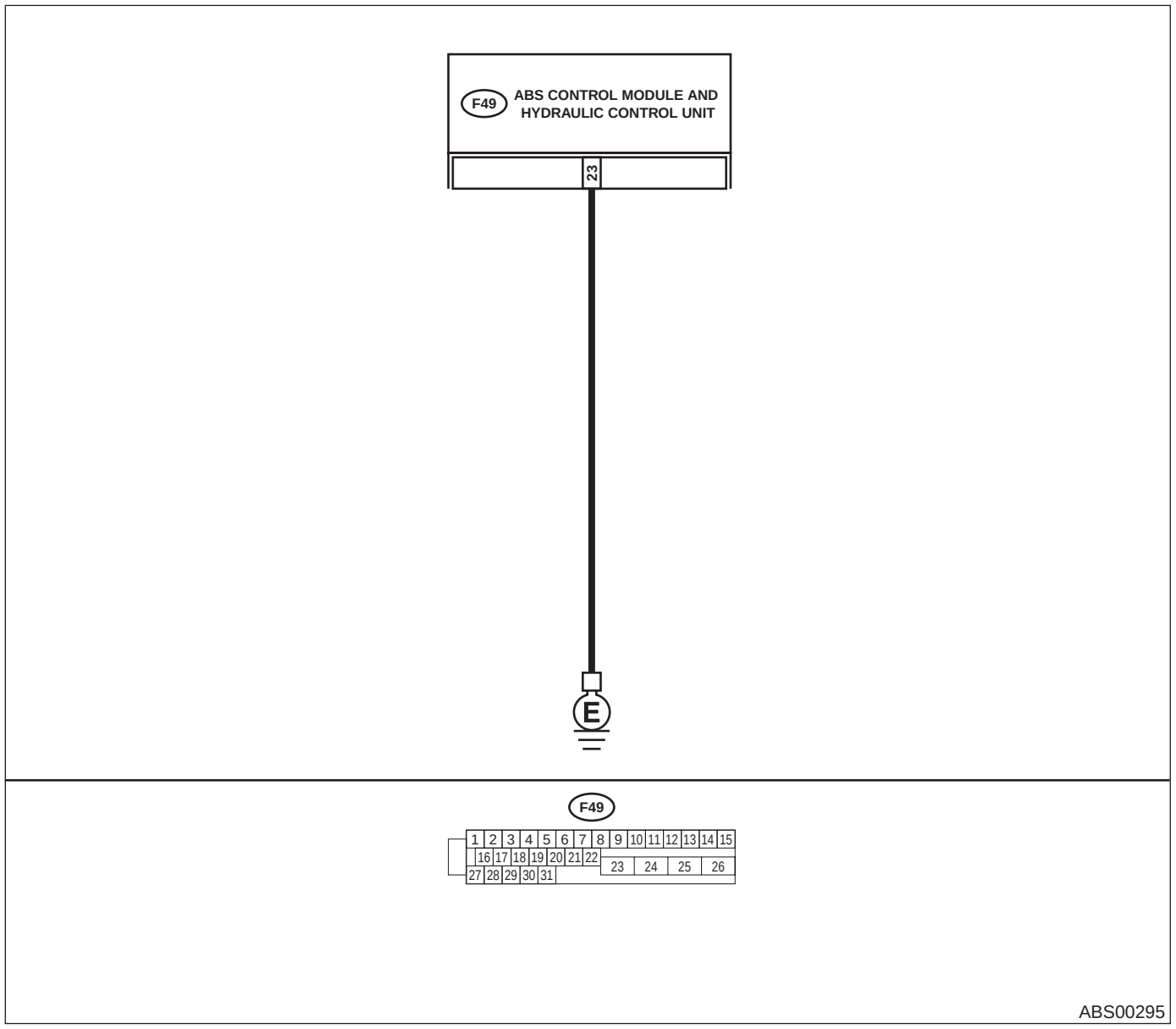
DIAGNOSIS:

- Faulty ABSCM&H/U.

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



Step		Value	Yes	No
1	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABSCM&H/U. 3) Measure resistance between ABSCM&H/U and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **2.**	Repair ABSCM&H/U ground harness.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
2	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between battery, ignition switch and ABSCM&H/U?	There is no poor contact.	Go to step **3.**	Repair connector.
3	**CHECK SOURCES OF SIGNAL NOISE.** Is the car telephone or the wireless transmitter properly installed?	Installed properly	Go to step **4.**	Properly install the car telephone or the wireless transmitter.
4	**CHECK SOURCES OF SIGNAL NOISE.** Are noise sources (such as an antenna) installed near the sensor harness?	Noise source is not installed near the sensor harness.	Go to step **5.**	Install the noise sources apart from the sensor harness.
5	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC as in the current diagnosis still being output?	Same DTC is not indicated.	Go to step **6.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
6	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

V: DTC 42 SOURCE VOLTAGE IS ABNORMAL.

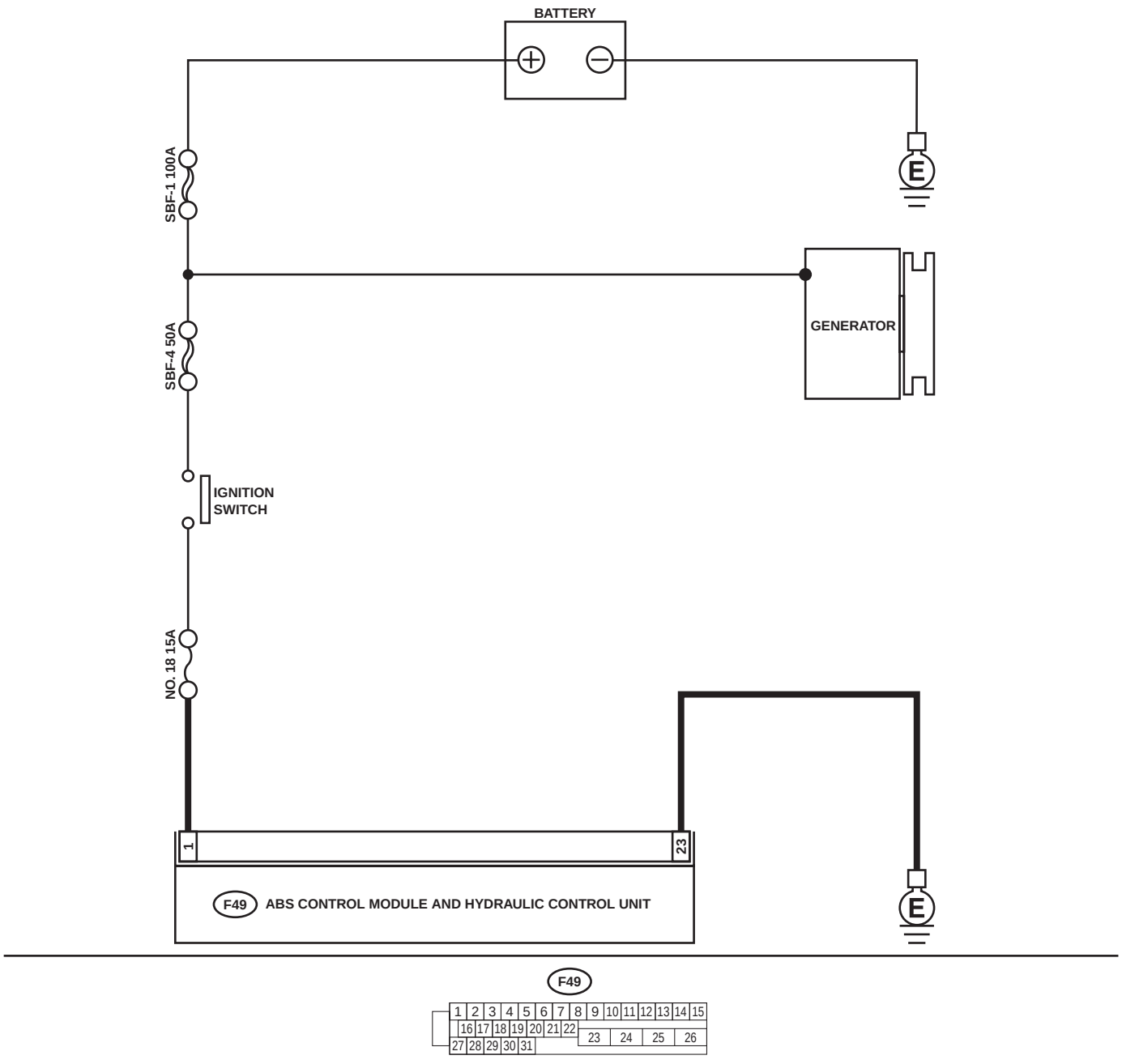
DIAGNOSIS:

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

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00294

Vehicle-id:
SIE-id::V:DTC 42 Source Voltage Is Abnormal.
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**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:*** Is the measured value within the specified range?	10 - 17 V	Go to step **2.**	Repair generator. H4 engine model: <Ref. to SC-<Ref. to SC(H4SO)-15, Generator.>, Generator.> H6 engine model: <Ref. to SC(H6)-<Ref. to SC(H6DO)-14, Generator.>, Generator.>
2	**CHECK BATTERY TERMINAL.** Turn ignition switch to OFF. Are the positive and negative battery terminals tightly clamped?	Terminals are tightened securely.	Go to step **3.**	Tighten the clamp of terminal.
3	**CHECK INPUT VOLTAGE OF ABSCM&H/U.** 1) Disconnect connector from ABSCM&H/U. 2) Run the engine at idle. 3) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 1 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 17 V	Go to step **4.**	Repair harness connector between battery, ignition switch and ABSCM&H/U.
4	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **5.**	Repair ABSCM&H/U ground harness.
5	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between generator, battery and ABSCM&H/U?	There is no poor contact.	Go to step **6.**	Repair connector.
6	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **7.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
7	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

W: DTC 44 A COMBINATION OF AT CONTROL ABNORMAL

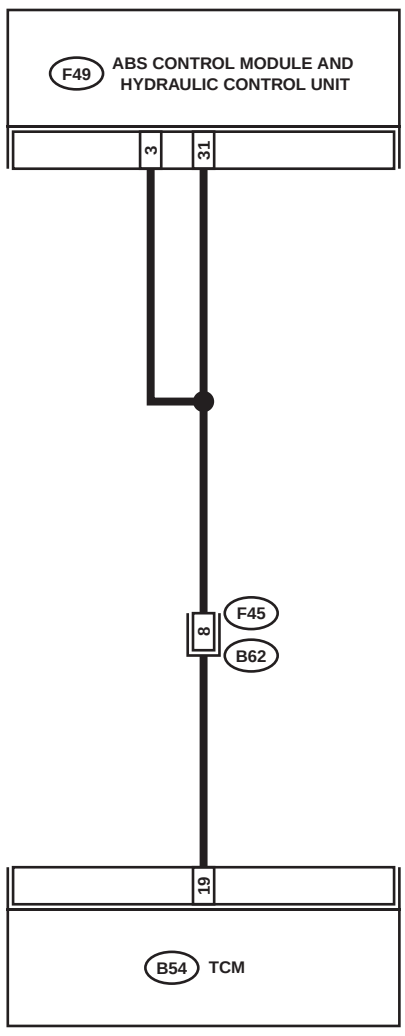
DIAGNOSIS:

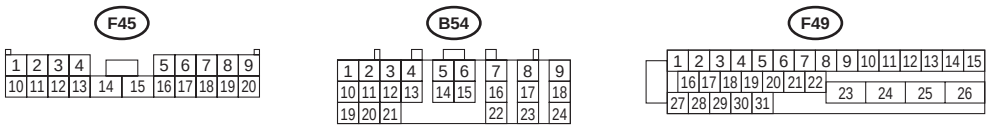
- Combination of AT control faults

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00296

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK SPECIFICATIONS OF THE ABSCM&H/U.** Check specifications of the mark to the ABSCM&H/U. ***CG: AT (Except OUTBACK)*** ***CH: MT (Except OUTBACK)*** ***CI: AT (OUTBACK)*** ***CJ: MT (OUTBACK)*** Do the vehicle specification and the specification of ABSCM&HU match?	Both are the same specifications.	Go to step **2.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
2	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect two connectors from TCM. 3) Disconnect connector from ABSCM&H/U. 4) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 3 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Repair harness between TCM and ABSCM&H/U.
3	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 3 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **4.**	Repair harness between TCM and ABSCM&H/U.
4	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 3 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **5.**	Repair harness between TCM and ABSCM&H/U.
5	**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 terminal and chassis ground. ***Connector & terminal*** ***(B54) No. 19 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **7.**	Go to step **6.**
6	**CHECK AT.** Is the AT functioning normally?	Function of AT is normal.	Replace TCM.	Repair AT.
7	**CHECK OPEN CIRCUIT OF HARNESS.** Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 3 (+) — Chassis ground (–):*** ***(F49) No. 31 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **8.**	Repair harness/ connector between TCM and ABSCM&H/U.
8	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between TCM and ABSCM&H/U?	There is no poor contact.	Go to step **9.**	Repair connector.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

Step		Value	Yes	No
9	**CHECK ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **10.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
10	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

MEMO:

Vehicle-id:
SIE-id::W:DTC 44 A Combination of AT Control Abnormal
～

X: DTC 51 ABNORMAL VALVE RELAY

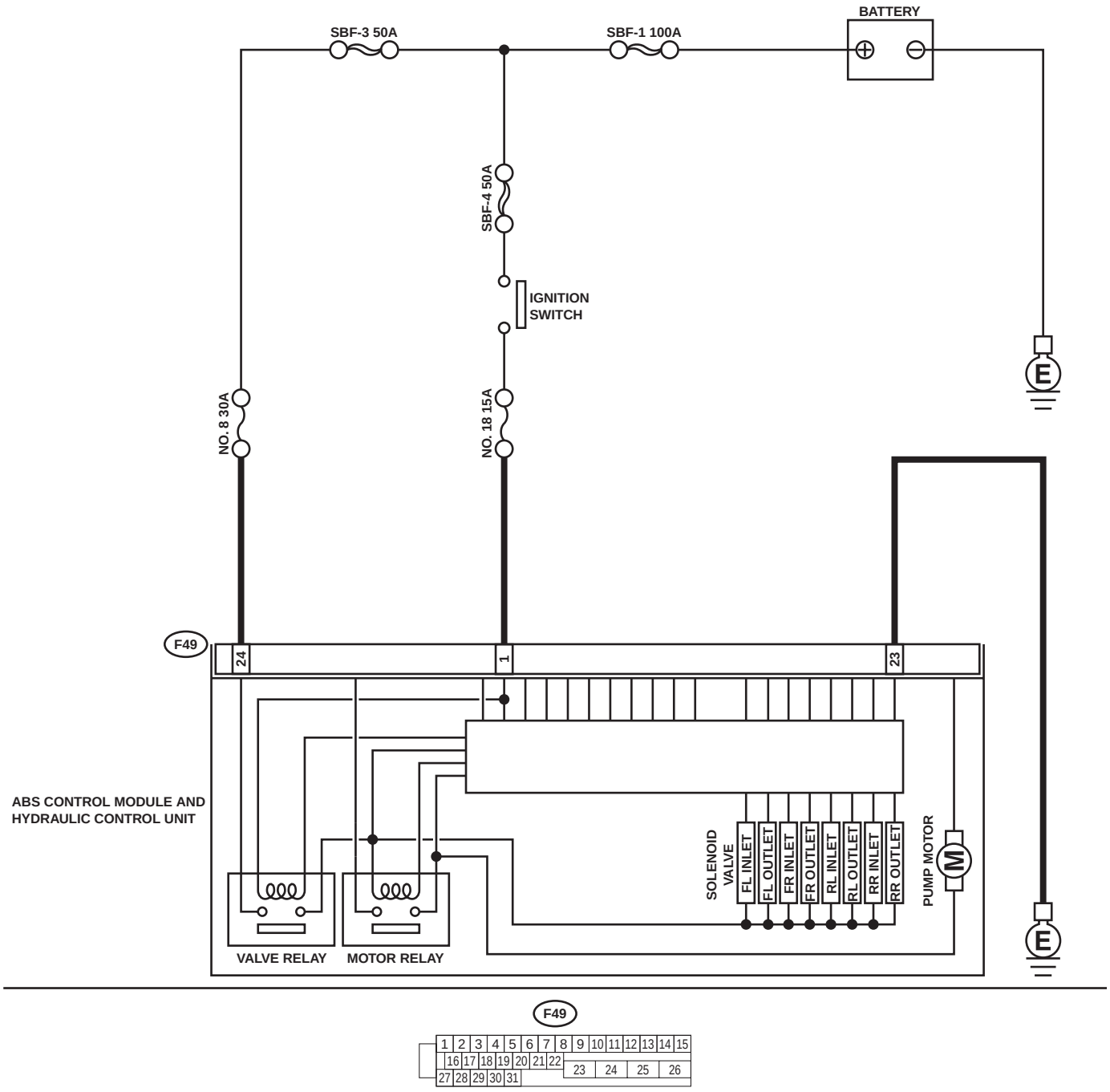
DIAGNOSIS:

- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00297

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK INPUT VOLTAGE OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABSCM&H/U. 3) Run the engine at idle. 4) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 1 (+) — Chassis ground (–):*** ***(F49) No. 24 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **2.**	Repair harness connector between battery and ABSCM&H/U.
2	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair ABSCM&H/U ground harness.
3	**CHECK VALVE RELAY IN ABSCM&H/U.** Measure resistance between ABSCM&H/U and terminals. ***Terminals*** ***No. 23 (+) — No. 24 (–):*** Does the measured value exceed the specified value?	1 MΩ	Go to step **4.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
4	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between generator, battery and ABSCM&H/U?	There is no poor contact.	Go to step **5.**	Repair connector.
5	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **6.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
6	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

Y: DTC 52 ABNORMAL MOTOR AND/OR MOTOR RELAY

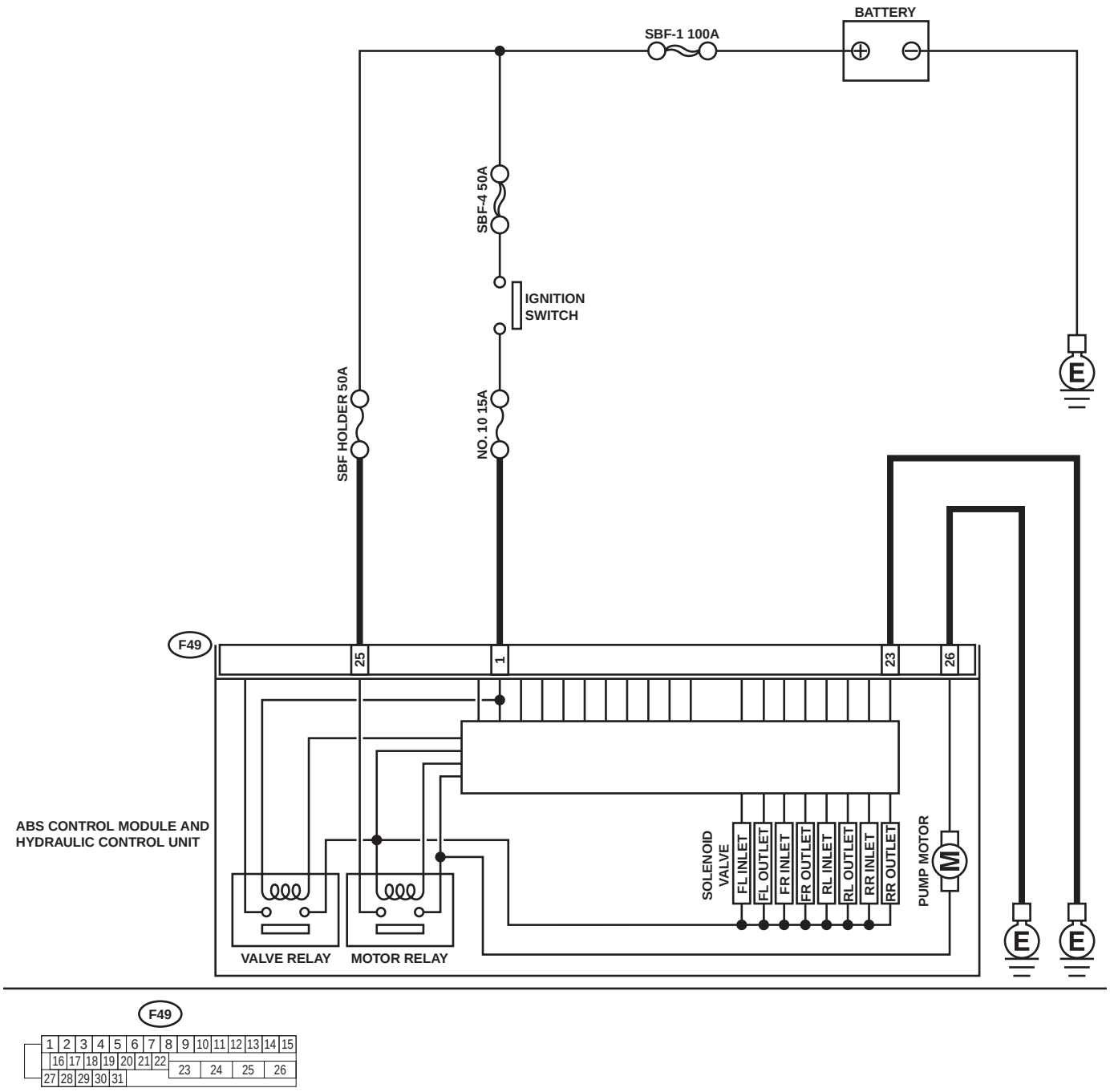
DIAGNOSIS:

- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00298

Vehicle-id:
SIE-id::Y: DTC 52 Abnormal Motor and/or Motor Relay
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK INPUT VOLTAGE OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABSCM&H/U. 3) Turn ignition switch to ON. 4) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 25 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **2.**	Repair harness/ connector between battery and ABSCM&H/U and check fuse SBF-holder.
2	**CHECK GROUND CIRCUIT OF MOTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 26 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair ABSCM&H/U ground harness.
3	**CHECK INPUT VOLTAGE OF ABSCM&H/U.** 1) Run the engine at idle. 2) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 1 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **4.**	Repair harness connector between battery, ignition switch and ABSCM&H/U.
4	**CHECK GROUND CIRCUIT OF ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **5.**	Repair ABSCM&H/U ground harness.
5	**CHECK MOTOR OPERATION.** Operate the sequence control. <Ref. to ABS-9, ABS Sequence Control.> NOTE: Use the diagnosis connector to operate the sequence control. Can motor revolution noise (buzz) be heard when carrying out the sequence control?	Operating sound is produced.	Go to step **6.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
6	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF. Is there poor contact in connector between generator, battery and ABSCM&H/U?	There is no poor contact.	Go to step **7.**	Repair connector.
7	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **8.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
8	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

DTC 52 Abnormal Motor and/or Motor Relay
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Z: DTC 54 ABNORMAL STOP LIGHT SWITCH

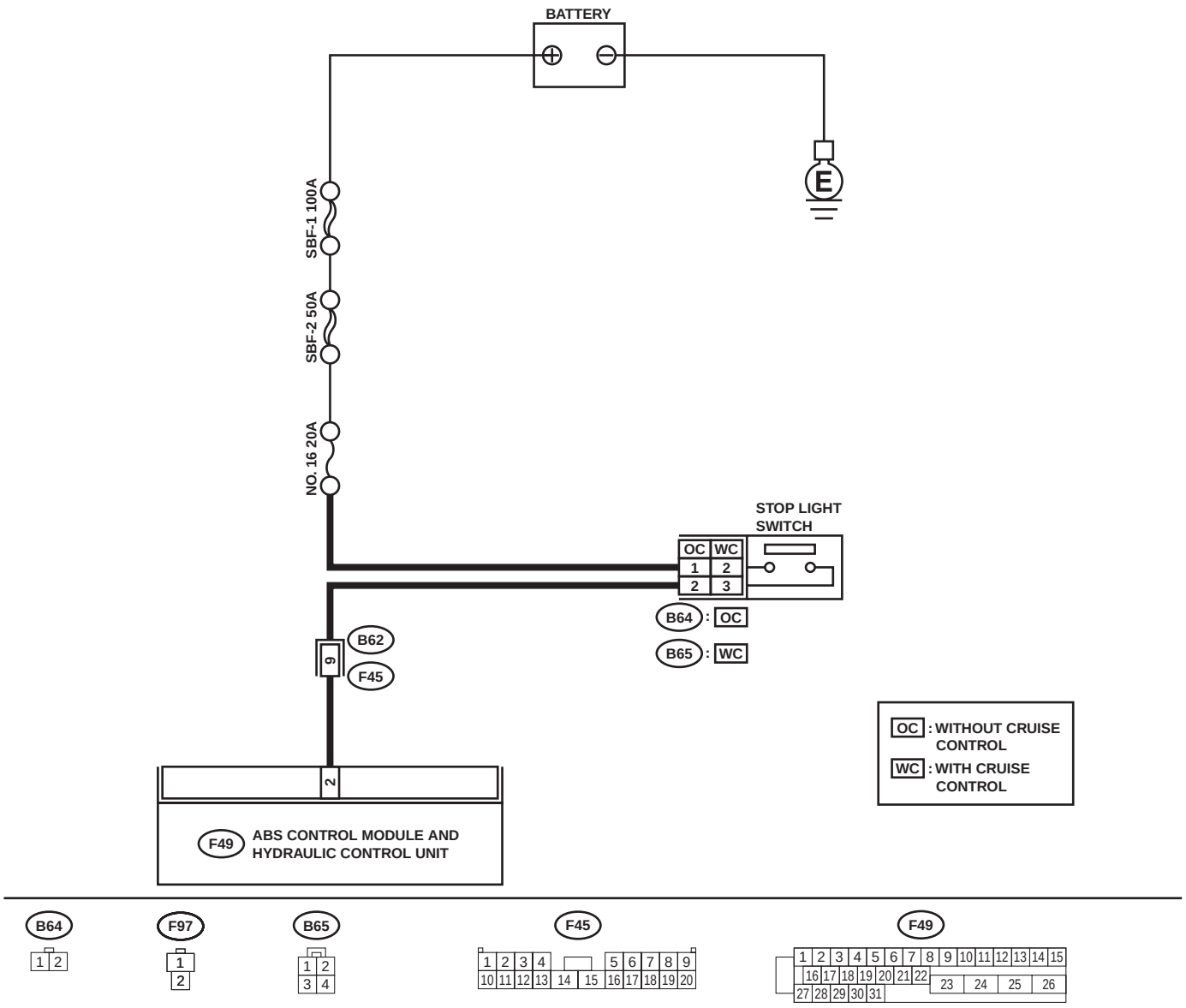
DIAGNOSIS:

- Faulty stop light switch

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00299

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK STOP LIGHTS COME ON.** Depress the brake pedal. Do stop lights come on?	Stop lights come on.	Go to step **2.**	Repair stop lights circuit.
2	**CHECK OPEN CIRCUIT IN HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABSCM&H/U. 3) Depress brake pedal. 4) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 2 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 - 15 V	Go to step **3.**	Repair harness between stop light switch and ABSCM&H/U.
3	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connector between stop light switch and ABSCM&H/U?	There is no poor contact.	Go to step **4.**	Repair connector.
4	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **5.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
5	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.

AA:DTC 56 ABNORMAL G SENSOR OUTPUT VOLTAGE

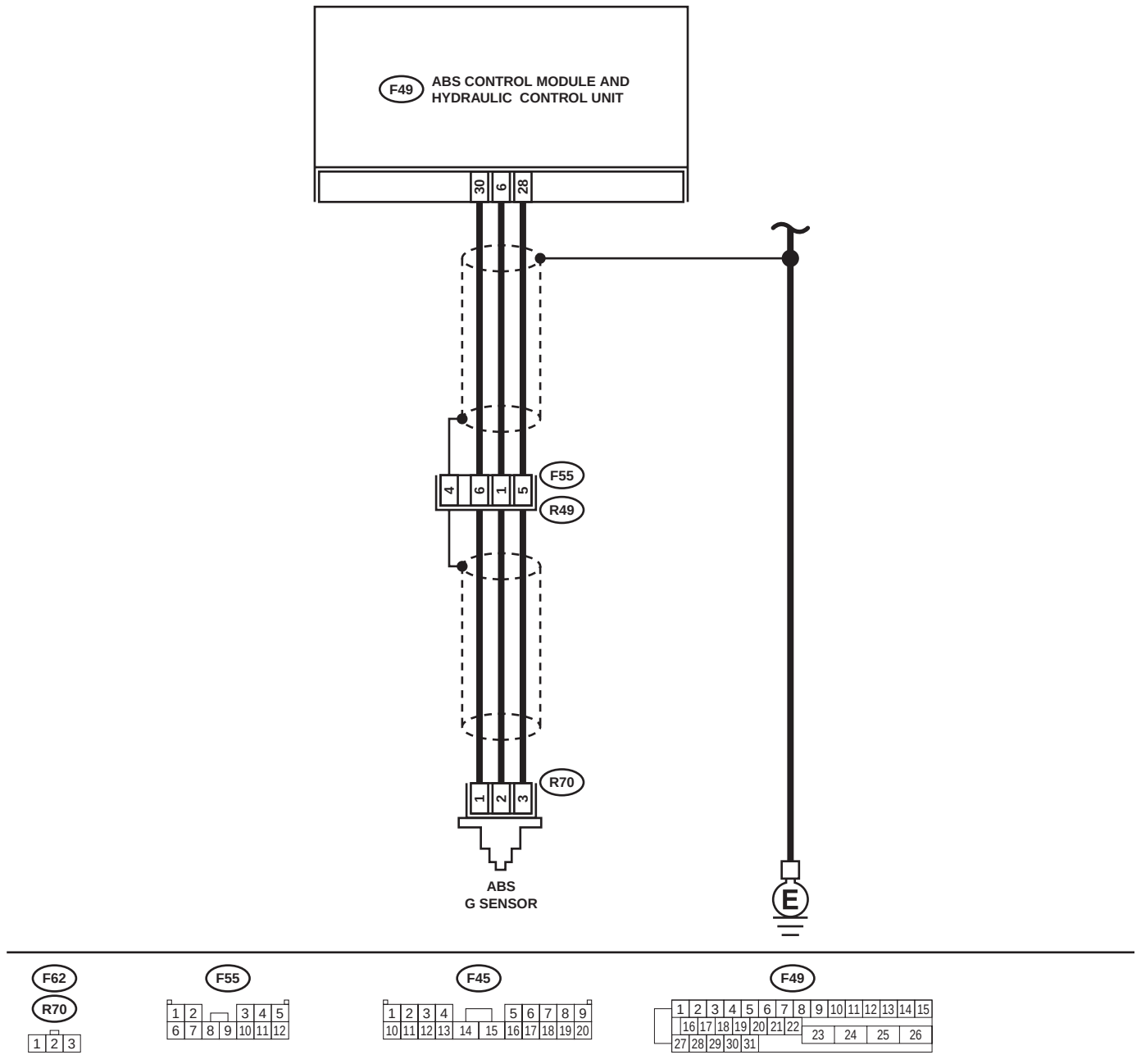
DIAGNOSIS:

- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00300

Vehicle-id:
SIE-id::AA:DTC 56 Abnormal G Sensor Output Voltage
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DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK WHEELS FOR FREE TURNING.** Have the wheels been turned freely such as when the vehicle is lifted up, or operated on a rolling road?	Wheels have not turned freely.	Go to step **2.**	The ABS is normal. Erase the DTC.
2	**CHECK SPECIFICATIONS OF ABSCM&H/U.** Check specifications of the mark to the ABSCM&H/U. ***CG: AT (Except OUTBACK)*** ***CH: MT (Except OUTBACK)*** ***CI: AT (OUTBACK)*** ***CJ: MT (OUTBACK)*** Does the vehicle specification and the ABSCM&H/U specification match?	Both are the same specifications.	Go to step **3.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).> **CAUTION:** **Be sure to turn ignition switch to OFF when removing ABSCM&H/U.**
3	**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 (–):*** Is the measured value within the specified range?	4.75 - 5.25 V	Go to step **4.**	Repair harness/ connector between G sensor and ABSCM&H/U.
4	**CHECK OPEN CIRCUIT IN G SENSOR OUTPUT HARNESS AND GROUND HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABSCM&H/U. 3) Measure resistance between ABSCM&H/U connector terminals. ***Connector & terminal*** ***(F49) No. 6 — No. 28:*** Is the measured value within the specified range?	5.0 - 5.6 kΩ	Go to step **5.**	Repair harness/ connector between G sensor and ABSCM&H/U.
5	**CHECK GROUND SHORT IN G SENSOR OUTPUT HARNESS.** 1) Disconnect connector from G sensor. 2) Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 6 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **6.**	Repair harness between G sensor and ABSCM&H/U.
6	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 6 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **7.**	Repair harness between G sensor and ABSCM&H/U.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 6 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **8.**	Repair harness between G sensor and ABSCM&H/U.
8	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 28 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **9.**	Repair harness between G sensor and ABSCM&H/U. Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
9	**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&H/U. 5) Turn ignition switch to ON. 6) Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):*** Is the measured value within the specified range when G sensor is horizontal?	2.1 - 2.5 V	Go to step **10.**	Replace G sensor. <Ref. to ABS-21, G Sensor.>
10	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):*** Is the measured value within the specified range when G sensor is inclined forward to 90°?	3.7 - 4.1 V	Go to step **11.**	Replace G sensor. <Ref. to ABS-21, G Sensor.>
11	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):*** Is the measured value within the specified range when G sensor is inclined backward to 90°?	0.5 - 0.9 V	Go to step **12.**	Replace G sensor. <Ref. to ABS-21, G Sensor.>
12	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connector between ABSCM&H/U and G sensor?	There is no poor contact.	Go to step **13.**	Repair connector.
13	**CHECK ABSCM&H/U.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the DTC. Is the same DTC still being output?	Same DTC is not indicated.	Go to step **14.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

Step		Value	Yes	No
14	**CHECK ANY OTHER DTC APPEARANCE.** Are other DTC being output?	Other DTC is not indicated.	A temporary poor contact.	Proceed with the diagnosis corresponding to the DTC.