12.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: COMMUNICATION WITH SUBARU SELECT MONITOR IS IMPOSSIBLE

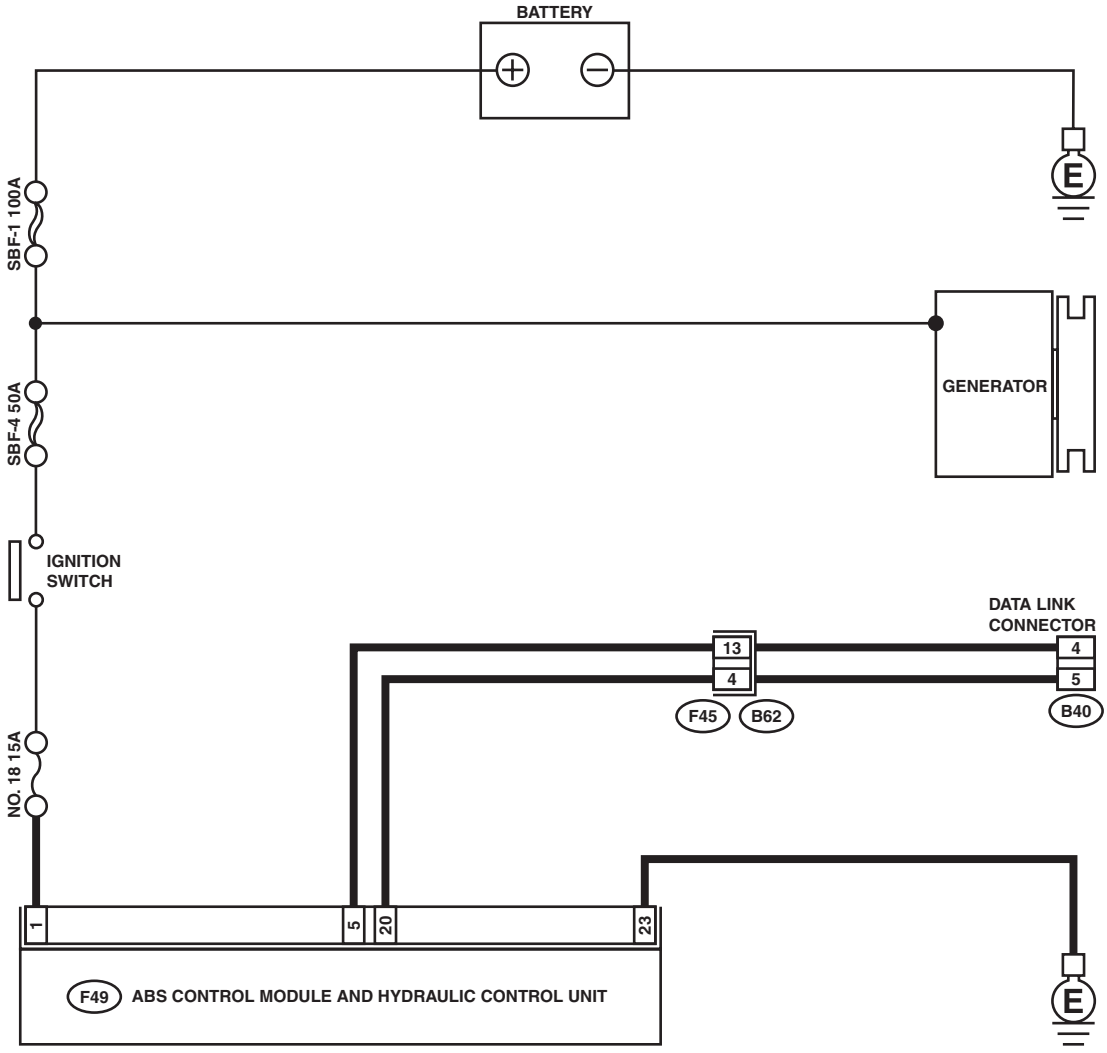
DIAGNOSIS:

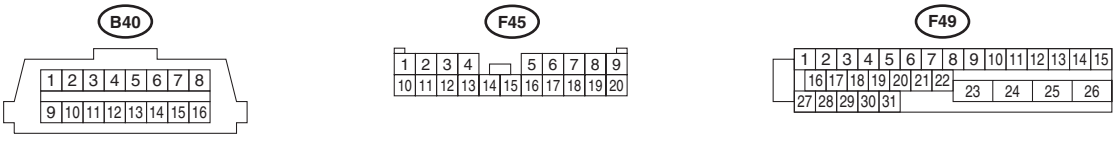
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS cannot communicate with Subaru Select Monitor.

WIRING DIAGRAM:





ABS00631

	Step	Check	Yes	No
1	**CHECK IGNITION SWITCH.**	Is ignition switch to ON?	Go to step **2.**	Turn ignition switch to ON, and select ABS mode using the select monitor.
2	**CHECK BATTERY.** 1) Turn ignition switch to OFF. 2) Measure battery voltage.	Is the measured value more than 11 V?	Go to step **3.**	Charge or replace battery.
3	**CHECK BATTERY TERMINAL.**	Is there poor contact at battery terminal?	Repair or tighten battery terminal.	Go to step **4.**
4	**CHECK COMMUNICATION OF SELECT MONITOR.** 1) Turn ignition switch to ON. 2) Using the select monitor, check whether communication to other systems can be executed normally.	Are the name and year of the system displayed on the select monitor?	Go to step **7.**	Go to step **5.**
5	**CHECK COMMUNICATION OF SELECT MONITOR.** 1) Turn ignition switch to OFF. 2) Disconnect ABSCM&H/U connector. 3) Check whether communication to other systems can be executed normally.	Are the name and year of the system displayed on the select monitor?	Go to step **7.**	Go to step **6.**
6	**CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND DATA LINK CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect ABSCM&H/U, cruise control module and immobilizer control module connectors. 3) Measure resistance between data link connector and chassis ground. ***Connector & terminal*** ***(B40) No. 5 — Chassis ground:*** ***(B40) No. 4 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **7.**	Repair harness and connector between each control module and data link connector.
7	**CHECK OUTPUT SIGNAL FOR ABSCM&H/U.** 1) Turn ignition switch to ON. 2) Measure voltage between data link connector and chassis ground. ***Connector & terminal*** ***(B40) No. 5 (+) — Chassis ground (–):*** ***(B40) No. 4 (+) — Chassis ground (–):***	Is the measured value more than 1 V?	Repair harness and connector between each control module and data link connector.	Go to step **8.**
8	**CHECK HARNESS/CONNECTOR BETWEEN ABSCM&H/U AND DATA LINK CONNECTOR.** Measure resistance between ABSCM&H/U connector and data link connector. ***Connector & terminal*** ***(F49) No. 20 — (B40) No. 5:*** ***(F49) No. 5 — (B40) No. 4:***	Is the measured value less than 0.5 Ω?	Repair harness and connector between ABSCM&H/U and data link connector.	Go to step **9.**
9	**CHECK INSTALLATION OF ABSCM&H/U CONNECTOR.** Turn ignition switch to OFF.	Is ABSCM&H/U connector inserted into ABSCM&H/U until the clamp locks onto it?	Go to step **10.**	Insert ABSCM&H/U connector into ABSCM&H/U.

	Step	Check	Yes	No
10	**CHECK POWER SUPPLY CIRCUIT.** 1) Turn ignition switch to ON (engine OFF). 2) Measure ignition power supply voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 1 (+) — Chassis ground (−):***	Is the measured value within 10 to 15 V?	Go to step **11.**	Repair open circuit in harness between ABSCM&H/U and battery.
11	**CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND CHASSIS GROUND.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABSCM&H/U and transmission. 3) Measure resistance of harness between ABSCM&H/U and chassis ground. ***Connector & terminal*** ***(F49) No. 23 — Chassis ground:***	Is the measured value less than 0.5 Ω?	Go to step **12.**	Repair open circuit in harness between ABSCM&H/U and inhibitor side connector, and poor contact in coupling connector.
12	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in control module power supply, ground line and data link connector?	Repair connector.	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

MEMO:

B: NO TROUBLE CODE

DIAGNOSIS:

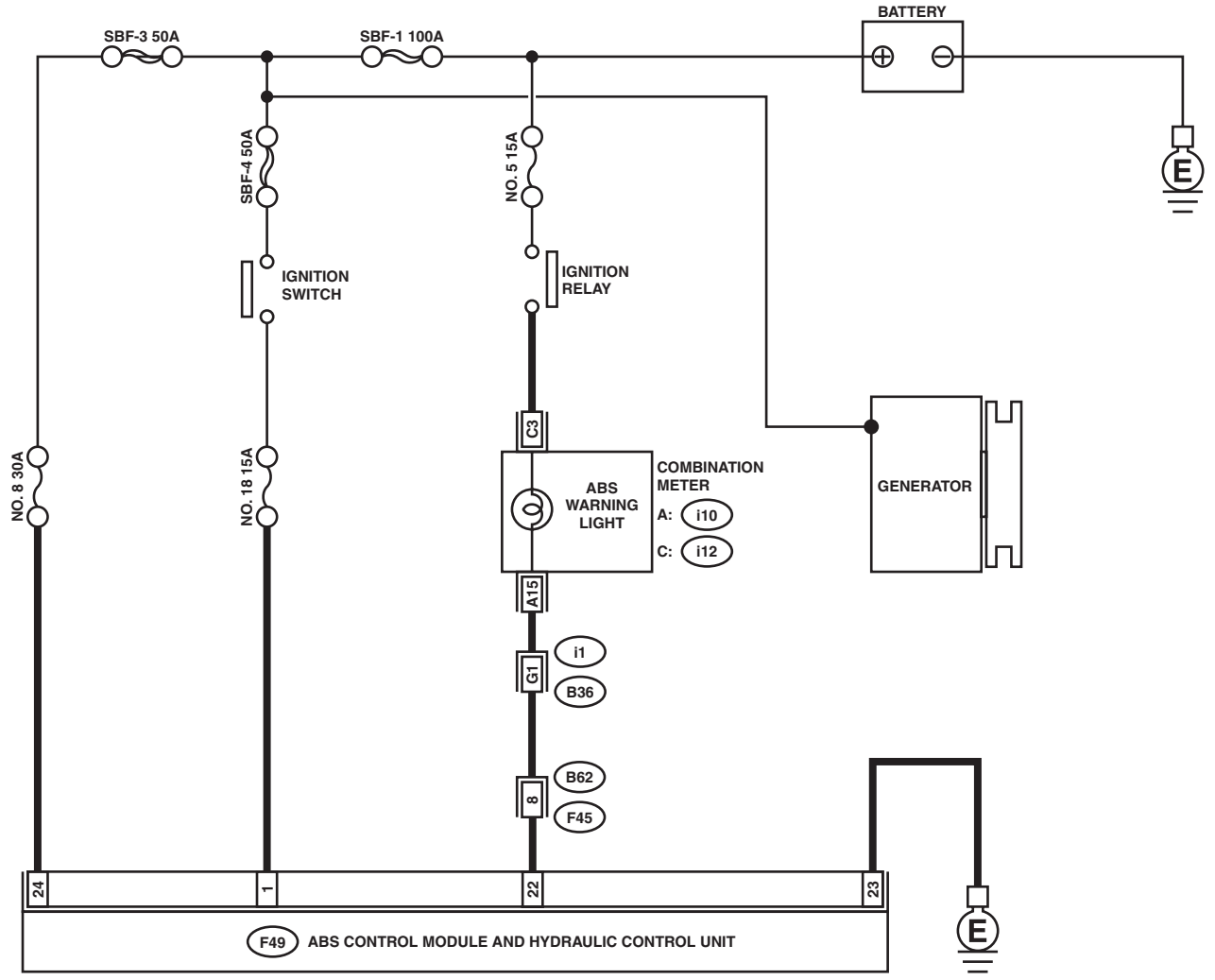
- ABS warning light circuit is shorted.

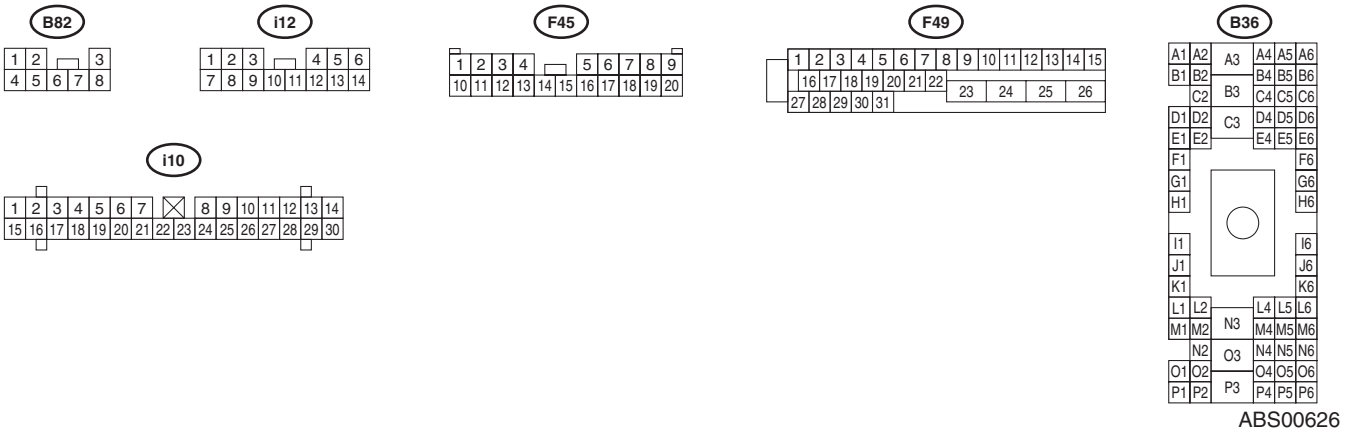
TROUBLE SYMPTOM:

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

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

WIRING DIAGRAM:





ABS00626

	Step	Check	Yes	No
1	**CHECK WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector (F45) from connector (B62). 3) Turn ignition switch to ON.	Does the ABS warning light turn on?	Repair harness.	Go to step **2.**
2	**CHECK PROJECTION AT ABSCM&H/U.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABSCM&H/U. 3) Check for broken projection at the ABSCM&H/U terminal.	Is there any damage on ABSCM&HU terminal?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **3.**
3	**CHECK ABSCM&H/U.** Measure resistance between ABSCM&H/U terminals. ***Terminals*** ***No. 22 — No. 23:***	Is the measured value more than 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 WIRING HARNESS.** Measure resistance between connectors (F45) and (F49). ***Connector & terminal*** ***(F45) No. 8 — (F49) No. 22:***	Is the measured value less than 0.5 Ω?	Go to step **5.**	Repair harness.
5	**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 more than 1 MΩ?	Go to step **6.**	Repair harness.
6	**CHECK POOR CONTACT IN ABSCM&H/U CONNECTOR.**	Is there poor contact in ABSCM&H/U connector?	Repair connector.	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

C: DTC 21 OPEN OR SHORT CIRCUIT IN FRONT RIGHT ABS SENSOR CIRCUIT

NOTE:
For the diagnostic procedure, refer to DTC 27. <Ref. to ABS-42, DTC 27 OPEN OR SHORT CIRCUIT IN REAR LEFT ABS SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

D: DTC 23 OPEN OR SHORT CIRCUIT IN FRONT LEFT ABS SENSOR CIRCUIT

NOTE:
For the diagnostic procedure, refer to DTC 27. <Ref. to ABS-42, DTC 27 OPEN OR SHORT CIRCUIT IN REAR LEFT ABS SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

E: DTC 25 OPEN OR SHORT CIRCUIT IN REAR RIGHT ABS SENSOR CIRCUIT

NOTE:
For the diagnostic procedure, refer to DTC 27. <Ref. to ABS-42, DTC 27 OPEN OR SHORT CIRCUIT IN REAR LEFT ABS SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

F: DTC 27 OPEN OR SHORT CIRCUIT IN REAR LEFT ABS SENSOR CIRCUIT

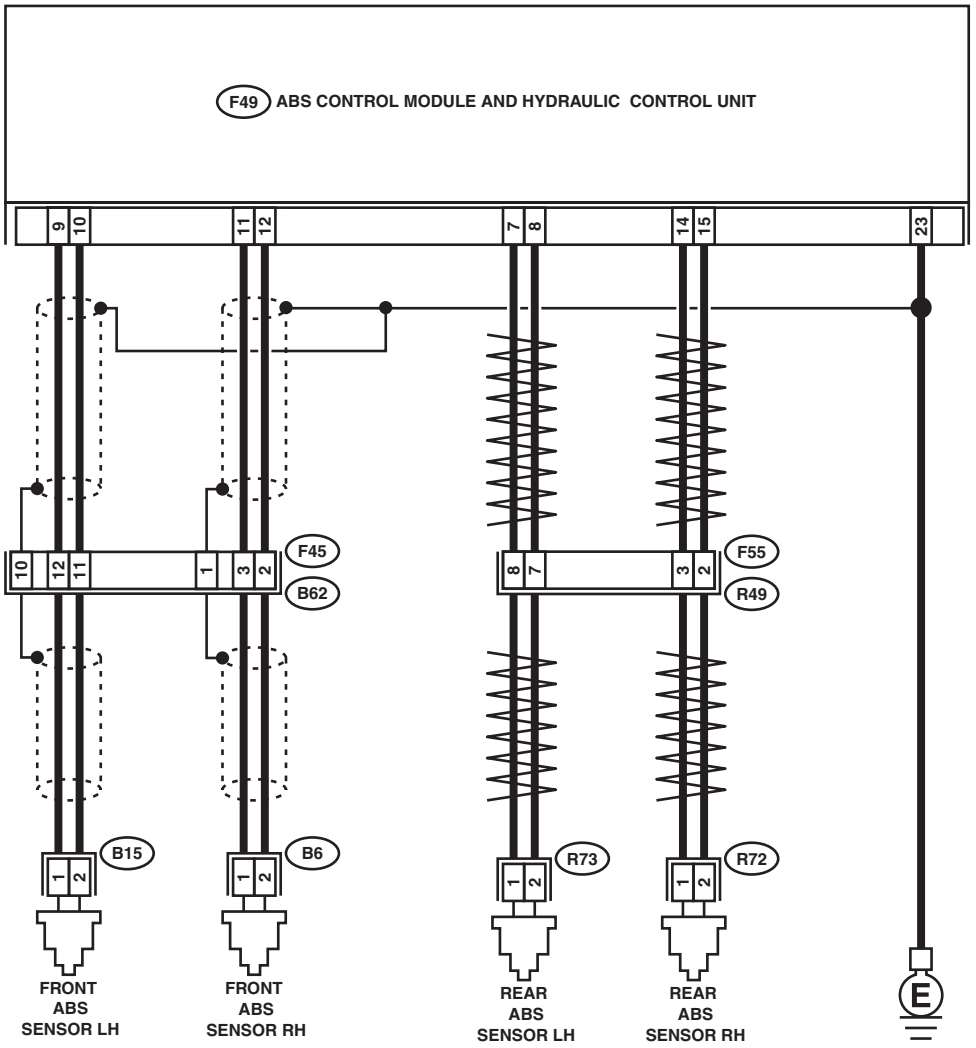
DIAGNOSIS:

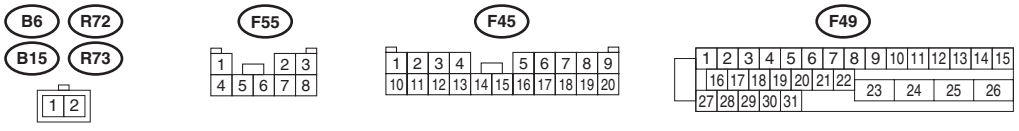
- Faulty ABS sensor (Broken wire, input voltage too high)
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00627

	Step	Check	Yes	No
1	**CHECK OUTPUT OF ABS SENSOR USING SELECT MONITOR.** 1) Select “Current data display & Save” on the select monitor. 2) Read the ABS sensor output corresponding to the faulty system in the select monitor data display mode.	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?	Go to step **2.**	Go to step **8.**
2	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connectors between ABSCM&H/U and ABS sensor?	Repair connector.	Go to step **3.**
3	**CHECK INSTALLATION OF ABS SENSOR.**	Are the ABS sensor installation bolts tightened to 33 N·m (3.4 kgf-m, 25 ft-lb)?	Go to step **4.**	Tighten ABS sensor installation bolts securely.
4	**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?	Is the measured value within the range indicated below? 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 **5.**	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.
5	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout.	Is the measured value less than 0.05 mm (0.0020 in)?	Go to step **6.**	Replace tone wheel. Front: <Ref. to ABS-21, Front Tone Wheel.> Rear: <Ref. to ABS-22, Rear Tone Wheel.>
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **7.**
7	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact. NOTE: Check harness and connectors between ABSCM&H/U and ABS sensor.
8	**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 1 to 1.5 kΩ?	Go to step **9.**	Replace ABS sensor. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.>

	Step	Check	Yes	No
9	**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 1 V?	Go to step **10.**	Replace ABS sensor. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.>
10	**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 1 V?	Go to step **11.**	Replace ABS sensor. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.>
11	**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 1 to 1.5 kΩ?	Go to step **12.**	Repair harness/ connector between ABSCM&H/U and ABS sensor.
12	**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 1 V?	Go to step **13.**	Repair harness between ABSCM&H/U and ABS sensor.

Step		Check	Yes	No
13	**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 1 V?	Go to step **14.**	Repair harness between ABSCM&H/U and ABS sensor.
14	**CHECK INSTALLATION OF ABS SENSOR.**	Are the ABS sensor installation bolts tightened to 33 N·m (3.4 kgf-m, 25 ft-lb)?	Go to step **15.**	Tighten ABS sensor installation bolts securely.
15	**CHECK ABS SENSOR GAP.** Measure tone wheel to ABS sensor piece gap over entire perimeter of the wheel.	Is the measured value within the range indicated below? 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 **16.**	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.
16	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout.	Is the measured value less than 0.05 mm (0.0020 in)?	Go to step **17.**	Replace tone wheel. Front: <Ref. to ABS-21, Front Tone Wheel.> Rear: <Ref. to ABS-22, Rear Tone Wheel.>
17	**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:***	Is the measured value more than 1 MΩ?	Go to step **18.**	Replace ABS sensor and ABSCM only. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.> and <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
18	**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:***	Is the measured value more than 1 MΩ?	Go to step **19.**	Repair harness between ABSCM&H/U and ABS sensor. And replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>

Step		Check	Yes	No
19	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between ABSCM&H/U and ABS sensor?	Repair connector.	Go to step **20.**
20	**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?	Replace ABSCM only.	Go to step **21.**
21	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact. NOTE: Check harness and connectors between ABSCM&H/U and ABS sensor.

G: DTC 22 FRONT RIGHT ABNORMAL ABS SENSOR SIGNAL

NOTE:
For the diagnostic procedure, refer to DTC 28. <Ref. to ABS-48, DTC 28 REAR LEFT ABNORMAL ABS SENSOR SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

H: DTC 24 FRONT LEFT ABNORMAL ABS SENSOR SIGNAL

NOTE:
For the diagnostic procedure, refer to DTC 28. <Ref. to ABS-48, DTC 28 REAR LEFT ABNORMAL ABS SENSOR SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

I: DTC 26 REAR RIGHT ABNORMAL ABS SENSOR SIGNAL

NOTE:
For the diagnostic procedure, refer to DTC 28. <Ref. to ABS-48, DTC 28 REAR LEFT ABNORMAL ABS SENSOR SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

J: DTC 28 REAR LEFT ABNORMAL ABS SENSOR SIGNAL

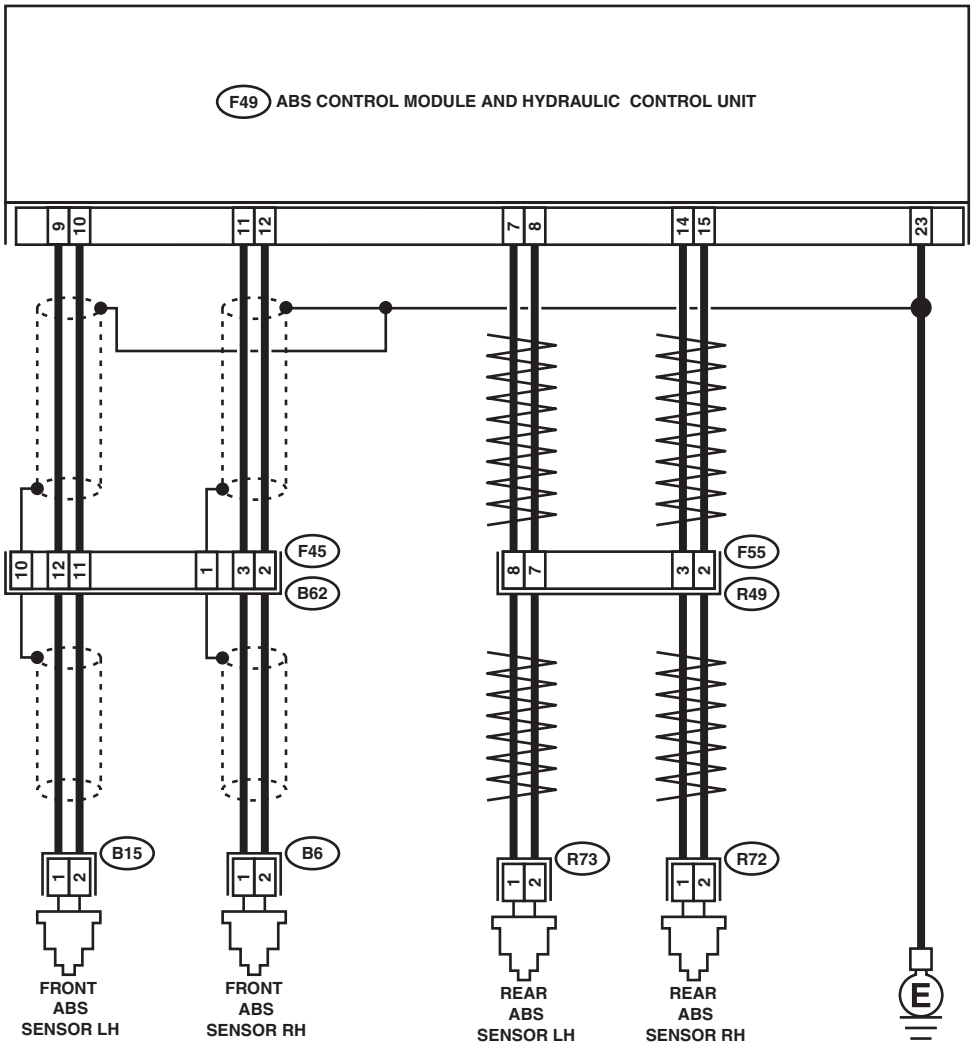
DIAGNOSIS:

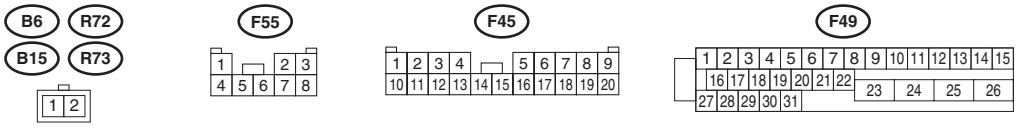
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty harness/connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00627

	Step	Check	Yes	No
1	**CHECK OUTPUT OF ABS SENSOR USING SELECT MONITOR.** 1) Select "Current data display & Save" on the select monitor. 2) Read the ABS sensor output corresponding to the faulty system in the select monitor data display mode.	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?	Go to step **2.**	Go to step **8.**
2	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connectors between ABSCM&H/U and ABS sensor?	Repair connector.	Go to step **3.**
3	**CHECK SOURCES OF SIGNAL NOISE.**	Is the car telephone or the wireless transmitter properly installed?	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?	Install the noise sources apart from the sensor harness.	Go to step **5.**
5	**CHECK SHIELD CIRCUIT.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) 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 **6.**	Is the measured value less than 0.5 Ω?	Go to step **6.**	Repair shield harness.
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **7.**
7	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary noise interference.
8	**CHECK INSTALLATION OF ABS SENSOR.**	Are the ABS sensor installation bolts tightened to 33 N·m (3.4 kgf-m, 25 ft-lb)?	Go to step **9.**	Tighten ABS sensor installation bolts securely.
9	**CHECK ABS SENSOR GAP.** Measure tone wheel to ABS sensor piece gap over entire perimeter of the wheel.	Is the measured value within the range indicated below? 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 **10.**	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.
10	**PREPARE OSCILLOSCOPE.**	Is an oscilloscope available?	Go to step **11.**	Go to step **12.**

	Step	Check	Yes	No
11	**CHECK ABS SENSOR SIGNAL.** 1) Lift-up the vehicle. 2) Turn ignition switch to OFF. 3) Connect the oscilloscope to the connector. 4) Turn ignition switch to 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 trouble code 29. ***Connector & terminal*** ***DTC 22 / (F45) No. 3 (+) — No. 2 (–):*** ***DTC 24 / (F45) No. 12 (+) — No. 11 (–):*** ***DTC 26 / (F55) No. 3 (+) — No. 2 (–):*** ***DTC 28 / (F55) No. 8 (+) — No. 7 (–):***	Is the oscilloscope pattern the same as that shown in the figure?	Go to step **15.**	Go to step **12.**
12	**CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.** Remove disc rotor from hub in accordance with diagnostic trouble code.	Is the ABS sensor piece or the tone wheel contaminated by mud or other foreign matter?	Thoroughly remove dirt or other foreign matter.	Go to step **13.**
13	**CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.**	Are there broken or damaged in the ABS sensor piece or the tone wheel?	Replace ABS sensor or tone wheel. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.> and Front: <Ref. to ABS-21, Front Tone Wheel.> Rear: <Ref. to ABS-22, Rear Tone Wheel.>	Go to step **14.**
14	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout.	Is the measured value less than 0.05 mm (0.0020 in)?	Go to step **15.**	Replace tone wheel. Front: <Ref. to ABS-21, Front Tone Wheel.> Rear: <Ref. to ABS-22, Rear Tone Wheel.>
15	**CHECK RESISTANCE OF ABS SENSOR.** 1) Turn ignition switch to 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 1 to 1.5 kΩ?	Go to step **16.**	Replace ABS sensor. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.>
16	**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:***	Is the measured value more than 1 MΩ?	Go to step **17.**	Replace ABS sensor. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.>

	Step	Check	Yes	No
17	**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 1 to 1.5 kΩ?	Go to step **18.**	Repair harness/ connector between ABSCM&H/U and ABS sensor.
18	**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:***	Is the measured value more than 1 MΩ?	Go to step **19.**	Repair harness/ connector between ABSCM&H/U and ABS sensor.
19	**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 0.5 Ω?	Go to step **20.**	Repair ABSCM&H/U ground harness.
20	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between ABSCM&H/U and ABS sensor?	Repair connector.	Go to step **21.**
21	**CHECK SOURCES OF SIGNAL NOISE.**	Is the car telephone or the wireless transmitter properly installed?	Go to step **22.**	Properly install the car telephone or the wireless transmitter.
22	**CHECK SOURCES OF SIGNAL NOISE.**	Are noise sources (such as an antenna) installed near the sensor harness?	Install the noise sources apart from the sensor harness.	Go to step **23.**
23	**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 **24.**	Is the measured value less than 0.5 Ω?	Go to step **24.**	Repair shield harness.
24	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **25.**

Step		Check	Yes	No
25	CHECK ANY OTHER DTC APPEARANCE.	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary noise interference.

MEMO:

K: DTC 29 ABNORMAL ABS SENSOR SIGNAL ON ANY ONE OF FOUR SENSOR

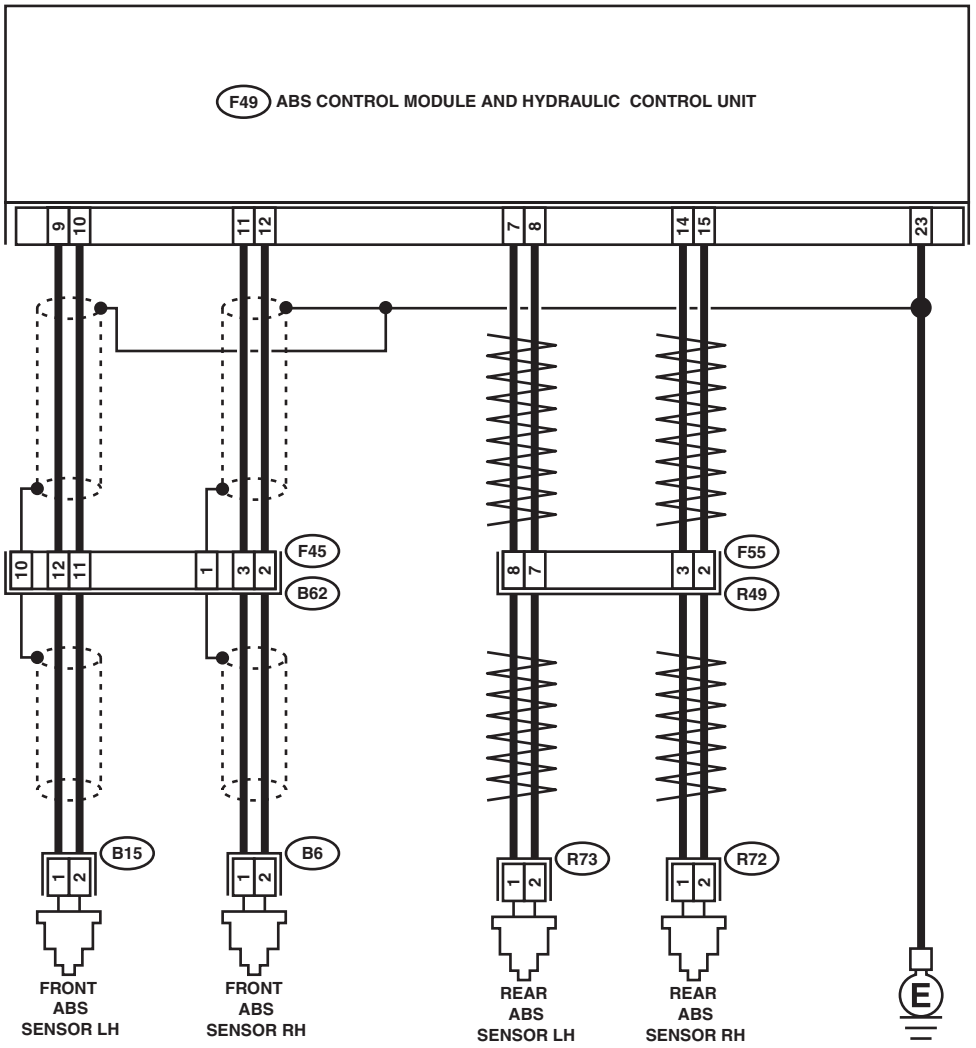
DIAGNOSIS:

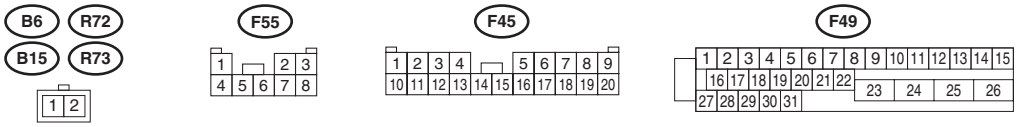
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty tone wheel
- Wheels turning freely for a long time

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00627

	Step	Check	Yes	No
1	**CHECK WHEELS FOR FREE TURNING.** 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.	Have wheels turned freely?	The ABS is normal. Erase the diagnostic 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.	Go to step **2.**
2	**CHECK TIRE SPECIFICATIONS.** Turn ignition switch to OFF.	Are the tire specifications correct?	Go to step **3.**	Replace tire.
3	**CHECK WEAR OF TIRE.**	Is the tire worn excessively?	Replace tire.	Go to step **4.**
4	**CHECK TIRE PRESSURE.**	Is the tire pressure correct?	Go to step **5.**	Adjust tire pressure.
5	**CHECK INSTALLATION OF ABS SENSOR.**	Are the ABS sensor installation bolts tightened to 33 N·m (3.4 kgf-m, 25 ft-lb)?	Go to step **6.**	Tighten ABS sensor installation bolts securely.
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 range indicated below? 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?	Go to step **8.**	Go to step **9.**
8	**CHECK ABS SENSOR SIGNAL.** 1) Lift up the vehicle. 2) Turn ignition switch to OFF. 3) Connect the oscilloscope to the connector (B62) in accordance with trouble code. 4) Turn ignition switch to 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*** ***(F45) No. 3 (+) — No. 2 (–) (Front RH):*** ***(F45) No. 12 (+) — No. 11 (–) (Front LH):*** ***(F55) No. 3 (+) — No. 2 (–) (Rear RH):*** ***(F55) No. 8 (+) — No. 7 (–) (Rear LH):***	Is the oscilloscope pattern the same as that shown in the figure?	Go to step **12.**	Go to step **9.**
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 mud or other foreign matter?	Thoroughly remove mud or other foreign matter.	Go to step **10.**

	Step	Check	Yes	No
10	**CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.**	Are there broken or damaged teeth in the ABS sensor piece or the tone wheel?	Replace ABS sensor or tone wheel. Front: <Ref. to ABS-14, Front ABS Sensor.> Rear: <Ref. to ABS-17, Rear ABS Sensor.> and Front: <Ref. to ABS-21, Front Tone Wheel.> Rear: <Ref. to ABS-22, Rear Tone Wheel.>	Go to step **11.**
11	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout.	Is the measured value less than 0.05 mm (0.0020 in)?	Go to step **12.**	Replace tone wheel. Front: <Ref. to ABS-21, Front Tone Wheel.> Rear: <Ref. to ABS-22, 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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **13.**
13	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

L: DTC 31 FRONT RIGHT INLET VALVE MALFUNCTION

NOTE:
For the diagnostic procedure, refer to DTC 37. <Ref. to ABS-58, DTC 37 REAR LEFT INLET VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

M: DTC 33 FRONT LEFT INLET VALVE MALFUNCTION

NOTE:
For the diagnostic procedure, refer to DTC 37. <Ref. to ABS-58, DTC 37 REAR LEFT INLET VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

N: DTC 35 REAR RIGHT INLET VALVE MALFUNCTION

NOTE:
For the diagnostic procedure, refer to DTC 37. <Ref. to ABS-58, DTC 37 REAR LEFT INLET VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

O: DTC 37 REAR LEFT INLET VALVE MALFUNCTION

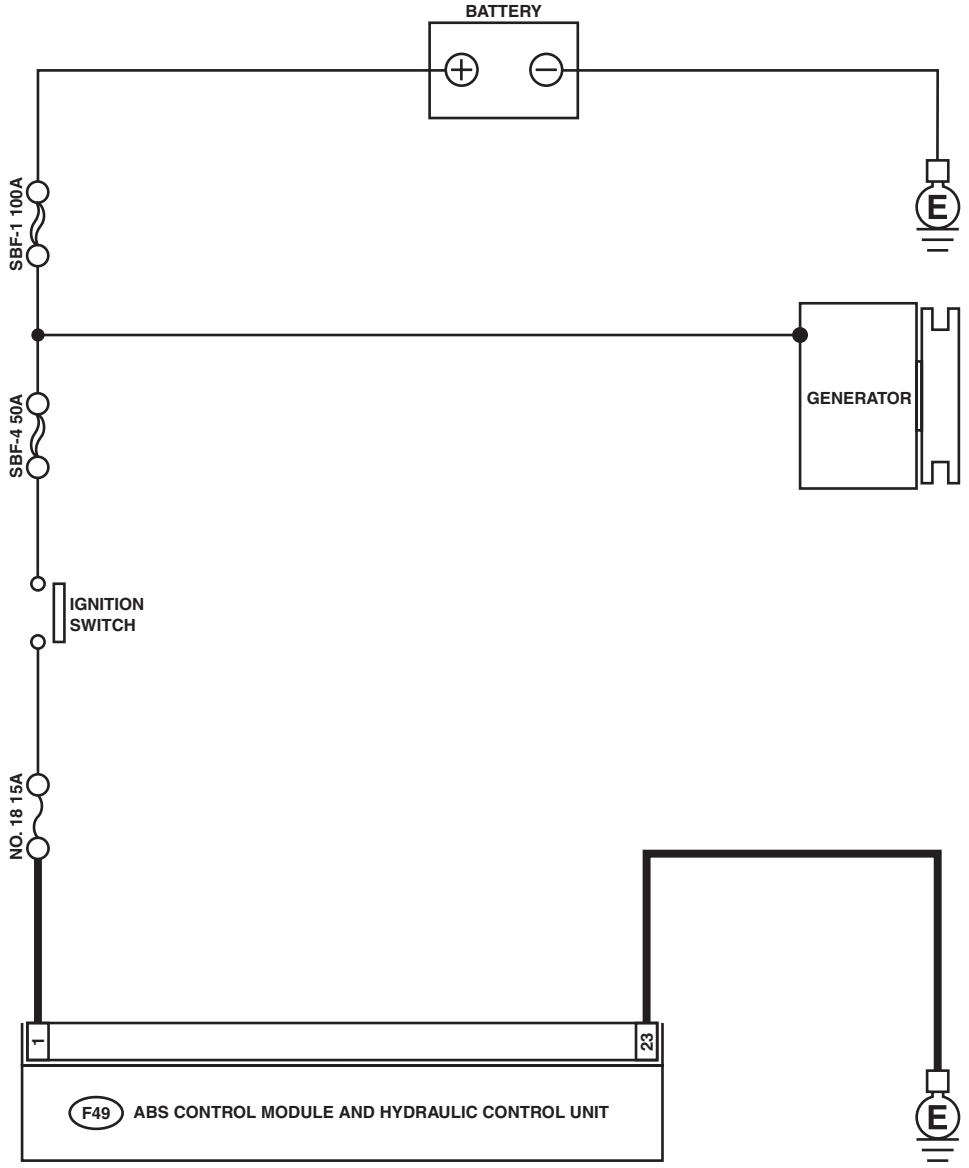
DIAGNOSIS:

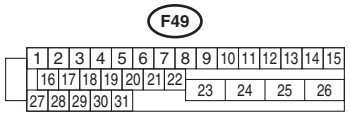
- Faulty harness/connector
- Faulty inlet solenoid valve

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00294

	Step	Check	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 (−):***	Is the measured value within 10 to 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 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?	Repair connector.	Go to step **4.**
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?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **5.**
5	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

P: DTC 32 FRONT RIGHT OUTLET VALVE MALFUNCTION

NOTE:
For the diagnostic procedure, refer to DTC 38. <Ref. to ABS-62, DTC 38 REAR LEFT OUTLET VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Q: DTC 34 FRONT LEFT OUTLET VALVE MALFUNCTION

NOTE:
For the diagnostic procedure, refer to DTC 38. <Ref. to ABS-62, DTC 38 REAR LEFT OUTLET VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

R: DTC 36 REAR RIGHT OUTLET VALVE MALFUNCTION

NOTE:
For the diagnostic procedure, refer to DTC 38. <Ref. to ABS-62, DTC 38 REAR LEFT OUTLET VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

MEMO:

S: DTC 38 REAR LEFT OUTLET VALVE MALFUNCTION

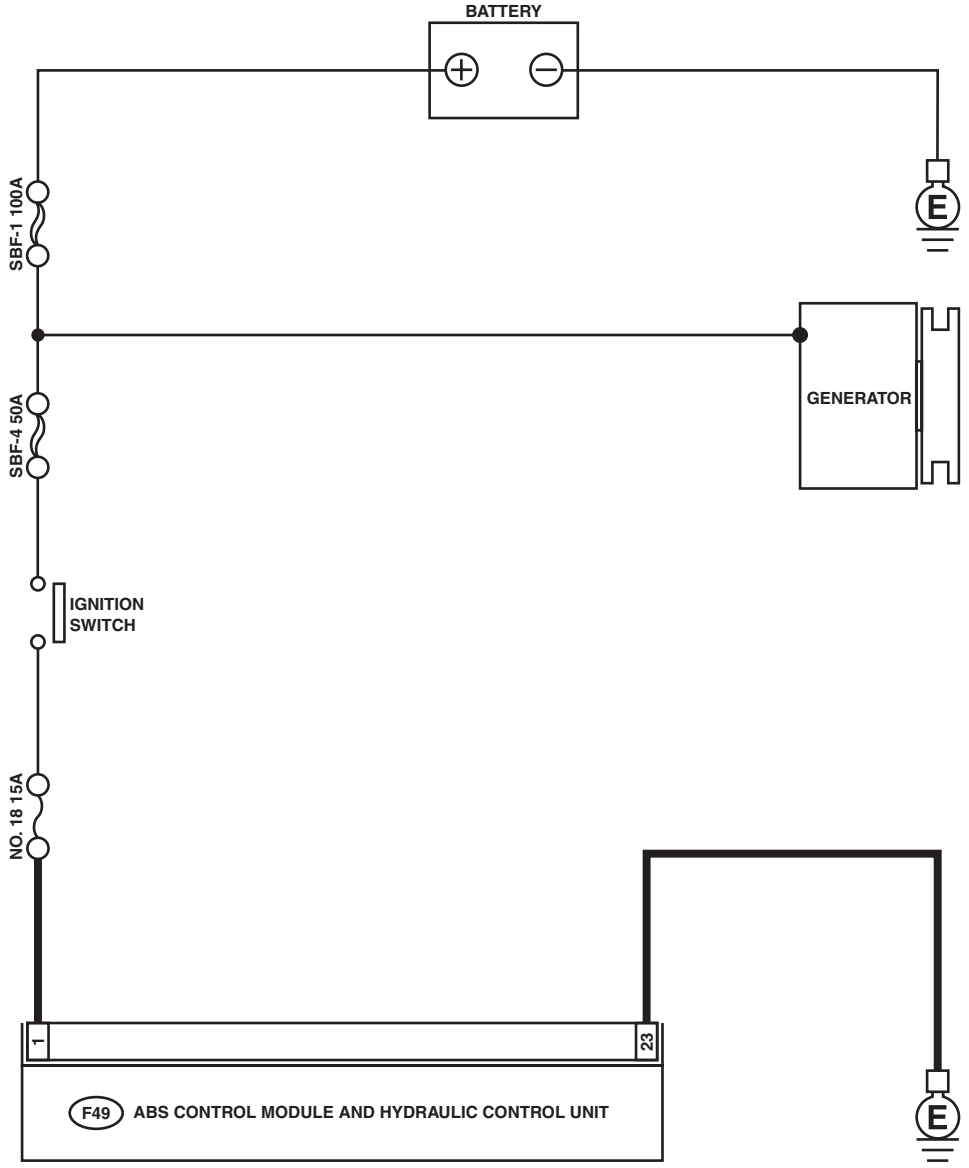
DIAGNOSIS:

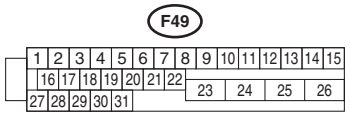
- Faulty harness/connector
- Faulty outlet solenoid valve

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00294

	Step	Check	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 (−):***	Is the measured value within 10 to 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 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?	Repair connector.	Go to step **4.**
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 as in the current diagnosis still being output?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **5.**
5	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

T: DTC 41 ABS CONTROL MODULE MALFUNCTION

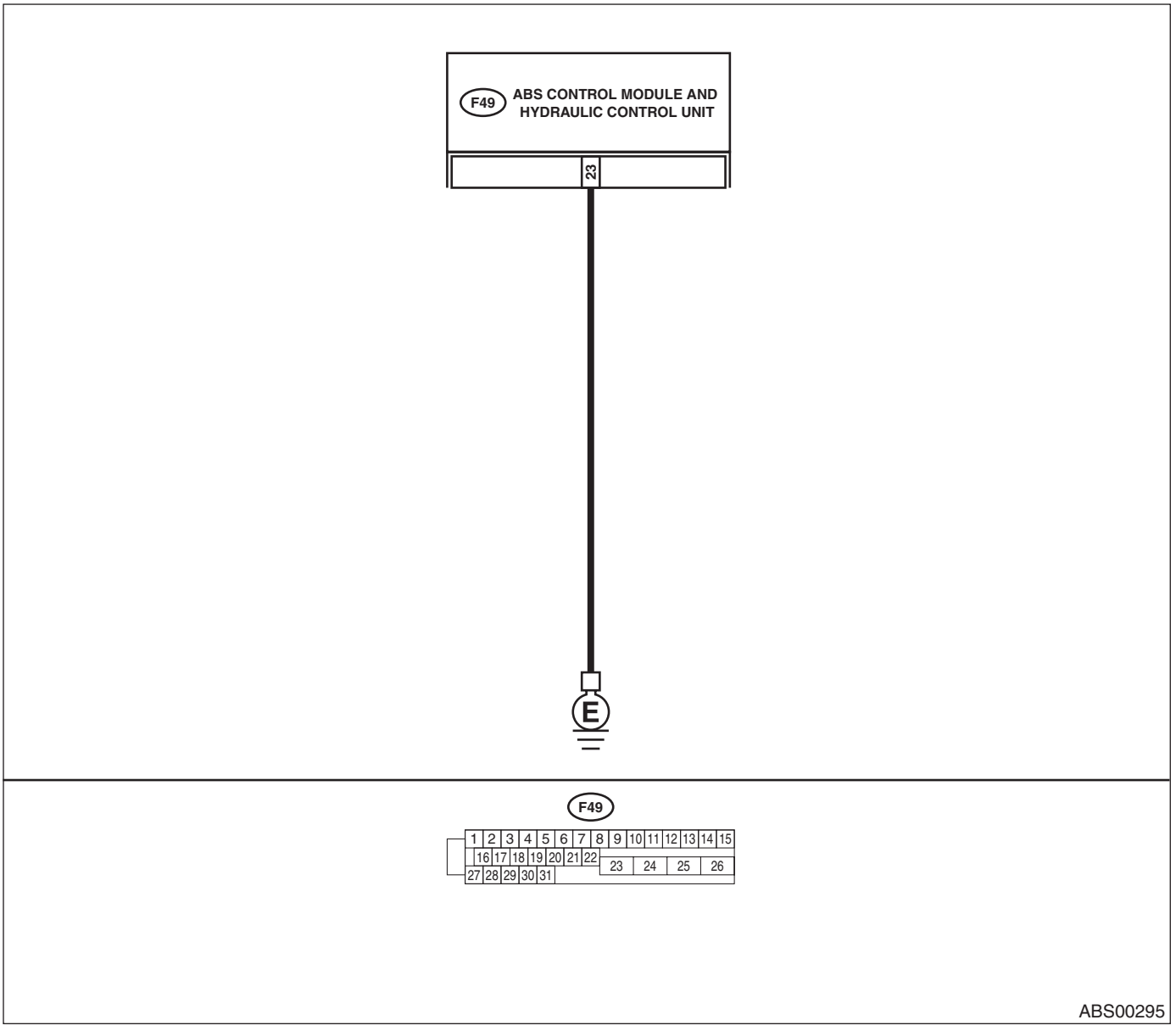
DIAGNOSIS:

- Faulty ABSCM&H/U

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



	Step	Check	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 0.5 Ω?	Go to step **2.**	Repair ABSCM&H/U ground harness.
2	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between battery, ignition switch and ABSCM&H/U?	Repair connector.	Go to step **3.**
3	**CHECK SOURCES OF SIGNAL NOISE.**	Is the car telephone or the wireless transmitter properly installed?	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?	Install the noise sources apart from the sensor harness.	Go to step **5.**
5	**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 as in the current diagnosis still being output?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **6.**
6	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

U: DTC 42 POWER SUPPLY VOLTAGE TOO LOW

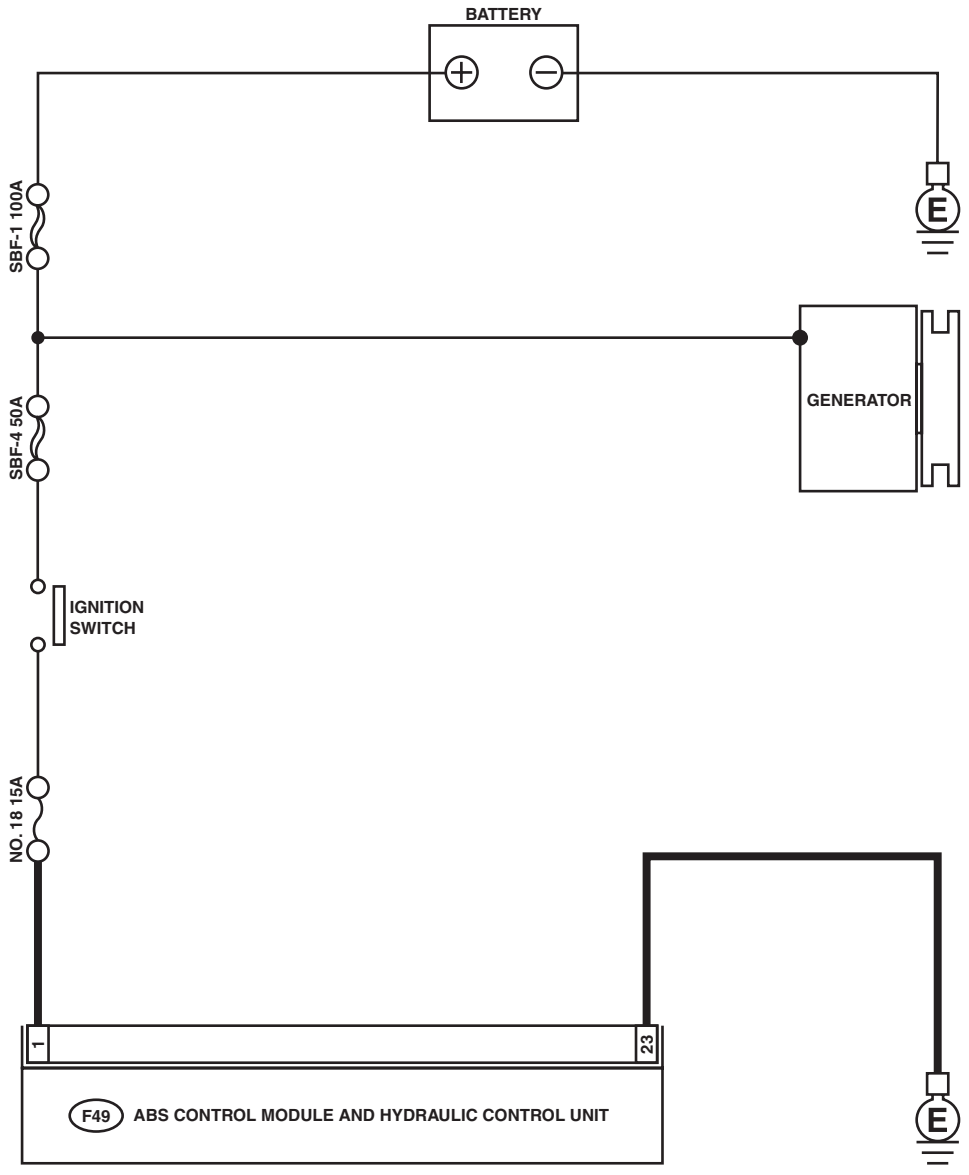
DIAGNOSIS:

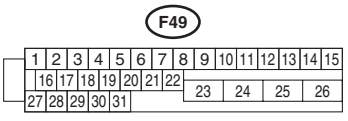
- Power source voltage of the ABSCM&H/U is low.

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00294

	Step	Check	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 10 to 15 V?	Go to step **2.**	Repair generator. <Ref. to SC(H4SO)-15, Generator.>
2	**CHECK BATTERY TERMINAL.** Turn ignition switch to OFF.	Are the positive and negative battery terminals tightly clamped?	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 10 to 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 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?	Repair connector.	Go to step **6.**
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **7.**
7	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

V: DTC 42 POWER SUPPLY VOLTAGE TOO HIGH

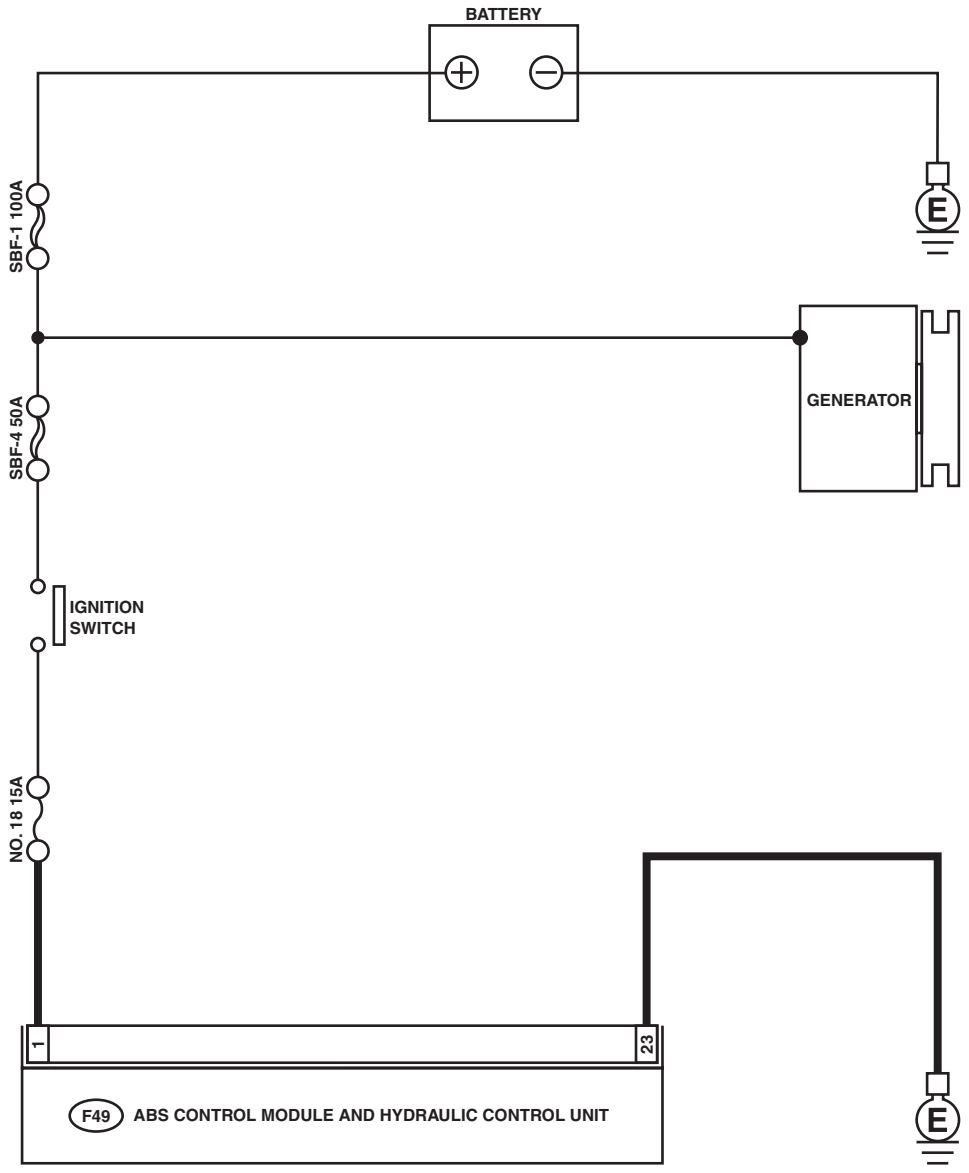
DIAGNOSIS:

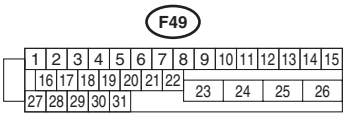
- Power source voltage of the ABSCM&H/U is high.

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00294

	Step	Check	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 10 to 15 V?	Go to step **2.**	Repair generator. <Ref. to SC(H4SO)-15, Generator.>
2	**CHECK BATTERY TERMINAL.** Turn ignition switch to OFF.	Are the positive and negative battery terminals tightly clamped?	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 10 to 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 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?	Repair connector.	Go to step **6.**
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **7.**
7	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

W: DTC 44 ABS-AT CONTROL (NON CONTROLLED)

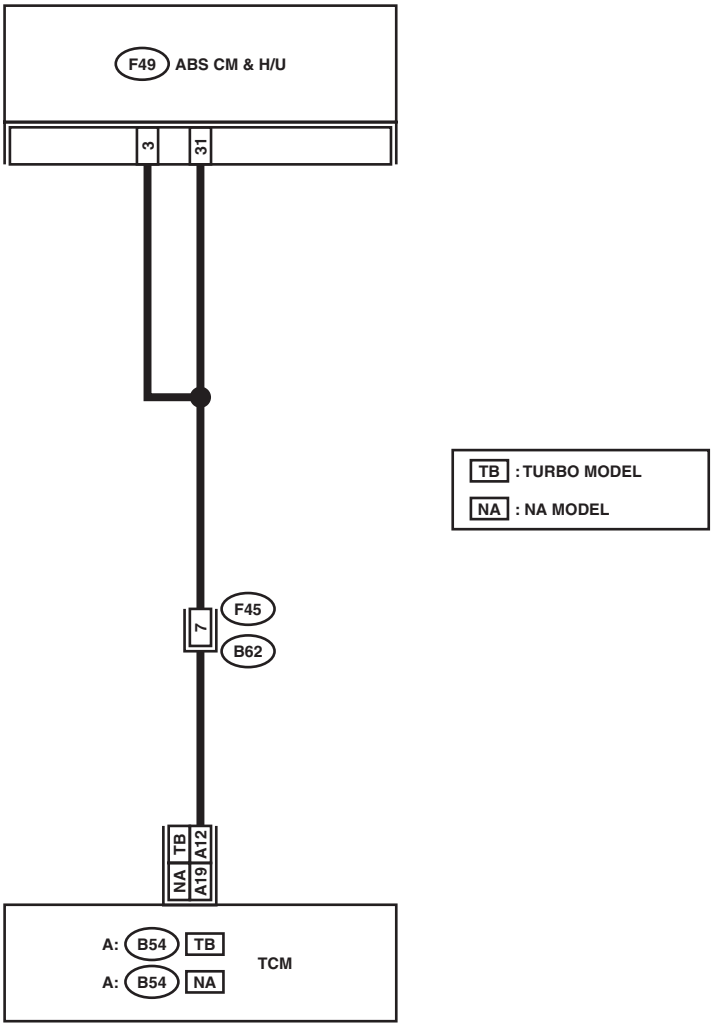
DIAGNOSIS:

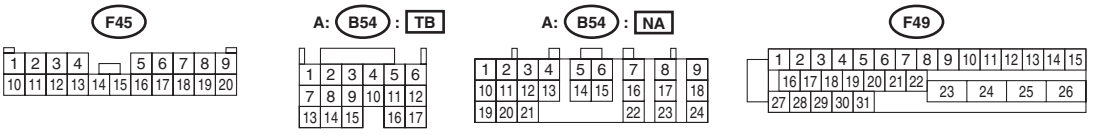
- Combination of AT control faults

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00628

	Step	Check	Yes	No
1	**CHECK SPECIFICATIONS OF THE ABSCM&H/U.** Check specifications of the mark to the ABSCM&H/U. ***CI: AT*** ***CJ: MT***	Do the vehicle specification and the specification of ABSCM&HU match?	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:***	Is the measured value more than 1 MΩ?	Go to step **3.**	Repair harness between TCM and ABSCM&H/U.
3	**CHECK TCM.** 1) Connect all connectors to TCM. 2) Turn ignition switch to ON. 3) Measure voltage between TCM connector terminal and chassis ground. ***Connector & terminal*** ***TURBO model:*** ***(B54) No. 12 (+) — Chassis ground (−):*** ***NON-TURBO model:*** ***(B54) No. 19 (+) — Chassis ground (−):***	Is the measured value within 10 to 15 V?	Go to step **5.**	Go to step **4.**
4	**CHECK AT.**	Is the AT functioning normally?	Replace TCM.	Repair AT.
5	**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 10 to 15 V?	Go to step **6.**	Repair harness/connector between TCM and ABSCM&H/U.
6	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between TCM and ABSCM&H/U?	Repair connector.	Go to step **7.**
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **8.**
8	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

X: DTC 44 ABS-AT CONTROL (CONTROLLED)

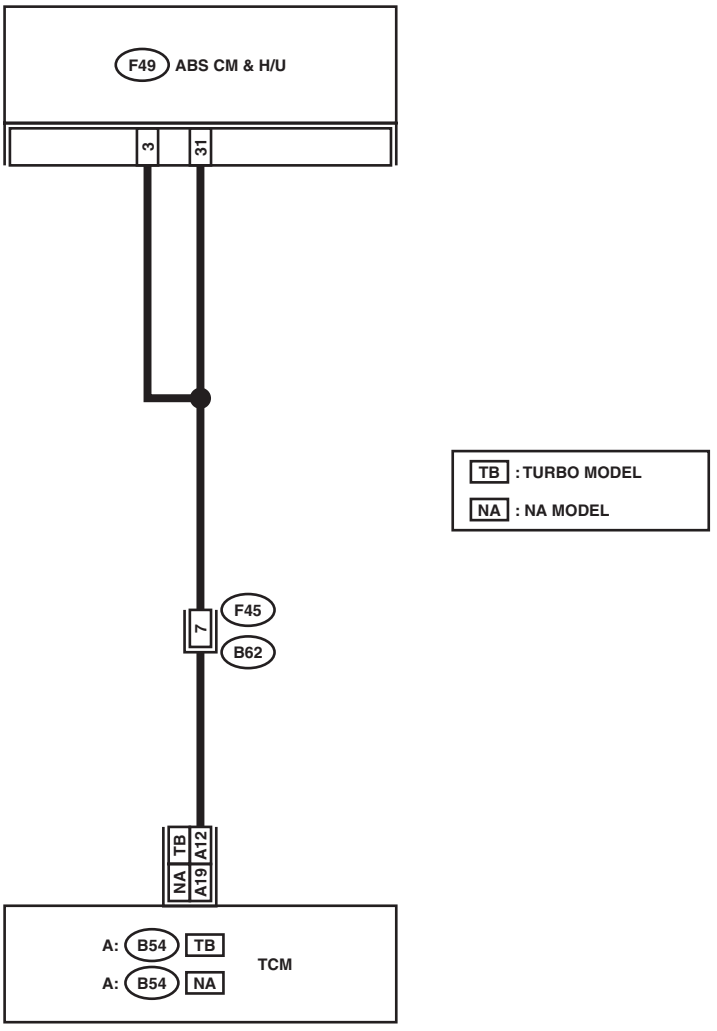
DIAGNOSIS:

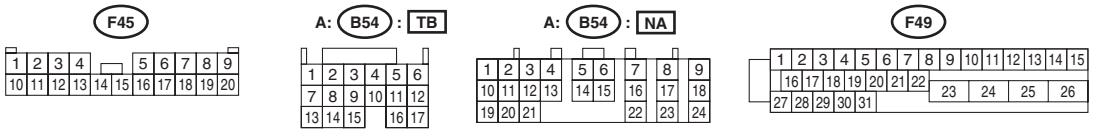
- Combination of AT control faults

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00628

	Step	Check	Yes	No
1	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect two connectors from TCM. 3) Disconnect connector from ABSCM&H/U. 4) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 3 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Go to step **2.**	Repair harness between TCM and ABSCM&H/U.
2	**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 1 V?	Go to step **3.**	Repair harness between TCM and ABSCM&H/U.
3	**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&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 3 (+) — Chassis ground (−):*** ***(F49) No. 31 (+) — Chassis ground (−):***	Is the measured value within 10 to 15 V?	Go to step **4.**	Repair harness/ connector between TCM and ABSCM&H/U.
4	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF. Is there poor contact in connectors between TCM 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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **6.**
6	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

Y: DTC 51 VALVE RELAY MALFUNCTION

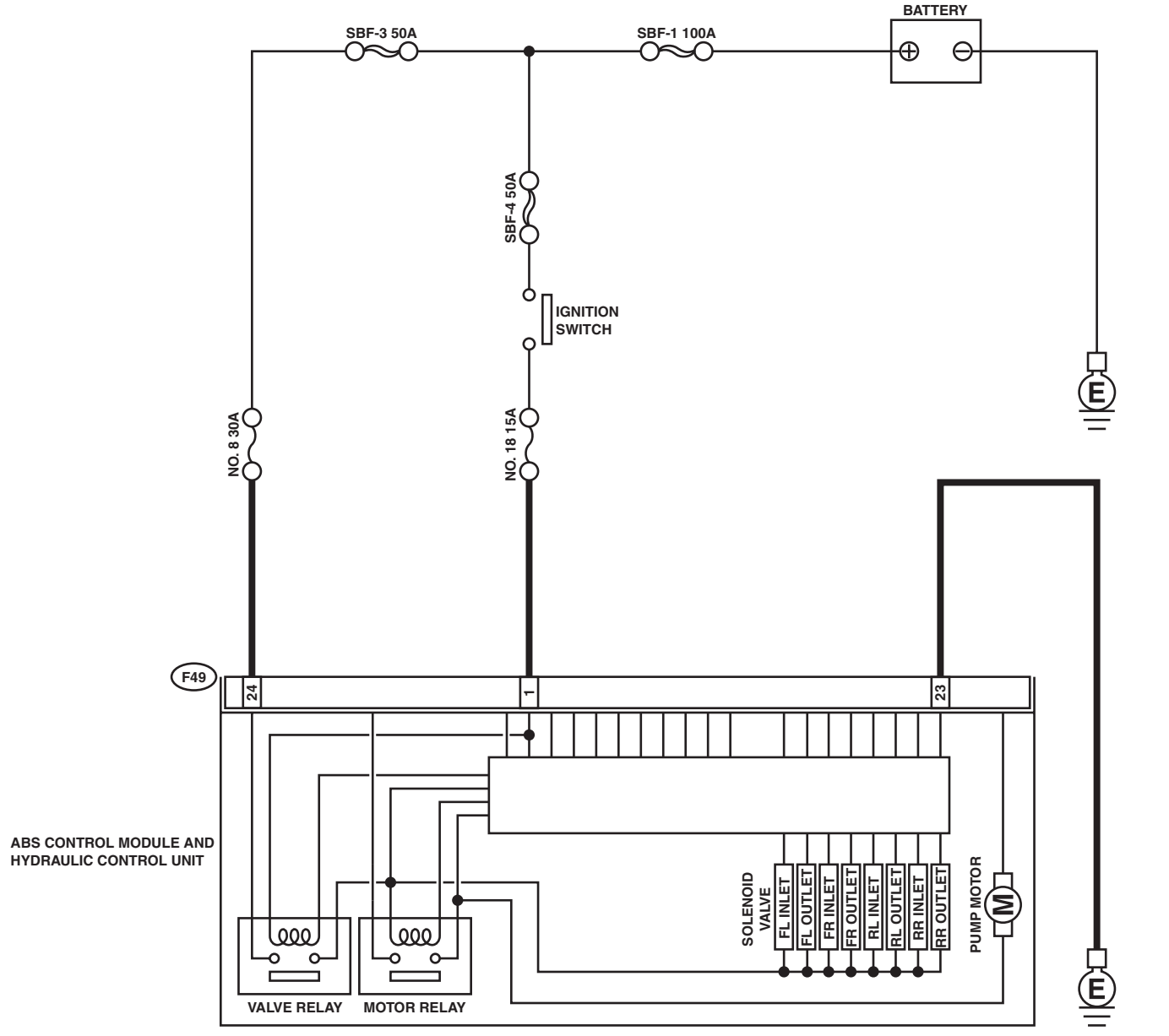
DIAGNOSIS:

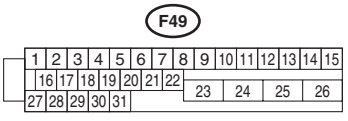
- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00297

	Step	Check	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 10 to 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 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 terminals. ***Terminals*** ***No. 23 (+) — No. 24 (–):***	Is the measured value more than 1 MΩ?	Go to step **4.**	Replace ABSCM only. <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?	Repair connector.	Go to step **5.**
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **6.**
6	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

Z: DTC 51 VALVE RELAY ON FAILURE

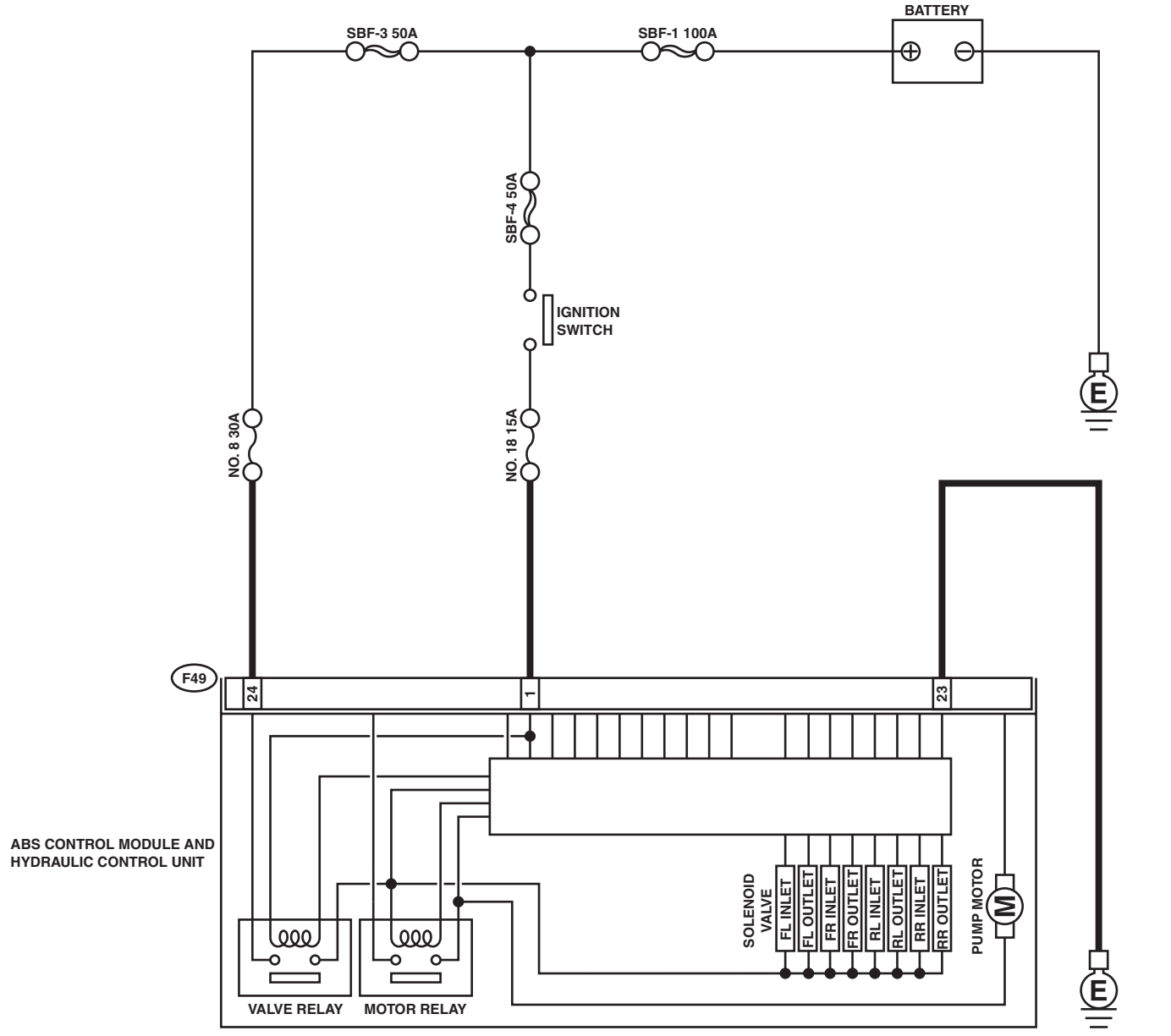
DIAGNOSIS:

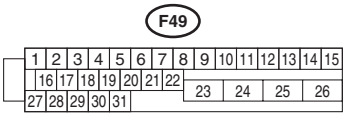
- Faulty valve relay

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00297

	Step	Check	Yes	No
1	**CHECK VALVE RELAY IN ABSCM&H/U.** Measure resistance between ABSCM&H/U terminals. ***Terminals*** ***No. 23 (+) — No. 24 (–):***	Is the measured value more than 1 MΩ?	Go to step **2.**	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
2	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between generator, battery and ABSCM&H/U?	Repair connector.	Go to step **3.**
3	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **4.**
4	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

AA:DTC 52 OPEN CIRCUIT IN MOTOR RELAY CIRCUIT

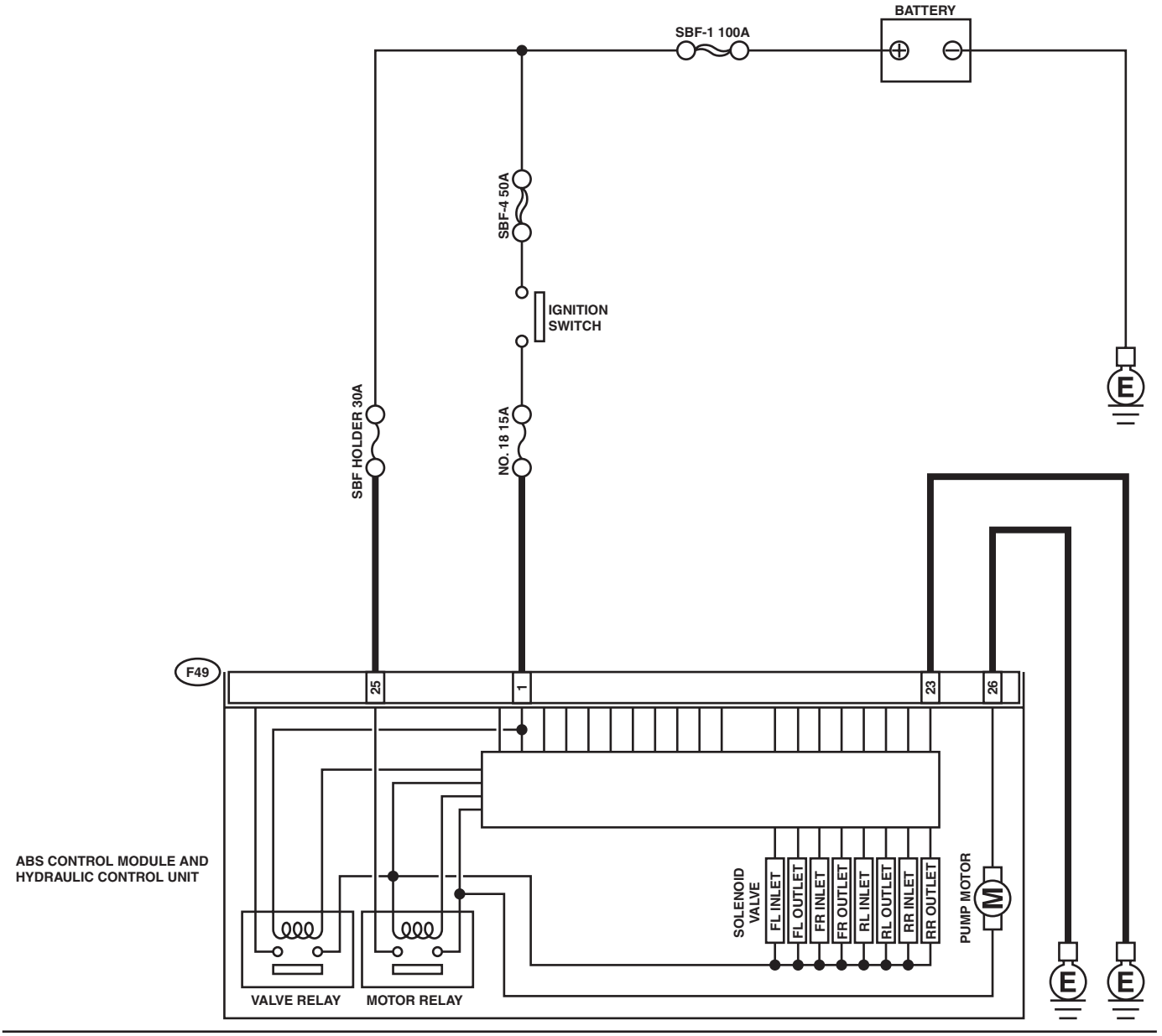
DIAGNOSIS:

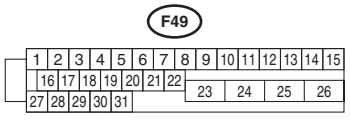
- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00427

	Step	Check	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 10 to 15 V?	Go to step **2.**	Repair harness/ connector between battery and ABSCM&H/U and check fuse SBF7.
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 0.5 Ω?	Go to step **3.**	Repair ABSCM&H/U ground harness.
3	**CHECK MOTOR OPERATION.** Operate the sequence control. <Ref. to ABS-11, 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?	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.** Turn ignition switch to OFF.	Is there poor contact in connector between generator, battery and ABSCM&H/U?	Repair connector.	Go to step **5.**
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?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **6.**
6	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

AB:DTC 52 MOTOR RELAY ON FAILURE

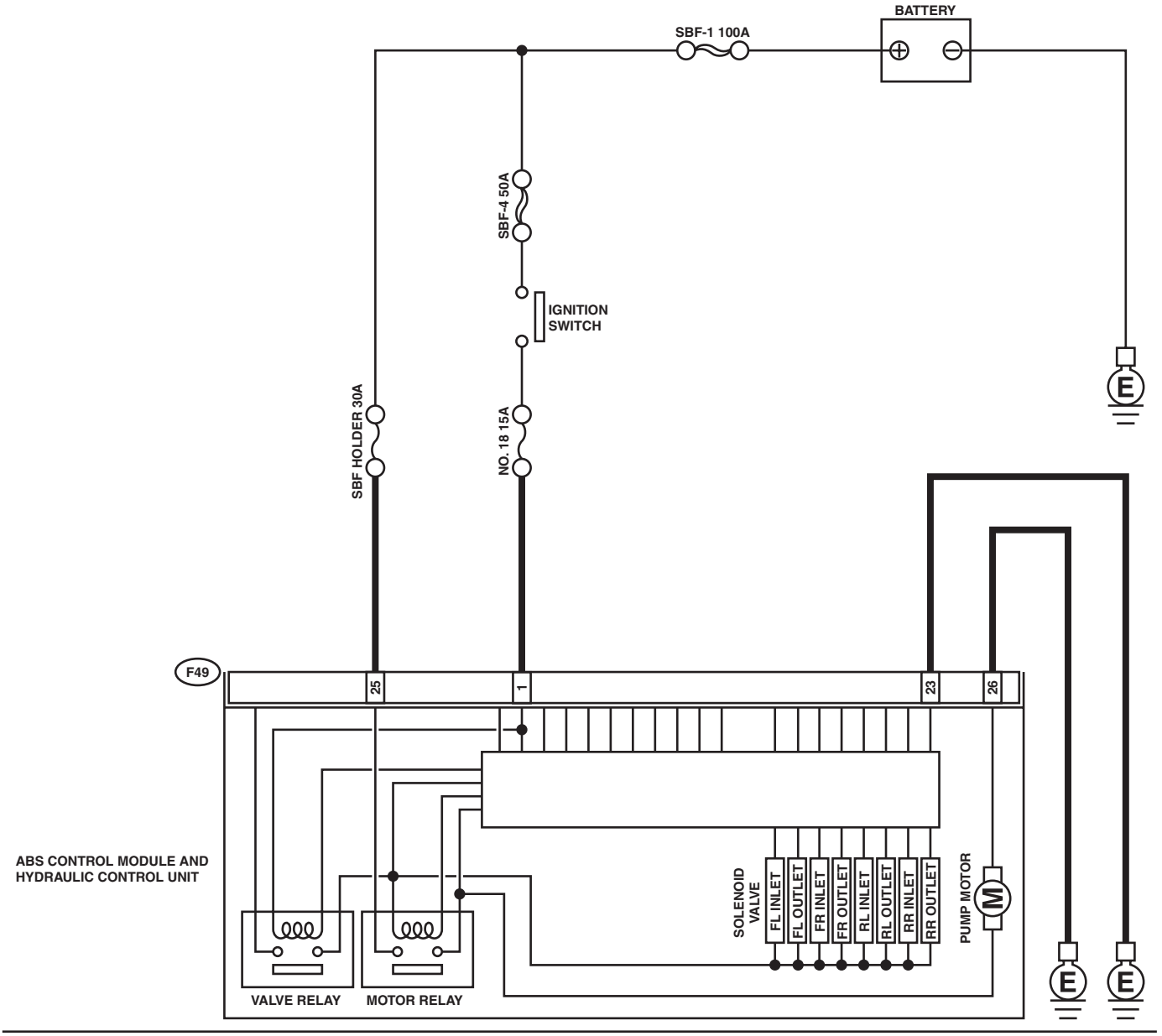
DIAGNOSIS:

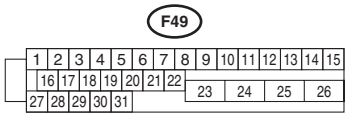
- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00427

	Step	Check	Yes	No
1	**CHECK MOTOR RELAY IN ABSCM&H/U.** Measure resistance between ABSCM&H/U terminals. ***Terminals*** ***No. 25 — No. 26:***	Is the measured value more than 1 MΩ?	Go to step **2.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
2	**CHECK MOTOR OPERATION.** Operate the sequence control. <Ref. to ABS-11, 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?	Go to step **3.**	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>
3	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between generator, battery and ABSCM&H/U?	Repair connector.	Go to step **4.**
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?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **5.**
5	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

AC:DTC 52 MOTOR MALFUNCTION

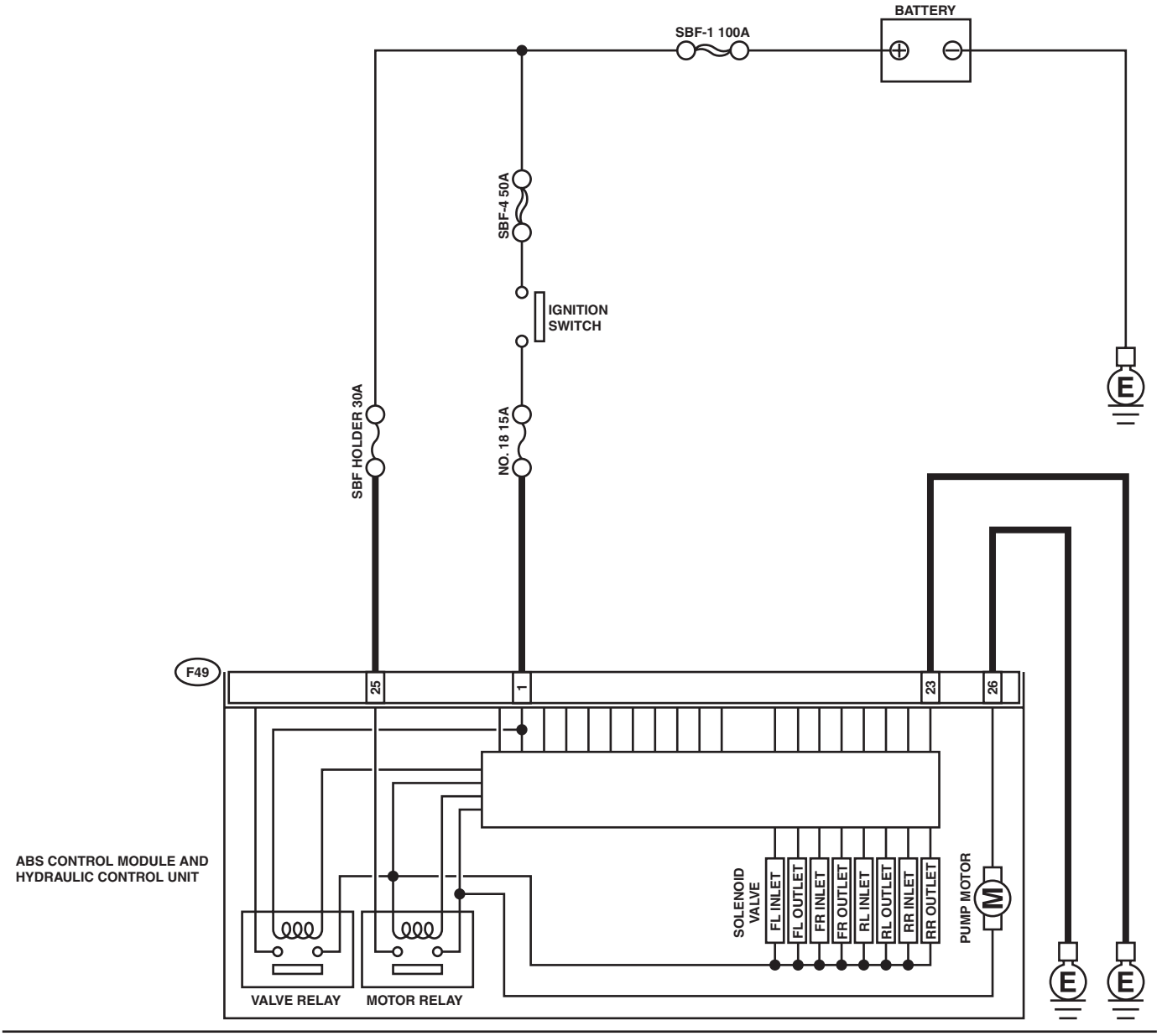
DIAGNOSIS:

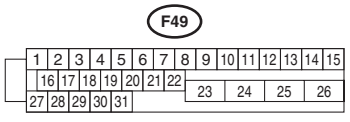
- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00427

	Step	Check	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 10 to 15 V?	Go to step **2.**	Repair harness/ connector between battery and ABSCM&H/U and check fuse SBF7.
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 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 10 to 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 0.5 Ω?	Go to step **5.**	Repair ABSCM&H/U ground harness.
5	**CHECK MOTOR OPERATION.** Operate the sequence control. <Ref. to ABS-11, 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?	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?	Repair connector.	Go to step **7.**
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?	Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **8.**
8	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

AD:DTC 54 STOP LIGHT SWITCH SIGNAL CIRCUIT MALFUNCTION

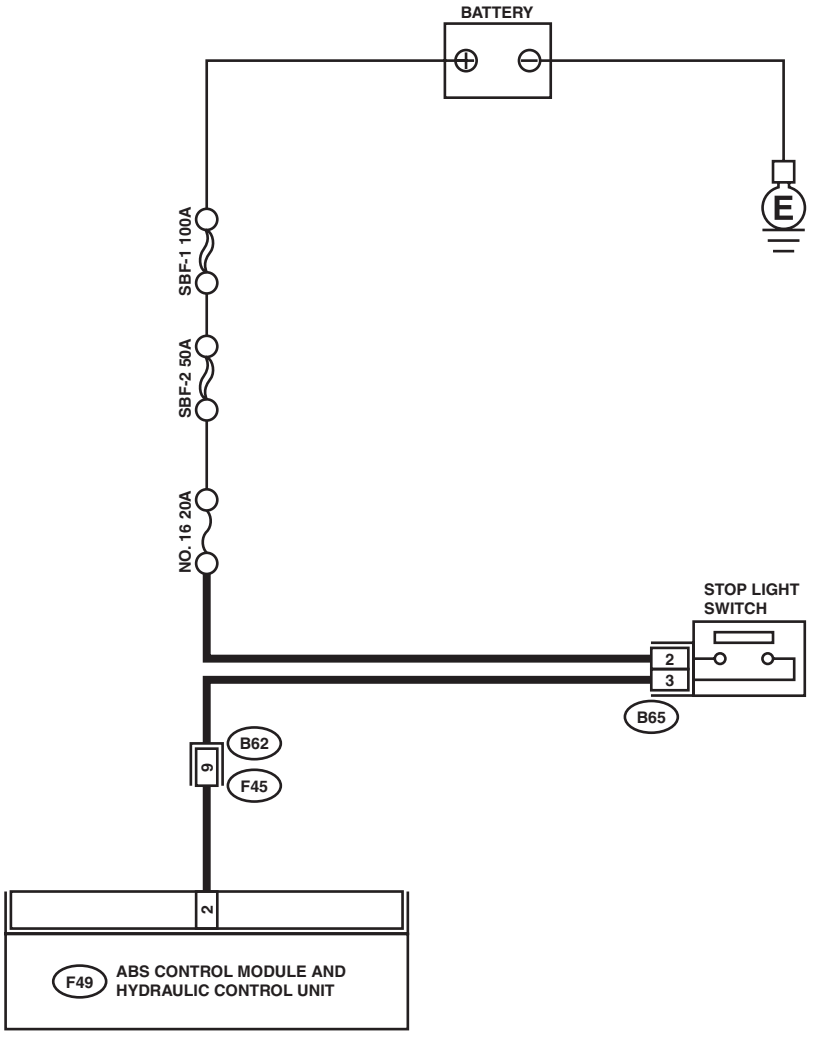
DIAGNOSIS:

- Faulty stop light switch

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:



ABS00629

	Step	Check	Yes	No
1	**CHECK OUTPUT OF STOP LIGHT SWITCH USING SELECT MONITOR.** 1) Select "Current data display & Save" on the select monitor. 2) Release the brake pedal. 3) Read the stop light switch output in the select monitor data display.	Is the reading indicated on monitor display less than 1.5 V?	Go to step **2.**	Go to step **3.**
2	**CHECK OUTPUT OF STOP LIGHT SWITCH USING SELECT MONITOR.** 1) Depress the brake pedal. 2) Read the stop light switch output in the select monitor data display.	Is the reading indicated on monitor display within 10 to 15 V?	Go to step **5.**	Go to step **3.**
3	**CHECK IF STOP LIGHTS COME ON.** Depress the brake pedal.	Do stop lights turn on?	Go to step **4.**	Repair stop lights circuit.
4	**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 10 to 15 V?	Go to step **5.**	Repair harness between stop light switch and ABSCM&H/U connector.
5	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between stop light switch and ABSCM&H/U?	Repair connector.	Go to step **6.**
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **7.**
7	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

AE:DTC 56 OPEN OR SHORT CIRCUIT IN G SENSOR CIRCUIT

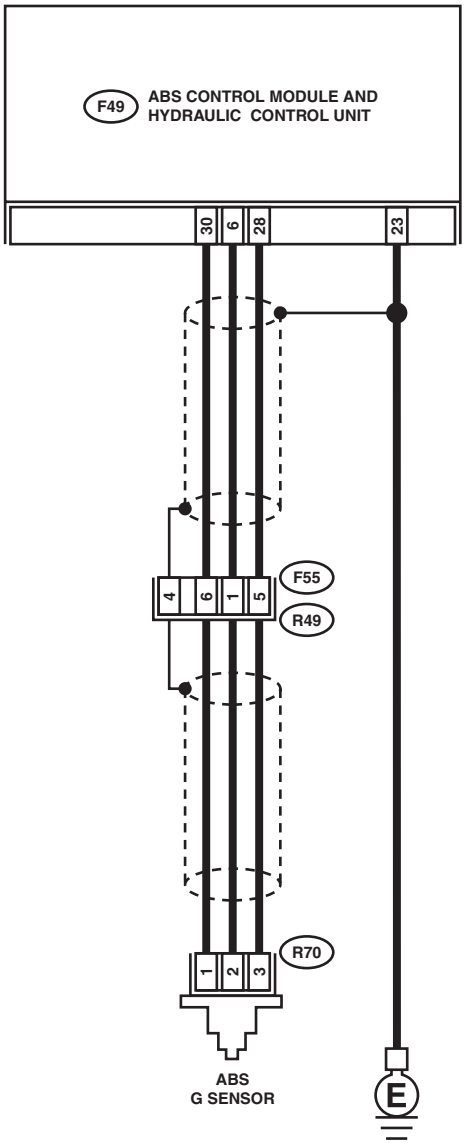
DIAGNOSIS:

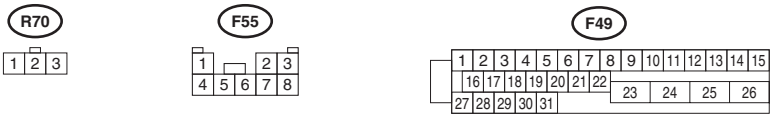
- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00630

	Step	Check	Yes	No
1	**CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.** 1) Select "Current data display & Save" on the select monitor. 2) Read the G sensor output in select monitor data display.	Is the G sensor output on the monitor display within 2.1 to 2.5 V when the G sensor is in horizontal position?	Go to step **2.**	Go to step **5.**
2	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair connector.	Go to step **3.**
3	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **4.**
4	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.
5	**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 4.75 to 5.25 V?	Go to step **6.**	Repair harness/ connector between G sensor and ABSCM&H/U.
6	**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 1.8 to 2.4 kΩ?	Go to step **7.**	Repair harness/ connector between G sensor and ABSCM&H/U.
7	**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:***	Is the measured value more than 1 MΩ?	Go to step **8.**	Repair harness between G sensor and ABSCM&H/U.
8	**CHECK G SENSOR.** 1) Connect connector to G sensor. 2) Connect connector to ABSCM&H/U. 3) Turn ignition switch to ON. 4) Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 2.1 to 2.5 V when G sensor is horizontal?	Go to step **9.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
9	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 3.6 to 4.1 V when G sensor is inclined forwards to 90°?	Go to step **10.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>

	Step	Check	Yes	No
10	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 0.5 to 1.0 V when G sensor is inclined backwards to 90°?	Go to step **11.**	Replace G sensor. <Ref. to ABS-23, G SENSOR, .>
11	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair connector.	Go to step **12.**
12	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **13.**
13	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

MEMO:

AF:DTC 56 BATTERY SHORT IN G SENSOR CIRCUIT

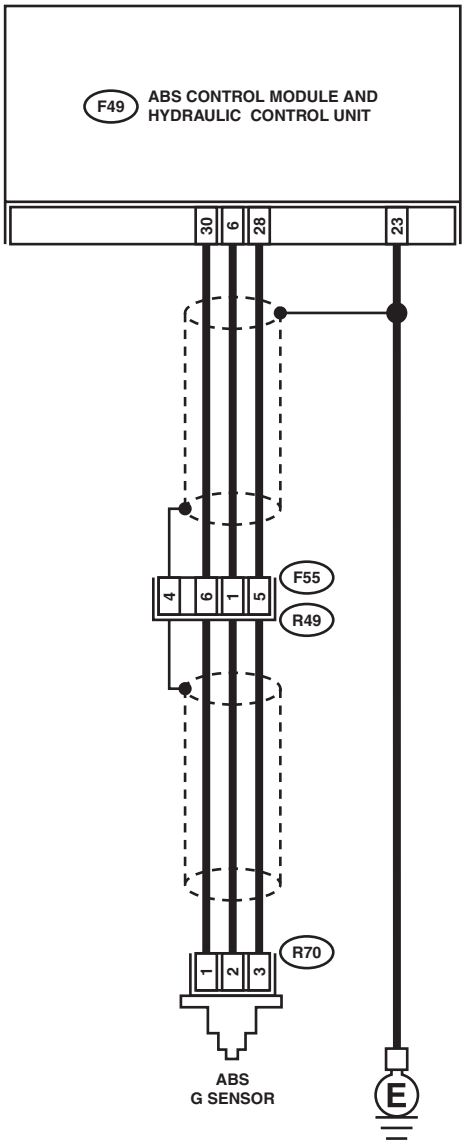
DIAGNOSIS:

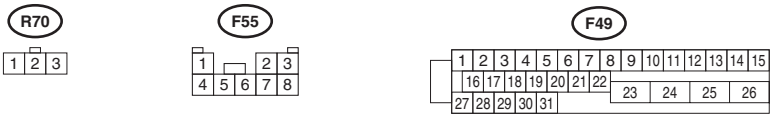
- Faulty G sensor output voltage

TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:





ABS00630

	Step	Check	Yes	No
1	**CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.** 1) Select "Current data display & Save" on the select monitor. 2) Read the G sensor output in select monitor data display.	Is the G sensor output on the monitor display between within 2.1 to 2.5 V when the G sensor is in horizontal position?	Go to step **2.**	Go to step **5.**
2	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair connector.	Go to step **3.**
3	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **4.**
4	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.
5	**CHECK FREEZE FRAME DATA.** 1) Select "Freeze frame data" on the select monitor. 2) Read front right wheel speed on the select monitor display.	Is the front right wheel speed on the monitor display to 0 km/h (0 MPH)?	Go to step **6.**	Go to step **16.**
6	**CHECK FREEZE FRAME DATA.** Read front left wheel speed on the select monitor display.	Is the front left wheel speed on the monitor display to 0 km/h (0 MPH)?	Go to step **7.**	Go to step **16.**
7	**CHECK FREEZE FRAME DATA.** Read rear right wheel speed on the select monitor display.	Is the rear right wheel speed on the monitor display to 0 km/h (0 MPH)?	Go to step **8.**	Go to step **16.**
8	**CHECK FREEZE FRAME DATA.** Read rear left wheel speed on the select monitor display.	Is the rear left wheel speed on the monitor display to 0 km/h (0 MPH)?	Go to step **9.**	Go to step **16.**
9	**CHECK FREEZE FRAME DATA.** Read G sensor output on the select monitor display.	Is the G sensor output on the monitor display more than 3.65 V?	Go to step **10.**	Go to step **16.**
10	**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 1.8 to 2.4 kΩ?	Go to step **11.**	Repair harness/connector between G sensor and ABSCM&H/U.
11	**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&H/U. 5) Measure voltage between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 6 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Go to step **12.**	Repair harness between G sensor and ABSCM&H/U.

	Step	Check	Yes	No
12	**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 1 V?	Go to step **13.**	Repair harness between G sensor and ABSCM&H/U.
13	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair connector.	Go to step **14.**
14	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **15.**
15	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.
16	**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 4.75 to 5.25 V?	Go to step **17.**	Repair harness/ connector between G sensor and ABSCM&H/U.
17	**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 1.8 to 2.4 kΩ?	Go to step **18.**	Repair harness/ connector between G sensor and ABSCM&H/U.
18	**CHECK G SENSOR.** 1) Connect connector to G sensor. 2) Connect connector to ABSCM&H/U. 3) Turn ignition switch to ON. 4) Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 2.1 to 2.5 V when G sensor is horizontal?	Go to step **19.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
19	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 3.6 to 4.1 V when G sensor is inclined forwards to 90°?	Go to step **20.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
20	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 0.5 to 1.0 V when G sensor is inclined backwards to 90°?	Go to step **21.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
21	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair connector.	Go to step **22.**

	Step	Check	Yes	No
22	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **23.**
23	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

AG:DTC 56 ABNORMAL G SENSOR HIGH μ OUTPUT

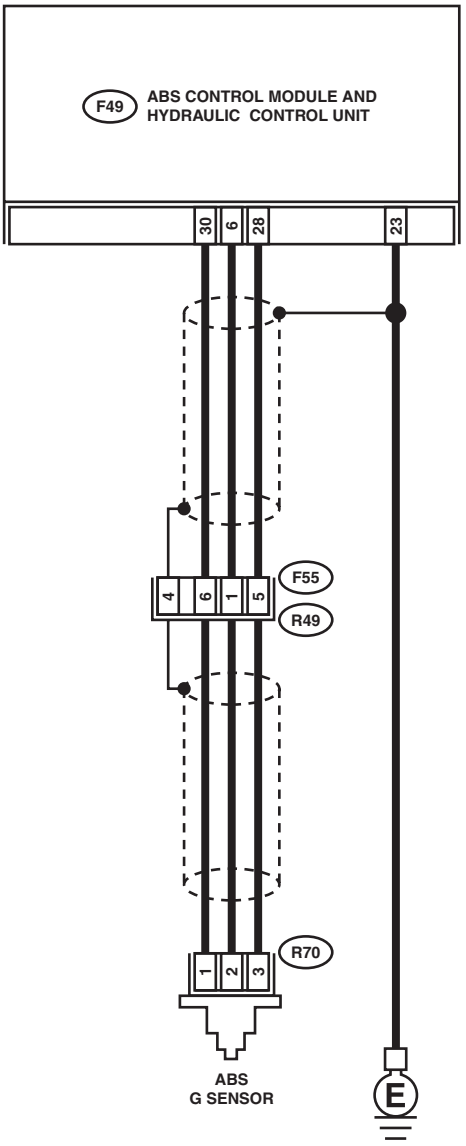
DIAGNOSIS:

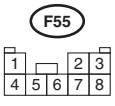
- Faulty G sensor output voltage

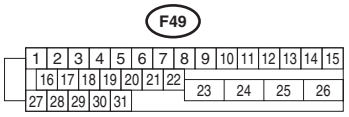
TROUBLE SYMPTOM:

- ABS does not operate.

WIRING DIAGRAM:







ABS00630

	Step	Check	Yes	No
1	**CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.** 1) Select "Current data display & Save" on the select monitor. 2) Read G sensor output on the select monitor display.	Is the G sensor output on monitor display within 2.1 to 2.5 V when the G sensor is in horizontal position?	Go to step **2.**	Go to step **6.**
2	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair connector.	Go to step **3.**
3	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **4.**
4	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.
5	**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 1.8 to 2.4 kΩ?	Go to step **6.**	Repair harness/connector between G sensor and ABSCM&H/U.
6	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between ABSCM&H/U connector and chassis ground. ***Connector & terminal*** ***(F49) No. 28 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **7.**	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).>
7	**CHECK G SENSOR.** 1) Remove console box. 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 2.1 to 2.5 V when G sensor is horizontal?	Go to step **8.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
8	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 3.6 to 4.1 V when G sensor is inclined forwards to 90°?	Go to step **9.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
9	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 0.5 to 1.0 V when G sensor is inclined backwards to 90°?	Go to step **10.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>

	Step	Check	Yes	No
10	**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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **11.**
11	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.

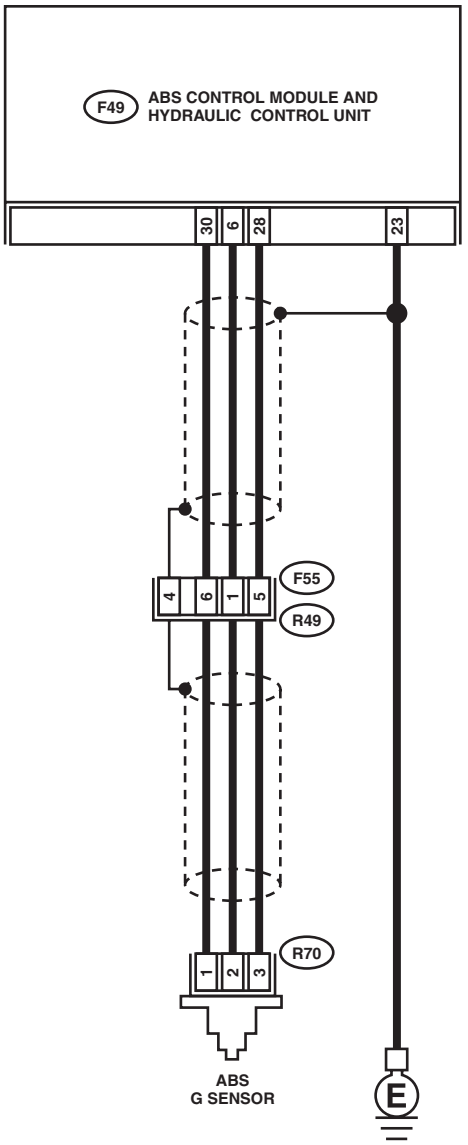
MEMO:

AH:DTC 56 DETECTION OF G SENSOR STICK

DIAGNOSIS:
- Faulty G sensor output voltage

TROUBLE SYMPTOM:
- ABS does not operate.

WIRING DIAGRAM:



ABS00630

	Step	Check	Yes	No
1	**CHECK WHEELS FOR FREE TURNING.** Check if the wheels have been turned freely such as when the vehicle is lifted up, or operated on a rolling road.	Have wheels turned freely?	The ABS is normal. Erase the trouble code.	Go to step **2.**
2	**CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.** 1) Select "Current data display & Save" on the select monitor. 2) Read the select monitor display.	Is the G sensor output on the monitor display within 2.1 to 2.5 V when the vehicle is in horizontal position?	Go to step **3.**	Go to step **8.**
3	**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) Select "Current data display & Save" on the select monitor. 6) Read the select monitor display.	Is the G sensor output on the monitor display within 3.6 to 4.1 V when G sensor is inclined forwards to 90°?	Go to step **4.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
4	**CHECK OUTPUT OF G SENSOR USING SELECT MONITOR.** Read the select monitor display.	Is the G sensor output on the monitor display within 0.5 to 1.0 V when G sensor is inclined backwards to 90°?	Go to step **5.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
5	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between ABSCM&H/U and G sensor?	Repair connector.	Go to step **6.**
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **7.**
7	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.
8	**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 1.8 to 2.4 kΩ?	Go to step **9.**	Repair harness/connector between G sensor and ABSCM&H/U.
9	**CHECK G SENSOR.** 1) Remove console box. 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 2.1 to 2.5 V when G sensor is horizontal?	Go to step **10.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>

	Step	Check	Yes	No
10	**CHECK G SENSOR.** Measure voltage between G sensor connector terminals. ***Connector & terminal*** ***(R70) No. 2 (+) — No. 3 (–):***	Is the measured value within 3.6 to 4.1 V when G sensor is inclined forwards to 90°?	Go to step **11.**	Replace G sensor. <Ref. to ABS-23, 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 0.5 to 1.0V when G sensor is inclined backwards to 90°?	Go to step **12.**	Replace G sensor. <Ref. to ABS-23, G Sensor.>
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?	Replace ABSCM only. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).>	Go to step **13.**
13	**CHECK ANY OTHER DTC APPEARANCE.**	Are other DTC being output?	Proceed with the diagnosis corresponding to the DTC.	A temporary poor contact.